



The *ORC* Newsletter

Official publication of the Ozaukee Radio Club, Inc. Email all contributions to the editor, Tom Ruhlmann, W9IPR, (phone 262-377-6945). Permission to reprint articles published in any issue is granted provided the author and the Ozaukee Radio Club Newsletter are credited.



ORC Repeaters on 146.97, 224.18 and 443.750 MHz - Callsign W9CQO
Web site: www.ozaukeeradioclub.org Facebook: facebook.com/orcwi

Volume XXXI

June, 2019

Number 6

From the President

de Kevin Steers (K9VIN)



Well, Folks, it is now June, and it is just feeling like spring; sure am hoping for some consistently warm days, though. Thank you to the many people that helped pull off our SwapFest. I hesitate to call out names, in fear of missing someone, but special thanks go out to Messieurs Moberg, Ruhlmann, Tretheway, Evans, Rate, and Volkmann for all of their help. See, I knew I would miss your name if you helped out!

I would like to switch up next year's Swapfest by having two or three of our most popular presentations given later in the day, and will set up a public meeting to discuss with the core nucleus of players. We need to choose the presentation sooner than later, so we can advertise. Recently the Cedarburg Fire Department had an open house on a Wednesday evening. I ran into a CFD friend and asked why, and he said it is nearly the only night that people are free. Weekends are changing, and with kids' sports these days, weekends are for family. Perhaps it's time for a change. Stay tuned.

Typically, I would have a grand update from Dayton, but not this year. We will have to solicit weather and gadget insights from Mr. Schnell and Mr. Drasch at the next meeting, for sure! Ask them about Contest University, too.

If you ever walked around the back of your vehicle and struck your shin on the trailer hitch, I found the Next Worst Thing. I hit the piece of steel holding my HR antenna, which is bolted to my trailer hitch. When I did that, it vibrated and left a very neat 14-inch scar on my shin that looked like a vertical perforation. I will stop short of posting a pic!

Speaking of my HF antenna, I recently removed the 80-inch stinger to move furniture. Unfortunately, I laid it on the terrace and forgot it there. That was the night before garbage day. Yup, back to the local Truckstop to replace it.

Lastly, Field Day is almost upon us. Please make every effort to help or participate. More to come at our upcoming meeting, but make plans to be at the Pleasant Valley Nature Preserve on the June 22-23 weekend. I shamelessly stole this from the ARRL website:

Every June, more than 40,000 hams throughout North America set up temporary transmitting stations in public places to demonstrate ham radio's science, skill and service to our communities and our nation. It combines public service, emergency preparedness, community outreach, and technical skills all in a single event. Field Day

has been an annual event since 1933, and remains the most popular event in ham radio.

Cheers and 73, K9VIN
Kevin

And the Ham of the Year is...



Tom Trethewey (KC9ONY)

Tom is a major contributor to the success of the ORC as our Repeater VP and as Net Control of our Tuesday evening net. Congratulations, Tom, and thank you!

Tom Murtaugh, W9VBQ - SK



Tom passed away on June 3rd. He was a founding member of the LEFROG Radio Club and a past member of the ORC. Visitation and funeral mass will be on Friday, June 14, 2019 at St. James Catholic Church, W220 N6588 Town Line Road, Menomonee Falls, WI 53051 (<https://www.stjames-parish.com>, Google map: <https://goo.gl/maps/Kqkkok8U9oF5Hc6d8>).

10 am - 12 pm: Visitation in the **Chapel** (the church has a wedding)

12 pm: Funeral Mass

Friday, June 21, 2019

Burial at Veterans Memorial Cemetery in Union Grove (if they are able).

More information to follow in the July Newsletter.

DX'ing & Contesting

De Gary Sutcliffe (W9XT)



Last month I mentioned the new FT4 contest mode. It is similar to FT8 but optimized for contests. The big difference is that the transmit periods are shorter. Some people tested it, including me. There was a simulated contest period, but it was at the same time as the May Ozaukee meeting, so I was unable to try it in contest conditions. Several issues came out. I ran into K1JT at Dayton and talked to him a bit about FT4. He mentioned there would be some changes to the format.

A new version came out on June 3. It is incompatible with the older version, so if you downloaded a copy, delete it. The new version, release candidate 7, will expire in July. If you do download a copy, put it in a different directory than your regular WSJT stuff.

One thing that changed is the transmit period was increased from 6 seconds to 7.5 seconds. The bandwidth is also slightly decreased, and the sensitivity has been improved a bit. This version will be usable until late July when it is hoped that a general release will be available. Note that FT4 will not work during the ARRL VHF contest or Field Day. It is not ready for prime time, and they don't people trying to use it during these contests.

Another update to the FT4 story is the organization that oversees the ADIF file format has updated it to include FT4 as a valid mode. ADIF is the file format that most logging programs use for exchanging log data including upload to the ARRL Logbook of The World. They had a mock contest to test out the new version on June 4. I got on for a while and made a bit over 50 contacts. I had problems working stations weaker than about -8dB. I don't know if it was me, conditions, or limitations with the mode. It is really fast with strong signals, about the same with a couple of good CW ops at a moderate speed. Even at this limit, it is an improvement over RTTY, especially for low power stations. I am looking forward to this getting to general release.

I don't think FT4 will replace FT8 for general operating. It is usually not difficult working stations down around -18 to -20 dB on FT8. I think the extra 10dB or so is well worth the extra time in making general contacts. If you are planning on using FT8 during Field Day, be sure to get the latest general release version. There were some issues with some FD classes with the older version.

