

## **SECTION 5**

### **OPERATOR MAINTENANCE AND CLEANING**

#### **5.1 OPERATOR MAINTENANCE**

Your plotter has several sliding surfaces. These are made of smooth metals and plastics so that they are essentially friction-free and require no lubricants. These will, however, collect dust and lint which will adversely affect the performance of the plotter. Keep the plotter as clean as possible by using a dust cover. When necessary, clean the unit with a soft cloth dampened with isopropyl alcohol or mild detergent. (Do not use abrasives.)

##### **Ink On Plotter Surface:**

Use a clean cloth dampened in a concentrated solution of soap and water; squeeze out excess water and then scrub the affected surface. Be sure that no water drips into the plotter as this will cause electrical shorting of the internal components. Do not use any aerosol cleaners, such as TV contact cleaner, household wall cleaners, or anything containing a solvent; these may damage certain components.

##### **Care of Media:**

The plotting media should be handled by its edges. Pen skipping may occur if the media has smudges or has been permeated with oil, grease, perspiration, or other contaminants.

##### **Pen Care:**

Disposable technical pens should be stored in their storage box. Always cap unused pens.

## Optical Chart Sensor Care:

Improper chart sensing may result if dirt, dust, or other debris should collect in the chart sensor hole, which is located on the top right side of the rear platen. When necessary, use compressed air or a small soft brush to clear debris from the hole above the sensor.

### **5.1.1 Cleaning Friction Drive Wheels**

The friction drive wheel area of the plot drum can become clogged with accumulated residue from the plotting materials. This can cause slippage of the plotting material between the plot drum and the pinch rollers, resulting in inaccurate plots.

The following procedure explains how to clean the friction drive wheels when necessary. Note that the special cleaning strips (part number DMP40-303) are available from Houston Instrument or your product distributor.

1. Remove plotting material from the unit.
2. Place the plotter into manufacturing setup mode level 1 (MSM/L1) as explained in Appendix B.
3. Remove the plotting media if installed, and then place the plotter in MSM/L1 local mode. This enables you to use the control panel manual movement keys without a chart installed in the plotter.
4. Remove the protective liner from the cleaning strip.
5. Open the right pinch roller arm.
6. Place the cleaning strip between the pinch roller and the plot drum, with the tacky side of the cleaning strip toward the friction drive wheel as shown in Figure 5-1.

7. Using the ▲ and ▼ switches on the control panel, slew the cleaning strip back and forth several times until all residue is removed from the friction drive wheel.
8. Open the right pinch roller arm and remove the cleaning strip.
9. Repeat steps five through eight for the left friction drive wheel at each chart size setting.
10. Set the plotter's power switch to OFF.
11. Residue can be removed from the cleaning strip by washing it in cold water. Thoroughly dry the cleaning strip and replace its protective lining.

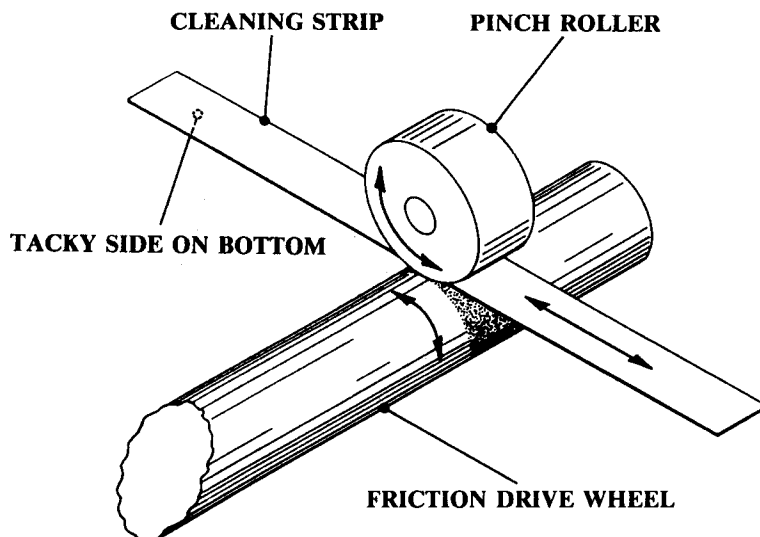


FIGURE 5-1. CLEANING FRICTION DRIVE WHEELS

## 5.2 OPERATING VOLTAGE CONVERSION

The plotter will operate on either 100, 120, 220, or 240 Vac line voltage. (See Table 1-1 for the minimum and maximum operating ranges for these voltage ratings.) Your plotter may be equipped with either of two power entry modules. The following paragraphs explain how to change the voltage settings and the fuse on both types of modules.

On one type of power entry module, the cover shows four possible voltage settings (100V, 120V, 220V, or 240V). Notice that a pin will be in one of these holes, indicating the present voltage setting for the plotter. If this setting does not match the voltage available at your site, then it must be changed before powering on the plotter. Figure 5-2 shows an example setting for 120 Vac operation.

