You may sometimes want to hear calls only from specific persons. The Continuous Tone Coded Squelch System (CTCSS) allows you to ignore (not hear) unwanted calls from other persons who are using the same frequency. To do so, select the same CTCSS tone as selected by the other persons in your group. A CTCSS tone is subaudible and is selectable from among 42 standard tone frequencies.

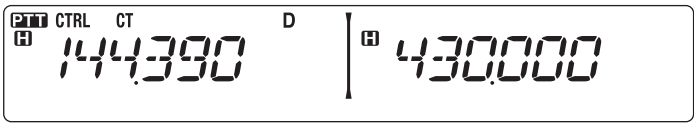
Note: CTCSS does not cause your conversation to be private. It only relieves you from listening to unwanted conversations.

USING CTCSS

1 Select your desired band.

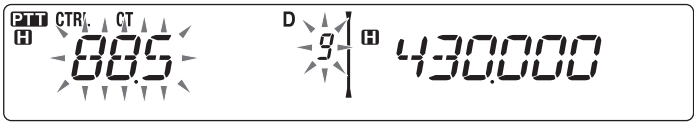
2 Press **[TONE]** 2 times to activate the CTCSS function.

- The **CT** icon appears on the display when the CTCSS function is ON.
- Each press of **[TONE]** changes the selection as follows:
  Tone (T) –> CTCSS (CT) –> DCS (DCS) –> Off (no display).



3 Press **[F], [TONE]**.

- The current CTCSS frequency appears on the display and blinks.



4 Rotate the **Tuning** control to select your desired CTCSS frequency.

- Refer to the table below for the available frequencies.
- To exit the CTCSS frequency selection, press **[F] (ESC)**.

5 Press any key other than the **Tuning** control and **[F] (ESC)** to complete the setting.

6 ***When you are called:*** The transceiver squelch opens only when the selected CTCSS tone is received.
When you make a call: Press and hold **[PTT]**, then speak into the microphone.

- To cancel CTCSS, press **[TONE]** until CT no longer appears on the display.

You can also select a CTCSS frequency by using the microphone:

1 Select your desired band.

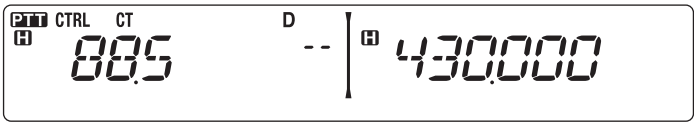
2 Press **[TONE]** 2 times to activate the CTCSS function.

- The CT icon appears on the display when the CTCSS function is ON.
- Each press of **[TONE]** changes the selection as follows:
  Tone (T) –> CTCSS (CT) –> DCS (DCS) –> Off (no display).

3 Press **[F], [TONE]**.

- The current CTCSS frequency appears on the display and blinks.

4 Press the key programmed as **[ENTER]**.



5 Enter a frequency reference number (01 ~ 42) using the microphone keypad.

- Refer to the table below for frequencies and their reference numbers.

6 Press **[ENTER]** again to complete the setting.

No.	Frequency (Hz)	No.	Frequency (Hz)	No.	Frequency (Hz)	No.	Frequency (Hz)
01	67.0	12	97.4	23	141.3	34	206.5
02	69.3	13	100.0	24	146.2	35	210.7
03	71.9	14	103.5	25	151.4	36	218.1
04	74.4	15	107.2	26	156.7	37	225.7
05	77.0	16	110.9	27	162.2	38	229.1
06	79.7	17	114.8	28	167.9	39	233.6
07	82.5	18	118.8	29	173.8	40	241.8
08	85.4	19	123.0	30	179.9	41	250.3
09	88.5	20	127.3	31	186.2	42	254.1
10	91.5	21	131.8	32	192.8		
11	94.8	22	136.5	33	203.5		

CTCSS FREQUENCY ID

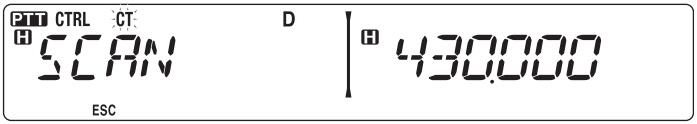
This function scans through all CTCSS frequencies to identify the incoming CTCSS frequency on a received signal. You may find this useful when you cannot recall the CTCSS frequency that the other persons in your group are using.

1 Press **[TONE]** 2 times to activate the CTCSS function.

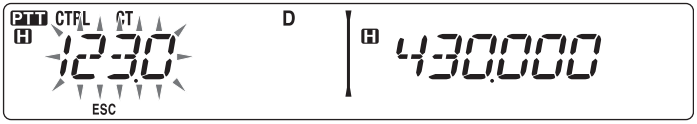
- The **CT** icon appears on the display when the CTCSS function is ON.
- Each press of **[TONE]** changes the selection as follows:
  Tone (T) –> CTCSS (CT) –> DCS (DCS) –> Off (no display).

2 Press **[F], [TONE] (1s)**.

- The **CT** icon blinks and “SCAN” appears on the display.
- Scan starts when a signal is received.



- To reverse the scan direction, turn the **Tuning** control clockwise (upward scan) or counterclockwise (downward scan). You can also press microphone **[UP]**/ **[DWN]**.
- To quit the scan, press **[F] (ESC)**.
- When a CTCSS frequency is identified, the identified frequency appears on the display and blinks.



3 Press the **Tuning** control to program the identified frequency in place of the currently set CTCSS frequency.

- The CTCSS function will remain ON. To cancel CTCSS, press **[TONE]** until CT no longer appears on the display.
- Press **[F] (ESC)** if you do not want to program the identified frequency.
- Rotate the **Tuning** control while an identified frequency is blinking, to resume scanning.

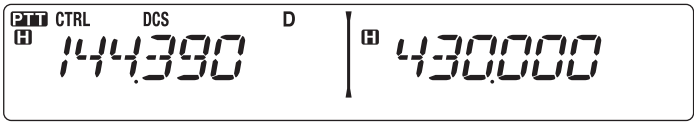
Digital Code Squelch (DCS) is another application which allows you to ignore (not hear) unwanted calls. It functions the same way as CTCSS. The only differences are the encode/ decode method and the number of selectable codes. For DCS, you can select from 104 different codes.

USING DCS

1 Select your desired band.

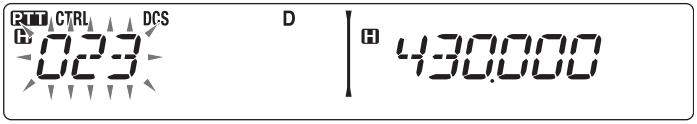
2 Press **[TONE]** 3 times to activate the DCS function.

- The **DCS** icon appears on the display when the DCS function is ON.
- Each press of **[TONE]** changes the selection as follows:
  Tone (T) –> CTCSS (CT) –> DCS (DCS) –> Off (no display).



3 Press **[F], [TONE]**.

- The current DCS code appears on the display and blinks.



4 Rotate the **Tuning** control to select your desired DCS code.

- Refer to the table below for the available codes.
- To exit the DCS code selection, press **[F] (ESC)**.

5 Press any key other than the **Tuning** control and **[F] (ESC)** to complete the setting.

6 ***When you are called:*** The transceiver squelch opens only when the selected DCS code is received.
When you make a call: Press and hold **[PTT]**, then speak into the microphone.

- To cancel DCS, press **[TONE]** until DCS no longer appears on the display.

You can also select a DCS code by using the microphone:

1 Select your desired band.

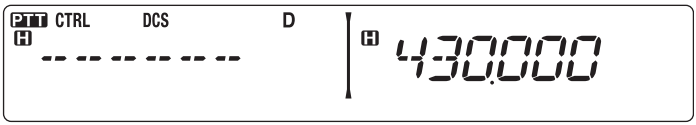
2 Press **[TONE]** 3 times to activate the DCS function.

- The DCS icon appears on the display when the DCS function is ON.
- Each press of **[TONE]** changes the selection as follows:
  Tone (T) –> CTCSS (CT) –> DCS (DCS) –> Off (no display).

3 Press **[F], [TONE]**.

- The current DCS code appears on the display and blinks.

4 Press the key programmed as **[ENTER]**.



5 Enter your desired DCS code using the microphone keypad.

- Refer to the table below for DCS codes.

6 Press **[ENTER]** again to complete the setting.

DCS Code							
023	025	026	031	032	036	043	047
051	053	054	065	071	072	073	074
114	115	116	122	125	131	132	134
143	145	152	155	156	162	165	172
174	205	212	223	225	226	243	244
245	246	251	252	255	261	263	265
266	271	274	306	311	315	325	331
332	343	346	351	356	364	365	371
411	412	413	423	431	432	445	446
452	454	455	462	624	465	466	503
506	516	523	565	532	546	565	606
612	624	627	631	632	654	662	664
703	712	723	731	732	734	743	754

DCS CODE ID

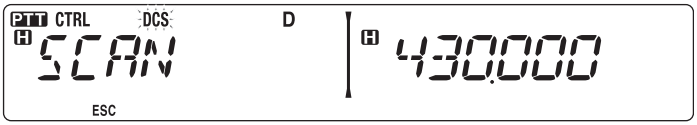
This function scans through all DCS codes to identify the incoming DCS code on a received signal. You may find it useful when you cannot recall the DCS code that the other persons in your group are using.

1 Press **[TONE]** 3 times to activate the DCS function.

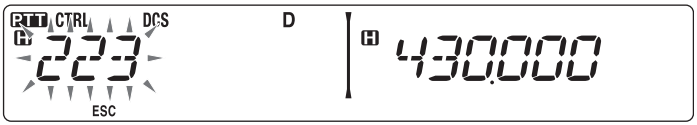
- The **DCS** icon appears on the display when the DCS function is ON.
- Each press of **[TONE]** changes the selection as follows:
  Tone (T) –> CTCSS (CT) –> DCS (DCS) –> Off (no display).

2 Press **[F], [TONE] (1s)**.

- The **DCS** icon blinks and “SCAN” appears on the display.
- Scan starts when a signal is received.



- To reverse the scan direction, turn the **Tuning** control clockwise (upward scan) or counterclockwise (downward scan). You can also press microphone **[UP]**/ **[DWN]**.
- To quit the scan, press **[F] (ESC)**.
- When a DCS code is identified, the identified code appears on the display and blinks.



