The Heterodyne

Bulletin of the West Valley Amateur Radio Association
An Affiliated Club of the American Radio Relay League

West Valley Amateur Radio Association, W6PIY — http://www.wvara.org
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Next Meeting: Wednesday, 7 to 9 p.m., June 17, 2009 at the American Red Cross, 2731 North First Street at Plumeria (between Trimble and Montague Expressway) in San José.
Speaker: Jim Peterson, K6EI and others — Subject: "Field Day Preparations, Part Two"

ARRL Field Day 2009 — Get ready for the official 2009 ARRL Field Day. The web page is up and running at http://www.arrl.org/FieldDay . This page includes a summary of available resources, with links to Field Day forms and rules, logos and reference links. The page also includes a quick link to the map-based Field Day station locator where users can search for public Field Day sites. This year, **Field Day is June 27-28**. The Field Day page also includes a link for ordering commemorative Field Day T-shirts, hats, pins and other supplies. All of the items are available for ordering now; many of the items are already in stock. Radio clubs are encouraged to order early.

Field Day Update — by Jim Peterson, K6EI

On May 31, six WVARA members got together and had an informal Field Day antenna party at the San José Red Cross parking lot. We assembled and tuned both HF Yagi antennas on the crank-up tower, and both antennas functioned well. We are planning to have our second **pre-Field Day visit to the Mora Hill site** on **Saturday, June 13 at 9 a.m.** Please mark your calendars, and join us in finalizing our antenna placement plans.

Regenerative Receiver Kit Debut — by Ken, WA4MNT

With the advent of Solar Cycle 24, many radio clubs, or group of clubs are gearing up their community involvement, and youth based radio orientation programs. Hendricks QRP Kits http://www.qrpkits.com/ gained permission from Charles Kitchin (N1TEV) to offer his popular regenerative receiver in kit form, and is being released at Dayton this year.

Kitchin's design provides a basic regenerative shortwave receiver capable of receiving AM, SSB, and CW signals from 3 MHz to 11MHz. The coverage enables the listener to hear amateur radio operators in the 80M, 40M bands, and foreign AM broadcast stations in the 49M and 31M bands.

Dan Tayloe (N7VE) adapted his design to a small, self-contained, unit that is easily assembled with normal low cost tools. It is a basic, easy to assemble kit, with all the components supplied.

The metal chassis, front panel decals, professionally fabricated, silk screened circuit board, electronic, and mechanical components are all included.

Builders are required to supply commonly available earbuds, an onboard 9V battery, and some random wire for an antenna. Antenna requirements are just a simple wire antenna, thrown up into a tree or tied to a structure. The only tools required are an inexpensive 20-watt soldering iron, rosin core solder, small side cutters, needle nose pliers, small Phillips, and straight screwdriver. Complete detailed assembly instructions and schematic can be viewed or downloaded from the files section of http://www.qrpkits.com/ .

This kit would be an excellent Elmer project for any ham radio programs targeted at increasing technical interaction with youth programs, schools, or attracting newcomers to the hobby.

A Tale of Two Tubes— by Dan Romnanchik, KB6NU

A couple of weeks ago, I worked N4QR on 40M CW. I could tell by the tone of his signal that he was operating a homebrew transmitter. There was not any 60 Hz on his signal, and it did not chirp exactly, but I could tell it wasnot the pure tone you get from modern radios.

I asked him about his rig, and he told me that it was a one-tube transmitter made with a 6L6. I forgot to ask him where he got the schematic, but a quick Internet search turned up the following:

   — The May 2005 issue of the K9YA Telegraph http://www.k9ya.org has an article written by N4QR titled, "The Wonderful One-Tuber," that contains the schematic for the transmitter. The K9YA folks do not make issues of the Telegraph available on their web site, but I was able to get a copy of the issue by e-mailing them.
   — A 6L6 Classic http://www.io.com/~nielw/6l6/6L6.htm
   — WB2MIC 6L6 Transmitter Project
http://www.metaphoria.us/hamradio/6L6_transmitter_schematic.htm

The 6L6 is a pentode that, according to Wikipedia http://en.wikipedia.org/wiki/6L6 , was introduced by the Radio Corporation of America (RCA) in July 1936. Apparently, it was used quite a bit in public address systems.

After the tube became successful, tube manufacturers introduced a number of variation s, including the venerable 807. The original 6L6 was capable of delivering 19 watts. The latest variation, the 6L6GC is rated for 30 watts. The 6L6GC is still used in guitar amplifiers, and is still manufactured in Russia, China, and by Groove Tubes www.groovetubes.com in the U.S. They sell a number of different 6L6 variants; the cheapest is $16, the most expensive $180!!

