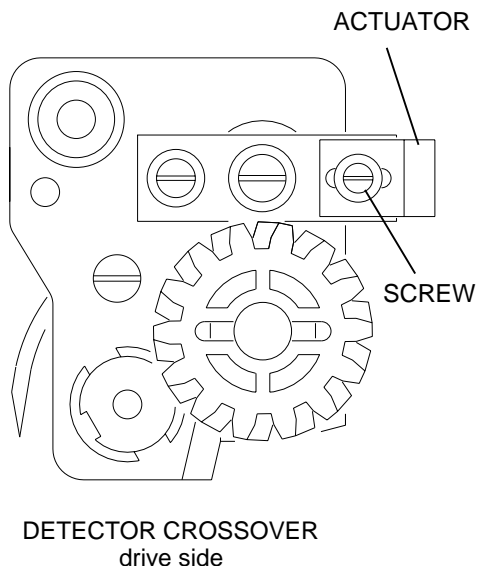
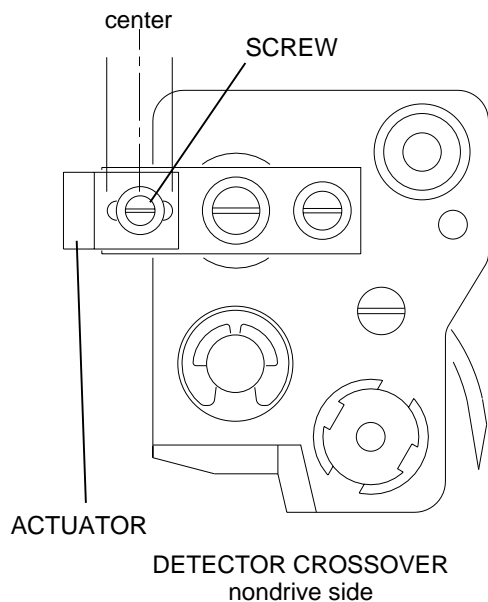


## Section 6: Electrical

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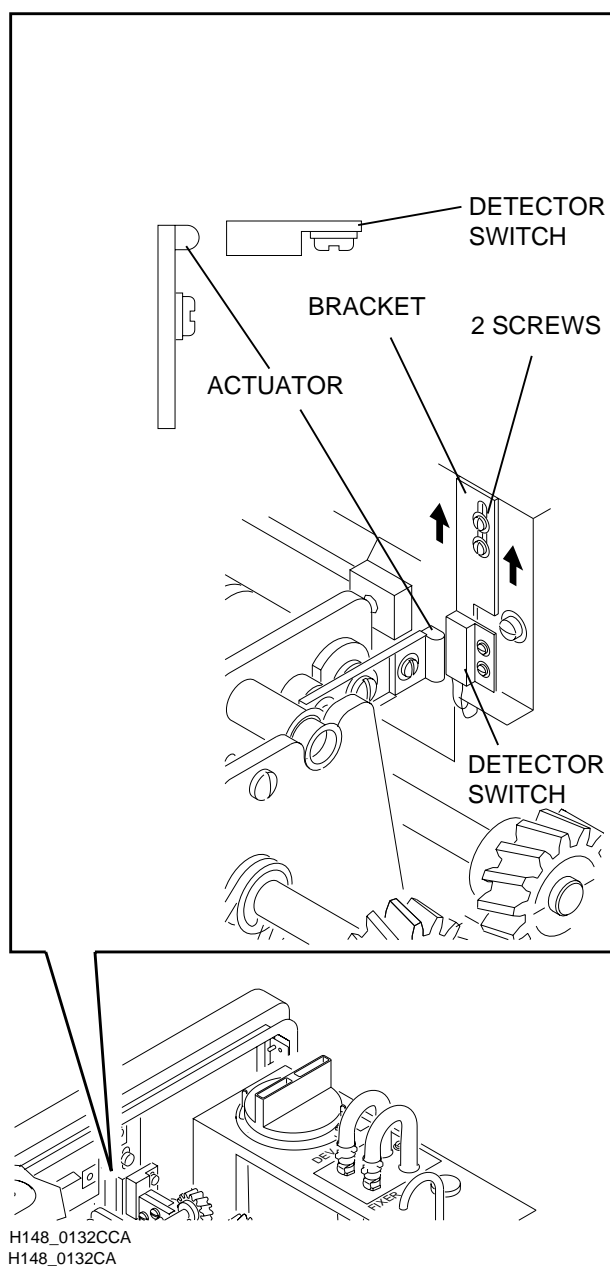
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## Adjusting the ACTUATORS and the ENTRANCE DETECTOR SWITCH

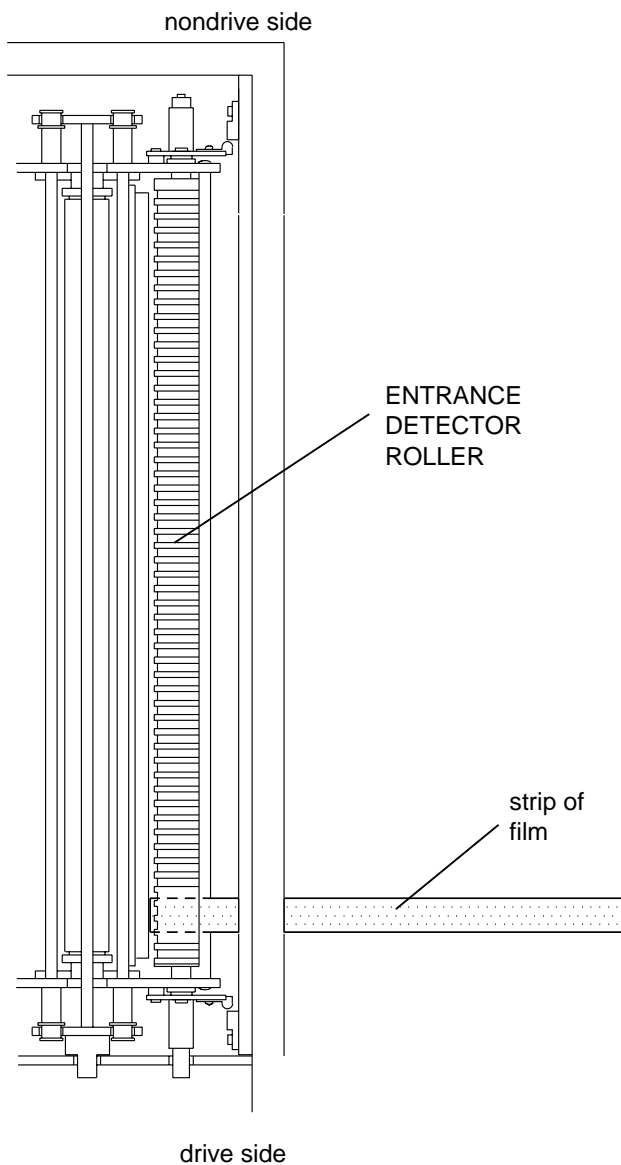


- [1] De-energize the PROCESSOR.
- [2] Remove the TOP COVER.
- [3] Place the DETECTOR CROSSOVER on a flat surface with the nondrive side toward you.
- [4] If the SCREW is not in the center,
  - a. Loosen the SCREW.
  - b. Move the ACTUATOR until the SCREW is in the center.
  - c. Tighten the SCREW.
- [5] Do Steps [3](#) and [4](#) for the drive side of the DETECTOR CROSSOVER.

H148\_0124CCA  
H148\_0124CA



- [6] At the drive side of the PROCESSOR, loosen the 2 SCREWS on the BRACKET.
- [7] Move the BRACKET completely up.
- [8] Align the BRACKET parallel to the ACTUATOR and tighten the 2 SCREWS.
- [9] Do Steps 6 - 8 for the nondrive side of the PROCESSOR.
- [10] Advance to the next page.



H127\_0155CCC  
H127\_0155CC

- [11] Cut a 2.5 cm (1.0 in.) x 25 cm (10.0 in.) strip of film from a sheet of unprocessed film.
- [12] Disable the 2 COVER INTERLOCK SWITCHES. See Section 1.
- [13] Energize the PROCESSOR.
- [14] Align the long edge of the strip of film with the edge of the drive side of the FEED TRAY.
- [15] In the diagnostic menus, select "FILM DETECT"
- [16] Feed *some* of the strip of film between the DETECTOR CROSSOVER ROLLERS.

#### **Note**

You can select "DRIVE ON" and then select "DRIVE OFF" to feed *some* of the strip of film.

- [17] Check that the DISPLAY PANEL displays "FILM DETECTED" and that the alarm on the FILM ACCUMULATOR emits a long beep.
- [18] If you are unable to do Step [17](#) successfully, adjust the position of the drive side MAGNET.
- [19] Remove the strip of film.
- [20] Check that the DISPLAY PANEL displays the message "FILM NOT DETECTED" and that the alarm does *not* emit a long beep.
- [21] If you are unable to do Step [20](#) successfully, adjust the position of the drive side MAGNET.
- [22] Do Steps [14](#) - [20](#) again until the DISPLAY PANEL displays the correct messages.
- [23] Select "NONDRIVE".
- [24] Do Steps [14](#) - [22](#), aligning the strip of film with the edge of the nondrive side of the FEED TRAY.
- [25] Insert the strip of film into the center of the DETECTOR CROSSOVER.

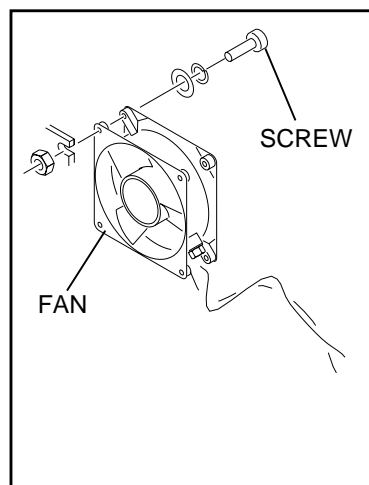
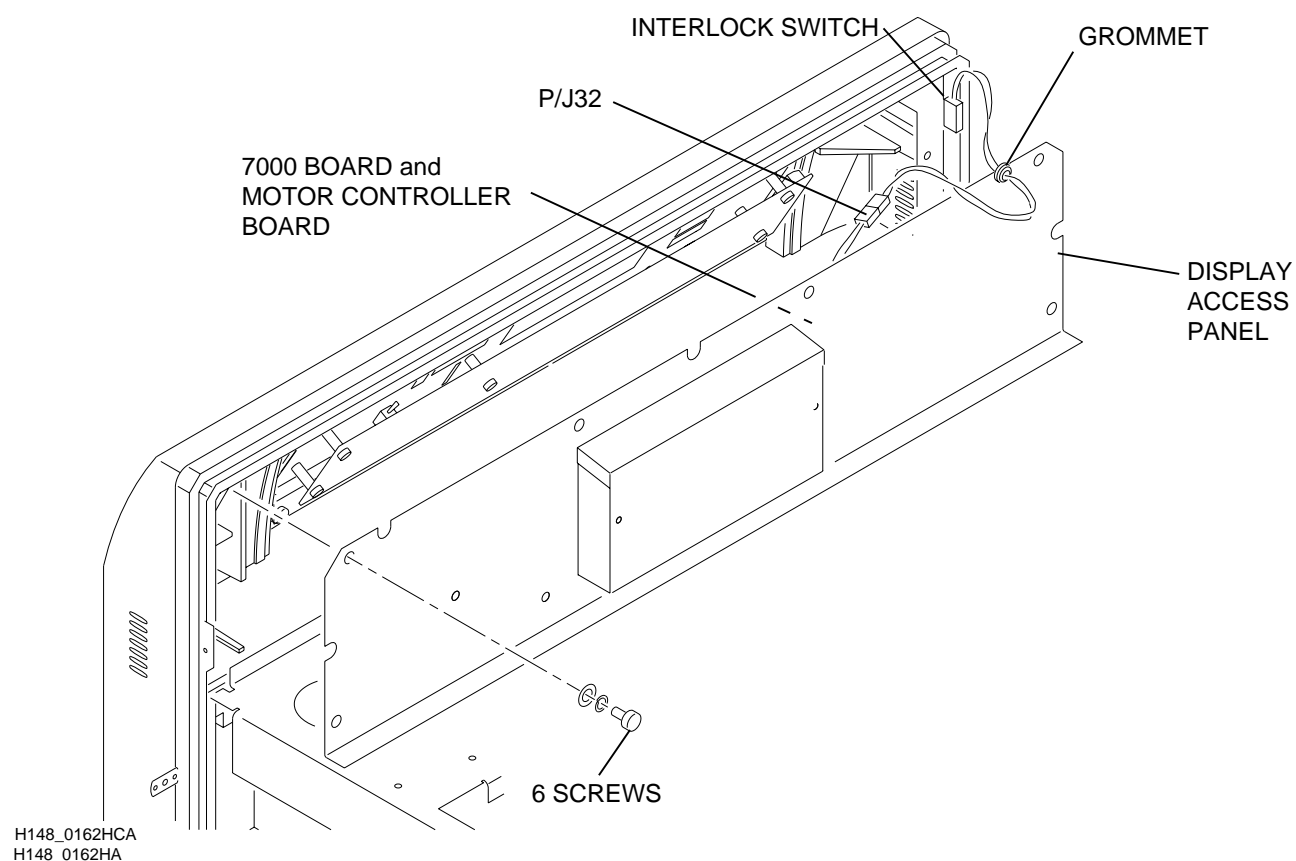


#### **Important**

In the next step, check that DISPLAY PANEL displays "FILM DETECTED" for at least one selection.

