

APPENDIX 5
USERS MANUAL

USER INSTRUCTIONS FOLLOW THIS SHEET

Cobra®

microTALK²™

Cobra Electronics Corporation
6500 West Cortland Street
Chicago, IL 60707

If You Think You Need Service

For technical assistance, please call our Automated Help Desk which can assist you by answering the most frequently asked questions about Cobra products.

(773) 889-3087

24 hours a day, 7 days a week.
A Consumer Service Representative can be reached through this same number 8:00 am - 8:00 pm, Monday through Friday, CST.

Technical assistance is also available on-line in the Frequently Asked Questions (FAQ) section at www.cobraelec.com or by e-mail to productinfo@cobraelec.com

If you think you need service call 1.773.889.3087

"If your product should require factory service please call Cobra first before sending your unit in. This will ensure the fastest turn-around time on your repair."

You may be asked to send your unit to the Cobra factory. It will be necessary to furnish the following in order to have the product serviced and returned.

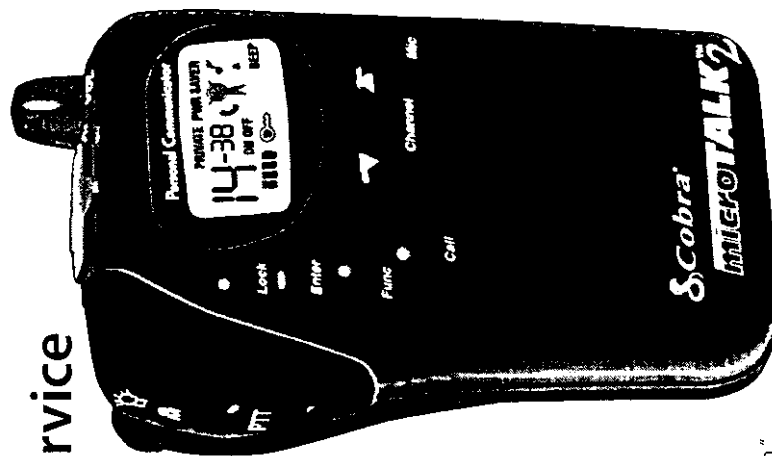
1. For Warranty Repair include some form of proof-of-purchase, such as a mechanical reproduction or carbon or a sales receipt. If you send the original receipt it cannot be returned.
2. Send the entire product.
3. Enclose a description of what is happening with the unit. Include a typed or clearly print name and address of where the unit is to be returned.
4. Pack unit securely to prevent damage in transit. If possible, use the original packing material.
5. Ship prepaid and insured by way of a traceable carrier such as United Parcel Service (UPS) or First Class Mail. To avoid loss in transit to: Cobra Factory Service, Cobra Electronics Corporation, 6500 W. Cortland St., Chicago, IL 60707.
6. If the unit is in warranty, upon receipt of your unit it will either be repaired or exchanged depending on the model. Please allow approximately 3 to 4 weeks before contacting us for status. If the unit is out of warranty a letter will automatically be sent informing you of the repair charge or replacement charge. If you have any questions, please call 1.773.889.3087 for assistance.

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Part No. 480-279-P-001

Operating Instructions for your
Cobra MicroTalk 2

Family Radio Service 2 Way Radio



"Ingenious Products for Easier Communication."

Ad. 6/16/98

The Family Radio Service Story

The Family Radio Service Story

Ever wish you could talk to someone who wasn't within earshot? Like contacting ski partners back at the lodge? Or letting a friend know how to find you in a busy mall? Cobra's MicroTalk 2 is a great way for friends or family to increase their fun—and safety—by staying in touch while on the go.

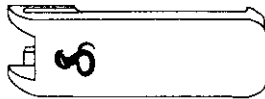
The FCC (Federal Communications Commission) has created 14 license free frequency bands, or channels, called Family Radio Service (FRS) frequencies. All of these 14 channels are easily accessed on your Cobra FRS radio. These channels are in the UHF (Ultra High Frequency) band which means great penetration through buildings, thick forests, hills, and other dense structures. They are also FM (Frequency Modulation) signals which means crystal clear reception even in crowded noisy environments.

FCC Warnings

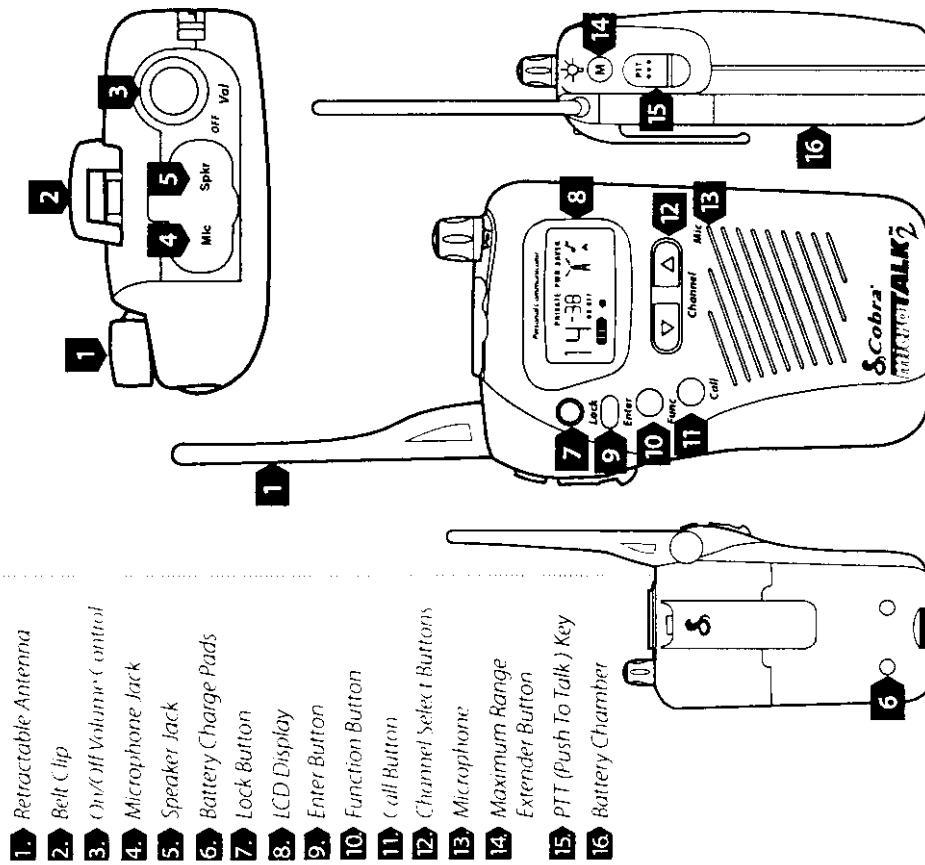
Replacement or substitution of transistors, regular diodes or other parts of a unique nature, with parts other than those recommended by Cobra, may cause a violation of the technical regulations of part 95 of the FCC Rules, or violation of Type Acceptance requirements of Part 2 of the Rules.

