

REFERENCE INFORMATION

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Setup: 8N1 & ANSI or TTY: FidoNet 1:202/731
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Index & Table of Contents to WSR always available
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LAST CHANCE TO RENEW AT THE OLD RATES!

Effective July 1, 1995, new subscription rates will be etched into stone as follows:

	USA	Canada/ Foreign Surf
Single issue	\$ 5.00	\$ 5.50
6-mos, 5-issues:	\$20.00	\$25.00
1-yr, 10-issues:	\$35.00	\$45.00
2-yr, 20-issues:	\$65.00	\$75.00

Through June 30, 1995, you may renew your subscription for any one of the three periods at the *old rates* in the sub-blank on the inside of the last page.

Please understand that the new rates become effective at midnight (0000) on July 1, 1995, and are not negotiable. We will use formal postmarks, BBS log-in times, server date stamps on e-mail, and/or other official records to determine if receipts *after* June 30 are qualified at the old rates. Sorry, but dates on checks and money orders do NOT qualify.

If you want to take advantage of the old rates, the safest recourse is to ensure our receipt of your renewal before 2400, June 30, 1995. We will make allowance for transport delays as follows:

Postage-meter- mail and other receipts unofficially dated June 30 or prior must be in our hands before midnight (2400-hrs), July 7, 1995., Receipts provably dated 6/30 or prior must be in our hands not later than 2400, July 31, 1995, to qualify for the old rates. No exceptions.

CHECK YOUR MAIL LABEL

This issue is the last for the first half of 1995. Accordingly, many subscriptions will expire with this issue. Be sure to renew right away to take advantage of the old rates. As is our custom, if your budget can't afford an immediate renewal, write us a note of explanation and we'll send one more issue to tide you over. Likewise, if you are not going to renew and tell us why not, we'll send you one more issue just to say thanks for your

WORLD SCANNER REPORT

A Journal of VHF-UHF Radio Technology & Engineering

Published by: COMMtronics Engineering at PO Box 262478; San Diego, CA 92196

Publisher/Editor: W.D. Cheek, Sr. a.k.a. "Dr. Rigormortis"

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Volume 5, Number 5

\$5.00

patronage and for telling us why you won't be renewing. For those who can't renew right away, we'll send one more issue upon request and explanation, but we cannot extend rights to the old rates past June 30, 1995. Keep that in mind.

NEW SCANNER ON SCENE? REALISTIC PRO-26

RadioNet: Engineering/Technology Forum
From: Tony Papson Tue 02 May 95
To: Bill Cheek
Subj: PRO-26

I only have little info off the top of my head on the PRO-26. It's got 200 channels, you can change the increment steps while searching, you can change all modes of modulation, it will auto arrange you channels and I believe auto search and store. It's got a "data" feature which if I understood the owners manual will let the scanner skip over data channels while scanning or searching.....all this and more can be yours for just \$400! It reminds me of the PRO-2006. Let me know what you think of it!!

Origin: Hertzian Intercept, San Diego (6pm-1pm PST) 619-578-9247 (500:10/12)

ED: I have limited knowledge of this new scanner from Radio Shack yet, but I will attempt to find out more and acquire a service manual for it. At first glance at Tony's input, the PRO-26 sounds to me like a handheld running mate for the new PRO-2035 base scanner. Clearly it will not be modifiable for cellular reception, but if it has triple conversion, AGC controlled front end; and a doubly balanced mixer, then it could be a worthy replacement for the PRO-43 now off sale. I'll keep you posted with what I learn. See just ahead for a user report on the PRO-60 that seems to be a clone of the PRO-43.

Meanwhile, User Reports of the PRO-26 performance will be highly welcomed and regarded for immediate release here in the World Scanner Report. If you acquire one, please tell me what you think of it and how it performs. If you get a service manual, let me know, too. I'm curious to review it as soon as possible.

BRASS TACKS & STEEL LUGNUTS

About the Radio Business

Hey folks, bear with and permit me to whine and snivel for a good cause, and you may find enlightenment.

Look at the first column over on the left side of this page where I took several paragraphs to explain all the fine print about qualifications for renewing at the old rates. Know why I did that?

It pains me to have to be so brass and callous with the *no exceptions* and *carefully spelled-out details* when many of you dear readers have been with us from the beginning and some of you even go back with us to the mid 80's when I published the "Eleven Meter Times & Journal". Cindy and I would bend over backwards for you good people and many of you know we do just that. We will continue to do so, too.

The problem is that we're getting a lot of new inquirers and first-time customers who don't know us from Adam and Zaranthustra. Increasingly more often, we're hit upon by people who would take us to the cleaners if we let them. In a word, more and more strangers treat us like we're Radio Schloque, Rears & Sawbuck, and Monkey-Wards; big-time business where the customer is King, even when he's dead wrong.

That's all well and good for those companies with 7 figure budgets who can turn around and pass on downstream the costs of doing business. You can walk into Rears & Sawbuck, for instance, and scream bloody murder about how you got porked on some product, and before long, you'll walk out of the store with loads of compensation with the ☺ ☺ ☺

Ultimate Scanner Book Price List

SPECIAL: Until June 30, 1995:

\$24.95 + \$4 S&H

After June 30, 1995: \$29.95 + \$4 S&H

US Funds only, remittance payable to COMMtronics Engineering. Canada add US\$3 S&H; other foreign add enough to cover desired shipping method.

salesperson licking up your footsteps and worshipping the tiles upon which you just scuffed your shoes. Right?

What you may not know is how all that obscene sucking up accompanied by the perks and freebies comes at a stiff price out of your wallet. Those larger companies can well afford to please you **at a price**.

Small companies like mine cannot afford that luxury for several reasons. One is that your \$25 WSR subscription probably went into one account; got transferred over to another one; and paid right back out as a down payment on one of the kid's eyeglasses. We're a small operation with a very tight cash flow. So what's a small outfit to do?

Speaking for mine, small companies have few choices in order to survive. One is to play like the big boys and offer poor or mediocre service and mediocre to superior products at prices higher than worth. Another is to cop an "attitude" and just pork people right and left for all they're worth...*make a quick killing* and go on to bigger and better things. Or, like we do, develop and market a few superior products with superior service priced as low as survival will permit; and dispense with the costly games and shenanigans. And be hard nosed about it. Here, let me give you a picture:

Take the back issues of the WSR for instance, say the 1992 set, priced at \$21.00, ppd. There is a NO REFUND policy on our printed matter. Why? Because there are enough people who would buy the set; duplicate it on their office copiers and then return it for refund claiming they weren't satisfied. (*People try to do that with my Scanner Modification Handbooks, too!*) Most likely, the returned set cannot not be resold thanks to bends, creases, and other wear & tear of handling. So we eat the loss.

Wrong! Businesses can't lose money and stay in business. **You** would absorb the loss, if we flashed a smiling set of pearly whites with an unlimited **SATISFACTION-MONEY-BACK** policy. The price of the set would be \$30 or more; **a rip-off**, in my opinion.

So we do not offer this phony and expensive option to the back issues. Neither do we wish to leave people dissatisfied, so as a compromise, we publish a **Table of Contents** and an exhaustive **Index** to the back issues and make them freely available to prospective buyers.

We go the extra mile to replace issues damaged in shipping and any missing issues. But we do not offer a money-back policy, see? This micro-view parallels most of our operations *where we do not leave ourselves open to abuse*, but take great pains to accurately describe our products, terms and conditions so there is nothing left to doubt.

We dig deep to find ways to keep our service and quality at a top notch level without adding to the cost. In the above example, it takes me several extra hours a month to prepare the **Table of Contents** and **Index**, but that is a finite, predictable investment of time and quality that has a definite closure. Not only does this effort *tell-it-like-it-is* to prospective buyers, but it adds to the long term value of your WSR when you can quickly and easily access long forgotten information with the turn of a page or two instead of hundreds!

