Feature article:
LAKE MOUNTAIN: What's up there that makes 146.76 work and the effort it takes to keep it operational.

View of the UARC 146.76 repeater site atop Lake Mtn.

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the MICROVOLT

Periodicals

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U.A.R.C.
c/o Russell Smith
2684 Kenwood Street
Salt Lake City, UT 84106

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Prologue

The Utah Amateur Radio Club was organized under it's present name in 1927, although its beginnings may date back as early as 1909. In 1928, it became affiliated with the American Radio Relay League (club #1602) and is a non-profit organization under the laws of Utah. It holds a club station license with the call W7SP, a memorial call for Leonard (Zim) Zimmerman, an amateur radio pioneer in the Salt Lake City Area.

The club meets each month except July and August. The meetings are held on the first Thursday of the month at 7:30 PM in the Exhibition hall located on the Salt Lake County Fairgrounds just south of Murray City Park.

Club membership is open to anyone interested in amateur radio; a current license is not required.. Dues are $13 per year, including a MICROVOLT subscription. Those living at the same address as a member who has paid $13 may obtain a membership without a Microvolt subscription for $9. ARRL membership renewals should specify ARRL Club #1602.

UARC maintains the following repeaters: 146.62 (minus) and 449.10. The repeaters are administered by the UARC Repeater Committee. Comments and questions may be directed to any Committee member. The Lake Mountain repeater (146.76 minus offset) has Autopatch facilities on both the Orem exchange (covering Santequin to Lehi) and the Salt lake City exchange (covering Draper to Layton). The 449.10 repeater has autopatch facilities into Salt Lake City only. Due to the volume of traffic, only mobiles should use this autopatch. Autopatch use is open to all visitors to our area and to all club members. Non members who wish to use the Autopatch are encouraged to help with the cost of maintaining the equipment by joining the club.

THE MICROVOLT: The Microvolt is the official publication of the club. Deadline for submissions to the Microvolt is the 10th of each month prior to publication All submissions are welcome but what is printed and editing are the responsibility of the UARC board. Reprints are allowed with proper credits to the MICROVOLT, UARC, and authors.

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http://www.xmission.com/~uarc

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The Official Publication of the Utah Amateur Radio Club, Salt lake City, Utah
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QST from the Prez

Fellow UARC Members,

Season's Greetings? As some of you may know by now, I was elected President of UARC at the December meeting. I am grateful for your confidence and the opportunity to serve the club. Please join me in thanking the outgoing UARC Board, for an excellent job this past year. The UARC Board has made 1997 a wonderful year for UARC and Amateur radio in Utah.

For those that do not know me, I moved to the area in 1996. I was first licensed in 1980 and received my Extra call, NY4I, in 1982. I am fairly active in HF activities like contesting. I frequently help with new licensing activities such as an examiner at the club testing sessions along
with countless others under the watchful eye of Gordon, K7HFV. I was UARC Field Day chairman last year and I have been involved in the club station planning, the Scout-A-Rama, and installing the finishing touches on the HF station at the Boy Scout Aquatics camp at Bear Lake. Of course, this was done with the help of many other club members.

One of the major goals I have for 1998 is establishing the club station. I think this station can be the focal point for club radio activities by providing members with a place to informally meet for amateur radio activities. Hopefully, we will be able to introduce members to various facets of radio including public service, DX, CW, traffic handling, packet, and even contesting. With help from many members as well as the ARES group and the American Red Cross, the club station will become a reality this year.

Some other goals I have for the club include establishing more youth activities to bring younger people into the hobby. As I received my license in High School, I feel it especially important to recruit young hams at an early age. Additionally, I would like to initiate at least three public information displays to help attract people to the hobby. More details of these will follow, but for the time being, why not introduce someone you know to Amateur Radio?

That's all for this month. Remember that this is your club. The club can only be as great as you make it. If you have some ideas on activities which you would like to see the club become involved, please contact myself, or other any member of the UARC board. I can be reached in the evenings at 569-2664 or via Email at toms@inconnect.com.

73,

Tom Schaefer, NY4I

The Heritage of the Club

I appreciate the opportunity to serve again with the presidency of the Utah Amateur Radio Club. I thoroughly enjoyed my previous two tenures, and hope that this year will be as exciting for you as it will be for the rest of the board.

As I sit here typing this article my mind goes back to the enjoyable times spent in the company of other amateurs. Often times I have sat across the table from the "old-timers" (and not-so old-timers) of our club. To listen to their insight and experiences is like candy to the mind. Oh how I wish I could be one of them! To have the intellectual power to use big words and make them fit into my limited vocabulary. Just to have the attention span long enough to keep up would be a major accomplishment for me. Their stories of "how it used to be" are as historic as they are entertaining.

I find it interesting that many of the old timers will talk a lot about UARC, their vital role in it, and the progress it has made. It makes me wonder why these elite, long-time members do not frequent the repeaters as often as "the good ol' days." When asked, the various responses can be grouped into one general category, the .62.

The Utah Amateur Radio Club has continued to grow at an alarming rate over the past decade. As a result, many of the "ol' regulars" have switched, reluctantly, to other repeaters. This is due to the increasing congestion on the Farnsworth machine. Such congestion is to be expected. Our growing numbers give us strength and diversity in our membership. Indeed such growth would have exceeded our wildest dreams just ten years ago. Without this growth, our hobby would dwindle and be destined to become only a small group of one-minded individuals with nothing better to do than yap about nothing.

