Arapaho and Roosevelt National Forest,
and Pawn National Grassland

Radio User Guide

2016

FOR OFFICIAL USE ONLY
Note: All Frequencies Subject to Change without Notice.

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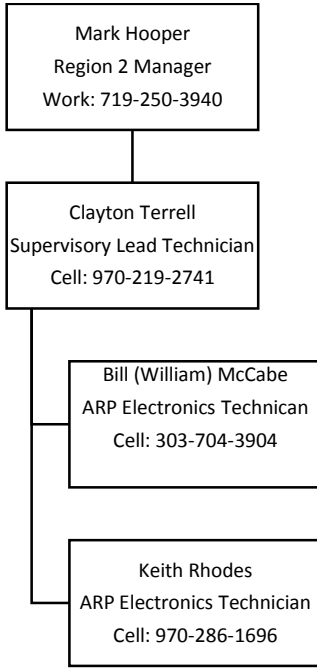
Introduction

This guide is intended to provide basic radio use and system orientation to employees of the Arapaho Roosevelt National Forests, Pawnee National Grasslands, and cooperating agencies that are authorized to use our system. This guide should be used in conjunction with annual "hands-on" training at district orientations, safety meetings, tailgate safety sessions, and the appropriate handheld and mobile radio manuals (When all else fails, Read the directions). It is the responsibility of each employee to understand the radio system and how to use it effectively and efficiently (YOUR HEALTH AND SAFETY MAY DEPEND ON IT). Any employee that does not feel that they have an understanding of the radio system, radios, or their use, should seek individual or group training from their telecom team representative.

Applicable References

- Forest Service Manual chapter 6640 (6641)
- The Forest Service Handbook 6609.14 chapter 20, Section 21, Chapter 30, Section 31 and Chapter 40-Radio. National Telecommunications
- Information Agency (NTIA) Manual Sections 7.3.1, 7.3.4.
- The Federal Communications Commission (FCC) Part 90 Sections 90.405 and 90.407.
- The National Fire Mobilization Guide, Sections: 22, 22.13, 23.4 and 65.0, and the
- Rocky Mountain Area Fire Mobilization Guide sections: 13.0, 22.7, and 24.12.1.
- The Health and Safety Code Handbook FSH 6709.11

Region 2 Land Mobile Radio Team



Note: The team is often unable to answer the phone, please leave a voicemail with name, number and reason for the call. We will get back to you as soon as possible.

USFS Locations / Phone Numbers

Forest Supervisor's Office
2150 Centre Avenue, Building E, Fort Collins, CO 80526
970-295-6600

Boulder Ranger District
2140 Yarmouth Avenue, Boulder, CO 80301
303-541-2500

Canyon Lakes Ranger District
2150 Centre Avenue, Building E, Fort Collins, CO 80526
970-295-6700 (Visitor Info)
970-295-6710 (Business Office)

Clear Creek Ranger District
101 Highway 103, P.O. Box 3307, Idaho Springs, CO 80452
303-567-3000

Pawnee National Grassland
115 2nd Ave, Ault, CO 80610
970-346-5000

Sulphur Ranger District
9 Ten Mile Drive, P.O. Box 10, Granby, CO 80446
970-887-4100

Jefferson County Air Tanker Base
10900 W 120th Ave, Broomfield, CO 80021
303-439-0332

Fort Collins Dispatch Center
2150 Centre Avenue, Building E, Fort Collins, CO 80526
970-295-6800

Responsibilities

User:
- Understand radio frequency use and restrictions
- Conduct operational check of radio before going to the field
- Participate in check in, check out procedures as directed
- Notify radio coordinator of broken radio or poor performance
- Contact radio personnel directly if coordinator is unavailable
- Make radios available for annual performance testing

Radio/Electronics Technicians:
- Maintain mobile, portable, and radio systems to standards
- Respond to user's repair request in a timely manner
- Be available to user's questions via email, in person or phone
- Conduct annual operational performance testing of equipment

Home Units:
- Make available resources for radio personnel to respond to radio sites, i.e. ATV's, snowmobiles, and additional personnel for remote site access.
- Maintain radio site shelters

Radio System Overview

The Forest radio network consists of base stations, repeaters, mobile radios and handheld radios. As a Forest Service employee, you are authorized to use these assets. It is the employee's responsibility to be familiar with the base station and repeaters located on the unit where you are working. It is best to choose the channel(s) you will be using BEFORE you leave the office. You may encounter a variety of radios during normal operations. Generally speaking, all mobile and handheld radios are programmed with a standard set of channels so that radios may be interchanged.

Due to broken terrain, there will always be some areas where your radio won't work. Usually, this occurs in canyons, other areas of low terrain, or areas where mountains are between you

and the station you are calling. Some areas will have limited coverage, i.e., a mobile radio will work while a handheld will not. A few areas have no coverage where not even a mobile unit will work. Because of different radio types, power outputs, antenna types and the mountainous terrain, a radio coverage map is very difficult to draw up with any accuracy. Always check with your supervisor when going into new areas to determine if there might be problems with communications. When in doubt, conduct a "RADIO CHECK" with Dispatch.

Base Stations
Base stations are part of the Forest's "backbone" system of radios. Each of these radios is multi-channel and is capable of hitting local repeaters within its coverage area. Base stations do not retransmit signals. The base station will receive a signal and send that signal to dispatch via a telephone line. All signals received by a base station or repeater are monitored by dispatch and recorded.

Repeaters
Repeaters retransmit signals instantly, with the advantage of elevation and power. There are a number of mountaintop repeaters located across the Forest.

When using a repeater, your signal must reach the repeater so it can be retransmitted to another radio. If you are "hitting" the repeater, you will hear a "squelch-tail" over the radio. In other words, if you key the radio, release and wait for a few seconds, you should hear a squelch or static come back over the radio. This means the repeater is working.

When talking over the repeater, wait a second after keying the radio before starting to speak, and speak slowly. This allows the repeater to retransmit the signal. If you are unsure of which repeater to use, change channels and key the radio until you get the "squelch-tail" indicating you are hitting the repeater. If the person you are calling is transmitting over the repeater, wait a

second before keying the mic to allow the repeater to clear. Identify which repeater you are using, so the "called party" knows what channel to use to reply back to you and establish a communications link.

Handheld and Mobile Radios
Radios that are carried are referred to as handheld or portable radios. The radios are programmed the same as the mobile radios (with the exception of fire). The handheld radios have a battery pack attached. If using a "clamshell" battery pack, use alkaline batteries and ensure your pack only holds 9 batteries. The 10-cell battery packs are not to be used.

