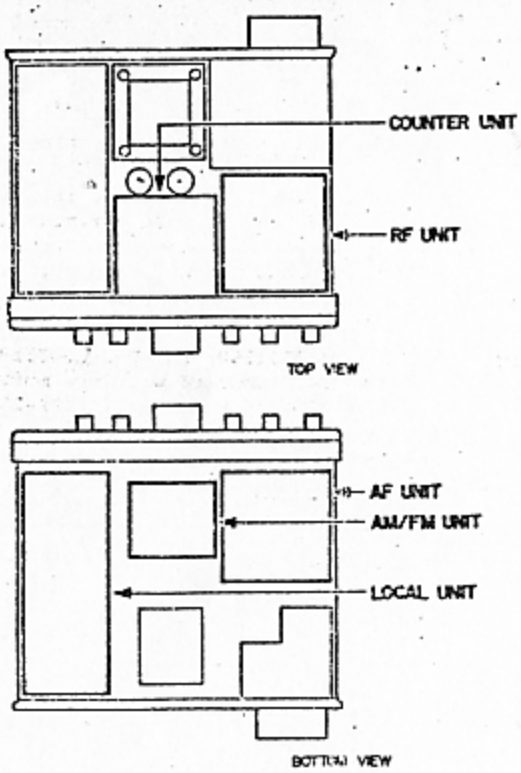
MODIFICATIONS OF THE FT-102 FOR OPERATION ON THE 11-METER BAND*

Either of these modifications may be used to enable operation within the 26.5-28 MHz frequency band. In most cases, the 10-meter Band Modification (B) is the simpler procedure, but it requires that all but one of the 500 KHz segments of the standard 10-meter amateur band be disabled. AUX Band Modification (A) is generally more difficult (except on early models) and can only be performed for one additional 500 KHz segment, but does not require any sacrifice of the existing coverage of the FT-102. [redacted]. Alignment must be performed after all modifications, as described in the Alignment Section (C).



* Operation between 26.0 and 26.5 MHz is not included in these procedures. Modifications for operation in this frequency range should not be attempted due to the frequency relationship with the PLL, which may cause locking problems.

A. AUX Band Modification

This modification is relatively simple for those FT-102s having serial numbers below 070000, as it is not necessary to solder on the Local Unit or Counter Unit (though parts must still be soldered on the RF Unit). Diodes are already installed in the numbered locations in these early models, and one lead of each diode that is not needed for the modification can simply be cut from the component side of the pc-board. Those FT-102s with serial numbers above 070000 require the entire procedure, so if the operator is willing to forego operating capability on the 10-meter amateur band, except from 28.0-28.5, or 28.5-29 MHz, disregard this modification and perform the 10-meter Band Modification (B) only.

1. Disconnect the transceiver from the power source. Remove the two screws affixing the carrying handle, and then the fourteen screws affixing the top and bottom covers, as shown in Figure 1. Remove the handle and covers, and position the transceiver with its bottom side up.

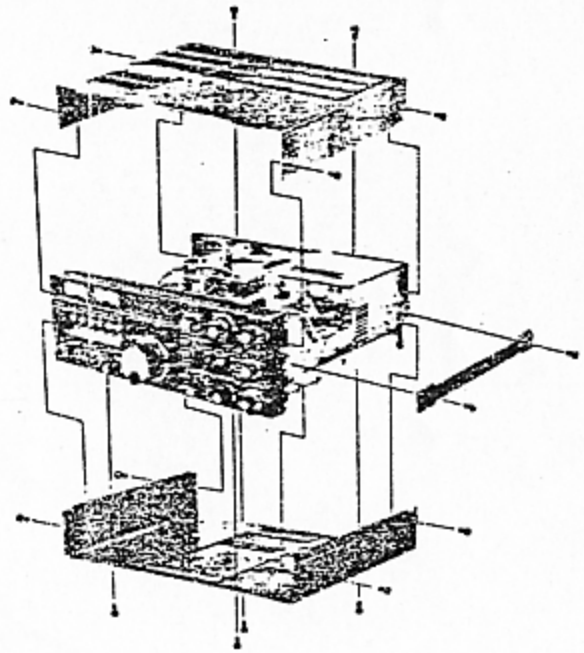


Figure 1

(If modifying an early model, disregard steps 2 through 5)

2. Referring to Figure 2, carefully bend the two chassis clips (marked A) slightly inwards about 5mm, so that the two gray shielded cables can be removed from the clips. It is not necessary to disconnect these cables from the pc-board.

