

## ENGINEERING BULLETIN HT-40

Since the introduction of the HT-40, a number of improvements have been made and the following notes are offered:

1. The HT-40 final output section was designed so as to minimize the possibility of tuning to a harmonic in any band, i.e., tuning up on 20 when 40 meter operation is desired.

Additional investigation has shown that this feature results in less than optimum suppression of the 2nd, 3rd and higher order harmonics.

A simple modification to the Tank Coil L10 may be made in the field to improve the harmonic suppression as follows:

- a. Remove 3 turns from the 80 meter end of L10 coil.
- b. Unsolder 40 meter tap and move toward 20 meter tap 6 turns (2 turns from 20 meter tap) and solder in place.
- c. Remove lead from the 20 meter tap position on both coil and switch. Contact No. 9 of S2D front.
- d. Unsolder lead from 15 meter tap at contact No. 10 of S2D front and resolder to contact No. 9 of S2D front. (This is now the 20 meter tap, see illustration on reverse side).
- e. Solder a short jumper lead between contacts No. 10 and No. 11 of S2D front. (This is now the 10 meter and 15 meter tap.)

Caution must now be exercised in the tune-up procedure in that 80, 40 and 20 meters will be reached at a point beyond half capacity of the plate tuning and any response near minimum capacity will be tuning the PA to the second harmonic and should be avoided.

2. In earlier factory wired units (and some kits) a choke coil L12 is specified. It is recommended that this choke be removed and replaced by a 100-ohm, 5-watt, wire-wound resistor. Two 220-ohm, 2-watt resistors wired in parallel may be substituted for the single 5-watt unit if desired.
3. The efficiency on 6 meters can be improved by reducing the number of turns on L11, the parasitic choke, from 4 to 2-1/2 turns.

4. Since 50-MC operation is obtained by doubling in the final, the use of multiband-trap or broad-band antennas is not recommended as radiation of the fundamental at 25 MC can occur. A small, constant K-band stop filter can be installed for additional suppression of the 25 MC sub-harmonic. This filter can be obtained at a cost of \$2.50 each from the Hallicrafters Service Department and comes complete with installation instructions. When ordering this filter specify part number 059-000094.

