Replacing Preamplifier Circuit Boards

This instruction sheet applies to the Plexon PBX-series preamplifiers. Use these instructions to expand, replace, or upgrade the circuit boards in a PBX preamplifier (preamp).

Before you begin

You require approximately one square meter of work space and the following tools for this procedure:

- One wrist ground strap
- One Phillips Number 1 screwdriver
- One Phillips Number 2 screwdriver

Circuit Board Removal

The following procedure includes the steps required to remove the circuit boards from the PBX preamp chassis. To repair or upgrade a board, you must remove all the boards from the preamp chassis.

To remove the preamp circuit boards

1. On the front panel of the preamp, turn off the power switch.
2 Remove all headset connectors.

3 Remove all data-cable connectors.
4 Remove the power-supply connector.

CAUTION
Electrostatic Discharge
The preamp circuit board components can be damaged by improper handling. Use appropriate electrostatic discharge procedures you handle the preamp circuit boards and components. See http://www.esda.org/ for complete information on ESD procedures.

5 Move the preamp to a clean static-free work area. Put on the ground strap.
6. Remove and set aside the inter-board connectors.

7. At the rear panel, with a Number 1 Phillips screwdriver, remove and set aside the four (4) retaining screws.
8 At the front panel, with a Number 2 Phillips screwdriver, remove and set aside the main board retaining screw.

9 As shown in the following illustration, gently pull the rear panel away from the chassis to a distance of about 1 inch (2.5 cm).

If you have a preamp chassis with four circuit boards, the bottom board can be restrained by the bottom edge of the front panel opening. As shown in the following illustration, continue
to remove the boards from the chassis while gently lifting the end the bottom board to clear the opening.

10 Slide the boards out of the preamp chassis.
11 Hold the circuit boards vertically with the rear panel resting on the work surface. As shown in the following illustration, gently separate the center connector between the preamp main board and the top circuit board.
As shown in the following illustration, lift the ends of the circuit boards out of the rear panel opening. Set aside the main board. Do not disassemble the main board and rear panel assembly.
The circuit boards are held together by three (3) connectors; one connector near the center and two connectors at the rear-panel (data-cable) end. Disassemble the circuit boards as shown in the following illustrations. First, separate the top center connector...
...then separate the end connectors. Set aside the top circuit board.

13 Separate the remaining circuit boards as indicated in Step 12. As shown in the following illustration, set them aside in the order you removed them. You have completed the disassembly.
Circuit Board Replacement

The following procedure includes the steps required to replace the circuit boards in the PBX preamp chassis. Arrange all the circuit boards in the correct order from bottom to top. A typical order for a four-board chassis follows:

- Spike (SP) 1-16 (top)
- SP17-32
- Field Potential (FP) 17-32
- FP 1-16 (bottom)

**To replace preamp circuit boards**

1. Prior to reassembly, examine all the boards carefully. Make sure there are no missing jumpers, loose connectors, bent pins, loose components, or other damage. Repair or replace components as required before proceeding with the reassembly.

2. Assemble the circuit boards in order from bottom to top. Seat the center connector as shown in the following illustration and check the alignment as shown in Step 3.
3 From the opposite side of the circuit board, check to make sure that both rows of pins are correctly inserted in the center-connector socket. The following illustration shows an incorrect pin alignment.
4 Seat the connectors at end of the board.
5 Connect the top circuit board to the preamp main board. As shown in the following illustration, press firmly to seat all the center connectors.

6 The two LEDs at the front of the main board must be seated on the surface of the main board before you insert the board into the chassis. The following illustration shows incorrectly seated LEDs. To correctly seat the LEDs, see Step 7.
7. As shown in the following illustration, press firmly on the top of the LEDs to seat them on the surface of the main board.

8. Align the circuit boards with the slots in the chassis. The bottom circuit board *must* be aligned with the bottom slot in the chassis. As shown in the following illustration, press gently on the rear panel and align the non-connector side of each board with the correct slot. Gently slide the boards into the chassis until the front edge of the bottom board contacts the front panel.
9 As shown in following illustration, push the boards into the chassis while gently lifting the front connector on the bottom board to ensure it clears the edge of the front panel. Push the boards into the chassis until the switch handle reaches the front panel.

10 Check to make sure the LEDs are correctly aligned as shown in the following illustration. If necessary, gently move the switch handle to align the LEDs with the holes in the front panel. Push the boards into the slots until the back panel contacts the chassis.
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11 At the front panel, with a Number 2 Phillips screwdriver replace the main board retaining screw.

12 At the rear panel, with a Number 1 Phillips screwdriver replace the four (4) retaining screws.
13 Replace the inter-board connectors.

14 Return the preamp to experimental environment. Replace the preamp power connector, data-cable connectors, and headset connectors in the reverse order of removal.

15 Turn on the preamp power switch. You have completed this procedure.