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The opinions expressed in *The Hollow State Newsletter* belong to the individual contributors and do not necessarily reflect those of the editors or publisher.

EDITOR'S CORNER

Hello again to all vacuum tube aficionados everywhere. Please note the price changes above, due mainly to postal rate increases. Also note that issues 5 and 6 are currently out of print. Chris is working on an anthology of the best parts of those issues. I changed our logo to all Roman fonts, and modified our information box above, but I don't have strong feelings one way or the other about that. If you want the old style back, let me know. I hope to put a lot into this issue - addresses and comments about where to buy connectors, tubes, parts, tools, manuals, test equipment, etc.; important information about ballast tubes, especially the 3TF7; R-390A meter radioactivity; my experiences rebuilding an SP-600; an improved R-390A synchronous detector from Graham Maynard, and more.

Normally we try to keep negative things out of *HSN*, but in this issue I am making an exception. I had such a bad experience recently with Surplus Sales of Nebraska and its president, Robert L. Grinnell, that I feel an obligation to warn our readers to avoid them. And in case you don't read the Editor's Corner, I am making that warning the lead contribution of this issue.

Price changes are effective July 1, 1988.

SHORT CONTRIBUTIONS

SURPLUS SALES OF NEBRASKA: Maybe my saying a *few* words about my bad experiences with SSNe and its president, Robert L. Grinnell, will save some of our readers time, money, and similar bad experiences. I strongly advise that you do not buy anything from SSNe by mail order. (Dallas Lankford)

RF CONNECTION: 213 North Frederick Avenue, Suite 11-F, Gaithersburg, MD 20877, (301) 840-5477. If you are looking for RF connectors, this is probably the place to find and buy them. You might be a little hesitant to place a VISA order with an answering machine, but the fellow who runs this outfit, whoever he is, is O.K. We recently purchased unused Star UG-636A/U connectors which adapt the R-390A unbalanced antenna input to BNC female for \$5 each, plus a 4% VISA surcharge, plus UPS shipping. Even more recently we bought unused Kings UG-290A/U connectors (bulkhead bolt-and-nut mounting, solder lug to BNC female) for \$1.50 plus the usual 4% VISA surcharge, plus shipping charges. We had an old price of \$1 each which was too low, but the fine fellow called to ask if we wanted them at the higher price. Of course we did, because he called to inform us of the higher price, and because the price was reasonable. In both cases he must have shipped the orders the next day because they arrived within a week. RF Connection also carries UG-971A/U connectors which adapt the R-390A balanced antenna input to unbalanced C female for \$5 each the last time we checked. Be sure to inquire about price changes, and send an SASE with any letter of inquiry. (Joe Bunyard and Dallas Lankford)

DAILY ELECTRONICS: P.O. Box 5029, Compton, CA 90224, (213) 774-1255. In my opinion, this is the best source for tubes, at least for receivers and test gear. I have purchased over 200 tubes from them during the last few years, and received only four bad 6DC6's and a bad 4H4C ballast. Their prices generally range from about \$2.50 to \$4 for most of the tubes in our favorite receivers such as the R-390A, HQ-180A, SP-600, etc., the exceptions being ballast tubes which they currently sell for \$20, gasp!!!, 26Z5W's for \$8.50, and some other uncommon tubes. To order from them either call for price quotes, or write a letter with a list of the tubes you want, leave a space beside each tube for them to write a price, and include an SASE. They do not accept credit cards to the best of my knowledge, but they do accept personal checks. They are vague about shipping charges. I add \$3.50 for small orders, say 10 to 15 tubes, and as much as \$5 for larger orders, say up to 50 tubes. Remember that I am in Louisiana, so shipping charges to the East coast may be somewhat higher. I have never been able to get an answer about their return policy for bad tubes. Presumably all sales are final. For this reason I advise restraint in buying high priced tubes from them. Some of their tubes are military surplus with date codes on the boxes, some are in the usual commercial boxes, and some are packaged in new plain white boxes with just the tube number printed on the end. All their tubes appear to be unused. You may be able to find some tubes cheaper by dilligent scrounging, attending hamfests, et al. But if you include the extra time and money you spend hunting for cheaper tubes, you can seldom beat the convenience and prices of Daily Electronics. (Dallas Lankford)