How lucky we are to enjoy such change! My hat goes off to the many amateurs that have studied and toiled in order to obtain a license. They have brought to our hobby, and indeed our club, an ever changing potpourri of personality. We communicate through one of the widest area repeaters in the United States. Over half of the population in Utah live and work within the coverage area of UARC repeaters. With the state continuing to grow, even more people will soon live under their shadows.

With every growth spurt there are challenges and obstacles that must be overcome. Hopefully, this years board will be able to tackle these challenges with some success. I hope that as we go through this next year, we'll be able to take some time and reminisce about "the good ol days".

In the front of each Microvolt you'll read a summary which states in part, that the club's beginning may date back as early as 1909. That means that our club may have almost 90 years of experience, history and heritage. As we reach toward the future, let us not forget the past, and the accomplishments of our fore-bearers in our amateur radio community.

Among our current ranks, are amateurs who have led our club during the last 20, 30, 40 or even 50 years. They have established some of the vision and traditions that are still practiced today. Take it upon yourself to look for them, and to express your thanks. In years to come many of you will have the opportunity to serve as members of the Board. It will be left to you to continue to uphold those values and practices that exist.

May we each keep in mind their great accomplishments. Add just a little more time between your transmissions. So that some of those who have set that foundation for us, may continue to enjoy the camaraderie, of the amateur operators in our area.

73 and happy hamming!

Ray Allen - N7TEI

Featured Member of The Month

This month we are featuring Russell Smith KC7ZDZ. Russ has been in amateur radio for 10 years. He became interested in the hobby when he was working in hospitals in maintenance. He now works for LDS Church as facilities management. Russ has been back in Utah for about 5 years now. He use to live here about 20 years ago and his wife is from Utah. He has 3 children one boy and 2 girls. He said he could never get his family interested in amateur radio. When he lived in California he was very active in the Downey Amateur Radio Club. He really enjoys field day and was field day chairman for the Downey Amateur Radio club.

His favorite facet in amateur radio is being able to communicate when mobile. He would like to see more involvement from members in club activities. Russ was elected to be the secretary for UARC at the December 1997 UARC meeting. You now send your dues to Russell Smith 2684 Kenwood Street Salt Lake City, Utah 84106

Russ, congratulations on your new office.

73 N7HVF Linda Reeder

Radio Coaches Program to Raise Elmering to New Level

Over the years in the pages of QST, countless letters and articles have been written about Elmers, those patient, inspired souls who thoroughly enjoy bringing newcomers into the world of Amateur Radio. Now, the ARRL's new Radio Coaches program takes Elmering to new levels. Through the Radio Coaches program, you and your fellow club members can become part of a national effort to better the lives of youth using Amateur Radio. And we'll provide the game plan!

Radio Coaches stems from the kickoff of America's Promise, the Alliance for Youth, a national campaign to improve the lives of the nation's young people and put them on paths for brighter, more productive futures. As a result, the ARRL Board of Directors authorized the creation of the "Radio Coaches" program as Amateur Radio's commitment to youth.

The mission will be to give young people an ongoing relationship with a caring adult and a marketable skill through effective education. Amateur Radio will be our chief tool. How does it work? From day one, we supply information to help your Affiliated or Special Service Club form a "coaching team." Your team will build a relationship with a local school, community organization or other institution from which you will recruit your "athletes." You will coach young people in your community on the basic elements of electronics and the magic of radio communication through exposure to Amateur Radio. In addition, you may arrange field trips to technology museums, radio conventions and hamfests. Or you may choose to introduce students to local businesses that use radio and electronics technology. Your job as a coach will be to make every member of your team more aware of how these experiences can lead to career opportunities in telecommunications.

The ARRL will support this effort by providing clubs with fliers to help recruit youngsters, curriculum materials and other informational resources. While supplies last, the ARRL will provide 1997 ARRL Handbooks to participating clubs who want to use them with students and later donate them to school libraries or youth groups. The League also will provide youth packages with handouts to accompany the curriculum materials. Basically, we'll supply the strategy, and you'll supply the energy and imagination.

Through Radio Coaches, we want to reinforce the idea that Amateur Radio is a "sport for the brain." Ham radio provides not only a lifetime of enjoyment, but also, potentially, a lifetime career.

For more information on how you can get involved in the Radio Coaches program, contact Radio Coaches, c/o Field Services Department, ARRL, 225 Main St, Newington CT, 06111; or e-mail coaches@arrl.org.

Jennifer Gagne - N1TDY

UARC 1998 Officers

President:
Tom Schaefer NY4I
1155 E. Promontory Way B-102
Sandy, UT 84094
HM: 569-2664 WK: 954-4584
Email: toms@inconnect.com

Immediate Past President:
Alan Seyboldt K7OPT
1190 E. Covington Ct. (11430 S)
Sandy, UT 84094
HM: 572-8112 WK: 262-8252
Email: clairopt@earthlink.net

Exec VP:
Ray Allen N7TEI
2292 W. Edgeware Lane
Taylorsville, UT 84119
HM: 963-0790 Pager: 482-9240
Email: n7tei@burgoyne.com

Vice Pres:
Gordon Smith K7HFV
632 S. University St (1335 E)
Salt Lake City, UT 84102
HM: 582-2438 WK: 534-8116
Email: gordon@inquo.net