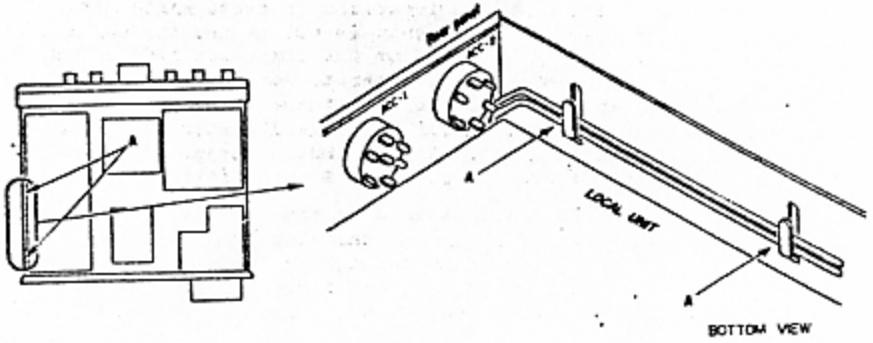
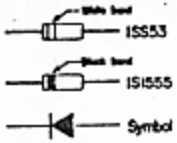


Figure 2

3. Remove the seven screws affixing the Local Unit (PB-2345), and carefully lift the outer edge of the board, folding it towards the middle of the transceiver so that the solder side is exposed.

4. Referring to Table 1, install type 1SS53 diodes (white band) from the component side of the board in those locations indicated by a "0" on the line in the Table corresponding to the frequency segment being installed. For example, if installing 27-27.5 MHz, install diodes in locations D22, D23 and D39. Make sure that the banded (cathode) end of each diode being installed is aligned correctly with the symbol on the pc-board, as shown here:



5. Solder the diode(s) in place, and gently replace the pc-board in its original position, making sure that no wires are pinched or stressed. Return both shielded cables to the chassis clips, replace the seven pc-board mounting screws, and bend the clips back to their original position.

(Perform the following step only if modifying an early model)

6. Referring to Table 1, cut one lead of each of those diodes indicated by an "X" in the Table on the line corresponding to the frequency segment being installed. For example, if installing 27-27.5 MHz, cut diodes D24 and D25.

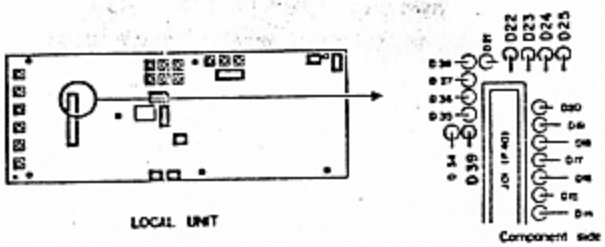


Table 1

DIODE No. / BAND	D22	D23	D24	D25	D39
26.5 – 27.0 MHz	X	O	X	X	O
27.0 – 27.5 MHz	O	O	X	X	O
27.5 – 28.0 MHz	X	X	O	X	O

7. Now stand the transceiver up on its left side (when viewed from the front, right side up), and disconnect and remove the optional AM/FM Unit (if installed).

8. Remove the four screws from the AF Unit (PB-2344), and gently fold it over the VFO. Then remove the two machine screws affixing the shield panel that was behind the AF Unit, and remove the panel, using care to avoid bending the 7-lug terminal strip that also mounts under one of the panel screws.

9. Install coils T39(L0021190) and T38(L0021191), and 3 pF capacitor K02179004 (supplied with the modification kit) on the component side of the RF Unit (PB-2342) as shown in Figure 3. Solder each into the circuit on the solder side of the pc-board.

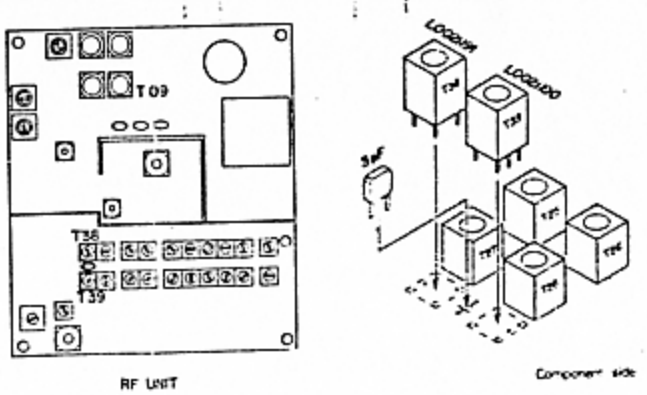


Figure 3

2

10. Referring to Figure 4 and the accompanying Table, install either a 12 pF or 15 pF capacitor (depending on which frequency segment is being added) on the solder side of the board, and also add the jumper wire at the position indicated.

