

**MARINE VHF/FM
RADIOTELEPHONE**

**ULTIMA
OPERATION MANUAL**

SITEX®

INTRODUCTION

This instruction manual provides the information necessary for proper operation of your VHF/FM radiotelephone. To avoid problems and obtain the best results, please read this instruction manual carefully before operating the unit.

You should become familiar with the FCC rules and regulations regarding the proper operating procedures, channels assigned for your type of operation, and restrictions that apply to the use of United States channels.

WARRANTY INFORMATION

The warranty certificate provided with this unit outlines the limited warranty provisions.

IMPORTANT NOTICE

This space is provided to record a description of your VHF/FM radiotelephone equipment. Enter the information for a permanent record.

Manufacturer:
Description: VHF/FM Radiotelephone
Model Number:
Serial Number:
Date of Purchase:
Station License Number:
Call Sign:

FCC LICENSE AND REGULATION INFORMATION

The FCC requires some operators to have a ship station license for any vessel on which a radiotelephone is installed. The following procedures should be followed to obtain the ship station license.

It is necessary for you to fill out FCC Form 506, an application for ship station license, sign it and mail to **FEDERAL COMMUNICATIONS COMMISSION, GETTYSBURG, PENNSYLVANIA 17325.**

2. You may operate your VHF/FM marine radio under a temporary license Form 506A. You should read FCC Form 506A carefully to determine whether you meet all the requirements for holding a temporary permit. After reading Form 506A, you should sign the form and indicate the date of mailing of Form 506. **DO NOT MAIL THE TEMPORARY PERMIT.** Keep it in your possession until notification is received from the FCC that the regular license application has been approved. This temporary form is valid for 60 days.

3. Determine a temporary call sign to be used with the temporary permit, and enter this call sign in the appropriate place on Form 506A.

SPECIFICATIONS

TRANSMITTER

Channels : 55
Frequency range : 156.025 to 157.425 MHz
Frequency Stability : 0.0005%
Channel spacing : 25 KHz.
Temperature range : -25°C to +50°C
Antenna impedance : 50 ohms
Spurious and Harmonics
Emission : -65 dB
Transmit Power : low 1W / High 25W
Modulation : 16F3
Power requirements : 12V DC, Negative ground
Current drain : Low power : 1.0 Amps
High power : 5.0 Amps
Microphone type : Dynamic
Ham & Noise : -43 dB

RECEIVER

Channels : 89
Frequency range : 156.050 to 163.275 MHz
Sensitivity : 0.3 nV at 12 dB SINAD
Squelch sensitivity : Threshold 0.16 uV
Tight 0.5 uV
Spurious and Image
Rejection : -70 dB
Intermodulation
rejection : 70 dB
Adjacent channel
rejection : 70 dB
Audio output : 2.0 Watts to 8 ohms
10% distortion
Ham & Noise : 43 dB
Receiver current : 0.5 Amps @ 12V DC
Weight : 2 lbs.
Dimensions : 2.12"(H) x 4.4"(W) x 4.39"(D)

THIS MARINE VHF/FM RADIOTELEPHONE IS FCC TYPE ACCEPTED FOR MARINE/MOBILE USE UNDER PART 80, FOR VOLUNTARILY FITTED VESSELS. NO LICENSED TECHNICIAN REQUIRED FOR INSTALLATION PROVIDING PRE-TUNING IS NOT CHANGED.

