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ELECTRIC RADIO

celebrating a bygone era

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Joe Eide, KB9R

ELECTRIC RADIO

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Electric Radio is published primarily for those who appreciate vintage gear and those who are interested in the history of radio. It is hoped that the magazine will provide inspiration and encouragement to collectors, restorers and builders.

We depend on our readers to supply material for ER. Our primary interest is in articles that pertain to vintage equipment/operating with an emphasis on AM, but articles on CW and SSB are also needed. Photos of hams in their hamshacks are always appreciated. We invite those interested in writing for ER to write or call.

Regular contributors include:
Bill Breshears, WC3K; Bob Dennison, W2HBE; Dale Gagnon, KWll; Bob Grinder, K7AK; Jim Hanlon, W8KGI; Brian Harris, WA5UEK; Tom Marcellino, W3BYM; Ray Osterwald, NØDMS; Chuck Teeters, W4MEW; Bruce Vaughan, NR5Q.

Editor's Comments

Hank Scharfe, W6SKC, Silent Key

I was very sad to hear of the recent passing of Hank Scharfe, W6SKC. He was someone I deeply respected for his knowledge of vintage equipment and radio science. Next issue we'll talk more about him. If anyone has a recent photo of Hank we'd appreciate having it.

A Book Idea

The last while I've been thinking about another book project. This book would consist of photos with detailed captions of all the vintage radio people—AM'ers, Collins Collectors, Vintage SSB'ers, etc. The book would be somewhere between 250 and 300 pages and have photos and information on 500 to 600 vintage radio people. The size of the book would be 8-1/2 by 11 or so and each photo and caption would be 1/2 a page. Before I go further with this idea I'd like to have some input from ER readers—would you be interested in being in the book and would you buy a copy? The book would be in the $40 range because of the small number of copies that would be printed, but of course it would also be a high-quality production. Please let me know your thoughts on this idea.

Vintage Field Day, June 8/9

As usual we're excited about getting out somewhere for this year's VFD. Shirley and I have decided that if we can find another interesting location closer to home we will forego our annual trip out to Monument Valley. We don't look forward to the 100 mile trip in our old Suburban nor do we look forward to the

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Cover: Joe Eide, KB9R with his extensive collection of both Collins and EF Johnson gear. He is a long- time, avid AM'er, using all of the various operating positions on a regular basis, and always manages to put out a great signal. ***Photo by Tom Moll, NØBS***

Lawn Tractor Portable

Vintage Field Day 2001

by Walt Hutchens, KJ4KV
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Does guilt make the world go 'round? It has been several years since retirement and assorted other changes of adult life had pushed me to the ham radio sidelines. Lots of small projects, even more good intentions, but not much real action and no writing. However, Barry's announcement (ER #155, April '02) that he would support VFD again this year got me to dust off the computer file with the KJ4KV report from last year's effort.

Planning for VFD 2001—Where? How?

Retirement seems busier than working ever did; if I was going to operate even a few hours a day at various times it would have to be nearby. I picked the back corner of our lot, just a couple of minutes walk from the house. A huge maple tree and small barn would provide shade and shelter and there was room for an 80-meter full wave loop between the barn and the adjoining woods. I couldn't count on having time on VFD weekend so I cheated and started getting ready a couple of weeks in advance, taking down a few small trees and putting up a 90 pace (about 225') horizontal loop of #22 gauge magnet wire. Two 50' pieces of stranded hookup wire twisted together made a feedline. Talk about luck: it loaded on 80, 40, 20 and 10 without trimming. A wire thrown over the tin roof of the barn loaded fine against some old pieces of roof tin lying on the ground so I also had a vertical for 40 and perhaps higher bands.

Power? Rigs?

A small generator was a possibility but my Coleman PowerMate 2500 is way too loud—scrap that idea. A 12 volt battery seemed simpler and the one on our lawn tractor looked to be around 50 AH capacity. With either very small or solid state gear that would be enough for a few hours a day if I didn't get too long winded. And since the lawn would need mowing sometime during the weekend, charging wouldn't require special planning. The SB-34 (Sideband Engineers' 1964 SSB rig, 65W PEP output) would run on 12 VDC at a few hundred mA on receive; by adding a relay to control the high voltage inverter I cut the drain to just a couple of amps with the transmitter filaments on. Yaesu's first effort along the same lines (before the FT-101 and probably never sold in the U.S.) was the FTdx-100; the power level is similar to the -34 but the receiver is far better. As a 'big gun' that would also be AM capable, I could use an FT-101F that I had put together from two parts sets. And for a 12 volt military rig, I had a GRC-87, basically a 1970's CB rig adapted to do 1 kc steps from 2-12 Mcs and given military packaging. Four rigs seemed like plenty. I knocked together an operating table to fit in place of the lawn tractor seat, found a canvas camp stool and notebook and packed a few pencils.

Field Day Weekend!

Dawn was still two hours away on Saturday when I cranked up the lawn

tractor and hauled the trailer full of gear the few hundred yards to the barn. It was tricky bolting the operating table to the tractor while holding the flashlight but from then on, setup went smoothly. Using the GRC-87 I was able to check into the Old Military Radio Net on 3885 with just a few tries, not bad for less than 10 watts of inserted carrier AM.

Stations that heard me included net control W3PWW, Ted; KW1I, Dale; W1CKI, Bill; and probably others who didn't comment. I heard N3RZU, Norm; W4HWT, John, and several more whose calls didn't get written clearly enough to read. Then it was time for breakfast and family duties.

At about 1505 ET I worked NB4B, John, on AM on the GRC-87 and he helped me figure out what distance from the mic gave the best modulation quality. He was running a Viking II-CD. Then I set up the FTdx-100 and tried to get into ECARS (East Coast Amateur Radio Service) on 7255 but was not successful. About that time a thunderstorm blew up so I covered up the trailer of radio gear with a plastic dropcloth, backed the tractor up to the barn door and tried a few CQ's but without success.

The third operating session started about 2030 ET. This time I fired up the FT-101F and tried working the 14,286 kcs AM gang on SSB but was not successful. Guessing at the adjustments for AM, I tried again and BINGO! -- I snagged N6CSW/7 Barry, running on the generator at his field day site. I also heard W6GER/6, Al, operating in the field on his GRC-19; KW1I, Dale again; W8VYZ, Bill; W7QHD, Dennis; W6MIT who copied me also; K2HBR; W1CKI; and VE5NT, Frank.

Sunday afternoon I tried the Vintage SSB Net on 14,293 with the FTdx-100 but didn't make it. The practice on this net is to take three or four checkins then ragchew with them for a while so if you have a weak signal you're always moving to the back of the line. I have gotten in before when attendance was down or I had a higher power rig.

2001 Observations and Hopes for 2002

The only equipment failure was the SB-34 which developed some kind of instability when switching from TX to RX. Would it have been field day if everything worked?

I should have focused more on the frequencies Barry mentioned; I could have made ten times the number of contacts if there had been other VFD stations looking for my signal.

10 meters seemed to be open most of the weekend but although I looked several times, there were no vintage signals there. Hopefully this year will be better. And what about announcing a frequency for FM? I'm sure other readers have military FM rigs that will hit the upper end of the band.

A lawn tractor battery is a pretty minimal power supply; I'll either upgrade or figure out a better charging scheme than the 'threshold of pain' lawn tractor engine. Even a good size solar cell would have been helpful.

The FT-101F makes a great combo rig for AM/SSB if you have the optional AM filter but it's a bit much for such a small battery. One weakness is that the inverter runs whenever you have the TX filaments on, sucking over two amps even in standby; maybe I'll fix that before next year. Another interesting possibility would be replacing the 6JS6 finals with a 12-volt tubes so one could be switched off. A quick check of the tube manuals didn't show anything but when was a quick check ever enough?

I need a real glows-in-the-dark AM rig for this event. I have a homebrew 8-watt transceiver (50C5 final!) but given the problems I had with several times the power I didn't try to use it. The much-modified KJ4KV G-76 seems a possibility and I do have a crummy-looking 12 VDC supply for it; I'll see if I can get that setup working. Time

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A Low-Cost 10-Meter AM Mobile Station

by Edward Swynar, VE3CUI/VE3XZ
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Introduction

Does this story remind you in anyway of yourself? During my daily half-hour commutes from work in my car, I grew quite tired of the mindless jabbering across the AM dial, as well as the ceaseless barrage of commercials in the FM band. The news was never any good, and as for the CDs in the glove compartment, well, I'd heard them all before—too many times before...

A change was in the offing... a change involving Amateur Radio. How about a mobile ham shack...? No, not a 2-meter setup: that's little more than frequency modulated CB in these parts. It had to be HF. If you're like me, you've probably shied away from going high-frequency mobile because of four deeply ingrained "truisms" acquired over the years, specifically, (1) there are logistical hassles involving a lot of drilling into your vehicle (ouch!) when hard-wiring gear to the automotive battery; (2) mobile gear is expensive, and, (3) the performance of mobile setups will be questionable anyway because (4) mobile antennas are a compromise at best, and downright ugly at worst.

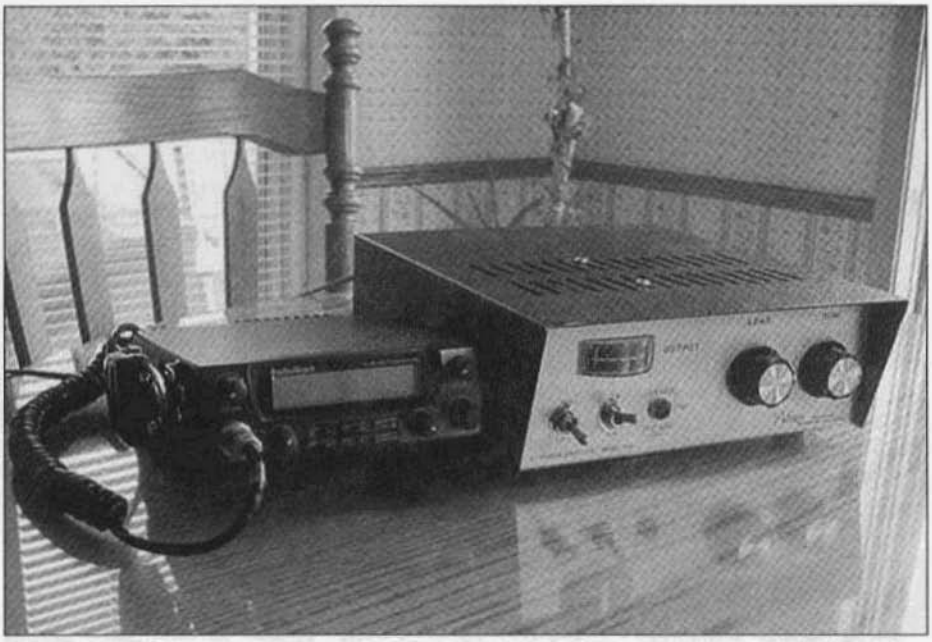
Well, thanks to the combined miracles of modern-day engineering and bygone fads, these beliefs may at last be exposed for what they really are, mere myths and misconceptions. What I'm about to describe is a very potent mobile combination for 10-meters AM that really makes its presence felt on the band, and for only the right reasons—yes, I'm talking about moderately-powered amplitude modulation... and I achieved it all for a mere $180. Maybe you'll do it for even less than that. Interested? Read on...

The Transceiver

My station is a mix of both the old and the new, in terms of hardware and technology. First, the "new": at the heart of it all is a Radio Shack HTX-10 mono-band 10-meter transceiver. Now, at the risk of sounding like the marketing manager at Radio Shack (which I assure you, I am not), if you've made any contacts on 10-meters at all within the past couple of years you know by now that this rig has to be one of the truly great "buys" today in Amateur Radio. It transmits SSB and FM at a respectable 25 watts output, and—perhaps best of all—AM, with 7 watts of carrier. The signal quality is good, too: no complaints of muddiness, or "...too many highs/lows". Nothing but clear, crisp audio that—and I hate to admit it!—is truly micro-processed solid-state technology at probably its very best for this application.

The receive portion of this sweet little package is equally nice: it's stable, sensitive, and the backlit digital frequency read-out permits tuning "on-the-nose" even after lights-out. Perhaps its one drawback is the built-in, relatively puny speaker, which is doubly-hampered by the fact that it's mounted at the bottom of the enclosure: the bulk of its audio is direct straight down to the passenger seat upon which the rig normally resides.

Still, in all, the biggest reason that I'm able to "forgive and forget" this



The author's 10M AM mobile station: Radio Shack HTX-10 monoband 10M transceiver on the left and the 1970-vintage, Palomar 150 Bi-Linear Amplifier on the right.

annoyance has to be the price of the radio: even brand new, mine cost only $120... and I've seen good, used ones on eBay and the ARRL on-line ads go begging for as little as $80! For that kind of money you couldn't begin to think about building even the crudest of comparable rigs. So do like I did: swallow your hollow-state pride just this once, solder a cigarette lighter adapter at the end of the power cable (the Radio Shack #2740331 will do nicely), and come to appreciate the fact that this is one radio that won't induce a hernia each time you move it around. Enough said.

The Linear Amplifier

You didn't really think editor Wiseman would entertain the thought of publishing an article in Electric Radio without some reference to a tube-type rig, did you? After all, "real radios glow in the dark"... and my 10-meter mobile setup is no exception.

While the HTX-10 yielded yeoman's service for well over a year as a stand-alone outfit, I yearned for the extra "horsepower" that is so often needed when using my favorite voice mode, AM. Oh, the stock 7 watts of carrier output worked well enough for me for awhile—I even managed to work Hawaii and Europe on more than one occasion while running the HTX-10 "barefoot"—but all too often, amplitude modulated QSOs consisted mostly of "...hello & good-bye" simply because it took very little QSB/QRM to make the copying of my peanut whistle signal a real pain at the other end. Good AM QSOs should consist of much more than that. Enter eBay...

Everyone recalls when the FCC enacted rules to restrict the sale of linear amplifiers with built-in 10-meter capability. This move was a direct response to the growing numbers of CB'ers who were illegally using "...afterburners" so that their good buddies

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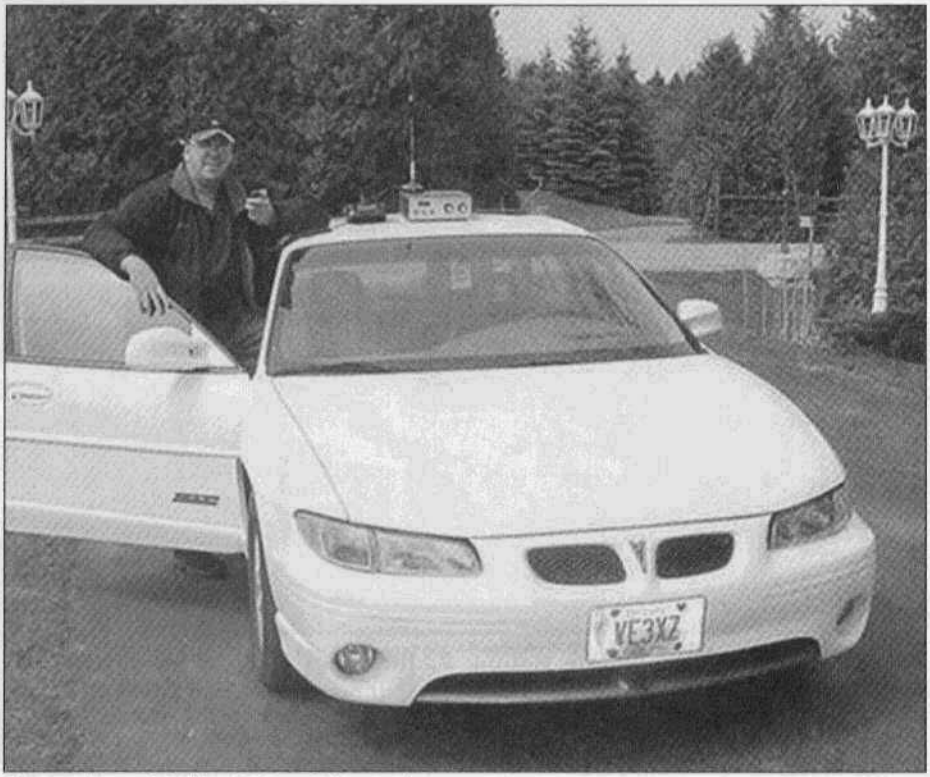

The author with his 10M mobile station

in the next State might better hear their 10-4s. I wondered what had become of those thousands of older, tube-type mobile linears, now that the CB boom has passed. A check on eBay last spring revealed the presence of more than a few of these battle-weary old pirates, their "...raising 11-meter Cain" days a thing of the past.

