The GARzette

May 2022 http://www.gars.org/ Volume 32, Issue 5

The Official Newsletter of the Gwinnett Amateur Radio Society

Inside

www.GARS.org

TechFest

GARS January Exhibition of the Technical aspects of Amateur Radio held at the Gwinnett County Fairgrounds

Don't forget to support our advertisers at the back of the *GARzette*.

GARS Meeting: Re-capping and tube testing to bring radios back to life - Don Woodward KD4APP

Tuesday May 10, 2022 at 7:00 PM

President's Message

From the President…

Dacula Memorial Parade [5/30]

We're still little short on volunteers to assist with the Dacula Memorial Day Parade. Please consider signing up to volunteer for this by going to: www.gars.org or directly <click here>.

Atlanta Ham Fest [6/4]

Dust off your antenna launching apparatus and bring it with you to the Atlanta Ham Fest so that you may compete in the Antenna Launching Contest. Prizes will be awarded. GARS will again operate this contest on June 4th from Jim R. Miller Park in Marietta.

Field Day [6/25]

Although over a month away, we do need a head count for those of you who will participate in Field Day or simply attend the Saturday night Field Day dinner. The dinner has traditionally been a BBQ one with all the fixin's. To sign up for the Dinner Saturday night, go to: www.gars.org or <click here>

And while you are at it, indicate if you will operate with us on the air.

Community Service

We have seen in this past year several GARS Family Members who have taken it upon themselves to answer the call to help a fellow ham in need. Whether it was to hang an antenna, program someone's rig, or to help with some tower work, GARS members have stepped up to assist other hams. In April I had the satisfying opportunity to help out a fellow ham with his equipment needs. See the **Hams Helping Hams** article in this newsletter.

Workshop

Last month we had an excellent opportunity to demonstrate firsthand the GARS Program topic of DMR, wherein we followed that up general meeting presentation by going from Program to Function at the following GARS Workshop. Many attendees got assistance with programming their DMR equipment. But in true 'hands on' Workshop fashion, other challenges were tackled as well. There was instruction on Power Poles (connectors) given for crimping pins used by the popular Power Pole devices, along with a few wiring assemblies created for someone's equipment. And APRS system operations were discussed, demonstrated, and practiced. These activities prove that the Workshop's topics can and do expand into whatever challenges or learning experiences you face. Someone at the GARS Workshop just might have the solution for which you are looking.

Dayton Hamvention

Many of you have attended numerous Ham Fests, boneyards, and flea markets. Some were located on the same grounds at a major event. The Dayton Hamvention does hold the distinct honor of being the largest event of its kind, and many a ham has temporarily gotten lost within the fest itself, only to emerge eventually with all the ham gear and knowledge they were seeking and could not live without.

I grew up and was first licensed just 100 miles North of Dayton; yet sadly, I have never attended. And yes, Hamvention started before I was born, so I have no excuse. This year I am taking the plunge and traveling to Hamvention. Obviously, you can secure armloads of gear, get educated with many of the available forums and generate many memories with new 'eyeball QSO's. I hope to do all of the above.

I'll let y'all know what I discover. And I'll see some of y'all there.

73,

Joe Biddle, AD4PZ

Club President

GARS Repeaters and Other Communications

2 Meter Repeaters	6 Meter Repeater	
147.075(+) MHz Tone 82.5 147.255(+) MHz Tone 107.2 1.25 Meter Repeater 224.580(-) MHz Tone 100.0, 1.6 MHz Offset 70 Cm Repeaters 444.525(+) MHz Tone 82.5 442.100(+) MHz Tone 100 442.325(+) MHz Tone 100	53.110 (-1 MHz) No Tone (Offline for Maintenance) **Other Resources:** APRS 144.390 -- 1200 Baud W4GR D-STAR WD4STR 145.060 + (1.4 MHz) 440.550 + (5 MHz)	6M Currently down 147.075 Operational in Snellville 147.255 Operational in Snellville 224.580 Operational in Grayson 442.100 Operational at Goshen Springs 442.325 Operational in Buford 444.525 Operational in Snellville Link remote receivers being added

Notable Web Links

Ham Radio Glossary: https://noji.com/hamradio/glossary.php a very comprehensive listing provided by Noji Ratzlaff KNØJI. On his site there is also a lot of information about getting started in ham radio.

Need Help – Let GARS Elmers answer your questions

Send an email to elmers@gars.org with the subject listing the area (like Antennas, Repeaters, Digital, DMR etc.) of your query to get to GARS Elmer volunteers.

The *GARzette* is the official monthly newsletter of the Gwinnett Amateur Radio Society, serving its members and other persons interested in the advancement of the Amateur Radio art.

Original articles, art, and photos are invited and encouraged. Previously copyrighted submissions cannot be accepted for reprinting unless permission from the appropriate publisher is provided in writing along with the information being submitted. If reprints are from publications allowing their unrestricted use, please include a copy of the printed permission contained in the publication.

If possible, bring your articles to the monthly meeting in Microsoft Word or rich text (.rtf) or text or HTML format or by e-mail to editor@gars.org. Artwork can be accepted in most any graphics format and can be submitted via e-mail to the same address. Alternate means of submittal can be arranged when necessary.

In keeping with the Amateur Radio spirit, permission is hereby granted for the reproduction of The *GARzette* articles by other Amateur Radio club newsletters provided that proper credit is given to the individual author and *The GARzette*.

The GARzette is published each month with the assistance of Karen KI4HPP and Kyle W4KDA who print copies for distribution at meetings, etc. and Dave Bruse, W4DTR, who distributes the newsletter electronically.

