

## TABLE OF CONTENTS

<b>TABLE OF CONTENTS .....</b>	<b>1</b>
<b>1- Before Starting any work on the SGI Computer.....</b>	<b>3</b>
1-1 Remove Power From The Operator Workspace Cabinet .....	3
1-2 ESD Precautions and Tools Required .....	4
<b>2- Operator Workspace Cabinet .....</b>	<b>5</b>
2-1 Security Key Cable Replacement .....	6
2-1-1 Tools Required .....	6
2-1-2 Removal Procedure .....	6
2-1-3 Installation Procedure .....	7
2-2 PC Replacement .....	8
2-2-1 Tools Required .....	8
2-2-2 Removal Procedures .....	8
2-2-3 Installation Procedures .....	9
2-3 Model 800 Hub Replacement .....	9
2-3-1 Tools Required .....	9
2-3-2 Removal Procedures .....	9
2-3-3 Installation Procedures .....	10
2-4 Bit3 Fiber Optic Interface Replacement .....	11
2-4-1 Tools Required .....	11
2-4-2 Removal Procedures .....	11
2-4-3 Installation Procedures .....	12
2-5 Specialix Module Replacement .....	12
2-5-1 Tools Required .....	12
2-5-2 Removal Procedures .....	13
2-5-3 Installation Procedures .....	14
2-6 Milan MIL-S800i Switch Replacement .....	14
2-6-1 Tools Required .....	14
2-6-2 Removal Procedures .....	14
2-6-3 Installation Procedures .....	15
2-7 RJ-45 568B Cable Pinouts .....	16
<b>3- SGI Indigo FRU Replacements.....</b>	<b>16</b>
3-1 SGI Power Supply Replacement .....	16
3-1-2 Removal Procedures .....	17
3-1-3 Installation Procedures .....	19
3-2 Peripheral Power Supply Replacement .....	20
3-2-1 Removal Procedures .....	21
3-2-2 Installation Procedures .....	23
3-3 CD-ROM Drive Replacement .....	24
3-3-1 Tools Required .....	24
3-3-2 Removal Procedures .....	24
3-3-3 Installation Procedures .....	27
3-4 Hard Drive Replacement .....	28
3-4-1 Tools Required .....	28
3-4-2 Removal Procedures .....	28
3-4-3 Installation Procedures .....	31
3-5 Floptical Drive Replacement .....	34
3-5-1 Tools Required .....	34
3-5-2 Removal Procedures .....	34
3-5-3 Installation Procedures .....	37
3-6 1.3-GB (MOD) Drive Replacement .....	38
3-6-1 Tools Required .....	38
3-6-2 Removal Procedures .....	38
3-6-3 Installation Procedures .....	41
3-7 32-MB SIMM Replacement .....	42
3-7-1 Tools Required .....	42

3-7-2 Removal Procedures .....	42
3-7-3 Installation Procedures .....	45
3-8 Bit3 Board Replacement.....	46
3-8-1 Tools Required.....	46
3-8-2 Removal Procedures .....	46
3-8-3 Installation Procedures .....	47
3-9 Mardi Gras Graphics Board Set Replacement.....	47
3-9-1 Removal Procedures .....	48
3-9-2 Installation Procedures.....	49
3-10 Video Board Replacement.....	50
3-10-1 Tools Required.....	50
3-10-2 Removal Procedure .....	50
3-10-3 Single Board to Multiple Board Set Replacement Procedures.....	53
3-10-4 Installation Procedures .....	53
3-11 Specialix Board Replacement.....	54
3-11-1 Tools Required.....	54
3-11-2 Removal Procedures .....	54
3-11-3 Installation Procedures .....	55
3-12 Mid Plane Extender Board Replacement.....	55
3-12-1 Tools Required.....	55
3-12-2 Removal Procedures .....	56
3-12-3 Installation Procedures.....	59
3-13 Lightning I/F Board Replacement.....	60
3-13-2 Removal Procedures .....	60
3-13-3 Installation Procedures.....	63
3-14 Motherboard Replacement .....	65
3-14-1 Tools Required.....	65
3-14-2 Removal Procedures .....	66
3-14-3 Installation Procedures.....	69
3-15 Full House I/O Board Replacement .....	72
3-15-1 Tools Required.....	72
3-15-2 Removal Procedures .....	72
3-15-3 Installation Procedures.....	77
<b>Appendix A - Operator WorkSpace Cabinet Cover.....</b>	<b>80</b>
Tools Required .....	80
Front Cover Removal .....	80
Front Cover Installation.....	80
OW Cabinet - SGI (Host) Side-Cover Removal.....	81
OW Cabinet - SGI (Host) Side - Cover Installation .....	81
OW Cabinet - PC Side-Cover Removal .....	82
OW Cabinet - PC Side-Cover Installation.....	82
Rear Cover Removal.....	83
Rear Cover Installation .....	83
<b>Appendix B - SGI Tower.....</b>	<b>84</b>
SGI Tower Removal .....	84
SGI Tower Installation .....	85
<b>Appendix C - SGI Host tower Bottom Panel Access .....</b>	<b>86</b>
Bottom Panel Removal .....	86
Bottom Panel Installation.....	86
<b>Appendix D - SGI Host Tower Side Panel Access .....</b>	<b>87</b>
Side Panel Removal.....	87
Side Panel Installation .....	88
<b>Appendix E - SGI Host Tower Top Panel Access .....</b>	<b>89</b>
Top Panel Removal.....	89
Top Panel Installation.....	89
<b>REVISION HISTORY .....</b>	<b>90</b>

## **1- BEFORE STARTING ANY WORK ON THE SGI COMPUTER**

### **1-1 Remove Power From The Operator Workspace Cabinet**



**FATAL ELECTRIC SHOCK HAZARD!! ENSURE THAT POWER IS OFF TO THE INVOLVED UNITS BEFORE STARTING ANY PROCEDURE IN THIS DOCUMENT.**

1. Log out from Host Computer.
2. Shut down the Host Computer.
3. Bring the PC down by closing the Program Manager.
4. As applicable, open the circuit breaker(s) that power the Operator Workspace to turn power off.
5. Lock and tag the circuit breaker(s). (Refer to CD-ROM *Dir. 2187583-3 [or -2], MR Release Signa 5x/8x Service Methods, Renewal Parts and Service Tools, Safety, Section 6, OSHA LOCKOUT/TAGOUT REQUIREMENTS.*)
6. Open computer cabinet door and verify that power to the Operator Workstation is off by twice pressing (on/off) the power button on the Host Computer; the power LED should remain unlighted.

## 1-2 ESD Precautions and Tools Required



**Use proper ESD precautions when working on this hardware. The components within the SGI Computer are ESD sensitive and damage will occur to the hardware if proper ESD measures are not followed.**

Tools Required:

Standard ESD Kit:

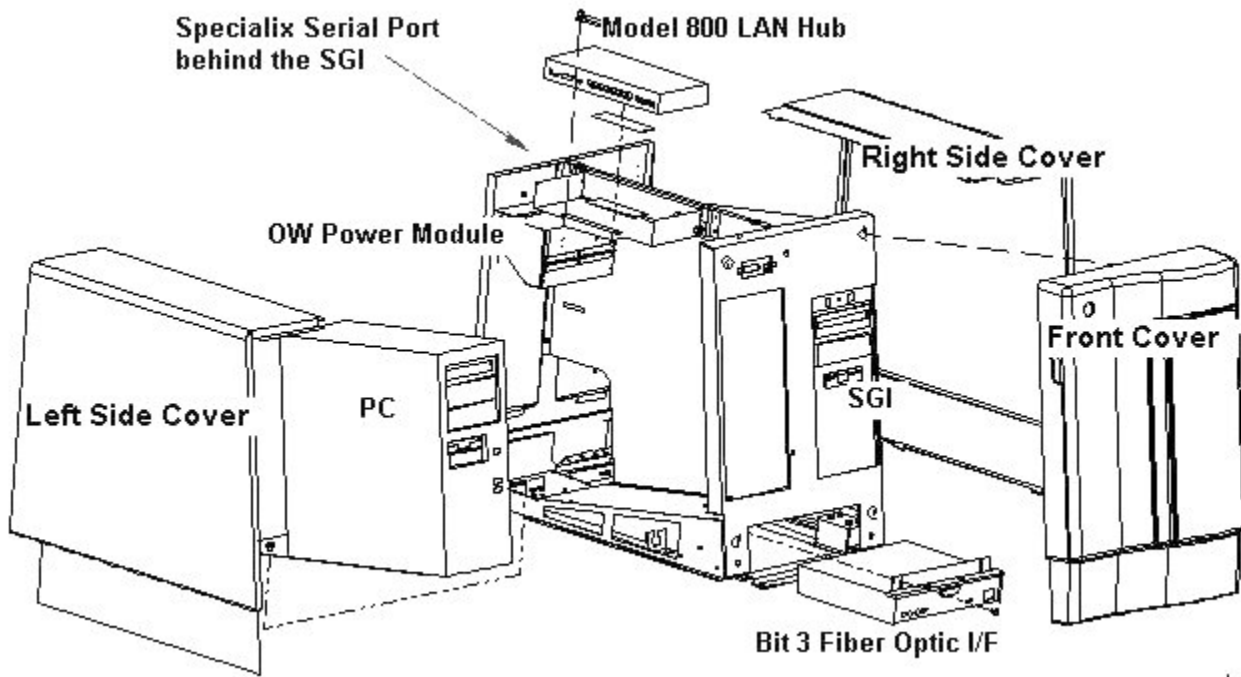
- Wrist Ground Strap.
- Red Ground Mat.
- ESD Strage Bag.



**Use caution when removing panels and modules from the Operator Workspace. ESD copper fingers located on the inside edges of the SGI housing and cover panels damage easily. Handle carefully to prevent damage to your hands and the ESD fingers. If damage occurs to the ESD fingers, they must be replaced in their slot like zipping a zipper. Start where the fingers are aligned correctly and press the damaged fingers in place by sliding your fingers along the edges as applicable.**

## 2- OPERATOR WORKSPACE CABINET

The Operator Workspace Cabinet houses the Security Key, PC, Model 800 Hub, Bit3 Fiber Optic Interface, Specialix Serial Port, and the SGI Host Computer.



**OPERATOR WORKSPACE CABINET**  
ILLUSTRATION 2-1

## **2-1 Security Key Cable Replacement**

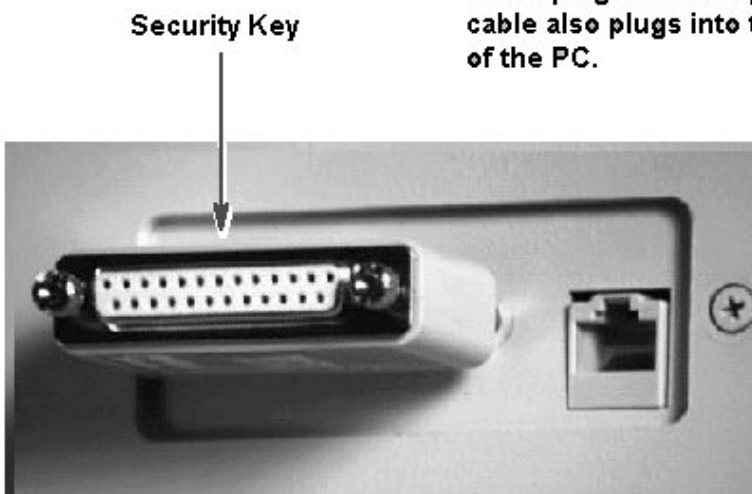
### **2-1-1 Tools Required**

- Small flat head screwdriver
- Small Phillips screwdriver
- Small wrench
- Container for screws

### **2-1-2 Removal Procedure**

1. Locate the existing Security Key Cable on the left front of the Workspace cabinet. See Illustration 2-2.

The Security Key plugs into the front of the OW Cabinet front interface panel. The Security Key Cable plugs into this panel from the rear. The cable also plugs into the parallel port at the rear of the PC.



**SECURITY KEY LOCATION**  
ILLUSTRATION 2-2

2. Remove the connector screws and remove the Security Key.
3. At the front of the cabinet, remove the two nuts located on either side of the Security Key connector. Then pull the connector and cable out from the rear of the front cabinet.
4. Follow the cable to a second connector at the rear bottom of the PC.
5. Remove the cable connector to release the cable.
6. Set the old key/cable aside.

### **2-1-3 Installation Procedure**

1. Remove the replacement Security Key Cable from the ESD Storage Bag and/or original carton, as applicable.
2. At the rear bottom of the PC, locate the original Security Key Cable connector.
3. Reinstall the replacement Security Key Cable connector to the port and tighten the connector screws. Then extend the cable to the front of the cabinet.
4. At the rear of the front cabinet, reinstall the connector and cable.
5. Install the two nuts located on either side of the Security Key Cable connector.
6. Reinstall the Security Key connector and tighten the screws.
7. Place the old Security Key Cable in the ESD Storage Bag and/or original carton, as applicable.

## **2-2 PC Replacement**

Open computer cabinet door and verify that power to the Operator Workstation is off by twice pressing (on/off) the power button on the Host Computer; the power LED should remain unlighted. If not, use the lock out/tag out steps listed in Section 1-1, Remove Power. (Refer to CD-ROM *Dir. 2187583-3 [or -2], MR Release Signa 5x/8x Service Methods, Renewal Parts and Service Tools, Safety, Section 6, OSHA LOCKOUT/TAGOUT REQUIREMENTS.*)

### **2-2-1 Tools Required**

- Medium Phillips screwdriver
- Small flat head screwdriver

### **2-2-2 Removal Procedures**

1. Locate the Model 800 Hub on the left side of the Operator Workspace cabinet, above the PC. See Illustration 2-1 on page 5 of this document.
2. Disconnect all external cables on the rear of the PC located on the left side of the Operator workspace cabinet.
3. Locate the thin metal plate below the PC. This is the base plate.
4. Remove the two base plate screws located at the rear of the plate. These screws remain attached to the base plate.
5. To remove the PC from the cabinet, gently lift up the rear of the unit (using the base plate) and slide it towards the rear of the cabinet. This will release the base plate bracket from the slot at the front of the cabinet. Then pull the PC/base plate out of the side of the cabinet.
6. With the PC standing upright, rotate it forward until the base plate of the unit is face up.
7. Remove the mounting screws on the base plate and remove it from the old PC.
8. Set the old PC aside.

### **2-2-3 Installation Procedures**

1. Remove the replacement PC from the ESD Storage Bag and/or original carton, as applicable.
2. Rotate the replacement PC forward until it is in the same position as the old PC. Position the base plate in the same location and reinstall the mounting screws. For proper positioning of the base plate, make sure it extends beyond the rear of the PC with the base plate screws on the underside.
3. Return the PC to an upright position for return to the cabinet. Make sure the front and rear of the PC are facing the appropriate directions respectively.
4. Pick up the PC and slide it into the middle of the cabinet. Gently lift up the back of the unit (using base plate) and slide it towards the front of the cabinet until the base plate bracket slides into the slot on the bottom of the cabinet. Adjust the unit so that the base plate screws are in proper alignment and the PC is almost flush with the front of the cabinet.
5. Tighten the two base plate screws, located behind the PC on the base plate.
6. Reconnect all external cables on the rear of the PC.
7. Return power to unit.
8. See the Procedure for PC Load from Cold for instruction on reloading the PC's software.
9. Place the old PC in the ESD Storage Bag and/or original carton, as applicable.

### **2-3 Model 800 Hub Replacement**

Remove the Front Cover, the SGI Host Side Cover, and the PC Side Cover of the OW Cabinet as shown in Appendix A of this document.

#### **2-3-1 Tools Required**

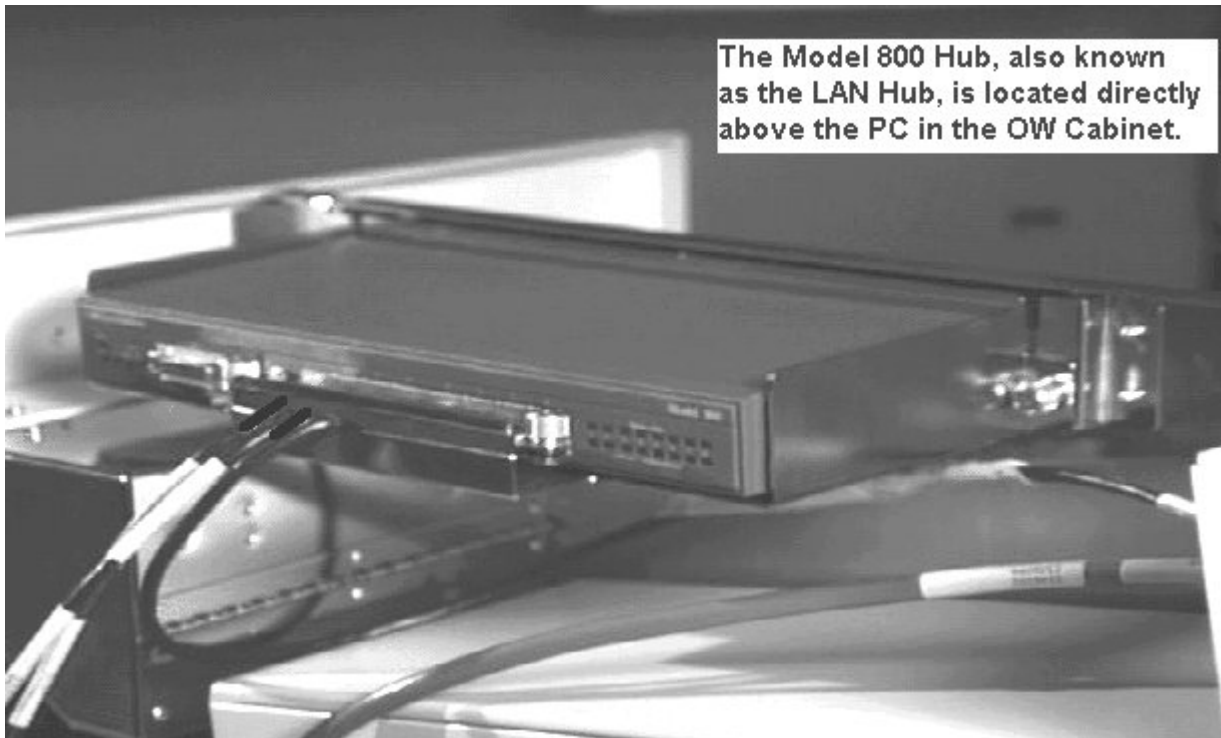
- Medium Phillips screwdriver
- Small flat head screwdriver
- Container for screws

#### **2-3-2 Removal Procedures**

1. Locate the Model 800 Hub on the left side of the Operator Workspace cabinet, above the PC. See Illustration 2-1 on page 5 of this document.
2. On the front of the Hub, remove the two screws located on either end of the cable clamp. Set the cable clamp aside.
3. Disconnect the external cables located on the front and rear of the Hub.
4. Lift the old Hub out of the bracket shelf and set aside.

### **2-3-3 Installation Procedures**

1. Remove the replacement Model 800 Hub from the ESD Storage Bag and/or original carton, as applicable.
2. On the Hub, reconnect the external cables located on the front and rear of the unit.
3. Reinstall the Hub so that it is level and flush with the back of the bracket shelf.



**MODEL 800 (LAN) HUB**  
ILLUSTRATION 2-3

4. Position the cables over the lower bracket of the cable clamp. Reposition the top bracket over the cables. Then install the two screws on either end.
5. Return power to the unit.
6. Place the old Model 800 Hub in the ESD Storage Bag and/or original carton, as applicable.

## 2-4 Bit3 Fiber Optic Interface Replacement

Remove the Front Cover, the SGI Host Side Cover, and the PC Side Cover of the OW Cabinet as shown in Appendix A of this document.

### 2-4-1 Tools Required

- Medium Phillips screwdriver
- Small flat head screwdriver
- Container for screws

### 2-4-2 Removal Procedures

1. Locate the Bit3 Fiber Optic Interface at the bottom front of the cabinet, under the PC and SGI units. See Illustration 2-1 on page 5 of this document.
2. Remove the sides of the cabinet if you encounter difficulties servicing the Bit3 Interface from the front.



**The Bit3 Fiber Optic Interface contains eight glass fiber cables, four in use and four extra. Use extreme caution when handling these cables. Damage to these cables may cause erroneous readings when the MRI unit is in use.**

3. Disconnect the external cables.
4. Remove the two screws on either end of the metal bracket located above the Interface. Once the screws are loose, pull the Interface forward and out of the cabinet. Then install the metal bracket so it remains in the up position. This will allow for easier installation of the replacement Interface. See Illustration 2-4



**BIT3 FIBER OPTIC INTERFACE LOCATION**  
ILLUSTRATION 2-4

### **2-4-2 Removal Procedures (continued)**

5. Slide the old Bit3 Fiber Optic Interface out of the case and set aside.

### **2-4-3 Installation Procedures**

1. Remove the replacement Bit3 Fiber Optic Interface from the ESD Storage Bag and/or original carton, as applicable.
2. Install the Bit3 Fiber Optic Interface by carefully sliding it back into the cabinet until the front of the unit resides under the metal bracket. Position the Interface equally from side-to-side.
3. Remove the two screws on the bracket so it rests over the front of the Interface.
4. Adjust the Interface so the front of the unit is secured by the metal bracket. Then tighten the screws.
5. Carefully reconnect the external cables.
6. Return power to the unit. (The on/off switch is located on the right rear of the Interface if needed.)
7. Place the old Bit3 Fiber Optic Interface into the ESD Storage Bag and/or original carton, as applicable.

### **2-5 Specialix Module Replacement**

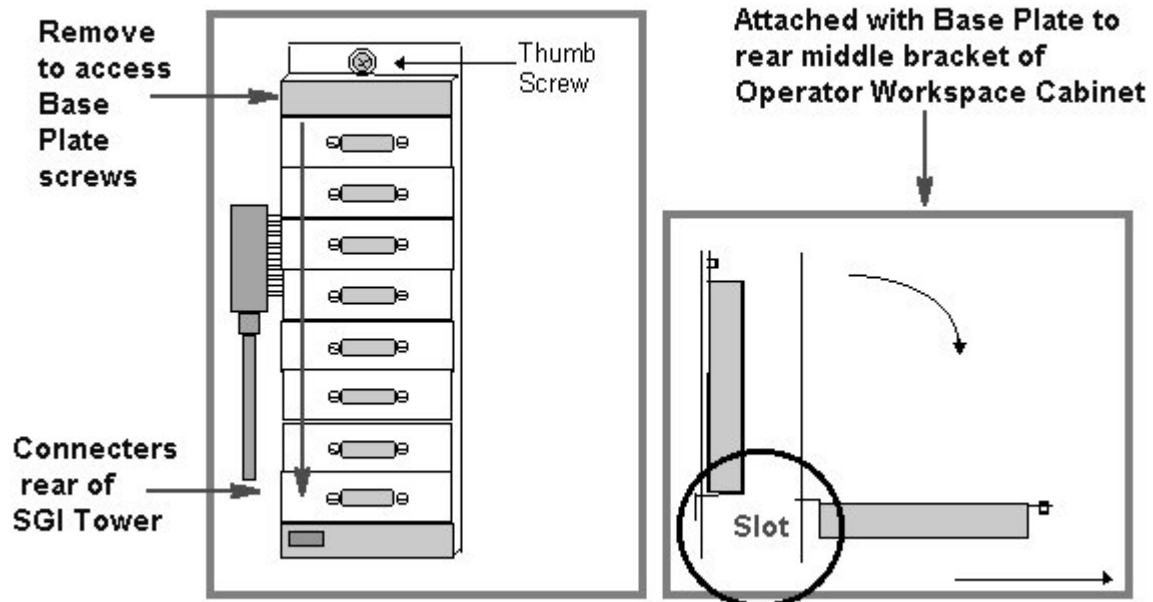
Remove the Front Cover, the SGI Host Side Cover, and the PC Side Cover of the OW Cabinet as shown in Appendix A of this document.

#### **2-5-1 Tools Required**

- Medium Phillips screwdriver
- Small flat head screwdriver
- Container for screws

### 2-5-2 Removal Procedures

1. Locate the Specialix Module at the right rear of the cabinet, behind the SGI Tower. See Illustration 2-5.
2. Disconnect the external cables including the cable located between the left side of the Specialix Module and the back of the SGI Tower. See Illustration 2-5.
3. Loosen but do not remove the mounting screw located at the top of the Specialix Module. The mounting screw remains attached to the base plate.



**SPECIALIX MODULE**  
ILLUSTRATION 2-5

4. Lift and pull the base plate up and out of the slot on the metal bracket.
5. On the front of the Specialix Module, remove the covers from the top and bottom sections by lifting the corners until they snap open.
6. Inside the top and bottom sections of the Specialix Module, remove the four screws (two at each end) to release the base plate.
7. Set the old Specialix Module aside.

### **2-5-3 Installation Procedures**

1. Remove the replacement Specialix Module from the ESD Storage Bag and/or original carton, as applicable.
2. On the front of the Specialix Module, remove the covers from the top and bottom sections by lifting the corners until they snap open.
3. Align the Specialix Module screw holes with the holes on the old base plate. At the top of the base plate, the attached mounting screw faces up.
4. Inside the top and bottom sections of the Specialix Module, install the four screws (two at each end) to attach the base plate.
5. Reposition the Specialix Module covers and snap them into place.
6. Reinstall the Specialix Module by inserting the bottom of the base plate into the slot on the metal bracket. Then align and tighten the mounting screw at the top of the unit.
7. Reconnect the external cables including the cable located between the left side of the Specialix Module and the back of the SGI Tower.
8. Return power to the unit.
9. Place the old Specialix Module into the ESD Storage Bag and/or original carton, as applicable.

### **2-6 Milan MIL-S800i Switch Replacement**

Remove the Front Cover, the SGI Host Side Cover, and the PC Side Cover of the OW Cabinet as shown in Appendix A of this document.

#### **2-6-1 Tools Required**

- Medium Phillips screwdriver
- Small flat head screwdriver
- Container for screws

#### **2-6-2 Removal Procedures**

1. Locate the current Hub/Switch on the left side of the Operator Workspace cabinet, above the PC. See Illustration 2-1 on page 5 of this document.
2. On the front of the Hub, remove the two screws located on either end of the cable clamp. Set the cable clamp aside.
3. Disconnect the external cables located on the front and rear of the Hub or switch depending on which model is present.
4. Lift the old Hub/Switch out of the bracket shelf and set aside.

**2-6-3 Installation Procedures**

1. Remove the replacement Milan Switch from the original carton, as applicable.
2. Reconnect the external cables to the rear of the unit.
3. Install the Switch.
4. Position the cables over the lower bracket of the cable clamp. Reposition the top bracket over the cables. Then install the two screws on either end.
5. Return power to the unit. Refer to Table 2-1 for LED functions.
6. Place the old Hub or switch in the ESD Storage Bag and/or original carton, as applicable.