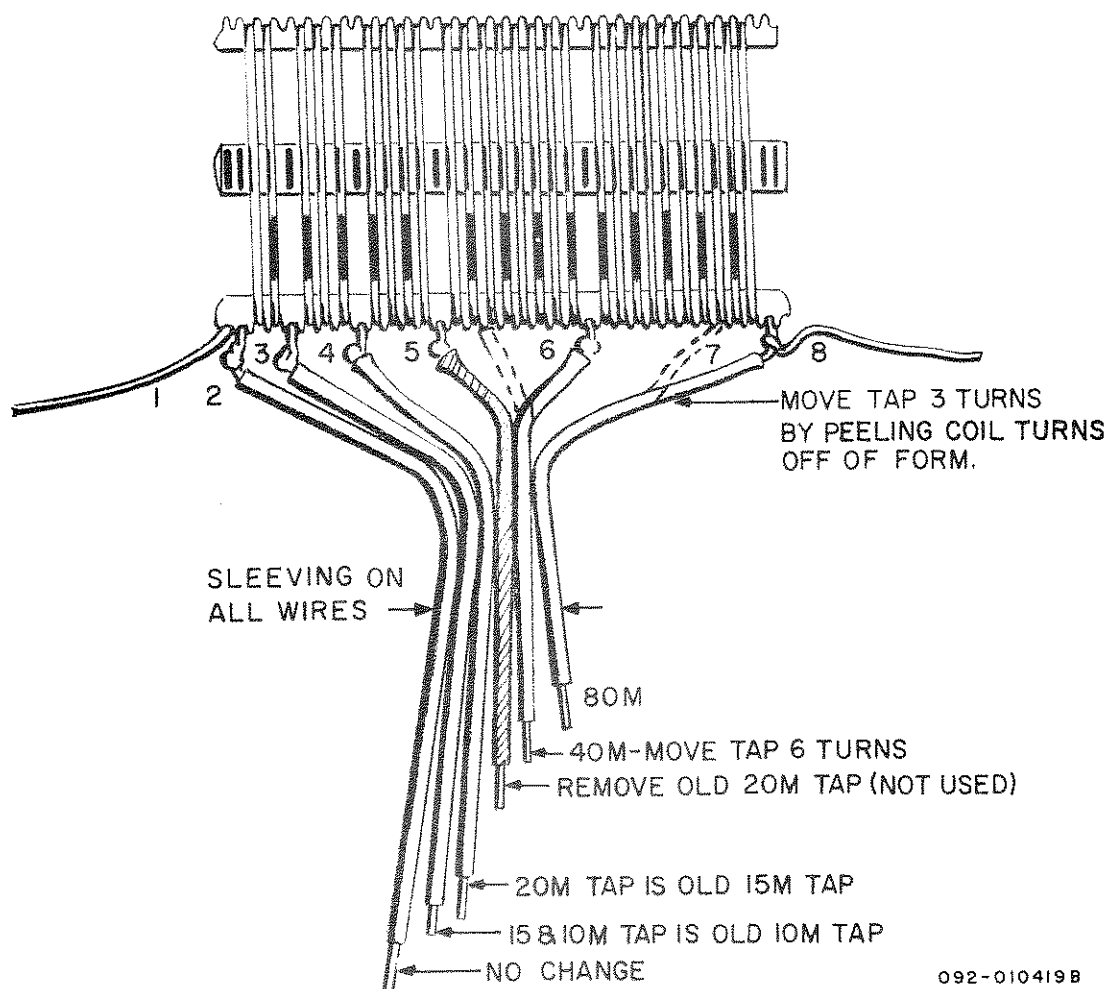


Illustration A. Modifying Tank Coil L10.