Another example is our modification kits where we test and qualify most everything that goes out the door. The CE-232 Kit contains an expensive CPU chip, for example, that can be damaged by improper handling and operation. Since we cannot control HOW the hobbyist handles the chip, we cannot guarantee it. But I go the extra mile in three other ways:

First, I ensure that each CPU is properly packaged and leaves the premises in viable condition. Secondly, in sympathy to the hobbyist who might inadvertently blow his CPU, we make available a rock-bottom cost replacement for 60-days after sale of the kit, after which the price of a replacement goes up to a normal level.

Thirdly, I go to great lengths in the Manual to spell out proper handling and installation procedures. The result is that there have been maybe three cases of blown CPUs out of hundreds. Only one person went wildly amok and angry when we wouldn't *give* him a free replacement. The moral here is that the CE-232 Kit is not priced to include a "free" CPU upon demand later. In a way, the **no-freebie** policy probably renders a greater service to the hobbyist anyway, since it is apt to make him more careful and cautious. It works! The CE-232 does not populate the earth, but people are satisfied with it; *my goal!*

Concluding this little departure from our routine material, I wanted to initiate an insight to the radio business for you new and returning Readers. This is a subject that's handled like a hot potato around the publishing scene where no one speaks of it. I will be speaking out MUCH more about it in the coming year because I think it is time everyone knows the score about the ins & outs of the industry that supports our hobby. There is a lot to know.....

I am going to leave the subject this month with a thought and a closer glimpse behind the scenes here at the **WSR Headshed**. Cindy and I run the show with our high school kids, Ali & Ryan, helping out upon occasion. We have no employees, and therefore no expensive fringe benefits, extra bookkeeping, and related overhead to add to the costs of doing business. On the other

hand, we work long hours, me typically rising at 6-am and retiring only well after midnight, 7-days a week, with a rare holiday off. Cindy and I do not hold "regular jobs". We work full time with COMMtronics Engineering and the **World Scanner Report**. It's hard work, but.....*there are rewards*.....

Ali & Ryan have never been "latch-key" kids. We're home when they leave for school, and we're home when they get out of school. We help them with their school projects, homework, and other needs. We are **here** for them, 100%, whenever they need us, **by choice**. And otherwise, we are dedicated to the family enterprise, day in and day out. That's where you come in.

Since we do not hold "**regular jobs**", it should be easily understood that we have to make our day's work somehow pay for the same things YOUR job takes care of, like food & clothing, rent, health care, car, dog, and education of the kids.

Vicious circle here: to make a good living, a company needs to grow. But if we grow, then we grow away from our kids. If we hold down regular jobs, we're away from both YOU and the kids, with each getting a partial ration of what is deserved. Cindy and I decided long ago that the best compromise for all was for us to stay small; maximize our income and minimize the outgo.

The visible result is that we have to do business a little differently than the rest of the pack. We choose **not** to follow in the footsteps of Radio Shack, Uniden, "**National Scanning Report**", "**Monitoring Times**", etc.

MORE ON THE PRO-26 AND THE PRO-60 By Larry Fowkes

I haven't had a chance to pull the back off the new PRO-26, but I will get at it soon. I picked up a new PRO-60 about a week ago and have been doing comparisons of the PRO-26, PRO-60, and PRO-43. The PRO-60 is the GRE replacement for the 43. It has much the same coverage as the 2006, including WFM, but sans cellular, of course.

I ordered the service manuals for both the 26 and 60. The 26 is back ordered but I got the 60's today. Almost identical to the 43 with the addition of some additional WFM circuitry. Uses the same memory scheme as the 43 so I'll guess a very similar memory upgrade will work. I'm anxious to see what the Uniden-built PRO-26 has inside.

So far in head to head testing in VHF-hi-UHF, and the aviation bands its pretty much a dead heat. Each one hears what the other does. I used identical rubber ducks on each radio and had them positioned in a holder while

searching small increments in various parts of each band. None of the scanners missed anything the others heard. I haven't tried 800 and VHF-Lo yet. Both the 26 and 60 had no problem with anything on the FM broadcast band, but then I'm only eight to ten miles from most of the local stations who are probably pumping about a gazillion megawatts out, so I could probably hear them without batteries in the radio. ☺

Featurewise the PRO-60 and 43 are pretty much the same although the *Limit Search* in the 60 can either search continuously or one step at a time. You simply press the *UP* or *DOWN* arrow for a second or so to engage continuous search. Pressing it quickly on the other hand increments the freq by one step. *Step* size is not selectable on the 60. *Mode* selection is based on frequency but can be selected manually. I noticed the 60's display is more readable from a high angle. Its kind of blurry if you look straight into it. Audio is about the same on all three units, nothing to write home about.

The PRO-26, of Uniden origin has bells and whistles, but this one appears to have some *lugnuts*, too. Its *Search & Store* works superbly, never storing the same freq twice. I ran it through 5 MHz sections of the air band and in 15 mins had forty channels programmed with active air traffic channels. It has a *DataSquelch*, but haven't tried it yet. The PRO-26 has continuous coverage from 25 - 1300 MHz and selectable *Step* size. There are several operational characteristics that can be changed by various key combinations at power up.

Hell Bill, I like all of 'em so I'm gonna keep all three. I'll continue my testing in the 800 and VHF-Lo bands and let you know what I find.

I faxed you a few pages from the service manual. I hope they were readable.

ED: *Yes, the faxes were fine, and plenty good enough to examine for a first hand technical evaluation of the PRO-60. To be honest with you, that PRO-26 with the lugnuts sounds like the winner, but my Service Manual hasn't arrived yet. Usually, Radio Shack's Uniden made scanners have a counterpart with the Uniden label, but I don't know of one at this time. The PRO-26 appears to be unique, specially for Radio Shack. If it was made to Radio Shack specs like their GRE scanners, then the PRO-26 might well be the hottest thing since the PRO-2004. For now, let's take an inside techie look at the PRO-60.*

INSIDE THE PRO-60

By Bill Cheek

Thanks to Larry Fowkes for the faxes from the service manual, I'm able to offer a fairly educated technical look at the new PRO-60 from Radio Shack.

Sure enough, the PRO-60 looks suspiciously like a PRO-43 judging from the Block and Schematic Diagrams. The business-end of the two scanners are twins as far as I can see. The front end starts off with five bandpass filters just like the PRO-43. The RF amplifier, doubly-balanced 1st mixer, AGC feedback, and triple conversion IF sections also appear to be cloned from the PRO-43. These are the most important parts of a serious receiver. The memory circuits appear to be cloned from the PRO-43, so Extended Memory is probable. The PLL circuits appear identical. The PRO-60 surely continues the tradition set by the PRO-43.

There are differences. For one, we know that cellular reception will not be possible, so don't get your hopes up. On the other hand, the PRO-60 is more like the PRO-2004/5/6 with selectable WFM mode. The AM (aero) section and the AGC circuits have been redesigned, but I can't tell whether for the better or worse. The PRO-2004/5/6 and PRO-43 used two transistors and a couple of diodes to separate AM signals from NFM and to derive the system AGC. The PRO-60 appears to do it all on board one chip, although there is a separate IC discriminator chip and circuit for WFM reception. I'm afraid the jury will be out on this one for a while.

This means that I don't know if an S-meter is possible for the PRO-60 like for the PRO-43. You know me and S-meters. Next to the receiver, an S-meter is the most important, almost more so as far as I am concerned.

Really, the PRO-60 looks like little more than an appeasement for the now defunct PRO-43. Radio Shack had to delete the cellular coverage, so they added WFM and an enhanced SEARCH function. That's about it. I don't know that the PRO-60 is worth a second look until we know more about the PRO-26. Don't get your hopes up; the PRO-26 is a Uniden in disguise, and might well be more bells and whistles than wheels & lugnuts, but we'll see soon.....

THE OTHER VIEW

By Janet Cravens

Foreword by Janet's husband, Roger: *{Bill, this is my wife Janet's view of scanning. She wanted to see if some magazine would publish this!}*

Several years ago, my husband, Roger, casually mentioned he would like to have a

police scanner radio. Little did I know the difference that would be made in our lives with the purchase of this small piece of metal, plastic, and components.

