

System Enclosure and Power

- Clipper system enclosure is common to three basic configurations.

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Mini Tower



Large Pedestal



Rack mounted



Enclosure Features

- **Size Rack Draw 8U**
 - 13.87 inch high,
 - 17.61 inch width
 - 28.52 inch depth
- **Weight**
 - Min. approximately 90 pounds
 - Max. of 158 pounds.
- **Maximum heat dissipation** **roughly 1500 watts**
- **Environmental**
 - Temperature 40 deg C
 - Humidity 90 %
 - Altitude 12000 feet

Enclosure Feature Cont.... 2

● Electrical

- Voltage 100-120 220-240 Vac
- Phase Single
- Frequency 50-60 Hz
- Maximum rated current
 - single cord set 11.5 amps
 - multiple cord sets
 - 8.5 amps (2 power supplies),
 - 6 amps (3 power supplies)
- Maximum power consumption 1500 watts

Enclosure Features Cont.... 3

- **Operator Console**

- back light in display
- Switch for main DC-Enable, halt and reset
- May be rotated 90° to allow for different enclosure mounting.

- **Power Supply**

- Up to three 730 watt output power supplies are supported in the unit
- Two supplies are needed for a maximum configuration with the third used as a N+1 redundant supply.
- Supplies talk with the system about loading, output voltage etc. through I²C bus.
- Power supplies are swappable in the redundant mode without powering the system down.

Enclosure Features Cont... 4

- **All fans are hotswappable- may be removed without turning the system off.**
- **PCI area**
 - up to 10 PCI expander slots supported by 2 PCI buses
 - Standard Input/Out connections
 - Mouse/Keyboard mini DIN's
 - two serial line ports (9 pin Dsub's)
 - Dual USB ports
 - Remote Console port (Serial MMJ)
 - Knockouts for two 68 pin SCSI headers
 - Rear wall is removable for future product changes.
 - PCI option slots have plastic latches instead of screws. Made to have support of HotSwap PCI in the future.

● Enclosure Storage

- Supports up to two hard disk drive cages
 - Cage holds up to four 1.6 inch disk carriers
 - Optional cage holds six 1.0 inch disk carriers
- Removable Media Drive(RMD) Area
 - one standard 3.5 inch floppy drive
 - up to three 5.25 Half Height(HH) drives (CDROM, tapes etc).
 - Divider in the 5.25 inch HH area may be removed to mount one full height 5.25 device.
 - The whole RMD cage may be rotated 90° to allow for change in mounting of the enclosure.

Rack Mount

- Clipper drawer is a new design occupies 8U rack space. Retma Pattern.
- Cable management arm.
- Hardware - hex head screws used to secure to rack rails.



Pedestal

- **Standard Clipper draw will be mounted in the pedestal. No modifications to the drawer are needed.**
- **Pedestal supports up to two rack expander boxes. Allows additional 20 1.6 inch(two Starlight 10) or twenty eight 1.0 inch hard disk drives(Starlight 14).**
- **Pedestal also supports original StormeWorks I to allow for upgrades**



Mini Tower

- **Smaller Pedestal system that uses low cost contained system.**
- **Supports two drive cages inside system**
 - eight 1.6 inch hard disk drives
 - twelve 1.0 inch disks

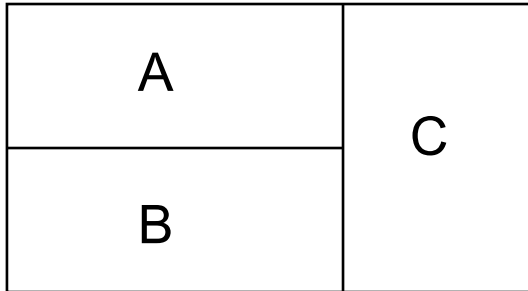


Cooling

- **Front to Back Airflow**
- **Enclosure**
 - 6 fans
 - 5 powered in normal condition
 - 1 fail over
- **Power Supply**
 - 1 fan per supply

Cooling

- **3 independent air paths**
 - A-CPU / memory cage
 - B-power supply(ies), left drive cage
 - C-removable media, right drive cage, PCI cage
 - front view - rack orientation



- **Hot Swap Capable (Accessible from...)**
 - A6 & A5 (top)
 - B4, B3, C1, & C2 (right side)

