

mods.dk -> KENWOOD -> TRC-70 -> Modifications for the Kenwood TRC-70 transceiver

Erik Hansen

By Jose M. Valdes R. YV5LIX/4M3X

The Kenwood TRC-70 commercial HF transceiver is an excellent radio that can be easily converted for Amateur Radio operation. With its 150 Watts output and 100% duty cycle along with its rock steady 30 MHz temperature compensated OCXO the TRC-70 is a great rig for digital modes and field/DXpeditions operation; this rig doesn't have a dual VFO, but split and/or cross band operation can be accomplished via de channelize (memory) operation since separate TX/RX frequencies may be writing to each of the 99 memories, the front panel keypad allows direct frequency entry. The TRC-70 comes with an excellent dual mode (pulse/woodpecker) noise blanker, a clarifier, squelch, scan mode, front panel earphone connector; a very good automatic antenna tuner is also available.

In the back panel there are connectors for an external speaker, the automatic antenna tuner, a CW key, and two RCA female jacks for RELAY and ALC control to be used with a linear amplifier.

SPECIFICATIONS:

Frequency coverage:

RX: 100.0 kHz to 29.9999 MHz

TX: 1.605.0 to 27.9999 MHz

Tuning steps: 100 Hz, 1 kHz or 100 kHz may be selected via de front panel key pad.

Stability: Within ± 20 Hz ($-30^{\circ}\text{C} \sim +50^{\circ}\text{C}$)

Clarifier Variable Range: ± 250 Hz (10Hz step)

Modes:

CW, USB/LSB (J3E), AM (H3E)

Power Output:

HI/MEDIUM/LOW $\pm 150/50/25$ Watts 100% duty cycle*

MODIFICATIONS:

CAUTION: before opening and/or performing any modifications and/or repair disconnect the rig from the power supply.

Modification of this rig for Amateur radio Operation is very easy and involves removing the bottom cover to gain access to the controller board to change the settings of the dip switches S301 and connect/disconnect diodes D311, D312, D313 AND D314.

Diodes modifications:

1. To allow the rig to transmit on LSB disconnect (cut) diode D312.
2. To allow operation on VFO mode disconnect (cut) diode D313.
3. To allow AM TX disconnect (cut) diode D314.

I don't know what diode D301 is used for but in my rig it came disconnected.

DIP switch S301 setting:

For normal VFO/ MEMORY ham operation set the dip switch in the following configuration

S301-1: OFF
S301-2: OFF
S301-3: ON
S301-4: ON

This enables dial (VFO) as well as memory operation and set the rig to HI power output.

After performing the modifications reset the rig's CPU.

1. Turn the rig OFF.
2. While pressing the **[[C]]** key turn ON the rig, the word HELLO will flash for a second on the display, this will reset the microprocessor and clear all memories, to reset the microprocessor without clearing the memories press **[[ENT]]** instead of **[[C]]**.

KEY PAD DESCRIPTION AND OPERATION:

In the keypad **[[MOD]]** is used to set the rig's mode (LSB/USB /CW/AM), **[[SCN]]** sets the rig in SCAN mode, **[[C]]** is used to CANCEL an entry and also as the **[[FUNCTION]]** key, the numeral keys 1-0 are used for direct frequency entry as well as to select a function.

To set the rig to VFO (DIAL) mode do the following:

1. Press **[[C]]** and a **[[F]]** followed by 2 dashes appears in the lower right corner of the display.
2. Enter 84 in the key pad.
3. Press **[[ENT]]**

The rig is now to dial (VFO) mode.

To change the DIAL step to 100 Hz, 1 kHz or 100 kHz do the following:

1. Press **[[C]]** and a **[[F]]** followed by 2 dashes appears in the lower right corner of the display.
2. Enter 3 in the key pad.

3. Press [F]ENT[F]

The rig is now set to 100 Hz dial step.

1. Press [F]C[F] and a [F]F[F] followed by 2 dashes appears in the lower right corner of the display.
2. Enter 2 in the key pad.
3. Press [F]ENT[F]

The rig is now set to 1 kHz dial step.

1. Press [F]C[F] and a [F]F[F] followed by 2 dashes appears in the lower right corner of the display.
2. Enter 1 in the key pad.
3. Press [F]ENT[F]

The rig is now set to 100 kHz dial step.

To set the rig to MEMORY mode do the following:

1. Press [F]C[F] and a [F]F[F] followed by 2 dashes appears in the lower right corner of the display.
2. Enter 85 in the key pad.
3. Press [F]ENT[F]

The rig is now in MEMORY mode.

To enter a frequency (or a pair of frequencies for split or cross band operation) into any of the 99 memories do the following:

1. Set the rig to memory operation (function 85) .
2. Press [F]ENT[F] and rotate the dial to select any of the 99 memories, RX and 2 dots will flash on the display, if the memory is vacant the display will show 6 dashes if not will show current the RX frequency stored.
3. Press [F]MOD[F] until the desire RX mode is displayed.
4. Using the numerical keypad enter the desire RX frequency up to the last 100 Hz digit; for example, to enter 14.210.5 enter 142105.
5. Press [F]ENT[F], now TX will flash on the display.
6. Press [F]MOD[F] until the desire TX mode is displayed.
7. Using the numerical keypad enter the desire TX frequency just as in step 4.
8. Press [F]ENT[F], now TX and RX frequencies are stored in the selected memory.

For simplex operation enter the same frequency and mode in steps 3, 4, 6 and 7. For split operation any frequency within the rig's TX/RX ranges may be entered, also you may enter different modes for TX and RX.

To set a memory channel as RX only follow steps 1 to 5 on an empty memory and when TX and the 6 dashes are shown on the display wait about 10 second, the rig will be automatically returned to normal mode operating mode with only the RX memory

stored.

With this we are done, you now have a very nice and sturdy radi that can be used as a general coverage receiver/transmitter as well as a ham rig.

LIST OF KNOWN FUCTIONS:

Function 1 sets the rig to 100 Hz dial step.

Function 2 sets the rig to 1 kHz dial step.

Function 3 sets the rig to 100 kHz dial step.

Function 70 shows all the characters of the display, after entered the rig must be turned OFF and ON to reset the display back to normal.

Function 80 turns ON the keypad?????'s entry confirm BEEP.

Function 81 turns OFF the keypad?????'s entry confirm BEEP.

Function 82 turns ON the PTT confirm BEEP.

Function 83 turns OFF the PTT confirm BEEP.

Function 84 sets the rig to VFO mode.

Function 85 sets the rig to MEMORY mode.

Other functions may be available but I don?????'t know them.

NOTES:

* By using the function 70 to visualize all the display?????'s characters, at the lower right corner you will see MED and LOW, this seems to indicate that the radio may be set to HI/LOW/MEDIUM output power, but I haven?????'t found how to do it, my guess is that there must be function to do it, some one suggested that FUNCTION 4, FUNCTION 5 and FUNCTION 6 are the correct ones, but those doesn?????'t work with my rig.

If you have any question or know of any function and/or trick/mod to this radio not listed here, you can send me an email.

PLEASE DO NOT ASK FOR A SERVICE AND/OR OPERATORS MANUAL, I DON?????'T HAVE THEM.

73/DX and enjoy your new radio

Jose M. Valdes R. (Joe) YV5LIX

<http://www.yv5lix.org.ve>