Radios located in Forest Service vehicles are referred to as mobile radios. These radios are more powerful than handhelds and therefore may be more effective in 'dead spots' or difficult terrain. Some require the vehicle to be running to transmit. Each of these radios is programmed identically (with the exception of fire vehicles).

Direct/Work
The direct/work channel(s) are line-of-site channels and won't work with repeaters. Try using a work channel first to see if you can reach who you're trying to contact--if you can't reach them using a work channel, then try using the nearest repeater. Work channels are not monitored by dispatch and are not recorded.

Good Communication Practices

FOUR RULES OF FREQUENCY USE:
1. Do not transmit on any frequency unless authorized to do so.
2. Do not use your "home" frequency when in another area.
3. Never randomly select a frequency to use.
4. Never use profanity over the air.

Identify Yourself
When making a call, always declare who you are calling, your identification, and the channel that you are calling on. For example, if you are trying to reach the Fire dispatch center in Fort Collins, you would say “Fort Collins Dispatch, Smith on Deadman.” When responding to a transmission from someone trying to reach you, it is appropriate to answer, “This is Smith, go ahead” or repeat who is calling you, “Jones, Smith”.

Keep Conversations Short, Precise, and Professional
- There are a limited number of frequencies available and they need to be kept available in case of an emergency.
- Inappropriate language and conversations will not be tolerated.
- Long messages and conversations should be broken up into 30 second intervals by saying "Break", then waiting 10 seconds before resuming transmission. This allows the station copying to assure that it is copying the message, or if not, to ask for a repeat and it allows anyone with an emergency transmission to break in. If you try to transmit for more than 90 seconds the radio will stop transmitting
- The radios we use are easily scanned and the frequencies are monitored or recorded by a large number of people and agencies. Think before you talk and remember that someone is always listening to your conversation.

Plain Text Language
- Do not use 10-code or any other obscure language on the radio. Speak in plain English so that anyone can understand what you mean.
- Common plain text phrases include affirmative, clear, copy, disregard, loud and clear, negative, radio-check, repeat, standby, and unreadable.

Phonetic Alphabet

A	Alpha	H	Hotel	O	Oscar	V	Victor
B	Bravo	I	India	P	Papa	W	Whisky
C	Charlie	J	Juliet	Q	Quebec	X	X-ray
D	Delta	K	Kilo	R	Romeo	Y	Yankee
E	Echo	L	Lima	S	Sierra	Z	Zulu
F	Foxtrot	M	Mike	T	Tango		
G	Golf	N	November	U	Uniform		

RADIO TRAFFIC PRIORITIES:

1. Communications involving injury, death, or imminent danger.
2. Public emergencies and threat to public safety.
3. New fire or smoke reports.
4. Active fire suppression communications.
5. Law enforcement activities not included above.
6. Normal forest business.

Emergency Situations

- Emergencies involving injuries or death have the HIGHEST priority and may be transmitted at any time regardless of any other traffic.
- Fires or other emergencies take priority over any other conversations
- Avoid mentioning of names of people over the radio during an emergency situation.
- The Dispatcher may take control of the network in the event of emergency, and is authorized to designate traffic priorities to meet dispatching needs.

In the event of a Medical Emergency provide the following information to the Communications Unit:

1. On designated channel, state clearly, "CLEAR CHANNEL FOR MEDICAL EMERGENCY"
2. Declare the nature of the emergency.
   a. Medical injury/illness?
   b. If injury/illness is it life threatening?
3. Identify the on-scene Point of Contact (POC) by Resource and Last name (i.e. POC is TFLD Smith).
4. Identify nature of incident, number injured, patient assessment(s) and location (geographic and GPS coordinates).
5. Identify on-scene medical personnel by position and name (i.e. EMT Jones).
6. Identify preferred method of patient transport.
7. Request any additional resources and/or equipment needed.
8. Document all information received and transmitted on the radio or phone.
9. Identify any changes in the on-scene Point of Contact or medical personnel as they occur.

The following definitions describe the intent and use of Air Guard and National Flight Following frequencies:

National Air Guard - 168.625 MHz
A National Interagency Air Guard frequency for government aircraft assigned to incidents. It is used in emergency communications for aviation. A separate aircraft priority receiver is required to permit continuous monitoring. Transmitters on this frequency should be equipped with an encoder on 110.9 Hz.
168.625 is restricted to the following use:
- Air-to-air emergency contact and coordination.
- Ground-to-air emergency contact.
- Initial call, recall, and redirection of aircraft when no other contact frequency is available.

National Flight Following - 168.650 MHz
The National Interagency Air Net frequency is used for flight following of official aircraft. The intent is not to use this frequency for incident operations. All dispatch centers/offices will monitor the national fight following frequency at all times.
168.650 is restricted to the following use:
- Flight following, dispatch, and/or re-direction of aircraft.
- Air-to-ground and ground-to-air administrative traffic.
- Not authorized for ground-to-ground traffic.

Radio Techniques

- Pause at least 1 second after pushing the transmit button and before speaking. This should prevent clipping off the beginning of your transmission.
- Keep your lips about two fingers from the face of the microphone. Direct the voice across the face of mike rather than directly into it. Speak clearly and distinctly. Do not move your head back and forth and do not shout.
- Hold the radio stationary while transmitting.
- Keep the radio upright with the antenna vertical. After establishing good contact, don't move from that location. With low powered handhelds, moving just a few feet will sometimes change the communications.

Precautions When Using Radios
- Handheld radios are very sensitive to both heat and moisture. DO NOT leave your radio on the dash of a vehicle or anywhere it is exposed to direct, intense sunlight. If it is raining, it is highly recommended that the radio be placed in a dry plastic bag until precipitation ceases. You will still be able to hear and transmit through the bag. Protect your radio and keep the faceplate cover on the radio to protect the keys and display.
- If you need to jump start a vehicle and there is a mobile radio installed, disconnect the power cable from the radio before you jump start the vehicle. This can be done 2 ways. On way is to disconnect the power at the radio by disconnecting the white

connector at the radio. The other way is to remove the fuse or fuses at the battery.
- DO NOT use any radio or cell phone in a blasting area.
- An energized radio can deflect a magnetic compass.
- During a lightning storm, stop using your radio until the lightning has ceased.
- Make sure you have plenty of charged batteries before leaving for the field and make sure used battery packs are either re-charged, if appropriate, or re-loaded with fresh alkaline AA's. Replacement batteries are the responsibility of each program of work. Used AA batteries should be recycled.

