

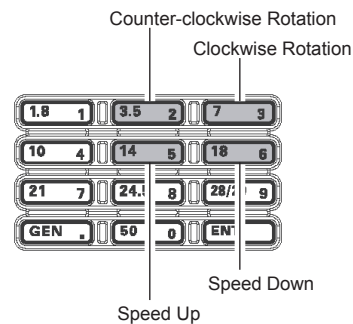
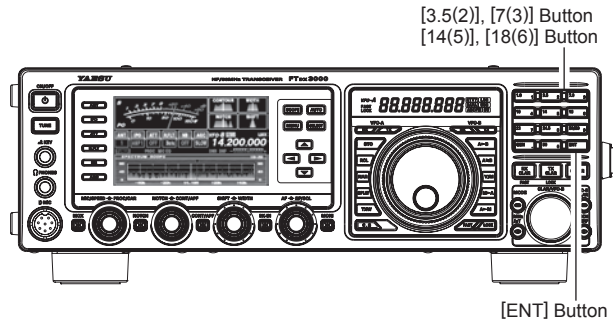
CONVENIENCE FEATURES

ROTATOR CONTROL FUNCTIONS

When using a YAESU model **G-800DXA**, **G-1000DXA**, **G-2800DXA** Antenna Rotator (not supplied), it is possible to control it from the front panel of the **FT DX 3000**.

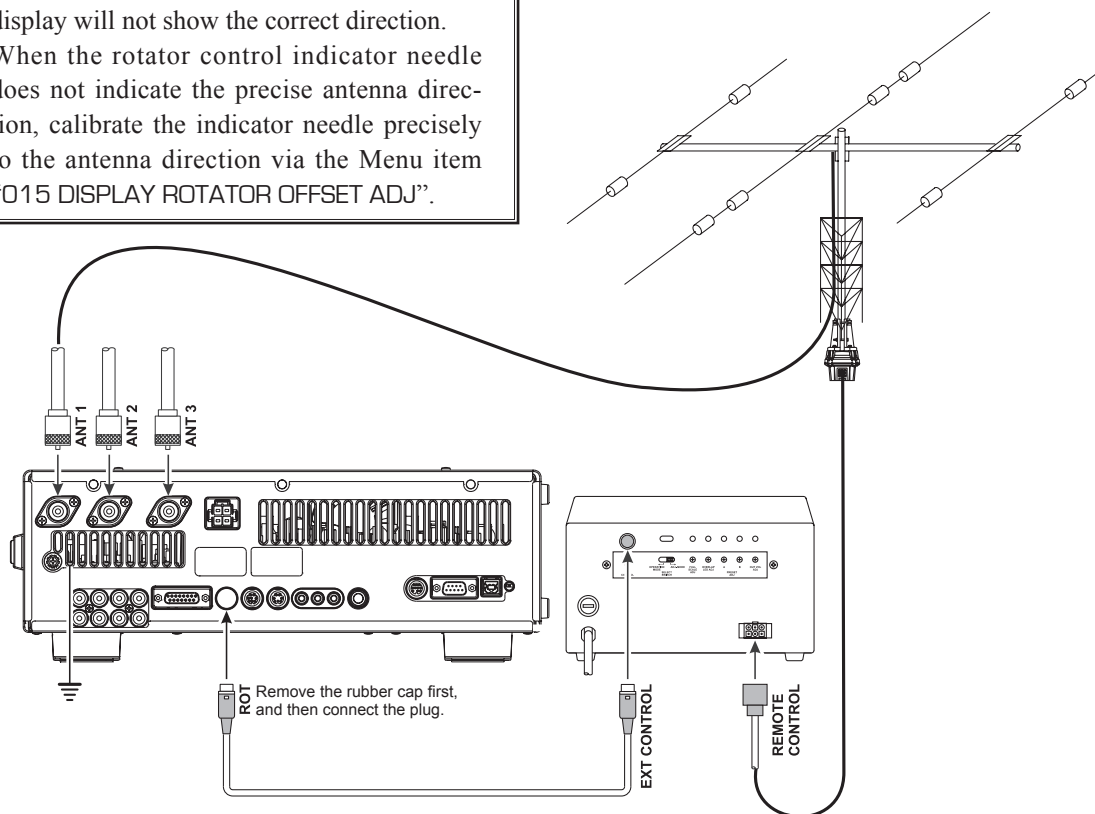
1. Press and hold in the **[ENT]** button (one of the **[BAND]** key switches) for one second. The Frequency Display area will change over to the “Rotator Control” configuration.
2. Press either the **[3.5(2)]** button or the **[7(3)]** button to rotate the antenna. Pressing the **[3.5(2)]** button will cause rotation to the left (counter-clockwise) by two degree steps, while pressing the **[7(3)]** button will cause rotation to the right (clockwise) by two degree steps.
3. Press the **[14(5)]** button or the **[18(6)]** button to control the speed of rotation. Pressing the **[14(5)]** button will cause slower rotation, while pressing the **[18(6)]** button will speed up rotation. Usually, you will be using the “100%” speed setting.

