

# OPERATIONS MANUAL

## 14 Channel 2-Way Radios With CTCSS security For Interference Elimination

Family Radio Service Frequencies



COLUMBIA TELECOMMUNICATIONS  
GROUP, INC.  
FCC ID: GAFFRS-CS14  
JOB #: 487ZH0  
EXHIBIT #: 7



Owners Manual  
and Instructions

## FCC Warnings

ADJUSTMENT: REPLACEMENT or substitution of transistors, regular diodes or other parts of a unique nature, with parts other than those recommended by Columbia, 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.

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following condition: this device must accept any interference received, including interference that may cause undesired operation.

<b>FCC Warnings .....</b>	<b>2</b>
<b>Contents .....</b>	<b>3</b>
<b>Introduction .....</b>	<b>4</b>
Controls and displays .....	4
<b>Component Guide .....</b>	<b>5</b>
<b>Setting Up Your FRS Radio .....</b>	<b>6</b>
Battery Installation .....	6
Battery Meter .....	7
Low Battery Indicator .....	7
<b>Operation .....</b>	<b>8</b>
Turning on your FRS .....	8
Communication .....	8
Receiving communications .....	9
Respond prompt tone .....	9
Channel selection .....	10
Frequencies .....	10
Interference Elimination Codes .....	11
To speak directly to another radio .....	12
Range .....	12
Calling (Paging) another radio .....	13
<b>Special Features .....</b>	<b>14</b>
Automatic Squelch .....	14
Monitor .....	14
Channel Lock .....	15
Channel Scan .....	15
Automatic Battery Save .....	16
Illuminating the display .....	16
External Microphone/Speaker Jacks .....	16
<b>Customer Support .....</b>	<b>17</b>
<b>Channel Frequencies and Code Charts .....</b>	<b>18</b>
<b>Warranty .....</b>	<b>19</b>

## Introduction

### Included Your Package

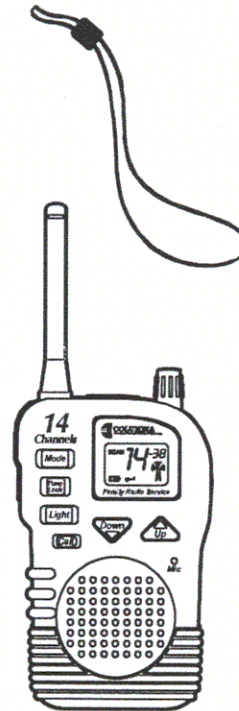
When you unpack your FRS radios, you should find the following items enclosed in the package:

- 14-channel FRS unit.
- Belt-Clip (attached)
- Wrist strap
- This manual

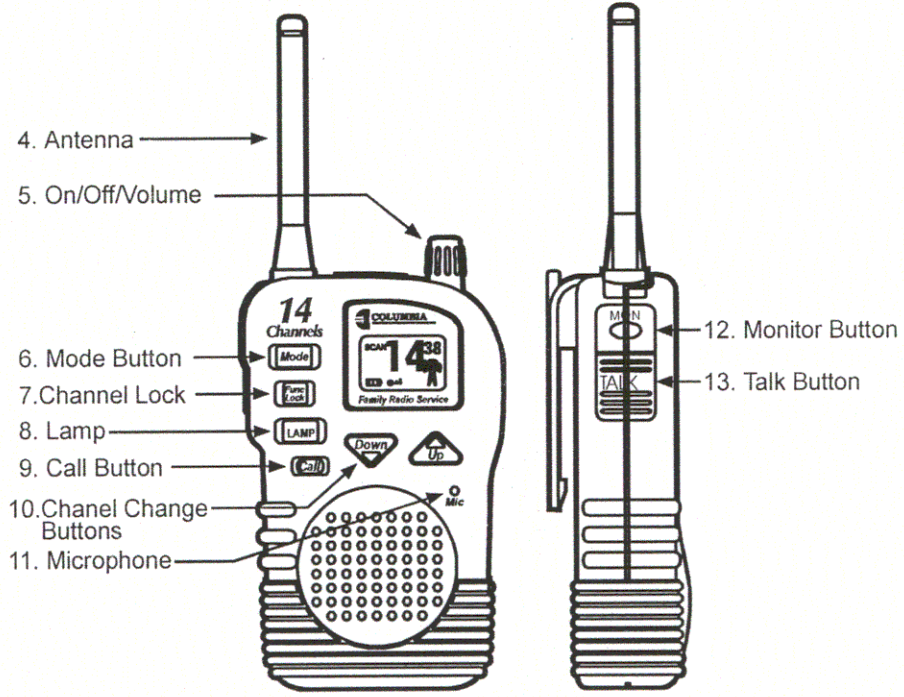
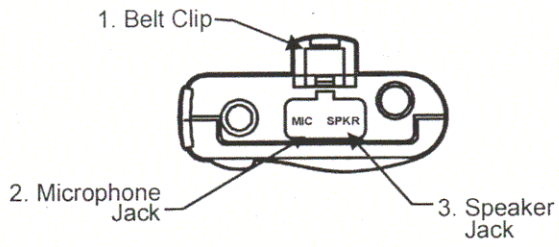
Please check for these items carefully. If any items are missing, call Columbia Telecommunications Customer support at 1-800-889-7434 between 9am and 5pm EST (Eastern Standard Time).

