# USING THE AUTOMATIC ANTENNA TUNER

ABOUT ATU OPERATION

Figure 1 depicts a situation where normal tuning via the ATU has been successfully completed, and the tuning data has been stored in the ATU memory. The antenna system as seen by the transmitter is shown.

In Figure 2, the operator has changed frequency, and the "**HI-SWR**" icon has appeared. The operator presses and holds in the [**TUNE**] button for two seconds to begin impedance matching using the ATU.

If a high SWR condition exists (above 3:1), corrective action must be taken in the antenna system to bring the impedance closer to 50 Ohms. The ATU will refuse to memorize settings on frequencies where the SWR exceeds 3:1. A High SWR may indicate a mechanical failure in the feed system, and can lead to the generation of spurious signals causing TVI, etc.
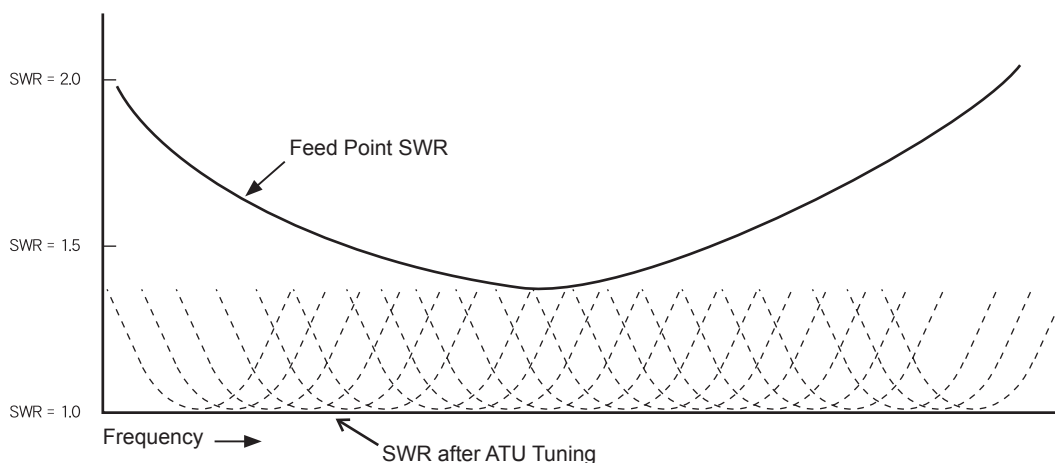
FIGURE 1
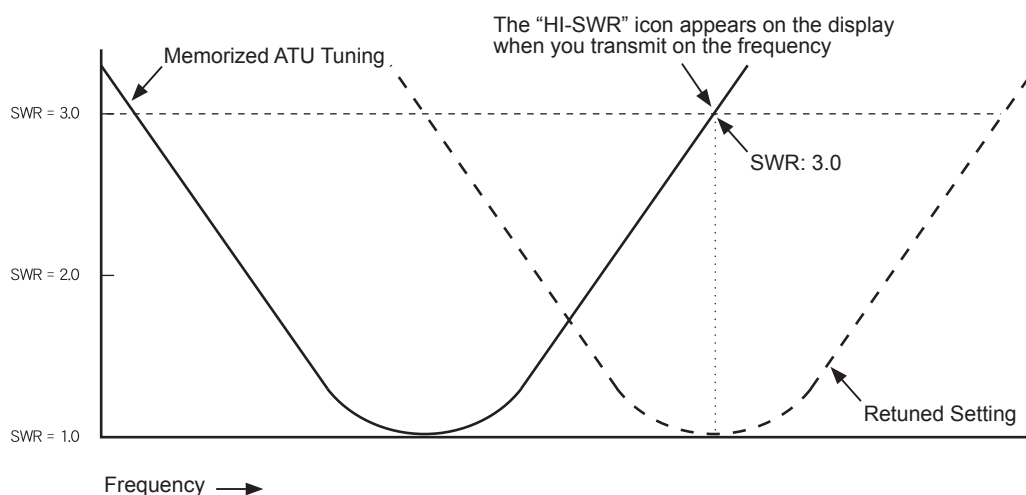
FIGURE 2

About ATU Memories

SWR (After tuning) Less than 1.5:1
The tuner settings are stored in the ATU memory.

SWR (After tuning) Greater than 1.5:1
Tuning data will not be retained in memory. If you return to the same frequency, the tuning process must be repeated.

SWR (After tuning) Greater than 3:1
The "**HI-SWR**" icon will light up, and the tuner settings, if achieved, will not be memorized. Please investigate the high SWR condition and resolve the problem before attempting further operation using this antenna.

ENHANCING TRANSMIT SIGNAL QUALITY

PARAMETRIC MICROPHONE EQUALIZER (SSB/AM/FM MODE)

The **FTDX1200** includes a unique Three-Band Parametric Microphone Equalizer that provides precise, independent control over the low, mid and treble ranges in your voice waveform. You may utilize one group of settings when the speech processor is off and an alternate group of settings when the speech processor is on. The speech processor feature is described in the next chapter.

QUICK POINT:

The Parametric Equalizer is a unique technique for adjusting the signal quality. The three audio ranges may be adjusted so precisely, it is possible to craft an audio response that provides a natural and pleasant sound that you may not have ever experienced before. Alternately, the effective "talk power" can be significantly enhanced.

The aspects of configuration that you may adjust on the Parametric Equalizer are:

Center Frequency: The center frequency of each of the three bands may be adjusted.
**Gain**: The amount of enhancement (or suppression) within each band may be adjusted.
Q: The bandwidth over which the equalization is applied may be adjusted.

Setup of the Parametric Microphone Equalizer

1. Connect the microphone to the **MIC** jack.
2. Set the RF output power to minimum value via Menu item "176 TX MAX POWER", so you will not cause interference to other users while making adjustments.

   #### ADVICE:
   ❒ We recommend that you connect a dummy load to one of the Antenna jacks, and monitor your signal on a separate receiver, to prevent interference to other users.
   ❒ You will have the best chance of hearing the effects of adjustments if you wear headphones (connected to the monitor receiver) while listening to your transmitted signal.

