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PLL SYNTHESIZED RECEIVER

ICF-PRO70
ICF-PRO80

OPERATING INSTRUCTIONS page 4

Before operating the unit, please read this manual thoroughly and retain it for future reference.

MODE D'EMPLOI page 38

Avant la mise en service de cet appareil, prière de lire attentivement ce mode d'emploi que l'on conservera pour toute référence ultérieure.

MANUAL DE INSTRUCCIONES página 72

Antes de utilizar la unidad, lea este manual detenidamente y consérvelo para futuras referencias.



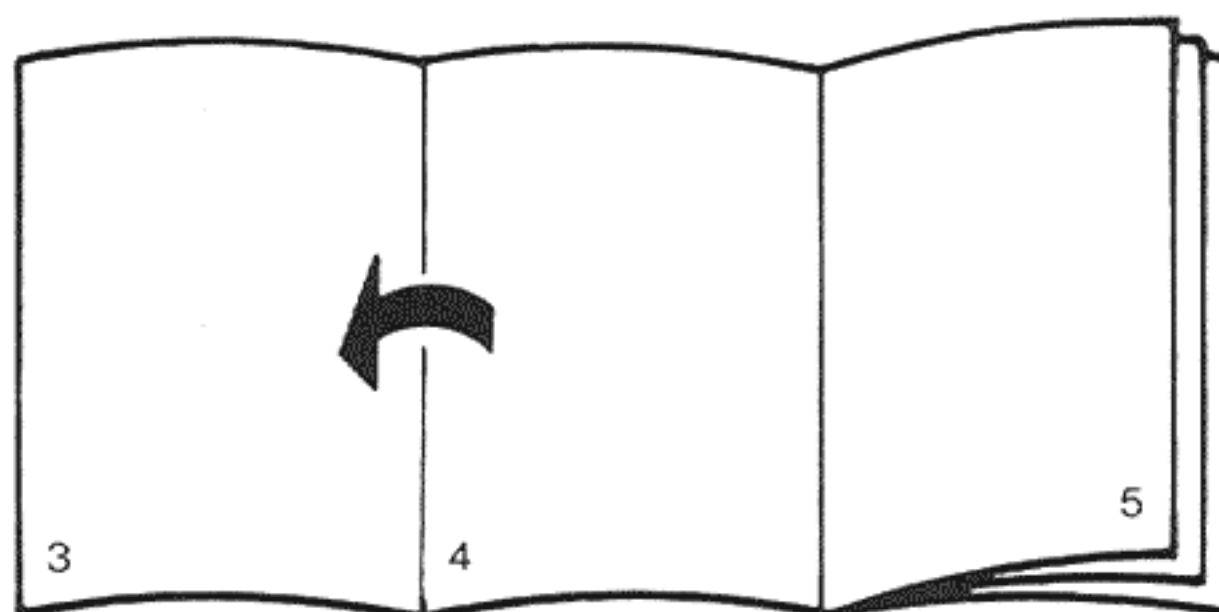
Photo: ICF-PRO70

OWNER'S RECORD

The model and serial numbers are located on the bottom. Record these numbers in the spaces provided below. Refer to them whenever you call upon your Sony dealer regarding this product.

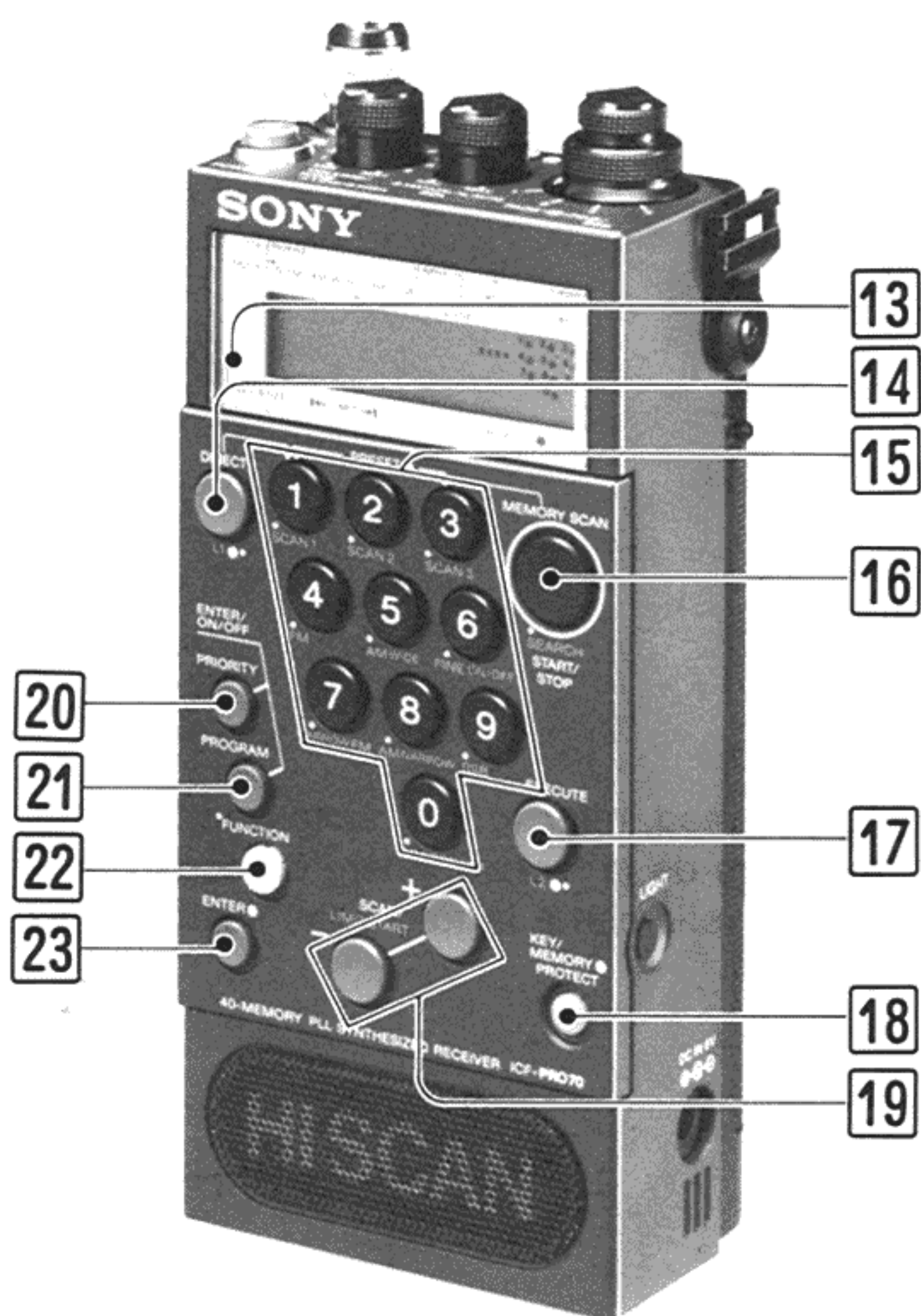
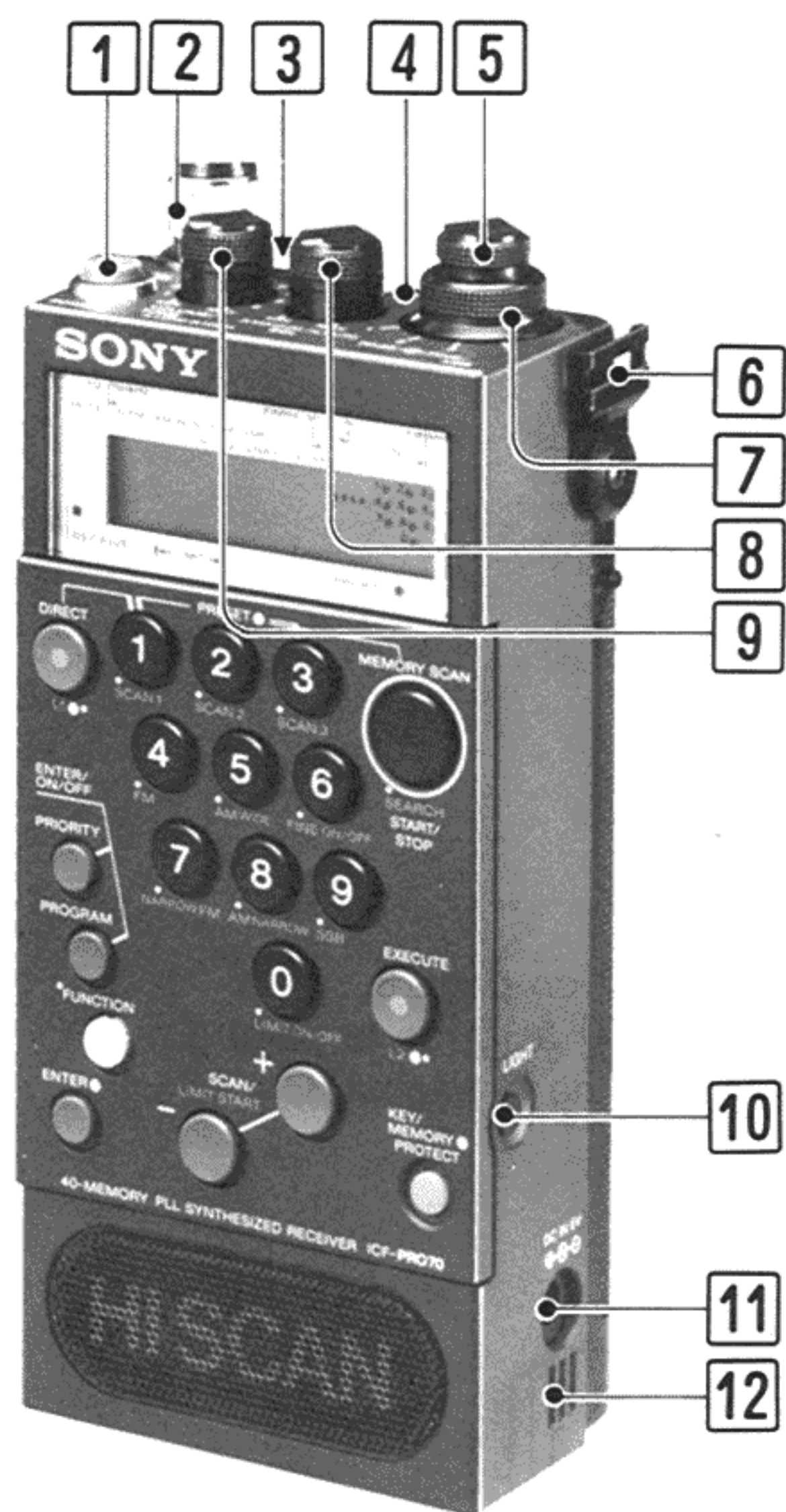
Model No. _____ Serial No. _____

As you read, refer to the photo and illustrations marked [A] - [C] on page 3.
Au cours de la lecture, prière de consulter les illustrations de [A] à [C] de la page 3.
Al leer, refiérase a la foto y las ilustraciones marcadas [A] - [C] de la página 3.

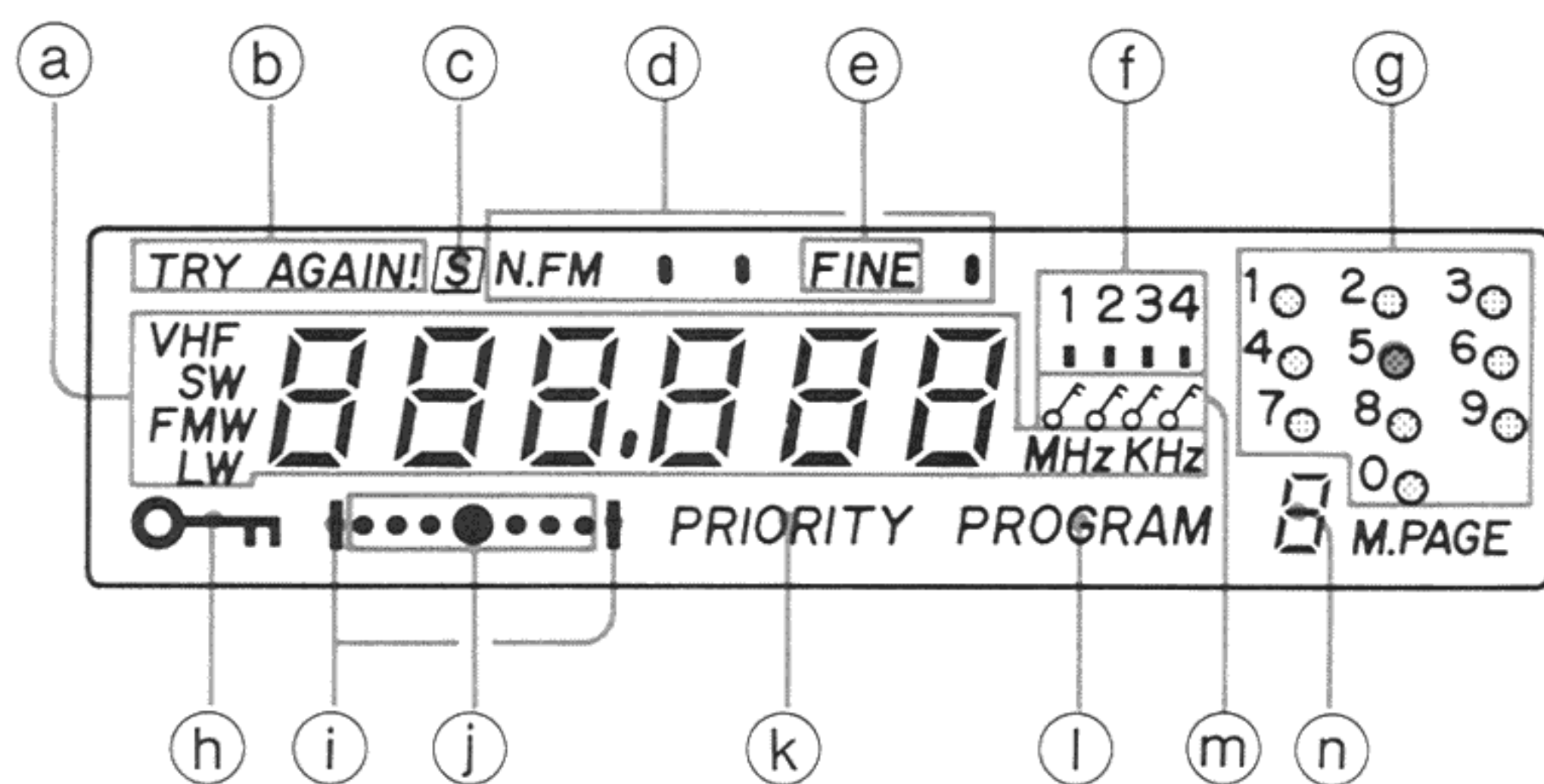


A

B



C



This instruction manual covers the ICF-PRO70 and ICF-PRO80. The ICF-PRO80 is supplied with the FRQ-80 frequency converter, while the ICF-PRO70 is not. For details, refer to "Notes on model types and receivable frequencies" on page 7.

FOR THE CUSTOMERS IN THE UNITED STATES INFORMATION

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna
- Relocate the equipment with respect to the receiver
- Move the equipment away from the receiver
- Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

Features	5
Notes on model types and receivable frequencies	7
Precautions	8
Location and function of controls	9

Preparations

Power sources	12
Batteries	12
Rechargeable battery pack	13
House current	13
Car battery	13
To change the MW tuning interval	14
To erase all memory	14
Antenna installation and adjustment	15

Operation

Direct tuning	16
To input a frequency	17
Memory tuning	18
To store a station	18
Memory tuning	19
Memory search	19
Memory protection	19
Manual tuning	20
Key protection	21
Scan tuning	22
To select the scan mode	23
How to use the squelch control	23
Limited scan tuning	24
Memory scan tuning	25
Program memory scan tuning	26
To program stations	27
Program memory search	27
Priority tuning	28
To select the detection mode	29
Fine tuning	30
AM (LW/MW/SW) fine tuning	30
SSB fine tuning	30

Advanced operation

Recording a broadcast	31
External antenna connection	31
To convert the frequency coverage (ICF-PRO80 only)	32

General

Specifications	36
Optional accessories	36
How to use the antenna holder and shoulder strap	36
Troubleshooting guide	37

FEATURES

WORLD-WIDE FREQUENCY COVERAGE

No band selector is provided.

The entire frequency range is tuned in consecutively. The detection mode is set automatically according to the frequency range to which the tuned frequency belongs.

Frequency converter supplied for wider coverage (ICF-PRO80 only) (Page 32)

By attaching the supplied FRQ-80 frequency converter, 115.15–223 MHz can also be received.

Selectable detection modes (Page 29)

The entire frequency coverage is divided into 2 to 4 ranges depending on the model type, and the detection modes, FM, NARROW FM, AM WIDE, AM NARROW and SSB* can be selected for each range.

* SSB = Single Side Band

VERSATILE TUNING MODES

Direct tuning (Page 16) by inputting a frequency to be tuned in	• When you know the frequency of the station
Memory tuning (Page 18) by simply pressing one button to tune in the stored station	• For daily listening to your favorite station
Manual tuning (Page 20) by scanning frequencies step by step at a determined interval	• When you do not know the frequency of the station • To tune in precisely a station located by scan tuning or limited scan tuning precisely
Scan tuning (Page 22) by automatically scanning the entire frequency coverage	• When you do not know the frequency of the station
Limited scan tuning (Page 24) by automatically scanning the frequency coverage you have defined	• When you know the frequency range in which the desired station is located (e.g. FM or MW radio broadcasting range, an SW meter band).
Memory scan tuning (Page 25) by automatically scanning the stored (up to 10) stations	• To choose a station from among those stored in a certain memory page
Program memory scan tuning (Page 26) by automatically scanning only the stations you have programmed among all stored in memory (up to 40 stations) in the order programmed	• To choose a station from among those having the specified conditions (e.g. FM broadcasting stations)
Priority tuning (Page 28) by tuning in the specified station every 3 seconds	• To catch a radio communication when you are not sure when it will take place.

FEATURES

CONVENIENT FUNCTIONS

Memory of up to 40 stations (Page 18)	Up to 40 stations can be stored on 4 memory pages (10 stations for each page) and tuned in instantly.
Three scan modes selectable (Page 23)	Scanning can be stopped at the first-located station, or be resumed after each station located has been received for several seconds or until the signal of the station stops.
Memory search (Page 19)	The frequencies of the stations stored on one page are displayed in sequence while your desired station is kept tuned in.
Program memory search (Page 27)	The frequencies of the stations programmed are displayed in sequence while your desired station is kept tuned in.
Memory protection (Page 19)	The memory of one page (10 stations stored) is locked so that it cannot be changed inadvertently.
Key protection (Page 21)	The buttons on the front panel are locked so that they cannot be operated by accident.
Squelch control (Page 23)	The receivable signal level can be adjusted so that scanning stops at stations with stronger signals only and noise is suppressed while tuning and while no station signal is present.
Fine tuning (Page 30)	AM (LW, MW and SW) and SSB stations can be tuned in precisely.

