



Fall 2013

Also, on the topic of emergency communications, we met with the Chula Vista Fire Department and Chula Vista CERT representatives regarding



**SOUTHBAY
AMATEUR RADIO
SOCIETY
(SOBARS)**

K6QM

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SOBARS is an ARRL-affiliated ham radio club with members from San Diego, National City, La Mesa, Chula Vista, Bonita, Imperial Beach, and San Ysidro, California.

OFFICERS

President: John Wright, K6CPO
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Vice-President: Ramon Duenas,
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Secretary/Treasurer:
Fred Curtis, K16GRO
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Call-Sign Trustee:

Jim Beckman, N6RSL

Emergency Coordinator:

Dick Cupp, K6SJA

Property Trustee:

John Markham, KD6VKW

SOBARS meetings are held
at the Chula Vista RV Resort,
460 Sandpiper Way,
Chula Vista, CA 91910
See the website for dates & times.

Club Repeater: 146.085 (+)
PL: 100.0

CLUB NETS

Club nets are held every Tuesday
evening on the following bands:

1830: (PT) 449.980 (-) PL 88.5

223.840 (-) PL 107.2

1900: (PT) 146.085 (+) PL 100.0

1930: (PT) 28.480 USB

7.183 LSB

the City's emergency communications trailer. The trailer was moved to Fire Station 4 and select SOBARS members were given access to the premises to inspect the trailer and determine what was needed to make it operational. Unfortunately, there was a problem with the battery charging on the trailer and it was moved to city public works for repairs. At the time of this writing, we have not been advised of the status of the trailer.

We have been approached by the National City Fire Department for our assistance in helping them set up a comm plan for their CERT team. There is a meeting scheduled for February that will include representatives from SOBARS, ARES, RACES and CERT.

On the 24th of November, the first Fry's Operating Day took place in the parking lot of the Fry's Electronics store off I-15 at Aero Drive. This event has been taking place at the San Marcos Fry's for several years and has now expanded to the San Diego Fry's as well. This event will take place twice yearly and the goal is to eventually expand to all the Fry's stores in the state. (Pictures on Page 10.)

There are a number of hamfests and other amateur radios coming up this year. The first is the Yuma Hamfest at the Yuma County Fairgrounds and takes place February 14th-15th, 2014. Yuma is an easy drive from San Diego and it's possible to go over and back in the same day if desired. There are always lots of vendors, a sizeable swap meet, lots of seminars and some great prizes. More information is available at <http://www.yumahamfest.org/>.

After being cancelled in 2013, the Palm Springs Hamfest is back with a new location. This is a one-day event that will take place March 15, 2015. Information is on their new website at <http://palmspringshamfest.com/>.

The BIG event for 2014 is the ARRL Southwestern Division Convention, September 12th-14th. This will take place in our own back yard at the Sheraton Four Points Hotel, 8110 Aero Drive, San Diego, CA. This is only fifteen miles up the freeway from our meeting place at the Chula Vista RV Resort. The keynote speaker will be H. Ward Silver, NOAX, author of *Ham Radio for Dummies* and columnist for QST Magazine. Lots of information is available at <http://sandarc.net/~convention2014~/index.php>. There is a discount for early registration.

The meeting room situation has been resolved for the time being. We are adjusting our meeting dates and times to be able to use the large room at the RV Resort. I know this may be inconvenient to some members, but so far it is the best solution we have been able to come up with. Dates will be posted on the SOBARS website as soon as they are known.

Lastly, if you know anyone that is interested in obtaining their amateur radio license this year, the Technician license question pool expires on June 30, 2014 and a new question pool will take effect July 1.

We're looking forward to another good SOBARS year.

73, everyone! ✈

Numbers Stations

By Dan Romanchik, KB6NU

U no, Dos, Tres...

If you have done any amount of listening to shortwave radio outside of

the ham bands, you have undoubtedly run across "numbers stations." The broadcasts from these stations consist of streams of numbers or letters, often in

a computer-generated female voice speaking in Spanish. Every now and then, a numbers station pops up on 30m, sending five-character groups in Morse code.

According to the Conet Project (<http://www.irdial.com/conet.htm>), *“Shortwave Numbers Stations are a perfect method of anonymous, one way communication. Spies located anywhere in the world can be communicated to by their masters via small, locally available, and unmodified Shortwave receivers. The encryption system used by Numbers Stations, known as a ‘one time pad’ is unbreakable. Combine this with the fact that it is almost impossible to track down the message recipients once they are inserted into the enemy country, it becomes clear just how powerful the Numbers Station system is.”*

The Conet Project sells a CD with a number of recordings for \$55, but you can find a bunch of mp3 files at <http://www.archive.org/details/ird059> for free.

