

# ***Strata VI***

## **EPSA-104 INSTALLATION**



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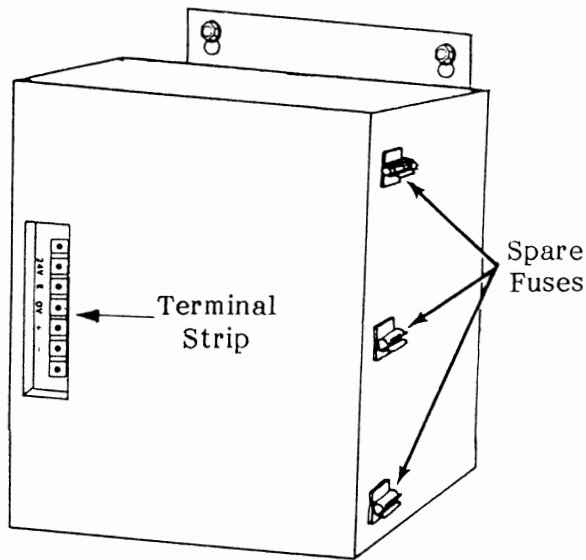
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**01 GENERAL**

**01.01** The EPSA-104 is equipped with a built-in wall mounting bracket, as shown in Figure 1, to allow it to be mounted on a wall or other flat, vertical surface.



**FIGURE 1**

**01.02** Unpack and inspect the EPSA-104 and the enclosed hardware. Examine the package and make careful note of any visible damage. If any damage is found, bring it to the attention of the delivery carrier and make the proper claims.

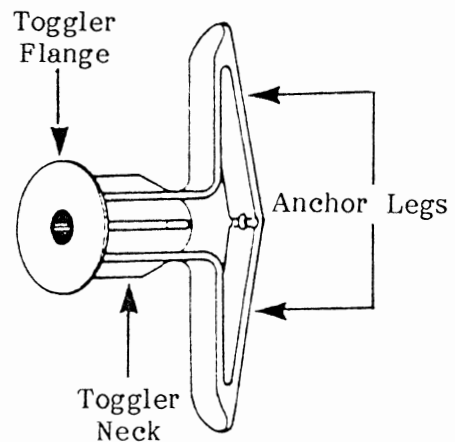
**01.03** Check the hardware list; if it is determined that any equipment within the carton is missing, contact your Toshiba supplier immediately.

**01.04** The following hardware, which is required to mount and connect the EPSA to the system, is supplied with each unit.

**ENCLOSED HARDWARE**

Quantity	Item
2	T.C. Toggler Wall Fasteners (Figure 2)

- 2 #14 Hex Head Sheet Metal Screws
- 1 Toggler Key
- 1 Template  
P/N 117260-001 (to space the wall fasteners properly).
- 1 AC Fuse (spare)  
P/N 116438-088 (F1, 5 amp, SLO-BLO 125 VAC)
- 1 DC Fuse (spare)  
P/N 116438-030 (F2, 10 amp, Fast-BLO, 32 VDC)
- 1 16 AWG, 3-wire Jacketed Cable (54 inches)



**FIGURE 2**

**01.10 Surface Preparation**

**01.11** Choose a suitable location on a vertical surface for the EPSA, and attach the template to that location temporarily. Use a spirit level to verify that the drilling points are level.

**01.12** Place punch marks on the mounting surface through the two "+" marks on the template.

**01.13** Enlarge the two punch marks with an 1/8-inch drill bit.

**01.14** Drill through the mounting surface with a 5/16-in. bit to prepare the anchoring holes.

**01.20 Mounting the EPSA**

**01.21** Press the anchor legs of the togglers together, and insert them into the anchoring holes (Figure 3) until their neck flanges are flush with the mounting surface. If insertion is difficult, tap them lightly with a hammer.

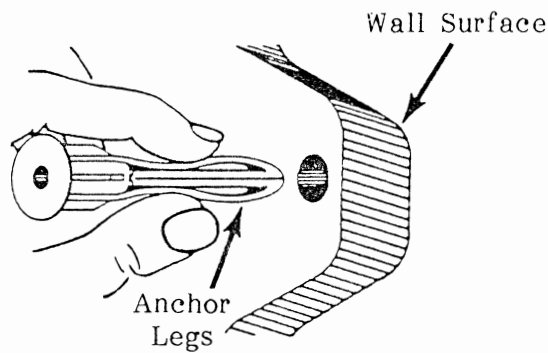


FIGURE 3

**01.22** Insert a toggler key into the small hole in the neck of each fastener, as shown in Figure 4. This should cause the anchor legs to "pop" open. Remove the toggler key.

