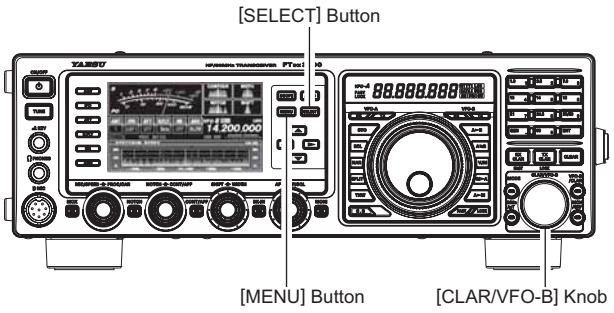
USING THE BUILT-IN ELECTRONIC KEYER

Full Break-in (QSK) Operation

As shipped from the factory, the **FT DX 3000** TX/RX system for CW is configured for "Semi-break-in" operation. However, using Menu item "043 A1A 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.

1. Press and hold in the [**MENU**] button for one second to engage the Menu.
2. Rotate the [**SELECT**] knob or press the ▲/▼ button to select Menu item "062 CW BK-IN".
3. Press the [**SELECT**] button, then rotate the [**CLAR/VFO-B**] 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.

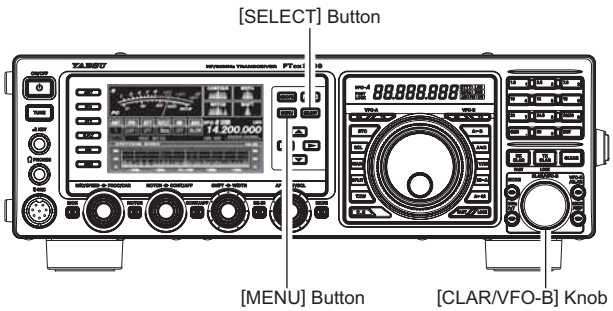


A number of interesting and useful features are available during Electronic Keyer operation.

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 and hold in the [**MENU**] button for one second to engage the Menu.
2. Rotate the [**SELECT**] knob or press the ▲/▼ button to select Menu item "022 CW WEIGHT".
3. Press the [**SELECT**] button, then rotate the [**CLAR/VFO-B**] knob or press the ▲/▼ button to set the weight to the desired value. The available adjustment range is for 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.

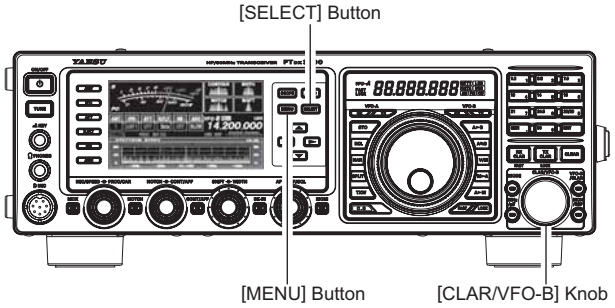


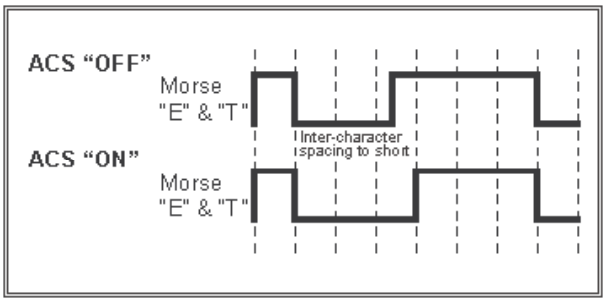
USING THE BUILT-IN ELECTRONIC KEYER

Selecting the Keyer Operating Mode

The configuration of the Electronic Keyer may be customized independently for the front and rear **KEY** jacks of the **FT DX 3000**. 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 and hold in the [**MENU**] button for one second to engage the Menu.
2. Rotate the [**SELECT**] knob or press the ▲/▼ button to select Menu item "018 F KEYER TYPE" (for the front **KEY** jack) or "020 R KEYER TYPE" (for the rear-panel **KEY** jack).
3. Press the [**SELECT**] button, then rotate the [**CLAR/VFO-B**] knob or press thethe ▲/▼ 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 you use your paddle.
   - ACS: Same as "ELE" 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.



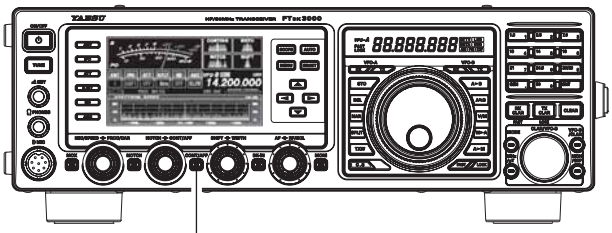


CW CONVENIENCE FEATURES

AUDIO PEAK FILTER

1. Press the [**CONT/APF**] button to activate the APF (Audio Peak Filter) which provides a very narrow audio bandwidth.
   The LED inside the [**CONT/APF**] button glows orange.
   ADVICE:
   When APF is engaged, the peak position of the APF is depicted graphically in the CONTOUR indicator.
3. Press the [**CONT/AFP**] button to disable the APF.

