



YAVAPAI SIGNAL



The Yavapai Amateur Radio Club • Prescott, Arizona • DM-34 • Volume 21– No.12 • December 2006



Merry Christmas



From the President's Desk



Thank you, YARC. It has been an honor and pleasure to serve as your president the past two years. I really can't believe that two years have gone by so swiftly.

YARC is an active, viable club with many dedicated members making it so. Yes, we need to get more members involved; we have to recognize that it is the membership that makes the club what it is and are the ones responsible for its success. I feel fortunate to have been able to work with an excellent group of fellow officers and board members this past two years. They have made my job interesting, fun and easier to perform. I thank them all.

The club has made what I consider to be great strides in the past two years. In January 2005, the club had 68 members and as of the November 2006 roster, 99 (the totals do not count ARRL officials or one radio club, but does include spouses who are members). That is an impressive 46% increase in membership. The club has become an ARRL Special Service Club, an honor few clubs can claim. We have obtained our own club repeater due to the generosity of one of our long-time members. We have greatly increased our visibility in the

local communities, and have been asked to provide communications for more local events. Just one article in the newspaper resulted in a request to provide amateur radio classes at Yavapai College. We have made significant strides in emergency communications for Yavapai County through the Yavapai County ARES/RACES organization, the membership of which consists of a good number of club members. The majority of the ARES/RACES staff is composed of club members. Our club newsletter is, I think, one of the best I've ever seen for a club such as ours.

There have been a good number of newly licensed amateurs in the area the past two years, mainly as a result of license classes the club has provided. It seems, as of this writing, that the interest in getting an amateur license has not decreased, as we have lists of several people who have indicated they'd like to get a license. We are providing a service to the hobby, and club itself, by providing these classes. Even in this day and age of cell phones, instant messaging, and such, amateur radio remains a viable, vital hobby. Time and time again it has been demonstrated that, regardless of the technology, when disaster hits, hams are there to provide the vital emergency communications. I don't see that changing drastically in the future. I am pleased that YARC is an important part of that effort.

There will be certificates of appre-

ciation for several club members at the December meeting thanking them for their involvement in certain club activities. I would like everyone to know that the club also appreciates the efforts of those who don't get certificates. For those who volunteer to participate in public service and emergency communications events, and other club functions/activities, please be aware that you are recognized and appreciated.

I will be very happy to turn over the gavel to Terry, KB7TRE, as I am confident the club will continue to prosper under his administration and leadership, along with the current/newly-elected officers and board. I am looking forward to becoming 'just a member' after a little over one year as secretary and two as president, and I hope Terry uses the gavel should he catch me talking when I shouldn't be. ☺

73, John, WB9VGJ

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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. 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. If you hear a 1400 Hz pulsing tone, the repeater is on backup battery power and usage should be limited to necessary communications. Our deepest gratitude to Bill Kafka, W2YAV for allowing us to acquire this repeater. ■



Membership Count:

1st Thurs. in Oct.....100
Gain/Loss.....1
1st Thurs. in Nov.....99

YARC Officers for 2006

President

John Broughton, WB9VGJ
wb9vgj@arrl.net

Vice President

Dick Hughes, W6CCD
richard@rahughes.net

Secretary

Pat Oliver, K7DUC
joliver@commspeed.net

Treasurer

David Passell, K6UWV
davidrex@northlink.com

YARC Board of Directors (includes Club Officers)

Rex Mauldin – N7NGM

Ken Severance – WA6AQK

Richard Bozeat – KE7DTR

Walter Schumann – KF6SPS

Newsletter Editor: Joe Oliver, AC6AA

Minutes of November 2, 2006 Board Meeting



A Board Meeting was held at 1815. Present were John, WB9VGJ; Pat, K7DUC; Dick, W6CCD; Walter, KF6SPS, Richard, KE7DTR, and Ken, WA6AQK.

Fees for membership were discussed. The Board discussed first year complimentary memberships for students taking one of the club-sponsored classes. This was thought acceptable by the Board. Full-time student memberships were then discussed. It was felt that \$15.00 per year would be adequate. We would keep the \$20.00 fee in place for the regular members.

The Program Chairman slot needs to be filled. The membership would be asked for a volunteer.

Dick, W6CCD brought up the problem with members ordering T-shirts and then not paying for them nor picking them up. In the future, the member ordering the shirt would need to pay at the time of ordering.

The Repeater, so far, has checked out. Bob, WB6ODR has installed the computer chip with our call sign. Some FM noise can occasionally be heard on the squelch tail, but does not seem objectionable.

Certificates of appreciation will be given out at our next meeting in December.

The Meeting was adjourned at 1845.

Respectfully submitted,

Pat, K7DUC
Secretary

Minutes of November 2, 2006 General Meeting

John, WB9VGJ called the meeting to order at 1900. The Pledge of Allegiance was recited and members introduced themselves.

