

SCOPE June 2007

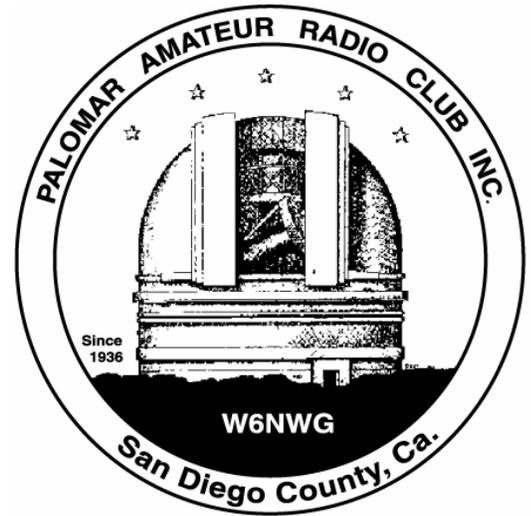
A newsletter by and for the Palomar Amateur Radio Club of San Diego, CA, USA.

Hale Telescope Special Event Station W6P
2-3 June 6:00am to 12:00am on 14.260 7.260

Club Meeting "Field Day"
6 June 7:30pm at the Carlsbad Safety Center

Board Meeting
13 June 7:00pm at W5NYV QTH

Field Day
23-24 June at the San Marcos Field Day Site



| Board of Directors | Call Sign | Contact Information |
|----------------------------------|-----------|-------------------------------|
| President - Steve Early | AD6VI | 619-461-2818 ad6vi@amsat.org |
| Vice President - Tom Storer | KI6DER | ki6der@amsat.org |
| Secretary - Gary Kent | W6GDK | 858-679-0578 w6gdk@arrl.net |
| Treasurer - Bob Birch | KG6RGI | rrbirch@cox.net |
| Director - Tom Martin | KG6RCW | 619-778-3866 rbg4@aol.com |
| Director - Dennis Baca | KD6TUJ | 760-722-0251 kd6tuj@amsat.org |
| Scope Editor - Michelle Thompson | W5NYV | w5nyv@amsat.org |
| Repeater Chair - Dan Bubke | K6NKC | k6nkc@amsat.org |
| Membership - Al Donlevy | W6GNI | 760-630-3096 w6gni@amsat.org |

| Frequency | Tx | Tone | Call Sign | Remarks |
|-----------|-----|-------|-----------|---|
| 52.680 | - | 107.2 | W6NWG | |
| 146.730 | - | None | W6NWG | Autopatch; see note 1,2 |
| 147.075 | + | 107.2 | W6NWG | Autopatch; see note 2 |
| 147.130 | + | 107.2 | W6NWG | Autopatch; see note 2 |
| 447.000 | - | 107.2 | W6NWG | Autopatch; see note 2 |
| 224.380 | - | 107.2 | KK6KD | Americas Unidos |
| 224.900 | - | 107.2 | WD6HFR | Convair/220 ARC |
| 224.940 | - | 107.2 | KK6KD | Sharp Hospital Coverage |
| 446.140 | - | 123.0 | WB6FMT | Vista |
| 146.175 | + | 107.2 | N6FQ | Fallbrook ARC; autopatch; linked to 445.600 |
| 445.600 | - | 107.2 | N6FQ | Fallbrook ARC; autopatch; linked to 146.175 |
| 145.050 | (s) | None | W6NWG-1 | Packet node; linked to Metro 9600 net |
| 146.700 | - | None | W6NWG-4 | Packet duplex repeater; Duplex; PALBBS use OK |

PARC also conducts the following ATV (amateur fast-scan television) operations:

ATV in: 915 MHz WBFM, 919 MHz AM, 2441.25 MHz WBFM

Intercom: 146.415 MHz NBFM simplex (tone 79.7)

ATV out: 1241.25 MHz AM

¹ The 146.730 repeater transmits a CTCSS tone of 107.2, but does not usually require any tone for access. When necessary, an access tone of 107.2 can be enabled. A 107.2 tone is always required for autopatch access.