Secretary:
Russell Smith KC7ZDZ
2684 Kenwood Street
Salt Lake City, UT 84106
HM: 463-2568 WK: 468-5870
Email: rws@utah-inter.net

Treasurer:
Chuck Johnson WA7JOS
1612 W. 4915 So.
Taylorsville, UT 84123-4244
HM: 268-0153 WK: 977-1612
Email: chuck@phbtsus.com:

Microvolt Editor:
Bruce Bergen KI7OM
3543 E. Fieldstone Cir. (7570 S)
Salt Lake City, UT 84121
HM: 943-1365 WK: (801)226-3355
Email: bbergen@xmission.com

Asst Editor:
Maurine Strektenfinger KC7HOZ
2372 W. 11800 So.
Riverton, UT 84065
HM: 254-1536 WK: 254-6202
Email:

Program Chair:
Linda Reeder N7HVF
409 E. 6th Ave #1
Salt Lake City, UT 84103
HM: 364-7006 WK: 468-2709
Email: n7hvf@inconnect.com

Program Chair:
Jack Warren KC7KEL
1178 Warbler
Murray, UT 84123
HM: 268-8069 WK:
Email:

UARC Repeater Committee

Repeater Trustee
Ron Jones K7RJ
9241 S. Toni Lee Cir.
West Jordan, UT 84088
HM: 561-2685
Email: jones@chemistry.chem.utah.edu

Repeater Engineer:
Randy Finch K7SL
4322 Vallejo Dr.
Salt Lake City, UT 84124
HM: 277-7135 WK: 575-5555
Email: rfinch@mail.bonneville.com

Autopatch Engineer & SL Autopatch Host:
Gordon Smith K7HFV

Repeater Committee Board Liaison: (open)

Repeater Monitor:
Allen Wright N7QFI
708 Monte Blanco
Salt Lake City, UT 84123
HM: 268-8482 (unlisted)
Email:

Provo Autopatch Host:
Dale Jarvis WB7FID
175 N 300 E
Orem,UT 84057-4824
Email: djarvis@mail.itsnet.com

ATV Repeater Engineer
Dale Jarvis WB7FID

ATV Repeater Engineer
Clint Turner KA7OEI
Email: ka7oei@uugate.wa7slg.ampr.org

Members of Other Committees

Book Lady:
Fred DeSmet KI7KM
2333 E. 3225 So.
Holladay, UT 84109
HM: 485-9245 WK: 255-3341
Email

Historian:
Carol McWherter KC7LLW
536 Leland Ave
Salt Lake City, UT 84106
HM: 484-6355
Email: en7ovt@utah-inter.net

Field Day Chairman: (open)

Steak Fry Chairperson:
Cindy Peters, KB7OUT
HM : 268-4410

Club WebMaster:
John Buttles, N7NTZ
Email: uarc@xmission.com

To make you Grin :-)

As the new 10**-6 V editor, I would like to pass on to, you, our loyal readership the following important conversion chart. This little gem was submitted by the illustrious "Herr Doktor" Ron Jones, K7RJ, for our general enlightenment and a not so feeble attempt to raise the technical understanding of even the most astute ham. Cut this chart out and post it in your shack so that you too can have that big vocabulary you always wanted, and impress everyone on 62 at 08:00 UTC (that's 1 in the mourning) with how much you really know. Warning: In case you were not aware, 08:00 till 09:00 UTC is the time period reserved for only the most intellectual of QSO's.

- editor

Metric Conversion Chart

(Note: 10**12 = 10 raised to the 12th power)

10**12 Microphones = 1 Megaphone
10**6 bicycles = 2 megacycles
500 millenaries = 1 seminary
2000 mockingbirds = two kilomockingbirds
10 cards = 1 decacards
1/2 lavatory = 1 demijohn
10**-6 fish = 1 microfiche
453.6 graham crackers = 1 pound cake
10**12 pins = 1 terrapin
10**21 piccolos = 1 gigolo
10 rations = 1 decoration
100 rations = 1 C-ration
10 millipedes = 1 centipede
3 1/3 tridents = 1 decadent
10 monologs = 5 dialogues
5 dialogues = 1 decalogue
2 monograms = 1 diagram
8 nickles = 2 paradigms
2 snake eyes = 1 paradise
2 wharves = 1 paradox

DC Grounded Antennas - the Myth, the Legend, the Fantsy

This is a subject that we just had to write about. In the lightning protection business we come into contact with many people who have had both dangerous and disastrous experiences with Mother Nature. And one that has perplexed antenna users for decades is the very common damage and destruction to radio equipment when connected to a so-called "DC Grounded" antenna system.

For many years antenna manufacturers have touted the positive advantages of owning and operating a station with antennas whose feed systems are a direct DC short across the input terminals, and hence both sides of the coaxial feeder cable are placed at "ground" potential at the antenna site. In reality, there are no such advantages to this kind of feed system, but it is singly the most dangerous ever used from a lightning perspective.

The reason is pretty easy to both explain and understand. Lightning bolts that streak from clouds to ground frequently hit exposed metallic structures like towers and high antennas. This is simply because the metallic nature of the object electrically shortens the striking distance between ground and sky. When a large voltage potential is reached between the two during a storm the metal antenna acts like a prod, sticking up in the air and drawing the first arc.