3. To adjust the Parametric Microphone Equalizer while the speech processor is disabled, press the [▲/▼/◄/►] button to select the "**MIC EQ**", then press the [**SELECT**] button to select "ON".
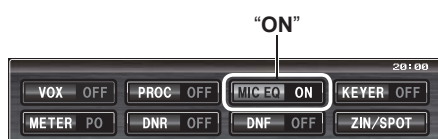
"ON"

To adjust the Parametric Microphone Equalizer with the speech processor engaged, press the [▲/▼/◄/►] button to select the "**PROC**", then press the [**SELECT**] button to select "ON".

"ON"

4. Press the [**MONI**] button, if you want to listen on the **FTDX1200** internal monitor.
5. Press the [**MENU**] button. The Menu list will appear in the display.
6. Rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to find the "EQ" Menu area, containing Menu items "158" through "166"; these parameters apply to the adjustment of the Parametric Micro-

[MENU] Button [SELECT] Button

[MONI] Button   [VFO-B/CLAR] Knob
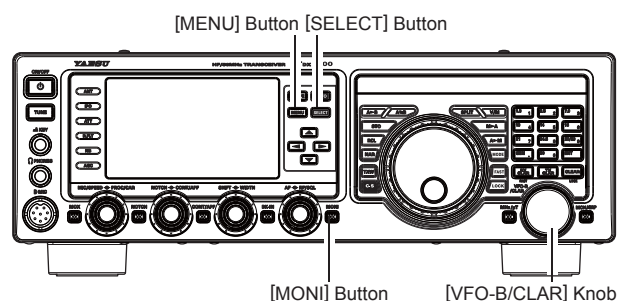
phone Equalizer when the speech processor is disabled. Menu items "167" through "175" apply to the adjustment of the Parametric Microphone Equalizer when the speech processor is engaged.

7. Press the [**SELECT**] button, then rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to perform adjustments to a particular Menu item.
8. Close the **PTT** switch, and speak into the microphone while listening to the effect of the changes you are making. Because the overall effect on the sound will change with each adjustment, you should make several passes through each adjustment area, to be sure that you are achieving the optimum settings.
9. When you have completed all adjustments, press the [**SELECT**] button, then press the [**MENU**] button to save the new settings and exit to normal operation. If you only press the [**MENU**] button momentarily to exit, none of the changes you performed will be stored.

ADVICE:

To roll off excessive bass response in a wide-range studio microphone, try putting a 10 dB null at 100 Hz with a bandwidth of "1" or "2", do about a 3 dB null centered on 800 Hz with a bandwidth of "3," and then put an 8 dB peak centered on 2100 Hz with a bandwidth of "1." These are starting recommendations; each microphone and user's voice will be different, often requiring different settings.

ENHANCING TRANSMIT SIGNAL QUALITY

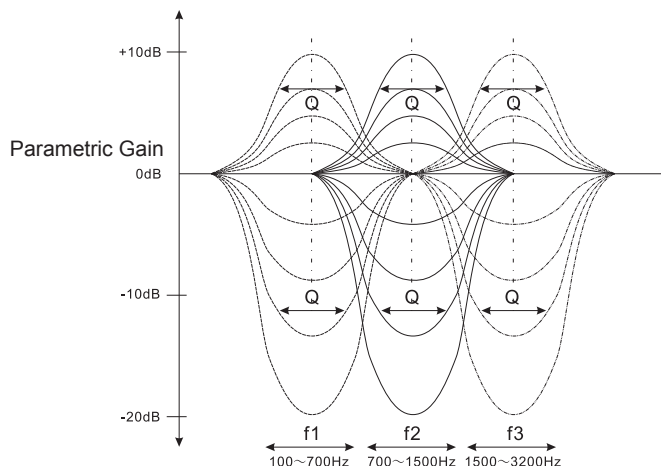## PARAMETRIC MICROPHONE EQUALIZER (SSB/AM/FM MODE)

Activating the Parametric Microphone Equalizer

1. Adjust the [**MIC/SPEED**] knob, as described on page 62.

2. Press the [▲/▼/◄/►] button to select the "**MIC EQ**", then press the [**SELECT**] button to select "ON". If you use the Parametric Microphone Equalizer with the speech processor engaged, press the [▲/▼/◄/►] buttons to select the "**PROC**", then press the [**SELECT**] button to select "ON".

   The "**MIC EQ**" (and "**PROC**") will appear in the display, confirming that the Parametric Microphone Equalizer is engaged.

3. Press the PTT switch on the microphone, and speak into the microphone in a normal voice level.

4. To switch the Parametric Microphone Equalizer off, press the [**SELECT**] button repeatedly until the "**MIC EQ**" icon disappears.

[SELECT] Button

[MIC/SPEED] Knob   [▲/▼/◄/►] Button
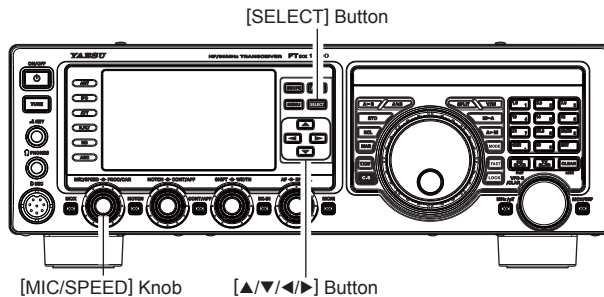
3-STAGE PARAMETRIC EQUALIZER ADJUSTMENTS (SPEECH PROCESSOR: "OFF")		
Center Frequency	"159 PRMTRC EQ1 FREQ"	"100" (Hz) ~ "700" (Hz)
	"162 PRMTRC EQ2 FREQ"	"700" (Hz) ~ "1500" (Hz)
	"165 PRMTRC EQ3 FREQ"	"1500" (Hz) ~ "3200" (Hz)
Parametric Gain	"160 PRMTRC EQ1 LEVEL"	(Low) "–20" (dB) ~ "+10" (dB)
	"163 PRMTRC EQ2 LEVEL"	(Mid) "–20" (dB) ~ "+10" (dB)
	"166 PRMTRC EQ3 LEVEL"	(High) "–20" (dB) ~ "+10" (dB)
Q (Bandwidth)	"161 PRMTRC EQ1 BWTH"	(Low) "1" ~ "10"
	"164 PRMTRC EQ2 BWTH"	(Mid) "1" ~ "10"
	"167 PRMTRC EQ3 BWTH"	(High) "1" ~ "10"

