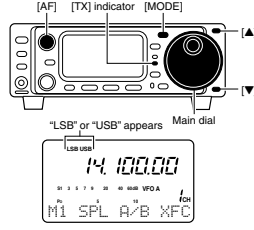## ■ Operating SSB

① Push [(▲)BAND]/[(▼)BAND] to select the desired band.
② Push [MODE] momentarily or push for 1 sec. to select LSB or USB mode.
   •Below 10 MHz LSB is automatically selected; above 10 MHz USB is automatically selected.
③ Rotate [AF] control to set audio to a comfortable listening level.
④ Rotate the main dial to tune a desired signal.
   •S-meter indicates received signal strength.
⑤ Push [PTT] (microphone) to transmit.
   •The TX indicator lights red.
⑥ Speak into the microphone at your normal voice level.
   •Adjust 'MIC GAIN' at this step, if necessary. (p. 26)
⑦ Release [PTT] (microphone) to return to receive.

[AF]  [TX] indicator  [MODE]  [▲]  [▼]  Main dial

"LSB" or "USB" appears

14.100.00
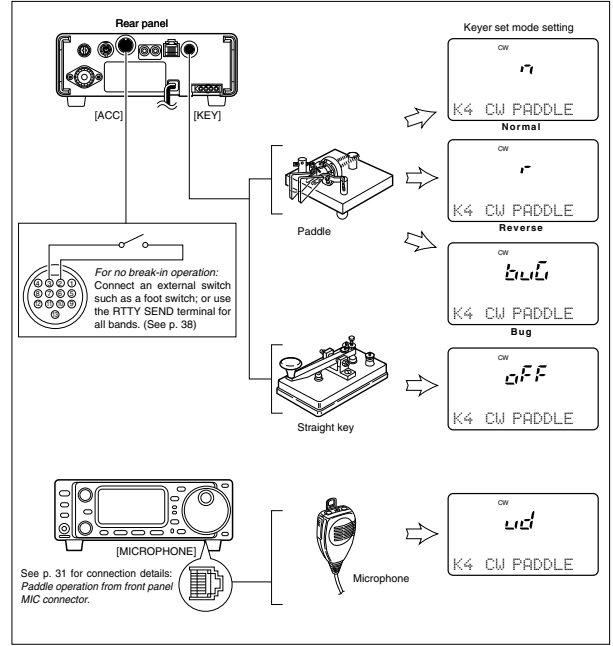
M1 SPL A/B XFC

◇ Convenient functions for receive

•**Preamp and attenuator** (p. 46)
➠ Push [P.AMP/ATT] momentarily to set the preamp ON or OFF.
   •Lights green when the preamp is set to ON.
➠ Push [P.AMP/ATT] for 1 sec. to set the attenuator ON.
   •Push [P.AMP/ATT] momentarily to turn the attenuator OFF.
   •Lights red when the attenuator is set to ON.

•**Noise blanker** (p. 48)
➠ While "M3" is selected, push [(F-2)NB] to turn the noise blanker ON and OFF.
   •Push [DISPLAY] once or twice to select M.
   •Push [MENU] one or more times to select M3.
   •"NB" appears when the noise blanker is set to ON.
   •Push [(F-2)NB] for 1 sec. to enter the noise blanker set mode.

•**IF shift** (p. 47)
➠ Rotate [SHIFT] control.

•**AGC (auto gain control)** (p. 48)
➠ While "M4" is selected, push [(F-3)AGC] to select AGC fast and AGC slow.
   •Push [DISPLAY] once or twice to select M.
   •Push [MENU] one or more times to select M4.
   •"FAGC" appears when the fast time constant is selected.

•**Noise reduction** (p. 50)
➠ While "S4" is selected, push [(F-2)NR] to turn the noise reduction ON and OFF.
   •Push [DISPLAY] once or twice to select S.
   •Push [MENU] one or more times to select S4.
   •Push [(F-3)NRL] then rotate [M-CH] to adjust the noise reduction level.
   •"NR" appears when the noise reduction is set to ON.

•**Auto notch filter** (p. 50)
➠ While "S4" is selected, push [(F-1)ANF] to turn the auto notch filter function ON and OFF.
   •"ANF" appears when the noise reduction is set to ON.

◇ Convenient functions for transmit

•**Speech compressor** (p. 54)
➠ While "M4" is selected, push [(F-2)COM] to turn the speech compressor ON and OFF.
   •Push [DISPLAY] once or twice to select M.
   •Push [MENU] one or more times to select M4.
   •"COM" appears when the speech compressor is set to ON.
   •Push [(F-2)COM] for 1 sec. to enter the compression level set mode.

•**Carrier frequency control** (p. 75)
➠ While "Q3" is selected, rotate main dial to adjust the audio tone.
   •Push [DISPLAY] for 1 sec. to enter the quick set mode.
   •Push [MENU] one or more times to select Q3.

•**VOX (voice operated transmit)** (p. 53)
➠ While "M4" is selected, push [(F-1)VOX] to turn the VOX function ON and OFF.
   •Push [DISPLAY] once or twice to select M.
   •Push [MENU] one or more times to select M4.
   •"VOX" appears when the VOX function is set to ON.
   •Push [(F-1)VOX] for 1 sec. to enter the VOX set mode.
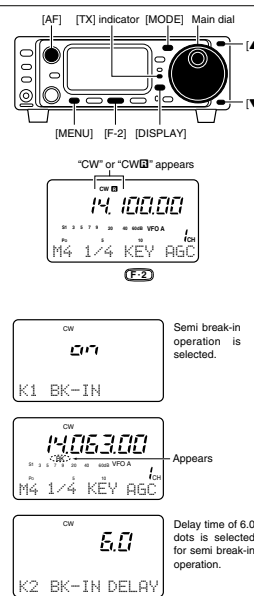
---

## ■ Operating CW
### ◇ Connections for CW

Rear panel

[ACC]    [KEY]

For no break-in operation:
Connect an external switch such as a foot switch; or use the RTTY SEND terminal for all bands. (See p. 38)

Paddle

Straight key

Keyer set mode setting

K4 CW PADDLE  — Normal

K4 CW PADDLE  — Reverse

buG
K4 CW PADDLE  — Bug

oFF
K4 CW PADDLE

[MICROPHONE]

See p. 31 for connection details:
*Paddle operation from front panel MIC connector.*

Microphone

ud
K4 CW PADDLE

---

### ◇ CW operation

① Connect a paddle or straight key as at previous page.
② Push [(▲)BAND]/[(▼)BAND] to select the desired band.
③ Push [MODE] momentarily to select CW mode.
   •After CW mode is selected, push [MODE] for 1 sec. to toggle between CW and Memory keyer modes.
④ While the quick set mode item "Q3" is selected in CW mode, rotate main dial to select CW or CWR mode.
   •Push [DISPLAY] for 1 sec. to enter the quick set mode.
   •Push [MENU] one or more times to select Q3.
   •Push [DISPLAY] momentarily to return to normal operating mode.
⑤ Rotate [AF] control to set audio to a comfortable listening level.
⑥ Rotate the main dial to simultaneously tune a desired signal and its side tone.
⑦ Set CW setting in the keyer set mode.
   •Push [DISPLAY] once or twice to select M.
   •Push [MENU] one or more times to select M4.
   •Push [(F-2)KEY] for 1 sec. to enter the keyer set mode. (p. 32)
⑧ Set CW break-in operation as semi break-in, full break-in or OFF.
   •Push [MENU] one or more times to select "K1 BK-IN."
   •Rotate the main dial to select CW break-in operation.
    ▶FULL: full break-in
    ▶on : semi break-in
    ▶OFF : no break-in (ACC socket connection is necessary as at previous page.)
⑨ Set the CW delay time when semi break-in operation is selected.
   •Push [MENU] one or more times to select "K2 BK-IN DELAY."
   •Rotate the main dial to set the desired delay time (see p. 32 for details).
⑩ Keying to transmit, use the electric keyer or paddle to key your CW signals.
   •The TX indicator lights red.
   •The Po meter indicates transmitted CW signal strength.
⑪ Release keying to return to receive.

[AF]  [TX] indicator  [MODE]  Main dial  [▲]  [▼]
[MENU]  [F-2]  [DISPLAY]

"CW" or "CWR" appears

14.100.00

M4 1/4 KEY AGC

[F-2]

on
K1 BK-IN

Semi break-in operation is selected.

14.063.00

M4 1/4 KEY AGC

Appears

6.0
K2 BK-IN DELAY

Delay time of 6.0 dots is selected for semi break-in operation.
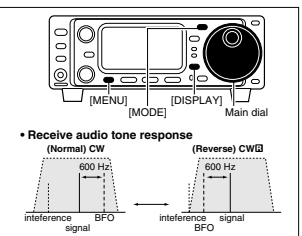
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### ◇ Convenient functions for receive

•**Preamp and attenuator** (p. 46)
➠ Push [P.AMP/ATT] momentarily to set the preamp ON or OFF.
   •Lights green when the preamp is set to ON.
➠ Push [P.AMP/ATT] for 1 sec. to set the attenuator ON.
   •Push [P.AMP/ATT] momentarily to turn the attenuator OFF.
   •Lights red when the attenuator is set to ON.