Recently there was a thread on the Glowbugs Google Group about numbers stations. One fellow mentioned “The Numbers Station,” a movie released earlier this year starring John Cusack. IMDB (<http://www.imdb.com>) says that The Numbers Station is about “a disgraced black ops agent dispatched to a remote CIA broadcast station to protect a code operator. Soon, they find themselves in a life-or-death struggle to stop a deadly plot before it’s too late.” It’s currently available for streaming on Netflix, and I watched it recently. It’s kind of violent (lots of people get shot), but it’s a decent thriller.

Jim, K6FWT mentioned ENIGMA 2000 (<http://www.apul64.dsl.pipex.com/enigma2000/>). The group’s website describes ENIGMA 2000 as “a UK based online group, whose aims are to bring together listeners and enthusiasts who monitor and gather information on ‘Number Stations’ and other related radio transmissions. Through our Yahoo Group monitors can share their logs, discuss frequencies, thoughts and opinions on this most emotive subject.” Jim says, “These folks are SERIOUS enthusiasts. I have heard that they surpass many intelligence services with their thoroughness. You can get in up to your eyeballs if you don’t watch it.”

These stations have been around since World War II. I remember as a kid in the 1960s and 1970s, reading articles about numbers stations in Popular Electronics and Electronics Illustrated. They’re as much of a mystery today as they were back then. ✎

The Bradshaw Trail

Article and Photos by Louis Vignapiano, KI6SRR

On October 22, Jim Beckman (N6RSL) and I (KI6SRR) left for a trip to run the Bradshaw Trail in Jim’s Jeep. The Bradshaw Trail was the first road across Riverside County to the Colorado River. It was blazed by William Bradshaw in 1862 as an overland stage route. Beginning in San Bernardino, the trail was used extensively between 1862 and 1877 to haul miners and other passengers to the gold fields at La Paz, Arizona (now Ehrenberg). We decided to run the trail from East to West so we drove to Blythe and spent the night.

The morning of Wednesday, October 23rd was bright and clear and we began our trip along the trail at about 7:30 am. Our Jeep was equipped with several radios, one of them running APRS so that we were being tracked during the trip. We were in constant contact with Fred Curtis (KI6GRO) who was tracking us on APRS. The trail passes along the Chocolate Mountains Aerial Gunnery Range and we stopped to look at some of the unexploded ordinance along the way. We also stopped several other times along the route to take pictures of the scenery in the desert and the Chocolate Mountains. The entire 70 mile trip took us about 5 ½ or 6 hours and was pretty uneventful.



One of the pieces of unexploded ordnance seen along the trail.



Some of the more unusual scenery found along the trail. This boat was miles from the nearest water.

When we reached the western end of the trail near the Salton Sea we had a choice of which way we could go to reach Highway 111 and back to civilization. We were not aware at this time that none of the options would have taken us where we needed to go. We decided to go west along a trail called Coyote Road which looked as if it would be the shortest route back to Highway 111. We followed Coyote Road for about 10 miles before we came to a large expanse that looked like an ordinary wash. Unfortunately it was not.

We dropped down into the wash and within just a few feet we were stuck in some of the heaviest mud I had ever seen. I got out of the jeep and immediately sunk down about shin-deep in mud and had a hard time getting back out. Jim also got out and we surveyed the situation and realized it might take a while to free the jeep. We tried for several hours to free the jeep but we were stuck too deep and at a bad enough angle that we were not able to free the jeep. At this point we did not have much daylight left so we decided to call for help.

Since we were in contact with Fred, we called him on the radio and told him that we did not think we could get out by ourselves. Thankfully we had Fred on the radio since that was the only communication available. We did not have cell phone coverage. Fred was able to contact the Riverside County Sheriff and give them our position, which he had available to him from our APRS signal. The Riverside Sheriff did not have a car available to come and get us before dark so they called in the California Highway Patrol, who patrols the area by helicopter. Within a few minutes we saw a helicopter circle our position and then land within a few hundred yards of our location.



The CHP helicopter at the Thermal Airport.

After talking to the pilot, Doug Myers, the decision was made to air lift us out of the location and fly us to the Thermal Airport. We boarded the helicopter and proceeded to lift off. He took us over the area pointing out

various landmarks for us to use the next morning so that we could lead someone back to help pull us out. We landed at the Thermal Airport about an hour before sunset and met the Riverside County Sheriff, who took our statement. Jim used this time to arrange for someone to tow us out.