ADVICE:
The APF may only be activated while the transceiver is in CW mode.



CW SPOTTING (ZERO-BEATING)

"Spotting" (zeroing in on another CW station) is a handy technique to ensure you and the other station are precisely on the same frequency.

The Tuning Offset Indicator in the display may also be moved so you can adjust your receiver frequency to center the incoming station on the pitch corresponding to that of your transmitted signal.

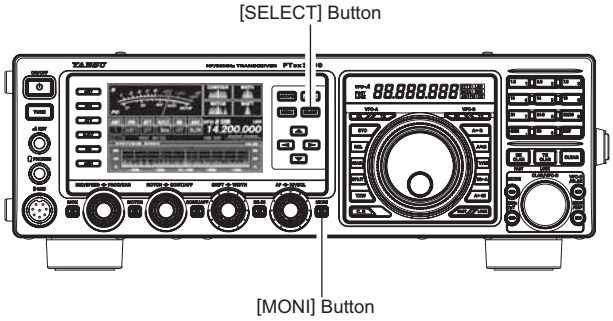
Using the SPOT System

Press the [**MONI**] button, then while pressing the front panel [**SELECT**] button, the Spot tone will be heard through your speaker and the frequency display will show the Spot tone frequency. This tone corresponds to the pitch of your transmitted signal. If you adjust the receiver frequency until the pitch of the received CW signal matches that of the Spot tone, your transmitted signal will be precisely matched to that of the other station.

Release the [**SELECT**] button to turn the Spot tone off.

ADVICE:

- ❒ In a tough DX pile-up, you may actually want to use the SPOT system to find a "gap" in the spread of calling stations, instead of zeroing in precisely on the last station being worked by the DX station. From the DX side, if a dozen or more operators (also using Yaesu's SPOT system) all call precisely on the same frequency, their dots and dashes merge into a single, long tone that the DX station cannot decipher. In such situations, calling slightly higher or lower in frequency may get your call through.
- ❒ The Tuning Offset Indicator in the display may be utilized for CW frequency adjustment, as well. Its configuration is set via Menu item "011 BAR DISPLAY SELECT" at the factory, and the Tuning Offset Indicator is already set to the "CW TUNE" selection.



QUICK POINTS:

- ❒ The CW Spotting process utilizes the Spot tone or the Tuning Offset Indicator. The actual offset pitch is set by Menu item "055 CW PITCH". The offset pitch may be set to any frequency between 300 Hz and 1050 Hz, in 50 Hz steps. You can either match tones audibly (using the [**SELECT**] button) or tune the receiver frequency so that the central red LED on the Tuning Offset indicator lights up. Note that there are 21 "dots" on the Tuning Offset Indicator, and depending on the resolution selected, the incoming CW signal may fall outside the visible range of the bar indicator, if you are not reasonably close to the proper alignment of tones.
- ❒ The displayed frequency on CW normally reflects the "zero beat" frequency of your offset carrier. That is, if you were to listen on USB on 14.100.00 MHz to a signal with a 700 Hz offset, the "zero beat" frequency of that CW carrier would be 14.000.70 MHz; the latter frequency is what the **FT DX 3000** displays, by default. However, you can change the display to be identical to what you would see on SSB by using Menu item "065 CW FREQ DISPLAY" and setting it to "DIRECT FREQ" instead of the default "PITCH OFFSET" setting.

CW Convenience Features

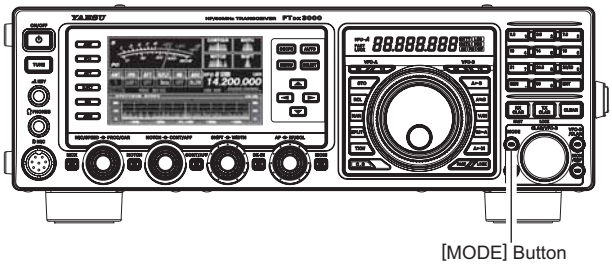
Using CW Reverse

If you experience a difficult interference situation, where an interfering station cannot readily be eliminated, you may wish to try receiving using the opposite sideband. This may move the interfering station's frequency in a direction that may lend itself more readily to rejection.

1. To start, let's use a typical example where you have set the CW mode (using the default "USB" injection).
2. Now be sure your mode selection is still set for VFO-A, and then press and hold in the [**MODE**] button for one second. The "LSB" and "CW" will appear in the display, indicating that the "LSB" injection side has now been selected.
3. To return to the normal (USB) injection side and cancel CW Reverse operation, press and hold in the [**MODE**] button for one second. (the "USB" and "CW" will appear in the display).

