M.C.W.A. NEWS

Vol. 15 # 12 December 2015

MEETING
December 1, 2015

Socializing - 6:30 PM
Meeting - 7:00 PM

Crystal Lake Bank
5100 Rt, 14
Crystal Lake, IL 60014

PROGRAM:

RECEIVERS

By Tom , W9NBG

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2016 Dues
Still only $10
See Joe, N9OK
at meetings or see
application on MCWA,org

Dec. Hamfests

nothing local
until January

Dec. Contests

4	ARRL 160m
6	10m RTTY
12	ARRL 10m
12	Int. Naval Contest
20	ARRL Rookie Roundup
26	Stew Perry Top-band Challenge

See: WA7BNM Calendar (web)

DEC. DX

6	XV2D Vietnam
10	J52HF Guinea-Bissau
13	AU2JCB India
22-29	T88RY Palau
till 31	SU90IARU Egypt

Lots of great DX coming up in 2016

NPOTA

For those considering participating in the ARRL NPOTA be sure to contact the NPS before attempting to operate. I contacted the Cowpens National Battlefield and received the following response from Margo Blewett of the NPS. BTW, a special use permit requires a $10 non-refundable fee and cost go up from their depending your needs from the NPS.

"It is the actual broadcasting that will require the [special use] permit. Below is what I found on the ARRL.org site. Please understand that we would love to have you here broadcasting the park and we are especially excited to have you promote the Centennial of the National Park Service. Broadcasting on the air within the park would take place within areas of visitor usage, especially when you need access to electric. It may be easier to tuck a broadcaster away in a park like Yosemite than in a small battlefield park like Cowpens. Any such operations do require a [special use] permit. I am happy to help you if you need anything further. You may also reach me at 864-461-2828. Thanks, Margo

" Kutzko notes that depending on the size of a given operation, participants may need to secure a special-use permit. "This may take some time," he said. "It's possible the answer will be 'no.' Be mindful of the size and sensitivity of the NPS unit you want to activate, and be realistic about your plans." NPOTA Activators will need to follow all NPS rules in whatever unit they activate.

In general, the more portable and compact your station is, and the more creative and adaptable

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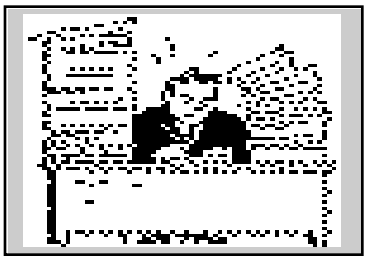

M.C.W.A. NEWS

FROM THE EDITOR'S DESK

2016

Still only $10.00

Pay at meeting or use application on

www,mcwa,org

NPOTA Elsewhere in this issue you'll see this term which is the ARRL' s version of the Centennial of 2014, but with the National Park Service. What you will read is an excerpt from an email which seemed interesting. It looks like everyone who participates will have to meet NPS's rules which may make this a big fiasco for those operating from National Parks in 2016. *Ed.*

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* *

NEW ! **McHenry Wireless Association VE Testing** **NEW !**

Contact is Steve Maresso (KB9OLD) 847-477-3518

Testing is conducted (quarterly) at 7:00pm on the Third Tuesday for the months of February, May, August, and November.Walk in's welcome until 8:00pm. No appointment necessary.Testing Requirements:

1. Cost for 2016 is $15.00. (Cash, or check made payable to ARRL)If initial test element is passed, the person testing may continue to take the next test element(s) at no extra charge during the given session. Retesting of an element failed during the same test session will require payment of an additional $15.00 test fee.

