

## Dayton Hamvention 2004

by Tony Sokol, W9JXN

Dayton 2004 is rapidly approaching, and hopefully by now most of us have made plans to attend. This year's Dayton CCA activities include a hospitality suite each night at the Holiday Inn Fairborn. Our featured Friday evening banquet speaker this year is Lawrence Robinson, who is an avionics engineer with Rockwell Collins. Lawrence's presentation is centered on the B-29 Superfortress radio position and its role in the final raids on Japan.

In addition to the Awards Banquet on Friday, the CCA will be sponsoring a booth at the Hamvention, providing a great opportunity to enjoy the camaraderie of our fellow members. There will be items for sale at the booth, including CCA caps, CDs, and other Collins-related goodies.

This year we will also have on display the special edition CCA Vibroplex that can be ordered from the nearby Vibroplex booth. Serial number CCA-001 will be raffled off at the banquet, along with other exciting prizes.

Reservations for the banquet can be made by sending \$35 per attendee along with your name, call, and meal preference (chicken or beef) to: Collins Collectors Association, P.O. Box 354, Phoenix, MD 21131.

Special room rates of \$99 per night are available to CCA members at the Holiday Inn Fairborn. Reservations can be made directly by calling (937) 426-7800. Be sure to tell them that you are a CCA member to get the special \$99 / night rate. For more information check out our website at [www.collinsradio.org](http://www.collinsradio.org).

We will have the flea market dance cards available at the hospitality rooms and at the CCA booth #459. Don't miss out on the fun!

## Collins 32S-3 Chirp

by Rüdiger Unbehaun, DJ4QE

Recently I had to repair an interesting failure which could affect other users of the Collins 32S-3 transmitter.

My QSO partner informed me that some of my CW characters had a chirp, especially at the beginning of a new transmission sequence. I initially suspected a thermal effect and didn't pay more attention. When I monitored my own signal on a receiver some days later, I noticed that the chirp occurred after the click of the transmit/receive relay. This relay applies voltage to the HF crystal oscillator and the VFO in the transmit mode. The voltage is stabilized by an OA2 gas discharge voltage regulator tube. The chirp was caused by delayed ignition of this regulator. The beginning of a CW sequence was transmitted with an unregulated voltage. When the OA2 started to operate after a few seconds, the signal was stable and without chirp. Mystery solved!


I replaced the OA2 with another one, but the chirp didn't change significantly. After a few days, I bought five other OA2s and tried to select the regulator with the shortest ignition time. The result was disappointing. All the tubes exhibited varying degrees of delayed ignition. My next idea was to solve the problem with a semiconductor solution, replacing the OA2 with a Zener diode or a transistor regulator. Because my transmitter was in original condition, I didn't wish to modify it in this way.

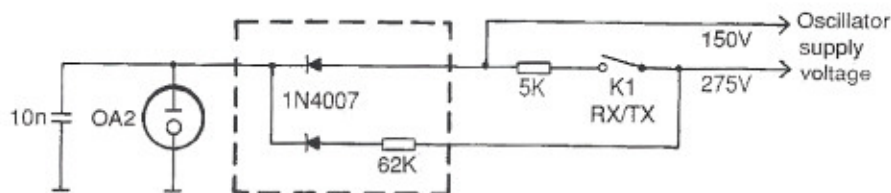
After some weeks, the question came up: Why didn't the Collins engineers notice this effect during the development of the

transmitter? I thought of my early years in the development of Telefunken Tube Division and I remembered that the gas discharge regulators were filled with an additive of low radioactive gas which generates ions to support quick ignition. One of the people who had worked in the production line of voltage regulators told me that in some types of regulators Krypton 85 was used.

This gas has a decay rate to half activity of about 10 years. Production of the OA2 ended sometime in the 1960s, so the activity of the gas additive has, by now, degraded to 1/16 its original level. This answered the remaining questions.