- [26] Select "DRIVE" and then select "NONDRIVE".
- [27] If the DISPLAY PANEL did not display "FILM DETECTED," check your work.
- [28] Remove the strip of film.
- [29] Select "DRIVE" and then select "NONDRIVE". Check that the DISPLAY PANEL displays the message "FILM NOT DETECTED".
- [30] Select "DONE/RETURN" to exit diagnostics.
- [31] Remove the tape and MAGNETS.
- [32] Assemble the PROCESSOR and check that it operates correctly.

## Removing the FAN



**[1]** De-energize the PROCESSOR.

**[2]** Remove:

- TOP COVER
- SQUEEGEE ASSEMBLY
- SPLASH GUARD from the MOTOR



### Caution

Possible damage from electrostatic discharge.

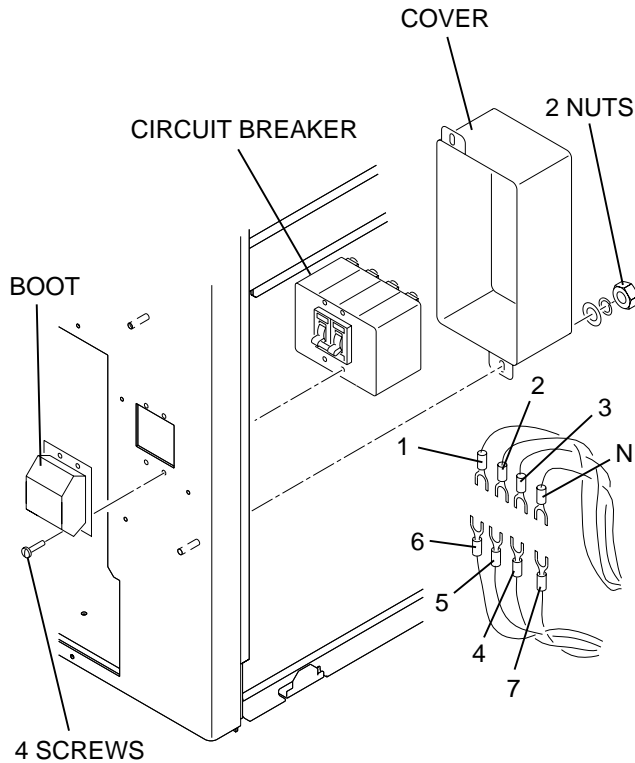
**[3]** Remove the 6 SCREWS, 6 LOCK WASHERS, and the 6 WASHERS from the DISPLAY ACCESS PANEL.

**[4]** Carefully, remove the DISPLAY ACCESS PANEL.

**[5]** Remove the FAN.

**[6]** After you install the FAN, assemble the PROCESSOR and check that it operates correctly.

## Removing CIRCUIT BREAKER CB1



H148\_0106GCA  
H148\_0106GA



### Warning

Dangerous Voltage

- [1] De-energize the PROCESSOR.
- [2] Remove the NONDRIVE SIDE PANEL.
- [3] Remove the COVER from the back of the CIRCUIT BREAKER CB1.

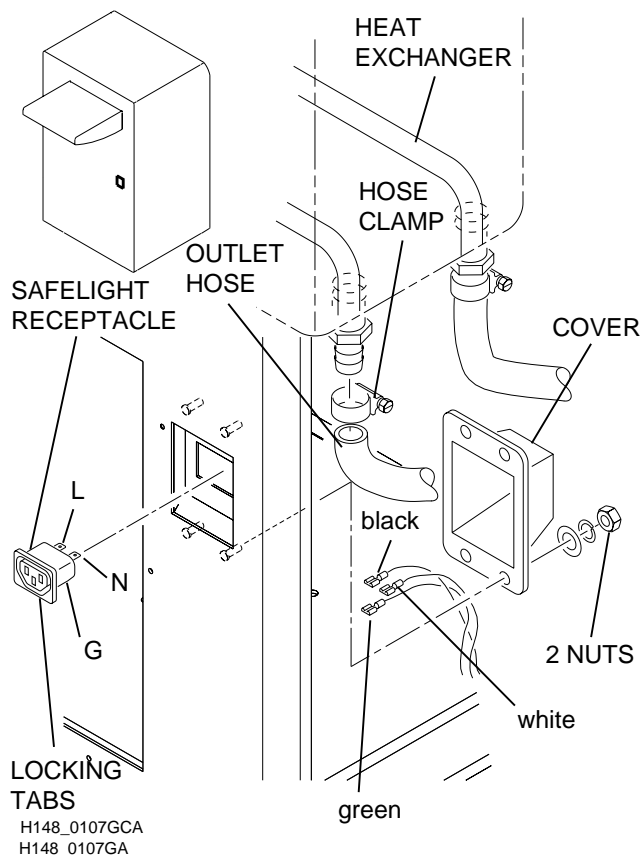


### Caution

Prevent damage to the wires and components.

- [4] Disconnect and label the 8 wires from CB1.
- [5] Remove the 4 SCREWS from the plastic BOOT.
- [6] Remove CIRCUIT BREAKER CB1.
- [7] Install the new CIRCUIT BREAKER.
- [8] Assemble the PROCESSOR and check that it operates correctly.

## Removing SAFELIGHT RECEPTACLE J101



### Warning

Dangerous Voltage

- [1] De-energize the PROCESSOR.
- [2] Remove the NONDRIVE SIDE PANEL and the MIDDLE ACCESS PANEL.



### Caution

Be careful of water spill when you remove the HOSE CLAMP from the OUTLET HOSE of the HEAT EXCHANGER.

- [3] Remove the HOSE CLAMP from the OUTLET HOSE of the HEAT EXCHANGER.
- [4] Remove the COVER.

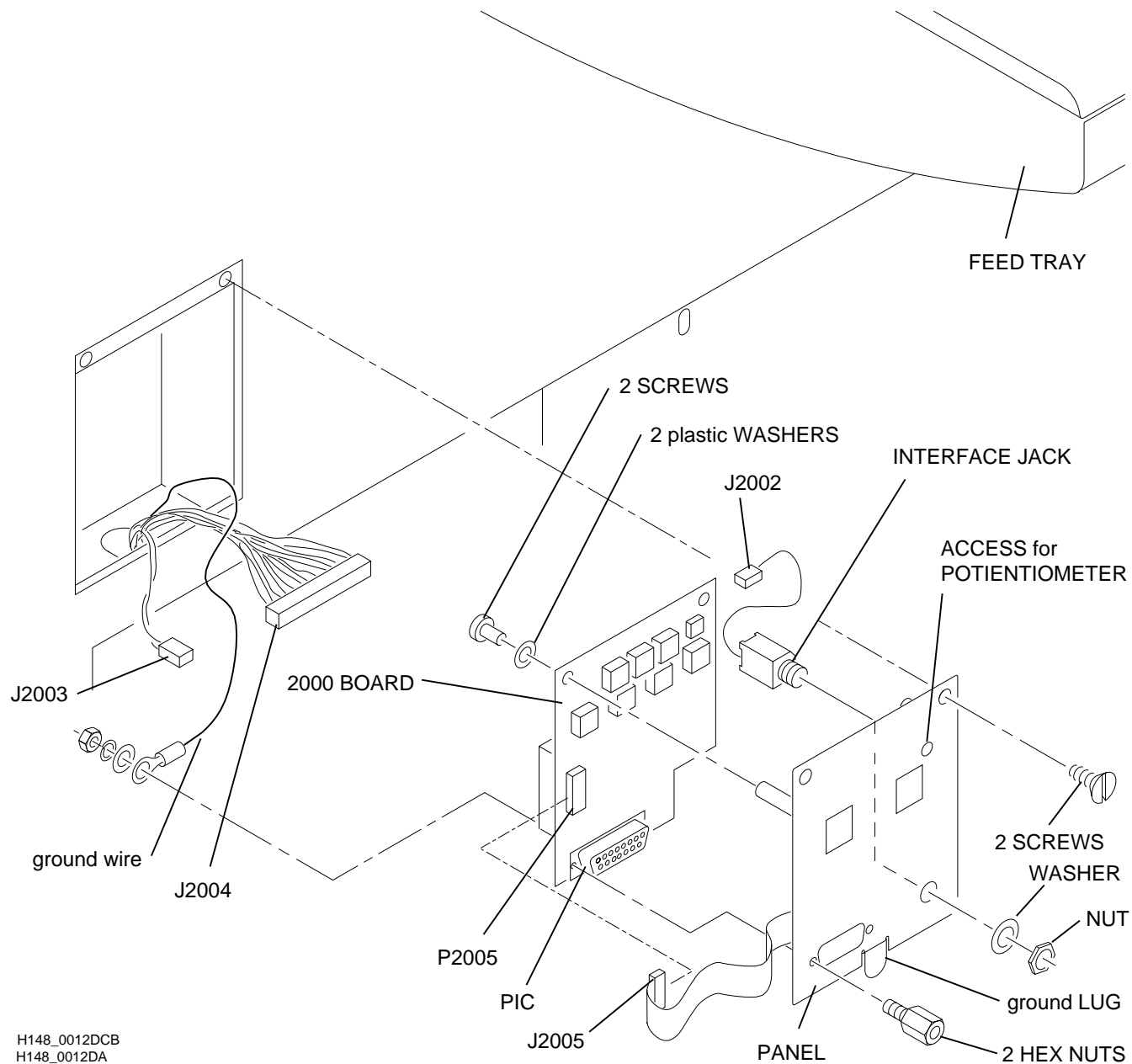


### Caution

Prevent damage to the wires and components.

- [5] Disconnect the 3 wires.
- [6] Press the LOCKING TABS to remove the SAFELIGHT RECEPTACLE.
- [7] Install the new SAFELIGHT RECEPTACLE. Snap it into position.
- [8] Assemble the PROCESSOR and check that it operates correctly.

## Removing the 2000 INTERFACE BOARD



H148\_0012DCB  
H148\_0012DA



### Warning

Dangerous Voltage

- [1] De-energize the PROCESSOR.
- [2] Remove the 2 SCREWS.



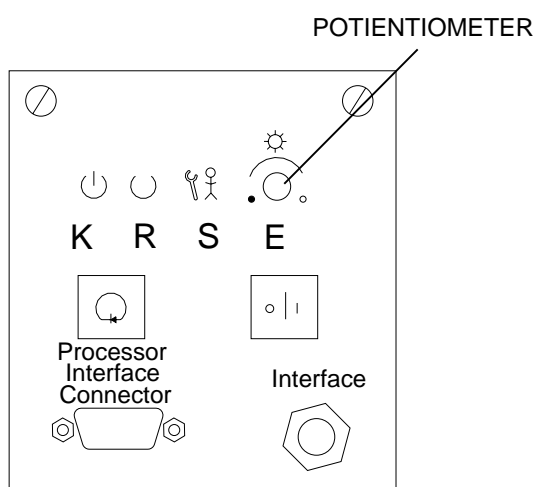
### Caution

- Possible damage from electrostatic discharge.
  - Prevent damage to the wires and components.
- [3] Carefully, tilt the top of the PANEL away from the PROCESSOR.
  - [4] Disconnect J2004, J2003, and J2002.



