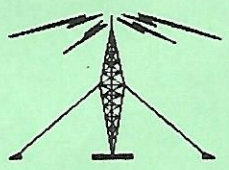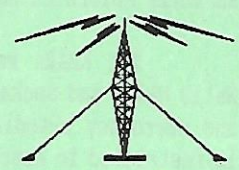# KAMIAK BUTTE AMATEUR REPEATER ASSOCIATION

FROM THE DESK OF THE PRESIDENT AND EDITOR

BY THE TIME YOU RECIEVE THIS NEWSLETTER THE SWAP AND SHOP WILL HAVE STARTED. REMEMBER THAT IT WILL STOP FIVE MINUTES BEFORE EIGHT DUE TO THE NET THAT FOLLOWS KBARA's REGULAR WEDNESDAY EVENING NET. DROP BY AND SEE IF THERE IS ANYTHING THAT YOU MAY BE LOOKING FOR..

SUNDAY THE 12th OF JANUARY, WE STARTED THE SUNDAY MORNING BREAKFAST. I WOULD LIKE TO THANK THOSE WHO HELPED KICK THIS BIMONTHLY EVENT OFF. COME ON OUT AND JOIN US AT THE OLD COUNTRY RESTAURANT ON THE CORNER OF EAST SPRAGUE AND BOWDISH NEXT TO BLOCK BUSTERS VIDEO. ADDRESS IS 11520 E. SPRAGUE, THEY OPEN AT 7am.

DON'T FORGET THAT KBARA's ANNUAL MEETING AND PICNIC WILL BE COMING AROUND IN JUNE. HOPEFULLY YOU WILL BE ABLE TO MAKE THIS YEARS MEETING AND HELP ELECT THIS YEARS NEW OFFICERS. DATES AND PLACE WILL BE OUT ON THE WEDNESDAY EVENING NET. KEEP YOUR EARS OPEN AND COME OUT TO ENJOY THE WEEKEND.

KO7SD   RICH

KBARA SPONSOR APPLICATION

NAME_____ CALL_____CLASS_____

ADDRESS_____CITY_____

STATE_____ZIP_____PHONE (_____)_____

Dues are due January of each year. Dues paid during the last quarter (after Sept. 1) will apply through the entire following year. Applies to renewals, as well as new supporters.

$15.00 per individual — $20.00 per family Multi-year support is accepted. Amounts divisible by $15.00 (or $20.00 per family) will be applied to future years equal to the result of the division.

Address all correspondence to: KAMIAK BUTTE AMATEUR REPEATER ASSN
                                 6812 E. 3rd
                                 SPOKANE, WA 99212

_____

PLEASE FILL OUT THE FOLLOWING: NAME_____CALL_____

ARE YOU ON PACKET? YES_____ NO_____ IF YES , PLEASE INDICATE WHICH BBS (AND ITS CALL) OR THE NODE THAT YOU MY BE REACHED.

_____

WE ARE TRYING TO MAKE A DIRECTORY FOR THE SPONSORS.

REPEATER AUTOPATCH AND EMERGENCY AUTODIAL

The KBARA repeaters, located in Pullman, Walla Walla and Spokane are equipped with autopatch and emergency autodial numbers. Use of the patch is restricted to emergency, priority and health and welfare.

All three repeaters are linked and the autopatch can be used from any one of them.

TO ACCESS THE AUTOPATCH:
    1. IDENTIFY YOUR STATION
    2. Access the patch by pressing *123 on your DTMF touch-tone pad. Expect a dial tone.
    3. When you hear the dial tone, dial your number.
TO CLEAR THE PATCH:
    1. Press #123. There will be a tone confirmation when the patch is hung up.
    2. IDENTIFY YOUR STATION

The following list is the updated/current EMERGENCY AUTODIAL numbers. They are accessed using the two digits shown, FOLLOWED BY a # (pound) sign.

    34# Ferry (Washington) Co. Sheriff
    35# Haugan Scale House, Montana
    36# Shoshone (Idaho) Co. Sheriff
    37# Montana State Police
    38# Grant (Washington) Co. Sheriff
    39# Walla Walla 911
    41# Pullman (Washington) Fire and Police
    42# Pomeroy (Washington) Co. Sheriff
    43# Asotin (Washington) Co. Sheriff
    44# Idaho State Patrol
    45# Whitman (Washington) Co. Sheriff
    46# Pend Oreille (Washington) Co. Sheriff
    47# Stevens (Washington) Co. Sheriff
    48# Weather (Spokane region)
    49# Washington State Patrol

Disconnect with the usual #123
    There is NO general 911. 911 is not included due to the numerous jusidictions covered. This eliminates confusion and delay in response from the appropriate agency. It is a good idea to just tell the person answering the phone, that you are a mobile telephone operation, rather than a ham. This often eliminates further clarifying questioning by the dispatcher.
    Any long distance charges are paid by Art, WB7 AUK. Agencies not listed can be added.

PRESIDENT
KG7 SD   Rich

VICE PRESIDENT
WJ7 F   Bob

SEC'Y
N7 LVO   Neil

TREAS.
KA7 SUZ   Jo Ann

TECHICAL ADVISOR
WB7 AUK   Art

CONTROL OPERATORS
WB7 AVD   Jim
WO7 C   Ruby
W7 IFO   Dick
KA7 SPY   Phil
KF7 VH   Pat
WA7 YCP   Karl
WA5 ZAY   Jack

KBARA is a group sponsoring linked repeaters.

Dues are $15.00 per individual, per calendar year. A family membership is offered for $20.00 for hams living at one address.

Multi-year support donations are accepted.

Address correspondence to:
KBARA
6812 E. 3rd
Spokane, WA 99212

FROM THE PAST BUT WORTH REMEMBERING

GUIDELINES

HAM RADIO IS A HOBBY - AN ENJOYABLE ONE BUT ONE THAT DEPENDS ON HOW WE USE THE AIRWAYS. READ THE GUIDELINES AND REVIEW YOUR OPERATIONS HABITS

1. USE THE WORD "BREAK" FOR EMERGENCY AND TIME-CRITICAL COMMUNICATIONS ONLY. IF SOMEONE SAYS "BREAK" LET THEM USE THE FREQUENCY IMMEDIATELY.

2. WHEN ENTERING A CONVERSATION, WAIT FOR A NATURAL PAUSE, THEN SIMPLY ANNOUNCE YOUR CALL SIGN BETWEEN TRANSMISSIONS. TRY NOT TO ENTER WHEN SOMEONE IS ABOUT TO ANSWER A QUESTION

3. aLWAYS TRY TO HIT THE MACHINE "SOLID". IF YOUR SIGNAL IS WEAK BECAUSE OF YOUR POOR LOCATION OR ANTENNA, DON'T TRY TO HAVE A LENGTHY CONVERSATION UNLESS YOU HAVE AN IMPORTANT MESSAGE. IT IS IRRITATING TO LISTEN TO A SCRATCHY IN SIGNAL FROM A FRINGE AREA.

