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- Sunday 14.263 mHz at 2000Z
- Tuesday 3805 kHz at 8pm CST
- Thursday 3805 kHz at 8pm CST
- Friday (West Coast) 3895 kHz at 10pm CST
- Sunday 10m AM 29.050 mHz at Noon CST
- 1st Wednesday AM 3880 kHz at 8pm CST

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

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The Genesis of Military SSB at Collins Radio

by Scott Johnson, W7SVJ

Forward

The story of the history of SSB at Collins is a subject that has been well covered in several texts, as well as in numerous articles over the years. In summary form, as a result of the government and military contact network that Art Collins had built up prior to, and during World War II, Collins Radio and Art Collins personally was asked by Generals Curtis LeMay and Butch Griswold, KODWC, to explore SSB communication as a means of communicating reliably with SAC nuclear bombers when they were at extreme range during a nuclear strike. They had a problem. They wanted to be able to recall the bombers reliably, which they could not do. The result was Collins Radio's deployment and evaluation of the 75A-4 and KWS-1 SSB family, which used Collins' newly, developed Permeability Tuned PTO. The performance and stability of this type of PTO was essential for SSB communication. The testing of this equipment, and SSB communication, in a flying test bed C-97 (Curtis LeMay's personal aircraft) was dubbed Project Bird Call.



Art Collins with General Gen. Curtis LeMay

What has not been covered in great detail, however, is the pedigree of the resulting first generation of military equipment and the close link to the amateur products that formed the basis for a family of equipment that has been referred to as "URG-0" by many enthusiasts. (I attribute this nomenclature to David Ross, N7EPI, to whom I owe a debt of gratitude for his conveyance of a small amount of his



Figure 1 - URG-0 Family photo - The URC-32 with handset and remote control antenna coupler

vast knowledge on this subject.)

I will attempt to bring to light several aspects of this early and excellent family of equipment in a series of several articles, the first of which will deal with the ground equipment initially built for the

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From the Editor's Desk

by Bill Carns, N7OTQ and Co-Editor Joe Nyberg, WILJN

Well, we are pleased. The reaction to the last Q4 issue of the CCA **Signal** has been generally very good. While we are not there yet in terms of the desired technical content and format, it is a start. Actually, we will never be "there" since the process of putting out the **Signal** will hopefully be one of continual improvement. That being said, we want to remind everyone that this process requires timely feedback from our readers – That is YOU! Give us an indication of what you like, what you did not care for or saw as missing. Please keep up the inputs when you have something to share. We are only an email or a phone call away.

I do understand that there was a pretty significant delay of the mailing of the last issue that occurred at the printer's end. This has been addressed and hopefully this issue will take less time to get from the press to you.

This has been a busy quarter. Inputs about possible articles are up (Keep 'em coming!) and we are starting to build up a list of future articles. There have also been some more unexpected hurdles since our publisher, who was in a serious car accident, now requires some additional surgery on her shoulder and this will keep her out of commission for at least this issue. So, we have a temporary publisher in place (us) and we are trying to come up to speed on the software and process involved. Please wish Cathy your best thoughts as she recovers. We miss her.

This issue of the **Signal** starts the expansion of the scope of our articles. Periodically, we will be running articles on military and avionics products from the past line up of Collins product offerings. The article by Scott Johnson, W7SVJ, is the first in a series of 4 articles promised by Scott that will be dealing with a family of equipment designed to satisfy the Air Force's increased communication needs during the start of the cold war. Scott is a significant collector of Collins military and avionics equipment and a great resource for the group. The first article deals with a little history and the KWT-6 transceiver system which is now often found in amateur service. It is our plan to include some military/avionics cross-over content roughly every other issue.

I want to also take this opportunity to implore those of you that have "Tall Ship" stations, or stations that just get out well, and you have some time to commit, to consider being a net control. The bottom of the sun spot cycle is past and the conditions are starting to improve and it is time to inject new life into the Sunday afternoon 20 meter net. Our hope is that we can get enough volunteer committed NCOs in place so that we can have a schedule that does not lean heavily on just a few stations. Please contact the Net Manager, Lloyd Rafalsky, at rafalla@charter.net or 205 822 8951 (Home Phone) if you would like to help out, even if it is only once a month. The thing that is important is that you are there when you say you will be, or you communicate that there

is a problem so we can arrange backup. We need at least two NCOs on 20 meters each Sunday that are spaced out geographically. Until we get this all straightened out, we ask all of you to just show up, enjoy the camaraderie and help hold down the frequency. Not to make excuses, but there seems to be an antenna pox roaming the U.S. Lloyd, the net manager's 20 meter antenna is down, Mac's, W5MC's (TALL! Ship) is down, N7OTO's is down and the NCO for last Sunday got antenna'd out by an ice storm. We WILL overcome. Finally, I want to thank Bud Whitney, K7RMT, for picking up the net during this last quarter on a number of occasions.