This article is written with the spouse of an obsessive radio nut in mind. So guys, when you get through with it, make sure your wife reads it. She may be able to see through your obsession with a better view.

There are certain changes which occur when you live with a radio nut. For instance, I've discovered that there is a ton of information available from various sources. I've learned the difference between a beam antenna and a "Scantenna"; I've also learned why a TV antenna won't do the job. And although we had a discone antenna for a while, it was not effective and did not increase "our" listening power, therefore, we needed a different antenna. I discovered one day that when your nut has one radio, it will never be enough. (ED: *Like potato chips.*)

I purchased a Bearcat 200XL Portable Scanner for Roger on his birthday. The radio had batteries, an adapter for electric current, a protectant leather cover to keep the radio from getting scratched and a book with "all the frequencies you'll ever need" (Betty Bearcat's Frequency Directory). Huh! Little did I know of the adventure that was coming.

I gave him his radio at a birthday party in a restaurant with our pastor and his wife, Roger's best friend and his wife, and a few family members. He never spoke to those people again for the rest of the night—he was too engrossed in looking at his radio and his new book. I was so pleased to have bought him something he was so excited about. On the way home from his party, I had to drive with the lights on so he could look at it some more and read the owner's manual and see how it worked. When we got home, he immediately began reading through his book and inputting frequencies into his radio. Oh the joy when he heard that first transmission! He left it on all night long.

First THE JOY! Then came problems: the radio had batteries, but when you listen to the scanner as much as he did, they quickly ran down. That's when Roger knew he was going to have to have rechargeable batteries; I thought I could see the wisdom in that—it didn't matter that we were on vacation and had a limited amount of money to spend—so what if we had to go home one day early!—Didn't I understand this was a need? We bought rechargeable batteries.

Then he discovered that if he had an adapter that fit into his cigarette lighter on his truck, he would be able to listen to the radio as he was

traveling 'round town and it wouldn't run the batteries down--so we bought the adapter.

Next, that little "book with all the frequencies you'll ever need" really didn't have all the frequencies that he needed. No,, Roger discovered through talking to some friends that there was another book called **Monitor America** which would have more information so he could fully enjoy his radio. So of course we ordered it. When his new book came, he discovered an advertisement for a scanning publication called "RCMA Scanner Journal." He felt he would be able to learn things much faster if he had a subscription--so we bought a subscription.

In the meantime, Roger determined that if he had some type of antenna attached to the house, he could widen his listening area. After a little research and with limited funds, he purchased Radio Shack's discone antenna; climbed the tree right in front of our home, and affixed that antenna really high so he could listen.

Through that subscription, he discovered Grove Enterprises in Brasstown, NC, called, who had advertisements for special scanning antennas. Every other month or so he arranges to take a day off work so he can go visit Grove.

So what have I learned or discovered these past several years. I've learned how to read a compass so we can make sure the antenna is facing the right direction, spend lots of money on "something else I read about in a magazine," how to find the Government Printing Office in Atlanta so we can be proud owners of the Code of Federal Regulations which pertain to scanning and amateur radio frequencies and laws; I've learned to be quiet while he studies to take his tests for his ham radio license. I've learned not to mind when he insists that the new scanner antenna he bought for my van continually ends up on his truck and only makes it to mine when he's in there. I've discovered that I have to tell him "no," he can't take his radio into church to see what frequency the P.A. system is on. I've learned about frequency counters, late Saturday evenings spent under a romantic moon, looking up at a repeater tower, just so he can get the latest frequencies that aren't published in any of those expensive books and magazines we have.

I've learned that no matter what type of radio you start with, it will never be enough. Roger was satisfied for almost a year, then we needed a "desktop" model. Little did I know that eventually he'd discover that the "little cigarette lighter adapter" would also work on the desktop model (Radio Shack's PRO-2006), therefore, since the range was better on the desktop, it now rides "shotgun" every time he leaves the house to run errands around town, including his frequency counter. It's like loading up for a weeks vacation just to go get gas or a gallon of milk!

I've learned to appreciate that as long as he's in our bedroom listening to his scanner, his shortwave radio (ICOM's R-71A), and looking for

new frequencies, he's not out drinking, carousing, and chasing other women (which he doesn't anyway). I've learned to sleep through the noise the radio makes as we fall asleep each night; to awaken him if there's a high speed chase or a drug bust; not to initiate lovemaking in the middle of a high speed chase; but the other side of the coin is I don't have to worry about a high speed chase if he's already involved in lovemaking.

So all in all, I could say that I've learned a lot since scanning started around our house. I've discovered that while I'm asleep I'm intuitively listening and that the information being discussed on the radio often becomes mixed up in my dreams. I've discovered that everyone else in Douglas County seems to have a 10-16 (domestic disturbance) on a regular basis and that we've never had one. Every weekend, we talk about whether we want to try one, but so far, when he wants a 10-16, I'm not in the mood; and as hard as I try when I do want to, he decides he'll save his 10-16 for some other day.

I've learned to recognize some of the "ten codes" and "signals" that are used during those police discussions. But I've also discovered that it's sort of like the Smurfs--if you'll just put the word "smurf" in every where there's a code, it makes as much sense. You know, "Number 31, can you smurf me at Hwy 78 and 5?" Sounds almost like "Can you 10-25 me?," doesn't it?

I've learned about trouncing systems and that the trouncing system changes each night at midnight. I've learned to wake him up and tell him to make it stop. On some nights, he's too tired to lock out the channels and find the new system, so he turns over, turns down the volume, and then we don't have to worry about it.

I've also discovered that if I wake up in the middle of the night to go to the restroom, I cannot fall asleep until the scanner is turned back on.

So, I guess what I'm trying to say is whether you like it or not, scanning appears to be a new way of life. You can decide to like it or hate it, but eventually--it becomes an integral part of life.

I read in the paper the other day an article where a husband said he wasn't sure he was number one on his wife's list or if he placed after the kids, grandkids, dogs, housework, plants, and friends, but he figured he could be satisfied just being sure he was on the list.

So you know what? Some days I'm low woman on the totem pole, but others I come first. And with the love we share, it's all worthwhile.

Go tell your wife you love her and make sure you let her read this letter. After all, us "scanner radio" widows gotta stick together. Somebody's gotta talk to us every once in a while, so we might as well talk to each other.

ED COMMENT: *Zowie, what a neat article, Janet! No wonder Roger is such a neat dude. My first wife didn't understand anything I*

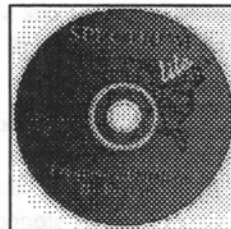
wanted to do, whether it was radio, fishing, or love-making. Cindy understands it all and is the basic reason why I've become half human or so. Now I understand why Roger is an all-right sort of fellow.

Now let me critique your article, if I may. You addressed your thoughts to the radio widows out there, but believe it or not, there are a few widowers, too! We have a number of lady scannists on our reader rolls whose husbands would prefer knitting and crocheting and chasing after the kids. I think your good words and observations will apply to them as well.