Visitors: Vi Hughes; Al Garbag-nati, KE7JET; Tamara Vaughan; John Miller, KD7TJZ, and Ron Weber, KE7HWP.

New Members: Ralph Gendron, W7HAM; Clifford Vaughan, KE7IXV, and Luke Schlaht. A motion to vote in the new members was made by Tom, W2JKG and seconded by Mary, AB7NK. The applicants were voted in by the membership.

Meeting Minutes: A motion to approve the Board minutes of Oct. 5, 2006 was made by Ken, WA6AQK and seconded by Neil, KA7JAS. The Board minutes were approved. A motion to approve the General Meeting Minutes was made by Bob, KC8BOB and seconded by Patti, KD7VBG. The General Meeting Minutes were approved pending correction of three call signs.

Treasurer's Report: A motion to approve the report as printed in the Yavapai Signal was made by Neil, KA7JAS and seconded by Henry,

KE7DTW. The report was approved.

Committee Reports:

- **ARES/RACES/Public Service:** Lloyd, WA6ZZJ stated that on Saturday, Nov 4, 2006, there will be a training exercise for level 2 alert.

Our next event will be the first annual Rails to Trails run on Sat., Nov. 18. Lloyd asked for 2 or 3 more volunteers.

- **Newsletter:** Joe, AC6AA informed visitors and newcomers that the club newsletter was available on the side table.
- **IRLP:** Jack, W7JLC stated that after the YARC article was published in the newspaper, he received a call from Yavapai College asking for a class to be taught on introduction to Ham Radio. Jack will teach the class on Intro to Ham Radio in Feb. or March. The second session will be a 12 hour Technician Class in March. Jack was thanked for volunteering to teach the classes.
- **Patches/Shirts/Badges:** Fred, N7PJN has club patches for \$3.00; Club shirts can be ordered from Dick, W6CCD for \$19, without a name, and Bob, WB6ODR has badges for \$5.75.
- **Club Repeater:** Bob, WB6ODR, stated that the Repeater seems to be functioning well. The identification chip has been exchanged and now our call sign /R can be heard.
- **VE Testing:** Mary, AB7NK, stated that during October, there were three testing dates, resulting in 28 new hams, with the majority of them passing with a 100% score. The last testing, 2 passed, one general and one extra class.
- **YARC Website:** Bob, WB6ODR said that the website service will cost \$75.00. A motion was made by Lloyd, WA6ZZJ and seconded by Neil, KA7JAS, to pay the \$75.00 fee. The motion was approved by the membership.

- **FM Simplex Contest:** Bob, WA7YUL presented Jack, W7JLC with a certificate for winning the contest. Bob wished that more people would be involved next year.
- **Elmer/Technical Specialist:** Neil, KA7JAS said that everything was taken care of.
- **Diabetes Walk:** John, WB9VGJ thanked those who participated.

Old Business:

- **Election Committee:** Pat, K7DUC proposed nominees Terry, KB7TRE for President; Patti, KD7VBG for Treasurer, and Ken, WA6AQK; Walter, KF6SPS, and Richard, KE7DTR for members-at-large. John, WB9VGJ asked if there were other nominations; none were proposed. A motion was made to accept the nominees by Bob, WB6ODR and seconded by Al, KD7MTJ. The vote was unanimous to accept the nominees as new officers.

New Business:

- **Post Holiday Party:** Everyone was interested in a party, but no one offered to chair it. John, WB9VGJ offered to be in charge of prizes, and asked for a volunteer chairman to contact him.
- **Complimentary Membership:** The Board decided that new licensees that have attended a club-sponsored class will get a year's free membership. Full-time students will be charged \$15.00 and the regular membership rate will continue at \$20.00.
- **Net Control for 2007:** A sign up sheet was passed around to fill net control slots for next year.
- **Programs for 2007:** A volunteer to chair a Program committee is needed. If no one comes forward, the three at-large-board members would be responsible for programs.

- **Blind Center Classes:** Richard, KE7DTX expressed a need to teach ham radio at the Blind Center. Discussion followed and further investigation will be needed.

A motion to adjourn the business portion of the meeting was made by Tom, W2JKG and seconded by Ken, WA6AQK. The motion carried and the meeting adjourned at 19:42.

The 50/50 drawing was held and Ray, K6CMU won \$25.00.

The Program for the evening was given by Jack Crabtree, W7JLC, on "Ham Radio Deluxe".

Respectfully submitted,
Pat, K7DUC
Secretary

YARC After-Season Party

The after-season party this year will be held on Saturday, January 20th, 2007 at the China Buffet by Costco. The party will start at 5:00 P.M.

The cost per person will be \$8.99 plus tax and tip, or 10% less if you are 60 or older. Separate checks.

