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HELIX AMPLIFIER MODIFICATION KIT

For all HP Model 691, 692, 693, and 694 Sweep Oscillators
and
All HP Model 8690A Sweep Oscillators

1. This Service Note outlines the procedure for installing a tuning voltage filter in all HP Model 691, 692, 693, 694 Sweep Oscillators, and HP Model 8690A Sweep Oscillators. This filter improves start of sweep tracking ability of HP Model 8410A Network Analyzer.
2. Equipment Required:
Soldering Iron
Solder
3. Calibration or realignment is not required after installation of this modification.
4. Parts supplied in kit (Part No. 08690-6029).

- d. Using machine screw just removed from instrument, mount 3-prong terminal strip to interconnection assembly A7. Note: There are two #4 lock washers supplied in this kit; one should be placed on screw between screw head and 3-prong terminal strip and the other between sheet metal and A12 assembly socket on bottom side of instrument where machine screw fastens to socket.
- e. Solder 5600 pf capacitor between one end and center terminal of 3-prong terminal strip. Solder 10K ohm resistor between two end terminals of 3-prong terminal strip.
- f. Note two wires connected to terminal pins between A3 and A4 assembly sockets. The white-orange-yellow wire is going to have to connect to the 10K ohm resistor on the 3-prong terminal strip. The junction of the 5600 pf capacitor and 10K ohm resistor is going to connect to the terminal pin that the white-orange-yellow wire was connected to. To make connections, proceed as follows:
 - (1) Leaving a long enough length so that the white-orange-yellow wire can connect between terminal pin and junction of resistor and capacitor, cut white-orange-yellow wire in wiring harness. Solder cut end to 3-prong terminal strip at junction of resistor and capacitor.
 - (2) Solder one end of white-orange-yellow wire, supplied in this kit, to white-orange-yellow wire in wiring harness. Place shrink tubing, supplied in this kit, over solder joint.
 - (3) Solder white-orange-yellow wire from wiring harness to end terminal of 3-prong terminal strip which has resistor alone connected to it.

Qty	Description	HP Part No.
1	Capacitor, fixed mica, 5600 pf, 5%, 200 vdcw	0160-2196
1	Resistor, fixed metal film 10K ohm, 1%, 1/8 watt	0757-0442
1	Capacitor; fixed, 220 pf, 10%, 500 vdcw	0140-0031
1	Wire, white-orange-yellow, 24 awg, 3 inches in length	8150-0487
1	Shrink tubing, 1 inch in length	0890-0030
1	3-prong terminal strip	0360-0015
2	Lock washer, #4 internal tooth	2190-0004

5. Model 8690A Installation Procedure
 - a. Disconnect line power. Remove top and bottom covers.
 - b. Remove A4 and A3 circuit board assemblies.
 - c. Note two 4-40 machine screws; one is located near each end of A4 assembly socket. Remove

6. Models 691A/B Through 694A/B Installation Procedure
 - a. Disconnect line power. Remove top cover.

Rev. A 10/67-4



- b. Refer to Operating and Service Manual for location of diode A1CR15 ("starred value" diode which may or may not have been placed on circuit board). If A1CR15 is onboard, solder 220 pf capacitor across it; if A1CR15 is not on board, solder pf capacitor into board where A1CR15 would have been.
7. Models 691C/D through 694C/D Installation Procedure.
 - a. Disconnect line power. Remove top cover.
 - b. Remove A4 circuit board assembly from instrument.
 - c. Refer to Operating and Service Manual for location of terminal pin test point 8. Solder 220 pf capacitor between terminal pin test point 8 and grounding pin of A4V5 which is between A4V5 pins 1 and 9.
 8. Manual corrections. Correct your manual to indicate circuit changes as follows:
 - a. Model 8690A: correct helix voltage generator schematic as shown in Figure 1 and add the

following resistor and capacitor to Replaceable Parts List:

R27; resistor fixed 10K ohm, 1%, 1/8 watt; HP Part No. 0757-0442.

C12; capacitor fixed 5600 pf, 5%, 200 vdcw; HP Part No. 0160-2196.