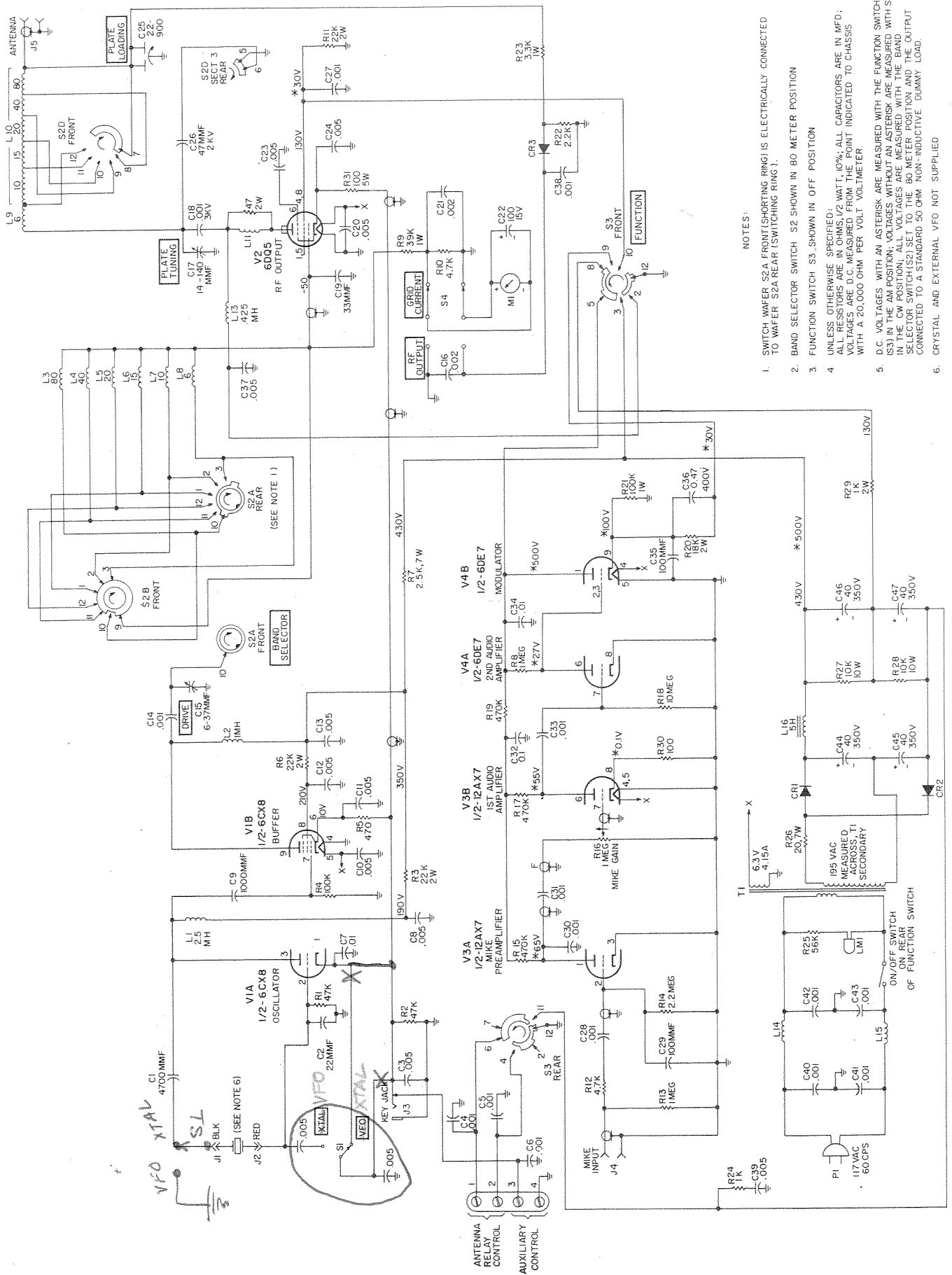
## CRYSTAL - VFO CIRCUIT CHANGE

### FOR THE HT-40

The following change is recommended for improved VFO operation of the HT-40. Refer to illustrations B and C when making this change.

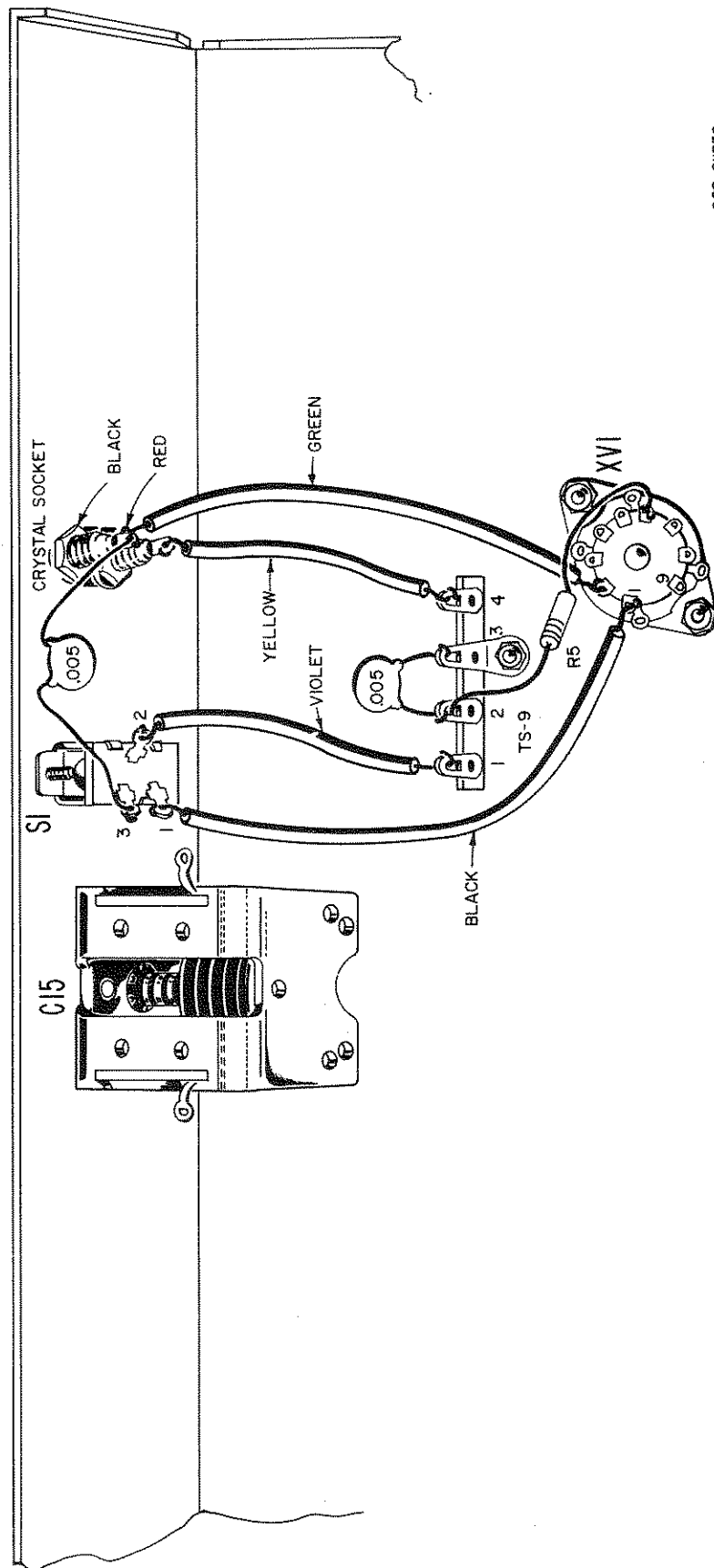
1. ( ) Remove the end of the 470 ohm, 1/2-watt resistor, R5, which is connected to terminal 1 on tube socket XV1.
2. ( ) Add a 2-inch length of wire to the free end of this 470 ohm resistor, R5, and connect this end to terminal 2 on Terminal Strip TS9.
3. ( ) Remove the yellow wire between terminal 2 on the crystal-VFO switch S1 and the black crystal socket terminal.
4. ( ) Remove the end of the violet wire connected to terminal 1 on tube socket XV1 and connect it to terminal 2 on the crystal-VFO switch S1.
5. ( ) Remove the end of the yellow wire connected to terminal 1 on the crystal-VFO switch S1. Do not disconnect the other end.
6. ( ) Completely remove the black wire connected between terminal 3 on the crystal-VFO switch S1 and terminal 3 on Terminal Strip TS9.
7. ( ) Connect this black wire between terminal 1 on tube socket XV1 and terminal 1 on crystal-VFO switch S1.
8. ( ) Remove the end of the green wire connected to the red crystal socket terminal and connect it to the black crystal socket terminal.
9. ( ) Connect the free end of the yellow lead removed in Step 5 to the red crystal socket terminal.
10. ( ) Cut both leads of a .005 mfd, 500V, ceramic disc capacitor to 3/4-inch length and install between terminal 3 of the crystal-VFO switch S1 and the black crystal socket terminal.
11. ( ) Cut both leads of a .005 mfd, 500V, ceramic disc capacitor to 1/2-inch length and install between terminal 2 and terminal 3 on Terminal Strip TS9.
12. ( ) Check all wiring and solder connections.

