CAARA NEWS

Cape Ann Amateur Radio Association
September 2017 Edition

PRESIDENT'S COLUMN

by Jon- K1TP

The Annual Member's Meeting is coming up on September 13 and it is the meeting you should really make the time to attend.

I will present a "State of the Union" address which will give you an idea of the current health of the club, in my humble opinion. It is also your time to be heard and share your thoughts on what you want CAARA to provide for you in the next calendar year.

The club is financially stable this fiscal year, due to the continued Ebay effort of selling surplus equipment.

The Club collects about $3000 total from member dues which does not come close to paying the overhead of owning (or leasing) the building. We need revenue of over $8000 to break even each year.

Where does the other $5000+ come from? Well, luckily we provide communication services for the YukanRun road races and receive a donation from them of $300 per race which amounts to $2400 dollars this year. We also receive about $600 from the Rangecast scanner company for providing space at the club for their equipment to monitor the airwaves for their service.

That gives us about $3000. That leaves us still in the red over $2000 each year, where does the money magically come from? Well, the board has done no formal fund raising for as long as I can remember.

We rely on "magic funding" as I call it. We have had members donate money to balance the budget or we have used EBay to balance our books.

Hank- W4RIG, the club treasurer, is looking for ways to balance our books if we were to lose the revenue from road races or ran out of surplus gear to eBay. Corporate sponsors would be a nice thing and members are looking into our options.

We sell club equipment that has been donated to balance our books. However we cannot "Ebay" ourselves to prosperity forever, we have sold most everything of value at the club….

Which brings me to my observation: we need a new source of funding before we start depleting our savings, currently $15,000, to balance the books. Money we keep for repeater repairs, replacing a furnace, a roof, etc.

(Cont. P4.)

INFORMATION DESK

By Dean- KB1PGH

For this months column I will focus on emergency preparedness as FEMA sponsors September as National Emergency Preparedness month,As you should know by now FEMA stands for the Federal Emergency Management Agency. FEMA states that everyone should be able to survive on their own for a full 72 hours after a disaster. So lets says you had to leave your house for 72 hours or had no electricity or water at your house while you stayed in place at your home for the same amount of time. So if you don`t have anything here`s a few places to start. You can check out www.fema.gov,www.mass.gov,and www.ready.gov .Those will help you get a start at planning your way of survival. The www.ready.gov is a great website which is loaded with emergency preparedness information. If you need emergency prep supplies you can check out,www.thereadystore.com, ,www.beprepared.com or www.redcrossstore.com .You can either build a emergency prep kit on your own or these companies also sell them already made up for you. So lets make a quick review of some of the basics that you will need in your survival kit for 72 hours. You`ll need water,non perishable food like MRE`s, flashlights and batteries,a good first aid kit,a personal hygiene kit and a way to carry it all such as a packback. You can also look up

(Cont. P3.)

CAARA Newsletter
Cape Ann Amateur Radio Association
6 Stanwood Street
Gloucester, MA 01930

CAARA Newsletter is a monthly publication of the Cape Ann Amateur Radio Association (CAARA).

Jon Cunningham- K1TP Editor
Dean Burgess- KB1PGH Ace Reporter

Welcome to CAARA:

CAARA, an ARRL affiliated club, operates the 2 meter W1GLO repeater on 145.130 MHz with antennas located on the ATT cell tower in the Blackburn Industrial Complex in Gloucester Massachusetts. It has an average effective radius of 60 miles, and serves Eastern Massachusetts, Cape Cod, Rhode Island, Southern New Hampshire, and maritime mobile stations.

CAARA also operates the W1GLO repeater on 224.900 located at the CAARA clubhouse.

The former W1RK 443.700 repeater is now on the ATT cell tower in the Blackburn Industrial Complex with greatly enhanced performance.

The Association is one of the few amateur radio clubs that has its own clubhouse. Located at 6 Stanwood Street in Gloucester, it includes a permanent HF station with beam, vertical/wire antennas along with an operating 2 meter packet station as well as 2/440 meter voice and 220 MHz Transceivers.

Amateur radio exams are held on the second Sunday of each month at 10:00 AM at the CAARA clubhouse. Anyone who is considering a new license or an upgrade, is welcome to test with us. There is no pre-registration necessary. Contact the head of our VE team Rick Maybury if you have any questions about monthly testing.

Monthly member meetings are held on the first Wednesday of each month at 7:30 PM except for July and August.

Each Sunday evening at 9:00 PM, the club operates a 2 meter net on 145.130. This is an open and informal net which disseminates club news and prepares operators for emergency communications work. All are invited to check into the net as club membership is not a requirement.

New! The club is open every Tuesday from 5-8PM for CAARA members to stop by and socialize, as well as use the extensive collection of ham radio gear.

INFORMATION DESK

By Dean- KB1PGH

online 72 HR survival gear lists as well for more ideas buy you get the point. Don`t forget things such as baby supplies and pet supplies of those fit your lifestyle. You can also pack a survival kit for your car too as you never know where you`ll be when disaster strikes. If the power goes out do you have any emergency back up power such as a generator or batteries? The prices for generators are pretty cheap now and if you get one bug enough you can install a transfer switch in your home to run your appliances. since I assume your a ham do you have back up communications such as an HT or a mobile rig in your car? Plus most of today's HT`s and mobile rigs can tune into your local public service frequencies so you can keep up with whats going on locally.

Here are a few other tips for prepping. You could store a 5 gallon jug of gas in your garage for your generator and for your car in case the power goes out and your local gas stations can`t pump gas. Don`t forget to keep spare batteries around and make sure that you have a way to recharge your phones and mobile devices if the power goes out. ou should also make a plan to check your supplies on a regular basis to make sure nothing goes bad and that everything works. One last thing,even though it`s not really a prepper tip. Make sure you change the batteries in your smoke detectors and carbon monoxide detectors at least once a year and test them to make sure they all work. Did you know too that smoke detectors need to be replaced every ten years to make sure they detect the smoke properly? Plus have a least one good sized fire extinguisher in the house just in case. So hope these tips help and we`ll see you next month!

Loop antenna portable

Radio Amateurs in Atlantic Canada Go on Standby During Telephone Outage

Atlantic Canada authorities called on Amateur Radio operators in parts of Nova Scotia on August 4, in the wake of a telephone service outage. According to CBC, Bell Aliant landline and cell services were down, starting at approximately 11:20 AM. Telus, Virgin, and Koodo users were also affected. Jeremy Fowler, VE1JHF, a member of the Halifax Amateur Radio Club, said he and other members of his group were put on standby to help the municipality cope with any communication problems.

"[A] bunch of us pulled out our gear and were on the air, ready to go, cars loaded up," he told CBC. "At that point, everything was kind of coming online, so they told us to stand down."

