

Collins 516F-2 Power Supply Front Backing Panel Replacement

by Rod Blocksome, KODAS

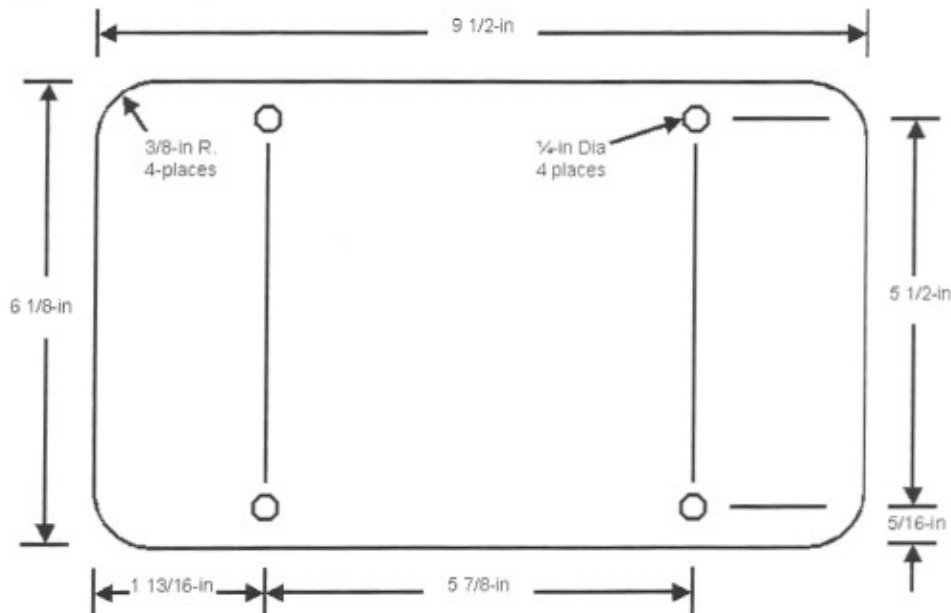


Figure 1. Collins 516F-2 power supply front-grill backing-panel dimensions.

Recently, I restored several 516F-2 power supplies, the previous owners of which had installed a speaker in the front grill. Many hams did this simple mod rather than buy the 312B-4 or 312B-3, especially if the rig was a KWM-2. The grill backing panel is usually cut out to the shape of the speaker. Four screws through the front grill and the backing panel mount the speaker.

Removing this modification involves restoring the front grill and making a replacement backing panel. If the speaker was mounted with 6-32 or smaller screws, the

screw holes in the grill usually can be restored by gently tapping with a hammer against a flat metal plate. A slightly enlarged hole due to the screw often can be restored in this manner. Anything more drastic and you probably are better off starting from scratch with perforated metal sheet and painting it. As an alternative, finished blank grills are available from Wayne Spring, W6IRD. Even unmodified 516F-2's often have a faded and warped backing panel.

The problem of a replacement panel was solved when I discovered black-suede matte board at a local crafts store. It's pure black and of the correct thickness. A full sheet was \$40, but they cut one in half for me. I had them cut it length-wise, giving me a piece that was 16 x 40 inches. You can cut out 10 backing panels from this \$20 piece, enough for yourself and a couple of friends. A hand paper-punch for 1/4-inch holes is ideal for cutting clean holes in the board. Figure 1 gives the dimensions for making the board. The hole pattern for the Collins logo is not shown in the figure. If you have a "winged emblem," you need two holes 1/2 inch from the top edge, spaced exactly 1 inch and centered between

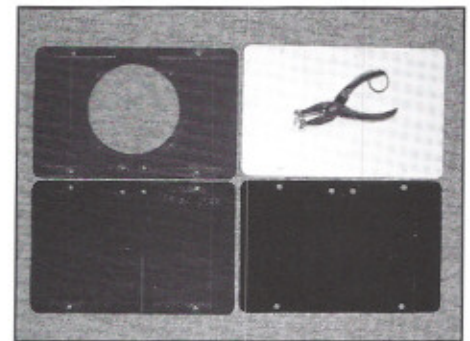


Figure 2. Old panels on the left; new on the right (front and back).

the side edges. The "round emblem" requires a single hole 1/2 inch from the top edge and centered between the side edges. Figure 2 shows a comparison of the old and new panels. Figure 3 shows the finished product.

