product modification

040-1066-00

M44198

INTERNAL USE ONLY

VERTICAL PICKOFF AMPLIFIER DRIFT IMPROVEMENT

For TEKTRONIX® 7854 Oscilloscopes:

Serial Numbers B010100 - B041287

This modification kit contains parts and instructions for modifying the Vertical Pickoff Amplifier to reduce vertical drift of a digitized wave form with temperature changes. All changes are made on the Digitizer circuit board (A25).

PARTS INCLUDED IN MODIFICATION KIT:

Ckt. No.	Quantity	Part Number	Description
C60	1 ea	283-0107-00	Capacitor, cer, 51pf 5 pct 200V
R80	1 ea	311-0978-00	Resistor, var, nonww, trmr 250Ω 0.5W
R123	1 ea	315-0121-00	Resistor, cmpsn, 120Ω 5 pct 0.25W
R72	1 ea	315-0272-00	Resistor, cmpsn, 2.7kΩ 5 pct 0.25W
R136	1 ea	321-0199-00	Resistor, film, 1.15kΩ 1 pct 0.125W
R79	1 ea	321-0236-03	Resistor, film, 2.8kΩ 0.25 pct 0.125W
R92	1 ea	321-0239-07	Resistor, film, 3.01kΩ 0.1 pct 0.125W
R289	1 ea	321-0269-00	Resistor, film, 6.19kΩ 1 pct 0.125W
R89,R90,R91	3 ea	321-0657-07	Resistor, film, 60Ω 0.1 pct 0.125W
R22	1 ea	321-0666-07	Resistor, film, 3.04kΩ 0.1 pct 0.125W
R71	1 ea	321-0816-07	Resistor, film, 5kΩ 0.1 pct 0.125W
R73	1 ea	321-1267-03	Resistor, film, 5.97kΩ 0.25 pct 0.125W
R81	1 ea	321-1296-07	Resistor, film, 12.0kΩ 0.1 pct 0.125W
R77	1 ea	321-1313-07	Resistor, film, 18.0kΩ 0.1 pct 0.125W
R292	1 ea	321-1618-02	Resistor, film, 6.5kΩ 0.5 pct 0.125W
R21	1 ea	321-1650-07	Resistor, film, 8.99kΩ 0.1 pct 0.125W
	0.031 ft	162-0581-00	Insulating slvg, elec, 0.027 id, clear
	0.334 ft	175-0639-00	Wire, elec, strd, 24AWG 250V rms, brown
	1 ea		Label, 040-Kit

INSTRUCTIONS:

WARNING

Before proceeding, ensure the POWER switch is off, then disconnect the instrument from the power source.

NOTE

If memory back-up power is being used, disconnect the female banana jacks from the MEMORY BACK-UP POWER INPUT on the rear panel.

( ) 1. Turn the four slotted fasteners in the right cabinet side one-quarter turn counterclockwise. Remove the cabinet side by lifting the panel away from the instrument.

( ) 2. Remove the five screws securing the circuit board support and remove the support.

( ) 3. Disconnect the interconnecting cables from the Digitizer circuit board (A25), noting color codes and locations for later reassembling.

( ) 4. Remove the Digitizer circuit board from the A25 slot by lifting up simultaneously on the two plastic circuit board ejectors located on each end of the circuit board.

Refer to Fig. 1 when performing steps 5 through 8.

( ) 5. Remove the following components from the Digitizer circuit board:

( ) a. R93, a 6.2kΩ resistor.

( ) b. Q95, a PNP transistor.

( ) c. Q94, a PNP transistor.

( ) d. Q93, an NPN transistor.

( ) e. C87, a 0.001μF capacitor.

( ) f. C84, a 470pF capacitor.

( ) g. R137, a 237Ω resistor.

( ) h. R138, a 909Ω resistor.

( ) i. R125, a 267Ω resistor.

( ) j. R124, a 1.82kΩ resistor.

( ) 6. Replace the following components with the new value components provided in the kit:

( ) a. R292, a 10.2kΩ resistor, with the 6.5kΩ resistor.

( ) b. R289, a 9.76kΩ resistor, with the 6.19kΩ resistor.

( ) c. C60, an 87pF capacitor, with the 51pF capacitor.

( ) d. R91, a 10Ω resistor, with the three 60Ω resistors (R89,R90, and R91 are connected in parallel).

( ) e. R72, a 16kΩ resistor, with the 2.7kΩ resistor.

( ) f. R92, a 6.98kΩ resistor, with the 3.01kΩ resistor.

( ) g. R73, a 20kΩ resistor, with the 5.97kΩ resistor.

( ) h. R80, a 100Ω variable resistor, with the 250Ω variable resistor.

( ) i. R77, a 10kΩ resistor, with the 18.0kΩ resistor.

( ) j. R81, a 10.97kΩ resistor, with the 12.0kΩ resistor.