² PARC autopatches are closed, for members only, and always require an access tone of 107.2. For PARC autopatch access info, email autopatch@PalomarARC.org.

Regular Nets Sponsored by PARC

| Day | Time | Frequency | Name | Manager |
|----------|-------|-----------|-----------------|---|
| T/Th/Sa | 2000 | 146.730 | NTS Traffic Net | Marvin KD6YJB KD6YJB@arrl.net |
| Sunday | 0830 | 146.730 | ARES Net | Dennis K7DCG |
| Sunday | 2045 | 147.075 | MARA | Glenn Jones KG6JDF@amsat.org |
| Monday | 1915 | 146.730 | RACES Sub-net | |
| Monday | 2100 | 146.730 | Microwave Net | Kerry B. |
| Tuesday | 1900 | 147.130 | Red Cross Net | Ted tthompson@sarc.org |
| Tuesday | 2100 | 146.730 | Off-Road Net | Dick Wilimek KA7AYT rwilimek@cox.net |
| Thursday | 2100 | 146.730 | Ham Help Net | |
| Friday | 2100 | 146.730 | Hiker's Net | Ed KF6DXX@juno.com |
| Nightly | >2200 | 147.130 | Facetious Group | |

President's Message

June is rushing-in with a lot of PARC activity. The weather is starting to warm up inland, though the coast will likely stay cool a little longer.

Our May 2nd Meeting featured Gordon West, WB6NOA. Those of you who saw Gordon in action, know that he gave entertaining program. Gordon used physical representations and a bit of humor to teach us about radio navigation aides up to and including the Global Positioning System. The room was a bit crowded due to a City of Carlsbad preemption, but we packed everyone in and learned a few things.

This month we are very BUSY!

On June 2nd (from 6 am to midnight PDT), The Palomar Amateur Radio Club, with the Palomar Mountain Volunteer Fire Department Radio Club (KI6FDN), will sponsor a Special Event Station (Callsign: W6P) on Palomar Mountain. This event commemorates the 59th anniversary of the June 3, 1948 dedication of the Hale Telescope at the Palomar Mountain Observatory. Operators are needed for this event. Everyone is welcome. Shifts of 2 to 4 hours (or more if so inclined). If interested, please contact Michelle, W5NYV, at (858) 229-3399 or w5nyv@amsat.org

Also on June 2nd and 9th (and finishing June 9th), The Palomar Amateur Radio

Club is offering a 2-day General Upgrade class at the Carlsbad Safety Center. Please contact Steve Early at ad6vi@cox.net or 619-461-2818, if you are interested in upgrading to "General".

June 6th - PARC General Membership Meeting - Field Day. This will be a presentation on what has happened in the past, and what to expect this year.

June 22, 23, 24 - Field Day - We've Got Site! Dennis Baca and Conrad Lara have worked diligently to secure us a site this year. Several months ago, we were notified that the site used last year (and the year before) would not be available due to construction. Dennis and Conrad got to work, running down all of the locations proposed by PARC members. At this writing, it is my understanding that they have one secured and are negotiating on a better site. Keep an eye on the PARC website, www.palomararc.org, for the latest information.

Last year, we had over 120 participants and visitors and won the 4F category, nationwide. This year, let's see if we can exceed 140 attendee's this year. Bring a friend (or two, or three).

Looking down the road:
July through September - Repeater site refurbishment work parties. Watch the website for details.

continued on page 3

"President's Message"
continued from page 2

July Meeting: Handi-Hams, presented by Marcia De Runtz, KG6FIX.

Please note that the July Meeting will be held on July 11th, so that we can all enjoy the 4th of July with our loved ones and friends.

I hope to see you on June 6th. Bring a friend!

-Steve Early, AD6VI

Licensing and Class Information

Register 5-7 days in advance for the following test sessions.

PARC Testing is in Carlsbad on the 2nd Saturday of the month at 9:30am at the Carlsbad Safety Center. Please call 619-465-EXAM for the latest contact info.

Test sessions may be cancelled if no one pre-registers.

