

CQWW @ VP5DX October 2015

A brief description of the station is important for those that don't know. VP5DX is on the island of Middle Caicos in the Turks and Caicos Islands. The location is remote in that there are no stores, and no direct access to the outside world without traveling miles on the roads and a boat ride. This limits what is available for repairs and maintenance to what is on hand or what is brought with you there.

The house is in a resort location and only the main tower and antenna can be left installed when the station is not being used. For the last few years the location has only been used during the CQWW phone contest in October. The main antenna on that tower is a 3 element SteppIr with the 30/40 meter dipole kit. This antenna was installed in 2008 and was taken down once for tower maintenance and the element poles were painted at that time. This was about 3 or 4 years ago. In early September of 2015 we received a picture from the neighbor saying that it looked like the antenna was broken and we might need to bring parts to repair it when we came in October.



I dropped a note to SteppIr and asked what I needed to make the repair. They needed to know which fiberglass elements we had as they have changed suppliers from time to time and the capacitance could be different. Lucky I found a picture of the element when we originally installed the antenna in 2008 blew it up and the label was visible. This SteppIr was a replacement for the previous 3 element that did not have the 30/40 meter kit and was damaged from a hurricane that took the tower down in September of 2008.



A new tube was purchased and shipped to Providenciales for us to pick up on our trip. Upon arrival and settling in we proceeded to take the antenna down and make repairs. We had not spent any time in the radio shack at this point as there were no antennas to use anyway. When we leave the station after a contest there is a check list of things that are always, ALWAYS, done. Everything is unplugged from the ac power, any cables from the rotor, SteppIr control lines, any coax runs are removed from their respective control boxes. This includes retracting the elements on the antenna and leaving the rotor in the north position.

After lowering the antenna to the ground, here's what the tube looked like.







Also when removing the tubes, we found one of the tapes on the driven element was not retracted so I proceeded to go inside the shack plug in the SteppIr controller and park the elements. When I got inside and put power to the controller it did not come on. A quick check of the power supply showed it was dead. Also the control cable from the antenna had a burned mark on it. There was also a black mark from where the cable was laying not plugged in to anything to the case of the Icom 756 Pro and another black mark from that case to the case on the SteppIr control box. We knew at this moment that there is more to this operation than first thought. We had the power supply from the old SteppIr control box although it had not been seen for 7 years. After opening dozens of boxes in storage and finding that, the Control unit still did not power up. A couple of weeks before NF4L gave me a motor control PCB for this model control box and opening and inspecting found the regulator on our box was bad. The new pcb was installed and the box came up and appeared to be working. Of course it would not control the antenna as we needed to find a DB25 male connector to replace this one.



Before looking for a connector to replace this one with burned off pin at #1 I decided to check the resistance to the motors from this end of the cable. They were open on the couple I checked, and it was thought that maybe the cable was cut or blown open somewhere. All goes downhill from this point. No breaks were found in the control cable right up to the antenna. But during this inspection we did find the coax was missing about a foot of shield and its' insulation.