3 Press the **Tuning** control to program the identified code in place of the currently set DCS code.

- The DCS function will remain ON. To cancel DCS, press **[TONE]** until DCS no longer appears on the display.
- Press **[F] (ESC)** if you do not want to program the identified code.
- Rotate the **Tuning** control while an identified code is blinking, to resume scanning.

The keys on the microphone keypad function as DTMF keys; the 12 keys found on a push-button telephone plus 4 additional keys (A, B, C, D). This transceiver provides 10 dedicated memory channels. You can store a DTMF number with up to 16 digits, along with a memory name of up to 8 digits in each of the channels to recall later for a quick call.

Some repeaters in the U.S.A. and Canada offer a service called Autopatch. You can access the public telephone network via such a repeater by sending DTMF tones. For further information, consult your local repeater reference.

MANUAL DIALING

Manual Dialing requires only two steps to send DTMF tones.

1 Press and hold the microphone **[PTT]**.

2 Press the keys in sequence on the keypad to send DTMF tones.

- The corresponding DTMF tones are transmitted.
- If the DTMF Hold function is activated, you need not hold down **[PTT]** while pressing keys. After transmitting the first tone (by pressing **[PTT]** and the first key), pressing additional keys will keep the transceiver in transmit mode for 2 seconds.

Frequency (Hz)	1209	1336	1447	1633
697	[1]	[2]	[3]	[A]
770	[4]	[5]	[6]	[B]
852	[7]	[8]	[9]	[C]
941	[*]	[0]	[#]	[D]

■ DTMF Hold

Activate this function to remain in transmit mode, after beginning to press keys when making a call.

1 Enter Menu mode and access Menu 300 (DT.HOLD) {page 20}.

2 Set DTMF Hold to ON to continue transmitting when pressing keys.

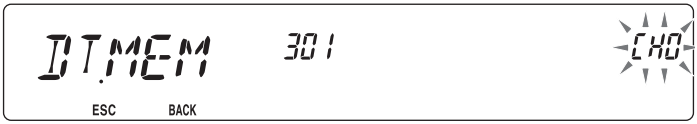
- Set this menu to OFF to stop the 2 second continuous transmission.

AUTOMATIC DIALER

There are 10 dedicated DTMF Memory channels available to store DTMF numbers. You can store up to 16 digits in each channel.

■ Storing a DTMF Number in Memory

1 Enter Menu mode and access Menu 301 (DT.MEM) {page 20}.



2 Rotate the **Tuning** control to select a channel number.

3 Press the **Tuning** control to set the selected channel number.

- The name entry display appears.

4 Enter a name for the channel {page 24}, the press the **Tuning** control to set it.

- The number entry display appears.

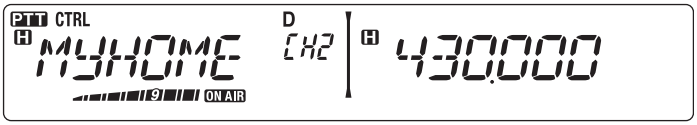
5 Enter a DTMF number for the channel {page 24}, then press the **Tuning** control to set it.

■ Transmitting Stored DTMF Numbers

1 Press and hold the microphone **[PTT]**.

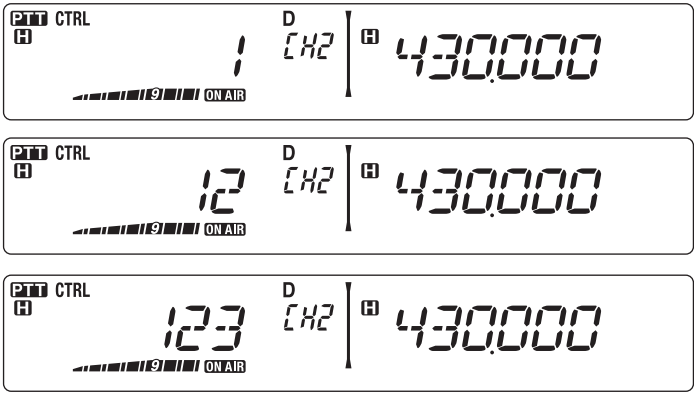
2 While transmitting, press the **Tuning** control.

- The last called DTMF Memory channel name and number appear on the display. If no name has been saved for the channel, the DTMF code appears.



3 While still transmitting, rotate the **Tuning** control to select your desired DTMF Memory channel, then press the **Tuning** control to set the channel.

- Additionally, you can press a DTMF key corresponding to your desired channel (**[0]** ~ **[9]**) to select the channel and begin transmission.
- The stored DTMF number scrolls across the display and is transmitted.
- The number will be transmitted even if you release **[PTT]** before the entire number has scrolled across the display.
- If no DTMF number is stored in the selected channel, the frequency display is restored.



■ Selecting a Transmit Speed

Some repeaters may not respond correctly if a DTMF number is transmitted at fast speed. If this happens, change the DTMF number transmission speed from FAST (default) to SLOW.

1 Enter Menu mode and access Menu 302 (DT.SPD) {page 20}.

2 Set the speed to FAST or SLOW.

■ Selecting a Pause Duration

You can change the pause duration stored in DTMF Memory channels; the default is 500 msec.

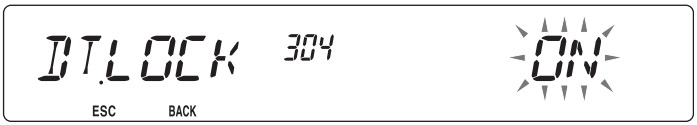
1 Enter Menu mode and access Menu 303 (DT.PAUS) {page 20}.

2 Select a speed (in msec) from the available list: 100/ 250/ 500/ 750/ 1000/ 1500/ 2000.

DTMF KEY LOCK

This function will lock the DTMF transmission keys so that they will not transmit if they are accidentally pressed. To lock the DTMF keys, turn this function ON.

1 Enter Menu mode and access Menu 304 (DT.LOCK) {page 20}.



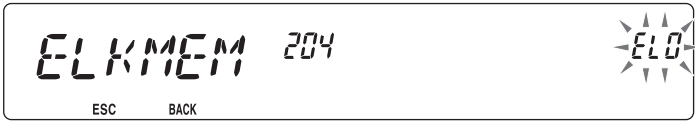
2 Set the key lock to ON or OFF.

AUTOMATIC DIALER

There are 10 dedicated EchoLink Memory channels available. You can store up to 8 characters in each channel.

■ Storing EchoLink Memory

1 Enter Menu mode and access Menu 204 (ELK.MEM) {page 20}.



2 Rotate the **Tuning** control to select an EchoLink channel number from EL0 ~ EL9.

3 Press the **Tuning** control to set the selected channel number.

- The call sign entry display appears.

4 Enter the call sign for the channel {page 24}, then press the **Tuning** control to set it.

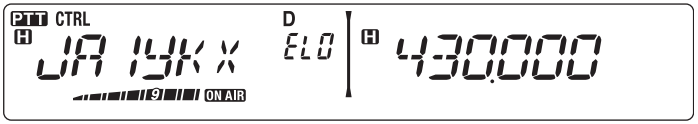
■ Transmitting EchoLink Memory

1 Select the band and frequency of the node to which you want to connect.

2 Press and hold the microphone **[PTT]**.

3 While transmitting, press the **Tuning** control.

- The last called Echolink/DTMF Memory channel name and number appears on the display.



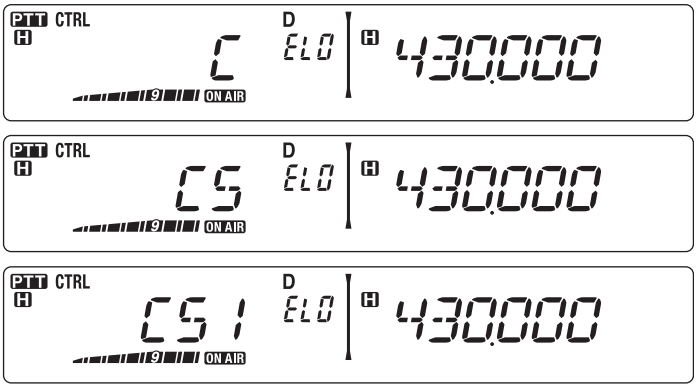
4 While still transmitting, rotate the **Tuning** control to select your desired EchoLink Memory channel, then press the **Tuning** control to set the channel.

- The stored code scrolls across the display and is transmitted.
- The code will be transmitted even if you release **[PTT]** before the entire code has scrolled across the display.
- The DTMF code of the changed Call Sign appears on the display. The Call Sign code is automatically preceeded with a “C” and ends with a “#”. DTMF values are listed in the following table:

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**0**
0	1	2	3	4	5	6	7	8	9	0
1	Q	A	D	G	J	M	P	T	W	
2	Z	B	E	H	K	N	R	U	X	
3		C	F	I	L	O	S	V	Y	

So, for example, if the Call Sign being transmitted was JA1YKX, the display would read: C 51 21 10 93 52 92 #

- If no data is stored in the selected channel, the frequency display is restored.



■ Selecting a Transmit Speed

Some repeaters may not respond correctly if a code is transmitted at fast speed. If this happens, change the EchoLink transmission speed from FAST (default) to SLOW.

1 Enter Menu mode and access Menu 205 (ELK.SPD) {page 20}.

2 Set the speed to FAST or SLOW.

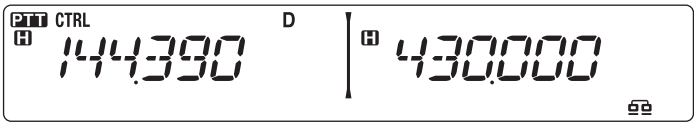
SETTING UP EchoLink MODE

When connected to a PC, you can set whether or not to use the RTS and CTS terminals for hard flow control, or the SQC and PKS terminals for EchoLink.

1 Turn the transceiver power OFF.

2 Press **[PF2] + Power ON** to turn EchoLink ON.

- The 🕮 icon appears on the display when EchoLink is ON.



- To turn EchoLink OFF, press **[PF2] + Power ON** again.