When you are through exercising rotator control, press the **[ENT]** button momentarily. The Frequency Display will return to the main display field.



IMPORTANT NOTE

- ❑ Set the starting point to match your rotator control indicator needle via the Menu item “014 DISPLAY ROTATOR START UP”. The default setting is zero (north). If your controller starting point is south, the Menu item “014 DISPLAY ROTATOR START UP” must be set to “180”. If not set properly the **FT DX 3000** display will not show the correct direction.
- ❑ When the rotator control indicator needle does not indicate the precise antenna direction, calibrate the indicator needle precisely to the antenna direction via the Menu item “015 DISPLAY ROTATOR OFFSET ADJ”.



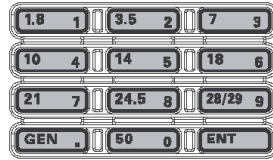
MORE FREQUENCY NAVIGATION TECHNIQUES

Keyboard Frequency Entry

You may enter operating frequencies directly into the current VFO, using the front panel [BAND] key buttons.

Example: Enter 14.250.00 MHz

1. Press the [ENT] button to engage the direct frequency entry process. Now, beginning with the first digit of the frequency (the leftmost digit), we will enter the required digits of the frequency.



2. Press, in order, the digits of the operating frequency, using the [BAND] buttons (the frequency entry digit or decimal point is printed on the right side of the buttons). In this example, enter [1.8(1)] → [10(4)] → [GEN(.)] → [3.5(2)] → [14(5)] → [50(0)] → [50(0)] → [50(0)] → [50(0)]

The decimal point after the “MHz” portion of the frequency must be entered, but no decimal point is required after the “kHz” portion.

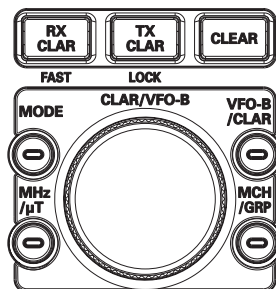
3. Press the [ENT] button once more. A short “beep” will confirm that the frequency entry was successful, and the new operating frequency will appear on the display.

ADVICE:

If you attempt to enter a frequency outside the operating range of 30 kHz ~ 56 MHz, the microprocessor will ignore the attempt, and you will be returned to your previous operating frequency. If this happens, please try again, taking care not to repeat the error in the frequency entry process.

Using the [CLAR/VFO-B] knob

You may change the current VFO frequency in 1 MHz steps. Press the [MHz] button located at the bottom and left of the [CLAR/VFO-B] knob. The 1 MHz steps will be applied to the current VFO frequency. The imbedded LED in the [MHz] button will glow orange in the latter case.



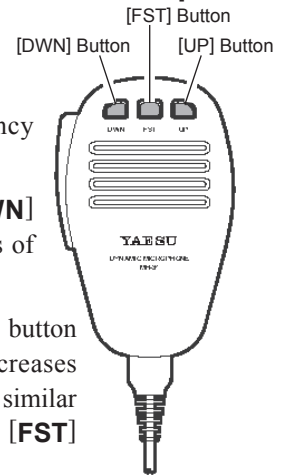
When tuning in 1 MHz steps, clockwise rotation of the [CLAR/VFO-B] knob will increase the frequency, while counter-clockwise rotation will decrease the frequency.