### Controls and Displays

1. Belt Clip
2. Microphone Jack
3. Speaker Jack
4. Antenna
5. On/Off/Volume knob
6. Channel Set Button
7. Channel Lock Button
8. Display Lighting Button
9. Call Button
10. Channel Change Buttons
11. Microphone
12. Monitor Button
13. Talk Button



# Component Guide



## Setting Up Your FRS Radio

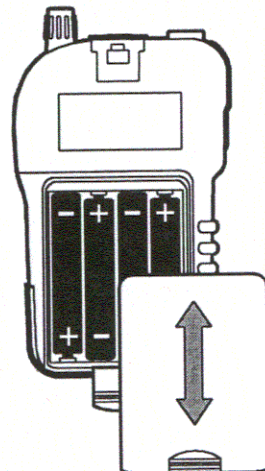
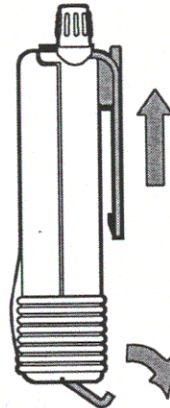
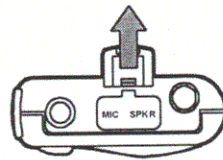
### Battery Installation

Batteries are not included with your FRS 2-way radio. To use the radio, you must install 4 AAA size alkaline batteries.

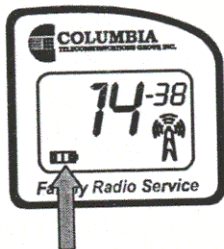
Caution: incorrect positioning of the batteries can damage both the batteries and the unit.

To install the batteries:

- Remove the belt clip by pulling the tab on the top of the belt clip back, and sliding it up and off of the unit.
- Pull the battery door lock tab down to release the battery cover.
- Insert four AAA batteries. Position the batteries according to the polarity markings on the plastic.
- Replace the battery cover. Snap the lock tab and belt clip back into place.



## Setting Up Your FRS Radio



### Battery Meter

The battery meter is located in the bottom left corner of the LCD display panel on the unit. It looks like a battery with 3 vertical bars inside. These indicate the amount of power available. As the power is used, the bars will disappear.

### Low Battery Indicator

When the batteries need to be changed, the battery meter icon will flash. To ensure uninterrupted communication, replace the batteries as soon as possible.

### Note:

Always use alkaline batteries for replacements.

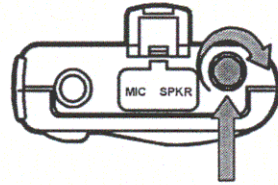
If you will store your radio for long periods of time, always remove the batteries. Batteries may corrode and leak when left unused over long periods of time, and permanently damage your radio.

**DO NOT PUT BATTERIES INTO FIRE OR EXPOSE TO HIGH HEAT. THEY MAY EXPLODE.**

## Operation

### Turning On Your FRS

Turn the **ON/OFF/Volume** knob on the top of the unit clockwise. The unit will beep, the LCD panel will display information about your radio, and the panel will be illuminated by a green light for several seconds.



As the knob is turned, the volume will increase or decrease, based on the direction it is turned. Whenever the unit is on you can receive communications.

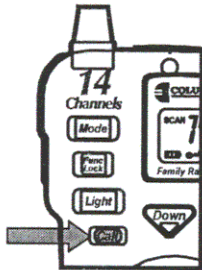
### Communication

You can communicate two ways with your new FRS radio. There are 14 channels available to you, each with 38 interference elimination codes (CTCSS codes). You can either talk directly others and hear their response, or you can call - or page - them with an audible tone.

