COLLINS

INSTRUCTION BOOK

for

INSTALLATION OF THE

MECHANICAL FILTER CONVERSION KIT

IN THE COLLINS 75A-2 RECEIVER

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1 March 1953

COLLINS AMATEUR EQUIPMENT GUARANTEE

The Collins Amateur equipment described herein is sold under the following guarantee:

Collins agrees to repair or replace, without charge, any equipment, parts, or accessories which are defective as to design, workmanship, or materials, and which are returned to Collins at its factory, transportation prepaid, provided:

(a) Buyer has completed and returned to Collins promptly following his purchase the Registration Card included in the Instruction Book furnished with the equipment.

(b) Notice of the claimed defect is given Collins within 90 days from the date of purchase and goods are returned in accordance with Collins' instructions.

(c) Equipment, accessories, tubes, and batteries not manufactured by Collins or from Collins' designs are subject to only such adjustments as Collins may obtain from the supplier thereof.

(d) No equipment or accessory shall be deemed to be defective if, due to exposure or excessive moisture in the atmosphere or otherwise after delivery, it shall fail to operate in a normal and proper manner.

(e) Any failure due to use of equipment in excess of that contemplated in normal amateur operations shall not be deemed a defect within the meaning of these provisions.

The guarantee of these paragraphs is void if equipment is altered or repaired by others than Collins or its authorized service center.

No other warranties, expressed or implied, shall be applicable to said equipment, and the foregoing shall constitute the Buyer's sole right and remedy under the agreements contained in these paragraphs. In no event shall Collins have any liability for consequential damages, or for loss, damage or expense directly or indirectly arising from the use of the products, or any inability to use them either separately or in combination with other equipment or materials or from any other cause.

IMPORTANT! It is necessary that the business reply card included herewith be filled out and mailed to the Company promptly in order for this guarantee to be effective.

HOW TO RETURN MATERIAL OR EQUIPMENT. If, for any reason, you should wish to return material or equipment, whether under the guarantee or otherwise, you should notify us, giving full particulars including the details listed below, insofar as applicable. If the item is thought to be defective, such notice must give full information as to nature of defect and identification (including part number if possible) of part considered defective. (With respect to tubes we suggest that your adjustments can be speeded up if you give notice of defect directly to the tube manufacturer.) Upon receipt of such notice, Collins will promptly advise you respecting the return. Failure to secure our advice prior to the forwarding of the goods or failure to provide full particulars may cause unnecessary delay in handling of your returned merchandise.

ADDRESS:

Collins Radio Company
Sales Service Department
Cedar Rapids, Iowa

INFORMATION NEEDED:

(A) Type number, name, and serial number of equipment
(B) Date of delivery of equipment
(C) Date placed in service
(D) Number of hours of service
(E) Nature of trouble
(F) Cause of trouble if known
(G) Part number (9 or 10 digit number) and name of part thought to be causing trouble
(H) Item or symbol number of same obtained from parts list or schematic
(I) Collins' number (and name) of unit sub-assemblies involved in trouble
(J) Remarks

HOW TO ORDER REPLACEMENT PARTS. When ordering replacement parts, you should direct your order as indicated below and furnish the following information insofar as applicable. To enable us to give you better replacement service, please be sure to give us complete information.

ADDRESS:

Collins Radio Company
Sales Service Department
Cedar Rapids, Iowa

INFORMATION NEEDED:

(A) Quantity required
(B) Collins' part number (9 or 10 digit number) and description
(C) Item or symbol number obtained from parts list or schematic
(D) Collins' type number, name, and serial number of principal equipment
(E) Unit sub-assembly number (where applicable)