Oh, and what's this about TV antennas not being any good for scanners? Just you get Roger to install one in the vertical plane with a rotator and you'll hear signals three counties away! ☺

NEW CONTEST ANNOUNCED Deadline July 18, 1995

Contests are kind of fun, so let's have another. I want to know what in radio pisses you off. One of my peeves was voiced on page 1 of this issue, under the article, **BRASS**



TACKS & STEEL LUGNUTS About the Radio Business. Now I want to hear yours, just as bold and brassy, no holds barred. And there will be a nice prize for each of the top five submitters to be judged by Cindy and me. Here are the rules, terms and conditions:

1. Submittals should be 300-400 words (500 the absolute maximum), on your **pet peeve about anything related to the radio business or hobby.** Keep the language clean, and avoid peeves about individuals unless about a scam or rip-off. Otherwise, peeves should be about inanimate subjects, companies, groups, products, services, methods, procedures, hardware/software, etc.
2. Deadline for receipt of your submittal is 2400-hrs, (midnight), July 18, 1995. No exceptions.
3. Submit legible entries by Internet e-mail, Fido netmail, CIS e-mail, Fax, postal mail, or private file/message upload on the **Hertzian Intercept BBS.** See the **Reference Data** box and the **Masthead** on page 1 for addresses.
4. **Prizes** for each of the five winning entries will be a **PERCON CORP. Spectrum Lite FCC Frequency Database, Spring '95 Ed, CD-ROM**, ready to run, easy to use, with nearly 3-million records. Requires Windows 3.1/up, 4-Mb RAM. Prizes will be sent UPS-ground upon publication of the selections so make sure we have a valid street address. No shipments to PO Boxes!
5. Judges' decisions are arbitrary, capricious & final.
6. Winning names and entries will be published in a forthcoming issue of the **World Scanner Report**, but anonymity of authorship is assured for those who request it with the entry.
7. **Future hint:** Next contest will be like this one except about our "warmest fuzzies" in radio. ☺

ERROR ADVISORY

V5N1 Schematic Error

Leave it to our eagle-eyed readers! An error appears on the schematic diagram of the *Remote Controller for the PRO-2004/5/6 and other Scanners* on page 4 of V5N1. Reader Stan Palen reports:

I built the remote controller that was in V5N1. I believe that the line coming from pin 5 of U1 should go to pin2 of J1 not pin 1 as shown in the diagram.

It worked fine for about an hour and then C1 burned up. I have not had a chance to find the problem.

The error is corrected as shown in the Figure to the right. Readers are hereby advised to make pen & ink corrections to *original issues* of V5N1, or to photocopy the figure to the right and paste it over the original in V5N1. Please note that V5N1P4 has been corrected in back issues mailed out on or after 5/19/95. This will be seen by a printing date of 05/18/95 at the bottom of the page and a REV A: 05/18/95 at the top-left of Pg 1.

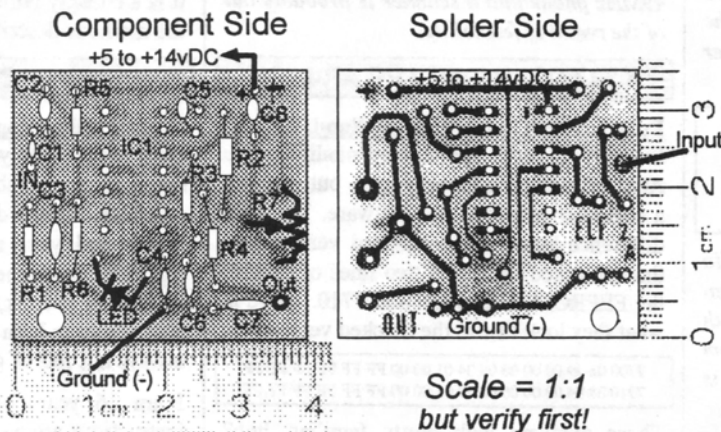
ED REPLY TO STAN: Thanks for the error report! I sure goofed. Apologies to you and any readers who were inconvenienced. If your C-1 burned up, the cause was most likely a reverse polarity connection, an underrated voltage spec, or maybe just a fluke.

UPGRADED SCA DESIGN NOW AVAILABLE FROM FM ATLAS

Ol' Bruce Elving has been at it again! His well known ELF-2 SCA Decoder module has been upgraded to the ELF-2a with the addition of an LED to enhance fine tuning SCA/SCS signals. The basic design appears unchanged, and while I incorporated a fine-tuning LED into my revised version of the ELF-2, it appears Elving may have found a better way to do it.

For those not in the know about Subsidiary Carrier Service (SCS), I'll refer you to *WSR* back issues for details: V1N1, V1N6, V2N10,

ELF-2a SCA DECODER



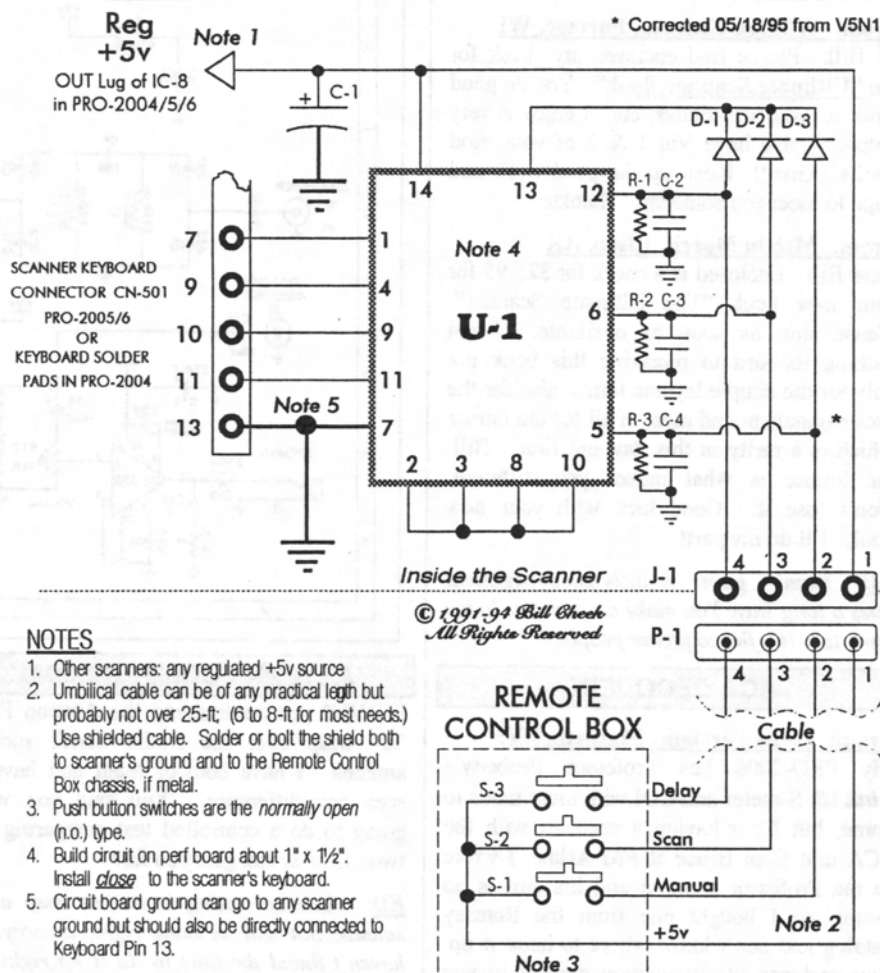
Parts List

IC1	XR2211
R1	4.7-k
R2	8.2-k
R3	68-k
R4	91-k
R5	220-k
R6	470-k
R7	Trimpot, 25-k
C1-2	470-pF, disk
C3-4	.1-uF
C5	0.001-uF mylar
C6	220-pF
C7	0.01-uF
C8	2.2-uF
LED	Light emitting diode
K-1	Relay, DPDT RS #275-249
S-1	Switch, SPST

Elving is the authority on FM Broadcast. His *FM ATLAS*, a regularly updated directory to FM stations and SCA services in the US and Canada is without equal. The *FMedia* is Elving's newsletter on the same subject, both are *musts* for serious FM'ers.

REMOTE CONTROLLER FOR PRO-2004/5/6 & OTHER SCANNERS

* Corrected 05/18/95 from V5N1



FROM THE READERS

From: William Kleiman, Portage, WI

Hi Bill: Please find enclosed my check for the "Ultimate Scanner Book". You do good work on your newsletter, etc. I enjoy it very much. I also have Vol 1 & 2 of your mod books. Great! Keep up the good work and hope to meet you someday. Thanks.

From: Melvin Morris, Rison, AR

Dear Bill: Enclosed is a check for \$25.95 for your new book "The Ultimate Scanner". Please ship as soon as available. I am looking forward to receiving this book not only for the simple layman terms, also for the professionalism and most of all for the humor which is a rarity in this day and time. Bill, the humor is what makes you different. Don't lose it! Good luck with your new book. I'll do my part!