Lightning wants to reach ground, and that's pretty much all it wants. And it will get what it wants in the easiest and least resistive way possible. Just about anything in the way can be easily vaporized out of the way by a good sized lightning blast. If ten different paths to ground are presented to a striking bolt (such as numerous transmission line conductors, the tower frame,
etc.) then the currents will divide quite nicely between all of them, with the larger amount of current flowing in the path of least resistance and so on.

"DC Grounded" type antennas provide a very neat dual path for those lightning currents. Some of the blast will flow down the shield of the cable to ground level earth terminal connections while the rest will simply flow down the center conductor and ravage the radio connected at the other end. Keep in mind that at the point of impact a bolt of lightning can easily deposit 50,000 ' volts or more respective to ground. And for an instant the voltage at the radio equipment end will be the same. By the time the balance of the surge comes to an end the equipment will have will have long since been toasted, probably beyond repair.

The myth is that "DC Grounded" antennas offer good lightning protection. The legend is that antenna manufacturers have been claiming it for decades. The fantasy is that some of them still actually believe it. But it's not all hopeless. Here's how you can tell - if your present antenna is one of these and what you can do about it. Disconnect the transmission line at the equipment end and measure across the center and outer conductors with a VOM on the R X 1 scale. If only a few ohms are measured then the antenna at the otherr end is a DC Grounded type. If you're satisfied with the performance of the antenna otherwise and wish to continue using it then you have two choices. First, disconnect the antenna whenever a storm approaches and hope you'll always be there to do it on time. Or second, install a blocking-type lightning arrestor that will shunt center conductor voltage to ground while blocking voltage from passing through the arrestor. Be sure to install the arrestor at ground level and ground the body of the device well.

If your in the market for an antenna and wish to enjoy a bit of protection select the ones offered that use capacitor or link feed systems. Capacitor feed systems such as gamma matches are excellent feed systems and lightning protectors as well. They isolate the center conductor and force lightning into the shield.

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The UARC 146.76 Repeater

W7SP/R

GPS Location: 40 deg 16.95'N by 111 deg 56.19'W

Approximate altitude: 7300 ft (2200 m)

The 146.76 repeater is one of several repeaters that UARC maintains. This repeater is located on Lake Mountain, west of Orem along the western shore of Utah Lake..

Repeater coverage:

Via mobile (50 watts, 1/4 wave or better): This repeater covers the Utah and Salt Lake Valleys, south along I-15 as far south as Filmore (spotty coverage,) portions of the west desert, and points north to the Idaho border. Very spotty coverage eastwards into the Wasatch. Via handie-talkie: Coverage is good in Utah county, marginal in many parts of Salt Lake county, particularly in the southern part of the valley.

The telephone patch:

Secondary to its being a repeater, this system also has autopatch capabilities. An autopatch allows one to make telephone calls from remote locations using a DTMF-equipped radio. The autopatch covers two telephone exchanges: The downtown Salt Lake exchange, and the Orem exchange.

Keep in mind that while the repeater itself is an open repeater, use of the autopatch is reserved for UARC members (who pay the bills!) and out-of-town guests for whom club members may bring up the patch. Remember: It is UARC policy that the autopatch access codes are not to be given out over the air, or to non-UARC members!.

Because of past abuse, users will likely find that the 911 emergency service is locked-out. If you have an emergency, it would be better to have someone on-frequency make the telephone call for you. Also, keep in mind that the duration of the call is limited to 3 minutes - not likely to be enough time to effectively pass on necessary emergency information.

Notes on repeater operation:

There are several aspects of repeater operation of which one should be aware: The Timeout timer: After a continuous transmission of approximately 3 minutes, the repeater will become disabled until the uplinking transmitter unkeys. This is done partly to encourage users to leave breaks in their conversations, as well as to protect the repeater should some signal appear continuously on the input. Upon cessation of the input signal, the repeater will transmit a special ID with the tone starting out low, swooping up to its normal pitch, somewhat reminiscent of a record player spinning up. This sound lets the user know he/she has transmitted too long and lets others know the repeater is again available for use. he "tone." Every once-in-a-while one may hear a brief DTMF tone in the background. This is normal, indicating that the control link is functioning.

A brief history of the '76 repeater:

This repeater has been in operation since the middle 70's from this site. From the beginning, construction and maintenance of this repeater has been a group effort: Each piece (i.e. the receiver, transmitter, decoders, controllers, IDer) was either modified or built for use in the repeater.

Quoting Gordon Smith, K7HFV, who has been involved with repeater from the beginning:
"*In the early 1970's, when the Salt Lake City area had only two repeaters, Erv Greene, W7EU, proposed that UARC should put up a repeater and go beyond its traditional role as a club emphasizing HF activities. He procured equipment at practically no cost and made arrangements for use of some space on Lake Mountain in a building owned by the State of Utah. The club voted to support him in this effort, and in a few years, the "16/76" repeater was born.*"

"*The road was a bit rocky during 76's first months of operation. The Motorola transmitter was designed for intermittent mobile use, and in repeater service its driver tube had a life expectancy of about two weeks. Pat Buller, W7RQT, came to the rescue. Using his considerable RF expertise, he made large modifications to*

Motorola's design in the last few stages of the transmitter. At last, the transmitter was clean and reliable."

"*Many changes and upgrades have been made since the original repeater was tested at Erv's house. (It is now on its fifth transmitter.) In fact only one module - the ID and timeout unit - remains as a connection to the original '76."*

Visual tour of the repeater:

What would a repeater be without antennas? An antennaless repeater, probably, and it certainly wouldn't work very well.

