

## REFERENCE INFORMATION

Voice Admin (619) 578-9247 1:30pm-5:30pm, PDT  
4-hrs/day, non-holiday weekdays only  
BBS/FAX: (619) 578-9247 5:30pm-1:30pm, PDT  
19-hrs Wkdays; 24-hrs wknds: 1200-28,800-bps.  
Electronic addresses: Compuserve: 74107,1176  
FidoNet: 1:202/731 E-Mail: bcheek@cta.com  
Index & Table of Contents to WSR always available  
for free download from BBS or \$5 for MS-DOS  
floppy disk or \$5 for laser printed hard copy.

## FIRST PET PEEVE CONTEST WINNERS

(Still open til Sept 30, 1995)

See this space in last issue for the rules, terms and conditions. The Pet Peeve Contest is open until 9/30/95. Winners receive a PerCon Spectrum Lite FCC Database on CD-ROM. Meanwhile, we're happy to announce the first winner:

**From:** Ira Cooper, Lexington, KY:  
**Received:** Internet e-mail. Wednesday, Sept 06, 1995 5:39 PM

There's not a lot I don't like about radio. However, some people in the radio clubs & nets (BBS, AOL, etc) give me pains. There are the know-it-all's (self proclaimed). But the people that get my ire are the "I can get that for \$2 in Madagascar" types.

Let me elaborate. In the sell/trade sections of the BBS's someone will offer, for instance, a Pro-2006 for \$325. Then there will be ten responses about how these aren't worth it. "You can still get them new in San Salvador for a goat head." Now these people aren't in the market for a 2006, or any radio for that matter. But they waste their time and my time putting these stupid comments on line.

I don't know if they think they are helping us, giving us a great tip, or trying to make the seller feel like a fool. My specific situation went like this. I bought a Pro-39 (brand new), did the cell mod, 12800 channel memory mod (using surface mount parts), added an on/off light switch (mini slider actuator on side of radio), and the signal strength S-Meter mod. The meter was an external plug-in type and included with the radio. The hack jobs are very nice (if I may say so myself) and the radio maintains its original profile. OK, I decided since I have 9 radios I would offer this one for sale. I put it on AOL and Newsgroup sites. I paid \$179 + tax. My asking price was \$275, OBO. This is what I wanted to part with this radio, otherwise I would keep it. Well, the next day I get e-mailed from some faceless jerk telling me "Pro-39's go for \$100-125 at flea

# 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"

Copyright © 1991-95 <All Rights Reserved> ISSN 1061-9240

Volume 5, Number 7

\$5.00

markets all the time, nobody really is interested in the memory mod and the S-meter mod is also worthless especially since it's external, but good luck anyway. "No offer, no questions, just BS. I see it all the time. If you want to make an offer (no matter how ludicrous) make it but don't tell me what YOU think everyone else wants. It just bugs me. Bill and Cindy keep it coming. Ira Cooper (pro-43@aol.com)

**ED:** *Wow, a good one, Ira! I can relate because I see it all the time, too. Some people are just persnickety and ornery, I guess. The computer network forums are just full of them, probably because it is so easy to pipe in with snide remarks and not get pasted up side the chops for their time and trouble. Your pet peeve is a classic, so Cindy and I unanimously selected you to be the first winner. Thanks for your time and trouble.*

Our next winner comes as a surprise to the submitter because mostly likely, he had no idea he was entering a contest. His critique is tantamount to a peeve and quite worthwhile, so a PerCon Spectrum Lite goes out to:

**Name Withheld by Request:** received Internet e-mail: Wednesday, September 06, 1995 5:28 PM

Bill: I must admit that I don't write very many letters, but I felt compelled to do so after reading your article "How to buy a Computer for Your Shack and Station" in the WSR. I have used and owned many computers over the years (Commodore PET, VIC-20, Atari 800, Apple II, Macintosh and Windoze machines) and feel that I know something about them after all this time. I also understand that this article was aimed at "newbies" in the computer field. However, I believe that the following changes should be made to your list:

**Item 12 (Hard Drive):** A quick look in my local (NJ) Sunday paper revealed a shortage of 540Mb drives. The standard seems to be 730-850Mb and up! I believe the "newbie" will be confused since they

won't be able to locate the 540Mb you recommend.

**Item 25 (Modem Type):** I still feel that a 14.4kbps modem is adequate for newbies, although the difference in price is minimal (but not zero).