We do not want to steal Bryan Sokol's thunder, but progress is also being made on the CCA Website. The reflector sign-up process is being clarified. Links have been fixed, more material added and the format revised to make the website more active and personable. Let us know what you think and particularly let us know if you find a problem, or if something just bugs you. We can not fix what we do not know about. In this vain, as editors of the **Signal**, Joe and Bill will be helping Brian with content editing. All inquiries and comments regarding content should be directed to us. This will help offload Brian who is extremely busy right now with his job and two young children.

Finally, as promised with this issue, we have started enclosing some of the Technical Data

The Genesis of Military SSB at Collins Radio (Cont'd)

Strategic Air Command starting in about 1957. This series was named the KWT-6 (See Figure 2) I will subsequently discuss related equipment - the airborne ARC-58, the Mobile/Transportable TRC-75, the Ship-

family will be dealt with in subsequent articles.

Design of the KWT-6 was begun in early 1956 with some architectural decisions that would indicate that Collins was looking

able, sub-modules. In addition, the decision was made to go to a synthesized frequency control scheme - which would result in better frequency control and repeatability - in place of the PTO control used in the KWS-1.

First Installment The KWT-6

Following the lessons learned from Project Birdcall in 1955, Collins designed a series of equipment, which would serve the US Air Force and the US Navy for nearly thirty years. The KWT-6, and the very similar AN/URC-32, are 2-30 MHz, 28,000 (or later, 280,000) channel single sideband transceivers with one KHz (later 100 Hz) channel spacing. The KWT-6 was designed with either an internal 500 W PEP linear amplifier, or to drive an external amplifier such as the 204H. (The 204H is a robust "rated" 2.5 kW output with 100 mW input. In reality the 204H will easily make 5 kW and will be the subject of a future article.) Applications of the KWT-6 included the Air Force where the transceiver was used in Operation Giant Talk for long-range communication with aircraft - including SAC strategic bombers. In addition, the Air Force used some KWT-6s in mobile van applications. Many KWT-6s were also used by the airlines to communicate with their equipment on non-domestic flights.

SP-109
Transceiver KWT-6 Type 5

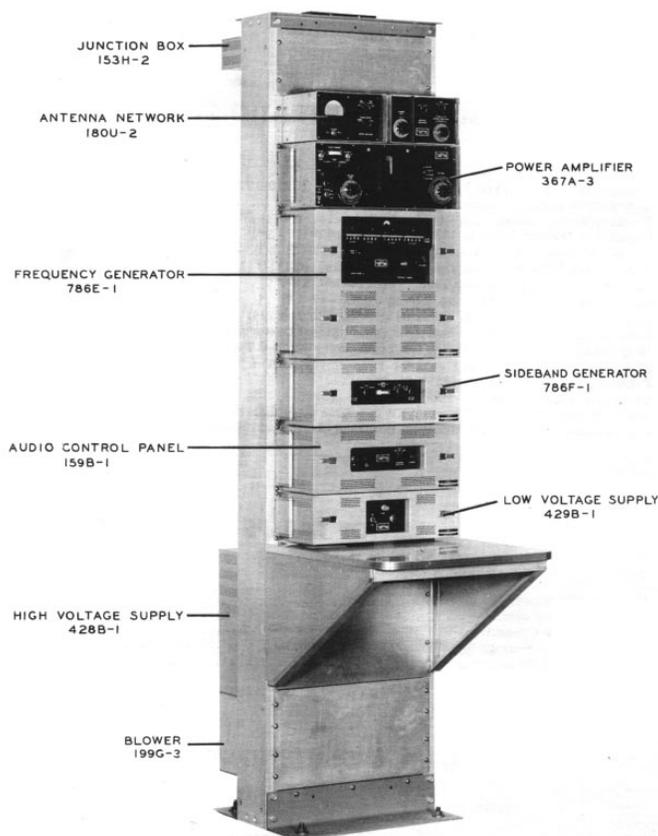


Figure 2 - KWT-6, Type 5 with desk and manual antenna tuner

board URC-32 (See Figure 1) and finally, lesser variants and sub-sets of the aforementioned equipment. Some of the equipment that followed the "URG-0"

to the future and reuse of the modules contained in this system's design. This included the modular construction with the use of reusable, field replace-

