

RS/6000 MediaStreamer

User's and Service Guide



First Edition (February 1997)

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Contents

Communications Statements	v
Safety Notices	viii
About This Book	x
Chapter 1. 7236 MediaStreamer Drawer	1-1
MediaStreamer Drawer	1-1
Front Panel	1-1
Rear View	1-2
Audio/Video Decoder Adapter	1-3
Typical Audio Cable Assembly	1-4
Distribution Board	1-4
SCSI ID Cable	1-5
Internal SCSI Cable	1-5
Cable Management Bracket	1-5
7236 Physical Specifications	1-6
MediaStreamer Audio/Video Decoder Specifications	1-6
Removal and Replacement Procedures	2-1
Handling Static-Sensitive Devices	2-1
Rails and Mounting Hardware for an Additional 7236 Drawer	2-2
Service Position	2-4
Operating Position	2-5
Top Cover	2-6
Adapters	2-7
Power Supply	2-9
Distribution Board	2-11
Fan Assembly	2-12
SCSI ID Cable	2-13
Internal SCSI Cable	2-14
Resistor Assembly	2-15
Parts Information	3-1
Rails and Mounting Hardware	3-1
MediaStreamer Drawer	3-2
Chapter 4. Maintenance Analysis Procedures (MAPs)	4-1
MAP 1020: MediaStreamer Drawer – Problem Determination	4-1
MAP 1040: MediaStreamer Drawer – Multiple Cards Failing	4-3
Appendix A. Exchanging SSA Disk Drives	A-1
Appendix B. 7133-020 Content Balancing	B-1
7133-020s Wired for 2 SSA Loops	B-1
Up to 6 7133-020s connect to a FC 6207 SSA RAID Adapter	B-1

7015-R00 Rack can mount up to 6 7133-020s	B-1
7133-020 Connections in Racks	B-2
Appendix C. SCSI Cabling	C-1
Location Code Format for SCSI Devices	C-2
Appendix D. Drawer Location Assignments	D-1
7133-020 Drawer Configuration as part of a MediaStreamer system	D-1
DASD FEATURES	D-1
ORDER OF SSA DISK INSTALLATION IN THE 7133-020	D-2
7133-020 Viewed from Front.	D-2
7133-020 Viewed from Back	D-2
CABLE FEATURES	D-2
GENERAL CONFIG. REQUIREMENTS FOR 7133-020 IN A MEDIASTREAMER SYSTEM	D-3
CABLING	D-3
7133-020 SSA Connectors	D-3
7133-020 Drawer(s) to SSA Adapter connection	D-3
Front Loop SSA Cable Connection	D-4
Rear Loop SSA Cable Connection	D-4
Appendix E. Using Diagnostics	E-1
Concurrent Operation	E-1
Running Standalone Diagnostics	E-1
Appendix F. MediaStreamer Microcode Update Procedure	E-3
Index	X-1

Communications Statements

The following statement applies to this product. The statement for other products intended for use with this product appears in their accompanying manuals.

Federal Communications Commission (FCC) Statement

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

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Neither the provider nor the manufacturer are responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

United Kingdom Telecommunications Safety Requirements

This equipment is manufactured to the International Safety Standard EN60950 and as such is approved in the UK under the General Approval Number NS/G/1234/J/100003 for indirect connection to the public telecommunication network.

The network adapter interfaces housed within this equipment are approved separately, each one having its own independent approval number. These interface adapters, supplied by the manufacturer, do not use or contain excessive voltages. An excessive voltage is one which exceeds 70.7 V peak ac or 120 V dc. They interface with this equipment using Safe Extra Low Voltages only. In order to maintain the separate (independent) approval of the manufacturer's adapters, it is essential that other optional cards, not supplied by the manufacturer, do not use main voltages or any other excessive voltages. Seek advice from a competent engineer before installing other adapters not supplied by the manufacturer.

European Union (EU) Statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

Neither the provider nor the manufacturer can accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of option cards not supplied by the manufacturer.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22 / European Standard EN 55022. The limits

for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

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

International Electrotechnical Commission (IEC) Statement

This product has been designed and built to comply with IEC Standard 950.

Avis de conformité aux normes du ministère des Communications du Canada

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Canadian Department of Communications Compliance Statement

This Class A digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

VCCI Statement

電波障害自主規制 届出装置の記述

この装置は、第一種情報装置（商工業地域において使用されるべき情報装置）で商工業地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（VCCI）基準に適合しております。

従って、住宅地域またはその隣接した地域で使用すると、ラジオ、テレビジョン受信機等に受信障害を与えることがあります。

取扱説明書に従って正しい取り扱いをしてください。

The following information is a summary of the VCCI Japanese statement in the above box.

This equipment is in the Class 1 category (information equipment to be used in commercial and/or industrial areas) and conforms to the standards set by the Voluntary Control Council For Interference by Data Processing Equipment and Electronic Office Machines aimed at preventing radio interference in commercial and/or industrial areas.

Consequently, when used in a residential area or in an adjacent area thereto, radio interference may be caused to radios and TV receivers, etc.

Read the instructions for correct handling. VCCI-1.

Radio Protection for Germany

Dieses Gerät ist berechtigt in Übereinstimmung mit dem deutschen EMVG vom 9.Nov.92 das EG-Konformitätszeichen zu führen.

Der Aussteller der Konformitätserklärung ist die IBM Germany.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse A. Für diese Klasse von Geräten gilt folgende Bestimmung nach dem EMVG:

Geräte dürfen an Orten, für die sie nicht ausreichend entstört sind, nur mit besonderer Genehmigung des Bundesministers für Post und Telekommunikation oder des Bundesamtes für Post und Telekommunikation betrieben werden. Die Genehmigung wird erteilt, wenn keine elektromagnetischen Störungen zu erwarten sind.

(Auszug aus dem EMVG vom 9.Nov.92, Para.3, Abs.4)

Hinweis:

Dieses Genehmigungsverfahren ist von der Deutschen Bundespost noch nicht veröffentlicht worden.

Safety Notices

Note: For a translation of these notices see the *System Unit Safety Information*, form number SA23-2652.

Definitions of Safety Notices

A *danger* notice indicates the presence of a hazard that has the potential of causing death or serious personal injury.

Danger notices appear on the following pages:

A *caution* notice indicates the presence of a hazard that has the potential of causing moderate or minor personal injury.

Caution notices appear on the following pages:

2-3

A *warning* notice indicates an action that could cause damage to a program, device, system, or data.

Laser Safety Information

Note: The Optical Link Card (OLC) referred to in this information is part of the Serial Optic Channel Converter assembly.

This system contains a laser product called the Optical Link Card (OLC). In the U.S., the OLC is certified as a Class 1 laser product that conforms to the requirements contained in the Department of Health and Human Services (DHHS) regulation 21 CFR Subchapter J. Internationally, the OLC is certified as a Class 1 laser product that conforms to the requirements contained in the International Electrotechnical Commission (IEC) standard 825 (1984), the Verband Deutscher Elektrotechniker (VDE) standard 0837 (1986), and the CENELEC (European Committee for Electrotechnical Standardization) Harmonization Document HD 482 S1 (1988). The German testing institute VDE assigned a certificate of conformity to DIN IEC 825/VDE 0837/02.86 and CENELEC HD 482 S1/03.88; the certificate registration number is 3642.

In addition, Statens Provningsanstalt (Swedish National Testing Institute) tested and approved the OLC for use in Sweden as a Class 1 laser product and assigned the approval number SP LA 89:184. The CDRH certification label and the VDE certificate of conformity mark are located on the plastic retainer of the OLC product. Figure 1 shows the system Class 1 information label required by IEC 825.

Class 1 laser products are not considered to be hazardous. The OLC internally contains a gallium aluminum arsenide (GaAlAs) semiconductor laser diode emitting in the wavelength range of 770 to 800 nanometers. This laser diode is a Class 3B laser that is rated at 5.0 milliwatts. The design of the OLC is such that access to laser radiation above a Class 1 level during operation, user maintenance, or service conditions is prevented.



Figure 1. Class 1 System Information Label Required by the IEC 825 Standard

The Optical Link Card (OLC) must only be connected to another OLC or a compatible laser product. Any compatible laser product must contain the open fiber link detection and laser control safety system used in OLC. This is a requirement for correct operation of the optical link. In addition, the OLC product is designed and certified for use in applications with point-to-point optical links only. Using this product in any other type of optical link configuration (for example, links containing optical splitters or star couplers) is considered as not using the product correctly and may require that the user certify the laser product again for conformance to the laser safety regulations.

About This Book

This book provides information about the operator controls and the devices installed in the 7236 MediaStreamer drawer as well as supplemental information about the 7133 storage drawers. The first 4 chapters deal specifically with the 7236 MediaStreamer drawer. The appendixes act as supplemental information for the 7133 storage drawer

ISO 9000

ISO 9000 registered quality systems were used in the development and manufacturing of this product.

Related Publications

The *AIX MediaStreamer Version 1: Problem Solving Guide and Reference*, is the first book you should use when you have a problem with the system unit. It contains procedures for determining if the problem is hardware or software related.

The *Diagnostic Information For Micro Channel Bus Systems*, form number SA23-2765, contains reference information about adapters, devices, checkout procedures for problem determination, system verification, using the diagnostics, and cabling for the system units. This manual also contains the removal and replacement procedures for the logic boards on the disk drives and cabling information that can be used to isolate problems with customer cabling.

The *System Unit Safety Information* manual, form number SA23-2652, contains translations of danger and caution notices.

Trademarks

AIX is a registered trademark of International Business Machines Corporation.

Chapter 1. 7236 MediaStreamer Drawer

Note: Each MediaStreamer system comes standard with one 220 volt or two 110 volt Power Distribution Units (PDUs). The PDUs are side mounted in the system rack. Additional PDUs can be ordered. For the 110 volt PDUs, each 110 volt PDU must be plugged into a dedicated power circuit (15 amps circuit in the US, 20 amps circuit in Japan),

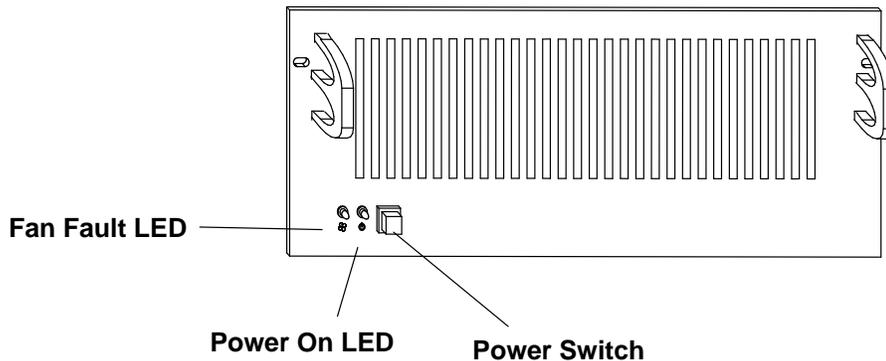
This chapter contains a description of the 7236 MediaStreamer Analog Subsystem drawer, the external connections, and operator information.