EARS Testing is in Escondido on the Last Saturday of the month at 9:00 am at the LDS Church.
The address is 1917 East Washington Avenue, Escondido, 92025.
Contact Harry W6Y00 (760) 743-4212 or W6Y00@amsat.org.

April Meeting Goodie Givers

Tom KG6RCW, Conrad KG6JEL, Marvin KD6YJB

April Fold & Staple

Rich KE6DUG, Art KB6YHZ, Jo KB6NMK, Sonny WA5ACE, Al W6GNI & Kathy

May Fold & Staple

Jo KB6NMK, Harry W6Y00, Al W6GNI & Kathy, Sonny WA5ACE

Club Classified Advertisements

Personal equipment ads are free to members and could be bumped after 3 months. Make up your ad like the ones on this page and send to SCOPE@PALOMARARC.ORG.

Commercial ads in big boxes: \$2/col. inch/month. We will squash your ad copy to the number of inches bought.

(4.1) EF-610 Force-12 6-element 10m beam - condx: good, on the ground, \$60. A-50-5S Cushcraft 5-el 6m beam - condx: bent boom and bent 2 elements, fixable, on the ground, \$25. Parts for TX472MDP Tower: M-15R mast, TRX-80HD tower raising fixture with K2550 winch, and new HD T-Base. \$60 for all. Miscellaneous aluminum tubing from Sommer beam: come and get it. Peter KQ6AA potifar@pacbell.net or 760-917-2264

Fair Volunteers Needed

June is fast approaching, and the San Diego County Amateur Radio Council is asking for PARC participation in the SANDARC exhibit at the San Diego County Fair in Del Mar.

The Fair will run June 8th, through July 4th, but will be closed June 11-12, 18-19, and the 25th. Shifts are 10 AM to 2 PM and 2 PM to 6 PM. We need two people per shift. This is a good opportunity to present amateur radio to the general public and answer questions for those that are interested. In previous years, there have been some very enthusiastic (about radio) children and parents, as well as plenty of people that simply need directions to the bathroom. In both cases, volunteering provides a very useful service.

If you would help out, please contact Jim Cooper, NE6O, at ne6o@amsat.org

Generator Sound Shielding

Field Day is coming, and one of the annoyances of Field Day is the noise the gas-powered generators make, all day and all night. There's plenty of noise on the HF bands without a generator droning in your ear. With a long extension cord you can move the generator some distance from the station, which helps, but the noise is still bothersome. I stumbled across a tip for reducing generator noise on the web site for Burning Man, which is (among other things) a giant desert camp-out. They suggested building an open-top box out of 3/4-inch plywood, to direct the sound up instead of out toward nearby people. I resolved to find out how well this works.

At Home Depot I bought two 4x8 sheets of plywood and two 8-foot pieces of 2x3 pine, and had each cut in half.



That gave me four four-foot sticks for the corners, to which it was easy to screw the four plywood sides to make the sound shield. I equipped one side with hinges, to make it possible to service the generator without disassembling the shield or lifting it over the generator. For this test I didn't worry about paint or any other fine points of construction.

I brought the shield up to Palomar Mountain, where I store a club generator and a smaller generator of my own, both in the club's small trailer. After evicting the mouse who had taken up residence in the trailer, I set up both generators. The club's generator failed to start, and getting

that fixed will be another project to do before Field Day. Luckily my own generator fired right up, so I used it for testing the sound shield.



I set up a sound level meter at some distance from the generator, more or less typical of the distances you see between Field Day stations and their generators. First I fired up the generator without any shielding at all, and measured 66 dBA sound pressure level as a baseline (with no load on the generator). Then I erected three walls of the shield, with the open side facing away from the meter.



I was excited to measure 55 dBA, a full 11 dB less noise than without any shield, and with only three walls in place. The next step was to install the fourth wall and measure again. *continued on page 5*

*“Generator Sound Shielding”
continued from page 4*



I was a little surprised to find the noise was back up to 61 dBA, only 5 dB less than the unshielded generator.