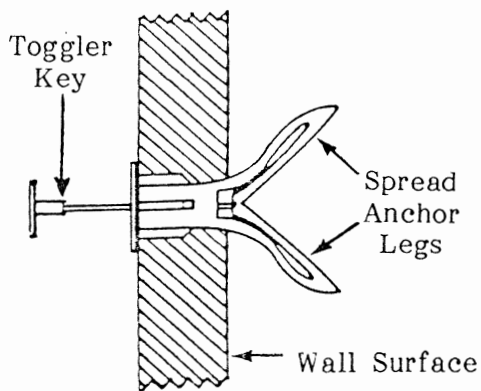


FIGURE 4

**01.23** Thread the screws into the small holes in the center of the togglers. Leave approximately 3/16-inch clearance between the bottom of each screw head and the mounting surface (Figure 5).

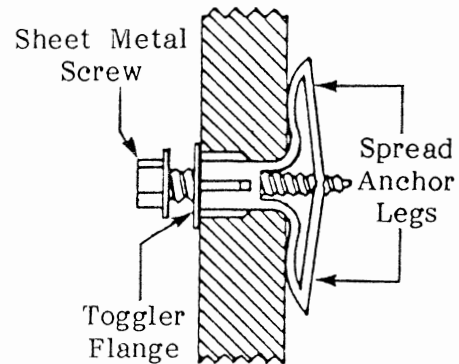


FIGURE 5

**01.24** Place the EPSA against the mounting surface with the screws protruding through the holes (Figure 6).

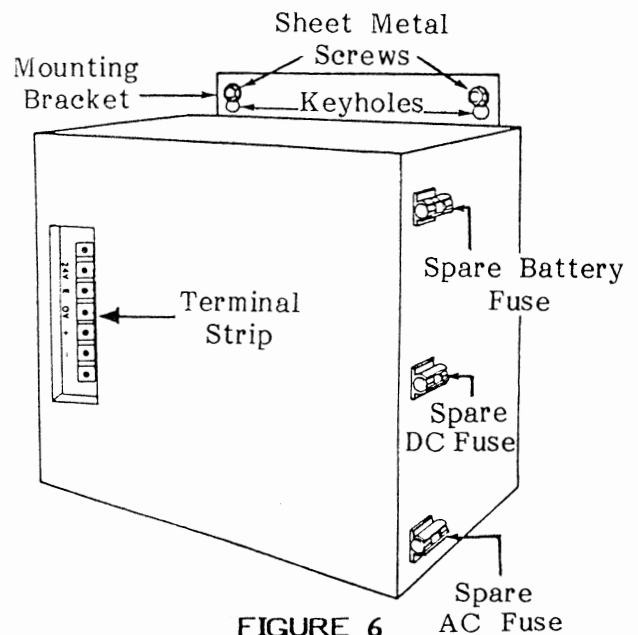


FIGURE 6

**01.25** Lower the power supply so that the narrower portions of the holes slip over the screws and the weight of the power supply is supported. Tighten the screws.

**01.30 Fuses**

**01.31** Remove the spare fuses from the hardware carton, and place them in their individually marked holders (see Figure 6).

**01.32** Remove and inspect the fuses that were shipped inside the EPSA. If either fuse is defective, replace it and order another spare fuse from your Toshiba supplier.

**01.33** Prior to installing the PBBU, connect the EPSA to the MKSU per Paragraph **06.20**, Section 100-006-200, Installation.

## 02 BATTERY BACK-UP INSTALLATION

**02.01** The power battery back-up unit (PBBU) in Figure 7 is an optional PCB which may be installed in the EPSA-104 to interface with two auxiliary 12V batteries. In the event of an electrical power failure, the PBBU provides an automatic battery power source, permitting a typical STRATA VI system to continue normal operations for some time (in direct ratio with the type and size of the batteries chosen).

