

By Robert AK3Q

As a kid I tried to learn about electronics the old fashioned way - tear something apart and try to put it back together. Unfortunately I did not have someone overseeing my explorations, and so very little was actually learned! If amateur and shortwave radio itself is an attempt to recapture something I really enjoyed when I was young, tinkering with electronics is even more so a fulfillment of something I sought as a child.

Learning about how things work and then building, repairing, tweaking are all a part of our amateur radio heritage. I think we miss out if we do not add at least a bit of this experience to our hobby. If I am not mistaken to be licensed as an Intermediate in England one still needs to show a bit of proficiency with a soldering iron and some electrical components. All in all I am not sure this is such a burden! I would rather do that than have to pass 13 wpm code! <grin>

Electronics, as it applies to the radio hobby, is almost as magical as the signals these radios receive. Antennas grab signals as they course through the air, and a radio figures out what to do with them. Have you ever thought about how amazing it is we can distinguish one signal from another? Oh I know we all think about tuning and filtering and selectivity, but I find it amazing we can tune a radio at all. Maybe I am still the child in my way of thinking, but at times I still find myself filled with wonder.

When one considers all of the signals bouncing around -- and I mean literally thousands of signals at any one time -- it is an absolute wonder we can hear anything at all. The harmonic combinations alone must be staggering, not to mention reflections and just the general *noise* of all those electrons vying for attention. And yet someone figured out things like oscillators, mixing stages, intermediate frequencies and superheterodynes. Amazing! And we take all of this for granted most of the time as we push a button or turn a dial -- it all seems so easy.

Learning how things work does not remove the magic for me, in fact it only increases my appreciation for the part we play and the part played by this incredible Creation in which we operate according to the laws of physics. That we live in an ordered world of predictable results makes all of our radio explorations and inventions possible.

Whether one dabbles with modern circuits, programming processors, or designing amplifiers, there is a lot which can be learned and applied to real-

world amateur radio. If you are like me and have a fondness for the older radios and the larger components, learning about boat anchors is a great way to delve into the electronic side of things. I confess to being a bit envious of MacGyver or others who are able to fashion a working radio out of some spare parts. Even if the theory is there in the ol' brain, the doing is not. I want to change that.

Recently I have acquired some equipment, both old and new, for testing parts and circuits, as well as gathering some of the multitude of little tools and accessories one needs to disassemble and reassemble equipment. I have also built an old fashioned, yet highly effective current limiting device for protecting circuits under test from overload.

The idea here is to provide protection when powering up old equipment in the event a component fails, suddenly drawing large amounts of current, such as in a short circuit. When this current limiter is functioning normally, the power is passed right through to the device under test. When the device suddenly draws a high load the 250W bulb begins to glow depending on the level of current draw. Even if the draw is extremely high, only the bulb will glow and very little current will be passed on to the device, thus protecting the other circuits, tubes, etc.

The bulb is wired so that only the hot wire is connected to the bulb creating a circuit path. The higher the current draw, the brighter the bulb, and thus an easy way to tell if something has gone wrong without damaging the radio. I still plan to use a Variactor to apply power slowly when initially testing so as not to overwhelm the old radio or piece of ancient test equipment.

Of course there is nothing fancy or difficult about building this current limiter, it did serve however as a taste of things to come, and it is exciting. I have built things in the past, small circuits, a meter, even a regenerative radio—but in some ways I was still just putting components on a board designed by someone with step by step instructions. Don't get me wrong, I am proud of my meter and radio, they both worked right from the start. But I really, really want to bring an old radio back to life, and to begin the process of understanding these marvels.

I am beginning at the beginning, so to speak, but I am looking forward to the journey. Who cares that I am in my fifties, or that I am playing an unwinnable game of catch-up with Father Time. I will touch a piece of history and in the process learn more about from whence we amateur radio operators came. After all, when amateur radio first started, everyone, every

single ham, built their own equipment. I cannot wait to put my very own transmitter on the air!

Along the way I hope to learn a great deal about these vintage pieces of older equipment, as well as gain experience working on boat anchors, my real goal. Once again I ask, "Is this a great hobby or what?!!"

73, Robert AK3Q