ED: Thanks, guys! A little encouragement goes a long way. You make me want to do my part, too. It's fun to please people.

SCA DECODERS

From: Louie Ferrigno, Maspeth, NY:

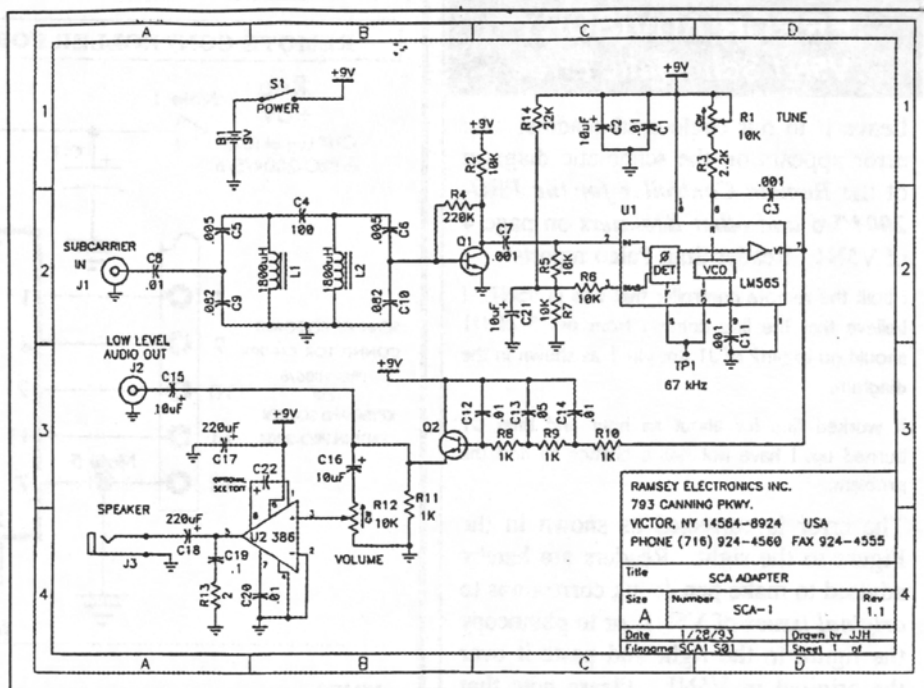
My PRO-2006 has Professor Peabody's *LinkAll*, S-meter and COI with more mods to come, but I am having a problem with the SCA unit from Bruce at *FM Atlas*. I wrote to the Professor about it and his unit is no better, so I bought one from the Ramsey catalog and don't know where to hook it up. I've enclosed the instruction manual to you for possible help if you have the time.

ED: There are no flaws with Elving's SCA design, but since you didn't elaborate on the problem, there's not much I can suggest other than to refer you to the WSR back issues and to the SCA project in my new *ULTIMATE SCANNER* book where you might find something helpful to the Cause.

Relative to the Ramsey SCA Kit, bear in mind that I don't have one, so my advice is limited. From the Ramsey Kit instructions, it seems clear to me that you need do nothing more than find the SCA baseband signal point in your scanner and "pipe" it to J-1, the SUBCARRIER IN jack, as evidenced in the above diagram. SCA baseband (subcarrier signals) outputs are as follow:

PRO-2003: IC-101, Pin 6
PRO-2004: IC-4, Pin 3
PRO-2005/6: IC-6, Pin 2
PRO-2035: IC-5, Pin 10

The Ramsey Kit comes with its own audio amplifier to simplify the installation even though the Kit is a more complex design with more parts and labor. If it fails to work from the above inputs, then something else is wrong and I couldn't possibly suggest what, not having a board in hand. Assembly error? The Ramsey instructions appear ok.



ANTENNA COMPARISONS

In V4N2 you recommend the Anttron PSM 38" whip over the Radio Shack mobile antenna. I have both of them and haven't seen any difference. You said you were going to do a controlled test comparing the two. How is that going so far?

ED: Antenna testing is not as easy as it sounds, not and be done right, anyway. I haven't found the time to do it up right, so the project languishes. Maybe this summer?

CORDLESS PHONE HACKING

My last question concerns cordless phones. Is there any way to make my old 46 MHz phone actually lock on to other conversations in the same manner as my 2006 does? I heard there is some type of factory set code between the handset and the base. Is there any way to disconnect this code?

ED: None of which I am aware. But then that sort of thing is dependent on the design of the phone and access to good schematic and technical documentation. To turn a 49MHz phone into a scanner is probably out of the realm of feasibility.

CELLULAR FOR THE AR-8000

From: Darvyl Symington, Holland, OH

In V5N3, a reader asked about modifying the AOR AR8000. It's an easy task, but requires a computer interface and software. The only difference between the blocked version and the unblocked version is two lines of code in the EEPROM, lines 7700 and 7710. Here is what they look like in the blocked version.

```
7700 08 49 00 00 00 08 24 01 00 00 FF FF FF FF FF
7710 08 94 00 00 00 08 69 01 00 00 FF FF FF FF FF
```

Those numbers look pretty familiar, huh? Change the lines to read all **FF** all the way

across, read it back into the EEPROM, and you now have an unblocked version. To do that, I use the *Scan Star* commercial software (version 4.3 or higher). This program has a built-in utility to enable users to read in the EEPROM, modify the code, and send it back to the radio. It takes about 7 minutes total. I've done 14 of these, so I know it works.

If you don't want to foot the \$129 for the software, it can also be done using just about any communications program, like ProComm or the like. You will need to write a script that echoes back what the radio has sent it, which comes in 64 byte packets. That prompts the radio to send another packet, and so on until all 113 packets are sent. Modify the code, then send it back to the radio using the same echoing procedure. This is a little more complex than the ScanStar method, but it'll work too.

The AR8000 EEPROM can also be cloned from another AR8000, but who has two of them, at least one unblocked, and the *Not-Sold-In-The USA AOR-8232* interface? The EDCO interface does not permit cloning, and it is a cheaply built unit, but it works fine for the methods described above.

YOUNG HACKER COMING OUT

From: Mike Kionka, Arvada, CO

Dear Bill, Thank you for your response to my 6400-ch mod problem. After reading your response, I have decided to order the WSR V3N4 and your new book, *The Ultimate Scanner*. I assume that the 25,600-ch mod is in your new book, as well as V3N4. But I will purchase both just to be sure. The WSR always has lots of good information in it!

I am 16 years old, but your modification instructions are written so well that I have no problem following them. I have successfully

completed many modifications to both my PRO-2006 and 2022 with the help of your books. I have also adapted a few of your modifications to some of my other two-way radio equipment. The knowledge of electronics and radio I have gained from your books has inspired me to pursue a career in electronics and radio!

ED: You are not the first to head into the exciting world of electronics as a result of something I wrote. Many young people around me have been so influenced, including two sons and a daughter. My daughter graduates from high school this month and has been working as an Engineer Intern for QUALCOMM, Inc., for a year. She worked for me for several years prior. One of my sons is an electronic field rep for Cobe Labs; another is an operator of a linear accelerator. Over the years, I have been able to guide many young people into the challenge of a Lifetime, and so far as I am aware, none have regretted it.

If your interest remains high for this coming year, then my advice is to make every effort to get a job in the electronics field. Any kind of a job, so long as you insist that you want exposure to electronics even if you have to sweep floor and carry out trash. At the same time, start studying electricity and electronics now! Master Ohms Law and series/parallel circuits, including the basic components of resistors, capacitors, and coils/inductors. If you have a year of high school left, try to take advanced mathematics, physics, chemistry, and trigonometry if you haven't already done so. Go to summer school for one or more of these courses, if you can.

You see, interest alone won't get it. You have to want this so bad you can taste it, and then don't take "No" for an answer relative to anything that it takes to get there, starting with education! I'll be glad to assist more with aligning you with your goals if you would like. Do you have a computer? How about a modem? Can you connect with the Internet and BBS's? These are clues for ya!