**Note**

“Auto-negotiation” automatically sets the best possible bandwidth when connection is established with another network device. Each port supports Half/Full Duplex function.

TABLE 2-1  
**LED INDICATORS**

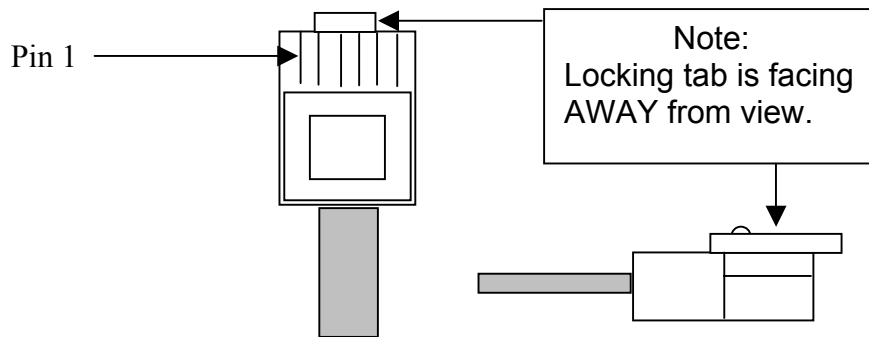
<b>LED Indicators</b>	<b>Color</b>	<b>Description</b>
Power	Green	Lit: Power On Unlit: Power off
10/100 M Speed	Green	Lit: Link at 100 Mbs Unlit: Link at 10Mbs or no link
Link/Activity	Green	Lit: Good link on port. Blinking: Port receiving and transmitting Unlit: No link is occurring on the port
Full Duplex/Collison	Green	Lit: Full-Duplex mode Unlit: Half-duplex mode Blinking: Data collision

## 2-7 RJ-45 568B Cable Pinouts

This Sub-section explains the RJ 45 (10/100Base-T) Cable Pin configurations.

TABLE 2-2  
**568B NETWORK CABLE MAP**

Straight Through cable wiring		Crossover Cable Wiring	
RJ-45 connector pins:		RJ-45 connector pins:	
1 Tx+ ORN/WHT	1 Rc+ ORN/WHT	1 Rx+ ORANGE/WHITE	3 Tx+ GREEN/WHITE
2 Tx- ORN	2 Rc ORN	2 Rc- ORANGE	6 Tx- BROWN
3 Rc+ GRN/WHT	3 Tx+ GRN/WHT	3 Tx+ GREEN/WHITE	1 Rc+ ORANGE/WHITE
6 Rc- BRN	6 Tx- BRN	6 Tx- BROWN	2 Rc- ORANGE



**568B WIRING CHART**  
 ILLUSTRATION 2-6

## 3- SGI INDIGO FRU REPLACEMENTS

Open computer cabinet door and verify that power to the Operator Workstation is off by twice pressing (on/off) the power button on the Host Computer; the power LED should remain unlighted. If not, use the lock out/tag out steps listed in Section 1-1, Remove Power. (Refer to CD-ROM *Dir. 2187583-3 [or -2], MR Release Signa 5x/8x Service Methods, Renewal Parts and Service Tools, Safety, Section 6, OSHA LOCKOUT/TAGOUT REQUIREMENTS.*)

### 3-1 SGI Power Supply Replacement

Remove the Front Cover, the SGI Host Side Cover, and the PC Side Cover of the OW Cabinet as shown in Appendix A of this document.

#### 3-1-1 Tools Required

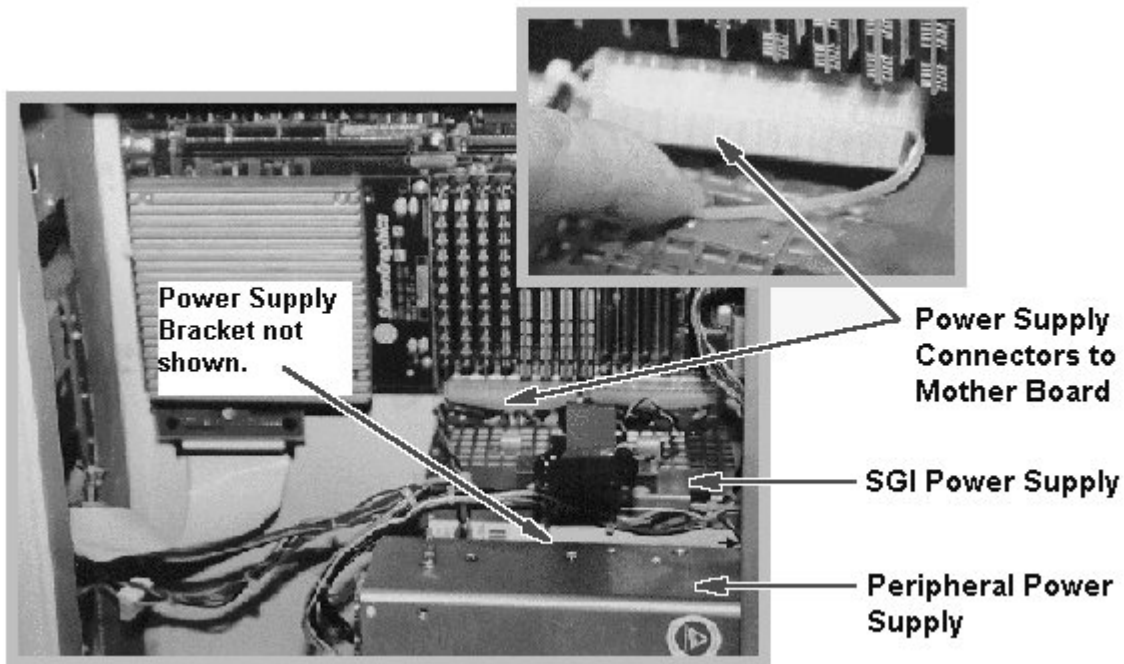
- Medium Phillips screwdriver
- Small flat head screwdriver
- Grounding wrist strap
- ESD Kit
- Small wire cutter
- Cable ties
- Container for screws

**Note**

Refer to appendices B, C and D to gain access to the inside of the SGI host tower.

**3-1-2 Removal Procedures**

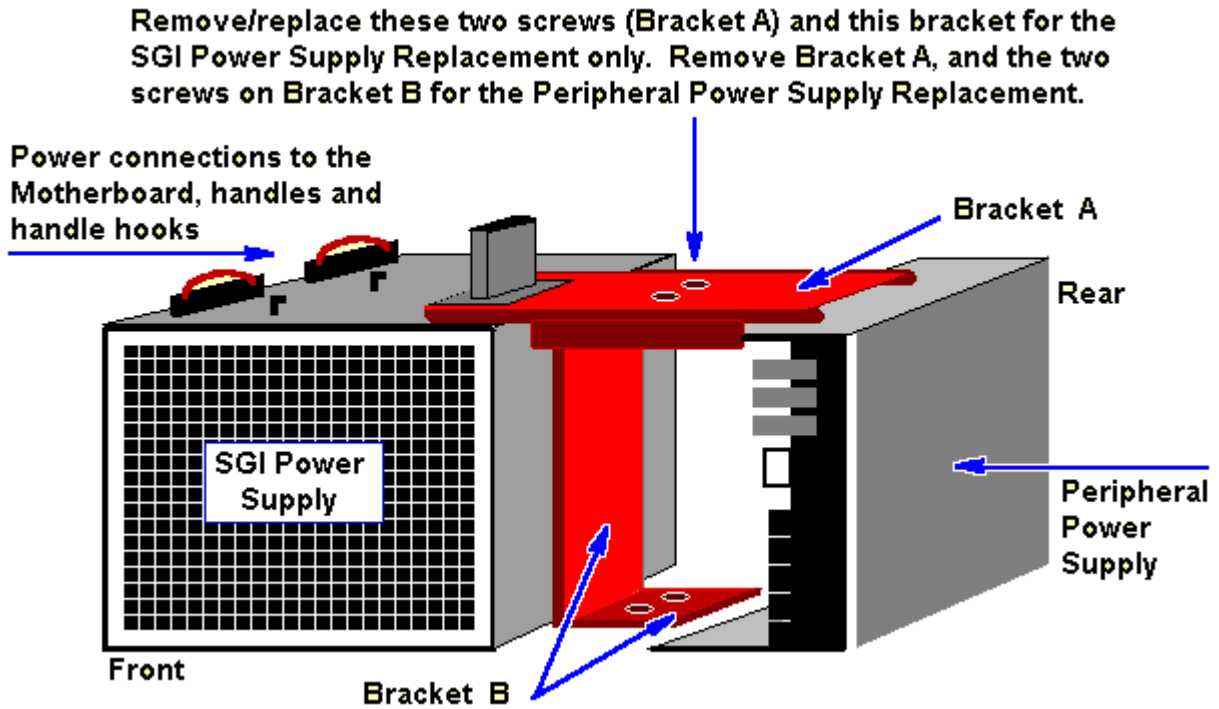
1. From the side of the SGI Tower, locate the SGI Power Supply at the right rear of the case. See Illustration 3-1.



**SGI POWER SUPPLY**  
ILLUSTRATION 3-1

**3-1-2 Removal Procedures (continued)**

2. From the side of the SGI Tower, locate the two Brackets that secure both Power Supply units to the case. See Illustration 3-2

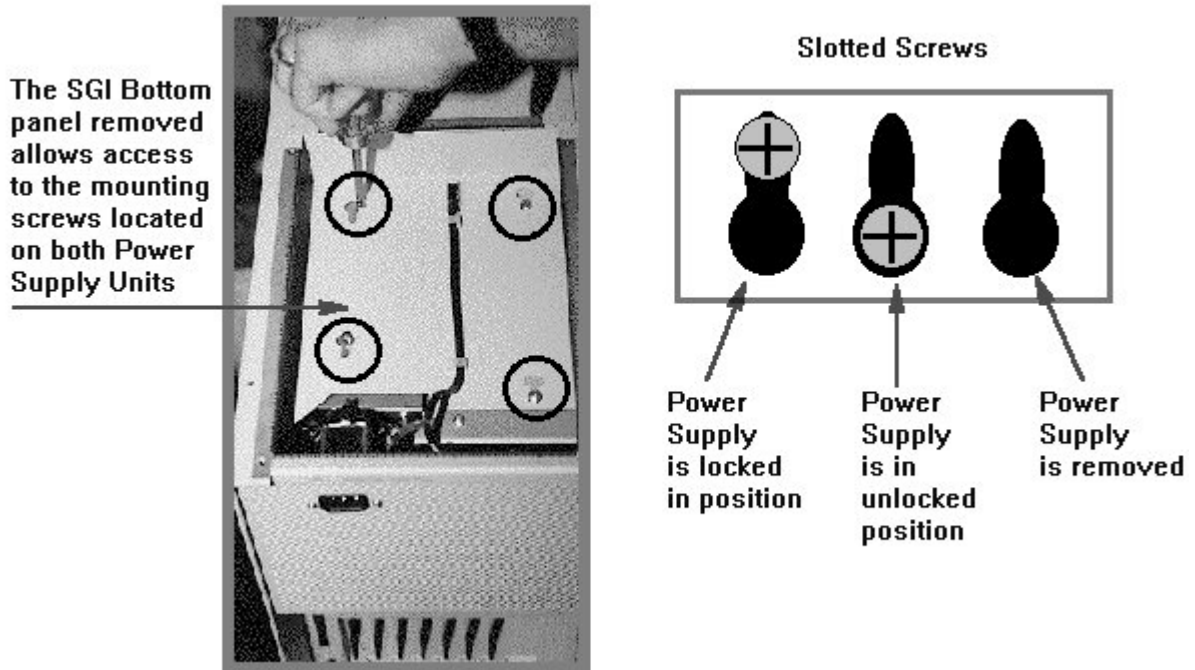


**POWER SUPPLY BRACKETS**  
ILLUSTRATION 3-2

3. Remove the two mounting screws from the top Bracket and remove the Bracket. Do not remove the second Bracket from its upright position. See Illustration 3-2.
4. Above the SGI Power Supply, disconnect the Power Supply Cable (blue ribbon) and the small two-pin connector from the Mid Plane Extender Board. These connections originate at the power supply box and go up through the slot on the Mid Plane Support Shelf. See Illustration 3-1.
5. At the lower right side of the Mother Board, on the top of the SGI Power Supply, disconnect the two power connectors.
6. Secure the power connector handles onto the adjoining power supply hooks so they do not catch on other components during removal of the SGI Power Supply. See Illustration 3-1.
7. If wires are threaded through cable ties located on either corner of the Power Supply, carefully cut the cable ties to release the wires and then remove the old cable ties. Do not cut any wires. If cables ties are not present, go to the next step.

### 3-1-2 Removal Procedures (continued)

8. Turn the SGI Tower on its side so the bottom is accessible. See Illustration 3-3.



**REMOVING BOTTOM PANEL**  
ILLUSTRATION 3-3

9. From the bottom of the SGI Tower, remove the two mounting screws. Save the screws for installation of the replacement power supply.
10. From the inside of the SGI Tower, pull the SGI Power Supply forward slightly and disconnect the black power cord located on the rear of the unit.
11. Lift the SGI Power Supply up from behind the remaining Bracket and over the Peripheral Power Supply until it is out of the case.
12. Set the SGI Power Supply on the red ESD mat.

### 3-1-3 Installation Procedures

1. Remove the replacement SGI Power Supply from the ESD Storage Bag and/or original carton, as applicable.
2. Lift the SGI Power Supply over the Peripheral Power Supply and behind the remaining Bracket.
3. From the inside of the SGI Tower, pull the SGI Power Supply forward slightly and reconnect the black power cord located on the rear of the unit.
4. With the SGI Tower on its side, position the power supply so the screw holes are aligned with the narrow end of the screw slots.
5. Reinstall the screws from the old power supply and tighten until secure.

### **3-1-3 Installation Procedures (continued)**

6. From the SGI Power Supply, remove the power connector handles from the adjoining power supply hooks.
7. At the lower right side of the Mother Board above the SGI Power Supply, reconnect the two power connectors.
8. Above the SGI Power Supply, reconnect the Power Supply Cable (blue ribbon) and the small two-pin connector to the Mid Plane Extender Board. These connections originate at the power supply box and go up through the slot on the Mid Plane Support Shelf.
9. If wires were threaded through cable ties located on either corner of the Power Supply when you removed the unit, rethread new cable ties at the Power Supply corner but do not close.
10. Rethread the wires through the cable ties and then lock the cable ties. If cables ties were not present, go to the next step.
11. From the side of the SGI Tower, reinstall the top Bracket so the screw holes are aligned with the screw holes on the bottom Bracket. See Illustration 3-2
12. Install the two mounting screws to the top Bracket.
13. Store the old SGI Power Supply in the ESD Storage Bag.
14. Reinstall tower panels and cabinet covers. Refer to Appendices A,B,C and D for information on cover replacements.

### **3-2 Peripheral Power Supply Replacement**

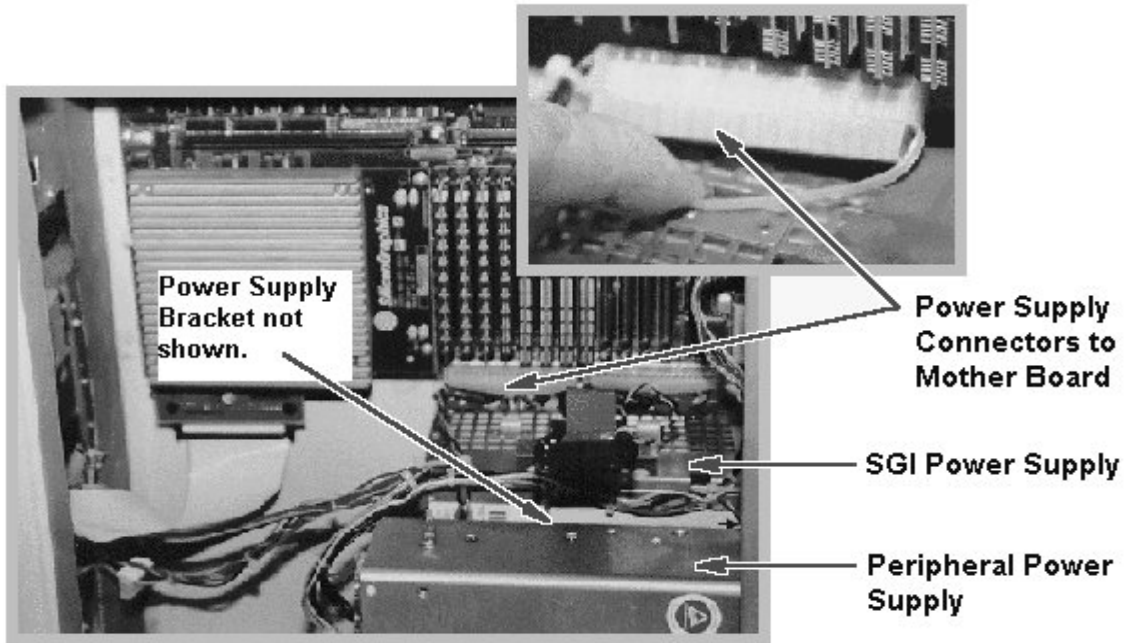
Remove the Front Cover, the SGI Host Side Cover, and the PC Side Cover of the OW Cabinet as shown in Appendix A of this document.

**Note**

Refer to appendices B, C and D to gain access to the inside of the SGI host tower.

### 3-2-1 Removal Procedures

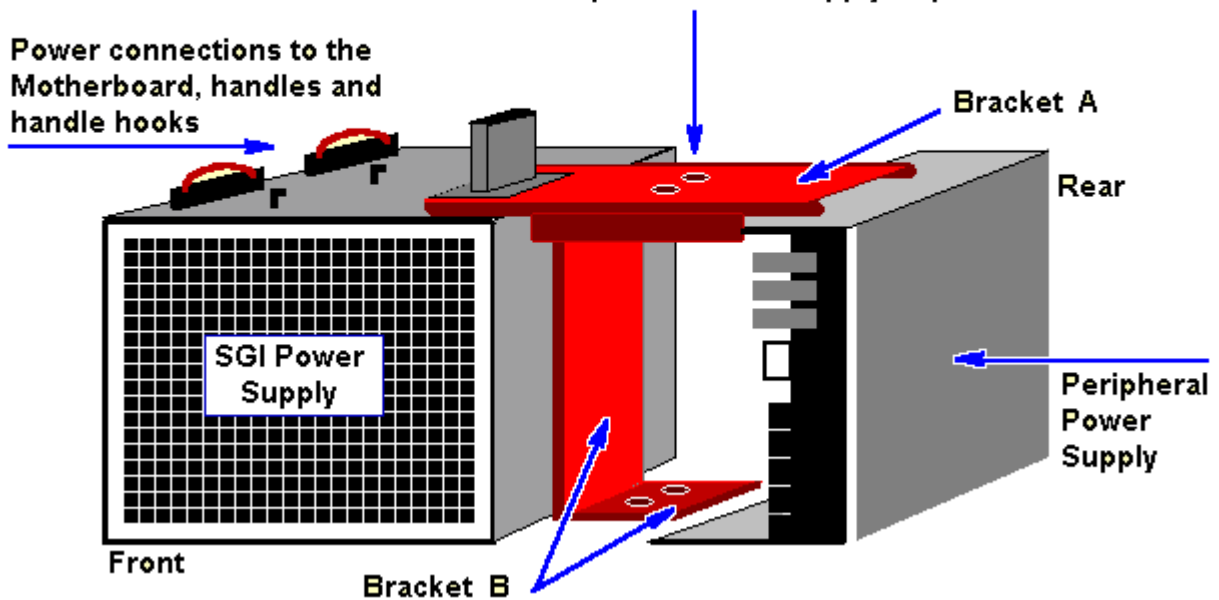
1. From the **side** of the SGI Host Tower, locate the Peripheral Power Supply at the right front of the case in front of the SGI Power Supply. See Illustration 3-1.



SGI POWER SUPPLY  
ILLUSTRATION 3-1

2. From the side of the SGI Tower, locate the two brackets that secure both Power Supply units to the case. See Illustration 3-2.

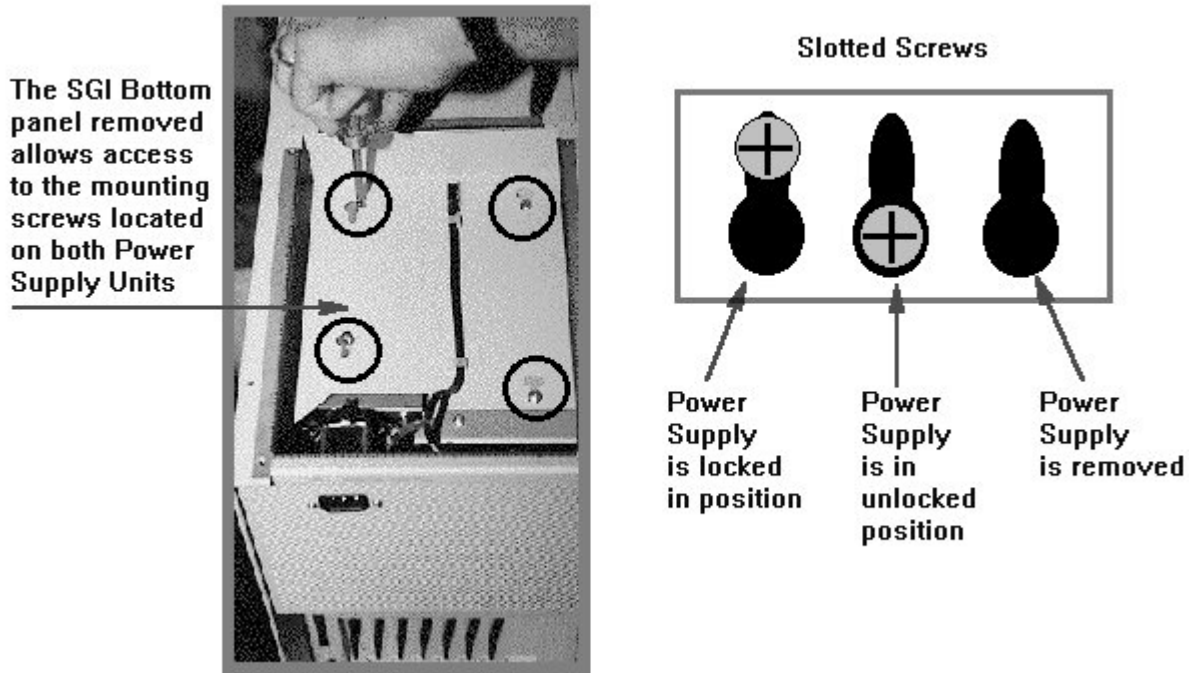
Remove/replace these two screws (Bracket A) and this bracket for the SGI Power Supply Replacement only. Remove Bracket A, and the two screws on Bracket B for the Peripheral Power Supply Replacement.



POWER SUPPLY BRACKETS  
ILLUSTRATION 3-2

### 3-2-1 Removal Procedures (continued)

3. Remove the two mounting screws from the top Bracket and remove the Bracket. Do not remove the second Bracket from its upright position.
4. Turn the SGI Tower on its side so the bottom is accessible. See Illustration 3-3.

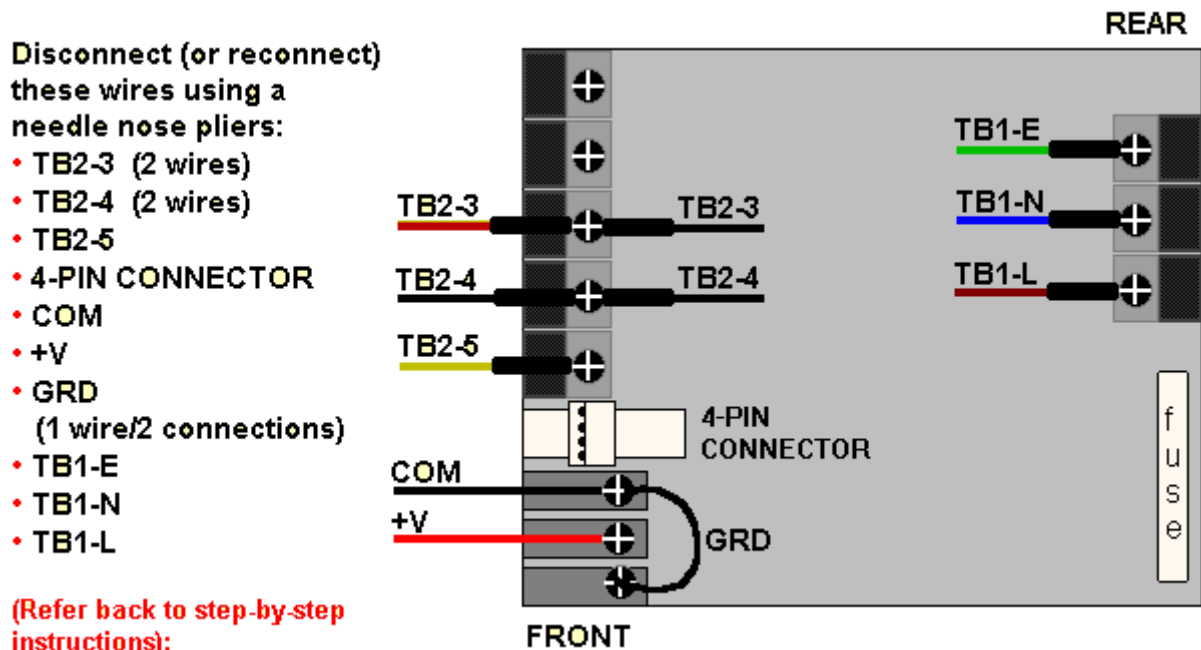


**REMOVING BOTTOM PANEL**  
ILLUSTRATION 3-3

5. From the bottom of the SGI Tower, remove the two mounting screws. Save the screws for installation of the replacement power supply.
6. From the inside of the SGI Tower, with the top Bracket removed and Peripheral Power Supply released, turn the power supply outward until the boards and connectors are upright.

### 3-2-1 Removal Procedures (continued)

- On the Peripheral Power Supply, using a needle nose pliers, grasp and gently pull up on the following wires to disconnect them. See Illustration 3-4.



- Disconnect the wires as follows: TB2-3 (2 wires), TB2-4 (2 wires), TB2-5, 4-PIN CONNECTOR, COM, +V, GRD (1 wire/2 connections), TB1-E, TB1-N, TB1-L. See Illustration L15.
- With all the wires disconnected, remove the Peripheral Power Supply from the SGI Tower.
- Set the power supply on the red ESD mat.

