ELECRAFT® P3

HIGH-PERFORMANCE PANADAPTER

P3SVGA OPTION INSTALLATION AND OPERATING INSTRUCTIONS

Rev A1, February 22, 2012

Contents

Introduction

The P3SVGA Super Video Graphics Array option adds wide screen display capability to the P3. It features a dedicated, high-speed Fast Fourier Transform (FFT) processor that performs a 2048 point FFT in parallel with the P3's existing processor for a much higher frequency resolution per dot on the larger screen. The P3SVGA also includes an interface for a future USB option that will permit direct digital mode operation via the K3 and P3 with data display on the P3 and P3SVGA screens.

The P3SVGA adds three connectors to the P3 rear panel: KEYBOARD, EXT. DISPLAY and AUX DATA. Only the EXT. DISPLAY connector is active at this time. The other connectors are reserved for future use.

The P3SVGA supports the following video resolutions:

1024	X	768
1280	X	1024
1440	X	900
1600	X	900
1920	X	1080

The P3SVGA is a single-plug in board. Only a few basic hand tools are needed (see page 6) to perform the installation. No soldering or wiring is required.

Customer Service and Support

Technical Assistance
You can send e-mail to <u>support@elecraft.com</u> and we will respond quickly - typically the same day Monday through Friday. Telephone assistance is available from 9 A.M. to 5 P.M. Pacific time (weekdays only) at 831-763-4211. Please use e-mail rather than calling when possible since this gives us a written record of the details of your problem and allows us to handle a larger number of requests each day.

Repair / Alignment Service (We want to make sure everyone succeeds!)
If necessary, you may return your Elecraft product to us for repair or alignment. (Note: We offer unlimited email and phone support to get your kit running, so please try that route first as we can usually help you find the problem quickly.)

IMPORTANT: You must contact Elecraft before mailing your product to obtain authorization for the return, what address to ship it to and current information on repair fees and turnaround times. (Frequently we can determine the cause of your problem and save you the trouble of shipping it back to us.) Our repair location is different from our factory location in Aptos. We will give you the address to ship your kit to at the time of repair authorization. *Packages shipped to Aptos without authorization will incur an additional shipping charge for reshipment from Aptos to our repair depot.*

Elecraft 1-Year Limited Warranty

This warranty is effective as of the date of first consumer purchase. It covers both our kits and fully assembled products. For kits, before requesting warranty service, you should fully complete the assembly, carefully following all instructions in the manual.

What is covered: During the first year after date of purchase (or if shipped from factory, date product is shipped to customer), Elecraft will replace defective or missing parts free of charge (post-paid). We will also correct any malfunction to kits or assembled units caused by defective parts and materials. Purchaser pays inbound shipping to us for warranty repair, we pay shipping to return the repaired equipment to you by UPS ground service or equivalent to the continental USA and Canada. Alaska, Hawaii and outside U.S. and Canada actual return shipping cost paid by owner.

What is not covered: This warranty does not cover correction of kit assembly errors. It also does not cover misalignment; repair of damage caused by misuse, negligence, or builder modifications; or any performance malfunctions involving non-Elecraft accessory equipment. The use of acid-core solder, water-soluble flux solder, or any corrosive or conductive flux or solvent will void this warranty in its entirety. Also not covered is reimbursement for loss of use, inconvenience, customer assembly or alignment time, or cost of unauthorized service.

Limitation of incidental or consequential damages: This warranty does not extend to non-Elecraft equipment or components used in conjunction with our products. *Any such repair or replacement is the responsibility of the customer. Elecraft will not be liable for any special, indirect, incidental or consequential damages, including but not limited to any loss of business or profits.*

Operation

The P3 must have firmware version 01.10 or later installed. See Firmware Upgrades in your P3 Owner's Manual for information on how to check and upgrade your firmware if needed.

Connections

Connect the P3 directly to a 10 to 15 VDC power source capable of providing at least 700 mA. Do not power it from the 12VDC OUT power connector on the K3. That output is limited to 500 mA. In some cases the P3 with the SVGA option enabled will work but the P3 may shut down unexpectedly when the K3's 500 mA resettable fuse protecting the 12VDC OUT opens.

