From the President’s Desk...
Hello again YARC members:

We are rapidly approaching the next club election. At the November meeting we will present the slate of nominees for officers and board members. So far we have had a few people put their names in the ring, and a couple of maybes. Please don’t let the opportunity go by. Seriously consider doing what many have done in the past. Support your club by serving it. None of these positions are difficult. They take a little extra time and some work, but I think they are rewarding. Often most difficult to fill are the President and Treasurer positions. This should not be the case. These are not difficult duties to perform, really. As your president for the last year and a half, I have enjoyed the job. Dave Hanson has set up the treasurer’s position to make it pretty easy to step into and continue the great work he has done.

Please consider the opportunity.

I want to thank Rex for his presentation at the August meeting. While he had a few suggestions that did not seem to resonate with the audience, he did provoke thought about a number of topics worthy of serious consideration; expanded repeater network, greater public presence, digital modes on repeaters, and several more. I hope our membership is up to the task.

At the August meeting, I announced that we will have a contest to see who comes up with the best (in the opinion of the membership) “Radio Go-Kit”. Please see my article in this issue for details. Some of you who are involved in event communications or Ares/Races may already have go-kits, and that is fine. Our November meeting will feature the election of officers/board members and presentation of go-kits.

I am hoping that there will be several from the simple to the elegant. If you have some solid ideas on taking your gear on the road (or up a mountain), show the rest of us. In my article are some photos and particulars about what others have done to provoke your creative spirit. Have fun with this, and show the club what you came up with.

See you at the meeting on September 4th.
Don, WB7TPH
Welcome to the Yavapai Amateur Radio Club

The Yavapai Amateur Radio Club (YARC) is an ARRL affiliated Special Service Club. The club participates in many activities in the tri-city area by providing communications for local events, emergency communications, and promotion of the hobby throughout the community.

Membership in the YARC is open to any interested amateur or non-amateur alike. Dues are $20.00/year (Full-time students $15). The YARC meets at 7:00 p.m local time on the first Thursday of every month in the Technology Room 404, at the Granite Mountain Middle School, 1800 Williamson Valley Road in Prescott. It is about ½ mile north of Iron Springs road, and all amateurs and non-amateurs as well are invited. Programs of interest are included as part of the meeting.

The weekly Net is held every Wednesday at 7:00 p.m. local time on 146.880 repeater. All amateurs are invited to participate, and visitors are always welcome.

The Yavapai County ARES/RACES Net is held on Monday nights approximately at 7:00 p.m. local time on the 145.290 repeater on Mingus Mountain. A PL of 127.3 is required.

Club Repeater

The YARC 146.880- repeater is located on the hill above Willow Creek road and requires a PL of 100.0 Hz. Our deepest gratitude to Bill Kafka, W2YAV, (SK) for allowing us to acquire the original club repeater. ■

Minutes of July 31, 2014
Board of Directors Meeting
at JB’s Restaurant, Prescott, Arizona

Meeting was called to order by WB7TPH at 18:36 hours

Members Present: WH6EAL, N7NGM, W7HAM, K6VVR, AD7YR, W7BJ, WB7RRQ, and WN7E

New Business

• Vehicle Donation: K6VVR is willing to donate a panel van to the club to serve as a mobile station, on the premise that the club will actively work on the van to create the mobile station.

• Committee: N7NGM volunteered to chair the committee to determine viability of the mobile station vehicle.

• 450 Repeater: WB7TPH asked K6VVR to push on with the 450MHz repeater.

• Hamfest Recap: WN7E, W7HAM reviewed the results of the Williams Hamfest. WB7TPH: Commented that the Williams Hamfest booth location was excellent and sales were better than expected.

• Manuals for Instructors: W7JLC requested YARC sponsor the purchase of up to six new technician class manuals for the September 20th technician class. The board accepted.

• Field Day and GMH Memorial: Both Field Day and the GMH Memorial were classified as successes due to club participation and on the air activity and response.

Adjournment: WB7TPH adjourned the meeting at 19:33 hours.

Respectfully submitted by,
Forrest Murdoch, WH6EAL
YARC Secretary
Call to order: by WB7TPH at 19:00 hours, and the Pledge of Allegiance to the Flag was recited by all present.

Introductions: All present introduced themselves with Name, Callsign, and Previous or current Occupations.

Minutes of last meeting: WB7TPH asked for a motion to approve the minutes of the July 3rd, 2014 general meeting as published in the “Yavapai Signal”. Motion was made by K6VVR, and seconded by W7BNW. The motion was approved.

Treasurer’s Report: WB7TPH asked for a motion to approve the Treasurer’s report of the July 3rd, 2014 general meeting as published in the “Yavapai Signal”. Motion was made by AD7FW, and seconded by WN7E. The motion was approved.

New Members: The following new members were voted in: Glenda Dority, KB6RKT; Arthur Jackson, KA5DWI; Ronald Nelson, KC0TGG; Steven Monroe, KF7BSB; Sue Monroe, KF7BSA.

Committee Reports:

Elmers: N7CW, “Everything is wonderful.”

Event Com: WA6ZZJ reported the upcoming events; September 6th, March of Dimes; September 21st: Skull Valley Loop Challenge; September 27th: Groom Greek classic; October 3rd: Road Rally WWW.prescottrally.com; October 18th: Walk for Diabetes.

Newsletter: AC6AA -- Keep the articles coming.

Patches and Badges: W7BJ -- Badges $7 patches $3.