### 3-2-2 Installation Procedures

- Remove the replacement Peripheral Power Supply from the ESD Storage Bag and/or original carton, as applicable.
- Position the Peripheral Power Supply near the side of the SGI Tower with the boards and connectors upright. Make sure to position the unit correctly with the fuse at the back of the case.
- On the Peripheral Power Supply, using a needle nose pliers, grasp and gently push down on the following wires to reconnect them. See Illustration L15.
- Reconnect the wires to the unit as follows: **TB2-3 (2 wires), TB2-4 (2 wires), TB2-5, 4-PIN CONNECTOR, COM, +V, GRD (1 wire/2 connections), TB1-E, TB1-N, TB1-L.** See Illustration L15. Refer back to this page for step-by-step instructions.
- With all the wires reconnected and the power supply set inside the case, gently turn the SGI Tower on its side so the bottom is accessible.

6. With the SGI Tower on its side, position the power supply so the boards and connectors face the SGI Power Supply, and the screw holes are aligned with the narrow end of the screw slots.
7. Reinstall the screws from the old power supply and tighten until secure.
8. From the side of the SGI Tower, reinstall the top Bracket so the screw holes are aligned with the screw holes on the bottom Bracket. See Illustration 3-2.
9. Install the two mounting screws to the top Bracket.
10. Place the old Peripheral Power Supply in the ESD Storage Bag and/or original carton, as applicable.
11. Reinstall tower panels and cabinet covers. Refer to Appendices A, B, C, and D for information on cover replacements.

### 3-3 CD-ROM Drive Replacement

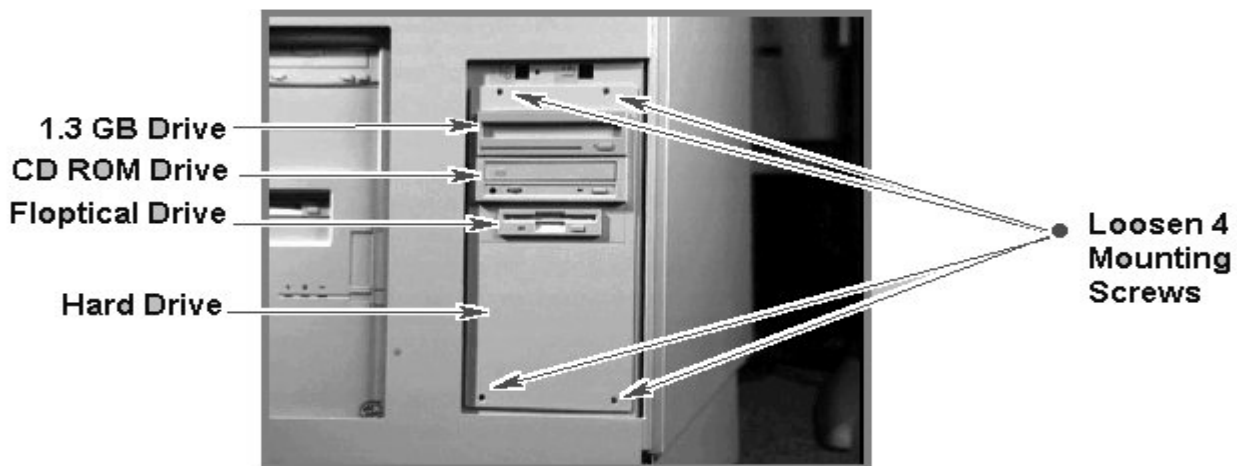
Remove the Front Cover, the SGI Host Side Cover, and the PC Side Cover of the OW Cabinet as shown in Appendix A of this document.

#### 3-3-1 Tools Required

- Medium Phillips screwdriver
- Small flat head screwdriver
- Grounding wrist strap
- ESD Kit
- Container for screws

#### 3-3-2 Removal Procedures

1. With the Drive Housing removed from the front of the SGI Tower, disconnect the main SCSI Cable from the Lightning I/F Board at the inside lower left of the unit. Move the black cable connectors out to the sides before pulling the cable down and away from the connector slot. See Illustration 3-5, Illustration 3-6, and Illustration 3-7.

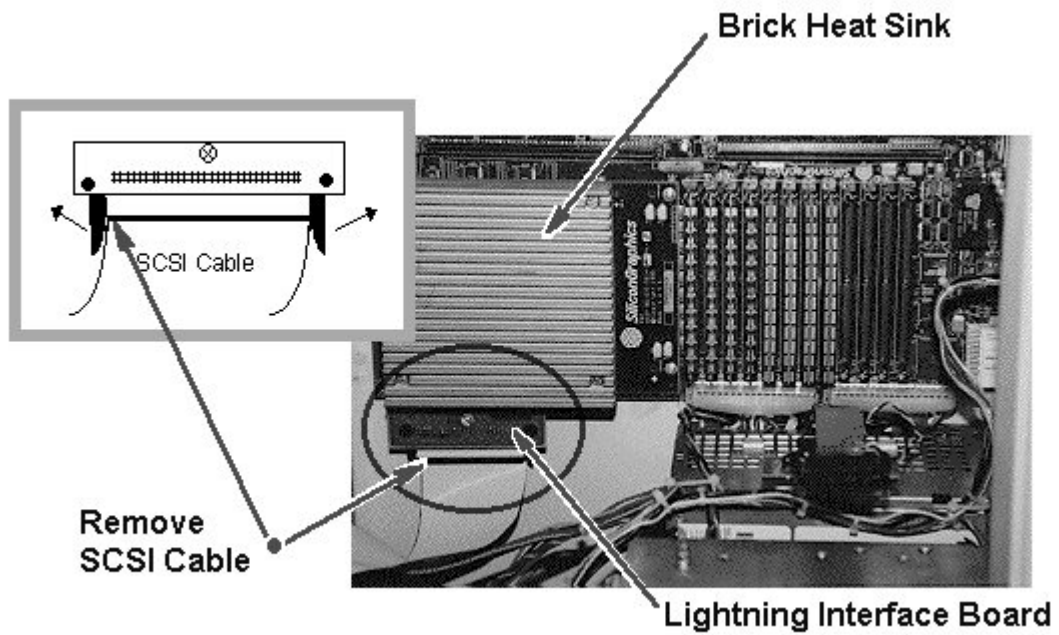


**SGI DRIVE LOCATIONS**  
ILLUSTRATION 3-5

3-3-2 Removal Procedures (continued)



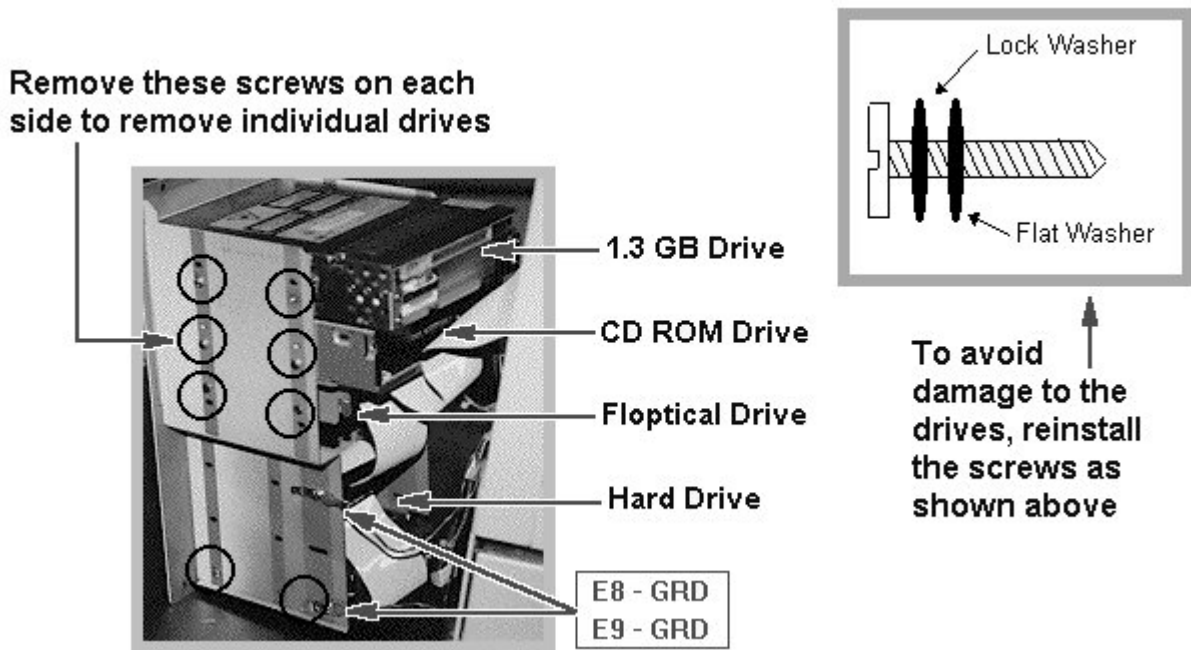
DRIVE HOUSINGS REMOVED  
ILLUSTRATION 3-6



CABLE CONNECTION  
ILLUSTRATION 3-7

### 3-3-2 Removal Procedures (continued)

- At the rear of the Drive Housing, disconnect the SCSI cable from the CD ROM Drive. See Illustration 3-8. Gently rock the SCSI cable from end to end while pulling the connector out.

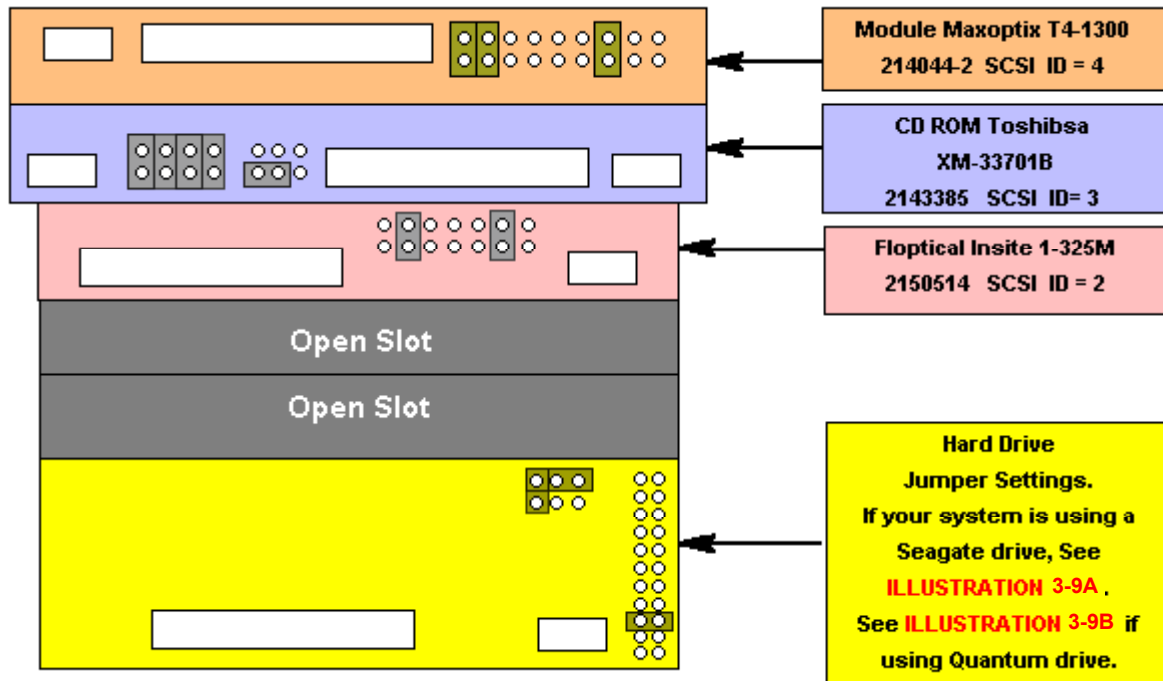


DRIVE CONNECTIONS AND SCREW LOCATIONS  
ILLUSTRATION 3-8

- At the rear of the Drive Housing, disconnect the power connector cable from the CD ROM Drive. There is a small white connector attached to red, black and orange wires. See Illustration 3-8.
- Remove the two slotted screws on either side of the CD ROM Drive (four total) to release it from the housing. See Illustration 3-8.
- Slide the CD ROM Drive out from the front of the Drive Housing and set it on the red ESD Mat.

### 3-3-3 Installation Procedures

1. Remove the replacement CD ROM Drive from the ESD storage bag and/or original carton, as applicable.
2. Set the CD ROM Drive Dip Switches (located at back of drive) to the indicated settings if needed. See Illustration 3-9.



**SWITCH SETTINGS**  
ILLUSTRATION 3-9

3. Slide the replacement CD ROM Drive into the front of the Drive Housing. Raise the drive slightly to align the screw holes with the bracket. See Illustration 3-8.
4. Before installing the screws, make sure that the screw head is followed by a lock washer and then a flat washer, in that order. Failure to install the screws in this order will damage the drive. See Illustration 3-8.
5. Install the two slotted screws on either side of CD ROM Drive (four total) to reattach the drive to the housing.
6. At the rear of the Drive Housing, reconnect the SCSI cable to the CD ROM Drive by gently pushing the cable into the connector slot.
7. At the rear of the Drive Housing, reconnect the power connector cable to the CD ROM Drive. There is a small white connector attached to red, black and orange wires.
8. Reconnect the main SCSI Cable to the Lightning I/F Board by pushing the cable up into the connector slot until it snaps into place. See Illustration 3-7.
9. Place the old CD ROM Drive in the ESD Storage Bag.

### 3-3-3 Installation Procedures (continued)

10. Reinstall system, power on and boot the system into **[root]**.

From the Root menu bar on the right hand side of the desktop, select **[Reconfigure]** by clicking the right mouse button over the reconfigure option.

11. Left mouse button click the option **[Configure Devices]**. A “Term” window will now open and remain blank for up to two minutes. When finished, “Done with Device Configuration” will appear in the Term window. Press any key to exit. Reboot the system to **[Signa]** and test the system.

### 3-4 Hard Drive Replacement

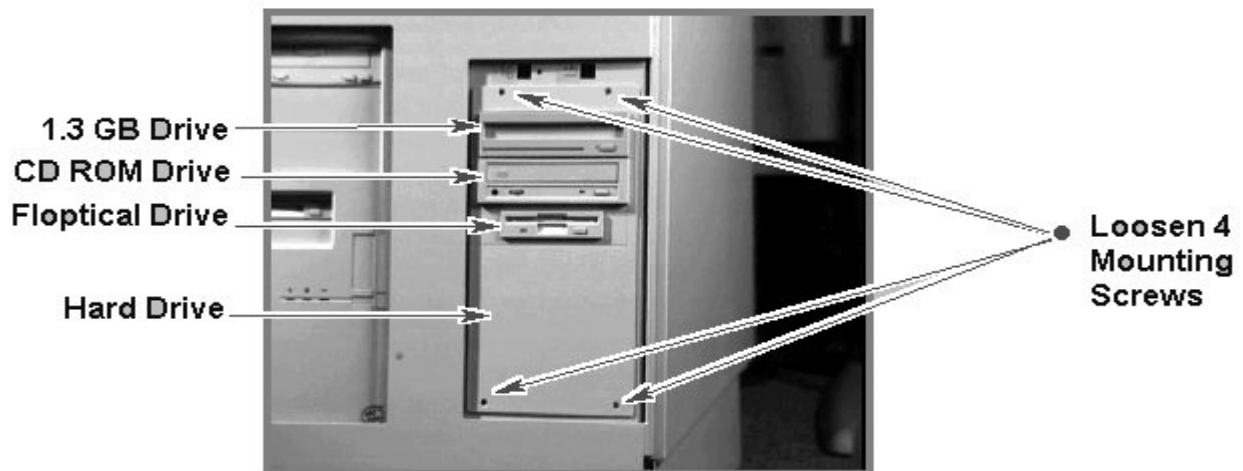
Remove the Front Cover, the SGI Host Side Cover, and the PC Side Cover of the OW Cabinet as shown in Appendix A of this document.

#### 3-4-1 Tools Required

- Medium Phillips screwdriver
- Small flat head screwdriver
- Grounding wrist strap
- ESD Kit
- Container for screws

#### 3-4-2 Removal Procedures

1. With the Drive Housing removed from the front of the SGI Tower, disconnect the main SCSI Cable from the Lightning I/F Board at the inside lower left of the unit. Move the black cable connectors out to the sides before pulling the cable down and away from the connector slot. See Illustration 3-5, Illustration 3-6, and Illustration 3-7.

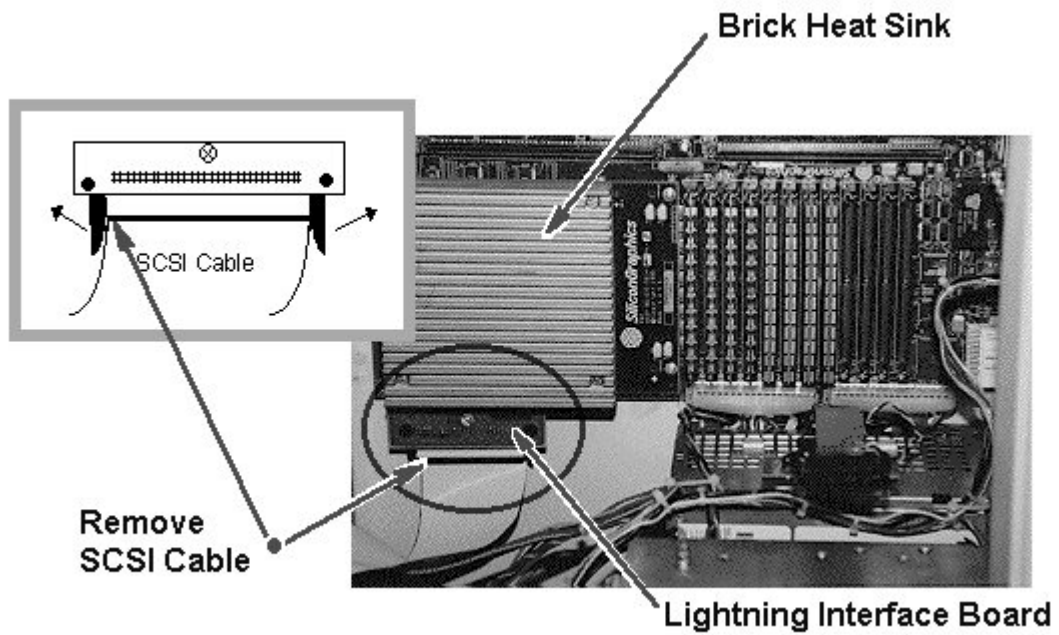


SGI DRIVE LOCATIONS  
ILLUSTRATION 3-5

3-4-2 Removal Procedures (continued)



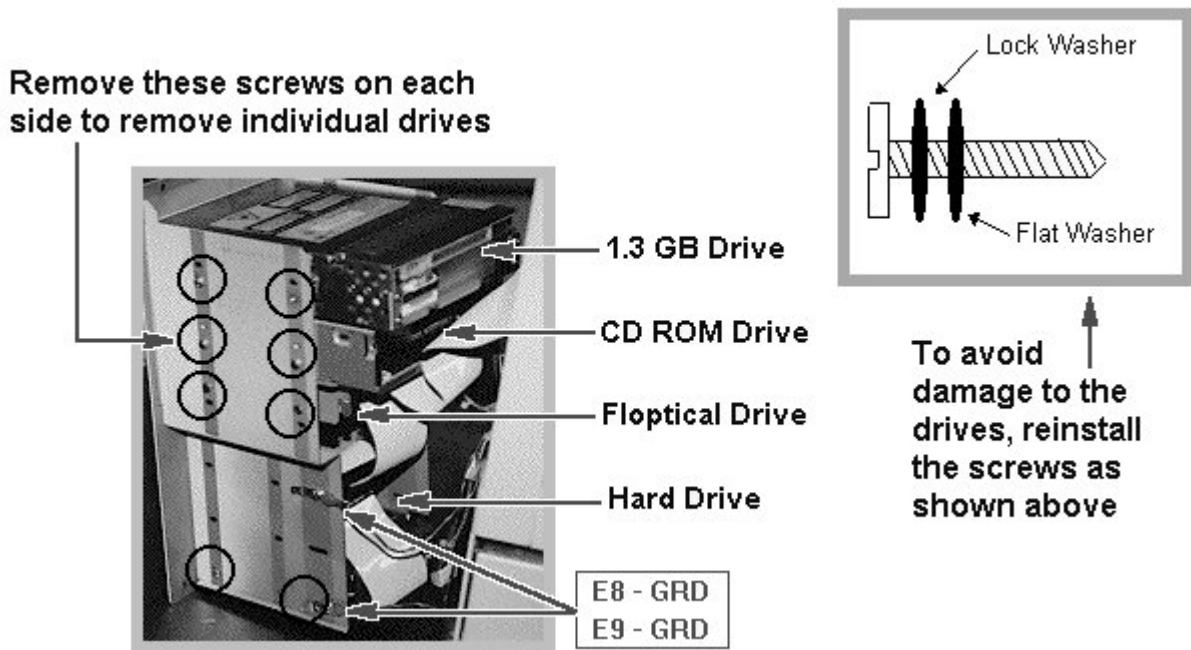
DRIVE HOUSINGS REMOVED  
ILLUSTRATION 3-6



SCSI CABLE CONNECTION  
ILLUSTRATION 3-7

### 3-4-2 Removal Procedures (continued)

- At the rear of the Drive Housing, disconnect the SCSI cable from the Hard Drive. See Illustration 3-8. Gently rock the SCSI cable from end to end while pulling the connector out.



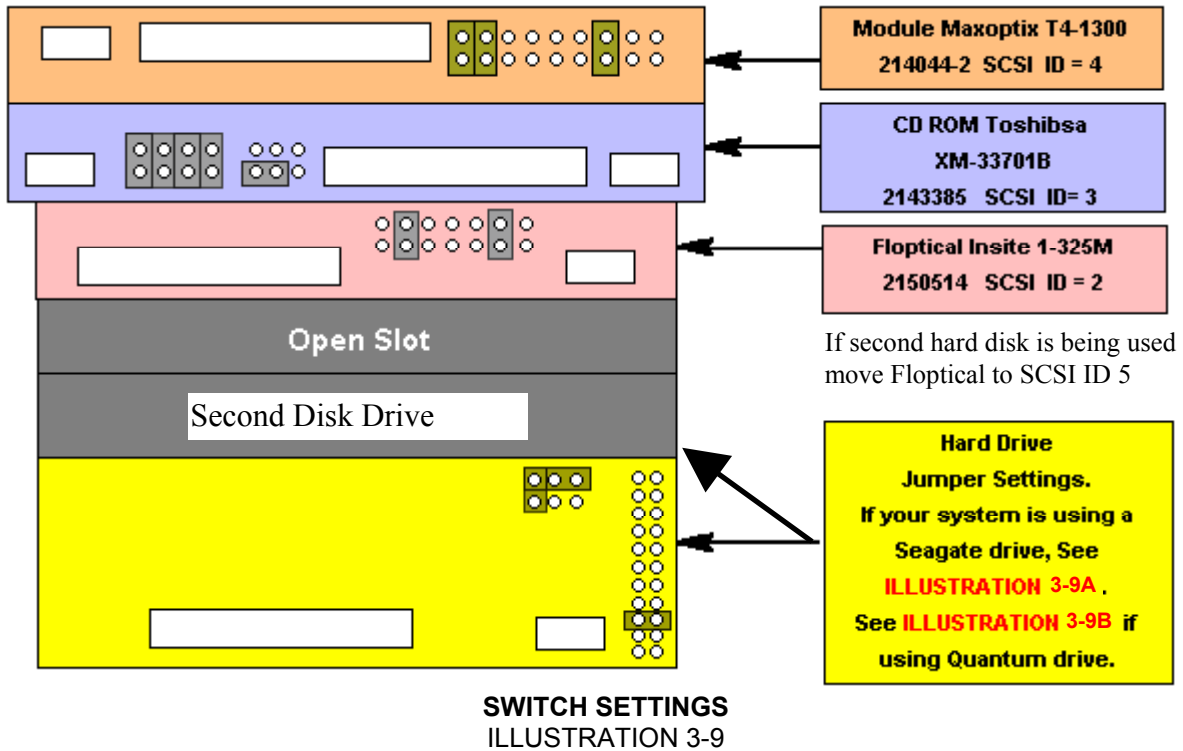
DRIVE CONNECTIONS AND SCREW LOCATIONS

ILLUSTRATION 3-8

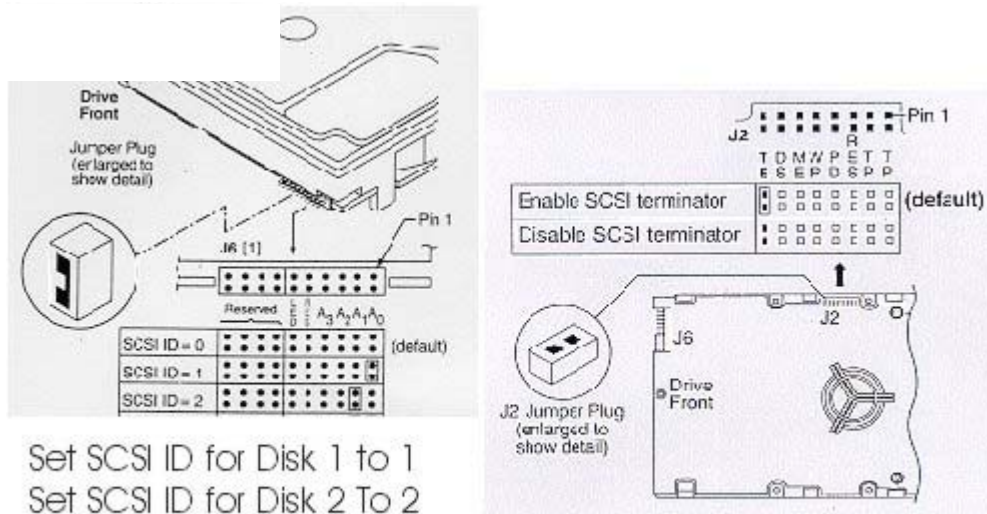
- At the rear of the Drive Housing, disconnect the power connector cable from the Hard Drive. There is a small white connector attached to red, black and orange wires.
- Remove the two slotted screws on either side of the Hard Drive (four total) to release it from the housing.
- Slide the Hard Drive out from the rear of the Drive Housing and set it on the red ESD Mat.

### 3-4-3 Installation Procedures

1. Remove the replacement Hard Drive from the ESD storage bag.
2. Set the Hard Drive Dip Switches (located at back of drive) to the indicated settings if needed. See Illustration 3-9.



