



ARC-OVER

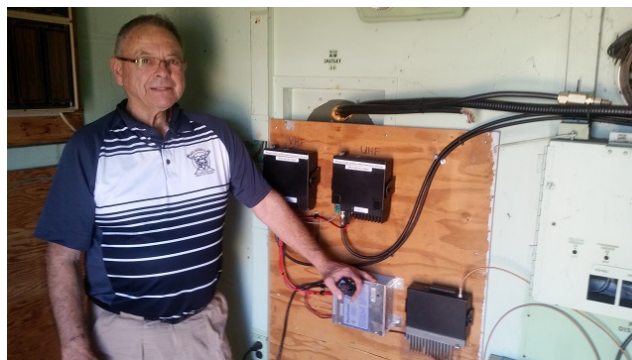
SEPTEMBER, 2017 EDITION

Remote Satellite Receivers



Equipment Conex

After a notable absence we were able to get the Atwater Satellite receiver at the former Castle Air Force Base back up and running. In addition to equipment issues the UHF antenna in use was non-existent as far as operational capability... To a point where we had determined to abandon the site in preference for a new site at the Mooneyham Ranch near Eucalyptus and Winton Way north of Winton... When getting ready to remove the equipment it was noted an abandon coax in the overhead of the building... Further investigation revealed it was a UHF antenna with good vswr... Wala pay dirt... With the new discovery we were able to restore service at that location... For those of you unfamiliar with that site here are some pictures...



Bobby(WB6BRU) with Equipment in Conex

Castle Antennas are on top of the water tower which is why finding a usable antenna was necessary... Climbing this critter is out of the question ...



Having been tempted with the possibility of a Winton Satellite Receiver Dinnie (N6TLW) and Phil (KC6QJQ) showed up at Bobby's (WB6BRU) with man lift in tow and proceeded to hang a 4 pole Cushcraft array for VHF and a UHF Scala Collinear for the new Winton Remote Satellite Receiver... The PL to access Winton is 110.9 hz

K6IXA Editor

Winlink to the Rescue

With the devastation of communications infrastructure in Puerto Rico, once again Winlink technology has been called upon to meet vital emergency communications needs. Follows, a letter sent by the President of ARRL. Do NOT bother to respond in that the request was filled in the first few hours of the letter going out... A few years ago, I would have been first in line...

From: ARRL Web site [<mailto:memberlist@www.arrl.org>]

Sent: Monday, September 25, 2017 2:10 PM

Subject: From ARRL President: Relief Efforts Need Your Help

Monday, September 25, 2017

Dear ARRL Member:

There are few times when I have needed to reach out directly to you for your help. This is one of those times.

The American Red Cross (ARC) has asked ARRL for assistance with relief efforts in Puerto Rico. In the nearly 75-year relationship between ARRL and ARC, this is the first time ARC has made a request for assistance on this scale. Hurricane Maria has devastated the island's communications infrastructure. Without electricity and telephone, and with most of the cell sites out of service, millions of people are cut off from communicating. Shelters are unable to reach local emergency services and people cannot check on the welfare of their loved ones. The situation is dire.

How can you help?

1) **Volunteer. ARC needs up to 50 radio amateurs** who can help record, enter, and submit disaster-survivor information into the ARC Safe and Well system. There are very specific requirements and qualifications needed for this deployment; for instance, familiarity with Winlink, an Amateur Radio license of General class or higher, and previous experience in disaster response. **Deployment will be for up to 3 weeks** (at ARC expense). If you would like to be considered for deployment, please complete the following online ARRL form, which asks for your qualifications and skills: [Volunteer Deployment Form](#)

2) **Donate to Ham Aid.** ARRL's Ham Aid program loans Amateur Radio equipment kits to established Amateur Radio Emergency Service (ARES®) groups and partner agencies during disaster response, in order to establish Amateur Radio communications support. Ham Aid is supported by donations from individuals and corporations – including many of our ham radio industry partners. ARRL has previously staged Ham Aid equipment in Texas, and in the last few weeks, we have supplied kits in Florida, the U.S. Virgin Islands, and Puerto Rico. Our supply of Ham Aid kits has been rapidly depleted. Your donation to Ham Aid will help us now. Your contributions to Ham Aid are 100% tax deductible. To make a donation online, go to www.arrl.org/arrl-donation-form and select "Ham Aid" from the ARRL donation form. To donate by mail, print a [donation form](#), and mail it with your check payable to ARRL, noting "Ham Aid" on the memo line of your check; mail to ARRL, 225 Main Street, Newington, CT 06111 USA.