Shirts: K6VVR -- Shirts are available for $24 with name and call sign, $20 without name and call sign.

Repeater: K6VVR -- Still need a certified tower climber to provide maintenance on the 146.88 repeater. Still working on the 450MHz repeater.

Fox hunt: K6VVR -- Fox hunt starts at 13:00 Sunday August 10th.

K7GMG: KB7TRE reported the school club will start up again in two weeks.

Old Business:

Hamfest: W7HAM reported the profit from the Williams Hamfest was approximately $1000.

Moving the Wed. Net to another repeater: WB7TPH said board will discuss possibility of moving the net from the club’s repeater to one of the ARES/Races machines for better coverage to Prescott Valley.

Nominations: AD7YR reports nominations for club President, Treasurer, and three Board Members positions are open; please submit nominations in writing to AD7YR.

New Business:

Club Storage: WB7TPH proposed that the club procure a 5x10 foot storage locker at $480 per year. WB9VGJ brought up the need of a club equipment list and custodian. The motion for floor discussion was made by WB9VGJ and seconded by K6VVR. W7BNW, did not even know there was club equipment and re-emphasized the need for an equipment list.

Contest: WB7TPH announced a competition to design and build a Radio Go Kit to be presented at the November meeting; the winner of the competition will receive a free year’s membership.

YARC MAIL: WB7TPH requested that anyone who has not yet subscribed to the YARC mailing list, please do so. Info is found at the bottom of the YARC website.


Adjournment: WB7TPH adjourned the meeting at 19:50 hours.

Respectfully submitted by,
Forrest Murdoch, WH6EAL
YARC Secretary
August 2014 Foxhunt

By John Broughton, WB9VGJ

The monthly foxhunt was held Sunday, August 10th. The foxes were Pete, K6VVR, and Patrick, KG7EWD.

There were three teams of hunters this month:

1. Jeff, WB7RFY, Forrest, WH6EAL, and I.
2. Bob, WB6ODR, and Linda, KD7EEO.
3. Dave, W7BJ, and Dean, W7DWS.

The transmitters were hidden on a private street that intersects with Hill Drive south and east of the intersection of Routes 69 and 89.

Of the three teams, two found the transmitters. W7BJ and W7DWS were close, but did not find them. Our team met them at an intersection just 246 yards away from where K6VVR parked his car, but it was several blocks of driving to get from there to where the transmitters were hidden.

Our team drove about 16.6 miles; we had difficulty getting a strong signal until we were rather near the transmitters, so we made several choices of direction that turned out to be wrong.

Bob, WB6ODR, and Linda, KD7EEO, won the hunt. They beat our team by about 14 minutes, not bad considering how far we drove. Congratulations to them!

We had our usual after-hunt get-together at JB’s Restaurant; the social aspects of the hunts are as enjoyable as the actual hunts.

You can see pictures of the hunt at:

http://tinyurl.com/YARCFoxhuntAugust2014

We would encourage more folks to get involved in the hidden transmitter hunts. They are really fun and help develop direction-finding skills.

73,
John, WB9VGJ
# Yavapai Amateur Radio Club

PO Box 11994
Prescott, AZ  86304-1994

<table>
<thead>
<tr>
<th>TREASURER’S REPORT</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 2014</td>
</tr>
</tbody>
</table>

## BEGINNING CASH BALANCE - June 30, 2014

<table>
<thead>
<tr>
<th>Description</th>
<th>General Fund</th>
<th>Repeater Fund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dues - Ray Shaver</td>
<td>KD6OBC</td>
<td>new 18.00</td>
</tr>
<tr>
<td>Dues - Karen McGeoghegan</td>
<td>KA5REN</td>
<td>new 18.00</td>
</tr>
<tr>
<td>Dues - Peter McGeoghegan</td>
<td>KD5PIM</td>
<td>new 0.00</td>
</tr>
<tr>
<td>Dues - Jim Minton</td>
<td>KL7JJJ</td>
<td>new 18.00</td>
</tr>
<tr>
<td>Dues - Brent Elzey</td>
<td>KE7JGM</td>
<td>18.00</td>
</tr>
<tr>
<td>Dues - Tony Lowry</td>
<td>KA7JKX</td>
<td>18.00</td>
</tr>
<tr>
<td>Dues - Ryan Lowry</td>
<td>KF7CYF</td>
<td>0.00</td>
</tr>
<tr>
<td>Dues - Dennis Grady</td>
<td>KF7INF</td>
<td>18.00</td>
</tr>
<tr>
<td>Dues - Frank Bender</td>
<td>K8FB</td>
<td>18.00</td>
</tr>
<tr>
<td>Dues - William Taylor</td>
<td>AD7WW</td>
<td>18.00</td>
</tr>
<tr>
<td>Dues - Dan Simpson</td>
<td>AE7IH</td>
<td>18.00</td>
</tr>
<tr>
<td>Dues - Erica Simpson</td>
<td>KF7MAU</td>
<td>0.00</td>
</tr>
<tr>
<td>Dues - Diane Dutkevitch</td>
<td>KE7ODP</td>
<td>18.00</td>
</tr>
<tr>
<td>Dues - Jerome O’Connor</td>
<td>W7JPO</td>
<td>18.00</td>
</tr>
<tr>
<td>Dues - Frank Kennemur</td>
<td>KF7ING</td>
<td>18.00</td>
</tr>
<tr>
<td>Country Store - Williams Hamfest</td>
<td></td>
<td>2,150.00</td>
</tr>
<tr>
<td>ARRL - Morrison &amp; Ellsey</td>
<td></td>
<td>39.00</td>
</tr>
<tr>
<td>50/50 Raffle</td>
<td></td>
<td>86.00</td>
</tr>
<tr>
<td>50/50 Raffle – John Broughton</td>
<td>WB9VGJ</td>
<td>(43.00)</td>
</tr>
<tr>
<td>Interest Income</td>
<td></td>
<td>0.10</td>
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**TOTAL INCOME**

