



040-0543-02

M15376, M39153  
M42214

## STEP GENERATOR SWITCHING TRANSIENTS REDUCTION

For TEKTRONIX® 576 Curve-Tracers

Serial Numbers B010100 - B099999

This modification kit replaces the Step Generator Amplitude circuit board and cam switch assembly. The two 55W current-setting resistors, R215 and R216, are also changed. Current distribution through the switch contacts on the new assembly is improved, increasing the reliability of the switch. Also, the high energy switching transients, which were generated when switching between the 0.05 $\mu$ A and 0.05V positions, have been reduced to a level which will not damage the device-under-test.

## PARTS INCLUDED IN MODIFICATION KIT:

Ckt. No.	Quantity	Part Number	Description
	1 ea	-----	Assembly, resistor, R215 & R216 (consisting of)
	2 ea	131-0371-00	Connector, term, u/w 26AWG wire
	2 ea	210-0407-00	Nut, plain, hex, 6-32 x 0.25
	2 ea	211-0585-00	Screw, mach, 6-32 x 1.0, ovh, poz
R215, R216	2 ea	308-0591-00	Resistor, ww, 40 $\Omega$ , 0.5%, 55W, w/tap
	0.063 ft	-----	Wire, solid, 22AWG, bare
	0.792 ft	-----	Wire, strd, 22AWG, wht-blk-red
	0.479 ft	-----	Wire, strd, 22AWG, wht-blk-yel
	0.333 ft	-----	Wire, strd, 22AWG, wht-brn
	1 ea	214-0210-00	Solder, spool assy, silver bearing, 3 ft
	2 ea	220-0410-00	Nut, plain, assem wa, 10-32 x 0.375, hex
SW195	1 ea	672-0929-01	Ckt bd assy, Step Gen Ampl, w/cam sw

## INSTRUCTIONS:

**WARNING**

When the instrument covers are removed, dangerous electric-shock hazards are exposed. Before proceeding, ensure the POWER switch is in the OFF position. Then disconnect the power cord from the power source.

- ( ) 1. Remove the plug-in test fixture.
- ( ) 2. Remove the right cabinet side.
- ( ) 3. Remove the screws which attach the bottom right cabinet frame section. There are two screws at the rear, five screws along the bottom, and two screws at the front (in the area from which the test fixture was removed).
- ( ) 4. Remove the bottom-right cabinet frame section.
- ( ) 5. Disconnect the wires from the Step Generator circuit board. Pull on the connector; not the wire. Note the color coding and location of the wires.
- ( ) 6. Remove the six mounting screws for the Step Generator circuit board and remove the board.
- ( ) 7. Carefully lift the curved portion of the cable clamps for the Step Generator board wiring and slip the wiring harnesses from under the cable clamps. These clamps are located on the top and bottom edges of the step generator chassis.

- ( ) 8. Remove the hexagonal post spacers used to attach the step generator chassis and remove the chassis.

NOTE

Refer to Fig. 1 when replacing the Step Generator Amplitude circuit board and cam switch assembly and the current setting resistors, R215 and R216.

