



product modification

050-0730-06

*

7904

'B' TRIGGER SELECTOR CIRCUIT BOARD REPLACEMENT

For TEKTRONIX® 7904 Oscilloscopes

Serial Numbers B010100 - B199999

'B' Trigger Selector circuit board, pn 670-1627-07, replaces 'B' Trigger Selector circuit boards (A6), pn 670-1627-00, 670-1627-01, 670-1627-02, or 670-1627-03, which are no longer available. In most cases, the new circuit board requires replacement of the 'B' Trigger Interconnect circuit board, addition of four coaxial cables between the Main Interface and 'B' Trigger Selector circuit boards, and connection of a new SIG OUT coaxial cable between the 'B' Trigger Selector circuit board and the SIG OUT connector. Also, two new adjustments have been added to the circuit board.

NOTE

If the instrument serial number is greater than those listed above or if this kit has been installed, the instructions may be disregarded and the included 'B' Trigger Selector circuit board may be used as a direct replacement for A6.

*M20422, M24002, M24470, M30561, M34167 and M34534.

PARTS INCLUDED IN PARTS REPLACEMENT KIT:

Ckt. No.	Quantity	Part Number	Description
	2 ea	129-0285-00	Spacer, post
	1 ea	198-3559-00	Wire kit;
			consisting of:
	2 ea		Cable, RF, 50 Ω , blu-brn, 3", w/conn
	2 ea		Cable, RF, 50 Ω , blu-red, 3", w/conn
	1 ea		Cable, RF, 50 Ω , wht-yel, 17", w/conn
	2 ea	210-0004-00	Washer, lock, internal, #4
	2 ea	211-0007-00	Screw, mach, 4-40 x 0.188, pnh, poz
	2 ea	211-0028-00	Screw, mach, 4-40 x 0.188, bdgh, slot, nylon
	2 ea	211-0213-00	Screw, mach, 4-40 x 0.312, pnh, slot, nylon
A6	1 ea	388-2192-05	Circuit board, 'B' Trigger Interconnect
	1 ea	670-1627-07	Circuit board, 'B' Trigger Selector
	1 ea		Marker, identification

NOTE

For instruments in serial number range B190000 to B199999 or with a 'B' Trigger Selector circuit board part numbered 670-1627-03, the included 'B' Trigger Selector circuit board is mechanically a direct replacement for A6. Therefore, the following instructions may be disregarded. However, the new circuit board includes an additional adjustment, R5670. Refer to the attached manual insert for R5670 adjustment instructions.

INSTRUCTIONS:

WARNING

Before proceeding, ensure the POWER switch is OFF, then disconnect the oscilloscope from the power source.

NOTE

The following instructions assume a familiarity with the instrument. If greater details are required for disassembly or assembly, refer to the maintenance section of the instruction manual.

- () 1. Remove all plug-in units.
- () 2. Remove the cabinet covers - two sides and the bottom.

NOTE

These instructions minimize instrument disassembly. Though not necessarily recommended, removal of the Main Interface circuit board may facilitate the installation of this kit. Refer to the instruction manual for removal procedure. Also, to facilitate access from the bottom of the instrument, the plug-in guide rails may be removed.

- () 3. Disconnect the white-blue and white-violet coaxial cables¹ from J592 and J596 (located near the top) on the 'B' Trigger Selector circuit board, A6.
- () 4. Loosen the two - one near the top and one near the bottom - mounting screws for the 'B' Trigger Selector circuit board.
- () 5. Remove the 'B' Trigger Selector board by carefully pulling straight out to insure the interconnecting square pins are not bent.

¹The white-blue and white-violet cables connect between J592 and J596 on the 'B' Trigger Selector circuit board and J1002 and J1000, respectively, on the Calibrator-Signal circuit board, A10. With the new 'B' Trigger Selector circuit board, these cables are no longer required and may be removed or cut off near the cable bundle.

- () 6. Carefully remove the two white-plastic covers from J4, the B Horizontal plug-in connector, using the method described in the note below.

NOTE

To remove the connector covers, insert a small straight-bladed screwdriver between the covers at the top or bottom of the connector. Insure the screwdriver contacts only the covers and NOT the connector body contact separators. Twist the screwdriver to pry one of the covers loose from the connector body. Move the screwdriver to the other end of the connector and pry the other cover loose. The cover already loosened at the other end may need to be held in place while prying to insure both covers are loosened. Once both covers are loose, a thumbnail may be used to remove the covers. Insert the thumbnail between the cover and connector body and move toward the center of the connector.

