HEALTH IMAGING

ROUGH DRAFT

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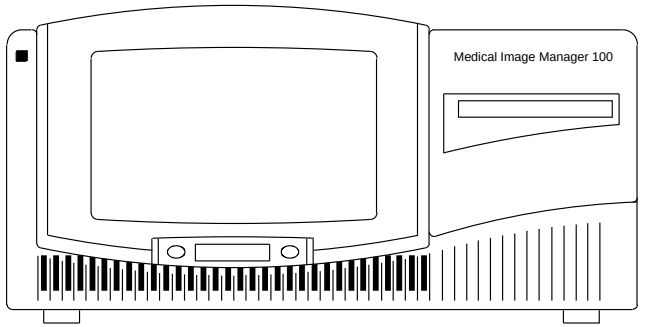
SERVICE MANUAL
for the
Kodak PACS LINK MEDICAL IMAGE MANAGER 50/100/200
Service Codes: 3744, 3433, 1539
and the
Kodak PACS LINK DICOM PRINT SERVER
Service Code: 3745



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This equipment includes parts and assemblies sensitive to damage from electrostatic discharge. Use caution to prevent damage during all service procedures.

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Section 1: Introduction

Using this Manual

This SERVICE MANUAL instructs qualified field personnel how to install and configure the MM products.

Note

The term “MIM products” refers to the MIM 50, MIM 100, MIM 200, DICOM Print Server or Distributed Medical Image Spooler. The term “MIM” refers to the MIM 50, MIM 100, or the MIM 200.

Important

- Before you configure the Release 3.x equipment or any MIM products, you must install software on the service LAPTOP.
  - See “Configuring the LAPTOP” on Page 3–1..
  - Usually, you will complete the software installation procedures during training.
- The LAPTOP must be connected to the product before you can use the Service Application. See “Connecting the Laptop to the MIM Products” on Page 4–1..
- Read the procedures in this manual carefully:
  - The Introduction in many of the sections directs you to important information for that specific section.
  - The end of certain sections and procedures instruct you to advance to correct procedures; For example, the end of Section 1: “Introduction” indicates the remaining procedures necessary to complete installation and configuration.
  - We recommend that you use the LAPTOP to display the “Checklist” in the “Help” menu to mark each step that you complete to keep track of your work.
  - Some procedures will direct you to data in associated tables. Remember that you might have to return to the procedure when you are finished using the table.
  - Instructions are included for configuring the VIDEO 60 BOARD of the *Kodak* DISTRIBUTED MEDICAL IMAGE SPOOLER. See Section 6: “Configuring the Input for the Video 60 Board”.
  - The *Kodak* DICOM PRINT SPOOLER, Model 100 is also referred to as the CP DICOM Input Package or DP SPOOLER.
  - The *Kodak* DICOM PRINT SERVER is also referred to as the DP SERVER.
- This manual does not include a section for “Adjustments and Removals.” See the ILLUSTRATED PARTS LIST, publication No. 8B8186 to determine:
  - Correct settings for SWITCHES and JUMPERS on CIRCUIT BOARDS
  - How to remove the COVER, BOARDS, DISK DRIVES, and the POWER SUPPLY

Prerequisites

Important

To effectively use this manual, the FE must have the following prerequisite training:

- CP Fundamentals
- Use of the LAPTOP and *Windows 95/98*
- *Kodak Digital Science*™ MEDICAL LASER PRINTER 190 and the *Kodak* DICOM PRINT SPOOLER, Model 100 (PIU)

Special Tools

Special Tools for the MIM and Related Products

Tool No.	Item	Description
TL-5224	DIRECT CONNECT LAPTOP CABLE	DB09, female to female, 3 m (10 ft)

Signal Information for the DIRECT CONNECT LAPTOP CABLE TL-5224: (From PIN on one end of the CABLE to PIN on the other end of the CABLE.)

From PIN	To PIN	Signal
3	2	Transmit Data
2	3	Receive Data
7	8	Request to Send
8	7	Clear to Send
6, 1	4	Data Set Ready and Carrier
5	5	Signal Ground
4	6, 1	Data Terminal Ready

Disks and CDs

Important

See “Procedures: Loading the Software for the LAPTOP from CD-ROM” on Page 3–1. for the disks and CDs that you will need to install.

Feedback

Important

See Section 20: “Providing Service Feedback” for correct feedback procedures.

Documentation

Documentation for the Release 3.0 Products

Publication	Product	Pub. No.	Date	Notes
SITE SPECIFICATIONS	*Kodak* PACS Link MEDICAL IMAGE MANAGER100 *Kodak* PACS Link MEDICAL IMAGE MANAGER 200	8B8180	JUL00	
	Kodak PACS Link DICOM PRINT SERVER	3H9040	JUN99	
	Kodak DISTRIBUTED MEDICAL IMAGE SPOOLER/Video *Kodak* DISTRIBUTED MEDICAL IMAGE SPOOLER/Digtal *Kodak* DISTRIBUTED MEDICAL IMAGE SPOOLER/DICOM	3E0800	JUN99	Includes specifications for the *Kodak* 3600 DISTRIBUTED MEDICAL IMAGER.
USER'S GUIDE	*Kodak* PACS Link MEDICAL IMAGE MANAGER 100	2E4003	MAY99	
	Kodak PACS Link MEDICAL IMAGE MANAGER 50	3H8821	MAY99	
	Kodak PACS Link DICOM PRINT SERVER	3H8820	APR99	
	Kodak DISTRIBUTED MEDICAL IMAGE SPOOLER/Video, /Digital	2E4085	JUN99	
	Kodak DISTRIBUTED MEDICAL IMAGE SPOOLER/DICOM	3H8822	JUN99	
	Introduction to the *Kodak* PACS Link MEDICAL IMAGE MANAGER 200	5E9823	JUN00	
	User's Guide for MIM 200 with Display Keypad	5E9763	JUN00	
	User's Guide for MIM 200 with Print Keypad	5E9764	JUN00	
	User's Guide for MIM 200 with Touchscreen Keypad	5E9765	JUN00	
	Working with the 3600 Imager for MIM 200	5E9966	JUN00	
	Working with the 1200 Imager for MIM 200	5E9967	JUN00	
	User's Guide for MIM 100 with software version 3.2	6E7662	JUN00	
QUICK REFERENCE	*Kodak Digital Science* MEDICAL IMAGE MANAGER 100	2E4004	MAY99	Laminated Card
	Kodak PACS Link MEDICAL IMAGE MANAGER 50	3H8158	MAY99	
SERVICE MANUAL	*Kodak PACS* Link MEDICAL IMAGE MANAGER 50/100/200 *Kodak PACS* Link DICOM PRINT SERVER	2H7443	SEP00	On-line and Hardcopy. Includes instructions to install the equipment. Includes instructions to configure the input for the SPOOLER/Video and SPOOLER/Digital

Publication	Product	Pub. No.	Date	Notes
INSTALLATION INSTRUCTIONS	*Kodak* DISTRIBUTED MEDICAL IMAGE SPOOLER/Video, /Digital	2E4190	JUN99	Includes instructions to install the *Kodak* 3600 DISTRIBUTED MEDICAL IMAGER.
	Kodak DISTRIBUTED MEDICAL IMAGE SPOOLER/DICOM	3H8823	JUN99	
	Installation Guide for MIM 200 with Display Keypad and 3600/1200 Imagers	3H9284	JUN00	
ILLUSTRATED PARTS LIST	All	8B8186	SEP00	On-line and Hardcopy
WALL MOUNTING TEMPLATE	*Kodak Digital Science* MEDICAL IMAGE MANAGER 100	7C1509	1997	

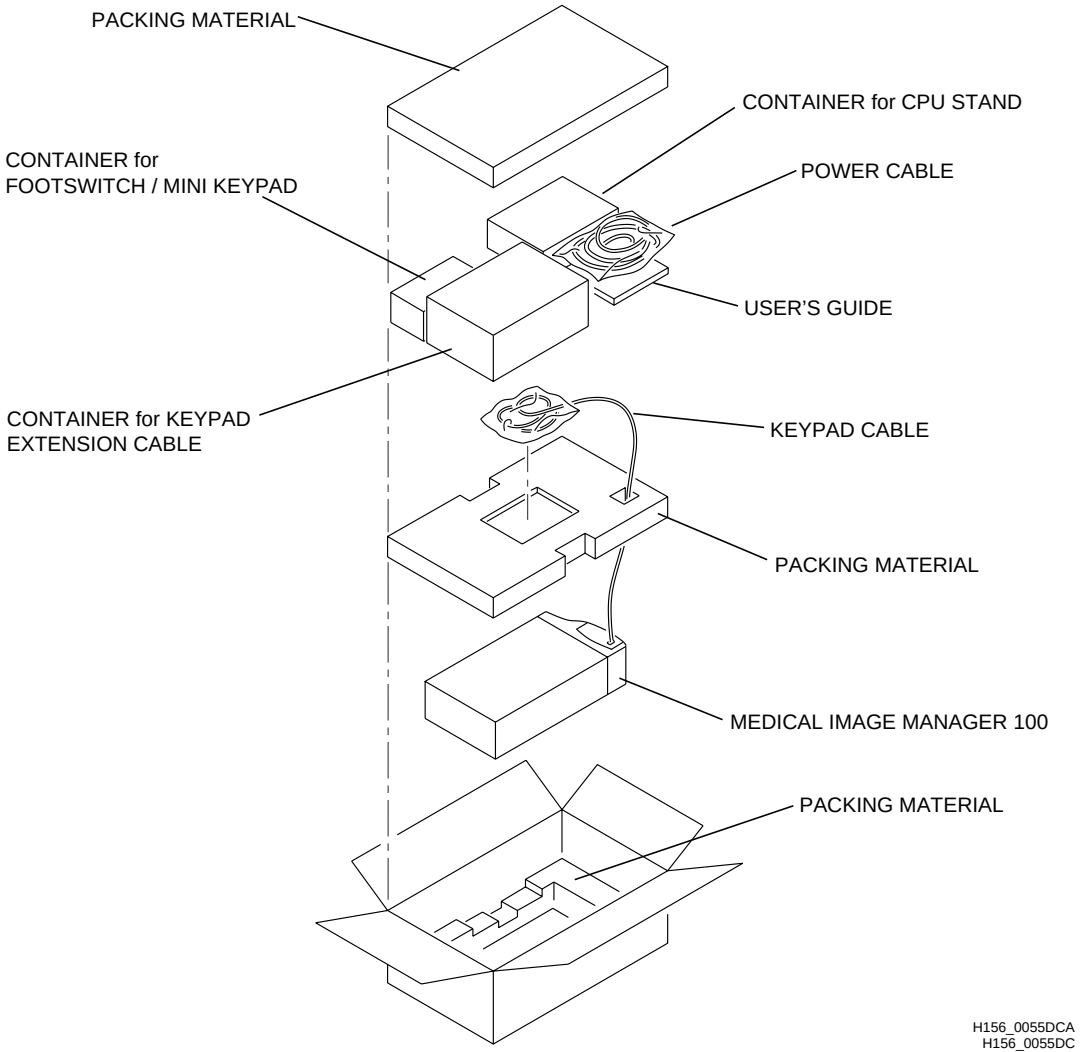
Standards and Shortcuts Used in the Manual

Tool	Description	Standard	Action	Example
KEYBOARD	Typing input, a command for example.	Type: **input**	1. Type the input text that is indicated in bold text. 2. Press [Return]	Type: **cd/**
	Typing Input that is specific to a site or system.	Type: <name>	1. Type site specific information. 2. Press [Return]	Type: <Printer 1>
	Pressing function keys.	Press [key] or Press [key] + [key]	Press the key. If you are instructed to press more than one key, press and hold the first key, then press the second key.	Press [Control] + [p]
	Advancing to the next field in a screen or menu.	Press [Tab]	Press the [Tab] key.	Use this feature when you have to make several entries in a menu.
MOUSE	Selecting a BUTTON on the screen or menu.	Select “button” or Select [button]	Place the cursor on the BUTTON and click the MOUSE.	Select “OK” or Select [Start]
	Opening a folder icon or other icon.	Open “file”	Place the cursor on the file or icon and double click the MOUSE.	Open “Inbox”
	Opening a menu item from the Windows [Start] button.	Open “file” or Select “file1” / “file2” /... “file n”	Place the cursor on the indicated file or icon and click the MOUSE.	Select “Settings” / “Control Panels”
	Enabling or Disabling a feature indicated by a RADIO BUTTON.	Enable “feature” or Select “feature”	Place the cursor on the box or circle and click the MOUSE to either: • Enable the feature: Place a checkmark or bullet in the object. • Disable the feature: Remove the checkmark or bullet from object.	Select “Terminate Video Input” Disable “Terminate Video Input”
	The “Tool Bar” of the “Service Application” window contains [Hot Keys].		To display the function of the [Hot Key], place the cursor on the [Hot Key].	

Section 2: Installation Instructions

Unpacking the MIM

Unpacking the MIM 100 or MIM 100 without a Relay Board (NR)



Caution

The SHOCK DETECTOR on the CARTON changes from clear to red if damage occurred during shipping.

[1] Check that:

- the SHOCK DETECTOR is clear 0.
- the PRODUCT LABEL on the CARTON indicates that the equipment is configured for the correct Modality. See the graphic of the LABEL on the next page.

[2] Open the CARTON.

[3] Remove the contents.

Note

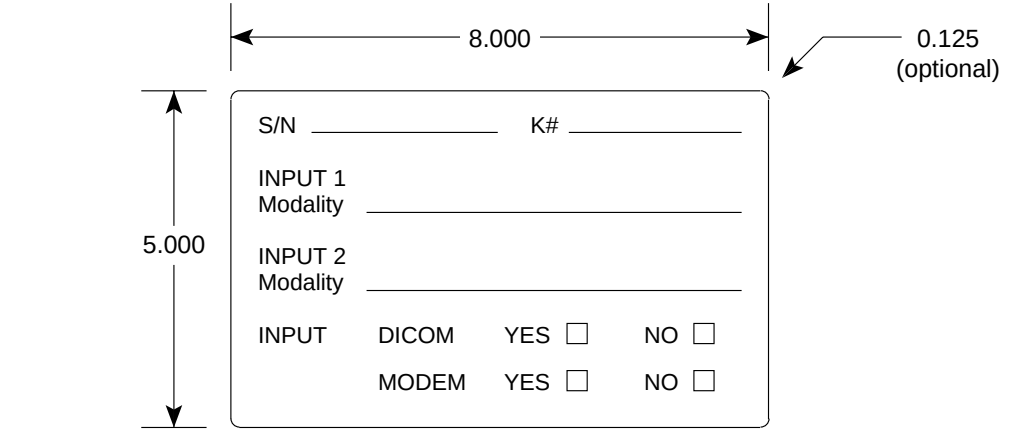
At this time, this manual does not include illustrations for unpacking the MIM 200, MIM 50, DICOM PRINT SERVER, or SPOOLER.

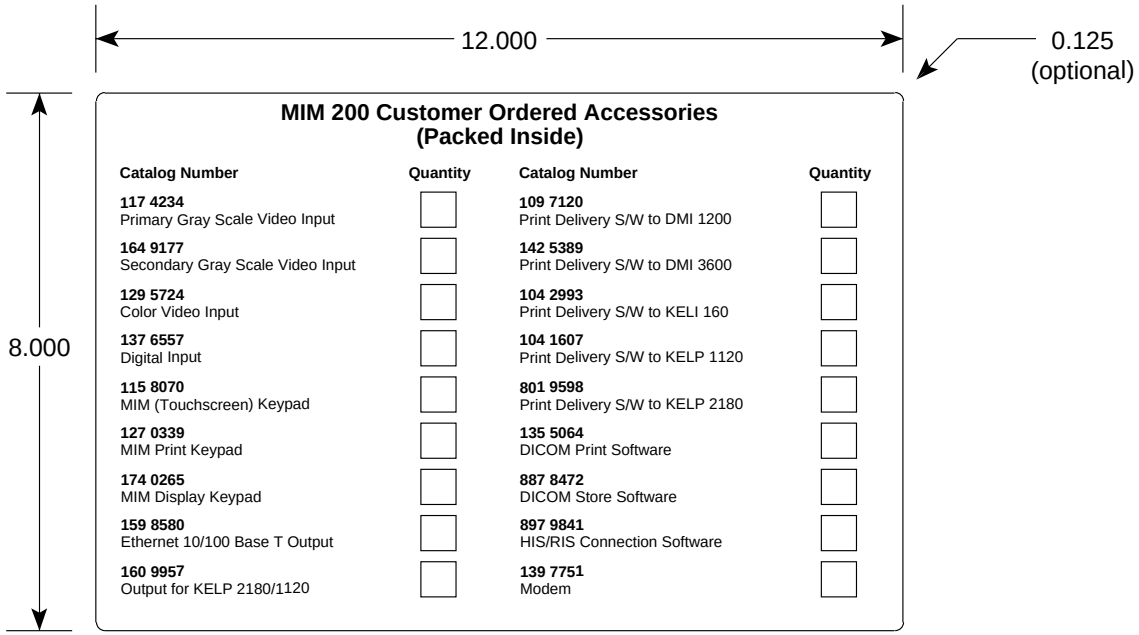
Note

Be sure to insert the separate section of the User's Manual for interfaces that are delivered with the MIM. There will be a separate section for each interface, like a KEYPAD, that the Field Engineer must insert in the Customer's User's Manual. The tab dividers will already be in the binder for the User's Manual.

Important

Check the label on the outside of the shipping box for the connectivity information and check that you have the right unit for the site. The graphic below shows the labels.





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MIM 200, MIM 100 and MIM 50

Connecting the Hardware

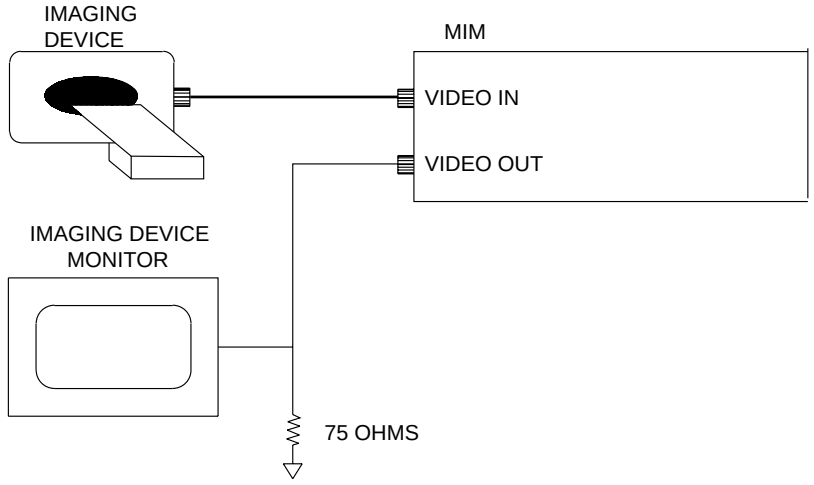
Important

Before you install the product, the customer must install:

- all network CABLING
- all 42 m (138 ft) and 45 m (148 ft) CABLES
- optional WALL MOUNT for the MIM 100
- analog telephone line for MODEM

- To view the “Checklist,” which will help you check that you complete all necessary activities,
  - Display the “Service Application” window on the LAPTOP.
  - Select “Checklist” under “Help.”
- See the SITE SPECIFICATIONS and the ILLUSTRATED PARTS LIST for correct CABLING: See “Documentation” on Page 1–4.
- The product containing the VIDEO 150 BOARD must be energized if the IMAGING DEVICE is in use (Passthrough video) and it provides only one video output connection to the MONITOR. See the graphics on pages 2–4 and 17–15.

Video IMAGING DEVICE with one Video Output to the MONITOR (Non-Terminated Passthrough) **See “Terminate Video Input” on Page 17–15.**



[1] Locate the MIM with the internal MODEM CARD. For an external MODEM, see “Installing the External MODEM” on Page 10–1 and the ILLUSTRATED PARTS LIST.

[2] Determine with the customer where you will install the MIM.

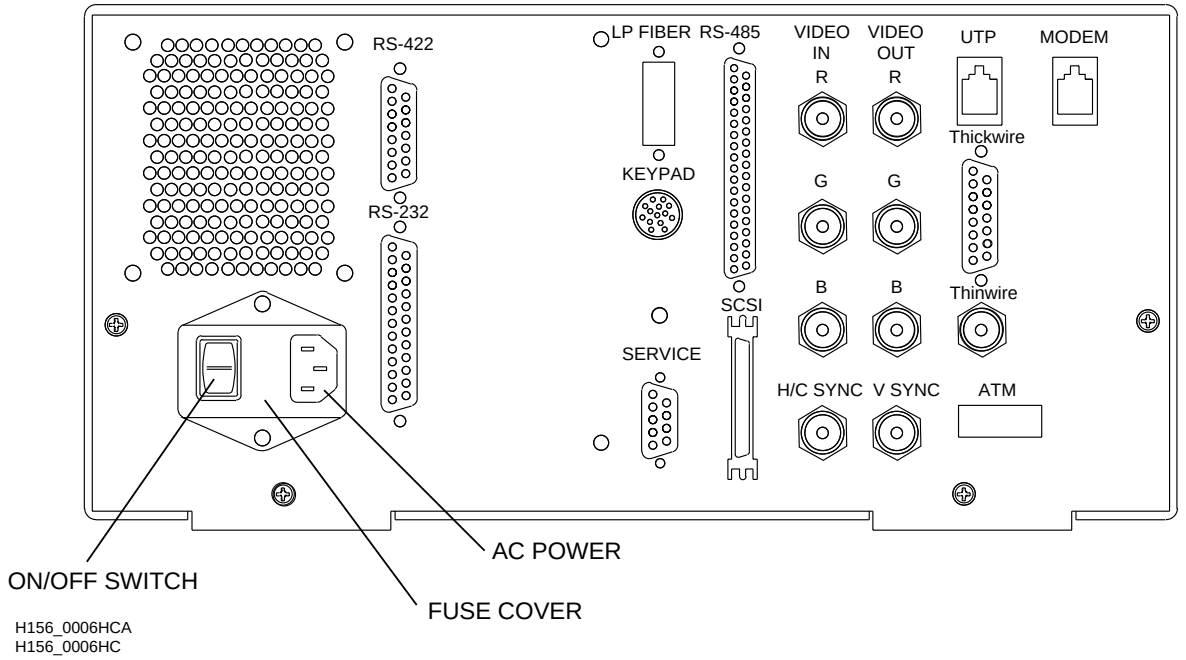
[3] Check that the customer's VIDEO CABLE provides the correct video signal. See the SITE SPECIFICATIONS.

[4] Use the "Checklist," "Parts List," and the table below to help you connect the correct CABLES to the MIM Products:

Graphics to Help You Connect CABLES to the MIM Products

CABLE	MIM 100	MIM 50	MIM 200	DICOM PRINT SERVER
VIDEO (BNC) or DIGITAL (RS-485)	Page 2–6	Page 2–9	Page 2–9	Not Applicable
KEYPAD	Page 2–6	Page 2–9	Page 2–9	Page 2–10
SERIAL AUTOFILMING LINK	Page 2–6	Page 2–9	Page 2–9	Not Applicable
Ethernet Connections	Page 2–6	Page 2–9	Page 2–9	Page 2–10
FOOTSWITCH or MINI KEYPAD (optional)	Page 2–8	Connect the CABLE to the top of the DISPLAY KEYPAD.	Connect the CABLE to the top of the DISPLAY KEYPAD.	Not Applicable
KEYBOARD (optional)	Page 2–8	Not Applicable	Not Applicable	Not Applicable
Power	Page 2–6	Page 2–9	Page 2–9	Page 2–10
MODEM CABLE	Page 2–6	Page 2–9	Page 2–9	Page 2–10
Fiber OPTIC CABLE	Not Applicable	Not Applicable	Not Applicable	Page 2–10

BULKHEAD of the MIM 100 with Relay Board



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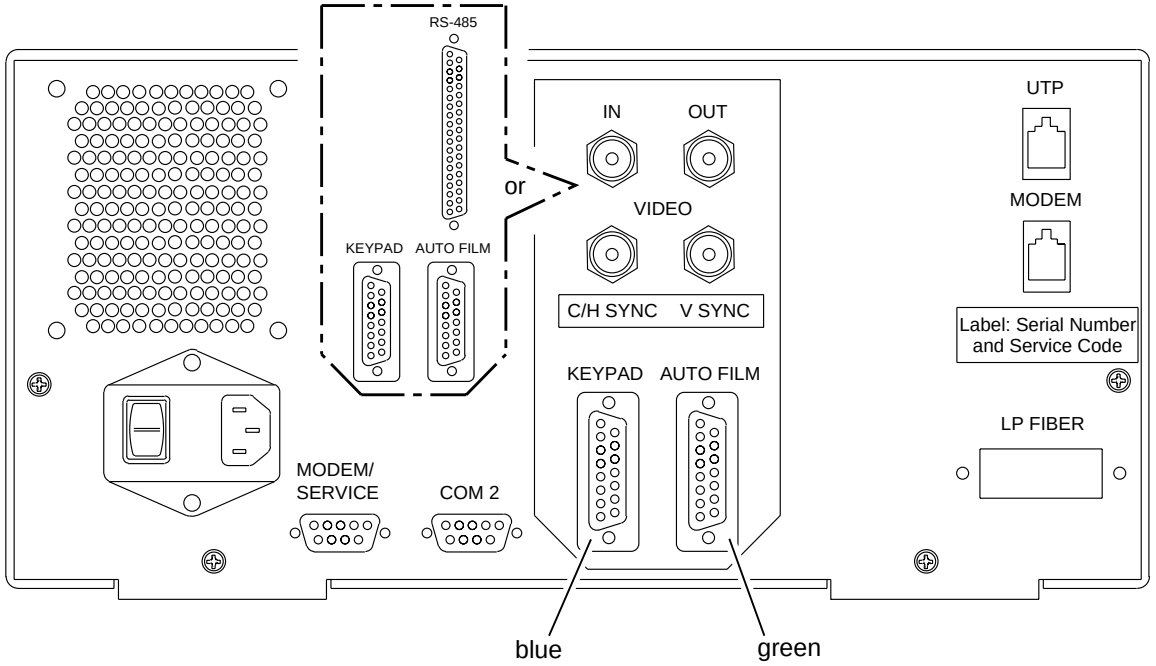
BULKHEAD of the MIM 100 without Relay Board



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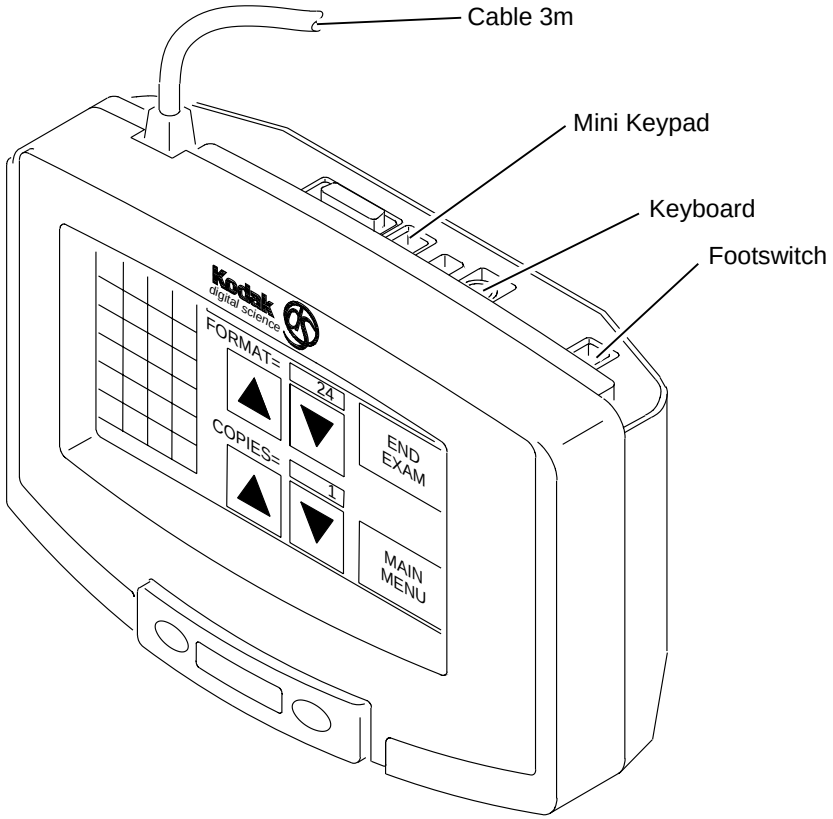
H156_0170HC

Note

The MIM 100NR does not contain a RELAY BOARD or RS-232 PORT. The VIDEO and DIGITAL PORTS of the MIM 100NR reside on removable BULKHEAD PLATES.

TOUCHSCREEN KEYPAD of the MIM 200, MIM 100, MIM 100NR, and the MIM 50 starting with V_3.2.x



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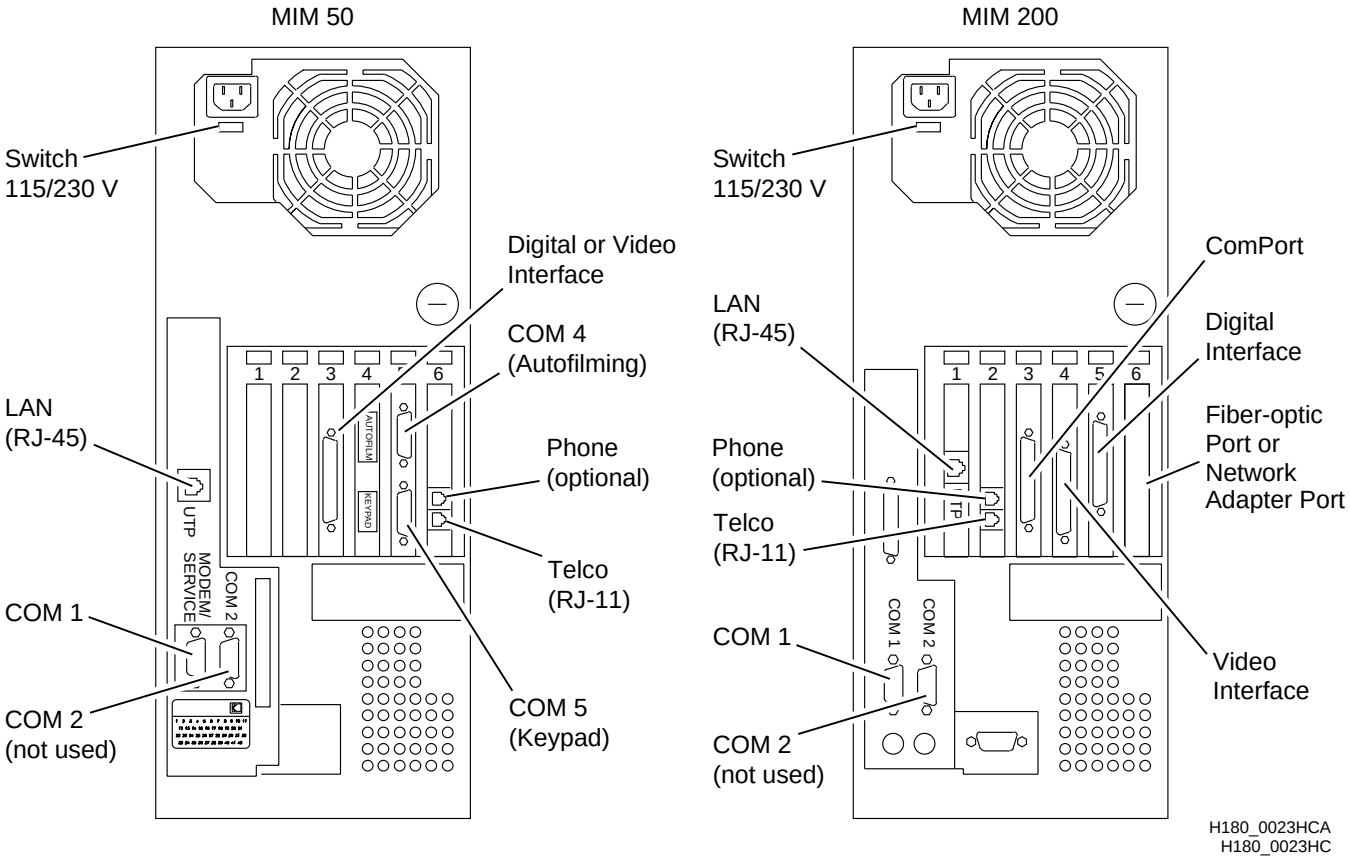
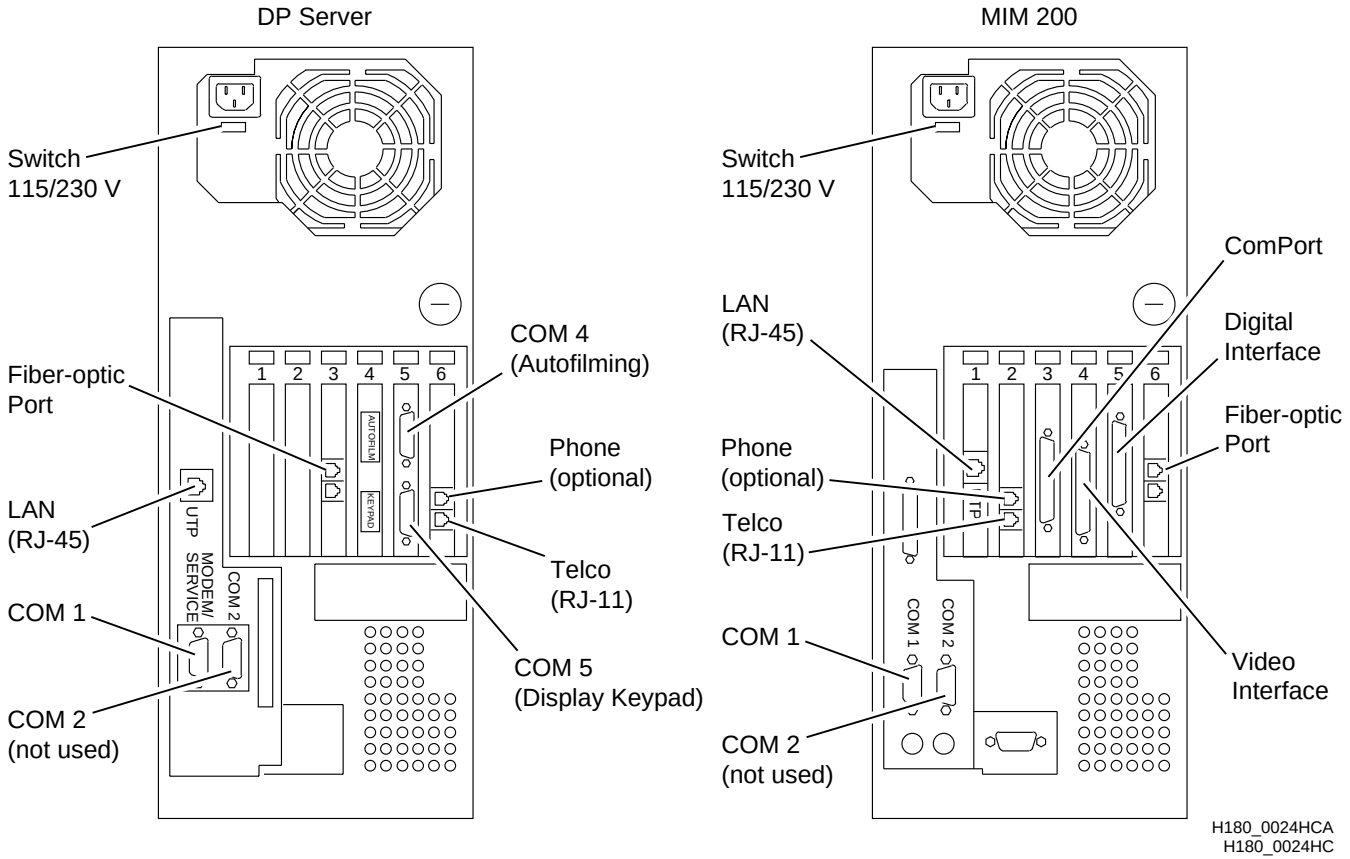
Bulkhead of the MIM 50 and the MIM 200



Note

This graphic shows a single-input MIM 50. COM 1 on both the MIM 50 and the MIM 200 is for MODEM/SERVICE.

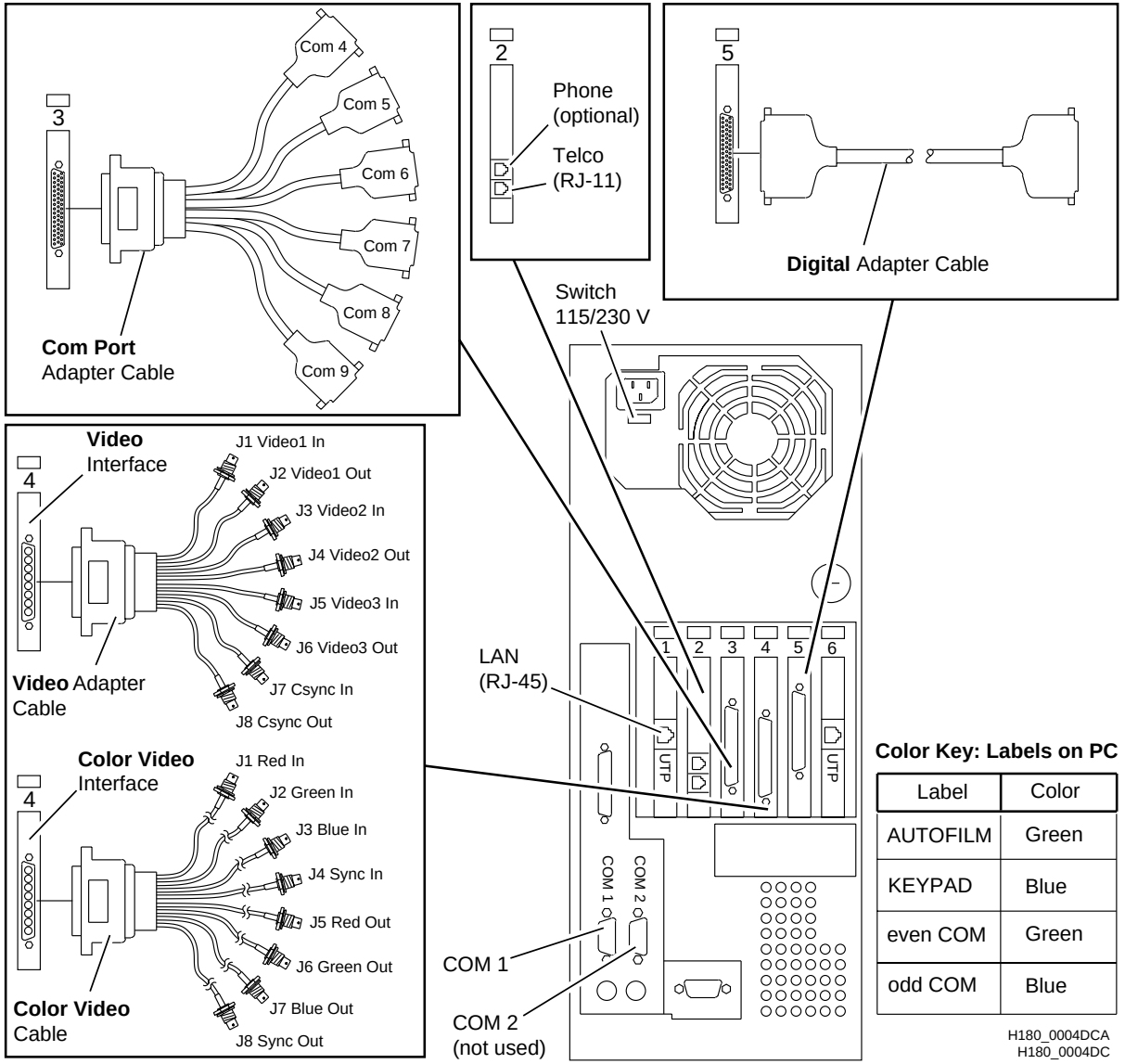
Bulkhead of the DICOM Print Server and the MIM 200



Note

COM 1 on both the DP SERVER and the MIM 200 is for MODEM/SERVICE.

Bulkhead of the MIM 200



Note

These same CABLES could be used on a multiple input MIM 50.

Installing the “Modality Store” Feature of the MIM 100

Important

- This procedure instructs you how to modify the FOOTSWITCH 335818 to enable the connection of the KEYPAD directly to the MODALITY.
- The following connection provides a reference voltage for isolated SWITCH CONTACTS.

[1] Cut off the FOOTSWITCH.

[2] Strip back the INSULATION and foil 0.5 in.

[3] To install the BNC or the OEM CONNECTOR on the CABLE:

- BNC: Connect the blue wire to the + 5 V line of the Modality and the blue/white wire to the ground of the Modality.
- OEM CONNECTOR: See the instructions for the CONNECTOR provided by the OEM.

[4] Cut back the DRAIN wire. Do not terminate the DRAIN wire.

[5] Remove the FERRITE CORE from the plastic packaging:

- FERRITE CORE for the KEYPAD: 903739
- FERRITE CORE for the FOOTSWITCH: 231230

Important

The FERRITE CORE must be installed not greater than 0.25 in. from the CONNECTOR of the KEYPAD.

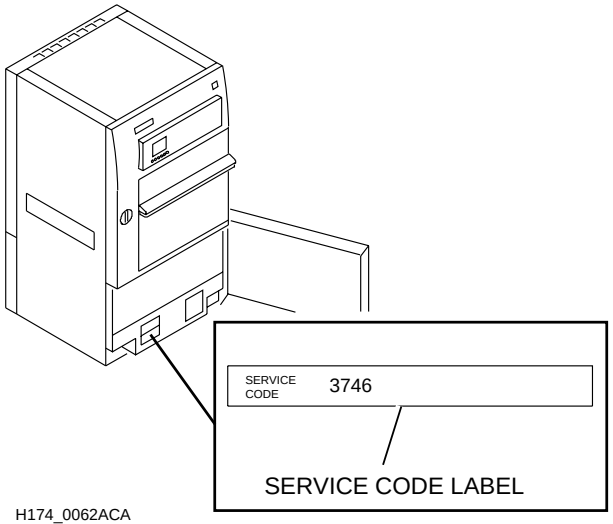
[6] Fasten the FERRITE CORE to the CABLE of either the KEYPAD or the FOOTSWITCH.

[7] Do the procedure “Configuring the Modality Store Feature” on Page 9–8.

DICOM PRINT SERVER

Installing the CPOI in the 2180 or 1120 LASER PRINTER

SERVICE CODE LABEL for Models 2180 and 1120



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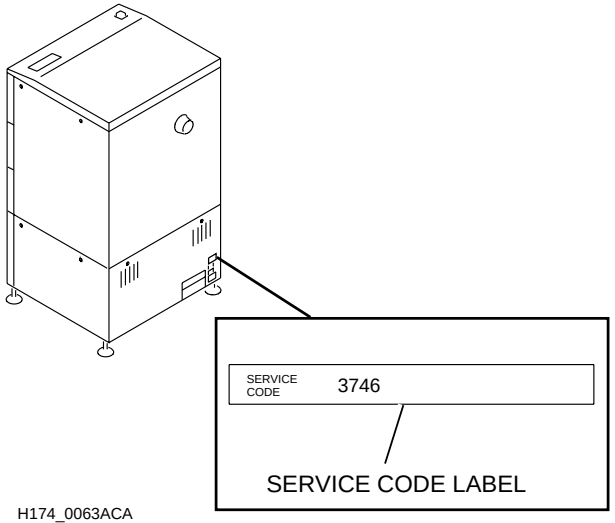

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Important

- Before you install the DICOM PRINT SERVER or MIM 200, check that you have the correct hardware, including the DISTRIBUTION BOARD, SERIAL CONTROL LINK CABLE, and FIBER OPTIC CABLE.
- Check that the LASER PRINTER and existing interfaces contain the most recent software versions.
- If you are installing a DICOM PRINT SERVER or MIM 200 in an existing LASER PRINTER, you must complete all instructions in this procedure.
- If you are installing a DICOM PRINT SERVER or MIM 200 in a pre-staged LASER PRINTER, it already contains the COMMON PROTOCOL OPTICAL INTERFACE (CPOI). Advance to Page 2–21.

[1] If necessary, install the correct software for the LASER PRINTER and existing interfaces.

[2] De-energize the LASER PRINTER.

Warning

- Dangerous voltage.
- The edges of the BULKHEAD might be sharp.

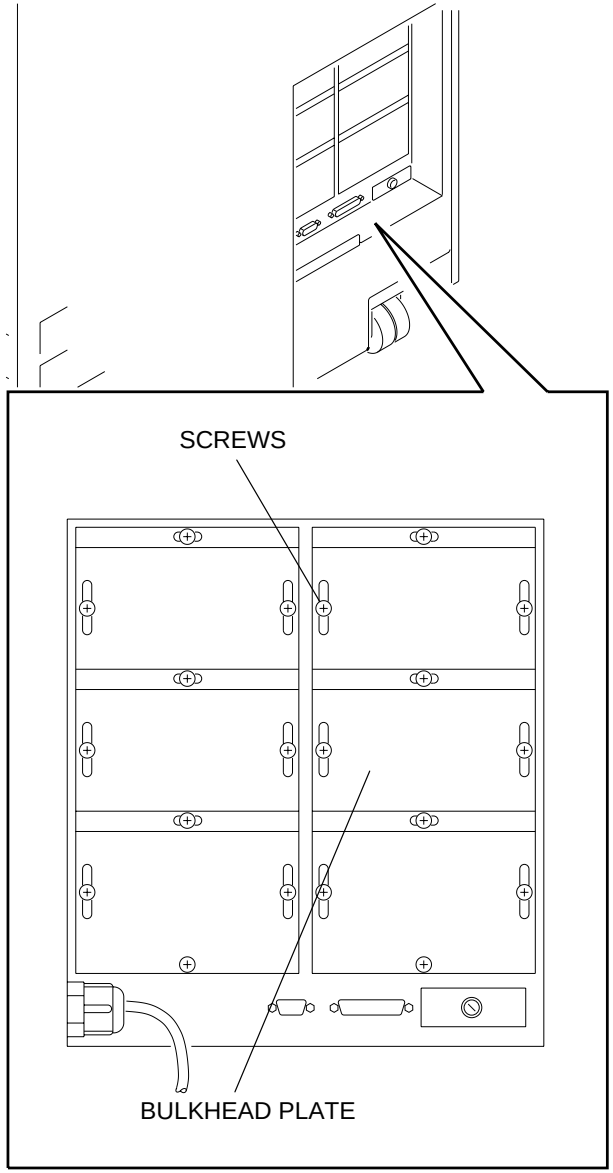
[3] Disconnect the POWER CORD.

[4] Install the SERVICE CODE LABEL.

[5] To prepare the LASER PRINTER for installation, advance:

- Step 6 for the 2180 LASER PRINTER
- Step 10 for the 1120 LASER PRINTER

2180 LASER PRINTER



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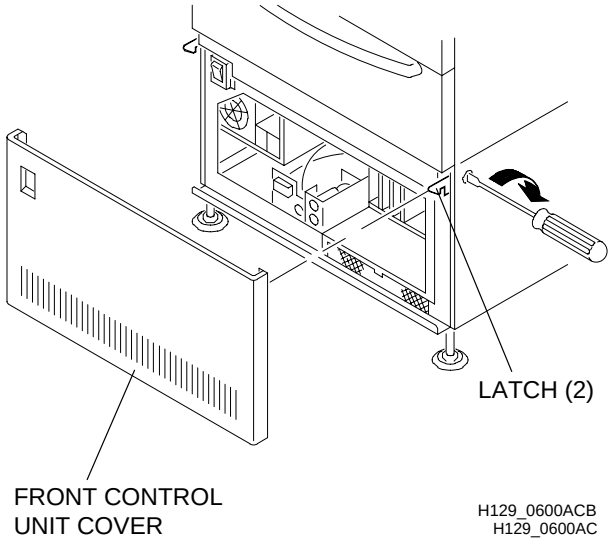
H133_3020CA

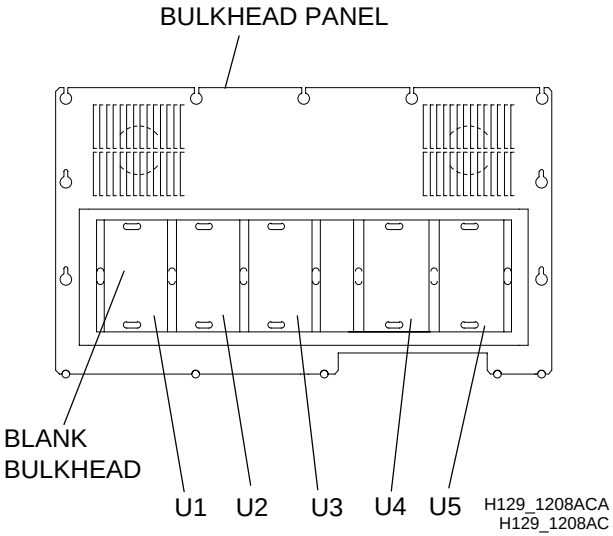
[6] Use a T15 TORX BIT to remove the SCREWS and all BULKHEAD PLATES.

Note

For information on removing the BULKHEAD PLATES from the 2180 LASER PRINTER, see the SERVICE MANUAL for the CPDI, SM3219-1, Page 2-7.

1120 LASER PRINTER





[7] Disengage and remove the FRONT CONTROL UNIT COVER.

[8] Remove the remaining 3 bottom COVERS from the LASER PRINTER.

Note

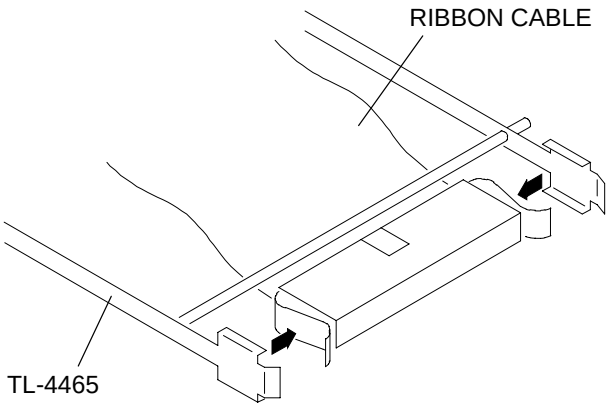
For more information on removing the COVERS and the EMI SHIELDS from the 1120 LASER PRINTER, see the SERVICE MANUAL for the CPDI, SM3219-1, Pages 2-18 and 2-19.

[9] Loosen the 14 SCREWS from the left and right EMI SHIELDS. Remove the EMI SHIELDS.

[10] Remove the BULKHEAD PANEL.

[11] Remove the black BULKHEAD PLATE from the position that will contain the CPOI.

PICL CABLE REMOVAL TOOL



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H133_3004AC

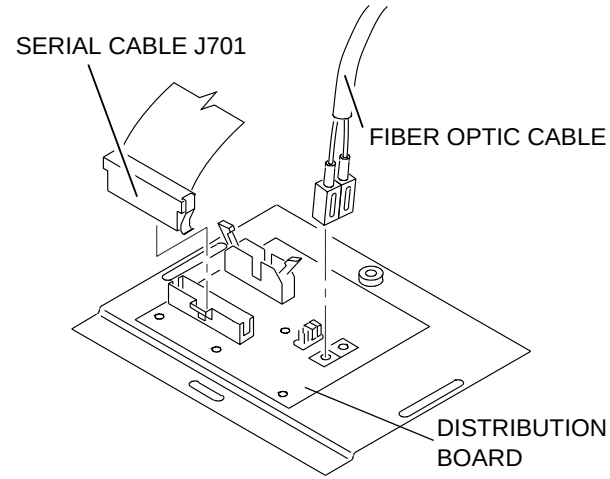
Caution

- To prevent damage of the PINS on the CONNECTOR, use the PICL CABLE REMOVAL TOOL TL-4465 to install or remove the 50-PIN RIBBON CABLE.
- Before you connect the FIBER OPTIC CABLE, remove the protective covers from it and from the DISTRIBUTION BOARD.
- The FIBER OPTIC CABLE is keyed for correct insertion.

[12] Remove the protective covers.

[13] Insert the FIBER OPTIC CABLE into the DISTRIBUTION BOARD until you hear the CONNECTOR click into position.

DISTRIBUTION BD AY for the Model 1120



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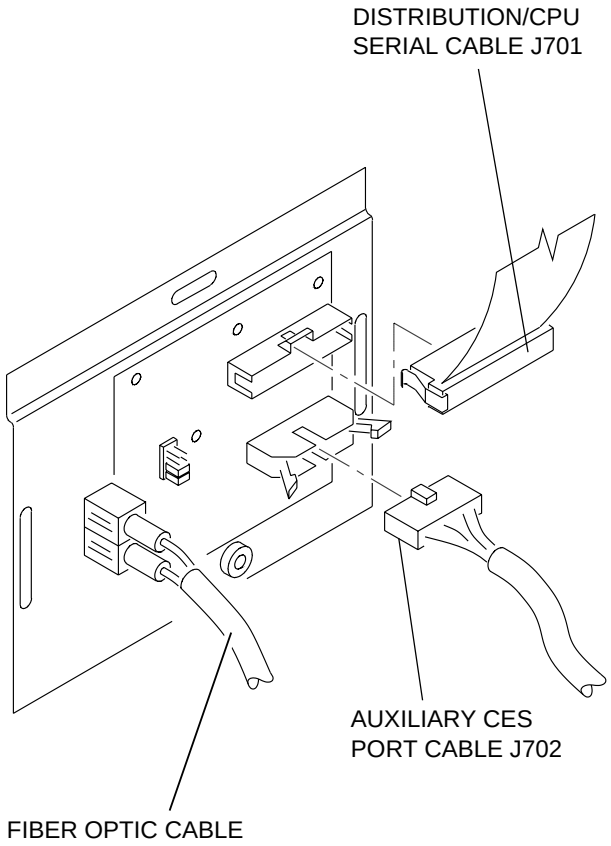
H133_2051AC

[14] Connect the 2 CABLES to the DISTRIBUTION BULKHEAD AY:

- FIBER OPTIC CABLE
- DISTRIBUTION/CPU SERIAL CABLE: J701 to P701

DISTRIBUTION BD AY for the Model 2180



H133_2054CCA
H133_2054CC

[15] If the LASER PRINTER is a Model 2180, connect the AUXILIARY CES PORT CABLE to J702.

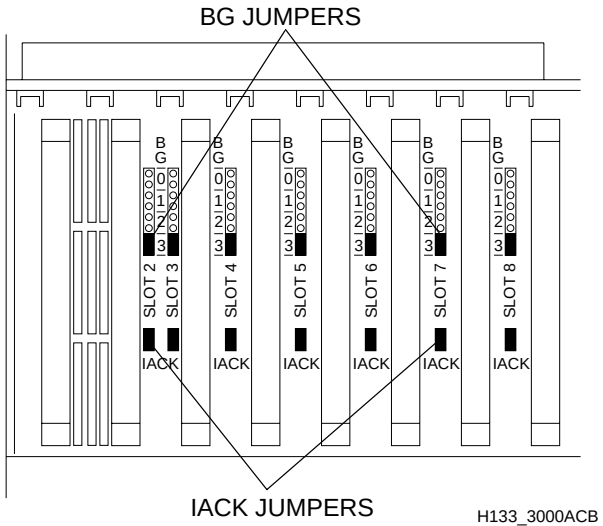
[16] Install the DISTRIBUTION BOARD AY in an unused position of the BULKHEAD PANEL.

Warning

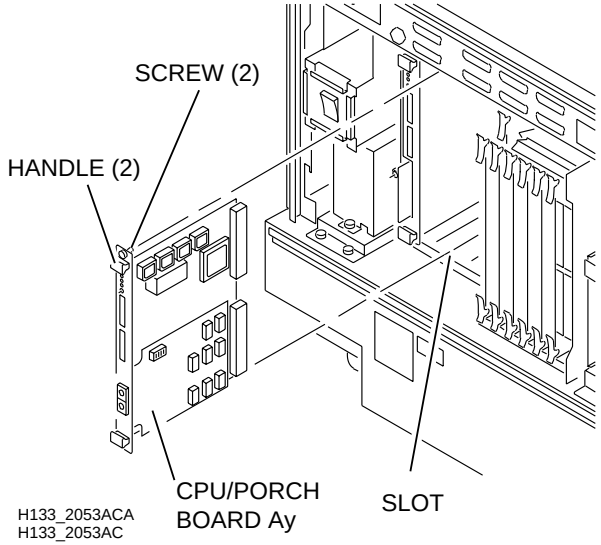
- To provide maximum ESD protection, you will be instructed to connect the POWER CORD. Do not energize the LASER PRINTER.
- Dangerous voltage.
- Use ESD protection.

[17] Connect the POWER CORD.

BUS GRANT (BG) and IACK JUMPERS



CPOI BOARD and Model 2180



Important

- See the publication “Configurations for the COMMON PROTOCOL INTERFACES” Publication 699621 dated 3/95 to determine which IACK and BUS GRANT JUMPERS to install on or remove from the CARD RACK.
- The CPOI can be installed in any SLOT that a CPDI can be installed in.
- The JIACK JUMPER must be installed if the1120 LASER PRINTER contains the *Kodak Ektascan* NETWORK INTERFACE.
- For the 1120 LASER PRINTER, routing of the FIBER OPTIC CABLE is easier if you use SLOT 9.

[18] Install or remove the correct IACK and BUS GRANT JUMPERS.

Caution

Touch the CPOI only at the HANDLES.

[19] If necessary, install the correct version of firmware.

[20] Install the CPOI.

Caution

- The FIBER OPTIC CABLE and the CPOI contain PROTECTIVE COVERS.
- The FIBER OPTIC CABLE is keyed for correct insertion.

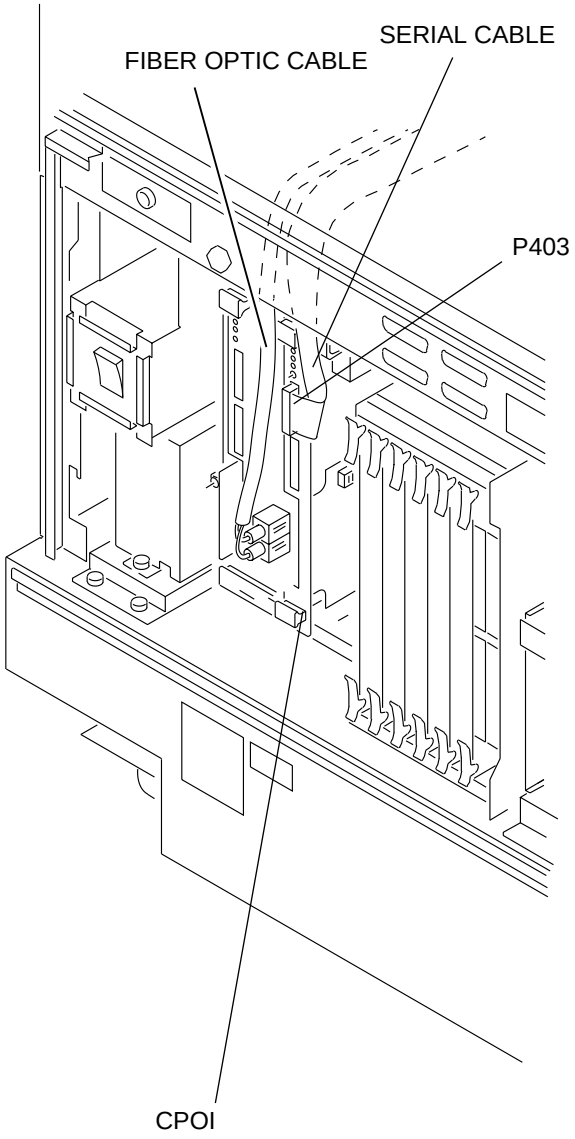
[21] Remove the PROTECTIVE COVERS.

[22] Advance to the correct step:

(a) For the Model 2180, advance to Step 23.

(b) For the Model 1120, advance to Step 25.

Routing of the CABLES for the Model 2180

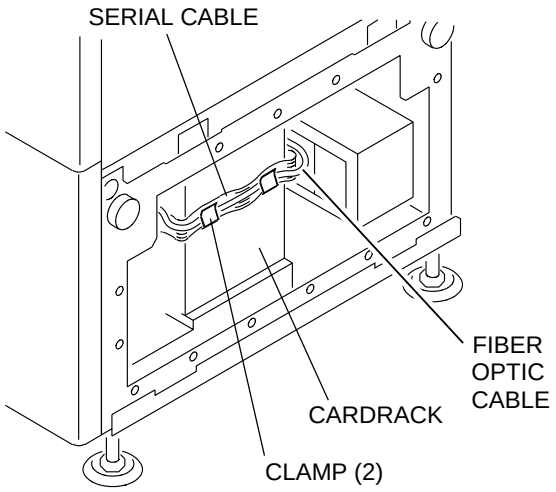


H133_2052CCA
H133_2052CC

[23] For the 2180 Laser Printer, route the FIBER OPTIC CABLE and DISTRIBUTION/CPU SERIAL CABLE to the front of the CPOI.

[24] Advance to Step 26.

Routing of the CABLES for the Model 1120



H133_2055ACA
H133_2055AC

Important

Fastening both the SERIAL CABLE and FIBER OPTIC CABLE using the upper CABLE CLIP provides access to the FIBER OPTICS PORT on the CPOI.

[25] For the 1120 Laser Printer, route the FIBER OPTIC CABLE and DISTRIBUTION/CPU SERIAL CABLE to the front of the CPOI.

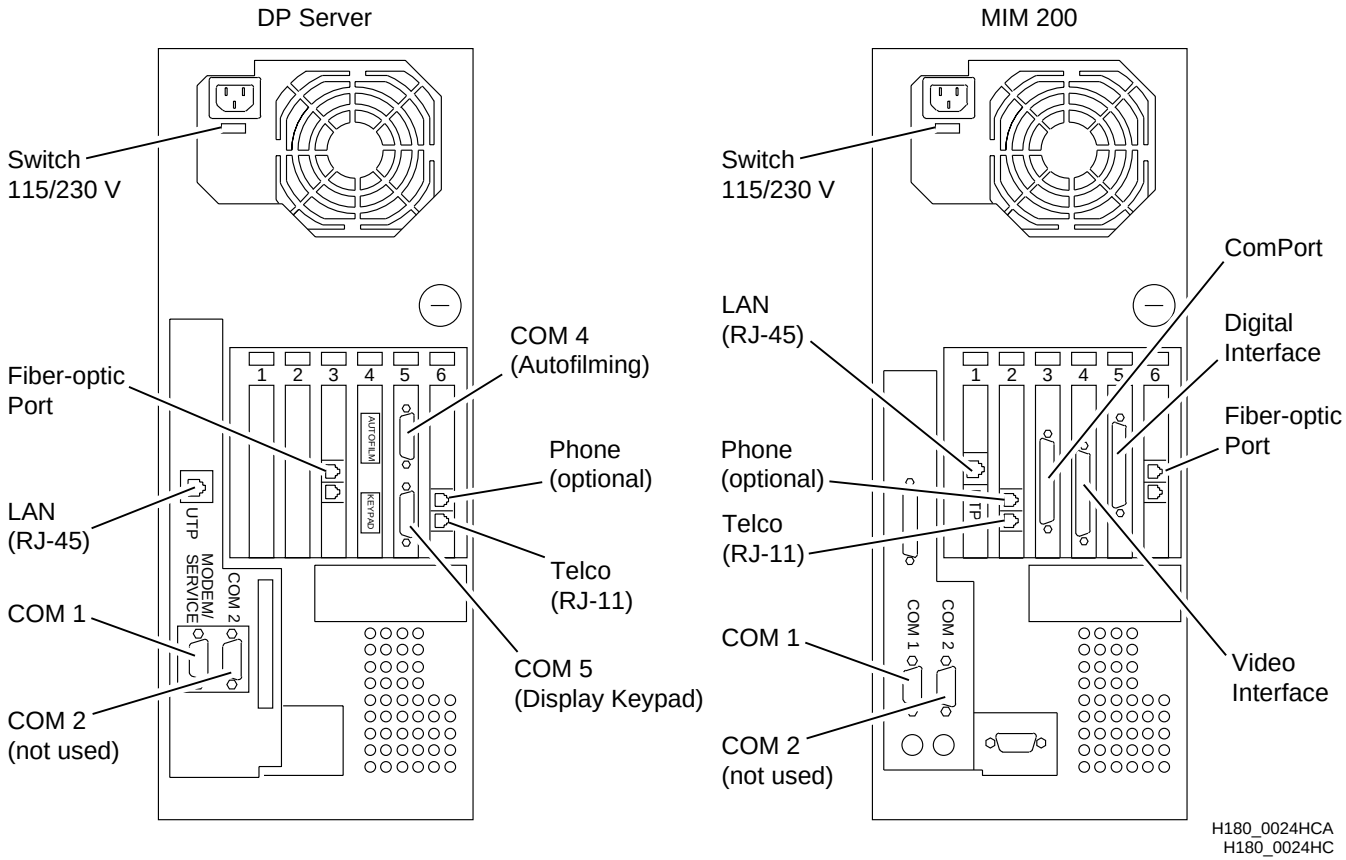
[26] Assemble the LASER PRINTER.

[27] Energize the LASER PRINTER.

[28] Advance to the procedure “Installing the DICOM PRINT SERVER” on Page 2–21.

Installing the DICOM PRINT SERVER

Bulkhead of the DICOM Print Server and the MIM 200



[1] Connect:

- DATA CABLE and also connect the DISPLAY KEYPAD CABLE to its assigned COMM PORT numbred cable
- DATA CABLE and also connect the DISPLAY KEYPAD CABLE to COM 5 for the DICOM PRINT SERVER
- Ethernet (UTP) CABLE to the RJ-45 PORT
- AC POWER CORD and, if required, the RJ-11 to “Telco”

[2] Remove the DICOM PRINT SERVER or MIM 200 from the SHIPPING CONTAINER.

[3] Route the external FIBER OPTIC CABLE to the CPOI BULKHEAD of the PRINTER.

Caution

Use care when you route the FIBER OPTIC CABLE. Do not place the FIBER OPTIC CABLE on the floor.

[4] Connect the FIBER OPTIC CABLE to the DICOM PRINT SERVER or MIM 200 and then advance to the procedure “Completing the Installation.”

Completing the Installation

Important

- The correct version of the “Service Application” must be loaded on the LAPTOP before installation of these products. Typically, you installed this software during training.
- Use this page to determine what procedures you must complete, especially when you need some help to determine what to do next.
- Use the “Checklist” in “Help” to check that you complete all necessary procedures.
- See any necessary documentation for the MEDICAL LASER PRINTER 190 (MLP190).

[1] If the LAPTOP is not configured, advance to “Configuring the LAPTOP” on Page 3–1, complete the procedures, and return to this page.

[2] To connect the LAPTOP, advance to “Connecting the Laptop to the MIM Products” on Page 4–1, complete the procedure, and return to this page.

[3] In the following table, do the procedures indicated (**x**) for the MIM product that you will install:

Procedures to be Completed for Installation

		Video			Digital			Optical	
Procedure	**Page**	**MIM 100**	**MIM 50 or SPOOLER**	**MIM 200**	**MIM 100**	**MIM 50 or SPOOLER**	**MIM 200**	**DP SERVER**	**MIM 200**
Checking the Service Tracking Information	5–1	x	x		x	x		x	
Configuring the Network	5–4	x	x		x	x		x	
Configuring the Destination	5–6	x	x		x	x		x	
Configuring the HARD DISK as a Destination	5–35	x <V_3.0	N/A		x <V_3.0	N/A		N/A	
Configuring the HIS/RIS GATEWAY	5–39	x	N/A		x	N/A		N/A	
Configuring the Input	5–42	7–2	6–2	6–2	8–2	8–2	8–2	9–2	
Saving the Configuration	9–7	x	x		x	x		x	

[4] Set the MIM product for Remote Service access. See Page 10–1.

[5] Call the TSC to check that the MODEM operates correctly and to provide the MODEM number to the TSC.

[6] For the MIM 100 and MIM 200 with a TOUCHSCREEN KEYPAD, create the Customer Profile. See the USER’S MANUAL.

[7] Check your work. To see how to print test images from the KEYPAD or the LAPTOP, see Page 12–21.

- **MIM**: Store a few pages of clinical images using the KEYPAD or Autofilming link; print the pages to the destination; check that the image quality is acceptable.
- **DICOM PRINT SERVER or MIM 200 as a PRINT SERVER**: Print a greyscale test image.

Note

Be sure to insert the separate section of the User's Manual for interfaces that are delivered with the MIM. There will be a separate section for each interface, like a KEYPAD, that the Field Engineer must insert in the Customer's User's Manual. The tab dividers will already be in the binder for the User's Manual.

[8] Train the customer. See "Instructing the Operator and Key Operator" on Page 19–1.

[9] For an unqualified modality only, send the FILM MAILER (Mod 1) with the test films enclosed. See "Mod 1 FILM MAILER for Unqualified Modalities" on Page 20–3.

[10] Provide feedback for your service time. See "Providing Service Feedback" on Page 20–1.

Section 3: Configuring the LAPTOP

Introduction

Important

- Study the Table below to help make yourself familiar with the correct order for installing the software.
- If your LAPTOP has not been connected to a Release 2.x (or above) product, do all procedures in the order indicated in the Table “Procedures: Loading the Software for the LAPTOP from CD-ROM” below.
- If your LAPTOP has been connected to a Release 2.x product, but not to a Release 3.x product, complete only the following procedures:
  - “Installing the LAPTOP Basic Software V_3.5” on Page 3–14.
  - “Installing the Service Software for the Release 3.0 product” on Page 3–10.
- If the LAPTOP contains a Network Card, you cannot connect to the MIM products using “File” / “Local”.
- To connect to a MIM 200 or any MIM product with V_3.2 software, the service application must be installed.