Another mode under development is for the new low bands, 630 Meters and 2200 Meters. Most QSOs on those bands are with the JT9 mode which is optimized for those frequencies. Joe is working on a new mode for those bands. In my conversation with K1JT, I asked him about it. He said that development on it will probably be delayed until FT4 is put to bed, but he was glad that others are interested.

The new mode will take much longer to make a QSO. I have heard 15 minutes and -35 dB decoding, but that may not be correct. At any rate, the slower the bit rate, the deeper into the noise signals can be detected. Some LF and VLF experimenters have been using very slow speed CW. It is so slow that a dit lasts a full minute. QSOs take a long time at those speeds! Currently, I have a WSPR system that transmits a beacon signal on 630 M. I hope to be able to transmit other digital modes by the fall season which will allow me to make QSOs. I am looking forward to the new mode.

There are two big contests this month. The first is the June ARRL VHF event. It starts at 1800 UTC (1:00 PM local) on Saturday, June 8 until 0259 UTC Monday (9:59 PM Sunday night local). Basically, you contact stations on the VHF and UHF bands starting with 6 meters. The exchange is the grid square. Signal reports are optional. You can work a station on phone, CW or digital. You only work a station once per band regardless of the mode. Note that you should log all digital modes as DG. QSO points depend on the band. Multipliers are the sum of grids worked on each band. There are a lot of different classes, including FM only, portable and rover classes. Check them out at <http://www.arrl.org/june-vhf>.

Of the three ARRL VHF events, the June one is the most popular. It occurs during the spring Es season, and 6M can open up. There will be a lot of FT8 and other digital mode activity. Digital modes will allow contacts during conditions that won't sustain contacts with CW or SSB. If 6 meters opens up with strong sporadic E signals, switch over to CW or SSB. You will make QSOs much faster.

The other event is Field Day, June 22-23. Plans for the ORC effort should be pretty firm by now, and that will be the program topic at the June meeting.

There are some interesting DXpeditions scheduled for June. Currently, 3D2CR is on the air from Conway Reef, in the region around Fiji. Earlier their boat was forced to return to Fiji from because of bad storms, but they finally made it. They have been active on the higher bands and running a lot of FT8 in the Fox/Hound mode. I worked them on 30M for a new band country. I also worked them on 17M FT8 and 15M CW. The interesting thing is that those last two QSOs happened about 11:00 PM local time. I would have expected the bands to close long before that with our low sunspot numbers.

Another reef, this time in northern Europe, is Market Reef. A group of Finish hams will be activating OJ0AW on June 8-14. They will operate the usual HF bands with CW, SSB, FT and other digital modes.

A group of mostly Spanish ops will be heading to Sao Tome June 6-19 using the call S9A. HF, CW, SSB, and FT8.

There are currently two groups in Viet Nam. HB9DXB is there using XV8DXB concentrating on 20 M CW & SSB. A group of Russians is using XV9DF on 40-10M, CW, SSB, and FT8. These are expected to be active until June 15.

There are many one-man operations this month, including 9G5GS, OX3LX, KH0N, 6O100, V6K, V63PSK, and a couple of guys from Svalbard (JW) using JW/home call. Some of these are

holiday style and the hours of operation may be limited or during hours of poor propagation to us. You have to stumble across them.

That wraps up June. Have fun at Field Day!

FIELD DAY 2019 ANNOUNCEMENT

Weekend of June 22-23, 2019



I would like to invite the club members, both old and new, to join us in participating in our annual Field Day activities, once again to be held at the Pleasant Valley Nature Park, 5100 Pleasant Valley Road, north of Cedarburg. We will meet on Thursday afternoon, June 20th, at our storage shed, located on Hawthorne Drive, and pick up the tower trailers and storage trailer and tow them to the park, where we will unload and erect the 20' x 30' canopy. We could sure use your help in this crucial opening activity of the FD weekend. We will be at

Pleasant Valley Park on Friday the 21st, working on antennas and beginning to set up our multiple stations. The highlight of the day will be held late that afternoon, which is a roasted turkey dinner, thanks to Stan WB9RQR and others, and we ask you to bring a dish to pass, such as salad, veggies, snacks or a dessert. The club will provide the turkey, baked potato and drinks such as soda, beer and water. You would also want to bring a lawn chair, as well as a food item, and don't forget your appetite.

Saturday morning, the 22nd, we will finalize our station setups, and hit the airwaves at 1800Z for the 24 hours of the event, with teardown and towing of the trailers back to our shed on Sunday afternoon. We plan to activate four main stations and a VHF station. Any and all in the club are encouraged to get involved and play some radio this weekend. If you are a seasoned operator, you should jump in and get some 'chair' time on HF, and if you are new to radio, come on in and get acquainted with one of the fun facets of our hobby. Here are the band captains of our planned station configuration:

W9IPR Tom;	40 meter SSB
W9GA Ken;	20/75 meter SSB
WT9Q Vic;	20/40/80 meter CW
K4WTH Robert	Digital on multiple bands

N9VSV Jeannanne VHF station, 6 meters

We encourage all of you to talk to these captains if you would like to join them at their operating positions. We will discuss the operating parameters and other functions at our upcoming meeting this Wednesday, so please plan to attend!