11. Replace the shield panel and its machine screws, including the terminal strip with the screw and washer at the rear hole. Then replace the AF Unit and its four screws, and finally the AM/FM Unit, if used, and its six connectors and four screws.

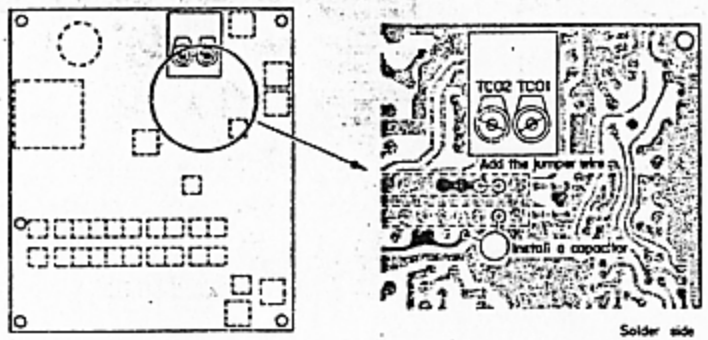


Figure 4

BAND	CAPACITOR
26.5 – 27.0 MHz	15 pF
27.0 – 27.5 MHz	12 pF
27.5 – 28.0 MHz	12 pF

(If modifying an early model, disregard steps 12-14)

12. Place the transceiver top side up on the work surface, and, without pulling on the wires, remove P57, the 13-pin connector plug nearest the edge of the Counter Unit (PB-2346A). Then remove the four screws affixing the Unit, and slide the pc-board back so that it can be tipped up to expose the solder side.

13. Referring to Table 2, install type 1S1555 diodes (black band) from the component side of the board in those locations indicated by a "O" on the line in the Table corresponding to the frequency segment being installed. For example, if installing 27-27.5 MHz, install diodes in locations D40, D56 and D60. Again make sure that the banded end of each diode is aligned correctly with the symbol on the pc-board, as shown in step 4.

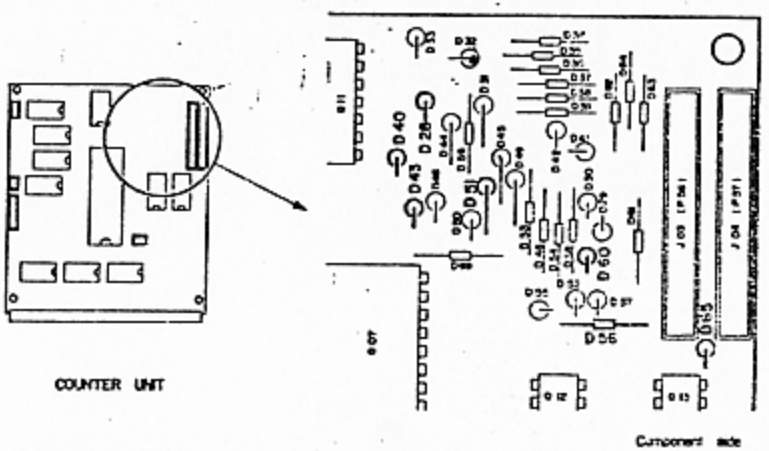
14. Solder the diodes in place, and gently replace the pc-board in its original position. Replace the display-backing bracket with the two front mounting screws, and then replace the two rear screws. Reconnect P57 to J04.

(Perform the following step only if modifying an early model)

15. Referring to Table 2, cut one lead of each of those diodes indicated by an "X" in the Table on the line corresponding to the frequency segment being installed. For example, if installing 27-27.5 MHz, cut diodes D28, D43, D51, and D65.

Table 2

DIODE No. / BAND	D65	D60	D56	D51	D43	D28	D40
26.5 – 27.0 MHz	X	O	O	X	X	O	O
27.0 – 27.5 MHz	X	O	O	X	X	X	O
27.5 – 28.0 MHz	O	O	O	X	X	O	O



Modification A is now complete. DO NOT perform modification B, but proceed directly to Alignment, on page 10.

