

THE HOLLOW NO. 9 STATE NEWS-LETTER

SPRING
1985

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SUBSCRIPTION PRICES: Domestic and Canada/Mexico. . . \$4 for four issues
\$8 for eight issues

Make checks payable to: Other foreign: \$8 for four issues, \$16 for eight issues
Back issues: \$1 each USA/Canada/Mexico, \$2 each other foreign;
CHRIS HANSEN

PUBLISHER'S NOTES -- I'm going first this time around (sorry, Skip) to emphasize some new developments. First, we are going to go on a schedule of four times a year WHEN THE MATERIAL ARRIVES. Very important, that phrase. It means that you are now our partners in producing Hollow State Newsletter. Send your material -- original articles on any subject bearing upon tube-type receiving equipment (care and feeding, or usage, or even nostalgia articles are eagerly solicited). I am retitling the month of issue to reflect the season -- spring, summer, fall, winter of each year. Your subscription will still cover four issues -- it might cover more than a year, depending upon your response to the above appeal. So, get those quill pens and word processors and your a---s in gear!! We await stuffed post office boxes.

AVAILABILITY OF BACK ISSUES -- Now that my office is providing free copying, I am reprinting the first four issues of HSN (then called R-390 Newsletter). To celebrate my employers' (yes, that apostrophe is correct -- there are three partners) new bounty, the first four issues of HSN are available as a package for \$3.50. Single issues are available at the customary \$1.00 a piece. As always, issues 5 through 8 are available at \$1.00 a piece. Send your orders to Chris Hansen at the above address, enclosing a check payable to "Chris Hansen". (HSN is still too small an operation to have its own account).

EDITOR'S NOTES -- GREETINGS CAMPERS! Welcome once again to the best little newsletter in radiodom. Things have been happening at your humble editor's shack. After spending many months trying to find a tube-type computer (ENIAC is still mostly in pieces at the Smithsonian and the Franklin Institute has no idea what happened to their UNIVAC; besides, my basement is too small), I now have a Commodore SX-64. Eventually, I will acquire a printer, and we should then be processing away just as our esteemed and revered publisher (okay, Skip, how much do you want? hi! ch). Anyhoo, your editor would appreciate any programs or data which might help him in his awesome tasks -- let him know.

APPEAL FOR ARTICLES (YOU MIGHT CALL IT BEGGING) The material for publication has been coming to me at a steady trickle -- however, it is still just a trickle. This creates a problem for steady publication dates. As Chris has mentioned above, publishing dates are now going to be flexible -- darn the dates, just publish when there is a sufficiency of material. We would rather please you by putting out 3 issues a year of great relevance and utility rather than putting out 4 with 6 pages of filler per year (one full issue). As Chris mentioned above, subscriptions will still be for four issues -- however, those four issues may or may not

constitute one year. In fact, if we get five issues worth a year, you might find a special issue published!! Of course, we do seek your comments and opinions on this matter. If anyone is unhappy with HSN for any reason, refunds are cheerfully provided for all unmailed issues (which is more than many commercial magazines will do!). So, get to your desks and write!!!

POWER LINE SURGE PROTECTOR Our first bit of information comes from the ever-present DALLAS LANKFORD. He writes: "One usually thinks of power line surges and spikes as being dangerous only for solid-state equipment. But, these glitches can also destroy capacitors with ratings of hundreds of volts (like those in our tube gear)." So, Dallas has invested in a Radio Shack "transient voltage surge protector," which is a three-prong plug-in device which accepts in turn a two- or three-prong plug. It is rated at 15 amps. It may seem expensive at \$7.50, but even if you repair your own gear, your time is worth something; it does take time to find a single blown capacitor in an HQ180, R390, or similar gear. Anyway, it seemed like a good buy to Dallas. More from Dallas later.