3-STAGE PARAMETRIC EQUALIZER ADJUSTMENTS (SPEECH PROCESSOR: "ON")		
Center Frequency	"168 P-PRMTRC EQ1-FREQ"	"100" (Hz) ~ "700" (Hz)
	"171 P-PRMTRC EQ2-FREQ"	"700" (Hz) ~ "1500" (Hz)
	"174 P-PRMTRC EQ3-FREQ"	"1500" (Hz) ~ "3200" (Hz)
Parametric Gain	"169 P-PRMTRC EQ1-LEVEL"	(Low) "–20" (dB) ~ "+10" (dB)
	"172 P-PRMTRC EQ2-LEVEL"	(Mid) "–20" (dB) ~ "+10" (dB)
	"175 P-PRMTRC EQ3-LEVEL"	(High) "–20" (dB) ~ "+10" (dB)
Q (Bandwidth)	"170 P-PRMTRC EQ1-BWTH"	(Low) "1" ~ "10"
	"173 P-PRMTRC EQ2-BWTH"	(Mid) "1" ~ "10"
	"176 P-PRMTRC EQ3-BWTH"	(High) "1" ~ "10"

Parametric Gain

+10dB

Q   Q   Q

0dB

-10dB

Q   Q   Q

-20dB

f1   f2   f3
100~700Hz 700~1500Hz 1500~3200Hz

ENHANCING TRANSMIT SIGNAL QUALITY

USING THE SPEECH PROCESSOR (SSB MODE)

The **FTDX1200** Speech Processor is designed to increase "talk power" by increasing the average power output (via a sophisticated compression technique) and adjusting the audio quality to the menu settings ("167 P-PRMTRC EQ1 FREQ", "170 P-PRMTRC EQ2 FREQ", "173 P-PRMTRC EQ3 FREQ"). The result is improved intelligibility when conditions are difficult.

1. Adjust the [**MIC/SPEED**] knob, as described on page 62.
2. Press the [▲/▼/◄/►] button to select the "**METER**", then press the [**SELECT**] button to select "COMP" (Compression) meter.
3. Press the [▲/▼/◄/►] button to select the "**PROC**", then press the [**SELECT**] button to select "ON". The "**PROC**" will appear in the display, confirming that the Speech Processor is engaged.
4. Press the **PTT** switch on the microphone, and speak into the microphone in a normal voice level.
5. Adjust the [**PROC/CAR**] knob to set the compression level within the 5 dB to 10 dB range.

[SELECT] Button

[MIC/SPEED] Knob   [▲/▼/◄/►] Button

5 ~10dB
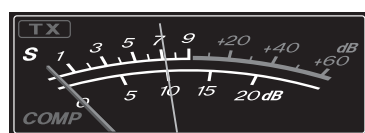
6. To switch the Speech Processor off, press the [**SELECT**] button once more. The "**PROC**" will turn off, confirming that the Speech processor is turned off.

ADVICE:

❒ You may set the RF power output via the Menu item "176 TX MAX PWR", whether or not the Speech Processor is engaged.

❒ You may adjust the Parametric Microphone Equalizer when the speech processor is engaged, using Menu Items "168" through "176". See page 125 for details.
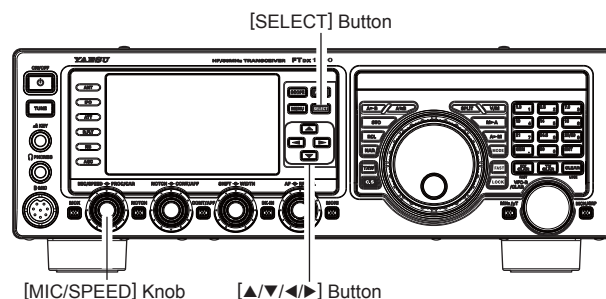
ENHANCING TRANSMIT SIGNAL QUALITY

## ADJUSTING THE SSB TRANSMITTED BANDWIDTH (SSB MODE)

For transmission on SSB, a default bandwidth of 2.4 kHz is provided. This bandwidth provides reasonable fidelity along with good talk power, and is typical of the bandwidth used for decades for SSB transmission. The bandwidth may be varied by the operator, to provide different levels of fidelity or talk power, according to your preferences.

Here are the steps to adjust the SSB transmit bandwidth:

1. Press the [**MENU**] button to engage the Menu.
2. Rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to select Menu item "103 SSB TX BPF".
3. Press the [**SELECT**] button, then rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to select the desired bandwidth. The available selections are: 100-3000 Hz, 100-2900 Hz, 200-2800 Hz, 300-2700 Hz, 400-2600 Hz and 3000 WB. The default is 300-2700 Hz. A wider bandwidth will provide greater fidelity. A narrow bandwidth will compress the available transmitter power into less spectrum, resulting in more "talk power" for DX pile-ups.
4. Press the [**SELECT**] button, then press the [**MENU**] button to save the new setting and exit to normal operation.