B. 10-meter Band Modification

The procedure for this modification is the same for all models. DO NOT perform this modification if Modification A has been performed.
It requires the sacrifice of all but one existing 10-meter 500 KHz segment. The new segment will be selected when the BAND selector and switch are set to the same position as used for the 10-meter segment being replaced.

1. Perform steps 1, 2 and 3 of the previous modification procedure.

2. Install 1SS53 diodes (white band) on the solder side of the Local Unit at the locations shown in Figure 5, making sure that the banded end of the diodes is aligned as indicated. Install D_D for 28.0-28.5 MHz, or D_E for 28.5-29.0 MHz (DO NOT INSTALL BOTH). Then perform step 5 of the previous modification procedure.

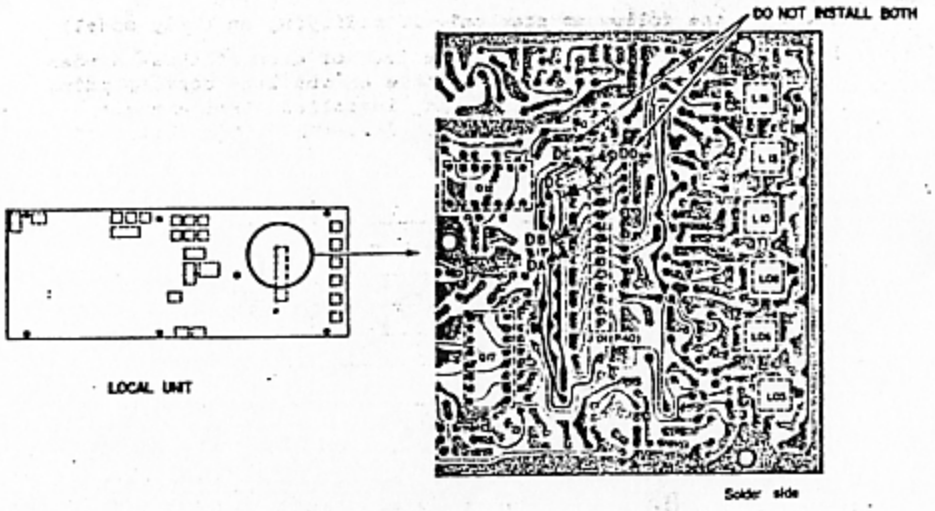
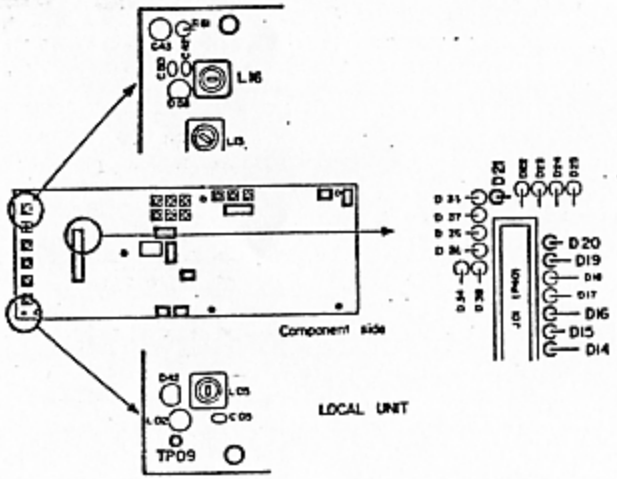


Figure 5

3. Cut one lead of each of the following diodes on the Local Unit (PB-2345): D14, D15, D16, D19, D20, D21.



4. Perform step 12 of the previous modification procedure.

5. Referring to Figure 6, install on the solder side of the Counter Unit (PB-2346) the following diodes: D_A, D_B, D_C, D_D, D_E, D_F and D_G (do not install D_F if keeping 28.5-29.0 MHz).

