



RADIO HANDBOOK

Radio Communication Services





RADIO SERVICE REQUESTS



<https://apps.nrs.gov.bc.ca/int/jira/servicedesk/customer/portal/1/group/223>



NRMenquiries@gov.bc.ca



1-866-952-6801

Radio Communication Services Website

[Repeater maps, operational handbook and more]



Version 2.2





Contents

Section I - Operations.....	5
Regulations and Emergency Communications.....	5
Federal Regulations	5
Priority Of Communications.....	5
Emergency Communications.....	6
Levels of Distress.....	6
Acknowledging or Receiving a Distress Message:.....	7
A Distress Message.....	7
Radio Silence.....	7
Basic Communication Standards.....	8
Order of Radio Dialog	8
Radio Check - How do you read me?.....	8
Standard Phrases	9
Phonetic Alphabet	9
Description of Radio Functions.....	10
Banks	10
Channels	10
Tones	10
Push to Talk (PTT).....	10
Squelch.....	10
Scan Function	11
Scroll Up & Scroll Down.....	11
Transmit Power Setting (Handhelds Only)	11
Lock Function.....	11
Bank and Channel Definitions.....	12
NRM Simplex	12
NRM Repeater	12
Wildfire	13
Road Channels.....	13
LAD	13
PEP/SAR (Provincial Emergency Program/Search and Rescue)	14
Load/Unload.....	14
Resource Road	14
Scratch Bank.....	14
Repeater System	15
Fire Center Boundaries	15
Repeater Clusters.....	16
Tones	17
What is a tone and what does it do?	17
Tone Inequality.....	18
Radio Coverage	19
Range	19
Logging Roads and Road Safety Channels	20
Road Safety Procedure	20
Procedure during travel	21
Procedure when changing channels.....	21
Resource Road Channels	21
Resource Road Radio Channels Bulletin (ISED).....	22
NRM Repeater System - Steps to access	24



Section II - Equipment 25

Detailed Radio Buttons.....	25
NX-210 Handheld	25
F3 Firestock Handheld	26
F30 Handheld.....	27
F3261 Handheld.....	28
F3033 Handheld.....	29
TK-780 Mobile.....	30
TK-7180 / NX-700 Mobile.....	31
NX-5700 Mobile - Tone Selection.....	32
NX-5700 Mobile.....	33
Troubleshooting Questions.....	34
Correct Settings:.....	34
Batteries:	34
Antenna:.....	34
Accessories:.....	34
Geography:	34
Service Requests	35
Adding Frequencies - Letters of Authority	35
Adding Users - Access to NRM Repeater system	35
How to access our Services?	35
Website	35
Email.....	35
Phone.....	35

Section III - Reference Materials 36

RCS Radio Group Representatives.....	36
Call Sign Assignments.....	37
Fire Centres - Call Signs	37
Northern Interior Forest Region - Base Call Signs.....	37
Southern Interior Forest Region – Base Call Signs.....	37
Coast Forest Region – Base Call Signs	37
Mobile Frequencies	38
Simplex Allocations	39

Section IV - Repeater Maps 40

Map Legend	41
District Tones	41
Coastal Fire Centre.....	42
Cariboo Fire Centre.....	44
Kamloops Fire Centre.....	46
Southeast Fire Centre.....	48
Prince George Fire Centre	50
Northwest Fire Centre.....	52
Fire Centre Phone Numbers.....	Back Cover

Regulations and Emergency Communications

The following provides basic information for all persons utilizing the Natural Resource Ministries(NRM) Radio network. A working knowledge of this information must be maintained by all users of the radio network.

Federal Regulations

- You shall not deliberately cause harmful interference to another user.
- Do not transmit signals not related to work or safety. Unless a transmission is related to official business or safety it should be deemed Not-Relevant.
- You may not transmit a message (conversation) containing profane or obscene words or language (Employee Standards of Conduct Breech).
- You may not divulge or use information you may overhear - other than from a public broadcast.
- Emergency transmissions have priority over all other communications

Priority Of Communications

Radio communications are vital to efficient and safe Aircraft, Marine and Ground field operations. When multiple users require the simultaneous use of the radio, the following priority for radio communication will apply:

Priority		Type of Communication
1	Distress Calls	• MAYDAY, PAN-PAN and SECURITY calls • Aircraft and marine distress calls • Accident and medical emergencies
2	Safety Check-ins	• Aircraft and vessel check-ins and position reports • Regional, District, Call Centre and Branch staff safety check-ins and position reports
3	Operational Traffic	• Wildfire Management initial fire reports and status updates (ground or aircraft) • Air patrol aircraft and helicopter traffic; vessel updates • Regional, District, Call Centre and Branch operational and routine traffic



Emergency Communications

Distress, urgency and safety procedures have been established by the **International Telecommunications Union**. Emergency communications and procedures are standardized and **understood world-wide**. Use of emergency procedures in land communications is very rare.

A station in distress should make use of any means at its disposal to attract attention, to make known its position and obtain assistance.

Use the frequency you would normally use but if unable to establish communications, **use ANY frequency** at your disposal.

Levels of Distress

Each level is identified using the appropriate and internationally understood terminology: MAYDAY, PAN-PAN, or SECURITY.

The distress term used indicates the degree of distress or urgency, and when transmitted is always repeated three times.

A distress communiqué when transmitted is immediately followed by 'THIS IS' then the distress station's/person's call sign and location or coordinates.

International Distress Call		Severity of Distress Call
1	MAYDAY MAYDAY MAYDAY	- Personnel are threatened by grave and imminent danger and require immediate assistance. - Personnel are aware of a camp, vehicle, ship, aircraft, etc. threatened by grave and imminent danger that requires immediate assistance.
2	PAN-PAN PAN-PAN PAN-PAN	- PAN-PAN is used only on the authority of command personnel. Urgent messages concerning or advising of possible jeopardy to life. - The urgency signal will be followed by a message giving details of the situation.
3	SECURITY SECURITY SECURITY	- Messages concerning safety of navigation, road alerts, or weather warnings. - All stations hearing the safety signal must continue to monitor the frequency until satisfied that the safety transmission does not affect them.



Acknowledging or Receiving a Distress Message:

When acknowledging receipt of a distress message, the receiving station will:

- Transmit "MAYDAY".
- The call sign of the station in distress three times.
- The words "THIS IS" (give the call sign of the acknowledging station three times)
- The words "RECEIVED MAYDAY"

A Distress Message

Allow time for any nearby station to respond. If not acknowledged:

- Immediately acknowledge the transmission;
- Take all possible action to notify the appropriate rescue authorities;
- Make notes of the transmission, (Include time and details).

Radio Silence

The station in distress, or any station in the immediate vicinity, may impose silence on a particular station. This procedure is imposed if communication traffic is interfering with the distress transmission. Should radio silence be imposed during a distress situation, all traffic not associated with the distress transmission must cease immediately.

A request for radio silence is addressed to "ALL STATIONS" or to a particular station if it can be identified.

- The station in distress will use the expression "SILENCE MAYDAY" or "SEELONCE MAYDAY" – an internationally understood term.
- Other stations imposing silence during a distress situation will use the expression "SILENCE DISTRESS" or "SEELONCE DISTRESS".

When a station is no longer in distress, the station which transmitted the distress signal and any station which relayed the distress message, will transmit an "ALL STATIONS" message advising that the distress traffic has ended.

Procedure for canceling the distress message is:

- The word "MAYDAY" (Transmitted only once)
- The words "ALL STATIONS" (Repeated three times)
- The words "THIS IS" (call sign of the station transmitting)
- The filing time of the original distress message.
- The call sign of the ship, aircraft, vehicle, that had been in distress.
- A short description of why the distress situation is being canceled.
- The words "SILENCE FINISHED"
- The word "OUT"



Basic Communication Standards

Order of Radio Dialog

1. Key the radio and wait approximately 1 second
2. Speak closely to the microphone in this order:

Call sign of recipient	"this is"	Your call sign
"fire center - this is - romeo, alpha, 1, 4"		

3. Wait for the recipient to respond with:

Your call sign	"this is"	Call sign of recipient
"romeo, alpha, 1, 4 - this is - fire center"		

4. Converse as normal

Radio Check - How do you read me?

The purpose of a radio check is 2 fold:

- To make sure your radio equipment is operating correctly - Perform **before** going into the field
- To give the user(s) an indication of the quality of the signal

When a station calls for a radio check it is recommended you use the standard rating out of 5 - or use "plain" language to describe the quality of the signal:

Standard	Alternate Standard (Plain Language)
5 out of 5	I hear you clearly; Proceed with your message
4 out of 5	I hear you fairly well; Speak clearly
3 out of 5	I hear you poorly; Speak slowly, clearly and annunciate your words
2 out of 5	I can only understand parts of your message; You may need to repeat things
1 out of 5	You are unreadable; Please try another channel or change locations

The efficient use of radio depends to a large extent on the method of speaking and on the articulation of the operator. As the distinctive sounds of consonants are liable to become blurred in the transmission of speech and as words of similar length containing the same vowel sounds are apt to sound alike, special care is necessary to ensure proper pronunciation.

When using radio, the operator should speak all words plainly and clearly to prevent words from running together. Avoid any tendency to shout, to accent syllables, or to speak too rapidly.

**Standard Phrases**

ACKNOWLEDGE	Let me know that you understood this message.
AFFIRMATIVE	YES, agree, permission granted.
CLEAR	No further transmission from this station. Should be preceded by your call sign (i.e. 'BRAVO FOUR CLEAR').
CORRECTION	There is an error in the previous message. The correct version is... (Provide corrected version).
GO AHEAD	Continue - proceed with your message.
NEGATIVE	NO, permission not granted or NO I do not agree.
OVER	My transmission is ended and I expect a response from you.
RADIO CHECK	How clearly do you read me?
ROGER or COPY	I have received and understand all of your last transmission.
ROGER - OUT	I have received and understand all of your last transmission and I have no need to communicate further at this time.
SAY AGAIN	Please re-transmit your last message.
STANDBY	I am busy for a moment. Please wait and listen to the radio until I can get back to you. If more than one person is waiting it is a common practice to also use their name or call sign
STANDING BY	I have received your message to wait and will wait silently until you get back to me.
'CALL-SIGN' - OUT	My conversation has ended, no further response is expected.

Phonetic Alphabet

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



Description of Radio Functions

Banks

Banks are groups of similar channels.

Channel

A specific frequency used to communicate.

Tones

This sets the tone for both transmit and receive.

Transmitting: A sub-audible tone added to the transmission signal.

Receiving: Sets the **required tone of the received signal** that will unmute the radio's speaker.

Push to Talk (PTT)



The term used to start transmitting to another user by pressing and holding the PTT button.



Squelch

This sets the **required strength of the received signal** that will unmute the radio's speaker.

Low

Setting: 0 for all radios

Result: Unmute **all signals** (static unless a signal is being received)

Mid (default)

Setting: 150 for F30 handheld

5 for all other radios

Result: Unmute when there is a **weak to normal signal**

High

Setting: 255 for F30 handheld

9 for all other radios

Result: Unmute only when there is a **strong signal**





Scan Function

WARNING: Scanning will pause on a channel when receiving a signal. This can allow you to miss important transmissions on other channels.

The scan function allows you to actively search a **user programmed** group of channels.

The user must select the channels to be scanned by using the Add/Delete Button to create a scan list - *See Pg's 25-33*

- Only channels added to the scan list will be scanned
- Some channels can not be added to the scan list (road channels)
- Scanning will only work when there are 2 or more channels in the scan list
- Some mobile (vehicle) radios will only scan when the mic is in the mic-hook

Once the channels have been selected for scanning, initiate the scan by pressing the Start/Stop scan button - *See Pg's 25-33*

- To stop the scan press the Start/Stop scan button again to return to normal operation

Scroll Up & Scroll Down

Default Screen - Scroll through the **channels** within a bank
Menu Screens - Scroll through tones, squelch levels, scan groups.

Transmit Power Setting (Handhelds Only)

Press to toggle transmit power levels. The power levels are as follows

	Low or Low1	Low2	High
F3(S)	2.0W	N/A	5.0W
F30/F3161/ F3261/ F3033	1.0W	2.0W	5.0W
NX-210	2.0W	N/A	5.0W

Lock Function

Press and hold to lock keypad.
Press and hold again to release the lock.



Bank and Channel Definitions

NRM Simplex

Chan.	Name
1	Gold
2	Silver
3	Copper
4	Nickel
5	Bronze
6	Iron
7	Zinc

 - DO NOT USE A TONE - 

Local communications only

User A



User B



All users on the same simplex channel, within communication range, will be able to hear you.

NRM Repeater

Chan.	Name
1	Red
2	Purple
3	Green
4	Pink
5	Blue
6	Orange
7	Brown
8	Yellow
9	Gray
10	Black
11	White
12	Maroon
13	Lime
14	Navy

- TONE REQUIRED -

Repeater network Communications only

Dispatch



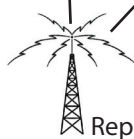
User A



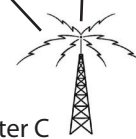
User B



Repeater A



Repeater B



Repeater C

All users on the same repeater network will be able to hear you.



Wildfire

These channels are used during the fire season. To enhance the repeater system, temporary fire repeaters are deployed near active fires to create radio coverage in “dead zones” or to separate fire traffic from the network.

Ch.	Name	Description
1	Fire A1	Fire Repeater Type A
2	Fire A2	Fire Repeater Type A
3	Fire A3	Fire Repeater Type A
4	Fire B1	Fire Repeater Type B
5	Fire B2	Fire Repeater Type B
6	Fire B3	Fire Repeater Type B
7	OFC-1	Fire Commissioner Simplex
8	OFC-2	Fire Commissioner Simplex
9	OFC RPTR	OFC Interface Repeater

For tone selection on these channels consult the incident action plan for the specific fire.