•**Noise blanker** (p. 48)
➠ While "M3" is selected, push [(F-2)NB] to turn the noise blanker ON and OFF.
   •Push [DISPLAY] once or twice to select M.
   •Push [MENU] one or more times to select M3.
   •"NB" appears when the noise blanker is set to ON.
   •Push [(F-2)NB] for 1 sec. to enter the noise blanker set mode.

•**AGC (auto gain control)** (p. 48)
➠ While "M4" is selected, push [(F-3)AGC] to select AGC fast and AGC slow.
   •Push [DISPLAY] once or twice to select M.
   •Push [MENU] one or more times to select M4.
   •"FAGC" appears when the fast time constant is selected.

•**IF shift** (p. 47)
➠ Rotate [SHIFT] control.

•**Noise reduction** (p. 50)
➠ While "S4" is selected, push [(F-2)NR] to turn the noise reduction ON and OFF.
   •Push [DISPLAY] once or twice to select S.
   •Push [MENU] one or more times to select S4.
   •Push [(F-3)NRL] then rotate [M-CH] to adjust the noise reduction level.
   •"NR" appears when the noise reduction is set to ON.

•**Auto notch filter** (p. 50)
➠ While "S4" is selected, push [(F-1)ANF] to turn the auto notch filter function ON and OFF.
   •"ANF" appears when the noise reduction is set to ON.

•**¼ function**
➠ While "M4" is selected, push [(F-1)1/4] to turn the ¼ function ON and OFF.
   •Push [DISPLAY] once or twice to select M.
   •Push [MENU] one or more times to select M4.

### ◇ Convenient functions for transmit

•**Break-in function** (p. 32)
➠ While "M4" is selected, push [(F-2)KEY] for 1 sec. to enter the keyer set mode.
   •Push [DISPLAY] once or twice to select M.
   •Push [MENU] one or more times to select M4.
➠ Rotate the main dial to select the break-in OFF, semi break-in or full break-in.
   •"BK" or "F-BK" appears when the semi break-in or full break-in is set to ON, respectively.
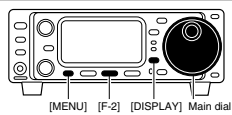
### ◇ CW reverse mode    *QUICK SET MODE*

The CWR (CW Reverse) mode receives CW signals with a reverse side CW carrier point like that of LSB and USB modes. Use this mode when interference signals are near the desired signal and you want to change the interference tone.

① Select CW mode with [MODE].
② Push [DISPLAY] for 1 sec. to enter quick set mode.
③ Push [MENU] one or more times to select "Q3 CW REV," then rotate the main dial to select CW and CWR modes.
   •Check the interference tone.
④ Push [DISPLAY] momentarily to exit quick set mode.

[MENU]  [MODE]  [DISPLAY]  Main dial

• **Receive audio tone response**
(Normal) CW        (Reverse) CWR
600 Hz             600 Hz
interference  BFO  interference  signal
signal             BFO

### ◇ CW pitch control

The received CW audio pitch and monitored CW audio pitch can be adjusted to suit your preferences (300 to 900 Hz) without changing the operating frequency.

① Enter the keyer set mode.
  • Push [DISPLAY] once or twice to select M.
  • Push [MENU] one or more times to select M4.
  • Push [(F-2)KEY] for 1 sec. to enter the keyer set mode.
② Push [MENU] one or more times to select "K3 CW PITCH," then rotate the main dial to set the desired pitch.
③ Push [DISPLAY] to exit the keyer set mode.

[MENU] [F-2] [DISPLAY] Main dial

This shows the default setting for the CW pitch control (600 Hz).

CW
600
K3 CW PITCH

### ◇ Electronic CW keyer

The IC-703 has an electronic keyer. Both keying speed and weight (the ratio of dot : space : dash) can be set.

**• Setting the electronic keyer**
① Enter the keyer set mode.
  • Push [DISPLAY] once or twice to select M.
  • Push [MENU] one or more times to select M4.
  • Push [(F-2)KEY] for 1 sec. to enter the keyer set mode.
② Push [MENU] one or more times to select "K4 CW PADDLE," then rotate the main dial to select the paddle type.
  • When "ud" is selected, the up/down switches on the microphone can be used as a paddle.
③ Push [MENU] one more time to select item "K5 RATIO," then rotate the main dial to select the desired weight.
  • Key weight can be selected from 2.8 to 4.5.
  • Check the selected ratio with the side tone function in CW mode.
④ Push [DISPLAY] momentarily to return to M4.
⑤ Push [DISPLAY] for 1 sec. to enter quick set mode.
⑥ Push [MENU] once or twice to select "Q2 KEY SPEED," then rotate the main dial to select the desired keying speed.
  • [M-CH] or [▲]/[▼] can also be used to select "Q2 KEY SPEED."
  • Keying speed can be selected from 6 to 60 wpm.
⑦ Push [DISPLAY] momentarily to return to M4.

[M-CH] [MENU] [F-2] [DISPLAY] Main dial

[▲]
[▼]

**KEYING WEIGHT EXAMPLE:** morse code "K"

DOT
DASH (Fixed*) DASH

Weight setting: 1:1:3 (default)

Weight setting: Adjusted

Adjustable range    SPACE (Fixed*)

*SPACE and DOT length can be adjusted with "Q2 KEY SPEED" only.
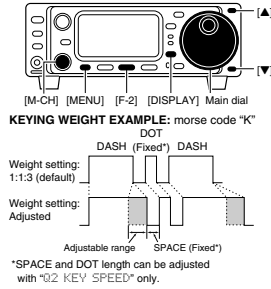
**Paddle operation from front panel MIC connector**
Connect a CW paddle as at right to operate an electronic keyer from the front panel MIC connector.

• This function is available from the front panel mic connector only.
• Be sure to select item "n," "r," "buG" or "oFF" in K4 CW PADDLE in the keyer set mode. (p. 32)
• Connect straight key to "DOT" side.

CW paddle
DOT
DASH

3.9 kΩ ±5%
2.2 kΩ ±5%

front panel MIC connector
E ⑦
MIC U/D ②

---
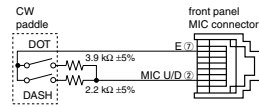
### ◇ CW side tone function

When the transceiver is in the receive condition (and the break-in function is OFF— below) you can listen to the tone of your CW signal without actually transmitting. This allows you to match your transmit signal exactly to another station's. This also convenient for CW practice. CW side tone level can be adjusted in the initial set mode (p. 77).

### ◇ Keyer set mode

While M4 is selected in CW mode, push [(F-2)KEY] for 1 sec. to enter the keyer set mode.

**K1 BK-IN**
This item sets the CW break-in operation. The break-in operation is selectable from off, on and FULL.

CW
oFF    The default is OFF.

**K2 BK-IN DELAY**
This item adjusts break-in delay time for CW semi break-in operation. The delay time is selectable from 2.0 to 13.0 (dots).

CW
7.5    The default is 7.5 dots.

**K3 CW PITCH**
This item sets the CW pitch. CW pitch is adjustable from 300 to 900 Hz in 10 Hz steps.

CW
600    The default is 600 Hz.

**K4 CW PADDLE**
This item adjusts the CW paddle type. Four selections are available.
• n : normal (for electronic keyer use)
• r : reverse (for electronic keyer use)
• buG : When using the electronic keyer, key down produces a "dash," releasing the key automatically produces a "dot(s)."
• oFF : Turns OFF the electronic keyer (for straight key use)
• ud : For using the microphone's [UP]/[DN] keys instead of the CW paddle.
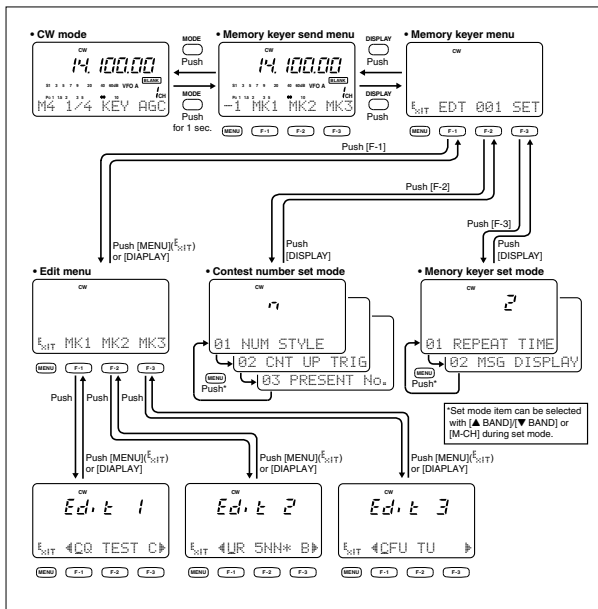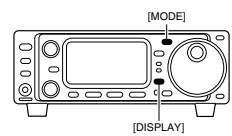
CW
n    The default is "n," normal.

