



050-0764-11

M23778, M24528, M30099  
M34918, M38885, S44616  
S47158, M48514, M49400  
M50403, M52011, M55201  
M57726

## MAIN CIRCUIT BOARD WITH CAM SWITCH REPLACEMENT

For TEKTRONIX® PG506 Calibration Generators

Serial Numbers B010100 - B039999

Main circuit board w/cam switch, pn 670-3230-15, replaces Main circuit boards, part numbers 670-3230-00, 670-3230-01, 670-3230-02, 670-3230-03, 670-3230-04, and 672-0455-02 which are no longer available. Use of the new Main circuit board necessitates the replacement of a multi-wire cable that connects the Main circuit board to P1 on the Relay circuit board.

If your instrument does not include the Relay circuit board, pn 670-4328-XX, you need to install pn 040-0774-XX at the same time you install the new Main circuit board.

### NOTE

If the serial number of your instrument is greater than those listed above, or if this kit and kit, pn 040-0774-XX, have been installed, disregard the instructions and use pn 670-3230-15 as a direct replacement for the Main circuit board.

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Supersedes: 12-APR-1985

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## CAUTION

### STATIC SENSITIVE DEVICES

Static discharge can damage any semiconductor component in this instrument. Static voltages of 1kV to 30kV are common in unprotected environments.

#### TO AVOID DAMAGE, OBSERVE THE FOLLOWING:

1. Minimize handling of static-sensitive components.
2. Transport and store static-sensitive components or assemblies in their original containers, on a metal rail, or on conductive foam. Label any package that contains static-sensitive assemblies or components.
3. Discharge the static voltage from your body by wearing a wrist-strap while handling these components. Servicing static-sensitive assemblies or components should be performed only at a static-free work station by qualified service personnel.
4. Nothing capable of generating or holding a static charge should be allowed on the work station surface.
5. Keep the component leads shorted together whenever possible.
6. Pick up components by the body, never by the leads.
7. Do not slide the components over any surface.
8. Avoid handling components in areas that have a floor or work-surface covering capable of retaining a static-charge.
9. Use a soldering iron that is connected to earth ground.
10. Use only approved, anti-static type, desoldering tools.

## KIT PARTS LIST:

Ckt. Number	Quantity	Part Number	Description
	1 ea		Assembly, wire kit, consisting of:
	12 ea	131-0707-00	Contact, elec, 6-26AWG, strd, rbn
	.333 ft	175-0829-00	Cable, elec, 6-26AWG, strd, rbn
	2 ea	352-0164-01	Holder, term conn, 6-wire, brn
	1 ea	070-3383-00	Manual, instruction, PG506, B04-Up
	1 ea	210-0406-00	Nut, plain, hex, 4-40 x 0.188
	1 ea	210-0921-00	Insulator, wshr, 0.141 ID x 0.5 OD, mica
	1 ea	210-1178-00	Washer, shldr, U/W TO-220 trans
	1 ea	211-0097-00	Screw, mach, 4-40 x 0.312 PNH
	1 ea	211-0105-00	Screw, mach, 4-40 x 0.188, 100° FLH
A1	1 ea	670-3230-15	Circuit board, Main w/cam sw
	1 ea	175-6488-00	Cable assy, 2-26AWG, 5.75", rbn, curr loop
	1 ea	175-7226-00	Cable assy, 3-26AWG, 10", rbn, w/conn
	1 ea	-----	Label, 050-kit

## INSTRUCTIONS:

**WARNING**

*Before proceeding, ensure the mainframe power switch is in the off position, then disconnect the instrument from the power source.*

**NOTE**

*If the instrument does not contain a Relay circuit board, pn 670-4328-XX, you must first install kit, pn 040-0774-XX. When installing 040-0774-XX, perform steps 1, 2 through 7 (delete step 7 if instrument has a serial number range between B030960 - B031299), 12 and 13 only.*

- ( ) 1. Remove the left and right electrical shields.
- ( ) 2. Remove the DVM circuit board as follows:
  - ( ) a. Lift P590 (2-pin multi-pin connector for Variable Period) from the rear of the DVM board.
  - ( ) b. Remove the 3-pin orange multi-pin connector (P190 on the Main circuit board and P390 on the DVM board) and replace it if it is a "spot-of-gold" type connector.