Generator Unshielded

Shield Open On One Side

Shield Closed

Apparently the open three-sided configuration effectively directs the sound out the open side, while the closed configuration distributes the sound

equally in all directions. The closed configuration (as recommended for Burning Man) would be best if people are in all directions from the generator. The three-sided configuration would be much better if the generator can be placed off to one side of all the people. Usually it's possible to arrange a Field Day site that way.

So, is it worth the trouble? Maybe. A noise reduction of 11 dB would definitely reduce the bother and fatigue at Field Day, even though it wouldn't create anything like silence. The shield is awkward to handle and rather heavy, and requires on-site assembly. Perhaps worst of all, it takes up considerable storage space between Field Days. And of course, the plywood and other materials aren't free.

In my opinion, it'd be better to replace the 3.5 kW generators the club owns and borrows for Field Day with a set of 1 kW Honda generators, which are much, much quieter to begin with. They are also lighter and more fuel-efficient under light loads. But of course, these nice little generators also cost money - quite a bit more money than two sheets of plywood. So, perhaps sound shields like this one have a place at Field Day.

73 -Paul, KB5MU

Volunteer Examiners Needed

After 18 years of dedicated service as the SANDARC Carlsbad Volunteer Examiner (VE) Team Leader, Rusty Massie, AA6OM, has tendered his resignation, as team leader, to the San Diego County Amateur Radio Council VE Coordinator.

Assi Friedman is serving as Interim Team Leader, pending identification and appointment of a permanent VE Team Leader for the site.

If you see Rusty, please thank him for all his years of dedication to the VE program. In the meantime, Rusty and Assi have both said there is a need for more VEs at the Carlsbad site. Amateur Extras are preferred, but Advanced and General Class operators may serve as well.

If you are interested in helping out, please contact me at ad6vi@cox.net, or 619-461-2818.
- Steve Early, AD6VI

Test Equipment

Available for loan to PARC members. Thanks to the effort of John, WB6IQS PARC now has a working HP 8640 Signal Generator. John spent many hours repairing this unit, donated it to PARC, and it is available for loan to PARC members for projects. John asked me to verify calibration with my 8640 after he completed the repairs, which I have done and it is now ready for loan.

Technical Description:

AM FM 0.5 to 512 MHz on fundamentals and 512 to 1024 MHz on 2nd harmonic. Output range +10 to -130 dBm. Female N Connector front panel output. Crystal lock for stability. Note: This signal generator, designed in the last century, has a very low phase noise specification, equal to or better than most modern signal generators made today.

In addition to the HP 8640 I have the following test equipment from the W6JAB estate available for loan to PARC Members

- SWR meter (Diamond SX-600)
- Texscan CATV Spectrum analyzer 50- 400 MHz
- MFJ 269B
- MFJ 300W dummy load
- IFR 1100 Communication Monitor

I also maintain a HP Z3801A GPS Receiver and frequency standard with a 10 MHz output. It is available for use by appointment for PARC members needing to calibrate equipment.

Contact me for use of the above items, kc6uqh@amsat.org or 760.758.6062 evenings 7:00 to 10:00 PM & weekends 9:00 AM to 10:00 PM
-Art, KC6UQH

City of Carlsbad needs Volunteers

Sue Irely, the Community Volunteer Coordinator for the City of Carlsbad, is asking for our help.

Sue wrote:

"The City of Carlsbad is looking for a team of volunteers who are knowledgeable about today's audio visual equipment - things like computer projectors. This team will be asked to set up equipment for various presentations throughout the City on an occasional basis. Do you know anyone who might be interested in this opportunity?"

I have known Sue for a long time through the San Diego/Imperial Counties Chapter of the American Red Cross and know that Sue is a pleasure to work with.

One of the primary locations that Sue is talking about is the Carlsbad Safety Center Conference Room that we meet in. A few of us have working knowledge of these specific systems and I am certain that any of us can learn from the others.

If you are interested in helping out the City of Carlsbad, please let both Sue Irely, and myself know.