| VHF MARINE CHANNEL CHART | | | | | | | |
|--------------------------|---|---|---|-----|---------|---------|---|
| CH | U | C | I | S/D | TX | RX | CHANNEL USE |
| 01A | ● | | | S | 156.050 | | Port operation, commercial (intership/ship-to-coast) |
| 01 | | ● | | D | 156.050 | 180.650 | Public correspondence |
| 01 | | | ● | D | | | Public correspondence, port operation, ship movement |
| 02 | | ● | | D | 156.100 | 180.700 | Public correspondence |
| 02 | | | ● | D | | | Public correspondence, port operation, ship movement |
| 03 | ● | | | S | 156.150 | | Public correspondence |
| 03 | | ● | | D | 156.150 | 180.750 | Public correspondence |
| 03 | | | ● | D | | | Public correspondence, port operation, ship movement |
| 04A | | ● | | S | 156.200 | | Pacific coast: Coast Guard; East Coast: commercial fishing |
| 04 | | | ● | D | 156.200 | 180.800 | Public correspondence, port operation, ship movement |
| 05A | ● | | | S | 156.250 | | Port operation (intership/ship-to-coast) |
| 05A | | ● | | S | | | Ship movement |
| 06 | | | ● | D | 156.250 | 180.850 | Public correspondence, port operation, ship movement |
| 06 | ● | ● | ● | S | 156.300 | | Safety (intership) |
| 07A | ● | ● | | S | 156.350 | | Commercial (intership/ship-to-coast) |
| 07 | | | ● | D | 156.350 | 180.950 | Public correspondence, port operation, ship movement |
| 08 | ● | ● | ● | S | 156.400 | | Commercial, intership |
| 09 | ● | ● | | S | 156.450 | | Commercial/non-commercial (USA: alternate calling channel) |
| 09 | | | ● | S | | | Port operation, intership, ship movement |
| 10 | ● | | | S | 156.500 | | Commercial (intership/ship-to-coast) |
| 10 | | ● | | S | | | Commercial/non-commercial (intership/ship-to-coast), safety |
| 10 | | | ● | S | | | Port operation, intership, ship movement |
| 11 | ● | | | S | 156.550 | | Commercial (intership/ship-to-coast), VTS |
| 11 | | ● | | S | | | Commercial/non-commercial (intership/ship-to-coast), ship movement |
| 11 | | | ● | S | | | Port operation, ship movement |
| 12 | ● | | | S | 156.600 | | Port operation (intership/ship-to-coast), VTS |
| 12 | | ● | | S | | | Commercial/non-commercial (intership/ship-to-coast), ship movement |
| 12 | | | ● | S | | | Port operation, ship movement |
| 13 | ● | ● | | S | 156.650 | | Bridge-to-bridge, navigation (1W) |
| 13 | | | ● | S | | | Port operation, intership, ship movement |
| 14 | ● | | | S | 156.700 | | Port operation (intership/ship-to-coast), VTS |
| 14 | | ● | ● | S | | | Port operation intership/ship-to-coast, ship movement |
| 15 | ● | | | S | 156.750 | | Receive only - environmental |
| 15 | | ● | | S | | | Commercial/non-commercial (intership/ship-to-coast), ship movement (1W) |
| 15 | | | ● | S | | | Port operation, intership, ship movement (1W) |
| 16 | ● | ● | ● | S | 156.800 | | Distress, Safety, and calling |
| 17 | ● | | | S | 156.850 | | State-controlled (1W) |
| 17 | | ● | | S | | | Commercial/non-commercial (intership/ship-to-coast), ship movement (1W) |
| 17 | | | ● | S | | | Intership, port operation, ship movement (1W) |
| 18A | ● | ● | | S | 156.900 | | Commercial (intership/ship-to-coast) |
| 18 | | | ● | D | 156.900 | 181.500 | Port operation, ship movement |
| 18A | ● | | | S | 156.950 | | Commercial (intership/ship-to-coast) |
| 19A | | ● | | S | | | Coast Guard |
| 19 | | | ● | D | 156.950 | 181.550 | Port operation, ship movement |