2. Must show original, and provide copy of Amateur Radio license and/or CSCE (if upgrading).

3. Must show a valid Government Issued Photo ID (Passport, Driver License or State IDCard) for identification.

4. SS Security Number or FRN number required.Location: Free Methodist Church, 934 N. Seminary , Woodstock, Il. 60098

"DX IS NOT JUST FOR THE BIG GUNS"

When I write this article each month across the year, I hope it is an encouragement to all HF operators that DX is available to everyone. Sometimes when I mention far-off places, hams will say, "What are you using?" They assume that I run a big tower with several hundred watts and an expensive rig. When I started working DX as a Novice in the early eighties, I used about 125w out of an Eico 735 into a simple dipole near the roof of a two story home in Evanston. Over the years I have tweaked the operating conditions a bit. Most of these DX reports containing my logging experience over the prior month come out of a TS480hx run into one of three wire antennas. Occasionally I work DX with a vertical multiband antenna that covers 40m to 2m. The TS480hx puts out about 200w. I have access to two OCF dipoles, one 80m dipole and the vertical. I also have a triband T-dipole made out of pvc pipe that enables me to run 6m, 2m, and 440. If you have questions about any of these components, send me an email or talk with me. I hope this serves as an encouragement to work DX.

With these components, I have been able to work DX at all seasons of a solar cycle. Sometimes the conditions are minimal on 10m and 12m, but even these bands have occasional openings during the low dips of the solar cycles. The lower HF bands offer DX opportunities throughout a solar cycle. Lately I have heard hams say that the bands are dead. That may be true depending on the time of day and the solar activity currently in progress. Overall, I have had generally good DX conditions in the times I have been able to log some air time.

I worked many DX zones during the CQ Worldwide Contest in late October. At the very end of October and the beginning of November I worked such stations as V73D on 15m, C91B on 17m, XR90IARU on 12m and E50J on 10m. In recent days I worked VK9WA on 15m 15kc up on first or second call during a zoo. The bands were quite open for the Sweepstakes Contest from 15m and down this past weekend. I worked some stations in the Pacific sector. With limited time on the air, I logged 75 QSO's easily.

As we approach Christmas, look for such DX calls as 5R8IC, EL2DW, J52HF, 3DRJ, E51XGI, 3D2AG, VK2IAY/9, and YJ4AO, among others.

Speaking of Christmas, I hope you have a good one!

73, Dave KA9OZP

Tube Type HF Transceivers Buyers Guide

James Benedict (N8FVJ)

Many ham radio operators are familiar with the vintage tube gear in our early days of ham radio. However, more recent hams have little knowledge of tube type gear and vintage to them are older solid-state design.

Back in the early 1960s, the move from AM to SSB produced compact and lightweight transceivers. These SSB transceivers are not a true boat anchor of years past. The receiver performance is only mediocre by today's standards. However, provide a lot of fun to operate on the ham bands. The receive tube type non-fatiguing audio quality is a pleasure to hear during good band conditions.

Choosing a vintage tube type SSB HF transceiver to meet your needs is key to the fun factor. If your ham shack is subject to a lot of man made noise on the HF bands, a quality noise blanker is important. Only a few tube type HF transceivers used a quality noise blanker. Some did not have any noise blanker option. On the other hand a quiet receiver area keeps all options open.

Modern HF transceivers have an excellent noise blanker, high dynamic range and no tune up procedure for the RF output amplifier. The digital display provides precise frequency without any drift. Instant band switching, dual VFOs and memories are taken for granted without a second thought.

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DX Smorgasbord “

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I grew up right next to Lancaster County, Pennsylvania. In this Amish region smorgasbords are very common. Although the middle of the word has “gas” in it, a better definition comes from Merriam-Webster Online Dictionary. It defines it as “ A meal with many different foods that are placed on a large table so that people can serve themselves.” People visiting smorgasbords are generally not skinny. Lately I have been thinking of our DX conditions as being a great ham smorgasbord. You can go up and down the bands and chat with most of the world with low power and a modest antenna. This is true of 10m, 12m and 15m up to an hour past sunset. Recently, the sunspot number was well over 200 with a comparable solar flux number. Even with sunspot numbers on the decline over the last few days, I was amazed at the conditions on the upper HF bands this morning. The world was wide open on most HF bands.