ANTIQUÉ RADIO CLASSIFIED MAGAZINE Every now and then a useful publication comes across your editor's desk. There is another resource for tube-type folks in the Antique Radio Classified, 9951 Sunrise Blvd, #R9, Cleveland, OH 44133. You can obtain a sample issue for \$1.50, or subscribe for a year (12 issues) for \$15.00. The magazine contains some pictorial articles of '20's and '30's-type gear, and lots of classified ads for many different old rigs, parts, tubes, and the like. It seems that it might apply mostly to the needs of our friends who go for truly antique radios, but then one can never have too many tube sources, can one???

MORE TUBE SOURCES Speaking of tube sources, here are a few more to warm your hearts: Steinmetz Electronics, 317 Pulaski Road, Calumet City, IL 60409 and Old Tyme Radio Company, 2445 Lyttinsville Road, Silver Spring, MD 20910.

TELL US ABOUT YOUR EXPERIENCES WITH TUBE SUPPLIERS Your editor and publisher have been passing along names and addresses of tube sources since the first R390 Newsletter. However, we are panting like hinds for some news of your satisfaction (or lack of satisfaction) with any tube sources you deal with. Found a friend with a tube source? Do you know a really upright and honest -- exceptionally upright -- tube source? Share your experiences. Have you been burred by a tube source? Did the 'Dud Tube Source Emporium' live up to its name (hi!)? Then, help your fellow tube enthusiasts by passing the information along. If you have documentation, it might help to send copies to us. Telling the company that you're going to expose them in a tube enthusiasts' newsletter might help to gain satisfaction. In a future issue, we will draw together all the tube sources into one comprehensive list. Perhaps, with a little prodding, we'll try to get some more comprehensive information about their services and resources. Help us out with reactions to 'Duds' and 'Goods.'

MANUAL WANTED FOR RME-84 RECEIVER. Member MORRIS SORENSEN, 111 Town Line, Milton, ON, CANADA L9T 2X1 recently purchased an old RME-84 receiver, manufactured by Radio Manufacturers Engineering of Peoria, IL, ca. 1946. It is in good working order except for the non-functioning of the BFO. This rig uses Loktal (lock-in type) tubes and has a mechanical bandspread which seems capable of providing fairly precise tuning. Morris would like to obtain a manual for this receiver, and would also like to hear from any readers who may have used one.

A SOURCE OF INFORMATION ON HQ129X AND HQ150 receivers is the National Radio Club Receiver Manual, Vol. I. For a catalogue listing this and other NRC publications, you may write to NRC Publications Center, P.O. Box 166, Mannsville, NY 13661.

WANTS INFO ON BC-221 FREQUENCY METER WAYNE HEINEN, 4131 South Andes Way, Aurora, CO 80013 has recently acquired this piece of equipment. He would like to correspond with anyone who has a manual or information about the meter. He would also like to correspond with users of older RBB receivers (he has a manual available for copying). Listen for Wayne's "Medium Wave Interlude" program on DX-Party Line on HCJB, Quito, Ecuador. The times GMT are: Saturday 2130, and Sunday 0230, 0630, and 0930. We like it!! See recent WRTH or program schedules for frequencies.

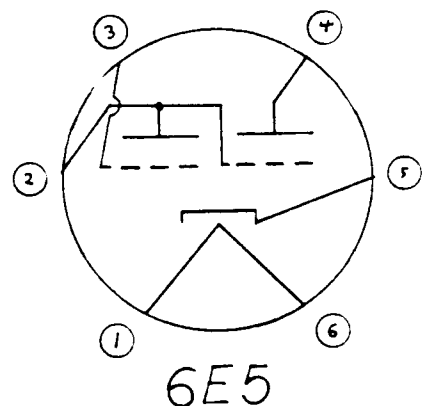
ANOTHER SOURCE FOR ARRL HANDBOOKS AND TUBE SUBSTITUTION MANUALS could be your local library. Some of these might be available for sale as well as loan (many have already been sold. ch). You might even be able to trade a copy of this year's Handbook for a 1960 or so!!

