

## New State of the Art Club Repeater Installed and Operating

By Bob Smith, WB6ODR, Trustee of W7YRC



After several false starts to change out the YARC repeater, five of us gathered at the appointed site and location to do the job. I want to thank several people, Neil Vince KA7JAS for his expertise in finding, wiring and repainting a first class cabinet for the repeater. Next, I want to thank Cheuy Mendoza, WA7JC for coordinating the purchase of the repeater and the controller. Next I need to thank Tony Brown, WB6LS for wiring and setting up the controller in our repeater. Lastly, I want to thank Bob Erdman, W7TQJ for his photo excellence and keeping a nice photo progress of the repeater install from first view at the site until it was tested and deemed "On the Air". The complete change out took about 2 hours and all I did was try to stay out of the way.

The Yavapai Amateur Radio Club of Prescott, AZ now has a state of the art, first class, 2 meter repeater on the air. Who knows what the future holds for us and the repeater. While you may not hear the change, I did hear two stations on the air who noticed the courtesy tone was different. Another station I talked to said that he could not hear the music any more.

Lastly, I want to thank the YARC members for their confidence in me, as the Trustee to make this happen.

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**YARC Officers for 2008**

<i>President</i>	<i>Vice President</i>
Terry Pemberton, KB7TRE kb7tre@cableone.net	Jack Ragen, W3IVQ ragen@cableone.net
<i>Secretary</i>	<i>Treasurer</i>
Jeff Hanna, WB7RFY jeff668@commspeed.net	Patti Halgunseth, KD7VBG kd7vbg@cableone.net
<b>Board of Directors (includes Club Officers)</b>	
John Broughton – WB9VGJ	
Tom Griswold -- N6LSA	
Richard Bozeat – KE7DTR	
Walter Schumann – KF6SPS	
<b>Newsletter Editor:</b> Joe Oliver, AC6AA	

## Welcome to the Yavapai Amateur Radio Club

The Yavapai Amateur Radio Club (YARC) is an ARRL affiliated Special Service Club. The club participates in many activities in the tri-city area by providing communications for local events, emergency communications, and promotion of the hobby throughout the community.

Membership in the YARC is open to any interested amateur or non-amateur alike. Dues are \$20.00/year (Full-time students \$15). The YARC meets at 7:00 p.m. local time on the first Thursday of every month in the Technology Room 404, at the Granite Mountain Middle School, 1800 Williamson Valley Road in Prescott. It is about ½ mile north of Iron Springs road, and all amateurs and non-amateurs as well are invited. Programs of interest are included as part of the meeting.

The weekly Net is held every Wednesday at 7:00 p.m. local time on 146.880- repeater. All amateurs are invited to participate, and visitors are always welcome.

The Yavapai County ARES/RACES Net is held on Monday nights approximately at 7:00 p.m. local time on the 145.290- repeater on Mingus Mountain. A PL of 127.3 is required.

### Club Repeater

The YARC 146.880- repeater is located on the hill above Willow Creek road and requires a PL of 100.0 Hz. Our deepest gratitude to Bill Kafka, W2YAV for allowing us to acquire the original club repeater. ■

### Membership Count:



1st Thurs. in March...143  
Gain/Loss.....-8  
1st Thurs. in April.....135\*

\* Includes 3-month memberships that were not renewed.

## Minutes of April 3, 2008 Board Meeting



Meeting was called to order by the President, KB7TRE at 1815 hrs. Also in attendance WB9VGJ, KF6SPS, W3IVQ, KD7VBG, and WB7RFY.

Future programs were reviewed, leading to discussion of changing date of July meetings from July 03 to one week later due to Holiday conflicts.

Hamfest plans to be main topic at May Meeting; volunteer sign-up sheet to again be presented. Flyer revisions discussed and adopted.

Field Day and activities will take precedence at June meeting; all needs currently met.

Board considered letter requesting financial sponsorship of Bradshaw School Club activity. Following extensive discussion, Board chose not to set precedence on this matter and will encourage alternate possibilities.

ARRL offers a new 'Flyer Kit', which offers varied handouts suitable for public events. It was agreed to request two kits and pay shipping costs totaling \$19.93.

Meeting Adjourned at 1850hrs.

Respectfully submitted;

Jeff Hanna, WB7RFY

YARC Secretary

## Minutes of April 3, 2008 General Meeting

Meeting called to order at 2050mst by the President, KB7TRE, the Pledge of Allegiance and introductions having been completed at 1900mst prior to the

special program.

Attendance: 64 of whom 44 signed in.

**Visitors:** Were many, including Tony Brown, WB6LWI and Ned Stearns, AA7A.

**New members:** On motion of WB9VGJ, second by AB7NK, and no dissenting votes, Sherwin White (no call), Robert Behnke, N6QQU, Bob Sitterley, K7POF, and Linda Ochoa, W7POF(f) were accepted to the membership.