Deadline for submissions is the 28th of each month for inclusion in the following month's issue.
For additional information view our Website at: http://www.gars.org
Newsletter Email: editor@gars.org Editor: Bob Hoffmann, K4CQO Assistant Editor: Bill Eggers, WB2RIS

GARS HELP WANTED

Speakers Needed for GARS Workshop Presentations, 3rd Tuesday of the month – Email workshop@gars.org to volunteer. [PS— Articles to publish in the GARzette, either written by GARS members or published elsewhere, are always welcome. —Ed.]

GARS Meetings & Workshops

GARS Meetings and Workshops are held in-person at the EAA 690 Hangar, 690 Airport Rd, Lawrenceville, GA 30046.

Meetings and Workshops are OPEN to all, feel free to share your invite with others.

Zoom login info will be posted to http://www.gars.org prior to the meeting.

When events are available on Zoom

- Workshops and Meetings will be **recorded**. By participating you consent to being **recorded**.
- Please change your display name to Your **FirstName Call Sign**, e.g. **Hiram W1AW**
- **How to change Your Display Name in Zoom**
- Please stay muted until ready to speak. Your space bar works like a PTT for un-muting
- To be fair to everyone, there will be a three minute limit for each person during Q & A
- You may ask questions in chat; **please stay on topic while using chat.**

GARS Meetings Schedule (second Tuesday @ 7:00 PM): (these are the presentations)

- May 10, 2022 - Re-capping and tube testing to bring radios back to life - Don Woodward KD4APP
- June 14, 2022 - Final Preps for GARS Field Day
- July 12, 2022 - How to build a 4-element, 2m, Cubical Quad Antenna - Dallas N4DDM
- August 9, 2022 - Winlink email via Amateur Radio - Mark Bell N7GRB
- September 13, 2022 - **OPEN**
- October 11, 2022 - GARS Show-n-Tell - The Hand-on Workshop

Workshop Schedule (third Tuesday @ 7:00 PM): (these are the Hand-on Workshops)

- May 17, 2022 - Re-capping and tube testing to bring radios back to life - Don Woodward KD4APP
- June 21, 2022 - Final Preps for GARS Field Day
- July 19, 2022 - How to build a 4-element, 2m, Cubical Quad Antenna - Dallas N4DDM
- August 16, 2022 - Winlink email via Amateur Radio - Mark Bell N7GRB
- September 20, 2022 - **OPEN**
- October 18, 2022 - GARS Show-n-Tell - The Hand-on Workshop

GARS Meeting – May 10, 2022

Re-capping and Tube Testing to Bring Radios Back to Life

Don Woodward KD4APP

Don KD4APP is a General but was licensed in the nineties as a "No-code Technician" from a class taught by Jim Stafford W4QO. About 3 years ago Don and his son purchased a "vacation" home in Blairsville, which gave Don more time to pursue HF, 6M, microwave and electronics. He built a electronics workshop at his mountain home. After working on transistor era radios Don decided he wanted to try his hand at restoring tube era radios. After he re-capped his first radio, a Hallicrafters S-120, he got the bug and purchased several more tube era radios that are in various stages of completion. Don has added radio and electronics test equipment to his workshop over the years and has various test instruments including a tube tester and even a spectrum analyzer that measures up to 40GHz.

GARS Workshop – May 17, 2022

Re-capping and Tube Testing to Bring Radios Back to Life

Don Woodward KD4APP

The Workshop on May 17th will be a more in-depth show-n-tell of one of his smaller tube radios that has been re-capped. Don will bring his tube tester for those wanting to test their tubes. Others are encouraged to bring their tube testers. ***This will be an in-person Workshop***.

GARS Happenings

20 Years ago in the May 2002 GARzette:

- GARS helped with the annual Walk America fundraiser (Parking and walking course communication)
- The GARS T-Shirts were only $10, and the 6m repeater was working 😊
- David Adcock KA4KKF was the Field Day Charman 20 years ago

You can always browse the GARzette archive at http://www.gars.org/newsletters and go directly to the 2002 GARZette by clicking on the image. 73, Bob, K4CQO, GARzette Editor


THE GARZETTE

The President's Pen

Reminder !!!

Health and Wellbeing – Sandy Jackson, KJ4DRO

Look for this resource on gars.org and use it as a means to convey information about a GARS family member or Silent Key notification.

Net Managers Corner

Monday Night 2 Meter "Want, Swap, Sell, and Information Net"

GARS NEEDS MEMBERS TO SERVE AS NET CONTROL STATIONS!

GARS is a great Amateur Radio service club with the membership and awards to prove it. Our club is very busy and active, and we use the Monday night net to get timely information out to our members. Weekly participation is needed to make our net function well. There is only a small group of very dedicated people who make the net happen each week, and we need more members to volunteer to serve as Net Control Stations (NCS) on a rotating basis.

Out of almost 300 members, there are only seven operators who serve as the NCS for the GARS net every Monday night. In no particular order, they are:

Don – KW4AL	Ray – N4GYN	Bill – WG9NUW	David – KA4KKF
Glen – W3WWT	Russell – AB4QQ	Chuck – KK4TKJ	Charlie – WS4TOT

As GARS Net Manager (Chuck KK4TKJ), I would like to have more volunteers to fill NCS positions. I do plan and post the schedule months in advance. Any conditions will be accommodated that you as a rotating NCS need to place on the scheduling of your duties. If your plans change, I can make adjustments for the schedule to work, and I will make those changes happen as soon as I am notified of a problem. As Net Manager, I also send out reminders each week to let the NCS scheduled know he or she is NCS for the next Monday night net. In short, serving as a rotating NCS is a small duty but a great contribution to the club. The "Want, Swap, Sell Information Net" begins promptly at 19:30 every Monday night and runs about 30 minutes. As a scheduled NCS, you will request the assistance of a volunteer alternate NCS each time you have Net Control. Your simple duties will be to tune in to the GARS repeater, read the script, take a few notes and forward the information to me for record keeping.

