

"Paging Dr. Spring!"

by Harvey Laidman, W8DX



KWM-1 prototype, serial #6, on the bench.

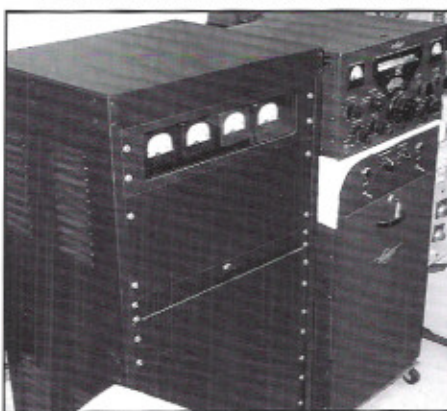
On a Saturday morning, Wayne Spring, W6IRD, walks into his shop. His projects are carefully lined up, stacked in order of arrival. Original service manuals in plastic binders are lined up in military fashion above bins of sorted small parts. Wayne always works from copies of these manuals, created freshly for each project. This allows him to neatly note modifications or repairs without defacing the original. On the test bench is a Collins KWM-1 prototype, serial number 6. This little beauty had passed through many hands, its fault defying repair. Like so many other classic radios, it had arrived at its final chance for survival. Wayne looks around. What to do next? Bucket filled, mop saturated, he squeezes to the point of perfect moistness and swirls the mop in helical semicircles across the already gleaming tile floor. He is still meticulous, a carryover from his days spent in the Coast Guard. A thorough cleaning clears the mind.

A repair as vexing as that of the KWM-1 in his shop is Wayne's *raison d'être*. It's the indescribable feeling when the work is done

and the radio comes to life. Do you ever get chills when you look at a piece of technology so beautiful, so metallically organic, that it brings a tear to the eye? How about that Hallicrafters ad in the 1954 ARRL Handbook? A cozy, paneled den, fire in the fireplace, a mahogany desk, snowy pines and hills outside the frosty windows, a briar pipe laid gently in a brass ashtray next to an HT-9 transmitter and a magnificent SX-42 receiver, dial windows glowing warm yellow.

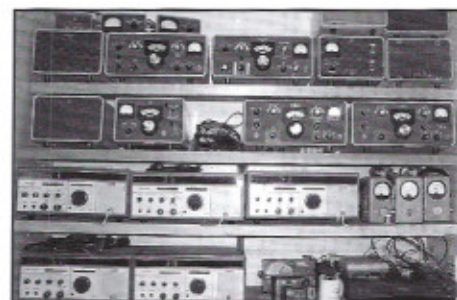
The mop circles beneath a desk with a spotless 75A-4, an R-390, and a 651S-1 on top. "The 651S-1 receiver," Wayne recalls, "was brainless. Why did it always lose its place and refuse to mute?" The answer was, like so many other "intensive care" radios, in its history: Multiple 651S-1's were used by the government, their memories kept alive by a single 9-volt bus. A 9-volt battery, properly installed, makes Wayne's 651S-1 smart, and beautiful, too.

Then there were those 25 KWM-2's that



Amplifier Wayne is building next to KWS-1.

Wayne got from the military. As he and Larry Mallek, K6YUI, poured over them, it became evident that those radios were haunted. They clattered and shrieked and emitted green smoke; they screamed for more than just repair. Every radio had a different problem, deep inside and undetectable. After much research and investigation, these Collins rigs revealed their past. "They were used to teach electronic technicians," and Wayne smiled. "No one passed the course without diagnosing at least ten of the problems. Of course, we found and



This is Wayne's personal "un-collection."

repaired all 25 KWM-2's from the military."

The next group of government radios, HF-380's, had traces cut on their circuit boards with ribbon cable attached to the synthesizers. "The CIA used them with computers in some secret project," Wayne recalls. Often, radios come to Wayne after they have been "fixed" many times. He pauses to pull out a KWM-380 motherboard, layers of jumpers, and components added to strained traces like a palimpsest, paintings painted in layers, concealing the masterwork underneath. This KWM-380 was sent from Antarctica to Chile, then to Florida, and finally to Wayne as a last resort. "The problem was a bad IC, but they tried every way to bypass and work around it with discreet components. What a mess," Wayne says with a sigh.

