



K7RPT Newsletter

Amateur Radio Relay Group

December 2013 Edition



Happy Holidays!

Welcome Everyone!

This is the Holiday edition of the K7RPT quarterly newsletter. It's always great to have the opportunity to write the Welcome & Update portion of the K7RPT Newsletter.

On behalf of the entire team here at ARRG, we sincerely hope this newsletter edition finds each of you healthy and happy this holiday season. We also want to wish each of you have a very Merry Christmas and a wonderful New Year.

For ARRG, this past year has been both exciting and very demanding. The group has seen an overall increase in both our ongoing membership renewals and brand new first time members and we also picked up about a dozen brand new Hams to add to the member roster. It has been exciting to see positive movement and strong growth within the team. We are keenly aware that many other Oregon Repeater Groups are struggling to keep their repeaters on the air due to dramatic site cost increases; however, we know that the entire K7RPT repeater system is safe and sound because of your ongoing member support.

I hope each of you realize how much we truly appreciate all that you have done for the team throughout this past year and your overwhelming support during our most recent antenna emergencies that hit the system over the last few months.

This year has been a lot more than just overcoming some antenna drama; it has been a good year for team. The recent antenna problem proved to us that many of you have our best interest at heart and you guys weren't going to stand by in our hour of need. Along with your wonderful support, several agencies donated VHF and UHF repeaters to ARRG. This year was like Christmas for the technical team and we received some donations of several Motorola MSR-2000 repeaters and some MSF-5000 synthesized repeaters.

The team immediately went to work on converting the repeaters to Amateur use. The first conversion replaced the 30 year old 147.320 repeater earlier this summer. The team used the donations by updating the entire Cedar Mill site with new repeaters on 147.380 and 443.750. Two more new repeaters are being converted over the winter with the plan to replace the aging 147.120 and 444.225 Mt. Hood -Timberline repeaters.

With the request for added financial help during our recent antenna situation, the guys here at ARRG want you to know that it was tough for us to ask for help. ARRG has always taken care of itself with just normal member dues. Our team hasn't ever asked for financial help like this in over 37 years, so this was a rare event. In the end, your wonderful response was quite stunning and along with Jolly Jeepers, ARES and so many long term ARRG supporters, you each made it possible for us to purchase two new commercial Telewave antennas for both the South Saddle 147.320 and the Mt. Fanny 147.260 repeater.

You can read more about the antenna fundraiser project and learn about the results by reading the article in this newsletter entitled "[It's a Wonderful Repeater Life.](#)"

Have a Merry Christmas and a Happy New Year from everyone at ARRG!



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ARRG

Mission Statement

ARRG is dedicated to the advancement and enjoyment of Amateur Radio, to promote our hobby, to provide reliable repeaters for community service activities, emergency communications and other types of Ham Radio activities

ARRG in Public Service

Throughout the year, one or more of the K7RPT repeaters plays host to many different public service nets and events. ARRG always makes our repeater systems available for such uses without any cost to the individual, team or groups that wish to use them.



Many of you have heard some of the events occurring over our repeaters and some may wonder what the event is all about and what team is putting on the event.

ARRG provides our repeater facilities daily to emergency groups like the ARES, CARES and Beaverton CERT while some of the events held on the repeater system are just plain fun to participate in and listen to.

This year, when the call went out that we had suffered two major antenna failures at our Mt. Fanny and South Saddle repeater sites, and the fact that our only backup spare antenna we in case any of our VHF systems were to fail, also failed, we weren't exactly sure what kind of response we would receive to the idea of asking for assistance to maybe go out and purchase two new antennas instead of trying to re-use hand-me-downs. We only knew we had repeaters worth thousands of dollars running on a two very temporary antennas. The chances that these lightweight antennas could survive the winter were slim.



So we were in a bit of a dilemma here at ARRG. We were sick and tired of using hand-me-down antennas for prime emergency sites like South Saddle. The group lacked the total funds to purchase new antennas and we were running short of time to even get into South Saddle once the bad weather hit.



Luckily for us, within a few days of learning about the problem, our members and team users of both the 147.320 and 147.260 repeaters stepped in to get the fund officially rolling and everyone had jumped onboard with the complete antenna replacement. On our part here at ARRG, we think it's great that there are several emergency service and social teams that call our repeaters their home and we knew right away from your many responses that you weren't going to sit idly by while either repeater was in any sort of peril.