Please lend a hand and contact me (Chuck) at KK4TKJ@arrl.net. Sign up to help support the effort that makes GARS the great club that it is. 73 and see you on the Nets!

HAMS HELPING HAMS

by Joe Biddle, AD4PZ

Across the reflector (groups.io), the group received a request, or a plea rather, from someone for assistance to get his newly purchased beams assembled and mounted on his tower. Vinnie, KA4WAY, is a retired Police Chief with physical limitations that prevent him from performing this work himself. He sent out multiple requests to area clubs. Brian Page, N4TRB, and I answered Vinnie's request to help him with this endeavor.

The two beams we were going to assemble and mount to the tower mast were:

5 element 6 Meter beam https://antennas-amplifiers.com/product/hf-antenna/3-band-hf-antenna-3b-222/

6 element 3 band HF beam https://antennas-amplifiers.com/product/6meter-antenna/6m-portable-dx-yagi-5el/

Mounting to the tower mast would not be difficult, as this is a tilt over telescoping one, which was already in the down position. We had reviewed the specifications first, so we knew we would need Metric tools and metric measuring to verify element lengths as well as positioning on the boom. After measuring a few elements, we learned that measuring was not really necessary, as everything was numbered and would match a corresponding labeled component or position within the total beam.

As I stated, we knew to bring some metric wrenches and sockets, plus I brought my electric drill to more quickly tighten the screws and to torque them using the drill's torque clutch mechanism. One tool I wished I had brought, was a scratch awl or other tapered rod. I would have used this awl to aid in the alignment of pre-drilled holes on opposite wall sides, therefore letting the screws slip through more easily since the dimensions for the drilled holes were dimensionally tight. Also, using a tapered rod to align the holes on the tower legs when vertical would have made for an easier time of locking the self-standing tower to its base.

We started assembly indoors. Vinnie has a very large workshop to assemble the elements and we needed all of that space, as the longest HF element was forty feet (40') in length. This beam is a "No Trap" HF beam – therefore the added length. No traps also meant this is a beam with multiple driven elements all on one boom. After seeing the pictures and specifications, I was concerned we might need to create a phasing harness, but the manufacturer included this phasing by using two aluminum tubes to perform that function and became part of the beam structure.

Brian and I kept mentioning through-out this assembly process how impressed we were with the construction of these two individual beams and the overall quality of all the components. Everything fit well, aligned well, and was labeled well. The ONLY shortcoming, we saw were the two turn buckles for the boom support. The supplied turn buckles looked to be cast metal and the threaded adjustment holes out of center creating a thin wall to one side. This was a weak point in our opinion that we would easily correct with a trip to the local hardware store at lunch time to get two new turn buckles.

Only once did we have a real issue with fit. Aluminum is a soft metal. At one point, as we were sliding one element section into another, when it got jammed. Again, the antenna construction has some very tight tolerances. A drilled hole from the manufacturer had left a few burs and shavings inside the

element tube, therefore getting between the two surfaces and subsequently causing surface scarring. After some light sanding on the surface scars, the two pieces slipped together nicely, allowing the hardware to be secured. Afterwards, we inspected more closely for burs and shavings.

Did I mention that these beams did not use a single hose clamp?

The next task was to attach the elements to the booms. We did so with great ease on the 6-meter beam while inside the workshop. The HF beam would need to be assembled outside however, due to the large size. We carried the components over to the tower and proceeded to assemble the HF elements to the boom on saw horses.

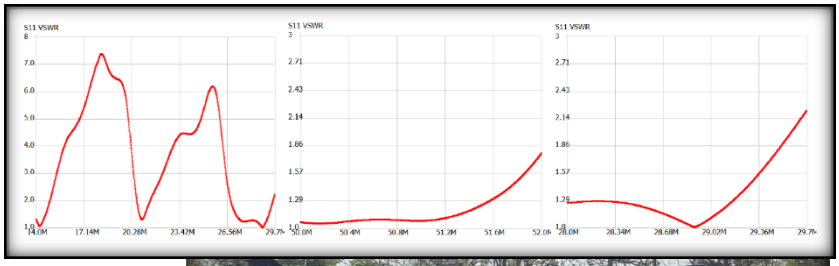
By the way, there were no real assembly instructions included with this antenna. Assembly is performed by reviewing images with comments. Our challenge here was to assemble the HF beam upside-down and keep our 'left' straight from our 'right'.

After performing a final quality check of the assembled beams, we commenced to mounting them to the tower mast. After mounting the antenna and connecting coax to them, we loosened the mast from the rotator so we could turn to rotator to the compass heading the beam would be pointing to once it is raised into position, then we retightened the mast to the rotator. Adding a coax service loop for antenna rotation and securing the coax to the top of the tower was last.

Before raising the tower, I checked the beams with my antenna analyzer. All measurements looked satisfactory, considering the antennas were only a few feet above the ground.

Tilting the tower skyward was a challenge. It was heavy due to the fulcrum point was only six feet (6') up on this fifty-foot (50') tower. Our suggestion for the future was to raise the fulcrum point on the tower that would match the pull point and to get a good electric wench. Telescoping the tower upward was not an issue and raised easily.

With everything in position, it was now time for Brian to break out his NanoVNA Analyzer, and check the system. All bands checked out perfectly and were broad banded as well.