[SELECT] Button

[MENU] Button   [VFO-B/CLAR] Knob

ADVICE:

The Transmit Monitor function is a very helpful way to confirm the effect that changing the bandwidth will have on fidelity. By Pressing the [**MONI**] button, you will be able to hear the difference in sound quality as you make changes.
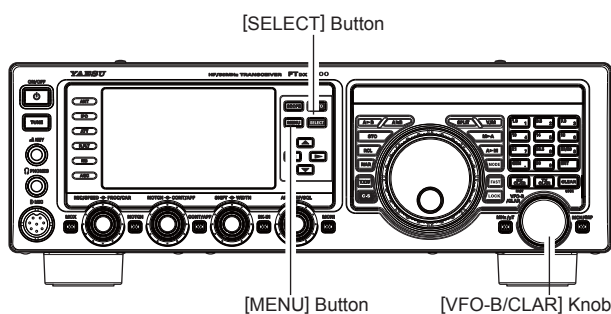
QUICK POINTS:

The higher fidelity associated with wide bandwidth will be particularly enjoyable on the low bands during local rag-chew QSOs.

TRANSMITTER CONVENIENCE FEATURES

## VOICE MEMORY (SSB/AM/FM MODES: REQUIRES OPTIONAL DVS-6 AND FH-2)

You may utilize the Voice Memory capability of the **FTDX1200** for repetitive messages. The Voice Memory system includes five memories capable of storing up to 20 seconds of voice audio each. The maximum that any memory can hold is 20 seconds.

### Voice Memory Operation from the FH-2 Remote Control Keypad

You may also utilize the Voice Memory capability of the **FTDX1200** from the optional **FH-2** Remote Control Keypad, which plugs into the rear panel's **REM** jack.

Recording Your Own Voice in Memory

1. Select the LSB, USB, AM, or FM mode using the front panel [**MODE**] buttons.
2. Adjust the [**MIC/SPEED**] knob, as described on page 62.
3. Press the [**MEM**] key on the **FH-2**. A blinking "**REC**" icon will appear in the display.
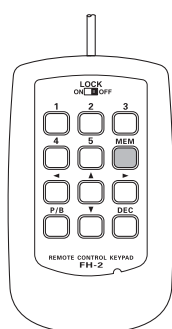
4. Press any of the **FH-2**'s keys numbered [**1**] through [**5**] to select that memory storage register.
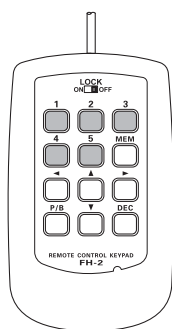

ADVICE:
If you do not press the **PTT** key (see next step) within five seconds, the memory storage process will be cancelled.
5. Press the microphone's **PTT** switch momentarily. The "**REC**" icon will glow steadily and recording will begin.
6. Speak into the microphone in a normal voice level to record the message (such as "CQ DX, CQ DX, this is W 6 Delta X-Ray Charlie, W 6 Delta X-Ray Charlie, Over"). Remember that the time limit for recording any message is 20 seconds.

7. Press the **FH-2** [**MEM**] key to terminate the message storage process.
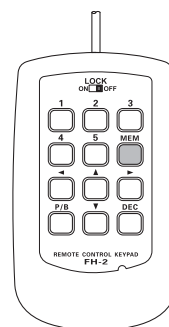
Checking Your Recording

1. Be sure that the front panel [**MOX**] and [**BK-IN**] button are "Off".
2. Press the **FH-2** [**1**] ~ [**5**] key (whichever one you just recorded in). The "**PLAY**" icon will appear in the display and you will hear the contents of the Voice Memory you just recorded.
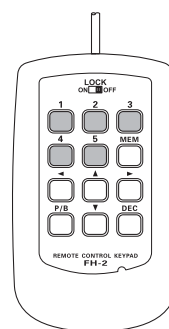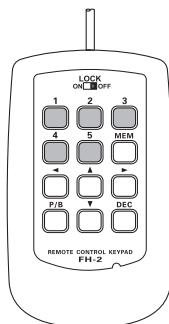

ADVICE:
You may adjust the playback level of the recording via Menu item "015 RX OUT LEVEL".

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TRANSMITTER CONVENIENCE FEATURES

VOICE MEMORY (SSB/AM/FM MODES: REQUIRES OPTIONAL DVS-6 AND FH-2)

Transmitting the Recorded Message

1. Select the LSB, USB, AM, or FM mode using the front panel [**MODE**] buttons.
2. Press the front panel [**BK-IN**] button.
3. Press the **FH-2** [**1**] ~ [**5**] key (whichever one you just recorded in). A "**PLAY**" icon will appear in the display and the message will be transmitted.

ADVICE:

You may adjust the transmit (audio) level of the recording via Menu item "016 TX OUT LEVEL".
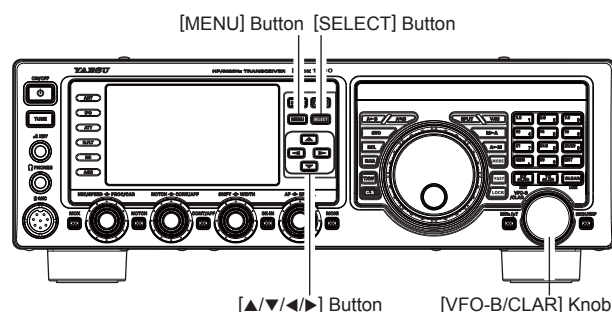
TRANSMITTER CONVENIENCE FEATURES

VOX (SSB/AM/FM MODES: AUTOMATIC TX/RX SWITCHING USING VOICE CONTROL)

Instead of using the microphone's **PTT** switch or the front panel [**MOX**] switch to activate the transmitter, the VOX (Voice Operated TX/RX Control) system provides hands-free, automatic activation of the transmitter, based on voice input into the microphone.

1. Press the [▲/▼/◄/►] button to select the "**VOX**", then press the [**SELECT**] button to select "ON". The "**VOX**" will appear in the display.

2. Without pressing the **PTT** switch, speak into the microphone in a normal voice level. When you start speaking, the transmitter should be activated automatically. When you finish speaking, the transceiver should return to the receive mode (after a short delay).

3. To cancel VOX and return to **PTT** operation, press the [**SELECT**] button once more. The "**VOX**" will turn off, signifying that the VOX circuitry has been turned off.