- ( ) c. Remove the Black, 10-pin multi-pin connector and the white, 9-pin multi-pin connector from the Display circuit board (top left of instrument) and the DVM board.
  - ( ) d. Remove the green-white cable with peltola connector from the DVM circuit board and the +TRIG OUT bnc connector.
  - ( ) e. Lift the 2-pin, brown multi-pin connector (P650) from the DVM circuit board and the 2-pin, red multi-pin connector (P1025) from the Fast Rise circuit board and fold them over the front panel to get them out of the way.
  - ( ) f. Remove the violet, 7-pin multi-pin connector (P1060) from the Fast Rise circuit board and remove P615 from the DVM circuit board.
  - ( ) g. Remove the ten screws which secure the DVM circuit board.
  - ( ) h. Lift the DVM circuit board straight up so that the contacts on the rear of the board do not get bent.
  - ( ) i. Remove the orange, 6-pin and the violet, 7-pin, multi-pin connectors from the bottom of the DVM circuit board. Set the DVM circuit board aside.
- ( ) 3. Remove the Fast Rise circuit board as follows:
- ( ) a. Remove the two hex nuts which secure the two Fast Rise bnc connectors.
  - ( ) b. Remove the screw, standoff and hex nut from the bottom of the instrument (rear of the Fast Rise circuit board).
  - ( ) c. Slide the Fast Rise board back, then out of the instrument. Set the Fast Rise board aside.

#### NOTE

*The numbers in brackets correspond to the circled numbers in the Instruction Manual Mechanical Parts List drawing.*

- ( ) 4. Remove the Main circuit board as follows:
- ( ) a. Remove the red and brown wires connected to the current loop (located at the bottom-front of the instrument).
  - ( ) b. Remove the Standard Amplitude Variable extension shaft (Set the Standard Amplitude Variable control to the out position, loosen the setscrew [81], and remove shaft).

- ( ) c. Remove the Period Variable extension shaft (loosen the set screws [70] and slide the shaft out with the variable knob attached).
- ( ) d. Remove the Mode Selector switch knob [7], Period Selector knob [4] and Standard Amplitude Volts Out knob [5]. Ensure that the Volts knob is pre-set to the 100V position and that the Period knob is pre-set to the 1 $\mu$ sec/1MHz position.
- ( ) e. Remove P785 (a 3-pin, orange, multi-pin connector, located just below R790) from the component side of the Main circuit board. After removal fold wiring over the front panel to get it out of the way.
- ( ) f. Remove the white-brown (or, on some instruments, white-red) peltola cable from the Main circuit board and from the front panel, Standard Amplitude/High Amplitude bnc connector.
- ( ) g. Remove the four screws (two at the front and two at the rear, which go through the Relay circuit board standoffs) which secure the Main circuit board.
- ( ) h. After removing the screws, slide the Main circuit board (with Relay circuit board) straight back and out.