ELECTRON-EYE TUNING TUBES EXPLAINED Sue Coulter provides us with this tidbit of information from the February 1983 issue of a service magazine concerning these tubes. Known as the "Taco Tuning Indicator", this self-contained unit makes use of the 6E5 electron-eye tube and obtains its power from the radio set itself through a five-wire cable connecting with various circuits. The installation is simply cutting a hole in the set panel for the neat bezel ring or the "window" through which the tube target is viewed, and mounting the bracket behind the panel. For precise tuning the set operator views the electron-eye target of the 6E5 tube through the bezel window. When the set is sharply tuned for a given signal, the black segment of the luminous green circle is reduced to minimum width, if not entirely eliminated. This closed eye condition indicated maximum resonance. The Taco Tuning Indicator was manufactured by Technical Appliance Corporation, 17 East 16th St., New York, NY (Hey, Chris, take the bus into the city and knock on the door, they might still be home! hi!) (I doubt it. However, I once owned an HH Scott radio which made use of two of these tuning eyes, one for FM and one for AM/SW. The AM/SW one could never be induced to work, but the FM one was a beauty, and I still think that it was the best tuning aid around -- better than a meter as it didn't fluctuate so wildly. ch)

MEET THE 6E5 TUBE That beautiful blue glow (mine was green. ch), those perfectly-emitted photons, the precision -- the total class it brought to a radio. I've seen these things in use on a receiver well into the '60's. In some cases they were applied to substantially solid state units. This can mean only one thing: let's MEET the 6E5 TUBE!!!

The 6E5 is a glass-type electron-ray tube used to indicate visually, by means of a fluorescent target, the effects of a charge in a controlling voltage. It is used as a convenient means of indicating accurate receiver tuning. This tube requires a six-contact socket. Its heater voltage is 6.3 volts AC/DC at 0.3 amperes.

Plate supply voltage..... 250 V max.
 Target voltage..... 250V max. -125V min.
 Plate and Target supply voltage..... 200V/250V
 series triode plate resistor..... 1 megohm
 Target current..... 3-4 ma
 Triode-Plate current..... 0.19-0.24 ma
 Triode-Grid Voltage (approximate):
 for shadow angle of 0°. -6.5 to -8.0 V
 for shadow angle of 90°... 0V



NOTE: Target current and Triode-Plate current are subject to wide variations.

CATALOGUE: Another catalogue has crossed your editor's desk. This one includes a good collection of tubes and other radio supplies, including transformers and chokes. ANTIQUE ELECTRONICS SUPPLY, 1725 W. University, Suite 2, Tempe, AZ 85281 (602) 894-9503. Also, especially if you are looking for surplus Collins gear parts, including mechanical filters, contact SURPLUS SALES OF NEBRASKA, 2412 Chandler Road, Bellevue, NE 68005. These folks have a lot of neat stuff, especially some surplus stuff off missiles and aircraft, so if you want to build a delivery system to launch your R390 into space, this is the catalogue for you.

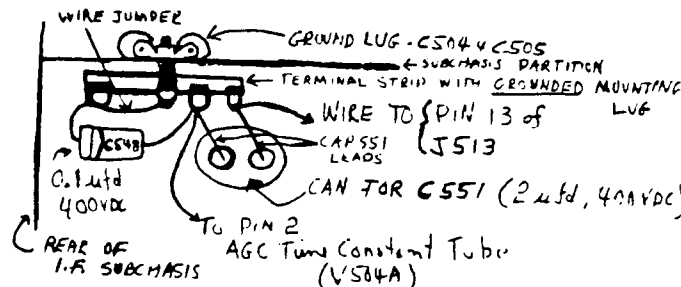
ANOTHER CATALOGUE: Jay Mathisrud reminds us of another catalogue you might be interested in. RADIOKIT, P.O. Box 411, Greenville, NH 03048. Price: 50¢. Their book includes many fine new components of use to the builder, repairer, and restorer. There are air core capacitors to be found here (hen's teeth are more prevalent these days). They also feature a kit to convert the DRAKE R4A, R4B, & R4C to continuous general coverage. Pretty neat, huh?

