

■ VOX function

<MODE> SSB/AM/FM

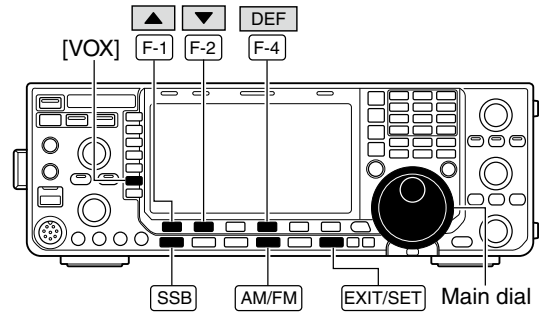
The VOX (Voice-Operated Transmission) function switches between transmit and receive with your voice. This function provides “hands-free” operation.

◇ Using the VOX function

- ① Select a phone mode (SSB, AM, FM).
- ② Push **[VOX] (MF6)** to turn the VOX function ON or OFF.
 - “VOX” appears while the VOX is in use.

◇ Adjusting the VOX function

- ① Select a phone mode (SSB, AM, FM).
- ② Push and hold **[VOX] (MF6)** for 1 sec. to enter VOX set mode.
- ③ Select the desired item using **[▲] (F-1)** or **[▼] (F-2)**.
- ④ Rotate the main dial to the desired set value or condition.
 - Push and hold **[DEF] (F-4)** for 1 sec. to select a default value.
- ⑤ Push **[EXIT/SET]** to exit VOX set mode.



• VOX set mode screen



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VOX Gain	50%
<p>This item adjusts the VOX gain for the VOX function. Higher values make the VOX function more sensitive to your voice.</p> <p>While speaking into the microphone with your normal voice level, rotate the main dial to the point where the transceiver is continuously transmitting.</p>	
<p>This setting can be adjusted from 0% to 100% in 1% steps.</p>	

Anti-VOX	50%
<p>This item adjusts the ANTI-VOX gain for the VOX function. Higher values make the VOX function less sensitive to receiver output audio from a speaker or headphones.</p> <p>During receive, rotate the main dial to the point where the transceiver does not switch to transmit due to received audio from the speaker.</p>	
<p>This setting can be adjusted from 0% to 100% in 1% steps.</p>	

VOX Delay	0.2s
<p>Set the VOX delay for a convenient interval before returning to receive within 0.0 to 2.0 sec. range.</p>	

VOX Voice Delay	OFF
<p>Set the VOX voice delay to prevent clipping of the first few syllables of a transmission when switching to transmit.</p> <p>OFF, Short, Mid and Long settings are available.</p>	
<p>When using the VOX voice delay, turn the TX monitor function OFF to prevent transmitted audio from be echoed.</p>	

■ Break-in function

<MODE> CW

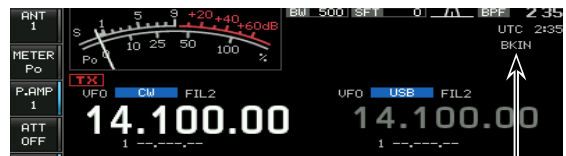
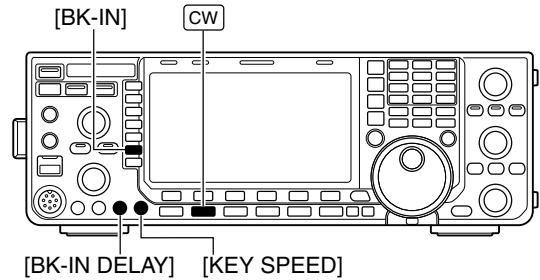
The break-in function is used in CW mode to automatically toggle the transceiver between transmit and receive when keying. The IC-7600 is capable of full break-in or semi break-in.

◇ Semi break-in operation

During semi break-in operation, the transceiver immediately transmits when keying, then returns to receive after a pre-set delay time has passed from when you stop keying.

- ① Push **[CW]** to select CW or CW-R mode.
- ② Push **[BK-IN] (MF6)** once or twice to turn the semi break-in function ON.
 - “BKIN” appears.
- ③ Rotate **[BK-IN DELAY]** to set the break-in delay time (the delay from transmit to receive).

▨ When using a paddle, rotate **[KEY SPEED]** to adjust the keying speed.



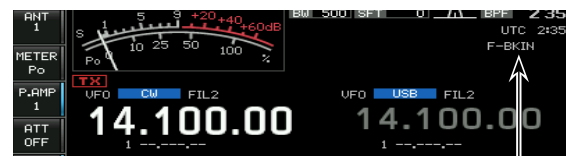
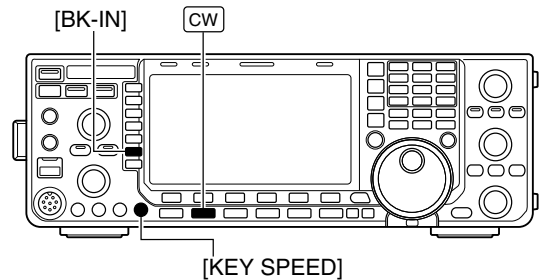
Appears

◇ Full break-in operation

During full break-in operation, the transceiver immediately transmits when keying, then returns to receive after you stop keying.

- ① Push **[CW]** to select CW or CW-R mode.
- ② Push **[BK-IN] (MF6)** once or twice to turn the full break-in function ON.
 - “F-BKIN” appears.

▨ When using a paddle, rotate **[KEY SPEED]** to adjust the keying speed.



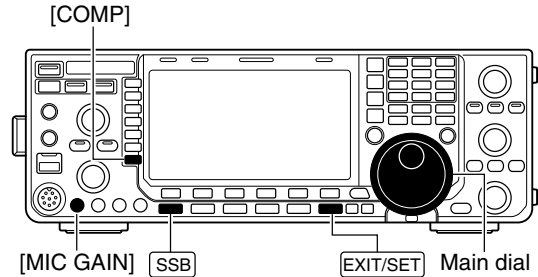
Appears

■ Speech compressor

<MODE> SSB

The speech compressor increases average RF output power, improving signal strength and readability.

- ① Push **[SSB]** to select USB or LSB mode.
- ② Push and hold **[COMP] (MF7)** for 1 sec. to select COMP TBW set screen.
- ③ Adjust the **[MIC GAIN]** control so that the ALC meter reads within the ALC zone, whether or not you speak softly or loudly.
- ⑤ Push **[COMP]** to turn the speech compressor ON.
- ④ While speaking into the microphone, rotate the main dial, so that the COMP meter reads within the COMP zone (10 to 20 dB range) for your normal voice level.
 - ▨ When the COMP meter peaks exceed 20 dB, your transmitted voice may be distorted.
- ⑤ Push **[COMP] (MF7)** or **[EXIT/SET]** to exit COMP TBW set mode.
- ⑥ Adjust the ALC meter reading within the 30 to 50% range of the ALC scale. (p. ??)



• COMP/TBW set screen



Speech compressor is OFF



Speech compressor is ON

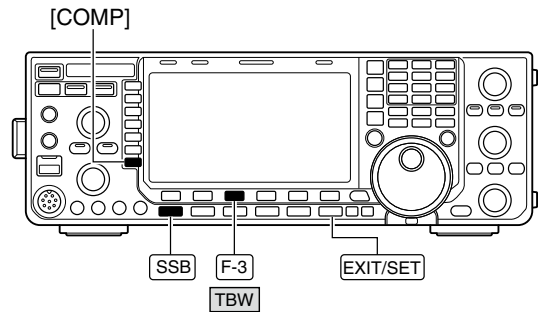
4

■ Transmit filter width setting

<MODE> SSB

The transmit filter width for SSB mode can be selected from wide, middle and narrow.

- ① Push **[SSB]** to select USB or LSB mode.
- ② Push and hold **[COMP] (MF7)** for 1 sec. to select COMP TBW set screen.
- ⑤ Push **[COMP]** to turn the speech compressor ON or OFF.
- ⑤ Push **[TBW] (F-3)** several times to select the desired transmit filter width from wide, middle and narrow.
 - The filter can be independently set on the speech compressor function is ON and OFF.
 - The following filters are specified as the default. Each of the filter width can be re-set in level set mode. (p. ??)
 - WIDE : 100 Hz to 2.9 kHz
 - MID : 300 Hz to 2.7 kHz
 - NAR : 500 Hz to 2.5 kHz
- ⑤ Push **[COMP] (MF7)** or **[EXIT/SET]** to exit COMP TBW set mode.



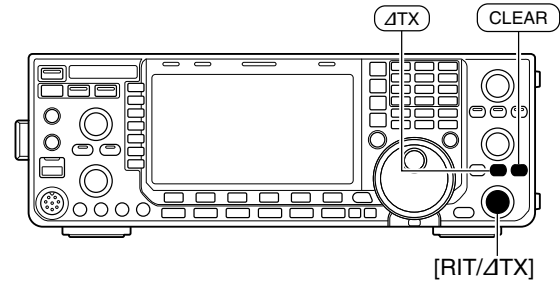
“WIDE” setting

■ ΔTX function

The ΔTX function shifts the transmit frequency up to ±9.999 kHz in 1 Hz steps (10 Hz steps when cancelling the 1 Hz step readout) without moving the receive frequency.

- ① Push **[ΔTX]** to turn ΔTX function ON.
 - “**ΔTX**” and the shifting frequency appear when the function is ON.
- ② Rotate the **[RIT/ΔTX]** control.
- ③ To reset the ΔTX frequency, push and hold **[CLEAR]** for 1 sec.
 - Push **[CLEAR]** momentarily to reset the ΔTX frequency when the quick RIT/ΔTX clear function is ON. (p. ??)
- ④ To cancel the ΔTX function, push **[ΔTX]** again.
 - “**ΔTX**” and the shifting frequency disappears.

When RIT and ΔTX are ON at the same time, the **[RIT/ΔTX]** control shifts both the transmit and receive frequencies from the displayed frequency at the same time.



Appears

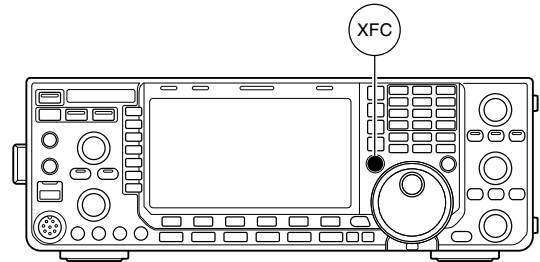
◇ ΔTX monitor function

When the ΔTX function is ON, pushing and holding **[XFC]** allows you to monitor the operating frequency directly (ΔTX is temporarily cancelled).

✓ For your convenience— Calculate function

The shift frequency of the ΔTX function can be added/subtracted to the displayed frequency.

- ➔ While displaying the ΔTX shift frequency, push and hold **[ΔTX]** for 1 sec.



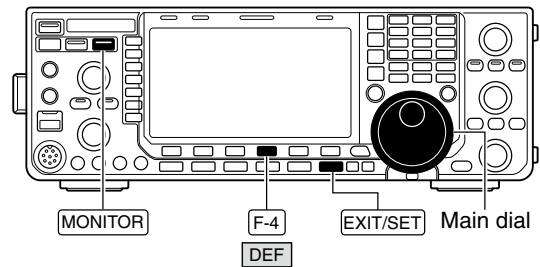
■ Monitor function

The monitor function allows you to monitor your transmit IF signals in any mode. Use this to check voice characteristics while adjusting SSB transmit parameter (p. ??).

The CW side tone functions regardless of the **[MONITOR]** switch setting.

- ① Push **[MONITOR]** to switch the monitor function ON and OFF.
 - The indicator on this switch lights green when the monitor function is ON.
- ② Push and hold **[MONITOR]** to monitor set mode.
- ③ Rotate the main dial to adjust the monitor level.
 - Push and hold **[DEF] (F-4)** for 1 sec. to select a default value.
- ④ Push **[EXIT/SET]** to exit monitor set mode.

NOTE: When using the VOX voice delay, turn the monitor function OFF; or transmitted audio will be echoed.



• Monitor set mode



■ Split frequency operation

Split frequency operation allows you to transmit and receive in the same mode on two different frequencies. Split frequency operation is performed using 2 frequencies on the main and sub readouts.

The following is an example of setting 21.290 MHz for receiving and 21.310 MHz for transmitting.

- ① Set 21.290 MHz (USB) in VFO mode.
- ② Push **[SPLIT]** momentarily, then push and hold **[CHANGE]** for 1 sec.
 - The quick split function is much more convenient for selecting the transmit frequency. See the next section for details.
 - The equalized transmit frequency and “**SPLIT**” appear on the LCD.
 - **[SPLIT]** indicator lights.
 - “**TX**” appears to show the transmit frequency readout.
- ③ Rotate the main dial while pushing **[XFC]** to set the transmit frequency to 21.310 MHz.
 - The transmit frequency can be monitored while pushing **[XFC]**.
- ④ Now you can receive on 21.290 MHz and transmit on 21.310 MHz.

To change the transmit and receive frequencies, push **[CHANGE]** to exchange the main and sub readouts.

✓ CONVENIENT

• Direct shift frequency input

The shift frequency can be entered directly.

- ① Push **[F-INP ENT]**.
- ② Enter the desired shift frequency with the digit keys.
 - 1 kHz to 1 MHz can be set.
 - When you require a negative shift direction, push in advance.
- ③ Push **[SPLIT]** to input the shift frequency in the sub readout and the split function is turned ON.

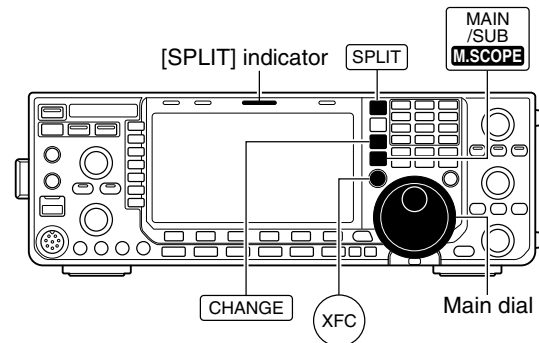
• Dualwatch function

The dualwatch function is convenient for tuning the transmit frequency while monitoring both frequencies used for transmitting and receiving.

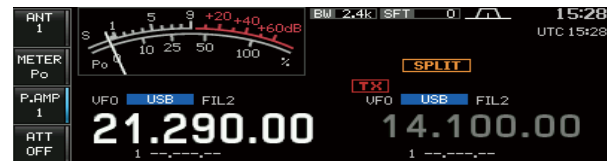
• Split lock function (p. ??)

Accidentally releasing **[XFC]** while rotating the main dial changes the receive frequency. To prevent this, use both the split lock and dial lock functions to change the transmit frequency only. The split lock function cancels the dial lock function while pushing **[XFC]** during split frequency operation.

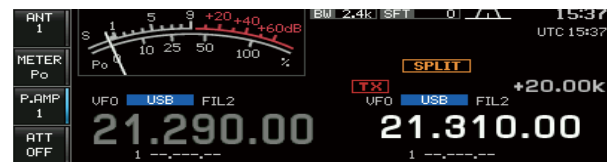
The dial lock's effect during split frequency operation can be selected in the set mode for both receive and transmit frequencies; or only the receive frequency. (p. ??)



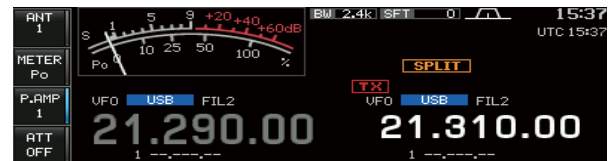
• When the split function ON



• When [XFC] is pushed



• The split frequency operation is ready



■ Quick split function

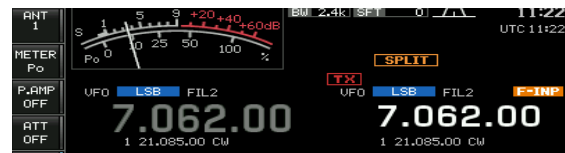
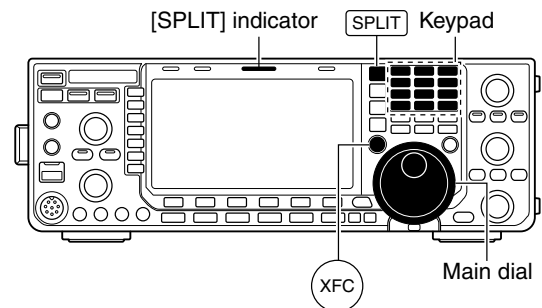
When you find a DX station, an important consideration is how to set the split frequency.

When you push and hold the **[SPLIT]** switch for 1 sec., the split frequency operation is turned ON, and the sub readout frequency is equalized to the main readout frequency, then enters standby for transmit frequency input.

This shortens the time needed to begin split frequency operation.

The quick split function is ON by default. For your convenience, it can be turned OFF in others set mode. (p. ??) In this case, the **[SPLIT]** switch does not equalize the main and sub readout frequencies.

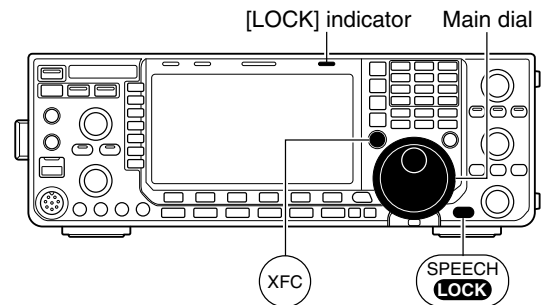
- ① Suppose you are operating at 21.290 MHz (USB) in VFO mode.
- ② Push and hold **[SPLIT]** for 1 sec.
 - Split frequency operation is turned ON.
 - The sub readout is equalized to the main readout frequency.
 - The sub readout enters standby for transmit frequency input and “**F-INP**” appears.
 - During FM mode operation, the sub readout frequency shifts from the main readout frequency according to the others set mode setting.
- ③ Rotate the main dial to set the transmit frequency; or, input the transmit frequency using the keypad and **[F-INP ENT]**; or, input a shift frequency using the keypad and **[SPLIT]**.
 - “**F-INP**” disappears when **[F-INP ENT]** is pushed.
 - Offset frequency setting with the keypad and **[SPLIT]**.
[Example]
To transmit on 1 kHz higher frequency:
- Push **[1.8 1]** then **[SPLIT]**.
To transmit on 3 kHz lower frequency:
- Push **[GENE •]**, **[7 3]** then **[SPLIT]**.



◇ Split lock function

The split lock function is convenient for changing only the transmit frequency. When the split lock function is not used, accidentally releasing **[XFC]** while rotating the main dial, changes the receive frequency. The split lock function is ON by default, but can be turned OFF in set mode. (p. ??)

- ① While split frequency operation is ON, push and hold **[SPEECH/LOCK]** for 1 sec. to activate the split lock function.
 - **[LOCK]** indicator lights.
- ② While pushing and holding **[XFC]**, rotate the main dial to change the transmit frequency.
 - If you accidentally release **[XFC]** while rotating the main dial, the receive frequency does NOT change.



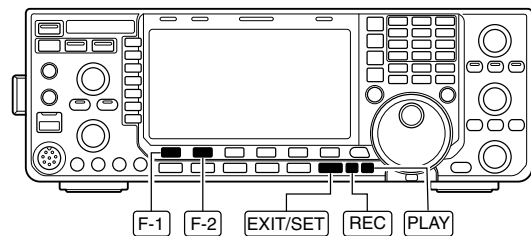
■ About digital voice recorder

The IC-7600 has digital voice memories, up to 4 messages for transmit, and up to 20 messages for receive.

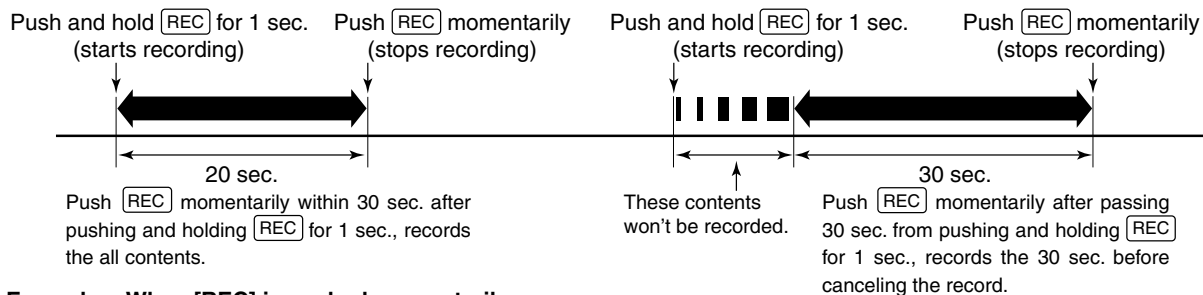
A maximum message length of 30 sec. can be recorded into receive memory (total message length for all channels of up to 209 sec.) and a total message length of up to 99 sec. can be recorded in transmit memory.

The transmit memory is very convenient for repeated CQ and exchange transmissions in contests, as well as when making repeated calls to DX'peditions.

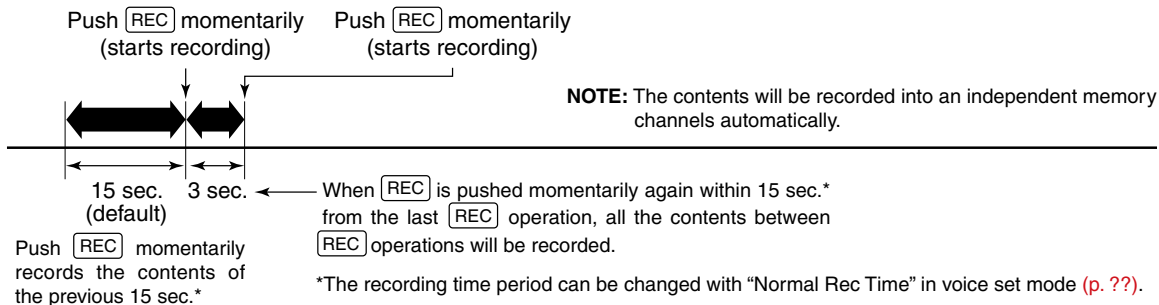
- ① Select any mode.
- ② Push [VOICE] (F-2) to display voice recorder screen.
- ③ Push [EXIT/SET] to display voice recorder menu.
- ④ Push [PLAY] (F-1) or [MIC REC] (F-2) to select the desired memory channel screen, then record audio or playback the contents as described below.
- ⑤ Push [EXIT/SET] twice to exit voice recorder screen.



• Example— When [REC] is pushed and held for 1sec.

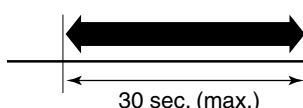


• Example— When [REC] is pushed momentarily



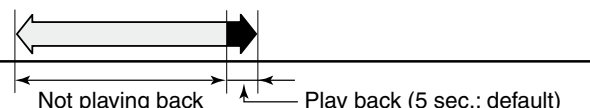
• Playing back the all contents in a channel

Push [PLAY] (F-3) momentarily.
Or, push and hold [PLAY] for 1 sec.



• Playing back the end of 5 sec.* in a channel

Push [PLAY] momentarily.



*The playing back time period can be changed with "Short Play Time" in voice set mode (p. ??).

■ Recording a received audio

Up to 20 receive voice memories are available in the IC-7600. A total of 209 sec. of audio can be recorded in receive messages. However, the maximum recordable length into a single message is 30 sec.

This voice recorder records not only the received audio, but also the information such as set operating frequency, mode, and the recording time for your future reference.

◇ Basic recording

- ① Push [EXIT/SET] several times to close a multi-function screen, if necessary.
- ② Select the desired mode.
- ③ Push [VOICE] (F-2) to call up the voice recorder screen.
 - Previously selected screen, TX or RX memory, is displayed.
 - If the TX memory channel (T1–T4) appears, push [T/R] (F-6) to select RX memory channel.
- ④ Push and hold [REC] for 1 sec. to start recording.
 - The operating frequency, mode and current time are programmed as the memory names automatically.
- ⑤ Push [REC] momentarily to stop recording.

IMPORTANT!

Push [REC] to stop recording before, or when 30 sec. has elapsed from the start of recording. The voice recorder memory records 30 sec. (max.) of audio before [REC] is pushed. For example, when recording 40 sec. of audio, the first 10 sec. audio will be over-written with the last 10 sec., so that the total of audio recorded is only 30 sec. When you record the 21st audio message, or when the total audio length exceeds 209 sec., the oldest recorded audio is automatically erased to make room for the new audio.

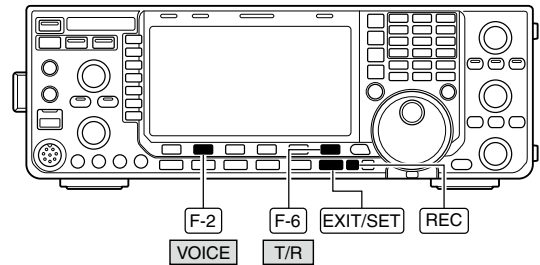
- ⑥ Push [EXIT/SET] twice to exit the voice recorder screen.

NOTE: When transmit (or [PTT] is pushed) while recording, no audio will be recorded.

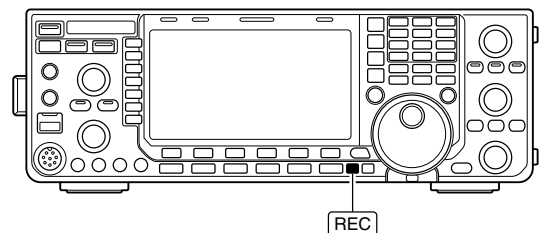
◇ One-touch recording

To record the received signal immediately, one-touch voice recording is available.

- ➔ Push [REC] momentarily to store the previous 15 sec. audio.
 - The recordable time period can be set in voice set mode. (p. ??)



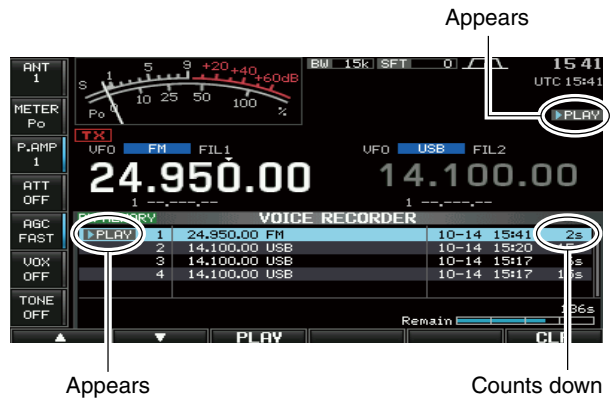
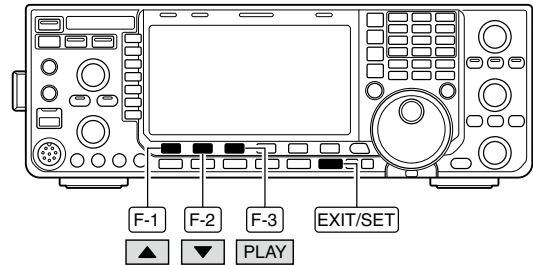
The remaining time for recording is indicated.



■ Playing the recorded audio

◇ Basic playing

- ① Push [EXIT/SET] several times to close a multi-function screen, if necessary.
- ② Push [VOICE] (F-2) to call up the voice recorder screen.
 - Previously selected screen, TX or RX memory, is displayed. If the TX memory message (T1–T4) appears, push [T/R] (F-6) to select RX memory message.
- ③ Push [▲] (F-1) or [▼] (F-2) to select the desired voice memory to playback.
- ④ Push [PLAY] (F-3) to start playback.
 - “▶PLAY” indicators appear and the timer counts down.
- ⑤ Push [PLAY] (F-3) again to stop playback if desired.
 - Playback is terminated automatically when all of the recorded contents in the message are played, or after 30 sec.
- ⑥ Push [EXIT/SET] twice to exit the voice recorder screen.

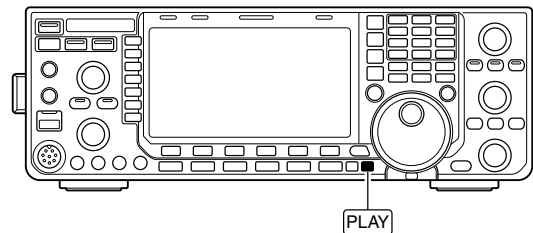


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◇ One-touch playing


The previously recorded audio in message 1 can be played back without selecting voice recorder screen.

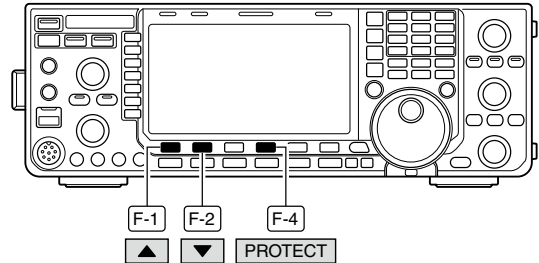
- ➔ Push [PLAY] momentarily to playback the last 5 sec. of the previously recorded audio.
 - “▶PLAY” indicator appears.
 - Playback is terminated automatically when all of the recorded contents in the message are played, or after 5 sec.
 - The playback time period can be set in voice set mode. (p. ??)



■ Protect the recorded contents


The protect function is available to protect the recorded contents from accidental erasure, such as over-writing, etc.