**K5 RATIO**
This item adjusts the CW key ratio (or weight). The ratio can be selected from 2.8 to 4.5.

CW
3.0    The default is 3.0.

---

## ■ Memory keyer functions

The transceiver has a number of convenient functions for the electronic keyer that can be accessed from the memory keyer menu.
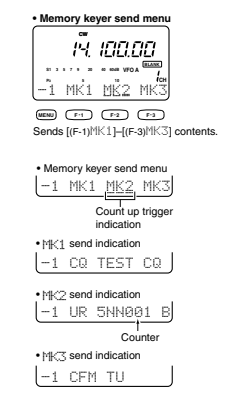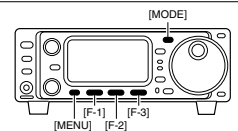
① Select CW mode with [MODE].
② Push [MODE] for 1 sec. to select the memory keyer send menu.
  • Push [MODE] momentarily to return to normal CW operating mode.
③ Push [DISPLAY] to enter the memory keyer menu. See the diagram below.
  • Push [DISPLAY] momentarily to return to the memory keyer send menu.

[MODE]
[DISPLAY]

**• CW mode**
CW
14.100.00
M4 1/4 KEY AGC

MODE Push
MODE Push for 1 sec.

**• Memory keyer send menu**
CW
14.100.00
-1 MK1 MK2 MK3

DISPLAY Push
DISPLAY Push

**• Memory keyer menu**
CW
EXIT EDT 001 SET

Push [F-1]
Push [F-2]
Push [F-3]

Push [MENU](EXIT) or [DIAPLAY]

Push [DISPLAY]

Push [DISPLAY]

**• Edit menu**
CW
EXIT MK1 MK2 MK3

**• Contest number set mode**
CW
01 NUM STYLE
02 CNT UP TRIG
03 PRESENT No.

**• Memory keyer set mode**
CW
01 REPEAT TIME
02 MSG DISPLAY

*Set mode item can be selected with [▲ BAND]/[▼ BAND] or [M-CH] during set mode.

Push Push Push
MENU
Push*
MENU
Push*

Push [MENU](EXIT) or [DIAPLAY]
Push [MENU](EXIT) or [DIAPLAY]
Push [MENU](EXIT) or [DIAPLAY]

CW
Edit 1
EXIT ◄CQ TEST C►

CW
Edit 2
EXIT ◄UR 5NN* B►

CW
Edit 3
EXIT ◄CFU TU    ►

---

### ◇ Memory keyer send menu

Pre-set characters can be sent using the memory keyer send menu. Contents of the memory keyer are set using the edit menu.

**• Transmitting**
① Select CW mode with [MODE].
② Push [MODE] for 1 sec. to enter the memory keyer send menu.
③ Set the break-in function ON (p. 32).
  • When step ④ is performed during the break-in function OFF, monitors the memory keyer contents.
④ Push one of the function keys ([(F-1)MK1] to [(F-3)MK3]) to send the contents of the memory keyer.
  • Pushing a function key for 1 sec. repeatedly sends the contents and blinks "MK1," "MK2" or "MK3" indication; push any function key to cancel the transmission.
  • Keying with the connected straight key or paddle to [KEY] on the rear panel is also cancels the transmission.
  • Under bars (_ _ _) are indicated for the count up trigger set channel.
  • The contest number counter is incremented each time the contents are sent.
  • Push [MENU] to reduce the contest number count by 1 when resending contents to unanswered calls.
⑤ Push [MODE] momentarily to exit memory keyer send menu and return to normal CW mode indication.

[MODE]
[MENU] [F-2]
[F-1] [F-3]

**• Memory keyer send menu**
CW
14.100.00
-1 MK1 MK2 MK3

Sends [(F-1)MK1]–[(F-3)MK3] contents.

**• Memory keyer send menu**
-1 MK1 MK2 MK3

Count up trigger indication

**• MK1 send indication**
-1 CQ TEST CQ

**• MK2 send indication**
-1 UR 5NN001 B

Counter

**• MK3 send indication**
-1 CFM TU

### ◇ Editing a memory keyer

The contents of the memory keyer memories can be set using the memory keyer edit menu. The memory keyer can memorize and re-transmit 3 CW key codes for often-used CW sentences, contest numbers, etc. Total capacity of the memory keyer is 50 characters per memory channel.

**• Programming contents**

① Select CW mode with [MODE].
② Enter the memory keyer menu.
   • Push [MODE] for 1 sec. to enter the memory keyer send menu.
   • Push [DISPLAY] momentarily to enter the memory keyer menu.
③ Push [(F-1)EDT] to enter the edit menu.
④ Push the multi-function key, [(F-1)MK1], [(F-2)MK2] or [(F-3)MK3], to select the desired memory keyer channel to be edited.
⑤ Input the desired character by rotating the main dial.
   • Selectable characters (with the main dial);

```
A B C D E F G H I J K L M N O P Q R S T
U V W X Y Z / ? . , * ^
```

   **NOTE:**
   "^" is used to transmit a following word with no space such as AR. Put "^" before a text string such as ^AR, and the string "AR" is sent with no space.
   "*" is used to insert the CW contest number. The contest number automatically increments by 1. This function is only available for one memory keyer channel at a time. Memory keyer channel MK2 used "*" by default.
   ④ Push [(F-2)] to erase characters.

⑥ Push [(F-1)◀] or [(F-3)▶] to move the cursor backwards or forwards, respectively.
⑦ Repeat steps ⑤ and ⑥ to input the desired characters.
⑧ Push [MENU] or [DISPLAY] three times to return to the keyer send menu.

**Pre-programmed contents**

| CH | CONTENTS |
|-----|----------|
| MK1 | CQ TEST CQ TEST DE ICOM ICOM T |
| MK2 | UR 5NN* BK |
| MK3 | CFM TU |

• MK1 indication (default)    • MK2 indication (default)    • MK3 indication (default)

Contest number counter is set by entering an asterisk (*).

*[Radio diagram with labels: [MODE], Main dial, [F-1], [F-2], [DISPLAY], [MENU]]*

**• Memory keyer menu**

EDT 001 SET

↓ Push

**• Edit menu**

MK1 MK2 MK3

• MK3 indication (default)

◀ [DEL] ▶

Displays "[DEL]" for 1 sec. then shows the default contents.

◀CFU TU ▶

◀ ▶

Push [F-2] to erase characters.

**• Example display**— when inputting QSL TU DE JA3YUA TEST into MK3

◀Q ▶

◀SL TU D ▶

◀YUA TEST ▶

---

### ◇ Contest number set mode

This menu is used to set the contest (serial) number and count up trigger, etc.

**• Setting contents**

① Select CW mode with [MODE].
② Enter the memory keyer menu.
   • Push [MODE] for 1 sec. to enter the memory keyer send menu.
   • Push [DISPLAY] momentarily to enter the memory keyer menu.
③ Push [(F-2)001] to enter the contest number set mode.
④ Push [MENU] once or twice to select the desired set item.
   • [M-CH] or [▲]/[▼] can also be used.
⑤ Set the desired condition using the main dial.
⑥ Push [DISPLAY] twice to return to the memory keyer send menu.

*[Radio diagram with labels: [MODE], Main dial, [▲], [▼], [M-CH], [MENU], [F-2], [DISPLAY]]*

**4**

---
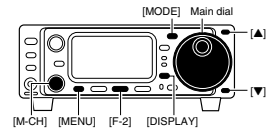
**01 NUM STYLE (Number style)**

This item sets the numbering system used for contest (serial) numbers— normal or morse cut numbers.

n       : Does not use morse cut number (default)
190.Ano : Sets 1 as A, 9 as N and 0 as O.
190.Ant : Sets 1 as A, 9 as N and 0 as T.
90.no   : Sets 9 as N and 0 as O.
90.nt   : Sets 9 as N and 0 as T.

CW
n
01 NUM STYLE

---
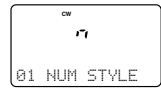
**02 CONT UP TRIG (Count up trigger)**

This selects which of the three memory slots will have the contest serial number exchange. The count up trigger allows the serial number automatically incremented after each complete serial number exchange is sent.
• 1 (MK1), 2 (MK2) and 3 (MK3) can be set. (default: 2)

CW
2
02 CNT UP TRIG

---
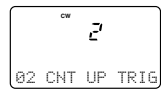
**03 PRESENT No. (Present number)**

This item shows the current number for the count up trigger channel set above.
• Rotate the tuning dial to change the number.

CW
001
03 PRESENT No.

---

### ◇ Memory keyer set mode

This set mode is used to set the memory keyer repeat time and indication type of the messages.

**• Setting contents**

① Select CW mode with [MODE].
② Enter the memory keyer menu.
   • Push [MODE] for 1 sec. to enter the memory keyer send menu.
   • Push [DISPLAY] momentarily to enter the memory keyer menu.
③ Push [(F-3)SET] to enter the memory keyer set mode.
④ Push [MENU] to select the desired set item.
   • [M-CH] or [▲]/[▼] can also be used.
⑤ Set the desired condition using the main dial.
⑥ Push [DISPLAY] twice to return to the memory keyer send menu.

