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## 1- REPLACEMENT PROCEDURE

### 1-1 Tools and Instruments Required

Item	Description	Part Number
1.	SGA Assembly (weighs 120 lbs/60 kg)	FRU# 2270055-2
2.	Phillips-head screwdriver	
3.	Standard flat head screwdriver	
4.	Universal Lift Hoist Kit with ACGD Attachments	46-317266G6
5.	Medium Crescent Wrench	
6.	Digital Multimeter with high voltage probes	

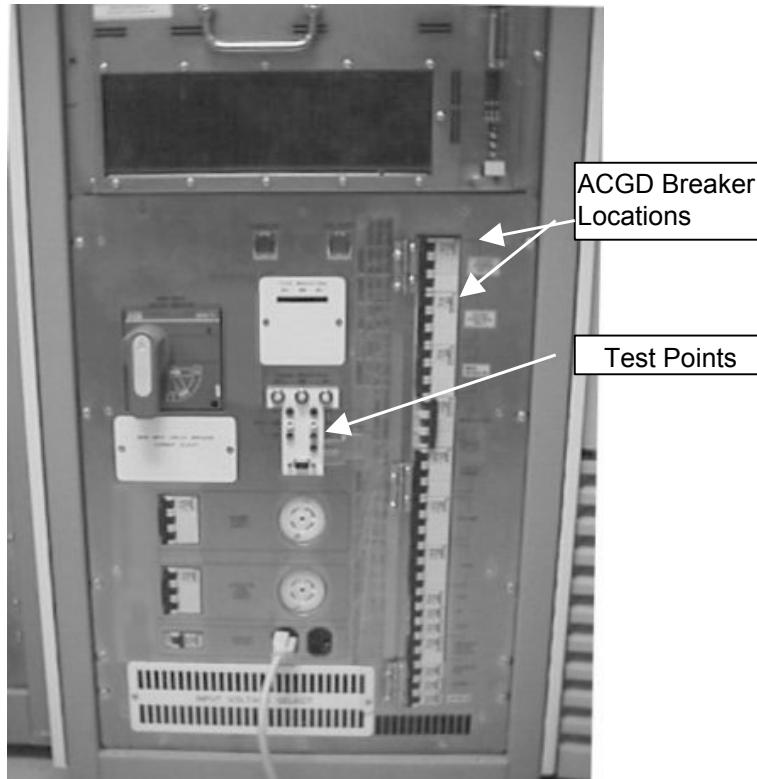
### 1-2 Lock out Tag out the ACGD Cabinet



**FATAL ELECTRIC SHOCK HAZARD!! POSSIBLE 800 VOLTS ON CAPACITORS. WAIT AT LEAST 5 MINUTES AFTER UNIT HAS BEEN TURNED OFF BEFORE SERVICING. TO PREVENT FATAL ELECTRIC SHOCK, DISCONNECT POWER FROM THE PDU BEFORE YOU PERFORM THE FOLLOWING PROCEDURES. PERFORM LOCKOUT / TAGOUT PROCEDURE PER GE OSHA LOCKOUT / TAGOUT REQUIREMENTS LISTED IN THE *FIELD SERVICE EHS MANUAL & TRAINING 2000 P/N 2135387-200*.**

## 1-2 Lock out Tag out the ACGD Cabinet (Continued)

1. Power down the ACGD Cabinet by turning off the ACGD 208V Control Power and the ACGD 420 V Power on the Front Panel of the PDU. See Illustration 1-1.



**ACGD CABINET—PDU (FRONT COVER REMOVED)**  
ILLUSTRATION 1-1

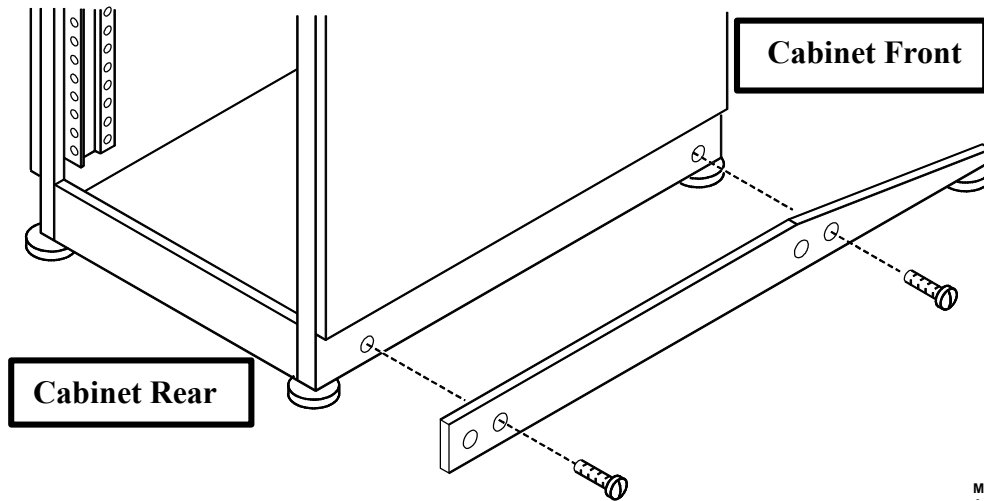
2. Lock out the breaker panel and tag it.
3. After power to the ACGD Cabinet has been removed, take a Digital Multimeter and set it to its highest AC voltage range.
4. Verify that all energy has been dissipated. Measure power at the 420 and 208 test points on the front of the PDU.