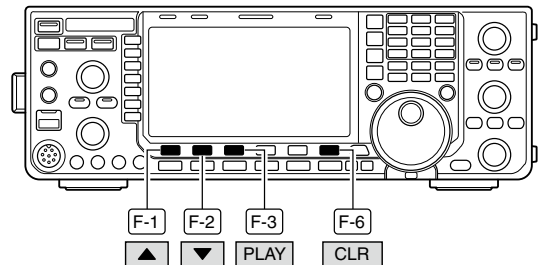
- ① Call up the voice recorder screen, RX memory.
- ② Push [▲] (F-1) or [▼] (F-2) to select the desired voice message.
- ③ Push [PROTECT] (F-4) to turn the protect function ON and OFF.
 - “” indicator appears when the contents is protected.
- ④ Push [EXIT/SET] twice to exit the voice recorder screen.



■ Erasing the recorded contents

The recorded contents can be erased independently by message.

- ① Call up the voice recorder screen, RX memory.
- ② Push [▲] (F-1) or [▼] (F-2) to select the desired voice message to be erased.
- ③ Push [PLAY] (F-3) to start playback.
 - “” indicators appear and the timer counts down.
- ④ Push and hold [CLR] (F-6) for 1 sec. to erase the contents.
 - Push [PROTECT] (F-4) to release the protection in advance if necessary.
- ⑤ Push [EXIT/SET] twice to exit the voice recorder screen.



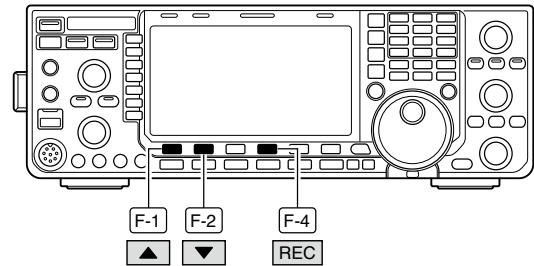
■ Recording a message for transmit

To transmit a message using the voice recorder, record the desired message in advance as described below.

The IC-7600 has digital voice memories for transmission, up to 4 messages and a total message length of up to 99 sec. can be recorded.

◇ Recording

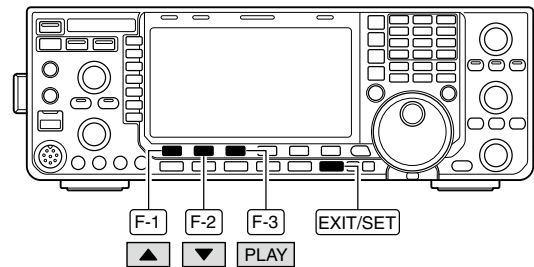
- ① Push [EXIT/SET] several times to close a multi-function screen, if necessary.
- ② Push [VOICE] (F-2) to call up the voice recorder screen.
- ③ Push [EXIT/SET] to select voice recorder menu.
- ④ Push [MIC REC] (F-2) to select the voice mic record screen.
- ⑤ Push [▲] (F-1) or [▼] (F-2) to select the desired message.
- ⑥ Push and hold [REC] (F-4) for 1 sec. to start recording.
 - “**REC**” indicator appears.
 - Speak into the microphone without pushing [PTT].
 - Previously recorded contents are cleared.
 - Audio output from the internal speaker is automatically muted.
- ⑦ While speaking into the microphone with your normal voice level, adjust the [MIC GAIN] control so that the [MIC-REC LEVEL] indicator reads within 100%.
- ⑧ Push [REC] (F-4) momentarily to stop recording.
 - The recording is terminated automatically when the remaining time becomes 0 sec.
- ⑨ Push [EXIT/SET] twice to exit the voice recorder screen.



Appears Adjust [MIC GAIN] control so that this indicator reads within 100%.

◇ Confirming a message for transmit

- ① Perform the steps ① to ④ as “◇ Recording” above.
- ② Push [▲] (F-1) or [▼] (F-2) to select the desired message.
- ③ Push [PLAY] (F-3) to playback the recorded contents.
 - “**PLAY**” indicator appears.
- ④ Push [PLAY] (F-3) again to stop playback.
 - Playback is terminated automatically when all of the recorded contents in the message are played.
- ⑤ Push [EXIT/SET] twice to exit the voice recorder screen.



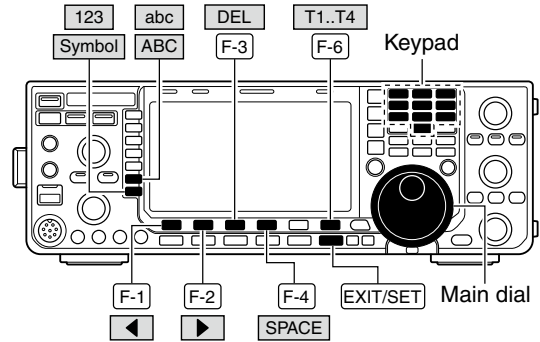
5

■ Programming a memory name

Memory messages can be tagged with alphanumeric names of up to 30 characters each.

Capital letters, small letters, numerals, some symbols (! # \$ % & ¥ ? " ' ` ^ + - * / . , ; = < > () [] { } | _ ~ @) and spaces can be used. (See the table below.)

- ① Record a message as described in page ??.
- ② During the VOICE MIC-RECORD screen indication, push [NAME] (F-5) to enter memory name edit condition.
 - A cursor appears and blinks.
- ③ Push [T1..T4] (F-6) several times to select the desired voice message.
 - A cursor appears and blinks.
- ④ Input the desired character by rotating the main dial or by pushing the band key for number input.
 - Push [ABC] (MF6) or [abc] (MF6) to toggle capital and small letters.
 - Push [123] (MF7) or [Symbol] (MF7) to toggle numerals and symbols.
 - Push [◀] (F-1) or [▶] (F-2) for cursor movement.
 - Push [DEL] (F-3) to delete the selected character.
 - Push [SPACE] (F-4) to input a space.
 - Pushing the transceiver's keypad, [0]–[9], can also enter numerals.
- ⑤ Push [EXIT/SET] to input and set the name.
 - The cursor disappears.
- ⑥ Repeat steps ③ to ⑤ to program another voice message's name, if desired.
- ⑦ Push [EXIT/SET] twice to exit the voice recorder screen.



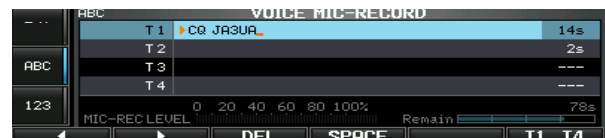
• Usable characters

Key selection	Editable characters
ABC	A to Z (capital letters)
abc	a to z (small letters)
123	0 to 9 (numbers)
Symbol	! # \$ % & ¥ ? " ' ` ^ + - * / . , ; = < > () [] { } _ ~ @

✓ For your convenience

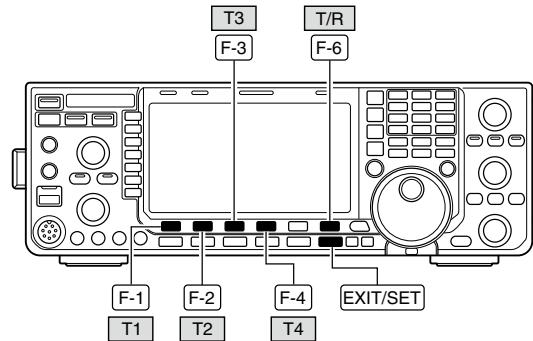
When a PC keyboard is connected to [USB] (A) connector on the front panel, the memory name can also be edited from the keyboard.

Voice memory name editing example



■ Sending a recorded message

- ① Push [EXIT/SET] several times to close a multi-function screen, if necessary.
- ② Select a phone mode by pushing [SSB] or [AM/FM].
- ③ Push [VOICE] (F-2) to call up the voice recorder screen.
 - If the receive voice message appears, push [T/R] (F-6) to select TX message (T1–T4).
- ④ Push the desired message switch, [T1] (F-1) to [T4] (F-4), momentarily to transmit the contents.
 - The transceiver transmits automatically.
 - “SEND” indicator appears and the memory timer counts down.
 - You hear the transmitted message from the speaker as the default. This can be turned OFF in voice set mode. (p. ??)
- ⑤ Push the selected message switch, [T1] (F-1) to [T4] (F-4), again to stop, if desired.
 - The transceiver returns to receive automatically when all of the recorded contents in the message are transmitted.
- ⑥ Push [EXIT/SET] twice to exit the voice memory screen.



Appears

Counts down

5

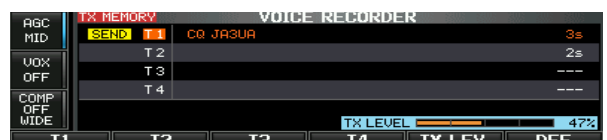
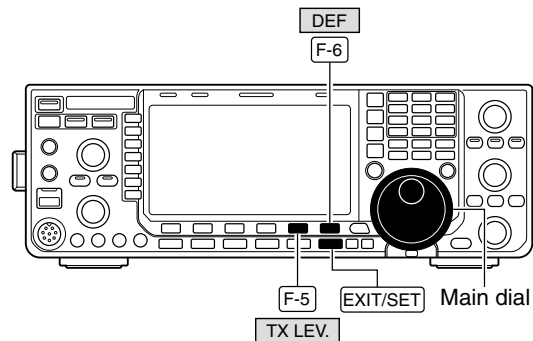
✓ For your information

When an external keypad is connected to [KEY] or one of [F-1]–[F-4] key of the keyboard that is connected to the [USB] (A) connector on the front panel is pushed, the recorded message, T1–T4, can be transmitted without opening the voice recorder screen.

See pages ??, ?? for details.

◇ Transmit level setting

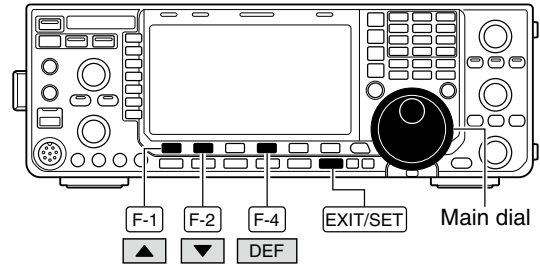
- ① Call up the voice recorder screen as described as above.
- ② Push [TX LEV.] (F-5) to select the voice memory transmit level set condition.
- ③ Push the desired message switch, [T1] (F-1) to [T4] (F-4), momentarily to transmit the contents.
 - The transceiver transmits automatically.
 - “SEND” indicator appears and the memory timer counts down.
- ④ Rotate the main dial to adjust the transmit voice level.
 - Push and hold [DEF] (F-6) for 1 sec. to select the default condition.
- ⑤ Push [EXIT/SET] to return to the voice recorder screen.



■ Voice set mode

Sets the automatic monitor function, short play and normal recording times for voice recorder.

- ① Push [EXIT/SET] several times to close a multi-function screen, if necessary.
- ② Push [VOICE] (F-2) to call up the voice recorder screen.
- ③ Push [EXIT/SET] to select voice recorder menu.
- ④ Push [SET] (F-6) to select voice set mode screen.
- ⑤ Push [▲] (F-1) or [▼] (F-2) to select the desired item.
- ⑥ Rotate the main dial to set the desired condition or value.
 - Push and hold [DEF] (F-4) for 1 sec. to select the default condition or value.
- ⑦ Push [EXIT/SET] to exit the voice set mode screen.



Auto Monitor	ON
Turn on the automatic monitor function for recorded audio contents transmission.	<ul style="list-style-type: none"> • ON : Monitors transmit audio automatically when sending a recorded audio. • OFF : Monitors transmit audio only when the monitor function is in use.
Short Play Time	5s
Set the desired time period for one-touch playback (when [PLAY] is pushed momentarily).	<ul style="list-style-type: none"> • 3 to 10 sec. in 1 sec. steps can be set. (default: 5 sec.)
Normal Rec Time	15s
Set the desired time period for one-touch recording (when [REC] is pushed momentarily).	<ul style="list-style-type: none"> • 5 to 15 sec. in 1 sec. steps can be set. (default: 15 sec.)

■ Saving a voice message into the USB-Memory

◇ Saving the received audio memory

The recorded RX memory contents can be saved into the USB-Memory.

- ① During voice recorder RX memory screen display, push [SAVE] (F-5) to select voice file save screen.
 - Previously selected screen, TX or RX memory, is displayed. If the TX message (T1–T4) appears, push [T/R] (F-6) to select RX message.
- ② Change the following conditions if desired.

• File name:

- ① Push [EDIT] (F-4) to select file name edit condition.
 - Push [DIR/FILE] (F-1) several times to select the file name, if necessary.
- ② Push [ABC] (MF6), [123] (MF7) or [Symbol] (MF7) to select the character group, then rotate the main dial to select the character.
 - [ABC] (MF6) : A to Z (capital letters); [123] (MF7): 0 to 9 (numerals); [Symbol] (MF7): ! # \$ % & ' ` ^ - () { } _ ~ @ can be selected.
 - Push [◀] (F-1) to move the cursor left, push [▶] (F-2) to move the cursor right, push [DEL] (F-3) to delete a character and push [SPACE] (F-4) to insert a space.
- ③ Push [EXIT/SET] to set the file name.

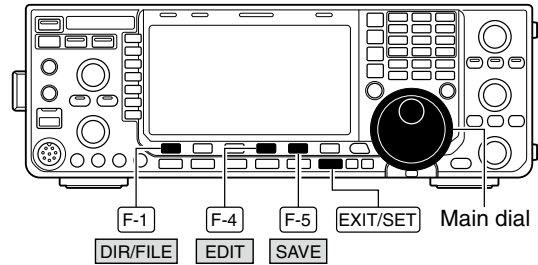
• Saving location

- ① Push [DIR/FILE] (F-1) to select tree view screen.
- ② Select the desired directory or folder in the USB-Memory.
 - Push [◀ ▶] (F-4) to select the upper directory.
 - Push [▲] (F-2) or [▼] (F-3) to select folder in the same directory.
 - Push and hold [◀ ▶] (F-4) for 1 sec. to select a folder in the directory.
 - Push [REN] (MF5) to rename the folder.
 - Push and hold [DEL] (MF6) for 1 sec. to delete the folder.
 - Push and hold [MAKE] (F-6) for 1 sec. to making a new folder. (Edit the name with the same manner as the “• File name” above.)
- ③ Push [DIR/FILE] (F-1) twice to select the file name.
- ③ Push [SAVE] (F-6).
 - After the saving is completed, return to voice recorder RX memory screen automatically.

◇ Saving the TX memory

The TX memory contents can also be saved into the USB-Memory. However, the contents are saved with the message list, set mode conditions, etc. at the same time. See [page ??](#) for details.

The USB-Memory is not supplied by Icom.



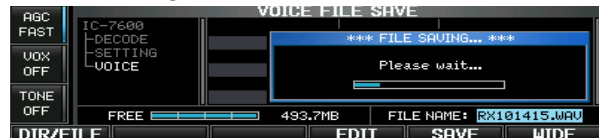
• Voice recorder RX memory screen



• Voice file save screen— file name edit



• While saving



When a PC keyboard is connected to [USB] connector on the front panel, the file name can also be edited from the keyboard. In this case, an USB hub is required.

Memory channels

The transceiver has 101 memory channels. Memory mode is very useful for quick change to often-used frequencies.

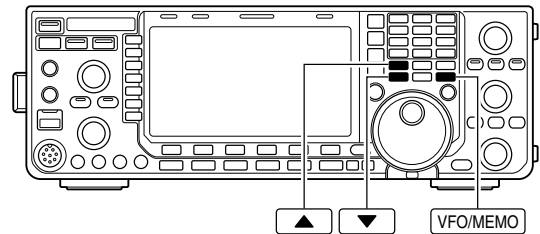
All 101 memory channels are tuneable which means the programmed frequency can be tuned temporarily with the main dial, etc. in memory mode.

MEMORY CHANNEL	MEMORY CHANNEL NUMBER	CAPABILITY	TRANSFER TO VFO	OVER-WRITING	CLEAR
Regular memory channels	1–99	One frequency and one mode in each memory channel.	Yes	Yes	Yes
Scan edge memory channels	P1, P2	One frequency and one mode in each memory channel as scan edges for programmed scan.	Yes	Yes	No

Memory channel selection

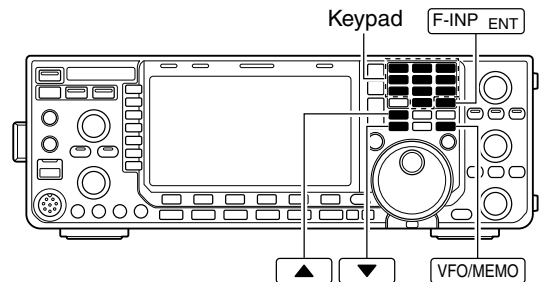
Using the [▲]/[▼] keys

- Push [VFO/MEMO] to select memory mode.
- Push [▲]/[▼] several times to select the desired memory channel.
 - Push and hold [▲]/[▼] for continuous selection.
 - [UP] and [DN] on the microphone can also be used.
- To return to VFO mode, push [VFO/MEMO] again.



Using the keypad

- Push [VFO/MEMO] to select memory mode.
- Push [F-INP ENT].
- Push the desired memory channel number using the keypad.
 - Enter 100 or 101 to select scan edge channel P1 or P2, respectively.
- Push [▲] or [▼] to set the memory channel.



[EXAMPLE]

To select the memory channel 3;
- Push [F-INP ENT], [7 3], then push [▲] or [▼].

To select the memory channel 12;
- Push [F-INP ENT], [1.8 1], [3.5 2], then push [▲] or [▼].

To select the scan edge channel P1;
- Push [F-INP ENT], [1.8 1], [50 0], [50 0], then push [▲] or [▼].

To select the scan edge channel P2;
- Push [F-INP ENT], [1.8 1], [50 0], [1.8 1], then push [▲] or [▼].

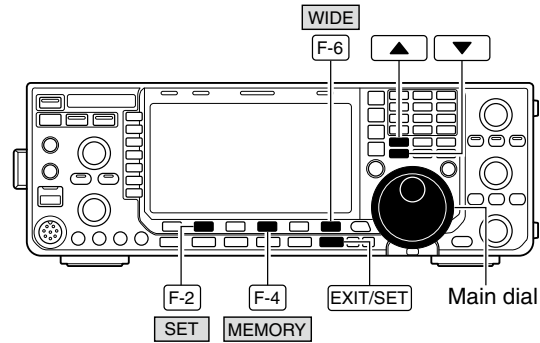
Memory list screen

The memory list screen simultaneously shows 7 memory channels and their programmed contents. 13 memory channels can be displayed in the wide memory list screen.

You can select a desired memory channel from the memory list screen.

◇ Selecting a memory channel using the memory list screen

- ① Push **[EXIT/SET]** several times to close a multi-function screen, if necessary.
- ② Push **[MEMORY]** (F-4) to select memory list screen.
 - Pushing **[WIDE]** (F-6) switches the standard and wide screens.
- ③ While pushing and holding **[SET]** (F-2), rotate the main dial to select the desired memory channel.
 - **[▲]** and **[▼]** can also be used.
- ④ Push **[EXIT/SET]** to exit memory list screen.

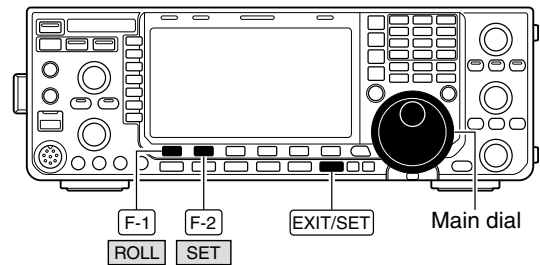


• Memory list screen



◇ Confirming programmed memory channels

- ① Select memory list screen as described above.
- ② While pushing **[ROLL]** (F-1), rotate the main dial to scroll the screen.
- ③ Push **[SET]** (F-2) to select the highlighted memory channel, if desired.
 - “▶” appears beside the selected memory channel number in the memory list screen and the selected memory channel contents are displayed below the frequency readout.
- ④ Push **[EXIT/SET]** to exit memory list screen.

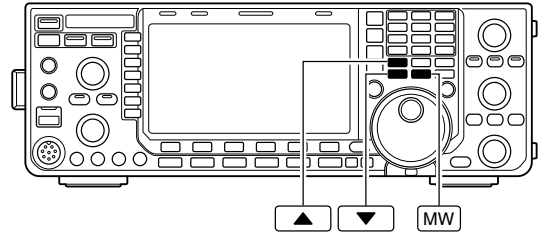


Memory channel programming

Memory channel programming can be performed either in VFO mode or in memory mode.

Programming in VFO mode

- ① Set the desired frequency, operating mode and filter width in VFO mode.
- ② Push **[▲]**/**[▼]** several times to select the desired memory channel.
 - Memory list screen is convenient for selecting the desired channel.
 - Memory channel contents appear in the memory channel readout (below the frequency readout).
 - “----” appears if the selected memory channel is a blank channel (and does not have contents).
- ③ Push and hold **[MW]** for 1 sec. to program the displayed frequency, operating mode, etc., into the memory channel.



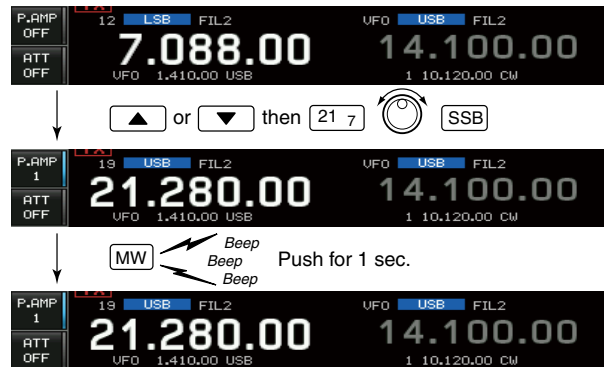
[EXAMPLE]:
Programming 7.088 MHz/LSB into memory channel 12.



Programming in memory mode

- ① Select the desired memory channel with **[▲]**/**[▼]** in memory mode.
 - Memory channel contents appear in the memory channel readout instead of the frequency readout.
 - No indication appears if the selected memory channel is a blank channel (and does not have contents).
- ② Set the desired frequency and operating mode in memory mode.
 - To program a blank channel, use direct frequency entry with the keypad or memo pads, etc. (p. ??)
- ③ Push and hold **[MW]** for 1 sec. to program the displayed frequency and operating mode into the memory channel.

[EXAMPLE]:
Programming 21.280 MHz/USB into memory channel 19.



■ Frequency transfers

The frequency and operating mode in a memory channel can be transferred to the VFO. Frequency transfers can be performed in either VFO mode or memory mode.

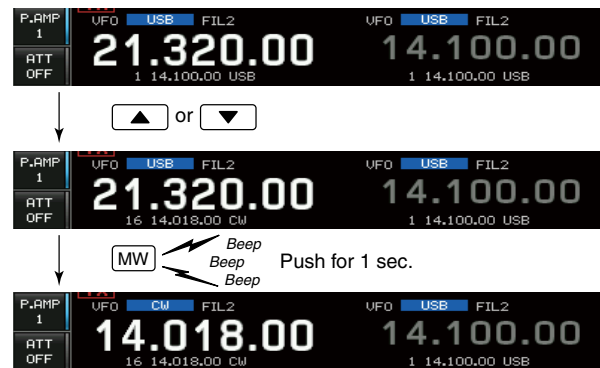
◇ Transferring in VFO mode

This is useful for transferring programmed contents to a VFO.

- ① Select VFO mode with [VFO/MEMO].
- ② Select the memory channel to be transferred with [▲]/[▼].
 - Memory list screen is convenient for selecting the desired channel.
 - Memory channel contents appear in the memory channel readout (below the frequency readout).
 - “-.-.-.-” appears if the selected memory channel is a blank channel. In this case transferring is not possible.
- ③ Push and hold [VFO/MEMO] for 1 sec. to transfer the frequency and operating mode.
 - Transferred frequency and operating mode appear on the frequency readout.

TRANSFER EXAMPLE IN VFO MODE

Operating frequency : 21.320 MHz/USB (VFO)
 Contents of M-ch 16 : 14.018 MHz/CW



6

◇ Transferring in memory mode

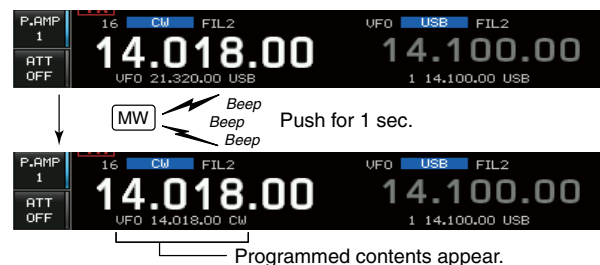
This is useful for transferring frequency and operating mode while operating in memory mode.

- When you have changed the frequency or operating mode in the selected memory channel:
- **Displayed** frequency, mode and filter setting are transferred.
 - **Programmed** frequency, mode and filter in the memory channel are not transferred, and they remain in the memory channel.

- ① Select the memory channel to be transferred with [▲]/[▼] in memory mode.
 - Then, set the frequency or operating mode if required.
- ② Push and hold [VFO/MEMO] for 1 sec. to transfer the frequency, mode and filter.
 - Displayed frequency, mode and filter are transferred to the VFO.
- ③ To return to VFO mode, push [VFO/MEMO] momentarily.

TRANSFER EXAMPLE IN MEMORY MODE

Operating frequency : 21.320 MHz/USB (M-ch 16)
 Contents of M-ch 16 : 14.018 MHz/CW



Programmed contents appear.

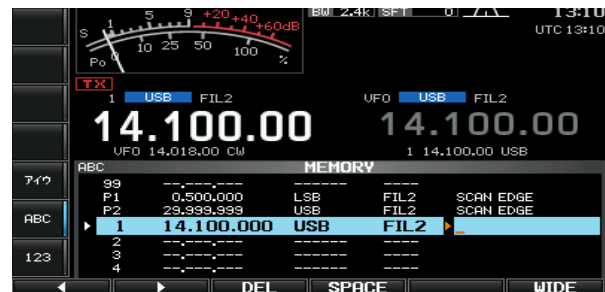
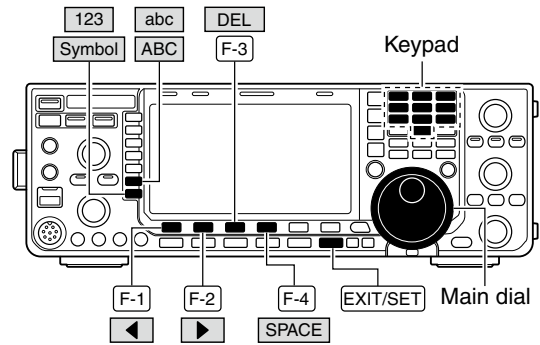
Memory names

All memory channels (including scan edges) can be tagged with alphanumeric names of up to 10 characters each.

Capital letters, small letters, numerals, some symbols (! # \$ % & ¥ ? " ' ` ^ + - * / . , ; = < > () [] { } | _ ~ @) and space can be used.

Editing (programming) memory names

- ① Push **[EXIT/SET]** several times to close a multi-function screen, if necessary.
- ② Push **[MEMORY] (F-4)** to select memory list screen.
- ③ Select the desired memory channel.
- ④ Push **[NAME] (F-4)** to edit memory channel name.
 - A cursor appears and blinks.
 - Memory channel names of blank channels cannot be edited.
- ⑤ Input the desired character by rotating the main dial or by pushing the keypad for number input.
 - Push **[ABC]** or **[abc]** to toggle capital and small letters.
 - Push **[123]** or **[Symbol]** to toggle numerals and symbols.
 - Push **[◀ (F-1)]** or **[▶ (F-2)]** for cursor movement.
 - Push **[DEL] (F-3)** to delete the selected character.
 - Push **[SPACE] (F-4)** to input a space.
 - Pushing the transceiver's keypad, **[0]–[9]**, can also enter numerals.
- ⑥ Push **[EXIT/SET]** to input and set the name.
 - The cursor disappears.
- ⑦ Repeat steps ③ to ⑥ to program another memory channel's name, if desired.
- ⑧ Push **[EXIT/SET]** to exit memory list screen.



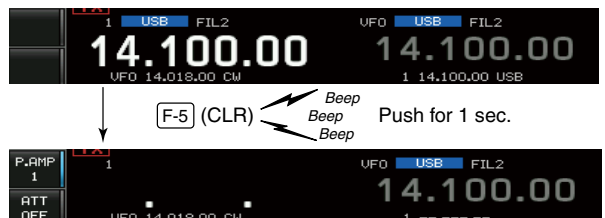
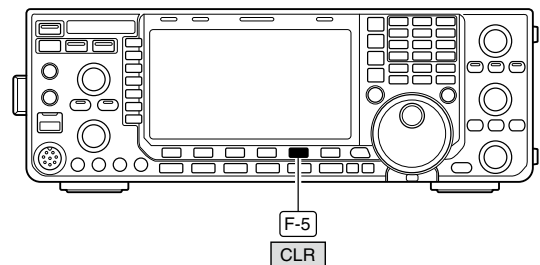
For your convenience

When a PC keyboard is connected to **[USB] (A)** connector on the front panel, the memory name can also be edited from the keyboard.