PRO-2027 CELLULAR ?

From: Scott Maser, Matthews, NC

On pg 10 of V5N3, you have cell restoration for the PRO-2027, or does it mean for the PRO-2037? What is the 2027? I have just about six different "shack" scanners. Enlighten me please.

ED: Well, like the paragraph says, I have no idea of where it came from. Still don't. The PRO-2027 was a 1994 catalog model with 100-ch, 25-cps, 800 MHz and nothing to get excited about. Looks horrible, too. Don't be surprised that I know little else of the 2027 because my attentions are directed mostly to the better scanners and my time is full.

PRO-62 CELLULAR?

From: David Cobb, Smithfield, NC

I need to know if you have any information on unblocking cellular frequencies on a PRO-62 Realistic Handheld 200 channel scanner.

ED: You wish! Unfortunately, it is against the LAW now for any scanner to be "easily modified" for cellular reception. That law went into effect in April, 1994 and all scanners imported or manufactured after that date are required to comply with the law. The PRO-62 is one such. Radio Shack and most other manufacturers went overboard to comply by making it impossible for their scanners to be modified for cellular, so chalk it up or buy a pre-April-'94 scanner.

PRO-2021 COMPUTER INTERFACE

From: Edward Smith, Barstow, CA

Hi Guys! I received The Ultimate Scanner and it is great. Another super pub by you. Being a charter member of the WSR, I did not expect less.

I notice that on page 152 that you may be able to make up or have made up a CE-232 package for the publicly abused PRO-2021. I have one that's been upgraded with your 12.6k channel mod along with LINKALL and an upconverter that I use very effectively.

I have two PRO-2006s modified to operate with your CE-232 installed in an outboard project.

If this product is or can be made available for the PRO-2021, please let me know what the charges are and I will order from Mrs. "C" via phone in the usual manner. KEEP UP THE GOOD WORK!

ED: I am going to respond here for starters because your question is of wide interest. First, please read the article in this issue on pg-1. **BRASS TACKS & STEEL LUGNUTS - About the Radio Business.**

This is a classic, because I have never had occasion to offer the CE-232 for the PRO-2021 and so I have not developed the requisite "personality files" that would be required. I don't own a PRO-2021, so I would not be able to test the files if I were to develop them. Since I can't test them, how can I guarantee them to work? That's a problem for you and for me, see? I am certain it would work, but maybe not to start. You might have to get back to me a time or two and we'd have to trial & error our way through a debugging process.

I have no desire to work for free and you have no desire to be taken to the cleaners, so what do we do here? Oh, and another thing, even if we do get the

CE-232 to work with the 2021, it will not be a full 2-way interface like for the PRO-2004/5/6. The best it will be able to do is **AutoProgram** the scanner's memory channels and **Control** the scanner from the keyboard of your PC. (1-way only).

That's due to the design of the 2021 which can't be overcome by me or the CE-232. So the bottom line.... cost is the same, but I'd have to stop and develop some trial "personality files" and installation instructions, time which probably will never be compensated because you are the first to ask about the 2021,...and most likely, the last.

Therefore, it would have to be one of those deals with no guarantees or warranties, and I'd have to assume you can do the technical work with a minimal set of instructions. On that basis, the price is the same, and best I can offer is to stick with you until we get it working. If ol' Professor Peabody does the work for you, I can work with him, but it would be the same deal.

If that is agreeable, give Cindy a call and we can nail down the details to assure something satisfactory to the both of us.

Your question was a classic because most businesses would either abruptly decline to address the question or they'd go along with you until the going got tough and then let you whistle "Dixie". I won't do either one. In a word, you're asking for research & development, but that makes it tougher, you see. Let me know, ok?

HACKING TECHNIQUES

From: William Shaft, Tinley Park, IL

Dear Bill: I received your CE-232 interface and found that I can and will build it. Patience is the best advice on anything you do. I work on electric motors for a living. I do all repairs, and rewinding is the test of time consuming patience.

I was also delighted when I got the shop manual for my new PRO-2035 to find good old IC2, the TK-10470 chip, same as in my 2004 and I could go ahead with the tape recorder switch from pin 13, the improved version in your second book.

I drilled into traces instead of soldering to a resistor or diode when they are not super small close together on a blank board space and run on a wire. I like all my soldering on the bottom of the board, my Dremel® is an amazing tool.

I am just getting into learning computer operation and programming. I bought a Packard Bell 401CD.

I read your material over and see that I have to undo the crystal mod in my 2004 and go back to CX501 original. I wish not to do anymore hacking to this radio and love it the way it is. I hope to find a nice PRO-2004 that the previous owner never removed a screw and figure how to interface that 100-pin monster in my PRO-2035.

ED: Wow, if you are a rewinder, you have all the patience in the world, man! Shooey, I tried a few rewind jobs, and gave it up as a lost cause! Yes, the PRO-2035 is really just an evolved PRO-2004. Much in each are exactly alike, especially the hard core receiver sections. The biggest difference is in the Logic/CPU area.

Getting that PRO-2004 back to stock speed should not be a problem at all, if you change your mind and want to try the CE-232 on it. But just between you, me, and the door post, it will probably work, as is, if you select the PRO-2006 "personality file" when you load the CE-232 program. Call it an undocumented feature, if you will..... ☺

COMPUTER TALK

Your new computer is great for starters and should meet your needs for some time to come. I'm not familiar with the model number but assume it is a 486 type. If so, I'd recommend 8-Mb of RAM and the new Windows 95 when it is released this August. Packard Bell isn't known for great computers, and there could be problems when you try to add a bunch of extra stuff, like special video cards, enhanced IDE drive cards, and non-standard stuff. But, most anything of a standard nature should work in it and thus it will meet your needs for the near future. Windows 95 will make it all the more compatible with a variety of needs. For your second computer, get a recommendation from me or someone else who knows computers. Or, as a blanket recommendation, Dell Computers are always a great buy.

COMPUTER WORDS TO THE WISE

The computer scene is moving faster than anything I have ever seen, folks! And there is no letup in sight. This rapid, upward spiral demands different buying habits than what are adequate for products in other areas. It's a lot like 3rd World inflation where a dollar today is worth a nickel tomorrow.

Except it isn't inflation exactly. The fact is, though, you buy a \$4000 state-of-the-art computer today and it will be old technology in six months.. My Pentium 90 with 3x CD-ROM and 1-Gb hard drive are not all that

exciting now, despite being less than 9-mos old. Pentium 120's are out now with 150's to be announced this month and the P6 (686) generation to be announced this Fall. 4x CD's are overshadowed by 6x now, and 1-Gb hard drives are "standard" at \$300 ea.

Some people think this is not the time to buy, but it is! You just don't want to go hawg-wild unless you have a business application where the investment can pay off in 6-mos to a year.

A better approach for the casual hobbyist to even the power user on a budget is simple and easy to comprehend. Do like William Shaft did and buy standard, production stuff for the bottom dollar. Here, check this out:

486DX2/66 VLB-IDE motherboard; 540-Mb HD; 8-Mb RAM; Diamond SpeedStar VLB video w/1-Mb; 15" SVGA monitor; 2-serial ports w/16550 UARTs, 1-parallel (bi-directional) printer port, 1-game port; bus mouse, 2x CD-ROM; Soundblaster-16 audio; Labtec CS-150 speakers; 101-keyboard; 3½" & 5¼" floppy drives; loaded with MS-DOS 6.22 and Windows For Workgroups 3.11.

Two years ago, the above was the mother of all computing systems, that could easily cost \$5000 or more. Today, it is considered "entry level" and can be had anywhere for \$1500 or less! Get it now if you're in the market for a computer. It's still a powerhouse even though much better is out now. The thing is.....the price is right! And the power is a lot more than most people will use in a long time. When you do come up to speed in computing and are ready for something more awesome, the Pentium 150 will be priced about like the above.