The transceiver is modular in design; with major functions arranged in 19 inch wide enclosures with aluminum snap catch covers. (See Figure 3) The

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Genesis of Military SSB (cont'd)

modules contain sub-modules that plug into the chassis and are secured with captive screws. (See Figure 4)



Figure 3 – Basic mechanical configuration showing swing out modules

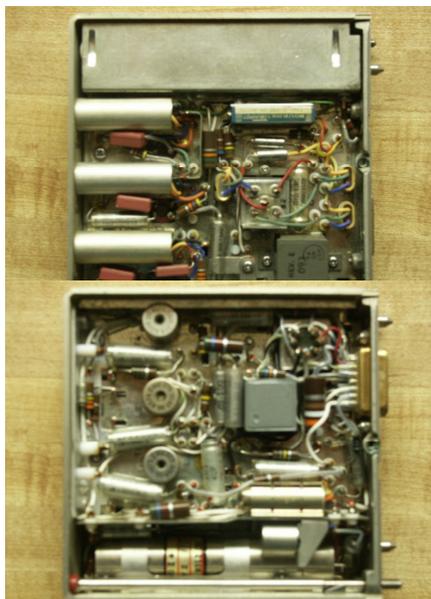


Figure 4 – Example of sub-module construction (USB IF amp)

The series of major functional modules are arranged vertically on an open type aluminum relay rack, with an air-cooling plenum and blower integrated. This type of construction was typical of Collins' microwave and telephone switching equipment of the era, and has proven to be very convenient for maintenance and repair. Individual units swing out for service, and can be removed easily for servicing or replacement. The sub-modules made extensive use of sub-miniature tubes, as well as transistors in certain audio, switching and servo amplifier applications.

The KWT-6 is organized into eight functional units, most of which are contained within the swing out modules. The eight units are as follows:

Low voltage power supply 429B-1 - Supplies power to all portions of the transceiver except for PA B+. This is a simple, well-filtered, unregulated supply. Outputs are +250V, +130V, and +28V at various stages of filtering and regulation. This unit also provides the -90V bias.

High voltage power supply 428B-1 - Supplies 2000V B+ and 400V screen voltage to the two 4CX250's in the PA. This module is not used in the exciter only versions. This supply is operable on 115 or 230V single phase, 60 Hz AC.

Frequency Generator 786E-1 - Functions as an IF to the transmit frequency converter on transmit, and an RF to IF converter on receive. It consists of an oven stabilized master oscill-

ator (or an external higher stability frequency source), a PTO based stabilized master oscillator, a receiver front end/transmitter exciter module (the RF tuner), a frequency divider module, a sidestep oscillator module, and on later units, a 100 Hz interpolation oscillator with a thumbwheel to select 100 Hz frequency increments. This feature was often added to earlier units with a field modification kit. The Frequency generator has a unique four-gang Veeder-Root counter that simultaneously displays the selected frequency on the four frequency bands of operation, which are selected by a band switch below the counter.

Sideband Generator 786F-1 - Consists of two or three individual IF/AF modules- USB, LSB, and optionally AM. Each IF module has its own mechanical filter. Additionally, the Sideband generator contains the carrier generator, VOX/anti-VOX, and balanced modulator. This unit is bi-directional, serving as both a modulator and demodulator.

Audio and Control unit 159B-1 -This unit consists of three line/microphone amplifiers and one speaker amplifier. The speaker amplifier will drive either low or high impedance speakers. The microphone input is a high impedance dynamic and the input amplifiers will accept both 600 ohm balanced and unbalanced inputs.

RF power amplifier 367A-3 - Amplifies 100mW nominal signal to 500 W PEP using two 6CL6 pentodes driving two

Genesis of Military SSB (cont'd)

4CX250B tetrodes. Tuning and loading are accomplished manually with turns counting dials. The design of this power amplifier is virtually identical to that in the KWS-1 and is indicative of its growth out of Project Birdcall and Collins' confidence in the KWS-1 design.

Junction Box 153H-2 – This is the connection point for both signal and power, and houses the power input fuses.

Blower 199G-3 – The blower is a high-pressure centrifugal unit that pressurizes a plenum on the back of the rack. The blower has been described by some as being quite noisy, but I find it acceptable, as long as the motor bearings are in good shape and well lubricated.

In addition to the eight functional blocks, there are also the cooling system plenum and power conditioning panel and, depending upon application, either a local antenna coupler, a remote antenna coupler control, or if the radio is used with an external power amplifier, no antenna coupler facilities. There was also an optional built in RF load and antenna switching relay. Some KWT-6 units also had accessory phone line interface units with equalization amplifiers to allow transmit and receive audio and control over twisted pairs. There are several other accessory panels, such as diversity reception, phone patch, and RTTY interfaces that increase the flexibility of the KWT-6. There are several mechanical variations, such as table tops, shorter and taller racks, etc. It would be interesting to run across a KWT-6 sys-

tem catalog to see the true breadth and depth of the system.