Then there are three 30S-1's in the corner, one of these 200-pound units sent to Wayne by air from Kentucky. A Viking Desk Kilowatt is protected from dust by a towel. It is next to a "parts" Viking Desk. Three KWS-1's await repair. Wayne found an open capacitor in one. Wayne's pride is a T-368 transmitter, glowing like new, with its own Bird wattmeter permanently attached. "I traded a 75A-1,



This 651S-1 Collins receiver sold for \$40,000.

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"Paging Dr. Spring!"

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Wayne uses this T-368 on 75 meters AM.

75A-2, and 32V-3 for it, all in very good condition." Wayne gives the T-368 a friendly pat. "It just needed some new relays."

"It's a hobby with me. I enjoy the thrill of the hunt," Wayne says. "I'm not a collector. I leave that to others." There is a "wall" of KWM-380's and KWM-2's in his shop. "These are mine," he says with a twinkle in his eye.

As the mop slides past shelves of spare parts, Wayne says, "I replaced a band switch in this KWM-2. Took it out of a parts unit." He stops by another one: "Ever see a Japanese KWM-2? They made them, you know." When the spares are gone, no doubt Wayne will fire up his milling machine and make the parts. He has fabricated grilles for S-Line components. "They're much in demand," he says.

The mop clatters into the bucket next to a KWM-1 prototype on the bench. "There's 30 dB loss in the mechanical filter," Wayne reports. "Of course, in the KWM-1, the filter is matched to a crystal, so I may or may not have to replace the crystal as well." Soon the historic radio will end its long journey, finally "cured" in Wayne Spring's gleaming "operating" room. 



Now that everything is clean, Wayne, W6IRD, can get back to work on his KWM-1.



We continue to have many, many check-ins for our weekly nets, and also, the 75-meter AM net has been very successful. The bands, especially 75 meters, have been extremely unpredictable over the past few months. As we headed into winter, we all were looking for reduced QRN and good band conditions. Well, the QRN did seem to be down quite a bit, but the band conditions were far from optimum. 75 meters had been going long, and at times, stations within 800 miles seemed to disappear, and stations over 1000 miles were very strong.

The 10-meter AM net has been doing well, but again, band conditions were not what we had hoped for during the winter months. I try to check in every Sunday, but lately I have not been able to hear a Net Control Station. Don't

give up on 10 meters, though, as it does seem to come alive from time to time. I also must report that Peter, VE3KWM, has stepped down as an Assistant Net Manager due to a heavy workload and family commitments. He no longer will do a weeknight net as NCO. Thank you, Peter, for all you have done for the CCA. We hope that you will return when your schedule allows.

The Technical Discussion Weeks are going well also. This is a great time to get your questions ready. Look at the CCA website for the schedule of Technical Theme Weeks. Questions are welcomed at anytime, but this particular venue gives you a chance to join others for a discussion of a particular series of rigs. Hope to hear all of you on the nets!

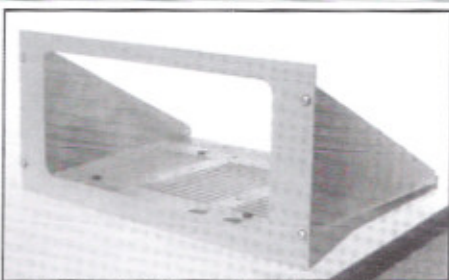
New Collins Rack Mounts

by Fred Holmes, W1SKU

NovexComm has introduced a newly designed rack mount kit for the Collins S-Line. Although the design is different from the original Collins 351R series, this new design looks identical to the original once installation is completed. This unit comes in two pieces; the tray is made of 16-gauge Paintlok steel and the front panel is made of .125-inch aluminum.