Included with your MicroTalk 2

- 1 Removable Belt Clip
- 2 Wrist Strap

**1****2****A1**

Controls and Indicators



Thank you for purchasing the Cobra MicroTalk 2 2-way Radio. Properly used, this Cobra product will give you many years of reliable service.

Customer Support

Should you encounter any problems with the product or not understand its many features, please refer to this owner's manual. If, after referring to the manual, you still need help, call Cobra Customer Service at 773.889.3087.

Cobra Customer Service

Live operations are available
M-F 8:00 am - 8:00 pm CST
at: 773.889.3087

Automated Technical
Assistance available 24 hours
a day, seven days a week
E-mail questions to:
productinfo@cobradelec.com

Cobra on the World Wide Web
Frequently Asked Questions
(FAQ) can be found on line
at: www.cobradelec.com

A2

A3

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How to Use Your Cobra *microTALK²* 2-Way Radio

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Features of This Product

- UHF 1M Frequencies
- No License Required
- No Air Time Fees
- Up to 2 mile range
- 14 Main Channels
- 38 CTCSS Subchannels
- LCD Function Display
- Private Call Voice Scramble
- Talk Confirmation Tone
- Call/Hang Button
- Recharging Pads
- Retractable Antenna
- Auto Battery Saver Circuitry
- Auto Squelch
- Lock Key
- Ring Notification
- Wrist Strap/Belt Clip
- Water Resistant

Operation

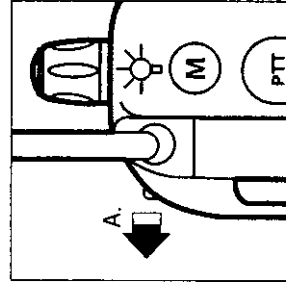
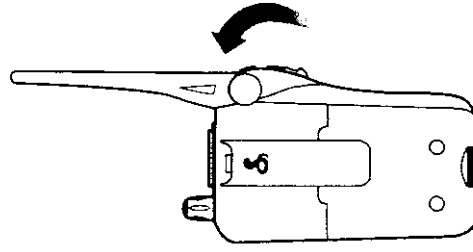
Battery Installation

Note

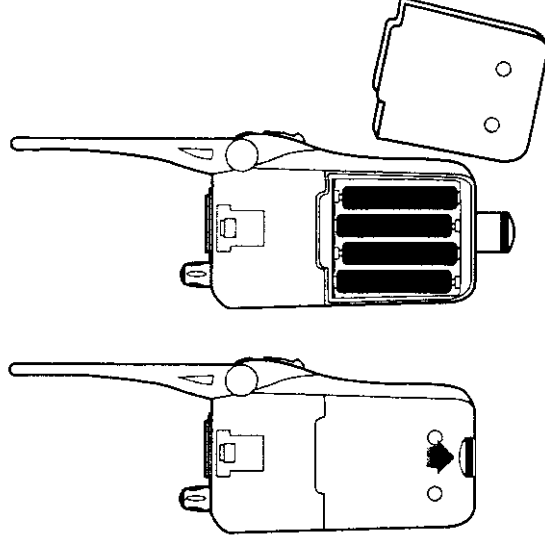
Batteries not included with Micro talk 2 2-way radio.

Install Batteries

1 Clear antenna.



2 Remove belt clip by (A.) pulling tab out and (B.) Sliding belt clip up and off unit.



3 Pull lock tab down and lift door up (towards you) to remove battery cover.

4 Insert four "AAA" batteries. Position batteries according to polarity markings.

Note

Always use high quality alkaline or NiMH batteries.

Incorrect positioning can damage both the batteries and the unit.

Only the Cobra NiMH battery (Part # FA-BP) pack can be recharged.

See Accessories on page 3.

Charge ports for recharging NiMH (Nickel Metal Hydride) battery pack are located on back of unit.

Note

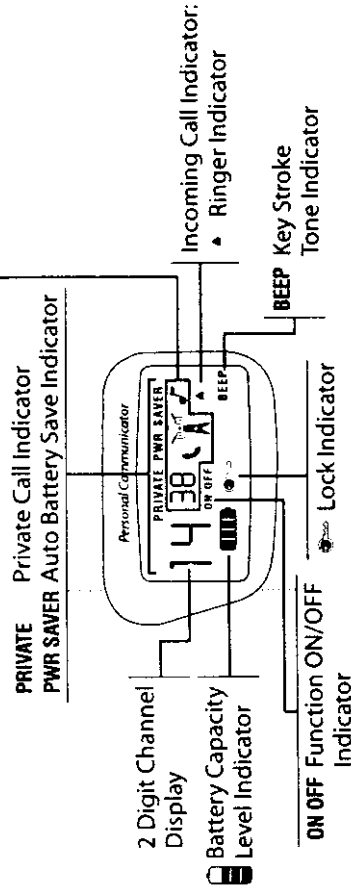
When batteries are low or need charging the BATT LOW indicator will blink. Replace alkaline batteries or recharge NiMH battery pack.