**Meeting Minutes** of 06 March, 2008 were approved as published.

**Treasurer's report** was approved as read.

### COMMITTEE REPORTS

**ARES/RACES/Public Service:** WA6ZZJ reported on busy spring activities, including Prescott Valley EOC installation, Wildfire academy exhibit, and Whiskey Row Marathon on May 03. KC7CBK requested additional volunteers for shifts at the Whiskey Off Road bicycle event on April 26<sup>th</sup>. This is becoming a major event and needs about 15 operators, but many positions only need operators for a few hours. Contact Lee at [KC7CBK@arrl.net](mailto:KC7CBK@arrl.net).

**IRLP:** W7JLC reports all OK; please utilize @ 442.350+ 100Hz pl.

**PATCHES:** KD7VBG reports a few old stock remaining; awaiting new order.

**BADGES:** WB6ODR will custom order member badges at \$ 6.75 each.

**REPEATER:** The new machine is installed and operating reports WB6ODR. Special thanks to KA7JAS, W7TQJ, Chuey and others for extensive work and contributions that made for an easy transition. Repeater com-

mittee provided lunch for install crew.

**VE:** AB7NK requests e-mail notice of attendance for the sessions on April 5<sup>th</sup> and May 31<sup>st</sup>, and stresses 9: am registration time is prompt.

**LICENSE CLASSES:** Just completed Extra class had 13 students. Lead W7JLC thanked patient instructors (N7CW, KC7CBK, & others) for expected high pass rate at upcoming VE session. Look for Tech Class starting in September.

**SCHOOL CLUB** Reports were offered by N5RO for Bradshaw, who noted high costs of planned field trips may curb some activities, especially since there are 17 active youth now involved. KB7TRE, for Granite, noted the benefit of having support Elmers (KA7JAS & AB7NK) at the meetings.

**HAMFEST:** Now referred to as Annual Prescott Hamfest, hosted by YARC & VVARA, will have extensive time at next meeting to finalize. Contact Patty at [KD7VBG@cablone.net](mailto:KD7VBG@cablone.net) to volunteer.

**ACTIVITIES:** Starry Nights at the Prescott Library April 19 will have a club table. Radio promotion materials for future events will be ordered from ARRL at cost of \$19.93. July program will be N5RO on SATERN operations and capabilities.

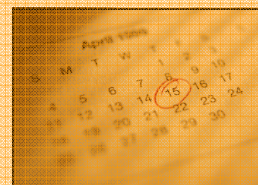
**50/50 DRAWING:** KD7VBG won \$55.00

**PROGRAM:** Was Ned Stearns, AA7A from Scottsdale, who at 7:pm shared his experiences on recent Dxpeditions in West Africa with the VooDoo group, with emphasis on the recent 3X trip. A video will be available for a future program feature with even more details.

Meeting Adjourned at 2132mst on Motion of W3IVQ, Second of WA6ZZJ.

Respectfully Submitted,  
Jeff, WB7RFY  
YARC Secretary

## Upcoming Events



- **April 26, 2008** - Whiskey Off Road Bicycle Event.
- **May 3, 2008** - Whiskey Row Marathon.
- **May 3, 2008** - CARA Hamfest at Club Site, Moson Road, Sierra Vista, AZ. ARCA Meeting - 11:00 A.M.
- **May 28, 2008** - Annual regional Wildfire Exercise.
- **May 31, 2008** - Prescott Hamfest at Granite Mountain Middle School, 1800 Williamson Valley Road in Prescott.
- **June 7, 2008** - White Mountain Hamfest at Show Low Intermediate School, 500 Linden Road in Show Low.
- **June 28 - 29, 2008** - Field Day/YARC Picnic at Watson Lake in Prescott.
- **July 18, 2008** - ARCA/Williams Hamfest at 800 Rodeo Road in Williams, AZ.
- **September 12 - 14, 2008** - ARRL Southwestern Division Convention in Mesa, AZ.

## Automatic Ink Refill System For HP and Lexmark Cartridges



For those of you who own an HP or Lexmark printer, and have felt that refilling your own cartridges is just too much of a mess, you may want to try Data Products' Automatic Ink Refill System. Available for both Black and Color Cartridges.

Refer to: [www.dpc.com/airs.asp](http://www.dpc.com/airs.asp) for detailed information about this System. View the Automatic Ink Refill System Video, which provides step-by-step instructions on refilling a cartridge. Available at Amazon.com and OfficeMax.