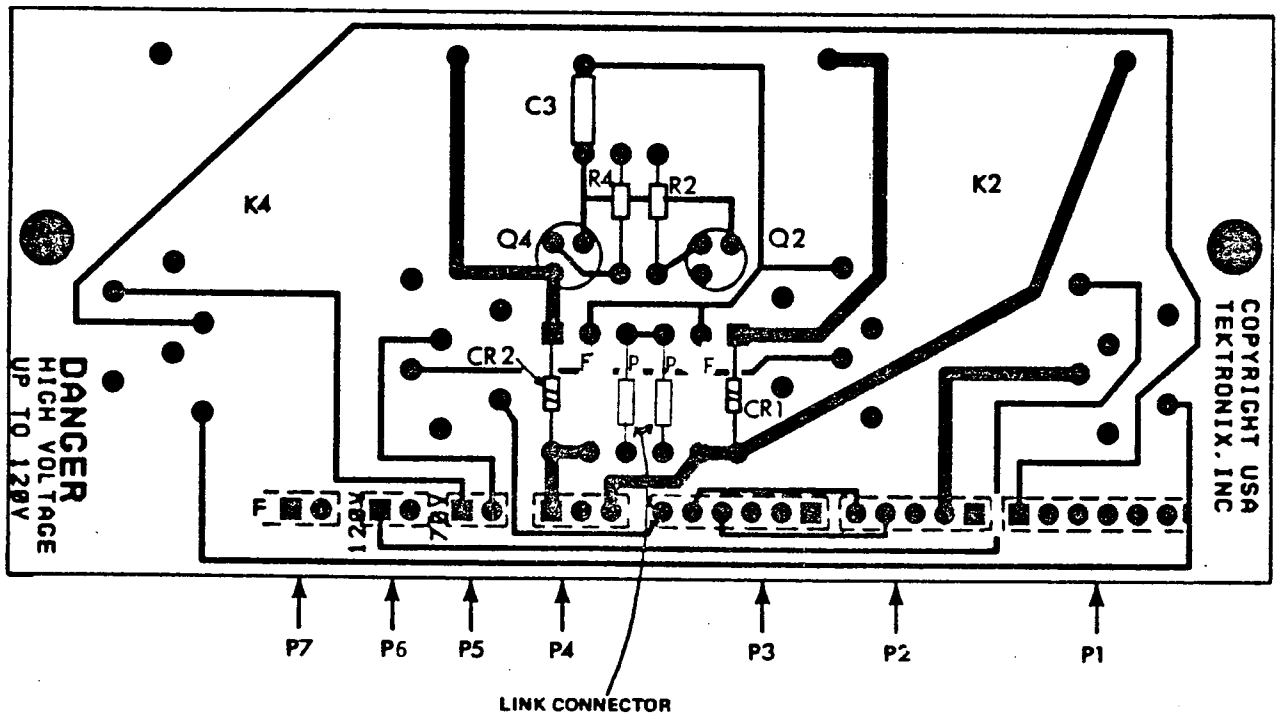


Fig. 1. - Relay circuit board component locations

- ( ) 5. Remove the Relay circuit board from the old Main circuit board as follows:

- ( ) a. Remove the blue and green, 2-pin, multi-pin connectors from P6 and P5, respectively, from the Relay board.
  - ( ) b. Remove the 3-pin, yellow, multi-pin connector (it may be orange) from P4 on the Relay board.
  - ( ) c. Remove the 6-pin, orange, multi-pin connector from P3 on the Relay board.
  - ( ) d. Remove the 5-pin, red, multi-pin connector from P2 on the Relay board (remove the other end from the Main circuit board).
  - ( ) e. Remove the 6-pin, brown, multi-pin connector from P1 on the Relay board (remove the other end from P150 on the Main board).
  - ( ) f. Remove the Relay circuit board.
  - ( ) g. Remove the 7-pin, violet, multi-pin connector from P225 on the Main circuit board.
- ( ) 6. Install the Relay circuit board on the new Main circuit board as follows:
- ( ) a. Properly orient the Relay board with screws and standoffs on the new Main board.
  - ( ) b. Install the 6-pin, brown, multi-pin connector (included in the kit) on P150 of the Main board (ensure the arrow on the connector is aligned with either the square circuit board pad or the arrow on the circuit board) The square pads (like arrows) on the circuit board indicate pin 1). Connect the other end to P1 of the Relay board.
  - ( ) c. Install the 5-pin, red, multi-pin connector on P65 of the Main board. Connect the other end to P2 on the Relay board.
  - ( ) d. Install the 7-pin, violet, multi-pin connector on P225 of the Main board (the other end will connect to P72 on the DVM circuit board later in the procedure).
  - ( ) e. Install the 6-pin, orange, multi-pin connector to P3 on the Relay board (the other end will connect to P70 on the DVM board later in the procedure).
  - ( ) f. Install the 3-pin, orange, multi-pin connector (approximately 12" long cable), included in the kit, from P4 to P155 (located at the front of the Main board near Q758; pin 1 is nearest the front of the board).