It has been four weeks since Hurricane Harvey made landfall in Texas. In little over a month, Hurricanes Harvey, Irma, and Maria have left paths of destruction and catastrophic flooding that will impact the lives of people throughout the southeast U.S. and Caribbean for years to come. Throughout these disasters, our trained ham radio volunteers, and especially those in coordinating roles, have helped us meet the requests of our partner agencies and organizations. To all ham radio operators who have been on alert, activated, deployed, or donated, THANK YOU. We are grateful for your service and for your generosity.

73

Rick Roderick, K5UR

ARRL President

For inquiries from the public, ARRL advises that these individuals should be informed that amateurs traveling to the island to support the American Red Cross effort will be tasked with handling out-bound traffic *only*. With that in mind, members of the public should access the American Red Cross Safe and Well System online at <https://safeandwell.communityos.org/cms/index.php>. Status information from friends and relatives in Puerto Rico will be entered into the system as it arrives from amateurs stationed there.
K6IXA Editor...

Turlock Amateur Radio Club Minutes

Meeting held:

Location - Pizza Factory, 1050 W Monte Vista Ave, Turlock, CA.
Date & Time - September 12, 2017 at 7:00pm.
Meeting called to order at 7:00 pm by President Spencer Boyd (KJ6ART)
Number of Attendees: 22 members and guests attended.

Vice President's Report:

Dick Decker, (K6SUU) advised the program will be on Emergency preparedness Go boxes.

Membership Chairman's Report:

Ed Darrah (K7ERD) reported we currently have 73 paid members on the roster.

Treasurer's Report:

Mike Smith, (KG6VFL) reported on the amounts of cash in checking and savings accounts, receipts and expenditures, and reported 70 dues paid members currently on the roster.

Secretary's Report:

In lieu of a Secretary's report, Grady Williams (K6IXA) made a motion the August Minutes be accepted as printed in the Arc-Over. Bambi Schmidt (KI6YQL) seconded the motion, the motion was approved.

Repeater Chairman's Report:

Grady Williams (K6IXA) reported he is working on the Atwater remote receiver. He found the problem appeared to be the antenna, he switched to a different antenna & cable at the site and found UHF performance is good. He also mentioned his intention of putting up a private local receiver node in north Winton for Bobby Mooneyham(WB6BRU) and Dinnie Echols(N6TLW). (tongue in cheek remark, actually for whole area)

Arc-Over Publisher's Report:

Grady Williams (K6IXA) reported items for the Arc-Over are due by September 19th.

Auction report:

Grady Williams reported the upcoming auction is coming right along. On Saturday Grady led a crew to Mariposa and picked up items from the Barry Bell Estate. A trailer with the items is at Bobby Mooneyham's (WB6BRU).

Chris' Coffin's (K6CP) equipment will be available for the auction. Pictures will be taken and put on the web site. Lucian Thomas (KF6NPG) volunteered to go with Grady to Chris' residence to photograph and inventory the items that will be available.

Old Business:

Mike Smith (KG6VFL) reported the club had sent a \$50 contribution to the Little Lights Pre-School in memory of Chris Coffin (K6CP)

New Business:

1. **Club Secretary position special election:** The position of Club secretary needs to be filled. Per club by-laws, a special election should take place to fill the vacancy. No member stepped up to fill the position. Walter Schmidt(KI6PBL) and Richard Larson (W6ABJ) volunteered to take minutes until the position is filled.

2. **This will be the last meeting at the Pizza Factory:** The new location will be at the Turlock High School classroom I-4, which is located below the tower. The meeting time is still at 7:00 p.m. A map to help find it will be in the Arc-over.

3. **Auction at Crossroads Church:** \$5.00 for a paddle. The doors open at 8:00 a.m. The auction starts at 9:00 a.m. Saturday, October 14th.

