



IVIS System

Owner's Manual

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Educational Services

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OCTOBER, 1984

IVIN SYSTEM

OWNER'S MANUAL

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

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CONTENTS

INTRODUCTION

CHAPTER 1 GETTING STARTED

IVIS Is Easy to Use	1-1
-------------------------------	-----

CHAPTER 2 SYSTEM OVERVIEW

Professional 350 System Unit	2-2
Color Video Monitor	2-2
IVIS Backpack	2-3
Video Disc Player	2-3
Remote Power Switch	2-3
Additional Equipment	2-3
Software Media and Documentation	2-4
Related Documentation	2-5

CHAPTER 3 SETTING UP THE SYSTEM

Space	3-1
Lighting	3-1
Condensation	3-1
System Component Dimensions	3-2
Power Requirements	3-4
Temperature	3-5
Media and Supplies Storage	3-5
Video Disc Storage and Care	3-5
Cables	3-5

CHAPTER 4 SYSTEM CONTROLS, SWITCHES, AND INDICATORS

System Unit Controls	4-1
Power Switch	4-2
Voltage Selection Switch	4-3
Circuit Breaker	4-4
System Unit Indicators	4-5
Diskette Drive Active Indicators	4-6
Self-test Status Indicators	4-6

CHAPTER 4 (continued)

Red Indicators 1, 2, 3, and 4	4-6
Green DC Indicator	4-6
Color Video Monitor Controls, Switches and Indicators	4-7
Contrast	4-8
Brightness	4-8
Power OK Indicator	4-8
Voltage Selection Switch	4-9
Power Switch	4-9
Impedance Switch	4-9
Synchronizing Switch	4-10
Reset	4-10
VHS Backpack Controls, Switches, and Indicators	4-11
Voltage Selection Switch	4-11
Circuit Breaker	4-11
Headphone Volume Control	4-12
Power OK Indicator	4-11
How to Adjust the Backpack Controls	4-14
Video Adjustment Procedure	4-15
Audio Adjustment Procedure	4-16
Video Disc Player Controls, Switches, and Indicators	4-17
Power Switch	4-18
Open Cover Switch	4-18
Remote Control Unit	4-18
Status Indicators	4-19
Antenna Switch	4-18
EXT CPU Switch	4-20
SC/SYNC Switch	4-20
Index Controls V and H	4-20
Focus and Tracking Controls	4-20

CHAPTER 4 (continued)

Important Video Disc Player Information	4-21
Objective Lens	4-21
Shipping Screw	4-22
Remote Power Switch	4-23

CHAPTER 5 CONNECTING COMPONENTS

Introduction	5-1
Hardware Connections	5-2
A Sony LDP-1000A Video Disc Player	5-4
A Pioneer/Discvision Video Disc Player	5-5
An External Video Input	5-6
A Computer-Controlled Component	5-7
One Color Video Monitor	5-8
More-Than-One Color Video Monitor	5-9
An Auxiliary Audio Amplifier	5-10
Video Sources	5-11
Video 1 and 2	5-11
Sync and Subcarrier Signals	5-12
Control 1 and 2	5-13
External Connector	5-14
H8340 Disc Control Cable Adapter	5-15
Freeze Frame	5-16
Video Monitors	5-17
Audio Sources	5-18
Audio Output Devices	5-19
Cables and Accessories	5-20

CHAPTER 6 CORRECTING SIMPLE PROBLEMS

Internal Self-Tests	6-1
Test Messages	6-1
Backup Test Messages	6-2

(Chapter 6 (continued)

System Test Reports	6-4
Correcting Simple Problems	6-5
Operating Checklist	6-6
Guidelines	6-7

CHAPTER 7 REPAIRS

How to Get Service	7-1
Repacking for Shipment	7-2
DIGITAL Repair Services	7-5

INDEX

FIGURES

2-1 System Components	2-1
3-1 System Dimensions	3-2
4-1 System Unit Power Switch	4-2
4-2 System Unit Voltage Selection Switch	4-3
4-3 System Unit Circuit Breaker	4-4
4-4 Diskette Drive Active Indicators	4-5
4-5 System Unit Status Indicators	4-7
4-6 Color Monitor, Front View	4-7
4-7 Color Monitor, Rear View	4-9
4-8 IVIS Backpack Bottom Panel	4-12
4-9 Headphone Volume Control	4-12
4-10 IVIS Backpack Controls	4-13
4-11 Disc Player Top/Front View	4-17
4-12 Disc Player Rear View	4-19
4-13 WDP40 (Sony LDP-1200A) Objective Lens	4-21
4-14 Disc Player Shipping Screw	4-22
4-15 Remote Power Switch	4-23
5-1 IVIS Backpack Connectors	5-2

FIGURES (Continued)

5-2	Connecting a Sony LDP-1000 Video Disc Player	5-4
5-3	Connecting a Pioneer/Discovision Video Disc Player	5-5
5-4	Connecting an External Video Input	5-6
5-5	Connecting a Computer-Controlled Component	5-7
5-6	Connecting One Color Video Monitor	5-8
5-7	Connecting More Than One Color Video Monitor	5-9
5-8	Connecting an Auxiliary Audio Amplifier	5-10
5-9	DC17V Disc Player Video Cable	5-11
5-10	HUC23 Disc Player Control Cable	5-12
5-11	HB950 Adapter	5-13
5-12	IVIS Freeze-Frame Connection	5-16
5-13	DC17V Audio Input Connectors	5-18
7-2	Preparing the Disc Player for Shipping	7-4

TABLES

6-1	Status Indicator Codes	6-3
6-2	System Unit Test Errors	6-4
6-3	Correcting Simple Problems	6-6

The FCC Would Like Us to Tell You . . .

This equipment has been certified to comply with the limits for a Class B computing device, pursuant to Subpart J of Part 15 of FCC Rules. Only peripherals (computer input/output devices, terminals, printers, etc.) certified to comply with the Class B limits may be attached to this computer. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

WARNING

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, you should try to correct the interference by one or more of the following measures:

- o Reorient the receiving antenna
- o Relocate the computer with respect to the receiver
- o Move the computer away from the receiver
- o Plug the computer into a different outlet so that computer and receiver are on different branch circuits.

If necessary, you should consult the dealer or an experienced radio/television technician for additional suggestions. You may find the following booklet prepared by the Federal Communications Commission helpful:

How to Identify and Resolve Radio-TV Interference Problems

This booklet is available from the US Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

INTRODUCTION

This manual shows you how to operate and maintain your IVIS system. IVIS is an Interactive Video Information System that displays computer-generated graphics and moving or freeze-frame pictures on a color monitor screen, with high fidelity sound.

The manual has six chapters that cover the following topics.

Chapter 1, "Getting Started", shows you how to run an IVIS demonstration or training program.

Chapter 2, "System Overview", briefly describes the system components. It also lists other available equipment and related documentation.

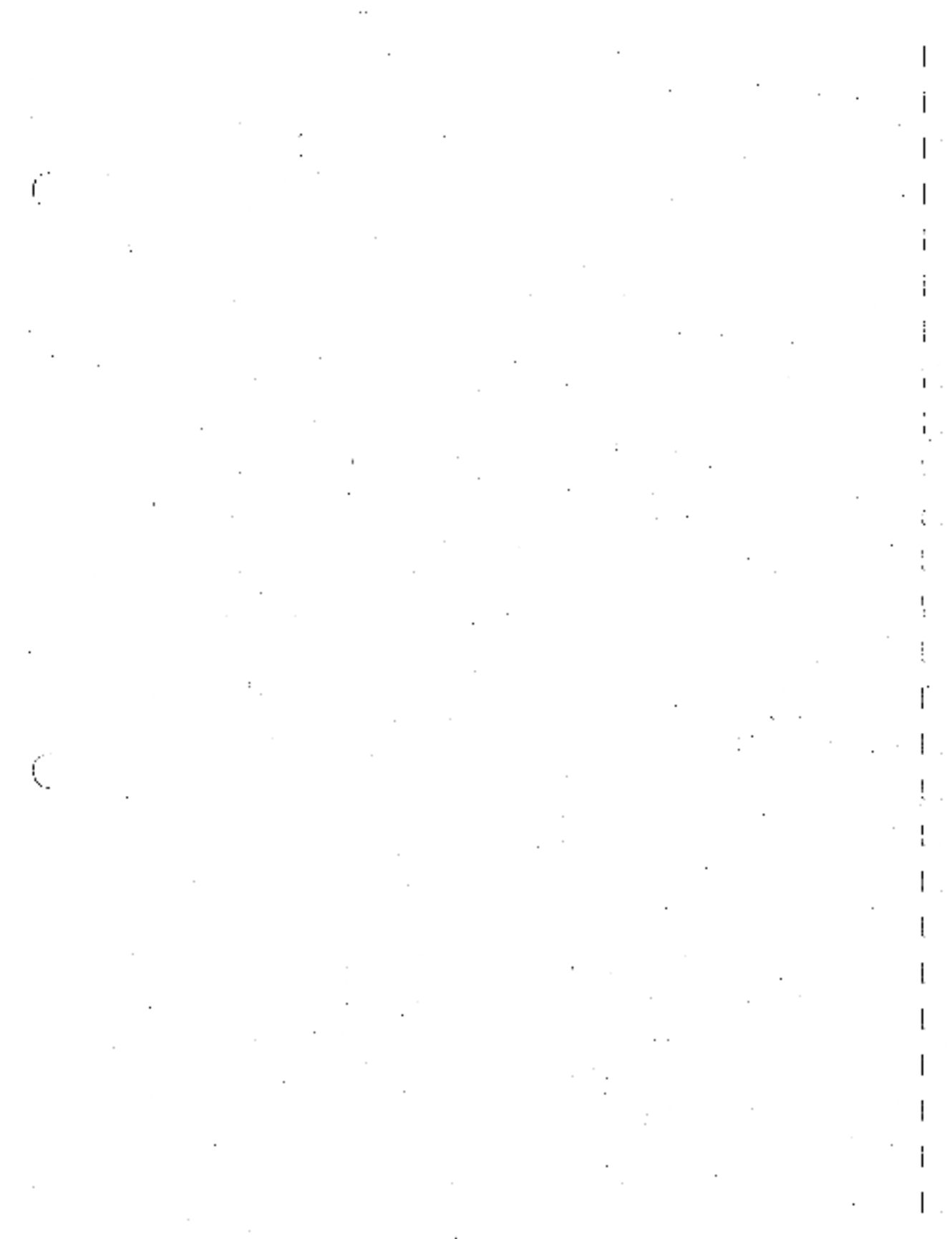
Chapter 3, "Setting Up The System", tells you what environment is best for your IVIS system.

Chapter 4, "System Controls and Indicators", describes the controls on each system component introduced in Chapter 2.

Chapter 5, "Connecting Components", describes the different types of components you can use with your IVIS system and how to connect them.

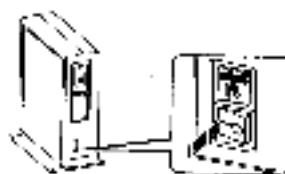
Chapter 6, "Correcting Simple Problems", tells you how you may correct simple problems without calling for service. It also describes the built-in self-tests and their error messages.

Chapter 7, "Repairs", tells you how to call for service and how to ship your IVIS system. It describes the different types of service agreements available from Digital.

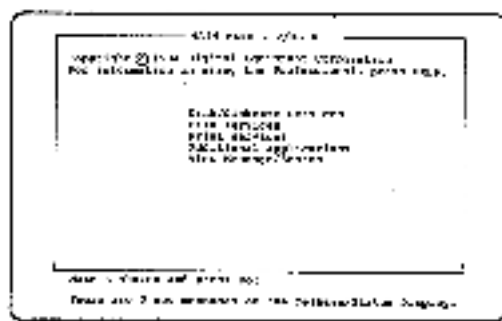


IVIS IS EASY TO USE

You can run an IVIS demonstration program
or a training course program.



Press the system unit power switch to 1 (on).
Wait for the Main Menu to appear on the
monitor screen.



Use the arrow keys to move the -> to "Additional Applications".
Then press DO. From the next menu, move the -> to
"IVIS User and Utilities" or other
program group. Then press DO.

From the next menu, choose "IVIS System Verification"
or the program you want.
Then press DO.

Load the disc on the player.

Follow the instructions on the screen.

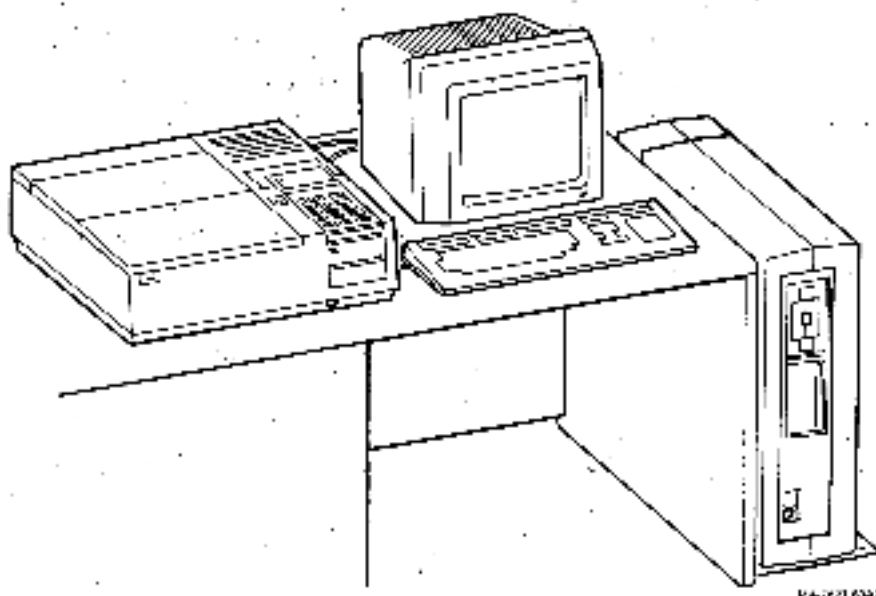
SYSTEM OVERVIEW

This chapter describes the IVIS system and additional equipment you can connect to the system.

The IVIS system has six major hardware components.

- o Professional 350 System Unit
- o Color video monitor
- o Keyboard
- o IVIS backpack
- o Video disc player
- o Remote power switch.

Chapter 4 describes the controls for the basic IVIS system components.



EAL/PT/0007

Figure 2-1 System Hardware Components

PROFESSIONAL 350 SYSTEM UNIT

The system unit uses the Digital P11 microprocessor, part of Digital's PDP-11 family of minicomputers. The basic system unit for IVIS contains a dual diskette drive, a hard disk drive, and 312 Kbytes or more of memory.

The Professional 300 Series Owner's Manual provides more information about the system unit and the keyboard.

COLOR VIDEO MONITOR

The VR241 color monitor (or VRTS1 touch screen color monitor) displays text, video disc pictures, and color graphics information. The monitor has a high resolution (0.31 mm/pixel), 243 mm X 150 mm viewing area (13" diagonal), and accepts RS-170 compatible RGB (red, green, blue) input. A raster scan design complements the extended bit map module, which adds two bit map planes to the basic system's graphics. Each plane supports 460 by 240 pixels (a pixel is a dot). This module provides a color map that lets IVIS display up to eight colors at a time from a range of 256 colors.