### 1-3 SGA Assembly Removal Procedure



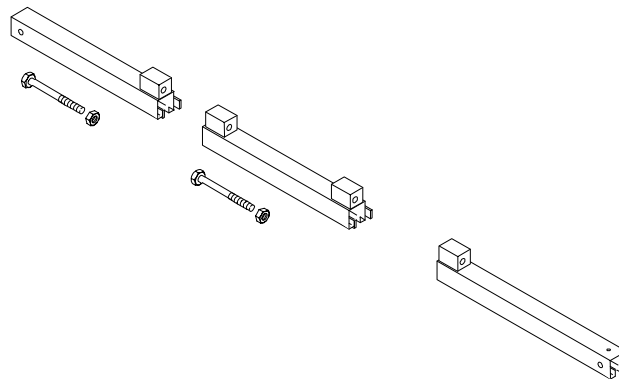
**CABINET TIP HAZARD! POSSIBLE PERSONAL INJURY! CONFIRM THAT THE ALUMINUM ANTI-TIP LEGS STORED IN THE REAR OF THE CABINET ARE INSTALLED ON EITHER SIDE OF THE BASE OF THE CABINET BEFORE ATTEMPTING TO REMOVE AN SGA.**

1. Using the screws included with the anti-tip legs, secure the aluminum anti-tip legs to the threaded holes on each side of the base of the ACGD Cabinet. See Illustration 1-2.



**INSTALLING ANTI-TIP LEGS ON SIDES OF CABINET**  
ILLUSTRATION 1-2

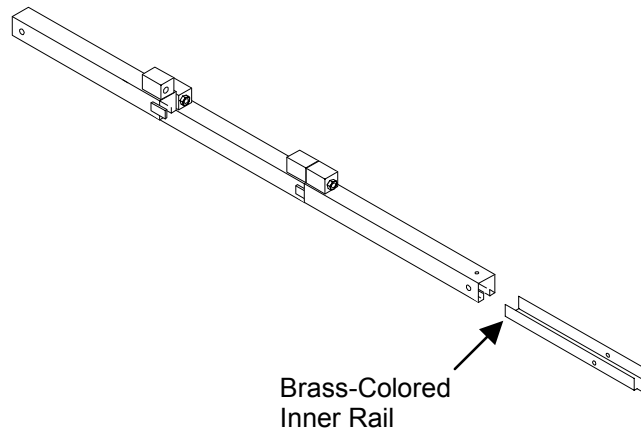
2. Locate the three (3) large Steel Rail sections in the Universal Hoist Kit and place them on a flat surface for assembly. See Illustration 1-3.



**STEEL RAIL SECTIONS, HEX BOLTS, AND HEX NUTS**  
ILLUSTRATION 1-3

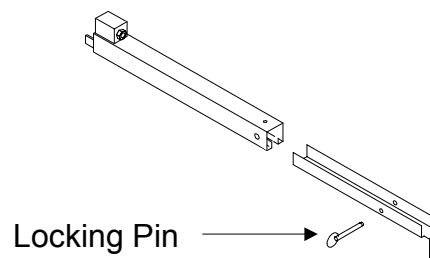
### 1-3 SGA Assembly Removal Procedure (Continued)

3. Arrange the rail sections in the proper order (rear, center, then front) and fasten them together with 4.75" X 1/2" caps crews and hex nuts.
4. Use the crescent wrenches to tighten the cap screws.
5. Locate the Brass Colored Inner Rail and insert it into the Steel Rails as shown in Illustration 1-4.



**ASSEMBLED STEEL RAILS AND BRASS-COLORED INNER RAIL**  
ILLUSTRATION 1-4

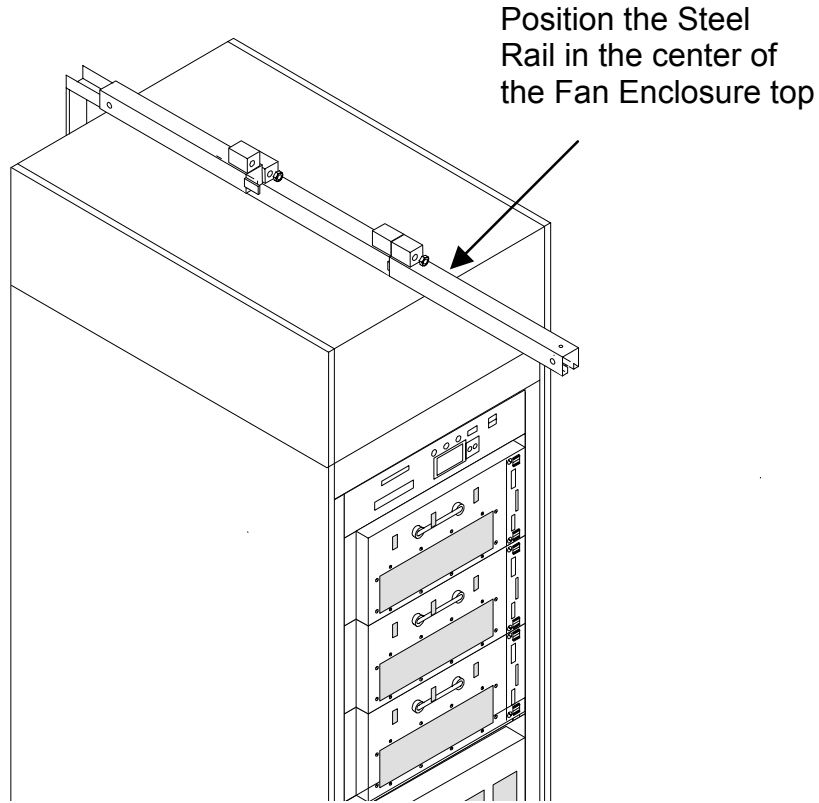
6. Insert the Brass Colored Inner Rail into the open end of the rear rail section.
7. Locate one of two (2) locking pins in the lift kit. Insert one locking pin into the hole near the open end of the rear rail section. This locking pin secures the Brass Colored Inner Rail to the outer Steel Rail. See Illustration 1-5.



