
SIGNALS

Rockwell Collins Amateur Radio Club

Monthly Newsletter of the

Volume 37 Issue 08

Web Site <http://www.w5rok.us>

May 2016

RCARC Membership Meeting

Tuesday 24 May 2016
1700 Social 1730 Meeting
1800 Program

Methodist Richardson Medical Center
At Bush/Renner/Shiloh Intersection
Conference Room A in Hospital Building

Subject:

Wiggio—what is it? By Joe Wolf N5UIC

Why Was Collins Radio the Best?

by Richard L. Webster, YS1UL & Principle Engineer (retired) Rockwell Collins

The following article is republished with permission from The Signal, the newsletter of the Collins Collector's Club, Issue 31, 3Q, 2003. For those of you familiar with the Collins Radio receivers, transmitters and transceivers of the past century, you can appreciate the quality of the products. Quality, which is defined as 'conformance to standard', was an integral part of the attitudes, design, raw materials and components and assembly of Collins Radio products. This article describes how quality was the underlying driving force for the success of the company and its products.



(Continued on page 4)

Local Club News

Meeting Notice

At the May meeting, Joe will educate us on all we need to know about Wiggio: how to use it; what club members should expect to be getting from it; how it is being used; and why we are not getting messages from Rockwell's Network. Also, he plans to answer any additional questions on this private network.

Location: RCARC has RESERVED Methodist Richardson Medical Center Conference room A or B for the RCARC monthly meeting, (fourth Tuesday of each month) from April, 2016 through August, 2017. Each reservation is for 5PM to 8PM. We are welcome to stay longer if the room has not been reserved for a later time.

Directions: The new meeting location is in the hospital. No longer will we be meeting in the Doctors Building; we now meet in the main hospital building. To find your way for the first time enter by the main entrance on the south side of the hospital. Stay on the first floor and turn left at the entrance and go down the hall to where it just turns to the right heading for the emergency room; do not continue. Turn left and go into Conference Room A.

RCARC OFFICERS

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VE SESSIONS

Dallas tests are held on the fourth Saturday of each month at 1000 hrs. 13350 Floyd Rd. (Old Credit Union) Contact Bob West, WA8YCD 972.917.6362

Irving tests are held on the third Saturday of each month at 0900. Fifth and Main St. Contact Bill Revis, KF5BL 252-8015

McKinney VE test sessions are held at the Heard Museum the first Sunday of the month. The address is 1 Nature Place, McKinney TX. The time of the testing is 1430, ending no later than 1645. **Note: no tests given on holiday weekends.**

Garland testing is held on the fourth Thursday of each month, excluding November, and begins at 1930 sharp. Location is Freeman Heights Baptist Church, 1120 N Garland Ave, Garland (between W Walnut and Buckingham Rd). Enter via the north driveway. A HUGE parking lot is located behind the church. Both the parking lot and the Fellowship Hall are located on the east side of the church building, with big signs by the entrance door. Contact Janet Crenshaw, WB9ZPH at 972.302.9992.

Plano testing is on the third Saturday of each month, 1300 hrs at Williams High School, 1717 17th St. East Plano. Check Repeater 147.180+ for announcements.

Greenville testing is on the Saturday after the third Thursday, 1000 hrs at site TBA, contact N5KA, 903.364.5306. Sponsor is Sabine Valley ARA. Repeater 146.780(-) with 118.8 tone.

Richardson The Richardson Wireless Klub (RWK) VE team hold license testing on the third Thursday of each month at St. Barnabas Presbyterian Church, 1220 West Beltline Rd. Testing begins at 1900 hrs in room 12. Enter through the Northern most door on the east side of the church building. For further information contact Dave Russell W2DMR, at 972.690.9894 or E-mail warhog4@tx.rr.com.

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President and VP Messages

Well, here we are well into spring, and still no antennas up. However, my agenda is to have one up by Field Day. Yeah, we'll see how that goes. Anyway it is the time of the year to check out the antennas and the rigs to make sure they are good for the next year and all the contests and DXPeditions coming up.