The VR241 and VRTS1 Owner's Manuals provide more information about these color monitors.

IVIS BACKPACK

Some IVIS system components are installed in the system unit. The other components are mounted in a separate enclosure called a backpack. The system unit is installed in a floor stand, and the IVIS backpack is fastened to the stand door.

VIDEO DISC PLAYER

The laser-optical disc player provides sound and video signals from a disc that looks similar to a phonograph record. Up to 30 minutes of moving pictures and stereo sound are recorded on a disc. Also, the computer can access each of the possible 54,000 frames (pictures) on the disc. This feature lets you display any one picture on the screen continuously in freeze-frame. IVIS can display these pictures and computer-generated graphics separately or together on the monitor screen under computer control.

REMOTE POWER SWITCH

All IVIS system power cords plug into the remote power switch. You control power to all components with one switch. When you turn the system unit power switch on or off, the remote power switch automatically turns the entire system on or off.

ADDITIONAL EQUIPMENT

Your IVIS system can use most of the options and peripherals available for the Professional 350 system. Chapter 5 provides information about connecting peripherals to your IVIS system.

SOFTWARE MEDIA AND DOCUMENTATION

Your IVIS comes with the following software media and documentation.

PRO/IVIS DRIVER, TUNER, VERIFY, & DIAG diskette.

(Includes PRO/IVIS Device Driver, IVIS System Verification, and IVIS Maintenance Services Update.)

PRO/IVIS System Verification Video Disc.

PRO/PRODUCER diskette.

PRO/PRODUCER Installation Manual	AA-AA62A-TH
----------------------------------	-------------

PRO/IVIS Device Driver and Subroutine Library Reference Manual	AA-BB29A-TH
---	-------------

IVIS System Installation Instructions	EX-01VIS-IN
---------------------------------------	-------------

IVIS System Owner's Manual	EK-01VIS-OW
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Although each system component comes with an installation manual, your IVIS system has its own installation manual. The IVIS Installation Instruction manual includes all of the information in those individual manuals.

RELATED DOCUMENTATION

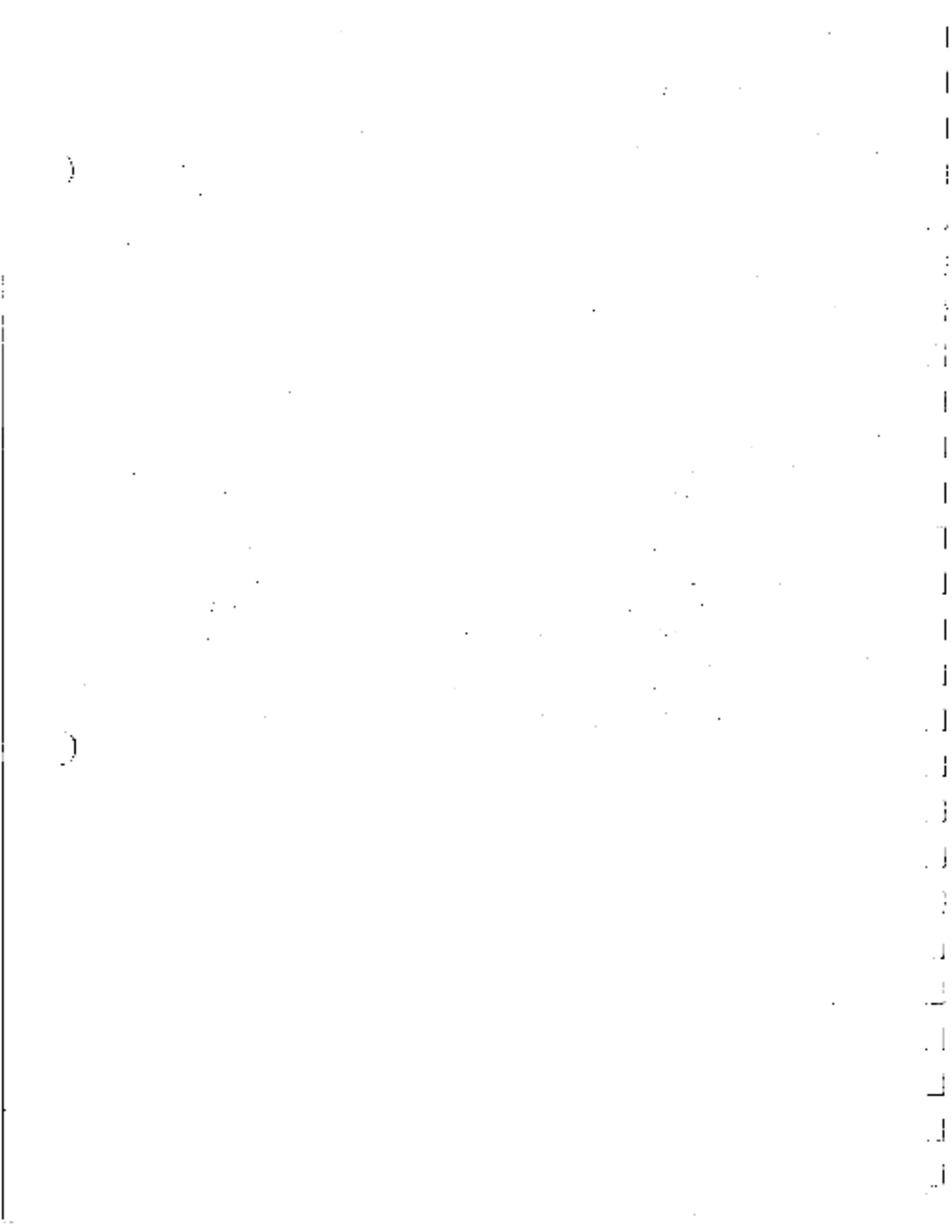
You can order copies of the following documents from Digital.

IVIS DOCUMENTS

IVIS Illustrated Parts Breakdown	EX-01V1S-19
VAX Product Documentation Kit	QL040-02

OTHER DOCUMENTS

User's Guide for Diskette System	AA-U708B-TH
For Beginners: Hard Disk System	AA-N6045-TH
For Beginners: Diskette System	AA-U707B-TH
Reference Card: Hard Disk System	AV-P389C-TH
Reference Card: Diskette System	AV-U709B-TH
PRO/BASIC Language Manual	AA-N6013-TH
PRO/BASIC Reference Card	AV-U706A-TH
PRO/Communications Manual	AA-K602B-TH
Professional Host Communications Installation Procedures	AA-P412C-TH
Terminal Subsystem Manual	AA-N623B-TH



SETTING UP THE SYSTEM

This chapter tells you what environment is best for your IVIS system.

SPACE

Figure 3-1 shows the dimensions of the system components. When you set up your IVIS system, follow these points.

- o Leave about six inches on all sides of each component, for airflow.
- o Keep the vents on all components clear.
- o Place all cables away from traffic areas.

LIGHTING

The nonglare screens of IVIS video monitors reduce the amount of light reflected back to the operator. Place the system unit and video monitor out of any direct sunlight to minimize heat and glare.

CONDENSATION

A video disc player is subject to special problems when it is brought into a warm room from the cold. Condensation on lens surfaces may cause unreliable operation. To prevent this, let the player warm up for an hour to room temperature before using.

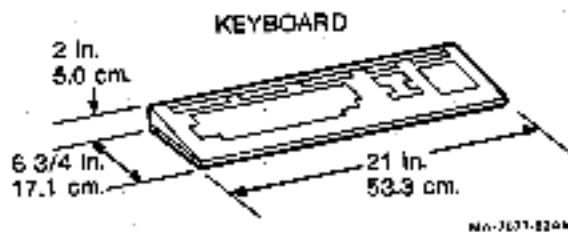
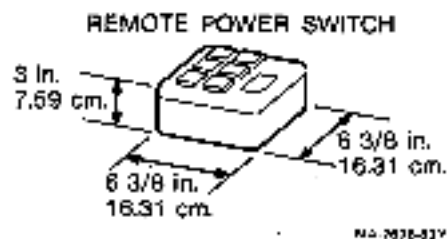
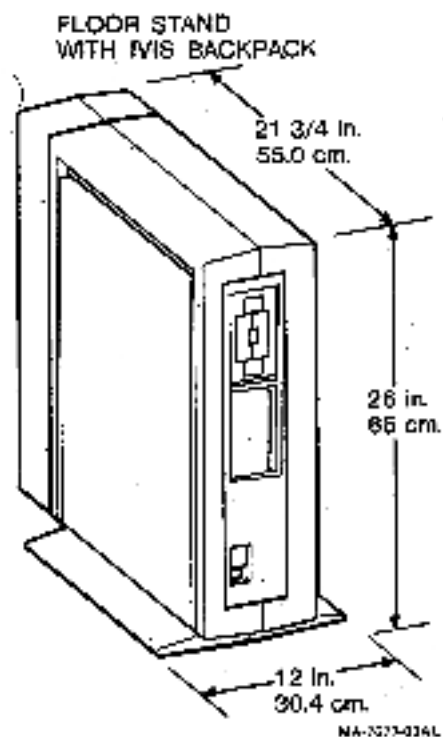
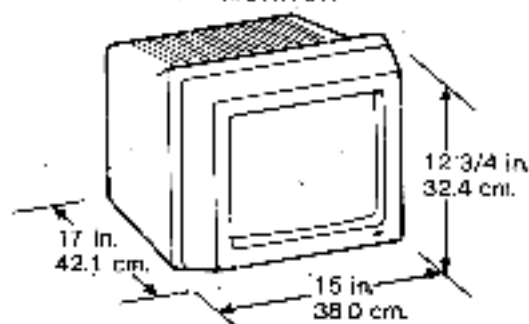


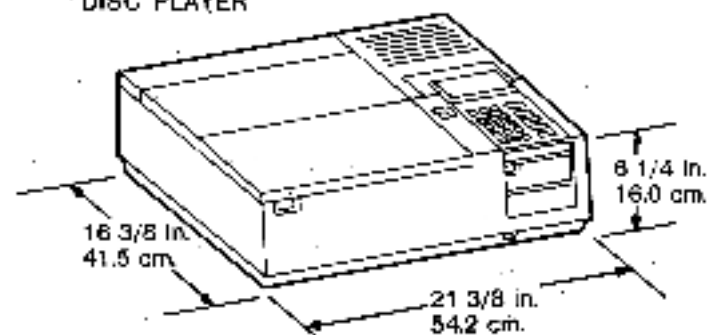
Figure 3-1 System Component Dimensions

VR241
COLOR MONITOR



NO-7877 8323

DISC PLAYER



NA-7677 8323

POWER

Your IVIS system can use the power from receptacles in commercial buildings and residences.

Requirements

Input voltage	90 to 128 Vac (120V) 174 to 256 Vac (240V)
Line frequency	47 to 63 Hz
Power dissipation	535 watts (basic system)

Note that each system component has its own minimum operating voltage specification.

Professional 350 system unit	90 vac (120V) 174 Vac (240V)
VR241 or VRT81 color monitor	90 Vac (120V) 185 Vac (240V)
TVIS backpack	90 Vac (120V) 190 Vac (240V)
VDP40 video disc player	107 Vac (120V) (240V)

WARNING

You need a 240V-to-120V step-down transformer to operate the video disc player at 240 volts.

Try to use a separate power source for your IVIS system. If other devices must use the same branch circuit, avoid those that can cause the voltage to fluctuate, (for example, copiers or typewriters).

Your system requires only one receptacle, to plug in the remote power switch. The other IVIS power cords plug into the remote power switch. When you turn power on and off at the system unit, the remote power switch turns the rest of the system on or off for you.

TEMPERATURE

Your IVIS system can operate within the following temperature and humidity ranges.

Temperature	10 to 40°C (50 to 104°F)
Humidity	20% to 80% relative humidity, with a maximum wet bulb of 25°C and a minimum dew point of 2°C.

Keep your IVIS system away from direct sunlight, heat registers, and air conditioning vents.

MEDIA AND SUPPLIES STORAGE

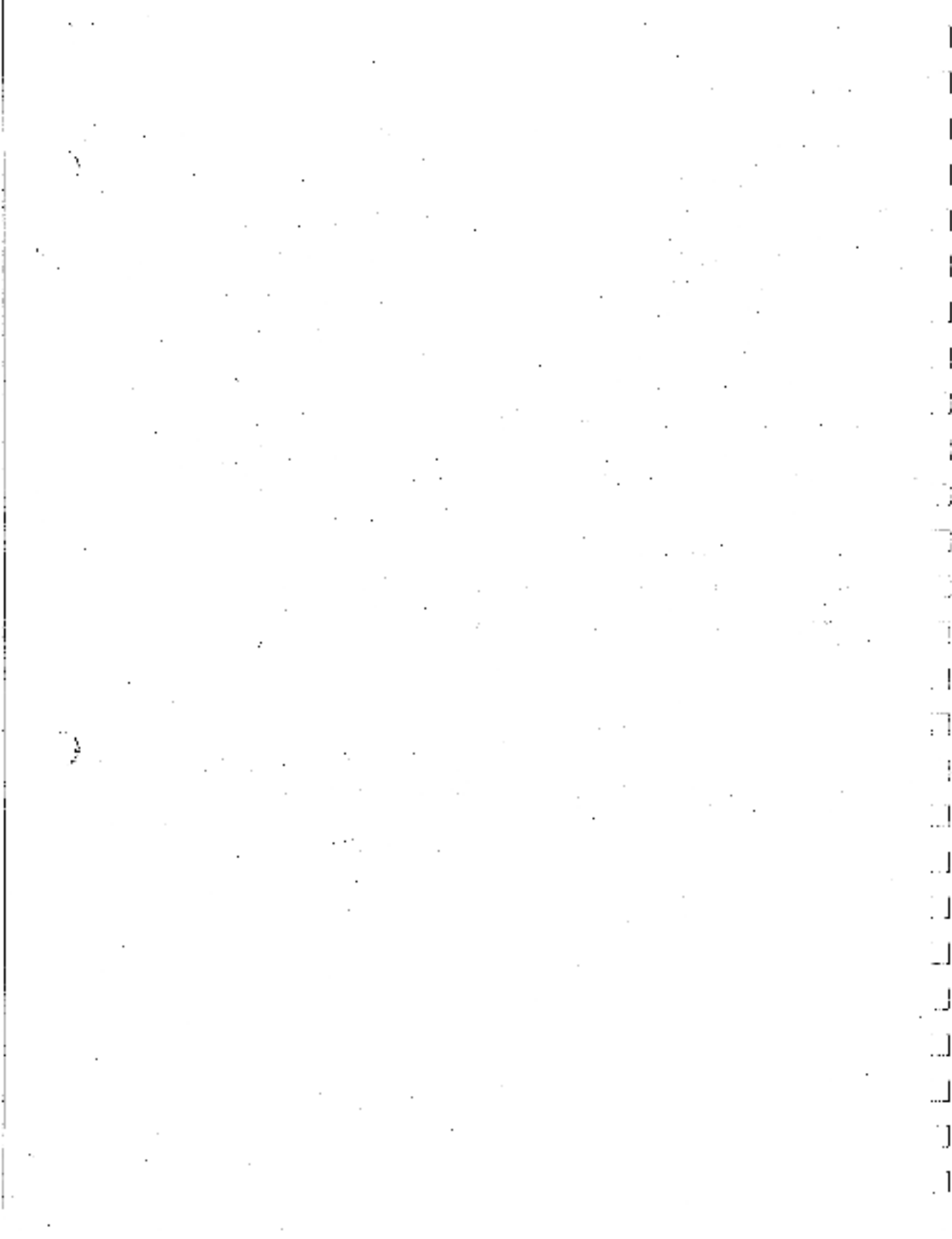
You need storage space for supplies and diskettes. Keep your diskettes in dust-proof containers, away from magnetic fields that might damage the information stored on them. For security, store backup media away from your work area.