MediaStreamer Drawer

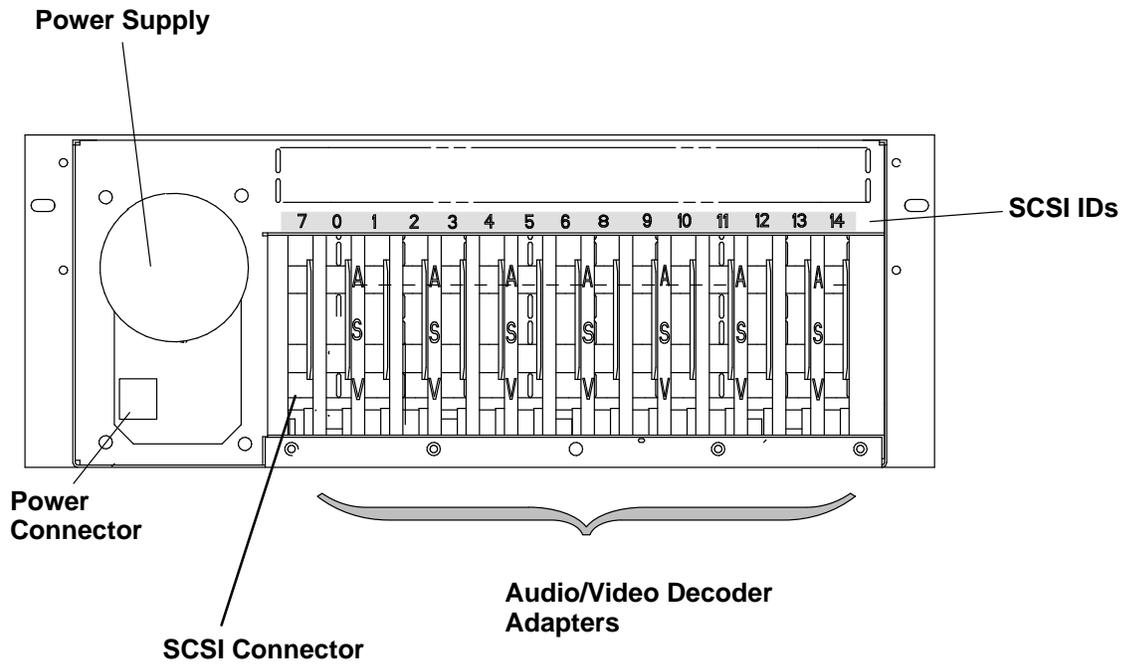
The 7236 MediaStreamer Analog Subsystem drawer is a rack mounted enclosure that contains from 2 to 14 MediaStreamer Audio/Video Decoder adapters, power supply, and cooling fans. The input to the drawer is through a 68 pin external connector at the rear of the drawer. Each Audio/Video Decoder adapter has an analog video and stereo audio output channel and a genlock input located at the rear of the drawer.

Each MediaStreamer Audio/Video Decoder adapter requires a unique SCSI ID. The SCSI ID is controlled with the SCSI ID cable that plugs into the SCSI ID Jumper Block on each adapter, refer to the Audio/Video Decoder adapter on page 1-3. The SCSI adapter, located in the CPU drawer is set to the highest priority, SCSI ID 7.

Front Panel

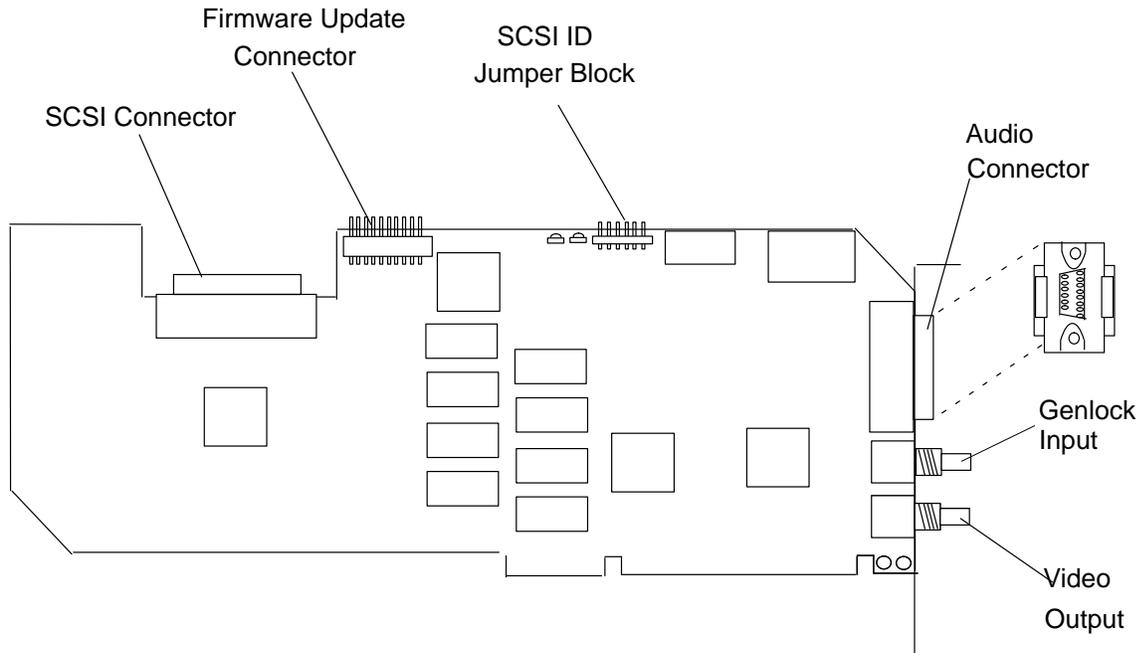


Rear View



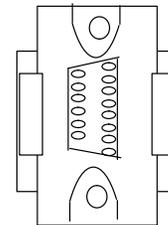
Audio/Video Decoder Adapter

The Audio/Video adapter decodes a stream of digital MPEG data and outputs analog video and stereo. The output signal may be in either NTSC or PAL standard format. Input to the adapter is through a SCSI-2 (16-bit) cable.



Audio Connector 15-Pin D-Shell

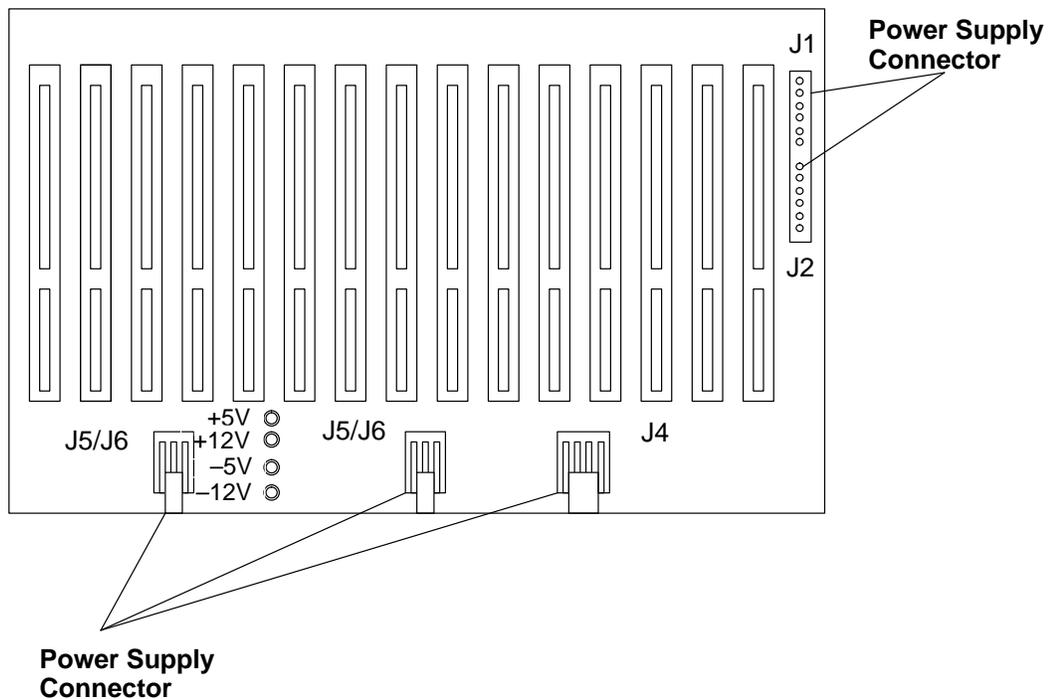
Position	Signal Name
1	Right Audio +
2	Right Audio -
3	Shield
4	Left Audio -
5	Left Audio +
6	Reserved
7	Reserved
8	Video Start Trigger
9	Reserved
10	Reserved
11	Reserved
12	Reserved
13	Reserved
14	Reserved
15	Reserved



Typical Audio Cable Assembly

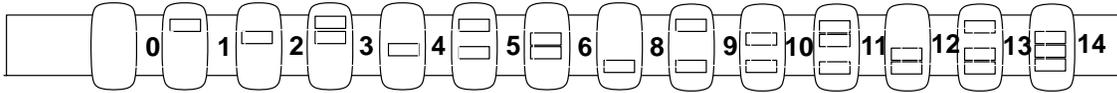
Connector Pinouts				
15-Pin Audio Connector	Signal Type	RCA Connector (Unbalanced)	XLR Connector (Balanced)	Output Channel
1	High	Pin	Pin2	Right
2	Low	–	Pin3	Right
3	–	Shell	Pin1	–
4	Low	–	Pin3	Left
5	High	Pin	Pin2	Left
8	Triggered Play Start Junction			

Distribution Board



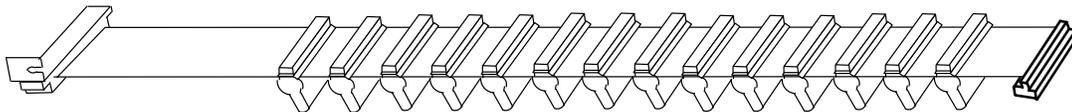
SCSI ID Cable

The SCSI ID cable sets the SCSI IDs on each MediaStreamer Audio/Video Decoder adapter so that the adapter ID corresponds to the ID that is stamped on the rear of the drawer. This cable is installed in the drawer and connected to the adapters that are already installed. As you install additional MediaStreamer Audio/Video Decoder adapters, you need to connect the SCSI ID cable to set the SCSI ID.



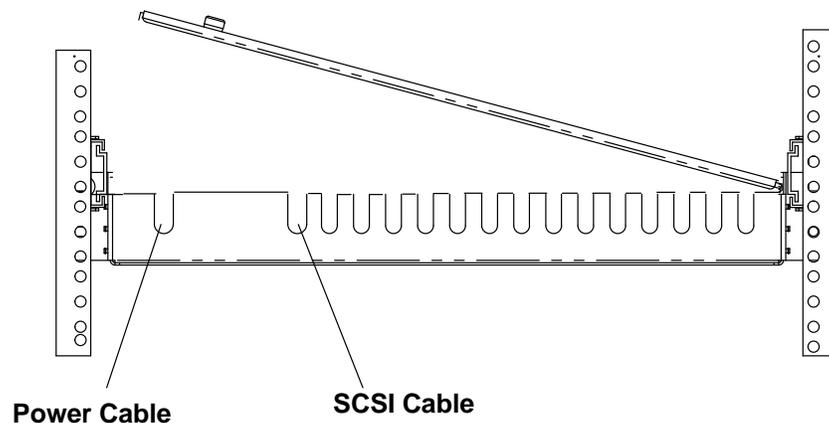
Internal SCSI Cable

The internal SCSI cable connects all of the MediaStreamer Audio/Video Decoder adapters to the SCSI output connector which connects to the SCSI adapter that is installed in the CPU drawer. This cable is installed in the drawer and connected to the adapters that are already installed. The end connector is installed in the slot location labeled as 7 on the rear panel and is attached to the CPU with an external SCSI cable. As you install additional MediaStreamer Audio/Video Decoder adapters, you need to connect the SCSI cable so that the adapters can communicate.



Cable Management Bracket

The cable management bracket, located at the rear of the drawer, provides a method of protecting the MediaStreamer drawer cables from being pulled out accidentally when the drawer is placed in the service position, and to ensure that the cables are attached to the correct adapter when the drawer is placed in the operating position. The power cable always goes in the left most slot, as viewed from the rear, and the SCSI cable always goes in the 2nd slot. The cables for each adapter should be placed in the slot behind the adapter.



7236 Physical Specifications

Dimensions

Width: 432 mm (17.0 inches)

Depth: 521 mm (20.5 inches)

Height: 178 mm (7.0 inches)

Weight:

16 kg to 20 kg (34 to 43 pounds)

Operating Environment

Class A

MediaStreamer Audio/Video Decoder Specifications

Audio Output 0VU = +4dBm –700 ohms

Video Output 1–vpp CVBS into 75 ohms

Genlock input CVBS 1–vpp (terminated with 75 ohms on input)

Removal and Replacement Procedures

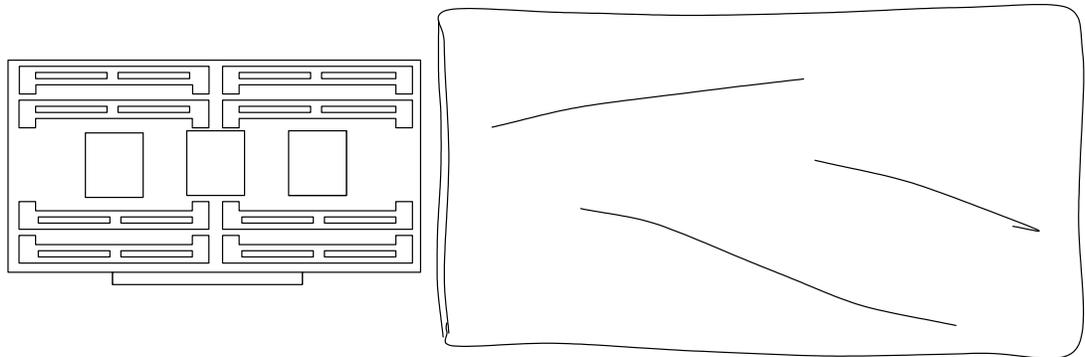
This chapter contains information about removing and replacing various parts.