Operation

LCD Display

LCD Display

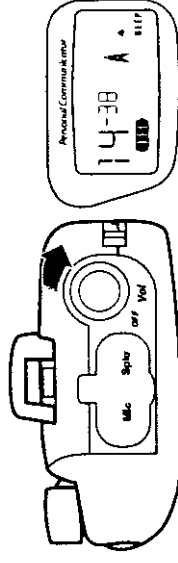
- 38 CTCSS Subchannel Indicator
- Outgoing Call Indicator
- Transmit (Talk) Indicator
- Receive (Listen) Indicator
- Talk Confirmation Tone Indicator



Operation

Turning On Your MicroTalk

Rotate ON - OFF Volume Control  clockwise. An audible "tone" will indicate the unit is on and then the LCD will go through a 3 second self-test and then go to operational mode.

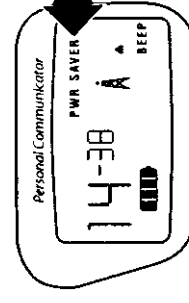


Operational Mode

Auto Battery Power Saver

Your MicroTalk 2 has a unique circuit designed to extend battery life. If there are no transmissions within 10 seconds, the unit will automatically switch to battery save mode.

flashing icon



The PWR SAVER icon will flash.

Turning On Your MicroTalk 2

Note

Whenever the unit is on you can receive communications.

Auto Battery Power Saver

Note

The Auto Battery Save Circuit does not effect the unit's ability to receive incoming transmissions.

Operation

Select Main Channel

Note

Units must be on same channel and subchannels to communicate.

Note

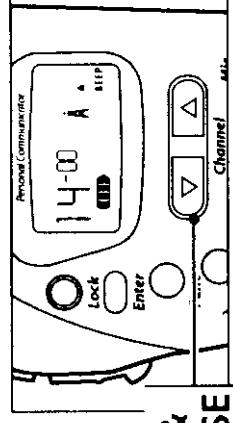
Channels 8-12 generally are less used and give better results for communications in most areas.

Note

Push and hold the  buttons for fast channel advance.

Select Main Channel (1-14)

- 1 Rotate ON - OFF Volume Control  clockwise. An audible "tone" will indicate the unit is on and then the LCD will go through a 3 second self-test and then go to operational mode.



PUSH & RELEASE

- 2 Select channel by pushing and releasing  buttons.

Operation

Select CTCSS Subchannel

Note

If you push and hold the  button, the LCD display will cycle through the different functions.

Note

To return to operational mode and not save your last setting, push and release .

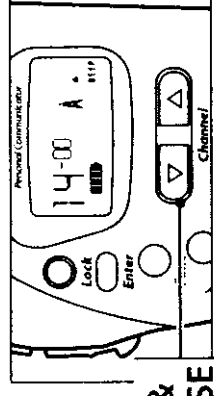
Note

CTCSS (Controlled Tone Squelch System) is an advanced subcoding system that allows segmentation of a main channel.

Select CTCSS Subchannel (00-38)

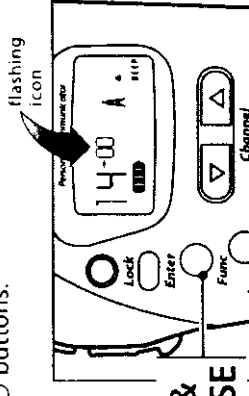
The CTCSS Subchannel allows the user to utilize a less used channel range (00-38) within a main channel.

- 1 Rotate ON - OFF Volume Control  clockwise. An audible "tone" will indicate the unit is on and then the LCD will go through a 3 second self-test and then go to operational mode.



PUSH & RELEASE

- 2 Select main channel by pushing and releasing  buttons.



PUSH & RELEASE

- 3 Push and release  button. Small numbers flash next to channel display on LCD.

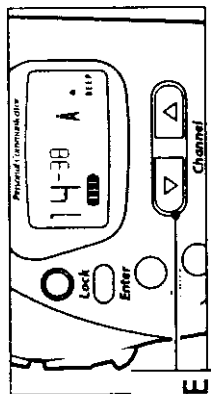
continued

Operation

Select CTCSS Subchannel

Select CTCSS Subchannel (00-38) *continued*

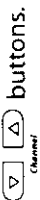
PUSH & RELEASE



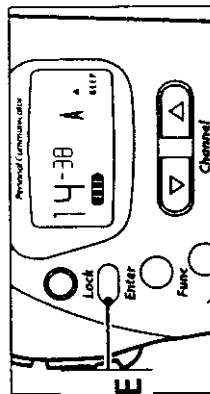
Note

Push and hold the buttons for fast channel advance.

4 Select subcode number by *pushing and releasing*



PUSH & RELEASE



5 When desired code is displayed *push and release* button. If key stroke tone is on, an audible tone will confirm your selection.

Operation

Battery Low

Note

When battery capacity is at the 1/4 level it is recommended that you replace alkaline batteries or recharge your NiMH (Nickel Metal Hydride) battery pack.

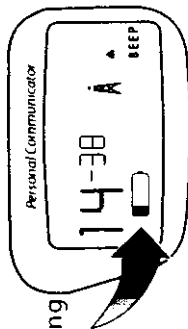
Only the Cobra NiMH battery (Part # FA-BP) pack can be recharged.

Note

NiMH rechargeable battery Pack (item #FA-BP) and 2 port desktop charger (item #FA-CH) are not included with this unit. See Accessories section on page 37.

Battery Low

flashing icon



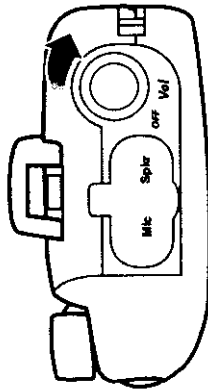
When in normal use the icon may begin flashing. This is a warning to you that your batteries are getting low.

Replace alkaline batteries as soon as possible and/or recharge NiMH battery pack.