INSTRUCTIONS FOR INSTALLATION OF THE MECHANICAL FILTER CONVERSION KIT IN THE COLLINS 75A-2 RECEIVER

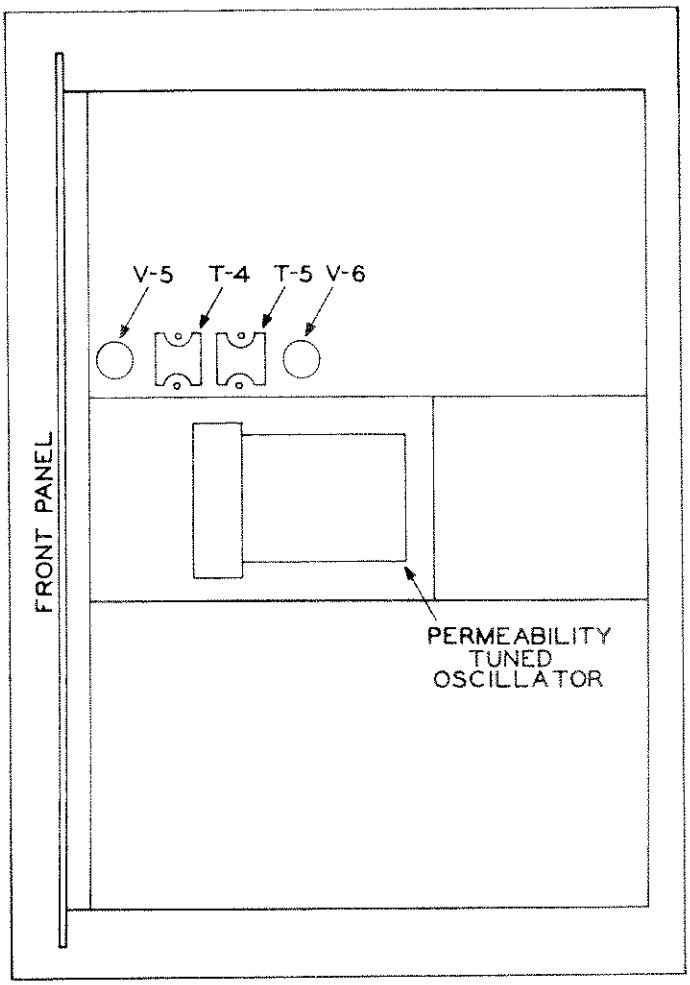


Figure 1. Locations of T-4 and T-5 in the 75A-2 Receiver (Bottom View)

Tools Required: Number 8 Bristo wrench, screwdriver, Phillips screwdriver, soldering iron, solder, sidecutters.

Read the entire instruction sheet before beginning installation of the Mechanical Filter Adapter. Do not under any circumstances use acid-core solder.

Check off each step as it is completed.

☑ 1. Remove the four large Phillips-head screws near the corners of the 75A-2 front panel and the two Phillips-head screws on the bottom of the cabinet near the two rear rubber feet. Slide the receiver out of the cabinet.

☑ 2. The receiver must be wired for broad-band operation. If the receiver is connected for narrow band, it must be converted to broad-band as outlined in the maintenance section of the 75A-2 instruction book.

☑ 3. Refer to figure 1 to locate i.f. transformers T-4 and T-5.

☑ 4. Refer to figure 3, which shows the wiring of T-4 and T-5 before modification.

☑ 5. Unsolder and remove 5 uuf capacitor C-32 that connects from terminal A of T-4 to terminal D of T-5. Discard C-32.

☑ 6. Unsolder and disconnect 2200 ohm resistor R-24 and 0.01 ufd capacitor C-64 from terminal F of T-4. Do not unsolder the other end of R-24 or C-64.

☑ 7. Unsolder and remove from terminal D of T-4 the lead which connects that terminal to pin 5 of tube V-5. Do not unsolder the end of the lead which connects to pin 5 of tube V-5.

☑ 8. Unsolder and remove the lead that connects terminal C of T-4 to terminal F of T-5. Discard this lead. In some early sets terminal F of T-5 was grounded by a wire to pin 2 of V-6. See dotted lines of figure 3. Remove and discard this wire if present.

☑ 9. Unsolder and remove from terminal C of T-4 the lead which connects that terminal to the ground lug marked M in figure 3. Do not unsolder the end of the lead which connects to lug M.

☑ 10. Unsolder and remove from terminal C of T-5 the lead which connects that terminal to the lug marked K in figure 3. Do not unsolder the end of the lead which connects to lug K.

