The Link

Newsletter of the Durham FM Association
November 2026

Next Meeting:

Tuesday, November , 6pm
At Bullock's BBQ.

Program: Behind the Scenes: The New DFMA Website

We're cracking open the matrix with Bill WW1H! Bill has been working hard on the new DFMA website and we wanted to share with you all the new nooks and crannies! Including a directory only club members can see. Come join us as we surf the web!

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President's Korner



I hope everyone survived Halloween and only had good tricks and treats!

November brings us earlier sunsets as the clocks turn back an hour. November also brings Veterans Day, Black Friday and what else? Thanksgiving! Of course! The ultimate "Have another meal"!

Don't forget to get your winter preps finished up and check in on the nets.

Hope to see everyone at the meeting!

Bob Cook, W4FK
President of DFMA

December 2026 VEC Session

The next VEC session will be held at **Efland Bahá'í Center** on **December 17th** at **10 AM**. Know someone who wants to try out for Technician, or do you want to upgrade to a higher license? Then come on out!

Interesting Items

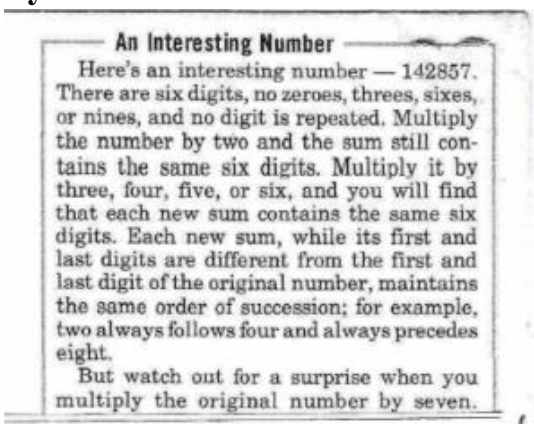
Jamboree on the Air 2026

The JOTA event on October 17th went really well. We had several hams help us out, allowing for an HF station, UHF/VHF/DMR station, example keyers, and even a video voiced by Walter Kronkite. John KM4MDR ran the HF station, and while bands were not that great, was able to help scouts contact our own Wilson W4BOH as well as Lauro IK4GRO all the way in Italy. Scouts were also able to hear stations contesting, as well as stations in Puerto Rico, Costa Rico, Iraq, and Malta. Several scouts and parents had great questions, and we hope to help out next year.

Special Worked-All-States Award for America's 250th Anniversary

The ARRL is celebrating America's 250th anniversary by hosting a special yearlong event for the Worked-All-States award. Throughout the year, each of the 50 states will have W1AW/portable stations activate for this event. . All QSOs must be uploaded to Logbook of the World. More info can be found here: https://www.arrl.org/america250-was

An Interesting Number – 142857, shared by Charlie NC4CD



An Interesting Number

Here's an interesting number — 142857. There are six digits, no zeroes, threes, sixes, or nines, and no digit is repeated. Multiply the number by two and the sum still contains the same six digits. Multiply it by three, four, five, or six, and you will find that each new sum contains the same six digits. Each new sum, while its first and last digits are different from the first and last digit of the original number, maintains the same order of succession; for example, two always follows four and always precedes eight.

But watch out for a surprise when you multiply the original number by seven.

EMCOM CORNER

WINTER FIELD DAY 2027

Part of emergency communications is being able to operate away from home, on battery power, having and installing, an expedient antenna. So, I have reserved the large shelter (near the outhouse) at Little River Regional Park, off Guess Road in Durham, NC, on 23 January 2027 for Winter Field day. The park opens at 08:00 and closes at 17:00. There is a grill there so we can have a hot meal. I am thinking maybe Bubba Burgers and Peach Cobbler, but all suggestions are welcome. There are lots of trees and an open field to accommodate any type of antenna you wish to use. There are many tables under the shelter, but there are also many other shelters and areas where you can set your radio up, if you want to get away from the crowd.

I do not plan to keep track of points and sending them to the ARRL. I just like testing my equipment in the field and having fun, but if anyone else wants to keep track of the total number of contacts and submit them, they are welcome. I am not sure of the rules, but I guess if you make 10 contacts you can call it a POTA activation. Even if you can't stay all day, come on out and just visit for awhile.