Ken W9GA

THE COMPUTER CORNER

No. 255: Windows as a Service

Stan Kaplan, WB9RQR 715 N. Dries Street Saukville, WI 53080-1664
(262) 268-1949 wb9rqr@att.net



We've had about a dozen major Windows versions with several more sub-versions. Win 3.1, NT, 95, 2000, ME, XP, Server, VISTA, 7, 8 and 10 pretty much covers them, pretty much in chronological order. But apparently Windows 10 is the end. At least according to Ted Eiler, a computer service consultant right here in Greenfield, WI. You can read his latest blog and even subscribe to it (free), by going to <https://www.tecs-on-site.com>.

In the past, new designs and functions of the Windows operating system (OS) were incorporated into a completely new release (and new release name or release number) every couple of years. Instead, Microsoft is now simply going to keep Windows 10 and add new stuff about twice a year. So, you can expect no Windows 11 or 12 or 13. Rather, look for updates to Win 10 in the spring (March or April) and in the fall (September or October), and a bill one of those times for the annual "service fee". Key performance changes such as security updates will continue to be released each month.

So, here is what you really want to know. Everything before Windows 7 is dead (including XP), and you would be foolish to have a machine with these early versions on any machine that you even occasionally connect to the Internet. Mainstream support for Windows 7 ended on 13 Jan 2015 (product design features and complementary support ceased that day). While extended support (security updates to keep the OS safe) are still being released as of now, they will end totally in just a couple of months, on 14 Jan 2020. You don't have much time!

You can get a copy of Win 10 Professional at <https://softwarelicense4u.com/> for only \$29.99 as of this writing. For their fee, they send you only the software key and instructions for how to download the software itself from Microsoft. I have used them on at least four occasions with no problem. Most important, the key was accepted by Microsoft when submitted, resulting in proper activation of the OS.

On the other hand, you might elect to not purchase Windows at all. Linux Mint 19.1 Cinnamon 64-bit is a very fine OS that works just like Windows. It comes with an office suite that is a great substitute for Microsoft Office. It includes a spreadsheet, presentation, drawing, formula, word processor, database and other items. It can open and save .doc, .docx formats in the word processor and comparable formats in the other software. Best of all, it is FREE and is installed automatically with Linux Mint 19.1 Cinnamon (as is the Firefox browser and a whole bunch of other goodies).

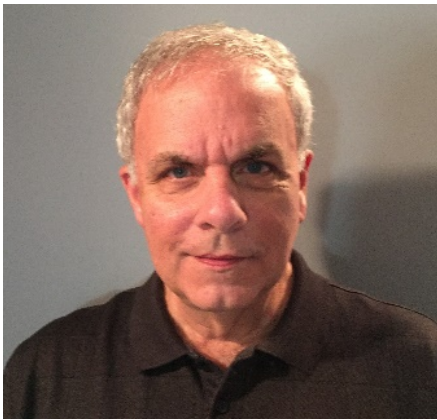
Bonus: If you have a bootable thumb drive that you want to use, turn off your computer, plug it into a USB port and power on the computer. If it doesn't work, your computer might require you to press a boot menu key to tell it to boot from the thumb drive. Common boot menu keys are:

Acer	ESC, F2, F9 or F12	Lenovo, Samsung, Toshiba	F12
Asus	ESC or F8	Sony Vaio	F11
Dell	F12	HP	ESC or F9

Clip the above out and save it for future reference. Happy Computing!

Vintage Amateur Radio

de Bill Shadid, W9MXQ



This month we are staying a little longer in the 1980's with the R. L. Drake Company of Miamisburg, Ohio. Last month we covered the revolutionary, for Drake and the ham radio industry, TR7 High Frequency SSB/CW/AM General Coverage Transceiver. This month we move on in discussion of the conversion scheme of the TR7, its major, but rather rare, partner receiver, the R7, and a bit into how the market changed before Drake's eyes. We will also touch on an ill-fated attempt to step into a lower cost market with the TR5 Transceiver. In an upcoming third installment we will talk about the prototyped successor to the TR7A, some planned accessories, as well as other products in the incomplete "8-Series" Drake amateur radio

equipment lineup.

Drake had hit the market by storm with the TR7. A bit like Collins, they were expensive, but they made huge gains in technology with the model – just as Collins had large technology gains with the S-Line separates and transceivers. To keep up with their very popular R-4C Receiver and T-4XC Transmitter and their similarly popular TR-4C Series Transceivers, Drake offered a receiver partner for the TR7 – that being the matching R7 Receiver. Unlike the unfortunate difference in the R-4C and TR-4C conversion schemes preventing a complete, transceiver enabled pair, the TR7 and R7 could be interconnected in full transceiver operation. Here are pictures of the TR7 and R7 for comparison:



Drake TR7 HF Transceiver (W9MXQ Shack Photo)



Drake R7 HF Receiver (RigReference Photo)

There once was a Drake R7 Receiver (R7A, actually) at W9MXQ, but it has not been here for many years. To say the R7 was a TR7 without a transmitter is a bit of a simplification to some

unique features of the receiver. However, the conversion schemes were the same and the TR7 alone offered virtually all the features of a TR7 paired with the R7 except for these items . . .