[MENU] Button [SELECT] Button

[▲/▼/◄/►] Button   [VFO-B/CLAR] Knob

ADVICE:

❏ The VOX Gain may be adjusted to prevent accidental transmitter activation in a noisy environment. To adjust the VOX Gain:

1) Activate the VOX circuitry, if necessary.

2) Press the [**MENU**] button to engage the Menu mode.

3) Rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to select Menu item "180 VOX GAIN", then press the [**SELECT**] button.

4) While speaking into the microphone, rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to the point where the transmitter is quickly activated by your voice, without background noise causing the transmitter to activate.

5) When you satisfied with the setting, press the [**SELECT**] button, then press the [**MENU**] button to save the new setting and exit to normal operation.

❏ The "Hang-Time" of the VOX system (the transmit/receive delay after the cessation of speech) may also be adjusted via the Menu mode. The default delay is 500 msec. To set a different delay time:

1) Activate the VOX circuitry, if necessary.

2) Press the [**MENU**] button to engage the Menu mode.

3) Rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to select Menu item "181 VOX DELAY", then press the [**SELECT**] button.

4) Rotate the [**VFO-B/CLAR**] knob while saying a brief syllable like "Ah" and listening to the hang time for the desired delay.

5) When you are satisfied with the setting, press the [**SELECT**] button, then press the [**MENU**] button to save the new setting and exit to normal operation.

❏ The Anti-Trip setting adjusts the level of negative receiver audio feedback to the microphone, to prevent receiver audio from activating the transmitter (via the microphone). This setting can also be adjusted via Menu item "182 ANTI VOX GAIN".

❏ VOX operation may be engaged on either Voice modes (SSB/AM/FM) or on AFSK-based Data modes. Use Menu item "179 VOX SELECT" (the selections are "MIC" and "DATA").

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TRANSMITTER CONVENIENCE FEATURES

MONITOR (SSB/AM/FM MODES)

You may listen to the quality of your transmitted signal using the Monitor feature.

1. Press the [**MONI**] button. The "**MONI**" will appear on the TFT display.
2. During transmission, rotate the [**MONI**] knob to adjust the audio level in the Headphones or speaker. Clockwise rotation of this knob will increase the volume level.
3. To switch the Monitor off again, press the [**MONI**] button once more. Confirming that the Monitor is now disengaged.
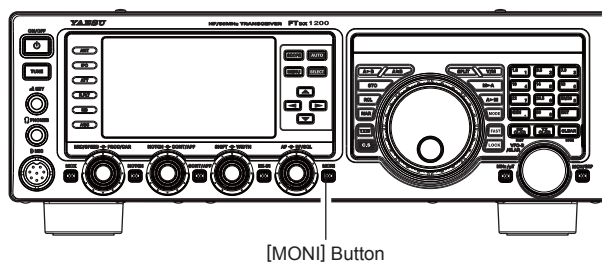
ADVICE:

❒ Because the Monitor feature samples the transmitter IF signal, it can be very useful for checking the adjustment of the Speech Processor or Parametric Equalizer on SSB, and for checking the general signal quality on AM and FM.

ADVICE:

❒ To adjust the Monitor level:
    1) Activate the MONI circuitry, if necessary.
    2) Press and hold in the [**MONI**] button for one second to enter Menu item "035 MONITOR LEVEL".
    3) Press the [**SELECT**] button.
    4) While speaking into the microphone, rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to adjust the monitor level.
    5) When you are satisfied with the setting, press the [**SELECT**] button, then press the [**MENU**] button to save the new setting and exit to normal operation.

[MONI] Button

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TRANSMITTER CONVENIENCE FEATURES

SPLIT OPERATION USING THE TX CLARIFIER

For split TX/RX operation in "casual" pile-ups, where the split is less than 10 kHz, the TX Clarifier (Offset Tuning) feature may be utilized.

1. Press the [**TX CLAR**] button. The "**TX**" icon will appear in the TFT display.

   QUICK POINT:

   The Clarifier is frequently used for receiver offset tuning. However, for DX pile-ups where the DX station is using a split of less than 10 kHz, the TX Clarifier function is usually the quickest way to set the transmitter to the desired offset frequency.

2. Rotate the [**VFO-B/CLAR**] knob to set the desired transmitter offset. A maximum split of ±9.999 kHz may be set.

3. To exit from TX Clarifier operation, press the [**TX CLAR**] button once more. The "**TX**" icon will disappear from the Multi-Display Window.

ADVICE:

❒ When listening to a "pile-up" calling a DX station, in order to find the station currently being worked, you may press the [**RX CLAR**] button. Then, use the [**VFO-B/CLAR**] knob to zero in on the station calling the DX (use the SPOT function on CW for precise alignment of your frequency). You may then press the [**RX CLAR**] button again to cancel the RX Clarifier, and return to reception on the DX station's frequency.

❒ Just as with receiver Clarifier operation, the amount of offset from the original VFO frequency will appear in the VFO-B Frequency display.

❒ As with receiver Clarifier operation, when you turn the TX Clarifier off, the last-used offset is remembered, and will be available if you turn the TX Clarifier back on. To clear the Clarifier offset, press the [**CLEAR**] button.

[CLEAR] Button
[TX CLAR] Button
[RX CLAR] Button

[VFO-B/CLAR] Knob
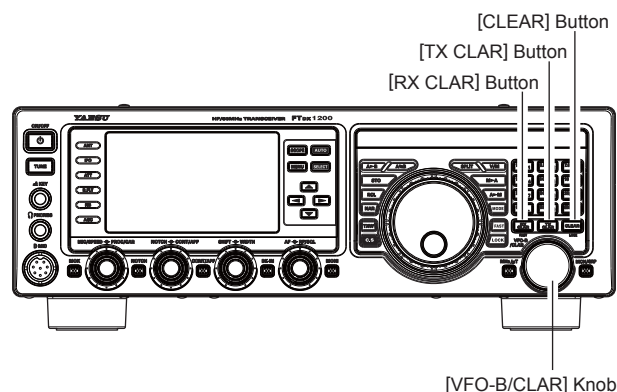
QUICK POINT:

When attempting to work a DX station on CW in a split frequency pile-up, remember that a large number of other stations may also be using Yaesu transceivers with capability similar to that of your **FTDX1200**. On the DX side of the pile-up, everyone calling precisely on the same CW frequency will sound like a single tone! So you may have more success if you use the RX Clarifier to find a *hole* in the pile-up, instead of trying to zero-beat the last station worked by the DX station.