Please plan to attend. There will be lots of door prizes, good food and great company. Contact w6ccd@k7yca.org or call 759-0337 to give us an idea of the number of folks that will be attending. CU there.

Dick & Vi Hughes

Program Speaker

December:
Lee Cunningham,
KC7CBK
"How to Install
Ground Rods"



This Month's Featured Ham

By Pat Oliver, K7DUC



Bob Ower, WA7YUL

Bob is active right now moving into his new house in Humbolt, where he is free to put up antennas without having to worry about CC&Rs. I'm sure his cute, ever active sidekick Ginger, a toy poodle, is helping out.

Bob got his first license, a Novice, in 1973. By 1975 or 1976, he upgraded to Advanced. He is now an Extra Class operator.

He operates on 75 meters and 20 meters, but used to work 10 and 15 meters when there was better propagation.

Other than an active member of YARC, Bob is a life member of ARRL. He also has a membership in FISTS 11282 and the Quarter Century Wireless Association (QCWA).

Bob enjoys the Traffic and Emergency Net on 75 meters. He states that he is a haphazard contester, not a serious one, having worked 13 contacts in a contest the prior Sunday. He also enjoys the County Hunters Net on 20 meters.

His most memorable contact was with Katashi Nose, KH6IJ, in Hawaii, who was a legendary giant in amateur radio around the world. Another memorable contact was with Wayne Green, W2NSD, former publisher of 73 magazine. Another interesting contact was with a man in a tent in the African jungle, running 15 watts on battery power.

Bob's last CW contact was in October. After viewing his large Vibroplex collection, one can see that CW is an interest along with SSB.

Bob hasn't built any ham gear for a while, but did build a transmitter in the '70s from directions in the ARRL Handbook.

Some interesting ham-related mail Bob has received, is a QSL card from a dentist in Japan, depicting an X-ray of teeth.

The equipment Bob uses is a Kenwood TS-2000 in his home station. In his auto, he uses a Kenwood TS-50. Right now he has a Slinky antenna on his backyard fence, which works quite well. His son, a new Ham, is to help him erect an inverted-V antenna on his property.

Bob would like to see the new Hams in the club more involved in simplex communication.

Bob has a doctorate in Curriculum and Instruction and taught for many years on the Navajo Reservation, and in Flagstaff at NAU, and Flagstaff High School.

He retired in 1991, and in addition to ham radio, has been doing leather carving since 1949, and is a member of the International Internet Leathercrafters' Guild.

Bob is a very active member of our club. We are fortunate to have him. ■

America's Walk for Diabetes

By John, WB9VGJ

The Walk for Diabetes held on the Yavapai-Prescott Indian Reservation on Oct. 21st went smoothly, as usual. The folks who put the event on are extremely appreciative of our providing communications for the walk and are excellent hosts. While we normally don't have a large amount of communicating we need to do for the walk, it seems our presence means a lot to the folks running the event.

I would like to thank all those operators who volunteered for the event: Erika, KI7JZ; David, WB7DE; Bob, WB7RRQ; Bob, K7CJW; Walter, KF6SPS; Lee, KC7CBK; Jim, W7KCF; Frank, WA6JBV. ■

The Carbon Microphone

By Dick Karman



Thomas Alva Edison
American Inventor
1847 - 1931

Many of Edison's discoveries were not inventions in the sense of being devices that could be put to immediate practical use.

When he recorded an experiment that brought to light properties of nature which were previously unknown, he recorded them as "phenomenon."

One such phenomenon was the behavior of carbon in the form of lamp

black or powdered graphite. Edison's famous "carbon button" was made from lamp black which he carefully gathered from the chimneys of a large number of smoking kerosene lamps. Earlier, Edison had found that such finely divided carbon could be used to vary the strength of current flowing through a wire. He learned this in the year 1873, when he was trying to find a way to speed up the transmission of telegraph messages over a long under-ocean cable.

Anything in the wire that slows the movement of the electrons is called resistance. The resistance of a thin wire is greater than that of a thick wire. The resistance of a long wire is greater than that of a short wire. The resistance of a transoceanic cable was tremendous.

To conduct his cable experiments, Edison tried to simulate in his laboratory the conditions of a 3,000-mile-long cable. To produce the resistance that could compare, he pressed finely ground graphite into glass tubes and inserted wires in the ends of the tubes. By putting many of the tubes end to end, he was able to approximate the resistance of the cable. Edison tried, to no avail, to use the graphite-filled tubes in his experiments to test what would happen in the cable under various conditions. It did not work.

The tubes did give the resistance he needed. But he found that he could not keep the resistance constant. The slightest pressure on the end of the tube, even a vibration in the wires, varied the resistance. When Edison saw that the arrangement would not do, he laid it aside. 4 years later he remembered the "phenomenon" of the behavior of carbon

and put it to another kind of use.