First of all, Field Day is coming up soon, so RCARC needs to start the planning for the event of the season. This will be the first FD that I have been a part of for a few years, and it should be a fun event. Everybody can take part, no matter what your license class, so NO excuses. We need to start the process at the meeting this month. We will need a coordinator to get the food and drinks planned, and work out the operator teams. And we need to check out the station to make sure it is ready. It's not hard to take part, and you may just have a ton-of-fun and learn some new skills. And find out that you like to get on the air and talk to people. So let's get ready to have some fun!

73's
Gene, K1GD

Secretary's Report

The meeting was called to order by Bob Kirby K3NT at 1735.

The following were present at the meeting:

Brian Belcher	WA5M
Jim Brown	AF5MA
Dennis Cobb	WA8ZBT
Bob DeVance	K5CRX
Bob Kirby	K3NT
John McFadden	K5TIP
Mike Schmit	WA9WCC
Jim Skinner	WB0UNI
Joe Wolf	N5UIC

Officers and Committee Reports:

There were no formal reports other than the Secretary's Report, which is contained in this newsletter.

Old Business:

There was no old business.

New Business:

Dennis Cobb WA8ZBT reported that the recent hail storm affected the Rockwell Collins Richardson facility, including the club radio resources. The anemometer lost two cups, requiring repair or replacement. Members present agreed to buy a new anemometer for approximately \$100 as a maintenance item.

Jim Skinner WB0UNI announced that his existing copy of Microsoft Word used to publish the club newsletter was no longer supportable on current computing resources, requesting purchase of a newer version of the software. Bob Kirby K3NT moved to authorize Jim to purchase a current copy for approximately \$300 using club funds. Jim Brown AF5MA seconded, and members present approved the action unanimously.

Adjournment:

The meeting was adjourned at 1753, followed by a program on D-STAR radio presented by guest Bob DeVance K5CRX.

RCARC Community Service Activities

Siren Testing Dennis Cobb WA8ZBT, Chris Havenridge KF5GUN, Frank Krizan K5HS, John McFadden K5TIP and Jim Skinner WB0UNI participated in the Richardson emergency siren testing on 4 May 2016. Based on siren reports, all sirens worked correctly this month. The siren testing is performed at 12:00 on the first Wednesday of each month. The sirens are monitored by amateur radio operators and reports made using the Richardson Wireless Klub (RWK) repeater at 147.120 MHz. Siren testing in May used the University of Texas at Dallas (UTD) repeater at 145.430 MHz, which is designated as the backup repeater.

Crime Watch Patrol Jim Skinner WB0UNI participated in Richardson Duck Creek Crime Watch Patrol (CWP). CWP members, after successful completion of Richardson Police Department Training, patrol their neighborhoods and report all suspicious activities to the Police Department.

Presentations for Monthly RCARC Meetings

RCARC has an urgent need for presenters to present a short topic on Ham Radio at our monthly club meetings. 45-60 minute Presentations may include, but are not limited to:

- Set-up, Building or Modifying Station Equipment (Antennas, Audio, Dummy Loads, Desks, Lights, ...)
- Operating a Radio Station (Listening & Transmission tips, Ham Logo decrypted, Popular Frequencies, ...)
- My Radio Broke (Possible Alternatives before using the Sledge Hammer, ...)
- Different types of Digital Operation (APRS, Packet, PSK 31-64, RTTY, ...)
- Software Defined Radios (Commercial, Kits, Remote, Internet, ...)
- Software used for Ham Radios (WSPR, PSK-31, ...)
- Emergency Radio Equipment (Go Kits, Batteries, Solar power, Easy-Up Antennas, ...)
- Ham Radio Activities (MARS, RACES, MARC, Contests, Satellites, Mobile, Portable, Remote, Field Day, SWL, ...)
- Radio Reference (On-line manuals, theory, how to books & Videos, ...)
- Social Mingle (With light snacks? Ham and cheese crackers? ...)