We were (and are) blown away by your out pouring of support for the antenna replacement idea. In the end, many long-term supporters of ARRG stepped in to help with the situation. Along with the individuals who came to the rescue, most notably one particular team made a wonderful Christmas gesture that went well above and beyond our minimal needs and provided the extra push for the 147.320 antenna fund.



Along with their regular donation they make to ARRG each year, this group heard about the antenna situation and made it possible for ARRG to reach and even exceed our goal within a mere week of the initial call out for assistance. Early response to situation by individuals and this group in particular made it possible for us to actually order the antenna, have it shipped in by truck and get it installed up at South Saddle all before winter closed in.

Because of their wonderful support over the years, this month's Member Spotlight is devoted to Bill DeBuhr, K7JPN and his wonderful Jolly Jeepers organization.

December Member Spotlight



The Jolly Jeeps is an organization of sixty 4-wheel drive enthusiast families dedicated to promoting safe, fun, and challenging four wheeling recreation. The Jolly Jeeps is Oregon's oldest Jeep club, founded in 1962.

The Club sponsors an off-road rally in July each year called the "Back to Basics Tour". This is a weekend event where four wheeling enthusiasts gather for guided trail rides through the Tillamook State Forest, great food cooked by the Jolly Jeeps and some great stories swapped with four wheel drive friends.

The income from this rally allows the Jolly Jeeps to help some of our neighbors in need during the year. One of the activities of which we are most proud, is the association we have with the Toy and Joymakers division of the Portland Fire Bureau. This association started in 1966 when they needed help delivering Christmas toys because of an unusual snow storm. The Jolly Jeeps have assisted in delivering toys every year since.

The Jolly Jeeps appreciates the ability to use the ARRG repeater on South Saddle Mountain as it serves as a lifeline for our activities in the Tillamook Forest where cell service is difficult.

During our Rally last July we were able to inform the Tillamook Fire Department and ODF of a rekindled slash burn threatening many acres of the Forest. A radio call to our base camp started the process of contacting these agencies.

If you would like more information about the Jolly Jeeps organization please check out our website located at <http://www.jollyjeeps.org> or feel free to contact me at info@jollyjeeps.org.

73,

Bill DeBuhr, K7GPN



ARRG Technical Corner

Repeater Updates for the K7RPT System

By Marc Douglas, AE7KK ARRG Technical Team Lead

South Saddle 147.320 and 442.325 System

The big news here is that we have a brand-spanking new 6 db Telewave antenna on the 147.320 VHF repeater. Make sure you check out the article about the work that was accomplished up at South Saddle.

Also, give the new antenna a try if you haven't already! Thanks to everyone who donated to purchase this new antenna! In case you have trouble coming in on the VHF side, give the 442.325 UHF repeater a try as well, as both repeaters are permanently linked together.

Timberline (Mt. Hood) 147.120 and 444.225 System

Late this past summer we noticed some intermittent problems with the VHF repeater being keyed up and looping back the transmit audio back to its own receiver. As a short term work-around, we've disabled the VHF transmitter's CTCSS (PL) encoder, which has stopped the problem from occurring. This does not affect the VHF receiver's CTCSS decoder, so you will still need to set your radio to send a CTCSS tone of 100.0 Hz to access the repeater. But don't use full CTCSS encode/decode on your VHF radio (as we're not sending a CTCSS tone on the VHF transmitter). And as usual, both repeaters (147.120 and 444.225) are permanently linked together. See below for upcoming changes at Timberline.

Bend 147.040

The link to the Timberline (Mt. Hood) repeater system is still disabled until we can deal with the radio/TV interference issues with the Bend repeater. (Please see the September 2013 Technical Corner article for more information on the Bend repeater issues.)

La Grande 147.260

Some good news for the La Grande repeater! It is back on the air with a temporary commercial vertical loop antenna. And more good news is that we have a new Telewave antenna for that site that should give us more gain and an omni-directional coverage pattern when it gets installed as weather permits.

Upcoming Projects

Over the winter months we'll be preparing both VHF and UHF MSR2000 repeaters for Mt. Hood, along with new batteries donated by Clackamas Amateur Radio Emergency Services (CARES). This winter we will also be installing a new Arcom controller at Cedar Mill. This will free up our multi-port RLC controller for use at South Saddle, which will include a link system that will allow us to link up our other area repeaters (e.g. the Sylvan repeaters for the D1 Net, etc.). It may be next spring, but we look forward to installing the new Telewave antenna for the La Grande repeater.