Vessey told CBC that the phone outage might serve as a wake-up call, and he'd like the public be better educated on how ham radio works, in the event of another phone outage or emergency situation. The outage was blamed on damage to two optical fiber lines, and even emergency responders across the region experienced some disruption in connectivity.

Ham radio operators step up in Good Times and Bad

Emergency Management reports on the key role played by the USA's 725,000 licensed amateur radio operators When wildfires, floods, tornadoes and terrorist events disrupt cellphone communication systems at the moment they are most needed, that's when a more than 100-year-old technology still holds its own.

Amateur radio operators, often called "ham radio operators" regularly volunteer their skills and expertise to coordinate responses in emergencies like the Boston Marathon bombing and when Hurricane Katrina devastated New Orleans.

There are more than 725,000 licensed amateur radio operators in the United States. Those that were providing support for the 2013 Boston Marathon became a key communication link when cellphone systems became overloaded after bombs exploded near the finish line killing three and injuring hundreds.

Here in New Mexico, radio hams play a vital role in battles against wildfires, said Ed James, section manager for the Amateur Radio Relay League, the state branch of the national association for amateur radio.

PRESIDENT'S COLUMN

by Jon- K1TP

Where do we stand?

The club building is in pretty good shape. The first and second floor have been painted. The second floor renovated by Jake and myself a few years ago.

The first and new second tower have had work done under my direction and are functioning fine. I added an end fed antenna so the club now has 75 meter available for the first time in club history.

Ross added an exterior generator power plug and converted one of our generators to run on city gas and it works great.

We have added a new refrigerator and stove as well as a new ceiling in the kitchen. A new toilet and paint in first floor bathroom.

We have had actual EmCom drill's at the club and in the field quarterly thanks to Ross and Dean….a club first.

We hold Field Day at the clubhouse and it has been successful in that it provides field day for the few members who actually want to participate.

We have a Tuesday night open house, thanks to Gardi, for those who wish to participate. A nice idea, too bad more members did not attend. We have Sunday morning coffee every week but few members show up.

We have Tech-in-Day held at the clubhouse and VE sessions each month….a good thing, thanks to Rick-WZ1B.

We have monthly meetings at the club with some great speakers but few members show up.

We have a house committee with no one willing to chair it. We have members who help out but no organized plan to maintain the building we now own. I cannot remember the last time the floors were washed or the toilets cleaned.

The past survey of the members said they liked the idea of owning our own building but few step up to the plate and do the work necessary to keep the building up and running…..

We have road races which provide painless fund raising and we are hard pressed each race to get volunteers to help us. All you have to do is sit in your car and monitor the race….it can't get much easier and you get to use your radio and give back public service to the club and community.

I am happy we have 114 members who faithfully pay their dues and support the club but we really need more support from the membership in regard to volunteering and attending club activities or what is the sense of having a clubhouse?

The reason I gave you this background information is because some members have asked the board to discuss whether we should keep the clubhouse or turn it back to the city and become a repeater group like NSRA.

I hope you now can see why it is very important that you attend the annual meeting in September, your opinion one way or the other could change the way we see CAARA in the near future.

Photo of Jake, Tony, David, and Chris on a Tuesday night at the weekly open house.

Photo taken Sunday morning at the weekly coffee hour. On the table is a vintage Lafayette 6 meter transceiver, scanner, and antenna donated by Bob- W1MVM, long time member.

A Little Trouble in the Attic

By Curtis- AA3JE

“THERE IS SOMETHING LIVING IN THE ATTIC!” said SHE WHO MUST BE OBEYED, in her usual firm tones. (actually, the only tone she has).

“Houses make noises at night, it’s the water pipes or the AC ducts contracting.”

“”THE WATER PIPES DANCE THE FOX TROT?”

There is a fine art in ignoring little problems around the house. Especially ones that send you up in the dark, with a dim flashlight, to meet and greet with Rocky Raccoon

But I went up, found nothing, and reported back. As far as I was concerned, the matter was resolved. But I had not counted on the effect of too many episodes of NCIS and exposure to the fictitious Abby Shuto, forensic girl wonder. My wife had always wanted to be a criminologist. It’s why she married me. On the job training.

So she started keeping observation. And one night, as
I was trying to fall asleep, she pounced!

“I KNOW WHAT IT IS! IT’S A BIRD!”

“How did a bird get in there? It’s got no windows”

“I SAW A BIRD FLY UP THERE TO THE SOFFIT AND DISAPPEAR. I WANT YOU TO CHECK IT OUT!”

Now I have been ignoring the dark spot on the soffit for 5 years or more. The reason is simple. It is 26 feet off the ground. Since my ladder went up to 20 feet, and I am a coward, I felt ignorance was bliss. But since I had bought the 32 foot ladder for the window project, I had no excuse. So I set it up, climbed up, and found the dark spot was a four foot strip of the fascia board that had rotted away. How to fix it, without ripping off 40 feet of gutter, was a puzzle.

So I climbed up in the attic, and after an enjoyable time rolling in fiberglass insulation dust, discovered that there was a bird nest about the size of a basketball, currently unoccupied, as the birds were in their summer quarters on Thatcher’s Island.

As the top half of the fascia board was fine, it was obvious that since the soffit board was still good, all I had to do was cut some blocks that fit into the rafter bays, chisel out the bad wood, make a piece to fit, and screw it all together. Simple, except the low pitch of the roof made it impossible to reach. It took a five foot arm to do it.

Undeterred, I found a gadget I had bought for my wife, a five foot “gripper”, and after a really vigorous cleaning with the gripper and the vacuum cleaner, I cut the blocks. A trip to ACE for a quart of “GORILLA GLUE” completed the preparations.

So I carefully anointed the block, grabbed it in the “gripper” and found that the block was too heavy for the silly thing, which was made so that Grannie could pick up her pack of cigarettes when it fell to the floor.

Undeterred, I reasoned that I could coat all six sides of the blocks, and push them into position with a stick. So I did that. It was a tight space, and I failed to control just where the glue went. So after gluing in six blocks, I laid back, putting my head into a large puddle of Gorilla Glue. That would have not been so bad, but the plastic bag holding the bird’s nest had torn, and in wiggling out, I laid my glued head in the swallow poo and straw. The effect was remarkable!

Realizing that unless I wanted to “body double” in a horror film, I had to get it out. I ran downstairs, and began to remove the stuff from my arms, hands, hair and beard.

Soap and water- no effect.
Laundry detergent- no effect
Mineral spirits- no effect
Hand cleaner- no effect.

Realizing I was running out of time, I tried acetone. This proved a mistake, as acetone rapidly accelerated the curing process. Frantic, I went to the last resort. I use a dandruff shampoo that is capable of eating a

A hole in most sinks, so I jumped in the tub and smeared that stuff on.

Much of it came off, along with the top layer of skin. The rest just looks like a bad case of psoriasis. I hope it will wear off in time. The barber can probably shorten the beard. May have to use the sheep shears. Or a chisel.