( ) k. R79, an 8.25kΩ resistor, with the 2.8kΩ resistor.

l. R71, a 140kΩ resistor, with the 5kΩ resistor.

m. R22, a 3.4kΩ resistor, with the 3.04kΩ resistor.

n. R21, a 10kΩ resistor, with the 8.99kΩ resistor.

7. Add R136, a 1.15kΩ resistor, in tepee-fashion, as indicated in Fig. 1.

8. Cut run connecting the lead of R92 nearest Q94 (previously removed) to the collector of Q94. Refer to Fig. 1.

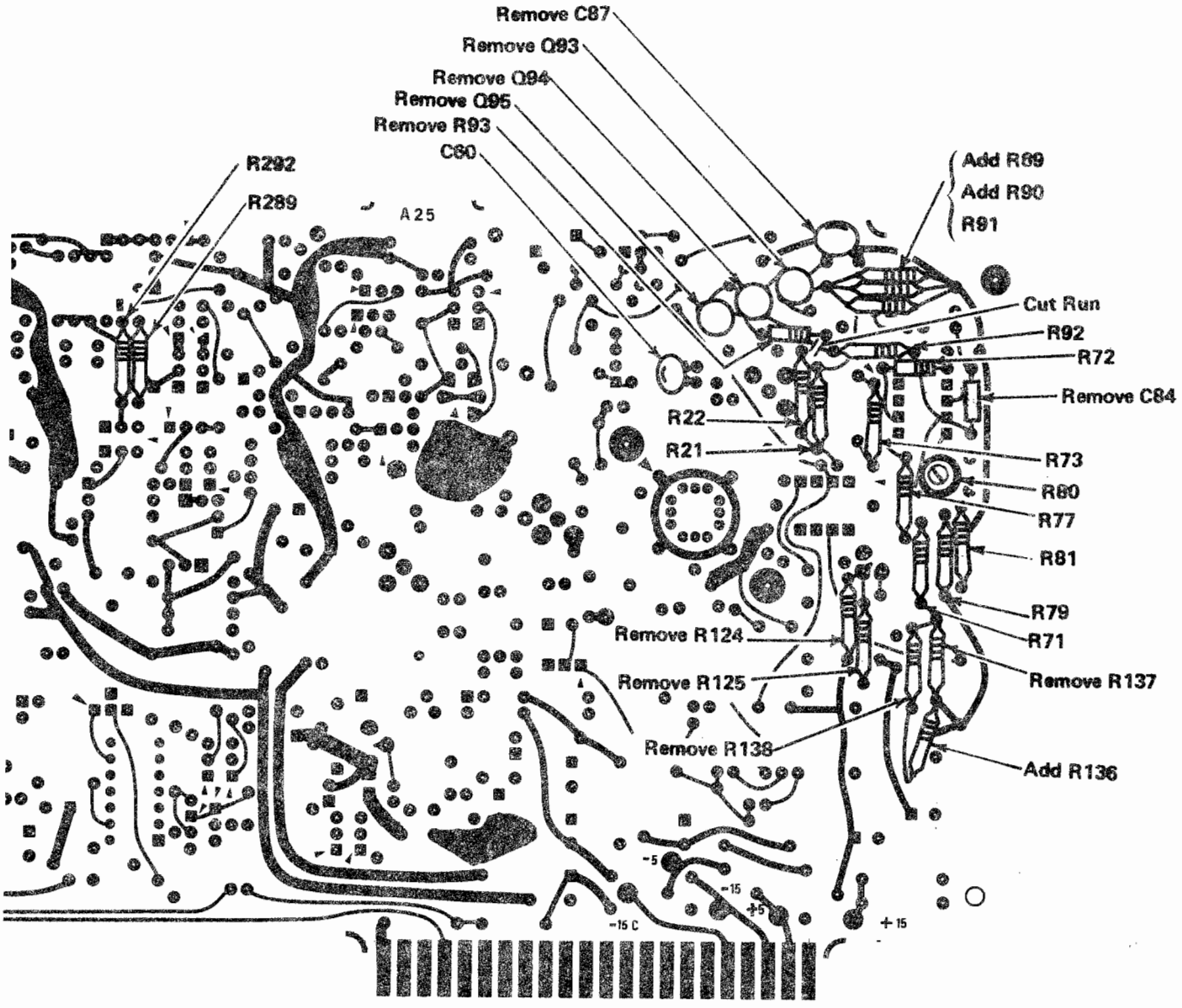

Fig. 1. Locations of Parts on Component Side of Digitizer Circuit Board (A25).

(X) 9. Turn the Digitizer circuit board component side down and make the following changes on the solder side of the board (refer to Fig. 2):

(X) a. Add R123, the 120Ω resistor provided in the kit, between the emitter of Q125 and the base of Q104. Cover the longer lead of R123 with the clear sleeving provided in the kit (trim to fit).