Road Channels



Used for travelling on forest service and logging roads.
See Road Channels section for further details - *See Pg 20*

LAD



Used primarily for driver to driver transport truck communications.
When traveling on main roads and highways, listening in can sometimes provide details on upcoming accidents or road conditions.



Section I - Operations



PEP/SAR (Provincial Emergency Program/Search and Rescue)



As a part of providing coordination and support before, during and after emergencies these channels will help work as an interagency line of communications

Ch	Name	Description
1	PEP SAR-1	PEP Search and Rescue 1
2	PEP SAR-2	PEP Search and Rescue 2
3	PEP EP-1	PEP Emergency Program 1
4	PEPCORD-1	PEP Coordination 1
5	SAR	Canada Wide

For more information see: <https://www2.gov.bc.ca/gov/content/safety/emergency-management>

Load/Unload



Used in specific test areas of BC - See Special Road Safety Channels - Pg. 20



Resource Road



Used in specific test areas of BC - See Special Road Safety Channels - Pg. 20

Scratch Bank



Used for special channels required by a user.
Any channel that is not part of the NRM standard list is programmed into this bank.

You may need a **Letter of Authority** in order to have a channel added to this bank.

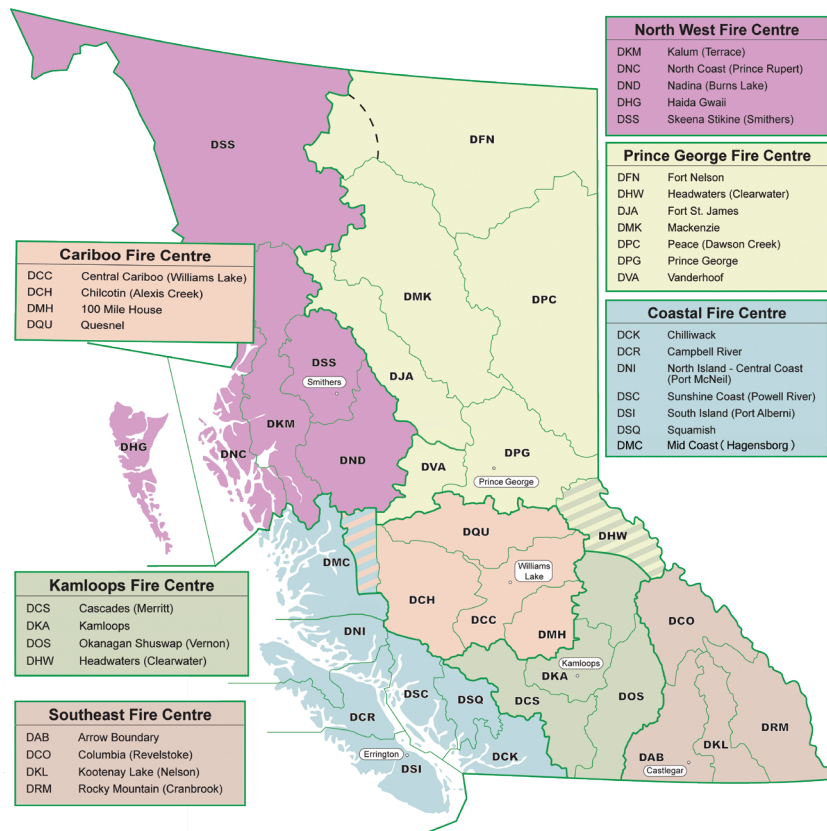


Repeater System

Fire Center Boundaries

There are 6 fire centers that dispatch for the entire province. Each fire center has a defined set of repeater clusters they connect to.

Northwest Fire Center	Located in Smithers
Prince George Fire Center	Located in Prince George
Cariboo Fire Center	Located in Williams Lake
Kamloops Fire Center	Located in Kamloops
Southeast Fire Center	Located in Castlegar
Coastal Fire Center	Located in Parksville



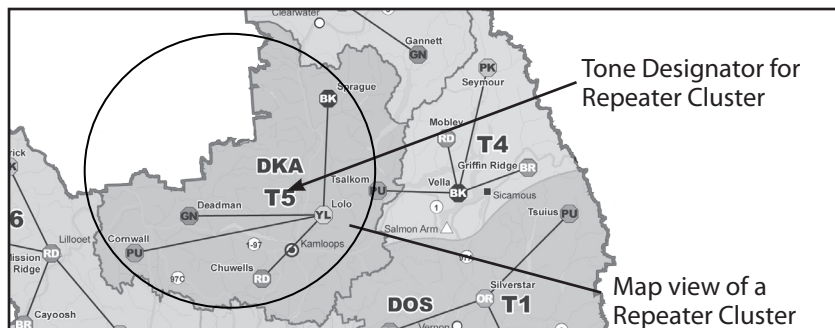


Section I - Operations

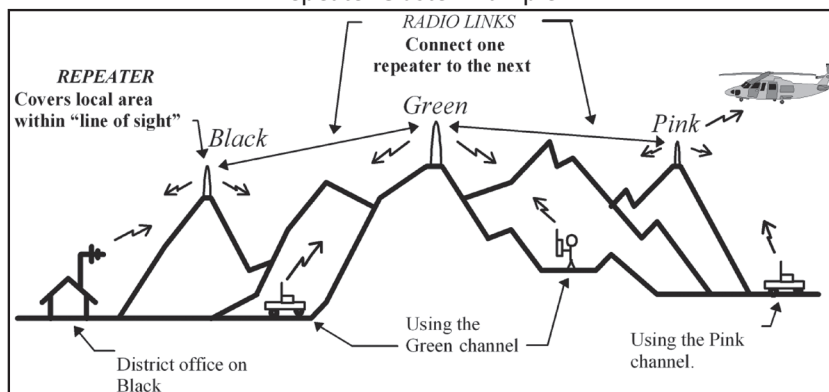


Repeater Clusters

- Identified by the links connecting the repeaters in a geographic area.
- All repeaters in a cluster transmit simultaneously.
- Each cluster connects to the fire center responsible for that area



Repeater Cluster Example



When the District Office transmits on Black, the following occurs:

Signal received by the BLACK Repeater and retransmits:

- on the BLACK channel and,
- on a UHF link channel to the GREEN Repeater

Signal received by the GREEN Repeater and retransmits:

- on the GREEN channel and,
- on a UHF link channel to the PINK Repeater

Signal received by the PINK Repeater and retransmits:

- on the PINK channel

Any person, vehicle or aircraft will hear the transmission on any of the repeaters within a cluster if they are **in range** and are **on the correct channel and tone**.



Tones

TONES ARE **ONLY** USED ON **NRM COLOUR AND WILDFIRE CHANNELS**.

DO NOT USE ON METALLIC NRM SIMPLEX CHANNELS

DO NOT USE ON ROAD CHANNELS

DO NOT USE ON LAD CHANNELS

DO NOT USE ON PEP CHANNELS

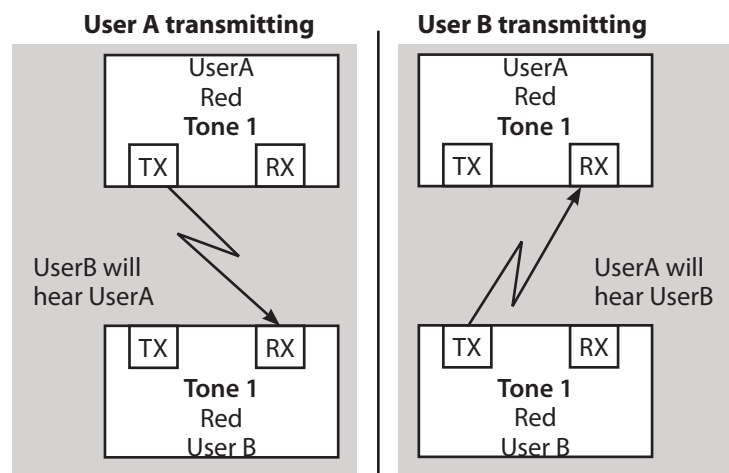
DO NOT USE ON RESOURCE ROAD CHANNELS

DO NOT USE ON LOADING CHANNELS

What is a tone and what does it do?

A tone is simply a sub-audible tone used to mute or unmute the speaker on the receive side of a radio. The user cannot hear the tone - it is used simply as a "key" to unlock the desired repeater.

1. When Transmitting - adds the tone to the voice stream before transmission
2. When Receiving
 - a. **Tone Equality** - both receivers will allow the voice stream to be heard.
 - b. **Different Tones Inequality** - both receivers will **not** allow the voice stream to be heard
 - c. **Tone On/Tone Off Inequality** -
 - the receiver with **tone on** will **not** allow the voice stream to be heard
 - the receiver with the **tone off** will **allow** the voice stream to be heard



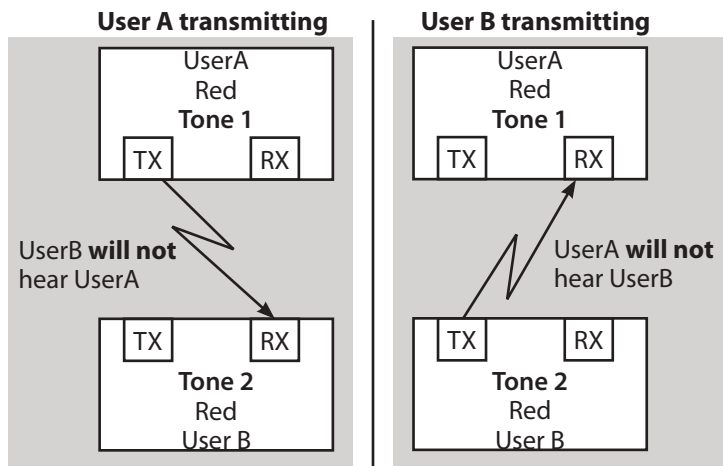


Tone Inequality

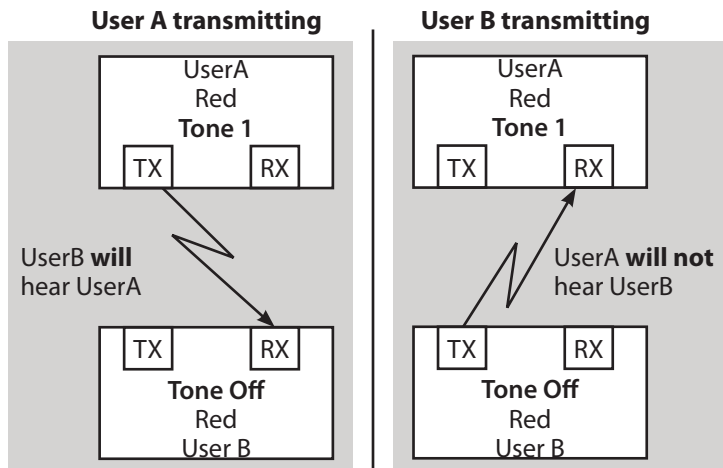
Tone inequality occurs when:

- **Different Tones** - One user has a different tone than the other user
- **Tone ON/Tone OFF** - One user has a tone on and the other user does not

Different Tones Inequality



Tone On/Tone Off Inequality





Radio Coverage

Range

The most common question, “how far will my radio transmit?”

The range of VHF radio depends on a number of factors including transmit power, antenna efficiency, terrain and distance. The following table is a rough guide as to the what you can expect.

**WARNING: THIS TABLE IS ONLY A ROUGH GUIDELINE.
ACTUAL RESULTS WILL VARY GREATLY.**

Condition	Geography	Power	Distance
Poor	Canyons Land with ore deposits Heavy Forest Canopy No line of sight Dense air or fog	2.0 Watts	0.25 - 2km
		5.0 Watts	1 - 5km
		30.0 Watts	2 - 10km
Average	Standard Terrain Partial Forest Canopy Average air quality	2.0 Watts	1 - 2 km
		5.0 Watts	2 - 5km
		30.0 Watts	3 - 10km
Ideal - Mountain Top	Top of a Mountain Line of Sight Thin Clear Air	2.0 Watts	10 - 100km
		5.0 Watts	
		30.0 Watts	
Ideal - Air	Flying Line of Sight Thin Clear Air	2.0 Watts	50 - 500km
		5.0 Watts	
		30.0 Watts	

To obtain the best results:

- Find a location that is line of sight with no obstructions.
- Hold the radio vertically and away from your body if possible.
- Ensure you have a fully charged batteries - The radio will automatically change to low power when the battery level is low.



Logging Roads and Road Safety Channels



DO NOT change channels while traveling



DO NOT use the scan function



DO NOT use any tones



DO NOT use a handheld

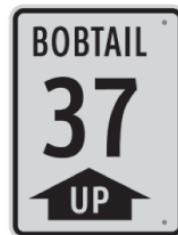
- Most Resource Roads are **Radio Assisted** and not Radio Controlled.
- Before traveling on a Resource Road: Perform a radio check to ensure your radio is functioning correctly.
- Down traffic has the right of way - Up traffic **MUST** yield.
- Unloaded - meaning their truck is empty (usually heading up).
- Loaded - meaning their truck is full (usually heading down).