Radio Care

Mobile Radios

Mobile radios require very little care. If you have to jump start a vehicle, disconnect the power to the radio. This can be done by removing the fuse to the radio which is located next to the vehicle battery. You can also disconnect the power to the radio by disconnecting the power cord behind the radio. Ensure the vehicle has an antenna. Do not stretch a 3 foot microphone cord 4 feet.

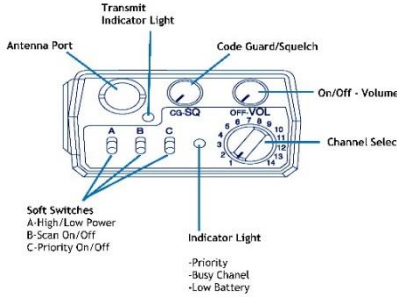
Handheld Radios

The handhelds also require very little care as long as you do not drop them on a hard surface or in water. The antenna should not be used to carry a radio as it will pull out of a radio. The side connector should have some type of cover. Also keep the radio out of places where heat will build up.
Battery packs should be kept out of the heat. If you are using clam shell and are going to store the battery pack, remove the batteries. Ni-cd batteries should be discharged every 6 months so they do not build a memory. All other battery chemistries (nickel metal hydride and lithium ion) can be left in a charger as they do not build up memories. Remember as the battery wears down, the power of the radio decreases.

BK Radio Basic Handheld Operations

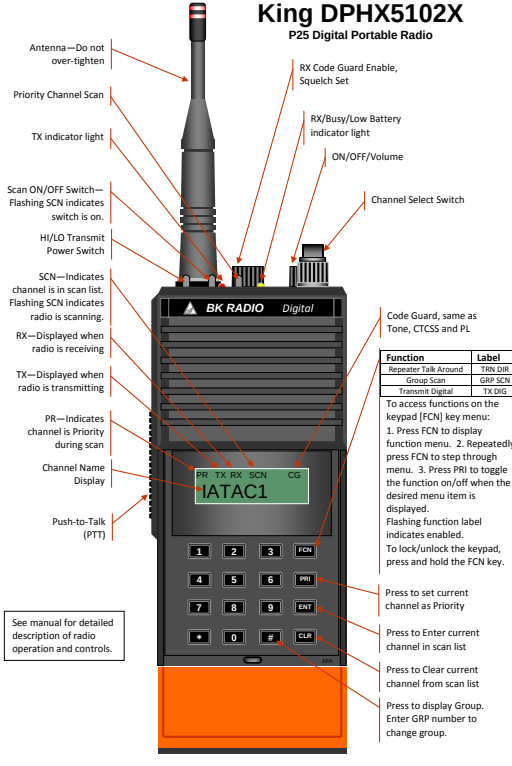
Bendix/King GPH/DPH/DPHX Handheld Radio

Top View



King DPHX5102X

P25 Digital Portable Radio



Function	Label
Repeater Talk Around	TRN DIR
Group Scan	GRP SCN
Transmit Digital	TX DIG

To access functions on the keypad [FCN] key menu:
1. Press FCN to display function menu. 2. Repeatedly press FCN to step through menu. 3. Press PRI to toggle the function on/off when the desired menu item is displayed.
Flashing function label indicates enabled.
To lock/unlock the keypad, press and hold the FCN key.

See manual for detailed description of radio operation and controls.

Set Squelch or Check Volume
Adjust the Squelch knob (CG-SQ) when you initially turn on your radio, and periodically while in the field. Squelch tells your radio the minimum RF level to receive and allow the user to hear. Turning the squelch off allows the user to hear everything, turning to squelch up will mute the static.
- Turn the CG-SQ knob counterclockwise just until the noise stops (yellow light goes out) or fully counterclockwise (just past the click).

HI-LO Switch Settings
The HI/LO switch boosts the transmit power output from 1.5 to 5 watts. The HI setting may provide acceptable communications in difficult terrain, however it won't improve your radio's reception, just the transmit power. Use of the HI power setting will shorten your battery life.
- Keep in the LO position unless other people are having trouble hearing you (this will save on battery life)
- Flip to the HI position to increase the power of your transmission in an effort to improve communications
-Hi-LO does not affect your receive

SCAN Switch Setting
The SCAN switch allows you to monitor all the channels that have scan enabled without switching between channels using the channel knob. Scanning many channels shortens battery life, depending on the number of channels being scanned. The radios cannot scan across Groups.
- The scan function is ON if the switch is toward the word SCAN
- To check which channels are being scanned, turn the SCAN function off by flipping the switch away from the word SCAN (away from the antenna). Scroll through the channels using the channel knob. SCN will be displayed on the display window of each channel if it is enabled

-To change which channels are being scanned, turn the SCAN function off, turn the channel knob to the desired channel,

press enter (ent) to turn the scan on, clear (clr) to remove the channel from the scan list.

PRI (Priority) Switch
- Should be left in the off position (away from the word PRI)

Indicator Lights
- When you transmit on a handheld radio, the red LED will light. If it blinks, your battery needs to be changed.
- When you're receiving a signal, the yellow LED lights up. It will blink if the battery is low

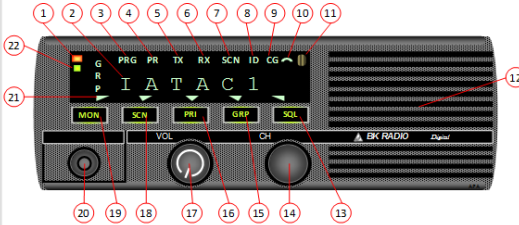
How to Change Groups on a Handheld
• Push the '#' button (it displays the group number)
• Type the desired group number on the keypad (1, 2 or 3)
• Push the "ent" button or wait 5 seconds
• The radio will stay in that group the next time you turn it on

To check if Tone Select is Enabled
- Ensure the scan and priority scan are off.
- Press a number. For this example we will use "10".
- If nothing happens, the tone select is not enabled.
- If "10" appears, the tone select is enabled.

- When you change the channel you may also change the tone. If the channel does not have a transmit tone, do not worry about selecting a tone; those channels will receive all tones.