1. There was a lack of a separate receive and transmit frequency separation beyond the RIT (Frequency Offset) feature of the TR7. This could be handled by using the optional RV7 External VFO, however.
2. The TR7 / R7 pair could allow for dual receive – a feature unavailable at the time in other radios. We covered dual receive in the past article covering the Hallicrafters SR-400 Transceiver (off the market by the time of the TR7 and R7.) This feature later came from Ten-Tec in the Corsair Transceiver and External VFO, three years after the TR7 and R7 were introduced.
3. The R7 Receiver offered a Notch Filter Circuit that was absent from the TR7. (Actually, I use a JPS NIR-12 Dual DSP Unit with my TR7A to add this feature.)

If it was 1980 again, and I was still using the TR7A and R7A Receiver in that long-ago station, I think I would certainly miss dual receive. In 2019 as I write this article, such requirements are satisfied by more advanced equipment at W9MXQ. In 1980, this was remarkable! I must be honest and say that I am not so sure that in 1980 I would have been the kind of operator that could appreciate the power of such things as dual receive. Thanks to some well-intentioned friends (primarily K9DJT² and W9XT³) who have coaxed me into the Contesting and DX worlds.

Let me inject a note here – the TR7 and TR7A as well as the R7 and R7A are nearly identical except for standard equipment from the factory. The “A” versions of both radios merely met a marketing challenge against the competition who included these features in their base price – there are very few technical differences other than a front-end protection circuit that would have meant very little to most operators.

Like the earlier R-4 / T-4X line of Receivers and Transmitters as well as the TR-3/4 series Transceivers, the TR7 and R7 used a permeably tuned oscillator – PTO – to tune the radio. I will use the term VFO. The analog dial mechanism appears as a slightly smaller version of the dual clear disk readout on the R-4C Receiver, T-4CX Transmitter, and TR-4 series Transceivers. No digital readout was necessary to read to an accuracy of less than one kHz. Both the initial TR7 and R7 products came in two forms – one with and one without the digital readout. The digital readout board in both the TR7 and R7 was called the DR7 Readout Board. Officially, Drake had these models available at introduction:

- Drake TR7 Transceiver Model 1337– with Analog Readout
 - List Price of \$1,200.00 in 1979¹
- Drake TR7/DR7 Transceiver Model 1336 – with Analog and Digital Readouts
 - List Price of \$1,395.00 in 1979¹ (TR7A \$1,839.00 in 1984⁵)
- Drake R7 Receiver Model 1241 – with Analog Readout Only
 - List Price of \$1,100.00 in 1979¹
- Drake R7/DR7 Receiver Model 1240 – with Analog and Digital Readouts
 - List Price of \$1,295.00 in 1979¹ (R7A \$1,649.00 in 1984⁵)
- Drake DR7 Digital Readout Model 1550 – for retrofit in Models 1337 and 1241
 - List Price of \$195.00 in 1979¹

The marketing of the Model 1337 TR7 Transceiver and Model 1241 R7 Receiver, as well as the separate Model 1550 DR7 Digital Readout, ended very early in the life of the products. Few, if

any, radios left Drake without Digital Readout. Personally, I have never seen a TR7 or R7 without the DR7 Digital Readout installed.

The remarkable thing (one of two) about the TR7 and the R7 was what we now call, “Up-Conversion.” As mentioned in passing in last month’s installment, the first i-f of the radios was outside of the HF spectrum, into the VHF range. Early SSB radios focused on a 9.000 MHz i-f with variances over time, by brand – but all in HF. Drake, in fact, used 9.000 MHz as the i-f frequency in the TR-3 and TR-4 Transceivers that were predecessors to the TR7. The TR7’s first i-f was moved to 48.050 MHz. That placed images outside the tuning range of the TR7 and R7 receiving range. Images in conversion schemes had long been a major problem for radio designers.

The other remarkable thing (two of two) about the TR7, and the R7, is that there is an 8 to 12 kHz wide crystal filter at that 48.05 MHz i-f. Drake inserted it for what were good design reasons. But, does anyone have an idea of what we call that filter, today? It is now called a Roofing Filter. I must say, however, that this “second remarkable thing” was not unique in the TR7 and R7 at Drake. That early stage filter, before the traditional i-f bandwidth filters, existed also on the R-4 series receivers – far ahead of others in the ham radio market. The R-4 series filter, in the 5 MHz range, was also what we would call a Roofing Filter. Even though it was only a four-pole crystal filter, it allowed better performance than could be expected from the tuned circuit bandwidth filters in the R-4, R-4A, and R-4B Receivers. Those tuned circuit filters were replaced in the R-4C with eight-pole crystal filters for each bandwidth position for even better performance.

Repeating from last installment, 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)**

We talked last month about market pressures that pushed Drake to offer some basic options in the TR7 as standard equipment in a “marketing upgrade” called the TR7A. At that time, the feeling was that the high market price of the TR7 could not continue without features that less costly competition offered. My personal feeling is that Drake still had a superior performing radio – but money talks and a lower price in ham radio can garner a lot of business.