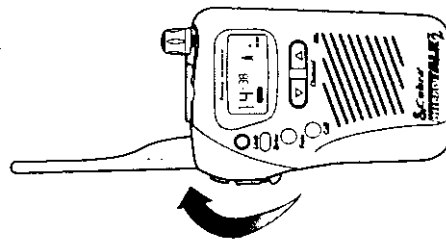
Operation

Calling Another Party

To alert another party that you wish to communicate:



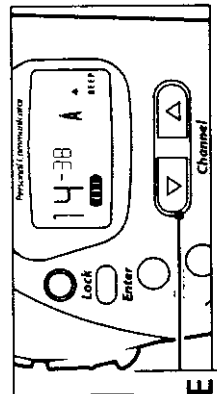
- 1 Turn on your MicroTalk 2 2-way radio. An audible "tone" will indicate the unit is on. The LCD will go through a 3 second self test and then to operational mode.



- 2 Place antenna in full upright position.

10

Operation

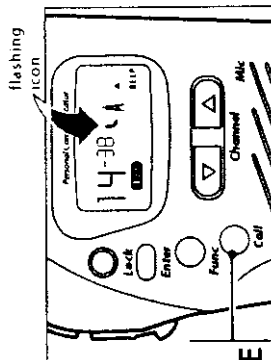


PUSH & RELEASE

- 3 Select desired channel by pushing and releasing ∇ Δ buttons.

Note

Both the calling and receiving units must be on same channel and subchannel for the call function to work



PUSH & RELEASE

- 4 Push and release ∇ button. The ∇ indicator icon will flash and the ∇ icon will remain on for 3 seconds. The unit you are calling will hear a 2 second ring tone.

Note

Your incoming "call" audio ringing levels is dependent on your unit's volume setting

- 5 Wait for the party's response or proceed to "Talking To Another Party" section on next page.

11

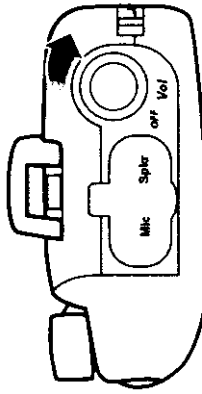
Operation

Talking to Another Party

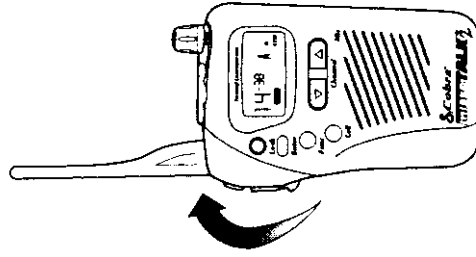
Note

Both units must be on same channel to communicate.

Talking To Another Party
To send your outgoing message:



- 1 Turn on your MicroTalk 2 2-way radio.
An audible "tone" will indicate the unit is on. The LCD will go through a 3 second self test and then go to operational mode.

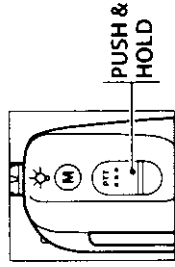


- 2 Place antenna in full upright position.

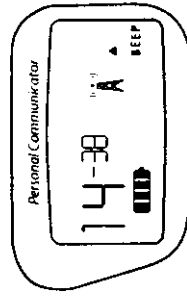
Operation

Note

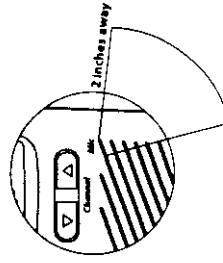
While PTT buttons depressed you cannot receive incoming calls.



- 3 Push and hold PTT button.



- 4 The A icon will appear.



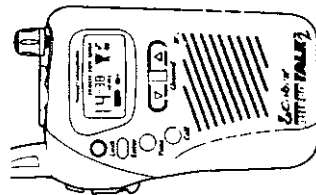
- 5 Hold mic about 2 inches from mouth. Speak in a normal voice.
- 6 Release PTT button and listen for response.

Note

When you release the PTT button, the person you are talking to will hear a tone indicating that it's ok to talk. See Talk Confirmation Tone section on page 14.

Operation

Talk Confirmation Tone



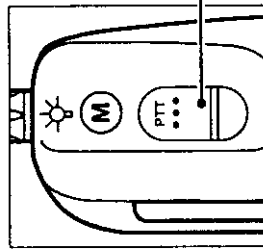
Talk Confirmation Tone

Your listener will hear an audible tone when you release the PTT button.

This alerts the other party that you are finished talking and it's OK for them to begin talking.

Listening For Another Party

When finished talking:



Note

While PTT button is depressed you cannot receive incoming communications.

- 1 Release [PTT] button to receive incoming transmissions.

Your MicroTalk 2 is always in listening mode when the PTT button is not pressed and you are not in function mode. See Advanced Features section on page 20.

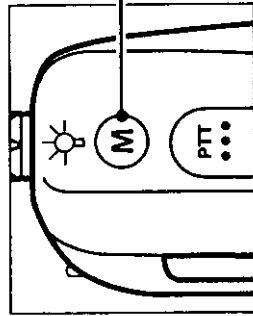
Operation

Auto Squelch

Your MicroTalk 2 is equipped with Auto Squelch, which automatically shuts off weak transmissions and unwanted noise due to terrain conditions or if you have reached your range limit.

Maximum Range Extender

Auto squelch can be temporarily removed to allow all signals to enter by pressing the (M) button (Maximum Range Extender).



PUSH & HOLD 1 SEC.

- 1 Push and hold the (M) button for 1 second to allow all signals to enter.

Note

To learn more about the range of your MicroTalk 2, see MicroTalk 2 Range Section on page 16.

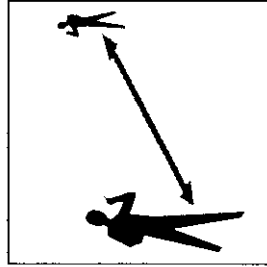
Range is dependent on battery condition and geographic territory.

MicroTalk 2 Range

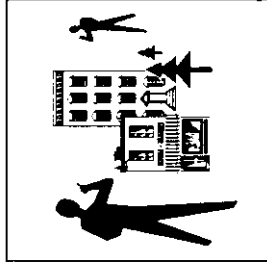
MicroTalk 2 Range

MicroTalk 2 Range

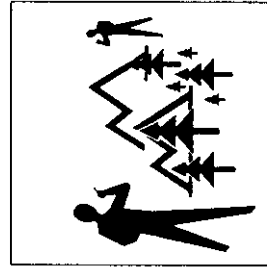
Your MicroTalk 2 Radio has a range of up to 2 miles. This effective range can be shortened under some conditions.