Memory clearing

Any unused memory channels can be cleared. The cleared memory channels become blank channels.

- ① Select memory mode with **[VFO/MEMO]**.
- ② Push **[MEMORY] (F-4)** to select memory list screen.
- ③ Select the desired memory channel with **[▲]/[▼]**.
- ④ Push and hold **[CLR] (F-5)** for 1 sec. to clear the contents.
 - The programmed frequency, operating mode and filter disappear.
- ⑤ To clear other memory channels, repeat steps ③ and ④.



■ Memo pads

The transceiver has a memo pad function to store frequency and operating mode for easy writing and recalling. The memo pads are separate from memory channels.

The default number of memo pads is 5, however, this can be increased to 10 in set mode if desired. (p. ??)

Memo pads are convenient when you want to memorize a frequency and operating mode temporarily, such as when you find a DX station in a pile-up, or when a desired station is busy for a long time and you want to temporarily search for other stations.

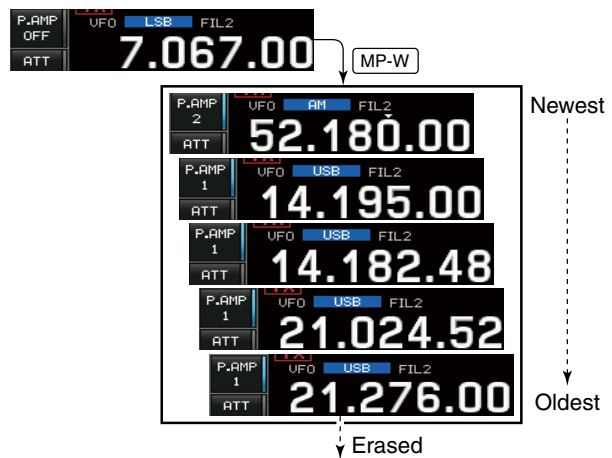
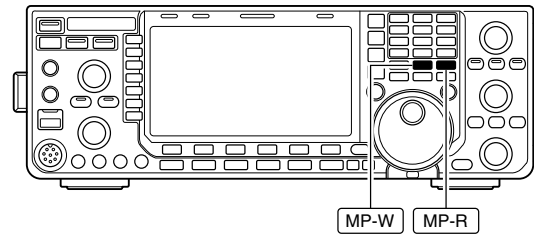
Use the transceiver's memo pads instead of relying on hastily scribbled notes that are easily misplaced.

◇ Writing frequencies and operating modes into memo pads

You can store the readout frequency and operating mode by pushing **[MP-W]**.

When you store the 6th frequency and operating mode, the oldest stored frequency and operating mode are automatically erased to make room for the new settings.

Each memo pad must have its own unique combination of frequency and operating mode; memo pads having identical settings cannot be written.



In this example, 21.276 MHz (USB) will be erased when 7.067 MHz (LSB) is written.

◇ Calling up a frequency from a memo pad

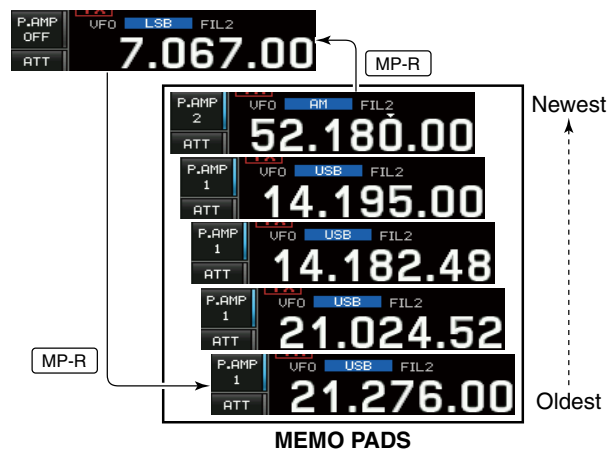
You can call up the desired frequency and operating mode of a memo pad by pushing **[MP-R]** several times.

- Both VFO and memory modes can be used.
- The frequency and operating mode are called up, starting from the most recently written.

When you call up a frequency and an operating mode from memo pads with **[MP-R]**, the previously displayed frequency and operating mode are automatically stored in a temporary pad. The frequency and operating mode in the temporary pad can be recalled by pushing **[MP-R]** several times.

- You may think there are 6 memo pads because 6 different frequencies (5 are in memo pads and 1 is in the temporary pad) are called up by **[MP-R]**.

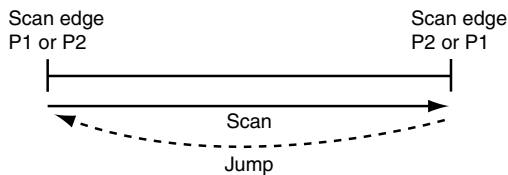
If you change the frequency or operating mode called up from a memo pad with the main dial, etc., the frequency and operating mode in the temporary pad are erased.



■ Scan types

PROGRAMMED SCAN

Repeatedly scans between two scan edge frequencies (scan edge memory channels P1 and P2).

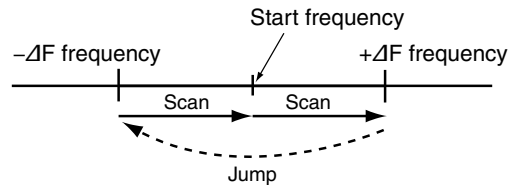


This scan operates in VFO mode.

- The scan function can be used on the main read-out only.
- You can perform a scan while operating on a frequency using the dualwatch or split functions.

ΔF SCAN

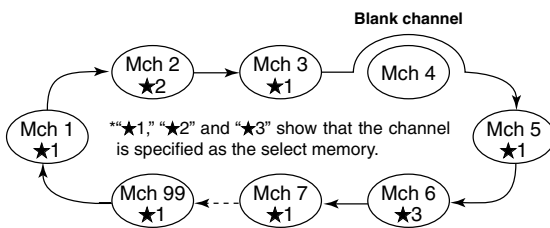
Repeatedly scans within ΔF span area.



This scan operates in both VFO and memory modes.

MEMORY SCAN

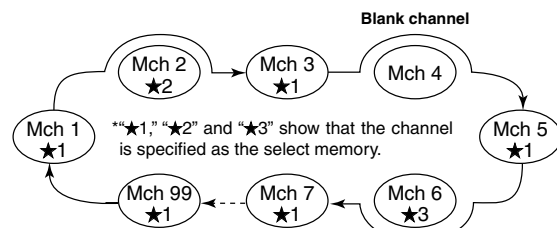
Repeatedly scans all programmed memory channels.



This scan operates in memory mode.

SELECT MEMORY SCAN

Repeatedly scans all or one of 3 select memory channels.



This scan operates in memory mode.

■ Preparation

• Channels

For programmed scan:

Program scan edge frequencies into scan edge memory channels P1 and P2. (p. ??)

For ΔF scan:

Set the ΔF span (ΔF scan range) in the scan screen.

For memory scan:

Program 2 or more memory channels except scan edge memory channels.

For select memory scan:

Designate 2 or more memory channels as select memory channels. To designate the channel as a select memory channel, choose a memory channel, then push [SELECT] (F-3) in the scan screen (memory mode) or in the memory list screen.

• Scan resume ON/OFF

You can select the scan to resume or cancel when detecting a signal in scan set mode. Scan resume ON/OFF must be set before performing a scan. See p. ?? for ON/OFF setting and scan resume condition details.

• Scan speed

Scan speed can be selected from 2 levels, high or low, in scan set mode. See p. ?? for details.

• Squelch condition

○ Scan starts with squelch open

For programmed scan:

When tuning step is 1 kHz or less:

The scan continues until it is stopped manually—it does not pause* even if signals are detected.

* The scan is paused when the squelch is closed and then opened (scan resumes after 10 sec. has passed when the scan resume is ON; scan is cancelled when the scan resume is OFF).

When tuning step is more than 5 kHz:

The scan pauses on each step when the scan resume is ON; not applicable when the scan resume is OFF.

For memory scan:

Scan pauses on each channel when the scan resume is ON; not applicable when the scan resume is OFF.

○ Scan starts with squelch closed

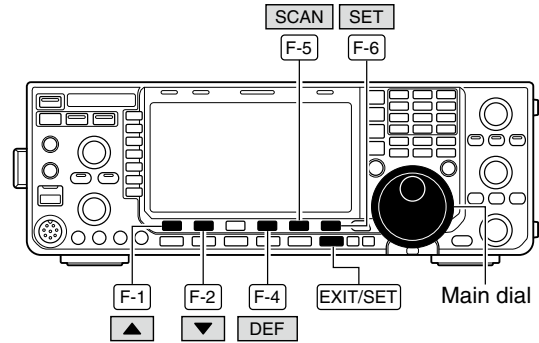
Scan stops when a signal is detected.

• If the scan resume is set to ON in scan set mode, the scan pauses for 10 sec. when detecting a signal, then resumes. When a signal disappears while scan is paused, scan resumes 2 sec. later.

■ Scan set mode

Scan speed and the scan resume condition can be set using the scan set mode.

- ① Push **[SCAN]** (F-5) to select scan screen.
- ② Push **[SET]** (F-6) to select scan set mode.
- ③ Push **[▲]** (F-1) or **[▼]** (F-2) to select the desired item.
- ④ Rotate the main dial to select the desired condition.
 - Push and hold **[DEF]** (F-4) for 1 sec. to select the default setting.
- ⑤ Push **[EXIT/SET]** to return to scan menu.

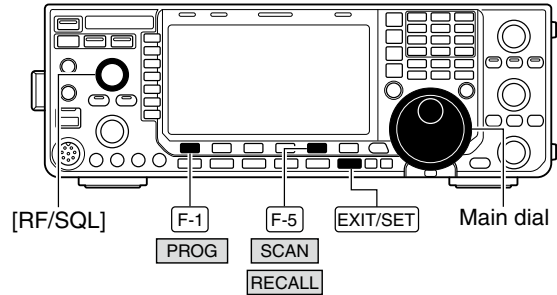


Scan Speed	HIGH
Select the desired scan speed from high and low.	<ul style="list-style-type: none"> • HIGH : scan is faster. • LOW : scan is slower.

Scan Resume	ON
Set the scan resume function ON and OFF.	<ul style="list-style-type: none"> • ON : When detecting a signal, scan pauses for 10 sec., then resumes. When a signal disappears, scan resumes 2 sec. later. • OFF : When detecting a signal, cancels scanning.

■ Programmed scan operation

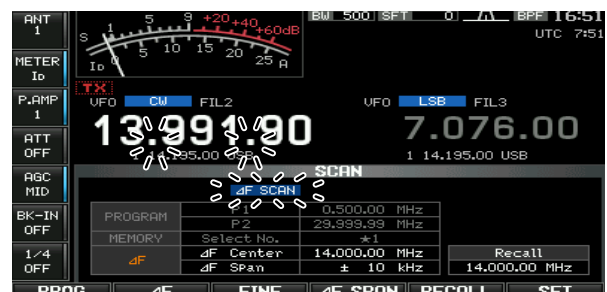
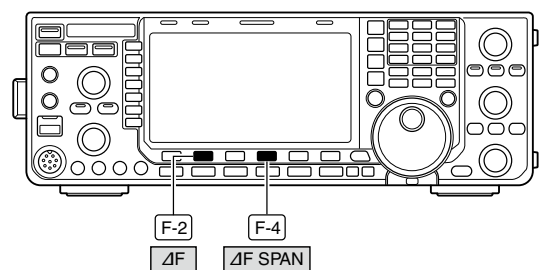
- ① Push **[EXIT/SET]** several times to close a multi-function screen, if necessary.
- ② Select VFO mode.
- ③ Select the desired operating mode.
 - The operating mode can also be changed while scanning.
- ④ Push **[SCAN] (F-5)** to select the scan screen.
- ⑤ Set **[RF/SQL]** open or closed.
 - See p. ?? for squelch condition.
 - If the **[RF/SQL]** control function is set as “AUTO,” the squelch is always open in SSB, CW and RTTY modes. (pgs. ??, ??, ??)
- ⑥ Push **[PROG] (F-1)** to start the programmed scan.
 - “PROGRAM SCAN” and decimal points blink while scanning.
- ⑦ When the scan detects a signal, scan stops, pauses or ignores it depending on the resume setting and the squelch status.
- ⑧ To cancel the scan, push **[PROG] (F-1)**.
 - Rotating the main dial also cancels the scan.
- ⑨ Push and hold **[RECALL] (F-5)** for 1 sec. to recall the frequency that is set before starting the scan, if desired.



/// If the same frequencies are programmed into the scan edge memory channel P1 and P2, programmed scan will not start.

■ ΔF scan operation

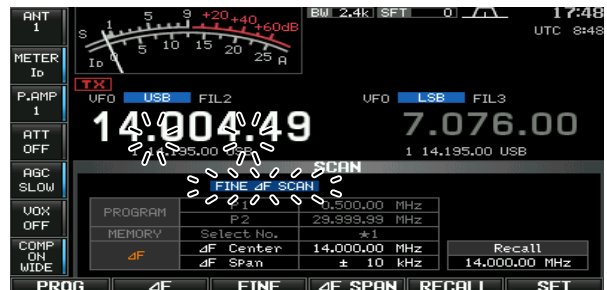
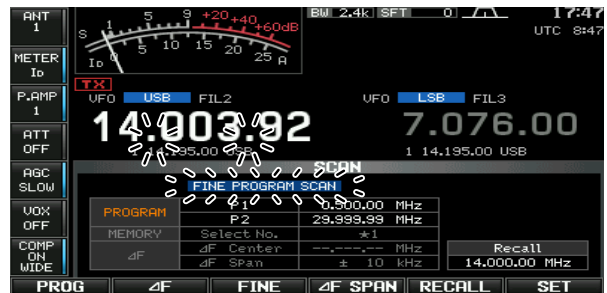
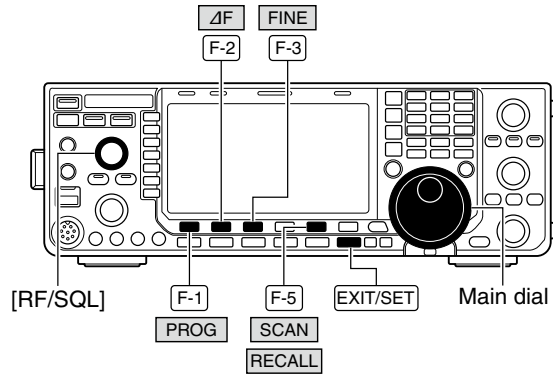
- ① Push **[EXIT/SET]** several times to close a multi-function screen, if necessary.
- ② Select VFO mode or a memory channel.
- ③ Select the desired operating mode.
 - The operating mode can also be changed while scanning.
- ④ Push **[SCAN] (F-5)** to select the scan screen.
- ⑤ Set **[RF/SQL]** open or closed.
 - See p. ?? for squelch condition.
 - If the **[RF/SQL]** control function is set as “AUTO,” the squelch is always open in SSB, CW and RTTY modes. (pgs. ??, ??, ??)
- ⑥ Set the ΔF span by pushing **[ΔF SPAN] (F-4)**.
 - ± 5 kHz, ± 10 kHz, ± 20 kHz, ± 50 kHz, ± 100 kHz, ± 500 kHz and ± 1000 kHz are selectable.
- ⑦ Rotate the main dial to set a center frequency of the ΔF span.
- ⑧ Push **[ΔF] (F-2)** to start the ΔF scan.
 - “ ΔF SCAN” and decimal points blink while scanning.
- ⑨ When the scan detects a signal, the scan stops, pauses or ignores it depending on the resume setting and the squelch status.
- ⑩ To cancel the scan, push **[ΔF] (F-2)**.
 - Rotating the main dial also cancels the scan.
- ⑪ Push and hold **[RECALL] (F-5)** for 1 sec. to recall the frequency that was set before starting the scan.



■ Fine programmed scan/Fine ΔF scan

In fine scan (programmed or ΔF), the scan speed decreases when the squelch opens, but the transceiver keeps scanning. The scanning tuning step shifts from 50 Hz to 10 Hz when the squelch opens.

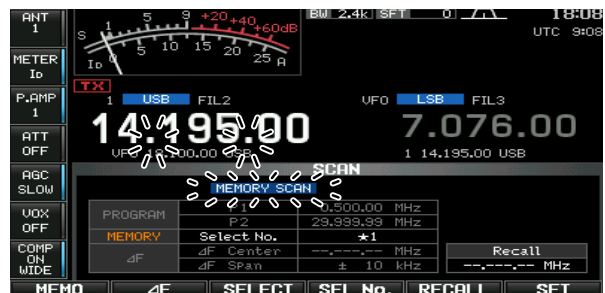
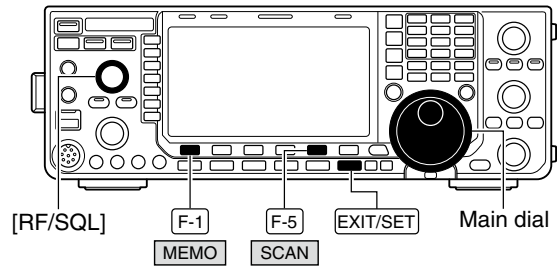
- ① Push **[EXIT/SET]** several times to close a multi-function screen, if necessary.
- ② Push **[SCAN] (F-5)** to select the scan screen.
- ③ Set for programmed scan or ΔF scan as described on previous page.
- ④ Push **[PROG] (F-1)** or **[ΔF] (F-2)** to start a scan.
 - “**PROGRAM SCAN**” or “ **ΔF SCAN**” and decimal points blink while scanning.
- ⑤ Push **[FINE] (F-3)** to start a fine scan.
 - “**FINE PROGRAM SCAN**” or “**FINE ΔF SCAN**” blinks instead of “**PROGRAM SCAN**” or “ **ΔF SCAN**,” respectively.
- ⑥ When the scan detects a signal, the scan speed decreases but scan does not stop.
- ⑦ Push **[PROG] (F-1)** or **[ΔF] (F-2)** to stop the scan; push **[FINE] (F-3)** to cancel the fine scan.
 - Rotating the main dial also cancels the scan.
- ⑧ Push and hold **[RECALL] (F-5)** for 1 sec. to recall the frequency that is set before starting the scan, if desired.



Memory scan operation

- ① Push **[EXIT/SET]** several times to close a multi-function screen, if necessary.
- ② Select memory mode.
- ③ Push **[SCAN] (F-5)** to select the scan screen.
- ④ Set **[RF/SQL]** open or closed.
 - See p. ?? for squelch condition.
 - If the **[RF/SQL]** control function is set as “AUTO,” the squelch is always open in SSB, CW and RTTY modes. (pgs. ??, ??, ??)
- ⑤ Push **[MEMO] (F-1)** to start the memory scan.
 - “**MEMORY SCAN**” and decimal points blink while scanning.
- ⑥ When the scan detects a signal, the scan stops, pauses or ignores it depending on the resume setting and the squelch condition.
- ⑦ To cancel the scan, push **[MEMO] (F-1)** .
 - Rotating the main dial also cancels the scan.

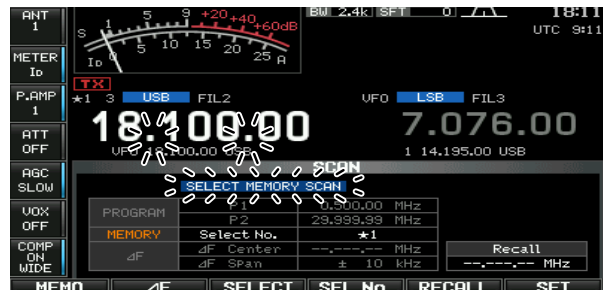
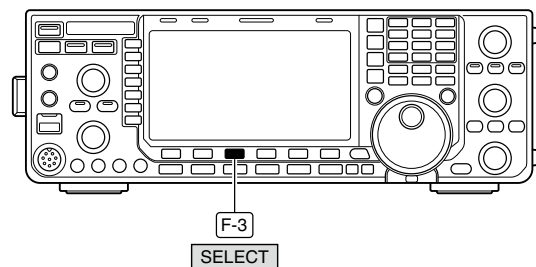
2 or more memory channels must be programmed for memory scan to start.



Select memory scan operation

- ① Push **[EXIT/SET]** several times to close a multi-function screen, if necessary.
- ② Select memory mode.
- ③ Push **[SCAN] (F-5)** to select the scan screen.
- ④ Set **[RF/SQL]** open or closed.
 - See p. ?? for squelch condition.
 - If the **[RF/SQL]** control function is set as “AUTO,” the squelch is always open in SSB, CW and RTTY modes. (pgs. ??, ??, ??)
- ⑤ Push **[MEMO] (F-1)** to start the memory scan.
 - “**MEMORY SCAN**” and decimal points blink while scanning.
- ⑥ Push **[SEL No.] (F-4)** several times to select the select scan number from ★1, ★2, ★3 and ★1,2,3.
- ⑦ Push **[SELECT] (F-3)** to start select memory scan; push **[SELECT] (F-3)** again to return to memory scan, if desired.
 - “**SELECT MEMORY SCAN**” blinks instead of “**MEMORY SCAN**” during select memory scan.
- ⑧ When the scan detects a signal, the scan stops, pauses or ignores it depending on the resume setting and the squelch condition.
- ⑨ To cancel the scan, push **[MEMO] (F-1)**.
 - Rotating the main dial also cancels the scan.

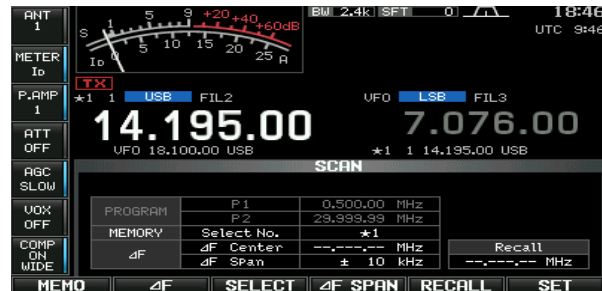
2 or more memory channels must be designated as select memory channels, as well as the same select scan channel number, for select memory scan to start.



■ Setting select memory channels

◇ Setting in scan screen

- ① Push **[EXIT/SET]** several times to close a multi-function screen, if necessary.
- ② Select memory mode.
- ③ Push **[SCAN] (F-5)** to select the scan screen.
- ④ Select the desired memory channel to set as a select memory channel.
 - **[▲]/[▼]** keys and direct keypad selections can be used. (p. ??)
- ⑤ Push **[SELECT] (F-3)** several times to set the memory channel as a select memory ★1, ★2, ★3 or not. (p. ??)
 - “★1,” “★2” or “★3” appears on the LCD to show that the channel is specified as the select memory.
- ⑥ Repeat steps ④ to ⑤ to program another memory channel as a select memory channel.
- ⑦ Push **[EXIT/SET]** to exit the scan screen.



◇ Setting in memory list screen

- ① Push **[EXIT/SET]** several times to close a multi-function screen, if necessary.
- ② Push **[MEMORY] (F-4)** to select memory list screen.
- ③ Rotate the main dial while pushing **[ROLL] (F-1)** or **[SET] (F-2)** to select the desired memory channel.
 - **[▲]/[▼]** keys and direct keypad selections can be used. (p. ??)
- ④ Push **[SELECT] (F-3)** several times to set the memory channel as a select memory ★1, ★2, ★3 or not.
 - “★1,” “★2” or “★3” appears on the LCD to show that the channel is specified as the select memory.
- ⑤ Repeat steps ③ to ④ to program another memory channel as a select memory channel.
- ⑥ Push **[EXIT/SET]** to exit the memory list screen.



7

◇ Erasing the select scan setting

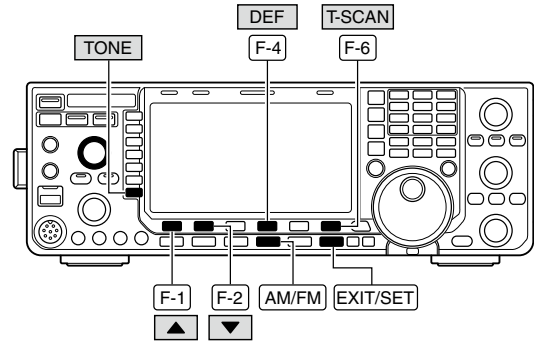
- ① Push **[EXIT/SET]** several times to close a multi-function screen, if necessary.
- ② Push **[MEMORY] (F-4)** to select memory list screen, or push **[SCAN] (F-5)** to select scan screen.
- ③ Push and hold **[SELECT] (F-3)** for 1 sec. to display memory select all clear window.
- ④ Push one of the following keys to clear all select scan setting.
 - [★1] (F-1)** : Clears all ★1 setting.
 - [★2] (F-2)** : Clears all ★2 setting.
 - [★3] (F-3)** : Clears all ★3 setting.
 - [★1,2,3] (F-4)** : Clears all select setting.
- ⑤ Push **[EXIT/SET]** to exit the memory list screen.



■ Tone scan

The transceiver can detect subaudible tones in a received signal. By monitoring a signal that is being transmitted on a repeater input frequency, you can determine the tone frequency required to access the repeater.

- ① Set the desired frequency or memory channel to be checked for a tone frequency.
- ② Push **[AM/FM]** several times to select FM mode.
- ③ Push and hold **[TONE] (MF7)** for 1 sec. to enter tone frequency screen.
- ④ Push **[▲] (F-1)** or **[▼] (F-2)** to check the repeater tone frequency or tone squelch frequency, respectively.
- ⑤ Push **[T-SCAN] (F-6)** to start the tone scan.
 - "SCAN" blinks while scanning.
- ⑥ When a matching tone frequency is detected, the tone scan pauses.
 - The tone frequency is set temporarily on a memory channel. Program the memory channel to store the tone frequency permanently.
 - The decoded tone frequency is used for the repeater tone frequency or tone squelch frequency.
- ⑦ To stop the scan, push **[T-SCAN] (F-6)**.
 - Push and hold **[DEF] (F-4)** for 1 sec. to select the default frequency.
- ⑧ Push **[EXIT/SET]** to exit tone frequency screen.



■ Automatic antenna selection

The transceiver covers 0.03–60 MHz over 10 bands. Each band key has a band memory which can memorize a selected antenna (ANT1, ANT2, ANT1/RX antenna and ANT2/RX antenna). When you change the operating frequency beyond a band, the previously used antenna is automatically selected. This function is convenient when you use 2 or 3 antennas.

To use the band memory, enter set mode and confirm that “Auto” is selected as the [ANT] switch item. (p. ??)

- **Antenna selection mode: “Auto”** (default)

The antenna tuner ON/OFF condition is also memorized in the band memory.

[Example]: a 3.5/7 MHz antenna is connected to [ANT1], a 21/28/50 MHz antenna is connected to [ANT2]. When the antenna selector function is set to “Auto,” an antenna is automatically selected when the transceiver changes bands.

- **Antenna selection mode: “Manual”**

[ANT] (MF1) functions, however, band memory does not function. In this case, you must select an antenna manually.

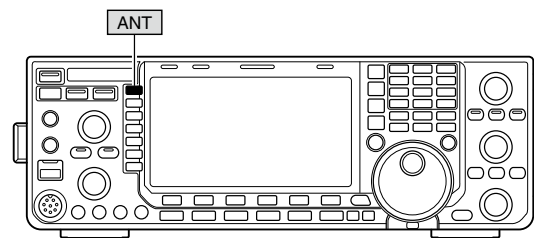
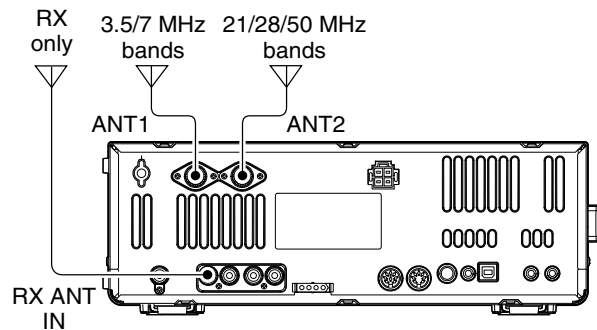
Under the following conditions, “Manual” should be selected as the [ANT] switch set mode item.

- When using 1 antenna.
- When using an external antenna selector for more than 3 antennas (except for receive antenna).
- When using an external antenna tuner.

NOTE: When “Auto” or “Manual” is selected, the antenna tuner ON/OFF condition is consistent with [ANT] (MF1).

- **Antenna selection mode: “OFF”**

[ANT] (MF1) does not function and [ANT1] is always selected.



7
8

■ Antenna tuner operation

The internal automatic antenna tuner matches the transceiver to the connected antenna automatically. After the tuner matches an antenna, the variable capacitor settings are memorized as a preset point for each frequency range (100 kHz steps). Therefore, when you change the frequency range, the variable capacitors are automatically preset to the memorized setting.

CAUTION: NEVER transmit with the tuner ON when no antenna is connected. This will damage the transceiver. Be careful of the antenna selection.

✓ For your convenience

When you purchase a brand-new antenna, or you want to change the antenna settings, you can erase the all of the internal antenna tuner preset points with “Tuner Preset Memory Clear” in others set mode. (p. ??)

◇ Tuner operation

- ➔ Push **[TUNER]** to turn the internal antenna tuner ON. The antenna is tuned automatically when the antenna SWR is higher than 1.5:1.
 - When the tuner is ON, the indicator on the switch lights green
 - While tuning, the indicator on the switch blinks.