# Treasurer's Financial Reporting Sheet



Club / Group Name: YARC  
Reporting Date: APR '08

Patti Halgunseth, KD7VBG  
Treasurer

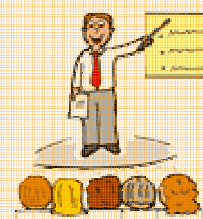
Members Name	Dues Paid	Repeater Fund	Donations	Prize Money Paid Out	Net Cash In per Member
Robert Sitterley/N-K7POF	\$18.00	\$2.00			\$20.00
Linda Ochoa/N-W7POF	\$0.00				\$0.00
Robert Behnke/N-N6QQU	\$18.00	\$2.00			\$20.00
Sherwin White/N-Not Yet	\$18.00	\$2.00			\$20.00
Richard Hughes/R-W6CCD	\$18.00	\$2.00			\$20.00
Richard Diddams/R-W7QHE	\$18.00	\$2.00			\$20.00
Shorthy Stouffer/R-K6JSI	\$18.00	\$2.00			\$20.00
Susan Stouffer/R-K6SLS	\$0.00				\$0.00
Doug Nicholson/R-KB6TWC	\$18.00	\$2.00			\$20.00
Jim Zimmerman/R-N6KZ	\$18.00	\$2.00			\$20.00
Norm Mabee/T-Shirt	\$19.00				\$19.00
50/50			\$110.00		\$110.00
Patti Halgunseth/KD7VBG				\$55.00	(\$55.00)
					\$0.00
					\$0.00
<b>Total:</b>	<b>\$163.00</b>	<b>\$16.00</b>	<b>\$110.00</b>	<b>\$55.00</b>	<b>\$234.00</b>

Miscellaneous Club Expenses	Cash Out	Check Number
Bob Smith=Lunch Repeater	\$31.46	1003
David Passell=Refreshments	\$29.01	1004
Insty Print=Newsletter	\$27.49	1005
Repeater Fund	\$16.00	Cash
<b>Total:</b>	<b>\$103.96</b>	

Club Funds Summary	Totals
Starting Balance	\$1,895.52
Net Expenses	\$103.96
Net Income	\$234.00
	<b>\$2,025.56</b>
Repeater Fund	(\$191.08)
Cash Flow	\$130.04

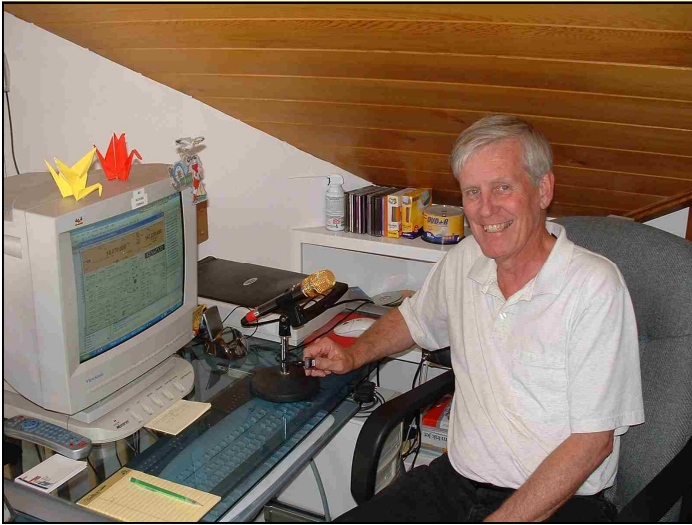
## Program Speakers

- May:** Bob Smith, WB6ODR has a presentation on "Geocaching".
- June:** Patti, Halgunseth, KD7VBG will discuss "Field Day Logging" and Pete Morrison, K6VVR will talk about "Fox Hunting".
- July:** Gordon Barth will give a presentation on "Physical Fitness".



## This Month's Featured Ham

By Pat Oliver, K7DUC



**Bob Thompson, KC8BOB**

Bob first got his license in 1998, while living in Michigan. At that time, he wanted to operate a radio-controlled helicopter in order to feed the video from a camera in the helicopter down to the receiver in a 900 MHz system. To accomplish that, he needed his license. He has since updated to Extra Class in December 2006.

Bob has an all ham family, with Starla, KE7DTS, his wife, and daughters Alyssa, KE7DTT, and Kristi, KE7DVA.

He primarily operates on 2 meters and 70 centimeters. Occasionally he gets on HF. He is now tinkering with PSK31. His primary radio is a Kenwood TS-B2000, which is designed for computer control operation. His Kenwood software provides the interface between his computer and the TS-B2000. He also enjoys using Ham Radio Deluxe as an interface.

Bob is fortunate to own several acres, which allows him to have a 160 meter dipole, as well as an MFJ multiband vertical and a 17 ft Diamond antenna for 2 meters and 70 centimeters.

Bob says he is not a contester. However, he has managed the Verde Valley Amateur Radio Association (VVARA) field day for the last few years. He was President of the VVARA for 3 years.

His most memorable contact was his first contact in Arizona with Steve, KC7TIL in May 2002. Bob had noticed

smoke from the Indian Fire and drove to the area as it was just starting to torch. He was monitoring 2 meters, heard Steve and called him. Steve had also noticed the smoke and wondered what it was all about.

Bob has been building electronic equipment since he was a child. He has built a variety of test equipment, monitors, and many other things.

Bob went to a technical high school in Detroit. From high school he went into the Air Force, where he was assigned to work on airborne radar. He had a year of technical school at that time. He was a radar repairman during his Air Force service and worked in electronics for 4 years.

