

050-2525-03
M68497, M71978
M71980, M76776

Main Circuit Board Replacement

For the following TEKTRONIX® instrument:

2430 All Serial Numbers
2430A B010100 - B021000

This kit contains parts and instructions that replaces earlier versions of the Main circuit board A10, which are no longer available. There are several required changes to the Low Power Supply to allow greater power utilization by the new Main circuit board.

NOTE

If the instrument serial number is greater than those listed above or if this kit has been previously installed, disregard the instructions and use the Main circuit board, pn 671-1264-04 as a direct replacement.

KIT PARTS LIST:

Ckt No.	Quantity	Part Number	Description
A10	1 ea	671-1264-04	Ckt Bd Assy:Main
R475	1 ea	321-0322-00	Res, fxd, film:22.1k Ω , 0.1%, 0.125W
CR450	1 ea	152-0836-00	Semicond, dvc, di:Rect, si, 1A,
CR550	1 ea	152-0836-00	Semicond, dvc, di:Rect, si, 1A,
	1 ea	-----	Label:050-kit

MIINIMUM TOOL REQUIREMENTS FOR INSTALLATION:

Screwdriver, magnetic, holder for Torx head tips	Tektronix, pn 003-0264-00
Torx head screwdriver tip, T-8	Tektronix, pn 003-0814-00
Torx head screwdriver tip, T-10	Tektronix, pn 003-0814-00
Torx head screwdriver tip, T-15	Tektronix, pn 003-0966-00
Torx head screwdriver tip, T-20	Tektronix, pn 003-0866-00
7/32 inch nut-driver	General Tool, pn 460-215
Soldering iron, pencil-tupe, 20-25W	
Solder, rosin core, electronic grade, 60/40	
Desoldering tool, vacuum-type	

INSTRUCTIONS:**WARNING**

Dangerous shock hazards may be exposed when the instrument covers are removed. Before proceeding, ensure the instrument power switch is in the off position. Then, disconnect the instrument from the power source. Disassembly should only be attempted by qualified service personnel.

The line rectifier capacitors normally retain a charge for several minutes after the instrument is powered off and remain charged for a longer period if a bleeder resistor or other power supply problem occurs. Before beginning any cleaning or work on the internal circuitry of the instrument, discharge the capacitors by connecting a shorting strap in series with a 1k Ω , 5 watt resistor across the capacitors. Connect one end of the shorting strap/resistor combination to the upper-most terminal of S1020 (the terminal connected through a wire to W310). Connect the other end to pin 11 of T117 (the pin protruding from the side of the transformer, near its right rear corner). Measure across those two connections with a voltmeter to ensure the capacitors are discharged.

CAUTION

Many components within this instrument are extremely susceptible to static-discharge damage. Service the instrument only in a static-free environment. Observe standard handling precautions for static-sensitive devices while installing this kit. Always wear a grounded wrist and foot strap.

NOTE

These instructions assume a familiarity with the instrument. If additional assembly or disassembly details are required, refer to the appropriate 2400 Series Service Reference Manual.