◇ Manual tuning

During SSB operation at low voice levels, the internal tuner may not automatically tune correctly. In such cases, manual tuning is helpful.

- ➔ Push and hold **[TUNER]** for 1 sec., to start manual tuning.
 - A side tone is emitted and the indicator on the switch blinks red while tuning.
 - If the tuner cannot reduce the SWR to less than 1.5:1 after 20 sec. of tuning, the indicator on the switch goes out.

• Automatic tuner start (HF bands only)

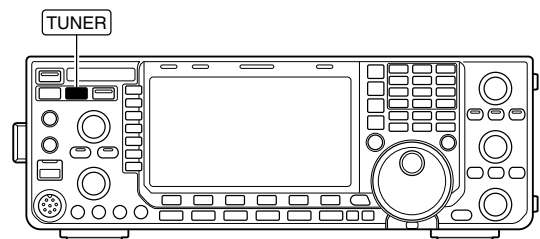
If you want to deactivate the tuner under conditions of VSWR 1.5:1 or less, use the auto tuner start function and turn the tuner OFF. This function activates the tuner automatically when the SWR exceeds 1.5:1.

This function is controlled in set mode. (p. ??).

NOTES:

- NEVER transmit without an antenna properly connected to antenna port in use.
- When 2 antennas are connected, select the antenna to be used with **[ANT] (MF1)**.
- If the SWR is higher than about 1.5:1 when tuning farther than 100 kHz from an antenna’s programmed preset point, push and hold **[TUNER]** for 1 sec. to start manual tuning.
- The internal tuner may not be able to tune in AM mode. In such cases, push and hold **[TUNER]** for 1 sec. to manually tune.

When you purchase a brand-new antenna, or you want to change the antenna settings, you can erase the all of the internal antenna tuner preset points with “Tuner Preset Memory Clear” in others set mode. (p. ??)



• PTT tuner start

The tuner is always tuned when the PTT is pushed after the frequency is changed (more than 1% from last-tuned frequency). This function removes the “push and hold **[TUNER]**” operation and activates for the first transmission on a new frequency.

This function is turned ON in set mode. (p. ??).

• Antenna tuner of the IC-PW1/EURO

When using an external antenna tuner such as the IC-PW1/EURO’s tuner, tune with the external antenna tuner, while the internal tuner is turned OFF. After tuning is completed, turn the internal tuner ON. Otherwise, both tuners tune simultaneously and correct tuning may not be obtained.

See the instruction manual included with each antenna tuner for their respective operations.

Optional external tuner operation

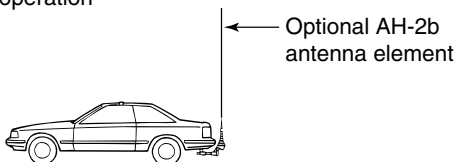
• AH-4 HF AUTOMATIC ANTENNA TUNER

The AH-4 matches the IC-7600 to a long wire antenna more than 7 m/23 ft long (3.5 MHz and above).

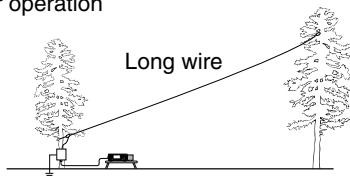
- See p. ?? for the transceiver and AH-4 connection.
- See the AH-4 instruction manual for AH-4 installation and antenna connection details.

AH-4 setting example:

For mobile operation



For outdoor operation



⚠ DANGER: HIGH VOLTAGE!

NEVER touch the antenna element while tuning or transmitting.

NEVER operate the AH-4 without an antenna wire. The tuner and transceiver will be damaged.

NEVER operate the AH-4 when it is not grounded.

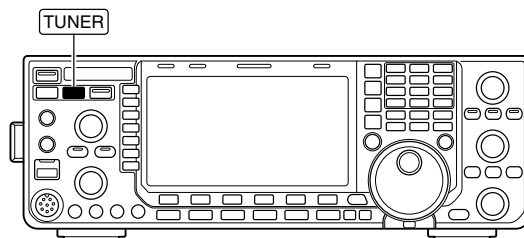
Transmitting before tuning may damage the transceiver. Note that the AH-4 cannot tune when using a $\frac{1}{2} \lambda$ long wire or multiple of the operating frequency.

When connecting the AH-4, the antenna connector assignments are [ANT2] for the internal tuner and [ANT1] for the AH-4. The antenna indicator in the LCD displays “ANT1(EXT)” when the AH-4 is connected and selected.

• AH-4 operation

Tuning is required for each frequency. Be sure to re-tune the antenna before transmitting when you change the frequency— even slightly.

- ① Set the desired frequency in an HF or 50 MHz band for use with the AH-4.
 - The AH-4 will not operate on frequencies outside of ham bands.
- ② Push **[TUNER]** for 1 sec.
 - The indicator on the switch blinks while tuning.



- ③ The indicator on the switch lights constantly when tuning is complete.
 - When the connected wire cannot be tuned, the indicator on the switch goes out and the AH-4 is bypassed. At that point the antenna wire connection is to the transceiver directly, and not via the AH-4 antenna tuner.
- ④ To bypass the AH-4 manually, push **[TUNER]**.

○ If the tuner cannot tune the antenna

Check the following and try again:

- the [ANT] connector selection.
- the antenna connection and feedline.
- the untuned antenna SWR. (Less than 3:1 for HF bands; Less than 2.5:1 for 50 MHz band)
- the transmit power. (8 W for HF bands; 15 W for 50 MHz band)
- the power source voltage/capacity.

If the tuner cannot reduce the SWR to less than 1.5:1 after checking the above, perform the following:

- repeat manual tuning several times.
- tune with a 50 Ω dummy load and re-tune the antenna.
- turn power OFF and ON.
- adjust the antenna feedline length. (This is effective for higher frequencies in some cases.)

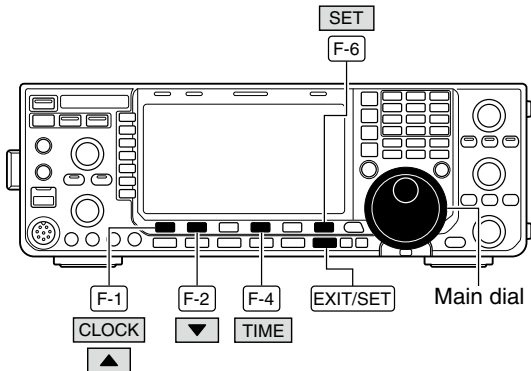
○ Tuning a narrow bandwidth antenna

Some antennas, especially for the low bands, have a narrow bandwidth. These antennas may not be tuned beyond the edge of their operating bandwidth, therefore, tune such an antenna as follows:

[Example]: Suppose you have an antenna which has an SWR of 1.5:1 at 3.55 MHz and an SWR of 3:1 at 3.8 MHz.

- ① Push **[TUNER]** to turn the antenna tuner ON.
- ② Select CW mode.
- ③ Turn OFF the break-in function. (p. ??)
- ④ Push **[TRANSMIT]** to set to the transmit condition.
- ⑤ Set 3.55 MHz and key down.
- ⑥ Set 3.80 MHz and key down.
- ⑦ Push **[TRANSMIT]** to return to the receive condition.

Time set mode

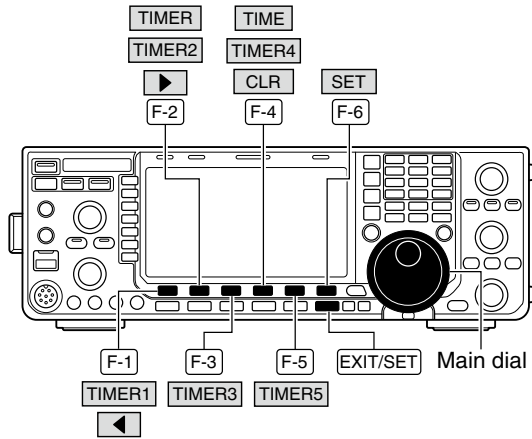


The IC-7600 has a built-in calendar and 24-hour clock (accuracy ± 75 sec. per month) with daily power ON/OFF timer functions. Before operating these timer functions, set the current date and time.

- ① Push [EXIT/SET] several times to close multi-function screen, if necessary.
- ② Push [SET] (F-6) to select set mode menu screen.
- ③ Push [TIME] (F-4) to select time set mode.
- ④ Push [CLOCK] (F-1) to select clock set mode.
- ⑤ Push [▲] (F-1) or [▼] (F-2) to select the desired item.
- ⑥ Rotate the main dial to set or select the desired value or condition.
- ⑦ Push [EXIT/SET] to exit time set mode.

Date Sets the date.	2000 - 1 - 1 (Sat) <ol style="list-style-type: none"> ① Push [◀ ▶] (F-3) to select between the year and the month/day, then rotate the main dial to select them. <ul style="list-style-type: none"> • The date setting and "DATE-set Push [SET]" indication blink. ② Push [SET] (F-5) to set the date.
Time (Now) Sets the local time.	1:23 <ol style="list-style-type: none"> ① Rotate the main dial to set the local time. <ul style="list-style-type: none"> • The time setting and "TIME-set Push [SET]" indication blink. ② Push [SET] (F-5) to set the time.
CLOCK2 Function Turns the CLOCK2 indicator ON and OFF. CLOCK2 is convenient to indicate UTC or other country's local time, etc.	ON <ul style="list-style-type: none"> • ON : The CLOCK2 indicator is displayed below the local time indication. • OFF : The CLOCK2 indicator does not display.
CLOCK2 Offset Sets the desired off-set time period for CLOCK2 display within -24:00 to +24:00 in 5 min. steps.	± 0:00 <ul style="list-style-type: none"> • Push and hold [DEF] (F-4) for 1 sec. to select the default value.
CLOCK2 Name Sets the desired 3-character name for CLOCK2. Capital letters, small letters, numerals, some symbols (! # \$ % & ¥ ? " ' ` ^ + - * / . , ; = < > () [] { } _ ~ @) and spaces can be used.	UTC <ol style="list-style-type: none"> ① Push [EDIT] (F-5) to select the name edit condition. <ul style="list-style-type: none"> • The cursor under the 1st character blinks. ② Push [ABC] (MF6), [abc] (MF6), [123] (MF7) or [Symbol] (MF7) to select the character group, then rotate the main dial to select the character. <ul style="list-style-type: none"> • Push [ABC] or [abc] to toggle capital and small letters. • Push [123] or [Symbol] to toggle numerals and symbols. • Push [◀] (F-1) or [▶] (F-2) for cursor movement. • Push [DEL] (F-3) to delete the selected character. • Push [SPACE] (F-4) to input a space. • Pushing the transceiver's keypad, [0]–[9], can also enter numerals. ③ Push [EXIT/SET] to set the name.

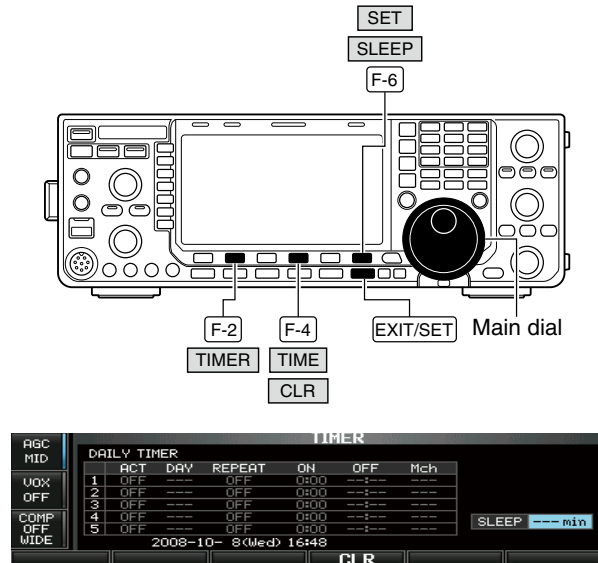
Daily timer setting



The transceiver turns power ON and/or OFF automatically on the specified day and time, with the specified frequency settings.

- ① Push [EXIT/SET] several times to close multi-function screen, if necessary.
- ② Push [SET] (F-6) to select set mode menu screen.
- ③ Push [TIME] (F-4) to select time set mode.
- ④ Push [TIMER] (F-2) to select timer set mode.
- ⑤ Push one of [TIMER1] (F-1) to [TIMER5] (F-5) to select the desired timer.
- ⑥ Rotate the main dial to select the timer action ON and OFF.
- ⑦ Push [▶] (F-2) to select the “DAY” cell, then rotate the main dial to select the desired day of the week.
 - Select “- - -” not to specify the day of the week. The timer will function every day in this case.
 - Once a day of the week is selected, push [CLR] (F-4) to select “- - -”
- ⑧ Push [▶] (F-2) to select the “REPEAT” cell, then rotate the main dial to select the repeat function ON and OFF.
 - ON : The timer functions every selected day of the week. (repeats)
 - OFF : The timer does not repeat.
- ⑨ Push [▶] (F-2) to select the “ON” cell, then rotate the main dial to set the desired transceiver power ON time.
 - When using power OFF timer only, push [CLR] (F-4) to select “- - - -.” This setting cannot be set when the power OFF timer is set to “- - - -.”
- ⑩ Push [▶] (F-2) to select the “OFF” cell, then rotate the main dial to set the desired transceiver power OFF time.
 - When using power ON timer only, push [CLR] (F-4) to select “- - - -.” This setting cannot be set when the power ON timer is set to “- - - -.”
- ⑪ Push [▶] (F-2) to select the “Mch” cell, then rotate the main dial to select the desired memory channel number.
 - If using the currently set VFO condition, push [CLR] (F-4) to select “- - -.”
- ⑫ Push [SET] (F-6) to set the timer.
 - The timer indicator appears.
- ⑬ Repeat steps ⑤ to ⑫ to set other timers, if desired.
- ⑭ Push [EXIT/SET] to exit timer set screen.

■ Setting sleep timer

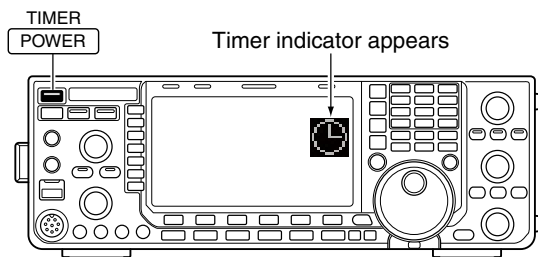


The sleep timer turns the transceiver power OFF automatically after passing the set period. The timer can be set to 5–120 min. in 5 min. steps.

▨ The sleep timer function counts the ‘minute’ units, and does not count the ‘second’ units. For example, when the sleep timer is started at 12:00 59, First one minute past for just 1 sec. The maximum error is therefore 59 sec. This is normal, not a malfunction.

- ① Push [EXIT/SET] several times to close multi-function screen, if necessary.
- ② Push [SET] (F-6) to select set mode menu screen.
- ③ Push [TIME] (F-4) to select time set mode.
- ④ Push [TIMER] (F-2) to select clock set mode.
- ⑤ Push [SLEEP] (F-6) to select the sleep timer set condition.
 - “---” blinks.
- ⑥ Set the desired time period using the main dial.
 - “TIMER-set Push [SET]” blinks.
 - Push [CLR] (F-4) to select “---” to cancel the setting.
- ⑦ Push [SET] (F-6) to set the time.
 - Push [EXIT/SET] to cancel the setting.
 - The timer indicator appears.
- ⑧ Push [EXIT/SET] to exit timer set screen.
- ⑨ The transceiver emits 10 beeps and turns OFF after the sleep timer period elapses.
 - The timer indicator blinks while beeping.
 - Push [POWER] momentarily to cancel the sleep timer, if desired.

■ Timer operation



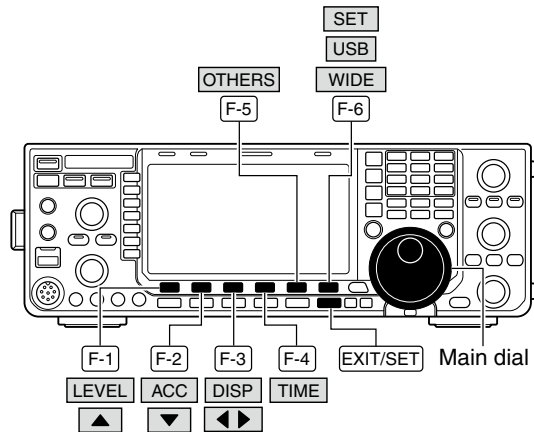
- ① Preset the daily timer as described on previously to turn the timer function ON.
 - The timer indicator appears.
- ② Push and hold [POWER] for 1 sec. to turn the power OFF.
 - The indicator on this switch lights red when the timer function is ON.
- ③ When the set time arrives, the power is automatically turned ON.
- ④ The transceiver emits 10 beeps and turns OFF after the power-off period elapses.
 - The timer indicator blinks while beeping.
 - Push [POWER] momentarily to cancel the sleep timer, if desired.

▨ Timer action in the timer set screen must be selected ON to enable timer operation, described in [page ?? steps ?](#).

■ Set mode description

Set mode is used for programming infrequently changed values or conditions of functions. The IC-7600 has a level set mode, display set mode, time set mode, accessory set mode, others set mode and USB-Memory set menu.

◇ Set mode operation



- ① Push [EXIT/SET] several times to close a multi-function screen, if necessary.
- ② Push [SET] (F-6) to select set mode menu screen.
 - Pushing and holding [EXIT/SET] for 1 sec. also selects set mode menu screen.
- ③ Push [LEVEL] (F-1), [ACC] (F-2), [DISP] (F-3), [TIME] (F-4), [OTHERS] (F-5) or [USB] (F-6) to enter the desired set mode.
- ④ For level, accessory, display and Others set mode, push [WIDE] (F-6) to toggle wide and normal screen.
- ⑤ Push [▲] (F-1) or [▼] (F-2) to select the desired item, then rotate the main dial to adjust/select the desired value or condition.
 - Pushing [◀ ▶] (F-3) operation may be necessary for some items.
 - Push and hold [DEF] (F-4) select a default condition or value.
- ⑥ Push [EXIT/SET] twice to exit set mode.

◆ Screen arrangement

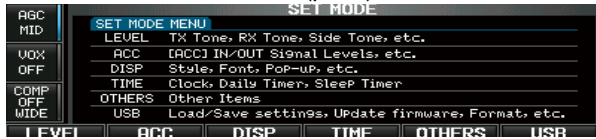


• Display set mode (p. ??)



F-3

• Set mode menu screen (p. ??)



F-1

F-2

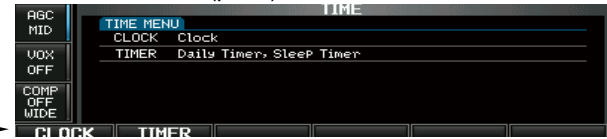
F-3

F-4

F-5

F-6

• Time set mode (p. ??)



F-4

• Level set mode (p. ??)



• Others set mode (p. ??)



F-5

• ACC set mode (p. ??)



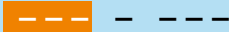
F-2

• USB-Memory set menu (p. ??)




F-6

■ Level set mode


SSB RX HPF/LPF 

Sets the low-pass filter (100 to 2000 Hz) and high-pass filter (500 to 2400 Hz) of the receive audio in 100 Hz steps in SSB mode. (default: OFF)

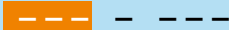
NOTE: When this setting is active, below 2 items will be reset to default value, '0.'

Tone (Bass)  0

Sets the bass level of the receive audio tone in SSB mode from -5 to +5. (default: 0)


Tone (Treble)  0

Sets the treble level of the receive audio tone in SSB mode from -5 to +5. (default: 0)


AM RX HPF/LPF 

Sets the low-pass filter (100 to 2000 Hz) and high-pass filter (500 to 2400 Hz) of the receive audio in 100 Hz steps in AM mode. (default: OFF)

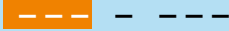
NOTE: When this setting is active, below 2 items will be reset to default value, '0.'

Tone (Bass)  0

Sets the bass level of the receive audio tone in AM mode from -5 to +5. (default: 0)


Tone (Treble)  0

Sets the treble level of the receive audio tone in AM mode from -5 to +5. (default: 0)


FM RX HPF/LPF 

Sets the low-pass filter (100 to 2000 Hz) and high-pass filter (500 to 2400 Hz) of the receive audio in 100 Hz steps in FM mode. (default: OFF)

NOTE: When this setting is active, below 2 items will be reset to default value, '0.'

Tone (Bass)  0

Sets the bass level of the receive audio tone in FM mode from -5 to +5. (default: 0)

Tone (Treble)  0

Sets the treble level of the receive audio tone in FM mode from -5 to +5. (default: 0)

10 SET MODE

■ Level set mode (Continued)

CW RX HPF/LPF	
Sets the low-pass filter (100 to 2000 Hz) and high-pass filter (500 to 2400 Hz) of the receive audio in 100 Hz steps in CW mode. (default: OFF)	
RTTY RX HPF/LPF	
Sets the low-pass filter (100 to 2000 Hz) and high-pass filter (500 to 2400 Hz) of the receive audio in 100 Hz steps in RTTY mode. (default: OFF)	
PSK RX HPF/LPF	
Sets the low-pass filter (100 to 2000 Hz) and high-pass filter (500 to 2400 Hz) of the receive audio in 100 Hz steps in PSK mode. (default: OFF)	
SSB TX Tone (Bass)	 0
Sets the bass level of the transmit audio tone in SSB mode from -5 to +5. (default: 0)	
Tone (Treble)	 0
Sets the treble level of the transmit audio tone in SSB mode from -5 to +5. (default: 0)	
AM TX Tone (Bass)	 0
Sets the bass level of the transmit audio tone in AM mode from -5 to +5. (default: 0)	
Tone (Treble)	 0
Sets the treble level of the transmit audio tone in AM mode from -5 to +5. (default: 0)	
FM TX Tone (Bass)	 0
Sets the bass level of the transmit audio tone in FM mode from -5 to +5. (default: 0)	
Tone (Treble)	 0
Sets the treble level of the transmit audio tone in FM mode from -5 to +5. (default: 0)	

SSB TBW (WIDE)**100 – 2900**

Sets the transmission passband width to a wide setting by changing the lower and higher cut-off frequencies.

- Lower freq. : 100 (default), 200, 300 and 500 Hz
- Higher freq. : 2500, 2700, 2800 and 2900 Hz (default)

SSB TBW (MID)**300 – 2700**

Sets the transmission passband width to a middle setting by changing the lower and higher cut-off frequencies.

- Lower freq. : 100, 200, 300 (default) and 500 Hz
- Higher freq. : 2500, 2700 (default), 2800 and 2900 Hz

SSB TBW (NAR)**500 – 2500**

Sets the transmission passband width to a narrow setting by changing the lower and higher cut-off frequencies.

- Lower freq. : 100, 200, 300 and 500 Hz (default)
- Higher freq. : 2500 (default), 2700, 2800 and 2900 Hz

Drive Gain**50%**

Sets the drive gain level from 0% to 100% in 1% steps. (default: 50%)

While talking into the microphone, keying down or transmitting, rotate the main dial so that the ALC meter reading is between 30% to 50% of the ALC scale. (p. ??)

The drive gain is active for all modes other than SSB mode with speech compressor OFF.

Speech Level**50%**

Sets the voice synthesizer audio output level from 0% to 100% in 1% steps. (default: 50%)

Side Tone Level**50%**

Sets the side tone output level from 0% to 100% in 1% steps. (default: 50%)

Side Tone Level Limit**ON**


Turns the side tone output level limiting capability ON and OFF. (default: ON)

When this item is set to ON, the CW side tone is linked to the [AF] control until rotation of the [AF] control reaches to the specified level—further rotation will not increase the volume of the CW side tones.

- ON : CW side tone level is limited with the [AF] control.
- OFF : CW side tone level is linked to the [AF] control.

10 SET MODE

■ Level set mode (Continued)

Beep Level		50%
Sets the key-touch beep output level from 0% to 100% in 1% steps. (default: 50%)		

Beep Level Limit	ON
Turns the beep tone output level limiting capability ON and OFF for the confirmation and band edge beep tones. (default: ON)	<ul style="list-style-type: none">• ON : Beep level is limited with the [AF] control.• OFF : Beep level is linked to the [AF] control.
When this item is set to ON, the beep tones are linked to the [AF] control until rotation of the [AF] control reaches to the specified level—further rotation will not increase the volume of the beep tones.	

■ ACC set mode

USB Audio SQL

Sets the squelch condition of the USB audio which is output from the [USB] (B) connector on the rear panel.

The same audio signals are output from [USB] (B) and the ACC sockets.

- The beep tones and the voice synthesizer announcements are not output.
- The received audio output level cannot be adjusted with the [AF] control.

OFF (OPEN)

- OFF (OPEN) : The received audio is always output regardless of the squelch condition. (default)
- ON : The received audio is output according to the squelch condition (open/close).

USB MOD Level



50%

Sets the input modulation level of the [USB] (B) connector from 0% to 100% in 1% steps. (default: 50%)

DATA OFF MOD

Selects the desired connector(s) for modulation input when data mode is not in use.

MIC,ACC

- MIC : Use the signals from [MIC].
- ACC : Use the signals from [ACC1] (pin 4).
- MIC,ACC : Use the signals from [MIC] and [ACC1] (pin 4). (default)
- USB : Use the signals from [USB] (B).

DATA1 MOD

Selects the desired connector(s) for modulation input when data 1 mode (D1) is in use.

ACC

- MIC : Use the signals from [MIC].
- ACC : Use the signals from [ACC1] (pin 4). (default)
- MIC,ACC : Use the signals from [MIC] and [ACC1] (pin 4).
- USB : Use the signals from [USB] (B).

DATA2 MOD

Selects the desired connector(s) for modulation input when data 2 mode (D2) is in use.

MIC,ACC

- MIC : Use the signals from [MIC].
- ACC : Use the signals from [ACC1] (pin 4).
- MIC,ACC : Use the signals from [MIC] and [ACC1] (pin 4). (default)
- USB : Use the signals from [USB] (B).

DATA3 MOD

Selects the desired connector(s) for modulation input when data 3 mode (D3) is in use.


MIC



- MIC : Use the signals from [MIC]. (default)
- ACC : Use the signals from [ACC1] (pin 4).
- MIC,ACC : Use the signals from [MIC] and [ACC1] (pin 4).
- USB : Use the signals from [USB] (B).

■ ACC set mode (Continued)

SEND Relay Type	Lead
Selects the switching relay type for [RELAY] from Lead and MOSFET.	<ul style="list-style-type: none"> • Lead : Use mechanical relay. (16 V DC/0.5 A max.; default) • MOS-FET : Use semiconductor type relay. (250 V/200 mA max.)
Select the suitable relay type when connecting a non-Icom linear amplifier.	

External Meter Output	Auto
Selects the desired item for an external meter indication.	<ul style="list-style-type: none"> • Auto : Outputs the receiving signal strength level during receive, and outputs the selected level (selected with [METER]), during transmit. (default) • S : Outputs the receiving signal strength level during receive. • Po : Outputs the transmitting power level during transmit. • SWR : Outputs the VSWR level during transmit. • ALC : Outputs the ALC level during transmit. • COMP : Outputs the compression level during transmit. • V_D : Outputs the drain terminal voltage of the final amplifier MOSFETs. • I_D : Outputs the drain current of the final amplifier MOSFETs.

External Meter Level	 50%
Sets the output level for an external meter indication with in 0% to 100% range in 1% steps.	
<ul style="list-style-type: none"> • Approx. 2.5 V at 50% (default) setting for full-scale indication. (4.7 kΩ impedance) 	

REF Adjust	 50%
Adjusts the internal reference signal frequency within 0% to 100% range in 1% steps during frequency calibration.	
<p> NOTE: Default setting is different for each transceiver.</p>	

■ Display set mode

Bright (LCD)



50%

Adjusts the LCD unit brightness from 0% (dark) to 100% (bright) range in 1% steps. (default: 50%)

Backlight (Switches)



80

Adjusts the switch indicators brightness from 1 (dark) to 100 (bright) range in 1 steps. (default: 80)

Display Type

A

Selects the desired display type from A (Black back) and B (Blue back). (default: A)

See p.?? for details.

Display Font

Basic

Selects the desired font for frequency readout from Basic, Italic and Round. (default: Basic)

See p.?? for details.

Meter Response

MID

Set meter needle response from SLOW, MID and FAST. (default: MID)

This setting is effective for the standard and edge-wise meter type selections only.

Meter Type (Normal Screen)

Standard

Selects the desired S/RF meter type during normal screen indication from Standard, Edgewise and Bar. (default: Standard)

Meter Type (Wide Screen)

Bar

Selects the desired S/RF meter type during wide screen or mini scope indication from Edgewise and Bar. (default: Bar)

Meter Peak Hold (Bar)

ON

Turns the meter peak hold function ON and OFF. (default: ON)

This function is used for the bar meter only.

Memory Name

ON

Sets the memory name indication, during memory mode operation, ON and OFF. (default: ON)

- ON : The programmed memory name is displayed above the frequency indication.
- OFF : No memory name is displayed even a memory name is programmed.

