IBM 7131-405

Size/Weight	16"H x 7.75"W x 19"D (407mm x 197mm x 483mm); 44.0 lbs. (20 kg)
Noise Level	(5 drives typical) LwAu = 5.6 Bels idling, LwAu = 6.0 Bels operating
Power	Low voltage (115 power supply setting)

Low voltage (115 power supply setting)

    90V-137 VAC
    6.3 Amps
    0.76 KVA
    378 Watts

High voltage (230 power supply setting)

    180V-265 VAC
    4.0 Amps
    0.96 KVA
    480 Watts

FCC class	A
CISPR	A
Japan VCCI	1
Operating Environment	

Temperature = 16 to 32 degrees C (60.8 to 89.6 degrees F)
Relative Humidity = 20 to 80 percent
Wet Bulb = 23.0 degrees C (73.4 degrees F maximum)
Voltage = 115/230 V

Hardware Layout Overview and Description

Control Panel

Power Switch Pushbutton switch used to set the power on or off.

Light-Emitting Diode (LED) When lit, indicates that the power switch is set to on and that the unit is receiving power.

Disk-Drive Slots

Five disk drive slots support 1.1 gigabyte (GB), 2.2GB, and 4.5GB Serial Storage Architecture (SSA) disk drive modules. The slots are numbered 1 through 5 from bottom to top. Slot 1 and slot 5 MUST always contain a disk drive module. Slots 2, 3, and 4 MUST contain either disk drive modules or dummy disk drive modules to maintain an SSA loop through the 7131.
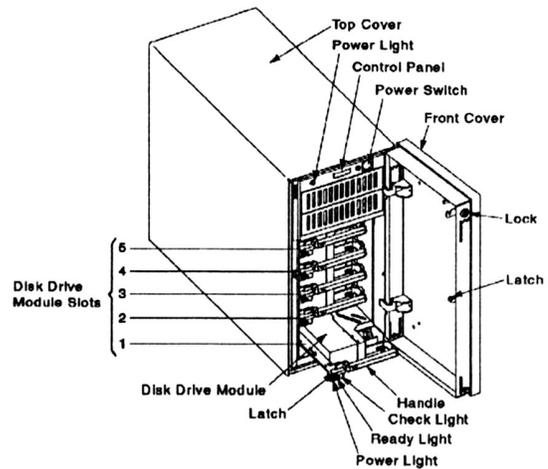
Disk-Drive Modules

Note: The Power Light, Ready Light, and Check Light perform the same functions on 7131 as they do on 7133.

Power Light The Power light, which is green, indicates that power is applied to the disk drive when the light is on.

Ready Light The Ready light, which is green, comes on and remains on when both SSA connections to the disk drive module are good and the disk drive is ready to accept commands from the system unit. The light flashes slowly when only one SSA connection is good. The light flickers when the disk drive is executing a command.

Check Light The Check light, which is amber, comes on and remains on:

    If a failure in the disk drive module is detected
    While the automatic self-tests are running
    To indicate ready for SERVICE MODE; use of the disk drive by the using system(s) has ended.

Latch The latch locks the disk drive into the slot to maintain connection with the backplane. The module is locked into the backplane when the latch is in the HORIZONTAL position. The module is unlocked when the latch is pointing down.

Front View with Cover Open
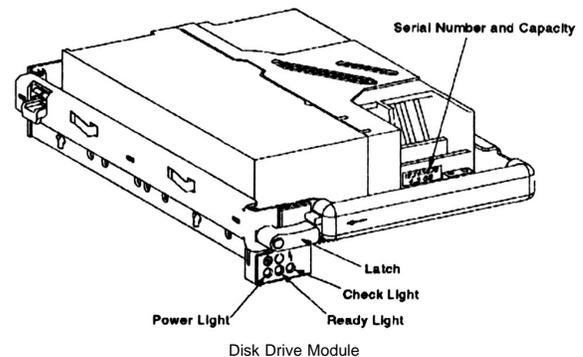
Disk Drive Module

Power Supply

The power supply is mounted at the top rear of the 7131. The power supply is not auto-ranging.

Voltage Selection Switch

The Voltage Selection Switch is a two-position switch on the power supply. The switch can be set to 115 volts AC or 230 volts AC. The switch must be set to match the input voltage at the wall outlet before connecting the linecord. The 7131 will not operate if the voltage selection does not match the wall outlet voltage. Refer to the information at the top of page 1 for supported voltage ranges for each switch setting.

