



product modification

050-0762-14

M24051, M23870, M46860
S30218, M56012

STORAGE CRT REPLACEMENT

For the following TEKTRONIX[®] Oscilloscopes:

- 464 Serial Numbers B010100 - B079999
- 466 Serial Numbers B010100 - B079999

Storage crts. pn 154-0722-00 and pn 154-0708-00, which have 0.5W heaters, have been replaced with a new storage crt. pn 154-0750-00, which has a 2W heater. This change eliminates flashes in the display due to arcing between the flood gun heater and the flood gun cathode when the instrument is operating in NON-STORE DISPLAY MODE. Installation of the new crt necessitates changing several components in the power supply circuits.

NOTE

If the instrument serial number is greater than those listed above, or either this kit or 050-0762-01 has already been installed, disregard these instructions and use pn 154-0750-00 as a direct replacement.

KIT PARTS LIST:

Ckt. Number	Quantity	Part Number	Description
Q1752	1 EA	151-0136-00	TRANSISTOR, NPN, SILICON
V1555	1 EA	154-0750-00	TUBE, VACUUM, CRT, T4640-1
S1702	1 EA	260-0551-00	SWITCH, THERMO-CUTOUT 86.1°C
R2099	1 EA	308-0290-00	RESISTOR, WW, 8 Ω , 5%, 5W
R1754	1 EA	315-0122-00	RESISTOR, CMPSN, 1.2k Ω , 5%, 0.25W
	2 EA	361-0609-01	SPACER, XFMR
	1 EA	-----	LABEL, 050-0762-XX

INSTRUCTIONS:

WARNING

To avoid electric shock hazard, disconnect the instrument from all other electrical equipment and the power source before proceeding.

The following instructions are for use by qualified service personnel only. To avoid personal injury, do not perform any of the following procedure unless you are qualified to do so.

- () 1. Unwrap the power cord from the accessory pouch on the top of the instrument.
- () 2. Remove the DM40 or DM43 cover, if present.
- () 3. Remove the four rear feet and two ring assembly mounting screws and remove the ring assembly.
- () 4. Slide the wraparound cover to the rear to remove it.

A. TO REMOVE CRT:

- () 1. Remove the gray plastic bezel and crt shield assembly, from the front of the instrument, by removing the four mounting screws.
- () 2. Remove the oscilloscope rear plastic cover by removing two flat head screws. DO NOT UNSOLDER WIPES.
- () 3. Remove the bell-shaped cover to expose the crt socket (held with two screws). It will be necessary to remove one screw, loosen one screw, and swivel the plate under the fan impeller to gain access to one of the cover mounting screws.
- () 4. Unplug the crt socket.
- () 5. Set the instrument on its left side.
- () 6. Disconnect the vertical deflection plate leads from the left side of the crt neck.
- () 7. Disconnect the horizontal deflection plate leads from the bottom side of the crt neck.
- () 8. Unplug the storage plug P1951 from the Storage Board.
- () 9. Disconnect the crt anode connector and discharge the connector pin to the instrument chassis.
- () 10. Holding one hand on the crt face, push forward (slowly) on the crt base with the other hand. Guide the anode connector and the storage plug through crt shield openings while slowly pulling the crt out of the instrument. The plastic corner pads may fall loose when the crt is removed; save them for reinstallation. Also, the white plastic centering bracket should remain inside the crt shield.

3. TO INSTALL NEW CRT:

- () 1. Make sure the plastic centering bracket is in place inside the shield and that the black plastic corner pads are in place at the front corners of the crt opening.
- () 2. Insert a wire or string through the hole in the upper right rear corner of the crt shield, to facilitate installation of the anode lead. Be sure to dress the wire or string across the upper right opening of the plastic centering bracket.
- () 3. Connect the wire or string to crt anode lead connector and add tape to hold it firmly.
- () 4. Insert the neck of the crt part way into the crt shield and into the plastic centering bracket. Orient the crt with the anode lead towards the top of the instrument.
- () 5. While holding the front of the crt with one hand, carefully insert the storage plug through the grommet hole in the bottom of the crt shield. Be sure to pull wires through while inserting crt.
- () 6. Draw the anode lead through the hole in the shield.
- () 7. While still holding the crt with one hand, make sure the plastic centering bracket is in place on the crt neck.
- () 8. Slowly push the crt the rest of the way into the crt shield. If the crt does not go in all the way, pull it out part way, and move the plastic centering bracket farther up on the crt neck.
- () 9. Install the bezel and crt filter on the front of the crt.
- () 10. Make the following crt connections:
 - () a. crt anode lead.

- () b. crt base socket.
- () c. Storage plug (P1951). Be sure to match arrows.
- () d. Horizontal deflection plate leads to neck pins. (White-green wire to right pin and white-red wire to left pin).
- () e. Vertical deflection plate leads to neck pins. (white-blue to upper pin and white-brown to lower pin)
- () 11. Install bell-shaped crt socket cover (two screws).
- () 12. Secure plate under fan impeller.
- () 13. Install plastic rear cover (two flat-head screws - See crt replacement).