**REAR STEEL RAIL, LOCKING PIN, AND BRASS-COLORED INNER RAIL**  
ILLUSTRATION 1-5

### 1-3 SGA Assembly Removal Procedure (Continued)

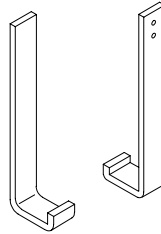
8. Place the Steel Rail assembly on top of the Fan Enclosure at the top of the ACGD Cabinet. Center the Rail Assembly on the top of the enclosure. See Illustration 1-6.



**POSITIONING OF THE STEEL RAIL ASSEMBLY**  
ILLUSTRATION 1-6

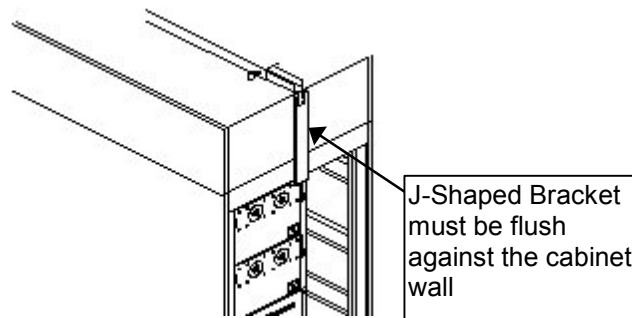
### 1-3 SGA Assembly Removal Procedure (Continued)

9. Locate the Brass Colored J-shaped Bracket in the Lift Kit. See Illustration 1-7.



**J-SHAPED BRACKET**  
ILLUSTRATION 1-7

10. Open the rear door of the ACGD Cabinet. Observe how the J-shaped Bracket fits into the rear doorframe. See Illustration 1-8.

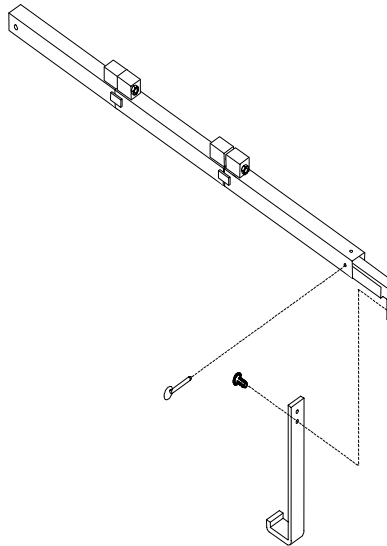


**POSITIONING OF THE J-SHAPED BRACKET**  
ILLUSTRATION 1-8

11. Slide the Rail Assembly toward the front of the ACGD Cabinet. Maintain its centered position.

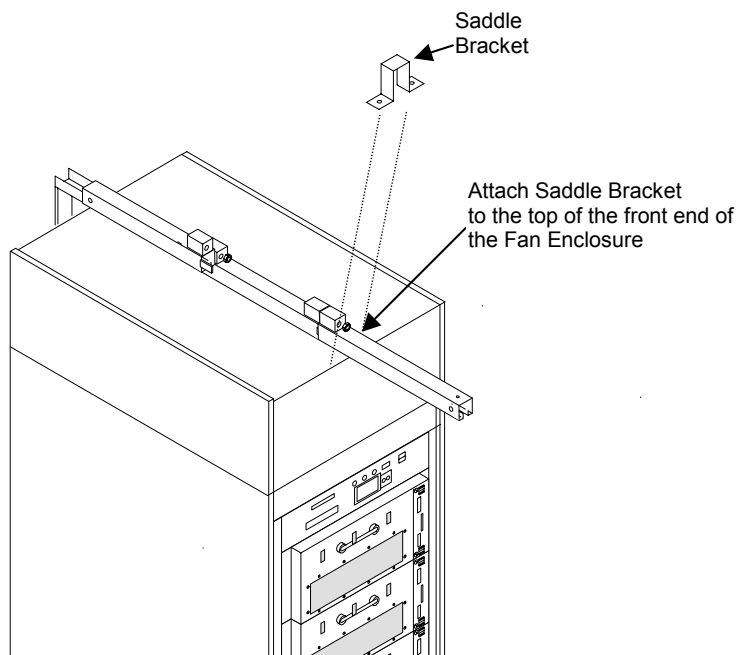
### 1-3 SGA Assembly Removal Procedure (Continued)

12. Attach the J-shaped Bracket to the Brass Colored Inner Rail so that the J-shaped Bracket is flush against the rear panel of the Fan Enclosure. Use the flat Phillips-head screws to secure the J-shaped Bracket to the Brass Colored Inner Rail. See Illustration 1-9.