The simplest solution of the ignition difficulties was to keep the regulator operating even during the receive phase of the S/Line, avoiding on/off operation of the gas discharge regulator. The technical solution is shown in the accompanying diagram. Two diodes (1N4007) are connected to the socket of the OA2. One diode keeps the VFO and HF oscillator voltage at the potential of the regulator tube. This function is, the serial diode excepted, as originally designed. The second diode is connected via a resistor of 62 kΩ to the unswitched supply voltage of 275 V. When the transmit/receive relay opens, this path keeps the OA2 operating on low current level. The first diode prevents feeding the voltage to the oscillator. The value of the resistor (62 kΩ) is not critical. It is designed for 2 mA current. If the current is too low, the gas discharge regulator becomes negative impedance and low frequency oscillation may occur.

This modification solves the chirp problem totally and I think it is acceptable even for an old 32S-3. 



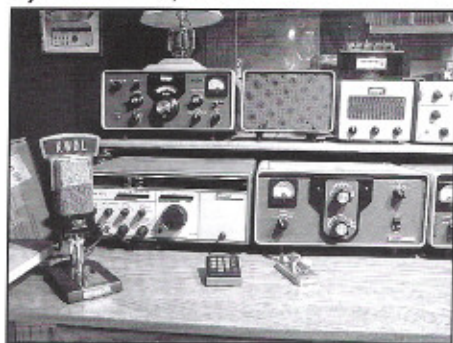
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# W7HC and My KWM-380 Saga

by Frank Baker, KW0L



The Collins ham shack of Frank, KW0L

I had quite an experience when I shipped my original KWM-380 (serial no. 181) to Harry Snyder, W7HC (now SK). When I first shipped it to him, it arrived okay, and Harry did the mods I had requested and had it shipped back to me insured for \$5,000.

Well, I received it damaged beyond repair. The shipper denied the claim, saying it was improperly packed. That fired up Harry, and after three months of back-and-forth discussions with the shipper, they paid the claim. Harry then replaced my ruined KWM-380 with a newer one, serial no. 2114. I was well pleased, but had a few uneasy days in between!

Harry did some updates to my new rig. He installed pin-diode modifications and verified that all 18 modifications had been installed by Collins. He also added a new tuning knob, noise blanker, and speech processor, and did a complete alignment.

Harry was a super gentleman to work with, and I am still using the KWM-380 as my main station with a Rockwell 30L-1.



Harry Snyder, W7HC and his great radio shack!

## Technical Disclaimer

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The weekly 75-meter nets continue to bring a large number of check-ins. The band has been erratic at times over the past few months, but for the most part it has been decent, with low QRN. We are now heading into spring, so the QRN will continue to increase over the next couple of months.

The first Wednesday AM net continues to draw good response, as well. It's really great to hear all of the wonderful old rigs and the great audio that emanates from them. Please remember to check-in only when the Net Control Station is in your time zone. It is difficult at times to get all of those wishing to check-in from that time zone during the one-hour window.

The 20-meter net has also been plagued by unpredictable propagation, but it continues to be the most popular net. Remember that the first hour of the 20-meter net is for buy, sell, or

swap. That is a great place to find or sell Collins and Collins-related equipment.

The 10-meter AM net continues to be disappointing. The band conditions have been very poor lately. Most Sundays, only a handful of check-ins are heard by the NCO stations. Hopefully it will get better over the next couple of months. Do not give-up, but keep tuning in and listening for an NCO station. Over the course of an hour, the propagation can change drastically. Try beaming both to the west and the east.

As usual, we are still looking for new NCOs to fill vacant positions and act as standby NCOs when someone is not able to make his/her scheduled net. It's a fun job, and also very rewarding. If you are interested, please e-mail either [w1sku@direcway.com](mailto:w1sku@direcway.com) or [daprull@aol.com](mailto:daprull@aol.com).