Road Safety Procedure

1. **Stop** off to the side of the road where you can see the Resource Road sign.
2. **Report to the Fire Center:** where you are headed and when your next check in will be.
3. **Change the bank and channel** on the radio to the channel listed on the sign.
4. **Take note** of how often to call your kilometers.
5. **Listen** for any communications to determine how busy the area is.
6. **Key the radio and say:**

Road Name	Current location	Current Direction	Vehicle Type
"Holy Cross"	"Zero"	"Up"	"1 Pickup"

7. **Start driving - According to road and weather conditions**



Procedure during travel

1. **Listen** to the activity of communications
2. **Call your kilometers** based on the sign recommendations or every other kilometer

Road Name	Current location	Current Direction	Vehicle Type
"Holy Cross"	"Four"	"Up"	"2 Pickups"

3. **High traffic areas** will need more frequent calls

Procedure when changing channels

1. **Advise others** that you are stopping and where you are located

Road Name	Current location	Current Direction	Vehicle Type
"Holy Cross"	"Stopping at 6km"	"Down"	"1 Pickup"

2. **Park in a visible location** off to the side and out of the way of passing vehicles (Do not park on a curve or the crest of a hill)
3. **Take note** of your current road safety channel
4. **Change channels** and make your call
5. **Change back** to the road safety channel
6. **Update** others that you are moving again and continue driving

Road Name	Current location	Current Direction	Vehicle Type
"Holy Cross"	"Six"	"Down"	"1 Pickup"

Resource Road Channels

To reduce the number of frequencies used, a new set of Resource Road channels is being implemented across the province. This new system uses pre-programmed frequencies, and logical placement of the new channels to replace the vast number of frequencies currently in use. For more information check out http://www.bcforestsafesafe.org/road_channels

Resource Road Channels

35 Channels

Road Channel
RR-10

Loading and Unloading Zones

5 Channels

Loading Channel
LD-2



Resource Road Radio Channels Bulletin (ISED)

Revised resource road radio channel standard protocols have been introduced to BC in the last few years. The objectives have been to standardize and simplify a provincially consistent approach to radio communications in order to improve safety of travel on resource roads.

Most of the province has initiated and implemented new resource road radio communication protocols which consist of simplified and consistent procedures, standardized signage, standardized radio call protocols (including use of “up/down”), and establishing a standard bank of resource road radio (RR) channels.

The introduction of standardized resource road radio protocols has been a collaborative effort including: the NRM, ISED (formerly Industry Canada), FPInnovations, WorkSafeBC, BCFSC, forest and resource industry sectors, and other stakeholders.

- The standard bank of RR channels has been assigned to NRM by ISED, to be managed and administered in conjunction with ISED. NRM will be responsible for operational administration, tracking and application of channel assignments in the field. The standard bank of RR channels consists of 35 road channels and 5 loading channels. The road channels are for communicating location and direction when travelling on resource roads. The 14 loading (LD) channels are for communicating on landings and staging areas to avoid congestion of RR channels. In addition to the LD channels, there are the 4 LAD channels which can also be used for communications in loading areas. Any of the RR channels may be used for emergency communications such as in the case of incidents. Idle chit-chat is to be avoided when using any mobile radio channel or frequency which is intended for safety communications.
- It is important to note that there are only a relative few roads that are “radio-controlled” where use of a mobile radio is mandatory to communicate location and direction when travelling on a resource road. Most resource roads in the province are “radio-assisted” and there is no requirement to have and use a mobile radio. Additionally, resource roads on Crown Land, with some exceptions, are open to use by the general public that typically do not have mobile radios.
- **Those travelling on radio-assisted resource roads should not rely solely on mobile radio communications, and must drive safely according to road and weather conditions.**



Learnings and Suggestions:

Things to bring to your attention:

Use the Resource Road radio channels or radio frequencies that are posted in the field. Do not solely rely on channel maps. What is posted in the field will govern over any map. Those using mobile radios for communicating on resource roads must call according to posted channels/frequencies and protocols.

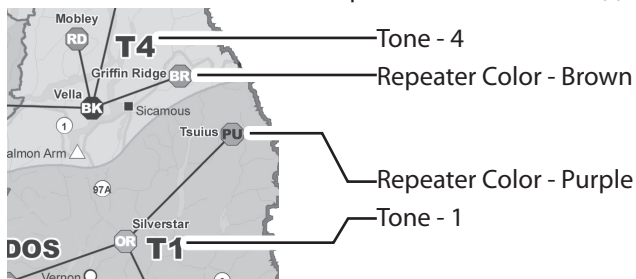
- Not all resource roads around the province have been converted to the standard set of RR channels; some industrial users are still using pre-existing frequencies; for some roads, RR channels are being adopted as they become industrially active.
- The RR channels are available to all mobile radio users, and can be obtained through commercial radio shops, provided they have a radio license with the RR Appendix. Radio licenses are issued by ISED.
- RR channel maps have been developed as planning tools. However, these should not be solely relied upon to determine the appropriate channels in the field; what is on a map may not be posted in the field; mobile radio users should be relying on what is posted on the roads they are traveling on. Link to RR channel planning maps: <http://www2.gov.bc.ca/gov/content/industry/natural-resource-use/resource-roads/radio-communications/channel-maps>
- Programming of select channels into mobile radios ("cherry picking") of channels is discouraged; all users are encouraged to have the full standard RR channel bank programmed into their radios by commercial radio shops.
- All resource road users in the affected areas should exercise additional caution during the transition period to new resource road radio communication protocols.
- A procedure has been developed for permanent and temporary changes to RR channel assignments. All changes require approval by the NRM District Engineering Officer as well as ISED.
- RR channel 13 has been removed from service due to conflict with an electronic system in certain Kenworth trucks. RR 13 should not be assigned or used until further notice; if assigned, please move to change the channel following the channel change procedure.



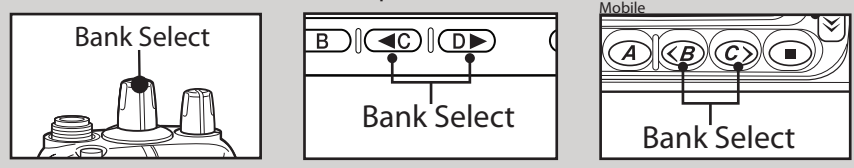
NRM Repeater System - Steps to access

NOTE: The closest repeater doesn't always give the best signal.
"Line of sight" can give a better signal even at a further distance

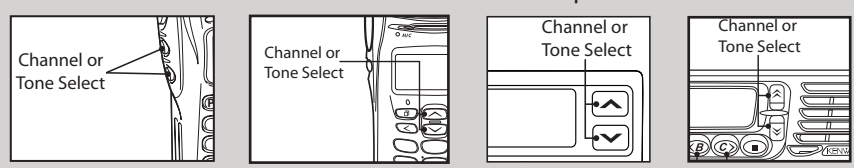
1. **MAP:** Determine the closest 2-3 repeater colors and tone(s)



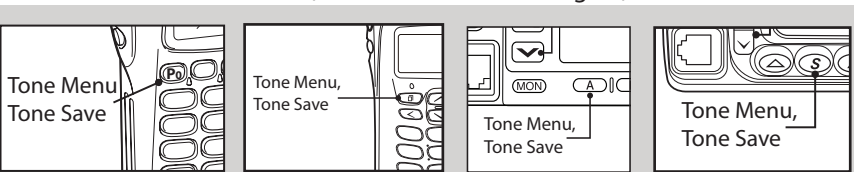
2. **BANK:** Set the bank to "NRM Repeaters"



3. **CHANNEL:** Set the channel to the color from step 1



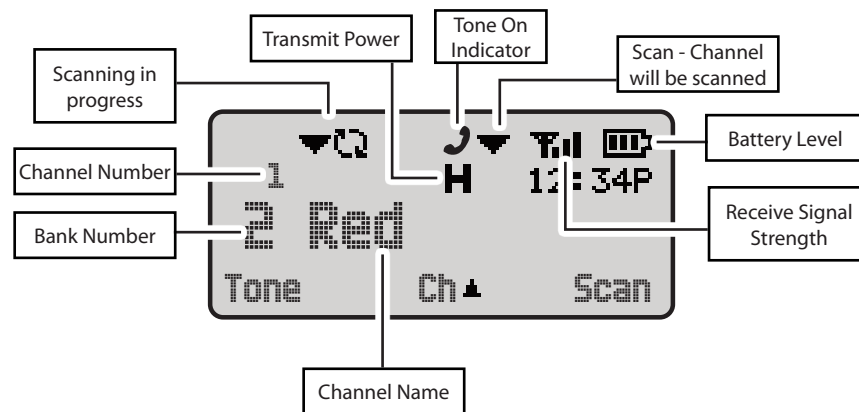
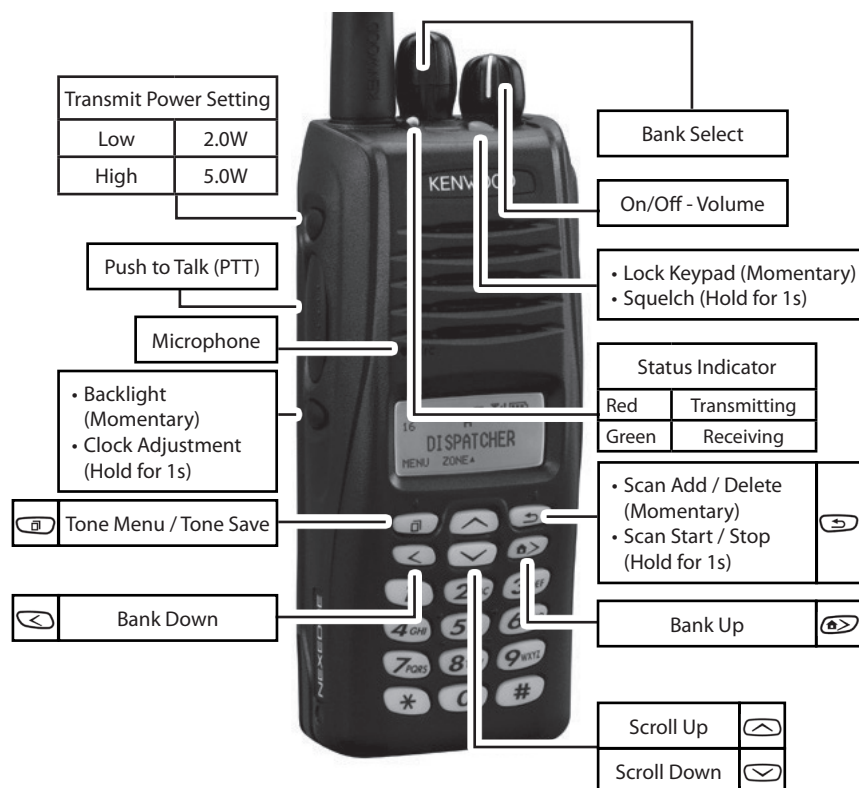
4. **TONE:** Set the tone to the number from step 1
 - a. Enter the tone menu (Press the tone button)
 - b. Select the tone (Using the scroll up/scroll down buttons)
 - c. **Save** the tone (Press the tone button again)



5. **Repeat** steps 3 to 4 for other repeaters in the area if there is poor or no reception.



NX-210 Handheld



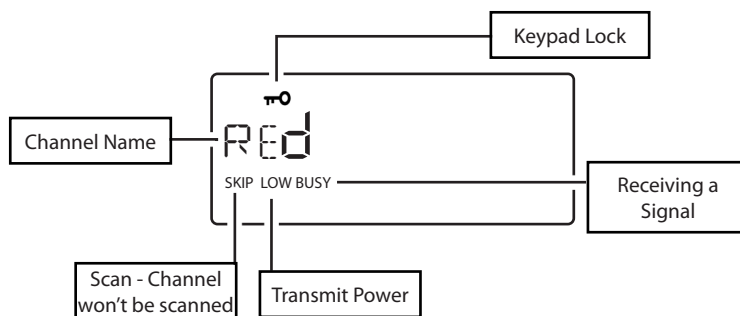
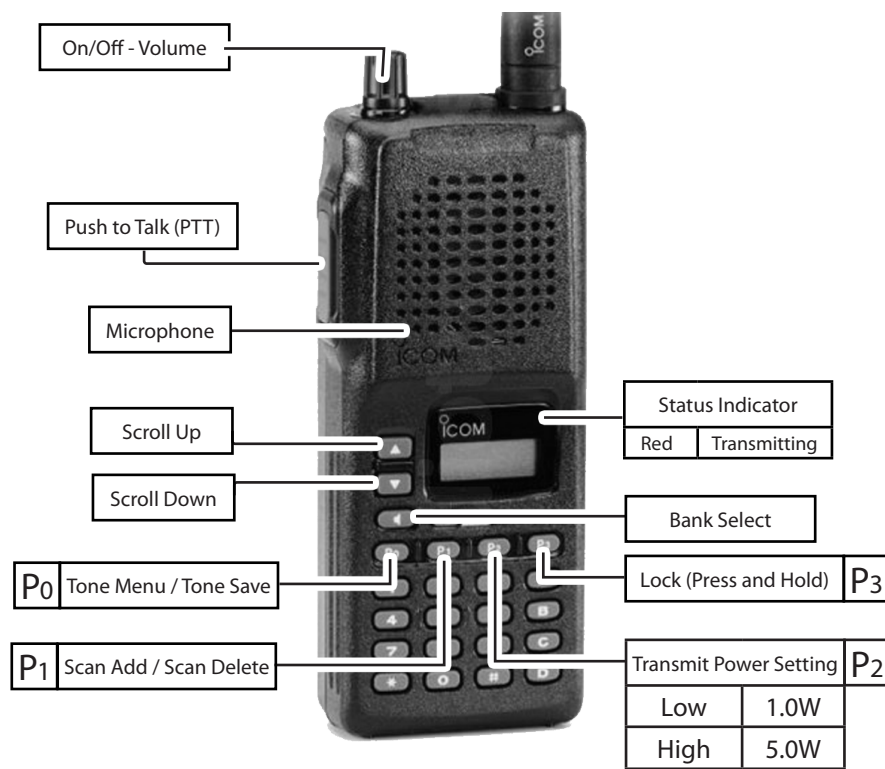