We don't have a timeline or specific details for the Bend repeater, but we will need to come up with a solution to the radio/TV interference problem. If possible, at the current site, or perhaps by moving the repeater to a new location with a lower RF noise floor. ARRG is always looking for people to help us with technical projects! If you would like to join the fun, just contact us at k7rpt.arrg@gmail.com.

It's a Wonderful Repeater Life

By Marc Peterson, W7PM

Even with our most recent South Saddle antenna drama which really hit home during the September 30th storm, I feel the 2013 year was actually a quite successful period for the ARRG technical team.

Throughout the year several good things happened. The CTCSS project was completed on all Portland area repeaters and even the La Grande repeater was upgraded to full tone.

Our first real install of the year occurred last January when the 444.125 repeater was installed on a completely new site located on Chehalem Ridge.

Our first trip to check on the South Saddle site occurred in late April and soon afterwards the team turned off the old 147.320 repeater and replaced it with a newer Motorola repeater.

Also around the same time the team did significant work at the Cedar Mill site. We replaced the old 147.380 GE Master II repeater with a newer Motorola MSR-2000. We also installed a newer MSF-5000 synthesized repeater at the site on 443.750. Along with the new repeaters came a new temporary test controller and a linked radio system which allowed the 147.380/443/750 system to be linked up to any of our Timberline, Sylvan or South Saddle repeaters.

The team also spent much of our time in finishing up the CTCSS upgrades to several repeaters around the area all in preparation for the Hood to Coast event.

Prepping for HTC forced the team to spend some quality time working on the 147.120 machine. As many of you know, it had been plagued with almost continuous noise and some desense for many years. Luckily while working on the CTCSS upgrades, a new circulator and commercial grade tx post filter system was donated to the team. We tried it out and so far the noise complaint has not been heard again. The repeater is showing its age as the pots and adjustments on both the receiver and transmitter are becoming brittle and intermittent. So the team is working on a new MSR-2000 replacement for 147.120 and 444.225.

We didn't just work on the Portland Metro area repeaters; in fact both the La Grande 147.260 and the Medford 147.020 repeaters received some upgrades.

After being off the air for an entire year, the La Grande 147.260 repeater was taken back up and re-installed and is finally back in service. Unfortunately, while installing the repeater we diagnosed that the upper antenna tower site had suffered a complete antenna failure. We were lucky enough to have brought along a temporary vhf loop antenna and with Julian, KK7JX and Ted, N7NSL help, we got the repeater back on the air. Because of your support, we were able to purchase the site its own new Telewave antenna and it's being delivered to the La Grande team as we speak.

Even with all the wonderful work we had accomplished, there still was a string of weather related antenna and feed line issues that kept popping up. According to weather records, all of our sites have seen some unusually severe storms, with wild rainfall and intense winds. According to the climate scientists, this pattern of wild and severe storms are set to continue as climate change keeps occurring.

As most of you already know, the site which seems to get the brunt of these storms is of course our South Saddle site located in the coast range.



RECORD WINDS and RAIN HIT COAST RANGE September 30, 2013 (Oregon Coast) – Record rainfall was the new normal all across Oregon this weekend, but the Oregon coast especially saw some wild weather. High winds up to around 70 mph in some places, a few power outages, some striking lightning storms and high surf advisory were typical along the beaches.

The month of September saw a record 10.51 inches of rain in Astoria, as of Sunday. The all time highest for September in the north Oregon coast town was 8.66 inches over 100 years ago in 1906. This was, keep in mind, the area Lewis & Clark camped out in 100 years before that, reporting that it rained all but a few days of the three months they were there.

Over the weekend, one of the highest rainfall amounts was recorded at Tillamook with 6.84 inches over the period starting at 10 a.m. September 27 through 8 a.m. this morning. Heceta Beach, between Florence and Yachats, received 3.44 inches of rain. Newport came in at 3.36 inches in that same period. (Above: Lincoln City in a storm).

Marys Peak near Corvallis, in the coast range, had an 87 mph gust. Mt. Hebo's highest gust was 75 mph (near Pacific City). Those elevations were well above 1,000 feet, however.