EchoLink Mode ON		
TM-V71		**PC**
TxD	–>	RxD
RxD	<–	TxD
SQC	–>	CTS
PKS	<–	RTS
GND	<–>	GND

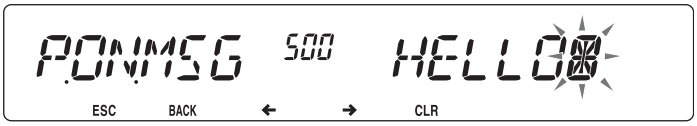
EchoLink Mode OFF		
TM-V71		**PC**
TxD	–>	RxD
RxD	<–	TxD
RTS	–>	CTS
CTS	<–	RTS
GND	<–>	GND

Note: When in EchoLink mode, you cannot change to Repeater mode or Remote Control mode.

POWER-ON MESSAGE

Each time you switch the transceiver ON, “HELLO” (default) appears on the display for approximately 2 seconds. You can program your favorite message in place of the default message.

1 Enter Menu mode and access Menu 500 (P.ON.MSG) {page 20}.



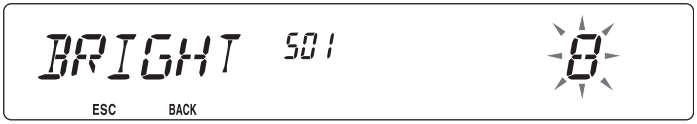
2 Enter your desired message {page 24}.

- Press **[PF1] (CLR)** to clear the entire message, if necessary.

DISPLAY BRIGHTNESS

You can manually change the display illumination to suit the lighting conditions where you are operating.

1 Enter Menu mode and access Menu 501 (BRIGHT) {page 20}.



2 Set your desired brightness level from 1 to 8, or OFF.

- Press **[PF1] (CLR)** to clear the entire message, if necessary.

■ Auto Display Brightness

When Auto Brightness is activated, the display will light up every time a key is pressed.

1 Enter Menu mode and access Menu 502 (AUTO.BR) {page 20}.

2 Set the Auto Brightness function to ON or OFF.

■ Backlight Color

You can manually change the display illumination to suit the lighting conditions where you are operating.

1 Enter Menu mode and access Menu 503 (COLOR) {page 20}.

2 Set the backlight color to AMBER or GREEN.

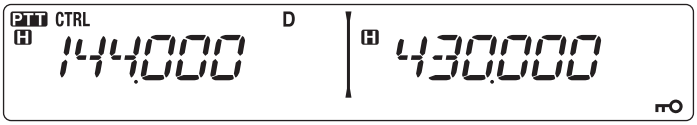
KEY LOCK

The Key Lock function ensures that your transceiver settings will remain unchanged if you accidentally press a key. When activated, the following functions can still be used:

- **[⏻]**
- **[PTT]**
- microphone **[PF]**

To turn Key Lock ON or OFF, press **[F] (1s)**.

- When Key Lock is activated, the 🔒 icon will appear on the display.



■ Microphone Key Lock

The Microphone Key Lock function will lock the microphone PF (Progammable Function) keys.

1 Enter Menu mode and access Menu 513 (MIC.LCK) {page 20}.

2 Turn the Micrphone Key Lock function ON or OFF.

KEY BEEP

You can turn the transceiver beep function ON or OFF as desired.

1 Enter Menu mode and access Menu 000 (BEEP) {page 20}.

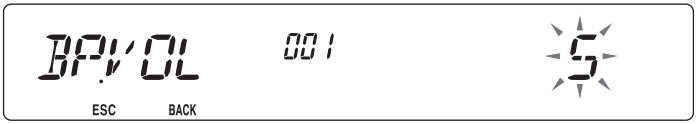
2 Turn the beep function ON or OFF.

- Even with the beep function turned OFF, the transceiver will emit a beep tone under the following conditions:
  1) When Auto Power Off is activated, the transceiver will beep 1 minute before the power turns off.
  2) After transmitting for the maximum time duration according to the Time-out Timer, the transceiver will beep

■ Beep Volume

Each time you press a key, the beep tone will sound. If you have left the beep function turned ON, you may wish to adjust the volume level of the beep.

1 Enter Menu mode and access Menu 001 (BP.VOL) {page 20}.



2 Set the beep volume to a level from 1 to 7.

- The default is level 5.

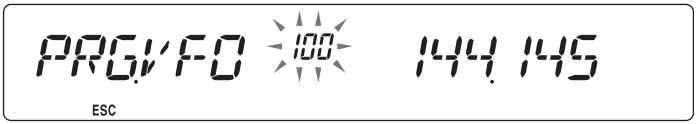
PROGRAMMABLE VFO

If you always check frequencies within a certain range, you can set upper and lower limits for frequencies that are selectable. For example, if you select 144 MHz for the lower limit and 145 MHz for the upper limit, the tunable range will be from 145.000 MHz to 146.995 MHz.

1 Press the left or right **[BAND SEL]** to set band A or B as the operating band, then press **[VFO]**.

2 Enter Menu mode and access Menu 100 (PRG.VFO) {page 20}.

(Example: E type)



3 Press the **Tuning** control.

- The lower frequency limit blinks.

4 Rotate the **Tuning** control to select your desired lower frequency limit, then press the **Tuning** control to set the selected value.

- The upper frequency limit blinks.

- When setting the limit for the 1200 MHz band, the 1 MHz digit appears on the 7-segment display to the right of the main display.

5 Rotate the **Tuning** control to select your desired upper frequency limit, then press the **Tuning** control to set the selected value.

6 Press **[CALL]** (**ESC)** to exit Menu mode.

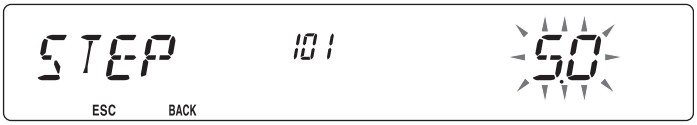
Note: You cannot program the 100 kHz and subsequent digits. The exact 100 kHz and subsequent digits of the upper limit depend on the frequency step size you are using.

CHANGING THE FREQUENCY STEP SIZE

Choosing the correct frequency step size is essential in selecting your exact frequency. The default step size on the 144 MHz band is 5 kHz (K type) or 12.5 kHz (E, M4 types). The default on the 430/440 MHz band is 25 kHz. For K type models, the default on the 118, 220, or 300 MHz band is 12.5 kHz and the default on the 1200 MHz band is 25 kHz.

1 Press the left or right **[BAND SEL]** to select band A or B, then press **[VFO]**.

2 Enter Menu mode and access Menu 101 (STEP) {page 20}.



3 Set the step size to 5.0*, 6.25*, or 8.33 kHz (118 MHz band only) or to 10.0, 12.5*, 15.0, 20.0, 25.0, 30.0, 50.0, or 100.0 kHz.

* These step sizes are not available for the 1200 MHz band.

Note: Changing between step sizes may correct the displayed frequency. For example, if 144.995 MHz is displayed with a 5 kHz step size selected, changing to a 12.5 kHz step size corrects the displayed frequency to 144.9875 MHz.

PROGRAMMABLE FUNCTION KEYS

■ Transceiver Front Panel

There are 2 PF (Programmable Function) keys on the transceiver front panel: PF1 and PF2. You can assign your own desired functions to these 2 keys.

1 Enter Menu mode and access Menu 507 (PF1) and/or Menu 508 (PF2) {page 20}.

2 Set your desired function for the key. Programmable functions available are: WX CH (Weather Channel)/ FR.BAND/ CTRL (Control)/ MONI (Monitor)/ VGS/ VOICE (Voice ON/OFF)/ GRP.UP/ MENU (Menu mode)/ MUTE (Speaker Mute)/ SHIFT (Shift)/ DUAL (Dual Mode)/ M>V (Memory to VFO Copy)/ 1750 (1750 Hz Tone).

■ Microphone Keys

There are 4 microphone PF (Programmable Function) keys: [PF] (PF1), [MR] (PF2), [VF0] (PF3) and [CALL] (PF4). You can assign your own desired functions to these 4 keys.

1 Enter Menu mode and access Menu 509 (MIC.PF1) and/or Menu 510 (MIC. PF2) and/or Menu 511 (MIC. PF2) and/or Menu 512 (MIC. PF2) {page 20}.

2 Set your desired function for the key. Programmable functions available are: WX CH (Weather Channel)/ FR.BAND/ CTRL (Control)/ MONI (Monitor)/ VGS/ VOICE (Voice ON/OFF)/ GRP.UP/ MENU (Menu mode)/ MUTE (Speaker Mute)/ SHIFT (Shift)/ DUAL (Dual Mode)/ M>V (Memory to VFO Copy)/ VFO/ MR/ CALL/ MHz/ TONE/ REV (Reverse)/ LOW/ LOCK/ A/B (Band Select A/ Band Select B)/ ENTER/ 1750 (1750 Hz Tone).

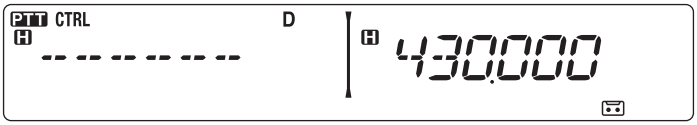
FREQUENCY DIRECT ENTRY

If the desired operating frequency is far from the current frequency, using the microphone keypad is the quickest way to change the frequency. One of the microphone PF keys must first be programmed as ENTER {page 66},

1 Press the left or right **[BAND SEL]** to select band A or B, then press **[VFO]** or **[CALL]**.

2 Press the key programmed as **[ENTER]**.

- The Direct Frequency Entry display appears.



3 Press the microphone keys (**[0]** ~ **[9]**) to enter your desired frequency.

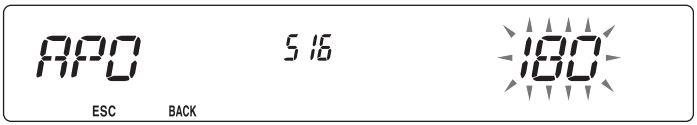
4 To set the entered frequency, press **[ENTER]** or **[VFO]**.

- Pressing **[ENTER]** before entering all of the digits will set the remaining digits to 0.
- Pressing **[VFO]** before entering all of the digits will leave the remaining digits at their previous values.
- Entering all digits for a frequency will automatically set the frequency without pressing **[ENTER]** or **[VFO]**.
- If you need to only change the MHz digit, press the **Tuning** control, then enter the new value.