Connect your SVGA monitor to the EXT. DISPLAY connector on the P3.

Display Setup

Tap MENU and then turn the ↻SELECT knob to SVGA menu. Tap the ↻ SELECT knob enter the sub-menu.

Set Resolution

Turn the ↻SELECT knob to SVGA res then tap the ↻ SELECT knob again. Turn the ↻SELECT knob to select the desired resolution.

SVGA Fill

In spectrum display, this setting fills the space below the spectrum line or leaves it open as you see on the P3 display. It does not have any effect on the waterfall display or the spectrum displayed on the P3's internal screen. Turn the ↻SELECT knob to SVGA fill then tap the ↻ SELECT knob to toggle the fill on or off.

Display On/Off

The external display is activated automatically when the P3 is turned on. You can turn the external display off or on from the SVGA sub-menu. Turn the ↻SELECT knob to SVGA en and then tap the ↻ SELECT knob again. Turn the ↻SELECT knob to select SVGA on (external display on) or SVGA off (external display off).

Installing the P3SVGA Option Board

Preventing Electrostatic Discharge Damage

We strongly recommend you take the following anti-static precautions (listed in order of importance) to avoid trouble:

- Leave ESD-sensitive parts in their anti-static packaging until you install them. The packaging may be a special plastic bag or the component's leads may be inserted in conductive foam. Parts which are especially ESD-sensitive are identified in the parts list and in the assembly procedures.

- Wear a conductive wrist strap with a series 1-megohm resistor. If you do not have a wrist strap, touch a ground briefly before touching any sensitive parts to discharge your body. Do this frequently while you are working. You can collect a destructive static charge on your body just sitting at the work bench. **DO NOT attach a ground directly to yourself as this poses a serious shock hazard.**

- Use a grounded anti-static mat on your work bench.

- If you choose to use a soldering iron to work on your P3 for any reason, be sure your iron has an ESD-safe grounded tip tied to the same common ground used by your mat or wrist strap.

Tools Required

1. #1 size Phillips screwdriver. To avoid damaging screws and nuts, a power screwdriver is *not* recommended.
2. Pliers or wrenches for installing 1/4" (6.4mm) nuts 3/16" (4.8 mm) jack screw nuts.

The following tools are strongly recommended:

1. ESD wrist strap.
2. Static dissipating work pad.

Parts Included

The following parts should be included in your kit. Check to ensure you have them all. If any parts are damaged or missing, contact Elecraft for replacements (see *Customer Service and Support*, page 3).

ILLUSTRATION	DESCRIPTION	QTY.	ELECRAFT PART NO.
	P3SVGA Circuit Board Assembly ⚠ *ESD Sensitive.*	1	E850482
	Jackscrew Nut, 4-40 (may be mounted on the Circuit Board Assembly Connector)	2	E700078
	Lock Washer, Inside Tooth, #4 (may be mounted on the Circuit Board Assembly Connector)	2	E700010

Installation Procedure

☐ Disconnect power and all cables from your P3.

☐ Remove the six screws to free the top cover (Figure 1 ①) and lift the cover off. There is a slot at one end that you can use to lift the cover once it is free.

