



# C5200E/C5200ED

**TWIN BAND VHF/UHF TRANSCEIVER**

**OWNER'S MANUAL**



**STANDARD COMMUNICATIONS**  
A DIVISION OF MARANTZ JAPAN INC

# C5200E/C5200ED

## TWIN BAND VHF/UHF TRANSCEIVER

### NOTE TO USERS

The Model C5200E/C5200ED Series Twin Band Transceivers are engineered and manufactured with highest quality of microelectronics technology and workmanship. We are confident that you will be entirely satisfied with the superb performance and reliability for which the C5200E/C5200ED are designed.

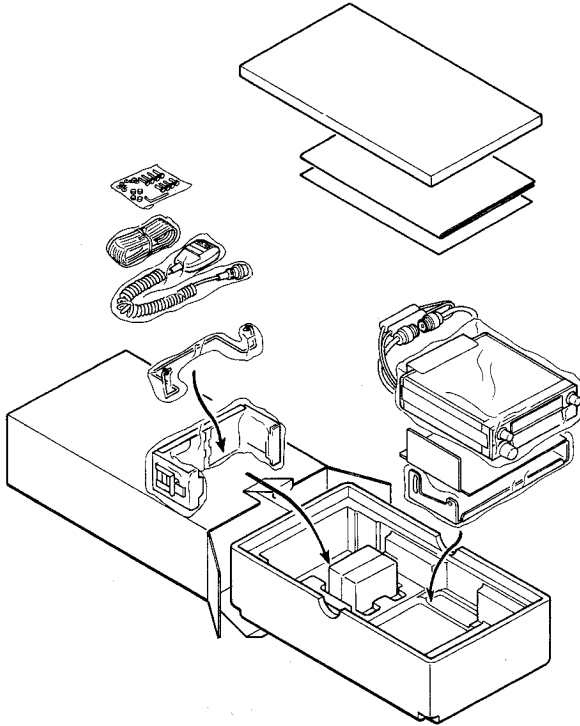
Our very strict quality control and inspection ensure that each transceiver unit left the factory in perfect condition. If your transceivers does not operate properly or if you feel any difficulty in operating the transceiver, immediately contact the dealer where you purchased your transceiver unit.

This handbook is applicable for C5200E and C5200ED, however, different items are written respectively. To obtain maximum performance and extended service life from the Transceiver, read these instructions carefully.

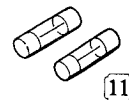
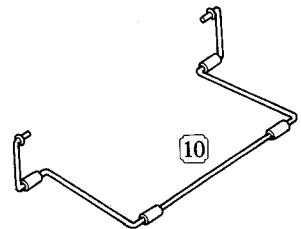
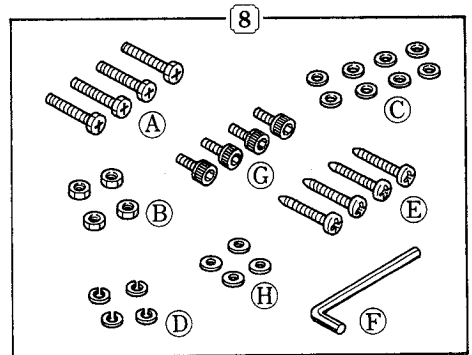
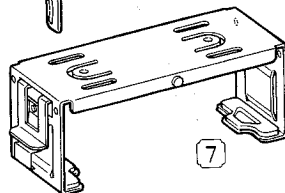
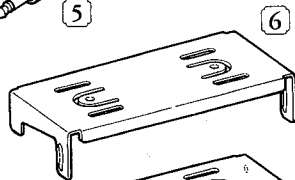
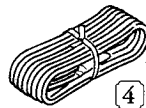
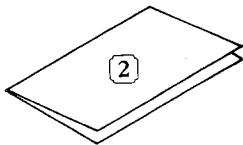
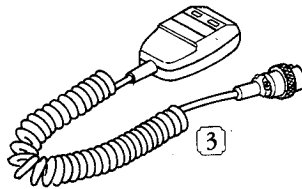
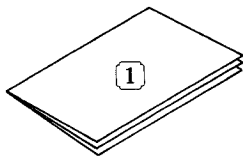
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# PACKING/ACCESSORY



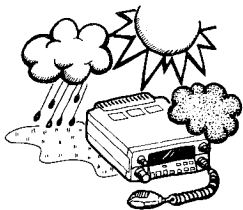
- ① Owner's Handbook ..... 1
- ② Schematic (including Block diagram) ..... 1
- ③ Microphone (CMP838) ..... 1
- ④ Power Cord (Red/Black) 2.0m ..... 1
- ⑤  $\phi$ 3.5 Plug (for external speaker) ..... 1
- ⑥ Set Fix Bracket ..... 1
- ⑦ Angle Bracket ..... 1
- ⑧ Parts for Mobile (including 6 and 7 )
  - Ⓐ Hexagon headed bolt (M5mm $\times$ 20mm) ..... 4
  - Ⓑ Hexagon nut (M5mm) ..... 4
  - Ⓒ Plain washer (M5mm) ..... 8
  - Ⓓ Spring lock washer (M5mm) ..... 4
  - Ⓔ Tapping screw (M5mm $\times$ 15mm) ..... 4
  - Ⓕ Hexagon socket bolt key ..... 4
  - Ⓖ Hexagon socket bolt (M4mm $\times$ 10mm, black) ..... 4
  - Ⓗ Plain washer (M4mm, black) ..... 4
- ⑨ Microphone Hanger ..... 1
- ⑩ Stand (for Transceiver) ..... 1
- ⑪ Spare Fuse: 5A for C5200E or ..... 2  
12A for C5200ED ..... 2



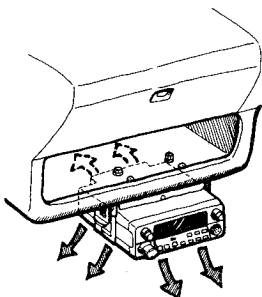
# PRIOR TO USAGE

## INSTALLATION

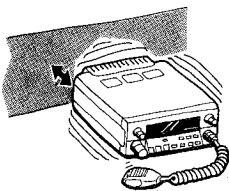
**1** Keep out of high temperature, humidity and dust. Do not expose the Transceiver to the direct rays of the sun. Install the unit to where dried and well ventilated.



**2** Install the unit, taking enough open space below and rear of it so that ventilation effect of the heat sink is not degraded. The unit may be warmed for long time operation, however, it is not matter.

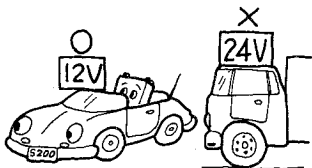


**3** Take enough open space to install the unit in a car. Be careful that rear side of the unit is not shut by the seat and so on, since the ventilation effect is degraded by them. Install and operate the unit where it is not vibrated considerably.



## BATTERY

**1** This unit is for DC 12V only. Do not use the unit with 24V.



**2** Do not connect to AC 100V directly. The optional DC regulated power supply (13.8V) is available for indirect connection.

**3**

# FEATURES

- ① One band in VHF and one band in UHF are simultaneously received.
- ② Simultaneous transmit/receive can be also available, using two bands. The full duplex communication like transmit in UHF and receive in VHF (or opposite) is available.
- ③ Independent frequency indicator, S meter and Busy indicator for each band.
- ④ Independent volume control and Squelch control for each band.
- ⑤ The external speaker is independently available for each band.
  - When the external speaker is not applied, the sound of both two bands is heard from the internal speaker.
  - When the external speaker is connected to 144 MHz speaker jack, the external speaker will be for 144 MHz band, and the internal speaker is for 430 MHz.
  - When the external speaker is connected to 430 MHz speaker jack, the sound of both bands is headed from the external speaker, disabling the internal speaker.
  - When the external speakers are connected to each jacks respectively, the sound of each band is heard independently.
- ⑥ Sub band feature  
Receive frequency is tunable during transmission on the other band.
- ⑦ Automatic Mute Circuit  
When the signal is received at the band you wish to catch, the sound at the other band is automatically muted.
- ⑧ Microprocessor
  - 10 channels can be memorized in VHF and UHF respectively.
  - Shift Tone Memory for 10 channels for VHF and UHF.
  - Scan variety available independently on each band.
  - Frequency of CALL channel can be changed.
  - Remote Control by microphone.
  - Indication can be turned off.
  - One of channel step can be separately set for VHF and UHF, selecting from 5 varieties.
  - Band Busy Alarm to inform that the signal is received.
  - Band TX Alarm to inform the transmitted band.
- ⑨ Tone Squelch Operation for each band is available by installing optional tone squelch unit CTN5200.

# INSTALLATION TO MOBILE STATION

## 1 Where to install

It is recommended to install C5200E or C5200ED below dashboard, side of console box or below instrument board.

### CAUTION:

#### DO NOT INSTALL TO FOLLOWING PLACES:

- Around the duct of heater or air condition.
- Where the unit is exposed to the direct rays of the sun.
- Where the unit is vibrated considerably.
- Around the electronics circuit of the car.
- Where the safety driving is obstructed by installing the unit.

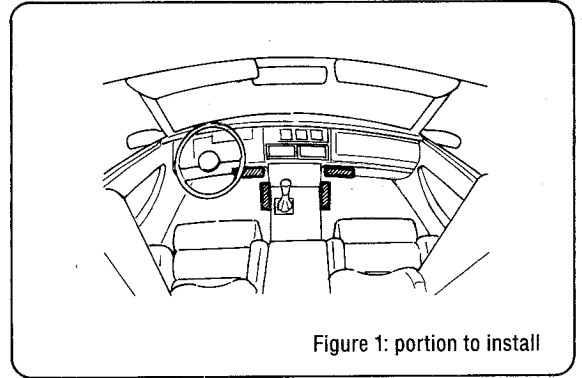


Figure 1: portion to install

## 2 Bracket installation

Select the place to fix the bracket tightly, and fix it with bolts and screws included.

- See page 42 as to Mobile Bracket Hole Pattern.

① When you use hexagon bolt of M5mm, make a hole with diameter of 5.2 to 5.5 mm. Make a hole with diameter of 4.0 to 4.3 mm for tapping screw of M5mm.

② Install the set fix bracket in a car as shown in Figure 2.

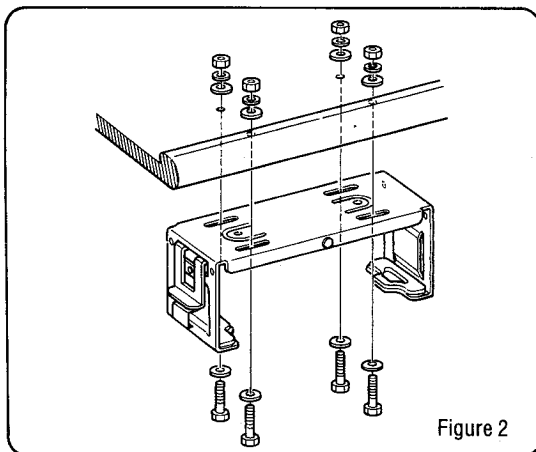


Figure 2

③ When the angle bracket is necessary, install it as shown in Figure 3. Installation angle is adjustable by unfastening four screws of the angle bracket.

- When using hexagon bolts of M5mm, fasten the bolts through plain washer. Parts on side to fasten are plain washers, spring washers, and nuts.

- When using tapping screws of M5mm, fasten the screw through plain washer. They are self-tapped by screwing.

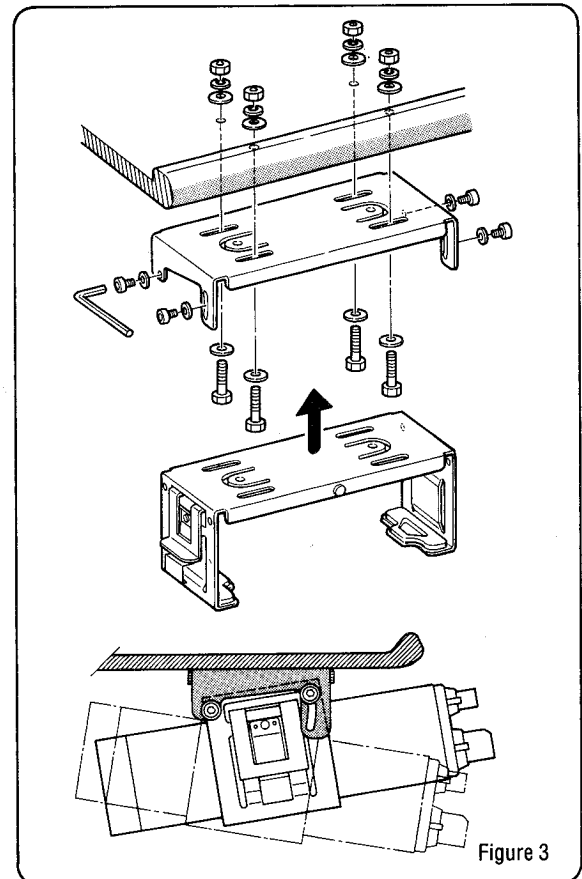


Figure 3

- ④ Connect the coaxial cable from antenna to the coaxial cable from rear panel, and power cable from car battery to the power cable.

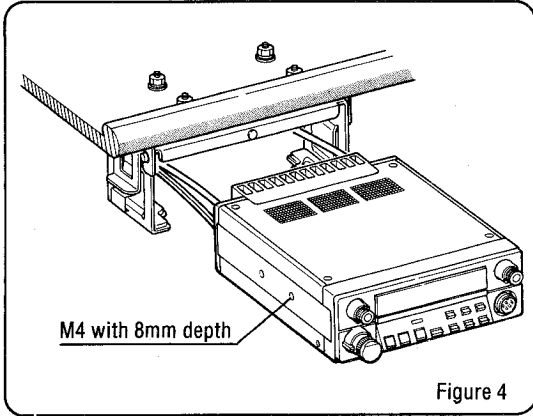


Figure 4

- ⑤ Insert the unit to the bracket and turn the levers downwards as in Figure 5.
- Before inserting the unit, make sure that the levers are not set.
  - Depress the spring below the lever to release the unit.

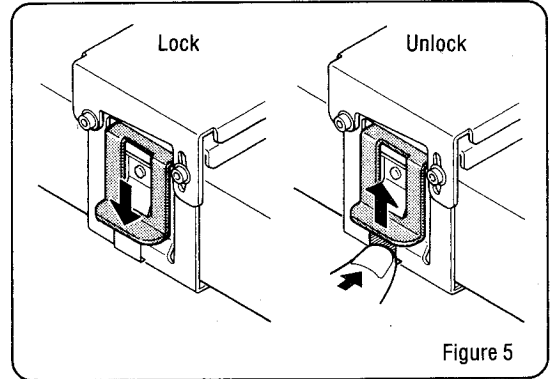


Figure 5

**Note:**

**Connect the cables before inserting the unit.**

### 3 Wiring Power Cable

- ① The power for C5200E and C5200ED is supplied from the car battery.
- ② Connect the unit to the car battery with the cable (2.0 m) included.

**Note:**

**C5200E and C5200ED are designed to use with 12V. When your car battery is 24V, DC-DC converter to convert it into 12V is required.**

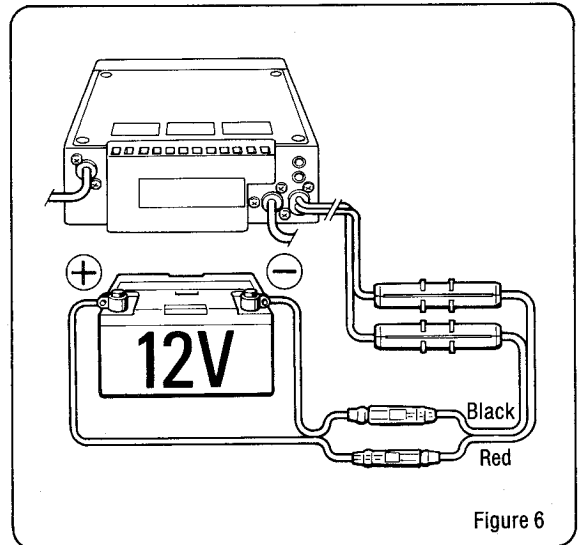


Figure 6

- ③ To switch with ignition, connect as Figure 7 and 8.
- Connect ⊕ of red cord for Power to 12 V ⊕ through ignition key.
  - Connect ⊖ of black cord to 12 V ⊖.

**Note:**

Use 5A fuse for C5200E and 12A for C5200ED. Connect the cords carrying spliced portion of rubber.

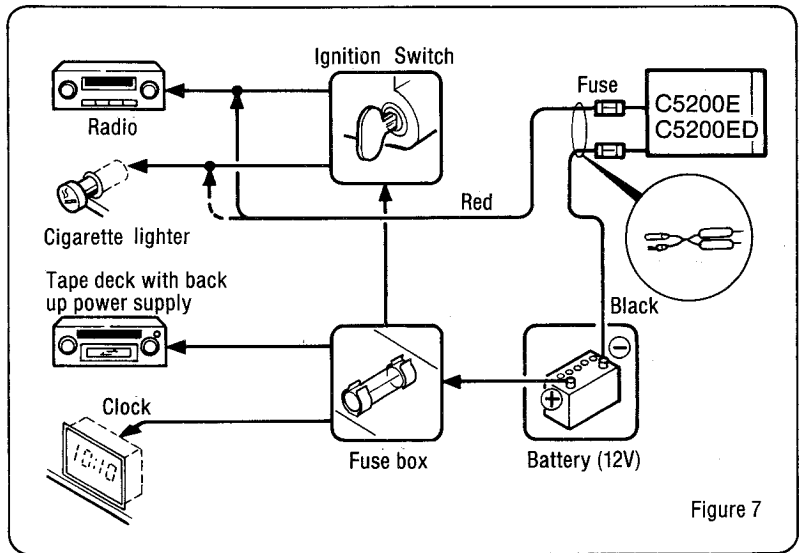


Figure 7

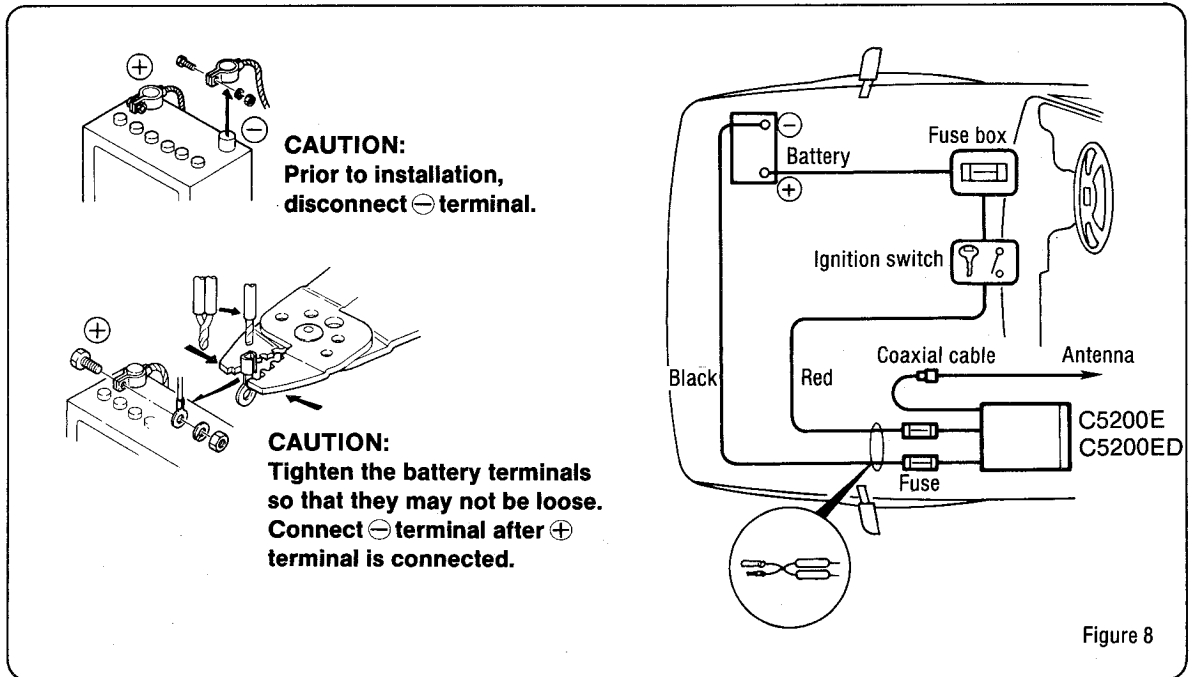
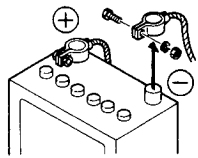
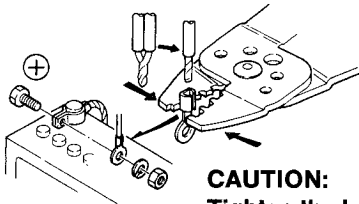


Figure 8



**CAUTION:**  
Prior to installation,  
disconnect ⊖ terminal.



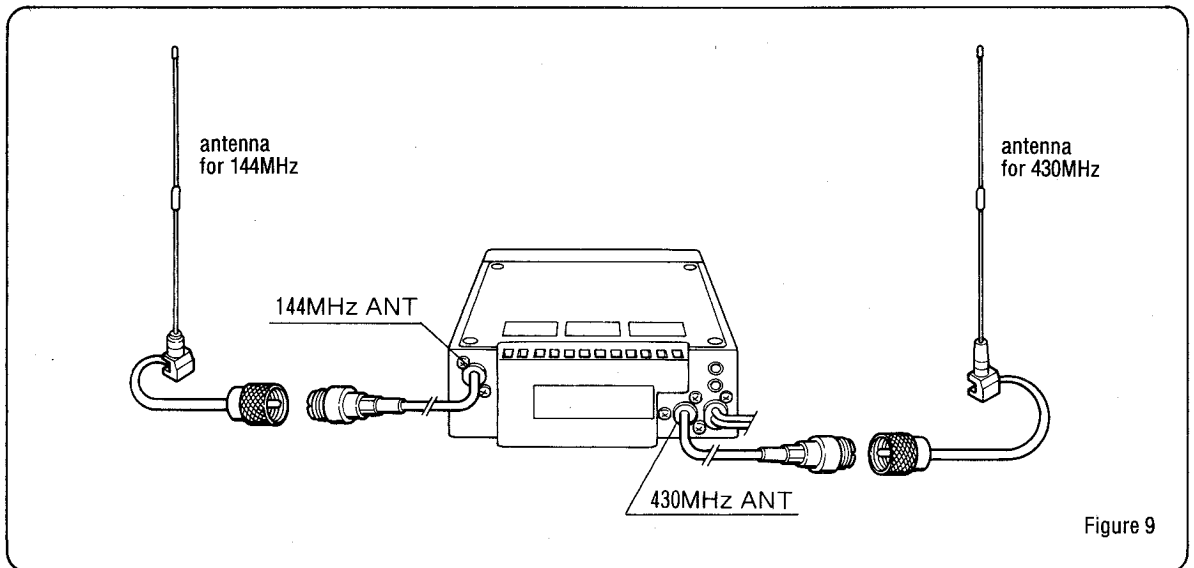
**CAUTION:**  
Tighten the battery terminals  
so that they may not be loose.  
Connect ⊖ terminal after ⊕  
terminal is connected.