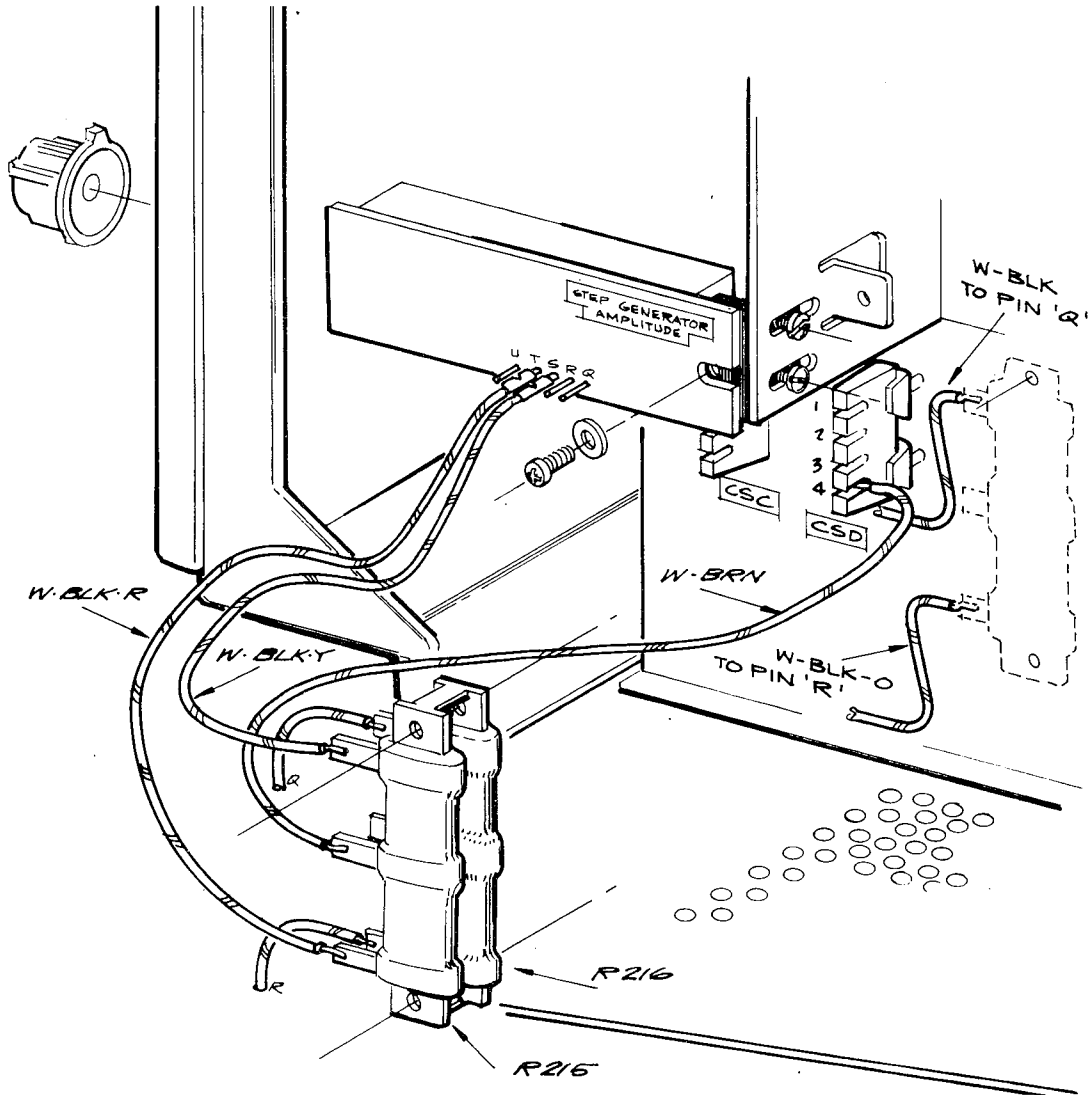


Fig. 1. Step Generator Amplitude circuit board and cam switch assembly replacement. Location of and wiring for R215 and R216 also shown.

- ( ) 9. Disconnect the wires from the Step Generator Amplitude circuit board.
- ( ) 10. Remove the two screws used to secure the nut block to the switch bracket. The nut block is attached to the rear of the Step Generator Amplitude circuit board.
- ( ) 11. Loosen the screw which attaches the nut block to the Step Generator Amplitude circuit just enough so that the nut block can be moved, if necessary.
- ( ) 12. Turn the STEP GENERATOR STEP/OFFSET AMPLITUDE switch to a convenient reference.
- ( ) 13. Loosen the setscrews in the STEP/OFFSET AMPLITUDE knob and remove the knob.
- ( ) 14. Remove the nut and washer used to secure the STEP/OFFSET AMPLITUDE switch to the front panel.
- ( ) 15. Remove the Step Generator Amplitude circuit board and cam switch assembly from the instrument.
- ( ) 16. Unsolder and remove the bare wire connected between terminal 4 of ceramic strip D (CSD-4) and the bottom terminal of the  $10\Omega$ , 55W resistor, R216. R216 is nearest the chassis of the two large resistors located below the switch bracket.
- ( ) 17. Unsolder one lead of the  $5k\Omega$ , 5W wire-wound resistor, R192, from the upper terminal of resistor R216.
- ( ) 18. Relocate R192 so that the lead which was soldered to R216 can be connected to terminal 2 of ceramic strip D (CSD-2).

**CAUTION**

The solder-to-ceramic bond on the ceramic strips can be broken if excessive heat is applied or if ordinary solder is repeatedly used. Use the provided silver-bearing solder and a 40- to 70-watt soldering iron with a wedge-shaped tip when soldering to a ceramic strip.

- ( ) 19. Solder the lead of R192 to CSD-2.
- ( ) 20. Unsolder the white-black and white-black-orange wires from the other  $10\Omega$ , 55W resistor, R215.