A bid of $40 won me a 1970-vintage, cosmetically nice "Palomar 150 Bi-Linear Amplifier". It came with no documentation whatsoever, but what I saw was certainly impressive enough: inside its relatively lightweight, compact two-piece aluminum enclosure was a single grounded-grid 12JB6 TV sweep tube preamplifier driving a pair of g-g 6LQ6 "sweepers". The power supply was built-in, and consisted of a pair of 2N1522 germanium power transistors in a multi-vibrator configuration, feeding a transformer that provided some 700 volts of DC to the plates of the two finals (less to the driver)—and all of this from a 12 volt car battery! I was enthralled.

The quality of the components, as well as the overall construction of the amplifier, are most impressive. Here definitely is one rig that I know I'll never duplicate for $40 starting from scratch (a new set of tubes alone would cost more than that). This is not to say that the amplifier arrived without problems, however...

Circuit Improvements

For starters, the relay arrangement wasn't working properly. The Palomar should have switched to "feed in" mode immediately upon detecting the presence of RF, but it didn't. I had to manually hit a sequence of toggle switches on the front panel to get the

linear "in" the circuit, and then "out" again. This was hardly convenient at any time, never-mind while mobile! Compounding this confusion was an array of resistors, capacitors, a slug-tuned coil, and two transistors, one (or both?) of which comprised an RF pre-selector stage—hence the term "bi-linear" amplifier.

I was already more than pleased with the sensitivity of the stock HTX-10, and, in the absence of a schematic, I proceeded to simply rip all of this circuitry out of the amplifier, replacing it with a bare bones RF-sensed diode/relay array, as illustrated. The push-to-talk nature of AM is quite compatible with this method, triggering the handpicked, extra-sensitive relay with as little as a couple of watts of carrier. (On SSB, however, some type of a delay circuitry will eventually have to be incorporated: whole words and syllables are too readily clipped, not too different from a conventional VOX circuit adjusted for zero hang time).

Words can not describe how comforting it was when I first fired-up the station into a 120-watt light bulb dummy load: from absolutely no illumination from the HTX-10 with the amplifier in the bypass mode, the bulb lit right up with a healthy luminescence when the signal was fed into the Palomar! Its intensity increased on voice peaks, too, exactly as it should have ("...QRZ the AM station in Mongolia, please repeat your call sign several times as you're very weak here in the mobile"). My euphoria was cut short, however: the bulb suddenly dimmed, the relays clattered their last, and the DC test lead to the bench battery started to get so hot that the insulation smoked and began to melt! It turned out that my worst fear had come to pass: one of the multi-vibrator 2N1522s had developed an internal short.

Now, we've all heard and read of how difficult it's becoming to locate and buy certain rare vacuum tubes... but have you ever had occasion to get a new replacement for a germanium power transistor? The absolute cheapest NOS mail order source that I could locate in Canada quoted me a price of $98 (Canadian) each, and that was before taxes—far more than what I'd paid for the entire amplifier! Fortunately for me, a local surplus jobber had a pair of original, matched NIB generic replacement units that he sold me for twenty-five bucks. The Palomar 150 was back in business.

You're probably chuckling to yourself at all my efforts to this point, remembering the admonishments you've heard over the years regarding the use of color TV sweep tubes in AM linear amplifiers. Yes, it's a sad fact of life that new-in-the-box versions of these tubes have become quite pricey in the past few years: for that reason, I want mine to last as long as possible. Research into the *QST* archives reveals that the most critical factor in this regard is the matter of cooling. Because the Palomar had no cooling fan, I added a small 12 VDC unit salvaged from a computer. This was bolted on the inside of the louvered top cover, directly above the 6LQ6s, with just enough room to spare. It's wired-in to blow welcome cooling air down on the envelopes at all times. I even added some fanciful homebrewed finned plate caps to all three tubes to help dissipate heat from the anodes. Lastly, I force myself each time I press the push-to-talk button of the microphone to not indulge myself in proverbial "old buzzard" transmissions!

All in all, these efforts have proven their worth: I am still using the original tubes that came with the rig after nearly a complete 10-meter "...season" of daily use. Checks have validated that the output characteristics of the tubes have not changed from the time the setup was first put into place, and so (for now,

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anyway) the "spares" that I've been accruing from various sources shall continue to accumulate dust in my "junque" box.

One glaring safety-related shortcoming with the original design of the Palomar 150 is the absence of an RF choke from the center pin of the SO-239 antenna jack, to chassis ground. Should the tubes' output coupling capacitor ever short out for any reason, it is considered very prudent in gentle society these days to have the choke short the tube plate DC voltage to ground—and simply blow a fuse—rather than expose the antenna (and unsuspecting passersby!) to 700-plus volts. Another less important change in the output circuitry was the relocation to this same SO-239 center pin of the "gimmick" capacitor sampling output for metering purposes: where previously RF was only sampled with the amplifier in-line, it now deflects under all circumstances, including the output of the exciter alone. This can be quite enlightening from a comparative standpoint, if only just in the initial stages of the setup...

The Matter of Bias

I discovered the hard way that late 1960's CB'ers, it seems, had little or no regard for audio quality, per se—they were after audio quantity... good or bad was incidental, apparently, as long as it was LOUD. On the very first day that I went on the air with my mobile station, I received compliments on the strength of my carrier, but the modulation sounded absolutely terrible! "Are you on FM, old man?", "Crank down that mic gain!", etc. etc. were the norm. The Palomar 150—like so many other pirate linear amplifiers of its era—probably ran close to class C in operation! Again, it was time to hit the discovery trail...

Feature articles on class AB1/AB2 g-g linear amplifiers in *QST* and the different ARRL books are consistent in quoting the control grid biasing needs of 6JE6/6LQ6/6KD6/6MJ6/etc./etc. sweep tubes as being anything from about minus 9, to minus 12-VDC. The Palomar had all of the grids of all three tubes tied together at ground lugs incorporated in each tube socket. I removed the ground connections from the control grids only: these were then grounded for RF only by way of 0.005 uFd disc ceramic capacitors, one per control grid lug. To avoid overly complicating the rig (and to conserve space), I decided that 9 volts of negative bias from a standard 9-volt transistor radio battery would suffice. The base of the battery was secured to the inside, bottom half of the amplifier case with a drop of silicone sealant, and a standard battery connector (Radio Shack #2700325) which was soldered into the amplifier, the positive lead going to chassis ground, the negative lead being attached to a buss which connected the control grids of the three tubes together.

The battery will be checked at the start of each 10-meter season (i.e. the autumn), when items such as tube status, accumulated dirt/grit, etc. are routinely inspected. Research into the notion of battery bias reveals that I might reasonably expect it to last a year or so anyway, before a replacement might be needed.

In any event, the effect of the bias battery was immediate, and unsolicited reports continue to praise the clarity and sharpness of my audio. Whatever sweep tube linear amplifier you might wish to press into service, check the status of those control grid circuits first! If there are no provisions for any biasing whatsoever, do the rest of the gang in the AM window—as well as yourself!—a favour, and limit your activity to CW, or FM, because that's all your linear amplifier will be good for. Trust me, this is a given...

The Mobile Antenna

Thanks to the continued popularity of CB radio, the choices we Amateurs have in the way of cheap, mobile 10-

The amplifier is housed in a glovebox between the rear seats.

meter antennas are varied. The ideal setup would doubtlessly be a full-size 8-feet tall 1/4 wave whip antenna lashed to the roof of the car... and I imagine if I was still single, that would be my first choice! However, if you're married (*happily*, like me), there are aesthetics and the delicate matter of "...diplomacy" to consider...

I had my doubts initially, but I settled upon a center-loaded magnetically-mounted whip antenna. Why? For starters, at just 26" tall, it didn't detract too much from the appearance of the family chariot (a wife pleaser); the readily removable magnet base meant that my station would maintain a low profile parked in unattended parking lots (a me pleaser). Best of all, at $19.95 (Wal-Mart), buying it wasn't about to break the bank either. I place mine right atop the roof of my car: the coax cable is protected with a wrapping, or two, of electrical tape at the point where it passes in through the top of the LH rear passenger door—the rubber weather seal of the door further prevents undue "mashing" of the cable.

After pruning the top vertical piece with the aid of an SWR meter, the best standing wave ratio achieved was just under 2:1 at the center frequency, rising to over 2:1 at the band limits. I've considered adding a small transmatch at the output of the Palomar to reduce this even further, but that would unnecessarily complicate things with more knobs to fiddle with. Performance-wise, the low-profile antenna is certainly no chump: while it could never compete head-to-head with a larger affair maximized expressly for the 10-meter band, it certainly holds its own, and I have the contacts in the mobile log from all continents to prove it, too...

The Power Supply

Pop open the hood of your car, and behold a marvelously engineered,

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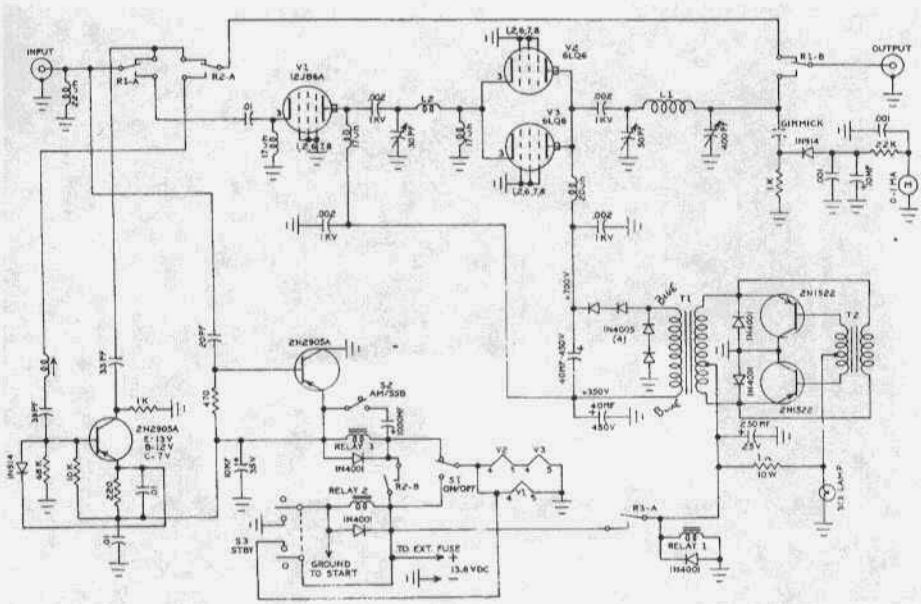
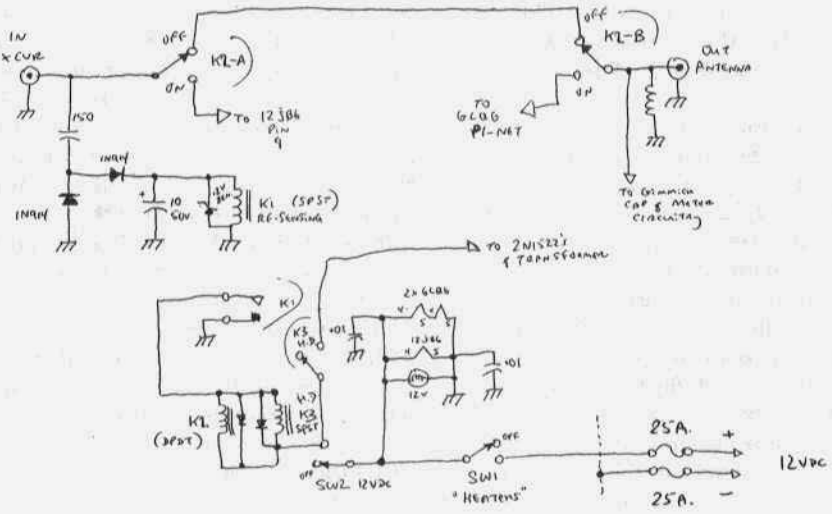


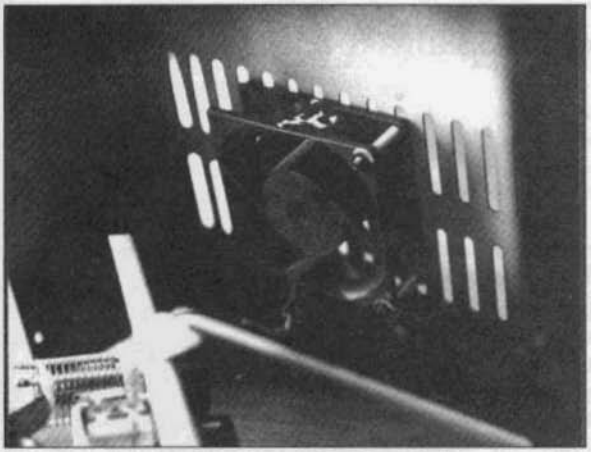
Schematic diagram of the Palomar 150 Bi-Linear amplifier

MODIFIED RELAY SWITCHING – PALOMAR 150

– VE3CUI / VE3XZ
26. III. 2002

NOTES: K1 = RF SENSING RELAY (SPST)
K2 = LINEAR BYPASS RELAY (DPDT)
K3 = H.D. 12 VDC ON/OFF RELAY





Details of 12 VDC cooling fan installation inside the top cover. The fan was salvaged from a computer.

ready-made power plant just aching to be tapped for benefit of your mobile station. If you're beginning to think at this point that it's time to abandon any thoughts of the project because of all the nasty holes about to be drilled in your car, please, put your mind at ease! Dependent upon the specific layout of your vehicle, the drill gun is probably safe & sound wherever you last left it.

As previously mentioned, my low-powered HTX-10 is content enough to draw its 12 VDC by way of any convenient cigarette lighter, or accessory socket, within reach from the front seat (the rig itself usually sits atop the passenger seat when I'm alone, or on the RH rear floor, within ready access, whenever I have company). The current demands of the linear amplifier, however, are such that a direct connection to the car battery is the only option. Take awhile to look over the physical under hood layout of your vehicle: how best might a dual wire lead (I used Radio Shack #2781250) be brought into the occupant compartment from the car battery, safely and securely? I drive a 1999 Pontiac Grand Prix; from the outset, I decided that the battery wire would have to enter my car through the front passenger door, to avoid the unsafe possibility of wires entangling and snaring my feet while driving. Fortunately for me, the battery of the car is on the passenger's side, as well. Additionally the top of the Grand Prix fenders have a built-in re-enforcement channel practically custom-made to support and protect the wires as they make their way from the battery to the inside of the car (there must be Hams working in the GM styling studios!).

Both the positive and negative leads are fused (25 amperes) right at the battery, by way of a pair of all-weather Radio Shack #2701234 automotive blade-type fuse holders. A large lug is soldered at the end of each wire, and is then sandwiched in between each battery electrode and the two-cable harness ends, prior to securing the studs. The end of the harness is fished in between the door hinge pillar—near the top hinge—and the inside of the door. It is kept taught by virtue of the fact that several inches of it are tightly tucked inside the top of the passenger's kickpad garnish molding. By eliminating any slack in the cable at the entry point to the passenger compartment, the door always closes freely and easily without interference, and the wires aren't even noticed by passengers entering or exiting the car.