VIDEO DISC STORAGE AND CARE

Store video discs away from heat, in their jackets, and straight up on edge, to prevent warping. You can clean disc surfaces occasionally by wiping them with a cloth moistened with warm water.

CABLES

Your IVIS system comes with the cables required to connect the basic system components. If you want to connect other components to the system, you need more cables. See the end of Chapter 5 for a list of cables used with the IVIS system.



CHAPTER 4

SYSTEM CONTROLS AND INDICATORS

Each IVIS system component has controls and indicators that you will use when operating the system. This chapter describes those controls and indicators in the following order.

- o System unit
- o Video monitor
- o Keyboard
- o IVIS backpack
- o Video disc player
- o Remote power switch

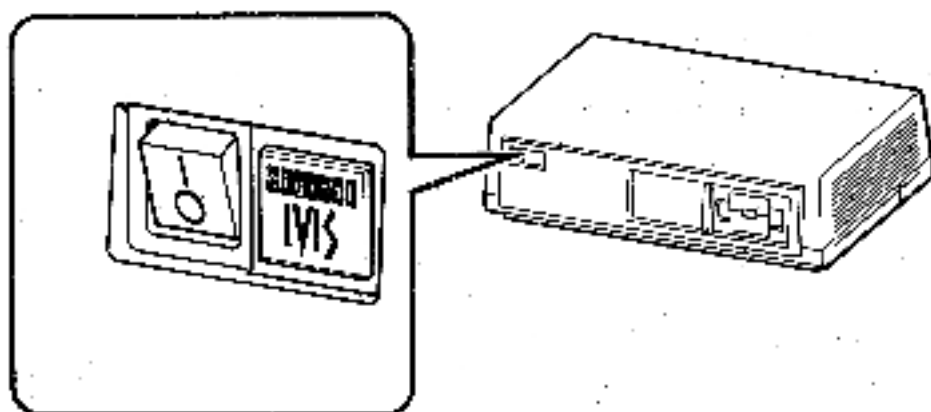
SYSTEM UNIT CONTROLS

The system unit has three controls.

- o Power switch
- o Voltage selection switch
- o Circuit breaker

System Unit Power Switch

This switch is on the front of the system unit (Figure 4-1). The power switch controls power for the complete system when the system unit is plugged into the "control" receptacle on the remote power switch. To turn the system on, press on the side of the switch marked 1. To turn the system off, press on the side of the switch marked 0.



W6-VUJ-03A7

Figure 4-1 System Unit Power Switch

System Unit Voltage Selection Switch

This switch is on the back of the system unit (Figure 4-2). When the system is installed, this switch is set to match the system unit voltage needs to the voltage available from the wall outlet.

When the number 115 or 120 shows, the system unit is set for 90 to 128 volts ac. This is the voltage used throughout most of the United States and Canada.

When the number 230 or 240 shows, the system unit is set for 174 to 256 volts ac. This is the voltage used in most of Europe and areas outside the United States and Canada.

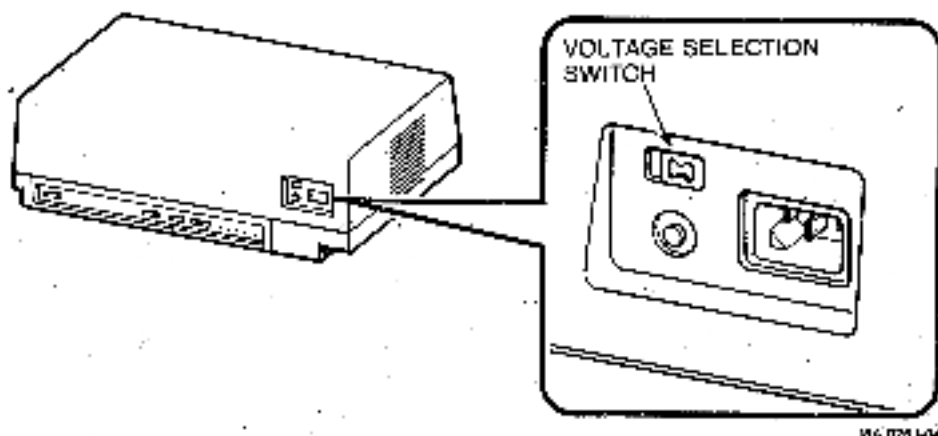


Figure 4-2 System Unit Voltage Selection Switch

System Unit Circuit Breaker

The circuit breaker is on the back of the system unit (Figure 4-3). The system unit circuit breaker automatically interrupts power to the unit when a fault could cause damage. If your system has a remote power switch, it will interrupt power to the rest of the system also.

If an electrical fault or short circuit occurs, the circuit breaker trips. To reset the circuit breaker, first turn the system unit power switch off. Then push the circuit breaker button in and turn the system unit power switch back on.

CAUTION

If the circuit breaker trips after being reset, unplug the system unit from the wall outlet and contact a service technician. Do not try to operate the system.

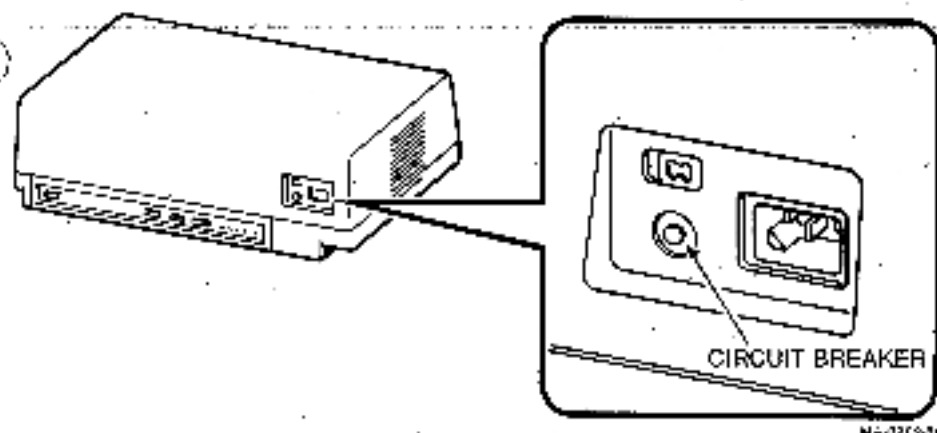


Figure 4-3 System Unit Circuit Breaker

SYSTEM UNIT INDICATORS

The system unit has indicators on both the front and back.

Diskette Drive Active Indicators

These indicators are on the front of the system unit, next to the diskette drive doors (Figure 4-4). These indicators turn on to show that a drive is reading or writing data.

CAUTION

Do not open a diskette drive door when a diskette drive active indicator is on. You may lose some or all of your data, especially if the drive is writing on that diskette.

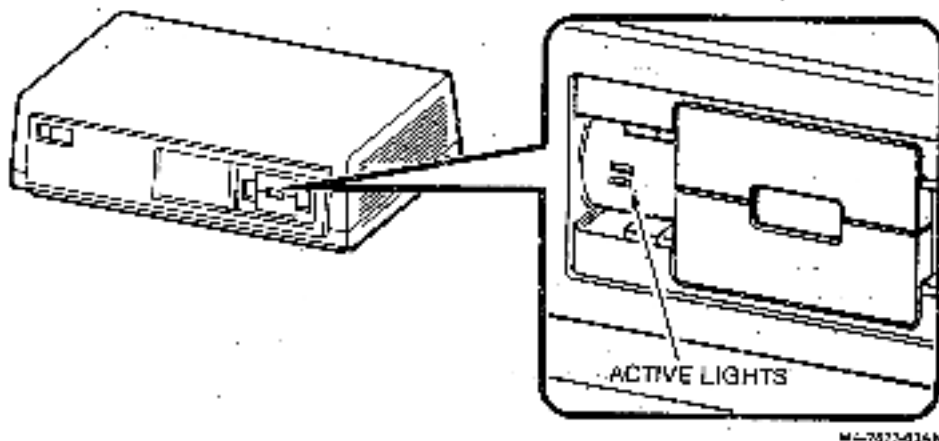


Figure 4-4 Diskette Drive Active Indicators

Self-Test Status Indicators

These indicators are on the back of the system unit (Figure 4-5). There are four red indicators and one green indicator.

Red Indicators (1, 2, 3, and 4)

The system unit automatically runs an internal self-test program whenever you turn on power to the system. (See Chapter 6.) When the test starts, the program turns on all four red indicators. If the system unit is operating correctly, the program turns the indicators off when the test is complete.

If the system test finds a problem, one or more of the indicators stay on. Chapter 6 describes the steps you should follow if that happens.

Whenever your IVIS system does not come on correctly, check to see if these indicators are on.

The Green Indicator (DC)

The green indicator is on when the power inside the system unit is correct. If this indicator is not on, the system will not run. Chapter 6 describes the steps you should follow if that happens.

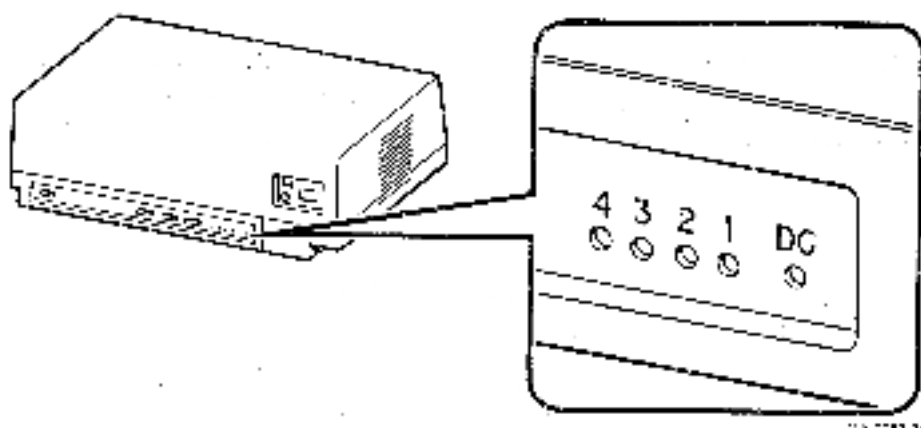


Figure 4-5 System Unit Status Indicators

COLOR VIDEO MONITOR CONTROLS, SWITCHES, and INDICATORS

The color video monitor has two controls on right side of the monitor and an indicator on the front (Figure 4-6).

- o Contrast
- o Brightness
- o Power OK Indicator

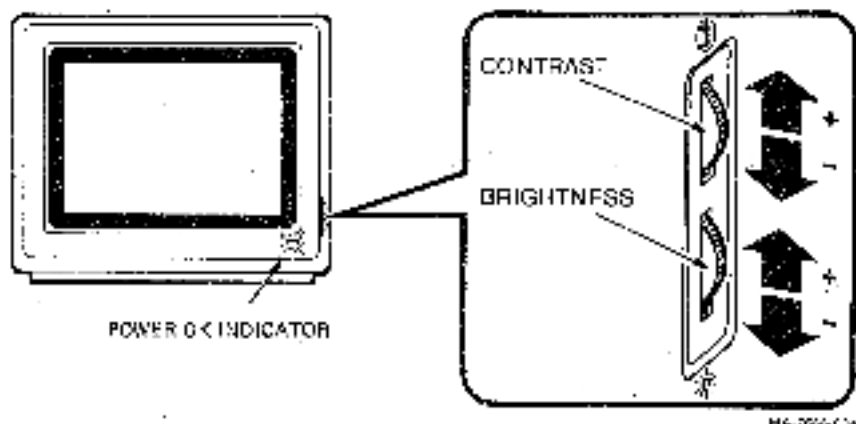


Figure 4-6 Color Monitor, Front View

Contrast

The upper control is for contrast. Turning the knob upward increases the difference between black and white image areas on the screen (makes blacks darker and whites brighter).

Brightness

The lower control is for brightness. Turning the brightness knob upward increases the brightness level on the screen.

Use these steps to get the best possible image on the screen.

1. Turn the brightness and contrast controls down.
2. Turn the brightness control up until you just see white lines appear on the screen.
3. Turn the contrast control up until the image on the screen is satisfactory.

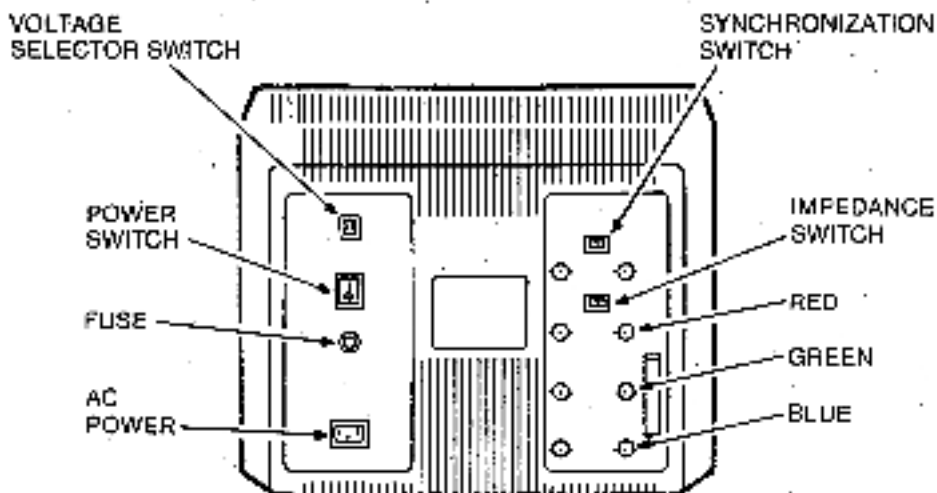
POWER OK Indicator

The color monitor has a green Power OK indicator on the front at the lower right corner (Figure 4-6). This indicator is on whenever the monitor's power circuits are operating correctly.

SWITCHES

The color monitor has three switches and a fuse on the back (Figure 4-7).

- o Voltage selection switch
- o Power switch
- o Impedance switch
- o Synchronization switch



V.3.1244 24

Figure 4-7 Color Monitor, Rear View

Voltage Selection Switch

The color monitor has the same type of voltage selection switch as the system unit. Set the color monitor's switch to the same voltage as the system unit's switch.

Power Switch

This switch is also the same type of power switch as on the system unit.

Impedance Switch

This switch lets you use more than one monitor on your system. Chapter 5 has information about connecting more than one monitor.

Set the impedance switch to 75 (75 ohms):

- o when the monitor is the only one connected, or
- o when the monitor is connected as the last one in a series of monitors.