BK Radio Basic Mobile Operations

BK Radio DMH Functional Diagram



1. Transmit Indicator
2. Channel/Group/Information Display
3. Programming Indicator
4. Priority Channel Indicator
5. Transmit/Program Step Indicator
6. Receive/Program Step Indicator
7. Scanned Channel, Flashing--Scan on
8. Digital Identification Number Indicator
9. Code Guard (Tone) Program Step
10. Talk Group ID Phone Icon
11. Display Dimming Sensor
12. Internal Speaker
13. Squelch, press and release, use Channel Knob to adjust
14. Channel Selector Knob
15. 1Group Display/Selection, press and use Channel Knob to adjust
16. Priority Scan on/off, press and hold to select current channel
17. On/Off/Volume, push on/off radio power
18. Scan on/off, press and hold to select/deselect current channel
19. Monitor, opens squelch
21. Microphone Connector/Program Port
22. Function Button On/Off Indicators
23. Priority Indicator/Busy Channel Light

BK Radio DMH Basic Operation

1. Power on radio by pressing the Volume knob.

2. Set the volume by pressing the MON button to hear squelch noise. Turn the Volume knob to set a comfortable volume level. Press MON again to stop squelch noise.

3. Select a Group by pressing the GRP button and turning the Channel Selector knob. Press the GRP button again to return to Channel Select mode.
• The radio will stay in that group the next time you turn it on.

4. Select a channel by rotating the Channel Selector knob. A beep will be heard when the knob is rotated beyond the 1st and 16th channels.

5. Press the SQL button and turn the Channel Selector knob to adjust Squelch. "Open" squelch is fully to the right. Press the SQL button again to return to normal operation.

6. Press the SCN button to start/stop scanning channels in the scan list. Flashing SCN indicates scan is on.

7. Press the PRI button to start/stop priority channel scan.

8. With scan and priority scan off, press and hold the SCN button to add/remove channels from the scan list or use ENT/CLR of the microphone. Press and hold the PRI button to select a priority channel or use mic PRI.

9. To transmit, press the Push-To-Talk switch on the microphone. The red Transmit Indicator will illuminate during transmission. Speak at a normal volume level with the microphone 1-2 inches from your mouth.

10. Turn on/off group scan by pressing FCN of the microphone until "GRP SCN" is displayed, then press PRI and ENT. Flashing

"GRP SCN" indicates group scan is on. Repeat these steps to turn off group scan.

11. If radio is equipped with a remote speaker, audio can be routed to it by pressing the FCN button on the microphone until "REM SPK" is displayed, then press PRI and ENT. Flashing "REM SPK" indicates remote speaker is on. Repeat these steps to return audio to inside speaker.

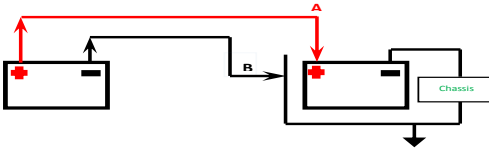
12. Nuisance channel delete during scan is accomplished by pressing the SCN button for at least 1 second or by pressing the CLR key of the microphone. The scan list is restored when the radio is powered off/on.

13. To clone a group from a BK Radio handheld (assuming handheld radio is in cloning mode), select an empty group (15-25) of the mobile radio, remove the microphone cover and plug, insert the modular plug of the cloning cable and proceed with clone as if cloning to another handheld radio. Global settings of the mobile radio will not be affected.

Proper Jump Starting Technique

Note: Disconnect the power to the mobile radio prior to jumping. This can be done by removing the fuse normally at the battery. If the radio is connected, it will fry the radio.

1. Ensure both vehicles are OFF and not running.
2. Connect "A" jumper from positive terminal of the GOOD battery to the positive terminal of the DEAD battery.
3. Connect the "B" jumper from the negative terminal of the GOOD battery to the chassis ground of the Dead vehicle – typically, the engine block is best.
4. Start the engine of the GOOD vehicle.
5. Start the engine of the Dead vehicle.
6. Disconnect the negative jumper cable wire from the low-voltage vehicle; followed by the jumping vehicle.
7. Disconnect the positive jumper cable wire from the low-voltage vehicle; followed by the jumping vehicle.



Radio Repair or questions

If you have any questions about the radios, the radio system or need a radio repaired please contact Bill McCabe or Keith Rhodes listed at the numbers above in the LMR team.

Programming

Individuals who reprogram or change the frequency-determining device in a Forest Service radio must have:

1. Written authorization to change or program specific frequencies (only those frequencies authorized to the unit), signed by a Forest Supervisor or higher line officer.

2. Knowledge of the terms and limitations of the assignment or license for each frequency being programmed or changed.

Limited exceptions are authorized for incident communications and for emergency communications under FSM 6641.34, Cooperative Communications. However, do not program equipment to operate outside the constraints of the applicable assignment, license, or arrangement.

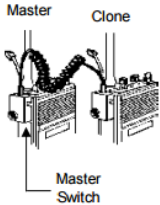
Note: If you clone radios, check the radio you are cloning from to see if it has a group 99. If the radio you are cloning from has 99 groups, DO NOT CLONE FROM THAT RADIO. There is a possibility that the TX and RX frequencies will be switched on the cloned radio. The only way to fix the frequency switching is to return the radio for repair.

CLONING PROCEDURE

Any "Master" radio (a DPHx with the desired radio frequencies and settings) is capable of transferring its program to another DPHx or "Slave" radio. The radio receiving the program is also referred to as the "Clone." The LAA0700 cloning cable will be required in the following procedure. Contact your BK Radio dealer for information on cloning between DPHx radios and other BK Radio products.

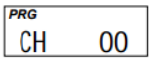
NOTE: Some groups may be "locked" by PC programming to prevent them from being overwritten. Only "unlocked" groups will accept incoming clones.

1. Make sure the battery packs for both radios are charged.
2. Attach the master switch end of the cloning cable to the side connector of the Master radio.



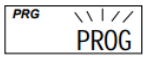
NOTE: One plug of the cloning cable has a push-button master switch. This plug must be attached to the Master radio.

3. Turn on the Master radio.
4. Select the group to be cloned from the Master radio.
5. Put the Master radio in Programming Mode by pressing and holding the master switch then pressing and holding the **[FCN]** key until the display shows '**- - - ID**.' Enter the password of the selected group. The display shows '**PRG CH 00**.'

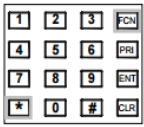


6. Review the values programmed in the radio by pressing the **[FCN]** or **[ENT]** key at each CHXX prompt. Any required changes must be made now.
7. Connect the other plug of the cable to the side connector of the radio you want to clone.

8. Turn on the Clone and set it to the desired channel group.



9. Press the **[*]** key on the Master radio keypad. The display will flash '**PROG**' signifying that the radio is ready to download its program to the Clone.

