



September 2018 Newsletter

2018 Kansas QSO Party After Action Wrap-Up

Can you believe it has been 10 years already? I almost can't, but the calendar says otherwise, so we decided to make this year special!

With a record 61 1x1 calls, we spelled KANSAS, QSOPARTY, SUNFLOWER and our new word, YELLOWBRICKROAD. One station reports working 59 out of 61, so we were out there and available. We added a special category for FT8 and a new Portable category. Twenty FT8 logs have already been submitted and nine Portable stations answered the challenge, so already a big success on both. At the last minute we had 3 stations who still wanted 1x1 calls, so I decided to apply for the X calls and have an X Challenge to celebrate our Xth Anniversary. It turns out the X calls aren't allowed, so we made a NotX Challenge instead using M calls plus one very last minute J call. You can read about the NotX Challenge on the KSQP web site.

All 105 counties were once again covered both CW and SSB and John/N6MU claims his eighth Kansas Sweep in a row. We double-covered all 105 counties, 95 counties were triple or more covered, and 93 counties were covered again on Sunday. Great work by our 15 scheduled mobiles (from 7 different states), at least 4 "pop-up" mobiles, 9 portables, and great fixed stations!

After talking with our sponsors, we decided to offer TShirts and monogrammed Sweatshirts this year instead of plaques; not to buy, to earn! An antique radio stamp theme TShirt was designed this summer and unveiled at the State Convention in Salina, one week before the QSO party. My goal was to deliver by hand as many Ts as possible because it was more fun and of course saved postage. Forty Ts found new homes in Salina but I still had another 80 or so Kansas Ts to go, so I planned a mobile route to visit 14 operations around the state. A number of the operations were multi-op, so the potential to deliver lots of Ts was there.

Saturday

We had cool weather the entire week before the KSQP, but Saturday was typically warm for August in Kansas. Heading west, my first stop was the W0C portable operation on the Lyon/Coffey county line. I knew about where Vern/AE0TT should be and I could hear him overloading the front end of my Icom 7000 on SSB, but no Vern. Lorna/K0WHY my XYL driver spotted some tracks heading down a muddy dirt road. We followed for a bit but decided we didn't want to get stuck, so we reluctantly bailed. We later found out those weren't Vern's tracks, so good decision. We might still be there!

It went from there, but with lots more success. Many of the ops were in the Kansas City area and it was really fun to visit big stations, little stations, outdoor shack stations, garage stations, old-radio stations, Flex-radio stations, remote stations and a school station. The most fun was just learning to know the ops. Lots to talk about, so I got further and further behind on my route, arriving at my last stop in Topeka just at the closing bell. At least I covered all my counties! After another FB chat, we finally arrived back home in Hesston after midnight.

Sunday

An overnight recharge on the deep-cycle batteries and the van was ready to go for Day 2. Aaron/NOQD came along to drive and operate with his own 1x1 call, NOQ. First we headed to Reno county where ACORL/Jerry wasn't operating NOF. We dodged around downed trees and power trucks, and basically wondered what tornado we'd missed. Jerry said 90 mph downburst winds caught his neighborhood the previous night as storms came through and he spent all day cleaning up. Luckily his tower stayed vertical although a number of his wire antennas didn't. He later put NOF on the air which we appreciate even more having seen the damage.

After visiting another Reno county operation, we headed north to Kanopolis State Park and Rock City State Park where two excellent portable operations were going strong. Either place would have been a great location to finish out the QSO party, but we had one more scheduled stop which turned out to be "way out there!" Aaron/KSOLP has recently moved to the rolling hills of Dickinson county and you can only get there by back, unpaved roads. After going the long way around (maybe a bit lost), we finally arrived to find him operating K0D as a Kansas Rookie from a true ham "shack," and having a great time I might add. The same could be said for most everyone, I think!

Afterwards

Last year I tried to name and thank everyone associated with the KSQP. That turned out to be several paragraphs and I worried that I'd miss someone. This year I'm simply going to say THANK YOU to all in and out-of-state sponsors, ops, and support team (log-checking, web and stamps) who made this Tenth Anniversary Kansas QSO Party so much fun for all. I'm truly overwhelmed with the support and comments from individual ops, clubs and teams in Kansas and out. So let's keep this going and see what we can all do for next year!

