Communicator

Volume 2, Number 3 wb7tjd.org March 2012

Superstition Amateur Radio Club

Next Meeting: Tuesday, Mar. 20, 7 PM Location: Mesa Utilities Building, 640 N. Mesa Dr., Mesa, AZ
Program: Tom, K8PNW will show us the Queen Creek Easy J Antenna, followed by Elmer questions

Solar Power for Amateur Radio

by Steve, KY7W, Ron, AJ7T, and Dave, K7AV

An invaluable aspect of emergency preparedness is having a power source which is independent of the local utilities, and solar power is one of the top choices for that role. Other advantages are being able to operate during non-emergency power outages and being automatically prepared for class 1E operation for Field Day. For some of us, the satisfaction of unlimited operation with no impact on utility bills is reward enough. And for larger installations that can apply to the entire house, not just the ham shack.

Solar power installations range from a simple panel and battery, through those including charge controllers (to prevent over-charging the battery) and battery boosters, up to systems with inverters that can supply a household with AC power.

Top-of-the-line systems are represented by Steve, KY7W's installation. This system is capable of powering the entire house without using any power from SRP. Here is a shot of one of the 14 panels that Steve has on his roof putting out 215W each. The system uses a 4KW Inverter to convert the DC from the panels to AC, which powers the entire household under most conditions.

In fact, most months the bill from SRP is for just a service charge; no electricity usage at all.

The picture below shows the system in the process of installation. At this point half of the panels are in place.

The interior monitoring panel allows access to monitor operating conditions from anywhere in the world that has internet access.

Continued on page 5

In this issue:

The Queen Creek Easy J-Pole Antenna

by Tom Miller, K8PNW

After WWII when AM was king, antennas were horizontal. The J-Pole was seldom used. In the late 60's and early 70's FM (mostly on two meters) was rapidly making its way into amateur radio and used vertical polarization to accommodate mobiles. Two meter FM opened the door for the J feed antenna. I made my first J antenna in 1974 designed for WA8ICX's new house. It is called the "Catalpa J." Since then many have been made including the one I cut and assembled during a Superstition ARC meeting four years ago. Various J fed antennas are now popular and plentiful. So why another J pole Antenna?

The plumber's delight "Copper Cactus" has been popular for many years. But copper is expensive and requires some special soldering skills. The

"Queen Creek Easy J" is presented as the electrician's delight. It requires almost no tools to assemble. You need one 57 inch long and one 19 inch long piece of ½ inch conduit, one steel duplex outlet box and two conduit adapters.

The box should be the single piece extruded style for outdoor use. The cheaper bent and welded type is okay for indoor use. I used the screw type adapters but I think the compression type may be better. You can choose.

Assemble the conduits, using the adapters, into the end holes in the side of the box (see the picture.) The antenna is now done! The remainder of the problem is attaching the feed line.

The proper feed point of my "Queen Creek Easy J" is about 1 ¾ inches above the surface of the box. I

used two screw-type radiator hose clamps to facilitate moving the taps up and down, looking for the best SWR. Plain old rubber bands could have worked as well. On mine the shield needed to be placed close to the tube and the center conductor needed to run 90 degrees to the other tube. Once the correct point is found, drilling holes for screws allows you to make a secure connection (in my attic I just left the hose clamps.) For outside use, the end of the coax needs to be waterproofed. I use RTV bathtub caulk.

The antenna was designed to be mounted through the holes in the box to the side of a ceiling joist in an attic.

Continued on page 7

Meeting Location:

Club meetings are held the third Tuesday of each month except December at 640 N. Mesa Dr., in Mesa, about 0.3 miles North of University Drive, on the West side of the road. Meetings start with the featured program at 7 PM, followed by a coffee break and the business meeting, and ends by 9 PM.

Club Repeaters:

Output	Offset	PL	linkage
147.12,	+600,	162.2	linked to 449.60
449.60,	-5.0,	100.0	linked to 147.12

Club Nets:

Wednesday Night Net: 8 PM weekly on the 147.12/449.60 repeaters, includes Amateur Radio Newsline.

Drivetime Net: Weekday mornings 7 to 8 AM on the 147.12/449.60 repeaters, featuring trivia questions.

10 Meter Net: Thursday evenings at 8 PM on 28.470 MHz USB.

Hamfest:

The SARC Hamfest is always the first Saturday in December, which this year is the 1st. The hamfest includes a raffle with valuable prizes and VE testing, with registration from 8 to 9 AM and testing begins shortly after that.