NOTES ON MODEL TYPES AND RECEIVABLE FREQUENCIES

The ICF-PRO70/PRO80 is available in various models which differ mainly in their frequency coverage to match the regulations of different countries.

Model type	Frequency coverage
ICF-PRO70	
Type 1	150 kHz 108 MHz ----- LW/MW/SW/VHF/FM -----
Type 2	150 kHz 29,995 kHz 87.6 MHz 108 MHz ----- LW/MW/SW ----- ----- FM -----
Type 3	150 kHz 26,100 kHz 87.6 MHz 108 MHz ----- LW/MW/SW ----- ----- FM -----
ICF-PRO80	
Without using the supplied frequency converter	150 kHz 108 MHz ----- LW/MW/SW/VHF/FM -----
Using the converter	115.15 MHz 223 MHz ----- AIR/PSB/TV (VHF) -----

Although the models differ in some minor parts in relation to the difference in frequency coverage, the operating procedures of all the units are identical. The differences are clearly described in the text as required.

The photos and illustrations used in this manual represent a typical model.

PRECAUTIONS

- Operate the unit only on 6 V DC with four size AA (R6) batteries.
For AC operation, use the AC power adaptor recommended for this unit. Do not use any other type.
For car battery operation, use the car battery cord recommended for this unit. Do not use any other type.
- The nameplate indicating operating voltage, etc., is located on the bottom of the unit.
- Use the unit within a temperature range of 0°C to 40°C (32°F to 104°F). If it is used in temperatures outside this range, an irregular display may appear in the display window or the display may change very slowly. These irregularities will disappear and there will be no damage to the unit when it is used in its recommended temperature range.
- Do not leave the unit in a location near heat sources, or in a place subject to direct sunlight, excessive dust or mechanical shock.
- Should any solid object or liquid fall into the unit, remove the batteries, and have the unit checked by qualified personnel before operating it any further.
- When the case becomes soiled, clean it with a soft cloth dampened with a mild detergent solution. Never use abrasive cleansers or chemical solvents, as they may mar the case.
- In vehicles or in buildings, radio reception may be difficult or noisy. Try listening near a window.
- When there is lightning and you are using an external antenna, immediately disconnect the AC power adaptor (if connected) from the wall outlet. Never touch the antenna wire when there is lightning storm.
- Never connect a ground wire to a gas pipe.
- Reception at around 455 kHz, 7,200 kHz, 55.390 MHz and 55.845 MHz may be difficult because of internal spurious signals generated by the built-in oscillators.

If you have any question or problem concerning your set that is not covered in this manual, please consult your nearest Sony dealer.

LOCATION AND FUNCTION OF CONTROLS

The numbers in the photos on page 3 are keyed to the following explanation.
For details on the use of each control, refer to the pages indicated in the black circles.

Front (Photos **A** and **B**)

- 1 POWER switch**
- 2 Antenna connector (TNC type)** 15 31
- 3 ② (earphone) jack (minijack)**
Connect an earphone or an external speaker.
- 4 ③ (recording output) jack (minijack)** 31
- 5 FINE/SSB control** 30
Used for AM and SSB fine tuning.
FINE: When AM WIDE or AM NARROW detection mode is selected, press **FUNCTION** + ⑥ so that the "FINE" indicator appears and fine tune with this control.
SSB: When SSB detection mode is selected, fine tune with this control.
- 6 Loop for shoulder strap** 36
- 7 PAGE selector** 18
Select memory page, 1 to 4.
- 8 SQL (squench) control** 23
Adjust the squelch level.
▣ **AUTO (depressed):** The signal (and noise) with a lower level than the factory-preset level is cut.
▣ **MANUAL (released):** Adjust manually the level of the signal you want to receive.
- 9 VOLUME/TONE control**
Functions as a volume control and a tone control.
VOLUME: Turn to adjust the volume.
TONE: Depress (▣ LOW) to emphasize bass, and press to release (▣ HIGH) to emphasize treble.
The volume can be adjusted in either the depressed or released position.
- 10 LIGHT button**
Press to illuminate the display window for approximately 10 seconds. If any button on the front panel is pressed, the illumination will remain for 10 seconds more.
- 11 DC IN 6 V (external power input) jack** 13
Connect the optional AC power adaptor or car battery cord.
- 12 Battery case (rear)** 12
- 13 RECEIVE indicator**
Lights red when a signal or noise is received.
- 14 DIRECT button** 16
Press to start direct tuning.
This button is also used in combination with **FUNCTION** or **ENTER**.
- 15 Number buttons**
Press to recall the stored station (memory tuning). 19
Press to input the frequency of a station for direct tuning. 16
These buttons are also used in combination with **FUNCTION**, **ENTER**, **PROGRAM** or **PRIORITY**.
- 16 MEMORY SCAN button** 25 26
Press to start memory scan tuning (with PROGRAM OFF) and program memory scan tuning (with PROGRAM ON).
This button is also used in combination with **FUNCTION**.
- 17 EXECUTE button** 16
Press this button to tune in the frequency for direct tuning.
This button is also used in combination with **FUNCTION** or **ENTER**.
- 18 KEY/MEMORY PROTECT button** 21
Press to activate the key protection function (i.e. the  indicator appears). The buttons on the front panel are locked and no longer function. Press again to deactivate the key protection function.
This button is also used in combination with **ENTER**.
- 19 SCAN +/- buttons**
Used for manual tuning. 20
This button is also used to start scan tuning and limited scan tuning. 22 24

20 PRIORITY button 28

Press to activate priority tuning (i.e. **PRIORITY** indicator appears). Press again to deactivate it.

21 PROGRAM button 26

Press to activate program memory scan tuning and program memory search (i.e. **PROGRAM** indicator appears). Press again to deactivate it.

22 FUNCTION button

When a button with a yellow dot is pressed with this button, the function of the button changes to that indicated on the panel together with the yellow dot.

Buttons to be pressed	Function
FUNCTION + ① (SCAN 1) + ② (SCAN 2) + ③ (SCAN 3)	To select the scan mode for scan, limited scan, memory scan and program memory scan tuning. 23
FUNCTION + ④ (FM) + ⑤ (AM WIDE) + ⑦ (NARROW FM)* + ⑧ (AM NARROW) + ⑨ (SSB)	To select the detection mode. 29
FUNCTION + ⑥ (FINE ON/OFF)	Press to activate AM fine tuning (i.e. FINE indicator appears). Press again to deactivate it. 30
FUNCTION + ⑩ (LIMIT ON/OFF)	Press to activate limited scan tuning (i.e. the limited scan indicator appears). Press again to deactivate it. 24
FUNCTION + DIRECT (L1) + EXECUTE (L2)	To display the preset limit frequency. 24
FUNCTION + MEMORY SCAN (SEARCH)	To activate the memory search function (with PROGRAM OFF) or program memory search function (with PROGRAM ON). 19 27

* NARROW FM is not provided with the ICF-PRO70 type 3 model.

23 ENTER button

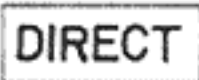
When a button with a white dot is pressed with this button, the function of the button changes to that indicated on the panel in white.

Buttons to be pressed	Function
ENTER + ① - ⑩ (PRESET)	To store the station being tuned in on the number buttons 18
ENTER + DIRECT (L1) + EXECUTE (L2)	To store the limit frequency. 24
ENTER + KEY/MEMORY PROTECT (MEMORY PROTECT)	Press to activate the memory protection function (i.e.  indicator appears below the PAGE selector setting indicator). Press again to deactivate it. 19

Display window (illustration)

- Ⓐ Frequency being received
- Ⓑ TRY AGAIN indicator
- Ⓒ S (frequency shift) indicator (ICF-PRO80 only)
- Ⓓ Detection mode indicator
- Ⓔ FINE (fine tuning) indicator
- Ⓕ PAGE selector setting indicator
- Ⓖ Memory station indicator
- The dot lights to show that the station stored on the corresponding number button is being received.
- Ⓗ Key protection indicator
- Ⓘ Limited scan indicator
- Ⓢ Scan mode indicator
- Ⓚ PRIORITY indicator
- Ⓛ PROGRAM indicator
- Ⓜ Memory protection indicator
- Ⓝ Memory page indicator

Abbreviations and symbols used in this manual

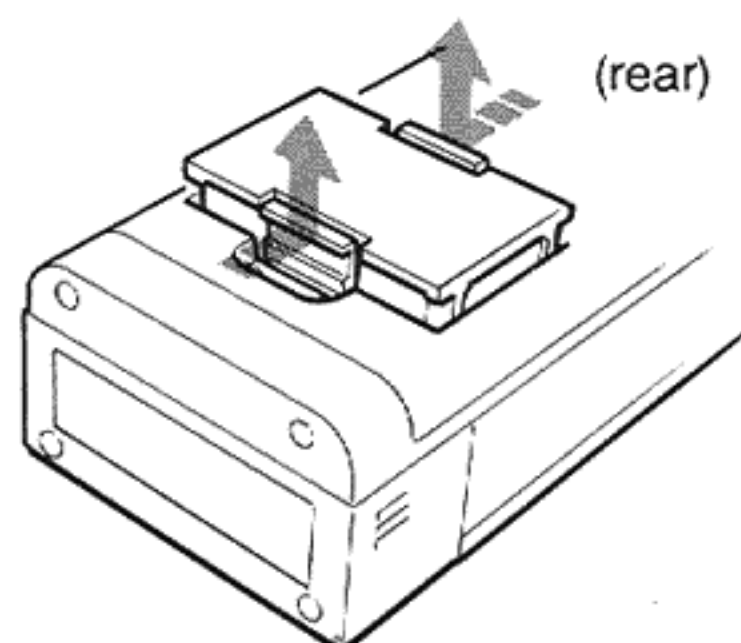
		 and  represent a button.
 + 	 + 	+ indicates that the latter button is pressed while the former button is kept pressed.
 → 	 → 	→ indicates that the latter button is pressed after the former button.
	Indicates that operation is accepted.	
	Indicates that operation is rejected.	

POWER SOURCES

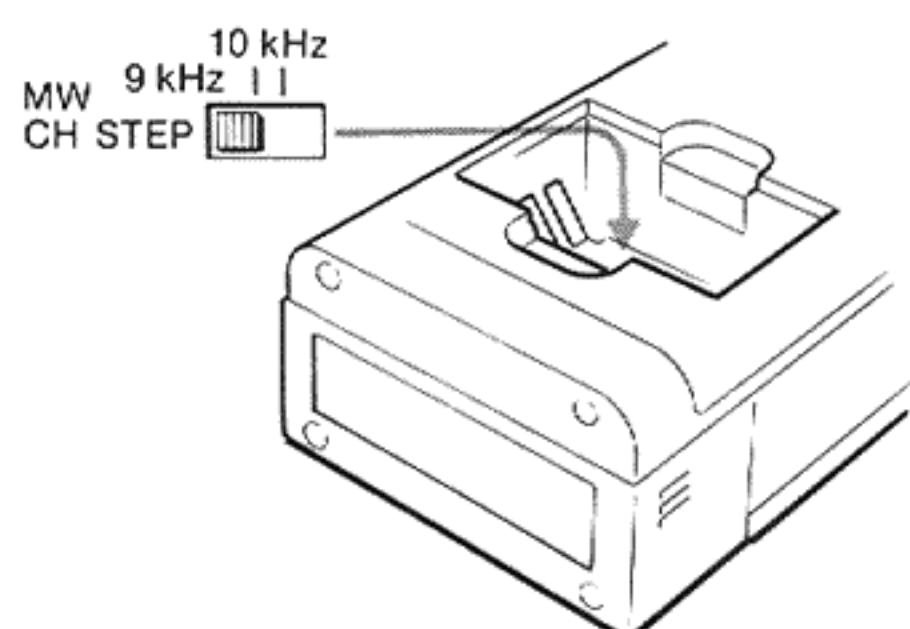
The internal batteries are used to back up the built-in microcomputer. Be sure to keep the batteries installed even when the receiver is operated on other power sources.

BATTERIES

1

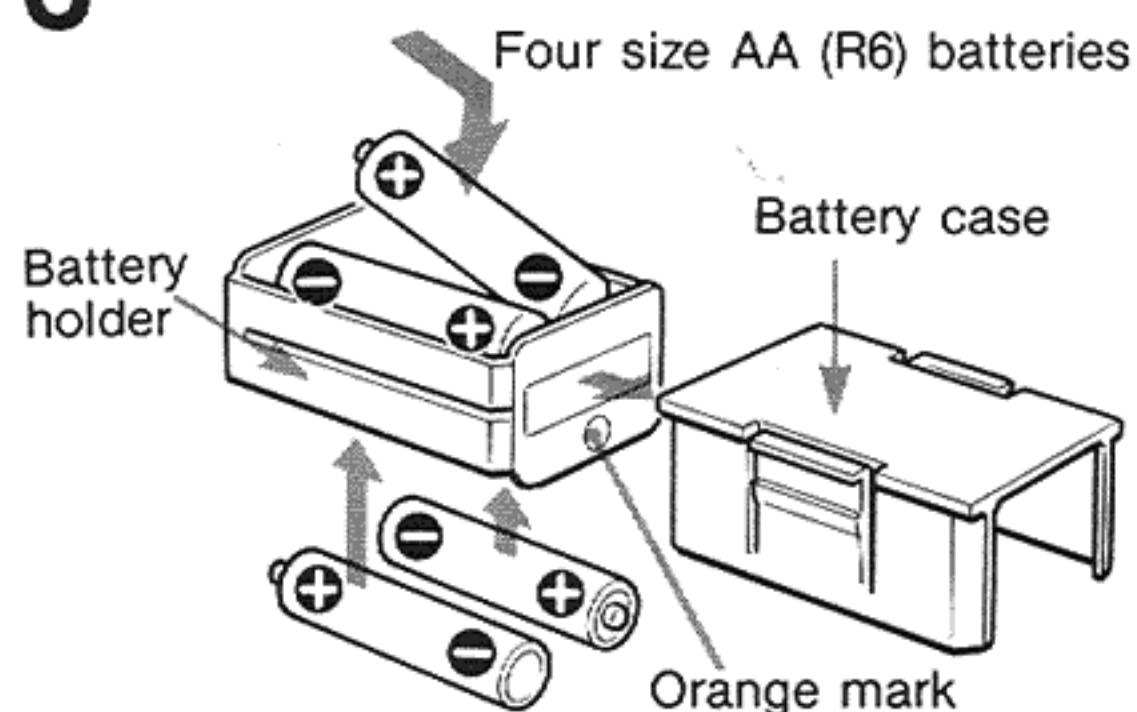


2

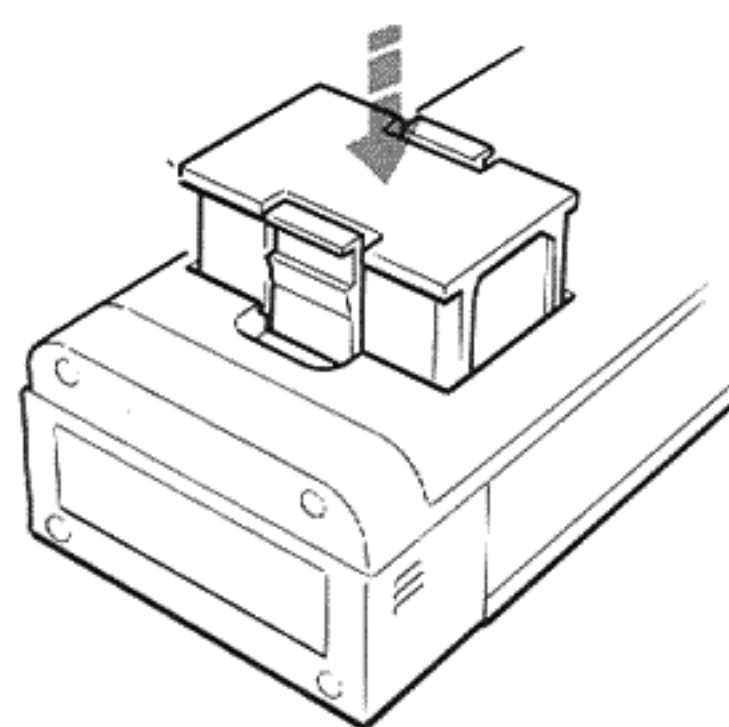


Check that the MW CH STEP selector is set to the MW tuning interval of your country.

3



4



Battery installation

Make sure that nothing is connected to the DC IN 6 V jack when you want to operate the unit on its internal batteries.

Battery life

You can expect Sony SUM-3(NS) batteries to last for approximately 10 hours. This assumes listening for four hours a day at normal volume.

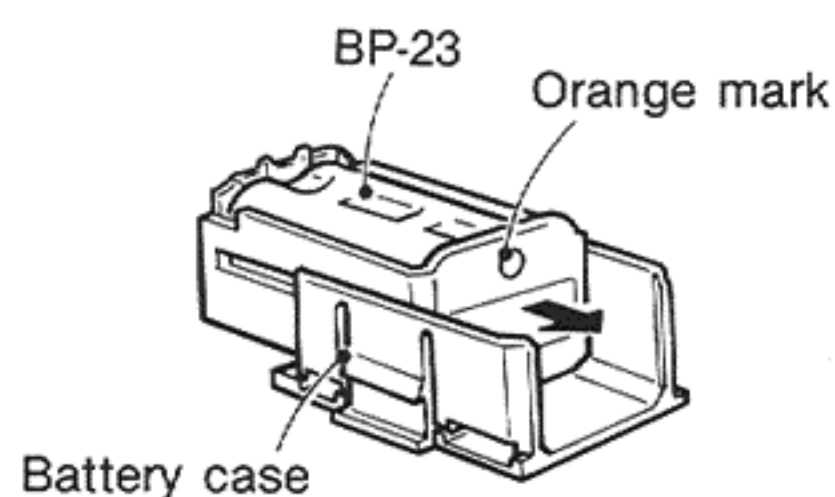
When the sound becomes weak or distorted and the display becomes faint, replace all the batteries with new ones.

Note on replacement of the batteries

When replacing the batteries, install new batteries **within 3 minutes**. If batteries are not installed within 3 minutes, all memory contents will be erased.

RECHARGEABLE BATTERY PACK

Install the Sony BP-23 rechargeable battery pack (optional) into the battery case in place of the batteries.



To charge

Before using, be sure to charge the battery pack. Charging time is about 4.5 hours.

Connect the AC power adaptor to the DC IN 6 V jack and to a wall outlet. Charging will begin. After charging, disconnect the AC power adaptor. About 5 hours of reception is possible using a fully-charged battery pack.

HOUSE CURRENT

Connect the optional AC-D4 AC power adaptor available in your country to the DC IN 6 V jack and to a wall outlet.