In 1981, four years after the introduction of the TR7, Drake introduced the lower cost TR5 HF Transceiver. At \$799.95⁵, it was a considerable savings over the TR7A. The radio came in a cabinet the same size as the TR7A – absent only the punched grill area, for a left side mounted

speaker – a feature omitted from the TR5. Let's take a different approach in describing the differences between the TR5 and TR7A and start with a list of the most important reasons a person bought a Drake TR7A:

- Digital Readout (not universally available when the TR7 was introduced in 1977)
- Digital Readout useable as a utility 150 MHz Frequency Counter
- Passband Tuning
- SSB/CW/AM Coverage
- Coverage from 0 to 30 MHz (yes, that is ZERO)
- Programmable, with appropriate proof of license) transmit segments in HF from 1.5 to 30 MHz – no gaps
- 240 watt (and more) input final amplifier (100 to 150 watts output)

Much of this was becoming standard equipment on the competition. So, how did the TR7A and the TR5 stack up to each other in a common market:

TR7 to TR5 Important Feature Comparison		
Feature	TR7 Transceiver	TR5 Transceiver
Digital Readout	Yes	Yes
Utility Frequency Counter	Yes – to 150 MHz	No
Passband Tuning	Yes	No
Modes	SSB/CW/AM	SSB/CW
General Coverage	Yes	No
General Coverage Transmit	Yes	No
Power Output (SSB PEP & CW)	100 to 150 watts	80 Watts

Several points here:

1. Drake's two Linear Amplifiers, the L7 and the L75, required a drive level of at least 100 watts for full output. The TR5's 80-watt final amplifier was widely criticized by owners and potential owners alike. What were they thinking?
2. Even low-cost competitors were trending to general coverage receivers – and therefore there was a need for AM mode capability.
3. The band coverage issue strictly for ham radio use was not so bad – even the upcoming WARC bands were covered on the bandswitch. Band heterodyne crystals were optional for the additional bands – a common practice in the marketplace. But, CAP, MARS, and other legal uses of ham radio equipment could not be accommodated.
4. The absence of not only Passband Tuning but also more than a single selectable, optional crystal filter made for an inflexible radio.

Drake promoted QSK (full break-in CW) as an important feature of the TR5. But this was at a time when Ten-Tec had truly outstanding, and quiet QSK circuitry in radios in the TR5's price class. These Ten-Tec radios included the respected Omni A and D. (Ten-Tec, like Drake with the TR5, did not provide for General Coverage Receive.) The TR5, however, really did not have quiet QSK and users complained that the fast switching antenna relay was too noisy. Third party QSK modifications for the TR7 and TR5 were published at the time. None of these were sanctioned by Drake – at least not outwardly.

I think it is difficult for deluxe manufactures of any product to design a low-price version of the product(s). The TR5 may have been a case in point once it was determined what in the TR7

must remain unique to that product. Drake had never produced multiple price levels of transceiver at the same time – and likely should not have done so in 1981.

All comments aside on the TR5, many did like its simplicity – and that kind of customer thinking is around even now, just as it was then. The TR5 was more traditional in design and that also suited some potential customers. The most common negative comments were that its RF power level was too low and the receiver “had too many birdies⁴.”

Today’s users certainly mention simplicity as part of their love their TR5’s, TR7’s and TR7A’s – simple to use in comparison to the modern day, memory intensive, microprocessor controlled, radios from Japan and the USA.

So, in closing, let me bring up one point on the TR7 and TR7A that might come to light if you buy one of these fine units. The transceivers include a feature to use the digital readout system as a 150 MHz Frequency Counter. This is quite handy, as mentioned earlier in this article. In at least two occasions when I acquired a TR7 Transceiver that was advertised as having a “non-working” frequency readout, I found that the switch on the rear panel, marked NORM-EXT, was in the EXT position. That meant the radio was setup in “Frequency Counter Mode.” On occasion, I have found the NORM-EXT slide switch to be defective, or at least has dirty contacts. This counter feature exists in the R7 and R7A Receivers as well. However, in the receiver, the Counter function is engaged differently and is not so problematic. Do you have a TR7 that seem to receive and transmit but with the readout showing only a single decimal point? Check that switch!

Next month we will talk about the unique end of the line for the TR7 and the TR5. We will also talk about efforts to replace the design with a more modern radio of similar concept, the Drake “8-Series” products, as well as accessories to match that effort.

A special thanks go to Bob, W9DYQ, for his proof reading. Remember that I am open to questions and comments at my email address, W9MXQ@TWC.com.

Reference Notes:

1. Source – 1979 R. L. Drake Price List. (Prices List original documents on file at W9MXQ.)
2. K9DJT is Gary Drasch.
 - Look for Gary at <https://www.k9djt.com/>
3. W9XT is Gary Sutcliffe.
 - Look for Gary at <http://www.w9xt.com/> and <https://www.unifiedmicro.com/>
4. A “birdie” is an extraneous/undesirable signal generated within the receiver circuitry.
5. Source – 1984 Amateur Electronic Supply Catalog (Drake List Price). (AES Catalog original documents on file at W9MXQ.)
6. Circuit details for Drake and other radios are taken from their respective Operating Manuals. (Manuals are on file at W9MXQ.)
7. For references to earlier R. L. Drake products, see previous articles about the Drake R-4 and T-4X (August 2018), the Drake R-4C and T-4XC (September 2018), the Drake TR3 and TR-4 (June 2018), and the one about the Drake TR-4 and TR-6 (July 2018).
8. There are three operating TR7’s Transceivers at W9MXQ – two TR7’s and one TR7A. One TR7 and the TR7A have optional filters including the 1800, 500, and 4000 Hz units plus the NB7 Noise Blanker. The other TR7 has no options installed at this time and “seems to operate when and if it pleases” due to numerous internal issues.