The NovexComm Collins Rack Mounts are well-constructed mounts for use with Collins equipment. They are built using two pieces: a steel rack frame for the actual equipment mounting and an aluminum front panel. The cabinets need not be removed from the equipment. (The original Collins Rack Mounts required that the cabinets be removed.) The necessary mounting hardware is included in the kit. The rack tray is mounted into the rack cabinet, the Collins unit is slid into place, and then the front panel is added to complete the installation. This is a very convenient and easy way to mount the equipment. You do not have to fight with the weight of the equipment as it is being installed in the rack, as is the case with a one-piece rack mount. The quality is excellent, with the steel frame being of heavy-gauge steel and the front panel being a standard aluminum rack panel. For anyone desiring to rack mount Collins equipment, this kit is a great choice.

For more details and pricing contact NovexComm via email (preferred) at jazz101@san.rr.com or visit their web site at www.novexcomm.com or call Dick Robinson K4EIH/6 @ 858-274-7240, (10am to 6pm Pacific Time 7 days/wk). P.O. Box 179155 San Diego, CA 92177 (call first). 



Model RM351-1 for Collins S-Line Equipment.

Articles for "The Signal"

by Gail Schieber, K2RED - Signal Editor

Please remember that we continue to want material to publish in "The Signal." We welcome photos and descriptions of your Collins equipment; "hints n' kinks"; on-the-air experiences; articles of historical nature; submissions for the new "Collins At Work" section, which relates to Collins gear used in the military, commercial, aviation, and space services; and anything else you think would be of interest and value to CCA members.

I may be contacted via e-mail at K2REDCCA@aol.com or via snail-mail at P.O. Box 1396, Port Washington, NY 11050.

To those of you who have submitted material, thank you, and to all, please remember to keep "The Signal" in mind in the future.

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At The Mic

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

I'd like to wish all of you a happy and prosperous New Year! With the elections now behind us, I want to welcome Bill Wheeler, K0DEW, and Tony Sokol, W9JXN, back on the CCA BoD. Leaving the BoD is John Bess, WA5VVT. I want to thank John for all his years of dedicated service to the CCA. John truly is a supporter and friend of the CCA and in years past has worked hard on the air, on the BoD, on the Dayton Staff, and in many other areas of responsibility within the CCA. His technical prowess is obvious when you hear him answering questions on the air during our nets! John, the CCA is indebted to you for all of your work and dedication. Thank you!

I am excited about the opportunity to work alongside Bill Wheeler again. Back in the early '90s, Bill, Jay Roman, and I pretty much ran the 20 meter nets by ourselves for several years. At that time Bill suggested we put together a newsletter and become more organized. I volunteered to be the first Net Manager and we ended up at Dayton in 1991. Some of you will remember the crowded meeting room in Hara arena where we held our first "forum." Many folks were unable to even get into the room and had to look through the doorway to see and hear what was going on inside.

The rest, as they say, is history! We met at Hara one more time in 1992, and then moved off site to larger facilities and added hospitality suites and the banquet (at the Radisson). Bill is the "father" of the CCA. It was his foresight that led him to put in ad in QST back in 1987-88 to advertise the fact that there was a group of Collins users meeting up on 14.263 Mc on Sunday afternoons. The net went from less than two dozen check-ins to hundreds of check-ins within a few short years! I look at where the CCA is now and what it stands for, and I am very proud to be associated with this organization and excited to be working with Bill again. I know it can't be like the "good ole' days," but it will be the "good new days"!

I also want to welcome Tony Sokol back on the BoD. Tony is another one of the "movers and shakers" of the CCA. He headed up the Dayton Committee in 2003 and did an outstanding job with that event. He did such a great job that I offered to double his salary for 2004, and he jumped at the chance to do it again for 2004 (hi!). Tony is also very active on the CCA HF nets and lends a helping hand with some of the NCO responsibilities when he can. He assisted in many aspects of the business of the CCA and unselfishly devoted many hours of his time. When you get a chance, please welcome Bill and Tony back on the BoD. On that note, if you have any questions, concerns, or suggestions for the CCA, please do not hesitate to contact any or all of the officers who are here

to serve you. All of our contact information is listed on the CCA web site at www.collinsradio.org. The third selection on the vertical navigation bar on the left side of the home page is "Contact Info"; there are links to e-mail and phone numbers as well. We'd like to hear from you!