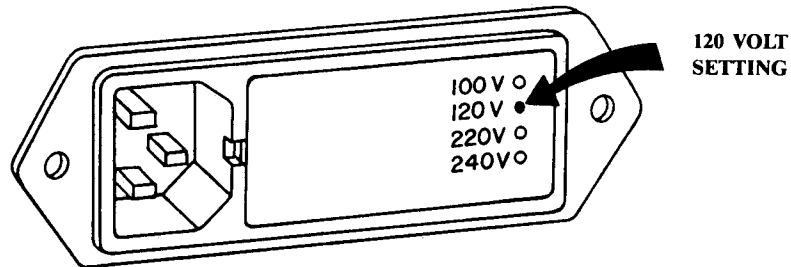


FIGURE 5-2. EXAMPLE 120 VOLT SETTING

Follow the steps below to change a fuse or convert the operating voltage of a plotter having this type of power entry module.

1. Set the plotter power switch to OFF.
2. Unplug the power cord from the ac wall outlet and from the power cord receptacle on the power entry module. See Figure 5-3.
3. Using a small flat blade screwdriver or similar tool inserted into the slot at the left edge of the cover, carefully pry the cover off the fuse cavity.
4. To change the voltage setting, grasp the white plastic voltage select board pin and pull straight outward until the voltage select board unseats from the power entry module. Hold the board so that you can read the four voltage selection labels (100, 120, 220, and 240) imprinted on the board. Move the voltage indicator pin to the opposite side of the board from the desired voltage label. Be sure to seat the pin in the notch provided on the board's edge. Install the voltage select board so that it is fully seated in the voltage select cavity (the label side toward the fuse cavity).
5. To change the fuse(s), remove the fuse(s) from the fuse carrier on the back of the cover. For 100 or 120 Vac operation, the fuse rating is 1 Amp, Slo-Blo. For 220 or 240 Vac operation, the fuse rating is 0.5 Amp, Slo-Blo. Be sure to use the correct rating for your voltage selection. For installation, insert the fuse(s) of the proper rating into the fuse carrier.
6. To change the fuse arrangement to match that used in your country, remove the screw from the fuse carrier, remove the fuse carrier, turn the fuse carrier so that the desired fuse arrangement (single fuse or dual fuses) is facing outward, install the fuse carrier, and install the screw. For United States type power operation, use a single standard AGC or 3AG 0.25 inch  $\times$  1.25 inches fuse of the correct rating. For European type power operation, use two standard 5.2 mm  $\times$  20 mm fuses of the correct rating. For European use, it is important to note that if your local electrical code does not allow a dual fuse arrangement, then a dummy fuse must be installed in the lower fuse carrier. Otherwise, the plotter will not operate.

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7. Place the cover on the power entry module and press inward until it snaps into place. Verify that the desired operating voltage is indicated with the voltage select board pin on the cover label.
8. Connect the power cord to the power entry module and wall outlet. The plotter is now ready to be operated on the selected ac line voltage.