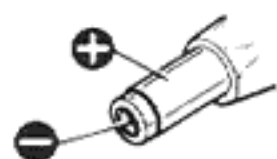
CAR BATTERY

Connect the optional Sony car battery cord DCC-127A or DCC-120 (for 12 V car battery), or DCC-240 (for 24 V car battery) to the DC IN 6 V jack and to the cigarette lighter socket of a car.

- Before connecting, be sure to read the instruction manual for the car battery cord.

Notes

- If a car battery cord or an AC power adaptor not manufactured by Sony is used, a fuse must be installed in the battery cord or the AC power adaptor, and the polarity of the plug must be as illustrated.



- When the unit is operated on a car battery, reception may be affected by ignition noise while the engine is running.

To use with the battery case

Approx. 24 hours of reception is possible using the optional EBP-6 battery case. Connect the battery case to the DC IN 6 V jack.

Note

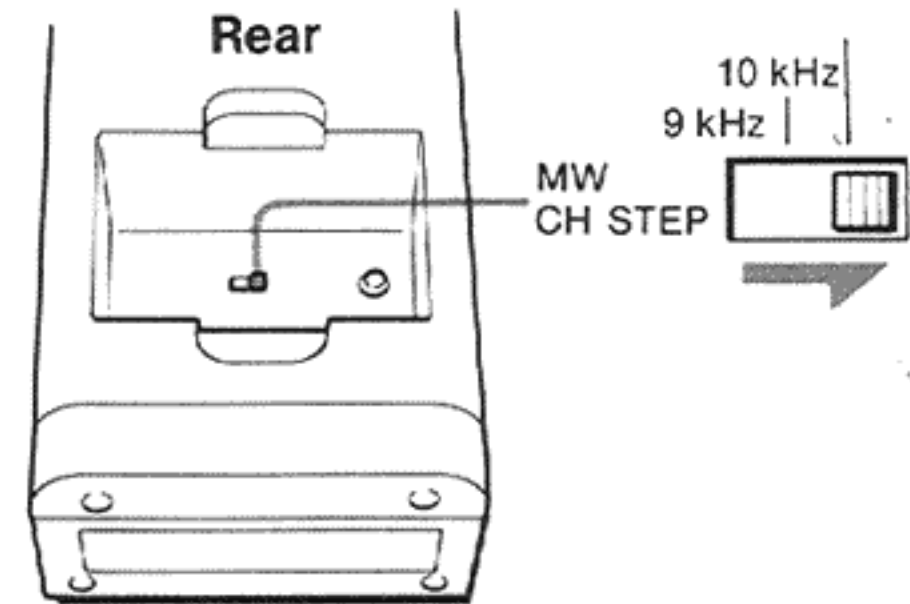
When using an EBP-6 battery case, install the batteries in the unit; do not install the BP-23 rechargeable battery pack. If the EBP-6 and BP-23 are used simultaneously, charging from the EBP-6 to the BP-23 will begin, so exhausting the batteries in the EBP-6.

TO CHANGE THE MW TUNING INTERVAL

The MW tuning interval is factory preset to 9 kHz or 10 kHz to match the local frequency allocation system.*

If you use the receiver in an area where the frequency allocation system is based on the other interval, change the position of the MW CH STEP selector in the battery compartment as follows.

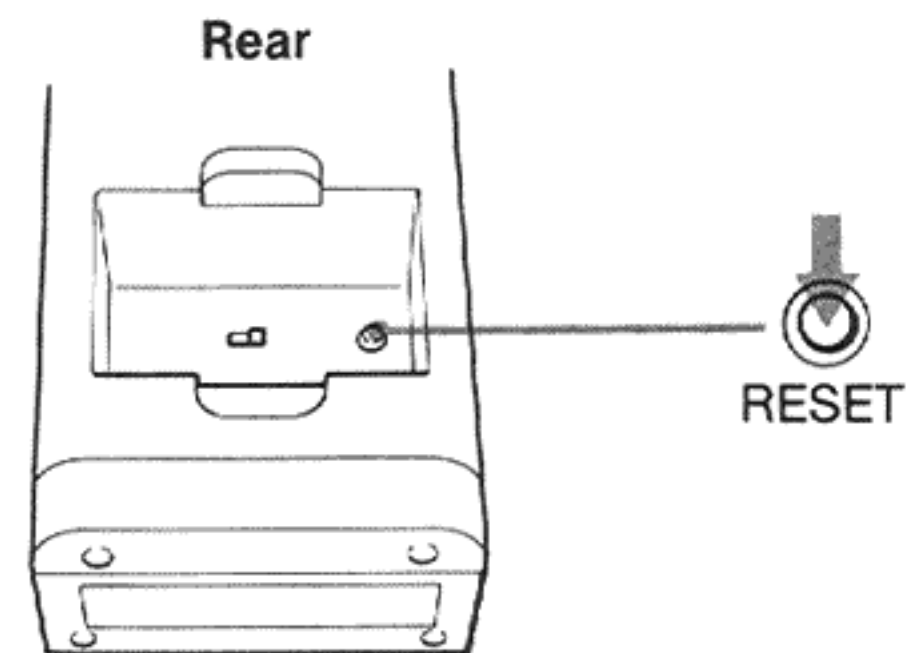
- 1 Remove the battery case.
- 2 Switch the MW CH STEP selector.



- 3 Replace the battery case and close the lid.

TO ERASE ALL MEMORY

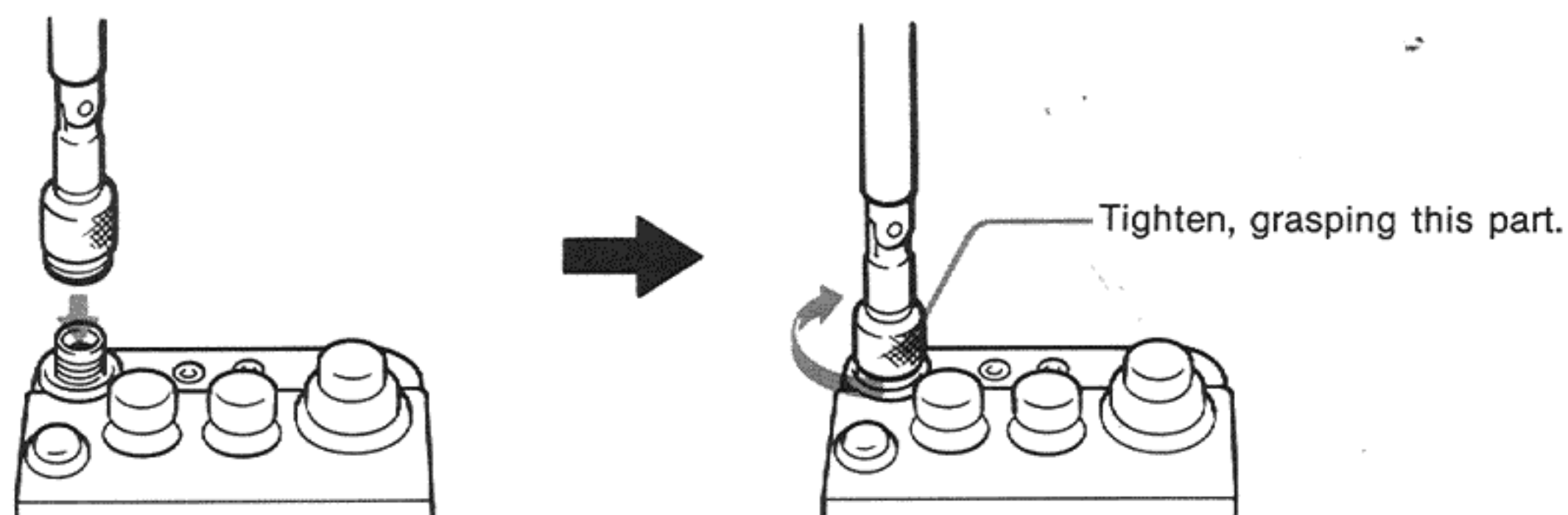
The stations, program, scan mode, etc. stored in the memory are retained even if the power is once turned off or the batteries are replaced (within 3 minutes). To erase all the memory to initialize the unit, press the RESET button in the battery compartment.



* The illustrations used in this manual show 9 kHz setting.

ANTENNA INSTALLATION AND ADJUSTMENT

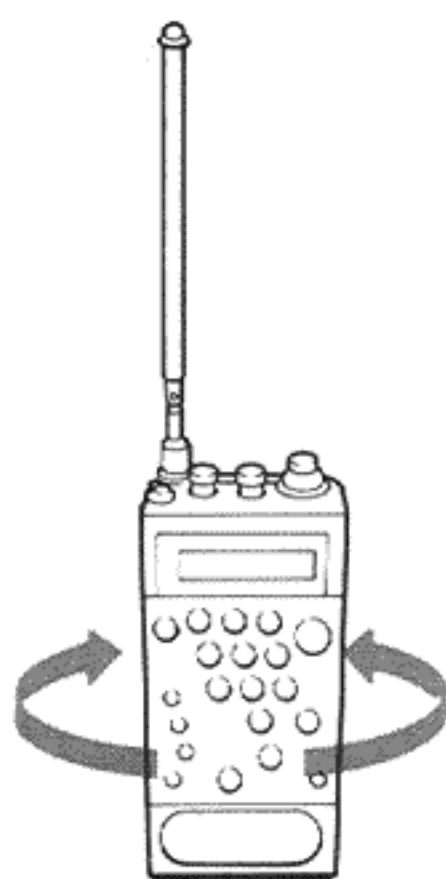
INSTALLATION OF THE TELESCOPIC ANTENNA



ANTENNA ADJUSTMENT

LW/MW reception (150–1,602 kHz)

The built-in ferrite bar antenna functions. Rotate the unit for optimum reception, if necessary.



SW/VHF/FM reception (1,605 kHz–108 MHz)

Adjust the length, angle and direction of the telescopic antenna for optimum reception.

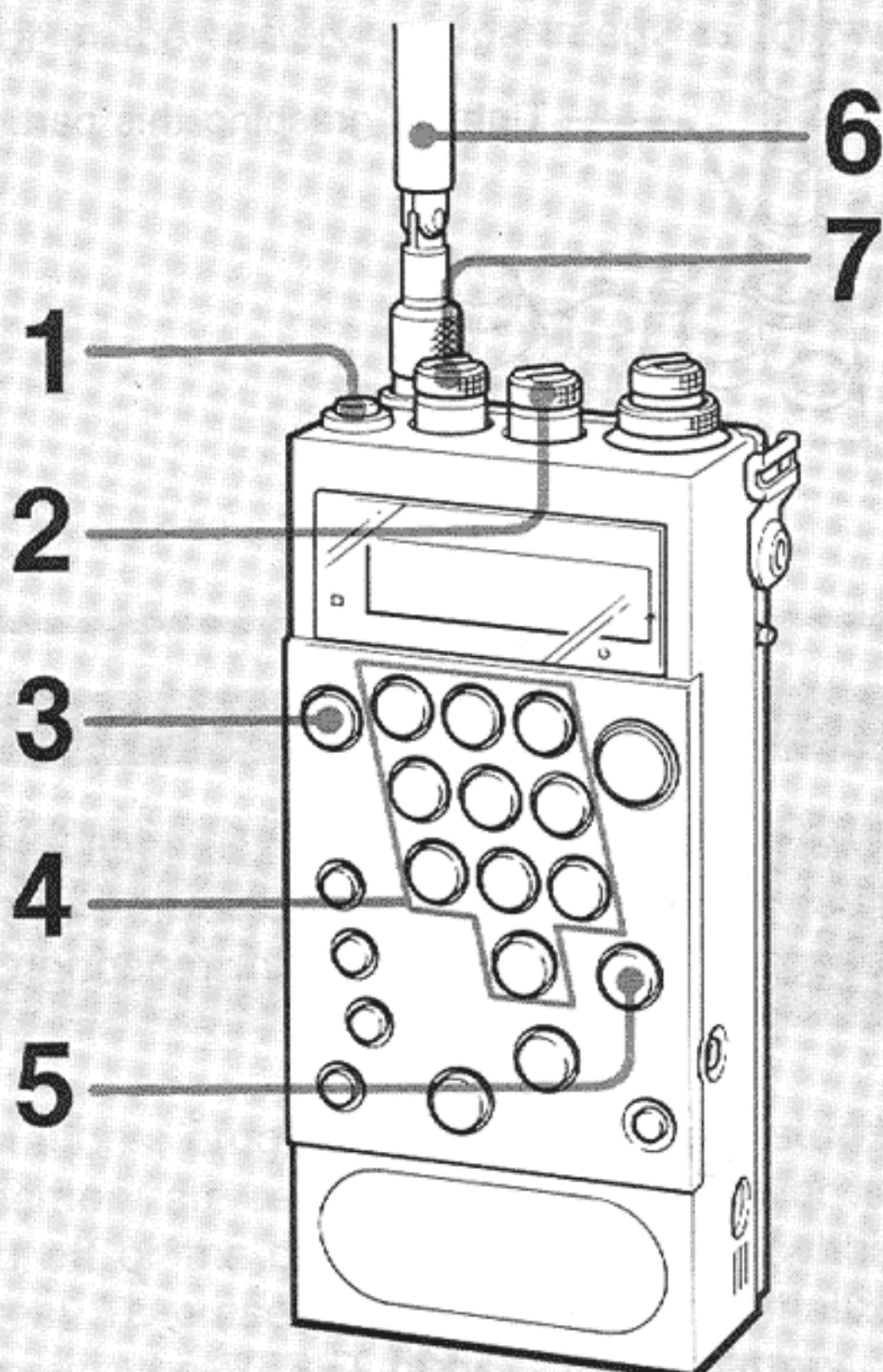


Notes

- In vehicles or in buildings, radio reception may be difficult or noisy. Try listening near a window.
- If the received sound is distorted or noisy, adjust the antenna carefully.
- If reception is unsatisfactory with the telescopic antenna or the built-in antenna, connect an external antenna. See page 31.

DIRECT TUNING

If you know the frequency of a station to be received, you can tune in the station easily by inputting its frequency.



1 Depress POWER.

2 Set SQL to MIN.

3 Press DIRECT.

DIRECT

Display window

4 Input the frequency of the station with the number buttons.

① ② ④ ②

.... 1242

5 Press EXECUTE.

EXECUTE

Beep!

MW 1242 KHz

6 Adjust the antenna. (See page 15.)

7 Adjust VOLUME.

After listening, press to release POWER.

When reception is unsatisfactory

- Adjust the antenna. See page 15.
- See page 29.

Notes

- After pressing a button, press the next button within 5 seconds. If you do not, the previous station will return.

TO INPUT A FREQUENCY			
Normally, input the frequency in kHz.	88.5 MHz (= 88,500 kHz)	DIRECT [] → 8 → 8 → 5 → 0 → 0 → EXECUTE Beep!	FM 88.500 MHz
Righthand 000 can be omitted.	2,000 kHz	DIRECT [] → 2 → EXECUTE Beep!	SW 2000 KHz
	20,000 kHz	DIRECT [] → 2 → 0 → EXECUTE Beep!	SW 20000 KHz
	90 MHz	DIRECT [] → 9 → 0 → EXECUTE Beep!	FM 90.000 MHz
	108 MHz	DIRECT [] → 1 → 0 → 8 → EXECUTE Beep!	FM 108.000 MHz

When you input a wrong frequency		Press [DIRECT] and input the correct frequency. ([TRY AGAIN!] will disappear after about 5 seconds and the previous station will return.)
When a honk sounds	0 is pressed first or more than 6 digits are input.	
When [TRY AGAIN!] indication blinks	A frequency beyond the receivable frequency coverage has been input.*	

* For the receivable frequency coverage of each model, see page 7.

- With direct tuning, the frequency is displayed in steps of the following intervals.

Frequency coverage	Interval
150–528 kHz	3 kHz
531–1,602 kHz	9 kHz*
1,605–49,995 kHz	5 kHz
50–75.995 MHz	5 kHz**
76–108 MHz	50 kHz

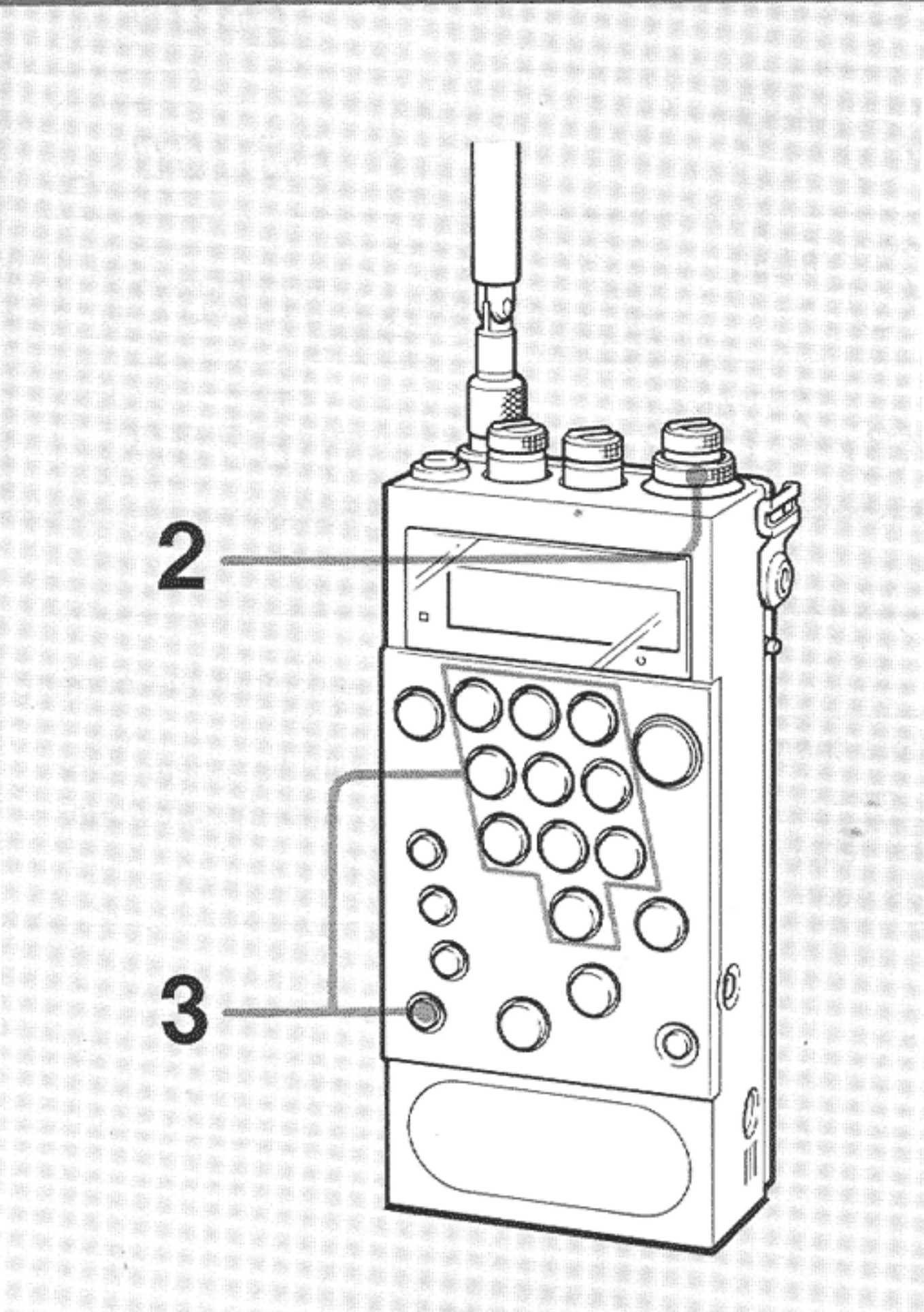
If you input a frequency between intervals, the frequency at the interval just below will be tuned in and displayed. For example, if you input 92.540 MHz, 92.500 MHz will be tuned in and displayed.