***In all cases, both units must be set to the same channels and CTCSS codes, or they will not communicate. If the CTCSS code feature is turned off, you will hear all transmissions on the channel (1-14) that you are tuned to.***

The FRS radios can only communicate when either the TALK button (for speech),





or the **CALL** button (for paging) is pressed. The unit can only receive when both buttons are fully released.

### Receiving Communications

When your FRS unit is turned on and is not being used to transmit voice communication or pages, it is always in the listening mode.

You cannot receive any transmissions when the **TALK** or **CALL** buttons are pressed, even if you aren't saying anything. Pressing these buttons automatically overrides and turns off the transmit mode.

When you are using the unit in conversation, you **MUST** release the **TALK** and/or **CALL** buttons to hear the responses of the other people. Failure to do so will keep your unit in transmission mode, preventing you from hearing other units.

### Respond Prompt Tone

When the person talking to you from another radio finishes speaking and releases his **TALK** button, you will hear a tone from your unit. This means that the other radio is now in receive mode, and you can begin your transmission.

## Operation

### Channel selection

Your FRS operates on one of fourteen preset channels. You can only talk to other radios that are set to the same channel as your unit. The chart on page 18 gives the frequencies on which your radio operates.

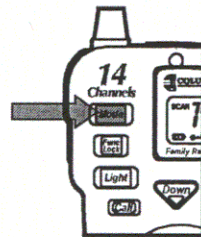
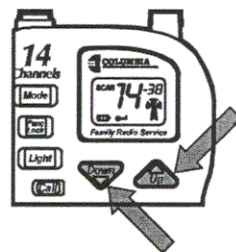
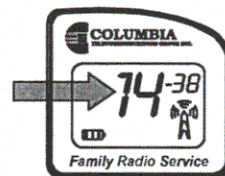
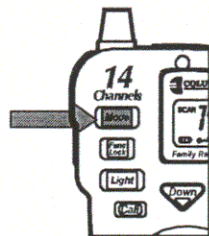
To change the channel:

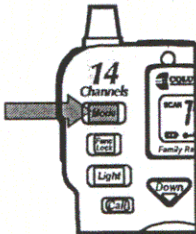
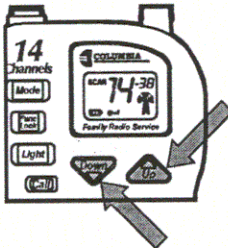
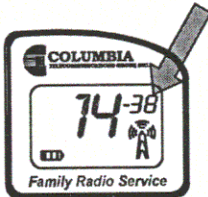
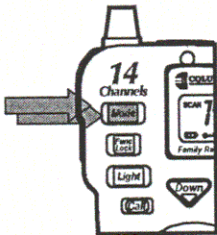
- Press the **Mode** (Channel Set) button. The large 2-digit channel number on the display panel will begin to flash.
- While the number is flashing, press the up or down arrow buttons until you reach the desired channel.
- Press the **Mode** (Channel Set) button again to set the channel.

If you do not press **Mode** the second time, The unit will automatically return to normal operation in ten seconds.

### Frequencies

Other FRS radio models may have only 2 channels. If you want to communicate with these units, you must set the channels as follows:





14-ch radios	Frequency	2-ch radios
Chan 8	467.5625 MHz	Chan 1
Chan 12	467.6625 MHz	Chan 2

### Interference Elimination Codes (CTCSS - Continuous Tone Coded Squelch System)

These codes filter out unwanted conversation, static, and other interference on your channel, giving your communication more clarity.

Both units must be set to the same channels and CTCSS codes, or they will not communicate. These codes will not prevent others from hearing your transmissions.

To change the code:

- Press the **Mode** button twice. The small 2-digit channel number on the display panel will begin to flash.
- While the number is flashing, press the up or down arrow buttons until you reach the desired code number.
- Press the **Mode** button to set the code.

To turn the codes off, and hear all activity on the channel, set the CTCSS code to zero (0).

## Operation

**Note:** If another user on the same channel has a radio that don' t have CTCSS codes, or has the CTCSS codes turned off, they will be able to hear your transmissions, even if you cannot hear them.

