

# VFO AND MEMORY SCANNING

## MEMORY SCAN

1. Set the transceiver up in the “Memory” mode by pressing the [V/M] button, if necessary.
2. Rotate the [RF/SQL] knob so that the background noise is just silenced.
3. Press and hold in the microphone [UP] or [DWN] key for one second to start scanning in the specified direction.

**ADVICE:**

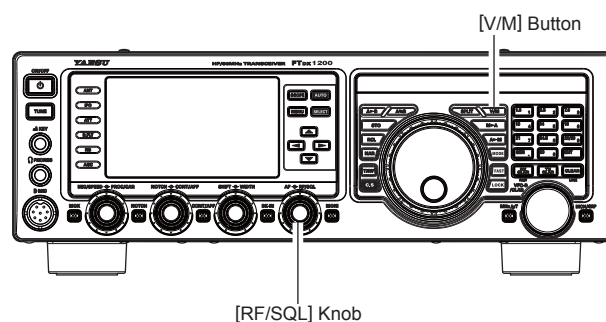
- If the scanner halts on an incoming signal, the decimal point between the “MHz” and “kHz” digits of the frequency display will blink.
  - If the incoming signal disappears, scanning will resume in about five seconds.
4. To cancel scanning, press the [PTT] witch.

**ADVICE:**

- During Memory Group operation, only the channels within the current Memory Group will be scanned.
- If the scan has paused on a signal, pressing the microphone [UP] or [DWN] key will cause scanning to resume instantly.
- If you press the microphone PTT switch during scanning, the scanner will halt at once. However, pressing the PTT switch during scanning will not cause transmission.
- You may select the manner in which the scanner resumes while it has paused on a signal, using Menu item “047 MIC SCAN RESUME”. During memory scanning, the default “TIME” (5 sec) setting will cause the scanner to resume scanning after five seconds. However, you may change this setting to resume only after the carrier has dropped out, if you like.

**QUICK POINT:**

If you have no interest in scanning, and wish to prohibit the microphone [UP]/[DWN] keys from initiating scanning, you may disable scanning control from the microphone using Menu item “046 MIC SCAN” (set it to “DISABLE”).



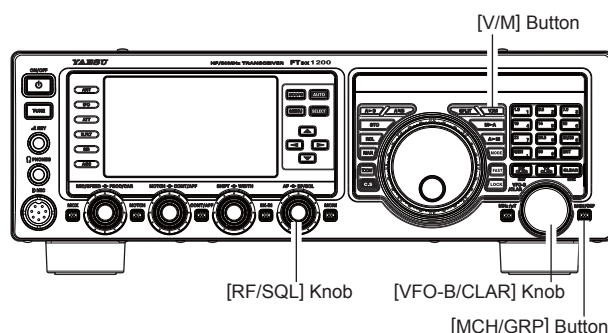
# PMS (PROGRAMMABLE MEMORY SCANNING)

To limit scanning (and manual tuning) within a particular frequency range, you can use the Programmable Memory Scanning (PMS) feature, which utilizes nine special-purpose memory pairs (“P-1L/P-1U” through “P-9L/P-9U”). The PMS feature is especially useful in helping you to observe any operating sub-band limits, which apply to your Amateur license class.

1. Store the Lower and Upper tuning/scanning limit frequencies into the memory pair “P-1L” and “P-1U”, respectively, or any other “L/U” pair of memories in the special PMS memory area. See page 94 for details regarding memory storage.
2. Press the **[V/M]** button to enter the “Memory” mode.
3. Press the **[MCH/GRP]** button momentarily. The imbedded LED inside the switch will glow orange.
4. Rotate the **[VFO-B/CLAR]** knob to select memory channel “P-1L” or “P-1U”.
5. Rotate the **[RF/SQ]** knob so that the background noise is just silenced.
6. Turn the Main Tuning Dial knob slightly (to activate memory tuning). Tuning and scanning are now limited to the range within the P-1L/P-1U limits until you press the **[V/M]** button to return to memory channel or VFO operation.
7. Press and hold in the microphone **[UP]** or **[DWN]** key for one second to start scanning in the specified direction.

#### ADVICE:

- If the scanner halts on an incoming signal, the decimal point between the “MHz” and “kHz” digits of the frequency display will blink.
  - If the incoming signal disappears, scanning will resume in about five seconds.
  - On the SSB/CW and SSB-based Data modes, the scanner will pause on a received signal, then will step across the signal very slowly, giving you time to stop the scan, if you like. However, in these modes on the VFO, the scanner does not stop.
  - If the scan has paused on a signal, pressing the microphone **[UP]** or **[DWN]** key will cause scanning to resume instantly.
8. If you rotate the Main Tuning Dial knob in the opposite direction from the current scanning direction (in other words, you rotate the dial to the left when scanning toward a higher frequency), the direction of the scan will reverse.
  9. If you press the microphone **PTT** switch during scanning, the scanner will halt at once. Pressing the **PTT** switch *during scanning* will not cause transmission.



# RTTY (RADIO TELETYPE) OPERATION

The **FTdx1200** has a capability of an RTTY decode function when the optional FFT unit is installed. You can easily synchronize by aligning the marker displayed on the AF-FFT screen, together with the decode screen while receiving a signal. Mark frequency (2125 Hz), SHIFT width (170 Hz), and baudot code (US) can be changed in Menu Mode.

## RTTY DECODE (WITH OPTIONAL FFT UNIT)

1. Before operating, set the Menu items in the chart to the right.
2. Press the **[MODE]** switch, set the operating mode to “**RTTY LSB**”.

### ADVICE:

- Press and hold the **[MODE]** switch for approximately one second to switch back and forth between “**RTTY USB**” and “**RTTY LSB**”.
  - Generally, amateur band stations operate RTTY in LSB.
3. Tune to a RTTY signal, press and hold the **[SCOPE]** switch for one second or longer. The RTTY DECODE screen displays, and the decoded text is displayed on the screen.

### ADVICE:

- Align the peak of the received signal with the mark frequency and shift frequency marker of the AF-FFT screen.
- If text is displayed due to noise and band clutter, when a RTTY signal is not being received, turn the **[VFO-B/CLAR]** knob to adjust and threshold level.

MENU ITEM	AVAILABLE VALUES
094 POLARITY-R	NOR (normal) / REV (reverse)
095 POLARITY-T	NOR (normal) / REV (reverse)
097 RTTY SHIFT	170 / 200 / 425 / 850 (Hz)
098 RTTY MARK FREQ	1275/2125 (Hz)

### NOTE:

- Cross talk, noise, phasing, and the like may prevent correct display.
- If continuously sending for more than a few minutes or if sending time is longer than receiving time, reduce transmit power output to between 1/2 and 1/3 using Menu item “176 TX MAX POWER”.

To cancel the RTTY decode function, press and hold the **[SCOPE]** switch again for one second or longer.

### Threshold Level Adjustment

Scrambled text may be displayed due to noise and band clutter, when a signal is not being received. You can adjust the threshold level so the scrambled text is not displayed.

Turn the **[VFO-B/CLAR]** knob, and adjust the threshold level (between 0 and 100) so scrambled text is not displayed.

- Note that text will no longer be displayed for weak signals if you increase the level too much.
- You switch between threshold level display and normal display each time you press the **[SELECT]** button.

- The threshold level is displayed in the VFO-B frequency display.

# RTTY (RADIO TELETYPE) OPERATION

## RTTY TEXT MEMORY (WITH OPTIONAL FFT UNIT)

Phrases (up to 50 characters) frequently used in RTTY transmission can be memorized by connecting the supplied **FH-2** Remote Control Keypad to the rear panel REM jack. 5 channels can be memorized, and memorized content can be transmitted by operations on the **FH-2**.

### TEXT MESSAGE PROGRAMMING

1. Press the **[MODE]** button to set the operating mode to RTTY.
2. Press the **FH-2 [MEM]** key. A blinking “**REC**” icon will appear in the display.
3. Press an **FH-2 [1] ~ [5]** key to select the desired RTTY Text Memory Register into which you wish to program the text, the blinking “**REC**” icon will disappear.
4. Use the **FH-2 [◀]** and **[▶]** keys to set the cursor position and use the **FH-2 [▲]** and **[▼]** keys to choose the letter/number to be programmed in each slot of the memory.

### ADVICE:

You may also use the **[VFO-B/CLAR]** knob to program the message characters.

5. When the message is complete, add the “**⏏**” character at the end to signify the termination of the message.
6. Press and hold in the **FH-2 [MEM]** key for one second to exit, once all characters (including “**⏏**”) have been programmed.

### ON-THE-AIR RTTY TEXT MESSAGE PLAYBACK

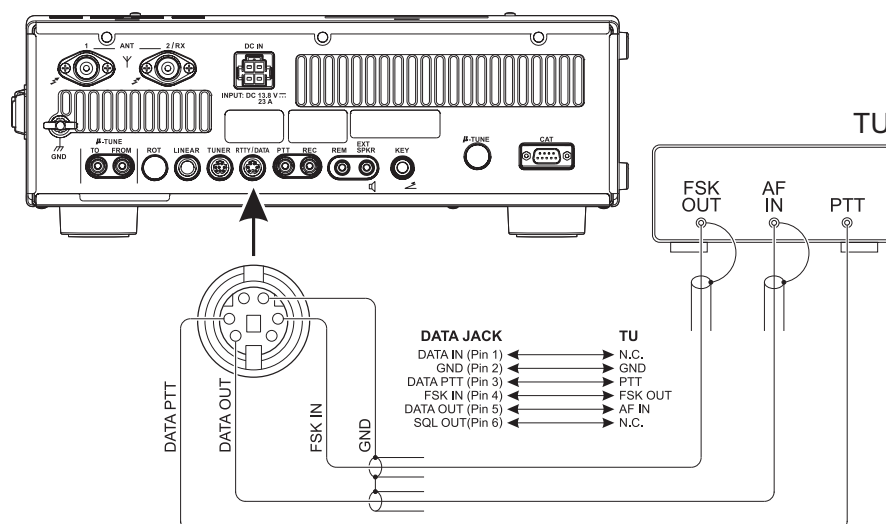
Press the **FH-2 [1] ~ [5]** key, depending on which RTTY Text Memory Register message you wish to transmit. The programmed message will be transmitted on the air.

## EXAMPLE OF CONNECTING RTTY COMMUNICATIONS DEVICE

Connect the RTTY communications TU (Terminal Unit) to the rear panel RTTY/PKT terminal. Be sure to read the instructions manual of the device to connect when connecting.

### ADVICE:

You can adjust RTTY data output level using Menu item “096 RTTY OUT LEVEL”.



### Install the FSK application in a PC to use the USB connection

- Install Virtual COM Port Driver to your PC (Download the driver and installation manual from the Yaesu website <http://www.yaesu.com/>)
- Set **FTdx1200** RTTY-LSB mode
- Set RTTY SHIFT PORT for USB in MENU# 093 (as for the default REAR)
- Set FSK port to DTR or RTS designation (depending on the RTTY application); if the FSK port is set to DTR the MENU# 065 setting is RTS. If FSK port is RTS then the menu should be set to DTR which is the reverse of the setting. A port setting in this MENU becomes the port enabling **FTdx1200** USB connection to a PC

# DATA (PSK) OPERATION

The **FTDX1200** has a capability of a PSK decode function when the optional FFT unit is installed. You can easily synchronize by aligning the marker on the AF-FFT screen display, together with the decode screen while receiving a signal. Decoding with this transceiver supports both general BPSK and QPSK that have error correction functions.

## PSK DECODE (WITH OPTIONAL FFT UNIT)

1. Press the [**MODE**] switch, set the operating mode to “**DATA USB**”.

**ADVICE:**

Press and hold the [**MODE**] switch for approximately one second to switch back and forth between “**DATA USB**” and “**DATA LSB**”.

2. When you have configured Menu item “068 DATA MODE” to “PSK”, and “193 PSK MODE” to “BPSK” or “QPSK”.
3. Receive a PSK signal, and press and hold the [**SCOPE**] switch for one second or longer. The PSK DECODE screen displays, and the decoded text is displayed on the screen.

**ADVICE:**

- Align the peak of the received signal with the marker of the AF-FFT screen.
- If text is displayed due to noise and band clutter, when a PSK signal is not being received, turn the [**VFO-B/CLAR**] knob to adjust and threshold level.

**NOTE:**

- Cross talk, noise, phasing, and the like may prevent reliable decoding of the message.
- You can set the data output level of data communications (PSK31, SSTV, etc.) using Menu item “077 DATA OUT LEVEL”.
- If continuously sending for more than a few minutes or if sending time is longer than receiving time, reduce the transmit power output to between 1/2 and 1/3 using Menu item “176 TX MAX POWER”.

To cancel the PSK decode function, press and hold the [**SCOPE**] switch again for one second or longer.

### Threshold Level Adjustment

Scrambled text may be displayed due to noise and band clutter, when a signal is not being received. You can adjust the threshold level so scrambled text is not displayed.

Turn the [**VFO-B/CLAR**] knob, and adjust the threshold level (between 0 and 100) so scrambled text is not displayed due to noise.

- Note that text will no longer be displayed for weak signals if you increase the level too much.
- You switch between threshold level display and normal display each time you press the [**SELECT**] button.

- The threshold level is displayed in the VFO-B frequency display.