Sue can be reached at:

Sue Irely
Community Volunteer Coordinator
City of Carlsbad
sirely@ci.carlsbad.ca.us
760-434-2906
Fax 760-720-9461

I can be reached at ad6vi@cox.net or at 619-461-2818

Membership Report

K7MOA, KI6IWZ, KI6IET, WB6YVT, KI6ABV, KI6FVV, KI6FVU, K6AH, W6DEO, KI6CTS, NOMGT, AC6RV. And, Charlie, NN3V, renewed for 10 years! (The maximum time we accept.) We also had 6 "old" members reinstate their membership. Welcome back! Be sure to check your label next issue, your "participation points" will be printed there. Zero's are not printed. Come to the monthly club meeting, get 1 point, bring something for the Goodie Table, and get another. Work at the repeater site, and get two. Field day is a great way to earn points, setup, operate, help, tear down, etc. Be sure to sign the sign in sheets! Participation points are exchangeable for prize drawing tickets at the Annual Club Picnic. (Max 20 tickets per person. Several have 20 or more points already!)

Lake Hodges 50k Foot Race Report

The Lake Hodges 50K foot race took place on 31 March 2007. The following hams participated in the race as run trackers at 6 aid stations plus a net control: Andre Hansen K6AH, David Doan KC6YSO, Don Johnson WD6FWE, Ed Hasselmann KF6NXY, Frank Norton KI6HZV, Fred Smittle K6ISS, Jerry Kostro AK6QJ, Jim Egerton W6SST, Mike Fisher KG6QXO, Paul Schmidt K6PKS, Preston Butler W6ASP, Tom Aterno KI6ASP, Tom Martin KG6RCW.

These dedicated amateur radio operators did what emergency communications and ham radio is all about. They took their diverse radio systems and set them up in the field in 6 different locations and started communicating runner numbers and times with no equipment glitches and no delays. The start was at 0700 and the last runners finished at 1700.

Some statistics: 197 runners were scheduled to start. 14 did not start, and 19 dropped out towards the end of the race. The team gathered, transmitted, recorded, and processed just over 1400 separate bib numbers as they tracked the runners through the aid stations. This process sounds simple, but believe me it is not. Here are some reasons why. We had eight runners that did not finish and we considered them lost. They turned out to be drops the racing staff did not tell us about. We had two "runner down" reports but could not find them. It seems runners fall and think they are seriously hurt sometimes and lay there and recover enough to continue or limp into the next aid station and drop out. Both our runners down dropped out by going past the nearest aid station and dropped at the start finish line. Paul K6PKS went looking for them but could not find them. Each runner down scenario takes priority over any other communication. The Kiosk aid station missed logging several runners because of this distraction.

Of course the good thing is that they were ok and ultimately found. The conditions the competitors perform in are extreme. It is a high-risk athletic event and our services as radio operators are very welcome. SURF is a gracious host with food and t-shirts for us. I prefer calling them hosts as opposed to "served agency" because we are there at their invitation. I don't know how many times runners came by and said thanks for being here.

- Jim Egerton W6SST



Mike KG6QXO and Ed KF6NXY getting set up at Hernandez.



Fred K6ISS and Jerry AK6QJ at net control.