He was then at work trying to find some way to transmit the vibrations caused in a telephone diaphragm by the human voice. He thought of the curious behavior of the graphite in the glass tubes. He recalled that vibrations of the wire had altered the resistance of the graphite to electric currents.

Edison now experimented with graphite in various forms. He used a stick of graphite adjusted so that it would touch lightly on a spring attached to a telephone diaphragm. When a person spoke into the telephone, the diaphragm would vibrate, causing a change in pressure on the spring and so on the graphite. This caused a variation in the current passing through the graphite.

Edison found that he could get a tremendous sensitivity using the different forms of graphite with the telephone. The instrument would pick up the faintest sounds--a whisper, the touch of a finger, the foot-step of a fly, even a softly exhaled breath. This was the basis for the invention of the microphone. Reproduction of speech was not distinct. The instrument would blare but it would not speak clearly.

One day Edison happened to be distracted from his work by the annoying smoking of his kerosene lamp. Glancing at the lamp, he noticed the intense black of the smoked-up chimney. Edison was curious about this deposit and as soon as the lamp had cooled a little he wiped off some of the black and examined it.

It was not long afterward that Edison gathered the black from many chimneys and pressed it into a mold to make the first carbon button. Soon he set up banks of lamps and put them all to smoking in what he called his carbon factory. He kept assistants busy gathering the lamp black and pressing it into buttons.

The carbon button played an important part of the history of radio. It started in a chimney in Tom Edison's lab. ■

Reprinted from the Northwest Vintage Radio Society's "The Call Letter". You may contact Dick Karman with any feedback or comments, at dick@karmans.net

For those interested in packet radio, etc. and want a TNC:

PK-232 TNC with all manuals and various cables. I purchased this on the Internet when an earlier deal died but later went thru so ended up with this as an extra and never used this one. Will sell it for what I paid - \$96.

Jim Clark - N5RO

Email: n5ro@arrl.net Phone: 928-775-8432



By Lloyd, WA6ZZJ

ARES/RACES

The last ARES/RACES quarterly training session of the year was held on Saturday, November 4th. It was the decision of the staff to have this session be an exercise simulating a flooding condition in Yavapai County.

The objectives of the exercise were to test and evaluate the following:

1. ARES/RACES telephone alert system
2. Repeater monitoring
3. Resource Net activation and performance
4. EOC and Tactical Net activation
5. Operator deployment
6. Message sending and receiving
7. Deactivation

The events begin with a Level 1 Alert taking place on Friday afternoon November 3rd when the telephone alert plan was initialized. Members were notified of a possible activation and asked to monitor the 145.290 repeater on Mingus Mountain.

On Saturday morning the alert was moved to a Level 2 which indicated activation was imminent and shortly thereafter it moved into a Level 3 alert with full activation at 08:45. A Resource Net was started on the 145.290 repeater and personnel checked in with their availability status. The Resource Net then moved to a Tactical Net and operated as a dual net.

At approximately 09:00 deployments were being scheduled. The Yavapai County Emergency Operat-

ing Center (EOC) was in operation along with Prescott EOC and Prescott Valley EOC (operated out of the ARES/RACES ComVan). Personnel were dispatched to the Red Cross and shelter locations. Spotters were sent to a location to observe flooding conditions. Messages handled were both written and tactical in nature.

A total of 21 ARES/RACES members were involved with the exercise terminating at 11:00 for a debriefing at the County EOC at 11:30. The operation wrapped up at 12:30.

The goal of the staff was to have this exercise simulate as close to an actual activation as possible. Positive comments were received from the members participating.

Thanks to all members who took the time to participate. Training is a very important part of ARES/RACES. It is this training that enables us to be a more efficient emergency communications organization.

PUBLIC SERVICE

Public Service communications were conducted on Saturday, November 18th for the inaugural running of the Rails to Trails Race that was held in Prescott and Prescott Valley. This was a first time for this event conducted by the Prescott YMCA in conjunction with the Boys and Girls Clubs of Central Arizona and a first for our communications. The first race to begin was the 11 mile which started at York Motors in Prescott and went on to the Peavine and Iron King Trails through the Granite Dells into Prescott Valley, ending at the new Tim's Toyota Event Center. 183 runners participated in this event. There was also a 10K, 5K and 2 mile race which began and ended at the Events Center.

With this race going through the Granite Dells, it presented more of a challenge in providing communications. There were 5 Water Stations along with Net Control and 2 Shadow operators needed. It was decided to use the 442.350 Glassford Hill repeater and it covered all Water Stations except #4 which was at

the junction of the Peavine and Iron King trails within the Dells. For this site, the YARC 146.880 repeater was used and good communications was maintained.

