The ORC Newsletter

Official publication of the Ozaukee Radio Club, Inc. Mail all contributions to the editor, Tom Ruhlmann, W9IPR, 465 Beechwood Dr., Cedarburg WI 53012 (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 - Call Sign W9CQO

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Volume XXXI | April 2019 | Number 4

Message from the President

de Kevin Steers (K9VIN)

If you didn't participate in the recent Wisconsin QSO Party, I hope you picked up on the excitement and activities of others in the club. It is fun and easy, and next year we hope to have a number of folks who'll make a concerted effort to work and log on that weekend in March. Please put it on your calendars.

I intended to work mobile from northern Wisconsin, but that was not to be. I spent over an hour tuning around 20M and only made 2 contacts in that time, as the band was not in good shape. I even drove to the top of Sugar Bush Hill, in Forest County, one of the highest points in Wisconsin, and still nothing.

I then decided to head home and pitch those contacts, and start over as a portable station in Forest County. I could only work sporadically, so I only made 20 or so contacts later in the day, but it was nice to hear how rare Forest County was. I am sure if I had just sat on one frequency, eventually many would find me, but I could not dedicate that much time.

Finally, with no wifi, and a slight snafu with a recently-changed password on my iPhone, the phone thought it was being compromised, so it wiped itself clean. When I was back home on Tuesday, I was able to completely recover my iPhone from a backup, but not the valuable few QSO's that were stored there. I really wish I could make 2019 my first foray into a CLUB effort, but it was not to be.

I am currently waiting for the snow to melt, and hope to bury some radials below my tower. I intend to use an electric edger to cut slots in the turf, before it gets green and lush. I am going to try to time it to when my neighbor is home, in hopes he welcomes me to lay some under his lawn to make it as complete as possible. A tip I picked up from K9DJT.

Lastly, last fall I had installed a 20m vertical on my pontoon, and hope to make a few QSO's while fishing or just drifting, just to prove I can make a few K9VIN/MM QSOs, as in maritime mobile. I sure need the ice on the lake to melt.

Cheers and 73,
K9VIN
Kevin

DXing & Contesting

de Gary Sutcliffe, W9XT

Radio Contesting is kind of an unusual sport. Although there are multi-op efforts where several hams will get together and operate a contest with more than one transmitter, most hams operate contests by themselves. Most of the time you don't really know how you are doing. Maybe you get a clue when you hear your archrival send his serial number as he works another station. For the most part, you don't really know how you did until the scores come out, maybe close to a year later.

In other sports, everyone in the stadium, listening on the radio or watching the game on TV, and certainly the players know who is winning and by how much. Competitive runners and swimmers can see who is ahead of them. Marathon runners in the lead can hear footsteps as someone catches up. As a lone ham operates, you continue not knowing if your nemesis has given up and shut down or leaving you in their dust.

In the early, prehistoric BC days (before computers), contesters logged on paper logs. They kept something called a dupe sheet to ensure they didn't work a station a second time. There were a few different styles, but they split up a sheet in some ways to separate the calls into different areas for quickly seeing if a call was good or not. A common dupe sheet for domestic contests had columns for A-Z. One side had rows for 1-5 on one side and 6-0 on the other. So you had a box for every number in the prefix and the first letter of the suffix. If you worked W9ABC, you would go to the number 9 row and then to the A column and write ABC. If you worked WA9ABC, you would write ABC and circle it. K9ABC would show up as ABC with a line under it, and WB9ABC would have a double underline. Then in 1976 the FCC opened up a lot more prefixes and it was best to just write the whole call sign.

It would be difficult to keep the dup sheet up if you had a good CQ run. Often you had to let the dupe sheet get behind, so it didn't hurt your rate. You hoped the guys answering your CQ were good at duping,

Contest Online ScoreBoard

04 Mar 2019 00:01 UTC ARRL DX SSB

Closed: ARRL DX SSB ▾ Go

Highest rate: 291 q/h by W1CTN

Home	Profile	Filter	View	Clear Filter	Breakdown	Clubs
65		AF3K	6,864		52	44
66		KI9A	6,552		56	39
67		PA5KT	5,445		55	33
68		K2KXK	2,673		33	27
69		NR9Q	1,932		28	23
70		G0HEU	1,287		33	13
71		AA3K	966		23	14
72		K2ADA	798		19	14
73		K3PA	507		13	13
74		KP4/K6DTT	231		11	7
75		K9DUR	144		8	6
76		AD9I	12		2	2
77		NP4Z	12		2	2
78		VY1AAA	3		7	1
79		K1IR				