4. SEVERAL BRIEF CONTACTS ARE MUCH BETTER THAN ONE THAT GOES ON AND ON. SAYING "DOES ANYONE WANT TO USE THE REPEATER" DOES NOT SOLVE THE PROBLEM. MOST PEOPLE WON'T INTERRUPT EVEN A LONG-WINDED QSO TO CALL SOMEONE ELSE.

5. KEEP RADIOS IN GOOD SHAPE AND USE AN ANTENNA THAT DOES THE JOB. DEVIATION SHOULD BE LIMITED TO +/- 5 kHZ AND MIKE GAIN SHOULD BE SET TO MINIMIZE DISTORTION.

6. AVOID TYING UP A LONG-HAUL REPEATER FOR VERY LONG WHEN SIMPLEX OPERATION WOULD DO JUST AS WELL. DON'T WORK SIMPLEX ON A REPEATER OUTPUT FREQUENCY.

7. TRY TO AVOID TESTING ON REPEATER FREQUENCIES, BUT IF YOU MUST, THEN IDENTIFY YOURSELF. REMEMBER, OFTEN YOU'LL BE GETTING INTO A REPEATER EVEN IF YOU DON'T HEAR IT COMING BACK TO YOU.

8. DO NOT KERCHUNK THE MACHINE. IT IRRITATES THE HELL OUT OF OTHERS AND IS ILLEGAL. BESIDES, IT WOULDN'T BREAK YOUR JAW TO IDENTIFY.

9. IF SOMEONE IS MAKING A CALL, GIVE HIS PARTY TIME TO ANSWER. IF HE'S NOT MOBILE, IT TAKES TIME TO GET TO THE MIKE. IF YOU BUTT IN, CHANCES ARE HE WON'T EVEN GET ON THE RADIO.

10. DON'T BE A FREELOADER, REPEATERS ARE EXPENSIVE TO PUT UP AND MAINTAIN. HAMS HAVE FORMED ASSOCIATIONS IN ORDER TO PAY THE BILLS. IF YOU DON'T USE THE REPEATER, FINE. BUT IF YOU DO, THEN IT'S PRETTY ROTTEN TO NOT JOIN AND EXPECT OTHERS TO SUPPORT YOUR HABIT.

11. LEAVE THE "GOOD BUDDY" LANGUAGE BACK ON THE C.B. BAND. PHRASES LIKE "BACK ON OUT OF HERE", "MERCY", "GOT A COPY", "BE ON THE SIDE" AND "10-4" ARE FROWNED ON.

12. MOST IMPORTANT - BE FRIENDLY, COOPERATIVE, AND HELPFUL. WE HAVE A GOOD THING GOING, HAM RADIO IS FUN AND WE MUST DO OUR BEST TO KEEP IT THAT WAY!!!

WORLDRADIO, December 1991
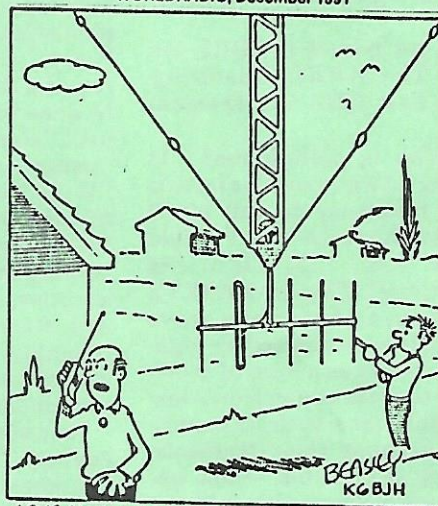
ACME ANTENNA INSTALLERS? --- I'LL BUY YOUR "INVERTED YAGI" INSTALLATION IF YOU'LL COME BACK HERE AND SHOW ME HOW YOU DID IT!

THIS IS "SLIM" McINTYRE --- HE CLIMBS LADDER LINE

Are you a lid—on phone?

JOHN E. GERCKEN, KA9EPO

The following is the second of a series of articles examining common operating habits. Does your operating procedure fall short of proper Amateur Radio operating etiquette?

The lid population continues to grow as amateurs continue to learn poor operating habits from each other. Usually it's the case that proper Amateur Radio procedures were never learned to begin with. The result is our amateur bands sounding like a CB wasteland. It looks like our clubs have their work cut out for them if they want to maintain the honor and respect they have worked so hard for in the eyes of the public.

It does not take long to find lids operating on just about any band these days. I will admit, however, that some amateurs use some lidisms without realizing it, myself included. But one can always learn to break bad habits.

Let's try to take a closer look at some of the most common lid terms and come up with a logical explanation for their use.

One of my pet peeves is "QRZ the frequency." The *ARRL Operating Manual* says that QRZ is a Q-signal meaning "Who is calling me?" It sounds like the lid who uses this term is wanting the frequency to call him?! Sounds pretty dumb to me! I would much rather hear, "CQ CQ ... is anyone out there? This is KA9XYZ calling." Doesn't that make more sense? Q-signals were devised by high-speed CW operators as a form of shorthand in order to cram as much information as possible into their transmissions while keeping their transmissions as short as possible. What use they have on phone is questionable.

Then there is "QR-Mary" and "QR-Nancy." Good grief! The operator should say he has static or interference. In many cases, the use of Q-signals on phone causes more confusion than if the operator had gone ahead and said what he meant in "the Queen's English."

Here is another one which you must be ready for at a moment's notice: "Hi." Never laugh if you find something funny—say "Hi" or better yet, "Hi Hi." It does not take the place of laughter, but it tells the other operator that you know how to laugh on CW! I admit that I am guilty of this one myself, and I am trying hard to break this lidism.

The use of phonetics made up by the operator as he goes is another problem. We have a set of standard phonetics... let's use them *as they are* and not add things to it like "Yokahama" and "Zanzibar." I find it infinitely easier to say "yankee" (only two syllables) or "zulu." I also cringe when "Honolulu" is used instead of a simple word like "hotel." Someone must have stayed up all night thinking up these colorful phonetics just so they could confuse the rest of us with their extra babbling.

I remember when I took my brother along to his first Field Day while he was studying for his Novice ticket. He complained that the other operators confused him by not using standard phonetics, and he even got after me for repeating them back to them. I could see his point very well, and to this day I try to stick as close to standard phonetics as possible, even when the operator I am talking to does not.

Interestingly, it is easy to tell whether an amateur has been in the military, just by listening to his use of phonetics. Here is a good one: "CQ Dog X-ray.' Good grief! Who wants an x-ray of a dog! Why not say CQ DX and be done with it! Military amateurs also use "able" instead of "alpha" and "baker" instead of bravo. Also there's "Willy" instead of "whiskey." A good friend who taught me CW was at our Field Day operation one year and was helping me operate 75M phone. To my surprise, he used a mixture of military and standard phonetics. Not so surprisingly, he had to repeat the club call sign at least twice before the other station understood it.

