



Issue 07

Club Web Site www.rcarc.info

July 2006

Treasury Report May 2006

Beginning balance	\$1507.50
Repeater Power Bill	-\$15.25
Club Food	-\$55.79
Ending balance	\$1436.36

Club Meeting

Agenda Unknown.

It has been confirmed that there will be a fox hunt this month September 23. Also a Dinner after the fox hunt. Details to be given at club meeting.

Lesson Learned: Label It!

Jerry Wellman, W7SAR

About 10 years ago our company built a new building. Management was (and still is) interested in emergency communications so the building plan included installation of some high-quality coax from the roof to my office. The deal was that I could install an HF dipole and a dual-band vertical antenna on the roof and bring in my own equipment. For me it was wonderful. I could work and have radios too. Such a deal! But then I moved offices. So I ran the coax to the new space. And then two years ago I moved again. Along the way I found a Kenwood TS-440S that was a good deal and could be my permanent HF rig at work. If any of you own the TS-440S, you know there is a known problem with some of the material Kenwood used in “potting” the VCO. Over time, the material becomes conductive and your TS-440S just lights up with dots on the display, and doesn’t work.

Well, in my new space, the HF wasn’t picking up signals very well. Not really thinking things through, I figured the TS-440S needed the potting material removed. I did no testing. No checking, no diagnosis. I just assumed (and we all know that’s a bad way to fix problems). With an hour or so to kill, I began the un-potting process. It went well. (Did I mention that my TS-440S did NOT have the “dot” display?) Even though the radio wasn’t showing the symptoms, I went about “fixing” the problem.

With the rig back together, connected, and tuned to 40 Meters – nothing. I could not hear the local nets or even the West Coast Nets that were booming into my station at home. Hmm, I thought. Must be the antenna. So up on the roof I went, and sure enough, the wind had flexed the center connector enough that one side of the dipole was broken. Yes! I thought, that’s the problem. So I built a new and improved dipole and installed it. Not a lot of improvement. The local broadcast stations were not too strong, so I thought: “I need a better antenna. I will add a balun, some RF chokes, and make it a dual-band dipole.”

With a new antenna built, back up on the roof (in very hot conditions) and installed the new stuff. Still no improvement. The radio’s built-in tuner would “tune” but signals were still very weak. What now? Maybe a couple of good brain cells finally kicked in, and the thought came, “check it with our antenna analyzer. “ (You dummy!) The next day, I took the analyzer to the roof and the antenna (since reduced to a single band, having earlier thought the multi-band design was the flaw) and it was right on for 40 Meters. There I found a bad connection on the 1:1 balun where a

Rivet had oxidized, but that didn't fix the problem. I don't have to say that all the time, the automatic tuner in the radio was doing its thing for 40 Meters, but it would not tune well on any other band hence the need (I thought for a multi-band design. Taking the analyzer back to the office. The antenna was NOT working. Hmm! Some thing is wrong between the roof and the office. What's that leave? Coax and connectors, so I first removed the lightning arrestors. No change. Then I checked the connectors. No change. Still bad SWR at the user end. Finally I thought to check the VHF/UHF vertical. Guess what? It tuned very nicely to 40 meters. Silly me, the two coax lines were reversed. For over a year, my HF was connected to a VHF/UHF vertical and I was working local repeaters (thankfully line-of-sight) on a semi working HF dipole. All of a sudden with the coax going to the right radio and antenna, the 40 Meter signals were solid. The tuner could handle 20 Meters and even 75 Meters. Local broadcast stations were solid. I tried a couple of distant VHF repeaters and they, too, were solid.

How many times have I said to others what a good idea it is to clearly label coax? Difficult lesson to learn. If I had labeled the coax years ago, it would have saved me a lot of unnecessary effort. I have labeled the coax in my home shack and in my vehicle but admit that in some of my haste to install some gear, I've skipped the labeling step. No more! I will repent. I labeled the coax in the building at work. I helped a fellow put up an antenna this weekend. It's the only antenna on his house and the only coax in his shack. But I make sure we labeled it.

I am now labeling my field coax for emergency use. Last Saturday I spent an hour checking all those 30, 50 or 100 foot runs of coax in my grab-and-go boxes and I put a label on each end. I started with the letter "A" and am up through "R" in my quest to have each end match. So now when Jim and I set up a field radio station, I can ask him what letter is connected to the beam, and ensure it gets to the right radio even in the dark! My next goal is to also label ends of my power jumpers as well. No more guessing what's on the other end. At least when I hook them up wrong, I won't have an excuse for not having them labeled.