(See <http://tinyurl.com/yzqg92> for pictures of this event)

Thanks to the 10 operators that took part in this event. They were: WB9VGJ, KC7CBK, AB7NK, KD7VBG, KC6ZHG, N7PJN, WA6AQK, KE7DTR, K7CJW and WA6ZZJ.

We have had a busy Public Service Communications season the last part of 2006. It is an indication of what we can expect around the same time next year. It would really be nice to see some new faces and call signs involved next year to assist all of the familiar faces we always see at these events. ■

Wishing Seasons Greetings to All.....

Lloyd WA6ZZJ

E-mail by Radio

By Jim, N5RO

Some of the YARC members have become interested in IRLP which is a great way to contact people outside the area and in other countries using UHF.

Another interesting aspect of ham radio which has been around a long time is packet radio, which we're encouraged to use in emergency communications to speed up traffic handling. But did you know that you can send email using packet radio? One interesting way is using what's called Winlink 2000, but look at this website

<http://www.varmintal.net/ahamp.htm> which covers some ways to do this very simply, on 2 meters for example using free ham radio software off the Internet [[AGW Packet Engine](#) + [AGW Terminal](#) (the free versions), [DigiPan](#), [Ham-Scope](#) ,] and more (some of which are shareware and cover RTTY, SSTV, etc.) plus a used laptop like the Toshiba T1000SE (available for about 10 - 20 bucks on Ebay or at the local Habitat & other used stores).

Of course a TNC can be used as well, and used Kantronics and PK-232's are sometimes available on eham.net and QRZ.com. Before spending the money on a TNC however, it might be wise to try the cheap route first as used TNC's can sometimes present problems. ■



Computer Tips

Adding Internet Prefixes and Suffixes Automatically

If you have a Windows address that ends with “.com”, you can save time by entering the basic address in the Address Bar and then pressing Ctrl-Enter. Windows will automatically add “www” and “.com” to the address. For example:

Type in **mapquest** and then press **Ctrl-Enter**.

The following will appear in the Address Bar:

<http://www.mapquest.com/>

The web page for MapQuest will then appear on your screen.

Using Toggle Keys

Ever accidentally hit the Caps Lock key while typing along and not looking at the screen? Enabling Toggle Keys, a setting in Microsoft Windows, may save you from wasting time retyping a sentence or two.

When Toggle Keys is engaged, you will hear a beep whenever you press Caps Lock, Num Lock, or Scroll Lock keys.

To enable this feature, go to Start, Control Panel, Accessibility Options, Keyboard. Check the Use ToggleKeys block and click OK. ■

Radio Related Tid-Bits

- Hams often say things like “We’ve been down with the lumbago for awhile, but should be able to work the contest..”. I think it was Mark Twain who said “the first person plural should only be used by royalty, pregnant women, and people with intestinal parasites”.
- Children should be referred to as “intermodulation products”, not “harmonics”.
- Insects have antennae; radios have antennas (from the dictionary and John Kraus, W8JK, inventor of the helical antenna).