ANTIQUE ELECTRONIC SUPPLY: 688 West First Street, P.O. Box 1810, Tempe, AZ 85281, (602) 894-9503. If you don't already have their 1988 catalog, slip \$2 in a envelope and order one. They currently sell 26Z5W's for \$4.50 each, and sell a number of other useful and desirable items, such as a tube extractor for \$2.73, a dual 7 and 9 pin miniature tube pin straightener for \$4.07, alignment tools, all kinds of hard-to-find books (G.E. Tube Handbook for \$3.50, Sam's Tube Substitution Handbook for \$5.95, and others), and high voltage tubular and electrolytic capacitors. (Joe Bunyard and Dallas Lankford)

FAIR RADIO SALES: 1016 East Eureka Street, P.O. Box 1105, Lima, OH 45802-1105, (419) 227-6573. No discussion of where to buy tube gear and parts would be complete without mentioning Fair Radio. Their catalog seems to be free, so naturally you will want one. They sell all sorts of military surplus gear and parts, including the R-390A

checked, complete with meters, for \$345 plus shipping, or "as is" without meters for \$175, and in several other conditions at other prices. They also sell some R-390A subchassis (did you know that the plural of chassis is chassis?) depending on availability. If you want or need test gear, they have signal generators, VTVM's, scopes, and used to sell a tube tester, although I don't see one listed in their latest catalog, WS-88. And they have *partial* (italics added by me) reproductions of manuals for many of the popular receivers and other equipment. You should discuss the contents of their partial reproductions of manuals before you buy one because you may not get all the information you need. I bought a tube tester some time ago, and was surprised that the manual omitted the parts list which was essential to maintaining the tube tester because the schematic did not have all parts values listed. After some negotiations Fair Radio did provide me with a parts list. So in some cases they do have complete manuals. Their tube inventory is not as complete as Daily Electronics, and their tube prices are generally slightly higher. But when I include the four bad 6DC6's and bad 4H4C in Daily Electronics tube prices, there is hardly any difference between the two. I have done several hundred dollars worth of business with Fair Radio over the last ten years, have had very few problems, and no problems that they did not make right without any fuss. (Dallas Lankford)

HI MANUALS: P.O. Box 802, Council Bluffs, IA 51502. Their catalog, which you must purchase before you can order manuals from them, was \$1 postpaid in 1986 (\$2 surface outside the USA, and \$3 air mail outside the USA). It is 11 pages of two column listings in *small* print, about 180 manuals per page, maybe 2000 manuals total. Military surplus listings are incomplete, for example, no R-390 or R-390A manuals. Collins, Drake, Hallcrafters, Hammarlund, Heath, National, and many other listings are more complete, but some manuals are still missing, for example, the 51J4 and SPR4. Several hundred companies are represented in their catalog, some with only one manual. Their manuals are usually reproductions, but they are nice reproductions. Here is a quote from their "Order Terms" of catalog F. "WHAT YOU GET. Our collection is not inexhaustable, so few will now be originals, and you should expect to get a copy. We make copies about as good as the originals, but remember in the good old days many of the manuals were really bad by today's standards. They were, frequently, a few poorly done sheets in mimeo or spirit duplicator. If you order one of these you will get a good copy of a poor manual. Before WW-II many just told how to turn it on and gave a schematic. Many of our books are just what you would have received if you had bought the set new. Many companies made production changes without a similar change in the manual they supplied, so we can't guarantee what you have and our manual will match 100%. We do not include any large, fold-out pictorials that may have been with manuals (you can get a quote on what, if any, could be supplied and price by submitting a \$5 research fee). Unless individually excepted in the INFO column with a listing (X), you will get a schematic, but those larger than 1 page in size will be in page sections, unassembled." My only direct experience with them was when I ordered a copy of the 34 page NC-400 manual for \$11.50 about a year ago. I was completely satisfied with what I got. If you need a manual quickly and conveniently, Hi Manuals is likely the place to find it. (Dallas Lankford)