**Item 31 (Printer):** This is where I believe you missed the mark. Ink Jet technology is the way to go today. My local WalMart had a sale recently on the HP DeskJet for \$200. It does a beautiful job of printing with the included black cartridge, and is also capable of printing in color! My neighbor (another computer newbie) just bought one, and loves it. In addition, the ink jets are very quiet, compared to their dot-matrix brethren. And who can complain about 300dpi printing? You can't get that from dot matrix!

By the way, I really like your newsletter, and don't appreciate anonymous letters to the editor (i.e. the letter from Deflater@aol.com).

**ED:** *No quibble on larger sized hard drives; it's just that the smallest hard drive one should get nowadays is 540-Mb. Most assuredly, the larger, the better. Now when it comes to modems, we might have to argue. The cost difference between old, now outdated 14.4-kbps modems and the new 28.8-kbps types is really zilch, if you consider the long term operating costs of 14.4-kbps (twice as much as 28.8-kbps!) You might save \$50 initially, but at 15¢/min, that savings is eaten up after about 11-hrs of long-distance time. A 28.8-kbps modem will return a profit for every minute thereafter. I think a 14.4-kbps modem (and slower) is a false economy now, at any price.*

*I did not consider ink-jet printers solely because they come in the middle between the advantages of dot-matrix and laser. A radioist might actually put a dot matrix printer to better use than either a laser or ink jet by virtue that the dot matrix printer can print one line at a time without a subsequent formfeed to waste the rest of the paper. Laser and inkjet printers will spit out the entire sheet*

when a single line is printed. I am thinking of logging needs that are sometimes useful to the radioist. The CE-232 Interface offers such logging features, as do many other radio & electronic applications.

In any event, the dot matrix printer remains my choice for a **minimum** quality of printer, but the buyer is always free to elevate the specs, depending on budget and need.

Your input and slightly different ways of looking at things are appreciated, however, and I consider them valuable enough to offer the readers for a wider range of consideration.

### **SPEAKING OF COMPUTERS: WANT TO ROLL YOUR OWN?**

Hey, are you guys 'n gals interested in building or upgrading your own computers? The time is right, and I can show you how to do it at great savings and immense satisfaction. But I don't want to bore or irritate too many people. So let's hear it from you...cast your vote for a detailed article or a series of shorter articles that will show you how to build or upgrade your own computers. I have done a few and can attest to it being a "piece of cake". You can save a bundle and learn a helluva lot at the same time. And remember, radio and computers are forever "joined at the hip" now. I'm going to do a lite version of this idea in my "Monitoring Times" column, but if enough of you folks are interested, I'll dig into some real gory details for you here. Let me know by e-mail or postal mail, please.

## **SNEAKERS**

By Janet Cravens

Lighten up, guys! This is not brain surgery. You may think the world is coming to an end if you don't get that last frequency NOBODY else has, but chances are, you'll live.

So here I am again. I'm going to try to keep everyone up-to-date on the occurrences in our scanner's life. Obviously, it sees more action than I do, else I could tell you about my life.

Last time we discussed a lot of new things I've learned since my husband, Roger, casually mentioned he thought he'd like to have a police scanner. I didn't, however, tell you that the only time he gets a phone call from my mother, its because her scanner isn't

working any more; or she needs a new frequency list; or she's lost her page of "ten-codes" and can't figure out what's happening. She calls him almost every Saturday morning to see if he got to listen to that high speed chase from the night before, or see if he knows what's happening over on Anneewakee. Come to think of it, she calls him more often than she calls me. We've been married almost 7 or 8 years (we neither can remember how long), and the only time he visits my parents is with his radio riding shotgun. But of course the radio is not allowed to stay in the van/truck...it has to go into the house like the rest of the family. My sisters and brothers don't understand the obsessiveness of this little habit....I try to tell them that if they'll just ignore him, he won't even realize they're there and we'll get to stay longer. If he "wakes up and realizes where we are, we'll have to go home sooner".

About the Government Printing Office in Atlanta...what I didn't tell you is that I've discovered I can drive around the block at least 47 times before he can decide what book to purchase and which one to save for next time. I didn't tell you about all the ugly words people use when I cruise by r-e-a-l s-l-o-w, just in case he's almost finished and I can save myself another drive around the block. I've learned quite a vocabulary. Unfortunately, I'm not old enough to use words like that...or to understand them either for that matter.

I've learned not to mind when he informs me "his girl" is back on dispatch. He loves the way she says "clear"—it sounds like "Claire"—it took me months to realize what she was saying and I'm from the SOUTH. He's been looking for Michelle for a while too, because last he heard she was working with the Special Investigative Division (SID), but he hasn't heard "from" her in a while.