**CONNECTION OF THE J-SHAPED BRACKET TO THE STEEL RAIL ASSEMBLY**  
ILLUSTRATION 1-9

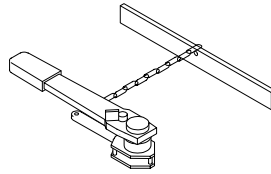
13. Once the J-Shaped Bracket is secured to the cabinet and the Steel Rail, attach the Saddle Bracket to the top of the Fan Enclosure. The screw holes are located at the front end of the Fan Enclosure. The Saddle Bracket prevents the Steel Rail from sliding from center position. See Illustration 1-10.



**POSITIONING AND ATTACHMENT OF THE SADDLE BRACKET**  
ILLUSTRATION 1-10

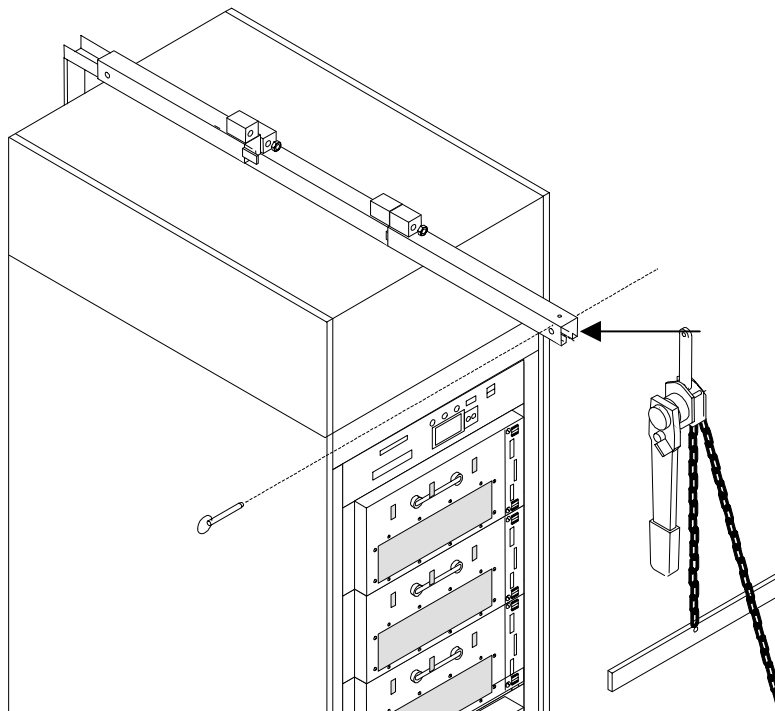
### 1-3 SGA Assembly Removal Procedure (Continued)

14. Locate the Hoist Assembly in the Lift Kit. See Illustration 1-11.



**HOIST ASSEMBLY**  
ILLUSTRATION 1-11

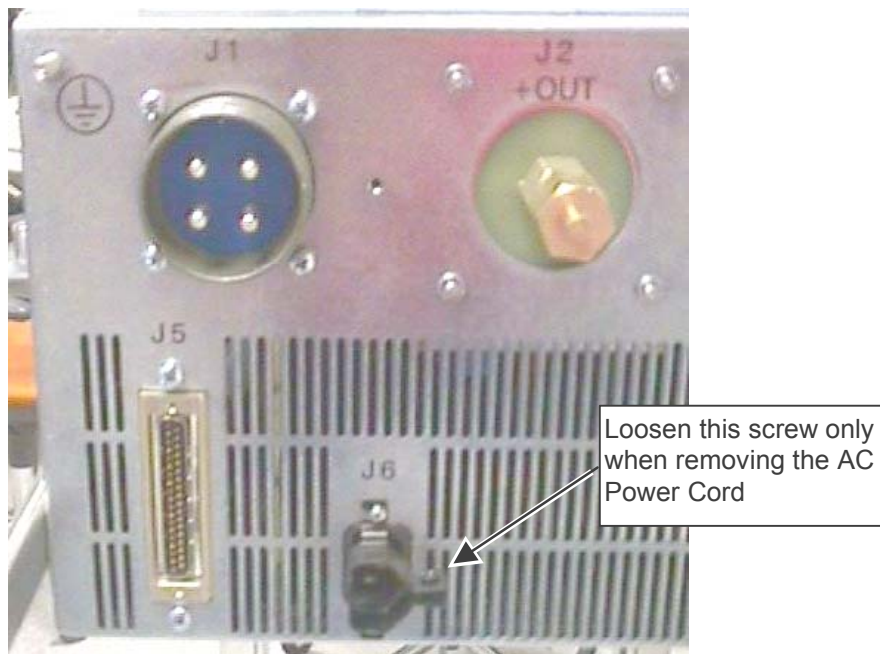
15. Insert the Hoist Assembly into the open end of the front rail. Insert a locking pin into the holes near the front edge of the front rail. This locking pin prevents the Hoist Assembly from sliding out of the rails. See Illustration 1-12.