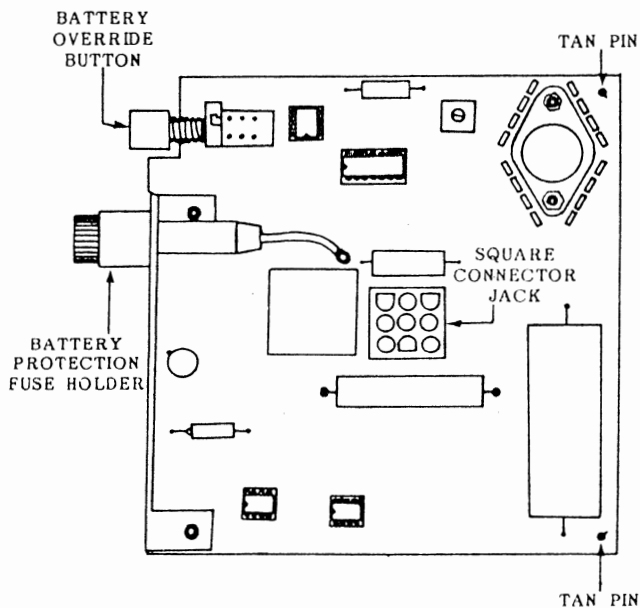


FIGURE 7

**02.02** The PBBU contains a voltage sensing circuit which causes an electro-mechanical relay to connect the back-up battery power to the system before the EPSA output voltage drops below 21VDC (at which point system

functions would be disrupted and existing calls would be disconnected).

**02.03** When the normal source of electrical power is restored, the voltage sensing circuit relay will disconnect the standby battery power source.

**02.04** If the standby battery power source output falls below 21VDC while it is connected to the system, the voltage sensing circuit will cause the relay to disconnect the standby batteries from the system.

**02.05** The standby batteries will not be reconnected unless:

- The "Battery Override" switch (Figures 7 and 8) is placed in the **ON** position, or...
- The depleted batteries are replaced by a freshly charged pair and the "Battery Override" switch is turned on and then released.

**02.06** The PBBU also contains circuitry to provide the charge current necessary to maintain the batteries at a satisfactory level of charge while the STRATA VI system is in normal operation. An external fast charger may also be connected across the battery output terminal connections.

**02.07** The PBBU kit contains the following items:

- PBBU—power battery backup PCB.
- Fuse—spare battery protection fuse.
- Cable Clamp—7/16-in. cable clamp which may be needed to secure the wiring harness inside the EPSA.
- "PBBU-3 REV A"—decal to be placed on the front of the EPSA.
- "WARNING"—warning tag for attachment to the 115VAC power cord.