Since we both thought we could get back to the jeep without too much trouble, we arranged for someone to try to get us back to the jeep and tow us out on Wednesday evening. We left the Thermal Airport just as it was getting dark and drove to where we should have been able to catch the "Canal Road" which would have taken us back to the Bradshaw Trail and then back to the jeep. We soon found out that the water authority has closed the canal road to all but authorized vehicles so even had we taken this way back instead of the way we tried, we would not have made it without a lot of trouble.

Since the road we needed to take was closed, our guide tried many different ways to get us back to the correct side of the canal or back onto the canal road. After trying for more than an hour we decided that the safest course of action would be to spend the night in a hotel and try again in the daylight. Our guide drove us to a hotel in Indio where we spent the night. We took the time at the hotel to research the best and shortest way to get us back to the jeep the next morning. This helped us greatly the next morning.

Our guide picked us up at the hotel before sunrise and we headed out again. This time we entered the desert about 20 miles closer to the jeep. That combined with the fact that the sun was beginning to light the sky made our trip back the jeep much easier. We were able to find the jeep in about 2 hours and spent just a few minutes getting towed out of the mud. The jeep was still in good working order and we proceeded to follow our guide back out to the main road. Once on the road we



The Jeep after it was pulled out of the mud. Note the front wheels.

determined that we needed to knock off a lot of mud from the tires since the mud was not coming off just by driving. We finally got back onto Highway 111 and headed back to San Diego. Our thanks to our follower, Fred Curtis who contacted the Sheriff for our rescue. ✈

How To Sound Like a LID

By Rusty Bumpers, N4LID

In many areas I have noticed a tendency of people making a distinct effort to sound like a “LID” on the local repeater. Since this appears to be the new style in Amateur Radio, I thought I would present this incomplete guide to radio LID-dom. The following is what I call: “How to sound like a Lid in one easy lesson.”

1) Use as many Q signals as possible. Yes, I know they were invented solely for CW and are totally inappropriate for two-meter FM, but they’re fun and entertaining. They keep people guessing as to what you really meant. For example, “I’m going to QSY to the kitchen.” Can you really change frequency to the kitchen? QSL used to mean “I am acknowledging receipt,” but now it appears to mean “yes” or “OK.” I guess I missed it when the ARRL changed the meaning.

2) Never laugh, when you can say “hi hi.” No one will ever know you aren’t a long time CW ragchewer if you don’t tell them. They’ll think you’ve been on since the days of Marconi.

3) Utilize an alternative vocabulary. Use words like “destinated” and “negatory.” It’s OK to make up your own words here. “Yeah Bill, I pheelbart zaphonix occasionally myself.”

4) Always say “xx4xxx” (Insert your own call) “for I.D.” As mentioned in Step One, anything that creates redundancy is always encouraged. That’s why we have the Department of Redundancy Department. (Please note that you can follow your call with “for identification purposes” instead of “for I.D.” While taking longer to say, it is worth more “LID points”.

5) The better the copy on the repeater, the more you should use phonetics. Names should be especially used if they are short or common ones, ie., “My name is Al... Alpha Lima” or “Jack.. Juliet Alpha Charlie Kilo.” If at all possible use the less common HF phonetics “A4\$M... America, Number Four, Sugar Mexico.” And for maximum “LID points”, make up unintelligible phonetics. “My name is Bob... Billibong Oregano Bumperpool.”

6) Always give the calls of yourself and everyone who is

(or has been) in the group, whether they are still there or not. While this has been unnecessary for years, it is still a great memory test. You may also use “and the group” if you are an “old timer” or just have a bad memory. Extra points for saying everyone’s call and then clearing in a silly way - like “This is K2XXX, Chow, Chow.”

7) Whenever possible, use the wrong terminology. It keeps people guessing. Use “modulation” when you mean “deviation”, and vice-versa. And even if the amplifier you’re using is a Class C type amp, and thus not biased for linear amplification, be sure to call it your “linear.” Heck, refer to all FM-style amplifiers as “lin-ears.” You’ll be king of the “wrong terminology” hill. Or better yet, refer to them as “lin-e-yars.”

8) If someone asks for a break, always finish your turn, taking as long as possible before turning it over. Whenever possible, pass it around a few times first. This will discourage the breaker, and if it is an emergency, encourage him to switch to another repeater and not bother you.

9) Always ask involved questions of the person who is trying to sign out. Never let him get by with a yes or no answer. Make it a question that will take a long time to answer.

10) The less you know about a subject, the more you should speculate about it on the air. The amount of time spent on your speculations should be inversely proportional to your knowledge of the subject.