Clarifier Offset Bar Indicator

A visual depiction of the relative offset of the Clarifier may be displayed, using the Bar Indicator.

1. Press the [**MENU**] button to engage the Menu mode.

2. Rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to select Menu item "010 BAR DISPLAY SELECT".

3. Press the [**SELECT**] button, then rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to select "CLAR" from the available choices; the factory default is "CW TUNE".

4. Press the [**SELECT**] button, then press the [**MENU**] button to save the new setting and exit to normal operation.

Plus (+) Offset

TX Frequency = RX Frequency

Minus (-) Offset

TRANSMITTER CONVENIENCE FEATURES

SPLIT-FREQUENCY OPERATION

A powerful capability of the **FTDX1200** is its flexibility in Split Frequency operation using the VFO-A and VFO-B frequency registers. This makes the **FTDX1200** especially useful for high-level DX-peditions. The Split operation capability is very advanced and easy to use.

1. Press the [**A►◄B**] button, then rotate the [**VFO-B/CLAR**] knob to set the desired VFO-B frequency.
2. Press the [**A►◄B**] button, then rotate the Main Tuning Dial knob to set the desired VFO-A frequency.
3. Now press the [**SPLIT**] button. The VFO-B frequency will appear in the TFT display and the front panel indicators will look like as below:
   VFO-A RX Indicator: "ON" (LED glows Green)
   VFO-A TX Indicator: "OFF" (LED Off)
   VFO-B RX Indicator: "OFF" (LED Off)
   VFO-B TX Indicator: "ON" (LED glows Red)

[A►◄B] Button
[SPLIT] Button

[TXW] Button
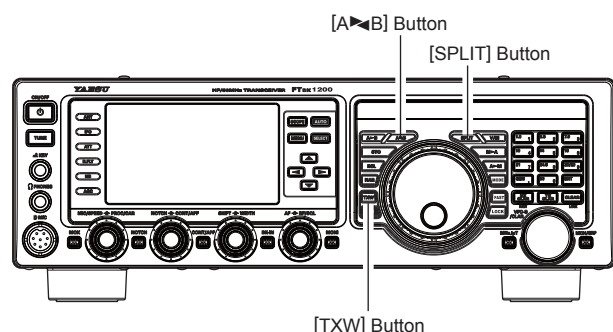
During Split operation, the VFO-A register will be used for reception, while the VFO-B register will be used for transmission. If you press the [**SPLIT**] button once more, Split operation will be cancelled.

ADVICE:
❑ During Split operation, pressing the [**A►◄B**] button will reverse the contents of the VFO-A and VFO-B. Press the [**A►◄B**] button once more to return to the original frequency alignment.
❑ During Split operation you may listen to the TX frequency temporarily while pressing the [**TXW**] button located on the bottom left of the Main Tuning Dial knob.
❑ It is possible to set different operating modes (for example, LSB and USB) on the two VFOs used during Split operation.
❑ During Split operation it is also possible to set VFO-A and VFO-B to different Amateur bands if you use a multi band antenna.

Quick Split Operation
The Quick Split feature allows you to set a one-touch offset of +5 kHz to be applied to your radio's VFO-B (transmit) frequency, compared to the VFO-A frequency.

1. Start with regular transceiver operation on the VFO-A.
   VFO-A RX Indicator: "ON" (LED glows Green)
   VFO-A TX Indicator: "ON" (LED glows Red)
   VFO-B RX Indicator: "OFF" (LED Off)
   VFO-B TX Indicator: "OFF" (LED Off)
2. Press and hold in the [**SPLIT**] button for one second to engage the Quick Split feature, and apply a frequency 5 kHz above the VFO-A frequency to the VFO-B frequency register.
   The VFO configuration will then be:
   VFO-A RX Indicator: "ON" (LED glows Green)
   VFO-A TX Indicator: "OFF" (LED Off)
   VFO-B RX Indicator: "OFF" (LED Off)
   VFO-B TX Indicator: "ON" (LED glows Red)
3. Press and hold in the [**SPLIT**] switch for one second to increment the Sub (VFO-B) frequency another +5 kHz.

QUICK POINTS:
❑ The operating mode applied to the VFO-B register will be the same as that in use on the VFO-A register.
❑ The offset of VFO-B from VFO-A is programmed via the Menu and is set to +5 kHz at the factory. However, other offsets may be selected using the following procedure:

1. Press the [**MENU**] button to engage the Menu mode.
2. Rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to select Menu item "042 QUICK SPLIT FREQ".
3. Press the [**SELECT**] button, then rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to select the desired offset. The available selections are –20kHz ~ +20kHz (factory default: +5 kHz).
4. Press the [**SELECT**] button, then press the [**MENU**] button to save the new setting and exit to normal operation.

The powerful CW operating capabilities of the **FTDX1200** permit operation using an electronic keyer paddle, a "straight key", or a computer-based keying device.

SETUP FOR STRAIGHT KEY (AND STRAIGHT KEY EMULATION) OPERATION

Before starting, connect your key line(s) to the front and/or rear panel **KEY** jack(s). Be sure the [**BK-IN**] button is turned off for now.

1. Press the [**MODE**] button to engage CW operation. The "**CW**" and "**USB**" icons will appear in the display. The "**MONI**" icon will appear in the TFT display; and the CW monitor is activated.