Along with the smorgasbord of DX, there have been multiple Dxpeditions. Operations 5J0R, TX5RV, XR0YY, K9W, T33A, and 3DA0ET are to be commended. I worked some of these Dxpeditions on up to 4 bands without too much effort. Most of these operations used band openings to maximize world-wide participation. Working every corner of the world is one sign that a Dxpedition has been professional and successful, if propagation is favorable. sacrifices go into them.As I write, the VU7AG Dxpedition is attempting to work the world on a few bands. Unfortunately, recent Dxpeditions like S21ZBB and XR1Z seemed to favor European and Asian stations. Whether or not this was intentional, certain band dynamics and openings were not utilized in a way to promote great numbers of contacts with North America. Having said this, we still appreciate all Dxpeditions because a lot of work and sacrifices go into them.

I had a great QSO with 7J7ACT on 15m one evening. He is the last 7J prefix in Japan. Stations from Africa have been abundant as well. I worked TU5NK on 17m with little difficulty. The long and short of it all is that this has been the best manifestation of Cycle 24. Some are saying we have had a double peak. It could even be argued that Cycle 24 has had three peaks. Whatever the belief, the current conditions have been remarkable. I hope you have had a chance to experience conditions that were not expected at this time. Like weather forecasters, propagation forecasters are often wrong.

As we head into December, look for P29VNX, T32RC, V63XG, E6RQ, H40FN, three 7P operations, and a host of other DX stations not included in this brief list.

The upper HF bands are closing earlier with the shortening days of winter. But 30m, 40m, 60m, 80m and 160m are starting to open up with lots of night DX. With the increased power output allowed on 60m, there have been interesting DX stations on these five USB channels.

I wish all of you good DX as we close 2013. Enjoy the DX smorgasbord (the calories are zero)..... Merry Christmas and a Happy New Year.

73 de Dave , KA9OZP

M.C.W.A.

12 Days - cont'd

Day Twelve: From the LAW OFFICES GOLDSTEIN, SILVERBERG AND O'REILLY Dear Sir: This is to acknowledge receipt of your latest gift of twelve drummers drumming, which you have seen fit to inflict upon our client, Miss Violet Monica Habershan. The destruction, of course, was total. All correspondence should come to our attention. If you should attempt to reach Miss Habershan at the Charter Glade Sanitarium, the attendants have been instructed to shoot your sorry ass on sight! With this letter, please find attached a warrant for your arrest.

…….Author unknown.

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Tube Transceivers - cont'd

The performance of the tube type HF SSB transceivers drift an average of 500Hz after a warm up period plus do not have a RIT control. Most hams will tolerate signal drift on the bands. Vintage gear nets are available for check in too. Good modern day receiver performance is considered a minimum of -133dB sensitivity, 100 KHz Dynamic Range of 120dB and a narrow Dynamic Range of 75dB at 2 KHz.

The transceivers rate from best to average. The first four transceivers are so close performance wise that any could be rated #1.

COLLINS KWM-2 Series

The Collins KWM-2 and KWM-2A are sought after and expensive. Band coverage are any 200 KHz range in-between 3.4 MHz to 30 MHz (except 5 MHz to 6.5 MHz). A crystal calibrator for zeroing the dial is included. The KWM-2 includes fourteen 200 Hz positions and the KWM-2A provides an additional twenty-three positions for 10 meters. That is a lot of crystals. New crystals are $16 each! The 134-PB noise blanker option performs well. An after market Walters rejection tuning unit will reduce or remove an interfering signal. Power output is 100 watts PEP (slightly less on upper frequency bands).

The Collins KWM-2 series has a dual conversion receiver with a Collins mechanical filter for good selectivity. Receiver performance is similar to the 75S-3 receiver with an outstanding sensitivity of -140dB, 100KHz blocking Dynamic range of 105dB and a 3 KHz narrow Dynamic range of 63dB. A separate power supply and speaker is required.

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DRAKE TR-4 Series

The Drake models include the early & late TR-4, TR-4C, TR-4CW & TR-4CWrit. The frequency coverage is 80 meters thru 15 meters and 500 KHZ of 10 meters (normally 28.5 MHz to 29 MHz). The early TR-4 does not include a noise blanker option. Mid Drake TR-4 series include a hard wired noise blanker option and the late TR-4, TR-4C, TR-4CW and TR-4CWrit use a 34-PNB plug-in noise blanker. The noise blanker will remove most noise to -40dB down. Power output is 200 watts PEP.