Set the impedance switch to HIGH:

- o when the monitor is connected as any one except the last one in a series of monitors.

Synchronization Switch

The synchronization switch determines which signal source will lock the picture on the screen. When the video includes the synchronization signal (as the IVIS system does), set the switch to INT. When the synchronization signal from a different source is fed into the SXSC connector, set the switch to EXT.

FUSE

The fuse protects the power circuits in the color monitor. If the POWER ON indicator does not come on, check to see if the fuse has blown. You can remove the fuse carrier with a small coin or similar item.

NOTE

A label near the fuse tells you what value fuse to use. Different values are required for 120 volt and 240 volt operation.

IVIS BACKPACK CONTROLS, SWITCHES, AND INDICATORS

The IVIS backpack has the following controls, switches, and indicators.

- o Voltage selection switch
- o Circuit breaker
- o Headphone volume control
- o Power OK indicator
- o Audio Source 2 Left Channel control
- o Audio Source 2 Right Channel control
- o Source 1 Video Level control
- o Source 2 Video level control
- o Hue control
- o Saturation control

Voltage Selection Switch

This switch is on the bottom of the backpack (Figure 4-8). The IVIS switch is the same type of voltage switch as on the system unit. Set the IVIS switch to the same voltage as the system unit's switch.

Circuit Breaker

This circuit breaker is on the bottom of the backpack (Figure 4-8). The IVIS circuit breaker is the same type as on the system unit.

Headphone Volume Control

The headphone volume control and jack are in the volume control (DC17X) cable (Figure 4-9). The cable plugs into the backpack connector labeled VOLUME. Turn the recessed knob towards + to increase volume, towards - to reduce volume. The one knob adjusts both left and right channels.

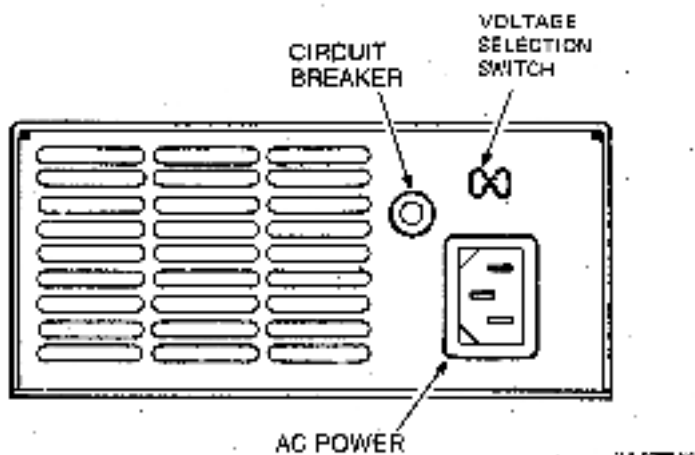


Figure 4-8 IVIS Backpack Bottom Panel

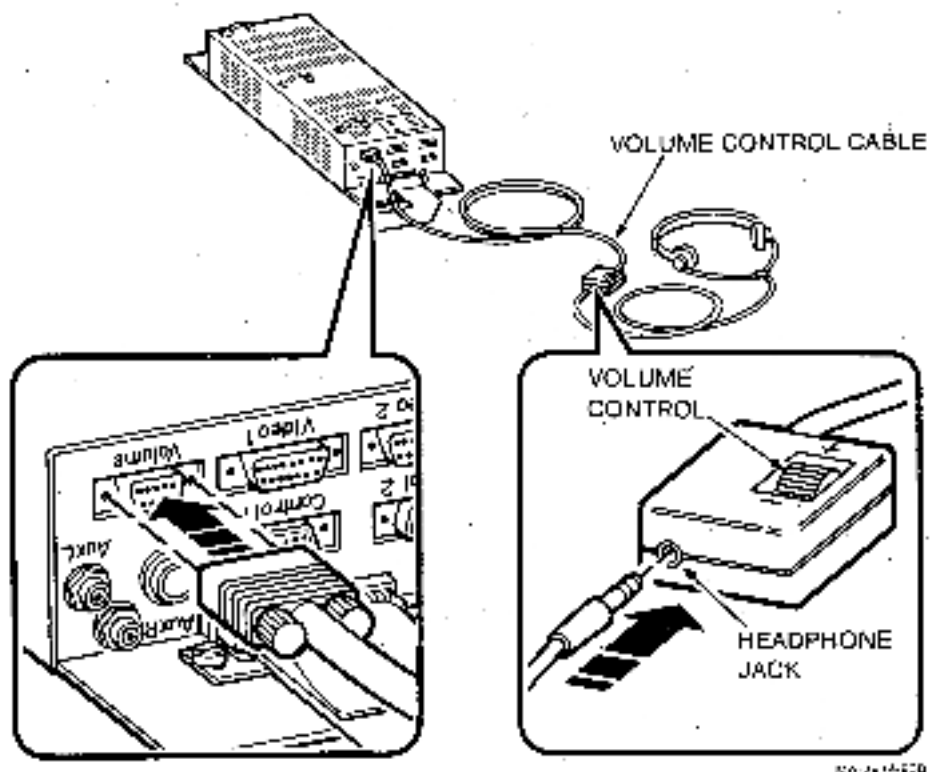
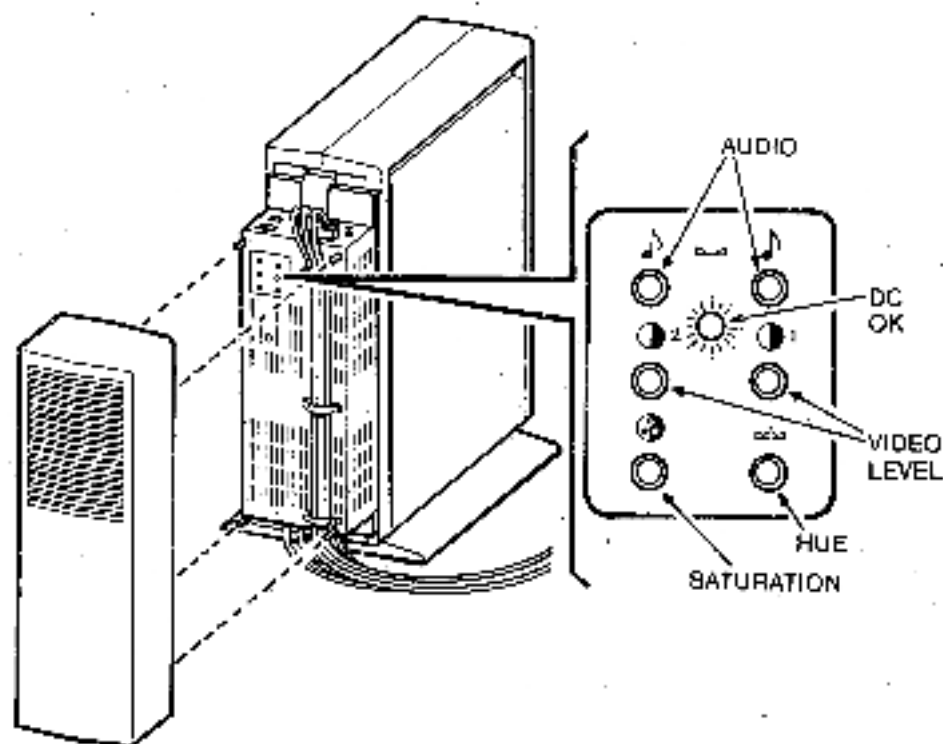


Figure 4-9 Headphone Volume Control

Power OK Indicator

The Power OK indicator is on the front of the backpack (Figure 4-10). You can see the indicator through the vents in the backpack's plastic cover. If this indicator is off, the backpack circuits will not operate and the picture signals from the disc player(s) will be lost.



100-10000-0000

Figure 4-10 IVIS Backpack Controls

HOW TO ADJUST IVIS BACKPACK CONTROLS

When you make a change to the system, such as adding a second video disc player, you may affect system balance. You can use the IVIS backpack controls to balance video disc player sound and picture levels or to adjust picture colors. (You cannot change graphics colors using the IVIS backpack controls.) These controls, on the front of the IVIS backpack, are accessible when you remove the cover (Figure 4-10). When the system components are balanced correctly, the picture and sound levels remain constant as the program switches between various signal sources.

The IVIS backpack has six controls.

Audio Source 2 Left Channel

Audio Source 2 Right Channel

These controls adjust the volume level of audio source 2 right and left channels to match the audio source 1 channels. You set the audio channel 1 volume with the volume control on the RC17X cable.

Video Source 1 Level

Video Source 2 Level

These controls adjust video (picture) signal gain for the two disc player inputs.

Saturation

This control adjusts color intensity levels.

Hue

This control changes colors.

Use the following procedure to set up these adjustments.

Video Adjustment

This procedure tells you how to adjust picture signals that come from the video disc player(s). The program shipped with early IVIS systems lets you adjust the signal from the player on channel 1 only.

NOTE

These adjustments affect only picture signals coming from the video disc player(s).

1. Adjust the monitor brightness and contrast controls as follows:
 - o Display the Main Menu on the screen.
 - o Turn both controls all the way down.
 - o Turn up brightness until you can just see all text on the screen. Turn the contrast up until the image quality is normal.
2. Select the IVIS System Verification program from the IVIS User and Utilities menu.
3. Load the video test disc that came with your system (1983 MCC IVIS Demo).
4. Run the "Backpack Adjustments" program. Follow the instructions on the screen. They lead you through the following kinds of adjustments.

- c Set the Video Level 1 control so the small flashing rectangle is the same brightness level as the surrounding area.
- d Adjust the Saturation (color intensity) control.
- e Adjust the Hue control so that colors are natural, especially flesh tones.

Audio Adjustment

This procedure tells you how to adjust the audio signals from the player connected to channel 2. Use this procedure only when your system has two video disc players and programming that plays both.

1. Listen to a balanced Channel 1 stereo audio signal in the headphones.
2. Set the channel 1 volume control (on the DC17X cable, where the headphone plugs in) at a normal listening level.
3. Switch on a channel 2 audio signal.
4. Without changing the channel 1 setting, adjust the Audio Source 2 controls so the Channel 2 signals are balanced and at the same listening level as the Channel 1 signals.

VIDEO DISC PLAYER CONTROLS, SWITCHES, AND INDICATORS

Your IVIS system comes with a VDP40 video disc player (Sony model LDP-2002A, Figure 4-11). You can use other players with IVIS, but Digital recommends the VDP40 for the basic IVIS system.

NOTE

When you connect two disc players to an IVIS system, they should be identical models.

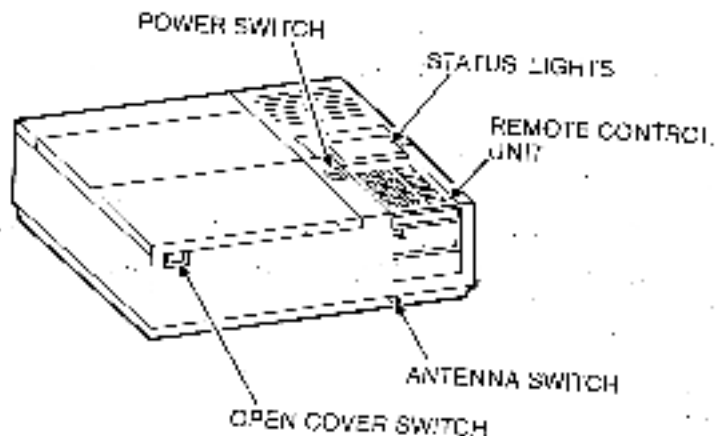


Figure 4-11 Disc Player Top/Front View

The disc player has the following switches, controls, and indicators.

- o Power switch
- o Open cover switch
- o Remote control unit
- o Status indicators
- o Antenna switch
- o EXT CPU switch
- o SC/SYNC switch
- o Index controls V and H
- o Focus and Tracking controls

POWER Switch

This switch is on the top of the player. The power switch is an on/off pushbutton.

OPEN Cover Switch

This switch is at the front of the player. The OPEN switch releases the cover only when player power is on. You can lift the cover after pressing the OPEN switch.

Remote Control Unit

This unit slides into the front of the player. You can use the remote control unit to control player operation directly or to enter a program into the player's microprocessor memory. You can only use this unit for off-line testing, since it operates only when external computer control is disabled. (See the "EXT CPU Switch" section that follows). To separate the unit from the player, push in on the release button under the unit and slide the unit forward.

Status Indicators

The status indicators are on the top of the player. The indicators tell you what the player is doing (for example, playing forward, or stopped).

ANTENNA Switch

This switch is on the front of the player. The ANTENNA switch controls the signal going from the player to a TV set. This switch does not affect IVIS system operation.

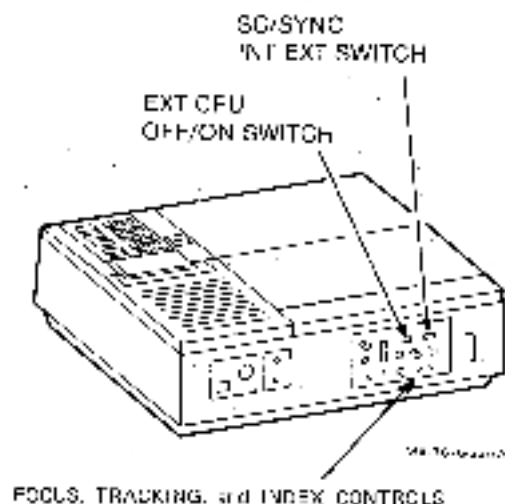


Figure 4-12 Disc Player Rear View

EXT CPU Switch

This switch is on the back of the player (Figure 4-12). When the switch is on, the IVIS system can control disc player operation. When you turn this switch off, you disable computer control and give the remote control unit control of the player. For IVIS system operation, the EXT CPU switch must be on.

SC/SYNC Switch

This switch is on the back of the player (Figure 4-12). The SC/SYNC switch selects which synchronization signal to use. The EXT position allows an external signal source (such as IVIS) to synchronize the picture. The INT position provides a synchronized picture when you use the player with a TV set. For IVIS system operation, this switch must be set to EXT.

INDEX Controls V and H

These controls are on the back of the player (Figure 4-12). They change the position where the frame numbers appear on the screen. V moves the numbers up and down; H moves the numbers left and right.

FOCUS and TRACKING Controls

These controls are on the back of the player (Figure 4-12). They compensate for noise or other substandard characteristics of the signal coming from a particular video disc. Adjust FOCUS first, then TRACKING, to produce the best possible picture. After playing that disc, return the controls to their center positions.

IMPORTANT VIDEO DISC PLAYER INFORMATION

You should also know about the objective lens and shipping screw on the VDP40.

Objective Lens

Laser-optical video disc players "see" the disc information through an objective lens. The VDP40 (Sony LDP-1000A) lens is below the playing surface (Figure 4-13). When you load a disc on the VDP40, the down side is played. On some players the lens is above the playing surface and the up side is played.

Some discs are recorded on one side only and may have a label that says "this side up" or "this side down". You should load those discs so the recorded side of the disc faces the lens on your player, regardless of the label. You can tell when a disc surface has information recorded on it; when you hold the disc so light is reflected from the surface, you will see a brilliant, multicolor prism effect. Note that the lens has a cover for shipping.