<table>
<thead>
<tr>
<th>Description</th>
<th>2,448.00</th>
<th>24.10</th>
</tr>
</thead>
<tbody>
<tr>
<td>David Passell - Cookies &amp; Pop</td>
<td>1204</td>
<td>36.22</td>
</tr>
<tr>
<td>Donald Bauer - Field Day Food, 4 Headp</td>
<td>1205</td>
<td>118.21</td>
</tr>
<tr>
<td>Donald Bauer - Speaker Dinner</td>
<td>1206</td>
<td>26.47</td>
</tr>
<tr>
<td>ARRL - Morrison &amp; Ellsey</td>
<td>1206</td>
<td>35.00</td>
</tr>
<tr>
<td>Roberta Seese - 728.00 -109.20 comm.</td>
<td>1207</td>
<td>618.80</td>
</tr>
<tr>
<td>Richard Bozeat - 354.00 -53.10 comm.</td>
<td>1208</td>
<td>300.90</td>
</tr>
<tr>
<td>Tom Griswold - 213.00 -31.95 comm.</td>
<td>1209</td>
<td>131.05</td>
</tr>
<tr>
<td>-50.00 purchase deducted from sale</td>
<td>1210</td>
<td>131.75</td>
</tr>
<tr>
<td>Ralph Gendron - 155.00 -23.25 comm.</td>
<td>1211</td>
<td>74.80</td>
</tr>
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</table>

**TOTAL EXPENSES**

<table>
<thead>
<tr>
<th>Description</th>
<th>1,473.20</th>
<th>0.00</th>
</tr>
</thead>
</table>

**ENDING CASH BALANCE - July 31, 2014**

<table>
<thead>
<tr>
<th>Description</th>
<th>10,929.52</th>
<th>2,380.94</th>
</tr>
</thead>
</table>

Signature: [Signature]

Date: 8/1/2014
From the Editor’s Desk ...

At our August 7, 2014 YARC meeting, Rex Mauldin, N7NGM, presented his vision for the future of our club. Rex was a member of the Yavapai Amateur Radio Club when it was first organized in 1991.

In early 2004, Rex made a presentation to the club in which he listed the club’s strength, weaknesses, Opportunities, and Threats (SWOT). At our August meeting, he compared the SWOT of 1991 with our current SWOT -- indicating areas of improvement and of lack of progress.

Rex feels that YARC needs a Master Plan. The Plan would cover the period between 2015 - 2017. He would like to see the Plan reviewed, comments made, and voted on. But before describing some of his ideas relating to this Plan, he came up with some interesting statistics on the number of hams located in Prescott and surrounding areas, based on WM7D’s website:

<table>
<thead>
<tr>
<th>City of Prescott Hams</th>
<th>*Adjusted #</th>
<th>YARC Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>839</td>
<td>629</td>
<td>77</td>
</tr>
</tbody>
</table>

Total hams in Prescott and surrounding cities was estimated to be 965.

* Number adjusted for hams moving from this area, etc.

As Rex pointed out, there is a surprisingly large number of hams living in Prescott, compared to the number of YARC members...and he asked what can we do to increase the membership?

It seemed like a good idea to check another source to confirm the ham population in our area. Using data from www.city-data.com and the July 2014 YARC Roster, the following statistics were obtained for these three cities:

<table>
<thead>
<tr>
<th>Prescott Hams</th>
<th>YARC Members</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>765</td>
<td>94</td>
<td>12.3</td>
</tr>
<tr>
<td>Prescott Valley</td>
<td>YARC Members</td>
<td>% of Total</td>
</tr>
<tr>
<td>316</td>
<td>40</td>
<td>12.7</td>
</tr>
<tr>
<td>Chino Valley</td>
<td>YARC Members</td>
<td>% of Total</td>
</tr>
<tr>
<td>153</td>
<td>21</td>
<td>13.7</td>
</tr>
</tbody>
</table>

Rex stressed the fact that our club has ample money in the General and Repeater Funds for:

- Getting new members.
- New projects
- Fixing problems.

His goal is to spend club funds 1) to benefit members, 2) for the Amateur Radio Community, and 3) for the general population (including police and fire departments).

Below are some of Rex’s suggestions presented at the meeting. He explained how implementing these ideas would benefit the club. He emphasized that they are just ideas, and feedback is needed from the membership. (Members were quick to provide immediate feedback, arguing against some of his ideas, such as changing the club name and club logo).

- Meet in different cities in Yavapai County.
- Change name and club logo to reflect what we are.
- Establish a club station.
- Purchase a mobile trailer -- for club station?
- Install repeaters with new capabilities.
- Get the club IRLP operating again.
- Consider the use of Amateur TV equipment.
- Special projects --
  1. Operate D-Star
  2. Video tape programs at club meetings.
  3. Provide brochures and contact information for hams visiting facilities such as hospitals.

After Rex’s presentation, a discussion followed and several suggestions were made by members.

Don, WB7TPH suggested that members submit their ideas by writing an article for the Yavapai Signal.