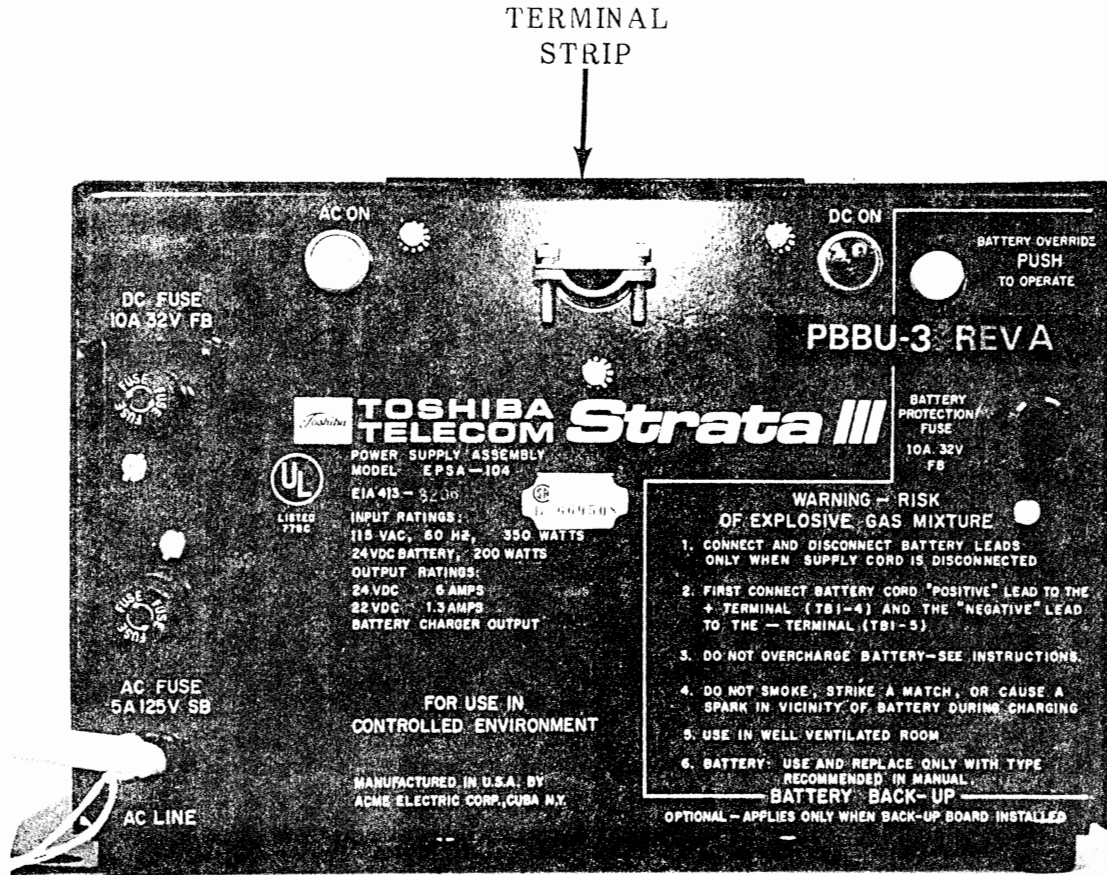


FIGURE 8

**02.08** In addition to the PBBU kit, these items are needed to install a PBBU.

- Two Batteries—lead-acid, maintenance-free automobile batteries (80 amp/hr maximum) are recommended. The procedures in Paragraph **02.40** assume batteries with side-mounted terminals are used.
- Battery Rack & Separator—a battery rack and separator should be used to assure the batteries will not tip and spill battery acid or accidentally short the battery terminals.
- Two-Wire Connecting Cable—a 2-wire connecting cable, terminating at one end with 3/8-in. ring terminals and at the other end with

1/8-in. spade terminals, is required to connect the batteries and the EPSA. The minimum wire gauge must be determined by the loop length of the connecting cable (as indicated in Table A).

TABLE A—MINIMUM WIRE GAUGE

LOOP LENGTH	RECOMMENDED SIZE
12 ft.	16 gauge
20 ft.	14 gauge
30 ft.	12 gauge
50 ft.	10 gauge

- Single-Wire Cable—a 16 AWG single-wire cable, approximately 18 inches in length and equipped with ring terminals, is required to connect the two batteries in series.



- Cable Clamp—a cable clamp should be used to prevent cable movement from affecting the batteries.
- Battery Protection—a 10-amp, 32V fuse, or a 10-amp DC instantaneous-tripping circuit breaker, is required to protect the batteries from power surge or short circuit damage.
- Bolts—four 3/8x1/2-in. hex head bolts are required to connect the cable terminals to the batteries.
- Washers—eight 3/8-in. flat washers and four 3/8-in. internal-tooth lock washers are required for the above cable terminal connections.
- Battery Cabinet—if the batteries are not located in a well-ventilated closet or other secure area, protected from fire or sparks, a properly ventilated protective cabinet is required to safeguard them.

**NOTE:**

*The EPSA-104 is being supplied with some STRATA VI systems; however, an EPSA-103 is shown in the illustrations. Installation with each of these EPSAs is similar except for minor differences in the location of harnesses or connectors. If required by local code, see the permanent wiring instructions on the tag attached to the power cord. Attaching the "Warning" tag at the same location is always required.*

**CAUTION:**

*The EPSA, battery, battery rack, and the interconnecting wiring shall be installed only by qualified installers, in accordance with all applicable electrical codes and*

*Article 480 of the National Electrical Code. Before installing see the "Installation Instructions" enclosed with each item.*

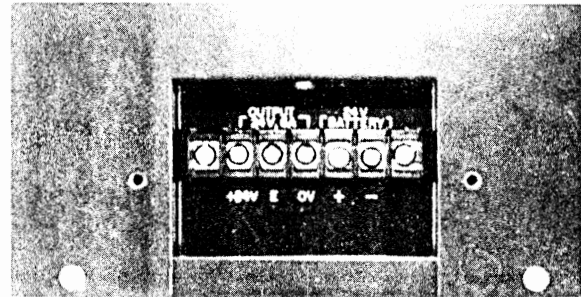
**WARNING:**

*Only trained personnel may service or install the PBBU and EPSA-104.*

**02.10 EPSA Preparation**

**02.11** Verify that the power switch on the MTOU is in the **OFF** position, and then disconnect the 115VAC power cord.