# DATA (PSK) OPERATION

## PSK TEXT MEMORY (WITH OPTIONAL FFT UNIT)

Phrases (up to 50 characters) frequently used in PSK transmissions can be recorded by connecting the supplied **FH-2** Remote Control Keypad to the rear panel REM jack. 5 memory channels may be recorded, and the memorized content can be transmitted by operations on the **FH-2**.

### TEXT MESSAGE PROGRAMMING

1. Press the **[MODE]** button to set the operating mode to DATA.
2. Press the **FH-2 [MEM]** key. A blinking “**REC**” icon will appear in the display.
3. Press an **FH-2 [1] ~ [5]** key to select the desired PSK Text Memory Register into which you wish to program the text, the blinking “**REC**” icon will disappear.
4. Use the **FH-2 [◀]** and **[▶]** keys to set the cursor position and use the **FH-2 [▲]** and **[▼]** keys to choose the letter/number to be programmed in each slot of the memory.

#### ADVICE:

You may also use the **[VFO-B/CLAR]** knob to program the message characters.

5. When the message is complete, add the “**⏏**” character at the end to signify the termination of the message.
6. Press and hold in the **FH-2 [MEM]** key for one second to exit, once all characters (including “**⏏**”) have been programmed.

### ON-THE-AIR PSK TEXT MESSAGE PLAYBACK

Press the **FH-2 [1] ~ [5]** key, depending on which PSK Text Memory Register message you wish to transmit. The programmed message will be transmitted on the air.

#### ADVICE:

You can adjust the PSK transmit ALC by turning the **[MIC/SPEED]** knob.

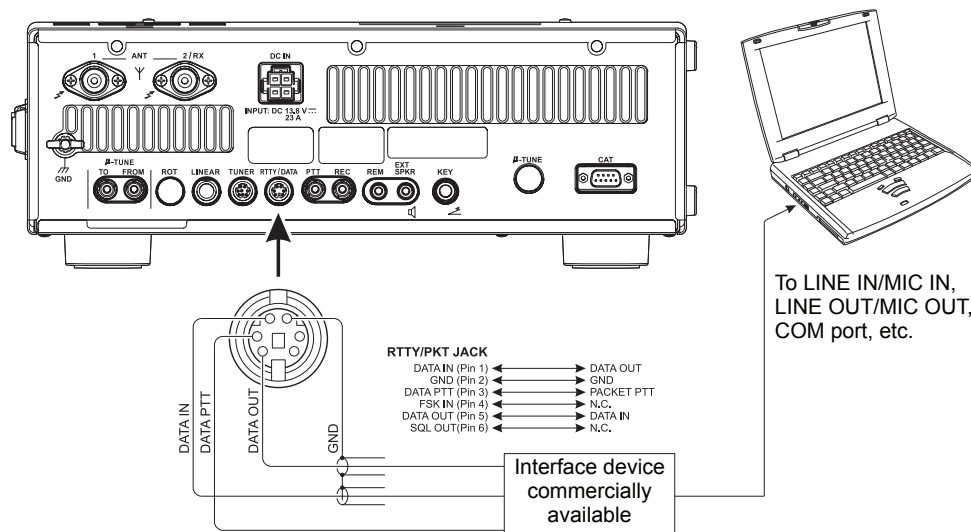
## EXAMPLE OF DATA COMMUNICATIONS DEVICE

You can use commercial and free computer software for PSK data communications. See the illustration below for connection to your computer.

Be sure to read the instruction manual of the device to be connected to the radio and computer.

#### ADVICE:

- You can set the data output level for data communications (PSK31, SSTV, etc.) using Menu item “077 DATA OUT LEVEL”.
- You can set VOX DELAY in VOX operation for data communications (PSK31, SSTV, etc.) using Menu item “079 DATA VOX DELAY”. You can also set data input VOX gain using Menu item “078 DATA VOX GAIN”.



# MENU MODE

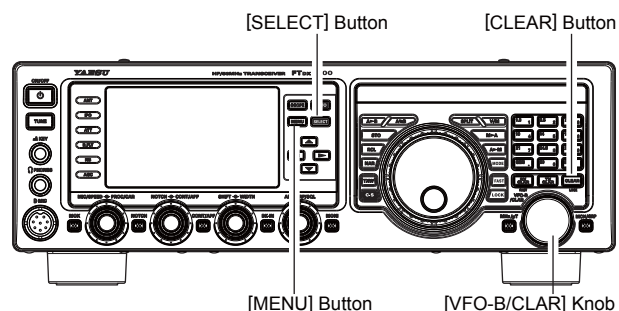
The Menu system of the **FTdx1200** provides extensive customization capability, so you can set up your transceiver just the way you want to operate it. The Menu items are grouped by general utilization category, and are numbered from “001 AGC” to “196 E/D PSK”.

## Using the Menu

1. Press the **[MENU]** button to engage the Menu mode. The display will show the Menu Number, the Menu Group Name and the Menu Item.
2. Rotate the **[VFO-B/CLAR]** knob (or press the **▲/▼** button) to select the Menu item you wish to modify.
3. Press the **[SELECT]** button, then rotate the **[VFO-B/CLAR]** knob (or press the **▲/▼** button) to change the current setting of the selected Menu item.

### ADVICE:

- Press the **[CLEAR]** button (located on the upper right of the **[VFO-B/CLAR]** knob) momentarily to reset the selected Menu item to the factory default value.
4. When you have finished making your adjustments, press the **[SELECT]** button, then press and hold the **[MENU]** button to save the new setting and exit to normal operation. If you only *momentarily* press the **[MENU]** button, the new settings will *not* be retained.



### MENU MODE RESET

You may reset all the Menu settings to their original factory defaults, if desired.

1. Turn the front panel **[POWER]** switch off.
2. Press and hold in the **[MENU]** button, and while holding it in, press the **[POWER]** switch to turn the transceiver back on. Now release the **[MENU]** button.

# MENU MODE

Group	No. Menu Function	Available Values	Default Setting
AGC	001 FAST DELAY	20 ~ 4000 (20msec/step)	500
AGC	002 MID DELAY	20 ~ 4000 (20msec/step)	1000
AGC	003 SLOW DELAY	20 ~ 4000 (20msec/step)	4000
AGC	004 AGC SLOPE	NORMAL/SLOPE	NORMAL
DISPLAY	005 MY CALL	Max 12 characters	FTDX1200
DISPLAY	006 MY CALL TIME	OFF ~ 5sec	1sec
DISPLAY	007 VFO COLOR	BLUE/SKY BLUE/GREEN/PURPLE/RED/ ORANGE/GRAY/BLACK	BLUE
DISPLAY	008 DIMMER LED	1 / 2	2
DISPLAY	009 DIMMER TFT	0 ~ 15	8
DISPLAY	010 BAR DISPLAY SELECT	CLAR/CW TUNE/ $\mu$ TUNE	CW TUNE
DISPLAY	011 METER TYPE SELECT	ANALOG/BAR	ANALOG
DISPLAY	012 BAR MTR PEAK HOLD	OFF/0.5/1.0/2.0 (sec)	OFF
DISPLAY <sup>*1</sup>	013 ROTATOR START UP	0/90/180/270°	0°
DISPLAY <sup>*1</sup>	014 ROTATOR OFFSET ADJ	-30 ~ 0	0
DVS <sup>*2</sup>	015 RX OUT LEVEL	0 ~ 100	50
DVS <sup>*2</sup>	016 TX OUT LEVEL	0 ~ 100	50
KEYER	017 F KEYER TYPE	OFF/BUG/ELEKEY/ACS	ELEKEY
KEYER	018 F CW KEYER	NOR/REV	NOR
KEYER	019 R KEYER TYPE	OFF/BUG/ELEKEY/ACS	ELEKEY
KEYER	020 R CW KEYER	NOR/REV	NOR
KEYER	021 ELEKEY TYPE	ELEKEY-A/ELEKEY-B	ELEKEY-B
KEYER	022 CW WEIGHT	2.5 ~ 3.0 ~ 4.5	3.0
KEYER	023 BEACON TIME	OFF/1 ~ 690sec	OFF
KEYER	024 NUMBER STYLE	1290/AUNO/AUNT/A2NO/A2NT/12NO/12NT	1290
KEYER	025 CONTEST NUMBER	0 ~ 9999	1
KEYER	026 CW MEMORY 1	TEXT/MESSAGE	MESSAGE
KEYER	027 CW MEMORY 2	TEXT/MESSAGE	MESSAGE
KEYER	028 CW MEMORY 3	TEXT/MESSAGE	MESSAGE
KEYER	029 CW MEMORY 4	TEXT/MESSAGE	TEXT
KEYER	030 CW MEMORY 5	TEXT/MESSAGE	TEXT
GENERAL	031 ANT SELECT	BAND/STACK	BAND
GENERAL	032 ANT2 SETTING	TRX / RX	TRX
GENERAL	033 NB LEVEL	0 ~ 100	50
GENERAL	034 BEEP LEVEL	0 ~ 100	50
GENERAL	035 MONITOR LEVEL	0 ~ 100	50
GENERAL	036 MOX	ENABLE/DISABLE	ENABLE
GENERAL	037 RF/SQL VR	RF/SQL	RF
GENERAL	038 CAT RATE	4800/9600/19200/38400bps	4800
GENERAL	039 CAT TIME OUT TIMER	10/100/1000/3000(msec)	10
GENERAL	040 CAT RTS	ENABLE/DISABLE	ENABLE
GENERAL	041 MEM GROUP	ENABLE/DISABLE	DISABLE
GENERAL	042 QUICK SPLIT FREQ	-20 ~ +20 kHz	+5
GENERAL	043 TXW DIAL	VFO-A/VFO-B	VFO-B
GENERAL	044 TX TIME OUT TIMER	OFF/1 ~ 30min	OFF
GENERAL <sup>*3</sup>	045 $\mu$ TUNE DIAL STEP	DIAL STEP-2/DIAL STEP-1	DIAL STEP-1
GENERAL	046 MIC SCAN	ENABLE/DISABLE	ENABLE
GENERAL	047 MIC SCAN RESUME	PAUSE/TIME	TIME
GENERAL	048 FREQ ADJ	-25 ~ 0 ~ +25	0
MODE-AM	049 AM LCUT FREQ	OFF/100Hz ~ 1000Hz(50Hz/step)	OFF
MODE-AM	050 AM LCUT SLOPE	6dB/oct / 18dB/oct	6
MODE-AM	051 AM HCUT FREQ	700Hz ~ 4000Hz(50Hz/step) / OFF	OFF

※ 1: Requires optional Antenna Rotator.

※ 2: Requires optional DVS-6 Voice Memory Unit.

※ 3: Requires optional RF  $\mu$ Tuning Kit.



**MENU MODE**

Group	No. Menu Function	Available Values	Default Setting
MODE-AM	052 AM HCUT SLOPE	6dB/oct / 18dB/oct	6
MODE-AM	053 AM MIC GAIN	MCVR/FIX(0 ~ 100)	30
MODE-AM	054 AM MIC SEL	FRONT/DATA	FRONT
MODE-CW	055 CW PITCH	300 ~ 1050Hz(10Hz/step)	700Hz
MODE-CW	056 CW LCUT FREQ	OFF/100Hz ~ 1000Hz(50Hz/step)	250
MODE-CW	057 CW LCUT SLOPE	6dB/oct / 18dB/oct	18
MODE-CW	058 CW HCUT FREQ	700Hz ~ 4000Hz(50Hz/step) / OFF	1200
MODE-CW	059 CW HCUT SLOPE	6dB/oct / 18dB/oct	18
MODE-CW	060 CW AUTO MODE	OFF/50M/ON	OFF
MODE-CW	061 CW BFO	USB/LSB/AUTO	USB
MODE-CW	062 CW BK-IN	SEMI/FULL	SEMI
MODE-CW	063 CW BK-IN DELAY	30 ~ 3000msec	200msec
MODE-CW	064 CW WAVE SHAPE	1/2/4/6msec	4
MODE-CW	065 CW FREQ DISPLAY	DIRECT FREQ/PITCH OFFSET	PITCH OFFSET
MODE-CW	066 PC KEYING	OFF/ON	OFF
MODE-CW	067 QSK	15/20/25/30msec	15
MODE-DAT	068 DATA MODE	PSK/OTHERS	PSK
MODE-DAT	069 PSK TONE	1000/1500/2000Hz	1000
MODE-DAT	070 OTHER DISP (SSB)	-3000 ~ 0 ~ +3000Hz (10Hz/step)	0
MODE-DAT	071 OTHER SHIFT (SSB)	-3000 ~ 0 ~ +3000Hz (10Hz/step)	1000
MODE-DAT	072 DATA LCUT FREQ	OFF/100Hz ~ 1000Hz(50Hz/step)	300
MODE-DAT	073 DATA LCUT SLOPE	6dB/oct / 18dB/oct	18
MODE-DAT	074 DATA HCUT FREQ	700Hz ~ 4000Hz(50Hz/step) / OFF	3000
MODE-DAT	075 DATA HCUT SLOPE	6dB/oct / 18dB/oct	18
MODE-DAT	076 DATA MIC GAIN	MCVR/FIX(0 ~ 100)	MCVR
MODE-DAT	077 DATA OUT LEVEL	0 ~ 100	50
MODE-DAT	078 DATA VOX GAIN	0 ~ 100	50
MODE-DAT	079 DATA VOX DELAY	30 ~ 300 ~ 3000msec	300
MODE-FM	080 FM LCUT FREQ	OFF/100Hz ~ 1000Hz(50Hz/step)	250
MODE-FM	081 FM LCUT SLOPE	6dB/oct / 18dB/oct	18
MODE-FM	082 FM HCUT FREQ	700Hz ~ 4000Hz(50Hz/step) / OFF	OFF
MODE-FM	083 FM HCUT SLOPE	6dB/oct / 18dB/oct	6
MODE-FM	084 FM MIC GAIN	MCVR/FIX(0 ~ 100)	30
MODE-FM	085 FM MIC SEL	FRONT/DATA	FRONT
MODE-FM	086 RPT SHIFT (28MHz)	0 ~ 100 ~ 1000kHz(50Hz/step)	100
MODE-FM	087 RPT SHIFT (50MHz)	0 ~ 100 ~ 1000 ~ 4000kHz(10Hz/step)	1000
MODE-FM	088 TONE FREQ	67.0 ~ 254.1Hz	67.0
MODE-RTY	089 RTTY LCUT FREQ	OFF/100Hz ~ 1000Hz(50Hz/step)	300
MODE-RTY	090 RTTY LCUT SLOPE	6dB/oct / 18dB/oct	18
MODE-RTY	091 RTTY HCUT FREQ	700Hz ~ 4000Hz(50Hz/step) / OFF	3000
MODE-RTY	092 RTTY HCUT SLOPE	6dB/oct / 18dB/oct	18
MODE-RTY	093 POLARITY-R	NOR/REV	NOR
MODE-RTY	094 POLARITY-T	NOR/REV	NOR
MODE-RTY	095 RTTY OUT LEVEL	0 ~ 100	50
MODE-RTY	096 RTTY SHIFT	170/200/425/850(Hz)	170
MODE-RTY	097 RTTY MARK FREQ	1275/2125(Hz)	2125
MODE-SSB	098 SSB LCUT FREQ	OFF/100Hz ~ 1000Hz(50Hz/step)	200
MODE-SSB	099 SSB LCUT SLOPE	6dB/oct / 18dB/oct	6
MODE-SSB	100 SSB HCUT FREQ	700Hz ~ 4000Hz(50Hz/step) / OFF	3000
MODE-SSB	101 SSB HCUT SLOPE	6dB/oct / 18dB/oct	18
MODE-SSB	102 SSB MIC SELECT	FRONT/DATA	FRONT
MODE-SSB	103 SSB TX BPF	100-3000/100-2900/200-2800/300-2700/ 400-2600(Hz)/3000WB	300-2700
MODE-SSB	104 LSB RX CARRIER	-200Hz ~ 0 ~ +200Hz(10Hz/step)	0
MODE-SSB	105 USB RX CARRIER	-200Hz ~ 0 ~ +200Hz(10Hz/step)	0