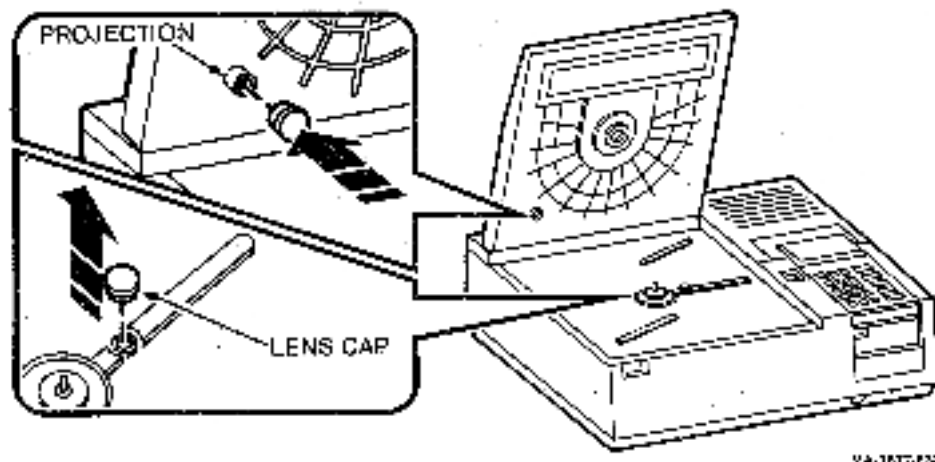


Figure 4-13 VDP40 (Sony LDP-1000A) Objective Lens

Shipping Screw

The disc player carriage mechanism is fastened for shipping by a screw through the bottom cover (Figure 4-14). You must loosen that screw completely before using the player. Turn the screw five or six turns. You cannot remove the screw. If you reship the player, tighten the screw (Chapter 7).

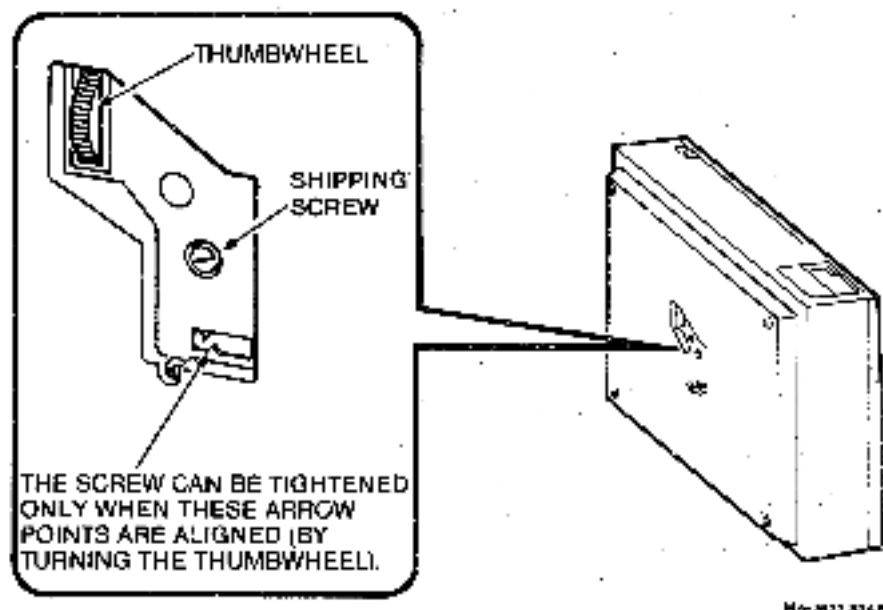


Figure 4-14 Disc Player Shipping Screw

REMOTE POWER SWITCH

This switch (Figure 4-15) lets the system unit power switch control power to all system components. The system unit power cord plugs into the white "control" receptacle on the remote power switch. When you turn the system unit power switch on or off, the remote power switch turns power on or off to the complete system.

The remote power switch has an on/off switch with a circuit breaker. When you turn the switch off, you turn off all power to the system. If a fault is present, the circuit breaker turns off all power automatically.

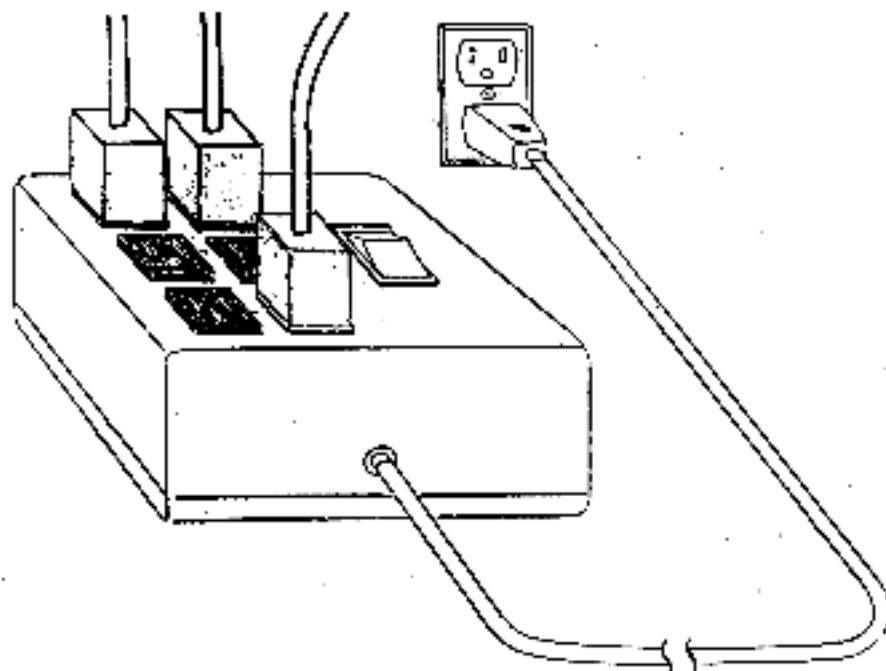
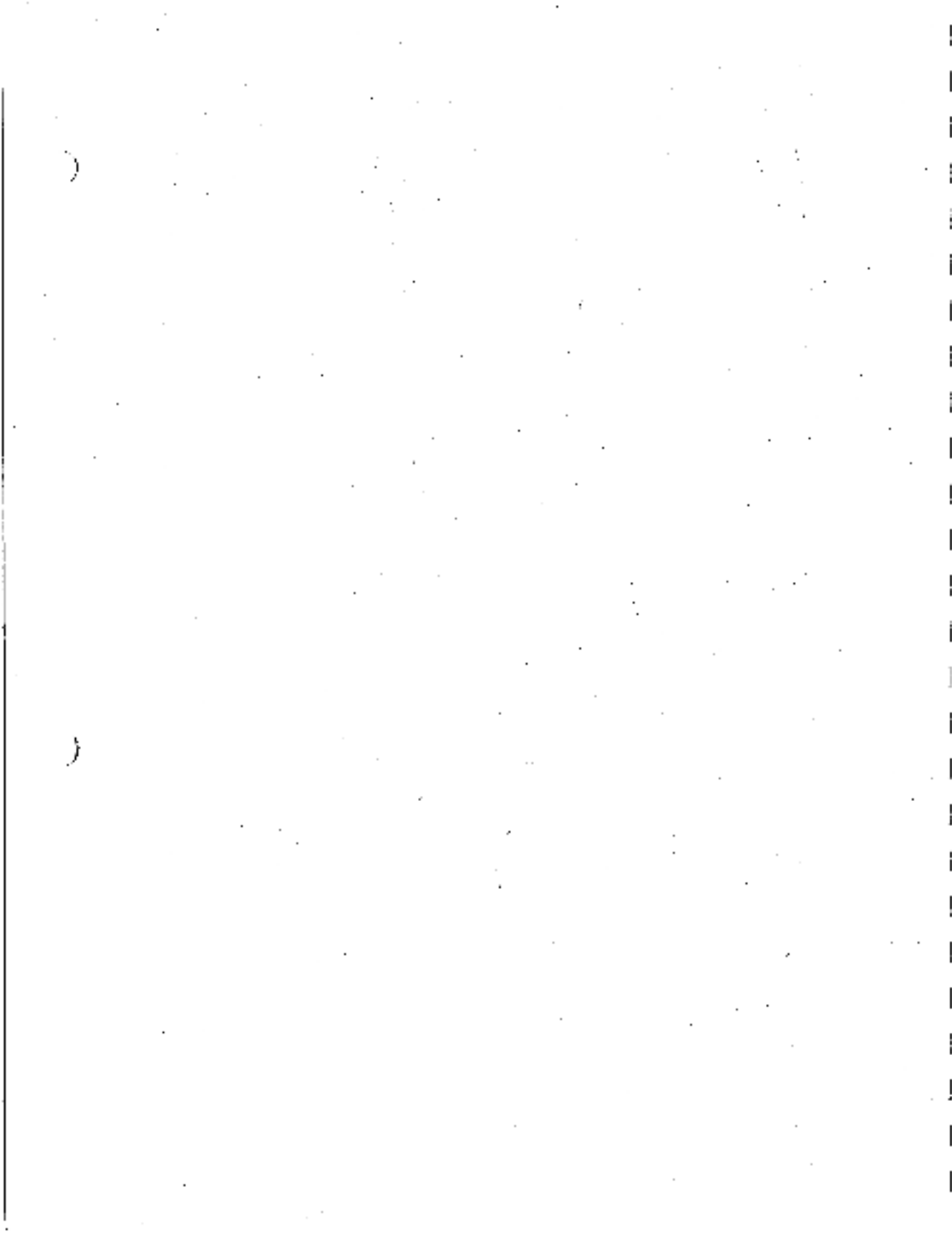


Figure 4-15 Remote Power Switch



CONNECTING COMPONENTS

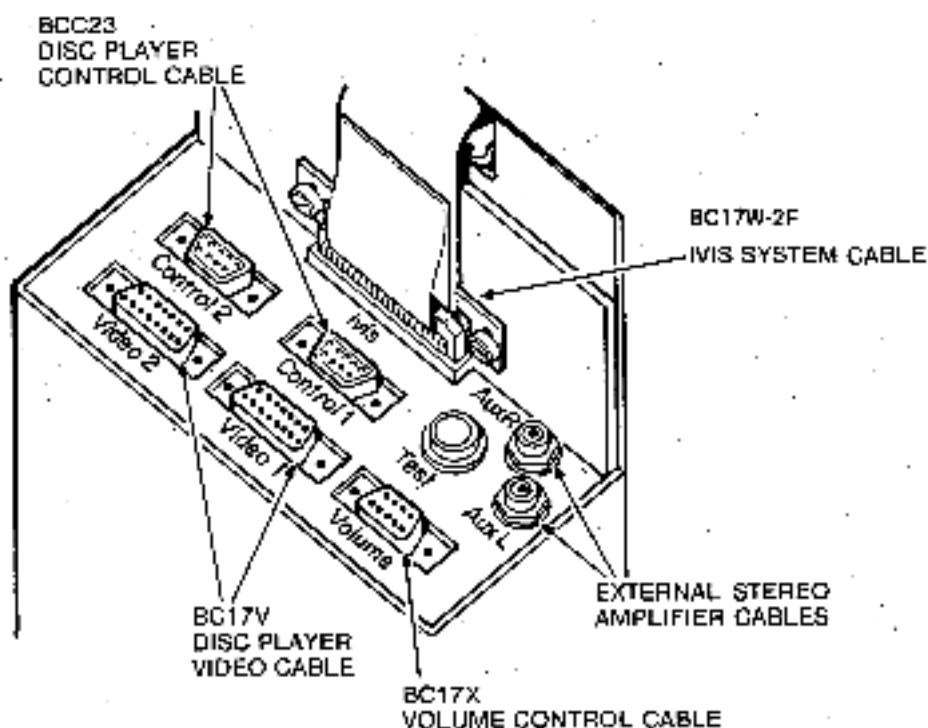
INTRODUCTION

You can use a variety of components with your IVIS system, including video and audio disc and tape players, video monitors, amplifiers, headphones, and speakers. You can purchase components from Digital or from other manufacturers. This chapter's purpose is not to tell you how to install the IVIS system; the chapter does, however, provide the following information about the various types of components you can use and how to connect them.

- a. Before installation -- What components are suitable for use in the system.
- b. During installation -- How to install optional components not included in the basic installation instructions.
- c. After installation -- How to connect and operate the system with optional components.

HOW TO CONNECT COMPONENTS

The IVIS System Installation Instruction manual (2K-01VIS-IN) provides detailed instructions for interconnecting basic system components. This chapter reviews those basic instructions and tells you how to connect other components to the system. Figure 5-1 shows the connectors on the IVIS backpack and identifies the cables that attach to them.



MO-2974-A31P

Figure 5-1 IVIS Backpack Connectors

The following sections show you how to connect various components to the system.

See Figure	To Connect
5-2	Sony LDP-1000(A) video disc player
5-3	Pioneer/Discvision video disc player
5-4	An external video input
5-5	A component to be computer-controlled
5-6	A color video monitor
5-7	More than one color video monitor
5-8	An auxiliary audio amplifier

NOTE

The basic IVIS system shipped from the factory, has been tested to meet its design specifications. This chapter provides information about connecting additional equipment to your IVIS system. Your system may not operate correctly unless you use equipment and software that meets IVIS specifications.

HOW TO CONNECT
A SONY LDP-1000A VIDEO DISC PLAYER

The Sony model LDP-1000A (Digital VOP40) video disc player connects directly to the IVIS system. The EXT CPU switch must be set to ON when the IVIS system is to control the player. If you need more information, see the "Video Sources" section in this chapter.

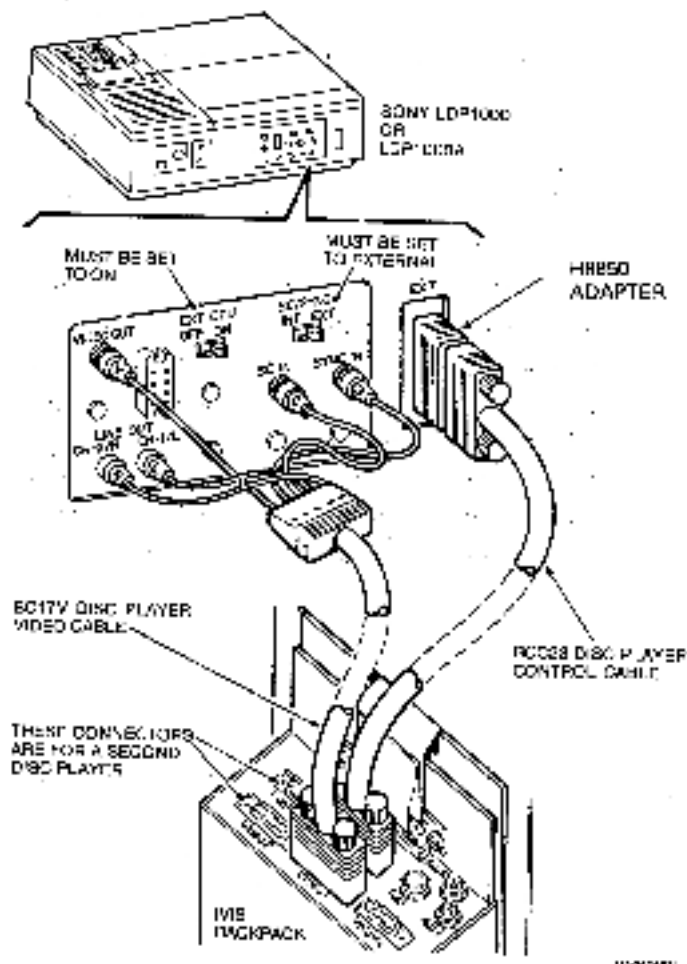


Figure 5-2 Connecting a Sony LDP-1000A Video Disc Player

HOW TO CONNECT A PIONEER/DISCOVISION VIDEO DISC PLAYER

The Pioneer/Discovision model PR7820-2 or -3 video disc players require a serial interface adapter (SIA or UBI) for computer-controlled operation. If you need more information, see the "Video Sources" section in this chapter.