What's new for 2004? Well, some have suggested that we visit Cedar Rapids again, since it's been a few years since we've been there. I'd like to hear from any members who would be interested in attending and possibly assisting in this venture. Some of you may remember visiting the History Center in downtown Cedar Rapids. Well, they almost lost the building due to financial woes, but it looks as if they are going to be there for a while longer. There are plans for new exhibits that include Collins Radio... more on this later. We are also in need of suggestions for possible talks and demos during the CCA event at Cedar Rapids; if you have ideas, please pass them along to me! It takes lots of work to put on an event such as this, and without CCA members helping the Rockwell/Collins folks, it is not practical to put on such a get together.

So, who's in? Dayton plans are in the works right now, too. Contact Tony if you have any questions regarding that event. Better yet, if you would like to assist us in the planning and operation of the Dayton get together, again, please contact Tony! I know there are a lot of members out there who have used Collins Radio equipment in services other than Amateur Radio, because I have spoken to dozens and dozens of you about these subjects over the past decade. I know that other members of the CCA would very much like to hear these stories, and they should be documented for future Collins Radio enthusiasts. Please make your stories into a little article and submit them to Gail, K2RED, our CCA "Signal" Editor. These stories are very interesting to those of us who did not have the opportunity to "work" with Collins Radios. Remember, "The Signal" has a column called "Collins Radios at Work," and it is dedicated to these types of stories. Please share them with the membership!

Don't forget to check into the CCA HF nets when you get a chance. This is what the organization is all about: the radios! We must make a concerted effort to restore and maintain these fabulous old classics and then get them on the air. Check our net schedule and check in to join the fun! There is no greater thrill than taking an old Collins rig, putting some work into getting back to GWO, and then putting it on the air and hearing signal reports from all over the country. Fire them up and let them warm up your shack this winter! Hope to catch you on the air soon! ... 73 de W8RO

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
 - '91, '92 & '97 Dayton Videos
- also the PDC-1 kit that converts ANY average reading wattmeter to true PEAK READING even the Bird 43!

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Getting My KWS-1 Back On The Air!

By Daniel "Hank" Arney, Jr., KN6DI

The ongoing battle of my serial #150 continues on the road to brightness, as I can now see some light at the end of the tunnel. After my posting on the Collins reflector some time ago asking for help, hints, suggestions, and ideas, the responses from all have pointed to the correct branch of the tunnel after a few deadends and cul-de-sacs.

- Had to dig up the 15-pin interconnect plug and wire up, check out, and Deoxit the pins.

- Get the interlock circuit holding hands again so all of the little relays would stop chattering and stay together.

- Replace the 866s with 3B28s. I got HV, but then could not get it into the cabinet; it just took off into never-never land. I put it on the back burner and took off on a few other projects in the line-up.

It seems as if I will have something to do until I have to start pushing up daisies. I hope I at least need to turn 100 to be an old fogey, so at that point I need 29 more years!

Then *Electric Radio* came up with an article by Alex Samson, KE6YKJ, about his KWS-1 and all of the problems he had encountered, plus his innovative ideas and solutions. There was no listed phone number, but his address indicated he was only about 4 miles away, so I proceeded to go knock on his door (garage, that is). The door opened and there was Alex, who, after I stated my reason for knocking, invited me into his shack to admire his handiwork. All I can say is he does some amazing work. His KWS-1 looks fantastic. Thus, after some pleasant conversation and a few hints, Alex said perhaps he could help me. That turned out to be the understatement of the year. We are now into weekend trysts with the #150, and we are plugging away.

We replaced the 4CX250s, which caused the rig to stay out of resonance long enough to determine that the Tune and Load controls were not counting off the turns in the proper order of one full turn to one point on the inner dial. Alex then said it was time to do his mod on the turns counter. I ordered 20 turn knobs from Allied. They sent shiny ones, so I had to swap them for black ones. Alex had an extra set of knurled knobs, which he sold to me. I took those to a friend to get them bored out to fit over the turns counter to get enough torque to turn the tuning network. My friend Mike had to make a special tool for holding the knobs to protect the knurling.