HAM TRADER YELLOW SHEETS: P.O. Box 2057, Glen Ellyn, IL 60138. This is without a doubt the best way for individuals to buy and sell electronic gear short of attending hamfests in person. The name might suggest that it is only for hams, but there are plenty of our favorite receivers bought and sold, and anyone can subscribe and place ads. To get acquainted with the Yellow Sheets you may take a mini-subscription, \$3 for 5 issues (bi-monthly). A one year subscription is 24 issues for \$12. Overseas subscriptions are \$1 per issue and are sent via air mail. Individuals are entitled to submit an ad with their subscription, or at any time thereafter, until their subscription expires, at a rate of 28 cents per word, where equipment designations like R-390A count as one word. Almost everyone who is active in buying and selling receivers, accessories, and test gear has used the Yellow Sheets and likes them. (Joe Bunyard and Dallas Lankford)

RADIOKIT: P.O. Box 973, Pelham, NH 03076, (603) 635-2235. If you build loops, amps, phasing units, antenna tuners, converters, or whatever, it is likely you have ordered things from Radiokit. They don't sell tubes, and what gear and active devices they do sell are solid state. But if you want hard-to-find items like Jackson Brothers 6:1 or dual 6:1/30:1 vernier reduction drives, Jackson Brothers, Cardwell, and Millen variable capacitors, miniature coax, Scotch 27 Glass Cloth Electrical Tape, Coax-Seal, Hammond chassis and diecast aluminum boxes, LMB cabinets, Amidon toroids and ferrite beads, J. W. Miller coils and chokes, B&W inductors, and on and on, then you will want to send them \$1 for their latest catalog and price list. (Joe Bunyard and Dallas Lankford)

R-390A RADIOACTIVE METERS: Several people have written us lately expressing concern about the radium dials on R-390A meters. It is, of course, understandable that there would be some concern. Three Mile Island and Chernobyl have entered the world's collective consciousness. Rather than make too light of a possibly serious problem, Dallas began to collect some facts. First, an R-390A user in Ruston, Rick Burns, just happened to have a version of TM 11-5820-358-20 with "Changes 2 Through 4" which lists several radiation sources in the R-390A and gives activity numbers. There are apparently at least two meter models with different Ra226 activities, one rated at 0.69 μCi , the other 0.40 μCi . To determine what that meant, and to measure radiation dose rates of typical meters, Dallas took line and audio meters to the Nuclear Center at Louisiana Tech University where the director and Dallas measured the dose rate with a sensitive, calibrated, radiation meter. Both meters measured less than 0.5 mR/hr at about 1 cm, i.e., with the radiation meter "window" pressed flat against the front surface of the R-390A meters. According to *The Code Of Federal Regulations*, 1987, section 414, the "Permissible Levels Of Radiation From External Sources In Unrestricted Areas" is 0.5 R/year, 100 mR/week, and 2 mR/hour for adults (over 18 years old), and 1/10 of these values for minors (under 18 years old). An R-390A with two meters typically will not exceed the permissible hourly radiation level. But the radium paint on these meters was applied by hand, so some meters might exceed the permissible hourly radiation level. If you kept two meters with their faces pressed flat against your body 24 hours a day for one week you would typically receive 168 mR and have exceeded the permissible weekly radiation level. Similarly, you could exceed the permissible yearly radiation level. However, under normal operating conditions you will receive a much smaller radiation dose from your R-390A than permitted by 1987 law. Radiation is inversely proportional to the square of distance, so at 10 cm (about 4 inches) from the front surface of a meter the dose rate is about 5 $\mu\text{R}/\text{hour}$, or about 100 times less than at the front surface. If you used your R-390A 8 hours per day for one year with each meter an average of 4 inches from your body, then you would typically receive about 1/25 of the radiation permitted by 1987 law. We can't tell you that the meters are safe because some authorities say that no amount of radiation is safe. And you should definitely not open the sealed meters and handle or ingest the Ra226. If you want to dispose of your R-390A meters without breaking federal laws, you will need to study *The Code Of Federal Regulations* for the current year. It is available at many university libraries. We do not intend to remove our meters from our R-390A's or dispose of them. (Chris Hansen and Dallas Lankford)