Project of the Month[©]

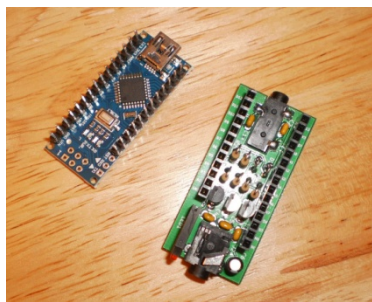
de Gary Drasch, K9DJT

MORTTY Keying Interface Kit



I had recently started questioning the use of a WinKeyer. Many contesters use them but I didn't know its purpose. I discovered that it is used to offload the CW and/or RTTY keying of the radio from the PC during a contest. The keying of the transmitter and sending of CW or RTTY signals during a contest is done via the function keys on the PC. A foot switch or actual code-key isn't used. Therefore, the PC is not only managing the overhead of the contest software, real-time logging, and the cluster, but it is also keying the radio and sending data through it. A WinKeyer, or similar device, will take the responsibility of keying the radio and doing the data transfer. Supposedly, the CW and RTTY signals sent are also cleaner compared to the PC sending them.

Because I experienced my PC locking up on me during two different RTTY contests, I decided to look into the cost of a WinKeyer. As so many things, it was more expensive than what I was hoping for—\$99 for a kit—\$129 assembled. Just then I discovered an article in the April 2019 issue of QST. It was titled, "Mortty Morse Code and RTTY Keying Interface Kit." It is based on an Arduino NanoIO and somewhat emulates a WinKeyer. The big difference between the two is that Mortty requires the changing of a "Sketch", which takes about a minute, to change from CW to RTTY or the reverse. The cost? A Mortty kit is only \$18 plus shipping, so I ordered one.



It arrived in the mail in a small envelope. Upon opening it, I was instructed to download and print out the instructions. All the parts, case, and NanoIO were there including the USB cable to the PC. All the parts and Mortty circuit board were through-hole construction which made soldering pretty easy. The part IDs were all silkscreened on the circuit board which almost caused me to assemble it without the instructions, but I didn't. It wasn't a surprise when I did find a unique construction technique in the instructions. It took about an hour to complete the kit, and maybe another hour to gather parts and wire to

make the interface cable to the radio. (I found it refreshing that the instructions EXPECTED me to make the cable rather than purchasing one off the shelf. That's ham radio! And to that point, I'm proud to say that I have always made up my own.)

I needed to dink around a little with my N1MM+ contest software settings to get it to play correctly, but once that was done, everything worked as expected. I ordered my unit with the CW "Sketch" already installed (you have a choice of CW or RTTY at the time of order), and haven't tried it on RTTY yet.



My hope in writing the *Project of The Month* article for each newsletter is to renew the "building aspect" to this great hobby. If you are interested in learning how to solder, make a wire antenna, or an accessory cable, don't be afraid to ASK someone in the club to help you.

Until next month, 73. – Gary K9DJT

Bad Power Cable?

Pat Volkmann (W9JI)



My wife and I were at our cabin in northern Wisconsin for Memorial Day weekend this year. We were there to open up the house for the season, lay out a new deck and clean up after some logging that was done over the winter. I brought along my Icom 706 Mark IIG with the usual collection of cables, antenna tuner and accessories. I expected the antenna to be down (and it was) so I had brought along a Hamstick vertical. The vertical could be clamped to a saw horse and is adequate to make some FT-8 contacts.

The station was set up in the garage and was soon on the air. Power was supplied by my Generac iQ2000 generator as the garage does not have power. Everything was working fine and I was able to make occasional contacts throughout the day, as work breaks allowed.

After a couple of hours, the radio turned off. This was not too unusual, as it had happened several times before. The problem was usually that the detachable faceplate needed to be removed and then reconnected. This would remake the connections and restore normal operation. This time, however, reseating the faceplate did not fix the problem.

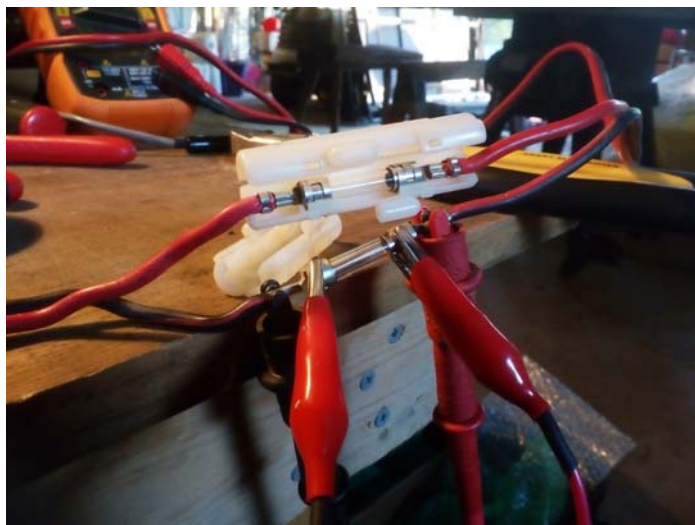
Fortunately, I had brought along a digital multimeter. The first check was the power supply. Output voltage was normal, at 13.8 volts. It seemed that the problem should be in the Molex power connectors on the radio or the internal fuse. I removed the bottom panel from the radio and started making some measurements. Power was applied and the voltage measured at the circuit board where the power leads connect was about 4 volts. Rechecking the power supply showed that the voltage remained at the normal 13.8 volts. The power cable was dropping almost 10 volts between the power supply terminals and the circuit board. After unplugging the power supply cable from the radio, I measured 13.8 volts on the connector terminals.

This cable has a fuse in both the positive and negative lead. The fuse holders were opened up and the resistance of both fuse holders and fuses were checked. Everything looked good.