Others set mode

Calibration Marker	OFF
<p>This item is used for a simple frequency check of the transceiver. (default: OFF) See p. ?? for calibration procedure.</p> <p>NOTE: Turn the calibration marker OFF after checking the frequency of the transceiver.</p>	

Beep (Confirmation)	ON
<p>A beep sounds each time a switch is pushed to confirm it. This function can be turned OFF for silent operation. (default: ON)</p> <p>The beep output level can be set in level set mode. (p. ??)</p>	

Beep (Band Edge)	ON (Default)
<p>A beep sounds when an operating frequency enters or exits an amateur band. This functions independent of the confirmation beep setting (above).</p> <p>The beep output level can be set in level set mode. (p. ??)</p>	
	<ul style="list-style-type: none"> • OFF : Band edge beep OFF • ON (Default): Band edge beep sounds when an operating frequency enters or exits a default amateur band. (default) • ON (User) : A beep sounds when an operating frequency enters or exits an amateur band that is set in BAND EDGE screen. (p. ??) • ON (User) & TX Limit : A beep sounds when an operating frequency enters or exits an amateur band that is set in BAND EDGE screen and TX is limited out of the band. (p. ??)

Beep Sound	1000Hz
<p>Sets the desired key-touch beep frequency within 500 to 2000 Hz in 10 Hz steps. (default: 1000 Hz)</p>	

RF/SQL Control	RF+SQL
<p>The [RF/SQL] control can be set as the RF/squelch control (default), the squelch control only (RF gain is fixed at maximum) or 'Auto' (RF gain control in SSB, CW and RTTY; squelch control in AM and FM).</p> <p>See pgs. ??, ?? for details.</p>	
	<ul style="list-style-type: none"> • RF+SQL : [RF/SQL] control as RF/squelch control (default) • SQL : [RF/SQL] control as squelch control • AUTO : [RF/SQL] control as RF gain control in SSB, CW and RTTY; squelch control in AM and FM

Quick Dualwatch	ON
<p>When this item is set to ON, pushing and holding [DUALWATCH] for 1 sec. sets the sub readout frequency to the main readout frequency and activates dualwatch operation.</p>	
	<ul style="list-style-type: none"> • OFF : Quick dualwatch OFF • ON : Quick dualwatch ON (default)

10 SET MODE

■ Others set mode (Continued)

Quick SPLIT	ON
<p>When this item is set to ON, pushing and holding [SPLIT] for 1 sec. sets the unselected VFO's readout frequency to the selected VFO's readout frequency and activates split operation. (default: ON)</p> <p>See p. ?? for details.</p>	
FM SPLIT Offset (HF)	-0.100MHz
<p>Sets the offset (difference between transmit and receive frequencies) for the quick split function. This setting is used for HF bands in FM mode only and is used to input the repeater offset for an HF band.</p> <p>The offset frequency can be set from -9.999 to +9.999 MHz in 1 kHz steps. (default: -0.100 MHz)</p>	
FM SPLIT Offset (50M)	-0.500MHz
<p>Sets the offset (difference between transmit and receive frequencies) for the quick split function. This setting is used for 50 MHz band FM mode only, and is used to input the repeater offset for the 50 MHz band.</p> <p>The offset frequency can be set from -9.999 to +9.999 MHz in 1 kHz steps. (default: -0.500 MHz)</p>	
SPLIT LOCK	OFF
<p>When this item is ON, the main dial can be used to adjust the transmit frequency while pushing [XFC] even while the lock function is activated. (default: OFF)</p> <p>See pgs. ??, ?? for split frequency operation details.</p>	
Tuner (Auto Start)	OFF
<p>The internal antenna tuner has an automatic start capability which starts tuning if the SWR is higher than 1.5-3:1.</p>	<ul style="list-style-type: none">• OFF : The tuner remains OFF even when the SWR is poor (1.5-3:1). (default)• ON : Automatic tune starts even when the tuner is turned OFF during HF bands operation.
Tuner (PTT Start)	OFF
<p>Tuning of the internal antenna tuner can be started automatically at the moment the PTT is pushed after the operating frequency is changed (more than 1% from last-tuned frequency). (default: OFF)</p>	

Tuner Preset Memory Clear	<Select>
<p>The preset memory* of the selected antenna can be cleared with pushing [CLR] (F-5).</p> <p>* The variable capacitor settings are memorized as a preset point for each frequency range (100 kHz steps) after the tuner matches an antenna.</p>	<ul style="list-style-type: none"> • ANT1 Push [CLR] : The preset memory of the antenna that is connected to [ANT 1] is cleared after pushing [CLR] (F-5). • ANT2 Push [CLR] : The preset memory of the antenna that is connected to [ANT 2] is cleared after pushing [CLR] (F-5).

[ANT] Switch	Auto
<p>You can set the antenna connector selection to automatic, manual or non-selection (when using 1 antenna only).</p>	<ul style="list-style-type: none"> • Auto : Antenna switch is activated and the band memory memorizes the selected antenna. (default) See p. ?? for details. • Manual : Antenna switch is activated and selects an antenna manually. • OFF : Antenna switch is not activated and does not function. The [ANT1] connector is always selected.

Transverter Function	Auto
<p>Selects the transverter operation condition from Auto and ON. (default: Auto)</p>	<ul style="list-style-type: none"> • ON : Turn the transverter operation ON. • Auto : The transceiver turns into transverter operation condition when 2 to 13.8 V DC is applied to [ACC2] pin 6.

Transverter Offset	16.000MHz (14.100.0→30.100.0)
<p>Sets the desired offset frequency for the transverter operation within 0.000 to 99.999 MHz in 1 kHz steps. (default: 16.000 MHz)</p>	

RTTY Mark Frequency	2125
<p>Selects the RTTY mark frequency. RTTY mark frequency is switched between 1275, 1615 and 2125 Hz. (default: 2125 Hz)</p> <p>2125 Hz is automatically selected when the internal RTTY decoder is used.</p>	

RTTY Shift Width	170
<p>Selects the RTTY shift width. There are 3 selectable values: 170, 200 and 425 Hz. (default: 170 Hz)</p> <p>170 Hz is automatically selected when the internal RTTY decoder is used.</p>	

■ Others set mode (Continued)

RTTY Keying Polarity	Normal
<p>Selects the RTTY keying polarity. Normal or reverse keying polarity can be selected. (default: Normal)</p> <p>When reverse polarity is selected, Mark and Space are reversed.</p>	<ul style="list-style-type: none"> • Normal : Key open/close = Mark/Space • Reverse : Key open/close = Space/Mark

PSK Tone Frequency	1500
<p>Selects the desired PSK tone frequency for the PSK reception from 1000, 1500 and 2000 Hz. (default: 1500 Hz)</p>	

SPEECH Language	English
<p>Selects the speech language from English and Japanese. (default: English)</p>	

SPEECH Speed	HIGH
<p>Selects the speech speed from HIGH (faster) and LOW (slower). (default: HIGH)</p>	

SPEECH S-Level	ON
<p>The IC-7600 speech processor can announce frequency, mode and signal level. Signal level announcement can be deactivated if desired. (default: ON)</p> <p>When "OFF" is selected, the signal level is not announced.</p>	

SPEECH [MODE] Switch	OFF
<p>Selects the operating mode speech capability when a mode switch is pushed; ON or OFF. (default: OFF)</p> <p>When "ON" is selected, the selected operating mode is announced when a mode switch is pushed.</p>	

[SPEECH/LOCK] Switch	SPEECH/LOCK
<p>Selects the [SPEECH/LOCK] switch action.</p>	<ul style="list-style-type: none"> • SPEECH/LOCK : (Push) The voice synthesizer function is activated. (Push and hold) The dial lock function is turned ON or OFF. • LOCK/SPEECH : (Push) The dial lock function is turned ON or OFF. (Push and hold) The voice synthesizer function is activated.

Memopad Numbers	5
Sets the number of memo pad channels available. 5 or 10 memo pads can be selected. (default: 5)	
MAIN DIAL Auto TS	HIGH
Sets the auto tuning step function for the main dial. When rotating the main dial rapidly, the tuning step automatically changes several times as selected. There are 2 type of auto tuning steps: HIGH (Fastest) and LOW (Faster). (default: HIGH)	<ul style="list-style-type: none"> • HIGH : Auto tuning step is turned ON. Fastest tuning step during rapid rotation. (default) • LOW : Auto tuning step is turned ON. Faster tuning step during rapid rotation. • OFF : Auto tuning step is turned OFF.
MIC Up/Down Speed	HIGH
Sets the rate at which frequencies are scanned when the microphone [UP]/[DN] switches are pushed and held. HIGH or LOW can be selected.	<ul style="list-style-type: none"> • HIGH : High speed (default; 50 tuning steps/sec.) • LOW : Low speed (25 tuning steps/sec.)
Quick RIT/ΔTX Clear	OFF
Selects the RIT/ Δ TX frequency clearing instruction with [CLEAR].	<ul style="list-style-type: none"> • ON : Clears the RIT/ΔTX frequency when [CLEAR] is pushed momentarily. • OFF : Clears the RIT/ΔTX frequency when [CLEAR] is pushed and held for 1 sec. (default)
[NOTCH] Switch (SSB)	Auto/Manual
Selects notch functions for SSB mode operation from Auto, Manual and Auto/Manual.	<ul style="list-style-type: none"> • Auto : Only the auto notch can be used. • Manual : Only the manual notch can be used. • Auto/Manual : Both the auto and manual notch can be used. (default)
[NOTCH] Switch (AM)	Auto/Manual
Selects notch functions for AM mode operation from Auto, Manual and Auto/Manual.	<ul style="list-style-type: none"> • Auto : Only the auto notch can be used. • Manual : Only the manual notch can be used. • Auto/Manual : Both the auto and manual notch can be used. (default)
SSB/CW Synchronous Tuning	OFF
<p>Selects the displayed frequency shift function from ON and OFF. (default: OFF)</p> <p>When this function is activated, the audio pitch or tones of the received signal will remain the same even when the operating mode is changed between SSB and CW.</p> <p>/// The amount of frequency shift may differ according to the CW pitch setting.</p>	<ul style="list-style-type: none"> • ON : The displayed frequency shifts when the operating mode is changed between SSB and CW. • OFF : The displayed frequency does not shift.

■ Others set mode (Continued)

CW Normal Side	LSB
<p>Selects the side band used to receive CW in CW normal mode. (default: LSB)</p>	
APF Type	SOFT
<p>Select audio filter shape for APF from SOFT and SHARP. (default: SOFT)</p>	<ul style="list-style-type: none"> • SOFT : Soft filter shape makes distinguishing noise and signals easier. The audio filter width is related to the CW pitch setting. • SHARP: Sharp filter shape rejects interfering signals more aggressively.
External Keypad (VOICE)	OFF
<p>Sets the external keypad for voice message transmission capability ON and OFF. (default: OFF)</p> <p>See page ?? for the equivalent circuit of an external keypad and connection.</p>	<ul style="list-style-type: none"> • ON : Pushing one of external keypad switches, transmits the desired voice message contents during a phone mode operation. • OFF : External keypad does not function.
External Keypad (KEYER)	OFF
<p>Sets the external keypad for keyer memory transmission capability ON and OFF. (default: OFF)</p> <p>See page ?? for the equivalent circuit of an external keypad and connection.</p>	<ul style="list-style-type: none"> • ON : Pushing one of external keypad switches, transmits the desired keyer memory contents during CW mode operation. • OFF : External keypad does not function.
External Keypad (RTTY)	OFF
<p>Sets the external keypad for RTTY TX memory transmission capability ON and OFF. (default: OFF)</p> <p>See page ?? for the equivalent circuit of an external keypad and connection.</p>	<ul style="list-style-type: none"> • ON : Pushing one of external keypad switches, transmits the desired RTTY TX memory contents during RTTY mode operation. • OFF : External keypad does not function.
External Keypad (PSK)	OFF
<p>Sets the external keypad for PSK TX memory transmission capability ON and OFF. (default: OFF)</p> <p>See page ?? for the equivalent circuit of an external keypad and connection.</p>	<ul style="list-style-type: none"> • ON : Pushing one of external keypad switches, transmits the desired PSK TX memory contents during PSK mode operation. • OFF : External keypad does not function.

Keyboard [F-1]–[F-4] (VOICE)**OFF**

Sets the voice message transmission capability ON and OFF when one of [F-1]–[F-4] key of the keyboard that is connected to the [USB] (A) connector on the front panel is pushed. (default: OFF)

- ON : Pushing one of [F-1]–[F-4] key of the connected keyboard transmits the desired voice message contents during a phone mode operation.
- OFF : [F-1]–[F-4] key of the connected keyboard does not function.

Keyboard [F-1]–[F-4] (KEYER)**OFF**

Sets the keyer memory transmission capability ON and OFF when one of [F-1]–[F-4] key of the keyboard that is connected to the [USB] (A) connector on the front panel is pushed. (default: OFF)

- ON : Pushing one of [F-1]–[F-4] key of the connected keyboard transmits the desired keyer memory contents during CW mode operation.
- OFF : [F-1]–[F-4] key of the connected keyboard does not function.

CI–V Baud Rate**Auto**

Sets the CI-V data transfer rate. 300, 1200, 4800, 9600, 19200 bps and “Auto” are available. (default: Auto)

When “Auto” is selected, the baud rate is automatically set according to the data rate of connected controller.

CI–V Address**7Ah**

To distinguish equipment, each CI-V transceiver has its own Icom standard address in hexadecimal code. The IC-7600's address is 7Ah.

When 2 or more IC-7600's are connected to an optional CT-17 CI-V LEVEL CONVERTER, rotate the main dial to select a different address for each IC-7600; the range is 01h to 7Fh.

CI–V Transceive**ON**

Transceive operation is possible with the IC-7600 connected to other Icom HF transceivers or receivers.

When “ON” is selected, changing the frequency, operating mode, etc. on the IC-7600 automatically changes those of connected transceivers (or receivers) and vice versa.

USB Serial Function**CI-V**

Select [USB] connector output data format from CI-V and Decode.

- CI-V : Outputs data in CI-V format. (default)
- Decode : Outputs decoded contents in ASCII code format.

■ Others set mode (Continued)

Decode Baud Rate	9600
<p>Selects data transmission speed (Baud rate) when “Decode” is selected in “USB Serial Function”; settings are 300, 1200, 4800, 9600 and 19200 bps. (default: 9600)</p>	

Keyboard Type	Japanese
<p>Selects the connected keyboard type from English, Japanese, United Kingdom, French, French (Canadian), German, Portuguese, Portuguese (Brazilian), Spanish, Spanish (Latin American) and Italian. (default: Japanese)</p>	

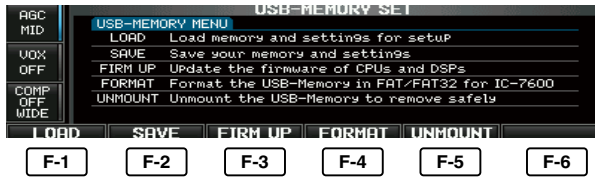
Keyboard Repeat Delay	250ms
<p>Sets the time period for delay from 100 to 1000 msec. in 50 msec. steps. (default: 250 msec.)</p> <p>When a key of the connected keyboard is pushed and held for the set period, the character is input continuously.</p>	

Keyboard Repeat Rate	10.9cps
<p>Sets the repeating rate for the connected keyboard within 2.0 to 30.0 cps. (default: 10.9 cps) *cps=character per second</p> <p>When a key of the connected keyboard is pressed and held, the character is repeatedly input with the set speed.</p>	<ul style="list-style-type: none"> • Available repeating rate 2.0, 2.1, 2.3, 2.5, 2.7, 3.0, 3.3, 3.7, 4.0, 4.3, 4.6, 5.0, 5.5, 6.0, 6.7, 7.5, 8.0, 8.6, 9.2, 10.0, 10.9, 12.0, 13.3, 15.0, 16.0, 17.1, 18.5, 20.0, 21.8, 24.0, 26.7, 30.0

■ USB-Memory set menu

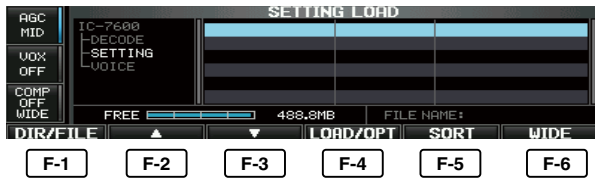
◇ USB-Memory set screen arrangement

• USB-Memory set menu



The USB-Memory is not supplied by Icom.

• Setting load screen (p. ??)



Push and hold for 1 sec.

• Load option set mode (p. ??)



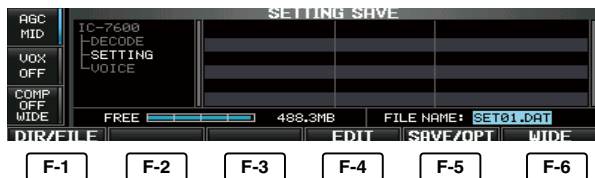
• Firmware update (p. ??)



• Format menu (p. ??)



• Setting save screen (p. ??)



Push and hold for 1 sec.

• Save option set mode (p. ??)



• Unmount USB-Memory (p. ??)



10

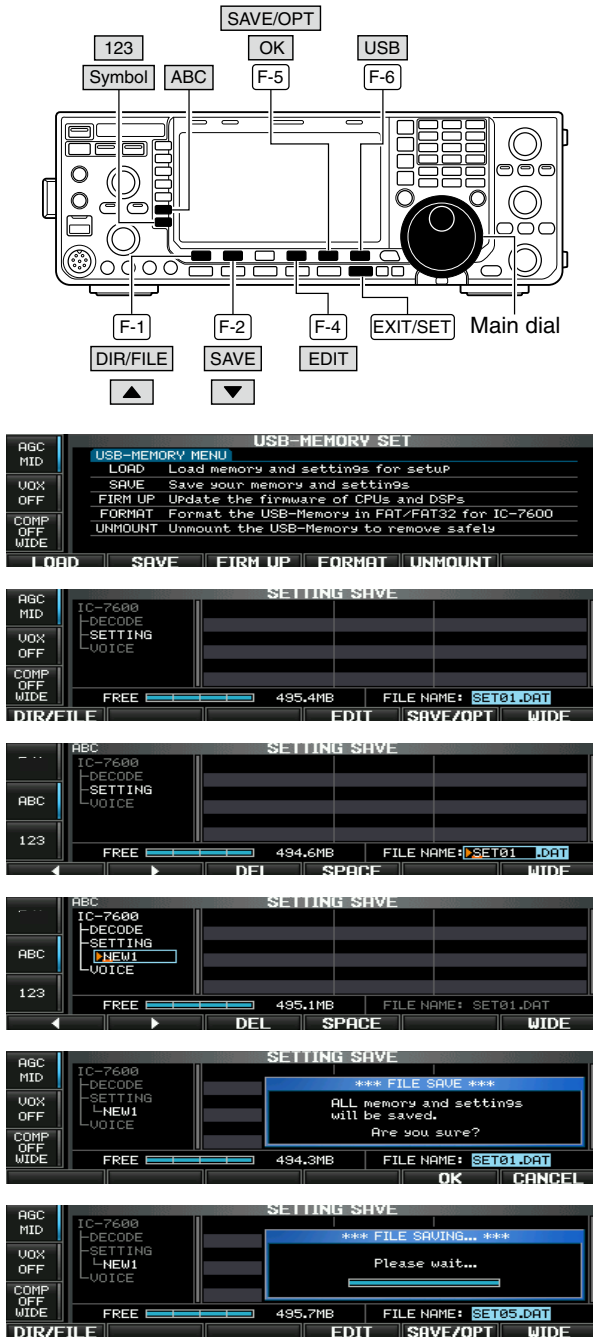
◇ Load option set mode

<p>Load Contents</p> <p>Selects file load condition from All and Select. (default: Select)</p>	<p>Select</p> <ul style="list-style-type: none"> • All : Loads and sets the all following contents. • Select : Loads and sets the selected contents only.
<p>ANT Memory</p> <p>Selects the antenna memory setting loading condition from YES and NO. (default: NO)</p>	<p>NO</p> <ul style="list-style-type: none"> • YES : Loads and sets the antenna memory. • NO : Use the original antenna memory setting.
<p>REF Adjust</p> <p>Selects the reference signal setting load condition from YES and NO. (default: NO)</p>	<p>NO</p> <ul style="list-style-type: none"> • YES : Loads and sets the reference signal setting. • NO : Use the original reference signal setting.
<p>CI-V Address</p> <p>Selects the IP address setting load condition from YES and NO. (default: NO)</p>	<p>NO</p> <ul style="list-style-type: none"> • YES : Loads and sets the IP address setting. • NO : Use the original IP address setting.
<p>Other Memory & Settings</p> <p>This setting is fixed "YES."</p>	<p>YES</p> <ul style="list-style-type: none"> • YES : Loads and sets memory channel contents and other settings.
<p>Voice TX Memory</p> <p>Selects the voice TX message load condition from YES and NO. (default: YES)</p>	<p>YES</p> <ul style="list-style-type: none"> • YES : Loads and sets voice TX message. • NO : Use the original voice TX message.
<p>Voice RX Memory</p> <p>Selects the voice RX message load condition from YES and NO. (default: NO)</p>	<p>NO</p> <ul style="list-style-type: none"> • YES : Loads and sets voice RX message. • NO : Use the original voice RX message.

◇ Save option set mode

SAVE Contents	All
Selects file save condition from All and Select. (default: All)	<ul style="list-style-type: none"> • All : Saves all the following contents. • Select : Saves the selected contents only.
Memory & Settings	YES
This setting is fixed "YES."	<ul style="list-style-type: none"> • YES : Saves memory channel contents and settings of set modes.
Voice TX Memory	YES
Selects the voice TX message save condition from YES and NO. (default: YES)	<ul style="list-style-type: none"> • YES : Saves the voice TX message. • NO : Does not save.
Voice RX Memory	NO
Selects the voice RX message save condition from YES and NO. (default: NO)	<ul style="list-style-type: none"> • YES : Saves the voice RX message. • NO : Does not save.

■ File saving



When a PC keyboard is connected to [USB] connector on the front panel, the file name can also be edited from the keyboard. In this case, an USB hub is required.

Memory channel contents, set mode settings, etc. can be saved into the USB-Memory for backup.

- ① During set mode menu screen indication, push [USB] (F-6) to select USB-Memory set menu screen.
- ② Push [SAVE] (F-2) to select setting save screen.
- ③ Change the following conditions if desired.

• File name:

- ① Push [EDIT] (F-4) to select file name edit condition.
 - Push [DIR/FILE] (F-1) several times to select the file name, if necessary.
- ② Push [ABC] (MF6), [123] (MF7) or [Symbol] (MF7) to select the character group, then rotate the main dial to select the character.
 - [ABC] (MF6): A to Z (capital letters); [123] (MF7): 0 to 9 (numerals); [Symbol] (MF7): ! # \$ % & ' ` ^ - () { } _ ~ @ can be selected.
 - Push [◀] (F-1) to move the cursor left, push [▶] (F-2) to move the cursor right, push [DEL] (F-3) to delete a character and push [SPACE] (F-4) to insert a space.
- ③ Push [EXIT/SET] to set the file name.

• Save option

- ① Push and hold [SAVE/OPT] (F-5) for 1 sec. to enter save option set mode.
- ② Push [▲] (F-1) or [▼] (F-2) to select the item, then rotate the main dial to select the desired setting. (see p. ?? for details)
 - Push and hold [DEF] (F-4) for 1 sec. to select the default setting.
- ③ Push [EXIT/SET] to return to the previous indication.

• Saving location

- ① Push [DIR/FILE] (F-1) to select tree view screen.
- ② Select the desired directory or folder in the USB-Memory.
 - Push [◀▶] (F-4) to select the upper directory.
 - Push [▲] (F-2) or [▼] (F-3) to select folder in the same directory.
 - Push and hold [◀▶] (F-4) for 1 sec. to select a folder in the directory.
 - Push [REN] (MF5) to rename the folder.
 - Push and hold [DEL] (MF6) for 1 sec. to delete the folder.
 - Push and hold [MAKE] (MF7) for 1 sec. to making a new folder. (Edit the name with the same manner as the “• File name” above.)
- ③ Push [DIR/FILE] (F-1) twice to select the file name.

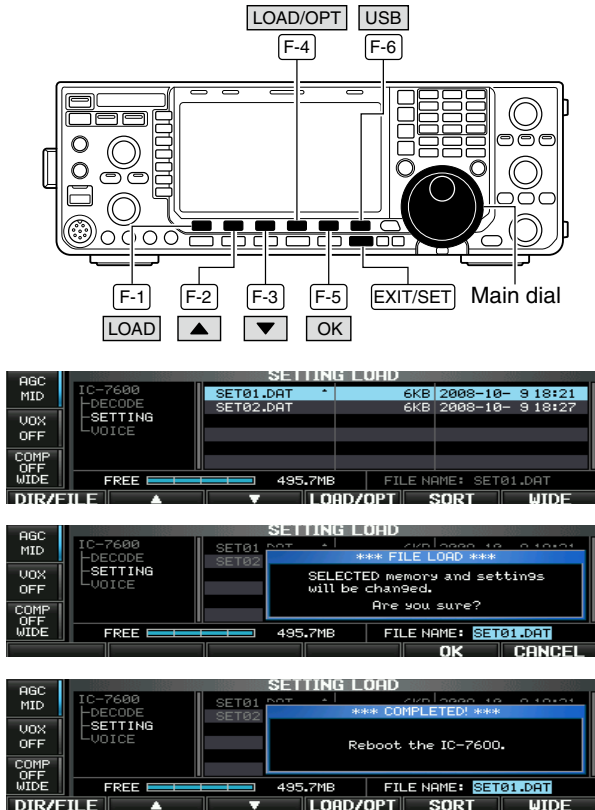
- ④ Push [SAVE/OPT] (F-5).

- Confirmation screen appears.

- ⑤ Push [OK] (F-5) to save.

- After saving is completed, return to USB-Memory set menu automatically.

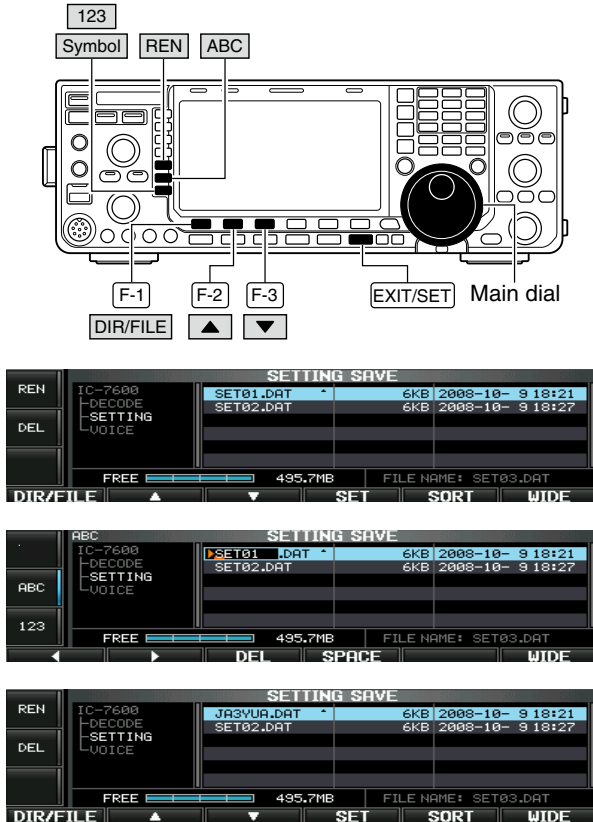
■ File loading



By loading the saved setting file from the USB-Memory, you can easily set up another IC-7600—several operators settings can easily be applied to one IC-7600.

- ① During set mode menu screen indication, push [USB] (F-6) to select USB set menu screen.
- ② Push [LOAD] (F-1) to select setting load screen.
- ③ Push and hold [LOAD/OPT] (F-4) for 1 sec. to select load option set mode, then set the desired loading conditions, if desired.
 - See page ?? for details.
- ④ Push [EXIT/SET] to set.
- ⑤ Push [▲] (F-2) or [▼] (F-3) to select the desired setting file.
- ⑥ Push [LOAD/OPT] (F-4).
 - Confirmation screen appears.
- ⑦ Push [OK] (F-5) to starts loading.
 - After the loading is completed, the message dialog, "Reboot the IC-7600," appears.
- ⑧ Turn the transceiver power OFF then ON to make the setting effective.

■ Changing a file name

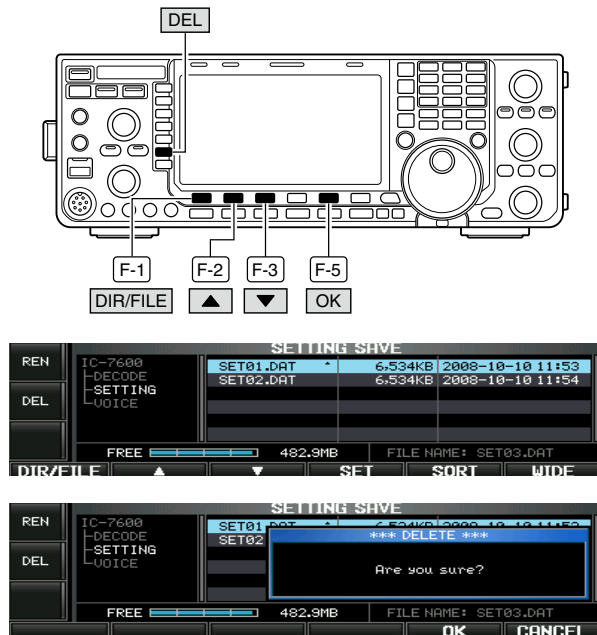


When a PC keyboard is connected to [USB] connector on the front panel, the file name can also be edited from the keyboard. In this case, an USB hub is required.