   ADVICE:

   If you select the "CW" mode again, you will engage the "CW Reverse" mode, whereby the "opposite" sideband injection is used, compared to the "normal" sideband. The "**CW**" and "**LSB**" icons will appear in the display if you select CW Reverse.
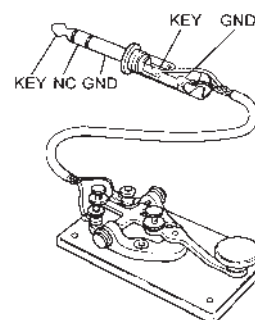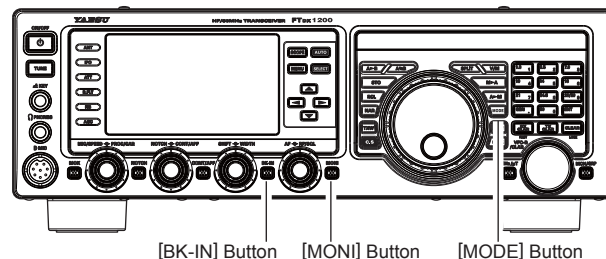
2. Rotate the Main Tuning Dial knob to select the desired operating frequency.

3. Press the [**BK-IN**] button to engage automatic activation of the transmitter when you close the CW key. The "**BK-IN**" icon will appear in the TFT display.

   ADVICE:

   ❏ When you close your CW key, the transmitter will automatically be activated, and the CW carrier will be transmitted. When you release the key, transmission will cease, and after a brief delay, receive will be restored. The delay time is user-programmable per the discussion on page 83.

   ❏ As shipped from the factory, the **FTDX1200** TX/RX system for CW is configured for "Semi-break-in" operation. However, using Menu item "061 CW BK-IN", you may change this setup for full break-in (QSK) operation, whereby the switching is quick enough to hear incoming signals in the spaces between the dots and dashes of your transmission. This may prove very useful during contest and traffic handling operations.

4. Operation using your CW key may now proceed.

   ADVICE:

   ❏ You may adjust the CW sidetone audio level setting of Menu item "035 MONITOR LEVEL".

   To adjust the Monitor level:

   1) Activate the MONI circuitry, if necessary.

[BK-IN] Button   [MONI] Button   [MODE] Button

2) Press and hold in the [**MONI**] button for one second to enter the Menu item "035 MONITOR LEVEL".

3) Press the [**SELECT**] button.

4) While keying, rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to adjust the monitor level.

5) When you are satisfied with the setting, press the [**SELECT**] button, then press the [**MENU**] button to save the new setting and exit to normal operation.

❏ If you set the [**BK-IN**] button to Off, you may practice sending CW with the sidetone only, without having the signal go out over the air.

❏ If you reduce power via the Menu item "176 TX MAX POWER", the ALC meter reading will increase; this is normal and does not indicate any problem whatsoever (because increased ALC voltage is being used to lower the power).

TERMINOLOGY:

Semi-break-in

This is a pseudo-"VOX" mode used on CW, whereby the closure of the CW key will engage the transmitter, and release of the key will allow the receiver to recover after a short delay. No signals will be heard during the spaces between dots and dashes (unless the sending speed is extremely slow).

Full break-in

Full break-in (also known as "Full QSK") involves very fast switching between transmit and receive, incoming signals may be heard between the dots and dashes as you send them. This allows you to hear a station that suddenly starts transmitting on your frequency, while you are in the midst of a transmission.

CW MODE OPERATION

USING THE BUILT-IN ELECTRONIC KEYER

Connect the cable from your keyer paddle to the front or rear panel **KEY** jack.

1. Press the [**MODE**] button to engage CW operation. The "**CW**" and "**USB**" icons will appear in the display. The "**MONI**" icon will appear in the TFT display; and the CW monitor is activated.
   ADVICE:
   If you press the "CW" mode, you will engage the "CW Reverse" mode, whereby the "opposite" sideband injection is used, compared to the "normal" sideband. The "**CW**" and "**LSB**" icons will appear in the display if you select CW Reverse.

2. Rotate the Main Tuning Dial knob to select the desired operating frequency.

3. Press the [▲/▼/◄/►] button to select the "**KEYER**", then press the [**SELECT**] button to select "ON". The "**KEYER**" will appear in the display, confirming that the built-in Electronic Keyer is now active.

4. Rotate the [**MIC/SPEED**] knob to set the desired sending speed (4 ~ 60 WPM). Clockwise rotation of the [**MIC/SPEED**] knob will increase the keying speed.
   ADVICE:
   ❑ The VFO-B frequency display will show the keying speed for 3 seconds whenever the [**MIC/SPEED**] knob is turned.
   ❑ When you press either the "Dot" or "Dash" side of your paddle, the CW keying tone will automatically be generated.

5. Press the [**BK-IN**] button to engage automatic activation of the transmitter when you press either the "Dot" or "Dash" side of your paddle. The "**BK-IN**" icon will appear in the TFT display.

6. CW operation utilizing your paddle may now commence.
   ADVICE:
   When you utilize your keyer paddle, the transmitter will automatically be activated, and the CW characters (or a string of dots and dashes) will be transmitted. When you release the keyer paddle contacts, transmission will cease, and reception will be restored after a brief delay. The delay time is user-programmable, per the discussion on page 83.
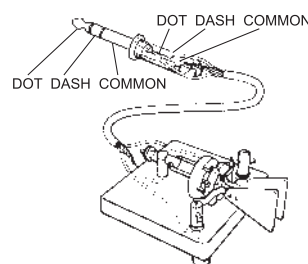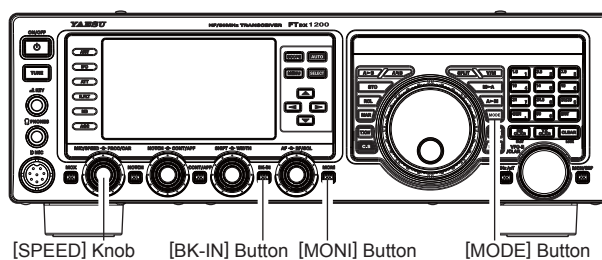
[SPEED] Knob   [BK-IN] Button [MONI] Button   [MODE] Button