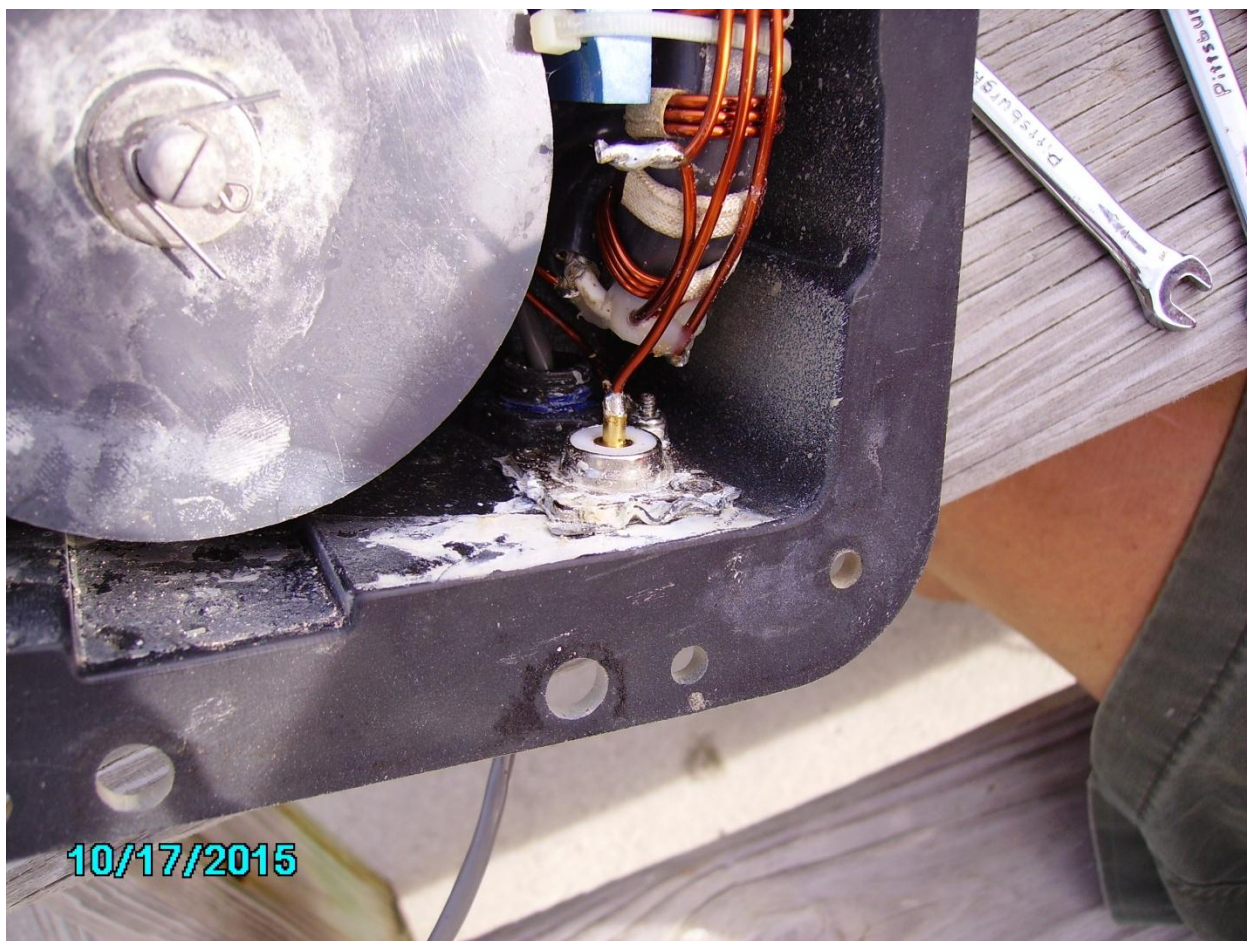
I cut back the coax towards the shack about 2 feet and found the cable to be very clean and not damaged so a new connector was installed, and another new piece made to go up to the antenna with a PL-258. When we tried to remove the PL-259 from the driven element of the antenna this happened.