Calendar of Events:

Tuesday, Mar 13, Board meeting

Tuesday, Mar 20, General meeting, Program is Tom, K8PNW, showing us the Queen Creek Easy J Antenna, followed by a brief Elmer session.

Mailing Address:

Superstition ARC
PO Box 21522
Mesa, AZ 85277-1522

Member News

New Members:

Irvin Langstrom	K7IRV
Ryan Peterson	AE7QF
Dale Scott	W7HLO
Brian Bretz	AE7RB

Upgrades and callsign changes:

Ric Edwards, formerly KF7TLG, is now W7RAE. Also Ed Taggard, KF7NOU, is now K7EDT, Greg Nielsen, KF7SZV is now K7GWN and Brian Betz, AE7RB, is now W7JET.

VE Testing:

A VE testing opportunity is available every month at the Mesa Utilities Building, 640 N. Mesa Dr. You should arrive for registration at 6 PM, with testing starting no later than 6:30.

Verify your Membership:

I know it's hard to believe, but your Membership Chairman is not infallible. It's always a good idea to check your membership a week or so after joining or renewing via Paypal by going to the club website (half way down the page) at http://wb7tjd.org/wiki/Superstition_ARC_Membership and entering your name where indicated. If you join or renew by mail, the update may take a little longer. If you don't come up as a current member, send an email to k7av@arrl.net.

The Elmer Registry

Here are the Superstition ARC Elmers:

Call	Name	Location	Notes
KY7W	Steve Gurley	Southern & Rural	
KE7GRV	Terry Ryan	Scottsdale & McKellips	
K7AV	Dave Muller	Alma School & 8th St.	
K1ATV	Bil Munsil	Sossaman & Southern	ATV only
N0FPE	Dan Nicholson	Dobson & Elliot	
AJ7O	Dave Mills	Mesa Dr. & University	
K8PNW	Tom Miller		winter only
N3BFO	Walt Walter	Baseline & Crismon	
KA7ISV	Jan Werner	Gilbert & McKellips	
W7TFO	Dennis Gilliam	Maricopa	Tube rigs

You can email a request direct to the Elmer of your choice or to superstitionarc@yahoo.com.

The Club Needs Volunteers!

We need a new activities chairperson, plus there's a new post of Fund Raising Chairperson. We would also like to have some additional members in each committee. Please contact one of the board members or send an email to the club.

My First Contact

by Dave, K7AV

This is the first of what I hope will be an occasional series of "My First Contact" articles. As with the "My Hamshack" series, I'm trying to "prime the pump" here.

I started my ham radio career by passing the Novice test in early 1968. Back then you had to find a General class (or higher, though few were higher then) ham willing to administer the test. Getting the ticket was a time-consuming affair, which for me started in December of 1967. Finally in mid-March of '68 my ticket arrived, and I was WN2EYW.

During the intervening months I had put together my shack with used equipment, funded by my allowance plus a special allocation of funds from my parents. It took many months of lobbying to pry those funds loose, but in the end they came through for me on the theory that ham radio would be educational. Boy, was it ever!

The station consisted of an RME-4350A receiver and a Heathkit HX-11 transmitter. The latter was virtually identical to the much better-known DX-20. It ran 50 watts input, crystal controlled, CW only. A modest transmitter for sure, but perfectly suited for a Novice.

I put a relay into a surplus aluminum mini-box for antenna switching, and set up a 40-meter dipole at the impressive height of 15 feet, fed by RG-59 coax. A straight key, fastened down to the table with wood screws, completed the set-up. There was no sidetone, and I had to switch manually between transmit and receive, but all that mattered was that I had a complete, operational station.

The receiver was vastly better than the Heathkit GR-81 regenerative receiver that I had been using until then, with better sensitivity, selectivity and stability. Even so, its performance was dismal by today's standards. Every time I went from transmit back to receive, I would have to tune around through the QRM to find the guy I was working.

Crystal control also made these contacts a very different experience. Since I was unlikely to encounter someone else with the exact same crystal frequency, nearly all contacts were split-frequency. The procedure was to call CQ, then carefully tune plus or minus 20 kHz or more looking for an answer. There was no telling where a reply might be lurking. This also meant that just because a frequency was quiet for a minute was no guarantee there was no QSO there. It could very well be occupied by someone who was listening on another frequency.

Likewise, when you heard someone calling CQ, you grabbed the closest crystal you had (I only had two, 7162.5 and 7176.0) and checked that there wasn't too much QRM there at the moment. Then you would have to send the other station's callsign many times, because it could take a while before he would tune to your frequency.