# MENU MODE

Group	No. Menu Function	Available Values	Default Setting
RX DSP	106 APF WIDTH	NARROW/MEDIUM/WIDE	MEDIUM
RX DSP	107 CONTOUR LEVEL	-40 ~ 0 ~ 20	-15
RX DSP	108 CONTOUR WIDTH	1 ~ 11	10
RX DSP	109 DNR LEVEL	1 - 15	3
RX DSP	110 IF NOTCH WIDTH	NARROW/WIDE	WIDE
RX DSP	111 HF CW SHAPE	SOFT/SHARP	SOFT
RX DSP	112 HF CW SLOPE	STEEP/MEDIUM/GENTLE	MEDIUM
RX DSP	113 6M CW SHAPE	SOFT/SHARP	SOFT
RX DSP	114 6M CW SLOPE	STEEP/MEDIUM/GENTLE	MEDIUM
RX DSP	115 HF PSK SHAPE	SOFT/SHARP	SHARP
RX DSP	116 HF PSK SLOPE	STEEP/MEDIUM/GENTLE	MEDIUM
RX DSP	117 HF FSK SHAPE	SOFT/SHARP	SHARP
RX DSP	118 HF FSK SLOPE	STEEP/MEDIUM/GENTLE	MEDIUM
RX DSP	119 HF SSB SHAPE	SOFT/SHARP	SHARP
RX DSP	120 HF SSB SLOPE	STEEP/MEDIUM/GENTLE	MEDIUM
RX DSP	121 6M SSB SHAPE	SOFT/SHARP	SOFT
RX DSP	122 6M SSB SLOPE	STEEP/MEDIUM/GENTLE	MEDIUM
SCOPE	123 SCOPE MODE	CENTER/FIX	CENTER
SCOPE	124 SCOPE SPEED	FAST/SLOW	FAST
SCOPE	125 SCOPE AUTO TIME	OFF/3/5/10sec	OFF
SCOPE	126 START DIAL SPEED	0.5k/1k/2k/4k/8k/16kHz	8kHz/sec
SCOPE	127 CENTER SPAN FREQ	20k/50k/100k/200k/500k/1000kHz	100kHz
SCOPE	128 FIX 1.8MHz	1800kHz ~ 1999kHz(1kHz/step)	1800kHz
SCOPE	129 FIX 1.8MHz SPAN	20k/50k/100k/200k/500k/1000kHz	200kHz
SCOPE	130 FIX 3.5MHz	3500kHz ~ 3999kHz(1kHz/step)	3500kHz
SCOPE	131 FIX 3.5MHz SPAN	20k/50k/100k/200k/500k/1000kHz	500kHz
SCOPE	132 FIX 5.0MHz	5250kHz ~ 5499kHz(1kHz/step)	5250kHz
SCOPE	133 FIX 5.0MHz SPAN	20k/50k/100k/200k/500k/1000kHz	200kHz
SCOPE	134 FIX 7.0MHz	7000kHz ~ 7299kHz(1kHz/step)	7000kHz
SCOPE	135 FIX 7.0MHz SPAN	20k/50k/100k/200k/500k/1000kHz	500kHz
SCOPE	136 FIX 10MHz	10100kHz ~ 10149kHz(1kHz/step)	10100kHz
SCOPE	137 FIX 10MHz SPAN	20k/50k/100k/200k/500k/1000kHz	50kHz
SCOPE	138 FIX 14MHz	14000kHz ~ 14349kHz(1kHz/step)	14000kHz
SCOPE	139 FIX 14MHz SPAN	20k/50k/100k/200k/500k/1000kHz	500kHz
SCOPE	140 FIX 18MHz	18000kHz ~ 18199kHz(1kHz/step)	18068kHz
SCOPE	141 FIX 18MHz SPAN	20k/50k/100k/200k/500k/1000kHz	100kHz
SCOPE	142 FIX 21MHz	21000kHz ~ 21449kHz(1kHz/step)	21000kHz
SCOPE	143 FIX 21MHz SPAN	20k/50k/100k/200k/500k/1000kHz	500kHz
SCOPE	144 FIX 24MHz	24800kHz ~ 24989kHz(1kHz/step)	24890kHz
SCOPE	145 FIX 24MHz SPAN	20k/50k/100k/200k/500k/1000kHz	100kHz
SCOPE	146 FIX 28MHz	28000kHz ~ 29699kHz(1kHz/step)	28000kHz
SCOPE	147 FIX 28MHz SPAN	20k/50k/100k/200k/500k/1000kHz	1000kHz
SCOPE	148 FIX 50MHz	50000kHz ~ 53999kHz(1kHz/step)	50000kHz
SCOPE	149 FIX 50MHz SPAN	20k/50k/100k/200k/500k/1000kHz	1000kHz
TUNING	150 CW DIAL STEP	1/5/10Hz	10Hz
TUNING	151 DATA DIAL STEP	1/5/10Hz	5Hz
TUNING	152 AM/FM DIAL STEP	10/100Hz	100Hz
TUNING	153 RTTY DIAL STEP	1/5/10Hz	5Hz
TUNING	154 SSB DIAL STEP	1/5/10Hz	10Hz
TUNING	155 AM CH STEP	2.5/5/9/10/12.5kHz	5kHz
TUNING	156 FM CH STEP	5/6.25/10/12.5/25kHz	5kHz
TUNING	157 1MHz/100kHz SELECT	1MHz/100kHz	1MHz
TX AUDIO	158 PRMTRC EQ1 FREQ	100/200/300/400/500/600/700	200
TX AUDIO	159 PRMTRC EQ1 LEVEL	-20 ~ 0 ~ +10	0
TX AUDIO	160 PRMTRC EQ1 BWTH	1 ~ 10	1

**MENU MODE**

Group	No. Menu Function	Available Values	Default Setting
TX AUDIO	161 PRMTRC EQ2 FREQ	700 ~ 1500(100/step)	800
TX AUDIO	162 PRMTRC EQ2 LEVEL	-20 ~ 0 ~ +10	0
TX AUDIO	163 PRMTRC EQ2 BWTH	1 ~ 10	1
TX AUDIO	164 PRMTRC EQ3 FREQ	1500 ~ 3200(100/step)	2100
TX AUDIO	165 PRMTRC EQ3 LEVEL	-20 ~ 0 ~ +10	+5
TX AUDIO	166 PRMTRC EQ3 BWTH	1 ~ 10	1
TX AUDIO	167 P-PRMTRC EQ1 FREQ	100 ~ 700(100/step)	200
TX AUDIO	168 P-PRMTRC EQ1 LEVEL	-20 ~ 0 ~ +10	-3
TX AUDIO	169 P-PRMTRC EQ1 BWTH	1 ~ 10	2
TX AUDIO	170 P-PRMTRC EQ2 FREQ	700 ~ 1500(100/step)	800
TX AUDIO	171 P-PRMTRC EQ2 LEVEL	-20 ~ 0 ~ +10	0
TX AUDIO	172 P-PRMTRC EQ2 BWTH	1 ~ 10	1
TX AUDIO	173 P-PRMTRC EQ3 FREQ	1500 ~ 3200(100/step)	2100
TX AUDIO	174 P-PRMTRC EQ3 LEVEL	-20 ~ 0 ~ +10	+5
TX AUDIO	175 P-PRMTRC EQ3 BWTH	1 ~ 10	1
TX GNRL	176 TX MAX POWER	5 ~ 100	100
TX GNRL	177 EXT AMP TUNING PWR	10/20/50/100	100
TX GNRL	178 TUNER SELECT	INTERNAL/EXTERNAL	INTERNAL
TX GNRL	179 VOX SELECT	MIC/DATA	MIC
TX GNRL	180 VOX GAIN	0 ~ 100	50
TX GNRL	181 VOX DELAY	30 ~ 3000msec	500msec
TX GNRL	182 ANTI VOX GAIN	0 ~ 100	50
TX GNRL	183 EMERGENCY FREQ TX	ENABLE/DISABLE	DISABLE
AF SCOPE	184 FFT DISPLAY MODE	SPECTRUM/WATER FALL	SPECTRUM
AF SCOPE	185 FFT ATT	0/10/20dB	10dB
DECODE CW	186 CW DECODE BW	25/50/100/250Hz	100Hz
ENC/DEC RTY	187 RX USOS	ENABLE/DISABLE	ENABLE
ENC/DEC RTY	188 TX USOS	ENABLE/DISABLE	ENABLE
ENC/DEC RTY	189 RX NEW LINE CODE	CR,LF,CR+LF/CR+LF	CRorLForCR+LF
ENC/DEC RTY	190 TX AUTO CR+LF	ENABLE/DISABLE	ENABLE
ENC/DEC RTY	191 TX DIDDLE	OFF/BLANK/LTRS	BLANK
ENC/DEC RTY	192 BAUDOT CODE	CCITT/US	US
ENC/DEC PSK	193 PSK MODE	BPSK/QPSK	BPSK
ENC/DEC PSK	194 DECODE AFC RANGE	±8/±15/±30Hz	±15Hz
ENC/DEC PSK	195 QPSK POLARITY REV	RX-N,TX-N / RX-R,TX-N / RX-N,TX-R RX-R,TX-R	RX-N,TX-N

# MENU MODE

## AGC GROUP

### 001 FAST DELAY

Function: Sets the delay time for the AGC FAST mode.  
Available Values: 20 ~ 4000 msec (20 msec/step)  
Default Setting: 500 msec

### 002 MID DELAY

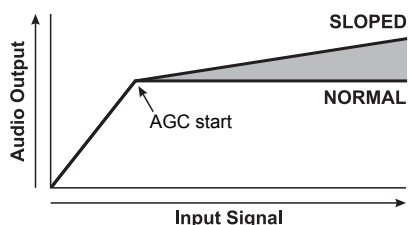
Function: Sets the delay time for the AGC MID mode.  
Available Values: 20 ~ 4000 msec (20 msec/step)  
Default Setting: 1000 msec

### 003 SLOW DELAY

Function: Sets the delay time for the AGC SLOW mode.  
Available Values: 20 ~ 4000 msec (20 msec/step)  
Default Setting: 4000 msec

### 004 AGC SLOPE

Function: Select the gain curve of the AGC amplifier.  
Available Values: NORMAL/SLOPE  
Default Setting: NORMAL  
NORMAL: The AGC output level will follow a linear response to the antenna input level, while AGC is activated.  
SLOPE: The AGC output level will increase at 1/10 the rate of the antenna input level, while AGC is activated.



## DISPLAY GROUP

### 005 MY CALL

Function: Programs your Call Sign.  
Available Values: Max 12 characters  
Default Setting: FTDX1200

### 006 MY CALL TIME

Function: Programs the display period of your Call Sign.  
Available Values: OFF ~ 5 sec  
Default Setting: 1 sec

### 007 VFO COLOR

Function: Selects the VFO-A display background color.  
Available Values: BLUE / SKY BLUE / GREEN / PURPLE / RED / ORANGE / GRAY / BLACK  
Default Setting: BLUE

### 008 DIMMER LED

Function: Sets the indicator illumination level.  
Available Values: 1 / 2  
Default Setting: 2

Adjusts the illumination level of the indicator located on the above of the Main Tuning Dial knob. You may observe the effects of the changes as you adjust the level setting. The higher the setting, the brighter the illumination becomes.