Procedures: Loading the Software for the LAPTOP from CD-ROM

Order of Section 3 Procedures	Page	Procedure: Installing the	Name of Folder containing the Software on the CD	Name of CD	Notes
1	3–2	Laptop Basic Software Version _2.0	LapBasic	Service Laptop Software for MIM Based Products	DAO V_3.00 files, Data Link Library (DLL) Files, and Modem Files
2	3–2	Data Access Objects (DAO) 3.0 Files	No disks (part of the Laptop Basic Software V_2.0	Same as above	See above.
3	3–3	Service Software	S_sw_a18	Same as above	Modality Database, Help Files
4	3–3	Laptop Basic 3.0	Laptop30	Same as above	DAO V_3.5 files.
5	3–4	Service Software V_2.1	S_sw_2_1	Same as above	Modality Database, Help Files
6	3–4	Laptop Basic 3.5	Laptop35	Same as above	
7	3–4	Service Software V_3.0	S_sw_3_0	Same as above	Modality Database, Help Files
8	3–4	Service Software V_3.1	S_sw_3_1	Same as above	
9	3–4	Laptop Basic 3.6	mim laptop basic 3.6	Same as above	
10	3–4	Service Software V_3.2	mimservice3.2	Same as above	
11	3–5	Service Software V_3.2.1	mimservice3.2.1	Same as above	
12	3–5	Keypad Firmware Update 1.0.4	Key_104	Same as above	

Order of Section 3 Procedures	Page	Procedure: Installing the	Name of Folder containing the Software on the CD	Name of CD	Notes
13	3–5	Keypad Firmware Update 1.0.5	Key_105	Same as above	
14	3–5	Keypad Firmware Update 1.0.7	Key_107	Same as above	
15	3–5	MIM Digital V_2.2	Mim_Dig	Same as above	
16	3–6	MIM 100 Application A1.10	Mim_100	Same as above	
17	3–6	Video 150 Board Firmware 1.3	V150_1_3	Same as above	
18	3–17	TCP/IP	No software required		Part of operating system
19	3–18	Dial-up Networking	No software required		Part of operating system
20	3–19	Direct Connect to NT	No software required		Part of operating system
21	3–20	Dial-up Networking Icon	No software required		Part of operating system

Installing the MIM Service Software from CD-ROM

Important

The CD-ROM “Service Laptop Software for MIM Based Products” 8B1016 replaces the multiple disks that used to be sent to the field.

[1] Insert the CD into the CD-ROM DRIVE of the LAPTOP.

[2] Install the MIM LAPTOP BASIC SOFTWARE V_A2.0 on the LAPTOP:

- **(a)** Double-click “Laptop Basic”.
- **(b)** Double-click “Setup”.
- **(c)** Click [Next] in each of the 4 screens that the LAPTOP displays.
- **(d)** Click [Finish].

Important

In Step [3] (i), if the LAPTOP displays the message “Missing DLL,” click [OK] to complete the installation. This message does *not* indicate a malfunction.

[3] Install the “Data Access Object” files:

- **(a)** Select “Start” / “Settings” / “Control Panel”.
- **(b)** Open “Add/Remove Programs”.

(c) Click:

1. [Install]
2. [Next]
3. [Browse]

(d) At the “C:\” prompt, double-click the “C:\” prompt and then open the folder “Program Files”.

(e) Open:

1. “KHID”
2. “DAO”

(f) Double-click “Setup.exe”.

(g) Check that the “Run Installation Program” window displays “C:\Program Files\KHID\DAO\Setup.exe”.

(h) Click [Finish] and then click [Next].

(i) At the message “DAO Setup Complete,” select [OK].

(j) To check your work, select “Start” / “Settings”/ “Control Panel” / “Add/Remove Program”.

Note

The screen displays “Data Access Objects (DAO) 3.0” if the software is correctly installed.

[4] Install the MIM SERVICE SOFTWARE V_A1.8:

(a) Double-click “S_sw_a1.8”.

(b) Double-click “Setup”.

(c) Click [Yes].

(d) Click [Finish].

Important

In the Step [5] (f), all check boxes must be clear or de-selected.

[5] Install the MIM LAPTOP BASIC SOFTWARE V_3.0 on the LAPTOP:

(a) Double-click “Laptop30”.

(b) Double-click “Setup”.

(c) Click [Next].

(d) Select “Jet 3.5”.

(e) Click [Next].

(f) Observe that all check boxes are clear.

(g) Click [Next].

(h) Click [OK].

[6] Install the MIM SERVICE SOFTWARE V_2.1 on the LAPTOP:

(a) Double-click “S_sw_2.1”.

(b) Double-click “Setup”.

(c) Click [Yes].

(d) Click [Finish].

Important

Depending on what software is on your LAPTOP, you might have to click [Yes] one or more times in Step [7] (d).

[7] Install the MIM LAPTOP BASIC SOFTWARE V_3.5 on the LAPTOP:

(a) Double-click “Laptop35”.

(b) Double-click “Setup”.

(c) Click [Next].

(d) Click [Yes] each time the screen asks you if you want to overwrite an existing file.

(e) Click [Finish].

[8] Install the MIM SERVICE SOFTWARE V_3.0 on the LAPTOP:

(a) Double-click “S_sw_3_0”.

(b) Double-click “Setup”.

(c) Click [Yes].

(d) Click [Finish].

[9] Install the MIM SERVICE SOFTWARE V_3.1 on the LAPTOP:

(a) Double-click “S_sw_3_1”.

(b) Double-click “Setup”.

(c) Click [Yes].

(d) Click [Finish].

[10] Install the MIM LAPTOP BASIC SOFTWARE V_3.6 on the LAPTOP:

(a) Double-click “MIM Laptop Basic 3.6”.

(b) Double-click “Setup”.

(c) Click [Yes].

(d) Click [Finish].

[11] Install the MIM SERVICE SOFTWARE V_3.2 on the LAPTOP:

(a) Double-click “MIM Service 3.2”.

(b) Double-click “Setup”.

(c) Click [Yes].

(d) Click [Finish].

[12] Install the MIM LAPTOP SERVICE SOFTWARE V_3.2.1 on the LAPTOP:

(a) Double-click “MIM Service 3.2.1”.

(b) Double-click “Setup”.

(c) Click [Yes].

(d) Click [Finish].

[13] Install the MIM KEYPAD FIRMWARE V_1.04 on the LAPTOP:

(a) Double-click “key_104”.

(b) Double-click “Setup”.

(c) Click [Yes].

(d) Click [Finish].

[14] Install the MIM KEYPAD FIRMWARE V_1.05 on the LAPTOP:

(a) Double-click “key_105”.

(b) Double-click “Setup”.

(c) Click [Yes].

(d) Click [Finish].

[15] Install the MIM KEYPAD FIRMWARE V_1.07 on the LAPTOP:

(a) Double-click “key_107”.

(b) Double-click “Setup”.

(c) Click [Yes].

(d) Click [Finish].

[16] Install the MIM DIGITAL FIRMWARE V_2.2 on the LAPTOP:

(a) Double-click “Mim_Dig”.

(b) Double-click “Setup”.

(c) Click [Yes].

(d) Click [Finish].

[17] Install the MIM 100 APPLICATION SOFTWARE V_1.10 on the LAPTOP:

(a) Double-click “Mim_100”.

(b) Double-click “Setup”.

(c) Click [Yes].

(d) Click [Finish].

[18] Install the MIM VIDEO FIRMWARE V_1.3 on the LAPTOP:

(a) Double-click “V150_1_3”.

(b) Double-click “Setup”.

(c) Click [Yes].

(d) Click [Finish].

[19] Do the procedures on Pages 3-?? through 3-??.

Installing the Laptop Software from Floppy Disks

Important

- Study the Table below to help make yourself familiar with the correct order for installing the software.
- If your LAPTOP has not been connected to a Release 2.x (or above) product, do all procedures in the order indicated in the Table below.
- If your LAPTOP has been connected to a Release 2.x product, but not to a Release 3.x product, complete only the following procedures:
  - "Installing the LAPTOP Basic Software V_3.5" on Page 3–14
  - "Installing the Service Software for the Release 3.0 product" on Page 3–10
- If the LAPTOP contains a Network Card, you cannot connect to the MIM products using "File" / "Local".
- To connect to a MIM 200 or any MIM product with V_3.2 software, the service application must be installed.

Procedures: Loading the Software for the LAPTOP from FLOPPY DISKS

Order of Section 3 Procedures	Page	Procedure: Installing the	Name of the Software on the Disk	Disks	Notes
1	3–7	Laptop Basic Software Version _2.0	Laptop Basic Software Version _A2.0 for the MIM 100	3	DAO V_3.0 files, Data Link Library (DLL) FIles, and Modem FIles
2	3–9	Data Access Objects (DAO) 3.0 Files	No disks.	0	See above.
3	3–10	Service Software	Service Software Version_**A1.8** for the MIM 100	1	Modality Database, Help Files
4	3–12	Laptop Basic 3.0	Part Number 3H8071 Date 1998/06/24	3	DAO V_3.5 files.
5	3–10	Service Software V_2.1	MIM Service S/W Ver. **2.1** P/N 3H8652	2	Modality Database, Help Files
6	3–14	Laptop Basic 3.5	MIM Laptop Basic S/W Ver. 3.5 P/N 2E4217	2	
7	3–14	Laptop Basic 3.6	Laptop36		
8	3–10	Service Software V_3.0	MIM Service S/W Ver. **3.0** P/N 2E4208	2	Modality Database, Help Files
9		Service Software from CD-ROM	MIM Service S/W Ver. **3.1** P/N 8B1016	1	
10		Service Software from CD-ROM	MIM Service S/W Ver. **3.2** P/N TBD	1	
11	3–15	Keypad Firmware Update 1.0.4	P/N 3H8087 Date 06/29/1998	1	
12	3–15	Keypad Firmware Update 1.0.5	MIM Keypad Firmware Version 1.0.5 Part No. 3E0846	1	
13	3–15	Keypad Firmware Update 1.0.7	Key_107		
14	3–16	MIM Digital V_2.2	MIM Digital Firmware V_2.2 P/N 3H6051	1	
15	3–16	Video 150 Board Firmware 1.3	MIM Video Firmware V_1.3 Part #6C7763	1	
16	3–16	MIM 100 Application A1.10	MIM 100 Application S/W V_A1.10	3	

Order of Section 3 Procedures	Page	Procedure: Installing the	Name of the Software on the Disk	Disks	Notes
17	3–17	TCP/IP	No disks.	0	In the U.S. this software, which is prerequisite to connectivity, is Included in *Windows 95*.
18	3–18	Dial-up Networking	No disks.	0	
19	3–19	Direct Connect to NT	No disks.	0	
20	3–20	Dial-up Networking Icon	No disks.	0	

Installing the Laptop Basic Software V_2.0 for the MIM 100

Important

- The “MIM Laptop Basic Software V_2.0” allows you to communicate with the Release 2.x product through the LAPTOP. The DISKS labelled “LAPTOP Basic Software,” contain the following files:
  - Data Link Library (DLL), which are driver files that allow you to execute the service application
  - Data Access Objects (DAO) V_3.0
  - MODEM

[1] Connect the FLOPPY DISKETTE DRIVE to the LAPTOP.

[2] Energize the COMPUTER.

[3] Insert the DISK 1 into the A: DRIVE.

Note

The title on DISK 1 is “Laptop Basic Software Version_2.0 for the MIM 100”

[4] Select “Start/Settings/Control Panel”.

[5] Open “Add/Remove Programs”.

[6] At the “Add/Remove Program Properties” window, select “Install”.

[7] At the “Install Program from Floppy Disk or CD ROM” window, select “Next”.

[8] At the “Run Installation Program” window, check that the path is correct: “A:/SETUP.EXE”.

[9] Select “Finish”.

Note

The COMPUTER displays a “Setup” window, indicating the status of “Install Shield.”

[10] At the “Welcome to *Kodak Digital Science ds*” window, select “Next”.

Note

In the following steps, select “Back” to display the previous screen.

[11] Read the “Welcome” screen. If necessary, exit any open *Windows* programs.

[12] Select “Next”.

[13] Read the “Read me Information” screen. Select “Next”.

[14] Read the “Start Copying Files” screen. Check that the information is correct:

- **(a)** Setup Type: Complete
- **(b)** Target Folder: “C:\Program Files\KHID”
- **(c)** User Information

[15] Select “Next”.

Note

The COMPUTER will display the progress of the installation.

[16] When the COMPUTER displays “Setup Needs the Next Disk”:

- **(a)** Remove the existing DISK and insert the next DISK
- **(b)** Select “OK”

[17] Read the information in the “Setup Complete” screen and then select “Finish”.

[18] Eject the last setup DISK.

[19] To check that the “Laptop Basic Software V_2.0” is installed, select “Start”/ “Settings”/ “Control Panel” / “Add/Remove Program”. If the software is installed, the LAPTOP displays the “Laptop Basic Software”.

[20] Advance to the procedure “Installing the Data Access Objects (DAO) 3.0 Files” on Page 3–9.

Installing the Data Access Objects (DAO) 3.0 Files

Important

See Page 3–1 for the correct order for installing the software before you begin.

[1] Select “Start” / “Settings” / “Control Panel”.

[2] Open “Add/Remove Programs”.

[3] Select:

- **(a)** “Install”
- **(b)** “Next”

(c) “Browse”

[4] At the “C:\” prompt, double click on the “C:\” prompt and then open the folder “Program Files”.

[5] Open:

(a) the folder “KHID”

(b) “DAO”

[6] Double click on the program “Setup.exe”.

[7] Check that “Run Installation Program” window displays “C:\Program Files\KHID\DAO\Setup.exe”.

[8] Select:

(a) “Finish”

(b) “Next”

Important

If the LAPTOP displays the message “Missing DLL,” select “OK” to complete the installation. This message does not indicate a malfunction.

[9] At the message “DAO Setup Complete,” select “OK.”

[10] To check that the “Data Access Objects (DAO) Files” are installed, select “Start”/ “Settings”/ “Control Panel” / “Add/Remove Program”. If the software is installed, “Data Access Objects (DAO) 3.0” displays in the list.

[11] Advance to “Installing the Service Software V_A1.8” on Page 3–10.

Installing the Service Software

Important

- Use this procedure when you are instructed to install each version of the **Service Software** in “Loading the Software for the LAPTOP from CD-ROM” on Page 3–1: **V_A1.8, V_2.1, V_3.0**
- See Page 3–1 for the correct order for installing the software before you begin.
- The Service Software enables you to execute the following actions:
  - Configure the product.
  - Display Error Logs and Activity Logs. Diagnose the MIM.
  - Upgrade Firmware and Software.
  - View database information for qualified destinations and Modalities.

[1] Insert the DISK into the A:DRIVE.

[2] At “Control Panel,” open “Add/Remove Programs”.

[3] At the “Add/Remove Programs Properties” window, select “Install”.

[4] At the “Install Program from Floppy Disk to CD-ROM” window, select “Next”.

[5] At the “Run Installation Program” window, check that the path is correct: “A:\SETUP.EXE”.

[6] Select “Finish”.

[7] At the “License Agreement” window, select “Yes”.

Note

The COMPUTER will display the following messages in the order indicated:

- “Setup” window, indicating the status of “Install Shield”.
- “Decompressing Files In: C:\Program Files\KHID\AX.X”; The term “AX.X” indicates the version number.
- “Status”

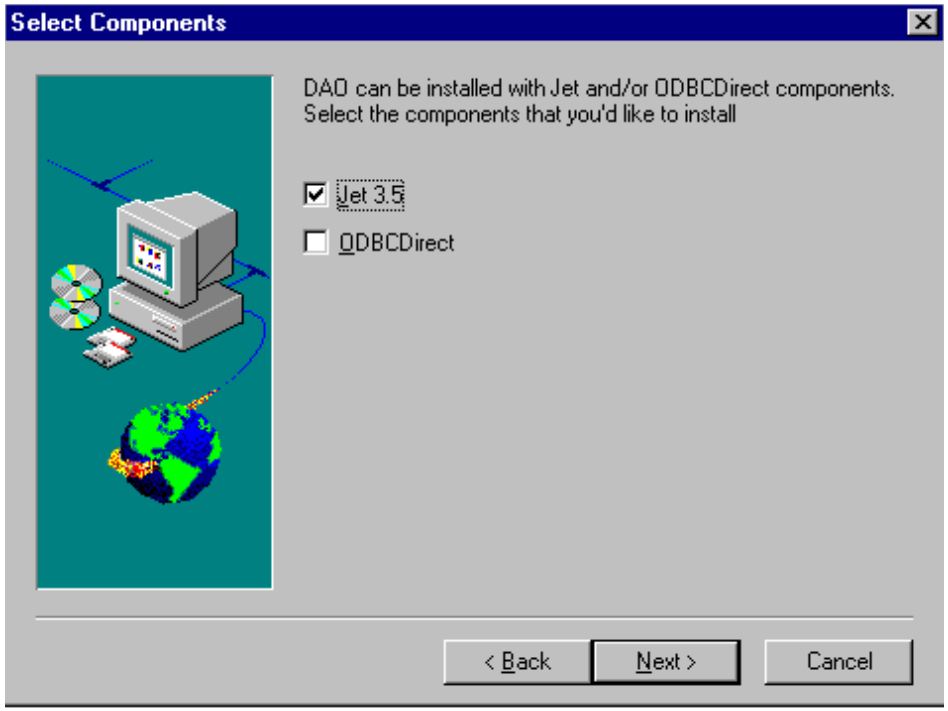
[8] At the “Setup Complete” window, select “Finish” and eject the DISK.

[9] To check that the software is installed, select “Start”/ “Settings”/ “Control Panel” / “Add/Remove Programs”. If the software is installed, Service Application x_ will display where x indicates the version number.

[10] Advance to the correct procedure: If you just completed installing

- Service Software V_A1.8, advance to “Installing the Laptop Basic Software V_3.0” on Page 3–12.
- Service Software V_2.1, advance to “Installing the Laptop Basic Software 3.5” on Page 3–14.
- Service Software V_3.0, advance to “Installing the Keypad Firmware Updates” beginning on Page 3–15.

Installing the Laptop Basic Software V_3.0



Important

- See Page 3–1 for the correct order for installing the software before you begin.
- "Laptop Basics Software V_3.0" is required for communication with the MIM V_2.0 through the LAPTOP. The DISKS labeled "LAPTOP Basic Software," contain the "Data Access Objects (DAO) V_3.5" files.

[1] Connect the FLOPPY DISKETTE DRIVE to the LAPTOP.

[2] Energize the COMPUTER.

[3] Insert the DISK 1 into the A: DRIVE.

[4] Select "Start/Settings/Control Panel".

[5] Open "Add/Remove Programs".

[6] At the "Add/Remove Program Properties," window, select "Install".

[7] At the "Install Program from Floppy Disk or CD ROM," window, select "Next".

[8] Check that the "Run Installation Program" window displays "A:\SETUP.EXE".

[9] Select "Finish".

Note

The COMPUTER displays a "Setup" window, indicating the status of "Install Shield".

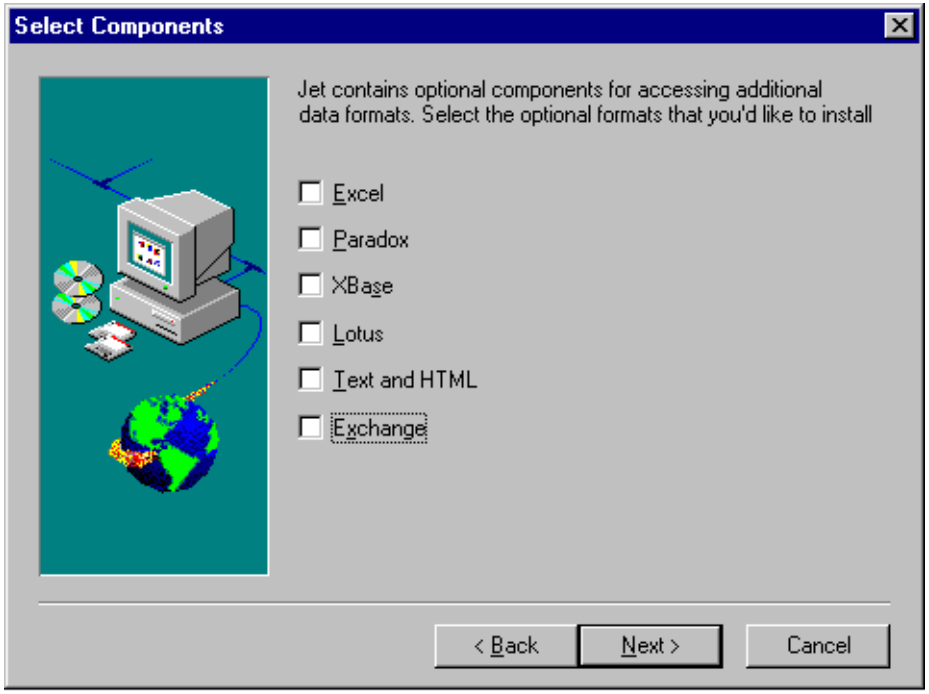
[10] At the "Data Access Objects" (DAO) setup window, select "Next". The following messages might appear: "**The OLE automation DLL, OLEAUTO32.DLL could not be found or is an older version that is incompatible with DAO3.5. If you continue DAO will not register properly. Continue anyway?**" This message does not indicate a problem. Select "Yes" to continue.

Note

In the following steps, to display the previous screen, select "Back".

[11] Read the "Welcome" screen. If necessary, exit any open *Windows* 95 programs.

[12] Select "Next".



[13] At the “Select Components” screen, select “Jet 3.5” only, then select “Next”.

[14] At the next “Select Components” screen, make sure all components are not selected, then select “Next”.

Note

The COMPUTER displays the progress of the installation.

[15] When the COMPUTER displays “Setup Needs the Next Disk”:

- **(a)** Remove the existing DISK
- **(b)** Insert the next DISK
- **(c)** Select “OK”

[16] Read the information in the “setup Complete” screen and then select “Finish”.

Important

The computer might display the message “Data Access Objects (DAO) installation failed.” This message does not indicate a problem.

[17] Select “OK” to complete installation.

[18] Eject the last setup DISK.

[19] To check that the “Laptop Basic Software V_3.0” is installed, go to the Desktop and select “Start’/’Settings’/’Control Panels’/’Add/Remove Program Properties”. If the software is installed, “Data Access Objects (DAO) 3.5” displays in the list.

Important

Now you must install Service Software V_2.1.

[20] To install Service Software **V_2.1**, do the procedure “Installing the Service Software” on Page 3–10.

Installing the Laptop Basic Software V_3.5

Important

- See Page 3–1 for the correct order for installing the software before you begin.
- "Laptop Basics Software V_3.5" is additional software required for communication with the Release Version 3.0 products through the LAPTOP.

[1] Connect the FLOPPY DISKETTE DRIVE to the LAPTOP.

[2] Energize the COMPUTER.

[3] Insert the DISK 1 into the A: DRIVE.

[4] Select "Start"/ "Settings" / "Control Panel" / "Add/Remove Programs".

[5] At the "Add/Remove Program Properties," window, select "Install".

[6] At the "Install Program from Floppy Disk or CD ROM," window, select "Next".

[7] Check that the "Run Installation Program" window displays "A:\SETUP.EXE".

[8] Select "Finish".

Note

The COMPUTER displays a "Setup" window, indicating the status of "Install Shield".

[9] At the "Software License" window, select "Yes".

Important

In Step 10, carefully read the prompts, which will direct you to insert DISK 1 and 2 again.

[10] When the COMPUTER displays "Setup Needs the Next Disk":

(a) Remove the existing DISK

(b) Insert the next DISK and then select "OK"

[11] Read the information in the "Setup Complete" screen and then select "Finish".

[12] Enable the radio button "Yes, I want to restart my computer now?" by placing a check in it. Then select [Finish].

[13] Eject the last setup DISK.

[14] To check that the "Laptop Basic Software V_3.5" is installed, go to the Desktop and select "Start"/ "Settings"/ "Control Panel" / "Add/Remove Program". If the software is installed, the list will display "Laptop Basic Software V_3.5".

Important

Now you must install Service Software V_3.0.

[15] To install Service Software **V_3.0**, do the procedure "Installing the Service Software" on Page 3–10.

Installing the Keypad Firmware Update

Important

- See Page 3–1 for the correct order for installing the software before you begin.
- Use this procedure to install the following items of software:
  - Update 1.0.4
  - Update 1.0.5
  - Update 1.0.7

[1] Insert the DISK into the A:DRIVE.

[2] At “Control Panel,” open “Add/Remove Programs”.

[3] At the “Add/Remove Properties” window, select “Install”.

[4] At the “Install Program from Floppy Disk to CD-ROM” window, select “Next”.

[5] At the “Run Installation Program” window, check that the path is correct: “A:\SETUP.EXE”.

[6] Select “Finish”.

[7] At the “License Agreement” window, select “Yes”.

Note

The COMPUTER will display the following messages in the order indicated:

- “Setup” window, indicating the status of “Install Shield”.
- “Decompressing Files In: C:\Program Files\KHID\AX.X”; The term “AX.X” indicates the version number.
- “Status”

[8] At the “Setup Complete” window, select “Finish”.

[9] Eject the DISK.

[10] To check that the software is installed, select “Start”/ “Settings”/ “Control Panel” / “Add/Remove Program”. If the software is installed, Service Application x_ will display where x indicates the version number.

[11] Do this procedure again for each remaining “Update” indicated in the above Important note.

[12] After you have executed this procedure for each Update for the KEYPAD FIRMWARE, advance to Page 3–16

Installing Software: MIM Digital V_2.2, Video 150 Board V_1.3, MIM 100 V_A1.10

Important

- See Page 3–1 for the correct order for installing the software before you begin.
- Use this procedure to install each of the following items of software:
  - "MIM DIgital V_2.2"
  - "Video 150 Board Firmware V_1.3"
  - "MIM 100 V_A1.1"

[1] Insert the DISK into the A:DRIVE.

[2] At "Control Panel," open "Add/Remove Programs".

[3] At the "Add/Remove Properties" window, select "Install".

[4] At the "Install Program from Floppy Disk to CD-ROM" window, select "Next".

[5] At the "Run Installation Program" window, check that the path is correct: "A:\SETUP.EXE".

[6] Select "Finish".

[7] At the "License Agreement" window, select "Yes".

Note

The COMPUTER will display the following messages in the order indicated:

- "Setup" window, indicating the status of "Install Shield".
- "Decompressing Files In: C:\Program Files\KHID\AX.X"; The term "AX.X" indicates the version number.
- "Status"

[8] At the "Setup Complete" window, select "Finish".

[9] Eject the DISK.

[10] To check that the software is installed, select "Start"/ "Settings"/ "Control Panel" / "Add/Remove Program". If the software is installed, Service Application x_ will display where x indicates the version number.

[11] Do this procedure again for each remaining item of software indicated in the above Important note.

[12] After you have executed this procedure for each item of software indicated above, advance to Page 3–17

Installing TCP/IP

Important

See Page 3–1 for the correct order for installing the software before you begin.

[1] Select “Start” and then open “Control Panel”.

[2] Open “Network”.

[3] Observe the “network components installed” list in the “Configuration” window:

- If TCP/IP is installed, verify in the window “Primary Network Logon”, the “Client for Microsoft Networks” is selected and then advance to the procedure “Installing Dial-Up Networking”.
- If “TCP/IP” is not installed, advance to Step 4.

[4] Select “Add”.

[5] At the “Select Network Component Type” window, select “Protocol”.

[6] Select “Add”.

[7] At the “Select Network Protocol” window, select:

- Manufacturer: *Microsoft*
- Network Protocol: TCP/IP

[8] Select “OK”.

[9] At the “Select Device” window, select “OK”.

[10] At the restart prompt, select “Yes”.

[11] Advance to “Installing Dial-up Networking” on Page 3–18.

Installing Dial-Up Networking

Important

- See Page 3–1 for the correct order for installing the software before you begin.
- TCP/IP must be installed in “Dial-Up Networking” for communication between the LAPTOP and the Release Version 3.0 product.

[1] At the Task Bar, select [Start] and then, depending on the Operating System, select the correct path:

- *Windows 95*: “Programs” / “Accessories”
- *Windows 98:* “Programs” / “Accessories” / “Communications”

[2] Observe the “Accessories” folder for *Windows 95* or the “Communications” folder for *Windows 98*:

- If “Dial-Up Networking” is not installed, advance to Step 3.
- If “Dial-Up Networking” is installed, advance to Page 3–19: “Installing ‘Direct Connect to NT’ and Configuring the Serial Port”:

[3] If “Control Panel” is not open, select “Start” and the open “Control Panel”.

[4] Open “Add/Remove Programs”.

[5] Select:

(a) “Windows Setup”

(b) “Communications”

[6] Check that “Communications” has a checkmark next to it.

[7] Select “Details”.

Important

In the next step, the checkbox for “Dial-Up Networking” must be checked.

[8] If the entry is correct for the “Dial-Up Networking” checkbox, select “OK”.

[9] Select “OK” again.

[10] Follow the directions that the screen displays for restarting the LAPTOP.

[11] Advance to Page 3–19.

Installing “Direct Connect to NT” and Configuring the Serial Port

Important

See Page 3–1 for the correct order for installing the software before you begin.

[1] Open “Modems” in the “Control Panel” Window.

[2] At the “Modem Properties” window under “General”, select “Add”.

Important

Advance to the correct step:

- *Windows 95*: Step 3
- *Windows 98*: Step 4

[3] At the “Install New Modem” menu, select “Other” and then select “Next”.

[4] Select “Don’t Detect my Modem” and then select “Next”.

[5] Select “Have Disk” and then select “Browse”.

Important

In the following step, you might have to change the directory level from “C:\Windows” to the directory indicated.

[6] At the “Open” window, select “C:\Proga~ 1\KHID\Modem”.

[7] At the “Open” window, select [OK] twice.

[8] Select the manufacturer “Generic Modem Drivers” and the model “Serial Cable to Windows NT”.

[9] Select “Next”.

[10] Select “Communications Port (COM 1)” for the 9-Pin SERIAL PORT of the LAPTOP.

[11] Select “Next”.

[12] When the COMPUTER displays the message “Your modem has been set up successfully”, select “Finish” and then “Close”.

[13] Close “Control Panel”.

[14] Advance to the procedure “Creating a ‘Dial-Up Networking’ Icon” on Page 3–20.

Installing a “Dial-Up Networking” Icon

Important

See Page 3–1 for the correct order for installing the software before you begin.

[1] At the Task Bar, select [Start] and then, depending on the Operating System, select the correct path:
- *Windows 95*: “Programs”/ “Accessories” / “Dial-Up Networking”
- *Windows 98: “*Programs” / “Accessories” / “Communications” / “Dial-Up Networking”

[2] At the “Dial-Up Networking” window, select “Make New Connection”.

[3] At the “Make a New Connection” window, type: **Connect to MIM products** or some other appropriate title.

[4] At the “Select a modem” menu for *Windows 95* or the “Select a Device” menu for *Windows 98*, select “Serial Cable to Windows NT”.

[5] Select “Configure” and then select each of the following tabs and check that the settings are correct:
- “General”:
  - Communication Port (COM1)
  - Max Speed = 115,200 baud
- “Connection”:
  - Data bits = 8
  - Parity = None
  - Stop bits = 1
- “Optional”: “Display modem status”

[6] Select “Connection” again, then select “Advanced”.

[7] Check that the checkboxes for both “Use Flow Control” and for “Hardware (RTS/CTS)” are selected.

[8] Select “OK” twice and then select “Next”.

Important

- You must enter a phone number before you can exit the “Make New Connection” window.
- The Dial-Up Networking “Connect to” window does not use this phone number.
- Use “Tab” to advance to the next field in the menu.

[9] Type: **111** for the area code; Type: **111-1111** for the phone number.

[10] Select “Next” and then select “Finish”.

[11] Make a shortcut for “Connect to”: See the title assigned in Step 3 above.

(a) Use the right button of the MOUSE to select “Connect to”.

(b) Select “Create Shortcut”

(c) Select “Yes” to place the shortcut on the desktop

[12] Close the “Dial-Up Networking” window.

[13] Advance to Section 4, “Connecting the Laptop to the MIM Products”.

Section 4: Connecting the Laptop to the MIM Products

Connecting to the MIM Products Using “Dial-Up Networking”

Note

The purpose of this procedure is to enable a Remote Access Service (RAS) connection, which is a network connection over a serial line.

[1] Connect the CABLE TL-5224 between the SERIAL PORT of the COMPUTER and the SERVICE PORT of the MIM.

[2] Energize the LAPTOP.

[3] From the desktop of the LAPTOP, open the icon for the shortcut to “Connect to MIM Products”. See “Installing a “Dial-Up Networking” Icon” on Page 3–20.

[4] At the “Connect to” window, type the user name: **service**

[5] Type the password: **service**

[6] Select “Connect”. The COMPUTER displays the “Connected to MIM” screen.

[7] Advance to “Connecting the Service Application to the local or passthrough MIM”.

Connecting the Service Application to the Local or Passthrough MIM Product

Important

- The LAPTOP must be connected to the MIM product through “Dial-Up Networking” before you connect the Service Application to the MIM product.
- The beginning and end IP Addresses for the RAS must be configured for passthrough access. See “Configuring the Network” on Page 5–4.
- Only one user can access a MIM product at one time.
- The passthrough feature allows the user to connect to another MIM product over the network.

[1] At the *Windows 95* Task Bar, select “Start” / “Programs/MIM Service”.

[2] Open the correct version, usually the most recent version, of the Service Application software.

[3] Type the password: **service** and then select “OK”.

[4] At the message “Login was successful...”, select “OK”.

[5] At the “MIM Service Application” window, select “Connect/Local” or “Connect/Passthrough”.

[6] If you select “Connect/Local”, advance to Step 9. If you select “Connect/Passthrough”, advance to Step 7.

[7] At the “Enter the MIM address” window, enter the IP Address of the local or passthrough MIM. The “Connection” window displays.

Note

The IP Address of the MIM is recorded in the following items:

- the “View System Service Information” screen of the MIM product KEYPAD

- the card insert located on the COVER of the MIM product

[8] Close the “Connection” window.

[9] If you are connecting the Service Application to the MIM product for the first time, advance to Section 5, “Configuring the MIM”.

Disconnecting the MIM Product

[1] At the “Service Application” window, select “File/Disconnect”.

[2] Select “File/Exit”.

[3] At the window “Connected to Connect to MIM Products,” select “Disconnect”.

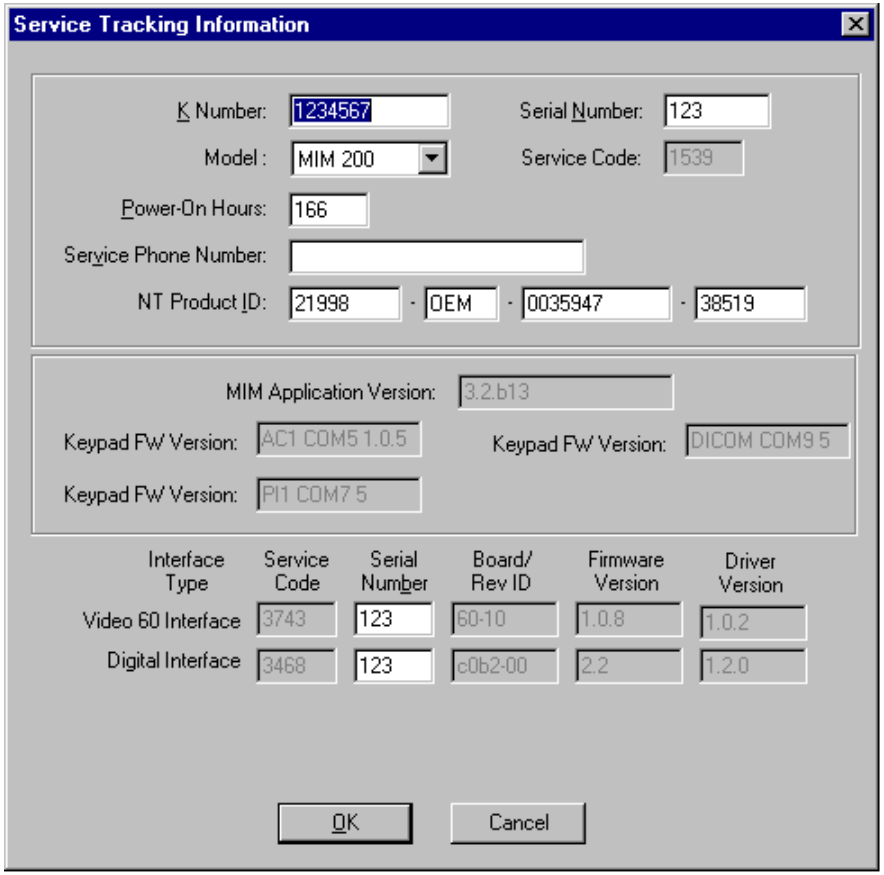
Caution

- You must “Shutdown” the MIM products before you de-energize it at the POWER SWITCH.
- To “Shutdown” the MIM product,
  - MIM 200 with a PRINTING KEYPAD or a DISPLAY KEYPAD: Select [Menu/System Shutdown].
  - MIM 200 with a TOUCHSCREEN KEYPAD: Select [Main Menu/Shutdown].
  - MIM 100: Use the KEYPAD to press: [Main Menu/Shutdown].
  - MIM 50 and DP **SPOOLER OR SERVER?**: Select [Menu/System Shutdown].

[4] If necessary, de-energize the MIM by turning the POWER SWITCH to the “OFF” position.

Section 5: Configuring Service Tracking Information, Network, Destination, and HIS/RIS Gateway

Checking the Service Tracking Information



[1] Connect by Local or Passthrough. If you connect by Passthrough, you'll need to enter the correct IP address.

[2] At the "MIM Service Application" window, select "Configure/Service Tracking Information."

[3] Check that the information in the "Service Tracking Information" window is correct. See "Input Parameters: Service Tracking Information" on Page 5–2.

[4] Did you change information?

- Yes: Select [OK].
- No: Select [Cancel].

Note

- The MIM 100NR indicates a configuration with a modified BULKHEAD, eliminating the RELAY BOARD that supports the RS-232 Autofilming Link.
- Unless otherwise specified, reference to the MIM indicates all models of the MEDICAL IMAGE MANAGER.

[5] If necessary, check the table to determine what procedure you must follow. See "Completing the Installation" on Page 2–22.

Note

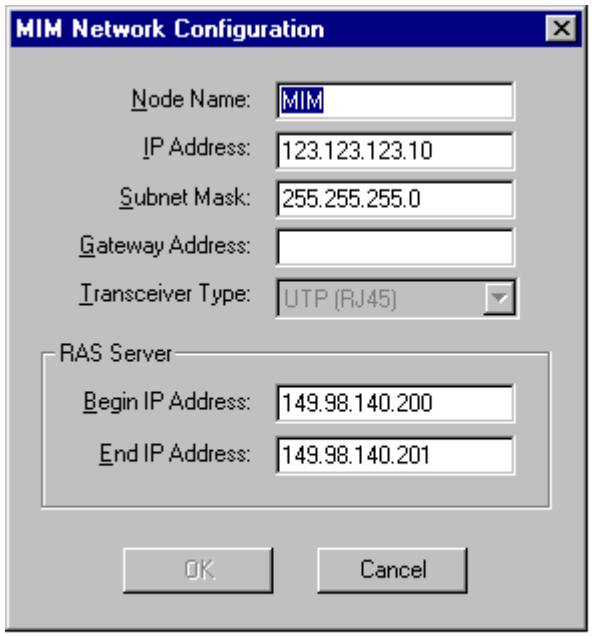
The screen that is displayed on your system might be slightly different from the screen that is shown here.

Input Parameters: Service Tracking Information

Input Parameter	Description	Range
K Number	The K Number assigned to this product by manufacturing.	1 -11 alphanumeric characters
Serial Number	The Serial Number assigned by manufacturing to the MIM family of products. The “Service Tracking” window displays the corresponding service code below the Serial Number.	1 - 6 alphanumeric characters
Model	Indicates the type of equipment. In versions of software prior to V_3.1, this field could only be viewed. Now the model can be changed.	DMIS/DICOM DMIS/Digital DMIS/Video DP SERVER MIM 50, MIM 200 MIM 100, MIM 100NR
Service Code	Indicates the service code of the equipment.	See “SCAN Feedback Codes” on Page 20–1.
Power-On-Hours	The number of hours that the MIM has been energized. The software updates this number every hour. This value will be used for product reliability.	1 - 6 numeric digits
Service Phone Number	Telephone number of the local Technical Support Center	0 - 20 alphanumeric characters
NT Product ID	Product ID for licensing *Windows NT* operating system. Must be unique for each MIM.	4 alphanumeric fields field 1 = 5 characters field 2 = 3 characters field 3 = 7 characters field 4 = 5 characters

Input Parameter	Description	Range
Software Versions for Application Software and Keypad sections	These fields are viewable only. The words “Software Version” do not occur in any of these fields. Keypad Firmware Version: This field will display a version number only if the Keypad firmware has been upgraded for versions prior to V_3.2. In V_3.2.x the type of interface for the Com Port and the software version will be displayed. Interface Driver Version prior to V_3.2.x Video or Digital Interface Firmware MIM Application	3 - 8 alphanumeric characters x.y.z where x = major release y = minor release z = sub-minor release, optional For MIM Application only: 3 - 19 alphanumeric characters 1 = release level: development, alpha, beta n = sequence number for successive release level
Interface Type	Type: Viewable only. Information for each interface is displayed for MIM 200. Serialized Service Code: Viewable only. Serial Number: See the Data Sheet Board/Rev ID, Firmware, and Driver Versions: Viewable only	Video, Digital, or Optical: 3433, 3468, 3469, or 3743 Enter the Serial Number to automatically update the other fields for Interface Type.

Configuring the Network



The Service Application allows you to view and modify the parameters for the TCP/IP and *Ethernet* BOARD that are necessary to configure the MIM as a device on the network. Although the RJ45 *Ethernet* connection is on the CPU BOARD of the MIM 50 and DP SERVER, you will use the LAPTOP to configure it.

Important

The Remote Access Service (RAS) Server enables access to other MIMs or network equipment and provides IP addresses for assignments to clients:

- See the Network Administrator for additional IP Addresses: 2 valid IP Addresses per site are required on the same subnet as the IP Address of the MIM product.
- The IP Address of MIM 100.100.100.100 cannot communicate to IP Address of DPS SERVER 123.123.123.10 without the use of gateways. For successful communication, either the IP Address of the MIM or the Destination must be changed, or a gateway must be used.

[1] Determine from the customer if you must change any of the factory default settings listed in the “MIM Network Configuration” window.

Note

The screen that is displayed on your system might be slightly different from the screen that is shown here.

[2] At the MIM Service Application window, select: “Configure/Network”.

[3] Check for correct information in the “MIM Network Configuration” window. See “Input Parameters: Network Information” on Page 5–5.

- Node name: Must be unique for all Nodes on Local Area Network (LAN)
- IP Address: See Network Administrator
- Subnet mask: See Network Administrator
- Gateway Address: See Network Administrator
- Transceiver Type: Selectable for the MIM 100 using the network combo card only
- RAS Server Begin and End IP Address: See Network Administrator

Input Parameters: Network Information

Input Parameter	Description	Range
Node Name	The unique name that identifies the local COMPUTER to TCP/IP. This name typically will be a name that is meaningful for the location.	1 - 15 alphanumeric characters plus hyphen: "-"
IP Address	The unique address that identifies a specific node in a network. Update the LABEL on the side of the MIM.	4 fields (1 - 254) in which each field is separated by a period
Subnet Mask	The subnet mask works in conjunction with the IP address to subdivide the network into multiple networks.	4 fields (0 - 255) in which each field is separated by a period
Gateway Address	The IP Address of the router used in wide area network (WAN) configuration. The Service Application software does not require you to enter data in this field.	4 fields (1 - 254) in which each field is separated by a period
Transceiver Type	The TRANSCEIVER type of the NETWORK ADAPTOR *Ethernet* CARD or BOARD for network communications. This field is viewable only.	UTP (RJ45) is the only option for the MIM 200, MIM 50 or the DP Server. Although the MIM 100 has various options, RJ45 is recommended. The following options are only available when using the NETWORK COMBO CARD 10base: • UTP (RJ45) • Thickwire (10 base 5) • Thinwire (10 base 2)
RAS Server Begin IP Address	Beginning IP Address of the RAS Server static address pool. This IP Address must be lower than the end IP Address and located on the same subnet.	4 fields (1 - 254) in which each field is separated by a period
RAS Server End IP Address	Ending IP Address of the RAS Server static address pool. This IP Address must be higher than the beginning IP Address and located on the same subnet.	4 fields (1 - 254) in which each field is separated by a period

[4] If you changed any information, select "OK" and update the LABEL on the side of the unit. If you did not change information, select "Cancel".

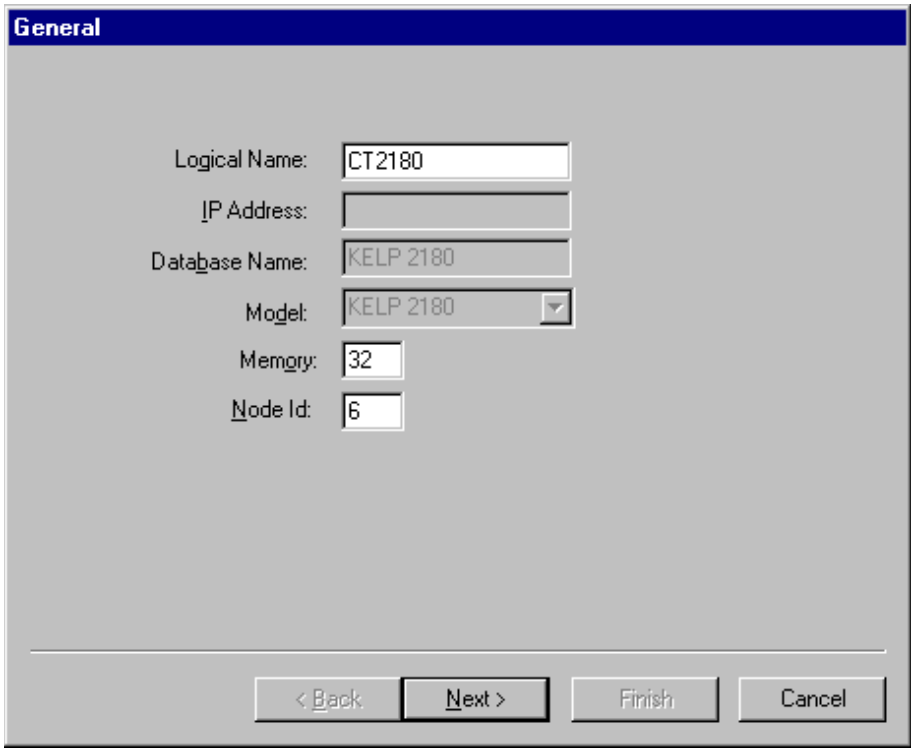
[5] At the message "Changes will take effect the next time the MIM is restarted", select "OK".

[6] If you made any changes, reboot the MIM.

[7] If necessary, see Page 2–22 to determine what procedure you must follow.

Configuring the Destination

Adding a Printing Device (V_3.2.x and later)



Important

See the tables on pages 5–13, 5–17, and 5–20 for information for the Destination Parameters.

[1] At the “Service Application” window, select “Configure/Destination”.

Note

If a printing or imaging destination is connected to the MIM, it is a direct connection, regardless of cable connection type. If the printing or imaging destination is not directly connected to the MIM, then choose Network.

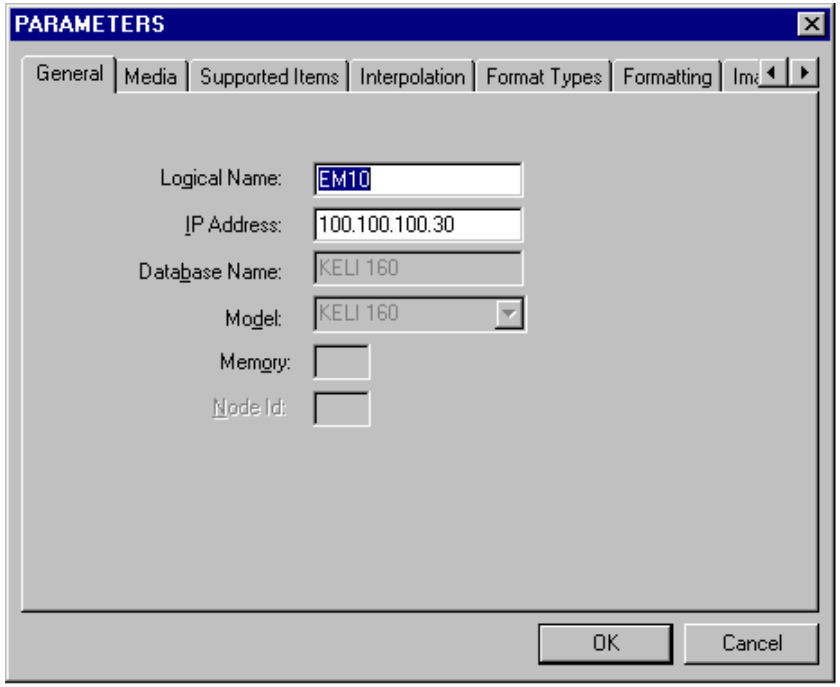
[2] At the “Installed Destinations” window, select the correct sequence:

- For the DICOM PRINT SERVER and a MIM 200 SERVER: “Add” / “Print” / “Direct” / “Qualified”
- For the MIM 200 (with no Printer or Imager directly connected) with conventional KEYPAD and MIM 50: “Add” / “Print” / “Network” / “Qualified” or “Unqualified”
- For the MIM 100 and MIM 200 (with no Printer or Imager directly connected) with the TOUCHSCREEN KEYPAD: Select one of the following sequences:
  - “Add” / “Print” / “Network” / “Qualified” or “Unqualified”
  - “Add” / “Store” / “Qualified” or “Unqualified”

[3] At the “Choose a New Direct or Network Destination” window, select the correct PRINTER from the list and then select “OK”.

Note

Default settings are to be used for Drytone Scaling parameters. If Wet Tone Scaling parameters are desired, they must be selected at the KEYPAD. To select Wet Tone Scaling parameters, select Keypad Services from the KEYPAD and then select the Tone Scaling method, Tone Scaling Curveshape or Tone Scaling Perception LUT, Curve Shape for Wet values and Perception LUT for dry values.

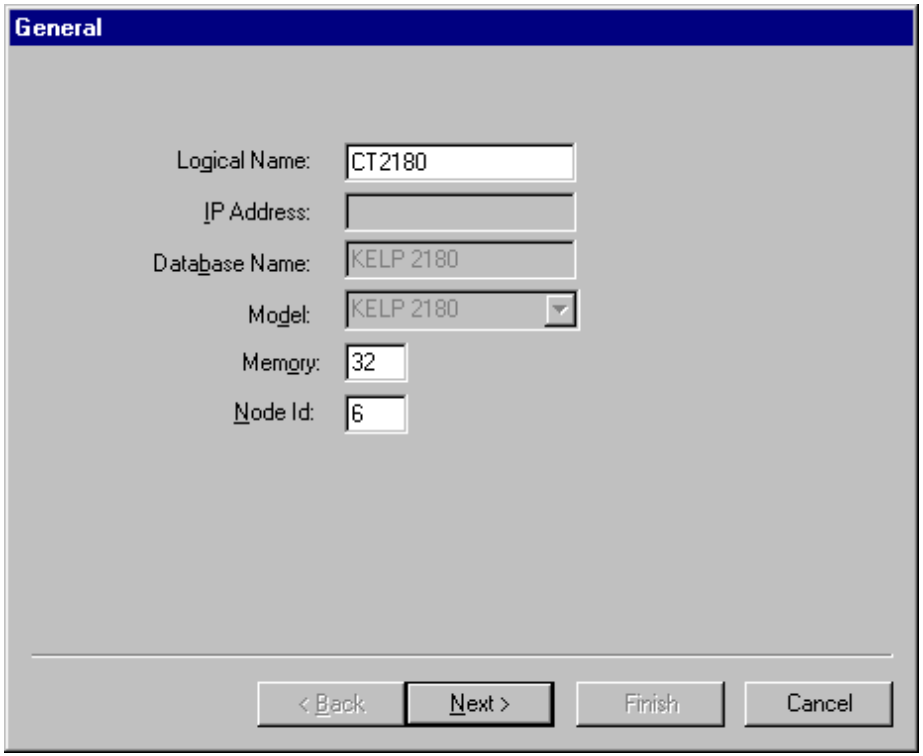


[4] At the General parameters window, enter the required parameters:

- See “General Parameters” on Page 5–13.
- “Memory” is a required arameter.

Supported Destinations of the MIM and DP SERVER

Print/Network (Qualified)	Print/Direct (Qualified)
8100	DMI 1200
8300	DMI 3600
8500	KELI 160
8600	KELP 1120
8700	KELP 2180
8800/8300	
8800/8500	
8800/8700	
800/969HQ	
969HQ	
969HQT	
DMI 1200	
DMI 3600	
DPServer/KELP 1120	
DPServer/KELP 2180	
KELI 160	
KELP 100XLP - CP DICOM Input Package	
KELP 1120 - CP DICOM Input Package	
KELP 2180 - CP DICOM Input Package	
MLP 190	



Important

To continue, advance to the correct step:

- For the MIM: Do Step 5 to the end of the procedure.
- For the DP SERVER: Do Step 8 to the end of the procedure.

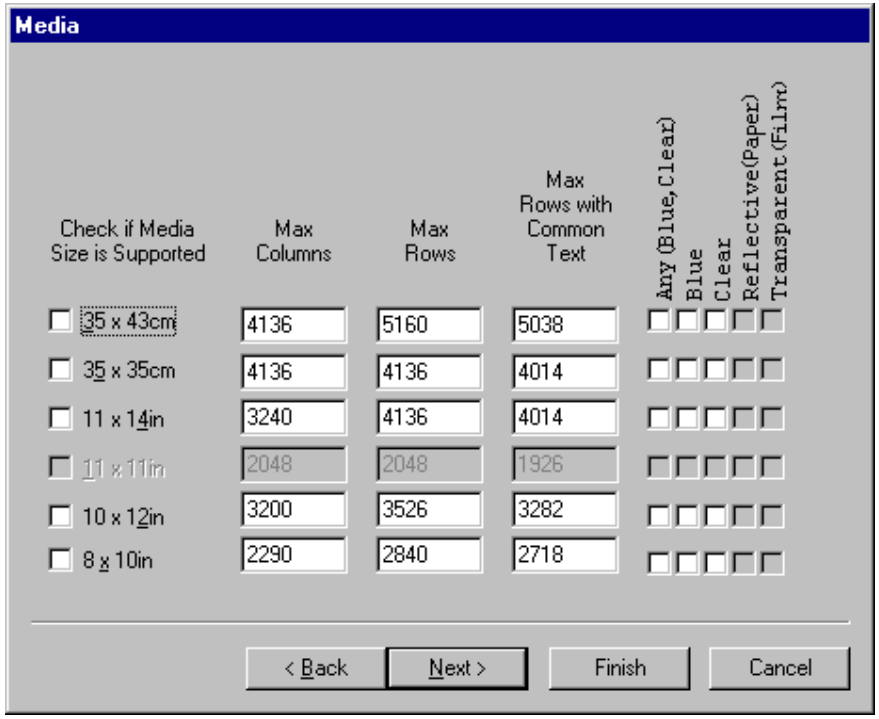
[5] For the MIM select “DICOM Info” from the Destination Parameters window.

[6] In the “DICOM Information” window, enter the correct:

- Port Number
- AE Title
- Response Message Timer

[7] Select “OK.”

[8] At the “Destination Parameters” window, select “Media Info.”



Important

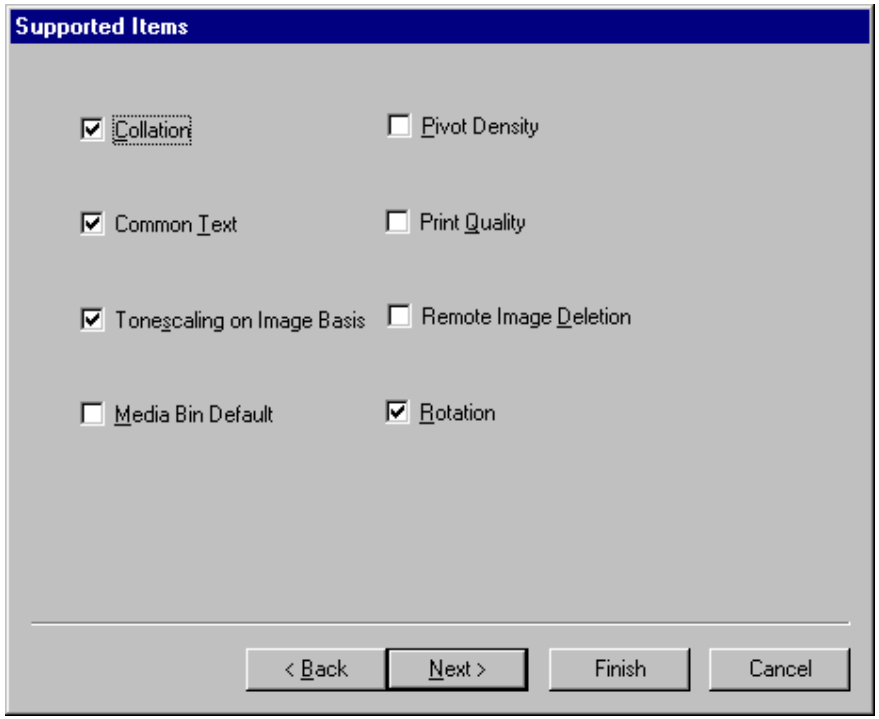
You must select a media base for each media selected in the “Media” window. See “Format Types” on Page 5–20.

[9] In the “Media” window, select all media that the customer will use.

Note

The numbers that the “Media Information” window displays on the LAPTOP might not match the numbers displayed in the screen at left. Numbers are only displayed for a qualified destination.

[10] Select “OK.”



[11] At the Destination Parameters" window, select "Supported Items".

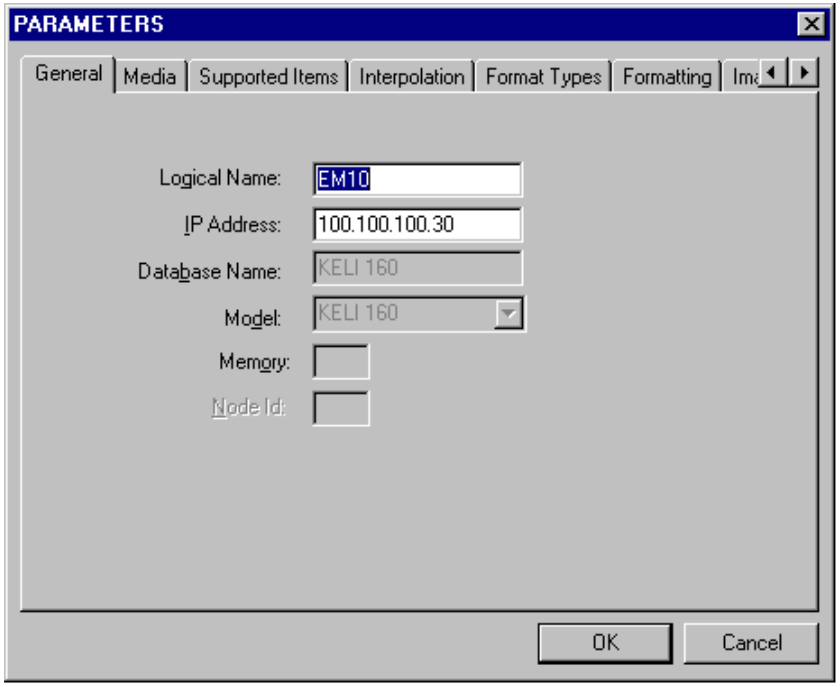
Important

- Do not modify any of the items in the table "General Parameters" on Page 5–13 for a qualified destination unless the TSC instructs you to modify these items.
- See "Supported Items Parameters" on Page 5–17. Different items will be indicated, depending on the destination.
- No items are checked for an unqualified destination. Check with the TSC for the latest information.

[12] Check that the proper items are selected, then select "OK".

[13] At the "Installed Destinations" window, select "OK".

[14] To store this configuration, at the "Destination Parameters" window, select "Set".



[15] Check that you correctly configured the Destination:

- MIM
  1. At the “Service Application” window, select “Diagnostics/Network” and execute a ping and/or a DICOM echo.
  2. Enter the IP Address of the new Destination for a ping. Enter the IP Address, port number and AE title for a DICOM echo.
  3. Select “OK”.
  4. Select “Cancel” from the “Network Diagnostics” window.
- DICOM PRINT SERVER
  1. On the KEYPAD, press “MENU” / “SELECT”
  2. Select “Service Menu” / “Diagnostics Setup” / Test Print Menu” / Grayscale Print”.
  3. Select “Exit Menu” until the KEYPAD displays the “Queued Jobs” screen.

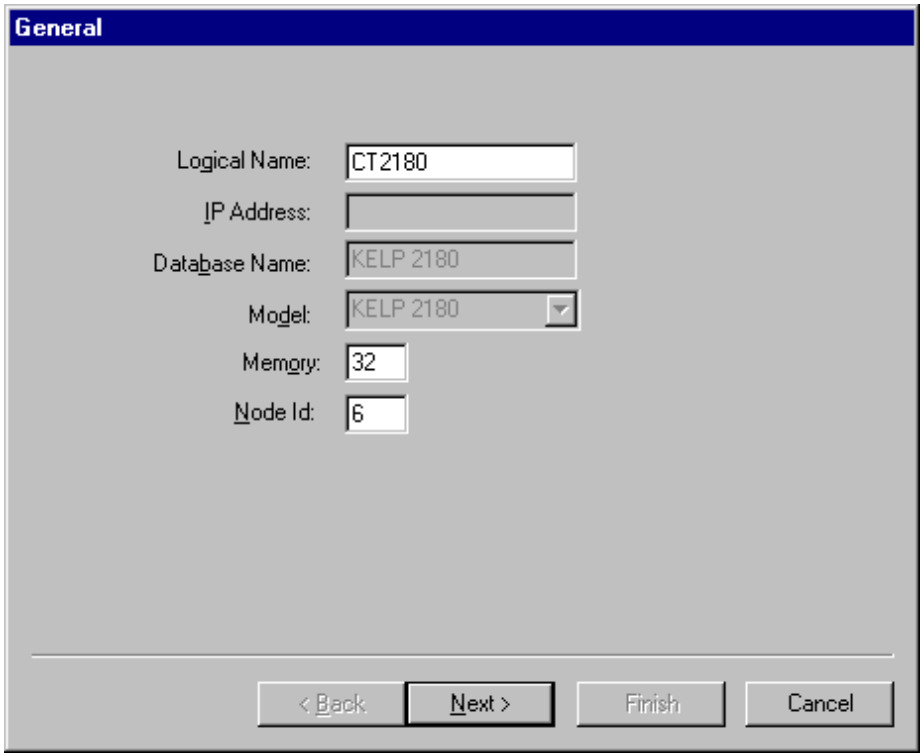
[16] If necessary, see Page 2–22 to determine what procedure you must advance to.

If you want to modify or check the parameters for your destination, select the destination and click Modify.

Important

- Do not modify any of the items in the following table for a qualified destination unless directed to do so by the TSC. (See “General Parameters” on Page 5–13.)
- If an item is not checked in the “Supported Item” or “Media Info” windows, the customer will not be able to access that item:
  - The KEYPAD of the MIM will not display an unsupported feature or function.
  - The DP SERVER will not accept a request for an item unsupported by the destination.

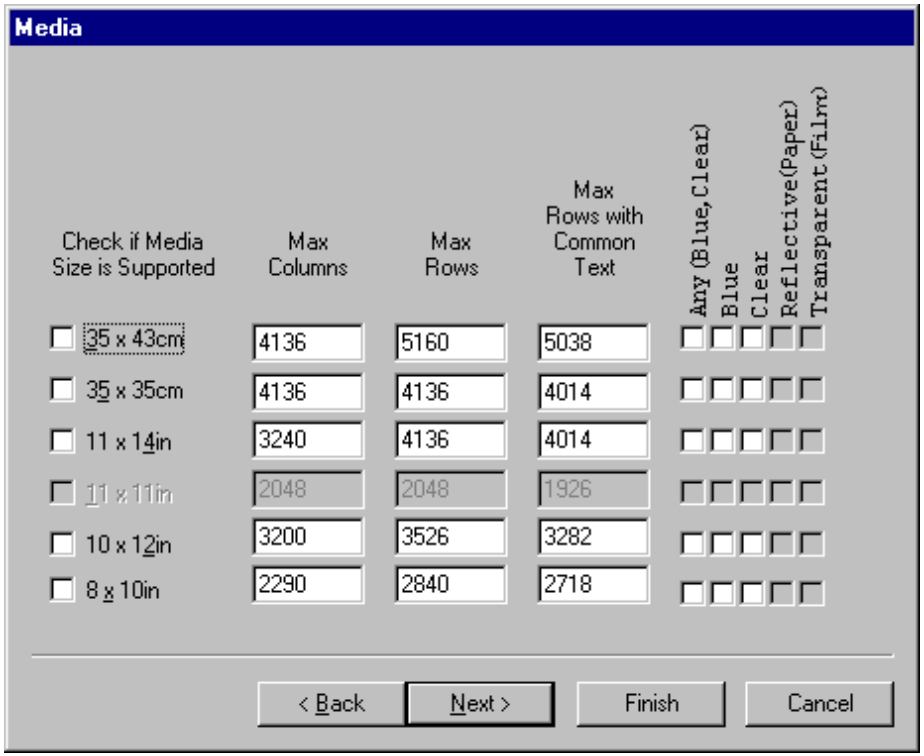
General Parameters



Item	Description	Range
Logical Name	Site-specific name that you must enter for a particular Destination. The KEYPAD displays this name when the operator selects a Destination. The MIM requires a logical name that is unique across all currently installed destinations. The “Logical Name” of the DICOM PRINT SERVER is the “AE Title”.	1 - 9 alphanumeric characters No spaces allowed. Underscores are allowed.
IP Address (This will be blank for a Direct option.)	Site-specific address that uniquely identifies the Destination on the network. The Service Application for the MIM requires the user to enter a value. Duplicate IP Addresses for installed destinations are acceptable as long as the DICOM AE Titles are unique for each destination. This field is not configurable for a direct connect DMI 1200 or a direct connect printer that is using the DICOM Print Server.	4 fields of 0 - 255 where each field is separated by a period: For example: 149.110.98.10 The default value for DMI 1200 is “LPT1:”; otherwise there is no default value.

Item	Description	Range
Database Name	The name of the Destination if it is being installed using a known destination from the qualified destination database. This field is viewable only.	1 - 13 alphanumeric characters
Model	The model of the Destination. The product uses this data to optimize the page format validation for the particular Destination. This field is viewable only. MLP 190 and KELP XLP are not valid options for a direct connect printer destination.	1 - 12 alphanumeric characters. MLP190, DMI 1200 and 3600, Kodak Ektascan LASER PRINTERS, MEDICAL VIEWING STATION (MVS), MEDICAL IMAGE and INFORMATION LIBRARY (MIIL), KELI 160, 9410 PACS Link System, and Med Rad Works.
Memory	The amount of memory in megabytes residing in the Destination. The product uses this value to perform format validation. This value is site-specific. The Service Application requires a value in this field.	1 - 99 For the MLP 190, enter “30”. For the KELP 2180, 1120, and 100 XLP, obtain page store information from the printer’s CES port.
Node ID	The node assigned to the **CPOI board** in the 1120 or 2180 LASER PRINTER. Node ID must be unique and not conflict with any node IDs that are assigned to any installed CP Interfaces in the KELP. The Service Application requires a value in this field.	1 - 6. Default is 6.