- b. Models 691C, 691D, 692C, 692D, 693C, 693D, 694D, H01-693D, H01-694C, H01-694D: correct helix voltage generator schematic as shown in Figure 1 and add the following part to Replaceable Parts List:

A4C10; capacitor fixed 220 pf, 10%, 500 vdcw; HP Part No. 0140-0031.

- c. Models 691A, 691B, 692A, 692B, 693A, 693B, 694A, 694B, H01-692A, H01-692B, H01-693A, H01-693B, H01-694A, H01-694B: correct helix voltage generator schematic as shown in Figure 1 and add the following part to Replaceable Parts List:

A1C20; capacitor fixed 220 pf, 10%, 500 vdcw; HP Part No. 0140-0031.

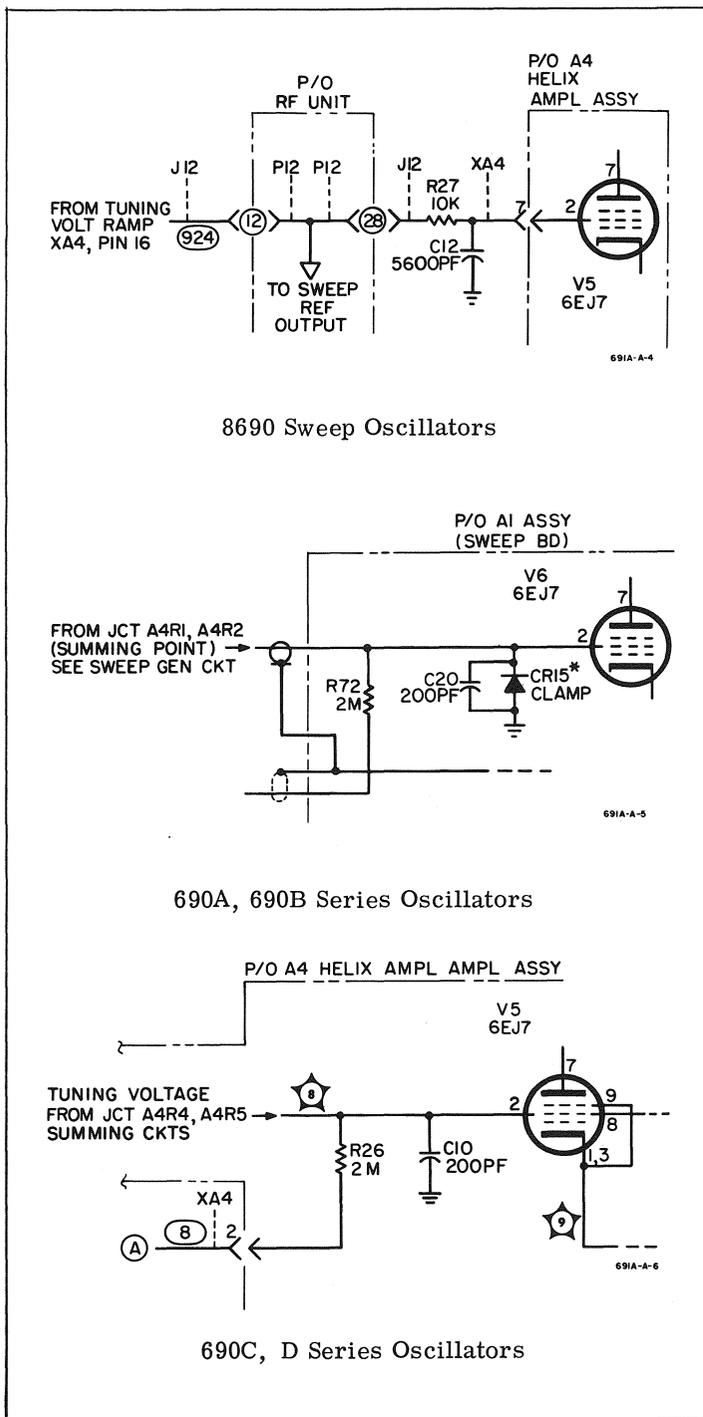


Figure 1. Partial Schematics