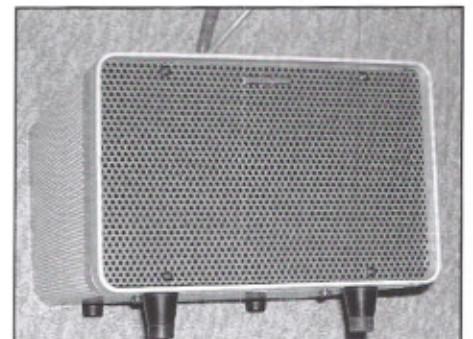


Figure 3. The finished product.

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IMPORTANT - Vote and Renew NOW!!

Please find two inserts enclosed with this issue of the Signal. The election ballot contains the names of four CCA members you nominated to fill three open positions on the CCA Board of Directors. Please select three members to serve in these positions by checking three of the four boxes provided.

You are also voting to approve a change to the CCA By-Laws. Please make your selection by voting YES or NO on the proposed changes. Return your ballot in the matching color, pre-addressed envelope provided. Deadline for return of ballots is December 15th. Results of the election will be announced on the CCA nets and on the CCA Collins Reflector in December.

It is also time to renew your CCA membership. Please complete the enclosed CCA Membership Renewal form and return it in the matching color, pre-addressed envelope provided. Please support the efforts of the CCA by renewing your CCA membership now!

At The Mic

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

Greetings, one and all. Summer has drawn to a close and the fall colors are here, winter soon to follow. We find that HF propagation is now again shifting around with the change of seasons. The QRN has decreased a bit on the lower frequencies, and this makes it more comfortable to sit and chat on 75 meters, so why not join us on 3805 kc on Tuesday evenings, 3875 kc on Thursday evenings, and 3895 kc on Friday? It's a great way to get to know other members of the CCA while talking about our favorite topic . . . Collins radios!

The Sunday 20 meter net is still very popular, and I've actually heard some DX stations check in, too. We are on the worldwide stage when it comes to communications on 20 meters, so what a great way to show off these classic rigs to the rest of the world! Again, please check in and say hello to the net. Remember, the time has changed locally, but we stay with the 2000 UTC start time on Sunday.

Speaking of CCA nets, I will echo the sentiments of our Net Manager, Fred, W1SKU, and his dedicated staff of volunteer NCOs in their plea for more CCA members to join in and assist the present NCOs during the CCA HF Nets. They are a bit short handed and with net activity on the rise, it sure would be nice to give the NCOs a little assistance so we can spread out the workload a bit more. Even if you have never done anything like this before, Fred's staff will be glad to give you all the guidance you need to help with the nets! Please step in and help, even if it is only for an hour or two per week.

There are some events and activities on the books for this fall and winter. Please stay tuned to the CCA Email Reflector (a.k.a. "The List") and our HF Nets for more details! Watch and listen for details of the Hammond Museum Special Event and gathering in the near future. At the museum is a PAIR of KW-1s that are almost ready for action! If you can't make it to the Hammond Museum for the Special Event, be sure to catch us on the air for a special certificate!

If any CCA member is interested in assisting with the Dayton Hamvention 2005 event, please contact Tony, W9JXN, or me. We are already looking toward next May and certainly will need some help with the planning, organization, and implementation of all the things that occur during our premier annual event! Tony has done a fabulous job for the last couple of years, coordinating some great events, but he cannot do that alone. Please help!

Remember, the CCA has authorized a limited run of Vibroplex keys with an optional numbered case. Serial numbers are available on a "first come, first served" basis, so order



75 Meter Nets: Even with the poor propagation and noisy band conditions over the summer months, the number of check-ins to the 75 Meter Nets remained very good. As we now are in fall and head into winter, the band is starting to get much better. The QRN is lower and the band propagation seems to be improving. We are getting check-ins from a larger portion of the country and Canada. The 75 Meter AM Net continues to attract a large number of check-ins in each of the time zones. Conditions, and with them more check-ins, should be the order of business over the coming months.

20 Meter Net: The 20 Meter Net has also been suffering from poor propagation and noisy band conditions. These conditions should also start to improve as we go further into the fall season. Remember that the first hour of this net is devoted to Buy-Sell-Swap, so it is a great place to find or sell that Collins gear.

10 Meter AM Net: The 10 Meter AM Net was discontinued a few months ago because of poor conditions. Hopefully, we will be able

now to assure a low number. You can also request and receive a specific serial number, if it is available. You can order a traditional bug, a keyer paddle, or an iambic paddle. They can be ordered with the base in textured "Collins Gray," or you can get them in chrome or black-wrinkle finish. Supply and serial numbers are very limited, so please order today! Check out the CCA website for more details. Don't miss out!

