

## Instruction Manual

### MFJ-2400 Modem Operation

With the 2400 modem installed, your MFJ-1278 is capable of operating 300,1200 or 2400 baud packet. 300 baud and 1200 baud packets are not affected by the installation of the 2400 modem.

The addition of the 2400 modem feature will in no way require any internal modification to your transceiver.

#### A, 2400 Packet Operation Setup

All default parameters set for 1200 packet operation can be used for the 2400 operation. 2400 operation needs no unusual setup or parameter changes. There are however some changes that can be made later to the MFJ-1278 parameters which will enable you to improve the throughput performance of the 2400 operation. The "honing" of the parameters may not seem like much, but we have found that, at 2400, the TNC seems to be more responsive to the TXDELAY, DWAIT, RESPONSE and SLOTTIMES. When using direct connects and good paths, the MAXFRAME and PACLEN commands can be increased to allow larger packets to be moved during each transmission.

When returning to the active thru-put frequencies these two commands should be reduced to their original settings. You may find that if you were using a TXDELAY of 50, then a TXDELAY of 40 will now perform better. The DWAIT can be shortened or lengthened to suit the AGC recovery time of your radio. For instance, if you have been running the DWAIT of 16, it may now perform better at DWAIT of 12 or even 10. The FRACK will appear will appear to exercise more at 2400.

2400 really shows its place in the packet world when used to pass large ASCII, BINARY and PICTURE files. It is always good to use clear frequency and/or use direct connects to the target station rather than going thru a node or digipeater. The reason is obvious. There are few 2400 nodes at the present time. However, it should be pointed out that implementation of a 2400 node is just as easy as building and using a 1200 node.

#### Receive Audio Setting

The MFJ 2400 modem employs automatic gain control(AGC)for its receive audio. The receive audio level is pre-set for proper 2400 operation no adjustment is necessary in most cases, if you set the receive audio of your radio properly for 1200 operation, then it

will be suitable for the 2400 operation also. NO adjustment for the receiver audio on the 2400 modem board is needed.

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### Transmit Audio Setting

Transmit audio on the MFJ-2400 board is set by the CN 6 header and R38 trim pot. The shorting jumper on C N6 header sets range in which R38 can be adjusted. CN 6 header presets the transmit audio as follows:

Jumper position	Transmit Audio Range (no load)
none	50 mV - 60mV P-P
1 & 2 (default)	100 mV - 200mV P-P
2 & 3	250 mV - 3 V P-P

MFJ-2400 is factory set for CN 6 to have jumper on positions 1 & 2.

This gives the MFJ-2400 a transmit audio range of approximately between 100mV to 200mV peak-to-peak under no load condition. This audio transmit level should be compatible for most radios.

If necessary you may adjust R38 on the modem board for the transmit audio level that matches the level of the 1200 modem on the mother board.

CAUTION: FOR MFJ-1278 WITH REV. 9 MOTHER BOARD ONLY

1. If you have the MFJ-1278 Rev. 9 mother board, once the 1200 and the 2400 transmit audio are set to the same level, you may adjust the audio level going into your radio by using the "Transmit audio" controls on the left side of the MFJ-1278. Note that these controls set the transmit audio levels for all the operation modes including 2400 packet operation.
2. If you experience difficulty in 1200 operation after installing the 2400 modem board, it may be due to excessive transmit audio level on the 1200 modem on the mother board. The problem can be rectified by increasing the value of R56 of the MFJ-1278 mother board. Typically a 24K ohm resistor to replace R56 will provide adequate audio level that will allow both 1200 and 2400 to function properly.
3. Set switch 2, positions 6 & 7 to off and position 8 to on for 2400 baud operation.