1. Under flat, open conditions you will experience the MicroTalk's maximum range.



2. Range can be reduced by buildings and foliage in the path of the signal.



3. Range will be further reduced by dense foliage and hilly terrain.

To achieve maximum range the auto squelch can be overridden. Refer to Maximum Range Extender section on page 15.

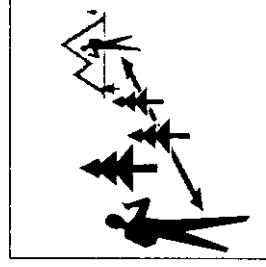
Making Life Easier and Safer

MicroTalk 2 2-Way Radio Can Make Life Easier and Safer

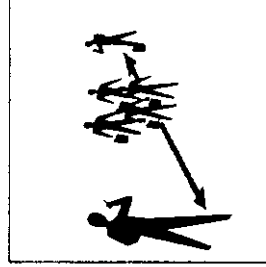
MicroTalk 2 2-Way Radio Can Make Life Easier and Safer

As you become familiar with your MicroTalk 2 Radio you will find many of your own uses for the unit.

Some suggestions include:



1. Talking with fellow hikers.



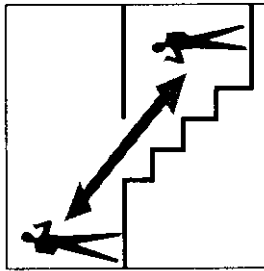
2. Keeping track of the kids in a shopping mall.

continued

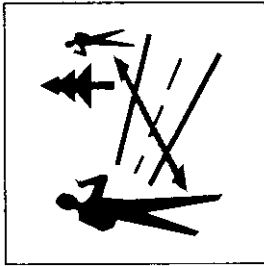
Making Life Easier and Safer

MicroTalk 2 2-Way Radio Can Make Life Easier and Safer

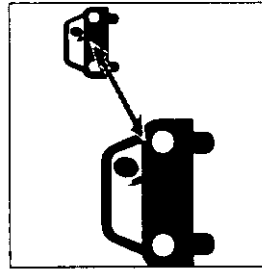
MicroTalk 2 2-Way Radio Can Make Life Easier and Safer *continued*



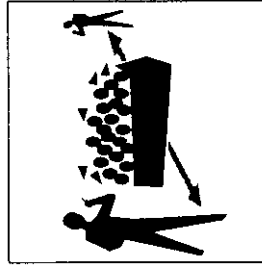
3. Communicating between basement and first, second or third floor.



4. Talking to a neighbor or a friend.



5. Checking on traveling companions in another car.



6. Agree on a meeting spot after an event.

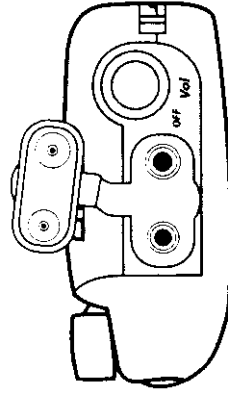
External Microphone/Speaker Jack

External Microphone/ Speaker Jack

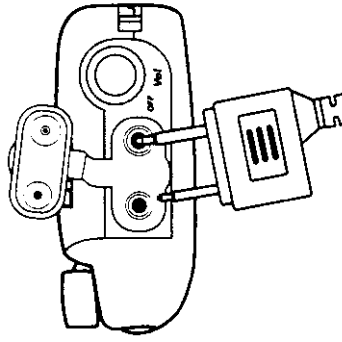
External Microphone/Speaker Jack

Your MicroTalk 2 2 Way Radio can be fitted with an external microphone/speaker, (not included) freeing your hands for other tasks.

To attach the external microphone/speaker:



- 1 Open Mic/Spkr tab on top of unit.



- 2 Insert jack into the Mic/Spkr ports.

Note

External microphone/speaker (item #FA-SM) is not included with this unit. See Accessories section on page 37 for available units.

Advanced Features

Advanced Features

Note

When using or programming functions, pushing and releasing the  button or the  button will save all entered information.

Note

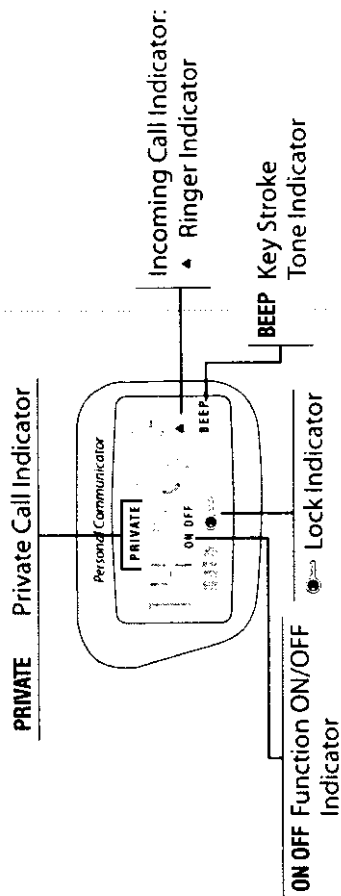
To exit out of function mode and return to operational mode without saving entered information simply press the  button.

Advanced Features

Your MicroTalk 2 has many advanced features not found on other 2-way radios. These include:

- Private Call® (Voice Scramble)
- Ring Notification Mode
- Tone Indicator Settings
 - Key Stroke Tone
 - Talk Confirmation Tone
- Lock Key

Advanced Features



Note

If you push and hold the  button, the MicroTalk 2 will cycle through the different functions.

If, after 10 seconds no selection is made, the unit will return to operational mode.

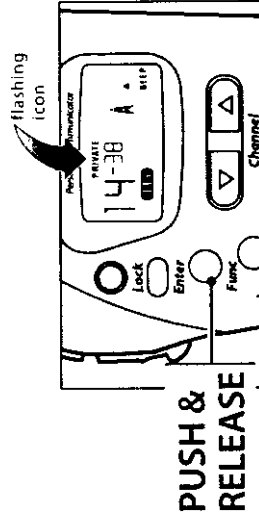
Advanced Features

Private Call (Voice Scramble)

Private Call (Voice Scramble)
Private Call ensures that no one can eavesdrop on your conversation.