R-390A RADIOACTIVE TUBES: Just as soon as we breathe a sigh of relief, the radioactive bugaboo appears again, this time in the OA2WA. There are at least three different manufacturers of radioactive OA2WA's and each used a different isotope. EEVC used uranium 238 with a rated activity of 0.1 μCi , CBS-Hytron used nickel 63 with a rated activity of 0.5 μCi , and Ratheon used cobalt 60 with a rated activity of 0.2 μCi . I had a CBS-Hytron OA2WA on hand which I carried to be measured, but I could have left the tube at home if I had remembered my long forgotten undergraduate university physics. Ni63 is a β emitter, and β 's can't make it through the glass envelope. The radiation meter detected no radiation from my OA2WA. A curious point which emerged from our discussions is that the half lives of these three isotopes are radically different - 4.5 billion,

100, and 5.27 years respectively for U238, Ni63, and Co60. If the radiation is important for operation of the OA2WA, then Ratheon OA2WA's made in the 1950's and 60's are probably duds by now. And if the radioactivity is not important, why were radioactive isotopes used in the first place? We could not measure typical dose rates of the other two types of OA2WA's because I have none on hand. Glass tubes are not nearly as sturdy as R-390A meters, so the wise individual will probably gently remove any OA2WA's from his R-390A's and use non-A OA2W's or OA2's. (Rick Burns and Dallas Lankford)

3TF7 SUBSTITUTES ?: In *HSN 16*, page 4, it was said that the 3HTF4 is a substitute for the 3TF7. The 1987 Fair Radio catalog, WS-87, page 6, lists the 3TF4 and 3TFV4 as substitutes for the 3TF7. However, only a few weeks ago the chief engineer at Amperite stated that the 3TF11 is the only ballast tube which can be substituted for the 3TF7. Let us explain why. A ballast tube has two ratings, a voltage range where current regulation takes place, and the corresponding regulated current range. For the 3TF7 the ranges are 8.6 - 16.6 volts and 290 - 330 milliamps. For the other ballast tubes mentioned above the ratings are 3TF11, 8.0 - 17.0 V, 280 - 320 ma; 3HTF4, 4.3 - 8.3 V, 340 - 370 ma; 3TF4, 4.3 - 8.3 V, 280 - 320 ma; and 3TFV4, 4.0 - 8.5 V, 280 - 320 ma. In a typical R-390A the total voltage drop across the 3TF7 and the two filaments it regulates is about 27.4 VAC, the voltage across the 3TF7 alone is about 14.2 VAC, and the voltage drop across both filaments is about 13.2 VAC, or about 6.6 VAC each. Note that the 3TF7 is operating within its specified voltage operating range, and the filaments are operated only slightly above their recommended operating voltages of 6.3 VAC. The latter is not serious because my old GE tube handbook states "... moderate voltage fluctuations upward will not reduce the life of the filament to an unsatisfactory degree." Now suppose you used a 3HTF4, 3TF4, or 3TFV4. It will operate substantially beyond its maximum voltage rating, or the two filaments it regulates will operate substantially beyond their recommended operating voltages, or (and this is the most likely outcome) all will be operated substantially beyond their maximum (or recommended) voltage ratings. It is almost certain that maximum current ratings will also be exceeded. So if you make or have made any of the above substitutions, except for the 3TF11, you may experience degraded stability, and excessive ballast, BFO, and PTO tube failures. When something (e.g., cheap 3TF7 replacements) sounds too good to be true, it probably is not true. If you were one of the unlucky persons who rushed out and bought some 3HTF4's because of the *HSN 16* contribution, please remember that *HSN* cannot verify every contribution before it is published, and that the editor and publisher assume no responsibility for the reliability or correctness of any contribution. (Joe Bunyard and Dallas Lankford)

BALLAST TUBE HANDBOOK: Anthony P. Jacobi, 8053 Maywood Street, Ralston, NE 68127. Tony is a world expert on ballast tubes, maybe *the* world expert. He solved my NC-400 ballast tube (4H4C) problem in every way, including measuring voltage and current ratings for the 4H4C, analyzing the undocumented NC-400 ballast tube circuit modification, selling me two good 4H4C ballast tubes, and recommending using a variac to power up the NC-400 in case I had not found all of the undocumented NC-400 modifications. If you have or think you will ever have ballast tube problems, you should add Tony's Ballast Tube Handbook to your library. It costs only \$8 postpaid for 72 pages of data on more than 3600 tubes, American and European. Tony also sells a 56 page Ballast Tube Substitution Guide which lists over 2600 tubes for only \$7 postpaid. (Dallas Lankford)