SO-ALL LP (A) PHONE		Score	QSOs	States/Prov./Countries
1	K2XR	402,192	532	252
2	W9XT	348,582	533	218
3	W3KB	336,000	500	224
4	PY4XX	253,890	653	130
5	VA2CZ	187,398	362	174
6	W9AV	137,592	313	147
7	AA4NP	79,248	213	127
8	VE3RZ	58,140	170	114
9	K1NZ	56,088	164	114
10	KF4WLS	44,982	153	98
11	W1DYJ	44,064	144	102
12	KU7T	42,387	200	71
13	WA2DNI	35,343	154	77
14	WE1SAX	18,228	99	62
15	AA4LS	18,060	87	70
16	G4PVM	17,145	127	45
17	K4LDC	13,098	74	59
18	K8BKM	8,892	57	52
19	OL5Y	7,548	68	37
20	OZ4MU	6,318	78	27
21	K9QQ	5,508	51	36
22	WB9VPG	3,264	34	32
23	KW9U	1,944	27	24
24	K9NW	1,188	22	18
25	SV3RPQ	882	21	14
26	KG5WJZ	624	16	13
27	G3KNU	147	7	7
28	DO4OD	144	8	6
29	G3K	48	4	4
30	YC0MAT	18	3	2
31	OM0WT	3	1	1

SO-ALL QRP (A) PHONE		Score	QSOs	States/Prov./Countries
1	LZ1KTR (LZ1YE)	6,840	76	30

so you didn't introduce any during your run. You would try to get the dupe sheet up to date when things slowed down a bit.

After the contest, you would go through and dupe the contacts again. It was easy to make a mistake and work a station twice. There were penalties for having dupes in your logs, so you wanted to be sure you got them all out. It could take several hours to dupe the log again and clean up your handwriting so it would be legible to the contest sponsors.

Since it took so long to do that, you usually had 30 days to mail in your logs. Volunteers would then go through the logs looking for dupes, busted calls, incorrectly identified multipliers, etc. They would need a few months to do this. It was a boring and thankless job. Then the results would be published in the magazine. Because of lead times, the results were often not published for almost a year after the contest ended. You had to be patient back then!

Everyone wanted to know how they did, so serious contesters would tune into 3830 KHz afterwards. A couple of stations, usually on the coasts would run a net. Contesters would call in with their scores. You had an idea of where you stood. Still, with log checking ahead, it is possible you or your competitor might have some sizable score reductions.

Then came computers and later the Internet. Computer logging started to get popular in the early 1990s. K1EA released a program called CT. It was mostly for international contests. Ken did not want to support contests like Sweepstakes and Field Day. So, K8CC released a program called NA that supported the domestic contests. Eventually, both programs started supporting most of the contests, and they competed against each other. There was kind of a religious debate on which was better. Not too long later, N6TR came out with TRLog. All these programs ran on PC's running DOS, but things in TRLog showed that Tyree was a Unix programmer. It had some different philosophies, and if you thought the arguments were strong between CT and NA, it was nothing once TRLog joined the mix!

The advantage of computer logging is that it would tell you if a station was a dupe. If you only copied a partial call like 9AB, a window would show similar calls you worked like W9ABC, K9ABX, etc. Often that would be enough to let you know you had probably worked them already. It also showed your current score. You didn't calculate your score much during the contest. It took too much time. You just went by feel based on the number of contacts and multipliers you worked. It took extra time to keep track of multipliers with paper logging, and you might not realize you didn't work some common country on some band. The computer kept track of the multipliers, and when you entered a call, it would tell you if it was a new mult. There might also have been a window of all multipliers worked by band. That was very helpful.

The best part of computer logging was that the dupes and new multipliers are automatically flagged. You just copied your file to a floppy (remember those?) and mailed it off. Eventually, the log checkers wrote programs to cross-check logs. That improved accuracy. These days you don't have to mark dupes. The log checkers do it automatically. You are not docked points for dupes anymore. Although you don't want to intentionally fill your log with dupes, if any get in there, you should leave them in the log.

Even though we used computer logging, everyone still got on 3830 to give their score and see how they did. Then came the Internet. Rather than having to be at the radio after 48 hours of contesting, you could go to a web site and enter your claimed score. Come back later, and you can see where you stand. We got on 3830, so naturally, the web site was named after that frequency and is www.3830scores.com.

It was easier to see how you stood, but it was not official, and some stations don't post their scores. It still didn't give you a clue during the contest. Now, there is a new thing in contesting: real time scoring. Essentially your logging program sends updates with the number of contacts, multipliers, etc. to a server, and you can see how you stand in real time. At this point, only a small percentage of contesters are using it. ORC members Vic, WT9Q, and Gary, K9DJT, and I have tried it. It is interesting to see how a station will move up or down in the standings as the contest progresses. It can certainly be motivating. You see someone ahead of you, and you work a little harder to catch up. Of course, they see you moving in, and it gets them motivated to stay ahead of you. Maybe you don't want your competition to be motivated.

I have been in a few contests where I was in a race between one or two other stations with several lead changes. It can also be interesting to watch the big gun multi-op stations battle it out. I also know it can be depressing to see you are a couple of hundred QSOs behind. It is real tempting just to quit. In other sports, you go somewhere and compete in person. You don't walk off the field because the other team is up 20 points. When operating from home, there is less to keep you from just pulling the plug. While it is depressing, you must keep plugging. You might get some better propagation or have some rare multipliers answer your CQ but not work him. Maybe they still have to take some more required time off. Or maybe they have something else they need to attend on Sunday afternoon and are about to shut down.

