



# ***YARC-MITTER***

**NEXT MEETING SUNDAY FEBRUARY 10<sup>TH</sup>,**

**FEBRUARY, 2013**

## **THE OFFICIAL NEWSPAPER OF THE YONKERS AMATEUR RADIO CLUB**

**THE NOMINATING COMMITTEE MET AND  
DELIVERED THEIR SLATE FOR 2013 OF  
OFFICERS AND TRUSTEES WHICH  
FOLLOW BELOW ,THEY ARE AS FOLLOWS**

### **OFFICERS**

**President Mitch Holmes KC2PHD  
Vice President Mike Piccini KF2FK  
Secretary  
Nancy Piccini  
KC2VGG  
Treasurer Dan Calabrese  
AA2HX  
Membership  
Gil Lugo Jr.  
K2YNY**

### **Directors**

**John Costa  
WB2AUL  
Paul Maytan AC2T  
Aron Tekulsky  
WA2RTV  
Efrem Acosta W2CZ  
John Nance  
KC2EXA  
Dave Landstein  
N2EHG  
Bill Hall AB2HZ  
Gabe DiGuglielmo KB2MAR**

**WE WISH ALL OF THE NEW CANDIDATES  
GOOD LUCK IN THE NEW UPCOMING  
YEAR .**



**REMEMER WE  
ARE COMING INTO THE  
SNOW SEASON, SO BEFORE  
GOING TO A YARC MEETING  
CALL TO MAKE SURE ITS ON  
WB2AUL 914-969-6548**



**JOIN RENEW THE  
ARRL THRU THE  
YARC, THE CLUB  
GETS \$2.00 FOR  
EVERY RENEWAL AND  
\$15.00 FOR EVERY  
NEW MEMBERSHIP  
FOR DETAILS  
CONTACT WB2AUL**



**NEED HELP,  
HELP STUDY  
ING FOR UP-  
GRADE. GET  
IN TOUCH  
JOHN,  
WB2AUL, HE  
MIGHT BE  
ABLE TO  
HELP YOU**

**STUDY AND PASS YOUR EXAM. 914-969-  
6548**

## THE HAMMOBILE HAS LANDED!



### GUEST SPEAKER-----

AT THE FEBRUARY MEETING, DAVE N2EHG WILL BE GIVING A TALK ON AMPLIFIERS, HF AND THE DIFFERENT TYPE THAT ARE OUT THERE AND WHAT IS NEEDED TO SET UP ONE IN YOUR SHACK. I LEFT THE JAN. TECH NOTE IN THIS ISSUE SO PLEASE READ IT AND AT THE PRESENTATION ASK QUESTIONS.

WHEN ENTERING THE POLICE STATION FOR A MEETING OR VE TESTING ,PLEASE TELL THE DESK SERGEANT THAT YOU ARE THERE FOR A MEETING OR VE TEST SESSION AND IF HE WOULD LIKE YOU TO SIGN IN. THANK YOU



# CANCELED

NEXT VE TESTING WILL BE HELD ON FEB 3RD AT 830AM . PLEASE BRING TWO FORMS OF ID. ONE ID MUST BE A PICTURE ID. TESTING IS HELD AT THE 1ST PRECINCT ON EAST GRASSY SPRAIN ROAD IN YONKERS NY. FOR FURTHER INFO CONTACT AC2T AT 914-237-5589. IF YOU CAN HELP AS A VE ON SUNDAY, PLEASE CALL PAUL

**THE NEXT MEETING OF THE RETIRED GUYS/GALS WILL BE HELD ON FEB.20TH THURSDAY AT MONT OLYMPOS RESTAURANT IN YONKERS THE TIME IS 1200 PM NOON, YOU DO NOT HAVE TO BE RETIRED TO JOIN US EVERYONE IS WELCOME MEMBER OR NON MEMBER ALIKE IS INVITED. FURTHER INFO CONTACT WB2AUL @9 1 4-969-6548**