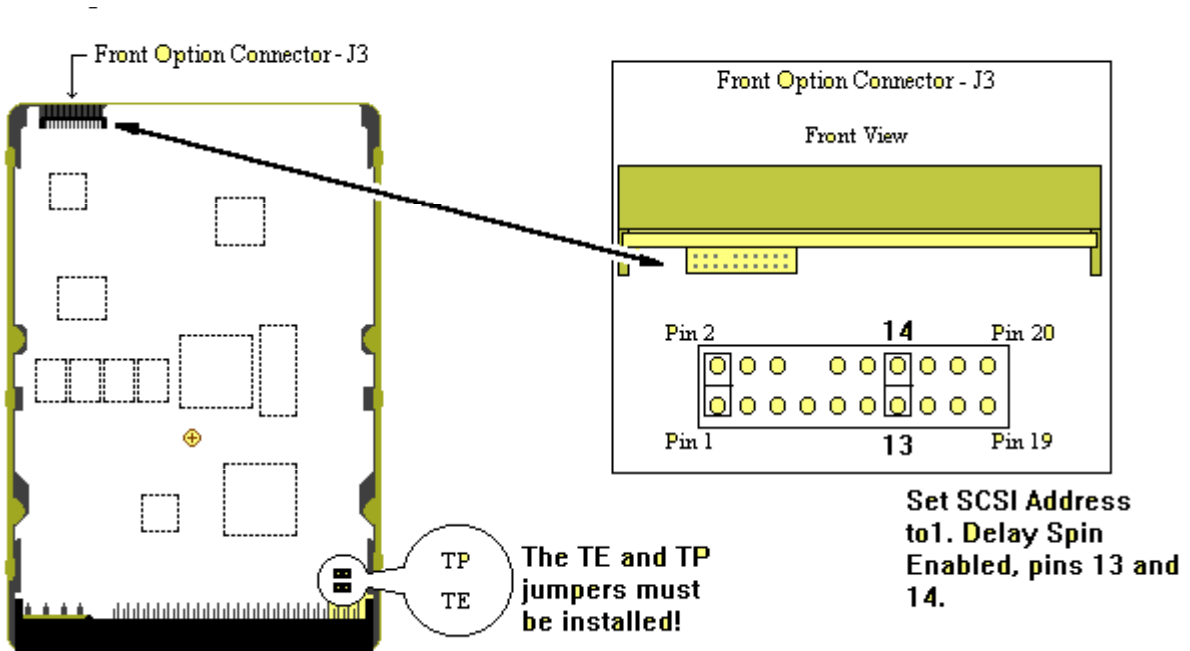
### 3-4-3 Installation Procedures (continued)



Set SCSI ID for Disk 1 to 1  
 Set SCSI ID for Disk 2 To 2

Drives Should not be Terminated  
 Remove All Terminator Jumpers

**SEAGATE DISK DRIVE JUMPER SETTING**  
 ILLUSTRATION 3-9A



Set SCSI Address to 1. Delay Spin Enabled, pins 13 and 14.

**QUANTUM DISK DRIVE JUMPER SETTINGS**  
 ILLUSTRATION 3-9B

### 3-4-3 Installation Procedures (continued)

- Slide the Drive into the rear of the Drive Housing. Raise the drive slightly to align the screw holes with the bracket.

4. Before installing the screws, make sure that the screw head is followed by a lock washer and then a flat washer, in that order. Failure to install the screws in this order will damage the drive. See Illustration 3-8
5. Install the two slotted screws on either side of Hard Drive (four total) to reattach the drive to the housing.
6. At the rear of the Drive Housing, reconnect the SCSI cable to the Hard Drive by gently pushing the cable into the connector slot.
7. At the rear of the Drive Housing, reconnect the power connector cable to the Hard Drive. There is a small white connector attached to red, black and orange wires.
8. Reconnect the main SCSI Cable to the Lightning I/F Board by pushing the cable up into the connector slot until it snaps into place. See Illustration 3-7.
9. Place the old Hard Drive in the ESD Storage Bag.
10. Reassemble the system.

### 3-5 Floptical Drive Replacement

Remove the Front Cover, the SGI Host Side Cover, and the PC Side Cover of the OW Cabinet as shown in Appendix A of this document.

#### 3-5-1 Tools Required

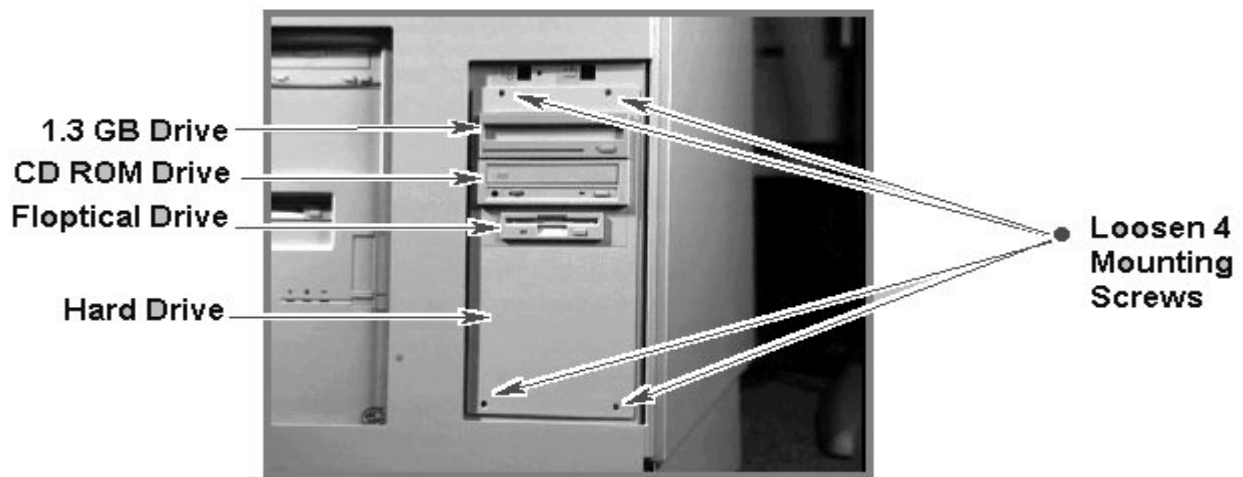
- Medium Phillips screwdriver
- Small flat head screwdriver
- Grounding wrist strap
- ESD Kit
- Container for screws

#### Note

Refer to appendices B, C, and D to gain access to the inside of the SGI host tower.

#### 3-5-2 Removal Procedures

1. With the Drive Housing removed from the front of the SGI Tower, disconnect the main SCSI Cable from the Lightning I/F Board at the inside lower left of the unit. Move the black cable connectors out to the sides before pulling the cable down and away from the connector slot. See Illustration 3-5, Illustration 3-6, and Illustration 3-7.

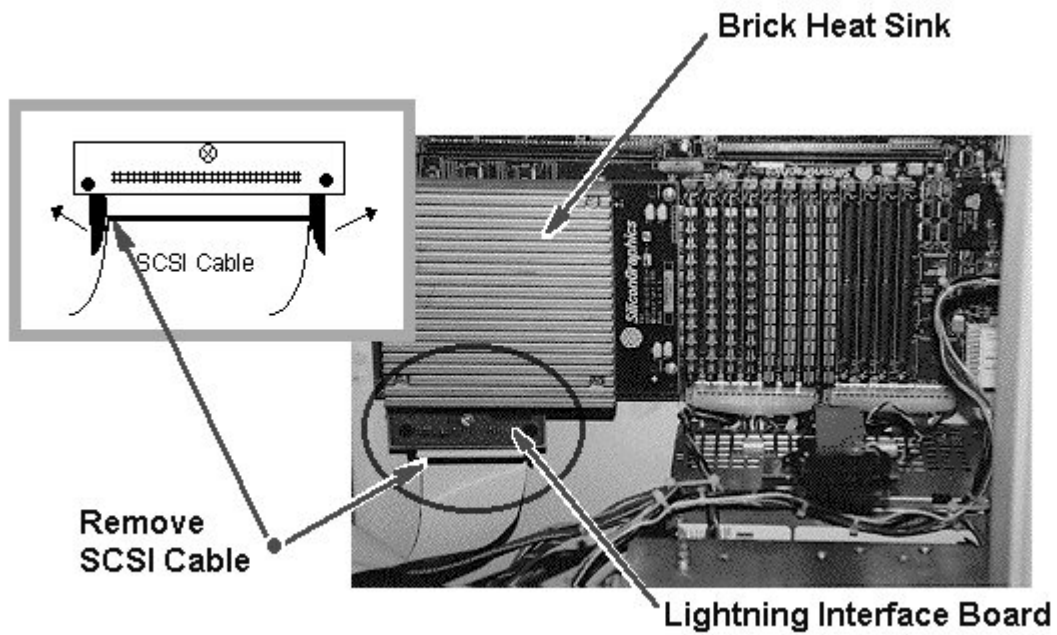


**SGI DRIVE LOCATIONS**  
ILLUSTRATION 3-5

3-5-2 Removal Procedures (continued)



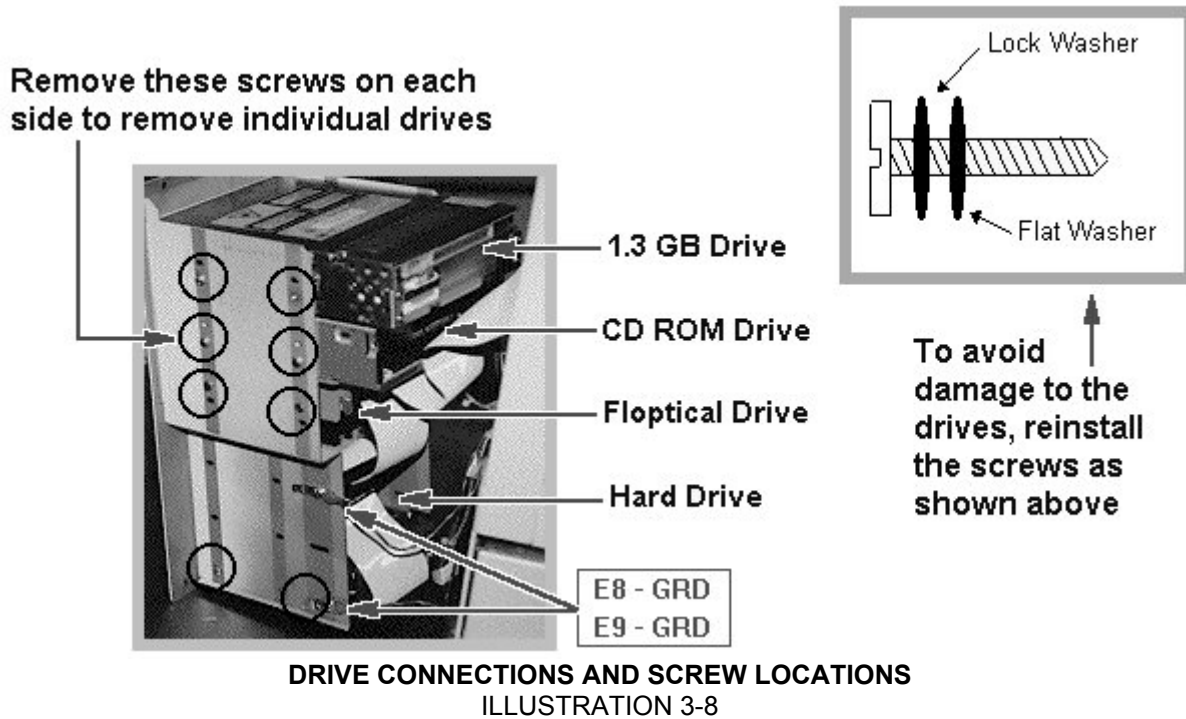
DRIVE HOUSINGS REMOVED  
ILLUSTRATION 3-6



SCSI CABLE CONNECTION  
ILLUSTRATION 3-7

### 3-5-2 Removal Procedures (continued)

- At the rear of the Drive Housing, disconnect the SCSI cable from the Floptical Drive. Gently rock the SCSI cable from end to end while pulling the connector out. See Illustration 3-8.



- At the rear of the Drive Housing, disconnect the power connector cable from the Floptical Drive. There is a small white connector attached to red, black and orange wires.
- Remove the two slotted screws on either side of the Floptical Drive (four total) to release the Floptical bracket from the housing. Refer to Illustration 3-8
- Slide the Floptical bracket out from the front of the Drive Housing.
- Remove the two slotted screws on either side of the Floptical Drive bracket (four total) to release the Floptical from the bracket.
- Slide the Floptical out from the front of the bracket and set it on the red ESD Mat.

### **3-5-3 Installation Procedures**

1. Remove the replacement Floptical Drive from the ESD storage bag.
2. Set the CD ROM Drive Dip Switches (located at back of drive) to the indicated settings if needed. See Illustration 3-9
3. Slide the Floptical Drive into the front of the bracket. Raise the drive slightly to align the screw holes with the bracket.
4. Install the two slotted screws on either side of the bracket (four total) to reattach the Floptical Drive to the bracket.
5. Slide the Floptical Drive bracket into the front of the Drive Housing. Raise the bracket slightly to align the screw holes with the bracket.
6. Before installing the screws, make sure that the screw head is followed by a lock washer and then a flat washer, in that order. Failure to install the screws in this order will damage the drive. See Illustration 3-8
7. Install the two slotted screws on either side of Floptical Drive bracket (four total) to reattach the bracket to the housing.
8. At the rear of the Drive Housing, reconnect the SCSI cable to the Floptical Drive by gently pushing the cable into the connector slot.
9. At the rear of the Drive Housing, reconnect the power connector cable to the Floptical Drive. There is a small white connector attached to red, black and orange wires.
10. Reconnect the main SCSI Cable to the Lightning I/F Board by pushing the cable up into the connector slot until it snaps into place. See Illustration 3-7.
11. Place the old Floptical Drive in the ESD Storage Bag.
12. Reinstall system, power on and boot the system into **[root]**.
13. From the Root menu bar on the right hand side of the desktop, select **[Reconfigure]** by clicking the right mouse button over the reconfigure option.
14. Left mouse button click the option **[Configure Devices]**. A "Term" window will now open and remain blank for up to two minutes. When finished, "Done with Device Configuration" will appear in the Term window. Press any key to exit. Reboot the system to **[Signa]** and test the system.

### 3-6 1.3-GB (MOD) Drive Replacement

Remove the Front Cover, the SGI Host Side Cover, and the PC Side Cover of the OW Cabinet as shown in Appendix A of this document.

#### 3-6-1 Tools Required

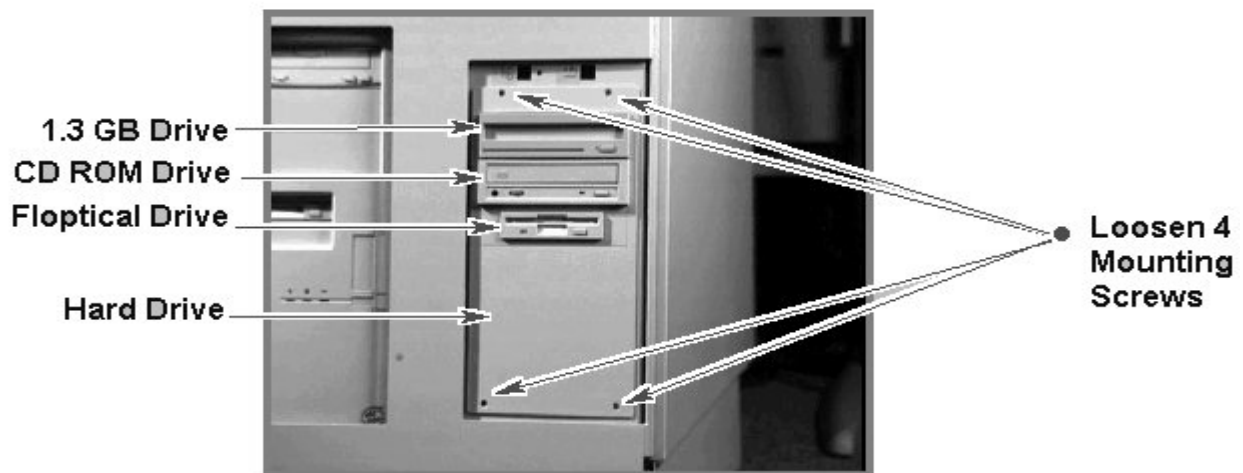
- Medium Phillips screwdriver
- Small flat head screwdriver
- Grounding wrist strap
- ESD Kit
- Container for screws

#### Note

Refer to appendices B, C and D to gain access to the inside of the SGI host tower.

#### 3-6-2 Removal Procedures

1. With the Drive Housing removed from the front of the SGI Tower, disconnect the main SCSI Cable from the Lightning I/F Board at the inside lower left of the unit. Move the black cable connectors out to the sides before pulling the cable down and away from the connector slot. See Illustration 3-5, Illustration 3-6, and Illustration 3-7.

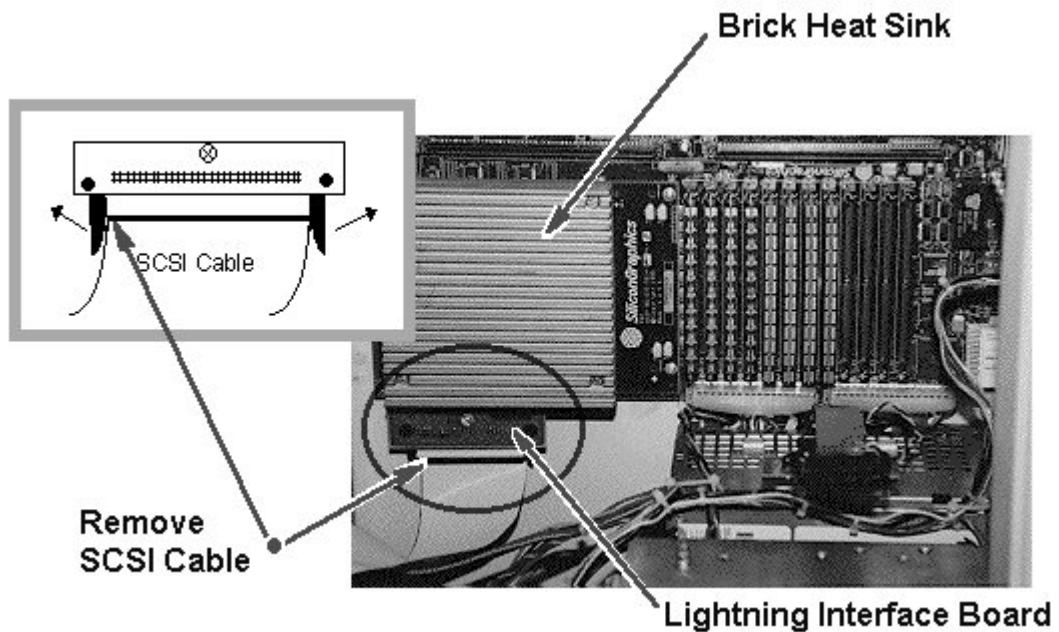


**SGI DRIVE LOCATIONS**  
ILLUSTRATION 3-5

3-6-2 Removal Procedures (continued)



DRIVE HOUSINGS REMOVED  
ILLUSTRATION 3-6

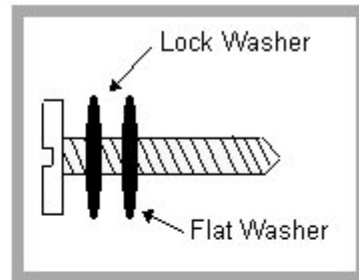
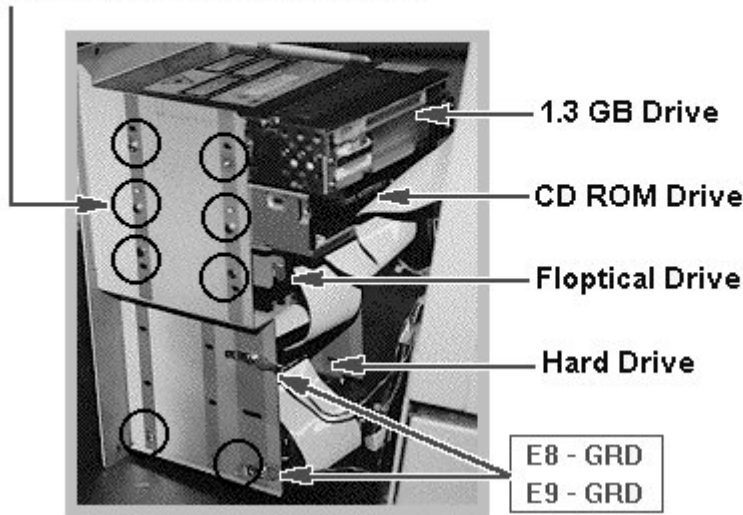


SCSI CABLE CONNECTION  
ILLUSTRATION 3-7

### 3-6-2 Removal Procedures (continued)

2. At the rear of the Drive Housing, disconnect the SCSI cable from the 1.3 GB Drive. See Illustration 3-8. Gently rock the SCSI cable from end to end while pulling the connector out.
3. At the rear of the Drive Housing, disconnect the power connector cable from the 1.3 GB Drive. There is a small white connector attached to red, black and orange wires. See Illustration 3-8.
4. Remove the two slotted screws on either side of the 1.3 GB Drive (four total) to release it from the housing. See Illustration 3-8.

Remove these screws on each side to remove individual drives



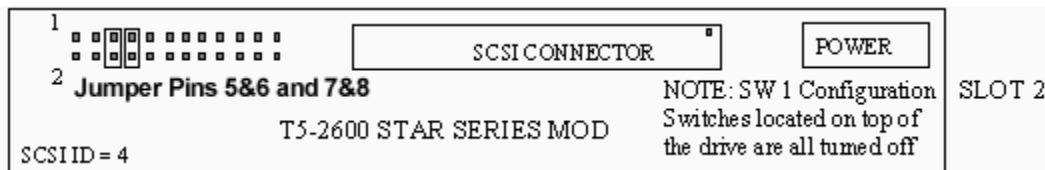
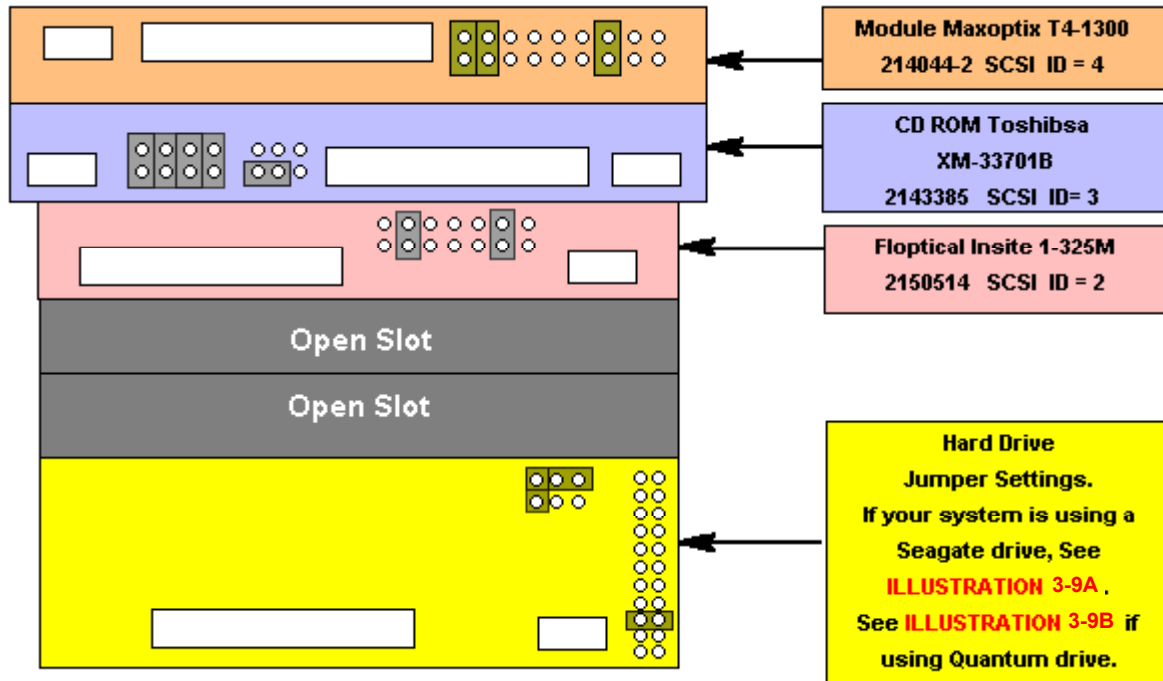
To avoid damage to the drives, reinstall the screws as shown above

**DRIVE CONNECTIONS AND SCREW LOCATIONS**  
ILLUSTRATION 3-8

5. Slide the CD ROM Drive out from the front of the Drive Housing and set it on the red ESD Mat.

### 3-6-3 Installation Procedures

1. Remove the replacement 1.3 GB Drive from the ESD storage bag and/or original carton, as applicable.
2. Set the CD ROM Drive Dip Switches (located at back of drive) to the indicated settings if needed. See Illustration 3-9. See Illustration 3-10 if installing a Maxoptix T5-2600 Star Series MOD drive part number 2199817-2.



3. Slide the replacement 1.3 GB Drive into the front of the Drive Housing. Raise the drive slightly to align the screw holes with the bracket. See Illustration 3-8.
4. Before installing the screws, make sure that the screw head is followed by a lock washer and then a flat washer, in that order. Failure to install the screws in this order will damage the drive. See Illustration 3-8.

5. Install the two slotted screws on either side of CD ROM Drive (four total) to reattach the drive to the housing.
6. At the rear of the Drive Housing, reconnect the SCSI cable to the 1.3 GB Drive by gently pushing the cable into the connector slot.
7. At the rear of the Drive Housing, reconnect the power connector cable to the CD ROM Drive. There is a small white connector attached to red, black and orange wires.
8. Reconnect the main SCSI Cable to the Lightning I/F Board by pushing the cable up into the connector slot until it snaps into place. See Illustration 3-7.
9. Place the old CD ROM Drive in the ESD Storage Bag.
10. Reinstall system.

### **3-7 32-MB SIMM Replacement**

Remove the Front Cover, the SGI Host Side Cover, and the PC Side Cover of the OW Cabinet as shown in Appendix A of this document.