This completes the crystal-VFO circuit changes and will improve the HT-40 operation when used with a VFO.



- NOTES:
1. SWITCH WAFER S2A FRONT (SHORTING RING) IS ELECTRICALLY CONNECTED TO WAFER S2A REAR (SWITCHING RING).
  2. BAND SELECTOR SWITCH S2 SHOWN IN OFF POSITION
  3. FUNCTION SWITCH S3 SHOWN IN OFF POSITION
  4. UNLESS OTHERWISE SPECIFIED: ALL RESISTORS IN OHMS (1/2 WATT, 10%); ALL CAPACITORS ARE IN MFD; VOLTAGES ARE D.C. MEASURED FROM THE POINT INDICATED TO CHASSIS WITH A 20,000 OHM PER VOLT VOLTMETER.
  5. D.C. VOLTAGES WITH AN ASTERISK ARE MEASURED WITH THE FUNCTION SWITCH (S3) IN THE AM POSITION; VOLTAGES WITHOUT AN ASTERISK ARE MEASURED WITH S3 IN THE CW POSITION; ALL VOLTAGES ARE MEASURED WITH THE BAND SELECTOR SWITCH (S2) SET TO THE 80 METER POSITION AND THE OUTPUT CONNECTED TO A STANDARD 50 OHM NON-INDUCTIVE DUMMY LOAD.
  6. CRYSTAL AND EXTERNAL VFO NOT SUPPLIED
  7. SECTION C OF S2 IS USED FOR COMMON TIE POINTS

Illustration B. Schematic Diagram, HT-40 with Crystal-VFO Wiring Change.



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Illustration C. View of Crystal-VFO Wiring Change.