### 009 DIMMER TFT

Function: Setting of the TFT display brightness level.  
Available Values: 0 ~ 15  
Default Setting: 8

### 010 BAR DISPLAY SELECT

Function: Selects one of three parameters to be viewed on the Tuning Offset Indicator.  
Available Values: CLAR/CW TUNE/uTUNE  
Default Setting: CW TUNE  
CLAR: Displays relative clarifier offset.  
CW TUNE: Displays relative tuning offset between the incoming signal and transmitted frequency while in CW operation.  
uTUNE: Displays the peak position of the optional u-TUNE filter.

### 011 METER TYPE SELECT

Function: Selects the meter display type.  
Available Values: ANALOG/BAR  
Default Setting: ANALOG  
ANALOG: Displays relative clarifier offset.  
BAR: Displays relative tuning offset between the incoming signal and transmitted frequency while in CW operation.

### 012 BAR MTR PEAK HOLD

Function: Selects the peak hold time of the BAR meter.  
Available Values: OFF/0.5/1.0/2.0 sec  
Default Setting: OFF

### 013 ROTATOR START UP

Function: Selects the starting point of your rotator controller's indicator needle.  
Available Values: 0/90/180/270°  
Default Setting: 0°

Advice: If the optional Antenna Rotator is not connected, this adjustment has no effect.

### 014 ROTATOR OFFSET ADJ

Function: Adjusts the indicator needle precisely to the starting point set in menu item "013 ROTATOR START UP".  
Available Values: -30° ~ 0° (2°/step)  
Default Setting: 0°  
Advice: If the optional Antenna Rotator is not connected, this adjustment has no effect.

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**DVS GROUP**

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**015 RX OUT LEVEL**

Function: Sets the audio output level from the optional DVS-6 Voice Memory Unit.

Available Values: 0 ~ 100

Default: 50

Advice:

If the optional DVS-6 Voice Memory Unit is not connected, this adjustment has no effect.

**016 TX OUT LVL**

Function: Sets the microphone input level to the optional DVS-6 Voice Memory Unit

Available Values: 0 ~ 100

Default: 50

Advice:

If the optional DVS-6 Voice Memory Unit is not connected, this adjustment has no effect.

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**KEYER GROUP**

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**017 F KEYER TYPE**

Function: Selects the desired keyer operation mode for the device connected to the front panel KEY jack.

Available Values: OFF/BUG/ELEKEY/ACS

Default Setting: ELEKEY

OFF: Disables the front panel keyer (“straight key” mode for use with external keyer or computer-driven keying interface).

BUG: Mechanical “bug” keyer emulation. One paddle produces “dits” automatically, while the other paddle manually produces “dahs”.

ELEKEY: Iambic keyer with ACS (Automatic Character Spacing) disabled.

ACS: Iambic keyer with ACS (Automatic Character Spacing) enabled.

**018 F CW KEYER**

Function: Selects the keyer paddle wiring configuration for the KEY jack on the front panel.

Available Values: NOR/REV

Default Setting: NOR

NOR: Tip = Dot, Ring = Dash, Shaft = Ground

REV: Tip = Dash, Ring = Dot, Shaft = Ground

**019 A1A R-TYPE**

Function: Selects the desired keyer operation mode for the device connected to the rear panel KEY jack.

Available Values: OFF/BUG/ELEKEY/ACS

Default Setting: ELEKEY

OFF: Disables the rear panel keyer (“straight key” mode for use with external keyer or computer-driven keying interface).

BUG: Mechanical “bug” keyer emulation. One paddle produces “dits” automatically, while the other paddle manually produces “dahs”.

ELEKEY: Iambic keyer with ACS (Automatic Character Spacing) disabled.

ACS: Iambic keyer with ACS (Automatic Character Spacing) enabled.

**020 R CW KEYER**

Function: Selects the keyer paddle wiring configuration for the KEY jack on the rear panel.

Available Values: NOR/REV

Default Setting: NOR

NOR: Tip = Dot, Ring = Dash, Shaft = Ground

REV: Tip = Dash, Ring = Dot, Shaft = Ground

**021 ELEKEY TYPE**

Function: Selects the operation mode of the internal keyer.

Available Values: ELEKEY-A/ELEKEY-B

Default Setting: ELEKEY-B

**022 CW WEIGHT**

Function: Sets the Dot:Dash ratio for the built-in electronic keyer.

Available Values: (1:) 2.5 ~ 4.5

Default Setting: 3.0

**023 BEACON TIME**

Function: Sets the interval time between repeats of the beacon message.

Available Values: OFF/1 ~ 240 sec (1 sec/step)/270 ~ 690 sec (30 sec/step)

Default Setting: OFF

# MENU MODE

## 024 NUMBER STYLE

Function: Selects the Contest Number “Cut” format for an imbedded contest number.

Available Values: 1290/AUNO/AUNT/A2NO/A2NT/12NO/12NT

Default Setting: 1290

1290: Does not abbreviate the Contest Number

AUNO: Abbreviates to “A” for “One”, “U” for “Two”, “N” for “Nine”, and “O” for “Zero”.

Aunt: Abbreviates to “A” for “One”, “U” for “Two”, “N” for “Nine”, and “T” for “Zero”.

A2NO: Abbreviates to “A” for “One”, “N” for “Nine”, and “O” for “Zero”.

A2NT: Abbreviates to “A” for “One”, “N” for “Nine”, and “T” for “Zero”.

12NO: Abbreviates to “N” for “Nine”, and “O” for “Zero”.

12NT: Abbreviates to “N” for “Nine”, and “T” for “Zero”.

## 025 CONTEST NUMBER

Function: Enters the initial contest number that will increment/decrement after sending during contest QSOs.

Available Values: 0 ~ 9999

Default Setting: 1

## 026 CW MEMORY 1

Function: Permits entry of the CW message for message register 1.

Available Values: TEXT/MESSAGE

Default Setting: MESSAGE

TEXT: You may enter the CW message from the FH-2.

MESSAGE: You may enter the CW message from the CW keyer.

## 027 CW MEMORY 2

Function: Permits entry of the CW message for message register 2.

Available Values: TEXT/MESSAGE

Default Setting: MESSAGE

TEXT: You may enter the CW message from the FH-2.

MESSAGE: You may enter the CW message from the CW keyer.

## 028 CW MEMORY 3

Function: Permits entry of the CW message for message register 3.

Available Values: TEXT/MESSAGE

Default Setting: MESSAGE

TEXT: You may enter the CW message from the FH-2.

MESSAGE: You may enter the CW message from the CW keyer.

## 029 CW MEMORY 4

Function: Permits entry of the CW message for message register 4.

Available Values: TEXT/MESSAGE

Default Setting: TEXT

TEXT: You may enter the CW message from the FH-2.

MESSAGE: You may enter the CW message from the CW keyer.

## 030 CW MEMORY 5

Function: Permits entry of the CW message for message register 5.

Available Values: TEXT/MESSAGE

Default Setting: TEXT

TEXT: You may enter the CW message from the FH-2.

MESSAGE: You may enter the CW message from the CW keyer.

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## GENERAL GROUP

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### 031 ANT SELECT

Function: Sets the method of antenna selection.

Available Values: BAND/STACK

Default Setting: BAND

BAND: The antenna is selected in accordance with the operating band.

STACK: The antenna is selected in accordance with the band stack (different antennas may be utilized on the same band, if so selected in the band stack).

### 032 ANT2 SETTING

Function: Selects the operation mode of the ANT 2 connector.

Available Values: TRX / RX

Default Setting: TRX

### 033 NB LEVEL

Function: Adjusts the noise blanking level of the IF Noise Blanker for short duration pulse noise.

Available Values: 0 ~ 100

Default Setting: 50

### 034 BEEP LEVEL

Function: Sets the beep level.

Available Values: 0 ~ 100

Default Setting: 50

### 035 MONITOR LEVEL

Function: Sets the Monitor level.

Available Values: 0 ~ 100

Default Setting: 50

**036 MOX**

Function: Enables/disables the MOX operation.

Available Values: ENABLE/DISABLE

Default Setting: ENABLE

**037 RF SQL VR**

Function: Selects the operation mode of the RF/SQL knob.

Available Values: RF/SQL

Default Setting: RF

**038 CAT RATE**

Function: Sets the transceiver computer-interface circuitry for the CAT baud rate to be used.

Available Values: 4800/9600/19200/38400 bps

Default Setting: 4800 bps

**039 CAT TIME OUT TIMER**

Function: Sets the Time-Out Timer countdown time for a CAT command input.

Available Values: 10/100/1000/3000 msec

Default Setting: 10 msec

The Time-Out Timer shuts off the CAT data input after a continuous transmission of the programmed time.

**040 CAT RTS**

Function: Enables/Disables the RTS port of the CAT jack.

Available Values: ENABLE/DISABLE

Default Setting: ENABLE

**041 GENE MEM GRP**

Function: Enables/Disables Memory Group Operation.

Available Values: ENABLE/DISABLE

Default Setting: DISABLE

**042 QUICK SPLIT FREQ**

Function: Selects the tuning offset for the Quick Split feature.

Available Values: -20 ~ 0 ~ +20 kHz (1 kHz Step)

Default Setting: +5 kHz

**043 TXW DIAL**

Function: Selects the knob for tuning of the TXW frequency during SPLIT operation.

Available Values: VFO-A/VFO-B

Default Setting: VFO-B

VFO-A: The TX frequency is tuned with the Main Tuning Dial knob.

VFO-B: The TX frequency is tuned with the [VFO-B/CLAR] knob.

**044 TX TIME OUT TIMER**

Function: Sets the Time-Out Timer countdown time.

Available Values: OFF/1 ~ 30 min

Default Setting: OFF

The Time-Out Timer shuts off the transmitter after continuous transmission of the programmed time.

**045 uTUNE DIAL STEP**

Function: Selects the  $\mu$ -TUNE mode.

Available Values: DIAL STEP-1/DIAL STEP-2

Default Setting: DIAL STEP-1

DIAL STEP-1: Activates the  $\mu$ -TUNE system using “COARSE” steps of the [VFO-B/CLAR] knob (2 steps/click) on the 7 MHz and lower amateur bands. On the 10/14 MHz bands, “FINE” [VFO-B/CLAR] knob steps will be used (1 step/click).

DIAL STEP-2: Activates the  $\mu$ -TUNE system using “FINE” steps of the [VFO-B/CLAR] knob (1 step/click) on the 14 MHz and lower amateur bands.

Advice: If an optional RF  $\mu$ Tuning Kit is not connected, this adjustment has no effect.

**046 MIC SCAN**

Function: Enables/disables scanning access via the microphone [UP]/[DWN] keys.

Available Values: ENABLE/DISABLE

Default Setting: ENABLE

**047 MIC SCAN RESUME**

Function: Selects the Scan Resume mode.

Available Values: PAUSE/TIME

Default Setting: TIME

PAUSE: The scanner will hold until the signal disappears, then will resume after one second.

TIME: The scanner will hold for five seconds, then resume whether or not the other station is still transmitting.

**048 FREQ ADJ**

Function: Adjusts the reference oscillator.

Available Values: -25 ~ 0 ~ +25

Default Setting: 0

To calibrate the frequency of your radio, you will need a frequency counter or set your receiver to one of the time standard frequencies such as WWV or WWVH.

The following example describes a calibration method while receiving the WWVH time standard frequency in Hawaii.

1. Turn off both RX CLAR and TX CLAR function, before adjustment.
2. Tune the radio to 15,000.00 MHz with CW-USB mode, then adjust the AF knob to comfortable listening level.
3. Enter Set Menu Item “047 FREQ ADJ”, and then adjust the [VFO-B/CLAR] knob so that the BAR display is illumination in the center on the meter.

# MENU MODE

## MODE-AM GROUP

### 049 AM LCUT FREQ

Function: Selects the cutoff frequency of the lower side of the RX audio filter in the AM mode.

Available Values: OFF/100 ~ 1000 Hz (50 Hz/step)

Default Setting: OFF

### 050 AM LCUT SLOPE

Function: Selects the filter slope of the lower side of the RX audio filter in the AM mode.

Available Values: 6dB/oct / 18dB/oct

Default Setting: 6dB/oct

### 051 AM HCUT FREQ

Function: Selects the cutoff frequency of the upper side of the RX audio filter in the AM mode.

Available Values: OFF/700 ~ 4000 Hz (50 Hz/step)

Default Setting: OFF

### 052 AM HCUT SLOPE

Function: Selects the filter slope of the upper side of the RX audio filter in the AM mode.

Available Values: 6dB/oct / 18dB/oct

Default Setting: 6dB/oct

### 053 AM MIC GAIN

Function: Sets the microphone gain for the AM mode.

Available Values: MVCR/0 ~ 100

Default Setting: 30

When this menu is set to "MCVR", you may adjust the microphone gain using the front panel [MIC/SPEED] knob.

### 054 AM MIC SEL

Function: Selects the microphone to be used in the AM mode.

Available Values: FRONT / DATA

Default Setting: FRONT

FRONT: Selects the microphone connected to the front panel MIC jack while using the AM mode.