Closer to the ground on the central Oregon coast, Florence saw a peak gust at 63 mph and Yachats had 62 mph. Newport's Yaquina Bay Bridge had 65 mph.

It's a Wonderful Repeater Life, continued...

We have learned the hard way that a little bit of rain coupled with almost hurricane force winds can push a single water droplet well past any sealed connector or into any radial screw hole and can damage an antenna system or its feedline. Add the fact that our cables, connectors and antennas are aging after being on site for many decades and you can easily see why our earlier manageable antenna drama could turn into legitimate antenna disasters.

Upon each visit to our repeater sites, we make it a point to check swr's as we arrive and then as we leave. We record this data in our site logs and in the case of the May visit to the 147.320 site, we were alarmed when we found that our output power of around 55 watts, was also showing 50 watts reflected, resulting in a very high swr problem for the freshly installed 147.320 repeater.

Since that first visit of the year to 147.320, I believe the team made more than a half dozen visits to deal with ongoing antenna or coax issues that plagued the site all summer. We had already lost the spare hardline to water damage the year before so that meant we were out of coax spare run we had relied on in the past for emergencies. Because of water damage, there were many times over 2013 that the 147.320 repeater was running on the old Diamond tri-bander antenna we had left over on the tower from a linking project years earlier.

In May, we pretty much already knew we had suffered severe water damage to all of our coax runs on our tower. So when I went to test the swr's on the 147.320 antenna, I grabbed my Bird Watt meter and before even attaching it to the hard-line and the large male N, the entire connector came off in my hand. Grabbing my expensive Bird wattmeter, I let the coax fall downward hitting my leg. Now that is was facing down, a few cups of water came gushing out the coax, soaking my leg. I'm sure there's a good joke in there somewhere, but rest assured, the amount of water was a bit more than just condensation occurring.

As May and June marched on, we made many trips diagnosing and trying to use temporary measures, switching from this spare antenna of coax to another, just to learn the spares were in just as poor of shape. Regardless of all our attempts, it became clear that the old 147.320 Sinclair antenna needed to come down once and for all. A wishful decision was made to eventually replace the entire antenna system, from the connectors/jumpers and coax all the way up to the antenna.

This is the point of the story where most of you became involved. In a not so official way, many of the team started floating the idea of a possible antenna replacement for both the South Saddle and Mt. Fanny sites. That met with some resistance mostly because we knew our small operating budget couldn't absorb the cost to replace the two broken antennas and feed lines all at the same time.

At the ARRG breakfast on November 2, 2013, we floated the idea to completely replace the old antennas with something brand new to those in attendance and like so many good ideas, I kind of thought this one would die quickly and we'd be left to hope the repeater would last throughout the winter.

Sometimes it helps to whine and moan, because that breakfast was the start of something wonderful. A great couple of ARRG'ers who are involved heavily with not just ARRG, but OTVARC, ARES and CERT, approached us, handed us \$200 and said that it was for the antenna fund and to use it as we saw fit. So because of their initial donation, they helped give us the needed shove to officially start the antenna replacement fund that made this all possible.



Jim Campbell, N7QME and Marc Peterson, W7PM removing broken 4 bay antenna from South Saddle tower



Look at the brand new Telewave 6 dbd 22' tall Fiberglass antenna with its gold anodized mounting base

It's a Wonderful Repeater Life, continued...



Aerial Tower Crew

Jim Campbell, N7QME moving the new Telewave into place to be mounted on the open tower leg

While it was wonderful we now had a good funding foundation to build upon, we all thought that any fund raising to reach our necessary goal would take months, not the weeks we really experienced. For us, the plan right out of the gate was that we'd build the fund up over the winter and then when we had close to enough, get at least the 147.320 antenna ordered and shipped in to store here over the winter. Finally when next spring rolled around, we'd assemble the tower team and attempt to install the new antenna.

What was bugging most of us, was the fact that winter was closing in fast and we were losing any clear weather window to fix the 147.320 antenna system or throw up a used alternative. At that point we had no backup antenna available on the tower, nor did we have any extra spare antennas lying around. I'm getting a bit ahead of myself here, because we did have a spare and did try it. Unfortunately, it was the 20 year old 4 Bay we attempted to install October 26th. As long as there was zero breeze, it sounded awesome, but once a mild breeze occurred it exhibited worse problems than the old Sinclair did.