- * The MW tuning interval can be changed to 10 kHz. See page 14.
- ** When the detection mode is FM, the interval of this range will be 50 kHz.

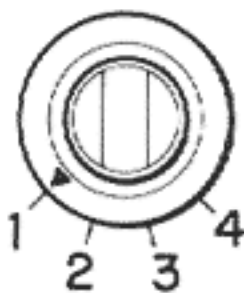
MEMORY TUNING

Up to 40 stations can be stored on 1 to 4 memory pages (10 stations on each page) and tuned in by pressing a button.
The frequency and the detection mode of each station can be stored.

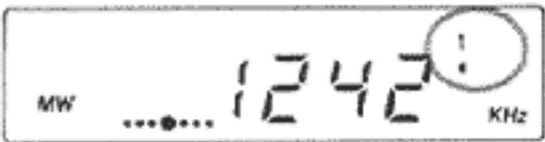
TO STORE A STATION



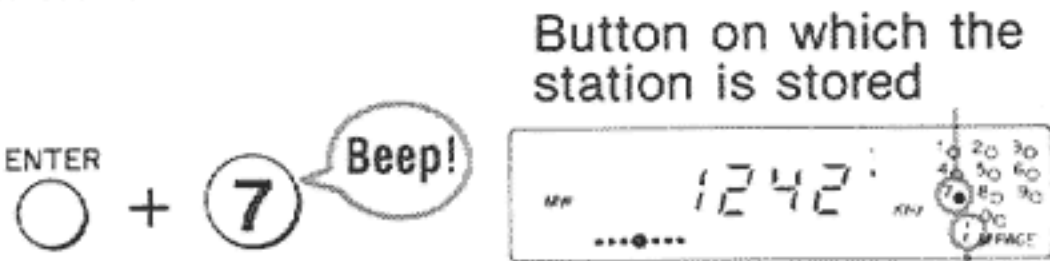
- 1 Tune in the desired station by direct, manual, scan or limited scan tuning.
If necessary, select the appropriate detection mode. (See page 29.)
- 2 Select the memory page on which the station is to be stored with PAGE.



PAGE selector setting indicator



- 3 Keeping ENTER pressed, press one of the number buttons.



Button on which the station is stored

Memory page

Repeat steps 2 and 3 for each number button and for each memory page.

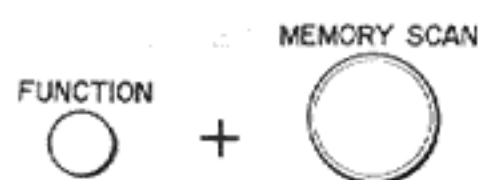
MEMORY TUNING

- 1** Depress POWER.
- 2** Set SQL to MIN.
- 3** Set PAGE to the memory page on which the desired station is stored.
- 4** Press the number button.

MEMORY SEARCH—To display the data of stored stations successively

You can check the stations stored on one memory page while you are listening to your desired program.

- 1** Select the memory page with PAGE.
- 2** Keeping **FUNCTION** pressed, repeatedly press **MEMORY SCAN** momentarily or press it for more than 0.5 second and release.



The data of the stored stations will be displayed in the sequence

①→②→...→⑦→①→...

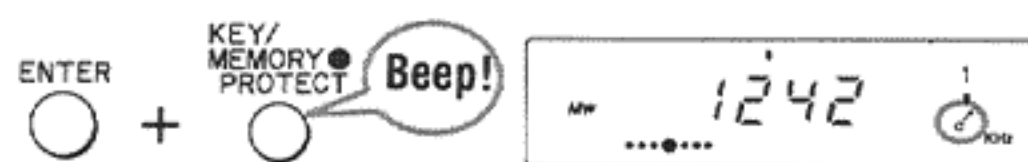
- 3** Release **FUNCTION** to return the display to the station being received.

MEMORY PROTECTION—To prevent accidental erasing of the memory

Using this function, new stations cannot be committed to memory on one memory page.

To activate the memory protection function

- 1** Select the memory page with PAGE.
- 2** Keeping **ENTER** pressed, press **KEY/MEMORY PROTECT**.



Memory protection indicator

When the memory protection indicator is displayed, a new station cannot be committed to memory on that page. When **ENTER** and a number button are pressed, a honk sounds.

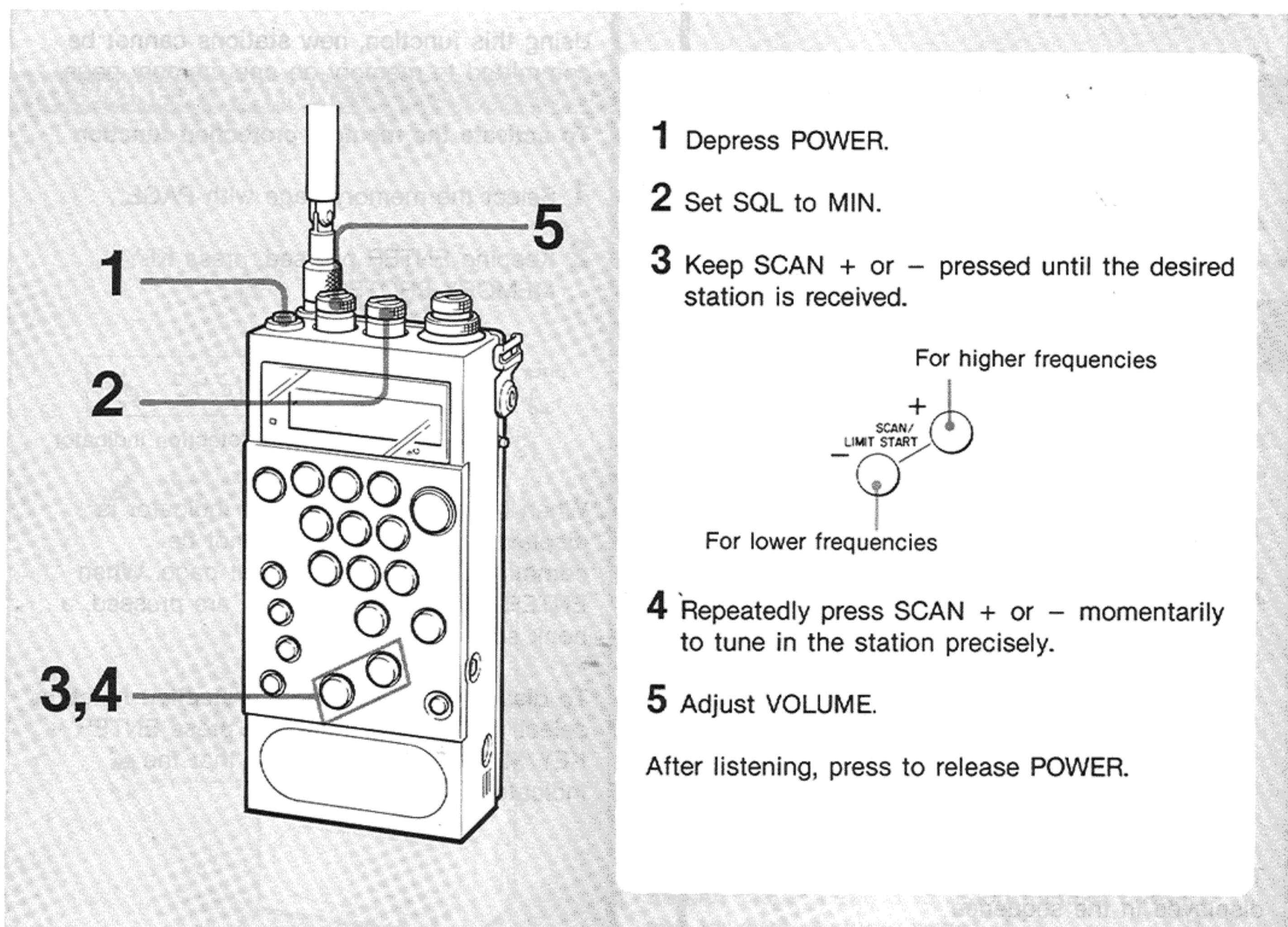
To deactivate the memory protection function, select the memory page and press **ENTER** + **KEY/MEMORY PROTECT** so that the 🚗 indicator disappears.

Note

The memory protection function remains activated after the power is once turned off.

MANUAL TUNING

Use manual tuning when you do not know the frequency of the station you want to tune in, or when you want to tune in a station more precisely after scan tuning or limited scan tuning.



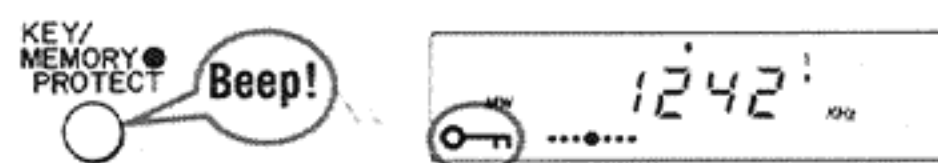
During manual tuning, the frequency is increased or decreased by the intervals shown in direct tuning (page 17). A beep will sound when the interval is changed with SCAN +/- kept depressed.

While SCAN +/- is kept depressed, the frequency changes continuously even if a station is tuned in.

KEY PROTECTION—To avoid accidental operation of the buttons

With the key protection function engaged, the buttons on the front panel will not operate even if they are pressed inadvertently. This is convenient when you carry the set.

To activate the key protection function
Press KEY/MEMORY PROTECT.



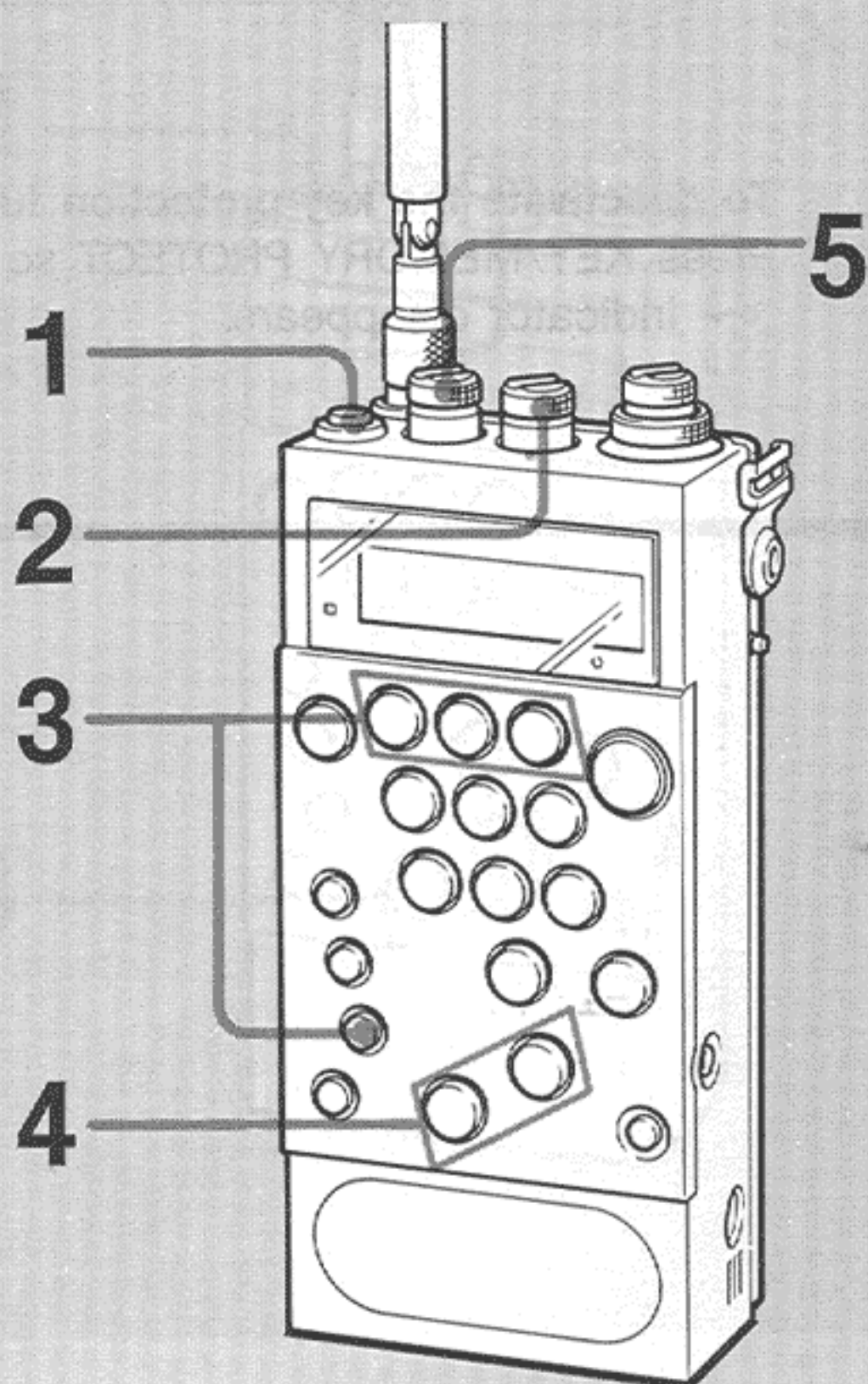
To deactivate the key protection function
Press KEY/MEMORY PROTECT so that
key icon disappears.

Note

The key protection function will be deactivated when the PAGE selector is turned or the power is disconnected.

SCAN TUNING

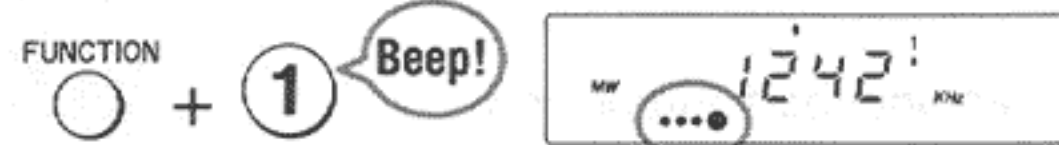
The stations in the entire receivable frequency coverage can be scanned. Scanning stops automatically when a station is received.



1 Depress POWER.

2 Depress SQL (⏏ AUTO).

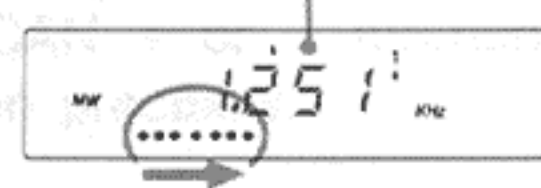
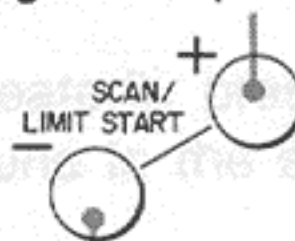
3 Select the scan mode. (See page 23.)



4 Press SCAN + or - for at least 0.5 second to start scanning.

For higher frequencies

The frequency changes.



For lower frequencies

When a station is received, the RECEIVE indicator lights. The unit will then operate according to the selected scan mode. (See page 23.)

5 Adjust VOLUME.

To stop scanning, press SCAN + or - momentarily.

If scanning stops a little before or after a station
Tune in the frequency precisely by manual tuning.

If scanning will not start or will not stop at all
Adjust SQL. See page 23.

If an unintended frequency range is scanned
If the I I (limited scan) indicator is displayed, limited scan tuning is activated (page 24). Press FUNCTION + ① so that the limited scan indicator disappears.

During scan tuning, the frequency is increased or decreased by the intervals shown in direct tuning (page 17). A beep will sound when the interval is changed with SCAN +/- kept depressed.

TO SELECT THE SCAN MODE

There are three scan modes for scan, limited scan, memory scan and program memory scan tuning which differ in the operation of the unit after the first station is located. Select the desired scan mode.

Scan mode	When the first station is located	How to set	Scan mode indicator
SCAN 1	Scanning stops and the first station is received continuously.	FUNCTION + ①	●●●●●
SCAN 2	The station is received for 2 seconds and scanning is resumed.	FUNCTION + ②	●●●●● ☀ (during reception)
SCAN 3	The station is received until the station signal stops and then scanning is resumed.	FUNCTION + ③	●●●●● ☀ (during reception)

HOW TO USE THE SQUELCH CONTROL

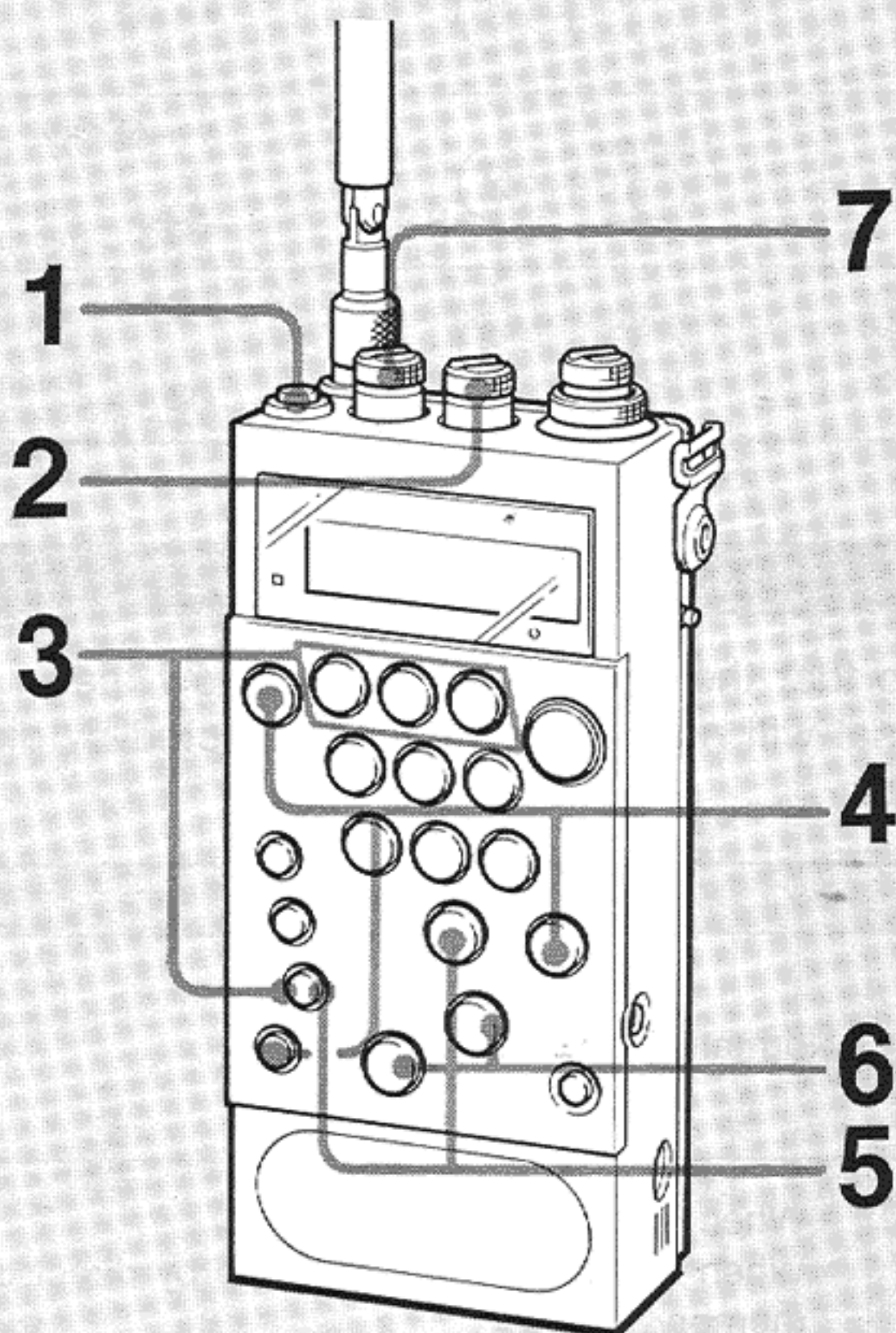
The SQL control adjusts the level of the signal (and noise) so that the signal (and noise) below the adjusted level is suppressed. A station with a lower level signal will not be heard when selected by direct or memory tuning, or scanning will not stop at such a station.