Enclosed with this issue of "The Signal" is the ballot for this year's elections. Please take the time to check off the proper boxes to vote for the nominees of your choice to fill the three positions that are open for the CCA Board of Directors. In addition, please ratify the by-laws changes that the By-Laws Committee and our legal counsel have recommended. This will help keep things up to date and streamline the day-to-day operations of the CCA. Have a fabulous Holiday Season, and see you here in 2005!

The information contained in this newsletter is believed to be entirely reliable. However, no responsibility is assumed for inaccuracies or omissions. The CCA, anyone who is a member, and the authors of said material shall not be liable to anyone with respect to liability, loss, or damage caused or alleged to have been caused directly or indirectly by this publication or the contents herein...

to start up the net again soon, band conditions allowing. We will post an announcement on the CCA Reflector when the net is officially up and running again. Remember also that the time to get your "10 on 10" certificate will be extended for the amount of time that the net has been inactive, so you won't lose any check-ins for that period.

If you have any ideas for the nets, such as "Theme Nights" that you would like to see happen, please e-mail either me, W1SKU, or KA6BGW with your ideas for consideration. Our e-mail addresses are listed on the CCA website.

As always, we are looking for NCOs for the weekly nets. We have openings on both the 75 meter and 20 meter nets. If you would be interested in becoming an NCO, please e-mail us and let us know what schedule would best suit you. We will then get you the information you need and help you through the first few nets until you become comfortable with the NCO position.

In the Shack



Impressive radio shack of Fred Holmes, W1SKU

I started collecting Collins gear in the early '80s after looking at the gear in the QST magazines of the '60's and '70s, but not being able to afford them. My first Collins equipment consisted of a 32S-1 with an 516F-2 and a 75S-1. They were found under some hay in a barn back in Massachusetts, from where I am originally. After restoring them, I was amazed at how well they worked compared to my more modern solid-state rigs. That got me hooked on Collins gear! Everything I had heard and read about Collins was true. At the Dayton Hamvention, back in 1998, I was introduced to the CCA by Floyd Soo, W8RO. I joined the association after returning home from Dayton. Not shown in the photo is the Collins AM station, consisting of a 32V-3 and a 75A-4.

On the Workbench:

Basic Troubleshooting Tips

by Dutch Maurer, WB7DYW

Let's talk about some basic troubleshooting tips this time. To start with, there are a few "aids" you can make that will be very useful when trying to locate a problem in your rig. Perhaps one of the best is a 100Mf@450VDC electrolytic capacitor with some long leads with clip leads on each end (usually red and black). This is very handy when you suspect a bad electrolytic cap and want to do a quick check to verify your suspicions. Just clip it in place and see if the problem goes away. Remember: You can go up in value with a cap (in most cases), but not down. This especially applies to electrolytic caps, and 100Mf@450VDC is a good place to start for a handy workbench tool. The cap will knock you on your backside if you touch the leads. Even after you remove it from the rig, 450VDC will hurt a bunch and will stay in that cap for a long time.


One aid that I use a lot is a "Swamping Tool." This is a cap (0.01 Uf), and a resistor (1000 ohm) in series is used when tuning the rig. Check your Collins manual, as it describes where it is used and how... very handy. Next are an accurate signal generator, a frequency counter, and an oscilloscope that is at least 30 MHz. I know the manual says use an RF meter, but a scope and frequency counter are a lot more accurate. Collins rigs can be tuned to the wrong frequency very easily, so the counter and scope are almost a must. Another handy gadget is a good tube tester, but as always, the best method is to replace the suspect tube if you have a spare. However, NEVER replace all tubes at once unless you are ready to do a complete alignment from front to back.

To start with, NEVER adjust any coils or

trimmer caps unless you know for sure that's the problem. Usually a tube will fail or a component will change in value to the point where the rig just doesn't have the zip it used to. Therefore, let's start with the receiver.

One of the nice things about Collins radios is the 100 kc calibrator, mainly because it is inserted in the very front of the radio. Turn it on and adjust the main tuning dial to the 100 kc point until you hear the tone. Now with the scope probe and schematic in hand, you can start at the first receiver IF and see the calibrator. If you suspect a problem in the radio's sensitivity, this is a great place to start, and you literally can follow the signal all the way to the speaker. After you are satisfied that everything is working, next go to the manual and read the "Field Alignment Procedures" section. If you must turn trimmer caps to adjust a coil or two, here are the step-by-step directions:

If you look at the block diagram, you will see other signal sources—for example, the BFO oscillator and tone oscillator. Using the frequency counter and scope, verify that the output frequency is correct and of ample strength to do its job. The block diagram will tell you what it should be; for example, the BFO is 453.650 (LSB) or 456.350 (USB), and the tone oscillator is 1750 Hz. These are important, so don't overlook them.