## Davenport, Iowa Hamfest

by Frank Baker, KW0L

At the November 2003 DARC Hamfest, held at the Iowa National Guard hangar, I had an information table set up to promote the CCA. Jack, KE3WV, and Larry, WA9VRH, sent me past issues of "The Signal" to hand out to hams interested in vintage radio equipment. Hutch, N9HT, helped me with the display by bringing a very nice Collins 75A-4. I brought my KWM-2A with the PM-2 power supply. We could have sold both of these rigs, but of course they were not for sale! The response was great. A ham from Vinton, Iowa sold me some "old" Collins manuals. Great fun was had by all, and I plan to have an area set aside each year at our annual hamfest for the display and sale of ham radio vintage equipment—and promotion of the CCA! (Hutch N9HT became a silent key on April 29th, 2004. Our condolences to his family and friends. —ed.)



Frank, KW0L (left) and Hutch, N9HT (right)

## In the Shack



Bill Wheeler, K0DEW

Bill Wheeler, K0DEW, founding father of the CCA, former President, and currently a member of the CCA Board of Directors.

First licensed in 1955. Like the majority of young amateurs of that time, I could only dream of owning Collins Radio equipment. I have from the very beginning of my ham experience had an interest in radio equipment, what makes it work or not work as the case may be.

About twenty-five years ago my dream turned to reality when I traded for a broken and extremely dirty KWM-2A. While restoring the 2A, I became aware of the fine workmanship of Collins equipment. After collecting several more Collins items, I observed the need to organize the collectors into an association to share tips on restoration and provide a means of getting them together on the air to use their old equipment. Little did I realize that my efforts would result in the Collins Collectors Association we enjoy today.



## At The Mic

by Floyd Soo, W8RO - President CCA  
floyd@hi-rescom.com

Spring is here, and you know what that means: It's time to gather at Dayton! I begin looking forward to the next Hamvention as I pack up my booth and leaving Hara Arena on Sunday afternoon. As many of you know, I like to check into the Sunday afternoon CCA Net on 14.263 mc from my mobile as I drive home from Dayton. It is always enjoyable to listen to other CCA members who are also headed home and giving reports on their own Dayton experiences. Tony, W9JXN, did such a wonderful job of organizing the CCA event at the Holiday Inn, Fairborn last year, that I immediately twisted his arm to have him do an encore for us. He graciously agreed to do it again this year, and for that I am grateful! Tony and his staff did a first-class job of organizing our get-together in 2003, but he could only do that with folks like you volunteering to assist him. He can still use some assistance at the Holiday Inn during our Banquet and Hospitality Suites. If you can pitch in, please contact Tony and lend a hand! I recently had the opportunity to visit the Hammond Museum of Radio in Guelph, Ontario, Canada. CCA members Fred Holmes, W1SKU, Scott Madison, WN1B, and Rich Davis, K8PJQ, accompanied me. A couple of dozen local (Detroit area) hams and their families came along, too. Fred and I were able to run a special event station from the two operating positions at the museum. Unfortunately, our plans to operate on both 20 and 40 meters were thwarted by a contest. We made about 40 Qs on 40 meters, but couldn't find a spot on 20 to even think about calling CQ. We are planning on going there and having a special event station again soon!

The staff at the museum rolled out the red carpet for us, providing lunch and volunteers to guide us through the displays. I have been talking about organizing a regional CCA gathering there for years, so here is my push toward that end again. For those of you who did not have the pleasure of meeting Fred Hammond, VE3HC, you missed one of the true gentlemen of our hobby. Fred began collecting radios from the day he was licensed in 1929, I think. There will be an article, maybe in the next issue of "The Signal," about this museum. It is located about 40 minutes west of Toronto and is a "must see" for anyone who has an interest in radio history. I'd like to hear from anyone who is interested in visiting the museum. Check out its website at:  
[www.hammondmuseumofradio.org](http://www.hammondmuseumofradio.org).

I also have been trying to get some feedback for a possible CCA gathering this August in Cedar Rapids. It's been a few years since we've been there, so we are looking into the possibility of making that trip again this

summer. Please contact one of the BoD members if you are interested in attending and/or volunteering to assist. Collins amateur radio club members can help us, but we need to know what we want before we can get a handle on what to do. Is anyone up for that road trip? If so, we need to know before Dayton!