So, you just can't resist owning one!

My first acquisition of "URG-0" equipment was in the late eighties, when I ran across a nearly complete pile of ARC-58 equipment down at one of the then numerous aircraft scrap yards that surrounded Davis-Monthan AFB. My assumption is that the equipment was removed from a B-52 that had just been unceremoniously drawn and quartered as a result of the SALT treaty. The USAF's loss was my gain, and I trundled 200+ pounds of radio home to Scottsdale.

I was familiar with the set, having worked on them in the mid eighties. They were being phased out in favor of the ARC-190. Having an avionics background, and an avionics shop helped with the project as well. To make a long story short, I built cables and put the old girl on the air in 1994. Running the noisy 400 Hz beast is not exactly calming however, so I decided I needed one of the terrestrial or sea-going brethren. I located a pristine URC-32B in 1996 and another, minus the rack, later the same year. Both of these radios worked well, and there is really very little to tell, so I will fast forward to 2005, when I acquired a nice KWT-6 from our editor, N7OTQ. Bill was preparing to move to Texas, and I was willing to lighten his load by 350 pounds or so.

The KWT-6 was originally USAF property, and from various tags, decals, and masked numbers, I

deduced it had served at Offutt AFB, NE. I tore the radio down to the module level, and cleaned, dusted, and tested as I went back together with everything. Given the modular nature of the rig, it is really very easy to troubleshoot. Given its age, almost everything bears close inspection. Because of its long service life, there was much evidence of both preventative and unscheduled maintenance. I found many fatigued solder joints, bad BNC connectors, dried up tantalum and aluminum electrolytic capacitors and a few out of tolerance resistors. After two weeks of elbow grease and a new set of driver and final tubes, I brought up the LV supply, and was greeted by silence.

I swapped out the speaker amp and WWV came booming in. The audio amplifier had a bad electrolytic cap. The next day, I went through the alignment procedure on the tuner, and was amazed that it was still very well aligned. I held my breath and turned on the HVPS, and proceeded to load up into the dummy load. Everything was fine...for about 15 seconds. Then I heard what sounded like someone hitting the radio with a very small hammer. I shut everything down, and saw smoke wafting from the PA compartment cover louvers. Further examination revealed a PA plate bypass cap that was in several pieces. After a four-hour adventure with the PA deck, which is undoubtedly the most trying module in the radio, I was ready to try again. This time, everything was quiet, and the rig was making an easy 500 watts. In the subsequent

Genesis of Military SSB (cont'd)

years, I have not had the KWT-6 on the air often, but it will be a centerpiece in my soon-to-be remodeled shack.

I will cover my experiences with other members of the first generation Collins SSB equipment, as well as the very interesting frequency generation scheme, in future issues of the **Signal**. I hope it will generate some real interest in this fine equipment, much of which is available for very nominal cost. Prices for complete units are on the rise, but it is entirely plausible to piece together a rig from the individual units. It is not even entirely necessary to have the aluminum rack, however it does make for a much nicer assembly! If you decide to scrounge for your rig, make sure to round up a harness assembly, or it will be nearly impossible to locate all of the Amphenol connectors and very custom jacketed cables. There are also several service aids that I will talk about in the next installment.

de W7SVJ

CCA

Scott Johnson has been a ham



and Collins collector for over 30 years and was first licensed in 1974. His first station was a TCS/Command Set

and he has specialized in collecting primarily military and avionics since that time. His all time favorite piece of Collins equipment is the venerable 618T HF Transceiver. He also collects some Collins broadcast equipment and amateur gear. He regularly gets on the air with a VHF-201, R-390A, R-389, URC-32B, ARC-186, ARC-27 and PRC 41/66/75. His other hobbies include flying, R/C modeling and aircraft restoration. He is a licensed pilot and rated C-130 flight engineer as well as having owned and operated a FAA approved Avionics Repair Station where he specialized in commercial aircraft installation and repair.

Scott has a BSEE and BAEd, works as a Research Staff Scientist with the Motorola Research Labs in Tempe, AZ and is a Captain in the Air Force Reserve with current assignment to the Air Force Research Laboratory Night Vision Center of Excellence. He, and his wife (Sharon), both saw active duty in the near east during the Gulf War. They have one son, Oscar. Sharon was the first female boom operator in the US Air Force and was also a member of the historic first all woman flight crew for the KC-135 in 1982. She is still a member of the 161 ARW, and a full time mom.