11) If someone on the repeater is causing interference, you should talk about that person at great length, making sure to comment on at least four out of six of the following: (1) His mental state; (2) His family; (3) His intelligence, or lack of same; (4) His sexual preference; (5) His relationship to small animals, his mother, or both; (6) His other methods of self entertainment.

12) If you hear two amateurs start a conversation on the repeater, wait until they are 20 seconds into their contact, and then break-in to use the patch. Make sure that it’s only a simple routine phone call. It’s also very important that you run the autopatch for the full three minutes. This way, once the two re-establish contact, they won’t even remember what they were talking about.

13) You hear someone on the repeater giving directions to a visiting amateur. Even if the directions are good, make sure you break-in with your own “alternate route but better way to get there” version. This is most effective if several other Lid trainees join in, each with a

different route. By the time the amateur wanting directions unscrambles all the street names whizzing around in his head, he should have mobiled out of range of the repeater. This keeps you from having to stick around and help the guy get back out of town later.

14) Use the repeater for an hour or two at a time, preventing others from using it. Better yet, do it on a daily basis. Your quest is to make people so sick of hearing your voice every time they turn on their radio, they'll move to another frequency. This way you'll lighten the load on the repeater, leaving even more time for you to talk on it.

15) See just how much mobile flutter you can generate by operating at handheld power levels too far from the repeater. Engage people in conversations when you know they won't be able to copy half of what you're saying. Even when they say you are uncopyable, continue to string them along by making further transmissions. See just how frustrated you can make the other amateur before he finally signs off in disgust.

16) Give out wacky radio advice. When a newcomer's signal is weak into the repeater, tell him he can correct the problem by adjusting the volume and squelch knobs on his radio. Or tell people they're full quieting except for the white noise on their signal. Or...Well, you get the idea.

17) Use lots of radio jargon. After all, it makes you feel important using words average people don't say. Who cares if it makes you sound like you just fell off of Channel 19 on the Citizen's Band? Use phrases such as "Roger on that," "10-4," "I'm on the side," "You're making the trip," and "Negatory on that."

18) Use excessive microphone gain. See just how loud you can make your audio. Make sure the audio gain is so high that other amateurs can hear any bugs crawling on your floor. If mobile, make sure the wind noise is loud enough that others have to strain to pick your words out from all the racket.

19) Be as verbose as possible. Never say "yes" when you can say "He acquiesced in the affirmative by saying 'yes.'" (No kidding, I actually heard that one.)

20) Start every transmission with the word "Roger" or "QSL." Sure, you don't need to acknowledge that you received the other transmission in full. After all, you would simply ask for a repeat if you missed something. But consider it your gift to the other amateur to give him solace every few seconds that his transmissions

are being received.

21) When looking for a contact on a repeater, always say you're "listening" or "monitoring" multiple times. I've always found that at least a half dozen times or so is good. Repeating your multiple "listening" IDs every 10 to 15 seconds is even better. Those people who didn't want to talk to you will eventually call you, hoping you'll go away after you have finally made a contact.

22) Give out repeater FM signal reports using the HF SSB R-S system: "*You're 5 by 9 here*". Sure it's considered improper for FM operation and you may even confuse some people, but don't let that spoil your fun!

23) Always use a repeater, even if you can work the other station easily on simplex -- especially if you can make the contact on simplex. The coverage of the repeater you use should be inversely proportional to your distance from the other station.

24) If you and the other station are both within a mile or two of the repeater you are using, you should always give a signal report: "*I'm sitting under the repeater and I know you can see it from there, but you're full quieting into the repeater. How about me?*"

25) In the same vein as the previous step, when monitoring a repeater, you should always give signal reports as if the repeater didn't exist: "*Yep, I'm right under the repeater. You've got a whopping signal. You're s-9 plus 60. That must be a great rig.*"

26) On repeaters with courtesy tones, you should always say "over." Courtesy tones are designed to let everyone know when you have unkeyed, but don't let that stop you. Say "over," "back to you," or "go ahead." It serves no useful purpose, but don't worry -- it's still fun.

27) Think up interesting and bizarre things to do to tie-up the repeater. The goal here is not to facilitate communications, but to entertain all the scanner listeners out there. Do something original. Try to hum CTCSS (PL) tones. Sing pager tones. You're getting the idea.

28) Use the repeater's autopatch for frivolous routine calls. While pulling into the neighborhood, call home to let them know you'll be there in two minutes. Or call your spouse to complain about the bad day you had at work. After all, the club has "measured rate" service on their phone line, so they get charged for each autopatch call. Your endeavor is to make so many patches in a year that you cost the club at least \$20 in phone bills. That way you'll feel you got your money's worth

for your dues.