I applaud Rex for setting forth ideas that stimulate thinking about ways to improve our club’s current performance, as well as to plan a course for the future. A Master Plan is a step in the right direction.

You may not agree with all of Rex’s ideas, but you certainly have the opportunity to present your own thoughts. I recommend that you submit suggestions to our Board members, or state your ideas in writing for the Yavapai Signal.

Joe, AC6AA
A Modest Proposal
by Loren Singh, AE7CG

At our August 7, 2014 general meeting, N7NGM gave a thought-provoking presentation about the possible future directions for the Yavapai Amateur Radio Club (YARC). As a founding member, past president, and current vice president, Rex shared insights and posed questions which deserve the attention of each of us.

My particular concern is YARC’s Wednesday night 2M net on the club’s 146.88 (-) MHz repeater located in Prescott. Rex pointed out that 49 percent of the club’s membership reside in Prescott, and 27 percent live in Prescott Valley. The two cities account for 76 percent of the club’s membership. Unfortunately, many members in Prescott Valley cannot access the repeater for at least two reasons: 1) Glassford Hill obstructs a line-of-sight path to the repeater; and 2) the current orientation of the repeater’s antenna. Others with a more analytical mind than mine can probably point out additional causes. K6VVR has mentioned that the club is considering other repeater sites—with Mount Union being a possibility. No doubt there are merits to such consideration.

My modest proposal, however, can immediately solve the problem of increased participation in the Wednesday night net by hams in Prescott Valley, Dewey-Humboldt, and other areas in Yavapai County. At present, Yavapai County ARES/RACES maintains three high-level repeaters:

<table>
<thead>
<tr>
<th>Frequency (MHz):</th>
<th>Offset:</th>
<th>PL Tone (Hz):</th>
<th>Location:</th>
</tr>
</thead>
<tbody>
<tr>
<td>145.29</td>
<td>-</td>
<td>127.3</td>
<td>Mingus Mountain</td>
</tr>
<tr>
<td>147.26</td>
<td>+</td>
<td>103.5</td>
<td>Mount Union</td>
</tr>
<tr>
<td>147.26</td>
<td>+</td>
<td>127.3</td>
<td>Mount Francis</td>
</tr>
</tbody>
</table>

The Mingus Mountain repeater provides high-level coverage to the quad-cities area as well as to the Verde Valley. And the Mount Union repeater allows access from as far north as Drake and Paulden all the way south to Yarnell and Congress.

At our most recent August 7, 2014 general meeting, I asked WA6ZZJ whether it could be possible for YARC to conduct its Wednesday night net on any of the aforementioned ARES/RACES repeaters. Lloyd told me that he would have no problem with such operation, since it would only amount to about one hour per week—and would not interfere with normal use of those machines.

So, to increase participation in the net, reach a larger body of hams (both members and non-members), and to spread the message of ARES/RACES activities and emergency preparedness, could YARC transfer conduct of its Wednesday night net from the 146.88 MHz repeater to either the 145.29 MHz or 147.26 MHz (either PL for the latter) repeater?

One must also realize that a significant number of YARC members are also concurrently members of the Verde Valley Amateur Radio Association (VVARA)—myself included. One of the primary attractions of being a VVARA member is the availability of the W7EI/R 147.22 (+) MHz high-level Mingus Mountain repeater—providing coverage to Yavapai, Coconino, and Maricopa counties. VVARA conducts its daily Knobby Knee Net at 0700 MST, and thus enhances the sense of community among the hams of Yavapai County. YARC offers no comparable repeater coverage, and the YARC 146.88 MHz repeater remains a low-level machine of interest only to hams who reside in the city of Prescott. If indeed the original charter of YARC is to serve and to be inclusive of all the hams in Yavapai County as Rex has said, then it is woefully apparent that continued conduct of the Wednesday night net on the 146.88 MHz machine is not fulfilling that purpose.

So thanks to N7NGM for getting us all to ponder the future directions of the club. It is time for the YARC board of directors and general membership to consider my modest proposal and to move forward—or to stay in place and to be content with the way things are.

Need a Hand?

If you need assistance, we want to help you. If you are just starting out in ham radio, or simply have run across something that you could use a hand with... technical assistance or answers to questions about the Yavapai Amateur Radio Club, are available from knowledgeable club members.

CALL:
Bud Semon, N7CW at: (928) 771-8267
or
Jim Zimmerman, N6KZ at (928) 713-0542

Need Cards Checked for ARRL Operating Awards?

Jim Zimmerman, N6KZ can check your QSL cards for DXCC, WAS, VUCC, WAC, etc.

For information contact Jim at: (928) 713-0542.
Jim’s QTH is at: 778 Grapevine Lane, Prescott, AZ 86305.
Did you notice the error I made in last month’s issue of App Chat? Probably not, but a reader we have in Germany, Wolf Geihe, DJ4OA did notice my error and brought it to the attention of our newsletter editor who then passed it on to me and now I am sharing it with you.

From this, I have learned that we have two people from Germany reading our newsletter, Mr. Geihe and my friend Wolfgang Teichmann. This means we have an international audience. If you look at last month’s newsletter, you will see in my article that I had typed out in code a short sentence which shows the word guten with an umlaut. It was not supposed to have one. I know what happened, I was so intent on tapping out the special character I had found, **and neglected to check my facts. Checking facts was something I was taught in photo journalism school shortly after graduating from High School.