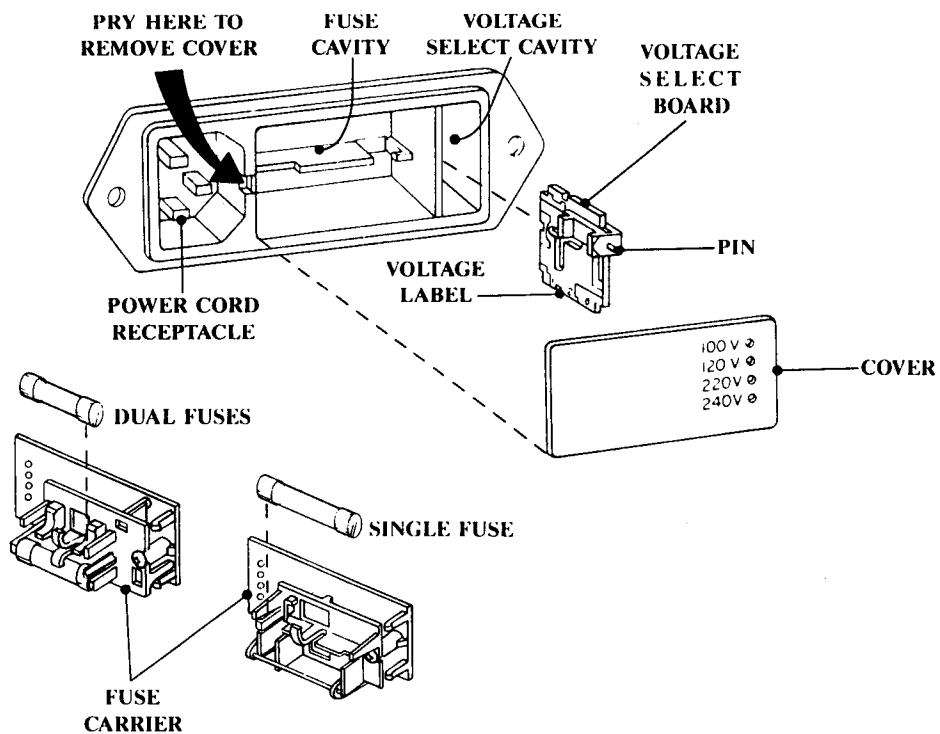


FIGURE 5-3. POWER ENTRY MODULE

The other type of power entry module has a fuse cavity behind a clear plastic protective cover. Inside the cavity is a numbered (100, 120, 220, or 240) voltage select board. The number visible on the voltage select board indicates the present voltage setting of the plotter. If this setting does not match the voltage available at your site, then it must be changed before powering on the plotter.

Follow the steps below to change a fuse or convert the operating voltage of a plotter having this type of power entry module.

1. Set the plotter's power switch to OFF.
2. Unplug the ends of the power cord from the ac wall outlet and from the ac receptacle on the bottom panel of the plotter.
3. Slide the clear plastic protective window to the left (see Figure 5-4).
4. Pull the "FUSE PULL" lever out and remove the fuse.
5. Pull the voltage select board, which is located inside the fuse cavity below the fuse holder, out from the fuse cavity. As shown in Figure 5-4, one side of the voltage select board has the numbers "120" and "240" printed on it, and the other side has the numbers "220" and "100." The numbers indicate the operating voltage of 120, 240, 220, and 100 Vac. Hold the board in your hand so the number that reflects the desired operating voltage ("100," "120," "220," or "240") appears upright on the left side of the voltage select board. (The other number will appear upside down.) While holding the board in this position, slide it back into its place inside the fuse cavity (see Figure 5-4). The number that indicates the operating voltage will now be visible from the outside of the fuse cavity window.

### WARNING

Do not re-install the fuse that was removed in step 4. The fuse rating for 100/120 Vac and 220/240 Vac are different and must correspond to the operating voltage to prevent possible damage to the plotter. If you are converting the plotter to either 100 or 120 Vac, install a 250V 3AG 1.0 AMP fuse. If you are converting it to 220 or 240 Vac, install a 250V 3AG 0.5 AMP fuse.

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6. Close the protective window over the fuse cavity by sliding it to the right.
7. Connect the power cord. The plotter is now ready to be operated on the selected ac line voltage.

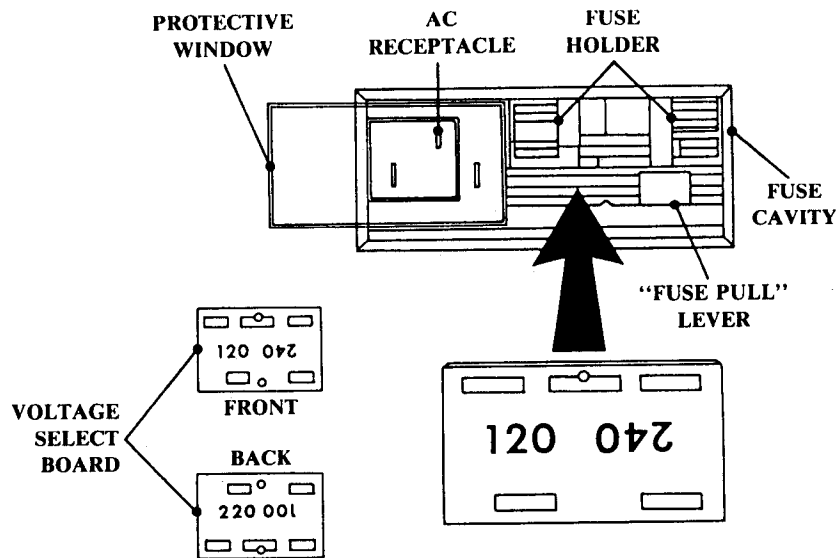


FIGURE 5-4. EXAMPLE 120 VAC CONVERSION (AC FUSE CAVITY)

## 5.3 PRODUCT SERVICE SUPPORT

If you need technical assistance or if you suspect a problem with your Houston Instrument equipment, contact Houston Instrument at 1-800-444-3425.

Please have the following information available *before* contacting our support personnel:

- The plotter's model and serial number, which is printed on the plotter's identification tag,
- The type of computer with which the plotter is being used,
- The name and revision number of the computer's software package,
- The cable configuration between the plotter and the computer,
- A copy of the last menu settings (if the plotter has ever been operated),
- A copy of the service test plot, which provides the plotter's ROM revision levels (see Appendix B). If the plotter will not run the service test plot, write down the error code displayed on the control panel LEDs (see Appendix A),
- The date of purchase,
- The type of maintenance agreement, if any,
- The names of the reseller and contact and phone numbers,
- A brief description of the problem.