Handling Static-Sensitive Devices

Attention: Adapters can be damaged by electrostatic discharge. These adapters are wrapped in antistatic bags to prevent this damage. Refer to the illustration.

Take the following precautions:

- Do not remove the adapter from the antistatic bag until you are ready to install the adapter.
- If you have an antistatic wrist strap available, use it while handling the adapter.
- With the adapter still in its antistatic bag, touch it to the metal frame of the system.
- Grasp cards and boards by the edges. Avoid touching the solder joints or pins.
- If you need to lay the adapter down while it is out of the antistatic bag, lay it on the antistatic bag. Before you pick up the adapter again, touch the antistatic bag and the metal frame of the system at the same time.
- Handle the adapter carefully to prevent permanent damage.

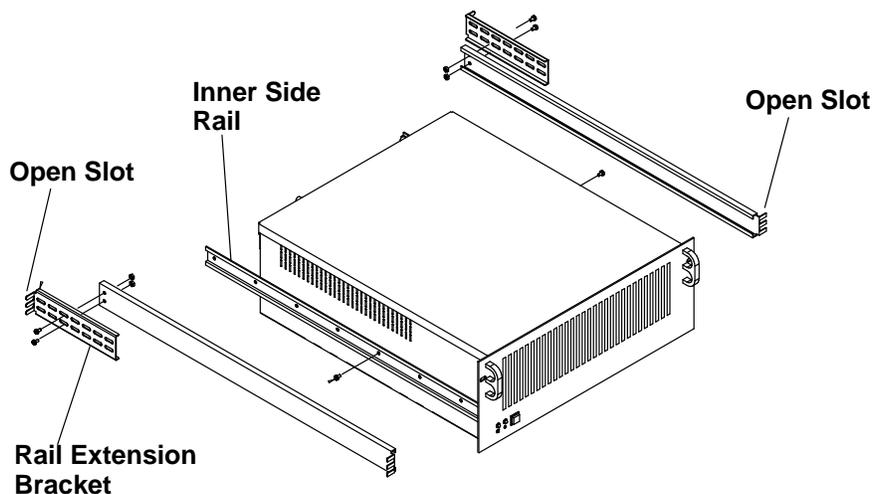


Antistatic Bag

Rails and Mounting Hardware for an Additional 7236 Drawer

Note: The racks have EIA numbers visible from the rear that go from 1 (at the bottom) to 32 (at the top). The lowest EIA number completely occupied by a drawer is said to be that drawer's EIA position. Therefore, the rack's rail surface that a drawer sets upon is approximately inline with the lower edge of the EIA position for that drawer. A drawer's EIA number is also used in identifying cables attached to that drawer.

1. Separate the new side rails and attach each inner rail to the side of the 7236 drawer with three 10x32 pan head screws. The locking mechanism must be toward the rear of the drawer.
2. Attach the rail extension bracket to the outer rails using two 10x32 pan head screws and nuts. Use the third set of elongated holes. Do not tighten the nuts as you need to make adjustments to the rails later.



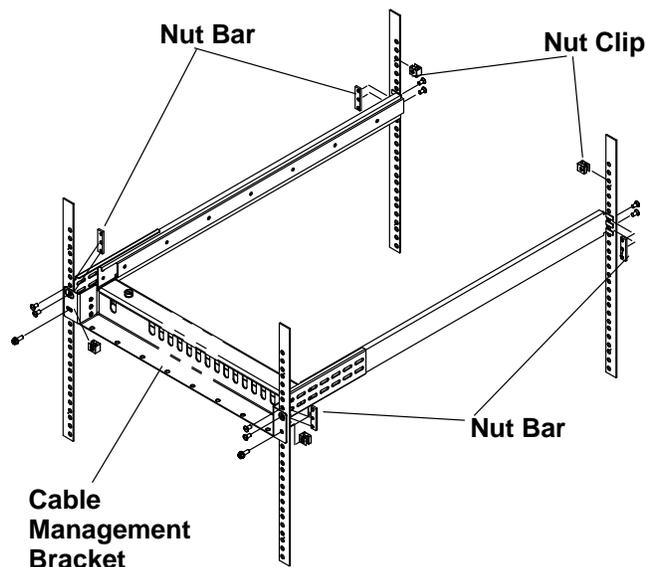
3. The new 7236 drawer occupies 4 EIA units. Identify the holes in the EIA rail to attach the slide rails by, starting at the top hole position in the 4 EIA unit that the 7236 drawer goes into, and counting down, to the 8th and 9th hole. Screws are inserted into the 8th and 9th holes of all 4 EIA rails.
4. Loosely install the flat head screws into the 8th and 9th hole in each EIA rail, using the flat nut bars (with 3 tapped holes). The tapped holes in the nut bar are not centered on the bar. The narrow edge must go toward the open edge of the EIA rail. The flat head screws must be on the outside of the EIA rails with the nut bar on the inner side of the rails.
5. Orient the rails with the extension bracket toward the rear of the rack. Slide the open slots on the slide rail between the EIA rail and the nut bar. Position the slide rails into the screw/nut bars as much as possible, leaving just enough room to allow the middle section of slide-rail to clear the EIA rail. Tighten all eight screws.
6. Tighten the screws holding the extension bracket to the slide rails.
7. Install a nut clip in hole position #11 (from the top of the 4 EIA unit group) on both rear EIA rails.

8. Install a nut clip in hole position #3 (from the top of the 4 EIA unit group) on both front EIA rails.
9. Install the cable management bracket at the rear of the rack. The edge of the bracket that has eight holes in it. These holes face to the rear of the rack and are on the bottom of the bracket. There are two large clearance holes on the mounting flanges. These holes go over the lower screws that hold the slide rail in place. Attach the bracket in place using two, M5 hex head screws.

CAUTION:

The MediaStreamer drawer weighs between 16 kg and 20 kg (34 to 43 pounds). Do not try to lift it by yourself. Ask another service representative for assistance.

10. Pull the middle section of each slide rail out to its extended and locked position. With two people, lift the drawer and slide the inner section of slide-rails (the rails that are attached to the drawer) into the middle section of slide rails. The extension locks have to be pushed in to fully install the rails. Be careful to not pinch your fingers when pushing the lock button and sliding the drawer in.
11. Install the two M5 retainer screws to secure drawer to the rack.
12. Peel off the adhesive backing from the bezel fastener strips. Align the bezel (ball stud receptacles) with the ball studs in the drawer. Firmly push the bezel onto the ball-studs and drawer to assure the adhesive bonds to the drawer. (The ball studs and fastener strips can provide a high retention force. When removing the bezel, pull on a place that is toward the outer edge to minimize the risk of damaging the bezel.
13. Place the power cable in the left most slot in the cable management bracket directly behind the power receptacle.
14. Place the SCSI cable in the second most left slot.



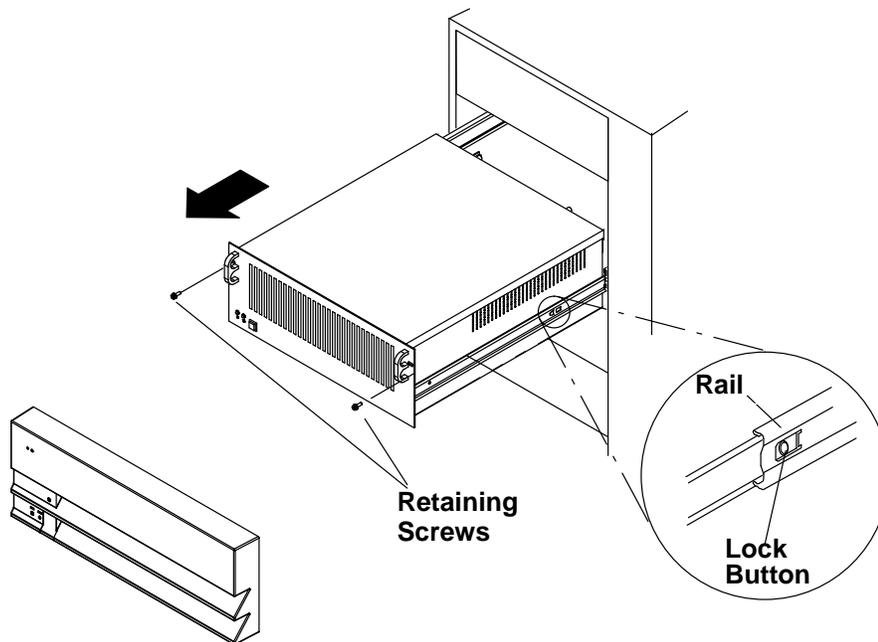
Service Position

To gain access to the MediaStreamer drawer, do the following:

1. Set the Power Switch to Off.
2. Remove the power cord from the rear of the MediaStreamer drawer.

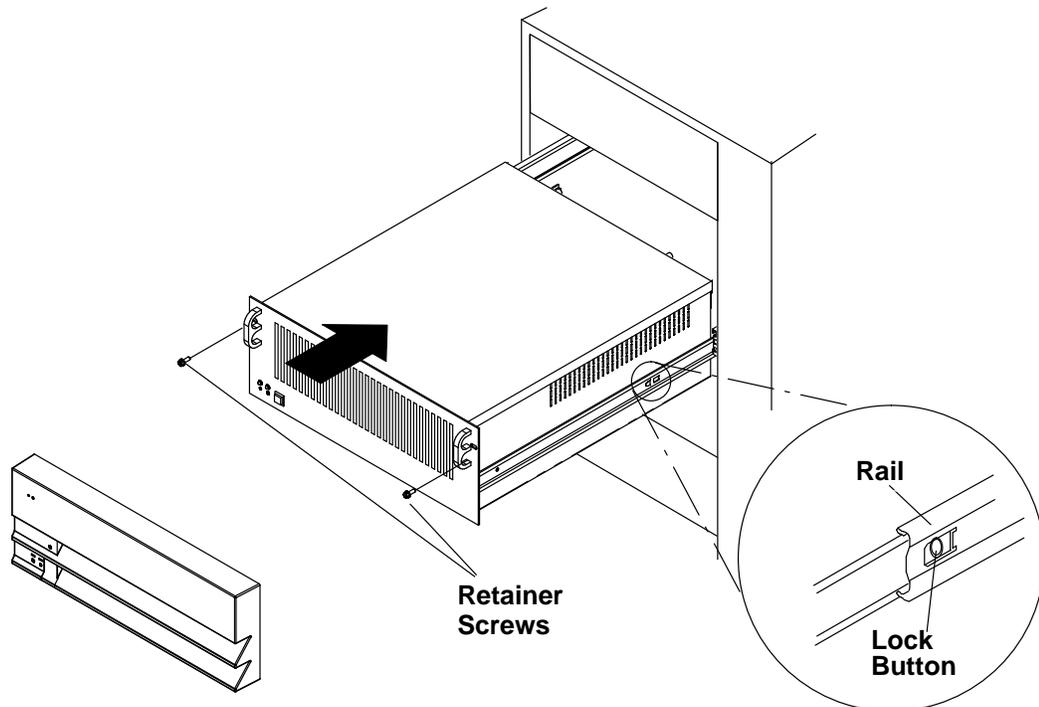
Note: You should label the cables that plug into the rear of the drawer before you remove them and make sure that they remain in the same position in the cable management bracket.

3. Disconnect the 68-pin SCSI cable from the connector labeled 7 on the rear of the MediaStreamer Drawer.
4. Disconnect all of the video, audio, and genlock cables from the rear of the MediaStreamer drawer.
5. Remove the MediaStreamer drawer front bezel by pulling it toward you.
6. Remove the two retaining screws.
7. Pull the drawer out until the lock buttons on the rails lock.