After that, it was easy. Chisel out the bad wood, make a piece to fit, bed it in with adhesive caulk. No problem.

"I got rid of the swallow's nest, dear."

"HONESTLY! I CANNOT IMAGINE WHY A SIMPLE JOB LIKE THAT TAKES YOU ALL DAY."

"Things never go as planned, dear."

"WHAT'S THAT ON YOUR ARMS?"

"Just a minor skin rash. It will clear up in a few days."

Like I said. Overlooking minor problems around the house is the best way.

NEW STATION FOR W1WMM

Bill just put together his new station, an Icom 735 and a MFJ 300 watt tuner.

Bill has antenna restrictions where he lives and is trying to come up with some scheme to get him on the air.

The **Icom IC-735** is an ultra-compact, easy to use HF radio covering 160 through 10 meters with 100 watts. Modes include SSB, CW, FM and AM. Enhancements include: dual digital VFOs, 12 memories, full QSK, RIT, speech compressor, and noise blanker. The 735 has a general coverage receiver covering 100 kHz to 30 MHz with 105dB dynamic range. The advanced, triple conversion receiver section includes pass band tuning, notch, preamp and attenuator. A translucent cover protects the slide controls that adjust: NB Level, RF Gain, RF Power, VOX Gain, VOX Delay and speed for optional keyer.

TOUGH SILVERADO TRUCK

By Jon-K1TP

I have had trucks as a second vehicle most of my life. They are built tough, right? Well they used to be!

A week ago I jumped in my shiny Chevy Silverado truck and went to the ~~dump~~, oops transfer station with a load of junk. I grabbed the handle to get out and ended up with the handle in my hand. Snapped right off. I never snapped an interior handle off in over 55 years of driving! I looked closer and noticed it was a cheap cast part, not a forged item….who the hell designed such a wimpy device.

Oh well, crap happens. I called up Sudbay GMC parts department and told them I needed an interior door handle assembly and the guy chuckled and said I was not the first guy to have the problem. He would have to order it and the cost was over $600.00 plus installation. I was informed you had to buy the entire interior panel, they did not sell the door handle assembly. I said thanks and decided to do a little research on the internet.

The first thing I found out was the 2007-2015 door handles broke off frequently, so frequently that a company designed a replacement repair kit for $40.00 shipped free.

Of course you have to take the door apart, drill out rivets, install the new unit, and if you are lucky, put the door panel back in place.

The $40 solution

Repair done!

Would it ever go back together the way it once was?

I found a Youtube video by the part manufacturer on how to get the door apart, popping off panels, disconnecting power window and door lock plugs, drilling out the plastic rivets, etc. and how to do the repair itself. I watched it 5 times and made the repair in my sleep. The next day I would make an attempt, what could go wrong?

My grandson, Jack, watched intently and told me maybe I should call Grampy for help…..boy of no faith! I completed the repair in 60 minutes and it worked, Well I did lose one 5 cent part that held the door lock knob in place and had to buy the entire knob assembly of course…$10.00

See, being a shop teacher for 35 years has some perks.

DIY End Fed Antenna PROJECT

What more could we wish for? An easy to build antenna made from inexpensive materials, covering all the HF bands! The simple end fed antenna described in this article meets these requirements.
A half wave end fed antenna exhibits a high impedance to the transmitter. This mis-match is too high for most external or internal antenna tuners to deal with. However we can use a transformer to overcome this mis-match.

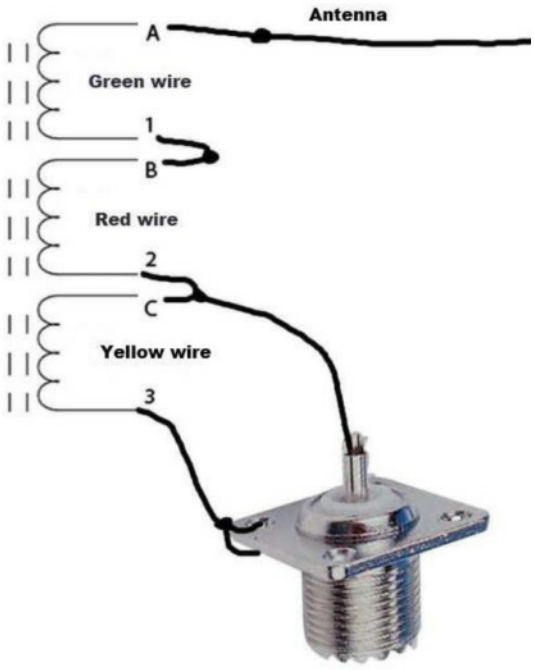
An matching transformer can drop the impedance of the antenna by a ratio of 9:1 to a value easily handled by antenna tuners. The transformer I used is a 9:1 UN-UN.

Winding the transformer:
1. A trifilar winding is used. Cut 50 cm lengths of different colored insulated wire of at least 0,75 mm2 cross section. As you can see in the photo I used red, yellow and green wire. [multi stranded wire from a discarded computer power supply should work well.] Use about 9 windings (one winding on a toroid is counted each time a conductor passes through the centre hole). Details of the toroid core are given below.

2. Cut and solder point 1 of the green (blue-green) wire to point B of the red wire.

3. Solder point 2 of the red wire to point C of the yellow wire. This point will also be connected to the centre pin of the SO239 connector.

4. Connect point 3 of the yellow wire to a solder terminal bolted on to the base of the SO239 Connector.



5. Connect point A to the antenna.

As you can see in the photo I have mounted the UN-UN in a weatherproof PVC electrical box.

I recommend an antenna comprising a conductor about 10 meters long or longer if possible. Copper wire of 1 or 1.5 mm cross section works well. I checked a number of configurations with the antenna horizontal, vertical or at an angle. I recommend trying different possibilities. I tried several and to my amazement they all worked. My TS590 transceiver matched the load from 3.5 to 30 MHz. A 5m long vertical wire attached to (loosely wrapped around) a fishing rod gave good results both from the standpoint of matching and with regard to signal strength for local andDX signals. [note: surf casting rods up to 7 m long can be purchased at low cost. These telescope into a small case and can be extended in a jiffy.]

The toroid was glued to the box to keep it from moving and compromising the connections. I used a bolt and wing nut to attach the antenna wire and a standard SO239 to connect the coax feed to the transceiver.

One important advantage is that **there is no need for radials** a convenience which greatly reduces the time and effort that go into setting up the antenna in the field. So it's great for field day and portable operation.