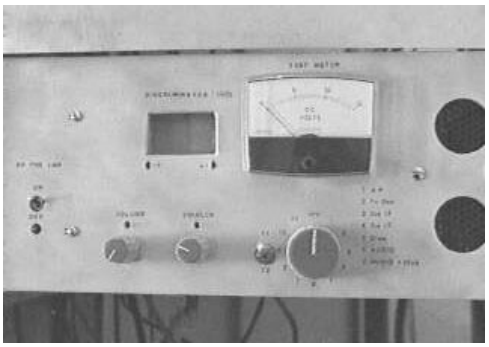
As is true of most repeaters, '76 must share its site with installations of many other users. As this picture shows, the repeater's antennas are just a few of many. The vertical antennas (indicated by arrows) at the top and bottom are the receive and transmit antennas, respectively.

Many repeaters use a single antenna to conserve tower space and to require only a single feedline. This, however, requires that the filtering (i.e. the Duplexer) be of very good quality and precisely adjusted. Using separate antennas allows slightly less filtering and fewer cavities, often resulting in increased repeater sensitivity and less probability of desense.

Nestled among the upper antennas are the 70cm link antennas (right) for autopatch and control purposes.

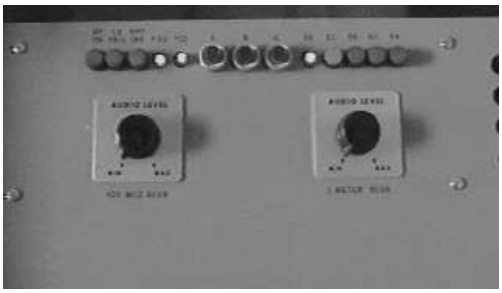
One antenna points toward Orem (for the Utah County patch) and the other points toward Salt Lake for that patch. Beams are used to receive the best-possible signal from the patches. 70cm is used for several reasons: It is less crowded than 2 meters, it requires physically smaller antennas, and it is far-enough removed in frequency from the 2 meters that filtering is not much of an issue. (It would be illegal to use 2 meters for primary repeater control, anyway...)

As is typical in a repeater, cavities are used to keep the transmitter's energy and other unwanted signals from getting into the receiver. The transmit cavities allow the transmitter's signal to pass through and block (i.e. "notch out") any low-level noise generated by the transmitter on the receive frequency, while the receiver's cavities allow the receive signal to pass, and block (notch out) the transmit frequency. If too much energy from the transmitter entered the receiver, it would overload it causing a reduction in sensitivity, and possibly even intermodulation distortion.

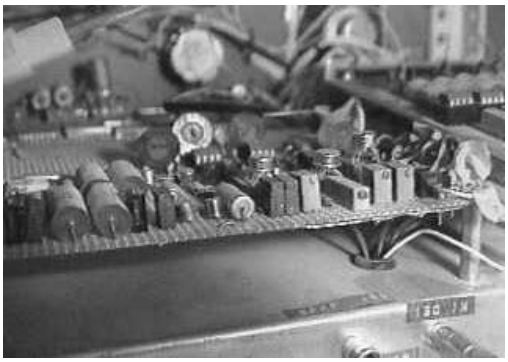


The 2 meter receiver receives the signals on the 146.160 Mhz repeater input frequency. Since the user of the repeater may not be radiating a strong signal (because he/she is using an HT or is in a bad location) it is particularly important for the repeater to have the best possible sensitivity. For this reason, this receiver has a GaAsFET (low-noise, high-sensitivity)

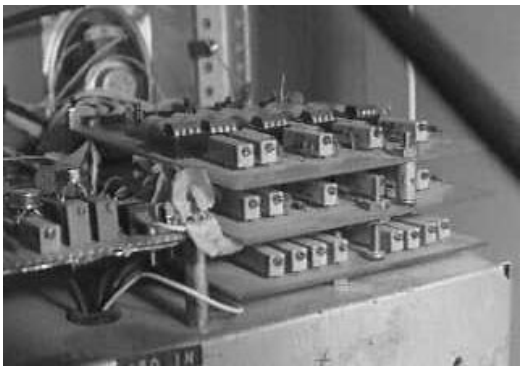
preamplifier. This receiver also has metering to monitor various points within the receiver to facilitate testing, servicing, and adjustment.

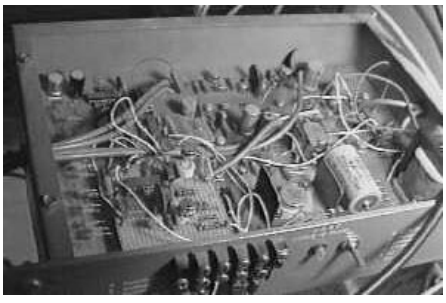


Constructing a good repeater takes more than simply connecting a receiver to a transmitter. The controller chassis (left) along with a companion unit is responsible for things like Iding, hang-time, timeout timer, controlling the autopatch, and controlling the repeater in general.



Below, one can see various parts of the controller circuitry. The first picture is the audio processor board. This board filters and emphasizes the audio to make sure the transmitted audio is as close to identical to the input audio as possible. It also generates and controls various PL tones, an alarm tone (to notify of link failure,) and gating, mixing, and control of the various audio sources. The next picture shows the DTMF decoder system. The next board pictured does the ID, timeout timer, hang-time, and some other functions. Not shown is the actual repeater controller, which allows remote controlling of various functions of the repeater and its autopatch.





