

## **MFJ-552 "JIM HANDY" CW Interface**

### **INTRODUCTION**

The MFJ-552 "JIM HANDY" was designed for HT users who would like to transmit CW using their HTs. It allows you to use your 2 Meter or 440 MHz handheld to practice Morse Code on-the-air. This unit comes in a small lightweight package that makes it easy to carry just about anywhere.

The "JIM HANDY" produces great sounding sidetone that can be heard through the built in speaker while transmitting or not. The audio is a pure sinewave output that eliminates harsh keyclicks. The MFJ-552 provides the most challenging way to practice and learn CW; on-the-air. Now you can practice to upgrade your license or help a friend.

It is important to remember that although you are sending Morse Code, you are NOT transmitting in the CW mode. To demonstrate common courtesy to other users, stay within 433 to 435 MHz and 442 to 450 MHz when transmitting on the 440 band. Stay within 144.6 to 148 MHz when transmitting on 2 meters.

To practice good etiquette, always make certain that the channel is clear and quiet. Announce that CW practice is about to take place. Other users may like to listen, join in or create friendly competition. Although the "JIM HANDY" is a great tool for learning CW, it can be enjoyed by even the most expert CW users.

### **FRONT PANEL CONTROLS AND CONNECTIONS**

ON/OFF.....	Power Switch
VOLUME.....	Volume Control
PWR.....	Power Indicator
T/R DELAY .....	Transmit/Receive Delay Control
KEY INPUT.....	1/4" Phone Jack

### **REAR PANEL CONNECTIONS**

RADIO OUTPUT .....	5 Pin Din Jack
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### **SIDE PANEL CONTROLS**

TRANSMIT AUDIO.....Externally Accessible Side Trimpot  
 SYMMETRY .....Externally Accessible Side Trimpot

## OPERATION

The MFJ-552 is simple to use. After reading the previous sections of this manual you are ready to begin operating the "JIM HANDY". Use a 9V battery to power the unit. To install the battery, remove the cover of the unit by removing the two screws on each side. Place the battery in the battery holder while making certain to match the pole orientation of the battery to the pole orientation of the battery holder. If you are using a KENWOOD brand radio, the jumper on HD1 should be removed. This is to also be done while the cover is removed. HD1 is located on the right side of the battery holder, close to the 5 pin din.

1. Apply power to the unit. With the switch in the OFF position (out), connect the KEY INPUT of the MFJ-552 to the key output of a keyer by using a cable with a 1/4" phone plug on one end and a plug of the same type as the jack for key output on the other end.
2. Position the switch in the ON position (pushed in) and key the keyer to be sure the KEY INPUT connection is correct. You should be able to hear the keyed output through the MFJ-552 speaker and the power (PWR) indicator led should be lit.
3. Connect the RADIO OUTPUT of the MFJ-552 to your HT. A 5 pin din plug with cable is included with the unit to allow you to create your own custom cable that will connect your HT to this unit. The type cable used to connect the 5 pin din to the radio is dependent upon which particular brand of radio you are using. Figure 1 will illustrate the different connections that are to be made for specific radios. It is recommended to use the same cables that were designed by MFJ for use with their TNC models. Below is a list of cable models that correspond to the matching radio brands:

- |                           |          |
|---------------------------|----------|
| 1. KENWOOD                | MFJ-5026 |
| 2. YAESU/RADIO SHACK/ICOM | MFJ-5024 |
| 3. ALINCO/STANDARD        | MFJ-5022 |