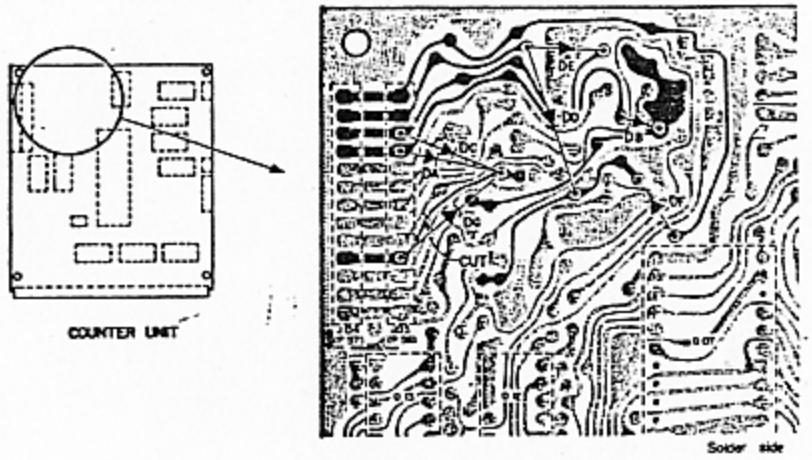
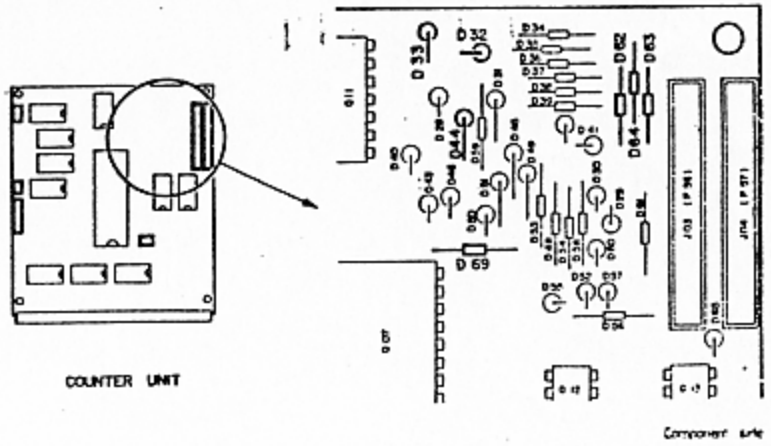


Figure 6

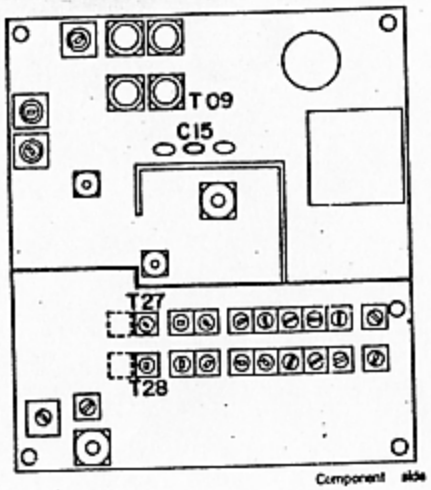
6. Now perform step 14 of the previous modification procedure.

7. On the component side of the Counter Unit, cut the following diodes: D_{32}, D_{44}, D_{62}, D_{63} and D_{69} (also cut D_{33} and D_{64} if keeping 28.0-28.5 MHz).



8. Perform steps 7 and 8 of the previous modification procedure, and then remove 47 pF capacitor C15 on the RF Unit.

9. Install a 33 pF DM capacitor in place of C15, and then perform step 11 of the previous modification procedure.



RF UNIT

Modification B is now complete. Once this modification has been performed, Modification A must not be performed. Proceed to the following Alignment.

C. Alignment

This procedure must be performed whenever either modification has been completed. However, if Modification A has been performed, only step 2 need be followed.

1. Set the BAND selector to the 29 MHz position, press the +0.5 button, and tune the dial to the high edge of the scale (100). (The transceiver frequency will be either 28.5 or 29.0 MHz, depending on which segment of the 28 MHz band was retained.) Connect a DC voltmeter to TP09 on the Local Unit, and adjust L16, also on the Local Unit, to obtain 2V on the voltmeter.

2. On the RF Unit, adjust T27 and T28 (if Modification B was performed) while transmitting into a dummy load, so as to obtain equal power output across the new portion of the operating range of the transceiver, i.e.: all frequencies above 26.5 MHz. If Modification A was performed, set the BAND selector to the AUX position, and adjust T39 and T38 for equal output across the new auxiliary band (only).

3. With the BAND selector set to 29 MHz, +0.5 button pressed, dial tuned to 100, and PRESELECTOR set to 9, key the transmitter and adjust T09 on the RF Unit for maximum transmitter output into a dummy load. Check that the PRESELECTOR will now peak within its range for each new band.

4. Set the BAND selector to 28 MHz, +0.5 button not pressed. Key the transmitter and adjust the PRESELECTOR for peak output into a dummy load. Now, in the receive mode, switch on the MARK switch (rear panel), and adjust TC02 on the RF Unit for peak S-meter indication.

5. Set the BAND selector to 29 MHz, and repeat step 4, adjusting TC01. This completes the alignment.