ANTIQUe RADIOS RESTORATION AND PRICE GUIDE, Johnson, David & Betty. Your publisher received a copy of this book recently (it was published at \$10.95 but sells for much less from Publisher's Clearing House). In case there are some HSNers who are also interested in antique radios of the type prevalent from the 20's to the '50's, I'll review the book at short. At 99 pages, this book can't go into much detail about restoration (in fact, they spend as much time talking about cabinet restoration as about the actual radio restoration). To their credit, however, they realize that anyone who is much interested in these receivers will hunger for more information, so they have included a generous bibliography, a list of

sources for parts, especially TUBES. (Most of them have already appeared in these pages.) The best part for the non-technical person like myself is the chapter on radio theory. The pics and the price list are good for laughs and memories too. If you come across it somewhere and have some \$\$\$ burning holes in your pockets, you could do worse than to pick up a copy. Who knows, someday an Atwater Kent may land in your shack!

REPAIRING THE R390A AGC GERALD MURPHY has this to share with us concerning the AGC time constant on the R390A. "After about 15 minutes of

warm-up, the receiver gradually lost all AGC in the slow setting and partially in the medium setting. Checking with my VOM, I found that C551, an electrolytic cap in a metal can sheild on the IF sub-chassis was defective, measuring only about 250K ohms resistance and passing DC current. In repairing this defect, I purchased a 2 ufd non-electrolytic cap (GE 457A373H01-400 VDC -- original was 500 VDC). In order to preserve the 'ambiance' of the R390A, I pulled off the contacts of the original capacitor, drained off the fluid, desoldered the can, and, after carefully insulating the new capacitor leads and lining the can with heavy cardboard, placed the new cap in the can and sealed it with silicone cement. Perfect fit! It is necessary to solder wire extensions onto the cap leads, and these were taped to the body of the cap with good plastic tape. In making this repair, I also replaced C548 with a new 400-VDC Mylar-type unit. It is physically in the way and is rated at 100 VDC. In order to insure good mechanical rigidity, it seemed wise to mount a terminal strip on the chassis partition where C504 and C505 are grounded. A diagram is above.



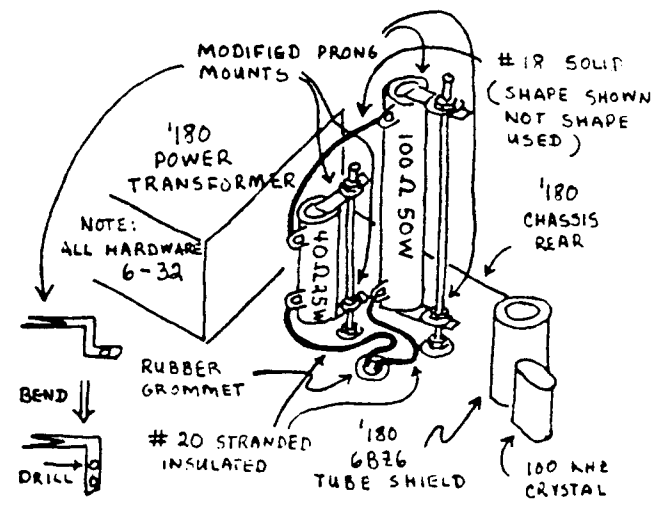
constant on the R390A. "After about 15 minutes of warm-up, the receiver gradually lost all AGC in the slow setting and partially in the medium setting. Checking with my VOM, I found that C551, an electrolytic cap in a metal can sheild on the IF sub-chassis was defective, measuring only about 250K ohms resistance and passing DC current. In repairing this defect, I purchased a 2 ufd non-electrolytic cap (GE 457A373H01-400 VDC -- original was 500 VDC). In order to preserve the 'ambiance' of the R390A, I pulled off the contacts of the original capacitor, drained off the fluid, desoldered the can, and, after carefully insulating the new capacitor leads and lining the can with heavy cardboard, placed the new cap in the can and sealed it with silicone cement. Perfect fit! It is necessary to solder wire extensions onto the cap leads, and these were taped to the body of the cap with good plastic tape. In making this repair, I also replaced C548 with a new 400-VDC Mylar-type unit. It is physically in the way and is rated at 100 VDC. In order to insure good mechanical rigidity, it seemed wise to mount a terminal strip on the chassis partition where C504 and C505 are grounded. A diagram is above.