**02.12** Remove the terminal strip cover from the **OUTPUT/24V, 8A-24V/BATTERY** terminals (Figure 9).



**FIGURE 9**

**02.13** The EPSA cover is secured by seven screws. Viewing the EPSA as it is wall-mounted, two screws will be located at the rear edge of the top, three on the side facing outward and two on the rear edge of the bottom.

**02.14** Remove all seven screws.

**02.15** Remove and set cover aside.

**02.16** Locate and trace the multi-wire harness in the lower portion of the EPSA (the area away from the built-in mounting bracket). The harness originates from the transformer and the terminals mounted in the control pa-

nel. This harness terminates in a rust-colored square connector.

**02.17** The harness is secured to the chassis with a cable clamp (Figure 10). Loosen the screw and nut slightly to allow movement of the harness.

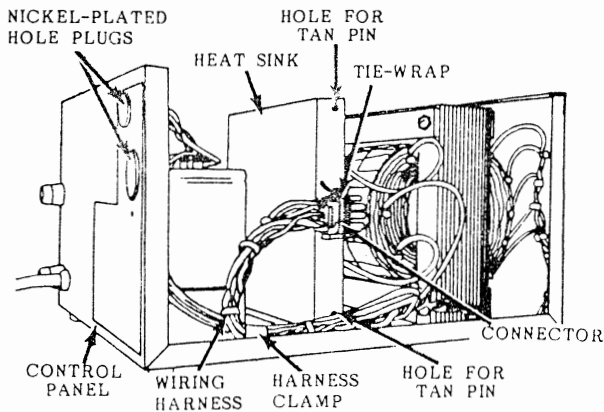


FIGURE 10

**02.20 Installing the PBBU**

**02.21** Mounted in the EPSA control panel are two nickel-plated hole plugs. Bend in the retaining tabs on both plugs; remove and discard them.

**02.22** Unwrap the PBBU. Remove and save the screw located in the mounting bracket (Figure 11).

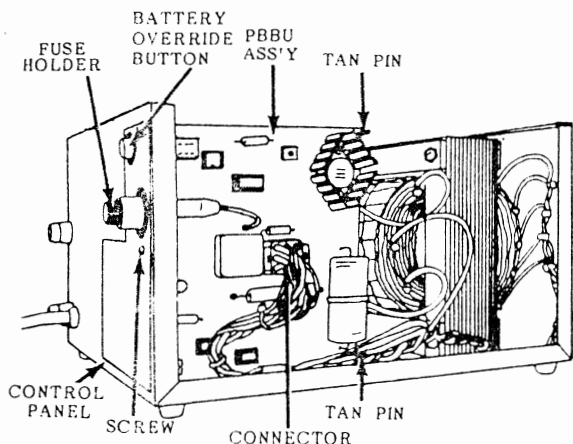


FIGURE 11

**02.23** Slip the PBBU fuse holder and battery override button through their respective ports in the control panel (Figure 11). The PBBU mounting bracket should be flush against the rear of the control panel. The harness should flow around the PBBU PCB, with no wires beneath it.

**02.24** Align the two tan-colored PBBU pins with the two holes in the heat sink (Figure 10). Press the pins into the holes until they catch.

**02.25** Use the previously removed screw and secure the mounting bracket to the control panel (Figure 11).

**02.26** Plug the rust-colored connector into the nine-hole jack in the center of the PBBU. **Do not** force the prongs into the jack, they are keyed so that they can be mated in only one position.

**02.27** Replace the EPSA cover and secure it with the seven screws originally removed.

**02.28** Depress the battery override button (Figure 11). If it catches and stays in, press it again to cause it to release and protrude out of the control panel. The button must be out for the EPSA to operate normally.

**02.29** Remove the spare fuse from the PBBU kit, and put it in the holder located on the side of the EPSA.

**02.30 Required Labels and Warning Tags**

**02.31** Remove the warning tag from the kit and tie it to the power cord where it emerges from the EPSA.

**02.32** A "PBBU-3 REV A" decal must be placed on the control panel of the EPSA. Remove the decal from the kit, peel the backing off, and place it on the control panel (Figure 8).

**02.40 Battery Connection**

**CAUTION:**

*Do not attempt to connect the batteries to the EPSA while the AC power cord is plugged in, or without the EPSA being connected to the MKSU. Do not connect the two-wire cable to the batteries before connecting it to the EPSA. Once the batteries are connected to the EPSA the 24V output terminals are live.*

**02.41** Select a location for the batteries near the power supply. The loop length of the cable connecting them to the power supply will determine the minimum gauge wire which can be used in the cable. See Table A.