The TR-4 series makes use of a simple single conversion type receiver. Unlike general coverage receivers, images are not an issue. The frequency dial can be verified with a built-in crystal calibrator. The TR-4 series uses an asymmetrical pair of 8 pole crystal filters (one for each sideband) providing very good selectivity due to that asymmetrical design. The TR-4CW includes a CW filter and the TR-4CWRIT has a receiver RIT control.

The Drakes had a small design issue at the mixers. The C34 capacitor on the 6EA8 (V3B) pentode grid to ground reduces the dynamic range. Remove the grounded side lead of the C34 capacitor and reconnect to capacitor C29. One side of C29 is connected to the 6EA8 cathode. Reconnect C34 to C28 opposite side that also is connected to the tuning coil. This should increase the 100KHz blocking dynamic range from 105dB to 115dB with regard to the Drake TR-4 somewhat lower sensitivity of -124dB. After the modification the Drake TR-4 should meet -124dB sensitivity, 100KHZ Dynamic blocking range of 115dB and a 2KHz narrow Dynamic range of 63. Perhaps 12BZ6 replacing the 12BA6 receiver RF amp will increase the receiver sensitivity, but may deteriorate AGC performance. One TR-4 model of the total of 12 various models used a 12BZ6 as an RF amplifier tube.

I suspect the Drake solid-state noise blanker is the best of the lot. This would make the mid & late Drake TR-4 and newer series the best for a noisy environment. A separate power supply & speaker is required.

NATIONAL NCX-5

The National NCX-5 operates from 80 meters to 15 meters and 500 kHz on 10 meters (28.5 MHz to 29 MHz was standard). Power output is 100 watts PEP.

The NCX-5 has an interesting receiver, but is missing a noise blanker option. The dial is a mechanical digital design and is surprisingly accurate. A crystal calibrator was an option. A receiver RIT is included. The NCX-5 dual conversion receiver

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Tube Transceivers - cont'd

uses two RF stages. (Before dual conversion receivers were available, a dual tuned RF stage provided better image control). An eight-pole crystal filter is used in the IF. Although rather wide at 2.8KHz @ -6dB, the 60dB specification is only 4.76KHz wide. The NCX-5 receiver should provide a superior 100 KHZ wide dynamic range if the Mixers and AGC is well designed. Some will state the 12BE6 second RF amplifier is a noisy performer. But, that is only true if used as a converter tube. I never seen the receiver specifications, but others have commented the receiver is definitely the equal of the TR-4 with the high sensitivity of the Collins KWM-2. A separate power supply and speaker is required. Owning all three transceivers, I agree.

HALLICRAFTERS SR-150 & SR-400 Cyclone

I combined both radios due to similar performance, but the SR-400 is the upgrade and expensive like the Collins KWM-2 series. Some will comment the SR-400 is in a different league compared to the SR-150. Both transceivers cover 80 meters thru 10 meters (28.0 to 29.5 MHz). Both transceivers have a receiver RIT. The SR-400 output 275 watts SBB & 200 watts CW and the SR-150 output is 150 watts PEP & 125 watts CW.

Both receivers are a dual conversion design with an IF crystal filter. A built-in 100Hz crystal calibrator is standard. The receivers are reported to be very quiet. I never saw measured specifications. A separate power supply and speaker are required.

SWAN 350, 500 & 700 series

The Swan transceivers operate 80 meters thru 15 meters plus 28.5-29.0 MHZ on 10 meters. RF power output varies from 250 watts PEP/150CW to later models producing 300 watts PEP/200 watts CW. The base 350 model does not include a calibrator or noise limiter. The 350A did include a crystal calibrator. The noise limiter is likely a diode based audio clipper circuit and performance on SSB is poor. Perhaps the latest models had a true noise blanker.