*[Radio diagram with labels: [MODE], Main dial, [▲], [▼], [M-CH], [MENU], [F-3], [DISPLAY]]*

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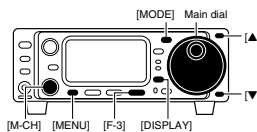
**01 REPEAT TIME (Repeat time)**

When sending CW using the repeat timer, this item sets the time between transmission.
• 1 to 60 sec. in 1 sec. steps can be selected.

CW
2
01 REPEAT TIME

---
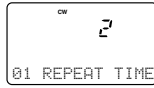
**02 MSG DISPLAY (Message display)**

This item sets the indication type of the messages (pre-set characters).

n    : Normal indication (default)
       [(F-1)MK1], [(F-2)MK2], [(F-3)MK3]
3    : First three characters of the massages are indicated.
       e.g. [(F-1)CQ ], [(F-2)UR ], [(F-3)CFM]
3.cn : First three characters of the massages and contest number are indicated.
       e.g. [(F-1)CQ ], [(F-2)001], [(F-3)CFM]
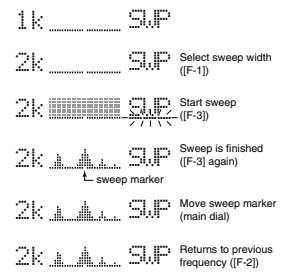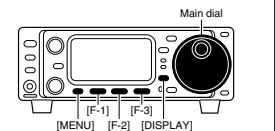
CW
n
02 MSG DISPLAY

---

## ■ Simple band scope

This function allows you to visually "sweep" an area surrounding the set frequency for other signals. Detected signals are indicated graphically in the dot matrix section of the display.

**NOTE:** Use the attenuator or turn OFF the preamp when using the band scope on a band containing a lot of noise.

① Set a mode and frequency.
② Select G1.
   • Push [DISPLAY] once or twice to select G.
   • Push [MENU] one or more times to select G1.
③ Push [F-1] one or more times to select the desired steps.
   • Each dot corresponds to a step for the indicated frequency.
   • 0.5k, 1k, 2k, 5k, 10k, 20k and 0.1M (100 kHz) can be set for the scope step.
④ Push [F-3] to start the sweep.
   • "____" (below SWP) flashes while sweeping.
   • The receive audio is muted while sweeping.
⑤ Rotate the main dial if you want to monitor the displayed signals.
   • The sweep marker indicates the location of the displayed frequency in the sweep readout.
   • If the displayed frequency is outside of the sweep readout (determined by the sweep width), the sweep marker flashes.
⑥ Push [F-2] to return the frequency to the start of a sweep.
   • The sweep marker moves back to the center position.

*[Radio diagram with labels: Main dial, [F-1], [F-3], [MENU], [F-2], [DISPLAY]]*

1k    SWP
2k    SWP         Select sweep width ([F-1])
2k    SWP         Start sweep ([F-3])
2k    SWP         Sweep is finished ([F-3] again)
      └ sweep marker
2k    SWP         Move sweep marker (main dial)
2k    SWP         Returns to previous frequency ([F-2])
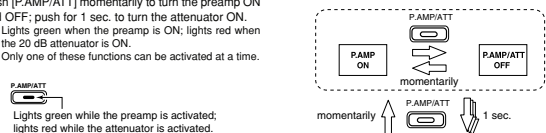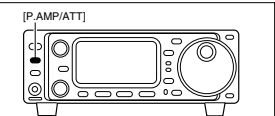
## ■ Preamp and attenuator

The *preamp* amplifies received signals in the front end circuit to improve the S/N ratio and sensitivity. Turn this function ON when receiving weak signals.

The *attenuator* prevents desired signals from distorting when very strong signals are near the desired frequency or when very strong electric fields, such as from broadcasting stations, are near your location.

Push [P.AMP/ATT] momentarily to turn the preamp ON and OFF; push for 1 sec. to turn the attenuator ON.
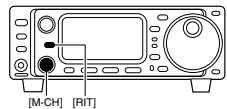• Lights green when the preamp is ON; lights red when the 20 dB attenuator is ON.
• Only one of these functions can be activated at a time.

*[Radio diagram with label: [P.AMP/ATT]]*

Lights green while the preamp is activated; lights red while the attenuator is activated.

*[Diagram: P.AMP/ATT — P.AMP ON / P.AMP/ATT OFF — momentarily / ATT ON — 1 sec.]*

**4**
**5**

## ■ RIT function

The RIT (Receive Incremental Tuning) function compensates for off-frequencies of communicating stations. The function shifts the receive frequency up to ±9.99 kHz in 10 Hz steps without moving the transmit frequency. "21 SUB DIAL" item in initial set mode must be set to RIT mode in advance. (p. 79)

① Push [RIT].
  • The [RIT] indicator lights red.
② Rotate the [M-CH] control to cancel the off-frequencies.
  • The transmit frequency is not shifted.
③ To cancel the RIT function, push [RIT] again.
  • The [RIT] switch indicator goes out.

**• Calculate function**
The shift frequency of the RIT function can be added/subtracted to the displayed frequency.

While the RIT indicator is lit, push and hold [RIT] for 1 sec.

NOTE: The RIT function is not available in FM or AM regardless of the Initial Set mode setting. (p. 79)

[M-CH]  [RIT]

Indicator lights red while RIT function is activated.

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USB
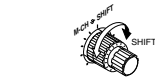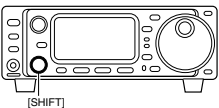14.101.00

RIT/SUB   Push for 1 sec.

## ■ IF shift function

The IF shift function electronically changes the passband frequency of the IF (intermediate frequency) and cuts out higher or lower frequency components of the IF to reject interference. The function shifts the IF frequency up to ±1.2 kHz in 15 Hz steps in SSB/CW/RTTY modes and up to ±250 Hz in 3 Hz steps in CW-N/RTTY-N modes. The IF shift is not available in FM and AM modes.
(N: Narrow)

① Adjust the [SHIFT] control for a minimum interference signal level.
  • The audio tone may be changed while the IF shift is in use.
② Set the shift control to its center position when there is no interference.

**• Graphic display**
The IF shift is displayed graphically (for about 1 sec.) each time the shift control is rotated.

[SHIFT]

M-CH ⇌ SHIFT

M-CH ⇌ SHIFT   M-CH ⇌ SHIFT   M-CH ⇌ SHIFT

Shifts low   Center   Shifts high

USB
14.100.00

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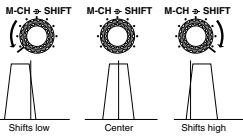
## ■ Noise blanker

The *noise blanker* reduces pulse-type noise such as that generated by automobile ignition systems. This function is not effective for FM mode or for non pulse-type noise. If you don't want to use the noise blanker for AM communications, the "30 AM NB" item in initial set mode must be turned OFF (ON is the default setting—p. 80).
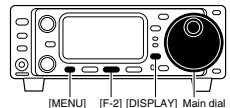
① Select M3.
  • Push [DISPLAY] once or twice to select M.
  • Push [MENU] one or more times to select M3.
② Push [(F-2)NB] to toggle the noise blanker ON and OFF.
  • "NB" appears when the noise blanker is turned ON.
③ Push [(F-2)NB] for 1 sec. to enter the noise blanker level set mode (below).
④ Rotate the main dial to set the noise blanker level.
⑤ Push [DISPLAY] to exit the noise blanker level set mode.

[MENU]   [F-2] [DISPLAY] Main dial

USB
14.220.00

Appears when the noise blanker is turned ON.

M3 FIL NB MET

◇ **Noise blanker level set mode**
While M3 is selected in all modes, push [(F-2)NB] for 1 sec. to enter the noise blanker level set mode.

N1 NB LEVEL

This item adjusts the noise blanker level. The noise blanker level can be adjusted from 0 to 10.

USB
5   The default is 5.

Although noise blanker level set mode is available in all modes, the noise blanker function is not effective for FM mode.

## ■ AGC time constant

The *AGC* (Automatic Gain Control) controls receiver gain to produce a constant audio output level even when the received signal strength is varied by fading, etc. Use AGC slow for normal phone operation; AGC fast for receiving data and searching for signals. AGC time constant cannot be changed in FM mode.
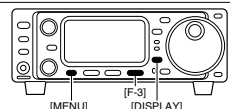
① Select M4.
  • Push [DISPLAY] once or twice to select M.
  • Push [MENU] one or more times to select M4.
② Push [(F-3)AGC] to toggle the AGC time constant between fast and slow.
  • "F AGC" appears when the fast time constant is selected.

[MENU]   [DISPLAY]

USB
14.220.00

Appears when AGC fast is selected.

M4 VOX COM AGC

---

## ■ Optional filter selection

One optional filter can be installed in the IC-703.

Narrow filters help reject interference from adjacent signals and obtain good selectivity.