Brian and I undertook this task as we felt a sense of duty and compassion to help a fellow ham whose physical limitations preventing him from accomplishing this work by himself. Our reward was to be able to see firsthand these fine antennae up close and see sheer delight in Vinnie's face. PLUS, it was a great way to give back to the radio community in the spirit of **HAMS HELPING HAMS.**

To see more pictures of this project, go to:
https://photos.app.goo.gl/HbEgHzb6E82AWahy5

Drake TR7 Transceiver

Vintage Amateur Radio

de Bill Shadid, W9MXQ

This month we are moving back to a classic brand in ham radio through the early 1980's, the R. L. Drake Company of Miamisburg, Ohio. Drake, widely known for the very popular R-4 and T-4X series separate receivers and transmitters and perhaps even more so for the TR3 and TR-4 series Transceivers. We have covered those models in earlier columns[1]. This month I want to talk about one of Drake's last high frequency transceivers and their first one using all solid-state circuitry. This would be the very popular model TR7.

The TR7 was rather revolutionary in appearance back at the time of its introduction in 1977. It had clean lines, an uncomplicated front panel, and all solid-state design with a very durable final amplifier. Compared it to its competition, the TR7 was a step in a new direction:

Drake TR-7 Transceiver

(One of two working TR7's – plus a TR7A – in the W9MXQ Collection)

Drake was well known not only for its receivers, transmitters, and transceivers but also for a fine line of accessories to compliment their radios and those of other manufacturers as well. Drake's Linear Amplifiers – like the L-4 and L-4B models – were known for being some of the best in the industry. They also offered a line of Antenna Tuners – like the MN-4, the MN-4C, and the MN-2000. As you have seen in earlier installments about Drake equipment[1], these accessories also included Dummy Loads, and Remote Antenna Switches. Drake even entered the VHF and UHF-FM transceiver market with their own designs as well as equipment from partner in Japan. Some of you may remember such radios from Trio (Kenwood) (TR-22. TR-22C, TR-33C, and TR-72) and Marker Luxury (ML-1).

Drake marketed a complete line of accessories to match their new solid-state TR7 Transceiver. They duplicated the accessories they manufactured in the days of the R-4 Series Receivers, The T-4X series transmitters, and the TR-3 / TR-4 / TR-4C series transceivers. Here is a look at a fully equipped Drake TR7 station that is typical of the late 1970's and early 1980's. This station is in regular operation, today,

at W9MXQ:

Drake TR7 Line Station with Accessories

Left to Right – MN-2700 Antenna Matching Network, TR7 Transceiver, RV7 External VFO, and Drake L7 Linear Amplifier
Also Shown Left to Right – P75 Phone Patch, WH7 Wattmeter, MS7 Speaker SP75 Speech Processor – along with 7077 Desk Microphone
(W9MXQ Collection)

Not shown above in the complete station picture are other accessories that complimented or replaced what is shown. The 300-watt Drake MN75 Antenna Matching Network was an alternative to the 2,000-watt MN2700. The 1,000-watt Drake L75 Linear Amplifier (with an internal AC Power Supply) was an alternative to the 2,000-watt L7 (that had a floor mounted AC Power Supply). Drake also marketed a PLL based, external VFO called the RV75 that was a step ahead of the RV7 in stability. See pictures, below:

Other Drake Accessories:

- **Upper Left: Drake L75 Antenna Matching Network**[4]
- **Above: Drake L75 Linear Amplifier**
- **Left: Drake RV75 External VFO**

Going back a bit, now, by the mid-1970's the domestic (USA) manufacturers were getting concerned about the move to all solid-state radios – at least in the concept. By that time, Swan/Cubic, Drake and Heathkit were the market leaders. Collins was playing along with successful, if dated, designs. At that time, I was a Drake user with a new R-4C Receiver and T-4XC Transmitter. But those radios were

aging in design – even though the much touted (to this day) R-4C Receiver a mostly solid-state design and very competitive. In the mid-1970's, Drake was working hard to replace its aging TR-4 series transceivers. The Drake TR-4C, the last model series of that transceiver, did not share the advanced design of the separate R-4C and T-4XC radios. Drake was fast losing market share to more modern designs from other manufacturers. The TR-4C series was a mostly vacuum tube design with the only real significant move being the change from a vacuum tube permeably tuned VFO in the TR-3 to the more modern and stable solid-state version in the TR-4 line. To be sure, Drake was trying to keep the TR-4 competitive as they came out with a version (TR-4CW) that added a switchable CW Filter, and later a version (TR-4CW/RIT) that added Receiver Incremental Tuning to make operating more convenient. Drake was seeing significant "feature competition" from the Japanese products coming from Kenwood, Yaesu, and soon from Icom. The result was a revolutionary design – the concepts of which are with us to this day from many manufacturers.

The step to a complete solid-state design was fraught with risk, or so Drake thought. Fears of problematic and/or failed designs that had already been seen on the market from others were in front of Drake's management. Drake's engineers were heavily into vacuum tube designs and lacked the expertise to give the company's management confidence in managing the risk of such products. Those issues were seemingly solved by hiring the Designer of the solid-state Heathkit SB-104 Transceiver from the Heath Company as well as another fellow who would later be the founder of Cincnnati Microwave (maker of the Escort Radar Detector) to lead the TR7 design[2, 3].

Drake's TR7 final amplifier was exceptionally well designed and stood the test of time. Likewise, the matching PS7 AC Power Supply was a massive analog unit that was virtually indestructible – and very heavy. Both the TR7 and the PS7 could be equipped with the plug-in FA7 Fan unit to allow the transceiver and power supply to run full power, continuously.