WARNING: IF THE 7131 IS CONNECTED TO A HIGH VOLTAGE WALL OUTLET AND THE VOLTAGE SELECTION SWITCH IS SET TO 115, THE POWER SUPPLY WILL BE DAMAGED WHEN THE 7131 POWER SWITCH IS SET TO ON.
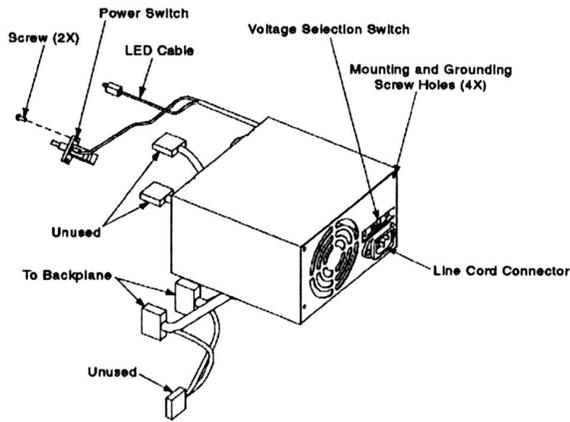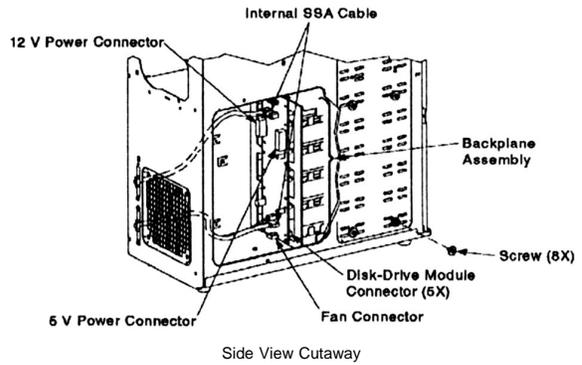
Power Supply
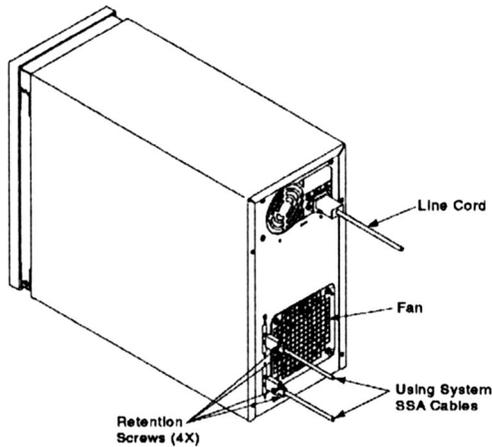
Rear View

Line Cord

The line cord connects directly to the power supply.

Cooling Fan

Cooling is provided by a fan mounted at the lower rear of the 7131 (behind the grill shown in the "Rear View" figure above).

Side View Cutaway

Internal SSA Cables

The internal SSA cables are mounted to the rear frame. The two internal SSA cables connect the external SSA cables to the backplane assembly. When the 7131 is connected to the using system SSA cables an SSA loop is established.

Backplane Assembly

The backplane assembly contains the backplane and the 5 slot cage in a single Field Replaceable Unit (FRU). The backplane is a distribution board that connects the power supply cables and internal SSA cables to the five disk drive slots.
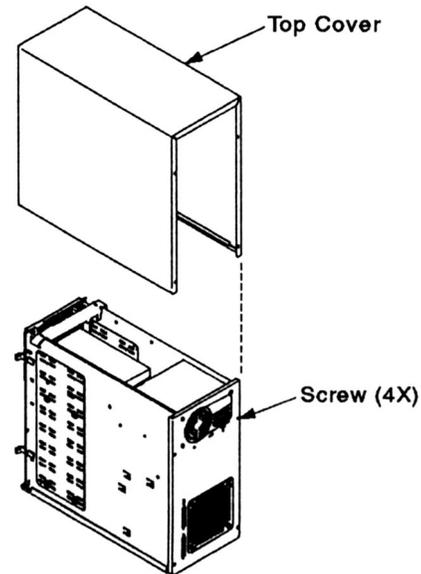
Cover Removal

Front Cover Removal

1. Open the front cover beyond a 90-degree angle.
2. Holding the top and bottom of the cover, lift it straight up to remove.

Top Cover Removal

1. Open the front cover.
2. Remove the four screws that fasten the top cover to the rear frame.
3. Lift and remove the top cover from the 7131.

Top Cover Removal

CE/CSR Service Training

This Technical Fact Sheet provides service training on 7131-405.

Course Code T1355

The 7133 SSA Product Training, Course Number SE10005B, is a prerequisite for 7131. The 7133 training course is a Computer Based Training course that covers SSA concepts, SSA connections, and use of the SSA Service Aids in RISC System/6000 AIX Diagnostics. This Technical Fact Sheet covers the differences between 7131 and 7133.