Wide filters provide improved audio for SSB operation when no interfering signals are present.

Consult the table below to select a filter most suitable for your operating needs.

Narrow filters for AM/FM modes are standard.

**FILTER PRESETTING:**
After you install a filter (see p. 87 for installation), you must specify the installed filter in initial set mode (item "22 OPT. FIL"; see p. 79).

**FILTER ON/OFF:**
① Select M3.
  • Push [DISPLAY] once or twice to select M.
  • Push [MENU] one or more times to select M3.
② Push [(F-1)FIL] momentarily to select the narrow filter; push for 1 sec. to select the wide filter.
  • N appears when the narrow filter is selected; W appears when the wide filter is selected.

NOTE: When selecting the narrow filter (or wide filter), the graphic passband is changed. (see diagram below)

wide is selected   Normal operation   narrow is selected

[MENU]   [DISPLAY]
[F-1]
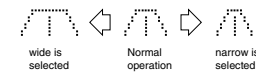
**• Filter variations**

| Name | Mode | Bandwidth |
|---|---|---|
| FL-53A* | CW, RTTY | 250 Hz/–6 dB |
| FL-52A* | CW, RTTY | 500 Hz/–6 dB |
| FL-222* | SSB, CW, RTTY | 1.8 kHz/–6 dB |
| FL-65 | SSB, CW, RTTY | 2.3 kHz/–6 dB |
| FL-96** | SSB, CW, RTTY | 2.8 kHz/–6 dB |
| FL-257* | SSB, CW, RTTY | 3.3 kHz/–6 dB |

*Optional filter.
**Although the FL-96 is not listed on the option list, IC-703 would take FL-96 as well as other optional filter.

**• Optional filter installation and selection tables**

**SSB, CW, RTTY**

| Bandwidth / Filter | Narrow | Medium | Wide |
|---|---|---|---|
| No optional filter | ——— | FL-65 (2.3 k) | ——— |
| FL-52A | FL-52A (500) | FL-65 (2.3 k) | ——— |
| FL-53A | FL-53A (250) | FL-65 (2.3 k) | ——— |
| FL-96 | ——— | FL-65 (2.3 k) | FL-96 (2.8 k) |
| FL-222 | FL222 (1.8 k) | FL-65 (2.3 k) | ——— |
| FL-257 | ——— | FL-65 (2.3 k) | FL-257 (3.3 k) |

| | | |
|---|---|---|
| AM | Normal | CFWS455G (8 k) |
| | Narrow | FL-65 (2.4 k) |
| FM | Normal | Through (15 k) |
| | Narrow | CFWS455G (8 k) |

---

## ■ Peak meter hold   INITIAL SET MODE

The peak meter hold function freezes the highest displayed bar segment in any meter function for about 0.5 sec. so that you can more easily read the meter. This function can be turned ON and OFF in initial set mode (item "23 PEAK HOLD"; see p. 79).

**[EXAMPLE]:**

S1  3  5  7  9  20  40   60dB   Initial reception of a signal results in an S-meter reading of 40 dB.

S1  3  5  7  9  20  40   60dB   The highest indicated bar remains displayed for about 0.5 sec. even when the signal strength decreases.
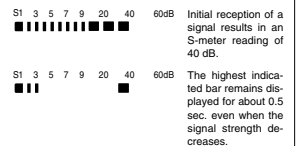
## ■ DSP Functions (may require an optional unit depending on version—see p. 92)

◇ **ANF (Automatic Notch Filter) function**

This function automatically attenuates beat tones, tuning signals, etc., even if they are moving. The automatic notch filter functions in SSB, FM and AM modes.

① Select S4 (DSP menu).
  • Push [DISPLAY] once or twice to select S.
  • Push [MENU] one or more times to select S4.
② Push [(F-1)ANF] to toggle the automatic notch filter ON and OFF.
  • "DSP" and "ANF" appear when the function is ON.

[MENU]   [DISPLAY]
[F-1]

DSP
USB
14.220.00

S4 ANF NR NRL
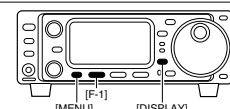
◇ **NR (Noise Reduction) function**

This function reduces noise components and picks out desired signals which are buried in noise. The received AF signals are converted to digital signals and then the desired signals are separated from the noise. The noise reduction function is available for all operating modes.

① Select S4 (DSP menu).
  • Push [DISPLAY] once or twice to select S.
  • Push [MENU] one or more times to select S4.
② Push [(F-2)NR] to toggle the noise reduction function ON and OFF.
  • "DSP" and "NR" appear when the function is ON.
③ Push [(F-3)NRL] to toggle the noise reduction level indication ON and OFF.
④ Rotate the [M-CH] control to set the noise reduction level.
  • Set the control for maximum readability. Deep rotation results in audio signal masking or distortion.

[MENU]   [F-3] [DISPLAY]
[M-CH]   [F-2]

DSP
USB
14.220.00

S4 ANF NR NRL

DSP
USB
14.220.00

S4 LEVEL 4 NRL
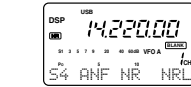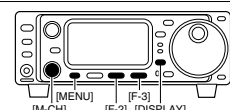
## ■ Split frequency operation

Split frequency operation allows you to transmit and receive on two different frequencies. Split frequency operation uses 2 frequencies, one in VFO A and the other in VFO B.

Following is an example of setting 7.057 MHz, CW mode in VFO A (for receiving) and 7.025 MHz, CW mode in VFO B (for transmitting).

①Select VFO A and set the frequency to 7.057 MHz/CW.
• [(F-2)A/B] is available when M1 appears.
• [(F-3)V/M] is available when M2 appears.

②Push or push and hold [(F-1)SPL] in the M1 display.
➥ Push [SPL]: activates split only.
➥ Push and hold [SPL]: activates the quick split next page.

③To change the receive frequency, rotate the main dial; to change the transmit frequency, rotate the main dial while pushing [(F-3)XFC].
• The transmit frequency can be monitored while pushing [(F-3)XFC].
• Split operation is now set for receive on 7.057 MHz/CW and transmit on 7.025 MHz/CW.

To exchange the transmit and receive frequencies, push [(F-2)A/B] in M1.

*CONVENIENT*
The G3 display conveniently shows the transmit frequency during split frequency operation and pushing [(F-3)⊞] allows you to change the transmit frequency.

**•Split lock function**
The split lock function is convenient for changing only the transmit frequency. Otherwise, accidentally releasing the [(F-3)XFC] switch while rotating the main dial changes the receive frequency. The split lock's effectiveness can be selected in initial set mode (item "25 SPLIT LOCK") for both receive and transmit frequencies; or only the receive frequency. (p. 80)
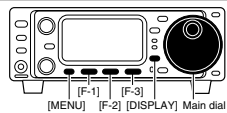
### ◇ Quick split function

In M1, when you push [(F-1)SPL] for 1 sec., split frequency operation is turned ON and VFO B is automatically changed according to the plus/minus pre-programmed shift frequency set in initial set mode (or equalized when 0 kHz is programmed as the split shift frequency). This shortens the time needed to start split frequency operation—great for DX'ing.

The quick split function is ON by default. If desired, it can be turned OFF in initial set mode (p. 79). In this case, pushing [(F-1)SPL] for 1 sec. has the same effect as pushing [(F-1)SPL] momentarily as in normal split operation.

**PROGRAMMING SPLIT SHIFT FREQUENCY (p.80)**
①Push [POWER] to turn power OFF.
②While pushing [LOCK], push [POWER] to turn power ON and enter initial set mode.
③Select "26 SPL OFFSET" using [MENU], [M-CH] or the [▲]/[▼] keys, then rotate the main dial to select the desired split offset.
• The split offset can be selected from –9.999 MHz to +9.999 MHz.
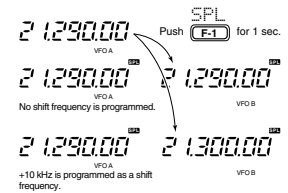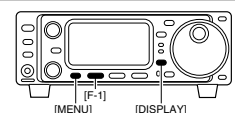
## ■ Meter selection

The bar meter in the function display acts as an S-meter for relative signal strength during receiving and can be selected for one of three types during transmitting.

①Select M3.
• Push [DISPLAY] once or twice to select M.
• Push [MENU] one or more times to select M3.
②Push [(F-3)MET] one or more times to select the desired meter function.
• The display indication changes as in the table at right.
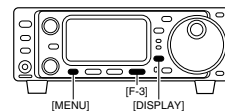
| DISPLAY INDICATION | MEASUREMENT |
|---|---|
| Po | Indicates the relative RF output power. |
| ALC | Indicates the ALC level. When the meter movement shows the input signal level exceeds the allowable level, the ALC limits the RF power. In such cases, reduce the microphone gain (see above). |
| SWR | Indicates the SWR over the transmission line. |

## ■ VOX operation

The VOX (Voice-operated Transmission) function toggles between transmit and receive with your voice. This function provides an opportunity to input log entries into your computer, etc., while operating.