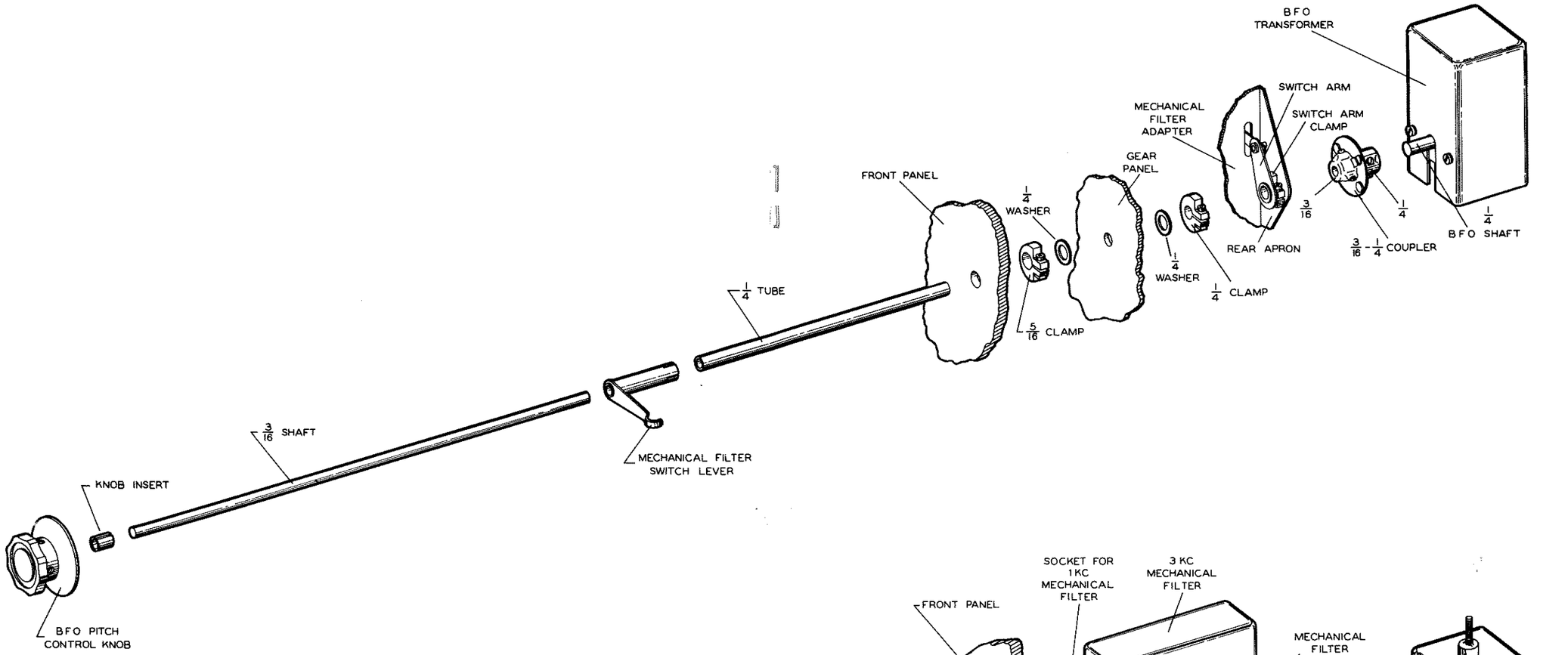
☑ 11. Unsolder and remove as in 10 (above) the lead from terminal A of T-5 which connects that terminal to V-6 pin 1.

☑ 12. Remove the nuts and shake-proof washers from the mounting lugs that hold T-4 and T-5 to the chassis. Remove and discard T-4 and T-5. Save the shakeproof washers and nuts for mounting the mechanical filter adapter.

☑ 13. Use a number 8 Bristo wrench to remove the b.f.o. pitch control knob.

☑ 14. Loosen all four screws holding the shaft coupler on the b.f.o. pitch control shaft. Discard the shaft and coupler.

☑ 15. Swing the switch arm on the mechanical filter adapter down so that its shaft hole lines up with the hole in the rear apron of the mechanical filter adapter. Install the mechanical filter adapter on the chassis as shown in figure 2. Be sure that the



