www.wvara.org April 2015

The Heterodyne

Newsletter of the West Valley Amateur Radio Association

April Meeting

The In's and Out's of
Our Local Red Cross
by George Williams, N6NKT

Wednesday April 8
Meeting Starts at 7pm

Meeting Location:
American Red Cross,
Silicon Valley Chapter
2731 N. First Street at Plumeria Dr
(southwest corner) in San Jose
Map at www.wvara.org/meetings.html

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

Club Net

WVARA's club net is on the W6PIY repeaters each Tuesday at 8:30 pm. All repeaters are linked together during the net. The net script can be found at www.wvara.org/net.html .

Visitors Are Welcome!

President's Letter

Learning by Doing

One of the parts of ham radio I enjoy the most is building things. I have mostly built kits in the past, and they have the advantage that all the circuit design issues have been worked out by the kit designer. But, it is always interesting to try new things, so I have been working on a project that included some circuit design. I learned a few things.

Since my wife Peri, KI6SLX, wanted to minimize the number of wires coming into the house, I installed a DX Engineering 8 way antenna switch on the roof a number of years ago. I have been planning to build an antenna switch controller which reads the band data from my K3 and selects the appropriate antenna for a couple of years. About 3 weeks ago, I started design and construction.

The controller is designed with 8 LEDs to show which antenna(s) are selected, and 8 buttons to change the selection. Since my antenna farm changes quite frequently, it also includes a holder for a piece of paper which describes each antenna, eliminating the Postit note that was always getting lost.

At the conceptual stage, the project seemed quite simple. Use an Arduino to read the data from the K3 using 4 of the Arduino's pins, and switch the relays with an additional 8 pins. The 8 switches can be encoded into 4 more input pins and we still have 4 I/O pins left on the Arduino.

I decided to use an IRF520 MOSFET to switch the relays based on circuits in the "Getting Started with Arduino" book. The relay coil generates a high reverse voltage when it is de-energized. To handle this voltage, I added a reversed diode in parallel with the relay coil as suggested by the ARRL Handbook. A LED and a resistor provided the indicator for relay activation. Eight copies of these parts take care of the switching and indicators for the eight switching relays.

To get 8 buttons into 4 inputs, a diode matrix encodes the buttons. A 9 volt three terminal regulator powers the Arduino. What could be easier.

So I hauled out a prototyping board and built samples of the basic circuits. Everything looked good. I started assembling the hardware in a project box with some Vector board for the circuit. Then reality hit. I had missed some important points.

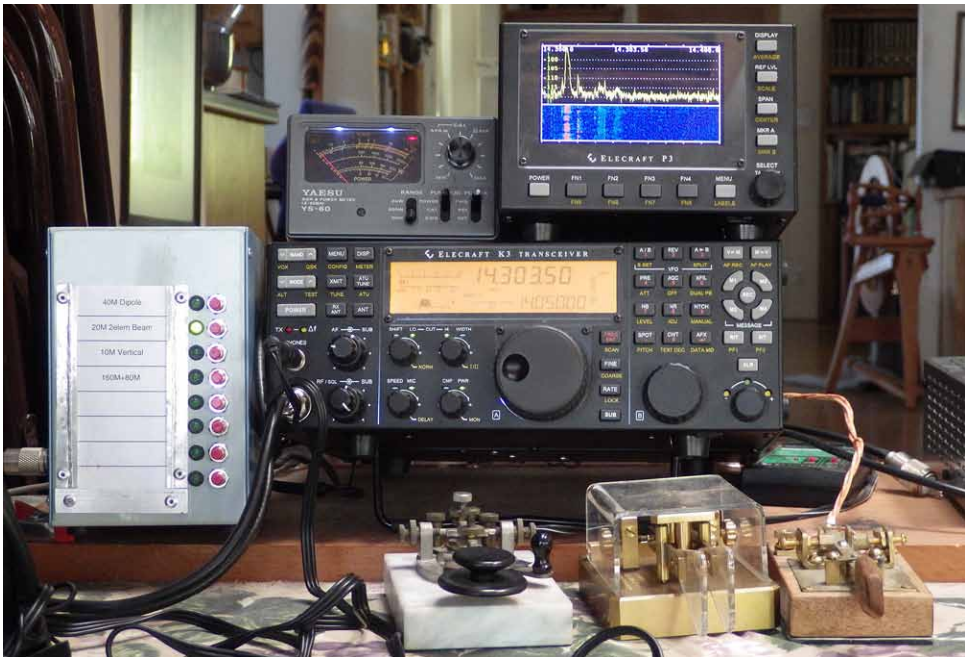
The DX Engineering switch really, really wants to have the common lead to the relays be negative and grounded. This means that instead of switching in the negative lead, for which the IRF520 is ideally suited, I had to switch the positive lead. A quick trip to the ARRL Handbook told me that the gate voltage on the IRF520 should be 2-3 volts higher than the voltage it was switching. The Arduino only produces 5 volts on its output pins so I added a 2N2222 common emitter amplifier to each channel. This amplifier lets me use the 12 volts from the input power supply to switch the 9 volts from the Arduino power supply. Fortunately, the relays work on 9 volts. There is probably a simple, much more elegant solution to this problem, but I don't know it. I would love to learn how to get the full 12 volts to the relays.