⚠ **Whenever you remove screws from a panel, if one screw seems too tight to loosen without damaging it, first loosen the other screws then try again. Sometimes one screw binds in its hole when the other screws are tightened.**
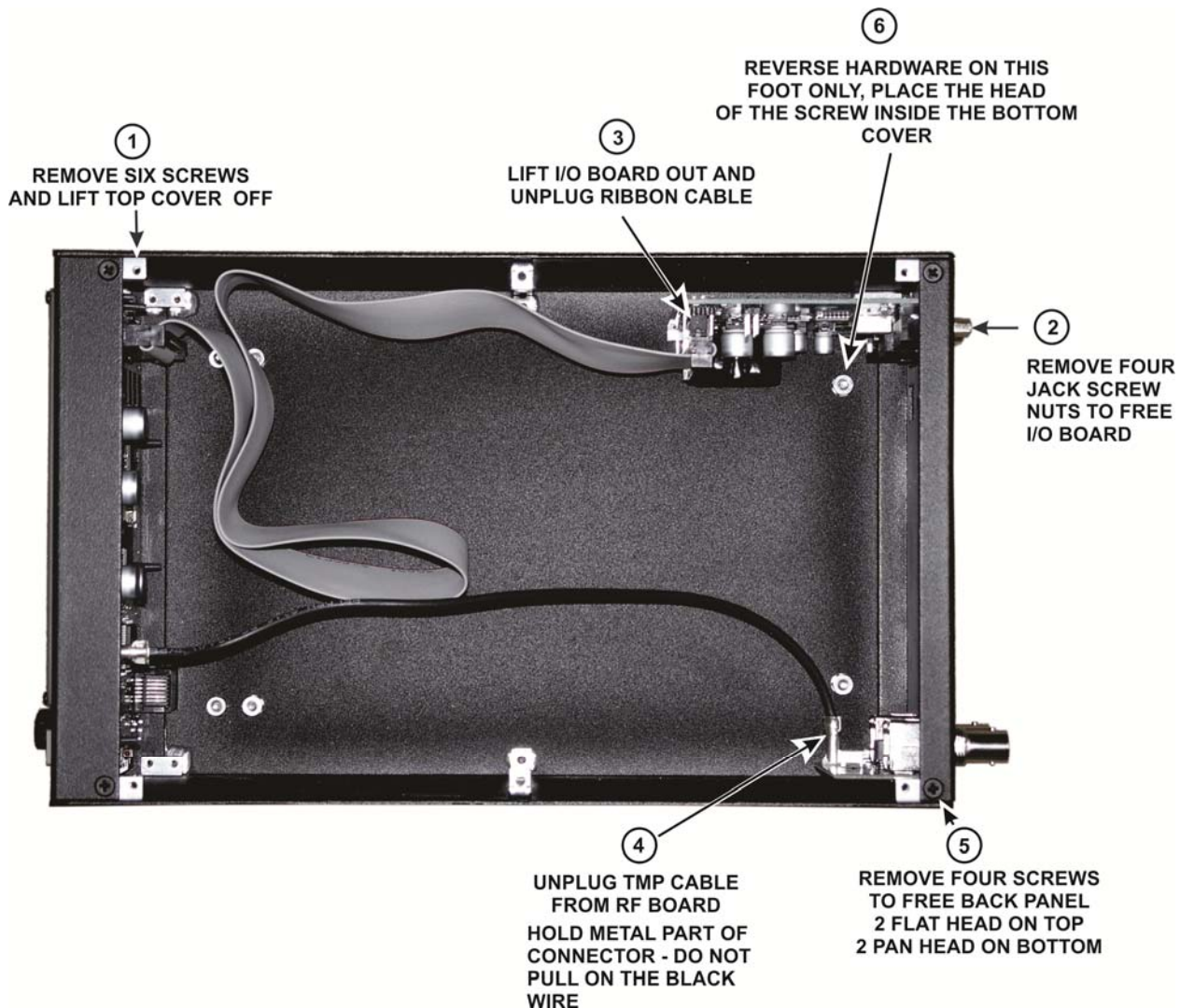
⑥
REVERSE HARDWARE ON THIS
FOOT ONLY, PLACE THE HEAD
OF THE SCREW INSIDE THE BOTTOM
COVER

①
REMOVE SIX SCREWS
AND LIFT TOP COVER OFF

③
LIFT I/O BOARD OUT AND
UNPLUG RIBBON CABLE

②
REMOVE FOUR
JACK SCREW
NUTS TO FREE
I/O BOARD

④
UNPLUG TMP CABLE
FROM RF BOARD

HOLD METAL PART OF
CONNECTOR - DO NOT
PULL ON THE BLACK
WIRE

⑤
REMOVE FOUR SCREWS
TO FREE BACK PANEL
2 FLAT HEAD ON TOP
2 PAN HEAD ON BOTTOM

Figure 1. Preparing the P3 to Install the P3SVGA Board.