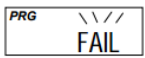


10. Press the **[FCN]** key on the Master radio keypad. The program in the Master will then be downloaded to the Clone.

11. If the download was successful, the display on the Master will resume flashing '**PROG**'.

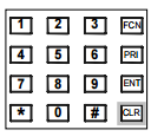
    - To clone another channel group, turn off both radios and go back to Step 3 on the previous page, changing the channel group as required.

    - If cloning is finished, turn off the Clone and disconnect the cloning cable. Normal radio operation will occur when you turn on the Clone.

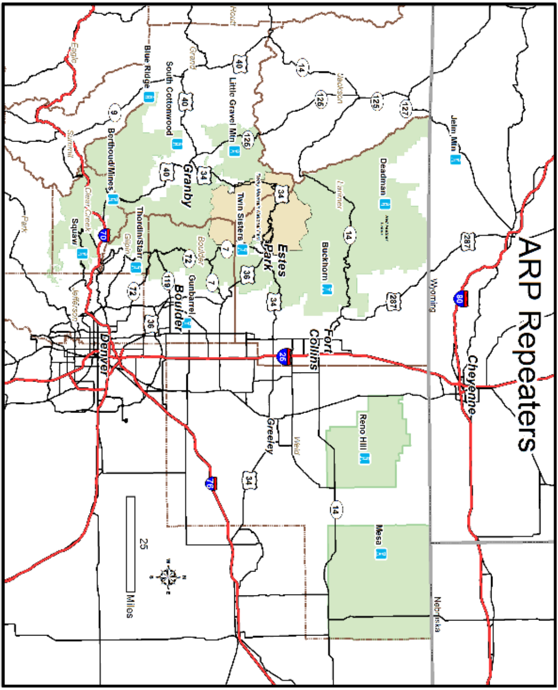


12. If the download was not successful, the Master will display '**FAIL**' and multiple beeps will follow. Failure of downloading can be due to:

    - Improper connection
    - Failure to turn on the Clone
    - Setting the Clone in Programming Mode
    - Group 'locked' by PC Programming

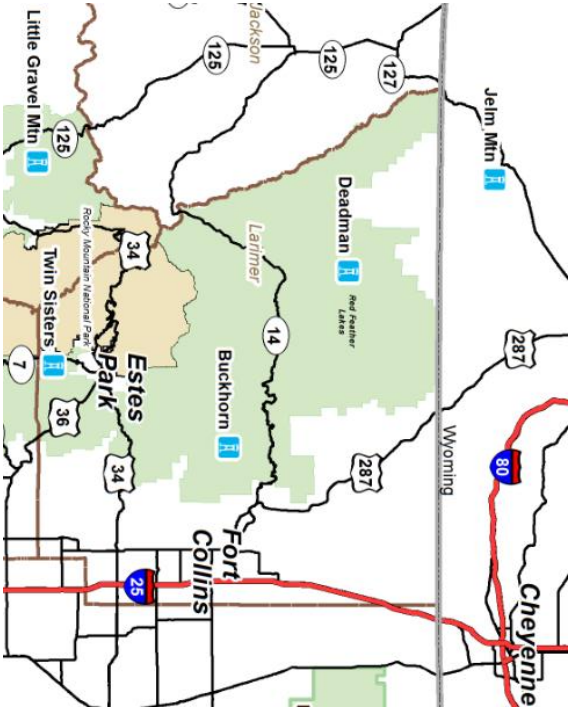


NOTE: To stop the **FAIL** Mode, press **[CLR]**, turn off both radios, and try again, starting with Step 1 on the previous page.

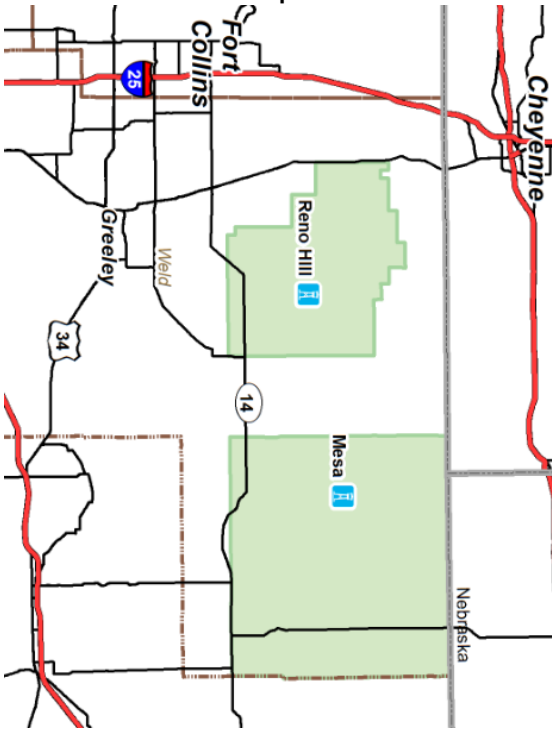


ARP Repeaters
Jelin Mtn
Deadman
Buckhorn
Cheyenne
Fort Collins
Estes Park
Twin Sisters
Little Gravel Mtn
South Cottonwood
Blue Ridge
Granby
Berthoud/Mines
Thordin/Starr
Squaw
Gunbarrel
Boulder
Denver
Greeley
Reno Hill
Mesa
Wyoming
Nebraska
Larimer
Weld
Jackson
Grand
Gilpin
Clear Creek
Jefferson
Summit
Eagle
Park
25
Miles

North Repeaters



West Repeaters



South Repeaters

GROUP 1 – Boulder						
CH	Description	Display	RX	Tone	TX	Tone
1	North Direct (Roosevelt)	N DIRECT	169.9750		169.9750	0
2	Point-to-Point Work Channel	ARP WORK	168.7250		168.7250	0
3	Point-to-Point Work Channel	WORK 1	163.7125		163.71250	0
4	Twin Sisters Repeater	TWIN SIS	169.9750		164.1000	131.8
5	Thorodin Mountain	THORODIN	169.9750		164.1000	136.5
6	GunBarrel Repeater	GUNBARRL	169.9750		164.1000	103.5
7	Air-to-Ground 9 (Aviation)	A/G 9	166.9125		166.91250	0
8	Multi-Agency Fire Attack	VFIRE21	154.2800		154.2800	156.7
9	Air-to-Ground 58 - aviation	A/G 58	169.0875		169.08750	0
10	Gilpin County	GILPIN	153.8450		156.01500	127.3
11	Boulder Co. Red 1 North	BCFD N	155.5350		154.32500	179.9
12	Boulder Co. Red 2 South	BCFD S	151.3550		154.32500	179.9
13	Boulder Co. Red 3	BC FTAC3	154.4150		154.41500	179.9
14	Boulder Co. Red 5	BC FTAC5	153.9500		153.9500	167.9
15	Boulder Co. Old-Red 6 Rpt	BCFD CMD	154.3700		153.7700	131.8
16	Starr Peak Repeater	STARR PK	170.47500		164.1375	146.2