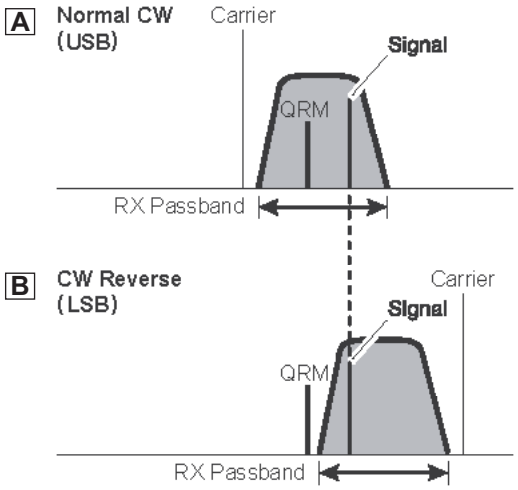
Notes:

- ❒ When CW Reverse is engaged, the action of the Tuning Offset Indicator will also be reversed
- ❒ When the incoming signal pitch tone is properly aligned, the central red marker lights up whether or not CW Reverse is engaged.



In the illustration, Figure "**A**" demonstrates the normal CW injection setup, using the USB side. In Figure "**B**", CW Reverse has been engaged, to receive using LSB-side injection and eliminate interference.

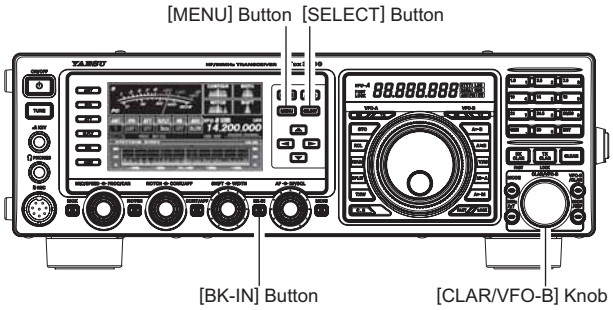
The beneficial effect of switching sidebands can be clearly seen in this example.



CW DELAY TIME SETTING

During semi-break-in (not QSK) operation, the hang time of the transmitter, after you have finished sending, may be adjusted to a comfortable value consistent with your sending speed. This is the functional equivalent of the "VOX Delay" adjustment used on voice modes, and the delay may be varied anywhere between 30 msec and 3 seconds via Menu item "063 CW BK-IN DELAY".

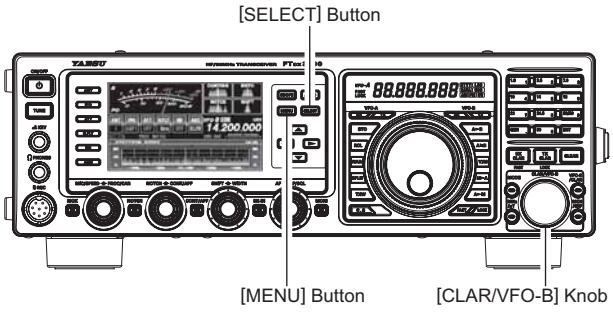
1. Press the [**BK-IN**] button to enable CW transmission (Menu item "062 CW BK-IN" must be set to "SEMI").
2. Press and hold in the [**MENU**] button for one second to enter the Menu mode.
3. Rotate the [**CLAR/VFO-B**] knob or press the ▲/▼ button to select Menu item "063 CW BK-IN DELAY", then press the [**SELECT**] button.
4. Start sending and rotate the [**CLAR/VFO-B**] knob to adjust the hang time, as you prefer for comfortable operation.
5. When you are finished, press the [**SELECT**] button, then press the [**MENU**] button to save the new setting and exit to normal operation.



CW PITCH ADJUSTMENT

You may adjust the center frequency of the receiver passband, and change the pitch of your offset CW carrier, to the tone you prefer via the Menu item "055 CW PITCH". The tone may be varied between 300 Hz and 1050 Hz, in 10 Hz steps.

1. Press and hold in the [**MENU**] button for one second to enter the Menu mode.
2. Rotate the [**CLAR/VFO-B**] knob or press the ▲/▼ button to select Menu item "055 CW PITCH".
3. Press the [**SELECT**] button, then rotate the [**CLAR/VFO-B**] knob or press the ▲/▼ button to select the desired tone.
4. When you are finished, press the [**SELECT**] button, then press the [**MENU**] button to save the new setting and exit to normal operation.



ADVICE:
You may confirm the Spot tone frequency by pressing the [**SELECT**] button.

TERMINOLOGY:
CW Pitch: If you tuned to an exact "zero beat" on an incoming CW signal, you could not copy it ("Zero beat" implies a 0 Hz tone). Therefore, the receiver is offset several hundreds of Hz (typically), to allow your ear to detect the tone. The BFO offset associated with this tuning (that produces the comfortable audio tone) is called the CW Pitch.