- ( ) 21. Remove the hardware used to attach the two resistors, R215 and R216.
- ( ) 22. Remove the two resistors.
- ( ) 23. Remove the two nuts and two screws which are used to hold the provided resistor assembly together during shipment.
- ( ) 24. Install the new resistor assembly, as shown in Fig. 1, and secure with the hardware removed earlier. If new hardware is needed, the two 6-32 x 1 inch screws, which were used to hold the resistors together, or the two provided 10-32 nuts may be used.
- ( ) 25. Solder the white-black wire, unsoldered from R215 earlier, to the upper terminal of R216.
- ( ) 26. Solder the white-black-orange wire, unsoldered from R215 earlier, to the lower terminal of R216.
- ( ) 27. Solder the white-brown wire, connected to the center terminal of R216, to CSD-4.
- ( ) 28. Loosen the screw used to attach the nut block to the old Step Generator Amplitude circuit board and transfer the nut block to the new Step Generator Amplitude circuit board and cam switch assembly. Do not tighten the screw as the nut block may need to be moved.
- ( ) 29. Install the new Step Generator Amplitude circuit board and cam switch assembly into the instrument.
- ( ) 30. Install the front panel nut and washer for the STEP/OFFSET AMPLITUDE switch. Do not tighten the nut until the assembly is aligned.
- ( ) 31. Install the two screws which secure the assembly nut block to the switch bracket. Tighten the screws only enough to ensure the nut block is against the switch bracket.
- ( ) 32. Tighten the screw which secures the Step Generator Amplitude circuit board to the nut block.
- ( ) 33. Tighten the front panel nut for the STEP/OFFSET AMPLITUDE switch.
- ( ) 34. Tighten the two screws which attach the nut block to the switch bracket.
- ( ) 35. Install the knob for the STEP/OFFSET AMPLITUDE switch.
- ( ) 36. Route the white-black-yellow and white-black-red wires, which connect to R215, along the other wires which connect to the bottom of the Step Generator Amplitude circuit board.

- ( ) 37. Connect the wires to the Step Generator Amplitude circuit board as shown in Fig. 2.

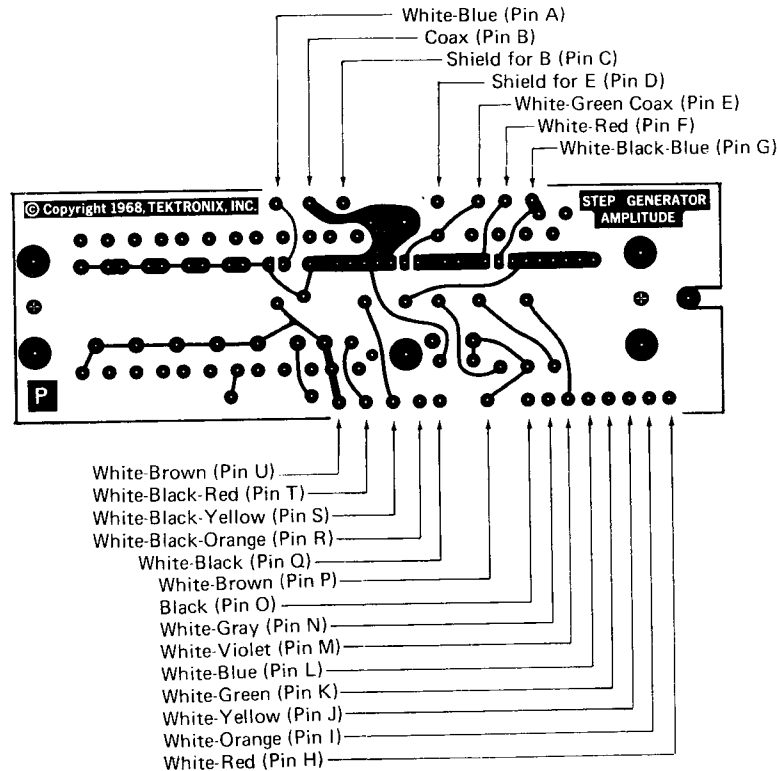


Fig. 2. Step Generator Amplitude circuit board wiring.

- ( ) 38. Install the step generator chassis and the attaching post spacers.
- ( ) 39. Route the two wiring harnesses for the Step Generator circuit board under the cable clamps located on the top and bottom edges of the step generator chassis.
- ( ) 40. Install the Step Generator circuit board and the six mounting screws.
- ( ) 41. Connect the wires to the Step Generator circuit board as shown in Fig. 3.
- ( ) 42. Temporarily install the plug-in test fixture. This will facilitate alignment of the bottom-right cabinet frame section.
- ( ) 43. Install the bottom-right frame section.
- ( ) 44. Secure the frame section with the five screws along the bottom and two at the rear.