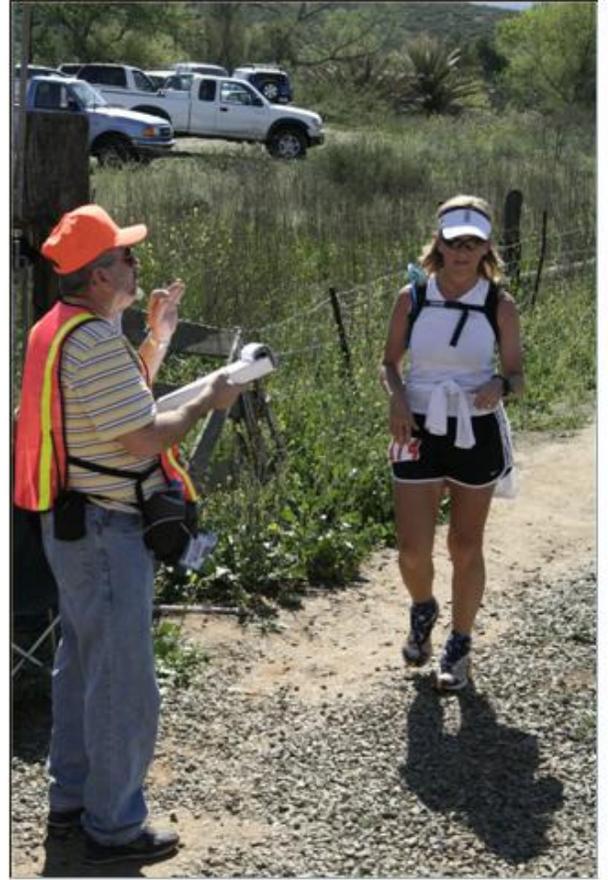


Ed KF6NXY at Ysabel Aid Station.

Photos from the Lake Hodges 50k Foot Race



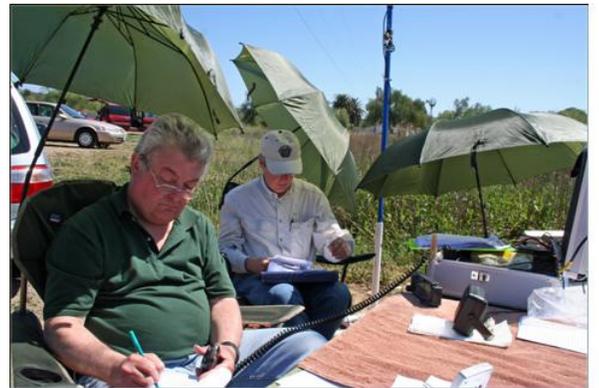
Dave KC6YSO calling net control from The Kiosk.



Preston W6ASP congratulating runner at finish line.



Paul K6PKS and Andre K6AH at Ysabel aid station.



Mike KG6QXO and Jerry AK6QJ at net control.

Vintage Novice Station

In response to a steadily diminishing number of requests, I've been asked to write a few words each month on the subject of collecting, restoring and using older equipment, fondly known as "boat anchors." I've been a ham since 1959, and for the first number of years, all we had was tube type equipment. Some was "home brew," some kits, and some manufactured.

For the first article, we will feature a "typical" entry level Novice station of the early to mid 50s. This setup is all Heathkit, and is notable in that the transmitter, the AT1, was Heath's very first amateur product, and the AR2 receiver was the first Heathkit receiver capable of use on the amateur CW bands.

A bit of history is in order here, both of the Heath Company and the Novice license. In 1951, the FCC restructured the licensing program and introduced the Novice license. This entry level ticket required a 5 word per minute code test and a simple written test. Novices were limited to small portions of the cw bands on 80, 40, and 15 meters, plus a portion of 2 meters for phone (AM in those days) and cw. All transmitters were to be crystal controlled, and power was limited to 75 watts input. The license was for a one year term and not renewable, so the emphasis was on cw speed, as 13 wpm was required for the General Class license. It was upgrade or go off the air!

The Heath Company, which manufactured airplane kits and parts in the 20s and 30s, entered the electronics field after World War II by buying a tremendous quantity of surplus components from the military. They began marketing these components to hobbyists and other users, and in 1947 marketed the first "Heathkit." It was a 5 inch oscilloscope, and was inspired by the thousands of 5 inch CRTs that they had obtained! It was an instant success, and was quickly followed by a number of other test equipment kits, all of which sold

briskly. When the Novice license was introduced, there was a scarcity of appropriate transmitters on the market. Many Novices built their own transmitters, but if a manufactured unit was desired, each of the available transmitters had drawbacks. Some had no built in power supply, some were higher power and thus too expensive, and some used plug in coils instead of bandswitching.

Heath saw an opportunity to test the market for amateur radio kits, and offered the AT1 at the end of 1952. It was very successful, and was produced for 4 years in two styles of panel, although the circuitry was identical. Engineering costs were minimal for the simple circuit, and most of the parts were available from the surplus stock. It was bandswitched, covered 80 thru 10 meters with a built-in power supply. It was a 3 tube design, with a 5U4 rectifier, 6AG7 oscillator, and a 6L6 amplifier/doubler. Input power was 25 to 30 watts, and output about 10 watts, due to the inefficiency of the 6L6 at higher frequencies and its use as a doubler. It sold for \$29.50, including all tubes and parts.

