



I-MATE

An Accessory for IC-7800,
IC-756PROII/III,
and IC-746PRO Transceivers

by The BetterRF Co.

www.BetterRF.com

©2003 The BetterRF Co.

Congratulations on your purchase of the I-MATE. If you work contests, chase DX or frequently have the need to transmit pre-recorded messages on your IC-7800, IC-756PROII/III, or IC-746PRO transceiver, you will find this unit to be a welcome accessory for your shack. If you use a manually tuned linear amplifier, the I-MATE's Tune-Mate will provide a way of conserving your finals during tuning.

Key features of the I-MATE are as follows:

- ⇒ Implements the external keypad selection of pre-recorded voice (SSB, FM or AM) and CW messages for the IC-7800, IC-756PROII/II transceiver and CW messages for the IC-746PRO.
- ⇒ Allows the use of the IC-7800, IC-756PROII/III's Spectrum Scope and the IC-746PRO's Multi-Function Screen while transmitting pre-recorded messages.
- ⇒ Provides an interface for using ICOM microphones or a variety of Heil microphones.
- ⇒ Provides a digital audio input interface to the transceiver's microphone jack.
- ⇒ Tune-Mate provides an adjustable, pulsed audio tone for the tuning of linear amplifiers.
- ⇒ Provides a push-to-talk (PTT) button.
- ⇒ Plugs directly into the transceiver's microphone jack and receives its power from the transceiver.

Description of Controls

There are seven buttons and one level control on the I-MATE. In the front row are a push-to-talk (PTT) button and four **Memories** buttons for memory play-back. In the back row are two "alternate-action" push button switches and an access hole to the **Tune Level** control adjustment. The push button switch on the left (**Mic 1/2**) selects the microphone input. (Depressing this button selects the 3.5 mm jack on the left side

of the I-MATE.) The push button switch on the right (**Tune**) turns the Tune-Mate on or off. Between these two switches is the level control (**Tune Level**) for the Tune-Mate. Using a small screwdriver through the hole in the case adjusts the level.

Installation

Caution

Many microphones use an 8-pin connector. Microphones that are not specifically designed for use with the IC-7800, IC-756PROII/II or the IC-746PRO may damage your ICOM transceiver. Before connecting your microphone to the I-MATE, be certain that the microphone is compatible with your transceiver.

Installation is easy. Simply connect the I-MATE to your transceiver and your microphone to the I-MATE. Follow these instructions:

- ☞ POWER off your transceiver.
- ☞ Disconnect your microphone from the transceiver.
- ☞ Connect the microphone connector on the cable from the I-MATE to the MIC connector on your transceiver.
- ☞ Connect your microphone to the I-MATE's 8-pin microphone connector or to the 3.5mm jack, as appropriate.
- ☞ Make certain that the two alternate-action push button switches are in the correct positions as follows:
 - **Mic 1/2** in the UP position if microphone is connected to the 8-pin connector.
 - **Mic 1/2** in the DOWN position if microphone is connected to the 3.5mm jack.
 - **Tune** in the UP position.
- ☞ POWER on your transceiver.

The VOX, PTT, UP, DOWN and voice functions of your microphone will function properly.

Selecting a Microphone Input

The alternate-action button labeled **MIC 1/2** allows you to select the standard microphone 8-pin connector or the 3.5 mm jack. In the UP position, the standard microphone 8-pin connector is selected. In the DOWN position, the 3.5 mm jack is selected. The standard microphone connector provides all the connections necessary for using an ICOM or ICOM-compatible microphone. The 3.5 mm jack can be used for an alternate microphone, such as the Heil Pro-Set, or as an input for digital audio.

Note: DC voltage, available on the 8-pin standard microphone connector, is blocked from the 3.5 mm jack. Therefore, the 8-pin standard microphone connector must be used for microphones requiring a DC voltage to operate. For Heil microphones that use the "ic" ICOM element, use the Heil AD-1 adaptor cable connected to the I-MATE's 8-pin connector

A footswitch, such as the Heil FS-2 Dual Footswitch, can be used by connecting it to the P.T.T. Footswitch jack on the Heil AD-1 adaptor cable.

Programming Messages

You must program the contents of voice and CW messages in the IC-7800,

IC-756PROII/III transceiver or CW messages in the IC-746PRO. This is done following instructions in the transceivers' instruction manual.

You must activate the use of the I-MATE as an "external keypad" in the transceiver's menu. This is done following instructions in the transceivers' instruction manuals as follows:

- ☞ IC-7800 Instruction Manual, page 12-18.
- ☞ IC-756PROIII Instruction Manual, page 104.
- ☞ IC-756PROII Instruction Manual, page 73.
- ☞ IC-746PRO Instruction Manual, page 87.