The following are the differences between 7131 and 7133:

The disk drive modules are different between the 7131 and 7133. However the Power, Ready, and Check LEDs have the same meaning on both disk drive modules.

The same SSA Service Aids are run against the 7131 and 7133. The disk drive module description listed in these service aids uses an "F" to identify a 7131 disk drive module (for example, 2GB SSA F Physical Disk Drive), and uses a "C" to identify a 7133 disk drive module (for example, 2GB SSA C Physical Disk Drive). By checking this F description when running SSA Service Aids, you can confirm that servicing is required on a 7131, rather than a 7133. Other than this, when running the SSA Service Aids, both the 7131 and 7133 appear the same.

If all devices become unavailable in a 7131, this is most likely due to a power supply or fan failure. Unlike the 7133, the 7131 does not provide options for redundant power supplies or cooling fans.

The 7131 fan does not have a Fan Check light. If the fan fails, this is indicated by all drives becoming unavailable while the Power light indicates that power is on. Each of the drives will generate SRN 10101 when running diagnostics. Also, the fan blade will most likely not be spinning or will be spinning very slowly. In this case, the fan needs to be replaced. The 7133 has a Fan Check Light to indicate a failure.

In the 7131, there is no Subsystem Check light. To determine where a failure has occurred, you must look behind the front cover of any 7131s in the SSA loop to see that one or more drives has a Check light on. In the 7133, there is a Subsystem Check light.

In the 7131, there MUST always be a disk drive module in bottom slot 1 and in top slot 5. The middle three positions MUST have either disk drive modules or dummy disk drive modules installed.

The following are rules for 7131 connected in SSA loops:

Each SSA loop must be connected to a valid pair of connectors on the SSA adapter (that is, either connectors A1 and A2, or connectors B1 and B2).

Only one pair of adapter connectors can be connected to a particular SSA loop.

A maximum of 48 disk drive modules can be connected to a particular SSA loop.

A maximum of two adapter-connector pairs can be connected in a particular SSA loop.

Any single using system can have a maximum of two SSA adapters connected in a particular SSA loop.

Note to TSS CSRs

You must fill out a Course Completion Sheet at the end of this training. Then give the completed form to your manager.

RS/6000 Support

The 7131-405 attaches to the RS/6000 via the IBM SSA 4-Port Adapter, feature code 6214.

Programming Support

The 7131-405 is supported on AIX 4.1.4 and later releases.

Field Replaceable Units

Note: *The following is a list of the key FRUs for the 7131-405. Please refer to the 7131 Service Guide for a complete list.*

P/N	Description
27H1044	Internal SSA Cable Assembly
99F7896	1.1GB Disk Drive Module
99F7897	2.2GB Disk Drive Module
99F7898	4.5GB Disk Drive Module
27H1047	SSA Carrier Assembly
27H1023	Dummy Disk-Drive Module
27H1019	Backplane Assembly (w/5 slot cage)
27H0922	Fan Assembly (incl. Isolators)
07H8985	1.0m External SSA Cable
32H1465	2.5m External SSA Cable
88G6404	5.0m External SSA Cable
32H1466	10.0m External SSA Cable
88G6406	25.0m External SSA Cable
26H9205	Power Supply

Documentation

SY27-7510 *Service Guide*
SA26-7003 *Safety Information Manual*
GC26-7096 *User's Guide: Installation and Operation*

Note: *The documents listed in "Documentation" are shipped with the 7131-405.*

Customer Responsibilities

The 7131 is Customer Setup (CSU), and the customer is responsible for installing additional features (that is, disk drive modules and SSA cables).

The customer is also responsible for ensuring that the appropriate actions have been taken to prepare a disk drive module for replacement by a CE/CSR. These actions may include some or all of the following:

Backup data
Unmount filesystems
Remove filesystems
Remove paging space
Make a device unavailable to the operating system
Remove a disk from the volume group
Delete a device from the system configuration

To assist customers with the above activities, two documents are available from 1-800-IBM-4FAX (1-800-426-4329). These documents are:

Document No.	Title
1895	Removing/Replacing a Fixed Disk
2580	When Fixed Disk Removed without Software Procedures

Copies of the two documents should be obtained and provided to customers, if necessary. Remember, the customers are responsible for protecting their data.

Maintenance Strategy

The SSA disk drive modules in the 7131 support concurrent maintenance and may be replaced with power on. The SSA Service Aids in RS/6000 AIX Diagnostics provide utilities to assist with SSA link and disk drive module isolation. The function of the SSA Service Aids are covered in the 7133 SSA training course.

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IBM machine type: 7131

Tech Support 800-877-7764