And I didn't tell you about the night he was in the store buying a newspaper and checking out the perimeter of the store. Every weekend, there seems to be a drug bust or

purchase at this particular store, and he thought "his" SID folks were out. While he was in the store, I overheard the detectives talking about where the party was and what the scenario was....so when he came out of the store, I drove on to the party so he could see what was going on. He almost had a stroke! He didn't realize I was going to drive right past the house and check them out. That was the closest we've been to a 10-16; he made me leave the area immediately! Personally, I thought if the cops stopped and asked us what we were doing, we could just tell them we were smurfing around.

So tell me. What's the big deal with being caught? It isn't illegal to listen in on a police scanner, we are living in a country where freedom is synonymous with responsibility—you can't have one without the other, and I figure if a drug bust is going on right in my neighborhood, why should I wait for TOP COPS to see what happened. Roger did not understand my reasoning.

And I'm sure he hasn't told any of you about the day he decided to do a little research up at the Sheriff's Office. He'd been doing lots of reading and research about antennas—he decided he'd go by the sheriff's office on the way back from the dump—do you know the Sheriff Department didn't really care too much that he just wanted to measure the antennas on the back of their cars. Seems like they thought if they wanted him to know, they would have told him when they issued his driver's license several years ago.

We went to the Braves game a couple of weeks ago. His Pro 2006 and his frequency counter had to go along with us, along with his headphones so he could listen to "stuff". One of the girls from my office works in security; when she saw me and we starting talking, he pulled out his frequency counter and began scanning her breast to see what frequency the Braves were transmitting on—Okay—it really was her radio next to her breast, but it sure looked a little flaky to me. If I hadn't been there and seen that, I'd



admonition for my next book to focus my  
"....attention on more mods and a bit less  
attitude." <Balderdash & horsefeathers!>

In a word, I wonder what horse this dude  
rode in on and where it came from and  
where it's going. Any halfwit with a  
schematic and a screwdriver knows that  
**hacking is an attitude.**

The "US SCANNER NEWS" tore my  
first two books to shreds, telling their  
readers that my books were too technical  
and far over their heads. And in general,  
they have little good to say about  
anything or anyone outside their little  
circle of the world. My impression is  
that the "US SCANNER NEWS" takes it  
upon itself to decide for its readers  
what's good for them and what's not.  
This is a *syndrome ...a failure mode...* to  
which many potentially fine writers and  
rags seem compelled to succumb. The  
"US SCANNER NEWS" failed to publish  
for lengthy periods over the last few  
years and actually went belly-up before  
being taken over by another publisher.  
It's no wonder! They should just say the  
right things about people and products  
and leave responsibility to the readers  
and consumers to render judgment.

Oh, don't get me wrong. Ripoff products  
and those that have little merit should  
not be whitewashed. You guys 'n gals  
know me....I don't whitewash. But then  
I don't go off on "*attitudes*" and tell  
other writers and companies how to  
attend to their business. I really try to  
avoid judgments and stick to the facts  
about products and services. Now I *will*  
rip a new exhaust tube on *a person* upon  
occasion, but I try to avoid mixing  
product and personnel reviews in the  
same breath; something "US SCANNER  
NEWS" might do well to ponder. Other-  
wise, I guess they can just eat my shorts.

Meanwhile, if you are looking for a new or  
"different" scanner magazine, drop a note  
of inquiry or call below. And, tell the  
pricks I sent ya and ask 'em who the hell  
wrote that review. Maybe they're sore at  
me 'cuz I never did 'em any favors. (Ok,  
favor done.) Besides, they have a few fine  
writers whom I consider friends and  
colleagues.

#### US SCANNER PUBLICATIONS

PO BOX 14923  
PORTLAND, OR 97214  
Voice: (800) 890-6999  
Voice: (503) 230-6999  
Fax: (503) 233-5176

## ELECTRONIC EAVESDROPPING

= Continued =

Continued? Well, yes. See last issue for  
the Super Snoop Microphone that I laid  
on ya. No, you're not supposed to do any  
eavesdropping with it, but there's more  
to the little sucker than just recording  
lectures and notes. Whatever your  
purpose, I have another slick little add-  
on for it....a powerful, easy amplifier!

### SUPER SNOOP AMPLIFIER

What good's a Super Snoop Microphone  
if you can't hear anything? You don't  
always need or want a tape recorder, but  
you still might want to listen to  
something weird and far out. My Super  
Snoop Amplifier accepts input from the  
Super Snoop Microphone and amplifies  
the hell out of the weak audio, sufficient  
to drive a small speaker or an earphone  
with all the sound your eardrums can  
handle. (And more.) And the sucker is  
cheap & easy to build, too. Together, the  
Super Snoop mic and amplifier will  
impress the hell out of you and your pals.