Upon leaving the Air Force, he had 2 years of college. He then went to work as an Engineering technologist at Ford, and ultimately got his degree. He was at Ford for 30 years, specializing in braking systems. He then went to work for a small testing company and still does work for them as needed.

Bob, while President of VVARA, led the fight against Broadband Over Power Line (BPL), which was causing harmful interference on amateur radio frequencies in the Cottonwood area. His efforts paid off, since the BPL company relocated to Sun City, Arizona.

He is involved with both YARC and VVARA. He helped Doug, KV8TD with the County Fair booth in 2007. He has been helping with communications at the road rally in October, and will also do that this year. He also taught subjects in our recent Extra Class License classes.

Bob feels that our club is progressing in the right direction. The young people's clubs are good, as well as the VE testing sessions, license classes, and involvement in community events. He would like to see strengthened ties and activities between the YARC and VVARA.

Bob is a very valuable and active member of both YARC and VVARA. We are fortunate to have him in our club. ■

### Plan to Join the ARRL or Renew Membership ?

Ask our Treasurer for a special ARRL Club Membership Application or download the appropriate application from the YARC Website. Complete the Application and return it to the Treasurer with the application fee.

There is no extra cost to you, and our club gets to retain a portion of the dues.



By Lloyd, WA6ZZJ

## ARES/RACES.....

### Wildfire Expo

ARES/RACES was on display at the Wildfire Expo held in downtown Prescott on April 19<sup>th</sup>. Our Mobile Amateur Radio Communications vehicle was on display along with brochures telling people just who we are and what we do. There were also YARC Club brochures available as well as ARRL material telling about Amateur Radio and how to get a license.

Members assisting at the Expo were: KC7CBK, KD7VBG, WB9VGJ, WA6AQK, KI7JZ and WA6ZZJ. Thanks to all for your assistance.

## SPECIAL EVENT COMMUNICATIONS.....

Saturday, May 3, 2008 will be the 30<sup>th</sup> Annual Whiskey Row Marathon. This is a long standing event for YARC to provide the communications and be listed as one of the main sponsors of the event. Our communications support is most valuable to the Prescott YMCA who sponsors the marathon. Also, more operators are still needed for this event, so if you haven't already signed up, please do so.

Operator packets will be available at the May YARC meeting.

## OPERATING AT YOUR NEXT SPECIAL COMMUNICATIONS EVENT

### Operations...

**Arrival** - Plan to arrive early. Your location or staging area may be unfamiliar and you will need the extra time. This will also give you time to set-up and checkout your equipment before the event starts. There are also times when your location may have limited access after a certain time. Being early gets you in before the roads are closed. In most cases the event communications coordinator will announce a time for you to be on site.

**Check-In** - Check in with net control when you arrive at your location. This lets the net control know you are on site and the quality of your communications. In some cases moving about improves communications. If this is the case, remember the spot and use it when you need to communicate with net control.

**Traffic Control** - Most, if not all, special events are run as controlled nets. This means that all communications are directed through net control. The net is generally very busy handling traffic. If you need to contact another station, make the request through net control. Net control will hold traffic and give you permission to contact your party. At some events a secondary communication frequency is set up for this very thing. Always give the net control plenty of time to respond, as net control is usually a very busy place.

**Keep your traffic to a minimum.** Give all the details and be precise at the same time. Think about what you are going to say before you transmit. This will maximize the net to emergency traffic, if needed, and at the same time maximize your battery life. Always be sure to contact net control before you pass your traffic. You want to make sure net control hears and understands your message. As we have heard many times before, listen, listen, listen. If an emergency occurs, or the net becomes congested, or the noise level at your location increases, listening becomes ever so important. You don't want to miss a call from net control.

**Tactical Calls** - A number of special event nets use tactical calls. These allow an easy identification of a location or function. "Lost and Found," "Sag 1," "Aid 2," are typical of tactical calls used at events. Know your tactical call and listen for it. In closing your transmission always use your FCC call sign. (See information on Tactical Calls elsewhere.)

**Equipment Use** - Choose equipment that works well for public service events. Ease of use should be a prime consideration. Will it provide the communications capability to support the event? The event is not the place to try out that new radio or set-up. Try it out before the event to iron out all the bugs and get the operation down pat. Create a "cheat sheet" to help remember key features for your radio.

### Equipment...

**Batteries** - Do you have a spare battery? Is it charged? If you have the alkaline battery case, do you have extra batteries for it? If you use a gel-cell to power your base set-up, will it run for the entire event? Make sure your batteries are charged up at the start of the event. You may never know when the event

may become longer than anticipated.

**Power Cords** - Various power cords and adapters can turn a bad situation into a good one. RACES standard connections (Anderson Power Poles) are preferred on all equipment. Make sure your kit is up to the situation. A cable with "gator" clips on one end is very handy for connecting to the car battery in a pinch. The cigarette lighter adapter is very handy if your position suddenly needs to become mobile.