73, Bob/w0bh
2018 KSQP Coordinator

September Picnics

Kansas-Nebraska Amateur Club

The Kansas Nebraska Amateur Club will be having our fall picnic in Concordia, KS, September 15 at 18:00 hrs. The club will be providing ham for a meat, we are asked for you to bring a side dish, casserole or dessert. The location is at the Concordia city park 11th and Washing-ton streets. You do not have to be a club member, everyone is invited. Thanks! Hope to see you there! 73's Chuck NROW

Sand Hills ARC

Annual Sand Hills ARC late summer/fall picnic will be held September 22 at the Scott City Patton Park, (across from Dairy Queen), Scott City on US-83. Covered dish affair, dinner at 6:30PM. All welcome, family/friends.

2018 Kansas Amateur of the Year

The Emporia Amateur Radio Society nominated Lonnie Worthington, W0NXS, for the Kansas Amateur of the Year. Lonnie has been an active member of the Emporia Amateur Radio Society for several years. He has served as secretary for the club and he is currently serving as the Chair of the Trailer Committee. The club's trailer was purchased with a grant from a local foundation and since then Lonnie has been instrumental in converting what was basically a shell into a functional communication trailer. He has worked hundreds of hours on designing and fabricating the tables and racks in the trailer and wiring the trailer for any number of operating scenarios.



Lonnie Worthington, W0NXS

He is an active member of the American Red Cross Disaster Action Team for Lyon County. He has also completed many of the FEMA emergency response courses, including the two-day Auxiliary Communication course.

Lonnie is also a member of the Patriot Guard and helps EARS support the Dirty Kanza 200 by providing communications across the route.

Lonnie actively participates in the club's on-air activities such as the Kansas QSO Party (K0E), the special event station for Veterans Day (K0V), and of course Field Day. Lonnie is also a volunteer examiner and helps with VE exams several times a year.



Salvation Army Team Emergency Radio Network

<http://satern.ksarrl.org/>

Update on S.A.T.E.R.N. Monthly Newsletters

Another newsletter has ceased to put monthly news out. The SATERN News Editor has discussed with members and decided that they all have been required to invest too much time in editing the newsletter. It is hoped that this newsletter will continue and be able to on occasion post articles for the S.A.T.E.R.N. group. - Kent, KAR Ed.

Editorial Comment on Delay

I have taken every effort to keep the KAR on scheduled release on the 10th in case there are items that are time sensitive in the newsletter. Due to health issues beyond my control, I have taken care of myself and put the items together as time and body allowed. Thanks to all who sent items for the this months newsletter. I received so much I hope I did not leave any thing out. Please make sure you get your items in to continue participation and an informative newsletter for Kansas! - *KAR Ed.*

UPDATED September 5, 2017 22:29				
Days	Time	Mgr	Freq	Net Name
M, W, F	6:45AM	KB0PPQ	3920 KHz	Kansas Phone Net
Daily	7:00AM	WB0YWZ	3920 KHz	Kansas AM Weather Net
Sat, Sun	8:00AM	KB0PPQ	3920 KHz	Kansas Phone Net
Mon -Fri	12:30PM	KE0DL	7253.5 KHz	Central States Traffic Net
Daily	6:00PM	WB0YWZ	3920 KHz	Kansas Weather Net
Daily	6:30PM	KB0PPQ	3920 KHz	Kansas Sideband Net
Daily	7:00PM	NB0Z	3547 KHz	QKS CW NTS Traffic Net
Mon	7:30PM	WD0ESF	3547 KHz	QKS SS CW Traffic Net
Daily	10:00PM	NB0Z	3547 KHz	QKS CW NTS Traffic Net

Links for Kansas Hams!

ARRL	http://www.arrl.org
ARRL KS Section News Page	http://www.arrl.org/Groups/view/kansas
ARRL Midwest Director's Newsletter	http://www.arrlmidwest.org/newsletter/newsletter.pdf
Kansas Section Pages and KAR's	http://ksarrl.org/
W Mo-Kansas S. A. T. E. R. N.	http://www.salarmymokan.org
Kansas QSO Party	http://ksqsoparty.org
Newton ARC	http://newtonarc.org/
Wichita ARC	http://www.warc1.org
Ensor Museum	http://www.ensorparkandmuseum.org/m-e-m-o-amateur-radio-club/
Wichita NWS SKYWARN	http://ict-skywarn.org
Wheat State Wireless Association	https://www.facebook.com/groups/WSOWA/
Sand Hills Amateur Radio Club, Inc	http://www.SandhillsARC.com
Jarbalo Amateur Radio Association	http://jara.signaleer.us

Silent Keys

Jack Albert Holzer, WØYZS

Jack Albert Holzer passed away August 27, 2018, at Hospice House following a two-year battle with cancer. He was born in Kansas City, Missouri, December 25, 1944. He was the son of Malcolm and Lucille Holzer.