Operating Position

1. Press the lock buttons on the rails and slide the drawer into the system unit.
2. Install the two retainer screws on the front of the drawer.
3. Replace the front bezel by lining up the ballstuds on the drawer with the receptacles on the bezel and pushing the bezel toward the machine.
4. Connect the 68-pin SCSI cable to the connector labeled 7 on the rear of the MediaStreamer Drawer.
5. Connect all of the video, audio, and genlock cables to the rear of the MediaStreamer drawer.
6. Plug the power cord into the drawer.

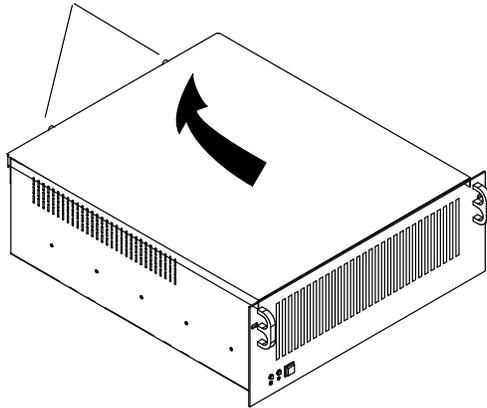


Top Cover

Removal

1. Place the MediaStreamer drawer in the service position, refer to page 2-4.
2. Loosen the two cover thumb screws on the rear of the MediaStreamer drawer.
3. Slide the cover to the rear of the drawer and lift it off.

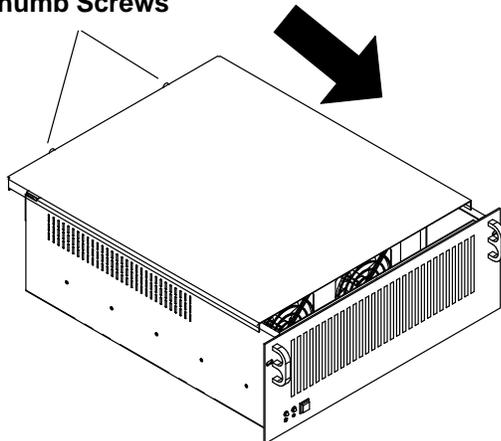
Thumb Screws



Replacement

1. Place the cover on the MediaStreamer drawer approximately 1 inch behind the face plate.
2. Slide the cover towards the front of the drawer and tighten the two thumb screws.
3. Place the MediaStreamer drawer in the operating position, refer to page 2-5.

Thumb Screws



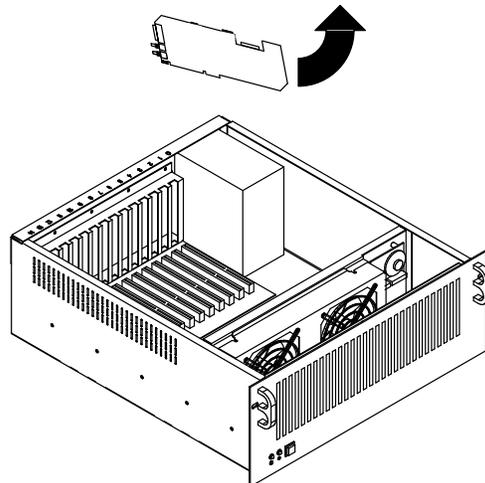
Adapters

Removal

1. Remove the top cover, refer to page 2-6.
2. Remove the SCSI ID cable and internal SCSI cable from the adapter cards that you are removing.

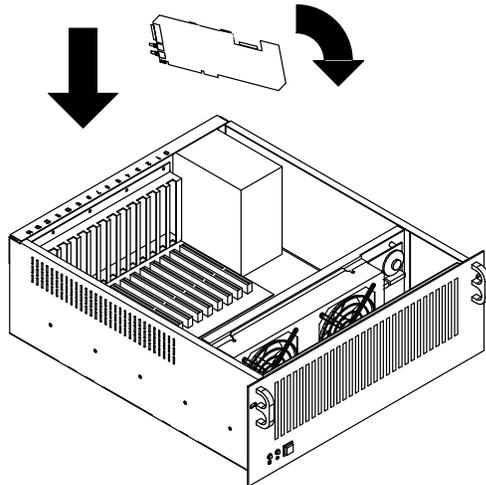
Note: It may be necessary to remove the SCSI ID cable and SCSI cable from additional cards or from the cable clips located on the bottom of the drawer chassis.

3. Remove the adapter-slot screw that holds the adapter in place at the rear of the MediaStreamer drawer.
4. Lift the adapter card up until the bottom edge connector is unplugged.
5. Remove the adapter by:
 - a. Pivot the adapter, as shown, and lift the rear of the adapter up slightly until the external connectors have cleared the rear of the drawer.
 - b. Carefully lift the adapter up and out of the drawer.



Replacement and Additions

1. Remove the top cover, refer to page 2-6.
2. Remove the SCSI ID cable and internal SCSI cable.
3. If you are adding an additional adapter cards into an empty slots, remove the adapter-slot cover screw and remove the adapter-slot cover.
4. Touch the static-protective package containing the adapter to an unpainted metal surface on the drawer; then remove the adapter from the package.
5. Pivot the card at an angle, as shown, so that the external connectors on the adapter card clear the rear of the drawer.
6. Slide the adapter through the opening and press it firmly into the socket. Make sure that the adapter card connector is fully inserted into the socket and the lower part of the adapter card retention bracket fits between the tailgate and a lower spring retainer at the bottom of the card slot.
7. Tighten the adapter-slot screw.
8. Replace the SCSI ID cable and internal SCSI cable.
9. Replace the top cover, refer to page 2-6.



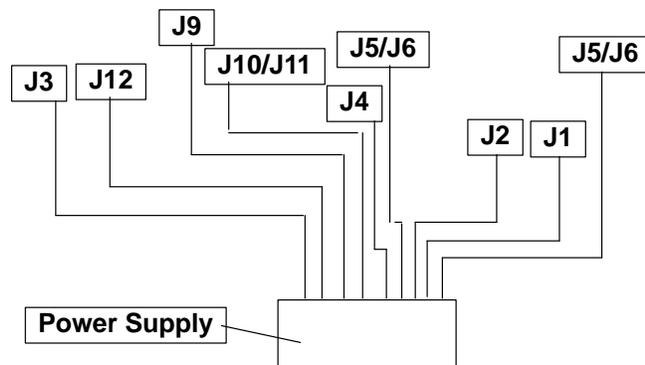
Power Supply

Removal

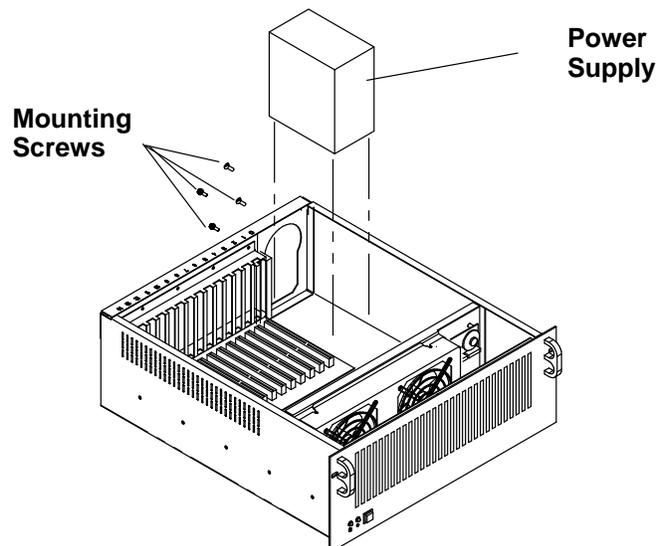
1. Remove the top cover, refer to page 2-6.
2. Disconnect the power cables from the following locations:

Connector ID	Connector Name
J1	Distribution Board J1
J2	Distribution Board J2
J4	Distribution Board J4
J5/J6	Distribution Board J5/J6
J7/J8	Fan/LED Assembly
J9	Power On/Off Switch
J10/J11	Resistor Assembly

Note: Connectors J3 and J12 are not used.

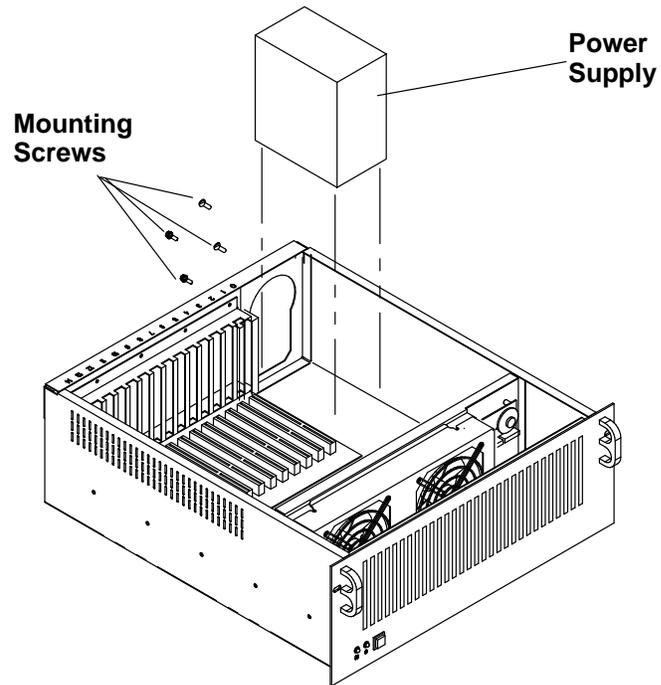


3. Remove the four mounting screws from the rear of the drawer.
4. Lift the power supply out.



Replacement

1. Place the power supply into the drawer.
2. Install the four mounting screws.
3. Reconnect the power cables that were removed in Step 2 on page 2-9
4. Replace the top cover, refer to page 2-6.



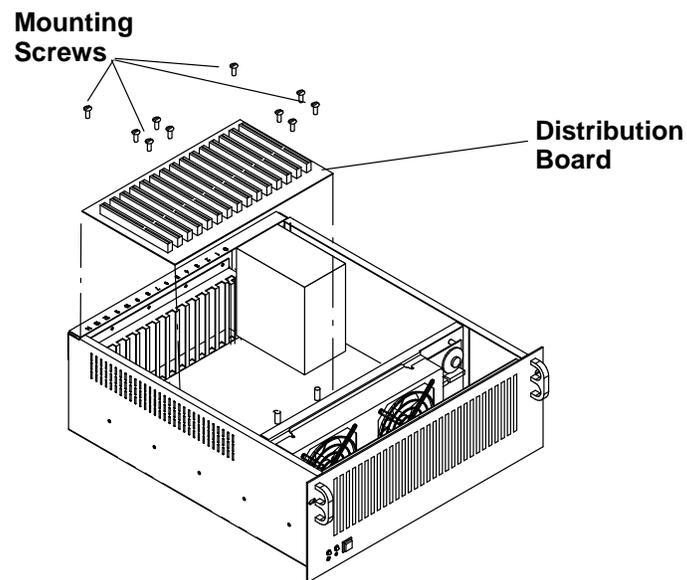
Distribution Board

Removal

1. Remove the top cover, refer to page 2-6.
2. Disconnect the power supply cables from the distribution board, refer to page 1-4.
3. Remove any adapters that are installed in the distribution board, refer to 2-7.
4. Remove the ten mounting screws from the distribution board.
5. Lift the distribution board out of the drawer.

Replacement

1. Place the distribution board into the drawer.
2. Install the ten mounting screw.
3. Connect the power supply cables to the distribution board, refer to page 1-4.
4. Install any adapters that were previously removed into the distribution board, refer to 2-7.
5. Replace the top cover, refer to page 2-6.



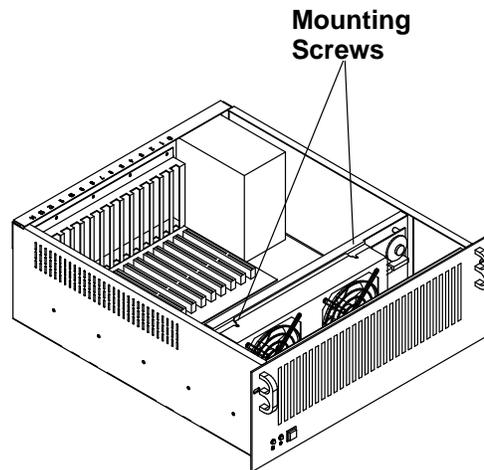
Fan Assembly

Removal

1. Remove the top cover, refer to page 2-6.
2. Disconnect the two power cables from the fan assembly.
3. Loosen the two mounting screws from the fan assembly.
4. Tilt the top of the fan assembly forward and lift the fan assembly out of the drawer.