CQ DX de YARC – DECEMBER 2006

By Dick Diddams, W7QHE

DATE		DXCC ENTITY	CALL	QSL VIA	REPORTED BY	INFORMATION	--- MONTHLY HIGHLIGHTS --- DJIBOUTI – J2 No. 90 of the 100 Most Wanted
START	END						
NOW	2006 Nov20	CHAD 92/100	TT8PK	F4EGS	F5NQL 20060919	By F4EGS; 40-10m; SSB digital	<p>DJIBOUTI (Arabic: pronounced jo-BOO-tee), officially the REPUBLIC OF DJIBOUTI, is a small country in eastern Africa, located in the Horn of Africa. It is slightly smaller than Massachusetts with a population of 486,530.</p> <p>The REPUBLIC OF DJIBOUTI gained its independence on 27 June 1977. It is the successor to French Somaliland (later called the French Territory of the Afars and Issas), which was created in the first half of the 19th century as a result of French interest in the Horn of Africa. However, the history of DJIBOUTI, recorded in poetry and songs of its nomadic peoples, goes back thousands of years to a time when Djiboutians traded hides and skins for the perfumes and spices of ancient Egypt, India, and China. Through close contacts with the Arabian peninsula for more than 1,000 years, the Somali and Afar tribes in this region became among the first on the African continent to adopt Islam. DJIBOUTI is a Muslim country which regularly takes part in Islamic as well as Arab meetings.</p> <p>There is one amateur radio club station and 6-licensed amateurs in DJIBOUTI. Since active French amateurs are working in the country, the entity is not as "rare" as it might be. It is most active during contest such as the CW, SSB and RTTY.</p> <p>The economy is based on service activities connected with the country's strategic location and status as a free trade zone in northeast Africa. Two-thirds of the inhabitants live in the capital city; the remainders are mostly nomadic herders. 4-inches of annual rainfall limits crop production to fruits and vegetables, and most food must be imported. Djibouti provides services as both a transit port for the region and an international transshipment and refueling center.</p>
NOW	2006 Nov20	COCOS (KEELING) 65/100	VK9CGG	W0YG Direct	OPDX 20060619	By N0KV W0YG	
NOW	2006 Dec03	SAMOA	5W	JA7GAX Direct	425DXN 20061118	By JA7GAX fm OC-097	
NOW	2006 Dec04	FRENCH POLYNESIA	FO5RH		425DXN 20061118	By F2HE fm Tatakoto Atoll (OC-066)	
NOW	2006 Dec05	DOMINICA	J79	Home Call	F6EPY 20061109	By F6COW F6EPY as J79CO & J79EP fm NA-101; 160-15m	
NOW	2006 Dec05	ARUBA	P40Z	K9UK	W9AEB 20061008	By K9UK W9KXQ WW9WW WG9J W9AEB	
NOW	2006 Dec16	DJIBOUTI 90/100	J20SA	ON7SAT	ON7SAT 20061117	By ON7SAT; 40 20 15 10m; SSB	
NOW	2006 Dec31	FRANZ JOSEF LAND	R1FJT	UA4RC Direct	SM5DQC 20061009	By R1FJT; 160-10m; CW SSB RTTY	
NOW	2006 Dec31	DR CONGO	9Q1D	SM5BFJ direct	SM5DQC 20060928	By SM5DIC; spare time operation	
NOW	2007 Jan13	MALAWI	7Q7HB	G0IAS Direct	425DXN 20061014	By 7Q7HB	
2006 Dec04	2006 Dec13	AMERICAN SAMOA	KH8	JA7GAX Direct	425DXN 20061118	By JA7GAX fm Tutuila Is (OC-045) and Manua Is (OC-077)	
2006 Dec14	2007 Jan08	TONGA	A3	JA7GAX Direct	425DXN 20061118	By JA7GAX fm OC-049 OC-169 (1 week) OC-064 (1 week)	
2006 Dec20	2006 Dec22	GUAM	KH2	JM3PIT	JM3PIT 20061016	By JM3PIT	
2006 Dec25	2007 Jan03	TONGA	A35GN	VK2GND	OPDX 20061016	By VK2GND fm OC-049; check 7050 14195 14273 kHz	
2006 Dec28	2007 Jan01	PUERTO RICO	KP4	DL3VFN Buro	OPDX 20060911	By DL3VFN as KP4/DL3VFN fm Vieques Is (NA-099)	
2006 Nov02	2006 Nov25	CORSICA	TK	F4DZY	425DXN 20061004	By F4DZY as TK/F4DZY fm Furiana (EU-014)	
2006 Nov03	2006 Dec15	QATAR 96/100	A70RRY	EA7FTR	EA7FTR 20061104	By A7 friends; SES for 15th Asian Games	
2006 Nov07	2006 Nov22	TANZANIA	5H1HW	I5JHW	I5JHW 20061026	By I5JHW fm Zanzibar Is (AF-032); SSB RTTY	
2006 Nov08	2006 Nov20	ZAMBIA	9J2VB	UA4WHX	W3LPL 20061109	By UA4WHX; duration of operation unknown	

THANK YOU



Since July 2005, when I took over as Editor of the Yavapai Signal, a lot of you folks have helped out by contributing articles and pictures for our newsletter.

I would like to thank all of you, and especially the following people who have faithfully submitted articles **every** month:

John Broughton, WB9VGJ
 Pat Oliver, K7DUC
 David Passell, K6UWV
 Lloyd Halgunseth, WA6ZZJ
 Dick Diddams, W7QHE

Also, a special thanks to Rex Mauldin, N7NGM; Paul Lucas, N6DMV, Mary Vince, AB7NK, and Bruce Randall, W1ZE for contributing several articles over the past months.

We welcome other club members to share your experiences and/or knowledge. You don't have to be a professional writer -- so let's hear from you!

Joe Oliver, AC6AA
Newsletter Editor

“Good Old Days” ... Perhaps.

By Joe, AC6AA

Around the early 1950s, Double-sideband AM (DSB AM) was the favorite modulation system for voice. Single-sideband AM (SSB) was starting to compete with DSB, with its promise to reduce the overall congestion on the bands. My old Hallicrafters SX-24 was not suitable for receiving SSB signals, and as a young student, I didn't have the money to purchase expensive equipment. Therefore, I decided to construct a receiver that would cover the Ham bands and have the needed selectivity and other features for SSB and CW. The end result, as shown in the accompanying pictures, was a 24-tube, triple-conversion Superhetrodyne receiver.