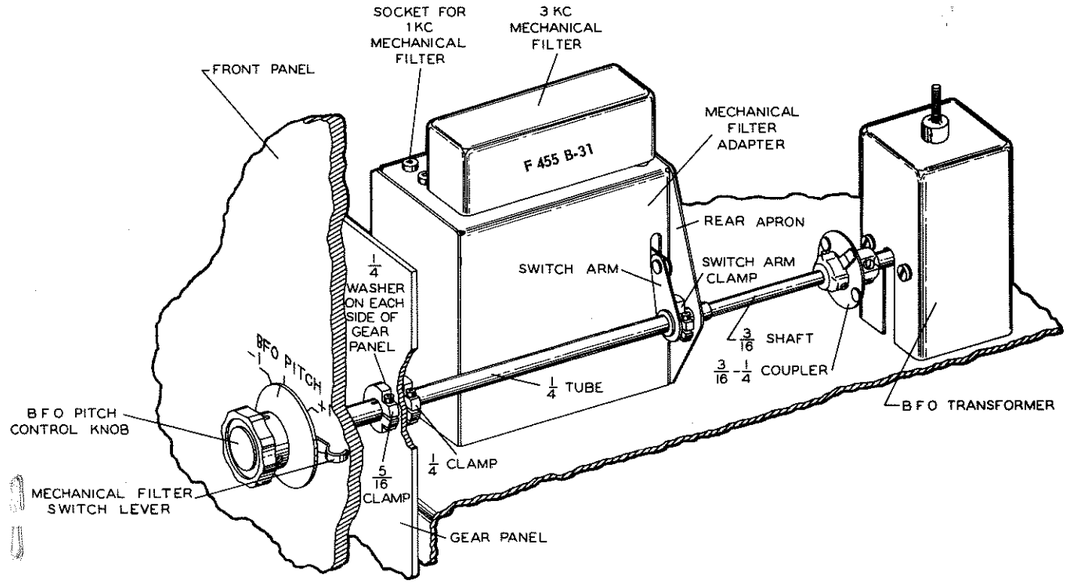


Figure 2. Mechanical Assembly

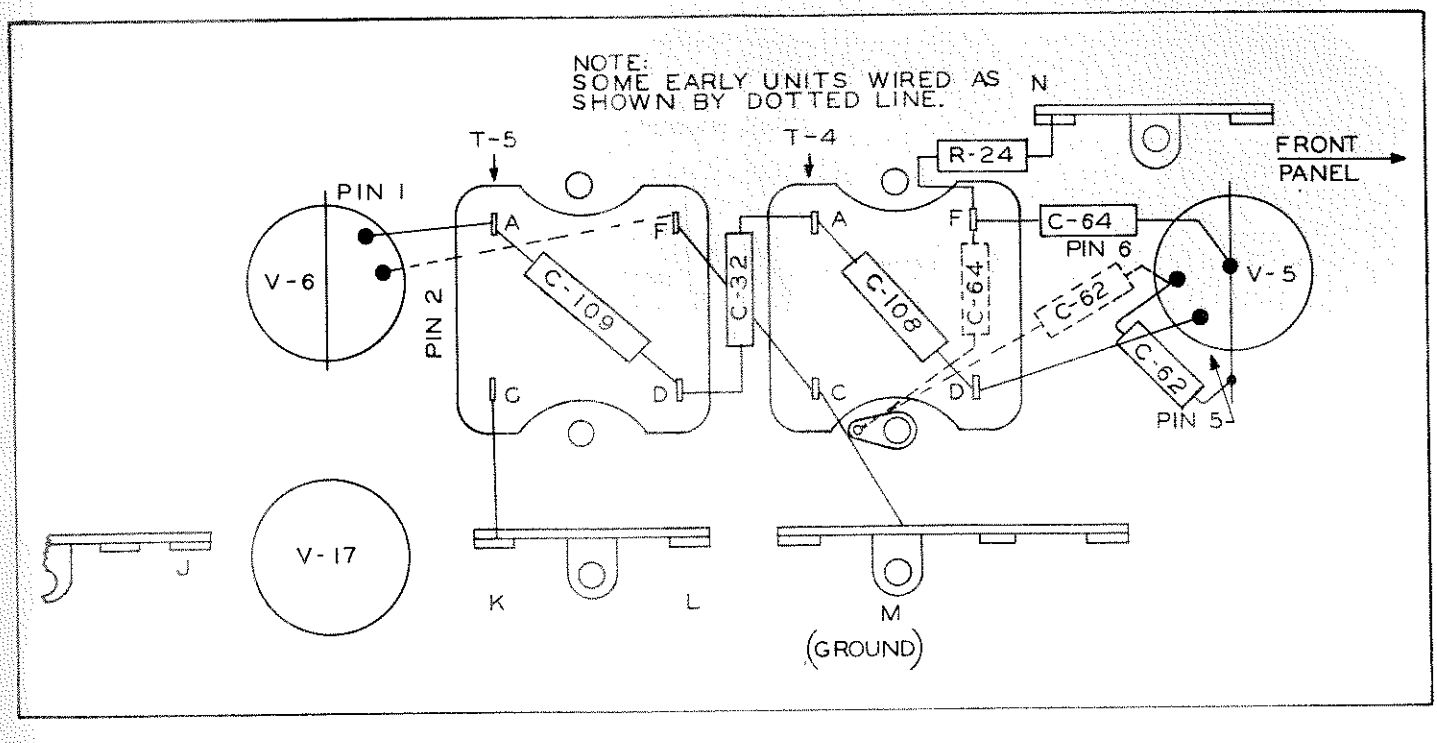


Figure 3. T-4 and T-5 Wiring Before Modification

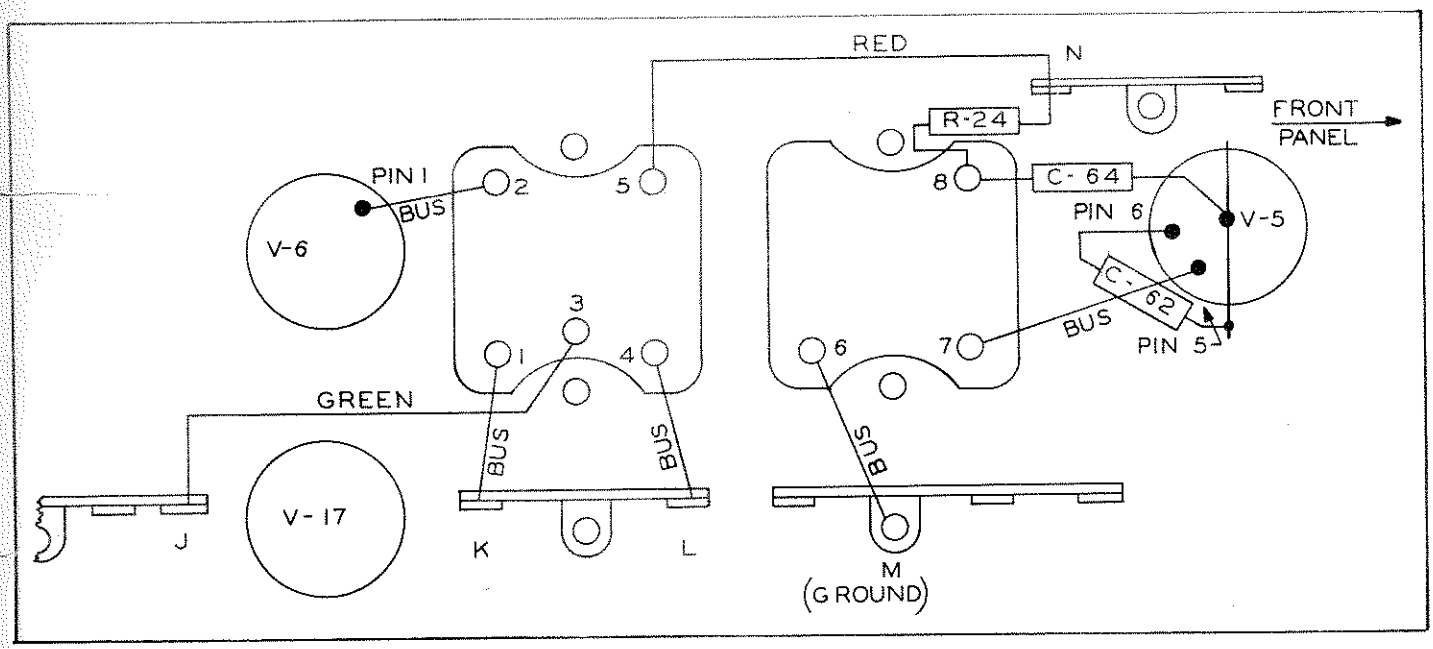


Figure 4. Mechanical Filter Adapter Wiring After Modification

switch arm is down toward the chassis as shown in figure 2, as it may be impossible to move it into position after the mechanical filter adapter is installed.