C. TO MODIFY INTERFACE CIRCUIT BOARD: See drawing on page 8.

- () 1. Replace R1754, a 680 Ω resistor, with the 1.2k Ω resistor from the kit.
- () 2. Replace R2099, a 22 Ω 0.5W resistor, with the 8 Ω 5W wire-wound resistor from the kit.
- () 3. Replace Q1752, a 151-0302-00 (2N2222A) transistor, with the 151-0136-00 transistor from the kit.

D. TO REPLACE S1702:

(S1702, the thermo-cutout switch, is located on the chassis below the power transformer).

NOTE

Refer to Figure 1 for location of parts mentioned in the following procedures.

- () 1. Remove the two screws securing the transformer retainers to the rear bulkhead, the four transformer securing screws, and the two screws securing S1702 to the chassis.
- () 2. Remove the old spacers and install the new transformer spacers (from the kit) as shown in Fig. 1.

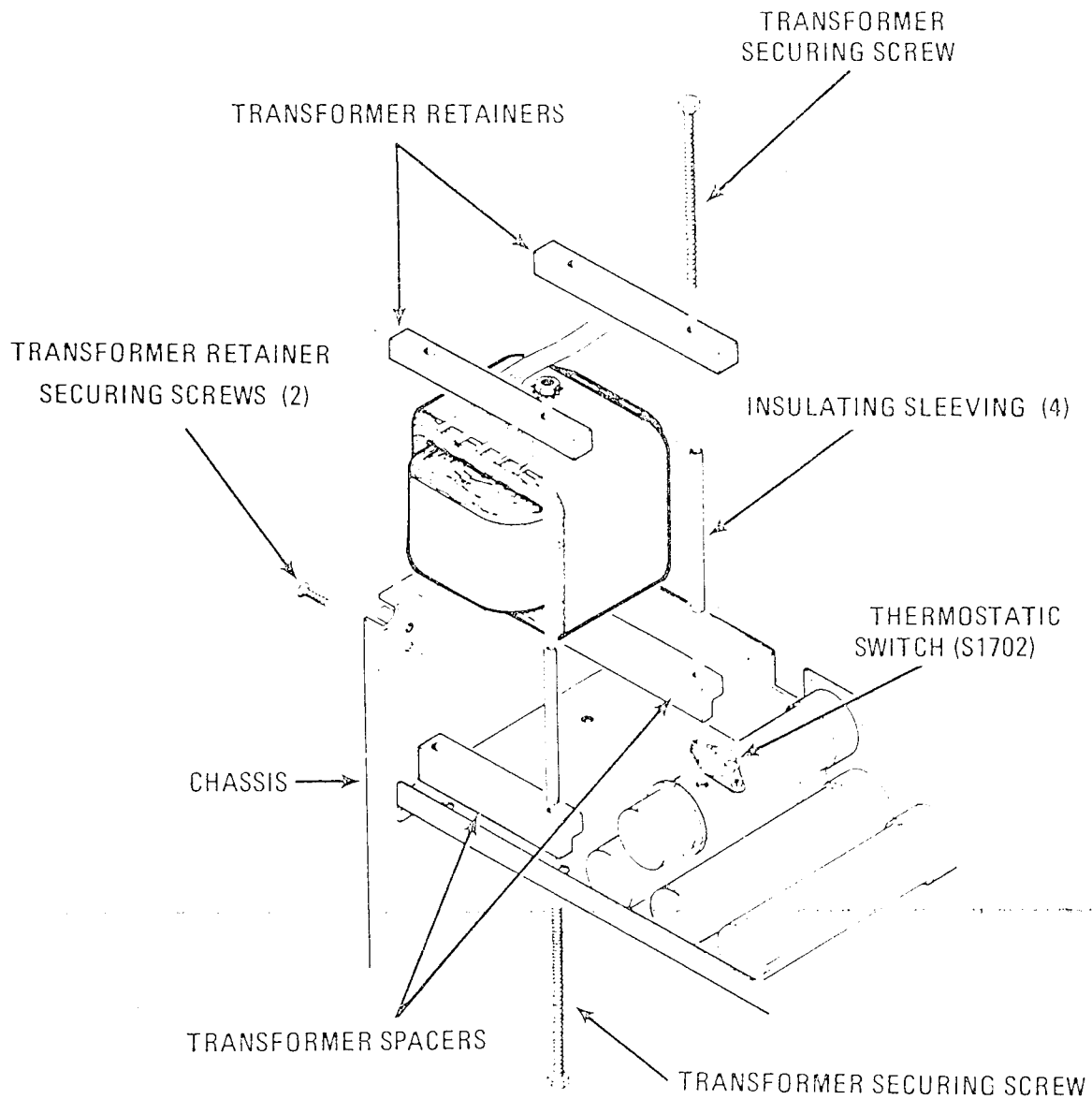


Fig. 1. Location of thermostatic switch (S1702) and adjacent parts

- () 3. Lift out S1702, then unsolder the leads.
- () 4. Solder in the new switch (S1702) from the kit, then mount and secure the switch to the chassis.
- () 5. Align the holes in the transformer spacers with those in the chassis and the transformer.
- () 6. Install the two transformer retainer securing screws, then install the transformer securing screws.