If you would like more information on a particular topic, and would like someone to do a presentation on it, you may suggest it as a topic. Please email Bob Kirby K3NT, Jim Skinner WB0UNI, Chris Havenridge KF5GUN, or Gene Duprey K1GD to present a topic or to suggest a topic for presentation.

Let's try this out while supply lasts. Any RCARC member who presents a program or lines up and follows through with a speaker/presentation (including timely advanced bio and program description to Mr. Skinner) will receive a VHF (or UHF) commercial grade antenna along with a commercial grade magnetic mount with coax cable for each completed program. The speaker will also receive like antenna and magnetic mount/coax cable.

Please note: Simply passing along program prospects or leads, while highly appreciated by your radio club, does not count towards the antenna and magnetic mount with coax offer. However, you may be eligible for a hunk of pre-RF'ed feed line for your pet to chew on. In the absence of said pet, it just could become your "Pet Coax".

Why Was Collins Radio the Best?

(Continued from page 1) Have you ever wondered why the Collins equipment is so popular and still performs admirably after over forty years of operating? If you haven't been involved directly in the high tech electronic industry, this may be a familiar thought.

The intention of this article is to give you an insider's view as to what made the Collins line of ham equipment such a success. Obviously it started with Art Collins himself. Art was a visionary and an electronic genius. He had a talent that few people possess for knowing "how to design" and "how to build" electronic equipment. Well into the history of Collins Radio, Art took a personal interest and personal involvement in the design, development and manufacture of equipment that bore his name.

Collins, as a company, seemed to also have a talent for hiring great engineers. I believe this was in part due to the fact that most engineering managers within the company had worked their way up through the ranks and they were personally involved in the hiring process. Basically you had experts in field hiring other engineers. There was a great deal of engineering expertise and depth inside the Collins doors. Every product, if it's to be worth anything, must start with a good design. Collins did a lot of research and development effort. Engineers within the company published engineering papers that were circulated and taught to other engineers. This was particularly true regarding SSB circuits, PTO's, etc. The designs were carefully done, state of the art, and continually improved upon.

Good design engineers have to be backed up by good engineering technicians. I am personally convinced Collins had some of the best technicians anywhere. Every design was carefully prototyped, lab built (even though they often looked like they were built in the factory), tested, re-tested and proven before it was ready to be consider for production.

No design can become a good product unless you have access to good parts. Here is another area where Collins excelled. There was a group of engineers who dealt strictly with parts and part procurement. Collins did not buy "catalog" parts from anyone. Every part used in a Collins radio had its own detailed parts specification. Every parts vendor was "certified" by this group of engineers and their products tested and evaluated for specification compliance. There were even periodic audits and visits to vendors by Collins engineers and quality personnel. Not just anybody could sell parts to Collins. They had to be "quality" vendors of "quality" parts.

It was not unusual to see a customer owned radio come through the factory where, after ten or more years of service, it still met every performance parameter of its original production tests without any realignment. That isn't by accident!

Even with good designs, good prototyping and good parts, that is not enough. Collins had teams of engineers (me-

chanical, industrial, quality, and electrical) who helped transition a design from lab build to production build. Every assembly had its build, inspection and test procedures written by these groups of engineers and their support tech writers. Nothing was done without a lot of documentation.

We couldn't begin to understand the integrity of Collins equipment if we didn't understand some of what went into the build, inspection, and test of Collins products. If Collins had good engineers and good lab technicians, the company had even better assembly, inspection and test people. Every person who picked up a soldering iron, screwdriver (or any other tool used to assemble a product) went through a school.



**Early 32RA Transmitter underside – Quality at its best
(Right from the Beginning in the 1930s)**

If you look at the underside chassis of a piece of Collins equipment, it is a masterpiece of assembly expertise. Every single lead to every termination had to be neatly dressed, mechanically sound, and when soldered-just the exact amount of solder had to be used such that each individual lead could still be easily seen and counted by inspection. The build was "designed" so it could be inspected and inspected it was! Every single solder connection was inspected for the number of wires, the color code of the wires or connecting part description, quality of the solder joint, and clearance to other parts, chassis, etc. Only after "everything" was in order, was a red dot applied – confirming the quality.