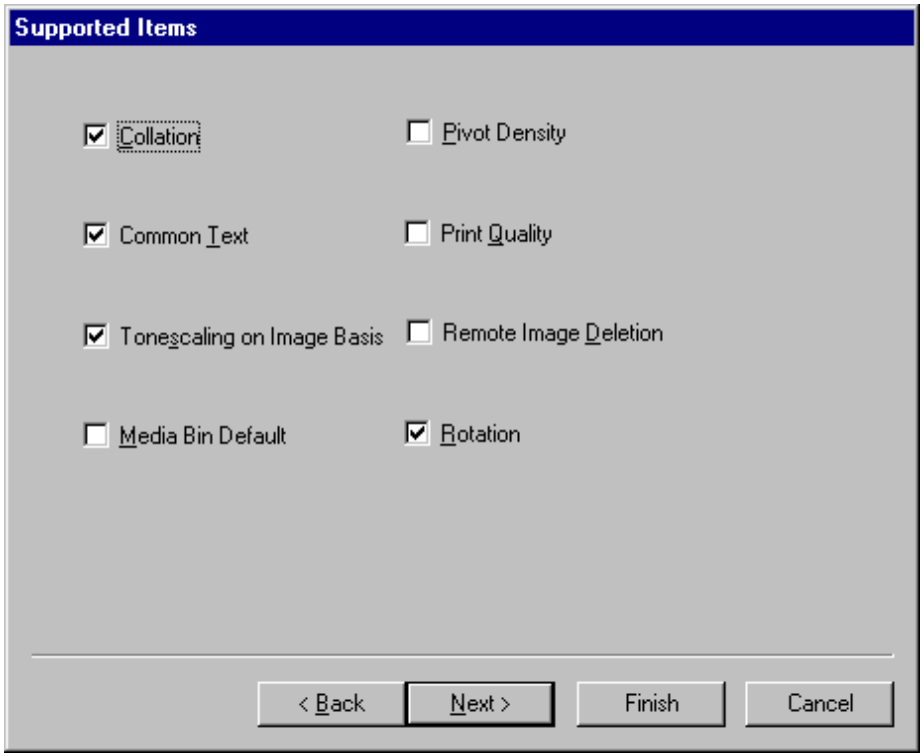
Media Information



Item	Description	Range
[**Media Info**]	Select [Media Info] to display the Media Information indicated in this table.	N/A
Size	Media sizes supported by the Destination.	35 x 43 cm, 35 x 35 cm, 11 x 14 in., 11 x 11 in., 10 x 12 in., 8.5 x 11 in., 8 x 10 in., 4 x 6 in., A4
Maximum Columns	Maximum number of printable pixels in the x-direction for a particular media size. Maximum columns can be selected for each media size. The product uses this parameter to perform format validation.	1 - 9999
Maximum Rows	Maximum number of printable pixels in the y-direction for a particular media size. Maximum rows are selectable for each media size with or without common text. The product uses this parameter to perform format validation.	1 - 9999

Item	Description	Range
Maximum Rows with Common Text	Maximum number of printable pixels in the y-direction for a particular media size. Maximum rows can be selected for each media size with or without common text. The product uses this parameter to perform format validation.	1 - 9999
Types	Media types supported by the Destination. Media types can be selected for each media size. “Any” indicates that the Destination will use the media type that matches the media size selected (blue or clear). The selections “Reflective” and “Transparent” are valid for color printing.	Any, Blue, Clear, Reflective (Paper), Transparent (Film).

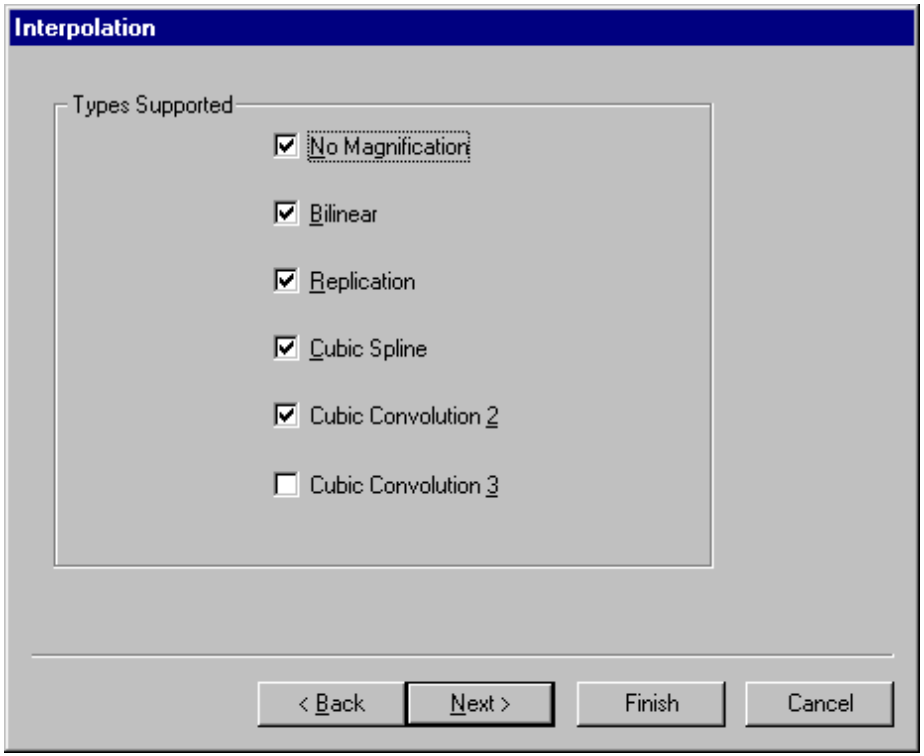
Supported Items Parameters



Item	Description	Range
[**Supported Items**]	Select [Supported Items] to display the supported features indicated in this table.	N/A
Collation	Collation enables study mode operation at the KEYPAD and requests the Destination to print films together that belong to the same study. Does the destination support Collation?	Yes, No
Common Text	Common Text enables the entry of common text information (including the macros for time/date, etc.) at the KEYPAD for printing at the bottom of each film. This parameter will also be used by MIM when performing format validation. Does the destination support Common text?	Yes, No
Tonescaling on Image Basis	Tonescaling on Image Basis enables the changing of curve shape in the middle of a page and selecting a curve shape series from the KEYPAD. Does the destination support Tonescaling on Image Basis?	Yes, No

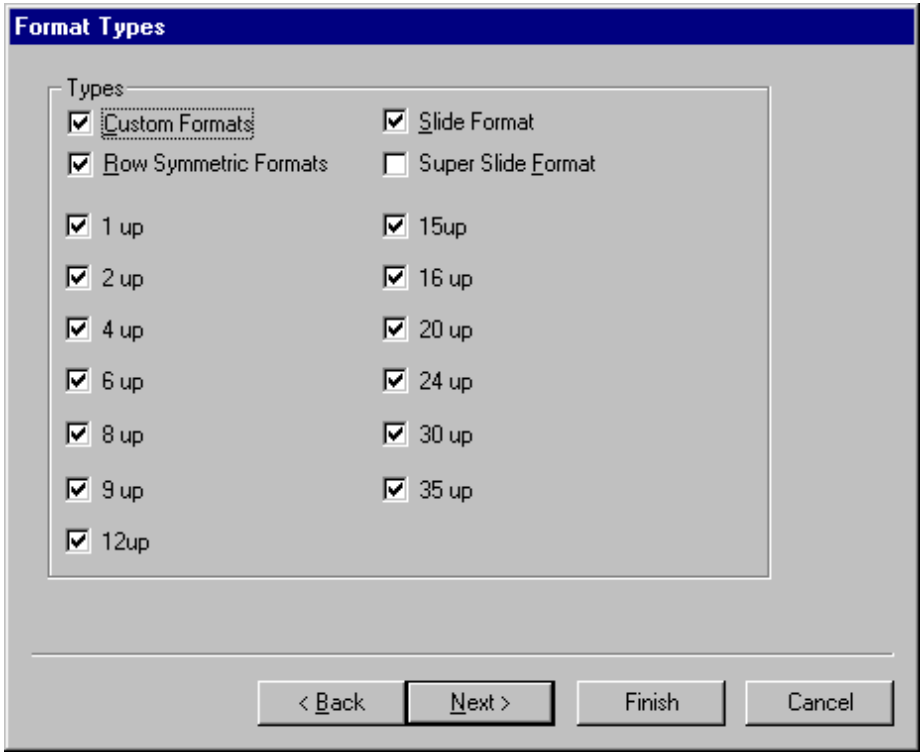
Item	Description	Range
Media Bin Default	Media Bin Default enables selecting a default media bin at the KEYPAD when the media size/type is not specified by a DICOM input. Does the destination support this feature?	Yes, No
Pivot Density	Pivot Density enables the selection of a pivot density setting from the KEYPAD. Does the destination support pivot density?	Yes, No
Print Quality	Print Quality enables the selection of print quality to be used when printing the page from the KEYPAD. (The DMI 3600 and DMI 1200 will support 2 selections: High/1440 DPI and Standard/720 DPI.) Does the destination support different printing qualities?	Yes, No
Remote Image Deletion	Remote Image Deletion enables delivery of images to the destination as soon as they are captured from the imaging source/image node. Does the destination support remote image deletion?	Yes, No
Rotation	The Rotation parameter will allow the KEYPAD to prevent the customer from selecting a page orientation of landscape for formats that are normally portrait (and vice versa) from the KEYPAD that is not supported by the destination. It will also be used by the MIM when performing format validation. Does the product support page rotation?	Yes, No

Interpolation



Item	Description	Range
[**Interpolation**]	Select [Interpolation] to display the supported features indicated in this table.	N/A
	Interpolation enables selecting a particular interpolation method from a list of supported methods from the KEYPAD or from other inputs.	No Magnification, Bilinear, Replication, Cubic Spline, Cubic Convolution 2, Cubic Convolution 3

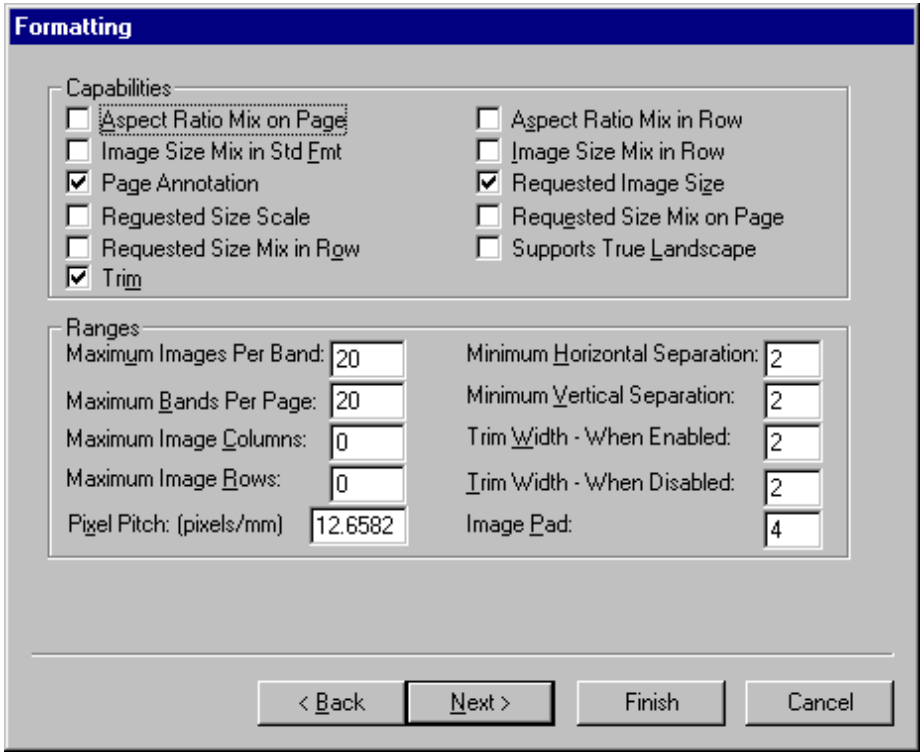
Format Types



Item	Description	Range
[**Format Types**]	Select [Format Types] to display the information indicated in this table.	N/A
Custom Formats	Custom formats enables the selection of formats 101 and 102 from the KEYPAD or from other inputs. This parameter will be used by the MIM when performing format validation.	Yes, No
Row Symmetric Formats	Enables specifying formats that only have a line of symmetry in the vertical direction from an Autofilming Link or over DICOM. This parameter will be used by the MIM when performing format validation.	Yes, No
Slide Format	Enables the selection of slide format from the KEYPAD or from other inputs. This parameter will be used by the MIM when performing format validation.	Yes, No

Item	Description	Range
Super Slide Format	Enables the selection of super slide format from the KEYPAD or from other inputs. This parameter will be used by the MIM when performing format validation.	Yes, No
Allowable formats	A list of standard formats that the destination supports. This list can be further customized to control what the users see for a specific destination. There will be a setting for each format (1up, 2up, 4up, etc.).	Yes, No

Formatting Parameters

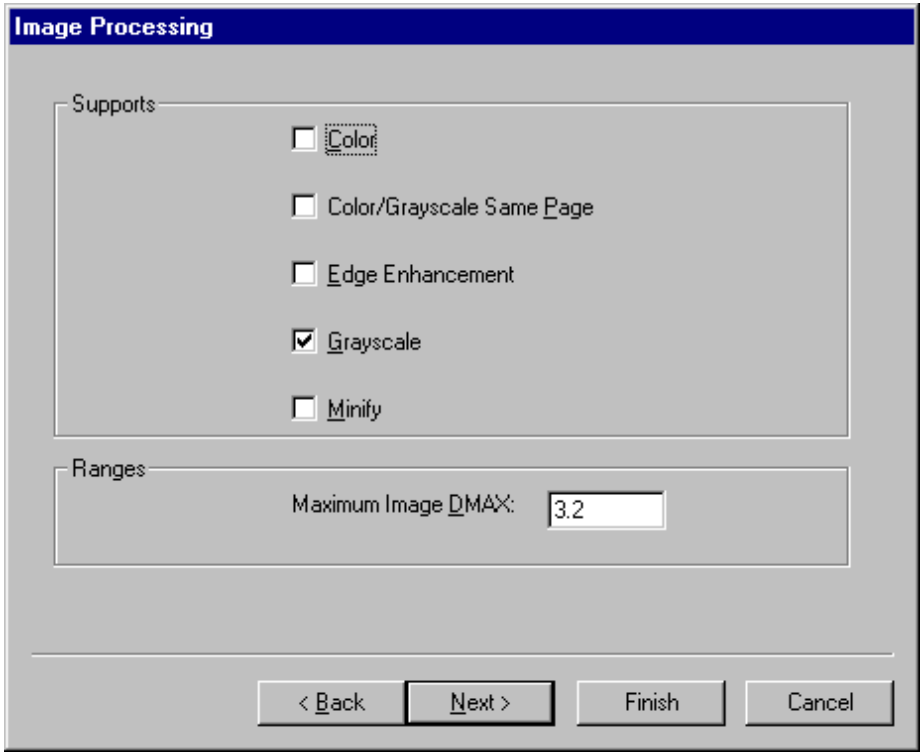


Item	Description	Range
[**Formatting Parameters**]	Select [Formatting] to display the Formatting information indicated in this table.	N/A
Aspect Ratio Mix on Page	Mixed aspect ratio on the same page is supported by the destination. This parameter will be used by the MIM when performing format validation.	Yes, No

Item	Description	Range
Image Size Mix in Std Fmt	Is mixed image size on standard format supported by the destination? This indicates if the image size can be changed on a page with a row/column symmetric format. The images will be scaled differently to print all the images at the same time. This parameter will be used by the MIM when performing format validation.	Yes, No
Page Annotation	Is page annotation supported by the destination? This indicates if the destination supports the DICOM Annotation Box for specifying the band of text that will be placed on each film. This parameter will be used by the MIM when performing format validation.	Yes, No
Requested Size Scale	Should the destination scale the requested image to fit the image cell supported by the destination? This indicates if the requested size of the image should be scaled to match the available image cell area. The printer will place a notice on the output that indicates that the operation was performed. This parameter will be used by the MIM when performing format validation.	Yes, No
Requested Size Mix in Row	Should all images in a row have the same requested size? This parameter will be used by the MIM when performing format validation.	Yes, No
Trim	Is Trim supported by the destination? This enables selecting a border to be printed around each image from the KEYPAD or from other input devices.	Yes, No
Aspect Ratio Mix in Row	Mixed aspect ratio in the same row supported by the destination. This parameter will be used by the MIM when performing format validation.	Yes, No
Image Size Mix in Row	Is mixed image size in row supported by the destination? This indicates if the image size can be changed in a row independent of the page format. This parameter will be used by the MIM when performing format validation.	Yes, No
Requested Image Size	Is requested image size supported by the destination? This indicates if the destination can print images at a specific size. This parameter will be used by the MIM when performing format validation.	Yes, No
Requested Size Mix on Page	Should all images on the page have the same requested size? This parameter will be used by the MIM when performing format validation.	Yes, No
Supports True Landscape	Does the destination support a true landscape orientation?	Yes, No
Maximum Images Per Band	What is the maximum images per band that is supported by the destination?	1 - 32
Maximum Bands Per Page	What is the maximum bands per page that is supported by the destination?	1 - 32
Maximum Image Columns	What is the number of maximum image columns that are supported by the destination?	0 - 5000
Maximum Image Rows	What is the number of maximum image rows that are supported by the destination?	0 - 5400

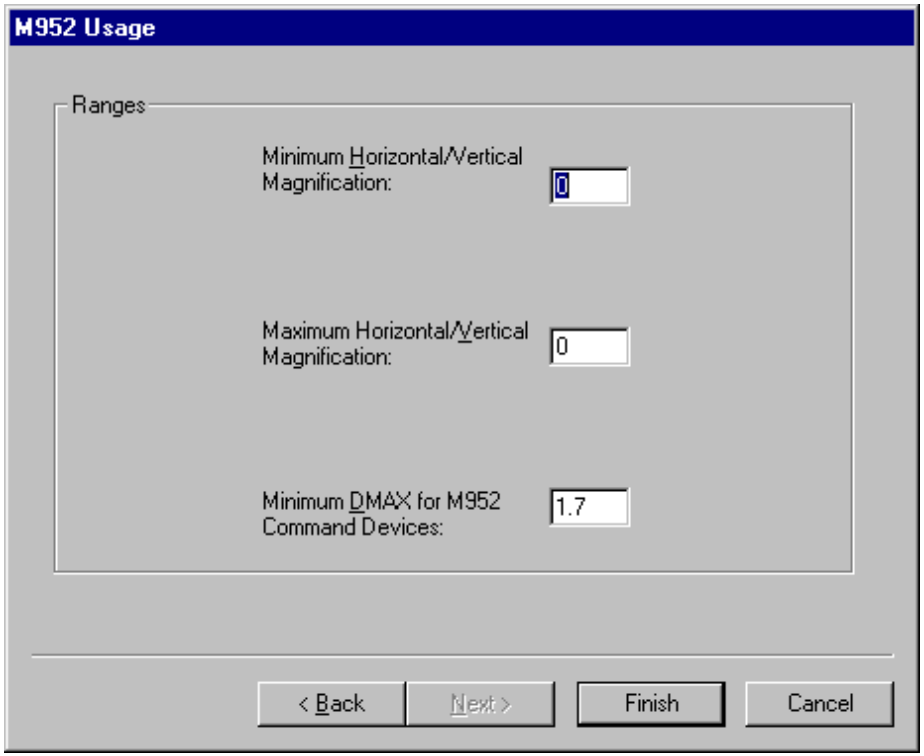
Item	Description	Range
Pixel Pitch	What is the number of pixels per millimeter for the destination?	0 - 32
Minimum Horizontal Separation	The number of columns that separate images in the horizontal direction. This parameter will be used by the MIM when performing format validation.	0 - 20
Minimum Vertical Separation	The number of rows that separate image bands in the vertical direction. This parameter will be used by the MIM when performing format validation.	0 - 10
Trim Width - When Enabled	The number of pixels reserved around the border of an image in the x and y direction when trim is on. This parameter will be used by the MIM when performing format validation.	0 - 5
Trim Width - When Disabled	The number of pixels reserved around the border of an image in the x and y direction when trim is not on. This parameter will be used by the MIM when performing format validation.	0 - 5
Image Pad	The number of pixels reserved around the border of an image in the x and y direction. This parameter will be used by the MIM when performing format validation.	0 - 10

Image Processing Parameters



Item	Description	Range
[**Image Processing**]	Select [Image Processing] to display the information indicated in this table.	N/A
Color	Does the destination support color images?	Yes, No
Color/Grayscale Same Page	Does the destination allow the user to place color and grayscale images on the same page?	Yes, No
Edge Enhancement	This feature enables the user to select edge enhancement related parameters such as modality type and image tone adjustment values from the KEYPAD. Does the destination support edge enhancement?	Yes, No
Grayscale	Are grayscale images supported by the destination?	Yes, No
Minify	Formerly Decimation. This indicates if the destination can accept images that have actual dimensions that exceed the dimensions of the image cell that the image will be printed at. Is Decimation supported by the destination?	Yes, No
Maximum Image DMAX	What is the maximum image DMAX value that is supported by the destination?	0.0 - 3.8

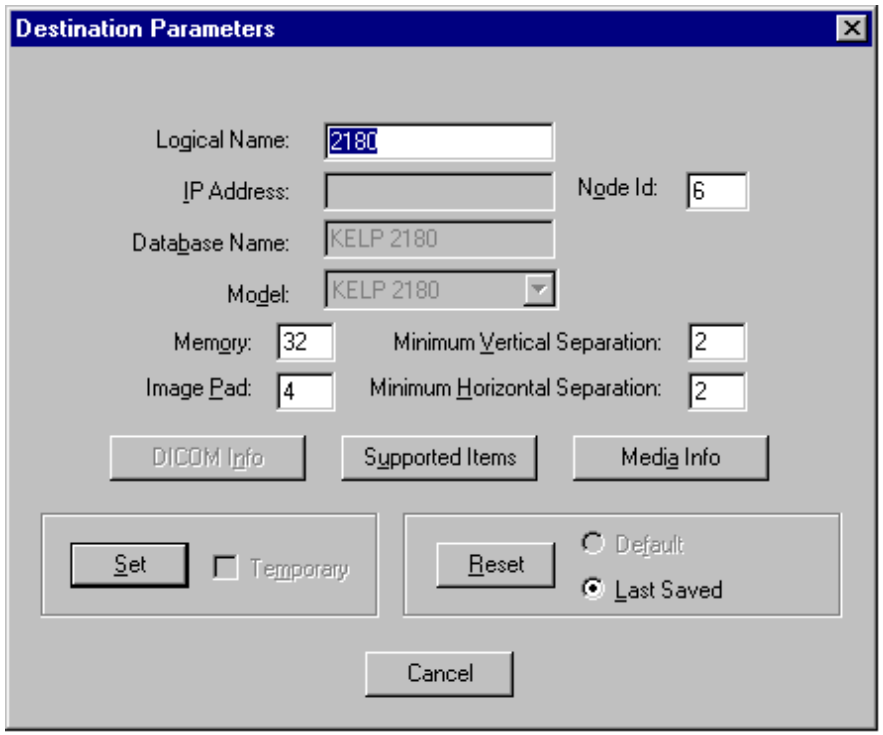
M952 Usage



Item	Description	Range
[**M952**]	Select [M952] to display the information indicated in this table.	N/A
Minimum Horizontal/Vertical Magnification	What is the minimum Horizontal and Vertical Magnification value that is supported by the destination? This parameter does not apply to store destinations.	0..64
Maximum Horizontal/Vertical Magnification	What is the maximum Horizontal and Vertical Magnification value that is supported by the destination? This parameter does not apply to store destinations.	0..64
Minimum DMAX for M952 Command Devices	What is the minimum DMAX value that is allowed by the destination when mapping to click counts?	1.5 - 2.0

[17] Return to Page 5–28.

Adding a Printing Device (V3.1.3 and earlier)



Important

The tables on pages 5–29, 5–32, and 5–34 provide information for the Destination Parameters.

[1] At the “Service Application” window, select “Configure/Destination”.

[2] At the “Installed Destinations” window, select the correct sequence:

- For the DICOM PRINT SERVER: “Add” / “Print” / “Direct” / “Qualified”
- For the MIM 50: “Add” / “Print” / “Network” / “Qualified” or “Unqualified”
- For the MIM 100: Select one of the following sequences:
  - “Add” / “Print” / “Network” / “Qualified” or “Unqualified”
  - “Add” / “Store” / “Qualified” or “Unqualified”

[3] At the “Choose a New Direct or Network Destination” window, select the correct PRINTER from the list and then select “OK.”

Note

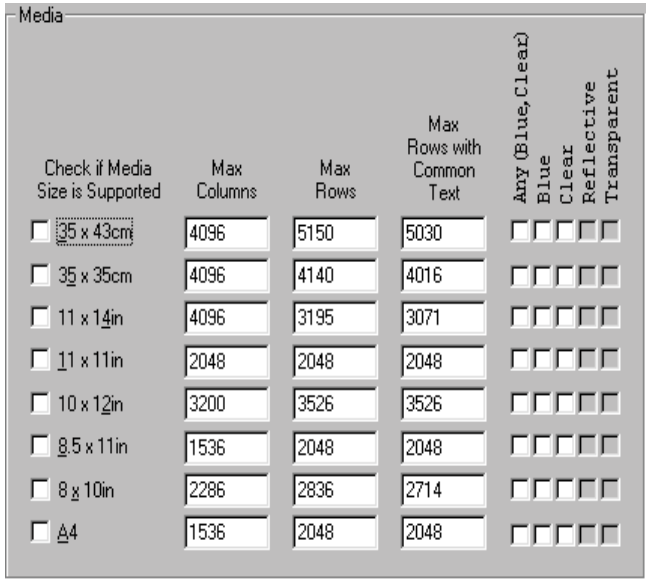
See “Supported Destinations of the MIM and DP SERVER” on Page 5–26. The asterisk (*****) in the table indicates that the DICOM PRINT SPOOLER, Model 100 sends the data to the LASER PRINTER.

Supported Destinations of the MIM and DP SERVER

MIM	DP SERVER
“DMI 3600”	“DMI 3600”
“DPS / KELP 1120” or “DPS / KELP 2180”	“KELP 1120 “
“KELP 1120”* or “KELP 2180”*****	“KELP 2180 “
“KELP 100 XLP”*****	
“MLP 190”	

[4] At the “Destination Parameters” window, enter the required parameters:

- See “Destination Parameters: Names, Addresses, and DICOM Information” on Page 5–29.
- “Memory” is a required “Destination Parameter”.



Important

To continue, advance to the correct step:

- For the MIM: Do Step 5 to the end of the procedure.
- For the DP SERVER: Do Step 8 to the end of the procedure.

[5] For the MIM select “DICOM Info.”

[6] In the “DICOM Information” window, enter the correct:

- Port Number
- AE Title
- Response Message Timer

[7] Select “OK.”

[8] At the “Destination Parameters” window, select “Media Info.”

Important

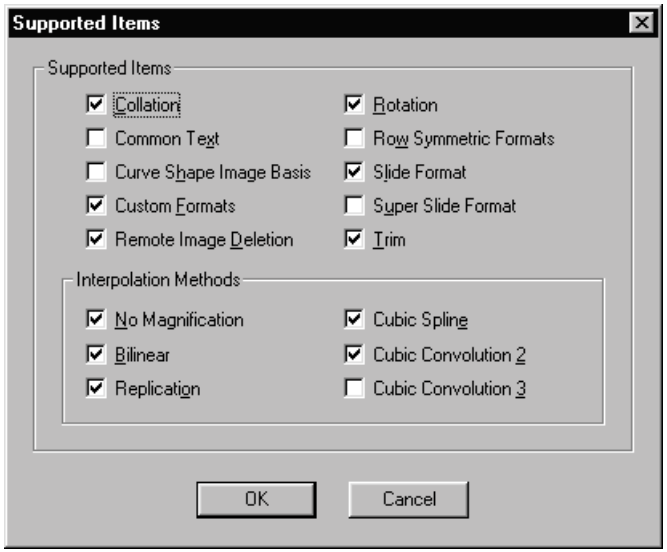
You must select a media base for each media selected in the “Media” window.
See “Destination Parameters: Media Information” on Page 5–34.

[9] In the “Media” window, select all media that the customer will use.

Note

The numbers that the “Media Information” window displays on the LAPTOP might not match the numbers displayed in the screen at left. Numbers are only displayed for a qualified destination.

[10] Select “OK.”



[11] At the Destination Parameters" window, select "Supported Items".

Important

- Do not modify any of the items in the table, "Destination Parameters" on Page 5–29 for a qualified destination unless the TSC instructs you to modify these items.
- See "Destination Parameters: Supported Items" on Page 5–32. Different items will be indicated, depending on the destination.

[12] Check that the proper items are selected, then select "OK".

[13] At the "Installed Destinations" window, select "OK".

[14] To store this configuration, at the "Destination Parameters" window, select "Set".

[15] Check that you correctly configured the Destination:

- MIM
  1. At the "Service Application" window, select "Diagnostics/Network" and execute a ping.
  2. Enter the IP Address of the new Destination.
  3. Select "OK".
  4. Select "Cancel" from the "Network Diagnostics" window.
- DICOM PRINT SERVER
  1. On the KEYPAD, press "MENU" / "SELECT"
  2. Select "Service Menu" / "Diagnostics Setup" / Test Print Menu" / Grayscale Print".
  3. Select "Exit Menu" until the KEYPAD displays the "Queued Jobs" screen.

[16] If necessary, see Page 2–22 to determine what procedure you must advance to.

Destination Parameters: Names, Addresses, and DICOM Information

Item	Description	Range
Logical Name	Site-specific name that you must enter for a particular Destination. The KEYPAD displays this name when the operator selects a Destination. The MIM requires a unique “Logical Name”. The “Logical Name” of the DICOM PRINT SERVER is the “AE Title”.	1 - 9 alphanumeric characters No spaces allowed. Underscores are allowed.
IP Address	Site-specific address that identifies the Destination on the network. The Service Application for the MIM requires the user to enter a value. Two or more Destinations must not have the same IP Address. Viewable field for the DICOM PRINT SERVER	4 fields of 1 - 254 where each field is separated by a period: For example: 149.110.98.10
Database Name	The name of the Destination selected from the Destination database. This field is viewable only.	1 - 13 alphanumeric characters
Node ID	The node assigned to the **CPOI** in the 1120 and 2180 LASER PRINTER.	1 - 7
Model	The model of the Destination. The product uses this data to optimize the page format validation for the particular Destination. This field is viewable only.	MLP190, Kodak Ektascan LASER PRINTERS, MEDICAL VIEWING STATION (MVS), MEDICAL IMAGE AND INFORMATION LIBRARY (MIIL)
Memory	The amount of memory in megabytes residing in the Destination. The product uses this value to perform format validation. This value is site-specific. The Service Application for the product requires that the user enter a value in this field.	1 - 99 “30” for MLP 190
Image Pad	Number of pixels reserved around the border of an image in the x and y direction. The product uses this value to perform format validation.	0 - 10
Minimum Vertical Separation	Number of rows that separate the image bands in the vertical direction. The product uses this value to perform format validation.	0 - 10
Minimum Horizontal Separation	Number of rows that separate the image bands in the horizontal direction. The product uses this value to perform format validation.	0 - 10

Item	Description	Range
[**DICOM Info**]	Select [DICOM Info] to display the DICOM information indicated in this table.	N/A
Protocol	Protocol used to communicate with the Destination.	DICOM 3.0
Service Class	The service class provided by the Destination.	Print
Port Number	The port number of the Destination that the product uses to establish a socket connection for sending and receiving DICOM messages.	1024 - 32767; default 5040
AE Title	The Application Entry (AE) Title specifies the Destination application that the product must communicate with for successful DICOM communications. The field width for this parameter is 1 - 16 alphanumeric characters. N_Event Reporting (NER) in the AE Title enables the reporting of Destination status. When a Destination is connected to a DICOM PRINT SPOOLER, Model 100, we recommend that you customize the AE Title for a particular site: • “ANY” or “NER_ANY” sends the image to the first matching gray scale or color PRINTER. N_Event Reporting (NER). • “Printer name” or “NER_printer name” sends the image to the specific printer when multiple PRINTERS of the same type are connected to the DICOM PRINT SPOOLER, Model 100. • For V_3.0.x and V_3.1.x MIMs sending to a DP SERVER which sends to a 2180 LASER PRINTER, the AE Title can be modified with a forward slash (/) to indicate a BIN number. The images will then be sent to that BIN. • **BIN designation is no longer required in the AE Title in V_3.2.x**. • DICOM devices that will allow a forward slash (/) and indicated BIN number at the end of an AE Title can send to a DP SERVER and a 2180 LASER PRINTER. The images will be delivered to that particular BIN. • “2180” or “NER_2180” sends the image to the first installed PRINTER on the PIU that is a 2180 LASER PRINTER. Same for LASER PRINTER 1120 and 100 XLP. • “2180/1” or “NER_2180/1” sends the documents to the first installed LASER PRINTER 2180 on a V_6.02.00 DP SPOOLER and the films are placed in BIN #1. • For A1.x version MIM, add “/C” as a suffix to a V_6.02.00 DICOM PRINT SPOOLER, Model 100. Example: NER_2180/1/C	

Item	Description	Range
BIN number selection	• **BIN designation is no longer required in the AE Title in V_3.2.x**. • For V_3.2.x, the BIN number for the 2180 LASER PRINTER can be chosen at a MIM 50, MIM 100 or MIM 200 KEYPAD. • For V_3.2.x the BIN number can be chosen at the DP SERVER or the MIM 200 as a print server for the DICOM devices that are sending images.	
[Response Message Timer]	This feature is used for DICOM communication, and is configurable per site; it specifies the amount of time to wait for a response after sending a message. • If the PRINTER Destination is an MLP190 and it has 4 associations, set the timer to 400 seconds. • If the PRINTER Destination is a LASER PRINTER using a DICOM PRINT SPOOLER, Model 100, and it has more than 8 clients, set the timer to 400 seconds.	

Important

- Do not modify any of the items in the table, “Destination Parameters” on Page 5–29 for a qualified destination unless directed to do so by the TSC.
- If an item is not checked in the “Supported Item” or “Media Info” windows, the customer will not be able to access that item:
  - The KEYPAD of the MIM will not display an unsupported feature or function.
  - The DP SERVER will not accept a request for an item unsupported by the destination.

Destination Parameters: Supported Items

Item	Description	Range
[**Supported Items**]	Select [Supported Items] to display the supported features indicated in this table.	N/A
Aspect Ratio Mix on Page	Will the destination support mixed aspect ratios on the same page?	Yes, No
Aspect Ratio Mix in Row	Will the destination support mixed aspect ratios on the same row?	Yes, No
Collation	Will the destination support Collation?	Yes, No
Color	Will the destination support 3 color (RGB) printing?	Yes, No
Color/Grayscale Same Page	Will the destination support 3 color (RGB) printing on the same page?	Yes, No
Common Text	Will the destination support Common text band? The product uses this value to perform format validation.	Yes, No
Curve Shape Image Basis	Will the destination support changing the Curve shape on a per image basis?	Yes, No
Custom Formats	Will the destination support Custom formats 101 and 102? The product uses this value to perform format validation.	Yes, No
Decimation	Will the destination reduce image size to fit on the media?	Yes, No
Edge Enhancement	Will the destination support Edge Enhancement?	Yes, No
Grayscale	Will the destination support Grayscale printing?	Yes, No
Image Size Mix in Std Fmt	Will the destination support mixed image sizes on a standard formatted page: 2-up, 4 up, 6 up, 9 up, etc.	Yes, No
Image Size Mix in Row	Will the destination support different size images in the same row?	Yes, No
Media Bin Default	Will the destination support multiple media sizes at the same time?	Yes, No
Page Annotation	Will the destination support page annotation? Often required for “Requested Image Size”.	Yes, No
Pivot Density	Will the destination support pivot density?	Yes, No
Print Quality	Will the destination support different printing resolutions?	Yes, No
Remote Image Deletion	Will the destination support remote image deletion?	Yes, No

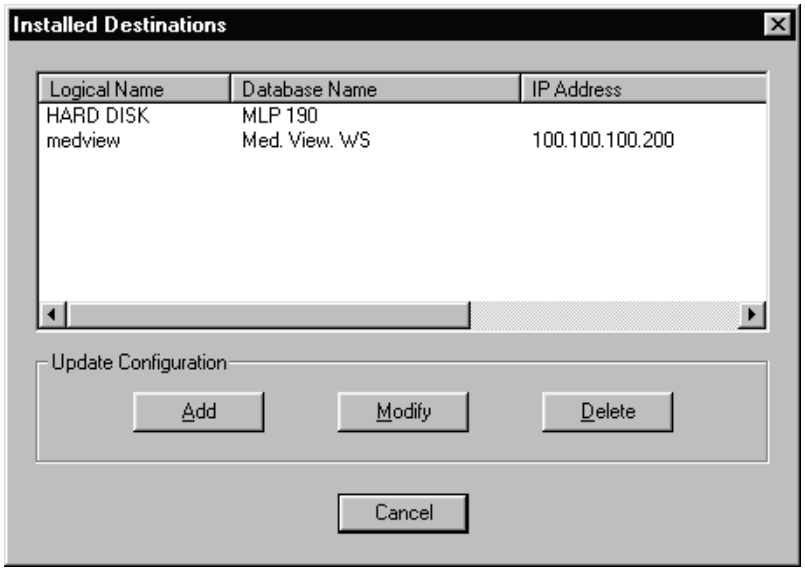
Item	Description	Range
Requested Image Size	Will the destination support requested image size?	Yes, No
Requested Size Scale	Will the destination support requested image scale?	Yes, No
Requested Size Mix on Page	Will the destination support different requested image sizes on the same page?	Yes, No
Requested Size Mix in Row	Will the destination support different requested image sizes in the same row?	Yes, No
Rotation	Will the product support Full page rotation? The product uses this parameter to perform format validation.	Yes, No
Row Symmetric Formats	Row symmetric formats supported by the Destination. Row symmetric formats have a line of symmetry only in the vertical direction. The product uses this parameter to perform format validation.	Yes, No
Slide Format	Slide format supported by the Destination. The product uses this parameter to perform format validation.	Yes, No
Super Slide Format	Super slide format supported by the Destination. The product uses this parameter to perform format validation.	Yes, No
Trim	Trim supported by the Destination. This parameter allows the KEYPAD to prevent the customer from selecting trim when it is not supported by the Destination.	Yes, No
Interpolation Methods	Interpolation methods supported by the Destination. This parameter allows the KEYPAD to prevent the customer from selecting an interpolation method that is not supported by the Destination.	Bilinear, Cubic Spline, Cubic Convolution 2, Cubic Con. 3, Replication, No Magnification

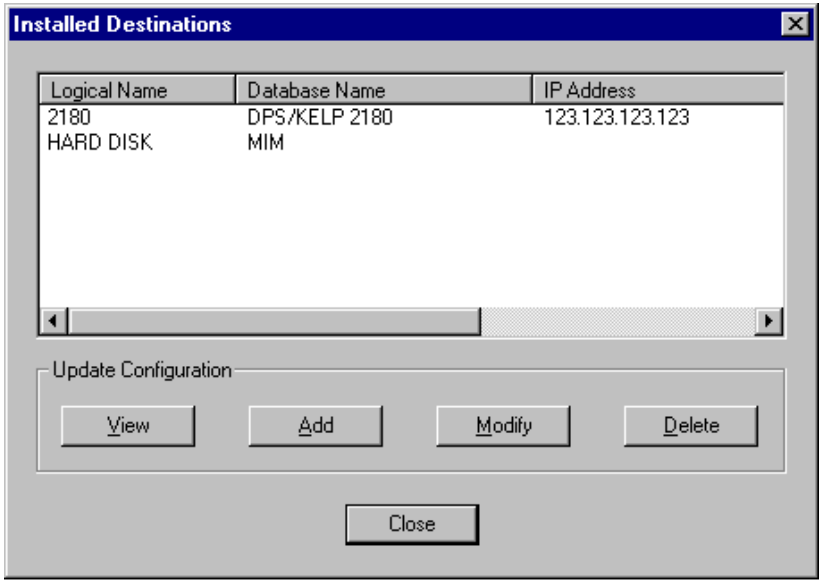
Destination Parameters: Media Information

Item	Description	Range
[**Media Info**]	Select [Media Info] to display the Media Information indicated in this table.	N/A
Size	Media sizes supported by the Destination. This is destination dependent.	35 x 43 cm 35 x 35 cm 11 x 14 in. 11 x 11 in. 10 x 12 in. 8.5 x 11 in. 8 x 10 in. 4 x 6 in. A4
Types	Media types supported by the Destination. Media types are selectable for each media size. “Any” indicates that the Destination will use the media type that matches the media size selected. The selections “Reflective” and “Transparent” are valid for color printing.	Any, Blue, Clear, Reflective (Paper), Transparent (Film)select “OK”.
Maximum Columns	Maximum number of printable pixels in the x-direction for a particular media size. Maximum columns are selectable for each media size. The product use this parameter to perform format validation.	1 - 9999
Maximum Rows	Maximum number of printable pixels in the y-direction for a particular media size. Maximum rows are selectable for each media size with or without common text. The product uses this parameter to perform format validation.	1 - 9999

[17] Return to Page 5–28.

Configuring the HARD DISK as a Destination for the MIM 100





Important

- This procedure is valid only for the MIM 100 with software less than V_3.0.
- In the “Installed Destination” window, if the Destination configurations of the HARD DISK and the primary PRINTER do not match, delete the existing Destination configuration of the HARD DISK and add a new Destination.
- The “Logical Name” of the HARD DISK must be entered as HARD DISK.
- If you delete the HARD DISK, the MIM 100 must be restarted for the “default profile” to function. All other profiles that refer to the “HARD DISK” as a Destination will not function.
- Do not save the configuration until the MIM is restarted.

[1] At the “MIM Service Application” window, select “Configure/Destination”.

[2] At the “Installed Destination” window, select “HARD DISK”.

Note

The screen at top left indicates V_2.0; The screen at bottom left indicates V_3.0.

[3] Select “Delete”.

[4] At the message “Are you sure to delete this destination?”, select “Yes”.

Important

The HARD DISK cannot be deleted if selected as current Destination for the MIM.

[5] If you cannot delete the HARD DISK, advance to the procedure “Deleting the HARD DISK” on Page 5–36, then return to this procedure.

[6] At the “Installed Destinations” window, select “Add/Print/Qualified”.

[7] At the “Choose a New Destination” window, select the PRINTER type.

[8] Type: HARD DISK for the “Logical Name”.

Important

- Do not enter an IP Address.
- Memory for the HARD DISK and the primary PRINTER must match.

[9] Enter Memory in the “Memory” field.

[10] At the “Destination Parameters” window, select “Supported Items”.

[11] Check that parameters match for the HARD DISK and PRINTER.

[12] Select “OK” and advance to the next page.

[13] At the “Destination Parameters” window, select “Media Info”.

[14] Check that all parameters selected for the HARD DISK match the parameters of the primary PRINTER.

[15] Select “OK”.

[16] To store this configuration, select “Set”.

[17] At the “Installed Destinations” window, select “Cancel”.

Deleting the HARD DISK as the Current Destination of the MIM 100

Important

- Use this procedure for Versions less than 3.0 only.
- If the HARD DISK is selected as the current Destination, it cannot be deleted through the “Installed Destination” window in the “MIM Service Application”. Changes must first be made through the MIM KEYPAD.

[1] At the “Acquisition” screen, press [Manage Profiles].

[2] At the “Manage Profiles” screen, press [Create Profile].

[3] Type: <name> and press [Enter].

[4] In the “Profile/Imaging Options” screen, press [Change Destination].

[5] In the “Profile /Change Destination” screen, highlight HARD DISK in the “Deliver To” window and press [Remove Destination].

[6] In the “Profile/Change Destination” screen, highlight a Destination in the “Destination Options” window other than HARD DISK and press [Add Destination].

[7] In the “Profile/Change Destination” screen, press [Return].

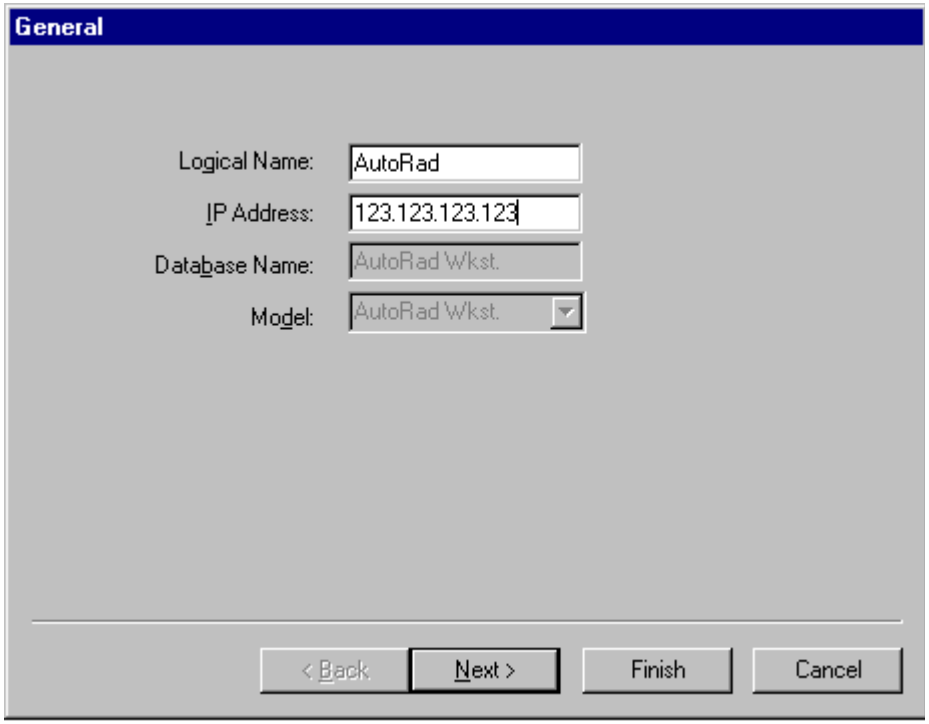
[8] In the “Profile/Imaging Options” screen, press [Return].

[9] In the “Save Configuration” screen, press [Accept Changes].

[10] In the “Manage Profiles” screen, press [Select Profile].

[11] Press [Return].

Adding a Storage Device for the MIM 100 and MIM 200 with Touchscreen Keypad



Important

- Before you enter the Destination Parameters, verify the information at the Destination.
- Verify that the Hosts file of the Destination contains the IP Address and Logical Name of the MIM.
- If this is the first Storage Destination, see “Enabling Software Licenses” on Page 13–4.
- In the “Destination Parameters” window, press [Tab] on the LAPTOP to advance to the next entry.
- For more information about the Destination Parameters, see the table on Page 5–29.
- These screen shots are for V_3.2.x.

[1] At the “Service Application” window, select “Configure/Destination”.

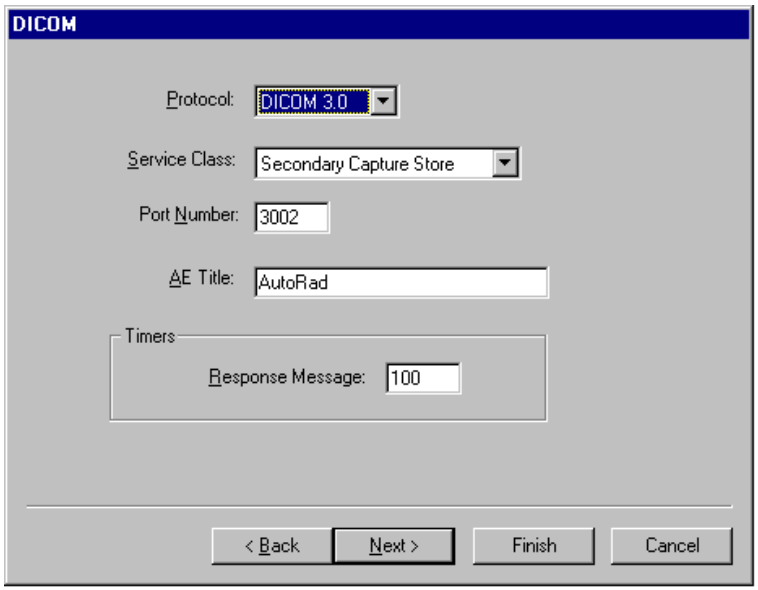
[2] At the “Installation Destination” window, select “Add/Store/Unqualified or Qualified”.

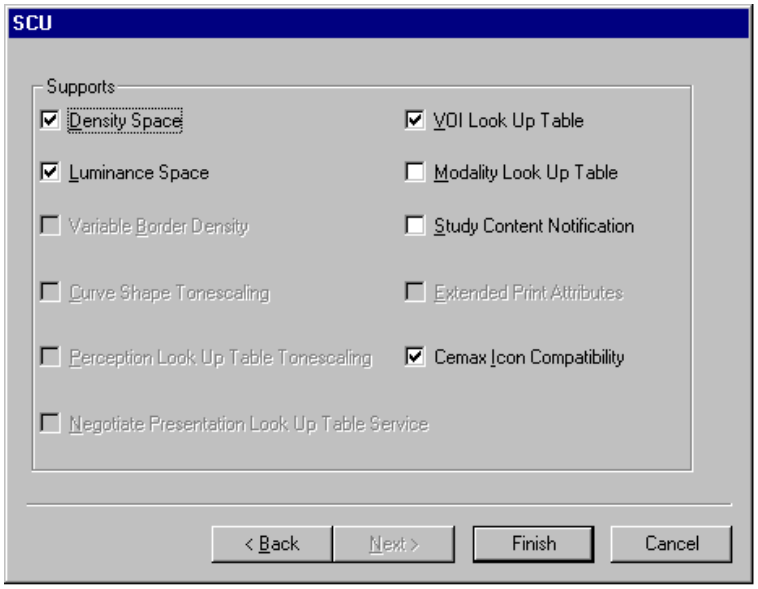
[3] At the “Destination Parameters” window, enter:

a. “Logical Name”

b. “IP Address”

[4] Select “DICOM Info.”





[5] In the “DICOM Information” window, enter the correct information:

- Port Number
- AE Title
- Response Message

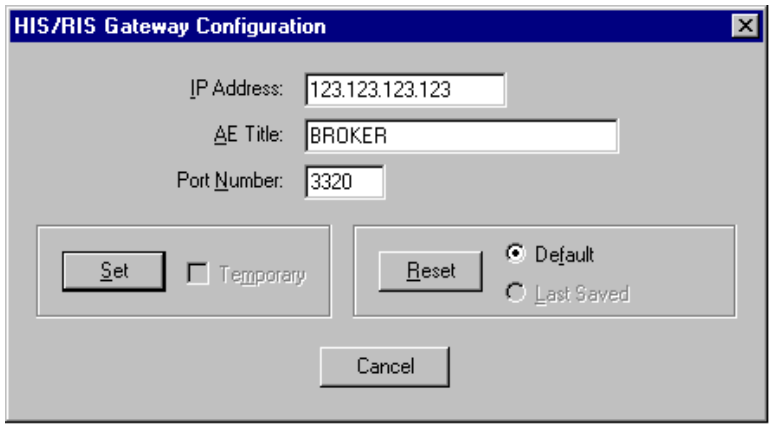
[6] Select “OK”.

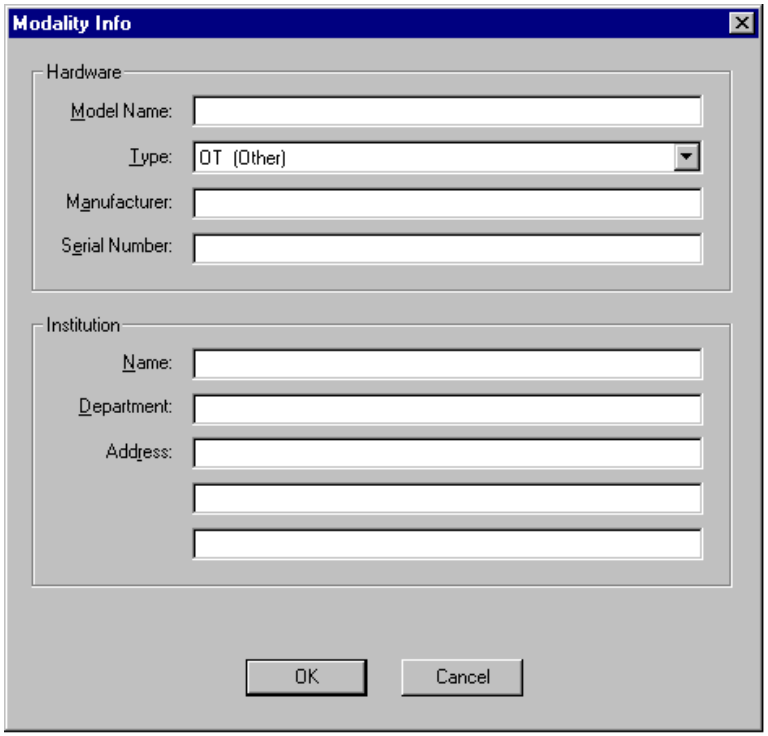
[7] To store this configuration, select “Set”.

[8] At the “Installed Destinations” window, select “Cancel”.

Configuring the HIS/RIS GATEWAY

Configuring the HIS/RIS Gateway for the MIM 100 and MIM 200 with Touchscreen Keypad





Important

Each channel must be configured. To configure the Modality information the first time, do all remaining steps. If the Modality information has previously been configured, advance to Step 8.

[1] At the “Service Application” window, select “Configure” / “Input” / “Direct Connect”.

[2] At the “Configuration” window, select “Modality Info” / “Modify”.

[3] When the COMPUTER prompts you “Are you sure?”, select “OK”. The LAPTOP displays the “Modality Info”.

[4] At the “Type” entry line, select the down arrow and highlight a Modality from the list.

Note

The “Type” parameter enables different preferences and tonescaling on some WORKSTATIONS. “Type” sets up an algorithm for the type of modality (for example, MR for Magnetic Resonance). The rest of the fields can be any information that is meaningful to you and the site. Once you set it up, the modality information will be used for HIS/RIS and storage class destinations.

[5] Enter any additional information in other fields.

[6] At the “Modality Info” screen, select “OK”.

[7] At the “Configuration” window, select “Close.”

Note

You need to check the storage Destination connection by executing a ping.

[8] At the “Service Application” window, select “Diagnostics/Network”.

[9] At the “Network Diagnostics” window, select “Run”.

[10] At the “Input IP Address” window, enter the “IP Address” of storage device.

[11] Select “OK”.

[12] At the “Network Diagnostics” window, select “Cancel”.

Important

- It is necessary to configure the HIS/RIS Gateway for the MIM to successfully query the “Patient Worklist” at the KEYPAD.
- When the KEYPAD of the MIM displays either “Study Info” or the “Patient List” screen, the MIM application queries the HIS/RIS GATEWAY every 2 minutes and updates the new information in the “Patient List” screen.
- The KEYPAD displays records in the “Patient List” for the current day only.

[13] At “MIM Service Application”, select “Configure’/’HIS/RIS Gateway”.

[14] At “HIS/RIS Gateway Configuration”, enter the correct values:.

HIS/RIS GATEWAY	*Mitra* GATEWAY
IP Address	*Site Specific*
AE Title	BROKER
Port Number	3320

[15] Select “Set”.

Adding the “Station Name” at the KEYPAD

[1] Using the TOUCHSCREEN KEYPAD, select:

(a) “Main Menu”

(b) “Service”

(c) “More Options”

(d) “HIS/RIS Configuration”

(e) Add Station Name

[2] Using either the KEYPAD or the MINI-KEYBOARD, type the name of the station and then press [Enter].

[3] Select “Return” three times.

[4] Select “Acquisition.”

Checking the HIS/RIS Connection

Important

If the HIS/RIS connection is not functioning, an error message “WORKLIST CONN. TIMEOUT” displays on the “Study Info” MIM KEYPAD screen. See “Troubleshooting the HIS/RIS Gateway Connection.”

[1] At the MIM KEYPAD “Main Menu” screen, press [Acquisition], then [Study Info].

[2] At the “Study Info” screen, press [Patient List].

[3] Check with the Hospital Administrator that proper entries are being entered for today’s date.

Note

If patient information exists, it appears in the “Patient Info” box.

[4] If necessary, see Page 2–22 to determine what procedure you must advance to.

Troubleshooting the HIS/RIS Gateway Connection

[1] Check that you can ping using the MIM Service Application to the IP Address of the HIS/RIS GATEWAY.

[2] Check that the Station Name is entered properly. The Station Name is used by the MIM to query the HIS/RIS GATEWAY for Patient Worklist Records.

[3] Check with the Hospital Administrator that Patient Records are entered at the HIS/RIS GATEWAY for today’s date.

[4] Temporarily change the Station Name on MIM to “*”. The “*” is a Wildcard providing all Patient Records entered in HIS/RIS for today’s date.

Disabling the HIS/RIS GATEWAY

Note

This procedure allows you to disable the MIM from querying the HIS/RIS Gateway every 2 minutes at the MIM KEYPAD “Study Info” or “Patient List” screen.

[1] At the “Service Application” window, select “Configure’/‘HIS/RIS Gateway”.

[2] Select “Reset”. The IP Address is cleared.

Configuring the Input

Configuring the Input of the Product

Input Package	Product	Section-Page
VIDEO 60 BOARD	MIM 50 and MIM 200	6–1
	SPOOLER/Video, RGB and MIM 200	6–1
VIDEO 150 BOARD	MIM 100	7–1
Digital Input	MIM or SPOOLER/Digital	8–1
Network Input	DICOM PRINT SERVER SPOOLER/DICOM MIM 200	9–2

Important

How you configure the product depends on which Input Package you will be installing. Advance to the section for the Input Package that you will install. See "Configuring the Input of the Product" on Page 5–42.

Section 6: Configuring the Input for the Video 60 Board

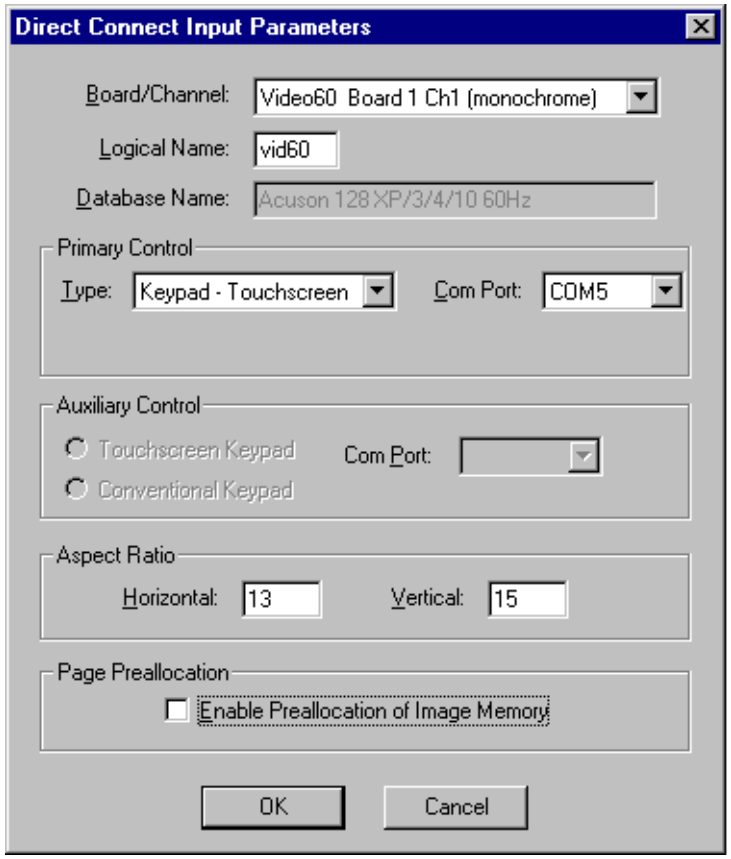
Introduction

Important

Use this Section to configure the VIDEO 60 BOARD for the MIM 50, MIM 200 or the SPOOLER/Video. Before you begin installation, read the following to help you prepare for correct configuration, then advance to Page 6–2:

- Will the primary control of the equipment be the KEYPAD or the Autofilming Link?
- Is the equipment Pre-staged?
  - Pre-staged indicates that the equipment was shipped with the Modality parameters already installed and tested.
  - The Pre-staged MIM 50 or MIM 200 can be either Qualified or Unqualified.
- Will you connect the MIM 50, MIM 200 or SPOOLER to a Qualified or Unqualified Modality?
  - A Qualified Input indicates that the Modality has been field tested with correct parameters. The database in the Service Software for the MIM might also include this Modality in the Qualified list.
  - An Unqualified Input indicates that the Modality has not been field tested.
- Check that the operator can provide you with a clinical image to evaluate image quality after you finish configuring the Input. The image must contain:
  - Grayscale including the brightest and darkest values (0 to 255 A/D Counts)
  - White text on black background, or black text on white background
  - Sharp transitions and vertical lines

Configuring the Input Parameters



Important

- Check that the correct board and channel number are selected before proceeding.
- See the Modality Spec Sheet provided with the MIM to determine correct parameters. An example of the Spec Sheet is indicated on Page 22–1.

[1] At “MIM Service Application”, select “Configure” / “Input” / “Direct Connect”.

Is the Input configured for the parameters of the Modality?

- **No**: Do all steps below.
- **Yes**: Do Step 1 and then do Steps 7 through 9 only.

Note

A VIDEO 60 BOARD can accommodate 2 monochrome inputs. If 2 RGB inputs are required, then 2 VIDEO BOARDS are required.

[2] At the “Direct Connect Input Configuration” menu, select “Add” / “Video” / “Qualified” / “Video 60”. Scroll down to select the correct Modality.

[3] In the “Board/Channel” field of the “Direct Connect Input Parameters” window, select a Video channel or RGB.

[4] Enter a Logical Name, using the name of the Board that’s meaningful for the site.

[5] Click OK.

[6] In the “Primary Control” field, select the “Keypad Type” and the “Com Port”.

Note

The available Com Ports starting from the lowest will display.

[7] At the “Direct Connect Input Configuration” window, select “Modify”.

Note

To view the configuration only, select “View”.

[8] At the message “Executing this communication will take the system off-line. Are you sure?” select [OK]. Use the Table on Page 6–4 to check that the information is correct. If you do not change data, select [Cancel]. If you do, select [OK].

[9] Use the table, “Advancing the Correct Procedure for the VIDEO 60 BOARD”

on Page 6–3 to advance to the correct procedure:

Advancing to the Correct Procedure for the VIDEO 60 BOARD

Primary Control Type	Product	Pre-Staged	Page
Autofilming	MIM 50, MIM 200 or SPOOLER/ Video	N/A	6–5
Keypad	MIM 50 or MIM 200	Yes	6–12
		No	6–20
	MIM 200, SPOOLER/Video, or RGB	Yes	6–16
		No	6–30

Input Parameters

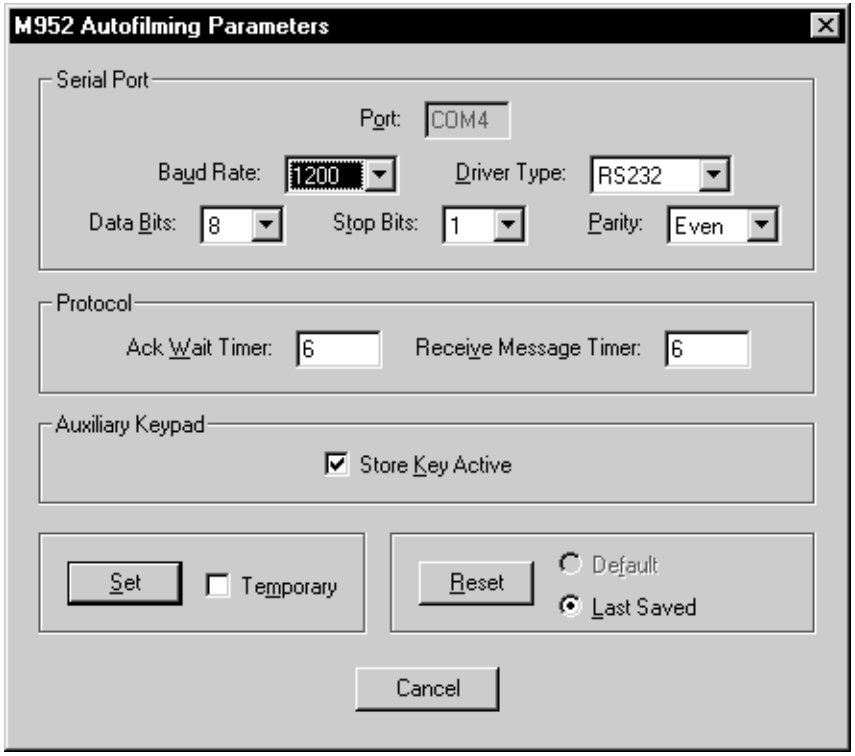
Input Parameter	Description	Range
Board	INTERFACE BOARD on the PCI BUS.	Video 60 Board (monochrome) or (RGB) prior to V_3.2 Video 60 Board, RGB (Color) with V_3.2 Video 60 Board, ch 1 monochrome with V_3.2 Video 60 Board, ch 2 monochrome with V_3.2 Video 60 Board, ch 3 monochrome with V_3.2
Channel Number	Number of the channel of the INTERFACE BOARD.	Channel 1, 2, or 3
Logical Name	Name of the BOARD receiving the input.	1 - 5 alphanumeric characters Examples: MRI 1 or CTRM 1
Database Name	Name of the modality. Viewable only.	1 - 30 alphanumeric characters
Primary Control Type	Primary method the customer uses to control MIM.	KEYPAD - Touchscreen or Conventional Autofilming: *Hitachi,* KCL, P831, M952, *Siemens* (DASM, FSPOT, SPCI)*, Toshiba,* YMS
Primary Control Com Port	Port for the KEYPAD or the serial control CABLE connection	Keypad: **COM 5** for Single Input MIM 50, 100 and DP Server. For MIM 200 and Multiple Input MIM 50 it is COM 5, 7, or 9. Autofilming RS232 (MIM 100 only): **COM 2** Autofilming RS422: **COM 4** for MIM 100NR and MIM 50. For MIM 200 it is COM 4, 6, or 8.
12 VDC Power (MIM 100 with Relay Board only)	Power for external FIBER OPTIC TRANSCEIVER *(Hirschmann* CONNECTOR) for RS232 PORT. Autofilming only.	Keypad: **OFF** Autofilming: On, Off
Auxiliary Control Keypad	Indicates that the KEYPAD is or is not enabled for auxiliary control when autofilming is the primary control.	Keypad: Off Autofilming:**On** Important: For the MIM with autofilming, “Auxiliary Control” is always On.
Auxiliary Control Com Port	The Com Port for the KEYPAD when it is used as auxiliary control. If the KEYPAD is the Primary Control, then the “Auxiliary Control Com Port” is not user changeable.	If the Primary Control is Autofilming: **COM 5** for MIM 100 and MIM 50. For MIM 200 it is 5, 7, or 9 -- whichever one is available. Keypad: **Not available.**
Aspect Ratio: Horizontal	Horizontal component of pixel aspect ratio. The software automatically determines this ratio. Aspect ratios not equal to 1:1 correct for non-square pixels.	1 - 255

Input Parameter	Description	Range
Aspect Ratio: Vertical	Vertical component of pixel aspect ratio. The software automatically determines this ratio. Aspect ratios not equal to 1:1 correct for non-square pixels.	1 - 255
Page Preallocation	When enabled, this feature ensures that sufficient memory is available on the HARD DISK to prevent a “Buffer Full” condition while MIM stores a page.	On, Off

Note

To continue configuring the input parameters, return to Page 6–2.

Configuring the MIM for the Autofilming Mode



Important

- For autofilming, an RS232 or RS422 CABLE must be connected between the Modality and the MIM.
- The MIM 50, MIM 100 with no Relay Board, MIM 200 and SPOOLER use only RS422.
- For autofilming connections that require RS232, install the CONVERTER KIT 8B8186 to convert the RS232 signal to RS422.
- Use the “Modality Spec. Sheet” provided with the MIM to determine correct parameters. See the Table on Page 6–4 for an example of the “Modality Spec. Sheet.”
- The MIM 100 with a Relay Board does support RS232.

[1] At the “Configuration” window, select “Autofilming” / “Modify”.

[2] When the COMPUTER prompts you “Are you sure?” select “OK”. The “Autofilming” window displays.

[3] At the window for the type of autofilming at the site, enter the correct information. See the Tables on Page 6–7 and Page 6–7.

[4] If you did not change information, select “Cancel”. If you changed information, select [Set].

Important

After changing the setup information, you must click [SET] or the changes will be lost.

[5] See the Table on Page 2–22 to determine the next step.

Default Values for Autofilming Link Parameters

Parameter	Autofilming Link							
	Hitachi	KCL	P831	M952	Siemens		Toshiba	YMS
					SPCI/ FSPOT	DASM		
Port ID	--	--	--	--	--	--	--	--
Driver Type	RS422	RS422	RS422	RS422	RS232*	RS232*	RS422	RS422
Baud Rate	4800	9600	1200	1200	2400	4800	9600	1200
Data Length	8	8	8	8	7	8	7	8
Stop Bits	1	1	1	1	2	1	1	2
Parity	even	none	even	even	odd	even	even	odd
Store Key	active	active	active	active	--	--	active	active
ACK Wait Timer	3	5	6	6	2	2	1	--
Receive Message Timer	--	5	6	6	--	--	1	--
Start Timer	--	2	--	--	1	1	--	--
EOT Wait Timer	--	--	--	--	--	--	10	--
Switch Mode	--	Keypad	--	--	--	--	Keypad	--
Switch Handling	--	Not Allowed	--	--	--	--	--	--
Report Alarms	--	--	On	--	--	--	--	--
Automatic Film Type Selection	--	--	--	--	Off	Off	--	--
DTR Connection Establishment	--	--	--	--	--	--	On	--
Default Horizontal Frames	--	--	--	--	--	--	3	--
Default Vertical Frames	--	--	--	--	--	--	4	--

Note

*Supported by the MIM 100 only. All other models must have RS232 converted to RS422. See the “Important” at the top of Page 6–5.