**Antennas** - That standard rubber duckie is not necessarily the best antenna for the task. Your favorite repeater may not be the one used for the event. In fact, a number of events are run simple. Invest in one of the extended performance duckies or a telescoping antenna. If you are a mobile or a fixed station invest in a 5/8 magnetic mount or pole mounted antenna. A good antenna does more than more watts in most cases.

**Headsets** - At a number of events the noise level is very high. The event sponsors like a lot of loud music, bands and other methods of making noise to enhance the participants enjoyment. This though is counter-productive to the communicator. In situations like this the headset is a necessity. Make sure it works with your equipment.

**Note Taking** - Net control is not always the one who needs writing materials to keep track of things. All positions need writing materials. Remember the description of the missing runner? A pencil is preferred over a pen (remember the weather) and a note pad should be a staple in your equipment kit. The 4" by 8" "reporters notebook" is one of the handiest due to its size. Mechanical pencils don't need sharpening and are preferred over wood-lead pencils. At some events, various forms are provided. These range from missing person's reports to log sheets.

**Niceties** - Dress for the weather. Carry wet weather gear or additional outer garments if needed to suit the conditions. Aspirin, antacid tablets, prescription medicine, sunscreen and insect repellent should be part of everyone's personal 'go-kit'. Drinks, especially water, and snacks should be included, since it may be a long time to lunch. A small, insulated container is handy to carry your snacks. and don't forget the lawn chair!

#### **Field Day.....**

Plans are progressing for our Field Day operations. We will soon have a sign up sheet to see how many members will be involved and set up an operating schedule. It will be a 24 hour around the clock operation, so plan on signing on for a shift at operating.

Lloyd WA6ZZJ

## VE Tidbits



by Mary Vince – AB7NK

### **April 5th Test Results**

After surviving two long, grueling days of license classes, seven of the nine Extra Class applicants arrived early April 5<sup>th</sup> to get in some last minute studying. It was obvious by the results that this license class had given the applicants the confidence they needed.

By the end of the testing session, 17 applicants had taken 20 elements resulting in seven upgrading to Extra, three to General and two new Technicians. Congratulations to everyone!!!

Six of the seven Extras were from Jack's class given in March. Three of the Generals were from the previous General class. Many thanks to Jack and all the VI's (volunteer instructors). After receiving the results, many of the new Extra's commented they never could have done it without the class. Now's the time for those who have received help from others to give back to the ham community by being an Elmer or by assisting Jack with classes.

### **Next VE Testing**

The next VE testing will be May 31<sup>st</sup> at 9:00 a.m. at Granite Mountain Middle School, Room 404. Last year was very successful with 16 of the 20 applicants leaving with a new or upgraded license. Anyone wishing to test on the 31<sup>st</sup>, please email me at [ab7nk@arrl.net](mailto:ab7nk@arrl.net). After things slow down during testing we'll keep a minimum number of VE's so others can go spend their bucks at the hamfest.

See ya'll at the Hamfest!!!

73 – Mary – AB7NK

# Heathkit: Rise and fall of a Ham Radio icon

By Ronald R. Thomas, W8QYR

Heathkit was the generic name for electronic kits once offered by the Heath Company. The company started in the electronics business by selling surplus electronics parts after World War II. Then it began to offer electronic test equipment in kit form at very reasonable prices.

Those kits were a tremendous success, which motivated the Heath Co. in the 1950s, to enter the Ham Radio market. To understand Heath's successful entries into that market it is necessary to understand the nature of Ham Radio in the 1950s.

## The Rise of Heathkit

The 1950s were a relatively prosperous time for most, but certainly not all Americans. There was money for hobbies, like Ham Radio. Also, the creation of the Novice class license in 1952 made it much easier for people to become Amateur radio operators, and many people got a Novice license.

Those newly licensed operators needed a receiver and transmitter. Receivers were fairly complex devices and many Hams bought one from commercial companies like Hallicrafters or National Radio. A transmitter, particularly one for continuous wave (CW) operation, was by comparison a much simpler device. However, commercially built CW transmitters tended to be fairly expensive, which motivated many Hams to build their own transmitters.

Unfortunately, building even a simple transmitter was a fairly complex task. The first step was to find a schematic diagram for a transmitter in a Ham Radio magazine or handbook. Usually, there would also be a photo or two of the transmitter and a parts list. The next step was to find the parts.

Some cities might have a store that sold new parts. A few cities might even have surplus parts stores. Also, a local Hamfest could be a source of parts. When all else failed, a Ham would order the parts from a mail order company like Allied Radio.

When all of the parts had been obtained, work could begin on figuring out how to lay them out on a metal chassis.

Usually, a Ham would cover the chassis with paper and mark the layout for tube sockets, transformers, switches, dials, and other components. Next, holes had to be drilled for those major components, and then they were mounted in place. The final step was to solder the resistors, capacitors, and other components and the wires connecting major components.

Building even a small three-tube Ham transmitter could be a major undertaking, particularly for a new Novice operator. Also, a homebuilt transmitter had little if any resale value. The Heath Co. was aware of the potential sales opportunities for a low cost Ham transmitter and in 1952 offered its AT-1 transmitter.