DATA: Selects the microphone connected to pin 1 of the PACKET Jack while using the AM mode.

## MODE-CW GROUP

### 055 CW PITCH

Function: Adjusts your preferred CW tone pitch.

Available Values: 300 ~ 1050 Hz (50 Hz/step)

Default Setting: 700 Hz

### 056 CW LCUT FREQ

Function: Selects the cutoff frequency of the lower side of the RX audio filter in the CW mode.

Available Values: OFF/100 ~ 1000 Hz (50 Hz/step)

Default Setting: 250

### 057 CW LCUT SLOPE

Function: Selects the filter slope of the lower side of the RX audio filter in the CW mode.

Available Values: 6dB/oct / 18dB/oct

Default Setting: 18dB/oct

### 058 CW HCUT FREQ

Function: Selects the cutoff frequency of the upper side of the RX audio filter in the CW mode.

Available Values: OFF/700 ~ 4000 Hz (50 Hz/step)

Default Setting: 1200

### 059 CW HCUT SLOPE

Function: Selects the filter slope of the upper side of the RX audio filter in the CW mode.

Available Values: 6dB/oct / 18dB/oct

Default Setting: 18dB/oct

### 060 CW AUTO MODE

Function: Enables/disables CW keying while operating on SSB.

Available Values: OFF/50M/ON

Default Setting: OFF

OFF: Disables CW keying while operating on SSB.

50: Enables CW keying only while operating SSB on 50 MHz (but not HF).

On: Enables CW keying while operating on SSB (all TX bands).

### 061 CW BFO

Function: Sets the CW carrier oscillator injection side for the CW mode.

Available Values: USB/LSB/AUTO

Default Setting: USB

USB: Injects the CW carrier oscillator on the USB side.

LSB: Injects the CW carrier oscillator on the LSB side.

AUTO: Injects the CW carrier oscillator on the LSB side while operating on the 7 MHz band and below, and the USB side while operating on the 10 MHz band and up.



**062 CW BK-IN**

Function: Sets the CW “break-in” mode.

Available Values: SEMI/FULL

Default Setting: SEMI

SEMI: The transceiver will operate in the semi break-in mode. The delay (receiver recovery) time is set via the Menu item “062 CW BK-IN DELAY”.

FULL: The transceiver will operate in the full break-in (QSK) mode.

**063 CW BK-IN DELAY**

Function: Adjusts the Keying Delay (receiver recovery) time on the CW mode.

Available Values: 30 ~ 3000 msec (10 msec/step)

Default Setting: 200 msec

**064 CW WAVE SHAPE**

Function: Selects the CW carrier wave-form shape (rise/fall times).

Available Values: 1/2/4/6 msec

Default Setting: 4 msec

**065 CW FREQ DISPLAY**

Function: Selects the frequency Display Format for the CW mode.

Available Values: DIRECT FREQ/PITCH OFFSET

Default Setting: PITCH OFFSET

DIRECT FREQ: Displays the receiver carrier frequency, without any offset added. When changing modes between SSB and CW, the frequency display remains constant.

PITCH OFFSET: This frequency display reflects the added BFO offset.

**066 PC KEYING**

Function: Enables/disables CW keying from the RTTY/DATA jack on the rear panel, while operating on the CW mode.

Available Values: OFF/ON

Default Setting: OFF

**067 QSK**

Function: Selects the time delay between when the PTT is keyed and the carrier is transmitted during QSK operation when using the internal keyer.

Available Values: 15/20/25/30 msec

Default Setting: 15 msec

**MODE-DATA GROUP****068 DATA MODE**

Function: Selects the operation mode of the DATA mode.

Available Values: PSK/OTHER

Default Setting: PSK

**069 PSK TONE**

Function: Selects the PSK tone frequency.

Available Values: 1000/1500/2000 Hz

Default Setting: 1000 Hz

**070 OTHER DISP (SSB)**

Function: Sets the packet frequency display offset.

Available Values: -3000 ~ 0 ~ +3000 Hz (10 Hz/step)

Default: 0 Hz

**071 OTHER SHIFT (SSB)**

Function: Sets the carrier point during the SSB packet operation.

Available Values: -3000 ~ 0 ~ +3000 Hz (10 Hz/step)

Default: 1000 Hz (typical center frequency for PSK31, etc.)

**072 DATA LCUT FREQ**

Function: Selects the cutoff frequency of the lower side of the RX audio filter in the DATA mode.

Available Values: OFF/100 ~ 1000 Hz (50 Hz/step)

Default Setting: 300

**073 DATA LCUT SLOPE**

Function: Selects the filter slope of the lower side of the RX audio filter in the DATA mode.

Available Values: 6dB/oct / 18dB/oct

Default Setting: 18dB/oct

**074 DATA HCUT FREQ**

Function: Selects the cutoff frequency of the upper side of the RX audio filter in the DATA mode.

Available Values: OFF/700 ~ 4000 Hz (50 Hz/step)

Default Setting: 300

**075 DATA HCUT SLOPE**

Function: Selects the filter slope of the upper side of the RX audio filter in the DATA mode.

Available Values: 6dB/oct / 18dB/oct

Default Setting: 18dB/oct

# MENU MODE

## 076 DATA MIC GAIN

Function: Sets the data input level from the TNC to the AFSK modulator.

Available Values: MCVR/0 ~ 100

Default Setting: MCVR

When this menu is set to "MCVR", you may adjust the microphone gain using the front panel [MIC/SPEED] knob.

## 077 DATA OUT LEVEL

Function: Sets the AFSK data output level at the output port (pin 5) of the RTTY/PKT jack.

Available Values: 0 ~ 100

Default Setting: 50

## 078 DATA VOX GAIN

Function: Adjusts the "VOX" Gain in the DATA mode.

Available Values: 0 ~ 100

Default Setting: 50

## 079 DATA VOX DELEY

Function: Adjusts the "VOX" Delay (receiver recovery) time in the DATA mode.

Available Values: 30 ~ 3000 msec (10 msec/step)

Default Setting: 300 msec

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## MODE-FM GROUP

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## 080 FM LCUT FREQ

Function: Selects the cutoff frequency of the lower side of the RX audio filter in the FM mode.

Available Values: OFF/100 ~ 1000 Hz (50 Hz/step)

Default Setting: 250

## 081 FM LCUT SLOPE

Function: Selects the filter slope of the lower side of the RX audio filter in the FM mode.

Available Values: 6dB/oct / 18dB/oct

Default Setting: 18dB/oct

## 082 FM HCUT FREQ

Function: Selects the cutoff frequency of the upper side of the RX audio filter in the FM mode.

Available Values: OFF/700 ~ 4000 Hz (50 Hz/step)

Default Setting: OFF

## 083 DATA HCUT SLOPE

Function: Selects the filter slope of the upper side of the RX audio filter in the FM mode.

Available Values: 6dB/oct / 18dB/oct

Default Setting: 6dB/oct

## 084 FM MIC GAIN

Function: Sets the microphone gain for the FM mode.

Available Values: MCVR/0 ~ 100

Default Setting: MCVR

When this menu is set to "MCVR", you may adjust the microphone gain using the front panel [MIC/SPEED] knob.

## 085 FM MIC SEL

Function: Selects the microphone to be used on the FM mode.

Available Values: FRONT / DATA

Default Setting: FRONT

FRONT: Selects the microphone connected to the front panel MIC jack while using the FM mode.

DATA: Selects the microphone connected to pin 1 of the PACKET Jack while using the FM mode.

## 086 RPT SHIFT (28MHz)

Function: Sets the magnitude of the repeater shift on the 28 MHz band.

Available Values: 0 ~ 1000 kHz (50 kHz/step)

Default Setting: 100 kHz

## 087 RPT SHIFT (50MHz)

Function: Sets the magnitude of the repeater shift on the 50 MHz band.

Available Values: 0 ~ 4000 kHz (10 kHz/step)

Default Setting: 1000 kHz

## 088 TONE FREQ

Function: Select the desired CTCSS Tone. A total of 50 standard CTCSS tones are provided (see the CTCSS Tone Chart on Page 91).

Available Values: 67.0 ~ 254.1 Hz

Default Setting: 67.0 Hz

**MODE-RTTY GROUP****089 RTTY LCUT FREQ**

Function: Selects the cutoff frequency of the lower side of the RX audio filter in the RTTY mode.

Available Values: OFF/100 ~ 1000 Hz (50 Hz/step)

Default Setting: 300

**090 RTTY LCUT SLOPE**

Function: Selects the filter slope of the lower side of the RX audio filter in the RTTY mode.

Available Values: 6dB/oct / 18dB/oct

Default Setting: 18dB/oct

**091 RTTY HCUT FREQ**

Function: Selects the cutoff frequency of the upper side of the RX audio filter in the RTTY mode.

Available Values: OFF/700 ~ 4000 Hz (50 Hz/step)

Default Setting: 3000

**092 RTTY HCUT SLOPE**

Function: Selects the filter slope of the upper side of the RX audio filter in the RTTY mode.

Available Values: 6dB/oct / 18dB/oct

Default Setting: 18dB/oct

**093 POLARITY-R**

Function: Selects normal or reverse Mark/Space polarity for RTTY receive operation.

Available Values: NOR/REV

Default Setting: NOR

**094 POLARITY-T**

Function: Selects normal or reverse Mark/Space polarity for RTTY transmit operation.

Available Values: NOR/REV

Default Setting: NOR

**095 RTTY OUT LEVEL**

Function: Sets the RTTY (AFSK) data output level at the output port (pin 5) of the RTTY/PKT jack.

Available Values: 0 ~ 100

Default Setting: 50

**096 RTTY SHIFT**

Function: Selects the frequency shift for RTTY (AFSK) operation.

Available Values: 170/200/425/850 Hz

Default Setting: 170 Hz

**097 RTTY MARK FREQ**

Function: Selects the Mark tone for RTTY operation.

Available Values: 1275/2125 Hz

Default Setting: 2125 Hz

**MODE-SSB GROUP****098 SSB LCUT FREQ**

Function: Selects the cutoff frequency of the lower side of the RX audio filter in the SSB mode.

Available Values: OFF/100 ~ 1000 Hz (50 Hz/step)

Default Setting: 200

**099 SSB LCUT SLOPE**

Function: Selects the filter slope of the lower side of the RX audio filter in the SSB mode.

Available Values: 6dB/oct / 18dB/oct

Default Setting: 6dB/oct

**100 SSB HCUT FREQ**

Function: Selects the cutoff frequency of the upper side of the RX audio filter in the SSB mode.

Available Values: OFF/700 ~ 4000 Hz (50 Hz/step)

Default Setting: 3000

**101 SSB HCUT SLOPE**

Function: Selects the filter slope of the upper side of the RX audio filter in the RTTY mode.

Available Values: 6dB/oct / 18dB/oct

Default Setting: 18dB/oct

**102 SSB MIC SEL**

Function: Selects the microphone to be used on the SSB mode.

Available Values: FRONT / DATA

Default Setting: FRONT

FRONT: Selects the microphone connected to the front panel MIC jack while using the SSB mode.

DATA: Selects the microphone connected to pin 1 of the PACKET Jack while using the SSB mode.

**103 SSB TX BPF**

Function: Selects the audio passband of the DSP modulator on the SSB mode.

Available Values: 100-3000/100-2900/200-2800/300-2700/400-2600/3000WB

Default Setting: 300 ~ 2700 (Hz)

**104 LSB RX CARRIER**

Function: Adjusts the receiver carrier point for the LSB mode.

Available Values: -200 Hz ~ 0 ~ +200 Hz (10 Hz steps)

Default Setting: 0

**105 USB RX CARRIER**

Function: Adjusts the receiver carrier point for the USB mode.

Available Values: -200 Hz ~ 0 ~ +200 Hz (10 Hz steps)

Default Setting: 0

# MENU MODE

## RX DSP GROUP

### 106 APF WIDTH

Function: Selects the Bandwidth of the Audio Peak Filter.

Available Values: NARROW/MEDIUM/WIDE

Default Setting: MEDIUM

### 107 CONTOUR LEVEL

Function: Adjusts the gain of the Contour filter.

Available Values: -40 ~ 0 ~ 20 dB

Default Setting: -15

### 108 CONTOUR SHIFT

Function: Adjusts the Q-factor of the Contour filter.

Available Values: 1 ~ 11

Default Setting: 10

### 109 DNR LEVEL

Function: Set the Digital Noise Reduction response.

Available Values: 1 ~ 15

Default Setting: 3

### 110 IF NOTCH WIDTH

Function: Selects the bandwidth of the DSP NOTCH filter.

Available Values: NARROW / WIDE

Default Setting: WIDE

### 111 HF CW SHAPE

Function: Selects the passband characteristics of the DSP filter for the CW mode on the HF band.

Available Values: SOFT / SHARP

Default Setting: SOFT

SOFT: Primary importance is attached to the phase of the filter factor.

SHARP: Primary importance is attached to the amplitude of the filter factor.

### 112 HF CW SLOPE

Function: Selects the shape factor of the DSP filter for the CW mode on the HF band.

Available Values: STEEP / MEDIUM / GENTLE

Default Setting: MEDIUM

### 113 6M CW SHAPE

Function: Selects the passband characteristics of the DSP filter for the CW mode on the 50 MHz band.

Available Values: SOFT / SHARP

Default Setting: SOFT

SOFT: Primary importance is attached to the phase of the filter factor.