So, on October 28th, the team went back up and moved the repeater back over to the spare Diamond antenna. The fate of the 147.320 machine was in the hands of this very used, very lightweight Diamond tri-bander. I have to admit that I was absolutely terrified that the little Diamond would snap off in the next good storm, effectively throwing 147.320 off the air for the entire winter and for the first time in over 37 years.

I'm sure most of you already know, but with many repeater groups the member's annual dues usually go directly toward the actual operating costs of the repeaters. In ARRG's case this is true as well. These costs include the repeaters site/land/building leases, power and insurance. In our case, our team does everything in its power to reuse equipment to save money and penny pinch everywhere we can, however, there's not a lot left over for double antenna emergencies like we experienced this past year. Under the direction of Warren Winner, W7JDT our long term treasurer, our team does a tremendous job of saving what little extra there is.



Ground Crew

Dale Justice, K7WW and Marc Douglas, AE7KK working on the new feedline. The site was cold at 22 degrees this day

You might find it interesting to know that as repeater owners, members of the technical team pretty much pay for all the small parts and items themselves. Gas to and from each site is usually taken care of by the member as well. Because of their hard work, time, money and energy, the K7RPT system really couldn't support itself very long without a lot of loving care as provided by your Officers, Board Members and many individual technical team members providing this or that as we go along.

Our team has always done a great job to 'refurbish & reuse' everything in our inventory, but in the case of these aging antennas, we are often finding new stress fractures, water corrosion and moisture inside them no matter how well we try and seal them up, when they get that old and stressed, it's just a matter of time before they'll need attention..

In the case of the old 147.320 antenna, it was a Sinclair antenna that we purchased new about 18 years ago just for the 147.320 repeater and South Saddle site. This particular antenna had already been damaged by water corrosion on several different instances, the latest being in 2009. That year it was taken down, re-glassed and painted. It was installed again on the tower around 2011 but it didn't last as long as we would have liked it to.

It's a Wonderful Repeater Life, continued...

After we received the initial \$200 donation, a couple of the ARRG Board members said they'd help as well and we hadn't really wanted to burden the general membership with a call out for financial help, until we found out how much the commercial antennas really were. The antenna quote we received was really high, but less than other companies, a replacement antenna was right around \$1300 and that didn't include shipping and the installation costs for the team.

Within a few days of the breakfast, we put the word out on FaceBook and via the www.arrg.org website to see if there was any interest in helping to replace the 147.320 in particular.

Within days of putting the call out for help, people who don't even use the repeater came out of the woodwork to support the project. We were really surprised at all of the response from people all over the place. While the individual donations got us closer, we needed some really big donations to push us over our goal and then maybe we could buy all new feedline, connectors and jumpers and completely replace the antenna system from scratch...no more hand-me-down stuff.

What we didn't count on is that subsequent outpouring of support that ARRG received from each of you, Jolly Jeepers, ARES and CERT teams combined. WOW!

I want you each to know that we appreciate the overwhelming support and friendship each of you showed ARRG during this past fund raiser. It really means a lot. Most of you who donated hardly ever even use the repeaters. Many of you wanted to remain anonymous and I wished you'd allow us to publish your names. I'd like others to see what true Amateur Radio Community Spirit looks like. It's pretty amazing and I'm grateful that there are people and teams like you involved with Amateur Radio.

Because of your speedy and direct assistance, ARRG raised enough money for not just one of the antennas we needed for South Saddle, but we were able to order two. The larger Telewave 22' tall 6db monster was purchased for South saddle, while a smaller Telewave 6' tall antenna was ordered for the Mt. Fanny. Along with the two antennas, we had just enough extra to buy new feed line and connectors for South Saddle.

Things just lined up perfectly as we ordered the antennas and they arrived quickly (with 4 days) and we were able to get 147.320 antenna installed on Friday, November 22nd, 2013. Unfortunately, the new feed line didn't get here in time, but we have the 147.320 running on a new run of LMR-400 for the winter. With the new feed line we'll gain about a db of loss, so it's only going to improve more next spring.

The entire ARRG Officers and Board of Directors wanted me to tell each of you thank you very much!