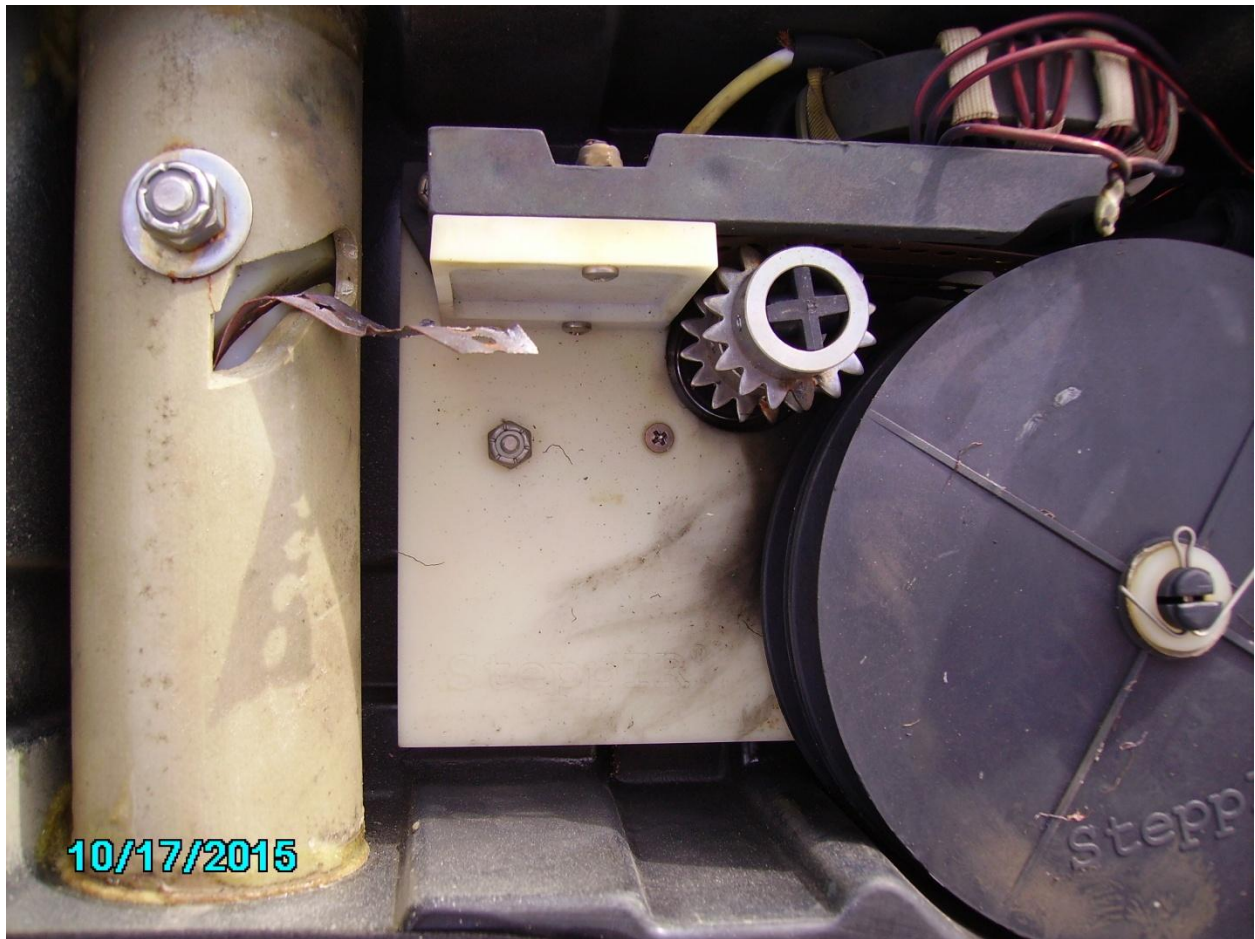
The shell of the PL-259 came off with the threads of the female completely. Well this could be fixed anyway. We took the EHU off the antenna and proceeded to put it on the picnic bench to make repairs.

Opening the EHU found this damage.