SHARP: Primary importance is attached to the amplitude of the filter factor.

### 114 6M CW SLOPE

Function: Selects the shape factor of the DSP filter for the CW mode on the 50 MHz band.

Available Values: STEEP / MEDIUM / GENTLE

Default Setting: MEDIUM

### 115 HF PSK SHAPE

Function: Selects the passband characteristics of the DSP filter for the PSK mode on the HF band.

Available Values: SOFT / SHARP

Default Setting: SHARP

SOFT: Primary importance is attached to the phase of the filter factor.

SHARP: Primary importance is attached to the amplitude of the filter factor.

### 116 HF PSK SLOPE

Function: Selects the shape factor of the DSP filter for the PSK mode on the HF band.

Available Values: STEEP / MEDIUM / GENTLE

Default Setting: MEDIUM

### 117 HF FSK SHAPE

Function: Selects the passband characteristics of the DSP filter for the FSK mode on the HF band.

Available Values: SOFT / SHARP

Default Setting: SHARP

SOFT: Primary importance is attached to the phase of the filter factor.

SHARP: Primary importance is attached to the amplitude of the filter factor.

### 118 HF FSK SLOPE

Function: Selects the shape factor of the DSP filter for the PSK mode on the HF band.

Available Values: STEEP / MEDIUM / GENTLE

Default Setting: MEDIUM

**119 HF SSB SHAPE**

Function: Selects the passband characteristics of the DSP filter for the SSB mode on the HF band.

Available Values: SOFT / SHARP

Default Setting: SHARP

SOFT: Primary importance is attached to the phase of the filter factor.

SHARP: Primary importance is attached to the amplitude of the filter factor.

**120 HF SSB SLOPE**

Function: Selects the shape factor of the DSP filter for the SSB mode on the HF band.

Available Values: STEEP / MEDIUM / GENTLE

Default Setting: MEDIUM

**121 6M SSB SHAPE**

Function: Selects the passband characteristics of the DSP filter for the SSB mode on the 50 MHz band.

Available Values: SOFT / SHARP

Default Setting: SOFT

SOFT: Primary importance is attached to the phase of the filter factor.

SHARP: Primary importance is attached to the amplitude of the filter factor.

**122 6M SSB SLOPE**

Function: Selects the shape factor of the DSP filter for the SSB mode on the 50 MHz band.

Available Values: STEEP / MEDIUM / GENTLE

Default Setting: MEDIUM

**SCOPE GROUP****123 SCOPE MODE**

Function: Selects the operation mode of the Band Scope Monitor (CENTER mode or FIX mode).

Available Values: CENTER / FIX

Default Setting: CENTER

**124 SCOPE SPEED**

Function: Selects the Sweep Speed of the Band Scope Monitor.

Available Values: FAST / SLOW

Default Setting: FAST

**125 SCOPE AUTO TIME**

Function: Selects the Start cycle of the Auto Scope feature.

Available Values: OFF / 3 / 5 / 10 sec

Default Setting: OFF

**126 START DIAL SPEED**

Function: Selects the start condition of the Dial Auto Scope feature.

Available Values: 0.5 / 1 / 2 / 4 / 8 / 16 kHz/sec

Default Setting: 8 kHz/sec

**127 CENTER SPAN FREQ**

Function: Selects the desired frequency span of the CENTER mode Spectrum Scope.

Available Values: 20 / 50 / 100 / 200 / 500 / 1000 kHz

Default Setting: 100 kHz

**128 FIX 1.8MHz**

Function: Selects the scan start frequency of the FIX mode Spectrum Scope while monitoring on the 160 m amateur band.

Available Values: 1800 ~ 1999 kHz (1 kHz steps)

Default Setting: 1800 kHz

**129 FIX 1.8MHz SPAN**

Function: Selects the desired frequency span of the FIX mode Spectrum Scope while monitoring on the 160 m amateur band.

Available Values: 20 / 50 / 100 / 200 / 500 / 1000 kHz

Default Setting: 200 kHz

**130 FIX 3.5MHz**

Function: Selects the scan start frequency of the FIX mode Spectrum Scope while monitoring on the 80 m amateur band.

Available Values: 3500 ~ 3999 kHz (1 kHz steps)

Default Setting: 3500 kHz

# MENU MODE

## 131 FIX 3.5MHz SPAN

Function: Selects the desired frequency span of the FIX mode Spectrum Scope while monitoring on the 80 m amateur band.

Available Values: 20 / 50 / 100 / 200 / 500 / 1000 kHz

Default Setting: 500 kHz

## 132 FIX 5.0MHz

Function: Selects the scan start frequency of the FIX mode Spectrum Scope while monitoring on the 60 m amateur band.

Available Values: 5250 ~ 5499 kHz (1 kHz steps)

Default Setting: 5250 kHz

## 133 FIX 5.0MHz SPAN

Function: Selects the desired frequency span of the FIX mode Spectrum Scope while monitoring on the 60 m amateur band.

Available Values: 20 / 50 / 100 / 200 / 500 / 1000 kHz

Default Setting: 200 kHz

## 134 FIX 7.0MHz

Function: Selects the scan start frequency of the FIX mode Spectrum Scope while monitoring on the 40 m amateur band.

Available Values: 7000 ~ 7299 kHz (1 kHz steps)

Default Setting: 7000 kHz

## 135 FIX 7.0MHz SPAN

Function: Selects the desired frequency span of the FIX mode Spectrum Scope while monitoring on the 40 m amateur band.

Available Values: 20 / 50 / 100 / 200 / 500 / 1000 kHz

Default Setting: 500 kHz

## 136 FIX 10MHz

Function: Selects the scan start frequency of the FIX mode Spectrum Scope while monitoring on the 30 m amateur band.

Available Values: 10100 ~ 10149 kHz (1 kHz steps)

Default Setting: 10100 kHz

## 137 FIX 10MHz SPAN

Function: Selects the desired frequency span of the FIX mode Spectrum Scope while monitoring on the 30 m amateur band.

Available Values: 20 / 50 / 100 / 200 / 500 / 1000 kHz

Default Setting: 50 kHz

## 138 FIX 14MHz

Function: Selects the scan start frequency of the FIX mode Spectrum Scope while monitoring on the 20 m amateur band.

Available Values: 14000 ~ 14349 kHz (1 kHz steps)

Default Setting: 14000 kHz

## 139 FIX 14MHz SPAN

Function: Selects the desired frequency span of the FIX mode Spectrum Scope while monitoring on the 20 m amateur band.

Available Values: 20 / 50 / 100 / 200 / 500 / 1000 kHz

Default Setting: 500 kHz

## 140 FIX 18MHz

Function: Selects the scan start frequency of the FIX mode Spectrum Scope while monitoring on the 17 m amateur band.

Available Values: 18000 ~ 18199 kHz (1 kHz steps)

Default Setting: 18068 kHz

## 141 FIX 18MHz SPAN

Function: Selects the desired frequency span of the FIX mode Spectrum Scope while monitoring on the 17 m amateur band.

Available Values: 20 / 50 / 100 / 200 / 500 / 1000 kHz

Default Setting: 100 kHz

## 142 FIX 21MHz

Function: Selects the scan start frequency of the FIX mode Spectrum Scope while monitoring on the 15 m amateur band.

Available Values: 21000 ~ 21449 kHz (1 kHz steps)

Default Setting: 21000 kHz

## 143 FIX 21MHz SPAN

Function: Selects the desired frequency span of the FIX mode Spectrum Scope while monitoring on the 15 m amateur band.

Available Values: 20 / 50 / 100 / 200 / 500 / 1000 kHz

Default Setting: 500 kHz

## 144 FIX 24MHz

Function: Selects the scan start frequency of the FIX mode Spectrum Scope while monitoring on the 12 m amateur band.

Available Values: 24800 - 24989 kHz (1 kHz steps)

Default Setting: 24890 kHz

## 145 FIX 24MHz SPAN

Function: Selects the desired frequency span of the FIX mode Spectrum Scope while monitoring on the 12 m amateur band.

Available Values: 20 / 50 / 100 / 200 / 500 / 1000 kHz

Default Setting: 100 kHz

## 146 FIX 28MHz

Function: Selects the scan start frequency of the FIX mode Spectrum Scope while monitoring on the 10 m amateur band.

Available Values: 28000 ~ 29699 kHz (1 kHz steps)

Default Setting: 28000 kHz

**147 FIX 28MHz SPAN**

Function: Selects the desired frequency span of the FIX mode Spectrum Scope while monitoring on the 10 m amateur band.

Available Values: 20 / 50 / 100 / 200 / 500 / 1000 kHz

Default Setting: 1000 kHz

**148 FIX 50MHz**

Function: Selects the scan start frequency of the FIX mode Spectrum Scope while monitoring on the 6 m amateur band.

Available Values: 50000 ~ 53999 kHz (1 kHz steps)

Default Setting: 50000 kHz

**149 FIX 50MHz SPAN**

Function: Selects the desired frequency span of the FIX mode Spectrum Scope while monitoring on the 6 m amateur band.

Available Values: 20 / 50 / 100 / 200 / 500 / 1000 kHz

Default Setting: 1000 kHz

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## TUNING GROUP

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**150 CW DIAL STEP**

Function: Setting of the Main Tuning Dial knob and the [VFO-B/CLAR] knob tuning speed in the CW mode.

Available Values: 1/5/10 Hz

Default Setting: 10 Hz

**151 DATA DIAL STEP**

Function: Setting of the Main Tuning Dial knob and the [VFO-B/CLAR] knob tuning speed in the DATA mode.

Available Values: 1/5/10 Hz

Default Setting: 10 Hz

**152 AM/FM DIAL STEP**

Function: Setting of the Main Tuning Dial knob and the [VFO-B/CLAR] knob tuning speed in the AM and FM mode.

Available Values: 10/100 Hz

Default Setting: 100 Hz

**153 RTTY DIAL STEP**

Function: Setting of the Main Tuning Dial knob and the [VFO-B/CLAR] knob tuning speed in the RTTY mode.

Available Values: 1/5/10 Hz

Default Setting: 5 Hz

**154 SSB DIAL STEP**

Function: Setting of the Main Tuning Dial knob and the [VFO-B/CLAR] knob tuning speed in the SSB mode.

Available Values: 1/5/10 Hz

Default Setting: 10 Hz

**155 AM CH STEP**

Function: Selects the tuning steps for the microphone's [UP]/[DWN] keys in the AM mode.

Available Values: 2.5/5/9/10/12.5 kHz

Default Setting: 5 kHz

**156 FM CH STEP**

Function: Selects the tuning steps for the microphone's [UP]/[DWN] keys in the FM mode.

Available Values: 5/6.25/10/12.5/20/25 kHz

Default Setting: 5 kHz

**157 1MHz/100kHz SELECT**

Function: Selects the tuning steps for the [VFO-B/CLAR] knob when the [MHz/uT] button is pressed.

Available Values: 1MHz/100kHz

Default Setting: 1MHz

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## TX AUDIO GROUP

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**158 PRMTRC EQ1 FRQE**

Function: Selects the center frequency of the lower range for the parametric microphone equalizer.

Available Values: 100 ~ 700 Hz (100 Hz/step)

Default Setting: 200

You may adjust the equalizer gain and Q-factor at this selected audio frequency via menu items "160 PRMTRC EQ1 LEVEL" and "161 PRMTRC EQ1 BWTH".

**159 PRMTRC EQ1 LEVEL**

Function: Adjusts the equalizer gain of the low range of the parametric microphone equalizer.

Available Values: -20 ~ 0 ~ +10

Default Setting: 0

**160 PRMTRC EQ1 BWTH**

Function: Adjusts the Q-factor of the low range of the parametric microphone equalizer.

Available Values: 1 ~ 10

Default Setting: 1

**161 PRMTRC EQ2 FRQE**

Function: Selects the center frequency of the middle range for the parametric microphone equalizer.

Available Values: 700 ~ 1500 Hz (100 Hz/step)

Default Setting: 800

You may adjust the equalizer gain and Q-factor at this selected audio frequency via menu items "163 PRMTRC EQ2 LEVEL" and "164 PRMTRC EQ2 BWTH"

**162 PRMTRC EQ2 LEVEL**

Function: Adjusts the equalizer gain of the middle range of the parametric microphone equalizer.

Available Values: -20 ~ 0 ~ +10

Default Setting: 0

# MENU MODE

## 163 PRMTRC EQ2 BWTH

Function: Adjusts the equalizer gain of the middle range of the parametric microphone equalizer.

Available Values: 1 ~ 10

Default Setting: 1

## 164 PRMTRC EQ3 FRQE

Function: Selects the center frequency of the high range for the parametric microphone equalizer.

Available Values: 1500 ~ 3200 Hz (100 Hz/step)

Default Setting: 2100

You may adjust the equalizer gain and Q-factor in this selected audio frequency via menu items “166 PRMTRC EQ3 LEVEL” and “167 PRMTRC EQ3 BWTH”.

## 165 PRMTRC EQ3 LEVEL

Function: Adjusts the equalizer gain of the high range of the parametric microphone equalizer.

Available Values: -20 ~ 0 ~ +10

Default Setting: +5

## 166 PRMTRC EQ3 BWTH

Function: Adjusts the Q-factor of the high range of the parametric microphone equalizer.

Available Values: 1 ~ 10

Default Setting: 10

## 167 P-PRMTRC EQ1 FRQE

Function: Selects the center frequency of the lower range for the parametric microphone equalizer when the speech processor is activated.