### To speak to Another Radio

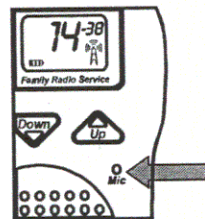
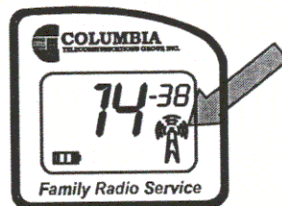
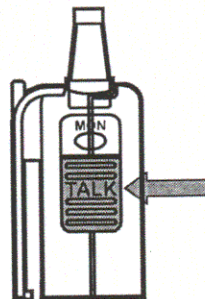
- Make sure both units are on and set to the same channel and CTCSS code.
- Turn the volume up to an audible level.
- Press and hold the **TALK** button on the left side of the unit. The signal transmitting waves on the LCD display will appear.
- While pressing on the talk button, speak into the microphone with your mouth 2 to 3 inches from the unit.
- When you finish speaking, release the **TALK** button immediately to hear the response.

### Range

Your FRS unit has a range of up to 2 miles. This range can be decreased by certain atmospheric and environmental conditions at the time of your conversation.

Some conditions that affect range are:

- Buildings



- Dense trees or foliage
- Hilly or mountainous terrain

The best range will be in flat, open terrain, without obstructions. Using the MON (monitor) button to override the automatic squelch will help extend the range to the maximum limits.

Your range is dependent on the battery condition of the radio, the type of terrain where you are located, and the strength of the signal from the transmitting radio.

### Calling (Paging) Another Radio

The volume of the incoming CALL (Page) tone is set by turning the volume button on top of the receiving unit.

To send a page, or CALL

- Make sure both units are on.
- Turn the volume up to an audible level.
- Set both units to the same channel and CTCSS code.
- Press and release the **Call** button on the front of your radio.

The other unit will make a 2 second call (page) tone. They can then respond to your call by either:



## Special Features

- Pressing the **TALK** button and speaking into the radio, or
- Pressing the **Call** button, which activates a 2 second call (page) tone on your radio.

### Automatic Squelch

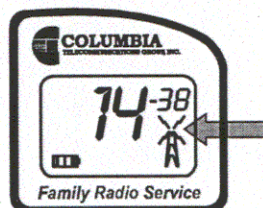
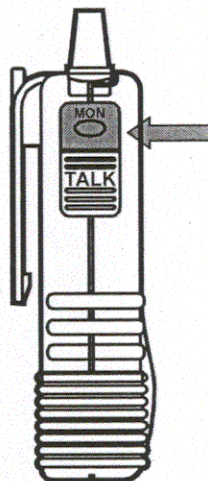
Your FRS is equipped with automatic squelch circuitry, which filters out weak transmissions and unwanted noise. These signals may be picked up as background static, and are usually caused by terrain conditions, or if you have reached the limit of your range.

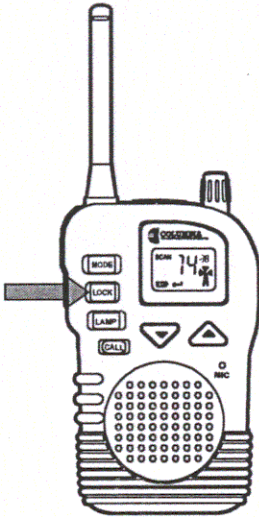
### Monitor

This feature turns off the Automatic Squelch feature, either momentarily or continuously. This allows your unit to receive all signals to it's maximum range, but it may pick up static signals as well. You can set the speaker volume by the noise of the static.

Momentary monitor feature activation:

- Press the **MON** button for up to 4 seconds. The monitor signals on the LCD display will appear.
- Release the button to restore the automatic squelch





Continuous monitor feature activation:

- Press the **MON** button for more than 5 seconds until hear a “beep” sound and release it. The monitor signals on the LCD display will appear.
- To restore automatic squelch, press and release the **MON** button again.

**NOTE: You cannot transmit when the MONITOR feature is activated.**

### Channel Lock

This feature locks the channel adjustment buttons on the front to the unit so that the channel cannot be changed accidentally.

To Lock the channel:

- Press the **Lock** button for 5 seconds until hear a “beep” sound. The lock symbol - shaped like a key - will appear on the LCD display.

To Unlock the channel:

- Press the **Lock** button for 5 seconds until hear a “beep” sound again. The lock symbol in the LCD display will disappear.



### Channel Scan

Your radio can scan across it's 14 channels for any activity. This allows you find other radios without having to change channels.

To scan:

- Press the **Mode** button and the **UP**

## Special Features

- button at the same time.
- The channel display will change as it scans through the channels.
- When a signal is detected, the unit will pause and listen for 4 seconds.
- Press the **TALK** button to stop the scan and communicate, or the **UP** button to continue.
- To stop the scanning operation, press the **Mode** button again.