The file name, saved in the USB-Memory, can be re-named from the transceiver as desired.

- ① During setting save screen indication, push [DIR/FILE] (F-1) to select tree view screen.
 - Push [▲] (F-2) or [▼] (F-3) to select the desired folder.
 - “DECODE,” “SETTING” and “VOICE” folders are available as the default.
 - After the folder is selected, push and hold [◀ ▶] (F-4) for 1 sec. to display content folder(s), if available.
- ② Push [DIR/FILE] (F-1) to select file list screen.
- ③ Push [▲] (F-2) or [▼] (F-3) to select the desired file.
- ④ Push [REN] (MF5) momentarily to select the file name edit condition.
- ⑤ Push [ABC] (MF6), [123] (MF7) or [Symbol] (MF7) to select the character group, then rotate the main dial to select the character.
 - [ABC] (MF6): A to Z (capital letters); [123] (MF7): 0 to 9 (numerals); [Symbol] (MF7): ! # \$ % & ' ^ - () { } _ ~ @ can be selected.
 - Push [◀] (F-1) to move the cursor left, push [▶] (F-2) to move the cursor right, push [DEL] (F-3) to delete a character and push [SPACE] (F-4) to insert a space.
 - Pushing the transceiver's keypad, [0]–[9], can also enter numerals.
- ⑥ Push [EXIT/SET] to set the file name.

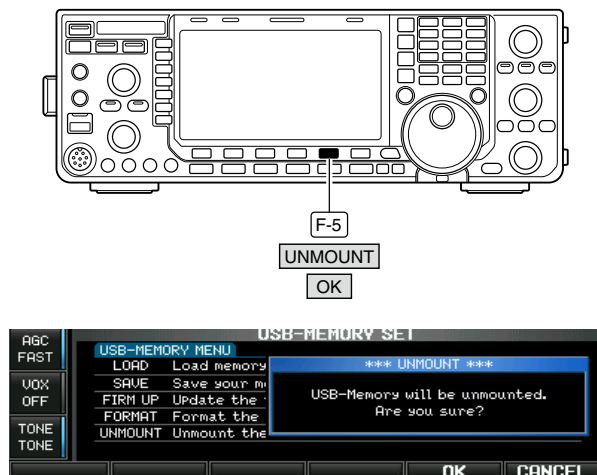
■ Deleting a file



RECOMMENDATION! Deleting the setting file is irreversible. Confirm the contents before deleting a setting file!

- ① During setting save screen indication, push [DIR/FILE] (F-1) to select tree view screen.
 - Push [▲] (F-2) or [▼] (F-3) to select the desired folder.
 - “DECODE,” “SETTING” and “VOICE” folders are available as the default.
 - After the folder is selected, push and hold [◀ ▶] (F-4) for 1 sec. to display content folder(s), if available.
- ② Push [DIR/FILE] (F-1) to select file list screen.
- ③ Push [▲] (F-2) or [▼] (F-3) to select the desired file to be deleted.
- ④ Push and hold [DEL] (MF6) for 1 sec.
 - Confirmation screen appears.
- ⑤ Push [OK] (F-5) to delete.
 - After the deleting, return to setting save screen automatically.

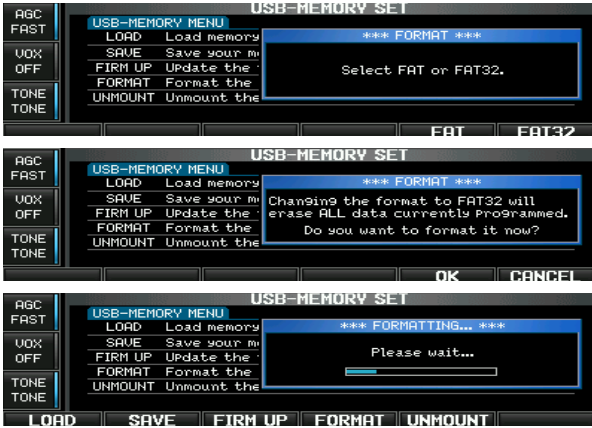
■ Unmounting USB-Memory



CAUTION! When removing the USB-Memory, unmount operation is recommended. If you do not unmount the memory in this case, data in the USB memory may be corrupted.

- ① During USB-Memory set menu screen indication, push and hold [UNMOUNT] (F-5) for 1 sec.
 - Confirmation screen appears.
- ② Push [OK] (F-5) to unmount the USB-Memory.
- ③ After the indicator above [USB] (A) connector goes off, remove the USB-Memory.

■ Formatting the USB-Memory



Saved data in the USB-Memory can be erased.

IMPORTANT! Formatting erases all saved data in the USB-Memory. Making a backup file on your PC is recommended.

- ① During USB-Memory set menu screen indication, push and hold [FORMAT] (F-4) for 1 sec.
 - Confirmation screen appears.
- ② Push [FAT] (F-5) or [FAT32] (F-6) to select the format type, FAT or FAT32, respectively.
 - Confirmation screen appears.
- ③ Push [OK] (F-5) to format.
 - Push [CANCEL] (F-6) to cancel.
- ④ Returns to USB-Memory set menu indication automatically.

NOTE: If no USB-Memory is inserted and [FORMAT] (F-4) is selected as in step ①, an error message appears as below.

***** NO USB-MEMORY IS FOUND *****
 Check the following:
 • Insert a USB-Memory
 • The USB-Memory type

■ Troubleshooting

The following chart is designed to help you correct problems which are not equipment malfunctions. If you are unable to locate the cause of a problem or solve it through the use of this chart, contact your nearest Icom Dealer or Service Center.

◇ Transceiver power

PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
Power does not come on when the [POWER] switch is pushed.	<ul style="list-style-type: none"> • Power cable is improperly connected. • The internal power supply is turned OFF. • Circuit breaker is tripped. 	<ul style="list-style-type: none"> • Re-connect the AC power cable correctly. • Turn the internal power supply ON. • Check for the cause, then re-set the circuit breaker. 	<p>p. ??</p> <p>p. ??</p> <p>—</p>

◇ Transmit and receive

PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
No sounds from the speaker.	<ul style="list-style-type: none"> • Volume level is too low. • The squelch is closed. • The transceiver is in transmit. 	<ul style="list-style-type: none"> • Rotate [AF] clockwise to obtain a suitable listening level. • Turn [SQL] to 10 o'clock position to open the squelch. • Push [TRANSMIT] to receive or check the SEND line of an external unit, if connected. 	<p>p. ??</p> <p>p. ??</p> <p>p. ??</p>
Sensitivity is too low, and only strong signals are audible.	<ul style="list-style-type: none"> • The antenna is not connected properly. • The antenna for another band is selected. • The antenna is not properly tuned. • The attenuator is activated. 	<ul style="list-style-type: none"> • Re-connect to the antenna connector. • Select an antenna suitable for the operating frequency. • Push and hold [TUNER] for 1 sec. to manually tune the antenna. • Push [ATT] (MF4) several times to select "ATT OFF." 	p. ??
Received audio is unclear or distorted.	<ul style="list-style-type: none"> • Wrong operating mode is selected. • PBT function is activated. • Noise blanker is turned ON when receiving a strong signal. • Preamp is activated. • The noise reduction is activated and the [NR] control is too far clockwise. 	<ul style="list-style-type: none"> • Select a suitable operating mode. • Push and hold [PBT-CLR] for 1 sec. to reset the function. • Push [NB] to turn the noise blanker OFF. • Push [P.AMP] (MF3) once or twice to turn the function OFF. • Set the [NR] control for maximum readability. 	p. ??
The [ANT] switch does not function	<ul style="list-style-type: none"> • The antenna switch has not been activated. 	<ul style="list-style-type: none"> • Set the antenna switch in set mode to "Auto" or "Manual." 	p. ??
Transmitting is impossible.	<ul style="list-style-type: none"> • The operating frequency is not inside a ham band. 	<ul style="list-style-type: none"> • Set the frequency to be in a ham band. 	p. ??
Output power is too low.	<ul style="list-style-type: none"> • [RF PWR] is set too far counterclockwise • [DRIVE] is set too far counterclockwise • [MIC] is set too far counterclockwise • The antenna for another band is selected. • The antenna is not properly tuned. 	<ul style="list-style-type: none"> • Rotate [RF PWR] clockwise. • Set [DRIVE] to a suitable position. • Set [MIC] to a suitable position. • Select an antenna suitable for the operating frequency. • Push and hold [TUNER] for 1 sec. to manually tune the antenna. 	p. ??
No contact can be made with another station.	<ul style="list-style-type: none"> • RIT or ΔTX function is activated. • Split frequency function is activated. 	<ul style="list-style-type: none"> • Push [RIT] or [ΔTX] to turn the function OFF. • Push [SPLIT] to turn the function OFF. 	p. ??
Transmit signal is unclear or distorted.	<ul style="list-style-type: none"> • [MIC] is set too far clockwise 	<ul style="list-style-type: none"> • Set [MIC] to a suitable position. 	p. ??
Repeater cannot be accessed.	<ul style="list-style-type: none"> • Split frequency function is not activated. • Programmed subaudible tone frequency is wrong. 	<ul style="list-style-type: none"> • Push [SPLIT] to turn the function ON • Reset the frequency using set mode. 	p. ??

◇ Scanning

PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
Programmed scan does not stop.	• Squelch is open.	• Set [SQL] to the threshold point.	p. ??
Programmed scan does not start.	• The same frequencies have been programmed in scan edge memory channels P1 and P2.	• Program different frequencies in scan edge memory channel P1 and P2.	p. ??
Memory scan does not start	• 2 or more memory channels have not been programmed.	• Program more than 2 memory channels.	p. ??
Select memory scan does not start	• 2 or more memory channels have not been designated as select channels.	• Designate more than 2 memory channels as select channels for the scan.	p. ??

◇ Display

PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
The displayed frequency does not change properly.	• The dial lock function is activated. • A set mode screen is selected. • The internal CPU has malfunctioned.	• Push [LOCK] to turn the function OFF. • Push [EXIT/SET] several times to exit the set mode screen. • Reset the CPU.	p. ??

◇ Format USB-Memory

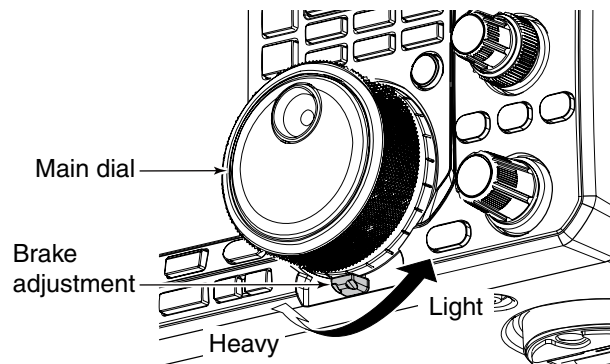
PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
Format error appears when formatting in FAT32	• The inserted USB-Memory capacity is smaller than 64 MB.	• Insert a USB-Memory larger than 64 MB or select the FAT format.	p. ??
Format error appears when formatting in FAT	• The inserted USB-Memory capacity is larger than 2 GB.	• Insert a USB-Memory smaller than 2 GB or select the FAT32 format.	p. ??

■ Main dial brake adjustment

The tension of the main dial may be adjusted to suit your preference.

The brake adjustment is located on the bottom side of the front panel. See the figure at left.

Slide the brake adjustment to a comfortable tension level while turning the dial continuously and evenly in one direction.

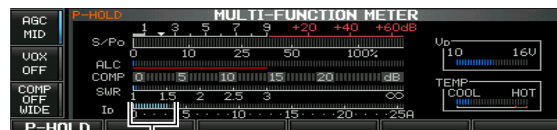
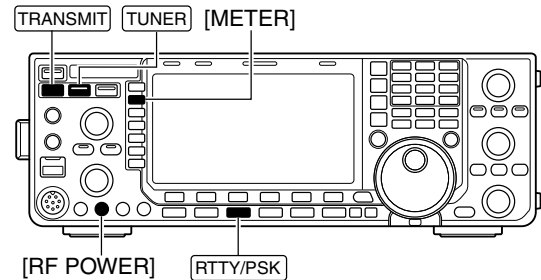


■ SWR reading

The SWR meter indicates the SWR over the transmission line in all modes.

- ① Push **[TUNER]** to turn the antenna tuner OFF.
- ② Push and hold **[METER] (MF2)** for 1 sec. to display multi-function meter.
- ③ Push **[RTTY/PSK]** once or twice to select RTTY mode.
- ④ Push **[TRANSMIT]**.
- ⑤ Rotate **[RF POWER]** clockwise past the 12 o'clock position for more than 30 W output power.
- ⑥ Read the SWR on the SWR meter gage.
- ⑦ Push **[EXIT/SET]** to close multi-function meter.

The built-in antenna tuner matches the transmitter to the antenna when the SWR is lower than 3 : 1.



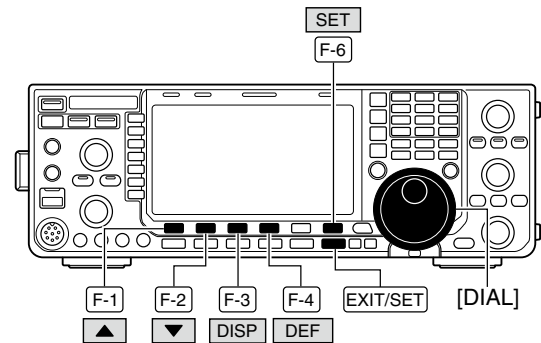
Better than 1.5:1



■ Screen type and font selections

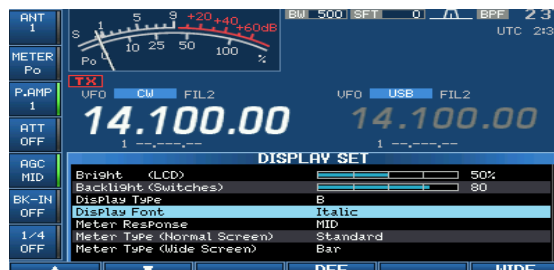
2 types of screen images and 3 types of frequency readout indication fonts are available in the IC-7600.

- ① Push **[EXIT/SET]** several times to close multi-function screen, if necessary.
- ② Push **[SET] (F-6)** to select set mode menu screen.
- ③ Push **[DISP] (F-3)** to enter display set mode.
- ④ Push **[▲] (F-1)** or **[▼] (F-2)** to select “Display Type” item when selecting the screen image, select “Display Font” when selecting the frequency readout indication font.
- ⑤ Rotate the main dial to select the desired screen image or font.
 - Screen image is selectable from A (Black back) and B (Blue back).
 - Basic, Italic and Round are available for the frequency readout font.
- ⑥ Push **[EXIT/SET]** twice to exit from display set mode.



11

• Screen image example— Display Type: B, Display Font: Italic

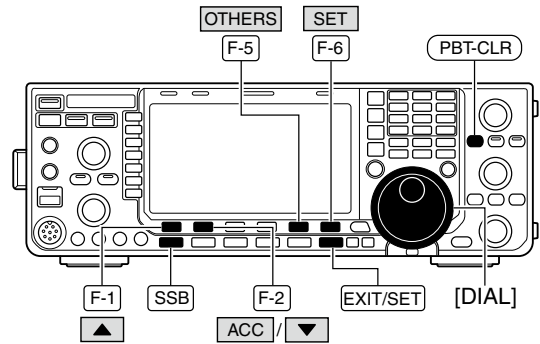


Frequency calibration (approximate)

A very accurate frequency counter is required to calibrate the frequency of the transceiver. However, a rough check may be performed by receiving radio station WWV, WWVH, or other standard frequency signals.

CAUTION: The IC-7600 has been thoroughly adjusted and tested at the factory before being shipped. You should not have to re-calibrate it.

- ① Push **[SSB]** to select USB mode.
- ② Push and hold **[PBT-CLR]** for 1 sec. to clear the PBT setting and make sure that the RIT/ Δ TX function is not activated.
- ③ Set the frequency to the standard frequency station minus 1 kHz.
 - When receiving WWV or WWVH (at 15.00000 MHz) as a standard frequency, set the operating frequency for 14.99900 MHz.
 - Other standard frequencies can be used.
- ④ Push **[EXIT/SET]** several times to close a multi-function screen, if necessary.
- ⑤ Push **[SET] (F-6)** to select set mode menu screen.
- ⑥ Push **[OTHERS] (F-5)** to enter others set mode.
- ⑦ Push **[▲] (F-1)** several times to select the “Calibration Marker” item.
- ⑧ Rotate the main dial clockwise to turn the calibration marker ON.
- ⑨ Push **[EXIT/SET]** once to return to set mode menu screen.
- ⑩ Push **[ACC] (F-2)** to enter accessory set mode.
- ⑪ Push **[▼] (F-2)** several times to select the “REF Adjust” item.
- ⑫ Rotate the main dial to adjust for a zero beat with the received standard signal as shown at right.
 - Zero beat means that two signals are exactly the same frequency, resulting in a single tone being emitted.
- ⑬ Turn the calibration marker OFF in others set mode.
- ⑭ Push **[EXIT/SET]** twice to exit set mode.



• Calibration marker item



• REF Adjust item



■ Opening the transceiver's case

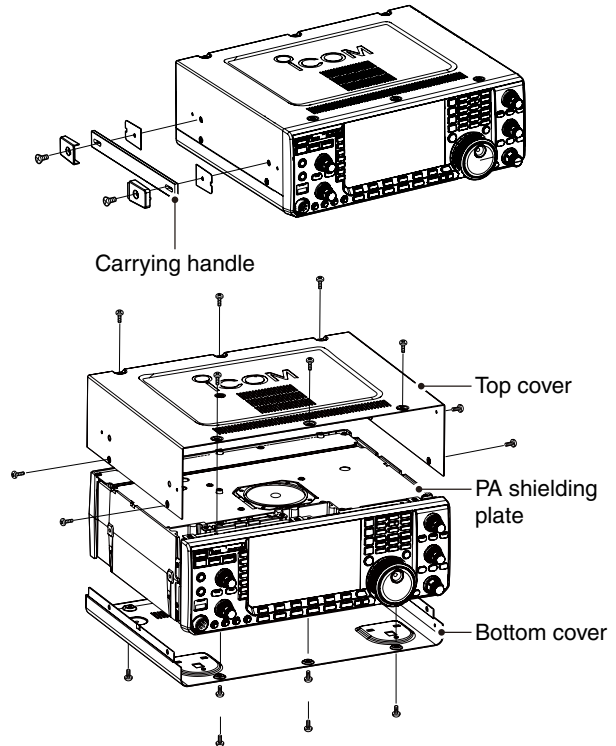
Follow the case opening procedures shown here when you want to replace the clock backup battery or internal fuse.

CAUTION! Turn the power OFF and disconnect the DC power cable from the transceiver before performing any work on the transceiver. Otherwise, there is danger of electric shock and/or equipment damage.

- ① Remove the two screws from the carrying handle and remove the handle from the transceiver.
- ② Remove the 6 screws from the top of the transceiver and the 4 screws from the sides, then lift up the top cover.
- ③ Turn the transceiver upside-down.

CAUTION: NEVER HOLD THE MAIN DIAL OR ANY OTHER KNOBS when the transceiver is being turned upside down. This may damage the transceiver.

- ④ Remove 6 screws from the bottom, then lift up the bottom cover.

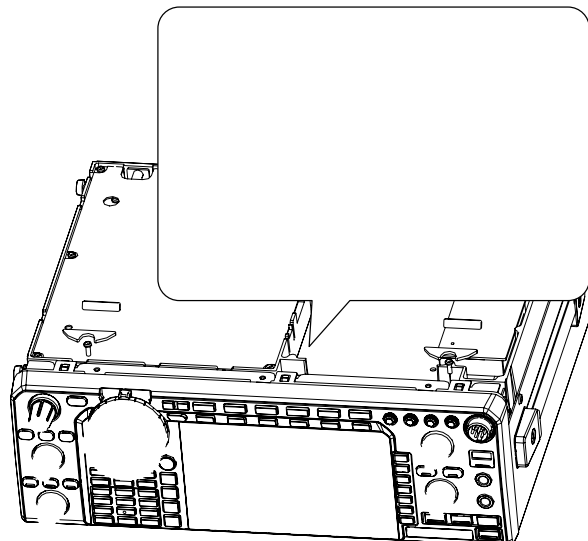


■ Clock backup battery replacement

The IC-7600 has a lithium backup battery (CR2032) inside for clock and timer functions. The usual life of the backup battery is approximately 2 years. When the backup battery is discharged, the transceiver transmits and receives normally but cannot retain the current time.

WARNING: Turn the power OFF and disconnect the DC power cable from the transceiver before removing the transceiver's cover.

- ① Remove the bottom cover as shown above.
- ② Replace the clock backup battery, located on the front panel as illustrated at right.
 - Make sure the battery polarity is correct.
- ③ Return the bottom cover to the original position.
- ④ Set the date and time in time set mode. (p. ??)



■ Fuse replacement

If a fuse blows or the transceiver stops functioning, try to find the source of the problem, and replace the damaged fuse with a new, adequately rated fuse.

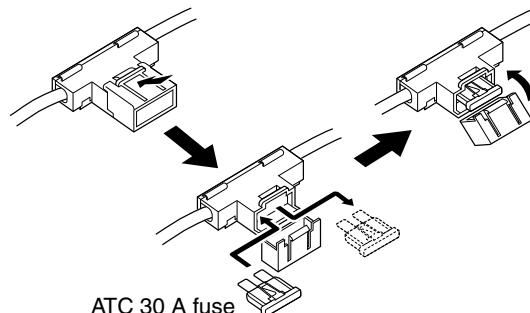
WARNING: Turn the power OFF and disconnect the DC power cable from the transceiver before removing the transceiver's cover.

◇ DC power cable fuse replacement

Refer the figure illustrated at right for the DC power cable fuse replacement.

The IC-7600 has two fuses (DC power cable fuses) installed for transceiver protection.

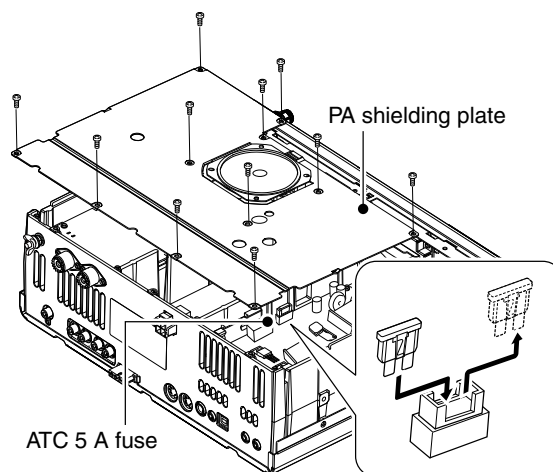
- DC power cable fuses ATC 30 A
- Circuitry fuse ATC 5 A



◇ Circuitry fuse replacement

The 13.8 V DC from the DC power cable is applied to all units in the IC-7600, except for the power amplifier, through the circuitry fuse. This fuse is installed in the PA unit.

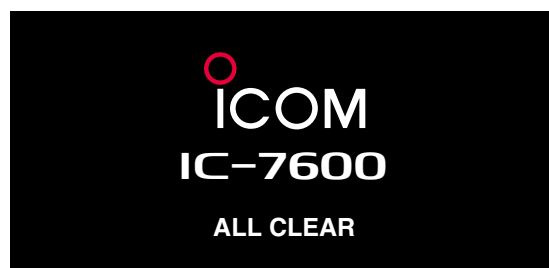
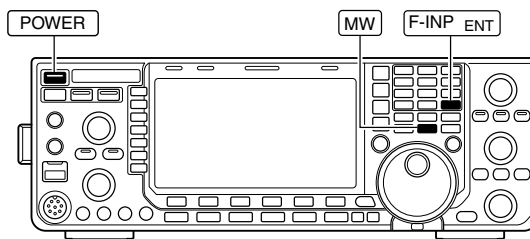
- ① Remove the top cover as shown left.
- ② Remove the 11 screws, then remove the bottom cover and the PA shielding plate as shown at right.
- ③ Replace the circuitry fuse as shown in the diagram as at right.
- ④ Replace the PA shielding plate, top cover and screws to their original position.



■ Resetting the CPU

- ① Turn the transceiver power OFF in advance.
- ② While pushing and holding **[F-INP ENT]** and **[MW]**, push **[POWER]** to turn power ON.
 - The internal CPU is reset.
 - The CPU start-up takes approx. 5 sec.
 - The transceiver displays its initial VFO frequencies when resetting is complete.
- ③ Correct the set mode settings after resetting, if desired.

NOTE: Resetting **CLEARs** all programmed contents in memory channels and returns programmed values in set mode to default values.



■ About protection indications

The IC-7600 has a 2-step protection function to protect the final power amplifiers.

The protector monitors the power amplifier temperature and activates when the temperature becomes extremely high.

- **Power down transmission**

Reduces the transmit output power to 100 W. “LMT” appears beside the transmit indicator during transmit.

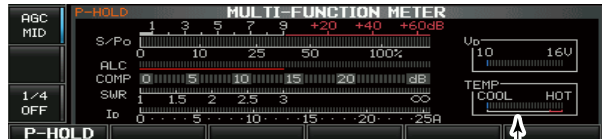
- **Transmission inhibit**

Deactivates the transmitter. The transmit indicator is displayed in gray during transmit.

When the protector is activated, wait until the power amplifier cools down using the transceiver in stand-by or receive condition.

NOTE: DO NOT turn the transceiver power OFF when the protector is ON. If you do, the cooling fan will not function and it will take longer to cool the transceiver.

The power amplifier temperature can be monitored in the multi-function meter, TEMP gauge.

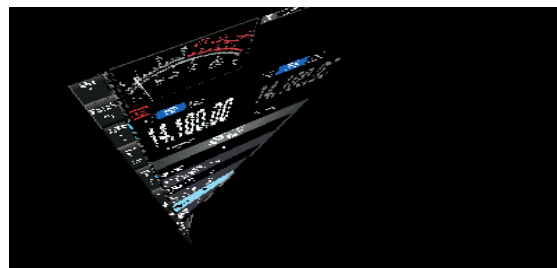
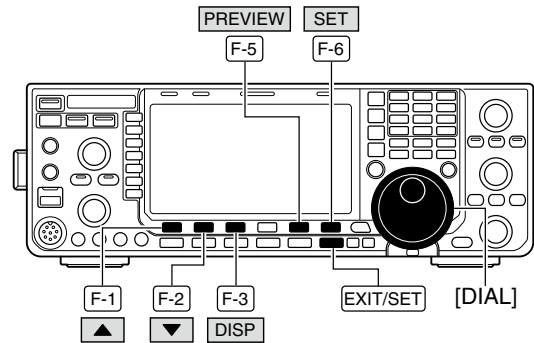


Check the temperature

■ Screen saver function

The IC-7600 has a screen saver function to protect the LCD from the “burn-in” effect.

- 1 Push **[EXIT/SET]** several times to close a multi-function screen, if necessary.
- 2 Push **[SET] (F-6)** to select set mode menu screen.
- 3 Push **[DISP] (F-3)** to enter display set mode.
- 4 Push **[▲] (F-1)** or **[▼] (F-2)** several times to select the “Screen Saver Function” item.
- 5 Rotate the main dial to select the desired time period for the screen saver activation from 15, 30, 60 min. and OFF.
 - Deactivate the screen saver with “OFF” selection.
- 6 Push **[▼] (F-2)** to select the “Screen Saver Type” item.
- 7 Rotate the main dial to select the screen saver type from “Bound,” “Rotation” and “Twist.”
 - Push and hold **[PREVIEW] (F-5)** to display the indication for your reference.
- 8 Push **[EXIT/SET]** twice to exit set mode.

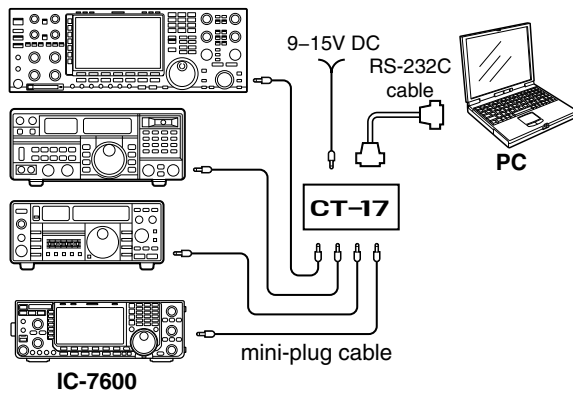


When “Twist.” is selected

12 CONTROL COMMAND

Remote jack (CI-V) information

CI-V connection example



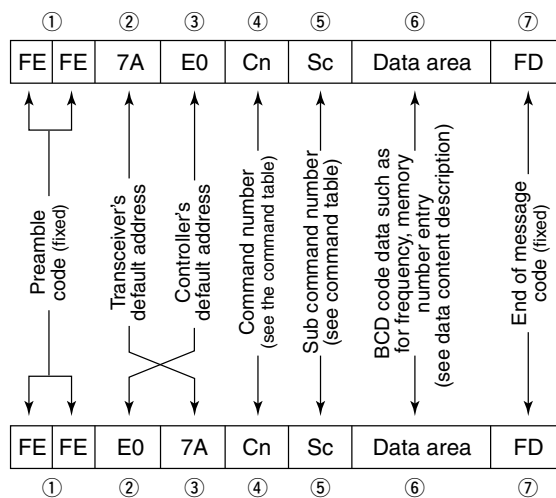
The transceiver can be connected through an optional CT-17 CI-V LEVEL CONVERTER to a PC equipped with an RS-232C port. The Icom Communications Interface-V (CI-V) controls the transceiver.

