product modification

050-0729-06

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Type 7904

'A' TRIGGER SELECTOR CIRCUIT BOARD REPLACEMENT

For TEKTRONIX® 7904 Oscilloscopes

Serial Numbers B010100 - B199999

'A' Trigger Selector circuit board, pn 670-1626-07, replaces 'A' Trigger Selector circuit boards (A5), pn 670-1626-00, 670-1626-01, 670-1626-02, or 670-1626-03, which are no longer available. The new circuit board requires the addition of four coaxial cables. Also, the Trigger Interconnect circuit board needs to be replaced.

NOTE

If the instrument serial number is greater than those listed above or if this kit has been installed, disregard these instructions as the included 'A' Trigger Selector circuit board may be used as a direct replacement for A5.

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

3-31-80
Supersedes: 050-0729-05

PARTS INCLUDED IN PARTS REPLACEMENT KIT:

Ckt. No.	Quantity	Part Number	Description
	2 ea	129-0285-00	Spacer, post
	1 ea	198-3558-00	Wire kit, electrical; consisting of:
	2 ea		Cable, RF, 50Ω, blu-brn, 3", w/conn
	2 ea		Cable, RF, 50Ω, blu-red, 3", 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, nylon, 4-40 x 0.188", bdgh, slot
	2 ea	211-0213-00	Screw, nylon, 4-40 x 0.312", pnh, slot
	1 ea	388-2192-05	Circuit board, Trigger Interconnect
A5	1 ea	670-1626-07	Circuit board, 'A' Trigger Selector
	1 ea		Marker, identification

NOTE

For instruments in serial number range B190000 to B199999 or with an 'A' Trigger Selector circuit board part numbered 670-1626-03, the included 'A' Trigger Selector circuit board is mechanically a direct replacement for A5. Therefore, the following instructions may be disregarded. However, the new circuit board includes an additional adjustment, Common Mode (R5570). Refer to the attached manual insert for R5570 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. Loosen, but do not remove, the two captive screws securing the 'A' Trigger Selector circuit board (A5).

( ) 4. Carefully remove the 'A' Trigger Selector circuit board by pulling straight out. To insure the interconnecting square pins are not bent, keep the Trigger Selector board parallel to the Main Interface board.

( ) 5. Disconnect the coaxial cables from the 'B' Trigger Selector circuit board (A6). Note color coding and location for reassembly.

( ) 6. Loosen the captive screws and remove the 'B' Trigger Selector circuit board. Observe the same precautions as when the 'A' Trigger Selector board was removed.

( ) 7. Carefully remove the two white plastic covers from J3, the A Horizontal plug-in connector, using the method described in the following note.

NOTE

To remove the connector covers, insert a small flat-bladed screwdriver between the covers near the top or bottom. 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. Again insuring contact only with the covers, pry the other cover loose. The cover previously loosened at the other end may need to be held in place 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 contact separators, then move the thumb toward the connector center.

( ) 8. Carefully unsolder and remove contacts 20B and 21B[1] of J3. These contacts are soldered to the 'A' Trigger Interconnect circuit board. In some instruments, there may be a third pair of contacts, 22A and 22B, soldered to the 'A' Trigger Interconnect board. In this case, carefully unsolder and remove contact 22B from the 'A' Trigger Interconnect board.

( ) 9. If present, remove the four bare wires connecting the 'A' and 'B' Trigger Interconnect circuit boards. These wires are no longer required, thus may be removed by cutting flush with the 'B' Trigger Interconnect circuit board.

( ) 10. Remove the two mounting screws[2] for the 'A' Trigger Interconnect circuit board and carefully remove the board.

( ) 11. Carefully unsolder and remove the remaining edge-card plug-in connector contacts from the 'A' Trigger Interconnect circuit board. Retain the contacts.

[1]Contacts for J3 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 to the right.

[2]In 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 Delay Compensation (Option 2) circuit board, and the Logic circuit board need to be removed to gain access to the Trigger Interconnect board mounting screws at the back of the Main Interface circuit board.

Two hexagonal 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 Main Interface and the new Trigger Interconnect circuit 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 after installing the spacers.

( ) 12. Install the new Trigger Interconnect circuit board[1] (provided in the kit) using two of the nylon screws included in the kit. For instruments with the mounting spacers included as a integral part of the Main Interface board, use the longer nylon screws. If the hexagonal spacers (see footnote on previous page) have been added to the Main Interface board, use the shorter nylon screws. Insert the screws through the left (looking from the front) portion of the Trigger Interconnect circuit board mounting holes.

( ) 13. Place two of the removed connector contacts into slots 20A and 20B of J3 and into the holes in the Trigger Interconnect circuit board.

( ) 14. Insure the contacts are properly aligned, then solder the contacts to the Trigger Interconnect board.

( ) 15. Install the plastic connector covers on J3. The ridge on the side of the cover goes towards the rear of the connector body. Place the back edge of the cover over the rear of J3, then snap the front edge over the front portion of the connector. Start at the top and move towards the bottom in small increments continuing to snap the cover in place.

