



160-Meter modification instructions--Form 2

Modifying models PA-70A, PA-70V, and PA-77 for 160-meter coverage on bandswitch positions "B" (1800 to 1900 kHz) and "A" (1900 to 2000 kHz).

The modification is made to both the input cathode tuned circuit and the output plate circuit.

Beginning with the input cathode tuned circuit, follow the directed steps in sequence--

- (A) Turn the amplifier on its side, power supply section down, and remove the bottom cover plate.
- (B) Locate the 4-section input cathode tuned circuit rotary switch (adjacent to the tube socket). The section nearest the air-wound inductor, with taps from this inductor connected to it, is section A. Sections B and C will have additional component leads attached. Section D will not be changed.
- (C) Locate a drilled, unused hole adjacent to the tuned/untuned cathode selection switch. The trimmer capacitor assembly is installed in this hole.

NOTE: The trimmer assembly consists of supplied fixed mica capacitor values which equal 4700 pF when paralleled and are so connected across the trimmer. One terminal of the trimmer is grounded via a short length of the supplied braid to the solder lug which mounts between the trimmer and the chassis. The other terminal is connected via a length of supplied braid to positions "A" and "B" on section B of the input bandswitch. Identification of positions "A" and "B" can be made with an Ohmmeter connected from chassis ground to the terminals. Zero Ohms resistance will be evident on the terminal when switched to that position.

The total capacity available with the trimmer and supplied fixed value mica capacitors is over 4700 pF. The 820 pF fixed mica is switched across the trimmer to ground in position "B" only.

- (D) The lead from the rotor of switch section B is extended to the rotor of switch section C. The rotor lug is near the chassis, and is slightly longer than the other lugs.
- (E) Identify position "B" on the unused section C. Connect the 820 pF fixed mica capacitor between position "B" and the ground connection on the trimmer or other convenient ground point.

NOTE: After the entire modification is completed, the trimmer and its parallel capacitor combination are resonated to approximately 1950 kHz with a grid dip oscillator (GDO) coupled to the air-wound input inductor. The Bandswitch must be in position "A". The 820 pF fixed mica capacitor is switched in parallel with this network in position "B", and resonates the circuit to a lower frequency. For GDO alignment, the tube must be installed in its socket, and the tuned/untuned cathode selection slide switch must be in the "tuned" position (toward the tube). Final input VSWR adjustment, with an insulated alignment tool, may be necessary while the amplifier is operating on the band segment of interest. Do not attempt to operate the amplifier with the bottom cover removed or with the amplifier on its side.

(F) Position the amplifier toward you and remove the RF section top cover and left side panel to expose the output tank circuitry.

(G) Mount the output toroid assembly in the vacant hole directly below the 80-meter toroid on the front sub-panel. Note the technique used with the 80-meter toroid and duplicate it.

(H) Orient the toroid leads so that one can connect to the 80-meter toroid lead which is connected to the rear section of the bandswitch.

(I) Connect the other lead to bandswitch positions "A" and "B". Identify these by noting the direction of travel of the bandswitch rotor, and that there are two open lugs of the switch adjacent to the right rear of the bandswitch.

(J) Mount the "doorknob" ceramic capacitor on the L-shaped bracket supplied, with a solder lug attached to the free end of the capacitor.

(K) Mount the L-bracket to the left-hand loading variable capacitor (nearest the side panel) rear frame. Drilled, tapped 6-32 holes are in the center line of the top of the frame.

(L) Connect a heavy buss bar lead from the solder lug on the ceramic capacitor to position "B" on the front section of the bandswitch.

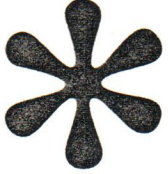
NOTE: This fixed capacitor serves to provide additional loading ability on segment "B" only.

(M) Replace the RF section side panel and top cover.

(N) Refer to the NOTE with step E above for GDO alignment of the input tuned circuit.

(O) Replace the bottom cover plate

This completes the 160-meter addition to your amplifier.