Autofilming Parameters for the MIM: Parameters indicated by * do not apply to all types of autofilming

Item	Description	Range
Port Id	SERIAL COMMUNICATIONS PORT	MIM 100: COM2, COM4
		MIM 50, 100NR: COM4

Item	Description	Range
Driver Type	Driver protocol of the SERIAL COMMUNICATIONS PORT	MIM 100: RS232, RS422
		MIM 50, 100NR: RS422
Baud Rate	Baud Rate of the SERIAL COMMUNICATIONS PORT	300, 1200, 2400, 4800, 9600
Data Length	Number of bits for serial communications	7, 8
Stop Bits	Number of stop bits for serial communications	1, 2
Parity	Setting of parity for SERIAL COMMUNICATIONS PORT	None, even, odd
Store Key*	Determines if [Store] on the KEYPAD is active when the system uses auxiliary control	Active, Inactive
ACK Wait Timer*	Acknowledgment wait timer. The time in seconds that the MIM will wait after it sends a message until the Imaging Device acknowledges that it received the message.	1 - 999
Receive Message Timer*	Specifies the amount of time in seconds allowed to receive an entire message.	1 - 999
Start Timer*	Specifies the amount of time in seconds that the MIM waits for the Imaging Device to reply to a handshake character.	1 - 999
EOT Wait Timer*	Specifies the amount of time in seconds that the MIM waits to receive an End of Transmission (EOT) character from the Imaging Device.	1- 999
Switch Mode*	Allows you to designate printing films using either the Console of the Imaging Device (Host) or the Auxiliary KEYPAD.	Keypad, Host
Switch Handling*	The process used to handle stored images when filming is switched between the Host and the Auxiliary KEYPAD.	Not Allowed
Report Alarms*	Flag that indicates if the MIM should report to the modality alarm conditions associated with the PRINTER.	On, Off
Automatic Film Type Selection*	Flag that indicates if the SUPPLY MAGAZINE in the LASER PRINTER must be used to automatically select the film size and film base.	On, Off
DTR Connection Establishment*	Specifies the amount of time in seconds the MIM must wait for the Imaging Device to respond to a handshake character.	1 - 999
Default Horizontal Frames*	The number of horizontal frames in page format that the MIM defaults to.	1 - 9
Default Vertical Frames*	The number of vertical frames in page format that the MIM defaults to.	1 - 9

Adjusting the Image Quality

Optimum image quality can be achieved from the MIM products by adjusting the video signal and parameters. In a video environment, the process begins with a good video signal. This signal must then be adjusted in the MIM. Check that you have done the following:

- Use the correct parameters to capture the video signal for digitization.
- Check that the signal is centered correctly - both vertically and horizontally.
- Set the gain and offset correctly to obtain the correct black and white values. See “Defining Black and White Values (Using the Advanced Leveling Feature)” on Page 6–10.
- The pixel clock must be correctly timed with the data signal pixels.

The Video 60 and Video 150 boards have an auto setup feature that will accomplish this setup when the correct video signal is provided. When the algorithm has completed, check the image for the correct values for gain and offset. For optimum quality in monochrome images, the black value should be 2 ±2 and the white value should be 253 ±2. If the adjustment is for color images, these values should be 1 -1/+0 (0 or 1) for black and 254 +1/-0 (254 or 255) for white. Check these values in the red, green and blue color plane for the correct values.

Starting in V_3.2 software, the Video 60 board has a new feature, called “advanced leveling.” The user can now choose a spot which will be used to define black and white values, instead of the computer using the entire image to find a portion that it calls black and white. When a modality provides a computer-generated grayscale, the black and white points can be selected from it. This will provide a known black and white point for the computer to use to adjust gain and offset. After this algorithm runs, you should check the images for the proper gain and offset values. This feature can be especially useful for Ultrasound images and can be used for images from all modalities. See “Defining Black and White Values (Using the Advanced Leveling Feature)” on Page 6–10.

- Print a page of images to check that the timing is correct.
- Check that transitions from black to white are sharp and clear.
- Print a curve series, contrast series, or color print matching series.

In versions of software prior to V_3.2, only the curve series or the color print matching series could be run. The curve series is used for the 2180, 1120, and 190 Laser Printers. Different contrast settings will produce a different looking image when printing the curve series. There are 11 possible contrast settings that could be used. For each contrast setting, there are 6 curve shape prints to choose from.

The contrast series is used for all DryView printers and any printers connected to the 9410. The correct TFT/ULUT (Transfer Function Table/Universal Look Up Table) should be selected before printing this contrast series. There are 16 images to choose from in this series. The 160 Laser Imager will require the use of this contrast series to adjust image quality.

The color print matching series is used for the 1200 and 3600 Distributed Medical Imagers. There are 11 possible contrast settings that can be used, and there are 6 color print matching prints to choose from. Regardless of which series is used, the goal is to match the images to the modality monitor.

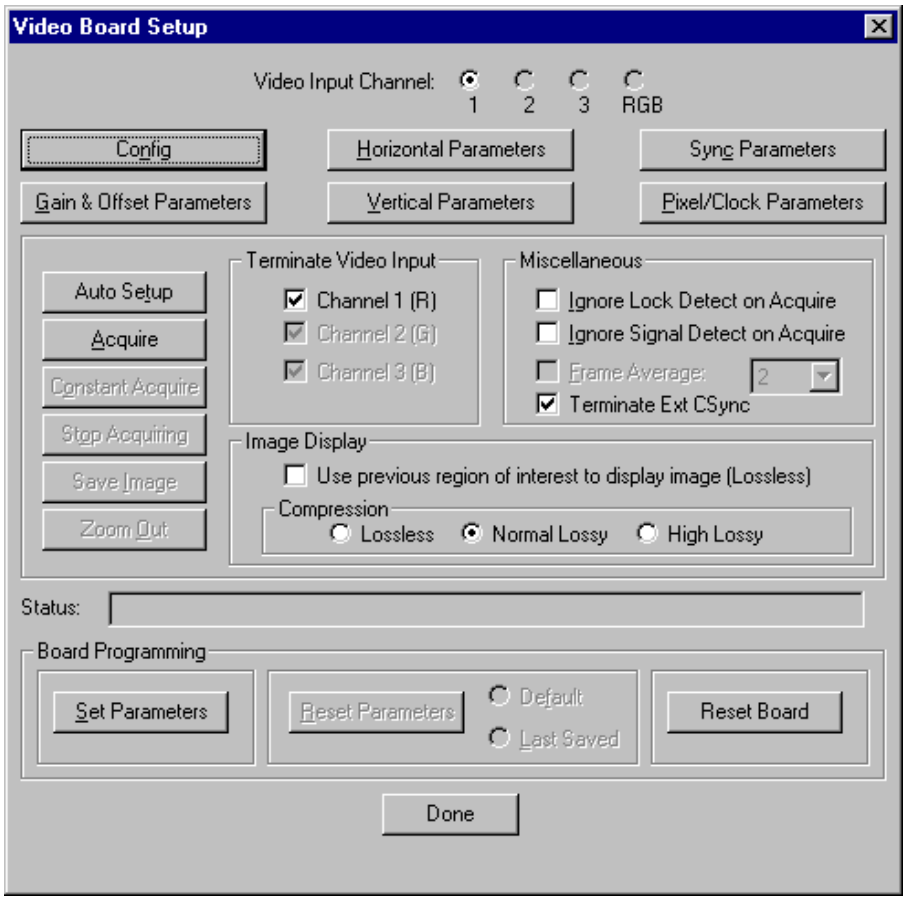
The curve shape and the contrast settings are set in different ways, depending on the modality. Some auto filming links will send the values to use, and some will use the default settings in the MIM.

The DP SERVER is a DICOM SCP (Service Class Provider). The contrast setting could be sent in the DICOM information, but there are defaults in the DP SERVER that are used in case these values are not sent. In versions prior to V_3.2 there was only one default value to be used by all SCUs (Service Class Users) for printing. Starting in V_3.2, the default values for each SCU can be set at the DP SERVER.

Starting with V_3.2, the MIM SCU now sends the modality type, body part, and image tone adjustment information to the printer and storage destinations. The modality type can be configured via the MIM Service Application and the body part (if series is enabled) can be selected at the TOUCHSCREEN KEYPAD. The modality type

and body part information is useful when sending to storage destinations to enable hanging protocols and features of certain workstations. Modality type is useful when sending to networked DMI print destinations to select image processing techniques.

Defining Black and White Values (Using the Advanced Leveling Feature)



Note

This procedure allows the Field Engineer to define black and white values for pre-staged and not-prestaged systems. This procedure is optional, and can be done as needed to define black and white values.

[1] At the “Video Board Setup” window, select “Acquire”.

[2] In the “Uncompressed Region Of Interest” window, hold and drag the left mouse button to select a region of interest, including a grayscale area. The “Uncompressed Region of Interest” screen is displayed.

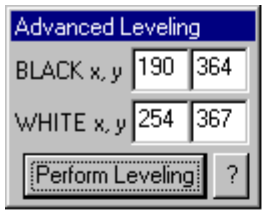
[3] Select a Region of Interest (ROI) to include grayscale:

(a) Use the MOUSE to click-and-drag a rectangle around an ROI: You must drag the MOUSE from the top-left position of the ROI to the bottom-right position of the ROI.

(b) Release the MOUSE click. The uncompressed image displays.

[4] Move the cursor to the blackest point of the screen. Hold the “b” key and press the right MOUSE button. The x and y coordinate values will be entered in the Black area of the “Advanced Leveling” window.

[5] Move the cursor to the whitest point of the screen. Hold the “w” key and press the right MOUSE button. The x and y coordinate values will be entered in the White area of the “Advanced Leveling” window.



[6] In the “Advanced Leveling” window, select “Perform Leveling”.

[7] Close the Region Of Interest box.

[8] In the “Video Board Setup” window, select “Set Parameters”.

[9] Select “Acquire”.

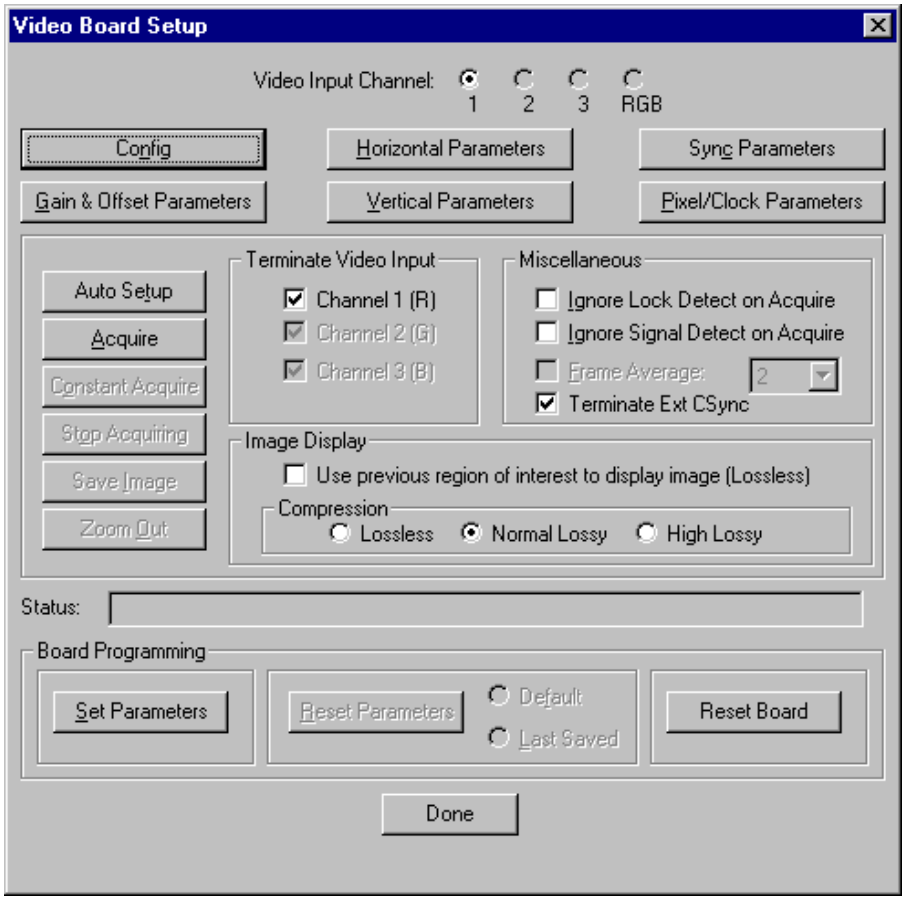
[10] Select a Region of Interest (ROI) to check the gain and offset values:

(a) Use the MOUSE to click-and-drag a rectangle around an ROI: You must drag the MOUSE from the top-left position of the ROI to the bottom-right position of the ROI.

(b) Release the MOUSE click. The uncompressed image displays.

Using [Auto Setup] to Configure the VIDEO 60 BOARD

Using [Auto Setup] to Configure the MIM 50 and MIM 200/VIDEO 60 BOARD



Important

- The MIM 50 or MIM 200 must be energized for at least 5 minutes before you select “Auto Setup”. The VIDEO BOARD requires about 5 minutes to stabilize.
- Check that the operator can provide a test pattern from the Modality, such as a SMPTE or Grayscale pattern. If test pattern is not available, choose the best clinical image that meets the following requirements:
  - Grayscale with brightest and darkest values (0 to 255 A/D Counts)
  - White text on black background or black text on white background
  - Sharp transitions and vertical lines

[1] At “MIM Service Application”, select [Configure] / “Input”/ “Direct Connect”.

Important

A Modality must already be set up in the configuration before you do Step 2. Check that the Modality you want to configure is highlighted in the Configuration window.

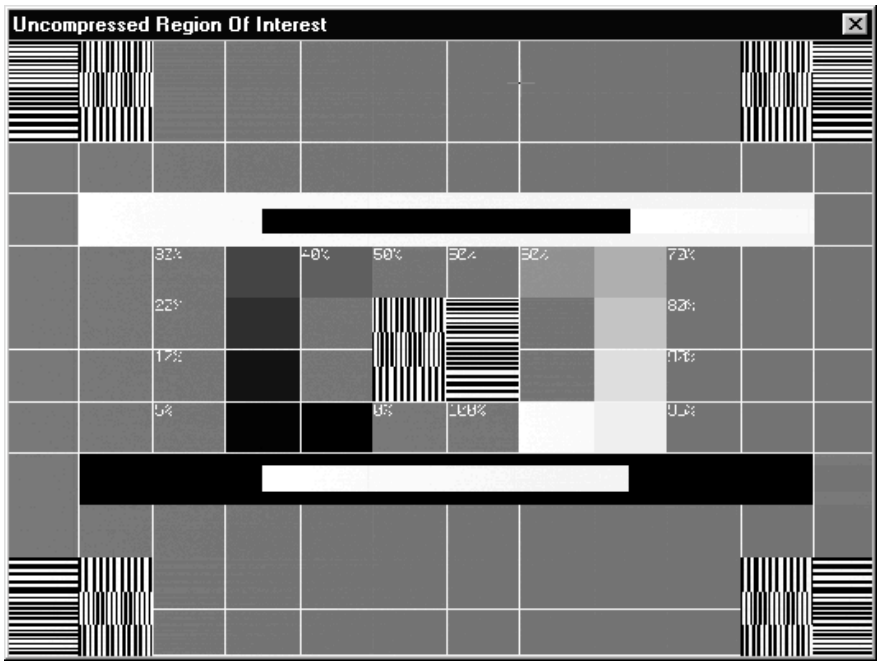
[2] At the “Configuration” window, select “Acquisition” / “Modify”.

[3] At the “Modify Parameters” window, select “OK”.

Note

See the Table on Page 6–23 for descriptions of the buttons and choices in the “Video Board Setup” window.

[4] At the “Video Board Setup” window, select [Auto Setup].



Important

Wait about 1 minute while the “Video Board Setup” window displays the messages indicated in the screen below. These messages might occur more than once during the process. Also, the Offset and Gain messages might interchange. If Autosetup does not finish, see Help Files “Autosetup Failures”.

```
Auto Offset: Decreasing coarse offset (xx)
Auto Gain: Increasing coarse gain (xx)
Auto Pixel Clock: Computing derivatives
(xx)
Auto Horizontal: Finding right black
border
Auto Vertical: Finding top black border
```

[5] Select “Set Parameters”.

[6] At the “Video Board Setup”, select “Acquire” to evaluate the image.

[7] Select a Region of Interest (ROI) and display the uncompressed ROI image:

(a) Use the MOUSE to click-and-drag a rectangle around an ROI: You must drag the MOUSE from the top-left position of the ROI to the bottom-right position of the ROI.

(b) Release the MOUSE click. The uncompressed image displays.

Important

- To determine pixel values, observe the “Pixel Value” window while you move the cursor over the image.
- You might have to execute several acquires to completely evaluate the quality of the image.
- To create a histogram, do Step 7 again within the existing uncompressed image.
- Beginning with Application Software V_3.0 of the VIDEO 60 BOARD, you can right click the MOUSE to zoom on a specific area of the ROI.
- To save the ROI, select “Save ROI”.

[8] Observe that the test image indicates the following properties for good image quality:

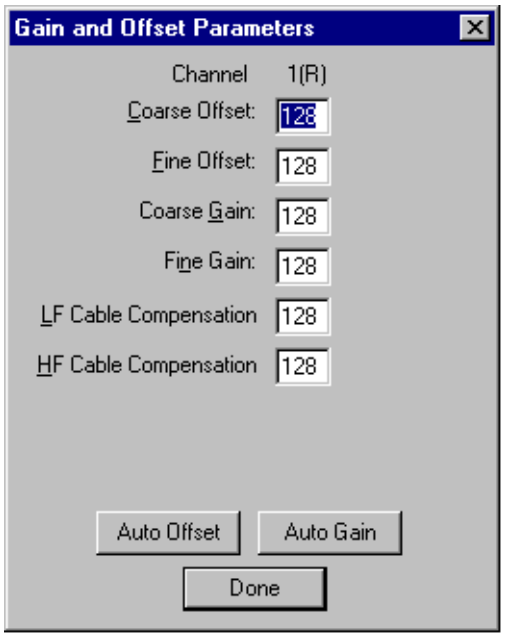
- Correct Gain and Offset:

  Brightest white: Pixel value of 253 ± 2 counts

  Darkest Black: Pixel Value of 2 ± 2 counts

  Visible 5% and 95% grayscale values if you display the SMPTE pattern.
- Centered horizontally and vertically
- Correct Clock Timing: No visible pixel shift or line shift
- Straight, undistorted horizontal and vertical lines
- Clear text. Ask the operator to type more text if necessary.
- Sharp transitions between maximum and minimum grayscale values

Reminder: Need some more info here.



[9] Close the Uncompressed ROI box.

[10] If you must modify the video parameters:

- See “Troubleshooting Guide for the Acquired Image” on Page 6–15
- See “Fields and [Buttons] in the Video Gain and Offset Parameters Window” on Page 6–26 for a description of the “Gain and Offset Parameters” menu.

[11] Select the necessary configuration button, for example “Auto Gain” and “Auto Offset”.

[12] Enter the changes and select “Done”.

[13] At the “Video Board Setup” window, select “Set Parameters”.

[14] Do Steps 6 through 12 until you are satisfied with the test image.

[15] Close the test image.

[16] To store the configuration window, select “Set Parameters”.

[17] At the “Video Board Setup” window, select “Done”.

[18] Store and print 2 or more clinical images with either the KEYPAD or the Autofilming link.

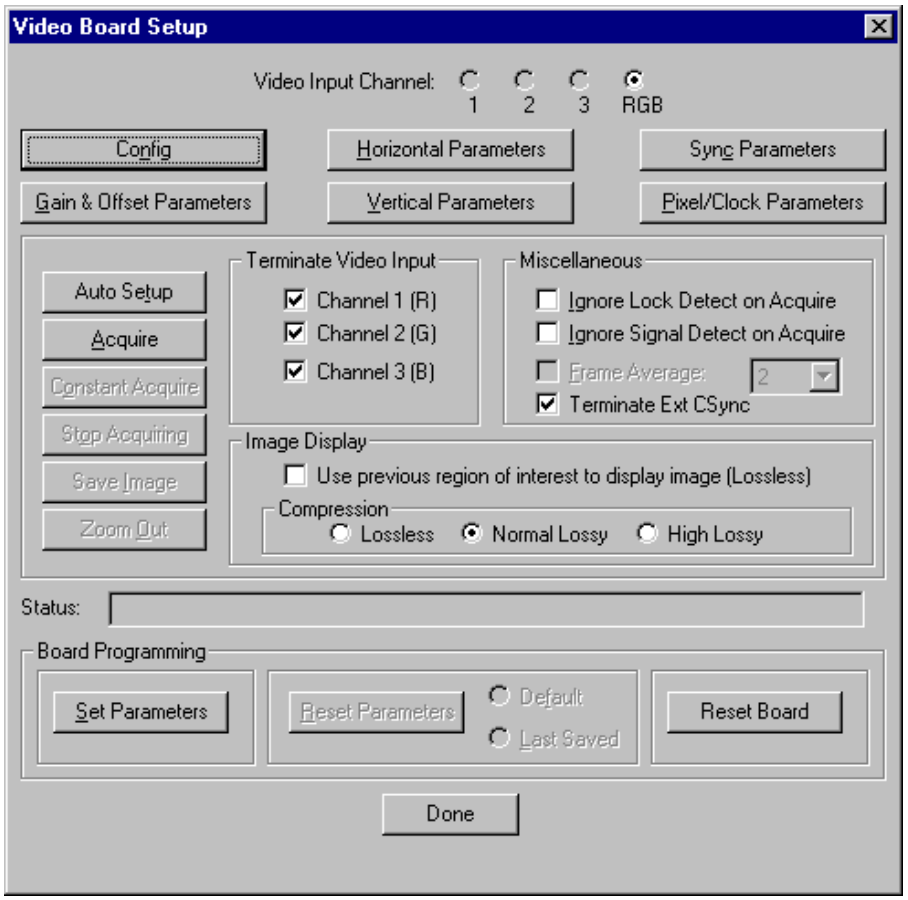
[19] After you store the image, close the Direct Connect Input Configuration window.

[20] See “Completing the Installation on Page 2–22 to determine the next step.

Troubleshooting Guide for the Acquired Image

Malfunction	Remedy
Maximum grayscale counts not 253 ± 2 counts. Minimum grayscale counts not 2 ± 2 counts.	In the “Video Gain and Offset Parameters” window, adjust the values for “Fine Gain” and “Fine Offset”. Adjust these values 10 steps at a time. Increasing the “Gain” will cause the white pixel counts to increase without affecting the black pixels. Increasing the “Offset” will cause the white and black pixel counts to increase.
Pixel shift or line shift in the vertical lines or in the text of the image.	Check that the Modality MONITOR displays the correct test image. Execute [Auto Setup] again. Ask the operator to add more text to the image if you do not have sufficient text to evaluate.
The acquired image does not include all of the image information that the modality monitor displays.	In the “Video Vertical Parameters” window, adjust the values for the “Images Lines / Frame”. In the “Video Horizontal Parameters” window, adjust the values for the “Image Pixels / Line”. Increasing these values will increase the area of the image that the VIDEO BOARD requires.
Blurred text.	In the “Video Vertical Parameters” window, swap fields.

Using [Auto Setup] to Configure the MIM 200 or SPOOLER/VIDEO 60 BOARD, RGB



Important

- The SPOOLER must be energized for at least 5 minutes before you select "Auto Setup". The VIDEO BOARD requires about 5 minutes to stabilize.
- Check that the operator can provide a test pattern from the Modality, such as a SMPTE or Grayscale pattern. If test pattern is not available, choose the best clinical image that meets the following requirements:
  - Grayscale with brightest and darkest values (0 to 255 A/D Counts)
  - White text on black background or black text on white background
  - Sharp transitions and vertical lines

[1] At "Service Application", select [Configure] / "Input"/ "Direct Connect".

Important

A Modality must already be set up in the configuration before you do Step 2.

[2] At the "Configuration" window, select "Acquisition" / "Modify".

[3] At the "Modify Parameters" window, select "OK".

Note

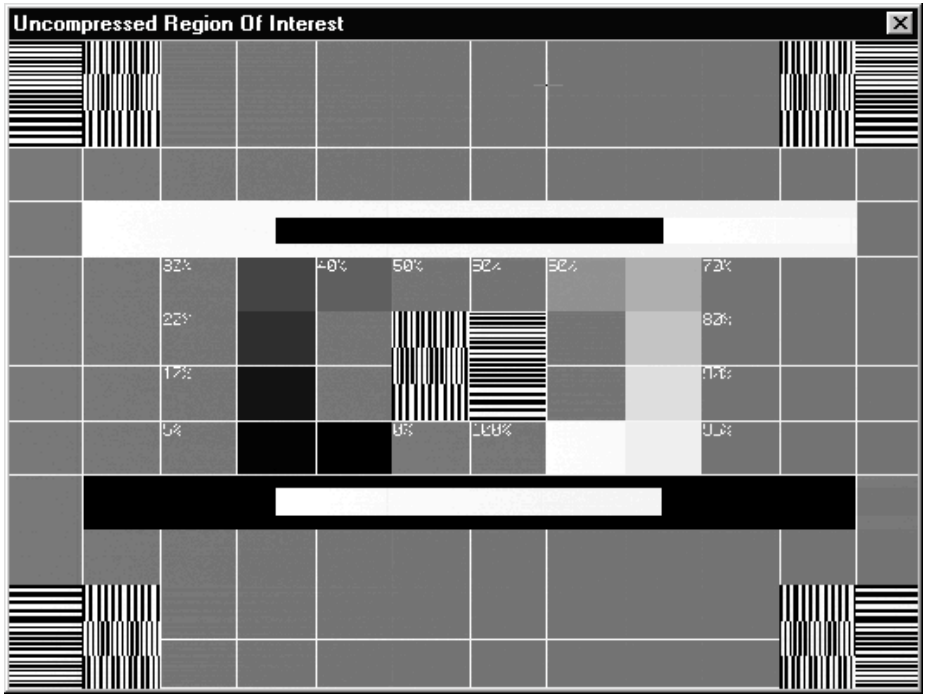
See "Fields and [Buttons] in the Video Board Setup Windows on Page 6–23 for a description of the parameters in the "Video Board Setup".

[4] At the "Video Board Setup" window, select [Auto Setup].

Important

Wait about 1 minute while the “Video Board Setup” window displays the messages indicated in the screen below. These messages might occur more than once during the process. Also, the Offset and Gain messages might interchange. If Autosetup does not finish, see Help Files “Autosetup Failures”.

```
Auto Offset: Decreasing coarse offset (xx)
Auto Gain: Increasing coarse gain (xx)
Auto Pixel Clock: Computing derivatives
(xx)
Auto Horizontal: Finding right black
border
Auto Vertical: Finding top black border
```



[5] Select “Set Parameters”.

[6] At the “Video Board Setup”, select “Acquire” to evaluate the image.

[7] Select a Region of Interest (ROI) and display the uncompressed ROI image:

(a) Use the MOUSE to click-and-drag a rectangle around an ROI: You must drag the MOUSE from the top-left position of the ROI to the bottom-right position of the ROI.

(b) Release the MOUSE click. The uncompressed image displays.

Important

In the following steps, observe each of the Red, Green, and Blue pixels.

- To determine pixel values, observe the “Pixel Value” window while you move the cursor over the image.
- You might have to execute several acquires to completely evaluate the quality of the image.
- To create a histogram, do Step 7 again in the existing uncompressed image.
- Beginning with Application Software V_3.0 of the VIDEO 60 BOARD, you can right click the MOUSE to zoom on a specific area of the ROI.
- To save the ROI, select “Save ROI”.

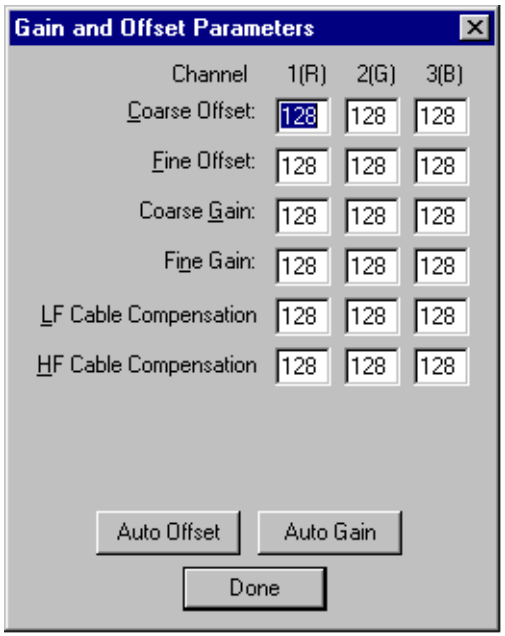
[8] Observe that the test image indicates the following properties for good image quality:

- Correct Gain and Offset:

  Brightest white: Pixel values of **253** ±2 counts for RGB

  Darkest Black: Pixel values of **2** ±2 counts for RGB

  Visible 5% and 95% grayscale values if you display the SMPTE pattern.
- Centered horizontally and vertically
- Correct Clock Timing: No visible pixel shift or line shift
- Straight, undistorted horizontal and vertical lines
- Clear text. Ask the operator to type more text if necessary.
- Sharp transitions between maximum and minimum grayscale values



[9] If you must modify the video parameters see:

- "Troubleshooting Guide for the Acquired Image on Page 6–15
- "Fields and [Buttons] in the Video Gain and Offset Parameters Window" on Page 6–26 for a description of the "Gain and Offset Parameters" menu

[10] Select the necessary configuration button, for example "Auto Gain" and "Auto Offset".

[11] Enter the changes and select "Done".

[12] At the "Video Board Setup" window, select "Set Parameters".

[13] Do Steps 6 through 12 until you are satisfied with the test image.

[14] Close the test image.

[15] To store the configuration window, select "Set Parameters".

[16] At the "Configuration" window, select "Done".

[17] Store and print 2 or more clinical images.

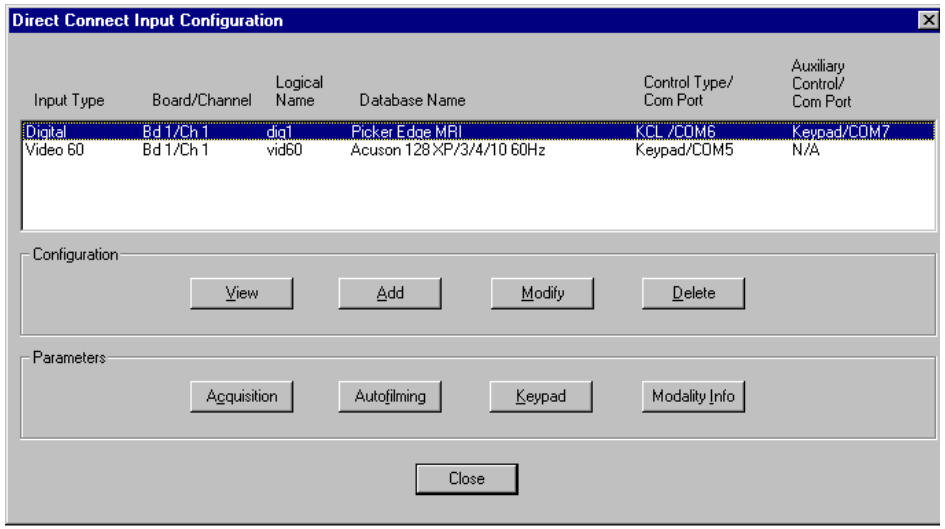
[18] See "Completing the Installation" on Page 2–22 to determine the next step.

Troubleshooting Guide for the Acquired Image

Malfunction	Remedy
The maximum grayscale counts are not **253 ±2** counts. The minimum grayscale counts are not **2 ±2** counts.	In the "Video Gain and Offset Parameters" window, adjust the values of each color separately for "Fine Gain" and "Fine Offset". Adjust these values 10 steps at a time. Increasing the "Gain" will cause the white pixel counts to increase without affecting the black pixels. Increasing the "Offset" will cause the white and black pixel counts to increase.
Pixel shift or line shift in the vertical lines or in the text of the image.	Check that the Modality MONITOR displays the correct test image. Execute [Auto Setup] again. Ask the operator to add more text to the image if you do not have sufficient text to evaluate.
The acquired image does not include all of the image information that the modality monitor displays.	In the "Video Vertical Parameters" window, adjust the values for the "Images Lines / Frame". In the "Video Horizontal Parameters" window, adjust the values for the "Image Pixels / Line". Increasing these values will increase the area of the image that the VIDEO BOARD requires.
Blurred text.	In the "Video Vertical Parameters" window, swap fields.

Configuring the VIDEO 60 BOARD that is Not Pre-Staged

Configuring the MIM 50 or MIM 200/VIDEO 60 BOARD



Important

- Before you can add a new Input, you must delete the existing Input from the "Configuration" menu. The MIM 200 and MIM 50 can be multiple input devices. Check to be sure you are deleting the correct device.
- See Tables on Pages 6–23 through 6–28 for descriptions of the parameters that you will enter in this procedure.

[1] At the "MIM Service Application" window, select "Configure" / "Input" / "Direct Connect".

Note

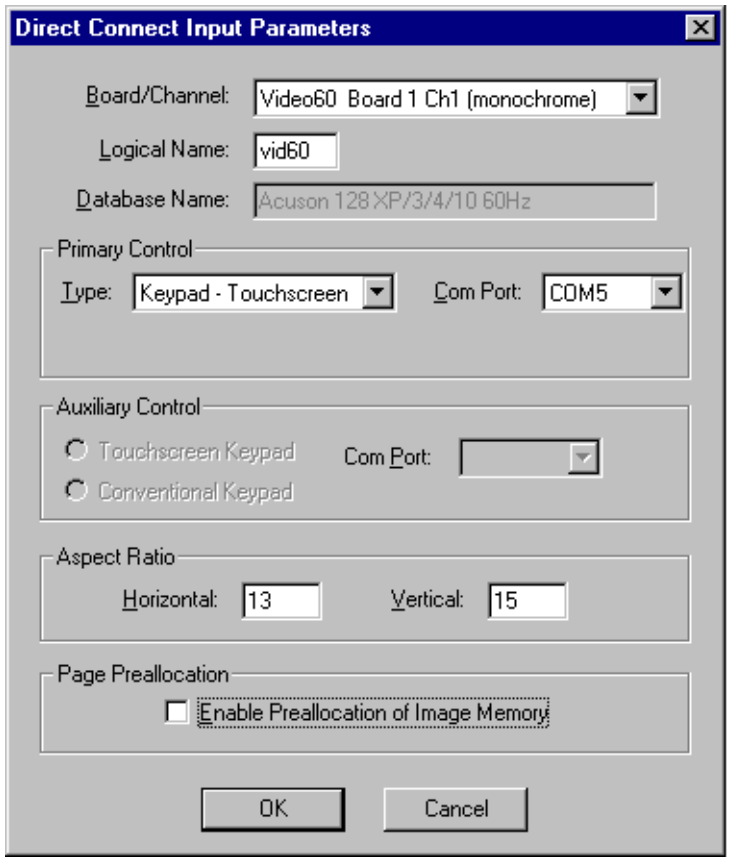
A shortcut to open the "Configuration" window is to select the third [Hot Key] on the Tool Bar.

[2] At the "Direct Connect Input Configuration" window, if an Input had previously been set up, highlight the correct Input and then select [Delete].

[3] At the message, "Executing this command will delete the input from the system. Are you sure?" select "Yes". The KEYPAD goes off-line.

[4] From the "Configuration" window, select "Add" / "Video" and the correct selection from the following choices:

- "Qualified Video 60"
- "Unqualified Video 60



[5] Do either (a) or (b):

(a) "Qualified Video 60":

- Highlight the name of the Modality and select "OK" in the "Qualified Video 60 Modalities" window to display the "Direct Connect Input Parameters" menu.
- Select Board and Channel on RGB.
- Type a name in the Logical Name field that will help you remember the Board/Channel name.
- In the "Primary Control" panel, use the drop down menus to make one of the following selections:
  - "Keypad Type" and "Com Port" for Keypad Control
  - "Autofilming Type" and "Com Port" for Autofilming

(b) "Unqualified Video 60": In the "Video Board Setup" window, enter the correct input parameter information from the Modality Worksheet.

Note

To see the "Video Board Setup" window, see Page 6–20.

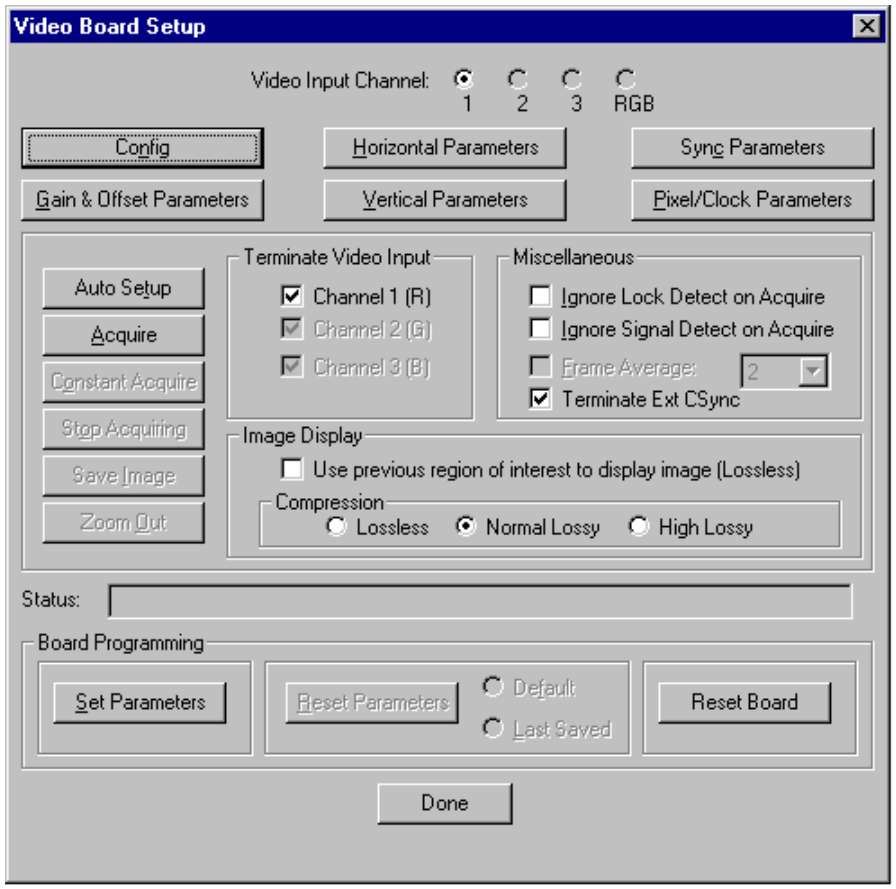
- Use Tables on Pages 6–33 through 6–39 and the "Modality Spec Sheet" on Page 22–1 for input information and guidelines.

[6] Select [Set Parameters] from the "Video Board Setup" window.

[7] To configure the MIM 50 or MIM 200/Video, see "Using [Auto Setup] to Configure the MIM 200 or SPOOLER/VIDEO 60 BOARD" on Page 6–16.

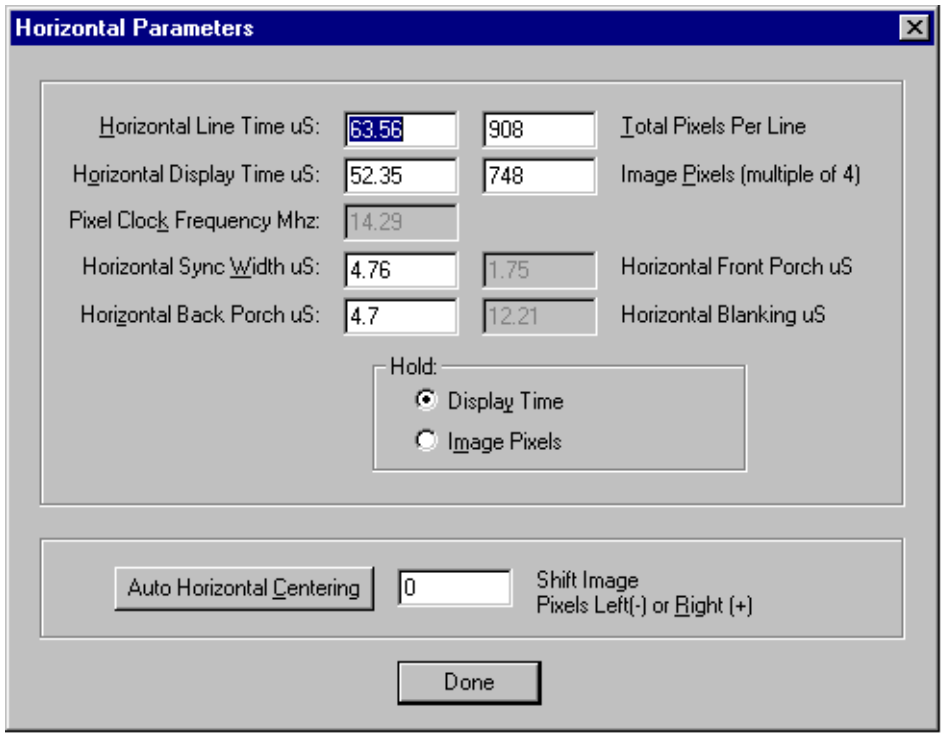
Direct Connect Input Parameters

Input Parameter	Description	Range
Board / Channel	INTERFACE BOARD on the PCI BUS / the active channel	Video Board 1/Channel 1, 2, or 3 and RGB
Logical Name	Name of the BOARD receiving the input.	1 - 5 alphanumeric
Database	Name of the modality. View only.	1 - 30 alphanumeric
Primary Control Type	Primary method the customer uses to control MIM.	KEYPAD - Touchscreen or Conventional Autofilming: *Hitachi,* KCL, P831, M952, *Siemens* (DASM, FSPOT, SPCI)*, Toshiba,* YMS
Primary Control Com Port	Port for the KEYPAD or the serial control CABLE connection	Keypad: **COM 5** for Single Input MIM 50, 100 and DP Server. For MIM 200 and Multiple Input MIM 50 it is COM 5, 7, or 9. Autofilming RS232 (MIM 100 only): **COM 2** Autofilming RS422: **COM 4** for MIM 100NR and MIM 50. For MIM 200 it is COM 4, 6, or 8.
Auxiliary Control Keypad	The field “Keypad” is automatically checked (in versions prior to V3.x) when you select autofilming as the Primary Control. The type of Keypad is selectable (in version 3.x and higher) depending on the MIM.	If Primary Control is • Autofilming: **4** • Keypad:
Auxiliary Control Com Port	The Com Port for the KEYPAD when it is used as auxiliary control. If the KEYPAD is the Primary Control, then the “Auxiliary Control Com Port” is not user changeable.	If the Primary Control is • Autofilming: COM 4, 6, or 8 for MIM 200 and COM 4 for MIM 50 • Keypad: 5, 7, or 9 for MIM 200 and COM 5 for MIM 50
Aspect Ratio: Horizontal	Horizontal component of pixel aspect ratio. The software automatically determines this ratio. When the aspect ratio is not 1:1, the software corrects for non-square pixels.	1 - 255
Aspect Ratio: Vertical	Vertical component of pixel aspect ratio. The software automatically determines this ratio. When the aspect ratio is not 1:1, the software corrects for non-square pixels.	1 - 255
Page Pre-allocation	When enabled, this feature ensures that sufficient memory is available on the HARD DISK to prevent a “Buffer Full” condition while the MIM stores a page.	On, Off



Fields and [Buttons] in the "Video Board Setup" Windows

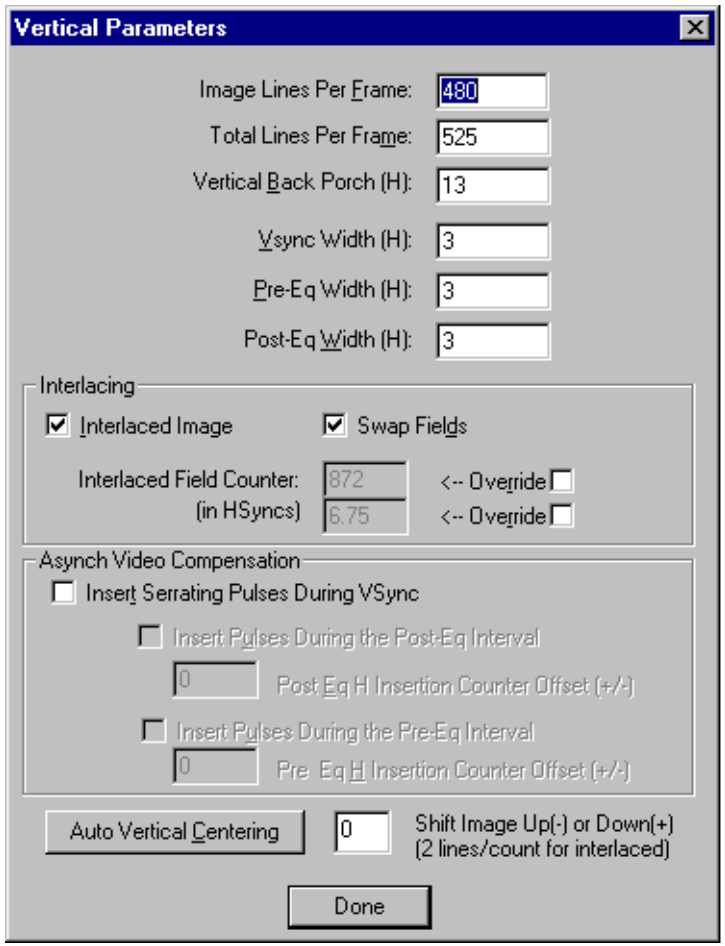
Parameter	Description	Range
Video Input Channel	The channel number	1,2,3, RGB
[Config] [Horizontal Parameters] [Vertical Parameters] [Gain and Offset] [Sync Parameters] [Pixel Clock Parameters]	Press to enter values for 5 parameters: See Page 6–24. See Page 6–25. See Page 6–26. See Page 6–27. See Page 6–28.	
[Auto Setup]	Automatically adjusts the values for certain parameters.	
[Acquire] from "Current Settings" or "Last Saved"	Automatically captures and displays a test image.	
Ignore Lock Detect on Acquire Do not enable this mode.	When enabled, the MIM 50 or MIM 200 will capture an image even if an error occurs. The software will not compute the "Lock Detect Count".	Not Enabled
Ignore Signal Detect on Acquire	The MIM 50 or MIM 200 or SPOOLER/ Video will capture an image even if a signal is not detected.	Yes, No
Frame Averaging	This feature reduces the signal noise in the image. When you select "Frame Averaging," a window opens to the right of the field, allowing you to enter the number (2-4) of frames for which you need to calculate the average.	Yes, No default: Off
Terminate Video Input See "RS-232/RS-422 CONVERTER" on Page 17–16.	Provides 75 Ohms at video input. Without this termination the image will indicate ringing. Modalities with high pixel clock frequency will be affected most.	Yes, No
Terminate Ext CSync	Provides termination for CSync	Yes, No
Status	Grayed out for the VIDEO 60 BD	N/A
[Set Parameters]	To store the information permanently. To reset the previously saved setting, select "Last Setting" and select [Reset].	



Parameter	Description	Range
[Reset Board]	Resets the Board to defaults	
[Done]	Exits the window without saving changes.	

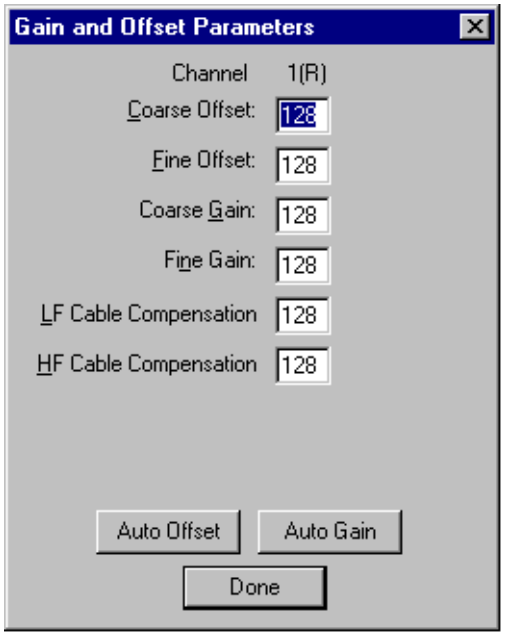
Fields and [Buttons] in the "Horizontal Parameters" Window

Horizontal Parameter	Description	Range
Line Time	Time in microseconds for one HSYNC cycle.	1.00-99.99
Total Pixels per Line	Number of pixel clock pulses that occur in one horizontal line.	1 - 9999
Display Time	Time in microseconds for active video in one horizontal line.	1.00 - 99.99
Image Pixels	Number of image pixels per line. A multiple of 4.	1 - 9999
Pixel Clock Frequency	Pixel clock rate in MHz. The software calculates value.	1.000 - 999.999
Sync Width	Width in microseconds of the horizontal synchronization pulses.	0.000 - 99.999
Back Porch	Width in microseconds of the back porch.	0.000 - 99.999
Front Porch	Width in microseconds of the front porch. The software calculates the value.	0.000 - 99.999
Blanking	Total in microseconds of the widths for the back porch, front porch. The software calculates this value.	0.000 - 99.999
Hold	Determines which value you select as the constant during the setup.	Display Time, Image Pixels
[Auto Horizontal Centering]	Do not select. Places the same number of black pixels on either side of the image. Uses the selection you make for "Shift Image Pixels...".	N/A
Shift Image Pixels L/R	The number of pixels that the image will move to the right or left when you select [Auto Centering]. Negative numbers move the image to the left, positive numbers to the right.	-9999 to 9999



Fields and [Buttons] in the "Vertical Parameters" Window

Vertical Parameter	Description	Range
Image Lines Per Frame	Number of vertical image lines per frame in the active video.	1 - 9999
Total Lines Per Frame	Number of vertical lines including vertical synchronization and equalization periods.	1 - 9999
Vertical Back Porch (H)	Number of vertical lines per field that occur after the vertical sync pulse and before the active video begins.	1 - 999
Vsync Width (H)	Width of the vertical synchronization pulse measured in Hsync pulses (H).	1 - 99
Pre-equalization Width (H)	Width of the pre-equalization period measured in Hsync pulses (H).	0 - 99
Post-equalization Width (H)	Width of the post-equalization period measured in Hsync pulses (H).	0 - 99
Interlaced Field Counter: (in HSyncs)	Value is automatically calculated for the number of lines or HSyncs by the software for interlaced Modalities only.	0 - 225
Override	Indicates if the "Interlaced Field Counter: (in HSyncs) is overridden.	Yes, No
ASync Video Compensation	Selections for inserting serrating pulses.	N/A
Interlaced Image Option	Must be enabled if the image is interlaced.	Yes, No
Swap Fields Option See "SMPTE Pattern Indicating Artifacts from Swapped Fields" on Page 17–21.	Allows the order of the 2 fields (one for odd lines and one for even lines) of an interlaced image to be interchanged.	Yes, No
[Auto Vertical Centering]	Adjusts the top to bottom centering of the image on the film.	

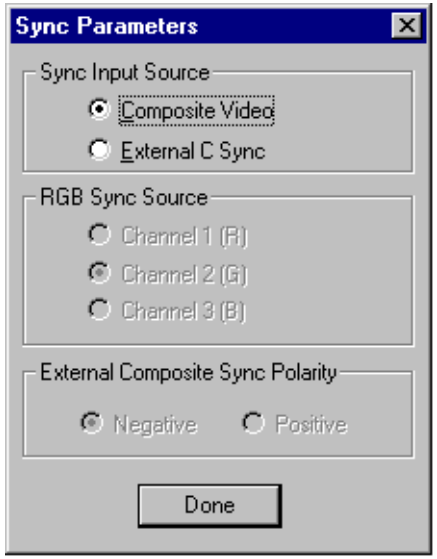


Fields and [Buttons] in the "Video Gain and Offset Parameters" Window

Parameter	Description	Range
Coarse Offset	Coarse video offset control. One Coarse Offset step will provide a change of approximately 2 A/D counts.	0 - 255; default: 128
Fine Offset	Fine video offset control. One Fine Offset step will provide a change of approximately one half A/D counts.	0 - 255; default: 128
Coarse Gain	Coarse video gain control. Set the gain level with the Coarse Gain before you use the Fine Gain.	0 - 255; default: 128
Fine Gain	Fine video gain control.	0 - 255; default: 128
LF Cable Compensation	Low frequency compensation. Calculated value. The lower the number, the longer the cable. See "HF and LF Cable Compensation Parameters" on Page 17–20.	0-255
HF Cable Compensation	High frequency compensation. Calculated value. The lower the number, the longer the cable. See "HF and LF Cable Compensation Parameters" on Page 17–20.	0-255
[Auto Offset]	Sets the offset.	
[Auto Gain]	Sets the gain.	
Enable Noise Clipping	When enabled, this function adds 2 counts to the Gain and subtracts 1 count from the Offset, resulting in whites of value 255 and blacks of 0.	Not Enabled

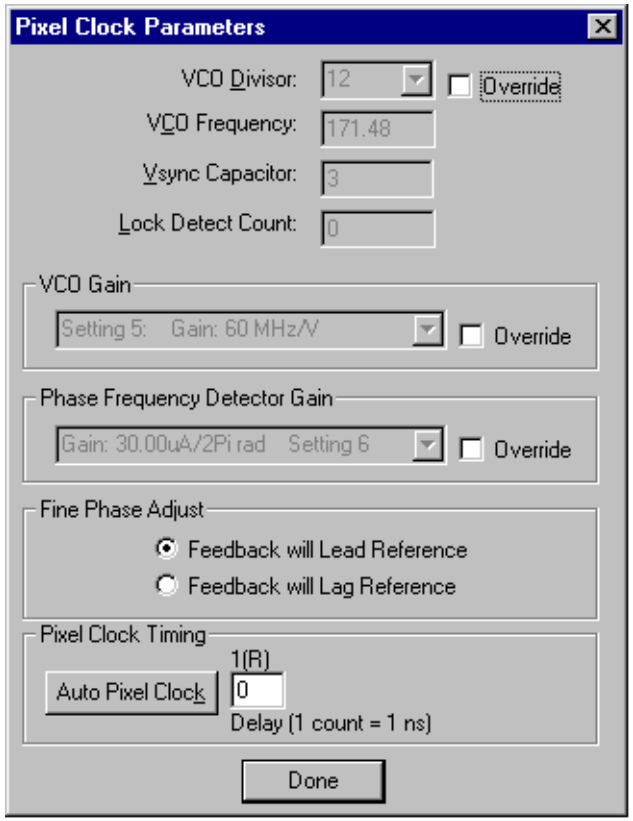
Note

To return to the procedure, See "Using [Auto Setup] to Configure the MIM 50 and MIM 200/VIDEO 60 BOARD" on Page 6–12.



Fields and [Buttons] in the "Video Sync Parameters" Window

Parameter	Description	Range
Sync Input Source	Selection of Sync Input Source.	Composite Video, External Composite (Csync)
Composite Sync	Input channel from which to derive the composite sync. Always the same channel as the video signal.	Yes, No
External CSync	Select to use External CSync	Yes, No
RGB Sync Source	Channel selection for Sync	R, G, B
External Composite Sync Polarity	Polarity of the Sync Pulse.	Negative, Positive



Fields and [Buttons] in the "Pixel Clock Parameters" Window

Parameter	Description	Range
VCO Divisor	External divisor setting for PLL. Select from drop-down menu. The Video Control Oscillator (VCO) divisor maintains the VCO frequency in the range of 75 to 150 MHz and is calculated automatically when you select [Autorun].	Values from 3 - 80, but not all numbers are included.
VCO Frequency	Automatically calculated when you select [Autorun].	75.00 - 150.00
Vsync Capacitor	Vsync extraction Capacitor setting. Automatically calculated. See "Description of the Settings for Vsync Capacitor" on Page 6–29.	0 - 3: See the table below.
Lock Detect Count	If the PLL is locked, the value of this parameter should equal the total pixels per line in the Horizontal parameters. The value is valid only after you execute a [Set].	See the description.
VCO Gain	Automatically calculated	Settings 0-7
Phase Frequency Detector Gain	Automatically calculated	Settings 0-7
Fine Phase Adjust: Do not use unless directed to do so by the **TSC**.	An internal setting of the PLL chip that adjusts the relationship of the pixel clock to the video signal: Same relationship that the "Pixel Clock Timing" adjusts.	**Pixel Clock Timing**, which is more accurate
Pixel Clock Timing	Calculated automatically to achieve the best pixel sampling area.	0-255

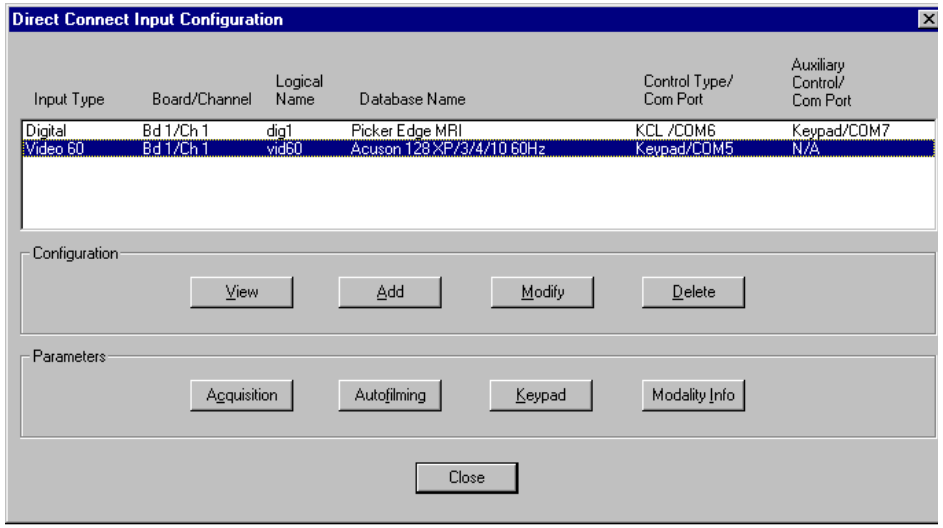
Description of the Settings for Vsync Capacitor

Setting	H Line Time (microseconds)	HSync Frequency (kHz)
0	0-14.29	69-100
1	14.49-32.26	31-68.99
2	32.25-55.56	18-30.99
3	55.57-64.00 and higher	0-17.99

Note

Return to the procedure, “Configuring the MIM 50 or MIM 200/VIDEO 60 BOARD” on Page 6–20.

Configuring the MIM 200 and SPOOLER/VIDEO 60 BOARD, RGB



Important

- Before you can add a new Input, you must delete the existing Input from the "Configuration" menu. The MIM 200 and MIM 50 can be multiple input devices. Check to be sure you are deleting the correct device.
- See Tables "Fields and [Buttons] in the Video Board Setup Windows" on Page 6–23 through "Fields and [Buttons] in the Pixel Clock Parameters Window" on Page 6–28 for descriptions of parameters that you enter in this procedure.

[1] At the "MIM Service Application" window, select "Configure/Input/Direct Connect". The "Configuration" window displays.

Note

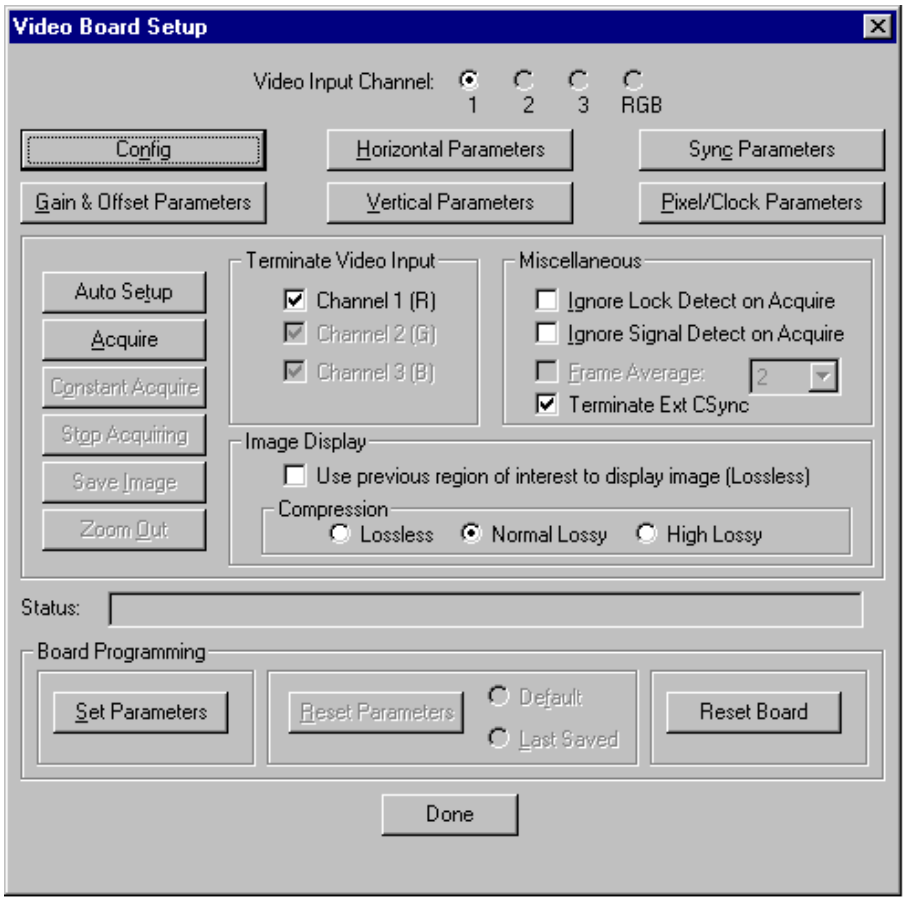
A shortcut to open the "Configuration" window is to select the third [Hot Key] on the Tool Bar.

[2] At the "Configuration" window, if 2 Inputs had previously been set up, highlight the correct modality and select "Delete".

[3] At the message, "Executing this command will delete the input from the system. Are you sure?" select "Yes". The KEYPAD goes off-line.

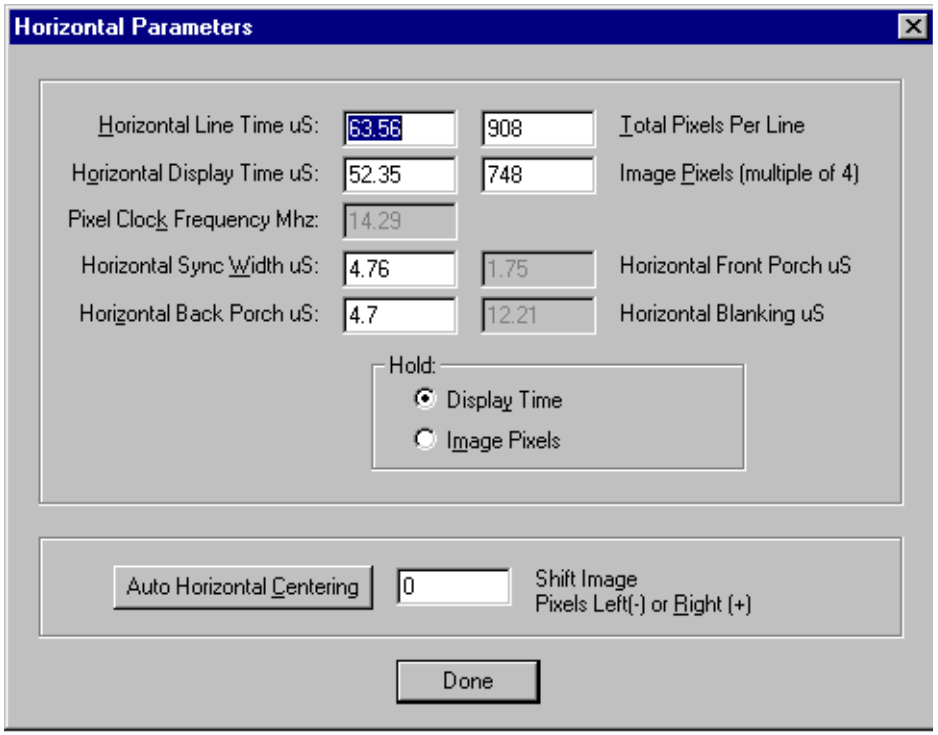
[4] From the "Configuration" window, select "Add" / "Video" and the correct selection from the following choices:

- "Qualified Video 60"
- "Unqualified Video 60"



Fields and [Buttons] in the "Video Board Setup" Windows

Parameter	Description	Range
Video Input Channel	The channel number	1,2,3, RGB
[Config] [Horizontal Parameters] [Vertical Parameters] [Gain and Offset] [Sync Parameters] [Pixel Clock Parameters]	Press to enter values for 5 Parameters: See Page 6–35. See Page 6–36. See Page 6–37. See Page 6–38. See Page 6–39.	
[Auto Setup]	Automatically adjusts the values for certain parameters.	
[Acquire] from "Current Settings" or "Last Saved"	Automatically captures and displays a test image.	
Ignore Lock Detect on Acquire Do not enable this mode.	When enabled, the SPOOLER captures an image even if an error occurs. The software will not compute the "Lock Detect Count".	Not Enabled
Ignore Signal Detect on Acquire	The SPOOLER/Video will capture an image even if a signal is not present.	Yes, No
Frame Averaging	This feature reduces the signal noise in the image. When you select "Frame Averaging", a window opens to the right of the field, allowing you to enter the number (2-4) of frames to average.	Yes, No default: Off
Terminate Input Video See "RS-232/RS-422 CONVERTER" on Page 17–16.	Provides 75 ohms at video input. Without this termination the image will indicate ringing. Modalities with high pixel clock frequency will be affected most.	Yes, No
Terminate Ext CSync	Provides termination for CSync	Yes, No
Status	Grayed out for the VIDEO 60 BD	N/A
[Set Parameters]	To store the information permanently. To reset the previously saved setting, select "Last Setting" and select [Reset].	
[Reset Board]	Resets the Board to defaults	
[Done]	Exits the window without saving changes.	



[5] Do either (a) or (b):

(a) "Qualified Video 60":

- Highlight the name of the Modality and select "OK" in the "Qualified Video 60 Modalities" window to display the "Connect Input Parameters" menu.
- In the "Primary Control" panel, use the drop down menus to make one of the following selections:
  - "Keypad Type" and "Com Port" for Keypad Control
  - "Autofilming Type" and "Com Port" for Autofilming

(b) "Unqualified Video 60": In the "Video Board Setup" window, enter the correct input parameter information from the Modality Worksheet.

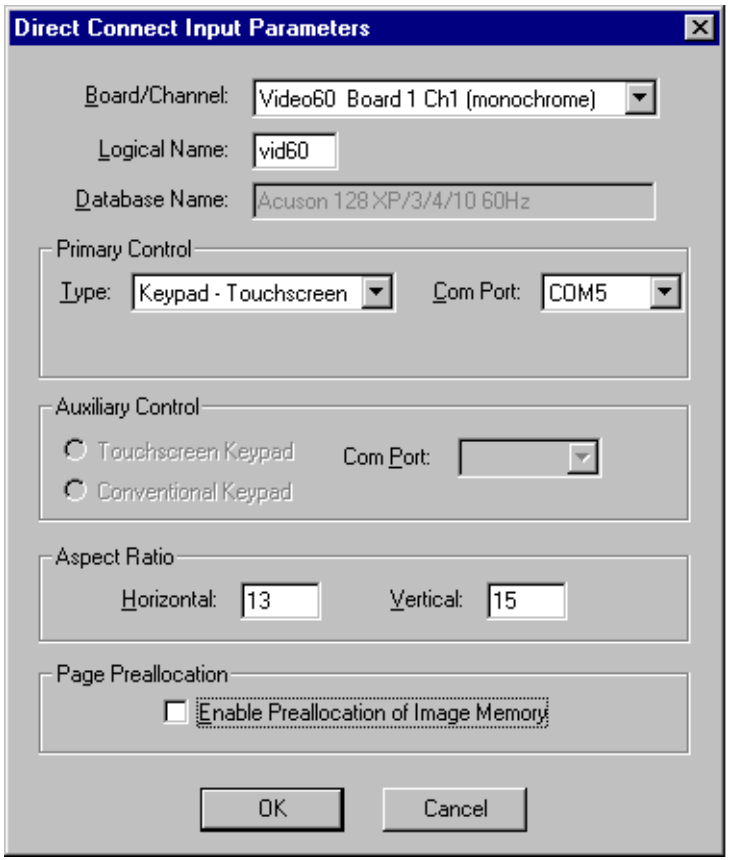
Note

To see the "Video Board Setup" window, see Page 6–30.

- Use Tables on Pages 6–31 through 6–39 and the Modality Spec Sheet on Page 22–1 for input information and guidelines.

[6] Select "Set Parameters" from the "Video Board Setup" window.

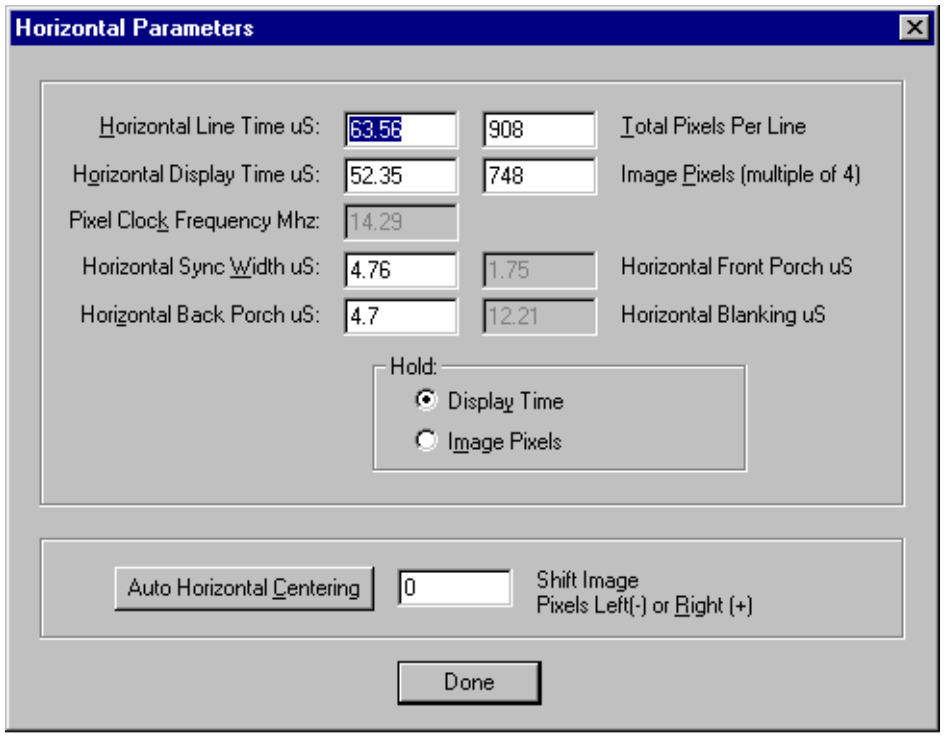
[7] To configure the MIM 200 or SPOOLER/VIDEO, see the procedure on Page 6–16.