The other issues had simpler fixes. The diode matrix encoder needed pull-down resistors to work reliably and the bases of the 2N2222 transistors needed current limiting resistors.

After writing and testing the software using the LEDs to show which relays were selected, I was ready to hook the box to the rooftop antenna switch. Amazingly, it worked the first time. The correct antennas were selected for each band. The K3 showed the expected SWRs on all the antennas. The switches switched to alternate antennas, the new settings were remembered when returning to that band. I can now change bands on the K3 and have the antenna automatically selected.

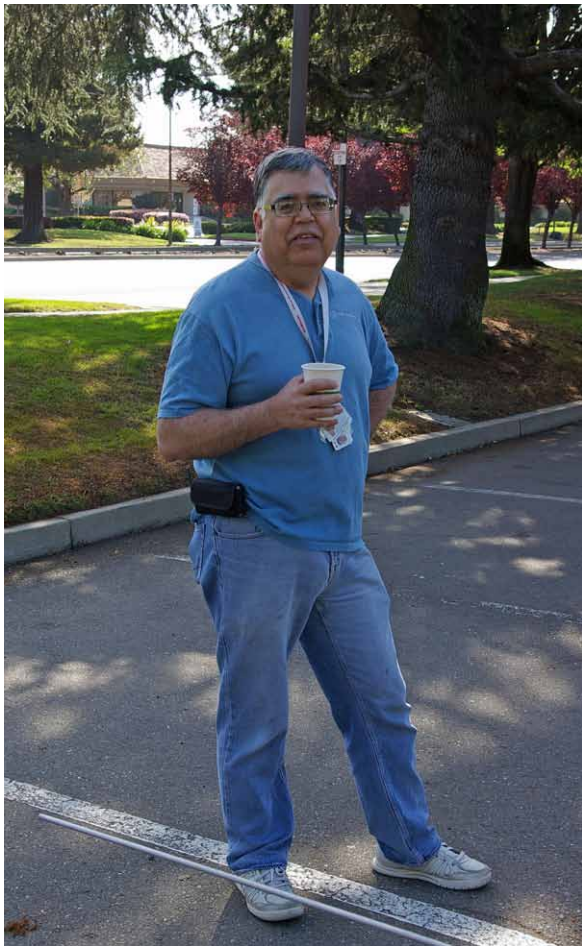
Life is good.

73, Bill - AE6JV



About the Meeting
The In's and Out's of Our Local Red Cross
by George Williams, N6NKT

WVARA meets in the Silicon Valley Red Cross building the second Wednesday of each month, but did you ever wonder what our local Red Cross actually does and what their emergency communications needs are? Then mark your calendar because this month's WVARA meeting, on April 8 at 7pm, will be really cool. George Williams, N6NKT, will be updating us on the in's and out's of our local Red Cross — including a brief tour of the facility's emergency communications room.



George was first licensed 1987. After a few years on UHF/VHF, he took his first micro Xpedition to Inyo County, Horton Creek Parkas part of the Calif QSO Party. Then the HF bug really bit him. Currently, George has confirmed over 181 countries via LoTW and QSL cards and has three DXCC awards, Mixed, Phone and CW. He is also active in SOTA: Summits on the Air.