Using the [UP]/[DWN] buttons of the supplied MH-31B8 Hand Microphone

The [UP]/[DWN] buttons on the supplied MH-31B8 Hand Microphone may also be used to manually scan the frequency upward or downward.

The microphone's [UP]/[DWN] buttons utilize the tuning steps of the Main Tuning Dial knob.

When the microphone's [FST] button is pressed, the tuning rate increases by a factor of ten, in a manner similar to the transceiver front panel [FST] button.



ADVICE:

You may independently set the tuning steps of the [UP]/[DWN] buttons in the AM and FM modes. To set new tuning steps, use Menu items “154 TUNING AM CH STEP” and “155 TUNING FM CH STEP”.

INTERFERENCE REJECTION

RECEIVER OPERATION (FRONT END BLOCK DIAGRAM)

The **FT dx 3000** includes a wide range of special features to suppress the many types of interference that may be encountered on the HF bands. However, real world interference conditions are constantly changing, so optimum setting of the controls is somewhat of an art, requiring familiarity with the types of interference and the subtle effects of some of the controls. Therefore, the following information is provided as a general guideline for typical situations, and a starting point for your own experimentation.

The **FT dx 3000**'s interference-fighting circuitry begins in its "RF" stages, and continues throughout the entire receiver section. **FT dx 3000** allows configuration of the features described below.

R. FLT (IF Roofing Filters)

Three Roofing filters, of 15 kHz, 6 kHz, and 3 kHz bandwidths, are provided in the 69 MHz First IF, right after the first mixer. These filters are automatically selected to provide narrow-band selectivity to protect the following IF and DSP stages. The automatically selected filter, may be manually changed by the operator, if desired, for special operating circumstances.

CONTOUR Filter

The DSP Contour filter has the unique ability to provide either a null or a peak in tunable segments of the receiver passband. You may suppress interference and excessive frequency components on an incoming signal, or you may peak those tunable frequency segments. The level of the null or peak, and the bandwidth, over which it is applied, are adjustable via the Menu.

IF SHIFT

The passband center frequency of the IF DSP filter may be moved up or down by adjusting this control.

IF WIDTH

The width of the IF DSP filtering may be adjusted using this control.

IF NOTCH

The IF Notch filter is a high-Q notch filter that can significantly reduce, if not eliminate, an interfering carrier.

DNF (Digital Notch filter)

When multiple interfering carriers are encountered during reception, the Digital Notch Filter can significantly reduce the level of these signals.

DNR (Digital Noise Reduction)

The DSP's Digital Noise Reduction (DNR) feature utilizes 15 different mathematical algorithms to analyze and suppress different noise profiles encountered on the HF/50 MHz bands. Choose the selection that provides the best noise suppression, and allows the signal to rise up out of the noise.

AGC

The AGC system is highly adaptable to changing signal and fading characteristics, making reception possible under the most difficult conditions.

INTERFERENCE REJECTION

ATT

When extremely strong local signals or high noise, still degrades reception, you can use the **[ATT]** button to insert 6, 12, or 18-dB of RF attenuation in front of the RF amplifier.

1. Press the **[ATT]** button several times to set the desired attenuation level, per the chart below.

OFF : Attenuator is Off

-6dB : The incoming signal power is reduced by 6 dB (Signal voltage reduced by 1/2)

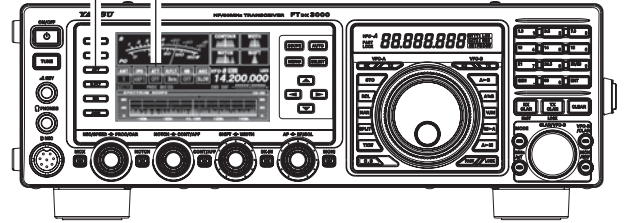
-12dB : The incoming signal power is reduced by 12 dB (Signal voltage reduced to 1/4)

-18dB : The incoming signal power is reduced by 18 dB (Signal voltage reduced to 1/8th)

The selected attenuation level will be indicated in the ATT column of the Block Diagram Display on the display.

2. To restore full signal strength through the Attenuator circuit area, press the **[ATT]** button to restore the ATT display to the “OFF” position.