Icom 706 MKIIG with bottom cover removed

The Molex connectors seemed the most likely suspect but the meter probes would not fit into the connector housing. After some scrounging, I found a short piece of telephone cable and pulled out a couple of fine wires. The wires were shoved into the Molex connectors on the radio and the power cable, allowing the DMM to measure the voltage in the connector. Power was reapplied and the connectors measured about 4 volts, indicating that the voltage drop was between the Molex connector and the power supply terminals.



Bad fuse bypassed with a clip lead

The fuse holders were opened up again and the voltages measured. The negative lead fuse holder measured 13.8 volts on one side and 4 volts on the other. A clip lead was used to bypass the fuse. The radio now operated normally.

Examination of the fuse showed that the solder joint on one end had an unusual, lumpy appearance. The fuse still measured a very low resistance. The lumpy appearance was a bad solder connection between the end cap and the fuse wire. After some pushing and twisting, the fuse measured about 10 megohms.

It seems that it should have been simple to find the cause of the voltage drop in a cable. But, there are 32 connections between the circuit board and the power supply, and only 12 of them are accessible without dissecting the cable. Any one (or more) of the connections can be bad. Fuses are supposed to be either open or short, not in between. This is the second time I have found a bad fuse that was not blown. It's rare, but it does happen.

After forgetting some key items on previous trips, I developed a checklist that I use to ensure that I take everything I need for a trip to the cottage. That checklist includes a spare power cable and spare fuses, neither of which I had packed this time. The main reason for not packing them – I didn't look at my checklist. Everything turned out OK because I had enough other parts to work around the problem. With Field Day coming up, this is a good time to look at how we plan for a successful outing and be sure to read the checklist!

UPCOMING EVENTS

ORC Membership meeting – June 12, 2019 - Field Day Planning

ORC Monthly Programs

June - Ken W9GA, Field Day

July - Tom W9IPR, Sun-N-Fun

August - Homebrew Night

Breakfast at Jim's Grille – Saturdays at 7:00 AM

**Field Day Activities – June 21-23
Pleasant Valley Nature Park**

A Notice from Vic WT9Q

Do you want to learn more about operating HF? There will be free lessons at the Field Day site on Friday through Sunday, June 21-23 at Pleasant Valley Nature Park. Learn how to run coax, assemble HF antennas, attach a rotor, and operate various HF Radios.

Field Day is a great opportunity for newly licensed hams to expand their knowledge of ham radio.

All you have to do is show up and start asking questions.

Vic WT9Q

Homebrew Night

The August program will feature projects by club members. If you have made something that you would like to share with the club, please let Pat W9JI (w9ji@arrl.net) know ahead of time. You can bring the item in for show-and-tell, have a brief presentation (three slides maximum) or both. Plan on about five minutes to discuss your project. The project doesn't have to be huge or grand— just let us know what you have been doing.

Volunteers Needed for Monthly Programs

The monthly program is the highlight of the Ozaukee Radio Club meeting. We are fortunate to have a number of very talented people in our club, many of whom have shared their knowledge through a presentation. Share your expertise and experience with the club. Programs can be on any topic that is ham radio related. Contact Pat Volkmann W9JI at w9ji@arrl.net to discuss your idea for a program.

Ozaukee Radio Club

May 8, 2019 Meeting Minutes

de Ben Evans (K9UZ), Secretary



First Vice President Pat Volkmann (W9JI) called the meeting to order at 7:32 PM, as President Kevin Steers (K9VIN) was delayed in arrival to the meeting. All the attendees introduced themselves.

Announcements, Show-and-Tell, Bragging Rights:

Jon M. (KD9GAE): A good time was had last week at SIMCOM, the annual communications interoperability exercise put on by state and county Emergency Management and the Wisconsin National Guard.

Tom R. (W9IPR): There is a 6-meter contest on May 11th. You can read about this and other events on Wisconsin Ham by getting on their email distribution list.

Robert (K4WTH): There was a good turnout at the Spring Swapfest.

Programs:

Vic (WT9Q) reported on his mostly successful experience with remoting his home station from Florida. He said it worked, but there was room for improvement. While in Florida, Vic joined a radio club there and did a good amount of contesting.

Gary S. (W9XT) gave a presentation on techniques for homebrew projects.

50/50 Drawing:

Dick (AB0VF) was the winner of the 50/50 Drawing.

Auction:

Stan (WB9RQR) conducted the auction. Many items were sold, including mini-CDs for wiping a computer clean, a Windows 7 rebuilt Compaq computer, an SWR/power meter, two 19-inch rackmounts, a 2-meter transceiver with area repeaters already programmed into it, and a matching network.

Officer Reports:

Kevin S. (K9VIN) President – Thanks to everyone who helped with the Spring Swapfest. We have five months left to find another home for the club trailers and other items in the shed.

Pat V. (W9JI), 1st VP – No report.

Tom T. (KC9ONY), Repeater VP – There is a hum issue in the audio of the Mequon park remote site. We pinpointed the source to a power transformer for a paging system whose equipment is in the same rack, above the club equipment. The County and the paging company came out and verified that the transformer was the source of the hum. The paging company replaced the power supply and there was still a hum. The County is willing to let us move to a rack in another part of the equipment room so the hum in our system goes away or is at least greatly reduced.

Ben E. (K9UZ), Secretary – The minutes from the April meeting are in the newsletter and were also distributed by email. Motion to accept the minutes was made by Stan (WB9RQR), seconded by Robert (K4WTH) and approved by the members.