Jack graduated from Shawnee Mission East High School in 1963 and Drury College in 1967. He served in the United States Navy from 1968 to 1974 on the U.S.S. John A. Bole. He was proud to have served his country. In 1979, he married Mary Faith Buresh. She survives.

He worked for Federal Signal for several years. Jack retired in 2017 from the Johnson County Sheriff's Department and Emergency Management and Communications after 27 years of public service.

Country music was a great love of Jack's. He particularly liked Patsy Cline and Ray Price. If he wasn't listening to an audio book in his car, there would be a country CD giving him a smile. Another passion of his was ham radio, call sign WØYZS. Jack was a lifetime member of the Johnson County Ham Radio Club. He spent much of his life both professionally and privately caring for others in many different ways and will be remembered for his loving, caring nature.

Jack is also survived by his sister, Dr. Jill D. Gibson, Dodge City, KS, and his niece, Heather Gibson Fangrow (Tom), Mission Viejo, CA.



A memorial service will be held on Saturday, September 1, 2018 at 10:30 AM at Overland Park Chapel, 8201 Metcalf Ave., Overland Park, KS 66204. Interment will be at Corinth Cemetery. The family requests that in lieu of flowers, donations be made to one of the following veteran's organizations: Gary Sinise Foundation, Fisher House, Wounded Warriors, or Navy Marine Corps Relief Society.

<<https://www.overlandparkchapel.com/notices/Jack-Holzer>>

William Frank Augustus, NØGTN

Graveside services for William Frank Augustus, 76, Lawrence, will be 3:30, Wednesday, September 5, 2018, at Memorial Park Cemetery. A visitation will be from 2-3:20 pm at Rumsey-Yost Funeral Home.

He died August 31, 2018, at his home.

William was born September 1, 1941, in Washington, KS, the son of Guy B. and Martha LaVera Smith Augustus. He graduated from Lawrence High School.

He worked for over thirty years and retired from the Lawrence Paper Company as a Mechanic. He enjoyed amateur radio, guns and targets, shooting pool, going out dancing, farming, cars and miscellaneous fabrication around the house.

William married Dee Randel on May 16, 1985, she preceded him in death in 2008.

Survivors include son, Kevin Augustus, Lawrence; daughter Karen Dirks, Colorado; step-

daughter Heather Ashburn, Lawrence; and four grandchildren.

He is preceded in death by his parents and his wife Dee.

In lieu of flowers the family suggests memorial contributions made to the SVS Foundation for Vascular Research, sent in care of Rumsey-Yost Funeral Home, 601 Indiana Street Lawrence, KS 66044.

<https://rumsey-yost.com/2018/09/william-frank-augustus/>

ARRL Midwest Director Roderick K. Blocksome KØDAS

The ARRL Midwest Division August 2018 Newsletter is now available on the Division's Web page. Here's the direct link:

<http://www.arrlmidwest.org/newsletter/newsletter.pdf>

This link always takes you to the current month's newsletter. If this month's newsletter doesn't open, try refreshing the page or clearing your browser's cache, in case your browser is loading a copy of a previous newsletter. Previous newsletters are available at:

<http://www.arrlmidwest.org/newsletter.html>

Highlights this month are:

- 2018 ARRL Midwest Division Convention After Action Report
- Kansas QSO Party
- VHF Report
- Delta Loop for 6m
- Around the Midwest Division
- Midwest Division ARRL Hamfests & Conventions
- Midwest Division Special Event Stations

Thanks and 73's,
ARRL Midwest Division Director:
Roderick K Blocksome, KØDAS
k0das@arrl.org

Radiogram Link For Use To Check On Loved Ones

From the ARRL Public Information Reflector:

Carl Berry, KC5CMX designed a form for the radiogram for outgoing messages only with the understanding that, if possible, they would be delivered, but there was no guarantee if they would be. No traffic will be going into the area for as long as the NTS managers deem necessary.