Available Values: 100 ~ 700 Hz (100 Hz/step)

Default Setting: 200

You may adjust the equalizer gain and Q-factor at this selected audio frequency via menu items “169 P-PRMTRC EQ1 LEVEL” and “170 P-PRMTRC EQ1 BWTH”.

## 168 P-PRMTRC EQ1 LEVEL

Function: Adjusts the equalizer gain of the low range of the parametric microphone equalizer.

Available Values: -20 ~ 0 ~ +10

Default Setting: -3

## 169 P-PRMTRC EQ1 BWTH

Function: Adjusts the Q-factor of the low range of the parametric microphone equalizer.

Available Values: 1 ~ 10

Default Setting: 2

## 170 P-PRMTRC EQ2 FRQE

Function: Selects the center frequency of the middle range for the parametric microphone equalizer when the speech processor is activated.

Available Values: 100 ~ 1500 Hz (100 Hz/step)

Default Setting: 800

You may adjust the equalizer gain and Q-factor at this selected audio frequency via menu items “172 P-PRMTRC EQ2 LEVEL” and “173 P-PRMTRC EQ2 BWTH”.

## 171 P-PRMTRC EQ2 LEVEL

Function: Adjusts the equalizer gain of the middle range of the parametric microphone equalizer.

Available Values: -20 ~ 0 ~ +10

Default Setting: 0

## 172 P-PRMTRC EQ2 BWTH

Function: Adjusts the Q-factor of the middle range of the parametric microphone equalizer.

Available Values: 1 ~ 10

Default Setting: 1

## 173 P-PRMTRC EQ3 FRQE

Function: Selects the center frequency of the lower range for the parametric microphone equalizer when the speech processor is activated.

Available Values: 1500 ~ 3200 Hz (100 Hz/step)

Default Setting: 2100

You may adjust the equalizer gain and Q-factor at this selected audio frequency via menu items “175 P-PRMTRC EQ3 LEVEL” and “176 P-PRMTRC EQ3 BWTH”.

## 174 P-PRMTRC EQ3 LEVEL

Function: Adjusts the equalizer gain of the low range of the parametric microphone equalizer.

Available Values: -20 ~ 0 ~ +10

Default Setting: +5

## 175 P-PRMTRC EQ3 BWTH

Function: Adjusts the Q-factor of the low range of the parametric microphone equalizer.

Available Values: 1 ~ 10

Default Setting: 1



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**TX GNRL GROUP**

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**176 TX MAX POWER**

Function: Sets a transmitter output level.

Available Values: 5 ~ 100

Default Setting: 100

**177 EXT AMP TUNING PWR**

Function: Selects a maximum output power limit for driving the input circuit of an external linear RF amplifier while tuning (while using the Remote Control function of the linear RF amplifier).

Available Values: 10/20/50/100

Default Setting: 100

**178 TUNER SELECT**

Function: Enable/disable the optional FC-40 Antenna Tuner.

Available Values: INTERNAL/EXTERNAL

Default Setting: INTERNAL

INTERNAL: The [TUNE] button will activate the internal Antenna Tuner.

EXTERNAL: The [TUNE] button will activate the optional FC-40 Antenna Tuner.

**179 VOX SELECT**

Function: Selects the audio input source for triggering TX during VOX operation.

Available Values: MIC/DATA

Default Setting: MIC

MIC: The VOX function will be activated by microphone audio input.

DATA: The VOX function will be activated by data audio input port (pin 1) of the RTTY/PKT Jack.

**180 VOX GAIN**

Function: Adjusts the "VOX" Gain on the SSB/AM/FM modes.

Available Values: 0 ~ 100

Default Setting: 50

**181 VOX DELEY**

Function: Adjusts the "VOX" Delay (receiver recovery) time on the SSB/AM/FM modes.

Available Values: 30 ~ 3000 msec (10 msec/step)

Default Setting: 500 msec

**182 ANTI VOX GAIN**

Function: Adjusts the Anti-VOX Trip Gain, which is the level of negative AF feedback of receiver audio to the microphone, to prevent receiver audio from activating the transmitter (via the microphone) during VOX operation.

Available Values: 0 ~ 100

Default Setting: 50

**183 EMERGENCY FREQ TX**

Function: Enables Tx/Rx operation on the Alaska Emergency Channel, 5167.5 kHz.

Available Values: ENABLE/DISABLE

Default Setting: DISABLE

When this Menu Item is set to "ENABLE", the spot frequency of 5167.5 kHz will be enabled. The Alaska Emergency Channel will be found between the Memory channels "P-1" and "01 (or 1-01)".

Important: The use of this frequency is restricted to stations operating in or near Alaska, and only for emergency purposes (never for routine operations). See § 97.401(c) of the FCC regulations for details.

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**AF SCOPE**

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**184 FFT DISPLAY MODE**

Function: Selects the operation mode of the Audio Scope Monitor.

Available Values: SPECTRUM/WATER FALL

Default Setting: SPECTRUM

SPECTRUM: The Audio Scope Monitor shows the audio signal on the Spectrum display.

WATER FALL: The Audio Scope Monitor shows the audio signal on the Water Fall display.

**185 FFT ATT**

Function: Selects the attenuation level of the Audio Scope Monitor.

Available Values: 0/10/20 dB

Default Setting: 10 dB

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**DECODE CW**

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**186 CW DECODE BW**

Function: Selects the bandwidth of the AFC feature.

Available Values: 25/50/100/250 Hz

Default Setting: 100 Hz

**187 RX USOS**

Function: Enables/Disables the RX USOS feature.

Available Values: ENABLE/DISABLE

Default Setting: ENABLE

**188 TX USOS**

Function: Enables/Disables the TX USOS feature.

Available Values: ENABLE/DISABLE

Default Setting: ENABLE

**189 RX NEW LINE CODE**

Function: Selects the command code used for the Carriage Return during RTTY receive.

Available Values: CR,LF,CR+LF / CR+LF

Default Setting: CR,LF,CR+LF

# ***MENU MODE***

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## **190 TX AUTO CR+LF**

Function: Enables/Disables the sending of the Carriage Return (CR+LF) Code while transmitting in RTTY.

Available Values: ENABLE/DISABLE

Default Setting: ENABLE

## **191 TX DIDDLE**

Function: Selects the transmission code when there is not a character to be transmitted.

Available Values: OFF/BLANK/LTRS

Default Setting: BLANK

## **192 BAUDOT CODE**

Function: Selects the Baudot Code used for the RTTY mode.

Available Values: CCITT/US

Default Setting: US

## **193 PSK MODE**

Function: Selects the operation mode of the PSK mode.

Available Values: BPSK/QPSK

Default Setting: BPSK

## **194 DECODE AFC RANGE**

Function: Selects the operation range (or bandwidth) of the AFC feature.

Available Values: 8/15/30

Default Setting: 15

## **195 QPSK POLARITY REV**

Function: Selects normal or reverse phase shift for the QPKS mode.

Available Values: RX-N, TX-N / RX-R, TX-N /

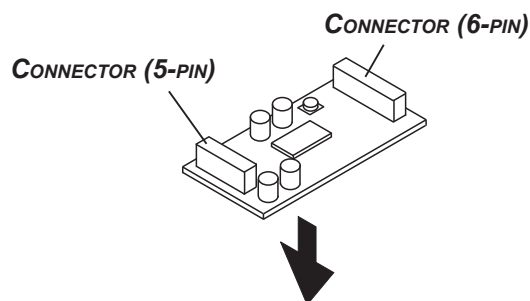
RX-N, TX-R / RX-R, TX-R

Default Setting: RX-N, TX-N

# INSTALLATION OF OPTIONAL ACCESSORIES

## VOICE MEMORY UNIT (DVS-6)

1. Turn the **FTdx1200**'s [**POWER**] switch "OFF", and turn off the external DC power supply.
2. Disconnect all the cables from the **FTdx1200**.
3. Referring to Figure 1, remove the 18 screws attaching the bottom case, then remove the bottom case.
4. Refer to Figure 2 for the mounting location for the **DVS-6**.
5. Push the **DVS-6** onto the pins corresponding to its assigned mounting location on the transceiver. Gently press the board down until it is firmly seated in its connectors.
6. Replace the bottom case and its 18 screws.
7. Connect the antenna and DC power supply to the **FTdx1200**.



# INSTALLATION OF OPTIONAL ACCESSORIES

## RF $\mu$ TUNING KIT

The RF  $\mu$ Tuning Kits provide ultra-sharp RF selectivity for the front end of the transceiver. Very high Q is made possible by the narrow-band design. Three RF  $\mu$ 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.

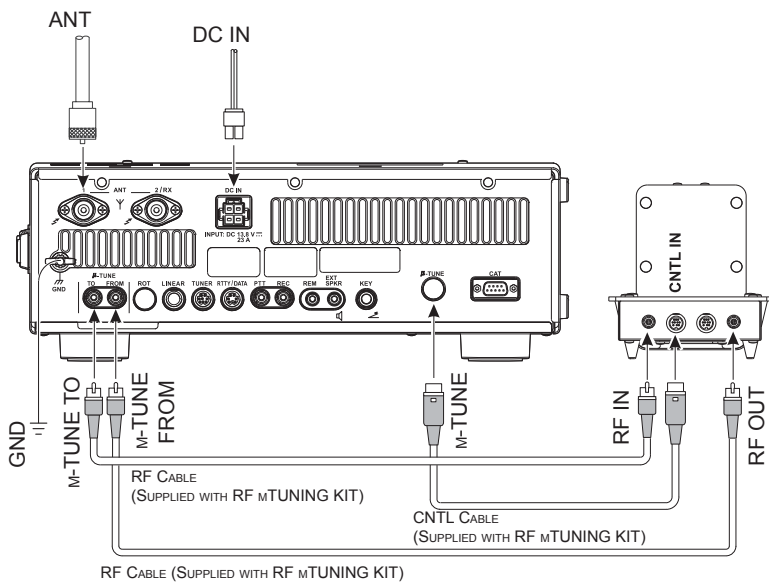
The narrow bandwidth is especially useful on the low bands, when many strong signals are being received via NVIS propagation (Near Vertical-Incidence Signals) within a narrow bandwidth. The added protection for the receiver RF stages is especially helpful in preventing IMD and blocking.

### Installation

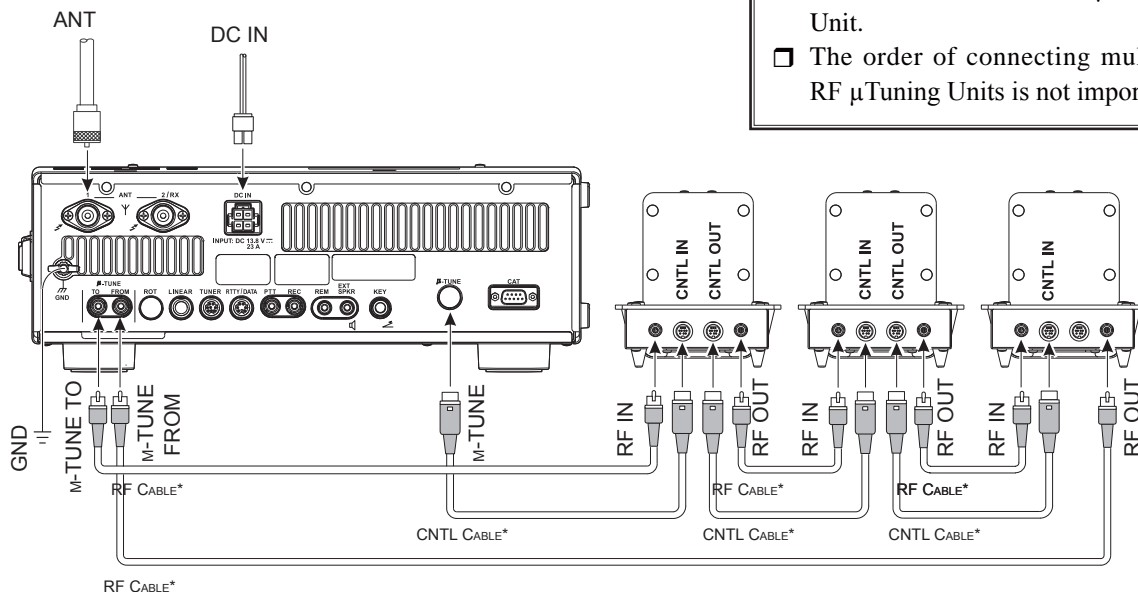
Assemble the RF  $\mu$ Tuning Unit according to the “RF  $\mu$ Tuning Kit Installation Manual” supplied with the RF  $\mu$ Tuning Kit.

### Interconnections to FTdx1200

Connect each cable (supplied with the RF  $\mu$ Tuning Kit) between the RF  $\mu$ Tuning Unit and the FTdx1200 Transceiver.



### MULTI CONNECTION



\*: SUPPLIED WITH RF  $\mu$ TUNING KIT

### MULTI CONNECTION

### Advice

- The RF connecting cables are color coded (black and gray) to assist in properly connecting the RF IN and RF OUT jacks. (See illustration)
- An improper connection will not damage the RF  $\mu$ Tuning Kit. However, improper operation may occur.
- Connect the color-coded control cable(s) between the CNTL OUT and CNTL IN jacks (see illustration). Confirm all connections before turning on the transceiver.
- If the FTdx1200 does not operate and the frequency display blinks sometimes, confirm and correct the “CNTL IN” and “CNTL OUT” connections on the RF  $\mu$ Tuning Unit.
- The order of connecting multiple RF  $\mu$ Tuning Units is not important.