I am sure we all have heard operators saying, "This is KA9XYZ for ID" on the repeaters. Now why do they put the "for ID" in there when everybody knows that is what he is doing in the first place? Any time you utter your call sign you are IDing!

I have also found a new word which is unique and which hams use quite frequently on the repeaters: "destinated." This (though no such word exists) is used to inform other operators that you are at or close to your destination. Why not just say "I am at my destination" or "I am close to my destination" and sound like there's something between the ears besides QRM!

If we take a close look at our operation, we will see just how silly we sometimes sound on the air. Then we can get serious about our Amateur Radio practices and break these bad habits.

Let's restore the craft of Amateur Radio. We, and those who have gone on before us, have worked very hard to get where we are today. Let's not get lazy and become "glorified CBers." □

AWARDS

Last year at the Spokane Hamfest Bob WJ7 F received a plaque for his outstanding work and support for the KBARA group. At this time we are excepting votes for this years recipient. Do you have someone in mind? Now is the time to vote. Send the name of the individual to:

KBARA
6812 E. 3rd
Spokane, Wa 99212

Votes must be in before March 25, 1992.

BYLAWS OF
THE KAMIAK BUTTE AMATEUR REPEATER ASSOCIATION

June 15, 1991

I. NAME AND PURPOSE

The name of the organization shall be the Kamiak Butte Amateur Repeater Association, hereafter referred to as KBARA. The purpose of KBARA shall be:

1. To provide financial support for a regional linked repeater system on two meters, for Eastern Washington use and to maintain said repeaters for open use by all KBARA members and other properly licensed amateurs and visitors to the area of coverage.

2. To provide support and encouragement for new modes and methods of repeater operation, as interest and association finances allow experimentation in such areas.

3. Keep in mind always that the KBARA system is primarily an emergency system dedicated to emergency use and public service projects first and to open use secondarily.

II. MEMBERSHIP

Membership shall be open to all persons interested in amateur radio communication, and particularly in the radio spectrum at VHF and above.

There shall be only four classes of membership:

1. FULL MEMBER - Pays annual dues. Has full voting rights in all KBARA affairs, including the right to vote by written proxy. Eligible to hold any office.

2. FAMILY MEMBERSHIP - Includes all licensed amateurs residing at the same residence that are members of the immediate family. These members have the same rights and privileges as any full member.

4. HONORARY MEMBER - A membership privilege granted to an individual for special recognition by full 2/3 vote of those present at any regular membership meeting. No right to vote or hold office.

4. LIFE MEMBER - A membership privilege granted to an individual for special recognition by a full 2/3 vote of the membership of the members present at the annual picnic meeting. The Life Member pays no dues and has all the rights of a full member.

A membership may be revoked for malicious conduct or for willfully breaking the laws governing Amateur Radio operation by a 2/3 vote of the members present at a regular business meeting.

Notice of actions to be taken on conferring Honorary and Life memberships or revoking membership shall be given to the membership two weeks prior to the meeting where such action will take place.

III. DUES

Membership dues shall be $15.00 per year. Family membership to be $20.00 per year. The membership year and fiscal year shall begin on January 1 and end on December 31.

The amount of membership dues may be changed by a majority vote of the members present at the annual picnic meeting. Two weeks notice of such pending action shall be given to the membership.

New members joining between January 1 and the annual W7DP Hamfest will receive membership in full for the remainder of the current year. Those joining during the hamfest and after will get the remainder of the current year plus all of the next year, not to exceed a total of 16 months for the first time joiner.

IV. MEETINGS

Weekly membership meeting shall be held each Wednesday on the linked repeater system using the format of a net roll call of the membership. The net shall be run by a net control manager appointed by the president. The net control manager may delegate their control of the weekly nets as necessary to insure that there is a net control operator for each meeting. The purpose of these meetings is to keep the membership informed and to provide a means of arranging for voting action on association activities from a membership that is widely distributed. The basic roll call shall always include the association officers at the beginning and the secretary and/or the president or vice president must be present in order to exercise voting action.

A major business meeting shall be held once a year, normally on a Sunday, in June to known as the "JUNE PICNIC MEETING." The purpose of this meeting will be to meet each other in person; nominate, elect and install new officers; review the association's accomplishments of the past year; and plan the activities of the coming year.

Notice of the place and time of the JUNE PICNIC MEETING shall be announced on the Wednesday repeater nets each week for 8 weeks prior to the date of that meeting.

The club officers are responsible to see that the membership is poled on the weekly nets as to their wishes for a location for the JUNE PICNIC MEETING and then to make arrangements for the site.

V. ASSOCIATION OFFICERS

The day to day affairs of KBARA shall be governed by elected officers consisting of the President, Vice President, Secretary and Treasurer. The officers shall have the power to make decisions, but may not authorize expenditures of more than $200.00 for any one action, with the exception of repeater site rental, without notifying the members of the need for a larger expenditure, on two weekly meetings to voting on it. A 2/3 vote of the members checking into the net that evening shall be required to authorize the expenditure.

VI. DUTIES OF OFFICERS AND COMMITTEES

The officers of the KBARA shall perform the following duties:

PRESIDENT - Presides over all membership meetings and is an automatic member of all committees. Appoints and oversees the progress of all committees. Calls special meetings when necessary and is responsible to see that the membership is notified. Signs checks in absence of the treasurer. Performs public relations functions and represents the association to the community. Provides the interface between the owner of the repeaters and the association.

VICE PRESIDENT - Assumes the duties of the president in his absence. Assists the president in the performance of his duties at his request.

SECRETARY - Keeps and reads the minutes of all meetings and keeps these records available for use by the newsletter committee and other KBARA members on request. Takes care of all KBARA correspondence, and reports such to the president or the vice president in his absence. Provides a condensed report of the years activities at the JUNE PICNIC MEETING. The net control operator is responsible to see that the secretary gets a report of any KBARA decisions that are made during a net meeting when the secretary is not on the net. The net control operator may delegate this duty but he retains the responsibility to see that the secretary gets the report.

TREASURER - Maintains an account of all KBARA money, collects membership dues, and deposits cash to checking account. Pays bills as directed by the president. All checks must be signed by the treasurer or the president. Keeps an itemized account of all money received and disbursed and reports such activity to the president quarterly or at his request. Provides a complete report of the finances of KBARA at the annual meeting prior to the installation of the new officers. Is responsible for the annual internal revenue reports and the annual corporation renewal report form and fee. The president and vice president shall help with getting these reports out.

The following positions and committees may be appointed by the president as the need arises.