Heath's decision to offer the AT-1 involved minimal financial risk. There was little developmental cost, since Heath simply did the same thing that a Ham would do to create a transmitter. Heath engineers located a schematic diagram and created a bill of parts, many of which were readily available in Heath's extensive stock of surplus parts.

The company had metal working and painting facilities used for its existing test equipment business. Those facilities could punch the necessary holes in a metal chassis and the mounting cabinet for each transmitter. Each cabinet was then painted and had the necessary markings for the switches and other front panel components.

If all Heath had done were to put those parts in a box, along with a schematic diagram, Hams would have bought the AT-1. Heath, however, added its magic ingredient --- an instruction manual that contained detailed assembly information.

The manual had step-by-step assembly instructions and pictorial wiring diagrams. Heath had experience in writing those manuals for its test equipment. Heath knew what the Novice class Ham operator needed to successfully build the AT-1.

Priced at \$29.50, the AT-1 was a success. One of the reasons that Heath could reasonably price the AT-1 was the fact that Hams supplied the labor. Even a simple transmitter, like the AT-1, required a number of hours of assembly time.

*See Heathkit Page 9*

## ● **Heathkit** (*Continued from Page 8*)

Commercially built transmitters were more expensive, in large part, because of the cost to pay people to perform the assembly work.

In those days, the Novice license was good for only one year, and the Heath Co. knew that many of those Novice operators would be moving up to a General class license. They would need a more powerful transmitter that could also be used for AM phone operation.

Heath's answer to that need was the DX-100 transmitter. Heath used the same methodology to develop it that had been used for the AT-1. However, the DX-100 could deliver 125 watts on AM phone, using high level class B modulation, and 140 watts on CW. It also had a VFO, and was a large stable transmitter. Priced at \$189.50 it was a success and put Heathkit on the road to becoming a Ham Radio icon.

The DX-100 certainly required more assembly time and work than the AT-1. However, the DX-100 chassis was large and assembly work was fairly straightforward and easily accomplished by the average Ham.

The 1960s and 1970s were the glory days for the Heath Co. They continued to offer new Ham Radio equipment on an ongoing basis. The HW-100 transceiver was another tremendous success. It was rare to find a Ham who did not own at least one piece of Heathkit gear.

Hams loved building a Heathkit. There was the thrill of opening the box, laying out parts, reading through the instruction manual, and starting construction work. Most Hams would work every evening and weekend until they had finished the construction work.

Hams loved talking on the air about their latest Heathkit. Hams were a tremendous source of free publicity for the Heath Company, which made significant profit from the sale of Heathkit Ham equipment.

Over the years, several different corporations owned the Heath Co. For the engineers who were designing Heathkit Ham equipment, it was a labor of love, but for the owners of the Heath Co. the issue was to make a profit. Unfortunately, this eventually became more and more difficult and eventually it became impossible.

### **The Fall of Heathkit**

A number of factors lead to the eventual downfall of the Heath Co. and the demise of the Heathkit. Surplus parts

became hard to find, and Heath had to use more expensive new parts in its Ham equipment. The move to single sideband, transistors, and transceivers increased development costs and lead-time for new Ham equipment. Also, many more components were needed in equipment like transceivers, with the associated possibility of failure. In addition, some of the equipment became increasingly difficult for Hams to build, align, and troubleshoot.

Furthermore, Hams who started in the 1950s building Heathkits might be wearing bifocals in the 1970s and 1980s. Building some of the more complex Heathkits was becoming increasingly difficult.

Arguably, one of the least understood factors that lead to the demise of Heathkit was the printed circuit board. Those boards were widely used in Heathkits. The kit builder soldered resistors, capacitors, transistors, and other components onto the boards.

However, printed circuit boards, unlike the old metal chassis, lent themselves to automated assembly. Machines could be used to mount and solder components onto printed circuit boards. This dramatically reduced the labor costs associated with building electronic equipment, including Ham equipment. Heath's competitors, particularly those in Japan, were well aware of the new economics of Ham Radio equipment.

Japanese companies gradually began to offer commercially built Ham equipment that was competitively priced with Heathkit equipment. As much as they might have loved Heathkits, Hams eventually began to migrate away from Heathkits to the price competitive, commercially built Japanese Ham equipment. By the 1980s, the Heath Company's then current corporate owner was well aware of the competitive difficulties, and eventually the Heath Co. exited the Ham Radio market.

The demise of the Heath Co. and its Heathkits was a sad affair. The drama played itself out, over a period of several years, on the Ham Radio bands, where Hams would talk about Heath's problems. When the end finally arrived, it was like watching the passing of a loved one.

While new Heathkits are no longer available, their memory still lives on in the minds of the Hams who built and owned them. Some used Heathkits are still available at Hamfests. Also, many Web sites feature photos of Heathkits and information about them. Therefore, it is still possible to vicariously enjoy the glory days when Heathkit was a Ham Radio icon. ■

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## The 2008 DXpedition to Glorioso Archipelago, TO4G



Presently, Glorioso is ranked 4th in "DX Magazine's 2007 Most Wanted Countries World-Wide" in the mixed modes (EU 7th, Asia 9th and NA 4th).