That first day when my ticket arrived I ran straight down to the basement to call CQ. I was so nervous it seemed I was about to jump out of my skin. I plugged in my 7176 crystal and started sending CQ at 0100 UTC, which was 8 PM on March 26, 1968. In short order I got a response from WN1JBF on 7170, only 6 kHz away from my frequency.

Continued on page 7

Solar, continued from page 1

The next picture shows the inverter, which converts the DC output from the panels to AC to power the house.

Here's Steve's rationale for deciding to "Go Solar":

"After several months of scanning articles in magazines and on the Internet, I decided to go ahead with the program. I also decided to go with the "shared cost" of the installation rather than "renting a solar system" for a lower cost than the present electric utility bills. This way I can actually see how much I'm saving each month. Since I bought the system, I had the owner's share of the system to pay for after the Federal Tax credit, Utility Reimbursement, State Tax Credit, and City rebate that was offered in Tempe. I decided to use an idle and essentially non-performing investment fund that was in my Regular IRA. Since withdrawing those funds would be a taxable event, the Federal Tax Credit virtually paid the tax due on the withdrawal. It was a "no brainer" --an installed solar system that pays off between $150 and $200 per month offsetting (in many months completely) the electricity used. Where else can you get an investment costing $10,000.00 that will pay you an average of $150.00 per month?"

His system is designed to produce 3.4 kilowatts of electricity at its peak output. It gets as low as 100 watts at both ends of the day. Even in the summer when air conditioning is in use, the bill is about $160.00 net--much better that almost $300.00 per month without the system.

Next we have Ron, AJ7T, and his installation.

Ron's solar system is made up of three 15 watt panels that are on the patio roof. They're tilted up in the position shown during the winter but they work best lying flat on the roof during the summer months. The batteries and charge controller are both in the laundry room which is just behind the wall of the operating position. If you want to keep batteries in the house it's best to use a sealed type of battery. AGM (absorbed glass mat) batteries are used here.

They're more expensive but in an air conditioned space with constant charging from the panels he expects up to eight or ten years of operation from them. Standard car batteries will also work but must be kept in a ventilated area.

Under the desk is the TGE power booster and 12 volt distribution point. All equipment in the shack except the amplifier and computer connect at that point. He has remote control of both the TGE booster and an

emergency 12 volt battery charger at the operating position. Just below the rig blaster is the dual meter display that shows the voltage of both the batteries and the TGE booster output.

During the winter months the 45 watts of panels just isn't enough. The radios are used more and there are, of course, fewer hours of sunlight. The real cure

Continued on page 6

Solar, continued from page 5

for this problem would not be more batteries but more watts of generating power. The next upgrade to the system will be to add on an 80 watt panel. For now he just hits the switch to turn on the 12 volt charger in the laundry room which brings the batteries back up to full charge.

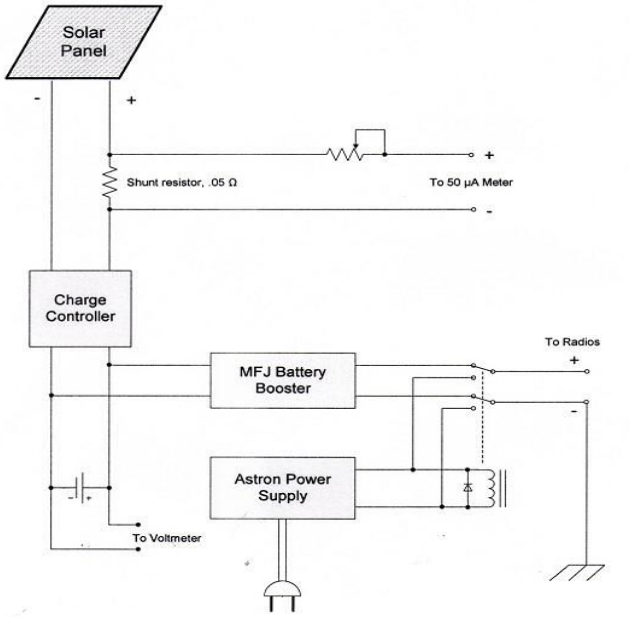
The total investment in the system is just about $600.00 with the panels, controller, booster and batteries. This might be considered an expensive investment just for free power. It may take a long time to generate $600.00 worth of electricity, but the real purpose is to be ready for an emergency when all AC power is down. There are some contests that he can now enter under the solar category and it's also nice to be able to tell the people on the air that he's on solar power. It's often a good start to an interesting QSO.