You can check it out at https://contestonlinescore.com during the next contest. There are discussions about eventually requiring contesters to be logged in during a contest. The winner could be announced minutes after the contest ends. Some people think that would bring new life into the sport. If you ever explain contesting to a non-ham, they will often think it is pretty interesting. Then they ask, "when do you find out if you won?" They lose interest real fast when you say it will be published in a magazine in about a year.

I am currently against requiring contesters to use this. Not everyone has a good Internet connection. What happens if you lose your connection? Are you disqualified? Some also advocate real-time feedback. It could tell you if you incorrectly copied the serial number the other guy sent. I don't think that should happen. The server can correct your score at the end of the contest.

So far, using real-time scoring is optional. The people who run the site say there are a lot more people watching the scores than are contributing. I think that is unsportsmanlike. Knowing how the other guy is doing is an advantage, and all should be playing on the same level. Real-time scoring is going to be a big change in contesting. Will it hurt or help? That will be a matter of opinion. It will evolve, and at some point, those not using it will be as rare as those who still log on paper.

Back in January of 2018, the big story in the DX world was the DXpedition to Bouvet Island, 3Y0Z. It is one of the most remote places on earth. Planning took years, and the budget was around $800,000. It was going to take over a week to get there by boat. They arrived at the island, but the weather was too bad for the helicopters to ferry the team and equipment to the island. After a couple of days, one of the engines failed, and the captain was forced to abort the operation for safety reasons. They started heading back to port in Argentina, but after a couple of days, they changed course and headed for South Africa because the ship could not handle the seas in that direction with only one engine. The ops endured a terribly uncomfortable month on the boat in very heavy seas.

Soon after that, a group from Poland announced they were going to Bouvet. It was very strange. They didn't announce when they were leaving, and they didn't ask for contributions, something

extremely unusual for DXpeditions of that size. They had a web site and would from time to time announce they were in Cape Town getting equipment ready, going through emergency and arctic training, etc. They were down there while their ship was getting refurbished. It was a pretty small ship. I'm not sure I would want to cross Lake Michigan in it, let alone endure the terrible conditions in Antarctic waters.

Well, a little over a week ago they announced they were leaving for Bouvet. There was a site you could use to track them. Well, their luck ran out, and they ran into a typhoon. It was so bad that they were forced to turn back. They say the DXpedition has been postponed, not canceled. There has not been an announcement when they will try again. Most likely it won't be until next year. While it is warming up around here, winter is approaching down there, and the weather is not nearly as nice as it is during January through March.

Although you won't be hearing any signals out of Bouvet in April, there are a few DXpeditions of interest. VK9NI from Norfolk Island will be on, using the call VK9NI by the time you read this. They will be operating 160-17 Meters, CW, SSB, and FT8. They will focus on low band CW. They are there until April 14.

Another one that will be underway when the newsletter comes out is The Gambia in West Africa. A group of German hams will be there until April 15 using the call C5DL. 160-10 Meters, CW, SSB and digital.

Reunion Island will be activated from April 27 through May 8 with the call TO19A. They will focus on the low bands.

As usual, several one-man operations are going on this month. Because they are mostly operating between vacation activities or work commitments, operation is often sporadic. You need to be in the shack to catch them.

April is a quiet month for contests, and no big ones stand out. After working two 160M contests, two DX contests, three NAQPs, two RTTY contests, and the Wisconsin QSO Party so far this year, I am pretty contested out. So, it is time for a break. I need to do a lot of stuff outside in preparation for gardening and antenna farming anyway.

Enjoy the spring. It is going to fall on a Thursday this year.

The Computer Corner
No. 253: URLs, IPv4 and IPv6.

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Our ORC Secretary Ben Evans (K9UZ) mentioned a problem he had recently with getting into a site he was supposed to have access to. It seems that the server that gives access was looking at his IPv6 address and not his IPv4 address. What is that all about?

IPv4 just means Internet Protocol Version 4. As explained in my February 08 article ("URLs and the Hosts File", Computer Corner Article #141, Feb 2008), when you want to visit a site, normally you type in the URL (Uniform Source Locator) address, such as https://www.majorgeeks.com. That address is partially letter abbreviations and partially names, and you can pretty much understand it. Many people understand it all. On the other hand, when you type in that address, your computer makes a request to a server somewhere on the web to translate that address into an IP (Internet Protocol) address. The IP address is unique, expressed in numbers, and it is what computers and smart electronic devices use to communicate with each other. The IPv4 address is always just a number like this: 208.101.7.150. Each of the four groups of numbers can be zero to 255, written in decimal and separated by a decimal point. The URL is sort of like the words Stan Kaplan, while the IP is sort of like (262) 268-1949 (my unique telephone number).

So, how can those four groups of numbers (208:101.7.150) handle all the Internet addresses in the world? They can't anymore. Those four numbers are a 32-bit (4 byte) value, so there are only 2^{32} possible addresses, or roughly 4.3 billion. We have already run out of addresses, so some time ago a new standard, IP Version 6, using 128 bits (16 bytes) was instituted. These are written in hexadecimal and are separated by colons. A valid IPv6 address might be all this between parentheses (3ffe:1900:4545:3:200:48ff:fe21:67cf). This gives us 2^{128} possible unique addresses, or about 3.4 X 10^{38} total. Someone computed that this would provide about 5,000 addresses for every square micrometer on the earth's surface, surely enough for the foreseeable future! At least it will work well until we need to provide addresses for other intelligent life forms on other worlds in addition to ours!