I left about 6-8 inches of "free" wire inside the car, and terminated it with a standard two-wire trailer harness connector (similar to the Radio Shack #2700026), the positive lead going to the recessed electrode of the connector. When not in use, this length of harness may be either completely slipped up in behind the kickpad garnish, or hidden

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The Hallicrafters S-53 and S-53A Receivers

by Chuck Teeters, W4MEW
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Augusta, GA 30909

I always thought it was a misprint in the Ray Moore book, *Communications Receivers*. It said the S-53A used a 455 kHz IF frequency while the original S-53 had a 2075 kHz IF. I looked at the Handbook and *QST* ads for the receivers. The 1948 S-53 advertisements touted the 2075 kHz IF as making the receiver image free. Nothing was said in a 1951 ad for the S-53A about the IF frequency (nor did it say anything about image rejection). The 53A had a gap in coverage between 1.7 and 2.8 MHz. Like the original S-53 which was consistent with a 2075 kHz IF. You can't build a single conversion receiver that receives on the IF frequency. This made it appear to me that the 53A had a 2075 kHz IF just like the original 53.

I've used a lot of different Hallicrafters from my first, a 1936 S-14 Sky Chief, to my newest, a 1955 SX-100 which I bought in 1998 to check its 50 Hz dial accuracy (ER #116) I never paid much attention to the S-53s. They seemed to be transformer operated S-38s with a nicer looking dial. But the IF thing intrigued me so I kept an eye out for S-53s. A few months ago I found both at a local hamfest. Curiosity got the better of me and I bought both.

When I popped the lids open, sure enough there were different IF cans in them. The 53 had four 1-1/4" IF cans. The 53A had three small 3/4" IF cans. The chassis of the 53A was punched out just like the 53 to mount the larger cans but had plates mounted under the small IF cans to fit the larger holes. Neither receiver worked so some repair work was necessary to get them running. This would give me a chance to check that the S-53 IF was 2075 kHz and the 53A was 455 kHz as it appeared from the first look.

The S-53A had a broken phones-speaker switch on the rear apron of the chassis, so I jumped it and the receiver was working. The older S-53 was dead, only filaments and dial lamps showing any life and no B+. Looking under the chassis I found a replaced AC line cord was soldered to one side of the rectifier filament as well as the power transformer primary. Hallicrafters had used a dead pin on the rectifier socket as a tie point but the repair person had missed by one pin when replacing the cord. A new cord and switch and control cleaning brought it to life.

With both receivers working I got out the signal generator and checked the IFs. The S-53 was 2075 kHz and the 53A was 455 kHz. So the physical appearance of the IF cans agreed with the frequencies and the reference books were correct. A touch up alignment of both brought a bit of improvement in the gain. Both dials were accurate on the BC and 75-80 meters but off a bit on the higher bands. The BFO of the S-53 would not produce a beat note. The grid of the 6SC7 BFO was negative so it was oscillating. A check with my 51J3 found it at 2100 kHz so an extra 50 pFd was connected across the coil and I could tune it to 2075 kHz. Neither BFO is tunable from the front, the only panel control is the on-off switch. The same switch loads the AVC buss down with a 150 ohm resistor to eliminate AVC action with the BFO on.

Both models cover 550 kHz to 54 MHz with gaps between 1.7 and 2.8 MHz and

31 and 48 MHz. Both have a 6BA6 mixer with a 6C4 oscillator, two 6BA6 IF stages, a 6H6 detector and noise limiter, a 6SC7 1st audio and BFO, a 6K6 audio output, and a 5Y3 rectifier. They have separate RF and AF gain controls, stand by, tone and AM-CW switches. The built-in 5" speaker is mounted on the underside of the top lid. They have the usual 0 to 100 band spread dial markings. The main tuning is calibrated every 100 kHz on 80 meters, 200 kHz on 40 and 20, 500 kHz on 15 and 10 and every 1 MHz on six. Six is tuned with the bandspread dial only.

Other than the IF transformers the circuitry and components are almost identical. The oscillator coils for the BC and 2.6 to 6 MHz band are different, while the other oscillator coils are the same in both receivers. The 53A has a higher mixer injection on the upper two bands. This is probably necessary as there is very little separation between the signal and oscillator frequencies. A really significant difference is in the 53s double IF cans between the mixer and 1st IF. These transformers are under coupled and provide good selectivity for a 2075 kHz IF. The bandwidth is 4.3 kHz at 6 dB down. The 53A is 6 kHz wide at 6 dB down. The S-53 skirts are better than the 53As also. The 53 has a low pass filter in the antenna input with a cut off about 60 MHz to eliminate channel 2 TV interference. It also has a 2075 kHz trap to eliminate IF pick up. The S-53 has no noticeable images or spurious responses anywhere that I could find, while the 53A has major image problems above 14 MHz. Which is typical of receivers with no tuned RF stage and a 455 kHz IF.

It appears to me that the 53A was not an improved model as implied in the advertising, but a cost reduction model.

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Lake Erie Boatanchors Group

by William J. Rieke, K8DBN
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On Saturday, April 20th the Lake Erie Boatanchors Group had another of their irregularly scheduled gatherings. It is called a gathering or get-together because this group is not a club, has no bylaws, no elected officers and no regular meeting place. It is just a group of vintage AMers who enjoy meeting in person three or four times a year.

This latest get together was at the QTH of Tom O'Connor,NI8G, in Milan, Ohio. Tom suggested that we make it an AM tailgate gathering and people could bring any vintage gear for sale, trade or give away—and, yes, there was considerable give away! But, more important was the fact that any direct sales were, more or less, at "Friend to Friend" prices. Also, since just about everyone knew each other, at least from on air QSO's, there was no need to stay close to the equipment for sale. People just milled up and down the grassy tree lined area where the vehicles were parked and were able to partake in any number of animated conversations.

Even though the weather was a little bit overcast with some drizzle for part of the morning, over 45 diehard vintage radio enthusiasts showed up from Ohio, Michigan and Pennsylvania. Mike, WN3B, from Brookville, PA and Mike, N8ECR, from Pigeon, MI probably traveled the farthest and may have out done the "Larger-Than-Life" Russ, WB3FAU, from Erie, PA who also traveled some distance.

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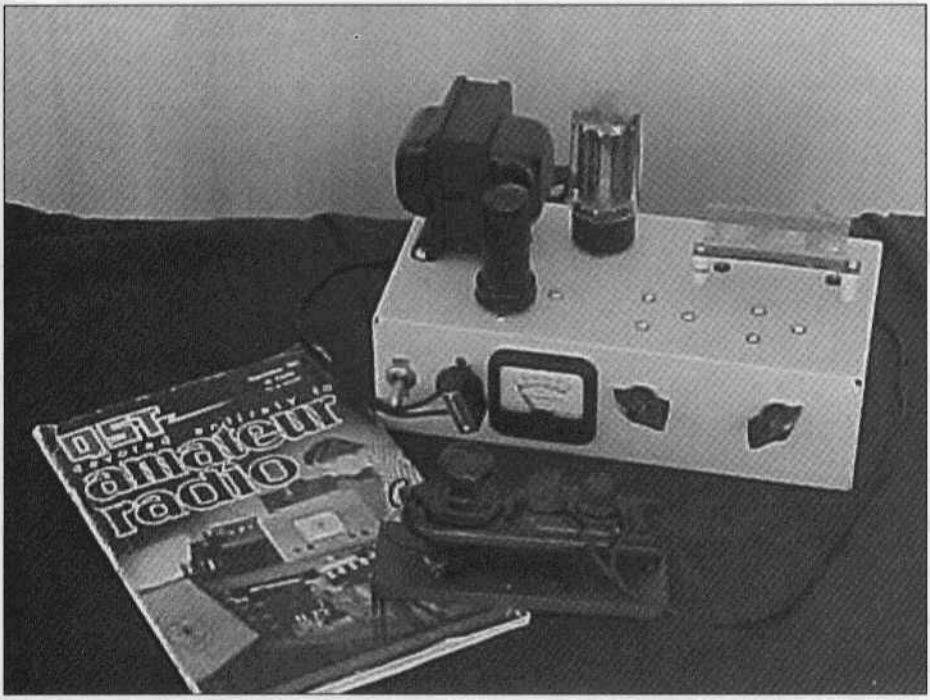
Over 45 diehard vintage radio enthusiasts showed up from Ohio, Michigan and Pennsylvania.

Tom O'Connor, NI8G, showing the group his vintage WRL map of the U.S.

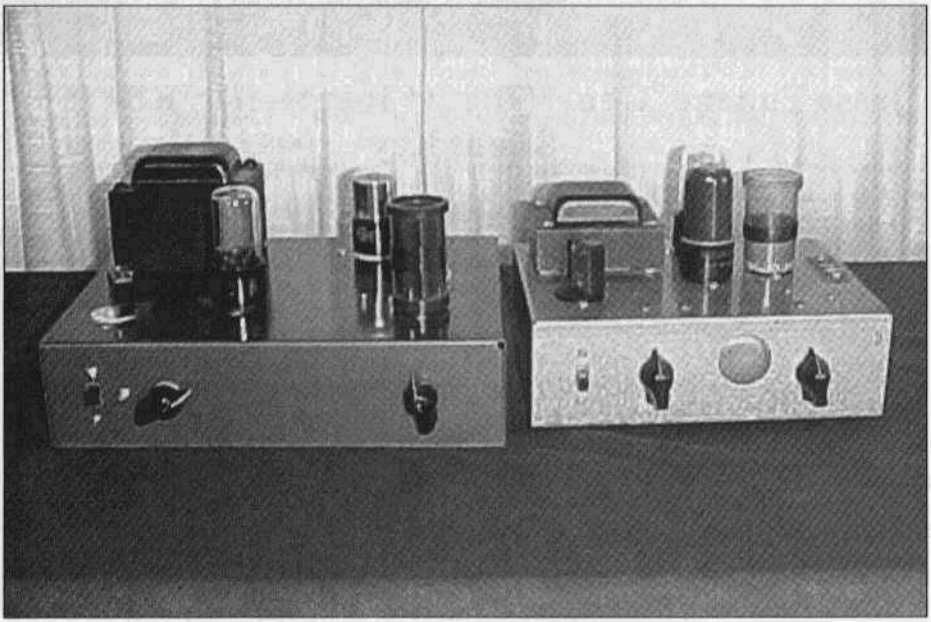
Jeff Covelli, WA8SAJ, left, with the author Bill Reike, K8DBN.

Gene Worth, WØAGU (Army Mars AAR8BQ) with his Sonar SRT-120.

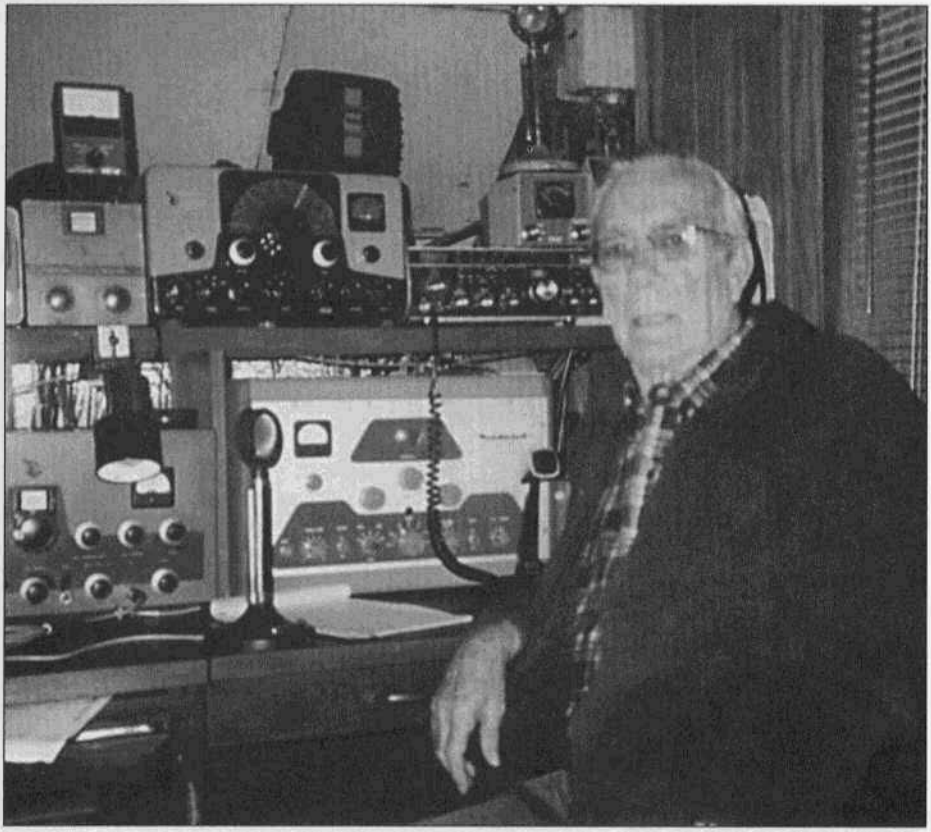
Joe Brohman, W2PUX, in his hamshack back in the "golden age" of ham radio. He is now 94 years old. *Photo provided by Rudy Lazzazero, W2ZIA.*



Jim Hebert Sr., W8FDV is a fine homebrewer. This is an exact copy of a rig designed by Lew McCoy. It was described in QST.



This photo shows an Ameco AC-1 and a copy homebrewed by W8FDV.



Jesse Eugene 'Gene' 'Toggy' Toggweiler, KB4YST, Silent Key

by Gil Parsons, W8OGL
PO Box 192
Ross, OH 45061

It was with deep regret that we learned of the death of Gene 'Toggy' Toggweiler, KB4YST on April 14. Gene was well known on 40 AM. His unique sense of humor kept QSO's interesting. From his "AM fix" to calling his lovely wife Lois "the Warden", there was never a dull moment when Gene was on the air. He never complained even when he was in poor health.

Gene was in the Navy in WW II and was in Tokyo Bay on the morning of the Japanese surrender. He was a 50-year member of the IBEW. Gene and Lois were married for 56 years.

Amateur radio has lost a quality operator and we have all lost a good friend. I am honored to have known him. ER