So, everyone mark 23 January 2027, on your calendar for Winter Field Day at Little River Regional Park.

73'3
Dave Warwick K4DJW
DFMA Secretary

Bits of Humor

This section is called **Bits of Humor**, so what exactly is the baud rate of laughter?

In memory of Patrick Stewart:

Q: What does Captain Picard say when his amateur radio signal gets stepped on by a local contester on 20 meters?

A: ***"The line must be drawn here! This far, no further!"***

Newbie & Elmer #13 by Matthew KQ4ZYW

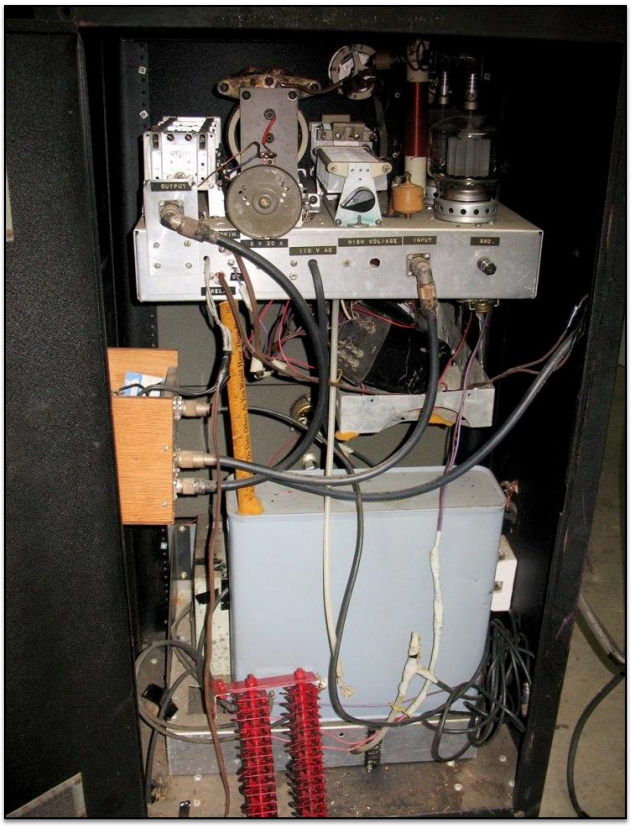


From the Land of Magic: My New Amplifier

By Wilson Lamb W4BOH

It's been awhile, dear reader, but here is another reprint of Wilson's article *From the Land of Magic*, with this one coming from the August 2017 edition of the Link. Who's ready to get some amperage?! Please enjoy the next installment in Wilson's The Land of Magic:

Why do I keep wearing myself out on amplifiers? It's probably inertia from when I was starting out and wanted more power than my 25W novice rig provided. They seem simple and I should definitely move on to smaller things that teach me more and are easier to pick up. They sing a Siren's song, however, and have many subtle aspects not discussed in your average QST article. Or maybe I'm just lazy! I don't actually use them all that much, so the payoff is limited to the pleasure of conquering the unexpected.



Picture 1 — Here's what came in.

Anyhow, I was lured into the most recent amplifier adventure when someone to whom I was selling some old transmitters said, casually, "I have an old amplifier with some big tubes in it, perhaps we could make it part of the deal. It looks messy, but you may want some of the components." Well, who could resist an opportunity like that? We agreed on a value for the amp and sealed the deal, by email, of course. Neither of us had seen the other's stuff. Then it took about six months for my buyer to work out a way to get up here from out east somewhere, maybe Wendell or some such far away city.

WOW, did I get a shock. He said the amp (came with a power supply) was "heavy". I'm used to heavy, because of all the LOM stuff you've read about, but this thing was unusual. Instead of one big power transformer, it had TWO. More on that later. Furthermore, it showed some really sloppy construction, with wires going all sorts of ways and some of its transformers lying loose in an inverted chassis under the RF deck. But it was not all bad. There were indeed lots of perfectly fine components, nicely assembled. It's my theory that someone built a nice amp, some decades ago (Decades because the hard rubber caster wheels had gone severely flat, on the bottom, and the rack did not roll well at all!), and that some much less skilled person hacked it up with later "improvements". We'll look at some of the bad and some of the good, and then summarize my efforts to get the good to outweigh the bad, after an inordinate amount of work. Playing forensic investigator is half the fun. What was it? Was it well built? What was done later and why? Does it resemble anything found in books or magazines?