NET CONTROL MANAGER - Responsible for the weekly net meetings and getting the minutes if required to the secretary. Appoints net control operators. Keeps record of the paid voting members checking in. Keeps record of the voting if any is conducted in order to insure compliance with the bylaws. The net control operator shall call the roll from the latest roster as provided by the secretary. For voting purposes the secretary shall verify that the voting members are legally eligible after the net and final results shall be provided to the net manager and president before the next meeting or net. Checkins of non-members and visitors shall be taken as time permits after the roll call of members. If there is business to conduct, acknowledge the visitors generally and get the business done first.

NEWSLETTER EDITOR - Responsible for writing/assembling a newsletter pertaining to KBARA affairs and mailing copies to all members. Frequency of publication shall be determined by the officers and the finances. Except that at least one newsletter and new roster shall be provided each year within one month after the annual meeting.

ANNUAL PICNIC COMMITTEE - Polls the membership, makes arrangements and takes care of all preparations well in advance of the June picnic.

AWARDS COMMITTEE - Responsible for obtaining plaques and awards.

VII. NOMINATIONS AND ELECTIONS

Nominations for the offices of president, vice president, secretary and treasurer shall be made from the floor at the annual June picnic meeting. Nominations and voting will be done by the members and proxies present at this meeting.

Elections and installation of the new officers shall take place immediately after the nominations are closed. Voting will be accomplished by written secret ballot. All voted proxies must be written, assigned and validated by the secretary prior to being cast.

Nominations shall commence at 10:00 A.M. on the day of the June Picnic Meeting in order to accommodate the maximum voter attendance.

New officers will be installed and will take control after the close of the business meeting. A meeting of the new and old officers shall immediately be held to arrange for the turnover of the association records and the transfer of signatures.

In the event of a vacancy in one of the offices, the president shall appoint a replacement who shall serve the remainder of the term. The vice president shall take over as president in the event of a vacancy in the office of president. He then will appoint a replacement for the office of vice president.

Officers may be recalled by a majority vote of the membership present at a meeting to be held one month after the announcement of 4 weekly nets of the time and place of the recall voting.

VIII. AMENDMENTS

Amendments to these bylaws may be made by a majority vote of those present at the annual picnic meeting in June. Proposals for the amendments must be submitted to the secretary in writing two months prior to voting on said amendments. All members must be informed of the proposed changes on the weekly nets held during the 4 weeks preceding the annual June meeting at which the vote will be taken.

This is some of the information that will be sent to new sponsors. Hopefully, this will answer some of the questions about the system.

Welcome to the Kamiak Butte Amateur Repeater Association, KBARA. We are pleased that you have joined, KBARA is one of the largest linked repeater groups in the northwest (per area covered). KBARA maintains five repeaters in this system. The 147.28 repeater on Pikes Peak in Walla Walla, the 146.74 repeater on Kamiak Butte north of Pullman, and the 147.36 repeater on Stenger Mt. west of Chewelah. These three repeaters make up trunk 8 of the Evergreen Intertie. They can be linked through our 147.38 repeater on Mica Peak south of Spokane, and our 147.02 repeater which is located on Lookout Pass at the Idaho and Montana border.

Autopatch on trunk 8 is primarily an emergency system for areas covered on the reverse side of your sponsorship card. If new areas are added to the coverage you will be informed through the quarterly news letters or by checking into the Wednesday evening net.
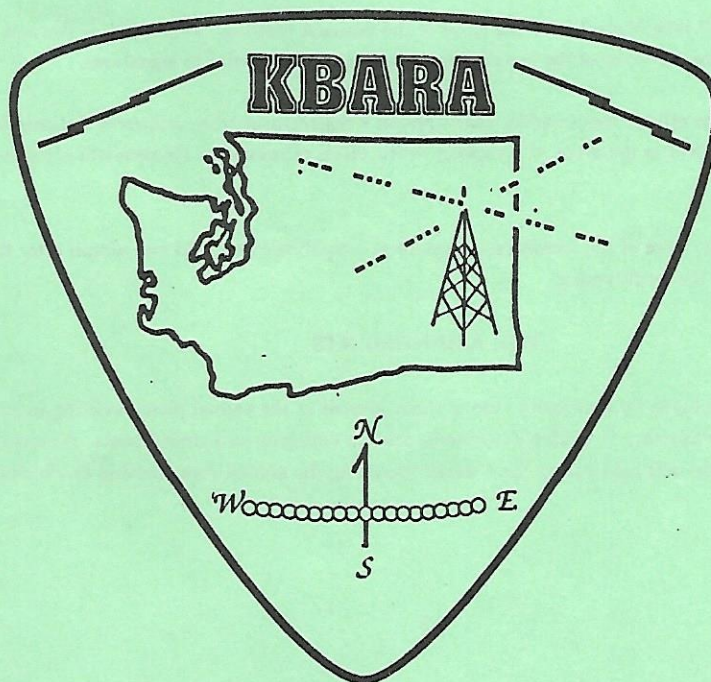
CANADA

BRITISH COLUMBIA

ALBERTA

MONTANA

WASHINGTON

147.36
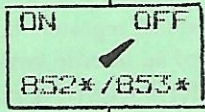STENSGER MTN.
WEST OF CHEWELAH

147.38
MICA PEAK
SPOKANE

147.02
LOOKOUT PASS

146,74
KAMIAK BUTTE

IDAHO

147.28
PIKES PEAK

SPOKANE

MICA PEAK
WB7 AUK
147.38

STENSGER MTN
WB7 AUK
147.36

ON   OFF

852*/853*

Trunk 8

ON/OFF

010*/011*

LOOKOUT PASS
WJ7 F
147.02

EAST-WEST TRUNK

ON   OFF

850*/851*

KAMIAK BUTTE
WB7 AUK
146.74

PULLMAN
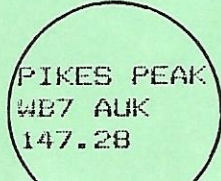
PIKES PEAK
WB7 AUK
147.28
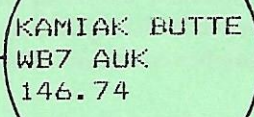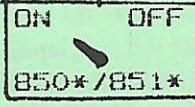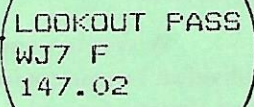
WALLA WALLA

Evergreen Intertie
Operating Instructions and Codes
June 1991

The Evergreen Intertie is an interconnected group of amateur radio repeaters located in the Northwestern United States and Western Canada. FM repeaters operating in the VHF and UHF bands are interconnected (linked) by full duplex UHF radios. The network is open to all licensed amateurs, and access codes will be made available locally at the discretion of the groups sponsoring each system repeater. Its use, by law, is restricted to amateurs but design, construction, and repair are open to all.