VHF MARINE CHANNEL CHART

| CH | U | C | I | S/D | TX | RX | CHANNEL USE |
|-----|---|---|---|-----|---------|---------|---|
| 20A | ● | | | S | 157.000 | | Inter-ship |
| 20 | | ● | | D | 157.000 | 161.800 | Port operation (ship-to-coast) 1W |
| 20 | | | ● | D | | | Port operation, ship movement |
| 21A | ● | | | S | 157.050 | | U.S. Government |
| 21A | | ● | | S | | | Coast Guard |
| 21 | | | ● | D | 157.050 | 161.850 | Port operation, ship movement |
| 22A | ● | ● | | S | 157.100 | | Coast Guard |
| 22 | | | ● | D | 157.100 | 161.700 | Port operation, ship movement |
| 23A | ● | | | S | 157.150 | | U.S. Government |
| 23 | | ● | ● | D | 157.150 | 161.750 | Public correspondence |
| 24 | ● | ● | ● | D | 157.200 | 161.800 | Public correspondence (ship-to-coast) |
| 25 | ● | ● | ● | D | 157.250 | 161.850 | Public correspondence (ship-to-coast) |
| 26 | ● | ● | ● | D | 157.300 | 161.900 | Public correspondence (ship-to-coast) |
| 27 | ● | ● | ● | D | 157.350 | 161.950 | Public correspondence (ship-to-coast) |
| 28 | ● | ● | ● | D | 157.400 | 162.000 | Public correspondence (ship-to-coast) |
| 60 | | ● | | D | 158.025 | 160.825 | Public correspondence (ship-to-coast) |
| 60 | | | ● | D | | | Public correspondence, port operation, ship movement |
| 61A | | ● | | S | 158.075 | | Pacific Coast: Coast Guard; East Coast: commercial fishing |
| 61 | | | ● | D | 158.075 | 160.675 | Public correspondence, port operation, ship movement |
| 62A | | ● | | S | 158.125 | | Pacific Coast: Coast Guard; East Coast: commercial fishing |
| 62 | | | ● | D | 158.125 | 160.725 | Public correspondence, port operation, ship movement |
| 63A | ● | ● | | S | 158.175 | | Port operation, commercial (inter-ship/ship-to-coast) |
| 63 | | | ● | D | 158.175 | 160.775 | Public correspondence, port operation, ship movement |
| 64 | ● | | | D | --- | 160.825 | Public correspondence, port operation |
| 64 | | ● | | D | 158.225 | 160.825 | Pacific Coast: public correspondence (ship-to-coast) |
| 64 | | | ● | D | | | Public correspondence, port operation, ship movement |
| 65A | ● | ● | | S | 158.275 | | Port operation, (inter-ship/ship-to-coast) |
| 65 | | | ● | D | 158.275 | 160.875 | Public correspondence, port operation, ship movement |
| 66A | ● | ● | | S | 158.325 | | Port operation, (inter-ship/ship-to-coast) |
| 66 | | | ● | D | 158.325 | 160.825 | Public correspondence, port operation, ship movement |
| 67 | ● | | | S | 158.375 | | Commercial (inter-ship), VTS (1W) |
| 67 | | ● | | S | | | Safety (inter-ship/ship-to-coast) East Coast: commercial fishing |
| 67 | | | ● | S | | | Inter-ship, port operation, ship movement |
| 68 | ● | ● | | S | 158.425 | | Non-commercial (inter-ship/ship-to-coast) |
| 68 | | | ● | S | | | Port operation, ship movement |
| 69 | ● | | | S | 158.475 | | Non-commercial (inter-ship/ship-to-coast) |
| 69 | | ● | | S | | | Non-commercial (inter-ship/ship-to-coast), East Coast: commercial fishing |
| 69 | | | ● | S | | | Inter-ship, port operation, ship movement |
| 70 | ● | ● | ● | S | 158.525 | | Digital selective calling (DSC) |
| 71 | ● | | | S | 158.575 | | Non-commercial (inter-ship/ship-to-coast) |
| 71 | | ● | | S | | | Pacific Coast: Non-comm (inter-ship/ship-to-coast), safety, ship movement |
| 71 | | | ● | S | | | Port operation, ship movement |