Can you see the two nice filament transformers lying loose in the little tray under the RF deck? They are of high quality, potted and sealed against moisture, and even have several taps on their primaries to adjust their output as required by the input line voltage and tube filament current. Later we'll hear why they are loose, but for now just observe that their primaries are fed with very small hookup wire and their outputs connected to the tubes above with scraps of Romex house wire. There's nothing wrong with Romex, just that it's poorly soldered and not long enough to let the transformers rest in a reasonable position. The red thingy? That's the high voltage rectifier, stacks of diodes on little heat sinks, from when reverse Voltage ratings aren't what they are now. And did you catch the

classy piece of ruler holding up the back of the RF deck? It has the Golden Rule printed on it, but since the top two inches are missing the Golden Rule is truncated. Hopefully we all remember it and even try to follow it. And the BIG grey thing? That's the root of a lot of evils and a significant weight contributor. Someone, likely the second or third owner, obtained that monster CAPACITOR somewhere and decided it would be a nice addition to the amplifier rack. Nice, yes, but it's a 5000V capacitor and the voltage involved is about 2500, so it's overkill, to say the least. I say the guy "obtained" it, meaning scrounged, since it cost a couple hundred bucks, maybe more! Which brings us back to the filament transformers. They are up in the little tray because they had to be taken off the power supply chassis to make room for the big capacitor!



Picture 2 — Antenna relay mounted in a wooden box.

In Picture 2 you can also see the fine antenna relay mounted in the little wooden box. Nothing really amiss there, but the wood is unusual in this kind of equipment. And don't overlook the old AM broadcast radio capacitor with the big pulley on the front. It's an add-on loading capacitor in the pi network output circuit. The RF voltage is low at a 50 Ohm output, but it's unusual to have controls on the back side of a 2500V device. To the right is the auxiliary plate tuning cap, also installed to take the amp to lower frequencies than originally intended. It's even closer to the high voltage points!

Behind the big capacitor are the power supply components. Pretty boring stuff, but potentially exciting. A major contributor to the weight of the rack was the TWO MASSIVE power transformers. They deserve a little attention. Why two? Because he had them, I expect, and maybe because they are only rated at about 1000 Watts and he wanted to run more. The interesting thing about them is their weight, at least 40 lb., and their LOW power rating. They are quintessential government jobs, weighing, and costing, several times what was necessary. The cases are OIL FILLED, so maybe there was some special requirement for high altitude operation or such. More on them later, when we get to the rejuvenation part of the story.

I could go on, but you get the idea and Skip is going to cut me off if I don't get going. In my usual adolescent way, I told Dee Anne that I'd do the minimum necessary and try the monster out in "a day or two". Lied again. There was no need to hurry, but I had a major objective of testing the two big tubes that came along in the deal. They rode here in the amp, which was horizontal in the back of an SUV and didn't get broken by any of the loose components, so I considered them special. Yes, I could have tested them in another amp in ten minutes…Well, counting the actual work and some wasted time misusing some test equipment, the constructive part of this project took at least 30 hours!

I'll summarize a lot and explain some in detail. The RF deck had been well made, originally, so all I had to do there was clean up sloppy wiring, like the wires going through the aluminum chassis with no grommets to protect them. Not a big deal, except for the 2500V line, but I added terminal strips for terminating everything, including the high current filament supply coming from the power supply. The copper and brass contact surfaces of the roller coil needed major cleaning, because of many years sitting idle. The broadcast radio capacitor was severely bent, likely in transport, so it had to go.