I am normally careful to pay attention to such details from my training all those years ago, but this one got away from me. Perhaps you have noticed my writing ability from the past articles I have written over the past few months and past years for those of you who have been with the club for some time now, where I make an honest attempt to write clearly and pay attention to detail. Well, I slipped up. As a side note, I am of the old school of journalism where facts are presented without editorial comment which seems to me to be so common these days. I write with this model to follow and hope you enjoy my articles despite mistakes at times. My goal is to make my articles fun, interesting and informative. I know why I slipped up. I really got into tapping code on the app I was writing about and because of the extreme sensitivity of the app, I had to redo it several times and lost track of the bigger picture. It is also an app that is fun to work with and one that I highly recommend.

This episode got me to thinking about writing an article on how to write an article so don’t be surprised if I do so in the near future, but for now, I thought I would let you know that my original direction I had been thinking of going was to transition from code to digital forms of communication such as RTTY, PSK 31 and so on but instead, I am going to write about the language translators, something I should have used when writing my article last month. There are many such apps available which can be put to use with amateur radio.

There is one simply called Translator, that I use, which allows you to write your text in one language and then have it converted to another language. Figure 1 shows the common layout of such translation programs, some of which have a speaker symbol that you press and you can then hear how it is supposed to sound in the language you are interested in.

When you think about it, there are numerous opportunities to communicate with someone from outside the U.S., not just on a radio, but from Echolink, IRLP, CQ100 and Hamsphere, of which I will write about also since there are apps available for these. I have already written about Echolink and touched on IRLP so that leaves the last two for us to explore.

Having this capability to speak in a foreign language and be able to ask ham related questions or make comments such as asking the person to check their microphone level, or describe better where you live, as I show in the example, can be helpful to both parties. Not only that, but it is fun. It is also a good way to exercise your mind.

What this latest episode inspired me to do was to write a brief portion of App Chat in German. How-
ever I do not have the language pack on any of my computers or I would do so for our German readers. Over the past week I resolved this issue by re-installing Windows XP on an old computer and installing language packs for German and a few other languages. My friend from Germany, Wolfgang Teichmann, DL3SEX recently visited the US and spent a week in our area and brought over a keyboard that I can use for German, so don’t be too surprised to see a German version of App Chat, or at least portions of it in German just for fun, provided Joe is able to print it out. After all, it would be fun to appeal to our international audience that we seem to have. Do stay tuned!

A Radio To Go

By Don Bauer, WB7TPH

At the August meeting I announced a contest to see who could come up with the best amateur radio go-kit. Here I will present some ideas from others who have built go-kits and some rules for the contest. You may build a radio in a box or case, or you may offer other ideas. But, the ability to take a VHF or HF radio into the field, deploy it and make contacts for an extended period of time is the goal of the contest. What is an extended period of time; let’s say you will be in the field for 72 hours, and you want to be able to operate for at least 24 of those hours. Picture yourself camping in the wilderness with your radio gear by your side, operating from battery or solar power, with a wire antenna strung into a tree.

OK, here we go. The winning kit owner gets a year’s membership in YARC.

First up is an example from Mark Pilant, N1VQW who describes his go-kit. More photos can be found at http://www.n1vqw.net/go-box/

Here is a picture of the Amateur (ham) Radio "go-box" [Mark] built to be able to have a complete station in a box. Well almost. An external DC power source may be used, and for this he has a marine battery box containing an Optima "Red-Top" battery. (This is not shown.) he also does not have any antennae in the go-box as yet. For mobile use, he simply carries along some magnetic mounted antennae.

The go-box is built to fit into an orange Pelican 1440NF case. Mark chose orange because he wanted it to stand out, and be visible. (He stenciled his call sign on the case so it was easier to identify. He chose a Pelican case because of their reputation for being just about indestructible; as well as water resistant/proof.)

This particular case was used because it was the smallest one which would hold all the equipment he wanted to include. In addition, one of the design goals was to be able to operate in a vehicle, so having everything in a vertical orientation works well. It is a simple matter to remove the insert and place it on a table for a more conventional horizontal orientation.
(“One note on the hardware. Because he had a ready supply, he used (almost exclusively) stainless steel hardware. While this offers added protection against moisture, it probably isn't really necessary.”)

The go-box contains:

- Alinco DM-330MVT 5 to 15 VDC 30A switching power supply.
- LDG AT-200Pro 5 to 200w antenna tuner.
- MFJ-133RC 12/24 hour dual time LCD atomic clock.
- MFJ-281 Cleartone speaker.
- West Mountain RR/4005 5 outlet 40A RIGrunner.
- Yaesu FT-897D HF/6m/2m/70cm, all mode, transceiver.
- Clipboard, pad of paper, and a pen.
- Microphone extension cable. This allows you to operate much further from the go-box than the stock coiled microphone cord would allow.

One more example comes from Geoff Haines in Florida. See the details on Geoff’s website, http://www.n1gy.com/radio-in-a-box-mkii.html.

This is his second version, so you can look over both examples.

For many more examples take a stroll through the internet. Just Google “radio go-box or go-kit”.

**Now to the contest particulars.**

The idea here is “grab and go”. Your kit does not need to be in a box, but it should be contained in some way to make it truly portable. Convenience allows us to enjoy our radio hobby more.