### Automatic Battery Save

Your FRS unit has special circuitry designed to extend the life of your battery. When the radio is not used for 4 seconds, it will switch itself into a low power mode.

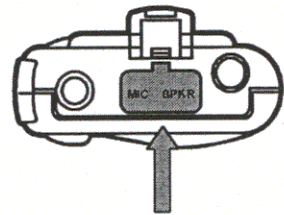
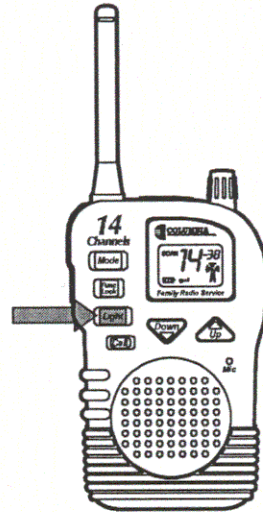
Battery Save does not affect the radio's ability to receive transmissions. When a signal is detected, it automatically returns to full power.

### Illuminating the display

Pressing the **LAMP** button will illuminate the LCD display for 10 seconds.

### External Microphone/Speaker Jacks

Your FRS radio can be used with an optional external microphone and speaker, usually sold together in a headset combination. The jacks are located under the protective rubber





## Customer Support

cover on the top of the unit.

To attach external speaker/microphone headsets:

- Lift the rubber flap on the top of the unit to expose the jacks.
- Insert the appropriate plugs into the correct jacks.
- Note that the sizes of the jacks and plugs are different for speakers and microphones.

### Customer Support

Thank you for purchasing the Columbia FRS 2-way Radio. This is a high-quality communications device that can give you many years of reliable service. Please read these instructions carefully.

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 Customer Service at 1-800-889-7434 between 9am and 5pm EST (Eastern Standard Time).

### Service

For your own protection, retain your original sales receipt indicating the date and place where you purchased this product. We will not be able to service your FRS unit without a copy of this receipt.

## Channel Frequencies and Code Charts

### FRS Channel Frequencies

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

### Interference Elimination Codes

#### (CTCSS - Continuous Tone Coded Squelch System)

Code	Frequency (Hz)	Code	Frequency (Hz)
1	67.0	20	131.8
2	71.9	21	136.5
3	74.4	22	141.3
4	77.0	23	146.2
5	79.7	24	151.4
6	82.5	25	156.7
7	85.4	26	182.2
8	88.5	27	167.9
9	91.5	28	173.8
10	94.8	29	179.9
11	97.4	30	186.2
12	100.0	31	192.8
13	103.5	32	203.5
14	107.2	33	210.7
15	110.9	34	218.1
16	114.8	35	225.7
17	118.8	36	233.6
18	123.0	37	241.8
19	127.3	38	250.3

## COLUMBIA TELECOMMUNICATIONS Limited Warranty

COLUMBIA TELECOMMUNICATIONS warrants this unit to be free from defects in material and/or workmanship for a 1-year period beginning with the date of purchase. This warranty does not cover second-hand ownership or products that are purchased for sale or lease to another. This warranty does not cover damage resulting from acts of God, lightning accident, misuse, improper installation or operation, or unauthorized repair or alteration.

If this unit should become defective within the first 30 days from purchase, return it to the retailer where obtained (with all of the original packing materials and parts) for an over-the-counter exchange. If this unit becomes defective after the first 30 days but within one year of purchase, we will replace it with a new or reconditioned one of the same or similar style. The replacement unit will be warranted for a period of 90 days or the remainder of the original one year period, whichever is longer.

To obtain warranty service on your COLUMBIA TELECOMMUNICATIONS equipment, you must provide proof of date of purchase. We strongly recommend that you keep your sales receipt and all of the packing materials in order to take advantage of your products limited warranty. Include all accessories and owners manual when returning to authorized service center (listed below.) Do not forget to include your name and return address (print please), a brief description of the defect, \$10.00 check (for shipping and handling) and a copy of your sales receipt.

There are no express warranties except as listed above. COLUMBIA TELECOMMUNICATIONS will not be liable for incidental or consequential damages resulting from the use of this product, or resulting from misuse contrary to this warranty. Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions and limitations may not apply to you. This warranty gives you specific and legal rights and you may also have other rights which vary from state to state.

Please use the shipping address below for the authorized Warranty Service center:

COLUMBIA TELECOMMUNICATIONS INC.  
174 Milbar Blvd.  
Farmingdale, NY 11735