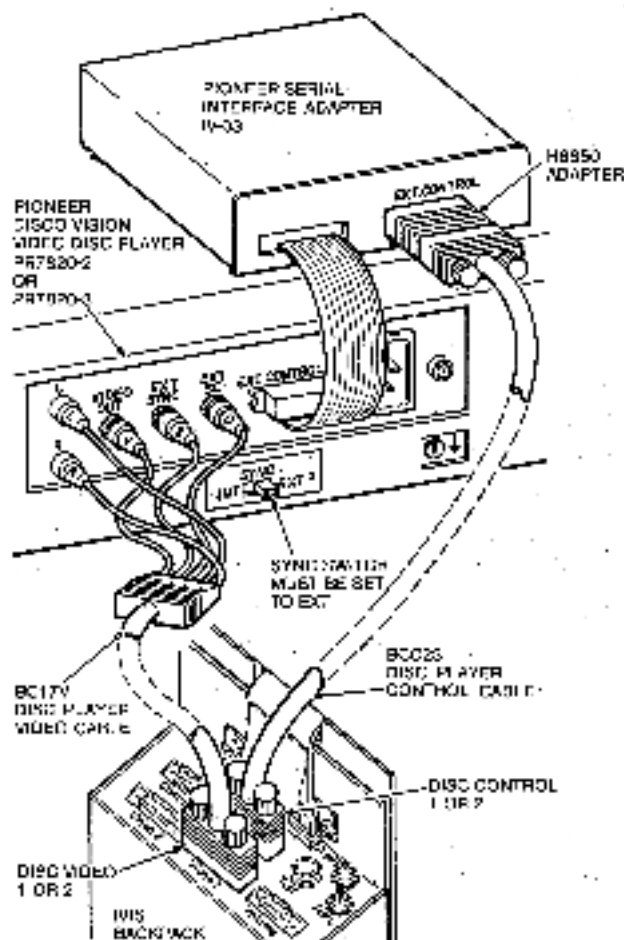


Figure 5-3 Connecting a Pioneer/Discovision Video Disc Player

HOW TO CONNECT
AN EXTERNAL VIDEO INPUT

A qualified technician can assemble a cable that connects to the VIDEO 1 or VIDEO 2 backpack connector, using the following table. The backpack connector is a 15-pin D-subminiature socket. If you need more information, see the "Video Sources" section in this chapter.

IVIS SIGNAL AT 54-15993 ANALOG MODULE VIDEO 1 (J4)	IVIS SIGNAL AT 54-15993 ANALOG MODULE VIDEO 2 (J6)	PIN
GROUND	GROUND	1
GROUND	GROUND	2
GROUND	GROUND	3
NO CONNECTION	NO CONNECTION	4
NO CONNECTION	NO CONNECTION	5
NO CONNECTION	NO CONNECTION	6
AUDIO SOURCE 1 RIGHT	AUDIO SOURCE 2 RIGHT	7
AUDIO SOURCE 1 LEFT	AUDIO SOURCE 2 LEFT	8
NTSC COMPOSITE VIDEO	NTSC COMPOSITE VIDEO	9
EXTERNAL SYNC 1	EXTERNAL SYNC 2	10
EXTERNAL SUBCARRIER 1	EXTERNAL SUBCARRIER 2	11
NO CONNECTION	NO CONNECTION	12
ERR 5 H *	ERR 3 H *	13
GROUND	GROUND	14
GROUND	GROUND	15

* These signals are used to indicate an error if the cable is not connected.

Figure 5-4 Connecting an External Video Input

HOW TO CONNECT A COMPUTER-CONTROLLED COMPONENT

A qualified technician can assemble a cable that connects to the CONTROL 1 or CONTROL 2 backpack connector, using the following table. The signals are RS232 compatible and the connector is a 9-pin D-subminiature socket. If you need more information, see the "Video Sources" section in this chapter.

IVIS SIGNAL AT 54-15895 LOGIC MODULE CONTROL 1 (J2)	IVIS SIGNAL AT 54-15895 LOGIC MODULE CONTROL 2 (J1)	PIN
NO CONNECTION	NO CONNECTION	1
TxD0	TxD1	2
RxD0	RxD1	3
RTS0	DTR1	4
DTR0	RTS1	5
CTS	CTS	6
GROUND	GROUND	7
GROUND	GROUND	8
ERR 4H *	ERR 2H *	9

* These signals are used to indicate an error if the cable is not connected.

Figure 5-5 Connecting a Computer-Controlled Component

HOW TO CONNECT
ONE COLOR VIDEO MONITOR

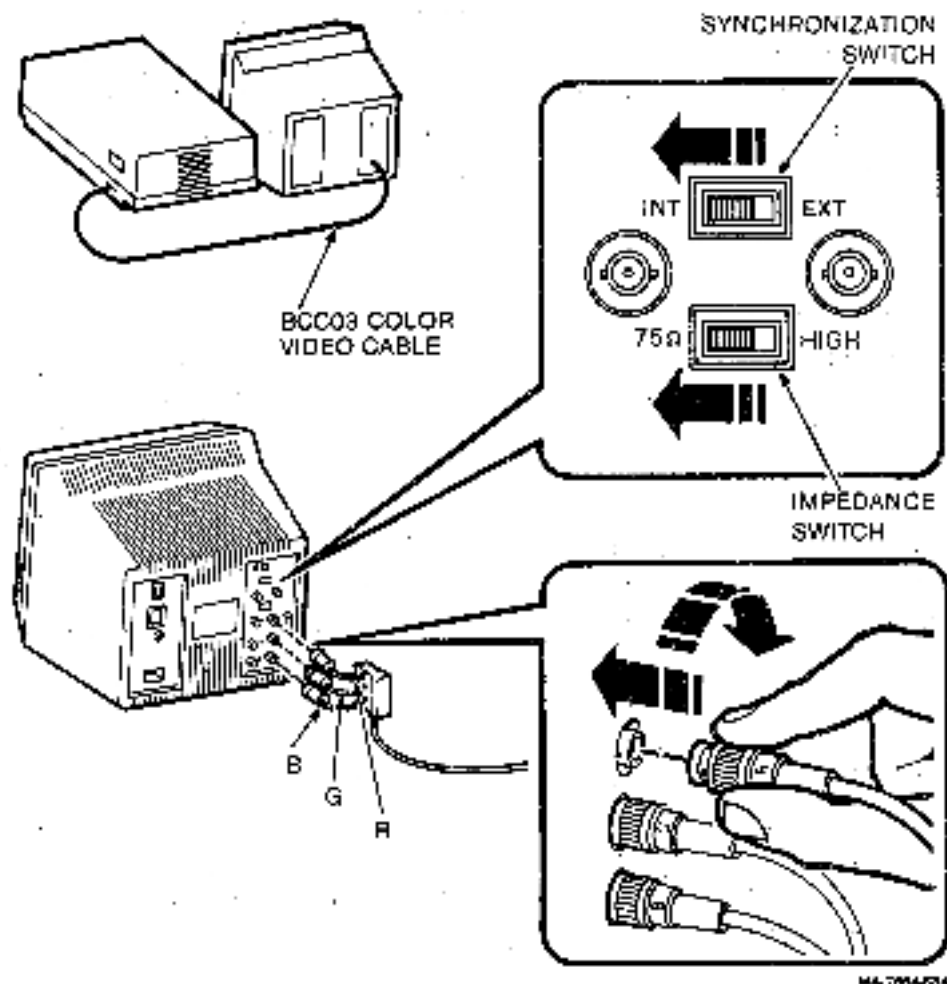


Figure 5-6 Connecting One Color Video Monitor

If you need more information, see the "Video Monitors" section in this chapter.

HOW TO CONNECT
MORE THAN ONE COLOR VIDEO MONITOR

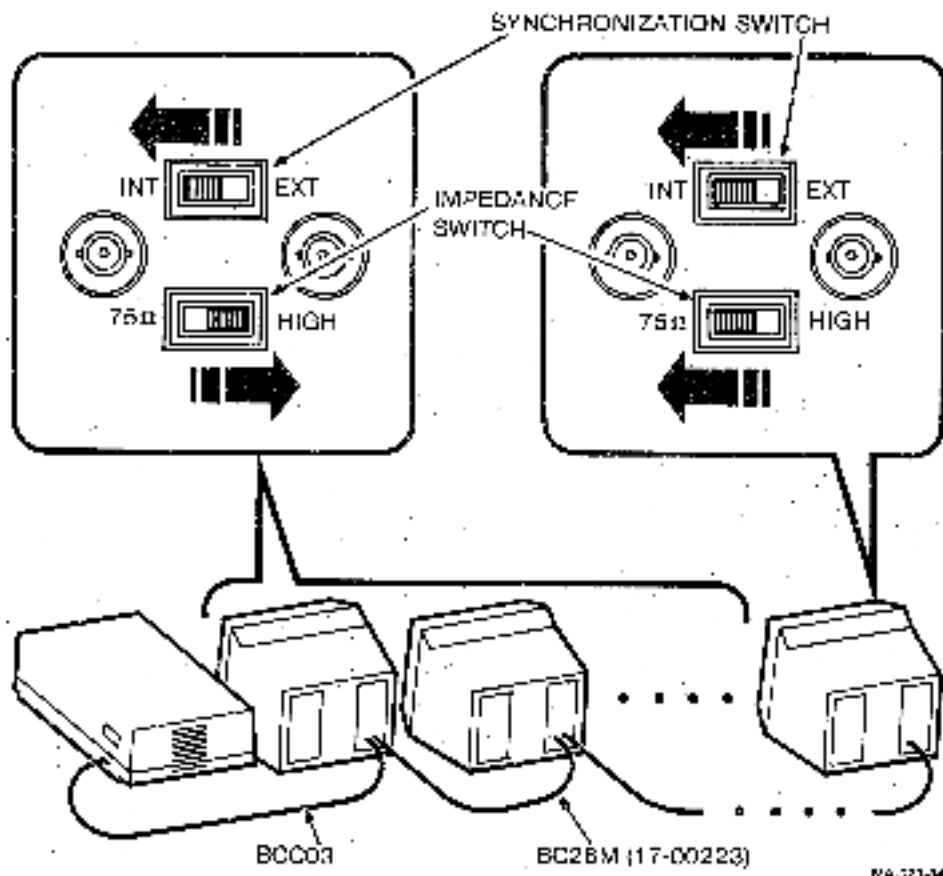
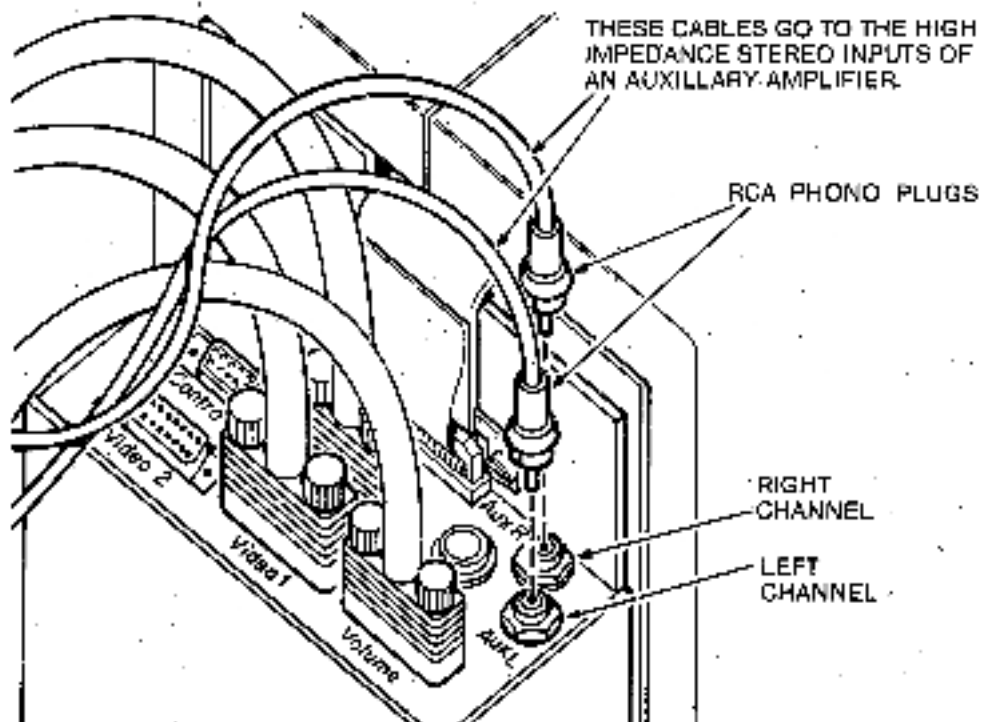


Figure 5-7 Connecting More Than One Color Video Monitor

If you need more information, see the "Video Monitors" section in this chapter.

HOW TO CONNECT
AN AUXILIARY AUDIO AMPLIFIER



MA-70/1421

Figure 5-8 Connecting an Auxiliary Audio Amplifier

If you need more information, see the "Audio Output Devices" section in this chapter.

VIDEO SOURCES

Video input devices used with the IVIS system must provide an NTSC composite video signal of 0.5 V to 1.2 V peak-to-peak (including sync) into 75 ohms. The quality of the sync pulses on this video signal is critical. If sync does not conform to EIA-170, the IVIS system may not operate correctly.

Video 1 and Video 2

The IVIS system includes a BC17V disc video cable that can connect an audio/video input component. You can connect two such components to an IVIS system. This cable (Figure 5-9) plugs into the VIDEO 1 or VIDEO 2 connector on the backpack (Figure 5-1).