GROUP 2 – Canyon Lake						
CH	Description	Display	RX	Tone	TX	Tone
1	North Direct (Roosevelt)	N DIRECT	169.97500		169.97500	0
2	Deadman Repeater	DEADMAN	169.97500		164.10000	110.9
3	Buckhorn Mtn Repeater	BUCKHORN	169.97500		164.10000	123.0
4	Twin Sisters Repeater	TWIN SIS	169.97500		164.10000	131.8
5	Thorodin Mtn Repeater	THORODIN	169.97500		164.10000	136.5
6	Reno Hill Repeater	RENO HILL	169.97500		164.10000	167.9
7	Jelm Mtn Repeater	ARP JELM	169.97500		164.10000	146.2
8	Point-to-Point Work Channel	ARP WORK	168.72500		168.72500	0
9	Larimer Co. Fire	LARCFIRE	154.38500		154.38500	156.7
10	Rocky Mtn. National Park	RMNP TWN	166.35000		171.75000	110.9
11	Multi-Agency Fire Attack	VFIRE21	154.28000		154.28000	156.7
12	Point-to-Point Work Channel	WORK 1	163.71250		163.71250	156.7
13	Medicine Bow Direct	MBOW DIR	171.50000		171.50000	110.9
14	CO Parks and Wildlife	CPW	151.40000		151.40000	156.7
15	Air-to-Ground 9 (Aviation)	A/G 9	166.91250		166.91250	0
16	Local NOAA weather	WEATHR5	162.45000		000.00000	0

GROUP 3 – PAWNEE						
CH	Description	Display	RX	Tone	TX	Tone
1	North Direct (Roosevelt)	N DIRECT	169.97500		169.97500	0
2	Deadman Repeater	DEADMAN	169.97500		164.10000	110.9
3	Buckhorn Mtn Repeater	BUCKHORN	169.97500		164.10000	123.0
4	Twin Sisters Repeater	TWIN SIS	169.97500		164.10000	131.8
5	Thorodin Mtn Repeater	THORODIN	169.97500		164.10000	136.5
6	Reno Hill Repeater	RENO HIL	169.97500		164.10000	167.9
7	Point-to-Point Work Channel	ARP WORK	168.72500		168.72500	0
8	Squaw Mtn. Repeater	SQUAW	170.47500		164.13750	110.9
9	CO Parks and Wildlife	CPW RPT	151.19000		159.28500	141.3
10	CO Parks and Wildlife	CPW	151.40000		151.40000	156.7
11	Multi-Agency Fire Attack	VFIRE21	154.28000		154.28000	156.7
12	Local NOAA Weather	WEATHR2	162.40000		000.00000	0
13	Larimer CO. Fire	LARCFIRE	154.38500		154.38500	156.7
14	CO Parks and Wildlife	CPW ST	151.14500		159.28500	146.2
15	Point-to-Point Work Channel	WORK 1	163.71250		163.71250	0
16	Mesa Hill Repeater	MESA	169.97500		164.10000	151.4

GROUP 4 – CLEAR CREEK RANGER DISTRICT						
CH	Description	Display	RX	Tone	TX	Tone
1	South Direct	S DIRECT	170.47500		170.47500	0
2	Squaw Mtn. Repeater	SQUAW	170.47500		164.13750	110.9
3	Mines Peak Repeater	MINES PK	170.47500		164.13750	123.0
4	Griffith Mtn. Repeater	GRIFFITH	170.47500		164.13750	114.8
5	Starr Peak Repeater	STARR PK	170.47500		164.13750	146.2
6	North Direct (Roosevelt)	N DIRECT	169.97500		169.97500	0
7	Point-to-Point Work Channel	WORK 1	163.71250		163.71250	0
8	Thorodin Mtn Repeater	THORODIN	169.97500		164.10000	136.5
9	Local NOAA Weather	WEATHR1	162.55000		000.00000	0
10	CO Parks and Wildlife	CPW	151.40000		151.40000	156.7
11	Multi-Agency Fire Attack	VFIRE21	154.28000		154.28000	156.7
12	Clear Creek Co. Fire/LE	CC CNTY	155.02500		159.06000	100.0
13	Gilpin Co. Fire/LE	GILPIN	153.84500		156.01500	127.3
14	Pike San IS. Devils Head	PSI DEVL	168.72500		168.12500	156.7
15	Air-to-Ground 9 (Aviation)	A/G 9	166.91250		166.91250	0
16	Point-to-Point Work Channel	ARP WORK	168.72500		168.72500	0

GROUP 5 – SULPHUR RANGER DISTRICT						
CH	Description	Display	RX	Tone	TX	Tone
1	West Direct	W DIRECT	170.55000		170.55000	0
2	Squaw Mtn. Repeater	SQUAW	170.47500		164.13750	110.9
3	Berthoud Pass Repeater	BERTHOUD	170.55000		165.08750	123.0
4	S Cottonwood Repeater	COTTON	170.55000		165.08750	131.8
5	USFS Blue Ridge Rpt	FS BLUE	170.55000		165.08750	136.5
6	Little Gravel Mountain Rpt	LTGRAVEL	170.55000		165.08750	151.4
7	Point-to-Point Work Channel	ARP WORK	168.72500		168.72500	0
8	North Direct (Roosevelt)	N DIRECT	169.97500		169.97500	0
9	Owl Mountain	OWL MTN	172.37500		164.87500	146.2
10	Rocky Mtn. Shadow Mtn.	RMNP SHD	169.78750		166.08750	123.0
11	CO Parks and Wildlife	CPW	151.40000		151.30000	156.7
12	Grand Co. LE (SO White)	GRNDSHRF	155.94000		153.92000	156.7
13	Grand County Public Safety	GRND PS	155.68500		158.82000	156.7
14	Grand Co. Table Mtn Pg	GRNDPAGE	155.11500		153.99500	167.9
15	Air-to-Ground 9 (Aviation)	A/G 9	166.91250		166.91250	0
16	Grand Lake	MARINE16	156.80000		156.80000	0