DALLAS LANKFORD ON THE HQ180A. It was interesting to note Edward McFadden's remarks about R-18 (47 K, 2W) in his HQ-180A which had burned up and caused the 10K section of the dual 10K/5K RF gain pot to also self-destruct. Chris Hansen suggested parenthetically that bad 6BZ6's might be the cause, as they appeared to be from Edward's comments. Another potential cause is that R-18 dissipates about 1.3 W. Because of its crowded location, it may actually be operated beyond its power rating. Apparently Edward's HQ180A is a late model because earlier models used R-106 (100K, 1/2 W) in parallel with R-18 (100K, 1W) to achieve 50K. I described this situation in a Musing in DX News, v.51, #21 (March 5, 1984), and suggested essentially the same solution that Edward described. Actually, I used two 100K, 2W as the equivalent of a 50K, 4W, and mounted the resistors on a terminal lug strip which was mounted on the L-bracket that supports the bandwidth and sideband switches. Removal of R-18 (and R106 if also present) is non-trivial, and I recommend using small pieces of scrap aluminum as heat sinks-shields to protect nearby wires and components from the hot tip of your soldering iron. One other resistor in some older HQ180A's and HQ180's was underrated: R-3 (6.8 K, 1/2W) should be increased to 1W. When changing the R-18 (/R-106), you should be especially careful when re-doing the tie points from which the resistor(s) was(were) removed and to which the associated wiring connected. In one of my units about a year later I noticed that my S-meter was making small but noticable random discontinuous jumps. The problem was traced to my R-18/R-106 mod. The original feed to R-18/R-106 was a red wire that ran from a terminal lug on one of the IF transformers. This lug was also the tie point for two other red wires (the B+ line). When I originally did the mod I did not notice that one of the red wires was not firmly crimped to the lug, but merely 'stuck through.' So, when I resoldered, the solder joint was not good, causing small variations in the B+ supply to some of the IF tubes, which in turn caused the small random discontinuous S-meter jumps. The lesson here, I think, is that when you disconnect one wire from a lug, check that the others are firmly crimped to the lug. I had carelessly assumed that Hammarlund never used bad wiring practices, but learned that they did, the hard way.

Another thing mentioned in my DX News musing was that many (most?) HQ180A's (HQ180's?) have B+ voltages that are too high. The nominal B+ line per Hammarlund's manual is 255 VDC, but both my '180A's ran around 290 VDC. This can cause a number of components to be operated

beyond their maximum ratings, and may also have been a contributing cause of the problems that Edward observed. The audio output tube is definitely operated beyond its maximum

ratings, which can lead to frequent tube failures, and cause associated component failures. The solution is to add a dropping resistor in the B+ line. The exact resistance seems to vary from one HQ180A to another, but 125 to 140 ohms is about right from my experience. In my units I currently use a 100 ohm 50 W in series in series with a 25 ohm (or 40 ohm) 25W. The equivalent 125 ohm (or 140 ohm) resistor is inserted between the output of the silicone diodes and the 8 henry (L-6) filter choke. For improved ventilation the two resistors are mounted vertically above the chassis near the rear behind the main tuning capacitor and between the power transformer and 100 kHz crystal oscillator tube. A couple of holes were drilled through the chassis to mount the resistors and to feed wires through. It seems that I also mounted a terminal lug underneath. The high wattage was necessary to get the resistors to run reasonably cool (about 55° C). A sketch of the mounting arrangement is above.