AUTOMATIC POWER OFF (APO)

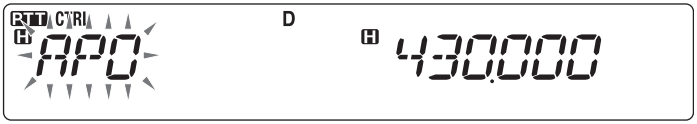
Automatic Power Off is a background function that monitors whether or not any operations have been performed (keys pressed, **Tuning** control turned, etc.), and turns the transceiver power OFF if it has not been in use.

1 Enter Menu mode and access Menu 516 (APO) {page 20}.



2 Set the APO time limit to 30, 60, 90, 120, 180 minutes, or OFF.

- After the time limit passes with no operations (default is 180 minutes), APO turns the transceiver power OFF. However, 1 minute before the power turns OFF, “APO” appears on the display and blinks, and a warning tone sounds.



Note: If any settings are changed during while APO is ON, the timer resets. When you stop changing the settings, the timer begins counting again from 0.

S-METER SQUELCH

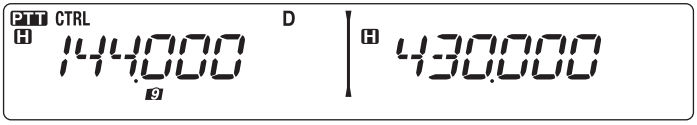
S-meter Squelch causes the squelch to open only when a signal with the same or greater strength than the S-meter setting is received. This function relieves you from constantly resetting the squelch when receiving weak stations that you have no interest in.

1 Enter Menu mode and access Menu 105 (S.SQL) {page 20}.

2 Set the S-Meter squelch to ON or OFF.

3 To select the desired S-meter setting, rotate the left (band A) or right (band B) SQL control depending on which band you have selected.

- The squelch will open only at the level you have selected (for example, level 9).



■ Squelch Hang Time

When using S-meter Squelch, you may want to adjust the time interval between when the received signals drop and when the squelch closes.

1 Enter Menu mode and access Menu 106 (S.SQ.HNG) {page 20}.

2 Set the hang time to 125 or 500 ms, or OFF.

ADVANCED INTERCEPT POINT (AIP)

The VHF/UHF band is often crowded in urban areas. AIP helps eliminate interference and reduce audio distortion caused by intermodulation. You can use this function only while operating on the VHF/UHF band.

1 Enter Menu mode and access Menu 103 (VHF.AIP) and/or Menu 104 (UHF.AIP) {page 20}.

2 Set the AIP to ON or OFF.

SWITCHING FM/AM MODE

This transceiver is also capable of receiving (not transmitting) in AM on band A. The default mode on the 118 MHz band is AM while the default on the 144, 220, 300, or 430/440 MHz band is FM.

1 Enter Menu mode and access Menu 102 (MODLAT) {page 20}.

2 Set the mode to AM, FM, or NFM.

Note: You cannot switch between FM and AM to receive on band B.

BEAT SHIFT

Since the transceiver uses a microprocessor to control various transceiver functions, the CPU clock oscillator's harmonics or image may appear on some spots of the reception frequencies. In this case, we recommend you turn the Beat Shift function ON.

1 Enter Menu mode and access Menu 108 (B.SHIFT) {page 20}.

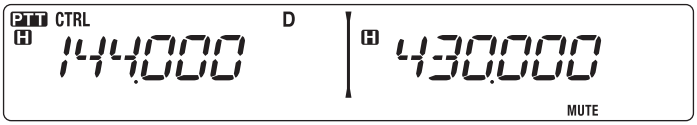
2 Set the Beat Shift to ON or OFF.

SPEAKER MUTE

While receiving or transmitting on the TX band, you may not want to hear audio received on the other band. Use this function to mute the speaker allocated to that band (not the TX band).

While receiving, press **[LOW]** to switch the mute function ON or OFF.

- The **MUTE** icon appears on the display when the function is ON.



■ Mute Hang Time

When using Speaker Mute, you may want to adjust the time interval between when you receive a signal and when the speaker is muted.

1 Enter Menu mode and access Menu 107 (MUT.HNG) {page 20}.

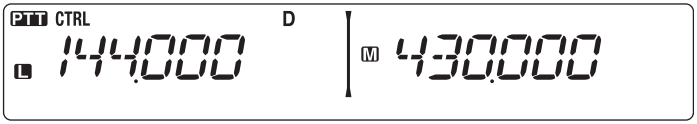
2 Set the hang time to 125, 250, 500, 750, or 1000 ms.

SELECTING AN OUTPUT POWER

It is a good idea to select lower transmit power if communications is still reliable. This lowers the risk of interfering with others on the band. When operating from battery power, you will enjoy more operating time before a recharge is necessary.

Press **[LOW]** to select high (H) (K, E types only), medium (M), or low (L) power. The default is high.

- You can program different power settings for bands A and B.



Note: When the transceiver overheats because of ambient high temperature or continuous transmission, the protective circuit may function to lower transmit output power.

TIME-OUT TIMER (TOT)

It is sometimes necessary or desirable to restrict a single transmission to a specific maximum time. You may use this function to prevent repeater time-outs when accessing repeaters, or to conserve battery power.

When TOT times out (default is 10 minutes), the transceiver generates beeps and automatically returns to receive mode. To resume transmitting, release and then press the microphone **[PTT]** again.

1 Enter Menu mode and access Menu 109 (TOT) {page 20}.

2 Set the timer to 3, 5, or 10 minutes.

EXTERNAL SPEAKER CONFIGURATION

This transceiver has two speaker jacks for external speakers, as well as an internal speaker. You can enjoy a variety of speaker configurations by using one or two external speakers. Received signals on bands A and B are output depending on how you want the internal and/or external speakers to function.

1 Enter Menu mode and access Menu 002 (EXT.SP) {page 20}.

2 Set the speaker mode to MODE 1 or MODE 2.

- Refer to the table below for configurations based on the mode selected.

Mode	Speaker Setup	Band Output		
		Internal Speaker	External SP1	External SP2
MODE 1	None	A, B	–	–
	SP1 only	x	A, B	–
	SP2 only	A	–	B
	SP1, SP2	x	A	B
MODE 2	None	A, B	–	–
	SP1 only	x	A, B	–
	SP2 only	B	–	A
	SP1, SP2	x	B	A

MASKING A BAND

If you have no plans to use band A or B, you can hide the frequency display on the unused band. This saves power consumption and makes it simpler to read the information you need.

1 Turn the transceiver power OFF.

2 Press the left or right **[BAND SEL] + Power ON**.

- The band mask display appears.

3 Rotate the **Tuning** control to select the band you want to hide (or return to normal).

4 Press the **Tuning** control to set the selected band.

5 Rotate the **Tuning** control to set the band to select USE or MASK.

- USE allows you to see and use the band as normal. MASK hides the band on the display.

6 Press the **Tuning** control to set the selection.

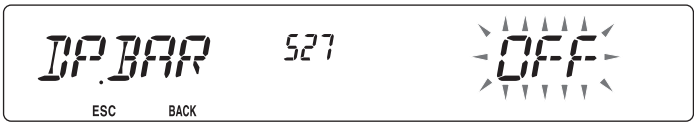
7 Press the **[CALL] (ESC)** to exit.

Note: You cannot operate the masked band nor use it to receive or transmit.

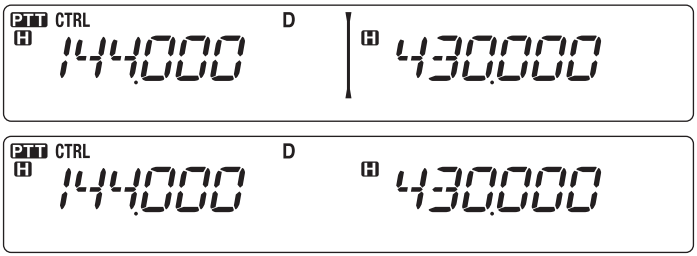
DISPLAY PARTITION BAR

The partition bar that appears between bands A and B can be removed if desired.

1 Enter Menu mode and access Menu 527 (DP.BAR) {page 20}.



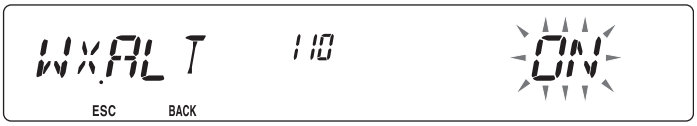
2 Set the partition bar display to ON or OFF.



WEATHER ALERT (K TYPE MODELS ONLY)

The Wealther Alert is available only in the USA and Canada. When activated, this function will check for a received NOAA 1050 Hz tone. When the tone is received, the weather alert tone will sound.

1 Enter Menu mode and access Menu 110 (WX.ALT) {page 20}.



2 Set the Weather Alert to ON or OFF.

- When activated, the **WX** icon appears on the display.
- When a signal is being received, the **WX** icon blinks.

■ Weather Channel

Whether or not the Weather Alert is activated, you can still access the weather channels. The Weather Alert simply notifies you of activity on the weather channels.

1 Press the key programmed with the **WX** function.

2 Rotate the **Tuning** control to select your desired channel.

Channel No.	Frequency (MHz)	Memory Name	Location
A1	162.550	WX 1	NOAA/ Canada
A2	162.400	WX 2	NOAA/ Canada
A3	162.475	WX 3	NOAA/ Canada
A4	162.425	WX 4	NOAA
A5	162.450	WX 5	NOAA
A6	162.500	WX 6	NOAA
A7	162.525	WX 7	NOAA
A8	161.650	WX 8	Canada
A9	161.775	WX 9	Canada
A10	163.275	WX 10	–

PASSWORD PROTECTION

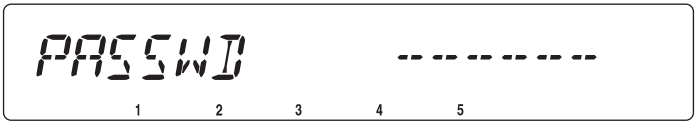
If password protection is activated, you cannot operate the transceiver without first entering your password, after turning the transceiver power ON. Your password can be changed using the MCP control software.

The password can contain up to 6 digits. When using the front panel keys, you can enter digits from 1 ~ 5. When using the microphone keypad, you can enter digits from 0 ~ 9 and A ~ F.