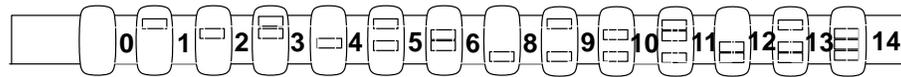
Replacement

1. Place the fan assembly into the drawer, making sure that the two tabs on the bottom of the assembly fit into the retention holes in the bottom of the chassis.
2. Tighten the two mounting screw.
3. Connect the power cables.
4. Replace the top cover, refer to page 2-6.



SCSI ID Cable

Note: The SCSI ID Cable, shown below, plugs into the SCSI ID Jumper Block. The connectors and adapter slots are both labeled, thus the connector that is labeled 0 plugs into the adapter that is in slot 0.

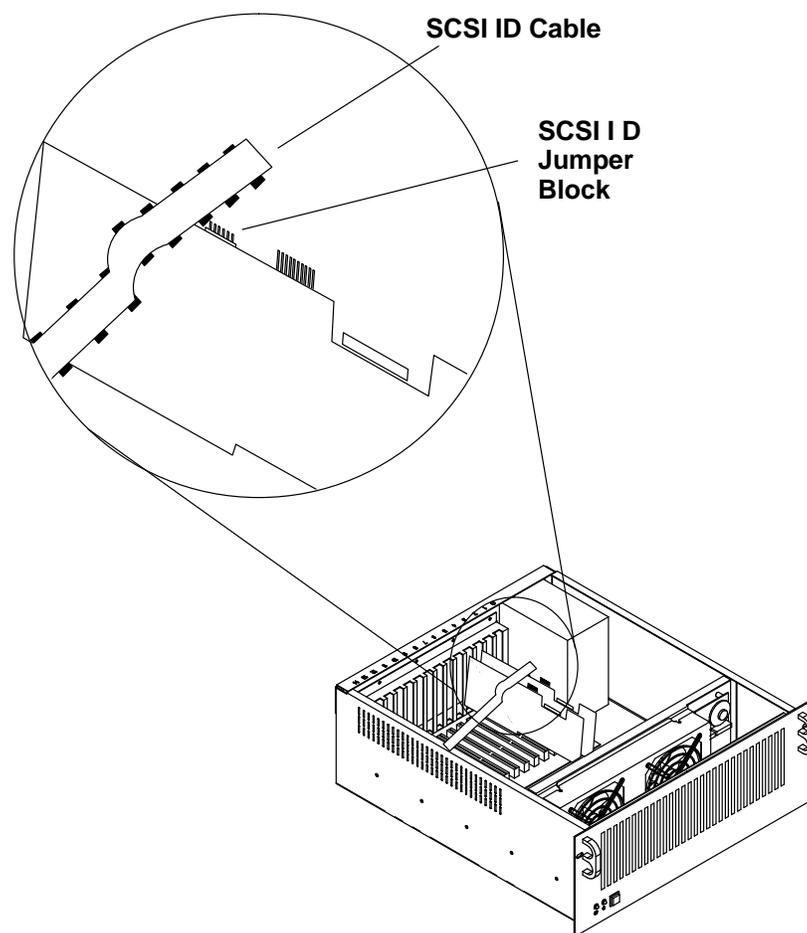


Removal

1. Remove the top cover, refer to page 2-6.
2. Unplug each cable connector from the adapters.

Replacement

1. Plug the cable connector into the appropriate adapter card. Make sure that the label on the SCSI ID cable corresponds with the label on the adapter slots.
2. Replace the top cover, refer to page 2-6.



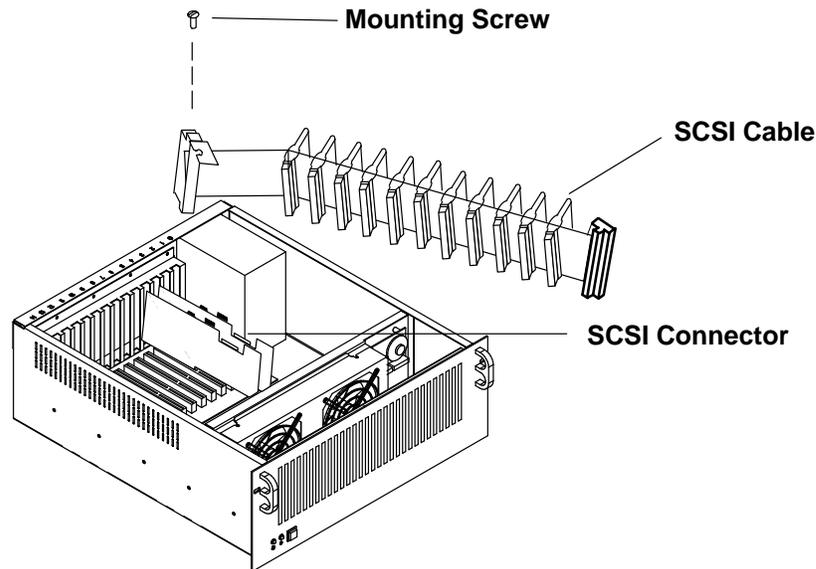
Internal SCSI Cable

Removal

1. Remove the top cover, refer to page 2-6.
2. Loosen the mounting screw from the SCSI cable mounting bracket and pull the cable away from the adapter card slot.
3. Unplug the SCSI cable from each adapter card.
4. If the drawer is not fully populated, the excess SCSI cable is secured with tie downs attached to the bottom of the chassis. Open the tie down and lift the cable out.

Replacement

1. Place the cable slot connector in the first adapter card slot and tighten the mounting screw.
2. Plug the cable connector into the SCSI connector on each adapter. Ensure that the first cable connector plugs into the first adapter.
3. Secure any excess cable in the cable tie downs.
4. Replace the top cover, refer to page 2-6.



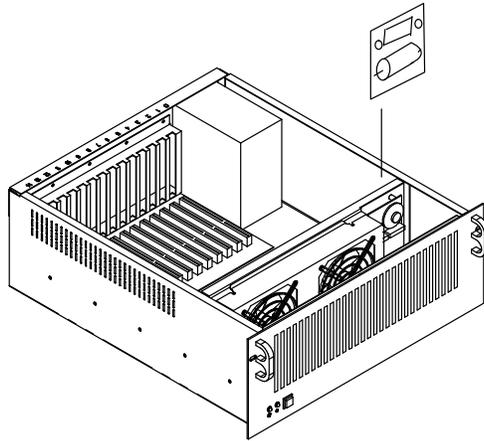
Resistor Assembly

Removal

1. Remove the top cover, refer to page 2-6.
2. Disconnect the cable from the resistor assembly.
3. Remove the resistor assembly mounting screws and remove the assembly.

Replacement

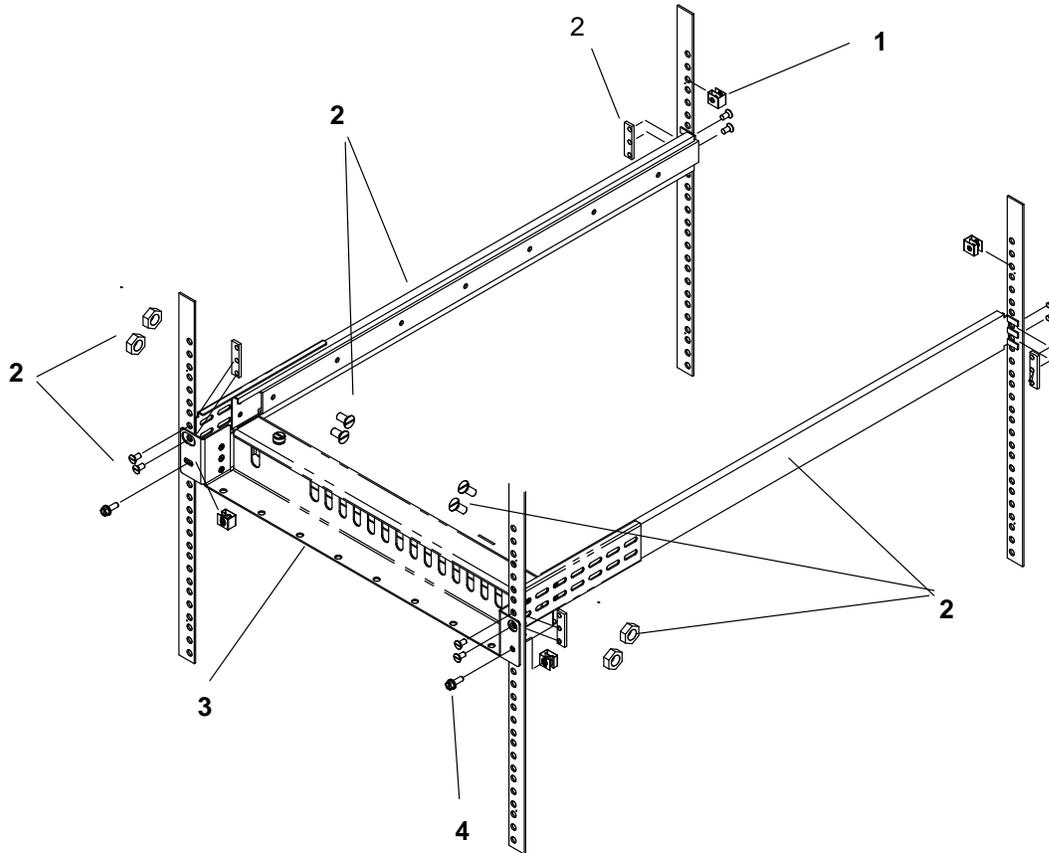
1. Place the resistor assembly into the drawer, and install and tighten the mounting screws.
2. Connect the cable.
3. Replace the top cover, refer to page 2-6.



Parts Information

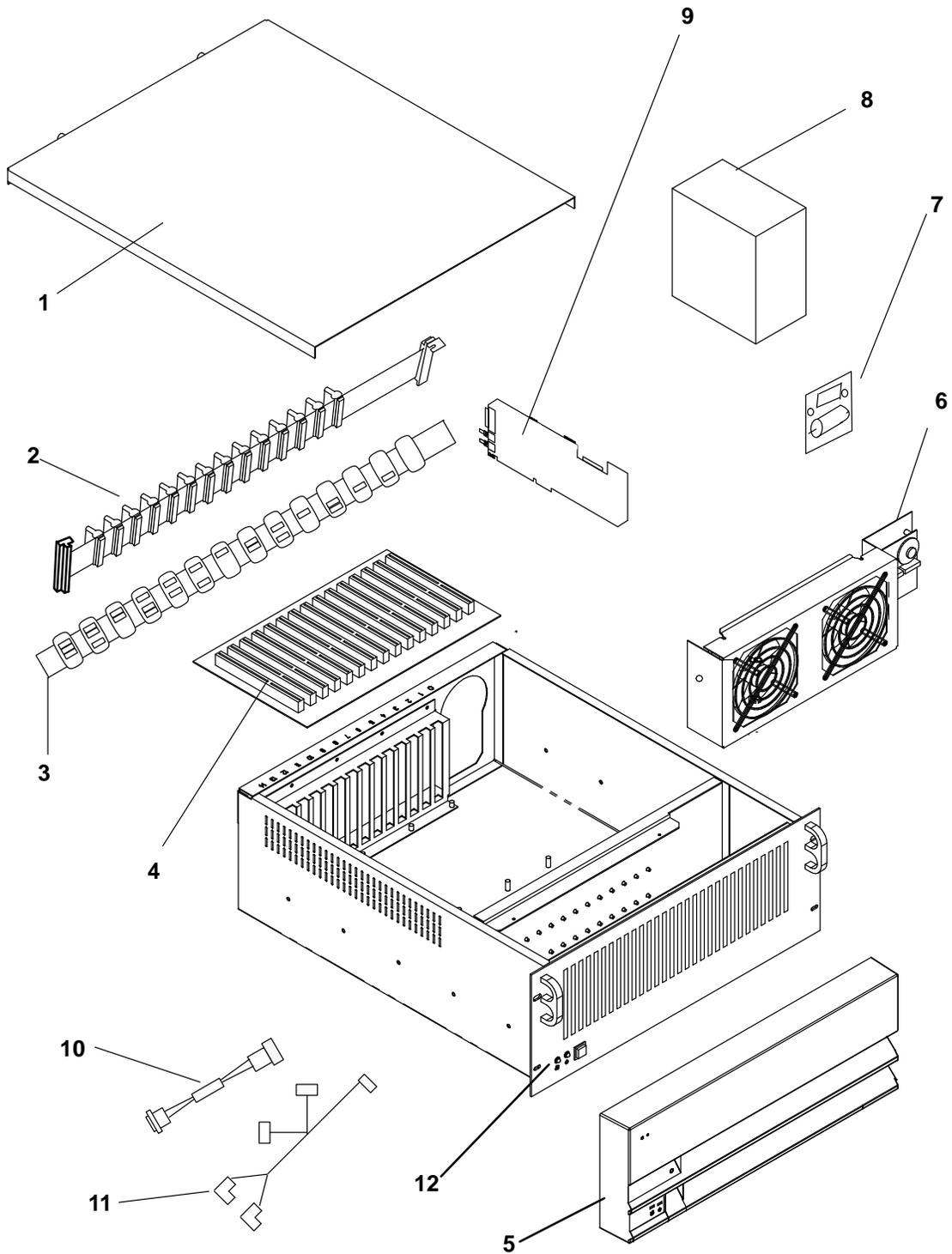
This chapter contains drawings showing all parts and the respective part numbers.