The real claim fame with the TR7 was "Up Conversion" in the radio's i-f circuit. The TR7 has a first i-f in the 40 MHz range that virtually eliminated "birdies" in the conversion process and even eliminated the old 9 MHz i-f so common in early SSB designs that were the reason that 160-80-40 meters were lower sideband and 20-15-10 meters were upper sideband. (That is, either side of a first i-f of 9 MHz, if you will.) If you ever wondered why we have the LSB and USB split the way we do, you heard the answer here! You might also credit McCoy Electronics – makers if some of the first commercially available 9 MHz center frequency Crystal I-F Filters used in very early SSB Transmitters. There will be more about the TR7 conversion scheme in a follow-up article.

As the market for the TR7 matured and the competition was increasing, Drake made a marketing decision to move to the TR7A model. There was essentially no difference from very late TR7's and the newer TR7A – and actually, for some reason lost to time, the two were made in parallel for a time. The TR7A was a TR7 with the following options made standard equipment (as noted by WB4HFN[5]):

1. The NB7 Noise Blanker was included.
2. The SL500 500 Hz CW Filter was included.
3. A by-pass resistor was added to allow for AM operation using the Roofing Filter for bandwidth control.
4. A surge protector was added to the receiver front end to protect the radio from static charges.
5. An unused Phono Connector on the back panel was wired to provide low level audio input.

Here are a couple of pictures of the TR7 and TR7A models to show the minimal outward difference between them:

Drake TR7 HF Transceiver

(W9MXQ Collection – and like the one in the W9DYQ Collection)
(This W9MXQ TR7 is mid-production cycle – the W9DYQ TR7 is very late in the production cycle)

Drake TR7A HF Transceiver

(W9MXQ Collection)

If you noted that nothing is different besides the model number (upper right-hand corner) you would be correct. (Well, you sharp eyed readers might notice the two radios are on different bands and modes!!) For the most part – with a few exceptions, like an updated and more linear PA Pre-Driver and a redesigned Noise Blanker on later TR7's and all TR7A's. All TR7's from the first ones to the very latest TR7A's are nearly identical with those exceptions – other than standard equipment as described earlier.

It would be incorrect in these model and time comparisons (that is, TR7 compared to the TR7A or a very early TR7 to a very late TR7) not to consider that technical updates are done with any brand or model of radio without announcement. So, it is incorrect, across the board, to assume that an early serial number TR7 is the performance equivalent of a very high number TR7 or a TR7A.

As a user of several TR7's and TR7A's in my time collecting it appears correct to look for a unit perhaps several thousand into the production cycle. But, I must also say I have known users of very low serial numbers that experience no problems. Serial numbers of the TR7 do not end and restart with the TR7A. They progress as if the model never changed from one to the other. There appear to have been 10,800 to 10,900 TR7's built with another 1,400 to 1,500 TR7A's following that. So, while TR7's in general are perhaps easy to find, it may be just as true that TR7A's are a bit rare. This is according to information on the WB4HFN website[5].

At the time of the TR7's introduction the TR-4 series were certainly highly respected products in the marketplace. They may have been old school designs, but they worked very well and had a following that gave credit to the Drake name. To give you an idea of how Drake met that product challenge – that is, competing with its own existing reputation, here is a chart to show the differences in common specifications between the very popular TR-4 / TR-4C and the TR7 / TR7A:

Specification	TR-4 / TR-4C	TR7 / TR7A
RF Power Input (SSB)	300 watts PEP	250 watts PEP
RF Power Input (CW)	260 watts (Key Down)	250 watts (Key Down)
RF Power Input (AM)	100 watts (Carrier)	80 watts (Carrier)
Sensitivity	<0.5 uV for 10 dB S+N/N	<0.5 uV for 10 dB S+N/N
Frequency Coverage	80-10 Meter Ham Bands (No WARC Bands)	160-10 Meter Ham Bands (With WARC Bands) (0-30 MHz Receive Only)
Duty Cycle	Not Specified	Continuous (with FA7 Fan)
Selectivity[6]	2.1 kHz (Standard)	2300 Hz (Standard) 1800 Hz (Optional) 500 Hz (Optional) 300 Hz (Optional) 4000 Hz (Optional) 6000 Hz (Optional)

Drake changed its product nomenclature with the release of the TR7. See that there is no “dash” in the model number – that it, it is TR7, not TR-7. Drake struggled with this nomenclature internally because it is not unusual to see the old “dash” appear in Drake literature and even some advertising with the TR7 or its accessories. So, where the old model was the TR-4, the new model was the TR7. Where we would see model number MN-2000 written, we see model MN2700 in the new model. This went on throughout the model line. Also, Drake had a lower cost HF transceiver (a subject for next month) called the TR5. Drake tried in many cases to show accessories that were intended for both lines by using model numbers showing both the “7” and the “5” in the number. That gave us the RV75 External VFO, the MN75 Antenna Matching Unit, the L75 Linear Amplifier, the SP75 Speech Processor, etc. But other products intended for both lines were not so marked. That would include, for instance, the L7 Linear Amplifier that worked perfectly well with the TR7 or the TR5 Transceivers. Or, similarly, the RV7 External VFO that worked with both models. It is pretty darn confusing if you ask me! (But, alas, nobody ever did ask me!)

Next month we will do a part 2 of this story with information about:

1. More functional details on the TR7 line – including its conversion scheme.
2. Information about the TR5 Transceiver.

A special thanks go to Bob, W9DYQ[7], for his proof reading and reference to his very late production TR7. Bob is also owner of a fine set of Drake C-Line separates. I appreciate that you read my articles. Remember that I am open to questions and comments at my email address, W9MXQ@TWC.com.