A group of French hams of the Clipperton DX Club will stage a DXpedition to Glorioso Archipelago in the Indian Ocean using the call sign **TO4G**. The operation is expected to take place between May 1 and June 30, 2008 but could be postponed depending on the geopolitical situation in the region. Latest reports say it may start between May 5th to 9<sup>th</sup> for some weeks.

The Glorioso Archipelago consists of two coral islands: Grande Glorieuse (3 km in its larger diameter) where the human installations are, and Ile du Lys (circular island, 600 meters in diameter) which is desert. The Glorioso islands are situated 220 km North West of Madagascar

A team of 5 to 8 operators will activate this rare DXCC entity. The DXpedition will set up four stations. Operations will be carried out on all bands and modes

QSL route: Didier Senmartin, F5OGL, P.O.Box 7, F-53320 LOIRON, France.

**For Sale**

### ALL BASIC ACCESSORIES THAT CAME WITH THE FT-817

ASKING \$450.00

- Yaesu-817 Operating Manual
- MH-31 Microphone
- YHA-63 144/430 Antenna
- NC-72B Battery Charger

I am also including the following:

- MFJ-1810 Yaesu FT-817-10 Meter Telescope Antenna
- MFJ-1820 Yaesu FT-817-20 Meter Telescope Antenna
- MFJ-1840 Yaesu FT-817-40 Meter Telescope Antenna
- MFJ-1899 Yaesu FT-817 Multi-band 80-6 Meter Telescope Antenna
- ATAS-25 Active Tuning Antenna 7-430 MHz
- 12 volt regulated power supply
- Carrying case

**Gary Shapiro - WD8DOT**

(928) 775-0606

gshapiro57@cableone.net

## *For Sale*

### 2005 Kia Sedona 7-Passenger Van Equipped with HF/VHF/UHF Radio Asking \$11,995 or Best Offer

Mileage: 48,000 miles

3.5 Liter Engine; all Power; DVD/CD Player

New Tires

#### Radio Equipment Installed:

- Yaesu FT-857D HF/VHF/UHF Transceiver
- Ameritron ALS-500M 500 watt Amplifier
- MFJ 6" SWR Meter
- Stealth II Motorized 75M - 10M Antenna
- Dual UHF/VHF Antenna

Call: **Bill Jackson, W6HDP (928) 458-0106**

*Bill is a long time club member who now resides at Las Fuentes in Prescott, AZ.*

### ***A Little Humor....***

A ham and his wife walked into a dentist's office. The man said to the dentist, "Doctor, I am in one hell of a hurry! I have an NTS schedule in just a little while and then the QRP CW contest starts right after that. So forget about the anesthetic and just pull the tooth and be done with it. I don't have time to wait for the anesthetic to work.

The dentist thought to himself, "My goodness, this sure is a brave man, asking me to pull his tooth without using anything to kill the pain."

So the dentist asked him, "Which tooth is it, sir?"

The ham turned to his wife and said, "Open your mouth honey, and show the doctor which tooth hurts."

# WI-FI, A Bio-hazard?

By Paul Honore' W6IAM

When I left the Stanford High Energy Physics Laboratory to re-invent the depression for my family and myself by forming a blue-skies research company, I had no idea it would lead me into the bio-medical electronics field. That came about by a circuitous route that's too long to relate here. What is relevant is that it led me to the medical library in the basement of Stanford Hospital and ultimately to a book of insurance actuary tables where I found confirmation to something I had suspected for some time. My immune system was all but destroyed by exposure to S-band (2-4 GHz) microwaves. Fortunately, the effect is reversible and over a seven year period of recovery my hemoglobin count resumed something of a normal aspect.

Why wasn't I told about this, and if the insurance companies knew about medical consequences of microwave exposure, why didn't the doctors? After all, the book was in their own library for goodness sake! It would be easy to conjure up some kind of conspiracy theory but I suspect two things strongly influence the answer to this question: 1) - Doctors are too busy to read insurance actuary tables, and 2) -They wouldn't have reason to act on them if they did, the tables being largely subjective and not derived from systematic laboratory studies. Rather, they are the result of epidemiological surveys of possible cause and effect, for instance, an abnormally large percentage of people with a particular disease after exposure to a certain chemical. Actuary tables raise a warning flag (and, incidentally affect ones insurance rates) but do not attempt to imply a definite connection or to suggest a cure.

There were, however, laboratory studies in the 1960s and 70s, of microwave exposure, made by various government agencies both here and in Europe. Virtually all of them were, and still are, classified. Some of the best were done in Russia and have never been translated into English. In any event, the results are not available to the general public. You have to be a certified researcher with proper credentials and clearances to get access to them.