I will leave this up indefinitely for other disasters and will have a link to it on the "home" tab at the top of the page for Radiograms. The link is <https://k4gso.us/> or <http://k4gso.us/radiogram/> and click on the radiogram. I am requesting WIDEST dissemination of this.

Carl is Asst Emergency Coordinator for Marion Co. Florida and can be reached at kc5cmx@gmail.com



Supporting Our Veterans - Honorably Discharged
S*M*A*R*T - Special Military Active Retired Travel Club

*KCONDG Sherwin
or SARG; EX-K102 1960 to 1987
or TOP, 1SG ; Army USAR, Retired 1951 to 1987 --- final discharge 1994*

God Bless those who have served this great country AMERICA
Proud Military Veteran

SEEING THE COUNTRY WE DEFEND

SHERWIN & DOROTHY STIELOW



ARES – Amateur Radio Emergency Service



Complete list of ECs and a printable State ARES map <http://ksarrl.org/ares/>

<http://ksarrl.org/ares/alphaks.php/>

<http://ksarrl.org/distks.php>

AMATEUR RADIO EMERGENCY SERVICE

MONTHLY EC REPORT

◆ **Zone 4A – Brian KCØBS**

AUGUST MONTHLY ARES REPORT TO DEC & SEC

Total of ACTIVE ARES members: 150 +0

Local Net Name: Johnson County ARES

Emergency Coordinator = Brian Short KC0BS 913-638-7373

Alternate Emergency Coordinator, Recruiting = Jim Andera K0NK 913-884-6613

Assistant Emergency Coordinators:

Herb Fiddick - ECS Liaison

George McCarville WB0CNK - Training, Drills
Matt May KC4WCG - IDs, MECC
Bill Gery KA2FNK - Recruiting, Technology
Darren Martin N0MZW - Net Manager
Brad Kelsey KU0FAN – Membership
Jesse Gonzalez KE0ECS – CERT
Chuck Simpson KCONUG - Rapid Response
Jim Andera K0NK - KCHEART

NTS liaison is maintained with the KS SSB Net:

Jim Andera K0NK	Terry Reim WA0DTH
George McCarville WB0CNK	Jim Cordill KI0BK
Debbie Britain AB0UY	Rich Britain N0ENO
Wretha Galeener KC0HHO	

Net Sessions: 42

QNI: 322

QTC: 0

4 nets = 2 Meter Voice

4 nets = 2 Meter SATERN Voice

4 nets = CW

4 nets = 6 Meter

4 nets = 2 Meter Voice Simplex

4 nets = PSK 31 SATERN

4 nets = APRS Packet

5 nets = 70CM

5 nets = 1.25 Meter

4 nets = SATERN 80 meter SSB

Report prepared by:

Darren Martin N0MZW

Johnson County Kansas

◆ **Zone 6A, E & G – Rod KØEQH**

Kansas ARES Zone 6A, E & G Net report August 2018

Total Nets.....4

Total QNI.....22

Total QTC.....1 (Net report)

Stations participating:

ACØE. NØKQX, NØOXQ, NØOMC, KGØVA, WBØQYA, KØEQH

ALT NCS.....NØOMC

Rod

KØEQH

NCS

From the NØY Kansas QSO Party Station

NROW, NOLLH, NX0D and KE0RNX working Kansas QSO Party August 25-26 from Rock City SW of Minneapolis KS. N0Y 1x1 call as part of YELLOWBRICKROAD. We had a good time, radio conditions were bad a lot of calling CQ and not a lot of responses some times.



The NØY station inside the KØKSN Trailer



The KØKSN Communications Trailer

L. B. Cebik, W4RNL Articles For Antenna Builders and Other Projects

Thanks to Bob, WØAO for this information, brought to my attention by Tom, WØEAJ.

L.B. Cebik, W4RNL, became a silent key in 2008. Shortly after his death his website disappeared or parts of it unbelievably became a pay service! L.B. was one of the most generous and helpful people I ever encountered in ham radio. He was always a favorite at Dayton where he presented many times at FDIM (Four Days In May - The QRP convention that runs separately from the Hamvention) I just found out from a posting on the QRP-L mailing list that a lot of his articles are available here:

<http://www.antentop.org/w4rnl.001/radio.html>

If you like to build antennas like I do you will find his articles very interesting.

Be sure to read the article titled "Why Call CQ" which has my favorite quote from L.B.:

"I personally believe that the most mature reason for calling "CQ" is the chance to be of assistance, even if that is only to give another the pleasure of a QSO, but more if the one who replies needs more. That is why I maintain my web site--it is one way in which I can help those in our community of hams who may need what is there."