EHRHORN TECHNOLOGICAL OPERATIONS, INC. (ETO)

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ADDENDA TO 160-METER KIT INSTALLATION INSTRUCTIONS

TO

DATE

SUBJECT

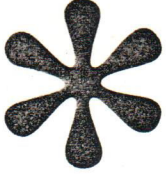
Note: The L-shaped bracket formerly supplied for mounting the doorknob type transmitting capacitor to the variable loading capacitor (steps J and K) is no longer available. Instead, a 6-32 threaded Allen-type screw is supplied with #6 lockwasher. The Allen-type screw is tightened into the doorknob capacitor, the #6 lockwasher is slipped over the screw, and the assembly is then threaded into the upper #6 threaded hole in the variable loading capacitor (step K).

Note: The capacitance supplied for shunting across the Arco #315M trimmer may exceed 4700 pF. This will allow resonating the input circuit to the bottom 25 kHz segment of the band more easily. Both bands A and B will now be able to be resonated at a lower frequency.

820 pf CAP → CMX-8210

315 arco → CVX-2520
padder

CDX-5010



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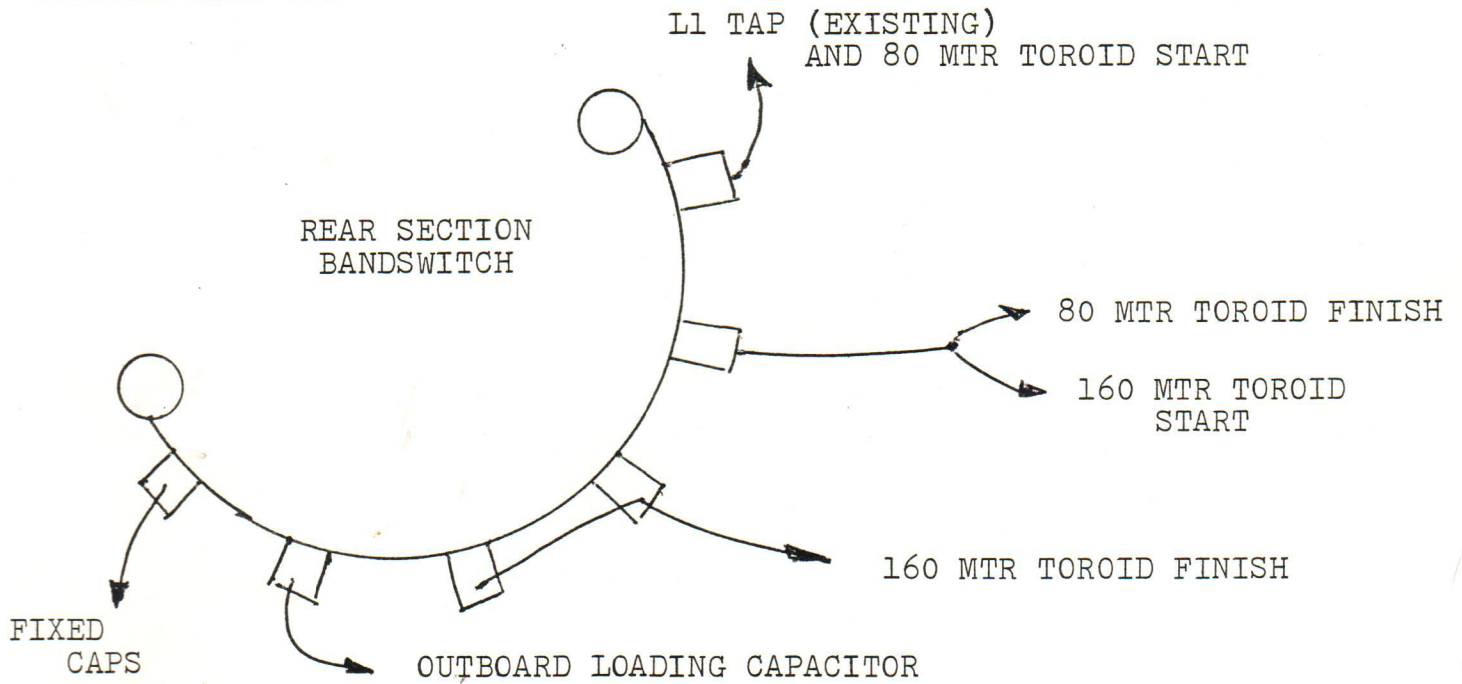
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TO CHANGE IN BANDSWITCH WIRING--
PA-77 THRU PA-77SX