Meeting Location: Silicon Valley Chapter of the American Red Cross, 2731 N. First Street at Plumeria Drive (southwest corner) in San Jose. Visitors are welcome, and of course there will be chocolate chip cookies.

If you haven't been to the Red Cross, "talk-in" is usually available on the Association's repeaters. Best choice would be 2m/220.

And for those who are hungry, several of us will be eating dinner prior to the meeting at the Burger King at 2532 Channing Avenue, just off Seaboard Avenue and near the corner of Trimble Road and De La Cruz Boulevard. Map of restaurant: http://mapq.st/3-I0rpFmro

Hope to see you there!

Club Web Page: www.wvara.org

Jim, K6EI

Field Day Antenna Party #1 a Big Success

WVARA is once again making preparations for a fun-filled Field Day on top of Mora Hill in Rancho San Antonio Open Space Preserve. (Field Day weekend this year is June 26-28.)

Practice makes perfect, and it's far better to get bugs fixed prior to the big event in late June. Eight members of the WVARA Field Day team spent Saturday morning, March 28, in the Silicon Valley Red Cross parking lot making initial preparations. They assembled, tweaked, and tuned the set of HF antennas to be used by the SSB portion of our Field Day operation.

Among other things, our team inventoried the many antenna-related pieces-n-parts, retuned the self-supported 40 meter dipole that will be used for SSB, identified a flakey coax connector, optimized the SWR of the Force12 tribander, and noted some yagi-element junctions that we'll be cleaning/tightening in the next few weeks.

If you missed out on the antenna-related festivities, you can still join us on Saturday morning, May 2, for our second Field Day prep antenna party.

- Jim, K6EI

January 1, 2015

Dear Amateur Radio & DX Enthusiast,

This year is the 66th consecutive year for the International DX Convention. The meeting, sponsored by the Northern California DX Club, will be held at the beautiful Visalia Convention Center in downtown Visalia, CA. IDXC, the premier DX Convention in the United States, is attended by over 800 serious DX'ers and contesters looking to improve their skills, their stations and see the latest equipment.

Convention Highlights:

- Full day of training on Friday, April 17, 2015: Contesting and DXing Techniques
- Friday Evening Dinner Options: TopBand, IOTA, and Contesting
- Open DX Forum
- 15-20 DX & Technical Seminars
- 35-40 Exhibitors in large Exhibit Hall
- QSL Card Checking
- Great Raffle Prizes
- Eyeball QSOs w/DX Friends
- Excellent Keynote Speakers
- Access to great California vacation destinations (see description on website)
- Pre-Registration Ends: Wednesday, April 08, 2015
- Walk-In Registrations Start On Friday, April 17, 2015
- Website: dxconvention.org

We intend to make IDXC 2015 the best DX Convention ever, and hope you'll be able to join us.

Sincerely,

John Miller, K6MM
Kevin Rowett, K6TD
Rich Seifert, KE1B
IDXC 2015 Co-Chairmen

Saturday, April 18th, 2015 – Mountain View, CA

AMATEUR RADIO

LICENSE TESTING

This session is produced by the Bay Area Educational Amateur Radio Society – Member W5YI VEC

Study Session, Followed by Exam

When: *Saturday, April 18th, 2015*
8:00am – 5:00pm

Where: *Mountain View, CA*

Fee: *$30.00 at the Door*

Questions: *Ross Peterson* ***wb6zbu@arrl.net*** *or 650-349-5349*

Register: *www.baears.com*

Sponsored by:

SPECS, Southern Peninsula Emergency Communication System
http://specsnet.org/

Special thanks to Google for providing the venue

Class size is limited, reservations are required.