**Key note** here is that the Super Snoop  
Amplifier (SSA) is capable of being built  
into a very tiny space, perhaps even  
smaller than the battery required to  
power it (6 to 14 volts, not critical). The  
SSA draws 4-8 ma with no signal, but do  
not be deceived; the SSA can put out 0.7  
to 1.0 watt of audio power. That means  
a current drain of at least 110-ma at 9  
volts. Keep the power low, and current  
drain can be minimum so as to allow use  
of a standard 9 volt battery. Earphones  
or small speakers running at 0.1-watt  
will draw about 12-ma.....not bad.

In a word, the SSA can be built into a  
case smaller than a pack of cigarettes,

and perhaps even smaller, depending on  
how creative and innovative you are.  
Just allow for easy access to the battery if  
you anticipate the need for quick changes  
at inopportune times.

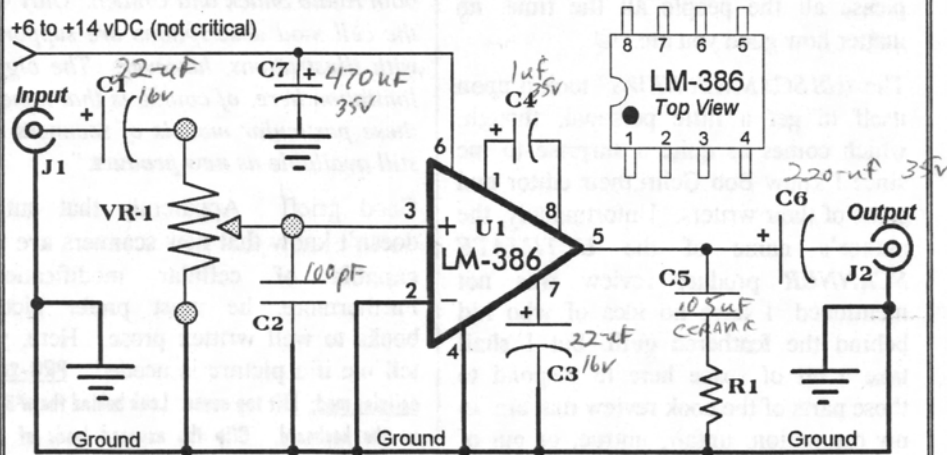
**Key Note:** The SSA can serve as a  
general purpose utility audio amplifier,  
too. If you build yours with convenient  
1/8" phone jacks, then it can be  
compatible with almost any input/output  
needs, and not be limited to use with last  
issue's Super Snoop Microphone; nor  
would it be limited to speaker-only or  
earphone-only applications. The SSA is  
a versatile tool around shop and shack.

**Technical:** The heart of the SSA is a  
common little audio power amplifier  
chip, available almost anywhere, from  
Radio Shack to generic parts houses.  
The LM-386 comes in many styles, but  
our focus will be on either the 8-pin DIP  
package like Radio Shack's, or an 8-pin  
SMT (surface mount) package like can  
be acquired from DigiKey and other  
suppliers. In worst cases, you can use  
the NTE/ECG 823 as a prime substitute.

The LM-386 is a powerful little chip that  
produces clean, low distortion sound at  
power levels under 1/4-watt. Its frequency  
response exceeds the 20 Hz - 20 Khz  
audio spectrum. Voltage gain goes to as  
high as 200 for a lot of amplification!  
This baby is so good that with the Super  
Snoop Microphone from last issue, you  
can easily hear crickets chirping in the  
night, even when your ears might not  
detect them! It will clearly detect a  
whisper across a quiet, large room!

**Construction:** The SSA requires only a  
few common external parts for a fully  
functional audio amplifier. Construction  
is straightforward with the main concern  
to keep the input components relatively

### THE SUPER SNOOP AMPLIFIER



have wondered whose breast he'd been "freaking" lately besides hers. He sat there all through that wonderful ballgame, didn't say a word to me or the boys, listened to his radio, and had himself a time. I guess you could say that for him the Braves game was sort of like that romantic night under the moon I talked to you about last month—you know, where I got to sit there very close to him in the dark, late at night, right under the moon—and the repeater tower in downtown Douglasville—to try and pick up some new frequencies.

Well, time to close for now with a small explanation of how the scanner became the most important piece of equipment in my life. See, one day I happened to mention to my husband that I needed this little piece of metal, plastic, and components....and what a wonderful contribution this would be to our lives....and he totally misread me and brought me home a scanner.

Oh well, it's not brain surgery. At least I'll live.