The AR2 receiver debuted in 1952 as well, and was a simple 6 tube general coverage superhet, with a transformer power supply, as opposed to the AC/DC series filament string types common at the time. There was a model AR1, but it lacked the BFO necessary for cw work. It sold for \$25.50, and the cabinet added \$4.50.

The photo (page 10) shows two other Heathkit accessories: The AC1 antenna tuner and QF1 Q multiplier. The AT1 had no pi network output. It was designed to match a 50 ohm load, so an antenna tuner was necessary. This one was designed to use "long wire" type antennas. Minimum required length was 75 feet for 80 meters, and less for the higher bands. Loading was monitored by means of a neon bulb, and a ceramic standoff insulator on the front panel is used to connect the antenna. The QF1 was

meant to improve the inadequate selectivity of the receiver. It was introduced somewhat later, about 1955 or so.

I have owned the units shown in the photo for several years. The transmitter is the same model as my first one as a Novice, and is the earlier version. Fortunately, when I got this one, the panel and cabinet were unmodified and intact. The 6L6 had been replaced by a 6146, but no structural or coil modifications were done. The original construction was carefully done. I replaced the old filter capacitors and rewired the amplifier for the original 6L6.

The AR2 came to me described as in working condition, but it wasn't! The construction techniques were sloppy, so rather than trouble shoot, I decided to "rekit." In the restoration hobby, this term means "take it apart down to the component level, and rebuild." I replaced all the small resistors and capacitors with modern components, and used only the parts that could not be duplicated, such as variable capacitors, transformers, and of course the panel and cabinet. I followed the "step by step" instructions in the manual, just as someone else had 50 plus years before, and it worked just fine! The receiver was aligned with a signal generator, and meets the original specs. Another benefit of the rekitting

process is that it gives us the opportunity to actually "build" a Heathkit just as was done when they were new.

The key in the photo is a surplus J-38, which were available by the thousands in the 50s. This one has an "L" logo on it, indicating it was made by Lionel, the electric train outfit!

So, did they work? Sure, in a primitive kind of way! I made contacts as a novice with an AT1, and used this setup to make a few contacts on 40 meters just last week. The low output power is a challenge, and crystal control is a thing of the past. Perhaps intending to broaden the appeal, provision was made to use a VFO, the VF1, which was introduced in 1952, and a modulator, which was never produced by Heathkit. I use a VF1 with this setup today, but never tried to modulate it. It's hard enough getting out on cw with low power; I don't have the patience to try 10 watts of AM!

If there is interest, I'd be happy to do a monthly article detailing the history of some of the vintage stations that I've restored. Visitors are always welcome too! And, if you have or know of some vintage equipment looking for a new home, let me know.

Please address questions or comments to Ron, K2RP@ARRL.NET



I have thousands of resistors, 1/4, 1/2, and 1 watt in most standard values and many non-standard as well.

I'd be happy to share with members, in reasonable quantities. I also have quite a variety of other hard to find assorted parts, connectors, etc.

Contact
Ron, K2RP@ARRL.NET

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This month's General Meeting will be held on June 6th, 2007 (the first Wednesday of each month) at the Carlsbad Safety Center. The subject will be Field Day. Talk-in on 146.730 MHz repeater. Meeting starts at 19:30. Ridesharing and coordinating for dinner beforehand often occurs on the repeater on Wednesday afternoons. Everyone is welcome! The Palomar Amateur Radio Club serves the Amateur Radio community of San Diego County California with repeaters located on Palomar Mountain. The club has monthly meetings, Field Day festivities, an annual auction, and many other fun and interesting functions. All are welcome at our club meetings and on-the-air interactive radio nets which now feature discussion groups on hiking, microwave, off-roading, as well as traditional message traffic and emergency communications nets (RACES - ARES - MARA). 73 and hope to CU you on the air! -NN3V (past president of PARC)