Up to 4 Icom CI-V transceivers or receivers can be connected to a PC equipped with an RS-232C port. See p. 000 for setting the CI-V condition using set mode.

Data format

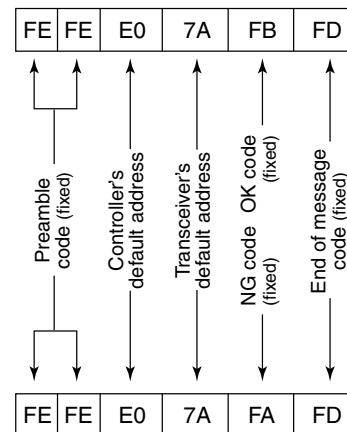
The CI-V system can be operated using the following data formats. Data formats differ according to command numbers. A data area or sub command is added for some commands.

Controller to IC-7600



IC-7600 to controller

OK message to controller



NG message to controller

◇ Command table

Cmd.	Sub cmd.	Data	Description	Cmd.	Sub cmd.	Data	Description	
00		see p. 000	Send frequency data (transceive)	10		00	Select 10 Hz (1 Hz) tuning step	
01		00	Select LSB (transceive)			01	Select 100 Hz tuning step	
		01	Select USB (transceive)			02	Select 1 kHz tuning step	
		02	Select AM (transceive)			03	Select 5 kHz tuning step	
		03	Select CW (transceive)			04	Select 9 kHz tuning step	
		04	Select RTTY (transceive)			05	Select 10 kHz tuning step	
		05	Select FM (transceive)			06	Select 12.5 kHz tuning step	
		07	Select CW-R (transceive)			07	Select 20 kHz tuning step	
		08	Select RTTY-R (transceive)			08	Select 25 kHz tuning step	
		12	Select PSK (transceive)		11	00	Send/read attenuator OFF	
		13	Select PSK-R (transceive)			06	Send/read 6 dB attenuator	
				12		Send/read 12 dB attenuator		
02		see p. 000	Read band edge frequencies			18	Send/read 18 dB attenuator	
03		see p. 000	Read operating frequency	12		0000	Send/read ANT1 selection (RX ANT OFF)	
04		see p. 000	Read operating mode			0001	Send/read ANT1 selection (RX ANT ON)	
05		see p. 000	Set operating frequency			0100	Send/read ANT2 selection (RX ANT OFF)	
06		00	Select LSB			0101	Send/read ANT2 selection (RX ANT ON)	
		01	Select USB	13	00		Announce all data with voice synthesizer	
		02	Select AM		01		Announce frequency and S-meter level with voice synthesizer	
		03	Select CW		02		Announce receive mode with voice synthesizer	
		04	Select RTTY		14	01	0000 to 0255	Send/read [AF] level (0000=max. CCW, 0255=max. CW)
		05	Select FM			02	0000 to 0255	Send/read [RF] level (0000=max. CCW, 0255=11 o'clock)
		07	Select CW-R			03	0000 to 0255	Send/read [SQL] level (0000=11 o'clock, 0255=max. CW)
		08	Select RTTY-R			06	0000 to 0255	Send/read [NR] level (0000=0%, 0255=100%)
		12	Select PSK			07	0000 to 0255	Send/read inner [TWIN PBT] position (0000=max. CCW, 0128=center, 0255=max. CW)
		13	Select PSK-R			08	0000 to 0255	Send/read outer [TWIN PBT] position (0000=max. CCW, 0128=center, 0255=max. CW)
07			Select VFO mode			09	0000 to 0255	Send/read CW pitch (0000=300 Hz, 0128=600 Hz, 0255=900 Hz; 5 Hz steps)
	B0		Exchange main and sub bands	0A		0000 to 0255	Send/read [RF POWER] level (0000=max. CCW, 0255=max. CW)	
	B1		Equalize main and sub bands	0B		0000 to 0255	Send/read [MIC GAIN] level (0000=max. CCW, 0255=max. CW)	
	C0		Turn the dualwatch OFF	0C		0000 to 0255	Send/read [KEY SPEED] level (0000=max. CCW, 0255=max. CW)	
	C1		Turn the dualwatch ON	0D	0000 to 0255	Send/read [NOTCH] position (0000=max. CCW, 0128=center, 0255=max. CW)		
	D0		Select main band	0E	0000 to 0255	Send/read COMP level (0000=0, 0255=10)		
08			Select memory mode	0F	0000 to 0255	Send/read [BK-IN DELAY] position (0000=max. CCW, 0255=max. CW)		
		0001 to 0099	Select memory channel (0001=M-CH01, 0099=M-CH99)	10	0000 to 0255	Send/read [BAL] position (0000=max. CCW, 0128=center, 0255=max. CW)		
		0100	Select program scan edge channel P1	12	0000 to 0255	Send/read NB level (0000=0%, 0255=100%)		
		0101	Select program scan edge channel P2	14	0000 to 0255	Send/read DRIVE gain (0000=0%, 0255=100%)		
09			Memory write	15	0000 to 0255	Send/read Monitor gain (0000=0%, 0255=100%)		
0A			Copying memory contents into VFO	16	0000 to 0255	Send/read VOX gain (0000=0%, 0255=100%)		
0B			Memory clear	17	0000 to 0255	Send/read Anti VOX gain (0000=0%, 0255=100%)		
0E	00		Scan stop	19	0000 to 0255	Send/read BRIGHT level (0000=0%, 0255=100%)		
	01		Programmed/memory scan start	15	01	00	Read squelch condition (squelch close)	
	02		Programmed scan start			01	Read squelch condition (squelch open)	
	03		ΔF scan start		02	0000 to 0255	Read S-meter level (0000=S0, 0120=S9, 0241=S9+60)	
	12		Fine programmed scan start		11	0000 to 0255	Read RF power meter (0000=0, 0143=50, 0213=100)	
	13		Fine ΔF scan start		12	0000 to 0255	Read SWR meter (0000=SWR1.0, 0048=SWR1.5, 0080=SWR2.0)	
	22		Memory scan start		13	0000 to 0255	Read ALC meter (0000=0, 0120=Max.)	
	23		Select memory scan start		14	0000 to 0255	Read COMP meter (0000=0, 0130=15, 0241=30)	
	A1		Select ΔF scan span ±5 kHz					
	A2		Select ΔF scan span ±10 kHz					
	A3		Select ΔF scan span ±20 kHz					
	A4		Select ΔF scan span ±50 kHz					
	A5		Select ΔF scan span ±100 kHz					
	A6		Select ΔF scan span ±500 kHz					
	A7		Select ΔF scan span ±1 MHz					
	B0			Set as non-select channel				
	B1			Set as select channel (The previously set number by CI-V is set after turning power ON, or "1" is selected if no selection is performed.)				
		01		Set as select channel "★1"				
		02		Set as select channel "★2"				
		03		Set as select channel "★3"				
B2	00		Set "ALL" for select memory scan					
	01		Set "★1" for select memory scan					
	02		Set "★2" for select memory scan					
	03		Set "★3" for select memory scan					
D0			Set scan resume OFF					
D3			Set scan resume ON					
0F	00		Turn the split function OFF					
	01		Turn the split function ON					

12 CONTROL COMMAND

◇ Command table (continued)

Cmd.	Sub cmd.	Data	Description	
15	15	0000 to 0255	Read VD meter (0152=10, 0181=13, 0212=16)	
	16	0000 to 0255	Read ID meter (0000=0, 0097=10, 0241=25)	
16	02	00	Preamp OFF	
		01	Preamp 1 ON	
		02	Preamp 2 ON	
	12	00	AGC FAST selection	
		01	AGC MID selection	
		02	AGC SLOW selection	
	22	00	Noise blanker OFF	
		01	Noise blanker ON	
	32	00	Audio peak filter OFF	
		01	Audio peak filter WIDE ON (320 is selected when SHARP APF is set)	
		02	Audio peak filter MID ON (160 is selected when SHARP APF is set)	
	40	00	Audio peak filter NAR ON (80 is selected when SHARP APF is set)	
		01	Noise reduction OFF	
	41	00	Noise reduction ON	
		01	Auto notch function OFF	
	42	00	Auto notch function ON	
		01	Repeater tone OFF	
	43	00	Repeater tone ON	
		01	Tone squelch OFF	
	44	00	Tone squelch ON	
		01	Speech compressor OFF	
	45	00	Speech compressor ON	
		01	Monitor function OFF	
	46	00	Monitor function ON	
		01	VOX function OFF	
	47	00	VOX function ON	
		01	BK-IN function OFF	
48	00	SEMI BK-IN function ON		
	01	Full BK-IN function ON		
49	00	Manual notch function OFF		
	01	Manual notch function ON		
4F	00	Twin peak filter OFF		
	01	Twin peak filter ON		
50	00	Dial lock function OFF		
	01	Dial lock function ON		
19	00	Reads the transceiver ID		
1A	00	see p. 000	Send/read memory contents	
	01	see p. 000	Send/read band stacking register contents	
	02	see p. 000	Send/read memory keyer contents	
	03	00 to 49	Send/read the selected filter width (SSB, CW, PSK: 00=50 Hz, 40=3600 Hz; RTTY: 00=50 Hz, 31=2700 Hz; AM: 00=200 Hz, 49=10 kHz)	
	04	00 to 13	Send/read the selected AGC time constant (00=OFF, 01=0.1/0.3 sec., 13=6.0/8.0 sec.)	
	05	0001	see p. 000	Send/read HPF/LPF setting for SSB RX audio
		0002	00 to 10	Send/read SSB RX Tone (Bass) level (00=-5, 10=+5)
		0003	00 to 10	Send/read SSB RX Tone (Treble) level (00=-5, 10=+5)
		0004	see p. 000	Send/read HPF/LPF setting for AM RX audio
		0005	00 to 10	Send/read AM RX tone (Bass) level (00=-5, 10=+5)
		0006	00 to 10	Send/read AM RX Tone (Treble) level (00=-5, 10=+5)
		0007	see p. 000	Send/read HPF/LPF setting for FM RX audio
		0008	00 to 10	Send/read FM RX tone (Bass) level (00=-5, 10=+5)
		0009	00 to 10	Send/read FM RX Tone (Treble) level (00=-5, 10=+5)
		0010	see p. 000	Send/read HPF/LPF setting for CW RX audio
		0011	see p. 000	Send/read HPF/LPF setting for RTTY RX audio
		0012	see p. 000	Send/read HPF/LPF setting for PSK RX audio
0013		00 to 10	Send/read SSB TX Tone (Bass) level (00=-5, 10=+5)	
0014		00 to 10	Send/read SSB TX Tone (Treble) level (00=-5, 10=+5)	

Cmd.	Sub cmd.	Data	Description	
1A	05	0015	00 to 10	Send/read AM TX Tone (Bass) level (00=-5, 10=+5)
		0016	00 to 10	Send/read AM TX Tone (Treble) level (00=-5, 10=+5)
		0017	00 to 10	Send/read FM TX Tone (Bass) level (00=-5, 10=+5)
		0018	00 to 10	Send/read FM TX Tone (Treble) level (00=-5, 10=+5)
		0019	see p. 000	Send/read SSB TX bandwidth for WIDE
		0020	see p. 000	Send/read SSB TX bandwidth for MID.
		0021	see p. 000	Send/read SSB TX bandwidth for NARROW
		0022	0000 to 0255	Send/read DRIVE gain (0000=0%, 0255=100%)
		0023	0000 to 0255	Send/read speech level (0000=0%, 0255=100%)
		0024	0000 to 0255	Send/read CW side tone level (0000=0%, 0255=100%)
			00	CW side tone gain limit OFF
		0025	01	CW side tone gain limit ON
			0000 to 0255	Send/read beep gain (0000=0%, 0255=100%)
		0027	00	Beep gain limit OFF
			01	Beep gain limit ON
		0028	00	Squelch mute effect OFF for audio output from USB-B connector
			01	Squelch mute effect ON for audio output from USB-B connector
		0029	0000 to 0255	Send/read modulation level for audio input to USB-B connector (0000=0%, 0255=100%)
		0030	00	[MIC] selection for MOD input connector during DATA OFF
			01	[ACC] selection for MOD input connector during DATA OFF
			02	Both [MIC] and [ACC] selection for MOD input connector during DATA OFF
		0031	00	[USB] selection for MOD input connector during DATA OFF
			00	[MIC] selection for MOD input connector during DATA1
			01	[ACC] selection for MOD input connector during DATA1
		0032	00	Both [MIC] and [ACC] selection for MOD input connector during DATA1
			02	[USB] selection for MOD input connector during DATA1
			03	[MIC] selection for MOD input connector during DATA2
		0033	00	[ACC] selection for MOD input connector during DATA2
			02	Both [MIC] and [ACC] selection for MOD input connector during DATA2
			03	[USB] selection for MOD input connector during DATA2
		0034	00	[MIC] selection for MOD input connector during DATA3
			01	[ACC] selection for MOD input connector during DATA3
			02	Both [MIC] and [ACC] selection for MOD input connector during DATA3
		0035	00	[USB] selection for MOD input connector during DATA3
			00	Lead selection for SEND relay type
			01	MOS-FET selection for SEND relay type
			00	Auto selection for external meter output
			01	S (receiving signal strength) selection for external meter output
			02	Po (TX output power) selection for external meter selection
			03	SWR selection for external meter output
		04	ALC selection for external meter output	
		0036	05	COMP selection for external meter output
			06	Vd selection for external meter output
			07	Id selection for external meter output
			0000 to 0255	Send/read external meter output level (see p. 000)

◇ Command table (continued)

Cmd.	Sub cmd.	Data	Description	
1A	05	0037	0000 to 0255 Send/read reference frequency (0000=0%, 0255=100%)	
		0038	0000 to 0255 Send/read LCD backlight brightness level (00=0% (dark), 255=100% (bright))	
		0039	0000 to 0255 Send/read key backlight brightness level (00=0% (dark), 0255=100% (bright))	
		0040	00	Display type A selection
			01	Display type B selection
		0041	00	Basic font selection
			01	Italic font selection
			02	Round font selection
		0042	00	SLOW selection for meter response
			01	MID selection for meter response
			02	FAST selection for meter response
		0043	00	Standard meter selection for normal screen indication
			01	Edgewise meter selection for normal screen indication
			02	Bar meter selection for normal screen indication
		0044	00	Edgewise meter selection for wide screen indication
			01	Bar meter selection for wide screen indication
		0045	00	Meter peak hold function for Bar meter OFF
			01	Meter peak hold function for Bar meter ON
		0046	00	Memory name indication OFF
			01	Memory name indication ON
		0047	00	Audio peak filter width pop-up indication OFF
			01	Audio peak filter width pop-up indication ON
		0048	00	Manual notch filter width pop-up indication OFF
			01	Manual notch filter width pop-up indication ON
		0049	00	Screen saver OFF
			01	15 min. selection for screen saver
			02	30 min. selection for screen saver
			03	60 min. selection for screen saver
		0050	00	Bound selection for screen saver type
			01	Round selection for screen saver type
			02	Twist selection for screen saver type
		0051	00	Opening screen indication OFF
			01	Opening screen indication ON
		0052	see p. 000	Send/read opening screen contents.
		0053	20000101 to 20991231	Send/read date (20000101=1st Jan. 2000, 20991231=31st Dec. 2099)
		0054	0000 to 2359	Send/read time (0000=00:00, 2359=23:59)
		0055	00	Clock 2 OFF
			01	Clock 2 ON
		0056	see p. 000	Send/read offset time for clock 2
		0057	see p. 000	Send/read clock 2 name *Up to 3 characters
		0058	00	Calibration marker OFF
			01	Calibration marker ON
		0059	00	Confirmation beep OFF
			01	Confirmation beep ON
		0060	00	Band edge beep OFF
			01	Band edge beep ON
			02	Band edge beep with user setting ON
		0061	00	Band edge beep with user setting/TX limit ON
			03	Band edge beep with user setting/TX limit ON
		0062	0050 to 0200	Send/read beep audio frequency (0050=500 Hz, 0200=2000 Hz)
			00	Auto selection for [RF/SQL]
			01	SQL selection for [RF/SQL]
		0063	00	RF+SQL selection for [RF/SQL]
01	Quick dualwatch OFF			
0064	00	Quick dualwatch ON		
	01	Quick split function OFF		
0065	00	Quick split function ON		
	01	Quick split function ON		
0066	see p. 000	FM split offset frequency setting for HF		
0067	see p. 000	FM split offset frequency setting for 50 MHz		
0068	00	Split lock function OFF		
	01	Split lock function ON		
0069	00	Tuner auto start OFF		
	01	Tuner auto start ON		

Cmd.	Sub cmd.	Data	Description	
1A	05	0069	00 PTT tune OFF	
		01	PTT tune ON	
		0070	00	Antenna selection OFF
			01	Manual antenna selection
		0071	02	Auto antenna selection
			00	Transverter functions automatically
		0072	01	Transverter function ON
			see p. 000	Transverter offset frequency
		0073	00	1275 Hz selection for RTTY mark frequency
			01	1615 Hz selection for RTTY mark frequency
			02	2125 Hz selection for RTTY mark frequency
		0074	00	170 Hz selection for RTTY shift width
			01	200 Hz selection for RTTY shift width
			02	425 Hz selection for RTTY shift width
		0075	00	RTTY keying with normal polarity
			01	RTTY keying with reverse polarity
		0076	00	1000 Hz selection for PSK tone frequency
			01	1500 Hz selection for PSK tone frequency
			02	2000 Hz selection for PSK tone frequency
		0077	00	English selection for voice synthesizer speech language
			01	Japanese selection for voice synthesizer speech language
		0078	00	Speech speed slow
			01	Speech speed fast
		0079	00	S-meter level announcement OFF
			01	S-meter announcement ON
		0080	00	Operating mode announcement OFF
			01	Operating mode announcement ON
		0081	00	[SPEECH/LOCK] key function setting (Push momentarily=SPEECH, Push and hold=LOCK)
			01	[SPEECH/LOCK] key function setting (Push momentarily=LOCK, Push and hold=SPEECH)
		0082	00	Number of memo pad channels 5
			01	Number of memo pad channels 10
		0083	00	Auto TS for main dial OFF
			01	Auto TS for main dial ON with LOW
			02	Auto TS for main dial ON with HIGH
		0084	00	LOW selection for microphone Up/Down speed
			01	HIGH selection for microphone Up/Down speed
		0085	00	Quick RIT/ΔTX clear OFF
			01	Quick RIT/ΔTX clear ON
		0086	00	Auto notch selection for SSB operation
			01	Manual notch selection for SSB operation
			02	Auto/Manual notch operation for SSB operation
		0087	00	Auto notch selection for AM operation
			01	Manual notch selection for AM operation
			02	Auto/Manual notch operation for AM operation
		0088	00	SSB/CW synchronous tuning function OFF
			01	SSB/CW synchronous tuning function ON
		0089	00	LSB selection for CW normal side set
01	USB selection for CW normal side set			
0090	00	SHARP selection for APF type		
	01	SOFT selection for APF type		
0091	00	Voice memory transmission OFF with external keypad		
	01	Voice memory transmission ON with external keypad		
0092	00	Memory keyer transmission OFF with external keypad		
	01	Memory keyer transmission ON with external keypad		
0093	00	RTTY memory transmission OFF with external keypad		
	01	RTTY memory transmission ON with external keypad		
0094	00	PSK memory transmission OFF with external keypad		
	01	PSK memory transmission ON with external keypad		

12 CONTROL COMMAND

◆ Command table (continued)

Cmd.	Sub cmd.	Data	Description
1A	05	0095	00 Voice memory transmission OFF with [F1]–[F4] on the keyboard
		01 Voice memory transmission ON with [F1]–[F4] on the keyboard	
	0096	00 Memory keyer transmission OFF with [F1]–[F4] on the keyboard	
		01 Memory keyer transmission ON with [F1]–[F4] on the keyboard	
	0097	00 CI-V transceive OFF	
		01 CI-V transceive ON	
	0098	00 CI-V selection for [USB-B] usage	
		01 Decode selection for [USB-B] usage	
	0099	00 300 bps selection for decode speed	
		01 1200 bps selection for decode speed	
		02 4800 bps selection for decode speed	
		03 9600 bps selection for decode speed	
		04 19200 bps selection for decode speed	
	0100	00 English keyboard selection	
		01 Japanese keyboard selection	
		02 United Kingdom keyboard selection	
		03 French keyboard selection	
		04 French (Canadian) keyboard selection	
		05 German keyboard selection	
		06 Portuguese keyboard selection	
		07 Portuguese (Brazilian) keyboard selection	
		08 Spanish keyboard selection	
		09 Spanish (Latin American) keyboard selection	
	10 Italian keyboard selection		
	0101	0010 to 0100	Send/read keyboard repeat delay (0010=100 msec., 0100=1000 msec.; 50 msec. steps)
	0102	00 to 31	Send/read keyboard repeat speed (00=2.0 cps, 31=30.0 cps)
	0103	00 Scope indication during TX OFF	
		01 Scope indication during TX ON	
	0104	00 Scope max. hold function OFF	
		01 Scope max. hold function ON	
	0105	00 Filter center selection for scope center frequency	
		01 Carrier point center selection for scope center frequency	
		02 Carrier point center (Abs. Freq.) selection for scope center frequency	
	0106	see p. 000	Send/read waveform color for receiving signal
	0107	see p. 000	Send/read waveform color for max. hold
	0108	00 SLOW selection for scope sweep speed in ±2.5 kHz span	
		01 MID selection for scope sweep speed in ±2.5 kHz span	
		02 FAST selection for scope sweep speed in ±2.5 kHz span	
	0109	00 SLOW selection for scope sweep speed in ±5 kHz span	
		01 MID selection for scope sweep speed in ±5 kHz span	
		02 FAST selection for scope sweep speed in ±5 kHz span	
	0110	00 SLOW selection for scope sweep speed in ±10 kHz span	
		01 MID selection for scope sweep speed in ±10 kHz span	
		02 FAST selection for scope sweep speed in ±10 kHz span	
	0111	00 SLOW selection for scope sweep speed in ±25 kHz span	
		01 MID selection for scope sweep speed in ±25 kHz span	
		02 FAST selection for scope sweep speed in ±25 kHz span	
	0112	00 SLOW selection for scope sweep speed in ±50 kHz span	
		01 MID selection for scope sweep speed in ±50 kHz span	
		02 FAST selection for scope sweep speed in ±50 kHz span	

Cmd.	Sub cmd.	Data	Description
1A	05	0113	00 SLOW selection for scope sweep speed in ±100 kHz span
		01 MID selection for scope sweep speed in ±100 kHz span	
		02 FAST selection for scope sweep speed in ±100 kHz span	
	0114	00 SLOW selection for scope sweep speed in ±250 kHz span	
		01 MID selection for scope sweep speed in ±250 kHz span	
		02 FAST selection for scope sweep speed in ±250 kHz span	
	0115	see p. 000	Scope edge frequencies for 0.03 to 1.60 MHz band
	0116	see p. 000	Scope edge frequencies for 1.60 MHz to 2.00 MHz band
	0117	see p. 000	Scope edge frequencies for 2.00 MHz to 6.00 MHz band
	0118	see p. 000	Scope edge frequencies for 6.00 MHz to 8.00 MHz band
	0119	see p. 000	Scope edge frequencies for 8.00 MHz to 11.00 MHz band
	0120	see p. 000	Scope edge frequencies for 11.00 MHz to 15.00 MHz band
	0121	see p. 000	Scope edge frequencies for 15.00 MHz to 20.00 MHz band
	0122	see p. 000	Scope edge frequencies for 20.00 MHz to 22.00 MHz band
	0123	see p. 000	Scope edge frequencies for 22.00 MHz to 26.00 MHz band
	0124	see p. 000	Scope edge frequencies for 26.00 MHz to 30.00 MHz band
	0125	see p. 000	Scope edge frequencies for 30.00 MHz to 45.00 MHz band
	0126	see p. 000	Scope edge frequencies for 45.00 MHz to 60.00 MHz band
		00 Auto monitor function OFF during voice memory transmission	
	0127	01 Auto monitor function ON during voice memory transmission	
		03 to 10	Send/read voice memory short play time (03=3 sec., 10=10 sec.)
	0129	05 to 15	Send/read voice memory normal record time (05=5 sec., 15=15 sec.)
	0130	00 Normal selection for contest number style	
		01 "190→ANO" selection for contest number style	
		02 "190→ANT" selection for contest number style	
		03 "90→NO" selection for contest number style	
	0131	04 "90→NT" selection for contest number style	
		01 M1 selection for count up trigger channel	
		02 M2 selection for count up trigger channel	
		03 M3 selection for count up trigger channel	
	0132	04 M4 selection for count up trigger channel	
		0001 to 9999	Send/read present number (0001=1, 9999=9999)
	0133	01 to 60	Send/read CW keyer repeat time (01=1 sec., 60=60 sec.)
	0134	28 to 45	Send/read CW keyer dot/dash ratio (28=1:1:2.8, 45=1:1:4.5)
		0135	00 2 msec. selection for rise time
			01 4 msec. selection for rise time
			02 6 msec. selection for rise time
			03 8 msec. selection for rise time
	04 10 msec. selection for rise time		
	0136	00 Normal selection for paddle polarity	
		01 Reverse selection for paddle polarity	
	0137	00 Straight selection for keyer type	
01 BUG-KEY selection for keyer type			
02 ELEC-KEY selection for keyer type			
0138	00 Mic. up/down keyer function OFF		
	01 Mic. up/down keyer function ON		

◇ Command table (continued)

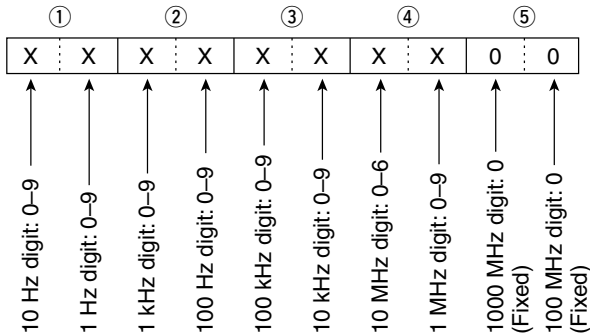
Cmd.	Sub cmd.	Data	Description
1A	05	0139	00 RTTY decoder FFT scope averaging function OFF
		01	Number 2 selection for RTTY decoder FFT scope averaging function
		02	Number 3 selection for RTTY decoder FFT scope averaging function
		03	Number 4 selection for RTTY decoder FFT scope averaging function
	0140	see p. 000	Set/read FFT scope waveform color set for RTTY decoder
	0141	00	RTTY decode USOS function OFF
		01	RTTY decode USOS function ON
	0142	00	"CR,LF,CR+LF" selection for RTTY decode new line code
		01	"CR+LF" selection for RTTY decode new line code
	0143	00	OFF selection for RTTY diddle
		01	BLANK selection for RTTY diddle
		02	LTRS selection for RTTY diddle
	0144	00	RTTY encode USOS function OFF
		01	RTTY encode USOS function ON
	0145	00	RTTY auto CR+LF by keyboard's [F12] OFF
		01	RTTY auto CR+LF by keyboard's [F12] ON
	0146	00	RTTY time stamp OFF
		01	RTTY time stamp ON
	0147	00	Local time selection for RTTY time stamp
		01	Clock2 selection for RTTY time stamp
	0148	00	Frequency stamp for RTTY time stamp OFF
		01	Frequency stamp for RTTY time stamp ON
	0149	see p. 000	Send/read received text font color for RTTY decoder
	0150	see p. 000	Send/read transmitted text font color (RTTY)
	0151	see p. 000	Send/read time stamp text font color (RTTY)
	0152	see p. 000	Send/read text font color in TX buffer (RTTY)
	0153	00	PSK decoder FFT scope averaging function OFF
		01	Number 2 selection for PSK decoder FFT scope averaging function
		02	Number 3 selection for PSK decoder FFT scope averaging function
	0154	03	Number 4 selection for PSK decoder FFT scope averaging function
		see p. 000	Set/read FFT scope waveform color set for PSK decoder
	0155	00	±8 Hz selection for PSK AFC function tuning range
		01	±15 Hz selection for PSK AFC function tuning range
	0156	00	PSK time stamp OFF
		01	PSK time stamp ON
	0157	00	Local time selection for PSK time stamp
		01	Clock2 selection for PSK time stamp
	0158	00	Frequency stamp for PSK time stamp OFF
		01	Frequency stamp for PSK time stamp ON
	0159	see p. 000	Send/read received text font color for PSK decoder
	0160	see p. 000	Send/read transmitted text font color (PSK)
	0161	see p. 000	Send/read time stamp text font color (PSK)
	0162	see p. 000	Send/read text font color in TX buffer (PSK)
	0163	00	LOW scan speed selection
		01	HIGH scan speed selection
	0164	00	Scan resume OFF
		01	Scan resume ON
	0165	0000 to 0255	Send/read VOX gain (0000=0%, 0255=100%)
	0166	0000 to 0255	Send/read ANTI-VOX gain (0000=0%, 0255=100%)
	0167	00 to 20	Send/read VOX delay time (00=0.0 sec., 20=2.0 sec.)
0168	00	VOX voice delay function OFF	
	01	Short selection for VOX voice delay	
	02	Mid selection for VOX voice delay	
	03	Long selection for VOX voice delay	

Cmd.	Sub cmd.	Data	Description	
1A	05	0169	0000 to 0255	Send/read NB level (0000=0%, 0255=100%)
		0170	00 to 09	Send/read NB depth (00=1, 09=10)
		0171	0000 to 0255	Send/read NB width (0000=1, 0255=100)
		0172	0000 to 0255	Send/read MONITOR gain (0000=0%, 0255=100%)
	06	see p. 000	Send/read DATA mode with filter set	
	07	00	WIDE selection for SSB transmit bandwidth	
		01	MID selection for SSB transmit bandwidth	
		02	NAR selection for SSB transmit bandwidth	
	08	00	SHARP selection for DSP filter type	
		01	SOFT selection for DSP filter type	
	09	00	3 kHz roofing filter selection	
		01	6 kHz roofing filter selection	
		02	15 kHz roofing filter selection	
	0A	00	WIDE selection for manual notch width	
		01	MID selection for manual notch width	
	01B	00	see p. 000	Send/read repeater tone frequency
		01	see p. 000	Send/read tone squelch frequency
	1C	00	00	Transceiver's condition (RX)
			01	Transceiver's condition (TX)
		01	00	Antenna tuner OFF (through)
01			Antenna tuner ON	
1E	00		Read number of available TX frequency band	
	01	see p. 000	Read TX band edge frequencies	
	02		Read number of user-set TX frequency band	
	03	see p. 000	Send/read user-set TX band edge frequencies	

◇ Data content description

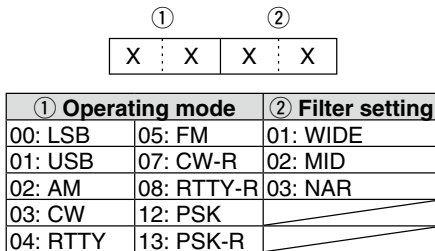
• Operating frequency

Command : 00, 03, 05



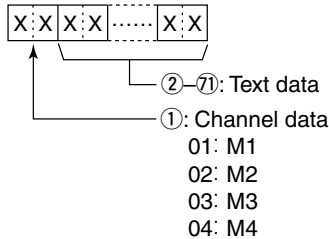
• Operating mode

Command : 04



• Memory keyer contents

Command : 1A 02

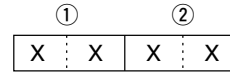


• Character's code

Character	ASCII code	Description
0-9	30-39	Numerals
A-Z	41-5A	Alphabetical characters
space	20	Word space
/	2F	Symbol
?	3F	Symbol
,	2C	Symbol
.	2E	Symbol
@	40	Symbol
^	5E	e.g., to send bt, enter 5E 42 54
*	2A	Inserts contest number (can be used for 1 channel only)

• Band stacking register

Command : 1A 01



• Frequency band code

Code	Freq. band	Frequency range (unit: MHz)
1	1.8	1.800000- 1.999999
2	3.5	3.400000- 4.099999
3	7	6.900000- 7.499999
4	10	9.900000-10.499999
5	14	13.900000-14.499999
6	18	17.900000-18.499999
7	21	20.900000-21.499999
8	24	24.400000-25.099999
9	28	28.000000-29.999999
10	50	50.000000-54.000000
12	GENE	Other than above

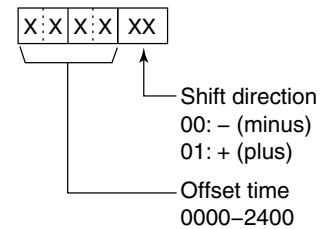
• Register code

Code	Registered No.
1	1 (latest)
2	2
3	3 (oldest)

For example, when sending/reading the oldest contents in the 21 MHz band, the code "0703" is used.