VINTAGE NETS

Arizona AM Nets: Sat & Sun, 160M 1885 kHz at sunrise,75M 3855 kHz at 6 AM MST, 40M 7293 kHz 10 AM MST; 6M 50.4 MHz on Sat. at 8 PM MST; 2M 144.45 MHz, on Tue. at 7:30 PM MST.
West Coast AM Net meets Wednesdays 9PM Pacific on or about 3870kc. Net control alternates between John, W6MIT and Ken, K6CJA.
California Early Bird Net: Saturday mornings at 8 AM PST on 3870.
California Vintage SSB Net: Sunday mornings at 8 AM PST on 3860 +/-
Southeast Swap Net: Tuesday nights at 7:30 ET on 3885. Net controls are Andy, WA4KCY and Sam, KF4TXQ. This same group also has a Sunday afternoon net on 3885 at 2 PM ET.
Eastern AM Swap Net: Thursday evenings on 3885 at 7:30 ET. This net is for the exchange of AM related equipment only.
Northwest AM Net: AM activity daily 3 PM - 5 PM on 3875. This same group meets on 6 meters (50.4) Sundays and Wednesdays at 8:00 PT and on 2 meters (144.4) Tuesdays and Thursdays at 8:00 PT. The formal AM net and swap session is on 3875, Sundays at 3 PM.
K6HQI Memorial Twenty Meter AM Net: This net on 14.286 has been in continuous operation for at least the last 20 years. It starts at 5:00 PM PT, 7 days a week and usually goes for about 2 hours.
Colorado Morning Net: An informal group of AM'ers get together on 3875 Monday, Wednesday Friday, Saturday and Sunday mornings at 7AM MT.
DX-60 Net: This net meets on 3880 at 0800 AM, ET, Sundays. Net control is Jim, N8LUV, with alternates. This net is all about entry-level AM rigs like the Heath DX-60.
Eastcoast Military Net: It isn't necessary to check in with military gear but that is what this net is all about. Net control is Ted, W3PWW. Saturday mornings at 0500 ET on 3885 + or - QRM.
Westcoast Military Radio Collectors Net: Meets Saturday evenings at 2130 (PT) on 3980 + or - QRM. Net control is Dennis, W7QHO.
Gray Hair Net: The oldest (or one of the oldest - 44+ years) 160-meter AM nets. It meets on Tuesday nights on 1945 at 8:00 PM EST & 8:30 EDT. www.hamelectronics.com/ghn
Vintage SSB Net: Net control is Andy, WBØSNF. The Net meets on 14.293 at 1900Z Sunday and is followed by the New Heathkit Net at about 2030Z on the same freq. Net control is Don, WB6LRG.
Collins Collectors Association Nets: Technical and swap session each Sunday, 14.263 MHz, 2000Z, is a long-established net run by call areas. Informal ragchew nets meet on Tues nights on 3805 at 2100 Eastern and on Thur nights on 3875. West Coast 75M net that takes place on 3895 at 2000 Pacific
Collins Collector Association Monthly AM Night: The first Wed. of each month on 3880 kHz starting at 2000 CST (0200 UTC). All AM stations are welcome.
Drake Users Net: This group gets together on 3865 Tuesday nights at 8 PM ET. Net controls are Criss, KB8IZX; Don, W8NS; Rob, KE3EE and Huey, KD3UI.
Drake Technical Net: Sunday's on 7238 at 4PM Eastern time hosted by John, KB9AT; Gary, KG4D; Jeff, WA8SAJ and Evan, K8SQG.
Swan Users Net: This group meets on 14.250 Sunday afternoons at 4 PM CT. The net control is usually Dean, WA9AZK.
Nostalgia/Hi-Fi Net: Meets on Fridays at 7 PM PT on 1930. This net was started in 1978.
K1JCL 6-Meter AM Repeater: Located in Connecticut it operates on 50.4 in and 50.5 out.
Fort Wayne Area 6-Meter AM Net: Meets nightly at 7 PM ET on 50.58 MHz. This net has been meeting since the late '50's. Most members are using vintage or homebrew gear.
Southern Calif. Sunday Morning 6 Meter AM Net: 10 AM Sundays on 50.4. NC is Will, AA6DD.
Old Buzzards Net: Meets daily at 10 AM Local time on 3945. This is an informal net in the New England area . Net hosts are George, W1GAC and Paul, W1ECO.
Canadian Boatanchor Net: Meets Saturday afternoons, 3:00 PM EST on 3745.
Midwest Classic Radio Net: Sat. mornings on 3885 at 7:30AM Central time. Only AM checkins allowed. Swap/sale, hamfest info and technical help are frequent topics. NC is Rob, WA9ZTY.
Boatanchors CW Group: 3546.5, 7050, 7147, 10120, 14050. 80 on winter nights, 40 on summer nights, 30 and 20 meters daytime. Nightly "net" usually around 0200-0400 GMT. Listen for stations calling CQ BA, CQ GB.
Wireless Set No. 19 Net: Meets the second Sunday of every month on 7.270 +/- 25 kHz at 1800Z (3760 +/- 25 kHz alternate). Net control is Dave, VA3ORP.
Hallicrafters Collectors Assoc. Net: Sundays, 1730-1845 UTC on 14.293. Net control varies. Midwest net on Sat. on 7280 at 1700 UTC. Net control Jim, WB8DML. Pacific Northwest net on Sundays at 22.00 UTC on 7220. Net control is Dennis, VE7DH
Mighty Multi-Elmac 75 meter AM net: Every Tues eve at 8 PM EST. NCS is Mike, N8ECR
Nets that are underlined are new or have changed times or frequency since the last issue.

The Eddystone 750

by Jim Hanlon, W8KGI
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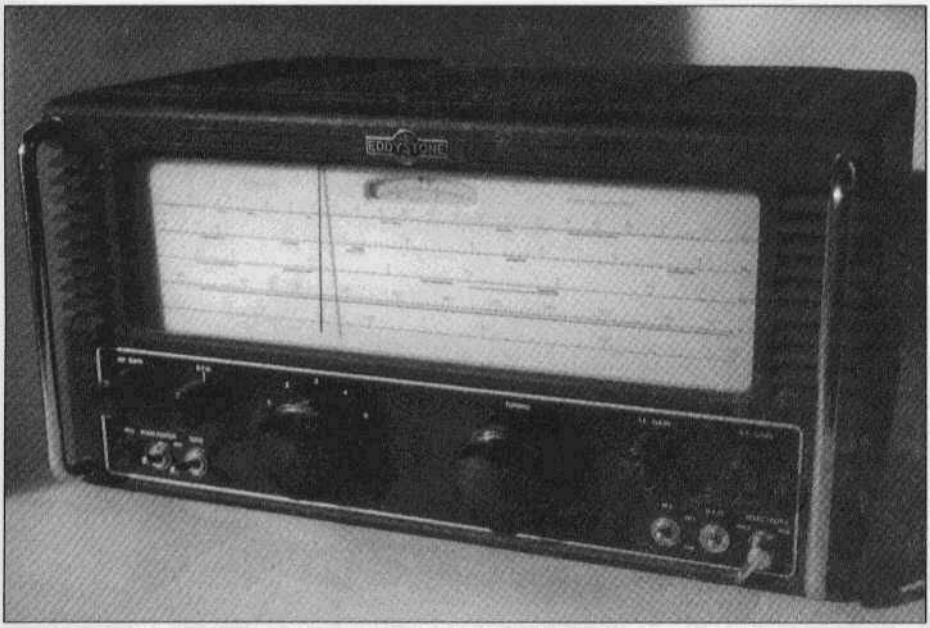
One ringy-dingy, two ringy-dingys ... it was my friend Gay Dybwad from Albuquerque on the phone. It was a Saturday, and there was a yard sale going on in his neighborhood, and it included a "bunch of ham radio stuff" that I really should take a look at. I knew Gay was a champion yard sale scrounger even though he wasn't a ham, so I decided to go have a look. It was a half hour drive, but the trip was well worth it. The trove included an HQ-170AC, a DX-40 and HG-10, and something that I didn't immediately recognize but that proclaimed itself to be an Eddystone 750 when I lifted the lid to look inside, all for just $100. The Hammarlund and the Heath gear looked to be in good shape (they are all part of my Classic Exchange shacks now), and they alone were easily worth the asking price, so I did not hesitate to part with the required green stamps. The Eddystone appeared to be all there, but the dial cord—actually a thin steel wire—was sprung out all over the inside of the receiver and the tuning condenser didn't move when I turned the front panel knob. Not to worry, I've fixed plenty of dial cords in my day, so it too went home with the rest of the gear.

Several years passed, and finally last summer it was Eddystone's turn on my repair bench. It is rather interesting compared to its American, 1951 contemporaries and compact for an 11 tube receiver, about the size of a 1930's HRO or a BC-348. It is heavier than my Belmont BC-348R, 39-1/2 pounds with its dynamotor and shock mount, weighing in at 42 pounds due to its cast aluminum front panel and to three cast sub-chassis inside. Further inspection of the insides showed that things were looking promising. Fortunately a two page set of "Alignment Instructions" had come with it that included a schematic and parts list and also some correspondence from Stratton & Company Limited, the Eddystone Works, Birmingham, England and from Marconi Instruments Division of English Electric Corporation, Englewood, New Jersey to a Mr. Harvey G. Van Erem, Chief Engineer of KSJB radio in Jamestown, North Dakota, its owner in 1962. The letter from Marconi recommended American equivalents or replacements for the British tubes in the set, several of which Mr. Van Erem had evidently made use of. The Stratton letter helped me figure out that Mr. Van Erem had acquired the receiver only recently, probably in December of 1961, that it was originally made in 1951 and sold through Eddystone's Canadian distributors "who are now Conway Electronic Enterprises Ltd., 1514 Eglinton Avenue West, Toronto 10, Ontario." K. R. Wilkins informed Mr. Van Erem that the instruction manual was out of print, but they did include that copy of the "circuit diagram together with essential servicing information" that fortunately accompanied the receiver to me.

The schematic for the 750 showed what had initially appeared to be just a 1951 era shortwave listener receiver to be a rather interesting design. Instead of being just the conventional single conversion superhet, the 750 turns out to have two IF's, the first at 1620 kc and the second at 85 kc. To make it even



The Eddystone 750

more interesting, the two 85 kc IF transformers have variable coupling between the primary and secondary windings attached to a selectivity control on the front panel. Whoever designed this radio must have taken a leaf from the BC-453 "Q-5er" of those days and decided to include its essentials in this nice little radio.

The tube lineup turned out to be as follows; 6BA6 RF amplifier, 8D3 (6AM6) high frequency tuned local oscillator, ECH42 (6CU7) first mixer and cathode follower triode driver to a 1620 kc IF, ECH42 second converter (mixer and oscillator) to an 85 kc IF, 6BA6 85 kc IF amplifier, DH77 (6AT6) detector, AVC, and first AF amplifier, N78 (changed to 6AQ5) audio output, D77 (6AL5) noise limiter, 6BA6 BFO, VR150 voltage regulator, and 5Z4 rectifier. I was able to test all of the tubes except for the ECH42's on my Hickock testers. The only dud was the 5Z4, and I quickly found a replacement in my junque box, so things were coming along OK. A wire wound resistor had been substituted for the choke in the power supply filter, as it turns out because the original choke was open and also shorted to ground.

The real potential showstopper was that sprung dial cord. When it came off its spools it had apparently gotten caught in the two plastic gears in the tuning mechanism that drive the dial cord and it had broken off a considerable number of their teeth! A post to the Boatanchor Reflector yielded a response from Joe LeKostaj, K9LY, from Evanston, Illinois. Joe sent an article from the April 2000 Eddystone User Group newsletter, "Chewed-Up Plastic Tuning Cogs - A Solution," that was a great inspiration. The article author, Anthony Richards, had acquired a length of Delran (plastic) "toothed bar" with the proper diameter and number of gear teeth on it and had cut replacement cogwheels from it. He cut the original damaged cogs off of the gear shafts, glued his new cogs on in their place, and then drilled out the original quarter inch hole through the

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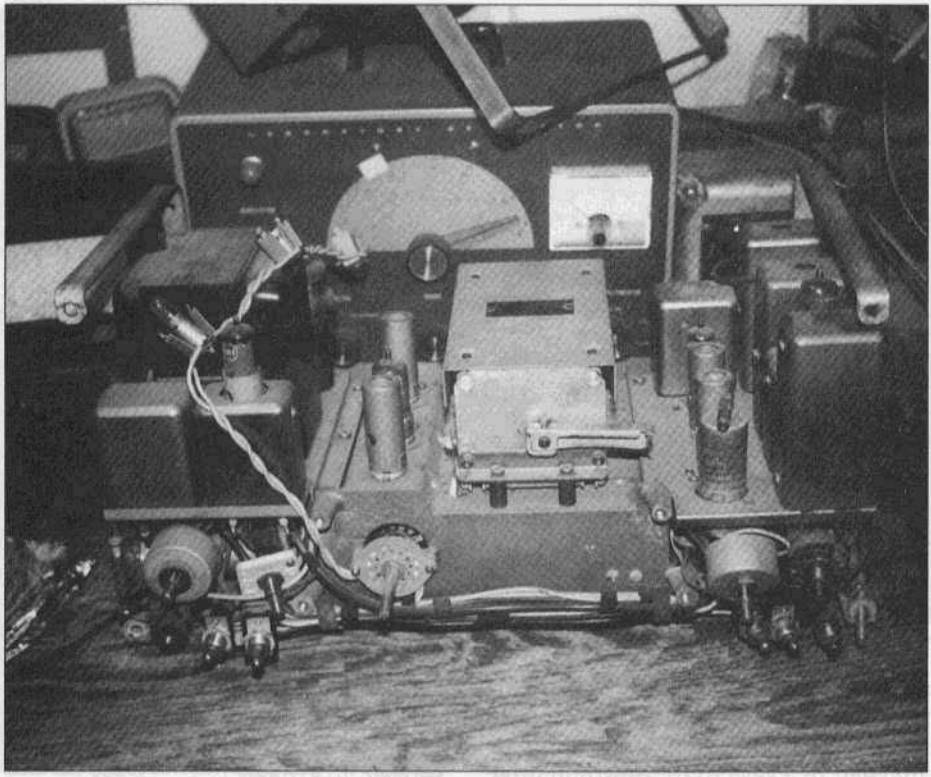
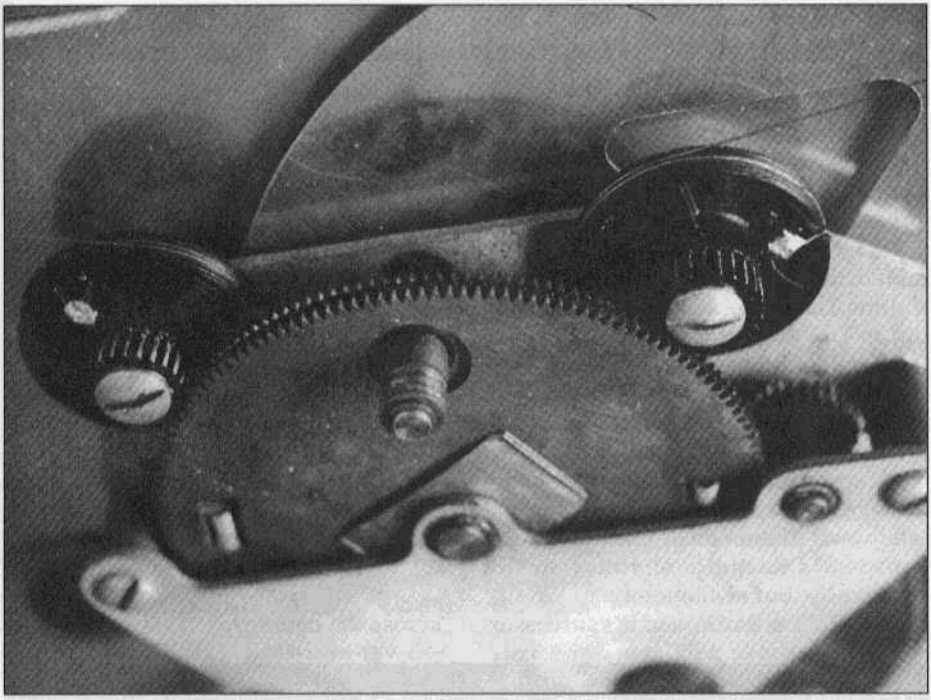


The "naked Eddystone" on the work bench. The IF subchassis is on the right; tuning capacitor and front end in the middle; bfo, audio and power supply on the left.

new cog section. I was about to order two replacement cogs from Mr. Richards (5 pounds for two), when at the suggestion of a friend who is into model railroading I visited a local hobby shop to see what they had in the way of gears. There in the parts section for model automobiles I found some aluminum gears with the proper diameter and number of teeth, Robinson Racing Products RRP 1324 24 Tooth, 48 Pitch, Aluminum Pro Pinion gears. They were a bit less expensive than 5 pounds, they looked more robust because they were made of aluminum, and they were a bird in the hand, so I took them home and started my repair. Following Mr. Richards' directions, I cut the damaged cog off the gear shaft and filed the cut end down until it was flat and square. I drilled out the original hole in the shaft to 5/16" diameter to fit the shaft on the new gear and then fastened the gear into the hole with Super Glue. I then drilled out the hole in the aluminum gear with several successively larger bits up to 1/4". I carefully finished the 1/4" hole with a hand file so that the gear would run smoothly in the dial. The repaired gears fit perfectly into the dial mechanism. The only thing left was to restring the original dial wire, adjust the gear positions so that the dial pointer had the correct travel across the dial and so that the dial wire had the proper tension, and I was back in business! A little fine machine oil lubricant completed the process and the dial has been working smoothly since. Whew!

With the dial repaired and the front



The repaired dial drive. I replaced the cogs on the two black gears with model car gears. The cam in the large brass gear drives a lever attached to the tuning condenser shaft.

panel of the receiver put back in position (be sure not to loose or forget the lockwashers on the screws that hold the panel on, they are necessary for proper spacing and movement of the lever arm attached to the tuning capacitor as I found out), it was now time to fix the filter choke. The original choke was in a solder sealed can, and the can had boiled out a considerable amount of wax, so I didn't attempt to do a repair on it. Instead I located a Thordarson choke in my junque box that was a snug fit in the space occupied by the original Eddystone part. I cut off one of its mounting tabs and secured it with some J-B Weld—I sure hope I never have to replace that one!—and the power supply was back in business.