29) Never say "My name is....". It makes you sound human. If at all possible, use one of the following phrases: "*The personal here is....*" or "*The handle here is....*". Normally, handles are for suitcases, but it's OK to use them anyway. Don't forget, this has worked just fine for Cbers for years. The best retort I ever heard: "My handle is pink, my name is..."

30) Use "73" and "88" incorrectly. Both are already considered plural, but add a "s" to the end anyway. Say "best of 73's" or "88's". Who cares if it means "best regards" and "love and kisses." Better yet, say "seventy thirds"! Or be funny and say "seventy turds." Or talk like a 1960s Cber and sign off with "Threeeeeeees to ya!". (By the way, 70 thirds equals about 23.3, the average Cbers IQ.)

31) Make people think you have a split personality by referring to yourself in the plural sense. When you're in conversation and are alone at your radio, always say "We're" or "We've" instead of "I'm" or "I've" (i.e. "we've been doing this...", "we're doing that...", "we're clear"). Everyone knows you're by yourself, but when they ask you who is with you, make up somebody important like Arnold Schwarzenegger or Bill Clinton.

32) Always attempt to use the higher functions of the repeater before you have read the directions. Nothing will work, but you'll have great fun and get lots of people to give you advice.

33) Test repeater functions repeatedly (that's why they call it a repeater). Test your signal strength from the same location several times every day. Concentrate on testing the things that really matter, like the number of time the repeater has been keyed-up. That stuff is fun to track. Test the outside temperature, or the transmitter heat sink temperature as often as possible. The farther the temperature goes from the norms, the more often you should test it. Also, if you get a pager set to the repeater's output frequency, as soon as you receive it set it off every 30 seconds or so until the battery runs down. Better yet, interrupt conversations to test it.

34) If the repeater is off the air for service, complain about the fact that it was off the air as soon as it's turned back on. Act as though your entire day has been ruined because that one repeater wasn't available when you wanted to use it. Even thought you have never donated a penny to help out with the upkeep of it, and despite the fact that you have all 42 local repeaters programmed into your mobile radio.

35) Find ways to get around the "no business" rule on autopatches. Your plan is to try and fool the repeater control operators. Invent code words your secretary at work will understand to disguise any business talk so it sounds like personal chatter. Or get to be friends with the local Domino's Pizza manager. Make it so that when you call him on the patch and ask him to bring over the "floppy disk" you need to your house, he shows-up 30 minutes later with a piping hot large pepperoni and sausage pie. The possibilities are endless....

36) Always make sure you try to communicate with only a handheld and a rubber duck antenna. Also, make sure you work through a repeater that you can hear very well, but it cannot hear you. This will put out a kind of "LID mating call": "*Well, Joe, I can hear the repeater just fine here. I wonder why it can't hear me?*" You will score maximum LID points if you are mobile, and with the radio lying in the passenger seat.

37) If an annoying station is bothering you, make sure your other "LID" buddies have a "coded" frequency list. Even though codes are strictly forbidden on Amateur Radio, it's really neat to practice "James Bond" tactics.

38) Always use the National Calling Frequency for general conversations. The more uninteresting, the longer you should use it. Extra points are awarded if you have recently move from an adjacent frequency for no reason. Make sure when DX is "rolling" in on 52.525 that you hang out there and talk to your friends five miles down the road about the good old CB days!

39) Make sure that if you have a personal problem with someone, you should voice your opinion in a public forum, especially a net. Make sure you give their name, call, and any other identifying remarks. For maximum points, make sure the person in question is not on the repeater, or not available.

40) Make sure you say the first few words of each transmission twice, especially if it is the same thing each time. Like "*roger, roger*" or "*fine business, fine business*". I cannot stress enough about encouraging redundancy.

41) If you hear a conversation on a local repeater, break in and ask how each station is receiving you. Of course they will only see the signal of the repeater you are using, but it's that magic moment when you can find a fellow LID, and get the report. Extra points are awarded if you are using a base station, and the repeater is less than five air miles from you.

These easy steps should put you well on your way to

“LID-Hood”. I hope these helpful hints will save you some time in your quest to sound like the perfect LID. I should also note that these steps can also apply to simplex operation, but nobody really cares because that pawn-shop HTX-202 isn’t going to get out too far with just a rubber duck.

P.S. “Rusty Bumpers” is a pen name. He maintains anonymity so he can sit peacefully at club meetings and avoid the wrath of the uninformed.