Technical Introduction

The Evergreen Intertie is a repeater linking system with a mixture of various connections and equipment types. In general, repeaters which make up the system can be operated independently or they can be switched onto common communications trunks or party lines. A repeater that is switched onto a trunk line can communicate with any other repeater that also happens to be connected to the same trunk. There are a number of different and independent trunk lines that make up the Evergreen Intertie. Normally these trunk lines are separated by "*Intertie*" switches which allow repeaters on one trunk to communicate without interfering with a simultaneous conversation among repeaters on another trunk. If the Intertie switch were closed i.e. switched to the "*on*" position then all listeners on both trunks could participate in a single conversation. The more trunk lines that are tied together the more potential listeners there might be, but still only one person can talk or transmit at a time per trunk or per group of intertied trunks. To establish the various repeater link connections <u>users</u> of the system must send commands to an Intertie controller commanding it to add or drop repeaters from the Intertie, turn on or off Intertie switches or to interrogate the current switch positions for a specific Intertie link controller.

In order for a repeater to participate on the Evergreen Intertie, it must have a link port available on its own repeater controller. Through this port, audio and keying signals are made available for interfacing with an Evergreen Intertie controller. The E.I. controller is a computerized switchboard that monitors and controls the routing of audio and keying signals for the repeaters or link radios that might be attached to any one of its six ports.

Three repeater ports have user switches for connecting or isolating repeaters on the Intertie. A typical configuration uses the Intertie switch to isolate the three link

ports from the three repeater ports as is done for the Longview/Kalama repeaters but this is not always the case. Hardware configurations allow any combination of three ports on each side of an Intertie switch. Major components of the controller include a DTMF touch-tone decoder, an EPROM state machine for interpreting commands, an audio mix and switch card for mixing receiver and transmitter audio signals, and a microprocessor that monitors activity on all six ports and routes audio and keying signals appropriately. The microprocessor also performs identification and switch confirmation using morse code.

A system of mostly 4 digit command codes has been developed to control each of the 4 user switches on an individual Intertie controller. The first digit (x) is a *region* code. The numbers 7 and 9 are used in British Columbia, 8 is used Washington and Oregon. The number 1 is used in Montana. The second number in the command is a *site* specific code (y) within each region. Seattle uses the number 0. Number 5 is used in Spokane. The third number commands a specific switch either *on* or *off*. On, refers to the switch being thrown to the closed position. The numbers 0 and 1 toggle on and off the intertie switch. Numbers 2 and 3 toggle on and off the first repeater port and so on. The fourth digit is a * used in all cases to identify the end of a command. The command 804* for example would be used to turn <u>on</u> the K7NWS 220 MHz repeater since it is connected to the second repeater port of the Seattle (Tiger MT) controller (80 region and site). If the command was received correctly, the controller will respond with a morse code (~20 wpm) confirmation of the switch change. Confirmation includes the callsign associated with the controller followed by the letter "N" or "F" depending on whether the on or off code was sent. In our example above, the confirmation: "K7NWS N" would be given. If a switch is already in the on state and you send the on code, no confirmation will be given. The same applies for already off switches command off again.
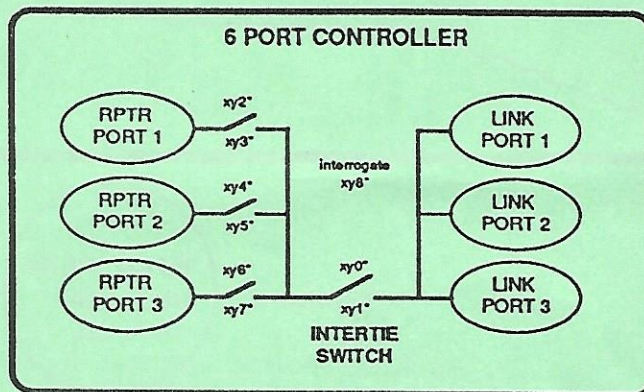
In addition to four on/off type switches the controller also offers an *interrogate* feature. This command always uses the number 8 as the third digit in the command sequence. The command does not change the current state of the controller, however it generates a response that indicates the on or off position of all four switches. Issuing the interrogate command for Seattle by sending 808* might initiate the following response: "K7NWS FNFF". The first F of the FNFF indicates that the first switch, the intertie switch is in the of<u>F</u> state. The next letter N indicates that the first repeater switch, in this case the 145.33 repeater switch is in the o<u>N</u> position. The third and fourth F's indicate that the 220 MHz K7NWS repeater connected to the 2nd repeater port and the UHF repeater WA7HTJ connected to the 3rd repeater port are both switched to the of<u>F</u> position. Each successive F or N in the interrogation response is produced at a higher audio pitch making it easier to distinguish the four switch positions.

The DTMF touch-tone decoder scans receiver inputs from all six ports listening for valid touch tones. Once a valid touchtone is received at any one of the 6 ports, the scanner pauses on that port so that the tone decoder can listen for additional tones. Since the scanner requires approximately 300 milliseconds to scan all six of the controller ports, the first tone of a command must be held long enough (½ second) to make sure that the tone decoder acquires the tone. After the first tone, additional tones can be sent in quick succession.

In most situations, a two meter repeater is connected to repeater port 1. The repeater, its controller, and the Intertie controller are physically located next to each other at the repeater site. A repeater connected to the 2nd repeater port may or may not be located physically at the same site even though its drop switch is. This is the case for the Ocean Shores, WA repeater. It is physically located out on the Washington coast however, the intertie controller is located in Olympia at Capitol Peak. The controller's microprocessor knows to identify the repeater drop switch response using the Ocean Shores repeater call sign, W7ZA. Interrogation responses use the home repeaters callsign, or in this case K7CAH. Audio and keying signals are transferred between the two sites via full duplex UHF link radios that are transparent to the user. Once you've remembered the region and site codes and you know which ports the particular repeaters are connected to, its easy to remember the entire set of command sequences for a particular site. Examine the schematic representations of the Evergreen Intertie in Figures 1, 2, and 3 for a complete list of repeaters and codes.

Courtesy Tones

When listening to your favorite Intertie repeater it would be nice to know if the person that's talking is using the same repeater you're listening to or if that person is using a different repeater somewhere else on the Intertie. Courtesy tones indicate switch status and link activity. Depending on the sophistication of the repeater controller a number of different courtesy tone signals might be heard. On the BEARS repeater, 145.33 in Seattle, sine wave courtesy tones are used. A single tone (1000Hz, 300ms) indicates that 145.33 is separated from the intertie or switched off the link. A simultaneous dual tone (675Hz and 536Hz, 200 ms) means that the repeater is on the link and someone unkeyed on 145.33. A sequential two note courtesy tone (675Hz, 100ms and 536Hz, 100ms) indicates that another repeater unkeyed somewhere on the link. Other repeaters in the system that use BEARS designed repeater controllers generate a short low pitched beep to indicate link activity. Consult your local repeater control operator for courtesy tone information in your area.