Your Go-Kit must have:

- Radio; HF or VHF
- Ability to be flexibly powered (internal battery, vehicle battery, solar, etc)
- Power supply for AC optional
- Should (not must) be capable of at least 24 hours of casual operation on power source carried with the kit
- Antenna may be included in kit or carried separately (such as a vertical, mag mount)
- Kit must include all necessary external connections / cables (to power, antenna)
- Microphone/headphones/etc. if required, must be in the kit
- Radio manual and copy of your license

That is enough rules. Let’s go build something. Have some fun and show off what you built. Remember to be ready by the November meeting.
EVENT COMMUNICATIONS.....

By Lloyd, WA6ZZJ

Upcoming Public Service Event Communications.....

September is promising to be another busy month for YARC Public Service Communications. The following events still need a few operators to sign up:

The upcoming YARC Event Communications schedule is:

Saturday, September 6, 2014 will be the March of Dimes March for Babies. This is a small event using only 10 operators. Being a smaller event, this an excellent event for first time communicators. As always, if it is one of your first events you will be assigned with a veteran communicator.

Sunday, September 21, 2014 is the Skull Valley Loop Challenge. Another smaller event using 10 to 12 operators. Like the March of Dimes, this is another excellent event for first time communicators and, again, if it is one of your first events you will be assigned with a veteran communicator. Three operators are needed with portable equipment to place in the SAG vehicles.

Saturday, September 27, 2014 is the Groom Creek Classic 1/2 Marathon, 10K, 5K, 2 mile. Patti, KD7VBG, will be coordinating this event. At least 15 TO 18 operators are needed for this event with two having quad mobiles.

Friday and Saturday, October 3rd and 4th is the Prescott Road Rally. Go to www.prescottrally.com and click on “Volunteers” to go to the sign up form. If you have a preference as to where you would like to work, please add a comment in the box at the bottom of the page just above the “Submit” button. Be sure to check the boxes in the form for when you will be available.

Saturday, October 18, 2014 is the Walk for Diabetes. This is another good event for first time communicators. John, WB9VGJ, will be coordinating this event.

Check your calendars and sign up. Signups for these events will continue at the September YARC meeting or you can email direct to: wa6zzj@arrl.net to get your name on the list. Some of the events will fill quickly so sign up early.

PUBLIC SERVICE COMMUNICATIONS POSITION DEFINITIONS.....

WHAT IS A "Rest Stop/Aid Station Communicator"?

A rest stop or aid station communicator is an Amateur Radio Operator who provides on-site staff communications during an event.

CONCEPT:

The purpose of a rest stop or aid station communicator is to provide constant contact between net control and the local rest stop or aid station official. Thus the amateur operator MUST remain in the immediate vicinity of the rest stop or aid station at all times.

Because the rest stop/aid station is usually a central location, providing participants with supplies and or first aid, the communicator needs to always remain in contact with the site leader and be cognizant with site operations without interfering with normal operations.

RESPONSIBILITIES/DUTIES:

1. The communicator must remain within the vicinity of the rest station/aid station at all times. In addition, the amateur must monitor the radio at all times.

2. Communicator is expected to take direction from the event communications net control during his shift.

3. The rest stop/aid station communicator may operate other radios as well, such as an event-furnished radio and cellular telephone.

Shift Duration. Most event operations have durations of 8 hours or less. This time may vary depending on the actual needs of the operation.

The rest stop/aid stations are usually located some distance from net control. These locations do not always provide shelter from the elements and may require the communicator to use his/her ingenuity in functioning from this type of location.

EQUIPMENT REQUIREMENTS:

The communicator should possess the following equip-
ment when reporting for duty:

- 2 Meter FM Transceiver capable of at least 25 watts into the antenna. This set-up can be a mobile unit or a HT plus amplifier combination. Some assigned positions may be able to use a good 5 watt HT.

- Optional 2 meter/440 dual band transceiver with cross-band feature.

WHAT IS A "SAG"?

A SAG (Support And Gear) Communicator is a mobile capable Amateur Radio Operator. A SAG operator typically rides in a vehicle designated to provide transportation or logistics during an event.

CONCEPT:

The purpose of the SAG operator is to allow constant contact between the SAG vehicle and event officials via amateur radio. Thus the amateur operator MUST remain in the immediate vicinity of the SAG vehicle driver AT ALL TIMES. The SAG communicator will typically ride “shotgun” in the vehicle being used as the SAG vehicle. The driver may have a set agenda or route that may change due to the nature of the event or at the directions of net control.

RESPONSIBILITIES/DUTIES:

Communications

The SAG communicator must remain with the SAG vehicle and/or driver at all times. In addition, the amateur must monitor the radio at all times.

The SAG communicator is expected to take direction from the event communications net control during his shift.

The SAG communicator may operate other radios as well, such as an event-furnished radio and cellular telephone.

Other Duties:

The SAG communicator may be called upon to assist the driver with map reading, observing road conditions and assisting the loading of the vehicle (generally tired or participants with minor injuries), including their equipment if needed. The SAG communicator must remain with the SAG vehicle and/or driver at all times.

Shifts at most public service events have durations of 8 hours or less. This time may vary depending on the actual needs of the operation.

EQUIPMENT REQUIREMENTS:

The SAG operator should be equipped with the following equipment when reporting for duty:

- Mobile 2 meter, 10 watt output minimum, synthesized transceiver with programmable CTSS encoder, for easy installation in a vehicle. Alternative: Hand-held, 2 meter with mobile booster amplifier. Some assigned SAG positions may be able to use a good 5 watt HT with external mag-mount antenna.

- Dual Band or 5/8-wave, mag-mount antenna with 15 feet coaxial cable with necessary connectors and adapters.

- Spare batteries for up to 12 hours operation if using HT.