Tube #2
One of the reasons I was interested in the 6L6 is because about a year ago I came across a schematic for a transmitter using 6A6 dual triode. I had just come into possession of a couple hundred tubes, and while I did not have a 6A6 (at least I have not found one yet), I do have a couple of 6J6 dual triodes. They are not quite as high-power as the 6A6, but I am still thinking about building a little transmitter with one.

As you might expect, there is a lot of information on the Internet about this tube:

   — The Jones Push-Pull Transmitter http://wv7g.home.mindspring.com/jones_6j6.html was built with a 6J6 instead of a 6A6.
   — Another schematic can be found on the AKØB website http://www.qsl.net/ak0b/ .
   — 6J6 data sheet http://www.gargnas.net:3000/tubedata/6J6.pdf from the GE data book.

One interesting fact about the 6J6 is that IBM used it in the 604 computer. Unfortunately, they found it to be not as reliable as they wanted it to be, but at first none of the tube manufacturers were interested in making a more robust version. This led IBM to set up a tube-making laboratory where they could experiment with designs. They developed a more reliable version of the 6J6 and finally convinced RCA to manufacture the tube. According to the author of the history of the 604 http://ed-thelen.org/comp-hist/IBM-604.html#new , part of the concern is that IBM would decide to get into the tube business.

So, the next time you hear a signal that does not sound so perfect, remember that there just might be a story behind it. Ask the operator about his transmitter, and listen to what he or she has to say.

Note: When not pondering the mysteries of vacuum tube part numbers, KB6NU teaches ham radio classes, works CW on the HF bands, and posts blogs about ham radio at http://www.kb6nu.com .

WVARA Tuesday Night Net Check-ins — X = checked in; # = net control.

Call Sign	Name	May 12, 2009	May 19, 2009	May 26, 2009	June 2, 2009
AB6XS	Kevin	X		X	X
AD6YU	Loren	X #	X	X	X
K1DOD	Jonathan	X	X		
K6EBN	Eben	X	X	X	X
K6OMG	Patricia	X			
K6SCC	Brian		X		X
K6WAR	Bill		X		
KD6VOR	Marv	X		X	X
KF6EMB	Svend	X			X
KF6UTE	Casey		X		X
KG6SEA	Tom	X	X		X
KK6VF	Kevin	X	X #	X #	X #
N6BIH	Senad				X
N6EEE	Raymond				X
N6IPS	Roy	X			
N6UMQ	Curtis	X			
W6HOC	Howard	X	X	X	X
W6RPH	Doug	X	X		
W6TQG	Phil		X	X	
WB6KHP	Dave	X	X	X	X

Club Net: Tuesday, 8:30 p.m. on our club repeaters:

WVARA Repeaters (W6PIY)			
Band	**MHz**	**PL**	**Status**
6 Meters	52.580-	151.4 Hz	Operating
2 Meters	147.39+	151.4 Hz	Operating
1.25 Meters	223.96-	156.7 Hz	Operating
0.70 Meter	441.35+	88.5 Hz	Operating
0.23 Meter	1286.2-	100 Hz	Operating

High Speed Telegraphy on the World Stage — The October 1936 issue of <u>QST</u> reported on the first official "Amateur Code Speed Contest" ever held. Eugene A . Hubbell, W9ERU, took home the silver trophy with his wining speed of 52.2 words per minute. Held at the ARRL Central Division Convention that year, the contest required operators to decipher plain language tex t for two minute intervals that ranged in speed from 25 to 52.7 words per minute. "Only bona -fide amateurs, holding at least an amateur operato r's license, were eligible"
to compete in the contest, the article stated http://p1k.arrl.org/cgi-bin/topdf.cgi?id=18072&pub=qst

Fast forward to 1995. Competitors from 15 countries on three continents traveled to Siofok, Hungary to show off their CW operating skills in the first IARU High Speed Telegraphy (HST) World Championship. According to Barry Kutner, W2UP, HST has long been considered a sport in Europe, especially Eastern Europe, similar to chess or an Olympic sport. Kutner was the sole US representative at the 2005 HST World Championship in Macedonia. In 2009, he is leading a team of seven this September to Obzor, Bulgaria for the Ninth High Speed Telegraphy IARU World Championship http://www.hst2009.eu/ .

Kutner said that most of the participating IARU Member-Societies hold a national competition in their country, seeking members to field and sponsor a team to the World Championship. "In some of the eastern European countries, where they take this very seriously, there are team and/or individual coaches, too," he said. Competitors must be licensed amateu r radio operators, except entrants in the younger categories may be SWLs. The IARU HST World Championship s follow rules set forth by the IARU Region 1 High Speed Telegraphy Working Group http://www.darc.de/referate/dx/archives/hstrules.pdf .

In the U.S., Kutner said those who wish to participate in the World Championship do so at their own expense. "In past years, there has either been one — myself in 2005 and Ilya Kleyman in 2007 — or no U.S. participants," he told the ARRL. "This year, we have a team!"