### ULTIMATE SCANNER BOOK'S FIRST BAD REVIEW (A RESPONSE)

It just had to happen: my *ULTIMATE SCANNER* book got its first bad review. Surprisingly, it comes from a major publication instead of one of the small club newsletters that are more prone to tear things to pieces. The "*US SCANNER NEWS*" tears my new book to shreds in their September, 1995, issue. I could live with that, since (1) nothing's perfect in this old world, and (2) you can't please all the people all the time, no matter how good you are. ☺

The "*US SCANNER NEWS*" took it upon itself to get a little personal, though, which comes as quite a surprise to me since I know Bob Gehri, their editor and some of their writers. Unfortunately, the author's name of the *ULTIMATE SCANNER* product review was not mentioned. I have no idea of who hid behind the feathered quill, but I shall take a bit of space here to respond to those parts of the book review that are, in my estimation, unfair, untrue, or out of order. First, I must observe that the "*US*

*SCANNER NEWS*" took my first two books to task, too. Now if that doesn't reek of peculiarity, I don't know what does. The success and acclaim of my *SCANNER MODIFICATION HANDBOOKS* are legend. With that in mind, please consider my following reply:

The opening paragraphs of "*US SCANNER NEWS*" review of the *ULTIMATE SCANNER* set a general derogatory tone that is difficult to understand but comes quickly to the point, "*Most of the actual modification projects in the Ultimate Scanner focuses toward the PRO-2004/5/6 and PRO-43. The only scanners that Cheek believes to warrant serious hacking attention...*"

Let the record speak for itself. *Are there* other seriously hackable scanners? No.

Referring to an adaptation of Bruce Elving's SCA modification that I presented, the author laments, "*.....although usable with any scanner which covers the FM Broadcast band, installation in scanners besides the 2004/5/6/2035 is unfortunately brushed aside.*"

Hogwash! How do you "*brush aside*" that which does not exist? Are there any other prominent scanners that have the FM Broadcast band and which might attract an interest in SCA? I mentioned the Regency Z60 and the PRO-2003, but geez, doode, hackers don't own those rigs. They are ancient and of no main-line interest. And there aren't any other FM Broadcast scanners of which I am aware. The mfrs/dstrs of AOR scanners don't cooperate with me relative to needed technical data, so *what else* is there to "*brush aside*" fer Pete's sake?

The author goes on to whine about the cellular mods I included for "*about 2 dozen different models of scanners from both Radio Shack and Uniden. Only 4 of the cell mod descriptions are supported with illustrations, however. The bigger limitation here, of course is that none of these particular models of scanners are still available as new product.*"

Good grief! Apparently that author doesn't know that new scanners are not capable of cellular modifications! Furthermore, he must prefer picture books to well written prose. Here, you tell me if a picture is needed: PRO-2006 cellular mod: Lift top cover. Look behind the #3 key on the keyboard. Clip the exposed leads of both diodes. Replace cover. Operate as normal. If it

could be explained that easily, I did not insert expensive, space consuming illustrations. (What's this guy want?)

Then, referring to my award of *Ultimate Scanner Status* to the PRO-2004/5/6-2035, the author pontificates that I "*may be more closely describing a BC-9000.*" He fails to note that the BC-9000 was not released at the time my manuscript went to the publisher. He has failed to peek inside one since then, to become intimately aware of what I mean about *lots of sizzle and no steak, and not being able to extract blood from turnips.*

He snivels about my positive comments on Radio Shack's service manuals and ho-hum on Uniden's. He ruminates that Uniden manuals are as good as Radio Shack's. <Good grief!>. Then he leaps up on the stump to narrate how he can "*talk with a real live Radio Tech*" from ICOM and AOR....and then drivels, "*Try that with one Radio Shack.*"

These latter statements go a long way to establishing that author's credentials. After all, WHAT mfr's tech support is going to talk with YOU or anyone about hacking and modifying their stuff? You'd get laughed off the phone, if you tried....and a perfectly good long distance phone call wasted. In short, the fellow exposes his backside where he states that Uniden service manuals are as good as Radio Shack's, and that you can talk to Uniden's and AOR's tech support people. Methinks the poor fellow doesn't understand what hacking and modifying are all about. *What do you think about Uniden Service Manuals?*

He shifts into 4<sup>th</sup> gear on what he calls errors where one is just that, but a couple more are only simplifications of highly technical matters that I did not want to trouble the readers with. I suppose that's fair, taken all by itself....but it ain't all by itself....there's more.

The author gnashes his teeth over the neat spreadsheets I presented for calculating radio path distances and bearings, and for VHF-UHF propagation analysis. Clearly, he shows that he wants to be judge and jury for what material is to be given to radio hobbyists.