I then had to destroy a couple of wafer switches to get the spacers and couplers to accommodate the 1/4-inch shaft for the knobs. I had to get some 1/4-inch shaft material to extend the length to grip the new turns counters. I got all of that together and working, and then gave Alex a call and said that we were ready to continue.

In the interim, I decided that since I had new drum overlays (white) for the drum, and the front panel was swinging loose anyway, now was the time to do something about it. How do you glue the overlay onto the drum and have it look neat? On came the light. We use computer online shipping with UPS, and they furnish labels, two per sheet, for all of the computer-generated labels. They come 800 to the case, so I grabbed a handful and away I went to Kinko's, made a few copies, came back, got out the calipers, and made index marks to register the correct overlay. I made a trip to my shop to trim with the photo trimmer, then back to the house I went. I made new register marks on the drum and label, peeled back half, and inserted the end of the high band to the mark. You have to carefully bend the pointer out with 75m selected and press the label onto the bottom half of the drum, carefully smoothing it down, then rest the drum and peel off the top half to apply it, carefully smoothing it out. It took two hours of prep time and five minutes to apply, and it looks great!

Alex then re-entered the scene, and away we went. We plugged it in, and all of the lights came on in the correct sequence. Voltages all checked out, and everything was looking rosy, so away we went to the next step to check and ascertain all service bulletins had been complied with.

We neutralized the finals with the scope and spectrum analyzer, and all looked great, so on we went to the next step: start in on the alignment.

First trimmer no dip, nothing. Further checking determined that all of the trimmers were stuck, so we got out the surgical tools and started popping out the rotors, noting the capacity of each. Alex then left the scene, saying that when I got them all polished, I should call him. I put them all in a small jar of jeweler's cleaner after separating all of the stators and rubber-backing pieces. After soaking, it was determined that the cleaner was not going to solve the problem. I then got the Dremel tool, some aluminum metal polish, and the pointed buffer wheel, and about two hours later I had all of the little guys polished and shiny, and wound up with about five broken stators.

Away I went to Apex Surplus to look for the old-style trimmers. Nothing. I called George, W6ZZ, and told him I needed some of the old trimmers. He said he would look. In the interim, Alex returned and we proceeded to insert all of the shiny caps back into the respective holes—hopefully. We were still short five trimmers.

George showed up at the TRW Saturday swapmeet with a bunch of trimmers. They were correct, but the newer ones, and the

stators were soldered. Therefore, out came the soldering iron and away we went. We now had reworked all of the trimmers except one which is under the rack, and there was no way to get that little devil out.

We were then ready to do the alignment. Nothing! I looked at that black beauty split right down the middle, C303 0.033uF/400V. Somebody had glued the halves together with epoxy on both ends. That one has had a fitting burial.

We then were ready to continue with the alignment. The unit was all cleaned up and raring to go. D-104, antenna relay, and 75A-4 are just waiting to enter the spotlight. The remainder should be very uneventful, I say with bated breath.

I have to thank many for their help, including those on the Collins reflector. In addition, I must thank Roy Schantz, a broadcast engineer and good friend, and will be forever grateful for the ongoing help from Alex. Reinstalling the trimmers is truly a three-handed operation.

So now with my Howard Mills restored 75A-4 with 4:1 knob, all three filters, speaker by Mort Jones, high-voltage input cap from Peter Dahl, my Gold Dust Twins are up and running on 20 and 40 meters. Output on 10 meters is a little low, but I installed new finals and that helped some. The saga continues. I still need a lock and key and have to spray the power supply with St. James to match the exciter and receiver.

In the Shack



Jim Green, WB3DJU (CCA Treasurer).

As the collection grew, a layout and presentation design fell into place. All shelving is framed with 1-inch tubular steel and surfaces are covered in hardwood. A multi-coupler allows for eight receivers to operate simultaneously from one switch position, while an intelligent power controller operated from the computer selects from the desired transmitting stations. In another corner is a 7-foot high cabinet with a smoked glass door; the cabinet houses a hefty DC power supply powering 150, 220, 450, and 6 meter FM transceivers. Other items include the multi-coupler, space for a "guest" radio, and sitting safely in the base is the 100-pound power supply for the TCS-10.