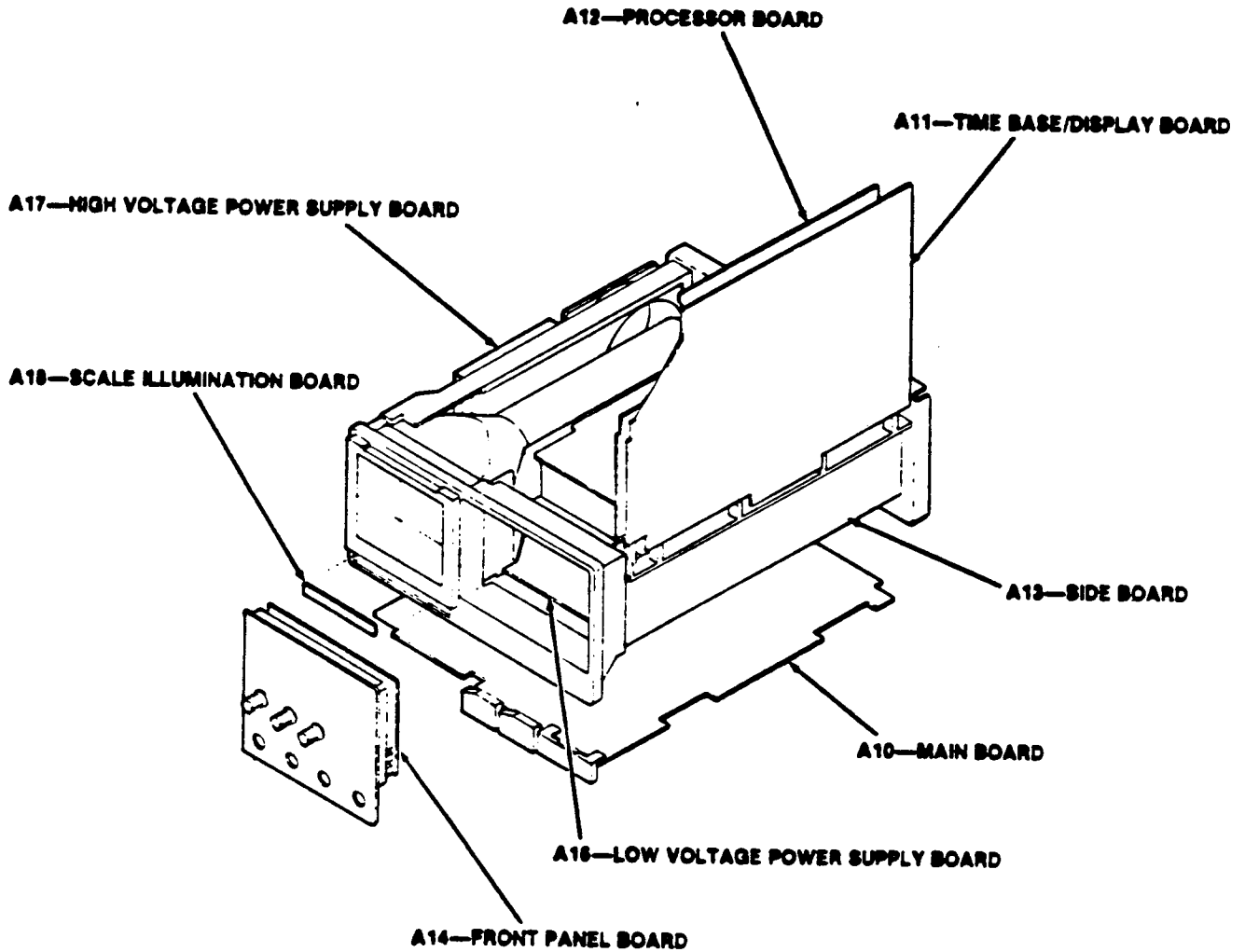


Figure 1: - Circuit Board Locations.

Cabinet removal:

- 1. Disconnect the power cord from the rear panel of the instrument.
- 2. Install the protective front cover over the front panel. Lock the cover's side tabs around the front panel's trim band.
- 3. Rotate the handle to position it away from the front of the panel.
- 4. Position the instrument on the front cover.
- 5. Remove the four (4) Torx drive screws T-20 that secure the rear panel to the instrument. Remove the rear panel from the instrument.
- 6. Grasp the handle hubs and slide the cabinet to the rear of the instrument. Remove the cabinet from the instrument.

Main circuit board A10 removal:

- 1. Set the instrument on a flat, smooth surface, with the instrument in its normal operating position and the front panel facing the installer.
- 2. Pull straight out on the INTENSITY control knob to remove it from the shaft.
- 3. Using a small flat-blade screwdriver, gently pry loose and remove the top trim cover.
- 4. Remove the four (4) Torx drive screws T-10 from the top trim ring.
- 5. Turn the instruments over to expose the bottom of the instrument. Remove the bottom trim cover located between the front feet.
- 6. Remove the two (2) Torx drive screws T-10 from the bottom trim ring.
- 7. Grasp the edges of the trim ring and pull forward to remove it from the front casting.
- 8. Pull the front panel assembly forward until it is clear of the front casting and the face of the front casting is accessible (it is not necessary to disconnect the cables that connect the assembly to the main instrument).
- 9. Remove the six (6) screws T-15 securing the Main circuit board A10 to the front casting. The screws are located on the face of the casting and are adjacent to the four BNC connectors.
- 10. Disconnect J104 and J108 flex cable connectors, and J105 ribbon cable connector. Flex cable connectors J104, J108 and ribbon cable connectors J105 are located near the right-front corner of the circuit board.
- 11. Disconnect the three (3) ribbon cable connectors from J111, J113 (TV trigger option only), and J141 located at the left edge of the circuit board.