## ARTICLES OR PICTURE

IF YOU HAVE ANY ARTICLES OR PICTURES FOR THE YARC-MITTER PLEASE SEND THEM IN AND THEY WILL BE PRINTED. [WB2AUL@YARC.ORG](mailto:WB2AUL@YARC.ORG)

## EINSTEIN ON RADIO

"I am often asked how radio works. Well, you see, wire telegraphy is like a very long cat. You yank his tail in New York and he meows in Los Angeles. Do you understand this? Now, radio is exactly the same, except that there is no cat."  
 \_\_\_Attributed to Albert Einstein

**IF YOU WANT YOUR OWN CLUB EMAIL  
ADDRESS AND STILL RETAIN YOUR  
OTHER ADDRESSES, GET IN TOUCH WITH  
MIKE KF2FK AND HE WILL TAKE CARE OF  
IT RIGHT AWAY KF2FK@YARC.ORG**

## **ITS THAT TIME OF YEAR**

**AGAIN,** DUES IS DUE AGAIN. IF YOU GET A  
CHANCE REMEMBER THAT THE YEARLY DUES ARE  
DUE. PLEASE SEND YOUR CHECKS OR GIVE YOUR  
DUES IN AT THE CLUB MEETINGS.

**SEND TO, YONKERS AMATEUR RADIO CLUB  
PO BOX 378  
CENTUCK STATION  
YONKERS, NY 10710**

**OR**

**GILBERT LUGO JR.  
33 TYNDALE PLACE  
YONKERS, NY 10701**

**DONT BE EXPUNGED**

## **SWAP MEET**

1 ALINCO 220 MOBILE RADIO—WB2AUL  
1-HEATHKIT 2040 ANTENNA TUNNER/ROLLERINDUCTOR  
1-HEATHKIT 2060 ANTENNA TUNNER FULL LIMIT  
1-RohAN 25 TILIT OVER MOUNT NEW  
6-SECTION ROHAN 25 TOWER  
2- 220 HT 5 WATTS

**CALL WB2AUL/914-969-6548 FOR ABOVE**

**MONDAY—730PM—**

**INFORMATION**

**NET\**

**K2JJ MODERATOR—146.865—  
PL110.9**

**WEDNESDAY—800PM—**

**TECHNICAL NET\**

**WB2AUL MODERATOR---  
146.865—  
PL110.9**

**THURSDAY—800PM—JUNIOR**

**OPS**

**NET**

**KF2FK MODERATOR—  
146.865—  
PL110.9**

**SUNDAY---700PM—10 METER**

**NET—28.456MHZ—USB—  
WB2AUL  
MODERATOR**

# THE TECHNICAL CORNER

**HF AMPLIFIER INSTALLATION-----**A linear amplifier is a major improvement for an amateur radio station. Here's what it takes to hook one up to your transceiver.

**Installing an amplifier is one of the fastest ways of getting more satisfaction out of your ham radio experience. While it's true that improving the antenna is the best overall way of improving the station, antennas are a lot of work to put up and the land under them is apt to cost a lot more than any amplifier.**

**We'll show you here how to hook up any of the commercially available amplifiers, generally called linear amplifiers, to your [transceiver](#) covering all or part of the 160 through 10 meter amateur bands.**

**Get the amplifier's manual out and make sure it's input level, expressed in watts, matches that of your radio. If you don't have a manual, get one from the manufacturer, the internet, or a manual company because amplifiers are one of the easiest things to literally blow up if you're careless or don't operate correctly. You also should have the manual for the transceiver handy as we'll soon see.**

**Most high [power amps](#) require 50 to 100 watts from the transceiver and that's what most transceivers put out, but you may have something else.**

**If you have a 200 watt radio and the amp requires 50 watts drive, not a problem as long as you always reduce the output of the radio. Too much power from the radio will destroy the amplifier. However if there's a bigger difference - if you have a hundred watt output radio and the amp is designed for 5 watts of drive - you won't be able to cut the power down enough and you'll destroy all or part of the amp very quickly. There is a correct way to do this, and that's with a resistive attenuator between the radio and amplifier, but using one is very unusual these days and well beyond the scope of this discussion.**