⚠ **CAUTION:** **Touch an unpainted metal ground or wear a grounded wrist strap before touching components or circuit boards inside the P3. See** *Preventing Electrostatic Discharge Damage* **on page 5 for more information.**

☐ Remove the four jack screw nuts and lock washers to free the I/O board (Figure 1 ②)

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☐ Lift the I/O board out of the P3 and unplug the ribbon cable (Figure 1 ③). Take care not to damage the board. Hold the board while working the connector side to side to "walk" it off of the pins as shown in Figure 2.
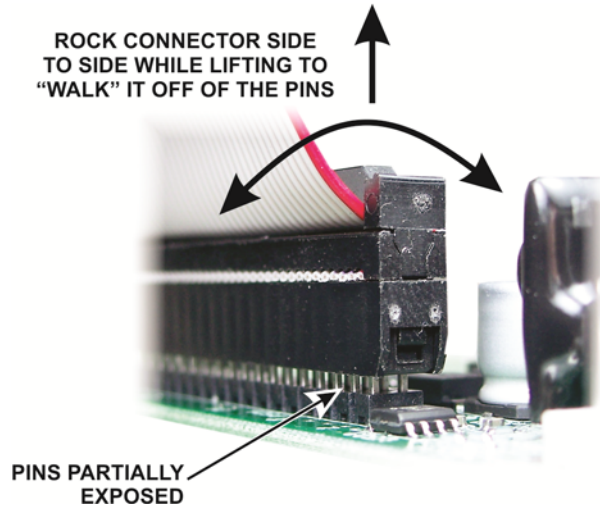

ROCK CONNECTOR SIDE TO SIDE WHILE LIFTING TO "WALK" IT OFF OF THE PINS

PINS PARTIALLY EXPOSED

Figure 2. Unplugging the Ribbon Cable from the I/O Board.

☐ Unplug the TMP coaxial cable from the RF board (Figure 1 ④). This is a friction-fit connector. Do not pull on the black coaxial cable. Grip and pull only on the metal connector.

☐ Remove the four screws holding the rear panel in place (Figure 1 ⑤) and lift the rear panel off of the P3.

☐ Remove and reverse the mounting hardware for the rear foot shown in Figure 1 ⑥). Install the hardware as shown in Figure 3. It must be installed as shown with the screw head inside the bottom cover to provide clearance for the P3SVGA board.

INSTALLATION HINT: Put the washer and screw in the foot opening and press your finger over the opening until the threads on the nut are caught by the screw. It may help to turn the unit over so gravity helps. Once the nut is started pull the foot away from the bottom cover while tightening the screw. The friction of the washer against the bushing inside the foot will keep the nut from turning as you tighten.
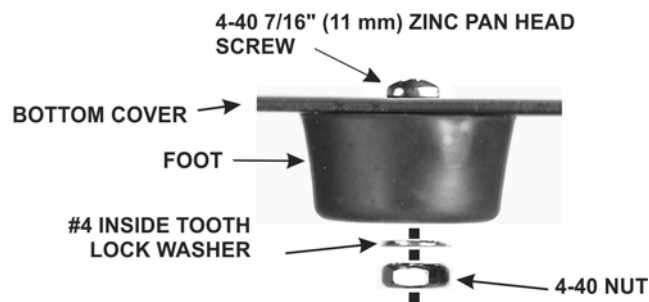

4-40 7/16" (11 mm) ZINC PAN HEAD SCREW
BOTTOM COVER
FOOT
#4 INSIDE TOOTH LOCK WASHER
4-40 NUT

Figure 3. Reversing the Foot Hardware.