DATE

BANDSWITCH MUST BE WIRED TO
CONFORM WITH THIS DRAWING

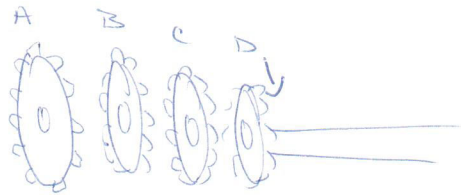
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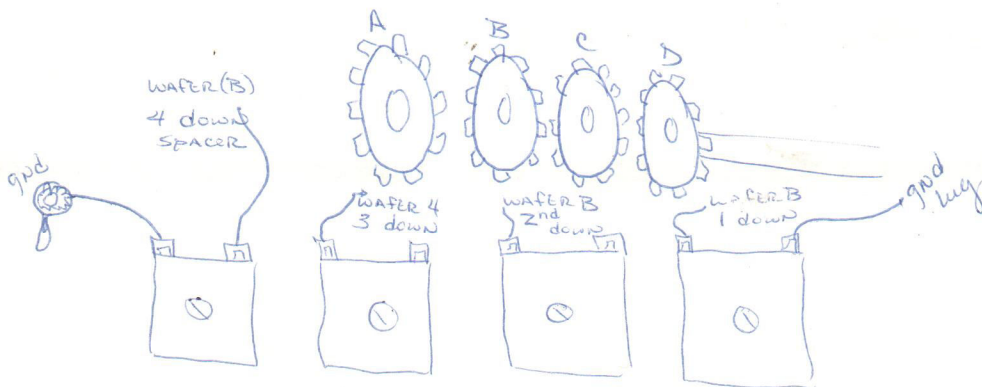
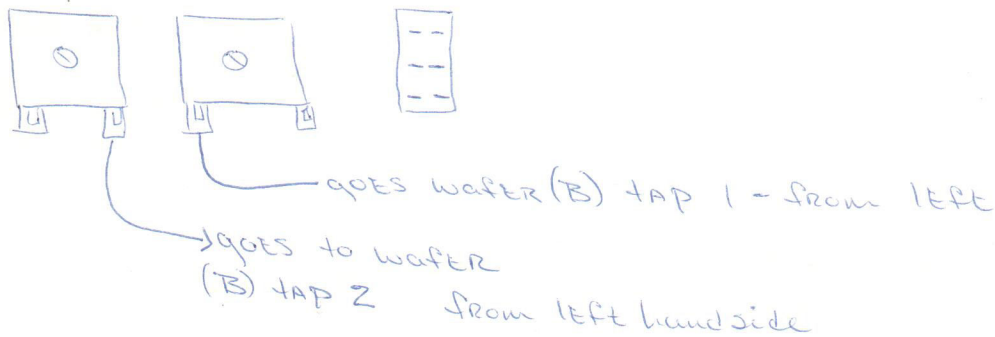
CONVERTING OLD 77 TO 160 m.

Add (1) 315 arco padders w/ 4700 pf capacitor going across. Install in hole closest to loading capacitors. Add piece of silver tape over extra hole. 1 lead from 4700 pf goes to ground solder lug - the other goes to wafer B taps 3+4 from left hand side.

Add 820 pf cap from wafer C to tap 4 coming from left hand side + other end to ground.



Add 22 ga jumper on wafer C to tap # 6 to ground



HAVE TRANSFORMER
TOWARDS YOU !!!!