GROUP 6 – CANYON LAKE FIRE (User Code Guard Enabled)						
CH	Description	Display	RX	Tone	TX	Tone
1	North Direct (Roosevelt)	N DIRECT	169.97500		169.97500	110.9
2	North Repeat	N REPEAT	169.97500		164.10000	123.0
3	South Direct (Arapaho)	S DIRECT	170.47500		170.47500	131.8
4	South Repeat (Arapaho)	S REPEAT	170.47500		164.13750	136.5
5	Point-to-Point Work Channel	ARP WORK	168.72500		168.72500	167.9
6	USFS / ARP Fire Attack	FIRETAC	166.56250		166.56250	100.0
7	Point-to-Point Work Channel	WORK 1	163.71250		163.71250	156.7
8	Point-to-Point Work Channel	WORK 2	168.61250		168.61250	179.9
9	Air-to-Ground 9 (Aviation)	A/G 9	166.91250		166.91250	146.2
10	Multi-Agency Fire Attack	VFIRE21	154.28000		154.28000	156.7
11	Multi-Agency Fire Attack	VFIRE22	154.26500		154.26500	156.7
12	Multi-Agency Fire Attack	VFIRE23	154.29500		154.29500	156.7
13	Boulder CO. Old – Red 3	BC FTAC3	154.41500		154.41500	179.9
14	Rocky Mtn Fire Repeater	RMNP FIR	169.67500		164.42500	103.5
15	Air-to-Ground 58 (Aviation)	A/G 58	169.08750		169.08750	000.0
16	Larimer CO. Fire	LARCFIRE	154.38500		154.38500	156.7

GROUP 7 – CLEAR CREEK FIRE (User Code Guard Disabled)						
CH	Description	Display	RX	Tone	TX	Tone
1	South Direct (Arapaho)	S DIRECT	170.47500		170.47500	000.0
2	Squaw Mtn. Repeater	SQUAW	170.47500		164.13750	110.9
3	Mines Peak Repeater	MINES PK	170.47500		164.13750	123.0
4	Griffith Mtn. Repeater	GRIFFITH	170.47500		164.13750	114.8
5	Air-to-Ground 58 (Aviation)	A/G 58	169.08750		169.08750	000.0
6	USFS / ARP Fire Attack	FIRETAC	166.56250		166.56250	000.0
7	Air-to-Ground 9 (Aviation)	A/G 9	166.91250		166.91250	000.0
8	Starr Peak Repeater	STARR PK	170.47500		164.13750	146.2
9	Clear Creek Co. Fire 1	CCTAC 1	154.35500		154.35500	100.0
10	Clear Creek Co. Fire 2	CCTAC 2	155.10000		155.10000	100.0
11	Clear Creek Co. Dispatch	CCFD 1	155.02500		159.06000	100.0
12	Multi-Agency Fire Attack	VFIRE 21	154.28000		154.28000	156.7
13	Gilpin Co. Fire/LE	GILPIN	153.84500		156.01500	127.3
14	Multi-Agency Fire Attack	VFIRE22	154.26500		154.26500	156.7
15	Multi-Agency Fire Attack	VFIRE23	154.29500		154.29500	156.7
16	Point-to-Point Work Channel	WORK 1	163.71250		163.71250	000.0

GROUP 8 – FIRE NORTH (User Code Guard Enabled)						
CH	Description	Display	RX	Tone	TX	Tone
1	North Direct (Roosevelt)	N DIRECT	169.97500		169.97500	110.9
2	North Repeat (Roosevelt)	N REPEAT	169.97500		164.10000	123.0
3	South Direct (Arapaho)	S DIRECT	170.47500		170.47500	131.8
4	South Repeat (Arapaho)	S REPEAT	170.47500		164.13750	136.5
5	Point-to-Point Work Channel	ARP WORK	168.72500		168.72500	167.9
6	Point-to-Point Work Channel	WORK 1	168.61250		168.61250	100.0
7	USFS / ARP Fire Attack	FIRETAC	166.56250		166.56250	179.9
8	Larimer CO. Fire	LARCFIRE	154.38500		154.38500	156.7
9	Boulder Co. Old-Red 1 No	BCFD N	155.53500		154.32500	179.9
10	Boulder Co. Old – Red 5	BC FTAC5	153.95000		153.95000	167.9
11	Rocky Mtn. Fire Dispatch	RMNPFIRE	169.67500		164.42500	103.5
12	CO State Forest Servic	CSFS	151.34000		151.34000	146.2
13	Multi-Agency Fire Attack	VFIRE21	154.28000		154.28000	156.7
14	Multi-Agency Fire Attack	VFIRE22	154.26500		154.26500	156.7
15	Air-to-Ground 9 (Aviation)	A/G 9	166.91250		166.91250	000.0
16	Point-to-Point Work Channel	WORK 2	168.61250		168.61250	151.4

GROUP 9 – BOULDER FIRE (User Code Guard Disabled)						
CH	Description	Display	RX	Tone	TX	Tone
1	North Direct (Roosevelt)	N DIRECT	169.97500		169.97500	110.9
2	Point-to-Point Work Channel	WORK 1	163.71250		163.71250	000.0
3	Twin Sisters Repeater	TWIN SIS	169.97500		164.10000	131.8
4	Thorodin Mtn Repeater	THORODIN	169.97500		164.10000	136.5
5	GunBarrel Repeater	GUN BARR	169.97500		164.10000	103.5
6	Multi-Agency Fire Attack	VFIRE21	154.28000		154.28000	156.7
7	Air-to-Ground 9 (Aviation)	A/G 9	166.91250		166.91250	000.0
8	USFS / ARP Fire Attack	FIRE TAC	166.56250		166.56250	156.7
9	Air-to-Ground 58 (Aviation)	A/G 58	169.08750		169.08750	000.0
10	Gilpin Co. Fire/LE	GILPIN	153.84500		156.01500	127.3
11	Boulder Co. Old-Red 1 No	BCFD N	155.53500		154.32500	179.9
12	Boulder Co. Old-Red 1 So	BCFD S	151.35500		154.32500	179.9
13	Boulder Co. Old-Red 3	BC FTAC3	154.41500		154.41500	179.9
14	Boulder Co. Old-Red 4	BC FTAC4	153.83000		153.83000	179.9
15	Boulder Co. Old-Red 5	BC FTAC5	153.95000		153.95000	167.9
16	Boulder Co. Old-Red 6 Rpt	BCFD CMD	154.37000		153.77000	131.8