With those repairs accomplished, the Eddystone perked right up and began to operate. No, I didn't have to replace a single bypass capacitor. They are all encapsulated in metal boxes, and not one of them was showing any problems at all. The only additional repair I had to make was to the BFO pitch capacitor. It had lost a spacer between the drive shaft and the bearing on the outside front of the capacitor that caused the variable plates to be shoved back and shorted against the fixed plates. The only position in which it didn't short out was when the variable plates were in the completely "open" position, and the BFO worked there. When it finally dawned on me what was wrong, I cut a "C" clip out of a washer and shoved it into the place where the lost spacer must have been. Now the BFO oscillates over the entire range of the pitch control.

Alignment went off without a hitch. I peaked the IF at 85 and 1620 kc, and set the BFO for the center of the passband

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Dallas Posse Hosts Collins Users Conference

by George Maier, K1GXT
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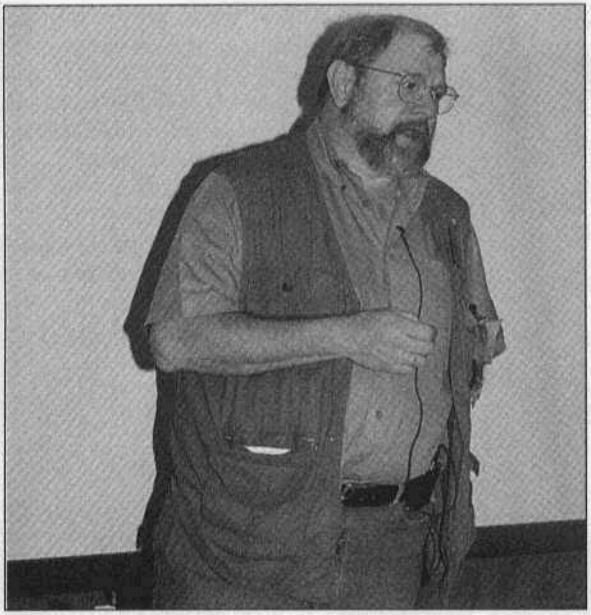
Last October, members of a group known as the Dallas Posse hosted a Collins Users Conference, where else but in Dallas. Just who are the Dallas Posse you might ask, and what do they have to do in common with Collins radios? To begin with, the Dallas Posse is not a formal organization, it's simply a group of local area hams that enjoy vintage radios, and getting together to talk about them. Their connection to Collins is largely a function of geography, but also one of passion for radios. Collins Radio, and it's successor Rockwell Collins has been a presence for decades in nearby Richardson, and has been a catalyst for the Dallas area's disproportionately large number of Collins enthusiasts. A number of current and ex-Rockwell Collins employees are Posse members, as is Jay Miller, KK5IM, noted author and Collins historian. With all of these local resources and enthusiasts to draw from, Posse members decided that they would put on a Collins Users Conference, and ultimately drew attendees from all across the country.

The Dallas Posse, Sponsors of the 2001 Collins Users Conference; from left to right."Mississippi George' Donovan, WB5WUX; "Bad Butch" Schartau, K0BS; "Mean Gene" Duprey, K1GD; "Parson Jim" Stitzinger, WA3CEX; "Pistol Pete" Zilliox, K5PZ (sitting); "Glen the Kid" Kitto, N5OD; Larry "Beer Man" Melby, KA5TXL; "Big Jay" Miller, KK5IM; "Buffalo Bob" Peters, K1JNN, "Big Mac" McCullough, W5HPM (sitting); "Lean Gene" Robinson, N5LDX; "Fireman Ron" Freeman, K5MM; Bud "The Budster" Whitney, K7RMT and "Quiet Carl" Constanten, W6UO. *Photo by Pete Ziliox.*



Jay Miller, KK5IM, goes into the details of how to make plastic castings.

Being a neutral event, the conference attracted members of the various Collins groups, the AMI, and folks that just like Collins radios regardless of their affiliation. With the tragic events of 9-11 still fresh in everyone's mind, there was some hesitation over travel and a few cancellations, but the event was well attended and proved to be a success by any measure. Posse members did a great job of rounding up an interesting list of topics and speakers for all to enjoy. The fact that they were able to make it happen, speaks volumes about the collective strength of the group.

The conference was a three-day event that began early on Friday morning with a series of presentations relating to Collins equipment, operation, and history. The speakers and subjects for the day included:

Warren Bruene, K5OLY - Who really invented PSK-31?

Glen Zook, K9STH - Ham Station Grounding.

J.B. Jenkins, W5EU - Mysterious Collins Prototypes.

Gayle Lawson, KØFLY - Hints & Kinks for the KWS-1.

Mike Cowart , WA5CMI - Microphone & Audio Clinic.

Jay Miller, KK5IM - Casting Reproduction Parts.

George Misic, KE8RN - Collins History.

Bill Carns, N7OTQ - AM with Big Iron.

Butch Schartau, KØBS - Cleaning and Painting Equipment.

To avoid schedule conflicts, each presentation was given more than once, but most of us managed to miss at least one. Be that as it may, from personal experience and in talking to others, it is safe to say that they were all interesting, enjoyable, and provided attendees with useful information. The following is a brief look at a few of the presentations that I did have the opportunity to attend.

Warren Bruene, K5OLY, who was an integral part of the Collins Radio family for many years, and a good friend of Arthur Collins, gave a very interesting look at the development of digital communications at Collins. His presentation included a historical look at packet technology, and the beginnings of FSK, PSK, QPSK, x.25 and PSK-31. Among the amateur community, Warren is best known for his contributions to the design of the 30K-1 and 30S-1, but was very much involved in many commercial developments as well.

J.B. Jenkins, W5EU, is another former Collins employee and one of the most talented and dedicated Collins collectors that I have ever met, plus a true gentleman in every sense of the word. His personal collection includes

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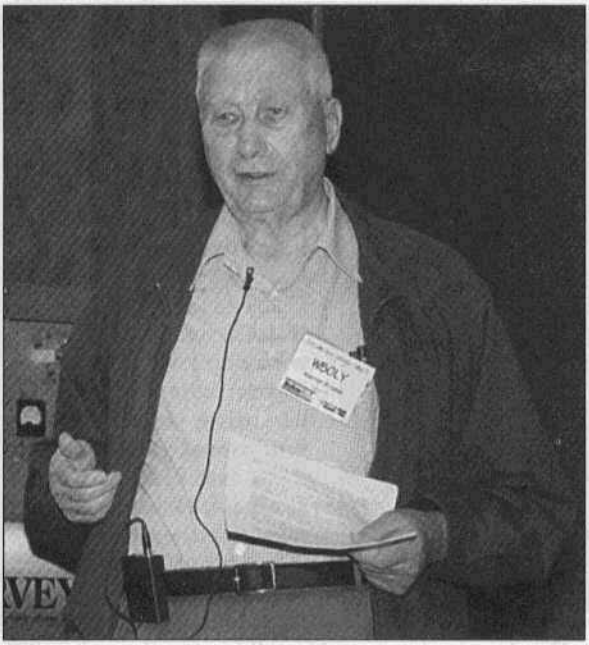

Warren Bruene, K5OLY, discussing some early packet communications development at Collins Radio.

hand made replicas, original prototypes, and carefully restored production models. On this occasion, J.B. treated us to a first hand look at some extremely rare and unusual items, including:

* A pre-production model of the 75A receiver, believed to be the same unit that was photographed for print advertisements in *CQ* and *QST* magazines.

* Arthur Collins' personal SC-101 (station control for the KWS-1 & 75A-4), which had been built with a Jones Micromatch, as the 302C-1 power meter had not yet been developed. J.B. quipped that Warren Bruene developed the 302C-1 because Arthur kept burning out the Jones directional RF assemblies.

Jim Stitzinger, WA3CEX brought his restored Collins communications van along for the ride. The van, completely outfitted with every S-Line & KWM-2 unit made, is always a crowd pleaser.

J.B. Jenkins, W5EU, pointing out some of the engineering changes that were made to this pre-production 75A receiver.

* A lab model of the KWS-1, consisting of individual functional modules assembled in a three foot rack. J.B. said he found this in a garbage can at Collins one day, and decided to save it from extinction. At the time, J.B. was not sure what he was saving, but it's identity became obvious very quickly.

* Lab model of the 75A-4 IF strip, BFO, and product detector. This was another three foot rack with a modified 75A-2 serving as the front-end and first IF into the prototype 75A-4 back-end assembly. Modifications to the 75A-2 included a front panel PTO rocker mechanism for the PBT.

* The W-1 protoype, which was a medium powered AM transmitter intended to replace the 32V-3, but never brought to market due to the pressure to make SSB a success.

In listening to J.B. discuss the various items that he had on display, it became evident that he is more of a historian than a collector, and is very dedicated to the preservation of Collins artifacts.

Gayle Lawson, KØFLY, has gained a reputation as being a respected authority on the subject of KWS-1's. Gayle has owned and restored a fair number of these prized transmitters, and constantly helps others to get theirs running. His presentation traced the history of KWS-1 advertising (how many people realize that the KWS-1 was first advertised as the 30L-1), production changes, serial numbers, key customers, and technical tips. One rather surprising piece of advice was to be ultra careful with 40M operation, as a poorly aligned transmitter can radiate strong spurious responses outside of the band. Gayles advice: check it with a spectrum analyzer. As anyone that owns a KWS-1 (including the author) will tell you, they are a beautiful piece of work, but oh so cantankerous, and any information relative to their restoration and operation is really appreciated. While some readers may already be aware of these issues, here's a few key bits of advice that Gayle offered:

* Keep the covers of the final PA compartment clean and tight to avoid RF leakage into the IF's, especially on 80M.

* Cover the hold down bolts of L-501 with heat-shrink tubing to minimize the chance of arcing from the core to ground (this is the HV filter choke in the PS).

* Be generally wary of original paper caps, particularly in the sideband generator and the ALC, and mica caps

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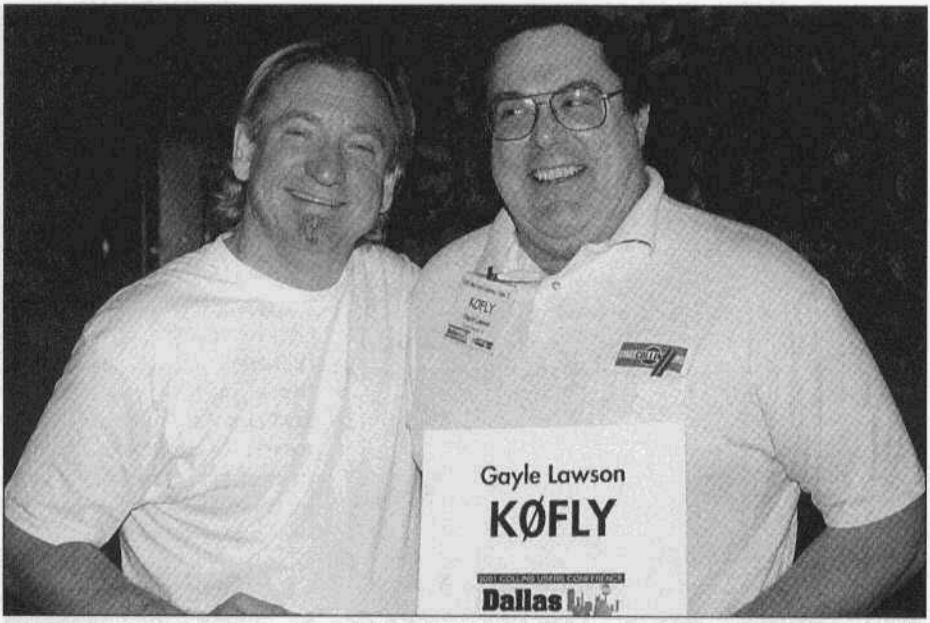


Joe Walsh, WB6ACU, and Gayle Lawson, KØFLY ham it up after GayleÕs presentation on the KWS-1.

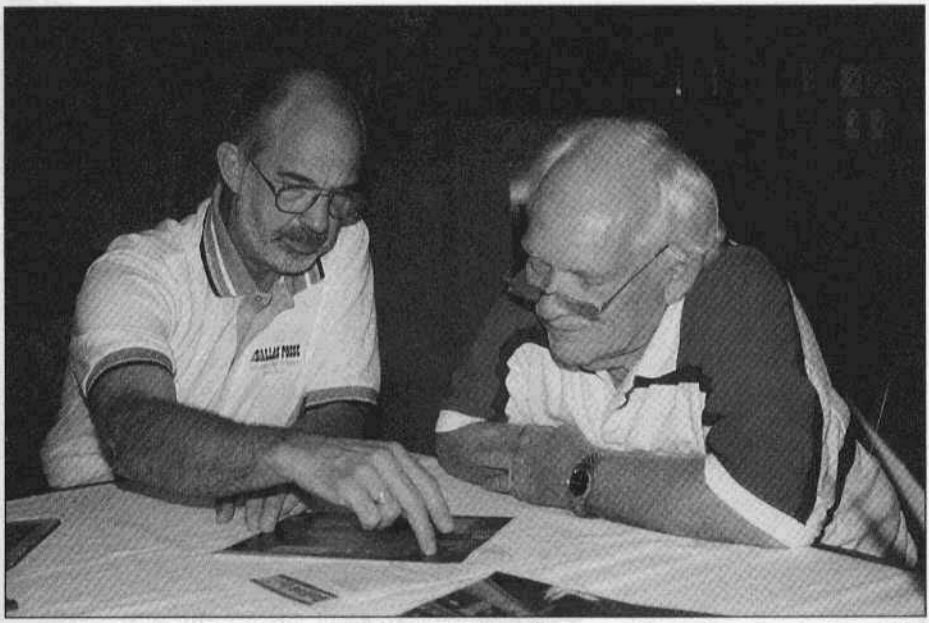
in the audio and RF section. All have been a source of problems.

* KWS-1 PA neutralizing can be done more easily by using the KWM-2 method, that is using a pair of dead 6CL6's with one filament pin cut off each tube. It's important that tubes have no internal shorts.

* Never trust the PA filament voltage reading on the KWS-1 panel meter, use a DVM. A 5% increase above the required 6.0V AC filament voltage can reduce the tube life by 50%, while a 5% decrease can double it.

For the growing number of people that are putting more serious efforts into their transmitted audio quality, Mike Cowart, WA5CMI, gave a "must see" presentation. Mike brought a Symetrix 528E and an Aphex104. The Symetrix microphone processor supports several analog functions to produce that "broadcast sound", including a de-esser, downward expander (soft gate), compressor, three-band parametic equalizer, and voice asymmetry removal. The Aphex unit is an aural exciter, which manufactures sub-harmonics as well harmonics of audio stream. This gives the voice a lot of presence and is used in almost all studios. It also has the "Big Bottom" which uses the sub-harmonics to create and/or enhance ones low tones. To show how this would effect the average hamshack, Mike alternately hooked up a D-104, Collins SM-1, an E-V 638, and a Marshall XL-2003 condenser microphone (studio quality). The resulting comparisons were rather dramatic, and did not shed a very positive light on most amateur mics. The good news is that equipment like this in your shack can improve the sound of almost anything.

Mike also brought along a co-host, Peter Varrando, W5LRX. Peter is a broadcast professional and gave some insight into the various aspects of "pro" audio. For his part, Peter proceeded to



Bill Carns, N7OTQ, showing photos of his Collins 300G AM broadcast rig to Bill Perkins during the AM Forum. Perkins is an ex-Collins employee that really enjoys mixing with Collins amatuer enthusiasts.

tease us with demonstrations of some very high end broadcast mics, plus a few that were within reach. The bottom line is; good audio is no accident, it takes work.

Anyone that knows Jay Miller, knows that he's a man of many talents. One of them is plastic casting. Jay learned about this process from his association with model railroading, and he's adapted his knowledge to amateur radio. Jay took us through the process of making reproduction Collins knobs, step by step. It's a fascinating but fairly involved undertaking, and things don't always go as they should, but the end result is something to see. A few years ago, I bought one of Jay's SC-301 reproductions. The SC-301 is the KWM-2/ S-Line station control that was prototyped along the lines of the old SC-101, but it never made it to production. Attending this presentation was an eye opener in terms of understanding the effort involved in making the SC-301 and other Collins projects that Jay has done in the past. If you check out Jay's web (1) site, you'll see some of his handiwork on display.