DOT DASH COMMON
DOT DASH COMMON

ADVICE:
❑ You may adjust the CW sidetone audio level setting of Menu item "035 MONITOR LEVEL".
To adjust the Moni Level:
1) Activate the MONI circuitry, if necessary.
2) Press and hold in the [**MONI**] button for one second to enter the Menu item "035 MONITOR LEVEL".
3) Press the [**SELECT**] button.
4) While keying, rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to adjust the monitor level.
5) When you are satisfied with the setting, press the [**SELECT**] button, then press the [**MENU**] button to save the new setting and exit to normal operation.
❑ If you set the [**BK-IN**] button to Off, you may practice sending CW with the sidetone only, without having the signal go out over the air.
❑ If you reduce power via the Menu item "176 TX MAX POWER", the ALC meter reading will increase; this is normal and does not indicate any problem whatsoever (because increased ALC voltage is being used to lower the power).
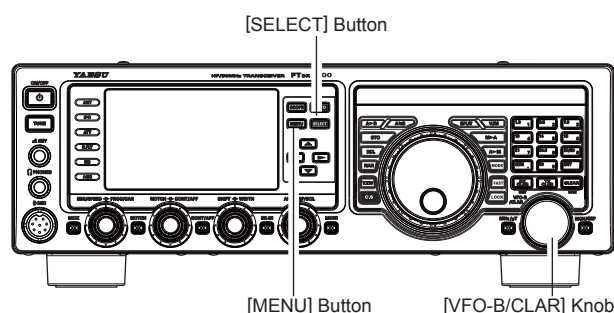
Using the Built-in Electronic Keyer

Full Break-in (QSK) Operation

As shipped from the factory, the **FTDX1200** TX/RX system for CW is configured for "Semi-break-in" operation. However, this setup may be changed to full break-in (QSK) operation using Menu item "062 CW BK-IN". With full break-in QSK, the TX/RX switching is quick enough to hear incoming signals in the spaces between the dots and dashes of your transmission.

1. Press the [**MENU**] button to engage the Menu.
2. Rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to select Menu item "062 CW BK-IN".
3. Press the [**SELECT**] button, then rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to set this Menu item to "FULL".
4. When your adjustments are complete, press the [**SELECT**] button, then press the [**MENU**] button to save the new setting and exit to normal operation.

[SELECT] Button

[MENU] Button   [VFO-B/CLAR] Knob

A number of interesting and useful features are available during Electronic Keyer operation.

Setting the Keyer Weight (Dot/Dash) Ratio

This Menu item may be used to adjust the dot/dash ratio for the built-in Electronic Keyer. The default weighting is 3:1 (a dash is three times longer than a dot).

1. Press the [**MENU**] button to engage the Menu.
2. Rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to select Menu item "022 CW WEIGHT".
3. Press the [**SELECT**] button, then rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to set the weight to the desired value. The available adjustment range is a Dot/Dash ratio of 2.5 ~ 4.5 (default value: 3.0).
4. When you are finished, press the [**SELECT**] button, then press the [**MENU**] button to save the new setting and exit to normal operation.

[SELECT] Button

[MENU] Button   [VFO-B/CLAR] Knob
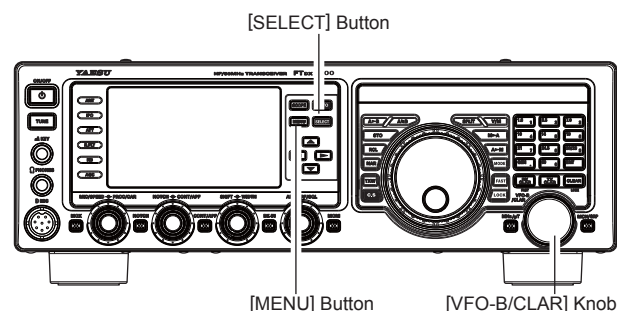
CW Mode Operation

Using the Built-in Electronic Keyer

Selecting the Keyer Operating Mode

The configuration of the Electronic Keyer may be customized independently for the front and rear **KEY** jacks of the **FTᴅx1200**. This permits utilization of Automatic Character Spacing (ACS), if desired. This permits the use of an electronic keyer via the front jack and a straight key or computer-driven keying line via the rear panel jack.

1. Press the [**MENU**] button to engage the Menu.
2. Rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to select Menu item "017 F KEYER TYPE" (for the front **KEY** jack) or "019 R KEYER TYPE" (for the rear-panel **KEY** jack).
3. Press the [**SELECT**] button, then rotate the [**VFO-B/CLAR**] knob (or press the ▲/▼ button) to set the keyer to the desired mode. The available selections are:
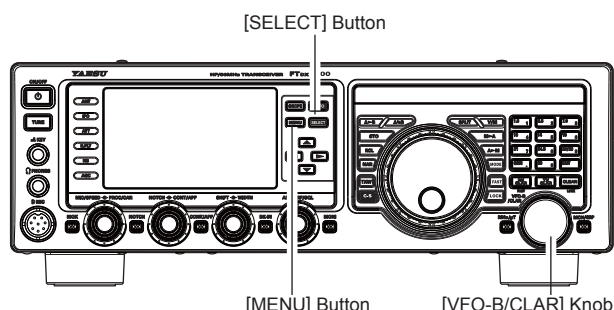   OFF: The built-in Electronic Keyer is turned off ("straight key" mode).
   BUG: Dots will be generated automatically by the keyer, but dashes must be sent manually.
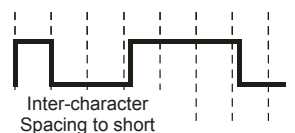   ELEKEY: Both dots and dashes will be generated automatically when using a paddle.
   ACS: Same as "ELEKEY" except that the spacing between characters is precisely set by the keyer to be the same length as a dash (three dots in length)
4. When you are finished, press the [**SELECT**] button, then press the [**MENU**] button to save the new setting and exit to normal operation.

[SELECT] Button

[MENU] Button   [VFO-B/CLAR] Knob

ACS OFF   Morse "E" & "T"

Inter-character Spacing to short

ACS ON   Morse "E" & "T"

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