Rails and Mounting Hardware



Index Number	Part Number	Units Per Assy	Description
1	74F1823	4	Nut Clip
2	93H1657	1	Slide (Pair)
		4	Screw 10 x 32 Pan Head
		4	Nut 10 x 32 with captive lock washer
		8	Screw 10 x 32 Flat Head
		4	Nut Bar
3	93H1658	1	Cable Management Bracket
4	1624779	2	Screw, M5

MediaStreamer Drawer



Index Number	Part Number	Units Per Assy	Description
1	8185545	1	Top Cover
2	93H1656	1	SCSI Cable
3	93H3137	1	SCSI ID Cable
4	00G1269	1	Distribution Board
5	93H1661	1	Bezel Assembly
6	93H1655	1	Fan Assembly
7	93H5087	1	Resistor Assembly
8	40H7566	1	Power Supply
9	10J2962	14	Audio/Video Decoder Adapters
10	93H5085	1	Power Switch Cable
11	93H5088	1	LED Power Cable
12	93H5089	1	LED Kit

Chapter 4. Maintenance Analysis Procedures (MAPs)

MAP 1020: MediaStreamer Drawer – Problem Determination

Purpose of this MAP

This MAP provides you with instruction that directs you from an SRN number to another MAP or to possible failing field replaceable units (FRUs). If there are multiple FRUs called out, replace the FRUs one at a time, retesting the drawer each time.

SRN Number	Symptom	Action/Possible Failing FRU
966-400	Testing indicates multiple adapter cards have failed.	Go to "MAP 1040" on page 4-3.
966-201	A single card failed.	1. Adapter Card 2. Internal SCSI Cable
966-402	Testing indicates multiple adapter cards have failed both audio and video.	1. Power Supply 2. Internal SCSI Cable 3. Audio Cable 4. Video Cable
966-203	A single card failed both audio and video interactive testing.	1. Adapter Card 2. Internal SCSI Cable
966-204	Multiple Cards have no video.	1. Video Cable 2. Monitor
966-205	Single Card with no video.	1. Adapter Card 2. Internal SCSI Cable
966-206	Multiple Cards have no audio.	1. Audio Cable 2. Monitor
966-207	Single Card with no audio.	1. Adapter Card 2. Internal SCSI Cable

MAP 1040: MediaStreamer Drawer – Multiple Cards Failing

Purpose of This MAP

Use this MAP if you received an SRN number of 966-400 to isolate to a failing field replaceable unit (FRU) that cause multiple cards to fail.

Observe the following safety notice during service procedures.

Note: For a translation of this notice, see *System Unit Safety Information*.

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the products that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

Before installing or removing signal cables, ensure that the power cables for the system unit and all attached devices are unplugged.

When adding or removing any additional devices to or from the system, ensure that the power cables for those devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.

Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.

During an electrical storm, do not connect cables for display stations, printers, telephones, or station protectors for communication lines.

Step 1

Be sure that the power cable from the rack to the 7236 drawer has continuity and is plugged into both the 7236 drawer and the racks Power Distribution Unit (PDU)/Power Distribution Bus (PDB);

Be sure that the outlet for the rack has been wired with the correct voltage and the power switch is in the On position.

Be sure that the SCSI cable is connected between the CPU drawer and the 7236 drawer.

Did you find a problem?

- NO** Go to Step 2.
- YES** Correct the problem and retest the drawer.

Step 2

(from Step 1)

Did the Fan Fault LED come on?

- NO** Go to Step 3.
- YES** Turn off power to the drawer, and replace the Fan assembly, refer to page 2-12. Turn on power to the drawer and retest the drawer.

Step 3

(from Step 2)

Move the 7236 drawer to the service position, refer to the procedure on page 2-4

Remove the Top cover, refer to the procedure on page 2-6.

Is the SCSI cable connected to the adapter cards?

- NO** Turn off power to the drawer and connect the SCSI cable. Return the drawer to the Operation position. Turn on power to the drawer and retest the drawer.
- YES** Go to Step 4.

Step 4

(from Step 3)

Are all four LEDs on the distribution board on?

- NO** Go to Step 6.
- YES** Go to Step 5.

Step 5

(from Step 4)

Are both fans in the fan assembly turning?

- NO** Turn off power to the drawer and exchange the fan assembly. Turn on power and retest the drawer.
- YES** Turn off power to the drawer and exchange the SCSI cable. Turn on power and retest the drawer.

Step 6

(from Step 4)

Is the fan in the power supply turning?

- NO** Go to Step 7.
- YES** Turn off power to the drawer and exchange the power supply. Turn on power and retest the drawer.

Step 7

(from Step 6)

Turn off power to the drawer.

Has the resistor and power switch been replaced?

- NO** Go to Step 8.
- YES** Exchange the power supply. Turn on power and retest the drawer.

Step 8

(from Step 7)

1. Disconnect the cable to the resistor assembly.
2. Using an ohmmeter, check the resistance of the resistor. It should be 10 ± 1 ohm.

Is the resistance correct??

- NO** Exchange the resistor. Turn on power and retest the drawer.
- YES** Reconnect the cable to the resistor assembly and exchange the power switch. Turn on power and retest the drawer.

Appendix A. Exchanging SSA Disk Drives

This procedure is a replacement for the "Exchanging SSA Disk Drives" procedure that is found in the *SSA Adapters User's Guide and Maintenance Information* manual. You should only use the procedure found here when you are exchanging disk drives in your Mediastreamer system.

Step 1

If you are removing a disk drive under concurrent maintenance (see the service information for the device that contains the disk drive), first ensure that no hdisk is using the pdisk (disk drive) that you want to remove. Use the Configuration Verification service aid (see "Configuration Verification Service Aid" in the *SSA Adapters User's Guide and Maintenance Information* manual) to determine whether the pdisk is related to an hdisk.

Step 2

If the pdisk is related to an hdisk that is a RAID array, go to step 3.

If the pdisk is related to an hdisk that is not a RAID array, make that hdisk unavailable to the using system, and go to step 7.

If the pdisk is not related to an hdisk, go to step 7.

Step 3

For fast path, type `smitty redssaraid` and press Enter

Otherwise:

- a. Select **Change Member Disks in an SSA RAID Array** from the SSA RAID Array menu.
- b. Select **Remove a Disk from an SSA RAID Array**.

Step 4

A list of arrays is displayed in a window:

Change Member Disk in an SSA RAID Array

Move cursor to desired item and press Enter.

Remove a Disk from an SSA RAID Array
Add a Disk to an SSA RAID Array
Swap Members of an SSA RAID Array

SSA RAID Array

Move cursor to desired item and press Enter.

hdisk3	95231779F	737K	good	3.4G	RAID-5	array
hdisk4	9523173A	2137K	good	3.4G	RAID-5	array

F1=Help F2=Refresh F3=Cancel
F8=Image F10=Exit Enter=Do
/=Find /=Find Next

Select the SSA RAID array from which you are removing the disk drive.

Step 5

The following information is displayed:

Remove a Disk from an SSA RAID Array			
Type or select values in entry fields. Press Enter AFTER making all desired changes.			
SSA RAID Manager		Entry Fields	
SSA RAID Array		ssa	
Connection Address/Array Name		hdisk3	
Disk to Remove		95231779F	737K
F1=Help	F2=Refresh	F3=Cancel	F4=List
F5=Reset	F6=Command	F7=Edit	F8=Image
F9=Shell	F10=Exit	Enter=Do	

Press F4 to list the disk drives.

Step 6

A list of disk drives is displayed.

From the displayed list, select the disk drive, or drives, that you want to remove.

Step 7

If necessary, use the identify function to find the disk drive that you want to remove (see "Finding the Physical Location of a Device" in the *SSA Adapters User's Guide and Maintenance Information* manual).

Step 8

Use the Set Service Mode service aid to put into the Service Mode the disk drive that you are removing (see "Set Service Mode Service Aid" in the *SSA Adapters User's Guide and Maintenance Information* manual).

Note: You can put into Service Mode only disk drives that are in a closed SSA loop or at the end of an SSA string. Only one disk drive at a time can be in Service Mode.

If you are removing several disk drives; for example, because you are going to remove a backplane assembly:

Select **Change Member Disks in an SSA RAID Array** from the SSA RAID Array menu.

1. Choose any one disk drive that is attached to the backplane assembly that you are removing.
2. Put that disk drive into Service Mode.
3. Remove the disk drive (see service information for the device that contains the disk drive).
4. Reset Service Mode.
5. **Attention:** When you remove the remainder of the disk drives, remove each disk drive only when the slot that is next to it becomes empty.

Repeat this procedure for one disk drive at a time, ensuring that you always remove a disk drive that is next to an empty slot.

Step 9

Physically remove the disk drive (see service information for the device that contains the disk drive).

Step 10

Physically replace the disk drive.

Step 11

If the disk drive is in Service Mode, reset Service Mode (see "Set Service Mode Service Aid" in the *SSA Adapters User's Guide and Maintenance Information* manual).

Step 12

If you installed the disk drive under concurrent maintenance, give the **cfgmgr** command to configure that disk drive.

If you installed the disk drive while the using system was turned off, turn on the using system when you are ready to do so. When you turn on the using system, the disk drive is automatically configured.

Step 13

The disk drive is configured with the new hdisk and pdisk numbers. You need to change these numbers to the pdisk and hdisk numbers of the original disk drive.

To change the numbers, continue with step 14.

Step 14

Run the Configuration Verification service aid (see "Configuration Verification Service Aid" in the *SSA Adapters User's Guide and Maintenance Information* manual).

Step 15

From the displayed list of pdisks and hdisks, find the serial number of the disk drive you want to install.

Step 16

The serial number is shown twice: next to the new pdisk number and next to the new hdisk number.

Make a note of the new pdisk and hdisk numbers.

Step 17

Type `smitty ssaraid` and press Enter.

Step 18

Select **Change/Show Use of an SSA Physical Disk**.

The pdisk that has been exchanged is listed under **SSA Physical Disks that are system disks**.

Step 19

Select the pdisk from the list.

Step 20

Change the Current Use Parameter to **Hot Spare Disk**.

Step 21

If you want to remove, from the system configuration, pdisk numbers that are not used, give the following command for pdisk that remain defined:

```
rmdev -l [pdisk] -d
```

where [pdisk] is the number of the pdisk that you want to remove from configuration.

Step 22

Use the Display/Download Microcode service aid to check the level of microcode that is present on the disk drive that you have just installed (see "Display/Download Disk Drive Microcode Service Aid" in the *SSA Adapters User's Guide and Maintenance Information* manual). The microcode level of this disk drive must be the same as, or higher than, the microcode level of the other disk drives.

If necessary, use the Display/Download Microcode service aid to download the latest level of microcode to the disk drive.

Appendix B. 7133-020 Content Balancing

The information in this appendix is used as a supplemental information to the SSA loops information that is found in the *SSA Adapters User's Guide and Maintenance Information* manual. You should only use this information when you working with your Mediastreamer system.