1 Enter Menu mode and access Menu 998 (PROTEC) {page 20}.

2 Set the password protection to ON or OFF.

- When set to ON, “PASSWD” appears on the display.



3 Enter your password using the microphone keypad or the transceiver front panel keys.

- When using the transceiver front panel keys, they operate as follows:

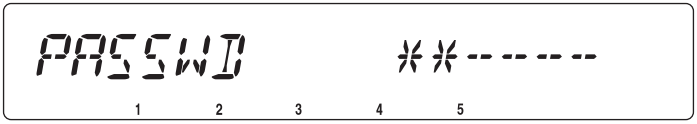
  [CALL]: 1

  [F]: 2

  [TONE]: 3

  [REV]: 4

  [LOW]: 5



4 After entering up to 6 digits, press the **Tuning** control to set the password.

When using the optional VGS-1 voice guide & storage unit, you gain access to the voice recorder and voice announcement functions.

VOICE ANNOUNCEMENTS

When changing modes, frequencies, settings, etc., an audio voice will announce the new information.

1 Enter Menu mode and access Menu 003 (ANN) {page 20}.

2 Set the announcement function to MANUAL, AUTO, or OFF.

- Refer to the tables below for announcements based on settings.

MANUAL: A microphone PF key must be programmed as **[VOICE]** to use MANUAL voice announcment.	
Operation	**Announcement**
While in VFO mode	Press **[VOICE]**: Operating band frequency
While in MR mode	Press **[VOICE]**: “Channel” + Channel number + operating band frequency
While in Call mode	Press **[VOICE]**: “Call channel” + operating band frequency
While in Menu mode	Press **[VOICE]**: Menu number or setting value (some selections have no voice announcement)
While setting up Tone/CTCSS/DCS	Press **[VOICE]**: Current frequency/code

AUTO: Announcements are made automatically when changing a mode/frequency/setting.	
Operation	**Announcement**
Press [VFO]	“VFO”
Press [MR]	“MR”
Press [CALL]	“Call”
Press [MENU]	“Menu” + menu number
Press [PM]	“PM”
Press [ENT]	“Enter”
Change the operating band/ turn the power ON	“A”/“B” + “Channel” (for MR only) + “Call”/channel number + “Channel (for CALL only) + operating band frequency + output power level
Change the frequency band	New receive frequency
Setting up the PM	Channel number/“Off”
Frequency direct entry	Entered key number
Memory Direct Entry mode	Channel number
Press [F] in VFO mode	“Memory in” + channel number + frequency
Press [F], [M.IN] in VFO mode	“Memory in” + channel number + “Blank”
Press [A/B] in VFO mode	“A”/“B” + frequency + output power level
Press [F] and then the Tuning control in VFO mode	“Menu” + menu number
Press the Tuning control in Menu mode	Setting value
Perform a Full Reset	“Full reset?”
Perform a Partial Reset	“Partial reset?”
Perform a VFO Reset	“VFO reset?”
Perform a PM Reset	“PM reset?”
Press [LOCK] (to turn the Lock function ON)	“Lock on”
Press [LOCK] (to turn the Lock function OFF)	“Lock off”
Tone frequency setup	“Tone frequency” + frequency value
CTCSS frequency setup	“CTCSS frequency” + frequency value
DCS code setup	“DCS” + code value
MHz step frequency setup	“MHz Step” + frequency value
10 MHz setup	“10” + “MHz setup” + frequency value
Output power setup	“TX Power” + power level

■ Voice Announcement Language

1 Enter Menu mode and access Menu 004 (ANN.LNG) {page 20}.

2 Set the language to ENG (English) or JPN (Japanese).

■ Voice Announcement Volume

1 Enter Menu mode and access Menu 005 (ANN.VOL) {page 20}.

2 Set the announcement volume level from 1 to 7.

- To turn the volume OFF, turn the announcement function OFF.

■ Voice Announcement Speed

1 Enter Menu mode and access Menu 006 (ANN.SPD) {page 20}.

2 Set the announcement speed level from 0 to 4.

- The speed settings are as follows:
  0: 0.85 times normal speed
  1: Normal speed
  2: 1.15 times normal speed
  3: 1.30 times normal speed
  4: 1.45 times normal speed

VOICE RECORDER

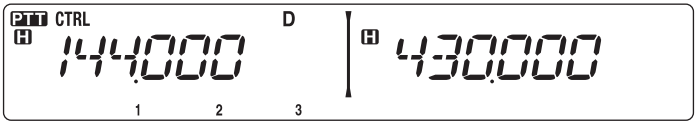
The voice recorder provides you with 3 VGS channels for recording voice memos, along with a single VGS channel for recording conversations. You can also prepare automated message responses to received calls.

Each recording can last for up to 30 seconds.

■ Voice Memos

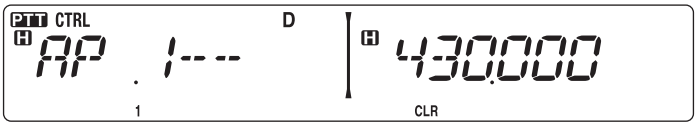
To record a voice memo, for later playback:

1 Press the PF key programmed as **[VGS]**.



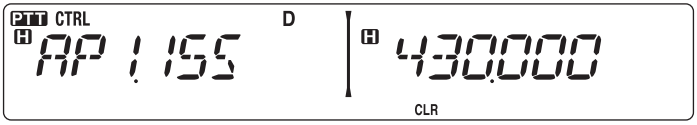
2 Press and hold the key for the VGS channel number you want to store the memo in: **[F] (1)**, **[TONE] (2)**, or **[REV] (3)**.

- A beep will sound and the transceiver will enter Recording mode.



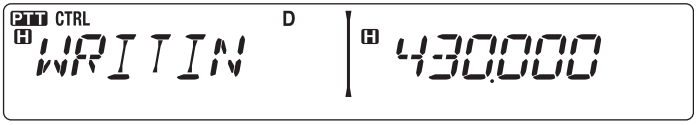
3 Press and hold the VGS channel number key again (the same key you pressed in the previous step), then speak into the microphone to record your memo.

- Recording begins as soon as you press the VGS channel number key, and a timer appears on the display.
- Pressing the microphone **PTT** switch at this time will transmit your message as well as record it. Do not press the microphone **PTT** switch if you do not want to transmit your message.



4 Release the VGS channel number key to end the recording at any time and store it into the selected VGS channel.

- If the memory becomes full, recording will stop automatically and store the voice memo to memory.
- “WRITING” appears on the display while the recording is being stored to memory.



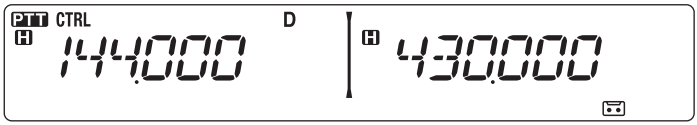
■ Conversation Recorder

To record a 30 second conversation:

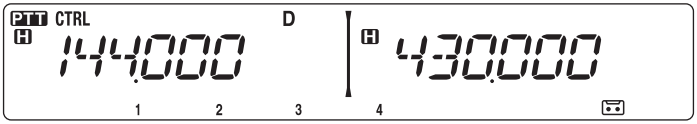
1 Enter Menu mode and access Menu 009 (CON.REC) {page 20}.

2 Set the Conversation Recorder to ON (or OFF).

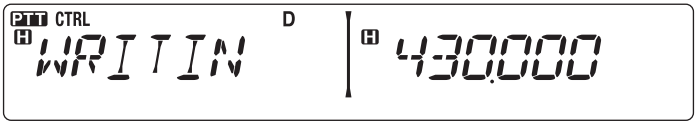
- The icon appears on the display when this function is activated. The icon does not appear during playback, in Repeater mode, or in Remote Control mode.



3 Press the PF key programmed as **[VGS]**.

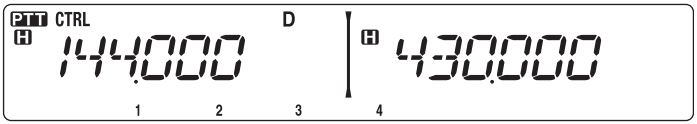


4 Press **[LOW]** (**4**) (**1s**) to store the conversation in VGS channel 4.



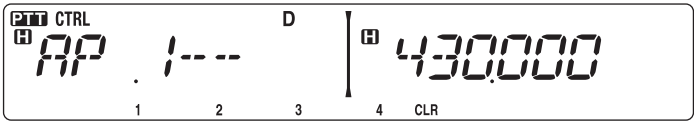
■ Playback

1 Press the PF key programmed as **[VGS]**.



2 Press the key for the VGS channel number you want to play back: **[F] (1)**, **[TONE] (2)**, **[REV] (3)**, or **[LOW] (4)**.

- The recording saved in the channel you selected is played back.



- To end playback at any time, press **[PF1] (CLR)**.
- To exit, press **[VGS]** again.
- During playback, you can switch to any of recordings 1, 2, or 3 by pressing the appropriate key.
- While playing a recording, you can transmit the recording by pressing the **[PTT]** switch. (Continue holding the **[PTT]** switch until the entire recording is transmitted.)

■ Playback Repeat

You can set messages to be repeatedly played back.

1 Enter Menu mode and access Menu 007 (PLAY.BK) {page 20}.

2 Set the the Playback Repeat function to ON or OFF.

■ Playback Repeat Interval

If the Playback Repeat function is activated, you can set a time interval for how often the memo/message is played back.

1 Enter Menu mode and access Menu 008 (P.BK.INT) {page 20}.

2 Set the interval from 0 to 60 seconds.

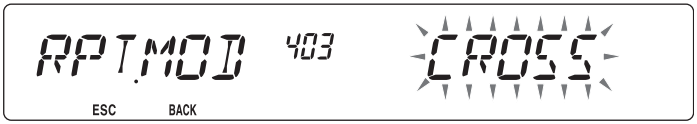
CROSS-BAND/ LOCKED-BAND OPERATION (K TYPE MODELS ONLY)

This transceiver is capable of receiving signals on one band and retransmitting signals on the other band. This function repeats signals originating from one band, using the other band. For example, a signal received on band A (VHF) is retransmitted on band B (UHF). Similarly, a signal received on band B (UHF) is retransmitted on band A (VHF).