( ) 16. Connect the two provided blue-red coaxial cables to the bottom two (J402 and J410) of the four snap-on coaxial connectors located on the Main Interface circuit board below the Trigger Interconnect board.

( ) 17. Connect the two blue-brown coaxial cables (included in the kit) to the top two snap-on connectors, J406 and J414.

( ) 18. Insert the free ends of the above installed coaxial cables through the aligned holes in the new 'A' Trigger Selector circuit board (included in the kit). See Fig. 1.

( ) 19. Align the new 'A' Trigger Selector board with the proper feed-thru contact pins on the Main Interface and Trigger Selector circuit boards.

( ) 20. Carefully push the 'A' Trigger Selector board into place.

( ) 21. Secure the Trigger Selector board by tightening the two captive screws.

[1]In some cases, the spacing between connector contacts for J3 may not be sufficient to insert the tab section of the Trigger Interconnect circuit board under the connector body. To facilitate installation of the Trigger Interconnect board, file away some of the board material on the sides of the tab section.

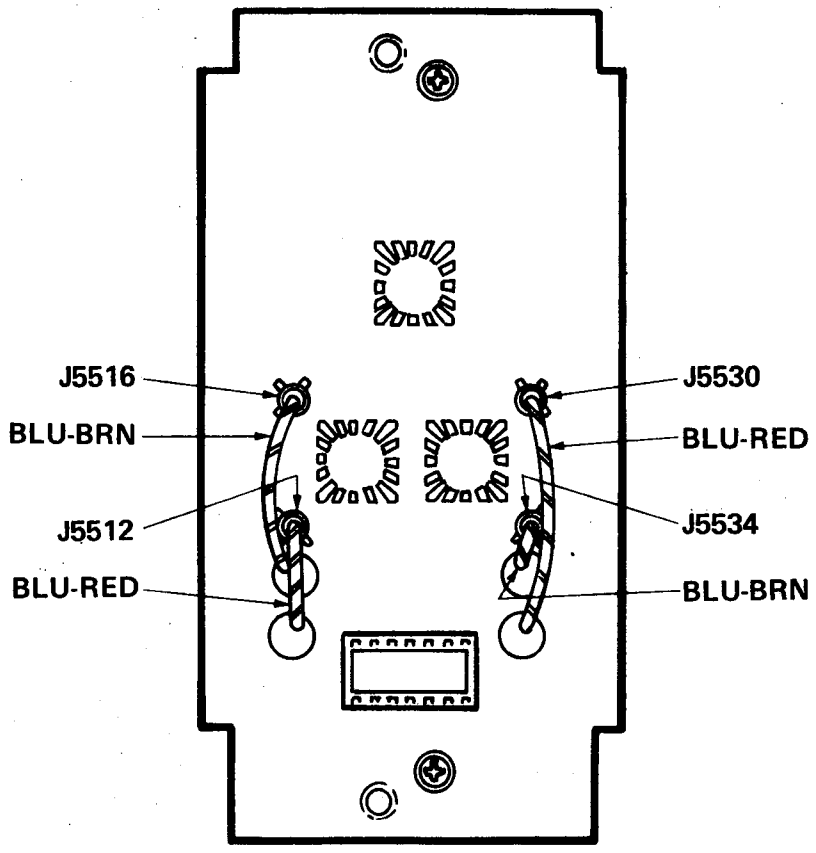

Fig. 1. Coaxial cable connections for the 'A' Trigger Selector circuit board.

( ) 22. Connect the four added coaxial cables to the 'A' Trigger Selector circuit board as follows (see Fig. 1):

- ( ) a. Left blue-brown to J5516 (LT-).
- ( ) b. Right blue-brown to J5534 (RT-).
- ( ) c. Left blue-red to J5512 (LT+).
- ( ) d. Right blue-red to J5530 (RT+).

( ) 23. Carefully install the 'B' Trigger Selector circuit board.

( ) 24. Refer to the Calibration Section (3) of the Instruction Manual and the attached manual insert, then check instrument performance, especially the trigger system, making any necessary adjustments.

( ) 25. Remove the protective backing from the provided marker and apply the marker to a clean, dry area on the rear panel. This marker indicates installation of this kit for future reference.

( ) 26. Install the side panels.

( ) For future reference, attach the following Instruction Manual Modification Insert to the 7904 Instruction Manual.

DRL:cs

Product Modification Kit
SUGGESTION/CORRECTION FORM

DATE _____

KIT NUMBER _____ STEP/PAGE _____

FIGURE NUMBER _____ PUBLICATION DATE _____

DISCREPANCY _____

_____

_____

_____

SUGGESTED CORRECTION / COMMENTS _____

_____

_____

SUGGESTED BY: NAME / ORGANIZATION _____

☐ REPLY REQUESTED

RETURN TO LOCAL FIELD OFFICE / SERVICE CENTER

FIELD OFFICE / SERVICE CENTER / DEL. STA. _____

SERVICE CENTER: RETURN TO PARTS RESEARCH 73-848

REPLY

☐ WILL MAKE CHANGE IMMEDIATELY

☐ WILL MAKE CHANGE AT NEXT PRINTING

☐ OTHER _____

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SIGNED _____ DATE _____