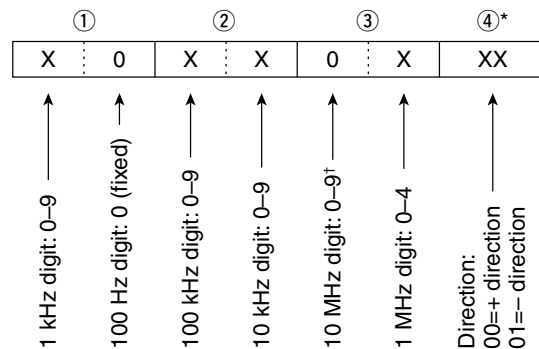
• Clock 2 offset time setting

Command : 1A 05 0056



• Offset frequency setting

Command : 1A 05 0065, 0066, 0072



*No need to enter for transverter offset frequency setting.
 †Transverter offset only; Fix to '0' for split offset setting.

• Codes for memory name, opening message and CLOCK2 name contents

To send or read the desired memory name settings, the character codes, instructed codes for memory keyer contents, and follows are used.

• Character's code— Alphabetical characters

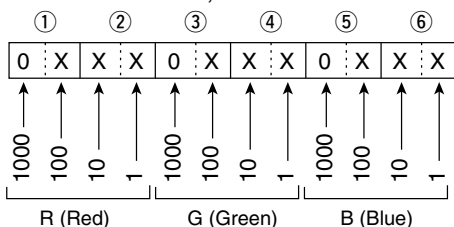
Character	ASCII code	Character	ASCII code
a-z	61-7A	—	—

• Character's code— Symbols

Character	ASCII code	Character	ASCII code
!	21	#	23
\$	24	%	25
&	26	¥	5C
?	3F	”	22
,	27	`	60
+	2B	-	2D
:	3A	:	3B
=	3D	<	3C
>	3E	(28
)	29	[5B
	5D	{	7B
}	7D		7C
@	40	-	7E

• Color setting

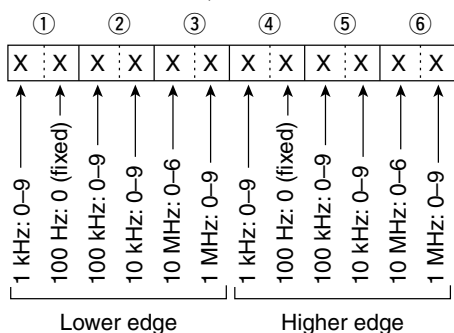
Command : 1A 05 0106, 0107, 0140, 0149, 0150, 0151, 0152, 0154, 0159, 0160, 0161, 0162



Using 0000-0255 for each color element.

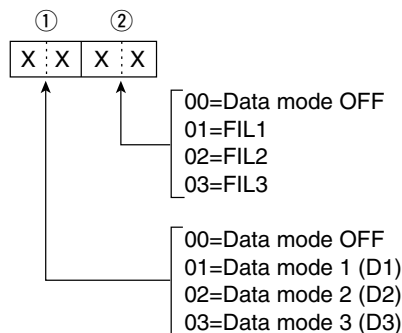
• Bandscope edge frequency setting

Command : 1A 05 0115, 0116, 0117, 0118, 0119, 0120, 0121, 0122, 0123, 0124, 0125, 0126



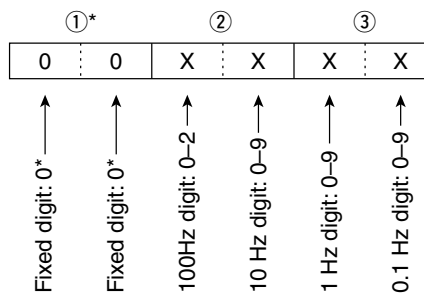
• Data mode with filter width setting

Command : 1A 06



• Repeater tone/tone squelch frequency setting

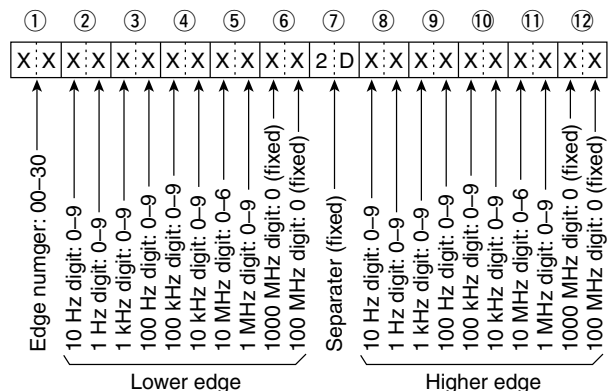
Command : 1B 00, 01



*Not necessary when setting a frequency.

• Band edge frequency setting

Command 02, 1E 01, 03



■ General

- Frequency coverage : (unit: MHz)
 - Receive
0.030–60.000*1*2
 - Transmit
1.800–1.999*2, 3.500–3.999*2,
5.33050*3, 5.34650*3, 5.36650*3,
5.37150*3, 5.40350*3,
7.000–7.300*2, 10.100–10.150*2,
14.000–14.350*2, 18.068–18.168*2,
21.000–21.450*2, 24.890–24.990*2,
28.000–29.700*2, 50.000–54.000*2
- *1Some frequency bands are not guaranteed.
*2Depending on version. *3USA version only.
- Mode : USB, LSB, CW, RTTY, PSK, AM, FM
- No. of memory channels : 101 (99 regular, 2 scan edges)
- Antenna connector : SO-239 × 2 and phono jacks (RCA; 50 Ω)
- Temperature range : ±0°C to +50°C ; +32°F to +122°F
- Frequency stability : Less than ±0.5 ppm 1 min. after power ON. (±0°C to +50°C; +32°F to +122°F)
- Frequency resolution : 1 Hz
- Power supply : 13.8 V DC ±15% (negative ground)
- Power consumption
 - Transmit : Max. power 23 A
 - Receive : Standby 3.0 A
Max. audio 3.5 A
- Dimensions : 340(W) × 116(H) × 279.3(D) mm (projections not included)
13³/₈(W) × 4⁹/₁₆(H) × 11(D) in
- Weight (approx.) : 10.0 kg; 22 lb
- ACC 1 connector : 8-pin DIN connector
- ACC 2 connector : 7-pin DIN connector
- CI-V connector : 2-conductor 3.5 (d) mm (1/8")
- Display : 5.8-inch (diagonal) TFT color LCD

■ Transmitter

- Output power (continuously adjustable)
 - SSB/CW/RTTY/FM : Less than 2 to 100 W
 - AM : Less than 1 to 30 W
- Modulation system
 - SSB : PSN modulation
 - AM : Low power modulation
 - FM : Phase modulation
- Spurious emission
 - HF bands : Less than –50 dB
 - 50 MHz band : Less than –63 dB
- Carrier suppression : More than 40 dB
- Unwanted sideband suppression : More than 55 dB
- ΔTX variable range : ±9.999 kHz
- Microphone connector : 8-pin connector (600 Ω)
- ELEC-KEY connector : 3-conductor 6.35(d) mm (1/4")
- KEY connector : 3-conductor 6.35(d) mm (1/4")
- SEND connector : Phono jack (RCA)
- ALC connector : Phono jack (RCA)

■ Receiver

- Receive system : Double superheterodyne system
- Intermediate frequencies :
 - 1st : 64.455 MHz
 - 2nd : 36 kHz
- Sensitivity (typical)
 - SSB, CW, RTTY : 0.15 μV (1.80–29.99 MHz)*1
(10 dB S/N) BW=2.4 kHz 0.12 μV (50.0–54.0 MHz)*2
 - AM (10 dB S/N) : 6.3 μV (0.1–1.799 MHz)*1
BW=6 kHz 2 μV (1.80–29.99 MHz)*1
1.6 μV (50.0–54.0 MHz)*2
 - FM (12 dB SINAD) : 0.5 μV (28.0–29.99 MHz)*1
BW=15 kHz 0.3 μV (50.0–54.0 MHz)*2
- *1Pre-amp 1 is ON, *2Pre-amp 2 is ON
- Squelch sensitivity (Pre-amp: ON)
 - SSB : Less than 3.2 μV
 - FM : Less than 0.3 μV
- Selectivity
 - SSB (BW: 2.4 kHz) : More than 2.4 kHz/–6 dB
Less than 3.8 kHz/–60 dB
 - CW (BW: 500 Hz) : More than 500 Hz/–6 dB
Less than 900 Hz/–60 dB
 - RTTY (BW: 350 Hz) : More than 350 Hz/–6 dB
Less than 650 Hz/–60 dB
 - AM (BW: 6 kHz) : More than 6.0 kHz/–6 dB
Less than 15.0 kHz/–60 dB
 - FM (BW: 15 kHz) : More than 12.0 kHz/–6 dB
Less than 20.0 kHz/–60 dB
(IF filter shape is set to SHARP.)
- Spurious and image rejection ratio : More than 70 dB
- AF output power : More than 2.0 W at 10% distortion with an 8 Ω load
- RIT variable range : ±9.999 kHz
- PHONES connector : 3-conductor 6.35 (d) mm (1/4")
- External SP connector : 2-conductor 3.5 (d) mm (1/8")/8 Ω

■ Antenna tuner

- Matching impedance range
 - HF bands : 16.7 to 150 Ω unbalanced
(Less than VSWR 3:1)
 - 50 MHz band : 20 to 125 Ω unbalanced
(Less than VSWR 2.5:1)
- Minimum operating input : 8 W power
- Tuning accuracy : VSWR 1.5:1 or less
- Insertion loss (after tuning) : Less than 1.0 dB

13 SPECIFICATIONS AND OPTIONS

IC-PW1/EURO HF/50 MHz ALL BAND 1 kW LINEAR AMPLIFIER



Full-duty 1 kW linear amplifier including an automatic antenna tuner. Has automatic tuning and band selection capability. Full break-in (QSK) operation is possible. The amplifier/power supply unit and the remote control unit are separated. An optional OPC-599 is required for connection.

PS-126 DC POWER SUPPLY

- Output voltage : 13.8 V DC
- Max. output current : 25 A

AH-4 HF AUTOMATIC ANTENNA TUNER



Specially designed to tune a long wire antenna for portable or mobile HF/50 MHz operation. The "PTT tune" function provides simple operation.

- Input power rating: 150 W

AH-2b ANTENNA ELEMENT



A 2.5 m long antenna element for mobile operation with the AH-4.

- Frequency coverage 7–54 MHz band with the AH-4

HM-36 HAND MICROPHONE



Hand microphone equipped with [UP]/[DOWN] switches.

SM-20 DESKTOP MICROPHONE



Includes [UP]/[DOWN] switches and a low cut function.

SM-50 DESKTOP MICROPHONE

Includes [UP]/[DOWN] switches and a low cut function.

SP-23 EXTERNAL SPEAKER

4 audio filters; headphone jack; can connect to 2 transceivers.

- Input impedance: 8 Ω
- Max. input power: 4 W

CT-17 CI-V LEVEL CONVERTER UNIT



For remote transceiver control using a personal computer equipped with an RS-232C port. You can change frequencies, operating mode, memory channels, etc., via your computer.

MB-121 CARRYING HANDLE

Convenient when carrying the transceiver.

■ General

The IC-7600's firmware can be updated if desired. By updating the firmware, new function(s) can be added and the improvement of performance parameters can be obtained.

2 methods of firmware update are available: one uses the USB-Memory, and the other uses a PC. You can choose either methods according to your PC capabilities.

- When only one PC connected to the Internet is available
 - ↳ Refer to ■ Preparation (p. ??) and ■ Firmware update— USB-Memory (p. ??)
- When two or more PCs connected to the Internet are available and they are connected to a LAN (Local Area Network)
 - ↳ Refer to ■ Preparation (p. ??) and either ■ Firmware update— PC (p. ??) or ■ Firmware update— USB-Memory (p. ??)

Ask your dealer or distributor about how to update the firmware if you have no PC.

■ Caution

⚠ **CAUTION!** NEVER turn the transceiver power OFF while updating the firmware.

You can turn the transceiver power OFF only when the transceiver displays that rebooting is required.

If you turn the transceiver power OFF, or if a power failure occurs during updating, the transceiver firmware will be corrupted and you will have to send the transceiver back to the nearest Icom distributor for repair. This type of repair is out of warranty even if the warranty period is still valid.

Recommendation!

Backing up the settings and/or memory contents to the USB-Memory before starting the firmware update is recommended.

Settings and/or memory contents will be lost or returned to default settings when the firmware update is performed.

At least one available USB (2.0 or 1.1) port is required to copy the downloaded firmware file (USB hub may be required).
The USB hub is not supplied by Icom.
Ask your PC dealer about a USB for details.

■ Preparation

◇ Firmware and firm utility

The latest firmware and the firm utility can be downloaded from the Icom home page via the Internet. Access the following URL to download the firm utility and the latest firmware.

<http://www.icom.co.jp/world/support/index.html>

For updating from the USB-Memory

When updating the firmware from the USB-Memory, copy the downloaded firmware data (e.g. 7600_110.dat) to the USB-Memory (in "IC-7600" folder) using an available USB port (USB hub may be required; purchased separately from your PC dealer).

◇ File downloading

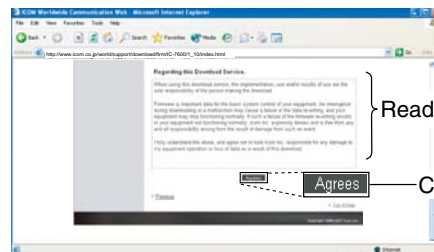
- ① Access the following URL directly.
<http://www.icom.co.jp/world/support/index.html>
- ② Click "Firmware Updates/Software Downloads" link then click the firmware file link.

- ③ Read "Regarding this Download Service" carefully, then click [AGREE].

- ④ Click [Save] in the displayed File Download dialog.

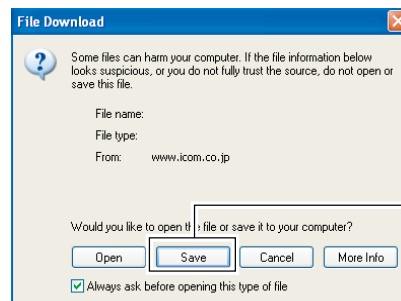
- ⑤ Select the desired location in which you want to save the firmware, then click [Save] in the displayed File Download dialog.

- File download starts.
- ⑥ After download is completed, extract the file.
 - The firmware and the firm utility are compressed in "zip" format, respectively.
 - When updating the transceiver using with the USB-Memory, copy the extracted firmware (e.g. 7600_110.dat) to the USB-Memory IC-7600 folder.
 - The USB-Memory must have been formatted by the IC-7600. (p. ??)



Read carefully

Click



Click

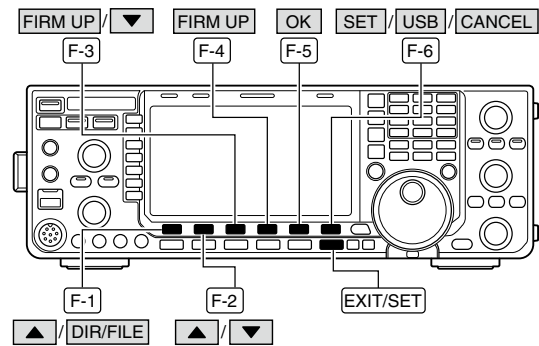


Select the saving location

Click

■ Firmware update— USB-Memory

- ① Copy the downloaded firmware data into the USB-Memory ("IC-7600" folder).
 - The USB-Memory must have been formatted by the IC-7600.
- ② Insert the USB-Memory into the USB connector.
- ③ Push **[EXIT/SET]** several times to close a multi-function screen, if necessary.
- ④ Push **[SET] (F-6)** to select set mode menu screen.
- ⑤ Push **[USB] (F-6)** to select USB-Memory set menu.



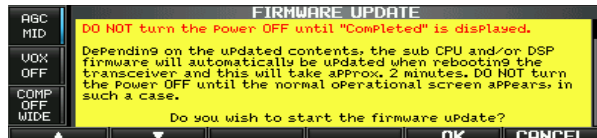
- ⑥ Push and hold **[FIRM UP] (F-3)** for 1 sec.



- ⑦ Read the displayed precaution carefully.
 - Push **[▲] (F-1)** or **[▼] (F-2)** to scroll the indication.
 - Push **[CANCEL] (F-6)** to cancel the firmware updating.



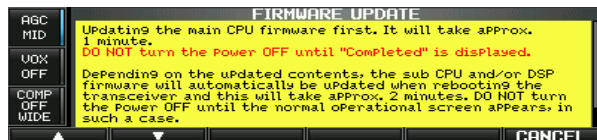
- ⑧ After you read and understand all of the precautions, push **[OK] (F-5)**.
 - **[OK] (F-5)** appears only following the precautions.
 - Push **[CANCEL] (F-6)** to cancel the firmware updating.



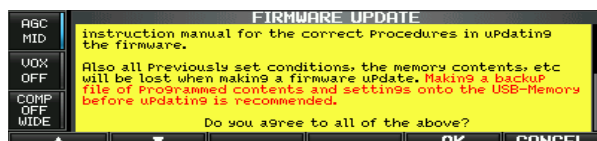
- ⑨ Push **[▲] (F-2)** or **[▼] (F-3)** to select the firmware file, then push **[FIRM UP] (F-4)**.



- ⑩ Read the displayed precautions carefully.



- ⑪ If you agree, push and hold **[OK] (F-5)** for 1 sec. to start the firmware update.
 - Push **[CANCEL] (F-7)** to cancel the firmware updating.



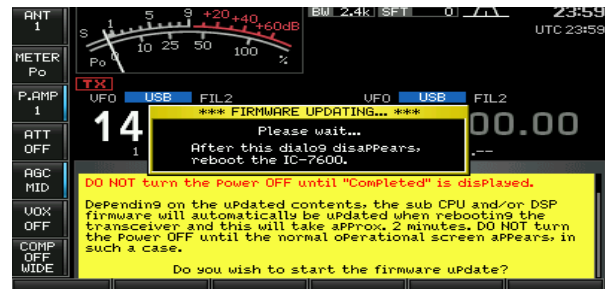
- ⑫ While loading the firmware from the USB-Memory, the dialog as at left is displayed.



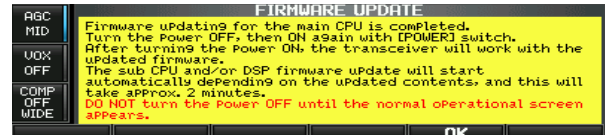
14 UPDATING THE FIRMWARE

- ⑬ After the firmware loading is completed, the transceiver starts the update automatically and the dialog at left is displayed.

⚠ **WARNING!:** NEVER turn the IC-7600 power OFF at this stage.
The transceiver firmware will be corrupted.



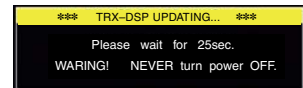
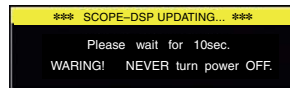
- ⑭ When the dialog disappears, the precaution at left is displayed.
- ⑮ Read the precaution carefully, and then push [OK] (F-5).
- Return to USB-Memory set menu.



- ⑯ Push [POWER] to turn the IC-7600 power OFF, then ON again.
- ⑰ Depending on the update, one or two dialog boxes as at left appear in sequence.

⚠ **WARNING!:** NEVER turn the IC-7600 power OFF at this stage.
The transceiver firmware will be corrupted.

- ⑱ After the dialog disappears, the firmware updating is completed and normal operation screen appears.



INSTALLATION NOTES

For amateur base station installations it is recommended that the forward clearance in front of the antenna array is calculated relative to the EIRP (Effective Isotropic Radiated Power). The clearance height below the antenna array can be determined in most cases from the RF power at the antenna input terminals.

As different exposure limits have been recommended for different frequencies, a relative table shows a guideline for installation considerations.

Below 30 MHz, the recommended limits are specified in terms of V/m or A/m fields as they are likely to fall within the near-field region. Similarly, the antennas may be physically short in terms of electrical length and that the installation will require some antenna matching device which can create local, high intensity magnetic fields. Analysis of such MF installations is best considered in association with published guidance notes such as the FCC OET Bulletin 65 Edition 97-01 and its annexes relative to amateur transmitter installations.

The EC recommended limits are almost identical to the FCC specified 'uncontrolled' limits and tables exist that show pre-calculated safe distances for different antenna types for different frequency bands. Further information can be found at <http://www.arrl.org/>.

• Typical amateur radio installation

Exposure distance assumes that the predominant radiation pattern is forward and that radiation vertically downwards is at unity gain (sidelobe suppression is equal to main lobe gain). This is true of almost every gain antenna today. Exposed persons are assumed to be beneath the antenna array and have a typical height of 1.8 m.

The figures assume the worst case emission of a constant carrier.

For the bands 10 MHz and higher the following power density limits have been recommended:
10–50 MHz 2 W/sq m

Vertical clearance by EIRP output


1 Watts	2.1 m
10 Watts	2.8 m
25 Watts	3.4 m
100 Watts	5 m
1000 Watts	12 m


Forward clearance by EIRP output

100 Watts	2 m
1000 Watts	6.5 m
10,000 Watts	20 m
100,000 Watts	65 m

In all cases any possible risk depends on the transmitter being activated for long periods. (actual recommendation limits are specified as an average during 6 minutes) Normally the transmitter is not active for long periods of time. Some radio licenses will require that a timer circuit automatically cuts off the transmitter after 1–2 minutes etc.

Similarly some modes of transmission, SSB, CW, AM etc. have a lower 'average' output power and the assessed risk is even lower.

 Versions of the IC-7600 which display the "CE" symbol on the serial number seal, comply with the essential requirements of the European Radio and Telecommunication Terminal Directive 1999/5/EC.

 This warning symbol indicates that this equipment operates in non-harmonised frequency bands and/or may be subject to licensing conditions in the country of use. Be sure to check that you have the correct version of this radio or the correct programming of this radio, to comply with national licensing requirement.

• List of Country codes (ISO 3166-1)

	Country	Codes		Country	Codes
1	Austria	AT	18	Liechtenstein	LI
2	Belgium	BE	19	Lithuania	LT
3	Bulgaria	BG	20	Luxembourg	LU
4	Croatia	HR	21	Malta	MT
5	Czech Republic	CZ	22	Netherlands	NL
6	Cyprus	CY	23	Norway	NO
7	Denmark	DK	24	Poland	PL
8	Estonia	EE	25	Portugal	PT
9	Finland	FI	26	Romania	RO
10	France	FR	27	Slovakia	SK
11	Germany	DE	28	Slovenia	SI
12	Greece	GR	29	Spain	ES
13	Hungary	HU	30	Sweden	SE
14	Iceland	IS	31	Switzerland	CH
15	Ireland	IE	32	Turkey	TR
16	Italy	IT	33	United Kingdom	GB
17	Latvia	LV			



**DECLARATION
OF CONFORMITY**

We Icom Inc. Japan
1-1-32, Kamiminami, Hirano-ku
Osaka 547-0003, Japan



Declare on our sole responsibility that this equipment complies with the essential requirements of the Radio and Telecommunications Terminal Equipment Directive, 1999/5/EC, and that any applicable Essential Test Suite measurements have been performed.

Düsseldorf 28th Nov. 2008
Place and date of issue

Kind of equipment: HF/50 MHz TRANSCEIVER

Icom (Europe) GmbH
Himmelgeister straÙe 100
D-40225 Düsseldorf

Authorized representative name

Type-designation: IC-7600

Y. Furukawa
General Manager

Version (where applicable):

This compliance is based on conformity with the following harmonised standards, specifications or documents:

- i) EN 301 489-1 v1.6.1 (September 2005)
- ii) EN 301 489-15 v1.2.1 (August 2002)
- iii) EN 301 783-2 v1.1.1 (September 2000)
- iv) EN 60950-1 : 2001

Signature

Icom Inc.

Count on us!



IC-7600 #03
(Europe)

< Intended Country of Use >
AT BE CY CZ DK EE
FI FR DE GR HU IE
IT LV LT LU MT NL
PL PT SK SI ES SE
GB IS LI NO CH BG
RO TR HR

IC-7600 #04
(Europe-1)

< Intended Country of Use >
AT BE CY CZ DK EE
FI FR DE GR HU IE
IT LV LT LU MT NL
PL PT SK SI ES SE
GB IS LI NO CH BG
RO TR HR

IC-7600 #05
(Spain)

< Intended Country of Use >
AT BE CY CZ DK EE
FI FR DE GR HU IE
IT LV LT LU MT NL
PL PT SK SI ES SE
GB IS LI NO CH BG
RO TR HR

IC-7600 #09
(Italy)

< Intended Country of Use >
AT BE CY CZ DK EE
FI FR DE GR HU IE
IT LV LT LU MT NL
PL PT SK SI ES SE
GB IS LI NO CH BG
RO TR HR

IC-7600 #10
(France)

< Intended Country of Use >
AT BE CY CZ DK EE
FI FR DE GR HU IE
IT LV LT LU MT NL
PL PT SK SI ES SE
GB IS LI NO CH BG
RO TR HR