☐ Remove the plastic covering from the AUX. DATA, EXT. DISPLAY and KEYBOARD openings on the rear cover, but leave the covering over the SENSOR opening (see Figure 4). The plastic cover will snap apart at the score mark as you bend it away from the panel.
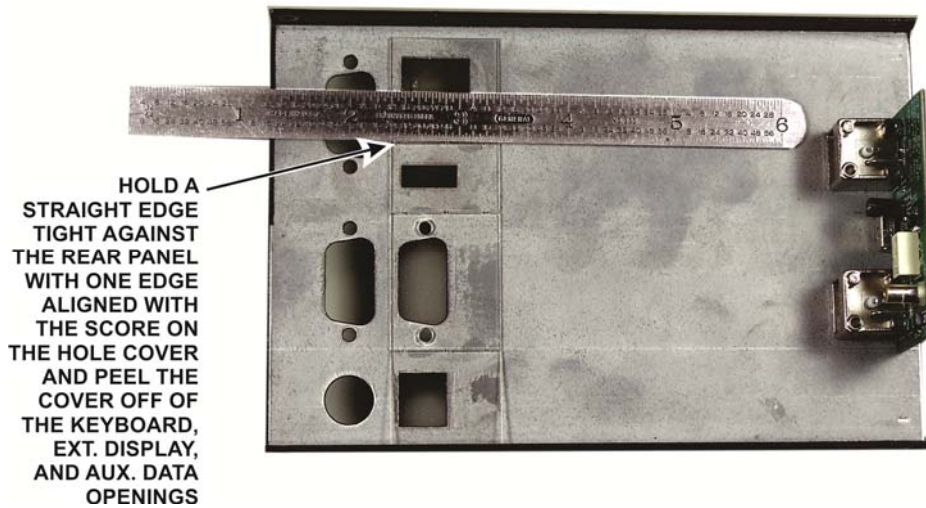

HOLD A STRAIGHT EDGE TIGHT AGAINST THE REAR PANEL WITH ONE EDGE ALIGNED WITH THE SCORE ON THE HOLE COVER AND PEEL THE COVER OFF OF THE KEYBOARD, EXT. DISPLAY, AND AUX. DATA OPENINGS

Figure 4. Removing Hole Covers.

☐ Mount the P3SVGA board on the I/O board as shown in Figure 5. The connector on the P3SVGA board mates with the connector on the I/O board that originally received the ribbon cable. **Be sure the connectors are aligned so that all pins engage. To avoid over-stressing the boards, place the I/O board on a firm surface. You may need to rock the P3SVGA board slightly while pressing down to "walk" the pins into the connector like you did when removing the ribbon cable earlier.**
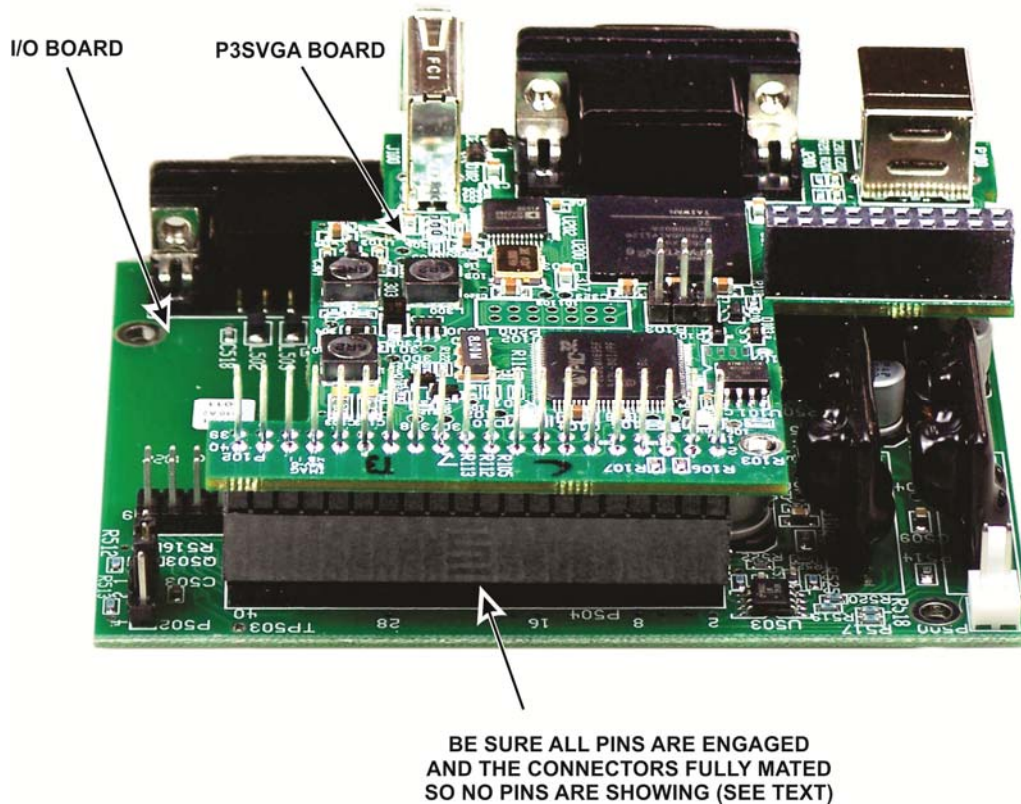