During the history of the Collins ham equipment, the company only had one quality standard (except for space products). It didn't matter if it was a piece of ham radio equipment, a commercial avionics product, or a military product - it got the same assembly, inspection, and test procedures. Even the inspections were inspected! There was the "greatly feared" audit department who would take a product from stock, "totally" tear it apart-inspecting every-

thing with a fine tooth comb. Boy did they have a tiny comb! The report from audit would assign "demerits" to those who had earned them. Your job security could well depend upon those audit results. Everyone took the process quite seriously!



Art Collins with A-Line & KW-1

Of course after build and inspection comes test! Collins test consisted of the "best of the best". If Collins had a talent for hiring good engineers, good assembly and inspection people, they out did themselves at hiring the best test technicians in the world. I know because I personally worked with them for 30 years!

Collins also used the best test equipment available on the market. Every piece of test equipment was constantly calibrated, monitored, re calibrated and ultimately traceable back to the National Bureau of Standards. When "off the shelf" test equipment could not meet the needs for a specific task, an entire engineering department existed to design and build special test equipment as needed.

Every product consisted of a series of tests, sub assembly tests, top level product tests and then "run-in" or "burn-in" of the equipment for a period of time to catch any "latent defects" that might have gotten by. Before the final "tested ok" tag went on, a "talk out" was executed where the radio was given an "operational test" to exercise it in a similar manner to its end use in the hands of the customer.

We were not perfect! Despite all the efforts described, an occasional radio would leave the factory and exhibit a problem on initial use. It didn't happen very often, but when it did it was evaluated. I mean it was "really" evaluated right down to a dissection of a failed part if necessary. I have looked at many pictures from a scanning electron microscope view of a failed part - clearly showing the mechanism of failure. Then the corrective action started - all the way back to a design change if it was warranted. Design engineering, quality engineering, factory engineering all

maintained a very close working relationship. Problems were defined, communicated and fixed!

Quality at Collins Radio was a way of life! Everyone "thought" quality. A single problem, showing up anywhere in the product cycle could shut down the production process until it was fixed. When a substitution of a part or change of process was necessary (such as a substitute wire color code) it required processing a "waiver" which ultimately recorded the serial number of the unit with the "change" so it could even be tracked into the customer's arena. You can believe me, waivers were not easy to get approved. Taking one of those "dreaded" documents to your boss meant you had better "know" what caused the problem, why it happened - and most important - why it wasn't going to happen again! It was a mentality that products would be "right" and processed according to specified procedures.

For those Collins enthusiasts who are involved professionally in the electronics industry, little in this article will come as a surprise. Today's technology has changed drastically! Many of the procedures and processes described are no longer valid in today's factory. However, nearly all the ham gear products built by Collins were processed as described - even up through the KWM-380 era.

The author hopes this article may have provided some enlightenment to amateur radio folks that do not have a background in electronics and that marvel at those gray and black boxes - wondering what made them happen.

Keep them glowing and enjoy the fruits of the labors described in this article.

de YS1UL



Ted Hunter, Involved in both the PTO development and the Autotune, wrings out an early ATC/ART-13 in the Environmental Chamber - circa early WW II

Hollywood Producer, ARRL Patron Dave Bell, W6AQ, SK

ZCZC AX03
 QST de W1AW
 Special Bulletin 3 ARLX003
 From ARRL Headquarters
 Newington CT May 16, 2016
 To all radio amateurs

Award-winning Hollywood producer and ARRL benefactor Dave Bell, W6AQ, of Encinitas, California, died on May 13. He was 84 and had been a radio amateur for 65 years. Bell had been suffering from cancer and was in hospice care. An ARRL Life Member and a former chair of the ARRL Public Relations Committee, Bell directed Amateur Radio Today and produced several other ham radio-related promotional videos and films, starting with The Ham's Wide World, a TV documentary filmed in black and white.