The "*US SCANNER NEWS*" review of my *ULTIMATE SCANNER* book rambles on with many snide remarks, on and off target, interspersed with an occasional nod of approval, and concludes with an



sequestered from the output components to prevent feedback. Ground connections should be kept short and organized. The SSA is so cheap and easy to build that you might want to do a larger, utility version first, on which to cut your teeth, so to speak. Later, you can whittle down a second one to a minuscule size for clandestine or surreptitious needs. The first version can be constructed from the Parts List below, while a refined, micro version can be made from equivalent surface mount components.

**VR-1 Note:** VR-1 can be a "normal" volume control with a knob or it can be a mini potentiometer or even a micro trimmer potentiometer recessed into the case with a screwdriver access hole. I'll leave the specifics up to you. The resistance value is the critical parameter here; not size unless you need a tiny unit.

**Operation:** Nothing to it. Plug your Super Snoop Microphone from last issue into the INPUT jack. Plug a small speaker or an earphone into the OUTPUT jack. Apply DC power of +6 to +14 volts (not critical) to the power lead. Adjust VR-1 for desired volume.

#### SSA PARTS LIST

Ckt Sym	Description	Radio Shack #
C1 ✓	22-μF/16v tantulum	272-1437
C2 ✓	100-pF ceramic	272-123
C3 ✓	22-μF/16v tantulum	272-1437
C4 ✓	1-μF/35v tantulum	272-1434
C5	.05-μF ceramic	272-134
C6 ✓	220-μF/35v electro	272-1017
C7 ✓	470-μF/35v electro	272-1018
VR-1 ✓	100-kΩ trimmer	271-284
	or 100-kΩ tVol Ctrl	271-1722
R1 ✓	10-Ω, 1/4-watt	271-1301
U1 ✓	LM-386 Audio IC	276-1731
	or NTE/ECG 823	
J1-2	1/8" phone jacks	274-251
Misc	Enclosure & PC Assy	270-283
Misc	SPST On/Off Switch	275-645
Misc	9-v Battery Holder	270-326
Misc	9-v Battery Snap	270-325

All this said and done, suppose you don't want to build your own Super Snoop Amplifier? Ok, **buy one ready-made**, probably the same damn thing, for \$12 at Radio Shack, #277-1008. You can hardly beat it and spend less money at the same time. The ready-made model easily fits in a shirt pocket but might be larger than you want. So roll your own or buy one ready-made. Either one is very nice. Either amplifies weak signals.

Oh...you can stay strictly legal, too, and use the SSA as a cheap hearing aid...like I do. © It's good for a multiplicity of purposes; legal and illegal. You pick.

**Wrap Up:** By the way: there are some slick things you may want to know about last issue's Super Snoop Microphone and this issue's Super Snoop Amplifier. For instance, you can mount the SS Mic at the focal point of a paraboloid dish for a "big ear" gizmo. Or fit an anechoic muffler tube around the SS Mic to make a highly directional unit. As it is designed, the SS Mic is rather omnidirectional, which is fine for some needs and not so great for others. The directivity of a microphone is a mechanical thing; not electrical, so make your own directional housing as needed.

**Things to come:** You might wonder what the SS Mic and SS Amp have to do with scanners. Well, I don't want to give away the store just yet, but stay tuned, because we're not done with the Super Snoop gadgets yet. The SS Mic and SS Amp are integral parts of a slick and wicked project that'll knock your socks off. And that's where we'll get back into scanners and bring all this together. For now, just go along with me because each component that I'll be introducing is good enough on its own for specific situations. Then, I'll bring 'em all together to amaze the hell outa you!

## PRO-2035 GOES OUT PRO-2042 COMES IN

The new 1996 Radio Shack Catalog does not list the PRO-2035, but in its place at a \$50 higher price is the new PRO-2042. Bye-bye PRO-2035. One year market life. Adios. I thought it would happen.

What I didn't think would happen is a near identical clone of the 2035 as a replacement. A catalog review suggests the two radios are the same. They look alike, anyway. The catalog description offers only one clue. "**Advanced Auto-store**". What the hell is that?

I could bet on one more difference. The now defunct PRO-2035 has a major weakness with image frequencies on 1100-MHz from the *cellular base band*. Some scannists might appreciate this weakness, but us purists detest image interference, and Radio Shack may have been concerned about the law against cellular-capable scanners. I'd bet that image interference has been eliminated.