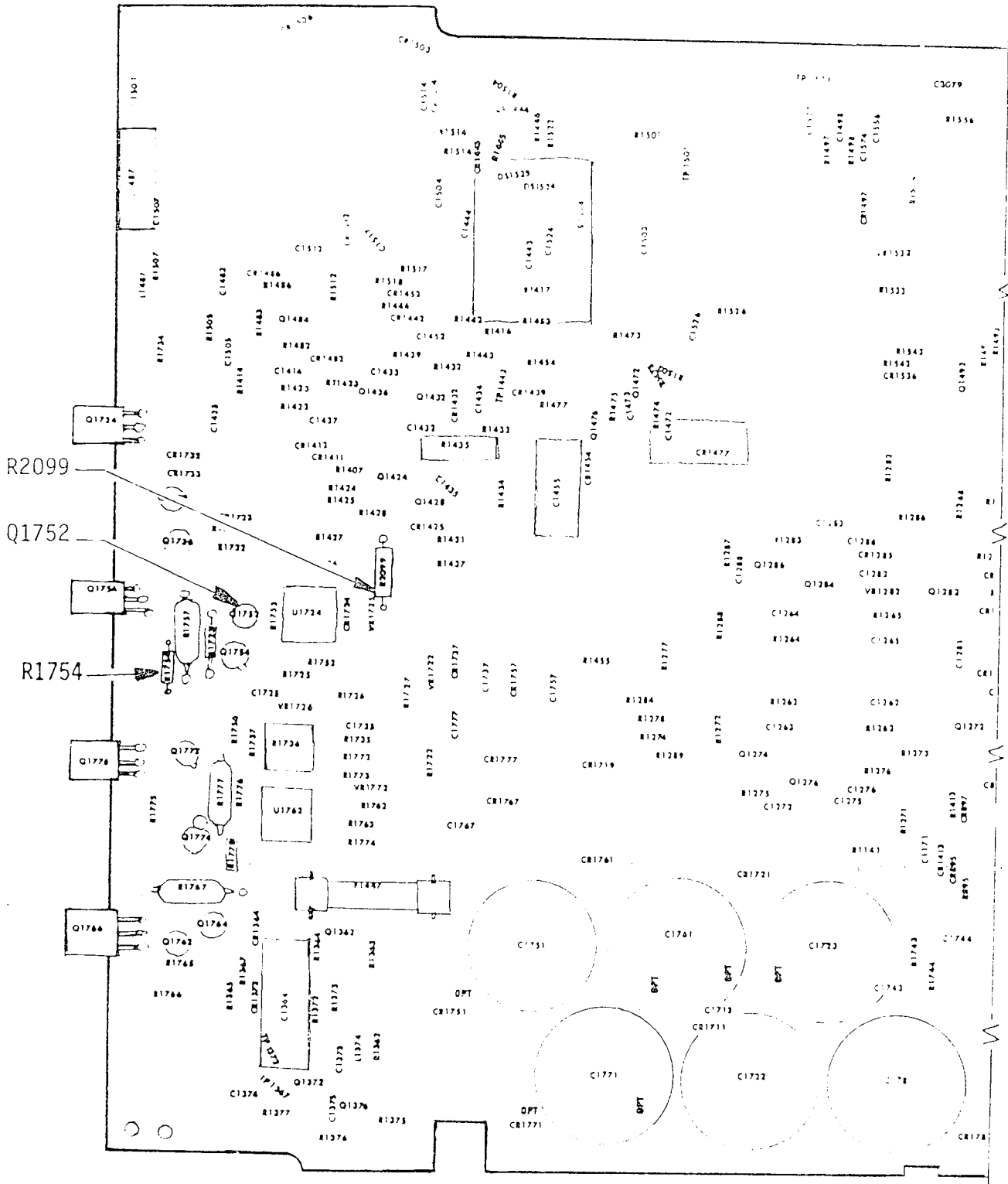
NOTE

Leave the transformer retainer securing screws loose until the transformer securing screws are in place.

- () 7. Tighten the screws.

E. TO REINSTALL WRAPAROUND COVER:

- () 1. Slide the wraparound cover over the instrument, being careful not to bump any components, and seat the front edge of the cabinet in the groove in the front casting.
- () 2. Reinstall the cabinet retaining ring and the hardware removed in Step 3.
- () 3. Reinstall the plastic cover on top of the instrument over the Digital Multimeter, if present, using the 8-32 x 0.500 inch screws.
- () 4. For future reference, place the Instruction Manual Modification Insert in your instrument Service Manual.



Partial - Interface Circuit Board

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