## 4 Antenna Connection

Select the antenna according to your purpose, since the unit performance depends on the antenna and its characteristics.

### ① Connection to independent antenna (Figure 9)

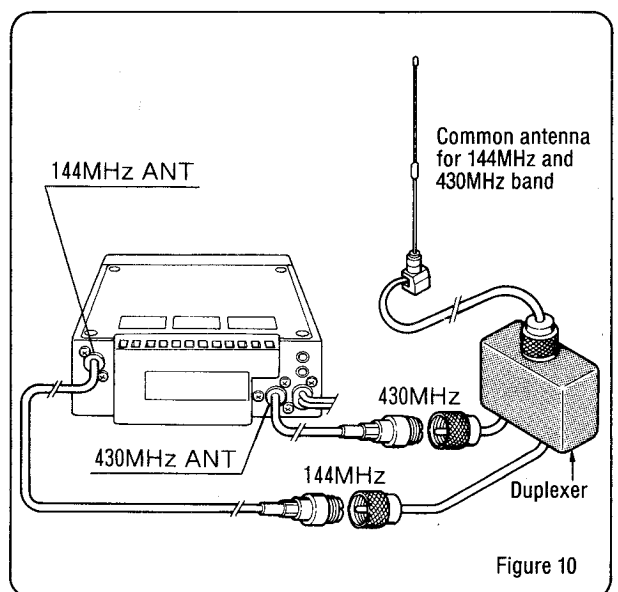
1. Connect the antenna cable for 144 MHz to C5200E or C5200ED.
2. Connect the antenna cable for 430 MHz to C5200E or C5200ED.



### ② Connection to common antenna (Figure 10)

1. A duplexer for 144 MHz and 430 MHz will be required for common antenna. Connect the cable from antenna to the duplexer properly. (Read instruction manual for the duplexer in detail.)

**Note:**  
Some antenna contains internal duplexer. Check it when purchasing.





## 5 Antenna Installation

- ① Decide the installation portion. Select the antenna base according to the antenna and installation portion. For reference, antenna base varieties are shown in Figure 11.
- ② The antenna base set contains the coaxial cable. Be careful for treating the cable, since it is critical as the signal path.
- ③ Wire the cable as in Figure 12.

### Note:

- To obtain maximum performance form C5200 or C5200D, select the antenna having excellent quality. Adjust the antenna for SWR of 1.5 or less. Unproper adjustment decreases the transmit power.
- Take the earth of the car and antenna base when installing antenna base.
- Install the cable so that rain is not fallen in the car. Fix the cable so that it is not ruined by shutting and/or opening the window or the door.
- Do not wire the cable around the electronic circuit of the car. Doing so may cause the circuit to work improperly.
- Do not cut or reform the antenna. It is adjusted to the specified frequency. Unproper antenna degrades the transmit power and/or sensitivity.

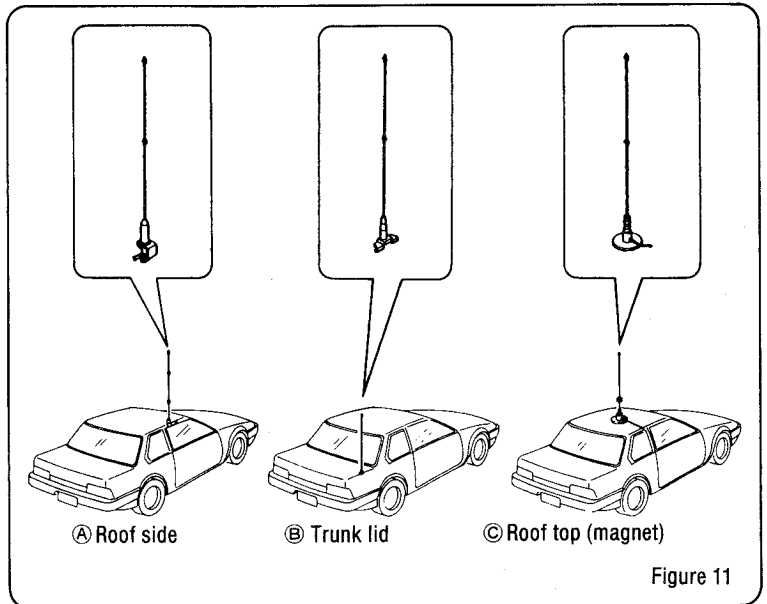


Figure 11

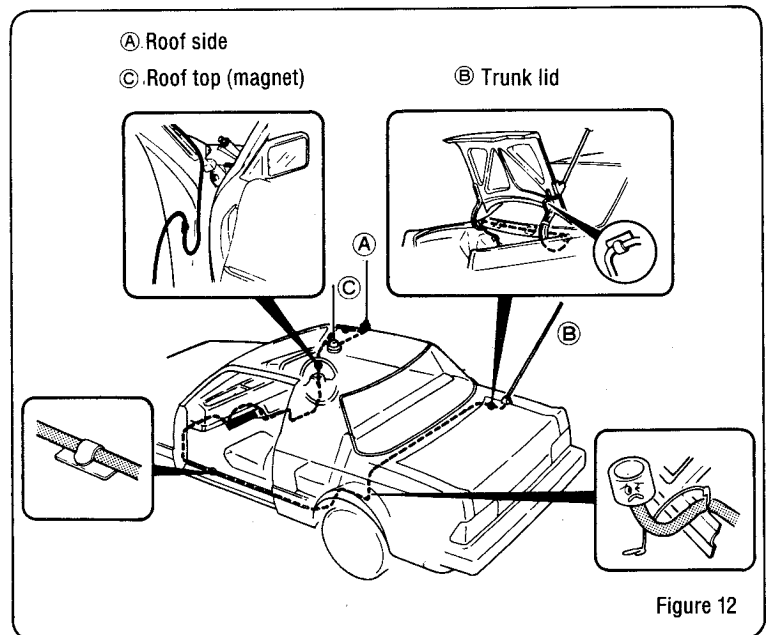


Figure 12

# INSTALLATION TO BASE STATION

## 1 DC Regulated Power Supply

C5200E is also used as the Base station at home by applying DC Regulated Power Supply. Refer to the instruction manual of the DC Regulated Power Supply in detail. The output current more than 4A will be required.

### Using on the desk

Set the unit with the stand included, as shown in Figure 13.

### CAUTION:

When using C5200ED as an Base station, apply DC Regulated Power Supply with DC output of 13.8V, output current of 12A or more, smaller voltage and ripple.

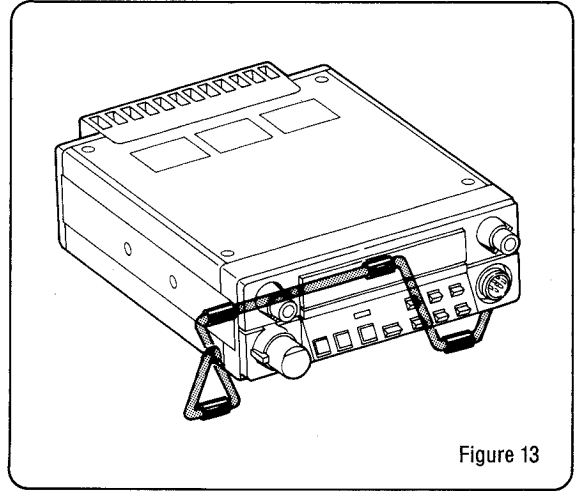


Figure 13

## 2 Antenna Installation

Select the antenna according to your purpose. In general, ground plane antenna is suitable for QSO in local area, and Yagi antenna (directional) is suitable for long distance QSO.

The cable from the antenna to the unit should be wired in the minimum distance since the signal may be lost through longer cable. When the distance between the antenna and the unit is 10m or shorter, use 8D2V cable.

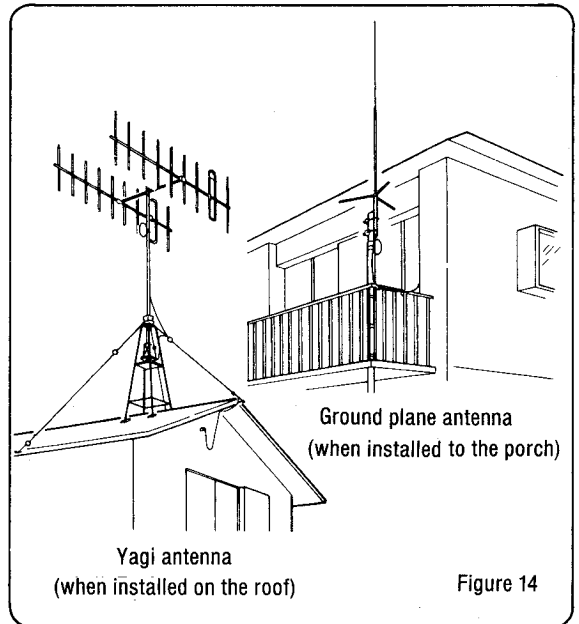
For the distance from exceeding 10m upto 30m, 10D2V or thicker.

### ① Installation on the roof

The normal installation view is shown in Figure 14.

When you use vertical antenna, the cable should be loosened so that Cable's weight is absorbed.

Normal installation of the antenna is shown in Figure 16, however, contact the dealer where you purchased your transceiver unit in detail. Refer to the instruction manual of the antenna for applying drip cap or fixing cable.



Yagi antenna  
(when installed on the roof)

Ground plane antenna  
(when installed to the porch)

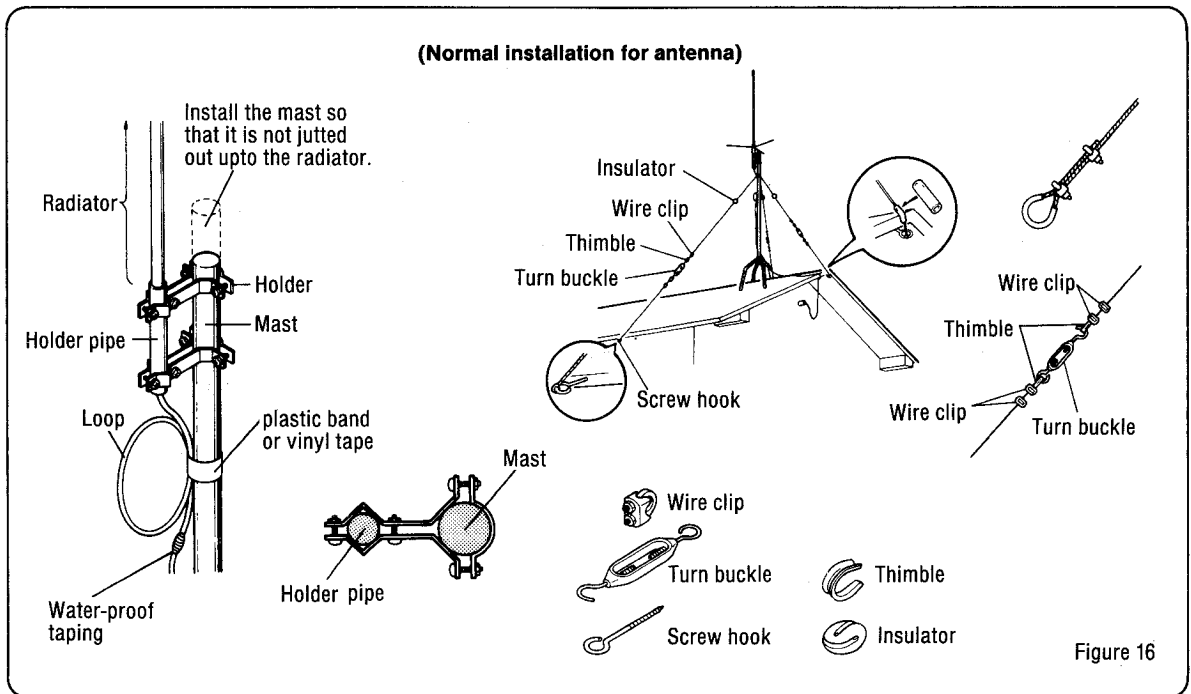
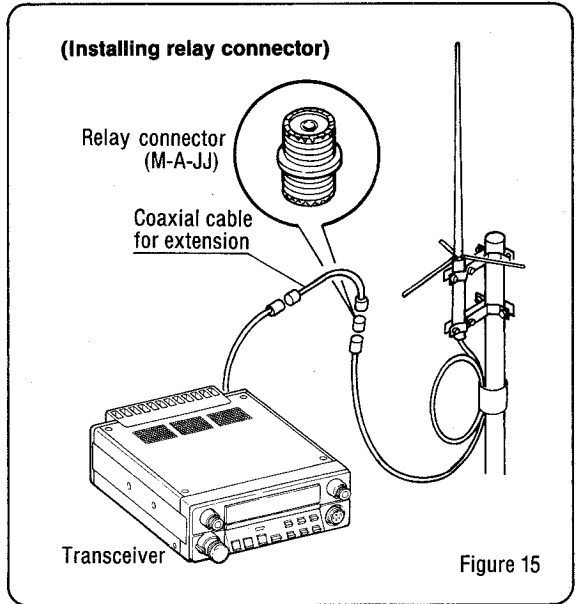
Figure 14

② As water-proof measure, wind the self-bonding tape around the connecting portion two times with a half lap, pulling it strongly. Wrap the vinyl tape on them to strengthen.

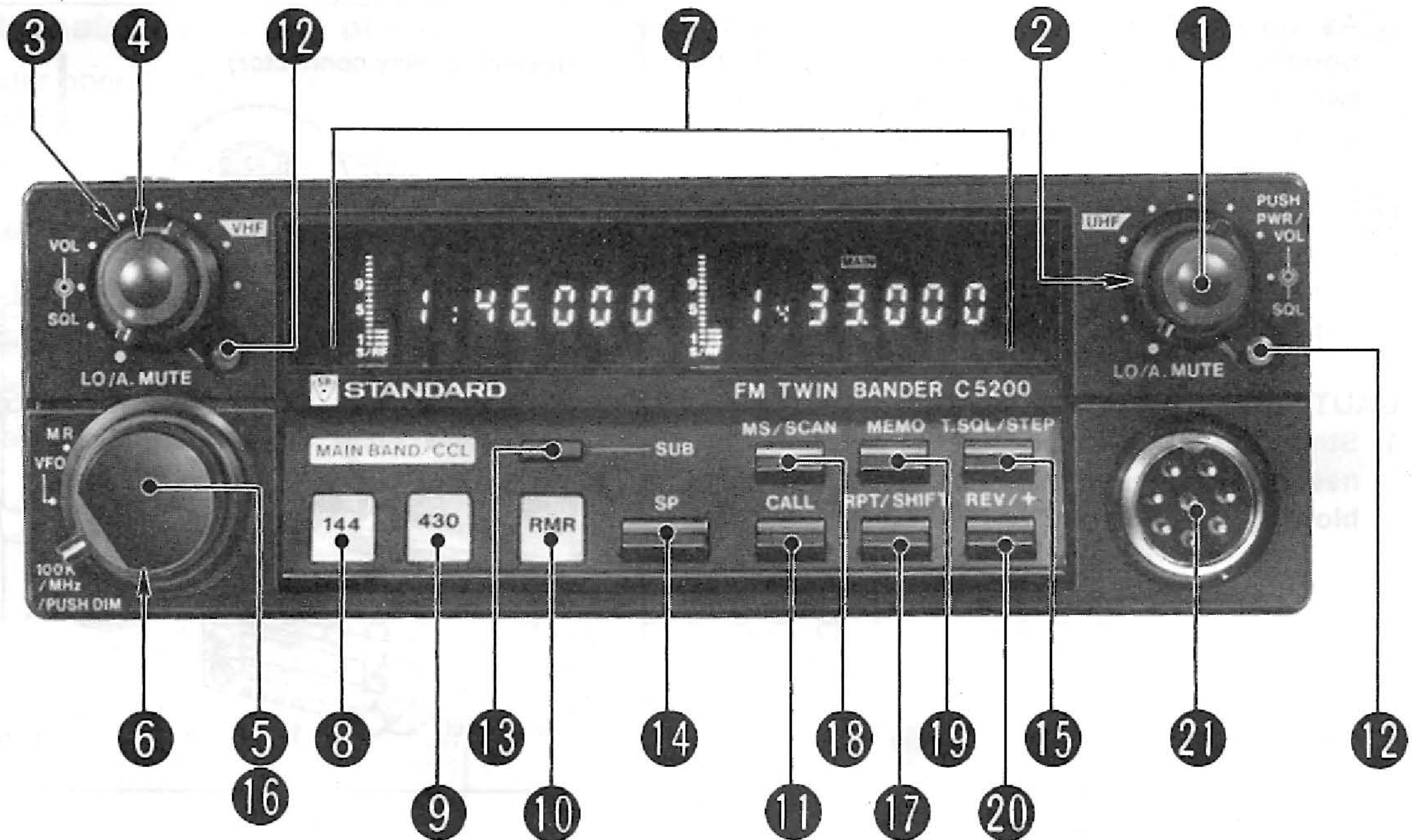
③ When the cable from the antenna to C5200E or C5200ED is short, use extension cable. For the connection of the plug, use jack-to-jack (M-A-JJ) connector.

**CAUTION:**

1. Strain the stay wire so that the antenna will never be harmful to others by falling down or blowing out by strong wind or storm.