Since it was first installed this repeater has used a number of transmitters. Originally, they were tube-type. However, as technology progressed (and as the old transmitters died...) new transmitters were installed. The radio being currently used for a transmitter is a Yaesu FT-2500 Mobile rig. One of the best-known features of the radio is the extremely tight front end of the reciever, highly resistant to intermod! However, that isn't important in this case since the receiver isn't even being used!

What is important is that this radio as a clean transmitter, spectrally speaking, and that it has a nice, big heat sink capable of handling even the most long-winded of conversations without a fan. Of course, to keep it happiest, there is a fan suspended just above the transmitter (not shown) circulating air over the radio and amongst the other components in the repeater.

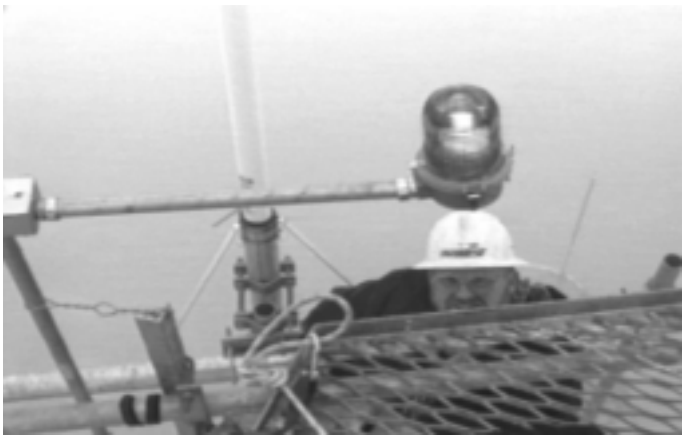
Of course, none of this would run without a power supply... As you can see, the power supply originally came from the 01/61 repeater (now the 02/62...)

Ongoing or Upcoming changes:

The old tower (the guyed red-and-white one to the left of the tall tower) is to be removed in the spring of '98. Since the existing antennas are on the old tower, and since the antennas on the tower are the original ones installed in 1977 (or so) it was decided to replace them - even though they do seem to be working just fine. Also, since channel 16 is going on the air soon, it was decided to put new mounting hardware on the new tower to reduce the possibility of intermod being generated by oxidized junctions, etc. Also, the new antennas are (supposedly) of higher gain than the old ones.

The receive antenna is mounted at the 120' level and the transmit antenna is at the 40' level. At the 120' level the view is pretty clear in all directions. Since

much of the antenna is above the top of the tower itself, and since there is less tower to block it, too, it has a pretty good view in all directions. This new receive antenna is quite a bit higher than the old receive antenna and seems to perform about 4 db (about 120% or so) better than the old one.



The transmit antenna, however, although higher than the old one, is surrounded by other antennas and, to the north, is blocked by a large dish and the structure of the tower itself. At least to the north, transmitted signals are about half of what they were before. There is some study being done as to how the antenna may be re-mounted to reduce the effects of blocking by the structures.

Pictures on this page were taken by Clint during the work-party in late November ‘97 when the new antennas were being installed on a cloud covered Lake mountain. The last picture is of Garth Wiscombe, KA7MHN, near the top of the tower.

Currently, the control receiver antennas are still on the old tower. We don't know when those may be relocated, but it will likely be closer to spring - just before the old tower is removed.

Clint Turner - KA7OEI

Photo credits - Clint Turner, KA7OEI

(Note: Garth’s picture was taken by Gary Crum, KK7DV with Clint’s camera - Gary has no fear of heights)

Future articles will detail some of the projects which will continue on ‘76. We also hope to see submissions detailing the ATV repeater progress, how 449.10 works, and changes at ‘62.

-editor

January Meeting: DXpeditions

DX, the working of foreign countries, is a popular pastime among many hams. Some are just casual DXers, working a new country now and then. Others, that one might call "serious" DXers are diligent enough to get confirmations from 100 countries so they can obtain the DX Century Club award, DXCC. A few go so far as to work 300 or more countries. In order to get to this number, these people must add to their list some "countries" which normally have no inhabitants, but are "activated" only when a group of hams decides to go there on a "DXpedition."

One of the rarest kinds of DXers (deadly serious?) is the kind that actually goes on these DXpeditions. They must get funding (or be independently wealthy), be able to leave work for several weeks, and be sufficiently seasoned operators to operate 16-hour days and deal with massive pileups.

We have one of those very people coming to speak at our January meeting. Darryl Hazelgren, AF7O, was a member of the DXpedition that went last September to Willis Island, a tiny chunk of land in the Pacific Ocean near the northeast corner of Australia. This "country" is about 200 meters in diameter, has no permanent inhabitants and sticks out of the water by barely two meters at high tide. Needless to say, you can't work it most days.

The DXpedition, though, gave everyone a rare chance to work Willis Island. Darryl and his fellow operators ran five complete stations and made over 40,000 contacts in 18 days. (More details available at http://www.odxg.com.)

Darryl will be at the January 1 meeting with all the slides and stories from this phenomenal DXpedition. Don't miss it!

Yes, we will really meet on New Year's night, January 1. Given the schedule of building usage and possible conflicts with other ham events if the meeting were moved from the usual first Thursday slot, the Board decided that meeting on the 1st was the lesser evil. There we'll have ARRL books available and, of course the usual chance for "eyeball QSO's.