Due to his wife's responsibilities, Scott often is found playing stay-at-home Dad. When does he sleep you ask. Great question.

CCA



CAPACITOR FAILURES IN KWM-380s by Wayne Spring W6IRD

In 1949, I became a ham while I was serving in the Coast Guard as a Radioman. I was not active while I was in the service. My ham radio life exploded when I got my first S-Line in 1966. The rig was a Collins 75S-I and a 32S-1. This was my introduction to quality Collins equipment.

Along with my own equipment, I started repairing radios for my friends. In 1992, I was asked to take a look at a KWM-380, which was quite a challenge. But, that first 380 has lead to many KWM-380's and HF-380's. The KWM and HF are the same radio except the HF-380 has a temperature controlled oscillator and additional filter board. I have found some symptoms and corrections that may be of help to other hams in fixing their own radios.

Tantalum Capacitor Failure

Tantalum Capacitors are used extensively throughout the radio. Unfortunately, the voltage rating of the capacitors that Collins used is too close to their operating voltage. When a tantalum capacitor fails, it shorts out causing a direct short in the power supply.

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From the Editors' Desk (Cont'd)

Sheets that were published by Collins to support introduction of new pieces of equipment. In some cases these were quite extensive and still today provide a wealth of information. We can all thank Board Members Jim Stitzinger and Mac McCullough for their efforts here on these reprints. Jim, for providing the original new condition source documents from his extensive collection of Collins and Rockwell literature, and both of them for orchestrating the scanning and quality reprinting job that will give you essentially a duplicate of the original. I think we all will enjoy these as they come out.

From K5PZ (Papa Zulu) Pete Zilio, email dated 12/14/07

Letter to the Editor:

Dear OM, Editor, Sir:

I noticed that a picture of you operating the Collins Van was mislabeled in the latest SIGNAL. You erroneously state the picture was taken at the Dayton HAM-VENTION. WRONG SIR. I was the photog (without a credit line) that captured this image at the Dallas Collins Users Conference in 2001.
de K5PZ

In response, I want to acknowledge the error. Pete is right and my memory failed me.....Again. And Pete, I do apologize for not crediting your fine and timely photography. (Bill)

We wanted to also include the following from one of our dedicated members across the pond. From Lino Esposito in Italy, we have received compliments on the new **Signal** direction. We appreciate the comments Lino, and particularly

want to mention your web site here (Link in the email). We know our readers will find it very informative and also very professionally done. Thank you for writing!

From Lino Esposito: Italian SWL # 11-3152/Ge, Dated 12/12/07

Hello Bill & Joe,

sorry for my english!!!!

Many thanks for the beautiful work for Signal!!!! Now is beautiful!!!! Many pages, pics with colors, nice graphics!!!!

My best 73s to you and your family, God Bless, and many thanks for the great efforts for Collins collectors in the world!!!

Hello from Lino Esposito from Genova,Italy.

my web pages:

www.linoesposito.it

In closing, we would like to say that it is with great sadness we report in this issue the passing of two of our admired members of the Collins clan. Joe Vanous was a long time employee of Collins radio and Warren Hall was a founding member of the CCA. Both passed on in January of this year and will be honored elsewhere in this issue.

We wish you all a good quarter, safe travel and see you on the nets and at Dayton.

de

Bill Carns, N7OTQ

Joe Nyberg, W1LJN

CCA

Dayton Update

I hope everyone has May 15, 16, and 17 marked on their calendar. This year's Dayton Hamvention and the CCA banquet is one that you do not want to miss! Floyd Soo and Rod Blocksome, from Rockwell Collins, are putting together a great presentation on the Hammond Museum - including a taped interview with Fred Hammond himself - for our banquet program. A hospitality room is set up for both Friday and Saturday evening complete with Hors-d'oeuvres and a cash bar.

During the day, Jim Stitzinger is going to have his famous Collins Van on display. With luck, we will be able to string an antenna out the door and put the station on the air. Wouldn't it be great to get a chance to see the van in operation...maybe even with you at the mic? Jim has told us he is going to be taking pictures of anyone who wants his picture at the van's operating position.

If you want to be where the action is, make your reservations now by calling the Holiday Inn North at 937-278-4871. There are only 30 rooms set aside and I know several have already been sold. Oh, and be sure to tell them you are with the CCA to get the special \$118 rate. There is a free shuttle service between the hotel and Hara arena, which will save on parking fees and aggravation.