Turlock Amateur Radio Club Minutes (Continued)

4. **Christmas dinner:** A show of hands shows an interest for a party at the Covenant Village. Grady Williams will check to see if Dec. 15th or Dec.16th is available.
5. **Volunteers are needed:** Lucian Thomas(KF6NPG) advised of a Jamboree in Livingston September 20th, 21st, 22nd at 1170 Livingston Cressy Rd. It is a big campout where kids go to different stations. Our club will have a station. If members can be on line to talk it would be appreciated. Lucian will give information to Grady to put in the Arc-over.
6. **Turkey trot:** 5 to 8 members are needed Saturday, Nov. 18th. It will be published in the Arc-over.
7. **Christmas Parade:** Dec. 1st is the Turlock City Christmas parade.12 to 16 volunteers are needed.
8. **The Kayla Bernardi Be Positive Run:** Saturday January 27th, 7:30 a.m. to noon. 5 to 8 volunteers will be needed.
9. **DMR programing course:** Spencer will lead a class at the Crossroads Church September 30th, from 8:30 a.m. to noon. Flyers were distributed, including a list of items each participant should bring.
10. **Net controllers needed:** Brent Ocken (KJ6MRG) has been running the net for a year or more. Spencer Boyd(KJ6ART), Richard Larsen(W6ABJ) and Brian Carr(KK6CUL) have also been helping. A volunteer is needed for a Tuesday night net just once a month. No offers were received.
11. **Checking account signers:** Treasurer (KG6VFL) said it has been many years since we updated the authorized signers on the TARC Checking account at F&M Bank. The current signers are Melinda DeCouto (KK6NWP), Ron Roos (KJ6KNL) and Mike Smith (KG6VFL). Club members given authority to sign checks have traditionally been selected from the ranks of the officers of the Club.
Mike Smith (KG6VFL) made a motion that Spencer Boyd (KJ6ART) and Dick Decker (K6SUU) be approved by the members to file the necessary paperwork with F&M Bank to become signatories to the Club's Checking account. And we also ask the Bank to remove Ron Roos (KJ6KNL) and Melinda DeCouto (KK6NWP) from the list of approved signers on the account.
Motion seconded by Ron Roos (KJ6KNL). Motion passed by voice vote.

The Drawing:

Spencer Boyd won the raffle for the Yaesu FT65R dual band handi-talkie transceiver. \$300 of tickets were sold for the event.

The program:

Ken Stillwell (KF6IDK), Richard Larson(W6ASBJ), Lucian Thomas(KF6NPG), Dick Decker(KS6UU), Spencer Boyd(KJ6ART), and Grady Williams(K6IXA) brought their emergency Go-Boxes plus some accessories to demonstrate the different ways to package an emergency kit. It can be very simple or as complex as a ham is willing to tote!

Meeting Closed by President Spencer Boyd at 8:15 pm.

Respectfully,

Lynne Smith, KD6DKF, Acting Secretary
Cell: 209-777-1847

In-Band Sub-Audible Signaling

Early repeaters utilized carrier operation only. When the receiver squelch was broken the transmitter was keyed and the received audio was retransmitted. As additional systems came on the air with potential overlap on same frequency a means of selective access was required. This became readily apparent in that due to limited frequency span of converted commercial radio's, amateur repeaters were found to be nested all together around the initial 146.94 frequency. Commercial radio's were limited to a maximum frequency span of approximately 600 KHz. A sysop was required to monitor the repeater while in operation. They also had to monitor the output frequency from the hill before placing the system in operation. So now we know why 600 KHz was established as the frequency split on two meters, the maximum range that a commercial tube type radio could be used. To keep multiple systems from coming on at the same time, an audible burst tone was transmitted at the beginning of each transmission for 1 to 2 seconds, selecting the appropriate system to come up on the air. Most amateurs utilized the Motorola burst tone generator which used different resistance values to select anyone of the 5 standard Motorola burst tones. The Mt. Vaca radio club had three overlapping repeaters on 146.94 all with different burst tones. In 1969, while living in San Ramon and working in San Francisco, I could (while crossing the Oakland Bay Bridge) key the 60 watt GE MC-306 dynamotor powered in the trunk mobile, sweep the under-dash tone selector knob across the tone spectrum, release mike and listen to all three of the Mt. Vaca ARC repeaters ker-chunk. It got to a point where I didn't have to say a thing, the MVARC trustee, Jay O'Brien, W6GO would come on air and say "Good Morning Grady". European repeaters still use burst tone access even today with 1750 Hz being the most popular. So if you plan to operate in one of the reciprocal European countries, make sure your radio is capable of burst tone operation.