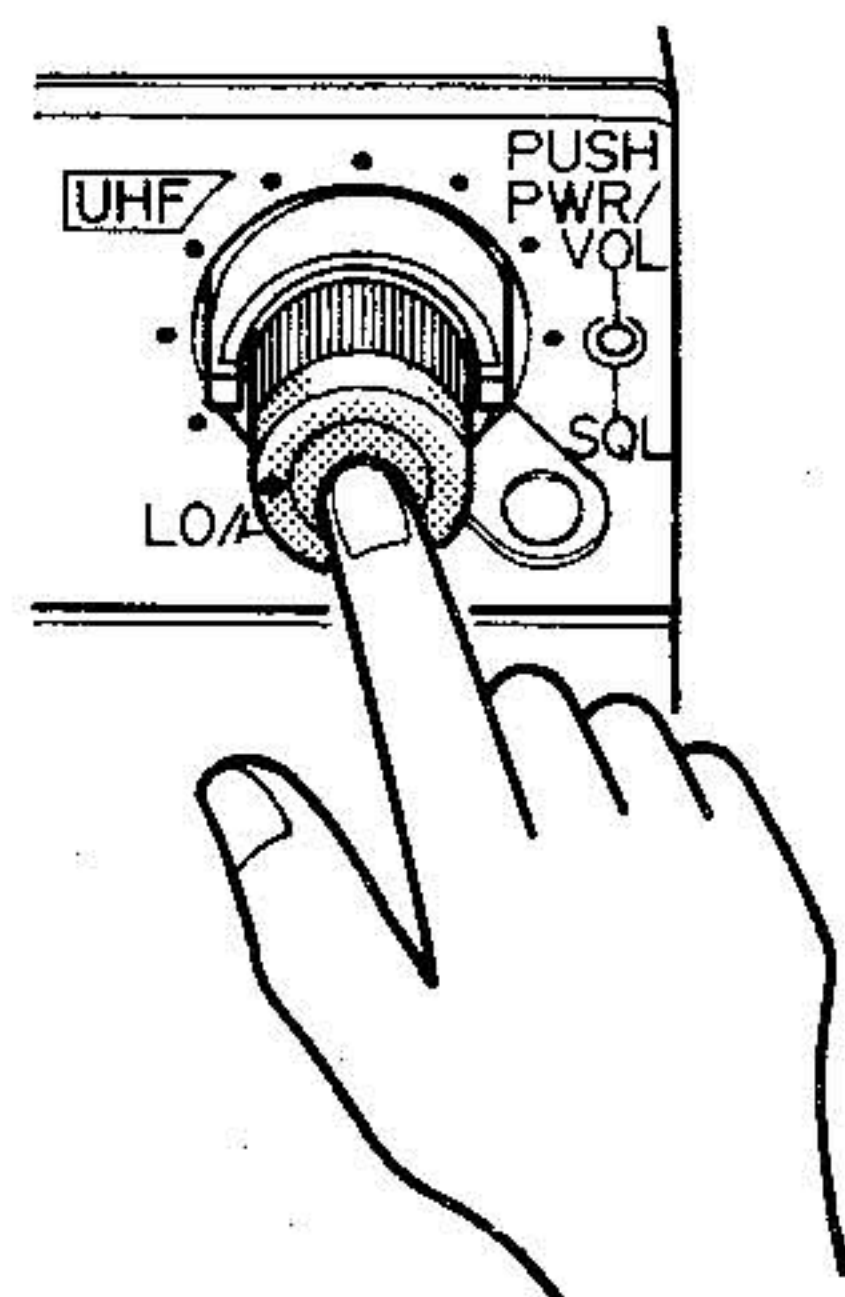


# CONTROLS & CONNECTIONS



## 1 PUSH PWR/VOL [Power switch/Volume control for 430 MHz]

1. Turns the unit on and off. And controls sound volume for 430 MHz.

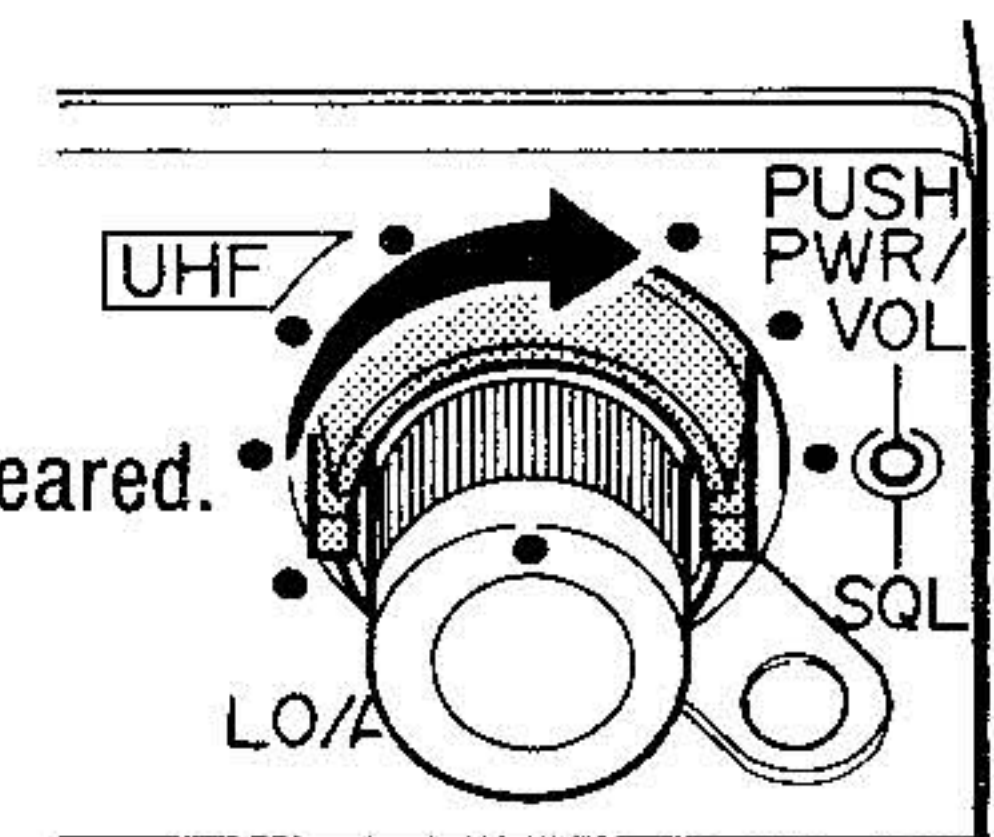


The power is turned on.

2. 146.00 and 433.00 are displayed when it is initially turned on.

## 2 SQL [Squelch Control for 430 MHz]

This control minimizes unpleasant white noise presented when there is no input signal to the unit. Turn this control gradually until white noise is not heard any more when no signal is being received. (It is initially turned fully counterclockwise.)

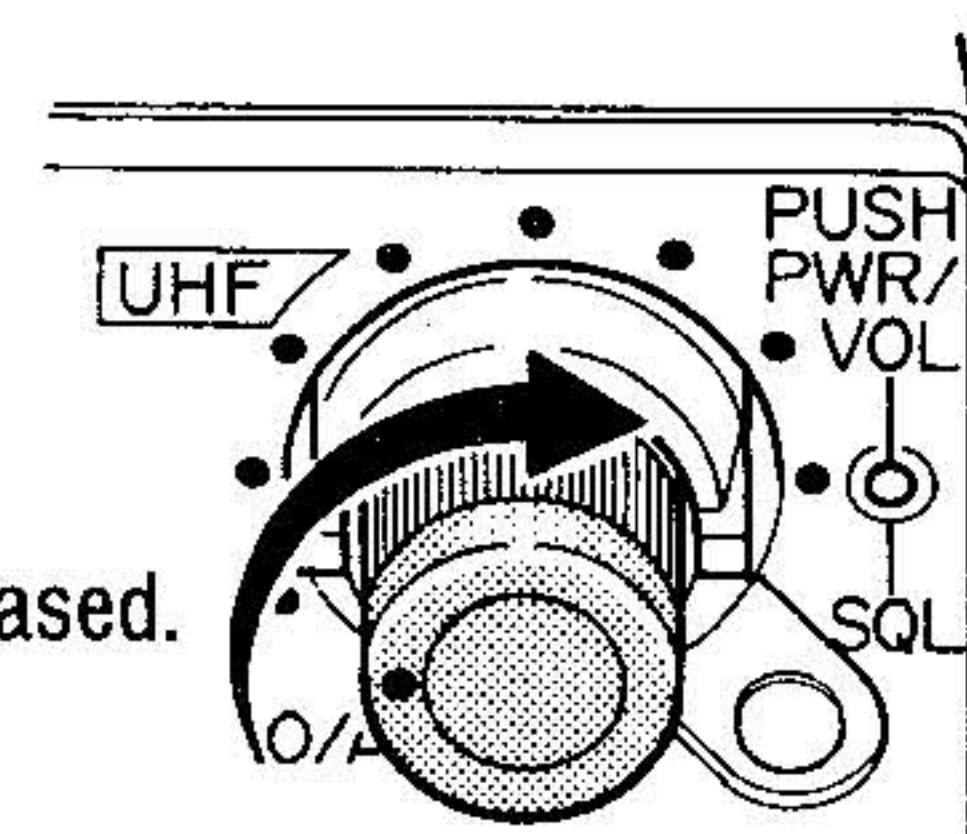


The noise is disappeared.

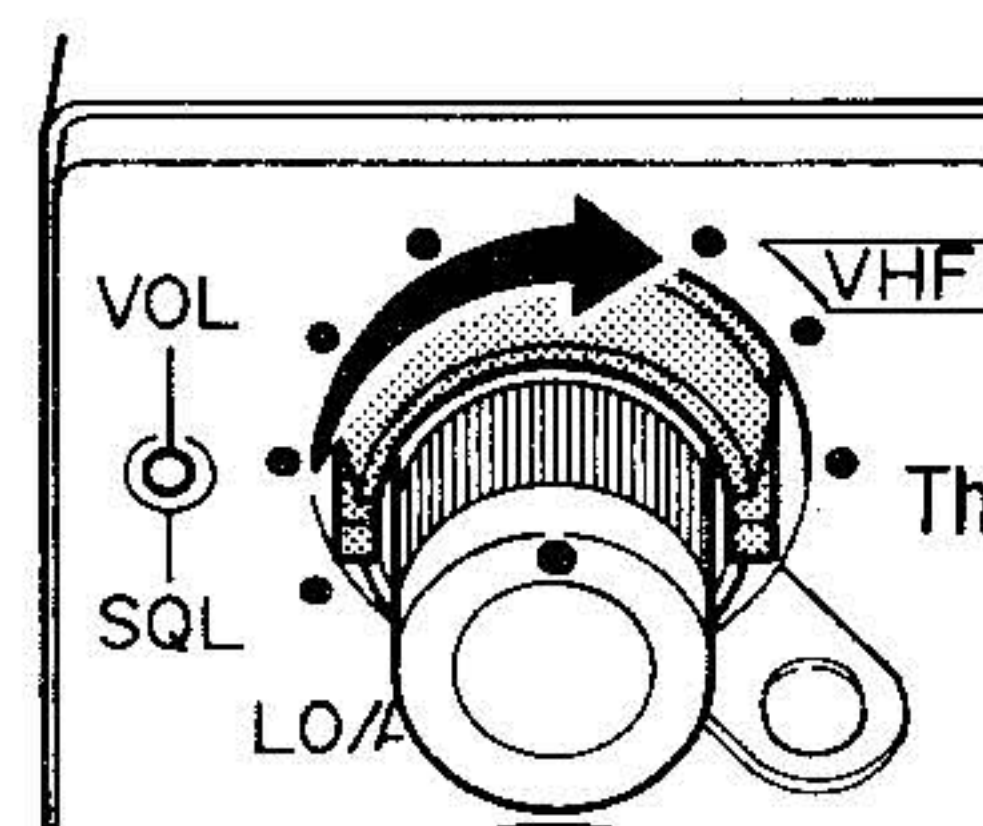
3. Turn clockwise (↻) to increase the sound volume. Turn counterclockwise (↺) to decrease the sound volume.

## 3 SQL [Squelch Control for 144 MHz]

This control is for 144 MHz. Operation is equivalent to that of 430 MHz.



The sound is increased.



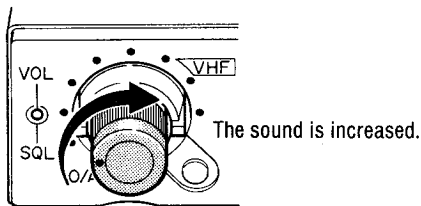
The noise is disappeared.

**Note:**

1. Do not turn SQL control exceeding threshold point. Doing so may cause the unit to degrade the sensitivity.
2. Scan should be performed with the squelch controlled.
3. Squelch control should be performed in vacant channel.

#### 4 VOL [Volume Control for 144 MHz]

1. This is sound volume control for 144 MHz.
2. Turn clockwise (↻) to increase the sound volume, and turn counterclockwise (↺) to decrease it.

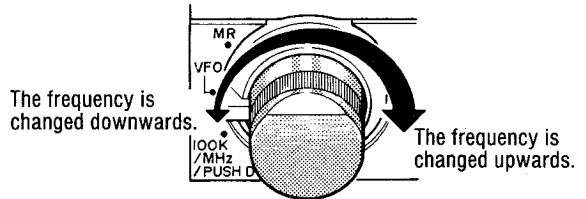


#### 5 Main Dial

#### 6 Channel Selector

Main Dial is used for changing frequency and illumination on display.

1. Turn clockwise (↻) to change the frequency upwards and counterclockwise (↺) to change it downwards.



2. Channel step varieties are: 5 kHz, 10 kHz, 12.5 kHz, 20 kHz, and 25 kHz when the selection is VFO. When the selector is 100 K/MHz, the channel step of 100 kHz or 1 MHz is available. Setting channel step is set forth in 15 (T. SQL/STEP).
3. Transmission frequency for 144 MHz and 430 MHz are separately changeable. The frequency is sub band is also changeable during QSO in main band.

### FEATURE TO CHANGE FREQUENCY

According to the position, the channel selector works as follows.

#### 1 MR

Provides memory recall mode. Memory frequency is displayed by turning it. Memorization is not available with this mode. All the buttons except for SP 14 and SUB 13 are disabled with short beep.

#### 2 VFO

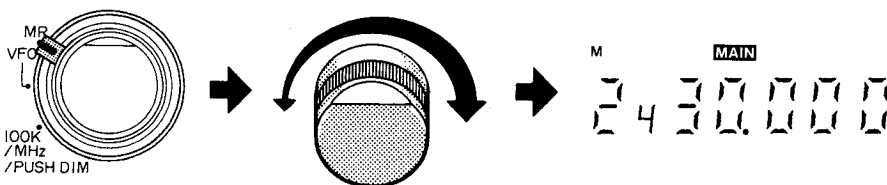
The frequency is changed with selected channel step. Channel step varieties are: 5 kHz, 10 kHz, 12.5 kHz, 20 kHz and 25 kHz.

Setting channel step is set forth in page 22.

#### 3 100 K/MHz

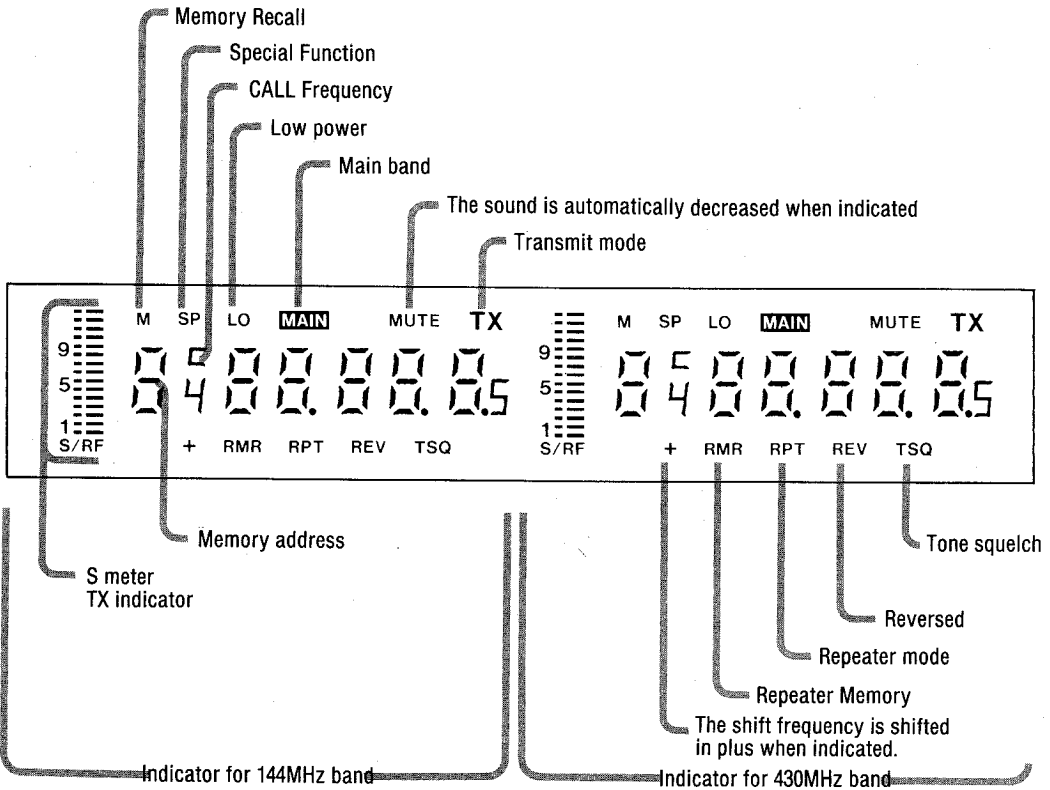
When SP is indicated on display, the channel step will be 1 MHz.

When it is not indicated, the channel step will be 100 kHz.



## 7 Display

Display for 144 MHz and 430 MHz band are independent to bring Twin band Transceiver into full play.



## ■ S/RF Meter

**S meter**  
According to the signal strength, it goes up.

9  
5  
1  
S/RF

**RF meter**  
All levels are lit with transmit mode of Hi power.  
Levels upto 5 are lit with Low power.

9  
5  
1  
S/RF  
Low Power

9  
5  
1  
S/RF  
Hi Power

**Busy**  
Lights when the squelch is opened with transmit mode.  
If the S/RF meter upto 3 level are lit, the squelch is opened.  
The squelch is not opened if they are not lit.  
(They are available to check that there is QSO between other stations, or not.)

9  
5  
1  
S/RF

## 8 144 [Band/Release button for 144 MHz]

By depressing it, 144 MHz becomes main band. This is also used for releasing. "MAIN" is lit on 144 MHz band, enabling QSO.

## 9 430 [Band/Release button for 430 MHz]

By depressing it, 430 MHz becomes main band. This is also used for releasing. "MAIN" is lit on 430 MHz band, enabling QSO.

**The main band is initially set to 430 MHz (at factory and when reset), lighting "MAIN" on 430 MHz display. The main band should be the band which "MAIN" is lit and the other band should be sub band.**

### Note:

**Transmission in 144 MHz may cause interference to the reception in 430 MHz. The reception frequency should not be set to 3rd harmonics of transmission frequency.**

Example for causing interference:

145.02 MHz (Transmission)

435.06 MHz (Reception)

$145.02 \times 3 = 435.06$

## 10 RMR [Repeater Memory Recall]

Recalls repeater memory (available for 144 and 430 MHz separately)

1. The initial settings (at factory and when reset) are 146.00 and 433.00 MHz. The shift frequency is also set to 600 kHz for 144 MHz. The shift frequency for 430 MHz is 1.6 MHz.
2. Repeater Memory is changeable with RMR mode. refer to page 37 in detail.

### Note:

**When the shifted frequency is out of amateur band during repeater operation, the displayed frequency is not changed, disabling transmission. Set the frequency properly according to the repeater operation procedure.**

## 11 CALL

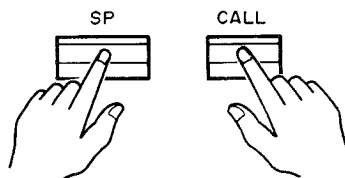
Transmits the tone burst signal to access repeater, and allows alarm when a signal is received.

Only while holding the CALL button depressed, the antenna applies a 1750 Hz tone burst signal to the repeater.

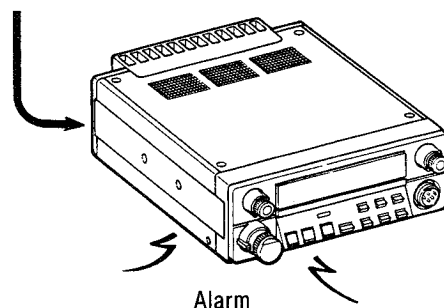
### NOTE:

**While holding the PTT button depressed, do not press the CALL button, and vice versa.**

1. The main band is set to transmit mode by depressing CALL button. Refer to page 22 in detail.
2. To alarm when a signal is received, depress CALL button while SP button is held depressed. The alarm sound for 144 MHz and 430 MHz band is different to notice the band. To release it, depress CALL button again while SP button is held depressed.



Depress CALL button while SP button is held depressed.

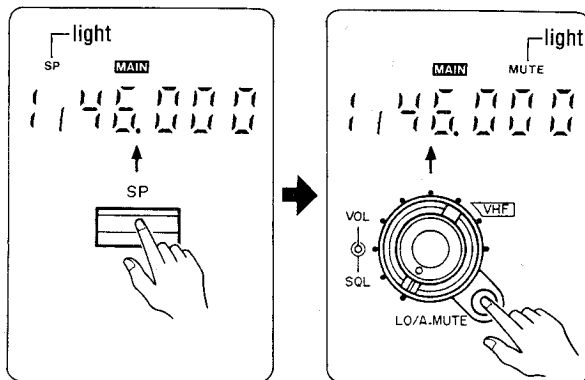


## 12 LO/A.MUTE

[It can be set for 144 and 430 MHz separately]

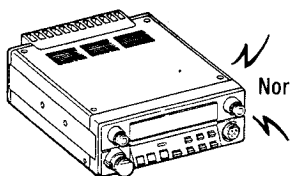
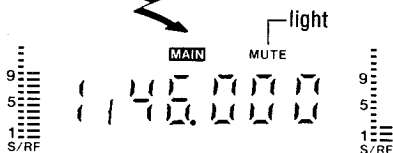
Switches output power and sets automatic mute.