Watch the CCA web-site for Dayton information and a sign up sheet for the banquet. The banquet fee is \$35.00 per individual by check and US mail, or \$36.00 via Pay Pal form on the web site. This is the same as last year. As in the past, be

Service Line (Cont'd)

Author Information



You all know Wayne Spring, W6IRD, as the man that helps on the net. Now meet the man with the ready smile, a KWM-380 guru and the host of many Southern California Collins get-togethers. Wayne has been collecting Collins for some 27 years. He was first licensed in 1949 (beats me Wayne) and made his first transmission with a home brew 807 rig, listening on a S-20R (now that is tough work). His collection includes a KW-1, 30K-4, KWS-1/75A-4 and most all of the S-Line and A-Line. His favorite, of course, is the KWM-380/HF-380.

Wayne lives in Southern California with his wife Sharon, a 3 year wonder. He has 4 children, 12 grand-children and 9 great grand-children. Sharon, to please Wayne, obtained her General Class, and then her Extra Class, licenses—obtaining the vanity call K6IRD—and in the process managed to become DXCC with 216 worked and 199 confirmed. She also has WAS, WAZ, made an AMI net control and is a dedicated CW op—All in three years.

Wayne worked for the government for 48 years, is retired Coast Guard and Engineering

And, in most cases, will blow the F1 or F2 fuse that provides the primary 15-volt supply to the radio.

Diagnosing the problem

In order to locate the area of the short (which board it is on) you should unplug the radio and pull the blown fuse and put your ohm meter from the fuse holder to ground. The resistance will measure probably between 0 to 10 ohms. Systematically unplug each connector from the A3 motherboard to determine where the short is. If the short does not go away, it will be on the A3 board. At this point, you need to check the resistance to ground off the plus lead of each tantalum capacitor on the A3 board. The bad capacitor will generally read the closest to 0 ohms. You will probably find it to be one of the 47 Mfd 20-V capacitors. This is not always the case, but it is a good starting point. Good luck on the Easter hunt! If you find the short goes away when you remove one of the connectors, go to your manual and trace back which board it goes to. And use the same process for finding the shorted capacitor. When replacing the capacitors, be sure to use higher voltage capacitors between 35 and 50 volts.

As always, the word of caution is to be careful not to short any leads with power on. This can cause multiple failures of some of the CMOS IC's. I will be more than glad to answer any questions.

You can call me at (714) 639-3982.

CCA

Support for the Trident Submarine Test Instrumentation Division. He has two years of college and government certifications in electronics, ME, special processes and munitions. He is also a member of the Corvette Club, Southern California DX Club, Orange County Radio Club and the CCA.



Wayne's wife Sharon, K6IRD



Did You Know?

At Collins Radio in Cedar Rapids, when a radio went to Final Inspection and was serialized, it was called "Going to Gurney" because the man who performed the job in the 50s and 60s was named Gurney. The term stuck and is still in use today at Collins. Radios held in stock were not serialized, but were tracked by their factory production line number, or MCN.

Joe Vanous Passes—Honored as a Gentleman and CCA Collins Employee of the Quarter

Joe Vanous was born August 23rd, 1923 in Cedar Rapids, Iowa. Shortly after high school he joined the Army and served during World War II. When he returned to Cedar Rapids, he then attended the University of Iowa and earned his Electrical Engineering Degree in 1949. During his junior year he married his wife Nadine and, after graduation, he went to work for Collins Radio.

Joe was almost immediately assigned as the Project Engineer assigned to complete and introduce the first S-Line transmitter, the 32S-1. Following this project he worked on an advanced up-conversion scheme.

Dennis Day, retired Group Head of Amateur Radio Products, relates:

"I think I first met him in 1958 or 59 and he was working with two other engineers on "parametric up-converter" research. I believe he got a patent issued with those engineers and later another patent under his own name. They published a couple of reports. The results of those studies led to the conclusion by Ed Andrade, I believe, to incorporate up-conversion to the 100 MHz region for all our future HF radios. Ed's *Paramp* receiver design (that unit is now in the Collins museum) was the first *Paramp* up-converter radio designed."

Following this research, he was in Gene Senti's engineering group which included:



1923 – 2008

Ed Andrade, Clyde Baxter, Dennis Day (co-op student at that time), Marshall Field and Gerry Nelson. By 1962, Joe was assigned as over-all project engineer responsible for the 30S-2/3 which was designed and prototyped as the auto-tune follow-on to the 30S-1. Joe did most of the RF network and control circuit design himself. While successful as a project, the 30S-2/3 was killed at the last minute because Art Collins felt it was not a big enough advancement of the state-of-the-art and was not, as Art said, "Generic" enough. Following this project, Joe was then assigned a new PA study called the "Transamp". This was to be a PA configured in an aircraft ATR box and meant to be used in ALL applications requiring a HF PA. This project was also cancelled.