**PLACEMENT OF HOIST ASSEMBLY INTO FRONT END OF STEEL RAIL ASSEMBLY**  
ILLUSTRATION 1-12

### 1-3 SGA Assembly Removal Procedure (Continued)

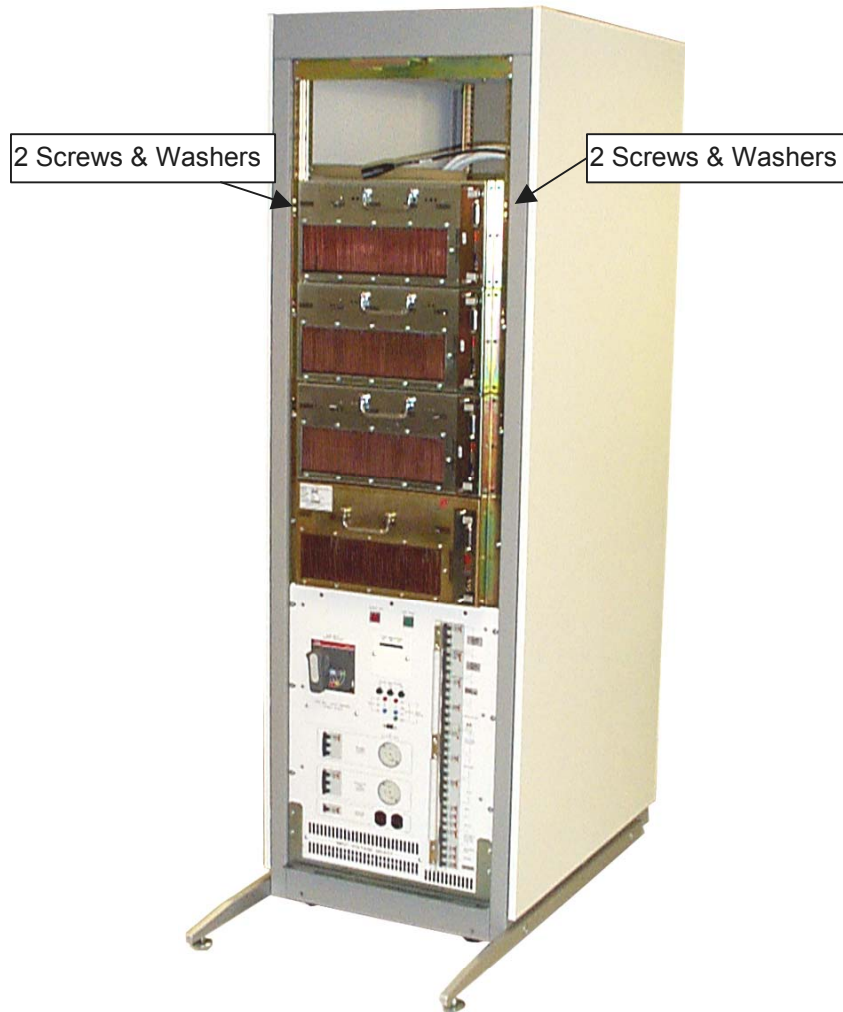
16. Remove two (2) Phillips-head screws that secure the clear plastic shields covering the high voltage cables at the rear of the SGA Assembly.
17. Use a medium crescent wrench to loosen and remove the brass colored 6/8" hex bolts. The two far right bolts have a knob for the attachment of meter probes.
18. Remove the two (2) SGA cables (J2 & J3). Replace the brass colored bolts to avoid misplacing them.
19. Unscrew the two, four pin connectors (J1 & J4) and the data cable (J5) from the rear of the SGA.
20. Remove the AC power cord (J6) by loosening the screw on the side of the harness as shown in Illustration 1-13.



**REMOVING AC POWER CORD**  
ILLUSTRATION 1-13

### 1-3 SGA Assembly Removal Procedure (Continued)

21. Remove the four (4) Phillips-head screws and washers from the SGA front panel, which secure the SGA to the ACGD cabinet. See Illustration 1-14.



**SCREWS ON SGA FRONT PANEL**  
ILLUSTRATION 1-14

22. Carefully pull out the ACGD on its slide and allow the catch to engage.

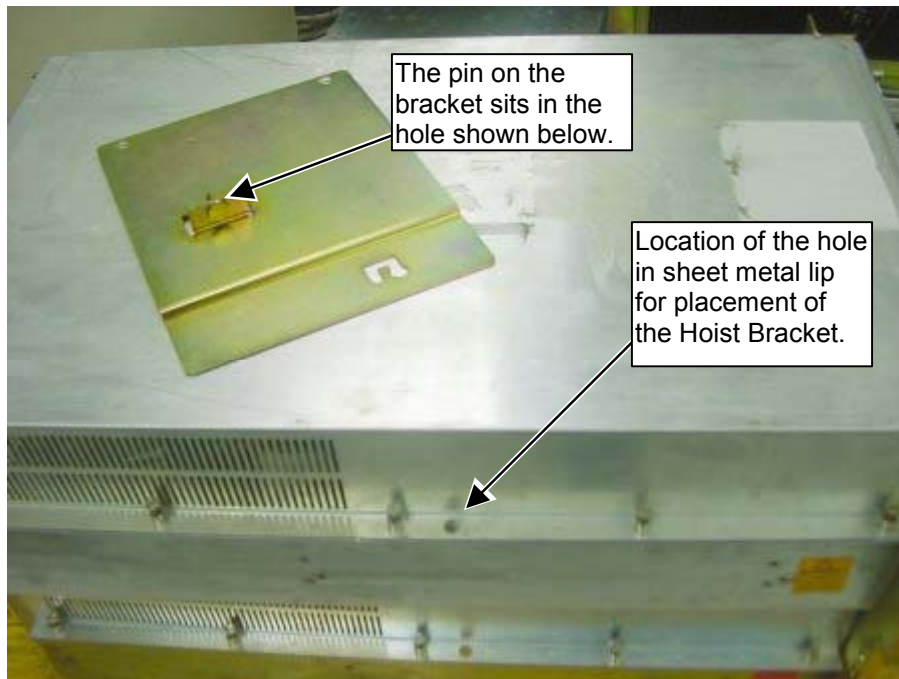
**1-3 SGA Assembly Removal Procedure (Continued)**