Soooo, at first glance, it appears to me that a little bit of new firmware and a slight redesign to eliminate a fault results in the same old scanner at a \$50 boost in price. I have a Service Manual on order for a detailed review, but I don't know if I will buy one of these "dogs". You guys could help me make up my mind, though! Please turn the page for an interesting offer.

### NEW PRO-2042



#### New 1000 channels, triple conversion circuit, advanced auto-store

PRO-2042. Coverage to 1300 MHz and selectable N-FM/V-FM/AM modes expand your listening—tune CB, FM, TV-sound, military aircraft. Triple conversion cuts image interference. Explore with rotary tuning, scan any combination of channels, search for new ones. Loaded with advanced features: Lockouts work in search mode. Auto-store loads active frequencies into specified memory banks while preventing duplications. Sound squelch stops annoying lockups on unmodulated carriers. HyperScan™ high-speed scanning helps you follow 800-MHz trunked radio systems. One-touch weather, RF attenuator. (TS#) 20-464 ..... \$499.99  
Frequency Coverage: 26-520, 760-823.999, 849.905-868.999, 894.105-1300 MHz. Power: UL listed AC operation or 12VDC. Jacks: external antenna (BNC), external DC power, tape-out, external speaker, headphones. Includes: Detachable indoor antenna. Size: 3 1/4" x 3 1/4" x 1 1/4".

## FOR SALE LIKE-NEW ~ NICELY MODIFIED PRO-2035 & CE-232

I just can't afford to buy every new scanner that sneaks onto the market these days, but I have to have scanners in hand in order to develop mods and to give an intimate evaluation of them.

Accordingly, I'll sell my like-new, **Turbo-Whopper PRO-2035** to recoup funds to buy and hack the new PRO-2042. Here's what's in the package:

- PRO-2035 if new \$450
- CE-232 Computer Interface, external in a metal box w/cable, disk, manual, assembled/tested if new \$450
- LED S-Meter if new \$100
- LED Center-Tune Mtr if new \$80
- Data/Tone Squelch if new \$100
- 16,000-Chan Extended Memory 16 Blocks, 1000-ch ea if new \$250
- Extended Delay if new \$110
- Auto Tape Rec Switch if new \$70
- This PRO-2035 has received the best of care and attention and just might make the right TurboWhopper for some astute scannist. The "new" cost of this ultra-fine scanner is \$1610.<sup>00</sup>, but I will accept the best offer over \$900 between now and September 30, 1995, or the first offer over \$1300.<sup>00</sup>. If you want to make a serious offer, contact me by e-mail, postal mail, or Cindy by voice phone per the Reference Information on Page 1 of this issue. Payment by VISA/MC/cash, MO, or check; check held until bank clears.

## RADIO SHACK CATALOG REVIEW ~ Continued ~

The 1996 Radio Shack Catalog sports the two new high-end handheld scanners, **PRO-26** and **PRO-60**, that have been discussed here in the past, so they're not all that new. The PRO-26 appears to be the better of the two, and certainly costs more. Forget hacking either of these two for anything exciting.

If the new **PRO-2042** follows the GRE design of the PRO-2035, it will prove to be a firmware enhanced PRO-2006, sans cellular bands. The firmware of the PRO-2035 was interesting and a step ahead of the rest of the pack, so the PRO-2042 probably follows suit. More later, when I get the Service Manual or if I can find a way to buy a PRO-2042.

If you know what's good for you and your wallet, steer clear of the rest of Radio Shack's scanners unless your

budget has no possibility of affording the PRO-2042, PRO-26, or PRO-60.

One of the neatest things in the 1996 catalog is the return of "my" **Event Counter Module**, #277-302 (pg 130). Salty, crusty hackers may remember my **Mod-30 Event Counter**. Then a year after I published it, Radio Shack pulled it from the shelves. Now it's back....sort of. I think it has to be special ordered, but what the heck? Page 130 sports a handful of other interesting LCD modules, including a low cost panel-mount voltmeter/ammeter.

Page 125 sports a \$99 **oscilloscope**! Well, it's a probe with an LCD display of some sort, and software to run it as a 20-MHz oscilloscope. I can't imagine the LCD display being worth a hoot, but the PC adapter and software ought to make this puppy a bargain for most 20 MHz scope needs. Nothing else new in the test equipment department, but another mention is deserved for the **PC-Interface Multimeter** with 20 MHz frequency counter, #22-168. We've reviewed this one in the past. Their **Bench meter 22-175** remains a good buy.

On pg 120 is a **one-hand soldering pencil** with a gizmotchy to feed solder while you work. Neat idea, but I don't like the tip on the damn thing.

A neat **coax cable stripping tool** is offered for \$7 on page 118. Good for RG-6 and RG-59 cables only.