The U.S. team consists of shortwave listener Brana Kleyman (category A, women 16 and younger); Kody Low, KB3RUP, and Cal Darula, K0DXC (category B, men 16 and younger); Ilya Kleyman, KE7OPG, and Ken Low, NV1P (category H, men age 40 -49), and Gary Schmidt, W5ZL, and Kutner (Category I, men 50 and older). "The 2 OM categories are full," Kutner said. "But we are always looking for younger hams, especially young ladies!" There are nine categories, and each country can only send two competitors per category, for a maximum of 18 competitors.

There are three main competitive events at HST meets: transmitting, receiving and receiving amateur radio call signs via RUFZXP http://www.rufzxp.net/ ; the sending and receiving portions of the competition are referred to as the Radio Amateur Practicing Tests (RPT). There is also a pileup competition.

In the RPT, random letters and numbers are sent via Morse code — five characters at a time — at a high speed. Separate competitions are held for the reception of only the 26 letters of the Latin alphabet, only the 10 Arabic numerals or a mixed content of letters, numbers and some punctuation symbols. Competitors may ch oose to record the text by hand on paper or by typing on a computer keyboard. The competition starts with one minute of transmission sent at an initial speed defined for the entry category (usually 50 letters per minute for juniors and 80 letters per minute for the other age categories). After each test, the competitors' copy is judged for errors. Subsequent tests are each conducted at an increased speed until no competitor remains who can copy the text without excessive error.

The transmission tests require competitor s to send five character groups in Morse code as fast as possible. Competitors send a printed message of five character groups at a specific speed that is judged for its accuracy by a panel of referees. Like the receiving tests, there are separate

competitions for sending five character groups of only letters, only numbers or a mixed content of letters, numbers and some punctuation symbols. Kutner noted that 100 letters per minute is equivalent to 25 words per minute and 100 numbers per minute is equal to 36 words per minute. The mixed category of 100 letters, numbers and punctuation is equal to 29 words per minute.

The Amateur Radio Call Sign Receiving Test uses a software program called RUFZ XP that generates a score for each competitor. RUFZ is the abbreviation of the German word Rufzeichen-Horen that means "listening of call signs." In RUFZXP, competitors listen to an amateur radio call sign sent in Morse code and must enter that call sign with the computer keyboard. If the competitor types in the call sign correctly, their score improves, and the speed at which the program sends subsequent call signs increases. If the competitor types in the call sign incorrectly, the score is penalized and the speed decreases. Only one call sign is sent at a time and the event continues for a fixed number of call signs (usually 50). Competitors can choose the initial speed at which the program sends the Morse code and the winner is the competitor with the highest generated score.

There is also a Pileup Trainer Test that simulates a pileup situation on the air — numerous stations attempt to establish two-way contact with one particular station at the same time. This competition uses a software program called MorseRunner http://www.dxatlas.com/MorseRunner/ In this test, more than one amateur radio call sign is sent at a time via Morse code that is generated at different audio frequencies and speeds, timed to overlap each other. Competitors must record as many of the call signs as they can during a fixed period of time. They may choose to do this either by recording the call signs by hand on paper or by typing them in with a computer keyboard. The winner is the competitor with the most correctly recorded call signs.

Kutner said that each US team member practices on an individual basis, using both on-the-air and computer generated CW. As the team gears up for Bulgaria, "we are in frequent contact via e-mail, exchanging tips and ideas," he said.

HST has definitely come a long way since 1936 when Hubbell dazzled the crowds with 52.2 words per minute; competitors at the IARU HST World Championships consistently have speeds of more than 500 characters per minute — 100 words per minute. While it is too late to join the 2009 U.S. team, it is not too early to think about upcoming events. If you are able to copy and/or send CW at dizzying speeds, why not think about attending the next IARU HST World Championship? For more information on HST events, contact Kutner via e-mail w2up@arrl.net .

Swap Meets —

Livermore SWAP
Robertson Park, Livermore
1st Sunday of the month, March through November

Information at: http://www.livermoreark.org/swap/swap.html
Flyer at: http://www.livermoreark.org/swap/swapbrochure.pdf

ASVARO Electronics Flea Market
De Anza College, Cupertino
2nd Saturday of the month, March through October

Information at: http://www.electronicsfleamarket.com/
Flyer at: http://www.electronicsfleamarket.com/efm-flyer.pdf

Fig. 1 — WVARA Field Day Antenna Party, San José Red Cross, 2009.05.31

Fig. 2 — Svend, KF6EMB Uses the "Armstrong Method"

Fig. 3 — Kevin, KK6VF Assembling an Antenna

Fig. 4 — KF6EMB Cranking and Phil, W6TQG Gazing Skyward

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