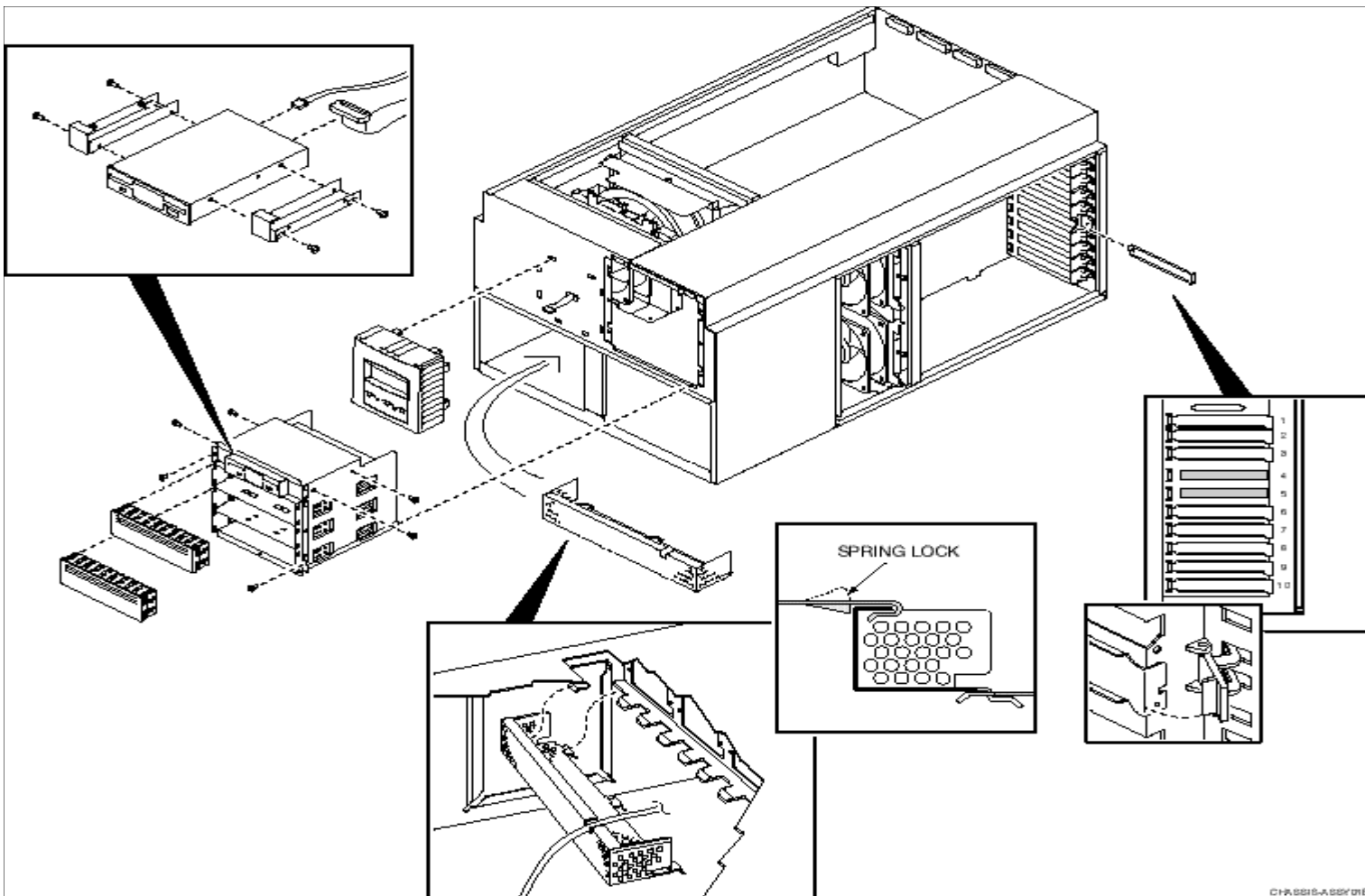
Cooling

- **Air Movers**

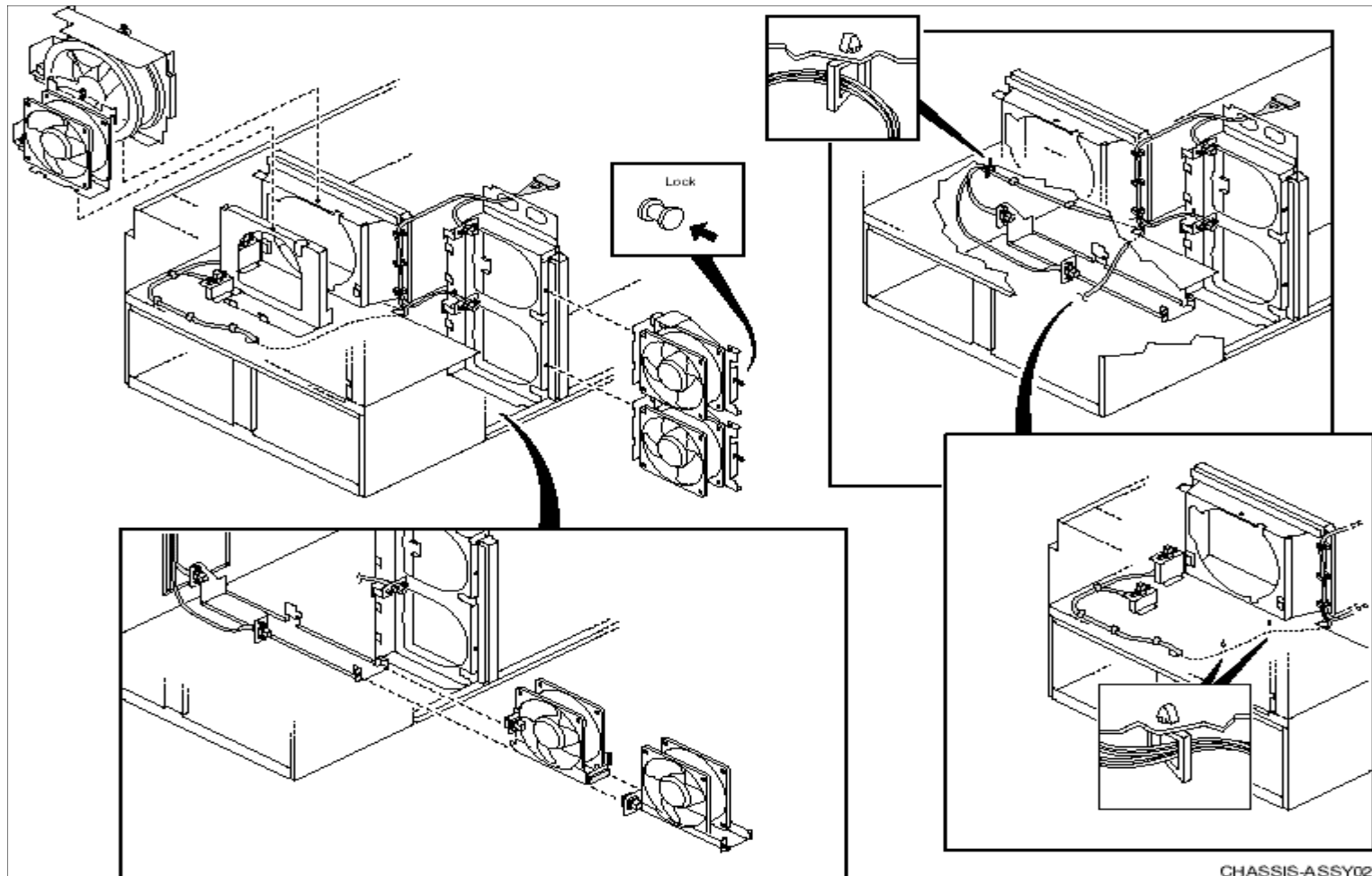
- A #6-6.8 inch fan
- A #5-120mm fail over fan
- B #3-120mm fan redundant - right
- B #4-120mm fan redundant - left
- B -90mm fan power supply 0
- B -90mm fan power supply 1 (if present)
- B -90mm fan power supply 2 (if present)
- C #1-120mm fan redundant - top
- C #2-120mm fan redundant - bottom