Getting on the Air

The system is an exercise in fun, education, and experimentation. A radio with a touch tone generator keypad is required to operate the Intertie switches and repeater drop switches. Proper identification is important. When you wish to operate a system switch, first give the callsign of the repeater you are controlling, then your callsign. Next announce the control function you are about to operate and then send the tones all in one transmission. For example; "K7NWS this is W7XYZ bringing 2-meters on line <TONES>." Some groups have implemented a voice detector/recorder that will not decode tones unless a voice ID precedes the tones. A control operator may interpret a series of unidentified touch tones as harmful interference so please identify before entering tones.

By agreement with local repeater groups, a standard system configuration has evolved whereby certain repeaters are normally switched on or off the Intertie. These switch positions are indicated in the Intertie architecture diagrams of Figures 1 thru 3 and should be returned to their normal position when you're done using the system.

Each switch command requires a sequence of four tones, where the first of which must be held for a <u>half</u> <u>second</u> followed by the other tones in quick succession. You should then drop your carrier and listen for a system ID that will confirm a successful switch operation. A call sign followed by an "N" (switched on) or "F" (switched off) means you successfully operated that switch. If multiple switch settings are required, enter another command sequence for the next switch <u>after</u> confirmation of a successful previous switch operation. If you are not successful try again or interrogate the switch position. You will get a confirmation only if you throw a switch from on to off, or off to on. If you get a warble "raspberry" tone this means that a control operator has disabled the local 2-meter connection to the intertie for some

reason. Also, each switch can be locked by a control operator to prevent further changes. If you have frequent problems operating the system switches you should have your tone deviation level checked for ±2.5 KHz maximum deviation.

In general if you bring up a link to listen in or to call someone you should take it back down when you're through. If you find a link left on, inquire first if someone is using it to listen before you decide to drop it. When bringing a repeater onto the system announce your intentions before doing so and listen for any objections. The Newcastle link (730*/731*) is solar powered and should be left off unless you wish to make a call.

Switches must be turned on or off in logical order. For example, a connection of the 145.33 BEARS repeater to the 145.47 Capitol Peak repeater normally requires 800* then 820*. The fact that a link is established is indicated by the Intertie controllers issuing morse ID's: K7NWS N, and K7CAH N.

Another more complex example is the connection of the 145.33 repeater in Seattle to the 224.44 Kalama repeater. In three separate transmissions, send 800* then 830* and then 834*. The system will ID after each successful switch operation. The Campbell River/Newcastle Ridge link can be added to the connection by sending 720* and 730*. There are no special codes to access these two Canadian repeaters because they are hard linked onto their local trunk. Switches should be turned off in reverse order so that one does not become isolated from a distant switch and leave it on.
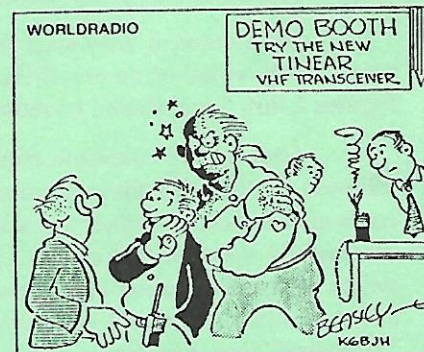
Beasley's Wild World of Amateur Radio
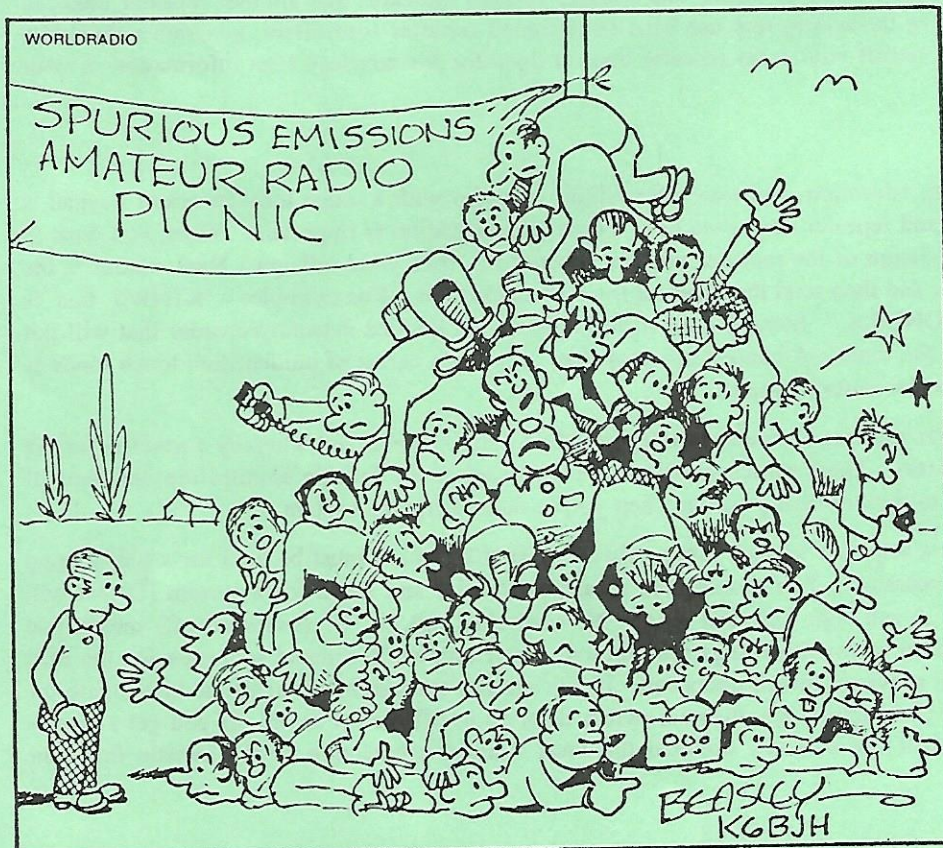
THIS STARTED OUT AS A MASSIVE DX PILE-UP, AND THEN WENT DOWNHILL FROM THERE!

NOW I KNOW WHY YOU ALWAYS INSISTED YOU HAD A HANDLE INSTEAD OF A NAME!