Direct Connect Input Parameters

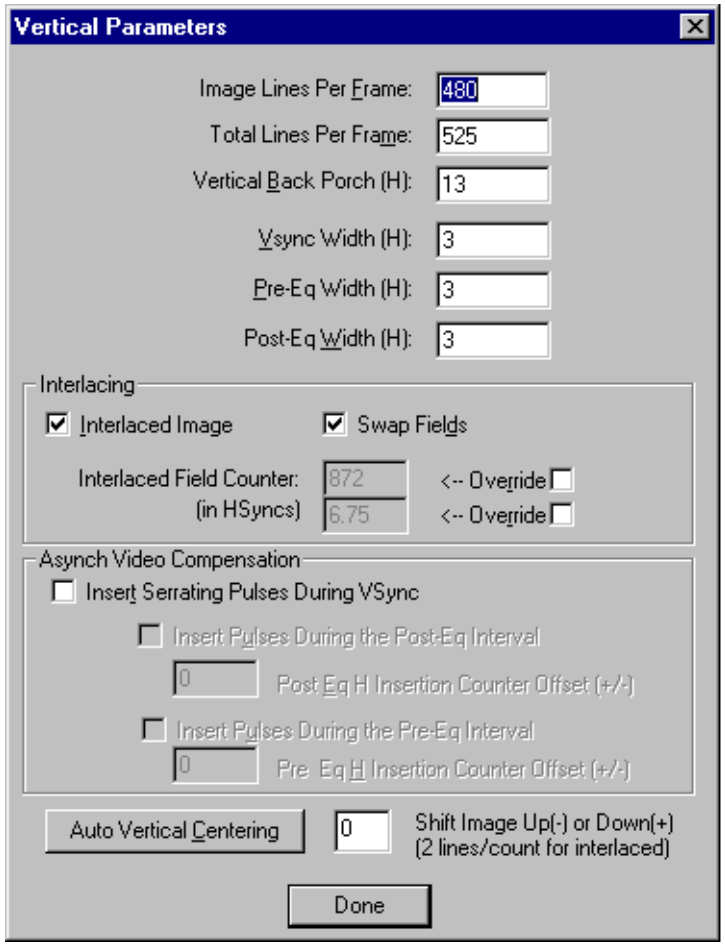
Input Parameter	Description	Range
Board / Channel	INTERFACE BOARD on the PCI BUS / the active channel	Video Board 1 RGB
Logical Name	Name of the BOARD receiving the input.	1 - 5 alphanumeric
Database	Name of the modality. View only.	1 - 30 alphanumeric
Primary Control Type	Primary method the customer uses to control MIM.	KEYPAD - Touchscreen or Conventional Autofilming: *Hitachi,* KCL, P831, M952, *Siemens* (DASM, FSPOT, SPCI), *Toshiba,* YMS
Primary Control Com Port	Port for the KEYPAD or the serial control CABLE connection	Keypad: **COM 5** for Single Input MIM 50, 100 and DP Server. For MIM 200 and Multiple Input MIM 50 it is COM 5, 7, or 9. Autofilming RS232 (MIM 100 only): **COM 2** Autofilming RS422: **COM 4** for MIM 100NR and MIM 50. For MIM 200 it is COM 4, 6, or 8.
Auxiliary Control Keypad	The field “Keypad” is automatically checked (in versions prior to V3.x) when you select autofilming as the Primary Control. The type of Keypad is selectable (in version 3.x and higher) depending on the MIM.	If Primary Control is • Autofilming: **4** • Keypad:

Input Parameter	Description	Range
Auxiliary Control Com Port	The Com Port for the KEYPAD when it is used as auxiliary control. If the KEYPAD is the Primary Control, then the “Auxiliary Control Com Port” is not user changeable.	If the Primary Control • Autofilming: COM 4, 6, or 8 • Keypad: 5, 7, or 9
Aspect Ratio: Horizontal	Horizontal component of pixel aspect ratio. The software automatically determines this ratio. When the aspect ratio is not 1:1, the software corrects for non-square pixels.	1 - 255
Aspect Ratio: Vertical	Vertical component of pixel aspect ratio. The software automatically determines this ratio. When the aspect ratio is not 1:1, the software corrects for non-square pixels.	1 - 255
Page Preallocation	When enabled, this feature ensures that sufficient memory is available on the HARD DISK to prevent a “Buffer Full” condition while the SPOOLER stores a page.	On, Off



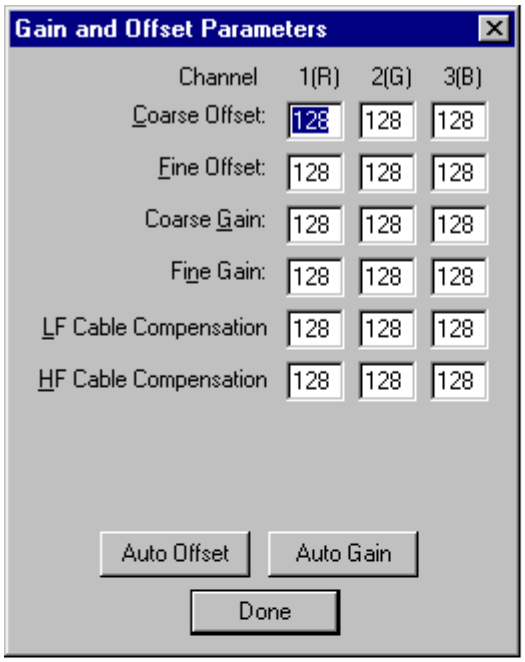
Fields and [Buttons] in the "Horizontal Parameters" Window

Horizontal Parameter	Description	Range
Line Time	Time in microseconds for one HSYNC cycle.	1.00-99.99
Total Pixels per Line	Number of pixel clock pulses that occur in one horizontal line.	1 - 9999
Display Time	Time in microseconds for active video in one horizontal line.	1.00 - 99.99
Image Pixels	Number of image pixels per line in multiples of 4.	1 - 9999
Pixel Clock Frequency	Pixel clock rate in MHz. The software calculates value.	1.000 - 999.999
Sync Width	Width in microseconds of the horizontal synchronization pulses.	0.000 - 99.999
Back Porch	Width in microseconds of the back porch.	0.000 - 99.999
Front Porch	Width in microseconds of the front porch. The software calculates the value.	0.000 - 99.999
Blanking	Total in microseconds of the widths for the back porch, front porch. The software calculates this value.	0.000 - 99.999
Hold	Determines which value you select as the constant during the setup.	Display Time, Image Pixels
[Auto Horizontal Centering]	Do not select. Places the same number of black pixels on either side of the image. Uses the selection you make for "Shift Image Pixels...".	
Shift Image Pixels L/R	The number of pixels that the image will move to the right or left when you select [Auto Centering]. Negative numbers move the image to the left, positive numbers to the right.	-9999 to 9999



Fields and [Buttons] in the "Vertical Parameters" Window

Vertical Parameter	Description	Range
Image Lines Per Frame	Number of vertical image lines per frame in the active video.	1 - 9999
Total Lines Per Frame	Number of vertical lines including vertical synchronization and equalization periods.	1 - 9999
Vertical Back Porch (H)	Number of vertical lines per field that occur after the vertical sync pulse and before the active video begins.	1 - 999
Vsync Width (H)	Width of the vertical synchronization pulse measured in Hsync pulses (H).	1 - 99
Pre-equalization Width (H)	Width of the pre-equalization period measured in Hsync pulses (H).	0 - 99
Post-equalization Width (H)	Width of the post-equalization period measured in Hsync pulses (H).	0 - 99
Interlaced Field Counter: (in HSyncs)	Value is automatically calculated for the number of lines or HSyncs by the software for interlaced Modalities only.	0 - 225
Override	Indicates if the "Interlaced Field Counter: (in HSyncs)" is overridden.	Yes, No
ASync Video Compensation	Selections for inserting serrating pulses.	N/A
Interlaced Image Option	Must be enabled if the image is interlaced.	Yes, No
Swap Fields Option See "SMPTE Pattern Indicating Artifacts from Swapped Fields" on Page 17–21.	Allows the order of the 2 fields (one for odd lines and one for even lines) of an interlaced image to be interchanged.	Yes, No
[Auto Vertical Centering]	Adjusts the top to bottom centering of the image on the film.	N\A

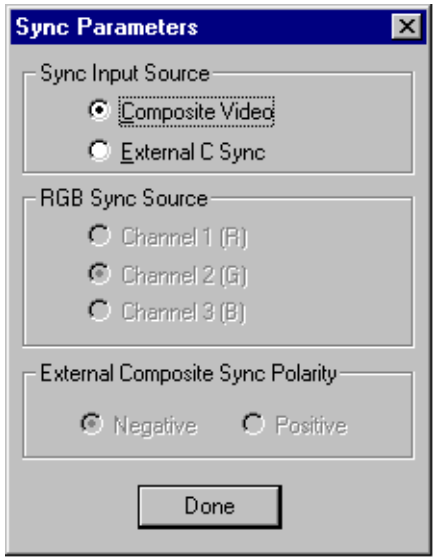


Fields and [Buttons] in the "Video Gain and Offset Parameters" Window

Parameter	Description	Range
Coarse Offset	Coarse video offset control. One Coarse Offset step will provide a change of approximately 2 A/D counts.	0 - 255; default: 128
Fine Offset	Fine video offset control. One Fine Offset step will provide a change of approximately one half A/D counts.	0 - 255; default: 128
Coarse Gain	Coarse video gain control. Set the gain level with the Coarse Gain before you use the Fine Gain.	0 - 255; default: 128
Fine Gain	Fine video gain control.	0 - 255; default: 128
LF Cable Compensation	Low frequency compensation. Calculated value. The lower the number, the longer the cable. See "HF and LF Cable Compensation Parameters" on Page 17–20.	0-255
HF Cable Compensation	High frequency compensation. Calculated value. The lower the number, the longer the cable. See "HF and LF Cable Compensation Parameters" on Page 17–20.	0-255
[Auto Offset]	Sets the offset.	
[Auto Gain]	Sets the gain.	
Enable Noise Clipping	When enabled, this function adds 2 counts to the Gain and subtracts 1 count from the Offset, resulting in whites of value 255 and blacks of 0.	Enabled ✔

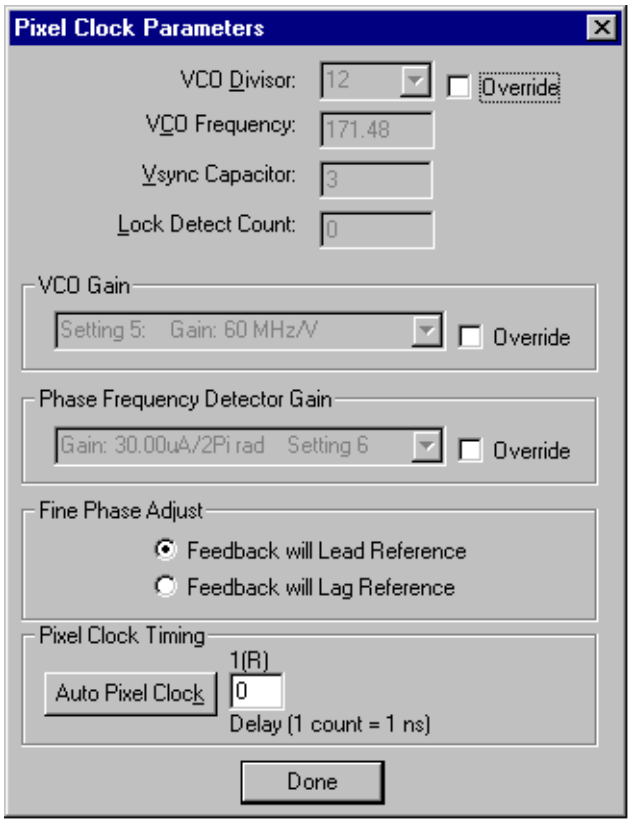
Note

To return to the procedure, see "Using [Auto Setup] to Configure the MIM 200 or SPOOLER/VIDEO 60 BOARD" on Page 6–16.



Fields and [Buttons] in the "Video Sync Parameters" Window

Parameter	Description	Range
Sync Input Source	Selection of Sync Input Source.	Composite Video, External Composite (Csync)
Composite Sync	Input channel from which to derive the composite sync. Always the same channel as the video signal.	Yes, No
External CSync	Select to use External CSync	Yes, No
RGB Sync Source	Channel selection for Sync	R, G, B
External Composite Sync Polarity	Polarity of the Sync Pulse.	Negative, Positive



Fields and [Buttons] in the "Pixel Clock Parameters" Window

Parameter	Description	Range
VCO Divisor	External divisor setting for PLL. Select from drop-down menu. The Video Control Oscillator (VCO) divisor maintains the VCO frequency in the range of 75 to 150 MHz and is calculated automatically when you select [Autorun].	Values from 3 - 80, but not all numbers are included.
VCO Frequency	Automatically calculated when you select [Autorun].	75.00 - 150.00
Vsync Capacitor	Vsync extraction Capacitor setting. Automatically calculated. See "Description of the Settings for Vsync Capacitor" on Page 6–40.	0 - 3: See "Description of the Settings for Vsync Capacitor" on Page 6–40.
Lock Detect Count	If the PLL is locked, the value should match the total pixels per line in the "Horizontal Parameters" menu. The value is valid only if a [Set] was executed after the "Pixel Clock Parameters" menu was opened.	See the description.
VCO Gain	Automatically calculated	Settings 0-7
Phase Frequency Detector Gain	Automatically calculated	Settings 0-7
Fine Phase Adjust	An internal setting of the PLL chip that adjusts the relationship of the pixel clock to the video signal.	Lead, Lag
Pixel Clock Timing	Calculated automatically to make the optimum pixel sampling area.	0-255

Description of the Settings for Vsync Capacitor

Setting	H Line Time (microseconds)	HSync Frequency (kHz)
0	0-14.29	69-100
1	14.49-32.26	31-68.99
2	32.25-55.56	18-30.99
3	55.57-64.00 and higher	0-17.99

Note

To return to the procedure, see Page 6–32.

Section 7: Configuring the Input for the Video 150 Board

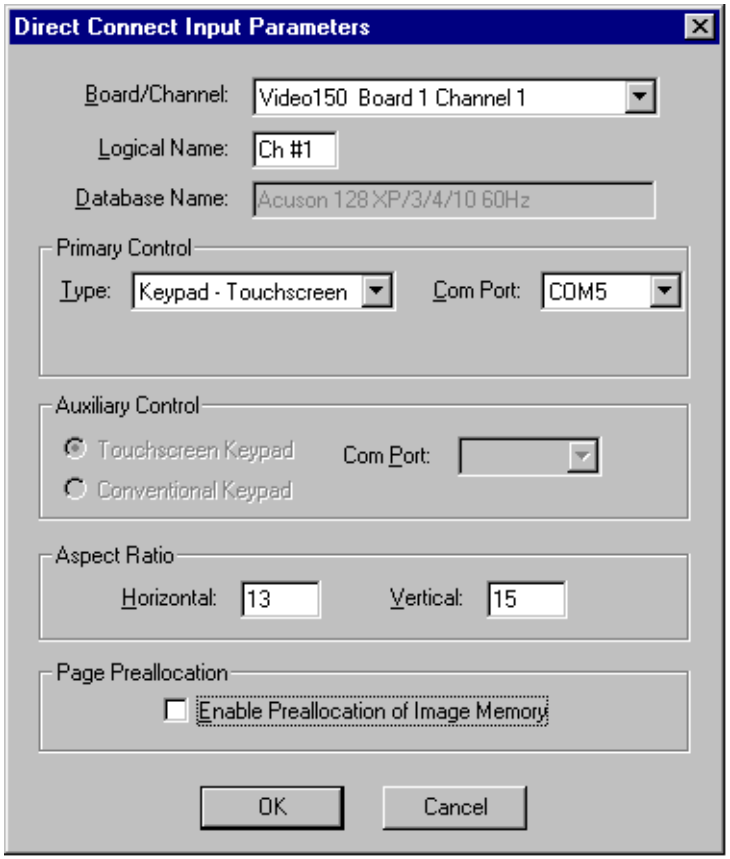
Introduction

Important

Before you begin installation, read the following to help you prepare for configuration of the MIM 100, then advance to Page 7–2:

- Will the primary control of the MIM 100 be the KEYPAD or Autofilming Link?
- Is the equipment Pre-staged?
  - Pre-staged indicates that the equipment was shipped with the Modality parameters already installed and tested.
  - The Pre-staged MIM 100 can be either Qualified or Unqualified.
- Will you connect the MIM 100 to a Qualified or Unqualified Modality?
  - A Qualified Input indicates that the Modality has been field tested with correct parameters. The database in the Service Software for the MIM 100 may also include this Modality in the Qualified list.
  - An Unqualified Input indicates that the Modality has not been field tested.
- Check that the operator can provide you with a clinical image to evaluate image quality after you finish configuring the Input. The image must contain:
  - Grayscale including the brightest and darkest values (0 to 255 A/D Counts)
  - White text on black background, or black text on white background
  - Sharp transitions and vertical lines

Configuring the Input Parameters



Important

- See the Modality Spec Sheet provided with the MIM to determine correct parameters. An example of the Spec. Sheet is indicated on Page 22–1.
- Is the Input installed?
  - **No**: Do all steps in this procedure.
  - **Yes**: Do Steps 1 and then do Steps 5 through 8 only.

[1] At “MIM Service Application”, select “Configure” / “Input” / “Direct Connect”.

[2] At the “Direct Connect Input Configuration” menu, select “Add” / “Video” / “Qualified” / “Video 150”.

[3] Scroll down and select the Modality that you will install.

[4] In the “Primary Control” field, select the “Keypad Type” and the “Com Port”.

[5] At the “Direct Connect Input Configuration” window, select “Modify”.

Note

To view the configuration only, select “View”.

[6] At the message “Executing this communication will take the system off-line. Are you sure?” select “OK”. The “Input Parameters” window displays.

[7] Use the Table “Input Parameters” on Page 7–3 to check that the information is correct. If you do not change information, select [Cancel]. If you change information, select [OK].

[8] Use the Table “Advancing to the Correct Procedure for the VIDEO 150 BD” below to advance to the correct procedure:

Advancing to the Correct Procedure for the VIDEO 150 BD

Primary Control Type	Pre-Staged	Page
Autofilming	N/A	7–4
Keypad	Yes	7–7
	No	7–11

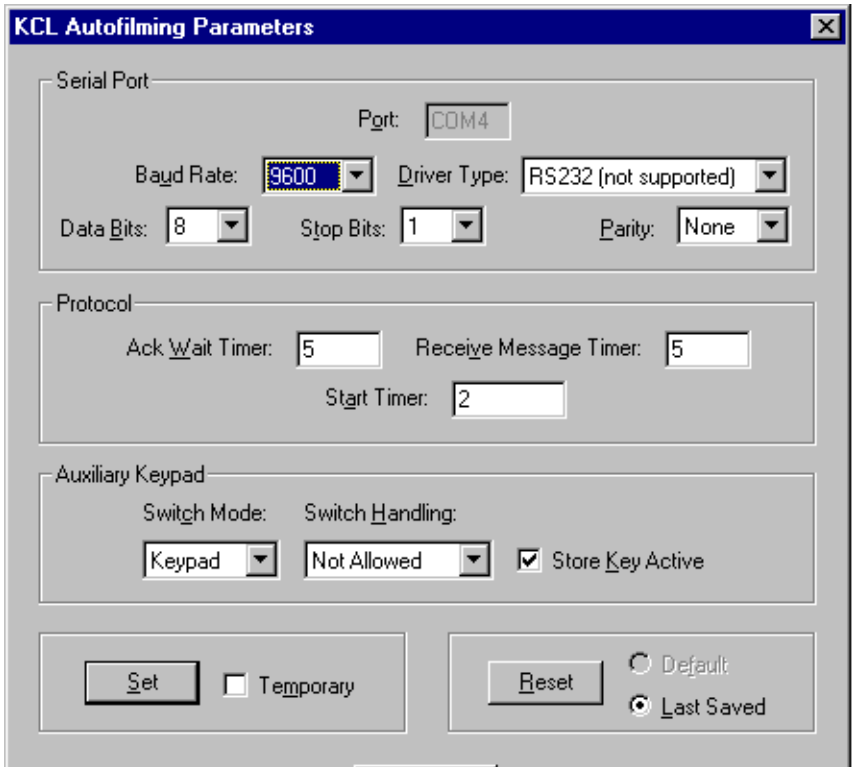
Input Parameters

Input Parameter	Description	Range
BOARD	INTERFACE BOARD on the PCI BUS.	Video Board 1
Channel Number	Number of the channel of the INTERFACE BOARD.	Channel 1
Logical Name	Name of the BOARD receiving the input.	1 - 5 alphanumeric characters Examples: MRI 1 or CTRM 1
Database Name	Name of the modality. Viewable only.	1 - 30 alphanumeric characters
Primary Control Type	Primary method the customer uses to control MIM.	KEYPAD Autofilming: *Hitachi,* KCL, P831, M952, *Siemens* (DASM, FSPOT, SPCI)*, Toshiba,* YMS
Primary Control Com Port	Port for the KEYPAD or the serial control CABLE connection	Keypad: **COM 5** Autofilming RS232 (MIM 100 only): **COM 2** Autofilming RS422: **COM 4**
12 VDC Power (MIM 100 only)	Power for external FIBER OPTIC TRANSCEIVER *(Hirschmann* CONNECTOR) for RS232 PORT. Autofilming only.	Keypad: **OFF** Autofilming: On, Off
Auxiliary Control Keypad	Indicates that the keypad is or is not enabled for auxiliary control when autofilming is the primary control.	Keypad: Off Autofilming:**On** Important: For the MIM with autofilming, “Auxiliary Control” is always On.
Auxiliary Control Port No.	PORT for KEYPAD when it is the auxiliary control.	Keypad: Not Applicable Autofilming: **COM 5**
Aspect Ratio: Horizontal	Horizontal component of pixel aspect ratio. The software automatically determines this ratio. Aspect ratios not equal to 1:1 correct for non-square pixels.	1 - 255
Aspect Ratio: Vertical	Vertical component of pixel aspect ratio. The software automatically determines this ratio. Aspect ratios not equal to 1:1 correct for non-square pixels.	1 - 255
Page Preallocation	When enabled, this feature ensures that sufficient memory is available on the HARD DISK to prevent a “Buffer Full” condition while MIM stores a page.	On, Off

Note

To continue configuring the input parameters, return to Page 7–2.

Configuring the MIM for the Autofilming Mode



Important

- For autofilming, an RS232 or RS422 CABLE must be connected between the Modality and the MIM.
- The MIM 100NR uses only RS-422. See Page 5–1 for more information on the MIM 100NR. For autofilming connections that require RS-232, install the CONVERTER KIT 8B8186 to convert the RS-232 signal to RS-422.
- The MIM 100 with RELAY BOARD and less than V_3.0 can use either RS-232 or RS-422.
- See the Modality Spec Sheet provided with the MIM to determine correct parameters. See Page 22–1 for an example of the Modality Spec Sheet.

[1] At the “Configuration” window, select “Autofilming/Modify”.

[2] When the COMPUTER prompts you “Are you sure?” select “OK”. The “Autofilming” window displays.

[3] At the window for the type of autofilming at the site, enter the correct information. See “Default Values for Autofilming Link Parameters” on Page 7–5. and See “Autofilming Parameters for the MIM: Parameters indicated by * do not apply to all types of autofilming” on Page 7–6..

[4] If you did not change information, select “Cancel”. If you changed information, select “Set”.

[5] To determine the next step, See “Completing the Installation” on Page 2–22.

Default Values for Autofilming Link Parameters

Parameter	Autofilming Link							
	Hitachi	KCL	P831	M952	Siemens		Toshiba	YMS
					SPCI/ FSPOT	DASM		
Port ID	--	--	--	--	--	--	--	--
Driver Type	RS422	RS422	RS422	RS422	RS232*	RS232*	RS422	RS422
Baud Rate	4800	9600	1200	1200	2400	4800	9600	1200
Data Length	8	8	8	8	7	8	7	8
Stop Bits	1	1	1	1	2	1	1	2
Parity	even	none	even	even	odd	even	even	odd
Store Key	active	active	active	active	--	--	active	active
ACK Wait Timer	3	5	6	6	2	2	1	--
Receive Message Timer	--	5	6	6	--	--	1	--
Start Timer	--	2	--	--	1	1	--	--
EOT Wait Timer	--	--	--	--	--	--	10	--
Switch Mode	--	Keypad	--	--	--	--	Keypad	--
Switch Handling	--	Not Allowed	--	--	--	--	--	--
Report Alarms	--	--	On	--	--	--	--	--
Automatic Film Type Selection	--	--	--	--	Off	Off	--	--
DTR Connection Establishment	--	--	--	--	--	--	On	--
Default Horizontal Frames	--	--	--	--	--	--	3	--
Default Vertical Frames	--	--	--	--	--	--	4	--

Note

*Supported by the MIM 100 only. All other models must have RS-232 converted to RS-422. See the “Important” at the top of Page 7–4.

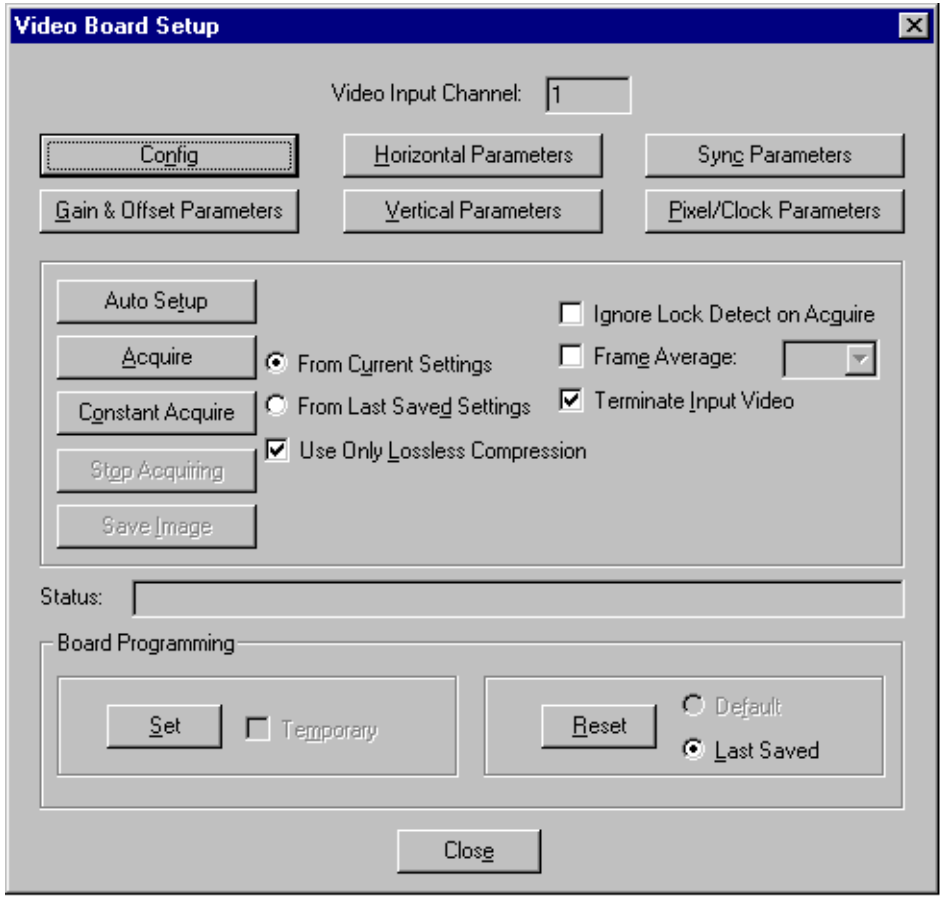
Autofilming Parameters for the MIM: Parameters indicated by * do not apply to all types of autofilming

Item	Description	Range
Port Id	SERIAL COMMUNICATIONS PORT	MIM 100: COM2, COM4
		MIM 50, 100NR: COM4
Driver Type	Driver protocol of the SERIAL COMMUNICATIONS PORT	MIM 100: RS-232, RS-422
		MIM 50, 100NR: RS422
Baud Rate	Baud Rate of the SERIAL COMMUNICATIONS PORT	300, 1200, 2400, 4800, 9600
Data Length	Number of bits for serial communications	7, 8
Stop Bits	Number of stop bits for serial communications	1, 2
Parity	Setting of parity for SERIAL COMMUNICATIONS PORT	None, even, odd
Store Key*	Determines if [Store] on the KEYPAD is active when the system uses auxiliary control	Active, Inactive
ACK Wait Timer*	Acknowledgment wait timer. The time in seconds that the MIM will wait after it sends a message until the imaging device acknowledges that it received the message.	1 - 999
Receive Message Timer*	Specifies the amount of time in seconds allowed to receive an entire message.	1 - 999
Start Timer*	Specifies the time (seconds) that the MIM waits for the Modality to reply to a handshake character.	1 - 999
EOT Wait Timer*	Specifies the amount of time in seconds that the MIM waits to receive an End of Transmission (EOT) character from the Imaging Device.	1- 999
Switch Mode*	Allows you to designate printing films using either the Console of the Imaging Device (Host) or the Auxiliary KEYPAD.	Keypad, Host
Switch Handling*	The process used to handle stored images when filming is switched between the Host and the Auxiliary KEYPAD.	Not Allowed
Report Alarms*	Flag indicating if the MIM reports to the modality alarm conditions associated with the PRINTER.	On, Off
Automatic Film Type Selection*	Flag that indicates if the SUPPLY MAGAZINE in the LASER PRINTER must be used to automatically select the film size and film base.	On, Off
DTR Connection Establishment*	Specifies the amount of time in seconds the MIM must wait for the Imaging Device to respond to a handshake character.	1 - 999
Default Horizontal Frames*	The number of horizontal frames in page format that the MIM defaults to.	1 - 9
Default Vertical Frames*	The number of vertical frames in page format that the MIM defaults to.	1 - 9

Note

To continue configuring the autofilming mode, return to Page 7–4.

Using [Auto Setup] to Configure the MIM 100/VIDEO 150 BOARD



Important

- The instructions in this procedure are for the MIM 100 and MIM 100NR only.
- The MIM must be energized for at least 5 minutes before you select “Auto Setup”. The VIDEO BOARD requires about 5 minutes to stabilize.
- Check that the operator can provide a test pattern from the Modality, such as a SMPTE or Grayscale pattern. If test pattern is not available, choose the best clinical image that meets the following requirements:
  - Grayscale with brightest and darkest values (0 to 255 A/D Counts)
  - White text on black background or black text on white background
  - Sharp transitions and vertical lines

[1] At “MIM Service Application”, select “Configure/Input/Direct Connect”.

Important

A Modality must already be set up in the configuration before you do Step 2.

[2] At the “Configuration” window, select “Acquisition/Modify”.

[3] At the “Modify Parameters” window, select “OK”.

[4] At the “Video Board Setup” window, select “Auto Setup”.

Important

Wait about 2 minutes until the “Status” line in the “Video Board Setup” window displays the message “Auto Board Setup Complete”. The “Status” line indicates each of the 9 setup tasks for troubleshooting steps. See “The 9 Tasks Completed During [Auto Setup] for the VIDEO 150 BOARD” on Page 7–8.. If Autosetup does not finish, see Help Files “Autosetup Failures”.

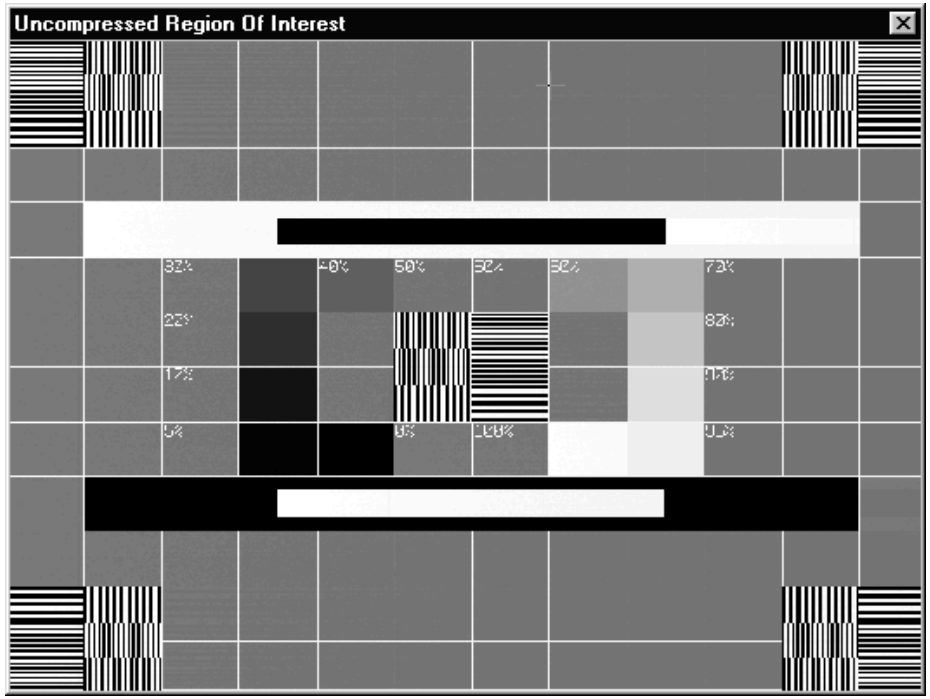
[5] After you review the Table on Page 7–8, advance to Step 6.

The 9 Tasks Completed During [Auto Setup] for the VIDEO 150 BOARD

No.	Tasks Displayed in Status Line	Associated Parameter Window: Field
1	“Input source sync auto-set”	Video Sync Parameters: [Auto Hsync] and [Auto Vsync]
2	“PLL control voltage auto set”	Pixel Clock Parameters: [Auto Control Voltage]
3	“PCLK to Hsync auto-align”	Pixel Clock Parameters: [Auto Hsync to Clock]
4	“Gains and offsets auto-level”	Gain and Offset Parameters: [Auto Level]
5	“Horizontal auto-framing”	Horizontal Parameters: [Auto Horizontal Centering]
6	“PCLK to Data Phase auto-align”	Pixel Clock Parameters: [Auto Pixel Clock]
7	“Horizontal auto-framing”	Horizontal Parameters: [Auto Horizontal Centering]
8	“Vertical auto-framing”	Vertical Parameters: [Auto Vertical Centering]
9	“Auto setup end”	Indicates completion of auto setup.

Note

To continue configuring the VIDEO 150 BOARD, advance to Step 6.



[6] Select “Set”.

[7] At the “Video Board Setup”, select “Acquire” to evaluate the image.

[8] Select a Region of Interest (ROI) and display the uncompressed ROI image:

(a) Use the MOUSE to click-and-drag a rectangle around an ROI: You must drag the MOUSE from the top-left position of the ROI to the bottom-right position of the ROI.

(b) Release the MOUSE click. The uncompressed image displays.

Important

- To determine pixel values, observe the “Pixel Value” window while you move the cursor over the image.
- You might have to execute several acquires to completely evaluate the quality of the image.
- To create a histogram, do Step 7 again within the existing uncompressed image.
- To save the ROI, select “Save ROI”.

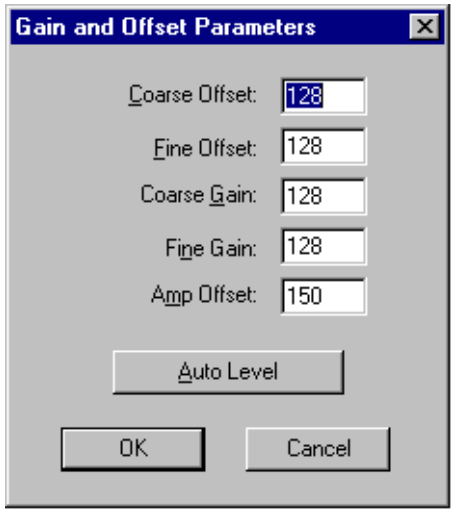
[9] Observe that the test image indicates the following properties for good image quality:

- Correct Gain and Offset:

  Brightest white: Pixel values of **253** ± **2** counts

  Darkest Black: Pixel values of **2** ± **2** counts

  Visible 5% and 95% grayscale values if you display the SMPTE pattern.
- Centered horizontally and vertically
- Correct Clock Timing: No visible pixel shift or line shift
- Straight, undistorted horizontal and vertical lines
- Clear text. Ask the operator to type more text if necessary
- Sharp transitions between maximum and minimum grayscale values



[10] If you must modify the video parameters see:

- See “Troubleshooting Guide for the Acquired Image” on Page 7–10. or “Help Files”
- See “Fields and [Buttons] in the “Video Gain and Offset Parameters”” on Page 7–20. for descriptions of the “Gain and Offset” parameters.

[11] Select the necessary configuration button, for example “Gain and Offset Parameters”.

[12] Enter the changes and select “OK”.

[13] At the “Video Board Setup” window, select “Set”.

[14] Do Steps 7 through 13 until you are satisfied with the test image.

[15] Close the test image.

[16] To store the configuration window, select “Set”.

[17] At the “Configuration” window, select “Cancel”.

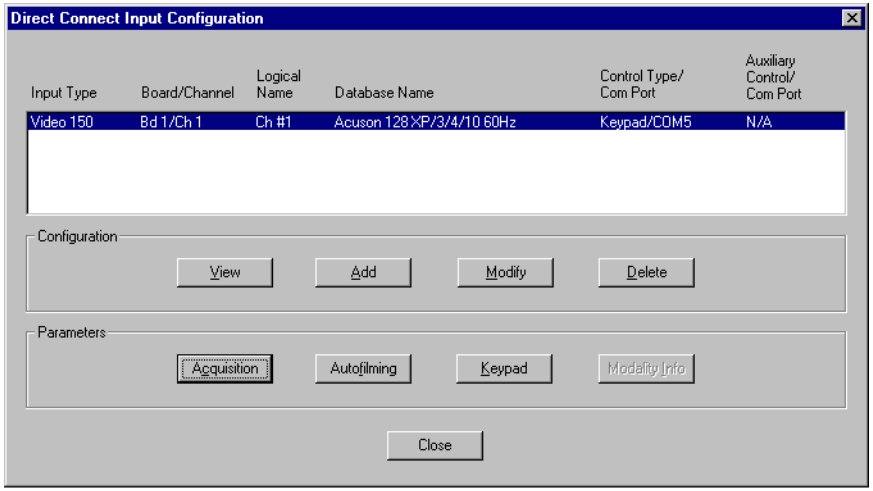
[18] Store and print 2 or more clinical images.

[19] To determine the next step, See “Completing the Installation” on Page 2–22.

Troubleshooting Guide for the Acquired Image

Malfunction	Remedy
Maximum grayscale counts not **253 + 2** counts. Minimum grayscale counts not **2 + 2** counts.	In the “Video Gain and Offset Parameters” window, adjust the values for “Fine Gain” and “Fine Offset”. Adjust these values 10 steps at a time. Increasing the “Gain” will cause the white pixel counts to increase without affecting the black pixels. Increasing the “Offset” will cause the white and black pixel counts to increase.
Pixel shift or line shift in the vertical lines or in the text of the image.	Check that the Modality MONITOR displays the correct test image. Execute [Auto Setup] again. Ask the operator to add more text to the image if you do not have sufficient text to evaluate.
The acquired image does not include all of the image information that the modality monitor displays.	In the “Video Vertical Parameters” window, adjust the values for the “Images Lines / Frame”. In the “Video Horizontal Parameters” window, adjust the values for the “Image Pixels / Line”. Increasing these values will increase the area of the image that the VIDEO BOARD requires.
Blurred text.	In the “Video Vertical Parameters” window, swap fields.

Configuring the Video 150 Board that is Not Pre-Staged



Important

Before you can add a new Input, you must delete the existing Input from the "Configuration" menu. The MIM is a single input device.

[1] At the "MIM Service Application" window, select "Configure" / "Input" / "Direct Connect".

Note

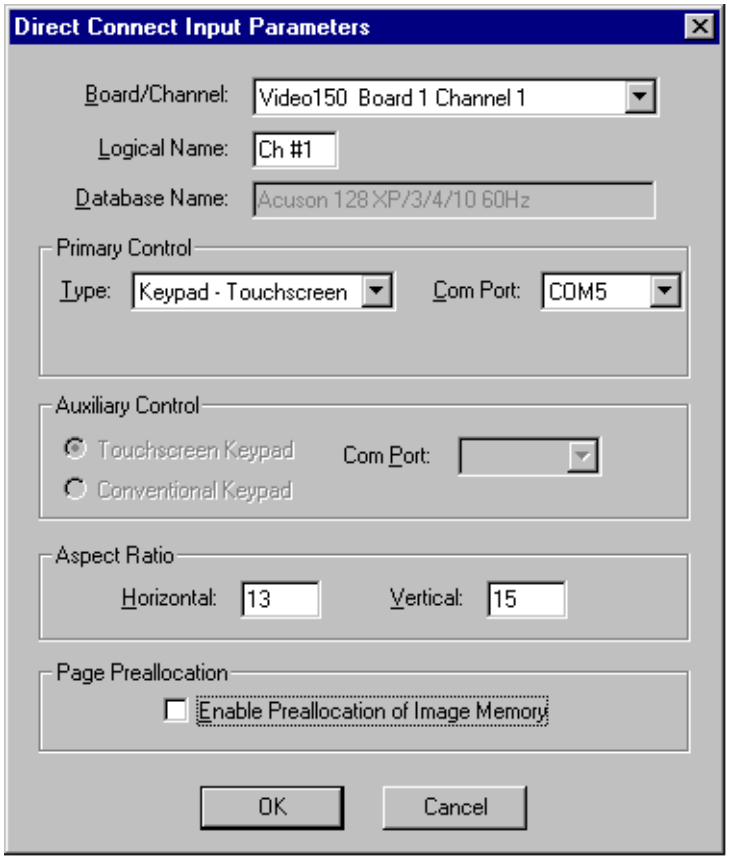
A shortcut to open the "Configuration" window is to select the third [Hot Key] from the left on the Tool Bar.

[2] At the "Direct Connect Input Configuration" window, if a modality had previously been set up, select "Delete".

[3] At the message, "Executing this command will delete the input from the system. Are you sure?" select "Yes".

[4] From the "Configuration" window, select "Add" / "Video" and either "Qualified" or "Unqualified".

[5] Advance to Step 6.



[6] Do either (a) or (b):

(a) Qualified: In the “Qualified Video 150 Modalities” window, highlight the name of the Modality and select “OK”.

(b) Unqualified: Enter the correct input parameter information:

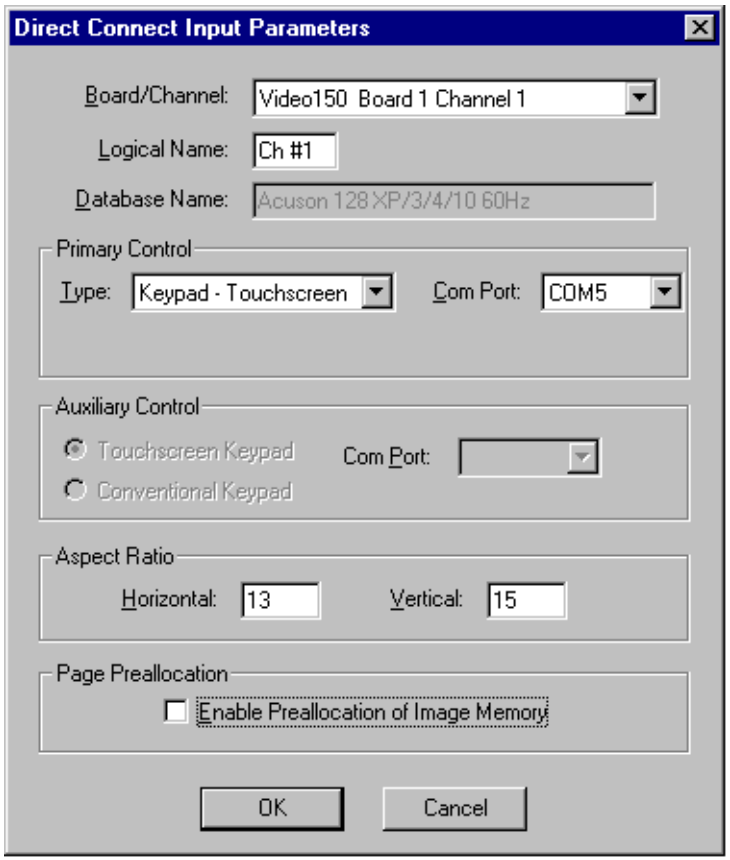
- “Keypad Type” and “Com Port” for Primary Control of “Keypad”
- “Autofilming Type” and “Com Port” for “Autofilming”

Note

Use the Tables on Page 7–3 through Page 7–23 and the “Modality Spec. Sheet” on Page 22–1 to help you understand how to correctly complete Step 6 for an Unqualified Modality. The Table on Page 22–1 indicates an example of the “Modality Spec. Sheet.”

[7] After you complete entering, select [Set] in the “Video Board Setup” window indicated on Page 7–15.

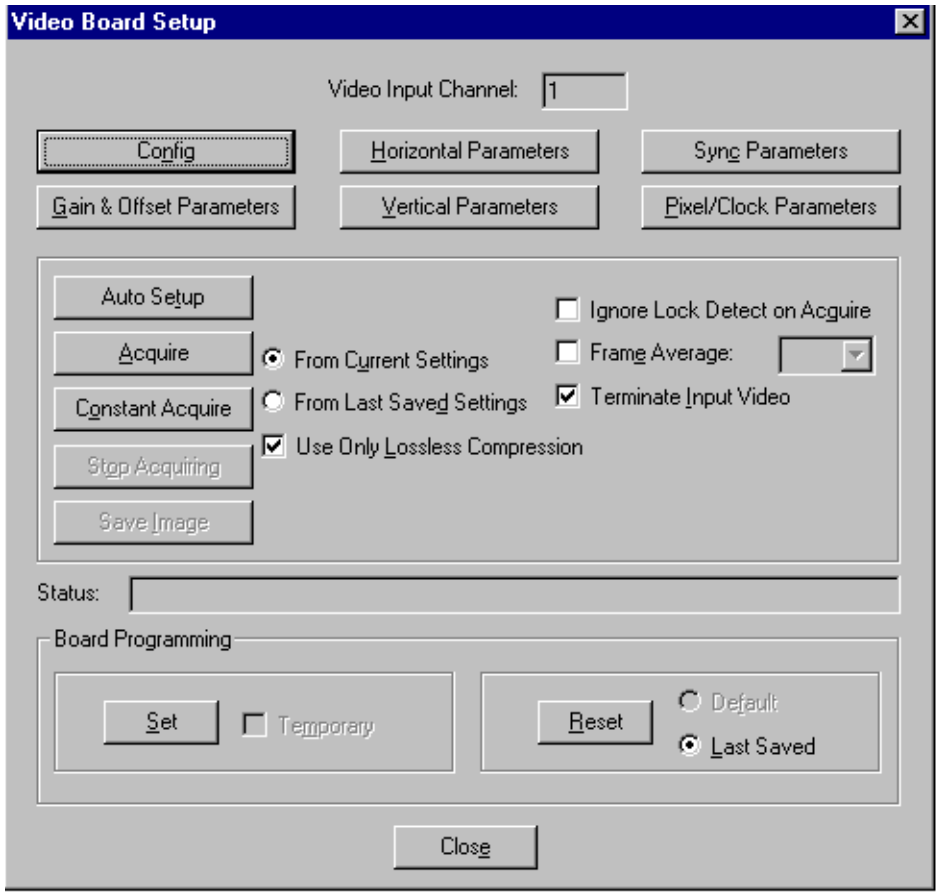
[8] Advance to Page 7–7 and do the procedure “Using [Auto Setup] to Configure the MIM 100/Video 150 BOARD”.



Input Parameters

Input Parameter	Description	Range
BOARD	INTERFACE BD on the PCI BUS	Video 150 BOARD
Channel Number	Number of the channel of the INNTERFACE BD.	Channel 1
Logical Name	Name for a particular input.	1 - 5 alphanumeric characters Examples: MRI 1 or CTRM 1
Database Name	Name of the modality. Viewable only.	1 - 30 alphanumeric characters
Primary Control Type	Primary method the customer uses to control MIM.	KEYPAD Autofilming: *Hitachi*, KCL, P831, M952, *Siemens* (DASM, FSPOT, SPCI), *Toshiba*, YMS
Primary Control Com Port	Port for the KEYPAD or the SERIAL CONTROL CABLE connection.	Keypad: **COM 5** Autofilming RS422: **COM 4** Autofilming RS232: **COM 2**
12 V DC Power	Power to external Hirschman CONNECTOR for RS-232 Port for Autofilming only.	MIM 100 only: Yes, No
Auxiliary Control KEYPAD	The field “Keypad” is automatically checked when you select autofilming as the Primary Control, indicating that the KEYPAD is enabled for auxiliary control.	If the Primary Control is • Autofilming: **4** • Keypad:
Auxiliary Control Com Port	The Com Port for the KEYPAD when it is used as auxiliary control. If the KEYPAD is the Primary Control, then the “Auxiliary Control Com Port” is not user changeable.	If the Primary Control is • Autofilming: COM 5 • Keypad: Not applicable
Aspect Ratio: Horizontal	Horizontal component of pixel aspect ratio. The software automatically determines this ratio. When the aspect ratio is not 1:1, it corrects for non-square pixels.	1 - 255

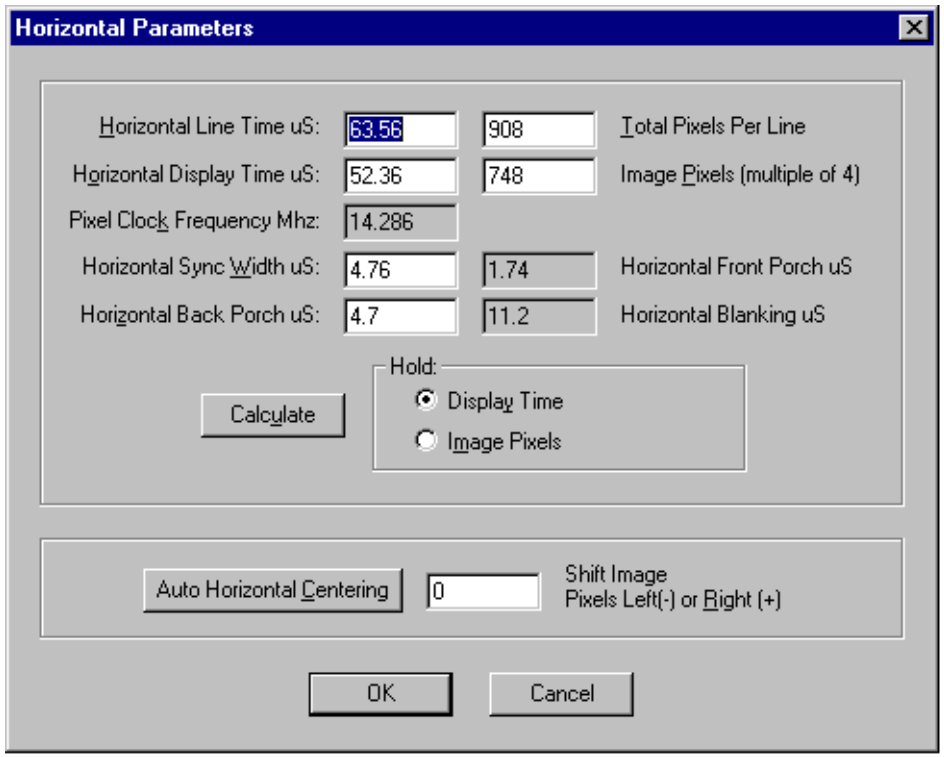
Input Parameter	Description	Range
Aspect Ratio: Vertical	Vertical component of pixel aspect ratio. Software automatically determines this ratio. When the aspect ratio is not 1:1, it corrects for non-square pixels.	1 - 255
Page Pre-allocation	When enabled, this feature ensures that sufficient memory is available on the HARD DISK to prevent a “Buffer Full” condition while the MIM stores a page.	On, Off



Fields and [Buttons] in the "Video Board Setup" Windows:

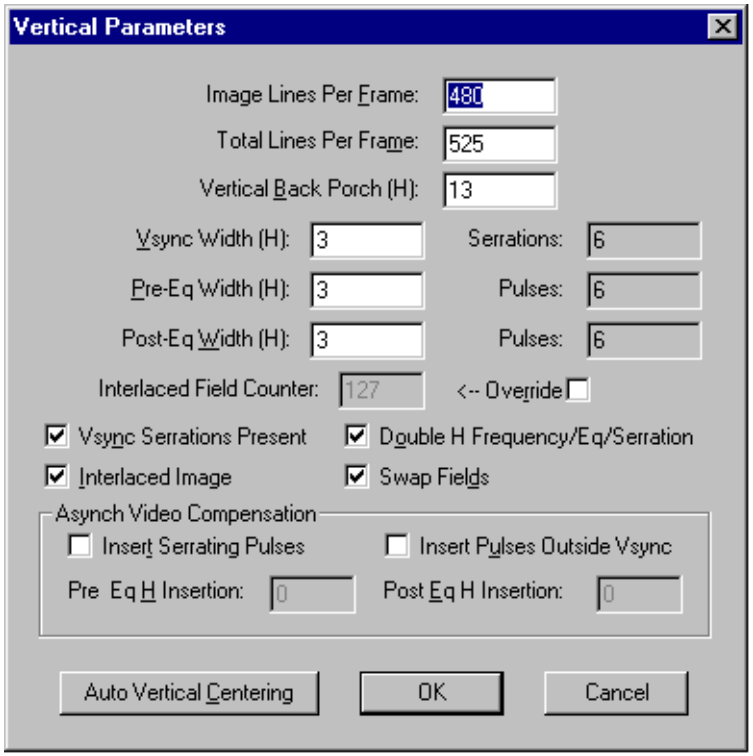
Parameter	Description	Range
Video Input Channel	The channel number	1
[Config]	Press to enter values for following 5 parameters	N/A
[Horizontal Parameters]	See Page 7–17.	
[Vertical Parameters]	See Page 7–18.	
[Gain and Offset]	See Page 7–20.	
[Sync Parameters]	See Page 7–21.	
[Pixel Clock Parameters]	See Page 7–23.	
[Auto Setup]	Automatically adjusts the values for certain parameters. See "Status".	
[Acquire] from "Current Settings" or "Last Saved"	Automatically captures and displays a test image.	
Ignore Lock Detect	When enabled, the MIM 100 will capture an image even if an error occurs. The MIM should never be left in this mode.	Yes, No
Frame Averaging	This feature provides smoothing of the signal noise in the image. When you select "Frame Averaging," a window opens to the right of the field, allowing you to enter the number (2-4) of frames to average.	Yes, No default: Off
Terminate Input Video	Provides termination of 75 ohms at the composite video input. Without this termination the image will indicate ringing. Modalities with high pixel clock frequency will be affected most.	Yes, No
Status	Indicates when the software executes each of the 9 [Auto Setup] tasks.	See Page 7–8

Parameter	Description	Range
[Set]	• To store the information permanently, deselect “Temporary” and select [Set]. • To store information until the next time you energize the MIM, select “Temporary” / [Set]. • To reset to the video parameter defaults (all zeroes) set at the factory, select “Factory Setting” and select [Reset]. • To reset to the previously saved setting, select “Last Setting” and select [Reset].	
[Cancel]	Exits the window without saving changes.	



Fields and [Buttons] in the "Horizontal Parameters" Window:

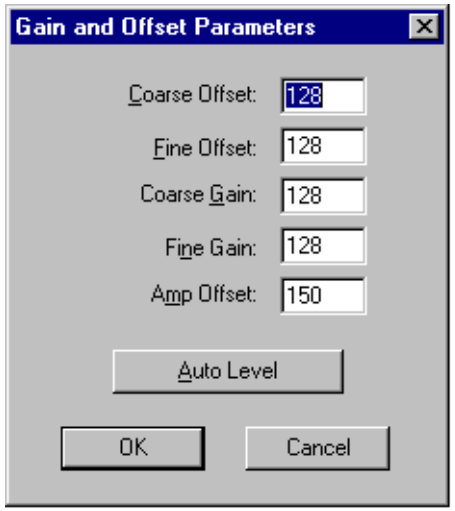
Horizontal Parameter	Description	Range
Line Time	Time in microseconds for one HSYNC cycle.	1.00- 99.99
Total Pixels per Line	Number of pixel clock pulses that occur in one horizontal line.	1 - 9999
Display Time	Time in microseconds for active video in one horizontal line.	1.00 - 99.99
Image Pixels	Number of image pixels per line: multiple of 4.	1 - 9999
Pixel Clock Frequency	Pixel clock rate in Megahertz. The software calculates value.	1.000 - 999.999
Pixel Clock Freq. Bias	Selection of independent parameters used to calculate the pixel clock frequency.	Hor. Line Time, Total Pixels per Line
[Calculate]	Calculates the pixel clock frequency using the "Horizontal Line Time uS" and "Total Pixels Per Line" with the option of holding the display time or the image pixels constant. The software requires "Horizontal Display Time uS" and/or "Image Pixels" to be entered to perform the calculation.	N/A
Sync Width	Width in microseconds of the horizontal synchronization pulses.	0.000 - 99.999
Back Porch	Width in microseconds of the back porch.	0.000 - 99.999
Front Porch	Width in microseconds of the front porch. The software calculates the value.	0.000 - 99.999
Blanking	Total in microseconds of the widths for the back porch, front porch. The software calculates this value.	0.000 - 99.999
[Auto Centering]	Do not select. Places same number of black pixels on either side of the image. Uses the selection you make for "Shift Image Pixels...".	N/A
Shift Image Pixels L/R	The number of pixels that the image will move to the right or left when you select [Auto Centering]. Negative numbers move the image to the left, positive numbers to the right.	-9999 to 9999



Fields and [Buttons] in the "Vertical Parameters" Window:

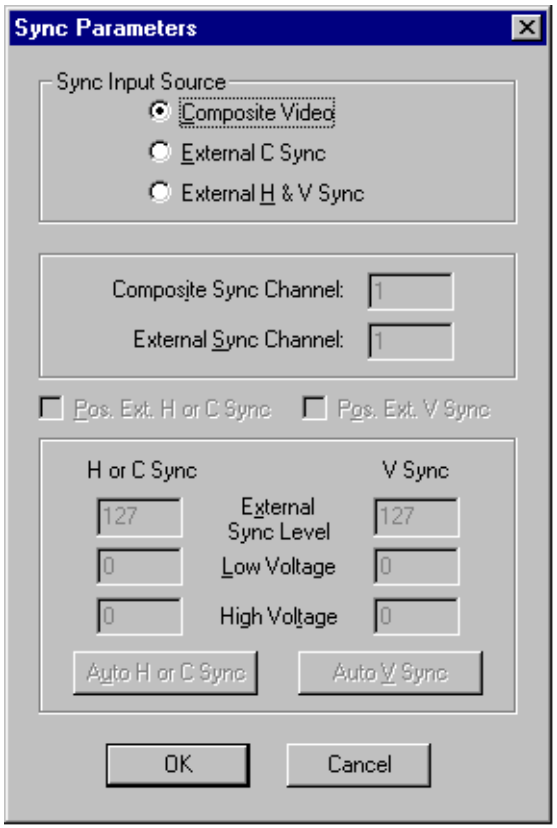
Vertical Parameter	Description	Range
Image Lines Per Frame	Number of vertical image lines per frame, occurring after the vertical sync pulse before the active video begins.	1 - 9999
Total Lines Per Frame	Number of vertical lines including vertical synchronization and equalization periods.	1 - 9999
Vertical Back Porch (H)	Number of vertical lines per field that occur after the vertical sync pulse and before the active video begins.	1 - 999
Vsync Width (H)	Width of the vertical synchronization pulse measured in Hsync pulses (H).	1 - 99
Pre-equalization Width (H)	Width of the pre-equalization period measured in Hsync pulses (H).	0 - 99
Post-equalization Width (H)	Width of the post-equalization period measured in Hsync pulses (H).	0 - 99
Interlaced Field Counter	Value is automatically calculated by the software for interlaced Modalities only.	0 - 225
Override	Indicates if the Interlaced Field Counter is overridden.	Yes, No
Serrations	Number of serration pulses that occur during the vertical synchronization pulse period. This number typically is one or 2 times the Vsync Width, and it is set by the Double H Frequency/Equalization Serration option. The software calculates this value.	0 - 99

Vertical Parameter	Description	Range
Pre-equalization Width Pulses	Number of serration pulses that occur during the pre-equalization pulse period. This number typically is one or 2 times the Pre-equalization Width, and it is set by the Double H Frequency/Equalization Serration option. The software calculates this value.	0 - 99
Post-equalization Width Pulse	Number of serration pulses that occur during the post-equalization pulse period. This number typically is one or two times the Post-equalization Width, and it is set by the Double H Frequency/Equalization Serration option. The software calculates this value.	0 - 99
Vsync Serrations Present	Indicates that serration pulses exist during the Vsync period.	Yes, No
Double H Frequency/ Equalization Serration Option	If enabled, the frequency of occurrence for serration pulses during the vertical period is twice the rate of Hsync pulses. If not enabled, the frequencies are the same.	Yes, No
Interlaced Image Option	Must be enabled if the image is interlaced.	Yes, No
Swap Fields Option	Allows the order of the 2 fields (one for odd lines and one for even lines) of an interlaced image to be interchanged.	Yes, No
Insert Vsync Serrations Option	Enable this option to insert serration pulses during the vertical interval for modalities that do not contain serration pulses. Also, this option can provide replacement pulses for image devices that have incorrect timing.	Yes, No
Insert Equalization Pulses outside Vsync	Enable this option to insert pre-equalization and post-equalization pulses on either side of the Vsync. The equalization pulses are in terms of Hsync pulses. You must insert these equalization pulses for modalities that either have incorrect timing or that do not provide serration pulses during Vsync. Incorrect timing can cause tearing at the top of the image.	Yes, No
Pre-Equalization H Insertion	The number of Hsync pulses that occur before the Vsync pulse. The “Insert Equalization Pulses Outside Vsync” must be enabled: “Yes”.	0 - 99
Post-Equalization H Insertion	The number of Hsync pulses that occur after the Vsync pulse. The “Insert Equalization Pulses Outside Vsync” must be enabled: “Yes”.	0 - 99
[Auto Vertical Centering]	Calculates the Vertical Back Porch and the Image Lines. The Image Lines cannot be determined automatically for images that have zero lines for the vertical front porch.	N\A



Fields and [Buttons] in the "Video Gain and Offset Parameters"

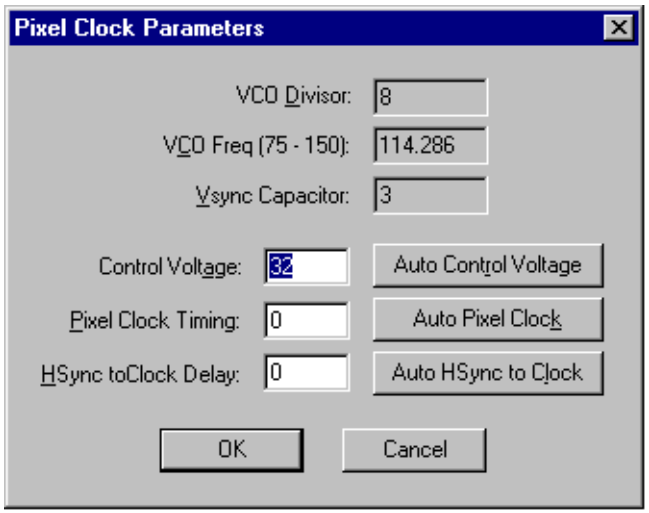
Parameter	Description	Range
Coarse Offset	Coarse video offset control. One Coarse Offset step will provide a change of approximately 2 A/D counts.	0 - 255; default: 128
Fine Offset	Fine video offset control. One Fine Offset step will provide a change of approximately one half A/D counts.	0 - 255; default: 128
Coarse Gain	Coarse video gain control. Set the gain level with the Coarse Gain before you use the Fine Gain.	0 - 255; default: 128
Fine Gain	Fine video gain control.	0 - 255; default: 128
Amp Offset	Do not adjust this level from 150 unless you are directed to do so by TSC. The Amp Offset sets the offset voltage applied to the variable video amplifiers. Used in conjunction with the coarse and fine gain offset controls.	0- 255; MIM: pre-production boards = 205; production board = 150
[Auto Level]	Select this button to automatically calculate gain and offset. An optimum calculation depends on each input value being near its associated default value and on the gray scale with both the brightest and darkest levels.	N/A



Fields and [Buttons] in the "Video Sync Parameters" Window:

Parameter	Description	Range
Sync Input	Selection of sync: Composite Video, External Composite (Csync), or separate External Hsync and External Vsync. The default is Composite Video.	
Composite Sync	Input channel from which to derive the composite sync. Normally the same channel as the video signal, which will be chosen automatically when you select "Set".	1, 2, 3, 4; default 1
External Sync Input	Input channel from which to derive the external Csync, Hsync, or Hsync-Vsync. Normally the same channel as the video signal, which will be chosen automatically when you select [Set].	1, 2, 3, 4; default 1
Positive External Hsync	Set for positive going External Csync or External Hsync signals.	Yes, No
Positive External Vsync	Set for positive going External Csync or External Hsync signals.	Yes, No
Ext. Sync Level H/V	Setting for Hsync or Vsync slicing level. A value of 127 shifts the incoming Sync to 0 V DC. A value of 0 shifts the slicing level to -3.0 volts. A value of 255 shifts the slicing level to +3 volts. Selecting "Auto Hsync" and "Auto Vsync" automatically calculates these values.	0 - 255; default 127
Low Voltage H/V	When you select "Auto Hsync" or "Auto Vsync" for an external sync only, the software determines the Low Voltage H/V necessary to correctly amplify or attenuate the incoming Sync. The range of -3 volts to +3 volts is associated with 0 to 255 counts. You cannot directly change this value.	0 - 255; default 0

Parameter	Description	Range
High Voltage H/V	When you select “Auto Hsync” or “Auto Vsync” for an external sync only, the software determines the High Voltage H/V necessary to correctly amplify or attenuate the incoming Sync. The range of -3 volts to +3 volts is associated with 0 to 255 counts. You cannot directly change this value.	0 - 255; default 0
[Auto Hsync]	Select this button to automatically determine the Hsync slicing level. The software calculates the Hsync slicing level as the average of the maximum and the minimum values between -3.0 and +3.0 volts. Composite Video applied to the External Hsync input will result in an erroneous slicing level.	N/A
[Auto Vsync]	Select this button to automatically determine the Vsync slicing level. The software calculates the Vsync slicing level as the average of the maximum and the minimum values between -3.0 and +3.0 volts. Composite Video applied to the External Hsync input will result in an erroneous slicing level.	N/A



Fields and [Buttons] in the "Pixel Clock Parameters" Window:

Parameter	Description	Range
VCO Divisor	External divisor setting for PLL. The Video Control Oscillator (VCO) divisor maintains the VCO frequency in the range of 75 to 150 MHz and is calculated when you select [Autorun].	1, 2, 4, 8
VCO Frequency	Calculated when you select [Autorun].	75.00 - 150.00
Vsync Capacitor	Vsync extraction Capacitor setting. Automatically calculated. See the Table on Page 7–21.	See the Table on Page 7–21.
Control Voltage	VCO tuning voltage setting that provides minimum jitter and fast lock up times.	0-63; default: 32
Pixel Clock Timing	Pixel clock to data phase selection. Each step represents a phase shift of approximately 1 nanosecond. Pixel clock jitter increases as the Pixel Clock Timing increases: Use the minimum value that provides an acceptable image.	0-255; default 0
Hsync to Clock Delay	Pixel clock to Horizontal Sync pulse delay. Prevents line shift artifacts occurring from race conditions.	0 - 255; default 0
[Auto Control Voltage]	Select this button to automatically adjust the PLL control voltage, ensuring correct lock.	
[Auto Pixel Clock]	Select this button to adjust the pixel clock phase setting, maximizing pixel-to- pixel contrast.	
[Auto Hsync to Clock]	Select this button to automatically adjust the pixel clock to Hsync delay setting, minimizing the probability of horizontal line shift.	

Description of the Settings for Vsync Capacitor

Setting	H Line Time (microseconds)	HSync Frequency (kHz)
0	0-14.29	69-100
1	14.49-32.26	31-68.99
2	32.25-55.56	18-30.99
3	55.57-64.00 and higher	0-17.99

Note

Return to Page 7–12.

Section 8: Configuring the Digital Input

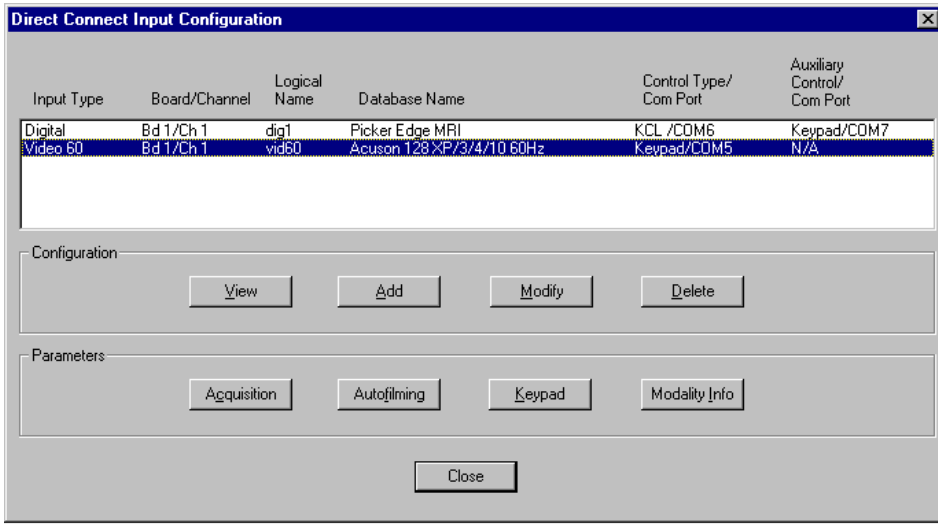
Introduction

Important

Use this Section to configure the DIGITAL BOARD for the MIM 200, MIM 100, MIM 50, or the SPOOLER/Digital. To help you better prepare for configuration, please read the following information to help you prepare for configuration. Then advance to Page 8–2.