So what am I driving at? Just this: T'other day I opened my new copy of *Mouser Electronics* catalog and was rudely awakened to the brave new world of universal microwave exposure. The first 30 pages are filled with products for embedding WI-FI receivers and transmitters into everyday con-

sumer products. Most of these devices work at 2.4 GHz - smack in the center of S-band - to provide wireless networking communication.

The ZigBee Alliance is a fast-track effort to broaden the WI-FI market. It is an international organization of 100 major players in wireless technology who have banded together to promote and market a 2.4 GHz platform for communication. It's statement of objectives reads, and I quote, "...to provide the consumer with ultimate flexibility, mobility, and ease of use by building wireless intelligence and capabilities into everyday devices. ZigBee technology will be embedded in a wide range of products and applications across consumer, commercial, industrial and government markets worldwide."

Much of the equipment listed in the *Mouser* catalog already works to the ZigBee standard. Cheap 2.4 GHz transceiver modules mean we can expect to see more and more commonplace gadgets communicating and interacting by WI-FI in the future, all radiating small amounts of microwave energy at a frequency known to be a bio-hazard.

Part 97 of the *FCC Rulebook* establishes standards for MPE (Maximum Permissible Exposure) to various radio frequencies and power levels but fails to recognize the cumulative effect of long-term exposure to very low power microwave emissions. To my mind, this is a very dangerous omission. Bio effects can sometimes take as long as 20 years to make themselves evident. During that time the proliferation of WI-FI emitters is bound to grow, and with it, the strength and duration of exposure to 2.4 GHz radiation.

It took many years to regain my immune system after leaving the microwave industry. Am I doomed to lose it again through continuous and unavoidable exposure to those same hazardous frequencies? ■

**Have a Question  
or Need a Hand?**



If you have a radio-related question or need help on a technical matter, technical assistance is available from knowledgeable club members. Contact **Neil Vince, KA7JAS** at:

(928) 775-2158 or [ka7jas@arrl.net](mailto:ka7jas@arrl.net)

## Weekly Breakfasts



### Tues. Morning Breakfast:

For time and location --  
Contact Bob Rosevear, WB7RRQ  
at [rosevear520@cableone.net](mailto:rosevear520@cableone.net)  
Informal – all are invited.

### Wed. Morning Breakfasts:

7:00 a.m. at

#### Iron Horse Restaurant

(Hwy 89 in Chino Valley)  
(N 34°43'56.5" W 112°27'15.4")\*  
informal – all are invited

8:00 a.m.

#### Masonic Lodge

(1280 Willow Creek Road,  
2<sup>nd</sup> Floor; above Bank of America)  
informal – all are invited

\* Location data (per WGS84) provided  
by Fred Zimmermann, N7PJN

## Area Repeaters

Frequency	PL	Location	Owner/Club	Auto-Patch	Rem. BaseOr Linked	Vo IP	Notes:
52.560-	100.0	Mt. Union	N7NGM			Echo	-500KHz Offset
53.040-	None	Prescott Airport	WB7BYV				-1MHz Offset
145.290-	127.3	Mingus Mtn.	ARES/RACES				
146.780-	91.5	Williams Mtn.	BWARC			IRLP	
146.880-	100.0	Prescott	YARC				
146.980-	162.2	Flagstaff	CARC				
147.000+	162.2	Mingus Mtn	MMRG				
147.040+	100.0	Prescott Heights	W2YAV				
147.140+	162.2	Flagstaff/-Mt. Elden	ARA		Linked to Mt. Ord 147.360-		
147.220+	162.2	Mingus Mtn	VVARA				
147.260+	103.5	Mt. Union	ARES/RACES				
442.150+	100.0	Mingus Mtn	W1OQ/Northlink				
442.350+	100.0	Glassford Hill	N7KPU			IRLP	
445.300-	100.0	Prescott	WINSYSTEM		Node 3727	IRLP	
448.475-	100.0	Flagstaff-Elden	ARA	Yes			
448.500-	100.0	Prescott	K6JSI				
448.875-	100.0	Flagstaff-Elden	Northlink		Linked		
449.175-	100.0	Towers Mountain	Northlink		Linked		
449.675-	88.50	Prescott Airport	WB7BYV		Linked to P Mtn. 927.3875		
927.3875-	151.4	Prescott	WB7BYV	Yes	Yes	Echo	Be Nice

**Y.A.R.C. IRLP NODE**  
**Node Number 3182**  
**442.350+ MHz with a**  
**PL Tone of 100.0 Hz**

For more Repeater Information & Listings refer to:

- [www.w7ara.org/Web/](http://www.w7ara.org/Web/)
- [www.azrepeaters.net](http://www.azrepeaters.net)
- [www.azfreqcoord.org/listings.htm](http://www.azfreqcoord.org/listings.htm)

## YAVAPAI AMATEUR RADIO CLUB

P.O. BOX 11994

PRESCOTT, AZ 86304

Visit us on the web at <http://www.w7yrc.org>

Many thanks to Bob Smith, WB6ODR, our Webmaster