Well, I have blabbered on and used all my allotted space for this time, so the next "On The Workbench" will cover the transmitter. As always, if you have any questions send an e-mail to wb7dyw@evl.net and I will try to help you. 73's, Dutch 

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

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www.collinsradio.org

A Poor Man's 8R-1 Calibrator

by Al Culbert, KOAL

There seem to have been a lot more 75A-2, 75A-2A, and 75A-3 receivers produced than there were 8R-1 calibrators. At least that is my observation from having one of each of these model receivers and only one 8R-1. I was contemplating this lot of fate at a hamfest once and happened on a little Heathkit HRA-10-1 calibrator. The HRA-10-1 is an accessory intended for use in the HR-10 Heath receiver. However, it looks similar in size, octal plug in the base, same tube, same voltage requirement, etc., as the 8R-1, so for \$15, the HRA-10-1 and its manual came home with me.

A comparison of the manuals showed that the pin connections are different. Another difference is that the 8R-1 uses capacitive coupling between two adjacent pins on the octal socket to couple the calibrator signal, while the Heath uses a 6.8 mF capacitor. A


check fit of the unit revealed that while the physical size of the Heath would fit in the space provided on the 75A-2/3 chassis, the orientation of the plug would not allow it to be plugged in.

The octal plug of the Heath can NOT simply be rotated to allow alignment, due to the "key" that is punched in its base. The resolution of this impediment will depend on your stock of replacement parts, access to a piece of aluminum stock and appropriate chassis punch with a "key," etc. If you are not too concerned about the possible mishandling and breaking off of wire leads, you simply can file off the "key" and gently rotate the unit until the plug inserts in the 75A-2/3 chassis. The most "professional" approach probably would be to fabricate a new bottom plate and use a chassis punch with the "key" for the socket. Another possibility would be to install a MIP

(Molded In Plastic) octal plug mounted on a metal plate, which will require two 6-32 screws to mount.

After changing the orientation of the octal plug per your preference, the four wires connecting the calibrator to the octal plug will need to be changed as follows: Remove the wire from pin 1 and solder it into pin 4 (oscillator output), remove the wire from pin 8 and solder it into pin 5 (ground), remove the wire from pin 2 and solder it into pin 8 (B+), Remove the wire from pin 3 and solder it into pin 7 (6.3 V filament).

A final touch is to suitably note on the calibrator that it has been modified for use with Collins 75A-2/3 receivers.

An 8R-1 it isn't, but it certainly was at least \$100 less expensive, and I've seen many HRA-10-1 calibrators at flea markets, but have yet to find an 8R-1. 

The Hammond Legacy - USECA and the CCA visit the Hammond Museum of Radio - (Part 2)

by Ken Coughlin, N8KC, and Floyd Soo, WBRO



Inside the Hammond Museum

This is Part 2 of Floyd's WBRO Hammond Museum article. Part 1 appeared in the 3rd QTR 2004 issue of the Signal...

Paul, VE3SY, took charge of the Fred Hammond memorial stations, VE3HC and VE3BJ, and warmed up the Collins sets in preparation for the Collins Collectors Association special event station at 1 PM. Fred's "shack" is preserved in a separate room. It consists of two large, steel rack-mount enclosures housing all the controls and amps (Hammond) for seven complete operating positions using some of the best Collins, ICOM, Yaesu, and Kenwood gear (only three can be operated simultaneously). Each of the racks is 8 ft. wide and 2 ft. or more in depth. Floyd, WBRO, and Fred, W1SKU, ran the CCA special event using the 75S-3 and 32S-3 in the VE3BJ console.

Lloyd, VE3IIA, answered questions several of us had about the early broadcast receivers in Fred's collection, which includes many rare and still operable units from the very earliest days of commercial radio. Lloyd personally guided us through his own collection of Canadian-manufactured receivers, which are on loan to the museum.

John, VA3LKH, provided insight into a telegraph sounder and key collection near the front of the museum. Near that collection, John had set up a working, modern-day telegraph station, one which works today via modem. Even though telegraph wires and their related circuits long ago were supplanted by telephone and radio waves, American Morse (the kind R/R telegraphers used) still lives on the wires.