What NOT to do right now is spend money on the latest and the fanciest, nor on the oldest and cheapest. Do NOT buy XT & AT machines, (x086 & x286) and think twice before buying a 386. If you already have computers in these classes, be happy with them, especially 386DX/33 and up, but don't BUY anything less than a 486DX/50 now, and frankly, the 486DX2/66 is what I would call a minimum buy. Do NOT buy single speed (1x) CD drives, nor low density floppy drives (760k & below). Also do NOT buy hard drives smaller than 345-Mb and 540-Mb if you're smart. Do NOT buy a 14" monitor; 15" is minimum!

Key things to do if you're buying now include: insist on a bus mouse or an in-port mouse. This type of mouse costs a little more, but is much better than a serial mouse, and does not require a valuable serial port. Absolutely insist that your serial ports be based on the 16550 UART chip. Insist on 8-Mb of RAM and more if you can afford it. RAM holds its value. Requirements for it always go up; never down. Insist on a 540-Mb hard drive but 1-Gb is even better and doesn't cost that much more. Insist on a 2x or 4x CD-ROM, with 16-bit audio card, too!

If you don't know what you're doing but are in the market for a good computer that will last you for a while, then refer to the box in the middle column on this page, and verbalize it to your dealer for a quotation. Read the DO's and DON'T's on this page, and relax....I won't lead you too far astray.

Oh, one other thing: do NOT be misled into buying OS/2, under the premise that it's much better than MS-DOS and Windows. Ironically, OS/2 is "better" than DOS and Windows, but OS/2 is not widely supported around the world and it can be a bear to install and learn how to use. The world runs on DOS and Windows, and in another couple of months when Windows 95 is released, the "better OS/2" will have a lot less meaning. Win95 and its accompanying MS-DOS 7.0 are just right for most of us. I know.....I have been beta-testing them for over a year now.

Apologies to those of you who would rather fight than switch, but computers are here to stay, and the radio scene is just beginning to warm up to the power of the computer. Imagine, for instance, using your computer and sound card to record a *.WAV file instead of messy old analog tape. An electronic recording can be infinitely more valuable, easier to use and playback, and the sound can be processed to enhance intelligibility. I could go on and on here, but the idea for this month was to just bring you up to speed on where computers are at, in case you're thinking about buying. The times, they are a'changing..... by the minute.

CALLER ID & HAM REPEATERS

From: Don McDade, Garland, TX

Another comment on caller ID that those who block private calls should be aware of: You probably won't be able to receive calls made to you through the autopatch of an amateur radio repeater. Most control operators will probably block the ID to prevent unauthorized access to the repeater.

PRO-2004 EL PANELS

From: Robert Anderson, Kenosha, WI

Please let your readers know that the EL panels for the PRO-2004 are still available by Express order through Radio Shack dealers for about \$60.34 ea. I got mine on 5/31/95.

ED: Good grief! \$60 each? I checked your letter for a misprint, but that's what you said! The "right" price for an EL panel is about \$10 plus shipping. Please let me know the information from your invoice or sales slip. Sounds like you misprinted or got taken to the cleaners. In any event, one need not go through the local Radio Shack stores for parts, and it is best not to. (800) 442-2425 is the place to call. Gimme details, please.

PRO-2006 MODS - Clarifications

From: Gary Caffee, Fontana CA

I just received your new book in the mail (The Ultimate Scanner), and so far, I love it. I have had my two scanners for almost one year now, so I'm somewhat new at this. A very good friend of mine told me that I should buy the best, so I did! They are the PRO-2006 and PRO-43. On the PRO-43, I have done the cellular, 54-88 MHz, and the audio improvement mods. To the PRO-2006 I've done the cellular, and scan speed mods. But Sir, one thing that I'm concerned about is your **warning** in the book about adding diodes to spots D-501 and D-504. My concerns and questions are this:

1. Do I install diodes in both D-501 & D-504? (ED: *Neither. Clip D-502 & 503*)
2. Is this a frequency expansion modification? (ED: *Clipping one restores the cellular bands and the other gives a free 25% speedup*)
3. Do I have to do other mods to my radio **first** to allow this mod to work? (ED: *No.*)
4. Will I lose something else, or degrade the performance of my scanner like your warning says? (ED: *Not in the slightest.*)
5. A gentleman that I work with, just purchased a new PRO-62. Do you have any modifications at all for this radio?

ED: *Nothing out of the ordinary. All my books and the WSR here give specific mods for specific scanners, and then oftentimes, a general approach to those mods for other scanners. Please read what I have to say about "turnips" in the Ultimate Scanner. Most scanners, including the PRO-62 have to be content pretty much the way they come from the factory. My standard analog mods as given throughout my books can generally be applied to most scanners, but memory and frequency expansions are limited to the best.*

SOMETHING BORROWED & NEW

From: Don Alesch, Menasha, WI

A hypothetical question for you. If a person had a scanner and the service manual for that scanner, and that person was willing to let you **borrow** both items to experiment with, would you be interested?

ED: *Ugh. Maybe. Maybe not. Depends on the scanner, the quality of the manual, my available time, how soon I'd have to return the stuff, and if I were expected to work for free in terms of any extras that were returned with the scanner. If it were an ICOM R-9000 for a year....hell yes! If it were a Uniden BC-100XLT for a month and \$500, not a chance.*

RADIO TRADE JOURNALS

From: Jav Haycock, Boise, ID

I wonder what the "two leading professional trade magazines" were that reviewed the CE-232. I've been looking for trade magazines to subscribe to and was just curious.

Mobile Radio Technology
9800 Metcalf / PO Box 12901
Overland Park, KS 66212-2215
(913) 341-1300 Fax (913) 967-1898

RF Design
6300 S. Syracuse Way, Ste 650
Englewood, CO 80111
(303) 220-0600 Fax (303) 773-9716

Microwaves & RF
1100 Superior Avenue
Cleveland, OH 44114-2543
(216) 696-7000 Fax (216) 393-6297

ED: *A word about trade journals: the above are the best of the best and free to "qualified professionals" in the radio engineering field. Subscription costs are exorbitant, so represent yourself cleanly and smoothly like a pro if you want the freebie. You will have to fill out a subscription qualification form, so be prepared with a company name and related information; else pay thru the nose.*

WSR CONTEST WINNERS

Winners of the contest announced in V5N3 are as follows, with some of their answers following the list. I will reserve a later date for a complete discussion of this contest and the interesting results:

David Humes	Williamsville, NY
Jay Haycock	Boise, ID
Skip Arey	Cinnaminson, NJ
Jeff Brown	Shillington, PA
John Gardner	Pompano Beach, FL
Jim Bencsoter	Davisburg, MI
Tony Thornton	Mise, MS
Don Alesch	Menasha, WI
H. L. Miller	Spring Valley, NY

Rcvd 4/10/95 // Hertzian Intercept BBS: I want to take a shot at the trivia question from WSR V5N3. In the Mar/Apr issue of NatScan (specifically page #28), I see an ad for the "Scanner Modification Handbook Vol 1 & 2". For some strange reason these are the only 2 books that don't list the author...who wrote these <GRIN>. Actually I never noticed that fact until I went looking.

Rcvd 4/12/95 // US Mail: On page 28 of Mar/Apr '95 issue of National Scanning Report, Scanner Modification Handbook Vol 1 & II have no author listed. Has my favorite Dr. become anonymous, unknown, and unidentifiable? I hope NOT. So, with tongue in CHEEK, here's my entry!

Rcvd 4/14/95 // US Mail: Bill, on the contest, the only thing that glares out at me twice in the Mar/Apr "Nat Scan" is that the ads for your scanner mod books do not have the author's name listed like the rest of the books do. I found this same thing in at least one other older issue of "Nat Scan." If this is not it, I'm totally stumped!

Rcvd 4/10/95 // Internet: How could such an esteemed individual as the great Larry Miller commit such an oversight as to NOT list you as the author of your books when he so carefully took steps to list the authorship of other books in his advertisement.