The receiver is a simple single conversion design with an eight-pole crystal lattice filter. A series called the SS special used two eight pole crystal filters for better selectivity. A tag exists on the front panel identifying these models. I owned a Swan model 350 and found the receiver more noisy vs the Collins, Drake & National. I never saw receiver specifications, but suspect -133dB noise floor, 100KHZ Dynamic range of 85dB and narrow 5KHz Dynamic range of 60dB. A separate power supply and speaker is required.

HEATHKIT HW-100/101, SB-100 thru 102 series

The HW and SB series were about identical design wise. All models provide 80 meters thru 15 meters and 500kHz on 10 meters. Unlike the hard-wired transceivers listed above, the Heathkits were based upon using cheaper phenolic circuit boards. Some heat and moisture issues caused problems over the years, but did not make for unusually high reliability. A kit is difficult to build even with most of the wiring on the circuit boards. Power output was 100 watts PEP/CW.

The receivers were double conversion using an eight pole crystal. Performance is similar to the Swan 350, 500, 700 series, but the double conversion receiver is perhaps a little less noisy. A noise limiter was not included and an optional crystal calibrator was available. The tuning dial may slip after the years. A separate power supply & speaker is required.

SWAN 270 CYGNET

The Swan provides 80 thru 15 meters with 500KHZ on 10 meters. Power output is 100 watts PEP/CW. A crystal calibrator or noise limiter is not included in the design. A noise limiter is about useless on SSB.

The receiver is a single conversion design. Performance is the same as the Swan 350 series. The power supply and speaker is built-in. If the additional power output of the larger Swans is not desired, I would prefer the Swan 270.

Tube Transceivers -cont'd

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ADDITIONAL COMMENTS

The top four transceivers outperform a Yaesu FT-101E IMO. Quieter receiver, better narrow dynamic range performance and the AGC is lacking in the early to mid production Yaesu FT-101. The Yaesu noise blanker was improved in the later series.

Replacement tubes can be expensive. With regard to receiver tubes, eBay is not always the best price. The 12BE6 & 12BA6 averages $6-8 on eBay where as a few tube dealers in FL sell NOS for $4-5.

If performing self service, be aware of the dangerous high voltages.

None of these transceivers included a speech processor. The Turner +3 desk microphones have a great performing built-in audio compressor. Loud, but not overbearing or distorted plus not a tendency to over modulate.

The tube type higher RF output transceivers may help a little on 80 & 40 meters. Even 1/2 an S unit out of the noise makes a difference.

Keep in mind these classic tube type transceivers are fun backup classics. If only affording one HF transceiver, I would rather own a FT-747GX, IC-735 or an Alinco DX-70. But, these old tube types make warmth like a pet and seem to have a soul.

Feel free to correct any errors and add info. Plus recommend other classics not listed.

NPOTA - cont'd

your plans are, the greater your chances of success. While there is no formal partnership between NPS and ARRL for this event, the League has been in discussions with the NPS over the past year, and it is aware that increased Amateur Radio activity in their parks is likely during 2016. "

A member of our contest club contacted the NPS at the Congaree National Park and got the following reaction.

"I have checked with Congaree National Park here in Columbia and they have no idea that anything like this was even in the works. I gave them an idea of what it was and they still didn't get it. Finally,the Park Ranger got the idea, but he wouldn't commit to allowing us to operate. I explained how we would operate, we'd not necessarily need power as we have a trailer with a generator, etc. The first thing he said was no generator."

After all this, the ARRL Roanoke Director (a good friend) contacted ARRL HQ and received the following

"They said that these issues were not typical (at all) of the responses they have received to date. Their feedback has been overwhelmingly positive.They added that there was an activators guide that handled situations as noted below, a document to give to the NPS and an FAQ that had a special section on generators.

Special use permits are discussed on the ARRL website, as Margo found. The ARRL has no control over those permits. There is no document that constitutes an agreement between ARRL and NPS to allow/guarantee amateur operations.

What all activators will need to do is to be diplomats. For example, to educate the NPS staff, let them know who we are and what we do; to put forward that ARRL has partnered with the NPS to add to the celebration of their centennial. This is covered in the activators guide."