While I did not have the opportunity to attend Glen Zook, K9STH's talk on station grounding, it turns out that Glen is quite an authority on the subject, and has recently added some good hints on his web (2) page, which I would encourage everyone to visit.

George Misic, KE8RN gave an interesting look at Collins history through a collection of photographs that traced much of the history of Arthur Collins from his first ham shack, to the his full fledged operation of the Collins Radio Company. Misic is the former engineering manager at Dentron, giving him a unique perspective on the business of making amateur gear.

On Saturday, the subject matter turned to "hands-on" clinics moderated by some expert technical authorities. These sessions included:

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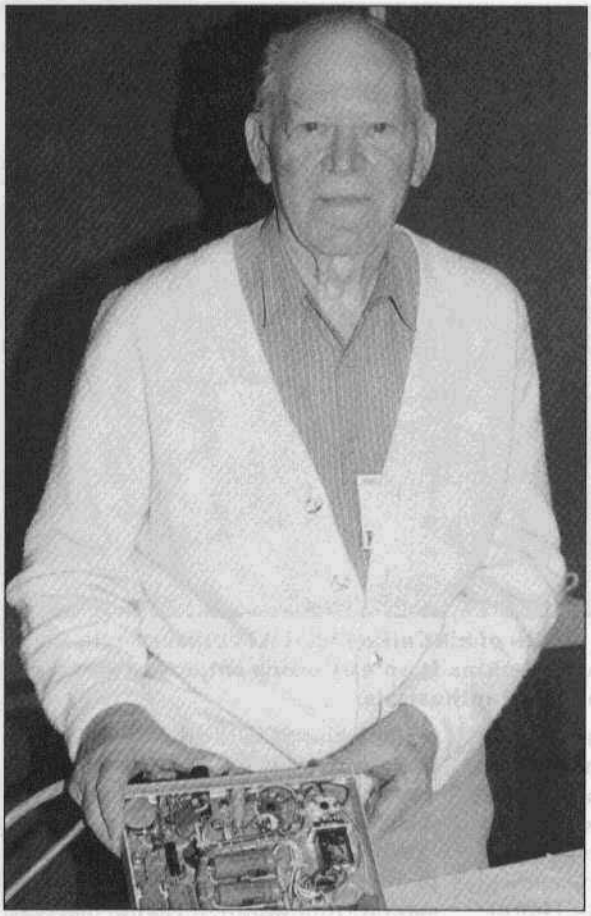


Bud Whitney, K7RMT, sharing his knowledge of the S-Line Power Supplies

Bill Carns, N7OTQ, - AM Forum

In a minor departure from protocol, Bill opened up the AM Forum to discuss both Collins and non-Collins equipment. This was a great opening for Mike Cowart, WA5CMI who came well equipped with photos and stories of his Globe King 500 restoration. For the web surfers, Mikes name and call should sound familiar, as the details of his restoration project are on his web (3) site. There were 32V and KW-1 owners at the table, but there were also some AM broadcast transmitters being discussed, Collins and otherwise. This was truly a gathering of the big iron AM boys.

Don Reaves, W5OR, - R-390A Maintenance

To say the least, Don is an expert on the R-390A, which for many amateurs represents the greatest general coverage radio ever built. He took us through the receiver module by module and pointed out key problem areas. While many may have learned some of what Don had to say through various reflectors and web sites, his enthusiasm for the subject was a pleasure to behold; this guy loves the R-390A. In case you have not had the opportunity to uncover the most serious problems on your own, here's the top three from Don's point of view:

1) Replace C-553 in the IF deck. This is a .01 uF DC block in front of the mechanical filters and prone to failure. If it fails, it will likely take your filters with it.

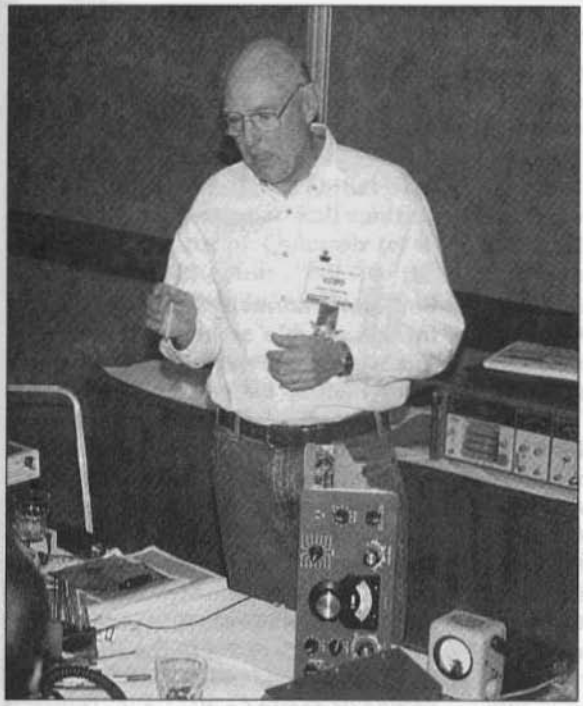
2) Replace C-609 in the AF module. It's guaranteed to leak and cause damage to the surrounding area.

3) Replace the black beauties. I'm sure we've all heard this before, but it applies equally here.

Be sure to check out Don's web (4) site, as it contains a helpful list of links to information about these popular radios, and others.

Butch Schartau, KØBS, - S-Line transmitters and receivers

Butch, who gave attendees some hints on cleaning and painting the gear a day earlier, switched to his technician's hat for a clinic on S-Lines. Given the popu-



Butch Schartau, KØBS, giving a talk on cleaning and painting equipment

larity of S-Lines and KWM-2's, Butch's talk attracted a large crowd to his demo table where he had numerous examples of each, and enough lab equipment set up to provided proactive instructions on servicing and alignment.

Wayne Spring, W6IRD - The KWM-380

This radio is the least popular of all of those that Collins made for amateurs, but it is the most complex, and in many ways the most interesting. Having Wayne Spring on hand to discuss the KWM-380 made it even more interesting, as he repairs these radios, and is one of the best authorities on the subject. Wayne took his listeners through a discussion of the various factory production mods, both documented and undocumented, and they were numerous. After hearing what Wayne had to say, and seeing this radio inside out, it is difficult to understand why more of these radios did not get into the market place. They certainly were built like a battleship, and seem to have withstood the test of time in better shape than any competitive transceivers of that period. Despite some early problems, Collins eventually got the KWM/HF-380 performing well, but evidently it was too little too late, as the offshore companies were in full motion and quickly took the lead.

Bud Whitney, K7RMT - S-Line Power Supplies

Without a doubt, Bud is the grand-daddy of S-Line power supply experts. He's rebuilt several hundred of these critters, and knows everything there is to know about the 516F-2. If you think all that is needed is to re-cap the supply, guess again. Bud has confirmed that some of the original components filter choke in the LV supply is underrated when used for a KWM-2.

After everyone had their fill of fixin' radios, we headed off to Mac's (W5HPM) hacienda for a Texas style BarBQ. Of course part of the treat that night was the chance to snoop around Mac's hamshack, and take a look at an operating KW-1 that once belonged to Faust Gonsett, W6VR, of the Gonset Company. The party was a great chance to mix with the others, and swap stories of the ones that got away.

On Sunday, there was a group breakfast, after which, the assembled crowd was invited to tour local hamshacks, including those of W5EU, K5PZ, and KK5IM to see an incredible variety of Collins gear. Other obligations kept me from taking advantage of these visits, but I under-

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Radio Service in the Golden Age
1930's through the 50's

by Bruce Vaughan, NR5Q
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Episode 12

Dealing with Con Artists and Other Deadbeats

Many of my formative years were spent at Huntsville, Arkansas. My parents moved there in the fall of 1932—I was starting the fifth grade of school. We lived in an old Civil War era house near the town square until my senior year in High School. Huntsville is the County Seat of Madison County—better known to residents of surrounding counties as 'Booger County.' This title is not one of disrespect, but somewhat of a warning to newcomers. Some of the nicest people in the world live in Madison County—many are direct descendents of the first white men in this part of Arkansas. Their pioneer heritage runs deep.

I was born on the Washington-Madison county line in 1922, and have lived here all my life. My forefathers came to this area about 1820. Still, when in Madison County I know enough to mind my manners, and as one lifelong resident once said, "Speak softly and politely or ride a very fast horse."* A casual remark can sometimes be 'taken the wrong way' with unexpected and sudden violence.

In the 1930's Huntsville was a frontier-like town of about 1000 population. There were no paved streets, no stop lights, and a privately owned electric service that shut down every night at 11:00 pm. Operation was resumed at 5:30 am-more or less. There were two places to buy a new radio in Huntsville; Coger's Drug Store-the RCA dealer, and Ogden's Variety Store-a Zenith dealer. Both stores normally stocked two radios for sale, a 'table' set and a 'floor model.' The sets for sale were in daily use by the store owner, loafers, and customers. When a radio was sold it was replaced with another—there was no back-up stock.

The first Amateur Radio QSO's I ever heard were on a RCA 6-T at Coger's Drug. I found the 75 meter fone band on the RCA. Every time Mr. Coger went to the back of his store to fill a prescription, I switched his radio to the short wave bands and tuned in QSO's. I dreamed of someday owning a RCA 6-T. To me, at that time of my life, this was the ultimate radio. Oh, I had an Allied Radio Catalog that was full of Hammarlund, Hallicrafters, and National receivers, all of which were far beyond my means. I considered such radios as something for the wealthy—nothing I could ever afford. However, hope remained alive that someday my dad might be able to buy a 6-T RCA for our home. Then, I could listen to hams all day while my parents were at work.

Long after I received my ham license, and had a real short wave radio, I still had a desire to own one of those old RCA 6-T radios. If I could find a really nice one that was priced within reason, I'd buy it today.

In the late 1940's a customer, I'll refer to him as Mr. Blank, called and requested that I pick up his radio and give it a complete 'overhaul.' He said it was only a 'table' model, but that it was too heavy to carry downtown, and he did not own a car. When I arrived at his

home I was surprised to find a near perfect RCA 6-T.

There was very little wrong with the radio as I remember. I believe I found one tube that tested a little weak. I put the set on my generator and gave it a fast IF alignment. The cabinet was cleaned inside and out and all controls were given a squirt of 'Quietrole.(r)'

I remember the total bill on the receiver—about six dollars-was paid upon delivery.

I was surprised to see Mr. Blank come in the store a few weeks later. My first thought was that the RCA might be giving him problems, and that I was going to 'catch hell' for not fixin' the radio. He was a 'grouchy' old cuss.

"Good morning, Mr. Blank," I said with a forced smile. "How can I help you today?"

"You remember that radio of mine, don't you?" asked Mr. Blank. "You gave it a complete overhaul about a month ago. You said it was in top shape when you delivered it. You must have put it in perfect condition because you sure charged me enough. I remember you charged me six dollars."

"Certainly I remember your radio, I answered. "You have a fine piece of equipment that should serve you for a good many more years."

"Well, yeah, I suppose you are right," answered the middle-aged gentleman. "But me and the wife are thinking of trading it in on a smaller radio. That one takes up a lot of room and is heavy if we need to move it. I would trade it even up for that little radio right there on the shelf. No boot either way, and no sales tax—just an even trade. You know what a good radio I have—I'll bet you know more about it than I do."

I hesitated. "Mr. Blank, I can't help but wonder if you know what you are doing. The radio you are looking at sells for $34.95. I really feel that your RCA, even in used condition, is worth more than that."

The old fellow began acting like he was angry with me. "Do you want to trade, or do you want me to go down to Oklahoma Tire and Supply? If you don't want my business I'm sure Cecil Brown would like to have it. I'm ready to trade like a man—no backing out, no complaining, no boot. If you are gonna' dilly-dally about it, forget it."

"No, no, I did not mean to offend you," I said. "I was just trying to make sure you knew what you were trading off."

"Young feller, I know exactly what I'm doing," said Mr. Blank. "The question is, do you?"

"OK," I said. "You got yourself a deal. When you get ready to go home come by the shop and you can ride with me when I deliver your radio."

"I traded radios with you, and I want it delivered right now—my wife and daughter is home. I'll come home when I get good and ready, and I damn sure don't need your help in getting there," replied the pleasant old fellow.

"OK, OK, I'm on my way," I was quick to answer. "It will be there within fifteen minutes."

I watched as Mr. Blank left my shop, walked across the street, passed the pool hall, and disappeared among the crowd of early morning shoppers. I boxed up the new radio, hung a 'Back in 30-Minutes' sign on the door, and went to my truck.

I knocked on the screen door of Mr. Blanks house—the front door was open. Through the screen door I could see and hear family members in a lively conversation. Mrs. Blank opened the door. Her daughter, and two children, a red headed boy about five, and a little girl about three, were apparently living with the Blanks.

Mrs. Blank seemed surprised that I was there. "I came to deliver your new radio I explained. Mr. Blank traded his radio for a new one and asked that I deliver it immediately. He said he would

continued next page

be home later."

Mrs. Blank asked me in. The conversation that had seemed so lively when I knocked on the door gradually faded into complete silence. I tried to make small talk as I hooked up the new General Electric AC-DC receiver. I explained the operation of the tuning and volume controls—the radio's only two knobs. Then, I lifted the heavy RCA 6-T off the table, and sat it on to the floor. I gathered up cardboard packing material off the floor, and replaced it in the box, then handed Mrs. Blank the warranty card.

About this time the five-year old boy ran up to me and said, "When lightning hit last night and our radio caught fire, granddaddy poured a whole big bucket of water in it before he got the fire put out. We were all scared-and granddaddy was awful mad. He said our radio was ruined for sure. Is it ruined? Can you fix it, huh, huh, can you fix it?"

I forced a weak smile and patted the little fellow on the head—but my heart was sure not in it. I made an embarrassed exit from the customer's home, and carried the now worthless 6-T to my service truck... I was mad at myself for being so gullible. Mr. Blank never told me his radio was working. All he had said was, "You overhauled my radio and know it's in good condition. You told me so yourself". Both statements were true. I had been 'conned' and I knew it. My desire for a RCA 6-T had made me easy prey.

I put the RCA on my workbench as soon as I got to the shop. While there was damage a-plenty, I knew the radio was restorable. However, I also knew that it would not be easy or inexpensive to get it back into original shape. In 1948, radios, even those in the RCA 6-T class, were often available for ten dollars or less. The only reason I traded a radio that cost me $26.00 for a ten-year old RCA was because Mr. Blank's 6-T was the cleanest one I ever had in my shop. I decided to set it aside and maybe give it a better look when business was slow.

As I was putting the radio back together I heard my front door open. It was a friend of mine, Ray House, owner of "United Insurance," one of our town's larger insurance agencies. Ray was a daily visitor—I assumed this was his usual morning coffee visit. Boy, was I wrong.

"Bruce," said Ray, "Mr. I.M. Blank is one of my customers. He said you had a radio of his that had some lightning damage. I need an itemized bill of all parts and labor to put it in original condition. Would you give me the darned estimate so I can write him a check. He is waiting at my office."

"Whoa, slow up, Ray," I answered. "I have a radio that did belong to Mr. Blank but the radio is mine now."

"That is of no importance," said Ray. "The facts are that when lightning damaged Mr. Blank's radio it was still in his possession. Therefore I must pay his claim."

"But I traded for the radio thinking it was in good condition—just like it was when I repaired it a month ago, he never told me that it had been hit by lightning. That radio is a total loss" I answered.

"I understand, Bruce, and I can see why you are upset. Upset or not, I must pay Mr. Blank's claim." Ray continued, "Whatever the trade was between you and Mr. Blank is absolutely none of my business. He has a policy against lightning and fire damage, and according to him his radio was hit by lightning and caught on fire. Just give me the damn bill and take your 'lickin' like a man. It sounds like he kinda' put the britches on you. You'll learn better than to trust people when you have been in business for awhile."

"Now hold on Ray," I answered. "We made a fair trade. The radio is mine now. If there was any damage to the radio before I traded for it, it might be

covered under my guarantee. I guarantee all my work for 90 days. Of course the parts damaged by lightning would not be covered."