As some of you know, Chuck Carney, W0GDJ, passed away in February. Chuck was the Collins Amateur Radio Product Manager in the 1950s and early '60s. He was our dinner speaker at the last CCA gathering in Cedar Rapids. Chuck worked for Collins Radio in a very exciting time and had some great stories about his experiences. He will be missed by all. In a future issue of "The Signal," we will print a story on the life and times of this very important man in Collins amateur radio history. Chuck, I know that you can hear us, so thank you for all you did for ham radio, and more specifically, what you did to put Collins Radios in many of our lives.

Well, that's it for now. I'll see many of you at Dayton. I also hope to talk with many of you on our CCA HF nets. If not, maybe we will correspond via e-mail. Whatever the medium, let's keep the excitement in ham radio going by keeping our excitement about Collins radios alive and well! . . . 73 de W8RO

## Letters to the Editor

*The CCA receives many nice letters from people around the world. We will start to print some of these letters in this new column.*

I would like to thank the Collins Collectors Association, Floyd Soo and Manuel Maseda. My Dad (W4BGL) passed away in April of 2000. He was manager of the Florida Post Office Network for years and he loved his Collins radio.

No one in our family took up his hobby so we had no idea what to do with his Collins radio equipment.

I started looking on the Internet and came across the CCA website. I got in touch with Floyd Soo who said he would get in contact with some of the CCA members in our area to see if they would be willing to stop by and take inventory of what we have, as well as what some of the equipment is worth.

Manuel Maseda took time out of his busy schedule and looked at our radio equipment and all of the other radio stuff we had. He gave us an idea on what we had and how much it was worth.

We sold the Collins Radio and Manuel gave us information on how to sell the rest of the radio equipment. Thank you.

Marsha Courtney

## Join Us on the Air!



- Sunday 14.263 mHz at 2000Z
- Tuesday 3805 kHz at 8pm CST
- Thursday 3875 kHz at 8pm CST
- Friday (West Coast) 3895 kHz at 10pm CST
- Sunday 10m AM 29.050 mHz at Noon CST
- 1st Wednesday AM 3885 kHz at 8pm CST

Sunday for Technical, Buy, Sell & Swap  
Tues., Thurs., Fri., & Sunday for Ragchew

### THE COLLINS VIDEO LIBRARY!

- The R-390A Addendum Video
  - The R-390A Video
  - The Collins Amateur Radio Equipment Video Spotter's Guide
  - The Collins 75A-4 Video
  - The Collins KWS-1 Video
  - The Collins KWM-2 Video
  - The Collins 75S-3 / 32S-3 Video
  - The Collins 30S-1 Video
  - The Collins 30L-1 Video
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# Radio Sextant Tracks Moon

New precision instrument aboard Navy experimental navigation ship has ten times the accuracy of present marine compasses.

(This article is reprinted from the May 1959 issue of Electronics World magazine. Thanks to Joe Prewitt, W0TUT, for sending it in for publication in "The Signal.")



For the first time in history, the moon has been tracked continuously by radio through the use of a new precision radio sextant designed and constructed by Collins Radio Company. The new radio sextant has been delivered and installed aboard the Navy's experimental navigation ship, the USS "Compass Island," where it is used in navigation research. The unit is also used to track the sun and such tracking is possible even under foul weather conditions. In addition, the sextant functions as a precise compass, furnishing the direction of north with more than ten times the accuracy of present marine

compasses.


The instrument utilizes a 5-foot parabolic antenna connected to an extremely sensitive radio receiver that measures the thermal radiation in the short microwave region. Operation is at a wavelength of 1.8 centimeters (about 16,500 mc.). A new tracking system involving advanced servo techniques is used. A special remote angle read-out system, which can punch its data directly on cards with great precision, is part of the installation. It is also possible to control and check all phases of operation from a remote-control console. From a mechanical standpoint, machining processes with tolerances as small as 25 millionths of an inch were required, and new procedures for optical alignment were worked out. In order to provide the necessary mechanical precision, an air-conditioning and heating system is used to maintain the equipment at a constant temperature at all times.