# INSTALLATION OF OPTIONAL ACCESSORIES

## FC-40 EXTERNAL AUTOMATIC ANTENNA TUNER (FOR WIRE ANTENNA)

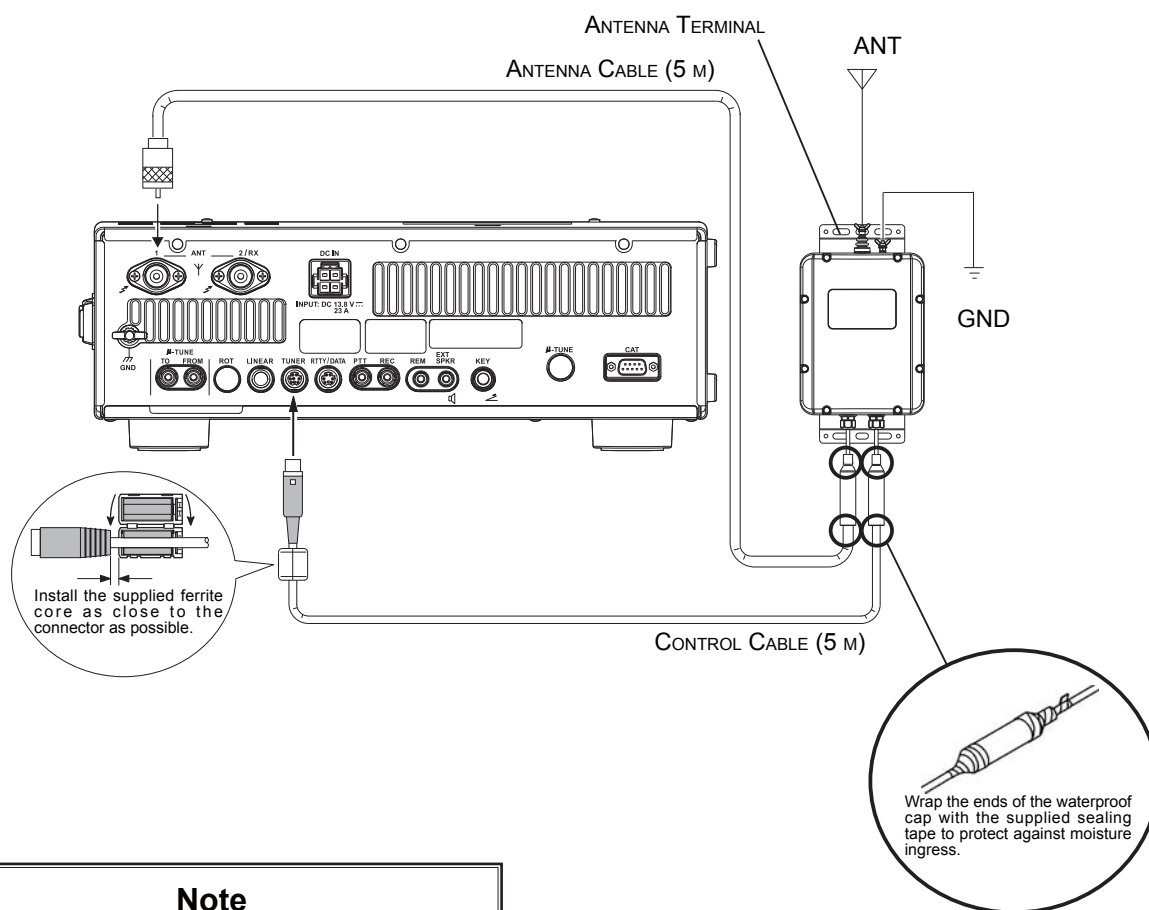
The **FC-40** makes use of the control circuitry built into the transceiver, which allows the operator to control and monitor automatic operation of the **FC-40**, which mounts near the antenna feedpoint. The **FC-40** uses specially selected, thermally stable components, and is housed in a waterproof case to withstand severe environmental conditions with high reliability.

A carefully-chosen combination of solid-state switching components and high-speed relays allows the **FC-40** to match a wide variety of antennas to within a 2:1 SWR on any amateur band frequency (160 through 6 meters), typically in less than eight seconds. Transmitter power required for matching may be as little as 4 - 60 Watts, and matching settings are automatically stored in memory for instant recall when the same frequency range is selected later.

Please see the **FC-40** Operating Manual for detailed information.

### Interconnections to FTdx1200

After mounting the **FC-40**, connect the cables from the **FC-40** to the ANT and TUNER jacks on the rear panel of the **FTdx1200** Transceiver.



### Note

When the **FC-40** is connected to the **FTdx1200**, TX GND (pin 2) of the TUNER jack and the LINEAR jack (pin 2) are common circuits. Therefore, the maximum voltage at TX GND (pin 2) of the LINEAR jack must not exceed +5V.

# INSTALLATION OF OPTIONAL ACCESSORIES

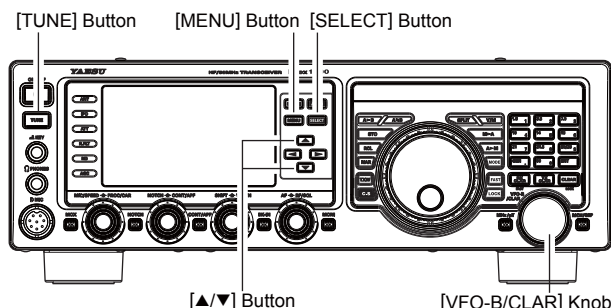
## FC-40 EXTERNAL AUTOMATIC ANTENNA TUNER (FOR WIRE ANTENNA)

### Setup the FTdx1200

The optional **FC-40** Automatic Antenna Tuner provides automatic tuning of a coaxial line to present nominal 50-ohm impedance to the **FTdx1200**'s ANT jack.

Before operation can begin, you must instruct the **FTdx1200** microprocessor that the **FC-40** is being used. This is done using the Menu Mode:

1. Press the **[MENU]** button to enter the Menu mode.
2. Rotate the **[VFO-B/CLAR]** knob (or press the **▲/▼** button) to select the Menu Item "179 TUNER SELECT".
3. Press the **[SELECT]** button, then rotate the **[VFO-B/CLAR]** knob (or press the **▲/▼** button) to select "EXTERNAL".
4. Press the **[SELECT]** button.
5. Press the **[MENU]** button to save the new setting and exit to normal operation.



### Operation

1. Press the **[TUNE]** button briefly to activate the Automatic Antenna Tuner.
2. The "TUNER" icon will appear in the TFT display.
3. Press and hold the **[TUNE]** button for one second to begin automatic tuning. The transmitter will be engaged, and the "TUNER" icon will blink while tuning is in progress.
4. Tuning will stop automatically when a low SWR is achieved. You may Press and hold the **[TUNE]** button for one second while tuning is in progress, to cancel the automatic tuning.
5. To disable the Automatic Antenna Tuner, press the **[TUNE]** button briefly again.

### NOTE:

- Please connect a good earth ground to the GND terminal of **FC-40**.
- The carrier signal transmits continuously while tuning is in progress. Please monitor the operating frequency before beginning the tuning process. Be sure you are not interfering with others who may already be using the frequency.
- It is normal to hear the sound of the relays while tuning is in progress.
- If the impedance cannot be matched by the **FC-40** better than 2:1, and the "TUNER" icon blinks, the microprocessor will not retain the tuning data for that frequency, as the **FC-40** presumes that you will want to adjust or repair your antenna system to correct the high SWR condition.



# SPECIFICATIONS

## General

<b>Rx Frequency Range:</b>	30 kHz - 56 MHz (operating) 1.8 MHz - 54 MHz (specified performance, Amateur bands only)
<b>Tx Frequency Ranges:</b>	1.8 MHz - 54 MHz (Amateur bands only)
<b>Frequency Stability:</b>	±0.5 ppm (after 1 minute @+14 °F to +122 °F [-10 °C to +50 °C])
<b>Operating Temperature Range:</b>	+14 °F to +122 °F (-10 °C to +50 °C)
<b>Emission Modes:</b>	A1A (CW), A3E (AM), J3E (LSB, USB), F3E (FM), F1B (RTTY), G1B (PSK31)
<b>Frequency Steps:</b>	1/5/10 Hz (SSB, CW, & AM), 100 Hz (FM)
<b>Antenna Impedance:</b>	50 Ohms, unbalanced 16.7 - 150 Ohms, unbalanced (1.8 MHz - 29.7 MHz) 25 - 100 Ohms, unbalanced (50 MHz - 54 MHz) (Tuner ON, 1.8 MHz - 50 MHz Amateur bands, TX only)
<b>Power Consumption (Approx.):</b>	Rx (no signal) 1.8 A Rx (signal present) 2.1 A Tx (100 W) 23 A
<b>Supply Voltage:</b>	DC 13.8 V ± 10% (Negative Ground)
<b>Dimensions (WxHxD):</b>	14.4" x 4.5" x 12.3" (365 x 115 x 312 mm)
<b>Weight (Approx.):</b>	22.0 lbs (10 kg)

## Transmitter

<b>Power Output:</b>	5 - 100 watts (2.5 - 25 watts AM carrier)
<b>Modulation Types:</b>	J3E (SSB): Balanced, A3E (AM): Low-Level (Early Stage), F3E (FM): Variable Reactance
<b>Maximum FM Deviation:</b>	±5.0 kHz/±2.5 kHz
<b>Harmonic Radiation:</b>	Better than -60 dB (1.8 MHz - 29.7 MHz Amateur bands: Harmonics) Better than -50 dB (1.8 MHz - 29.7 MHz Amateur bands: Others)
<b>SSB Carrier Suppression:</b>	At least 60 dB below peak output
<b>Undesired Sideband Suppression:</b>	At least 60 dB below peak output
<b>3rd-order IMD:</b>	-31 dB @14 MHz 100 watts PEP
<b>Bandwidth:</b>	3 kHz (LSB/USB), 500 Hz (CW), 6 kHz (AM), 16 kHz (FM)
<b>Audio Response (SSB):</b>	Not more than -6 dB from 300 to 2700 Hz
<b>Microphone Impedance:</b>	600 Ohms (200 to 10 kOhms)



**Receiver**

<b>Circuit Type:</b>	Triple-conversion Superheterodyne	
<b>Intermediate Frequencies:</b>	40.455 MHz 455 kHz 30 kHz (SSB, CW, RTTY, PSK31, PACKET) 24 kHz (AM, FM, PACKET-FM)	
<b>Sensitivity:</b>	SSB/CW (BW: 2.4 kHz, 10 dB S+N/N) 0.16 $\mu$ V (1.8 - 30 MHz) (RF AMP 2 "ON") 0.125 $\mu$ V (50 - 54 MHz) (RF AMP 2 "ON") AM (BW: 6 kHz, 10 dB S+N/N, 30 % modulation @400 Hz) 2 $\mu$ V (0.5 - 1.8 MHz) (RF AMP 2 "ON") 2 $\mu$ V (1.8 - 30 MHz) (RF AMP 2 "ON") 1 $\mu$ V (50 - 54 MHz) (RF AMP 2 "ON") FM (BW: 15 kHz, 12 dB SINAD) 0.5 $\mu$ V (28 - 30 MHz) (RF AMP 2 "ON") 0.35 $\mu$ V (50 - 54 MHz) (RF AMP 2 "ON")	
<b>Selectivity (WIDTH: Center):</b>	There is no specification for frequency ranges not listed.	
	Mode	-6 dB -60 dB
	CW/RTTY/PSK31	0.5 kHz or better 750 Hz or less
	SSB	2.4 kHz or better 3.6 kHz or less
	AM	6 kHz or better 15 kHz or less
	FM	12 kHz or better 30 kHz or less
<b>Image Rejection:</b>	70 dB or better (1.8 MHz - 28 MHz Amateur bands) 60 dB or better (50 MHz - 54 MHz Amateur band)	
<b>Maximum Audio Output:</b>	2.5 W into 4 Ohms with 10% THD	
<b>Audio Output Impedance:</b>	4 to 8 Ohms (4 Ohms: nominal)	
<b>Conducted Radiation:</b>	Less than 4 nW	

*Specifications are subject to change, in the interest of technical improvement, without notice or obligation, and are guaranteed only within the amateur bands.*

# NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

1. Changes or modifications to this device not expressly approved by YAESU MUSEN could void the user's authorization to operate this device.
2. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference including interference that may cause undesired operation.
3. The scanning receiver in this equipment is incapable of tuning, or readily being altered, by the User to operate within the frequency bands allocated to the Domestic public Cellular Telecommunications Service in Part 22.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

#### DECLARATION BY MANUFACTURER

The scanner receiver is not a digital scanner and is incapable of being converted or modified a digital scanner receiver by any user.

**WARNING: MODIFICATION OF THIS DEVICE TO RECEIVE CELLULAR RADIOTELEPHONE SERVICE SIGNALS IS PROHIBITED UNDER FCC RULES AND FEDERAL LAW.**

CAN ICES-3 (B)/NMB-3(B)

### Disposal of your Electronic and Electric Equipment

Products with the symbol (crossed-out wheeled bin) cannot be disposed as household waste. Electronic and Electric Equipment should be recycled at a facility capable of handling these items and their waste byproducts.

In EU countries, please contact your local equipment supplier representative or service center for information about the waste collection system in your country.







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