#### **3-7-1 Tools Required**

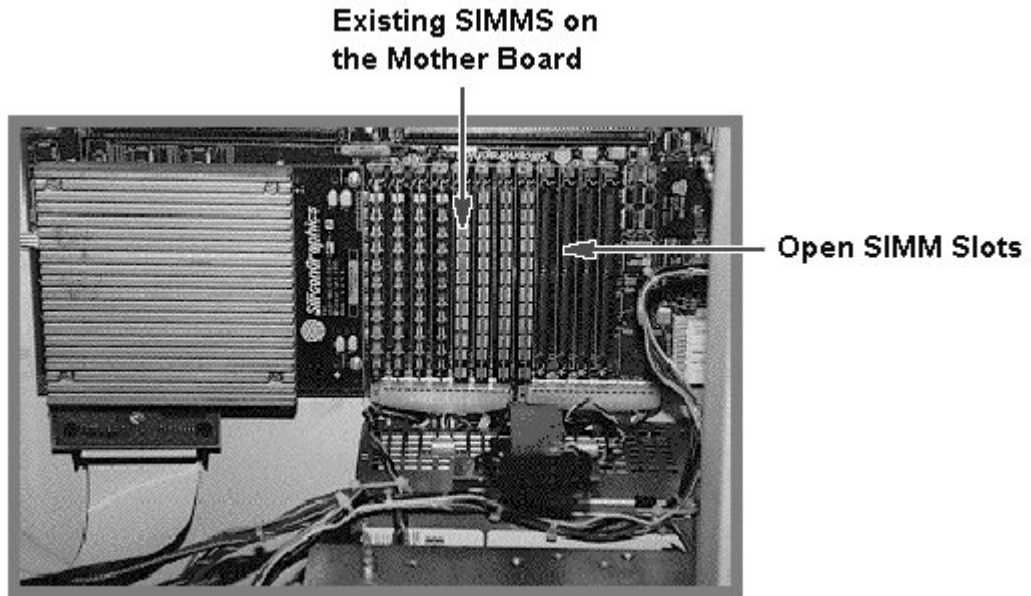
- Small and medium Phillips screwdrivers
- Small and medium flat head screwdrivers
- Grounding wrist strap
- ESD Kit

#### **3-7-2 Removal Procedures**

##### **Note**

To remove the side panel of the SGI, see Appendix D

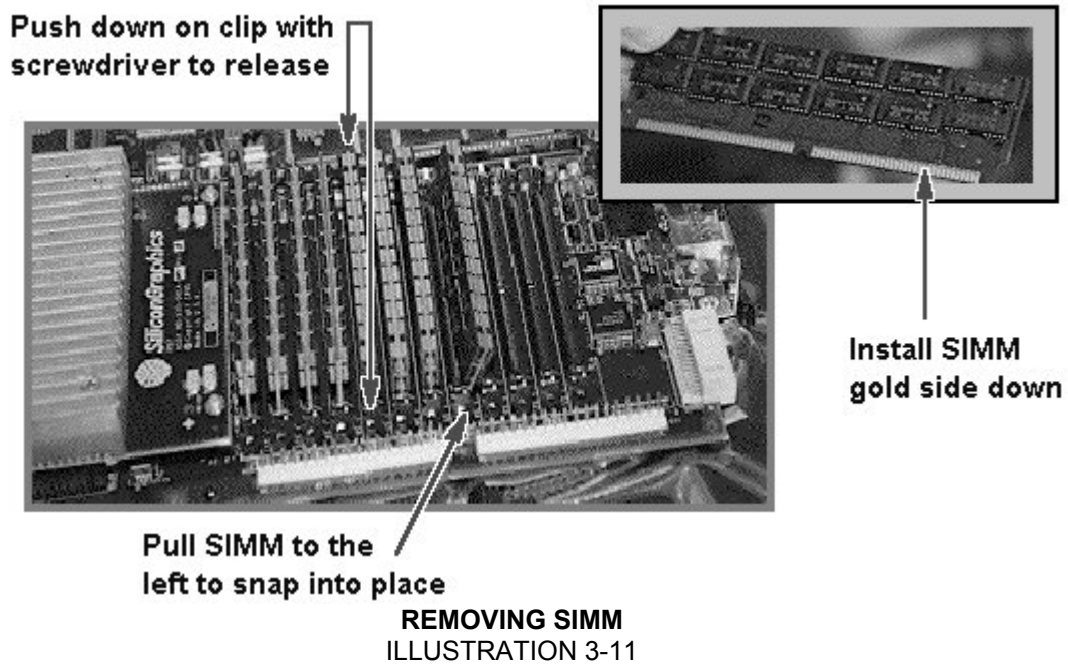
1. From the side of the SGI Tower, locate the SIMM slots on the right side of the Mother Board. If the Mother Board is to be serviced, follow these instructions after removal of the Mother Board. See Illustration 3-10.



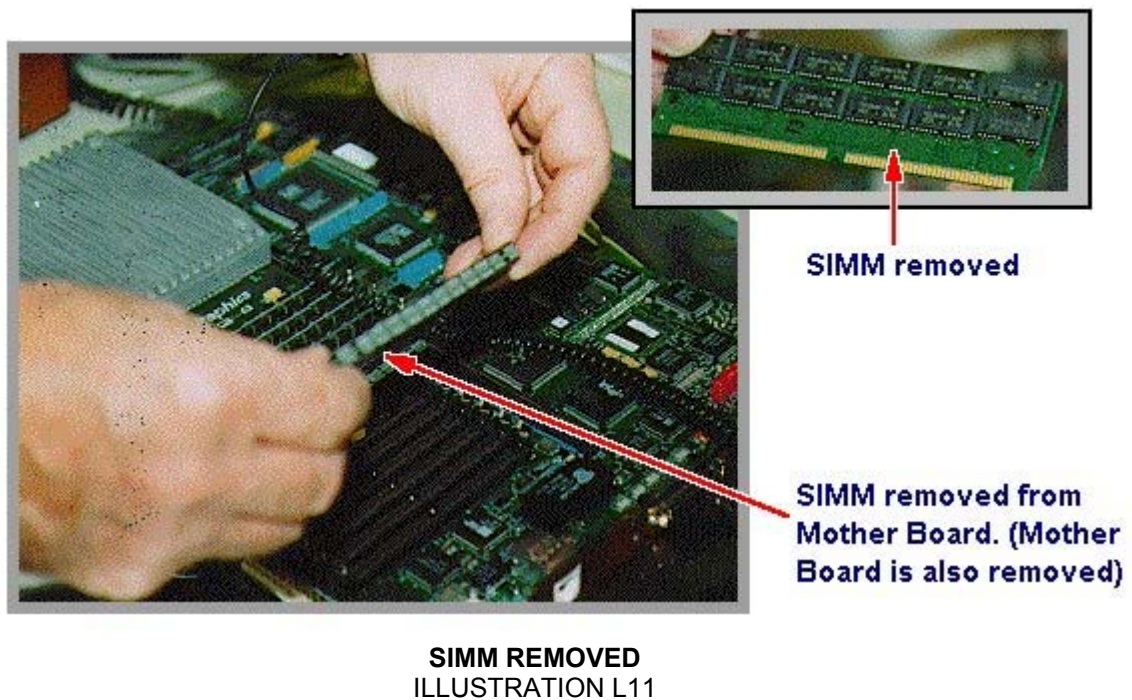
**SIMM LOCATION**  
ILLUSTRATION 3-10

### 3-7-2 Removal Procedures (continued)

- To remove a SIMM, use a small flat head screwdriver and gently press down on the release clips located at the top and bottom of each slot. See Illustration 3-11.



- Remove the SIMM. See Illustration 3-12.



- Set the old SIMM(s) on the red ESD mat.

### **3-7-3 Installation Procedures**

1. Remove the replacement SIMMs from the ESD Storage Bag and/or original carton, as applicable.
2. Locate the SIMM slots on the right side of the Mother Board. See Illustration 3-10.
3. Gently push the SIMM (gold side down) into an open slot. The SIMM installs on slight angle. See Illustration 3-11.
4. Pull the SIMM to the left until it snaps into place.
5. Store old SIMM(s) in the ESD Storage Bag and/or original carton, as applicable.
6. Reinstall the system.

### 3-8 Bit3 Board Replacement

Remove the Front Cover, the SGI Host Side Cover, and the PC Side Cover of the OW Cabinet as shown in Appendix A of this document.

#### 3-8-1 Tools Required

- Small and medium Phillips screwdrivers
- Small and medium flat head screwdrivers
- Grounding wrist strap
- ESD Kit
- Container for screws

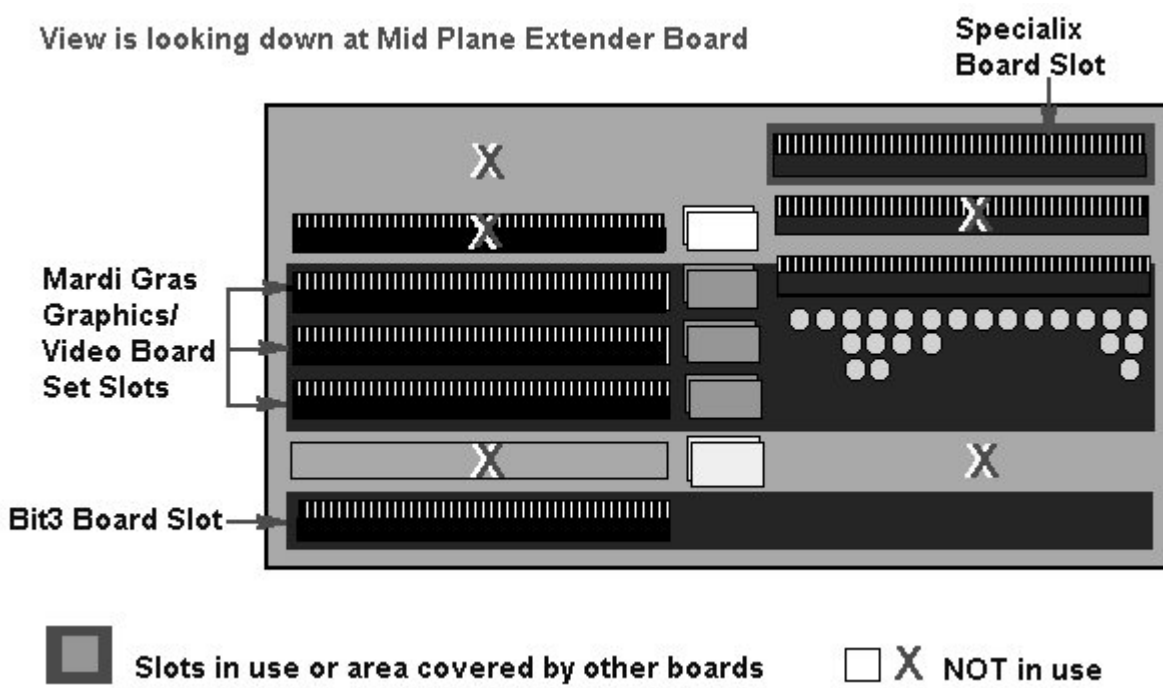
#### 3-8-2 Removal Procedures

##### Note

To remove the Top panel of the SGI, see Appendix E

1. From the top of the SGI Tower, locate the Bit3 Board. This full board is in front of the Mardi Gras Graphics/Video Board Set. See Illustration 3-13.

View is looking down at Mid Plane Extender Board



2. Remove the mounting screw that secures the board to the right rear of the Tower.
3. Gently rock the Bit3 Board from end to end while lifting up to remove.
4. Place the old Bit3 Board on the red ESD mat.

### **3-8-3 Installation Procedures**

1. Remove the replacement Bit3 Board from the ESD Storage Bag.
2. From the top of the SGI Tower, locate the Bit3 Board slot. This slot is in front of the Mardi Gras Graphic/Video Two Board Set. See Illustration 3-13.
3. Place the replacement Bit3 Board into the appropriate slot. Make sure the board is aligned with the card guide at the left and the bracket slot on the right.
4. Gently push the Bit3 Board into the slot until it is tight to the Mid Plane Extender Board.
5. Install the mounting screw that secures the board to the right rear of the Tower.
6. Place the old Bit3 Board on the in the ESD Storage Bag.
7. Reassemble the system.

### **3-9 Mardi Gras Graphics Board Set Replacement**

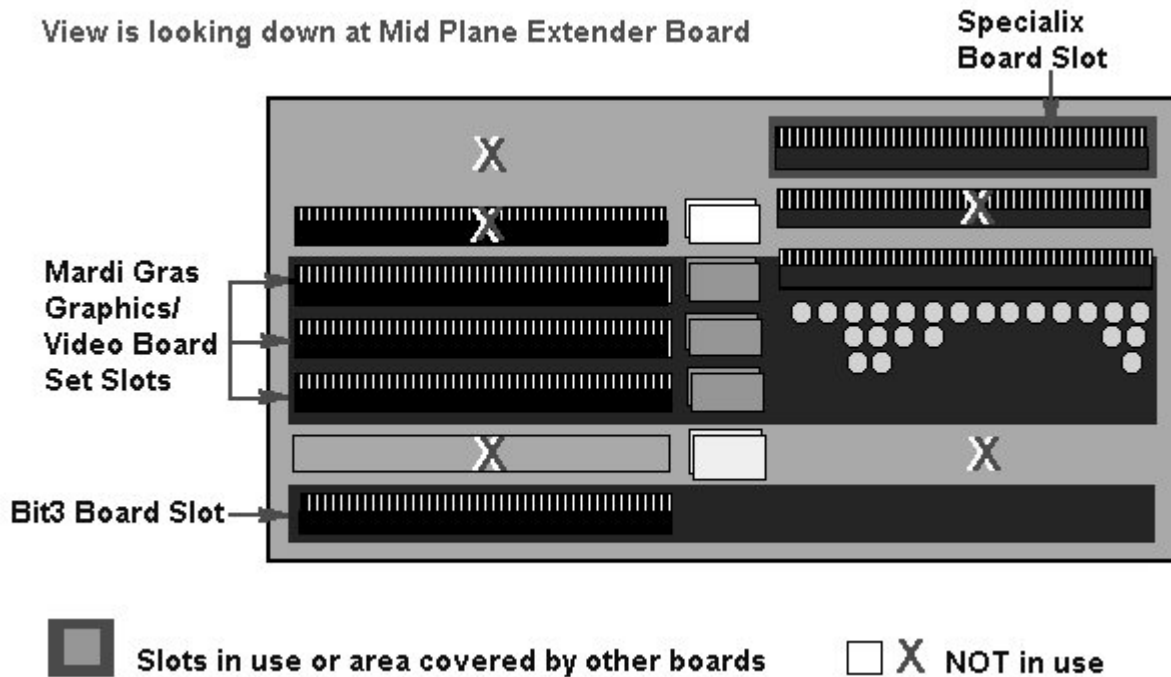
#### **Note**

The Video Mardi Gras Graphics Board Set consists of T3202JD Mardi Gras Board and T3202JH Textured Memory Board, (TRAM). If replacing just the Mardi Gras board, be sure to remove the TRAM from the old board and add it to the new Mardi Gras board.

Remove the Front Cover, the SGI Host Side Cover, and the PC Side Cover of the OW Cabinet as shown in Appendix A of this document. For SGI Top Panel Access, see Appendix D.

### 3-9-1 Removal Procedures

1. From the top of the SGI Tower, locate the Mardi Gras Graphics Board Set. These full boards are behind the Bit3 Board slot. See Illustration 3-13.



**BOARD LOCATIONS**  
ILLUSTRATION 3-13

2. Remove the mounting screws that secures the boards to the right rear of the unit.
3. Pull the Mardi Gras Graphics Board Set up using the pull straps on either end of the boards. Gently rock the boards from end to end while lifting up to remove.



**This board set is mounted securely and could bind on other components during removal.**

4. Place the old Mardi Gras Graphics Board Set on the red ESD mat. If the optional Video Board is attached to the Graphics Board Set, place the boards so that the Video Board is face up. Note: The board set contains three boards when the Video Board has been installed. The first board behind the Bit3 board is the Video Board. See Illustration 3-13.
5. Also remove the memory (TRAM) board from the Mardi Gras board.

### 3-9-2 Installation Procedures

1. Remove the replacement Mardi Gras Graphics Board Set from the ESD Storage Bag.
2. Disconnect the Video board from the Mardi Gras Graphics Board Set by following the detailed instructions in Illustration 3-14.

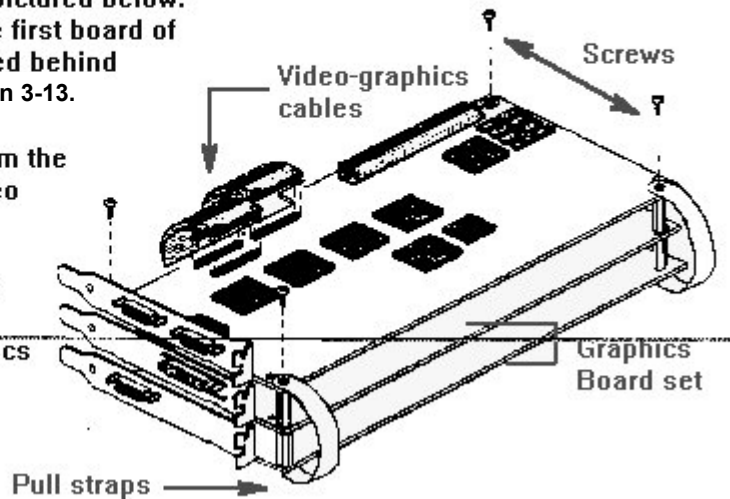
\* If installing an existing video board onto a replacement Mardi Gras Graphics Board Set, follow these steps as applicable.

1. Make sure the Video board is placed right side up on the ESD mat as pictured below. Note: The Video board is the first board of the multiple board set located behind the Bit3 board. See Illustration 3-13.

2. Remove the four screws from the corners of the Graphics/Video board set.

3. Release the two pull straps.

4. Disconnect the video-graphics cable connectors. Use a small flathead screw driver to release the cable pins if necessary.



**REMOVING VIDEO BOARD**  
ILLUSTRATION 3-14

3. Reinstall the TRAM memory board.
4. From the top of the SGI Tower, locate the Mardi Gras Graphics Board Set slots. These slots are located behind the Bit3 Board. See Illustration 3-13.
5. Place the replacement Mardi Gras Graphics Board Set into the appropriate slots. Align the boards over the white connectors on the Mid Plane Extender Board. Also align the boards with the card guide at the left and the bracket slots on the right.
6. Gently push the Mardi Gras Graphics Board Set into the slots until they are tight to the Mid Plane Extender Board.
7. Install the mounting screws that secure the board brackets at the right rear of the Tower.
8. Place the old Mardi Gras Graphics Board Set in the ESD Storage Bag.
9. Reassemble the system.

### 3-10 Video Board Replacement

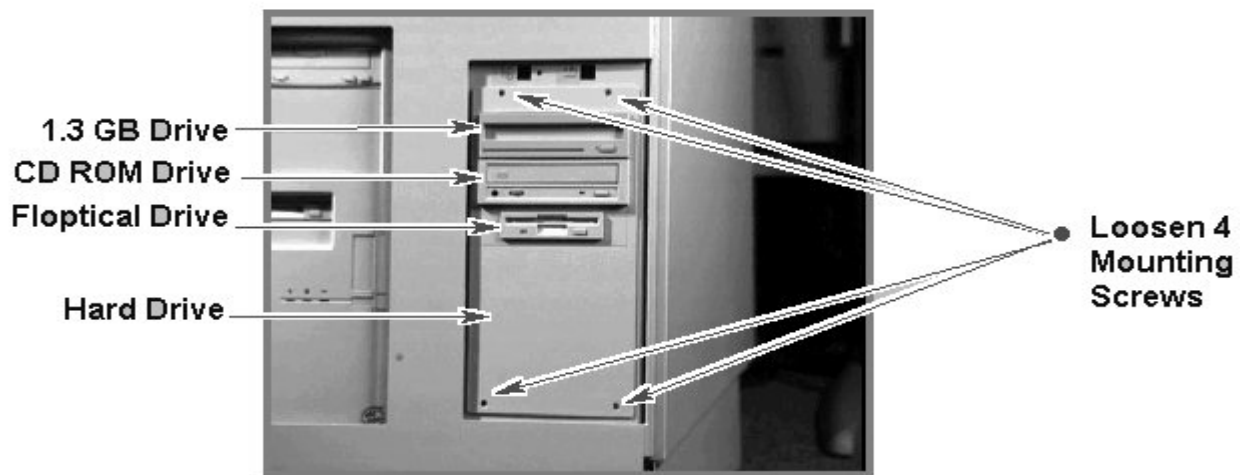
Remove the Front Cover, the SGI Host Side Cover, and the PC Side Cover of the OW Cabinet as shown in Appendix A of this document.

#### 3-10-1 Tools Required

- Small and Medium Phillips screwdriver
- Small flat head screwdriver
- Grounding wrist strap
- ESD Kit
- Containers for screws

#### 3-10-2 Removal Procedure

1. With the Drive Housing removed from the front of the SGI Tower, disconnect the main SCSI Cable from the Lightning I/F Board at the inside lower left of the unit. Move the black cable connectors out to the sides before pulling the cable down and away from the connector slot. See Illustration 3-5, Illustration 3-6, and Illustration 3-7.

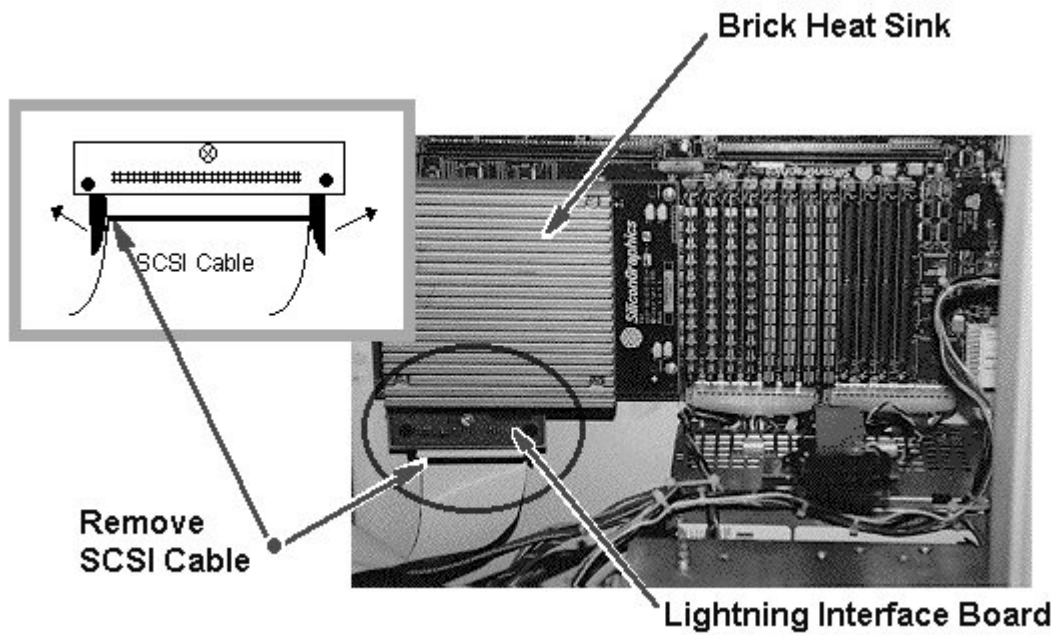


**SGI DRIVE LOCATIONS**  
ILLUSTRATION 3-5

3-10-2 Removal Procedures (continued)



DRIVE HOUSINGS REMOVED  
ILLUSTRATION 3-6



SCSI CABLE CONNECTION  
ILLUSTRATION 3-7

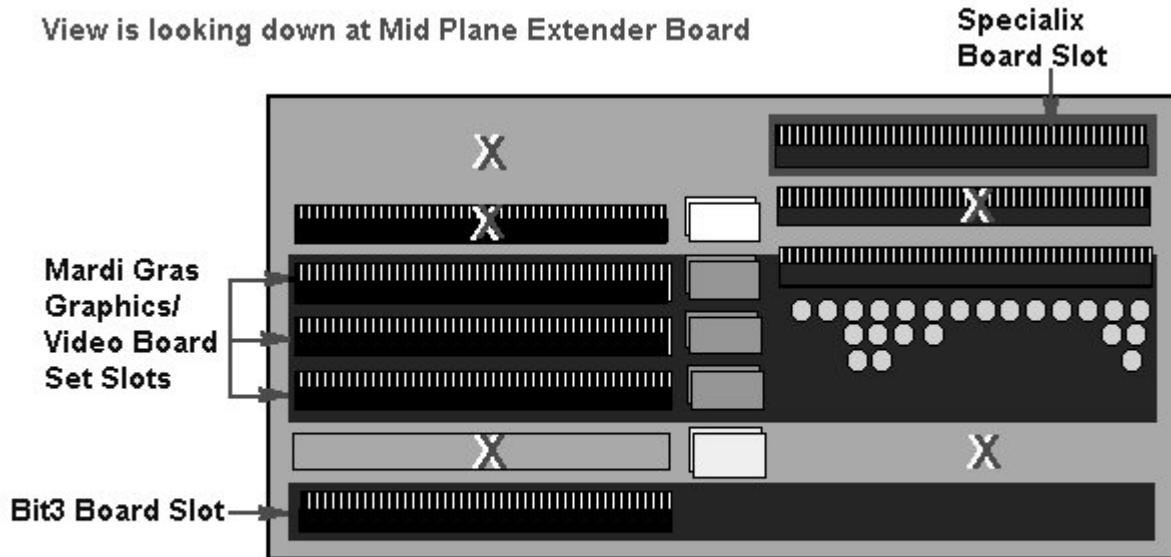
**3-10-2 Removal Procedures (continued)**

2. Remove the mounting screws that secures the boards to the right rear of the unit.
3. Pull the Mardi Gras Graphics/Video Board Set up using the pull straps on either end of the boards. Gently rock the boards from end to end while lifting up to remove.



**This board set is mounted securely and could bind on other components during removal.**

4. Place the old Mardi Gras Graphics/Video Board Set on the red ESD mat, with the Video Board facing up. The board set contains three boards when the Video Board has been installed. The first board behind the Bit3 board is the Video Board. See Illustration 3-13.



Slots in use or area covered by other boards
  X NOT in use

**BOARD LOCATIONS**  
 ILLUSTRATION 3-13

### 3-10-3 Single Board to Multiple Board Set Replacement Procedures

1. Remove the replacement Video Board from the ESD Storage Bag.
2. Disconnect the Video board from the Mardi Gras Graphics/Video Board Set by following the detailed instructions in Illustration 3-14.

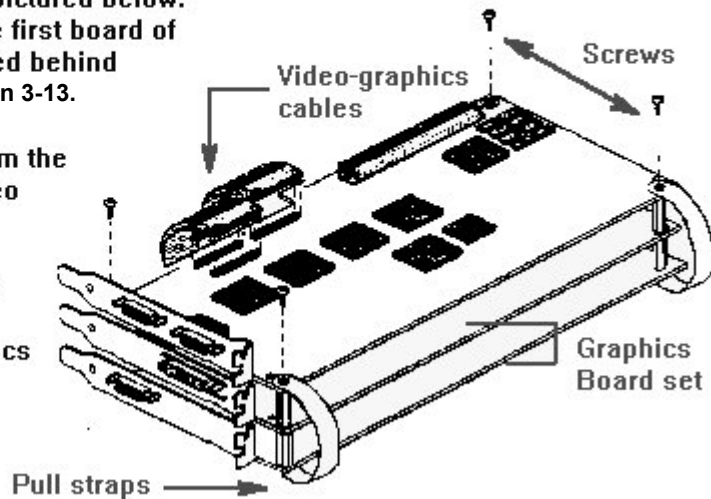
\* If installing an existing video board onto a replacement Mardi Gras Graphics Board Set, follow these steps as applicable.