①Select M4.
• Push [DISPLAY] once or twice to select M.
• Push [MENU] one or more times to select M4.
②Push [(F-1)VOX] to toggle the VOX function ON and OFF.
• "VOX" appears when the function is ON.
③Push [(F-1)VOX] for 1 sec. to enter the VOX set mode (below), then set the 'VOX delay,' 'VOX gain' and 'ANTI-VOX' if desired.
④Select "VOX DELAY" in VOX set mode.
• Push [MENU] one or more times to select V1.
• While speaking into the microphone, adjust 'VOX DELAY' as desired.
⑤Select "VOX GAIN" in VOX set mode.
• Push [MENU] one or more times to select V2.
• While speaking into the microphone, adjust 'VOX GAIN' until the transceiver is transmitting.
⑥Select "ANTI VOX" in VOX set mode.
• Push [MENU] one or more times to select V3.
• If the receive audio from the speaker toggles the transceiver to transmit during receive, adjust the 'ANTI-VOX' to the point where it has no effect.
⑦Push [DISPLAY] to exit VOX set mode.
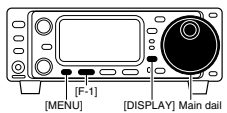
### ◇ VOX set mode

While M4 is selected in SSB/AM/FM modes, push [(F-1)VOX] for 1 sec. to enter the VOX set mode.

`V1 VOX DELAY`

This item adjusts the VOX (Voice-activated Transmit) delay time. The delay time can be adjusted from 0 to 2 sec. in 0.1 sec. steps.

*1.0* The default is 1.0 seconds.

`V2 VOX GAIN`

This item adjusts the VOX gain for the VOX (voice-activated transmit) function.

*5* The default is 5.

`V3 ANTI VOX`

This item adjusts the ANTI-VOX gain for the VOX (voice activated transmit) function.

*5* The default is 5.

## ■ Speech compressor

The IC-703 has a built-in, low distortion speech compressor circuit. This circuit increases your average talk power in SSB mode and is especially useful for DX'ing when the receiving station is having difficulty copying your signal.

①Select USB or LSB mode.
②Select the mic gain display in quick set mode.
• Push [DISPLAY] for 1 sec.
• Push [MENU] one or more times to select "Q2 MIC GAIN."
• The ALC meter is selected automatically when operating in SSB mode.
③Adjust the mic gain.
• While transmitting at your normal voice level, the ALC meter should read at about the middle of the ALC zone.
• Be sure the mic gain is in the range of 2 to 5.
④Select the ALC meter.
• Push [DISPLAY] once or twice to select M.
• Push [MENU] one or more times to select M3, then push [(F-3)MET] one or more times to select "ALC."
⑤Push [MENU] one or more times to select M4.
⑥Push [(F-2)COM] to turn the speech compressor function ON.
• "COM" appears.
⑦Push [(F-2)COM] for 1 sec. to enter the compression level set mode (below).
⑧Rotate the main dial to set the speech compression level.
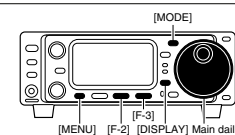
Adjust 'COMP LEVEL' so that the ALC meter reads within the ALC zone.

**NOTE:** When the ALC meter peaks above the ALC zone, your transmitted voice may be distorted.

### ◇ Compression level set mode

While M4 is selected in SSB/AM modes, push [(F-2)COM] for 1 sec. to enter the compression level set mode.

`C1 COMP LEVEL`

This item adjusts the speech compression level. The speech compression level can be adjusted from 0 to 10.

*5* The default is 5.

## ■SWR

### ◇Measuring SWR

The IC-703 has a built-in circuit for measuring antenna SWR—no external equipment or special adjustments are necessary.

The IC-703 can measure SWR in 2 ways:
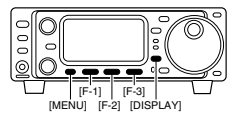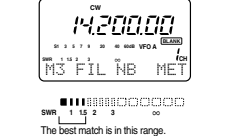(A) Spot measurement; or (B) Plot measurement.

**(A) Spot measurement**
① Confirm that the output power is over 5 W.
② Push [MENU] one or more times to select M3.
③ Push [(F-3)MET] to select the SWR meter.
④ Push [MODE] one or more times to select CW or RTTY operation.
  • Key down or push [PTT] to transmit; then read the actual SWR from the meter:
    ➡ ≤ 1.5 well matched antenna
    ➡ > 1.5 check antenna or cable connection, etc.
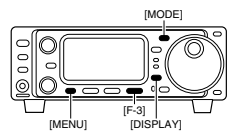
**(B) Plot measurement**
Plot measurement allows you to measure the SWR over an entire band.
① Confirm that the output power is over 5 W.
② Push [DISPLAY] once or twice to select G.
③ Push [MENU] one or more times to select G2.
④ Set the center frequency for the SWR to be measured.
⑤ Push and hold [(F-1)10k] one or more times to select the desired frequency pitch.
⑥ Push and hold [(F-2)] one or more times to select the desired step.
⑦ After selecting the desired pitch and step, push [(F-3)STR] to measure the SWR.
  • RTTY mode is selected automatically.
⑧ Push and hold [PTT] to display the SWR in a bar graph readout.
⑨ When [PTT] is released, the frequency marker and frequency indication move to the next frequency to be measured.

[MODE]

[MENU]    [F-3]
          [DISPLAY]

14.200.00

M3 FIL NB MET

SWR  1 1.5 2  3          ∞
The best match is in this range.

[F-1] [F-3]
[MENU] [F-2] [DISPLAY]

G2 10k          STR

Frequency span
Step bar indication
Frequency indication mark
Measure start indicator

| Span | Push [F-1] for 1 sec. to change the selected span. |
| --- | --- |
| Step bar | Push [F-2] to change the step bar (3, 5, 7 or 9 steps are available. |
| Marker | Indicates the currently active step bar. |
| Start | Flashes while the SWR is being measured. |

14.200.00

G2 50k          STR

The antenna is well matched in this range
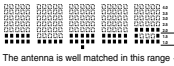
⑩ Repeat steps ⑧ and ⑨ to measure SWR over the entire frequency range.
⑪ When the measured SWR is less than 1.5, the antenna is well matched.

---

# MEMORY OPERATION    7

## ■Memory channels

The transceiver has 105 memory channels (includes 6 scan edge channels). Memory mode is useful for quickly changing to often-used frequencies.
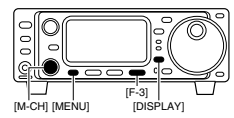
All 105 memory channels are tuneable which means the programmed frequency can be tuned temporarily with the main dial, etc., in memory mode.

**NOTE:** During split frequency operation, programmed memory contents can be called up to the SUB readout (dot matrix portion of the display).
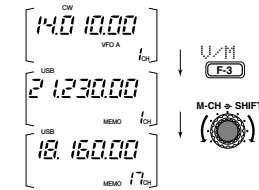
| MEMORY CHANNEL | MEMORY CHANNEL NUMBER | CAPABILITY | TRANSFER TO VFO | OVER-WRITING | CLEAR |
| --- | --- | --- | --- | --- | --- |
| Regular (split memory) | 1–99 | Independent transmit and receive frequencies and one mode in each memory channel. In addition, tone frequencies can also be stored for repeater use. | Yes | Yes | Yes |
| Scan edges | 1A–3B (3 pairs) | One frequency and one mode in each memory channel as scan edges for programmed scan. | Yes | Yes | No |

## ■Memory channel selection

① Select M2 functions.
  • Push [DISPLAY] once or twice to select M.
  • Push [MENU] one or more times to select M2.
② Push [(F-3)U/M] to select memory mode.
③ Rotate [M-CH] to select the desired memory channel.
  • All memory channels including blank channels can be selected.
  • [UP]/[DN] on the microphone changes the frequency.
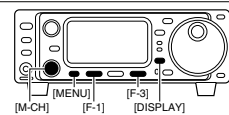④ To return to VFO mode, push [(F-3)U/M] again.

[F-3]
[M-CH] [MENU]    [DISPLAY]

**[EXAMPLE]:** Selecting memory channel 17.

14.010.00   VFO A

U/M
[F-3]

21.230.00   USB

M-CH ⇔ SHIFT

18.160.00   USB MEMO

17 MEMO

6
7

---

## ■Memory programming

**•Programming in VFO mode**

① Select M2 functions.
  • Push [DISPLAY] once or twice to select M.
  • Push [MENU] one or more times to select M2.
② Set the desired frequency and operating mode in VFO mode.
  • If you want to program the split frequency function, program both receive and transmit frequencies into VFO A and B, then turn ON the split function.
  • If you want to program a repeater function, set a tone frequency (pgs. 44, 45) in addition to the receive/transmit frequencies.
③ Rotate [M-CH] to select the desired memory channel.
  • Select memory mode to confirm the contents, if desired.
  • "BLANK" appears if the selected memory channel is a blank channel (and does not have contents).
④ Push [(F-1)MW] for 1 sec. to program the displayed frequency and operating mode into the memory channel.