**Also check the manual to see what kind of power supply it needs - you'll need AC or DC at the right voltage and perhaps a separate power supply.**

**There are five basic connections you'll have to make for your new amplifier, plus a few optional ones. You'll be setting up the ground connection, the power supply, the transmit-receive control, the signal connection to the radio and another to the antenna.**

**However, amplifiers aren't all the same and you will have to read the manual that was written for yours. Some amps require assembly of such major parts as tubes and transformers as those things are shipped separately. You may have to wire a power connector for 220 volts. You may have options on blower wiring, [control circuits](#), and such that are unique to your unit.**

# THE TECHNICAL CORNER

Remember the electricity used and the transmitted signal can and will kill you if it goes into you instead of the antenna. Both the electric power for the amplifier and the transmitted output are lethal. Don't make mistakes because you may not get a second chance.

The most important thing to get right in the installation is a **radio frequency** ground for the amplifier, and the whole station. If you've had 'RF in the shack' problems before - house lights getting brighter on voice peaks, squeals when you turn up a microphone gain control, instability when you touch a metal radio part, it will be far worse when you turn on the amp.

A piece of heavy wire going to a rod in the ground is useless for this. If you want it to work, you'll need several rods and connect everything in your ham shack with 2" (5cm) or larger wide copper strap, which is available from ham radio stores. Check any of the handbooks on grounding if you're not sure of your station ground - it's vital.

Next comes power. Any amplifier will work much better on 208/220/240 volts than on the US standard of 120 volts. The higher voltage is always more efficient and you'll likely see much less light dimming when you transmit and you'll have a cooler longer lasting amp.

Whether you're using an amp that's AC powered directly or DC powered with an auxiliary supply, if you're in the house you'll likely be plugging the amp into the house wiring.

Read your manual. For a thousand watt amplifier, it will draw about 10 amps from a 220 volt AC line, about 20 amps from a 120 volt line. So you'll need a dedicated electrical line and probably the services of an electrician to install it.

Once you have a line set up, don't plug anything in 'til we're done with the process.

The connection of the **RF signal** is easy. It will just take one more piece of coaxial cable. Just disconnect the cable from the antenna connector on the radio - that's the cable that goes to your antenna or antenna tuner - and plug that into the output connector of the amplifier. Make sure these connectors are snug. A pair of locking pliers can be used to turn them an extra 1/8 of a turn and no more to make sure. Then you'll need a jumper coax to go between the radio's antenna connector and the input of the amp.

When you push the microphone button on the radio, or press the key down, you need to have the amplifier come on at the same time. To do this, your transceiver and the amp have a transmit/receive jack on them, usually abbreviated T/R, to connect them. The convention is that the amplifier sources a current for its relay coil, the transceiver switches that current.

# THE TECHNICAL CORNER

Usually, this is a simple matter to hook up, just a simple jumper cable to match the supplied connectors. But, some amplifiers, and just about all the older ones, send more current through their T/R jacks than modern transceivers can handle.

The result is destroyed **transistors** and relays in the radio. You'll have to check the amplifier manual to see what current and voltage it produces for the T/R operation, and make sure that figure is less than the maximum the transceiver can handle for its T/R function.

Several radio accessory makers supply a "transceiver interface" box to solve this. It's simply another relay so the radio only sees a small amount of T/R current but the relay in the interface box switches the amplifier's higher current. You can easily make an interface, if you know how relays work.

If you're a CW (morse code) operator you'll probably want to set up the amp for break-in, also known as "QSK". This requires the radio and the amplifier to switch very quickly together, and in the correct sequence, from receive to transmit and back again so you can hear band activity between each CW character. Just study this topic in both manuals and follow instructions; they vary too much to cover here.

All modern HF amplifiers have relays in them so the amp is bypassed when not transmitting.

If you are installing an older amplifier, it may have no such relay, which means it's in line all the time. This means that you can't transmit unless the amp is turned on and in transmit mode and it means you won't hear anything much on receive no matter what. These amps were designed in the days when hams used separate transmitters and receivers.