I SLIPPED A TRICK EXPLODING RUBBER DUCK ON THAT DEMO --- I WONDER WHO'S GOING TO GET IT?
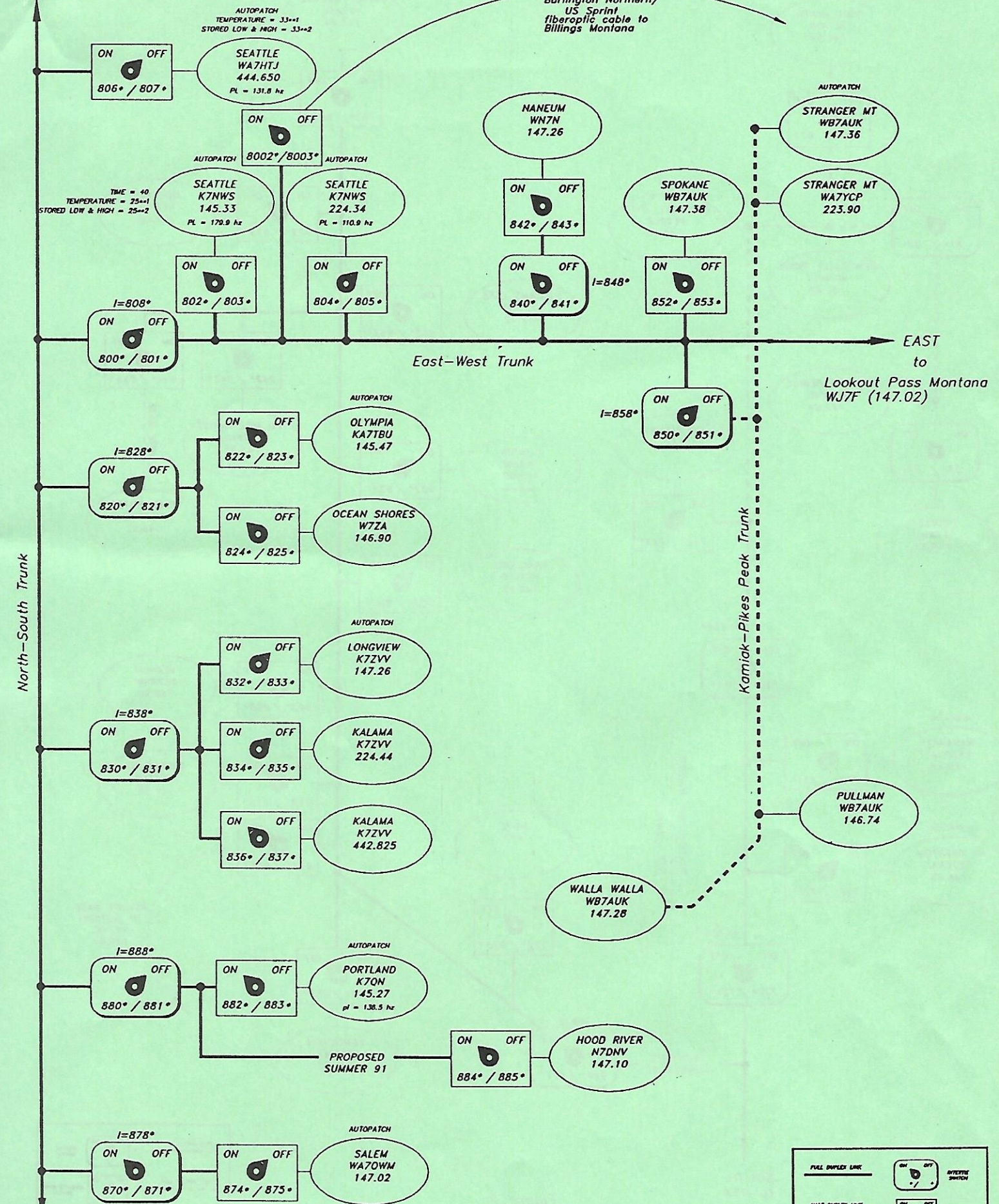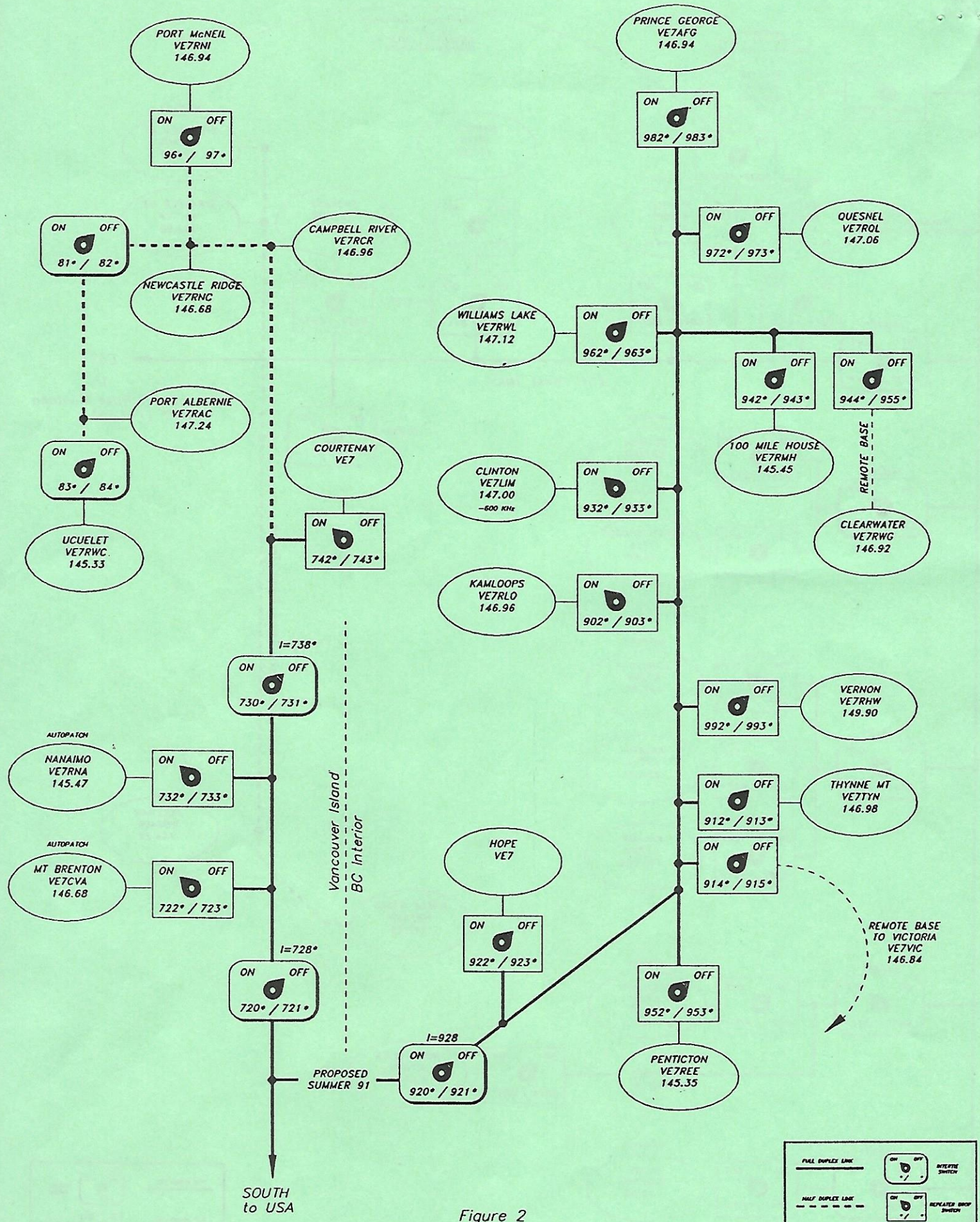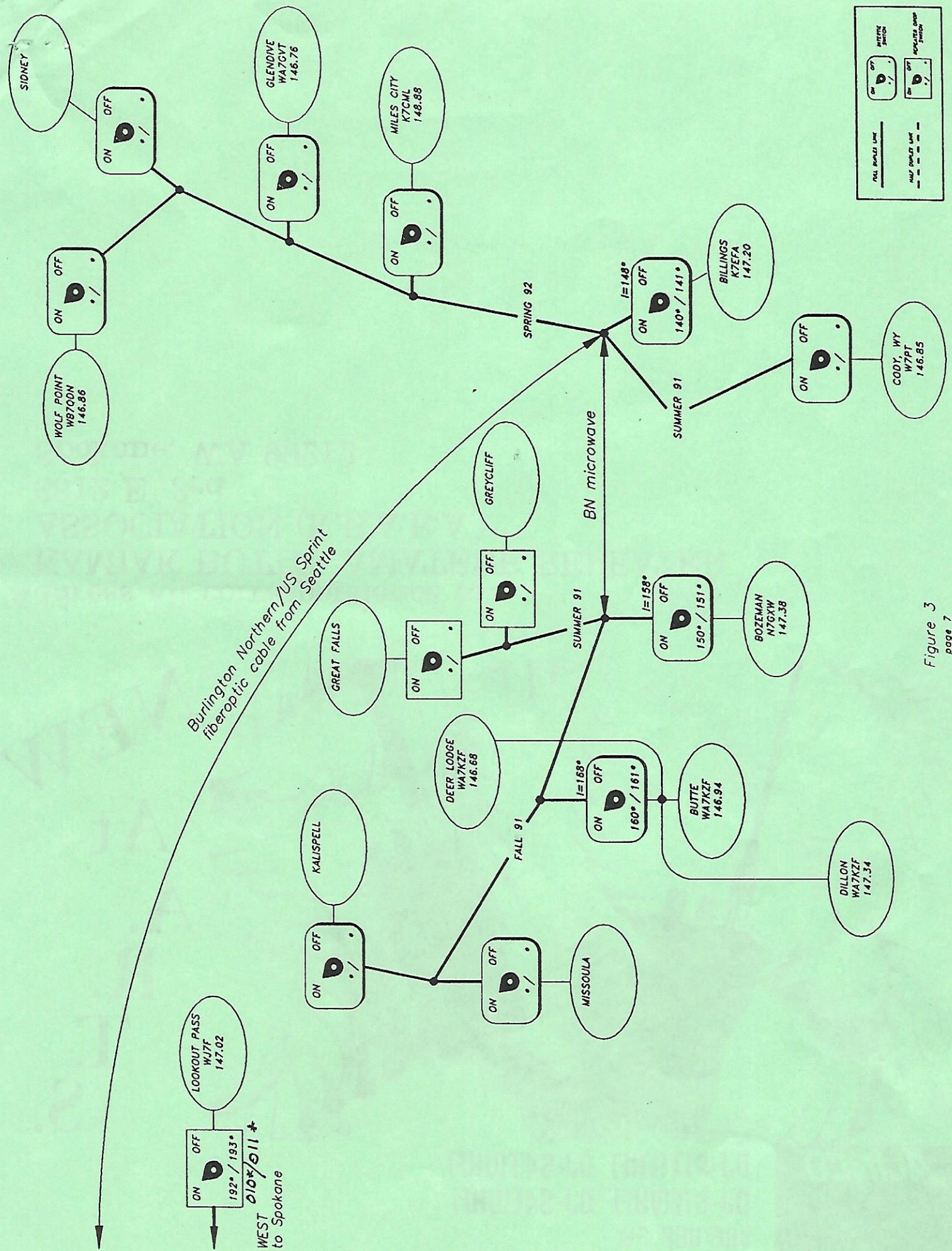
NORTH
to CANADA