- Will the primary control of the MIM Product be the KEYPAD or an Autofilming Link?
- Is the MIM product Pre-staged? Will you be connecting it to a Qualified or Unqualified Modality?
  - A pre-staged MIM product is shipped with the Modality parameters already installed and tested. The Pre-staged MIM product can be either Qualified or Unqualified.
  - A Qualified Input indicates that the Modality has been field tested with correct parameters. The database in the Service Software for the MIM product may also include this Modality in the Qualified list.
  - An Unqualified Input indicates that the Modality has not been field tested.
  - For a Digital MIM that is pre-staged correctly for the Modality and has correct cables connected, the “Configuring the Input” procedure is not necessary.
- Check that the operator can provide you with a clinical image to evaluate image quality after you finish configuring the Input. The image must contain:
  - Grayscale including the brightest and darkest values (0 to 255 A/D Counts)
  - White text on black background, or black text on white background
  - Sharp transitions and vertical lines

Configuring the Input Parameters



Important

- See the “Modality Spec Sheet” provided with product to determine correct parameters. See the example on Page 22–1.
- Is the Input installed?
  - **No**: Do all steps in this procedure.
  - **Yes**: Do Steps 1 and then do Steps 6 through 7 only.

[1] At “MIM Service Application,” select “Configure” / “Input” / “Direct Connect”.

[2] At the “Direct Connect Input Configuration” menu:

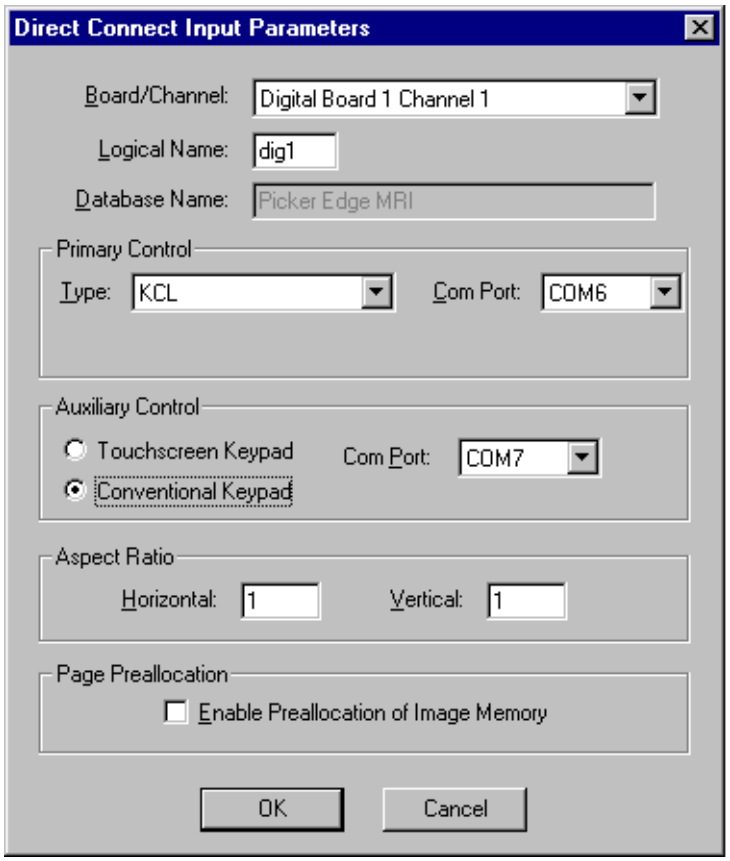
(a) If the Input is not configured:

1. Select [Add] “Qualified Digital Modalities” window.
2. Scroll to select the Modality that you will install.
3. Select [OK].

(b) If the Input is configured:

1. Select [Modify].
2. At the message “Executing this communication will take the system off-line. Are you sure?” select “OK”.

[3] Advance to Step 4.



Note

The selection “Board 1 or Board 2 Channel 1” automatically appears in the “Board/Channel” field.

[4] In the “Primary Control” field, select the “Keypad Type” and the “Com Port”.

[5] If this is Autofilming, select the “Keypad Type” and the “Com Port” in the Auxiliary Control section of the window.

[6] At the “Direct Connect Input Configuration” window, select “Modify”.

Note

To view the configuration only, select “View”.

[7] Use the Table on Page 8–4 to check that the information is correct. If you do not change information, select [Cancel]. If you change information, select [OK].

[8] Use the Table on Page 8–3 to advance to the correct procedure.

Configuring the Input

Primary Control Type	Page
Autofilming	8–5
Keypad	8–9

Input Parameters

Input Parameter	Description	Range
Board	INTERFACE BOARD on the PCI BUS.	Digital Board 1
Channel Number	Number of the channel of the INTERFACE BOARD.	Channel 1
Logical Name	Name of the BOARD receiving the input.	1 - 5 alphanumeric characters Examples: MRI 1 or CTRM 1
Database Name	Name of the modality. Viewable only.	1 - 30 alphanumeric characters
Primary Control Type	Primary method the customer uses to control MIM.	KEYPAD Autofilming: *Hitachi,* KCL, P831, M952, *Siemens* (DASM, FSPOT, SPCI)*, Toshiba,* YMS
Primary Control Com Port	Port for the KEYPAD or the serial control CABLE connection	Keypad: **COM 5** for MIM 50, 100 and DP Server. For MIM 200 it is COM 5, 7, or 9. Autofilming RS232 (MIM 100 only): **COM 2** Autofilming RS422: **COM 4** for MIM 100NR and MIM 50. For MIM 200 it is COM 4, 6, or 8.
12 VDC Power (MIM 100 with Relay Board only)	Power for external FIBER OPTIC TRANSCEIVER *(Hirschmann* CONNECTOR) for RS232 PORT. Autofilming only.	Keypad: **OFF** Autofilming: On, Off
Auxiliary Control Keypad	Indicates that the keypad is or is not enabled for auxiliary control when autofilming is the primary control.	Keypad: Off Autofilming:**On** Important: For the MIM with autofilming, “Auxiliary Control” is always On.
Auxiliary Control Port No.	The Com Port for the KEYPAD when it is used as auxiliary control. If the KEYPAD is the Primary Control, then the “Auxiliary Control Com Port” is not user changeable.	Keypad: Not Applicable Autofilming: **COM 5**
Aspect Ratio: Horizontal	Horizontal component of pixel aspect ratio. The software automatically determines this ratio. Aspect ratios not equal to 1:1 correct for non-square pixels.	1 - 255

Input Parameter	Description	Range
Aspect Ratio: Vertical	Vertical component of pixel aspect ratio. The software automatically determines this ratio. Aspect ratios not equal to 1:1 correct for non-square pixels.	1 - 255
Page Preallocation	When enabled, this feature ensures that sufficient memory is available on the HARD DISK to prevent a “Buffer Full” condition while MIM stores a page.	On, Off

Configuring the MIM Product for the Autofilming Mode

Important

- For autofilming, an RS232 or RS422 CABLE must be connected between the Modality and the MIM Product with software V_3.x.
- The MIM Products use only RS-422. See “Checking the Service Tracking Information” on Page 5–1. for more information on the MIM 100NR.
- For autofilming connections that require RS-232, install the CONVERTER KIT 8B8186 to convert to RS-422.
- See the “Modality Spec Sheet” provided with the MIM to determine correct parameters. See “Video Input Modality Spec Sheet” on Page 22–1. for an example of the “Modality Spec Sheet.”

[1] At the “Configuration” window, select “Autofilming/Modify”.

[2] When the COMPUTER prompts you “Are you sure?” select “OK”. The “Autofilming” window displays.

[3] At the window for the type of autofilming at the site, enter the correct information. See the Tables on Page 8–6 and Page 8–7.

[4] If you did not change information, select [Cancel]. If you changed information, select [Set].

[5] To determine the next step, See “Completing the Installation” on Page 2–22.

Default Values for Autofilming Link Parameters

Parameter	Autofilming Link							
	Hitachi	KCL	P831	M952	Siemens		Toshiba	YMS
					SPCI/ FSPOT	DASM		
Port ID	--	--	--	--	--	--	--	--
Driver Type	RS422	RS422	RS422	RS422	RS232*	RS232*	RS422	RS422
Baud Rate	4800	9600	1200	1200	2400	4800	9600	1200
Data Length	8	8	8	8	7	8	7	8
Stop Bits	1	1	1	1	2	1	1	2
Parity	even	none	even	even	odd	even	even	odd
Store Key	active	active	active	active	--	--	active	active
ACK Wait Timer	3	5	6	6	2	2	1	--
Receive Message Timer	--	5	6	6	--	--	1	--
Start Timer	--	2	--	--	1	1	--	--
EOT Wait Timer	--	--	--	--	--	--	10	--
Switch Mode	--	Keypad	--	--	--	--	Keypad	--
Switch Handling	--	Not Allowed	--	--	--	--	--	--
Report Alarms	--	--	On	--	--	--	--	--
Automatic Film Type Selection	--	--	--	--	Off	Off	--	--
DTR Connection Establishment	--	--	--	--	--	--	On	--
Default Horizontal Frames	--	--	--	--	--	--	3	--
Default Vertical Frames	--	--	--	--	--	--	4	--

Note

*Supported by the MIM 100 only. All other models must have RS-232 converted to RS-422. See the “Important” at the top of Page 8–5.

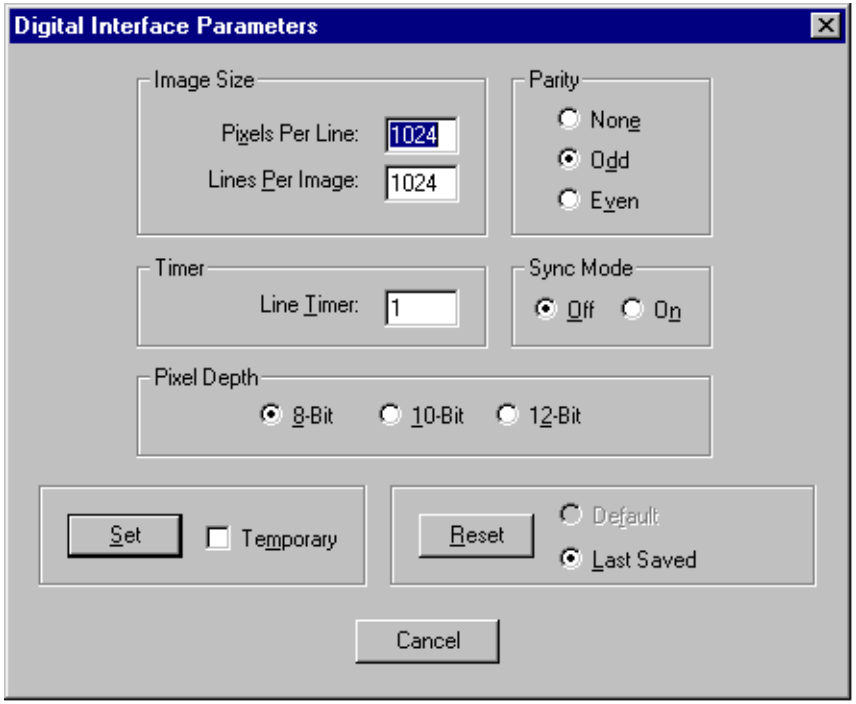
Autofilming Parameters for the MIM: Parameters indicated by * do not apply to all types of autofilming

Item	Description	Range
Port Id	SERIAL COMMUNICATIONS PORT	MIM 100: COM2, COM4
		MIM 50, 100NR: COM4
		MIM 200: COM4, 6, and 8
		Multiple Input MIM 50: COM4, 6, and 8
Driver Type	Driver protocol of the SERIAL COMMUNICATIONS PORTS	MIM 100: RS-232, RS-422
		MIM 50, 100NR: RS422
		MIM 200: COM4, 6, and 8
Baud Rate	Baud Rate of the SERIAL COMMUNICATIONS PORT	300, 1200, 2400, 4800, 9600
Data Length	Number of bits for serial communications	7, 8
Stop Bits	Number of stop bits for serial communications	1, 2
Parity	Setting of parity for SERIAL COMMUNICATIONS PORT	None, even, odd
Store Key*	Determines if [Store] on the KEYPAD is active when the system uses auxiliary control	Active, Inactive
ACK Wait Timer*	Acknowledgment wait timer. The time in seconds that the MIM will wait after it sends a message until the Imaging Device acknowledges that it received the message.	1 - 999
Receive Message Timer*	Specifies the amount of time in seconds allowed to receive an entire message.	1 - 999
Start Timer*	Specifies the amount of time in seconds that the MIM waits for the Imaging Device to reply to a handshake character.	1 - 999
EOT Wait Timer*	Specifies the amount of time in seconds that the MIM waits to receive an End of Transmission (EOT) character from the Imaging Device.	1- 999
Switch Mode*	Allows you to designate printing films using either the Console of the Imaging Device (Host) or the Auxiliary KEYPAD.	Keypad, Host
Switch Handling*	The process used to handle stored images when filming is switched between the Host and the Auxiliary KEYPAD.	Not Allowed
Report Alarms*	Flag indicating if the MIM reports to the modality alarm conditions associated with the PRINTER.	On, Off
Automatic Film Type Selection*	Flag that indicates if the SUPPLY MAGAZINE in the LASER PRINTER must be used to automatically select the film size and film base.	On, Off
DTR Connection Establishment*	The time (seconds) the MIM must wait for the Modality to respond to a handshake character.	1 - 999
Default Horizontal Frames*	The number of horizontal frames in page format that the MIM defaults to.	1 - 9
Default Vertical Frames*	The number of vertical frames in page format that the MIM defaults to.	1 - 9

Note

To continue configuring the MIM Product for autofilming, return to Page 8–5.

Configuring the Digital Input



Important

Configure the digital input for the smallest image size that the site uses.

- See the Modality Spec Sheet provided with MIM to determine correct parameters. An example is provided on Page 22–1.
- To advance to each entry in the “Digital Interface Parameters” window, press [Tab] on the LAPTOP.

[1] From the “Configuration” window, select “Acquisition” / “Modify”.

[2] When the COMPUTER prompts you “Are you sure?”, select “OK”. The “Digital Interface Parameters” window displays.

Note

To view the “Digital Interface Parameters,” select “Acquisition” / “View”.

[3] Use the Table on Page 8–10 to check that the information in the “Digital Interface Parameters” window is correct.

[4] If you changed information, select [Set]. If the information is correct, select [Cancel].

[5] To determine the next step, See “Completing the Installation” on Page 2–22.

Fields and [Buttons] for the “Digital Interface Parameters”

Parameter	Description	Range
Pixels per Line	The default number of pixels per line that the MIM expects the Imaging Device to send. This number will be used to determine format validation.	1 - 1096
Lines per Image	The default number of lines per image that the MIM expects the Imaging Device to send. This number will be used to determine format validation.	1 - 5120
Parity	The error-detection method of adding an even or odd number of 1’s to the binary word.	None, Odd, or Even
Line Timer	The number of seconds that the DIGITAL INTERFACE BOARD waits to receive a complete size or data packet from the Imaging Device.	1 - 90
Sync Mode	If “Auto Sync” is selected, the DIGITAL I/F BD will continue to acquire the image when a failure occurs during image acquisition. If “No Sync” is selected, the DIGITAL I/F BD will not continue to acquire the image when a failure occurs during image acquisition.	No Sync, Auto Sync
Pixel Depth	The number of bits per pixel.	8, 10, 12

Section 9: Managing the Configuration

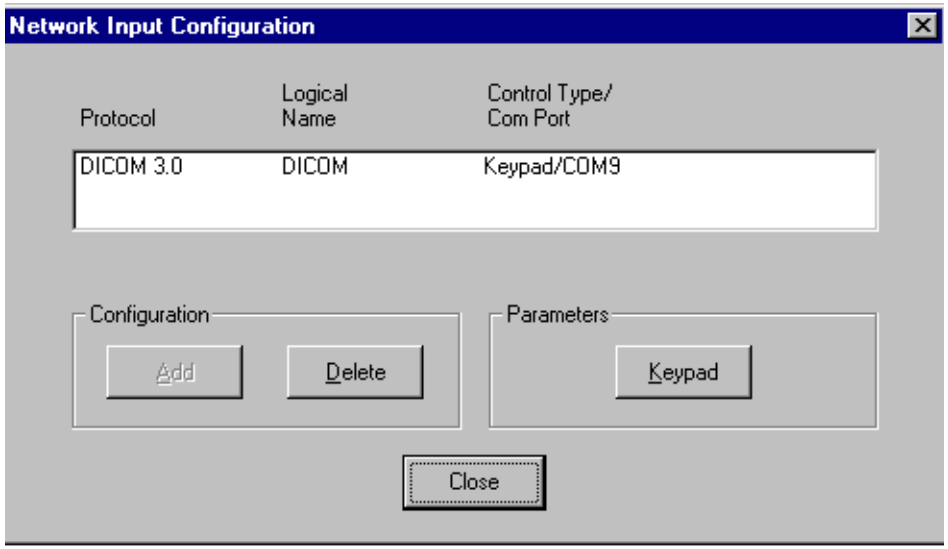
Introduction

Important

Use Section 9 to do the following procedures :

- To configure the Network Input for the DICOM PRINT SERVER and MIM 200 as a Print Server.
- To modify any of the following aspects of the configuration:
  - Modality Store Feature
  - Language and Date Format for the KEYPAD
  - Time Zone
  - Disk Management
- To save or restore the configuration.

Configuring the Network Input

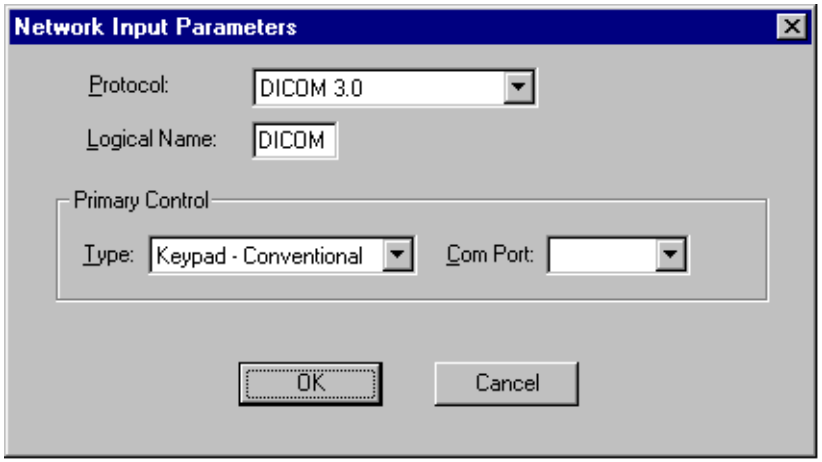


[1] At the “MIM Service Application” window, select “Configure” / “Input” / “Network”.

Caution

Changing parameters in this menu will take the system off-line.

[2] Select “Add”.



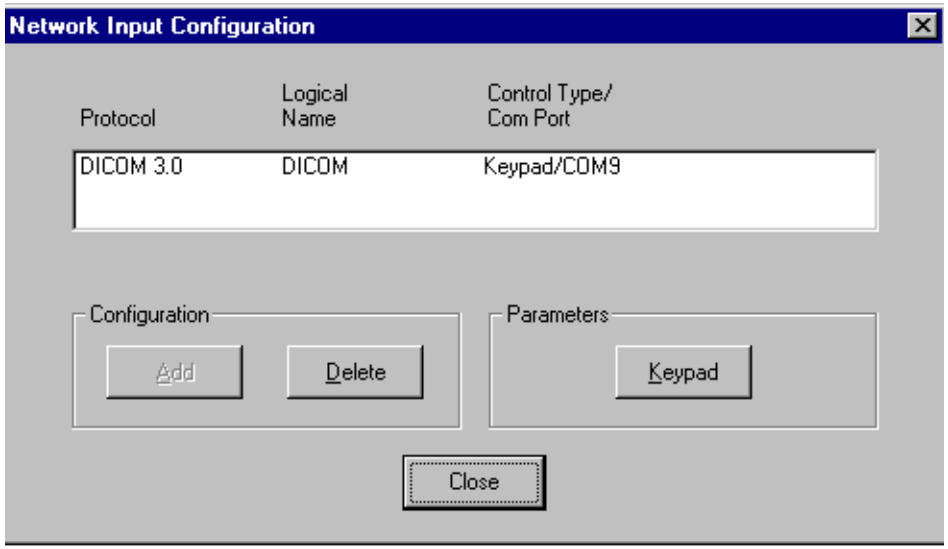
Important

Except to select the “Com Port,” do not change information in the “Network Input Parameters” window.

[3] In the pull-down menu for “Com Port”. select the next available port.

[4] Select [OK].

[5] Advance to Page 9–3.



[6] Select [Close].

[7] Advance to Step 2 b on Page 9–4.

Configuring the KEYPAD for Date Format and Operating Language

MIM 50

[1] At the “Service Application” window, select “Configure/Input/Direct Connect”. For V_3.2, select “Configure/Input/Keypads”.

Caution

Changing these parameters will take the system off-line.

[2] At the “Configuration” window, select “Keypad” / “Modify” and select (for V_3.2, select in the Parameters System window):

(a) the correct “Date Format”

(b) the correct “Operating Language”

[3] To store this configuration, select “Set”. For V_3.2 select “OK” to store this information.

DICOM PRINT SERVER and MIM 200 Network Input

[1] At the “Service Application” window, select “Configure/Input/Network”.

Caution

Changing these parameters will take the system off-line.

[2] Does the “Network Input Configuration” display any parameters?

Note

You cannot modify parameters for a Conventional Keypad on the MIM 200.

(a) No, then select “Add” / “COM5” / “OK”:

(b) Yes, then select

- “Keypad” in the “Parameters” field
- “Modify”
- correct “Date Format” and the correct “Language”

[3] To store this configuration, select “Close”.

Changing the Time Zone

MIM 50 and MIM 200 with Conventional Keypads

[1] At the KEYPAD, press [Menu / Select].

[2] Press the down arrow until you highlight the “Service Menu”.

[3] Press [Menu / Select].

[4] Press the down arrow until you highlight “Machine Setup Menu”.

[5] Press [Menu / Select].

[6] Press the down arrow until you highlight “Select Time Zone”.

[7] Press [Menu / Select].

[8] Press either the up or down arrow to select the correct time zone.

[9] Press [Menu / Select].

[10] Press [Menu / Select] 4 times to return to the “Main Menu”.

MIM 100 and MIM 200 with Touchscreen Keypad

[1] At the “Acquisition” menu, select “Main Menu”.

[2] Select “Service” / “Set System Time” / “Change Time Zone”

[3] Press the up or down arrow to highlight the correct time zone.

[4] Select “Return” on the KEYPAD.

[5] At the “Set System Time” menu, select “Accept Changes”.

[6] Select [Return].

[7] To return to the “Acquisition” menu, select “Acquisition”.

Setting the Disk Management

Important

- The MIM and the LAPTOP must be energized. The LAPTOP must be connected to the MIM.
- Do not change the High Water mark of 75% and Low Water mark of 50% unless TSC instructs you to do so.
- The High and Low Water marks indicate the percent (%) of memory dedicated to image storage on the HARD DISK.
  - High Water mark: The percent of memory full when software begins to delete the oldest image files.
  - Low Water mark: The percent of memory full when the software stops deleting the oldest image files.

[1] At the “MIM Service Application” window, select “Configure/Disk Management”.

[2] Check that the settings are correct:

- High water mark: 75%
- Low water mark: 50%

[3] To store this configuration, select “Set”.

Saving the Configuration

Important

To save the configuration:

- Follow the instructions in Section 4 to energize the MIM and connect the LAPTOP.
- Keep the DISKETTE containing the configuration in the FLOPPY DRIVE of the MIM.

[1] At the “MIM Service Application” window, select “Configure/Save Configuration”.

[2] Insert the Configuration Diskette in the FLOPPY DRIVE of the MIM.

[3] From the “Save Configuration Parameters” window, select “Start”.

Restoring the Configuration

Important

- Follow the instructions in Section 4 to energize the MIM and connect the LAPTOP.
- Keep the DISKETTE containing the configuration in the FLOPPY DRIVE.

[1] At the “MIM Service Application” window, select “Configure/Restore Configuration”.

Caution

Changing these parameters will take the system off-line.

[2] Insert the Configuration Diskette in the FLOPPY DRIVE of the MIM.

[3] From the “Restore Configuration Parameters” window, select “Start” or “OK”.

[4] Do the procedure:

- For the **MIM**: “Acquiring a Test Image”
- For the **DP Server**: Make a test print.

Configuring the Modality Store Feature

[1] At the “Service Application” window, select “Configure” / “Input” / “Direct Connect”.

Caution

Changing these parameters will take the system off-line.

[2] To take the system off-line, select “OK”.

[3] At the “Direct Connect Configuration” window, select “Keypad” / “Modify” and press “OK” to display the “Parameters: Touchscreen Keypad” window.

[4] In the “Store Connection” panel, enable “Modality”.

[5] Select “OK”.

Section 10: Remote Access

All service functionality available from the on-site LAPTOP is available remotely with use of an internal or external MODEM. The KEYPAD allows the user to change the service access between local and remote. The KEYPAD automatically detects if an internal or external MODEM is connected and will not switch from local to remote if a MODEM cannot be detected.

Installing the External MODEM

Important

The MODEM uses the same port as the SERVICE LAPTOP. The MODEM and LAPTOP cannot be connected at the same time.

The MODEM must be energized and connected to the COMPUTER before you advance to “Changing to Remote Access”.

[1] Connect:

(a) SERIAL CABLE from the MODEM SERIAL CONNECTOR to the SERVICE PORT on the COMPUTER.

(b) PHONE CABLE from the “JACK” PORT on the MODEM to the WALL JACK.

(c) MODEM POWER ADAPTER to the MODEM and AC WALL OUTLET.

[2] Energize the MODEM.

Important

- Use factory defaults for the External MODEM DIP SWITCH setting for the *US Robotics Sportster* 33.6 MODEM on the MIM 50, 100, and DP Server.
- A DIP SWITCH is “ON” when it is in the down position. A DIP SWITCH is “OFF” when it is in the up position.

SWITCH	Factory Setting	Function
1	Up	Data Terminal Ready (DTR) Override
2	Up	Verbalk/Numeric Result Codes
3	Down	Result Code Display
4	Up	Command Mode Local Echo Suppression
5	Down	Auto Answer Suppression
6	Up	Carrier Detect (CD) Override
7	Up	Power-on and ATZ Reset Software Defaults
8	Down	AT Command Set Recognition

Changing to Remote Service Access

MIM 100 and MIM 200 with Touchscreen Keypad

Important

- When service access is configured for remote at the KEYPAD, the user cannot connect to the MIM with a LAPTOP until the service access is changed to local at the KEYPAD and restarted.
- Changing the service access will not take effect until you de-energize and restart the MIM.

[1] At the “Main Menu” screen of the KEYPAD, press [Service].

[2] At the “Service” screen, press [Service Access].

[3] At the “Service Access” screen, press [Remote Access].

[4] Press [Return] to return to the “Service” screen.

[5] Press [Return] to return to the “Main Menu” screen.

[6] Press [Shutdown].

[7] Restart the MIM for the service access change to take effect.

MIM 50 and MIM 200 with Conventional Keypads

Important

When service access is configured for remote at the KEYPAD, the user cannot connect to the MIM with a LAPTOP until the service access is changed to local at the KEYPAD and restarted. Changing the service access will not take effect until you de-energize and restart the MIM.

[1] At the Main screen, press [Menu / Select].

[2] Use the arrow buttons until you highlight the “Service Menu”.

[3] Press [Menu / Select].

[4] Select “Machine Setup”.

[5] Select “Service Access” to Remote.

[6] Press “Exit” twice to return to the “Aquisition Menu”.

[7] Select “System Shutdown”.

[8] Select “Confirm Shutdown”.

[9] When the “Safe to Shut off Unit Power” message appears, de-energize the unit.

[10] Wait at least one minute before you energize the unit.

Section 11: Displaying the Activity and Error Logs

Introduction

To display any of the logs, select the appropriate “Log” from the “Service Application” window. Or select the “Hot Key” from the “Tool Bar” of the “Service Application” window. The letters in parentheses indicate the corresponding “Hot Key” on the Tool Bar of the “Service Application” window.

- Activity History (AH)
- Error History (EH)
- Error Frequency (EF)

The error codes are divided into several categories as indicated in the table below.To view all of the error codes and associated descriptions, select “Help/Topics” from the “Service Application” window. Then open the desired Error Code listing from the “Topics” window.

Range	Category	Examples
0 - 599	General Errors	Requested object or operation not found
600 - 999	Hardware Errors	Buffer too small, Firmware invalid, Memory Test Error
1000 - 1999	Service Errors	Requested diagnostic not found, DAD message error
2000 - 2999	Source Errors	Command device not ready, Error while trying to read or write an image
3000 - 3999	Delivery Errors	Page Full, Invalid Curve Shape, Failed sending image to PRINTER
4000 - 4999	Network Service Errors	Problem in DICOM delivery, Incorrect information for MIM
5000 - 5999	Storage Errors	Memory Access violation, DISK Low Water Mark not reached
6000 - 6999	Keypad Errors	KEYPAD cannot send the message, KEYPAD failed a test

Setting the Logging Levels

Important

The higher the level, the more information the log will record and the more likely that system performance will be slowed.

Level	Indication	Level	Indication
0	The Log will not record any data.	5	Use this debug mode to troubleshoot the equipment.
2	Default. Use during normal operation.	5	Associated with the DP SERVER and SPOOLER/DICOM, use this level for Network Services indicating debug modes for DICOM SCP in Release 3.0
3	For Autofilming in Release 3.0 Product	6	For source only, indicating the debug mode for Autofilming commands.
3	General: Debug modes for HIS/RIS communication in Rel. 3.0		

[1] Select “Logs/Logging Levels” from the “Service Application” window.

[2] Make your selection or selections: Delivery, KEYPAD, Service, Network Service, Source, Storage.

[3] Select “Set”.

Displaying the Activity History Log

Important

You can set limits for the date and time range of the data you want to view in the “Activity History Log”.

[1] Select “AH” from the Tool Bar of the “Service Application” window.

[2] Make any necessary changes to the settings for “View From” or “View Through”.

[3] Select “OK”.

[4] At the prompt, select “View Log”.

[5] To save the Log, select “Save As”.

The Activity Log of the MIM software will contain the following detailed information when the logging levels are set appropriately:

Feature	Subsystem	Log Level
Autofilming communications	Source	3
HIS/RIS communications	General	3
DICOM SCP communications (DPS or DMI Spooler/DICOM)	Network Services	5
Optical Interface communications with KELP (DPS)	Delivery	5

Activity History Log Example

The following example of the Activity History Log shows normal boot-up sequence on a MIM configured for Digital at Log Level 2.

Note

- When you change the Log Level on the MIM, it only affects the Activity History Log. See the example below for the Log Level location.
- To locate errors, an “E” is reported in the Log Level column. The “E” is usually followed by a message at Log Level, giving additional information about the error.

Date	Time	Log Level	ClassID, ObjectID	Source File, Line Number	Text Message
05/07/98	07:29:09:484	2	[0102,00000000]	[PortManage-,675]	- Found board: mimvdi0
05/07/98	07:29:09:444	2	[0102,00000000]	[RNISystem.-,366]	- MIM Application Version 2.0
05/07/98	07:29:09:464	2	[0102,00000000]	[PortManage-,200]	Mapped/Added PortID = 0x101
05/07/98	07:29:09:464	2	[0102,00000000]	[PortManage-,200]	Mapped/Added PortID = 0x103
05/07/98	07:29:09:474	2	[0102,00000000]	[PortManage-,200]	Mapped/Added PortID = 0x2102
05/07/98	07:29:09:474	2	[0102,00000000]	[PortManage-,200]	Mapped/Added PortID = 0x2102
05/07/98	07:29:09:484	2	[0102,00000000]	[PortManage-,200]	Mapped/Added PortID = 0x2304
05/07/98	07:29:09:404	2	[0102,00000000]	[PortManage-,200]	Mapped/Added PortID = 0x1305
05/07/98	07:29:09:514	2	[0102,00000000]	[RNISystem.-,360]	- System starting up on machine ENG-DI-2
05/07/98	07:29:09:514	2	[0102,00000000]	[PortManage-,861]	Dual-Channel DIGITAL Interface Card at Slot #16
05/07/98	07:29:09:514	2	[0102,00000000]	[PortManage-,880]	- Added Acquisition Port ID: 0x1211
05/07/98	07:29:10:435	2	[0102,00000000]	[PortManage-,1469]	-IFCard0Firmware Version 2.0
05/07/98	07:29:15:623	1	[Anonymous]	[PortManage-,1684]	-IF Card Firmware Driver Version 1.1.0
05/07/98	07:29:15:432	1	[Anonymous]	[StorageCla-,706]	- Compacting_DataBase
05/07/98	07:29:23:925	1	[Anonymous]	[StorageClass,706]	- Compacting DataBase. Please Wait (#5042)
05/07/98	07:29:35:001	1	[Anonymous]	[StorageClass,769]	- Compacting DataBase completed (#5043)
05/07/98	07:29:50:713	2	[6000,00256200]	[StorageCla-,769]	- Compact _DataBase_Complete
05/07/98	07:29:50:623	2	[4010,00256197]	[keypad.cpp-,208]	- Keypad Constructed!!
05/07/98	07:29:52:045	2	[2009,00256223]	[KisManager-,119]	- KisManager Activated
05/07/98	07:29:52:065	2	[2009,00256223]	[imgcapdev.-,1956]	- The Current System Temperature is 87 degrees F
05/07/98	07:29:52:035	2	[2009,00256223]	[imgcapdev.-,1962]	- RelayBoardRegisterTestsPasses
05/07/98	07:29:55:320	2	[6000,00256200]	[DigImgCapD-,818]	- CobraSelfTestsPassed
05/07/98	07:29:57:883	1	[Anonymous]	[keypad.cpp-,491]	- Keypad Activated!!

Date	Time	Log Level	ClassID, ObjectID	Source File, Line Number	Text Message
05/07/98	07:29:57:883	1	[Anonymous]	[keypaddc.c-,1109]	- AttachedtotheDiagnostician
05/07/98	07:29:00:998	2	[6000,00256200]	[keypaddc.c-,1102]	- Initialized the hint list
05/07/98	07:29:00:978	2	[6000,00256200]	[keypad.cpp-,2049]	- Keypad Revision#1.0.2

Displaying the Error History Log

Important

You can set the limits for the date and time range of the data you want to view in the “Error History Log”.

[1] Select “EH” from the Tool Bar of the “Service Application” window.

[2] Make any necessary changes to the settings for “View From” and “View Through”.

[3] In the “Retrieve” panel:

- Select either “All” or “MIM Application Only”.
- If you select “MIM Application Only,” select the range of error codes you want to display.

[4] In the “Severity” panel, select one or more of the following levels:

- Information (I)
- Warning (W)
- Fatal (E)

[5] Select “OK”.

[6] At the prompt, select “View Log”.

Note

The error will have the format 00000MMMM-NNN, where MMMM indicates the error code, and NNN indicates the source. MIM errors will have an NNN code of 010, 011, or 016. See the “Help Files” for other source descriptions and additional information.

[7] To save the Log, select “Save As”.

Example of the Error History Log

The following table is an example of the Error History Log, indicating a normal boot-up sequence.

Note

At the KEYPAD, press [SERVICE] / [VIEW ERROR LOGS]. Do not indicate a problem with the MIM.

I 0000020017-394	05/08/1998	13:36:41	The user ENG-VI-1\service has connected and has been successfully authenticated on port COM1.
E 0000007026-405	05/08/1998	13:34:16	The following boot-start or system-start driver(s) failed to load: Mouclass
I 0000000003-402	05/08/1998	13:33:38	User configuration data for parameter COM2 overriding firmware configuration data.
I 0000000003-402	05/08/1998	13:33:38	User configuration data for parameter COM4 overriding firmware configuration data.
I 0000000003-402	05/08/1998	13:33:38	User configuration data for parameter COM3 overriding firmware configuration data.
I 0000000003-402	05/08/1998	13:33:38	User configuration data for parameter COM1 overriding firmware configuration data.
E 0000004187-417	05/08/1998	13:33:31	Invalid address 40.16 was specified for adapter Elnk31\Parameters\TCPIP. This interface cannot be initialized.
E 0000007000-405	05/08/1998	13:33:31	The Cogent eMaster+ PCI Adapter Driver service failed to start due to the following error: %%31
E 0000007000-405	05/08/1998	13:33:31	The 3Com 3C90x Adapter Driver service failed to start due to the following error: %%31
I 0000006005-338	05/08/1998	13:33:27	The Event log service was started.
E 0000000026-347	05/08/1998	13:33:27	Exceeded the allowable number of retries (configurable via the registry) on device \Device\KeyboardPort0.
E 0000000026-347	05/08/1998	13:33:27	Exceeded the allowable number of retries (configurable via the registry) on device \Device\KeyboardPort0.
E 0000000026-347	05/08/1998	13:33:18	Exceeded the allowable number of retries (configurable via the registry) on device \Device\KeyboardPort0.
E 0000000026-347	05/08/1998	13:33:18	Exceeded the allowable number of retries (configurable via the registry) on device \Device\KeyboardPort0.
E 0000000019-347	05/08/1998	13:32:56	Could not set the keyboard typematic rate and delay.
W 0000000017-347	05/08/1998	13:32:56	The device sent an incorrect response(s) following a keyboard reset.
E 0000000020-347	05/08/1998	13:32:56	Could not set the keyboard indicator lights.
E 0000000007-364	05/08/1998	13:32:56	Could not locate the device object for one or more pointer port devices.
E 0000000015-347	05/08/1998	13:32:56	The keyboard reset failed.
W 0000002013-413	05/08/1998	13:28:08	The E: disk is at near capacity, you may need to delete some files.

Displaying the Error Frequency log

[1] Select “EH” from the Tool Bar of the “Service Application” window.

[2] In the “Retrieve” panel,

- Select either “All” or “MIM Application Only”.
- If you select “MIM Application Only”, select the range of error codes you want to display.

[3] Select “OK”.

[4] At the prompt, select “View Log”.

[5] To save the log, select “Save As”.

Clearing the Frequency Log

Important

Use this function after you make a repair to observe if the “Error Frequency Log” indicates the error again.

[1] Select “Clear Error Frequency Log” from the “Service Application” window.

[2] Select “Clear”.

[3] At the prompt ”Are you sure?” select “Yes”.

Section 12: Diagnostics

Beep Codes

Introduction

The Basic Input/Output System (BIOS) coordinates the start-up configuration of the COMPUTER. Since the MIM does not include a KEYBOARD and MONITOR, the BIOS provides certain features:

- This section includes information that will assist you in diagnosing and troubleshooting the Wiring Diagrams, Activity and Error Log descriptions, BIOS beep codes, and Troubleshooting the Power-On Sequence. For more diagnostic and troubleshooting information, open “Diagnostics” on the “Service Application” window.
- Listen to a number of beeps that provide feedback of error conditions during the Power-On Self Test (POST).
- Use the service LAPTOP to observe error messages and Power-On Self Test (POST) information.
- Use the service LAPTOP to operate the BIOS Setup Utility.

The modified beep code in the boot process set helps you isolate a malfunction to a hardware component.

MIM 100: Beep Codes

Beeps	Malfunction and Cause	Recommended Action	Error Messages
0	SPEAKER malfunction: The MIM boots.	Check the SPEAKER.	None.
	Power or CPU BD: The MIM does not boot.	Repair the power malfunction or install a new CPU BOARD.	
1	No malfunction: The BIOS successfully completed initialization of all onboard and external devices.	None.	None.
2	CMOS: • Configuration error • Checksum error • Battery low or malfunctioned • System options not set	The boot process automatically stops. The LAPTOP prompts you to do the AMIBIOS Setup. Advance to page 12–6 and do the procedure “Configuring the BIOS and Interrupts”.	• “CMOS Settings Wrong” • “CMOS Checksum Bad” • “CMOS Battery Low” • “CMOS Settings Wrong“
3	SIMM: Failure in first 640 KB of base memory. The system does not have any extended memory.	The boot process automatically stops. Install a new SIMM in BANK 0, SLOT 1.	None.
4	CPU BOARD: • Refresh malfunction • Processor Exception Interrupt Error • Timer not Operational • FLOPPY DRIVE CONTROLLER	The boot process automatically stops. Install a new CPU BD.	• “Refresh Error“ • “None“ • “Timer Error“ • “FDC Error”

Beeps	Malfunction and Cause	Recommended Action	Error Messages
5	HARD DRIVE: • The busy signal of the HARD DRIVE CONTROLLER did not go low in a finite period of time. • The read/write did not verify. • Initialization failed • Incorrect parameters • Interrupt was expected or data request signal did not arrive within a finite period of time.	The boot process automatically stops. Repair the malfunction associated with the HARD DRIVE.	• “Pri. Master HDD Error“ • “Pri. Slave HDD Error“ • “Sec. Master Error“ • “Sec. Slave Error“
6	VIDEO ADAPTER BOARD: Either the system video adapter is missing or the display memory had a malfunction associated with a read/write command.	The boot process automatically stops. Repair the malfunction associated with the VIDEO ADAPTER BOARD.	None.
7	FLOPPY DRIVE: • Incorrect Type • A seek failure occurred during POST.	Continue to boot from the HARD DRIVE.	“A or B: Drive Error“

MIM 100 with Micro Industries Board: Beep Codes

Beeps	Malfunction and Cause	Recommended Action	Error Messages
0	SPEAKER malfunction: The MIM boots.	Check the SPEAKER.	None.
	Power or CPU BD: The MIM does not boot.	Repair the power malfunction or install a new CPU BOARD.	
1	No malfunction: The BIOS successfully completed initialization of all onboard and external devices.	None.	None.
2	CMOS: • Configuration error • Checksum error • Battery low or malfunctioned • System options not set	The boot process automatically stops. The LAPTOP prompts you to do the AMIBIOS Setup. Advance to page 12–6 and do the procedure “Configuring the BIOS and Interrupts”.	• “CMOS Settings Wrong” • “CMOS Checksum Bad” • “CMOS Battery Low” • “CMOS Settings Wrong“
3	SIMM: Failure in first 640 KB of base memory. The system does not have any extended memory.	The boot process automatically stops. Install a new SIMM in BANK 0, SLOT 1.	None.

Beeps	Malfunction and Cause	Recommended Action	Error Messages
4	CPU BOARD: • Refresh malfunction • Processor Exception Interrupt Error • Timer not Operational • FLOPPY DRIVE CONTROLLER	The boot process automatically stops. Install a new CPU BD.	• “Refresh Error“ • “None“ • “Timer Error“ • “FDC Error”
5	HARD DRIVE: • The busy signal of the HARD DRIVE CONTROLLER did not go low in a finite period of time. • The read/write did not verify. • Initialization failed • Incorrect parameters • Interrupt was expected or data request signal did not arrive within a finite period of time.	The boot process automatically stops. Repair the malfunction associated with the HARD DRIVE.	• “Pri. Master HDD Error“ • “Pri. Slave HDD Error“ • “Sec. Master Error“ • “Sec. Slave Error“
6	VIDEO ADAPTER BOARD: Either the system video adapter is missing or the display memory had a malfunction associated with a read/write command.	The boot process automatically stops. Repair the malfunction associated with the VIDEO ADAPTER BOARD.	None.
7	FLOPPY DRIVE: • Incorrect Type • A seek failure occurred during POST.	Continue to boot from the HARD DRIVE.	“A or B: Drive Error“

MIM 200: Beep Codes

Beeps	Malfunction and Cause	Recommended Action	Error Messages
0	SPEAKER malfunction: The MIM boots.	Check the SPEAKER.	None.
	Power or CPU BD: The MIM does not boot.	Repair the power malfunction or install a new CPU BOARD.	
1	No malfunction: The BIOS successfully completed initialization of all onboard and external devices.	None.	None.
2	CMOS: • Configuration error • Checksum error • Battery low or malfunctioned • System options not set	The boot process automatically stops. The LAPTOP prompts you to do the AMIBIOS Setup. Advance to page 12–6 and do the procedure “Configuring the BIOS and Interrupts”.	• “CMOS Settings Wrong” • “CMOS Checksum Bad” • “CMOS Battery Low” • “CMOS Settings Wrong“

Beeps	Malfunction and Cause	Recommended Action	Error Messages
3	SIMM: Failure in first 640 KB of base memory. The system does not have any extended memory.	The boot process automatically stops. Install a new SIMM in BANK 0, SLOT 1.	None.
4	CPU BOARD: • Refresh malfunction • Processor Exception Interrupt Error • Timer not Operational • FLOPPY DRIVE CONTROLLER	The boot process automatically stops. Install a new CPU BD.	• “Refresh Error“ • “None“ • “Timer Error“ • “FDC Error”
5	HARD DRIVE: • The busy signal of the HARD DRIVE CONTROLLER did not go low in a finite period of time. • The read/write did not verify. • Initialization failed • Incorrect parameters • Interrupt was expected or data request signal did not arrive within a finite period of time.	The boot process automatically stops. Repair the malfunction associated with the HARD DRIVE.	• “Pri. Master HDD Error“ • “Pri. Slave HDD Error“ • “Sec. Master Error“ • “Sec. Slave Error“
6	VIDEO ADAPTER BOARD: Either the system video adapter is missing or the display memory had a malfunction associated with a read/write command.	The boot process automatically stops. Repair the malfunction associated with the VIDEO ADAPTER BOARD.	None.
7	FLOPPY DRIVE: • Incorrect Type • A seek failure occurred during POST.	Continue to boot from the HARD DRIVE.	“A or B: Drive Error“

MIM 50, DICOM PRINT SERVER, and SPOOLER: Beep Codes

Beep Code	Malfunction	Remedy
1-1-3	CMOS write/read failure	Replace the unit.
1-1-4	BIOS ROM checksum failure	Replace the unit.
1-2-1	Programmable interval timer test failure	Replace the unit.
1-2-2	DMA initialization failure	Replace the unit.
1-2-3	DMA page resgister write/read test failure	Replace the unit.
1-2-4	RAM refresh verification failure	Replace the unit.
1-3-1	First 64K RAM test failure	Replace the unit.
1-3-2	First 64K RAM parity test failure	Replace the unit.

Beep Code	Malfunction	Remedy
2-1-1	Secondary DMA register test in progress or failure	Replace the unit.
2-1-2	Primary DMA register test in progress or failure	Replace the unit.
2-1-3	Primary interrupt mask register test failure	Replace the unit.
2-1-4	Secondary interrupt mask register test failure	Replace the unit.
2-2-2	Keyboard controller test failure	Replace the unit.
2-3-2	Screen memory test in progress or failure	Replace the unit.
2-3-3	Screen retrace tests in progress or failure	Replace the unit.
3-1-1	Timer tick interrupt test failure	Replace the unit.
3-1-2	Interval timer channel 2 test failure	Replace the unit.
3-1-4	Time-of-day clock test failure	Replace the unit.
3-2-4	Comparing CMOS memory size against actual	Replace the unit.
3-3-1	Memory size mismatch occurred	Replace the unit.

Note

- One beep occurs when you first energize the product.
- The beep codes occur in a series of 3 sets of beeps as indicated under the first column of the table.
- Normal beep tones occurring when the equipment is energized consists of one beep followed by a pause, followed by 3 beeps, which may be followed by a pause and 2 more beeps.

Configuring the BIOS and Interrupts

MIM 100

Important

- Do this procedure immediately after you install a new CPU BOARD.
- The configuration of the BIOS settings of the IDE DRIVE depends on the model of the HARD DRIVE and the version of MIM Application software.

[1] De-energize the MIM.

[2] Use the LAPTOP to display the “ProComm Plus” utility.

Important

The ProComm Plus utility must be configured to communicate with the MIM BIOS:

- 19,200 baud
- 8 data bits
- No parity
- 1 stop bit
- Terminal = VT100

In the next step, do not release the SPACE BAR until the LAPTOP begins to display information about the BIOS.

[3] At the same time, hold down the SPACE BAR of the LAPTOP and energize the MIM.

[4] When the LAPTOP begins to display the information for the BIOS, press [Del] on the LAPTOP.

Important

The LAPTOP completes counting the memory and displays the main menu for the BIOS Setup utility.

Use [Tab] or [Back Space] on the LAPTOP to highlight a choice in the main menu.

[5] Select “Auto Configuration with Optimal Settings” and press [Enter].

[6] At the prompt, “Load High Performance with Optimal Settings”, select “Y” and press [Enter].

[7] When the LAPTOP displays the main menu again, select “Auto-Detect Hard Disks”, and press [Enter].

[8] At the “Standard CMOS Setup” screen, check that the screen displays the correct time and date settings. If the settings are not correct:

(a) Select the incorrect entry

(b) On the LAPTOP, use the [Shift] [+] keys to increase the value or the [-] key to decrease the value.

Settings of the *Seagate Medalist* IDE DRIVES

Model	Item	Type	Size	Cyln.	Head	WPcom	Sec	LBA Mode	BLK Mode	PIO Mode	32-bit Mode
ST31720A (1.7 GB)	Pri. Master	User	1626	3305	16	65535	63	On	On	4	Off
Pro 4520 ST34520A (4.5 GB)	Pri. Master	User	4341	9406	15	65535	63	On	On	4	Off
4321 ST34321A (4.3 GB)	Pri. Master	User	4103	8894	15	65535	63	On	On	4	Off
ST34310A (4.3 GB)	Pri. Master	User	4111	8354	16	65535	63	On	On	4	Off

Custom Settings of the *Seagate Medalist Pro* 4520 Model ST34520A IDE DRIVE: Cannot "Auto Detect"

Model	Item	Type	Size	Cyln.	Head	WPcom	Sec	LBA Mode	BLK Mode	PIO Mode	32-bit Mode
Pro 4520 ST34520A (4.5 GB)	Pri. Master	User	1626	3305	16	65535	63	On	On	4	Off

Descriptions of Options for the BIOS Setup

Menu	Use to:
Main	Set up and modify the basic options; for example, time, date, FLOPPY DRIVE, and HARD DRIVE.
Advanced	Modify advanced features such as peripheral configuration and advanced chipset configuration.
Security	Specify a password to limit access to the system.
Exit	Save or discard changes.
Sub Menu	**Use to:**
HARD DRIVE Configuration	Configure the HARD DRIVE.
Boot options	Modify options for the system to boot up, such as the boot sequence.
Peripheral Configuration	Modify options for the SERIAL PORTS, the PARALLEL PORT, and the HARD DRIVE interfaces.
Advanced Chipset Configuration	Modify options for memory and system buses.
Power Management Configuration	Modify options for the Advanced Power Management (APM) options.
Plug-and-Play Configuration	Modify options for the system's plug-and play capabilities.

Important

Observe the labels on the HARD DRIVE for the Model and the MIM Application. The settings are for MIM 100, MIM 100NR and MIM 100 with Micro Industries Motherboard. The Micro Industries Motherboard detects the settings automatically.

[9] Check that the BIOS settings of the IDE DRIVE match the values in Table or Table . See the labels on the HARD DRIVE.

[10] If the BIOS settings are incorrect, change the values to the correct values.

[11] Press [Esc] to exit the "Standard CMOS Setup".

Important

- For Release Version 3.x only, do Steps 12 and 13.
- For V_1.X and V_2.X, advance to Step 14.

[12] Select "PCI/Plug and Play Setup" and press [Enter].

[13] Select "PCI IDE Busmaster" and change the setting to "Enabled". Use the [+] key to change the setting.

[14] Select "Save Settings and Exit", and press [Enter].

[15] At the prompt, "Save current settings and exit (Y/N)?)", select "Y" and press [Enter].

Note

The MIM reboots automatically.

MIM 100 With Micro Industries Motherboard

The following list contains the custom settings from the original defaults that are supplied by Micro Industries. Production versions of the BIOS V_1.0 Date: 3/13/00 should have these settings from the factory.

- Under Advanced / Disable "Legacy USB Support"
- Under Advanced / I/O Device Configuration / Disable "Parallel Port"
- Under Advanced / Select "Other" for Large Disk Access Mode
- Under Advanced / Advanced Chipset Control / Select "4MB" for Graphics Aperture
- Under Boot / Disable "QuickBoot Mode"
- Under Boot / Select "Hard Drive, Diskette Drive, ATAPI CD-ROM Drive, Network Boot" as Boot Device Priority

MIM 50 and DICOM PRINT SERVER

Use the following Keys to make selection in the “Configuration / Setup Utility” Menu

Key	Function
Up and Down Arrows	Moves between menu items until you highlight the correct selection.
Left and Right Arrows	Display and toggle between selections.
[Enter]	Selects the highlighted menu item.
[Esc]	Exits from the menu.
[+]	Increments the value of a setting.
[-]	Decrements the value of a setting.
[F1]	Displays “Help” for an item.
[F9]	Restores the previous active setting.
[F10]	Restores the default setting.

To check the BIOS, you will need a keyboard and monitor. Access the BIOS by pressing [F1] when the computer prompts you to do so at which time the monitor will display the “Configuration/Setup Utility” menu. See Table for instructions on how to use the “Configuration / Setup Utility” menu. See Table for information on the specific settings.

Configuration / Setup Utility

Select Option:

- System Summary
- Product Data
- Devices and I/O Ports
- Start Options
- Date and Time
- System Security
- Advanced Setup
- ISA Legacy Resource
- Power Management

Save Settings

Restore Settings

Load Defaut Settings

Exit Setup

Specific Settings of the “Configuration / Setup Utility” Menu: From the “Configuration/Setup Utility” Menu do the following:

1	Select Devices and I/O Ports	Select not installed for the Mouse.
2	Select Devices and I/O Ports/IDE Drives Setup/IDE Hard Disk Drive 0	Disable IDE Read Prefetch.
3	Select Devices and I/O Ports/IDE Drives Setup/IDE Hard Disk Drive 0	Disable IDE Read Prefetch.
4	Select Devices and I/O Ports/Audio Setup	Disable “Audio Support”
5	Select Devices and I/O Ports/Ethernet Setup	Disable “Alert on LAN”
6	Select Devices and I/O Ports/Ethernet Setup	Disable “Network Boot”
7	Select Devices and I/O Ports/USB Setup	Disable “USB Keyboard/Mouse Support”
8	Select Start Options/Startup Sequence	Select “Hard Disk 0” as Primary/Second Startup Device.
9	Select Start Options/Startup Sequence	Select “Disabled” as Primary/Second Startup Device.
10	Select Start Options/Startup Sequence	Select “Disabled” as Automatic Power On Startup Sequence
11	Select Start Options/Startup Sequence	Select “Primary” as Error Startup Sequence
12	Select Start Options	Enable “Keyboardless Operation Mode”
13	Select Advanced Setup/PCI Control	Enable “Network Adapters”
14	Select Advanced Setup/PCI Control	Enable “Display Adapters”
15	Select Power Management	Disable “ACPI BIOS Mode”

DICOM PRINT SERVER

Use the following Keys to make selection in the “Configuration / Setup Utility” Menu

Key	Function
Up and Down Arrows	Moves between menu items until you highlight the correct selection.
Left and Right Arrows	Display and toggle between selections.
[Enter]	Selects the highlighted menu item.
[Esc]	Exits from the menu.
[+]	Increments the value of a setting.
[-]	Decrements the value of a setting.
[F1]	Displays “Help” for an item.
[F9]	Restores the previous active setting.
[F10]	Restores the default setting.

To check the BIOS, you will need a keyboard and monitor. Access the BIOS by pressing [F1] when the computer prompts you to do so at which time the monitor will display the “Configuration/Setup Utility” menu. See the Table to the left for instructions on how to use the “Configuration / Setup Utility” menu. See “Specific Settings of the Configuration / Setup Utility” on Page 12–10

Configuration / Setup Utility

Select Option:

- System Summary
- Product Data
- Devices and I/O Ports
- Start Options
- Date and Time
- System Security
- Advanced Setup
- ISA Legacy Resource
- Power Management

Save Settings

Restore Settings

Load Defaut Settings

Exit Setup

Specific Settings of the “Configuration / Setup Utility” Menu:

1	Select Devices and I/O Ports	Select not installed for the Mouse.
2	Select Devices and I/O Ports/IDE Drives Setup/IDE Hard Disk Drive 0	Disable IDE Read Prefetch.
3	Select Devices and I/O Ports/IDE Drives Setup/IDE Hard Disk Drive 0	Disable IDE Read Prefetch.
4	Select Devices and I/O Ports/Audio Setup	Disable “Audio Support”
5	Select Devices and I/O Ports/Ethernet Setup	Disable “Alert on LAN”
6	Select Devices and I/O Ports/Ethernet Setup	Disable “Network Boot”
7	Select Devices and I/O Ports/USB Setup	Disable “USB Keyboard/Mouse Support”
8	Select Start Options/Startup Sequence	Select “Hard Disk 0” as Primary/Second Startup Device.
9	Select Start Options/Startup Sequence	Select “Disabled” as Primary/Second Startup Device.
10	Select Start Options/Startup Sequence	Select “Disabled” as Automatic Power On Startup Sequence
11	Select Start Options/Startup Sequence	Select “Primary” as Error Startup Sequence
12	Select Start Options	Enable “Keyboardless Operation Mode”
13	Select Advanced Setup/PCI Control	Enable “Network Adapters”
14	Select Advanced Setup/PCI Control	Enable “Display Adapters”
15	Select Power Management	Disable “ACPI BIOS Mode”

Troubleshooting the MIM 100

MIM 100: Troubleshooting the Power-On Sequence

Malfunction	Solution
The LED does not illuminate when the MIM energizes.	1. Check the AC Power: • The POWER CORD is correctly seated in an approved wall outlet • Check the continuity of the POWER CORD • The AC Power outlet is correct at the wall outlet 2. Check the continuity of the FUSES in the AC POWER SWITCH. 3. Check for 2 V DC at the LED CONNECTOR. If correct, then check all outputs of the POWER SUPPLY. 4. Install a new LED.
The FAN does not operate when the MIM energizes.	1. Check the POWER SUPPLY: • 12 V DC between P2-7 and P2-5 on the POWER SUPPLY • 12 V DC at the FAN CONNECTOR 2. Install a new FAN.
The KEYPAD does not display the *ds* logo when the MIM energizes.	1. Check the KEYPAD CABLE: • Correctly seated in PORT on the BULKHEAD of the MIM • Continuity of the KEYBOARD CABLE 2. Check for the DC voltages at the POWER SUPPLY. 3. Check that the: • KEYBOARD HARNESS is correctly seated on the RELAY BD • RIBBON CABLE for the RS422 I/F is correctly seated 4. Check that 12 Volt connector on DIGITAL or VIDEO INTERFACE BOARD is installed correctly. 5. Install a new RELAY BOARD. 6. Install a new KEYPAD. 7. Install a new SERIAL BOARD.

Malfunction	Solution
The SPEAKER does not make one beep tone when the MIM energizes.	1. If the SPEAKER does not beep once or sounds more than one beep, see page 12–1. 2. Check that the SPEAKER is correctly connected to the CPU BOARD. 3. Check the POWER SUPPLY: • All outputs of the POWER SUPPLY are correct • CONNECTORS P2, P3 are correctly seated on the CPU BOARD 4. Reseat the SIMMs. If necessary, install a new SIMM in BANK 0, SLOT 1. 5. Reseat the BIOS. If necessary, install a new BIOS. 6. Install a new CPU BOARD.
The KEYPAD does not display the “Acquisition” screen.	1. Use the LAPTOP to check that the “CPU Setup and Configuration” information is correct. After you exit the ROM Setup Program, the MIM automatically reboots and reloads the system. 2. Check that the settings of the SWITCH and JUMPERS are correct on the RS 422 SERIAL BOARD. 3. Check that the software configuration files are correct. 4. Install the System Software and configure the MIM.

Diagnostics for the OPTICAL INTERFACE (OI) BOARDS

Important

- Executing diagnostics on either the DP SERVER OI or CPOI BOARDS interrupts communication, terminating transmission of images to the LASER PRINTER. Transmission will resume when the diagnostic completes execution.
- Execute the diagnostic for the DP SERVER before you execute the diagnostic for the CPOI. The communication between the DP SERVER and the CPOI must be functioning correctly before the diagnostic for the CPOI will successfully pass the test.
- Before you decide to install a replacement CPOI, check that the following equipment operates correctly:
  - FIBER OPTIC CABLE between the DP SERVER and the DISTRIBUTION BAORD Ay
  - FIBER OPTIC PASS THROUGH CONNECTOR at the DISTRIBUTION BOARD Ay
  - Internal FIBER OPTIC CABLE between the DISTRIBUTION BOARD Ay and the CPOI
- The diagnostic tests for the CPOI include the following tests:
  - Registers and interrupts
  - Transmitters and receivers
  - Memory

Troubleshooting the CPOI

```
Enter selection -->
CES PORT TEST--------PASSED
DRAM INTEGRITY TEST-  PASSED
DRAM REFRESH TEST---  PASSED
ROM SUMCHECK TEST---  PASSED
VICO68 RESET TEST---  PASSED
NVSRAM BATTTERY TEST- PASSED
NVSRAM INTEGRITY TEST-PASSED
VICO69 INITIALIZATION PASSED

CPNI Environment Ver 1.0
 Current Date/Time ==> 5/13/1999 10:52:00
Valid Application in FLASH <GO>..copied to RAM

CPOI Application -  CkSum 003456D8   OK
CPOI NVRAM- OK
SPURIOUS INTERRUPTS DETECTED! Count=2695692801
CPOI Starting-Date and Time=>5/13/1999 9:41:34
Start CPOI command handler...Complete!
Previous CPCP node:6 entry:1..MIM issue START!
Start CPOI driver...Complete!

CPOI Ver 1.2 [Boot PROM Ver. 1.0]

     - UTILITIES MENU -
1 Get Current Date & Time

3 CPCP Buffer Address
4 CPCP Buffer Tables

6 Debug Utilities (Trace: 8000)
7 Get OI Firmware Revisions
8 Run All CPOI Diagnostic Tests
9 Set Current Date & Time

CPOI Status: IDLE
***Spurious interrupts: Total=2695692801
Current=0***

Enter selection --> 1
```

```
Current PSOS Date & Time= >5/13/1999
9:41:42
Reset PSOS to RTC Date&Time=>5/13/1999
9:41:43
```

Important

- The CPOI is a “Plug and Play” device. No configuration is necessary. The DP SERVER downloads all setup information to the CPOI.
- The LAPTOP connects to the CPOI at the 25 PIN SERVICE CONNECTOR of the DISTRIBUTION BOARD AY on the back of the LASER PRINTER.
- Connection setup to the LAPTOP for a CP interface is a Null Serial Connection: 9600 baud, no parity, 8 data bits, 1 stop bit, and full duplex.

[1] Connect the LAPTOP to the CPOI.

Caution

Before you return operation of the DP SERVER to the customer, de-energize and energize the LASER PRINTER. The soft boot process might result in incorrectly terminated operations in the LASER PRINTER. Use the RESET on the front of the CPOI to soft boot the CPOI without de-energizing the LASER PRINTER.

[2] Energize or Reset the LASER PRINTER. See the example screen at left.

Important

If the screen data does not match the data indicated in the example screen at left, See “Troubleshooting the CPOI” on Page 12–20.

[3] Check that the Date /TIme of the CPOI and the DP SERVER match:

- Select item 1 from the “Utilities Menu.”
- At the DISPLAY KEYPAD of the DP SERVER, select “Menu” / “Service Menu” / “Machine Setup” / “Set Date/Time”

```
CPOI Ver 1.2 [Boot PROM Ver. 1.0]

          UTILITIES MENU
1 Get Current Date & Time

3 CPCP Buffer Address
4 CPCP Buffer Tables

6 Debug Utilities (Trace: 8000)
7 Get OI Firmware Revisions
8 Run All CPOI Diagnostic Tests
9 Set Current Date & Time

CPOI Status: IDLE
***Spurious interrupts: Total=2695692801
Current=0***

Enter selection --> 3
```

```
CPCP Buffer Tables
  -- CPCP Anchor: 0XF0000
```

```
CPOI Ver 1.2 [Boot PROM Ver. 1.0]

          UTILITIES MENU
1 Get Current Date & Time

3 CPCP Buffer Address
4 CPCP Buffer Tables

6 Debug Utilities (Trace: 8000)
7 Get OI Firmware Revisions
8 Run All CPOI Diagnostic Tests
9 Set Current Date & Time

CPOI Status: IDLE
***Spurious interrupts: Total=2695692801
Current=0***

Enter selection --> 4
```

Important

If the screen data does not match the data indicated in the example screen at left, See “Troubleshooting the CPOI” on Page 12–20.

[4] To determine the interface for which the CPOI is configured, select item **3**. The LAPTOP will display the “CPCP Anchor”.

Note

- 1120 LASER PRINTER: CPCP Anchor 0XF0000
- 2180 LASER PRINTER: CPCP Anchor 0X00000

[5] To determine if the interface SLOTS and addresses are correctly assigned, select item **4** from the “Utilities Menu.”

Important

See the example screen on the next page:

- The “CPCP Buffer Table” data depends on the model of LASER PRINTER. In the “**ow nr**” column the address “00” is assigned to the LASER PRINTER:
  - 2180 LASER PRINTER: 6 addresses
  - 1120 LASER PRINTER: 4 addresses
- Maximum no. of entries in the “CPCP Buffer Table”:
  - 16 addresses for the 1120 LASER PRINTER
  - 22 addresses for the 2180 LASER PRINTER
- All CP interfaces except the CPOI are assigned 2 addresses.
- The CPOI is assigned 1 address.
- The Network Interface is assigned 6 addresses.
- In the “**ow nr**” column of the CPCP Buffer Table on the next page:
  - Node Id **00**: 2180 LASER PRINTER
  - Node Id **01**: CPVI
  - Node Id **06**: CPOI
- Address **ABCD1234** indicates an unassigned Node.
- The TSC might request this data to resolve node conflicts on the VMEbus.

```
================================================================================================
CPCP Global Memory in 2180
================================================================================================
================================================================================================
CPCP Buffer Table Anchor
================================================================================================
Addr.    Buftbl  *  BT_Lock  Valid_Anchor    BT_Vers.
00000000 0003F980   CD000000 4B454350('KECP') 32324220('22B')
------------------------------------------------------------------------------------------------
CPCP NodeAv1[]
Node 0   Node 1   Node 2   Node 3   Node 4   Node 5    Node 6   Node 7
EA000000 EA000000 ABCD1234 ABCD1234 ABCD1234 ABCD1234  EA000000 ABCD1234
================================================================================================
CPCP Buffer Table Entries
================================================================================================
          ow in ow sn                          -----int_owner----- -----ack_sender----
  Addr.   nd us nr dr bufaddr  bytes seq  mbx_base  iv  ip  type mxb_base iv ip type
00 ------------------------------------------------------------------------------------------------
0003F980  01 01 00 01 0003EE80 000F  00C8 00002000  00  00  0001 00002100 00 00 0001
01 ------------------------------------------------------------------------------------------------
0003F99C  01 01 00 06 0003EF00 000F  0003 00002000  01  00  0001 00002600 00 00 0001
02 ------------------------------------------------------------------------------------------------
0003F9B8  01 00 00 FF 0003EF80 0000  0000 00002000  02  00  0001 4350444C 43 50 444C
03 ------------------------------------------------------------------------------------------------
0003F9D4  01 00 00 FF 0003F000 0000  0000 00002000  03  00  0001 4350444C 43 50 444C
04 ------------------------------------------------------------------------------------------------
0003F9F0  01 00 00 FF 0003F080 0000  0000 00002000  04  00  0001 4350444C 43 50 444C
05 ------------------------------------------------------------------------------------------------
0003F99C  01 00 00 FF 0003F100 0000  0000 00002000  05  00  0001 4350444C 43 50 444C
06 ------------------------------------------------------------------------------------------------
0003F99C  01 01 01 00 0003F180 000F  00CB 00002100  00  00  0001 00002000 00 00 0001
07 ------------------------------------------------------------------------------------------------
0003F99C  01 00 01 FF 0003F200 0000  0000 00002100  01  00  0001 4350444C 43 50 444C
08 ------------------------------------------------------------------------------------------------
0003F99C  01 01 06 00 0003F280 000F  0005 00002600  00  00  0001 00002000 00 00 0001
```

```
CPOI Ver 1.2 [Boot PROM Ver. 1.0]

          UTILITIES MENU
1 Get Current Date & Time

3 CPCP Buffer Address
4 CPCP Buffer Tables

6 Debug Utilities (Trace: 8000)
7 Get OI Firmware Revisions
8 Run All CPOI Diagnostic Tests
9 Set Current Date & Time

CPOI Status: IDLE
***Spurious interrupts: Total=2695692801
Current=0***

Enter selection --> 7
```

```
CPOI Test -Get OI Revisions-4/29/1999 10:53:48
 CPOI SEND_BOOTCODE_REVISION requsests
  CPOI Boot Code Rev: 1.0.4
  MIMOI Boot Code Rev: 1.0.4

 CPOI SEND_APPCODE_REVISION requests
  CPOI App Code Rev: 1.0.4
  MIMOI App Code Rev: 1.0.4
```

Important

The Debug Utilities are password protected and for use in program debugging only. To execute item **6** “Debug Utilities” you must make a call to the TSC for the password and instructions.