1. When SP is lit on display, automatic mute can be set. Set the automatic mute to the band which is not often used. The sound of the band is automatically decreased when a signal is received in the other band.

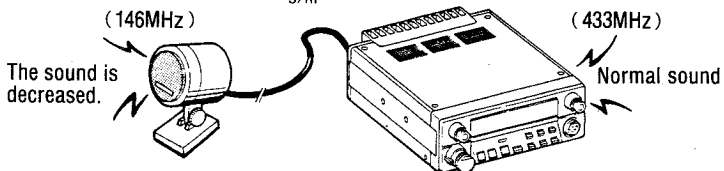
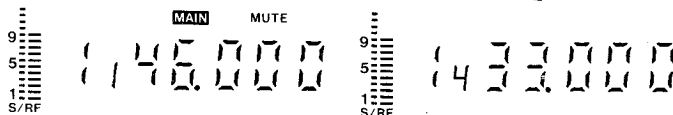


Procedures for 144MHz and 430MHz are equivalent.

(when 146MHz is received)

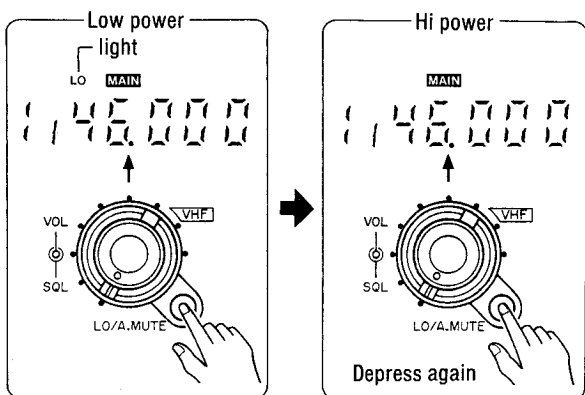


(When 433MHz is received)



2. When SP is not lit output power can be switched.

When "LO" is lit output power is low power. To be high power, depress the button.

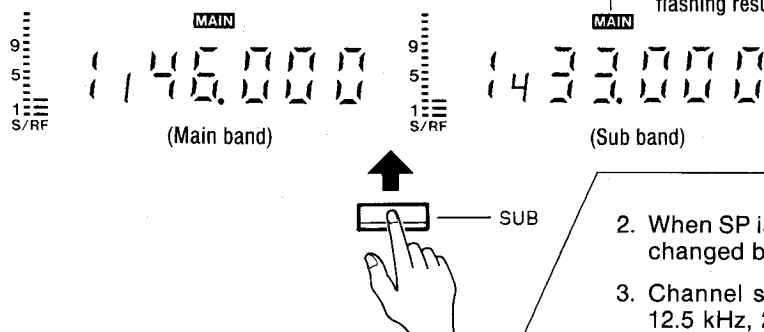


Procedures for 144MHz and 430MHz are equivalent.



### 13 SUB

To obtain Sub band mode. Without depressing band button, the frequency in sub band is changeable. "MAIN" on sub band is flashed by depressing SUB button. Inactivity for 5 seconds



results in releasing it automatically. This button is also available during transmission in main band.

### 14 SP [Special function button]

Operates special features.

1. By depressing SP button, "SP" is lit on display, enabling following features.

Button	No SP	With SP
MS/SCAN	Memory scan	Scan
RPT/SHIFT	Repeater operation	Displays shift freq.
REV/+	Reverses TX and RX freq. during repeater operation	Shifted in plus (shift direction)
T.SQL/STEP	Tone squelch operation (when CTN5200 is installed)	Setting channel step
LO/A.MUTE	Switches transmit power	AUTO MUTE
Main Dial (100K/MHz position)	100 kHz step	1 MHz step

2. Following features are provided by depressing each button while SP button is held depressed.

Button	Operation
CALL	Alarms when a signal is received.
Main Dial	Switches brightness of the illumination.
144	Disappears indications.
430	(Be sure that SP is lit when SP is depressed.)
Power switch	Reset

### 15 T.SQL/STEP

Turns tone squelch on and off and changes channel step.

1. When SP is not indicated, tone squelch is set or released by depressing the button. "TSQ" is lit with tone squelch mode. "TSQ" is not lit when CTN5200 is not installed.

flash: 5 seconds of inactivity during flashing results in releasing.

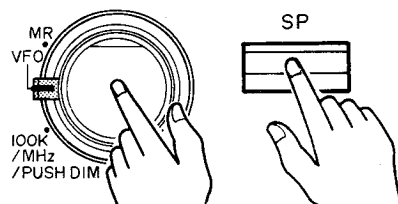
2. When SP is lit channel step is displayed and changed by Main Dial.
3. Channel step varieties are: 5 kHz, 10 kHz, 12.5 kHz, 20 kHz and 25 kHz. One channel step for 144 MHz and 430 MHz band can be respectively set.

**Note:**

1. For tone squelch operation, install optional tone squelch unit CTN5200 and depress T. SQL/STEP button.
2. Tone Squelch for 144 MHz and 430 MHz separately is available by applying two units of CTN5200. Installing it one unit allows tone squelch for either 144 MHz or 430 MHz band only.
3. QSO between stations having same tone frequency is available, however, QSO between stations having different tone frequency is not available. QSO with stations which can not operate tone squelch is not available.
4. Prior to tone squelch operation, set tone squelch frequency mutually.
5. Release tone squelch after you wish to finish tone squelch. QSO between other stations is not heard with tone squelch mode.

### 16 /PUSH DIM

Changes brightness of illumination. To darken it, depress Main Dial while SP button is held depressed. To release it depress Main Dial again while SP button is held depressed.



## 17 RPT/SHIFT

Turns repeater operation on and off. Also recalls and changes shift frequency.

1. Shift frequency and tone frequency during repeater operation are recalled and changed when SP is lit.
2. When SP is not lit on display, it switches repeater operation and simplex operation.

## 18 MS/SCAN

Starts and ends memory scan and normal scan.

1. When SP is lit on display, it starts normal scan, and switches pause scan and busy scan.
2. When SP is not lit, it starts and ends memory scan.

## 19 MEMO [Memory button]

Recalls and memorizes memory frequency. (Memory address number is set by Main Dial.) It also releases memory recall mode.

1. 10 channels in 144 MHz and 430 MHz separately, 20 channels totally can be memorized.
2. Memory area for shift frequency and tone frequency is ready for 10 channel for both bands totally.
3. When you recall memory frequency with repeater mode, the shift frequency is displayed by depressing MEMO button again. By depressing it again, tone frequency is displayed and the frequency is changeable. (Tone frequency is changeable with CTN 5200 installed only.)

### Note:

When shift frequency is not displayed even if MEMO button is depressed with repeater mode, ten memory for shift frequency and tone frequency are already full. Memory exceeding ten can not be memorized.

### ADVICE:

Memory recall mode is also provided by depressing RCL button of microphone.

## Special functions for memories

Following functions for memories are available by using MEMO button. At first, turn power off while MEMO button is held depressed. Release MEMO button and then turn power on. Now the special functions listed below are available. To release the special function, turn power off while MEMO button is held depressed again.

Items	Normal functions	Special functions
Memorizing RMR	Set RMR and depress RMR to memorize.	Set RMR and depress MEMO to memorize.
With MR mode	The memory address is changed downwards or upwards by Rotary Channel Selector.	The memory address is changed downwards or upwards by UP/DOWN of the microphone.
During MS scan	When the PTT switch or MS button is depressed, the scan setting the frequency to VFO mode.	When the PTT switch or MS button is depressed, the scan is paused with memory mode.

## 20 REV/+

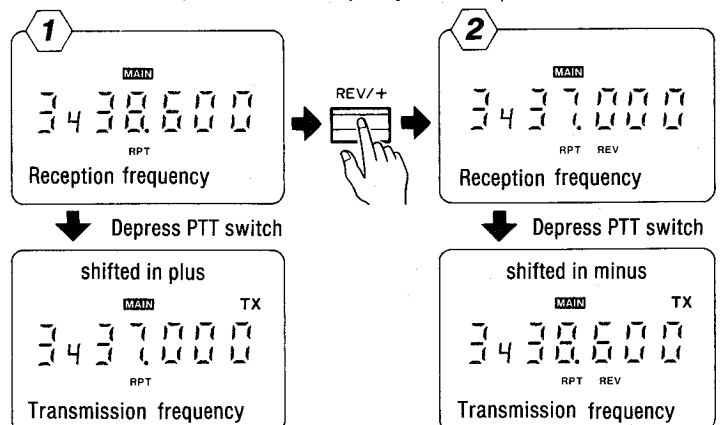
Reverses transmission and reception frequency during Repeater Operation. It also changes shift direction.

- ① When SP is lit the shift direction of the frequency can be set. It is initially set to shift in minus ("—").
- ② When SP is not lit it reverses transmission and reception frequency by depressing it.

### Note:

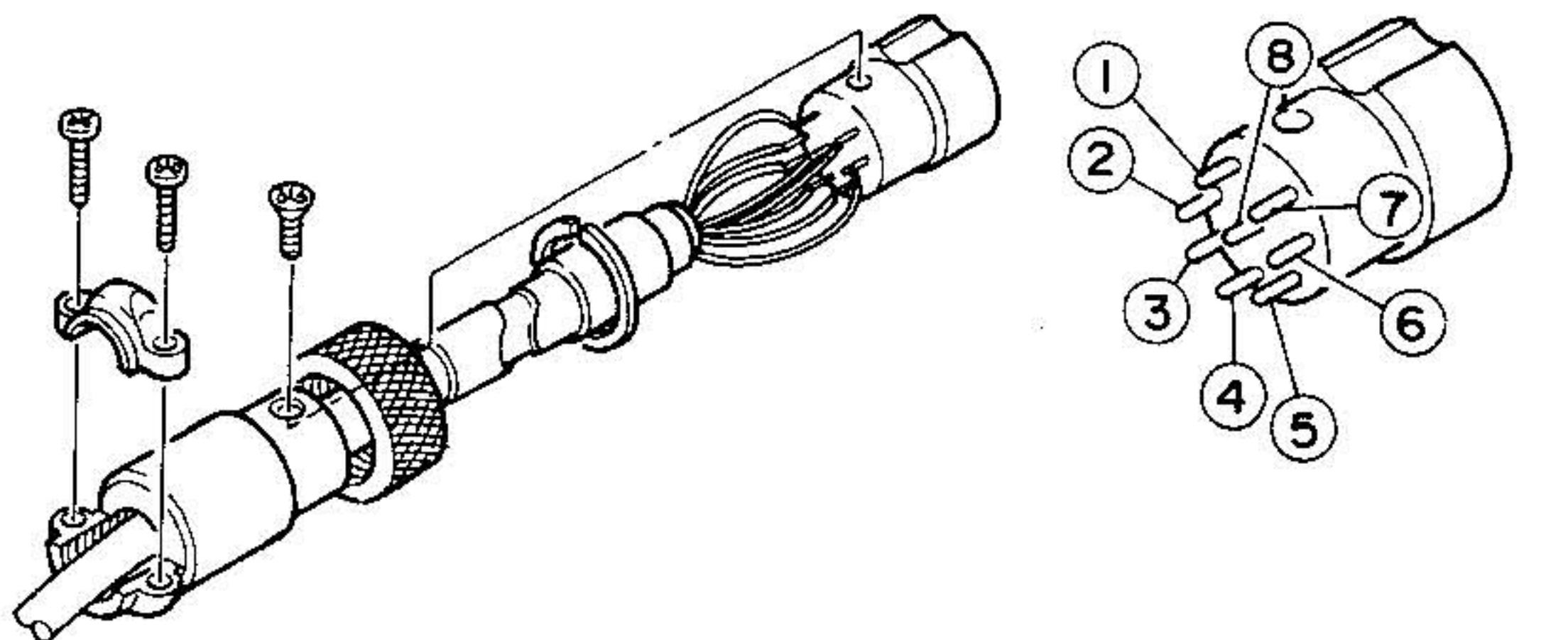
When the frequency is changed with reversed frequency mode, the reverse mode is released.

(When the shift frequency is 1.6 MHz)



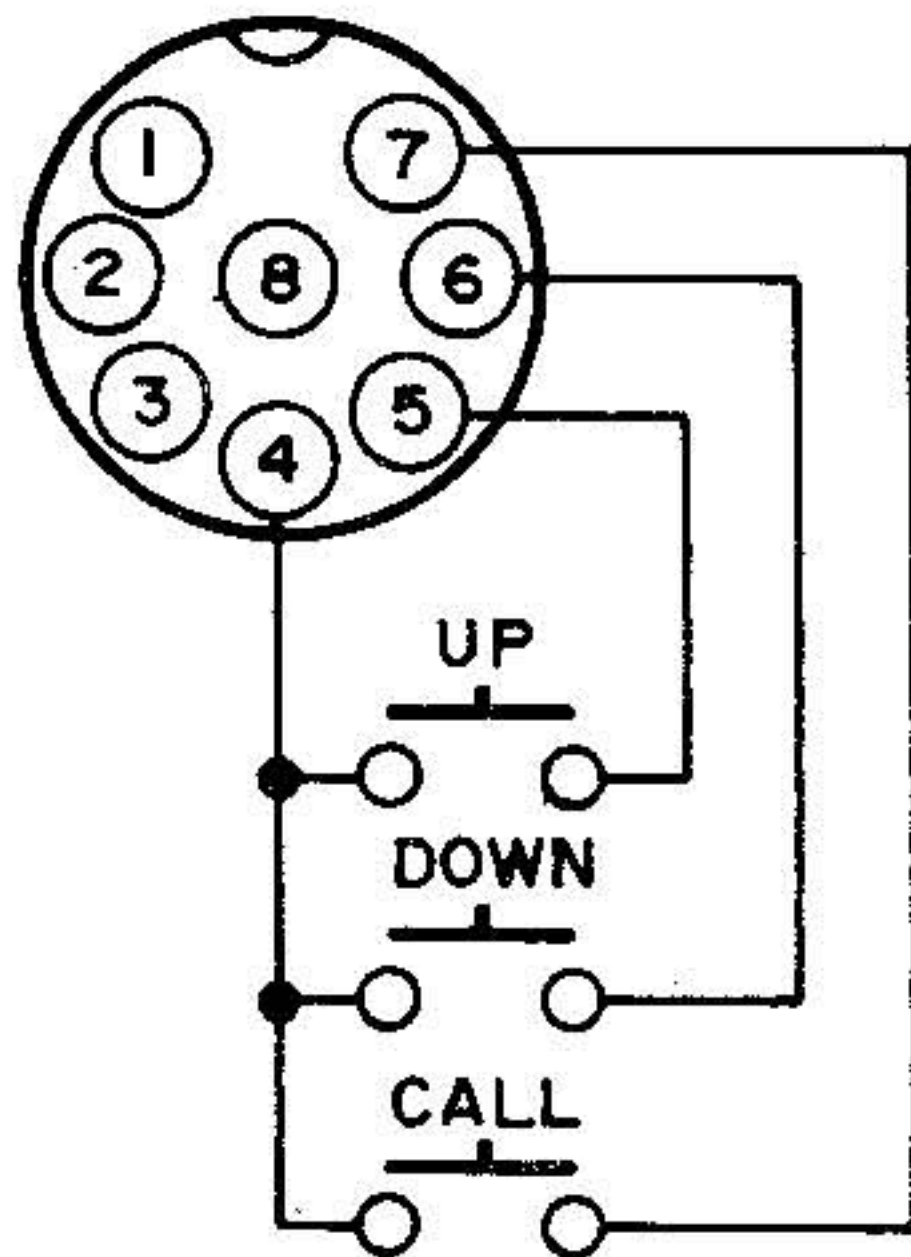
## 21 Microphone Connector

This is a connector for the microphone included. Connections are shown in right figure. When you apply a microphone other than included, connect as shown in right figure. In this case, features of RCL and \* are not available.



- ① Audio input
- ② PTT
- ③ Speaker output
- ④
- ⑤ UP, DOWN, RCL
- ⑥ CALL, \*
- ⑦
- ⑧ Ground

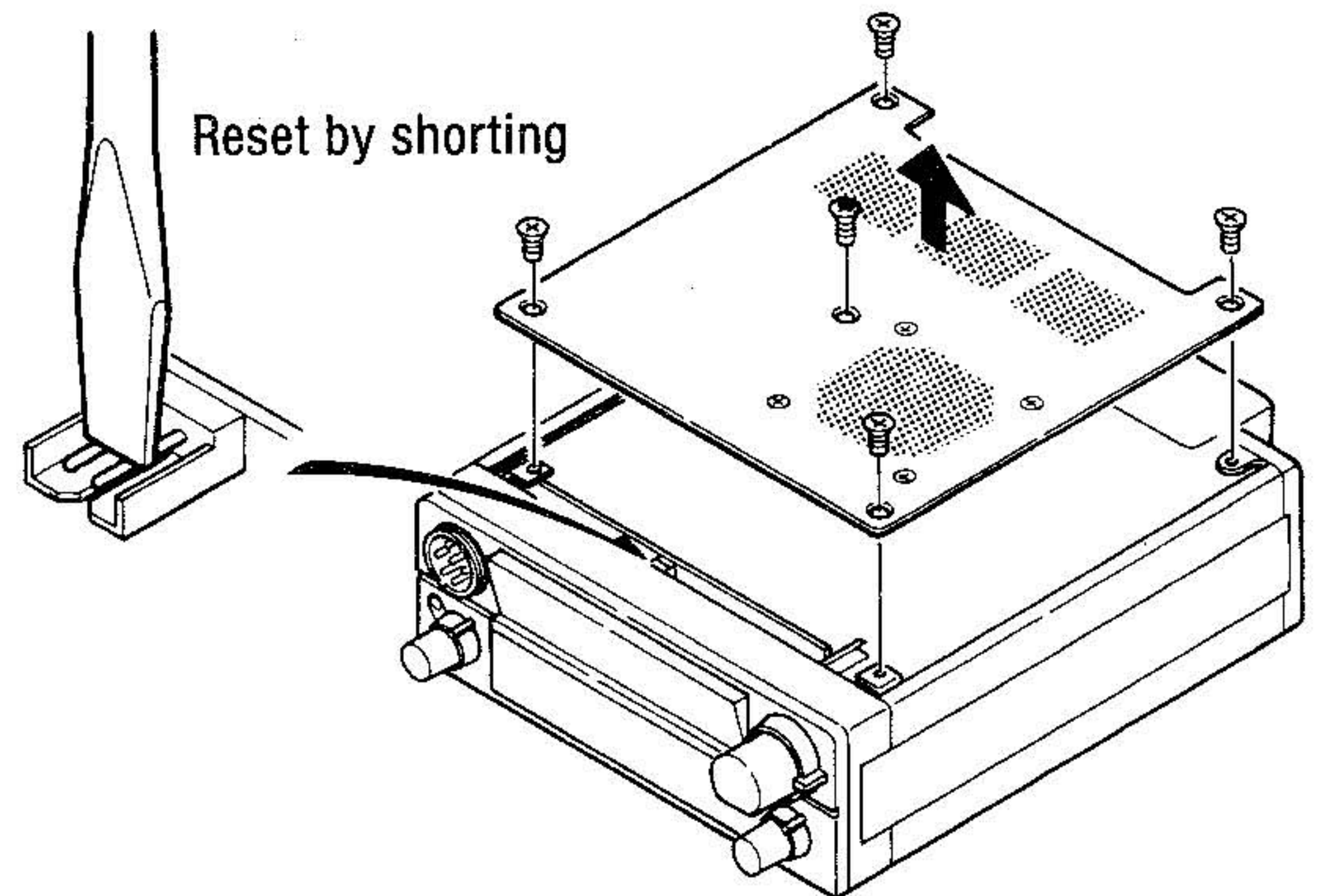
④, ⑤, ⑥ and ⑦ are for the operation of UP, DOWN, RCL, CALL and \*.