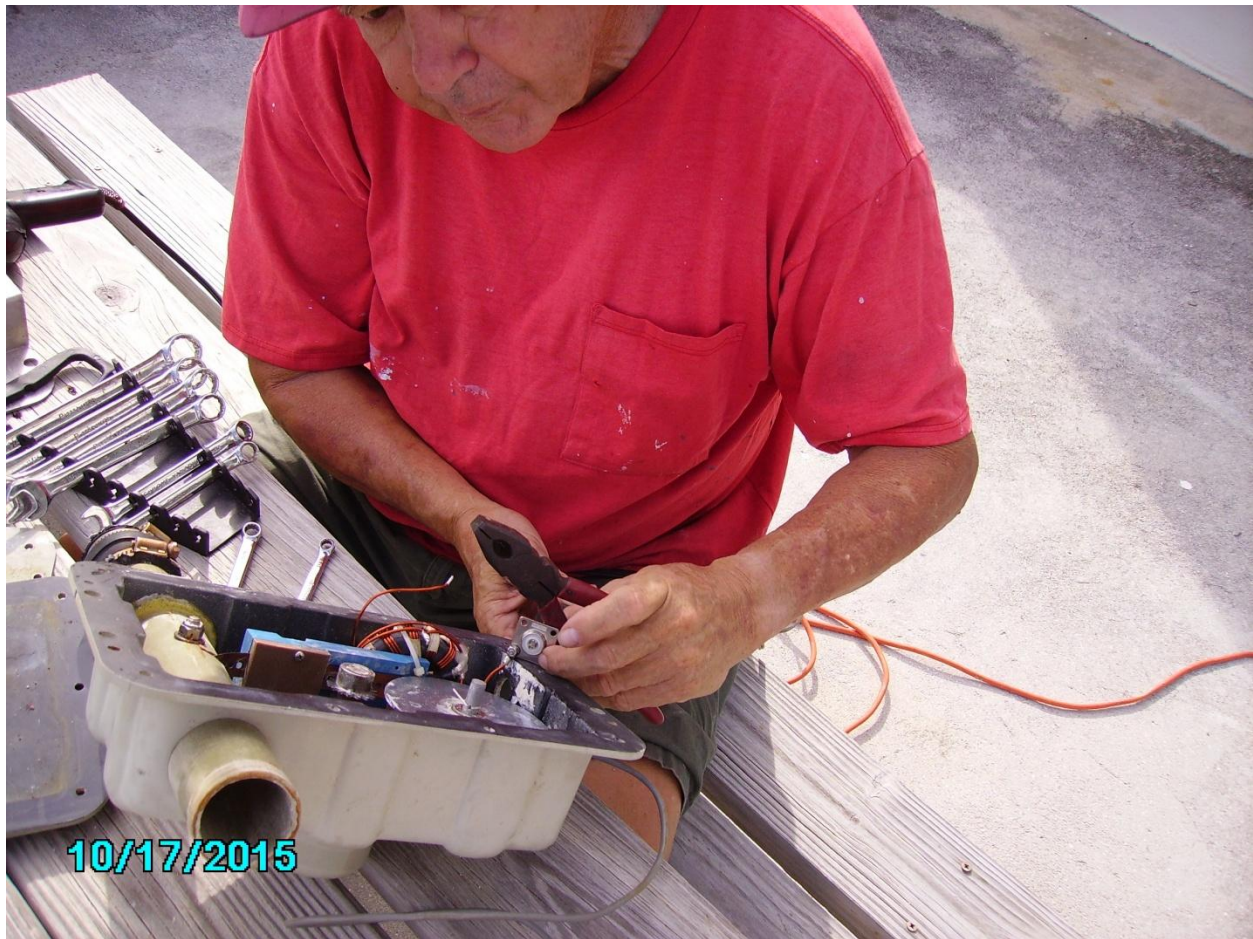


The tapes are burned in half, both of them even though only one was not extended. Also notice the burned area on the end of the element that had not fully retracted. Ron hunted around and found the EHU from the old antenna and we made the decision to make this into a 20-6 meter antenna and we had enough parts to do that. The driven element EHU from the original antenna was not damaged and it was saved. The other 2 EHU's from that old antenna were destroyed when the tower had come down in 2008 and broken the housings. Of course when he went to remove the coax connector on the old EHU, the connector twisted off just like the other one.