1. Make sure the Video board is placed right side up on the ESD mat as pictured below. Note: The Video board is the first board of the multiple board set located behind the Bit3 board. See Illustration 3-13.

2. Remove the four screws from the corners of the Graphics/Video board set.

3. Release the two pull straps.

4. Disconnect the video-graphics cable connectors. Use a small flathead screw driver to release the cable pins if necessary.



**REMOVING VIDEO BOARD**  
ILLUSTRATION 3-14

3. Proceed with the remaining Installation Procedures.

### 3-10-4 Installation Procedures

1. From the top of the SGI Tower, locate the Mardi Gras Graphics/Video Board Set slots. These slots are located behind the Bit3 Board. See Illustration 3-13.
2. Place the replacement Mardi Gras Graphics/Video Board Set into the appropriate slots. Align the boards over the white connectors on the Mid Plane Extender Board. Also align the boards with the card guide at the left and the bracket slots on the right.
3. Gently push the Mardi Gras Graphics/Video Board Set into the slots until they are tight to the Mid Plane Extender Board.
4. Install the mounting screws that secure the board brackets at the right rear of the Tower.
5. Place the old Video board in the ESD Storage Bag.
6. Reassemble the system.

### 3-11 Specialix Board Replacement

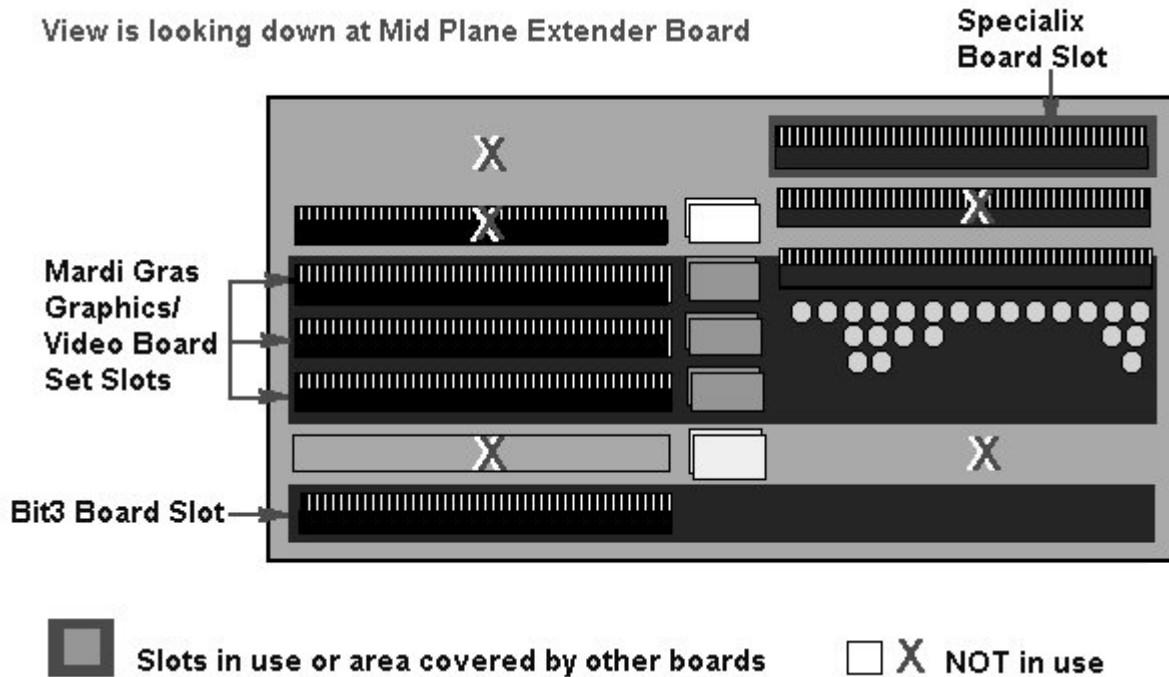
Remove the Front Cover, the SGI Host Side Cover, and the PC Side Cover of the OW Cabinet as shown in Appendix A of this document. For SGI Top Panel Access, see Appendix E.

#### 3-11-1 Tools Required

- Small and medium Phillips screwdrivers
- Small and medium flat head screwdrivers
- Grounding wrist strap
- ESD Kit
- Container for screws

#### 3-11-2 Removal Procedures

1. From the top of the SGI Tower, locate the Specialix Expansion Board. This is a half board in front of the Mother Board, at the right rear of the unit. See Illustration 3-13.



**BOARD LOCATIONS**  
ILLUSTRATION 3-13

2. Remove the mounting screw that secures the board bracket to the right rear of the unit.
3. Gently rock the Specialix Expansion Board from end to end while lifting up to remove.
4. Store the old Specialix Expansion Board on the red ESD mat.

### **3-11-3 Installation Procedures**

1. Remove the replacement Specialix Expansion Board from the ESD Storage Bag.
2. From the top of the SGI Tower, locate the Specialix Expansion Board slot. This slot is located in front of the Mother Board, at the right rear of the unit. See Illustration 3-13.
3. Place the Specialix Expansion Board into the appropriate slot. Align the board with bracket slot on the right.
4. Gently push the Specialix Expansion Board down until it is completely in the slot.
5. Install the mounting screw that secures the board bracket to the right rear of the Tower.
6. Place the old Specialix Expansion Board in the ESD Storage Bag.
7. Reassemble system.

### **3-12 Mid Plane Extender Board Replacement**

Remove the Front Cover, the SGI Host Side Cover, and the PC Side Cover of the OW Cabinet as shown in Appendix A of this document.

#### **3-12-1 Tools Required**

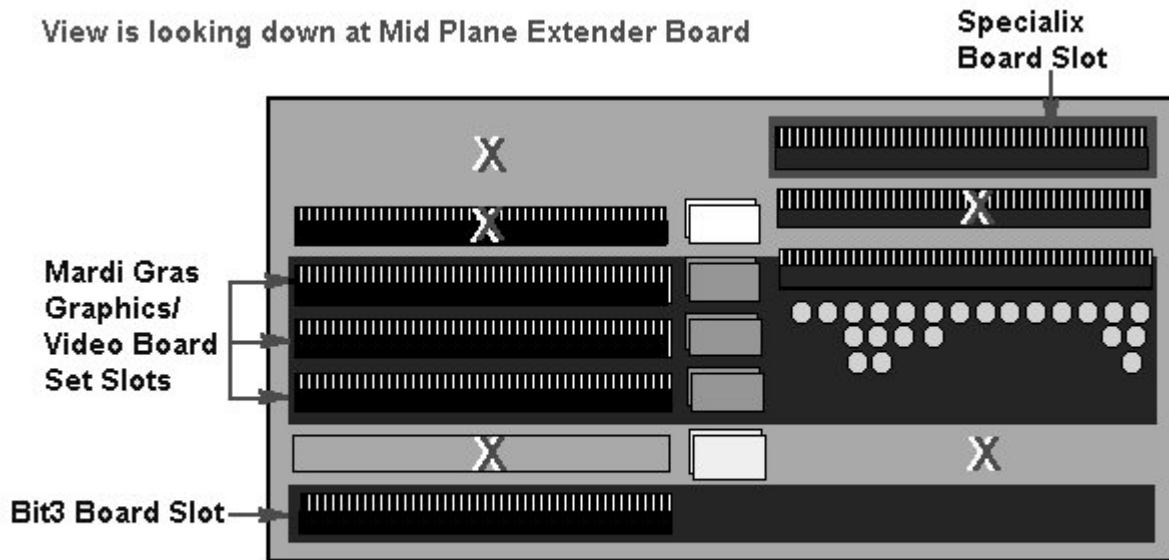
- Small and medium Phillips screwdrivers
- Small and medium flat head screwdrivers
- Grounding wrist strap
- ESD Kit
- Container for screws

#### **Note**

Refer to appendices B, C, and D to gain access to the inside of the SGI host tower.

### 3-12-2 Removal Procedures

1. From the top of the SGI Tower, locate the Bit3 Board. This full board is in front of the Mardi Gras Graphics/Video Two Board Set. See Illustration 3-13.



Slots in use or area covered by other boards
  X NOT in use

**BOARD LOCATIONS**  
ILLUSTRATION 3-13

2. Remove the mounting screw that secures the board bracket to the right rear of the Tower.
3. Gently rock the Bit3 Board from end to end while lifting up to remove.
4. Store the Bit3 Board on the red ESD mat.
5. From the top of the SGI Tower, locate the Mardi Gras Graphics/Video Two Board Set. These full boards are behind the Bit3 Board slot.
6. Remove the mounting screws that secures the board brackets to the right rear of the unit.
7. Pull the Mardi Gras Graphics/Video Two Board Set up using the handles on either end of the boards. Gently rock the boards from end to end while lifting up to remove.

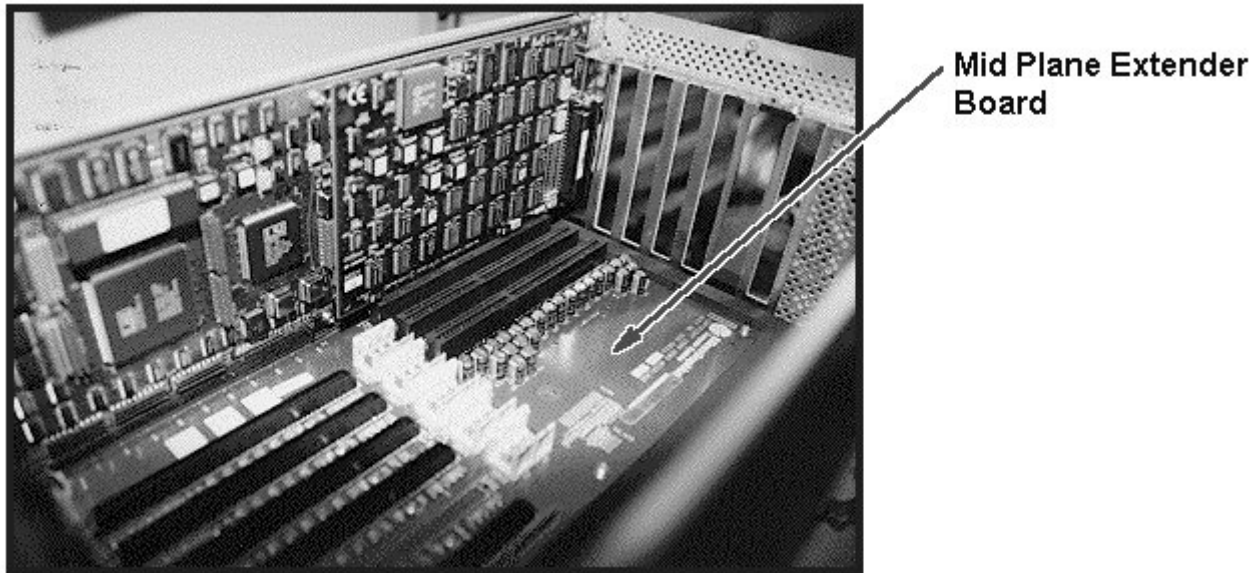


**This two board set is mounted securely and could bind on other components during removal.**

8. Store the Mardi Gras Graphics/Video Two Board Set on the red ESD mat.
9. From the top of the SGI Tower, locate the Specialix Expansion Board. This is a half board in front of the Mother Board, at the right rear of the unit.

### **3-12-2 Removal Procedures (continued)**

10. Remove the mounting screw that secures the board bracket to the right rear of the unit.
11. Gently rock the Specialix Expansion Board from end to end while lifting up to remove.
12. Store the Specialix Expansion Board on the red ESD mat.
13. From the side of the unit, locate the Mid Plane Extender Board. This is a full board connected horizontally to the Mother Board. See Illustration 3-15.



**MID PLANE EXTENDER BOARD LOCATION**  
ILLUSTRATION 3-15

14. Disconnect the P7 connector cable located at the left rear of the Mid Plane Extender board. This cable connects to the Front Switch Plate.
15. Disconnect the Power Supply Cable (blue ribbon) and the small two-pin connector from the Mid Plane Extender Board. These connections originate at the power SGI Power Supply and go up through the slot on the Mid Plane Support Shelf.
16. On the Mid Plane Extender Board locate the nine screws on the right, middle and left sides. See Illustration 3-15
17. Remove the nine mounting screws securing the board to the support shelf.

**3-12-2 Removal Procedures (continued)**

18. Gently rock the Mid Plane Extender Board up and down while sliding the board out of the side of the SGI Tower. This will release the board from the two large connector slots on the Mother Board. See Illustration 3-16

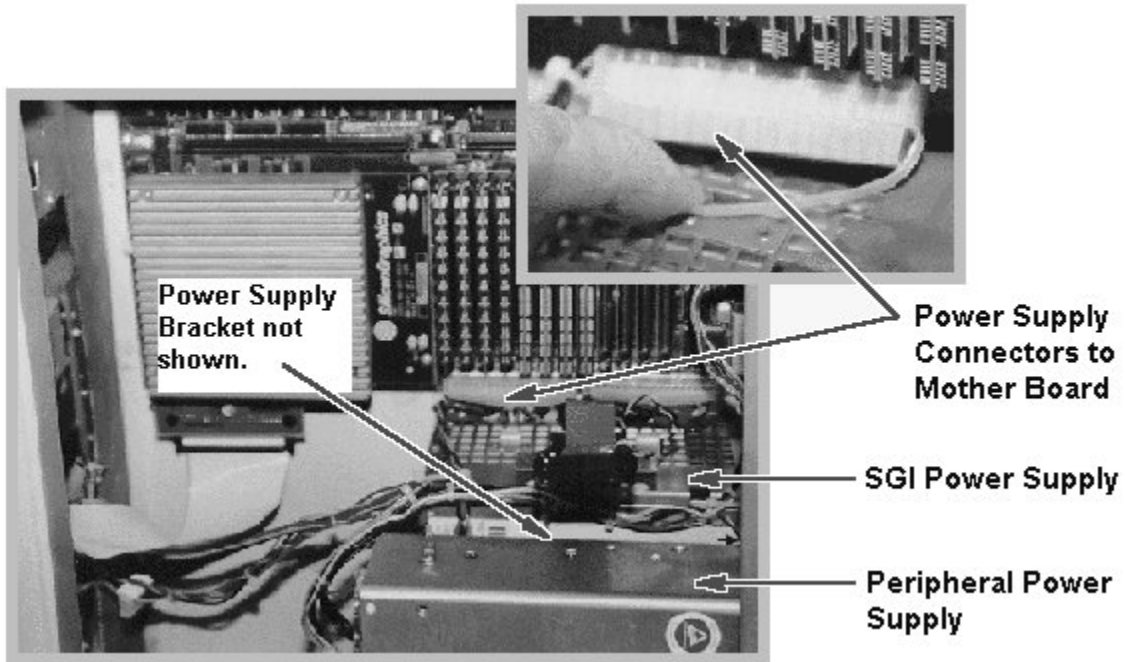


ILLUSTRATION 3-16

19. Store the Mid Plane Extender Board on the red ESD mat.

### **3-12-3 Installation Procedures**

1. Remove the Mid Plane Extender Board from the ESD Storage Bag.
2. From the side of the SGI Tower, gently insert the Mid Plane Extender Board (horizontally) into the two large connector slots on the Mother Board. Push the board in until it is tight to the Mother Board.
3. Install the nine mounting screws, three each at the middle, right and left sides.
4. Reconnect the Power Supply Cable (blue ribbon) and the small two-pin connector to the Mid Plane Extender Board. These connections originate at the power supply boxes and go up through the slot on the Mid Plane Support Shelf.
5. Remove the Specialix Expansion Board from the red ESD mat.
6. From the top of the SGI Tower, reinstall the Specialix Expansion Board (half board) into the slot at the right rear of the unit directly in front of the Mother Board. See Illustration 3-13.
7. Gently rock the Specialix Expansion Board from end to end while pushing down until it is tight to the Mid Plane Extender Board.
8. Install the mounting screw that secures the board bracket to the right rear of the unit.
9. Remove the Mardi Gras Graphics/Video Two Board Set from the red ESD mat.
10. From the top of the SGI Tower, reinstall the Mardi Gras Graphics/Video Two Board Set into the slots as indicated. See Illustration 3-13. Make sure the boards are aligned with the white connectors in the middle of the Mid Plane Extender Board.
11. Gently rock the Mardi Gras Graphics/Video Two Board Set from end to end while pushing down until it is tight to the Mid Plane Extender Board.



**This two board set could bind on other components during installation.**

12. Install the two mounting screws that secure the board brackets to the right rear of the unit.
13. From the top of the SGI Tower, reinstall the Bit3 Board into the slot in front of the Mardi Gras Graphics/Video Two Board Set. See Illustration 3-13.
14. Gently rock the Bit3 Board from end to end while pushing down until it is tight to the Mid Plane Extender Board.
15. Install the mounting screw that secures the board bracket to the right rear of the unit.
16. When all the boards have been reinstalled, at the inside upper left of the SGI Tower, tighten the screws on the Card Guide.
17. Reassemble system.

### 3-13 Lightning I/F Board Replacement

Remove the Front Cover, the SGI Host Side Cover, and the PC Side Cover of the OW Cabinet as shown in Appendix A of this document.3-13-1.

#### Tools Required

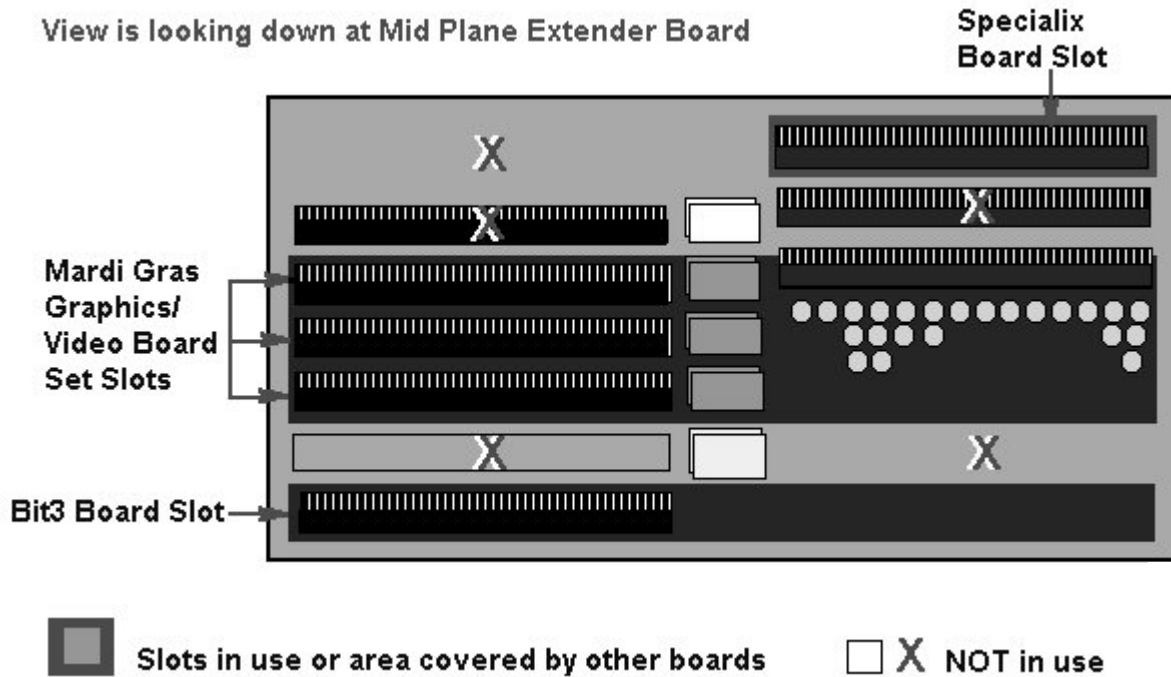
- Small and medium Phillips screwdrivers
- Small and medium flat head screwdrivers
- Grounding wrist strap
- ESD Kit
- Container for screws

#### Note

Refer to appendices B, C and D to gain access to the inside of the SGI host tower.

#### 3-13-2 Removal Procedures

1. From the top of the SGI Tower, locate the Bit3 Board. This full board is in front of the Mardi Gras Graphics/Video Two Board Set. See Illustration 3-13.



**BOARD LOCATIONS**  
ILLUSTRATION 3-13

2. Remove the mounting screw that secures the board bracket to the right rear of the Tower.
3. Gently rock the Bit3 Board from end to end while lifting up to remove.
4. Store the Bit3 Board on the red ESD mat.
5. From the top of the SGI Tower, locate the Mardi Gras Graphics/Video Two Board Set. These full boards are behind the Bit3 Board slot. See Illustration 3-13.

### **3-13-2 Removal Procedures (continued)**

6. Remove the mounting screws that secures the board brackets to the right rear of the unit.
7. Pull the Mardi Gras Graphics/Video Two Board Set up using the handles on either end of the boards. Gently rock the boards from end to end while lifting up to remove.

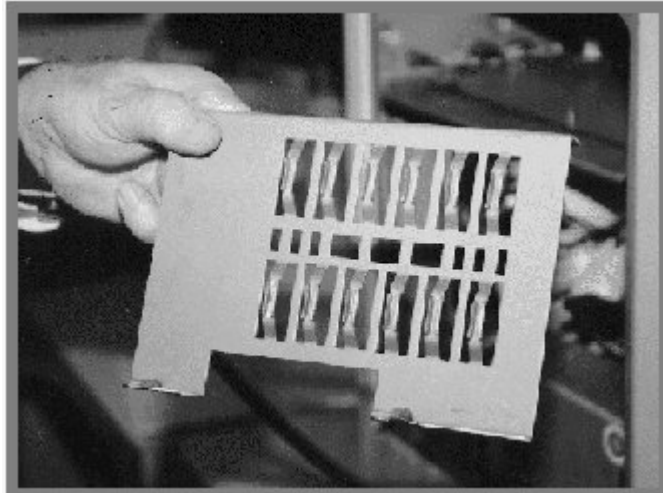


**This two-board set is mounted securely and could bind on other components during removal.**

8. Store the Mardi Gras Graphics/Video Two Board Set on the red ESD mat.
9. From the top of the SGI Tower, locate the Specialix Expansion Board. This is a half board in front of the Mother Board, at the right rear of the unit. See Illustration 3-13.
10. Remove the mounting screw that secures the board bracket to the right rear of the unit.
11. Gently rock the Specialix Expansion Board from end to end while lifting up to remove.
12. Store the Specialix Expansion Board on the red ESD mat.
13. From the side of the unit, locate the Mid Plane Extender Board. This is a full board connected horizontally to the Mother Board.
14. Disconnect the P7 connector cable located at the left rear of the Mid Plane Extender board. This cable connects to the Front Switch Plate.
15. Disconnect the Power Supply Cable (blue ribbon) and the small two-pin connector from the Mid Plane Extender Board. These connections originate at the power SGI Power Supply and go up through the slot on the Mid Plane Support Shelf.
16. On the Mid Plane Extender Board locate the nine screws on the right, middle and left sides.
17. Remove the nine mounting screws securing the board to the support shelf.
18. Gently rock the Mid Plane Extender Board up and down while sliding the board out of the side of the SGI Tower. This will release the board from the two large connector slots on the Mother Board.
19. Store the Mid Plane Extender Board on the red ESD mat.
20. At the inside upper left of the SGI Tower, locate the Card Guide.

### **3-13-2 Removal Procedures (continued)**

21. At upper left of the SGI Tower, remove the three mounting screws securing the Card Guide, two at the top and one at the bottom. See Illustration 3-17.

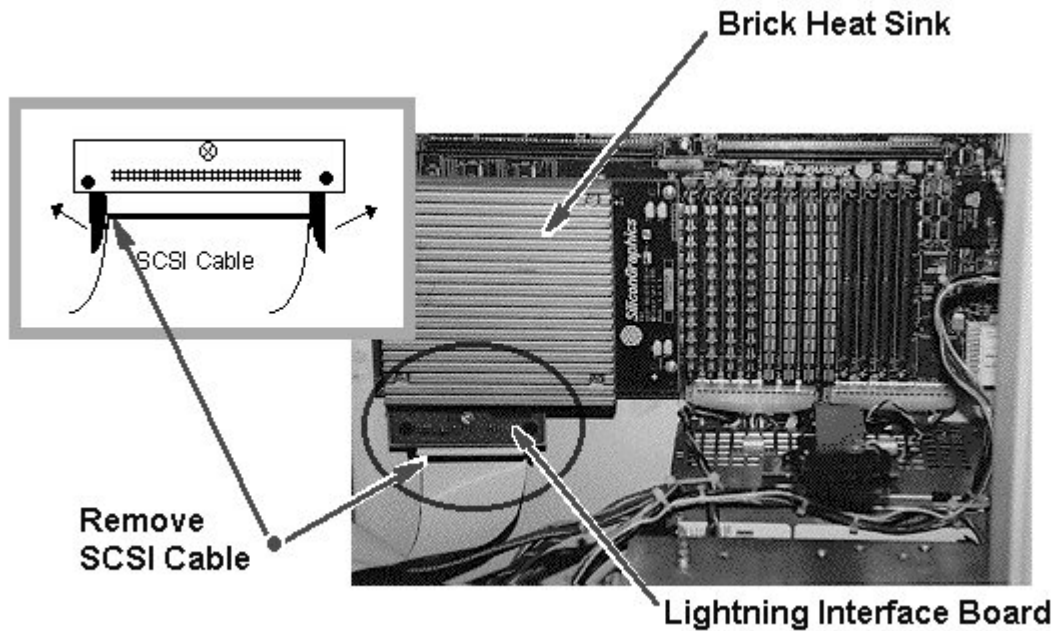


**CARD GUIDE**  
ILLUSTRATION 3-17

22. Remove the Card Guide.
23. Disconnect the P6 connector cable located at the left rear of the Mother Board. This cable connects to the Front Switch Plate.
24. On the outside front of the SGI Tower, remove the four mounting screws securing the Front Switch Plate. The Front Switch Plate is located behind the Card Guide on the inside of the unit.
25. On the Mid Plane Support Shelf remove the five mounting screws, 3 on the outside rear and 2 on the inside front corners. Remove the Mid Plane Support Shelf.

### 3-13-2 Removal Procedures (continued)

26. Locate the Lightning I/F Board on the lower left corner of the Mother Board, under the Brick Heat Sink. See Illustration 3-7.



**SCSI CABLE CONNECTION**  
ILLUSTRATION 3-7

27. Disconnect the Drive Housing SCSI cable from the bottom of the Lightning I/F Board.
28. Remove the one mounting screw and remove the Lightning I/F Board.
29. Store the Lightning I/F Board on the red ESD mat.