Notes:

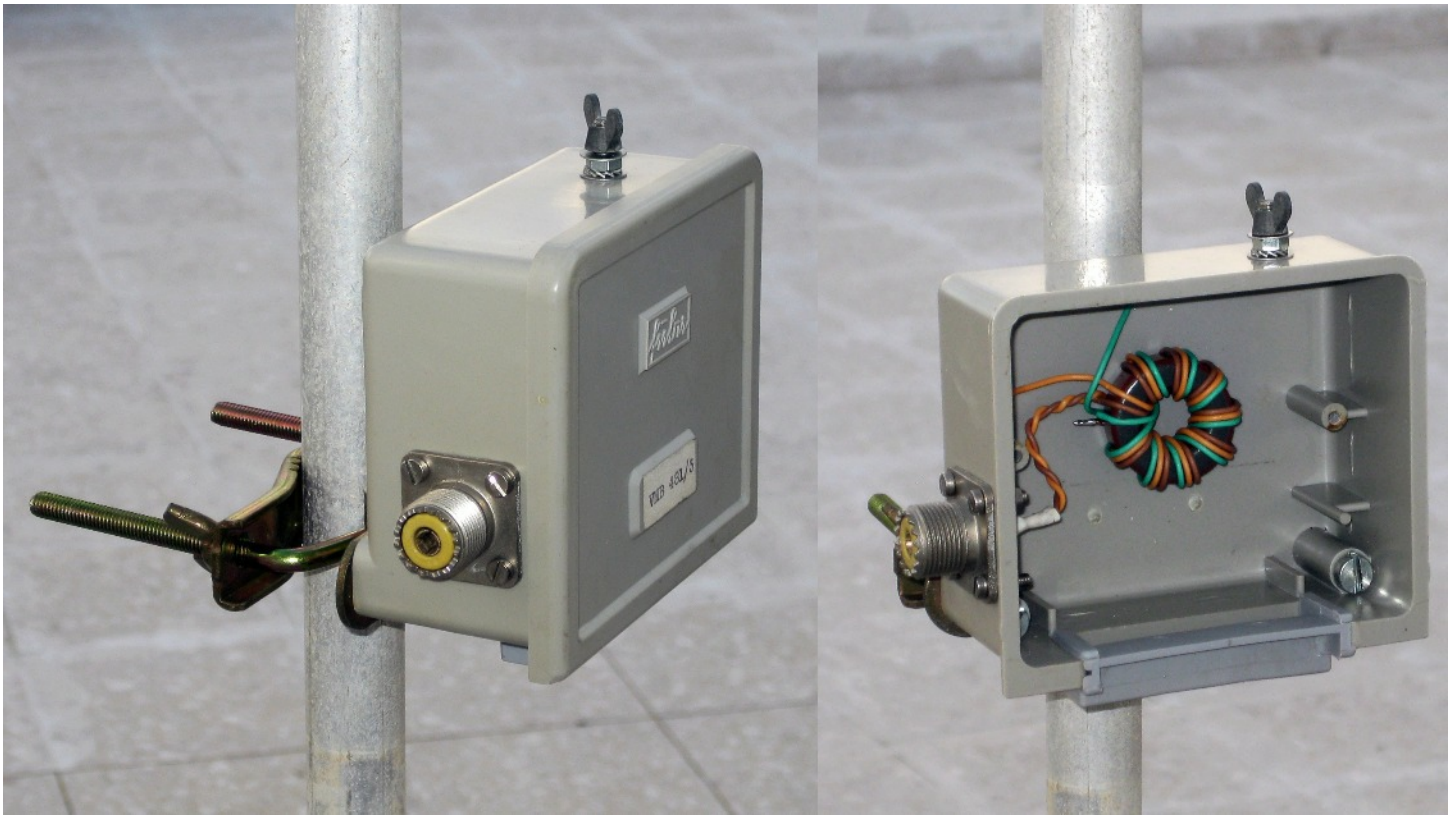
1. Signal strength was checked by a number of local hams (40m net) with uniformly good Results.

2. The project is based on an article published on the website http://www.earchi.org/

3. For RF power levels up to 200W use a T106-2 toroid

4. For RF power levels up to 1 KW use a T200-6 toroid. [translator's note, don't see why type 2 core material is not used so maybe you can experiment here]

5. [I have purchased toroid cores both from Amidon and from http://www.kitsandparts.com/toroids.php]



REMEMBER THESE?

- **Use with any receiver for Conelrad alarm**
- **Automatically turns off transmitter and gives visual signal**
- **Heavy-duty, 6-ampere relay**
- **Sensitivity control to adjust to various AVC levels**

The model CA-1 Conelrad Alarm is a simple, easy to build device that will allow you to fully comply with FCC regulations without a large dollar investment. Use it with any radio receiver (AC-DC, transformer operated, or battery powered) as long as the receiver has AVC. When the monitored broadcast station goes off the air, the Heathkit model CA-1 automatically removes AC power from your transmitter, and lights a red indicator on the front panel. A manual "reset" button reactivates the transmitter again. An external alarm device such as a bell, gong, etc. can be used in place of the transmitter if desired. The CA-1 features its own heavy-duty six-ampere relay, a thyratron tube to activate the relay, and its own built-in power supply with transformer isolation.

A neon lamp on the front panel of the conelrad alarm verifies the fact that it is in operation, by indicating the presence of B+ in the alarm circuit. Very simple to install. Your transmitter plugs into the AC receptacle on the CA-1, and a cable connects from the conelrad alarm to the receiver AVC circuit. A sensitivity control adjusts to various AVC levels. Receiver volume control can be turned up or down without affecting alarm operation. Build the Heathkit "automatic" Conelrad Alarm Kit in one evening and comply with FCC regulations now! A list of all Conelrad key stations is given in the construction manual.

SPECIFICATIONS—Tube complement: 2D21 thyratron. **AVC sensitivity:** -2 volts to -20 volts. **Operating Power:** 115 volts AC, 60 cycles, 7 watts. **Power Capability:** 115 volts AC, 60 cycles, 700 watts. **Cabinet Size:** 7-3/8" wide x 4-11/16" high x 4-1/8" deep.

Solar Eclipse QSO Party Will Facilitate Real Science

Amateur Radio will be in the service of science on Monday, August 21, as a total solar eclipse causes the shadow of the moon to traverse the US from Oregon to South Carolina in a little more than 90 minutes, obscuring the sun completely for a few minutes at any given location along the way. The sudden absence of sunlight — and especially of solar ultra-violet and x-rays — is expected to change briefly the properties of the upper atmosphere. A few hundred radio amateurs already have registered as participants in the Solar Eclipse QSO Party (SEQP), a special operating event organized by the Ham Radio Science Citizen Investigation (HamSCI), which will contribute to the study of the eclipse's impact on the ionosphere. HamSCI's Nathaniel Frissell, W2NAF, said those taking part in the SEQP do not have to be in the path of totality to contribute to the research.

"It is very important for people *outside* of eclipse totality to participate, because one of the questions we have is how large is the effect on the ionosphere," Frissell told ARRL. "So, we actually need people well outside of where totality is occurring to identify those boundaries."