Section II - Equipment

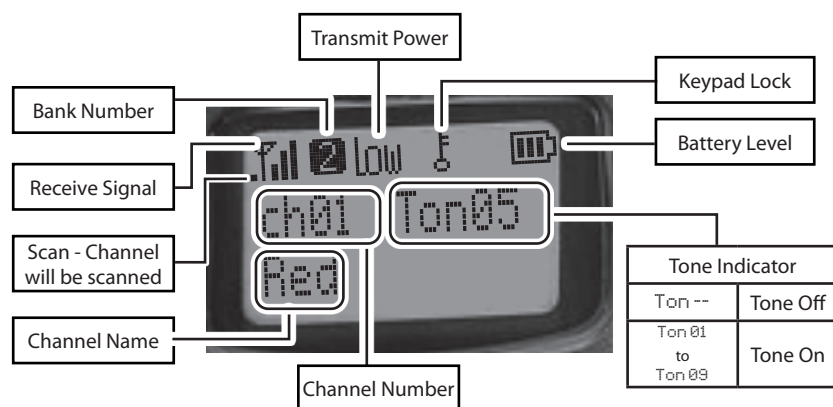


F3 Handheld

WARNING: F3(S) handhelds use GLOBAL TONES.
Once a tone is set it affects all banks and channels



F30 Handheld





Section II - Equipment

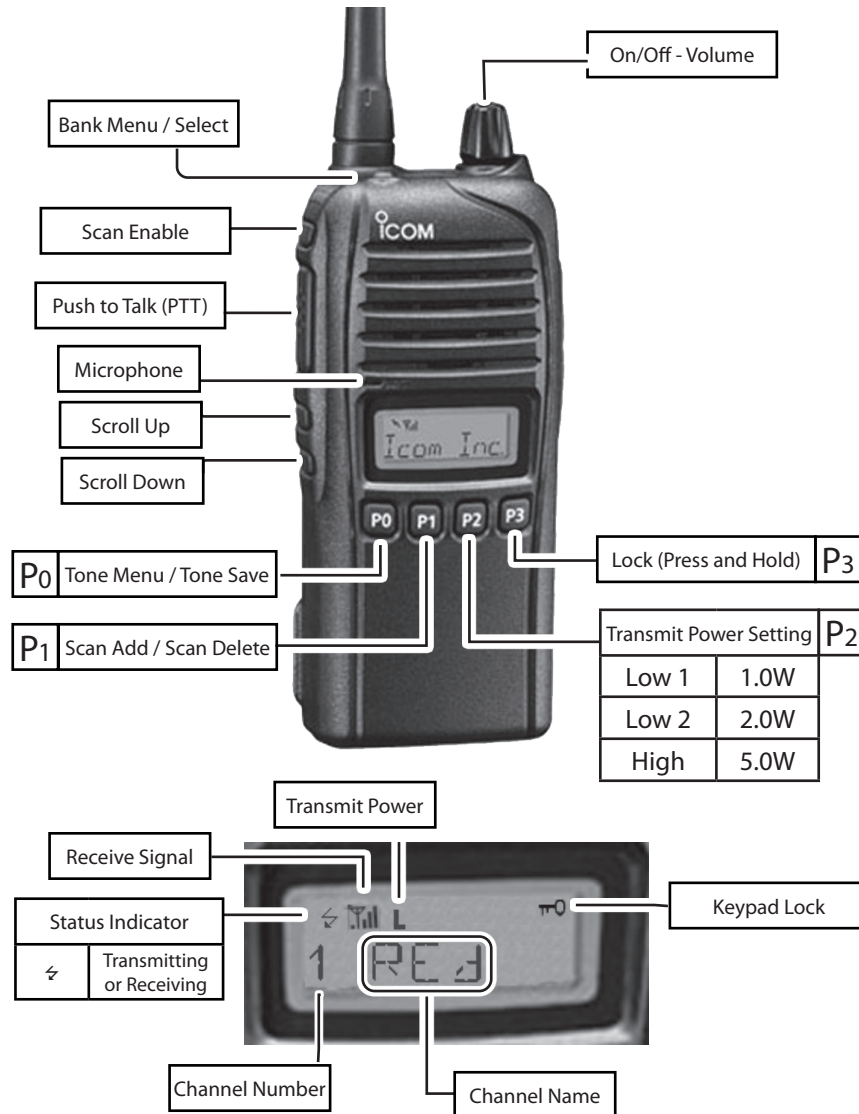


F3261 Handheld



F3033 Handheld

WARNING: F3033(S) handhelds use GLOBAL TONES.
Once a tone is set it affects all banks and channels

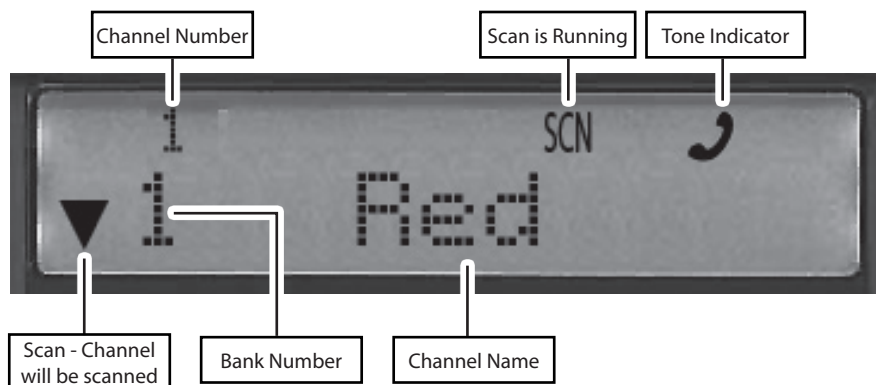
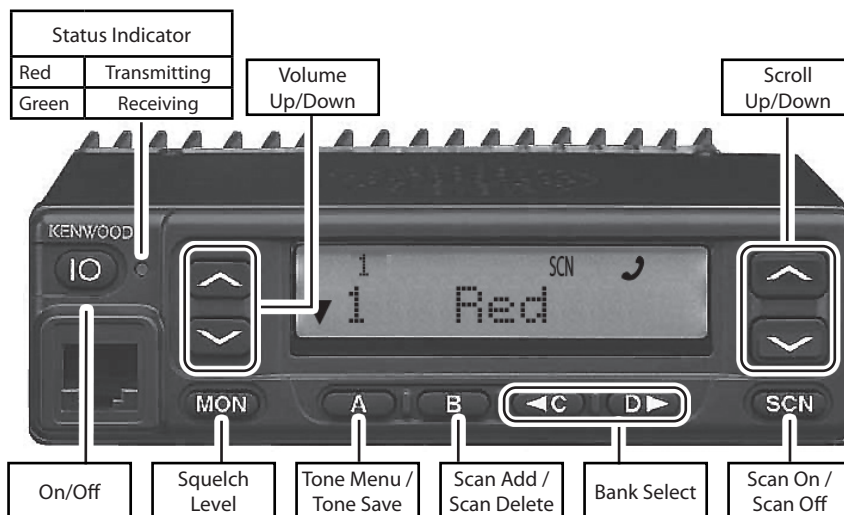




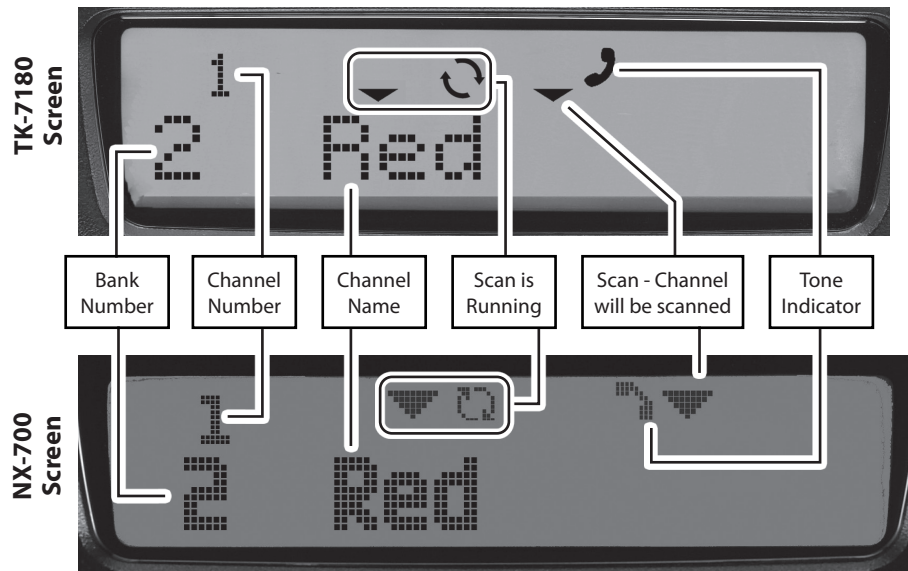
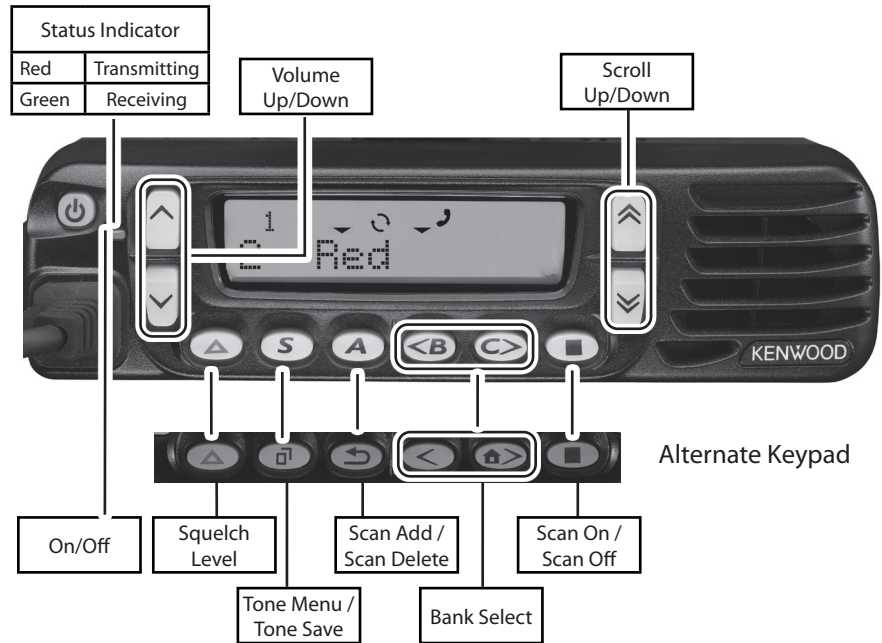
Section II - Equipment



TK-780 - Mobile



TK-7180 / NX-700 - Mobile





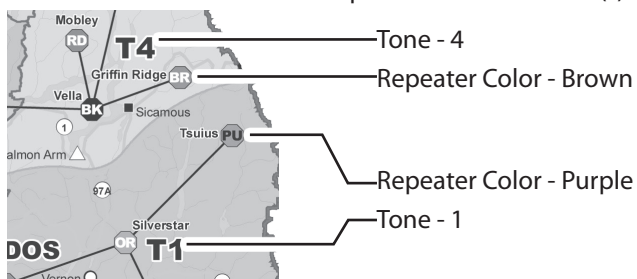
Section II - Equipment



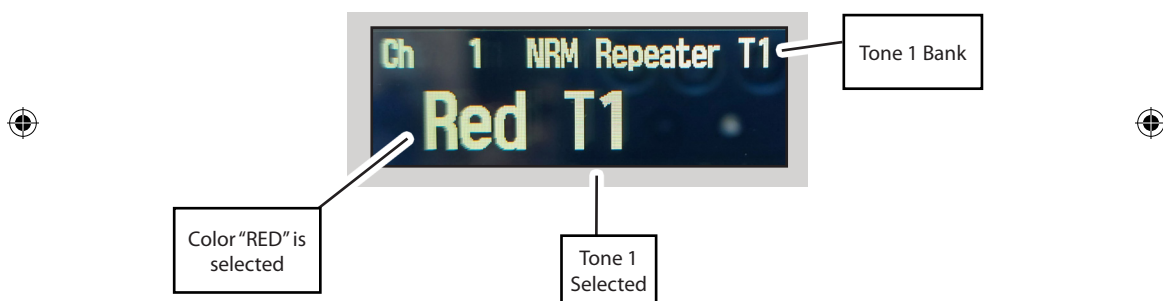
NX-5700 Mobile - Tone Selection

WARNING: The NX-5700 doesn't have the same tone capabilities as previous radio versions. Please see below on how to select tones while using the NX5700

1. **MAP:** Determine the closest 2-3 repeater colors and tone(s)



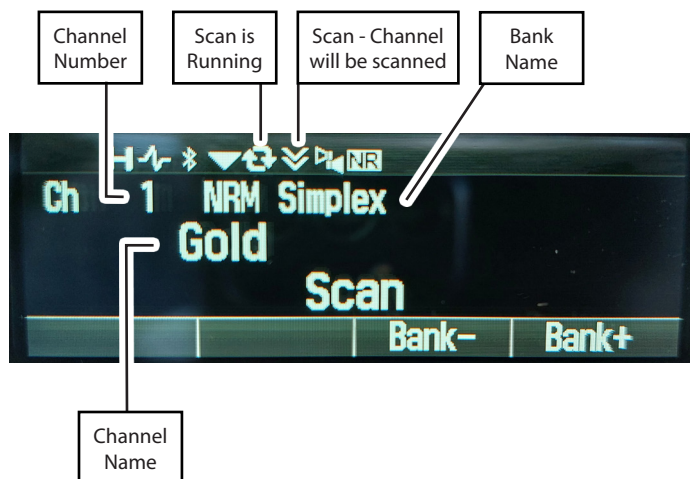
2. **TONE AND BANK:** Select the bank with the tone required



3. **CHANNEL:** Select the channel with the color required
4. **REPEAT** steps 2 to 3 for other repeaters in the area if there is poor or no reception.