Adjustment and function of the SQL control		When to use
△ AUTO SQL 	Signal below the factory-preset level will be suppressed.	Normally set to this position.
□ MANUAL MIN 	Turn towards MIN to receive even weaker signal.	• When scanning does not stop • When a station is not received by direct or memory tuning
□ MANUAL  MAX	Turn towards MAX to receive stronger signals only.	• When scanning does not begin • To suppress noise during the interval between broadcasts

Note
Turn SQL little by little by observing the RECEIVE indicator. Be careful not to turn it too much.

LIMITED SCAN TUNING

The stations in the desired frequency range can be scanned by defining the upper limit and lower limit frequencies of the scanning.



To stop scanning, press SCAN + or – momentarily.

To disengage the limited scan mode, keep FUNCTION pressed and press 0 so that the limited scan indicator disappears.

- 1 Depress POWER.
- 2 Depress SQL (AUTO).
- 3 Select the scan mode. See page 23. Keeping FUNCTION pressed, press 1 (2 or 3).

- 4 Store the lower and upper limit frequencies.

e.g. To scan between 531–1,602 kHz

① Tune in the lower limit frequency (531 kHz) with direct tuning.

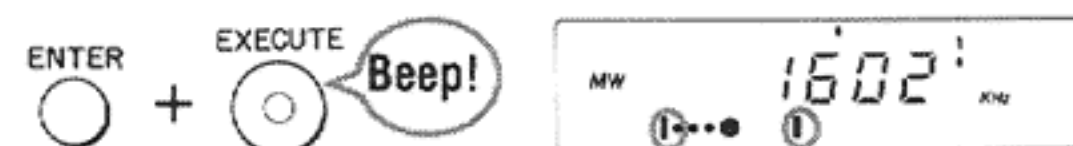
② Keeping ENTER pressed, press DIRECT.



Displayed while ENTER and DIRECT are pressed.

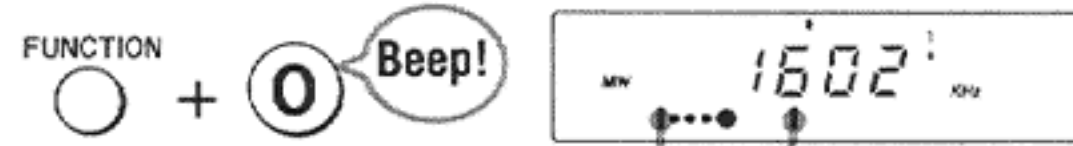
The lower limit frequency is now stored.

③ Tune in the upper limit frequency (1,602 kHz), and keeping ENTER pressed, press EXECUTE.



The upper limit frequency is now stored.

- 5 Set to limited scan mode.



Limited scan indicator

- 6 Press SCAN + or – for at least 0.5 second to start scanning.

When a station is received, the RECEIVE indicator lights. The unit will then operate according to the selected scan mode. (See page 23.)

- 7 Adjust VOLUME.

To check the stored lower and upper limit frequencies

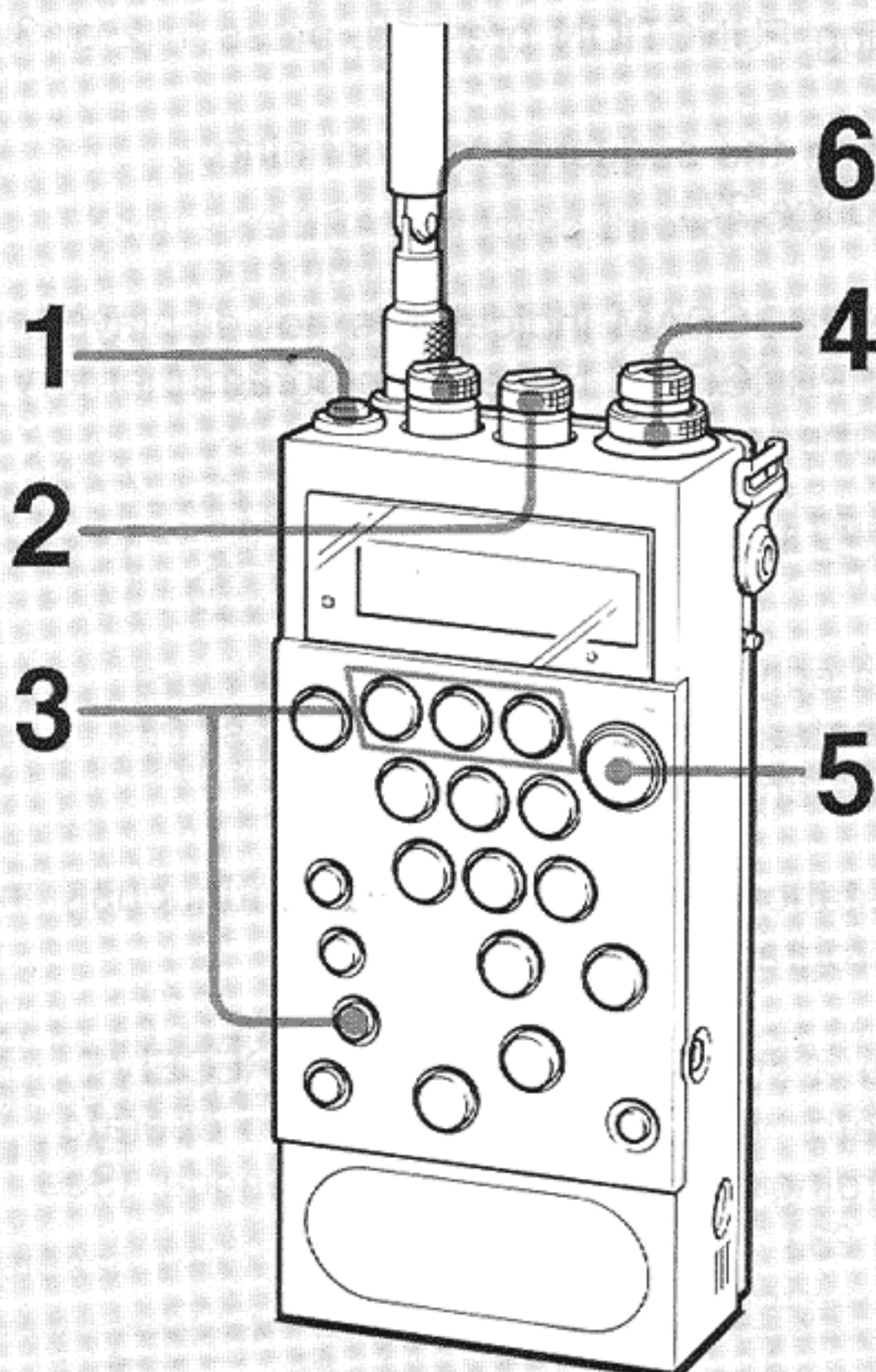
Keeping FUNCTION pressed, press DIRECT or EXECUTE. While the buttons are pressed, the lower or upper limit frequency is displayed in the window.

Notes

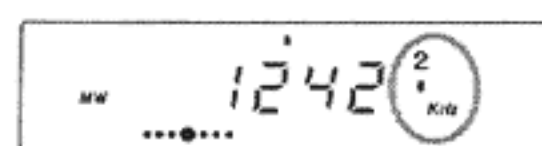
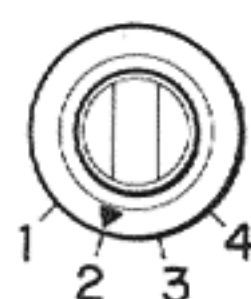
- The upper limit frequency can be stored on DIRECT, and the lower limit frequency on EXECUTE, or vice versa.
- The limited scan mode and the memory of the lower and upper limit frequencies remain even if the power is once turned off.

MEMORY SCAN TUNING

The stations stored on one of the four memory pages can be scanned in the sequence ①→②→...→⑩, repeatedly.

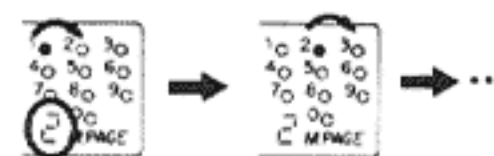


- 1** Depress POWER.
- 2** Depress SQL (AUTO).
- 3** Select the scan mode. See page 23.
Keeping FUNCTION pressed, press 1 (2 or 3).
- 4** Select the desired memory page with the PAGE selector.



- 5** Repeatedly press MEMORY SCAN momentarily, or press it for at least 0.5 second and release it.

MEMORY SCAN



The stored stations will be scanned continuously in the sequence 1 to 0.

When a station is received, the RECEIVE indicator lights. The unit will then operate according to the selected scan mode. (See page 23.)

- 6** Adjust VOLUME.

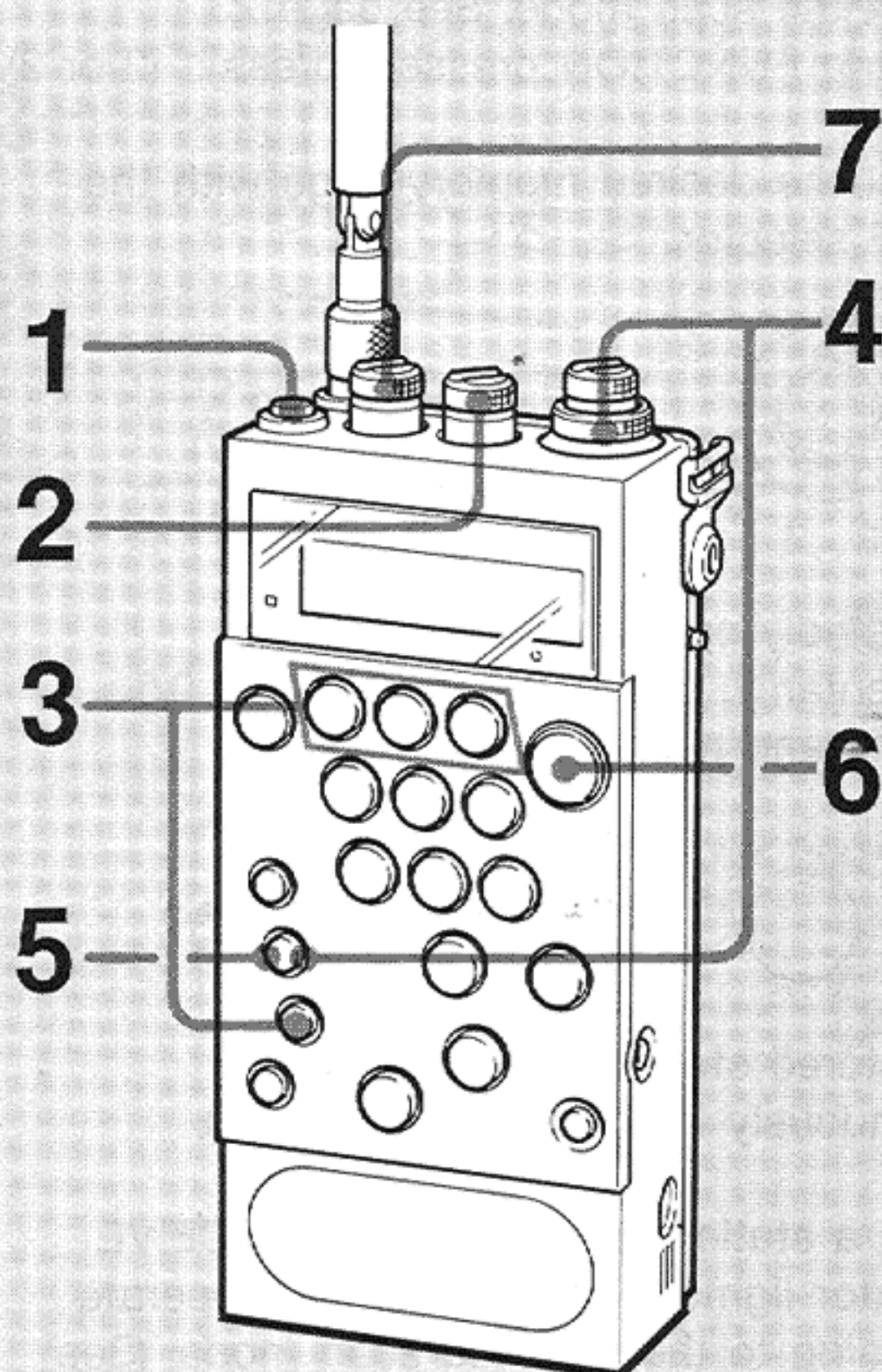
To stop scanning, press MEMORY SCAN momentarily.

If scanning will not start or will not stop at all
Adjust SQL. See page 23.

If scanning is carried out in an unintended sequence
If the PROGRAM indicator is displayed, program
memory scan tuning is activated (page 26). Press
PROGRAM so that the PROGRAM indicator disappears.

PROGRAM MEMORY SCAN TUNING

Only required stations among the stored 40 stations can be scanned in the required sequence repeatedly.



- 1** Depress POWER.
- 2** Depress SQL (⏏ AUTO).
- 3** Select the scan mode. See page 23.
Keeping FUNCTION pressed, press 1 (2 or 3).
- 4** Program the sequence of scanning.
(See page 27.)

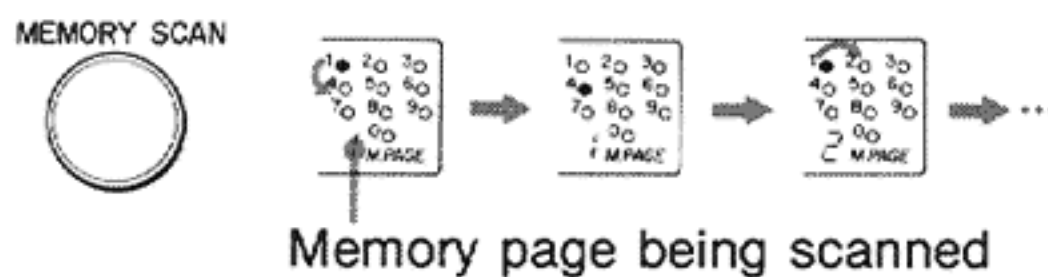
- 5** If the PROGRAM indicator is not displayed, press PROGRAM to set to program memory scan mode.



- 6** Repeatedly press MEMORY SCAN momentarily, or press it for at least 0.5 second and release it.

The stations will be scanned continuously in the programmed sequence.

When a station is received, the RECEIVE indicator lights. The unit will then operate according to the selected scan mode. (See page 23.)



- 7** Adjust VOLUME.

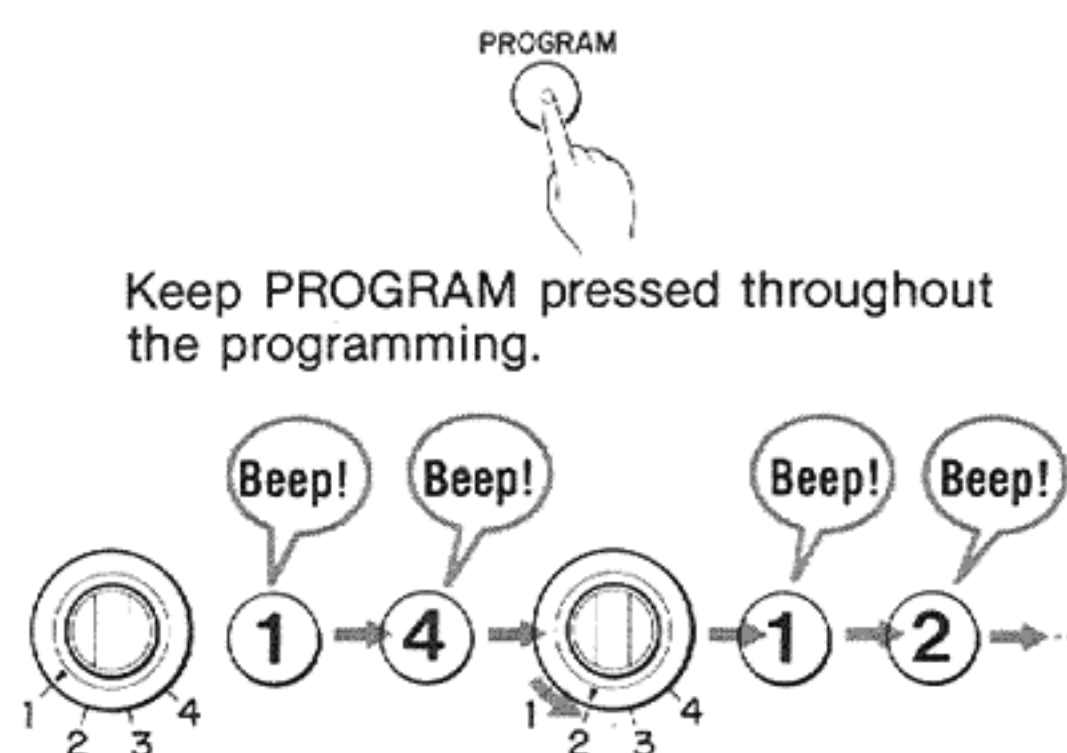
To stop scanning, press MEMORY SCAN momentarily.