NC-400 BALLAST TUBE PROBLEM: As I said above, Tony Jacobi solved my NC-400 ballast tube problem completely. I would also like to thank Joe Berry for calling me to tell me the Amperite listed specifications for the 4H4C. In case any of our readers have or will ever have an NC-400, I'll briefly describe the problem and the solution. All the NC-400 tube sockets have the correct tube number stamped into the chassis beside the tube socket, and the ballast tube socket identification was 4H4C. Perhaps a previous NC-400 owner had replaced a dead 4H4C with a 6-4 ballast tube.

In any case, the 6-4 and the 6BZ7 filament were both operating rather far beyond their maximum voltages and currents. And as if to confirm this, the 6BZ7 tested bad on my tube tester, although the NC-400 seemed to operate correctly. Figure 1 shows the NC-400 schematic in the manual I received from Hi Manuals. Figure 2 shows the NC-400 that I purchased. In my opinion, the 100 ohm resistor is a production change which National added to later model NC-400's. The resistor did not appear to have been added by a previous owner (I can usually tell by looking). And an analysis of the circuit indicated that the 6BZ7 filament would substantially exceed its maximum ratings without the 100 ohm resistor due to the current rating of the 4H4C. In addition, Tony Jacobi and I concluded that the 100 ohm resistor should probably be a smaller value, say in the 30 to 50 ohm range. But I decided to leave the circuit as-is for the present because voltage measurements

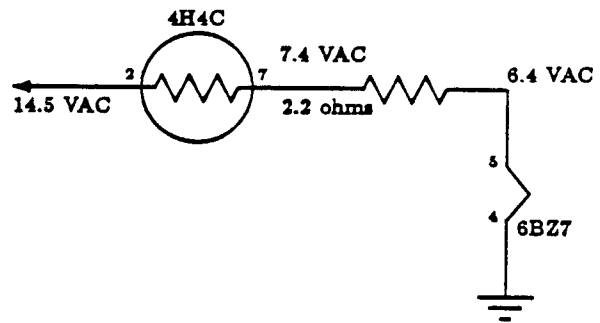


Figure 1

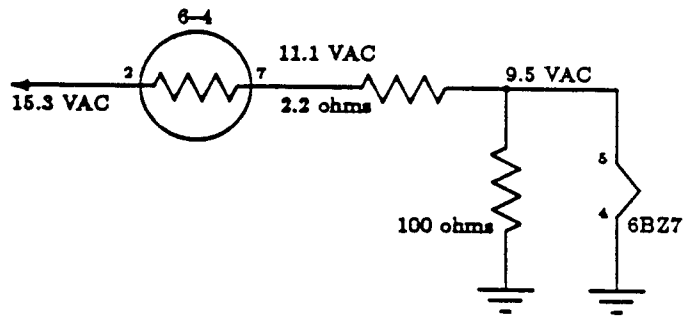
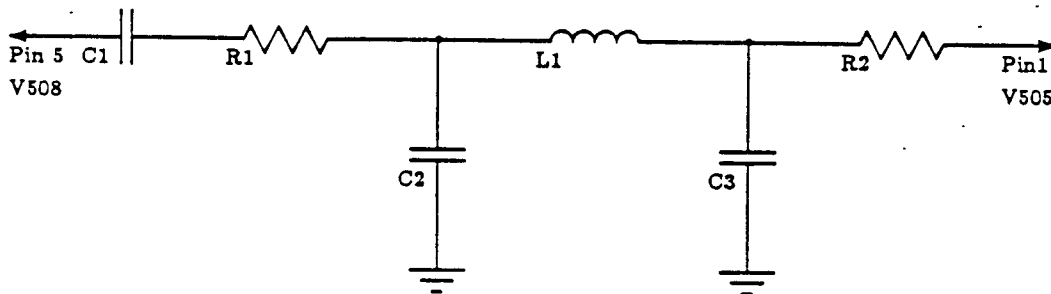