| VHF MARINE CHANNEL CHART | | | | | | | | | |
|--------------------------|---|---|---|-----|---------|---------|-------------|--|---|
| CH | U | C | I | S/D | TX | RX | CHANNEL USE | | |
| 72 | ● | | | S | | | | | Non-commercial (intership) |
| 72 | | ● | ● | S | | 156.625 | | | Commercial/non-commercial (intership) |
| 73 | ● | | | S | | | | | Port operation (intership/ship-to-coast) |
| 73 | | ● | | S | | 156.675 | | | Non-comm (intership/ship-to-coast), safety, East Coast comm fishing |
| 73 | | | ● | S | | | | | Intership, port operation, ship movement |
| 74 | ● | | | S | | | | | Port operation (intership/ship-to-coast) |
| 74 | | ● | | S | | 156.725 | | | Non-commercial (intership/ship-to-coast), ship movement |
| 74 | | | ● | S | | | | | Port operation, ship movement |
| 77 | ● | | | S | | | | | Port operation (intership) |
| 77 | | ● | | S | | 156.875 | | | Safety (intership/ship-to-coast), ship movement |
| 77 | | | ● | S | | | | | Intership |
| 78A | ● | | | S | | | | | Non-commercial (intership/ship-to-coast) |
| 78A | | ● | | S | | 156.925 | | | Commercial (intership/ship-to-coast) |
| 78 | | | ● | D | 156.925 | 161.525 | | | Port operation, public correspondence, ship movement |
| 79A | ● | ● | | S | | 156.975 | | | Commercial (intership/ship-to-coast) |
| 79 | | | ● | D | 156.975 | 161.575 | | | Port operation, ship movement |
| 80A | ● | ● | | S | | 157.025 | | | Commercial (intership/ship-to-coast) |
| 80 | | | ● | D | 157.025 | 161.625 | | | Port operation, ship movement |
| 81A | ● | | | S | | | | | U. S. Government |
| 81A | | ● | | S | | 157.075 | | | Coast Guard |
| 81 | | | ● | D | 157.075 | 161.675 | | | Port operation, public correspondence, ship movement |
| 82A | ● | | | S | | | | | U.S. Government |
| 82A | | ● | | S | | 157.125 | | | Coast Guard |
| 82 | | | ● | D | 157.125 | 161.725 | | | Port operation, public correspondence, ship movement |
| 83A | ● | | | S | | | | | U. S. Government |
| 83A | | ● | | S | | 157.175 | | | Coast Guard |
| 83 | | | ● | D | 157.175 | 161.775 | | | Public correspondence |
| 84 | ● | ● | ● | D | 157.225 | 161.825 | | | Public correspondence (ship-to-coast) |
| 85 | ● | ● | ● | D | 157.275 | 161.875 | | | Public correspondence (ship-to-coast) |
| 86 | ● | ● | ● | D | 157.325 | 161.925 | | | Public correspondence (ship-to-coast) |
| 87 | ● | ● | ● | D | 157.375 | 161.975 | | | Public correspondence (ship-to-coast) |
| 88A | ● | | | S | | 157.425 | | | Commercial (intership) |
| 88 | | ● | ● | D | 157.425 | 162.025 | | | Public correspondence (ship-to-coast) |
| WX01 | ● | ● | ● | D | --- | 162.550 | | | Weather (receive only) |
| WX02 | ● | ● | ● | D | --- | 162.400 | | | Weather (receive only) |
| WX03 | ● | ● | ● | D | --- | 162.475 | | | Weather (receive only) |
| WX04 | ● | ● | ● | D | --- | 163.275 | | | Weather (receive only) |
| WX05 | ● | ● | ● | D | --- | 161.650 | | | Weather (receive only) |
| WX06 | ● | ● | ● | D | --- | 161.775 | | | Weather (receive only) |
| WX07 | ● | ● | ● | D | --- | 162.425 | | | Weather (receive only) |
| WX08 | ● | ● | ● | D | --- | 162.450 | | | Weather (receive only) |
| WX09 | ● | ● | ● | D | --- | 162.500 | | | Weather (receive only) |
| WX10 | ● | ● | ● | D | --- | 162.525 | | | Weather (receive only) |

Regarding channels 3, 21, 23, 61, 64, 81, and 83:

To use these channels, user would require special authorization from a government authority or private

GENERAL DESCRIPTION

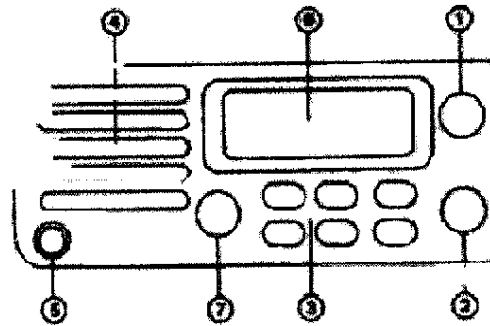
This unit is an all solid state VHF/FM marine radiotelephone. It contains all currently allocated USA, Canadian and International channels, plus 10 weather channels. These channels are designated for marine VHF/FM operations in United States territorial waters.