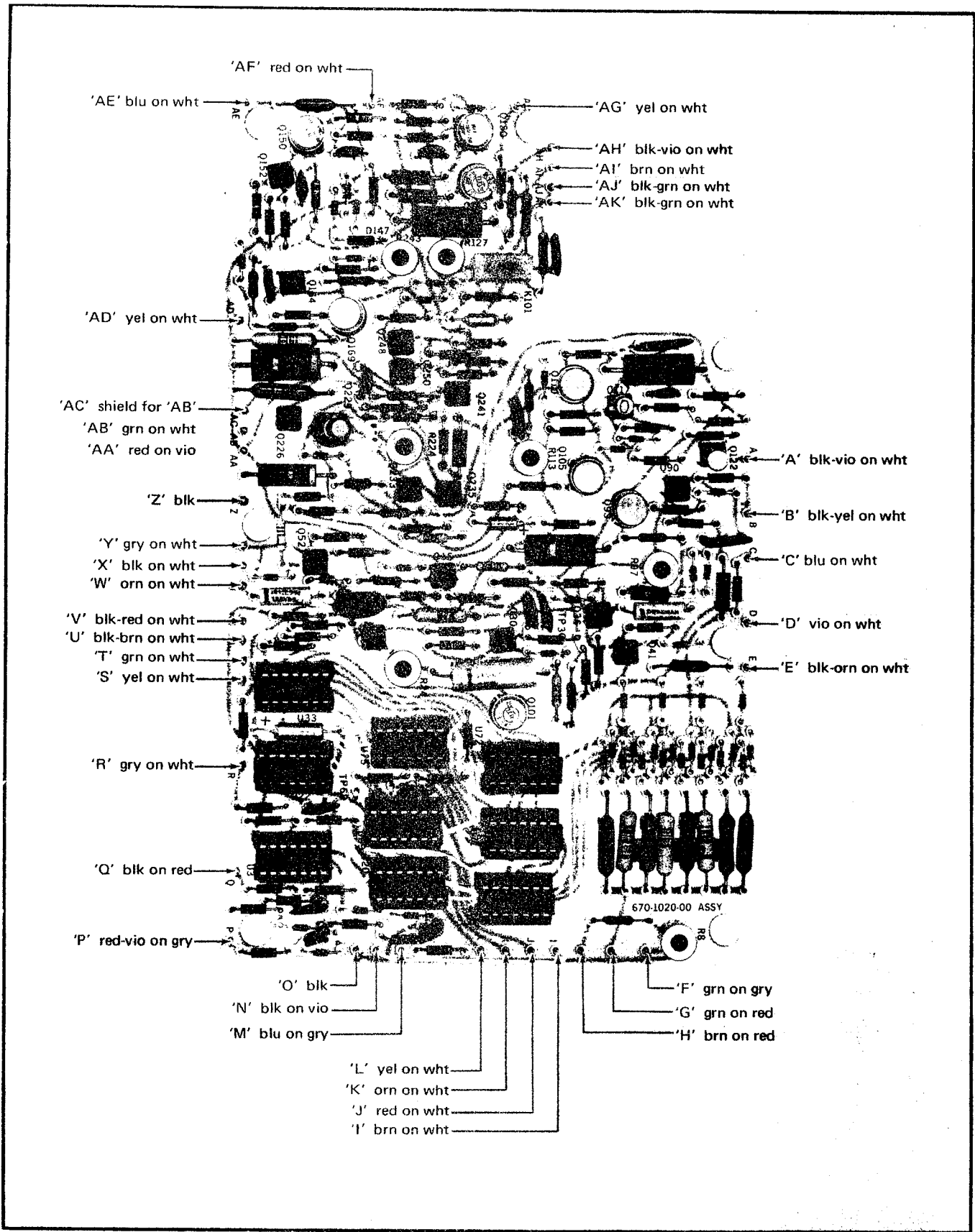


Fig. 3. Step Generator circuit board wiring.

- ( ) 45. Remove the plug-in test fixture.
- ( ) 46. Secure the frame section with the two screws at the front.
- ( ) 47. Install the plug-in test fixture.
- ( ) 48. Refer to the Performance Check/Calibration Section (5) of the 576 Curve-Tracer Instruction Manual and the changes described in the following manual insert. Then check instrument performance, making any necessary adjustments.
- ( ) 49. Install the right cabinet side.
- ( ) 50. Attach the following manual insert to the 576 Curve-Tracer Instruction Manual.

DRL:pa