UARC meetings are held in the Little Theater building in the Salt Lake County fairgrounds. (Neither the building nor the street is marked with a number, but the address is approximately 5150 South and 150 East. Follow the sign that says "Square Dancing".) This meeting place will be changing sometime in '98 so watch and listen for more information. Salt Lake County has notified us that the building is to be demolished in '98 and at press time an alternative site had not yet been chosen.

Gordon Smith - K7HFV

1998 Meeting Schedule

January 1	Dxpeditioning with AF7O
February 5	Women in Amateur Radio
March 5	How to Participate in Emergency Communications
April 3	Ham Radio at the Friendship Cruise
May 7	How does FM really work
June 4	Field Day's Past Slide Show and Preparations for this year' FD
July	No Meeting (Steak Fry - date to be announced)
August	No Meeting (WIMU Hamfest month)
September 3	Swap Meet
October 1	Greyline Propagation
November 5	Home Brew
December 3	Elections and planning for 1999

Letter to the Editor

Editor:

TRAINED OPERATORS., TECHNICIANS AND ELECTRONICS EXPERTS

In reading the amateur radio journals, etc., I have concluded that their seems to be a total lack of the most important issues; and that issue is "TRAINED OPERATORS, TECHNICIANS AND ELECTRONIC EXPERTS." Here are some questions with respect too this matter. There may be more and if so, I would like to hear them..

1- What is a "TRAINED OPERATOR, TECHNICIAN AND ELECTRONICS EXPERT?"

2- Who needs "TRAINED OPERATORS, TECHNICIANS AND ELECTRONICS EXPERTS?

3- Why are they needed?

Perhaps, some of the answers too these questions can be found in the

FCC Rule Book, 10th edition, published by the ARRL, Page 97-4; Subpart A-

General Provisions; Sub-,paragraphs 97.1 - a, b, c, d, and e.
A review of Part 97.1 of the FCC Rule Book will provide the reader with important information.
Now lets turn our attention to the skills that are needed to be a trained' operator., etc..
The following list may not be complete, but it offers a. starting point;

I- A working knowledge of the common language of the people in which the operator lives, in the case of the United States of America, that common language is English;

2- A working knowledge of the International Morse Code, of up too and including 20 words per minute;

3- Basis typing skills of 20 words per minute;

4- Basic computer skills as may be needed;

5- And finally basic skills in the areas of "Trained Operators, Technicians and Electronics Experts.

It is item., number 5, that may very well send me back too school, as I am sadly lacking in the last two skills. However, I am currently working with my elmer, W7TGC, Dick BELL, to improve my code skills. Also, I do not at this time have any computer equipment. All other opinions, ideas, etc., will be respected.

Eugene M. Christensen - KC7CSE
1193 Serpentine Way
Sandy, Utah 84094-4633

From the Editor

Dear Readers,

I hope you find this, my first edition, as the new editor, interesting reading and that your time has been well spend in reading the *Microvolt*. I will make every reasonable effort to provide you, the reader, with a quality publication, but ultimately I have to depend on the membership of UARC to make contributions.

If you think you would like to try your hand at writing, then go ahead and just do it. If you would like some help with getting an idea from rough draft to publication ready, I would be more than happy to help you. We do have quite a few people in UARC with literary talent, some hidden and some well known. I expect to be able to tap into this resource and make this the best year the *Microvolt* has seen for a long time as a quality Ham newsletter.

I will accept submissions in just about any form - handwritten, paper napkins, typewritten, computer diskette (I might even be able to deal with an 8' diskett), and direct electronic transfer. My preferred method though, is as a WordPerfect Email attachment.

73 DE Bruce - KI7OM bbergen@xmission.com

A QSL to Chuck

I once shot an elephant in my pajamas!
How it got in my pajamas I'll never know.
Groucho Marx

November 7, 1997

Chuck:

Hi! How you doing? Hey! Thanks for the contact on the MIR Repeater last Thursday! I have a great story to go with it.

I saw a short story on the Colorado AMSAT NET Web Page. It said that Chuck KIOAG has worked MIR on a rubber duck! That gave me all kinds of hope to work the MIR Repeater on my HT with my home-brew yagi.

WhenI returned home after reading the Colorado AMSAT Web Page at the Salt Lake City Library, I started to program my FT 530 for the MIR Space Station repeater frequency. I went into VFO (A) and programmed the *up link* frequency with the 141.3 PL tone. Then, I went to VFO (B) and I programmed the *down link* frequency. My plan was to toggle back and forth as I worked the Doppler shift with the arrow keys. Not a bad plan for a first attempt. This could work, if I didn't lose my place making the up and down link Doppler shifts.

I checked the latest Sat-Track Prediction for the MIR Space Station. I found that the best pass for my location in Salt Lake City, Utah was at 1241-1252 UTC, local time 5:41 a.m. through 5:52 a.m. at a maximum elevation of 45.4 degrees. This would be the best pass of the day. "I wake up at 5:30 a.m. every day anyway," I thought. "No problem for me to work this pass. I'll still have time for a donut! Ya, right."

Well, at 5:00 a.m. I woke up and was still very tired. Knowing that my alarm is still set for 5:30 a.m. I went back to bed. At about 5:37 a.m. the alarm clock finally woke me up. I got up and let the dogs out. It was now about 5:40 a.m. I was still not dressed when I let the dogs back in. That's when I saw the clock in my Ham Shack. It was 5:43 a.m. MIR was up and I was not!