Prospective Hams should have an active Ham as a mentor to assist in the familiarization with amateur operation

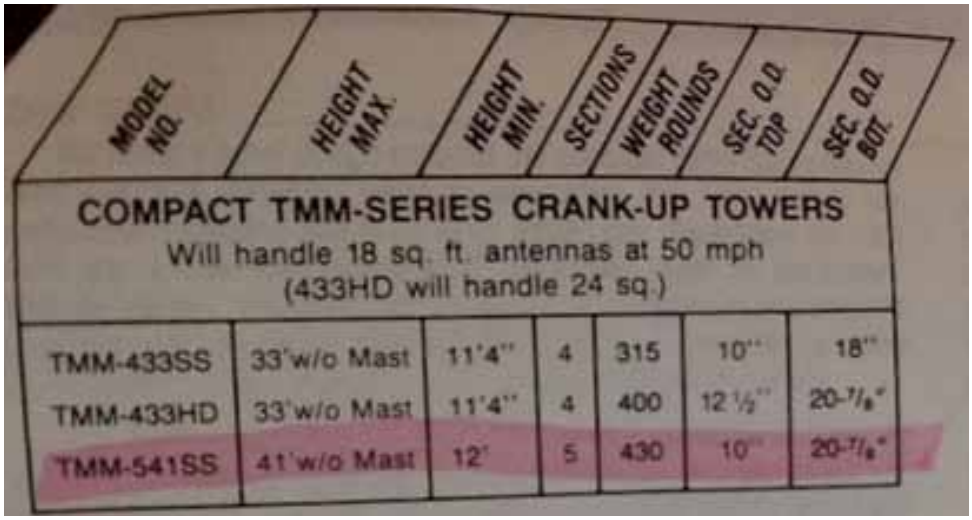
Reserve Your Space - Be a Ham!

Can't make this class? We can notify you of the next date and location...contact us.

Free 41-Foot Antenna Tower in Sunnyvale:

US Towers TMM-541SS: Free if you dismantle and take it away!

Contact Jeanie: jeanieramos at gmail dot com



COMPACT TMM-SERIES CRANK-UP TOWERS

Will handle 18 sq. ft. antennas at 50 mph
(433HD will handle 24 sq.)

MODEL NO.	HEIGHT MAX.	HEIGHT MIN.	SECTIONS	WEIGHT ROUNDS	SEC. O.D. TOP	SEC. O.D. BOT.
TMM-433SS	33'w/o Mast	11'4"	4	315	10"	18"
TMM-433HD	33'w/o Mast	11'4"	4	400	12 ½"	20-7/8"
TMM-541SS	41'w/o Mast	12'	5	430	10"	20-7/8"

WVARA Net Check-Ins (W6PIY)					
Each Tuesday at 8:30 PM					
All Repeaters Linked Together During Net					
Call Sign	**Name**	**03/10/15**	**03/17/15**	**03/24/15**	**03/31/15**
AA6RB	Roy		X		X
AB6XS	Kevin		X		X
AE6JV	Bill				X
AF6AE	Bill	X		X	X
K6BRF	Bert	X	X		X
K6QFO	Mike			X	
K6WAR	Bill	X			
KA6AMB	Mark	X		X	X
KD6VOR	Marv		X		
KF6EMB	Svend	X	X	X	X
KI6SLX	Peri				X
KJ6CQJ	Dean		X	X	
KJ6GMO	Sue		X	X	
KJ6ZZI	Michael	X	X		
KK6QIY	Steve	X		X	
KK6VF	Kevin	NET	NET	NET	NET
KS6PD	Steve	X			X
NU6P	John				X
W6ESL	Tom	X	X		X
W6HOC	Howard	X	X	X	X
W6PK	Phil	X			
WB6KHP	Dave	X	X	X	X
Total		13	12	10	14

Items For Sale By George, N6NKT:

Hy-Gain TH-7DX, 7 Element, Tri-Band, 10/15/20M $150

Manual available at http://www.hy-gain.com/support.php?productid=TH-7DX

Down from Palo Alto ARC office, disassembled and located in Cupertino

KLM KT-34, 4 Element, Tri-Band, 10/15/20M $200

Booton 92EA RF Voltmeter $200

Contact George Williams, N6NKT, n6nkt at yahoo dot com

Send Buy and Sell information to: het_editor at wvara dot org

2015 West Valley Amateur Radio Association Board

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The Heterodyne is published monthly by the West Valley Amateur Radio Association and sent to all club members via the web.

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Hope To See You At The Meeting!