73, Marc Peterson, W7PM



The South Saddle Tower Installation Team

From left to right: Dale Justice, K7WW, Jim Campbell, N7QME, Abbey, Lou Borland, KF7EJY, Marc Douglas, AE7KK, Gerard Davis, KE7CF, Marc Peterson, W7PM

Local Emergency Nets

Here is a list of nets in our area. Try checking in when you can--don't just listen! Get to know which nets you can contact, their procedures and NC operators.

CERT / NET - Community Emergency Response Team

Beaverton CERT - 8:00pm Monday Primary 147.380 + (100.0) and 443.750 + (100.0)
Secondary 444.750 + (123.0)

Tigard CERT - 8:00pm Sunday 440.175 + (110.9)

ARES - Amateur Radio Emergency Service

District 1 ARES - 7:30pm Nightly 147.32 + (100)

Washington County ARES - 7:00pm Tuesday 146.90 - (127.3) (no net on 3rd Tuesday)

Clackamas County ARES - 7:00pm Sunday 147.12 + (100); 444.225 + (100)

South County (SOCO) ARES - 7:30pm Sunday 146.92 - (107.2) (subunit of Clackamas County ARES)

Columbia County ARES - 7:00pm Tuesday 146.78 -

Multnomah County ARES - 7:00pm Wednesday 146.84 -

Tillamook County ARES - 7:00pm Wednesday 147.16 + (100)

District 4 ARES

Yamhill County ARES - 7:30pm Monday 146.64 - (100) (varies - check schedule)

Washington ARES

Clark County ARES - 7:00pm Tuesday 147.24 +

NTS - National Traffic System

Northwest Oregon Traffic and Training Net - 6:05pm Nightly on repeaters of the Western

Oregon Repeater Club,

145.27 - (107.2), 145.47 - (107.2), 443.15 + (107.2)

McMinnville Amateur Radio Club (MARC) - 7:00pm Monday 146.64 - (100)

Oregon State Defense Force (ORSDF) - 10:00am Tuesday 146.90 - (127.3)

Portland Amateur Radio Club (PARC) - 7:00pm Monday 146.84 -

Salem Tech Net - 10:00am Weekdays 145.29 - (100)

SKYWARN Weather Net - 8:05pm Wednesday 147.32 + (100)

Vancouver Tech Net, Clark County WA - 7:00pm Monday 147.24 +

Oregon Emergency Net - 6:00pm and 7:00pm Nightly 3.980 (LSB)

10m Tech Net - 8:00pm Monday 28.388 (USB)

Handy Ham Social Net - 7:00pm Sunday 146.84 -

VHF Nets VHF Intercom Simplex 144.320 2m SSB Net - 8:30pm Mondays 144.24 (USB) 6m SSB Net - 8:00pm Mondays 50.14 (USB) **HF**

The Radio Amateur is

CONSIDERATE...never knowingly operates in such a way as to lessen the pleasure of others.

LOYAL...offers loyalty, encouragement and support to other amateurs, local clubs, and the American Radio Relay League, through which Amateur Radio in the United States is represented nationally and internationally.

PROGRESSIVE...with knowledge abreast of science, a well-built and efficient station and operation above reproach.

FRIENDLY...slow and patient operating when requested; friendly advice and counsel to the beginner; kindly assistance, cooperation and consideration for the interests of others. These are the hallmarks of the amateur spirit.

BALANCED...radio is an avocation, never interfering with duties owed to family, job, school or community.

PATRIOTIC...station and skill always ready for service to country and community.

VOLUNTEER TECHNICAL TEAM HELP WANTED

K7RPT Technical Team Member – Portland Area Team

We are looking for an experienced or semi-experienced repeater technician who has the time and ability to learn more about the K7RPT Repeater System and radio sites we utilize. We are willing to train anyone who meets our minimum requirements below.

Age 18 and up (technical gurus younger than 18 may apply with written parental permission)

Drivers License - Vehicle (2 or 4 wheel drive okay) with accompanying insurance

Physically able to lift 50-75 pounds (repeaters are heavy and unforgiving)

Technical abilities should include board level repair, soldering, rf and af work, antenna work and site work.

We are willing to train the right energetic person!

Owned and operated by the Amateur Radio Relay Group, Inc, the 15 repeaters of the K7RPT system are always in need of monthly maintenance. If you are interested helping in this capacity, please contact us at k7rpt.arrg@gmail.com