Burlington Northern/
US Sprint
fiberoptic cable to
Billings Montana

AUTOPATCH
TEMPERATURE = 33**1
STORED LOW & HIGH = 33**2

ON   OFF
806* / 807*

SEATTLE
WA7HTJ
444.650
PL = 131.8 hz

ON   OFF
8002* / 8003*

AUTOPATCH   AUTOPATCH

NANEUM
WN7N
147.26

AUTOPATCH
STRANGER MT
WB7AUK
147.36

STRANGER MT
WA7YCP
223.90

TIME = 40
TEMPERATURE = 25**1
STORED LOW & HIGH = 25**2

SEATTLE
K7NWS
145.33
PL = 179.9 hz

SEATTLE
K7NWS
224.34
PL = 110.9 hz

SPOKANE
WB7AUK
147.38

ON   OFF
842* / 843*

ON   OFF
802* / 803*

ON   OFF
804* / 805*

ON   OFF
840* / 841*   I=848*

ON   OFF
852* / 853*

I=808*

ON   OFF
800* / 801*

East–West Trunk

EAST
to
Lookout Pass Montana
WJ7F (147.02)

AUTOPATCH
ON   OFF
822* / 823*

OLYMPIA
KA7TBU
145.47

I=828*

ON   OFF
820* / 821*

ON   OFF
824* / 825*

OCEAN SHORES
W7ZA
146.90

I=858*

ON   OFF
850* / 851*

North–South Trunk

Kamiak–Pikes Peak Trunk

AUTOPATCH
ON   OFF
832* / 833*

LONGVIEW
K7ZVV
147.26

I=838*

ON   OFF
830* / 831*

ON   OFF
834* / 835*

KALAMA
K7ZVV
224.44

ON   OFF
836* / 837*

KALAMA
K7ZVV
442.825

PULLMAN
WB7AUK
146.74

WALLA WALLA
WB7AUK
147.28

I=888*

ON   OFF
880* / 881*

AUTOPATCH
ON   OFF
882* / 883*

PORTLAND
K7ON
145.27
pl = 138.5 hz

PROPOSED
SUMMER 91

ON   OFF
884* / 885*

HOOD RIVER
N7DNV
147.10

I=878*

ON   OFF
870* / 871*

AUTOPATCH
ON   OFF
874* / 875*

SALEM
WA7OWM
147.02

SOUTH

Figure 1
page 5

FULL DUPLEX LINK   ON   OFF   INTERTIE SWITCH

HALF DUPLEX LINK   ON   OFF   REPEATER DROP SWITCH

Figure 2
page 6

Figure 3
page 7