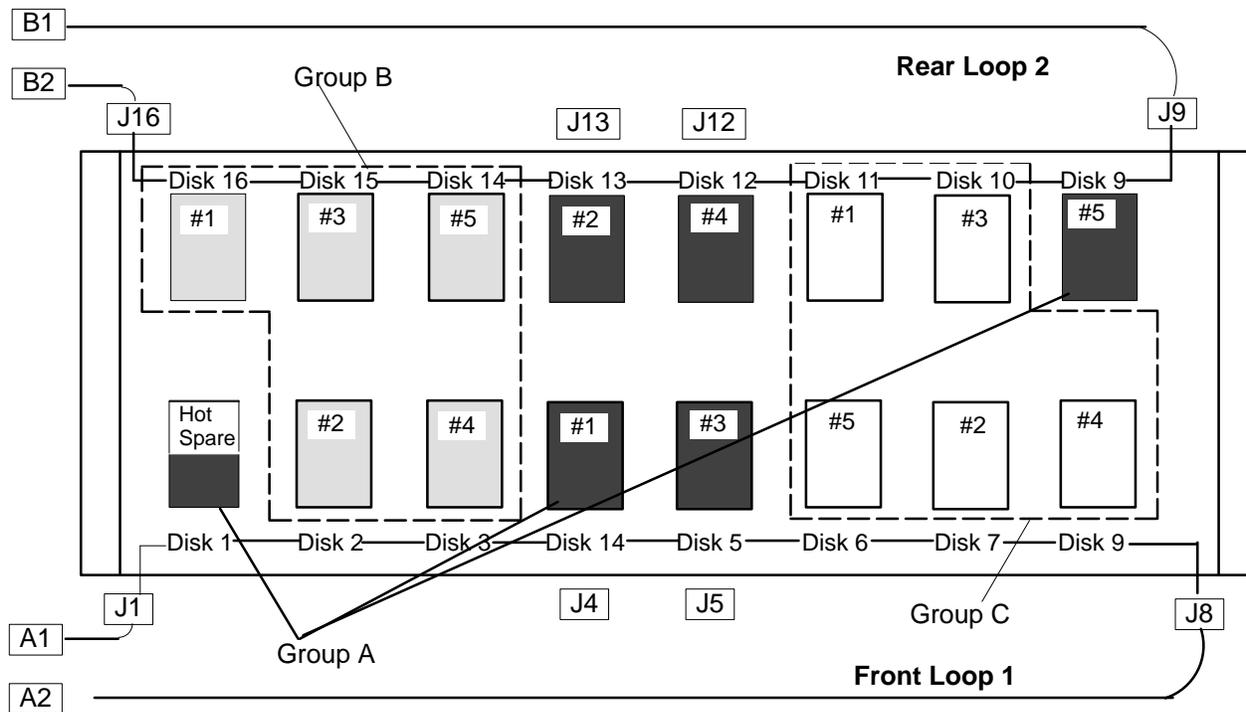
7133-020s Wired for 2 SSA Loops

- Loop 1 on front slots 1 to 8
- Loop 2 on rear slots 9 to 16

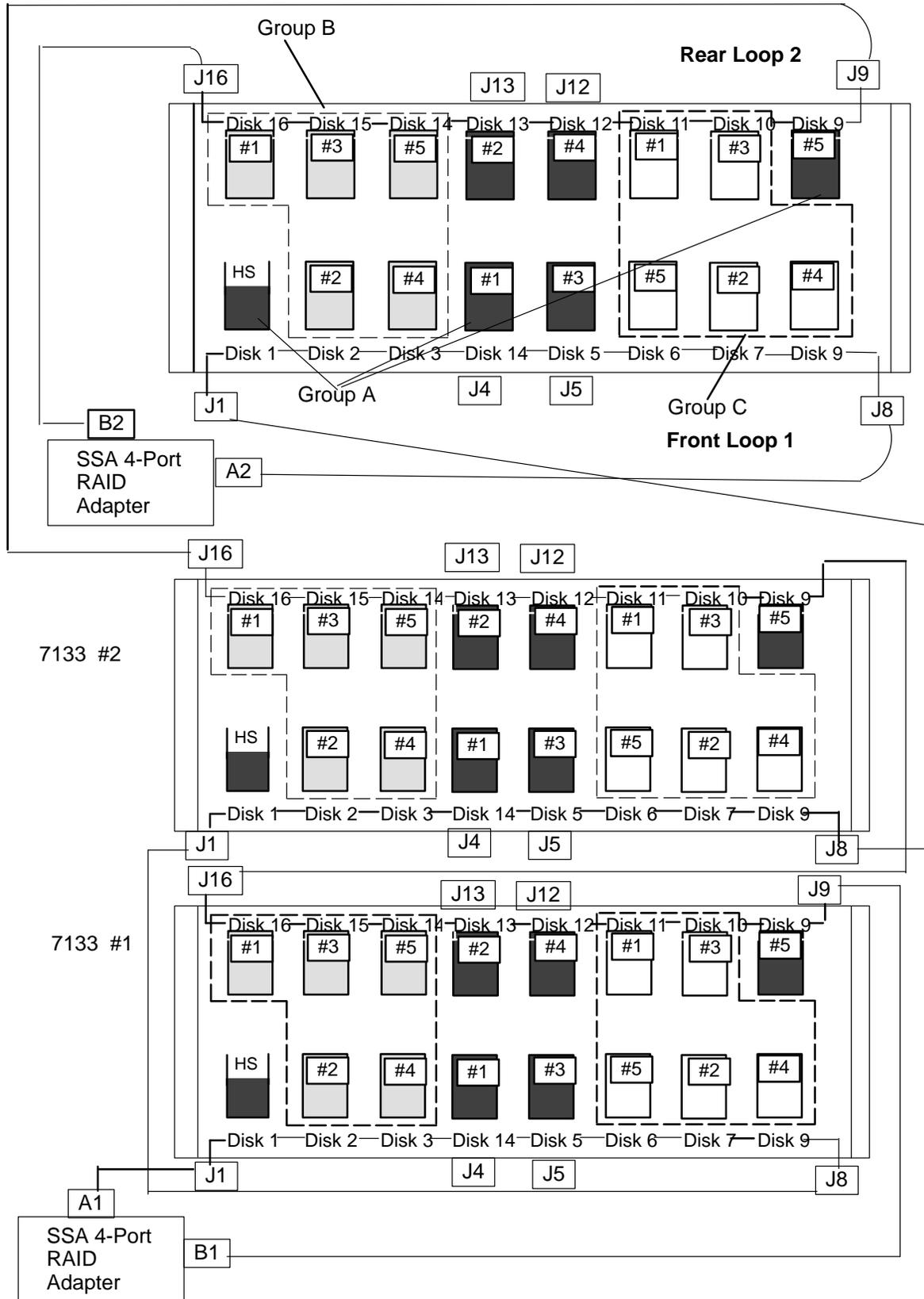
Up to 6 7133-020s connect to a FC 6207 SSA RAID Adapter

- All front slots are connected into Loop 1
- All rear slots are connected into Loop 2

7015-R00 Rack can mount up to 6 7133-020s

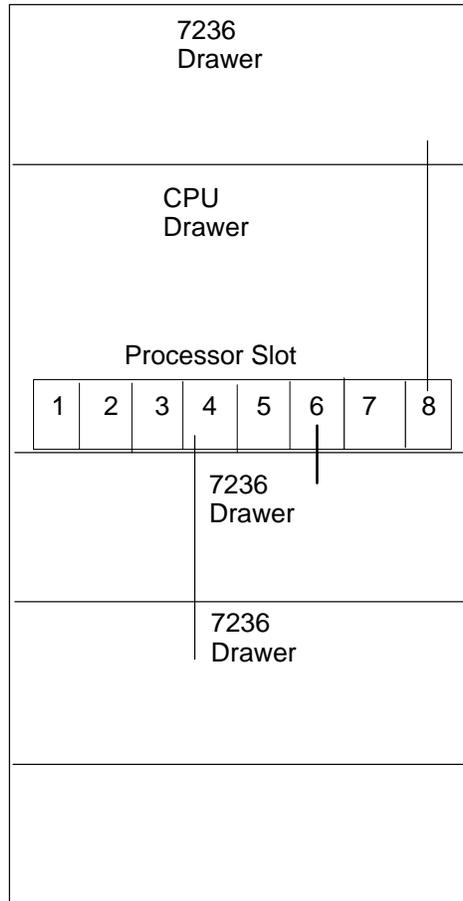


7133-020 Connections in Racks



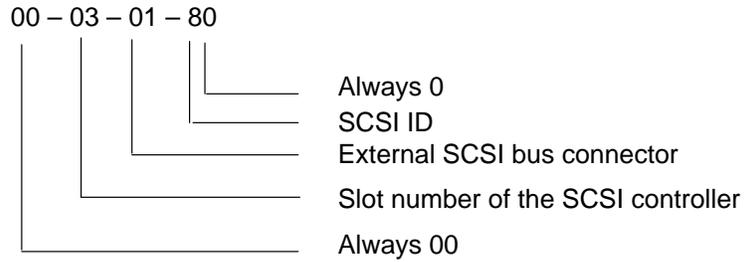
Appendix C. SCSI Cabling

The processor drawer in your MediaStreamer system can contain multiple SCSI card. The SCSI card with the highest processor slot goes to the upper 7236 drawer. The next highest processor slot is connected to the next highest 7236 drawer. For example:



Location Code Format for SCSI Devices

Refer to the *Adapters, Devices, and Cable Information* to determine the physical location of a SCSI device.



As an aid, your MediaStreamer system has several identification labels on the drawers. The drawer ID should match the slot location of the adapter that drives it. SCSI devices may be labeled with a number that identifies the SCSI address to which the device is set.

Appendix D. Drawer Location Assignments

Your MediaStreamer system rack is populated as follows starting at the very top EIA position 32 and progressing toward the bottom, EIA position 1. All drawers should be installed with no spaces between the drawers, unless otherwise noted.

1. FC0161: FBM 9990161 / 7236-001

This is the first 7236 drawer. If your system did not arrive with this area populated, leave the first 4 EIA positions blank.

2. FC0159: FBM 9990159 / 7012-39H or
FC0112: FBM 9990112 / 7015-R20

This is your processor drawer and is mounted directly below the 7236 drawer.

Note: You can mount additional 7236 drawers below the processor drawer. The maximum number of 7236 drawers is 3.

Starting at the bottom of the rack, EIA position 1, install drawers as follows. Again, there should be no spaces between the drawers.

1. FC0148: FBM 9990148 / 7133-010 or
FC0160: FBM 9990160 / 7133-020

These are your storage drawers.

7133–020 Drawer Configuration as part of a MediaStreamer system

The base configuration includes 6 4.51GB disk drives, 10 dummy disk drives, and 3 power/cooling modules.

- Six 4.51GB disk drives are standard. Only 4.51GB 3.5 inch SSA disk drives are supported.
- All empty bays in the 7133–020 must be filled with dummy disk drive assembly (FBM 88G6368).
- The 3–way power cord (P/N 67G1246) comes standard under the 7133–020 ship group (P/N 88G6370).
- 7133–020 can include up to 16 SSA disk drives using two 5–drive increments allowing configurations of 6 disks (base configuration), 11 disks (first 5–drive increment) and 16 disks (second 5–drive increment).

DASD FEATURES

Feature Code	FBM	Quantity	Capacity
3401	88G6374	1	4.51GB
3404	88G6377	4	4.51GB
3408	07H9173	8	4.51GB
3416	07H9174	16	4.51GB

- FC3404 + (FC3401 X 2) = 6 disks (base configuration).
- FC3408 + (FC3401 X 3) = 11 disks (first 5–drive increment above base configuration).

- FC3416 = 16 disks (second 5–drive increment above base configuration and first 5–drive increment).

Note: The only configurations allow for the 7133–020 in a MediaStreamer system are 6, 11, or 16 SSA disk drives.

ORDER OF SSA DISK INSTALLATION IN THE 7133–020

For the base configuration of 6 SSA disks, populate the first disk in file position 1. This disk in file position 1 (Group A–1) is referred to as the Hot Spare. Refer to the figure below for file positions and disk groupings. Populate the second disk in file position 4 (Group A–2), the third disk in file position 5 (Group A–3), the fourth disk in file position 9 (Group A–4), the fifth disk in file position 12 (Group A–5), and the sixth disk in position 13 (Group A–6).

Note: Fill all empty bays (10 empty bays in this configuration) with dummy disk drive assemblies.

7133–020 Viewed from Front.