- 12. Disconnect the cable connector from J107 located near the right-rear corner of the circuit board, and from J106 located near the center-front edge of the circuit board.
- 13. Remove the screw securing the end of the Power switch's extension shaft to the front casting.
- 14. Grasp the large extension shaft near where it joins to the small shaft of the power switch and pull it upwards from the Main circuit board until it disconnects. Lift up and back (towards the rear of the instrument) to remove the extension shaft from the front casting.

NOTE

When installing the extension shaft to the Power switch, push the small shaft to put the switch in the IN position. Insert the shaft into the front casting, align the extension shaft to the small shaft, and push the button end of the switch until the two shafts are coupled.

- 15. Using a 7/32 inch nutdriver, rotate the seven black retaining latches 1/4 turn counterclockwise to release them.
- 16. Disconnect J114 flex cable connector and two (2) retaining latches. J114 is located in the left rear corner of the board.
- 17. Remove the two (2) Torx drive T-15 mounting screws securing the Main circuit board to the Main chassis.
- 18. Lift the Main circuit board up from the instrument and back from the front casting to complete the board removal.
- 19. To re-install the new Main circuit board A10 perform this procedure in reverse (steps 18 through 1).

Low Voltage Power Supply removal:

- 1. Turn the instrument over with the Timebase/Display board facing up and the front panel towards the installer.
- 2. Disconnect J113 ribbon cable connector (Option 05 only) of the Main circuit board to allow access to the mounting screw located at the center of the Side circuit board A13. Remove this screw.
- 3. Remove the three (3) mounting screws securing the top chassis assembly to the center chassis of the instrument.
- 4. Using a 7/32 inch nut-driver (or a flat blade screwdriver) rotate the black retaining latch counterclockwise 1/4 turn to release it. The latch is located near the front left corner of the Timebase/Display circuit board.

- ❑ 5. Grasp the left edge of the Timebase/Display circuit board and rotate it (and the top chassis) upward about 45°. While supporting the top chassis, disconnect flex cable connector at J125 located at the right rear corner of the Processor circuit board.
- ❑ 6. Disconnect J102 ribbon cable connectors, located at the right-front corner of the Low Voltage Power Supply circuit board and J166, located at the left-front corner of the circuit board.
- ❑ 7. Disconnect J207 flex cable connector located at the left corner of the Processor circuit board.
- ❑ 8. Disconnect J181 ribbon cable connector (GPIB connection) located on the rear left corner of the Processor circuit board.
- ❑ 9. Remove the six (6) Torx drive screws and two (2) Torx drive extension posts that secure the Low Voltage Power Supply cover to the Low Voltage Power Supply bracket.
- ❑ 10. Remove the Torx drive screw T-15 that secures the LVPS cover to the center chassis.
- ❑ 11. Remove the two (2) Torx drive screws T-15 that secures the LVPS cover to the rear chassis. One screw is located below the GPIB connector and the other below the PLOTTER X OUTPUT BNC. Then remove the cover from the LVPS.
- ❑ 12. Disconnect the four (4) cable connectors from P30, P60, P70 and P80, located near the rear of the Low Voltage Power Supply circuit board. Note color coding and locations for later reassembly.
- ❑ 13. Using a 7/32 inch nut driver, rotate the two black retaining latches (located near the left and right front corners of the Low Voltage Power Supply circuit board) 1/4 turn counterclockwise to unlock them. Rotate and unlock the remaining latches located near the middle of both edges of the circuit board.
- ❑ 14. Remove the mounting screw that secures the LVPS assembly to the main chassis. The screw is located near the right-front corner of the board.

NOTE

Carefully move the disconnected cables away from the top side of the Low Voltage Power Supply assembly to allow removal of the LVPS assembly.