Editor’s Note: *This “Rusty Bumpers” column is from the May 1993 issue of “Solid Copy”, the Richmond (VA) Amateur Telecommunications Society’s monthly newsletter. Reprinted by permission. ✍*

Special Event Stations Educate, Entertain

By Dan Romanchik, KB6NU

I like special event stations. I enjoy operating them and making contact with them. Whenever I operate WA2HOM, our club station at the Ann Arbor, MI Hands-On Museum, one of the first things I do is to search for special event stations.

One of the reasons I enjoy operating special event stations is that it’s educational. For example, on November 17, I worked W4D in Mayaguez, Puerto Rico. They were commemorating the 520th anniversary of the discovery by Europeans of the island of Puerto Rico. As a result, I learned that on November 19, 1493 Christopher Columbus landed on the island, naming it San Juan Bautista in honor of Saint John the Baptist, a name that was later changed to Puerto Rico (rich port).

Working special event stations is also entertaining. Most times when you work a special event station, you can tell that they’re having a good time. One time, I worked W4B, operating from the Kentucky Bourbon Festival. Now, those guys were really having a great time!

How do you find special event stations?

One way to find special event stations is to just tune around. Most special event stations will be operating at least a 20m phone station, so take a look at that band first. Also, consult the special event stations listings in QST or on the ARRL website (<http://www.arrl.org/special-event-stations>). KE2YK also has a special events page (<http://ke2yk.wordpress.com/special-event-station-events/>).

In addition to working special event stations, you should consider organizing and operating one of your own.

For the past two years, several members of our Rotary Club who are also amateur radio operators have operated W8P on the third weekend in February, which commemorates the founding of the Rotary Club and helps spread the word about the End Polio Now campaign (<http://www.endpolio.org/>). It was not only fun to do this, but I think that we helped raise awareness about polio around the world.

Whatever your reason for holding a special event, you’ll want to be somewhat knowledgeable about your topic. For example, if you decide to set up a special event station at the local Rutabaga Festival, you might want to know how long they’ve been having the festival, how many pounds of rutabagas are produced by local farms and around the U.S., and maybe even find a couple of rutabaga recipes that you could send out to stations that work you. ✍

Building a Field Antenna for 2m and 440

Article and Photos by John Wright, K6CPO

Shortly after I received my Technician license in January of 2011, I volunteered to assist with communications for the SD 100 endurance foot race that takes place annually in the Laguna Mountains. I was assigned to a location called “Sweetwater” where I was responsible for recording the runner’s bib numbers as they came through the aid station and relaying them to Net Control via the San Diego RACES 2 meter repeater.

The Sweetwater Aid Station was down in a bit of a hole and I was operating with a Yaesu FT-1900 2 meter mobile and a mag mount antenna on my truck. As the day wore on, contact with net control, located at the Shrine Camp on Mt. Laguna, was at times problematical. I had seen other hams operating with better antennas and I decided to build one of my own.

After doing some internet research and viewing a number of YouTube videos (a very helpful resource,) I had a pretty good idea of what I wanted to do. I needed to find a suitable mast about 20 feet high, but able to be disassembled or collapse so it could be easily transported. I wanted good quality dual-band vertical antenna with radials that could be easily removed, again for transportation, and I needed some way to attach the antenna to the truck, preferably without guys wires. And I wanted to do it the cheapest way possible. Typical ham, right?

Some of the setups I saw on YouTube used telescoping “painter’s poles” but these turned out to be somewhat pricey. I narrowed my antenna choices down to fiberglass

verticals by either Diamond or Comet, but these were pricey as well. I forget where I first came across the idea of a hitch mount flagpole holder (designed for motor home use) as a way to attach the antenna to the truck but it seemed to be a good solution. Most of these ideas I tucked away in a corner of my mind and the project got shelved in favor of other things, such as upgrading to General and Extra.

Fast forward to 2013. I mentioned the project to a friend who said he had a pole that might work for me. It turned out to be a three-section aluminum handle for a construction concrete float complete with a short section for attaching the float itself. Each section was six feet long and snapped together with spring loaded pins. Perfect!



The three six foot handle sections and the adapter for the float.

These handle sections are available from a company called Marshalltown and are priced at \$33.38 each or \$30.33 each if ordered in lots of 6.

Now I had the mast, but no antenna. Then I got to reading the For Sale section of QRZ.com and found a gentleman selling two Comet GP-1 2 meter/440 antennas. These antennas are approximately 4 feet long, weigh two pounds, and have a gain of 3 db on 2 meters and 7.2 db on the 70cm band. Although I only needed

one, I agreed to buy both as the seller had only one shipping tube. For less than half the price of new, I received two almost pristine antennas with all the parts. Getting closer!