Reference Notes:

1. See previous articles in the ***GARzette*** about the Drake R-4 and T-4X, the Drake R-4C and T-4XC, the Drake TR3 and TR-4, and the one about the Drake TR-4 and TR-6.
2. Book Reference: ***A Family Affair, The R. L. Drake Story***, by John Loughmiller, KB9AT. ©2000 by Loughmiller.
3. A small note about John Loughmiller, KB9AT. I (W9MXQ) once Illustrated and did schematic diagrams for articles in ***Ham Radio Magazine***. In that past life I have done such documentation for articles that Loughmiller did for that magazine.
4. “Antenna Matching Network” was Drake’s fancy name for Antenna Tuner.

5. http://www.wb4hfn.com/DRAKE/DrakeArticles/TR7_Comparison_Article/TR7_Idenity-03.htm
6. The TR-4 Transceiver had only the 2100 Hz filter for all modes. The TR-4CW and later TR-4CW/RIT had an added, selectable 500 Hz CW Filter. The TR7 / TR7A Transceivers allowed for the SSB Filter (2300 Hz) (Standard on all models) and any of the five other (optional) filters shown up to a total of three. There are two operating TR7 Transceivers at W9MXQ plus one TR7A. One TR7 and the TR7A have optional filters including the 1800, 500, and 4000 Hz units. The other TR7 has no options installed at this time – this unadorned TR7 is the one pictured at the opening of this article.
7. Bob, W9DYQ, and I have had a strong personal, radio, and family relationship for most of our adult lives. We collect vintage radios in tandem and openly share items that, at any one time, seem of most interest to one or the other of us. Bob, and is XYL, Deb, KAØPBV, are accomplished CW DX'ers. During our too infrequent visits together, I am sure my non-ham XYL, Jean, feels she is soundly outnumbered! At least at my QTH, there are no arguments over who gets access to the radio! Adding to this closeness, my early career work was with Bob's father, Ted, the original W9DYQ. My XYL, Jean, worked with Bob's mother, Elizabeth, for many years.

W9MXQ

The entire article is available on-line, see
http://www.gars.org/newsletters/2022_05_GARZETTE.pdf

GARS Membership

New Members List in April

Vincent Bazain (KA4WAY)
Mary Ann Bazain
William Nash (KO4ZDH)

New Members: 3

Total Members as of May 1, 2022 349

Join GARS members for our weekly breakfast gathering at
7:30 AM most Saturdays
Now at
Cracker Barrel Restaurant
75 Celebration Dr.
Suwanee, GA 30024

Birthdays in May

Timothy Atkin
Vincent Bazain (KA4WAY)
Bill Bentley (KJ4MXM)
Caryn Brant
Maggie Colley (KM4PTW)
Tom Crowley (KT4XN)
Steve Garrison (N4TTY)
Bob Gerzoff (WK2Y)
Bill Grimes (WG9NUW)
David Griscavage (W3GZS)
Bill Hawkins (WR1TR)
Harry Heath (KO4FGK)
Sachiko Londono
Frederick Love (KK4VEP)
Brandon Massengill (W4HDX)
David Mattison (KD4PCK)
Dallas Mellichamp (N4DDM)
Anita Morris (KG4AJX)
Robert Prisant (KN4GZG)
Ted Ruchalski (KK4DFM)
Ade Shamblin (KJ4CUY)
Nathan Smith (W4GOP)
Larry Thill (W4LJT)

GARS MEMBERSHIP

Your current GARS membership status is shown in the monthly newsletter e-mail towards the bottom of the message. To become a GARS member, or to renew your GARS membership, please visit our website – http://www.gars.org. To make changes to your GARS membership (moved, new e-mail address, new phone number, etc.), please e-mail your changes to the Membership Committee - membership@gars.org.

Membership Chair: Karen Albritton, KI4HPP
Committee Members: Dave Bruse, W4DTR

ARRL MEMBERSHIP

To update your ARRL membership information, please visit their website - http://www.arrl.org.

MAINTAIN YOUR LICENSE

You can renew or update your Amateur Radio license information with the FCC at their website for free - https://www.fcc.gov/wireless/universal-licensing-system.

Donating to GARS

Your GARS donation can be used for a certain purpose by donating to one of these funds:

- GARS SK Memorial Fund for Education
  (to remember and honor Silent Keys);
- GARS Scholarship Fund (Administered by the ARRL for awarding scholarships);
- GARS General Fund (any club purpose).

GARS has joined these rewards programs (a portion of every purchase you make through these merchants may be donated to GARS):

- Amazon Smiles;
- Kroger Community Rewards program.

For more information on how to sign up for these rewards programs, or to donate to GARS, visit

http://gars.org/gars/donations-to-the-club

GARS on Social Media

Discord Request:
http://gars.org/discord

Groups.io:
http://gars.org/groups.io

Visit GARS on Facebook:
http://gars.org/facebook

Follow GARS on Twitter:
http://gars.org/twitter

Join GARS on YouTube:
http://gars.org/youtube

GARS Mail Address:

GARS
P.O. Box 492531
Lawrenceville, GA 30049

Officers

 Joe Biddle, President AD4PZ

 Jamie Burns, Vice President KX4HA

 Bill Hawkins, Secretary WR1TR

 Pam Meridy, Treasurer WB1AKQ

 Kevin Scott, Program Manager K4GTR

Managers and Committee Chairs

 Karen Albritton, Membership Chair KI4HPP

 Dave Bruse, VE Team Leader W4DTR

 David Adcock, Webmaster and Field Day Chair KA4KKF

 Ralph Pickwick, Apparel Manager and Education Chair KJ4CNC

 Glen Wendt, TechFest Chai W3WWT

 Bob Hoffmann, GARzette Editor K4CQO

 Eddie Foust, Repeater Chair WD4JEM

 Mike Weathers, WAS / DXCC QSL Card Checker and Historian ND4V

 Chuck McCord, Net Manager KK4TKJ

 Steve Back, Technical / RFI Advisor WB2OGY

 Kyle Albritton, Multimedia Chair W4KDA

 Don Stewart, Elmer Manager KW4AL

 Sandy Jackson, Health and Wellbeing KJ4DRO

Open Winter Field Day Chair
Open Georgia QSO Chair
Open Workshop Leader

Directors and Trustees

 John Davis, WB4QDX

 Rick Cobb, N4XYY

 Kyle Albritton, W4KDA

 Bill Cherepy, WB4WTN W4GR Trustee

GARS Meeting Minutes

Gwinnett Amateur Radio Society – GENERAL MEETING MINUTES

4/12/2022

In person and online meeting.