Rcvd 4/8/95 // Compuserve: I read about your contest in the WSR I received today. My best guess at this point is that the DX Radio Supply ad fails to list your name as author of your books

06/23/95 ~ 13:06 ~ The "World Scanner Report" © 1991-95; Volume 5, No 5; Page 9

CONFIDENTIAL SUBSCRIPTION ORDER: Please Print Clearly!		Subscriber No.	05/02/95 SUBSCRIPTION RATES & ORDER BLANK	V5N05
NAME:			USA RATES shown: Canada add 15%; Other Foreign +25%-surf/+50%-Air	
STREET			BACK ISSUES ONLY: Single copy 1 ea \$ 6.00 \$	
CITY:		STATE:	ZIP:	
Work Ph: () - Career or				
Home Ph: () - Profession				
TYPE OF SCANNERS >>		1991 (1st Year, Jan-Nov/Dec)-----10 ea \$20.00 \$		
& Other Radios >>		1992 (2nd Year, Jan-Nov/Dec)-----10 ea \$21.00 \$		
METHOD OF Check Cash M.O. Visa MstCard COD (+ \$8.50)		1993 (3rd Year, Jan-Nov/Dec)-----10 ea \$23.00 \$		
PAYMENT >> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		1994 (4th Year, Jan-Nov/Dec)-----10 ea \$25.00 \$		
Credit Card		1991-94 (All the above)-----40 ea \$79.00 \$		
Acc't No: >> - - - - -		WSR CURRENT SUBSCRIPTIONS		
Name of Issuing Bank		Half Year 5 ea \$15.00 \$		
Expiration Date: / /		One Year 10 ea \$25.00 \$		
Signature Required (for credit card purchases)		Two Years 20 ea \$45.00 \$		
X		OTHER PRODUCTS		
What else to tell us?		Scanner Mod Hndbk, Vol-1: \$17.95 + \$4.00 S&H *		
US FUNDS PAYABLE TO: COMMtronics Engineering		Scanner Mod Hndbk, Vol-2: \$17.95 + \$4.00 S&H *		
		Ultimate Scanner til 6/30/95 \$24.95 +\$4 S&H *		
		Scanners & Secret Frequencies \$19.95 + \$4 S&H *		
		* Canada US\$7 S&H; Other Foreign US\$9 S&H; Air extra		
		CE-232 Interface Kit: \$194.95 + \$5 S&H; All Foreign add 25%-surf		
		Hertzian Intercept BBS Subs: \$8/mo \$15/3-mo \$25/6-mo \$40/yr \$75/2-yr		
		Calif residents: Sales Tax - 7.0% on all orders except WSR subs		
		TOTAL THIS ORDER: -->> \$		

PRO-2026 vs. BC-760XLT

From: William Wyrick, Bellingham, WA

I was looking for a mobile scanner and thought you would have more regard for the PRO-2026 than the BC-760XLT. A list of back issues of the WSR shows more mods for the 760XLT than the PRO-2026. Does this mean the XLT is more hacker friendly than the 2026? Anyway, I bought the 2026, thinking of you, with a date stamp on the back of 11A93. The improvements I'm looking for mostly are more channels, better audio and cellular freqs.

If I can get an answer soon, I still have time to return the 2026. Is the PRO-2026 the better radio? Is the BC-760XLT more upgradeable? Can the above mentioned mod on my PRO-2026 be done? Can the above mods be accomplished on the BC-760XLT? Both radios with the correct manufacture's date, of course. PS Have you received the Service Manual for the BC-2500XLT From Don Alesch, Jr. (V5N2)? I'll send you my 2500XLT if I can get it back in one piece.

ED: We managed to come up with a manual on the BC-2500XLT, but thanks for the offer. Meanwhile, the PRO-2026 is a more modern version of the BC-760XLT, but one is neither more or less hackable than the other. The 2026 is easier to hack for cellular, (V2N9) but beware the PRO-2026 sold after April-94 that cannot be hacked for cellular. The PRO-2026 and the BC-760XLT are quite different though they look and operate about the same. The PRO-2026 is a little emptier and does not have the preamp or CTCSS options like the BC-760XLT. I don't think much of either one, but the 760 is probably the better rig. Keep your rig unless you want to set your sights a lot higher, maybe for a PRO-2006?

AUDIO POWER AMP CIRCUIT FOR THE PRO-2004/5/6 & 2035 EXPLAINED

The audio power amplifier for the PRO-2004, PRO-2005, PRO-2006, and PRO-2035 series will be explained here using the PRO-2006 as our model. All are alike, with just the circuit symbols varying somewhat from one unit to the next. There may be minor parts differences, but they are not significant.

IC-7, a TDA-1905 audio power IC is the main component in this group. The chip is powered from the scanner's unregulated +12v power supply, and the exact voltage is not critical. My tests show adequate audio power out with supply levels from +9.5v to +15v. Resistor R-224 (3.3Ω, 1/2-watt) serves as a current limiter/fuse to protect the IC.

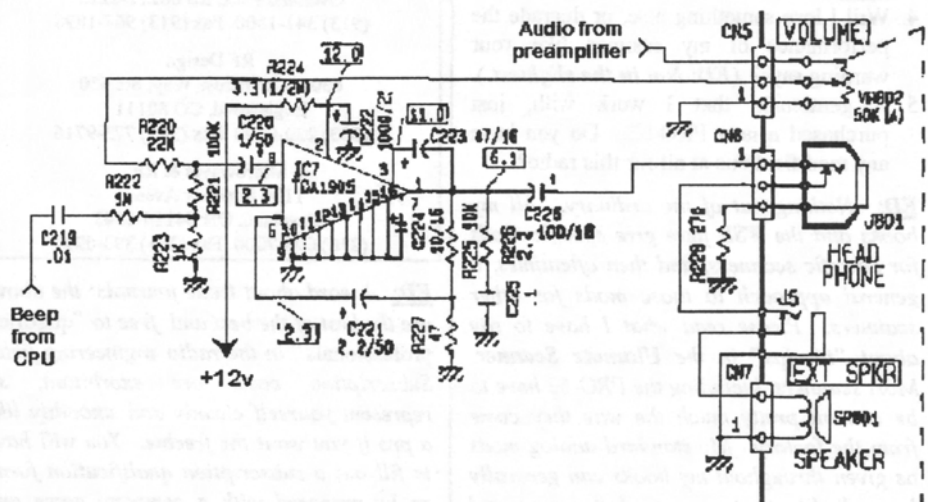
All receiver audio signals go into the "high" lug of the Volume Control, and out the rotor arm to the input Pin 8 of the IC. The BEEP signal from the CPU goes to the same input from a slightly different route as shown. R222 & R223 act as a fixed volume control for the BEEP signal. Cut R222 to eliminate the BEEP or replace R223 with a 5-k pot for a variable BEEP volume.

Amplified audio leaves the IC at Pin 1 and goes into the Headphone Jack and back out into the External Speaker Jack and back out to the built-in speaker. Inserting a plug into either the Headphone or Ext Spkr jacks kicks an internal switch to block the path to the internal speaker. These "switched jacks" can cause problems when the internal switch is damaged or worn out. Suspect a bad jack if you have no sound but everything else acts ok.

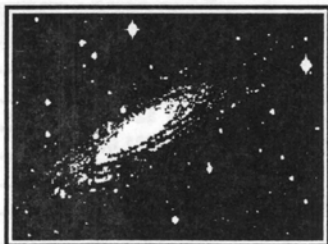
R228 is a protection resistor for the headphones but can be replaced with a 10-47Ω resistor for improved audio. (MOD-8). C225/R226 is an output RC filter and probably should not be altered. C221, R227, R225 is a feedback loop for gain control and might deserve experimentation by hardier souls with nothing better to do. C223 is some sort of a feedback/gain control but messing with it will probably not result in anything good. C226 is the output coupling capacitor and could be increased for better bass feed to the speaker, but then you'll need a better speaker. (Voice comms need treble, not bass.) C220 is the input coupling capacitor and is best left the hell alone. In a word, the Audio Power Amp is better off just understood. No interesting hacks here to speak of.

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PRO-2004/5/6 & 2035 AUDIO POWER AMP



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