"OK," said Ray, "Give me a itemized bill for all the parts damaged by lightning."

I sat down at my desk, opened a drawer, and removed an estimate form. On the form I wrote the following:

1...fuse ——— .10 cents.

Labor covered under my usual 90-day repair warranty.

Total cost to repair——— .10 cents

I handed the bill to Ray. "Hell, Bruce, you know better than that. I can't write a customer a ten-cent check."

"Then it seems you will have to get a court order and remove the radio from my shop," I told Ray. We both laughed at the idea of a ten-cent check to the insured.

"I'll try it and see how big a stink he raises," said Ray. "However, if I were you I'd make that worthless radio hard to find."

Ray left my store. I picked up the 6-T and carried it to the incinerator behind my 'one-man' radio shop-a 55-gallon oil drum. Gathering up all the waste paper in the shop I stuffed it around the 6-T. Then I remembered I had two quarts of motor oil in the truck. With a Phillips screwdriver, I punched two holes in the top of each oil can, and poured their contents over the radio and the waste paper. Then I took out my trusty 'Zippo' and set the entire thing aflame. I watched as the radio of my dreams went up in smoke.

Epilogue

When it was obvious that my fire was going to consume the contents of my trash barrel, I returned to the store only to find Mr. Blank standing in the show room waiting for me.

"House, (meaning Ray, the insurance broker) said there was not much wrong with that RCA radio," he said, looking somewhat frustrated.

"No," I answered, "That was a real odd thing. Sometimes lightning will flare up like that and do practically no damage. I put a ten-cent fuse in it and it worked like new."

"Where is the radio now," asked the old skinflint.

"That's even more peculiar," I answered. "After putting a fuse in it I set it up here and put a $60 price tag on it. You know what, it was less than ten minutes before a fellow came in and said he had been looking for that model for a long time. He paid me in cash and left with it under his arm."

Mr. Blank turned an ashen color and grabbed hold of the counter to keep from falling. Even though revenge is sweet, I was concerned for a moment that the old 'scrooge' was going into cardiac arrest. Even though I had been 'conned', lost money, and watched a nice 6-T go up in smoke, it was a turning into a good day—a very good day—and good days don't come 'round that often. ER

* 'Ride a fast horse'—Be prepared to make a fast exit.

Editor's Comments from page 1

blistering heat of southeast Utah. We're sure that we can find some place interesting here in southwest Colorado. Look for us on the usual freqs: 3870 on 75; 7290 on 40; 14.286 on 20; 21.425 on 15 and 29.025 on 10. Let's make this VFD the best one yet. And please remember to send in your reports and photos for the July or August issue. We'll try to print as many as we can. N6CSW

Electric Radio Yearly Index

May 2001 - April 2002
(Issues 144-155)

Compiled by Don Buska, N9OO

continued next page

AM Mobile Station from page 11
beneath the throw mat at the passenger's feet. Similarly, when the power cable extension affixed to the linear amplifier is connected to the battery power harness—by way of a matching trailer harness plug—it, too, is kept covered by the floor throw mat.

The amplifier itself is stowed in the trunk of my car immediately behind a trap access door which, when, lowered to rest atop the back seat cup holder assembly, exposes the inside of the trunk (happily, this sort of seat design is not unique to my model of car). Only the presence of the power wires & coax cables—tucked into a bottom corner of the access door when it's shut—betray the presence of the linear. There is no need whatever to monitor the amplifier: it's a "...set-and-forget" operation once it's on and peaked to the middle of the AM window.

Operation

After some practice tuning up the amplifier into a dummy load, I quickly came to the conclusion that I did not particularly miss all of the grid/plate current meters, plate voltage metering, etc. etc. that are so much a part of "home" stations. This amplifier—as is the case with most others of its kind, I'm sure—meters relative RF output only.

After having previously resonated my antenna to 29 MHz, final tune-up for AM operation was easy. First, with the HTX-10 transceiver set to AM, I preset the microphone gain control to the 1:00 o'clock position, and pressed the PTT button. The internally accessible mica trimmer capacitor in the tuned plate circuitry of the 12JB6 driver stage was peaked for maximum output. Next, I adjusted the amplifier's final plate loading and tuning controls for maximum deflection on the meter (I had to jockey back & forth several times to find the "sweet spot"). Finally, I advanced the loading capacitor to the point where the RF output as indicated on the meter dropped by roughly 10%. I then re-peaked the plate tuning capacitor one last time.

This latter trick I learned from reading the Product Review in QST magazine for the Knight-Kit T-175 amplifier. It works. Relative output from my amplifier as indicated on the meter deflects upward quite smartly on voice peaks, and on-the-air feedback praises my audio for its presence and clarity.

As previously mentioned, for benefit of both the sweep tubes and the heat sink cooling the final transistor amplifier stage of my HTX-10, I consciously must resist the temptation to engage myself in overly-long monologues. I'm sure the multi-vibrator transistors mounted at the rear of the amplifier also benefit from this restraint, as they too can develop some serious heat of their own accord whenever the "...old buzzard" takes over the mic. This is not to say, of course, that all of my transmissions are limited strictly to clipped, contest-like exchanges... far from it! But common sense must prevail whenever I get a little too chatty: the costs of replacing 6LQ6s and germanium power transistors doubtlessly will stay forever on my mind. I guess you'll just have to experience it yourself one day to come to appreciate it!

Conclusion

Looking over the different schematic diagrams for pirate CB linears reveals two seemingly common threads, i.e. (1) they were designed to be safely driven by anything from one to ten watts, and, (2) they do not employ internal pre-tuned matching network(s) between the exciter and input. The incorporation of a broadband low "Q" L/C combination here would doubtlessly reduce drive requirements and improve IMD characteristics, as espoused by Bill Orr (W6SAI). This latter benefit may well make it worthwhile to add one in my Palomar 150 at some point in the not too

continued next page

distant future. It certainly wouldn't be all that difficult an undertaking.

Unless you're very comfortable working with the nuances of solid-state (biasing, etc.), I recommend you stick to a tube setup when searching for your mobile amplifier. There is ample, long-standing reference material on sweep tube circuitry in different sources: these I have attempted to summarize in the bibliography at the end of this piece. But all this aside, how does one place a value on the downright charm of a mobile vacuum tube amplifier installation? To me, personally, it's all really quite comforting to hear the solid "KER-CHUNK" of the big internal 12 volt power relay each time I press the PTT button, and how the multi-vibrator circuitry emits a low-level (but still audible) buzz under load the way it does. It's sheer magical that this same buzz is converting the 12 volts from my car battery to some 700 volts for the amplifier. I actually run more power output from my vehicle than many of the Hams I work do from home! It's taken awhile for me to become used to the notion of receiving better signal reports more often than I give out.

You'll doubtlessly smile to yourself at some of the names these old CB amplifiers were christened with in your quest for more 10-meter power. .. marques like "Varmint", "Bandit", and "Coyote". Many of these almost give the appearance of being homegrown "one off" rigs from long gone mom & pop outfits: they truly are a slice of Americana from the late 60s/early 70s that is surely worth preserving and treasuring, simply by our using them.

This marriage of convenience, bringing old and new together, has been the best of both worlds to me. It was 10-meters AM back when I was an SWL in 1969 that inspired me to get my Ham ticket in the first place. I feel as though I've come full-circle after 33 years: here I am again, right back on 10-meters AM, still with my glow-in-the-dark gizmos, only now it's me initiating all those satisfying QSOs with like-minded fellows in far-flung places. Best of all, where previously I would cuss at the traffic, I now sit back and actually enjoy the delays getting home!

Ten-meter AM mobile has certainly been a tonic to me—perhaps it's just what the doctor has ordered up for you too. So don't delay: get that prescription filled, OM—and do it fast! *"QRZ AM mobile...?"* **ER**

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The Eddystone 750 from page 23
at 85 kc. The local oscillator, mixer and RF amplifier coils all had adjustable cores to set for the low end of each band and trimmer capacitors to set for the high end of each band, so the front end tuned up nicely as well. The dial calibration wound up being right on.

The 750 covers from 480 kc to 32 mc in four bands with just a small skip around the 1650 kc first IF. It has no electrical bandspread, but that beautiful Eddystone dial takes 85 turns of the flywheel-weighted tuning knob—it spins quite easily—to go from one end to the other so it is quite tunable over its entire coverage range. I have to crank in 6-1/2 turns to cover 160 meters, 14-1/4 for 80, 3-1/4 for 40, 1-3/4 for 20, 1-3/4 for 15, and 6-1/2 for 10. And in addition to its frequency calibration, the dial has a horizontal scale that runs from 0 to 2500 and a small, circular dial that runs from 0 to 100 for each large 100-unit division of the horizontal scale. Together these scales make for quite good reset accuracy anywhere on the dial. Above the dial is an EDDYSTONE nameplate with their characteristic lighthouse trademark in the middle. Last but not least, the dial proudly proclaims this receiver to be a "Model 750" and "Made in England."

The knobs on the front panel, from left to right, are RF Gain, BFO pitch, Bandswitch, Tuning, IF Gain, and AF Gain. Under the knobs, from left to right, are the Phone jack, the Main Switch (it is British, after all), the Send (receive) switch, Noise Limiter and BFO switches, and the Selectivity control. On the back, there are terminals for "LS, 2.5 " (Loud Speaker, 2.5 ohms), "PU" (Phonograph Pick Up, not something that smells bad), and A and AE (aerial terminals, one being "earth"). There are two octal sockets, one labeled "A Vibrator, S-Meter for "External H.T." ("High Tension" or B+ for Americans) and an S Meter, and the other labeled "B Vibrator" for External L.T. ("Low Tension" or filament voltage). It's a good thing one of my EE professors was British. There is also a sticker on the back saying that this is an Approved CSA (Canadian Standards Association) Power Operated Radio, and a metal tag saying that it is wired for 110 volts, 25/60 cycles, 0.56 amps.

On the air the Eddystone performs impressively. I estimated its selectivity while I was aligning the IF at about 6 kc at 6 dB down in its broad position and about 2.2 kc in its narrow position. It is a very good shortwave broadcast receiver, with plenty of sensitivity, no noticeable drift after warm-up, and no images due to its high frequency first IF. I used it on 20 CW as part of my Classic Exchange station last fall—it stood in for the 75A-3 which was ailing —and it did a very credible job. Having an IF gain control to play with as well as an RF gain control is amusing. On CW I ran the AF and RF gains full open for best sensitivity and used the IF gain to control volume, supplementing with the RF gain on loud signals. The little "concrete block" easily qualified itself by pulling in WQ8U, Mac, in Ohio; WØDZ, Brian, in Colorado and W7FOX, Fox, in Tucson.

In response to a later inquiry, Joe LeKostaj who helped me with the dial problem provided the information that the 750 went for £68 in 1951 when the pound was the equivalent of 2.8 dollars. So that makes it a $190 radio, just about the same price as an SX-71 or an HQ-129X, which were selling for $199.50 in that time frame. If I were a short wave listener, especially in some far-flung part of the British Empire in 1951, I just might have preferred the Eddystone. If I were a ham, I would definitely have chosen the Hallicrafters or Hammarlund alternative. Being a yard-sale scrounger in 2002, I was just happy that the Eddystone showed up and that it has become a functioning part of my collection. **ER**

S-53 and S-53A Receivers from page 13

The 53A introduction coincided with the introduction of the novice class license and the 53A filled a price gap in the Hallicrafters line. They probably wanted to hold the $80 price so dropping the performance on the upper bands was a way around inflation. In 1948 when the 53 came out, the class B licensees could only operate voice on ten and six and the 53 was good on 6 and 10 meters. When novices came along in 1951 they were restricted to 80 meter CW. Hallicrafters must have considered the 53A was good enough on 80 meters for the novice to keep it in the line up filling the spot above the S-38 in performance..

Both receivers are usable on the ham bands, a noticeable step up from the S-38. The S-53 performance is on a par with the S-40, however the S-53A falls short in comparison. Images on the 53A make it tough to identify stuff on 10, 15, and 20. Not being a 6-meter man I can't say how they fair on 6, but the image problem with the 53A would probably make it a poor choice. However for a small lightweight receiver the original 53 is nice to have around as a self-contained general coverage receiver that provides a lot better performance than its size implies. And it sure is easy to carry around, ideal for us old guys on field day. ER

Lawn Tractor Portable from page 3

permitting (Okay, I hear that laughter ...) I probably could build a transmitter with instant heating filaments for VFD use based on the 2E24 or perhaps the instant-heating version of the 6146— or just get a vibrator or solid state supply going for the GRC-9 or (even better!) the BC-654.

The ARRL's field day just requires taking modern solid state gear outdoors. If it weren't a competition it would be about as challenging as dynamiting fish in a barrel and you can get quite a few points just for showing local officials that your late model ICOM will work on a card table. Vintage Field Day is a whole lot tougher because you have to either run very low power or use a husky power source. And of course any sort of real signal means heavy gear or (perhaps) a homebrew rig designed for the job. The KJ4KV Navy ball cap is off to Barry for sponsoring this event and especially to all the fellows who hauled 'heavy iron' out in the field last year. I'm delighted to hear that VFD will be back this year and since writing the above I have solved some of the problems. Hint—you might be surprised at what happened to my fleamarket WeedEater.

See you on June 8/9! And thinking ahead, what about a 'winter' event for the more hardy among us? Maybe at Thanksgiving? ER

Boatanchors Group from page 14

This entire experiment in irregular gatherings grew out of the occasional breakfast meetings of Cleveland area AMers W8KYD, N8ETQ, WA8SAJ, K8DBN in addition to W8EPQ and W8PEV now deceased.

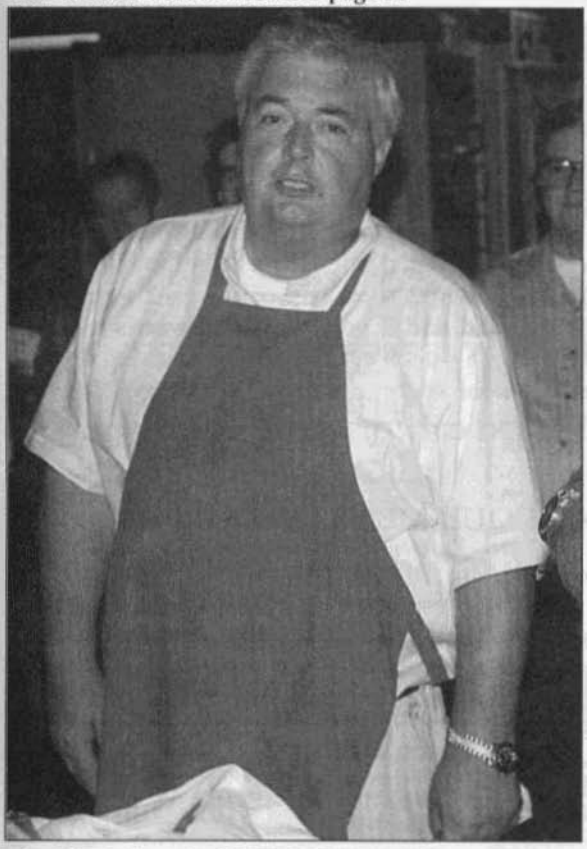
Almost everyone kicks in a buck or two to cover postage, and in this case a portable toilet. There was no charge to participate, and there was no need to turn away any known dealers or profiteers from vintage AM gear. They were not invited and, luckily, they did not show up.

The tailgate effort was something new and will probably be an annual event.

Additional pictures of the event can be found on the web site of Larry (W9MDX) at w9mdx.com.

If an AMer would like to attend our next group outing— breakfast, or what ever—please contact Jeff,WA8SAJ or Bill, K8DBN, at the address or e-mail from the QRZ listing. ER

Collins Users Conference from page 31



Mac McCullough, W5HPM, prepared a Texas-style barbecue for the group.

stand those who did go on the pilgrimage were well rewarded for their efforts.

My hat is off to the Dallas Posse, for a job well done! ER

Acknowledgments

The author wishes to express personal thanks to Jay Miller, KK5IM; Mike Cowart, WA5CMI; Gayle Lawson, KØFLY and Don Reaves, W5OR for their help in reconstructing the events reported here after my conference notes, and other personal property were stolen from my car.