23. Remove the two SGA brackets from the Universal Hoist Kit. See Illustration 1-15.



**ACGD SGA HOIST BRACKETS**  
ILLUSTRATION 1-15

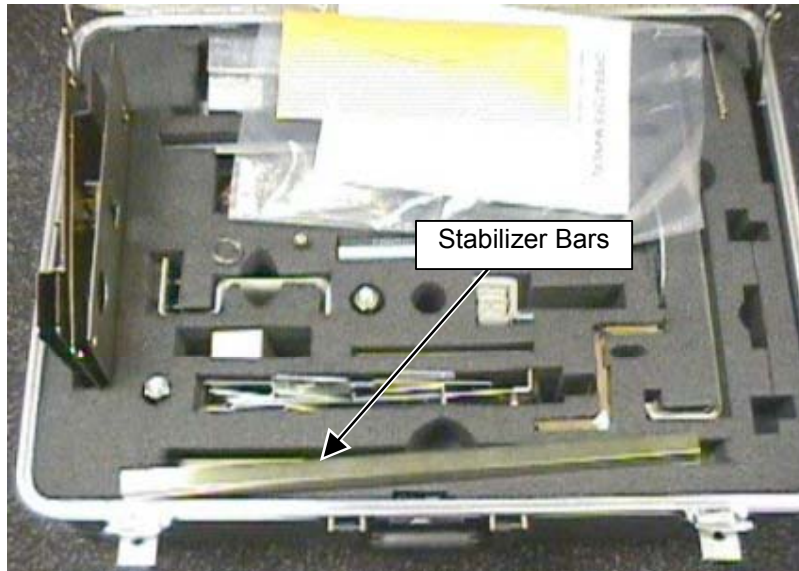
24. Brackets are labeled left and right. Place the appropriate bracket in the hole that is on the lip of sheet metal on each side of the SGA. See Illustration 1-16.



**LOCATION OF HOIST BRACKET PLACEMENT HOLE**  
ILLUSTRATION 1-16

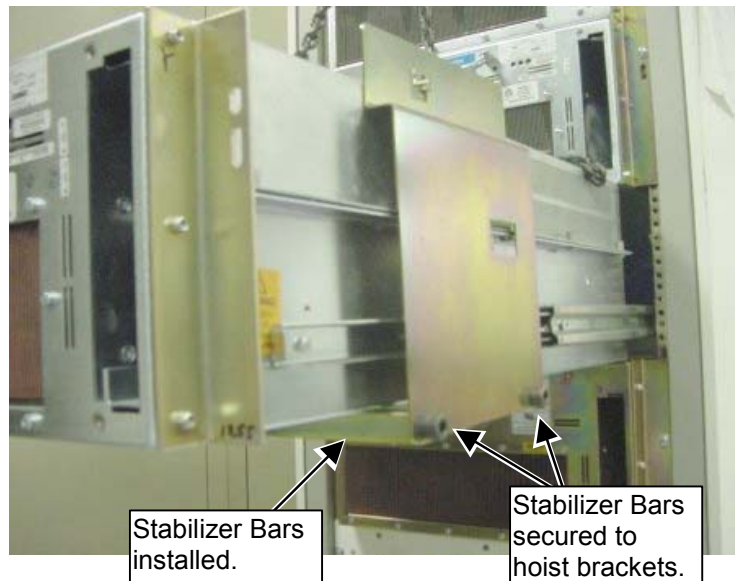
### 1-3 SGA Assembly Removal Procedure (Continued)

25. Locate the stabilizer bars in the Hoist Kit. See Illustration 1-17.



**LOCATION OF STABILIZER BARS IN THE HOIST KIT**  
ILLUSTRATION 1-17

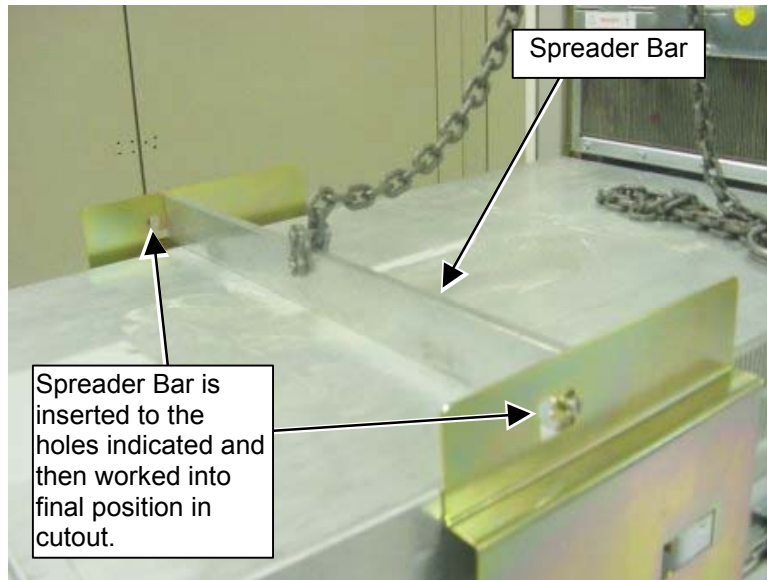
26. Using four screws from the hoist kit, attach the stabilizer brackets to the bottom of both hoist brackets. See Illustration 1-18.