- [5] Remove the ground wire.
- [6] Remove the 2 HEX NUTS from the PROCESSOR INTERFACE CONNECTOR (PIC).
- [7] Remove the 2 SCREWS and the 2 plastic WASHERS.
- [8] Disconnect J2005.
- [9] Lift the FOIL (not indicated) from the ground LUG.
- [10] Remove the 2000 BOARD from the PANEL.
- [11] To remove the INTERFACE JACK, remove the NUT and the WASHER.

## Adjusting the Brightness of the CONTROL PANEL



H148\_0052ACA  
H148\_0052AA



### Caution

To prevent fogging of the film, do *not* adjust the brightness of the CONTROL PANEL brighter than is necessary to read the display.

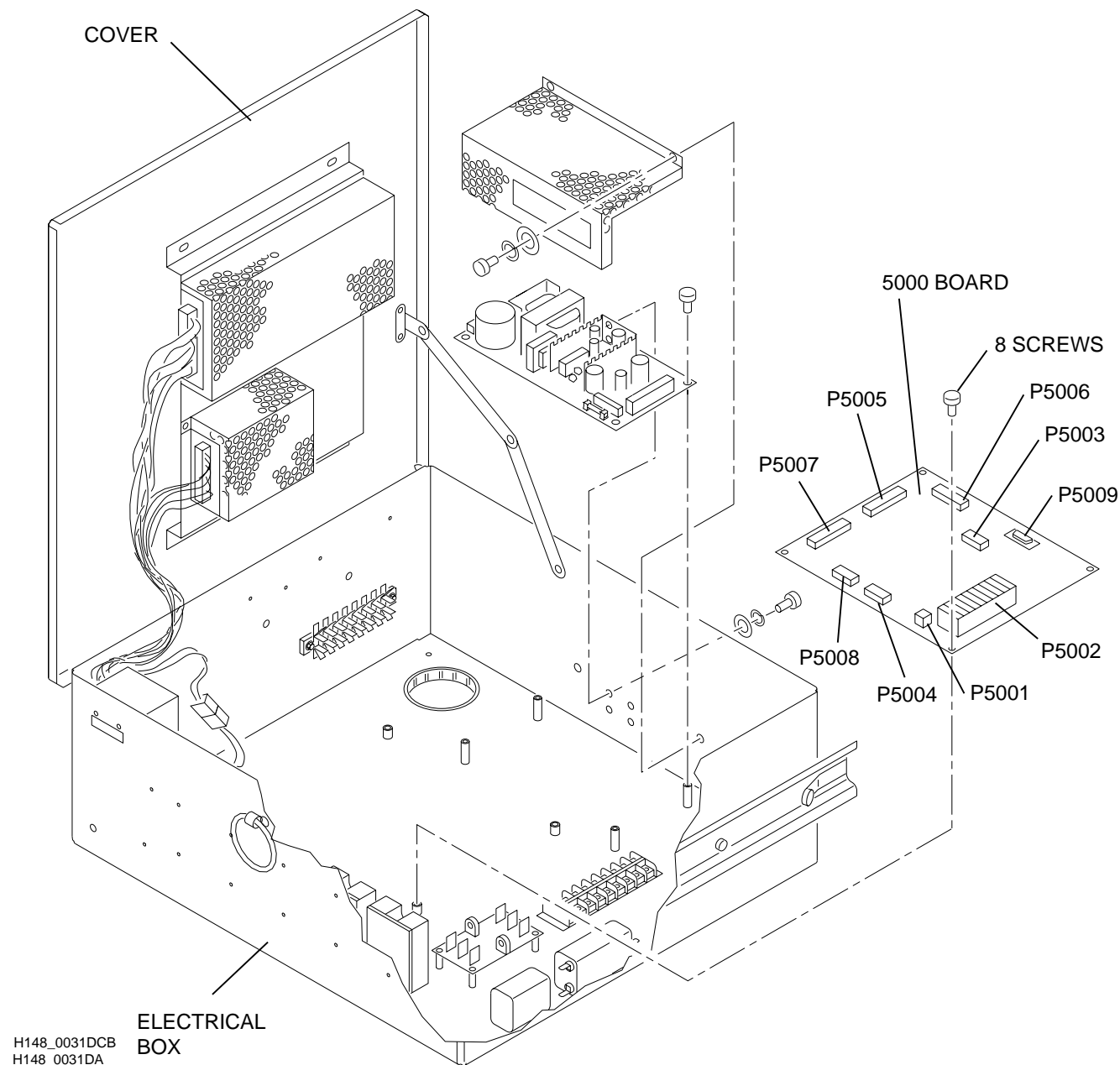


### Important

To brighten the DISPLAY, rotate the POTENTIOMETER clockwise ↻. To dim the DISPLAY, rotate the POTENTIOMETER counterclockwise ↻.

- [1] De-energize the lights of the darkroom.
- [2] Using an ALIGNMENT TOOL or TL-4520, adjust the POTENTIOMETER until the brightness of the DISPLAY is no brighter than is necessary for you to read the indicators, but not bright enough to fog film.

## Removing the 5000 MICROPROCESSOR BOARD



### Important

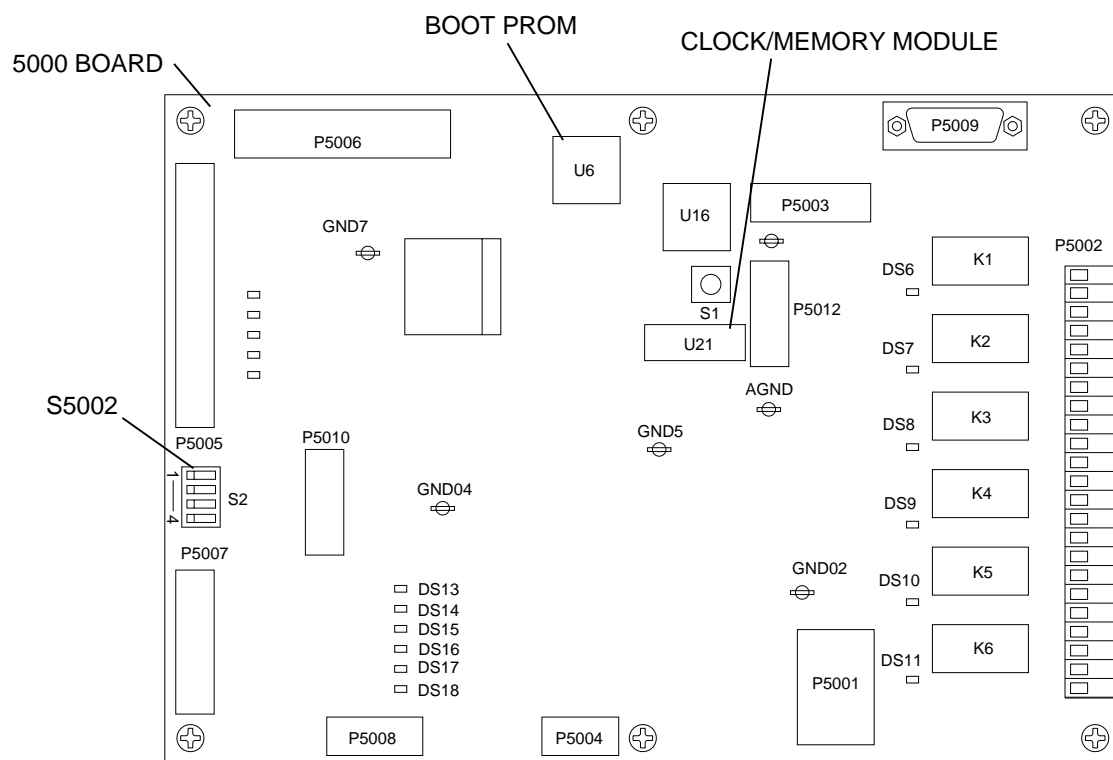
- Required Tool: PORTABLE COMPUTER
- You must download the operating software at the end of this procedure. The 5000 BOARD does not contain a removable PROM with the operating software.

**[1]** De-energize the PROCESSOR.

**[2]** Remove:

- RECEIVING BIN
- ELECTRICAL BOX ACCESS PANEL

**[3]** Extend the ELECTRICAL BOX and open the COVER.



H148\_0079HCA  
H148\_0079HA



**ESD**

Possible damage from electrostatic discharge.

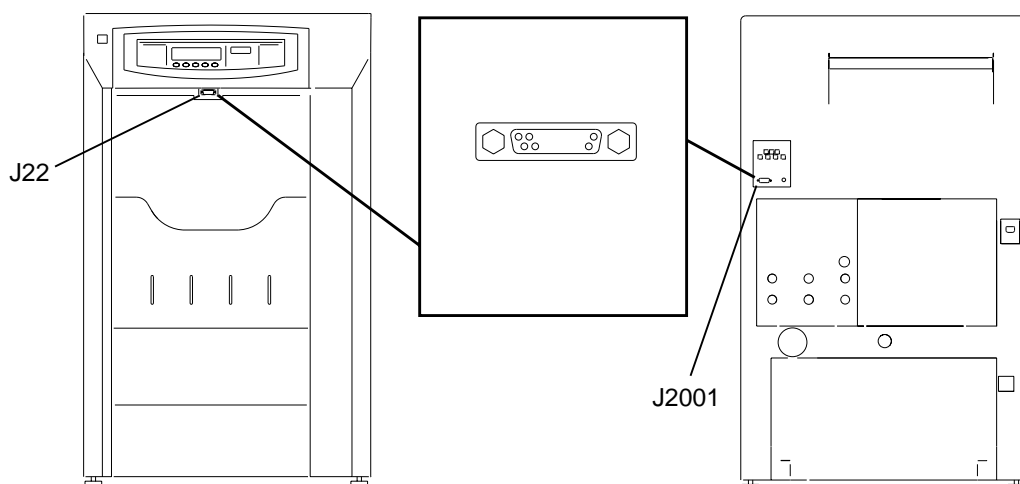
- [4] Disconnect the 9 CONNECTORS from the 5000 BOARD.
- [5] Remove the 8 SCREWS, LOCK WASHERS, and WASHERS.
- [6] Place the 5000 BOARD on the ESD MAT.
- [7] Remove the CLOCK/MEMORY MODULE U21.
- [8] Install the CLOCK/MEMORY MODULE U21 in the new 5000 BOARD.



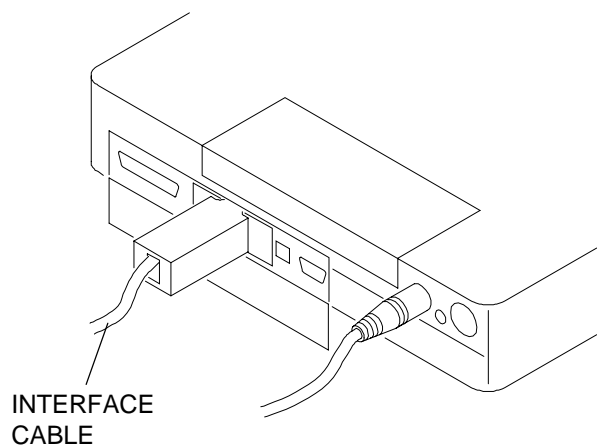
**Important**

- Do not change the positions of the SWITCHES on S5002 at this time. The software recognizes a change in the signal only when you move a SWITCH to a different position with the PROCESSOR energized.
  - The CLOCK/MEMORY MODULE stores all operating parameters set by the operator. You do *not* have to reprogram the PROCESSOR.
- [9] Connect the 9 CONNECTORS to the 5000 BOARD.
  - [10] Close the ELECTRICAL BOX and push it into the PROCESSOR.
  - [11] Energize the PROCESSOR.
  - [12] Connect the PORTABLE COMPUTER.
  - [13] Do the procedure "Downloading the Operating Software" on Page [6-12](#).
  - [14] Assemble the PROCESSOR and check that it operates correctly.