So, the server that Ben was trying to access wanted an IP of something like this: 3ffe:1900:4545:3:200:48ff:fe21:67cf, instead of something like this: 208.101.7.150. Basically, the server refused Ben's request to connect as an administrator and returned a 401 error.

It is a good thing these huge, hexadecimal-format IPv6 numbers can be translated to URLs employing groups of letters that are somewhat understandable to us humans!

Happy Computing.

Project of the Month©

de Gary Drasch, K9DJT

This month's project is non-technical of sorts. It pertains to, "What do we do with all those QSL cards?" I have collected a fair amount of them. Originally, I started standing them up against stuff, like the PC monitor, the edge of the radio, or books on the shelf. Some guys tape or even pin them on the wall. Others put them around the perimeter of a map or bulletin board. All methods work just fine depending on the type of shack you have. I have what Chuck, W9KR, refers to as a "nice" shack. I'm guessing he says that because I have a finished-off room, sporting carpeting, a decent desk, and bookshelves. Of course, that is all relative. At the point in which my QSL display started to tumble from their positions on a regular basis, I decided to put them all in a plastic box in alphabetical order by call signs. But when going through them, or filing newly received cards, I would tend to reminisce about many of the QSO's—what it took to make that contact. In addition to that, some of the cards are literally pieces of art. That was it. I needed to get some of them on display. But how? I didn't want to damage them in any way, and the only thing I ever saw to accomplish that was using those dreaded plastic sleeves of two across and ten down. You usually see them advertised in ham radio catalogs. I wanted something different.

QSL Card Display

Ah…Facebook to the rescue, i.e., I follow several ham radio groups on Facebook, and one day a guy in Europe showed how he displayed QSL's using miniature clothespins and some small gauge wire. I wish I could remember his call sign so that I could give him the credit he deserves. Basically, he resurrected the old darkroom days. Remember what used to be involved in developing film? The paper photos would be hung by (real) clothespins on a sturdy wire to dry. Well, we're kind of doing the same thing here with the QSL's—not drying—but instead displaying!

I was able to find the miniature clothespins at Michael's in Grafton, but I would expect to them to be found at other craft stores too. They came in bags of 50, so I bought a few of them. You'll also need a pair of small finishing nails for each wire you want to run, and of course some #22 gauge wire. I pulled my wire out of a discarded, 50 pair, telephone bundle I have in the workshop.

I used long nose pliers in order to hold the nail close to the corner of the wall while trying to hammer it. You will be drawing the wire tight between the two nails, and therefore want to be sure to strike the drywall nailing strip (2X4) with the nail. And by all means, don't forget to put an adequate number of clothespins on the wire before tying it off. I actually measured my wall

space in inches, divided it by 5-1/2 inches, and multiplied by two, to determine the number of clothespins needed. Snip the excess wire off and you're ready to start selecting the cards you want to display. The other neat thing about this system is that as you acquire more cards, you can change them at will.

My goal is to make this column everyone's column. Share your projects with the club. You may write up your own description of what you did, or call me and explain the project and I'll write it up. Of course, pictures are a must. Anything relating to ham radio is welcome. Have you built a kit, home-brewed an accessory, reconfigured your operating table, solved an RFI problem, or installed a new or additional antenna? Give me a call at 262-707-4279. I look forward to hearing from you.

73, Gary,K9DJT

Vintage Amateur Radio

de Bill Shadid, W9MXQ

I am going to jump out of order within the history of a manufacturer this month – beginning in the middle of the company's time in the ham radio business. We are going to cover one of the most successful pair of transceivers in ham radio history – made at the pinnacle of operations for Swan Electronics of Oceanside, California. Any ham around in the 1960's and 1970's knows and remembers Swan, one of the dominant ham radio manufacturers. They remain with us to this day as the current and successful, Cubic Corporation.

As a young ham in the 1960's, I had a keen interest in the Swan 350 and 500 series transceivers. This month we will look at the genealogy of these two much related transceivers. Let's move back to the times when main stream ham radio technology was just beginning to incorporate some solid-state circuity. Swan's engineering department was moving along, like Drake and Hallicrafters, to take sections of established tube designs (VFO's, carrier oscillators, i-f stages) and moving them to solid-state circuitry. Here are the last versions of the original design 350 and 500 transceivers that are part of the W9MXQ collection of vintage ham radio equipment:

Swan 350c HF Transceiver with 117xc Speaker/PS
(Shown with Turner 454C Microphone)

Swan 500cx HF Transceiver with 117xc Speaker/PS and 508 VFO
(Shown with Turner 254C Microphone and Johnson Speed-X Key)

The Swan 350 Transceiver was introduced in 1964 as a deluxe HF Transceiver to replace Swan's previous lines of single band transceivers (SW-175, SW-140, SW-120, and SW-115 – 75, 40, 20 and 15 meters, respectively) and single tri-band transceiver (SW-240 with 80, 40 and 20 meters). The single band units were essentially SSB Transceivers – with no way to even switch sidebands. The triband SW-240 did offer both CW and AM to their SSB focused design. Swan never made radios that did not include single sideband.