President Joe Biddle (AD4PZ) and Opened the meeting at 7:00pm and closed the meeting at approximately 9:00pm

Participants: 44 in person – 15 online

Treasurer's Report: Joe (AD4PZ)

New hams and visitors: Joe (AD4PZ)

- First time visitors recognized
- New hams and upgrades recognized

Membership: Karen (KI4HPP)

- Karen reported 349 members

VE Team: Dave (W4DTR)

- Recognized John (WB4QDX), Ralph (KJ4CNC), and Jamie (KX4HA) for teaching the HamCram Class.
- 11 of 14 passed at HamCram
- Recognized Ralph (KJ4CNC) for teaching at McConnell Middle School
- A 6th grader passed the Technician exam at McConnell
- Recap of the monthly exam session – 5 tested and 5 passed
- Thanked the VE team for their efforts in this busy past month.

Programs: Kevin (K4GTR)

- April – DMR with Bob Hoffman
- May – Recapping and bringing old radios back to life
- June – Ice cream social at Harbins Park for Field Day prep
- July – Cubical Quad antenna build

Workshop: Dallas (N4DDN)

- April – DMR with Bob Hoffman
- May – Recapping and bringing old radios back to life
- June –Field Day prep… install of software…
- July – Cubical Quad antenna build

Repeaters: David (KA4KKF)

- Repairs are underway. Much of our gear is very old.

Dog Show: David (KA4KKF)

- We were short some people on the first days
- It all went well

Memorial Day Parade: Earl (AF4FG)

- We line up the parade participants and send them on the way
- You only need a vest and an HT
- Sign up on the web site.
- This years parade will be bigger than usual.

Field Day: David (KA4KKF)

- Sign up on the web site if you would like to be a band captain or help in some other way.
- Will need help with hospitality and mean prep.
- Everyone is invited.

ARES: Jamie (KX4HA)

- Dave (W3DJS) has been recognized by the ARRL as a technical specialist for the Georgia section of ARES.

Other Business:

- GA QSO party - Were the scores combined? From Joel. We did not combine scores this year. As long as our club is noted in filing the aggregate score will be totaled automatically.

Program: Bob Hoffman (K4CQO) presented on DMR.

Minutes by Bill Hawkins (WR1TR) Club Secretary.

Workshop Minutes - March 15, 2021

Number in Attendance: 18

Workshop Topic: Digital Modes Radio (DMR)

Presenter: Bob Hoffmann K4CQO

Brief Summary: Bob assisted about a half dozen that brought in their DMR radios. There were a few DMR Hotspots available for folks to test their radios with. Bob passed out a DMR Handout showing the steps to create a Code Plug and a list of local DMR repeaters.

We had 3 smaller groups working on APRS and Power Pole connectors and demonstrating test equipment for the Ham Shack.

Events – GARS and others

ARRL CONTESTING INFO

From ARRL Contest Calendar
> For more information click the links <

2022	2023	January
1	1	Straight Key Night
1	7	Kid's Day
8-9	7-8	RTTY Roundup
15-17	21-23	January VHF Contest
		February
14-18	13-17	School Club Roundup
19-20	18-19	International DX – CW
		March
5-6	4-5	DX Contest -- SSB
		April
10	16	Rookie Roundup – Phone
		May
		No planned contests
		June
4-5	3-4	International Digital Contest
11-13	10-12	June VHF
18	17	Kid's Day
15-26	24-25	Field Day
		July
9-10	8-9	IARU HF World Championship
		August
6-7	5-6	222 MHz and Up Distance Contest
21-22	19-20	10 GHz & Up – Round 1
21	20	Rookie Roundup – RTTY
		September
10-12	9-11	September VHF
17-18	16-17	EME - 2.3 GHz & Up – Round 2
17-18	TBA	10 GHz & Up – Wknd 1
		October
15-16	TBA	EME - 50 to 1296 MHz – Wknd 2
17-21	16-20	School Club Roundup
		November
5-7	4-6	Nov. Sweepstakes - CW
12-13	TBA	EME - 50 to 1296 MHz
19-21	18-20	Nov. Sweepstakes - Phone
		December
2-4	1-3	160 Meter
10-11	9-10	10 Meter
18	17	Rookie Roundup–CW

For more information:
http://www.arrl.org/contest-calendar

HAMFEST CALENDAR

[Please confirm the status of a Hamfest before making plans to attend]

05/14/2022 - Tailgate - Sportsman's Paradise ARC
Location: Crawfordville , FL
Type: ARRL Hamfest
Sponsor: Wakulla Amateur Radio Club
Website: www.k4wak.com

05/21/2022 - Forsyth Ham Tailgate / Swap Meet
Location: Forsyth, GA
Type: ARRL Hamfest
Sponsor: 2nd annual event put on by amateurs for amateurs
Website: http://www.barnesvillega.net

05/28/2022 - EPARS Tailgate
Location: Dade City , FL
Type: ARRL Hamfest
Sponsor: East Pasco Amateur Radio Society
Website: http://eparsonline.org