## Downloading the Operating Software



H148\_0174BCA  
H148\_0174BA



H108\_0205ACA  
H108\_0205AA

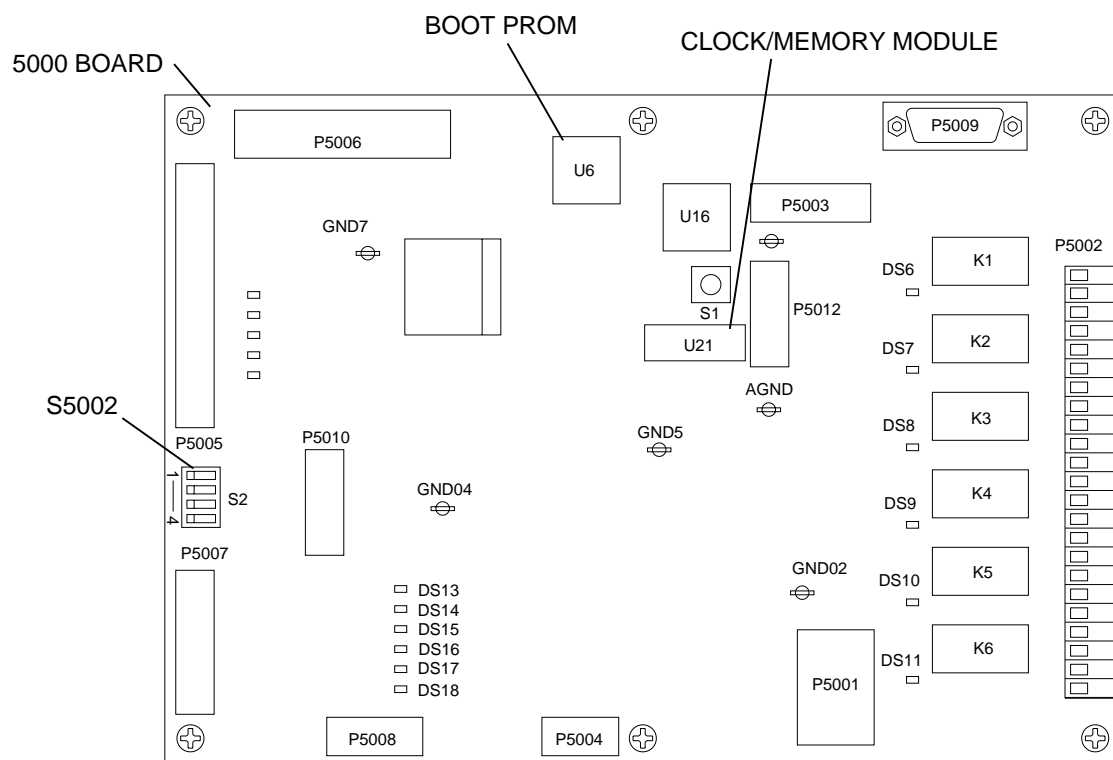


### Important

- This procedure downloads software simultaneously to both the 5000 and the 6000 BOARDS.
- Required Tools:
  - PORTABLE COMPUTER; See Special Tools.
  - INTERFACE CABLE TL-4391
  - DOWNLOAD DISK 8B7068

- [1] Connect the PORTABLE COMPUTER to either
  - J22 or
  - J2001 (PIC) on the CONTROL PANEL
- [2] Connect the INTERFACE CABLE to the PORTABLE COMPUTER.
- [3] Energize the PROCESSOR.
- [4] Allow the PROCESSOR to operate for a minimum of 10 seconds.
- [5] Energize the PORTABLE COMPUTER.
- [6] Insert the DOWNLOAD DISKETTE into the A DRIVE of the computer.
- [7] At the C:> prompt, type A: and press [Enter]
- [8] At the A:> prompt, type **DOWNLOAD** and press [Enter]

## Bypassing or Resetting the Access Code



H148\_0079HCA  
H148\_0079HA

### Important

- To enter the diagnostic menus, you must enter the correct access code.
- Bypass the access code to operate all functions of the PROCESSOR without using the customer's access code.
- Reset the access code to the default code of 4-2-1-3 if the operator forgets the access code.
- The original position of each SWITCH on S5002 is not important. The software recognizes only a change in the position of the SWITCH.

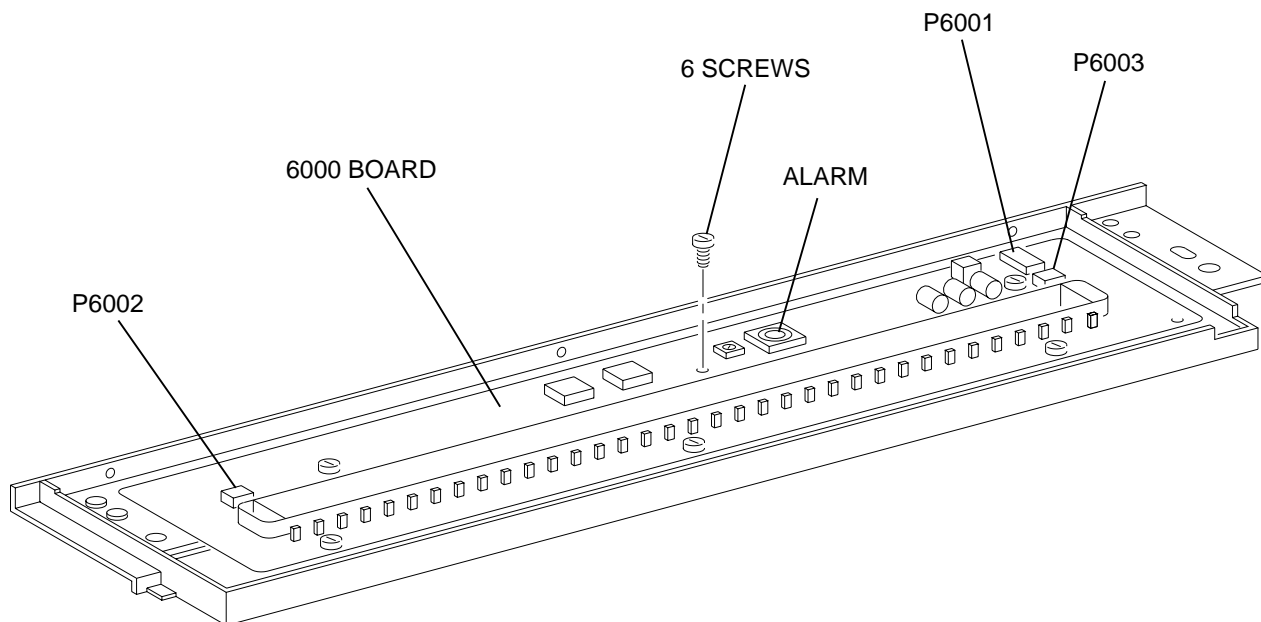
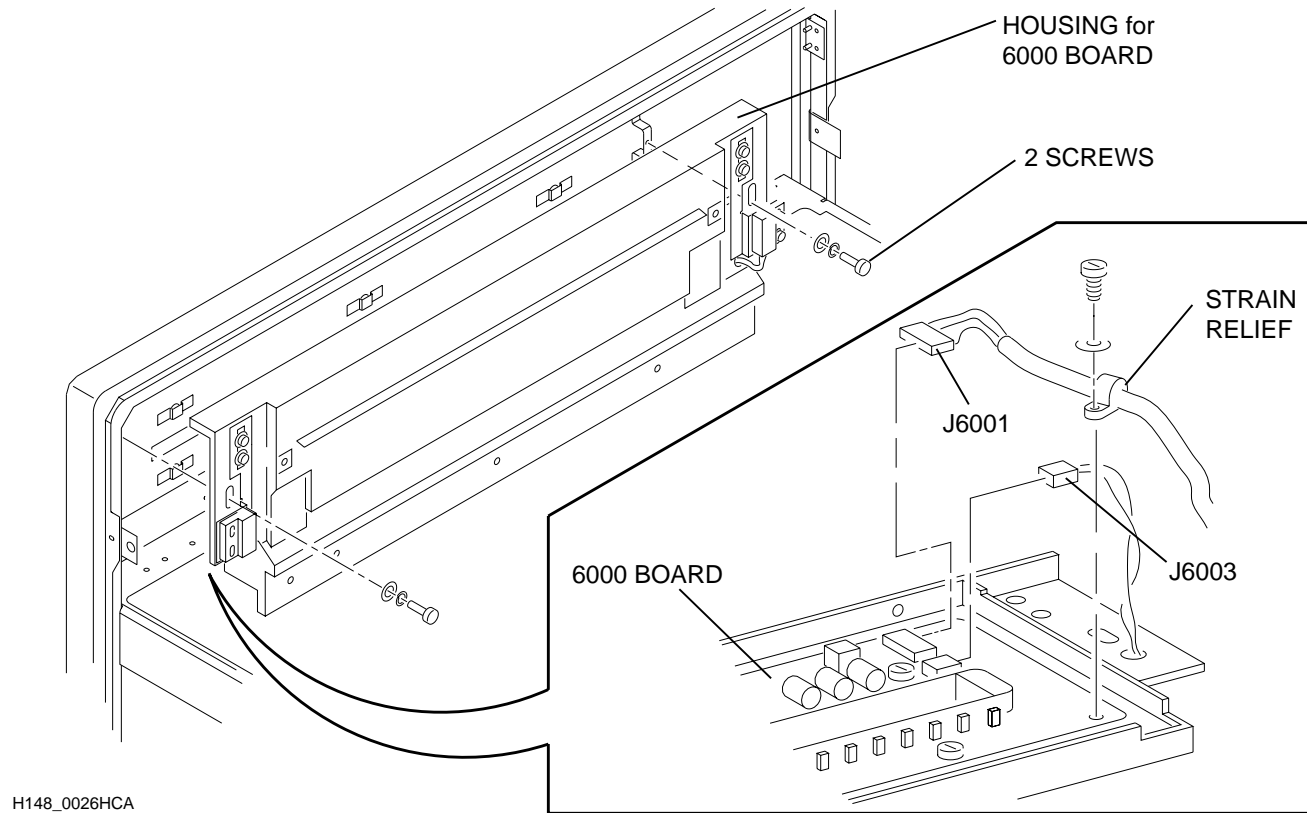
#### [1] To bypass the access code:

- (a) Energize the PROCESSOR.
- (b) Move SWITCH 1 of S5002 on the 5000 BOARD to the opposite position.

#### [2] To reset the access code:

- (a) Energize the PROCESSOR.
- (b) Move SWITCH 4 of S5002 on the 5000 BOARD to the opposite position.

## Removing the 6000 FILM ACCUMULATOR BOARD



**Important**

- Required Tool: PORTABLE COMPUTER
- You must download the operating software at the end of this procedure. The 6000 BOARD does not contain a removable PROM with the operating software.
- To install a new ALARM on the 6000 BOARD, see the Parts List 5B6345.

[1] De-energize the PROCESSOR.