NX-5700 Mobile





Troubleshooting Questions

Correct Settings:

- Are you on the correct color (Repeater), or simplex channel?
- Do you have the correct tone for the Repeater you are using?
- Is your radio set to low power?

Batteries:

- Are your batteries failing and old?
- Are they fully charged?
- Are the battery terminals clean and making proper contact?

Antenna:

- Is the antenna snug?
- Is the antenna broken?
- Is the antenna cable broken?



Accessories:



- Is the microphone cable snug?
- Is the microphone cable broken?

Geography:

- Are you in the shadow of a mountain?
- Is the weather different enough to cause a weak signal from a different day to be out of range now?
- Are there other transmission towers in the area to cause interference?



Service Requests

Adding Frequencies - Letters of Authority

For a user to operate on someone else's operational frequency requires an approval, or Letter of Authority (LoA) authorizing use of the frequency – this is an Innovation, Science and Economic Canada (Federal Regulatory) requirement.

RCS representatives will not program a frequency in any radio without this letter.

Adding Users Outside of the Ministry- Access to NRM Repeater system

1. Place an NRM Service Request.
2. Fill out a Natural Resource Ministries FS-1109 form. Available on the RCS Website [QR Code inside front cover]
3. Forward the form to the Radio Superintendent of the Region(s) where you require access - *See Pg 37* for contact info.

How to access our Services?

To initiate a request:

Website - <https://apps.nrs.gov.bc.ca/int/jira/servicedesk/customer/portal/1/group/223>

The website should be the first choice to initiate a request for

- Letters of Authority
- Radio Licensing
- Radio repair, reprogramming, maintenance or spare parts
- Addition and removal of channels from your radio
- Repair and maintenance of the Radio Network repeater system

Email - nrmenquiries@gov.bc.ca

Email is a secondary option if the website is not working

Phone - 1-866-952-6801

The phone option should only be used when immediate assistance is required

**Radio Communication Services Group**

Name	Area	Location	Call Sign
Director - Victoria			
Joel Murphy	Office: 778-698-3594		4RA1
Superintendent - South			
Rowe Barnett	Office: 250-365-8635		4RA2
Communications Technologists - South & South West			
Peter Luijks	South	Castlegar	4RA36
TBD	South	Castlegar	
Arne Hovind	South	Cranbrook	4RA28
Gavin Henry	South West	Vernon	4RA11
TBD	South West	Kamloops	
Peter Rudge	South West	Kamloops	4RA14
Superintendent - Coast			
TBD	Office:		4RA13
Communications Technologists - Coast & South West			
Dustin Boggs	Coast	Victoria	4RA20
Max Amsler	Coast	Victoria	4RA21
Jay Lesosky	Coast	Victoria	4RA32
Duncan McIntyre	Coast	Victoria	4RA22
Kam Abbott	Coast	Nanaimo	4RA27
Kent Horie	Coast	Nanaimo	4RA19
Tyson Gross	South West	Cultus Lake	4RA31
Superintendent - North			
Harold Kelly	Office: 250-847-6332		4RA25
Schuyler Den Dulk	North	Prince George	4RA18
Patrick Zanette	North	Prince George	4RA30
Rob Pigeau	North	Prince George	4RA39
Eric Flack	North	Smithers	4RA24
TBD	North	Smithers	
Kevin Larsen	South	Williams Lake	4RA12
TBD	South	Williams Lake	



Call Sign Assignments

Fire Centres - Call Signs

Location	Usual Call Sign	Legal Call Sign
Northwest	North West Fire Centre	VXC30
Prince George	Prince George Fire Centre	XLT26
Cariboo	Cariboo Fire Centre	XMW333
Kamloops	Kamloops Fire Centre	XLT67
Southeast	South East Fire Centre	VXE24
Coastal	Coastal Fire Centre	VDI758

Northern Interior Forest Region - Base Call Signs

Location	Usual Call Sign	Legal Call Sign
Burns Lake	Nadina	XLT31
Charlie Lake	Charlie Lk Field Office	CIT788
Dawson Creek	Dawson Creek	XLT29
Fort Nelson	Fort Nelson	XMQ85
Fort St. James	Fort St. James	XLT85
Mackenzie	Mackenzie	XLT304
Prince George	Prince George	XMW65
Smithers	Skeena	VBH321
Terrace	XLV67 Kalum	XLV67
Vanderhoof	Vanderhoof	XLT28

Southern Interior Forest Region – Base Call Signs

Location	Usual Call Sign	Legal Call Sign
100 Mile House	100 Mile	XLV72
Alexis Creek	Chilcotin	XLW34
Castlegar	XLW61 Castlegar	XLW61
Clearwater	Headwaters	XLU29
Cranbrook	XLT82 Cranbrook	XLT82
Kamloops	Kamloops	XLT52
Merritt	Merritt	VAQ838
Nelson	XLU76 Nelson	XLU76
Quesnel	Quesnel	XLU72
Revelstoke	XLT78 Revelstoke	XLT78
Vernon	Okanagan-Shuswap	XLV38
Williams Lake	Williams Lake	VEC909

Coast Forest Region – Base Call Signs

Location	Usual Call Sign	Legal Call Sign
Bella Coola	XLZ60	XLZ60
Chilliwack	XMW348 Chilliwack	XMW348
Cobble hill	Cobble Hill	CFR797
Squamish	Squamish	XLU22
Queen Charlotte City	XLZ63	XLZ63
Campbell River	XLV60 Campbell River	XLV60
Port Alberni	XLT40 Port Alberni	XLT40
Powell River	XLT33 Powell River	XLT33
Port McNeil	XLV78 Port McNeil	XLV78
Prince Rupert	XLV65 Prince Rupert	XLV65



Mobile Frequencies			
Channels		Transmit	Receive
RED		163.065	163.935
PURPLE		163.095	163.965
GREEN		163.125	163.995
PINK		163.185	164.055
BLUE		163.215	164.085
ORANGE		163.275	164.145
BROWN		163.305	164.175
YELLOW		163.335	164.205
GREY		163.365	164.235
BLACK		163.395	164.265
WHITE		163.530	162.585
MAROON		163.245	164.115
LIME		164.835	166.335
NAVY		154.965	159.465
FIRE	A1	162.930	167.670
FIRE	A2	162.690	166.710
FIRE	A3	163.905	167.070





Simplex Allocations

Channels	Transmit	Receive
GOLD	163.830	163.830
SILVER	163.890	163.890
COPPER	164.910	164.910
NICKEL	159.270	159.270
BRONZE	163.980	163.980
IRON	168.885	168.885
ZINC	155.850	155.850
FIRE B1	169.950	169.950
FIRE B2	171.030	171.030
FIRE B3	172.050	172.050

*Please note that all frequencies listed are
Narrowband.*



Repeater Maps



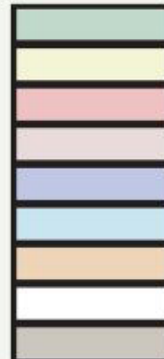
Legend

-  Repeater
-  Repeater with different tone than location
-  Link Only (No Repeater network access)
-  Links
-  District Boundry
-  Cities, Towns, Villages, etc..
-  Major Highways

District Tones

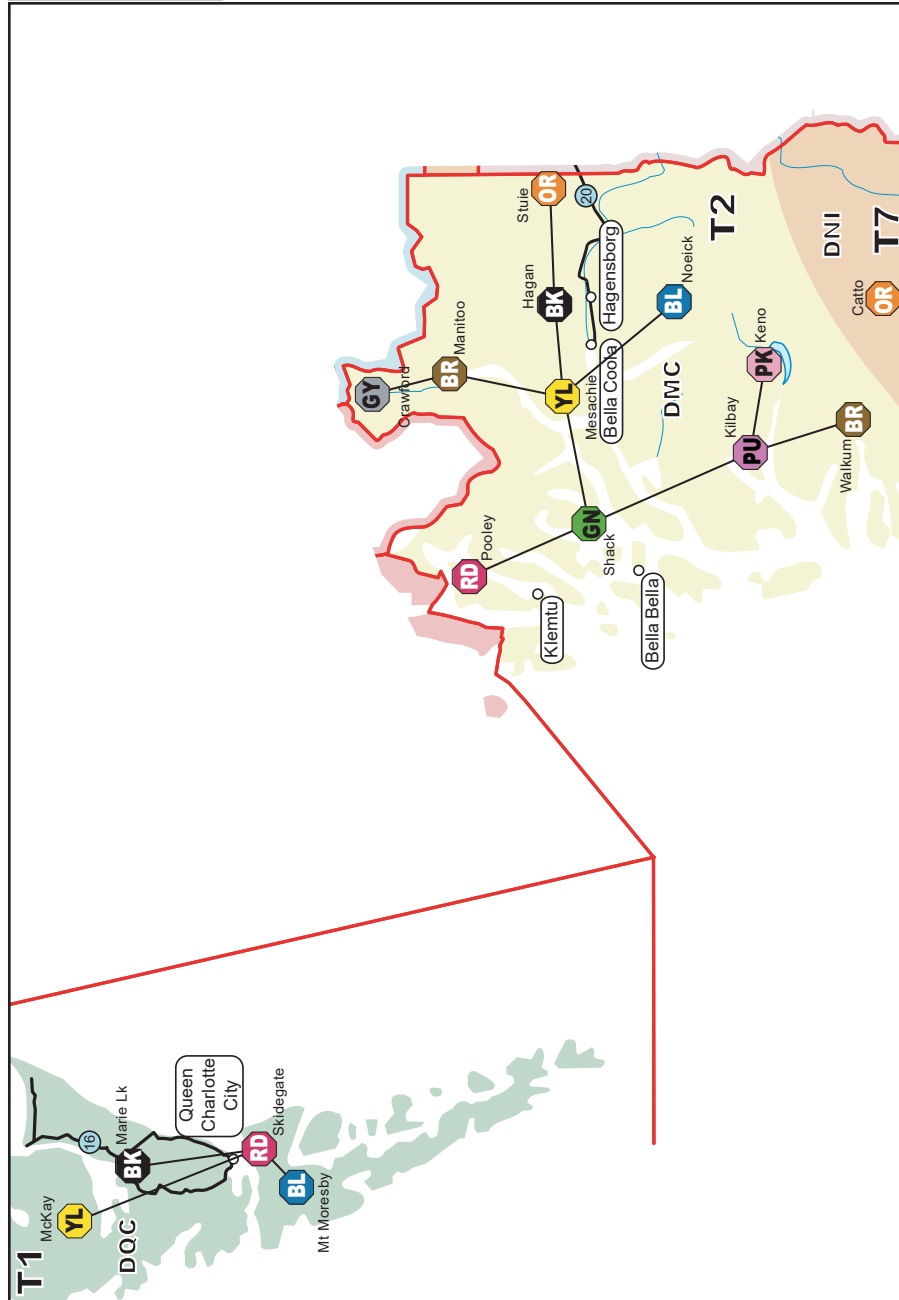
tone# frequency (Mobile encode)

T1	114.8 Hz
T2	123.0 Hz
T3	131.8 Hz
T4	141.3 Hz
T5	151.4 Hz
T6	162.2 Hz
T7	173.8 Hz
T8	186.2 Hz
T9	192.8 Hz