And finally, there's Dave, K7AV:

Dave actually has two solar systems. The first one is really simple. It's just about a half square foot panel that serves as a trickle charger on an old car battery. The battery, in turn, powers a car stereo that's used for music in the garage. The charge controller consists of a single diode, whose only job is to ensure that the battery does not discharge through the solar panel at night. The output of the panel is so low that over-charging is impossible. This is about as simple as system as you can find.

Then there's the system that runs much of the equipment, and some of the lighting in the shack. That's an 85 watt panel that puts out 5 amps at 12.5 volts. He built the frame to mount it on the roof, where it faces Southeast.

Straight South would have been better, but in order to tap into the roof beams for mounting it had to align with the orientation of the house. It still works great running lights, a fan (for the operator, not the radio), 2 meter rig, and FT-897 sometimes, as well as various homebrew and QRP rigs. It also runs the TS-850S now that an MFJ battery booster has



been installed to get the voltage up to 13.5. The equipment is connected as shown above with an Astron RS-20A which provides an automatic switch-over to AC mains whenever it is turned on.

Club Officers

President:	Steve Estes	KB7KWK
Vice Pres.:	Terry Ryan	KE7GRV
Secretary:	Larry Kuck	WB7C
Treasurer:	Dave Muller	K7AV

Board of Directors:

K7AZJ	Jerry Davis	KE7RHB	Vince
AD7PM	Tom Salt	N7JJK	Jeff Kolkovitch
KJ4PET	Wally Pieper	N3BFO	Walt Walters
K8WQ	Gene Wilson	AD7PD	Paul Estes

Ham Radio on TV

Tim Allen, formerly the star of *Home Improvement* and several movies, has a new television show where his character is a ham radio operator. The show airs at 7 PM on Tuesdays on ABC. I'm told that amateur radio is highlighted repeatedly. His character, *Mike Baxter*, uses the callsign KA0XTT.

You can read more details on the ARRL website.

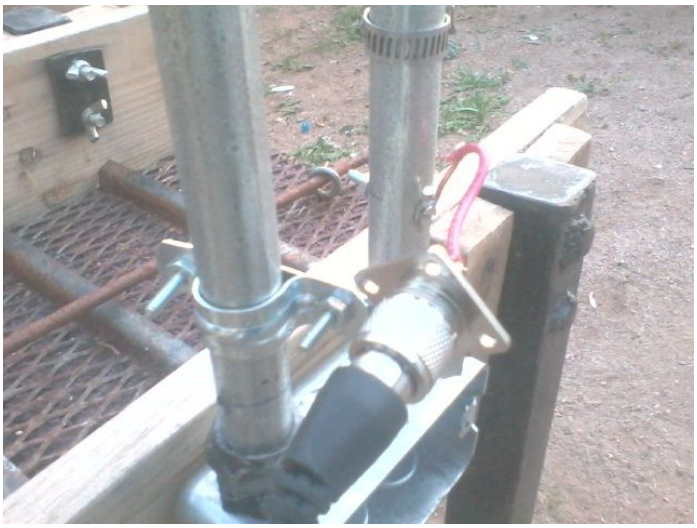
J-Pole, continued from page 2

If a mast is required put a third adapter and conduit in the center hole in the bottom of the box.

The J fed Antenna is a very forgiving antenna and seems to work even when assembly dimensions are not perfect. Various feeds have been tried and many work. Using my dimensions should make a usable antenna without adjusting the feed. If you require an SO-239 connector on the antenna, elongate the holes in the connector base and use a hose clamp through the slot to the tube or place a screw through one hole on the diagonal to the tube making sure you don't short the center connector. A wire from the center connector to the other tube completes the connection. The last note to answer the perennial question is: It doesn't mater which tube is which when building the feed.

User Reviews:

Steve, KB7KWK: I have been experimenting with Tom's J pole for about a week now. I have built four. I have been playing with different ways to run the feed lines. The best so far is to either run the coax straight to the poles or if you wanted to use a SO-239, which is my favorite way to do it, you can mount the 239 on the short side of the antenna about an inch or so up from the base. I have found this to be the best with an SWR of 1.1:1. I ran the center conductor across using 14 AWG copper wire. I did play with putting an SO-239 directly at the bottom of the short pole, this gave me SWR 1.5:1. Still very good but a little harder to drill holes to line every thing up right and look good. I have also found that the antenna SWR was about the same on 440. This antenna is very easy to make for around $10.00 plus the cost of the SO-239 if you use one. The only tools needed were a saw to cut the 1/2" conduit to length, a drill and bit, and an adjustable wrench and a hammer. In addition to the normal complement of parts, I used two1/2" half round pipe mounting brackets. One was hammered flat for mounting the SO-239.