Frissell, an assistant research professor at the New Jersey Institute of Technology (NJIT), said it's easy to be a citizen-scientist. Just getting on the air during the SEQP is a first step. Systems such as the Reverse Beacon Network (RBN), WSPRNet, and PSKReporter will automatically hear digital and CW transmissions and report back to their respective databases.

Despite more than 60 years of research, "open questions remain regarding eclipse-induced ionospheric impacts," Frissell explained in a paper, "HamSCI and the 2017 Total Solar Eclipse," that he'll deliver at the ARRL-TAPR Digital Communications Conference this year. He feels that radio amateurs' advanced technical skills and inherent interest in ionospheric science make them "ideal for contributing to — and participating — in large-scale ionospheric sounding experiments."

Actually, three HamSci-coordinated Amateur Radio experiments have been designed to study the 2017 solar eclipse. In addition to the SEQP are the HF Wideband Recording Experiment and the Eclipse Frequency Measurement Test (FMT). According to research cited in the paper authored by Frissell and others, rapid changes in ionospheric electron density caused by the motion of an eclipse shadow "cause Doppler shifts on HF ray paths propagating through the eclipsed region."

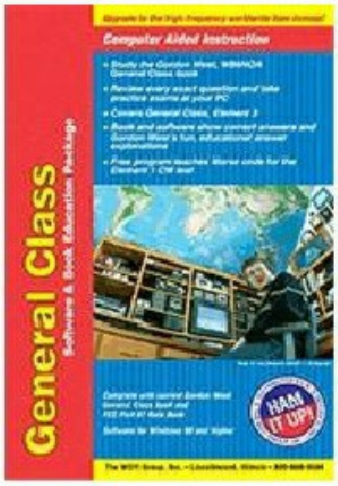
The HamSCI Wideband Recording Experiment Recording Experiment will aim to capture all Amateur Radio HF spectrum from locations across North America during the SEQP. The recordings, according to Frissell's paper, "will allow for the study of eclipse-induced propagation changes use signals generated by the SEQP, as well as examine changes in noise floor measurements throughout the time of the eclipse." The experiment was developed with input from the TAPR community.

The FMT experiment will provide information as to how much and how fast the ionosphere changes in height along a particular path. According to research cited in the paper authored by Frissell *et al*., rapid changes in ionospheric electron density caused by the motion of an eclipse shadow "cause Doppler shifts on HF ray paths propagating through the eclipsed region." "Joe Huba and Doug Drob at the Naval Research Laboratory have calculated a prediction of what the ionosphere will look like using their physics-based SAMI3 model." Frissell pointed out.

ARRL Contributing Editor Ward Silver, N0AX — a contributor to "HamSCI and the 2017 Total Solar Eclipse" — said the SEQP is simply a great way to experience the magic of radio.

"If you're a long-time HFer, you will hear the day-night cycle compressed and accelerated into a few hours, plus maybe some subtle things you've never heard before," Silver said. "If you are new to HF, you can clearly experience the bands changing, opening, closing very quickly. You can literally hear the world turning during this eclipse. All you have to do is turn on the radio and make contacts. Listening or operating, it will be a thrill that you can only get through ham radio."

It is *not* necessary to register for the SEQP in order to participate, Silver pointed out, and many more stations than those who have signed up are likely to be on the air on August 21. Multiple Amateur Radio special events also will be on the air along the path of totality on August 21.



W5YI GUS-15

Gordon West General Class Ham Radio Study Manual & Software Package

GUS-15 Description

NEW Effective July 1, 2015 With a General Class Amateur Radio license you can talk around the world on any DX-rich high frequency (HF) bands with a transmitter power level of up to 1500 watts! All possible 462 license exam questions, randomly selected, -- and their multiple choices, answers, schematic diagrams, and explanations of the correct answers are presented "on screen." No Internet connection required. Study anytime, anywhere on your laptop or home computer. Complete home study course includes the all NEW Gordon West General Class Manual (GWGM) and FCC Rule Book (PT-97). W5YI HamStudy Software scores your results and highlights areas that need further study. Print out sample tests or take exams at your PC! Compatible with any Windows System. Runs from CD - No Internet or Installation Required. For exam preparation effective July 1, 2015 - Valid until June 30, 2019

The Cape Ann Radio Association is proud to announce a course for Technician Class Amateur Radio operators looking to upgrade to the General Class Amateur Radio license. Classes will be held starting on October 21st, 2017, on Saturday mornings from 10:00 – 12:00 with an additional hour for extra help and practice exams. The course will run for 8 – 10 weeks depending on the needs of the students to be prepared for the exam.

Cost for the course will be $25 plus you will need to procure a copy of the "Gordon West General Class Study Manual & Software Package" prior to the start of the class (See Attached). We may be able to procure the study materials, provided we have non-refundable admission fees and materials costs paid up front prior to September 15th, 2017. Please check with us for current materials pricing.

This class will be open to all currently licensed Technician Class Amateur Radio operators, and has a cut-off limit of 15 students. Amateur Radio operators with higher grade licenses looking for a refresher course are invited, but Technician Class operators looking to upgrade will be considered first.
If you would like more information or are interested in attending, please contact:

William Morris, W1WMM
merc2211@yahoo.com

Jon Cunningham, K1TP
jcunham@aol.com

Gardi Winchester II, KA1BTK
gardiw2@gmail.com

A look at Dunestar bandpass filters *by KB1PGH*

For anyone who has operated at field day or has done portable HF ops with multiple stations like I have we all know that the multiple antennas can be pretty close. Even just 20 or 30 feet away. What you learn quickly with that sort of operating environment is that your HF rig will quickly overload leading to splatter all over the bands which lead to the inability to receive anything. There is a product out there that can easily solve that issue or your HF rigs front end receive overload.cIt`s called a band pass filter. This simple device goes right behind your rig in between the rig and antenna. As you can see in the photo I have 3 HF band pass filters from Dunestar. I have one each for the 40,20 and 10 meter bands.