- ❑ 15. Grasp the front of the Low Voltage Power Supply bracket and lift up until the LVPS circuit board is clear of the retaining latches.
- ❑ 16. Pull the circuit board towards the front of the instrument (until its rear edge clears the two channel notches) while lifting upwards to complete the removal of the assembly.

CAUTION

Take the LVPS circuit board to a static certified work station. Many components within this instrument are extremely susceptible to static-discharge damage. Observe standard handling precautions for static-sensitive devices while performing the following step. Always wear a grounded wrist and foot strap.

- 17. Replace R475, CR450 and CR550 with the new components provided in this kit.
- 18. Before re-assembly examine the Side circuit board shown in Figure 2. If R831 resistor is located on the Side circuit board proceed with the next section **Side circuit board (R831) removal**. If R831 is not on the Side circuit board A13, disregard the following section and reassemble the instrument in reverse steps.

Side circuit board (R831) removal:

- 1. Position the instrument with the Side circuit board up and the front panel facing towards the installer.
- 2. Disconnect J111 and J141 ribbon cable connectors from the Main circuit board.
- 3. Disconnect J100 ribbon cable connector from the Timebase/Display circuit board and J103 from the Processor circuit board. Both cable connectors are attached to the same ribbon cable.
- 4. Disconnect J121 ribbon cable connector from the Timebase/Display circuit board and J120 from the Processor circuit board. Both cable connectors are attached to the same ribbon cable.
- 5. Disconnect J150 ribbon cable from Side circuit board.
- 6. Rotate the top chassis back to the normal (installed) position. Using a 7/32 inch nut driver, rotate the retaining latch 1/4 turn clockwise to temporarily secure it to the instrument.
- 7. Rotate the black retaining latch (near the front of the Side circuit board) 1/4 turn counterclockwise to unlock.
- 8. Remove the mounting screw (center of the Side circuit board) securing the Side circuit board to the main chassis.
- 9. Remove the circuit board from the instrument. Lift the front of the Side circuit board up until it clears the retaining latch. Then pull the board forward, until it clears the channel notch at its rear edge.

CAUTION

Take the Side circuit board to a static certified work station. Many components within this instrument are extremely susceptible to static-discharge damage. Observe standard handling precautions for static-sensitive devices while performing the following step. Always wear a grounded wrist and foot strap.

- 10. Remove R831 resistor from the Side circuit board A13.
- 11. Reassemble the instrument by performing the complete kit procedure in reverse order.
- 12. Remove the protective backing from the 050-kit label, provided in this kit, and apply the label to the rear panel of the instrument.

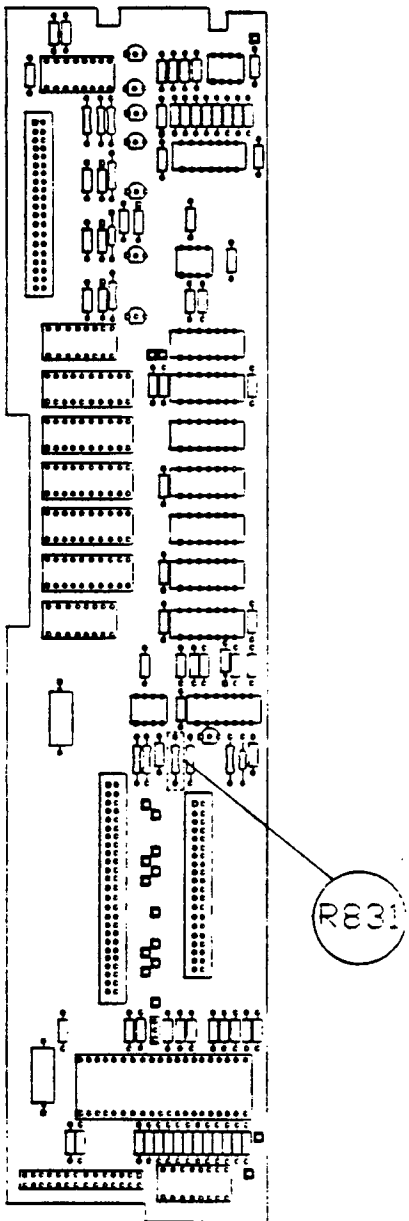


Figure 2: - Side circuit board, R831 location.