**CAUTION:**  
Use microphone with impedance of 600 Ω when applying microphone other than included.

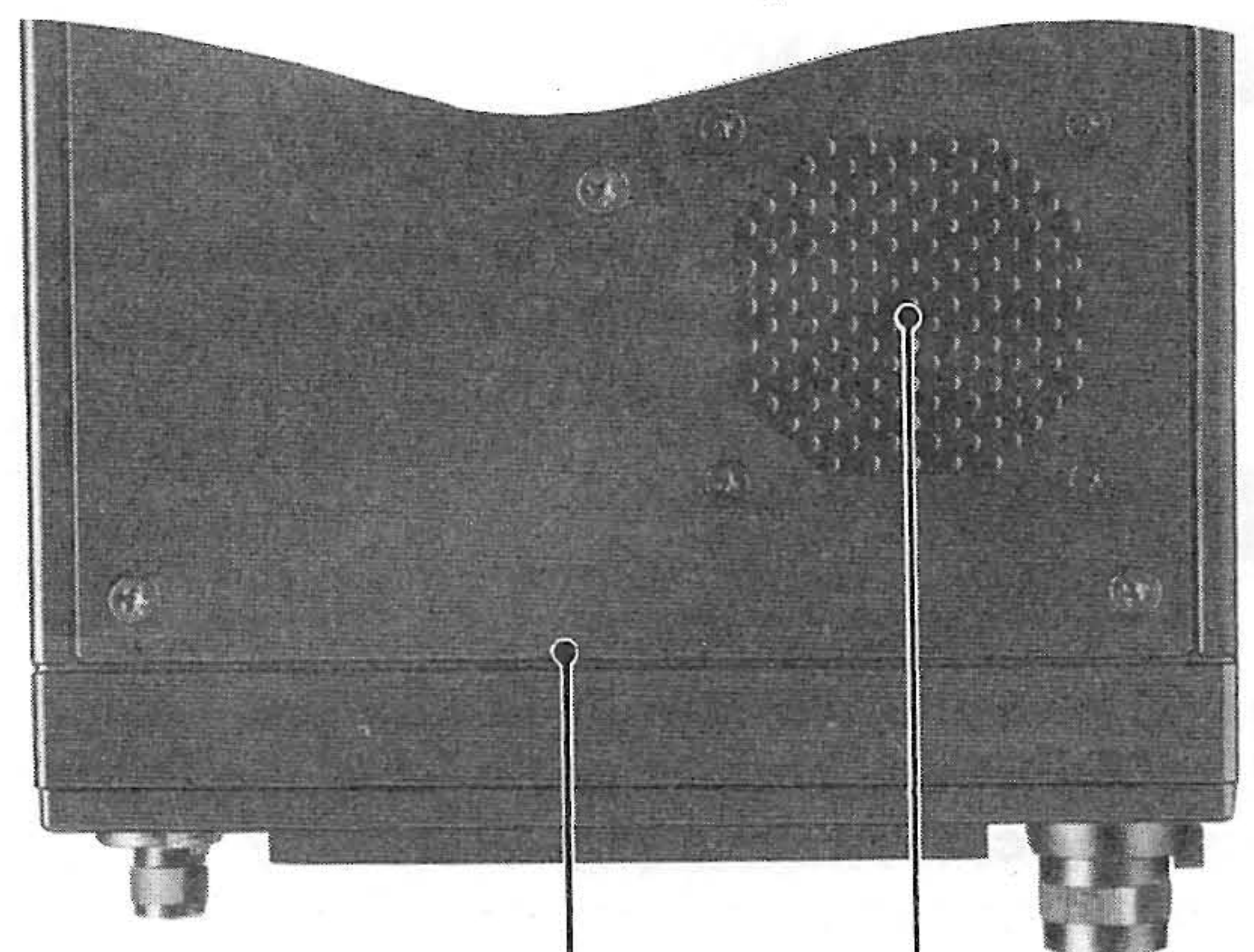
## 22 RESET [located inside the unit]

To reset the microprocessor when the battery for microprocessor is replaced, or the microprocessor does not work properly. Unfasten five screws on the bottom cover, and short white connector by something metallic as shown in right figure. Display is disappeared instantly, and 146.000 and 433.000 are displayed successively.



### CAUTION

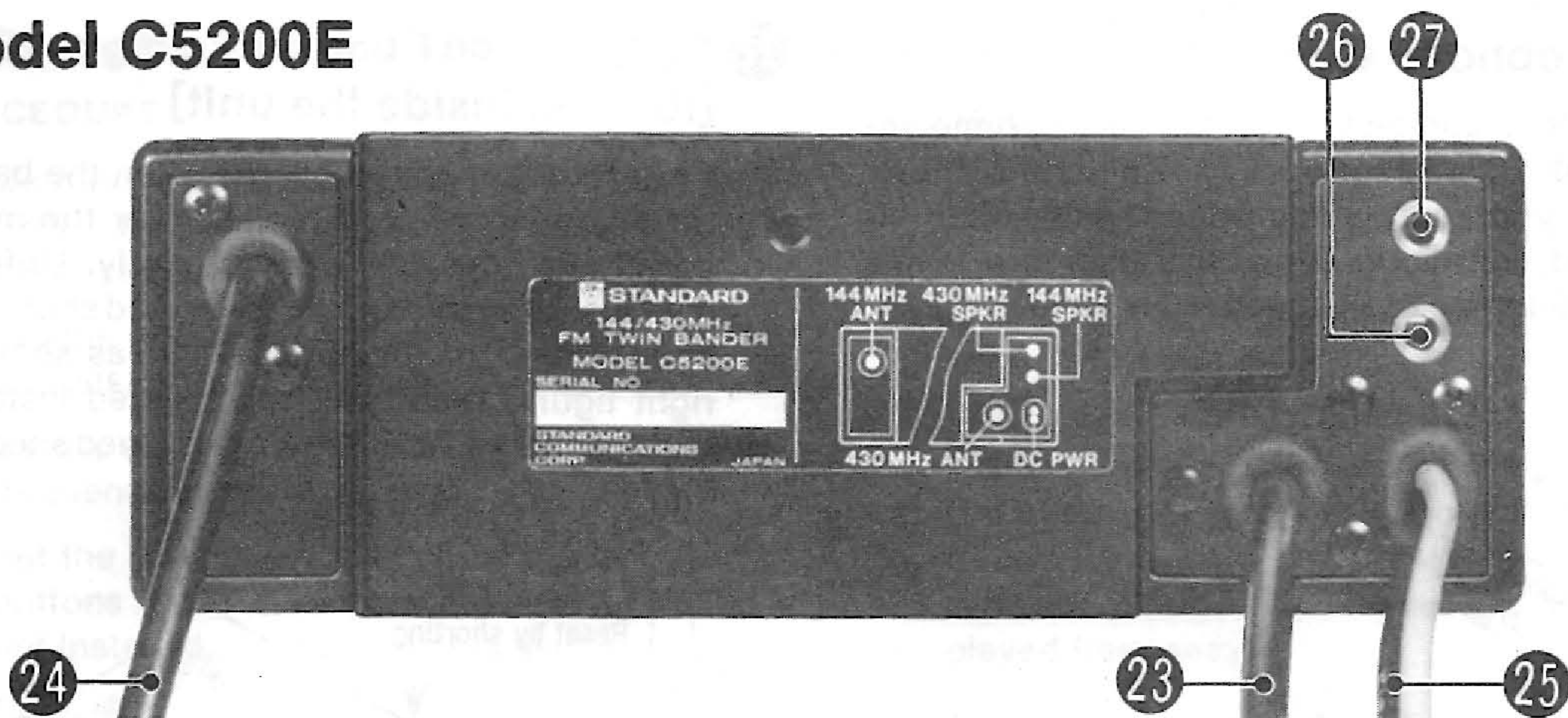
1. When the frequency is not displayed properly, replace the battery.
2. Reset the unit with C5200E or C5200ED turned on.
3. Do not touch it unless otherwise resetting microprocessor. Doing so may cause the failure.



Speaker

22 Reset terminal (inside the unit)

## Model C5200E



## Model C5200ED



### 23 430 MHz ANT [Coaxial cable for 430 MHz]

This is the cable with M type connector to connect the coaxial cable from the antenna. Use a coaxial cable with 50  $\Omega$ .

### 24 144 MHz ANT [Coaxial cable for 144 MHz]

This is the cable with M type connector to connect the coaxial cable from the antenna. Use a coaxial cable with 50  $\Omega$ .

### 25 DC PWR [Power cord]

Power Cord with ornament terminal to apply DC 13.8 V.

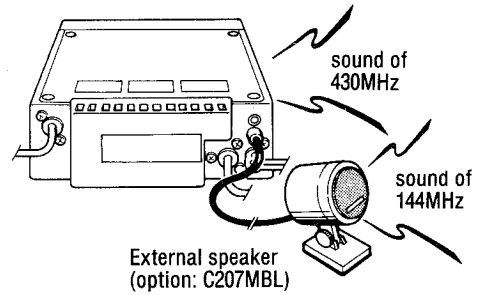
Wire to supply the power to the unit with 2.0 m cord included.

#### CAUTION:

1. C5200E and C5200ED is for 12 V only. When using in the vehicle with 24 V like track, DC-DC converter to convert 24 V to 12 V is necessary.
2. Use only specified fuses. 5 A fuses for C5200E and 12 A fuses for C5200ED.

**26 144 MHz/EXT SPKR**  
**[External speaker jack for 144 MHz]**

The jack to connect the external speaker. When the external speaker is installed to this jack, the external speaker installed is operated for 144 MHz band, and internal speaker of the unit is operated for 430 MHz band.

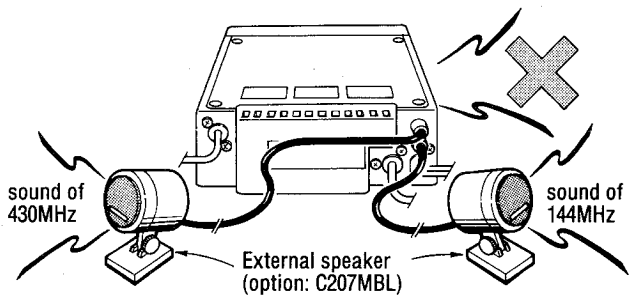
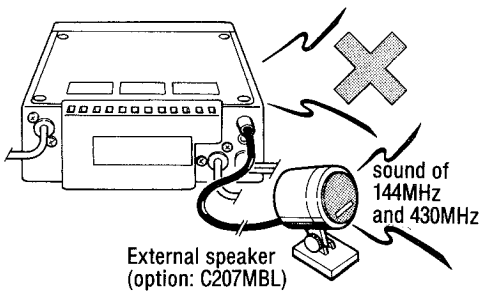


**27 430 MHz/EXT SPKR**  
**[External speaker jack for 430 MHz]**

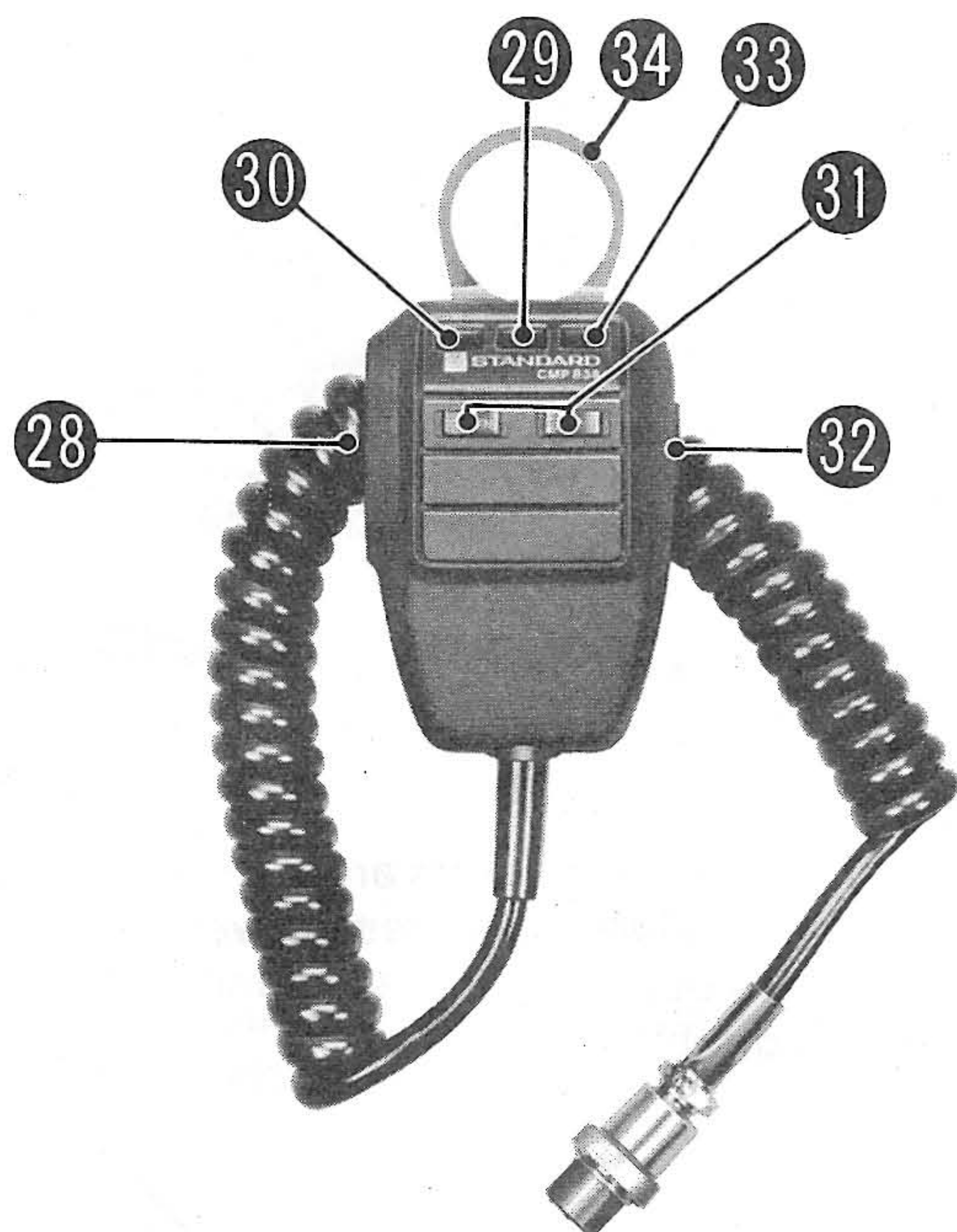
The jack to connect the external speaker. When the external speaker is installed to this jack, the external speaker installed is operated for 144 MHz and 430 MHz band, and internal speaker of the unit is disabled.

**ADVICE:**

When the external speakers are connected to both 144 MHz and 430 MHz jacks respectively, connected speakers are operated for each band and internal speaker is disabled.



## ■ Microphone



### 28 Press-To-Talk switch

1. Switch for transmission and reception. Depress PTT switch to transmit.
2. Release PTT switch to obtain receive mode.

### 29 CALL [Call button]

Recalls CALL Frequency. It is released by depressing it again. By depressing it during memorization of CALL frequency, the mode is released.

### 30 RCL [Recall button]

Memory recall mode is provided by depressing RCL button. To release it depress the button again. It is not available for recalling memory address number. To recall it, set the Channel Selector to MR at first, and turn Main Dial. Memorization mode is also released by depressing it.

### 31 UP, DOWN [Up, Down buttons]

UP, DOWN buttons works as follows.

1. Under normal operation, the frequency is changed upwards or downwards with specified channel step.
2. Memory frequency can be memorized with memory recall mode.
3. Switches scanning upwards or downwards. The frequency is changed continuously when it is held depressed.
4. By depressing it during CALL or RMR is recalled, each mode is released. The frequency is changed upwards or downwards from the frequency recalled.
5. Changes upwards or downwards by depressing it during channel step recall mode.
6. Changes shift frequency for repeater upwards or downwards.

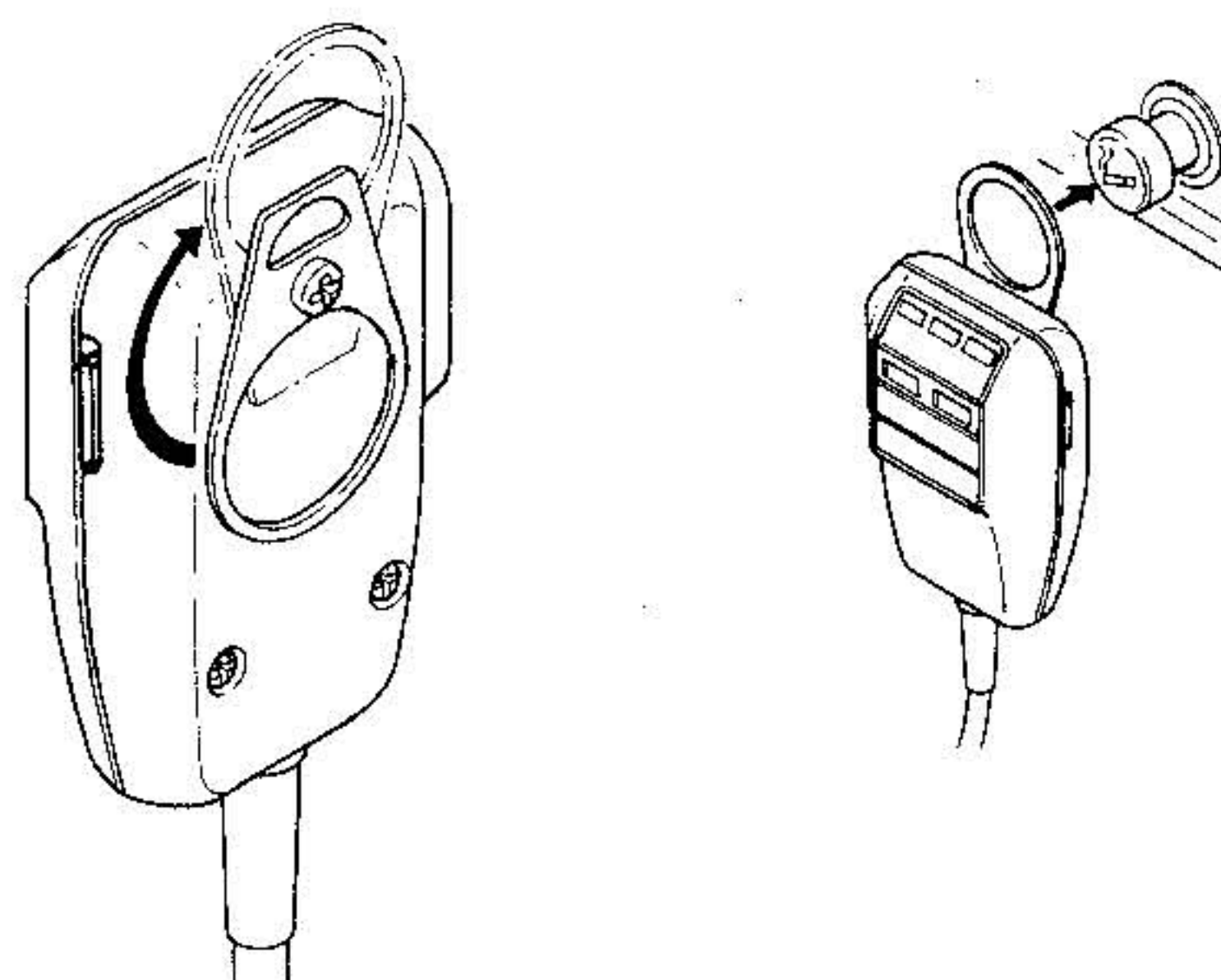
### 32 K-LOCK [Key Lock Switch]

To lock the key button of the microphone. Push the switch upwards to lock and downwards to release.

### 33 \* [Star button]

Switches main band. By depressing it, the main band is set to 144 MHz or 430 MHz band.

### 34 Mic Hanger



To hang the microphone, turn the ring.

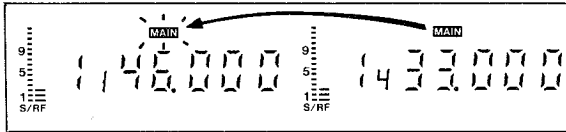
# OPERATION

## 1 Changing Main Band

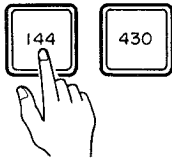
### PROCEDURE:

QSO is available with the band indicated MAIN. Main Band is initially set to 430 MHz at factory. To set Main Band to 144 MHz, depress the band button 144.

(when the Channel Selector is VFO or 100K/MHz)



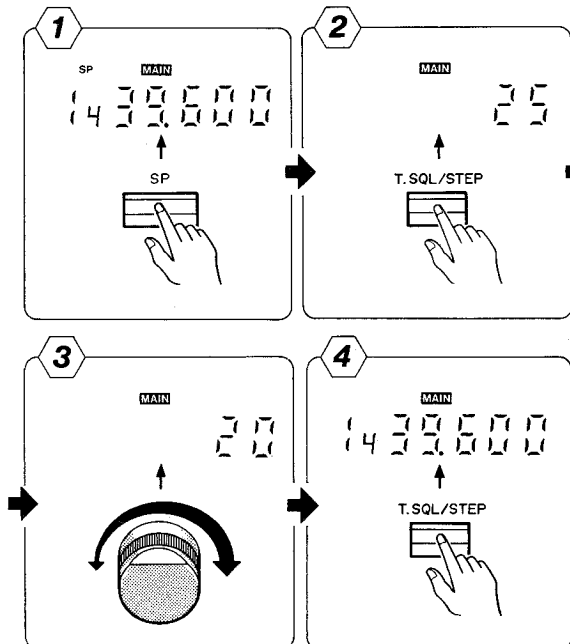
MAIN BAND / CCL



## 2 Setting Channel Step

### PROCEDURE:

- ① Depress SP button. Make sure that SP is lit.
- ② Depress T.SQL/STEP button. Present channel step is displayed (It is initially set to 25 kHz).