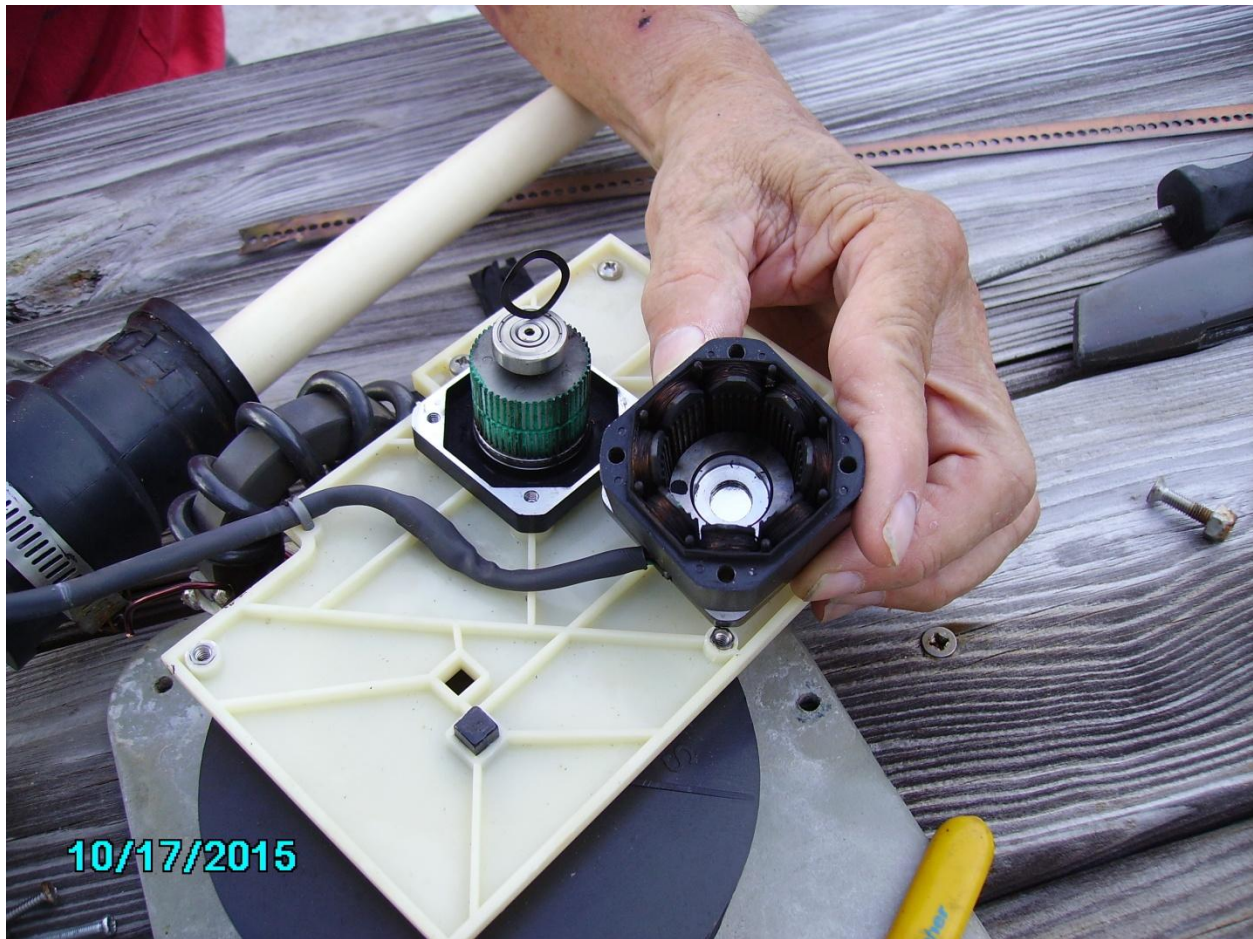
Well the SO-239 was in stock in our cabinet so Ron proceeded to replace it.



Ok we are making progress now. The new SO-239 installed, the control box is turning on, and we have tubes to install to make up at least a 20 – 6 meter antenna. I then tested the control box with this EHU to make sure all the motor ICs worked and all appeared to be ok.

Now back to the control cable problem. I took the ohm meter out to the antenna to check the cables. I found that 3 of the other 4 windings on the stepper motors were open. We opened a stepper motor just to see what is inside.





The windings are burnt, along with the rotation unit. (Notice the end of the burnt tape on the bench)