Dennis Day related also:

"About 1963 Joe was PE on the B-58 Hustler HF retrofit (I did the radio set controls for him). We used the 618T in an appropriate shock mounted case.

About 1965/67 came the 718T for the SR-71 Blackbird. I believe Bob Marston was the overall PE and Joe had the RF module (I had the 889A-3 IF/AF module). I think Joe took over the project before it went on the aircraft.

About 1966/68, Joe was PE for the RF Translator module 888A-1 and then 888B-1 for the URG-11 equipment (I did the 889A/B IF/AF translators.). This family went on AWACS, TACAMO, TSC-60, LHA, Mickey Link, etc."

Because of Joe's expertise and experience in the area, he was involved in most of Collins' HF RF front-ends and RF translator module designs during his tenure.

Dennis continued his reminiscing by adding:

"Joe was an avid reader and subscriber to "The Scientific American" magazine.

He designed a "lightening detector receiver" in the early 60's for his own interests.

Ate a small package of "Nibs" licorice at afternoon brake time.....for years.

Was a GREAT human being and engineer. He and Ed Andrade shared an office for several

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In the Shack of Elliott Klein, K7ER



His all-time favorite pieces of Collins are the 21E, 5 kW, along with the venerable 20V-3, 1 kW broadcast transmitters. He currently has a 20V-3 installed in his office/shack ready for duty on 75 meters.

In addition to collecting Collins, Elliott also collects model railroad equipment, full size railroad memorabilia, railroad pocket watches and early 30's Cadillac automobiles and presently owns a restored 1931 Cadillac V-16 All Weather Phaeton. He says he is also looking for a WWII M24 tank which was manufactured by Cadillac. The ultimate urban touring car, I guess.

Thanks for the tour Elliott.

Elliott Klein has been an active ham for almost 30 years, having first been licensed as KA7RGO in the late 70's.....but, his activity in radio should be noted as going back well before that when, as a teenager, he operated a, let us say politely, clandestine AM radio station in the Phoenix area. That did not last long as he received a visit from the Regional FCC Engineer in Charge no less. Barely fending off arrest, he was rewarded with a compliment from the regional Engineer, saying that he was doing an excellent job of a not so legal activity and that he should consider a career in broadcasting. The rest is history.

Elliott works in the broadcast consulting field as a Commercial Broadcast Telecommunications Consulting Engineer. He specializes in FM antenna design and propagation. He is also a partner in a firm specializing in synchronous remote antenna installations for potentially overlapping coverage on the same frequency. He attended the Wm. B. Ogden Radio Engineering School and also received a B.S.E.E. degree from Arizona State University.

He currently holds the call K7ER and loves to operate his S-3 line which he drives with that wonderful studio audio. This, along with a winged 30L-1, was his first station. His first piece of Collins gear, however, came earlier and was a 300J, 250 watt, broadcast transmitter. Love those big boxes. In addition to collecting S-Line equipment, he also likes broadcast literature and manuals. He has been collecting since 1974. His wife, Nancy is also a ham – K6NAN.



Warren Hall, W0ZQD, CCA Founding Member # 94-00005 - SK

by Mike O'Brien, KOMYW



Sad news to report to the group. Warren Hall, K0ZQD, of Ash Grove, Missouri, became a Silent Key on January 29, 2008.

Warren, 87, was a charter member of the Collins Collectors Association. He had not been active on the Collins nets the past couple of years after suffering a series of strokes. He was well-known in earlier years, especially for his S-Line expertise that he was always eager to share, and for making repro mobile mounting hardware for the KWM-2.

Warren earned several commendations, including a Bronze Star, as a staff sergeant in Patton's Third Army in World War II. Convalescing in a veteran's hospital following the war, he was introduced to amateur radio via a shortwave receiver in the hospital's recreation room.

He returned to civilian life to operate a photography store in Springfield, Missouri and became widely recognized as an expert in Leica cameras and Kodak color processing equipment and techniques.

In the late 1950s Warren finally found time to earn his ham license and soon upgraded to Extra Class. He was an avid DXer, ranking near the top of the DXCC Honor Roll for many years - an accomplishment that was testament to his operating skills, as his city-lot antenna farm was modest.

Warren attended 15 Dayton Hamventions and CCA gatherings in Cedar Rapids and Dallas, as well as countless hamfests throughout the Midwest. He was a venerable fixture at Saturday morning get-togethers of hams in Springfield, and was a mentor to those seeking to restore and operate vintage equipment. Until his health failed, Warren took in others' Collins gear for repair and alignment.