Figure 2

determined that the 6BZ7 filament was not outrageously high at about 6.8 VAC with the 4H4C in the circuit of Figure 2. Apparently the National engineers did not get the ballast tube circuit right on either the first or the second try. If you have an early production NC-400 you should probably consider installing a 50 ohm 4 watt (or higher wattage) resistor for the 100 ohm resistor in Figure 2. I would never have gotten so deeply involved in this ballast tube analysis if Daily Electronics had not sold me a bad 4H4C ballast tube which went "flash, poof" when I replaced the 6-4 and powered up the NC-400. A \$20 tube failure gets your attention. Only after this did I discover my NC-400 had an undocumented ballast tube circuit modification. The chief engineer at Amperite suggested that the 4H4C ballast which failed had probably developed a leak in the tube pin seals and that the hydrogen gas which normally fills ballast tubes had mostly leaked out. That would cause an immediate failure like I observed. (Dallas Lankford)

IMPROVED R-390A SYNCHRONOUS DETECTOR: Here is a new synchronous detector circuit which give better sync and range. C2 and C3 are 65 pf variable trimmers, L1 is is a 4.7 milliHenry subminiature choke, and the other components are as before. (Graham Maynard) [Thanks for keeping us informed of these new developments. See *HSN 17* for the original circuit and discussion, and the additional comments in *HSN 18*. Ed.]



R-390A SYNCHRONOUS DETECTOR COMMENTS: I tried the synchronous detector circuit from *HSN 17* and it worked O.K. But as mentioned in the original article, lock was sometimes maintained for only short periods. And some bands were better than others. For example, I was able to listen to Radio Australia all day with no drifting. [Maybe this is due to some of the crystals in your R-390A being more stable than others. Several years ago I observed that the stability of one of my R-390A's was not as good on the low bands. I traced the problem to a drifty 17 mHz first conversion oscillator crystal in the plug-in oven on the RF deck. Ed.] Eventually I disconnected it as it made RTTY and ICW reception a pain in the proverbial. (Terry Robinson)

Now that Graham has given us two synchronous detector circuits, lets call them GS1 and GS2. When a ham friend was unable to obtain *any* lock with GS1, a little detective work revealed the following. GS1 does not work at all in some R-390A's, and the cause appears to be different internal parts in different BFO PTO brands. Motorola BFO PTO's work best with GS1, Electronics Assistance Corporation BFO PTO's are a close second, Stewart Warner BFO PTO's are O.K., but Collins BFO PTO's don't work at all with GS1. I confirmed that the BFO PTO's are the crucial difference by switching a Motorola BFO PTO with each of the other BFO PTO's, but otherwise not changing the other IF subchassis. In each case the modified subchassis performed identical to an all-Motorola IF using GS1. To satisfy my curiosity, I removed the shield from each PTO and proved what I suspected - internal parts were different in each PTO. I suspect the culprit is L508, a 60 μ H, tapped, miniature, encapsulated inductor. But I didn't try trading internal parts to verify my suspicion. Incidentally, the R-390A schematic for the BFO PTO is incorrect because it shows the BFO pitch varying L508. Actually, the BFO pitch is varied by moving a ferrite core in and out of L509, a 12 μ H coil about 0.5 inch diameter with about 25 turns of #31 enameled wire. Maybe GS2 will work with Collins BFO PTO's. (Dallas Lankford)

SP-600 OVERHAUL: Even with Bob Kulow's warning from *HSN 16* and *17* echoing in my mind, I just couldn't pass up a \$50 SP-600-JX-14 at the Jackson, MS hamfest. I accidentally ran Bob's bad BT (black tubular) comments twice in successive *HSN*'s. I don't know why. If it was a subconscious warning to myself, it didn't work. The SP-600 was supposed to "work great." Of course, when I got it home, fired it up, and received only super-locals, I was not surprised. Injecting a 455 kHz source into the IF at various places led me to a shorted BT screen bypass in the 2nd IF amp. The wide open crack in that BT was hidden from view between the BT body and chassis. A careful inspection in bright light revealed other cracked BT's all over the place, so I decided to follow Bob's advice and replace them all.