Having Ken, Fred's last surviving brother, there was a real unexpected treat. Ken was the financial brains behind Hammond Industries, and during our visit he was fond of lamenting, "...it was Fred who had all the fun..." Ken stayed throughout most of our visit and, like his brother Fred had years earlier, regaled us with stories of 1920s Guelph and the Hammond brothers' childhood home. Ken is quite the conversationalist and has spoken at numerous international symposiums on various subjects, including economics and ecology.

The Collins aficionados in our group were treated to some of the rarest Collins sets around, all in working condition! Among those in Fred's collection is a fully operational Collins 30K-1, one of only 100 ever built. The 30K-1 featured a 4-125 modulated with a pair of EIMAC 75T's to produce a comfortable half-kilowatt. The museum features the ultimate in stations for AM operation on 80 and 160 meters. The largest Collins station featured is a pair of Collins KW-1 transmitters, serial #59 and #147, each operating with its own matching 75A-4 receiver. The top rack unit contains the modulation indicators for each station, all of which are in perfect working condition. With a pair of 4-400A tubes in the final, the KW-1 is good for a full kilowatt of AM carrier at 100% modulation. These transmitters put out 4000 watts PEP! They truly "loaf along" at the American legal limit of 375 watts of carrier (1500 watts PEP). While Collins originally shipped these transmitters with 4-250A's, most operators upgraded the finals to the 4-400A's for improved performance and output.

Also on display is a fully functional, mint-condition KWS1/75A-4 station. This combo is commonly referred to as the "Gold Dust Twins," as these rigs were as expensive as a brand-new car back in the '50s, and the joke was that one had to have a lot of "gold dust" lying around to be able to afford them! In addition to these classics, the museum also has several Collins KWM-1 transceivers. This radio was the first truly compact transceiver. It actually was small enough to be mounted under the dashboard of a car, unheard of in the days when transmitters typically weighed hundreds of pounds. Unfortunately, it was only capable of running 10, 15, and 20 meters. There are also several examples of the Collins KWM-2 transceiver, slightly larger than the KWM-1, but capable of operating on 10-80 meters and pretty much anywhere in between. The KWM-2 is the classic Collins transceiver most people think of when they hear "Collins Radio." Several vintages of the Collins S/Line are also on display, as are numerous Collins accessories spanning the years.

Fred happened to be a big fan of Collins gear, but that didn't stop him from collecting many other brand names as well. In the amateur section alone there are dozens of Hammarlunds, Hallicrafters, HROs, Nationals, B&Ws, RMEs, and a number of other names. I saw a few Drakes, Swans, and even a Heathkit or two. The Heathkits are more recent additions to the museum, as they were not one of Fred's favorites. It brought smiles to the faces of the folks who knew Fred when a piece of Heathkit gear was donated and finally put on display. The staff members would look upward and apologize out loud

to Fred for adding these radios to the collection. Even though Fred wasn't very fond of them, most hams would agree they are an important part of amateur radio history and deserve a spot in the museum. Chances are if you owned an old tube set at one time or another, it's represented in the collection. The military section is fascinating, too; of particular interest was the boxed WW II spy radio in working condition, with its original instructions and light semaphore included. A while back QST ran an article on a similar rig.

This museum truly is a "must-see" for hams and Collins collectors/users. If your "thing" is antique broadcast receivers, you won't find a collection like this anywhere else. There's even a collection of early and unique transistor radios, the pocket kind. In the curator's office, awaiting cataloging, are dozens of collections of radio magazines dating to the early 1920s. Indeed, the museum caters to just about every facet of radio communication. The CCA will be taking a trip to this area in the future to visit both the Hammond Museum of Radio and the Antique Wireless Association's museum in Rochester, NY. Stay tuned for more details!

If you are ever in the Toronto area, the museum is open during normal business hours Monday through Friday and weekends by request. For more information or to confirm a tour, please call the museum at 519-822-2441, ext. 590, or write to the Hammond Museum of Radio, 595 Southgate Road, Guelph, Ontario, N1G 3W6. Guelph is located 45 minutes west of Toronto, 90 minutes north of Niagara Falls, or 4 hours east of Detroit. To visit the museum on-line, go to <http://www.hammondmuseumofradio.org>

Letters to the Editor!

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, who took time out of his busy schedule, came up and looked at our radio equipment and all of the other radio stuff we had. He gave us an idea of 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