[ATT] Button Block Diagram Display



ADVICE:

- The attenuator selection will be memorized independently on each VFO stack of the VFO-A and VFO-B.
- If background noise causes the S-meter to deflect on clear frequencies, press the **[ATT]** button until the S-meter drops to about “S-1”. This setting optimizes the trade-offs between sensitivity, noise, and interference immunity. Also, once you have tuned in a station you want to work, you may want to reduce sensitivity further (add more attenuation) by pressing the **[ATT]** button to a higher setting. This reduces the strength of all signals (and noise) and can make reception more comfortable, important especially during long QSOs. When looking for weak signals on a quiet band, you will want maximum sensitivity, so the IPO should be disabled and the **[ATT]** button should be set to “OFF.” This situation is typical during quiet times on frequencies above 21 MHz, and when using a small or negative-gain receiving antenna on other bands.

INTERFERENCE REJECTION

M-TUNE FILTER (REQUIRES THE OPTIONAL RF M-TUNING KIT)

The RF μ Tuning Kit provides ultra-sharp RF selectivity for the front end of the transceiver. Very high Q is made possible by the narrow-band design. Three RF μ Tuning Kits are available. The **MTU-160** covers the 1.8 MHz band. The **MTU-80/40** covers the 3.5 and 7 MHz bands. The **MTU-30/20** covers 10.1 and 14 MHz bands.

When any (or all) of the three optional units are connected, they will be automatically adjusted to center on your operating frequency.

The narrow bandwidth is especially useful on the low bands, when many strong signals are being received via NVIS propagation (Near Vertical-Incidence Signals) within a narrow bandwidth. The added protection for the RF stage is especially helpful in preventing IMD and blocking.

μ -Tune Operation

1. Press the **[MHz/ μ T]** button to activate the μ -Tune filter. The LED inside the **[MHz/ μ T]** button glows orange. The **[CLAR/VFO-B]** knob works as the μ -TUNING knob.

ADVICE:

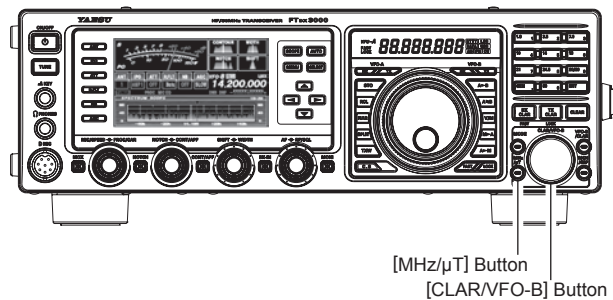
- The μ -Tune circuit will automatically align itself onto your operating frequency.
 - Remember that μ -Tune only operates on the 14 MHz and lower bands.
2. Rotate the **[CLAR/VFO-B]** knob to peak the response (background noise) or reduce interference.

ADVICE:

- You may observe the relative peak point of the μ -Tune filter in the Tuning Offset Indicator on the display, while tuning the **[CLAR/VFO-B]** knob.
 - The amount of change in the center frequency of the μ -Tune filter, when rotating the **[CLAR/VFO-B]** knob by one click, can be configured using Menu item "045 GENERAL μ TUNE DIAL STEP".
 - If you have performed manual adjustment of the μ -Tune filter center frequency, you may press the **[CLAR/VFO-B]** button to re-center the filter response on your current operating frequency.
3. Press the **[MHz/ μ T]** button momentarily to disengage the μ -Tune filter; the " **μ -TUNE**" icon will be changed to "**THRU**" in the FLT column of the Block Diagram Display on the display. In this mode, only the fixed bandpass filter for the current band will be engaged.

ADVICE:

Alternate presses of the **[MHz/ μ T]** button, will switch the μ -Tune filter between on or off.



[MHz/ μ T] Button
[CLAR/VFO-B] Button

ADVICE:

- The μ -Tune Filter selection will be memorized independently on each VFO stack of the VFO-A and VFO-B.
- You may change the indication of the Tuning Offset Indicator to display of the μ -Tune filter continuously while the μ -Tune filter is activated. This is Menu item "011 DISPLAY BAR DISPLAY SELECT". See Box on the next page for details of the setting.