[2] Remove:

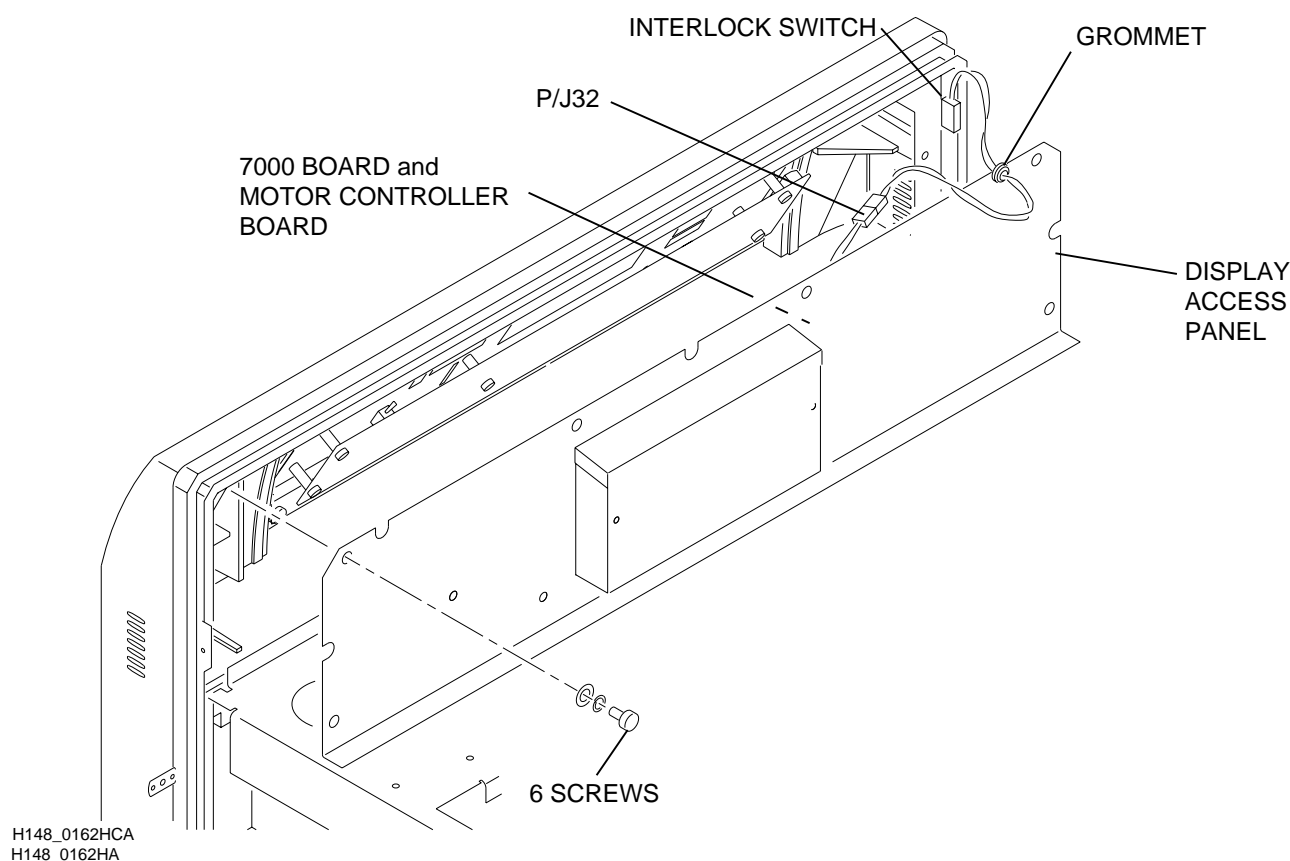
- TOP COVER
- DETECTOR CROSSOVER

**Caution**

Possible damage from electrostatic discharge.

- [3] Remove the 2 SCREWS, 2 LOCK WASHERS, and 2 WASHERS.
- [4] Disconnect the CONNECTOR J6001.
- [5] Remove the STRAIN RELIEF.
- [6] Disconnect the CABLES from P6002 and P6003.
- [7] Remove the assembly of the HOUSING and the 6000 BOARD.
- [8] Remove the 6 SCREWS.
- [9] Remove the 6000 BOARD from the HOUSING.
- [10] Install the new 6000 BOARD and HOUSING.
- [11] Assemble the PROCESSOR.
- [12] Download the Operating Software.” See Page [6-12](#).
- [13] Adjust the ENTRANCE DETECTOR SWITCHES. See Page [6-2](#).
- [14] If necessary, adjust the volume of the ALARM. See the procedure “Adjusting the Volume of the Alarm” in the Operator Manual 5B6729.
- [15] Check that the PROCESSOR operates correctly.

## Removing the 7000 INTERLOCK and the MOTOR CONTROLLER BOARDS



**[1]** De-energize the PROCESSOR.

**[2]** Remove:

- TOP COVER
- SQUEEGEE ASSEMBLY
- SPLASH GUARD from the MOTOR

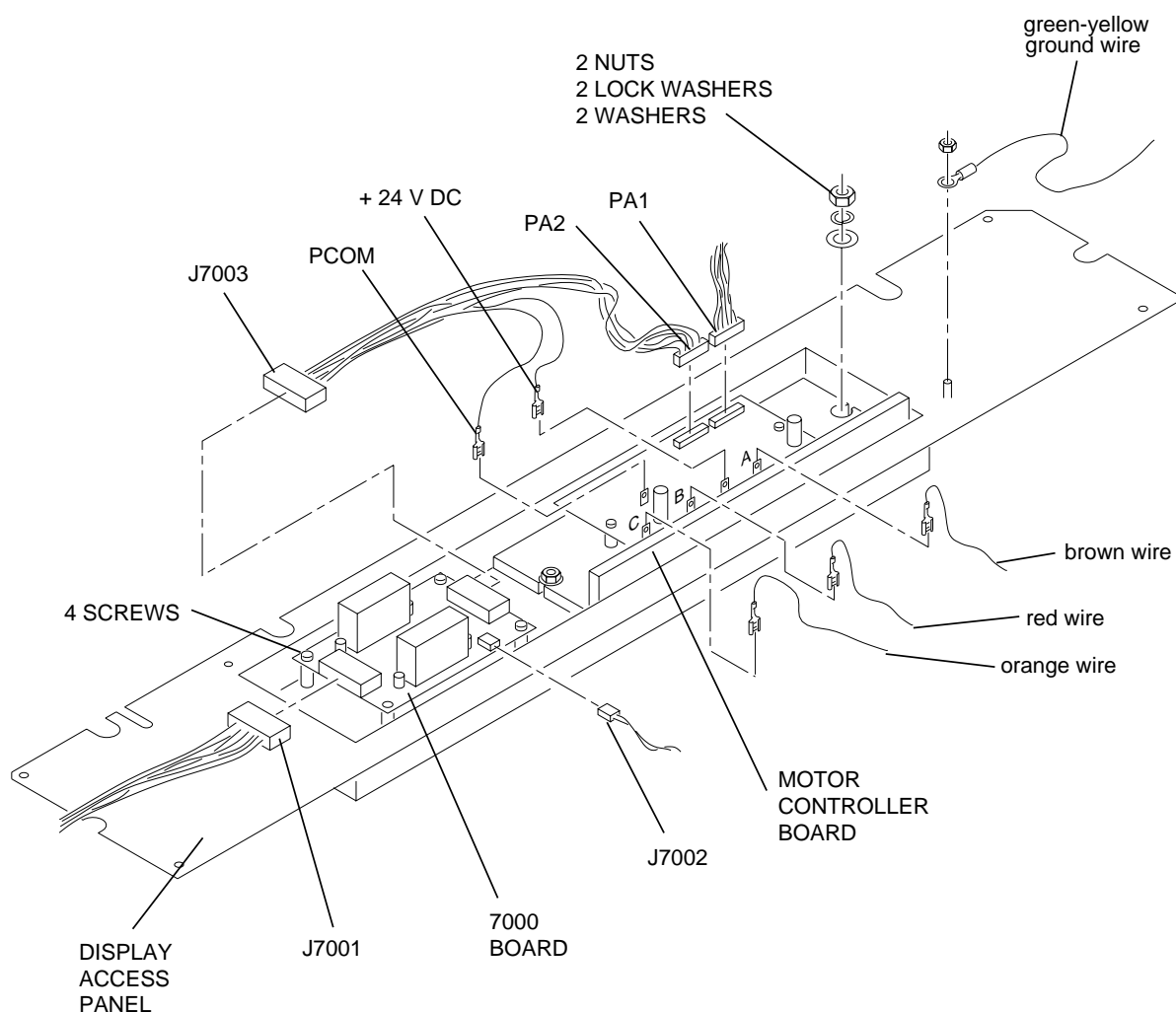
**[3]** Remove the 6 SCREWS, 6 LOCK WASHERS, and the 6 WASHERS.

**[4]** Carefully, tilt the top of the DISPLAY ACCESS PANEL to provide access to the GROMMET and P/J32.

**[5]** Remove the GROMMET from the DISPLAY ACCESS PANEL.

**[6]** Disconnect P/J32.





H148\_0014DCB  
H148\_0014DA



### Caution

Possible damage from electrostatic discharge.

**[7]** Disconnect the 3 CONNECTORS: J7001, J7002, and J7003.

**[8]** Remove the 4 SCREWS and the 7000 BOARD.

**[9]** To remove the MOTOR CONTROLLER BOARD, disconnect or remove the following components:

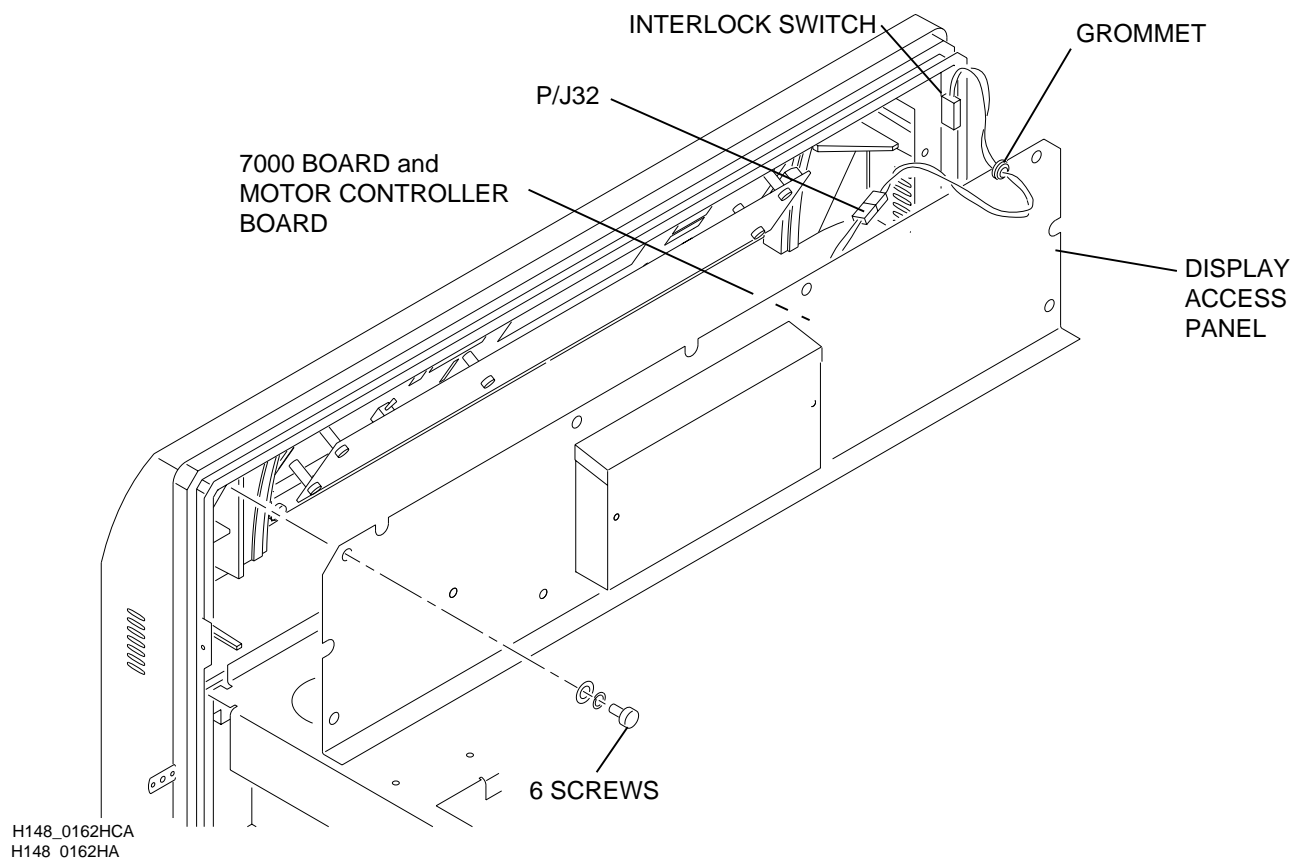
- PA1 and PA2
- +24 V DC and PCOM
- brown wire from TERMINAL A
- red wire from TERMINAL B
- orange wire from TERMINAL C
- 2 NUTS, 2 LOCK WASHERS, and 2 WASHERS



### Important

Do not adjust the POTENTIOMETERS on the MOTOR CONTROLLER BOARD. They are only for calibrations made at the factory.

## Removing the 3000 BOARD, the LCD, and the DISPLAY PANEL



**[1]** De-energize the PROCESSOR.

**[2]** Remove:

- TOP COVER
- SQUEEGEE ASSEMBLY
- SPLASH GUARD for the MOTOR



### Caution

Possible damage from electrostatic discharge.