Robert E. (K4WTH), Treasurer – April was a quiet month for finances. The rent for the meeting room for 2019 was paid in April, but the Senior Center, not realizing we are a 501(c)(3), charged us sales tax on the rent, so we will be getting a check back for the sales tax amount. Stan (WB9RQR) moved to accept the report, which was seconded by Vic (WT9Q). The motion was approved by the members.

Robert E. (K4WTH), Treasurer – Spring Swapfest I&E – The Scholarship Fund made \$187.50 from the swapfest. Anyone who's holding a receipt related to the swapfest should turn it in to Robert for reimbursement. Ticket sales were \$855, food sales were \$187, and table sales were \$935. Minus expenses, the net revenue was around \$800.

Kevin (K9VIN) commented that in order to induce people to stay longer at the event, we should hold presentations on various ham radio topics similar to the Dayton Hamvention. Perhaps the prizes should be given out later in the day. A short discussion ensued about whether the rules of having to be or not be present to win the prizes should be changed. Pat (W9JI) suggested that the event have a later start time because of the time needed by some attendees to travel from long distances. Tom R. (W9IPR) commented that concessions sales were disappointing, however the soda and coffee that was left over can be used for Field Day. Kevin felt that outside groups we bring in to do concessions make little to no money so it may be hard to convince them to come back to an event lasting only a couple hours. A few of the members suggested a meeting on how to improve the swapfest.

Committee Reports:

Ken B. (W9GA), Nominations – ORC Awards – Ken gave out the awards to members that exhibited exceptional dedication to the club and to amateur radio during the past year. The award winners are as follows:

President's Award – Pat Volkmann, W9JI
Program of the Year – Bill Shadid, W9MXQ
Turkey of the Year – Bill Shadid, W9MXQ
Ham of the Year – Tom Trethewey, KC9ONY

Tom R. (W9IPR), Scholarship – Tom said he will go out to the barn tomorrow at 10:00 AM to do come cleaning out. Anyone who'd like to help is welcome, and if you see something in the barn you'd like that would otherwise be thrown out, you can take it for free.

There will be a Scholarship Committee meeting this month to make a recommendation of how to disperse funds to the ARRL Endowment and to discuss and adopt criteria for potential localized STEM grants.

The Fall Swapfest is September 7th. Flyers have been printed and will be distributed. The first Saturday in September seems to be the Saturday in September that's clear of conflict.

Old Business:

There was no old business.

New Business:

Tom R. (W9IPR): Tom made a motion to have the nominating committee review the meeting attendance sheets and the club membership roster and at an upcoming meeting nominate a competent individual for Second Vice-President to be voted on by the membership. Tom said that the vacancy of the 2nd VP office that we've been experiencing has serious consequences as demonstrated by the Spring Swapfest. The motion was seconded by Pat (W9JI), and approved by the membership.

Ken (W9GA): At the next meeting, Ken will do the presentation on our Field Day, a little about the history of Field Day, and to look for participants to fill out the work chart. Ken will also be picking up the canopy next Wednesday. We probably would move the old heavy tent back to the shed and eventually move it to some other site yet to be determined. Tom (W9IPR) asked if we could give it back to OZARES. Ken said maybe we could, but the complication with that is we will be taking parts from the old tent to use with the canopy. We could replace the items taken from the old tent and return those and the rest of the old tent to OZARES. If anyone is available to come along on the canopy run, talk with Ken after the meeting. The dates for all activities are Thursday through Sunday, June 20-23. The pre-field-day activities are scheduled as follows:

Thursday – Move items from the shed to the park and set up the canopy.

Friday – Erect antennas. Dinner in late afternoon featuring Stan's barbequed turkey. All others bring dish to pass.

The Field Day activity details will be presented at the June meeting

Adjournment

A motion to adjourn was made by Stan (WB9RQR), seconded by Robert (K4WTH) and approved by the members. The meeting was adjourned at 9:41 PM.

Attendance:

There were 41 members and two guests present at the meeting.

A copy of the attendance sheet is available upon request in PDF format. Please contact Ben Evans via email at ben@evansengsolutions.com for a copy.

Respectfully submitted,



B. Benjamin Evans, K9UZ
Secretary

ORC Meeting Agenda

June 12, 2019

1. 7:00 – 7:30 PM – Network & Rag Chew
2. Call to Order – Kevin Steers (K9VIN)
3. Introductions
4. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
5. Program: Ken Boston W9GA – Field Day
6. Fellowship Break
7. 50/50 Drawing
8. Auction – Stan Kaplan (WB9RQR)
9. President's Update – Kevin Steers (K9VIN)
10. 1st VP Report – Pat Volkmann (W9JI)
11. Repeater VP Report – Tom Trethewey (KC9ONY)
12. Secretary's Report – Ben Evans (K9UZ)
13. Treasurer's Report – Robert Eskola (K4WTH)
14. Committee Reports:
 - a. Scholarship
 - b. Other
15. OLD BUSINESS
16. NEW BUSINESS
17. Adjournment to ?

Return undeliverable copies to

The ORC Newsletter

465 Beechwood Drive
Cedarburg WI* 53012

First Class

Next ORC Meeting:

Grafton Multipurpose Senior Center

1665 7th Avenue, Grafton, WI
Wednesday, June 12th, 2019

7:00 PM – Doors Open

7:30 PM – Meeting Begins