- ③ Set the desired channel step by the Main Dial or UP, DOWN button of the microphone. Channel Step is changed as following order.

5 kHz → 10 kHz → 12.5 kHz → 20 kHz → 25 kHz  
 ↑  
 Upward

By depressing DOWN button, it is changed downwards.

- ④ By depressing T.SQL/STEP button again, previous frequency is displayed.

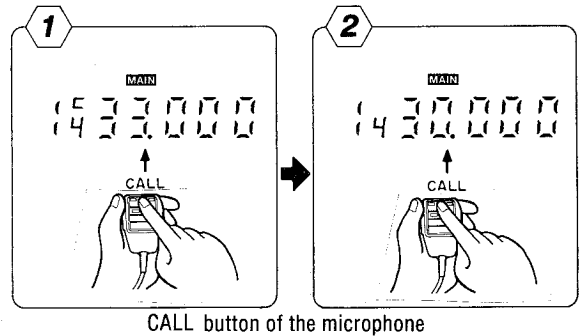
### Note:

Channel step is set for VHF and UHF respectively.

## 3 CALL Frequency

### PROCEDURE:

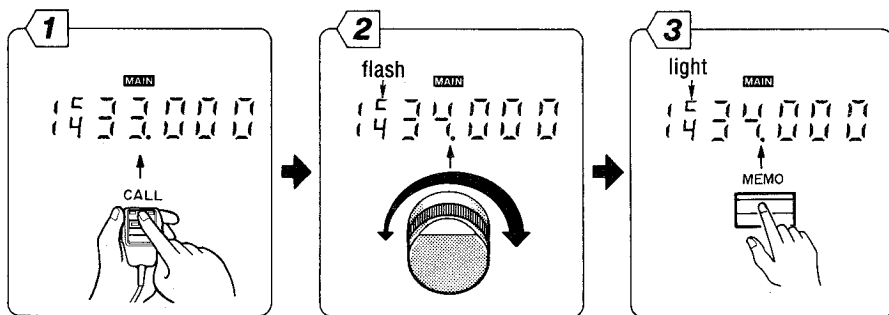
- ① Depress CALL button of the microphone. "CALL" is lit as in figure, indicating CALL frequency.
- ② By depressing it again, previous frequency is displayed.



### ADVICE:

CALL Frequency is set as following procedure.

- ① Depress CALL button of the microphone.
- ② Set the frequency by the Main Dial. "CALL" to indicate CALL Frequency is now flashed. To release this mode, depress the Band button or CALL button of the microphone.
- ③ Depress MEMO button to set. "CALL" is lit with long beep.



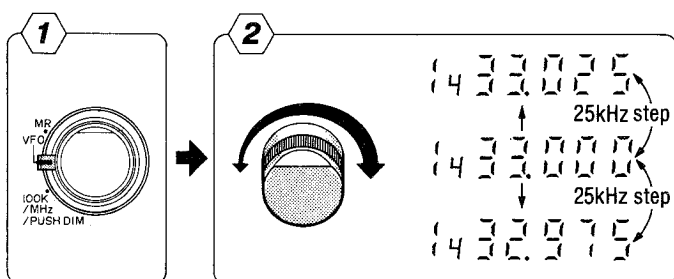
CALL button of the microphone

## 4 Changing Frequency

### 1 25 kHz step

**PROCEDURE:**

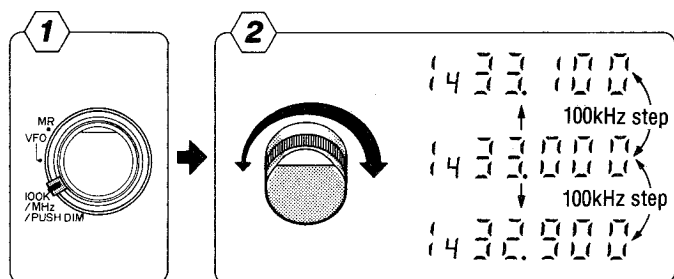
- ① Set the Channel Selector to VFO.
- ② The frequency is changed with 25 kHz step by turning the Main Dial.



### 2 100 kHz step

**PROCEDURE:**

- ① Set the Channel Selector to 100 K/MHz.
- ② The frequency is changed with 100 kHz step by turning the Main Dial.



**Note:**

The frequency is changed with normal step by UP, DOWN button of the microphone.

### 3 1 MHz step

**PROCEDURE:**

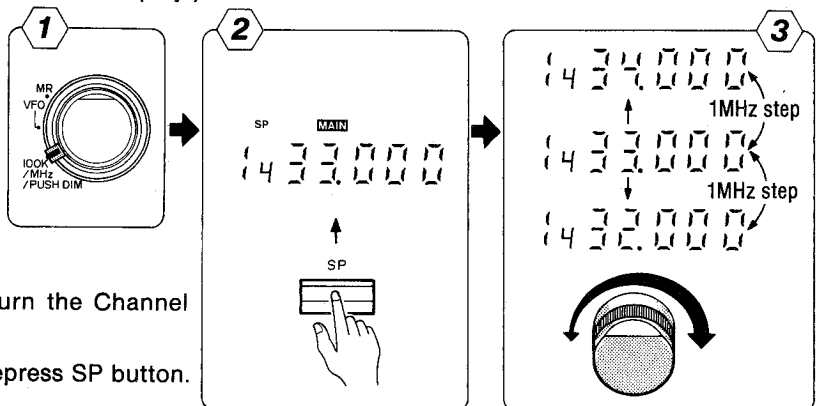
- ① Set the Channel Selector to 100 K/MHz.
- ② Depress SP button. (SP is indicated on display.)
- ③ The frequency is changed with 1 MHz step by turning the Main Dial.

**Note:**

The frequency is changed with normal step by UP, DOWN button of the microphone.

**ADVICE:**

- ① To return to 25 kHz step, turn the Channel Selector to VFO.
- ② To return to 100 kHz step, depress SP button. (SP is disappeared.)





# 5 Repeater

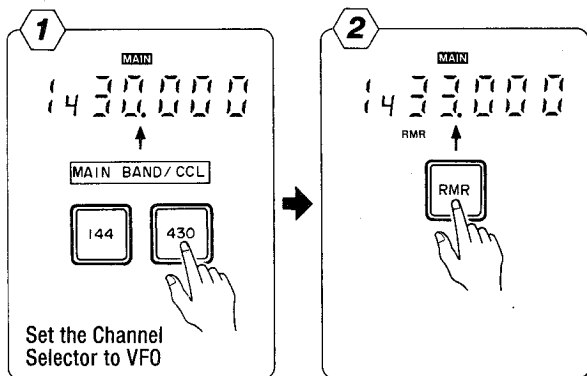
## 1 RMR button

### PROCEDURE:

- ① Set the main band to 430 MHz.
- ② Depress RMR button.

It is ready to operate Repeater with reception frequency of 433.00 MHz, Transmission frequency of 431.40 MHz, Offset frequency of 1.6 MHz.

- ③ Depress CALL button. The tone burst signal of 1750 Hz with shift frequency of 1.6 MHz is transmitted to operate a repeater.



- ④ Repeater operation is available by depressing PTT switch.

### Note:

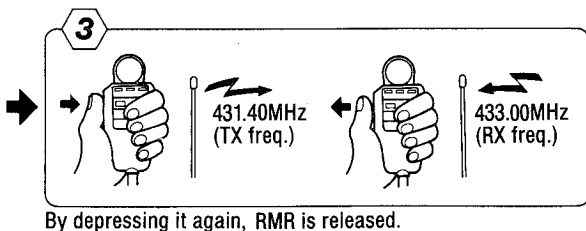
1. The frequency is shifted in minus, however, it can be set to shift in plus.
2. As to memorizing frequency in RMR and changing shift direction is described in page 25.

### ADVICE:

Repeater operation is available by installing optional unit of CTN5200. A repeater is operated by tone burst signal with shift and tone frequency (in the range from 67.0 to 250.3 Hz). The initial setting of the shift frequency is 100 Hz.

### CAUTION:

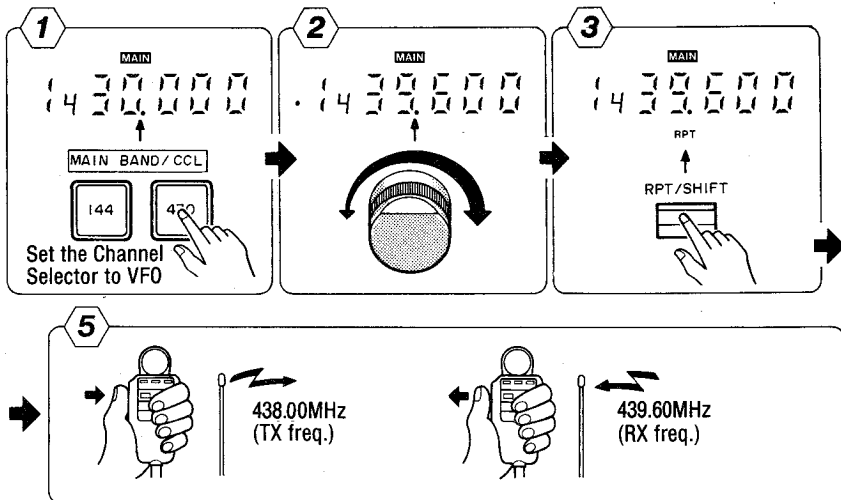
When shifted frequency is without the amateur band, displayed frequency is not changed even if it is repeater mode and the unit is remained to receive with displayed frequency. In this case, set the frequency again.



## 2 Normal Repeater Operation (Except for RMR)

### PROCEDURE:

- ① Set the main band to 430 MHz.
- ② Set the transmission frequency of the Repeater Station by Main Dial.
- ③ Depress RPT button to be Repeater Mode.



- ④ It is initially set to shift in minus. To shift in plus, depress SP button at first. Be sure SP is flashed and depress REV/+ button. Now + is flashed.

- ⑤ Depress CALL button. The tone burst signal of 1750 Hz with shift frequency of 1.6 MHz is transmitted to operate a repeater. Repeater operation is available by depressing PTT switch.

### ADVICE:

Repeater operation is available by installing optional unit of CTN5200. A repeater is operated by tone burst signal with shift and tone frequency (in the range from 67.0 to 250.3Hz). The initial setting of the shift frequency is 100 Hz.

The repeater mode is released by depressing PTT switch again.

### 3 Changing Shift and Tone Frequencies for Repeater

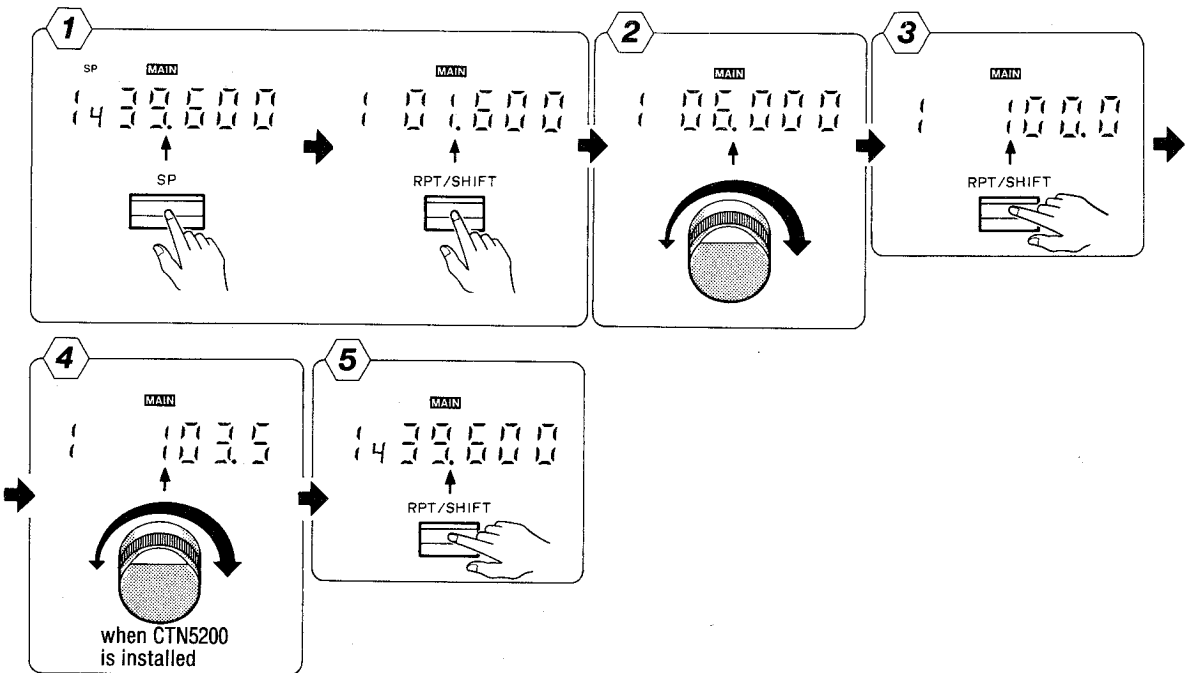
#### PROCEDURE:

- ① Depress SP button SP is lit. Depress RPT/SHIFT button next. Present shift frequency is displayed.
- ② Set the frequency by Main Dial or UP, DOWN buttons of the microphone.
- ③ By depressing RPT/SHIFT button again, tone frequency is now displayed.
- ④ Set the frequency by Main Dial or UP, DOWN buttons of the microphone. When CTN5200 is not installed, no frequency is displayed.

- ⑤ To complete the change, depress RPT/SHIFT button again. Now previous frequency is displayed.

#### Note:

1. Shift and tone frequencies can be set for VHF and UHF respectively.
2. With the change of shift and tone frequencies, those for RMR frequency are changed together.
3. If shifted frequency is without the band, the frequency is not changed even if it is set to repeater mode, remaining receive mode at displayed frequency.



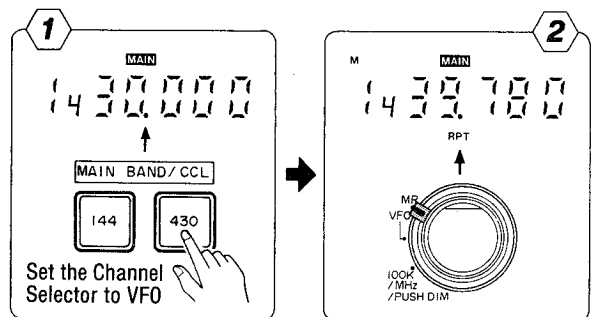
### 4 Operation when the Repeater Frequency is memorized

#### PROCEDURE:

- ① Set the main band to 430 MHz.
- ② Set the Channel Selector to MR and recall the repeater frequency.
- ③ Now the unit is ready for repeater operation.

#### Note:

1. If shifted frequency is without the band, the frequency is not displayed even if it is set to repeater mode. Receive mode with displayed frequency is remained.
2. For 144 MHz, shift frequency is initially set to 600 kHz. Operation procedures are equivalent to that of 430 MHz.



## 5 Reversing Transmission and Reception Frequency

### PROCEDURE:

- ① Depress REV/+ button. (When SP is not lit.)
- ② Transmission and Reception Frequencies are reversed, indicating REV.

### Note:

Reverse mode is accordingly released by releasing repeater operation.

## 6 Memorizing Frequency

### 1 Memorizing operating frequency

Following description is for memory in 430 MHz band.

### PROCEDURE:

- ① Set the main band to 430 MHz.
- ② Set the Channel Selector to MR and set the memory address number. By turning Main Dial, memory address number is recalled in order with display.
- ③ "M" is flashed, indicating memory recall mode. Flashing "M" is remained when there is no memory in that address, while it is lit when there is memory in it.
- ④ Set the Channel Selector to VFO.
- ⑤ Depress MEMO button. "M" is flashed.
- ⑥ Set to desired frequency by Main Dial.

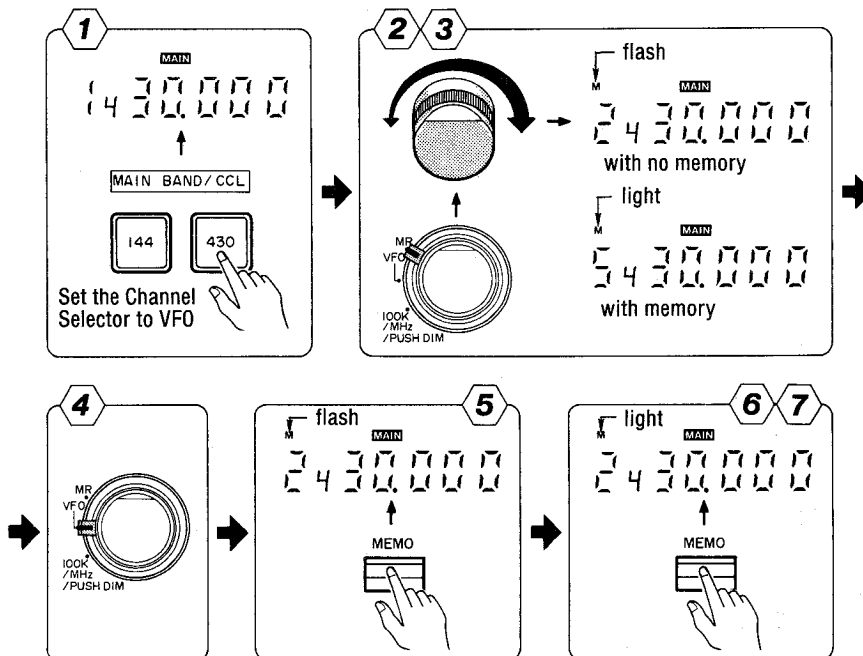
- ⑦ By depressing MEMO button again, memorization is completed with long beep. Flashing "M" is now lit.

- ⑧ Previous frequency is displayed by depressing 430 band button.

### ADVICE:

Memorization is not available with the Channel Selector of MR position.

Memory address number 1 is displayed with initial setting at factory.

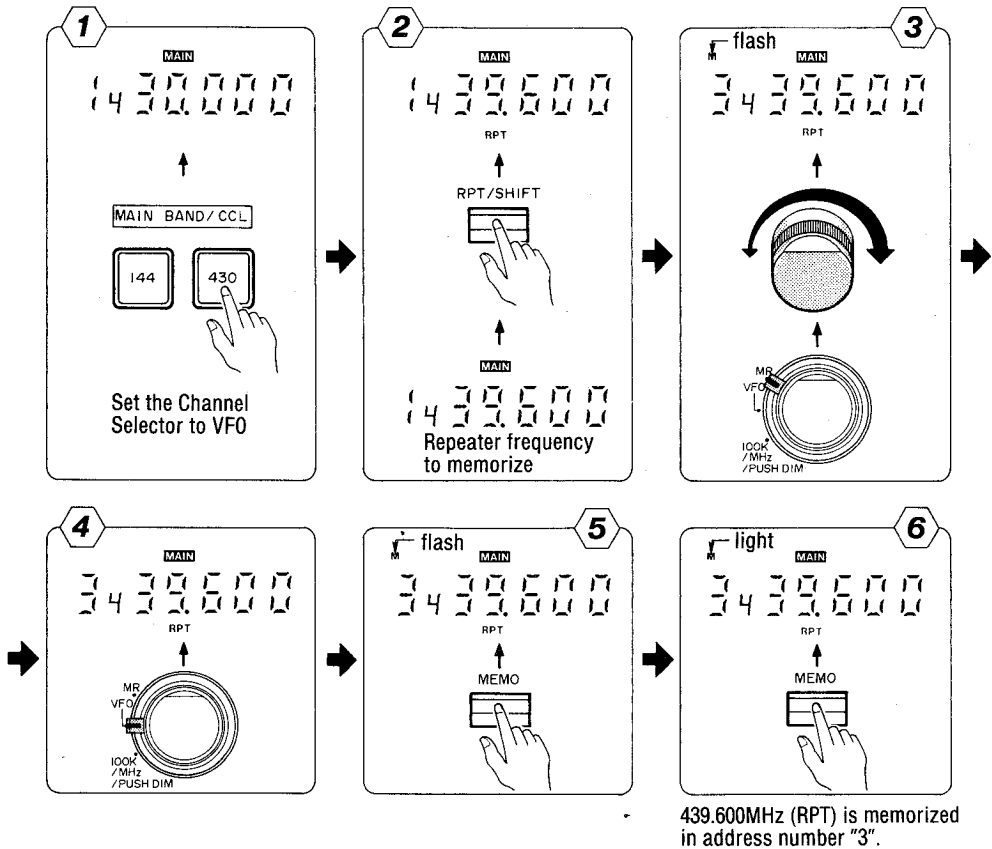


430.000MHz is memorized in address number "2".