The Antenna Raising Incident

I'm writing in response to your request for additional Information for Block Number 3 of the Accident Reporting Form.

I put "poor planning" as the cause of my accident. You said in your letter I should explain more fully. And I trust the following details will be sufficient.

"I am an amateur radio operator and on the day, of the accident. I was working alone on the top section of my new 80-foot tower. When I had completed my work, I discovered that I had, over the course of several trips up the tower, brought up about 300 lbs. of tools and hardware. Rather than carry the now un-needed tools and materials down by hand, I decided to lower the items down in a small barrel by using a pulley, which fortunately was attached to the gin pole at the top of the tower."

"Securing the rope at ground level, I went to the top of the tower and loaded the tools and materials into the barrel. I went back to the ground and untied the rope holding it tightly to insure a slow decent of the 300 lbs. of tools. You will note in Block Number 11 of the Accident Reporting Form, I weigh only 155 lbs.

"Due to my surprise at being jerked off the ground so suddenly, I lost my presence of mind and forgot to let go of the rope. Needless to say, I proceeded at a rather rapid rate of speed up the side of the tower and when the tools hit the ground, the bottom fell out of the barrel. Devoid of the weight of the tools, the barrel now weighed approximately 20 lbs. I refer you again to my weight in Block Number 11. As you might imagine, I began a rapid decent down the side of the tower. In the vicinity of the 40 foot level, I met the barrel coming up; this accounts for the two fractured ankles and the lacerations on my legs and lower body."

"The encounter with the barrel slowed me down enough to lessen my injuries when I fell on the pile of tools, and fortunately only 3 vertebrae were cracked. I'm sorry to report, however, that as I lay there on the tools, in pain, unable to stand, and watching the empty barrel 80 foot above me, I again lost my presence of mind. I let go of the rope..."

President's Page

I can't believe the summer is almost over. I know I worked the summer away because my wife and I lived in a tent trailer for 7 weeks. I was a little disappointed because I was not able to work many contacts during my off hours because of loading problems with my antenna.

My problems at Scout camp and mobile installations have taught me a lot about HF radio.

- When all else fails, you must have a solid 50-ohm load for your radio to work into.
- Don't assume anything. Check **everything** with appropriate RF measuring tools.
- **RF** ground is totally different than **DC** ground. They may be the same but they act **totally different** at RF frequency.
- One problem will usually manifest itself in a **variety** of different ways. Correcting the **source problem** will usually clears up the rest.
- Don't overlook the simple things. Follow **basic, sound, proven** RF technology in building your HF radio station.

I say this because I experienced all of the above this summer. Now that fall and winter are coming on I will correct my mistakes and by next summer, I will have a reliable portable and mobile antenna system to enjoy.

Case in point: I purchased an *Outbacker* antenna, over a year ago, for mobile use. I purchased it upon reliable, first hand, information from a knowledgeable ham. It didn't work at all because I did not follow the above-mentioned reasons. In fact, I had to purchase an additional, longer mast because the factory unit was RF electrically **too short** for portions of the 80 through 10 meter bands.

After correcting the **ground** problem, I spent hours climbing the ladder on my motor home, moving the mast up and down and checking the results with an analyzer. I now have a "truth table" that I can refer to that tells me how much I must move, either mast, to get a near-50 ohm resonant frequency **match**.

It worked great on 75 meters this past weekend. I received a 5 by 7 signal report while located in the bottom of a narrow canyon with only 75 watts of power applied. My report was **better** than several home stations running full power and some with amplifiers in line! Now that's performance!

My 80-meter dipole I choose to use, as an all-band antenna is my next challenge. The book says it will work on all bands if fed with 450-ohm ladder line and a tuner. It did, somewhat, until it rained for several days straight. After that it didn't work at all!

Rereading the book I discovered I made several small but costly errors, both financially and mechanically. Financially, because I had to get my tuner repaired. Mechanically because water changed the **impedance** of the antenna. It wouldn't **load** even with the tuner inline. I failed to **waterproof** the antenna correctly. I also had the tuner at the **wrong point** in the feed line. I have yet to complete the corrections to the dipole, but I am confident it will work correctly.

So, What has all this got to do with summer? Summer is the time to enjoy **outdoor** radio. Make your outdoor antennas, indoors, this winter. Make them **correctly** and enjoy radio, as it should be next summer.

Get outdoors and enjoy portable operation. Setting up operation from a park bench or mountain campsite is great fun. People will be curious to know what you are doing. Great way to introduce ham radio to the uninformed—as long as your equipment works correctly. Rather embarrassing when it don't and you can't explain why!

73 and see you at the summer party!