To engage the Private Call function:

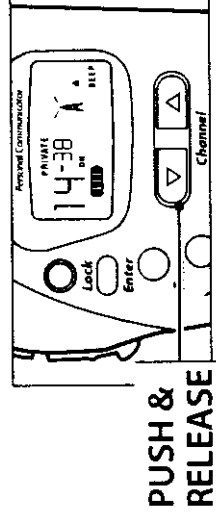
- 1 Rotate ON - OFF Volume Control  clockwise. An audible "tone" will indicate the unit is on and then the LCD will go through a 3 second self-test and then go to operational mode.



**PUSH &
RELEASE**

- 2 Push and release  button until **PRIVATE** icon flashes.

Advanced Features



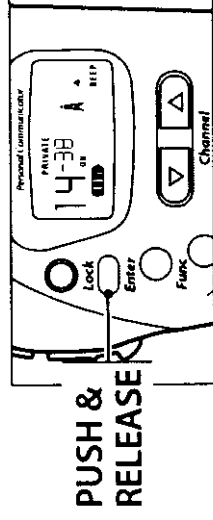
**PUSH &
RELEASE**

- 4 Push and release  buttons until **ON** icon is visible.

Note

When you push and hold the **PTT** button, the unit exits out to operational mode.

If, after 10 seconds no selection is made, the unit will return to operational mode.



**PUSH &
RELEASE**

- 4 Push and release  button. Unit will go to operational mode or push function button to proceed to next function.

Advanced Features

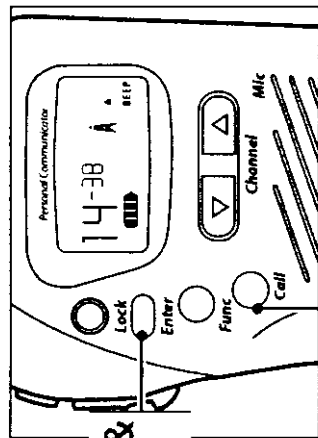
Advanced Features

Ringer

Your MicroTalk 2 will signal you that there is an incoming transmission with a ring tone.

Note

Unit must be in operational mode to test ring.



RingerTest

To test the ringer mode:

- 1 Rotate ON - OFF Volume Control  clockwise. An audible "tone" will indicate the unit is on and then the LCD will go through a 3 second self-test and then go to operational mode.
- 2 Push and hold  button.
- 3 Quickly push and release  button. Unit will ring for 5 seconds.

**PUSH &
RELEASE**

Advanced Features

Tone Settings

Tone Setting

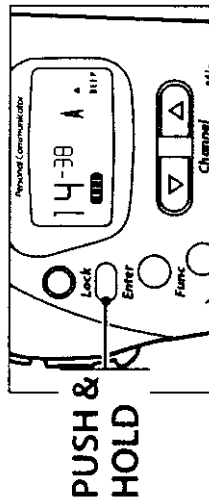
The Key Stroke Tone and Talk Confirmation Tone can be temporarily turned on or off during the operation of your MicroTalk 2 2-Way Radio.

Key Stroke Tone Indicator BEEP

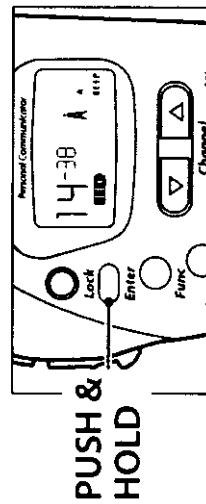
You will hear an audible tone when any button is pushed (except PTT button). You can turn the audible tone on or off by:

Note

The Key Stroke Tone and Talk Confirmation Tone can be temporarily turned on or off at any time while in operational mode.



- 1 Push and hold button until BEEP icon disappears in the LCD display.

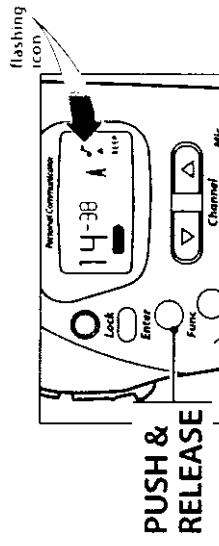


- 2 To return to the audible mode, push and hold button until BEEP icon appears in the LCD display.

Advanced Features

Talk Confirmation Tone Indicator

To temporarily eliminate the Talk Confirmation Tone:



PUSH & RELEASE

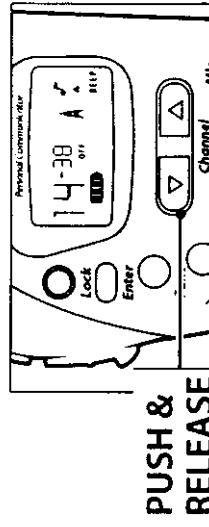
- 1 Push and release button until icon flashes.

Note

For more information see Talk Confirmation Tone section on page 14

Note

To restore the Talk Confirmation Tone repeat steps 1-3 as shown to the left.



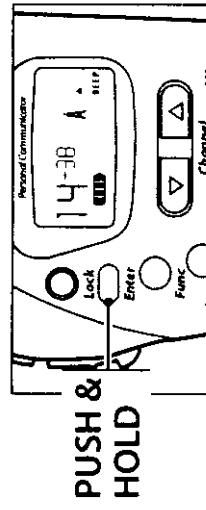
PUSH & RELEASE

- 2 Push and release buttons until OFF icon appears in the LCD display.

Note

When you push and hold the PTT button, the unit exits out to operational mode.

If, after 10 seconds no selection is made, the unit will return to operational mode.



PUSH & HOLD

- 3 Push and hold button. icon will disappear or press and hold function key to proceed to next function.