**NOTE:**

*The area in which the batteries are to be located must be well ventilated to prevent a dangerous accumulation of battery gases. The batteries must also be protected from moisture and extreme temperatures.*

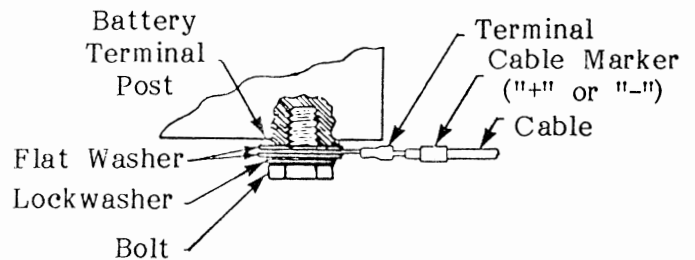
**02.42** Secure the batteries in the battery rack and separator, which should be located in a minimum access area, such as a closet or a well ventilated cabinet.

**02.43** Verify that the battery override button is in the **OFF** position (out).

**02.44** Loosen the two screws on the terminal strip identified as 24V/BATTERY.

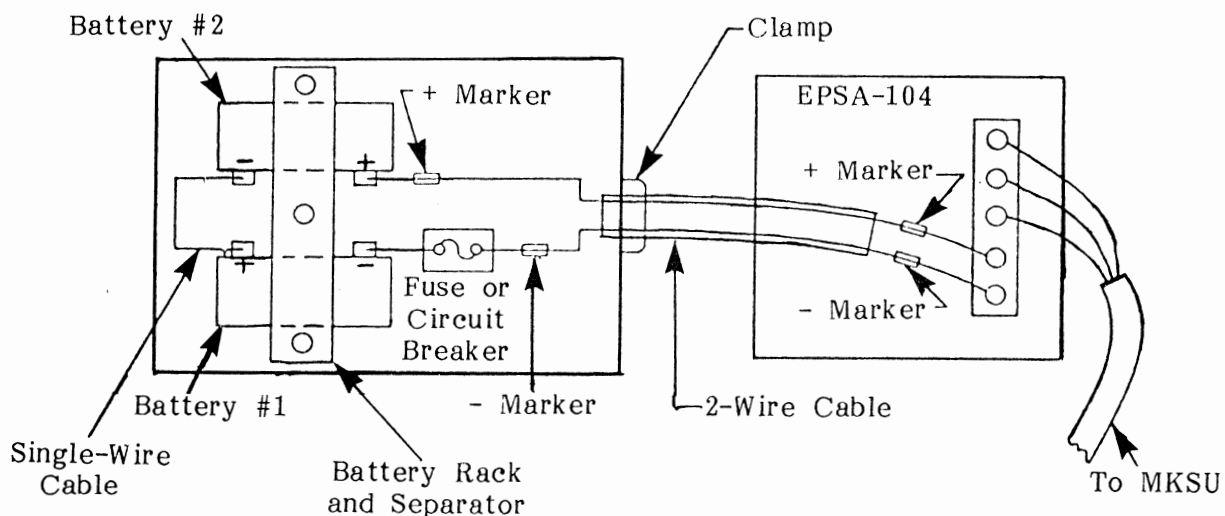
**02.45** See Figure 12; match positive to positive and negative to negative.

**02.46** Connect the battery fuse (or circuit breaker) lead to the negative terminal on battery #1 (Figure 13).



**FIGURE 13**

**02.47** Attach the negative wire of the 2-wire cable to the battery fuse



**FIGURE 12**

(or circuit breaker).

**02.48** Connect the positive wire to the positive terminal of battery #2 (see Figure 13).

**02.49** Connect the two batteries with the single-wire cable—one end to the positive terminal on battery #1 and the other end to the negative terminal on battery #2 (Figure 12).

**NOTE:**

*Place the cable clamp over the two-wire cable and secure it to either the battery rack or the protective cabinet. Adjust the clamp to relieve strain on the cable.*

**02.50 Installation Finalization**

**02.51** Plug the AC power cord in, and verify that the **AC ON** indicator is lit.

**02.52** Unplug the AC power cord, and verify that the **DC ON** indicator is lit to indicate the batteries are supplying electrical power.

**02.53** Replace the terminal strip cover and test the STRATA VI system functions under both AC and battery back-up power.

**CAUTION:**

*When testing is complete, make certain that the battery override button is in the OFF position and that the AC ON indicator is lit.*