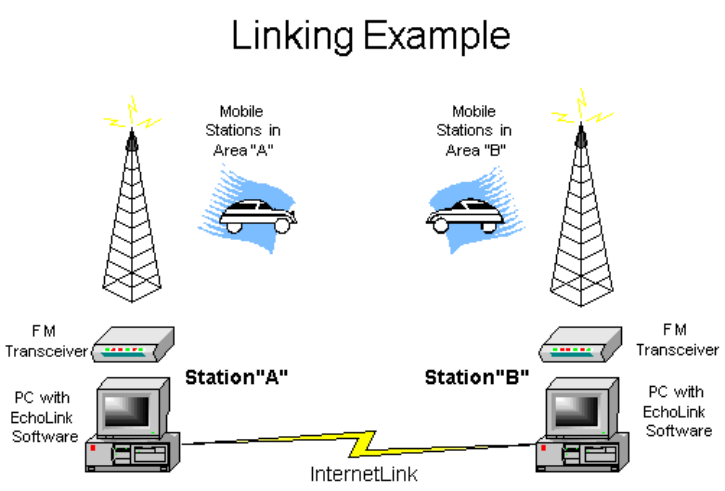
The only function that these do is that they allow you to receive and transmit on a single HF band and will reject all other HF signals on all other bands on your receiver. Think of it like a giant receive preselector. So now you can have two closes operators on two different antennas on two different bands and you will no longer have the phase noise and Intermodulation distortion. These band pass filters add another 40 db worth of adjacent band interference. The build quality on the Dunestar band pass filters is excellent with a heavy duty aluminum enclosure and they are pretty lightweight too. I have the model 300 filters that can handle up to 200 watts and they have an insertion loss rate of 0.5 db which is pretty good. There`s no power needed for these to work as well. Each band pass filter covers the entire length of each ham band. The 40 meter filter covers 7-7.30 mhz and the 20 meter one covers 14.0-14.35 mhz for example. They average 2 inch tall and wide and 6 inches long. The cost of a Dunestar band pass filter per band is $73.00 plus shipping. That`s a small price to pay so your rigs front end doesn`t get blown out and for the ability to have multiple operators in close proximity. You can find out more at www.dunestar.com ;

The Truth About Echolink…a view.

Over the years, there have been many debates regarding the legalities of Echolink. I intend to provide a fresh look, one which has never been considered, and to possibly show that Echolink may not be legal after all. However, this is not a debate of it's "usefulness".

Lets start with the classic discussion regarding whether or not the "Echolink System" is actually legal.

The short answer is YES. The reason for this is that Part 97 does not govern the Internet or cell phones. So if we interconnect radio equipment with other technologies, such as the Internet, Part 97 can only govern the Amateur Radio aspect. This means that Part 97 is essentially "blind-folded" to any aspect outside the scope of Amateur Radio, and as long as the Echolink RF transmitter system is compliant (which is within the scope of Part 97), Then yes, the equipment that comprises the echolink apparatus, is indeed legal.



Now keep in mind, so far we have only discussed the "system" itself being legal, basically due to a "technicality". This gray area, which does allow Echolink, at least in part, is largely due to the fact that Part 97 was written long before the Internet was ever created (which is another topic all it's own). OK, now we have decided the system is legal, and this is where the discussion has always ended.

Before we get to the next part, we need to discuss basic Amateur guidelines that we are all familiar with. It goes something like this:

Part 97. Station Operation Standards §97.101 General standards.
(a) In all respects not specifically covered by FCC Rules each amateur station must be operated in accordance with good engineering and good amateur practice.
I hope that we can all agree that, "good amateur practice", probably includes all the basic fundamental aspects of radio, including:

- Station ID every 10 minutes.
- No Profanity.
- No spurious or out-of-band operations.
- General station control, such as frequency, bandwidth, deviation, and transmit power.

Now to the final question about Echolink, which has never been asked:

How is it possible for a licensed Amateur Radio Operator, to log into echolink via their phone/Internet, and still exercise "good amateur practice", when they have no real tangible access to any actual radio gear, so that they may directly control frequency, bandwidth, deviation, and transmit power?

Remember, every licensed operator, even separate operators, which operate in a "daisy-chained" fashion, are still required to independently employ "good amateur practice". The fact that the "echolink transmitter" is compliant and legal, does not apply to any other independently licensed station. Also, the fact that most cheap modern equipment does not offer a lot of "bells and whistles" for operator control is irrelevant. We are allowed the freedom to choose our radio gear, or even build it from scratch. Either way the equipment and operator must be jointly compliant. In the case of a licensed amateur logged into echolink while using their phone, although Part 97 does not govern the cell phone itself, the "actions" of the licensed amateur still are.

Consider this: Can you safely operate a car while blindfolded? -- Even if you have a drivers license? Of course not!

So although the Echolink "System" is legal, the Echolink "users" are essentially blind-folded, and therefore non-compliant with Part 97 "good amateur practice", since they could not possibly exercise any fundamental control beyond station ID, and clearly the fundamental structure of good amateur practice which applies independently to every station in the chain, goes well beyond a simple station ID. Right?
73 DE N5DBX

Cosmonauts Manually Deploy Three Nano-satellites with Amateur Radio Payloads

International Space Station (ISS) Expedition 52 Commander Fyodor Yurchikhin, RN3FI, and Flight Engineer Sergey Ryazanskiy manually deployed five nanosatellites during a spacewalk on August 17. Three of the satellites carry Amateur Radio payloads. *Tanyusha-SWSU 1* and *2* (also known as also known as *Radioskaf 6* and *7* — RS6S and RS7S) will transmit either 9.6 kB FSK or FM voice announcements on 437.050 MHz, while *Tomsk-TPU-120* (RS4S) will transmit FM voice announcements on 437.025. The satellites were deployed from the *Pirs* airlock module of the ISS. Both have been reported active.

Tanyusha 1 and *2* will transmit greetings in Russian, English, Spanish, and Chinese.

Tomsk-TPU-120 was developed by students at Tomsk Polytechnic University (TPU) to test new space materials technology. It is the first-ever space vehicle with a 3D-printed structure. It was launched to the ISS in March as part of a cargo shipment.

According to Alexey Yakovlev, who heads TPU's Institute of High Technologies, the 3D printed satellite is something of a landmark for additive manufacturing, being the first example of a fully 3D printed satellite.

"*Tomsk-TPU-120* is the first such project in the world, in which the entire casing of a satellite is fully 3D printed using dynamic modeling," Yakovlev told *Sputnik News*. "The combination of these technologies can significantly reduce the development time and the number of full-scale tests, find new engineering solutions, and reduce the project's cost."

Tomsk Polytechnic University celebrated its 120th anniversary in May, and, as part of the celebration, *Tomsk-TPU-120* was activated while still aboard the ISS, transmitting greetings recorded by TPU students in 10 languages — Russian, English, German, French, Chinese, Arabic, Tatar, Indian, Kazakh, and Portuguese.

Get with the SET: ARRL Simulated Emergency Test (SET) Fall Classic Just Ahead *submitted by Bill- WZ1L*

The main weekend for the 2017 ARRL Simulated Emergency Test (SET) is just a bit more than a month away -- Saturday and Sunday, October 7 and 8. The primary League-sponsored national emergency exercise is designed to assess the skills and preparedness of ARES and other organizations involved with emergency/disaster response.

"Every local ARES team and/or ARRL Section will come up with their own scenarios and work with served agencies and partner organizations during the SET," ARRL Field Organization Team Supervisor Steve Ewald, WV1X, said, noting that not all SETs will take place on October 7 and 8.

"SETs can be scheduled at the local and Section levels and conducted throughout the fall season to help maximize participation," he said, "and ARRL Field Organization leaders have the option of conducting their SETs on another weekend, if October 7 and 8 are not convenient."