As originally released – here is the Swan 350 Transceiver:

Swan 350 as originally released in 1964

Looking at the 350 Transceiver you can see a nice looking anodized and screen panel (the same paint system used by Drake and a few others) to give a nice appearance in keeping with

design at the time. Swan, who had based their marketing on performance with few thrills, did not offer extra features on the radio. Note that there was no standard selectable sideband (an add-on kit was marketed for that) and no crystal calibrator (another add-on kit). The radio offered SSB and CW modes. It also offered AM but only as a carrier inserted into the SSB signal. Unlike the Drake TR-4, there was no AM detector so the SSB receiver section was also used for AM. CW was possible but as in the Drake TR-3 and TR-4, there was no separate receiver tuning (RIT) to make listening more comfortable. Like Drake and Collins – CW was an afterthought. Swan did not even offer a CW sidetone in the 350.

In 1967, Swan added the more feature-rich, model 500 Transceiver to their lineup. Here is the Swan 500:

Swan 500 as originally released in 1967

Apparently, sales of the options to add selectable sideband and a crystal calibrator on the 350 were strong. Or perhaps customer feedback was telling Swan that a more complete transceiver was desired. Thus the 500 came to the market.

Both the 350 and 500 used 6HF5 final amplifier sweep tubes in matched pairs. In fact, the 350 and 500 shared many, if not most, circuitry and mechanical components. The 500 added such niceties as an Automatic Noise Limiter (ANL), Selectable Sideband, a 100kHz Calibrator, and CW sidetone to the standard features offered to the buyer of the 350 model.

It is interesting to note that while the power amplifier circuitry and power supply were the same for the Swan 350 and Swan 500, they had different power specifications. Remember that in those days, radios were shown with power input specifications. They did not show power output specifications. For comparisons I have added expected power output information to the chart, below:

Swan Model	Mode	Power Input (Watts)	Power Output (Watts)
350	SSB	400	200
	CW	320	160
	AM	125 (Carrier)	60 (Carrier)
500	SSB	480	240
	CW	360	180
	AM	125 (Carrier)	60 (Carrier)

In 1968, Swan made some significant upgrades to the two flagship models. Conversion schemes were changed to correct older issues with VFO stability. To designate this change,

most post-update models of Swan radios added a suffix of “c” to the models. So, the Swan 350 became the Swan 350c and the Swan 500 became the Swan 500c. In addition to the incorporation of improved stability, Swan upgraded the power amplifier tubes in the 350c and the 500c and changed to the more robust 6LQ6 final amplifier sweep tubes in matched pairs. Later versions of both of the “c” version transceivers moved to a solid-state carrier oscillator for even more stability.

The net result – in power amplifier power – of the upgrade to the 6LQ6 final amplifier can be seen in the chart below that shows the increased input and output but also that Swan abandoned the idea of making the 500c look more powerful than the identical amplifier in the lower cost 350c.

Swan Model	Mode	Power Input (Watts)	Power Output (Watts)
350c	SSB	520	260
	CW	360	180
	AM	125 (Carrier)	60 (Carrier)
500c	SSB	520	260
	CW	360	180
	AM	125 (Carrier)	60 (Carrier)

The Model 350c retained the spartan offering of the 350 with no selectable sideband, no crystal calibrator, no noise limiter, and no sidetone for CW. It did, however, provide the most power for the lowest cost in the industry.

As we talk about powerful transceivers of the day, it must be remembered that average talk power from these radios may not have equaled what we see today with fully equalized and compressed transmit audio for today’s sophisticated 100-watt radios. The Drake TR-3 and TR-4, the Swan radios in this article, the Galaxy Transceivers, the British KW Transceivers, and the National NCX-500 lacked the overhead in their power amplifiers to use relatively high levels of compression and other means to increase talk power.

Another change came in 1970, when Swan responded to Incentive Licensing and license privileges tied to license class. Now the HF bands were divided into separate areas for Novice, General, Advanced, and Extra Class licensees. Before that, the bands were divided into Novice and then identical frequency privileges for General, Advanced, and Extra Class licensees. These involved some divisions requiring a crystal calibrator on multiples of 25 kHz, rather than the long traditional 100 kHz. Swan used that change to be part of the justification of the newer Model 500cx HF Transceiver. The 500cx looks nearly identical to the 500c but includes a selectable 100 or 25 kHz calibrator, general stability improvements at the component level, and a very much improved CW monitor.