## 2 Memorizing Repeater Frequency

### PROCEDURE:

- ① Set the main band to 430 MHz.
- ② Set to desired frequency on display and depress RPT button. RPT is lit, providing repeater operation mode. The frequency in actual operation is initially set to shift in minus. When you wish to shift in plus, depress SP button. (SP is lit.) Depress REV/+ button next. "+" is lit.
- ③ Set the Channel Selector to MR. Set the memory address number by Main Dial. (Select vacant address.)
- ④ Set the Channel Selector to VFO.
- ⑤ Depress MEMO. "M" is flashed.
- ⑥ By depressing MEMO button again, memorization is completed with long beep. Flashing "M" is lit.



### ADVICE:

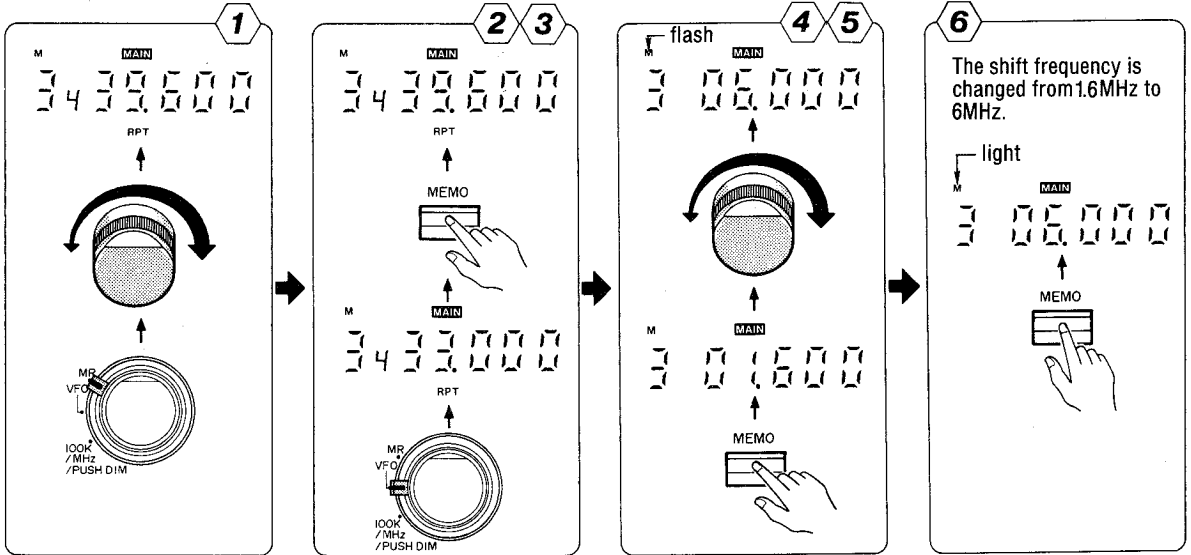
When you wish to change shift frequency succeedingly after the frequency memorization, depress MEMO button again. The shift frequency is displayed. Set desired shift frequency here by Main Dial and depress MEMO button again. New shift frequency for the memorized frequency is set with

long beep. When you wish to change tone frequency succeedingly after shift frequency memorization, depress MEMO button again. In the same manner, memorization for new tone frequency is available. (Optional unit CTN5200 is necessary for tone frequency.)

### 3 Changing Shift Frequency for Memory

#### PROCEDURE:

- ① Set Channel Selector to MR. Recall the memory address number memorized for repeater frequency.
- ② Set Channel Selector to VFO.
- ③ Depress MEMO button.
- ④ Shift frequency is displayed by depressing MEMO button again.
- ⑤ Set the frequency by Main Dial. "M" is flashed.
- ⑥ By depressing MEMO button, shift frequency is memorized with long beep.

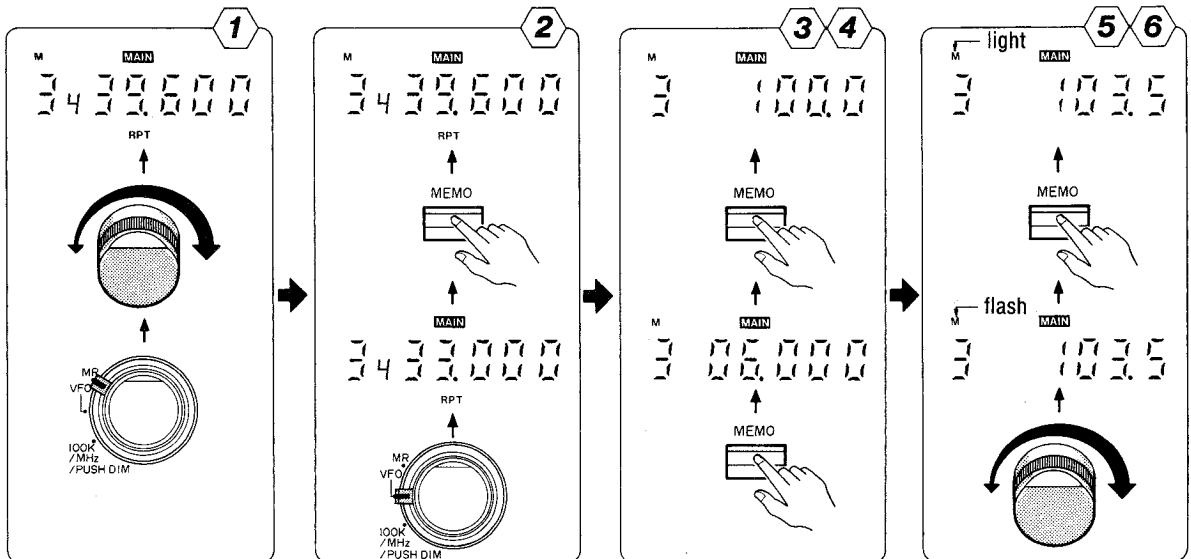


### 4 Changing Tone Frequency for Memory

Install optional tone squelch unit CTN5200. Two tone squelch units for 144MHz and 430MHz are respectively available.

#### PROCEDURE:

- ① Set Channel Selector to MR. Recall the memory address number memorized repeater frequency. Set Channel Selector to VFO.



- ② Depress MEMO button. "M" is lit.
- ③ By depressing MEMO button again, shift frequency is displayed.
- ④ By depressing MEMO button again, tone frequency is then displayed.
- ⑤ Set the frequency by Main Dial. ("M" is flashed.)
- ⑥ By depressing MEMO button again, tone frequency is memorized with long beep. ("M" is lit.)

**Note:**

Ten pairs of shift and tone frequencies for both band totally can be memorized.

## 5 Deleting Memory

**PROCEDURE:**

- ① Set the main band you wish to delete.
- ② Set Channel Selector to MR. Set memory address number to delete.
- ③ Set Channel Selector to VFO.
- ④ While MEMO button is held depressed, depress the band button of main band (144 or 430).
- ⑤ Lighting "M" is now flashed and the memory is deleted.
- ⑥ Depress the band button of Main band (144 or 430) to release the mode.

**Note:**

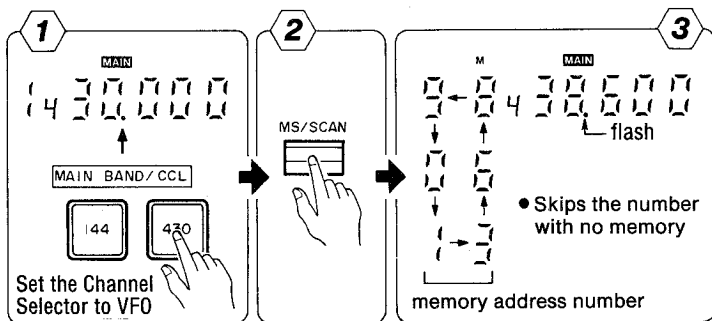
By depressing MEMO button in step ⑥, displayed frequency is memorized.

# 7 Scan

## 1 Scanning Memory Frequency

**PROCEDURE:**

- ① Set the main band you wish to scan.
- ② Depress MS/SCAN button. (when SP is not lit.)
- ③ Memory is scanned in order of memory address number. The decimal point is flashed during scanning. The memory address number with no memory is skipped during scanning.

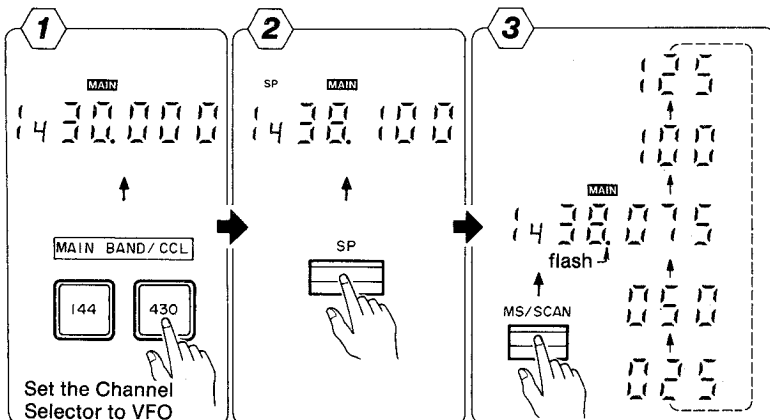


By depressing it again, scan is stopped. Or depress PTT switch or turn Main Dial to stop scanning.

## 2 Normal Scan (1 MHz scan)

**PROCEDURE:**

- ① Set the main band you wish to scan.
- ② Depress SP button. "SP" is lit on display.
- ③ Depress MS/SCAN button. 1 MHz scan is started within 1 MHz of displayed frequency.



By depressing it again, scan is stopped. Or depress PTT switch or turn Main Dial to stop scanning.

### 3 Normal Scan (All scan)

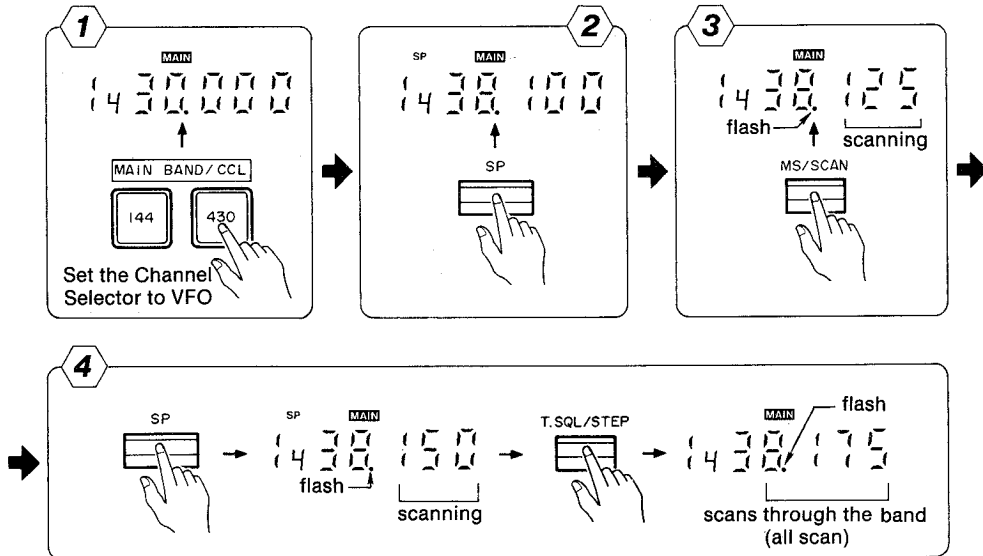
#### PROCEDURE:

- ① Set the main band you wish to scan.
- ② Depress SP button. "SP" is lit on display.
- ③ Depress MS/SCAN button. 1 MHz scan is started.

- ④ Depress SP button during 1 MHz scan. By depressing T.SQL/STEP button, all scan is started, scanning through the band.

#### Note:

There is no indication for 1 MHz and all scan.

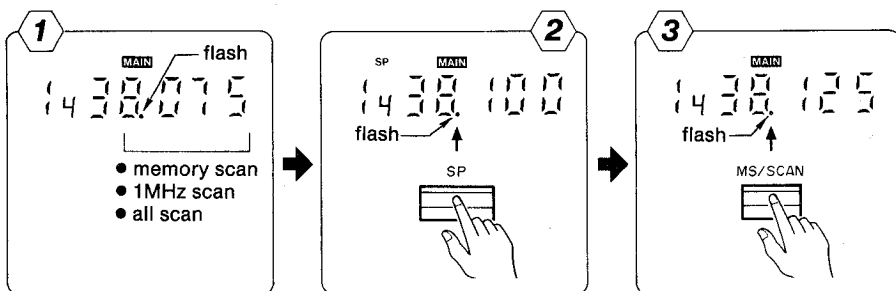


### 4 Switching Pause and Busy scan

Scan is stopped during receiving a signal with busy scan. Even if the unit is receiving a signal, scan is restarted five seconds later since the scan stopped with pause scan. How to switch busy and pause scan is as follows.

#### PROCEDURE:

Depress SP button during scanning (memory scan, 1 MHz scan or all scan). Depress MS/SCAN button to switch busy and pause scan.

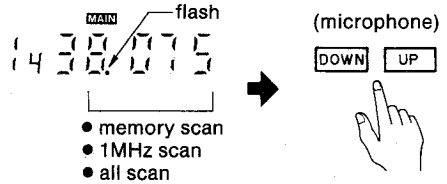


#### Note:

There is no indication for PAUSE and BUSY scan.

## 5 Scanning upwards or downwards

To scan upwards, depress UP button of the microphone during scanning (memory, 1 MHz and all scan). In the same manner, depress DOWN button to scan downwards.

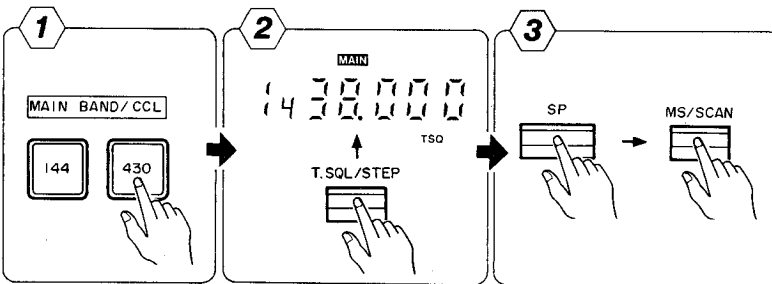


## 6 Tone Squelch Scan

Tone squelch scan is not available when CTN5200 is not installed.

### PROCEDURE:

- ① Set the main band you wish to scan.
- ② Depress T.SQL/STEP button to provide tone squelch mode. (also available during scanning)
- ③ Start scanning (memory, 1 MHz or all scan). If the tone frequency set is not matched, the scanning is not stopped. Scanning time is set longer than normal scan, owing to the tone squelch opening time.



### Note:

Following items can be set and backed up for 144 MHz and 430 MHz respectively.

1 MHz scan, Pause scan or Busy scan, Scanning upwards or downwards

### MEMO scan operation

mode	PAUSE/BUSY switching	UP/DOWN switching	T.SQL ON/OFF
MEMO	PAUSE	UP	T.SQL OFF T.SQL ON
		DOWN	T.SQL OFF T.SQL ON
	BUSY	UP	T.SQL OFF T.SQL ON
		DOWN	T.SQL OFF T.SQL ON

### Normal scan operation

mode variety	PAUSE/BUSY switching	UP/DOWN switching	T.SQL ON/OFF
1MHz	PAUSE	UP	T.SQL OFF T.SQL ON
		DOWN	T.SQL OFF T.SQL ON
	BUSY	UP	T.SQL OFF T.SQL ON
		DOWN	T.SQL OFF T.SQL ON
ALL	PAUSE	UP	T.SQL OFF T.SQL ON
		DOWN	T.SQL OFF T.SQL ON
	BUSY	UP	T.SQL OFF T.SQL ON
		DOWN	T.SQL OFF T.SQL ON

Scan is operated with T.SQL on or off.

### Scan for both band: Example 1

144 MHz band memory scan BUSY DOWN T.SQL OFF	430 MHz band normal scan (All) PAUSE UP T.SQL ON
--	--

### Scan for both band: Example 2

144 MHz band memory scan PAUSE DOWN T.SQL ON	430 MHz band normal scan (All) BUSY UP T.SQL OFF
--	--

### Scan for both band: Example 3

144 MHz band memory scan (All) BUSY UP T.SQL OFF	430 MHz band normal scan (1 MHz) PAUSE DOWN T.SQL ON
--	--



## 8 BATTERY

The Lithium battery is applied to backup micro-processor. The memory memorized in the circuit is retained even if the power is turned off. Under normal use, the new battery should last for five years.

### ADVICE:

When the battery is consumed, the frequency may not be displayed correctly or the memory may be deleted. In such a case, replace the battery.

### CAUTION:

1. Turn the power off to replace the battery.
2. Supply Lithium battery only. Obtain replacement service at the dealer where you purchased the unit.
3. After battery replacement, turn the power on and reset the unit by reset terminal.
4. Do not dispose the battery in fire.

## NOTES FOR OPERATING C5200ED

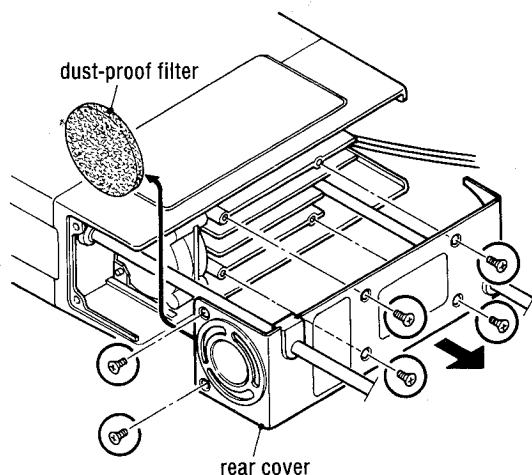
C5200ED (VHF: 50W, UHF: 40W) uses the cooling fan to upgrade the radiation effect of the heat sink. The cooling fan is automatically operated and stopped, sensing the temperature inside C5200ED. It consists the cooling fan and dust-proof filter. Keep the filter clean, since the radiation effect is degraded by clogging.

### CAUTION:

Select the place or portion where the radiation effect of the heat sink is not obstructed by installing the unit. Take centimeters of open space between the heat sink of the unit and the wall and so on.

### Removing dust-proof filter

- ① Unfasten six screws on the rear cover.
- ② Pull the rear cover and remove the filter.
- ③ Wash the filter in water. For strong dust, use neutral detergent and wash out well with water.
- ④ Drain water well from the filter after washing and dry it.
- ⑤ Put back the filter in the unit and fasten the screws.



# CONVENIENT USAGE

## 1 Repeater Operation of CALL Frequency

Repeater operation with CALL Frequency is available. Offset frequency can be also set to shift in minus or plus and the information can be memorized in addition to repeater information for Memory, RMR and CALL.

### PROCEDURE:

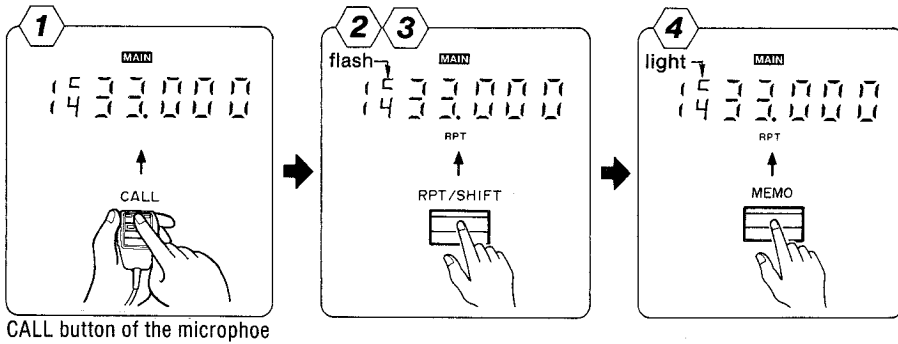
- ① Depress CALL button of the microphone to recall CALL frequency. ("┌" is lit.)
- ② Set the frequency by Main Dial. ("┌" is flashed.)

③ Depress RPT button to provide repeater mode.

④ CALL frequency with repeater mode is memorized by depressing MEMO button. (Long beep is sounded and "┌" is lit.) In such a way, by memorizing repeater information in CALL frequency in addition to RMR (memory frequency for repeater), the unit can access two repeater stations instantaneously. As to operation, the same shift and tone frequencies with RMR are used.

### Note;

**Tone frequency (in the range from 67.0 to 250.3 Hz) is available when CTN5200 is installed.**



## 2 Changing Shift Direction

### PROCEDURE

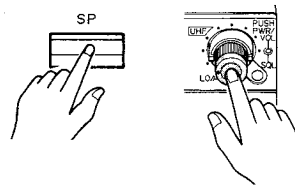
- ① Recall Call Frequency by depressing CALL button of the microphone.
- ② Set the frequency by Main Dial. ("┌" is flashed.)
- ③ Depress RPT button to provide repeater mode.
- ④ Depress SP button. ("SP" is lit.) Depress REV/+ button. ("+" is lit.)
- ⑤ Depress MEMO button to memorize. With long beep, the Call Frequency is set with plus shift in repeater mode.