8	7	6	5	4	3	2	1	File Disk Position (Front)
C-3	C-2	C-1	A-3	A-2	B-2	B-1	A-1	Disk Grouping (Front)
A-4	C-4	C-5	A-5	A-6	B-3	B-4	B-5	Disk Grouping (Back)
9	10	11	12	13	14	15	16	File Disk Position (Back)
3		2			1			PSU/FAN Position

7133–020 Viewed from Back

For the first 5–drive increment above the base configuration, populate the first disk in file position 2 (Group B–1), the second disk in file position 3 (Group B–2), the third disk in file position 14 (Group B–3), the fourth disk in file position 15 (Group B–4), and the fifth disk in file position 16 (Group B–5). In this configuration, the 7133–020 drawer should be populated with 11 SSA disks.

Note: Fill all empty bays (5 empty bays in this case) with dummy disk drive assemblies.

For the second 5–drive increment, populate the first disk in file position 6 (Group C–1), the second disk in file position 7 (Group C–2), the third disk in file position 8 (Group C–3), the fourth disk in file position 10 (Group C–4), and the fifth disk in file position 11 (Group C–5). The 7133–020 drawer should be fully populated with disks in this configuration.

CABLE FEATURES

The following cables are referred to as "SSA Copper Cable":

- FC 5002 88G6415 0.18M SSA Additional/MES Cable
- FC 5006 31H0113 0.60M SSA Additional/MES Cable(for 7133–500)
- FC 5010 88G6379 1.00M SSA Additional/MES Cable
- FC 5025 88G6380 2.50M SSA Additional/MES Cable
- FC 5050 88G6381 5.00M SSA Additional/MES Cable
- FC 5100 88G6382 10.0M SSA Additional/MES Cable
- FC 5250 88G6383 25.0M SSA Additional/MES Cable

Cable length guidelines:

- 0.18M: Jumper between two disk bays within a drawer.
- 0.60M: Used for 7133–500.
- 1.00M: Jumper between two disk bays within a drawer.
- 2.50M: Connect between two drawers within one rack.
- 5.00M: Connect between two drawers in adjacent racks.
- 10.0M: Connect between two drawers in non-adjacent racks
- 25.0M: Connect between two drawers in distant racks.

GENERAL CONFIG. REQUIREMENTS FOR 7133–020 IN A MEDIASTREAMER SYSTEM

- Max # of files per 7133 drawer —> 16
- Min # of files per 7133 drawer —> 6
- Max # of files per adapter —> 96
- Dummy Carriers (FBM 88G6368) must be installed in every empty position of 7133 (i.e., 7133–020 with 6 SSA disks requires 10 Dummy Carriers)
- Max # of Dummy Carriers per 7133 —> 10 (the base 7133 config. in a MediaStreamer system includes 6 files)
- The third power/cooling unit (FC3003/FBM 88G6364) is always required for 7133–020 in a MediaStreamer system.
- P/N 67G1246, Three way power cord cable. # of power cords = # of 7133s.
- Number of 1.00 meter SSA loop-to-loop cable (FC5010/FBM 88G6379) PER 7133–020 = 2.
- The drive position on the 7133–020 is marked 1 thru 16.
- Only 4.51GB 3.5” SSA disk drives are supported.
- See section for rules on installing SSA disk drives.
- Fully populate one 7133–020 drawer with SSA disk drives before adding a second, third, ... up to six 7133–020 in a R00 rack.

CABLING

All 7133–020's in a MediaStreamer system are wired for 2 SSA loops. Loop 1 connects all front disk drives (drive positions 1 through 8) of the 7133–020. Loop 2 connects all rear disk drives (drive position 9 through 16) of the 7133–020.

7133–020 SSA Connectors

Viewing from the back side, each 7133–020 drawer has 4 SSA connectors (J4, J5, J8, J9) located on the left side and 4 SSA connectors (J1, J16, J12, J13) located on the right side.

7133–020 Drawer(s) to SSA Adapter connection

The SSA RAID adapter (FC6217/FBM 73H1528) provides 4 SSA ports labeled A1, A2, B1, B2 from bottom to top (looking at the adapter when it is placed in the RS/6000 systems). Each of the two pairs of ports (i.e., A1 & A2) can be attached as a closed loop to the 7133–020 subsystem. Each loop can attach up to 48 hard files (or 3 fully populated 7133–020 drawer). With 2 loops, up to six fully populated 7133–020 drawers can be connected to a single adapter.

Front Loop SSA Cable Connection

Note: Within a R00 rack, use 1.00 meter SSA cables (FC5010/FBM 88G6379) for drawer-to-drawer connections; Use 5.00 meter cables (FC5025/FBM 88G6380) for SSA adapter-to-drawer connections.

1. First Drawer (Front Loop)

Connect adapter port A1 to J1 of the 1st drawer.

If this is the only 7133-020, connect adapter port A2 to J8 of the 1st drawer. This completes the closed front loop A1-A2.

If there is a second 7133-020, J8 of the 1st drawer must be connected to J1 of the 2nd drawer.

2. (N)th Drawer (Front Loop)

Connector J8 of the (N-1)th drawer to J1 of the (N)th drawer.

If this is the last drawer, connect adapter port A2 to J8 of the (N)th drawer. Note: Total 7133-020 drawers in a R00 rack is 6.

Rear Loop SSA Cable Connection

Note: Within a R00 rack, use 1.00 meter SSA cables (FC5010/FBM 88G6379) for drawer-to-drawer connections; Use 5.00 meter cables (FC5025/FBM 88G6380) for SSA adapter-to-drawer connections.

1. First Drawer (Rear Loop)

Connect adapter port B1 to J9 of the 1st drawer.

If this is the only 7133-020, connect adapter port B2 to J16 of the 1st drawer. This completes the closed front loop B1-B2.

If there is a second 7133-020, J16 of the 1st drawer must be connected to J9 of the 2nd drawer.

2. (N)th Drawer (Rear Loop)

Connector J16 of the (N-1)th drawer to J9 of the (N)th drawer.

If this is the last drawer, connect adapter port B2 to J16 of the (N)th drawer.

Note: Total 7133-020 drawers in a R00 rack is 6.

Appendix E. Using Diagnostics

Concurrent Operation

MediaStreamer diagnostics are concurrent with the following exceptions:

- The SSA Controller diagnostics are concurrent as long as "Advanced Diagnostics" are not chosen. These advanced diagnostics may cause long delays in accessing customer data on the disks. They do not corrupt data or prevent data access. The base diagnostics are fully concurrent.
- The ATM diagnostics are not concurrent. A different set of microcode is loaded to the card, preventing normal use. A different device driver is loaded.
- The Video Decoder Card diagnostics are concurrent with the following limitations. In a MediaStreamer drawer, one card may be tested while the others are being used for customer data. However, if a failure occurs in the card under test, the diagnostics normally run on another card in the same drawer. A warning message appears on the screen, asking the service representative if an alternate card is available for fault isolation testing. If the card is not available, the diagnostics are not able to do the full extent of fault isolation.

Running Standalone Diagnostics

A direct attached ASCII terminal is required to run diagnostics on the MediaStreamer system.

Test Procedure

This instruction includes supplemental information for running standalone diagnostics on the Video/Audio Decoder Card, the ATM-155 Video Streaming Adapter, and the SSA 4-Port Adapter using the enclosed diagnostic diskettes, in conjunction with the AIX Version 4.2 Diagnostic CD (P/N 40H3617).

Note: The Diagnostic CD (40H3617) can be found in the CD-ROM Kit (P/N 40H3618).

1. Set the key mode switch to the SERVICE position.
2. If the system is powered on, insert the AIX 4.2 diagnostic CD labeled **POWERstation/POWERserver Diagnostics** (P/N 40H3617) into the CD-ROM drive. Also insert the diskette labeled **Diagnostics Update for MediaStreamer Release 1.0** into the diskette drive.
3. If the system is not powered on, power on the system, and insert the Diagnostic CD (40H3617) and the Update Diskette as soon as power is applied to the system unit.
4. It may take several minutes for the system unit to read the Diagnostic CD, the Update Diskette and display diagnostics instructions.
5. Press **1** and the Enter key to use the current display as the system console, when instructed.
6. Press Enter after the copyright notice is displayed.
7. Next on the **FUNCTION SELECTION** menu, select **Task Selection**.

8. If system asks for a terminal type, set the terminal type (for example, ibm3151, vt100,...) and press Enter.
 9. Next on the **NEW RESOURCE** menu, press **F3** to get to the **TASKS SELECTION LIST** menu.
 10. Select **Process Supplemental Media**.
 11. Remove the Diagnostic Update Diskette and insert the diskette labeled **Diagnostics Supplement for MediaStreamer Release 1.0**.
 12. Follow the instructions on screen to load the diskette.
 13. Diagnostics may be run in the same manner as the hardfile based diagnostics.
 14. The device name for the Video/Audio Decoder Card, the ATM-155 Video Streaming Adapter and the SSA 4-Port Adapter are **vdec**, **atm**, and **ssa**, respectively.
- Note:** When running Diagnostics on device **vdec**, select **SYSTEM VERIFICATION**. Do not select **PROBLEM DETERMINATION**.
15. To exit out of diagnostics, Press the **F10** key and then do an orderly SHUTDOWN by pressing the **F3** key. A submenu appears for DIAGNOSTICS SHUTDOWN. Press Enter to eject the Diagnostic CD-ROM and then power off the system.
 16. Return the key to NORMAL position and re-IPL the system.

Appendix F. MediaStreamer Microcode Update Procedure

If the system is powered off, turn the key mode switch on the operator panel to the **Normal** position and power on the system.

The following sections outline the installation/update of the MediaStreamer Release 1 Microcode in the system unit.

1. Insert the diskette labeled **Microcode Update for MediaStreamer Release 1.0** into the diskette drive.
2. Log in on the console as root.
3. To restore the microcode, enter:

```
cd /tmp; restore -x
```
4. When prompted, press Enter
5. To install the microcode, enter:

```
./install
```
6. Reboot the system by entering:

```
shutdown -Fr
```

Note: The microcode update takes effect after a system reboot.

Index

Numbers

7133 loops, B-1

A

about this book, x
adapter, 1-3
 removal, 2-7
 replacement, 2-7
audio cable, 1-4
audio/video adapter, 1-3

B

board, distribution, 1-4

C

cable
 audio, 1-4
 management bracket, 1-5
 SCSi, 1-5
cable management bracket, 1-5
cabling, SCSI, C-1
communications statements, v
concurrent operation, diagnostics, E-1

D

decoder, audio/video adapter, 1-3
description, mediastreamer drawer, 1-1
diagnostics
 concurrent operation, E-1
 standalone, E-1
disk drives, A-1
distribution board, 1-4
 fan assembly, 2-12
 removal, 2-11
 replacement, 2-11
drawer, parts listing, 3-2
drawer locations, D-1

E

enclosure, parts listing, 3-2
enclosure description, 1-1

F

fan assembly, replacement, 2-12
fan fault, 1-1

H

handling static-sensitive devices, 2-1

I

id, SCSI, 1-5

installation, rails and mounting hardware, 2-2
installing additional mediastreamer drawers, 2-2

L

laser safety information, ix
LED, fan fault, 1-1
location assignments, D-1
loops, B-1

M

MediaStreamer, description, 1-1
mediastreamer, drawer, 2-2
microcode update, F-1

O

operating position, 2-5

P

parts information, 3-1
power supply
 removal, 2-9
 replacement, 2-9

R

rails and mounting hardware
 installation, 2-2
 parts listing, 3-1
rails parts listing, 3-1
related publications, x
removal and replacement
 adapter, 2-7
 distribution board, 2-11
 fan assembly, 2-12
 power supply, 2-9
 SCSI cable, 2-14
 SCSI ID cable, 2-13
 top cover, 2-6
removal and replacement procedures, handling
static-sensitive devices, 2-1

S

safety notices, viii
SCSI cable, 1-5
 replacement, 2-14
SCSI cabling, C-1
SCSI connector, 1-2
SCSI id, 1-2
SCSI ID cable, 1-5
 replacement, 2-13
service position, 2-4
SSA cabling, B-1
SSA disk drives, A-1

standalone diagnostics, E-1

T

top cover

removal, 2-6

replacement, 2-6

U

updating, microcode, F-1

using diagnostics, E-1

V

video/audio adapter, 1-3

voltage selector, 1-2