To disengage program memory scan mode, press PROGRAM so that the PROGRAM indicator disappears.

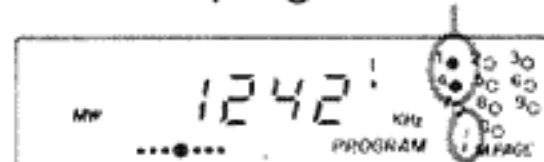
If scanning will not start or will not stop at all
Adjust SQL. See page 23.

TO PROGRAM STATIONS

- 1 Store stations on the number buttons. See page 18.
- 2 Keeping PROGRAM pressed, press the number buttons in the desired sequence. To program stations on two or more memory pages, switch the PAGE selector as required.



The memory station indicators and memory page indicator appear to indicate the programmed buttons.



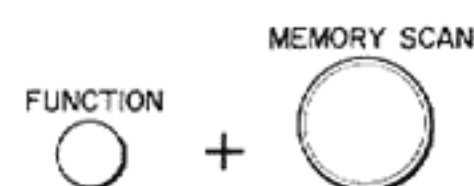
Up to 40 stations can be programmed in the sequence you press the number buttons.

- 3 Release PROGRAM.

PROGRAM MEMORY SEARCH—To display the data of the programmed stations successively

You can check the programmed stations while you are listening to your desired station.

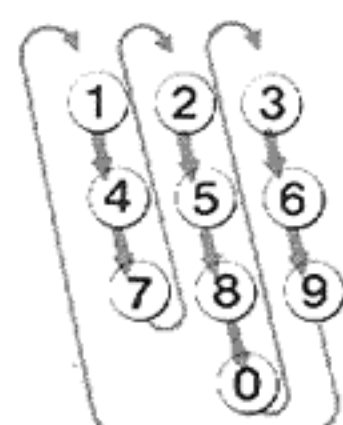
- 1 Press PROGRAM to display the PROGRAM indicator.
- 2 Keeping FUNCTION pressed, repeatedly press MEMORY SCAN momentarily or press it for more than 0.5 second and release.



The data of the stations will be displayed successively in the programmed sequence.

- 3 Release FUNCTION to return the display to the station being received.

The factory-preset program



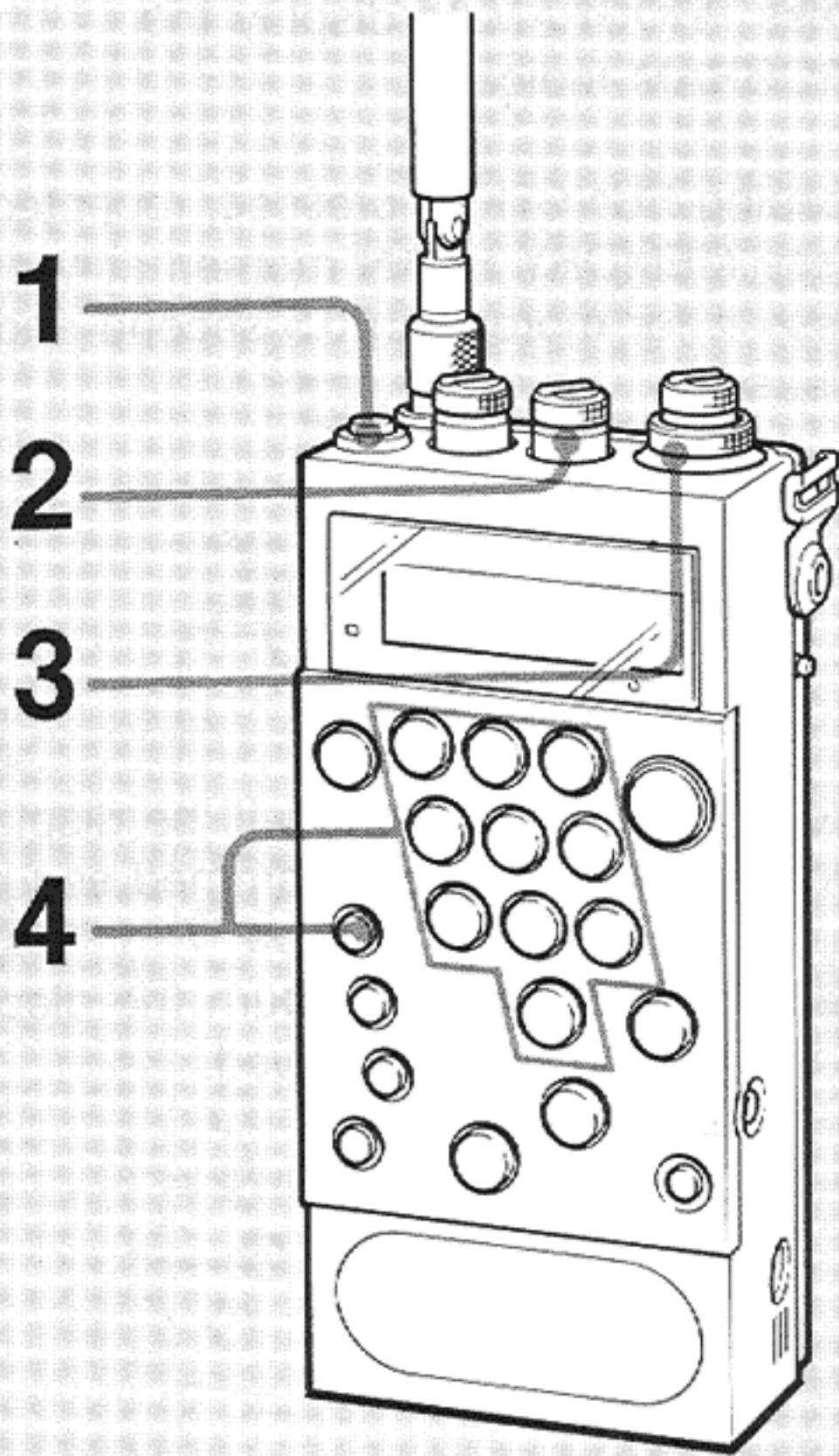
and pages 1 to 4.

Notes

- The same number button can be programmed twice or more. Each pressing is counted as one station. However, do not press the same number button twice in succession, as programming fails.
- Program memory scan mode and the memory of the programmed sequence remain even if the power is turned off.

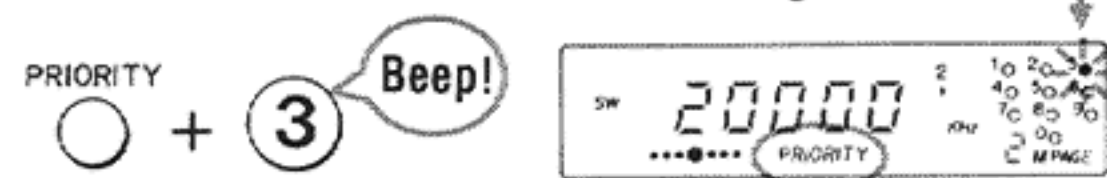
PRIORITY TUNING

If a certain station stored is designated as the priority station, the unit automatically tunes to the station every 3 seconds to check whether there is a signal or not. If there is a signal, the priority station is tuned in continuously.



- 1 Depress POWER.
- 2 Depress SQL (AUTO).
- 3 Select the memory page on which the station you want to designate as the priority station is stored with the PAGE selector.
- 4 Keeping PRIORITY pressed, press the number button to which the desired station is stored.

Blinks to indicate the priority station is being tuned in.



The priority station is tuned in every 3 seconds. If there is a signal, the station will be received continuously. If there is no signal, the previous station will return.

To disengage the priority tuning mode, press PRIORITY so that the PRIORITY indicator disappears. Press PRIORITY again to resume the priority tuning.

Notes

- A beep will sound when the priority station is tuned in.
- Priority tuning mode and the memory of the priority station remains even if the power is turned off.

TO SELECT THE DETECTION MODE

Several detection modes depending on the model type can be selected for each frequency range indicated by I to IV in the following tables.

ICF-PRO70 Type 1 and ICF-PRO80																
Frequency ranges	<table><tr><td>150 kHz</td><td>30 MHz</td><td>50 MHz</td><td>76 MHz</td><td>108 MHz</td></tr><tr><td colspan="2">LW/MW/SW</td><td>VHF</td><td>VHF</td><td>FM</td></tr><tr><td colspan="2">I</td><td>II</td><td>III</td><td>IV</td></tr></table>	150 kHz	30 MHz	50 MHz	76 MHz	108 MHz	LW/MW/SW		VHF	VHF	FM	I		II	III	IV
150 kHz	30 MHz	50 MHz	76 MHz	108 MHz												
LW/MW/SW		VHF	VHF	FM												
I		II	III	IV												
Factory-preset mode	<table><tr><td>AM NARROW</td><td>NARROW FM</td><td>NARROW FM</td><td>FM</td></tr></table>	AM NARROW	NARROW FM	NARROW FM	FM											
AM NARROW	NARROW FM	NARROW FM	FM													
Selectable modes	<table><tr><td></td><td>FM</td></tr><tr><td colspan="2">NARROW FM</td></tr><tr><td colspan="2">AM WIDE</td></tr><tr><td colspan="2">AM NARROW</td></tr><tr><td colspan="2">SSB</td></tr></table>		FM	NARROW FM		AM WIDE		AM NARROW		SSB						
	FM															
NARROW FM																
AM WIDE																
AM NARROW																
SSB																

ICF-PRO70 Type 2	
Frequency ranges	150 kHz29,995 kHz LW/MW/SW I 87.6 MHz108 MHz FM II
Factory-preset mode	AM NARROW FM
Selectable modes	NARROW FM AM WIDE AM NARROW SSB

ICF-PRO70 Type 3	
Frequency ranges	150 kHz26,100 kHz LW/MW/SW I 87.6 MHz108 MHz FM II
Factory-preset mode	AM NARROW FM
Selectable modes	AM WIDE AM NARROW SSB

If the detection mode is incorrect

- VHF communications cannot be received with AM WIDE, AM NARROW or SSB mode. If they are received with FM mode, the sound volume becomes very low.
- SSB communications can be received with SSB mode only.

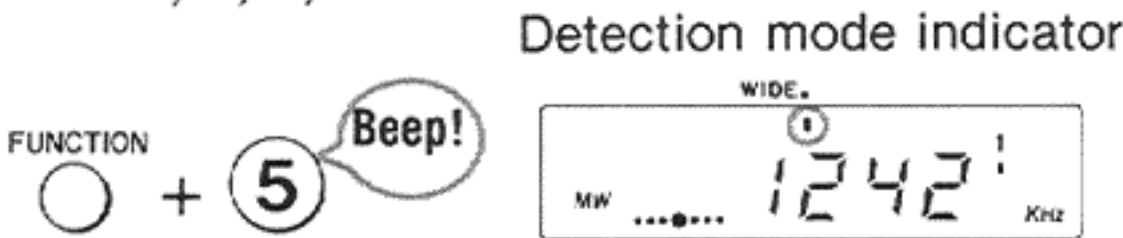
Notes

- The stations stored on the number buttons can be tuned in with their own detection mode stored.
- When a stored station is tuned in, the detection mode of the corresponding frequency range is automatically set to the stored mode. If necessary, reset the detection mode after listening to that particular station.

TO SELECT THE DETECTION MODE

To select the detection mode

- 1 Tune in a frequency within the frequency range for which the detection mode is to be changed.
- 2 Keeping FUNCTION pressed, press number button 4, 5, 7, 8 or 9.



Buttons to be pressed	Detection mode	When to use
FUNCTION + 4	FM	To receive FM broadcasts, and TV (VHF) sound
FUNCTION + 5	AM WIDE	To receive AM (LW, MW and SW) broadcasts, normally set to this mode for dynamic sound.
FUNCTION + 7	NARROW FM	To receive VHF communications (ICF-PRO70 Type 1 and ICF-PRO80)
FUNCTION + 8	AM NARROW	When AM (LW, MW and SW) reception is interrupted or noisy, this mode may improve the reception.
FUNCTION + 9	SSB	To receive SSB communications

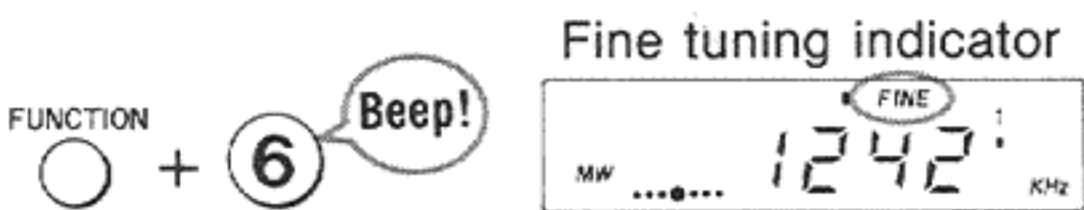
Other stations in the same frequency range will also be tuned in with direct, scan or limited scan tuning, with the selected detection mode.

FINE TUNING

AM (LW/MW/SW) FINE TUNING

Fine tune an AM station in the AM WIDE or AM NARROW detection mode.

- 1 Tune in the desired station.
- 2 Keeping FUNCTION pressed, press 6.



- 3 Turn FINE/SSB for the best possible reception. Fine tuning range is approximately ± 3.5 kHz.

To disengage fine tuning mode, keep FUNCTION pressed and press 6 so that the FINE indicator disappears.

SSB FINE TUNING

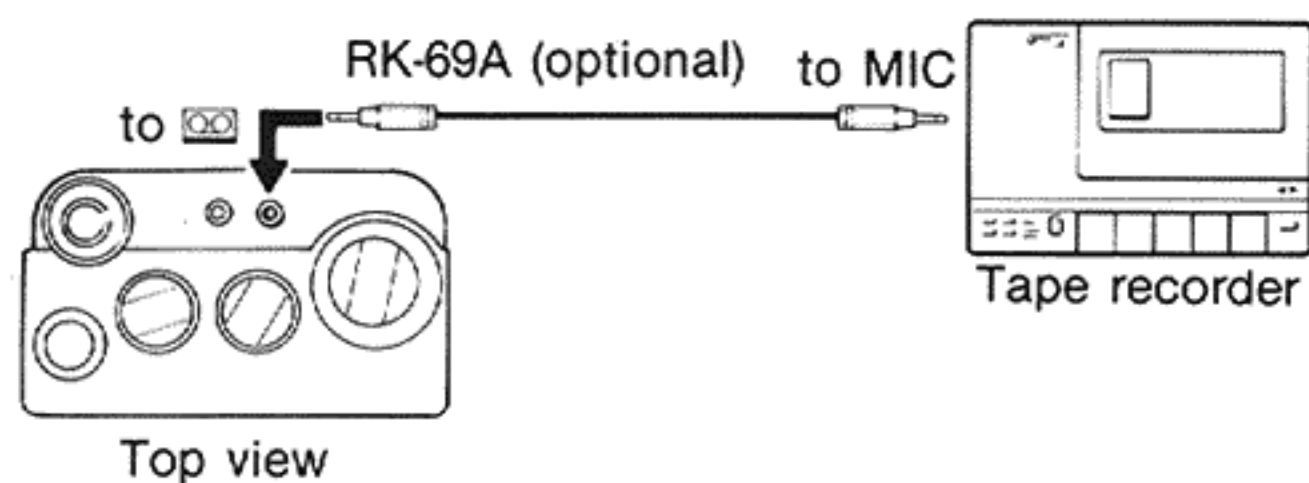
In SSB mode, fine tuning is necessary for each station received.

- 1 Select the SSB detection mode and tune in the desired station.
- 2 Turn FINE/SSB for the best possible reception. Fine tuning range is approximately ± 3.5 kHz.

Notes

- The FINE indicator appears only when FUNCTION + 6 are pressed in AM WIDE or AM NARROW mode.
- The FINE/SSB control functions only when the FINE or SSB indicator is displayed.