☑ 16. Attach the mechanical filter adapter to the chassis using the shake-proof washers and nuts that formerly held T-4 and T-5. Place a shake-proof washer and nut on each of the four lugs which extend through the chassis. Do not tighten the nuts until shaft alignment is assured.

☑ 17. Push the long quarter-inch tube through the front panel about one-half inch then slide the clamp with the five-sixteenths hole on the shaft followed by a one-fourth inch washer. Be sure the clamp is oriented as shown in figure 2.

☐ 18. Shove the shaft on through the gear panel to within an inch of the rear apron of the mechanical filter adapter.

☐ 19. Slide the other quarter-inch washer onto the

shaft followed by the quarter-inch clamp. Make sure the clamp is installed properly so that it can be positioned as shown in figure 2.

20. Cover the bearing point in the gear plate with a light coating of grease, if available, otherwise add the grease later.

21. Slide the quarter-inch tube through the mechanical filter adapter switch arm and the rear apron of the mechanical filter adapter until about a quarter inch of the tube extends beyond the rear apron.

22. With the quarter-inch washer and quarter-inch clamp held against the gear panel, use a number 8 Bristo wrench to tighten the quarter-inch clamp.

23. Install the mechanical filter switch lever on the front panel as shown in figure 2. The hollow shaft fits through the panel and inside of the five-sixteenth inch clamp. Tighten this clamp.

24. Push the top of the mechanical filter adapter switch arm in toward the mechancial filter adapter to the position shown in figure 2.

25. Move the mechanical filter switch lever on the front panel to a position 15 degrees above horizontal. Use a number 8 Bristo wrench to tighten the clamp on the mechanical filter adapter switch arm.

26. Cover the long three-sixteenth inch diameter shaft with a light coating of grease, if available. If the grease is not available, it can be added later.

27. Slide the three-sixteenths inch shaft into the mechanical filter switch lever on the front panel until it extends at the rear of the filter-box assembly apron.

28. Install the shaft coupler to connect the b.f.o. transformer's quarter inch shaft to the three-sixteenths inch shaft. This coupler has two different hole sizes to accommodate these shafts. Tighten the nuts left loose in step 16.

NOTE

If may be necessary to loosen the mounting nuts of the b.f.o. transformer and adjust the position of the transformer before the shafts and coupler will align perfectly. Retighten the nuts.

29. Place the small, split, knob insert in the b.f.o. knob shaft opening and replace the knob.

30. Refer to figure 4 showing the under-chassis connections after modification.

31. Connect and solder 2200 ohm resistor R-24 and .01 ufd capacitor C-64 (that originally connected to terminal F of T-4) to terminal 8 of the filter box assembly.

NOTE

Early production had C-64 and C-62 grounded to a mounting bolt of T-4, it is advisable to move these grounds to the bottom shield across V-5. See the dotted lines of figure 3.

32. Connect and solder jumper (that originally connected to terminal D of T-4) to terminal 7 of the filter box assembly.

33. Connect and solder jumper (that originally connected between terminal C of T-4 and ground lug M) to terminal 6 of the filter box assembly.

34. Connect and solder a bus-wire jumper from the soldering lug indicated as L in figure 4 to terminal 4 of the subassembly.

35. Connect and solder a green insulated jumper from the soldering lug indicated as J in figure 4 to terminal 3 of the subassembly.

36. Connect and solder bus-wire jumper (that originally connected between terminal C of T-5 and the soldering lug indicated as K in figure 4) to terminal 1 of the subassembly.

37. Connect and solder jumper (that originally connected to terminal A of T-5) to terminal 2 of the filter box assembly.

38. Connect and solder a red insulated jumper from the soldering lug indicated as N in figure 4 to terminal 5 of the subassembly.

39. Refer to the 75A-2 schematic diagram, figure 5-5 and the bottom view photograph, figure 5-4 of the 75A-2 Instruction Book.

40. Remove C-110 from terminals D and A of T-6 and discard C-110.

41. Connect and solder the 15 uuf capacitor in place of the removed C-110.

42. Carefully check the electrical assembly steps to make sure that all connections have been made to the proper connections and are well soldered.

43. Install the F455B-31 (formerly F455B-3) Mechanical Filter in the socket marked B. If an F455B-08, 800 CPS filter, is also available, install it in the socket marked A.