Locked-band Repeater: The transceiver uses the same band to receive or transmit a signal. You can set either the A band (A-TX) or B band (B-TX) as the transmit band.

Cross-band Repeater: If receiving a signal on the TX band, the transceiver switches the current RX only band to the TX band. This is useful when joining in a group talk. Participants in a group talk need to set a receive and transmit frequency on different bands so as not to miss any conversation within the group.

1 Enter Menu mode and access Menu 403 (RPT.MOD) {page 20}.



2 Set the Repeater operation mode to CROSS (cross-band), A-TX (A band), or B-TX (B band).

3 Turn the transceiver power OFF.

4 Press **[TONE] + Power ON**.

- The Repeater mode is ON and the PTT and ⊓O icons blink on the display.
- You are unable to perform any transceiver functions while in Repeater mode.
- To return to normal operation, turn the transceiver power OFF, then press **[TONE] + Power ON**.

Note:

- ◆ You cannot activate the Repeater function while in single band operating mode or Weather Channel mode.
- ◆ Activating the Repeater function switches OFF the Automatic Simplex Checker (ASC).
- ◆ The Time-Out Timer is locked at 3 minutes.
- ◆ Resetting the transceiver {page 88} will not cancel the Repeater mode.

REPEATER HOLD

If necessary, you can set the transceiver to remain in the transmit mode for 500 ms after a signal drops.

1 Enter Menu mode and access Menu 404 (RPT.HLD) {page 20}.

2 Set the Repeater Hold function to ON or OFF.

REPEATER ID

If necessary, you can set the transceiver to transmit your call sign every 10 minutes.

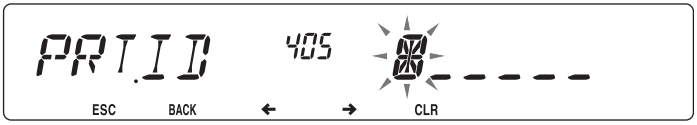
1 Enter Menu mode and access Menu 406 (ID.TX) {page 20}.

2 Set the ID Trasmit function to OFF, MORSE, or VOICE.

- To use VOICE transmission, you must have the VGS-1 option installed. When using the VGS-1 option, the ID Transmit function will use VGS channel 3 as the call sign {page 78}.
- When selecting MORSE, the call sign stored in Menu 405 {see below} will be transmitted at 20 wpm (words per minute).

■ Entering your Repeater ID

1 Enter Menu mode and access Menu 405 (RPT.ID) {page 20}.



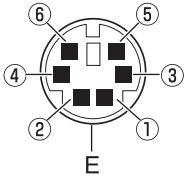
2 Enter your call sign {page 24}.

Connect this transceiver to your personal computer via a Terminal Node Controller (TNC). You can send messages or commands to far away stations, obtain a variety of information via your local bulletin boards, or enjoy other Packet applications. Reference material for starting Packet operation should be available at any store that handles Amateur Radio equipment.

Note:

- When the distance between the radio antenna and your personal computer is too close, interference may occur.
- Do not share a power source between the transceiver and the TNC. When the distance between the TNC and your personal computer is too close, interference may occur.

Data terminal pins:



No.	Name	I/O	Function
①	PKD	Input	Audio signal for packet transmission
②	DE	—	PKD terminal ground
③	PKS	Input	'L' is transmitted and the microphone is muted
④	PR9	Output	9600(bps) repeat signal
⑤	PR1	Output	1200(bps) repeat signal
⑥	SQC	Output	Squelch control signal; Closed: 'L', Open: 'H'
	E	—	Common ground

DATA BAND

Select how data will be transmited and received on your transceiver.

1 Enter Menu mode and access Menu 517 (DAT.BND) {page 20}.

2 Set the data band to A (A band receives and transmits), B (B band receives and transmits), ATX.BRX (A band transmits and B band receives), or ARX.BTX (A band receives and B band transmits).

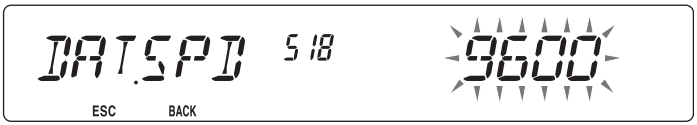
DATA TERMINAL SPEED

Select 1200 or 9600 bps for the data transfer rate, depending on your TNC.

1200 bps: The transmit data input (PKD) sensitivity is 40 mV_{p-p}, and the input impedance is 10 kΩ.

9600 bps: The transmit data input (PKD) sensitivity is 2 V_{p-p}, the input impedance is 10 kΩ, and the TNC has dual speed capability with a 2 V_{p-p} output.

1 Enter Menu mode and access Menu 518 (DAT.SPD) {page 20}.

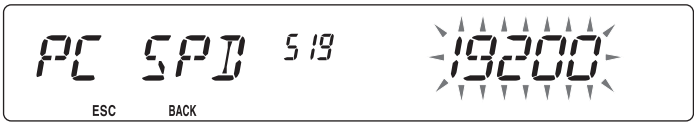


2 Set the data speed to 1200 or 9600 bps.

PC PORT SPEED

You can adjust the speed at which the computer and transceiver exchange information, when the transceiver is connected to your computer.

1 Enter Menu mode and access Menu 519 (PC .SPD) {page 20}.



2 Set the PC port speed to 9600, 19200, 38400, or 57600 bps.

SQC OUTPUT SETTING

You can set the condition for which the SQC output terminal becomes active.

1 Enter Menu mode and access Menu 520 (SQC.SRC) {page xx}.

2 Set the SQC output activation method to one of the following:

- OFF: SQC output remains inactive.
- BUSY: When a signal is received on the data band, the SQC output becomes active.
- SQL: While CTCSS/DCS is ON and a matching signal is received, the SQC output becomes active. While CTCSS/DCS is OFF, the SQC output becomes active when a busy signal is received.
- TX: While transmitting, the SQC output becomes active.
- BUSY.TX: When the conditions of BUSY and TX (above) are met, the SQC output becomes active.
- SQL.TX: When the conditions of SQL and TX (above) are met, the SQC output becomes active.

If you also have a compatible **Kenwood** handy transceiver, you may use it as a remote control for this mobile transceiver. You will control one band on the mobile while sending DTMF tones to the other band from the handheld. This function is useful, for example, when you want to control the mobile from a location outside your vehicle.

Note:

- As a remote control, you can also use a handy transceiver which does not have a remote control function but a DTMF function. However, you must manually send DTMF tones for control code strings. Skip steps 1 and 3 in "PREPARATION".
- The FCC rules permit you to send control codes only on the 440 MHz band.

PREPARATION

Let us assume band A (VHF) of the mobile transceiver will be controlled.

On the handy transceiver:

1 Program a 3-digit secret number.
- For the programming method, see the instruction manual for the handheld.

2 Select the transmit frequency on the UHF band.

3 Make the handheld enter Remote Control mode.
- For the method, see the instruction manual for the handheld. If not described, consult your dealer.

On the mobile transceiver:

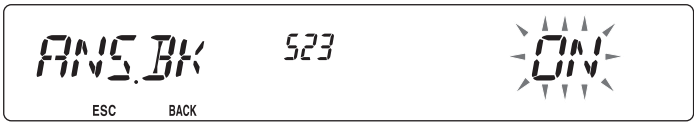
4 Enter Menu mode and access Menu 522 (REM.ID) {page 20}.

5 Set the ID code to the same secret number you set on the handy transceiver.

6 Select the receive frequency on band B (UHF).
- Match this frequency with the transmit frequency on the handheld.

7 Select band A (VHF) as the TX band or Control band.

8 To cause the mobile to send a control acknowledgment to the handheld, enter Menu 523 (ANS.BK) and set it to ON.
- DTMF tones which represent the secret number will be used as an acknowledgment.



9 Turn the transceiver power OFF.

10 Press **[REV] + Power ON** to enter Remote Control mode.

- The CTRL and ⊶ icons appear on the display.
- To exit Remote Control operation, turn the transceiver power OFF, then press **[REV] + Power ON** again.

CONTROL OPERATION

While in Remote Control mode, the DTMF keys of the handheld will function as shown in the table below. Each time you press the desired key, the handheld will automatically enter transmit mode and send the corresponding command to the mobile.

Operation	DTMF Command
Access your mobile via the remote unit (where *** is your 3-digit secret number)	A *** #
End access of your mobile via the remote unit	A #
DCS ON	1
Tone ON	2
CTCSS ON	3
DCS OFF (all signalling OFF)	4
Tone OFF (all signalling OFF)	5
CTCSS OFF (all signalling OFF)	6
Call mode ON	7
VFO mode ON	8
Memory mode ON	9
Transmit power (press to toggle between High, Medium, and Low)	0
Frequency (in VFO mode) or Memory channel (in Memory mode) directy entry	A XXXXXXX
DCS code (when DCS is ON), Tone frequency (when Tone is ON), or CTCSS frequency (when CTCSS is ON) setup	B XXX
Repeater (Cross-band or Locked-band) ON	C
Repeater OFF	D
Step the frequency or Memory channel down	*
Step the frequency or Memory channel up	#

TRANSCEIVER RESET

There are 4 types of transceiver reset available:

VFO Reset
Use to initialize the VFO and accompanying settings.

PART (Partial) Reset
Use to initialize all settings other than the Memory channels, the DTMF memory, and the PM channels.

PM Reset
Use to reset only the Programmable Memory channels to their default values.

FULL Reset
Use to initialize all transceiver settings that you have customized.

There are 2 ways to perform a reset on the transceiver: by key operation and by accessing Menu mode.

Key Operation:

1 Turn the transceiver power OFF.

2 Press **[F] + Power ON**.

3 Rotate the **Tuning** control and select your desired reset type: VFO, PART, PM, or FULL.

4 Press the **Tuning** control to set the reset type.

- A confirmation message appears on the display.

- Press **[TONE] (BACK)** to return to the previous display or **[F] (ESC)** to cancel the reset.

5 Press the **Tuning** control again to perform the reset.

Note: When in Remote Control or Repeater mode, you cannot reset the transceiver using the Key Operation method.

Menu Mode:

1 Enter Menu mode and access Menu 999 (RESET) {page 20}.

2 Set the reset type to VFO, PART, PM, or FULL.

3 Press the **Tuning** control to set the reset type.

- A confirmation message appears on the display.