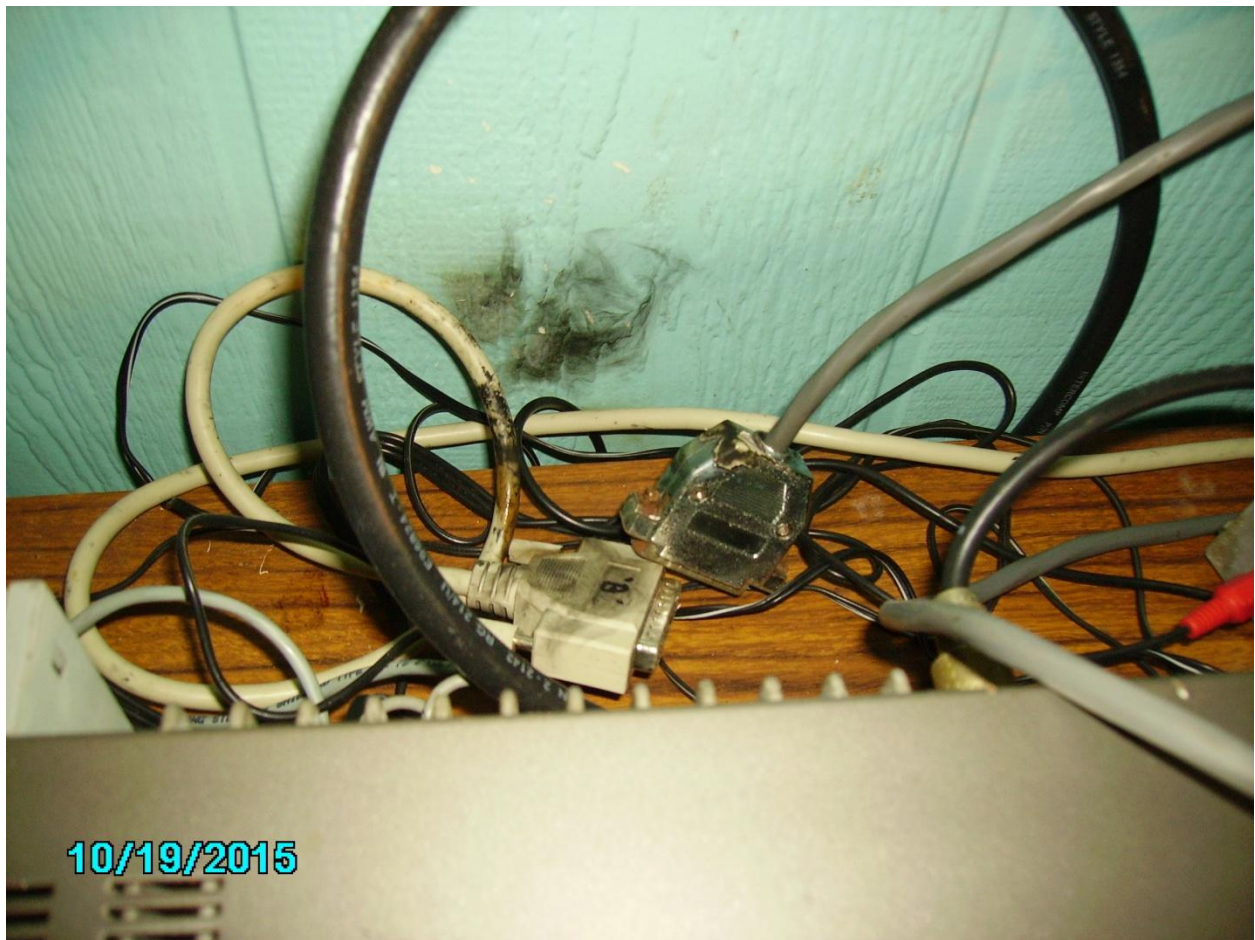
Well we are done, with the 2 other elements non-operational, we can make a rotatable dipole and that is about it. The SteppIR has had its last rites..

The Cushcraft A-4 was assembled and installed on the main tower. The SWR was dead flat as designed and the Yaesu G-1000 rotor worked, progress was being made. The next day in the morning Ron said the bands are really dead, he heard nothing on 20 meters. We had fired up the 2 windows 7 desktop computers that were purchased and installed in 2014. Neither would boot up. The power supply on one of them was bad, and the other the motherboard was bad. I managed to fix the power supply on that one, but its motherboard was bad also. We are dead here.

We still had 2 old XP machines that these replaced and they would work. We need 3 machines to operate, one for each operating position and another upstairs to get to the Wi-Fi connection about 1/8 of a mile away. The shack is low to the ground and connection to the internet cannot get there from here. I normally talk to a few friends on 20 meters in the morning and had the radio sitting on the frequency we talk. I was trying to get the radio to communicate with the XP machine using WriteLog. All of a sudden the radio came to life and starting to receive. What was that ??? We used the radio yesterday and it seemed ok, this morning no receive and all of a sudden it started to work. I deduced

that the IF-232 unit from the Icom to the computer not working. I opened the Icom interface box only to find a hole in the IC. I had another in stock and replaced it, (note: this was not in a socket) but the radio and the XP box still would not talk. During this we had turned off the Icom 756 Pro. It never received again, and is back up here in Florida for repair. Then the XP machine pressed into service at the Mult rig locked up and shut down. Inspection revealed that the Micro cooling fan was not running. Steve hunted around all the old stuff, (never throw anything away) and found a fan to fix that machine.