(X) b. Cut off a 2 1/4 inch piece of insulated wire from the wire, provided in the kit, and connect it between the base of Q93 and the base of Q125.

(X) c. Trim the insulation on the ends of the remaining piece of wire and connect it between R92 and L94 as shown.

(X) d. Use a piece of lead trimmed off a resistor and strap between the emitter and collector pads where Q94 was previously mounted.

( ) 10. Install the Digitizer circuit board by performing the reverse of the procedure in steps 2 through 4.

( ) 11. Refer to the Calibration Part II (Adjustment and Performance Check) section of the Service Manual and make any necessary checks and adjustments. Especially check the Vertical and Horizontal Pickoff System.

( ) 12. Install the right cabinet side.

( ) 13. Remove the protective backing from the 040-Kit label, provided in the kit, and place it on a clean, dry area on the rear panel. The label indicates this kit has been installed.

( ) 14. For future reference, fasten the attached Instruction Manual Modification Insert in your Service Manual.

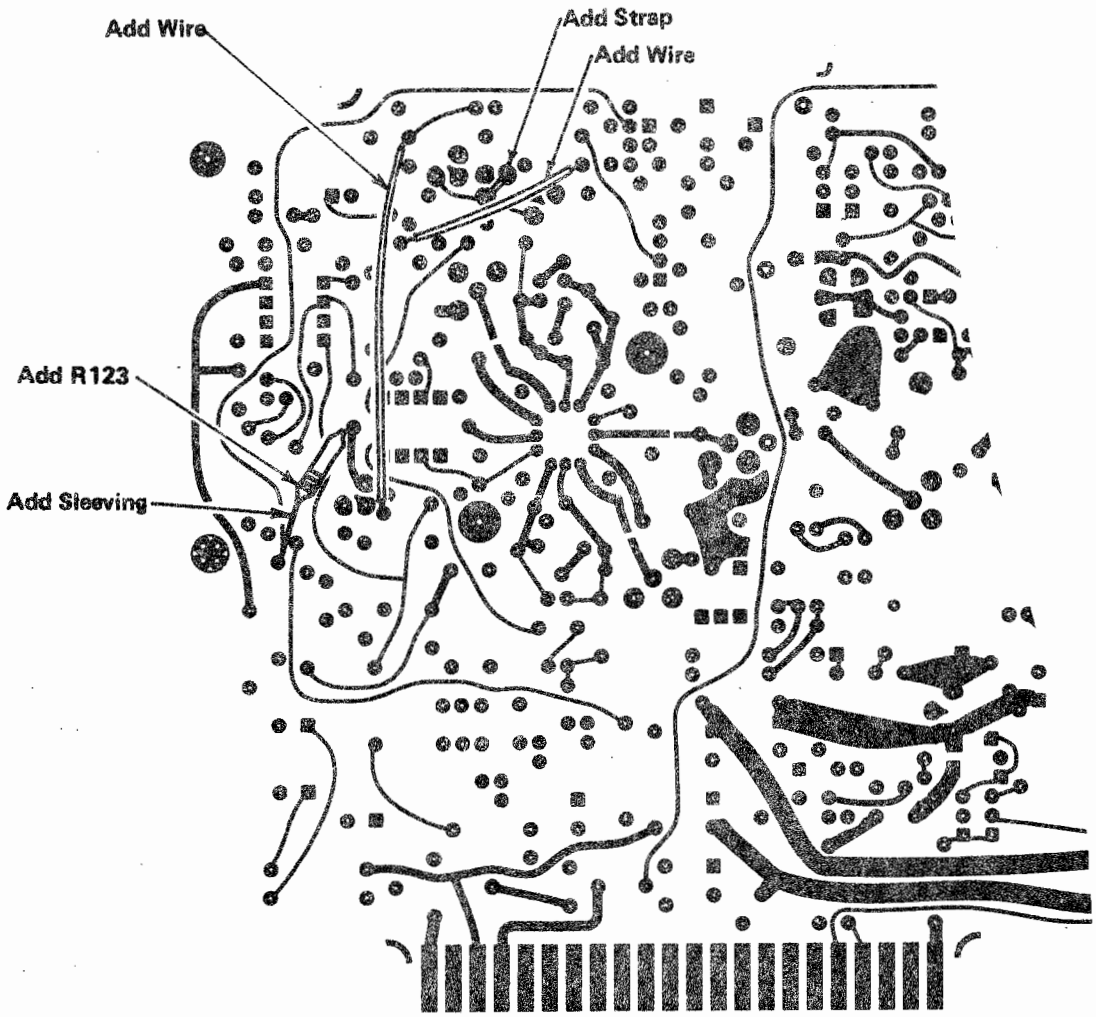

Fig. 2. Locations of Parts on Solder Side of Digitizer Circuit Board (A25).