RECORDING A BROADCAST



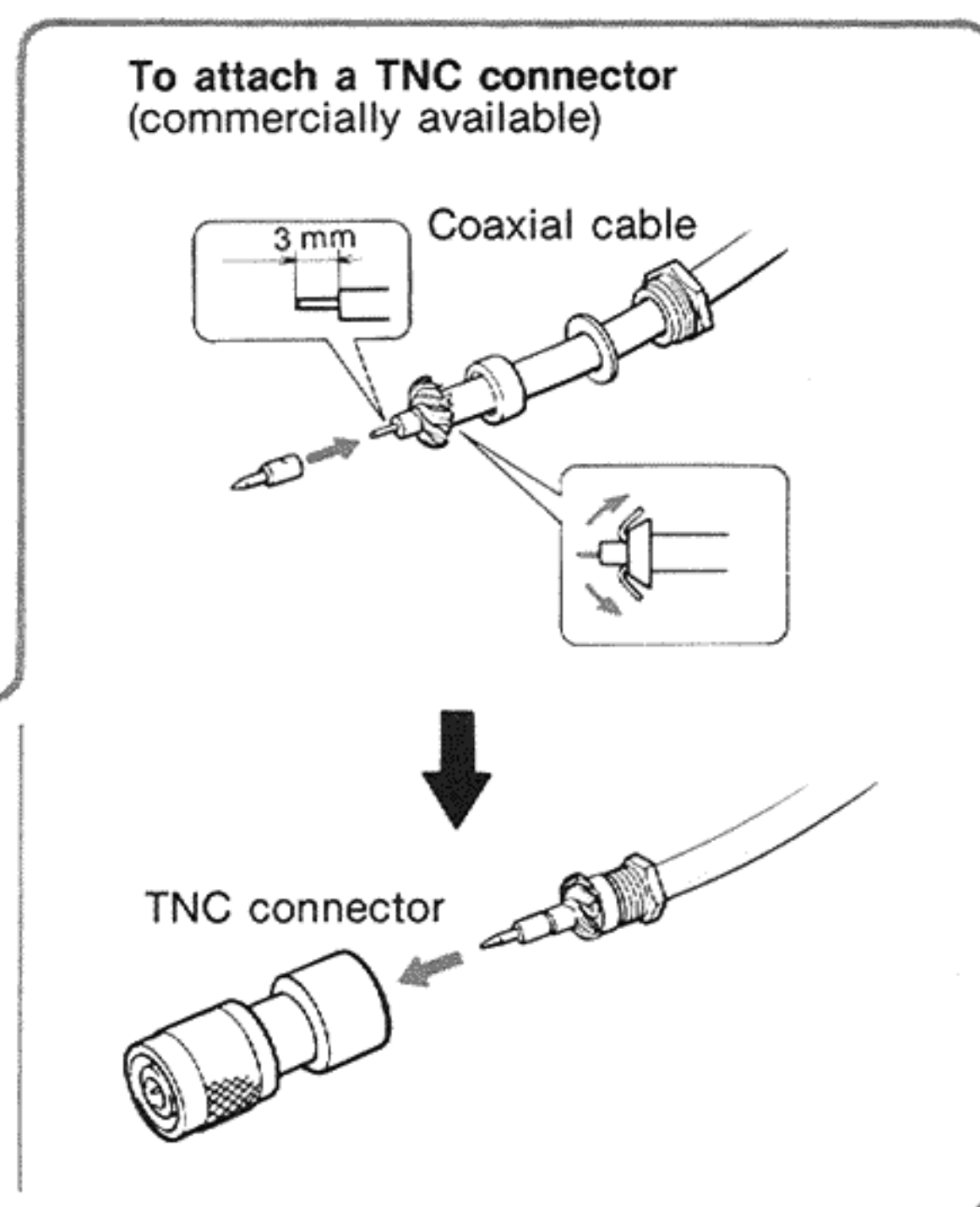
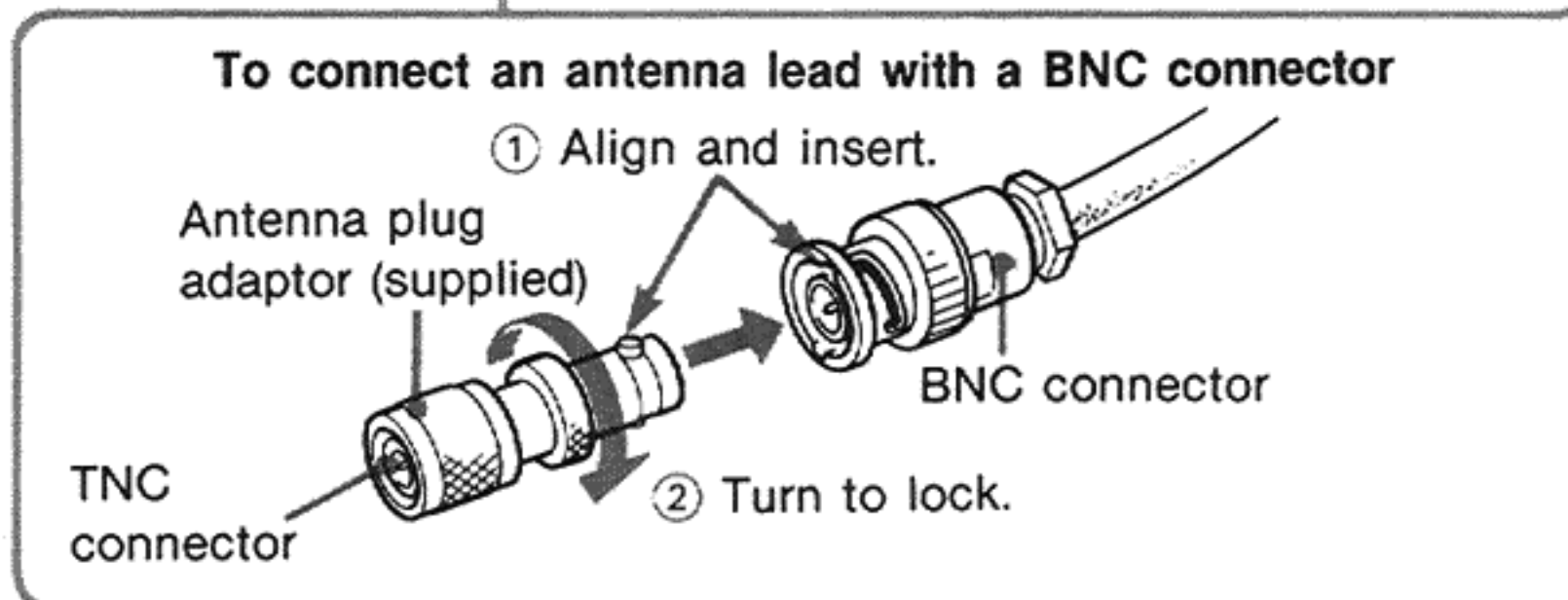
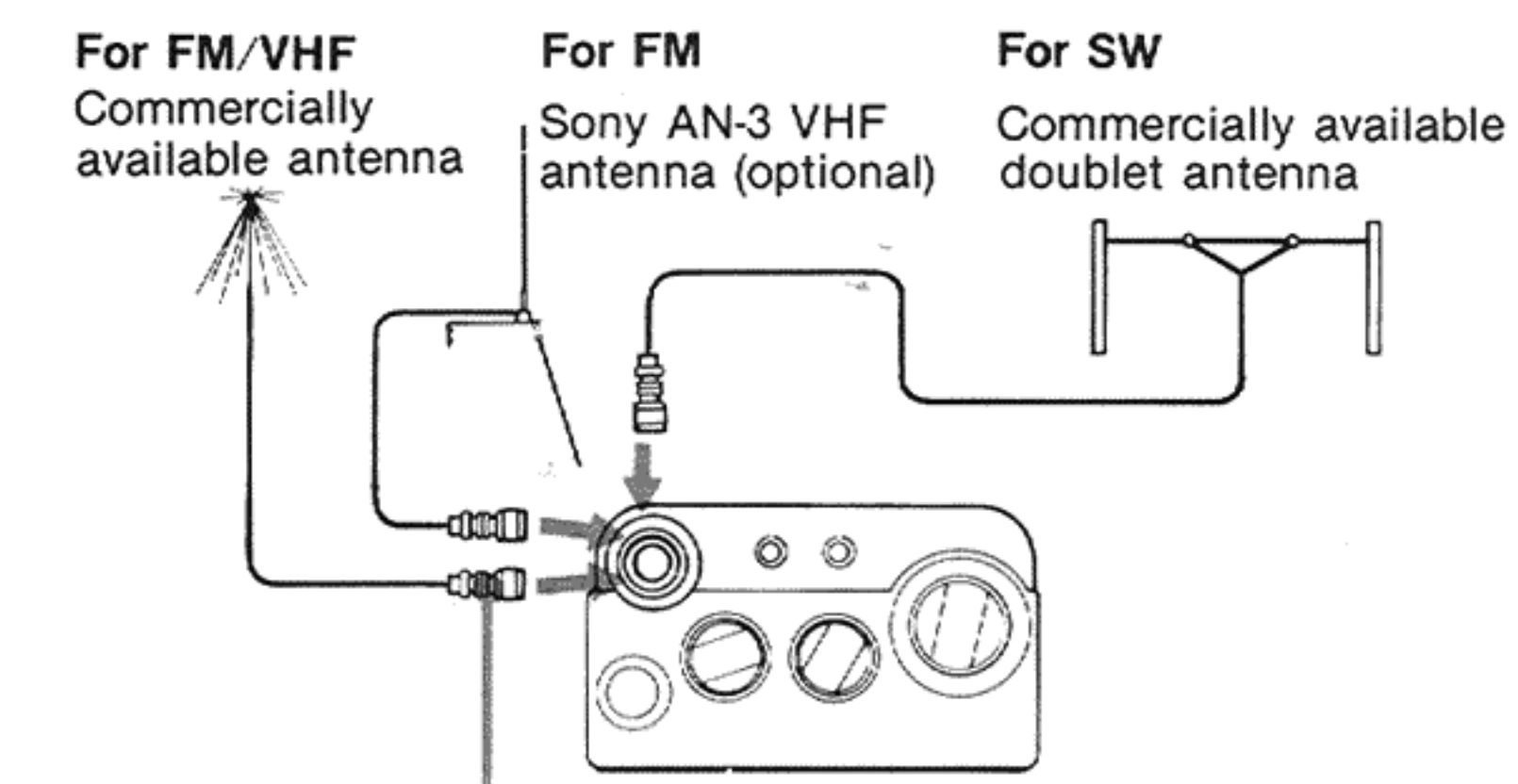
Tune in the desired station and set the recorder to record mode.

The volume and tone control setting on the receiver has no effect on the recording.

EXTERNAL ANTENNA CONNECTION

In a steel building, a mountainous area or at a long distance from the transmitter, etc., FM/VHF/SW reception may be unsatisfactory with the telescopic antenna. In this case, remove the telescopic antenna and connect a commercially available external antenna to the receiver.

Use a 50–75 ohm coaxial cable for antenna connection.



Notes

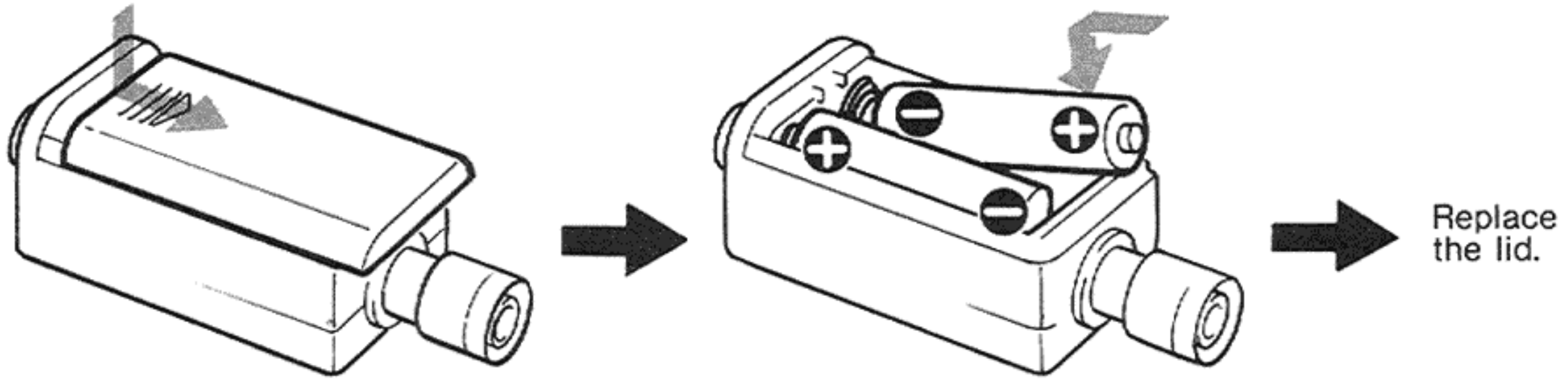
- Locate an outdoor antenna as far away from the street as possible.
- The use of a suitable lightning arrestor is recommended if the antenna extends out-of-doors.
- For further details, see the instruction manual for the antenna.

TO CONVERT THE FREQUENCY COVERAGE (ICF-PRO80 only)

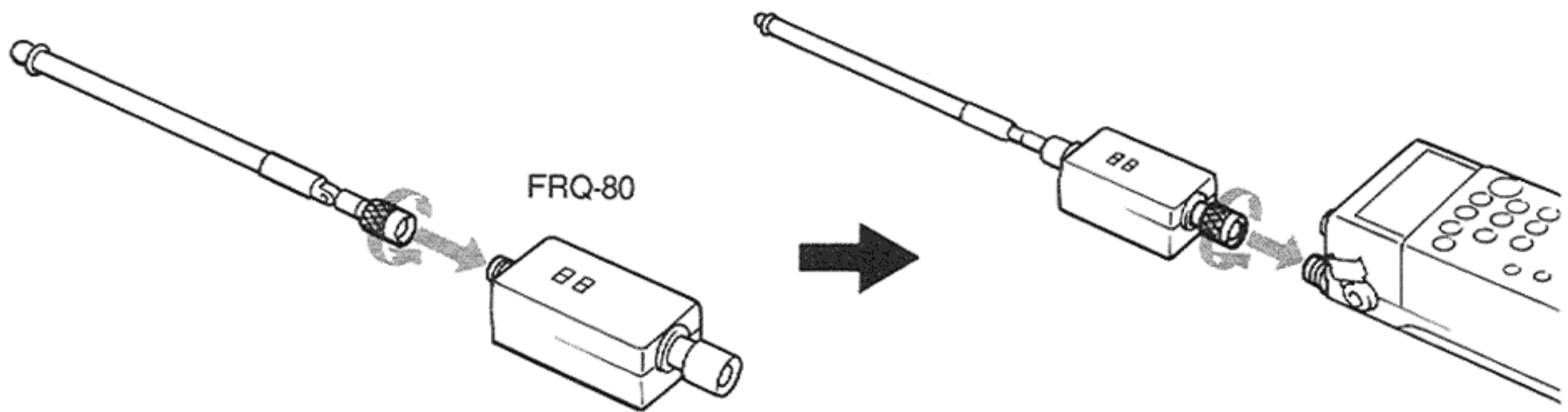
The supplied FRQ-80 frequency converter shifts the frequency coverage of the receiver by 115 MHz, i.e. to 115.15–223 MHz, to allow reception of air band, PSB (Public Service Band) and TV VHF channels. etc.

INSTALLATION OF THE FREQUENCY CONVERTER

- 1 Insert the two optional size AA (R6) batteries into the converter.



- 2 Detach the telescopic antenna from the receiver.
- 3 Attach the telescopic antenna to the frequency converter, and then the converter to the antenna connector.



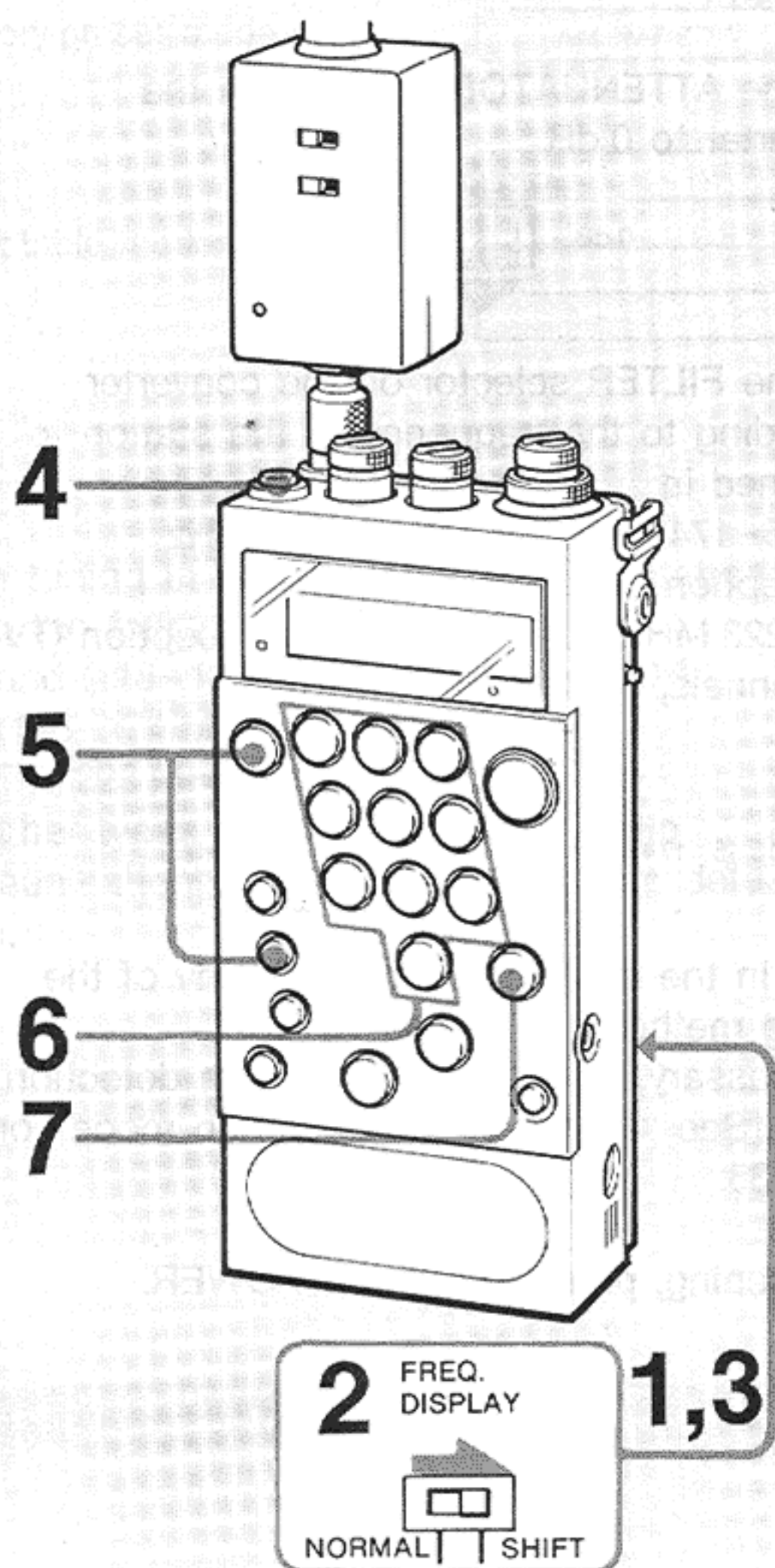
Battery life

Approximately 80 hours of converter operation can be expected with the Sony SUM-3(NS) batteries. When the POWER indicator on the converter becomes dim, replace both batteries.

Note

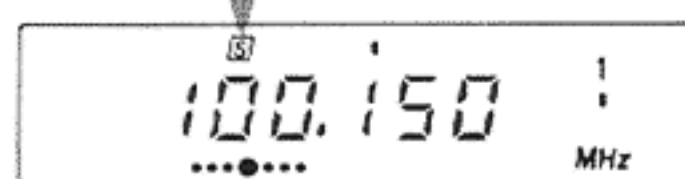
When the converter is not be used for a long period of time, remove the batteries to avoid damage caused by battery leakage and corrosion.

TO SHIFT THE FREQUENCY DISPLAY

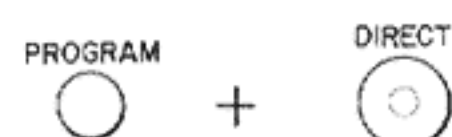


- 1 Remove the battery case from the battery compartment of the receiver.
- 2 Set FREQ.DISPLAY inside the battery compartment to SHIFT.
- 3 Replace the battery case.
- 4 Depress POWER.
The [S] (shift) indicator and a frequency shifted by 100 MHz will appear in the window.

Shift indicator



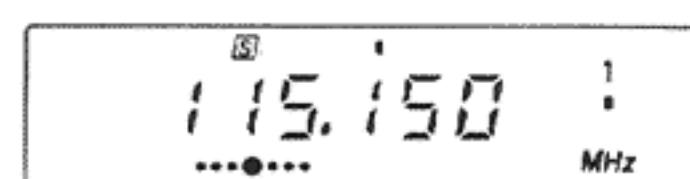
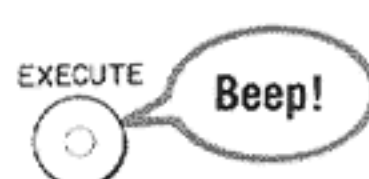
- 5 Keeping PROGRAM pressed, press DIRECT.
The [S] indicator will blink.