Above all, Warren was a gentleman in all facets of his life. He is survived by his wife of 64 years, Laura Nell; one daughter, Paula Sue; and grandchildren and great-grandchildren.

Notes of condolence to the Hall family may be mailed to P.O. Box 282, Ash Grove, MO 65604-0282.

de Mike O'Brien, KOMYW

His obituary, published in the News-Leader in Springfield, MO, is reprinted here in part.

" R. Warren Hall, 87, Ash Grove, passed away Tuesday, January 29, 2008, at 12 p.m. in St. John's Regional Health Center, Springfield, Mo. Warren was born in Ash Grove and was a lifelong resident of the area. He retired from Ozark Camera of Springfield, where he was former co-

owner, working in sales and developed the first color laboratory in Springfield. He graduated from Ash Grove High School in 1937. He joined the United States Army on January 22, 1942. He served in Normandy, Northern France, Rhineland and Central Europe and was awarded four (sic) bronze stars. He was discharged on October 6, 1945, with the rank of Staff Sgt. He held membership in the V.F.W. Post#2293 of Ash Grove where he had served as Quartermaster. He was also a member of the Everton American Legion Post #443. Warren was an amateur radio operator and was very gifted in repairing Collins Classic Radios. He was a member of the Collins Collector Club. He was very civic minded and had served as a city councilman for 30 years. "

CCA

Dayton (Cont'd)

sure to tell us if you want Chicken or Beef (prime rib), or if you need a special dietary meal. There will be some exciting prizes and, of course, some awards.

Come join the fun and friendship of your fellow CCA members. Don't forget to bring some pictures of your latest projects for show and tell at the hospitality suites. Of course, when at the arena, everyone is welcome to drop in and spend some time at the Collins booth for a well-earned rest from all the walking you will be doing.

See you in Dayton! 73s
Tony - W9JXN
2008 Dayton Chairman

From the President

I would like to thank all who have contributed to the additional content in our Signal the past couple of quarters.

This has been a goal of your Board of Directors and, with the excellent help from Bill Carns, it has become a reality. As I reflect back to 2007, the CCA Board Members promised you changes in our organization. I hope that the re-design of our Web Site, the addition of PayPal, the increase in the **Signal** content, our weekly/monthly Nets and the day to day operations of the CCA has met or exceeded your expectations for improvement. As I said from the start, our goal was to bring the CCA back to an organization that provides its members with the information they need to enjoy their Collins equipment and to have fun. Hopefully we are fulfilling our obligation to you, the members of the CCA.

The work on the Web Site will continue and we are looking for even better content and functionality. I am also excited about the **Signal's** increased focus on the people of Collins Radio and the CCA.

Our membership is still growing and as of this quarter's **Signal** publication, we have added many new members for 2008. Our current membership number is just over 1000 and they are still coming in. This is the highest active member's number since I have been involved with the CCA. THANKS for the support!! I will be attending

Dayton this year and I hope to see many of you at our booth or at our banquet.



Jack, KE3WV

CCA

Vanous Honored (Cont'd)

years and welcomed me into it in the early 60's. They were outstanding mentors to me and always had, or took the, time to answer my many questions....cheerfully.

Bill, I very much miss our old boss, Gene.....and now will miss Joe and Ed as well."

(Dennis was referring also to the recent loss of both Gene Senti and Ed Andrade who will be featured in following **Signal** issues.)

As Editor, I will add that in talking with a number of people in the course of writing this article, there was a common thread mentioned by all - including Joe's one time office mate, Chuck Anima (KE5DOU) - that Joe was just a great human being. Along with his many accomplishments as an engineer and project leader at Collins, there is no finer tribute. 73s Joe.

CCA

A Personal Glimpse Gene and Mary Senti

From the pages of Issue VII of the **Collins Columns** (a in-house News Letter published during WW II to keep active duty Collins employees in touch with their company and friends). Dated October 11, 1943. We quote:

"Final Test

Eugene Senti made the break into the group of Navy girl inspectors working in the plant by tripping to the alter Sept. 24th with Miss Mary Meyer.

Thirty-two members of the 17H Test Department honored them at a picnic supper Sept. 26th. (Am wondering if each pie Mary bakes will carry one of the thirty-two names autographed on the rolling pin presented to them???)

Best of luck, kids. "

Young engineer Gene Senti went on to become Group Head, Amateur Radio Products, at Collins Radio. Gene and Mary were happily married for 60 years.

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