The receiver design was developed from sections of circuits gleaned from various publications. Parts were scrounged from here and there, such as a discarded TV transformer, and a multitude of surplus parts from WWII gear. My SX-24 was on its last leg, so it was cannibalized to obtain an S-Meter and main tuning Dial.

The 1st I.F. stage used a single transformer tuned to 1582 KHz. The 82 KHz 2nd and 3rd stage I.F. transformers were obtained from an AN/ARC-5 receiver. The 4th and 5th stage 20 KHz I.F. transformers were constructed from scratch, using ferrite pot cores, which produced a sharp 250 Hz bandwidth. Used parts were cleaned, polished, and refurbished as necessary to keep costs at a minimum.

Many hours were spent constructing, testing, and aligning this receiver, but it was an enjoyable learning process. There is a great deal of satisfaction in building equipment and having it work well.

Technology has advanced significantly over the past 50 years. My FT-100 is 1/20th the size of my homebrew receiver and yet it has a receiving frequency range of 100 KHz to 961 MHz, plus it transmits up to 100 watts over our HF bands.

Not many Hams today have the capability and where-with-all to construct and test radios comparable to the FT-100. It is simply easier to purchase today's radios, than attempt to duplicate their performance with a homebrew rig.



Fig. 1



However, to many amateurs, building their own ham gear still is the most rewarding part of the hobby. For those of you who have not built any equipment, perhaps you should try. Construction projects, ranging from the very simple to the more complex, abound on homebrew websites on the Internet.

While knowledge of electronic construction techniques, test equipment, and the business end of a soldering iron seem to be fading from our hobby as technology advances, it is great to remember the days when “homebrewing” played such a prominent role in Amateur Radio. ■

A Wal-Mart Headset for all Seasons

By Bruce, WIZE

There are times when you need the capability for hands-free radio voice communications in the shack or in the car. In the shack it can be easy if you have a desk microphone and a VOX circuit in your transceiver. In the car while driving down the highway it becomes a little more difficult unless you have an earphone/microphone headset that is compatible with your rig. Yaesu, Kenwood, Icom, Heil, and others sell these headsets, but they don't give them away with two box-tops from a Corn Checks box.

In my shack I get involved in the occasional contest and chase DX from time to time. I needed the ability for hands free communications so I can type in log entries into the PC and jot things down on my scratch pad; so hands-free operation is a big help.

I did not plunk down long green for the fancy Heil head-set, even though I would like one. I use a PC microphone/Stereo headset that I originally picked up to use on Echo-Link and other VoI connections on the Internet. These headsets sell for fewer than twenty bucks at Wal-Mart. I have seen them for half that at Hosstraders by the "under the grandstand" vendor. If you factor in the gas to get you to central New Hampshire, the Wal-Mart price isn't all that bad.

Here is how you can make an El-Cheap-O headset work on your HF or VHF rig. You don't have to do anything to the headset itself. You need to make a small interface unit to electrically couple the headset to the rig.

All the cheap PC headsets use a small amplified

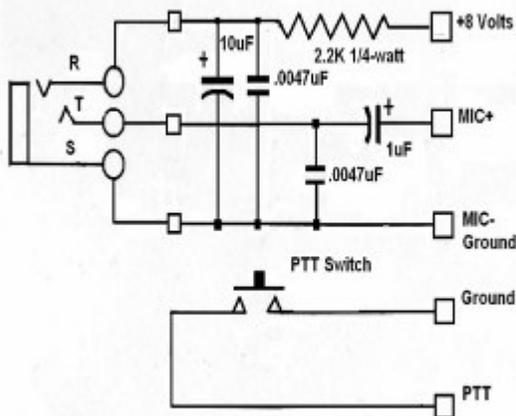


Figure 1

condenser Microphone element that requires a small positive voltage to run them (about 8 volts). Most of the standard ham rigs have a +8 volt pin in the microphone receptacle or they have it imposed in the mic+ pin (i.e. Icom equipment). Only a few components are required.

The headset has two gold plate mini stereo plugs on it. The Pink plug goes to the microphone and the black plug goes to the stereo headphone. As you can see in figure 1, the interface circuit has very few components. Most parts are available at Radio Shack. The 1uF Tantalum capacitor couples the audio from the mic element to the mic+ input on the transceiver and blocks any DC voltage to the mic element. The 10 uF Tantalum capacitor is used as a filter for the DC voltage. The two .0047uF ceramic disc capacitors are used as RF bypass to aid in keeping RF out of the mic circuit. The resistor can be a 2K or 2.2K 1/4-watt, and is not critical.

Note: If you find the headset mic has too much low speech emphasis, you may want to replace the 1uF capacitor with a .33uF to put more emphasis on the mid speech range.