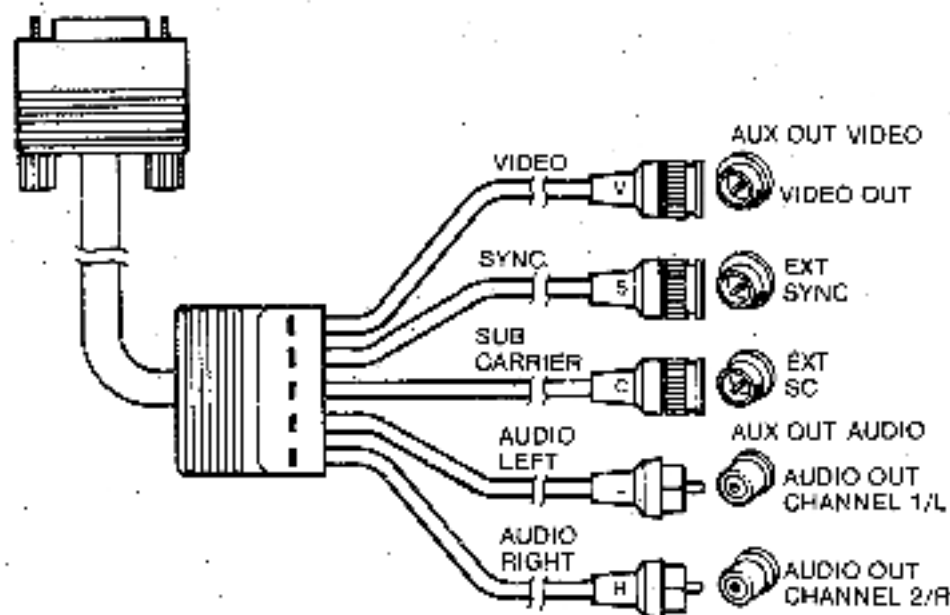


Figure 5-9 BC17V Disc Player Video Cable

Use the video and audio adjustment procedures in Chapter 4 to balance the levels of the two audio and/or video sources.

SYNC AND SUBCARRIER SIGNALS

A video disc player or other audio/video component may or may not have input connectors to accept the RS170-compatible external sync and subcarrier signals from the IVIS system.

- o With Connectors - Look for SYNC and SC connectors and an INT/EXT switch similar to those shown Figures 5-2 and 5-3. The IVIS system can control synchronization of an image coming from a disc player.
- o Without Connectors - The synchronizing signals are supplied by the component. The IVIS software must enable UNLOCK mode. Occasional tearing of the image from a player will occur when synchronization is lost. Tearing is most noticeable when a disc is scanned, searched, or brought up to speed.

Control 1 and Control 2

The IVIS system includes a BCC23-10 control cable (Figure 5-10) that connects from the backpack Control 1 or Control 2 connector to a player or other component with remote computer control capability. See Figures 5-2 and 5-3.

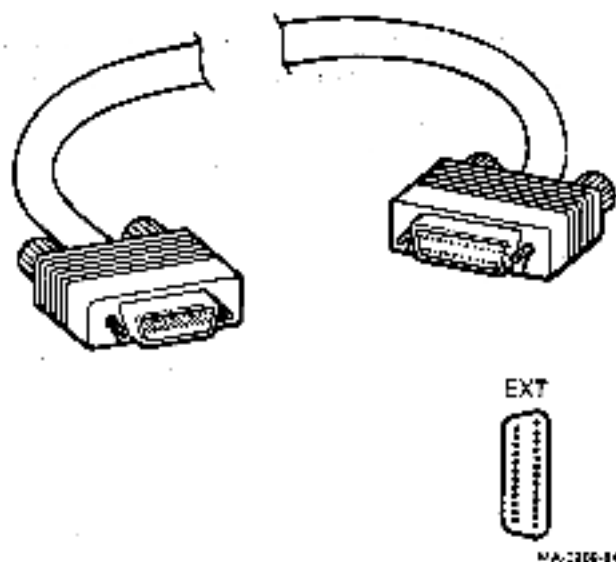


Figure 5-10 BCC23 Disc Player Control Cable

The BCC23 cable is a general-purpose cable that requires a cable adapter in certain applications. See Figure 5-11.

EXTERNAL CONNECTOR

A video disc player or other audio/video component may or may not have an RS232C serial interface connector to accept control signals from the IVIS system.

- o With a connector - Look for an "EXT CONTROL" connector similar to those in Figures 5-2 and 5-3. (The component may or may not have a "CPU CONTROL" switch.) The EXT CONTROL connector will let the IVIS system control component functions.

- o without a connector - You can use the component with the IVIS system, but IVIS will not control any of the component's functions.

H8850 DISC CONTROL CABLE ADAPTER

This adapter connects between the BCC23 control cable and the Sony model RDP-1000A video disc player.

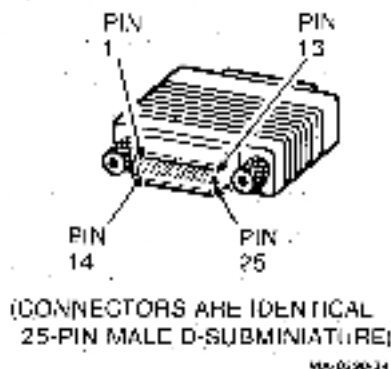


Figure 5-11 H8850 Adapter

Wiring Table for H8850 Adapter

IVIS SIGNAL AT THE BCC23 CABLE*	FROM PIN P1	TO PIN P2
	1	1
TxD0 or TxD1	2	2
RxD0 or RxD1	3	3
DTR0 or DTR1	4	4
	5	5
CTS0 or CTS1	6	6
DSR0 or DSR1	20	20
GROUND	7	7

* The BCC23 cable can plug into the Control 1 or Control 2 connector. The IVIS signals with a 0 suffix are from the Control 1 connector; signals with a 1 suffix are from the Control 2 connector. This adapter is reversible (it plugs in either way).

Freeze-Frame

The video disc player produces sound and picture signals as it reads the spiral track on the disc. Each disc revolution produces one picture on the screen and 1/60th of a second of sound. The player produces normal sound and a moving pictures by following the track without interruption. In freeze-frame mode the player locks onto one section of the track, playing that section repeatedly, but with the sound blanked.

When you use discs with freeze-frame segments on the IVIS system, a separate audio source can provide the accompanying sound. For example, disc player 1 (connected to the Video 1 and Control 1 connectors on the backpack) could have freeze-frame segments. The accompanying sound could come from any audio component connected to the Video 2 connector (See the Video 1 and Video 2 section in this chapter).

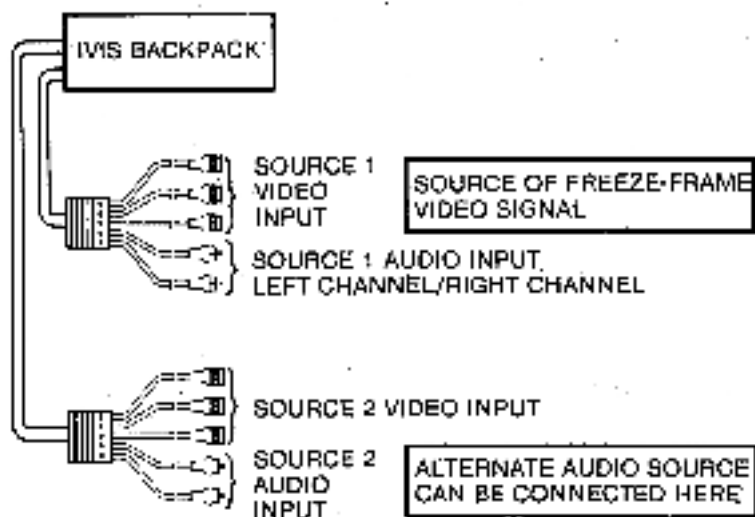


Figure 5-12 IVIS Freeze-Frame Connection

VIDEO MONITORS

The IVIS system can supply video output for any high resolution RGB monitor. Some monitors, however, require logic changes for use with the IVIS system. These changes may involve aspect ratio and synchronization signals.

The "Cables and Accessories" section later in this chapter identifies the Digital cables you can use for various monitor applications.

AUDIO SOURCES

You can program the IVIS system to output sound from the following sources.

- o Source 1 audio, left and right channels (stereo)
- o Source 2 audio, left and right channels (stereo)

Each stereo channel can operate separately for monaural sound. Source 1 and/or Source 2 may be the audio output from a video disc player or any other audio output device. The BCL7V video cable has two connectors for use with a stereo audio source (Figure 5-13).

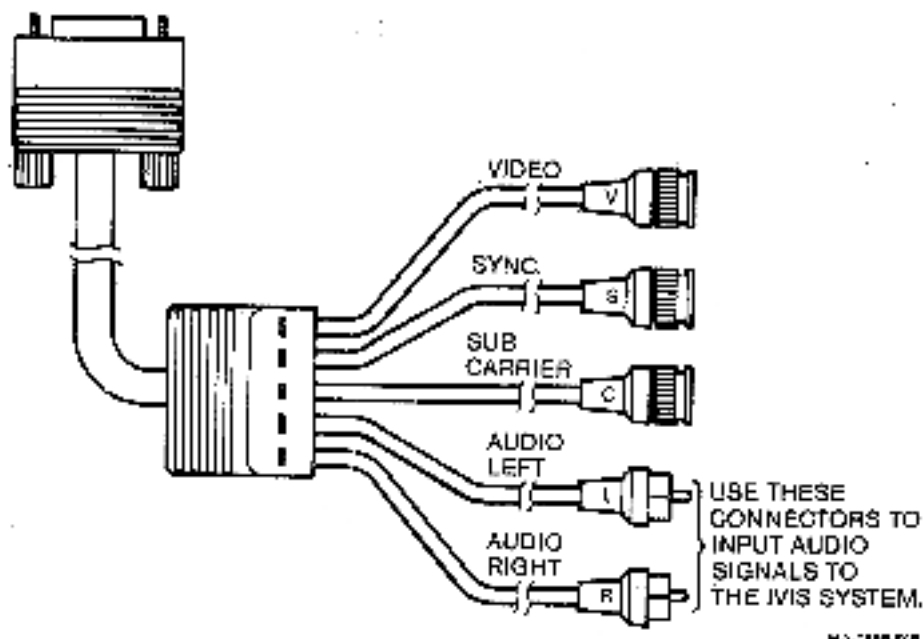


Figure 5-13 BCL7V Audio Input Connectors

Use the audio adjustment procedure in Chapter 4 to balance the listening levels of the these sources.

Audio Output Devices

The IVIS system provides two kinds of audio output.

- o For headphones (volume controlled by IVIS)
- o For an external amplifier with its own volume control and speakers

To Use Master Audio Output

1. Plug headphones (32 ohms) into the miniature two-circuit phone jack on the BC17X volume control cabin. The IVIS audio system can supply one watt of audio power per channel.
2. Use the one volume control knob to set the desired listening level for both stereo channels.

To Use Auxiliary Audio Output

1. Connect the audio inputs of an external amplifier to the AUX L (left) and AUX R (right) connectors on the backpack. The connectors are standard RCA phono plugs and jacks.
2. Use the volume controls on the amplifier to set the desired listening level for each stereo channel.

Cables and Accessories

You may need the following parts if you add components to your IVIS system.

Part Number	Description
HC26A-xx (17-00223-00)	Color interface cable (for connecting two color monitors in series)
3CC03-xx (17-00284-00)	Color video cable (FC350 to monitor)
BC17V-xx (17-00407-02)	Disc player video cable
BCC23-xx (17-00301-03)	Disc player control cable
BC17X-10 (17-00406-00)	Volume control cable
H8850	Disc player control cable adapter
30-20939-02	Stereo headphones

CORRECTING SIMPLE PROBLEMS

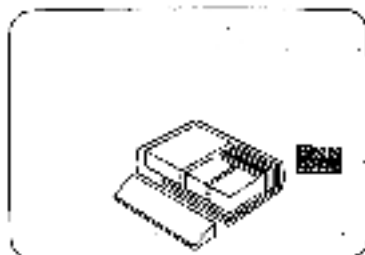
INTERNAL SELF-TESTS

Your IVIS system contains a complete set of self-test programs that check all major system functions. The self-test program identifies any problem found. The internal self-test program runs automatically every time you turn the system unit power switch on.

The PC300 Series Owner's Manual and other manuals that come with your system explain the tests, define the fault messages, and tell you how to correct some problems yourself. This chapter gives you that kind of information for the IVIS system components.

TEST MESSAGES

The power-up self-test displays test results on the screen in graphic form. If the IVIS components are not working correctly, the following graphic message may appear.



If the module highlighted is in slot 6 and the numbers are

06 0205

003006

the power-up self-test found an IVIS problem. The problem is limited to IVIS, and does not affect the complete system. Your system may operate normally except for IVIS.

Press **RESUME**.

BACKUP TEST MESSAGES

In addition to graphic messages, the power-up self-test also turns on one or more of the four red status indicators when it finds an error. These indicators are on the back of the system unit (Figure 4-3). Table 6-1 lists the status indicator codes and their meanings.

NOTE

Make sure the green DC indicator on the back of the system unit is on. If the fan is running and the green indicator is on, continue. If the green indicator is off, see the maintenance chapter of the PC300 Series Owner's Manual.

Table 6-1 Status Indicator Error Codes

INDICATORS				MEANING
4	3	2	1	
0	*	0	0	The module in slot 4 of the system unit has failed.
0	*	0	*	The module in slot 5 of the system unit has failed.
0	*	*	0	The module in slot 6 of the system unit has failed.

0 means the indicator is off.

* means the indicator is on.

NOTE

Table 6-1 only includes error codes for slots 4, 5, and 6, which contain the three IVIS modules. See Table 6-3 for instructions.

SYSTEM TEST REPORTS

If the system test detects an error, the test displays a summary report on the screen. Table 6-2 shows the IVIS component fault messages and the appropriate corrective action. Press the HELP key for more information. See also Table 6-3.

Table 6-2 System Test Errors

Failed Unit	Message	Corrective Action
IVIS	20 Pin cable error	The test found a problem with the 011002 video module, the 003006 IVIS system module, or the 20-conductor cable that connects to them. Contact a technician for service.
	Flat cable error	The test found an error in the IVIS system cable, the 003006 IVIS system module, or the IVIS backpack. Contact a technician for service.
	Error on channels 1 and 2.	The test did not find a player connected to channel 1 or 2. Make sure that cables are inserted securely. If the error continues, contact a technician for service.

Table 6-2 System Test Errors (cont.)

Failed Unit	Message	Corrective Action
IVIS	Unknown player on channel 1.	Make sure that a player control cable is connected to the backpack control 1 or control 2 connector.
	Unknown player on channel 2.	
		If the error continues, contact a technician for service.

CORRECTING SIMPLE PROBLEMS

This section tells you how to correct simple problems without calling for service.

NOTE

First, turn the system power off, then on again. Then check for normal operation.

Then, work through the following checklist. If you still have a problem, go to Table 6-3. The table lists IVIS system errors and corrective actions.

WARNING

Do not operate your system unit with its cover removed.

OPERATING CHECKLIST

1. Make sure the fan on the left side of the system unit is running.
2. Make sure the green DC indicator on the back of the system unit is on, but no red indicators are on.
3. You should hear a click when you press a key on the keyboard.
4. Make sure the green Power OK indicator on the front of the color monitor is on.
5. The monitor screen should light up when you turn up the brightness control.
6. The Main Menu should appear.
7. Make sure the Power OK indicator on the front of the IVIS backpack is on.
8. You should be able to select the IVIS System Verification program and start it running with the 1983 NCC IVIS Demo disc on the player.