"If I have a claim to fame in Amateur Radio, it's probably that I produced the first television documentary about ham radio that got worldwide distribution, and then I made several others before I 'retired' from the ham radio film/video hobby-within-a-hobby and got busy making a living producing TV movies, specials, and documentaries for all of the networks including HBO and Showtime, and made a couple of theatrical feature films — Nadia and The Long Walk Home," Bell recounted on his QRZ.com profile. He started TV's Unsolved Mysteries, and he received an Emmy Award in 1985 for Outstanding Drama/Comedy Special, Do You Remember Love. Bell chronicled his filmmaking and his Amateur Radio and professional lives in a memoir, World's Best Hobby.

Last year, Bell and his wife Sam, W6QLT (she's a quilter), donated a signed Andy Warhol print to the ARRL. The artwork — "Myths: Superman 1981" —sold at auction last fall for \$150,000. The proceeds are being used to create "The Dave Bell, W6AQ, Endowment Fund" to benefit the League.

Bell also produced The World of Amateur Radio, This is Ham Radio, and Moving Up to Amateur Radio. He directed the Amateur Radio Today video in 2002. The short presentation about emergency preparedness was narrated by former CBS Evening News anchor Walter Cronkite, KB2GSD (SK), written by Alan Kaul, W6RCL, and produced by Bill Pasternak, WA6ITF (SK) and Bill Baker, W1BKR. Bell and Pasternak also created The DIY Magic of Amateur Radio in 2011, and he co-produced The ARRL Goes to Washington, also voiced by Cronkite. Working on his own, Bell filmed videos for the World Radiosport Team Championship (WRTC) events in 2000 in Slovenia (The Ham Radio Olympics) and in 2002 in Finland.

A DXer, casual contesteer, and a past president of the Southern California DX Club, Bell was a frequent speaker at Amateur Radio gatherings. He was named the 1984 Ham of the Year at Dayton Hamvention®, and, in 2003, the

ARRL presented Bell with its first Lifetime Achievement Award for his work on films and videos about Amateur Radio. In 2011 he was named to the CQ Amateur Radio Hall of Fame.

Heil Sound Ltd's Bob Heil, K9EID, called Bell "one of the great ones." Heil said Bell's "great smile and laughter" and his "generosity to the hobby" would be missed, "but most of all, we will miss his spirit." — Thanks to The Daily DX for some information

Upcoming Events

MAY

20-26 Dayton Hamvention For many years it has been the world's largest amateur radio gathering. More info at <http://hamvention.org/>.

JUNE

10-11 Ham-Com 2016 This event will again be held at the Irving Convention Center at Las Colinas. This year the outdoor swapmeet/flea market will return. Details at <http://www.hamcom.org/>.

11-13 June VHF Contest Objective: for amateurs in the US and Canada (and their possessions) to work as many amateur stations in as many different 2 degrees x 1 degree Maidenhead grid squares as possible using authorized frequencies above 50 MHz. Stations outside the US & Canada (and their possessions) may only work stations in the US (and possessions) and Canada. Stations in KH0-9, KL7 & KP1-KP5, CY9 and CY0 count as W/VE stations and can be worked by DX stations. Operations 1800 UTC Saturday through 0259 UTC Monday. Details at <http://www.arrl.org/june-vhf>.

25-26 Field Day to work as many stations as possible on any and all amateur bands (excluding the 60, 30, 17, and 12-meter bands) and to learn to operate in abnormal situations in less than optimal conditions. Field Day is open to all amateurs in the areas covered by the ARRL/RAC Field Organizations and countries within IARU Region 2. DX stations residing in other regions may be contacted for credit, but are not eligible to submit entries. Details at <http://www.arrl.org/field-day>.

REGULAR ACTIVITIES

Daily DFW Early Traffic Net (NTS) at 6:30pm 146.88 – PL 110.9Hz

Daily DFW Late Traffic Net (NTS) at 10:30pm 146.72 – PL 110.9Hz

Daily Texas CW Traffic Net (NTS) at 7:00pm on 3541 KHz and at 10pm on 3541 KHz www.k6jt.com

1st Wednesday Richardson Emergency Siren Test. At noon using the Richardson Wireless Klub (RWK) repeater at 147.120 MHz.