This unit is completely factory calibrated and does not require the services of a licensed technician for installation.

Front panel indicators display each mode of operation in the highly visible liquid crystal display (LCD).

The unit is rugged and reliable. With normal care and protection it will provide many years of dependable operation.

FRONT PANEL AND CONTROLS



ON-OFF/VOLUME CONTROL

Applies power to the unit and adjusts desired level of sound

2. SQUELCH CONTROL

Turn the Squelch Control clockwise until the background noise is not audible. When a signal is received it will be clear of background noise.

3. PROGRAM KEY PAD

Use to select desired mode with these keys.

4. SPEAKER

Located on front of radio.

5. MICROPHONE

Dynamic push to talk with channel change buttons.

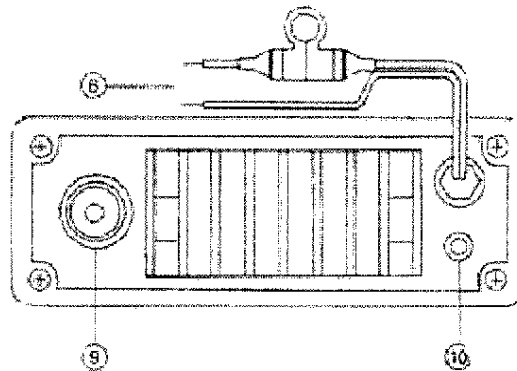
6. LCD CHANNEL/FUNCTION DISPLAY

Shows channel number, power level, SCAN, M (Memory scanning), WX, ALL, WATCH, CAD, INT'L, SAFETY, CALL and TX modes.

7. CHANNEL SELECT KNOB

Controls channel selection.

REAR PANEL CONNECTORS



8. **POWER CORD CONNECTOR**
Connect power cable
9. **ANTENNA CONNECTOR**
Connect VHF/FM marine antenna.
10. **EXTERNAL JACK**
Connect external speaker into jack. 8-ohm, 2.5W.

INSTALLATION

Refer to the installation and connection diagrams. Your radiotelephone is designed for easy installation, however, certain recommendations should be followed.

Location

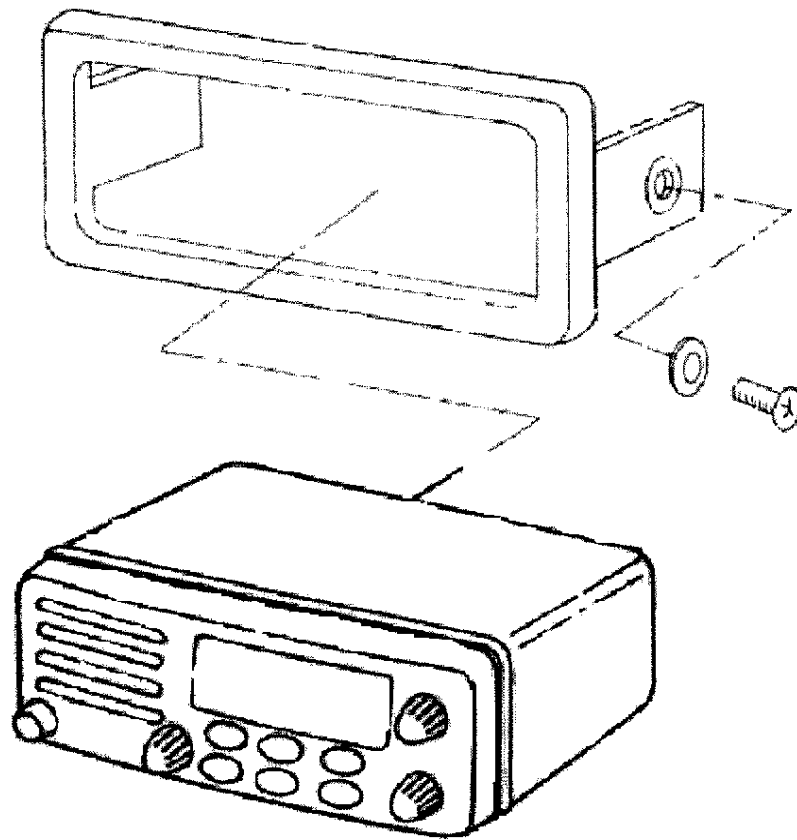
Although this VHF radio is waterproof, we suggest that you choose a location that will provide protection from extreme conditions such as rain, direct salt or fresh water spray and extreme heat.