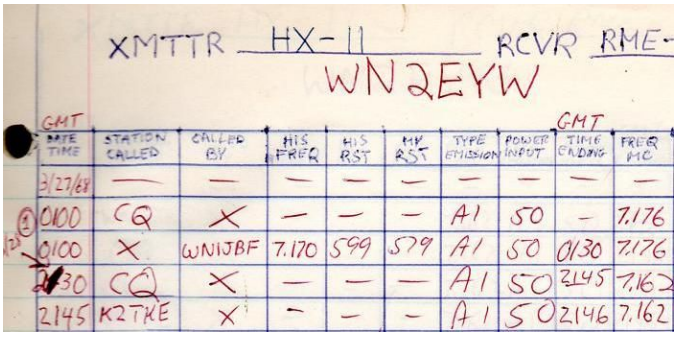


Dave, K7AV: My version uses the larger electrical box which allows using U-bolts to attach it to a mast, as shown below. I'm very happy with the results.

First Contact, continued from page 4

Despite the 599 and 579 signal reports, we lost each other in the QRM pretty quickly, but I had made a contact! After nearly three years of dreaming, reading, studying and saving, I was a ham radio operator! I would still rate it as one of the biggest thrills of my life.

As you can see from this log extract, back then we had to log everything, even unanswered CQs. And there were plenty of them after this contact, but it didn't really matter. I had made my first contact. I was one of those elites who could communicate around the block or around the world without wires. It was a great feeling, with thousands of additional contacts coming later, down the log.



XMTTR HX-11 RCVR RME-
WN2EYW

GMT DATE TIME	STATION CALLED	CALLED BY	HIS FREQ	HIS RST	MY RST	TYPE EMISSION	POWER INPUT	GMT TIME ENDING	FREQ MC
3/27/68	—	—	—	—	—	—	—	—	—
0100	CQ	X	—	—	—	A1	50	-	7.176
0100	X	WN1JBF	7.170	599	579	A1	50	0130	7.176
0130	CQ	X	—	—	—	A1	50	2145	7.162
2145	K2TKE	X	-	-	-	A1	50	2146	7.162

Membership Application Instructions

1. Type or Print legibly.
2. Your membership begins as soon as you join. Membership rates are shown to the right.
3. An amateur license is not required for membership in the Superstition Amateur Radio Club.
4. Please fill in a separate application for each person joining.
5. Insert local residence information in the "local address" section.
6. If you are not a permanent resident at that address, please fill out the "alternative address" section.
7. Designate the time period you will be at the local residence, e.g. "October thru March".

Membership Info

Individual	$15.00 per year
Family	Add $5.00 to first (Individual) membership for each additional member living in the same household.
Student	$8.00 per year (Through Grade 12, for persons not otherwise qualifying for Family Membership)
Life	$150.00 one-time charge

Payment may be made via Paypal using the club website, http://wb7tjd.org, by cash payment (in person only), or by a check or money order payable to Superstition Amateur Radio Club (or just Superstition ARC) and sent to:

Superstition Amateur Radio Club
PO Box 21522
Mesa, AZ 85277-1522

***** We're glad to have you as a new member! *****

We hold our regular monthly meeting on the third Tuesday of the month at the Mesa Utilities Building located at 640 N. Mesa Dr., in Mesa. Meetings start at 7:00 PM.

VE test sessions are also held at the Mesa Utilities Building on the third Monday of the month, starting a 6:00 PM.

☐ *New*

☐ *Renewal*

Superstition Amateur Radio Club

Membership Application

Name _____ _____

Callsign _____ Today's Date _____

License Class _____ Date of Birth (mm/dd/yyyy) _____

E-Mail _____ Spouse's Name (if married) _____

Local Address _____

Local City & State _____

Local Zip Code _____ Local Telephone _____

Is Local Address: ☐ Permanent ☐ In Effect During Months _____ Thru _____

Alternate Address _____

Alternate City & State _____

Alternate Zip Code _____ Alternate Telephone _____

Are you currently an ARRL member? ☐ Yes ☐ No

If you wish to become an ARRL member, fill out an ARRL application and give it and a check to Superstition ARC (for the amount of ARRL dues) to the treasurer. The club will pay ARRL and receive a donation back from the ARRL.

Office Use Only

Rcvd ___ / ___ / _____ $ _____

By _____

☐ New ☐ Renewal

☐ Card ☐ Welcome Info ☐ Database