ARRL Field Organization Leaders -- Section Managers, Section Emergency Coordinators, Section Traffic Managers, District Emergency Coordinators, Emergency Coordinators, and all of their Assistants and Net Managers -- are among those tasked with developing plans and scenarios for this year's SET, Ewald explained.

"The SET invites all radio amateurs to become aware of emergency preparedness and available training," Ewald said. "ARES, Radio Amateur Civil Emergency Service (RACES), National Traffic System™, SKYWARN, Community Emergency Response Team (CERT), Salvation Army Team Emergency Radio Network (SATERN) and other allied groups and public service-oriented radio amateurs are encouraged to participate."

The object of the annual nationwide exercise is to test training and skills and to try out new methods. "It's a time to work with partner organizations and served agencies to get to know them better and to determine their needs *before* an emergency or disaster strikes," Ewald said. "Knowing whom to contact within partner groups with the planned procedures will help everyone to accomplish their goals and succeed in their missions."

Over the decades, ARRL has established strong working relationships with such organizations and agencies as the Federal Emergency Management Agency (FEMA), the American Red Cross, The Salvation Army, the National Weather Service, the National Communications System, the Association of Public-Safety Communications Officials- International (APCO-International), Citizen Corps, National Voluntary Organizations Active in Disaster (NVOAD), REACT International, the Society of Broadcast Engineers (SBE), the US Power Squadron, and the Boy Scouts of America.

"Getting to know these organizations at the local, section, and state levels and how to work together for effective emergency and disaster response service is important," Ewald said. "The annual Simulated Emergency Test provides the chance, and you and the radio amateurs of your community help make it happen."

To get involved, contact your local ARRL Emergency Coordinator or Net Manager. See the **ARRL Sections** web pages or your ARRL Section Manager (see page 16 of *QST* for contact information).

Vietnam Veteran Memorial special event

Look for special event station, **W0W**, to be active between November 10-12th.
Activity is to commemorate the 50th anniversary of America's First Vietnam Veteran Memorial which was erected December, 1967, in Wentzville, MO.
Primary operators are Wade Grimes, K0MHP and Larry Scantlan, KE0KZ. The station will operate as many bands/modes as they have volunteers available to man them. A four color certificate and QSL card will be available to confirm the contact.
Information regarding the station, the history behind the memorial and certificate/QSL card fees will be available on QRZ.com under W0W.

Parachute Mobile - Mission 28

Parachute Mobile is a unique combination of skydiving and ham radio.
We conduct about 4 missions a year where skydivers make as many contacts as they can through out Central California.
Our next mission is August 26, 2017.

For this mission we have added an HF 20 meter jump and are curious to see how well we do starting from 12,000 feet above Tracy, California.

You can watch us live as we will stream all the action from the ground and from the air. APRS tracking as well.
Get the details at parachutemobile.org

PROJECTS THAT NEED TO BE DONE AROUND THE CLUBHOUSE…..OOPS, THAT DARN VOLUNTEERING REQUEST AGAIN.

We have tons of new parts like resistors and caps that need to be sorted and put in cabinets.

We have radios that need to be plugged in and tested.

We have a bathroom floor on the first floor that needs a second coat of latex paint.

We have a basement that needs to be sorted out and organized.

It would be nice if the kitchen floor got washed and the counters washed down with a disinfectant once in a while.

Grass needs to be trimmed around the building.

The end fed long wire is drooping and needs repair before it no longer works.

We need the hf radios operated on the second floor once in a while before they die of loneliness.

We need people to stop by and visit the club Tuesday evenings and Sunday mornings.

We need articles submitted to the monthly newsletter.

Yukanrun Races done by CAARA

~~Fool's Dual- half marathon and 5k~~	~~Gloucester~~	~~April 2, 2017~~	~~8am~~
~~Fast Half- half marathon~~	~~Hamilton-Wenham~~	~~May 13, 2017~~	~~8am~~
~~Twin Lobster- half marathon and 1 mile~~	~~Gloucester~~	~~June 4, 2017~~	~~8am~~
~~Parker River- half marathon~~	~~Byfield~~	~~July 9, 2017~~	~~8am~~
~~Triple Threat- 1 mile, 5k, half marathon~~	~~Rockport~~	~~August 6, 2017~~	~~8am~~
Half Marathon by the sea- half marathon	Manchester	September 24, 2017	8am
Ocean View- half marathon and 5k	Ipswich	November 5, 2017	8am
Happy Holidays- 2.62 and half marathon	Gloucester	December 3, 2017 8	8am

NOTES: These races are covered by having a person at start/finish line acting as net control, one ham each in the lead and tail car, and a ham operating in the roving incident command car with Phil, the race organizer. A total of four ham volunteers can meet the minimum requirement for Yukanrun. Any additional help we can get will be placed strategically around the race course.

ADDITIONAL RACES CAARA has committed to do:

~~"Gabriel Ricker" Backshore- 5 mile~~	~~Gloucester~~	~~May 18, 2017~~	~~6pm~~
~~Rockport Motif Day- 5k~~	~~Rockport~~	~~May 20, 2017~~	~~9am~~
~~YMCA Father's Day-5 & 10K~~	~~Gloucester~~	~~June 18, 2017~~	~~9am~~
~~YMCA St. Peter's Fiesta- 5K~~	~~Gloucester~~	~~June 22, 2017~~	~~630pm~~

NOTES: Staffing needed at start finish as net control, lead and tail car, and a rover- 4 total minimum. Additional staff can be places at strategic locations

RACES BY OTHER CLUBS WE MAY BE ASKED TO VOLUNTEER FOR:

~~ADA TOUR DE CURE- BIKE EVENT~~	~~Topsfield~~	~~May 21, 2017~~	~~7am~~
~~Fishtown Horribles Parade~~	~~Gloucester~~	~~July 3, 2017~~	~~5pm~~

Just a few races left, how about volunteering!

AL80 Ameritron HF Amplifier History- W8JI

Ameritron initially started in Twinsburg, Ohio around 1980. The staff included former Dentron employees. Ameritron was formed through a working relationship between John Moran (sk W8IOB) and Denny Had (ex-K8KXK).

John Moran, W8IOB, was formerly at the famous Bud Radio (during and after WWII era). John owned Prime Instruments, he started Actron. Prime and Actron designed and manufactured meters, gauges, timing lights, and other aftermarket automotive electronics and test equipment. John Moran was one of the most straight forward and honest businessmen I ever met in my life. His word was as good as gold, and he never believed in misleading people. John never deviated from complete honesty and integrity. John enjoyed Ameritron as a hobby, and enjoyed doing drawings.

Ameritron was initially formed by some former Dentron staff, a while after Dentron went belly-up. Ameritron was not Dentron, but had some of the same staff. Prime, owned by John Moran, purchased parts, tooling, and other things necessary to help start Ameritron. Prime built the initial amplifiers and sent them to Twinsburg for final testing and approval, and shipping.