He had articles published in most of the US ham journals, including QST, QEX, NCJ, CQ, Communications Quarterly, Ham Radio, 73, QRP Quarterly, Radio-Electronics and QRPp.

73 DE Bob W0AO

w0ao.bob@gmail.com

WØVFW VFW Post 3115 VE Test Session

WØVFW - VFW Post 3115 Amateur Radio Club Wichita, Kansas has a VE test Session Spetember 29th. It is in it's 10th year of volunteering testing. WØVFW has at the post a complete Contest quality HF station and Repeaters both on VHF and UHF. Membership is open to the public. The only requirement to be a member of the post is for WØVFW officers. All others are welcome to join or participate. Dues are \$20 per year. WØVFW meets every 4th Tuesday of the Month at 7pm. Donations (\$\$\$ or equipment) are accepted. VFW post 3115 is a 501c3 charity. If you see WØVFW at any of the many Ham Radio Hamfests, be sure to stop at their table. Equipment donated will be available there and at unbelievable prices. This is their major source of income is from their donations. The club has operated almost 12 years with no cost to the post. WØVFW contacts are:

Amateur Radio Station WØVFW
VFW post 3115
4801 West Douglas
Wichita, Kansas 67209
WØVFW@yahoo.com

2018 Wichita Area Hamfest

You are invited to the Wichita Area Hamfest, Saturday - October 6. It will be held at the River Walk Church of Christ, 225 N. Waco, Wichita, Kansas (Downtown Wichita). Again this year - Tables Are FREE! (8 ft, x 30 in.) Parking is Free. VE Testing will begin at 9:00 am - SHARP! Admission is just \$5.00 and talk-in is on 146.94 (-) (open).

To reserve your table, contact Steve Periman N0YYI, 316-617-1658 or Bruce Barley, KK0S 315-744-3555.

Email - wichitaareahamfest2018@gmail.com

A feature of this year's 2018 Wichita Area Hamfest will be a presentation by Jim Sheldon - W0EB - on the modifications and customization possible with an open source Software Defined Radio. Staying within an extremely modest budget, Jim and a couple of his friends have modified a uBitx rig with the addition of a 5-1/2 in. Color Touch Screen, a comprehensive digital display, and mods that permit full split capability, RIT, as well as tunable band pass filtering. Jim is a dynamic presenter. You will enjoy this. So keep the first Saturday in October open to attend the Wichita Area Hamfest. Bring a friend. Or, better yet - bring a friend who is not yet a ham!

Bruce Barley – KK0S
bbarley@cox.net



Tom's Key Strokes - WØEAJ

Denver, Co. Displaced Kansas Neighbor
and very gud friend.!

radio@daileyservices.com



The Hallicrafter 12/41 SX-28 "The Radioman's Radio"

This is the Hallicrafters SX-28 that I have working again. From the serial number, I'm told that it left the factory in December of 1941... a war baby for sure. As a boy of 7 years, living over in KCMO, my Uncle Ben... a Navy aircraft mechanic (Aviaton Machnist's Mate), home on leave, gave me a 1945 ARRL Handbook, in which there were the Hallicrafters "Green Pages" in the catalog section (which I STILL miss in the new handbooks). The very first model offered in those hallowed pages was (at that time) the SX-28A Super Skyrider, and I'm pretty sure I should have used a drool cup to gaze at the picture. [*Mom gave away that book when I went into the Navy, but I scrounged up another one at a 'fest - it's a ticket to a journey through my youth, to thumb it's yellowed pages*]



Click on the image for a larger image on Google photo page. Photo credit: Tom Dailey, WØEAJ

I mean, the super skyrider just looked like a receiver... not just a "radio", but it had a purposeful look that screamed "the best". Oh, there were S-20R & S-22R models that were much more affordable, but hey... if you're a kid in 2nd. grade, and you want a dream, why mess around with "almost the best"???

In those youthful daze [sic], I acquired a Philco "American Overseas" that had a short-wave band, and I could listen to 40m, plus lots of foreign broadcast (anybody remember HCJB Quito, Ecuador?), followed by a Heathkit AR-3 with questionable alignment, but I never got an SX-28. Many years passed, and well after I'd been a Radioman in the US Navy, I got RE-interested in codes & ciphers, like I'd been part of in the Navy. Reading much about the code-breaking efforts of the British and American "black chambers", I noted that the British had used a BUNCH of SX-28 & SX-28A receivers in the earlier intercepts of German ENIGMA traffic, before they went almost exclusively with the National HRO Senior receivers. It's amazing to see photos showing WALLS of SX-28s and S-27s at "listening posts", from back then.