- 6 While the [S] indicator is blinking, input the frequency to be shifted by the converter, 115 MHz, with the number buttons.



- 7 Press EXECUTE.

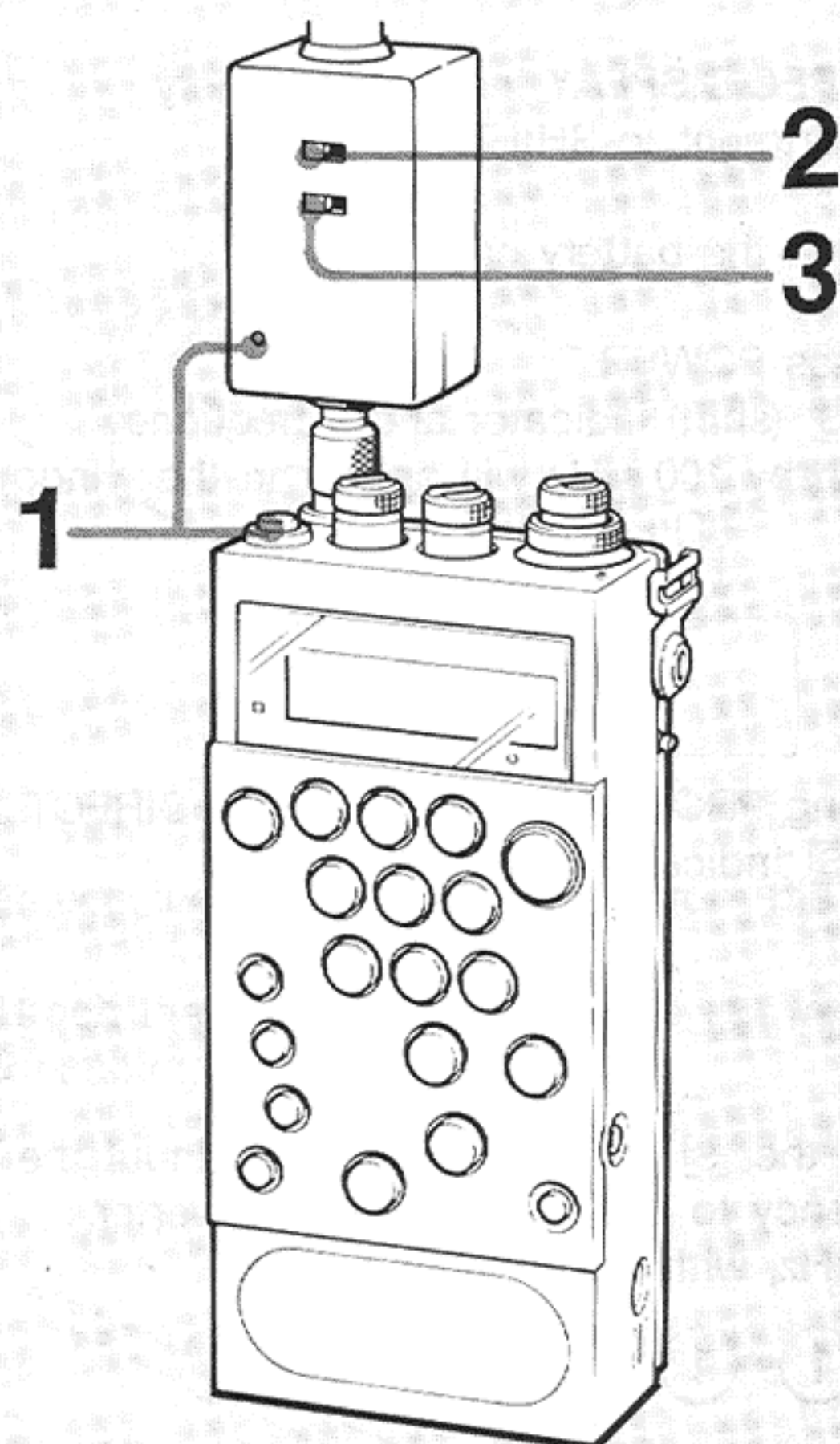


Now the frequencies 115.150–223.000 MHz can be displayed to match the received station frequencies.

To check the shifted frequency

Keeping FUNCTION pressed, press KEY/MEMORY PROTECT. While the buttons are pressed, the shifted frequency is displayed in the window.

TUNING



1 Depress POWER on the receiver.
The converter will be turned on automatically and the POWER indicator on the converter will light.

2 Set the ATTENUATOR selector on the converter to 0 dB.



3 Set the FILTER selector on the converter according to the frequency of the station to be tuned in.
115.15–174 MHz: for 115.15–174 MHz reception (air band, PSB, etc.)
174–223 MHz: for 174–223 MHz reception (TV channels, etc.)



4 Tune in the desired station with any of the tuning methods on pages 16–28.
If necessary, select the appropriate detection mode. See “To select the detection mode” on page 35.

After listening, press to turn off POWER.

Special notes on tuning in the shifted frequency coverage

Direct tuning

With the converter installed, always input 6 digits of the frequency for direct tuning. Righthand 000 cannot be omitted.

Memory tuning and memory scan tuning

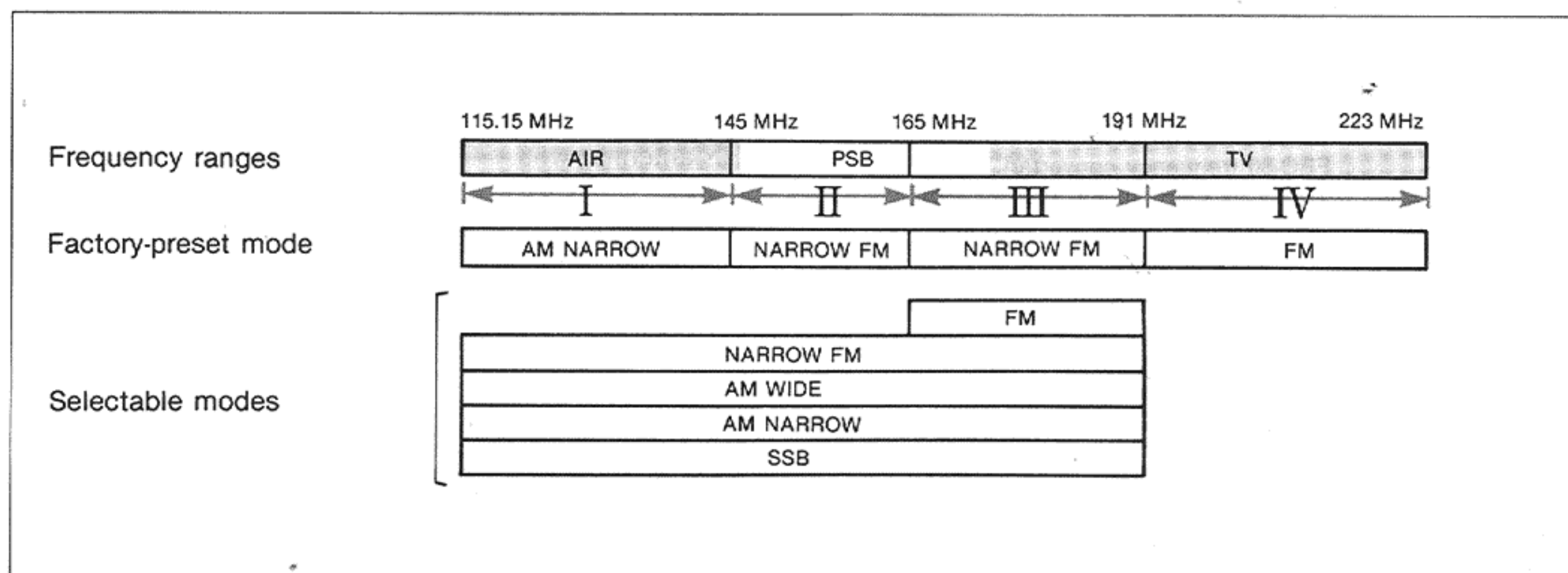
Store the stations in the 115.15–174 MHz range and those in the 174–223 MHz range on separate memory pages. If they are stored in a mixed manner on one page, memory scanning may not be carried out correctly because the FILTER selector cannot be switched during scanning.

Program memory scan tuning

Do not program the stations in the 115.15–174 MHz range and those in the 174–223 MHz range in a mixed manner. Otherwise, program memory scan tuning may not be carried out correctly because the FILTER selector cannot be switched during scanning.

To select the detection mode

The selectable detection modes in the 115.15–223 MHz range are as follows:



- When tuning in airband, PSB and TV stations, set to the following detection modes.
Air band (118–136 MHz) → AM NARROW
PSB (146–174 MHz) → NARROW FM
TV (174–223 MHz) → FM
- For other types of broadcasts and radio communications, set to the appropriate detection mode.

To resume the original frequency coverage of the receiver

Detach the converter from the antenna connector and replace the telescopic antenna. Set **FREQ. DISPLAY** inside the battery compartment to **NORMAL**.

For improved reception

If the received sound is distorted or noisy due to interference from an adjacent station, set **ATTENUATOR** on the converter to **–30 dB**.

Tuning intervals in the 115.15–223 MHz range

Frequency coverage	Interval
115.150–115.528 MHz	3 kHz
115.531–116.602 MHz	9 kHz*
116.605–164.995 MHz	5 kHz
165.000–190.995 MHz	5 kHz**
191–223 MHz	50 kHz

- * The tuning interval can be changed to 10 kHz. See page 14.
- ** When the detection mode is FM, the interval of this range will be 50 kHz.

SPECIFICATIONS

Circuit system	LW/MW/SW/VHF: Dual conversion superheterodyne FM: Superheterodyne
Frequency coverage	ICF-PRO70 Type 1: 150 kHz–108 MHz Type 2: 150–29,995 kHz and 87.6–108 MHz Type 3: 150–26,100 kHz and 87.6–108 MHz ICF-PRO80 150 kHz–108 MHz (without using the FRQ-80 frequency converter) 115.15–223 MHz (using the FRQ-80)
Antennas	SW/VHF/FM: Telescopic antenna LW/MW: Built-in ferrite bar antenna External antenna connector: TNC connector
Speaker	7 × 3.5 cm
Power output	400 mW (at 10% harmonic distortion)
Output jack	Earphone jack (minijack) (1) 8 ohm Recording output jack (minijack) (1) Output level 0.775 mV (–60 dB) Output impedance 1 kilohm
Power requirements	6 V DC (for radio/computer backup) Four size AA (R6) batteries or BP-23 rechargeable battery pack (optional) DC IN 6 V jack accepts: AC-D4 AC power adaptor (optional) for use on 100, 120, 220 or 240 V AC depending on the model type of the AC-D4 available in your country DCC-127A or DCC-120 car battery cord (optional) for use with 12 V car battery DCC-240 car battery cord (optional) for use with 24 V car battery EBP-6 battery case (optional) using four size C (R14) batteries
Battery life	Approx. 10 hours using Sony SUM-3(NS) batteries
Dimensions	Approx. 90 × 182 × 50 mm (w/h/d) (3 ⁵ / ₈ × 7 ¹ / ₄ × 2 inches) including projecting parts and controls, not including the telescopic antenna
Weight	Approx. 650 g (1 lb 7 oz) including batteries, shoulder strap and telescopic antenna

FRQ-80 frequency converter (supplied with the ICF-PRO80 only)	
Shift frequency	115 MHz
Attenuator	0 dB/–30 dB
Power requirements	3 V DC, two size AA (R6) batteries
Battery life	Approx. 80 hours using Sony SUM-3(NS) batteries
Dimensions	Approx. 40 × 98 × 31 mm (w/h/d) (1 ⁵ / ₈ × 3 ⁷ / ₈ × 1 ¹ / ₄ inches) including projecting parts and controls
Weight	Approx. 120 g (4.2 oz) including batteries

Accessories supplied

Telescopic antenna (1)
Earphone (1)
Shoulder strap (1)
Carrying case (1)
Antenna holder (1)
Antenna plug adaptor (BNC ↔ TNC) (1)
FRQ-80 frequency converter (ICF-PRO80 only) (1)
Wave Handbook (1)

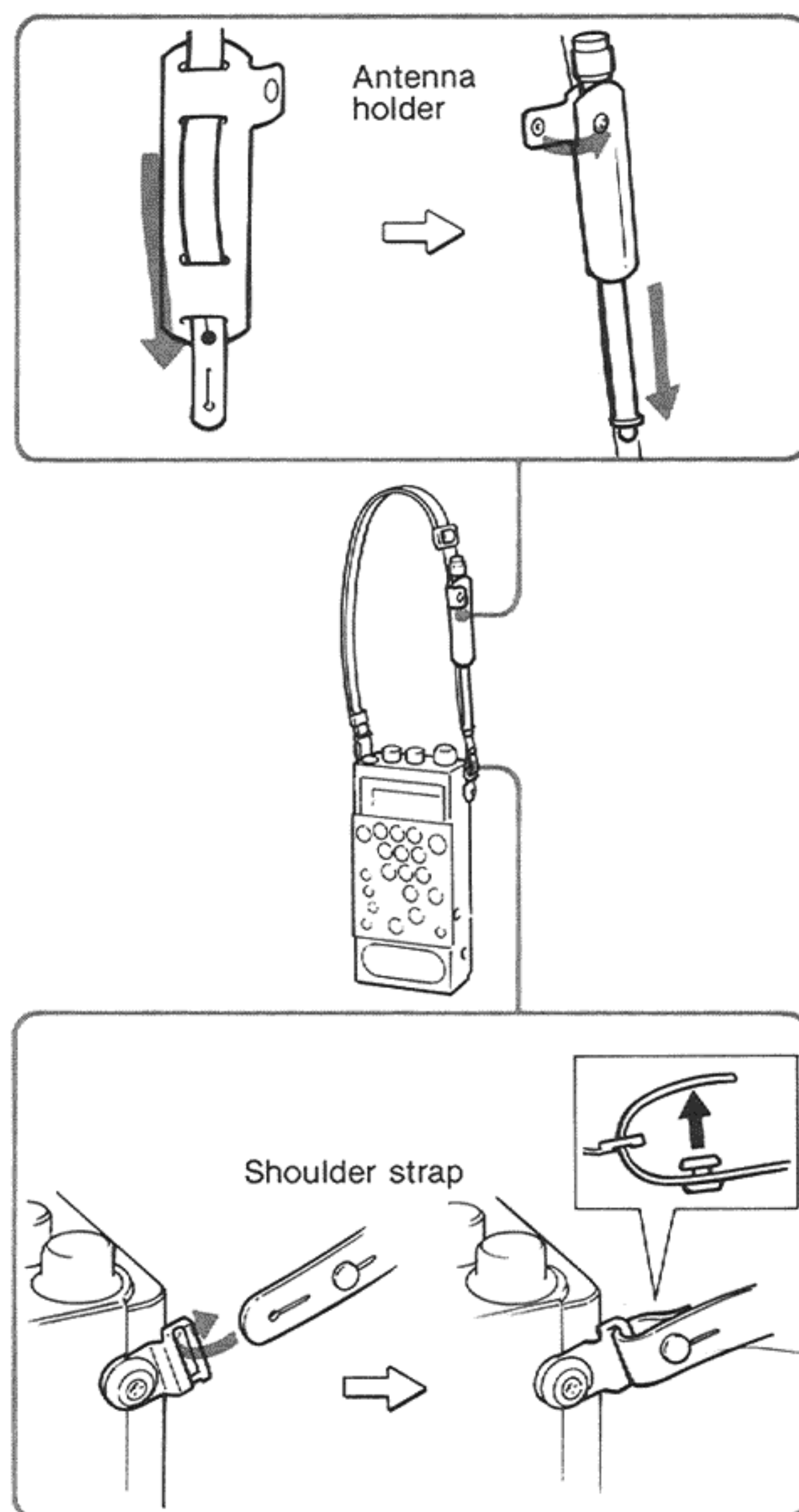
Design and specifications subject to change without notice.

OPTIONAL ACCESSORIES

AC power adaptor AC-D4
Rechargeable battery pack BP-23
Car battery cord DCC-127A, DCC-120, DCC-240
Battery case EBP-6
Connecting cord RK-69A (miniplug to miniplug)
VHF antenna AN-3

Your dealer may not handle some of the above listed optional accessories. Please ask the dealer for detailed information about the optional accessories available in your country.

HOW TO USE THE ANTENNA HOLDER AND SHOULDER STRAP



TROUBLESHOOTING GUIDE

Should any problem occur with the unit, make the following simple tests to determine whether or not servicing is required.

If the problem persists after you have made these tests, consult the nearest Sony dealer for further information.

	Symptom	Possible causes
GENERAL	Frequency display does not appear when the POWER switch is depressed.	• Incorrect polarity of batteries. • Weak batteries. • The AC power adaptor or car battery cord is not connected correctly.
	Display is dim.	• Weak batteries. • The unit is being used in extremely high temperatures or in a place with excessive moisture.
	No sound	• The volume control is turned fully down. • The earphone is plugged in. • Turn SQL counterclockwise in the released position.
	Very weak or interrupted sound, or unsatisfactory reception	• Weak batteries. • Adjust the antenna. • For AM reception, set the detection mode to AM NARROW. • In a vehicle or in a building, listen near a window.
	Buttons on the front panel do not function.	• Press KEY/MEMORY PROTECT to deactivate the key protection function.
	The POWER switch and the other buttons do not function at all.	• Press RESET in the battery case.
TUNING	A frequency cannot be input in direct tuning.	• The next button was not pressed within 5 seconds. • A frequency beyond the frequency coverage was input.
	A frequency cannot be stored in memory.	• Press a number button keeping ENTER pressed. • Press ENTER + KEY/MEMORY PROTECT to deactivate the memory protection function.
	The stored frequency cannot be tuned in.	• Incorrect setting of the PAGE selector. • The memory has been erased. Replace the batteries and store the stations again.
	Scanning does not stop.	• Weak signal. Adjust the antenna. • Turn SQL counterclockwise in the released position.
	Scanning does not begin.	• A strong station is being received. Press SCAN $\oplus/\ominus$ repeatedly. • Turn SQL clockwise in the released position.
	An unintended frequency range is scanned.	• Press FUNCTION + $\odot$ to disengage limited scan mode.
	Program memory scan tuning cannot be activated.	• Only one station has been programmed. • Press PROGRAM to display PROGRAM indicator.
	VHF communications cannot be received. (ICF-PRO70 type 1 and ICF-PRO80 only)	• Set the detection mode to NARROW FM.
	SSB cannot be tuned in.	• Set the detection mode to SSB. • Fine tune the station with FINE/SSB.
	For AM reception, fine tuning cannot be made.	• Set the detection mode to AM WIDE or AM NARROW.
	Memory search or program memory search cannot be activated.	• Searching is carried out only while FUNCTION is kept pressed.
	Memory protection cannot be activated.	• Keeping ENTER pressed, press KEY/MEMORY PROTECT.