- Power adapter connectors -- for cigarette lighter equipped vehicles.

![](image)

VE Testing

By Don Bauer, WB7TPH

The next chance to upgrade or get that new ham license will be on Saturday October 4th, at 9:00 AM. The August 8th test session had eight candidates show up for tests. There were five people trying for a new license and three attempting to upgrade. All but one passed. Congratulations to our three new General class licensees and four new Techs.

- I just ran 5 miles and what a workout…! didn’t think that ice cream truck would ever stop.

- You don’t have to be great to start, but you have start to be great.

- I stopped behind a car with a Ham license plate. I quickly beeped a “Hi” on my horn. Next thing I know his window rolls down and the driver yells “can’t you see the &%#@ light is still red".

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Essential_2 driving

Reprinted from the “PCARA Update”, April 2005 issue, courtesy of Malcolm Pritchard, NM9J

This article in the “Essential_2” series owes its inspiration to Mike, N2EAB who asked an interesting question about tool handles. We’ll try to find the answer later on.

If you open the toolbox of just about any radio amateur you will find a variety of implements, but the item most likely to be present is the humble screwdriver or nutdriver. Our amateur radio stations are held together with a variety of threaded fasteners, and the need to tighten and release them leads to many different types of screwdriver. My own radio toolbox contains a grand total of thirty different drivers!

The NM9J toolbox has lots of different screwdrivers and nutdrivers.

The main driver (sorry) for this wide selection of tools is the variety of screw and bolt styles that end up in our radio gear. Screw head styles used in electronics include the standard slotted head, Phillips, Allen (hexagonal) and Torx.

Turning of the screw

Bolts and screws are usually manufactured from reels of carbon steel wire, though other metals and alloys may also be encountered in radio work — including stainless steel and brass. The metallic wire, up to 1/2 inch diameter, is first straightened, then it may be drawn down so the diameter is very accurately controlled. The wire is fed into a cold-heading machine and cut to length then held in a die where the head is formed by a punch moving forward over the protruding wire. The punch imparts the shape of the screw head, spreading the wire material out into a dome.

Simple shapes can be produced with a single punch action, but complex shapes require a double-heading action with a second punch. Finally, a knockout pin pushes the piece out of the die. Slotted-head screws may require the slot to be cut in a cutting machine.

(And if you don’t believe that a simple punch could distort cold steel, just remember what happens when you are manually driving a screw and the screwdriver slips out of the slot in the screw head — or what happens when you tap a center punch with a hammer to start a hole for drilling into a steel chassis.)

After cold heading, the screw,

Thread-rolling forms threads in the screw blank by rolling between dies.

Single-die, two-punch method of cold-heading is used to produce fasteners. The first blow partially forms the head (coning), then the second blow finishes the head shape. (Diagram adapted from Carpenter Technology Corp.)
blanks are fed to a thread cutting device, the most common of which is a thread roller. The unformed blank is rolled between two flat dies on which the thread pattern has already been cut. This cold-forms the metal of the blank into the desired screw thread.

The screws and bolts can be subjected to a final finishing process. Steel screws can be hot-dip galvanized by passing through a bath of molten zinc. The thin layer of zinc metal around the steel reduces corrosion during subsequent use. Steel bolts can be blackened by passage through a bath of molten sodium hydroxide with nitrates and nitrites added to oxidize the surface of the steel to iron oxide ($\text{Fe}_3\text{O}_4$), followed by dipping into oil which is absorbed into the porous iron oxide layer.

Steel screws and bolts can also be electroplated with protective metals such as chromium, cadmium and zinc. The additional thickness of plated metal must be taken into account when the bolt has to be mated with a corresponding nut.

The company I work for has been involved in a novel process for coating metal fasteners with a thin coat of aluminum. Metal alkyls are used in a chemical vapor deposition process to apply metal coatings to small parts such as nuts, bolts, rivets and clamps.

**Getting cross**

Slot-head screws have been used since medieval times, but in the twentieth century more efficient designs emerged. The story of the Phillips screw begins with Oregon inventor J.P. Thompson who received a patent in 1933 for a crosshead-recessed screw that self-centers the screwdriver with the screw head. Thompson approached many screw manufacturers who said his screw was impossible to reproduce because the punch needed to create the recess would destroy the screw head. Thompson then showed his idea to an engineer acquaintance named Henry F. Phillips who offered to buy the patent. Henry Phillips founded the Phillips Screw Company in 1934 and patented an improved design for the crosshead screw and matching screwdriver in the mid 1930s. The wedge-shaped Phillips screwdriver head is designed to mate more accurately with the recess in the screw head, preventing the tool from slipping and allowing the screw to be carried to the work. These ideas were adopted by the USA’s largest screw manufacturer, American Screw Company in Providence, RI. The Phillips screw head was adopted by GM in its Cadillac Division in 1937, and went on to see wide-spread use in World War II.

The hexagonal screw head has its origins in a square-shaped socket popularized by Canadian inventor Peter L. Robertson. Robertson devised an efficient manufacturing technique for cold forming screw heads with a square-shaped hole at his Milton, Ontario factory in 1908. Screws with a hexagonal head were subsequently manufactured by the Standard Pressed Steel Company in Philadelphia PA, but they did not become widespread until World War II when the design was widely used for setscrews. The Allen Manufacturing Company of Hartford CT registered a trademark for the Allen Wrench in 1943, and ever since the L-shaped wrench with a hexagonal cross section has been known as an Allen Key.