2nd Wednesday ARES North Texas HF Net Every month—3860 KHz at 8:30 pm—9:30pm



News & Information

We've been busy and made

Big Changes... All Great!

Moving Ham-Com to the Irving Convention Center was no easy task. We experienced a few bumps along the road but we have been working hard to 'grow' into our new venue.

Food, food, and food! Both the convention center and Ham-Com are adding additional concession stands and menu items to make eating easier and tastier this year.

Location & Directions

Irving Convention Center
500 West Las Colinas Blvd., Irving, TX 75039

Irving Convention Center is located approximately 12 miles northwest of downtown Dallas. DFW International Airport is approximately 10 miles away and Dallas Love Field is approximately 9 miles away. Irving Convention Center is served by DART bus and rail service to and from downtown Dallas. Covered and open parking is available.

If you are traveling North on Hwy 114 Saturday morning, please use the Northwest Highway Exit and avoid O'Connor Rd and Las Colinas Blvd. Access from Northwest Hwy via Las Colinas Blvd will be normal.

The outdoor swap meet is returning to Ham-Com. You can learn more and/or register here.

Parking is still only \$5/day but it will now include IN/OUT privileges!

The Wounded Warrior Run organizers are working with us to make both events successful with better traffic organization. Read more about it here.

The convention center will be adding additional seating for Ham-Com attendees.

The Board of Directors is confident that they have made changes that will make Ham-Com 2016 the best it can be. We are happy to make some great and exciting announcements!

Hours of Operation

Convention Area
Friday: 8:00 am - 5:00 pm.
Saturday: 8:00 am - 5:00 pm

Indoor Flea Market
Friday: 8:00 am - 5:00 pm.
Saturday: 8:00 am - 5:00 pm

Commercial Exhibitors
Friday: 8:00 am - 5:00 pm
Saturday: 8:00 am - 5:00 pm
Thursday is for SETUP only!

Rockwell-Collins

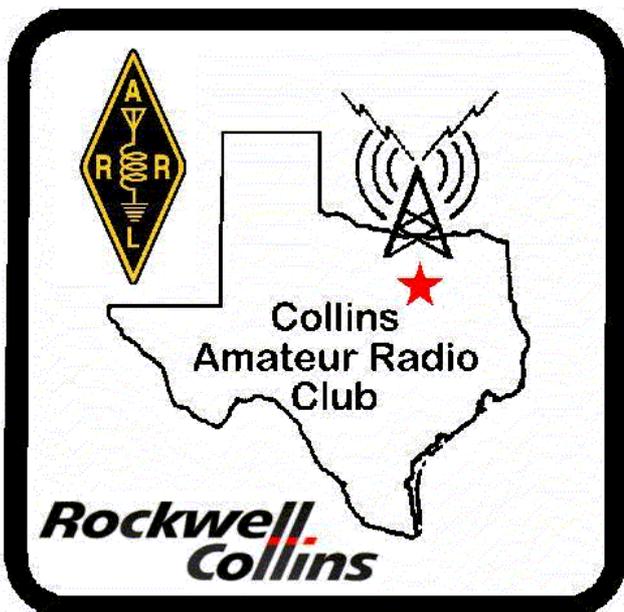
Amateur Radio Club

Mail Station 461-290

P.O. Box 833807

Richardson, TX 75083-3807

TO:



CLUB STATIONS

(972) 705-1349

W5ROK REPEATER

441.875 MHz +5 MHz Input

131.8 Hz PL - RX and TX

W5ROK-1 PACKET BBS ROK Node

145.05 MHz

W5ROK-N1, W5ROK-N2 & W5ROK-N3 HSMM-MESHNET Nodes 2.4 GHz

Tuesday 24 May 2016

1700 Social 1730 Meeting

Methodist Richardson Medical Ctr
At Bush/Renner/Shiloh Intersection

Conference Room A in Hospital Building

NEXT SIGNALS INPUTS DEADLINE:

→→→ 17 June 2016 ←←←