GROUP 10 – WEST FIRE (User Code Guard Enabled)						
CH	Description	Display	RX	Tone	TX	Tone
1	West Direct	W DIRECT	170.55000		170.55000	123.0
2	West Repeat	W REPEAT	170.55000		165.08750	131.8
3	Point-to-Point Work Channel	ARP WORK	168.72500		168.72500	136.5
4	USFS / ARP Fire Attack	FIRE TAC	166.56250		166.56250	146.2
5	Air-to-Ground 58 (Aviation)	A/G 58	169.08750		169.08750	151.4
6	Air-to-Ground 9 (Aviation)	A/G 9	166.91250		166.91250	156.7
7	Air-to-Ground 56 (Aviation)	A/G 56	168.66250		168.66250	167.9
8	Owl Mountain Repeater	OWL MTN	172.37500		164.87500	173.8
9	BLM Grouse	BLM GROU	169.62500		169.62500	186.2
10	BLM Blue Ridge Rptr	BLM BLUE	169.62500		163.57500	000.0
11	Grand County Public Service	GRND PS	155.68500		158.82000	000.0
12	Grand County Dispatch Page	GRNDPAGE	155.11500		153.99500	000.0
13	East Grand Fire Dept.	E GRAND	154.16000		154.16000	000.0
14	Grand Fire Protection Dis	GRANBY	154.44500		154.44500	000.0
15	Grand Lake Fire	GL FIRE	154.34000		154.34000	000.0
16	Kremmling Fire Dept.	KREM FD	150.77500		150.77500	000.0

GROUP 11 -						
CH	Description	Display	RX	Tone	TX	Tone
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						

GROUP 12 -						
CH	Description	Display	RX	Tone	TX	Tone
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						

GROUP 13 – TYPE 3 PLAN (User Code Guard Enabled)						
CH	Description	Display	RX	Tone	TX	Tone
1	Line of Sight Work Channel	TAC 1	166.56250		166.56250	162.2
2	Line of Sight Work Channel	TAC 2	168.77500		168.77500	123.0
3	Line of Sight Work Channel	TAC 3	168.61250		168.61250	131.8
4	Fort Collins Scene Action	FTC SOA	169.95000		165.22500	107.2
5	Air-to-Ground 58 (Aviation)	A/G 58	169.08750		169.08750	136.5
6	North Direct (Roosevelt)	N DIRECT	169.97500		169.97500	146.2
7	North Repeat (Roosevelt)	N REPEAT	169.97500		164.10000	167.9
8	South Direct (Arapaho)	S DIRECT	170.47500		170.47500	100.0
9	South Repeat (Arapaho)	S REPEAT	170.47500		164.13750	107.2
10	Sulpher Rptr	W REPEAT	170.55000		165.08750	114.8
11	Rocky Mtn Fire Repeater	RMNP FIR	169.67500		164.42500	103.5
12	Multi-Agency Fire Attack	VFIRE21	154.28000		154.28000	127.3
13	Multi-Agency Fire Attack	VFIRE22	154.26500		154.26500	156.7
14	Logistic Support	LOGISTIC	168.72500		168.72500	141.3
15	Input local 911 Freq	CNTY 911	000.00000		000.00000	151.4
16	Emergency Aircraft	AIRGUARD	168.62500		168.62500	110.9

GROUP 14 -						
CH	Description	Display	RX	Tone	TX	Tone
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						

Canyon Lakes Fire - User Selectable Code Guards			
Channel	**Repeater**	**Tone**	**Freq**
1. North Direct			110.9
2. North Repeater	Deadman	1	110.9
	Buckhorn	2	123.0
	Twin Sisters	3	131.8
	Thorodin	4	136.5
	Pawnee	5	167.9
	Jelm	9	146.2
	Gun Barrel	14	103.5
3. South Direct			131.8
4. South Repeater	Squaw	1	110.9
	Mines Peak	2	123.0
	Starr Peak	9	146.2
5. ARP Work			167.9
6. Fire Tac			100.0
7. Work 1			156.7
8. Work 2			179.9
9. A/G 9			146.2
10. VFIRE 21			156.7
11. VFIRE 22			156.7
12. VFIRE 23			156.7
13. BC TAC 3			179.9
14. RMNP Fire			103.5
15. A/G 58			000.0
16. LARC Fire			156.7

North Fire - User Selectable Code Guards			
Channel	**Repeater**	**Tone**	**Freq**
1. North Direct			110.9
2. North Repeater	Deadman	1	110.9
	Buckhorn	2	123.0
	Twin Sisters	3	131.8
	Thorodin	4	136.5
	Pawnee	5	167.9
	Gun Barrel	11	103.5
	Jelm	12	146.2
	Mesa	16	151.4
3. South Direct			131.8
4. South Repeater	Squaw	1	110.9
	Mines Peak	2	123.0
	Starr Peak	12	146.2
5. ARP Work			167.9
6. Work 1			100.0
7. Fire Tac			179.9
8. LARC Fire			156.7
9. BCFD N			179.9
10. BC FTAC 5			167.9
11. RMNP Fire			103.5
12. CSFC			146.2
13. VFIRE 21			156.7
14. VFIRE 22			156.7
15. A/G 9			000.0
16. Work 2			151.4

West Fire - User Selectable Code Guards			
Channel	**Repeater**	**Tone**	**Freq**
1. West Direct			000.0
2. West Repeater	Berthoud	2	123.0
	Cottonwood	3	131.8
	Blue Ridge	4	136.5
	Little Gravel	5	151.4
3. ARP Work			131.8
4. Fire TAC			151.4
5. A/G 58			000.0
6. A/G 9			000.0
7. A/G 56			000.0
8. Owl Mountain			146.2
9. BLM Grouse			186.2
10. BLM Blue Ridge			173.8
11. Grand Public Safety			156.7
12.Grand County Page			167.9
13. East Grand			156.7
14. Granby			156.7
15. Grand Lake Fire			167.9
16. Kremmling Fire			156.7

Helpful websites

Fort Collins Dispatch Center
http://gacc.nifc.gov/rmcc/dispatch_centers/r2ftc/

DPHX5102X Owner's Manual:
http://www.relmservice.com/Manuals/Files/DPHx_Encryption_Owners_1204.pdf

KNG User's Manual:
http://www.relmservice.com/Manuals/Files/KNG_Owner(REV0210).pdf

Programming Manual:
http://www.relmservice.com/Manuals/Files/BK_Prg_Man_02-11.pdf

Notes

Notes

Arapaho and Roosevelt National Forest,
and Pawn National Grassland

Radio User Guide

2016

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Note: All Frequencies Subject to Change without Notice.