- ( ) g. Install the 2-pin, green, multi-pin connector (green-white, coaxial cable near C190) to P5 and install the 2-pin, blue, multi-pin connector (red-white coaxial cable near C294) - both on the Relay board.

**NOTE**

*P7 (on the Relay circuit board) should have no connection.*

- ( ) 7. Prepare the chassis top for the screw that secures Q758 by countersinking the hole shown in Fig. 2.

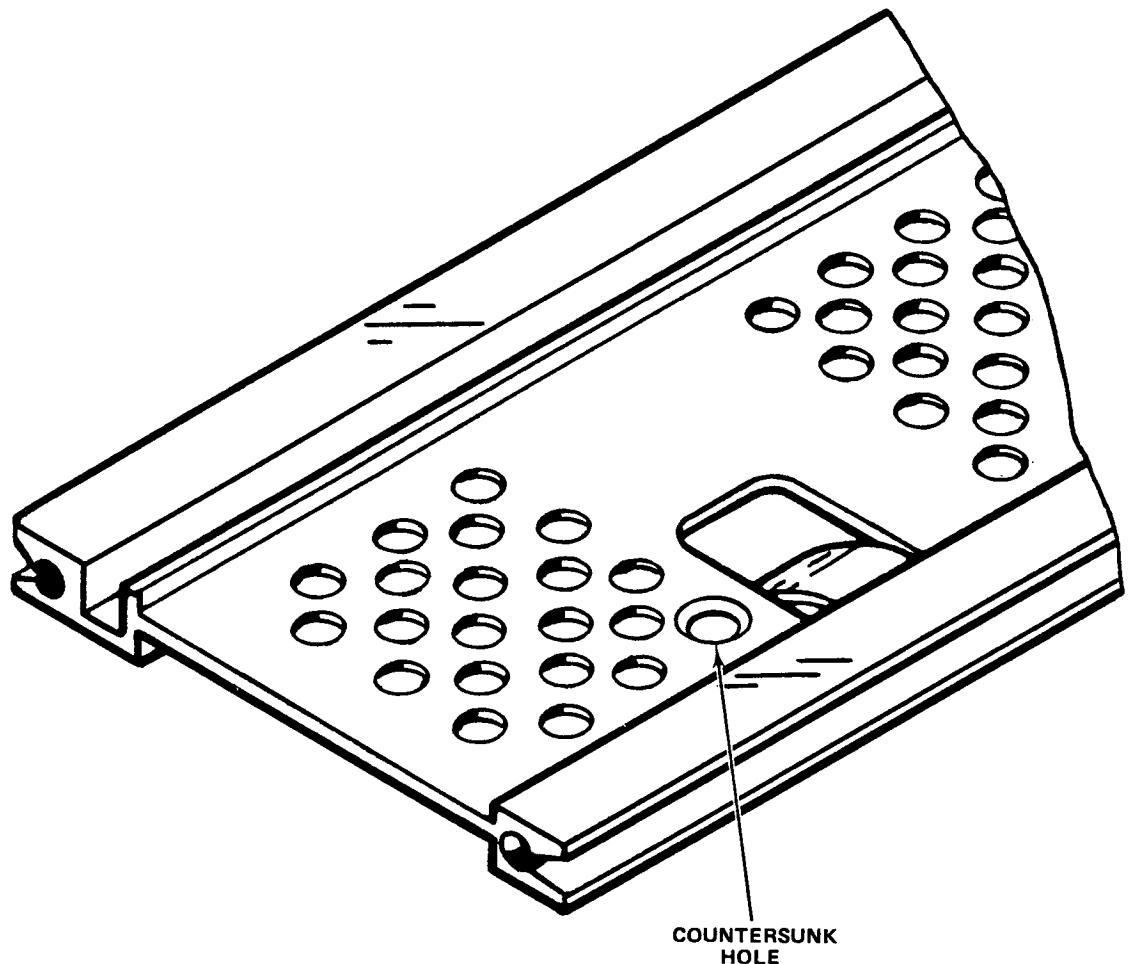


Fig. 2 - Partial chassis top showing countersunk hole.