GUIDELINES

- o At any error message, press the HELP key on the keyboard.
- o Run the Maintenance Services program. (See page 7-25 of the IVIS System Installation Manual or the maintenance chapter in the Professional 300 Series Owner's Manual.)
- o Before you check to see that modules and cable connectors are tight, refer to the IVIS Instruction Manual for helpful information and illustrations that show how components are installed and connected.
- o If you need help, call Digital.

U.S.A.	1-(800)-554-3333
Canada	(800)-267-5251
United Kingdom	(734) 959711

Table 6-3 Correcting Simple Problems

Symptom or Error Code	Corrective Action
Highlighted module on screen	Reseat all modules and cables in the system unit.
0203, 0204, or 0205 code The numbers are displayed in this format. 06 0205 00J026	Reseat all cable connections. Make sure that IVIS backpack has its ac power cord connected. (The Power OK indicator should be on).
No ac power to components (system unit, color monitor, and IVIS backpack have Power OK indicators.)	Make sure that remote power switch is connected to a live receptacle. Make sure that the remote power switch circuit breaker is set to I (on). Reseat power cords to system unit, backpack, and disc player, or plug them into a wall receptacle.
System power is controlled by some other device than the system unit.	Make sure power cord from the system unit goes to the <u>white</u> receptacle on the remote power switch.

Table 6-3 Correcting Simple Problems (cont)

Symptom or Error Code	Corrective Action
Color image on the monitor screen	Reseat the G connector to the color monitor. Make sure the color monitor SYNC switch is set to INT.
No red color	Set up system for correct monitor type. See IVIS Installation Instruction manual, SET-UP, page 7-16.
Image areas that should be white are purple.	Make sure the color monitor impedance switch is set to 75Ω.
Image areas that should be white are blue or yellow.	Reseat R and B connectors to the color monitor.
Noise in the TV picture from a particular disc	First, adjust Sony LDP-1500A disc player FOCUS control. Then adjust TRACKING control for best picture. Return controls to center (detented) position after playing that disc.
No signal from disc player	Make sure disc is in player with the shiny side down. Make sure the disc player video cable is tight.

Table 6-3 Correcting Simple Problems (cont)

Symptom or Error Code	Corrective Action
Intermittent or erratic video, or loss of synchronization	Make sure there is no heavy object on the disc player top cover. Have the ac power voltage checked. The disc player requires 107 volts minimum. Use eyeglass lens cleaning tissue to clean the disc player objective lens. Wipe the disc with a soft cloth moistened with warm water.

REPAIRS

The first section of this chapter describes the steps you should take before you call one of the telephone numbers listed below. The second section describes the repair and support services available from Digital.

HOW TO GET SERVICE

Digital has a central service point in your area to help you get your system running with a minimum of trouble.

Before you call

- o Step through Chapter 6 of this book. Quite often you can solve a problem yourself.
- o Write down the serial number of your IVIS system. The serial number is on the back of the system unit, next to the power cord.
- o Summarize the problem. Make a note of what you were doing when the system failed. Also note if any indicators are turned on or off, or if you heard any new sounds just before or after the system failed.

When you call

- o Stay near the system.
- o Have all your materials available. The service person may ask you to try to recreate the problem. To do this, use the same diskettes that you were using when the problem occurred.

Call Digital at one of the following telephone numbers:

U.S.A.	1-(800)-554-3111
Canada	(800)267-5251
United Kingdom	(714)888711

REPACKING FOR SHIPMENT

To avoid damage in shipment, Digital recommends that you pack your system components in their original cartons when possible.

If you need to disassemble parts of the system, refer to the IVIS Installation Instruction Manual. It provides drawings that show how to access various subassemblies and information about how to take them apart.

System Unit

If you have to return the system unit to Digital for service, follow these steps.

1. Remove the hard disk drive, if your system has one, for shipping separately. Replace the system unit top cover.
2. You must repack the diskette drive with the shipping card that was in the diskette drive when you received the system.
 - a. Open the diskette drive doors.
 - b. Turn system power on for 5 seconds, then turn power off.

- c. Insert the shipping card into one of the diskette drives. Do not force the card in. If the card does not go in all the way, repeat steps 2a and 2b.

- d. Close the diskette drive doors.

2. Disconnect the system unit, and repack it.

Video Disc Player

1. Open the cover. (Power must be on.)
2. Remove the lens cover from the projection inside the player cover and place it over the objective lens (Figure 7-1).
3. Place the cushion over the drive spindle.
4. Close the player cover.
5. Turn power off and disconnect the power cord.
6. Disconnect the cables from the back of the player.
7. Find the location indicator and the adjuster (Figure 7-1).
8. Turn the adjuster until the location indicator arrow tips are aligned.
9. Tighten the shipping screw (Figure 7-1).
10. Follow the packing instructions printed on the flap of the shipping carton.

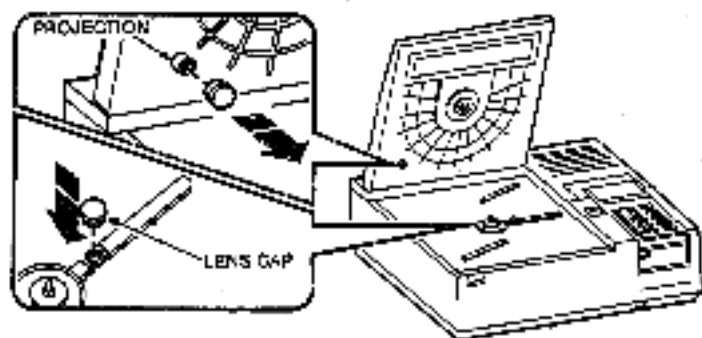


FIGURE 7-1

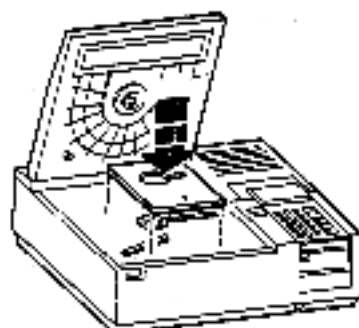


FIGURE 7-2

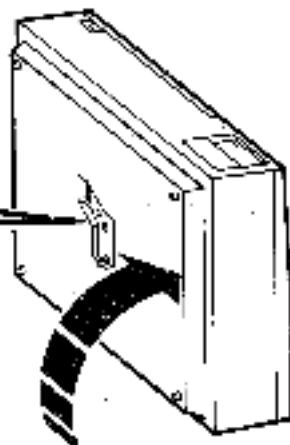
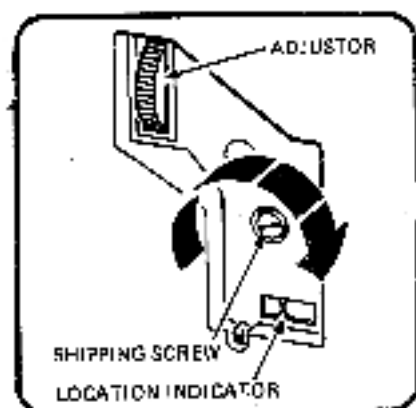


FIGURE 7-3

Figure 7-1 Preparing the Disc Player for Shipment

DIGITAL REPAIR SERVICE

Digital Field Service offers a range of flexible service plans. Choose the one that is right for you.

ON SITE SERVICE offers the convenience of service at your site and insurance against unplanned repair bills. For a small monthly fee you receive personal service from our Service Specialists. Within a few hours of your call, the specialist is dispatched to your site with all the equipment and parts needed to give you fast and dependable maintenance.

BASIC SERVICE offers full coverage from 8 a.m. to 5 p.m., Monday through Friday. Options are available to extend your coverage to 12-, 16-, or 24-hour days, and Saturdays, Sundays, and holidays.

DRCSERVICE offers a premium on-site service that guarantees extra-fast response and nonstop remedial maintenance. We don't leave until the problem is solved, which makes this service contract ideal for those who need uninterrupted operations.

Under Basic Service and DRCSERVICE all parts, materials, and labor are covered in full.

CARRY-IN SERVICE offers fast, personalized response and the ability to plan your maintenance costs for a smaller monthly fee than On-Site Service. When you bring your unit in to one of 160 Digital Servicecenters worldwide, factory-trained personnel repair your unit within two days (usually 24 hours). This service is available on selected terminals and systems. Contact your local Digital Field Service Office to see if this service is available for your unit. Digital Servicecenters are open during normal business hours, Monday through Friday. Call one of the following numbers for the location of the office nearest you.

DRCTRAILER offers expert repair at a per use charge. This service is for users who have the technical resources to troubleshoot, identify, and isolate the module causing the problem. You mail the faulty module to our Customer Returns Center, where the module is repaired and mailed back to you within five days.

PER CALL SERVICE offers a maintenance program on a noncontractual, time-and-materials-cost basis. This service is available with either On-Site or Carry-In service. It is appropriate for customers who have the expertise to perform first-line maintenance, but may occasionally need in-depth support from Field Service.

Per Call Service is also offered as a supplementary program for Basic Service customers who need maintenance beyond their contracted coverage hours. There is no materials charge in this case.

On-Site Per Call Service is provided on a best effort basis, with a normal response time of two to three days. It is available 24 hours a day, seven days a week.

Carry-in Per Call Service is available during normal business hours, with a two to three day turnaround.

For more information on these Digital service plans, prices, and special rates for volume customers, call one of the following numbers for the location of the Digital Field Service office nearest you.

DIGITAL INTERNATIONAL FIELD SERVICE INFORMATION NUMBERS

U.S.A.	1-(800)-554-3333
Canada	(800)267-5231
United Kingdom	(734)868711

A

Adapter, M8850, 5-4, 5-13
 Antenna switch, 4-19
 Audio controls, 4-14 to 4-16

B

Backpack, 2-3
 Audio controls, 4-14 to 4-16
 Cable connectors, 5-2
 Circuit breaker, 4-11
 HSE control, 4-14
 Power OK indicator, 4-13
 Saturation control, 4-14
 Video controls, 4-14 to 4-15
 Voltage selection switch, 4-11
 Brightness control, 4-3

C

Cables, 3-5, 5-2, 5-20
 EC17V, 5-2, 5-11, 5-19
 EC17w-2U, 5-2
 EC17X, 4-11
 EC2EM, 5-9
 EC003, 5-8, 5-9
 EC023, 5-2, 5-13
 Circuit breaker,
 Backpack, 4-11
 System unit, 4-4
 Computer-controlled component,
 How to connect, 5-3
 Condensation,
 Video disc player, 3-1
 Connectors, backpack, 5-2
 Contrast control, 4-3
 Control,
 Audio, 4-14 to 4-16
 Brightness, 4-3
 Contrast, 4-3
 Focus, 4-20, 6-9
 H, 4-20
 HSE, 4-14
 Index, 4-20
 Saturation, 4-14
 Tracking, 4-20, 6-9
 V, 4-20
 Video, 4-11 to 4-15
 Volume, 4-1

D

DC indicator, 4-6, 6-2
 Dimensions, 3-2
 Disc, See Video disc
 Disc player,
 See Video disc player
 Drive active indicator, 4-5

E

EXT EPC switch, 4-20

F

Focus control, 4-20, 6-9
 Freeze-frame, 5-6
 Fuse, 4-11

H

H control, 4-20
 M8850 Adapter, 5-4, 5-15
 Headphones, 4-11
 HREF, 6-7, 7-1
 Hue control, 4-14

I

Impedance switch, 4-3
 Index control, 4-20
 Indicator,
 DC, System unit, 4-6, 6-2
 Drive active, 4-5
 Power OK, Backpack, 4-13
 Power OK, monitor, 4-3
 Status, disc player, 4-19
 IVIS system verification, 4-15

L

Lens, 4-21, 6-10, 7-10
 Cover, 7-12

M

Media storage/care, 3-5, 6-10
 Modules, 6-7
 Monitor, See Video monitor

O

Objective lens, 4-21, 6-10, 7-10
 Open cover switch, 4-18

P

Packing for shipment, 7-2
 Pioneer/Discovery
 Video disc player, 5-5
 Player,
 See video disc player
 Power OK indicator,
 Backpack, 4-11
 System unit, 4-6, 6-9
 Video monitor, 4-8
 Power requirements, 3-4
 See also Remote power switch
 Power switch,
 System unit, 4-2
 Video monitor, 4-3
 Video disc player, 4-13
 Publications, 2-5

R

Remote control unit, 4-18
 Remote power switch,
 Connection, 3-4, 4-2
 Description, 2-3, 4-23
 Troubleshooting, 5-8
 Repair services, 7-1, 7-5

S

Saturation control, 4-14
 SC/SYNC switch, 4-20
 Self-test, 6-1, 4-6, 6-2
 SRT-OP, for monitor, 6-9
 Shipment, packing for, 7-2
 Shipping screw, 4-22, 7-2

S (cont)

Software,
 Documentation, 2-4, 2-5
 Media, 2-4
 Status indicators,
 System unit, 4-6, 6-2
 Disc player, 4-19
 Storage and care
 Media, 3-5
 Video discs, 3-5, 6-10
 Switch,
 Antenna, 4-19
 EXT/CPU, 4-20
 Impedance, 4-9
 Power, player, 4-18
 Power, monitor, 4-3
 Power, sys. unit, 4-2
 Open cover, 4-13
 SC/SYNC, 4-20
 Synchronization, 4-10
 Voltage select,
 Backpack, 4-11
 Monitor, 4-9
 System unit, 4-3
 See also Remote Power Switch
 Synchronization switch, 4-10
 System unit,
 Circuit breaker, 4-4
 DC Indicator, 4-6, 6-2
 Drive active indicator, 4-5
 Packing for shipment, 7-3
 Power switch, 4-2
 Status indicators, 4-6, 4-6,
 6-2
 Voltage selection switch, 4-3
 System verification program,
 4-15, 6-8

T

Temperature Specification, 3-5
 Tracking control, 4-20, 6-8

V

V Control, player, 4-20
 Ventilation, 3-1
 Video, external input, 5-8
 video controls, 4-11 to 4-15
 video disc, 4-21
 Problems, 5-9
 Storage and care, 3-5, 6-13
 Test, demo, 4-15
 Video disc player, 2-3, 4-17
 Antenna switch, 4-19
 Condensation, 3-1
 EXT CPU switch, 4-20
 Focus control, 4-20, 6-3
 H Control, 4-20
 How to Connect, 5-4 to 5-5
 Index control, 4-23
 Objective lens, 4-21, 6-10, 7-10
 Off-lens testing, 4-13
 Open cover switch, 4-18
 Pioneer/Discovision, 6-5
 Power switch, 4-18
 Remote control unit, 4-18
 SC/SYNC switch, 4-23
 Shipping screw, 4-22, 7-2
 Status indicators, 4-19
 Tracking control, 4-20, 6-9
 V Control, 4-20
 Video monitor, 2-2
 Brightness Control, 4-8
 Contrast control, 4-8
 Fuse, 4-10
 Impedance switch, 4-9
 Power OK indicator, 4-8
 Power switch, 4-9
 SET-UP, 6-8
 Synchronization switch, 4-10
 Voltage selection switch, 4-9
 Voltage selection switch,
 Backpack, 4-11
 System unit, 4-3
 Video monitor, 4-9
 Volume control, 4-11