The power supply was another story. Auto ignition wire, the kind with a metal conductor, is fine, but

it's not fine for the high current going to the primaries of power transformers! It's also not a good practice to have your high voltage rectifier hanging in your rack by a string. So once the supply was lifted onto the bench (I shouldn't have), major surgery started, on the supply. Remember the two big transformers? Even though I was shooting for a minimal redo, they were just too heavy, so I added two more strings of diodes to change from full wave to bridge rectification. Yes, this increases the load on the transformer, compared to using two, but I could tell they were seriously overbuilt. I've now run the one in the "new" supply at nearly 100% overload for over an hour. It didn't warm up at all! I also did away with the monster capacitor and mounted two reasonably sized ones (3000V rating). When the big capacitor was removed, what ho, there were the mounting holes for the filament transformers! They were mounted and terminal strips were installed for all the various inputs and outputs. The heavy filament current, 5V, 30A required extra thought because the run to the RF deck is nearly a yard. With the filament transformers set to max output and four runs of 10ga wire in the circuit, the voltage at the tubes is just right.



Picture 3 — Power transformer.

After three days or so, things were looking up. I could see that the light at the end of the tunnel was not a train. The major challenge of the project, not very major, was setting the tuning of the amp output for 40 meters, where I wanted to test. Since I had a roller coil, with no turns counter, of course, not the usual band switch, I decided to set the capacitors and then adjust the coil accordingly. The pi network component values are set by the plate resistance of the tubes and the output impedance one wants to match. It's a big deal to do, with troublesome math, but our wonderful Handbook makes it easy, as do the several handy calculators on the web. I prefer the book and recommend it to you. The label on the plate tuning cap has long ago worn off, so I had to run a few numbers to estimate its capacity, but from then on it was just set the two caps according to the helpful graphs in the Handbook and tune the roller coil for resonance. There were a couple of false starts. I learned that the amp will not work with no high voltage connected. I also learned that unusual smells in the LOM can come from overheated oil in the dummy load! No, it didn't boil over.

So how did it do, you are wondering, or have you gone back to lusting after Vanna? Well, it "works" as well as it can. With the big tubes, I've had it up to about 1200W input. Unfortunately, the high voltage is only about 2300 at that input and the tubes are not operating efficiently. They need at least 3000V to really sing. Also, unfortunately, this is a grounded grid, cathode driven linear amp, destined to have modest efficiency and require a lot of drive power. Grounded grid operation is popular because it requires very few components and is inherently stable, parasitics wise. And since most everyone has 100W rigs anyway, the drive requirement is not an issue. Compare this amp, with a gain of about 8dB (factor of six) to my grid driven amp with gain of about 22dB (factor of 171) and you'll see what I mean. A KX3 will drive the grid driven amp to over a KW, with excellent linearity!

Picture 4 shows the refurbed amp, from behind again. Doesn't look much better, but nothing is suspended. All the wiring is just hanging for temporary testing. It will clean up nicely. Picture 5 is the front view, showing the Watt meter, tuner to match the input, and the old Icom 735 used for excitation (drive). The Variac variable transformer sets the high voltage level. It's good to have for limiting smoke if there is a problem at startup.



Picture 4 — Rear view of the refurbished amp.

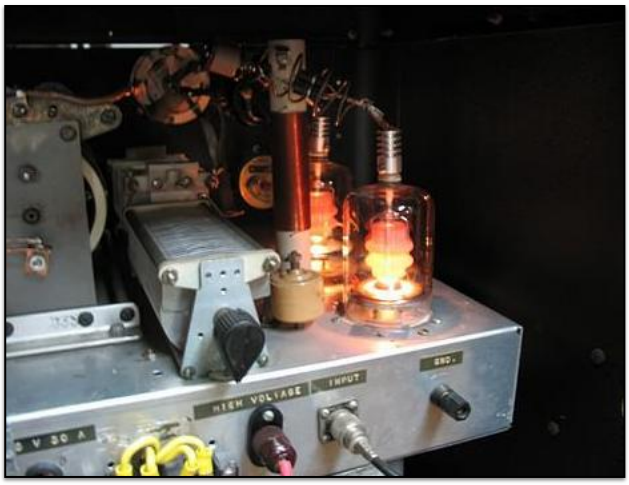
Picture 6 shows it with smaller tubes, running hard, 1KW input. Keep your hands out! So what's next? I'm going to build tuned circuits and install them, with a switch, to convert to grid driven. I'll likely try a voltage doubler in the power supply, to get the voltage up where it "ought" to be. I hope to find a turns counting dial for the coil. So changing bands will be easier.