- ( ) 8. Install the new Main circuit board as follows (at this point, the Relay and Main boards should be joined and the rear screws and standoffs should be in place):

- ( ) a. Slide the Main circuit board assembly into the chassis/frame and secure all four screws.
- ( ) b. Secure Q758 with the screw included in the kit.
- ( ) c. Install the new current loop wire (included in the kit).
- ( ) 9. Reinstall the Fast Rise circuit board in the reverse of step 3a through 3c.
- ( ) 10. Install the three front panel knobs removed in step 4d.
- ( ) 11. Install the Variable Volts and the Variable Period extension shafts (knobs should still be attached).
- ( ) 12. Reconnect P785, removed in step 4e.
- ( ) 13. Reconnect the brown-white (or red-white) coaxial cable with peltola connector, removed in step 4f, between the Main board (just behind the Pulse Amplitude potentiometer) and the Standard Amplitude/High Amplitude bnc connector.
- ( ) 14. Reinstall the DVM circuit board as follows:
  - ( ) a. Connect the 6-pin, orange, multi-pin connector (from P3 on the Relay board) and the 7-pin, violet, multi-pin connector (from P225 on the Main board) to P70 and P72, respectively, on the bottom of the DVM board.

#### NOTE

*Ensure that these cables are oriented toward the top frame to keep them from binding on the Standard Amplitude cam. Also be careful when placing the DVM board that the contacts on the bottom do not get bent.*

- (/ ) b. Reinstall the ten screws removed in step 2g.
- (/ ) c. Reconnect P590 (a 2-pin multi-pin connector for the Variable Period), remove in step 2a, to the rear of the DVM circuit board.
- (/ ) d. Reconnect the 3-pin, orange, multi-pin connector removed in step 2b. This connector goes between P190 on the Main board and P390 on the DVM board.
- ( ) e. Reconnect the green-white coaxial cable with peltola connector removed in step 2d, between J635 on the front of the DVM board and the +Trig Out bnc connector.
- (/ ) f. Reconnect the 2-pin, brown, multi-pin connector to P650 on the DVM board and the 2-pin, red, multi-pin connector to P1025 on the Fast Rise board (refer to step 2f).



- ( ) g. Reconnect the 7-pin, violet, multi-pin connector between P615, on the DVM board, and P1060 on the Fast Rise Board (refer to step 2f).
- ( ) h. Reconnect the 10-pin, black, multi-pin connector and the 9-pin, white, multi-pin connector (removed in step 2c) between the Display board and the square pins behind U610.
- ( ) 15. Refer to the Calibration procedure, in the Instruction manual included in the kit, and recalibrate as necessary.
- ( ) 16. Remove the protective backing from the 050-kit label, included in the kit, and place it on a clean area of the frame rail near the serial number tag and re-install the electrical shields.
- ( ) 17. Correct the electrical parts list of the Instruction manual with the information included in the kit parts list.

# PRODUCT MODIFICATION KIT SUGGESTION/CORRECTION FORM

DATE \_\_\_\_\_

KIT NUMBER \_\_\_\_\_ STEP/PAGE \_\_\_\_\_

FIGURE NUMBER \_\_\_\_\_ PUBLICATION DATE \_\_\_\_\_

DISCREPANCY \_\_\_\_\_

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\_\_\_\_\_  
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SUGGESTED CORRECTION/COMMENTS \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

SUGGESTED BY: NAME/ORGANIZATION \_\_\_\_\_

\_\_\_\_ REPLY REQUESTED

(PLEASE TYPE OR PRINT LEGIBLY)

RETURN TO LOCAL FIELD OFFICE/SERVICE CENTER

FIELD OFFICE/SERVICE CENTER/DEL. STA. \_\_\_\_\_

SERVICE CENTER: RETURN TO FIELD MOOS 78-674

## REPLY

\_\_\_\_ WILL MAKE CHANGE IMMEDIATELY

\_\_\_\_ WILL MAKE CHANGE AT NEXT PRINTING

\_\_\_\_ OTHER \_\_\_\_\_

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SIGNED \_\_\_\_\_ DATE \_\_\_\_\_