By my count there are a total of 39 - .01's and 14 - .02's, though my manual copy lists only 37 - .01's. There are also three other tubulars in my RX which I may replace: one .05, 600 V, one .25, 200 V, and one .25, 600 V. If you use .01, 1 KV disc ceramics, as Bob did, and which I have done, you will have to spend some time planning different positions for the disc ceramics. Or if you use 600 V Sprague OD (orange drop) tubulars, some positions will also need to be changed because the OD's are not axial lead style like the BT's. Bob recommends against using tubulars for BT replacement because they have some inductance, but due to increasing difficulty of obtaining .01, 1 KV disc ceramics, you may not have a choice. Even if you stumble across a free box of unused BT's, do not use them. My associates in the Louisiana Tech University electrical engineering department tell me that they have discarded all BT's from their inventory because they are so unreliable. According them, disc ceramics, which were not manufactured in quantity until the late 1940's or early 1950's, are quite reliable, and should be O.K. either new or surplus. Some tubulars also have very good shelf lives, such as Sprague "Vitamin Q," which were produced for other companies, such as Western Electric, with no Vitamin Q ID. These high class axial lead tubulars have metal cases with a glass seal in each end. The small value Vitamin Q tubulars often had transparent insulation around the tube, and so they could be used as replacements if you can find them and afford them.

I could probably devote an entire issue of *HSN* to my SP-600 rebuilding experiences, but that does not seem appropriate. If you want to chat about my experiences, give me a call at (318) 255-6550 evenings 7-10 p.m. CDT, or weekends almost any time before 10 p.m. CDT. Here are a few tips which may give you some clues about the complexity of the task. I did not plan to do the overhaul in a single weekend as Bob did, but I did not expect it to take the 100 plus hours of labor I'll have invested in the overhaul project when it is finished. I have already used over 25 feet of Chem-Wik "Lite" .100 inch desoldering braid (the only kind which works really well), and I still have half the RF deck to rebuild. To replace the BT's in the IF strip you will need to remove the bandwidth switch assembly. You should make sketches of everything you remove so that you do not have to rely on memory or the schematic. I made 12 pages of sketches for the IF strip alone. If anyone has previously replaced BT's in your SP-600, it may take three times as long to fix his work, and some of the replaced tubulars may not be black. Some people don't bother removing solder and old leads, but just cut the old leads flush at the lugs, lay new leads on top of the lugs, and dribble more solder onto the lugs. Ugggh!!! You should test all replacement capacitors, whether new or surplus, for opens and shorts before you put them into your SP-600. Two of the surplus .01's I planned to use were open. If any of the BT's shorted and drew a lot of current before they "burned open," you may have some damaged, insulated, stranded wire which may require unlacing some of the wiring harness, replacing the wire, and relacing the wiring harness. The marvelous turret contains 24 ceramic coil-and-trimmer assemblies which are held in place by tension-loaded, metal clips. Fortunately you only have to remove 6 of these to replace BT's. I removed the filter choke assembly to repair some sloppy field change work, and to test the filter chokes (per Dick Walser's tip in *HSN* 18) and electrolytic for leaks. Removing the RF deck and replacing the BT's in the front end is the most difficult work I have ever done. If someone has been in there before you, it may take you five times as long to fix his repairs. There are something like 18 wires and 4 ground straps which must be unsoldered to remove the RF deck. The 4 flimsy ground straps have lugs on one end which are bolted to the main tuning capacitor frame with small, difficult-to-access, slotted, hex head, machine screws. If one of the ground straps is loose, you should tighten it. Otherwise you may have a noise source in the front end of your RX. But if you break one while tightening the hex head bolt, replacement is only possible by removing insulators containing stator plates from the main tuning capacitor. You won't have anything on hand like these flimsy ground straps, so you'll have to use something like an internal tooth ground lug. And then you'll have to realign the stator plates after you replace them, which is not easy.

I doubt that there is a single SP-600 in existence today which does not need all tubulars replaced, unless the owner has already replaced them and done the job right. An SP-600 full of leaky, shorted, and "burned open" BT's is probably a fire hazard. I would not leave one turned on and unattended even for a few minutes. (Dallas Lankford)

PUBLISHER'S CORNER

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