- () 7. Carefully unsolder and remove contacts 20B and 21B¹ of J4. These contacts are soldered to the 'B' Trigger Interconnect circuit board.
- () 8. If present, remove the four bare wires connecting between the 'A' and 'B' Trigger Interconnect circuit boards. These wires are no longer required and may be removed by cutting with diagonal pliers. Cut the wires flush with the 'A' Trigger Interconnect circuit board.
- () 9. Remove the two mounting screws² for the 'B' Trigger Interconnect circuit board and remove the circuit board.

¹Contacts for J4 are arranged in pairs numbered 1 through 38 from bottom to top. Looking from the front of the instrument, the 'A' contacts are to the left and the 'B' contacts are to the right.

²In some early instruments, the spacers between the Main Interface and the Trigger Interconnect circuit boards are an integral part of the Trigger Interconnect board. In this case, the Power Supply Unit, the Horizontal Interconnect or X-Y Compensation circuit board, and the Logic circuit board need to be removed to gain access to the Trigger Interconnect board mounting screws. Two hex spacers, two 4-40 x 0.188" panhead machine screws and two internal lock washers have been included in this kit to provide the spacing between the two boards. Secure the spacers on the front of the Main Interface circuit board by installing the screws and lock washers from the back of the board. Reinstall the circuit boards and Power Supply Unit.

- () 10. Unsolder and carefully remove the remaining edge-card plug-in connector contacts from the removed 'B' Trigger Interconnect circuit board.
- () 11. Install the new Trigger Interconnect circuit board¹ (provided in the kit) using two of the nylon screws included in the kit. For instruments with the mounting spacers included as part of the Main Interface circuit board, use the longer nylon screws. If the hex spacers have been added, use the shorter nylon screws. Insert the screws through the right-hand (looking from the front) portion of the circuit board mounting holes.
- () 12. Place two of the removed connector contacts into slots 20A and 20B² of J4 and into the holes in the Trigger Interconnect circuit board.
- () 13. Ensure the contacts are properly aligned, then solder the contacts to the Trigger Interconnect board.
- () 14. Install the plastic connector covers on J4. The ridge on the side of the cover goes towards the back of the connector. Place the back edge of the cover over back of J4 then snap the front edge over the front portion of the connector. Start at the top and continue down the connector in small increments until the cover is in place.
- () 15. Connect the two provided blue-red coaxial cables to the lower two of four snap-on coaxial connectors situated below the Trigger Interconnect circuit board on the Main Interface circuit board.
- () 16. Connect the two provided blue-brown coaxial cables to the upper two snap-on coaxial connectors.

¹In some cases, the spacing between J4 connector contacts on the Main Interface board may be tight for new Trigger Interconnect board. If necessary, file the Trigger Interconnect board to facilitate installation.

²Contacts 21A and 21B (Auxillary Trigger In) have never been used in any TEKTRONIX® 7000-Series instruments and are removed by this kit.