The Torx head was developed by Textron Corporation for use with automatic torque-limited screwdrivers on assembly lines. The 6-pointed star shape patented in 1971 is intended to stop screwdriver slippage once the required amount of torque has been applied to a fastener. Torx screws have seen widespread adoption in automobiles, hard drives, computers and home electronics.
Tool making

Screwdrivers are manufactured by a process that bears some resemblance to the manufacture of screws. The starting material is once again a coil of steel wire for the metal blade that will be fitted into the handle. The wire is first spooled off the coil and drawn down to the desired size by feeding through a die with a reducing aperture. The drawn-down wire is then heat-treated to obtain the desired tensile strength – this involves holding the wire at around 1350 deg F for 12 hours.

The wire is straightened then transferred to a cold-forming press which cuts the wire to length, then forms the screwdriver tip and the “wings” for embedding in the handle. For a flat-blade screwdriver, the tip is formed in the press. For a Phillips screwdriver blade, the cut wire is sent to a “swage and grind” machine, where dies form blades for the tip from the heated wire. The tool is then ground and the “wings” are formed. The blade is treated in an in-line furnace at approximately 1550 deg F, followed by oil quenching. The steel pieces are then placed in an oven at 500 deg F and baked. High temperature heat treatment followed by quenching results in an extremely hard, brittle steel, with the subsequent tempering process reducing internal stress.

Inexpensive screwdrivers are nickel-plated before assembly. More expensive screwdrivers are ground to size, then the shank is chemically milled and polished. The screwdriver goes to a nickel bath and is electrochemically chrome plated.

Getting a handle

Handles for screwdrivers were traditionally made of wood, but you will not find too many wooden handles around today. Modern handles are mostly made from cellulose acetate butyrate (CAB). Cellulose acetate butyrate was developed in the 1930s by Eastman Chemical (Tenite). It is manufactured by reacting the natural polymer cellulose, produced from softwood or cotton, with acetic acid and sulfuric acid. Further esterification of the hydroxyl groups of cellulose is achieved by adding butyric acid and acetic anhydride. The resulting product is more stable and chemically resistant than cellulose acetate. This is a result of the alternating acetyl and butyryl groups on the cellulose backbone.

Cellulose acetate butyrate is delivered to the screwdriver factory in powder form, mixed with a liquid plasticizer such as 2-ethylhexyl adipate. The CAB is fed into an extruder that heats the material and pushes the molten polymer through a rotating screw into bars that are 8 to 10 feet in length. The rods are then put into an automatic turning machine, which shapes the handles and cuts them to final length. A hole is drilled in the handle where the screwdriver blade will be inserted. The handles are washed and stamped then assembled on a hydraulic machine that forces the blade into the plastic handle.

Stinky tools

The question asked by Mike, N2EAB was — why do my old tools smell so bad? Mike is not the only person suffering from this problem, as an Internet search reveals many other people asking the same question.

The cause of the bad odor is those plastic handles — which for decades have been extruded from cellulose acetate butyrate. One
clue comes from Eastman’s own data for Tenite plastics which reveal (for example) that Tenite Cellulose Acetate Butyrate 530-16 — which is intended for tool handles — contains an odor mask and has a plasticizer level of 16%.

If a tool smells bad immediately after purchase, it could be because residual butyric acid was left in the polymer used to mold the handle. If the smell develops over time, it might be because of exposure to high moisture levels, heat, or acids that will cause hydrolysis of the ester linkages. The resulting free butyric acid has a rancid butter or vomit. Decomposition of cellulose ester polymers is accelerated by their acidic by-products — acetic acid and butyric acid — so sealed or closed containers should be avoided as they will hasten the deterioration.

Conclusion — if you would like your screwdrivers and nutdrivers to last a long time, keep them cool and dry, in an open container with good ventilation. Avoid bright light, paint and solvents that might attack the plastic handles. If well looked-after, tools will last for decades.

- NM9J

A Bit of Humor

Bill and his wife Blanche go to the state fair every year. And every year Bill would say, " Blanche, I'd like to ride in that helicopter "

Blanche always replied, " I know Bill, but that helicopter ride is fifty bucks, And fifty bucks is fifty bucks! "

One year Bill and Blanche went to the fair, and Bill said, " Blanche, I'm 75 years old. If I don't ride that helicopter, I might never get another chance "

To this, Blanche replied, " Bill that helicopter ride is fifty bucks, and fifty bucks is fifty bucks "

The pilot overheard the couple and said, " Folks I'll make you a deal. I'll take the both of you for a ride. If you can stay quiet for the entire ride and don't say a word I won't charge you a penny! But if you say one word it's fifty dollars. "

Bill and Blanche agreed and up they went. The pilot did all kinds of fancy maneuvers, but not a word was heard. He did his daredevil tricks over and over again, but still not a word...

When they landed, the pilot turned to Bill and said,

"By golly, I did everything I could to get you to yell out, but you didn't. I'm impressed!"

Bill replied, " Well, to tell you the truth I almost said something when Blanche fell out, But you know, Fifty bucks is fifty bucks! "
Weekly Breakfasts

**Wed. Morning Breakfast:**
7:00 a.m. at Iron Horse Restaurant (Hwy 89 in Chino Valley)
(formal – all are invited)
Breakfast at Masonic Lodge:
3rd Saturday of each Month
at 9:00 a.m.
(1280 Willow Creek Road, 2nd Floor; above Bank of America)
(formal – all are invited)

*Location data (per WGS84) provided by Fred Zimmermann, N7PJN

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