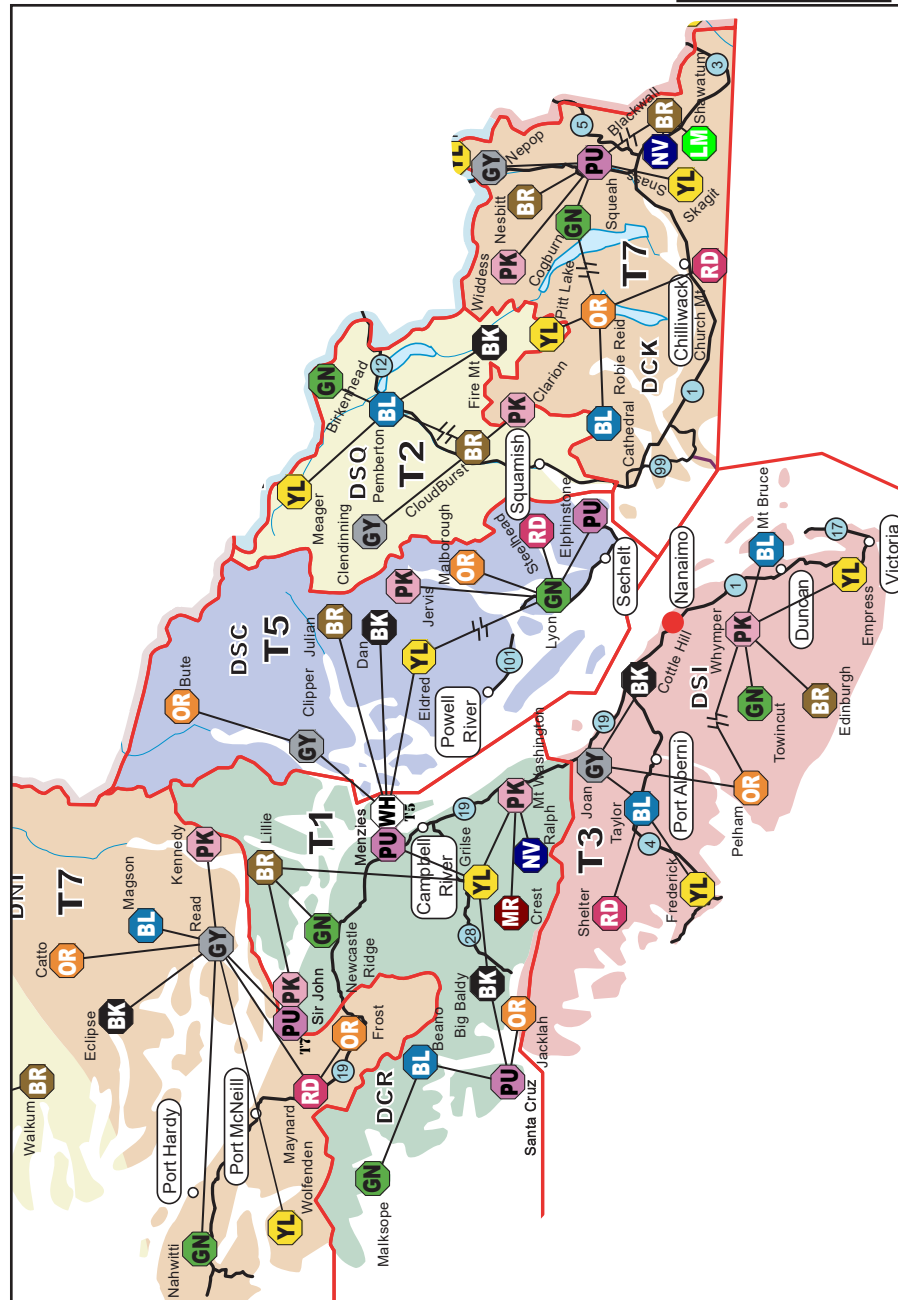


Coastal Fire Centre



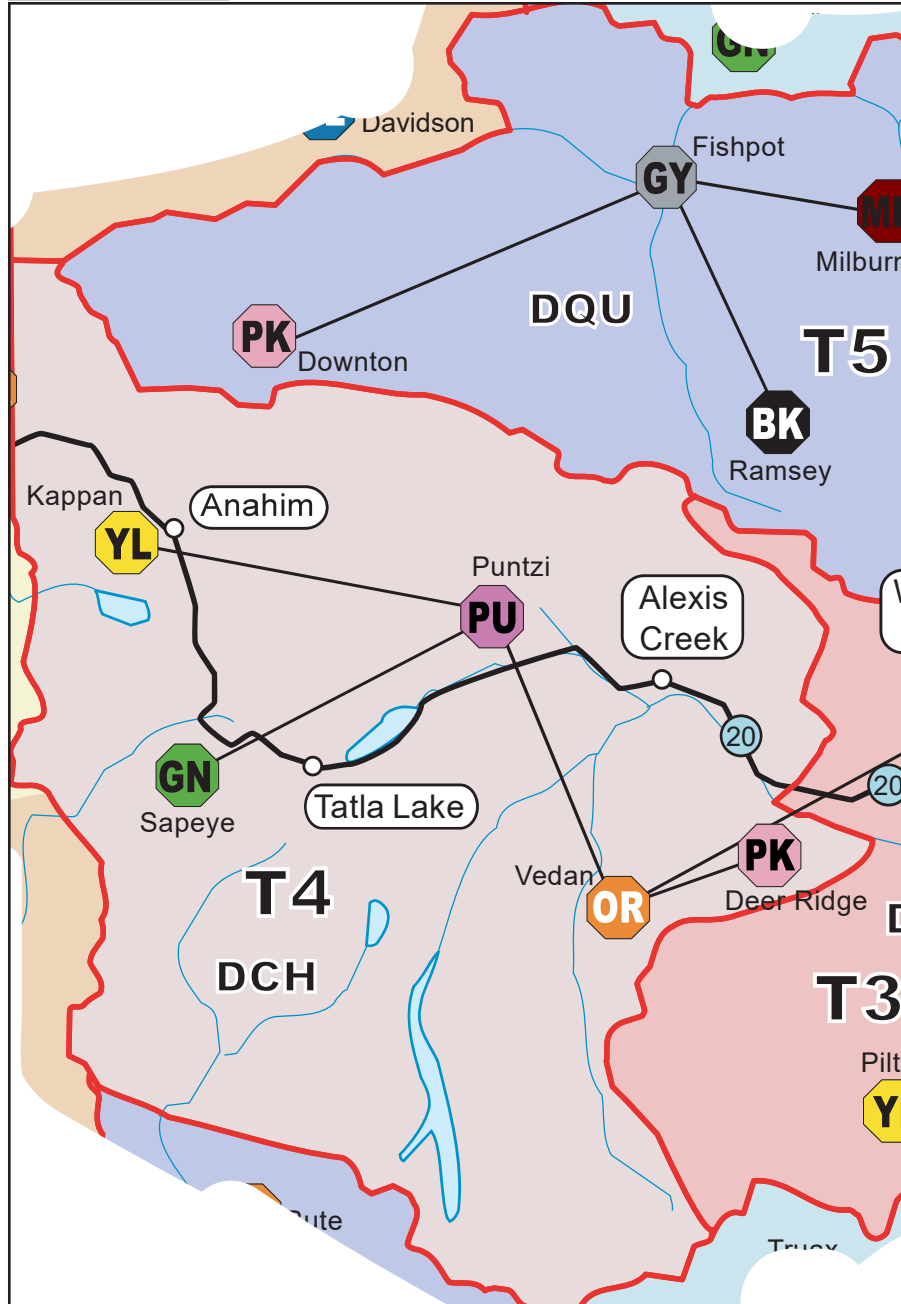


Coastal Fire Centre



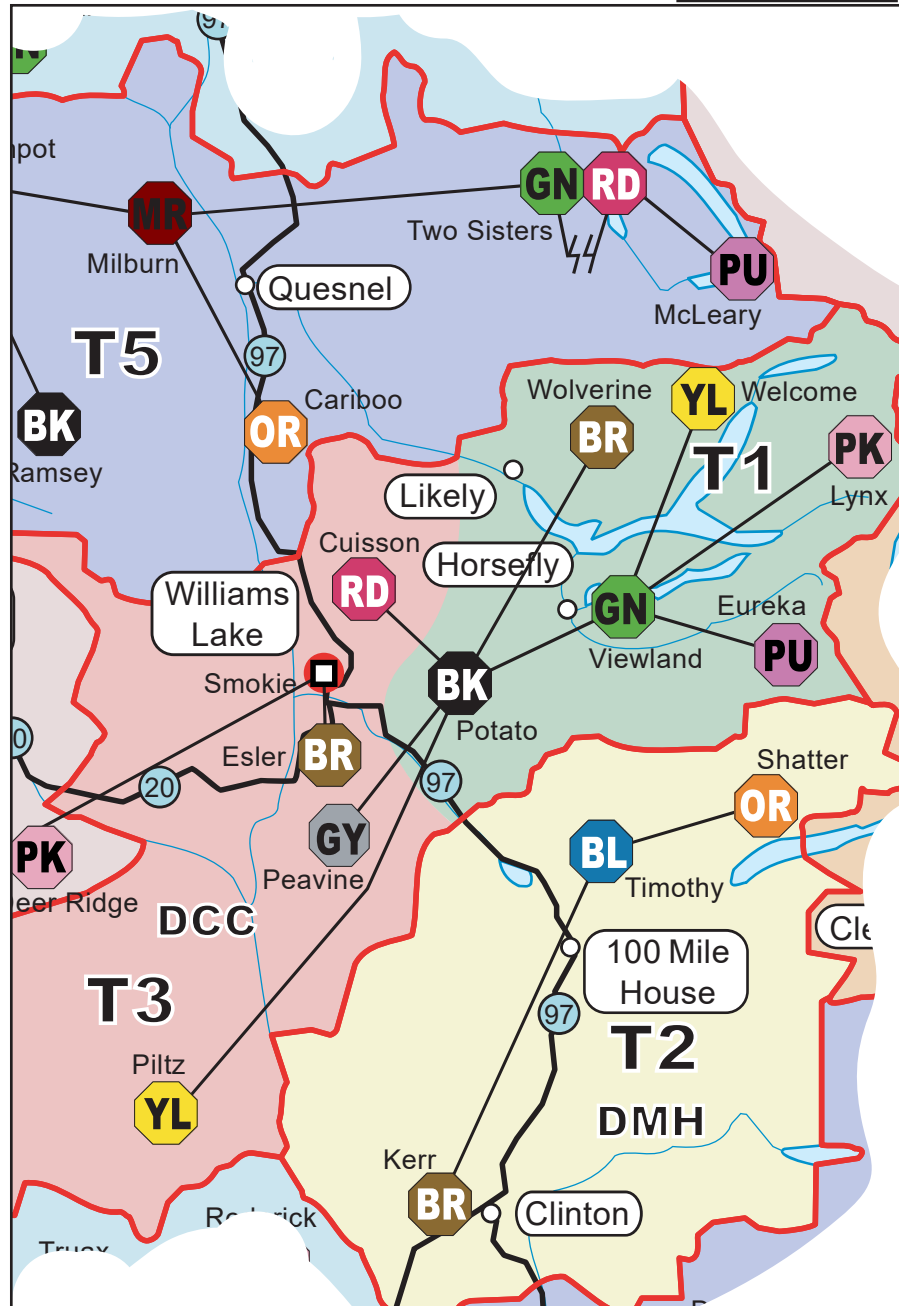


Cariboo Fire Center



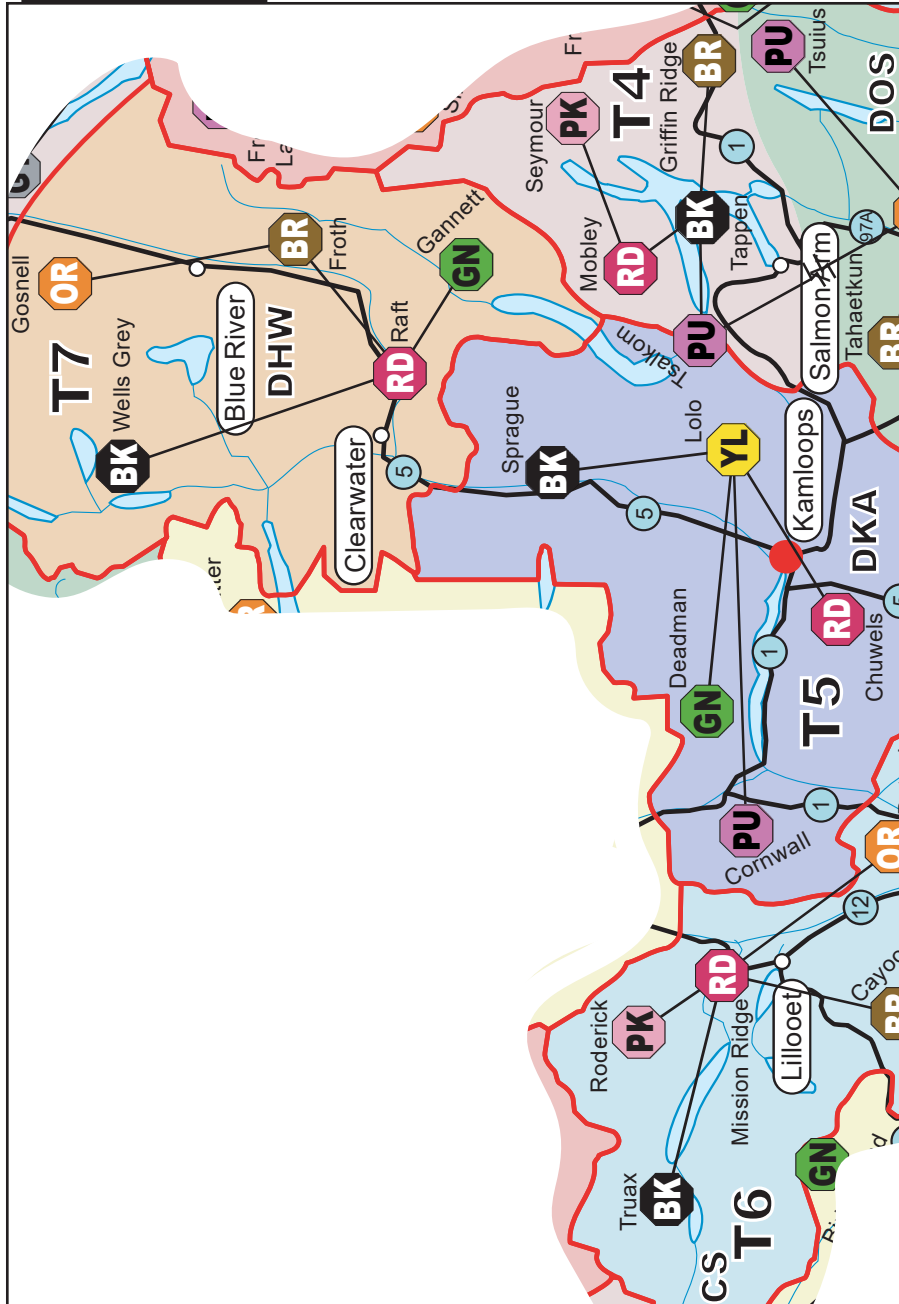


Cariboo Fire Center



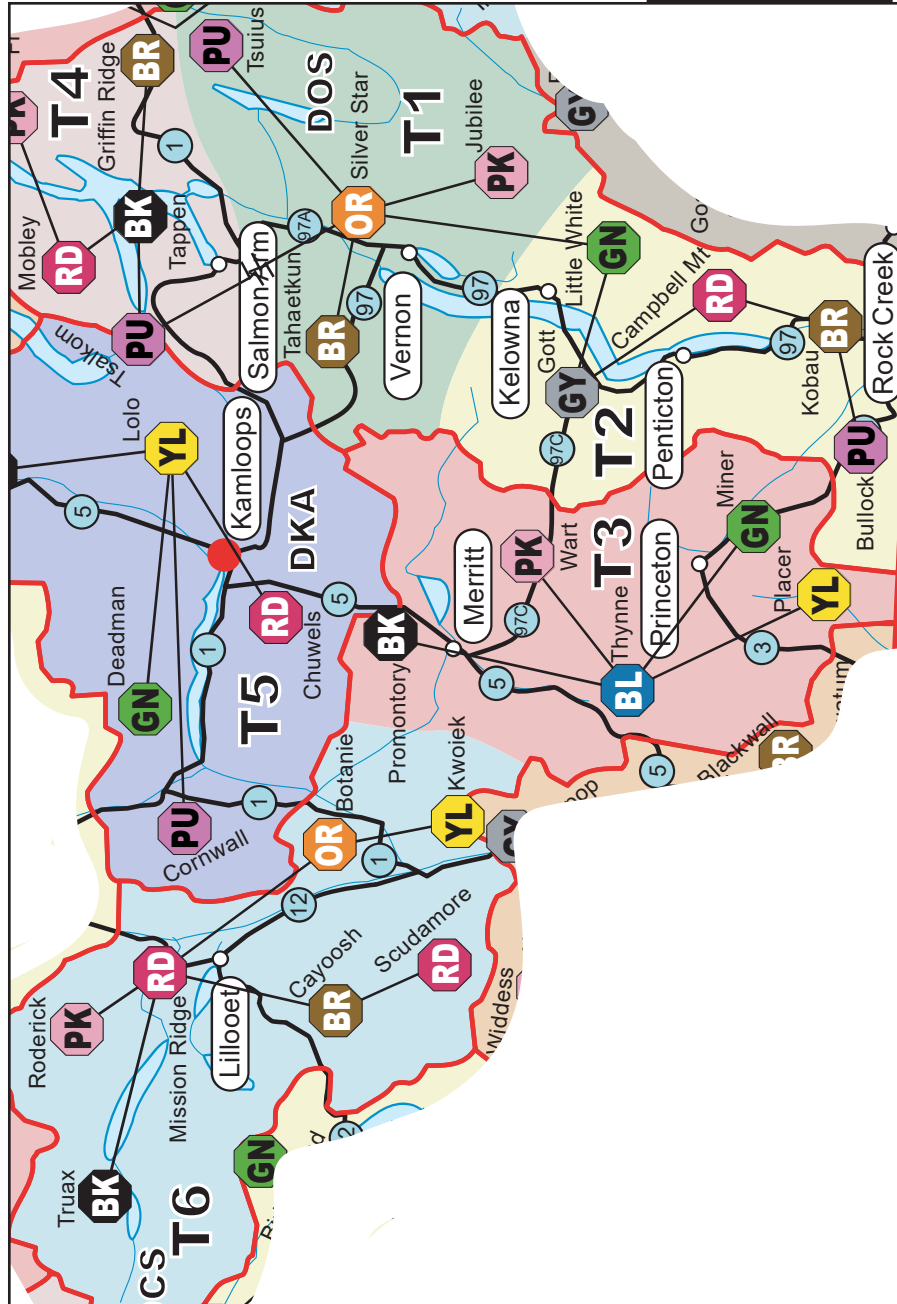


Kamloops Fire Center



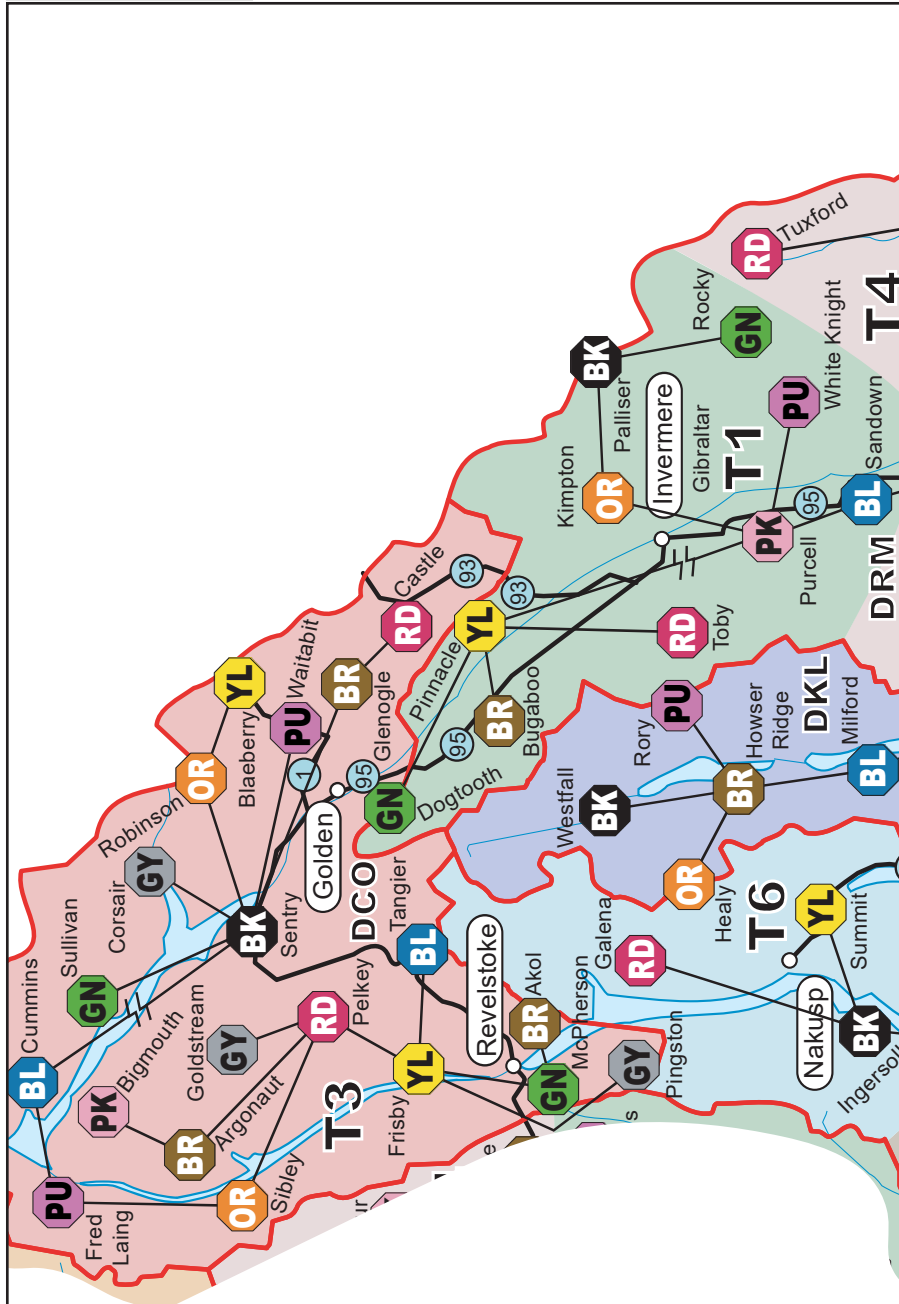