- Press **[TONE] (BACK)** to return to the previous display or **[F] (ESC)** to cancel the reset.

4 Press the **Tuning** control again to perform the reset.

Note: When the Channel Display function or Key Lock function is ON, the transceiver reset cannot be performed.

OPTIONS

The following options are available for use with this transceiver:

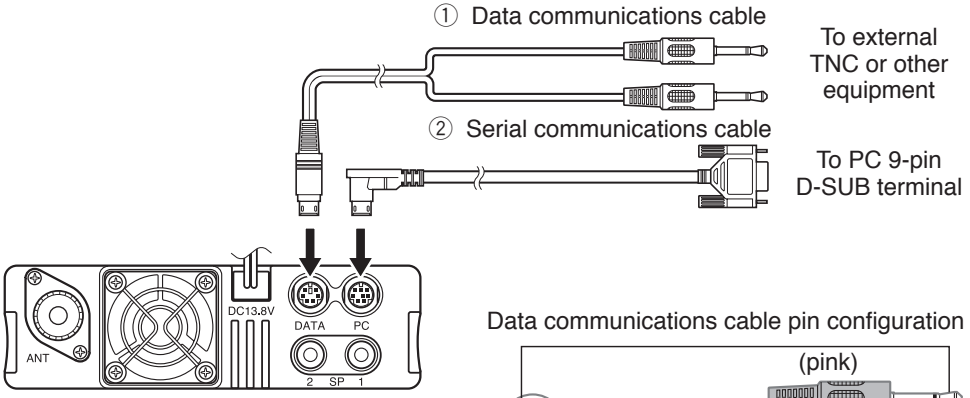
- DFK-3D Detachable Front Panel Kit
- MC-45 Microphone
- MC-59 Microphone with keypad
- MCP-2A MCP (web download software)
- MJ-88 Microphone Plug Adapter
- MJ-89 Modular Plug Microphone Switch
- PG-2N DC Cable
- PG-20 DC Cable (7m)
- PG-3B Noise Filter
- PG-5A Data Cable
- PG-5G Programming Interface Cable
- PG-5H PC Interface Cable Kit
- PG-5F Extension Cable Kit
- PS-33 DC Power Supply
- PS-53 DC Power Supply
- SP-50B External Speaker
- VGS-1 Voice Guide & Storage Unit

Note: Optional accessories for use with this transceiver may change, post-production. (New options may become available and/or current options may be discontinued.) Please refer to the options catalog(s) for applicable transceivers.

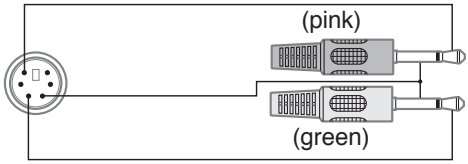
CONNECTING THE PG-5G/ PG-5H INTERFACE CABLES

The PG-5G package comes with cable ② (below).

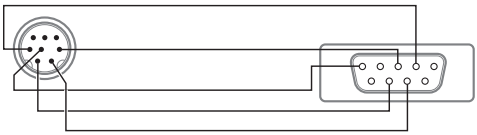
The PG-5H packages comes with cables ① and ② (below).



Data communications cable pin configuration



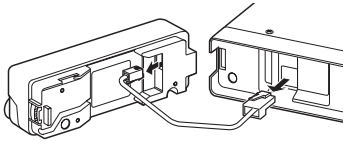
Serial communications cable pin configuration



INSTALLING THE DFK-3D PANEL KIT

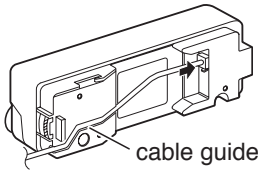
■ Installing the Sub-Panel

1 Detach the front operation panel from the base unit, then remove the modular cable from both sides.



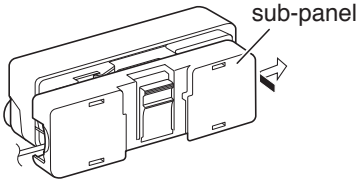
2 Connect the 4-pin connector of the supplied modular cable to the operation panel.

- Align the cable with the cable guide.



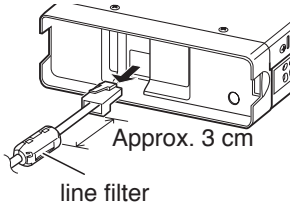
3 Connect the supplied sub-panel to the operation panel.

- Install the sub-panel in a manner so as not to disrupt the cable.



4 Connect the 8-pin connector of the supplied modular cable to the base unit.

- The line filter is pre-installed onto the cable.



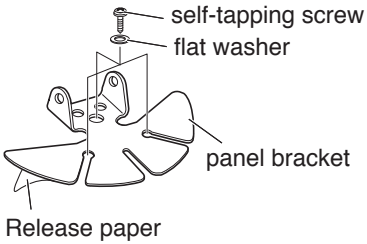
■ Installing the Panel Bracket

1 Clean and dry the installation location.

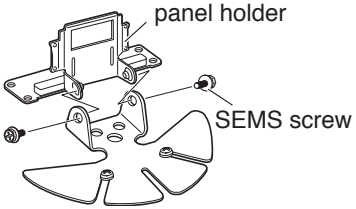
> ⚠ CAUTION
>
> Do not install the bracket close to an air bag.

2 Remove the release paper from the base of the panel bracket, then secure it in place using the 3 supplied self-tapping screws.

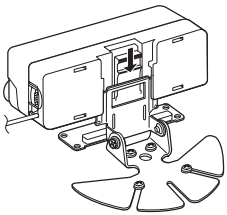
- Allow the panel to set for a while, to ensure it remains fast. Otherwise, vibrations may occur.
- After removing the release paper, it cannot be reused.



3 Attach the panel holder to the base bracket using the 2 supplied SEMS screws.



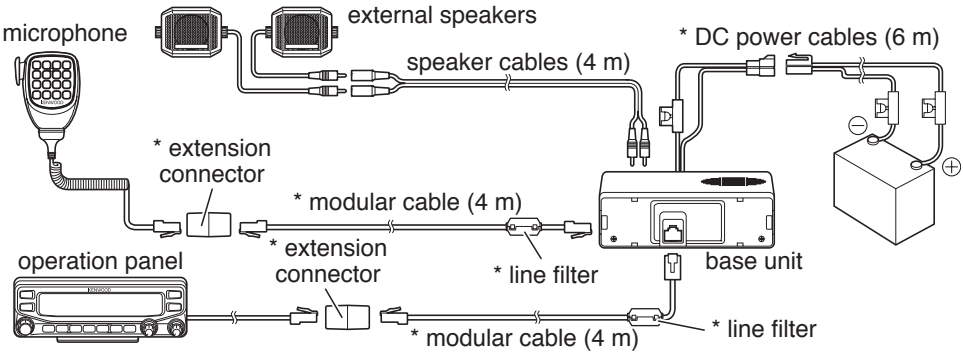
4 Attach the operation panel to the panel holder so that it locks in place.



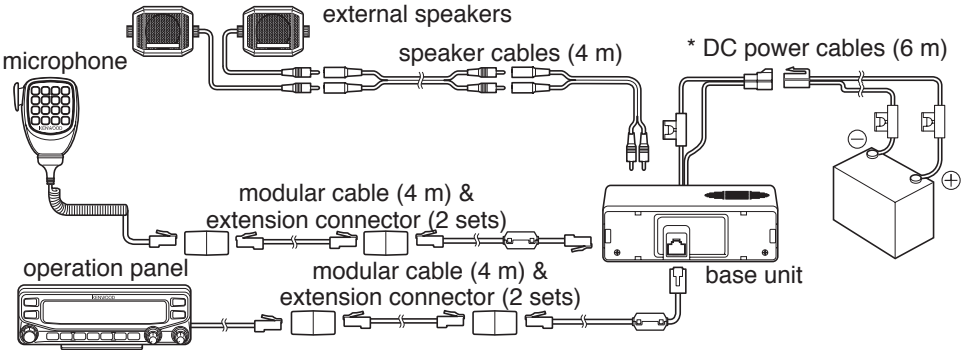
CONNECTING THE PG-5F EXTENSION CABLE

If necessary, the PG-5F extension cable kit can be used with the DFK-3D panel kit. Using two PG-5F kits, you can extend the cables to the maximum length. (Components marked with an asterisk * are included in the PG-5F kit.)

■ Connecting Using a Single Extension Kit

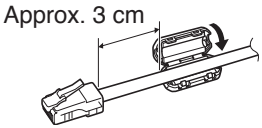


■ Connecting Using Two Extension Kits



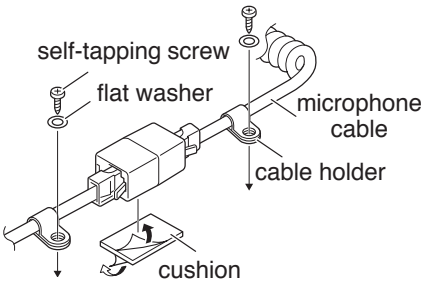
■ Installing the Line Filter

Install the line filter approximately 3 cm from the connector which attaches to the base unit.



■ Affixing the Microphone Cable

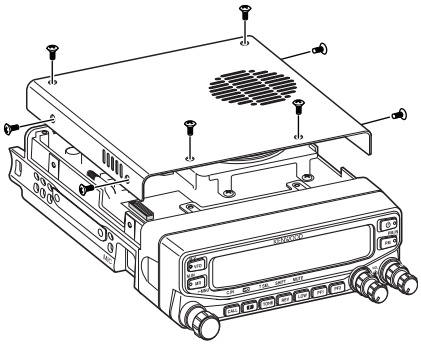
Lock the microphone cable down as shown in the illustration.



INSTALLING THE VGS-1 VOICE GUIDE UNIT

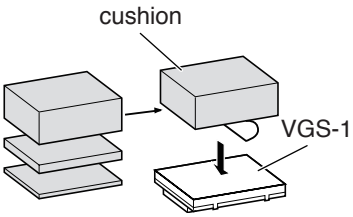
Follow the instructions below to install the VGS-1 unit.