BE SURE ALL PINS ARE ENGAGED AND THE CONNECTORS FULLY MATED SO NO PINS ARE SHOWING (SEE TEXT)

Figure 5. Mating the I/O and P3SVGA Boards.

☐ Connect the ribbon cable to the P102 on the P3SVGA board as shown in Figure 6. Place the boards on a firm surface to avoid over-stressing them. **Be certain that:**

1. **The connector is aligned so that that it covers all of both rows of pins.**

2. **The ribbon cable is oriented so that the red wire is at the pin 1end of the connector as shown. Your ribbon cable may exit the connector toward the board instead of away from it as shown here. That is not a problem as long as you orient it to place the red wire at the pin 1 end as shown.**
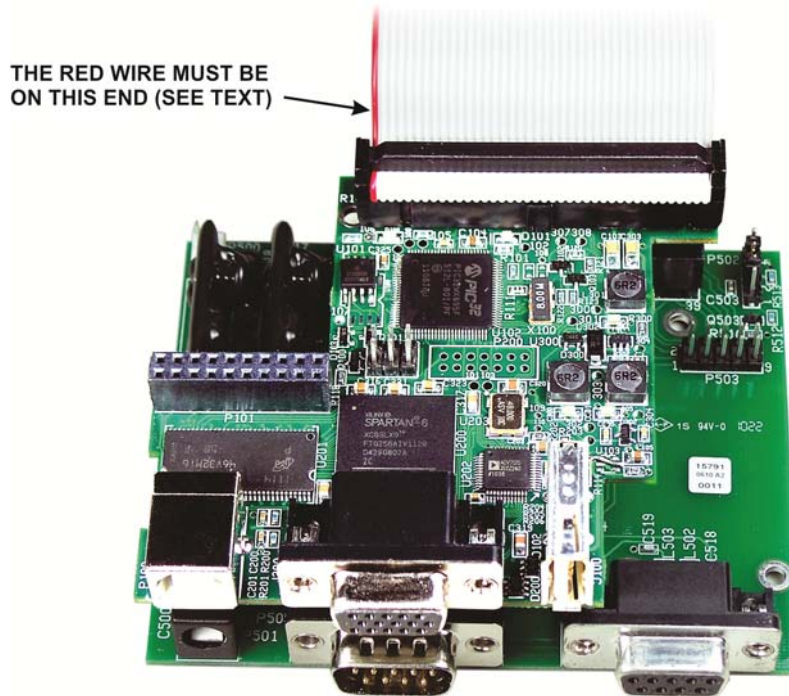

Figure 6. Connecting the Ribbon Cable to the P3SVGA and I/O Boards.

☐ Mount the boards on the rear panel as shown in Figure 7. Start all of the jack screw nuts before tightening them. Do not over-torque them. It is possible to twist the head off of the threaded section, especially if you use a wrench.
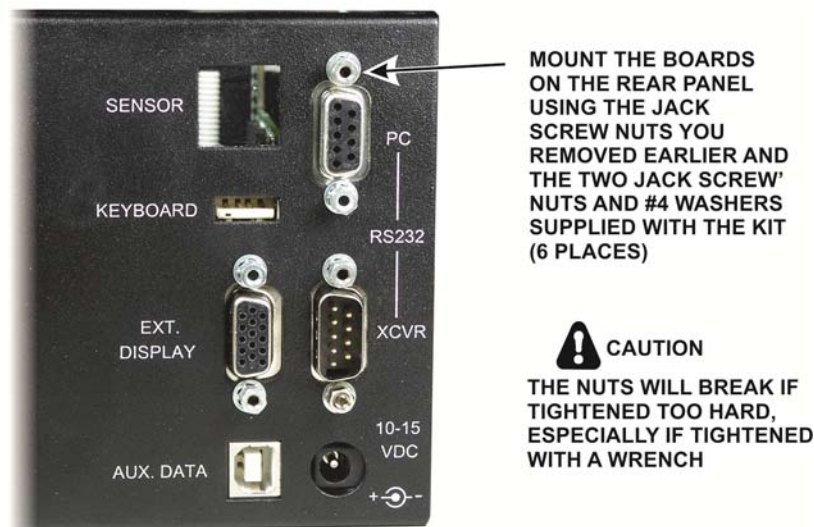