At the time of the release of the 500cx, Swan had seen fit to squeeze another 30 watts input on SSB out of the hard working 6LQ6 final amplifier tubes as you can see here:

Swan Model	Mode	Power Input (Watts)	Power Output (Watts)
500cx	SSB	550	275
	CW	360	180
	AM	125 (Carrier)	60 (Carrier)

By this time, the place for the economical 350c had run its course on the premium market for Swan – and it was discontinued. Not to be left out, however, because about that time along came the Swan 260 and deluxe version Swan 270 Cygnet Transceivers. They were 260-watt input SSB Transceivers using a single 6LQ6 final amplifier – and came with an internal AC Power Supply that offered a truly cost reduced product to attract entry level ham radio operators.

Swan offered many accessories for the 350, 500, 350c, 500c, and 500cx models. While not a subject for this article, Swan was also very successful in the VHF market with two SSB/CW/AM transceivers for 6-meters and even 2-meter FM Transceivers.

The accessories for the transceivers in this article include two linear amplifiers for which I have little information. They were the Swan Mark I and the Swan Mark II, as shown here in these pictures:

Swan Mark I HF Linear Amplifier
(with built-in AC Power Supply)

Swan Mark II HF Linear Amplifier
(shown with separate Power Supply)

The Mark I used a pair of Eimac 3-400z triodes. The Mark II changed to using Eimac 3-500z triodes in the final amplifier. You can see that the two amplifiers were configured differently and represented a complete re-design. Unlike some amplifiers of the time, the design of the Mark I allowed for installation to replace the now impossible to replace 3-400z tubes. Both amplifiers lacked a tuned input circuit so are somewhat difficult to use with today's solid-state exciters.

Swan offered a variety of External VFO units for the 350 and 500 transceivers and separate offerings for the 350c and 500c. The later units had to be changed due to Swan's change of conversion frequencies in the "c" model radios. You can see the last of these VFO's in the picture on the first page of this article – pictured next to the W9MXQ Swan 500cx station. This is the model 508 that includes all necessary switching for using the transceiver's internal VFO, or the 508 external VFO, or a split between the two.

The 508 External VFO was a great improvement in implementation because the previous units did not include any way to switch the VFO into the circuit. That was accomplished by a plug-in accessory (Swan Model 22 Adapter) that was installed using the rear panel External VFO socket. The Model 22 cabinet extended to be just above the radio and the user would reach to the back side of the transceiver to access a switch to allow operation from the Transceiver VFO, the External VFO, or a split between the two.

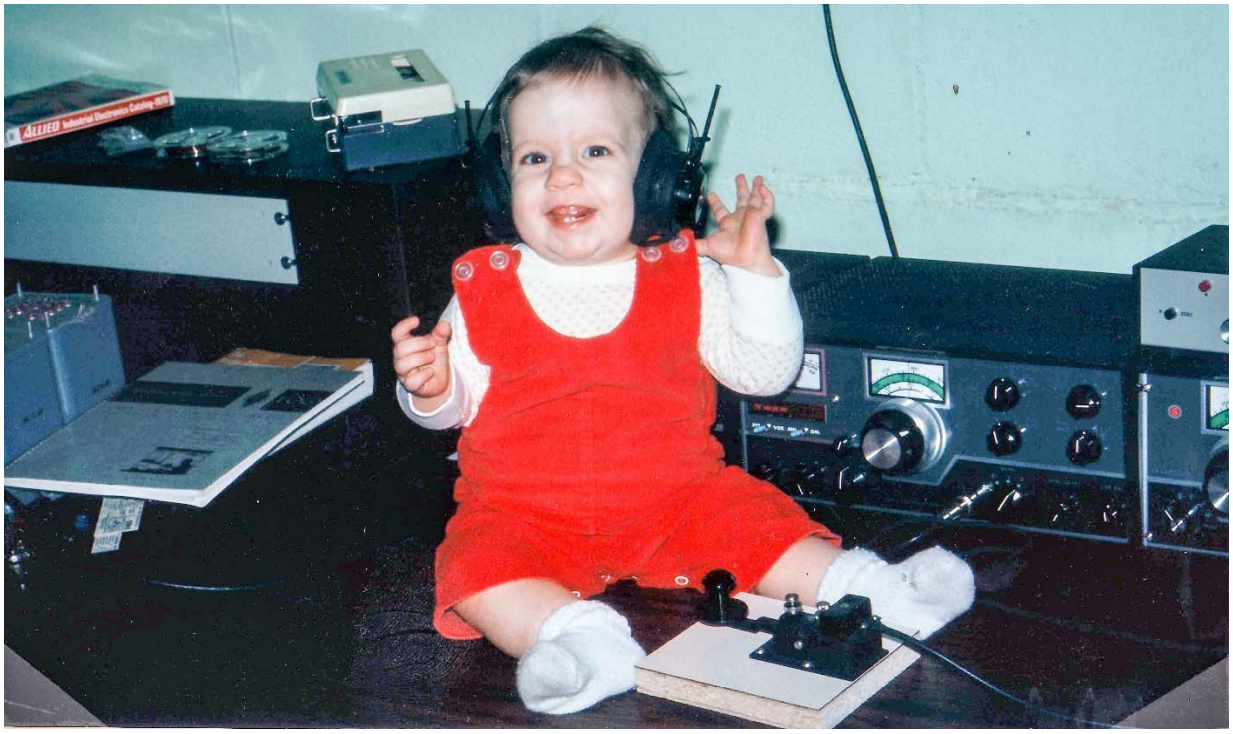
Many hams at the time would build their own switching for the External VFO. Below is my own 1970 vintage station, in Quincy, Illinois, when I was WA9MXQ:

Here is a 1970 Vintage Swan Station at W9MXQ (then WA9MXQ)

You can see, left to right, the Swan 117xc Power Supply/Speaker Console, the Swan 350c Transceiver, and the Swan 410c External VFO. Sitting on top of the VFO is the homebrew switch box that allowed VFO A (Transceiver), split with VFO A on Receive and VFO B on Transmit, or VFO B (External VFO). Also, in that picture – to the right, bottom to top, are a home brew 500-watt antenna tuner, a home brew SWR Bridge/Power Meter, and a home brew Audio Speech Processor. Also shown are a US Navy surplus Morse key and a Turner 254C Microphone. The key and microphone are still with me. I can only wish the home brew items were still part of my station. Incidentally, look carefully at the Swan 350c, above, and compare it to the one on the first page of this article. In the picture from 1970, notice just under the "Swan 350c" nameplate (below the meter) that I had added switches for VOX/PTT selection and an on off switch for ANL (Automatic Noise Limiter). I copied the circuitry from the Swan 500c and added that to my radio. Also, I added a 100kHz Crystal Calibrator to my Swan 350c.

The Model 410c External VFO was a modification of the original Model 410 External VFO that worked with the original 350 and 500 (not "c") radios. They looked very much like the Model 508 VFO that I use now, except that the Model 508 includes the features of the Model 22 Adapter – no more need to home brew that feature!

As a proud father, I would be remiss in not showing you the other picture that I snapped the same day as the one above. This is our daughter, Bonnie, as she was making a visit to the basement shack, back in 1970. She is now a lawyer plying the floors of the Illinois General Assembly and is the former N9OIE . . .



This is Bonnie, sitting at that same Vintage Swan Station. See the home brew VFO Adapter on top of the 410c VFO, and check out the Trimm Headphones on that ham radio debutant's head. Also in view are the vintage Sony Reel Tape Player/Recorder, an ARRL Log Book (sitting on top of a 1969 ARRL Handbook), an Allied Radio Catalog, and a pair of HV Transformers soon to be included in a home brew linear amplifier using a pair of 833A Triodes. The Sony Tape Recorder is sitting on an Ampex Reel to Reel Console (absent the Ampex machine!!). The Log Book and the Handbook are still here at W9MXQ, the key remains here, and ex-N9OIE is here several times a year. The 833A Linear Amplifier, at last report, is still in operation and still says, "Contempora Seventy" (my home brew equipment "brand") on its front panel.

Okay, so I drifted off a bit – but these articles are about nostalgia, are they not?

Swan marketed a lot of other accessories with Phone Patches, Antenna Tuners, Antennas (mobile and fixed station), AC and DX Power Supplies, Noise Limiters, Noise Blankers, and other transceivers in the mix. Swan even made a line of separate receivers and a transmitter. Other Swan products will be the subject of a future article or maybe a few articles.

At the time of these products' heyday, the ham radio industry was in a power race that ran to the point where Swan had a version of the 500cx, called the 700cx, with 700 watts PEP SSB input power. It is interesting to check the competition at the time. Swan always led the pack in maximum power. But, the others played in the game as well with Drake, Galaxy, Hallicrafters, KW Electronics, and National in the game along with Swan to see who could get the most power out of a table top, single box (plus power supply) cabinet. For a look at the contenders, check this group of pictures from the time of the Swan transceivers in this month's article:

Swan 500cx *
(550 Watts PEP)

Drake TR-4 *
(300 Watts PEP)

Galaxy GT-550
(550 Watts PEP)

Hallicrafters SR-400 *
(400 Watts PEP)

National NCX-500 **
(500 Watts PEP)

KW Atlanta
(500 Watts PEP)

Three of the above are in the W9MXQ collection right now (*). One of them (**) lives here in an earlier version (the NCX-200). But, all of them have been here at one time or another. How many of these do you remember? These were fine radios. I add these comments about them (strictly from personal experience, mind you):

1. Best and most robust construction – the Hallicrafters SR-400.
2. Best receiver – the Hallicrafters SR-400. (Also, most expensive.)
3. Best able to run at high power for long periods of time – the Swan 500cx.
4. Best mechanical/tactile “feel” to operate – the Swan 500cx.
5. Most exotic – the KW Atlanta.
6. Most nostalgic – the National NCX-500.
7. Most successful – the Drake TR-4.
8. Most design generations – the Galaxy GT-550.

Swan enjoyed a wide following and once dominated the ham radio marketplace.

Special thanks go to Bob, W9DYQ, for his proof-reading. I appreciate that you read my articles. Remember that I am open to questions and comments at my email address, W9MXQ@TWC.com.

W9MXQ

UPCOMING EVENTS

Membership Meeting – April 10, 2019

ORC Monthly Programs

April – Peter Chow W0NG – Assembling a Go-Kit

May – Gary Sutcliffe W9XT – Construction Techniques for Electronics Projects

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.