You can use an amp without a built in bypass relay, but don't expect to receive through it. That means you'll have to provide your own transmit/receive bypass relay, use two separate radios, or separate antennas with **overload protection**.

Another hookup you might want to make is ALC. ALC stands for Automatic Load Control. The idea is that if the amp gets hit with too much driving power from the radio the amp will tell the radio to reduce the drive power.

While it's nice to have it's not absolutely needed and if your amp doesn't provide it, or if you can't hook it up to your radio or don't want to, you can still operate perfectly well as long as your levels and tuning are correct.

ALC equipped amps have an ALC connector on them. Typically the amp will produce a negative-going voltage up to about 20 volts. The transceiver will sense the voltage and as the voltage becomes more negative, the transceiver's output drops.



# THE TECHNICAL CORNER

ALC is useful because amplifiers have too much drive they will produce distortion, and that won't make your signal any louder, but will make it sound worse and cause interference.

Now not all amps produce a negative going ALC, and not all radios have the ability to handle that, so again, you'll have to use the manuals for each. It is possible to convert a positive going ALC to a negative one, and vice versa, but that's beyond the scope of this article.

Amplifiers tend to be large and heavy, so you'll have to find a strong bench or other stand for them. They also tend to have noisy blowers that can be easily heard on the air through a microphone. Or give you a headache if they're too close to your ears. Find a spot where the noise won't be quite so close.

Amplifiers also put out a lot of heat, so the vents on the box should not be blocked.

To check out the amplifier, make sure you follow the instructions exactly. First tune up your radio and antenna so they're working perfectly with the amp powered off.

As you go through the procedure in the manual, if you hear any arcing and sparking noises, or see smoke, stop. You can cause a lot of destruction with things that aren't working right - some antennas and antenna tuners, even though rated for "full legal limit" can be destroyed with a few hundred watts. Manufacturers design things with certain assumptions as to impedances and voltage levels and if you've been getting away with things out of spec, a poor ground, or a myriad of other things the high power levels can cause a sudden catastrophic failure.

So if you're following the tune up instructions and it's not working as the manual says, stop. If the instructions say to adjust a control for maximum output, for instance, and the control has no effect, something's wrong. Stop, analyze what it is and fix it before continuing. If you can't talk to the manufacturer, search the net, ask a friend or whatever but you don't want to destroy your station.

Many amps will have "load fault" lights that come on when the design parameters have been exceeded with too much drive or a mistuned antenna. Check the manual for how to reset it.

The best, and usually the only practical way to monitor the correct operation of a transmitter or amp, is with an [oscilloscope](#). It's been said that operating without one is like driving in the dark without headlights. A \$5 scope from a flea market will work as well for this as a fancy modern one, check the net or any of the amateur radio handbooks into how to set them up. If you run the amp with too much power from the transceiver, you won't be any louder but you will be illegal and you will hurt other spectrum users.

Once you get past the checkout, you're ready to see what it's like to hit people with a nice big signal, have fun and 73

# **THE TECHNICAL CORNER**



This test will keep that dreaded disease that effects your memory at bay!

New Senior's Exam, you only need 4 correct out of 7 questions to pass.

1) How long did the Hundred Years' War last?

2) Which country makes Panama hats?

3) From which animal do we get cat gut?

4) In which month do Russians celebrate the October Revolution?

5) What is a camel's hair brush made of?

6) The Canary Islands in the Pacific are named after what animal?

7) What was King George VI's first name?

## **A N S W E R S B E L O W ----**

Remember, you need only 4 correct answers to pass.

Check your answers below ....

### **ANSWERS TO THE QUIZ**

1) How long did the Hundred Years War last? **116 years**

2) Which country makes Panama hats? **Ecuador**

3) From which animal do we get cat gut? **Sheep and Horses**

4) In which month do Russians celebrate the October Revolution? **November**

5) What is a camel's hair brush made of? **Squirrel fur**

6) The Canary Islands in the Pacific are named after what animal? **Dogs**

7) What was King George VI's first name? **Albert**