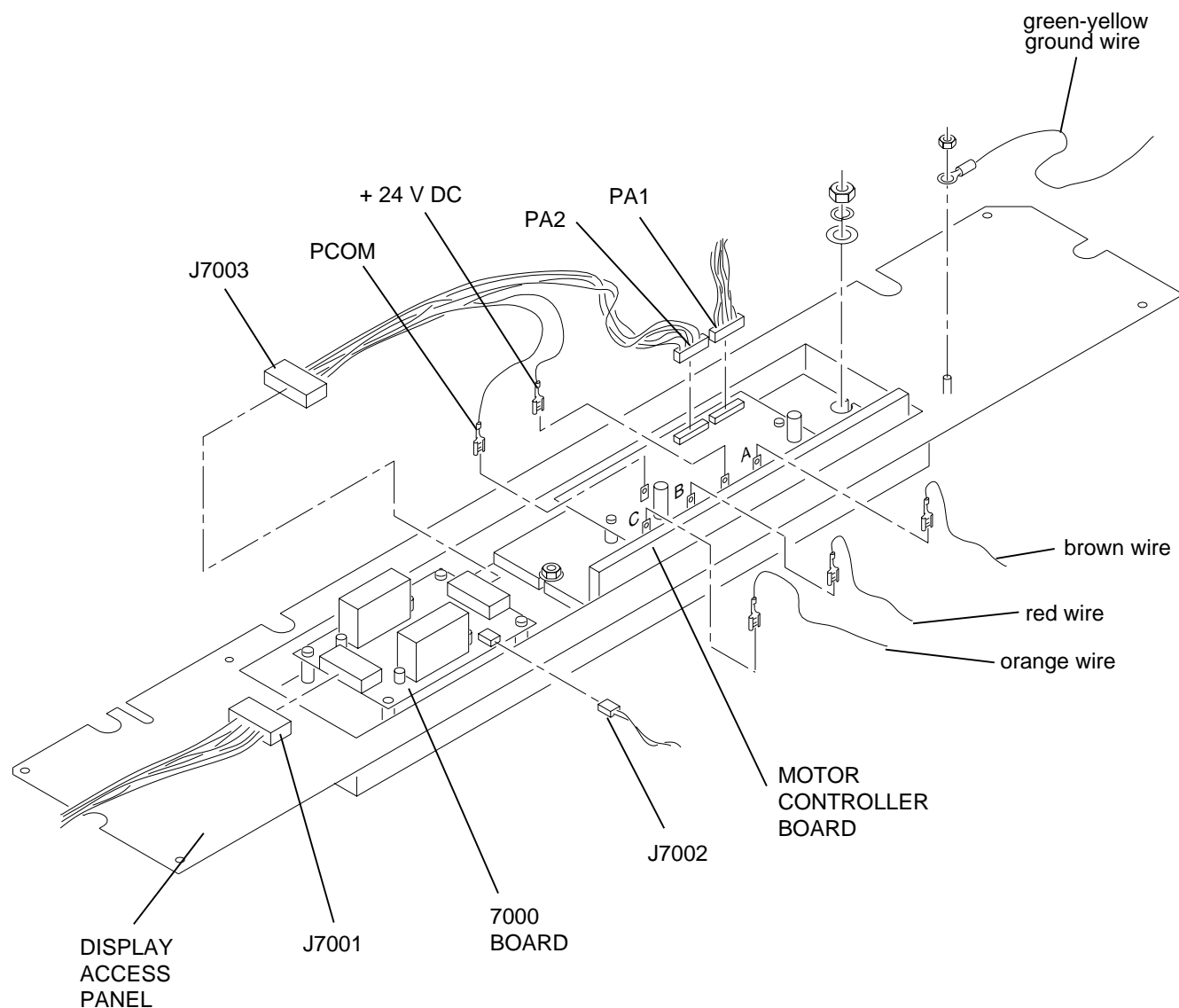
**[3]** Remove the 6 SCREWS, 6 LOCK WASHERS, and the 6 WASHERS.

**[4]** Carefully, tilt the top of the DISPLAY ACCESS PANEL to provide access to the GROMMET and P/J32.

**[5]** Remove the GROMMET from the DISPLAY ACCESS PANEL.

**[6]** Disconnect P/J32.

**[7]** Carefully, remove the DISPLAY ACCESS PANEL.



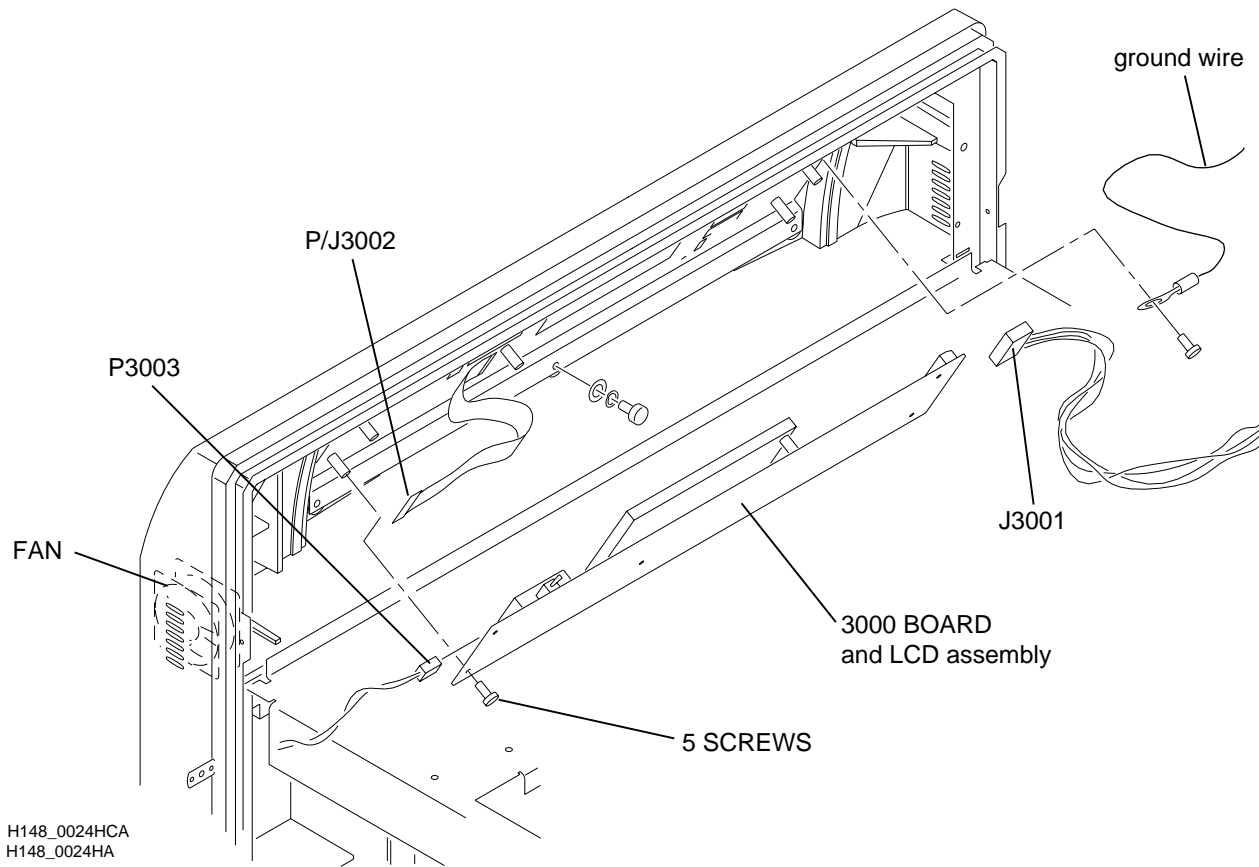
H148\_0014DCC  
H148\_0014DA

**[8] Disconnect the 5 CONNECTORS:**

- J7001
- J7002
- J7003
- PA1
- PA2

**[9] Remove:**

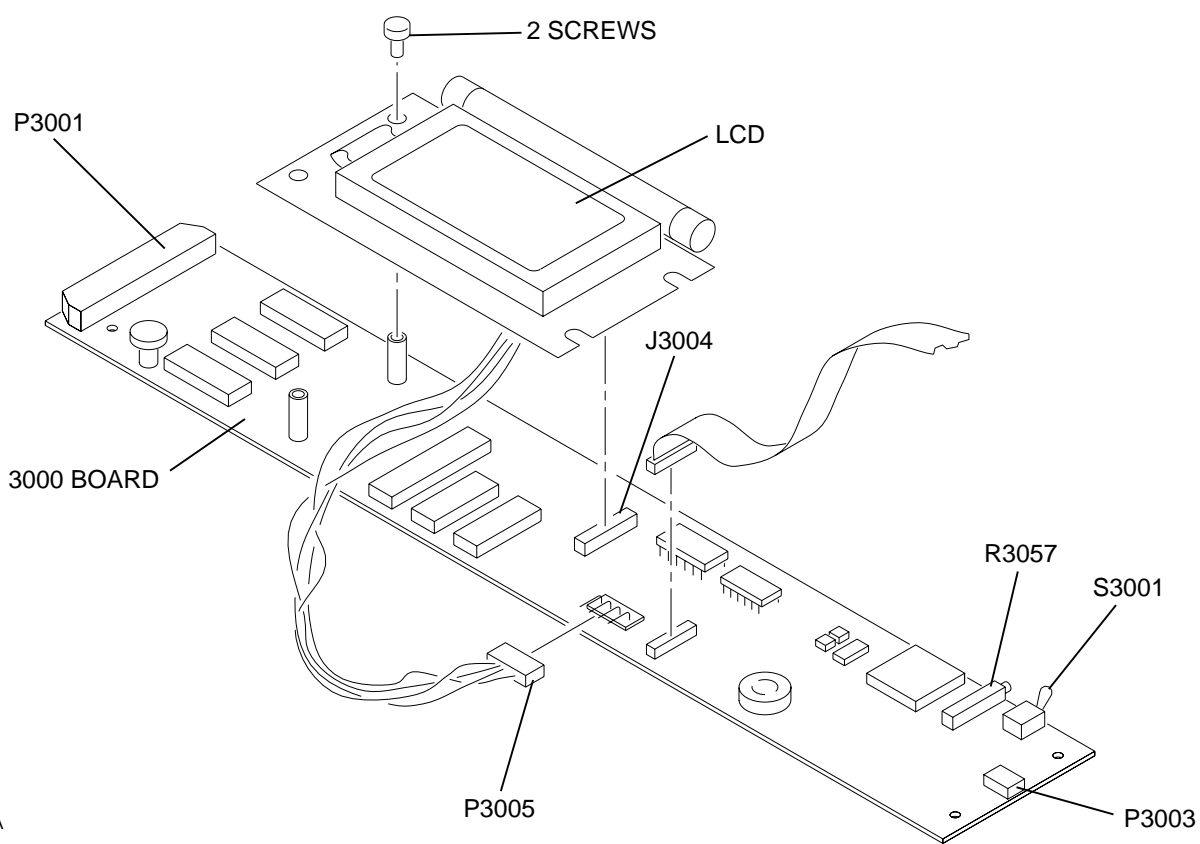
- green-yellow ground wire
- +24 V DC and PCOM
- brown wire from **TERMINAL A**
- red wire from **TERMINAL B**
- orange wire from **TERMINAL C**