1 Remove the 8 screws from the cover of the base unit, then remove the cover itself from the unit.



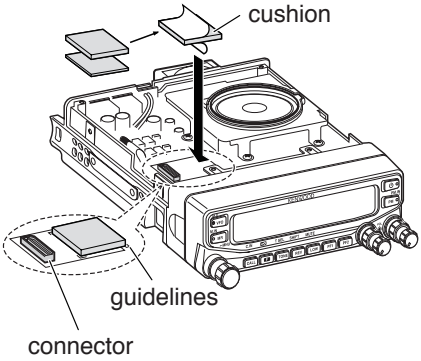
2 From the 5 black cushions supplied with the VGS-1, select the thickest rectangular cushion (20 x 30 x 12 mm) and attach it to the top surface of the VGS-1 unit.

- To prevent interferece to the terminal of the VGS-1, ensure that you attach the thick square cushion to the baseplate surface.



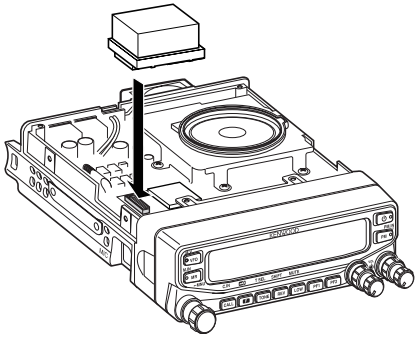
3 From the remaining cushions, select the thickest square cushion (21 x 21 x 2.5 mm) and attach it to the printed circuit board.

- The remaining cushions are not used with this transceiver.
- Ensure that the cushion is placed within the guidelines on the PCB.



4 Insert the VGS-1 unit into the connector on the transceiver.

- Press down on the top of the VGS-1 unit to ensure that it is securely attached to the connector.



5 Replace the cover on the base unit and secure it using the 8 screws.

GENERAL INFORMATION

This product has been factory aligned and tested to specification before shipment. Attempting service or alignment without factory authorization can void the product warranty.

SERVICE

When returning this product to your dealer or service center for repair, pack it in its original box and packing material. Include a full description of the problem(s) experienced. Include your telephone number along with your name and address in case the service technician needs to contact you; if available, also include your fax number and e-mail address. Don't return accessory items unless you feel they are directly related to the service problem.

You may return this product for service to the authorized **Kenwood** dealer from whom you purchased it, or any authorized **Kenwood** service center. Please do not send subassemblies or printed circuit boards; send the complete product. A copy of the service report will be returned with the product.

SERVICE NOTE

If you desire to correspond on a technical or operational problem, please make your note legible, short, complete, and to the point. Help us help you by providing the following:

- Model and serial number of equipment
- Question or problem you are having
- Other equipment in your station pertaining to the problem

CAUTION

Do not pack the equipment in crushed newspapers for shipment! Extensive damage may result during rough handling or shipping.

Note:

- Record the date of purchase, serial number and dealer from whom this product was purchased.
- For your own information, retain a written record of any maintenance performed on this product.
- When claiming warranty service, please include a photocopy of the bill of sale or other proof-of-purchase showing the date of sale.

CLEANING

To clean the case of this product, use a neutral detergent (no strong chemicals) and a damp cloth.

TROUBLESHOOTING

The problems described in this table are commonly encountered operational malfunctions and are usually not caused by circuit failure.

Problem	Probable Cause	Corrective Action
The transceiver will not power up after connecting a 13.8 V DC power supply and pressing [⏻]. Nothing appears on the display.	**1** The power cable was connected backwards. **2** One or more of the power cable fuses are open.	**1** Connect the supplied DC power cable correctly (red to + terminal and black to – terminal). **2** Look for the cause of the blown fuse(s). After inspecting and correcting any problems, install a new fuse(s) with the same ratings.
The frequency cannot be selected by turning the **Tuning** control or by pressing microphone **[UP]/[DWN]**.	Memory Recall was selected.	Press **[VFO]**.
Most keys and the **Tuning** control do not function.	**1** One of the Lock functions is ON. **2** The transceiver is in Channel Display mode.	**1** Unlock all of the Lock functions. **2** With the transceiver power OFF, press **[REV] + Power ON** to exit Channel Display mode.
Memory channels cannot be selected by turning the **Tuning** control or by pressing microphone **[UP]/[DWN]**.	No data has been stored in any Memory channel.	Store data in some Memory channels.
You cannot transmit even though you are pressing **[PTT]**.	**1** The microphone plug was not inserted completely into the transceiver. **2** You selected a transmit offset that places the transmit frequency outside the allowable range. **3** The external TNC is transmitting.	**1** Switch the power OFF, then insert the microphone plug until the locking tab clicks in place. **2** Turn the offset shift function OFF. **3** Press **[PTT]** after the TNC has finished transmitting.

Specifications are subject to change without notice due to advancements in technology.

<table>
<tr><th colspan="5">General</th><th>K Type</th><th>E Type</th><th>M4 Type</th></tr>
<tr><td rowspan="2">Guaranteed range</td><td>VHF Band A</td><td colspan="3">TX & RX</td><td>144 ~ 148 MHz</td><td colspan="2">144 ~ 146 MHz</td></tr>
<tr><td>UHF Band B</td><td colspan="3">TX & RX</td><td>438 ~ 450 MHz</td><td colspan="2">430 ~ 440 MHz</td></tr>
<tr><td rowspan="10">Frequency range</td><td rowspan="5">Band A</td><td colspan="3">TX</td><td colspan="2">144 ~ 148 MHz</td><td>—</td></tr>
<tr><td colspan="3">RX</td><td colspan="2">118 ~ 200 MHz</td><td>—</td></tr>
<tr><td colspan="3">TX (sub UHF)</td><td colspan="2">438 ~ 450 MHz</td><td>—</td></tr>
<tr><td colspan="3">RX (sub UHF)</td><td colspan="2">300 ~ 470 MHz</td><td>—</td></tr>
<tr><td colspan="3">RX</td><td colspan="2">200 ~ 300 MHz</td><td>—</td></tr>
<tr><td rowspan="5">Band B</td><td colspan="3">TX</td><td colspan="2">438 ~ 450 MHz</td><td>—</td></tr>
<tr><td colspan="3">RX</td><td colspan="2">300 ~ 524 MHz</td><td>—</td></tr>
<tr><td colspan="3">TX (sub UHF)</td><td colspan="2">144 ~ 148 MHz</td><td>—</td></tr>
<tr><td colspan="3">RX (sub UHF)</td><td colspan="2">136 ~ 175 MHz</td><td>—</td></tr>
<tr><td colspan="3">RX</td><td colspan="2">800 ~ 1300 MHz
(excluding cellular band)</td><td>—</td></tr>
<tr><td colspan="5">Mode</td><td colspan="3">F2D/ F3E</td></tr>
<tr><td colspan="5">Antenna impedance</td><td colspan="3">50 Ω</td></tr>
<tr><td colspan="5">Operating temperature range</td><td colspan="3">–20°C ~ +60°C (–4°F ~ +140°F)</td></tr>
<tr><td colspan="5">Power requirement</td><td colspan="3">13.8 V DC ±15% (Negative ground)</td></tr>
<tr><td colspan="5">Frequency stability</td><td colspan="3">Within ±5 ppm</td></tr>
<tr><td rowspan="7">Current</td><td rowspan="6">TX</td><td rowspan="3">VHF</td><td>Hi</td><td colspan="3">Less than 11.5 A</td></tr>
<tr><td>Mid</td><td colspan="3">Less than 5.0 A</td></tr>
<tr><td>Low</td><td colspan="3">Less than 4.0 A</td></tr>
<tr><td rowspan="3">UHF</td><td>Hi</td><td colspan="3">Less than 10.0 A</td></tr>
<tr><td>Mid</td><td colspan="3">Less than 6.0 A</td></tr>
<tr><td>Low</td><td colspan="3">Less than 5.0 A</td></tr>
<tr><td colspan="4">RX</td><td colspan="3">Less than 5.0 A</td></tr>
<tr><td rowspan="2">Dimensions (W x H x D)</td><td colspan="4">Without projections</td><td colspan="3">Panel: 140 x 43 x 38.2 mm (5.51" x 1.69" x 1.50")
Body: 140 x 43 x 180.7 mm (5.51" x 1.69" x 7.11")</td></tr>
<tr><td colspan="4">With projections</td><td colspan="3">Panel: 140 x 43 x 55.4 mm (5.51" x 1.69" x 2.18")
Body: 140 x 43 x 213.1 mm (5.51" x 1.69" x 8.39")</td></tr>
<tr><td colspan="5">Weight (approx.)</td><td colspan="3">1.5 kg (3.3 lbs)</td></tr>
</table>

Transmitter		K Type	E Type	M4 Type
RF power output	Hi	50 W		—
	Mid	Approx. 10 W		25W
	Low	Approx. 5 W		
Modulation		Reactance modulation		
Maximum frequency deviation		Within ±5 kHz		
Spurious radiation		Less than –60 dB		
Modulation distortion (300 Hz ~ 3 kHz)		Less than 3%		
Microphone impedance		600 Ω		

Receiver		K Type	E Type	M4 Type
Circuitry		Double super heterodyne		
Intermediate frequency	1st (A band/ B band)	45.05 MHz/ 49.95 MHz		
	2nd (A band/ B band)	455 kHz/ 450 kHz		
Sensitivity		Less than 0.16 V		
Squelch sensitivity		Less than 0.1 V		
Selectivity	–6 dB	More than 12 kHz		
	–40 dB	Less than 28 kHz		
Low frequency output (8 Ω)		More than 2 W (at 5% distortion)		

Note: Receiver specifications apply only when using the main VHF or UHF band. They do not apply to the sub VHF or UHF band.

Concerning the received frequency display, an unmodulated signal may be received. This is according to the set intrinsic frequency form.

	<A band>		<B band>		
VxU reception	(144 MHz + 45.05 MHz) x 2	–	(430 MHz - 49.95 MHz)	=	45.05 MHz, 49.95 MHz
	(144 MHz + 45.05 MHz) x 4	–	(430 MHz - 49.95 MHz) x 2	=	45.05 MHz, 49.95 MHz
UxV reception	(430 MHz - 45.05 MHz)	–	(144 MHz + 49.95 MHz) x 2	=	45.05 MHz, 49.95 MHz
	(430 MHz - 45.05 MHz) x 2	–	(144 MHz + 49.95 MHz) x 4	=	45.05 MHz, 49.95 MHz

KENWOOD

CE 0682 ⓘ