[6] To determine the “MIM IO firmware version,” select item **7**. The version must match the version displayed in “Service Tracking Information.”
See Page 5–1.

```
CPOI Ver 1.2 [Boot PROM Ver. 1.0]

          UTILITIES MENU
1 Get Current Date & Time

3 CPCP Buffer Address
4 CPCP Buffer Tables

6 Debug Utilities (Trace: 8000)
7 Get OI Firmware Revisions
8 Run All CPOI Diagnostic Tests
9 Set Current Date & Time

CPOI Status: IDLE
***Spurious interrupts: Total=2695692801
Current=0***

Enter selection --> 8
```

```
CPOI Diagnostic-Run All Tests-4/29/1999 10:53:
 CPOI RUN_DIAGNOSTIC request

  CPOI Diag. Result command:X10001
      - Tests run: 23
      - All tests passed: - 4/29/1999 10:54:11
```

[7] To execute the “CPOI and MIM OI onboard diagnostics,” select item **8**.

Caution

Before you return operation of the DP SERVER to the customer, de-energize and energize the LASER PRINTER. The soft boot process might result in incorrectly terminated operations in the LASER PRINTER.Use the RESET on the front of the CPOI to soft boot the CPOI without de-energizing the LASER PRINTER.

[8] If you are done executing the diagnostics, de-energize and energize the LASER PRINTER.

[9] Return operation of the DP SERVER to the customer.

Troubleshooting the CPOI

Indication	Action
One or more of the 8 boot-up tests fail.	Reseat the DAUGHTER BD of the CPOI and reboot. If necessary, install a new CPOI.
"ChSum" not OK.	
CPCP node does not match node configured in Page 5–6.	Execute item **3** in the "Utilities Menu." If the "Anchor" is incorrect, see the indication below.
"Date/Time" of the CPOI and the DP SERVER do not match.	Execute item **8** in the "Utilities Menu." Do not execute item 9 unless the TSC instructs you.
Version **<** "CPOI Ver 1.2"	The version must be ≥ 1.2. Do Mod 1.
"Spurious interrupts" counts are display for your information	Mod 49 must be installed for the 2180 LASER PRINTER. To reset to zero execute [Ctrl] **kill**.
Incorrect "Anchor"	Configure the Destination: See Page 5–6. If the "Anchor" remains incorrect, execute item **8** in the "Utilities Menu." If the diagnostic does not indicate a malfunction of the MIM OI and the FIBEROPTIC CABLE, then check that the other CP interfaces on the VMEbus operate correctly. If necessary, install a new CPOI.
The data in the "CPCP Buffer Table" does not match the hardware installed.	Select item **8** in the "Utilities Menu" to execute the "CPOI and MIM onboard diagnostics." See Page 12–14. Check that the configuration of all interfaces are correct, including Node ID. Troubleshoot hardware on the VMEbus of the LASER PRINTER.
The MIM OI firmware version does not match the version displayed in "Service Tracking Information".	

Store and Print a Test Image

Use this feature to check equipment performance, investigate image data transfer, or troubleshoot network malfunctions.

MIM 100

[1] At the “Main Menu” of the TOUCH KEYPAD, select [Service], then select [Store & Print Test Image].

[2] Select the pattern that you want to display:

- SMPTE
- Vertical Gray
- Horizontal Gray
- Flat Field
- Pixel On/Off
- Continuous Tone
- Checkerboard

[3] Select the image size:

- 512 x 512
- 1024 x 1024
- 1280 x 1024

[4] Select the [Pixel Depth]:

- 8
- 10
- 12

[5] To print the test image, select [Execute Print].

MIM 50, MIM 200, DICOM PRINT SERVER, SPOOLER

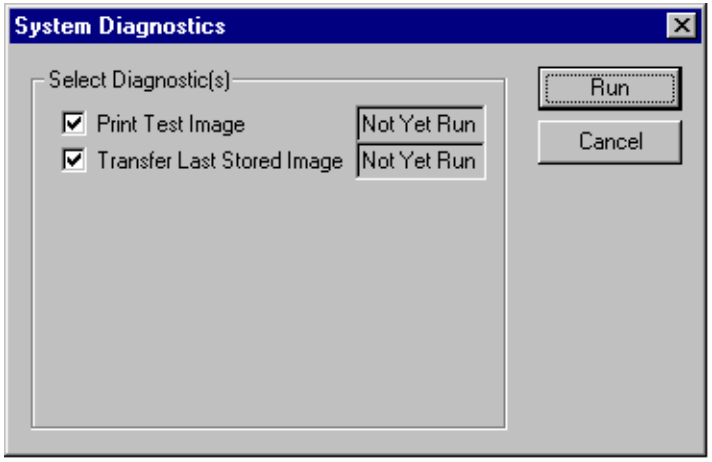
[1] At the DISPLAY KEYPAD or PRINTING KEYPAD, select “Menu” / “Diagnostics Menu” / “Test Print Menu”.
For the MIM 200, select “Network Input” / “Menu” / “Service Menu” / “Diagnostics Menu” / “Test Print Menu”.

[2] For the MIM 50, MIM 200 or DICOM PRINT SERVER, select “Greyscale Print”.

Note

For instructions regarding all other choices in the menu, including choices for the SPOOLER, please see the corresponding User’s Guide: Page 1–4.

From the LAPTOP



Note

Use the System Diagnostics menu from the Service Application to print a test image from any of the MIM Products.

[1] At the “MIM Service Application,” select “Diagnostics” / “System”.

[2] Deselect the selection in the “System Diagnostics” dialog window that you do not want to execute.

[3] Select [Run].

Hardware

S150 VIDEO BOARD

Important

If Modality Capture Tests fail when running Video diagnostics, the VIDEO BOARD is not necessarily defective. Check the following items:

- The Input Video is not present
- The parameters entered in the MIM do not match the parameters for the Modality or are not correct
- The parameters in MIM are not correct

The diagnostics for the VIDEO BOARD include the following tests:

- General Tests
- Memory Tests
- Modality Capture Tests
- Simulated Capture Tests

S60 VIDEO BOARD

Important

If Modality Capture Tests fail when running Video diagnostics, the VIDEO BOARD is not necessarily defective. Check the following items:

- The Input Video is not present
- The parameters entered in the MIM do not match the parameters for the Modality or are not correct
- The parameters in MIM are not correct

The diagnostics for the VIDEO BOARD include the following tests:

- General Tests
- Memory Tests
- Simulated Capture Tests

DIGITAL BOARD

Important

The Opto-Isolator test fails if the OPTO-ISOLATOR BOARD is not installed.The diagnostics for the DIGITAL BOARD include the following tests:

- Register & Interrupt Tests
- FIFO & RAM Tests
- Modality Interface Tests
- Opto-Isolator

RELAY BOARD of the MIM 100

The diagnostics for the RELAY BOARD include:

- A/D
- Control Register
- System Temperature

Network Malfunctions

MIM 100 with Software V_2.1 or Less

Use “Ping” to check that the MIM can correctly communicate with the destination.

MIM 50, MIM 200, or MIM 100 with V_3.x

Use the following tests:

- “Ping” to check that the MIM can correctly communicate with the destination.
- DICOM Echo

DICOM PRINT SERVER

Use the following tests:

- “Ping” to check that the MIM can correctly communicate with the destination.
- DICOM Echo

SPOOLER: Loopback Test

[1] Connect the LOOPBACK CONNECTOR to the CABLE.

[2] At the KEYPAD press [Menu].

[3] Press the down arrow to select “Service”.

[4] Press the down arrow to select “Diagnostics”.

[5] Press the down arrow to select “Serial Port Test”.

[6] Press [Menu] to select “Serial Port Test”.

[7] Press the down arrow to select “Execute Test”.

[8] Press [Menu] to execute the test.

Assignment of SLOTS for the MIM 100

The following slot assignments are for the original CPU BOARD, with a RELAY BOARD and is for **domestic use** only.

MIM 100 with 10/100BaseT Ethernet

SLOT	Type	Digital	Video
1		blank	blank
2	PCI	blank	blank
3	PCI	Digital BOARD	10/100 Ethernet
4	Shared	10/100 Ethernet	Video 150 BOARD
5	ISA	Internal MODEM	Internal MODEM
6	ISA	RS422 SERIAL BD	RS422 SERIAL BD
7	ISA	blank	blank
8	ISA	VGA BOARD	VGA BOARD

The following slot assignments are for the original CPU BOARD, with a RELAY BOARD and is for **domestic use** only.

MIM 100 with the Ethernet Combo BOARD

SLOT	Type	Digital	Video
1		blank	blank
2	PCI	blank	blank
3	PCI	Digital BOARD	Video 150 BOARD
4	Shared	blank	blank
5	ISA	Internal MODEM	Internal MODEM
6	ISA	RS422 SERIAL BD	RS422 SERIAL BD
7	ISA	Combo Ethernet BD 10 Base	Combo Ethernet BD 10 Base
8	ISA	VGA BOARD	VGA BOARD

The following slot assignments are for the original CPU BOARD, with a RELAY BOARD and is for **export** only.

MIM 100 with 10/100 Base T Ethernet and ISOLATION BOARD

SLOT	Type	Digital	Video
1		blank	blank
2	PCI	blank	blank
3	PCI	Digital BOARD	10/100 Ethernet BD

SLOT	Type	Digital	Video
4	Shared	10/100 Ethernet BD	Video 150 BOARD
5	ISA	blank	blank
6	ISA	RS422 SERIAL BD	RS422 SERIAL BD
7	ISA	ISOLATION BD	ISOLATION BD
8	ISA	VGA BOARD	VGA BOARD

The following slot assignments are for the original CPU BOARD and is for **domestic use** only.

MIM 100 (Domestic) with No RELAY BOARD

SLOT	Type	Digital	Video
1		blank	blank
2	PCI	blank	blank
3	PCI	Digital BOARD	10/100 Ethernet BD
4	Shared	10/100 Ethernet BD	Video 150 BOARD
5	ISA	DISTRIBUTION BD	DISTRIBUTION BD
6	ISA	RS422 SERIAL BD	RS422 SERIAL BD
7	ISA	Internal MODEM	Internal MODEM
8	ISA	VGA BOARD	VGA BOARD

The following slot assignments are for the original CPU BOARD and is for **domestic use** only.

MIM 100 with No RELAY BOARD for V_3.1.2 and Higher

SLOT	Type	Digital	Video
1		blank	blank
2	PCI	blank	blank
3	PCI	10/100 Ethernet	10/100 Ethernet
4	Shared	Digital BOARD	Video 150 BOARD
5	ISA	DISTRIBUTION BD	DISTRIBUTION BD
6	ISA	RS422 SERIAL BD	RS422 SERIAL BD
7	ISA	Internal MODEM	Internal MODEM
8	ISA	VGA BOARD	VGA BOARD

The following slot assignments are for the original CPU BOARD and is for **Export** use only.

MIM 100 with No RELAY BOARD

SLOT	Type	Digital	Video
1		blank	blank
2	PCI	blank	blank
3	PCI	Digital BOARD	10/100 Ethernet BD
4	Shared	10/100 Ethernet BD	Video 150 BOARD
5	ISA	DISTRIBUTION BD	DISTRIBUTION BD
6	ISA	RS422 SERIAL BD	RS422 SERIAL BD
7	ISA	ISOLATION BOARD	ISOLATION BOARD
8	ISA	VGA BOARD	VGA BOARD

The following slot assignments are for the **new** CPU BOARD and is for **Export** and **Domestic** use.

MIM 100 with Micro Industries BOARD

SLOT	Type	Digital	Video
1	AGP	Mounted 3.3 VDC Regulator BOARD	Mounted 3.3 VDC Regulator BOARD
2	PCI	RS422 8 Channel BOARD	RS422 8 Channel BOARD
3	PCI	blank	blank
4	PCI, Shared	Digital BOARD	Video 150 BOARD
5	ISA, Shared	blank (can’t be used with board in slot 4)	blank (can’t be used with board in slot 4)
6	ISA	blank	blank
7	ISA	VGA BOARD	VGA BOARD
8	ISA	ISOLATION BD or Internal MODEM	ISOLATION BD or Internal MODEM

The following slot assignments are for the MIM 50 (Single Input).

MIM 50 (Single Input)

SLOT	Type	Digital	Video
1	PCI	blank	blank
2	PCI	blank	blank
3	PCI	Digital BOARD	VIDEO 150 BOARD
4	ISA	Power Distribution BOARD	Power Distribution BOARD
5	ISA	RS422 SERIAL BD	RS422 SERIAL BD
6	ISA	Internal MODEM (Domestic use)	Internal MODEM (Domestic use)

The following slot assignments are for the MIM 50 (Multiple Input).

MIM 50 (Multiple Input)

SLOT	Type	Board
1	PCI	RS422, 8 channel Comm BOARD
2	PCI	Secondary Video 60 or Digital Interface BOARD
3	PCI	Primary Video 60 or Digital Interface BOARD
4	ISA	blank
5	ISA	blank
6	ISA	MODEM (Domestic use); blank (International)

DP Server

SLOT	Type	Board
1	PCI	blank
2	PCI	blank
3	PCI	Fiber Optic (OI) BOARD
4	ISA	Power Distribution BOARD
5	ISA	RS422 SERIAL BD
6	ISA	Internal MODEM (Domestic use)

DMI Spoolers (Video, Digital, and DICOM)

SLOT	Type	Vidoe	Digital	DICOM
1	PCI	Network Interface (if a 3600 Imager is connected)	Network Interface (if a 3600 Imager is connected)	Network Interface (if a 3600 Imager is connected)
2	PCI	blank	blank	blank
3	PCI	Video 60 BOARD	8 MG Digital BOARD	blank
4	ISA	Power Distribution BOARD	Power Distribution BOARD	Power Distribution BOARD
5	ISA	RS422 SERIAL BD	RS422 SERIAL BD	RS422 SERIAL BD
6	ISA	Internal MODEM (Domestic use)	Internal MODEM (Domestic use)	Internal MODEM (Domestic use)

Section 13: System Administration

Updating the Software for the MIM Products or for the Firmware

Important

Use this procedure to install the updated software to the LAPTOP for any of the following items:

- MIM Products: Application, Device Drivers, Operating System
- Firmware: Video, Digital, KEYPAD

[1] Energize the COMPUTER.

[2] Insert the FLOPPY DISK 1 into the A: DRIVE.

[3] Select the “Start/Settings/Control Panel”.

[4] Open “Add/Remove Programs”.

[5] At the “Add/Remove Programs” window, select “Install”.

[6] At the “Install Program from FLOPPY DISK or CD ROM” window, select “Next”.

[7] Check that the screen displays “A:\SETUP.EXE”.

[8] Select “Finish”.

Note

- The COMPUTER displays a “Setup” window, indicating the status of the “Install Shield”.
- The “Start Copying Files” window displays the “Target Folder: C:\ Program Files\ KHID\ Device Software Updates\ Device AX.X” where Device is either the MIM or the FIRMWARE and “AX.X” indicates the alphanumeric version identification.

[9] At the “Start Copying Files” window, check the settings, and then select “Next”.

Note

The COMPUTER will display the progress of the installation.

[10] When the COMPUTER displays “Setup Needs the Next Disk”:

(a) Remove the existing FLOPPY DISK.

(b) Insert the next FLOPPY DISK.

(c) Select “OK”.

[11] Read the information in the “Setup Complete” screen and then select “Finish”.

[12] Eject the last setup FLOPPY DISK.

Important

The version of the Service Software must match the version of the Application Software.

[13] If necessary, advance to the procedure “Updating the Service Software for the MIM”; otherwise, advance to the procedure “Installing the New Software to the MIM”.

Installing the New Software for the MIM Products

Important

Use this procedure to install the updated software from the LAPTOP to the MIM for any of the following items:

- MIM Products:
  - Application
  - Device Drivers
  - Operating System
- Firmware:
  - Video
  - Digital
  - KEYPAD

[1] Connect:

(a) LAPTOP to the MIM through “Dial-Up Networking”. See Page 4–1.

(b) Service Application to the MIM. See Page 4–1.

[2] At the “Service Application” window, select “Admin/Update Software/MIM/Application”.

[3] At the “MIM Software“ window, select the correct version and then select “OK”.

Important

The COMPUTER displays the “File Transfer Progress” window. Do not abort the procedure, which takes several minutes to complete.

- Wait 5 to 10 minutes for the “File Transfer Progress” completion. During this time the “File Transfer Progress” window might indicate 1 to 2 minutes of no activity.
- After 5 to 10 minutes the COMPUTER displays the message “The MIM Software has been successfully updated. The MIM system will be restarted.” At this time, the software automatically restarts the MIM.
- Do not select “Reconnect” when the COMPUTER displays the “Re-establish Connection” window. Wait another 2 minutes for the KEYPAD of the MIM to display the “Acquisition” window.

[4] Wait until the KEYPAD displays the “Acquisition” screen. Then use the KEYPAD to select:

(a) Main Menu

(b) Service

(c) View System Information

[5] At the KEYPAD, check that the correct software version displays.

[6] Close any open windows on the LAPTOP.

Reverting to a Previous Version of MIM Application Software

[1] At the “Service Application window, select “Admin’/‘Update S/W’/‘MIM’/‘Application”.

[2] At the “MIM S/W” window, select “Revert”.

[3] Select “OK”.

Note

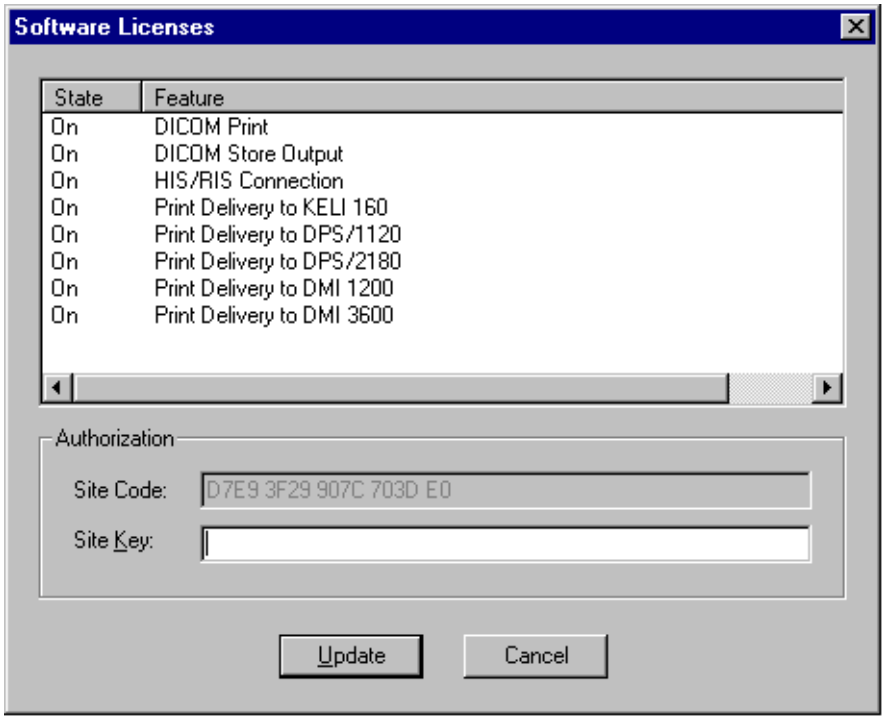
The MIM will reboot, and the LAPTOP will display “Re-establish Connection”.

[4] After the MIM reboots, select “Reconnect” from the “Re-establish Connection” window.

[5] At the “MIM Service Application” window, select “Admin’/‘Update S/W’/‘MIM’/‘Application”.

[6] Check that the “current” and “previous” versions are correct and then select “Cancel”.

Enabling Software Licenses for the MIM 100, MIM 200, and MIM 50



Software Licensing is required for:

- Customer-purchased upgrades to an existing system:
  - DICOM Print Output - enabling connection to PRINTERS
  - DICOM Store Output - enabling connection to WORKSTATIONS and archives
  - HIS/RIS Connection - enabling connection to HIS/RIS GATEWAY
- HARD DISK replacement of a MIM with configured destinations other than PRINTERS

Important

- Using the LAPTOP, you must enable Software Licensing ("ON" State) for each feature before the MIM will add a DICOM Print, Store Destination, or HIS/RIS GATEWAY.
- To obtain a Site Key to enable a feature, make a call to the TSC and provide the information from the MIM.

[1] At the MIM Service Application window, select:

(a) "Admin"

(b) "Software Licenses"

[2] At the "Software Licenses" window, obtain the Site Code for the MIM.

[3] Record the Site Code.

[4] Call the TSC and provide the:

(a) K# of the MIM

(b) Site Code of the MIM

[5] At the "Software Licenses" window, enter the Site Key information.

[6] Select "Update".

Section 14: Replacements

Replacing the HARD DRIVE

Procedures for Certain Replacement Versions

Version of the HARD DRIVE		Do Procedure
Original	Replacement	
V_A1.5, V_A1.8, V_A1.9	V_A1.10	Page 14–3
V_A1.11, V_A1.12	V_A1.10	Page 14–4
V_A1.x	V_A.0	MODIFICATION Kit No. 6

IP Addresses by Product and Version

Product	HARD DRIVE	Service Software	IP Address	Notes
MIM 100	V_A1.10	V_A1.8	100.100.100.10	
	V_2.1	V_2.1	123.123.123.10	Combo Ethernet BD
	V_2.1	V_2.1	123.123.123.11	10/100baseT BD
	V_3.0	V_3.0	123.123.123.**10**	Combo Ethernet BD
	V_3.0	V_3.0	123.123.123.**11**	10/100baseT BD
MIM 50	V_3.0	V_3.0	123.123.123.10	
SPOOLER/ DICOM	V_3.0	V_3.0	123.123.123.10	Primary IP Address: Resides in Ethernet on MOTHERBOARD
			100.100.100.11	Secondary IP Address: *3Com* BD 3H8075

Important

This procedure instructs you how to install and then configure the replacement HARD DRIVE.

[1] De-energize the MIM product.

[2] Replace the HARD DRIVE.

[3] Record the *Windows NT* Product License ID from the original HARD DRIVE on the replacement HARD DRIVE.

[4] Energize the MIM product and wait 3 minutes.

Important

- You must wait 3 minutes, then connect to the MIM using Dial-Up-Networking. See Page 4–1. The KEYPAD does not boot to the “Acquisition” screen because the replacement HARD DRIVE is not configured with an input.
- See “IP Addresses by Product and Version.” If the replacement you made is indicated in the table, do the procedure indicated before you continue to Step 5.
- Application software V_2.0 and above might require software licensing before configuration. See “Enabling Software Licenses for the MIM 100, MIM 200, and MIM 50” on Page 13–4.

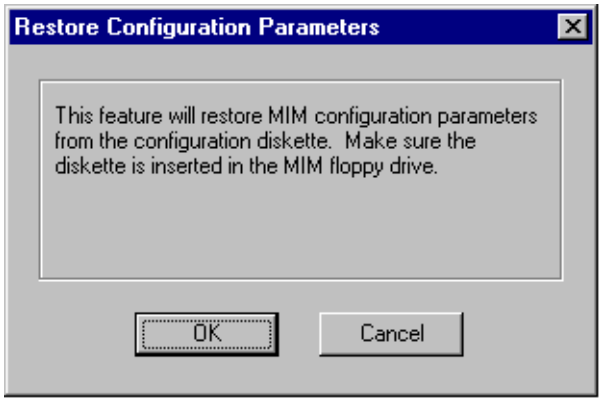
[5] Connect the “MIM Service Application” to the MIM, using the version of Service Software that corresponds to the replacement HARD DRIVE: See “IP Addresses by Product and Version.”

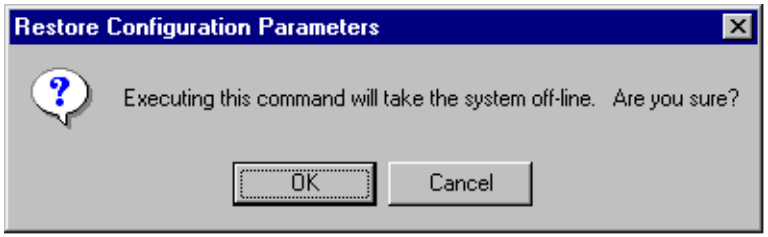
[6] At the “MIM Service Application” window, select:

(a) “Configure”

(b) “Restore Configuration”

[7] Advance to Step 8.





[8] At the “Restore Configuration Parameters” window, select [OK].

Important

The MIM must be restarted to access the “KEYPAD Acquisition” screen.

[9] At the next “Restore Configuration Parameters” window, select [OK]. The MIM will complete the restore in about 30 seconds.

[10] At the “MIM Service Application,” select “Administration” / “Shutdown”.

[11] Select “Shutdown and Restart”.

[12] Select [OK].

Important

If the original version of the HARD DRIVE was either V_A1.11 or V_A1.12 do Steps 7 and 8 on Page 14–4.

Updating the MIM Application Software

V_A1.5 or V_A1.8 or V_A1.9 to V_A1.10

Important

A modification must be made to the MIM file version before a restore is made.

[1] Remove the configuration FLOPPY DISKETTE from MIM.

[2] Insert the configuration FLOPPY DISKETTE in the LAPTOP FLOPPY DISKETTE DRIVE.

[3] Open the file named “MIMVersion”.

Note

“MIMVersion” is a text file with one line of information.

[4] Change the text from “A1.5” or “A1.8” or “A1.9” to “A1.10”.

[5] Save the text changes.

[6] Do Steps 8 - 10 on Page 14–1.

V_A1.11 or V_A1.12 to V_A1.10

[1] Remove the configuration FLOPPY DISKETTE from MIM.

[2] Insert the configuration FLOPPY DISKETTE in the LAPTOP FLOPPY DISKETTE DRIVE.

[3] Open the file named “MIMVersion”.

Note

“MIMVersion” is a text file with one line of information.

[4] Change the text from “A1.11” or “A1.12” to “A1.10”.

[5] Save the text changes.

[6] Do all of the following steps:

(a) Steps 8 - 10 on Page 14–1.

(b) Steps 7 and 8 below.

Important

The MIM Application Software V_A1.11 or V_A1.12 must be re-installed from the LAPTOP.

[7] At the “MIM Service Application” window, select:

(a) “Admim”

(b) “Update Software”

(c) “MIM”

(d) “Application“

[8] At the “MIM Application Update” window, select V_A1.11 or V_A1.12 and then “OK”.

Replacing the CPU BOARD of the MIM 100

Important

- Do this procedure immediately after you install a new CPU BOARD.
- The configuration of the BIOS settings of the iDE DRIVE depends on the model of the HARD DRIVE and the version of MIM Application software.

[1] De-energize the MIM.

[2] Use the LAPTOP to display the “ProComm Plus” utility.

Important

The ProComm Plus utility must be configured to communicate with the MIM BIOS:

- 19,200 baud
- 8 data bits
- No parity
- 1 stop bit
- Terminal = VT100

In the next step, do not release the SPACE BAR until the LAPTOP begins to display information about the BIOS.

[3] At the same time, hold down the SPACE BAR of the LAPTOP and energize the MIM.

[4] When the LAPTOP begins to display the information for the BIOS, press [Del] on the LAPTOP.

Important

The LAPTOP completes counting the memory and displays the main menu for the BIOS Setup utility.

Use [Tab] or [Back Space] on the LAPTOP to highlight a choice in the main menu.

[5] Select “Auto Configuration with Optimal Settings” and press [Enter].

[6] At the prompt, “Load High Performance with Optimal Settings”, select “Y” and press [Enter].

[7] When the LAPTOP displays the main menu again, select “Auto-Detect Hard Disks”, and press [Enter].

[8] At the “Standard CMOS Setup” screen, check that the screen displays the correct time and date settings. If the settings are not correct:

(a) Select the incorrect entry

(b) On the LAPTOP, use the [Shift] [+] keys to increase the value or the [-] key to decrease the value.

Settings of the *Seagate Medalist* IDE DRIVES

Model	Item	Type	Size	Cyln.	Head	WPcom	Sec	LBA Mode	BLK Mode	PIO Mode	32-bit Mode
ST31720A (1.7 GB)	Pri. Master	User	1626	3305	16	65535	63	On	On	4	Off
Pro 4520 ST34520A (4.5 GB)	Pri. Master	User	4341	9406	15	65535	63	On	On	4	Off
4321 ST34321A (4.3 GB)	Pri. Master	User	4103	8894	15	65535	63	On	On	4	Off
ST34310A (4.3 GB)	Pri. Master	User	4111	8354	16	65535	63	On	On	4	Off

Custom Settings of the *Seagate Medalist Pro* 4520 Model ST34520A IDE DRIVE: Cannot "Auto Detect"

Model	Item	Type	Size	Cyln.	Head	WPcom	Sec	LBA Mode	BLK Mode	PIO Mode	32-bit Mode
Pro 4520 ST34520A (4.5 GB)	Pri. Master	User	1626	3305	16	65535	63	On	On	4	Off

Descriptions of Options for the BIOS Setup

Menu	Use to:
Main	Set up and modify the basic options; for example, time, date, FLOPPY DRIVE, and HARD DRIVE.
Advanced	Modify advanced features such as peripheral configuration and advanced chipset configuration.
Security	Specify a password to limit access to the system.
Exit	Save or discard changes.
Sub Menu	Use to:
HARD DRIVE Configuration	Configure the HARD DRIVE.
Boot options	Modify options for the system to boot up, such as the boot sequence.
Peripheral Configuration	Modify options for the SERIAL PORTS, the PARALLEL PORT, and the HARD DRIVE interfaces.
Advanced Chipset Configuration	Modify options for memory and system buses.
Power Management Configuration	Modify options for the Advanced Power Management (APM) options.
Plug-and-Play Configuration	Modify options for the system's plug-and play capabilities.

Important

Observe the labels on the HARD DRIVE for the Model and the MIM Application.

[9] Check that the BIOS settings of the IDE DRIVE match the values in Table or Table . See the labels on the HARD DRIVE.

[10] If the BIOS settings are incorrect, change the values to the correct values.

[11] Press [Esc] to exit the "Standard CMOS Setup".

Important

- For Release Version 3.0 only, do Steps 12 and 13.
- For V_1.X and V_2.X, advance to Step 14 .

[12] Select "PCI/Plug and Play Setup" and press [Enter].

[13] Select "PCI IDE Busmaster" and change the setting to "Enabled". Use the [+] key to change the setting.

[14] Select "Save Settings and Exit", and press [Enter].

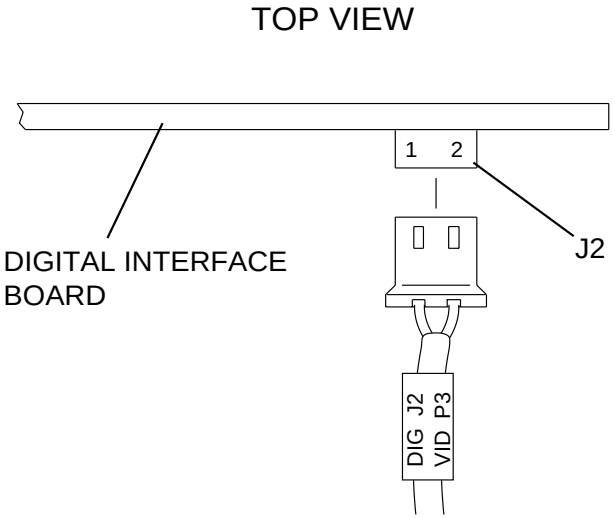
[15] At the prompt, "Save current settings and exit (Y/N)?)", select "Y" and press [Enter].

Note

The MIM reboots automatically.

Section 15: Conversions for the MIM 100

Converting Interface from Video to Digital or Digital to Video (for the MIM 100 only)



H156_0056ACB
H156_0056AC

Important

When you remove or install the VIDEO or DIGITAL INTERFACE BOARD, do not touch the Lithium BATTERY on the CPU BOARD under the INTERFACE BOARD. Accidental grounding of the BATTERY causes the BIOS time and date to reset, preventing the KEYPAD from booting to “Acquisition” screen. If reset occurs, see “Configuring the BIOS and Interrupts on Page 12–6.

[1] At the “MIM Service Application” window, select “Configure/Input/Direct Connect”. The “Configuration” window displays.

[2] From the “Configuration” window, select “Delete”.

[3] Exit the “MIM Service Application”.

[4] De-energize the MIM.

Warning

Dangerous Voltage.

[5] Disconnect the main power for the MIM.

[6] Remove the top COVER from the MIM.

[7] Loosen the 4 SCREWS on the BULKHEAD.

Note

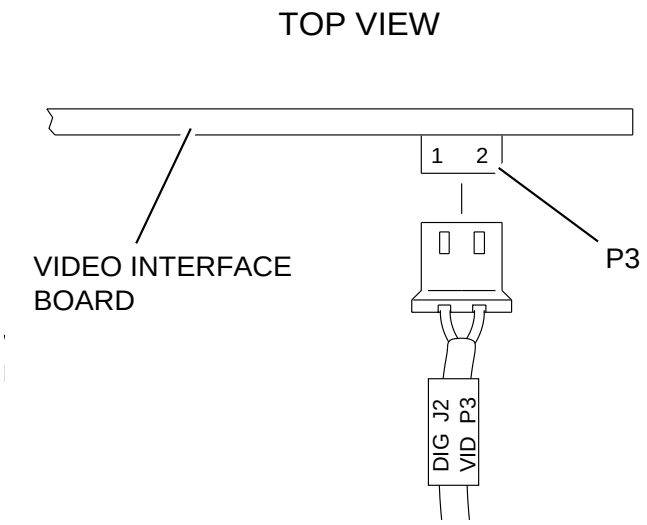
See the ILLUSTRATED PARTS LIST to locate the parts in this procedure.

[8] Carefully, pull back the BULKHEAD to provide access to the CABLE that connects the VIDEO or DIGITAL INTERFACE BOARD to the BULKHEAD.

ESD

Possible damage from electrostatic discharge.

[9] Observe the orientation of the CONNECTOR on the CABLE that connects to J2 on the DIGITAL INTERFACE BOARD or to P3 on the VIDEO BOARD.



H156_0056ACA
H156_0056AC

[10] Disconnect the CABLES:

- DIGITAL INTERFACE BOARD
  - DATA CABLE
  - CABLE from J2
  - VIDEO INTERFACE BOARD
- VIDEO CABLE AY
  - CABLE from P2
  - CABLE from P3
- The CABLE that connects to DIGJ2 or VID P3 is a serial connection between the RELAY BOARD and the DIGITAL or VIDEO BOARD. One function of this connection is to provide status of the temperature on the VIDEO (DIGITAL) BOARD to the CPU.
- The VID P2 CABLE provides power to the VIDEO BOARD.

[11] Remove and keep the SCREW that fasten the BOARD to the CARD RACK.

[12] Loosen the THUMBSCREW of the HOLD DOWN BRACKET.

[13] Remove the existing VIDEO INTERFACE BOARD or DIGITAL INTERFACE BOARD.

[14] Install the replacement VIDEO INTERFACE or DIGITAL INTERFACE BOARD. Check that you install all the correct CABLES and fasteners.

[15] Energize the MIM.

[16] At the “MIM Service Application” window, select “Configure/Input/Direct Connect”. The “Configuration” window displays.

[17] Configure the MIM for the new interface.

Note

The KEYPAD does not completely boot to the “Acquisition” screen since no input is present.

Converting from 4MB DIGITAL BOARD to 8MB DIGITAL BOARD

Important

- Modalities with an image size greater than 4MB require the 8MB DIGITAL INTERFACE BOARD.
- When removing and installing the VIDEO or DIGITAL INTERFACE BOARD, do not touch the Lithium BATTERY that is located on the CPU BOARD under the INTERFACE BOARD. Accidental grounding of the BATTERY causes the BIOS time and date to reset preventing the KEYPAD from booting to “Acquisition” screen. If reset occurs, see “Configuring the BIOS and Interrupts” on Page 12–6.

[1] Connect the LAPTOP through “Dial-Up Networking”.

[2] At the “MIM Service Application” window, select “Configure/Input/Direct Connect”. The “Configuration” window displays.

[3] Select “View”. The “Input Parameters” window displays.

[4] Record all input parameter information.

[5] Select “Autofilming” / “View” and record the “Acquisition Parameters”.

[6] Select “Cancel”.

[7] At the “Configuration” window, select “Delete” to delete the input.

[8] Exit from the “MIM Service Application”.

[9] De-energize the MIM.

Warning

Dangerous Voltage

[10] Disconnect the main power for the MIM.

[11] Remove the top COVER from the MIM.

[12] Loosen the 4 SCREWS on the BULKHEAD.

Note

See the ILLUSTRATED PARTS LIST to locate the parts in this procedure.

[13] Carefully, pull back the BULKHEAD to provide access to the CABLE that connects the DIGITAL INTERFACE BOARD to the BULKHEAD.

ESD

Possible damage from electrostatic discharge.

[14] Observe the orientation of the CONNECTOR on the CABLE that connects to J2 on the DIGITAL INTERFACE BOARD.

[15] Disconnect the CABLES:

- DIGITAL INTERFACE BOARD
- DATA CABLE
- CABLE from J2
- The CABLE that connects to DIG J2 is a serial connection between the RELAY BOARD and the DIGITAL BOARD. One function of this connection is to provide status of the temperature on the DIGITAL BOARD to the CPU.

[16] Remove the existing 4MB DIGITAL INTERFACE BOARD.

[17] Install the replacement 8MB DIGITAL INTERFACE BOARD. Check that you install all the correct CABLES and fasteners.

[18] Energize the MIM.

[19] At the “MIM Service Application” window, select “Configure/Input/Direct Connect”. The “Configuration” window displays.

[20] Configure the MIM for the new interface.

Note

The KEYPAD will not display the “Acquisition” screen if no input is present.

[21] At the “MIM Service Application” window, select “Configure/Save Configuration” to save the new parameters to DISKETTE.

Section 16: Conversions for the MIM 50

Converting a MIM 50 from Single Input to Multiple Inputs

Slot Assignment for MIM 50 (Single Input)

Slot	Type	Digital	Video
1	PCI		
2	PCI		
3	PCI	Digital Interface Board	Video 60 Board
4	ISA	Power Distribution Board	Power Distribution Board
5	ISA	RS422 Comm Board	RS422 Comm Board
6	ISA	Modem (Domestic only)	Modem (Domestic only)

Note

A MIM 50 can be upgraded to accept multiple inputs, but it's still a MIM 50. A HARD DRIVE with V_3.2.x is required to support multiple inputs. The appropriate KEYPADS are also required.

Important

When you remove or install the VIDEO or DIGITAL INTERFACE BOARD, do not touch the Lithium BATTERY on the CPU BOARD under the INTERFACE BOARD. Accidental grounding of the BATTERY causes the BIOS time and date to reset, preventing the KEYPAD from booting to the “Acquisition” screen. If reset occurs, see “Configuring the BIOS and Interrupts” on Page 12–6.

[1] At the “MIM Service Application” window, select “Configure/Input/Direct Connect”. The “Configuration” window displays.

[2] From the “Configuration” window, select “Delete”.

[3] Exit the “MIM Service Application”.

[4] De-energize the MIM.

Warning

Dangerous Voltage.

[5] Disconnect the main power for the MIM.

[6] Remove the top COVER from the MIM.

[7] Loosen the 4 SCREWS on the BULKHEAD.

Note

See the ILLUSTRATED PARTS LIST to locate the parts in this procedure.

[8] Carefully, pull back the BULKHEAD to provide access to the CABLE that connects the VIDEO or DIGITAL INTERFACE BOARD to the BULKHEAD.

ESD
Possible damage from electrostatic discharge.

[9] Observe the orientation of the CONNECTOR on the CABLE that connects to J2 on the DIGITAL INTERFACE BOARD or to P3 on the VIDEO BOARD.

[10] Disconnect the CABLES:

- DIGITAL INTERFACE BOARD
  - DATA CABLE
  - CABLE from J2
  - VIDEO INTERFACE BOARD
- VIDEO CABLE AY
  - CABLE from P2
  - CABLE from P3
- The CABLE that connects to DIGJ2 or VID P3 is a serial connection between the RELAY BOARD and the DIGITAL or VIDEO BOARD. One function of this connection is to provide status of the temperature on the VIDEO (DIGITAL) BOARD to the CPU.
- The VID P2 CABLE provides power to the VIDEO BOARD.

[11] Remove and keep the SCREW that fastens the BOARD to the CARD RACK.

[12] Loosen the THUMBSCREW of the HOLD DOWN BRACKET.

[13] Remove the POWER DISTRIBUTION BOARD from slot 4 and the RS-422 COMM BOARD from slot 5.

Slot Assignment for MIM 50 (Multiple Inputs)

Slot	Type	Digital	Video
1	PCI	RS422 8-channel Comm Board	RS422 8-channel Comm Board
2	PCI	Secondary Digital Interface Board	Secondary Video 60 Board
3	PCI	Primary Digital Interface Board	Primary Video 60 Board
4	ISA	blank	blank
5	ISA	blank	blank
6	ISA	Modem (Domestic only) Blank (International)	Modem (Domestic only) Blank (International)

[14] Install the RS422 8-channel COMM BOARD in slot 1. Check that you install all the correct CABLES and FASTENERS.

Slot 2 remains the secondary interface for the VIDEO 60 BOARD or the DIGITAL INTERFACE BOARD and slot 3 remains the primary interface for the VIDEO 60 BOARD or the DIGITAL INTERFACE BOARD.

Note

Up to two input mono signals require a single VIDEO 60 BOARD. Digital signals require two boards.

[15] Energize the MIM.

[16] At the “MIM Service Application” window, select “Configure/Input/Direct Connect”. The “Configuration” window displays.

[17] Configure the MIM for the new interface.

[18] Go to Page 6-1 and do the procedure "Configuring the Input for the Video 60 Board" if needed.

[19] Go to Page 8-1 and do the procedure "Configuring the Digital Input" if needed.

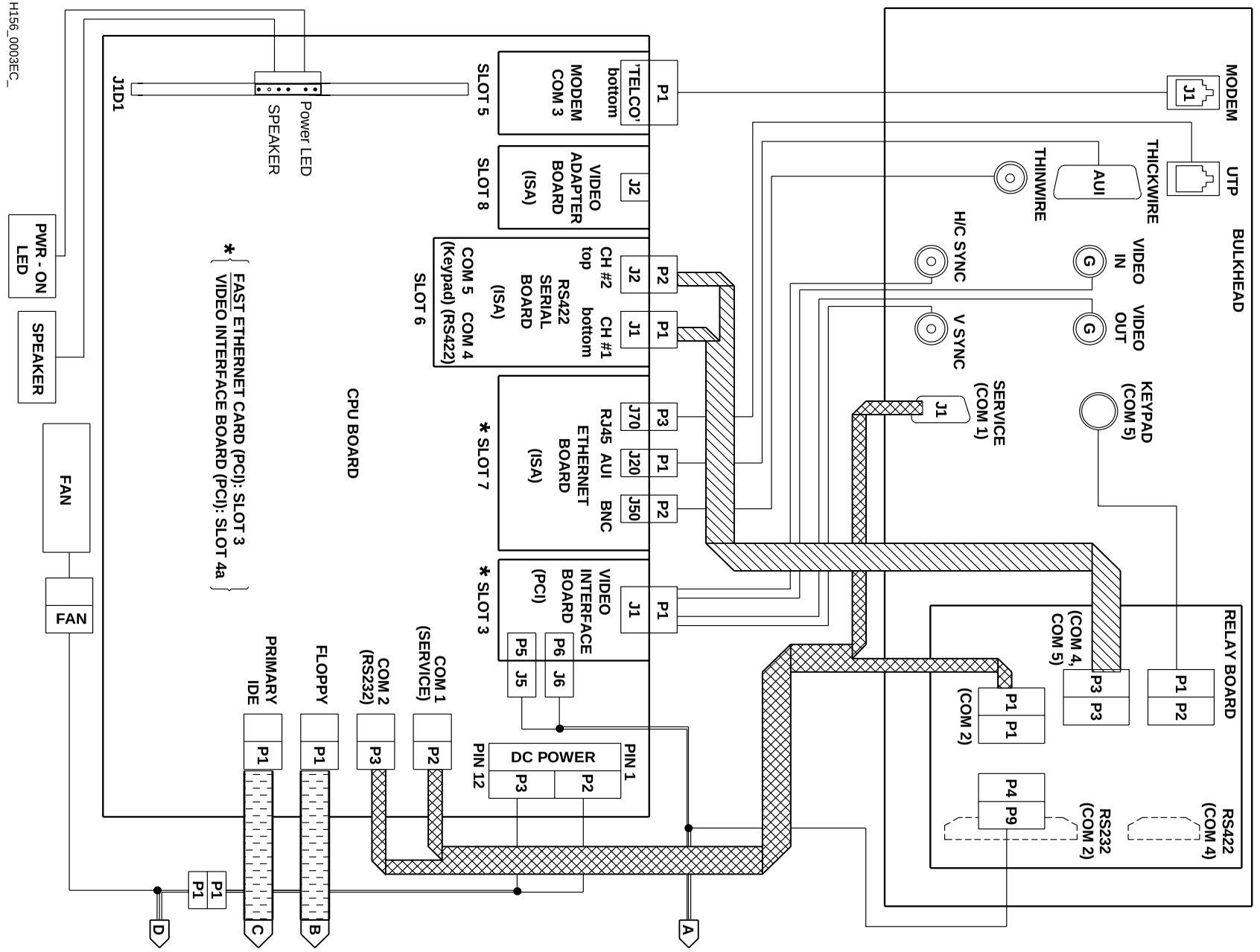
[20] Install the replacement VIDEO INTERFACE or DIGITAL INTERFACE BOARD. Check that you install all the correct CABLES and fasteners.

Note

The KEYPAD does not completely boot to the “Acquisition” screen since no input is present.

Section 17: Diagrams

Video Interface of the MIM 100: Internal Cabling



Video Interface of the MIM 100: Internal Cabling

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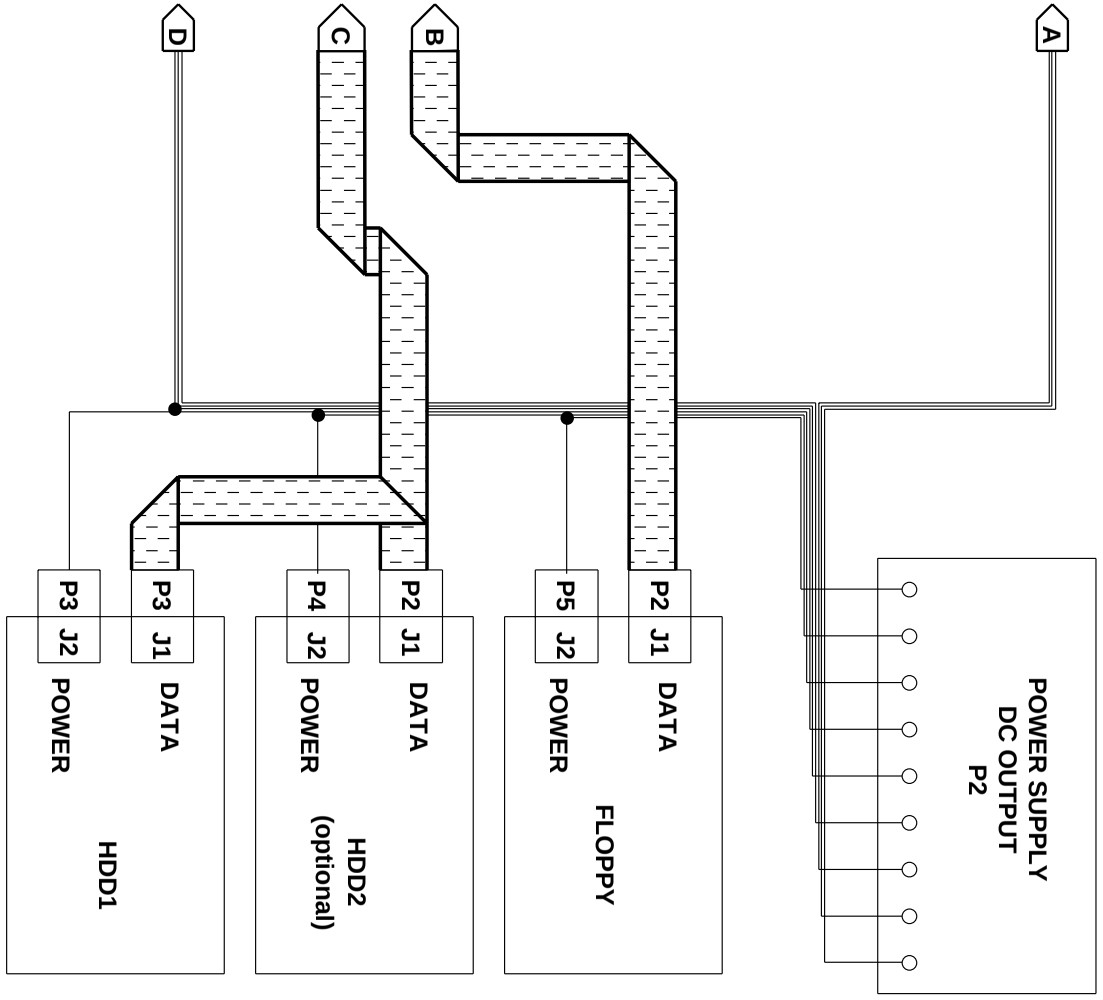
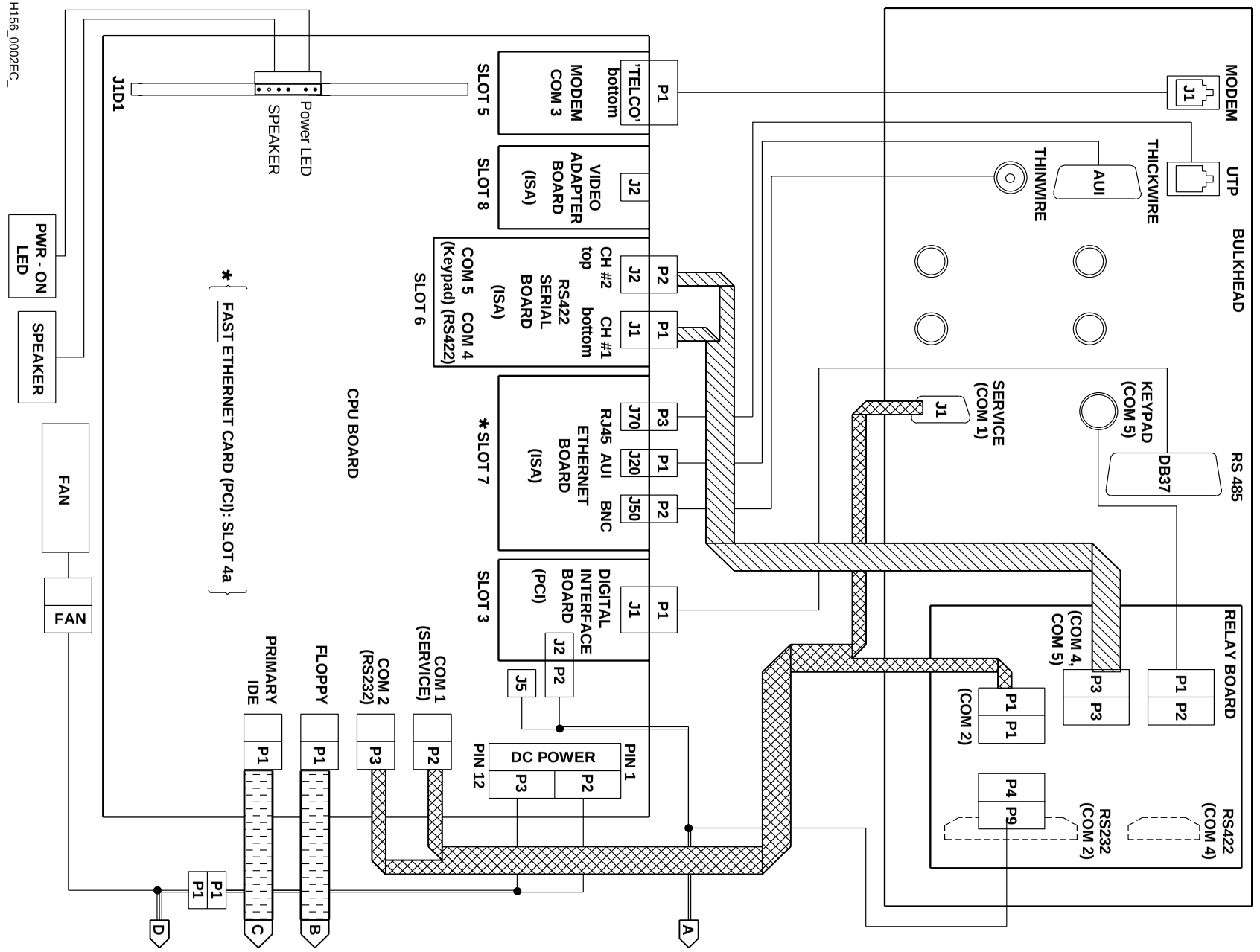
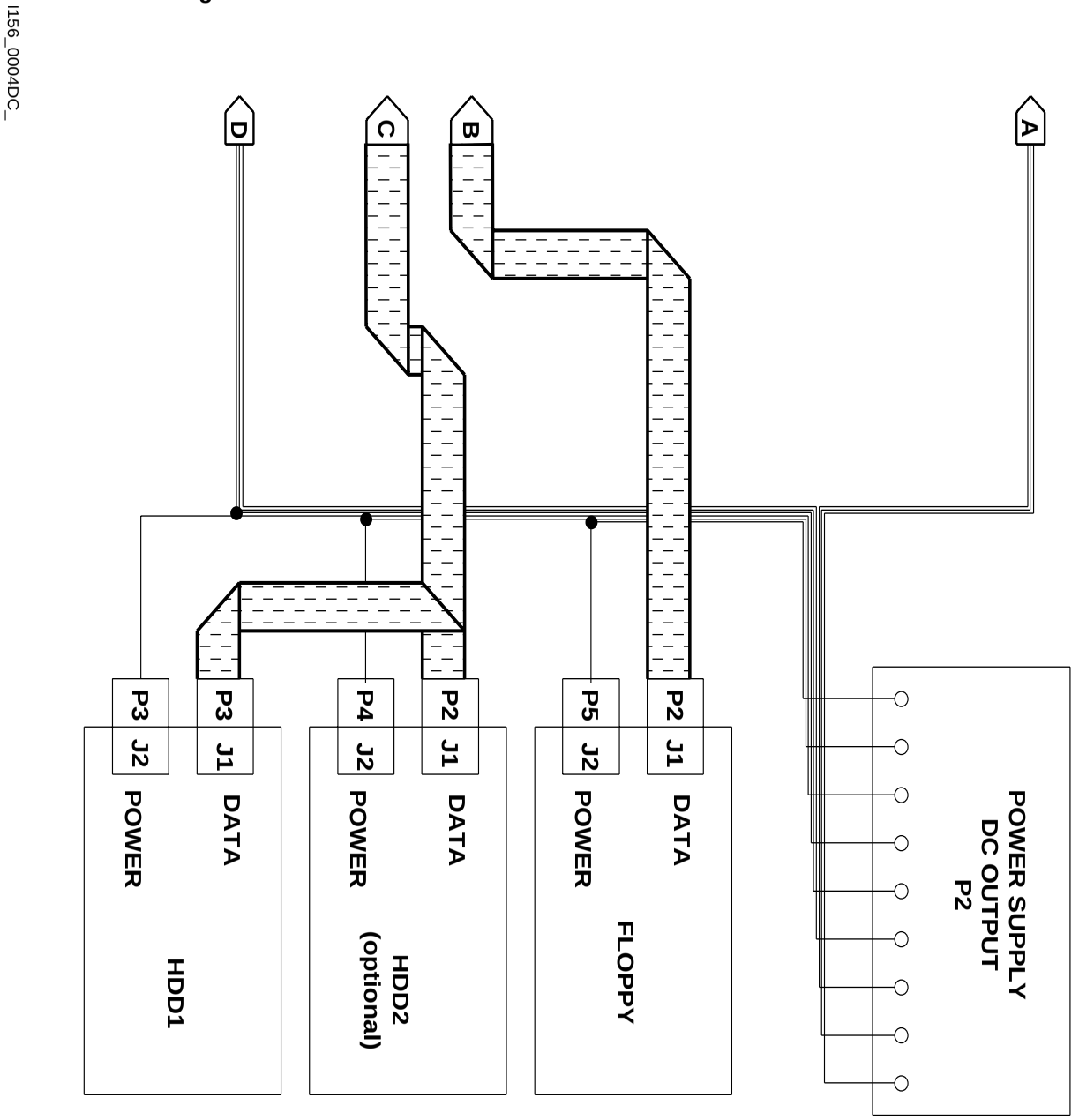


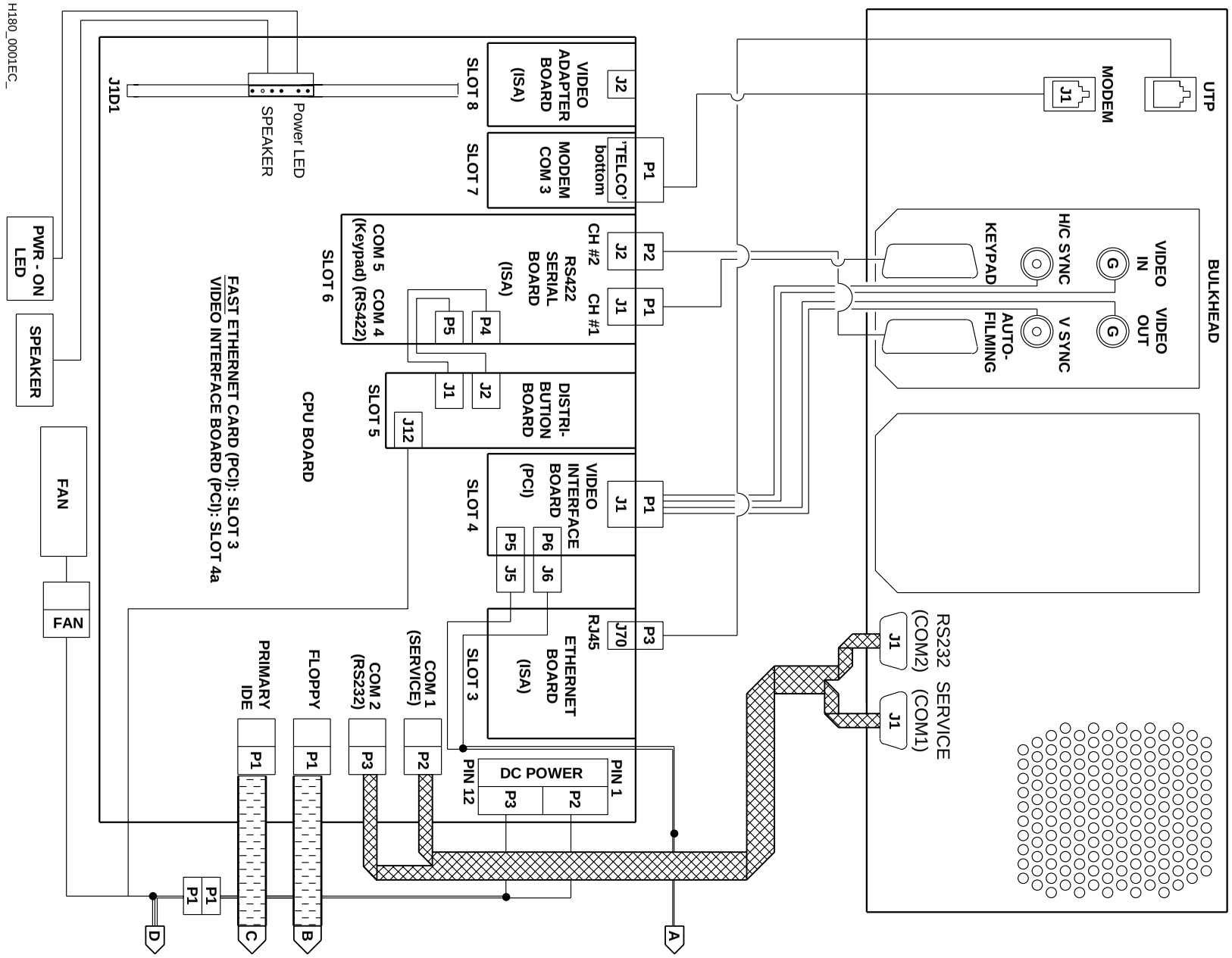
Digital Interface of the MIM 100: Internal Cabling