44. Realign the i-f transformers, L-24, T-3, T-6 and T-7 and the BFO coil, L-27 as instructed in the 75A-3 Instruction Book.

45. Replace the receiver in the cabinet.

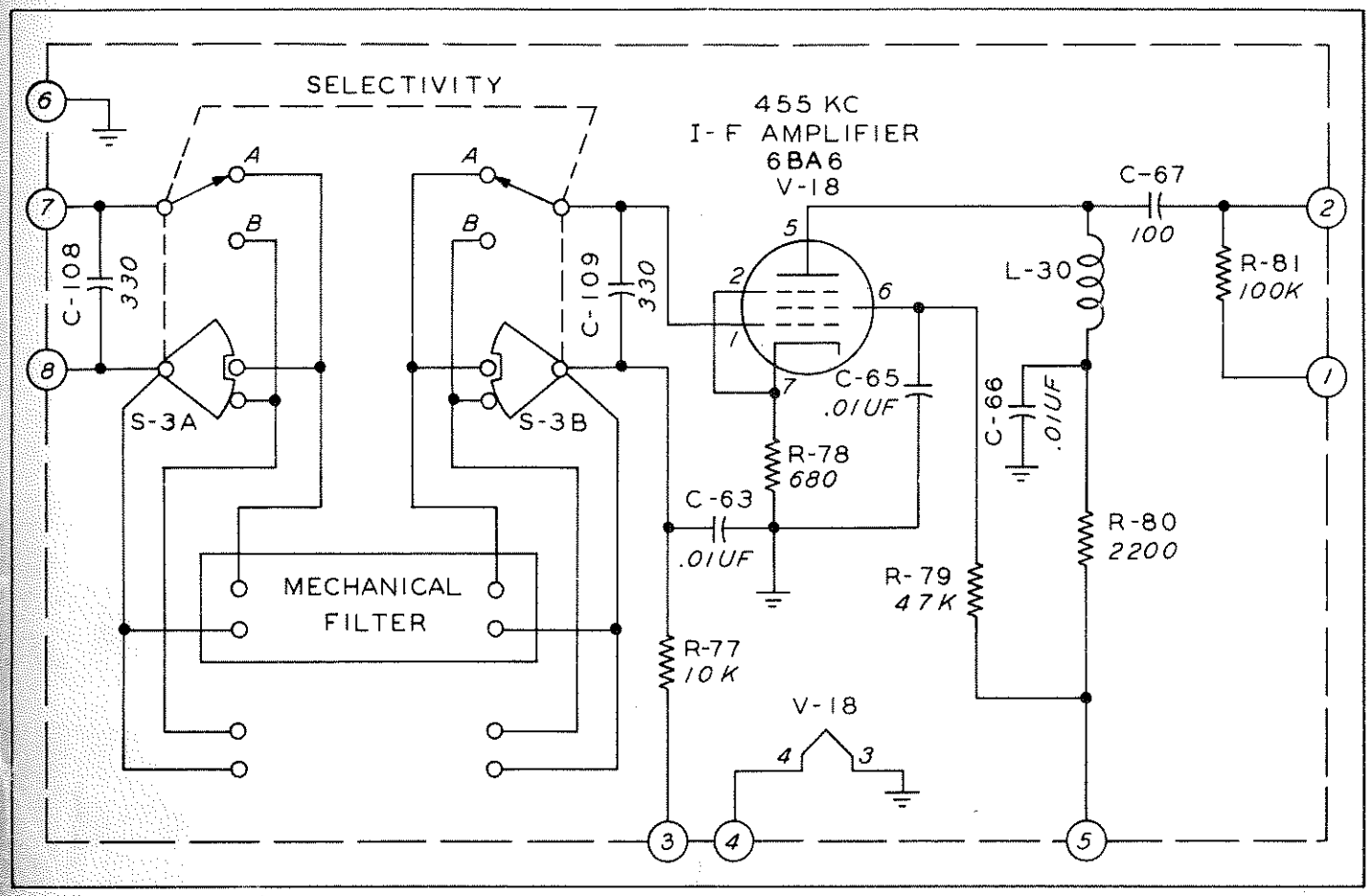


Figure 5. Mechanical Filter Adapter Schematic