I grabbed my FT 530 and quickly put on a fresh battery. I slipped on my shoes without tying them. I headed out the front door of my house, then ran back into the house to get my truck keys. My five-element yagi was on the front seat of my pick-up truck and if I was going to make this pass work, I needed it. I opened the door of the pick-up. I quickly connected the coax cable to the HT and turned it on. That's when I heard, "KIOAG." "It's Chuck!" I said-to myself.

My antenna was still flat on the seat of my truck! I quickly pointed the antenna straight up into the night sky. I toggled to VFO (A) and I called, "KIOAG, KC7QFS, Hi Chuck from Paul." I toggled back to VFO (B) but I didn't hear anything. I waited for what seemed like one or two minutes, (but it was really about ten seconds), then I remembered to make a Doppler shift on the *down link.* I quickly make a Doppler shift, toggled back to VFO (A) and made another Doppler shift. Then I called Chuck one more time and toggled back to VFO (B). That's when I heard Chuck say "KC7QFS, KIOAG." It was about 5:48 a.m.

I walked out of the driveway into the street to get a better line of sight with the MIR. I looked up into the clear November night sky. I could see the Space Station MIR moving across the black sky. Pushing the VFO and making other Doppler shifts was failing as MIR moved behind the mountains.

But, I did it! I worked the MIR Repeater with my friend Chuck at his home in Colorado! Plus, I did it with an HT on only two watts!

I was doing an *End Zone Dance* in the street. It was then I realized that I was still in my pajamas with a radio in one hand and a five-element yagi in the other. Now I was thinking, "Did I lock myself out of the house?"

Yes, I once worked the MIR Space Station in my pajamas!
How it got in my pajamas, I'll never know.

Your friend,

Paul Michelsen - KC7QFS P..S. Please QSL

UTAH AMATEUR RADIO EXAMINATION SCHEDULE

Date	Location	Contact Person	Home Ph.	Bus. Ph.
01/03/98 (Sat.)	Ogden	Matt George, AB7GM	627-6064	774-9990
01/21/98 (Wed.)	Provo	Steve Whitehead, NV7V	465-3983	225-5200
01/24/98 (Sat.)	St. George	John Hunt	(435) 674-9613	
01/27/98* (Tue.)	Salt Lake C.	Eugene McWherter, N7OVT	484-6355	
02/07/98 (Sat.)	Salt Lake C.	Gordon Smith, K7HFV	582-2438	534-8116
02/18/98 (Wed.)	Provo	Steve Whitehead, NV7V	465-3983	225-5200
02/24/98* (Tue.)	Salt Lake C.	Eugene McWherter, N7OVT	484-6355	
03/04/98 (Wed.)	Farmington	Brent Thomas, AC7H	292-8110	538-3700
03/18/98 (Wed.)	Provo	Steve Whitehead, NV7V	465-3983	225-5200
03/31/98* (Tue.)	Salt Lake C.	Eugene McWherter, N7OVT	484-6355	
04/04/98 (Sat.)	Salt Lake C.	Gordon Smith, K7HFV	582-2438	534-8116
04/15/98 (Wed.)	Provo	Steve Whitehead, NV7V	465-3983	225-5200
04/28/98* (Tue.)	Salt Lake C.	Eugene McWherter, N7OVT	484-6355	

*Only Novice and Technician elements (1A, 2, and 3A) given at this session.

Send additions or corrections to Gordon Smith, K7HFV

NORTHERN UTAH NET SCHEDULE

Day	Time	Freq.	Name/Purpose
Sun.	2000	146.62 MHz	TCP/IP Users' Group (packet radio)
Sun.	2100	146.62 MHz	Utah Amateur Radio Club Information Net
Mon.	2100	147.18 MHz	High Valley Net (Ragchew)
Mon.	2100	144.25 MHz	Weekly 2-meter SSB net
Tues.	1900	146.98 MHz	West Desert Amateur Radio Club
		& 145.37 MHz	
Tues.	1930	146.90 MHz	Ogden Amateur Radio Club
Tues.	2000	146.94 MHz	Utah VHF Society (business and swap)
Tues.	2100	146.34 MHz	Utah Valley Amateur Radio Emergency Service
Tues.	2100	146.72 MHz	Bridgerland Amateur Radio Club Net
Wed.	2000	146.88 Mhz	SL County Amateur Radio Emergency Service
Wed.	2000	145.43 MHz	Utah Box Elder - Thiokol Net
		& 145.20 MHz	
		& 448.43 MHz	
Wed.	2100	146.74 MHz	Mercury Amateur Radio Association, SL area
Wed.	2100	145.49 MHz	Mercury Amateur Radio Association, Ogden area
Wed.	2100	145.37 MHz	Mercury Amateur Radio Association, Provo area
Wed.	2100	50.125 Mhz	Weekly six-meter net
Thu.	1900	147.04 MHz	Davis County Amateur Radio Club
Thu.	1900	147.12 MHz	Youth Amateur Radio Club
Daily	1230	7272 KHz	Beehive Utah Net (formal traffic handling)
Daily	0200Z	3937 KHz	Farm Net (Same UTC summer and winter)
Daily	1930	3708 KHz	Utah Code Net (formal traffic handling)
Sat.	1100	7272 KHz	Quarter Century Wireless Association (QCWA)