Advanced Features

Frequency Range

Lock Function

Note

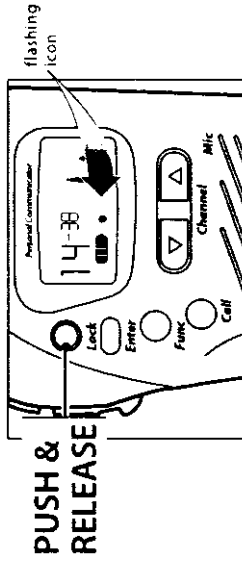
Call button, Range Extender button and PTT button **do not lock and are fully operational** while the unit is locked.

The unit cannot lock while in function mode.

Lock Function

The purpose of the LOCK function is to lock most buttons to avoid accidental operation.

To engage the LOCK function:



PUSH & RELEASE

- 1 Push and release **Lock** button. **flashing icon** flashes. Most buttons are locked.
- 2 To "unlock" push and release **Lock** button again. Buttons are "unlocked" and **flashing icon** disappears.

The MicroTalk 2 unit represents one of the most advanced FM two-way radios used.

Frequency Ranges

FRS Channel	Channel Frequency In MHz
1	462.5625
2	462.5875
3	462.6125
4	462.6375
5	462.6625
6	462.6875
7	462.7125
8	467.5625
9	467.5875
10	467.6125
11	467.6375
12	467.6625
13	467.6875
14	467.7125

Caring for Your *microTALK²* Radio

Caring for Your MicroTalk 2 Radio

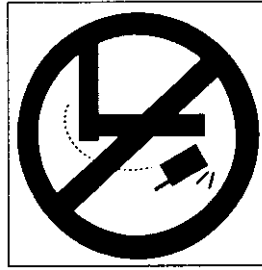
The MicroTalk 2 2-Way Radio will give you years of service if cared for properly.

Here are some suggestions:

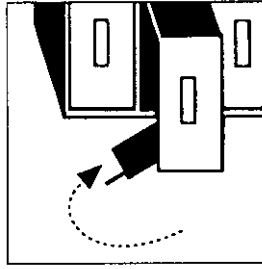
Note

Modifying or tampering with the radio's internal components can cause malfunction and will invalidate the warranty.

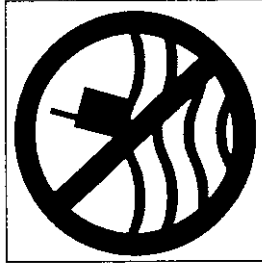
If your radio is not performing as it should, please call Cobra at 773.889.3087. Do not return the unit to the retailer.



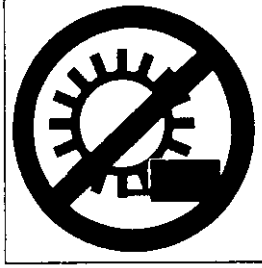
1. Handle unit gently.



2. Keep away from dust.



3. Never place the unit in water or in a moist place.



4. Avoid exposure to extreme temperatures.

microTALK² Specifications**microTALK²** Specifications**I. GENERAL SPECIFICATIONS****A. GENERAL**

CH=14 CHANNELS WITHIN 462-467 MHz

B. RECEIVER

	UNIT
1. SENSITIVITY FOR 12 DB SINAD FOR CALL SIG. DETECTION	uV 0.25 uV 0.2
2. MAX. AUDIO OUTPUT @10% THD	MW 100
3. MAX. S/N RATIO @ 1mV RF INPUT	DB 45
4. SQUELCH	
a) SENS.	uV 0.2
b) ATTACK TIME	mS 120
c) CLOSING TIME	mS 200
5. AUDIO FREQUENCY RESP. @ 300 HZ	DB -6
@ 3000 HZ	DB -6
6. SIGNAL DISPLACEMENT BW	+/-KHZ 5
7. ADJACENT CH. REJECTION	DB 55
8. INTERMODULATION REJECTION	DB 55
9. SPURIOUS RESPONSE REJECTION	DB 65

C. TRANSMITTER

	UNIT
1. EFFECTIVE RADIATED POWER	mW 500
2. CARRIER FREQ. STABILITY	HZ 500
3. MODULATION LIMITING	KHZ 2.5
4. CARRIER ATTACK TIME	mS 80
5. AUDIO FREQUENCY RESPONSE @ 300 HZ	DB -6
@ 3000 HZ	DB -6
6. AUDIO DISTORTION	% 3
7. HUM NOISE	DB 45
8. TRANSIENT FREQ. BEHAVIOR	
a) TX ON	mS 30
b) TX OFF	mS 5

D. POWER SUPPLY

1. BATTERY LIFE (1:1.8 RATIO)	HR 24
2. BATTERY	V 4.8

Limited Two Year Warranty

COBRA ELECTRONICS CORPORATION warrants that its COBRA FRS Radios, and the component parts thereof, will be free of defects in workmanship and materials for period of two (2) years from the date of first consumer purchase. This warranty may be enforced by the first consumer purchaser, provided that the product is utilized within the U.S.A.

COBRA will, without charge, repair or replace, at its option, defective FRS radios, products or component parts upon delivery to the COBRA factory Service Department, accompanied by proof of the date of first consumer purchase, such as a duplicated copy of a sales receipt.

You must pay any initial shipping charges required to ship the product for warranty service, but the return charges will be at Cobra's expense, if the product is repaired or replaced under warranty.

Exclusions: This limited warranty does not apply; 1) to any product damaged by accident; 2) in the event of misuse or abuse of the product or as a result of unauthorized alterations or repairs; 3) if the serial number has been altered, defaced or removed; 4) if the owner of the product resides outside the U.S.A.

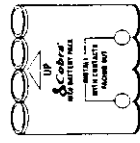
All implied warranties, including warranties of merchantability and fitness for a particular purpose are limited in duration to the length of this warranty. COBRA shall not be liable for any incidental, consequential or other damages; including, without limitation, damages resulting from loss of use or cost of installation. Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to you.