HAMFEST SEASON APPROACHETH

Remember to make up a list of all the tubes in your receivers and support gear. Also, take a look at a few tube catalogues to get an idea of premium prices. If you purchase a boxed tube ALWAYS look inside to make sure the right tube is in the box. Some of the sellers at hamfests buy these things up in bulk and even they don't know what they have. Also, if you see any rigs being sold 'as is' or as scrap for real low prices, take a look inside and see if they contain any tubes or components that would make it worth dragging the rusty hulk back to your car. If you are in the market for permeability-tuned radios like the R390 ALWAYS ask to look inside and really pay attention to the condition of the planetary gears and the slug racks. Try to get an idea of the quality of the radio by listening to the seller talking to other people. Does the seller sound like an old-timer with respect for this gear, or does he sound like someone just trying to unload a boat anchor that he got when he was a novice and never got to work right? Remember, knowledge is power. If you've been reading the HollowState Newsletter you're equipped to make intelligent purchases. CAVIAT EMPTOR. COGITO ERGO SUM. ILLEGITIMI NON CARBORUNDUM.

PUBLISHER'S CORNER

(as opposed to "Publisher's Notes" on the front page, hi!). I am a new (re)subscriber to Glenn Hauser's Review of International Broadcasting (Box 490756, Ft. Lauderdale, FL 33349 \$18/yr US, \$21/Canada, samples \$1.50). Since I last saw this publication, a new department has emerged, called "Radio Equipment Forum," edited by David Newkirk. Mr. Newkirk, who is sometimes quite witty and pointed, has an interchange with a gentleman named Steve Kennedy this month, partially about tube receivers. Mr. Kennedy: "I can't overstate the usefulness of having a decent-quality older tube receiver on hand. There is a special feeling about working with one of the old sets...a special feeling of working with a radio that was built with a serious SWL/DXer in mind...a charisma, if you please. The audio in the old sets is not bad, either...sure, it's a 6BQ5 or a 6L6, but it sure can make BBC or Radio Nederland sound solid when hooked to a good speaker. But be warned! Once you have tried a 'hollow state' receiver...you might get hooked!" (I think HSN has added something to the language. ch) Mr. Newkirk: "I think we should point out another distinction (between newer receivers and older tube receivers): there is a great difference between sets made for "real" use and sets whipped up for "consumer" use in any era. The difference in quality between any Hallicrafters or National receiver and (the) R390A is astounding. The R390A drifts little and has linear digital-readout tuning if properly aligned. Its weak point, as was the weak point of many receivers...is that it doesn't do well at all in the most common

SSB/CW listening technique these days, RF/IF full up, and agc controlling receiver gain. This is because of: unoptimized detector (just the rectification detector ("AM") diode used with BFO added), BFO too weak by the time SSC/CW gets to the end of the IF strip if the RF/IF gain is up all the way, and inadequate AGC control range. . . . Really, you see, there IS NO SUCH THING as "state of the art." It's a science, not an art, and the fact is that if you just understood what was said on your radio -- in other words, if the message was understood -- then your radio is as "state of the art" (CHOKE) as it need be. Fact is, "state of the art" is a cliché invented by admen, and is a carrot tied to the stick that radio amateurs and broadcast station engineers tie to their own backs along with the carrot to keep themselves busy and make themselves feel that they are achieving "progress.""

Well...I must say that Mr. Newkirk's distinction between 'commercial' and 'real' receivers is new to me -- I like it. It explains somewhat the mystique around the R390, R390A, HQ180, HQ150, and the like. These are working receivers. People used them, not for hobby listening, but to earn their bread. Some of the aura of their efforts has stuck to our receivers, and it can help turn a hobby into an avocation and a serious pursuit of excellence.

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THE NEXT PUBLISHING DATE IS JUNE/JULY, BUT THIS DEPENDS ON YOU!!! GET YOUR MATERIAL TO SKIP AS SOON AS POSSIBLE, FOR YOUR CONTRIBUTIONS MAKE THIS NEWSLETTER POSSIBLE.

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