Digital Interface of the MIM 100: Internal Cabling

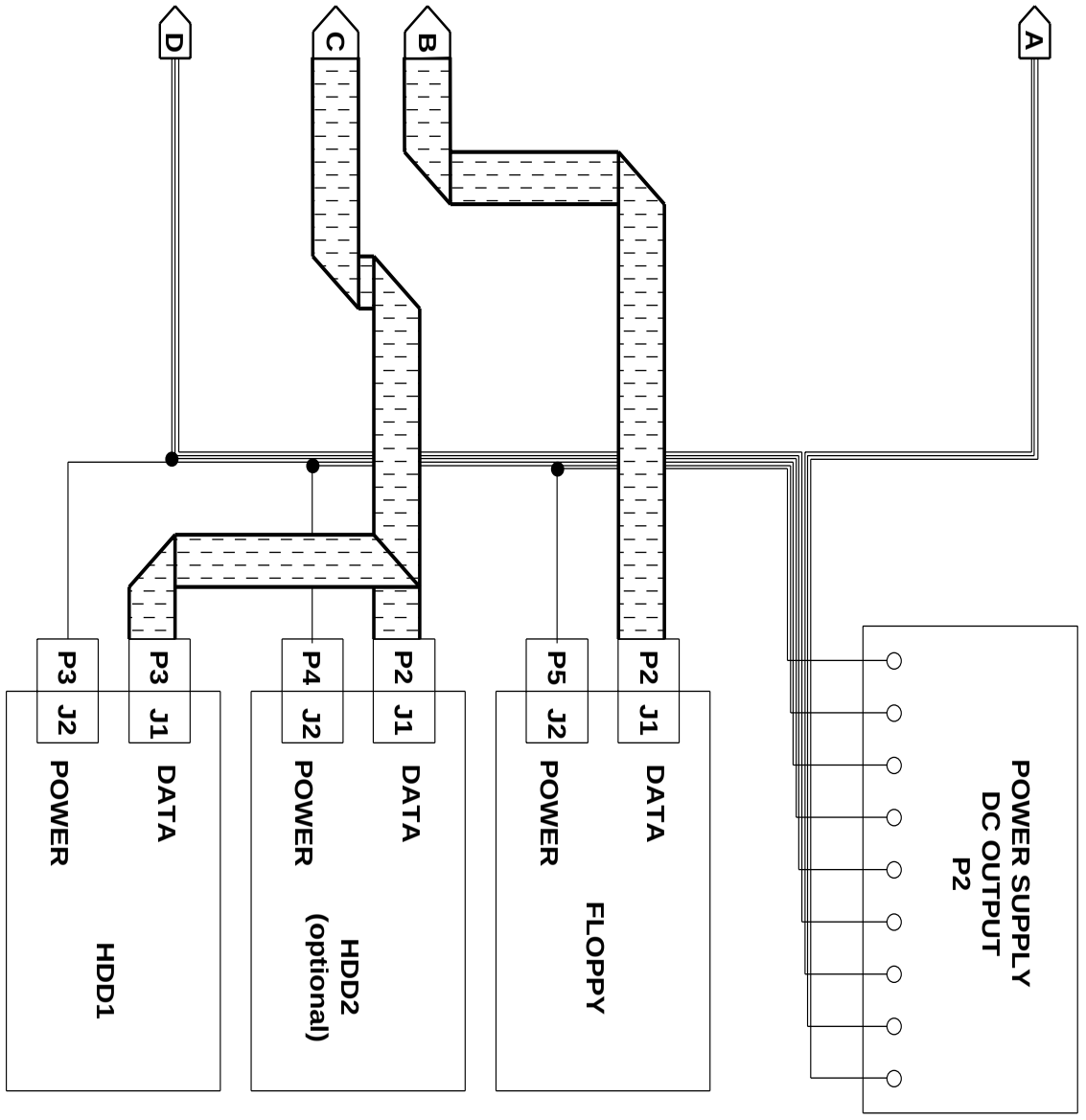


Video Interface of the MIM 100NR: Internal Cabling

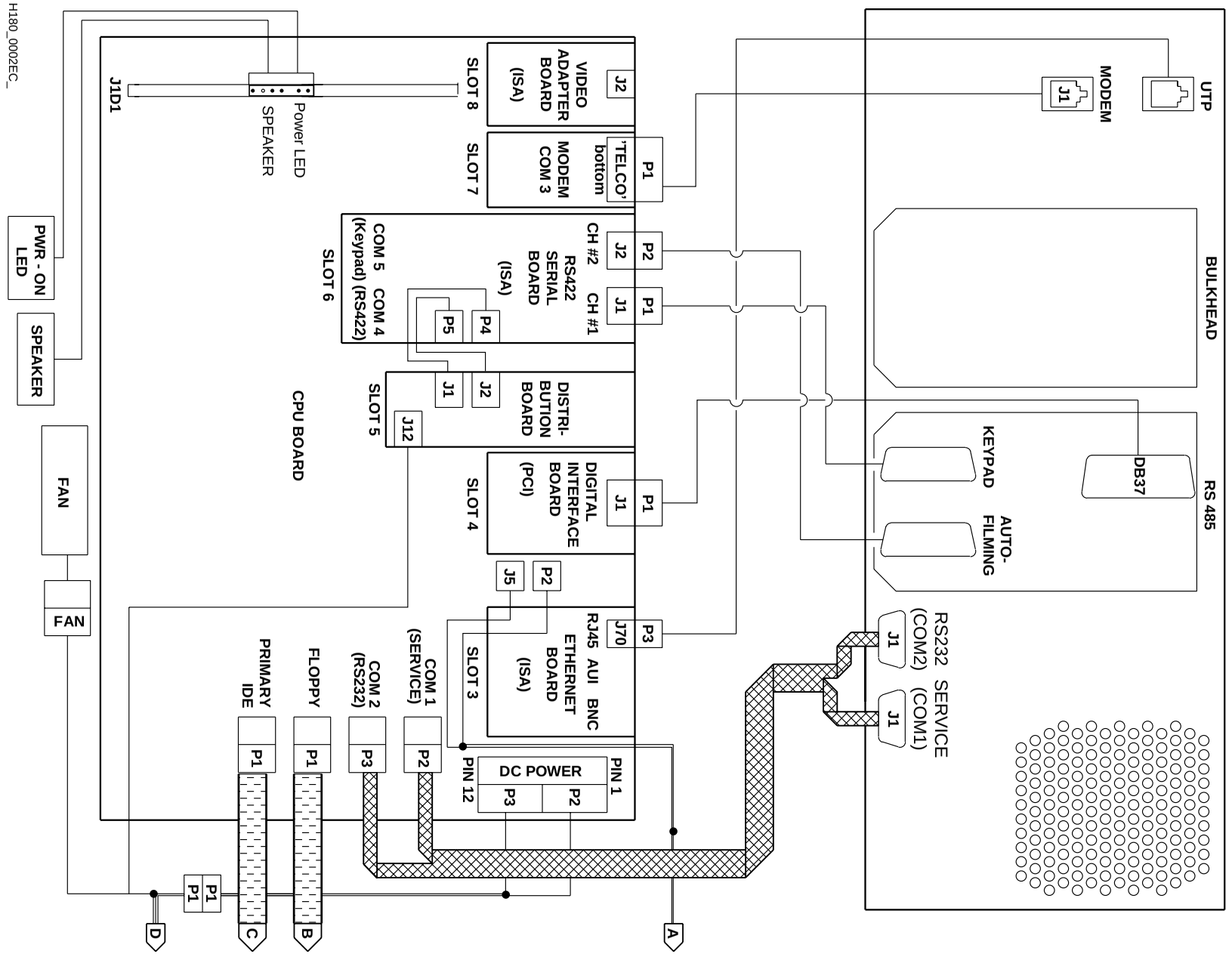


Video Interface of the MIM 100NR: Internal Cabling

H156_0004DC_

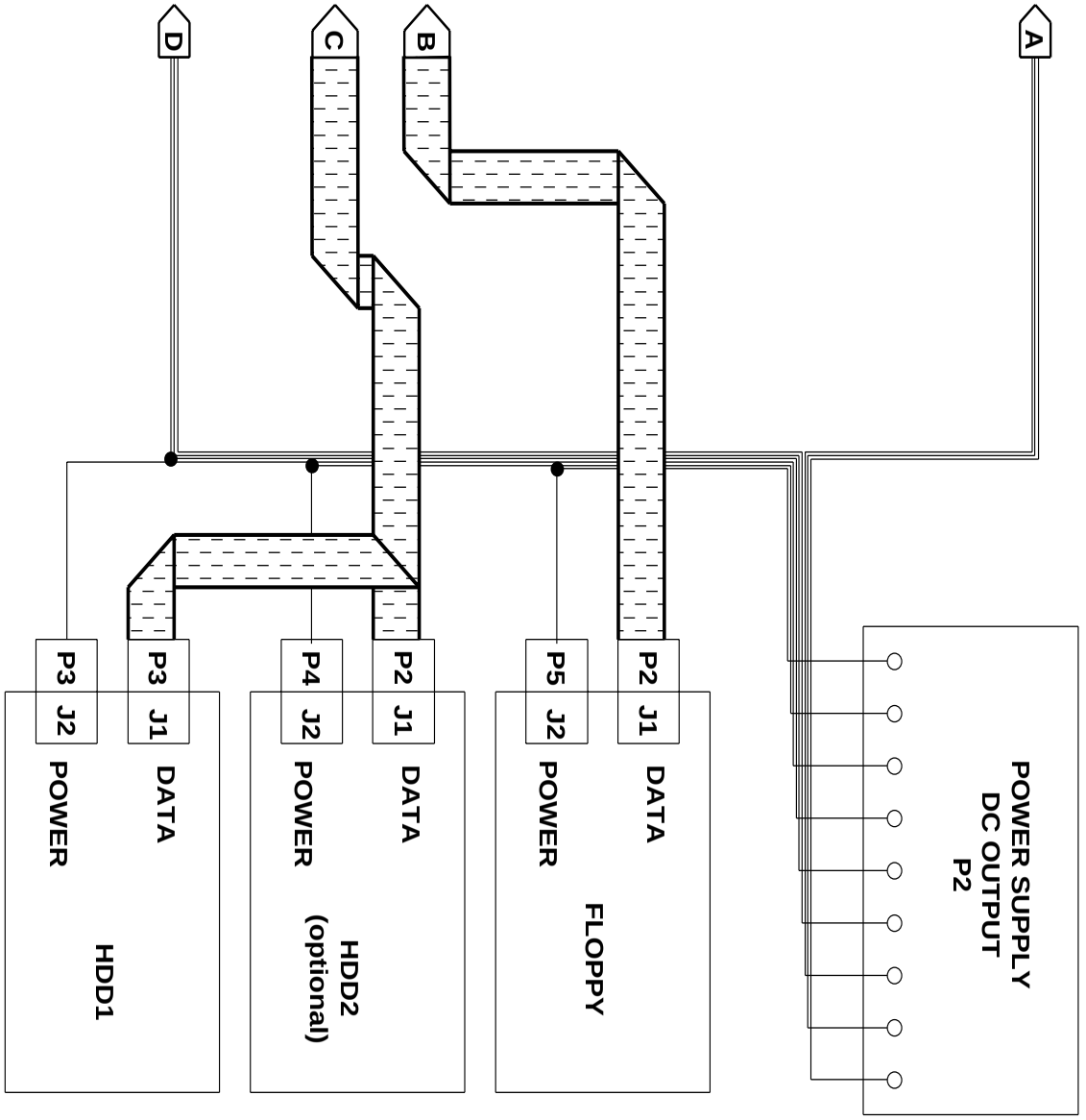


Digital Interface of the MIM 100NR: Internal Cabling

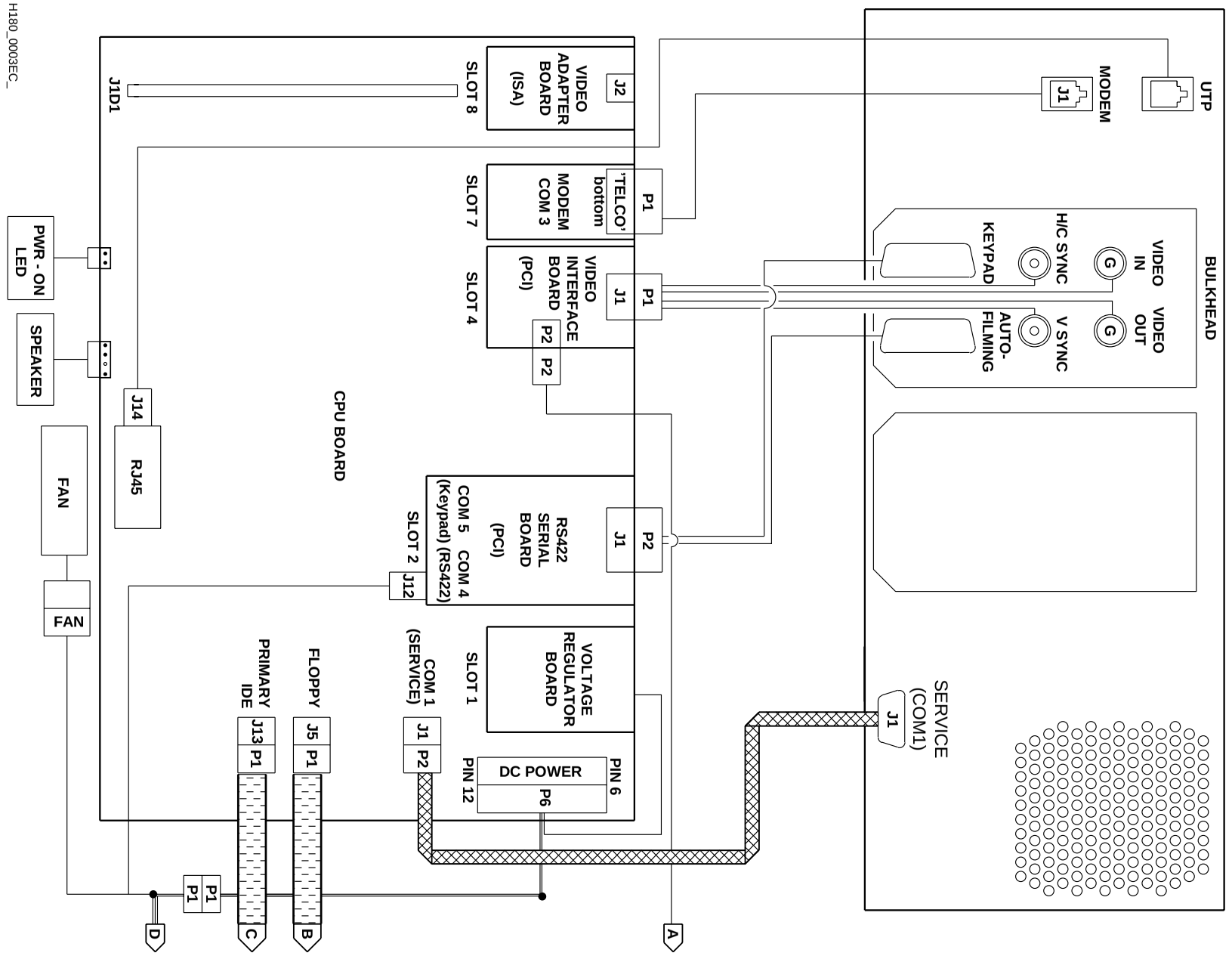


Digital Interface of the MIM 100: Internal Cabling

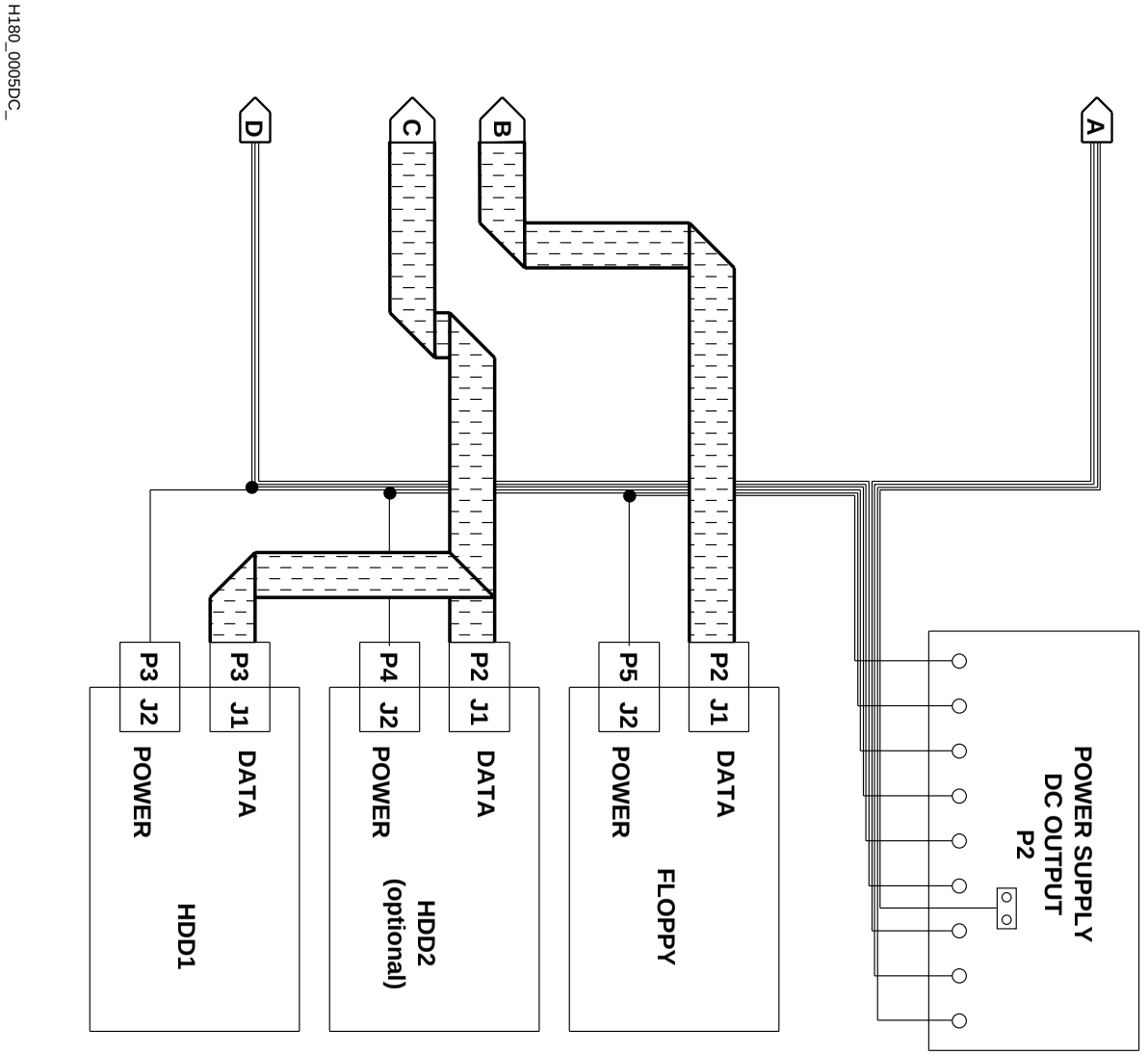
I156_0004DC_



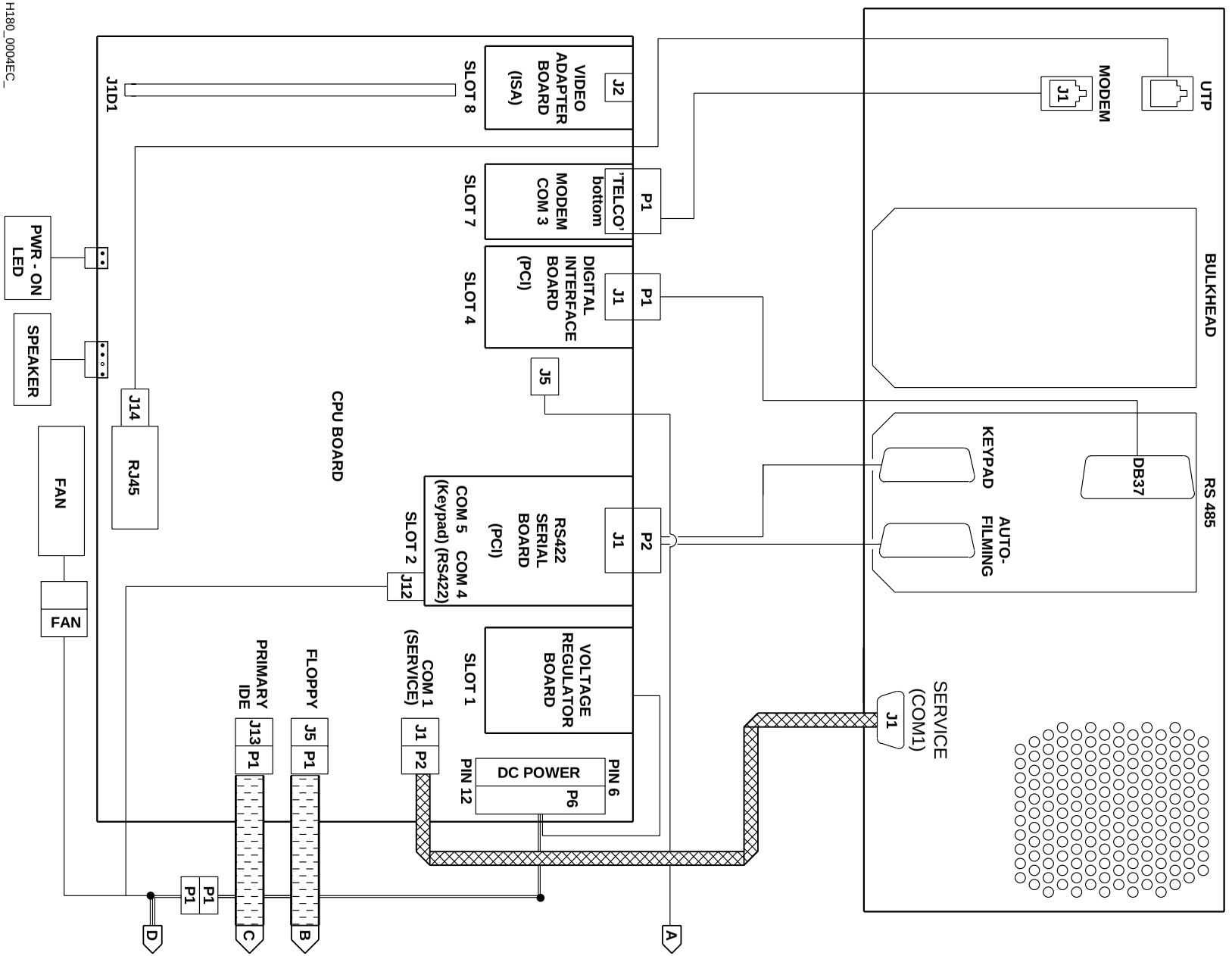
Video Interface of the MIM 100 with new CPU Board: Internal Cabling



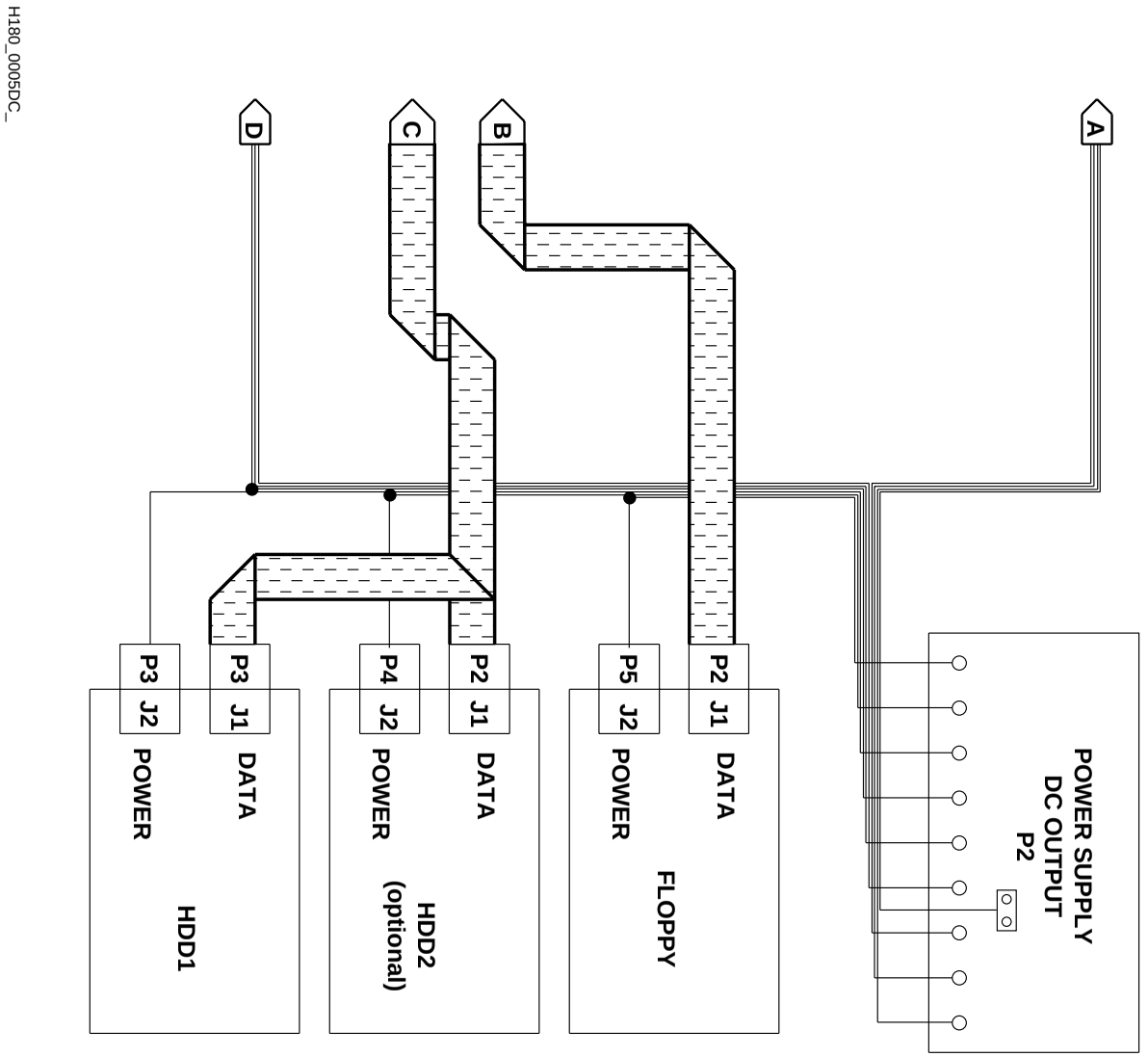
Video Interface of the MIM 100 with new CPU Board: Internal Cabling



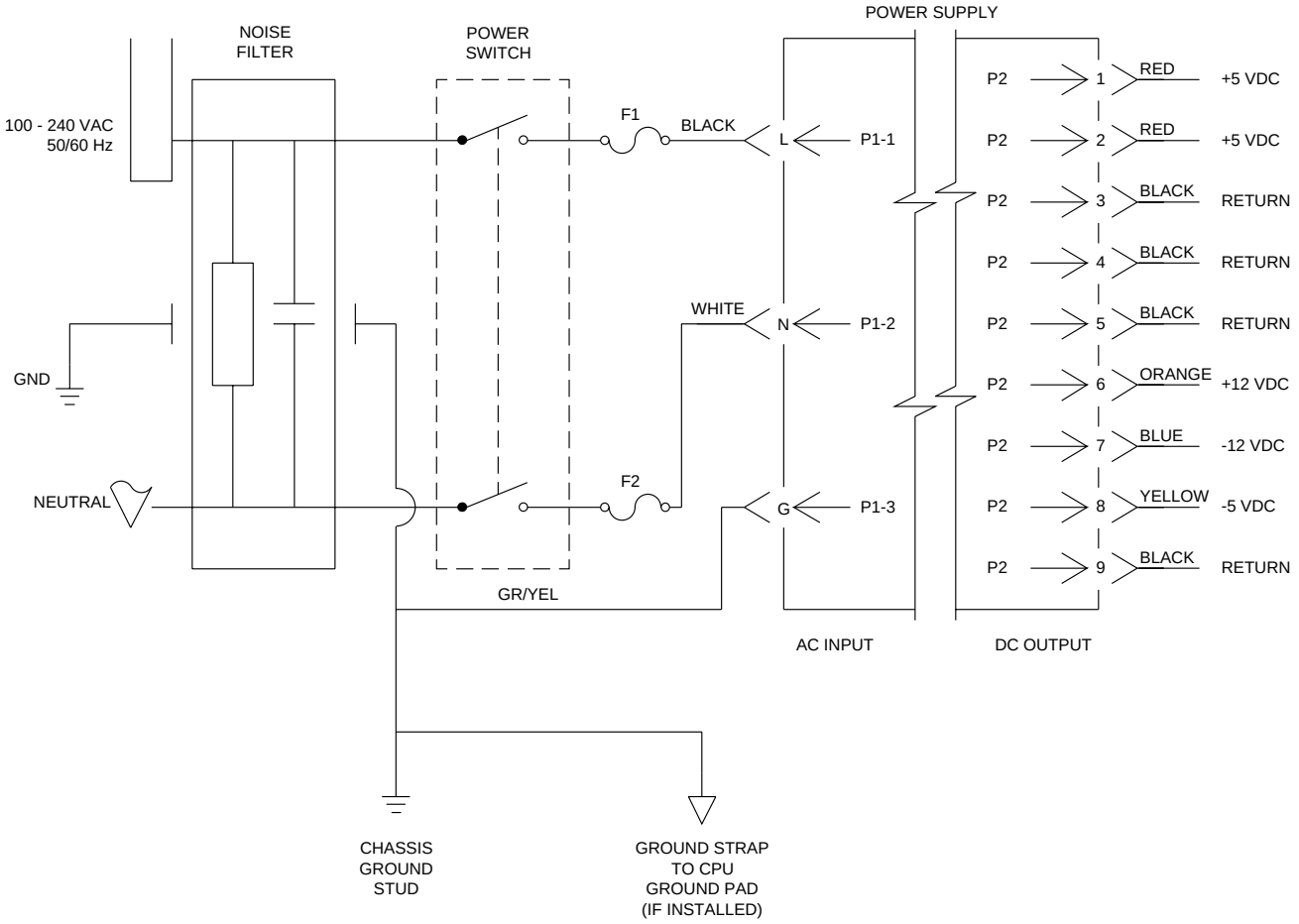
Digital Interface of the MIM 100 with new CPU Board: Internal Cabling



Digital Interface of the MIM 100 with new CPU Board: Internal Cabling



MIM 100: AC Power Input and DC Power Output

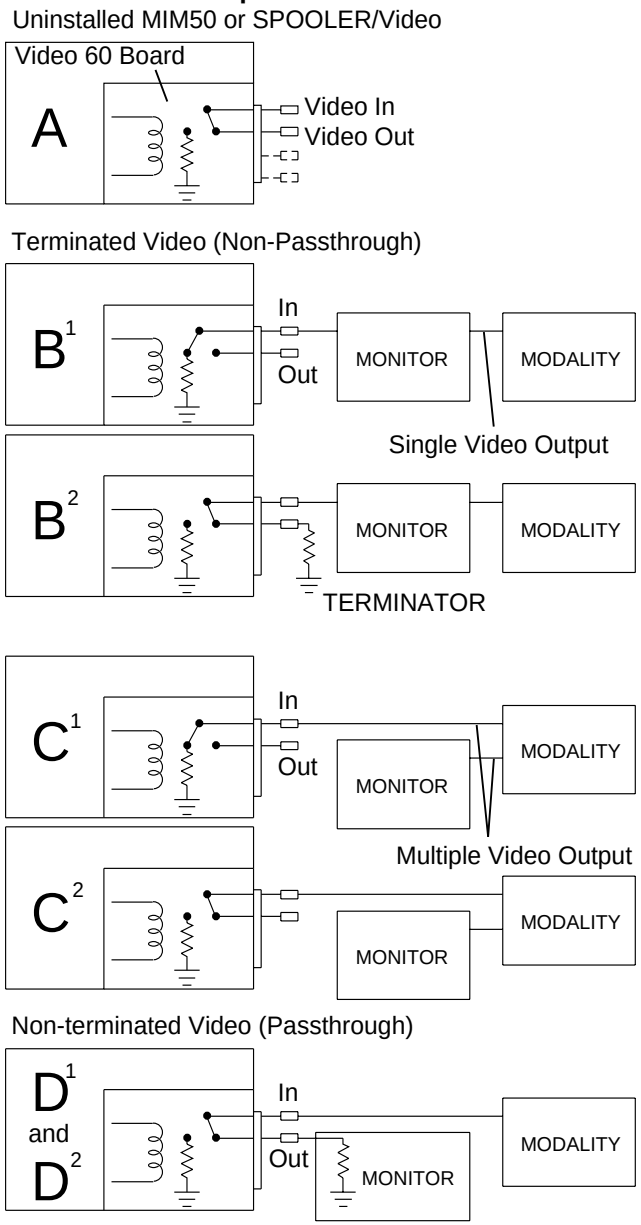


AC POWER INPUT & DC OUTPUT

NOTE: US & CAN. 3A SLOW BLOW
EUROPE 1.6A SLOW BLOW

H156_0001DC_

Terminate Video Input



H174_0065CC

Important

The diagrams at left indicate various states of the VIDEO 60 BOARD depending on the configuration of the MODALITY and MONITOR at the site.

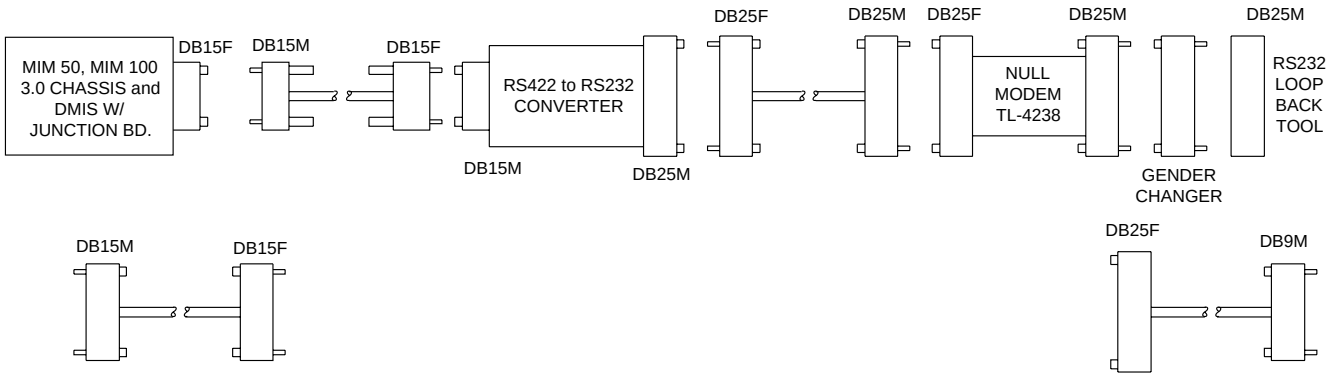
- **A**: Uninstalled MIM 50 or SPOOLER/Video
- **B**: Installed MIM 50 or SPOOLER/Video with terminated video (non-passthrough) for a MODALITY with a single video output. **The "Terminate Video Input" box (for monochrome) or boxes (for RGB) must be enabled before you select [Set Parameters] in the "Video Board Setup" menu.** A 75 Ohm TERMINATOR, which is not shipped with the product, must be installed when the MIM 50 or SPOOLER/Video is de-energized.
  - **B**^{1}: Energized
  - **B**^{2}: De-energized
- **C**: Installed MIM 50 or SPOOLER/Video with terminated video (non-passthrough) for a MODALITY with multiple video outputs:
  - **C**^{1}: Energized
  - **C**^{2}: De-energized
- **D:** Installed MIM 50 or SPOOLER/Video with non-terminated video (passthrough): Same for both the Energized and De-energized states.
  - **D**^{1}: Energized
  - **D**^{2}: De-energized

Note

For a description of the "Terminate Video Input" parameter:

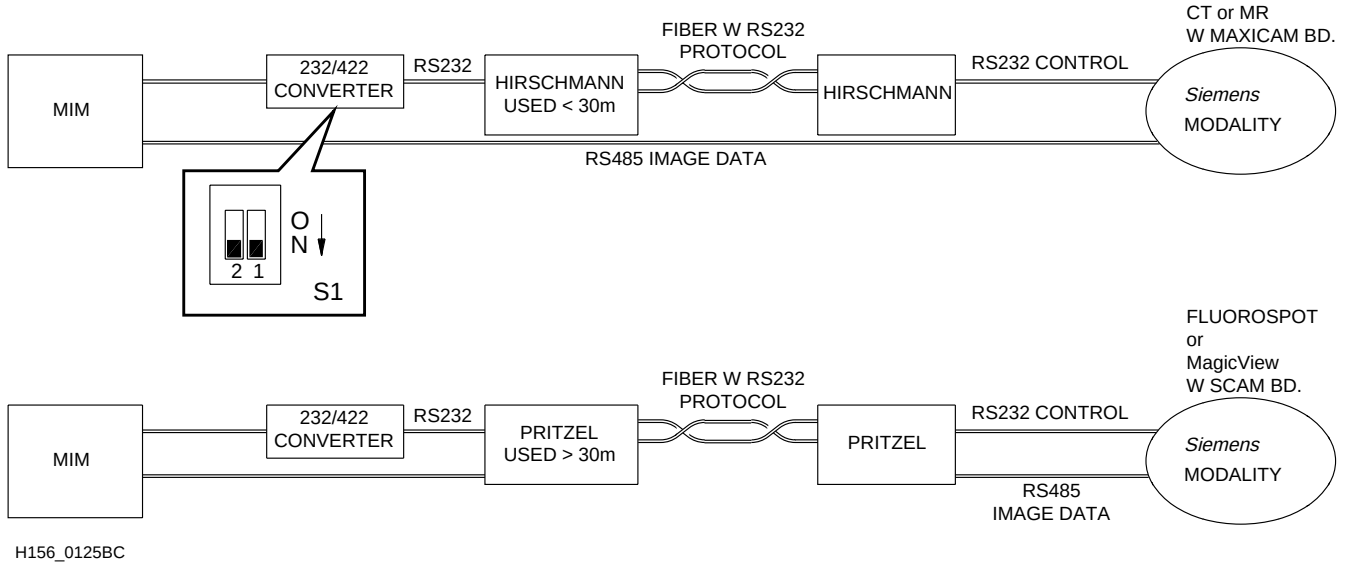
- See "Fields and [Buttons] in the "Video Board Setup" Windows" on Page 6–23. for the MIM 50.
- See "Fields and [Buttons] in the "Video Board Setup" Windows" on Page 6–31. for the SPOOLER/Video.

RS-232/RS-422 CONVERTER



H156_0124BC

Fiber optics with *Hirschmann* CONNECTOR for a *Seimens* MODALITY

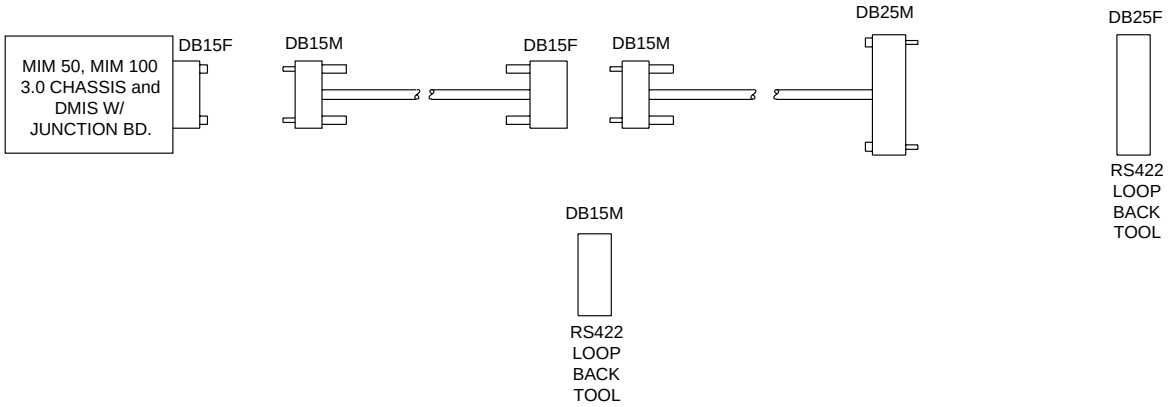


Important

The RS-232/RS-422 CONVERTER 2E4145 contains 2 DIP SWITCHES. To access the DIP SWITCHES, remove the COVER on the side of the CONVERTER that has the ACCESS HOLE.

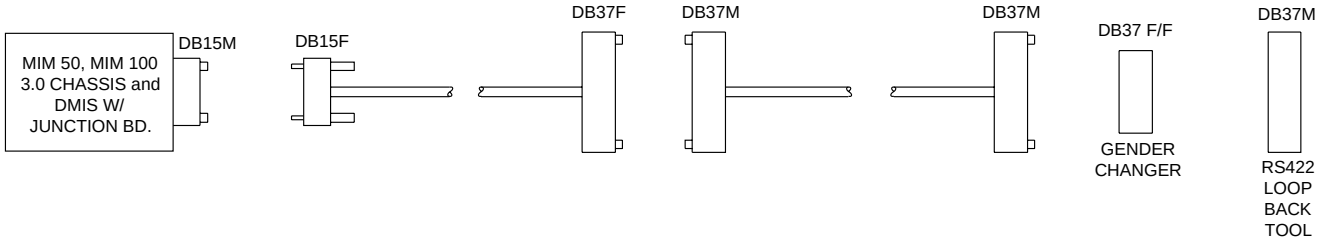
- For the *Hirschmann* CONNECTOR, the 2 DIP SWITCHES must be set to the "**ON**" position.
- For the *Pritzel* CONNECTOR, the 2 DIP SWITCHES might need to be set to specific postions, depending on the model of the *Pritzel* CONNECTOR.

CABLES for 952 Connections



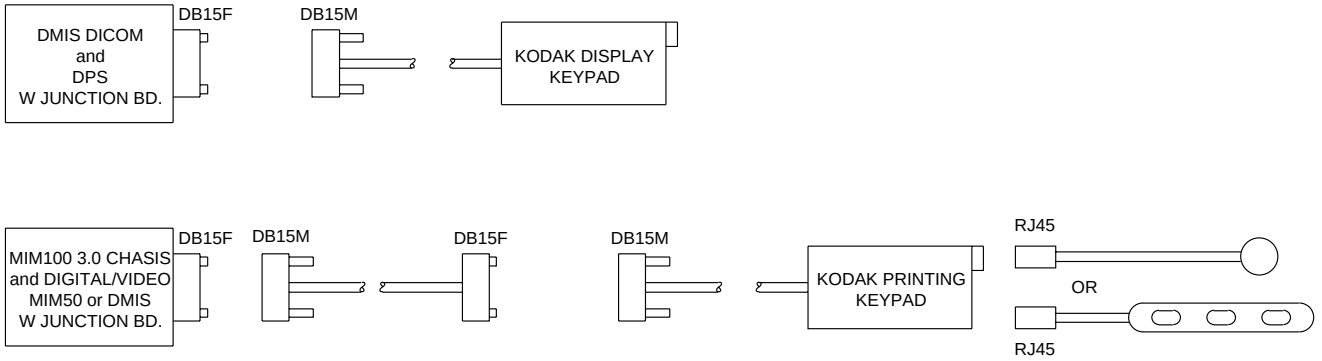
H156_0129BC

CABLES for 37 PIN RS-422 Connections



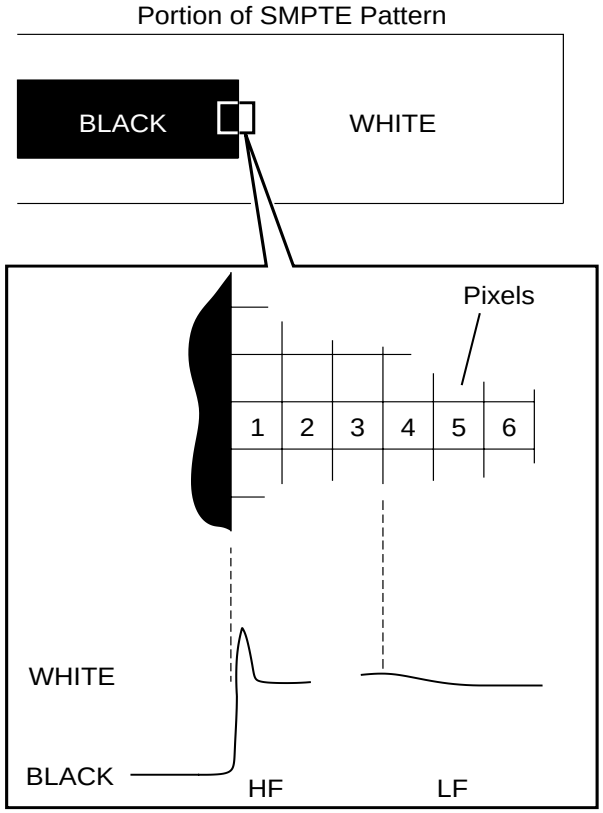
H156_0130BC

CABLES for Connections of the KEYPAD



H156_0131BC

HF and LF Cable Compensation Parameters



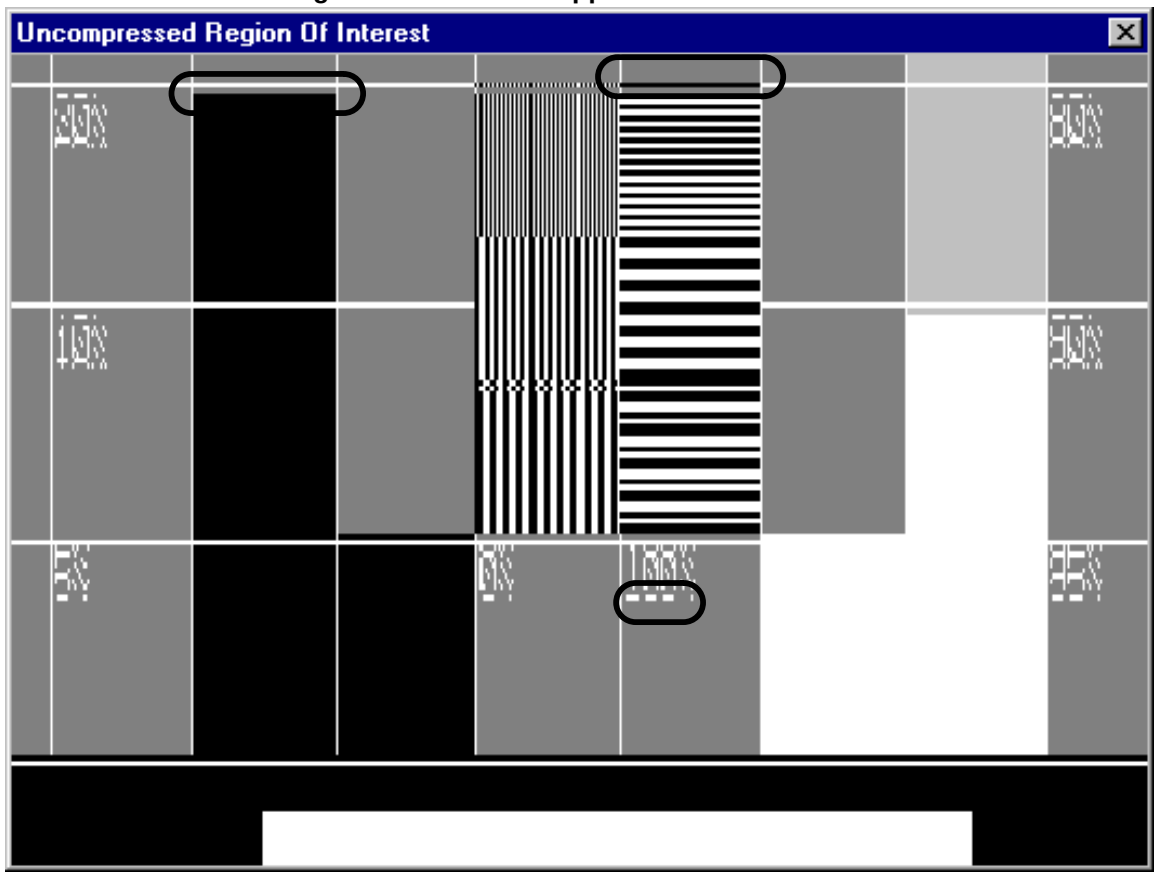
H174_0064GC

Important

The High Frequency (HF) repsonse occurs at the transition of BLACK and WHITE in the SMPTE. The Low Frequency response begins at Pixel 4. For more information on the HF and LF Cable Compensation parameters, which you enter in the “Gain and Offset Parameters” screen:

- See “Fields and [Buttons] in the “Video Gain and Offset Parameters” Window” on Page 6–26. for the MIM 50.
- See “Fields and [Buttons] in the “Video Gain and Offset Parameters” Window” on Page 6–37. for the SPOOLER/Video.

SMPTE Pattern Indicating Artifacts from Swapped Fields



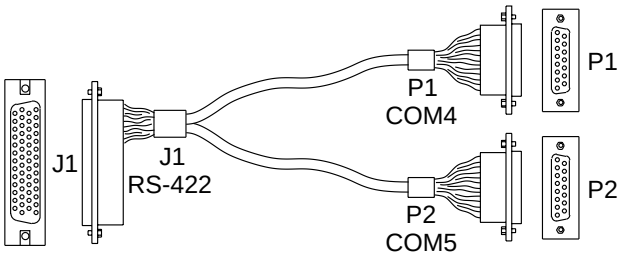
H174_0070HC

Important

The circled areas in the figure above indicate examples of the artifacts that occur when the “Swap Fields Option” parameter should be set to the opposite setting. For more information regarding the “Swap Fields Option”:

- See “Fields and [Buttons] in the “Vertical Parameters” Window” on Page 6–25. for the MIM 50;
- See “Fields and [Buttons] in the “Vertical Parameters” Window” on Page 6–36. for the SPOOLER/Video.

Checking the RS422 and Keypad Connector Pinnout List



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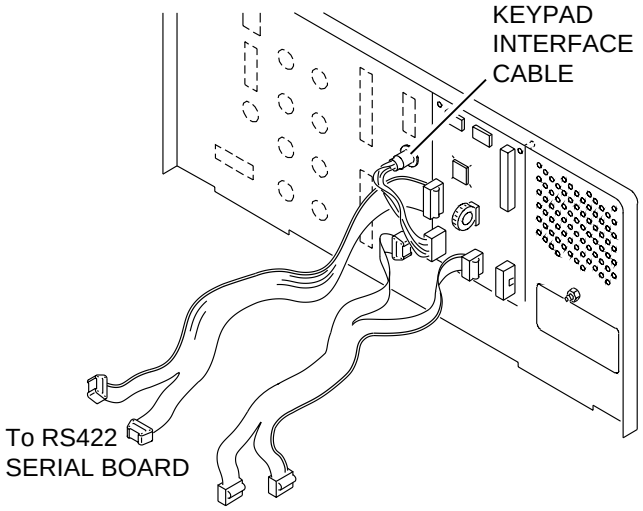
The following table shows the pinnout connection list for the internal RS422 CABLE. This CABLE is for the MIM 100 with the new CPU BOARD only.

Connection List		
From	**Signal Name**	**To**
J1-60	CTS+CH1	P1-01
J1-41	CTS-CH1	P1-10
J1-24	RXD+ CH1	P1-02
J1-43	RXD-CH1	P1-09
J1-01	+12V CH1	P1-03
J1-40	GND	P1-12
J1-23	TXD+ CH1	P1-04
J1-42	TXD- CH1	P1-11
J1-21	+12V CH1	P1-03
J1-02	GND	P1-13
J1-22	RTS+ CH1	P1-08
J1-03	RTS- CH1	P1-07
J1-61	GND	P1-08
J1-62	GND	P1-14
J1-04	GND	P1-15
J1-26	RXD+ CH2	P2-02
J1-45	RXD- CH2	P2-09
J1-05	+12V CH2	P2-03
J1-63	GND	P2-12
J1-25	TBX+ CH2	P2-04
J1-44	TXD- CH2	P2-11
J1-05	+12V CH2	P2-05
J1-64	GND	P2-06
J1-65	GND	P2-13
J1-07	GND	P2-14
J1-46	GND	P2-15

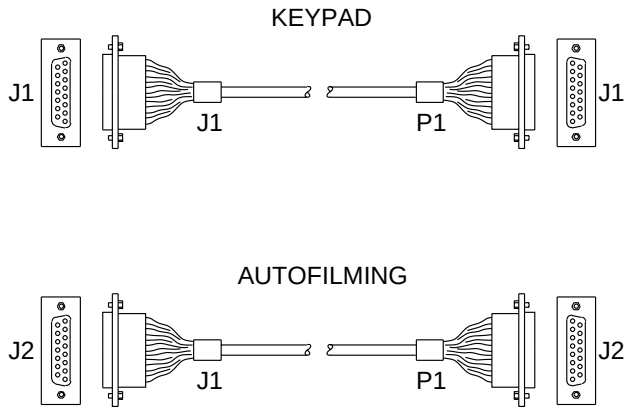
Checking the Connector Pinout List for the Keypad Interface Cable on the Bulkhead with the Relay Board



The following table shows the connector pinout list for the KEYPAD INTEFACE CABLE. This CABLE is for the MIM 100 with the bulkhead with the RELAY BOARD. See the KEYPAD INTEFACE CABLE in the graphic below.

Connection List			
From	**To**	**Description**	**AWG**
J1-5	P1-6	RXD+	24 AWG
J1-6	P1-7	TXD-	24 AWG
J1-7	P1-8	RXD-	24 AWG
J1-8	P1-5	TXD+	24 AWG
J1-9	E1	RXD SHIELD	24 AWG
J1-10	E1	TXD SHIELD	24 AWG
J1-11	P1-9	+15 VDC	22 AWG
J1-14	P1-12	GND	22 AWG
J1-12	P1-10	+15 VDC	22 AWG
J1-15	P1-13	GND	22 AWG
J1-13	P1-11	+15 VDC	22 AWG
J1-16	P1-14	GND	22 AWG

Checking the Connector Pinout List for the RS422 DB15M/DB15F Cable on the Bulkhead with no Relay Board (NR)



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The following table shows the connector pinout list for the RS422 DB15M/ DB15F CABLES. These CABLES are for the MIM 100 with the bulkhead with no RELAY BOARD. See the KEYPAD CABLE and the AUTOFILMING CABLE in the graphic below.

Connection List			
From	**To**	**Description**	**Length**
J1-1	P1-1	CTS+	9.5 in.
J1-10	P1-10	CTS-	9.5 in.
J1-2	P1-2	RXD+	9.5 in.
J1-9	P1-9	RXD-	9.5 in.
J1-3	P1-3	+12V	9.5 in.
J1-12	P1-12	GND	9.5 in.
J1-4	P1-4	TXD+	9.5 in.
J1-11	P1-11	TXD-	9.5 in.
J1-5	P1-5	+12 VDC	9.5 in.
J1-13	P1-13	GND	9.5 in.
J1-6	P1-6	RTS+	9.5 in.
J1-7	P1-7	RTS-	9.5 in.
J1-8	P1-8	GND	9.5 in.
J1-14	P1-14	GND	9.5 in.
J1-15	P1-15	GND	9.5 in.

Section 18: Theory Guide

Important

For more information, see:

- Glossary in the SITE SPECIFICATIONS, No. 8B8180
- Help file for the MIM

Overview

The MIM is a PC-based device that captures images from Modalities through a video or a digital interface. The MIM sends a digital signal to a DICOM compatible destination such as the MEDICAL LASER PRINTER 190 or the DICOM PRINT SPOOLER. See the SITE SPECIFICATIONS, No. 8B8180 for more information on system configurations. The MIM can support either the KEYPAD Mode or the Autofilming Mode. In the Autofilming mode, the operator sends commands from the console of the modality through a Host Control Link (HCL) to the MIM.

DICOM

The DIgital COmmunications in Medicine (DICOM) standard is a detailed specification that describes the format and protocol for sending and receiving digital imagery and text between imaging devices and destinations, for example, LASER PRINTERS and archival systems. Imaging devices include CT, MR, Nuclear Medicine, and Ultrasound. DICOM also addresses Computed Radiography, digitized film, video capture, HIS/RIS data, and connections for networked hardcopy devices. DICOM is the result of a joint effort of users of the standard and the companies that manufacture medical imaging devices.

Operating System (OS)

Windows NT operates efficiently on networks, is commercially available, and is relatively inexpensive. Because no interface exists on the MIM for *Windows NT*, service personnel do not need to understand how to navigate through or configure *Windows NT*.

***Pentium* PROCESSOR: MIM 100 and MIM 100NR only**

The MIM is based on an *AT* CPU BOARD with an *AMI* BIOS, and an *Intel Pentium* 120 MHz PROCESSOR. The 120 MHz speed is sufficient for the MIM, which is a single-input device only.

***AMI* BIOS**

The Basic Input-Output System (BIOS) is the initial boot program for the COMPUTER.

Memory

The CPU BOARD contains 32 megabytes of RAM.

HARD DRIVE New

The MIM contains a 1.7 gigabyte (GB) HARD DRIVE. The HARD DRIVE is separated into 4 partitions: C:, D:, E:, F:. The “C:” partition (2 GB) is reserved for image data storage. A 1k x 1k image in a 12-up format uses about 12 megabytes (MB). One gigabyte is sufficient space for about 83 pages of 12-up format.

The “D:” partition (500 MB) contains the *Windows NT* Operating System (191.4 MB) and the application software (9 MB) of the MIM. The “E:” partition (400 MB) contains the “Pages” file. This partition temporarily stores data that the OS transfers in or out of RAM. The “F:” partition (100 MB) contains the “Error Log” and “Activity Log” files.

Disk Management provides automatic deletion of the oldest saved image files when the HARD DRIVE becomes 75% full. This 75% mark is named the “High Water Mark.” When enough images files are deleted so that the hard drive is 50% full, the software stops deleting files. This 50% mark is named the “Low Water Mark.” The user can protect files from automatic deletion. Do not adjust the High and Low Water Marks unless you are instructed to do so by the TSC.

Service Parts Management stocks the HARD DRIVE with *Windows NT* installed.

FLOPPY DRIVE

The MIM contains a FLOPPY DRIVE that is used to save the configuration on a DISKETTE, which must always remain in the DRIVE. Service personnel must always save the configuration to this DISKETTE.

CIRCUIT BOARDS

See Section 17 “Diagrams” for the location and connections of CIRCUIT BOARDS in the MIM 100.

VIDEO INTERFACE BOARD

Overview: See Figure .

The video modality sends analog images through a double-shielded VIDEO COAX CABLE to the input of the VIDEO INTERFACE BOARD. The VIDEO INTERFACE BOARD contains 2 other DAUGHTER BOARDS: the GAIN DAUGHTER BOARD, and the PHASE LOCK LOOP (PLL) DAUGHTER BOARD. The VIDEO INTERFACE BOARD has 4 video inputs.

GAIN DAUGHTER BOARD:

The PROGRAMMABLE TERMINATION and INPUT BUFFERS make each of the 4 input lines available as outputs that can be connected to an external MONITOR through the VIDEO MUX. The PROGRAMMABLE GAIN AMPLIFIERS circuit enables the amplitude of the signal to be increased or decreased by a software setting. The VIDEO MUX multiplexes the 4 inputs to route one of the 4 signals to both the Analog-to-Digital Converter (A/D) and the Pixel Clock Generator sections. The MIM uses channel one only. A future model of the MIM will use all 4 channels. The PROGRAMMABLE OFFSET circuit sets the minimum black (pixel values near zero counts) and the GAIN circuit sets the maximum white (pixel values near the 255 counts). The A/D CONVERTER converts the analog data of the video signal to 8-bit data.

VIDEO INTERFACE BOARD:

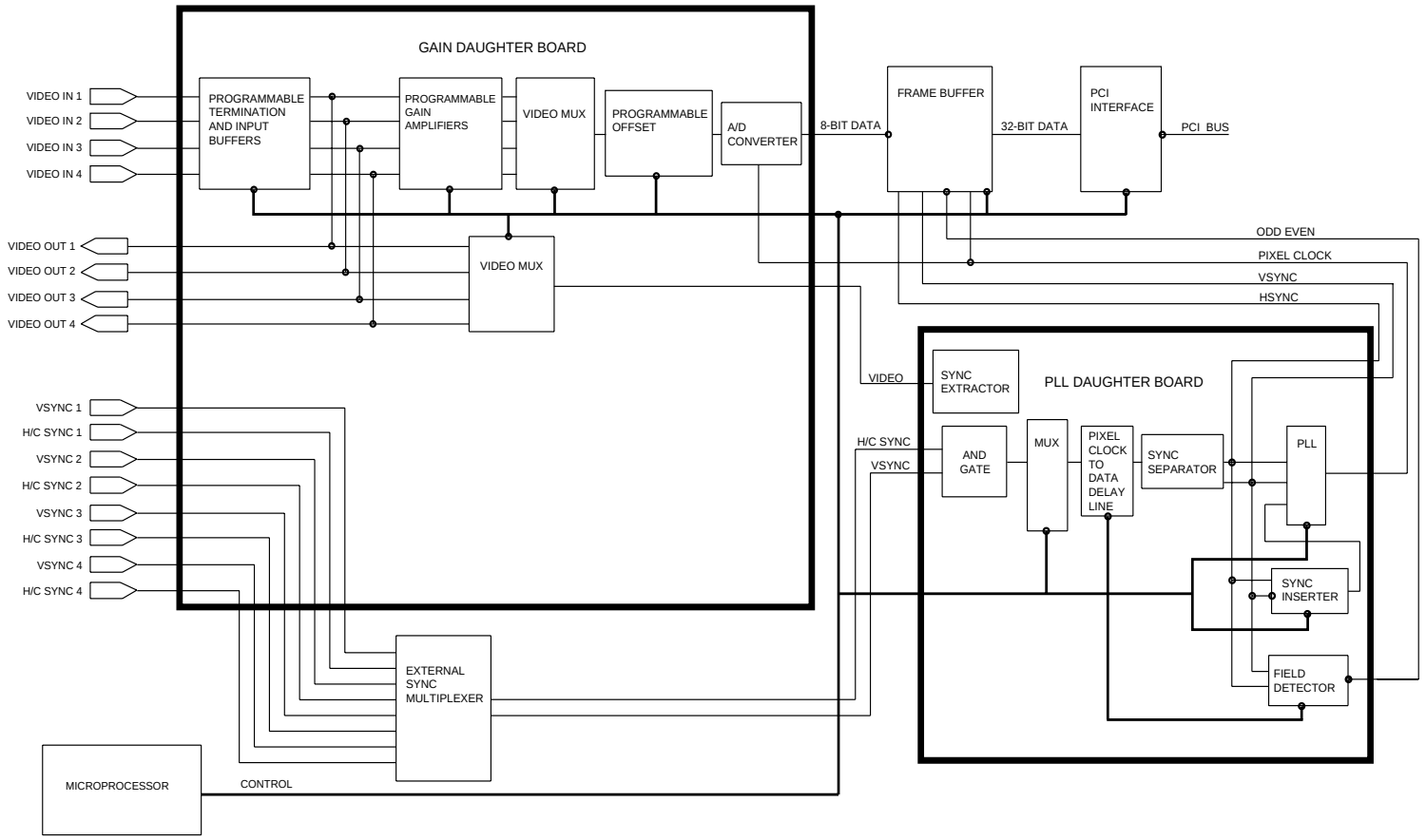
The FRAME BUFFER receives 8-bit data from the A/D CONVERTER and stores the data in 2 32-bit wide Memory Buffers. For interlaced images, each field is stored in a separate memory bank. For non-interlaced images, the data is stored as one contiguous data group. The FRAME BUFFER uses programmable counters to determine when to start and stop storing data in memory. Vertical Counters count the number of lines in the image; horizontal counters count the number of pixels in the horizontal direction. The FRAME BUFFER also uses counters when it transfers data to the PCI BUS. These counters enable data from interlaced images to be converted to non-interlaced images. Software calculates the values for the counters. The PCI BUS transfers the data to the HARD DRIVE of the MIM. The *Intel* MICROPROCESSOR is an 8-bit device, operating at 33 MHz. This MICROPROCESSOR controls the programmable devices and multiplexing. The host CPU transmits commands to this MICROPROCESSOR through the PCI Bus. The VIDEO INTERFACE BOARD has 2 inputs per channel for either external Composite Sync or external Vsync and Hsync. The EXTERNAL SYNC MULTIPLEXER multiplexes these external sync signals for the 4 channels, routing one set of sync signals to the PLL DAUGHTER BOARD.

PLL DAUGHTER BOARD:

The PHASE LOCK LOOP (PLL) DAUGHTER BOARD generates the Pixel Clock signal. This signal clocks the A/D Converter and operates counters in the FRAME BUFFER. The Pixel Clock Generator Section extracts the vertical and horizontal sync (Vsync and Hsync) information from the video signal and uses a Phase-Lock Loop (PLL) circuit to generate the Pixel Clock. The Pixel Clock has the same frequency as the frequency of the video pixel data. The PIXEL CLOCK to DATA DELAY LINE is a programmable delay line that allows the phase between the Pixel Clock and the video pixel data to be varied.

VIDEO 150 BOARD

VIDEO INTERFACE BOARD for the MEDICAL IMAGE MANAGER 100



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DIGITAL INTERFACE BOARD The digital modality sends digital imagery through a 37-pin digital CABLE (RS485) to the high speed DIGITAL INTERFACE BOARD. The MIM then sends the digital data using DICOM to the appointed destination. More information will be included in the final version of the software “Help” files.

Section 19: Instructing the Operator and Key Operator

Introduction

After the FE installs the MIM he will be responsible for delivering instructions to the customer's operators and key operator. Use the attached Proficiency Checklist to ensure that you review all necessary topics with the customer.

Objectives

At the conclusion of the first 4 Modules, the Operator will be able to perform the following tasks:

- Discuss what the MIM is and some of its benefits and features.
- Identify components of the MIM.
- Energize the MIM, start and shut down the application, and de-energize the MIM.
- Operate the KEYPAD.
- Understand when to use the main screens of the KEYPAD.
- Choose a profile.
- Adjust imaging options.
- Store and print images.
- Manage image transfer.
- Create or edit a profile.

At the conclusion of the first 6 Modules, the Key Operator will be able to perform all of the above Operator tasks in addition to the following tasks:

- Adjust Tone Scaling.
- Maintain the MIM.
- Back up the configuration.
- Set the system time.
- Troubleshoot simple problems and obtain service, if necessary.
- Clean the KEYPAD and FILTER.

Training Modules

Total training time divided between lecture and hands-on:

- Basic Operator - 60 minutes
- Key Operator - 90 minutes

Module	Duration	User's Manual	Key/Basic Operator
1. Overview: • Overview of the User's Manual – Chapter Layout – Appendices • What is the MIM? – Introducing the MIM – Benefits and Features • Components – System Configuration – Computer – Keypad – Footswitch or Mini Keypad – Bulkhead – Power Switch and Cord – Power On LED – Fan	5 minutes	Table of Contents Appendices Ch.1	Basic Operator / Key Operator
2. Basic Operations • Turning on the MIM • Shutting Down the MIM • Using the Keypad • Selecting and Entering Information • Overview of the Main Screens • Setting System Preferences	20 minutes	Ch. 2. Ch. 3	Basic Operator / Key Operator

Module	Duration	User's Manual	Key/Basic Operator
3. Working with Images: • Choosing a Profile • Adjusting Imaging Options • Storing Images • Deleting Images and Pages • Printing the Page • Managing Image Transfer	25 minutes	Ch. 4	Basic Operator / Key Operator
4. Creating and Managing Profiles: • Understanding Profiles • Planning Profiles • Viewing Profiles • Creating Profiles • Editing Profiles • Renaming Profiles • Deleting Profiles	10 minutes	Ch. 5	Basic Operator / Key Operator
5. Tone Scaling: • Overview • Tone Scaling Options • Selecting Tone Scaling Options • Adjusting Tone Scaling Options	15 minutes	Ch. 6	Key Operator
6. Maintaining the MIM • Backing Up the Configuration • Setting the System Time • Troubleshooting – Viewing System Information – Viewing Error Logs – Sending Test Images • Care and Maintenance – Cleaning the Keypad – Removing and cleaning the filter	15 minutes	Ch. 7	Key Operator

Proficiency Checklist for the MIM

Overview	
❑	Identify Components

Basic Operations	
❑	Turning On/Shutting Down
❑	Selecting and Entering Information using the keypad
❑	Use of Screens: Acquisition, Main, Imaging Options, and Manage Profiles
❑	Set System Preferences

Working with Images	
❑	Choose a profile
❑	Adjust imaging options
❑	Store images
❑	Delete images and pages
❑	Print the page
❑	Manage image transfer

Creating and Managing Profiles	
❑	Plan the profile
❑	View the profile
❑	Create the profile
❑	Edit and Rename the profile
❑	Delete the profile

Tone Scaling (Key Operator)	
❑	Tone Scaling options
❑	Select the Tone Scaling option
❑	Adjust the Tone Scaling option

Maintaining the MIM (Key Operator)	
❑	Back Up the Configuration
❑	Set the system time
❑	View the system information and error logs
❑	Send a test image
❑	Clean the keypad
❑	Clean the filter

Technologist:	Date:
Apps. Con.	Date:

Section 20: Providing Service Feedback

SCAN Feedback

SCAN Feedback Codes

Task	Feedback Code
Installing the MIM and accessories, for example, the KEYPAD	XN
Troubleshooting the equipment malfunctions during installation	RAM
Assisting to solve network malfunctions	NSS
Training the customer	CT
Waiting on stand-by to obtain access to the Modality or the network	ST
Completing and mailing the Mod 1 Film Mailer	M01

Important

Feed back the correct codes for the time you spent completing the tasks listed in the table to the left.

Service Codes

MIM, DICOM PRINT SERVER, and Accessories

Product	Group Code	Service Code	Notes
MEDICAL IMAGE MANAGER 100	TBD	1539	Serialized Mainframe
MEDICAL IMAGE MANAGER 200	2551	3433	Serialized Mainframe
MEDICAL IMAGE MANAGER 50	2545	3744	Serialized Mainframe
DICOM PRINT SERVER	2549	3745	Serialized Mainframe
NETWORK INTERFACE CARD		TBD	used for KELI 160
VIDEO 150 INPUT PACKAGE		3467	NSA for MIM 100
VIDEO 60 INPUT PACKAGE		3743	SA for MIM 50 and MIM 200
DIGITAL INPUT PACKAGE		3468	SA for MIM
MIM OPTICAL INTERFACE		3469	SA for DICOM PRINT SERVER and MIM 200
COMMON PROTOCOL OPTICAL INTERFACE		3746	NSA for KELP

SPOOLER

Product	Group Code	Service Code	Notes
SPOOLER/DICOM	2552	3742	Serialized Mainframe
SPOOLER/Video	2552	3750	Serialized Mainframe
SPOOLER/Digital	2552	3751	Serialized Mainframe

Use the codes in the tables at left to complete service feedback.

- Feedback the installation time using the XN code.
- Feedback the troubleshooting time using the RAM code.

Mod 1 FILM MAILER for Unqualified Modalities

The Mod 1 FILM MAILER is a pre-paid, addressed, express mailer to be used when servicing the MIM 100 or the MIM 50 for an unqualified modality.

Important

Enclose the following items in the Mod 1 FILM MAILER:

- 2 clinical images from the modality that you have printed using the MIM.
- One test print from the PRINTER.
- The “Modality Parameter Worksheet,” noting any changes.

Section 21: Glossary of Terms

10/100BaseT	A CSMA/CD Ethernet LAN using Twisted Pair with a baseband of either 10 Mbps or 100 Mbps. The IEEE standard for 24-gauge UTP for *Ethernet.*
ANSI	American National Standards Institute
ASL	Adaptive Speed Leveling: ASL keeps the modem on-line, operating at the highest possible speed and constantly checking data integrity.
AUI	Attachment Unit Interface: A 15-pin connector, usually with a transceiver, used with Ethernet.
AWG	American Wire Gauge
CPOI	Common Protocol Optical Interface
CSMA/CD	Carrier Sense Multiple Access / Collision Detection
DICOM	The Digital Imaging and COmmunications in Medicine imaging standard.
EIA	Electrical Industries Association
Ethernet	A passive coaxial cable that transmits digital signals for a network in which the interconnections contain active elements. A LAN standard originally developed that uses a bus topology with CSMA/CD access control. A popular example of a LAN that can bridge operating systems and ignore inherent differences in data and file structures to promote reliable interconnections.
HIS/RIS	Hospital Information System / Radiology Information System
Hub	A central point or concentrator in a star topology where connections meet. Network communications flow through the hub.
IP	Internet Protocol
LAN	Local Area Network: A combination of computer hardware and software that connects several computers and peripherals to provide communication and access to shared data.
MIM	Medical Image Manager
Modality	An Imaging Device.
Modem	Modulator / Demodulator: A device that your computer uses to send data over telephone wires.
Mbps	Mega bits per second
NEMA plug	The National Electrical Manufacturers Association's standard 3-pronged plug.
OI	Optical Interface
Pre-staged	Equipment that was shipped with the modality parameters already installed and tested.
Protocol	Set of rules and procedures allowing computers and peripherals to communicate with each other.
Qualified Input	The modality has been field tested with correct parameters. The database in the Service Software for the MIM might also include this modality in the Qualified list.
RJ-11	Four-wire modular connectors for phone lines.
RJ-45	Eight-wire modular connectors for Ethernet twisted-pair wiring.

RS-232, RS-422	EIA standards for physical and electrical specifications of a serial interface between a computer and a peripheral, for example, a modem.
RS-485	EIA standard for digital data connections between devices.
SCU	Service Class User.
SCP	Service Class Provider.
TCP/IP	Transfer Common Protocol / Internet Protocol: Set of communication protocols developed for the Defense Advanced Research Projects Agency (DARPA) to connect dissimilar systems. The TCP controls the transfer of the data, and the IP provides the routing mechanism.
TSK	Touchscreen Keypad **-** Liquid Crystal Display (LCD) screen on the MIM 100.
Twisted Pair	Wiring used in telephone systems and many networks, consisting of a pair of copper wires twisted around each other to counteract the effects of noise. Commonly used instead of coaxial Ethernet in network applications. Usually unshielded; however, the more expensive shielded version supports greater distance with less risk of electrical interference.
Unqualified Input	The modality has not been field tested.
UTP	Unshielded Twisted Pair
WAN	Wide Area Network

Section 22: Modality Specification Worksheet

Video Input Modality Spec Sheet

Information for Modality
Manufacturer: *Phillips*
Category: CT
Model: *Tomoscan Slip Ring 6000/7000/8000*

Input Parameters	Value
Board / Channel:	1
Logical Name:	Variable
Database Name:	Variable
Primary Control:	
Type:	Key Pad
Com Port:	5
Auxiliary Control:	
Keypad:	N\A
Com Port:	N\A
Aspect Ratio:	
Horizontal:	
Vertical:	
Page Pre-allocation: Enable Preallocation	Do Not Select

Horizontal Parameters	Value
Horizontal Line Time (uS)	31.36
Total Pixels per Line	1792
Horizontal Display Time (uS)	22.75
Image Pixels (Multiple of 4)	1300
Pixel Clock Frequency (MHz)	57.143
Horizontal Sync Width (uS)	3.00
Horizontal Front Porch (uS)	.61

Horizontal Parameters	Value
Horizontal Back Porch (uS)	5.00
Horizontal Blanking	8.61

Vertical Parameters	Value
Interlaced Image	Interlaced
Image (active) Lines/Frame	1024H
Total Lines per Frame	1124H
Vertical Back Porch	38
Vsync Width	4.0H
Pre-Equalization Width	6.0H
Post-Equalization Width	6.0H
Serration	4
Pulses	6
Pulses	6
Interlaced Field Counter	91
Override	Do Not Select
Vsync Serrations Present	Yes
Double H Frequency/Eq/Serration	No
Interlaced Image	Yes
Swap Fields	No
Async Video Compensation	
Insert Serrating Pulses	No
Insert Pulses Outside Vsync	No
Pre Eq. H Insertion	0
Post Eq. H Insertion	0

Video Gain and Offset Parameters	Value
Coarse Offset	128
Fine Offset	128
Coarse Gain	128
Fine Gain	128
Amp Offset (150 or 205)	150

Video Sync Parameters	Value
Composite Sync Channel	Default
External Sync Channel	Default
Positive External H or C Sync	0
Positive External Vsync	0
External Sync Level	127
Low Voltage	0
High Voltage	0

Pixel Clock Parameters	Value
VCO Divisor	
VCO Frequency (75-150)	
Vsync Capacitor	1
Control Voltage	
Pixel Clock Timing	
Hsync to Clock Delay	

PROM Information (Signal Generator)	
PROM #	2
Program #	17

Unqualified	
Qualified	**X**

Key	
Unable to Change Values	

MIM Digital Input Modality Spec Sheet (M952)

Modality Information
Manufacturer: *GE*
Category: MRI
Model: *Signa Contour/Profile/Horizon LX*

Command Port Configuration	Value
Stop Bits (1 Or 2)	1
Parity (0-None, 1-Even, 2-Odd)	1
Data Length (7 Or 8)	8
Baud Rate (300, 1200, 2400, 9600)	1200
Driver Type (232 Or 422)	RS-422
Async Delay (0 - 255)	0
Diagnostic Flag (0 or 1)	0

Modality Information	Value
Channel Configurations	M952
Host Protocol Type (Scanner Only)	6
Command Port Id. (2, 4, or 5)	2
Enable Auxiliary Keypad?	No
Page Pre-allocation (Yes/No)	No

Image Data Parameters	Value
Line Timer: (0-59)	1
Img Parity: (0-None, 1-Even, 2-Odd)	1
Transfer Mode (1-Partial, 2-Whole)	1
Sync Mode: (1-Auto Sync, 2-No Sync)	2
Pixel Depth: 8-bit, 10-bit, 12-bit	8

Modality Parameters	Value
Total Pixels Per Line:	512
Total Lines Per Image:	512

Aspect Ratio	Value
Horizontal Pixel Aspect: (1 - 255)	1
Vertical Pixel Aspect: (1 - 255)	1

Print Date	Pub. No.	Affected Pages	File Name	Notes
APR97	2H7443	All	sm3433_1_apr97.book (includes the files .front and .1 through .16)	1st printing
09JUL98	2H7443	All	sm3433_2_09jul98.book (includes the files .front and .1 through .16)	2nd printing
29JUN99	2H7443	All	sm3433_3_30jun99.book (includes the files .front and .1 through .20)	3rd printing (Rough Draft):On-line format includes updates for the Release 3.0 Products: MIM 100, MIM 50, and the DICOM PRINT SERVER
18SEP00	2H7443	All	sm3433_3_18sep00.book (includes the files 343300.fm through 343320.fm)	Rev 4: Release Version 3.2.x, including data for the MIM 200.

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