Mounting the Radio

A universal mounting bracket is supplied and can be used for bulkhead, overhead or tabletop mounting. Use the mounting bracket as a template to locate holes for mounting the unit.

Flush mount setting

1. Take out the bracket big knobs from the radio.
2. Put in the radio from rear side to the flush mount.
3. Set the provided washers and screws at both sides.
4. Set the flush mount/radio to the dashboard.
5. Install the four (4) screws to each corner of flush mount.
6. Set the rubber caps to four (4) holes to hide the screw heads.



Antenna Location and Mounting

This radio requires a 50 ohms VHF/FM marine antenna (NOT SUPPLIED). Consult with your marine dealer to determine the best type of antenna for your type of boat. Mount the antenna as high as possible, on the mast head or cabin top. It should be as high as practical for the best performances and longest range.

Antenna Connection

After installing the antenna, route the cable to the back of the radio and connect it to the ANT connector.

CAUTION: Do not press the transmit switch (on the microphone) unless the antenna is connected. Damage can result and your warranty may be voided.

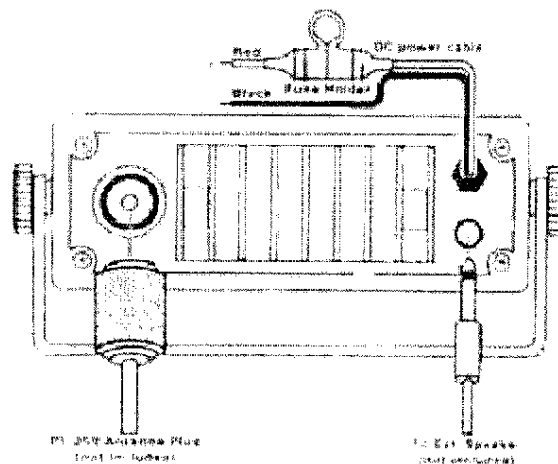
Power Connection

This unit is designed to operate from a 12V NEGATIVE GROUND system only. Do not connect the unit to a positive ground or a floating ground. The power cable provided with the unit contains an in-line fuse to protect both the unit and the power source. In addition, the unit contains a special protective circuit to prevent excessive damage in case of reversed polarity or improperly wired unit. The fuse will normally blow when polarity is reversed.

NOTE: When a fuse blows, check the protective circuit to be sure that it is not damaged. Do not install a higher rated fuse. Use a 7 amp 3 AG type of use.

The power cable is color coded for easy identification. Connect the Red wire to the (+) positive terminal and the Black wire to the (-) negative terminal of the battery. If necessary to extend the power cable, be sure to use #10 AWG stranded wire with a similar color code for easy identification.

INSTALLATION DIAGRAM



OPERATION

RECEIVING

1. Rotate the **VOLUME** control clockwise. When you hear a click, the power is on. Adjust the control to the desired listening level of sound. If you do not hear any sound, proceed to next step.
2. Turn the **SQUELCH** completely counter-clockwise. When sound comes from the speaker, adjust the **VOLUME** control to the desired listening level. Set the channel to an unused channel, then adjust the **SQUELCH** control clockwise until the background noise is just eliminated. This is called threshold adjustment. Further rotation of the squelch control can block out weaker signals.
3. Select the desired channel using the channel selector. If channel 16 is to be used, select with CH 16 key.

TRANSMITTING

Caution: NEVER TRANSMIT UNLESS THE ANTENNA IS CONNECTED TO THE UNIT. SEVERE INTERNAL DAMAGE WILL OCCUR.

Transmission is controlled by the "Push to Talk" switch on the microphone. When the switch is pressed, the transmitter is turned ON and the receiver is turned OFF. When the switch is released, the receiver is turned ON again and the transmitter is turned OFF. TX will appear in the LCD display when the PTT switch is pressed.