Figure 7. Mounting Boards in Rear Panel.

☐ Replace the rear panel assembly on the P3 as shown in Figure 8. Tilt the assembly so the P3SVGA board does not strike the screw head for the rear foot. The screw head fits in a notch on the P3SVGA board. Secure the rear panel assembly with the screws you removed earlier (Figure 1 ⑤).
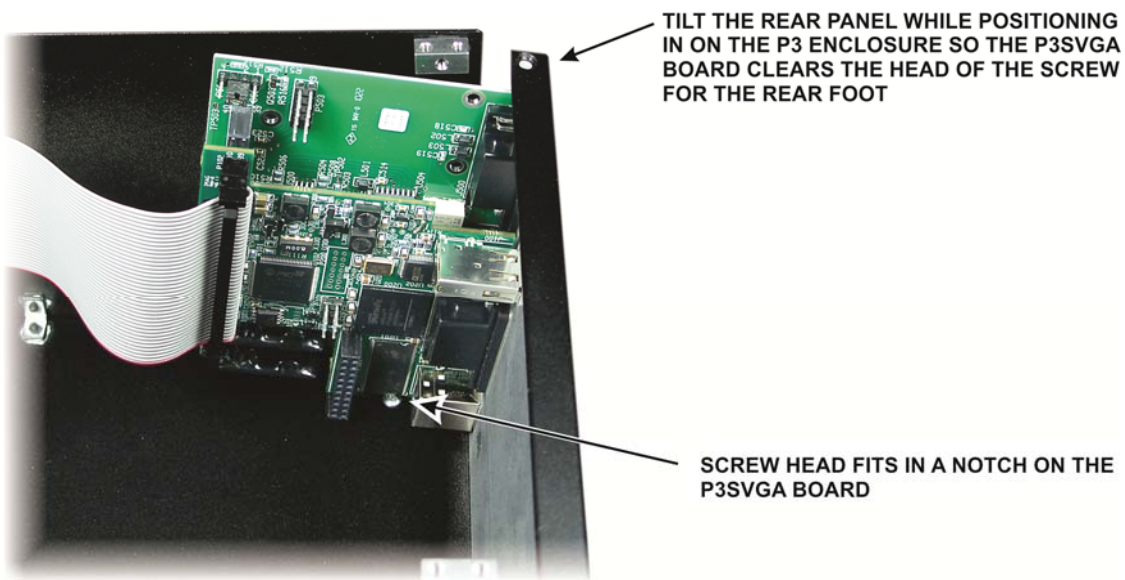

TILT THE REAR PANEL WHILE POSITIONING IN ON THE P3 ENCLOSURE SO THE P3SVGA BOARD CLEARS THE HEAD OF THE SCREW FOR THE REAR FOOT

SCREW HEAD FITS IN A NOTCH ON THE P3SVGA BOARD

Figure 8. Replacing the Rear Panel on the P3.

☐ Reconnect the TMP cable to the rear panel RF board (Figure 1 ④).

☐ Replace the top cover on the P3 with the notch to the rear using the screws you removed earlier:

⚠ REPLACE ALL THE SCREWS!

The P3's chassis strength depends upon all the screws being in place. Be sure to replace all the screws and verify they are tight, but do not over-torque the screws.

That completes the installation of the P3SVGA option in your P3. Operating instructions are on pg 5.