Now all that was left to acquire was the flagpole holder. (I already had an appropriate length of coax on hand.) I had already located a suitable holder on Amazon so that was ordered. When it arrived, I discovered it had a diameter of 2½ inches where the diameter of my mast tube was 1¾ inches. Uh oh... A trip to Home Depot with the measurements in hand and some intensive rummaging in the Plumbing and Electrical departments solved part of the problem. I was able to find two PVC conduit fittings that when nested together re-



The flagpole holder mounted on the truck and the mast section installed with the conduit fittings.

duced the diameter of the top of the flagpole holder to slightly larger than the mast tube. At the same time I bought a hitch pin because one wasn't included. So far so good. Now all I had to do was find some way to anchor the bottom of the mast in the bottom of the flagpole holder.

I started looking around in my storage shed/shop and among my tools for something suitable. I came across a piece of aluminum round stock left over from my aircraft manufacturing days. It was about six inches long, one end was rounded and the other had a 7/16 threaded hole in it. It was a shop-made tool, but I can't remember what it was for. It turned out it was an almost perfect fit inside the mast tubing. Bingo! The light bulb popped on! *"I can bolt this into the bottom of the flagpole holder (there was a ½ inch diameter drain hole in the bottom of it already) and slide the mast tube down over it."*

Instead of bolting the round stock in place with a 7/16 diameter bolt, I decided to enlarge and tap the hole for

a ½ in bolt instead. Another trip to the store for the appropriately sized drill bit and I was able to tap the hole to the larger size. It took a bit of finagling but I was able to get the round stock bolted into the bottom of the flagpole holder. With the conduit fittings at the top, the mast was held firmly in place.



The aluminum round stock and handle section showing the almost perfect match between the two.

Things were coming together, but there were some other minor things I had to do. I wanted to be able to assemble the entire setup in the field without the use of tools. This meant changing the way the antenna was secured to the mount and how the radials attached to the antenna. A simple substitution of wing nuts in place of the hex nuts on the radials and the mount and the problem was solved.



The antenna radials with wing nuts substituted for the normal hex nuts.

All that was left was to put everything together and run an SWR check. I managed to get it all assembled and hooked up to the analyzer. The SWR reading was almost perfect right in the middle in the 2 meter band. Unfortunately, my analyzer doesn't cover the 440 MHz band.

Now I have a field antenna I can hook to the 2 m/440



The completed antenna installation. Note: Two mast sections and coax have been omitted for purposes of photography. In use the mast will be 12 feet taller.

radio in the truck and operate with a better signal. Because there are no guys on the mast, I'll have to watch the wind when I'm set up, but overall I'm pretty happy with the final result. ✓

Protect your gear from ESD

By Dan Romanchik, KB6NU

Electrostatic discharge, or ESD for short, has been a concern for anyone involved in electronics ever since we made the transition from vacuum tubes to transistors. I was schooled about ESD when I worked as a test engineer for a company called Doric Scientific shortly after I got out of engineering school, and I wrote about it when I was an editor for *Test & Measurement World* magazine back in the 1990's. If anything, it's even more of a concern today as electronic components get ever smaller.

In 1991, Bryan P. Bergeron, NU1N, published a two-part series on ESD (part 1: <http://www.arrl.org/files/file/Technology/tis/info/pdf/g104019.pdf>, part 2: <http://www.arrl.org/files/file/Technology/tis/info/pdf/g105028.pdf>) in QST. His suggestions about how to prevent ESD damage are as good now as they were 20 years ago:

- Consider using a room humidifier to increase the

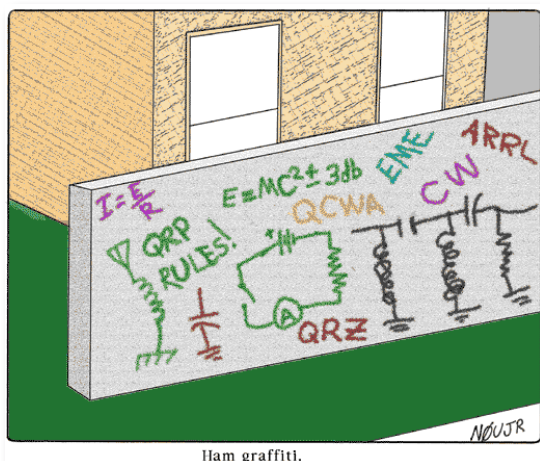
relative humidity in your shack, or wherever you work on electronic equipment to 65% RH or higher.