Kamloops Fire Center



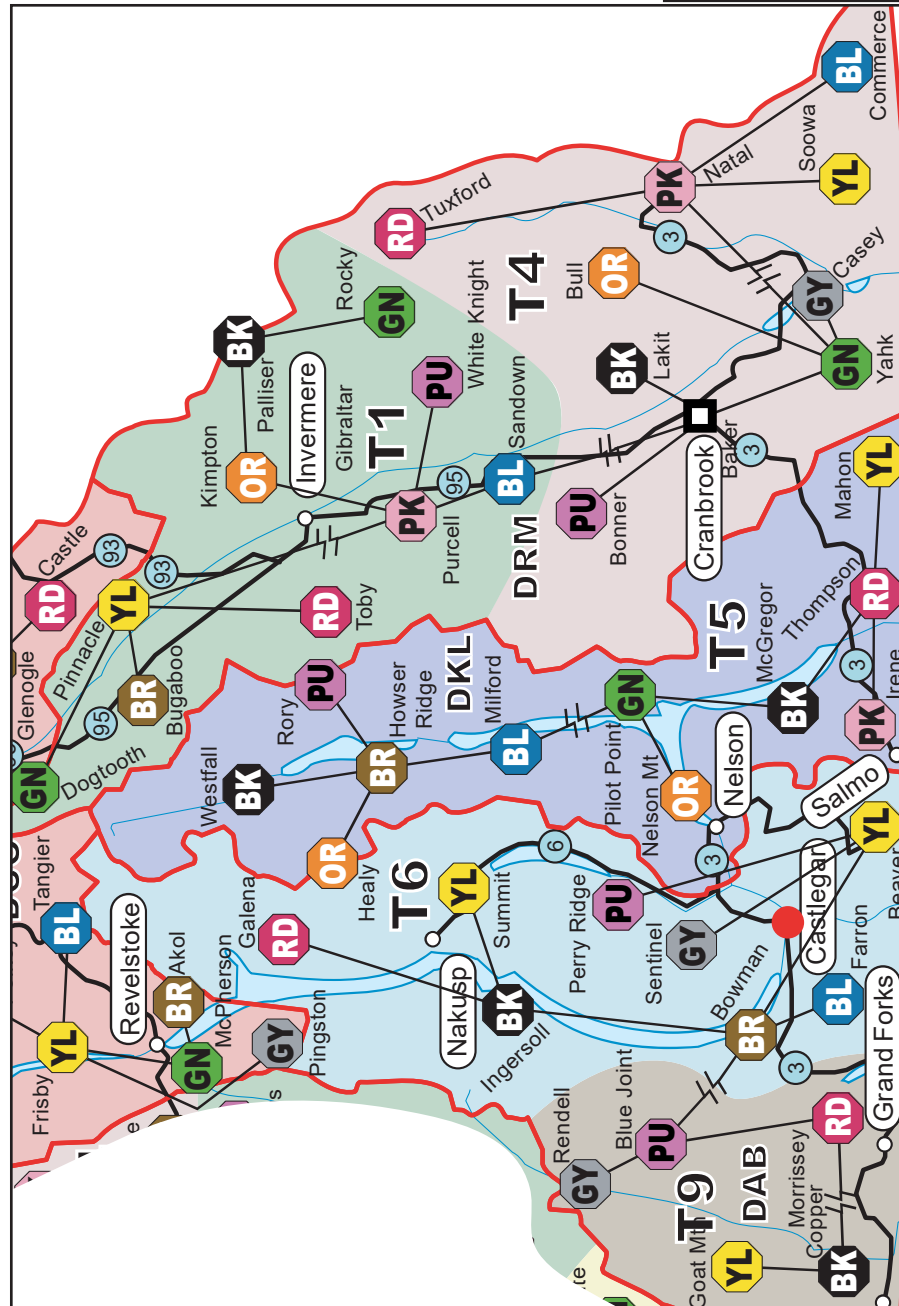


Southeast Fire Center



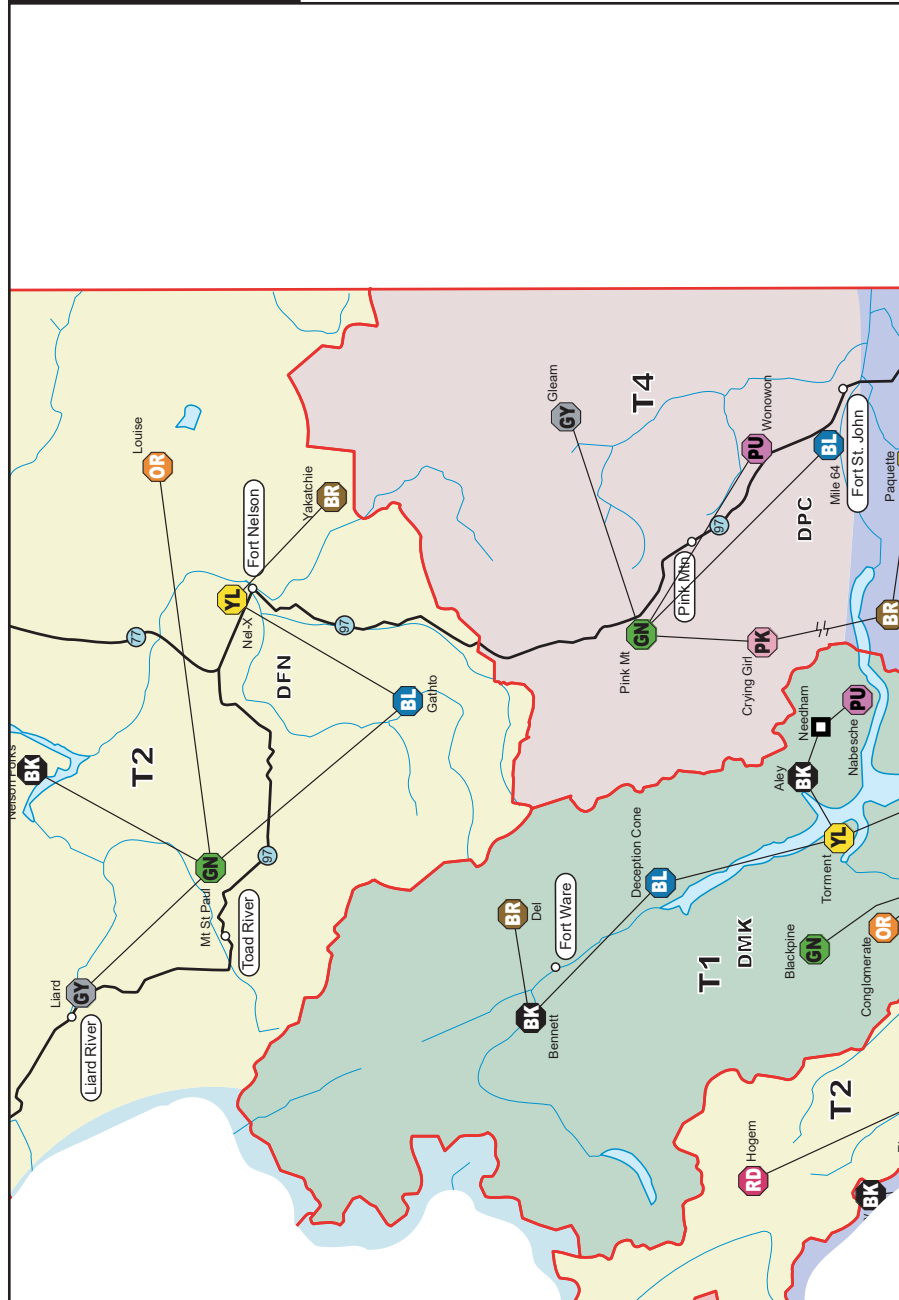


Southeast Fire Center



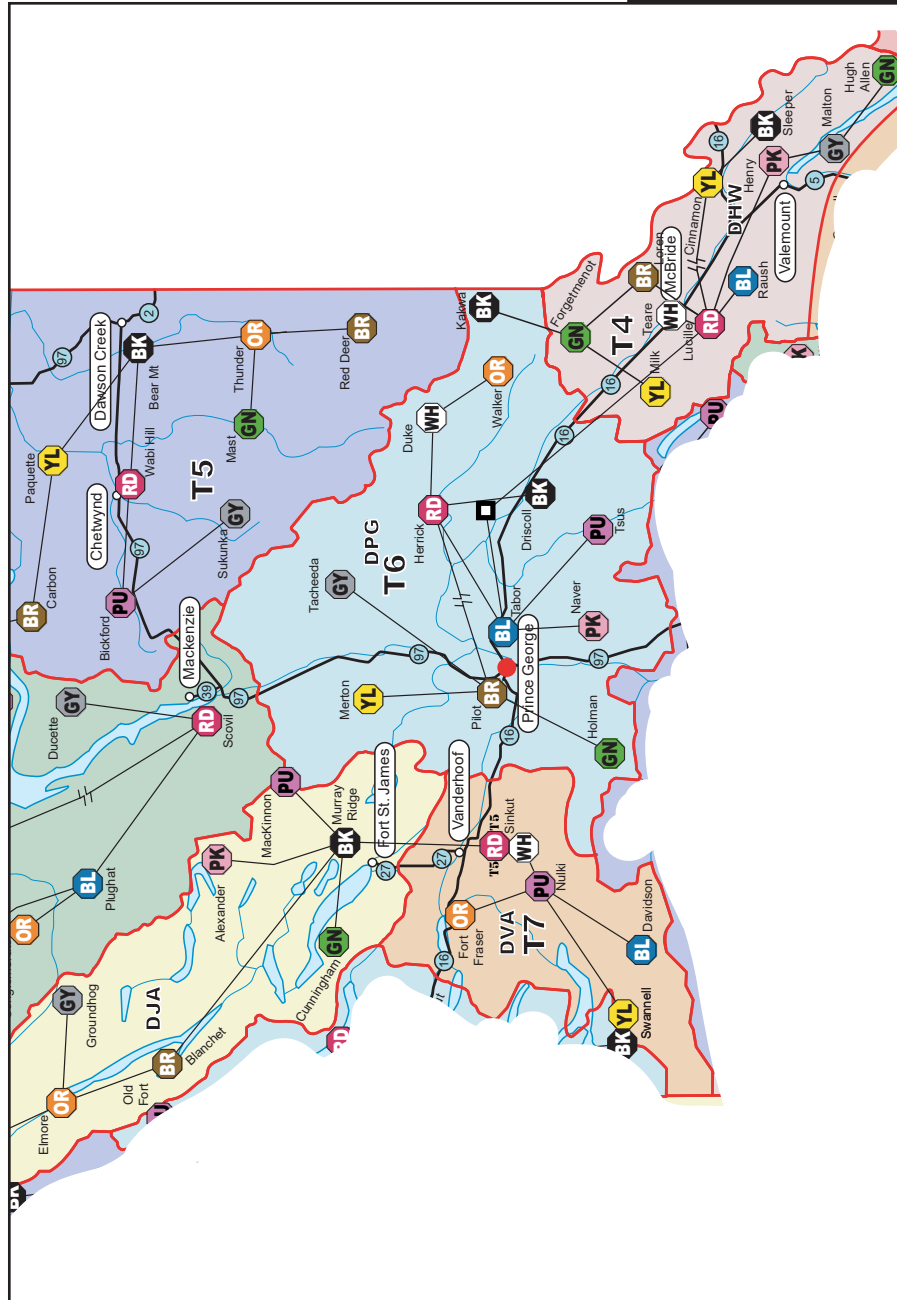


Prince George Fire Center



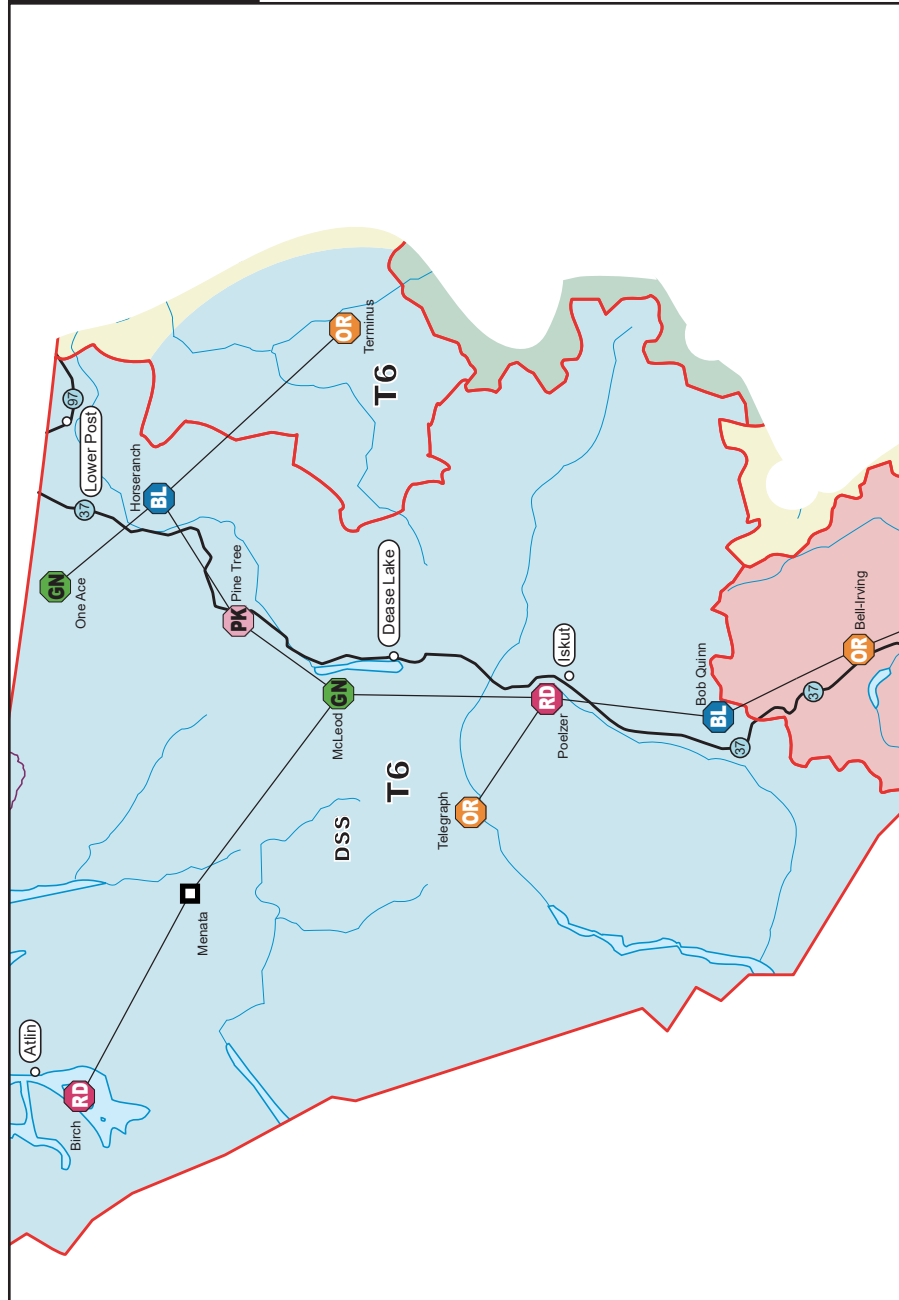


Prince George Fire Center



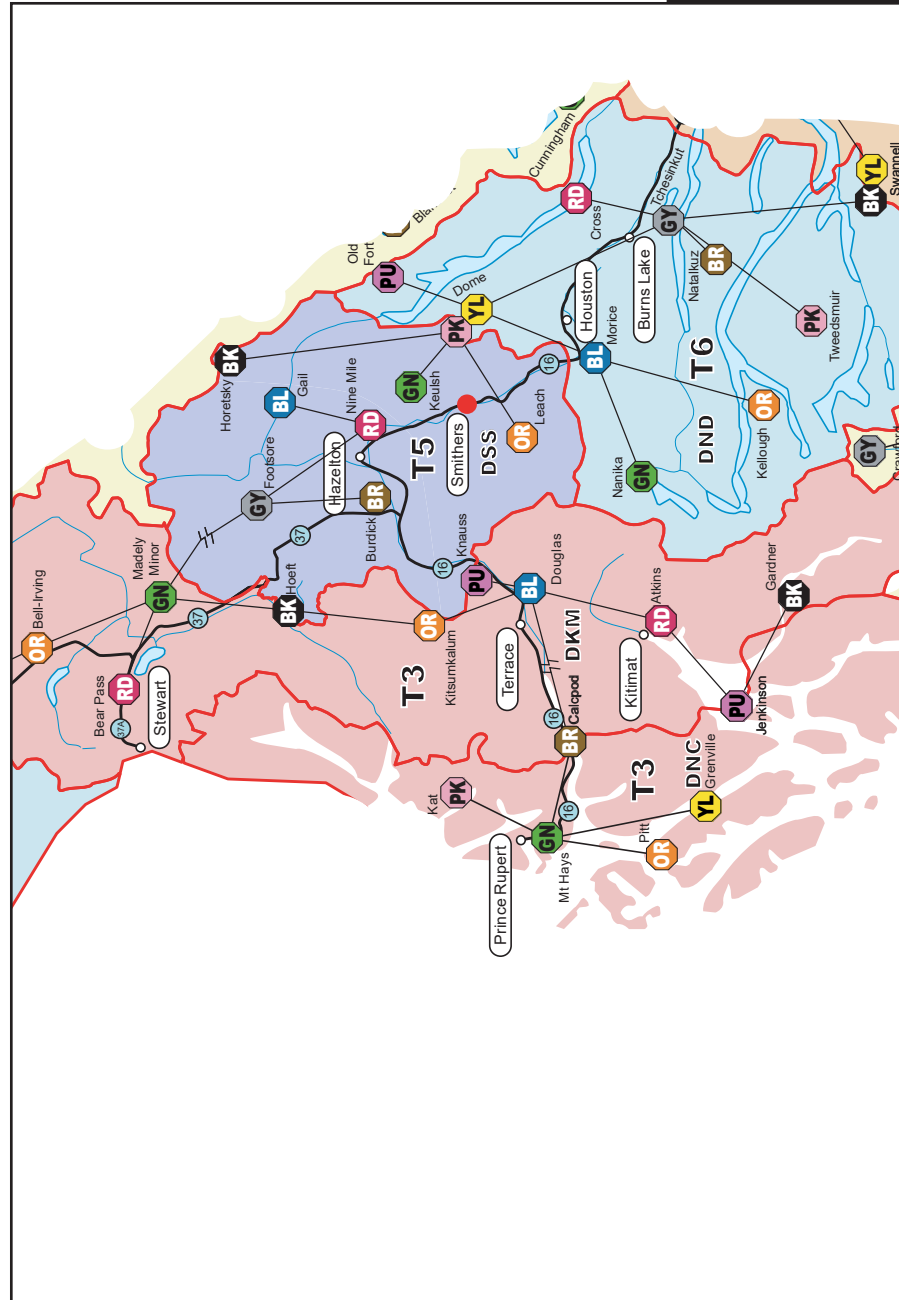


Northwest Fire Center





Northwest Fire Center





Fire Centre Phone Numbers

Name	Location	Phone
Provincial Airtanker Center	Kamloops	250-312-3020
Coastal Fire Center	Nanaimo	250-951-4222
Northwest Fire Center	Smithers	250-847-6600
Prince George Fire Center	Prince George	250-561-4628
Cariboo Fire Center	Williams Lake	250-989-2600
Kamloops Fire Center	Kamloops	250-554-5500
Southeast Fire Center	Castlegar	250-365-4040