Also, many thanks to the Dallas Posse, Sponsors of the 2001 Collins Users Conference: "Mississippi George' Donovan, WB5WUX; "Bad Butch" Schartau, KØBS; "Mean Gene" Duprey, K1GD; "Parson Jim" Stitzinger, WA3CEX; "Pistol Pete" Zilliox, K5PZ (sitting); "Glen the Kid" Kitto, N5OD; Larry "Beer Man" Melby, KA5TXL; "Big Jay" Miller, KK5IM; "Buffalo Bob" Peters, K1JNN, "Big Mac" McCullough, W5HPM (sitting); "Lean Gene" Robinson, N5LDX; "Fireman Ron" Freeman, K5MM; Bud "The Budster" Whitney, K7RMT and "Quiet Carl" Constanten, W6UO.

References:

(1) Jay Miller, KK5IM web site - http://www.KK5IM.com

(2) Glen Zook, W9STH web site - http://home.attbi.com/~zcomco/index.html

(3) Mike Cowart, WA5CMI web site - http://home.att.net/~wa5cmi/index.htm

(4) Don Reaves, W5OR web site - http://militaryradio.com/

For further information on Collins radios and collecting, check out the following sites:

Collins Collectors Association - http://www.collinsradio.org

Collins Radio Association - http://www.collinsra.com/

WA3KEY Virtual Collins Radio Museum - http://www.wa3key.com/collins.html

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FOR SALE: Drake B Line: R-4B, T-4XB, MS-4; Drake R-4 rcvr, orig manuals; (2) NOS Switchcraft 24 Station/Double Row Audio Patch Bays. Rhett Downing, ND7O, WY, (307) 721-3022 nd7o@fiberpipe.net

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WANTED: Elmac PS-2V pwr sply for Elmac AF67 & PSR 117 for rcvr. Dave, WØBEI, POB 462 Faribault, MN 55021. 800-500-8055

WANTED: "Heathkit: A Guide to Amateur Radio Products" by Chuck Penson. Willis C. Jenson, (541) 923-2784, W0WI@Juno.com

WANTED: Millen 90801 exciter, good condx, e-mail or call w/description & price. Bill Lambert, AK4H, NC, (919) 894-3352 eves. blambert1@mindspring.com

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WANTED: Radios Master catalogs, pre vol #12th ed, all before 1947. R.V. Matson, W1CSO, POB 956, Lake Panasoffkee, FL 33538. (352) 568-1629

WANTED: Copy of modifications for BC603 rcvr in CQ magazine, Sept 1958. Will compensate. Joe, W5JDY, 317 White St., Norman, OK 73069. (405) 321-4717, whiskeyjoe2000@yahoo.com

WANTED: Schematic for Ham Keyer model HK-5, or will purchase working unit. Wes Chatellier, 1950 Chevelle Dr., Baton Rouge, LA 70806. wesw5dpm@eatel.net

WANTED: New OS Fahnestock clips 1" x 3/8", need 2 doz; Kenyon xfmr catalog. Harold Knight, W1SKS, POB 85, Bradley, ME 04411

WANTED: Rcvr R-174/URR snap in unit for "Gas Radio" command set. Bruce Beckeney, 5472 Timberway Dr., Presque Isle, MI 49777. (989) 595-6483

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FOR SALE/TRADE: Misc. parts, tubes, for tube gear. Sandy Blaize W5TVW, 40460 Edgar Traylor Rd., Hammond, LA 70403. ebjr@i-55.com

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FOR SALE: 51J-4 filter replacements, direct plugin—6.0 kc Collins mech. filter, 3.3 xtal lattice, 2.3 kc xtal latice ,500 cycle xtal latice - $215 each; R-390A 16 kHz flat phase filter, for Hi-Fi AM - $245. Chuck Felton, KDØZS, WY, (307) 322-5858, feltoned@coffey.com, www.feltondesign.com

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WANTED: Collins 70K-2 PTOs working or not; IN82A diodes; Bretting 14/14AX manual. Clark, WØBT, KS, (785) 286-2132

WANTED: Seeking unbuilt Heathkits, Knightkits. Gene Peroni, POB 7164, St. Davids, PA 19087. (610) 293-2421

WANTED: Electric Radio; Antique Radio Classifieds; Old Timers Bulletin. Alan Mark, POB 372, Pembroke, MA 02359

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FOR SALE: Vacuum tubes NOS, used, some xmtg. SASE for list. E.F. Hayes, WØJFN, 3109 N. Douglas Ave., Loveland, CO 80538.

FOR SALE: Drake TR4C, MS4, AC4, nice condx - $345 + shpg. W7RBF, AZ, (602) 864-9987.

FOR SALE: These Collins parts only for 32V1 or 32V3, some are same as 32V3: front panel exc w/ glass bright dial lettering - $90; cabinet exc 32V1 or 32V2 - $90; set of meters for 32V1 same as 32V3 - $100; 455-J-60 6 kHz filter for 75A4 - $260; 455-J-08 800 Hz filter - $190. Bill Smitherman, KD4AF, 9401 Hwy 67, East Bend, NC 27018. (336) 699-8699

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FOR SALE: Popular Electronics, Radio Electronics, Hands On Electronics, approx 165 issu's - $30; 73 Magazine, approx 400 issu's, 1962-'95 - $75 + shpg. Allan Lurie, W9KCB, 605 E. Armstrong Ave., Peoria, IL 61603. (309) 682-1674

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FOR SALE/TRADE: Transmitting/rcv'g tubes, new & used - 55¢; LSASE for list. I collect old & unique tubes of any type. **WANTED:** Taylor & Heintz-Kaufman types & lge tubes from the old Eimac line; 152T thru 2000T for display. John H. Walker Jr., 13406 W. 128th Terr., Overland Park, KS 66213 (913) 782-6455, jhwalker@prodigy.net

FOR TRADE: Two good RCA 833A's for one Taylor 833A; also looking for Taylor 204A, 813, 866B. John H. Walker Jr., 13406 W. 128th Terr., Overland Park, KS 66213. (913) 782-6455, jhwalker@prodigy.net

FOR SALE: Over 75 types of xmt'g tubes available, duplicates of some types, sockets for most types. Send SASE for complete list. Available as a collection or individually. K4HU, NC, (828) 693-7519, k4hu@arrl.net.

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FOR SALE: BC-610-E with two coils, five tuning units, AM speech unit (BC-614-I) and manual. Roger Klingman, KØRMK, Wichita, KS, mrhistry@juno.com

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R390-R390A/URR Technical CD-ROM - $ 57.
RCA HB-3 Tube Handbook - $ 75.
RCA Radiotron Handbook, 4th Edition - $ 62
Radio Boys on CD-ROM - $ 39.
80 years of QST - $ 39.95 per set (generally 5 or 10 year set).
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970-564-9185, er@frontier.net

WANTED: Old Callbooks, especially those covering the years before 1930. Alan, W3BV, PA. (215) 795-0943 or W3BV@arrl.net

WANTED: National HRO black wrinkle spkrs, oak coil boxes, coils; Western Electric horns, spkrs, amps, mics. Barry Nadel, POB 29303, San Francisco, CA 94129. bnadel@ccnet.com

WANTED: New or used unmodified BC459A, BC696, T18/ARC/5, T19/ARC/5, CBY52232. Louis Lytch, K2DET, 117-33 230th St., Cambria Heights, Jamaica, NY 11411-1806. (718) 528-5065

WANTED: Manuals, manuals, manuals for radio-related equipment to buy or swap. Catalog available. Pete Markavage, WA2CWA, 27 Walling St., Sayreville, NJ 08872. (732) 238-8964

WANTED: Collecting military electronics including radio, radar, RDF and test, manuals & literature. William Van Lennep, POB 211, Pepperell, MA 01463. (978) 433-6031

WANTED: Postcards of old wireless stations; QSL cards showing pre-WWII ham shacks/equip. George, W2KRM, NY, (631) 360-9011, w2krm@optonline.net

WANTED: Stancor/Chicago PCC200, PCO/PS0150, RC8150; Triad A-9-J, A-10-J, A-11-J, A-12-J. **FOR SALE:** Books, send SASE. Richard Robinson, POB 1425, Wallingford, CT 06492. (203) 949-0871, richmix@erols.com

WANTED: R-390A rcvrs, parts rigs or restorable, will restore yours at reasonable prices. Walter Wilson, KK4DF, (706) 733-8323, wewilson@knology.net, www.knology.net/~wewilson

WANTED: Info on xmtrs made by Clough-Brengle Co. Used by the CCC, in the mid to late 30's. Any help would be greatly appreciated. Ron Lawrence, KC4YOY, POB 3015, Matthews, NC 28106. (704) 289-1166 hm, kc4yoy@trellis.net

WANTED: QSL cards from old/pre WW II Ham DX countries; old regen kits. Hajime Suzuki, Nishikuniyoshi 1644-24, Ichihara-Shi, Chiba-Ken, 290-0231 Japan

WANTED: WW II Japanese xmtrs & rcvrs (parts, plug-in coils) for restoration & ER articles. Ken Lakin, KD6B, 63140 Britta St., Ste. C106, Bend, OR 97701. (541) 923-1013. klakin@aol.com

WANTED: Collins 310B3, basket case OK - welcomed; & Chicago 500W CMS-2, high-level modulation xfmr; Taylor T21. Jerry, W8EGD, CO, (303) 979-2323

WANTED: Complete manual for Heath EK-2 BC/SW rcvr; components from Heath GD-57 R/C system. Louis D'Antuono, WA2CBZ, 8802 Ridge Blvd., Brooklyn, NY 11209. (718) 748-9612

WANTED: Kleinschmidt teleprinter models: 311, 321, (AN/FGC-40, AN/GGC-16, AN/UGC-39...) Tom Kleinschmidt, 506 N. Maple St., Prospect Hts., IL 60070-1321. (847) 255-8128

WANTED: Visitors and tubes by museum. Old and odd amateur or commercial tubes, foreign and domestic purchased, traded or donations welcome. All correspondence answered. K6DIA, Ye Olde Transmitting Tube Museum, POB 97, Crescent City, CA 95531. (707) 464-6470

WANTED: WWII BC-610-E series or earlier xmtr; BC-739 interphone control box. BC-652 rcvr. Steve Finelli, N3NNG, 37 Stonecroft Dr., Easton, PA 18045. (610) 252-8211, navrad@enter.net

WANTED: 1950's Popular Electronics; 1961-65 Heathkit catalogs & Radio-TV Experimenter. John Curtis, WØCAR, 3146 S. Franklin St., Englewood, CO 80110. (303) 781-8027, wøcar@arrl.net

WANTED: Searching for RME CT-100 or 3R9 xmtrs and info about them. David Edsall, W1TDD, 156 Sunset Ave., Amherst, MA 01002. (413) 549-0349, dedsall@crocker.com

WANTED: RBB/RBC rcvrs, pwr splys, cables & RAK/RAL equip. Andy Miller, KD6TKX, CA, (831) 484-2389, amillertkx@aol.com

WANTED: Orig Heath manuals for ham & test equip. Please state condx & price. Warren, K1BOX, NC, (828) 688-1922, k1box@arrl.net

WANTED: RCA 140, 141, AVRSA. GE K80, K80X, K85. Any condx. James Treherne, 11909 Chapel Rd., Clifton, VA 20124. treherne@erols.com

WANTED: Service manuals, originals, copies for copy of HP 3330B, HP 3582A, HP 11710A. Will pay ALL exp. and more! Reinhard Wieschhoff, 7 rue du Debuche, F-78120 RambouiLLet, France. Tel/Fax: 0033 1 304 111 02

WANTED: Scott Special Communications rcvr. EA4JL, please call, Kurt Keller, CT, (203) 431-9740, k2112@earthlink.net

WANTED: Russian 1.5-8 MHz military transceiver, type P(R)-131. Will pay well for a good one. Leroy Sparks, W6SYC, 924 W. Mc Fadden Ave., Santa Ana, CA 92707. (714) 540-8123, leroysparks@earthlink.net

WANTED: SW3 #33A and #35 coils. I will trade my extra coils SW3 coils. Hank Bredehorst, 2440 Adrian St., Newbury Park, CA 91320. (805) 498-8907

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WANTED: Globe King 500 B/C; Viking Valiant I/II; Viking 500; Heathkit Mohawk. Frank, (916) 635-4994, frankdellechaie@sprintmail.com

WANTED: National SW-3 model 1, version 3. Uses 32-32 30 tubes. Dean Showalter, W5PJR, 72 Backboard Rd., Tijeras, NM 87059. (505) 286-1370

WANTED: Collins 32V & Collins 75A series; Globe Scout; National SW54. KBØW, CA, (916) 635-4994. frankdellechaie@sprintmail.com

WANTED: Hallicrafters SX88 or SX115. Larry Redmond, 413 Bedfort Dr., Duluth, GA 30096. (770) 495-7196

WANTED: Clean fully functional w/manuals Swans FC76, FSI and WM2000A . Contact C6ANI @ c6anirumcay@hotmail.com

WANTED: WW II German, Japanese, Italian, French equipment, tubes, manuals and parts, Bob Graham, 2105 NW 30th, Oklahoma City, OK 73112. (405) 525-3376, bglcc@aol.com

WANTED: Heath Gear, unassembled kits, catalogs and manuals. Bill Robbins, 5339 Chickadee Dr., Kalamazoo, MI 49009. (616) 375-7978, billrobb@net-link.net

WANTED: I wish to correspond with owners of National FB7/FBXA/AGS coil sets. Jim, KE4DSP, 108 Bayfield Dr., Brandon, FL 33511. j.c.clifford@juno.com

WANTED: Parts for a TMC GPT-750 xmtr. I need the AM modulator deck and other parts to restore this unit. John, KF2JQ (716) 873-0524 jprusso@acsu.buffalo.edu

WANTED: Collins 30K1 xmtr; also need orig manuals & literature for 75A1, 32V1, 30K1. Paul Kluwe, W8ZO, POB 84, Manchester, MI 48158. (734) 428-2000

WANTED: Tektronix memorabilia & promotional literature or catalogs from 1946-1980. James True, N5ARW, POB 820, Hot Springs, AR 71902. (501) 318-1844, Fx 623-8783, james.true@ibm.net

WANTED: Collins promotional literature, catalogs and manuals for the period 1933-1993. Jim Stitzinger, WA3CEX, 23800 Via Irana, Valencia, CA 91355. (661) 259-2011. FAX (661) 259-3830

WANTED: Galaxy (Hygain) RF-550-A wattmeter; Elmac AS-1 moblie spkr; military LS-2 spkr; any Harvey-Wells spkrs, VFOs, aircraft units, TBS-50-B. All answered. Kelley, W8GFG, 9010 Marquette, St. John, IN 46373. (219) 365-4730

WANTED: Looking for a Knight T-150A that I modified in the '60s. I added a one-tube reactance modulator behind the VFO. It was enclosed in PC board material which was soldered together. Does anyone have this T-150A? Ed Santavicca, AA8TV, OH, (216) 521-6093. aa8tv@aol.com

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FOR SALE: Repro Nameplates, R-390A generic - $9; 51J-3 and 51J-4 exact replicas - $12. Tom Marcotte, N5OFF, 242 Chestnut Oak Dr., Mandeville, LA 70448. courir26@yahoo.com

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FOR SALE: R.L. Drake repair and reconditioning, most models including TR-7's, 35 years experience. Jeff Covelli, WA8SAJ, (440) 951-6406 after 4 PM. wa8saj@ncweb.com

FOR SALE: Heath Nostalgia, 124 pg book contains history, pictures, many stories by longtime Heath employees. (See BOOKS inside back cover.) Terry Perdue, 18617 65th Ct., NE, Kenmore, WA 98028

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FOR SALE/TRADE: Transmitting/rcv'g tubes, new & used - 55¢ LSASE for list. I collect old & unique tubes of any type. **WANTED:** Taylor & Heintz-Kaufman types & large tubes from the old Eimac line; 152T thru 2000T for display. John H. Walker Jr., 13406 W. 128th Terr., Overland Park, KS 66213. (913) 782-6455 or johnh.walker@prodigy.net

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