- **Voltage Ramp**

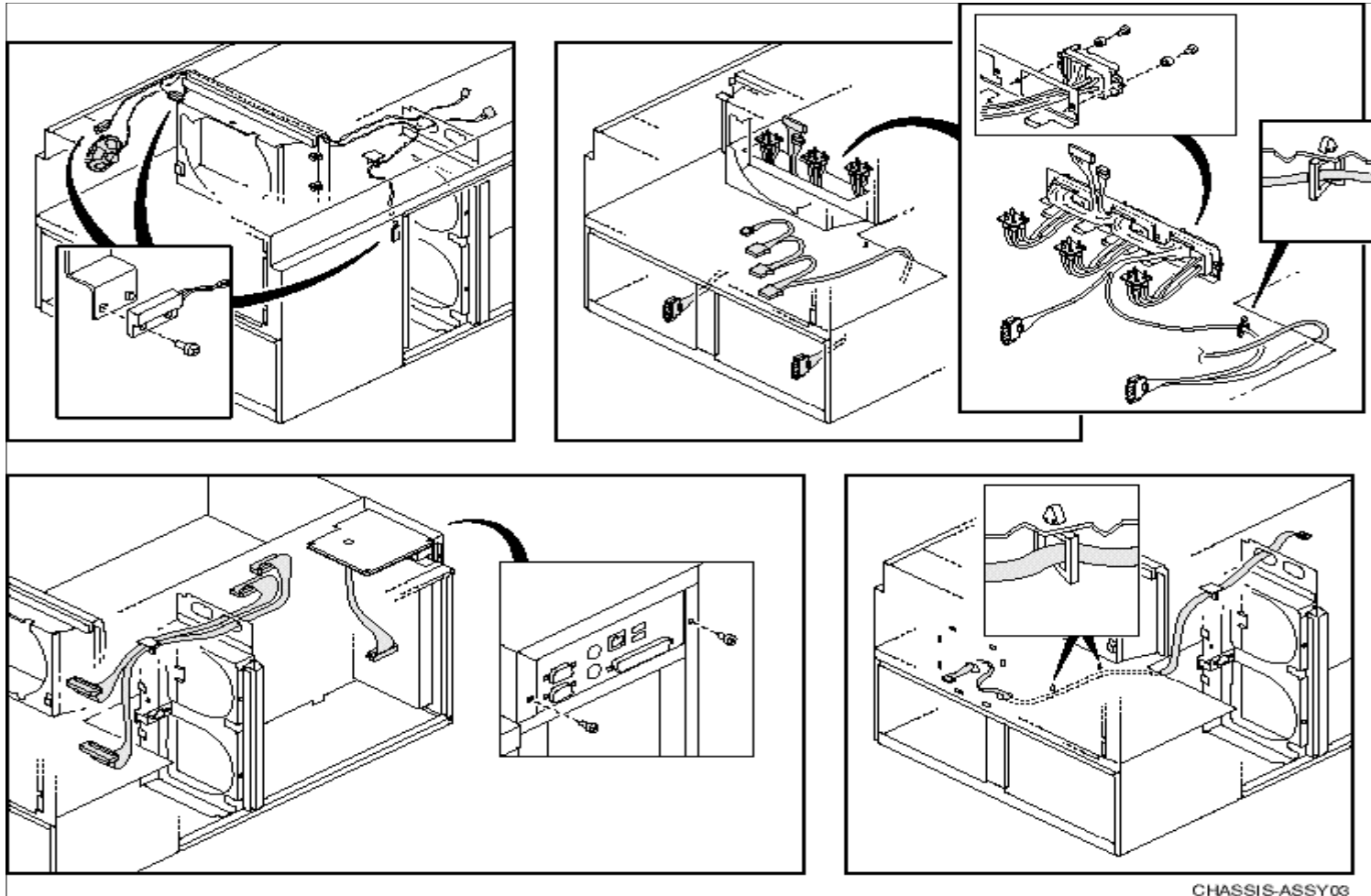
- 6 step
- ~8V to 10V in .5V steps, 12V

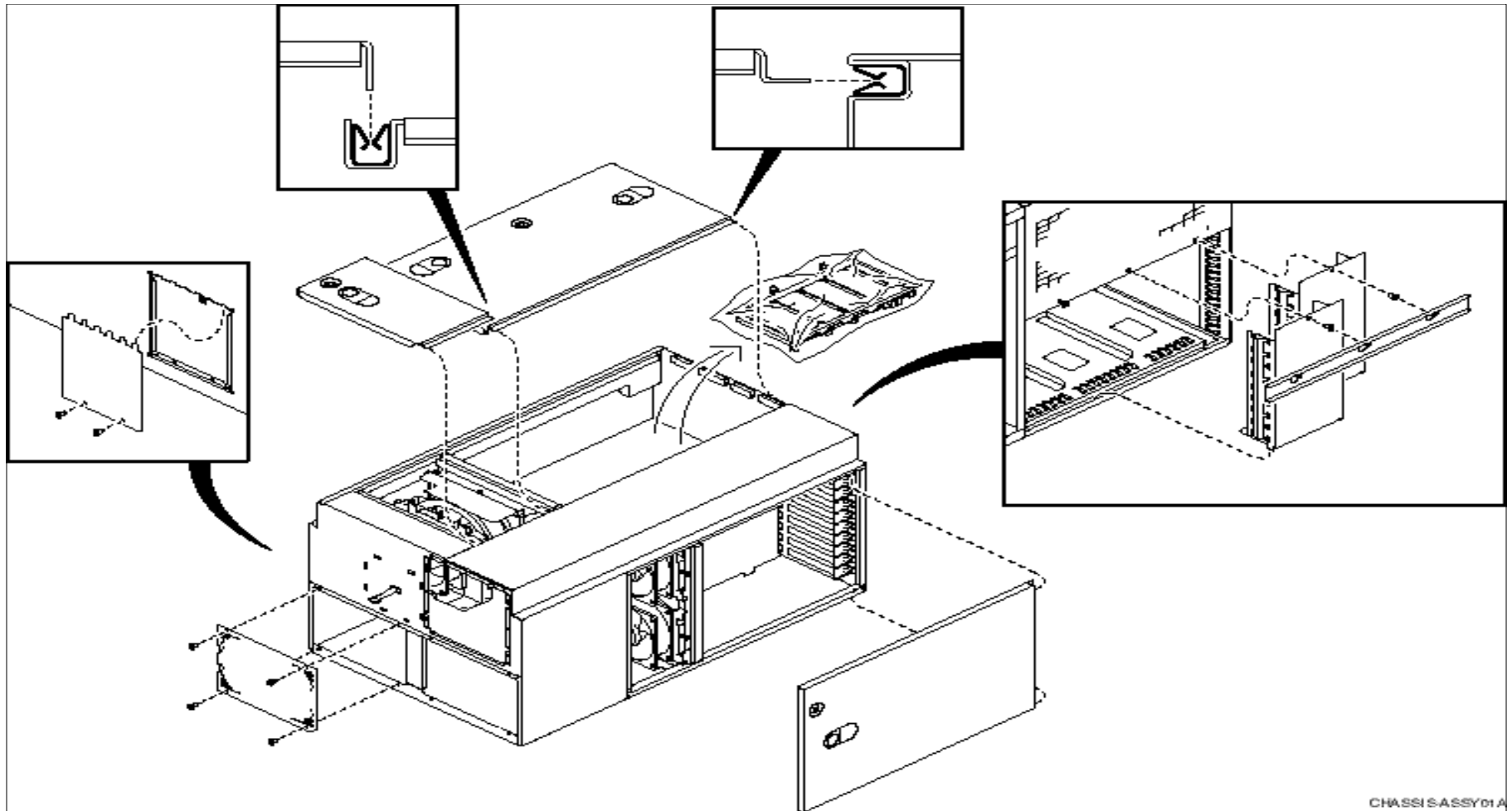


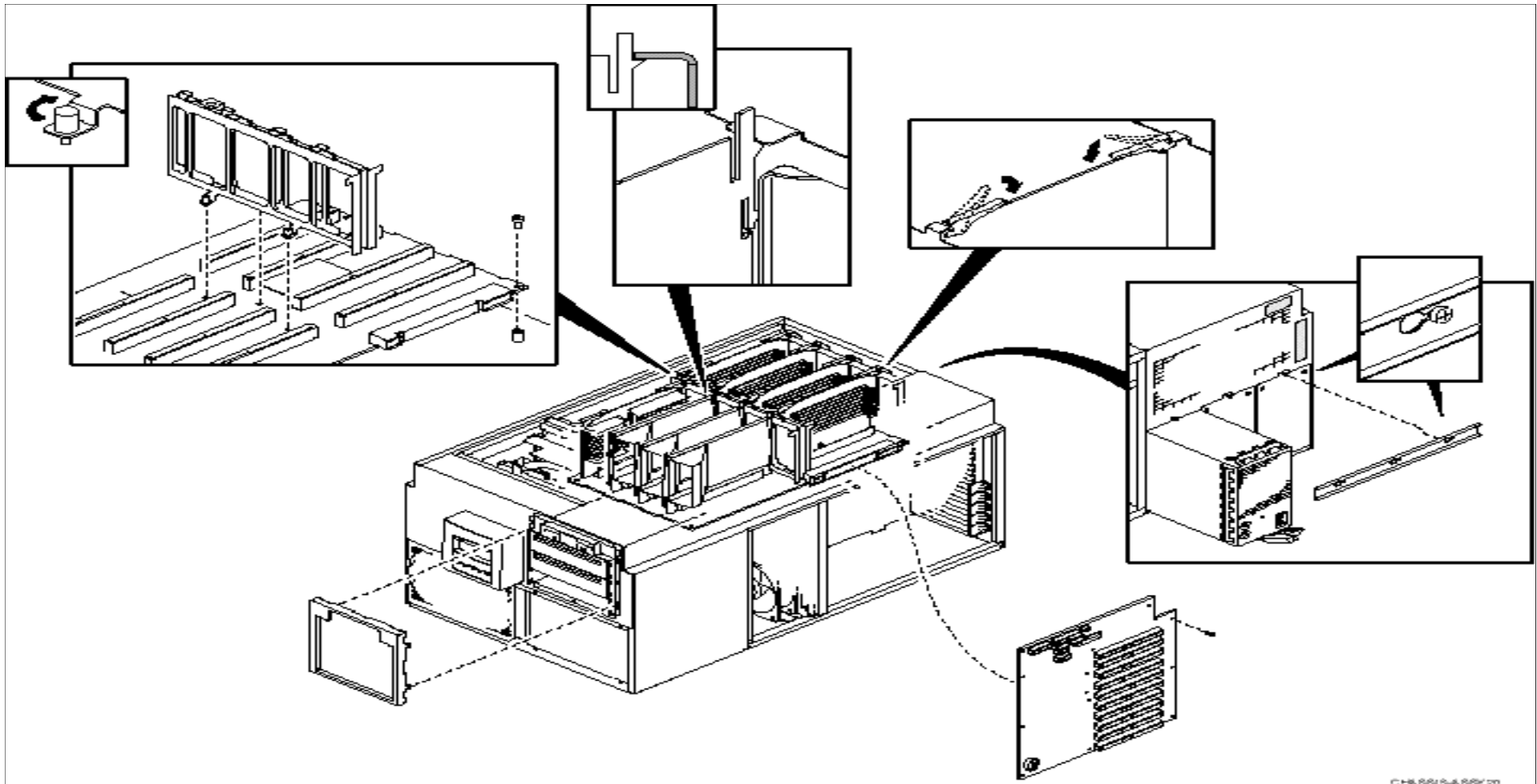
FRU's Continued



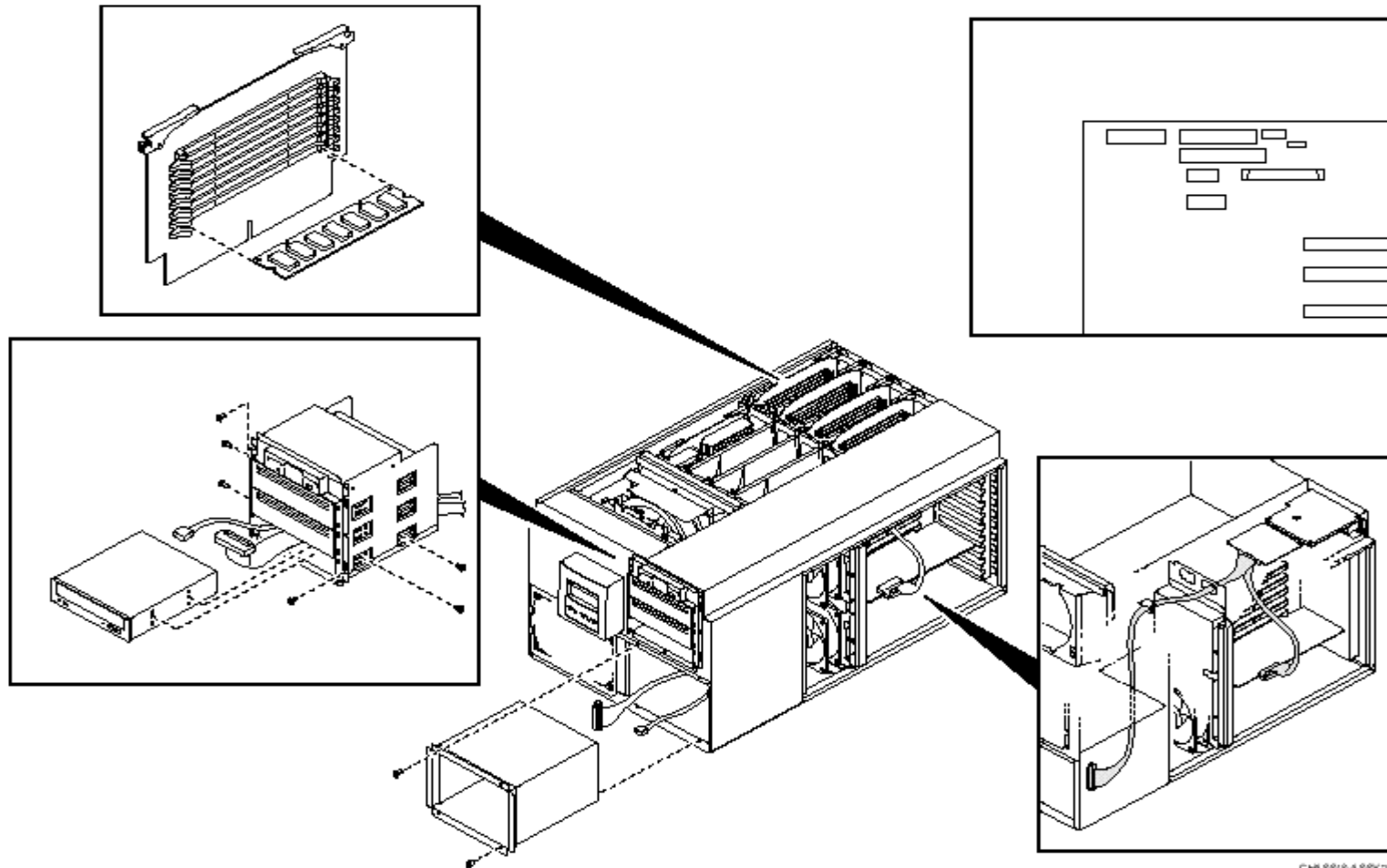
FRU's Continued





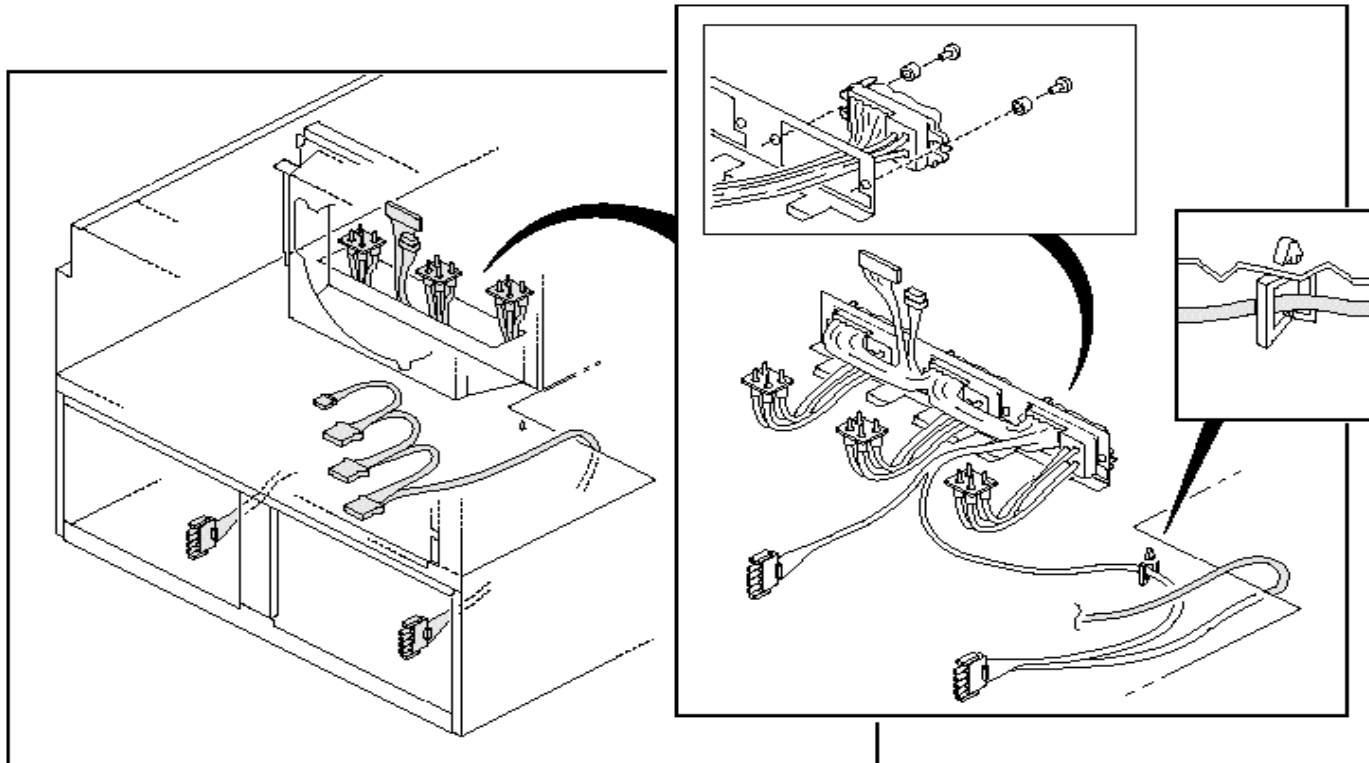


FRU's the final slide



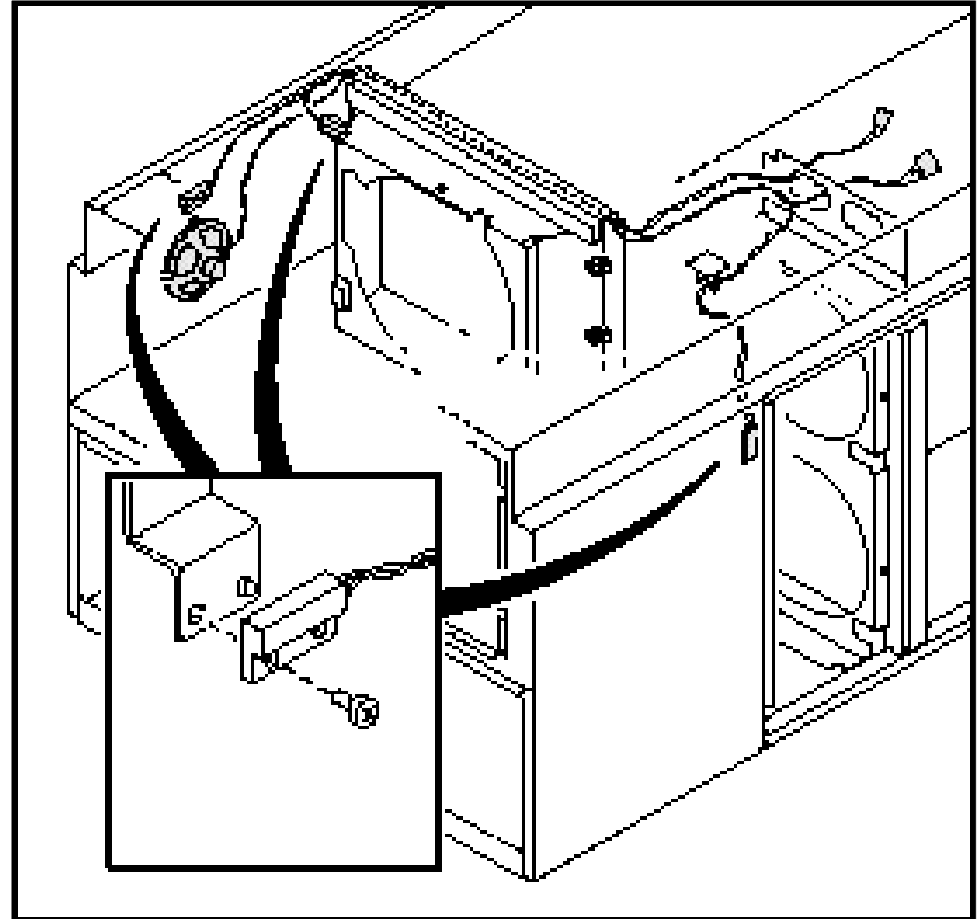