Aboard the USS "Compass Island," radio sextant observational data is coupled with the vessel's precision time standard and presented directly to a navigational computer. This then combines celestial and inertial data to determine the ship's location and true north.

The sextant operates by picking up radiation from the moon or sun. Such radiation fluctuates in the same fashion as the Johnson noise from a resistor, making detection of the weak signal difficult. In this instrument, the



antenna scans a circle around the sun or moon's rim. If the antenna is pointed directly at the sun or moon, the received signal will show no modulation at the scanning frequency, but if the antenna is displaced slightly, the moon or sun signal will be modulated. Phase-sensitive detectors derive error voltages which are used to make the radio sextant's antenna track the sun or moon.

The use of other heavenly bodies, such as radio stars, is presently very difficult with practical size receiving equipment. These stars produce extremely weak radiation in a much longer wavelength portion of the microwave region so that high resolving power is difficult to achieve with reasonably compact equipment of the type described above. 

## On the Workbench:

Simple Tune-up for the KWS-1  
by Dutch Maurer, WB7DYW

KWS-1 Service Bulletin SB-6C is to correct oscillation on 80 meters in early models of the KWS-1 when used with a high-reactance antenna. In SB-6C caps C-714 & C-402 are replaced. Thanks to John Kennedy, W5DJ, and Bill Carns, N7OTQ, here is a simple way to make the mod and then tune the transmitter.

Instead of replacing C-714 & C-402, add a 1000 pF discap shunted across C-714 and one 5 pF across C-402. This will achieve the same results and is a lot easier to get at. The next step is to do an alignment of the transmitter. However, there are a few tricks to it, and if this is your first time, there are a few black holes to watch out for. Let's start with equipment needed: a stable signal generator with a range of at least 3.000 to 4.000 MHz, a 30 MHz RF oscilloscope, insulated alignment tools, an RF volt meter (HP-410C, optional), and a spectrum analyzer (if you have one).

Step #1 is to check the band crystals; follow the instructions under section 5.2.3.3 "Crystal Oscillator Adjustment." Step 2 is to make sure all tubes are good, and then check the traps. On page 5-9 of the manual under 5.2.3.4 "Trap Adjustment," it clearly states to DIP or tune for MINIMUM signal on the receiver's "S"

meter. Follow these steps vary carefully. The caps are accessible through small holes in the bottom of the KWS-1 exciter.

In this step we do not want any of the other oscillators running to confuse the alignment, so remove V104 (12AT7) and RT101 (3FT4A); this is the ballast for the PTO tube. Connect the scope to the 6CL6 plate (BNC connector) near the back of the chassis, and connect the signal generator to the 250 Kc injector near the front of the chassis. Set the main tuning dial on the KWS-1 to 3.1, the signal generator to 3.1, and the emission switch to "CAL," and slowly increase the signal until you see a waveform on the scope and some indication on the PA GRID meter on the front panel. Tune L201, L206, L203, L204, L207, & L701 for a peak on the scope. Change the KWS-1 tuning dial to 3.9 and the signal generator to 3.9, and peak all caps marked 3.9 (located near the coils you just adjusted). Repeat these steps until no more gain can be achieved by adjusting the 3.1 coils and 3.9 caps. This adjustment is very important, as ALL other alignment is based on the 80-meter alignment being correct. Replace V104 & RT101 and remove the signal generator, and set the emission switch to "CAL" and increase the "Carrier Level" until you have some indication on the "PA GRID" meter.

Next run the KWS-1 main tuning dial from

one end of the band to the other and verify that the signal on the scope (still connected to the 6CL6 plate) remains clean and even. The only difference you should see is the waveform getting longer and shorter as you move up and down the band. You may see the waveform increase and decrease, but right now we are looking for distortion (use the spectrum analyzer if you have one). If this checks out, then move on to the other bands. You can follow the procedures in the manual for the other bands, now using the correctly aligned PTO oscillator as the signal source and monitoring the scope and receiver as outlined in the manual.

If you have any questions, send an e-mail to me at [wb7dyw@ev1.net](mailto:wb7dyw@ev1.net) and I will try to help you further. 