## 3 Reset

How to initialize the unit is as follows. Resetting the unit is also set forth in page 18, Reset terminal.

### PROCEDURE:

- ① Depress SP button.
- ② While SP is held depressed, turn the power off. The unit is now reset.



### Note:

**After the battery replacement or when the micro-processor does not work properly, reset the unit by shorting the reset terminal.**

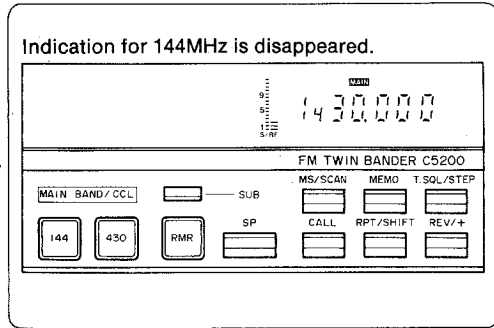
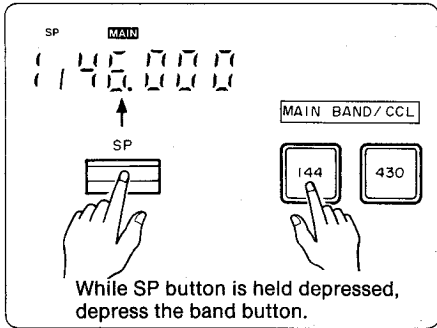
## 4 Single band operation

The unit is also available for single band. When QSO is performed on one band, indication on the other band is able to disappear. The sound is muted, too.

### PROCEDURE:

- ① Set the main band you wish to disappear the indication, or depress SUB button to provide sub band mode.

- ② While SP button is held depressed, depress the band button (144 or 430) you wish to disappear.
- ③ The indication of the band is disappeared, and the other band is automatically set to main band.
- ④ To release it, depress the band button of which indication is disappeared.



## 5 Duplex operation (cross frequency without tone)

As the tone frequency for repeater and tone squelch, 0.0 Hz is set between 250.3 Hz and 67.0 Hz, providing duplex operation without tone frequency.

### Example:

**A station:**  
Memorize 437.30 MHz in the memory address number "3". The shift frequency of 2.00 MHz and the tone frequency of 0.0 Hz should be memorized together.

**B station:**  
Memorize 435.30MHz in the memory address number "3" with repeater mode and plus shift. The shift frequency of 2.00 MHz and the tone frequency of 0.0 Hz should be memorized together.



**A station**  
437.30MHz (displayed freq.)  
435.30MHz (TX frequency)

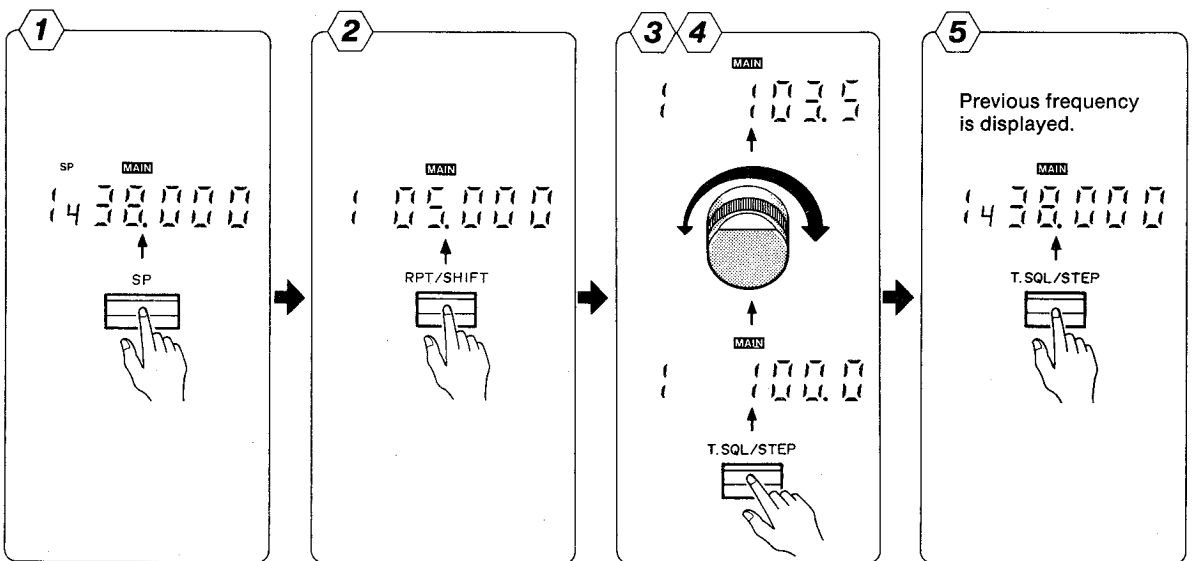
**B station**  
435.30MHz (displayed freq.)  
437.30MHz (TX frequency)

## 6 Setting Tone Squelch Frequency

Tone frequency for tone squelch is set by following procedures, separating from that of repeater operation. Different tone frequencies for 144 MHz and 430 MHz can be also set. For these operation, optional unit of CTN5200 is required.

### PROCEDURE:

- ① Depress SP button. ("SP" is lit.)
- ② Depress RPT/SHIFT button to recall shift frequency for repeater.
- ③ Depress T.SQL/STEP button.
- ④ Tone frequency for tone squelch is displayed. Set desired frequency by Main Dial.
- ⑤ By depressing T.SQL/STEP button again, the frequency is memorized and the previous display is returned.



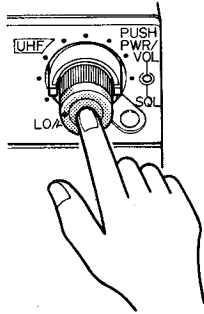
### Note:

By depressing RPT/SHIFT button two times in step ②, the tone frequency for repeater is recalled, however, you can also follow step ③.

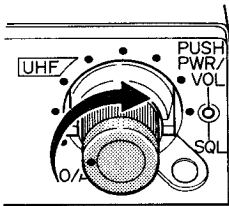
# OPERATION PROCEDURE

Be sure that antenna, power cable and microphone are installed.

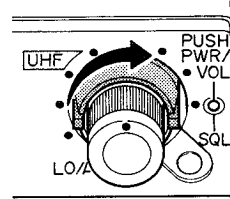
- 1** Turn the power on.



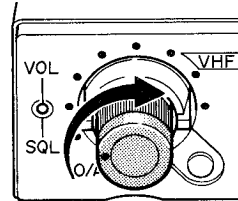
- 2** Control the sound volume of 430 MHz band. (Adjust the background noise.)



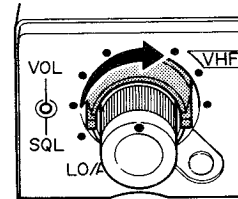
- 3** Control the squelch of 430 MHz band.



- 4** Control the sound volume of 144 MHz band. (Adjust the background noise.)

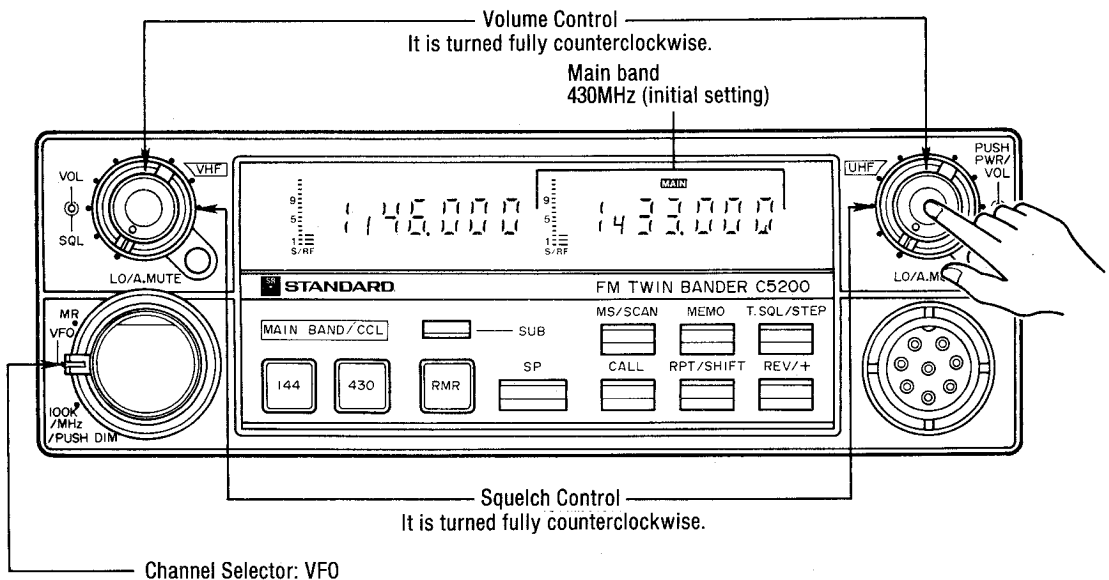


- 5** Control the squelch of 144 MHz band.



**Now the unit is ready for operation**

## ■ Position of the controls for initial setting



# REPEATER OPERATION

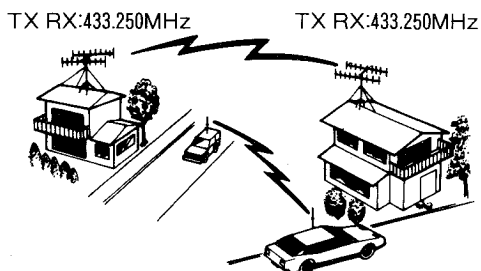
## 1 Repeater Operation

QSO through repeater station (radio relay station) is available in the area where Repeater is built. Confirm its transmission/reception frequency by specialized magazine.

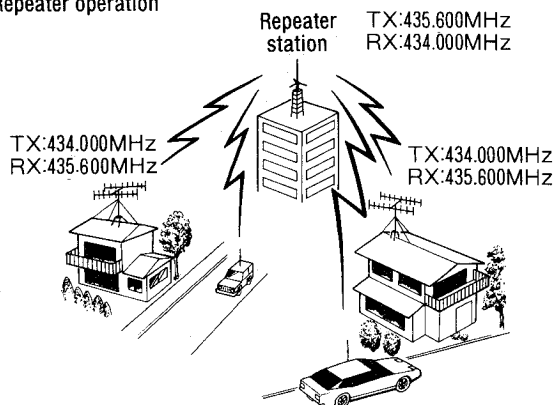
## 2 Features

- QSO is performed applying different frequencies for transmission and reception. Transceivers are thus required to have feature which shifts transmission/reception frequency. Internal tone encoder to operate repeater station is also required. C5200E and C5200ED contains 1750 Hz (fixed) tone encoder.
- Long distance QSO by Low Power Transceivers is attained through repeater station. For repeater operation, C5200E and C5200ED are recommended to use with low power, since further repeater stations applying same frequency with nearer one may be also accessed by high power operation.

Conservative operation



Repeater operation



Tone burst signal of 1750 Hz is transmitted by depressing CALL button, providing transmit mode with repeater operation.

## 3 Operation Procedure

Responding the diversification of repeater operation, C5200E and C5200ED have independent repeater mode for RMR and RPT. REV button to reverse the frequencies for RMR and RPT is also applied.

### RMR Mode

- The frequency for Repeater is memorized in RMR. By depressing RMR button, repeater mode is provided. (with offset frequency of 1.6 MHz)
- C5200E and C5200ED are initially set their frequency for repeater to 433.000 MHz, however, it can be changed. Set the frequency of nearer repeater station or often used.

### Changing RMR frequency

#### PROCEDURE (Changing frequency):

- ① Be sure that the main band is 430 MHz.
- ② Depress RMR button. 433.000 is displayed. Set desired frequency of nearer repeater station by Main Dial. (UP, DOWN buttons of microphone are disabled.)
- ③ "RMR", indicating repeater memory mode is flashed by changing the frequency, providing memorize mode.
- ④ By depressing RMR button, "RMR" is lit, completing the memorization.
- ⑤ Now repeater operation with offset frequency of 1.6 MHz is available.

#### PROCEDURE (Changing shift direction):

- ① Depress RMR button.
- ② Depress SP button. ("SP" is lit.) Depress REV/+ button. "+" is lit and "RMR" is flashed, providing memorize mode.
- ③ Depress RMR button. "RMR" is lit and memorization is completed.

# STONE SQUELCH OPERATION

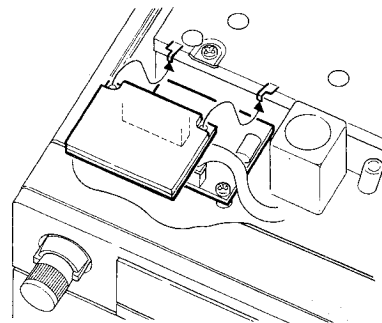
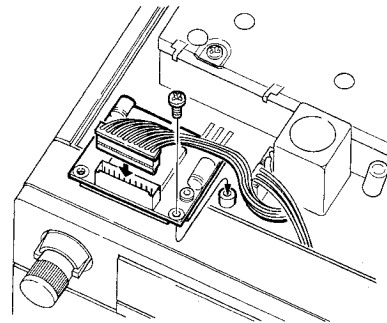
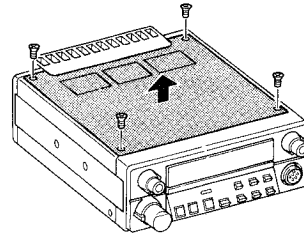
Tone squelch operation is available by installing optional tone squelch unit CTN5200.

## PROCEDURE:

- ① Install the tone squelch unit to C5200E or C5200ED at the dealer you purchased them. Tone frequency is set by Main Dial.
- ② Set the band to operate tone squelch.
- ③ After the installation of CTN5200, depress T.SQL/STEP button to provide tone squelch mode.
- ④ When the unit is operated with this mode, sound is heard when the unit receives the signal having same tone frequency.
- ⑤ To release it, depress T.SQL/STEP button again.

## Installation of CTN5200

- ① Unfasten four screws on the top cover and remove the cover.
- ② Connect CTN5200 to the connector with lead wire inside of C5200E or C5200ED as in figure. Two units of CTN5200 can be installed for 144 MHz and 430 MHz band respectively.
  - CTN5200 for 144 MHz band should be connected to connector with orange lead wire.
  - CTN5200 for 430 MHz band should be connected to connector with green lead wire.
- ③ Fasten CTN5200 to the unit with screws (M2x5) included.
  - To operate tone squelch in both bands, hook one CTN5200 to clicks on the shield.
- ④ Put back the cover and fasten the screws. Be careful not to clip wires.



### Note:

1. QSO between stations having different tone frequency or having no feature to operate tone squelch are not available. To operate tone squelch, set tone frequency in advance.
2. Normal operation is not available when TSQ is indicated. Depress T.SQL/STEP to release tone squelch mode after the tone squelch operation.
3. Simultaneous operation of repeater and tone squelch is not available. By depressing RMR or RPT, TSQ is released. (TSQ is lit.)

# QUESTIONS & ANSWERS

Before to ask maintenance service, please check followings.

When you feel difficulty even if checking followings, contact the dealer you purchased your transceiver unit.

## Q: The unit can not be turned on.

A: Is'nt the fuse cut?

- If so, supply 5A fuse for C5200E and 12A fuse for C5200ED.

### CAUTION:

**Do not supply fuses exceeding the specification, since they may cause the failure.**

A: Is power cable properly connected?

- Connect red to + and black to -.

### CAUTION:

**Not only the unit can not be turned on, it may be damaged by mistaking the connection.**

**Do not take antenna earth with the same earth of Power. Doing so may cause the contact bad or the unit to make the noise.**

## Q: The frequency is not displayed correctly.

A: It happens when the lithium battery is replaced or the microprocessor is not worked properly.

- **Reset the unit by reset terminal located inside the unit. (Keep the unit turned on when you reset the unit.)**

## Q: Memorized frequency varies by turning the power on and off.

A: Is not the battery consumed?

The lithium battery is for backup of the microprocessor.

When it is consumed, the memorized frequency may be varied by turning the power on and off since the microprocessor can not take backup owing to the battery consumption.

- **Replace the battery. Supply only specified battery.**

## Q: Indication is not lit for one of the bands.

A: The indication is disappeared by depressing the band button (144 or 430) while SP button is held depressed.

- **To release it, depress the band button (144 or 430) of which indication is disappeared.**

## Q: The unit does not receive a signal.

A: When the SQL is turned fully clockwise, the unit does not receive weak signal.

- **Control SQL properly.**

A: Is'nt volume for 144MHz and squelch for 430MHz band mistaken?

There are volumes and squelches for 144MHz and 430MHz band respectively. Volume and squelch control for 144MHz band are positioned in left hand and those for 430MHz band are positioned in right hand.

A: Is "MUTE" indicated on display?

The sound of muted band is automatically decreased when the signal is received at the other band.

- **To release it, depress SP button at first and LO/A. MUTE button next.**

A: Is it tone squelch operation ?

QSO with normal operation is not available when tone squelch is operated.

- **Depress T.SQL/STEP button to release it.**

A: Is'nt volume control turned fully counter-clockwise?

- **Control the sound volume, turning it clockwise.**

## Q: The unit accepts only strong signal.

A: Are the antennas for 144MHz and 430MHz band properly installed?

**The antenna for 144MHz is in the right hand (seeing from front panel).**

**The antenna for 430MHz is in the left hand (seeing from front panel).**

A: When the SQL is rotated fully clockwise, the unit may not receive weak signal.

- **Control squelch properly.**

## Q: Sound volume is some times decreased.

A: Is "MUTE" lit?

- **To release it, depress SP at first and depress LO/A. MUTE button next.**



---

**Q: The unit does not transmit.**

A: Is "MAIN" lit on desired band?

- **Set desired main band by depressing the band button of 144 or 430.**

A: Is the setting of repeater mode out of band?  
Even if depressing PTT switch, the unit does not transmit out of band.

- **Set the frequency properly. Or depress RPT/SHIFT to release repeater mode.**

**Q: The unit does not access repeater station.**

A: Does your station exceed the service area of the repeater station?

- **Operate within the service area of the Repeater station.**

**Q: No buzzer beeps.**

A: Is the sound volume turned fully counter-clockwise?

- **Adjust it by sound volume.**

**Q: Display is dark.**

A: Is the unit DIM mode?

Display becomes dark with DIM mode.

- **While SP is held depressed, depress Main Dial. Previous brightness is returned.**

# SPECIFICATIONS

(Unless otherwise specified, specifications are applicable to both 144 MHz and 430 MHz band for C5200E and C5200ED.)

## 1 GENERAL

Frequency Range .....	VHF 144.000 to 147.995 MHz UHF 430.000 to 439.995 MHz
Modulation Type .....	F3
Input Voltage .....	DC13.8 V $\pm$ 15%
Current Drain (when DC13.8 V is used) .....	C5200E: _____ Transmission (Hi) 3.4 A (Low) 1.5 A Reception or Standby 600 mA C5200ED: Transmission (Hi) with 144 MHz band 10.5 A 430 MHz band 9.5 A (Low) with 144 MHz band 3.5 A 430 MHz band 3.5 A Reception or Standby 600 mA
Microphone Impedance .....	600 $\Omega$
Audio Impedance .....	4 $\Omega$
Antenna Impedance .....	50 $\Omega$
Operational Temperature .....	from -20° C to +60° C
Antenna Connector .....	M type (with cable)
Grounding .....	Minus grounding
Dimension (Width $\times$ Height $\times$ Depth) .....	C5200E: 150 $\times$ 50 $\times$ 180 mm C5200ED: 150 $\times$ 50 $\times$ 205 mm
Weight .....	C5200E: approx. 1.8 kg C5200ED: approx. 2.0 kg

## 2 RECEIVER

Receiving System .....	Double conversion super heterodyne
Medium Frequency .....	144 MHz band 1st IF: 10.7 MHz (Lower) 2nd IF: 455 kHz (Lower) 430 MHz band 1st IF: 21.8 MHz (Lower) 2nd IF: 455 kHz (Lower)
Sensitivity (12 dB SINAD) .....	-10 dB $\mu$ (0.158 $\mu$ V)
Selectivity .....	12 kHz or more (-6 dB) 24 kHz or less (-60 dB)
Squelch Sensitivity .....	-16 dB $\mu$ (0.08 $\mu$ V)
Audio Output Power .....	3 W (with 10% distortion)
S/N Ratio with 0.5 $\mu$ V input .....	30 dB or more

## 3 TRANSMITTER

RF Power Output .....	C5200E: _____ (Hi) 10 W (Low) 1 W C5200ED: (Hi) 144 MHz band 50 W 430 MHz band 40 W (Low) 5 W
Modulation .....	Reactance
Spurious & Harmonics Emissions .....	(Hi) -60 dB (Low) -60 dB
Modulation Distortion .....	less than 3% (with modulation of 70%)

●The construction and specification of the unit may be revised without notice for performance development.

# MOBILE BRACKET HOLE PATTERN