Enclosure Power Distribution

- One Power Harness interfaces to all 3 power supplies , Floppy, Removable Media, and up to 2 Drive shelves.



Interlocks

- The three main access panels have interlock switches
- CPU/Memory cage interlock will shutdown the system when door is opened.
- PCI and CPU fan area doors will notify console that their respective areas have been accessed.



Power Management

- **Pedestal**

- There will be 2 power strips much like Rawhide.
- Power supplies will be distributed across each strip. The first power supply cord is inserted into strip 1. The second power supply cord is inserted into strip 2, and third power supply cord into either strip 1 or 2.

- **Rackmount**

- Power management in a Corporate cabinet will occur using the H7600 power controller.

- **Mini-Tower**

- Power management is simply plugging the power cord into the wall outlet.

N+1 Configuration Rules

- **First Power supply supports:**
 - 2 CPU cards
 - Clipper system board (CSB)
 - Clipper PCI board (CPB)
 - Server manager (junk I/O) module
 - OCP
 - 4 fully populated memory cards
 - 10 PCI slots
 - All system fans
 - Floppy
 - 3 removable media devices
 - 1 Hot swap storage shelf (either 4-1.6" or 6-1" devices)

N+1 Continued

- **Second Power supply is needed when:**
 - 3rd CPU card is added to the system
 - 2nd storage shelf is added to system
 - Or when you want a redundant supply
- **Third supply is always added for redundancy.**