05/28/2022 - WormFest
Location: Pinellas Park, FL
Type: ARRL Hamfest
Sponsor: The Glorious Society of The Wormhole
Website: https://w4orm.org/

06/04/2022 - Atlanta Hamfest, ARRL Georgia State Convention
Location: Marietta, GA
Type: ARRL Convention
Sponsor: Atlanta Radio Club W4DOC & Kennehoochee ARC W4BTI
Website: http://www.atlantahamfest.com

06/11/2022 - 3rd Annual Pre-Field Day Tailgate Gathering
Location: Dade City, FL
Type: ARRL Hamfest
Sponsor: Dade City Masonic Lodge

06/18/2022 - Black Warrior Hamfest
Location: Northport, AL
Type: ARRL Hamfest
Sponsor: Black Warrior Hamfest
Website: http://BlackWarriorHamfest.org

07/09/2022 - K4KDI Summer Tailgate
Location: Orlando, FL
Type: ARRL Hamfest
Sponsor: South Conway Baptist Church

08/13/2022 - Fort Pierce Hamfest
Location: Fort Pierce, FL
Type:
Sponsor: Fort Pierce Amateur Radio Club
Website: https://FPARC.ORG

08/20/2022 - 08/21/2022 Huntsville Hamfest, ARRL SE Division Convention
Location: Huntsville, AL
Type: ARRL Convention
Sponsor: Huntsville Hamfest, Inc.
Website: http://hamfest.org

For more information: http://www.arrl.org/hamfests-and-conventions-calendar
When searching by division, remember some states adjacent to GA are in different divisions:
Southeastern: GA, AL, FL Delta: TN Roanoke: NC, SC

GARS Events Calendar for 2022

TechFest	Cancelled for 2022
Winter Field Day	Jan 29-30 2022
Spring Technician HamCram	March 26-27, 2022
Dog Show Fundraiser	March 30-April 3 2022
Georgia QSO Party	April 9-10 2022
North metro area Fox Hunt	April 2022
Memorial Day Parade	May 30 2022
ARC/KARC Hamfest	June 4 2022
Field Day	June 26-27 2022
Summer General HamCram	July 2022
JOTA	October 16-17 2022
Fall Technician HamCram	October 2022
Maker Faire	TBD
Stone Mt. Hamfest	November 6-7 2022
Holiday Party	December 14 2022

GARS Recurring Calendar

- 2nd Tuesday of the month at 7 pm (except December)
  Monthly Club Meeting
  690 Airport Rd, Lawrenceville, GA 30046
- 3rd Tuesday of the month at 7 pm (except December)
  Monthly Workshop
  690 Airport Rd, Lawrenceville, GA 30046
- 2nd Sunday of the Month at 2 pm
  GARS Ham Exam Session
  690 Airport Rd
  Lawrenceville, GA 30046
- Every Monday at 7:30 pm: GARS Want, Swap, Sell, and Information Net on the GARS 147.075 MHz repeater
- Every Monday at 8:30 pm: ARES Training on the GARS 147.075 MHz repeater
- Most Saturdays at 7:30 am :
  GARS Weekly Breakfast
  Cracker Barrel Restaurant
  75 Celebration Dr., Suwanee, GA 30024

GARS CALENDAR FOR May 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 **7:30 – 8:00 PM GARS 2M Net**	3 **7:00 PM GARS Exec Meeting (Online)**	4	5	6	7 **Breakfast at Cracker Barrel in Suwanee 7:30 AM**
8 **GARS VE Exam Session EAA 690 Hangar 2:00 PM**	9 **7:30 – 8:00 PM GARS 2M Net**	10 **7:00 PM GARS Meeting EAA 690 Hangar**	11	12	13	14 **Breakfast at Cracker Barrel in Suwanee 7:30 AM**
15	16 **7:30 – 8:00 PM GARS 2M Net**	17 **7:00 PM GARS Workshop EAA 690 Hangar**	18	19	20	21 **Breakfast at Cracker Barrel in Suwanee 7:30 AM**
22	23 **7:30 – 8:00 PM GARS 2M Net**	24	25	26	27	28 **Breakfast at Cracker Barrel in Suwanee 7:30 AM**
29	30 **7:30 – 8:00 PM GARS 2M Net**	31				

Local Ham Radio Exams & Meetings

GARS Ham Radio Exams

Second Sunday of the month

Doors open at 1:45pm, exams start promptly by 2:00pm
GARS VE-Team
VEC: W5YI-VEC
EAA 690 Hangar
690 Airport Rd
Lawrenceville, GA 30046

GARS VE Team Leaders
E-mail: exams@gars.org

April 2022 Results

We had five candidates test on Sunday, 4-10-22 with very good results. All passed exams as follows:

- One new Technician Class;
- Two new General Class (passed Technician and General exams);
- Two upgrades to Amateur Extra Class.

We also had a good Group of VE's who made the test session possible. Thanks to all who helped and they were:

- Pam, WB1AKQ
- Earl, AF4FG
- Richard, KM4SWL
- Bill, WB4WTN
- Bob, K4CQO
- Dave, W4DTR (CVE)
- Russell, AB4QQ
- Frank, KV4SP

73, Don-KK4NJM (Co-CVE)

GARS VE Website: http://gars.org/exams has location information and testing requirements.

Local Ham Radio Exams

In order to find an exam session near you, please visit http://www.arrl.org/exam_sessions/. Contact the information in the listing for further information.

Local Ham Radio Meetings

In order to find a local Ham Radio Club meeting near you, please visit http://www.arrl.org/find-a-club. Contact the club for meeting information.

GARS Supporters