### 3-13-3 Installation Procedures

1. Remove the replacement Lightning I/F Board from the ESD Storage Bag.
2. On the lower left corner of the Mother Board, under the Brick Heat Sink, align the Lightning I/F Board and reinstall the one mounting screw.
3. At the bottom of the Lightning I/F Board, reconnect the drive housing SCSI cable.
4. Reinstall the Mid Plane Support Shelf (horizontally). Install the five mounting screws, three on the outside rear and two on the inside front corners.
5. On the inside upper left of the SGI Tower, align the Front Switch Plate with the holes on the front of the unit. Reinstall the four mounting screws.
6. Reconnect the Front Switch Plate P6 connector cable to the port on the left rear of the Mother Board.
7. At the inside upper left of the SGI Tower, align the Card Guide.

### **3-13-3 Installation Procedures (continued)**

8. Reinstall the three mounting screws securing the Card Guide, two at the top and one at the bottom. Do not tighten the screws completely until all boards have been reinstalled.
9. Reconnect the P7 connector cable located to the left rear of the Mid Plane Extender Board. This cable connects to the Front Switch Plate.
10. Remove the Mid Plane Extender Board from the red ESD mat.
11. From the side of the SGI Tower, gently insert the Mid Plane Extender Board (horizontally) into the two large connector slots on the Mother Board. Push the board in until it is tight to the Mother Board.
12. Install the nine mounting screws, three each at the middle, right and left sides.
13. Reconnect the Power Supply Cable (blue ribbon) and the small two-pin connector to the Mid Plane Extender Board. These connections originate at the power supply boxes and go up through the slot on the Mid Plane Support Shelf.
14. Remove the Specialix Expansion Board from the red ESD mat.
15. From the top of the SGI Tower, reinstall the Specialix Expansion Board (half board) into the slot at the right rear of the unit directly in front of the Mother Board. See Illustration 3-13.
16. Gently rock the Specialix Expansion Board from end to end while pushing down until it is tight to the Mid Plane Extender Board.
17. Install the mounting screw that secures the board bracket to the right rear of the unit.
18. Remove the Mardi Gras Graphics/Video Two Board Set from the red ESD mat.
19. From the top of the SGI Tower, reinstall the Mardi Gras Graphics/Video Two Board Set into the slots as indicated. See Illustration 3-13. Make sure the boards are aligned with the white connectors in the middle of the Mid Plane Extender Board.
20. Gently rock the Mardi Gras Graphics/Video Two Board Set from end to end while pushing down until it is tight to the Mid Plane Extender Board.



**This two-board set could bind on other components during installation.**

21. Install the two mounting screws that secure the board brackets to the right rear of the unit.
22. From the top of the SGI Tower, reinstall the Bit3 Board into the slot in front of the Mardi Gras Graphics/Video Two Board Set. See Illustration 3-13.
23. Gently rock the Bit3 Board from end to end while pushing down until it is tight to the Mid Plane Extender Board.

### **3-13-3 Installation Procedures (continued)**

24. Install the mounting screw that secures the board bracket to the right rear of the unit.
25. When all the boards have been reinstalled, at the inside upper left of the SGI Tower, tighten the screws on the Card Guide.
26. Reassemble system.

### **3-14 Motherboard Replacement**

Remove the Front Cover, the SGI Host Side Cover, and the PC Side Cover of the OW Cabinet as shown in Appendix A of this document.

#### **3-14-1 Tools Required**

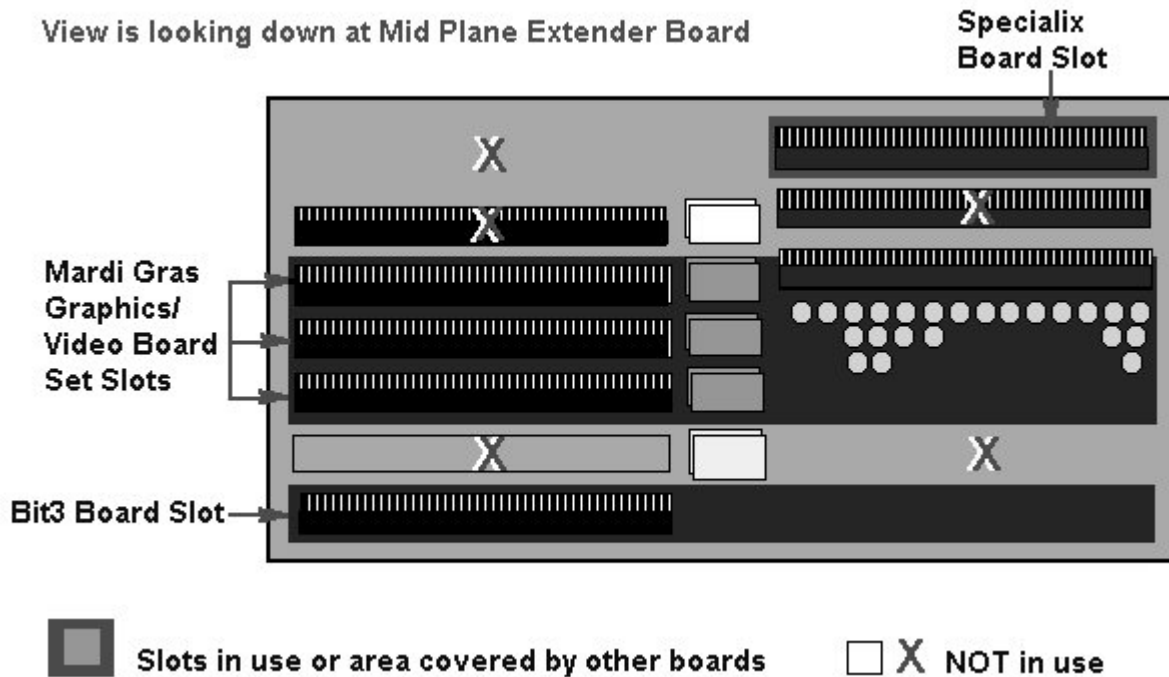
- Small and medium Phillips screwdrivers
- Small and medium flat head screwdrivers
- Grounding wrist strap
- ESD Kit
- Container for screws

#### **Note**

Refer to appendices B, C and D to gain access to the inside of the SGI host tower.

### 3-14-2 Removal Procedures

1. From the top of the SGI Tower, locate the Bit3 Board. This full board is in front of the Mardi Gras Graphics/Video Board Set. See Illustration 3-13.



**BOARD LOCATIONS**  
ILLUSTRATION 3-13

2. Remove the mounting screw that secures the board bracket to the right rear of the Tower.
3. Gently rock the Bit3 Board from end to end while lifting up to remove.
4. Store the Bit3 Board on the red ESD mat.
5. From the top of the SGI Tower, locate the Mardi Gras Graphics/Video Board Set. These full boards are behind the Bit3 Board slot. See Illustration 3-13.
6. Remove the mounting screws that secures the board brackets to the right rear of the unit.
7. Pull the Mardi Gras Graphics/Video Board Set up using the pull straps on either end of the boards. Gently rock the boards from end to end while lifting up to remove.

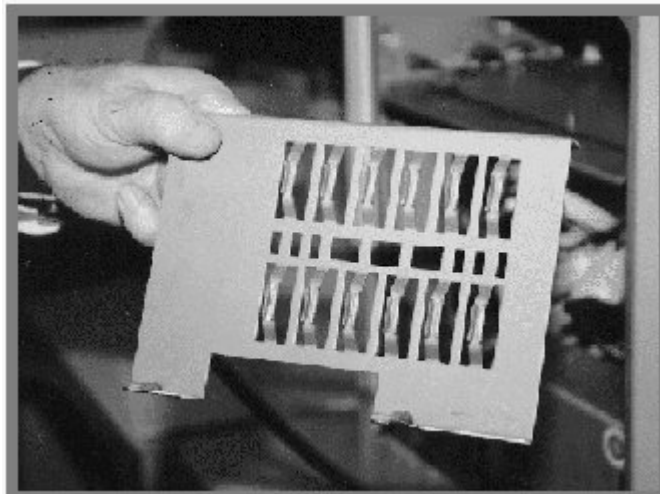


**This board set is mounted securely and could bind on other components during removal.**

8. Store the Mardi Gras Graphics/Video Board Set on the red ESD mat.
9. From the top of the SGI Tower, locate the Specialix Expansion Board. This is a half board in front of the Mother Board, at the right rear of the unit. See Illustration 3-13.

### **3-14-2 Removal Procedures (continued)**

10. Remove the mounting screw that secures the board bracket to the right rear of the unit.
11. Gently rock the Specialix Expansion Board from end to end while lifting up to remove.
12. Store the Specialix Expansion Board on the red ESD mat.
13. From the side of the unit, locate the Mid Plane Extender Board. This is a full board connected horizontally to the Mother Board.
14. Disconnect the P7 connector cable located at the left rear of the Mid Plane Extender board. This cable connects to the Front Switch Plate.
15. Disconnect the Power Supply Cable (blue ribbon) and the small two-pin connector from the Mid Plane Extender Board. These connections originate at the power SGI Power Supply and go up through the slot on the Mid Plane Support Shelf.
16. On the Mid Plane Extender Board locate the nine screws on the right, middle and left sides.
17. Remove the nine mounting screws securing the board to the support shelf.
18. Gently rock the Mid Plane Extender Board up and down while sliding the board out of the side of the SGI Tower. This will release the board from the two large connector slots on the Mother Board.
19. Store the Mid Plane Extender Board on the red ESD mat.
20. At the inside upper left of the SGI Tower, locate the Card Guide. See Illustration 3-17.

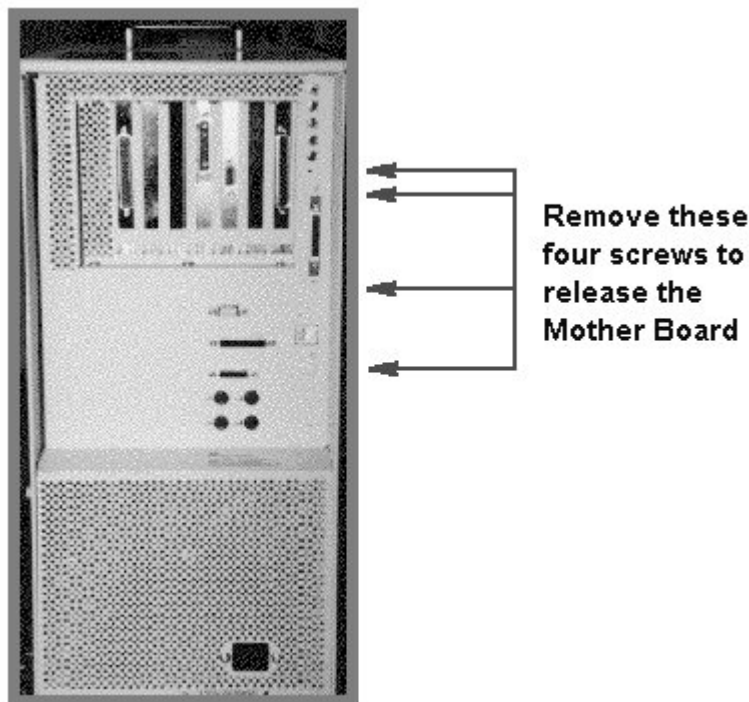


**CARD GUIDE**  
ILLUSTRATION 3-17

21. At upper left of the SGI Tower, remove the three mounting screws securing the Card Guide, two at the top and one at the bottom.
22. Remove the Card Guide.

### 3-14-2 Removal Procedures (continued)

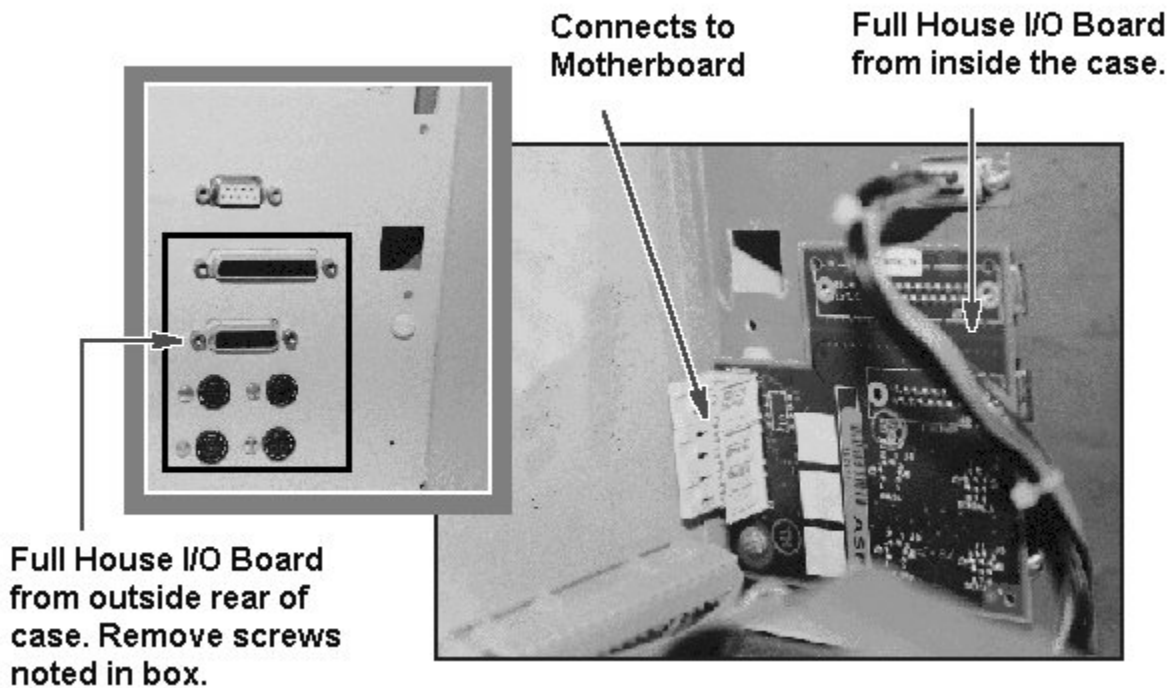
23. Disconnect the P6 connector cable located at the left rear of the Mother Board. This cable connects to the Front Switch Plate.
24. On the outside front of the SGI Tower, remove the four mounting screws securing the Front Switch Plate. The Front Switch Plate is located behind the Card Guide on the inside of the unit.
26. On the Mid Plane Support Shelf remove the five mounting screws, three on the outside rear and two on the inside front corners. Remove the Mid Plane Support Shelf.
27. Locate the Lightning I/F Board on the lower left corner of the Mother Board, under the Brick Heat Sink.
28. Disconnect the Drive Housing SCSI cable from the bottom of the Lightning I/F Board.
26. Remove the one mounting screw and remove the Lightning I/F Board.
27. Store the Lightning I/F Board on the red ESD mat.
28. At the lower right side of the Mother Board, disconnect the two power connectors.
29. Secure the power connector handles onto the adjoining power supply hooks so they do not catch on the Mother Board during removal.
30. On the right rear of the SGI Tower, remove the four mounting screws securing the Mother Board to the unit. See Illustration 3-18.



**MOTHER BOARD SCREW LOCATIONS**  
ILLUSTRATION 3-18

### 3-14-2 Removal Procedures (continued)

31. From the side of the SGI Tower, facing the Mother Board, remove the remaining six screws, working from bottom to top. Remove the top middle screw last while holding the Mother Board.
32. At the lower right corner of the Mother Board, move the board from side to side to release it from the connection port on the Full House I/O Board. See Illustration 3-19.



**I/O BOARD**  
ILLUSTRATION 3-19

33. Slide the Mother Board to the rear of the unit and then angle it forward towards the front left corner. Lift the board out through the top of the SGI Tower.
34. Store the Mother Board on the red ESD mat.

### 3-14-3 Installation Procedures

1. Remove the replacement Mother Board from the ESD Storage Bag.
2. With the Mother Board in a vertical position, place it into the SGI Tower by lifting it through the top. Angle the board forward towards the front left corner. Then slide it to the rear until it is flat against the back of the unit.
3. At the lower right corner of the Mother Board, reinsert the connector into the port located on the Full House I/O Board. See Illustration 3-19.
4. From the side of the SGI Tower, while holding the Mother Board, reinstall the top middle screw. Then working from top to bottom, reinstall the remaining five screws. The board may require some adjustment from side to side for proper alignment.

### **3-14-3 Installation Procedures (continued)**

5. On the right rear of the SGI Tower, reinstall the four mounting screws to secure the Mother Board. See Illustration 3-18.
6. Remove the power connectors from the power supply hooks and reconnect them to the Mother Board.
7. Remove the Lightning I/F Board from the red ESD mat.
8. On the lower left corner of the Mother Board, under the Brick Heat Sink, align the Lightning I/F Board and reinstall the one mounting screw.
9. At the bottom of the Lightning I/F Board, reconnect the drive housing SCSI cable.
10. Reinstall the Mid Plane Support Shelf (horizontally). Install the five mounting screws, three on the outside rear and two on the inside front corners.
11. On the inside upper left of the SGI Tower, align the Front Switch Plate with the holes on the front of the unit. Reinstall the four mounting screws.
12. Reconnect the Front Switch Plate P6 connector cable to the port on the left rear of the Mother Board.
13. At the inside upper left of the SGI Tower, align the Card Guide.
14. Reinstall the three mounting screws securing the Card Guide, two at the top and one at the bottom. Do not tighten the screws completely until all boards have been reinstalled.
15. Reconnect the P7 connector cable located to the left rear of the Mid Plane Extender board. This cable connects to the Front Switch Plate.
16. Remove the Mid Plane Extender Board from the red ESD mat.
17. From the side of the SGI Tower, gently insert the Mid Plane Extender Board (horizontally) into the two large connector slots on the Mother Board. Push the board in until it is tight to the Mother Board.
18. Install the nine mounting screws, three each at the middle, right and left sides.
19. Reconnect the Power Supply Cable (blue ribbon) and the small two-pin connector to the Mid Plane Extender Board. These connections originate at the power supply boxes and go up through the slot on the Mid Plane Support Shelf.
20. Remove the Specialix Expansion Board from the red ESD mat.
21. From the top of the SGI Tower, reinstall the Specialix Expansion Board (half board) into the slot at the right rear of the unit directly in front of the Mother Board.
22. Gently rock the Specialix Expansion Board from end to end while pushing down until it is tight to the Mid Plane Extender Board.

### **3-14-3 Installation Procedures (continued)**

23. Install the mounting screw that secures the board bracket to the right rear of the unit.
24. Remove the Mardi Gras Graphics/Video Board Set from the red ESD mat.
25. From the top of the SGI Tower, reinstall the Mardi Gras Graphics/Video Board Set into the slots as indicated. See Illustration 3-13. Make sure the boards are aligned with the connectors in the middle of the Mid Plane Extender Board.
26. Gently rock the Mardi Gras Graphics/Video Board Set from end to end while pushing down until it is tight to the Mid Plane Extender Board.



**This two-board set could bind on other components during installation.**

27. Install the two mounting screws that secure the board brackets to the right rear of the unit.
28. Remove the Bit3 Board from the red ESD mat.
29. From the top of the SGI Tower, reinstall the Bit3 Board into the slot in front of the Mardi Gras Graphics/Video Board Set. Make sure the board is aligned with the connectors in the middle of the Mid Plane Extender Board.
30. Gently rock the Bit3 Board from end to end while pushing down until it is tight to the Mid Plane Extender Board.
31. Install the mounting screw that secures the board bracket to the right rear of the unit.
32. When all the boards have been reinstalled, at the inside upper left of the SGI Tower, tighten the screws on the Card Guide.
33. Reassemble the system.

### 3-15 Full House I/O Board Replacement



**THE CPU ID CHIP IS LOCATED ON THE FULL HOUSE I/O BOARD. IF THIS BOARD MUST BE CHANGED OUT, THEN NEW OPTION FLOPPIES AS WELL AS IN-HOUSE SERVICE KEY WILL NEED TO BE ORDERED FOR THE SITE.**

Remove the Front Cover, the SGI Host Side Cover, and the PC Side Cover of the OW Cabinet as shown in Appendix A of this document.

#### 3-15-1 Tools Required

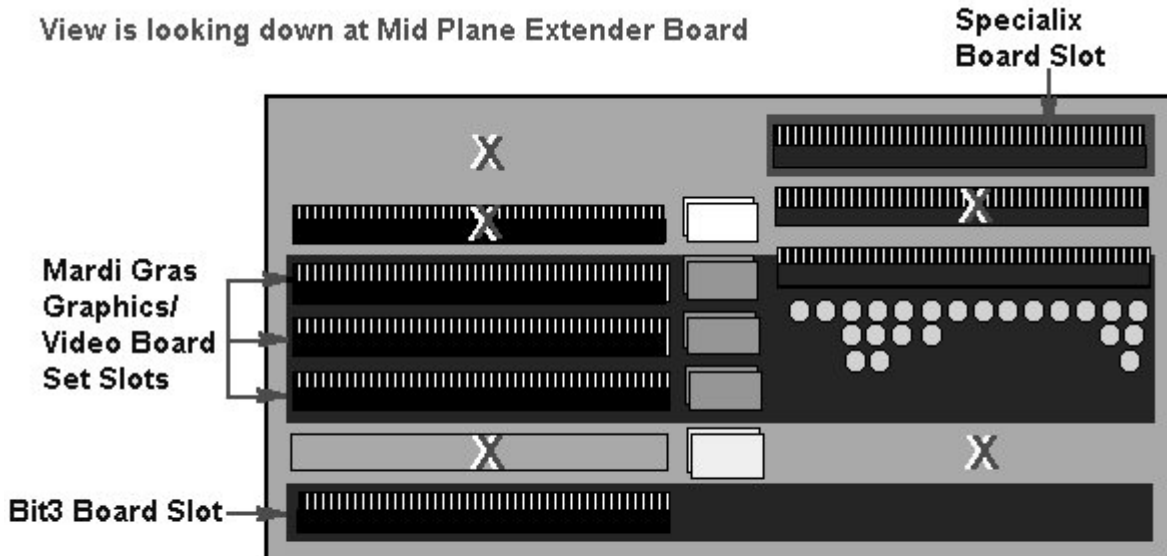
- Small and medium Phillips screwdrivers
- Small and medium flat head screwdrivers
- Grounding wrist strap
- ESD Kit
- Container for screws

#### Note

Refer to appendices B, C, and D to gain access to the inside of the SGI host tower.

#### 3-15-2 Removal Procedures

1. From the top of the SGI Tower, locate the Bit3 Board. This full board is in front of the Mardi Gras Graphics/Video Two Board Set. See Illustration 3-13.



Slots in use or area covered by other boards      NOT in use

**BOARD LOCATIONS**  
 ILLUSTRATION 3-13

### **3-15-2 Removal Procedures (continued)**

2. Remove the mounting screw that secures the board bracket to the right rear of the Tower.
3. Gently rock the Bit3 Board from end to end while lifting up to remove.
4. Store the Bit3 Board on the red ESD mat.
5. From the top of the SGI Tower, locate the Mardi Gras Graphics/Video Two Board Set. These full boards are behind the Bit3 Board slot. See Illustration 3-13.
6. Remove the mounting screws that secures the board brackets to the right rear of the unit.
7. Pull the Mardi Gras Graphics/Video Two Board Set up using the handles on either end of the boards. Gently rock the boards from end to end while lifting up to remove.

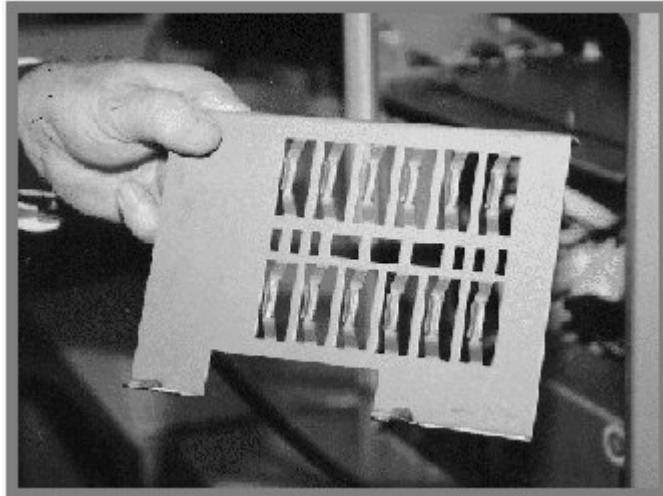


**This two-board set is mounted securely and could bind on other components during removal.**

8. Store the Mardi Gras Graphics/Video Two Board Set on the red ESD mat.
9. From the top of the SGI Tower, locate the Specialix Expansion Board. This is a half board in front of the Mother Board, at the right rear of the unit. See Illustration 3-13.
10. Remove the mounting screw that secures the board bracket to the right rear of the unit.
11. Gently rock the Specialix Expansion Board from end to end while lifting up to remove.
12. Store the Specialix Expansion Board on the red ESD mat.
13. From the side of the unit, locate the Mid Plane Extender Board. This is a full board connected horizontally to the Mother Board.
14. Disconnect the P7 connector cable located at the left rear of the Mid Plane Extender board. This cable connects to the Front Switch Plate.
15. Disconnect the Power Supply Cable (blue ribbon) and the small two-pin connector from the Mid Plane Extender Board. These connections originate at the power SGI Power Supply and go up through the slot on the Mid Plane Support Shelf.
16. On the Mid Plane Extender Board locate the nine screws on the right, middle and left sides.
17. Remove the nine mounting screws securing the board to the support shelf.
18. Gently rock the Mid Plane Extender Board up and down while sliding the board out of the side of the SGI Tower. This will release the board from the two large connector slots on the Mother Board.
19. Store the Mid Plane Extender Board on the red ESD mat.