New "Home-Brew Night" at August meeting

At the January meeting, there was some discussion on the monthly program. A suggestion was made by Peter Chow, W0NG that we try a "Home-Brew Night." The suggestion met with approval so we are going to give it a try at the August meeting.

This will be a chance to show off something that you have built. It can be anything radio-related. You can bring your project in to show it off or just bring a couple of pictures and talk about it. There is plenty of time until the August meeting, so you can start building something if you don't already have a project on the shelf.

A reminder to members to renew that license…

W9FAD (expires 4/21/2019)

Ozaukee Radio Club

March 13, 2019 Meeting Minutes

de Ben Evans (K9UZ), Secretary

President Kevin Steers (K9VIN) called the meeting to order at 7:31 PM. All the attendees introduced themselves.

Announcements, Show-and-Tell, Bragging Rights:

Ken B. (W9GA): Be sure to fill out and return ballots for Ham of the Year and Turkey of the Year.

Jim A. (K9QLP): Ron Yokes (W9BCK) was on the Net last night. Jim recently saw Ron and he's doing very well. Ron would very much like to see more people he knows from the club. He's living at Lincoln Villages in Port Washington, behind the Culver's. The best visiting hours for him in the morning and afternoon are 9-11:30 AM and 1-4:30 PM.

Dave C. (KC9REP): Dave had a health setback last month but is on the road to a complete recovery. His son, who is 20 years old, will this year be renewing his ham license for the first time.

Gary D. (K9DJT): Gary is writing another book about ham radio and he'd like people to send him photos of simple HF shacks.

Mike H. (KD9GCN): There was a lot of island radio traffic a couple weeks ago.

Program:
Bill S. (W9MXQ): Bill gave a presentation about the radios that he had collected during the 55 years of being a ham.

50/50 Drawing:
The winner of the 50/50 drawing was Peter C. (W0NG).

Auction:
Stan (WB9RQR) conducted the auction. Many items were sold, including a 12-volt fan plus power supply, a bucket of power supplies, an SWR/Field Strength meter, and a box of connectors.

Officer Reports:
Kevin S. (K9VIN) President – The Wisconsin QSO Party was last Sunday. He reports that 20M mobile wasn't good. Gary S. (W9XT) and Bill S. (W9MXQ) reminded those who made contacts to send their logs in under the name of ORC.

Kevin asked for a report on the club's shed. Nels (WA9JOB) reported that the farm where the shed is located has been sold. The rent for the shed is paid up to October 15th of this year, so we have until then to move our stuff out and arrange for storage at another site. Currently we have two trailers at this shed. The rent was $200 per year.

Pat V. (W9JI), 1st VP – No report.

Tom T. (KC9ONY), Repeater VP – The 2-meter repeater amplifier wasn't working, so Tom and Nels bypassed it to keep the repeater going. It seemed to work well during the Net. The Mequon site is still down. Nels is working on a refurbishing of that system. Naomi B. (KC9YES) thanked the ORC for allowing OZARES to use the repeater as a backup for the times when the OZARES repeater had failed.

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

Robert E. (K4WTH) – The profit and loss report for February was passed out to members at the meeting and also had been emailed. A motion to accept the Treasurer's report was made by Stan (WB9RQR), seconded by Todd (N9DRY) and passed by the members. Dues for 2019 are due March 31st. Also, Robert is looking to update members' information for the new ORC roster. He has 76 members that he wants to confirm the information for, so please help him out. Also, if there are any open projects that involve club expenses, give Robert those dollar amounts.

Committee Reports:
There were no committee reports.

Old Business:
There was no old business.

New Business:
Tom T. (KC9ONY): WWV will be running special event stations September 28th through October 2nd for WWV's 100th anniversary. They are in need of operators for the event. Go to wwv100.com to get an application and for details on the event. Applications are due the end of April.

Robert (K4WTH): We need a representative from the club to man a table at this year's HRO Superfest. Also need to reserve the table. Kevin will go to HRO to inquire.

Kevin (K9VIN): There was a gathering of representatives from local ham radio clubs on Saturday, March 9th at HRO. Tom (KC9ONY) and Robert (K4WTH) attended. The focus of the meeting was to kick off a discussion of the state of ham radio and how to generate more interest and participation, and how to promote the clubs.

A lengthy discussion followed about what has been done and what could be done in the future to get young people interested in ham radio. One idea was for club members to reach out to high school and grade school classes to talk about ham radio and demonstrate the hobby. This ties in with Tom W9IPR's initiative to direct scholarship money to local school STEM programs. No action by the members was taken on this subject.

Adjournment:
A motion to adjourn was made by Stan (WB9RQR), seconded by Nels (WA9JOB) and approved by the members. The meeting was adjourned at 9:20 PM.

Attendance:
There were 39 members and three 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

April 10, 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: Peter Chow, W0NG – Assembling a Go-Kit
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. Spring Swapfest
    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, March 13th, 2019

7:00 PM – Doors Open

7:30 PM – Meeting Begins