**[10]** Remove the 5 SCREWS.

**[11]** Disconnect:

- J3001
- P/J3002
- J3003
- ground wire



H148\_0028HCA  
H148\_0028HA

**[12]** Remove the 3000 DISPLAY BOARD.

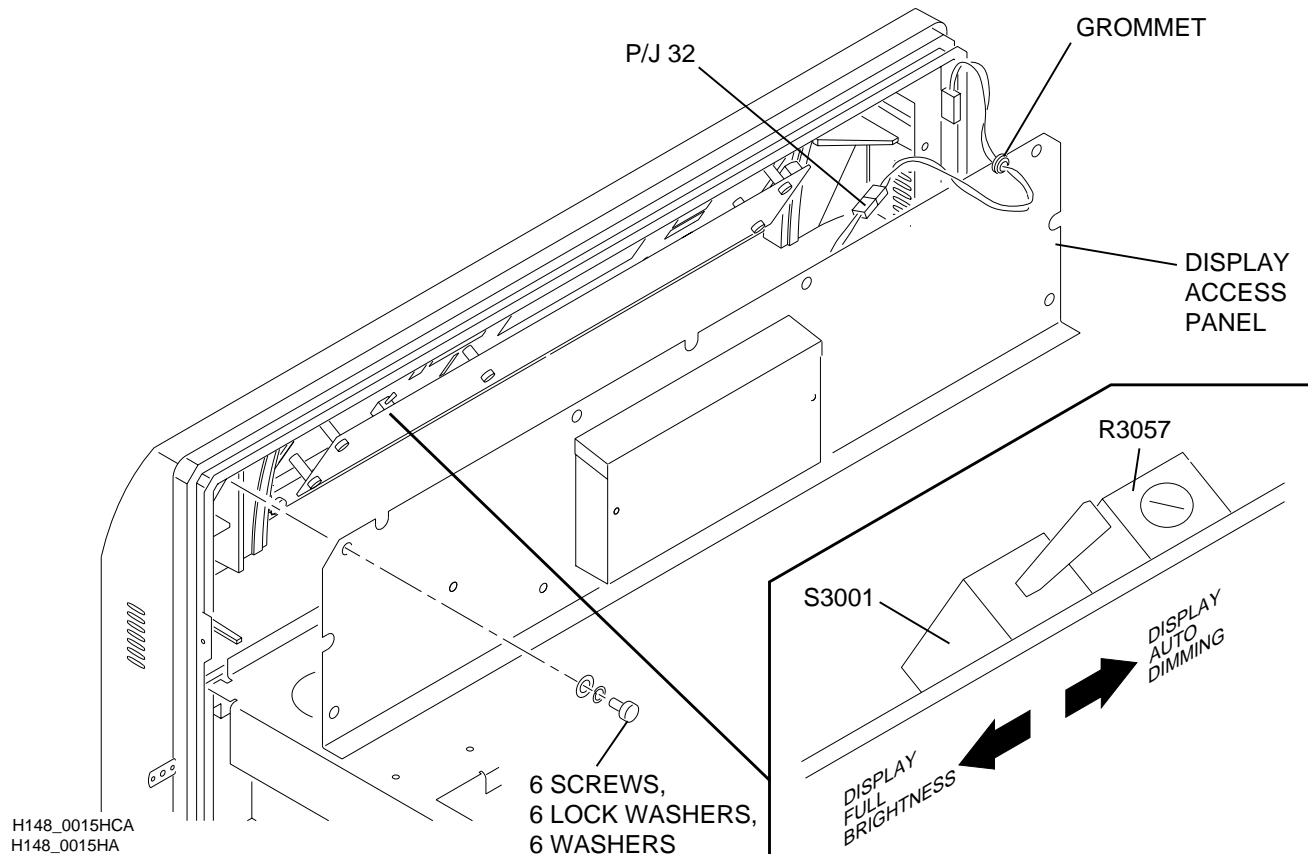
**[13]** To remove the LCD:

- Remove the 2 SCREWS.
- Disconnect P3005.
- Carefully disconnect the LCD from J3004.

**[14]** To remove the DISPLAY PANEL, remove the 6 HEX NUTS and LOCK WASHERS.

**[15]** After you install any replacement parts, assemble the PROCESSOR and check that it operates correctly.

## Enabling and Adjusting the ROOMLIGHT SENSOR on the 3000 BOARD



**[1]** De-energize the PROCESSOR.

**[2]** Remove:

- TOP COVER
- SQUEEGEE
- MOTOR SPLASH GUARD



### Caution

Possible damage from electrostatic discharge.

**[3]** Remove the 6 SCREWS, 6 LOCK WASHERS, and the 6 WASHERS from the DISPLAY ACCESS PANEL.

**[4]** Carefully, remove the DISPLAY ACCESS PANEL.



### Important

The ROOMLIGHT SENSOR SWITCH S3001 can be:

- disabled to display the DISPLAY PANEL at full brightness regardless of the room lighting
- enabled to automatically dim the DISPLAY PANEL when an operator shuts off the room lighting

**[5]** Use S3001 to set the ROOMLIGHT SENSOR:

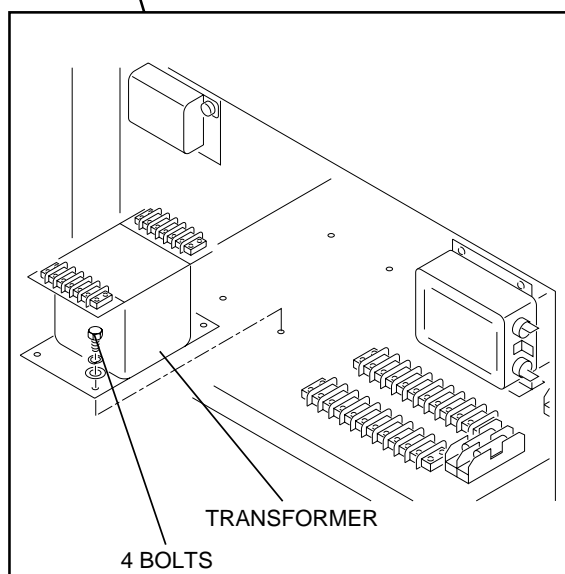
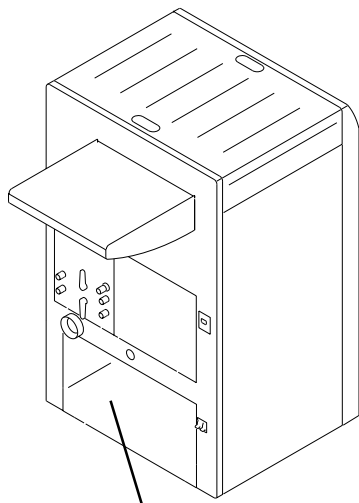
- To enable the ROOMLIGHT SENSOR move S3001 to the right.
- To disable the ROOMLIGHT SENSOR move S3001 to the left.

**[6]** To adjust the ROOMLIGHT SENSOR, move S3001 to “DISPLAY AUTO DIMMING” and rotate R3057:

- clockwise ↻ so that the DISPLAY PANEL remains illuminated in dim lighting
- counterclockwise ↺ to dim the DISPLAY PANEL in bright lighting

**[7]** Assemble the PROCESSOR and check that it operates correctly.

## Removing the BUCK/BOOST TRANSFORMER T1



H148\_0138CCA  
H148\_0138CA



### Warning

Dangerous voltage.

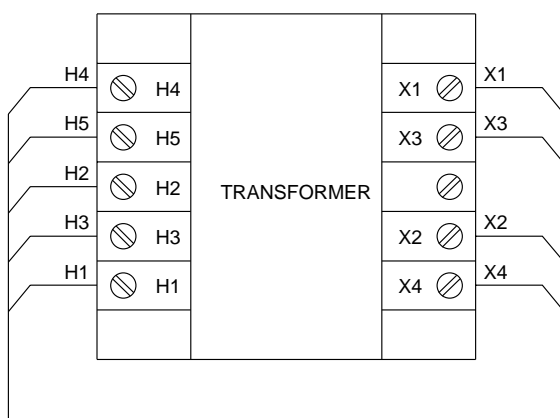
- [1] De-energize the PROCESSOR.
- [2] Remove:
  - RECEIVING BIN
  - ELECTRICAL BOX ACCESS PANEL
  - TRANSFORMER ACCESS PANEL
- [3] Disconnect all 9 wires from TRANSFORMER T1.



### Caution

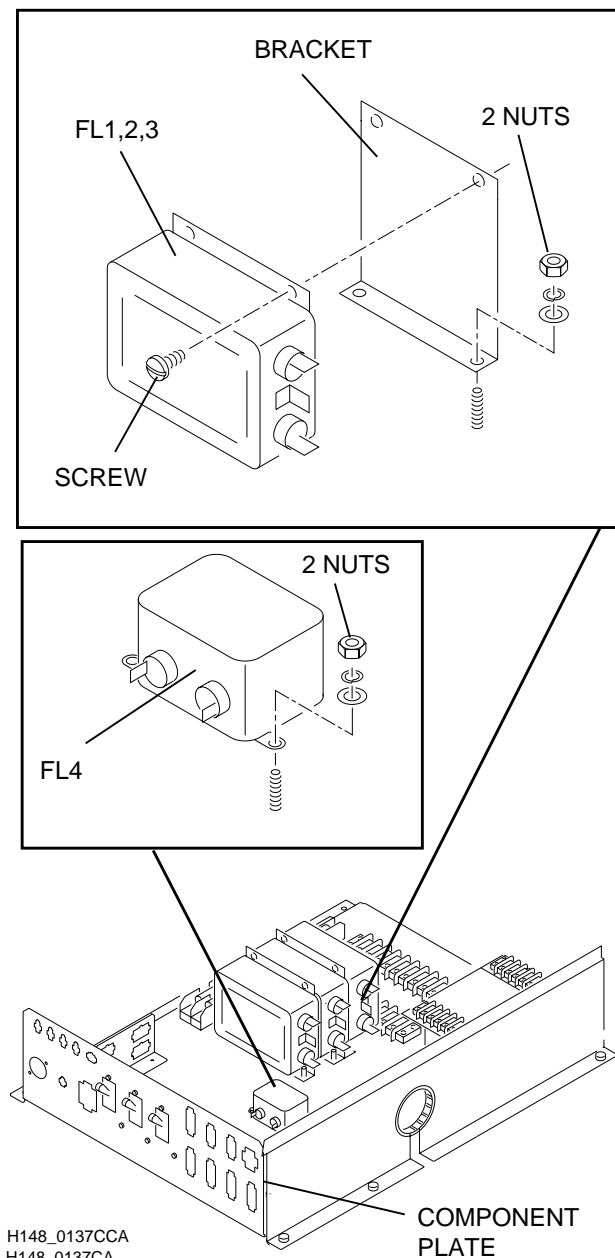
The TRANSFORMER is heavy.

- [4] Remove the 4 BOLTS and the TRANSFORMER.
- [5] Install the new TRANSFORMER.
- [6] Assemble the PROCESSOR and check that it operates correctly.



H148\_0002AC\_

## Removing an EMI LINE FILTER



H148\_0137CCA  
H148\_0137CA

[1] De-energize the PROCESSOR.

[2] Remove:

- RECEIVING BIN
- ELECTRICAL BOX ACCESS PANEL
- TRANSFORMER ACCESS PANEL
- ELECTRICAL BOX from the RAILS



**ESD**

Possible damage from electrostatic discharge.



**Important**

Label or identify the wires connected to the EMI LINE FILTER before you remove the wires.

[3] To remove FL1, FL2, or FL3:

- a. Remove the 4 wires.
- b. Remove the 2 SCREWS from the BRACKET.
- c. Remove the 4 SCREWS from the FILTER.