**ATTACHING STABILIZER BARS TO HOIST BRACKETS**  
ILLUSTRATION 1-18

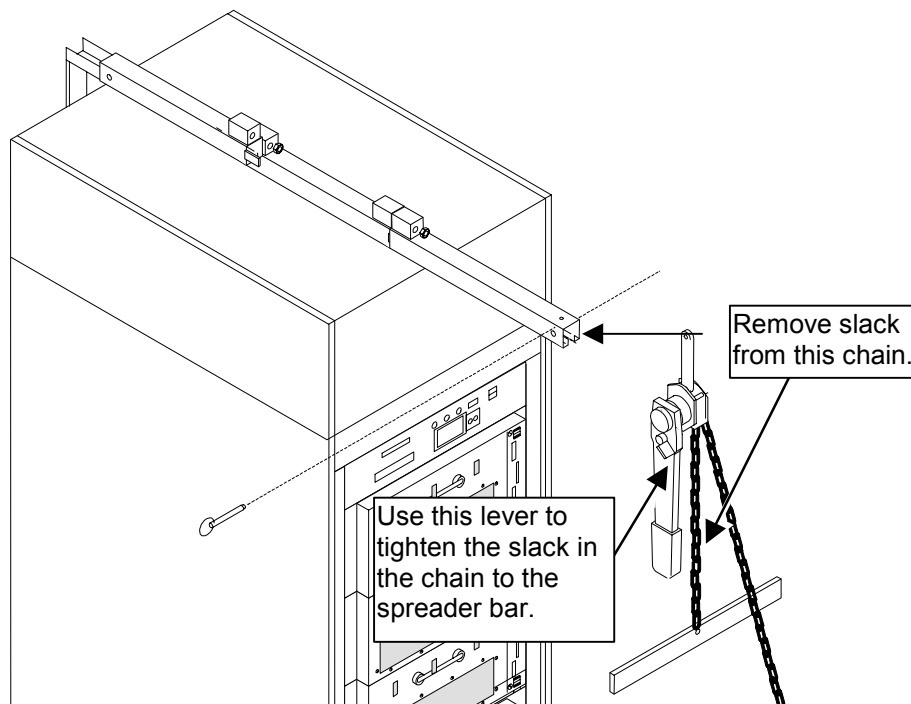
### 1-3 SGA Assembly Removal Procedure (Continued)

27. Attach the spreader bar of the hoist assembly to the SGA Hoist Brackets. This transfers the weight of the SGAs to the hoist. See Illustration 1-19.



**ATTACHING THE SPREADER BAR TO THE HOIST BRACKETS**  
ILLUSTRATION 1-19

28. On the Hoist Assembly tighten the chain to the spreader bar to remove slack and support the weight of the SGA module. See Illustration 1-20.



**TRANSFERRING WEIGHT TO THE HOIST ASSMEBLY**  
ILLUSTRATION 1-20

### 1-3 SGA Assembly Removal Procedure (Continued)

29. Place the rail lever in the UP position on both sides of the SGA module. See Illustration 1-21 for location of lever.



**RAIL LEVER LOCATION**  
ILLUSTRATION 1-21

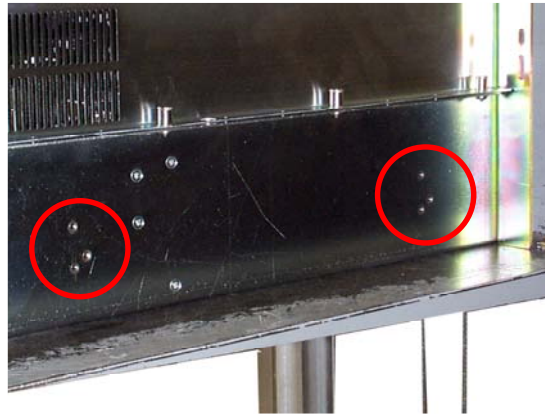
- 30. Ensure that the entire weight of the SGA is supported.
- 31. Face the right side of the module. Slide the module out and remove it from the rails that are attached to the cabinet.
- 32. Turn the module to the side and lower the module. See Illustration 1-22.



**EXAMPLE OF A MODULE TURNED TO SIDE**  
ILLUSTRATION 1-22

### 1-3 SGA Assembly Removal Procedure (Continued)

33. Remove the spreader bar from the hoist brackets
34. Remove the hoist brackets from the failed module.
35. Remove the rail from the failed module and attach to the replacement module as follows for the specific axis.



**HOLES FOR RAIL PLACEMENT**  
ILLUSTRATION 1-23

For the **X axis**: Align slide insert to the bottom holes in the clusters of 3 holes on the right and left sides of the SGA.

For the **Y axis**: Align slide insert to the upper holes in the clusters of 3 holes on the right and left sides of the SGA.

For the **Z axis**: Align slide insert to the center holes in the cluster of 3 holes on the right and left sides of the SGA.

### 1-4 SGA Assembly Replacement

1. Attach the hoist brackets to the replacement module.
2. Attach the spreader bar to the hoist brackets.
3. Fully extend the slide rail in the cabinet of the axis that is being replaced.
4. Raise the replacement SGA using the hoist assembly and move module in position to place rails into the slide mechanism on the cabinet.
5. Move the slides to the locking position.
6. Remove the spreader bar from the hoist brackets.
7. Remove the hoist brackets.
8. Push the SGA assembly all the way into the cabinet.
9. Secure the assembly to the front panel by replacing the four (4) Phillips-head screws and washers from the SGA front panel. See Illustration 1-24.