Vibrating Reeds

Early squelch systems were based on "subaudible" tones that were transmitted every time the transmitter was keyed. The tones, ranging from 60 Hz to 250 Hz or so, were clearly in the range of human hearing, but given the limitations of audio reproduction at the receiver, the tones were effectively inaudible. But they still got modulated onto the carrier, and once decoded the receiver would break the squelch and allow all the radios set to the same tone to hear the transmission. This system, known formally as *continuous tone-coded squelch system*, or CTCSS, went by different names for different manufacturers. Motorola's system was called "Private Line" or "PL", General Electric has "Channel Guard," and RCA went by "Quiet Channel." Tone frequencies were standardized under EIA RS-220 for interoperability between brands, and the whole system eventually became known generically as "PL tones."

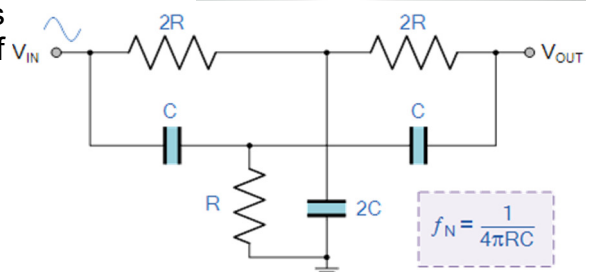
Early radio used vibrating electromechanical reeds, essentially tiny tuning forks attached to a small coil of wire. Audio from the receiver was fed through the coil, and if the correct PL tone was present, the reed, resonant for that frequency, would vibrate and make close contacts to open the audio channel. Tones were encoded on the transmit side with similar reeds.



The Motorola reeds depicted on the left and the GE reed on the right performed the same function. Generating and, detecting the sub-audible tone for the system. In the 60's I worked for Frank Ashby, W6AJU, after hours and Saturdays at Modesto Communications. Besides doing installations and repairs, at times I was building bridged "T" notch filters to notch out the sub audible tone from the receivers' audio amplifier, so customers



did not have to listen to the constant buzz of V_{IN} the CTCSS tone churning away in the speaker...



In-Band Sub-Audible Signaling (continued)

Digital Squelch and Beyond

Resonant reed PL systems were the state of the art well into the 1980s, and more than a few amateur radio repeaters in service today are based on old Motorola UHF and VHF base stations that have been retuned and still have reeds in them. As sketchy as reeds may seem from a modern perspective, especially given the solid state, phase-locked loop decoders that replaced them, the reeds were robust and reliable under often harsh mobile and remote conditions, and were marvels of miniaturized electromechanical engineering.

But technology marches on, and eventually CTCSS systems were joined by digital coded squelch (DCS) systems. Implementations vary, but Motorola's "Digital Private Line" or DPL became the standard. It mixes a continuous 134-bps square wave into the audio signal and provides 83 separate codes, far more than the 38 tones PL specified.

Two-way land mobile radio technology has come a long way since the early days of vibrating reeds in transceivers stuffed with vacuum tubes that took up most of a vehicle's trunk space. Today's entirely digital trunked systems resemble packet-switching networks and rely heavily on out-of-band signaling for control. But in-band signaling for squelch control isn't going anywhere, anytime soon.

Prez Sez

If you missed the DMR programming class you missed a good learning opportunity. But, that's ok; the program for the October meeting will be led by Dick, K6SUU. Dick will be teaching on how to pick a Chinese radio based on reviews and how to buy it with the least risk.

The October meeting, you ask? Good question. Starting in October TARC will be meeting in classroom I-4 at Turlock High School. I-4 is located about halfway between Canal Drive and Marshall Avenue on Colorado Avenue. Look for tower and beam. The meeting time has not changed, 7 PM. If you are interested in eating dinner with the guys they'll be meeting at about 5:30 at Latif's Restaurant prior to the meeting.

Speaking of October, this is a great time of the year to get all your antenna maintenance out of the way. I know for me I've got a nest full of yellow jackets living in the underside of my AEA Isopole. The MESH dishes on the tower could use some aiming as well.

Remember to spread the word about TARC's Fall auction on October 14!

73 for now!

de Spencer Boyd – KJ6ART
TARC President

Room I-4 entrance is at the intersection of Colorado and Lyons Avenue between Canal Drive and Marshall Avenue...

C U THERE



Turlock Amateur Radio Club Fall Auction

Saturday October 14, 2017

Crossroads Church

1360 North Johnson Road, Turlock CA.

Doors Open 8:00 am — Auction Starts 9:00 am

Estates Plus many consigned Items
(Check Auction Tab www.w6bxn.org for updates)

Kurt's Famous BBQ Pull Pork & Chicken Sammiches
with Drink & all da Trimmings
Here's How ya get there