The circuit can be put into a small plastic project box with pass-through connections for the stereo headset. The PTT switch is a simple push-button. I added an input jack for a PTT foot-switch so I can key the rig with my foot leaving my hands free for other tasks, like sipping coffee or a fruity Chardonnay. I assembled the interface circuit on a small Radio Shack project PC board that has a terminal strip on the edge. You will have to check the owner's manual for your rig to determine the microphone jack pin-out so you can connect to the correct tie-point on the interface board. Note: ICOM and other rigs have +8 volts on the MIC+ pin in addition to a 8 volt pin, so on your board put a jumper between the mic+ line and the voltage feed line on the board. For other rigs you will need to provide voltage on one of the microphone cable wires. I placed the circuit in a small plastic project box and mounted the PTT button switch on top for easy access. You may want to parallel a SPST switch for those long winded QSOs (especially while mobile).

After you get it built, you should do an on-air test to make sure you have the proper mic gain. With your headset securely planted over both ears, position the gooseneck microphone boom to a point near the corner of your mouth. Make sure it does not touch your cheek (if it touches your face, as you talk it will add scratch to your audio). Speaking in a normal voice adjust your rig's microphone gain to a point where your ALC meter just moves up on high voice peaks. ALC is not a modulation meter. It should not look like your power output indication, just the occasional upward bounce. ■

Tech Trivia

What's in a Name?

Pick any field of study you like, and chances are the ancient Greeks originated it. The word for our technology, electronics, comes from the Greek *elektra*, meaning amber. Amber is the dark translucent yellow substance obtained when tree sap hardens -- an early plastic, if you will. When amber was rubbed with lamb's wool, the Greeks noticed the clinging phenomenon familiar to any modern who has ever taken a piece of nylon clothing out of a dryer. Ben Franklin and others picked up this investigation of electrostatics 2000 years later, with results known to us all.

The words electric and electron were widely used in the first decades of the twentieth century, but the word electronics, implying applications of the vacuum tube beyond the original radio area, did not gain currency until a magazine bearing that name appeared in 1930.

Lee DeForest, inventor of the triode vacuum tube, called his invention the audion -- a contraction of audio and ion. He remained convinced that its operation depended on ionized gas inside the bulb long after nearly everyone else had recognized the need for a near-perfect vacuum. DeForest also used the term 'wing' for the element which everyone now calls the plate. Of course, Ambrose Fleming, who invented the vacuum diode called it a valve, and the British continue to say 'valve' where we would say 'tube,' -- such are national loyalties.

The word transistor was coined as a contraction of transfer resistor. Transfer is an engineering term implying a relationship between an electrical output quantity and an input voltage or current. The idea was that an input current would control an output resistance. The term is not a good one, because the transistor's output characteristics are not at all like those of a resistor. Doubling the collector voltage does not double the collector current, for example; it hardly changes collector current at all.

We call a three-terminal variable resistor a potentiometer because an early version of this device was used in a potential-measuring circuit. A known voltage was voltage-divided down to exactly balance the unknown voltage, as indicated by zero reading on a galvanometer. Today, of course, a 'pot' is but seldom used in a potentiometer circuit.

No naming question generates so much heat on internet newsgroups as the BNC connector. Some say it means British Naval

Connector, while others insist it stands for Baby N-series Connector. One authoritative-sounding post said it simply recognizes the style and designers: Bayonet Neill Concelman.

There is less controversy over the XLR microphone connector. X is simply the Manufacturer's series, L denotes a newer Locking version that won't fall out, and R is for the Rubber inset for the pins, replacing the hard plastic which resulted in pin damage.

National Radio's famous top-of-the-line receivers, beginning in the 1930s and culminating in the 1960s, were named the HRO series. An old timer at the company related that the original production run was done under pressure approaching panic -- it was a **Hell of a Rush Order**. ■

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**Tell-tale signs of RF interference:
The first time you key your transmitter,
your neighbor flies out of his recliner.**



Weekly Breakfasts



Tues. Morning Breakfast –

7:00 a.m. at

Back Burner Cafe

8400 E. Long Mesa Drive

& N. Robert Road

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" W112°27'15.4")*

informal – all are invited

8:00 a.m.

Masonic Lodge

(1280 Willow Creek Road,

2nd Floor; above Bank of America)

informal – all are invited

* Location data (per WGS84) provided

by Fred Zimmermann, N7PJM

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	
448.475-	100.0	Flagstaff-Elden	ARA	Yes			
448.500-	100.0	Prescott	KB6TWC	Yes	RB to White Tank 146.940		E-mail owner for instructions
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 of 100.0 Hz

For more Repeater Information & Listings refer to:

- www.w7ara.org/Web/
- www.azrepeaters.net
- www.azfreqcoord.org/listings.htm

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Many thanks to Bob Smith, WB6ODR, our Webmaster