[4] To remove FL4:

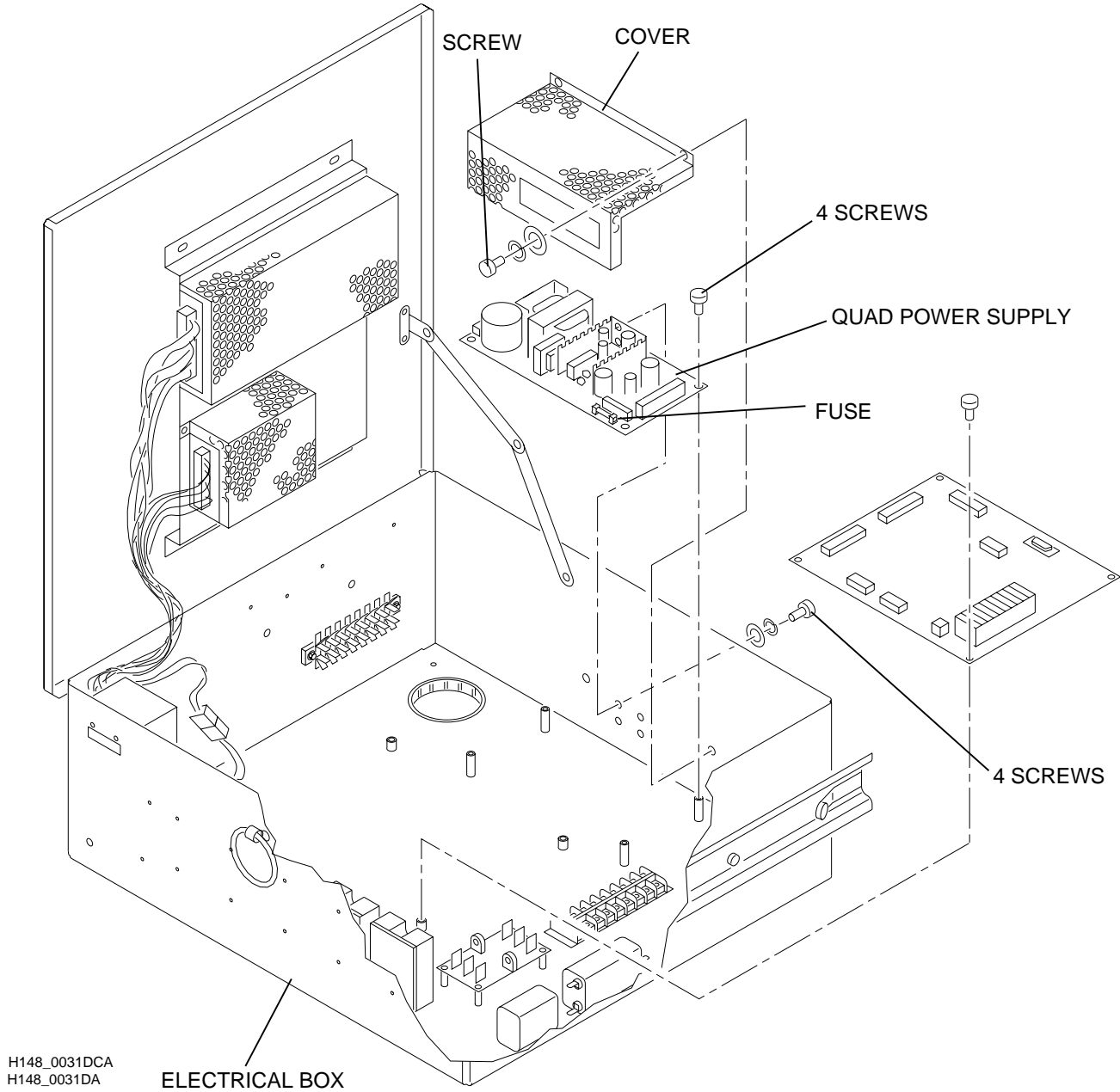
- a. Remove the 4 wires.
- b. Remove the 2 SCREWS from the FILTER.

[5] Install the new FILTER.

[6] Assemble the PROCESSOR and check that it operates correctly.



Removing the QUAD POWER SUPPLY PS1



[1] De-energize the PROCESSOR.

[2] Remove:

- RECEIVING BIN
- ELECTRICAL BOX ACCESS PANEL
- TRANSFORMER ACCESS PANEL



**ESD**

Possible damage from electrostatic discharge.

[3] Remove the ELECTRICAL BOX from the RAILS and open the ELECTRICAL BOX.

[4] Disconnect CONNECTORS P/J 110 and P/J 210.

[5] Remove the 4 SCREWS that fasten the HEAT SINK to the back of the ELECTRICAL BOX.

[6] Remove the 4 SCREWS supporting the QUAD POWER SUPPLY.

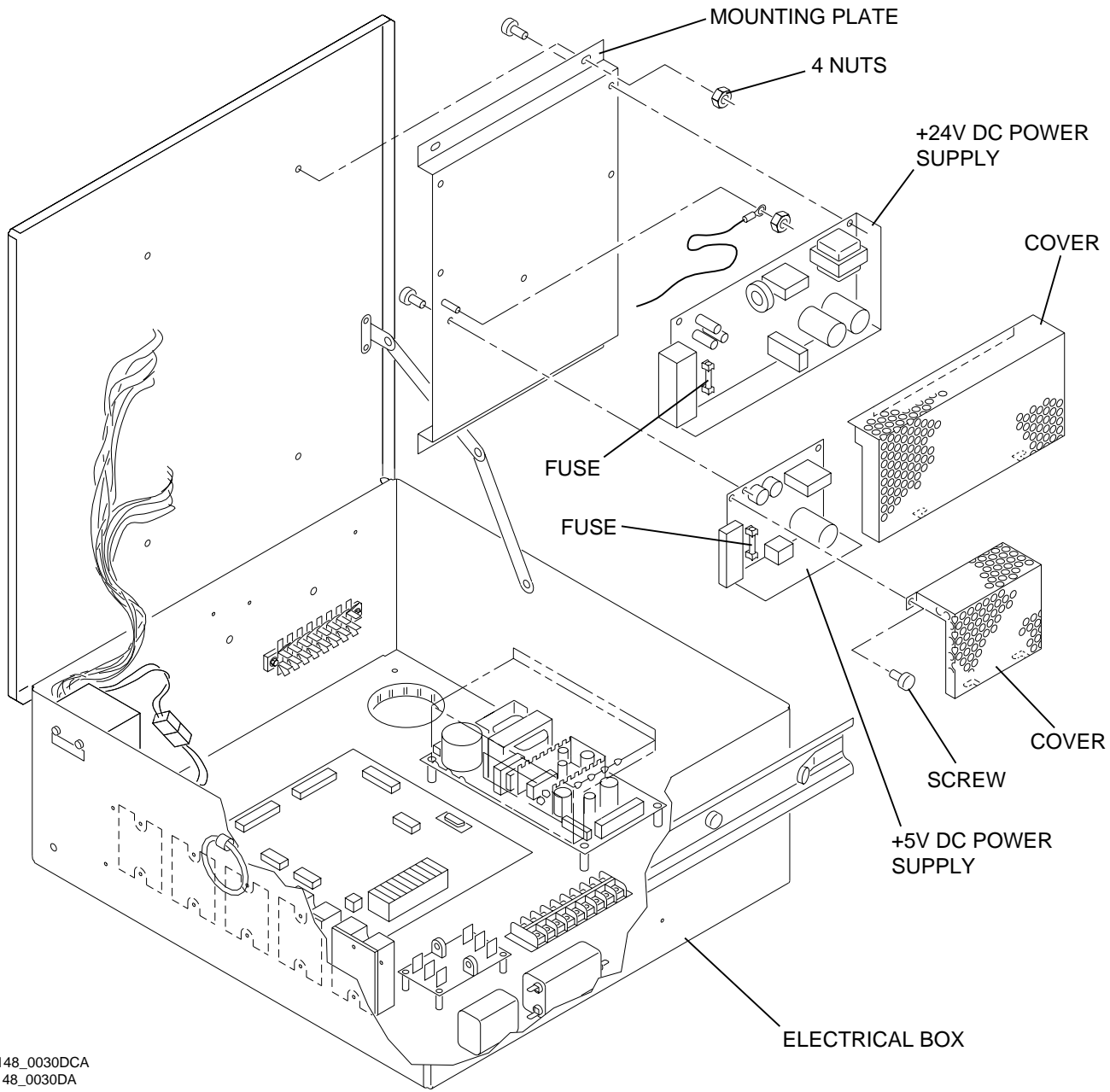
[7] Remove the QUAD POWER SUPPLY.

[8] Apply HEAT SINK COMPOUND to the back of the HEAT SINK on the new QUAD POWER SUPPLY.

[9] Install the new QUAD POWER SUPPLY.

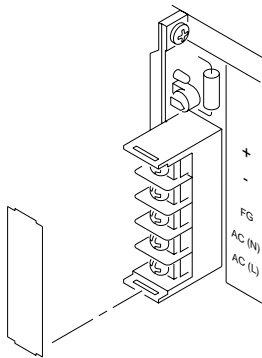
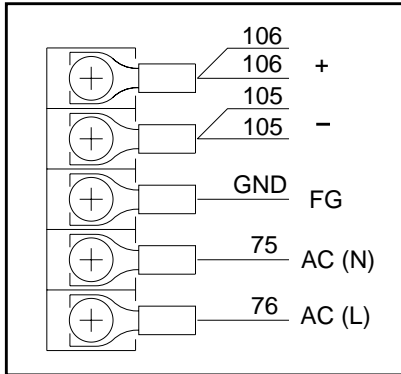
[10] Assemble the PROCESSOR and check that it operates correctly.

# Removing the +5 V DC and the +24 V DC POWER SUPPLIES: PS2 and PS3



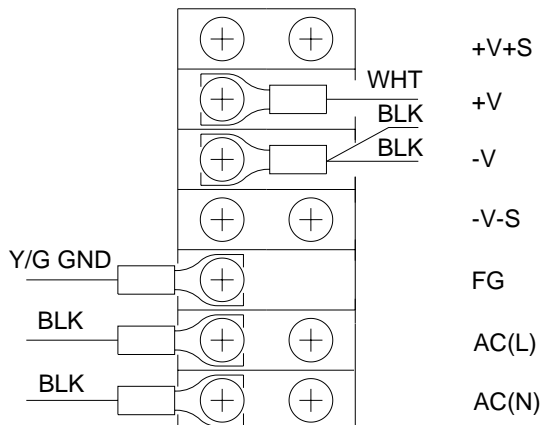
H148\_0030DCA  
H148\_0030DA

## + 5 V DC POWER SUPPLY



H148\_0172GA

## + 24 V DC POWER SUPPLY



H148\_0173AA

[1] De-energize the PROCESSOR.

[2] Remove:

- RECEIVING BIN
- ELECTRICAL BOX ACCESS PANEL
- TRANSFORMER ACCESS PANEL

[3] Pull out the ELECTRICAL BOX and open it.



**ESD**

Possible damage from electrostatic discharge.

[4] Disconnect the wires from the POWER SUPPLY:

- +5 V DC POWER SUPPLY PS2: 5 wires
- +24 V DC POWER SUPPLY PS3: 5 wires

[5] Remove the MOUNTING PLATE:

- 4 NUTS
- 4 WASHERS
- 4 LOCK WASHERS

[6] To install a replacement FUSE, remove the COVER.

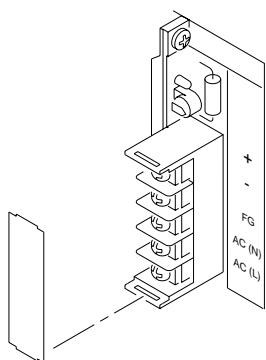
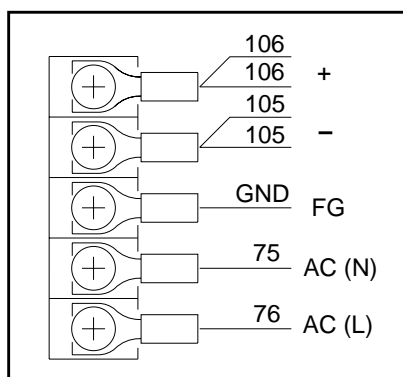
[7] To remove the BOARD, remove the SCREWS:

- 2 SCREWS on the +5 V DC POWER SUPPLY
- 4 SCREWS on the +24 V DC POWER SUPPLY

[8] Install the new BOARD.

[9] Assemble the PROCESSOR and check that it operates correctly.

## Adjusting the 5 V DC POWER SUPPLY PS2



H148\_0172GA

[1] Remove:

- RECEIVING BIN
- ELECTRICAL BOX ACCESS PANEL
- TRANSFORMER ACCESS PANEL

[2] Pull out the ELECTRICAL BOX and open it.  
See Section 1.



**ESD**

Possible damage from electrostatic discharge.



**Caution**

- Do *not* exceed 6.2 V in the following adjustment. Rotate the POTENTIOMETER in small increments.
- If the voltage exceeds 6.2 V, the internal over-voltage protection sets the voltage of the POWER SUPPLY to 0 volts. If you must reset the POWER SUPPLY, see Step 5.

[3] Connect a VOLTMETER to the +5 V DC POWER SUPPLY.

- +lead to the + TERMINAL of PS2
- - lead to the - TERMINAL of PS2

[4] Adjust the POTENTIOMETER V.ADJ to 5.5 V  $\pm$  0.1 V.

[5] If you must reset the POWER SUPPLY,

- De-energize the PROCESSOR for one minute.
- Rotate the POTENTIOMETER completely counterclockwise ↶.
- Energize the PROCESSOR.

[6] Assemble the PROCESSOR and check that it operates correctly.