1. Before transmitting, choose the desired channel for operation. Be sure that the channel is clear and not occupied by another party.
2. If your transmission is to be short range or in a harbor area, set to LOW power. When the communication range is longer, set to HI power. HI or LOW power is indicated in the LCD display. Low power is 1 watt, high power is 25 watts.

NOTE: USA channels 13, 17, 67 Int'l channels 15, 17 and Canadian channels 13, 15, 17, 20 are automatically set to 1W low power when they are selected. 25W high power for channels 13, 67 USA channels is available by pressing the HI/LO key. The transmitter will not operate on channels 02, 04, 60-62 USA channels and on weather channels.

3. Do not use obscene language in your communications. It is a violation of the rules and regulations and your license can be revoked.
4. The transmitter will automatically be turned off after five minutes (except Public channels) and the receiver is put in action. At the same time, a beeping sound is heard from speaker.

"ULTIMA" KEY OPERATION - GUIDANCE

16/9 KEY

Press to go to CH16 from any channel or from any mode.
Press again to go to previous (last) channel or mode.
Press again to return to CH16.

Press and hold for more than 2 seconds for CH9.
Next press reverts to previous channel or mode.
Next press to return to CH9.

By pressing this key in the scanning operation, SCAN mode will be released and change priority channel.

By pressing this key in the Scan Watch operation, Scan Watch operation will be released and change to priority channel.

WX KEY

Pressing and holding this key for more than 3 seconds selects the units WX mode and "WX" will be indicated on the LCD display.

WX channel selection can be done by UP and DOWN keys of the microphone or by the rotary channel selector switch on front.

Pressing on this key for more than 3 seconds in WX operation, the indicated WX channel will be memorized and return to the last channel (before selecting the WX mode).

When this key is pressed in the normal channel operation, the last WX channel will be selected.

When pressed, the MEM key, after selecting WX channel, "MEM" will be indicated to the WX channel on LCD display.

A weather alert will be activated to the memorized channel in the MOM Scan operation and WATCH operation. The channel will stop when the weather alert signal is received.

Press this key together with HI/LO key to select U.S., INT'L, CANADA channel selection.
Sequences U.S. to INT'L to CANADA to U.S. to INT'L

HI/LO KEY

Press to select High or Low power.

Press this key for more than 3 seconds to select and switch the power.

If channels 13, 17 or 67 are selected while you are in the high power mode, they will automatically be switched to low power.

To override low power on channels 13 and 67, press and hold the HI/LO key.

Pressing the HI/LO key and the WX key at the same time enables you to switch from U.S., INT'L and CANADA.

MEM KEY

Selecting channels for memory scan. Turn channel knob to desired channel, then press MEM key. To erase channel from the memory scan, display channel that is to be deleted then press MEM key.

Selecting a weather channel into the MEM SCAN will enable your unit to receive weather alerts when you are in the MEM SCAN mode.

SCAN KEY

Pressing the SCAN key will activate the memory SCAN function. Pressing it again will deactivate it.

WATCH KEY

The WATCH is divided into two categories. CALL WATCH and SAFETY WATCH.

Pressing the WAT key will display CALL WATCH. The unit is ready to scan channels 16 and 9. An additional channel can be selected by turning the channel selector knob to the desired additional channel and then press the MEM key.

If a weather channel had been placed in memory, that weather channel will also be scanned in the CALL WATCH mode.

Pressing and holding the WAT key for two seconds SAFETY WATCH will be displayed. You can now select one of the six Coast Guard monitored stations (21,22,23,81,82,83). Press the MEM key once and that selected station will be in the SAFETY WATCH scan. Press the MEM key again to activate the SAFETY WATCH scan.

Turn the function off by pressing the WAT or 16/9 key.

OPERATION OF MICROPHONE

When pressed the PTT switch at the non-transmit channel, the beep sound will be heard three times.

HI/LO key activates even in transmitting.

If any key other than HI/LO key in the transmitting mode of PTT is pressed the beep sound will be heard three times.

If transmitting continues (pushing PTT switch) for 5 minutes, the unit changes to the receiving mode automatically oscillating beep sound three times.

UP/DOWN KEYS

Pressing the key one time makes the channel change to the next up channel or down channel.

Holding down the key makes the channel change fast.