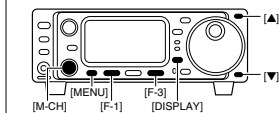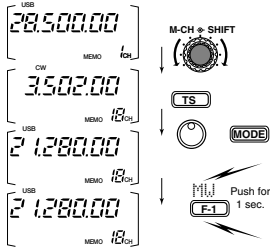To check the programmed contents, push [(F-3)U/M] to select memory mode.

[MENU]    [F-3]
[M-CH] [F-1]    [DISPLAY]

**[EXAMPLE]:** Programming 7.088 MHz/LSB into ch 12.

14.010.00   VFO A

TS

MODE

7.088.00   VFO A LSB

M-CH ⇔ SHIFT

7.088.00   VFO A BLANK 12

MW  Push for 1 sec.
[F-1]

7.088.00   VFO A 12

**•Programming in memory mode**

① Select M2 functions.
  • Push [DISPLAY] once or twice to select M.
  • Push [MENU] one or more times to select M2.
② Set the desired frequency and operating mode.
③ Push [(F-3)U/M] to select memory mode, then select the desired memory channel with [M-CH].
  • Push [▲]/[▼] when you want to program blank channels.
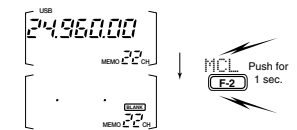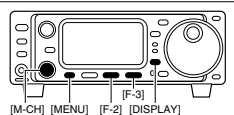④ Push [(F-1)MW] for 1 sec. to program the displayed frequency and operating mode into the memory channel.

[MENU]    [F-3]
[M-CH] [F-1]    [DISPLAY]

[▲]

[▼]

**[EXAMPLE]:** Programming 21.280 MHz/USB into ch 18.

28.500.00   USB MEMO

M-CH ⇔ SHIFT

3.502.00   CW MEMO

18

TS

21.280.00   USB MEMO 18

MODE

21.280.00   USB MEMO 18

MW  Push for 1 sec.
[F-1]

---

## ■Memory clearing

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

① Select M2 functions.
  • Push [DISPLAY] once or twice to select M.
  • Push [MENU] one or more times to select M2.
② Push [(F-3)U/M] to select memory mode.
③ Rotate [M-CH] to select a memory channel to be cleared.
④ Push [(F-2)MCL] for 1 sec. to clear the contents.
  • The programmed frequency and operating mode disappear and "BLANK" appears.
⑤ To return to VFO mode, push [(F-3)U/M] again.

[F-3]
[M-CH] [MENU] [F-2] [DISPLAY]

24.960.00   USB
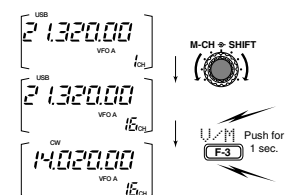
22 MEMO

MCL  Push for 1 sec.
[F-2]

BLANK

22 MEMO

## ■Frequency transferring

The frequency and operating mode can be transferred from memory mode to VFO mode.

① Select M2 functions.
  • Push [DISPLAY] once or twice to select M.
  • Push [MENU] one or more times to select M2.
② Select VFO mode with [(F-3)U/M].
③ Select a memory channel with [M-CH].
  • Select memory mode to confirm the memory channel's contents, if desired; then return to VFO mode.
  • "BLANK" appears if the selected memory channel is a blank channel (and does not have contents). In this case transferring is not possible.
④ Push [(F-3)U/M] for 1 sec. to transfer the frequency and operating mode.
  • Transferred frequency and operating mode appear in the display.

[F-3]
[M-CH] [MENU]    [DISPLAY]
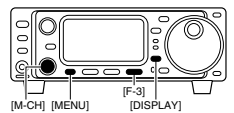
**[EXAMPLE]:** Transferring contents of memory 16.
Operating frequency:    21.320 MHz/USB (VFO)
Contents of memory 16:  14.020 MHz/CW

21.320.00   VFO A USB

M-CH ⇔ SHIFT

21.320.00   VFO A USB 16

U/M  Push for 1 sec.
[F-3]

14.020.00   VFO A CW 16

7

## ■Memory names

All memory channels (including scan edges) can be tagged with alphanumeric names of up to 9 characters each.
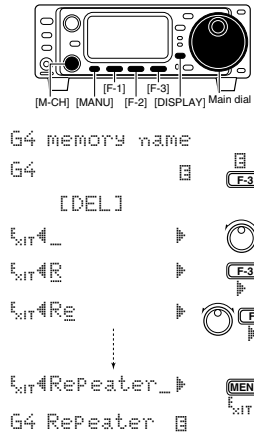
All common keyboard characters (ASCII characters 33 to 126) can be used, including numerals and punctuation marks.

**•Calling up memory names**

① Select the G4 display.
 •Push [DISPLAY] once or twice to select G.
 •Push [MENU] one or more times to select G4.
② Select a memory channel with [M-CH].

[M-CH] [MANU] [F-2] [DISPLAY] Main dial
[F-1] [F-3]

**•Editing (programming) memory names**

① Call up the desired memory (channel) name as above.
② Push [(F-3)B] to enter memory name edit mode.
 •"[DEL]" appears briefly, then a cursor blinking under the first character position.
③ Rotate the main dial to select the desired character, then advance the cursor position.
 •Pushing [(F-3)▶] moves the cursor to the right; [(F-1)◀] moves the cursor to the left.
 •Pushing [(F-2)] deletes the character.
④ Repeat this procedure until all desired characters have been selected.
⑤ Push [(MENU)ₑₓᵢₜ] to exit memory name edit mode.
 •The G4 display re-appears and the programmed memory name is displayed.

G4 memory name
G4                        B    [F-3]
[DEL]
ₑₓᵢₜ◀___             ▶    ◯
ₑₓᵢₜ◀R               ▶    [F-3]
ₑₓᵢₜ◀Re              ▶    ◯ [F-3]
ₑₓᵢₜ◀Repeater_      ▶    [MENU] ₑₓᵢₜ
G4 Repeater B

## ■Memo pads

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

The default number of memo pads is 5, however, this can be increased to 10 in initial set mode if desired (p. 80).

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 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**

① Select the S1 display.
 •Push [DISPLAY] once or twice to select S.
 •Push [MENU] one or more times to select S1.
② Push [(F-2)MPW] to program the frequency into a memo pad.

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

[MANU] [F-2] [DISPLAY]
[F-3]

Displayed frequency and mode

USB 21.288.22    Push MPW [F-2]

USB
14.195.00  MP5   Newest
14.182.40  MP4
21.010.06  MP3
21.024.52  MP2
21.276.00  MP1   Oldest

The oldest written frequency and mode are erased.

**NOTE:** Each memo pad must have its own unique combination of frequency and operating mode; memo pads having identical settings cannot be written.
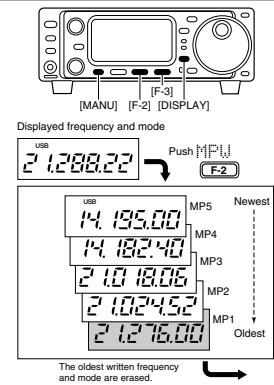
**•Calling up a frequency from a memo pad**

You can simply call up the desired frequency and operating mode of a memo pad by pushing [(F-3)MPR] in the S1 display.
 •Make sure S1 is selected in advance.
 •Both VFO and memory modes can be use.
 •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 [(F-3)MPR], 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 [(F-3)MPR] one or more times.

MPR [F-3]

MEMO PADS
USB 21.288.22

USB
14.195.00  MP5
14.182.40  MP4
21.010.06  MP3
21.024.5   MP2
21.276.0   MP1

VFO or MEMORY mode

MPR [F-3]

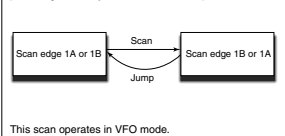**NOTE:** If you change the frequency or operating mode called up from a memo pad, the frequency and operating mode in the temporary pad are erased.
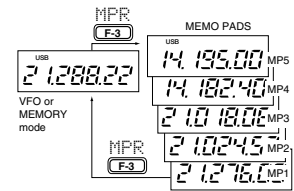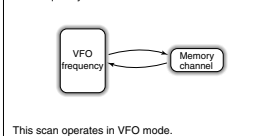
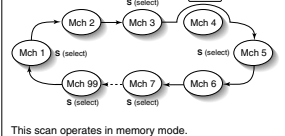# 8 SCAN OPERATION

## ■Scan types

**PROGRAMMED SCAN**
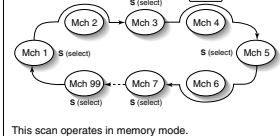Repeatedly scans between two scan edge frequencies (scan edge memory channels 1A and 1B).

Scan edge 1A or 1B ⟷ Scan edge 1B or 1A
Scan / Jump

This scan operates in VFO mode.

**PRIORITY WATCH**
Checks for signals on a memory while operating on a VFO frequency.

VFO frequency ⟷ Memory channel

This scan operates in VFO mode.