Figure 1. Wiring diagrams of 5 pin din cables for different radio models

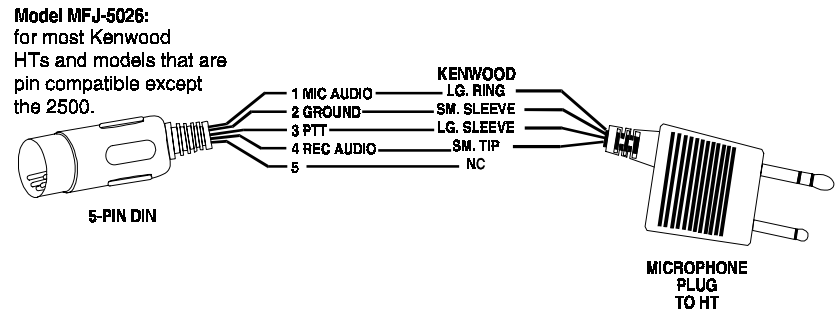
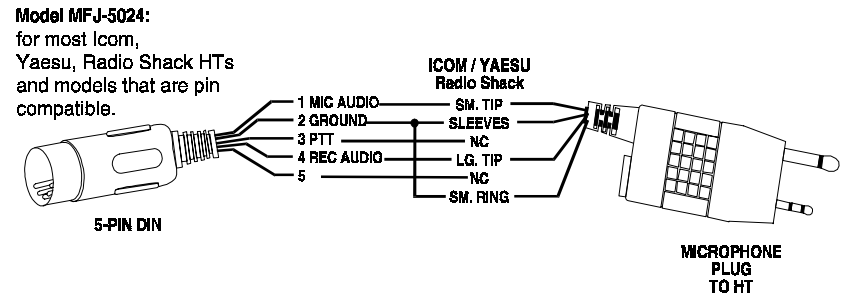
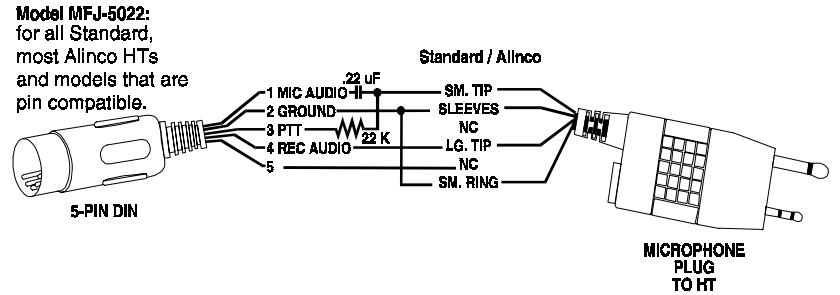


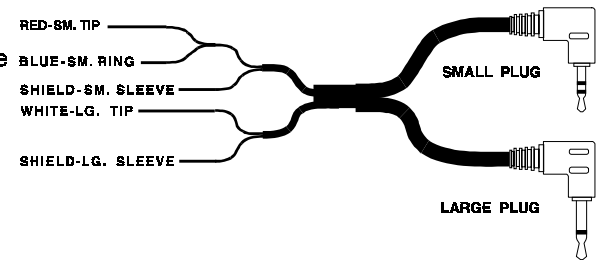
Figure 2 illustrates a number of microphone plugs and their model numbers that can be purchased from MFJ. The open end connections are to be connected to the 5 pin din. Remember that the connector spacing should be checked before making a cable. The split connectors are ideal for this application, but the size of the plug has to match with the stereo or mono jacks on the HT.

**WARNING: Be certain of all wiring connections when making the cables. The exact connections should be made to prevent any damage to your HT.**

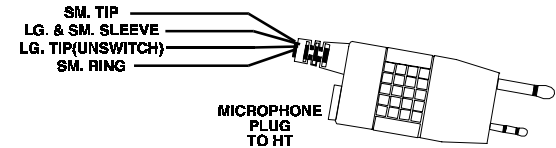
Figure 2. Open end plugs with connections shown

**Model MFJ-5222:**

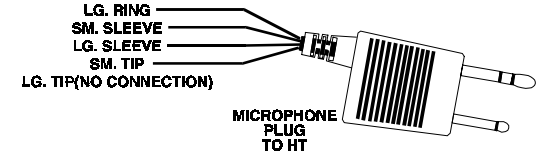
Open end HT plug/cable for most HTs with split connectors, including Alinco DJ-160.

**Model MFJ-5224:**

Open end plug/cable for most Icom, Yaesu, Radio Shack, Alinco 560 models and HTs that are pin compatible.

**Model MFJ-5226:**

Open end plug/cable for most Kenwood models and those HTs that are pin compatible, except 2500.



- Before going further, make sure the radio switches to transmit mode when the keyer is keyed. If your radio transmits continuously or does not transmit then adjust R19 to find the proper range for your model. R19 is a 50K trimpot that is varied according to the brand and model radio you have. In some cases different brands and models of radios are keyed at all times when the MFJ-552 is used. This can be remedied by tuning this trimpot up or down. To locate R19, remove the cover of your unit by removing the two screws from each side of the unit. R19 is the trimpot located on the right side of the battery, closest to the 5 pin din. R19 is set to zero at the factory by turning it completely counter clockwise. Make the adjustment by tuning the trimpot with a small screwdriver until your HT is not in the transmit mode when the keyer is not keyed or it is in transmit mode when the keyer is keyed. After you set R19 then it should not be changed unless you change HTs.

**Note:** Be sure *not* to tune the trimpot (labeled R27) on the left side of the battery. It is set at the factory and *should not be changed*.