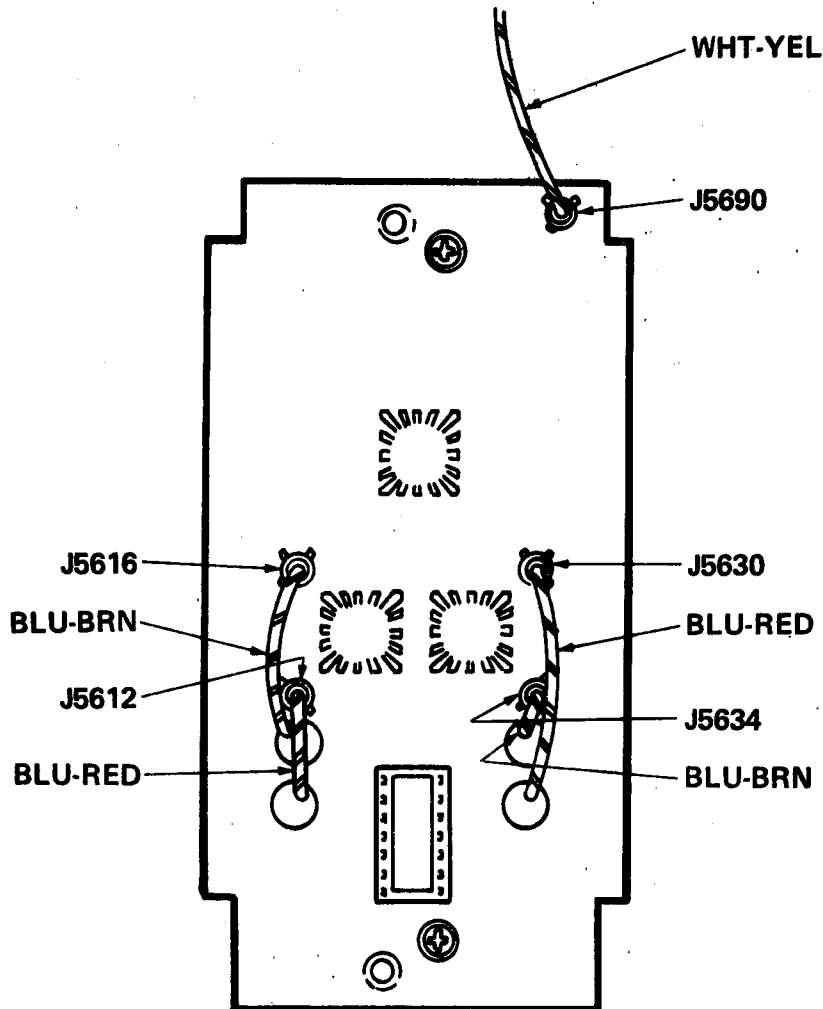


Fig. 1. Cable connections for 'B' Trigger Selector circuit board.

- () 17. Insert the newly installed coaxial cables through the aligned holes in the new 'B' Trigger Selector circuit board (included in the kit). See Fig. 1.
- () 18. Align the Trigger Selector board with the proper feed-thru contact pins of the Main Interface and Trigger Interconnect circuit boards.
- () 19. Carefully push the 'B' Trigger Selector circuit board into place.
- () 20. Secure the board with the two mounting screws.
- () 21. Connect the four coaxial cables (added above) to the 'B' Trigger Selector board as follows (see Fig. 1):
 - () a. Left blue-brown to J5616 (LT-).
 - () b. Right blue-brown to J5634 (RT-).
 - () c. Left blue-red to J5612 (LT+).
 - () d. Right blue-red to J5630 (RT+).
- () 22. Loosen the large 7/16 inch nut at the back of the front panel SIG OUT jack, J1029, and slide the nut back along the cable.

- () 23. Pull on the white-yellow coaxial cable to disconnect the center conductor from the SIG OUT jack.
- () 24. Disconnect the other end of the white-yellow cable from J1028 on the Calibrator-Signal circuit board, A10. This cable may be discarded.
- () 25. Loosen the large nut at the back of the female bnc connector on the provided white-yellow coaxial cable and move the nut back along the cable.
- () 26. Disconnect the female bnc connector from the coaxial cable. This portion of the connector may be discarded or used to replace a worn SIG OUT jack.
- () 27. Connect the white-yellow coaxial to the back of the SIG OUT jack and secure with the large nut.
- () 28. Connect the other end of the white-yellow coax to J5690 on the 'B' Trigger Selector circuit board (see Fig. 1). Route the cable along the plug-in housing frame and down between the Main Interface circuit board and the housing.
- () 29. If the white-blue and white-violet coaxial cables from J592 and J596 on the old 'B' Trigger Selector circuit board to J1000 and J1002 on the Calibrator-Signal circuit board have not been removed, remove or disconnect the cables. The cables may be cut off at each end near the cable bundle or the connectors at one end may be cut off and the cables pulled out of the cable harness.
- () 30. Refer to the Calibration Section (3) of the instruction manual and attached manual insert, then check instrument performance, especially the Trigger System, making any necessary adjustments.
- () 31. Install the cabinet covers.
- () 32. Remove the protective backing from the provided marker and apply to a clean, dry area on the rear panel. This marker indicates installation of this kit.
- () For future reference, attach the following Instruction Manual Modification Insert to the 7904 Instruction Manual.

DRL:cs