**MEMORY SCAN**
Repeatedly scans all programmed memory channels.

Mch 1 → Mch 2 → Mch 3 → Mch 4 → Mch 5
Mch 99 ← ··· ← Mch 7 ← Mch 6
S (select) BLANK

This scan operates in memory mode.

**SELECTED MEMORY SCAN**
Repeatedly scans all selected memory channels.

Mch 1 → Mch 2 → Mch 3 → Mch 4 → Mch 5
Mch 99 ← ··· ← Mch 7 ← Mch 6
S (select) BLANK

This scan operates in memory mode.

## ■Preparation

**•Channels**

*For programmed scan:* Program scan edge frequencies into scan edge memory channels 1A and 1B. (p. 57)

*For memory scan:* Program 2 or more memory channels except scan edge memory channels.

*For memory select scan:* Designate 2 or more memory channels as select memory channels—select a memory channel, then push [(F-2)SEL] in the S2 display (memory mode) to designate the channel as a select memory channel.

*For priority watch:* Program 1 memory channel to be watched.

**•Scan resume ON/OFF**

You can select the scan to resume or cancel when detecting a signal, in initial set mode, item "27 SCAN RESUME". Scan resume ON/OFF must be set before operating a scan. See p. 80 for ON/OFF setting and scan resume condition details.

**•Scan speed**

Scan speed can be selected from 2 levels, high or low, in initial set mode. See p. 80 for details.

**•Squelch condition**

| SCAN STARTS WITH | PROGRAMMED SCAN | MEMORY SCANS PRIORITY WATCH |
|---|---|---|
| SQUELCH OPEN | The scan continues until it is stopped manually, and does not pause even if it detects signals. This is not applicable when the scan resume is OFF and a programmable step (more than 1 kHz) is selected. | Scan pauses on each channel when the scan resume is ON; not applicable when OFF. |
| SQUELCH CLOSED | Scan stops when detecting a signal. If you set scan resume ON in initial 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. | |

## ■Programmed scan operation

① Select VFO mode.
② Select the desired operating mode.
 •The operating mode can also be changed while scanning.
③ Set [SQL] open or closed.
 •See page a left for squelch condition.
④ Select S2.
 •Push [DISPLAY] once or twice to select S.
 •Push [MENU] one or more times to select S2.
⑤ Push [(F-1)SCN] to start the scan.
 •Decimal point blinks while scanning.
⑥ When the scan detects a signal, the scan turns OFF, pauses or ignores it depending on the resume setting and the squelch condition.
 •During scan [TS] can be used only when resume is ON.
⑦ To cancel the scan push [(F-1)SCN].

**NOTE:** If the same frequencies are programmed into the scan edge memory channels 1A and 1B, programmed scan does not start.
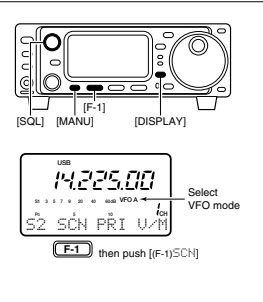
[SQL] [MANU] [DISPLAY]
[F-1]

USB 14.225.00    Select VFO mode
S2 SCN PRI U/M
F-1 then push [(F-1)SCN]

## ■Memory scan operation

① Select memory mode.
② Close the squelch with [SQL].
③ Select S2.
 •Push [DISPLAY] once or twice to select S.
 •Push [MENU] one or more times to select S2.
④ Push [(F-1)SCN] to start the scan.
 •Decimal point blinks while scanning.
⑤ When the scan detects a signal, the scan stops or pauses depending on the resume setting.
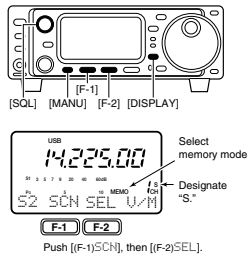⑥ To cancel the scan push [(F-1)SCN].

**NOTE:** Two or more memory channels must be programmed for memory scan to start.

[SQL] [MANU] [DISPLAY]
[F-1]

USB 14.225.00    Select memory mode
S2 SCN SEL U/M
F-1 then push [(F-1)SCN]
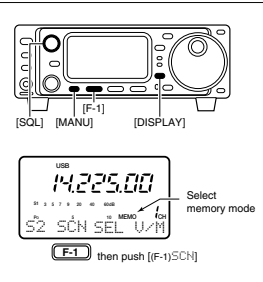
## ■ Select memory scan operation

① Select memory mode.
② Close the squelch with [SQL].
③ Select S2.
  • Push [DISPLAY] once or twice to select S.
  • Push [MENU] one or more times to select S2.
④ Push [(F-1)SCN] to start the memory scan.
  • Decimal point blinks while scanning.
⑤ Push [(F-2)SEL] to change the memory scan to select memory scan.
  • Push [(F-2)SEL] for 2 sec. to clear all select memory channels.
⑥ When the scan detects a signal, the scan stops or pauses depending on the resume setting.
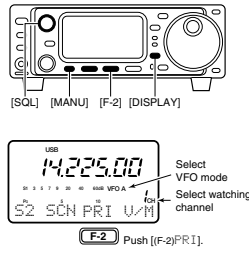⑦ To cancel the scan push [(F-1)SCN].

**NOTE:** Two or more memory channels must be designated as select memory channels for select memory scan to start (see p. 61).

[SQL]  [MANU]  [F-2]  [DISPLAY]
        [F-1]

```
USB
14.225.00    Select memory mode
S1 3 5 7 9 20 40 60dB   MEMO      S   Designate
P0       10   FCH       "S."
S2 SCN SEL V/M
```

[F-1] [F-2]
Push [(F-1)SCN], then [(F-2)SEL].

## ■ Priority watch

① Select VFO mode, then set a frequency.
② Close the squelch with [SQL].
③ Set the desired memory channel as the watching channel.
④ Select S2.
  • Push [DISPLAY] once or twice to select S.
  • Push [MENU] one or more times to select S2.
⑤ Push [(F-2)PRI] to start the priority watch.
  • Decimal point blinks while scanning.
⑥ When the scan detects a signal, the scan pauses for 10 sec. or until the signal disappears, depending on the resume setting.
⑦ To cancel the scan push [(F-2)PRI].

**NOTE:** The paused condition when detecting a signal differs depending on the scan resume condition. (p 80)
    resume on: pauses for 10 sec.
    resume off: pauses until the signal disappears.

[SQL]  [MANU]  [F-2]  [DISPLAY]

```
USB
14.225.00    Select VFO mode
S1 3 5 7 9 20 40 60dB  VFO A      Select watching
P0       10   FCH      channel
S2 SCN PRI V/M
```

[F-2] Push [(F-2)PRI].

## ■ Antenna tuner operation

### ◇ Internal antenna tuner

The internal automatic antenna tuner matches the transceiver to the connected antenna automatically. Once the tuner matches an antenna, the latching relays combination are memorized as a preset point for each frequency range (100 kHz steps). Therefore, when you change the frequency range, the latching relays are automatically preset to the memorized combination.

### ◇ 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 'TUNER' indicator lights red.

•**MANUAL TUNING**
Push [TUNER] for 1 sec., to start manual tuning.
  • A side tone is emitted and 'TUNER' indicator blinks while tuning.
  • If the tuner cannot reduce the SWR to less than 1.5:1 after 20 sec. of tuning, the 'TUNER' indicator goes out.

•**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.

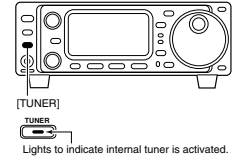This function can be turned ON in initial set mode (p. 81).

•**TUNER RESET**
[POWER]

```
          [▲]
          [▼]
```
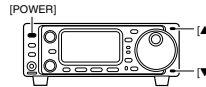
① Make sure the transceiver power is OFF.
② While pushing [▲] and [▼], push [POWER] to turn power ON.
  • "CLEAR ? OK" appears as shown below.
③ Rotate main dial to select tuner reset.

```
tunEr

CLEAR ? OK
   F-3
```

④ Then Push [F-3] for 1 sec to start tuner resetting.
  • The memorized tuner settings are reset.

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

[TUNER]

TUNER

Lights to indicate internal tuner is activated.

**NOTES:**
• The internal antenna tuner can tune the HF to 50 MHz bands.
• **NEVER** transmit without an antenna properly connected to antenna port in use.
• If the SWR is higher than about 1.5:1 when tuning above 100 kHz on an antenna's preset point, push [TUNER] for 1 sec. to start manual tuning.
• When strong impact is applied, the internal tuner may not work properly caused by the latching relay is off position. In this case, push [POWER] momentarily to reset the all latching relays while transceiver power is ON.

### ◇ If the tuner cannot tune the antenna

Check the following and try again:
  • the antenna connection and feedline.
  • the unaltered antenna SWR. (Less than 3:1 for HF bands; Less than 2.5:1 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 cable length.
  (This is effective for higher frequencies in some cases.)
  • Some antennas, especially for low bands, have a narrow bandwidth. These antennas may not be tuned at the edge of their bandwidth, therefore, tune such an antenna as follows:

8
9