Picture 5 — Front view of the refurbished amp.

The most amusing thing about the project was when I trolled the web for data on using the 4-400 tubes in grounded grid (they are tetrodes connected as triodes), I turned up a tech note from Eimac, their maker, on just such operation (link here). When I printed it, three pages, the printer kept going and going. I thought it had gone wild with Windows, but lo, following the stuff I wanted were 20 more pages of related material. At the end was the original construction article about my amp, with pictures! The original builder did a good job of copying and mine looks much like the one in the article.

Come over to the LOM and see it, if you like, or talk to me on 40. It gets good audio reports!



Picture 6 — Up and running!

Just Ahead in Radiosport from ARRL

November 1 – Silent Key Memorial Contest

November 1-4 – Fall 2026 Classic Exchange - CW

November 7-9 – ARRL Sweepstakes – CW

November 14-16, 21-23 – AWA Bruce Kelley 1929 QSO

November 15-18 – Fall 2026 Classic Exchange - SSB

November 21-23 – ARRL Sweepstakes - Phone

November 28-29 – ARRL EME – 50 to 1296 MHz

More contest events listed at WA7BNM:

https://www.contestcalendar.com/index.php

Buy – Sell – Swap

TenTec Century 21

Another classic. Great little CW transceiver, with antenna tuner, **$150**, Proceeds to OCRA.
Wilson W4BOH
Contact: w4boh10@gmail.com

Box of Cat.6 LAN Cable

I have a near full, I think, box of Cat.6 LAN cable. This stuff is $125+ at Amazon, so **$50** seems reasonable for this one. Estate stuff, money goes to DFMA.
Wilson W4BOH

Icom Microphones IC-HM9 and IC-HM14

NEW in boxes
HM9 has two pin plug, for handhelds. **$20**
HM14 has 8 pin plug and 16 key keypad. **$30**
Pick up in Hillsborough OR I will mail for **$10** each.
Wilson W4BOH

Drake MN-2000 Antenna Tuner

A classic, built for more power than you can give it. **$250**, currently in the LOM
Wilson W4BOH

ICOM PW-1 Solid State Amplifier
Selling for friend, good shape.
Price **$2,000.00.** Wilson W4BOH

Alliance HD-73-1 Rotator Controller SK Stuff

Untested, no rotator available, so returnable.
Two Speed, six wire controller.
Picture available.
$50, in Hillsborough.
Wilson W4BOH

FS: Nice coax jumper for connecting HTs to antennae.

Six inches long, SMA male to UHF female (like SO-239). Coax is very small and flexible, RG-174. Available in the LOM or at DFMA/OCRA meetings. **$4**. Financing available. Beat the rush, send email to my QRZ address.
Wilson W4BOH

Coax, new and used

Check with Wilson W4BOH first regarding length and cost

FS: Estate equipment.

Ameritron AL-80B amp. Single 3-500Z, $800.
Icon IC-746, $500.
Ameritron ATR-20 1200W antenna tuner, $300.

Contact W4BOH for info.

Do you have something that you need or something you are offering to others?
There's this spot in The Link set aside just for you. Just email the appropriate info to KQ4ZYW@arrl.net and it will be included with the next issue. Make sure to include contact info, and feel free to include a picture (that is yours– please no copyrighted stuff from the web).
73, Matthew KQ4ZYW

73 – Matthew KQ4ZYW, Vice-President & Newsletter Editor

Send copy to KQ4ZYW@arrl.net
Deadline: one week before the Club Meeting
(Images and copy: KQ4ZYW or as credited)
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Great News! DFMA Now Has a New PO Box!

The DFMA Mailing Address

Please address any mail you have for the club to:

DFMA
P.O. Box 2494
Durham, NC 27715

Website: dfma.org
Upcoming Events (dfma.org for details)
11/03 DFMA Meeting, Bullock's BBQ, 6pm
11/09 OCRA Meeting, Efland Baha'i Center, 7:30pm
11/17 DFMA Board Meeting, 7pm on Zoom
12/01 DFMA Christmas Party