**SCREWS ON SGA FRONT PANEL**  
ILLUSTRATION 1-24

### 1-4 SGA Assembly Replacement (Continued)

10. Replace the AC power cord (J6) and secure by tightening the screw on the side of the harness as shown in Illustration 1-25.

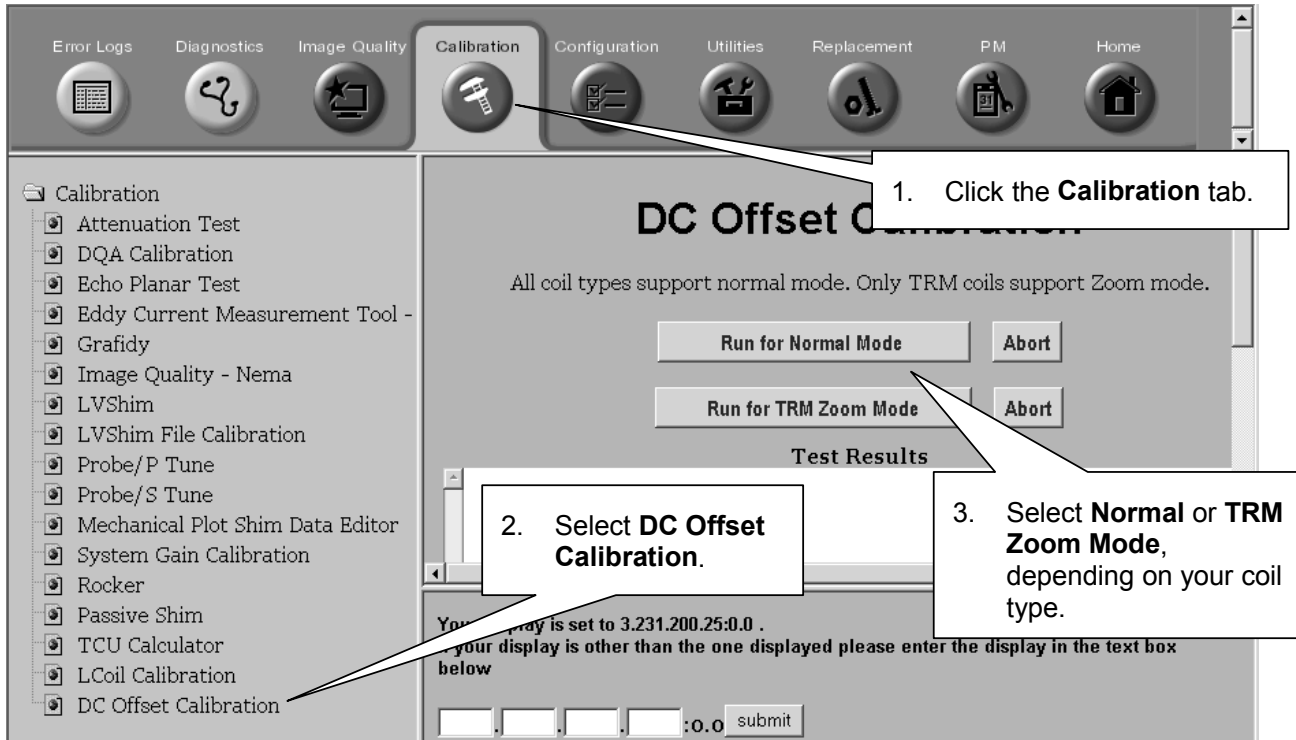


**SECURING AC POWER CORD**  
ILLUSTRATION 1-25

11. Replace the two, four pin connectors (J1 & J4) and the data cable (J5) at the rear of the SGA.
12. Replace the two (2) SGA cables (J2 & J3). Replace the brass colored bolts and tighten with a medium sized crescent wrench.
13. Replace the clear plastic shields covering the high voltage cables at the rear of the SGA Assembly and secure with two (2) Phillips-head screws.
14. Remove the Universal Hoist from the cabinet and return to the Hoist Kit.
15. Remove the power lock out tag out to the ACGD Cabinet and restore power.

### 1-5 Functional Checks Required

1. To adjust DC Offsets, follow the steps on the graphic below.



#### ADJUSTING DC OFFSETS ILLUSTRATION 1-26

2. The calibration values are stored in the `/usr/g/caldir/gram_tune.dat` file. (DO NOT touch the offset pots on the SGA).
3. Check gradient calibration using procedure for Gradient Calibration (DQA Version) or alternate proprietary procedure for SPT Quick Head Check; calibrate if necessary.

## REVISION HISTORY

REV	DATE	AUTHOR	PRIMARY REASONS FOR CHANGE
A	Sept. 11, 2000	K. Keshena	Preliminary version.
0	Oct. 20, 2000	K. Keshena	Initial release.
1	June 21, 2000	K. Keshena	Updated the Required tools & equipment to include weight of module, updated the removal section to include the proper placement of the rails for each axis, and added a replacement section to the procedure. The U-Hoist appendix was removed to the lack of bracket availability. Section 1-5 Functional Checks has been modified listing DC Offsets and GRADCAL.
2	Oct. 14, 2002	C. MacDonald	Added illustration 1-10 and interface updates for new service desktop; added footer.
3	June 4, 2003	K. Keshena	Added steps to use the Universal Hoist Kit to resolve FPR 1020130, SPR ID, MRIge73349.