I, W8JI, came into the picture as a consultant at Twinsburg. Denny was a great guy and we got along well, you couldn't ask for a nicer person. We did disagree on engineering focus (I thought it was an almost complete lack of engineering), and would pick at each other. In my opinion Denny had a heart of gold, had great love for being in the business, but unfortunately got started with a pretty poor designer helping him. Denny was a wonderful marketing person, and one of the most enthusiastic and kind-hearted people I ever met. Unfortunately, Denny was surrounded by people who had no idea how to build anything.

The Ameritron AL-80 started as a copy or knock-off of the Drake L-5. The early AL80 used a blue-tint meter bezel on a two-scale panel meter, the same basic knob labels and knobs, similar front trim, and similar overall layout.
People incorrectly set the value of the AL80 similar to the AL80A. There is no way the AL80 should ever be compared to the AL80A, and the AL80A be compared to the AL80B. They are all completely different, except for using the same tube types! If you hear people describing the AL80 value or design as being similar or comparable to the AL80A value, they don't know what they are talking about. The same is true for the AL80A / SB1000 compared to the AL80B.

The AL80, AL80A, and AL80B are all entirely different designs, other than sharing the same tube.

Original AL80

The original AL80 with serial numbers below S/N 200 was actually not fit for marketing. Like other early Twinsburg equipment, it used components and wire from a surplus store in downtown Cleveland. This struck me as strange, because new parts were no more expensive than surplus parts.

The initial AL80 used what I call "rat's nest" wiring. The wiring was point-to-point using surplus Teflon wire. Rat's nest hand wiring made wiring ugly and unprofessional. The amplifier used the wrong hardware, wrong types or values of components, and the cabinet was too small. The 3-500Z tube, even without drive power, ran above Eimac seal temperature ratings. Input circuit and tank values were incorrect.

John was initially unaware of the poor design quality. When John assumed full control of Ameritron, John agreed to immediately correct AL-80 design flaws at his own expense. The initial AL-80 units had the

following problems:

1.) 100K 2-watt carbon bleeder resistors that would go down in value, crack, and eventually open. This would cause premature electrolytic failures. Carbon resistors should never be used in HV bleeder/equalizer applications, because they age down in value with long term heating. I replaced the carbons with 100k 2-watt metal oxide resistors

2.) 1/8th watt resistors across the diodes. These small resistors had a voltage rating of 300 volts, but were across 1000 volt rated diodes. They were removed.

3.) Excessive filament voltage. We re-specified the transformer.

4.) A wrong tank switch design. The original AL80 amplifier used a make-before-break (or standard CRL shorting wafer). This decreased contact spacing, greatly reducing bandswitch voltage breakdown. The switch also had unnecessary sections and unnecessary contacts, driving the switch cost up while compromising reliability. It also had poor switch contact layout, placing high voltage terminals near grounded or lower voltage switch areas. This was incredibly poor switch planning, some of the worse I ever saw. A redesigned switch was much more reliable and easier to wire, while also reducing cost and assembly time.

5.) Too little cabinet height, forcing the 3-500Z cap near the cabinet cover. The tube anode would actually arc to the cabinet top. I reduced socket height and clearance the filament pins with clearance holes.

6.) Odd custom meter shunt resistor values (0.234 ohm) from poor meter circuit planning. The original meter read plate current and grid current on the same 750 mA current scale. I changed shunts to standard resistor values of 1.5 and 0.6 ohms, and replaced the meter with a 450-ohm 1 mA tri-scale meter. This gave scales of 0-300 mA grid current and 0-750 mA plate current, placing the plate and grid current running values near mid-scale.

7.) Wrong tuned input values. The tuned input did not act like a pi-network. I corrected the values.

8.) Plate choke resonances inside Ham bands. I corrected the choke design.

9.) Wrong tank components, including inductances, causing grossly wrong tank Q's. I corrected tank components.

10.) Point-to-point wiring was replaced with harnesses using irradiated PVC wires, with standard color coding for wiring.

11.) Inadequate cooling. Many chassis ventilation holes were relocated, new holes added, and the fan changed to a proper speed fan.

12.) Weak chassis. It had an aluminum chassis, and had to be shipped with a wooden board for support.

The original early AL-80 had many design and parts selection flaws, and was almost non-producible from a production standpoint. All field units, because of grossly inadequate design and components, were rebuilt at Prime's expense. Rebuilt units were given new serial numbers.

The AL80A was ***NOT*** the same as the AL80 above. The AL80A was a fully-new design. The AL80A, because of improved quality, drove Ameritron sales upwards from around 5-10 units monthly up to about 50 units a

month. The original AL80 was built with a focus on size. The AL80A was built with a focus on performance and value, with no regard to size. ***The size had to be what it had to be in order to work optimally.***
The AL80A had the following production modifications or revisions:
1.) The ATI-6 tuned input board disappeared. A new slug-tuned coil system, housed in a metal chassis, was used. This system was directly switched, eliminating relays.
2.) The power transformer was up-sized.
3.) Airflow was changed by moving the fan to the center panel. This kept heat off the fan, and allowed the fan to blow cool air directly across the tube.
4.) The AL-80A used two panel meters, the right meter was exclusively dedicated to grid current (AL80 had one panel meter). The left meter was a multimeter.
5.) The AL80A used standard computer-grade capacitors
6.) Cabinet and chassis was larger, and steel
7.) Tank was redesigned with new components, including higher Q air-dux coils
8.) HV was increased
9.) Zener bias was added
10.) Fusing was improved
Very little was common between the AL80 and the AL80A. The AL80 and AL80A are, even though each use a single 3-500Z, entirely different amplifiers. The AL80A boot-strapped the early AL80 reputation up, and caused a used price increase in the AL80 (that never should have happened).
I left Ameritron to work for Heathkit sometime after the AL80A was up and running. I brokered a deal where **Heath sold the AL80A as an SB1000**

The AL80B superseded the AL80A. The AL80B was my update of the earlier Ameritron design. This revision occurred after MFJ purchased Ameritron. The AL80B has very little common with the AL80A. The AL80B started around 1990 or so. The AL80B received the following upgrades:

1.) A larger transformer with more voltage flexibility

2.) Accurate peak reading directional coupler power meter

3.) Dynamic bias

4.) More use of printed circuit boards

5.) Two cross-needle panel meters reading a total of eight different parameters.

I have owned one of these and wish I never sold it. I am looking for one right now!

They will run on 115 volts fine but the preference is to use 220 volts of course.

The final tube lasts a long time, I have never replaced a 3-500 tube in my life and used them in several other amplifiers I have owned. Durable and forgiving in tuneup and they emit a beautiful glow!

I have had an Alpha 99 that put out 1500 watts all day long and the signal difference is not that much on the receiving end with this amplifier running 1000 watts. Jon- k1tp