During all of this one of the monitors was flickering so bad that Steve could not read it on the computer being used upstairs to get the internet. I took it apart and replaced a couple of capacitors and it got a lot better. I then went over and turned on the TS-950 on the other bench. It came on but no frequency display. Moving it away from the wall to open it up here is what we found.



The white cable is a connector to the logic unit for the 10 position antenna switch; this logic unit was not connected to anything except another cable just like it over to the other operating position. The gray cable with the silver connector goes down to the filter box with 6 – ¼ wave stubs in it. The black cable going out to the left goes to the interface unit on the Kenwood to a USB input on the computer. Here is the USB to RS-232 interface from the Kenwood.





Not very surprising that the Kenwood's micro is dead and the mother board on the computer it was plugged into was blown up also. So 2 radio's out of commission. We pulled out our other TS-950 that was still in its shipping box from 2014. We never took it out the box last year as we used the Icom instead of it. We also pressed the old TS-930 into service. No computer control on it so we would have to remember at least to change bands manually in the computer. We had an original Kenwood IF232 that was stored away and connected it to the XP machine. Never got it working reliable, the computer would either talk to the radio or the radio to the computer, and sometimes it worked both ways, never did figure that out. While sorting that stuff out the old Cushcraft A3 was installed. Back in 2013 this antenna did not work, Mike and I spent a whole day taking apart all the traps and cleaning and refurbishing them. It worked fine until during the contest the SWR went sky high and failed again. Of course it did not work now either. Mike and I started pulling apart the traps again, inspecting and cleaning as necessary. After pulling 3 of the 4 traps on the driven element apart and finding nothing that even was dirty or making a bad contact we almost stopped. When pulling apart the final 15 meter trap we found this.



The insulators were burned up and it was black from the arcs. We blew the antenna up during the contest. Might be too much power, or might have been moisture inside of it. We don't know but it might explain why one of the AL-1200's band switches was burned up and had to be replaced in 2014. We repaired the trap, installed new insulators and the antenna works again.

On Thursday before the contest Ron was working someone and I noticed the SWR was high on the A4 up on the main tower. A further check we found another place in the original coax that had been blown apart. Steve put some connectors on another run and replaced that. Then on Friday morning while on the air I pushed the monitor button on the TS-950 to see what the audio sounded like and the radio went dead. Opening it, I found the 7.5 amp blade fuse blown. It took 3 of us 2 hours to find the fuses that I was sure were there somewhere. Replaced the fuse, pushed the monitor button and it immediately blew again. Three hours later traced the problem to a connector miss installed on one of the boards. When I installed the roofing filter back in the summer of 2014 I must of mixed up 2 connectors. Well at least I figured it out.

Well here is what we finally ended up with.

Blown up: 2 desktop computers. Icom 756 pro. Icom interface. Kenwood TS-950. Kenwood to USB adapter. A router that was still connected to the computers. SteppIR antenna. SteppIR power supply.



One monitor quit about 2 hours into the contest. A few PL-259 connectors, and about 200 feet of coax.

What we ended up working with.

TS-950 with intermittent interface and an XP machine. TS-930 no interface and Ron's XP laptop.

Both AL-1200s worked without a problem. The antennas, A-4 on the big tower, A-3 on the short tower, 80 meter delta loop, 160 meter inverted L, 40 meter vertical and low 10 meter 4 element. All the antennas had very, very low SWR and performed ok. Normally we have at least 2 antennas on every band. We just did not have enough time and energy to put up more. We did have 2 beverage antennas up, each about 600 feet long, one North west the other East.



I felt some of my runs were not as fast as possible and Steve said low band operation was a real chore. Both of us blamed it on using the TS-930 not having the TS-950 with roofing filters and 1.8 bandwidth filters and DSP. After the contest I verified that the Digital unit was the flaw in the other TS-950 and brought that board home for repair. We also brought the Icom back for repair. Next year we will need new computers and 2 more monitors if not 3. Not sure if we are going to replace the mother boards or spend more money on a couple of laptops. Also we will need to return the Icom after it is fixed and repair the TS-950 that is still down there.

Our claimed score was 11,473,587 for 2015 compared to 12,960,792 in 2014. Down a little, but we feel it was a pretty good effort considering.

Lesson learned..... UNPLUG everything from everything, leave no cables attached to anything.

And how much fun was that ? 73 Jim NU4Y