**Cobra Electronics
Corporation**

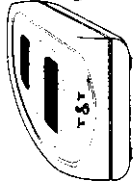
6500 West Cortland Street
Chicago, Illinois 60707

Optional Accessories



(1) NIMH Rechargeable Battery Pack

High performance Nickel Metal Hydride battery pack for multiple recharging
FA CH \$29.95



2 Port Desktop Charger

Charges your Microtalk Radio and (1) NiCad battery pack
FA CH \$24.95



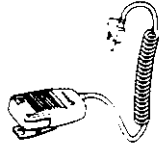
Camouflage Cover Carrying Case

Durable nylon carrying case for your Microtalk radio
FA CC \$19.95



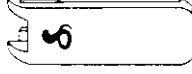
Ear Bud Mic with PTT

Integrated speaker/mic adapter that fits in your ear. Includes shirt clip
MA EBM \$29.95



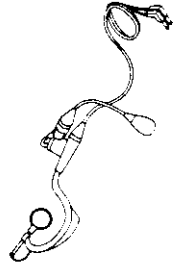
Lapel Microphone

Removes microphone/speaker connection
CA 40 \$25.95



Replacement Belt Clip

FA BC \$4.95



Vox Mic

VOX (Voice Operated Transmitter) adapter allows you hands free operation
MA VOA \$49.95

You Can Find These Fine Accessories At Your Local Cobra Dealer

If you wish, you can order directly from Cobra.

Order by phone

Call 1.773.889.3087

(Press 1 from the main menu) 8 a.m.-8 p.m. M-F CST.)

Order by mail or fax

Please fill out order form on next page, and mail/fax directly to Cobra.

Accessory Order Form

Item #	Description	Cost Ea.	Qty.	Amount
FA-BP	NIMH Rechargeable Battery Pack	\$29.95		
MA-EBM	Ear Bud Mic with PTT	\$29.95		
MA-VOX	Vox Mic	\$49.95		
FA-CH	2 Port Desktop Charger	\$24.95		
LA-40	Lapel Microphone	\$25.95		
FA-CC	Camouflage Cover Carrying Case	\$19.95		
FA-BC	Replacement Belt Clip	\$4.95		
Prices subject to change without notice.				
Tax Table				
Illinois residents add 7%.				
Cook Co. residents add 7.5% (7.75% total)				
Chicago residents add 7% (7.75% total)				
Indiana residents add 5%.				
Michigan residents add 4 %.				
Minnesota residents add 6%.				
Ohio residents add 6%.				
Wisconsin residents add 5%.				
Subtotal				
(Tax if applicable)				
Shipping/handling				\$4.00
Total				

For credit card orders fill out order form and fax to: 1.773.622.2269 or call 1.773.889.3087 (Press 1 from the main menu) 8:00 am - 8:00 pm, M-F, CST.

Make check or money order (no stamps) payable to:
Cobra Accessories Dept.
6500 West Cortland St. Chicago, IL 60707

Please print clearly

Name _____
Address (No P.O. Box) _____
City _____ State _____
Zip _____
Telephone (____) _____
Credit Card No. _____ Exp. Date _____
Customer Signature _____
Circle One: Visa MasterCard Discover

Allow 4 to 6 weeks for delivery. Offer valid in Continental U.S. only.

APPENDIX 6
TRANSMITTER ALIGNMENT

ONE (1) PAGE ALIGNMENT PROCEDURE FOLLOWS THIS SHEET

TRANSMITTER TUNE-UP PROCEDURE
FCC ID: BBOFRS250

APPENDIX 6

8. Alignment instructions

WARNING

Any repairs or adjustments should be made under the supervision of a qualified radio-telephone technician.

TRANSMITTER

1. Power Supply Voltage

The Power supply voltage should be set for 6.0 VDC measured at the radio during transmit. Periodically check the power supply voltage during the alignment procedure.

2. Frequency Setting

- A. Connect a frequency counter or Communications Service Monitor to the antenna connector through an RF power attenuator (10 watt minimum rating, 20 dB minimum attenuation).
- B. Depress the PTT switch.
- C. Adjust the RV403 trimmer capacitor such that the output frequency is equal to the channel frequency with a maximum error of ± 200 Hz.
- D. Release the PTT switch.

3. Output Power Alignment.

- A. Set the power supply voltage for 6.0 VDC.
- B. Connect a Communications Service Monitor or a wattmeter and dummy load to the antenna connector.
- C. Depress the PTT switch.
- D. To be convinced for 0.45 Watt output power with a maximum error of ± 0.05 Watt.
- E. Release the PTT switch.

4. Deviation Adjustment.

- A. Connect an audio generator to the microphone jack JIG. The audio frequency should be set at 1 KHz.
- B. Connect an FM deviation meter or Communications Service Monitor to the antenna connector through an RF power attenuator (10 watt minimum rating, 20 dB minimum attenuation). Set the monitor to read peak deviation.
- C. Depress the PTT switch.
- D. Adjust the audio generator level 100 mV rms.
- E. Adjust RV401 for ± 2.4 KHz maximum deviation.(with ctcss tone)
- F. To be convinced ± 1.8 KHz without ctcss tone.(1.2KHz dev. 20dB up)
- g. Release the ptt switch.

APPENDIX 7

CIRCUITS AND DEVICES TO STABILIZE FREQUENCY

SYNTHESIZER

A phase locked loop (PLL) circuit establishes and stabilizes operating frequency.

The data for producing necessary frequencies is established by the CPU on the digital board.

The frequency stability of the Tx/Rx is maintained by the TCXO, which generates a stable frequency of 12.8 MHz.

CIRCUITS AND DEVICES TO
STABILIZE FREQUENCY
FCC ID: BBOFRS250

APPENDIX 7

APPENDIX 8

CIRCUITS TO SUPPRESS SPURIOUS RADIATION
AND LIMIT MODULATIONCircuitry to Suppress Spurious Emissions

Output from the final RF power amplifier, Q501, and presented to a low-pass filter configured in a "pi" network consisting of C273, L217, C75, L219, C277, C279, L221, C280 and C281.

Circuitry to Limit Modulation and Audio Low Pass Filter

Microphone signal is amplified limited to prevent deviation over 2.5 kHz, and applied to a 3 kHz low-pass filter configured around IC308C.

CIRCUITS TO SUPPRESS SPURIOUS
RADIATION AND LIMIT MODULATIONFCC ID: BBOFRS250
APPENDIX 8