### **3-15-2 Removal Procedures (continued)**

20. At the inside upper left of the SGI Tower, locate the Card Guide. See Illustration 3-17.

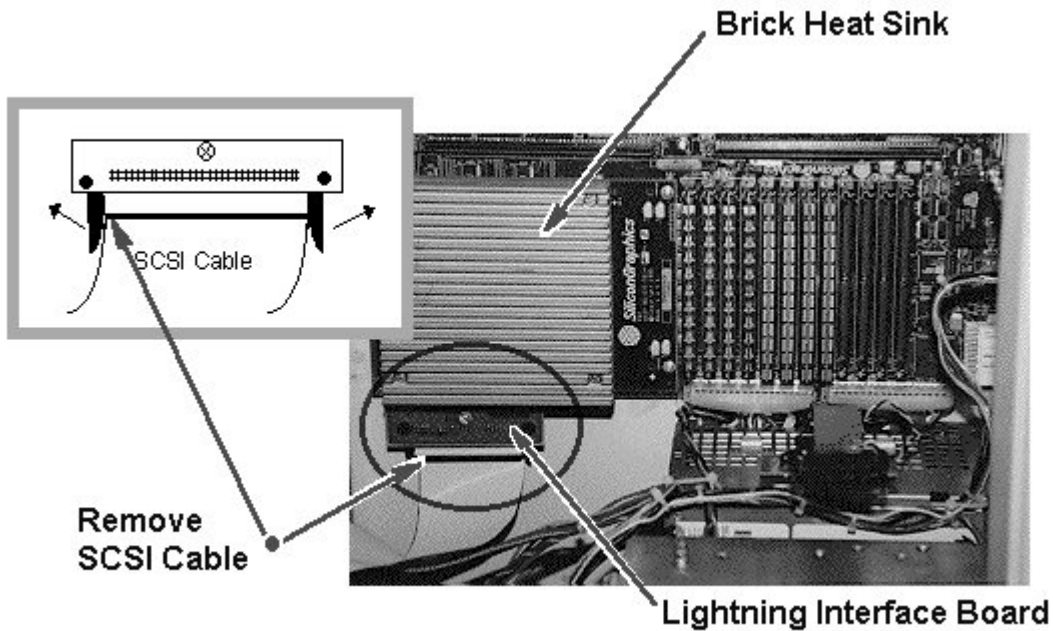


**CARD GUIDE**  
ILLUSTRATION 3-17

21. At upper left of the SGI Tower, remove the three mounting screws securing the Card Guide, two at the top and one at the bottom.
22. Remove the Card Guide.
23. Disconnect the P6 connector cable located at the left rear of the Mother Board. This cable connects to the Front Switch Plate.
24. On the outside front of the SGI Tower, remove the four mounting screws securing the Front Switch Plate. The Front Switch Plate is located behind the Card Guide on the inside of the unit.
26. On the Mid Plane Support Shelf remove the five mounting screws, three on the outside rear and two on the inside front corners. Remove the Mid Plane Support Shelf.

### 3-15-2 Removal Procedures (continued)

27. Locate the Lightning I/F Board on the lower left corner of the Mother Board, under the Brick Heat Sink. See Illustration 3-7.

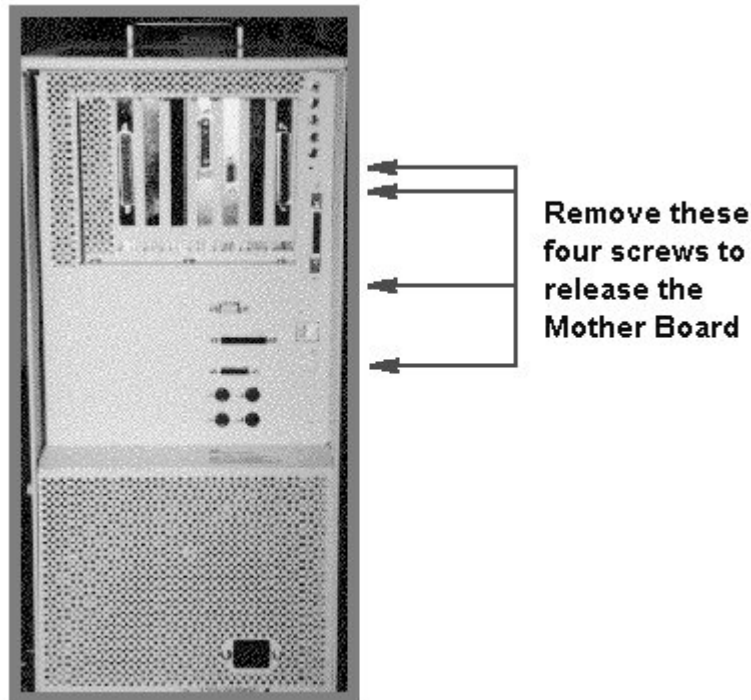


**CABLE CONNECTION**  
ILLUSTRATION 3-7

28. Disconnect the Drive Housing SCSI cable from the bottom of the Lightning I/F Board.
29. Remove the one mounting screw and remove the Lightning I/F Board.
30. Store the Lightning I/F Board on the red ESD mat.
31. At the lower right side of the Mother Board, disconnect the two power connectors.
32. Secure the power connector handles onto the adjoining power supply hooks so they do not catch on the Mother Board during removal.

**3-15-2 Removal Procedures (continued)**

- 33. On the right rear of the SGI Tower, remove the four mounting screws securing the Mother Board to the unit. See Illustration 3-18.

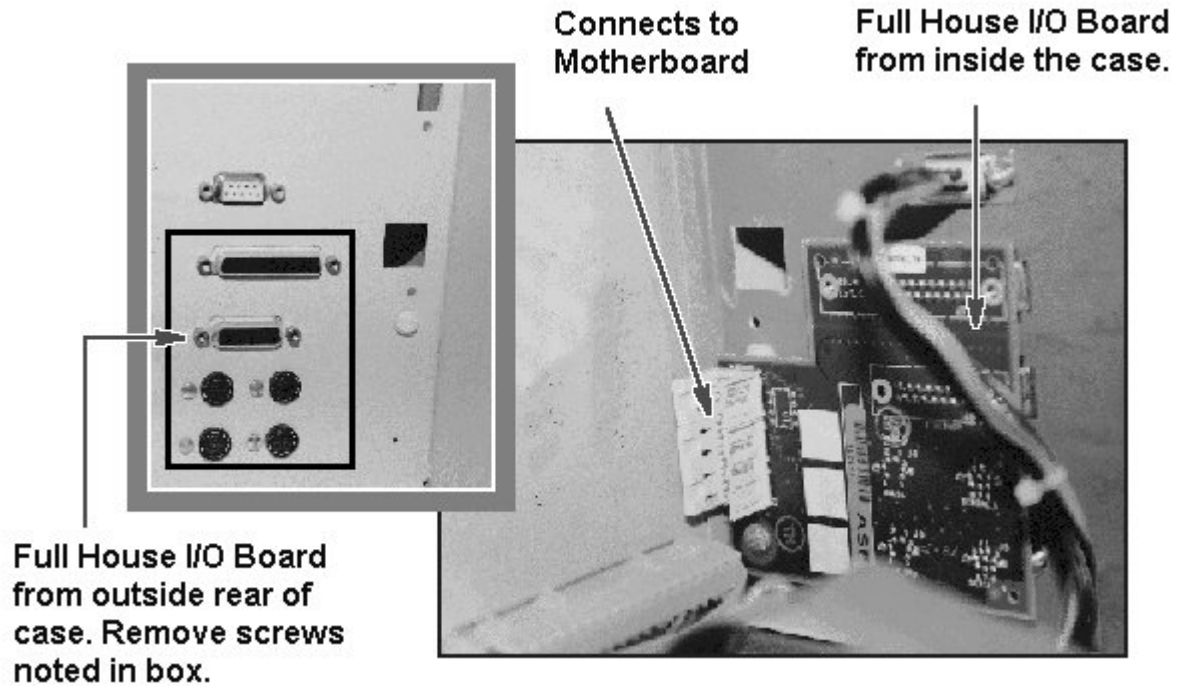


**MOTHER BOARD SCREW LOCATIONS**  
ILLUSTRATION 3-18

- 34. From the side of the SGI Tower, facing the Mother Board, remove the remaining six screws, working from bottom to top. Remove the top middle screw last while holding the Mother Board.
- 35. At the lower right corner of the Mother Board, move the board from side to side to release it from the connection port on the Full House I/O Board.
- 36. Slide the Mother Board to the rear of the unit and then angle it forward towards the front left corner. Lift the board out through the top of the SGI Tower.
- 37. Store the Mother Board on the red ESD mat.

### 3-15-2 Removal Procedures (continued)

38. From the inside of the SGI Tower, at the lower right rear, locate the Full House I/O Board. Then locate the corresponding screws and nuts on the outside rear of the unit. See Illustration 3-19.



**I/O BOARD**  
ILLUSTRATION 3-19

39. Remove the four small screws and four nuts located on either side of the two SCSI connector ports. Remove the Full House I/O Board.
40. Store the Full House I/O Board on the red ESD mat.

### 3-15-3 Installation Procedures

1. Remove the replacement Full House I/O Board from the ESD Storage Bag.
2. On the replacement Full House I/O Board, transfer the Ethernet ID from the old Full House I/O Board, if applicable.
3. From the inside of the SGI Tower, at the lower right rear, align the replacement Full House I/O Board with the screw holes and connector ports. See Illustration 3-19.
4. On the outside rear of the SGI Tower, reinstall the four small screws and four nuts located on either side of the two SCSI connector ports.
5. Remove the Mother Board from the red ESD mat.
6. With the Mother Board in a vertical position, place it into the SGI Tower by lifting it through the top. Angle the board forward towards the front left corner. Then slide it to the rear until it is flat against the back of the unit.

### **3-15-3 Installation Procedures (continued)**

7. At the lower right corner of the Mother Board, reinsert the connector into the port located on the Full House I/O Board.
8. From the side of the SGI Tower, while holding the Mother Board, reinstall the top middle screw. Then working from top to bottom, reinstall the remaining five screws. The board may require some adjustment from side to side for proper alignment.
9. On the right rear of the SGI Tower, reinstall the four mounting screws to secure the Mother Board. See Illustration 3-7.
10. Remove the power connectors from the power supply hooks and reconnect them to the Mother Board.
11. Remove the Lightning I/F Board from the red ESD mat.
12. On the lower left corner of the Mother Board, under the Brick Heat Sink, align the Lightning I/F Board and reinstall the one mounting screw.
13. At the bottom of the Lightning I/F Board, reconnect the drive housing SCSI cable.
14. Reinstall the Mid Plane Support Shelf (horizontally). Install the five mounting screws, three on the outside rear and two on the inside front corners.
15. On the inside upper left of the SGI Tower, align the Front Switch Plate with the holes on the front of the unit. Reinstall the four mounting screws.
16. Reconnect the Front Switch Plate P6 connector cable to the port on the left rear of the Mother Board.
17. At the inside upper left of the SGI Tower, align the Card Guide.
18. Reinstall the three mounting screws securing the Card Guide, two at the top and one at the bottom. Do not tighten the screws completely until all boards have been reinstalled.
19. Reconnect the P7 connector cable located to the left rear of the Mid Plane Extender board. This cable connects to the Front Switch Plate.
20. Remove the Mid Plane Extender Board from the red ESD mat.
21. From the side of the SGI Tower, gently insert the Mid Plane Extender Board (horizontally) into the two large connector slots on the Mother Board. Push the board in until it is tight to the Mother Board.
22. Install the nine mounting screws, three each at the middle, right and left sides.
23. Reconnect the Power Supply Cable (blue ribbon) and the small two-pin connector to the Mid Plane Extender Board. These connections originate at the power supply boxes and go up through the slot on the Mid Plane Support Shelf.

### **3-15-3 Installation Procedures (continued)**

24. Remove the Specialix Expansion Board from the red ESD mat.
25. From the top of the SGI Tower, reinstall the Specialix Expansion Board (half board) into the slot at the right rear of the unit directly in front of the Mother Board.
26. Gently rock the Specialix Expansion Board from end to end while pushing down until it is tight to the Mid Plane Extender Board.
27. Install the mounting screw that secures the board bracket to the right rear of the unit.
28. Remove the Mardi Gras Graphics/Video Two Board Set from the red ESD mat.
29. From the top of the SGI Tower, reinstall the Mardi Gras Graphics/Video Two Board Set into the slots as indicated. Make sure the boards are aligned with the connectors in the middle of the Mid Plane Extender Board. See Illustration 3-13.
30. Gently rock the Mardi Gras Graphics/Video Two Board Set from end to end while pushing down until it is tight to the Mid Plane Extender Board.



**This two-board set could bind on other components during installation.**

31. Install the two mounting screws that secure the board brackets to the right rear of the unit.
32. Remove the Bit3 Board from the red ESD mat.
33. From the top of the SGI Tower, reinstall the Bit3 Board into the slot in front of the Mardi Gras Graphics/Video Two Board Set. Make sure the board is aligned with the connectors in the middle of the Mid Plane Extender Board.
34. Gently rock the Bit3 Board from end to end while pushing down until it is tight to the Mid Plane Extender Board.
35. Install the mounting screw that secures the board bracket to the right rear of the unit.
36. When all the boards have been reinstalled, at the inside upper left of the SGI Tower, tighten the screws on the Card Guide.
37. Reassemble system.

## **APPENDIX A - OPERATOR WORKSPACE CABINET COVER**

### **Tools Required**

- Phillips head screwdrivers
- Container for screws

### **Front Cover Removal**

1. Grasp the front cover from the sides (preferred) or from the top and bottom. See Illustration A-1.



**REMOVING FRONT COVER**  
ILLUSTRATION A-1

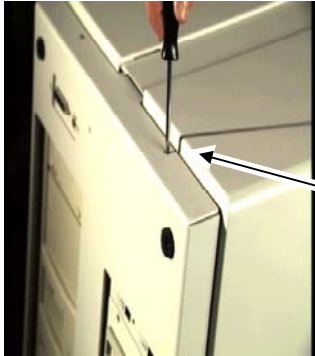
2. Pull the cover straight toward you. The ball and socket clips should release with as little as 8lbs. of pressure.

### **Front Cover Installation**

1. To replace, align the ball studs with the clips in the front cover.
2. Support the rear of the cabinet to prevent it from rolling backward, and push straight back.

## APPENDIX A - OPERATOR WORKSPACE CABINET COVER (continued)

### OW Cabinet - SGI (Host) Side-Cover Removal



1. Always remove the cover over the Host computer first.
2. Loosen the rear thumbscrew but do not remove it.
3. Remove the Phillips head screw at the top of the front cover. See Illustration A-2.

**FRONT COVER SCREW LOCATION**  
ILLUSTRATION A-2

4. Lift the bottom of the cover slightly and slide the cover to the rear of the cabinet about 1/2" (13mm).



5. Pull the cover toward you until the tabs clear the two top slots. See Illustration A-3

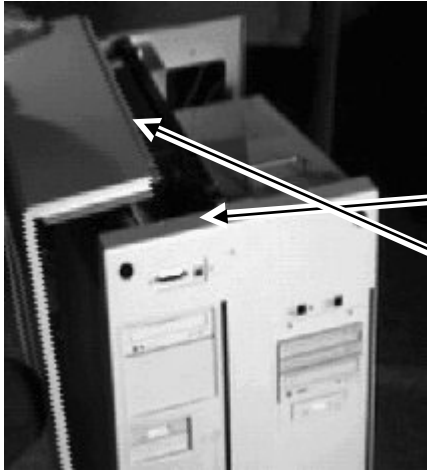
**REMOVING SIDE COVER**  
ILLUSTRATION A-3

### OW Cabinet - SGI (Host) Side - Cover Installation

1. Reverse the removal procedures.
2. Ensure the PC side cover is replaced first.
3. Make sure all screws are installed before replacing the OW Cabinet - SGI (Host) side - cover.

## **APPENDIX A - OPERATOR WORKSPACE CABINET COVER (continued)**

### **OW Cabinet - PC Side-Cover Removal**



1. Always remove the cover over the Host computer first.
2. Loosen the rear thumbscrew but do not remove it.
3. Remove the Phillips head screw at the top of the front cover.
4. Remove the two Phillips head screws from the top of the cover.

#### **REMOVING SCREWS SECURING SIDE COVER**

ILLUSTRATION A-4

5. Lift the bottom of the cover slightly and slide the cover to the rear of the cabinet about 1/2" (13mm).
6. Pull the cover toward you until the tabs clear the two top slots.

### **OW Cabinet - PC Side-Cover Installation**

1. Reverse the removal procedures.
2. Make sure all screws are installed before replacing the OW Cabinet - PC side-cover.

## APPENDIX A - OPERATOR WORKSPACE CABINET COVER (continued)

### Rear Cover Removal



**REMOVING REAR COVER**  
ILLUSTRATION A-5

1. Loosen the two thumb screws at the top of the cover.
2. Pull the top of the cover toward you slightly and lift the cover out of the way.

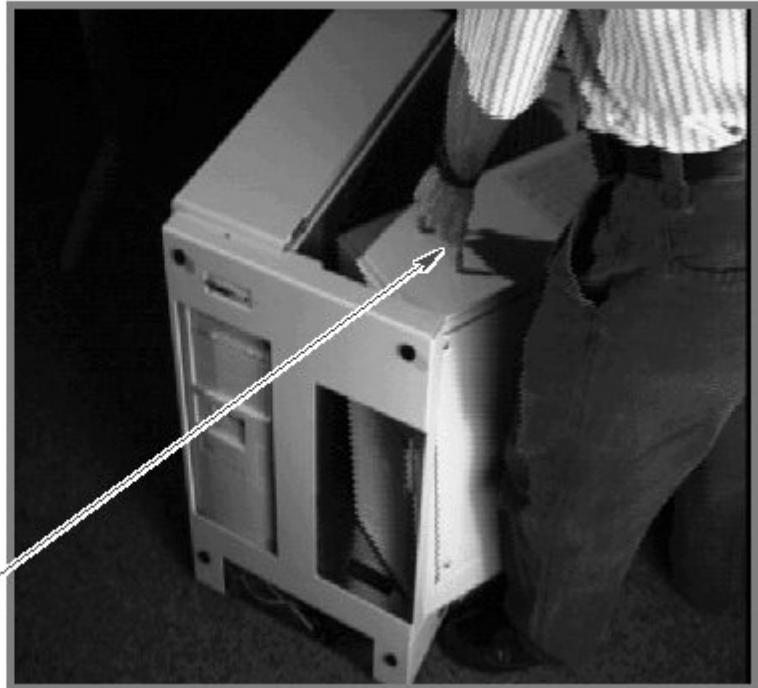
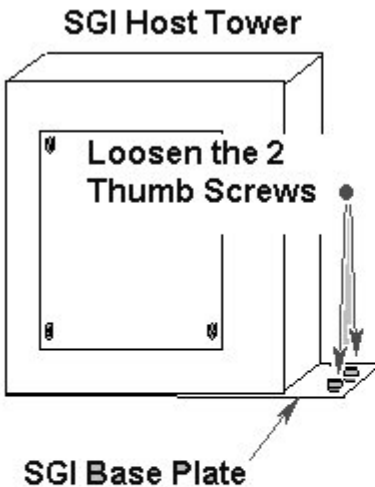
### Rear Cover Installation

1. Replace the cover.
2. Tighten the two thumb screws at the top of the cover.

## APPENDIX B - SGI TOWER

### SGI Tower Removal

1. With the OW cabinet - SGI Host side - covers removed, locate the thin metal plate below the SGI Tower on the right side of the cabinet. This is the base plate.



Use the handle to help lift the SGI Tower out of the OW Cabinet.

REMOVING SGI TOWER  
ILLUSTRATION B-1

2. Remove the two screws, located at the rear of the base plate. These screws remain attached to the base plate.
3. Remove the Specialix Module located on the side panel to the rear of the SGI Tower. See section 3.5 of this document.
4. Disconnect the Specialix Module cable connector from the SGI Tower.
5. Using the handle on the top of the SGI tower, gently lift up the rear (using the base plate) and slide it towards the back of the cabinet. (Make sure to lift the base plate over the small screws at the bottom of the case when sliding the Tower). This will release the base plate bracket from the slot at the front of the cabinet. Then pull the SGI/base plate out through the side of the cabinet.

## **APPENDIX B - SGI TOWER (continued)**

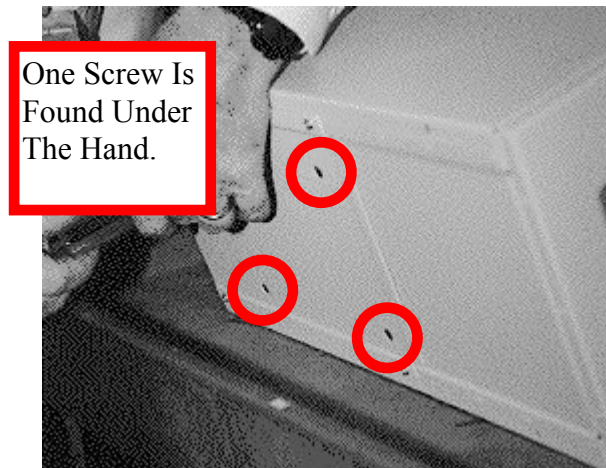
### **SGI Tower Installation**

1. Make sure all removable panels have been reinstalled securely.
2. Return the SGI Tower to the cabinet. Make sure the front and rear of the unit are facing the appropriate directions respectively.
3. Pick up the SGI Tower and slide it into the middle of the cabinet. Gently lift up the rear of the unit (using the base plate) and slide it towards the front of the cabinet until the plate rests securely in the slot on the bottom of the cabinet. Adjust the unit so that the base plate screws are in proper alignment and the SGI is almost flush with the front of the cabinet.
4. Install the two screws located at the rear of the base plate.
5. Reinstall the Specialix Module located on the side panel to the rear of the SGI Tower. See section 3.5 of this document.
6. Reconnect the Specialix Module cable connector to the SGI Tower.

## APPENDIX C - SGI HOST TOWER BOTTOM PANEL ACCESS

### Bottom Panel Removal

1. At the bottom of the SGI Host Tower, loosen but do not remove, the four screws.



SGI HOST TOWER BOTTOM PANEL SCREW LOCATIONS  
ILLUSTRATION C-1

2. Slide the Bottom panel away from the case. Set the panel aside.



**ESD copper fingers located on the inside edges of the SGI housing and cover panels damage easily. Handle carefully to prevent damage to your hands and the ESD fingers. If damage occurs to the ESD fingers, they must be replaced in their slot like zipping a zipper. Start where the fingers are aligned correctly and press the damaged fingers in place by sliding your fingers along the edges as applicable.**

### Bottom Panel Installation

1. Slide the bottom panel onto the case.
2. At the bottom of the SGI Tower, tighten the four screws.

## APPENDIX D - SGI HOST TOWER SIDE PANEL ACCESS

### Side Panel Removal



ESD copper fingers located on the inside edges of the SGI housing and cover panels damage easily. Handle carefully to prevent damage to your hands and the ESD fingers. If damage occurs to the ESD fingers, they must be replaced in their slot like zipping a zipper. Start where the fingers are aligned correctly and press the damaged fingers in place by sliding your fingers along the edges as applicable.



1. On the right side of the SGI Tower, locate the side panel.

**REMOVING SIDE PANEL SCREWS**  
ILLUSTRATION D-1



2. Remove the four screws and remove the panel. The screws remain attached to the panel. Set the panel aside.

**REMOVING SIDE PANEL**  
ILLUSTRATION D-2

## **APPENDIX D - SGI HOST TOWER SIDE PANEL ACCESS (continued)**



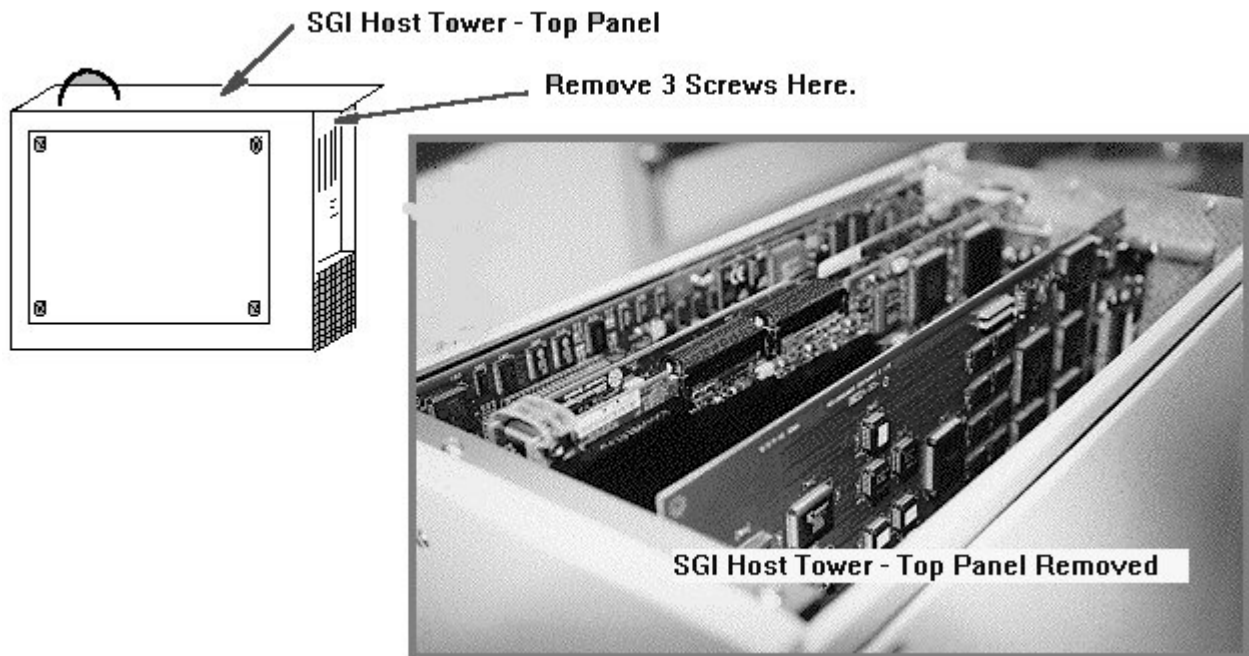
**REPOSITIONING SIDE PANEL**  
ILLUSTRATION D-3

### **Side Panel Installation**

1. Reposition the side panel on the right side of the SGI Tower. See Illustration D-3.
2. Install the four screws to secure the panel.

## APPENDIX E - SGI HOST TOWER TOP PANEL ACCESS

### Top Panel Removal



REMOVING TOP PANEL OF SGI HOST TOWER  
ILLUSTRATION E-1

1. At the top rear of the SGI Tower, loosen but do not remove, the three screws.
2. Slide the top panel to the rear of the unit and lift up. Set the panel aside.

### CAUTION

**ESD copper fingers located on the inside edges of the SGI housing and cover panels damage easily. Handle carefully to prevent damage to your hands and the ESD fingers. If damage occurs to the ESD fingers, they must be replaced in their slot like zipping a zipper. Start where the fingers are aligned correctly and press the damaged fingers in place by sliding your fingers along the edges as applicable.**

### Top Panel Installation

1. At the top of the SGI Tower, slide the top panel from the rear to the front of the unit.
2. Position the rear panel notches over the three existing screws.
3. Push the panel down until secure. Install the screws.

## REVISION HISTORY

<b>REV</b>	<b>DATE</b>	<b>AUTHOR</b>	<b>PRIMARY REASONS FOR CHANGE</b>
A	Mar 24, 1998	R. Hawthorne	Initial conversion from ToolBook to Word
0	April 9, 1998	R. Hawthorne	Added Information on removing and re-adding memory board when replacing the Mardi Gras board.
1	May 18, 1998	wek	Updated lock out/tag out info.
2	June 11, 1999	Hawthorne	Updated Second hard drive SCSI information in section 3-4-3
3	Dec 13, 1999	Hawthorne	Updated Section 3-6-3 Installation Procedures 1.3 Gig (MOD) drive page 40 for the Maxoptix T5-2600 Star Series MOD drives.
4	Sept 30, 2002	D. Hofstetter	Added Milan Switch replacement.