I suspect that the HRO had much better "repeatability" as I've written about before... yeah, you had to interpolate a graph, based on the numeric readout of the big PW dial, but unlike the SX-28s, you didn't have much drift, and for instance if you put that big radio dial with the changing numeric-windows back on "534", it was still on 6635 kcs, like it'd been last week! With the SX-28s, you still had to recalibrate it with a frequency meter, due to drift. (this SX-28 doesn't drift much at all, after a TWO HOUR WARMUP).

Oh yeah, you GOTTA recap the beast... Hallicrafters, like everybody else in the day, used paper/foil caps, dipped in wax... and can-type electrolytic caps for the power-supply and audio cathode-bypass. They go BAD – point blank, period, and done... they go bad. I was totally unable to find ANY can-type caps that would fit, so ultimately had to use a Dremel tool to grind off the rivet-heads of the cap retainer spring fittings, so I'd have enough room to "build" a filter-cap array on a terminal strip, then mount it using an existing hole OR threaded stud, underneath a threaded spacer to keep it off of the chassis. There are 5 electrolytics that USED to take up about 28 square inches of space, and now occupy a bit less than 10 square inches, if that. I also did not have a 5Z3 rectifier. It's a direct filament emission type... no separate cathode), an old 4-pin tube that is a dual-diode rectifier, but having a 5 volt filament, it draws about 4+ amps of filament current. I found an old 4-pin based tube with an open filament, broke the envelope away, and using four 8.2 ohm @ 5 watt ceramic resistors in series with both of the plates (i.e. 16.4 ohms per leg) to reduce the surge current and to some degree, the output, in series with 1N4007 diodes... mounted the assembly inside the tube base, and plugged it into the socket. Note: You must use the proper leg from the transformer secondary.... Indirectly heated cathodes are MUCH easier to do this from.

This particular unit had "most" of the capacitors replaced, but there ARE some "Les Horribles" ones to be done. This DOES require some disassembly of the RF & Mixer assembly (steel walls, screwed onto the chassis + coil removal + bandswitch & shaft separation +...), so it's a real PITA by the time you've "done `em all". This radio WILL separate the men from the boys, AND women from the girls as well. Patience, good lighting, "cheater glasses", several pair of hemostats, and a complete review of one's nautical vocabulary are required... trust me. The idea however, is to have a WORKING RADIO, FIRST – that I have done.

I also found that the "accessory" jack in the rear of the radio (provides for connection to filament and B+ connections for operating off of battery power) had been wired across, so removed the "shorts". Using an old octal tube base, I soldered in the shorting loops required (similar to dummy plugs used in earlier Kenwood & Yaesu radios, when NOT using a remote VFO), and plugged it into the accessory socket. That completed the paths for filament and plate voltage. The previous owner had also soldered a piece of wire across the RECEIVE/SEND (B+) switch, so that it essentially was inoperable, so removed that. This allows me to turn the radio on with ONLY filament voltage applied... then after about 25 seconds of warmup, turn on the B+ by toggling the switch to RECEIVE from SEND... reason? The solid-state rectifier "tube" has HV IMMEDIATELY, whereas the old "hollow state" device took a while to warm up; applying plate voltage to some tubes before the filaments have come up to full heat, CAN sometimes cause problems. Oh, and the big reason for replacing the 5Z3 tube (aside from not having one) was that it reduces the current load on the power transformer and lets it run COOLER.

I'd already tested all of the tubes on my Navy AN/TV-7A/U tube tester... surprisingly, only one was bad... a 6V6 audio-output tube was internally shorting, and creating quite a light show, to say the least... it'd never fully shorted in the radio, but on the tester... yah-Hooo was it theatrical! The previous owner HAD aligned the radio, and surprisingly had done it RIGHT (many folks don't!), so the dial readout and band point "markers" were quite accurate. It's a blast to set the Main Tuning knob to the band point marker (a small "°" on the dial face, near the top end of each band), then using the Bandsread knob (both with those cool "steering wheel" knobs) to tune for stations. Using my keyboard entry Marconi 2022C signal generator,