- Use grounded wrist straps when handling ESD-sensitive devices.
- Use grounded, anti-ESD work mats when working on electronic equipment.
- Use a grounded soldering iron and anti-static tools.
- Use anti-static bags and containers for storing and transporting electronic equipment.
- Connect the chassis of all your gear to a good earth ground.
- Consider purchasing a desktop ionizer to neutralize static buildup on your workbench.

I might also add consider grounding the chairs that you use in your shack or discharging yourself after getting up from the chair in your shack. I know that the worst electrostatic discharges that I experience are after I get up from my chair. You can even buy ESD-safe chairs (http://www.all-spec.com/products/Benches_and_Chairs%7CChairs_and_Accessories%7CCHR-00/), but they are kind of expensive.

Personally, I use an anti-static mat that I originally purchased for use with a computer keyboard and a wrist strap that was given to me by an ESD consultant when I worked for the magazine. I use these religiously when building kits or working on any solid-state gear.

It's not hard to find anti-static products. RadioShack sells a wrist strap for only \$1.23 (<http://www.radioshack.com/product/index.jsp?productId=2103245>)! You can find a whole range of anti-static products on Amazon, too. Wherever you get them, they're a good investment. ✍



Ham graffiti.

Fry's Operating Day

Photos By John Wright, K6CPO



The overall view of the Operating Day activities.



The SOBARS booth. John Markham, KD6VKW, (in straw hat) demonstrated a field HF antenna while Fred Curtis, KI6GRO, (seated) tuned up his HT.



SOBARS Member Dave Goodwin, WB4LCN, demonstrated his remote control station. The station was 15 miles away in Crest and operated through a cell phone internet connection.



South of the border hams were represented as well.

Noteworthy Upcoming Special Event Stations

Since this issue includes an article on Special Event Stations, here are some events coming up in the next several months:

Feb 1, 1400Z–2100Z, K3HWJ, Punxsutawney, PA. Punxsutawney Area Amateur Radio Club. **Commemorating Groundhog Day.** 14.330, 7.225, 147.390. Certificate. Punxsutawney Area Amateur Radio Club, PO Box 3, Punxsutawney, PA 15767. www.punxclub.com.

Feb 8, 1000Z–1500Z, AB5ER, Romance, AR. North Central Arkansas Amateur Radio Service. **Valentine's Day Special Event.** 28.400, 21.350, 14.250. Certificate. North Central Arkansas Amateur Radio Service, PO Box 911, Judsonia, AR 72081. All contacts will be uploaded to LOTW

Feb 14, 1600Z–2100Z, WE7GV, Sahuarita, AZ. Green Valley Amateur Radio Club. **Valentine's Day Special Event.** 14.246, 14.244, 14.242. Certificate & QSL. Green Valley Amateur Radio Club, 601 N La Canada Dr (SAV), Green Valley, AZ 85614. The ladies of the Green Valley ARC will be operating from the Discage antenna at the Titan Missile Museum. www.gvarc.us

Feb 15–Feb 16, 1600Z–1600Z, K4US, Alexandria, VA. Mount Vernon Amateur Radio Club. **George Washington Birthday Special Event.** 14.240, 7.240, 7.040. Certificate. K4US, Box 7234, Alexandria, VA 22307. Certificate will be available through the website once call signs have been uploaded. www.mvarc.org

Feb 21–Feb 24, 1200Z–0300Z, N4DAB, Daytona Beach, FL. Daytona Beach CERT Amateur Radio Club. **56th Annual Daytona 500—Speedweeks, 2014.** 80–10 meters and 6 meters CW, SSB, PSK31, RTTY, JT65. Certificate & QSL. Stephen W. Szabo, WB4OMM, 536 Central Park Blvd, Port Orange, FL 32127. Several stations participating and on the air simultaneously. Primary operating hours 0900 to 2400 daily local time as operators are available. Frequencies to be announced via spotting networks as station activates, and are posted on the club website. www.daytonacert.net

Feb 22, 1500Z–2200Z, WoFSB, Waterloo, IA. Five Sullivan Brothers Amateur Radio Club. **69th Anniversary of the Battle for Iwo Jima.** 21.240, 14.240, 7.240. Certificate & QSL. Five Sullivan Brothers ARC, 3186 Brandon Diagonal Blvd, Brandon, IA 52210. eQSL available, see www.qrz.com/db/wofsb

Feb 22–Feb 23, 0001Z–0001Z, WS7G, Moses lake, WA. Columbia Basin DX Club. **George Washington's Birthday.** 18.135, 14.250, 3.850. QSL. Brian J. Nielson, 11650 Rd 1 SE, Moses lake, WA 98837. wzbjn@nmi.net

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Parting Shot