- You can adjust the T/R delay from transmit to receive mode. In doing this you can dictate how long it takes to switch modes after the last key stroke has been made. This is done by turning the T/R DELAY in the clockwise direction to lengthen the amount of time it takes to switch modes.

6. Adjust the volume of the MFJ-552 by turning the VOLUME control in the clockwise direction to increase it.
7. Now you are ready to have someone receive your transmitted CW. Begin by adjusting the transmit audio level to a comfortable level for the person receiving. On the left side of the unit there are two trimpots. The one nearest the front is used to regulate the volume level of the transmitted CW from the unit to a receiver. Adjust the level by using a small screwdriver to increase it in the clockwise direction and decrease it in the counter clockwise direction. Have the person receiving tell you when the audio level is comfortable for them.
8. The trimpot on the left side nearest the back of the unit is used to generate a symmetrical rise time and fall time of the input from the keyer. This eliminates the key clicks that are normally heard from other keyers. The rise time and decay time is factory set to 5ms using an oscilloscope. It can be adjusted to eliminate the clicks of different keyers by removing the cover and placing an oscilloscope on one leg of the trimpot. Key the keyer and adjust the trimpot until the rise time and fall time are as close to the same as possible. If no clicks are heard then it doesn't need to be adjusted.

## TECHNICAL ASSISTANCE

If you have any problem with this unit first check the appropriate section of this manual. If the manual does not reference your problem or your problem is not solved by reading the manual you may call *MFJ Technical Service* at **601-323-0549** or the *MFJ Factory* at **601-323-5869**. You will be best helped if you have your unit, manual and all information on your station handy so you can answer any questions the technicians may ask.

You can also send questions by mail to MFJ Enterprises, Inc., 300 Industrial Park Road, Starkville, MS 39759; by Facsimile to 601-323-6551; or by email to [techinfo@mfjenterprises.com](mailto:techinfo@mfjenterprises.com). Send a complete description of your problem, an explanation of exactly how you are using your unit, and a complete description of your station.

**PARTS LIST**

<b>DESIGNATOR</b>	<b>DESCRIPTION</b>	<b>P/N</b>
R17	RESISTOR, 1206, 10 OHM	100S-1100
R10	RESISTOR, 1206, 220 OHM	100S-2220
R6, R7, R13, R18, R28	RESISTOR, 1206, 1K	100S-3100
R1, R2, R11, R15, R20	RESISTOR, 1206, 10K	100S-4100
R8, R9	RESISTOR, 1206, 18K	100S-4180
R3, R29	RESISTOR, 1206, 47K	100S-4470
R4	RESISTOR, 1206, 150K	100S-5150
R14, R16	RESISTOR, 1206, 300K	100S-5300
R5, R12	RESISTOR, 1206, 1M	100S-6100
R24	RESISTOR, TRIMPOT, 10K	130-4100
R25	RESISTOR, TRIMPOT, 100K	130-5100
R27	RESISTOR, TRIMPOT, 500 OHM	133-2500
R19	RESISTOR, TRIMPOT, 50K	133-4500
R22	RESISTOR, POT, 10K	155-4100-1
R23	RESISTOR, TRIMPOT, 500K	155-5500-1
C1	CAPACITOR, 0805, .01 uF	200S-1110
C2, C3, C4	CAPACITOR, 0805, .033 uF	200S-1133
C5, C6, C7, C8, C9, C10, C15	CAPACITOR, 0805, .1 uF	200S-1210
C12	CAPACITOR, ELECT., 1000 uF	203-0008
C14	CAPACITOR, ELECT., 10 uF	203S-1210
C11, C13	CAPACITOR, ELECT., 100 UF	203S-1310
D2, D3	DIODE, SWITCHING, CMPD914	300S-0914
D1	DIODE, ZENER, MMBZ5231	301S-5231
Q3, Q4, Q5	TRANSISTOR, MMBT3904	305-3904-SM
Q6	TRANSISTOR, MMBT3906	305-3906-SM
Q1, Q2	TRANSISTOR, 2N7002	305-7002-SM
U1	IC, AUDIO AMPLIFIER, LM386	311-0386-SM
CR1	LED, 3MM, RED	320-1002
SW1	SWITCH, MINI, LOCKING, 2P2T	504-2022
J1	JACK, 1/4" PHONE	601-0012
J2	CONNECTOR, 5 PIN DIN	611-1005
HD1	CONNECTOR, HEADER, 2 POS.	612-0102
B1	BATTERY HOLDER	730-3100*
From Radio Output to Radio	5 PIN DIN TO OPEN END CABLE	620-8025B

**SCHEMATIC**