After programming of the Digital Voice Recorder and Memory Keyer messages is complete, return the transceiver to the normal display of the band scope.

For the play-back of voice messages (IC-7800, IC-756PROII/III), select the appropriate SSB or AM/FM Mode Switch on the transceiver. For the play-back of CW messages, select the CW/RTTY Mode Switch on the transceiver, and a break-in mode (BK-IN SEMI or BK-IN FULL) on the transceiver's BK-IN multi-function switch.

Sending a Message

Simply pressing one of the **Memories** buttons **1** through **4** will send the message that has been stored in the corresponding memory in the transceiver. It is not necessary to press the push-to-talk (**PTT**) to send a message. Pressing the any one of the **Memories** buttons a second time will stop the message during the transmission.

Note: You may use the I-MATE to transmit messages while displaying the Spectrum Scope (IC-7800, IC-756PROII/III) or the band scope on the IC-746PRO's Multi-Function Screen. This is perhaps the greatest benefit of the I-MATE, since the band scope function of your transceiver is lost without the "external keypad" provided by I-MATE.

Push-to-Talk (PTT) Switch

The **PTT** button duplicates the function of the push-to-talk switch on an ICOM microphone. You can use **PTT** when using a microphone that does not have a push-to-talk switch. The **PTT** switch can be used for manual push-to-talk control in digital operation.

Tune-Mate

The Tune-Mate provides a pulsed audio tone that allows you to tune your linear amplifier at peak power while reducing the power dissipated in the finals. The tone is pulsed at a "dit" rate of about 30 words-per-minute and a frequency of approximately 1.8 KHz.

Depressing the alternate-action **Tune** button starts the pulsed tone. Since the tone replaces the signal from the microphone, it is necessary to run your transceiver in the SSB mode when tuning with the pulsed tone.

The tone's level adjustment procedure is as follows:

- ☞ Adjust the MIC GAIN and RF POWER controls on your transceiver for normal voice operation.
- ☞ Turn the **Tune Level** control on the I-MATE fully counter-clockwise.
- ☞ Depress the **Tune** button.
- ☞ Slowly increase the **Tune Level** until the average power output is approximately 50% of maximum. At this point, the peak power should be near 100% as the pulsed tone has an approximate 50% duty cycle.

☞ Tune and load your amp for normal operation.

Be certain that your amplifier is operating linearly and not being overdriven. You may find that you may have to readjust the **Tune Level** control after you have first loaded your amplifier with a pulsed tone input. After you have successfully loaded your amplifier, note the average power level necessary to obtain the proper peak power. The next time you wish to tune at peak power with the pulsed tone, simply adjust the MIC GAIN on the transceiver until the same average power level is reached under normal loading. It should not be necessary to readjust the **Tune Level**.

Trouble Shooting

Microphone Does Not Work – Be certain that the **Mic 1/2** switch on the I-MATE is in the correct position. The UP position uses the 8-pin microphone connector and the DOWN position uses the 3.5 mm microphone jack. If you are using the 8-pin microphone connector on the I-MATE, be certain that the microphone you are using will work directly with your transceiver. If it does, it will work with the I-MATE. If you are using the 3.5 mm microphone jack, be certain that the microphone you are using is compatible with your transceiver and does not need DC power to operate. DC voltage is only available for microphones using the 8-pin connector.

If you are using a Heil microphone with an “ic” element (e.g. Heil Pro-Set Plus! with the ICOM element), be sure the microphone is connected to the I-MATE’s 8-pin standard microphone connector using the Heil AD-1 adaptor cable.

Messages Are Not Sent – Be certain that the messages are sent when the Memory Channel Switches (F-1 through F-4) on the transceiver are used to send the messages. If the messages are sent when using these switches on the transceiver, the I-MATE will also be able to send the messages. Be certain that the transceiver is in the proper mode for voice (SSB, AM or FM) or CW. For the memories buttons on the I-MATE to function, it is necessary that the “External Keypad” function be activated in the transceiver’s SET MODE Menu. On CW, be certain that a break-in mode has been selected.

Tune-Mate Does Not Function – Be certain that the **Tune Level** control has been set properly and that the **Tune** button has been depressed. For the pulsed tone to function, the transceiver must be in the SSB mode.

Customer Service

The BetterRF Company is dedicated to providing superior products to the amateur community. Please contact us if you have any problems, comments or suggestions about the operation of your I-MATE.

The BetterRF Co.
44 Crestview Lane
Edgewood NM 87015

1-505-286-3333 — technical support
1-800-653-9910 — sales
1-505-281-2820 — fax
w6ter@BetterRF.com — email

Rev c, November 2004