A new **shortwave receiver**, the DX-394 appears on page 44, but at \$400, I dunno. Radio Shack has never been renowned for their SWL gear. This one has all the earmarks of sizzle without steak. Caution advised. The portable DX-392 looks decent, but at \$250, I dunno about that one, either.

New **ham and business radios** and related equipment appears on pp 41-43

## PRO-39 S-METER

From: Ira Cooper

Bill, R-264 is where I pull DC power for an LED S-Meter mod in the PRO-39. Let me know if this is kosher. It seems to be working so far. I've added your LED S-Meter, MOD-26, to the PRO-39 using surface mount LED's. Its pretty damn cool. I cut a 1/8" x 5/8" vertical slot in the front of the case approx. 5/8" above the center of the word "KEYLOCK". My S-

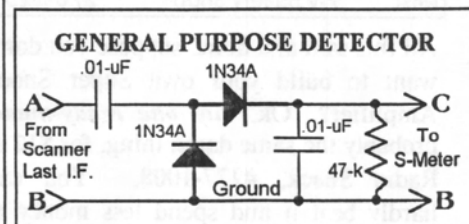
Meter consists of 6 green and 4 red LED's. Unfortunately the yellow LEDs looked just like the green (maybe they sent the wrong ones) so I used green and red. The LM-3914 is on the top board upper left corner; it will lay on its back. The precision pot lays to the right about 3/8" away on another blank spot on the board. The whole component section is built almost entirely between the legs of the LM-3914. The brightness pot was used to adjust brilliance, ohms measured, then removed and replaced with a resistor of the measured value. Its tight but I love it.

**ED Comment:** The proper DC power pickoff point is on the switched side of the On/Off switch. This could also be at the junction of R264 & R265, same difference.

Here's a clue for you....about saving battery power. Keep in mind, depending on the setting of the LED brilliance, that current per LED can go to 25-ma or more. If you're monitoring fairly strong signals, then 3-10 lit LEDs will drain your batteries in short order! But there is a remedy, thanks to a little known feature of the LM-3914 chip. It has a setting for either **bar-graph** or **spot mode**! Bar-graph is where all LEDs up to the highest one are lit at the same time, whereas in spot mode, only the single highest active LED is lit. This represents a considerable savings of power, and increased operating time!

Note how in MOD-26, Pin 9 is tied to a + voltage point? Lift that connection so that Pin 9 doesn't connect to anything, and you're in the energy-saving **spot mode**! Put a switch there so you can select either mode, at whim and fancy!

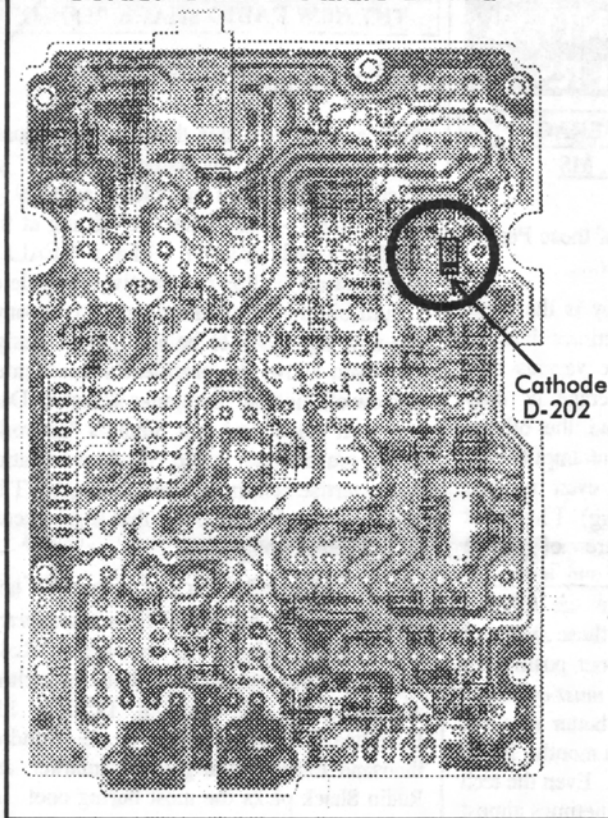
For those not in the know, a simple "detector" circuit is needed to generate an output to an S-Meter device. That detector is shown as follows:



In the PRO-39, Point A of the detector goes to the cathode of D-202 at the output of T-203, the last I.F. transformer. The fully amplified 455-Khz IF signal is converted by the detector to



## Solder-Side of Audio Board



a DC voltage proportional to the strength of the I.F. signal. Point C of the detector feeds this DC signal to the S-Meter of choice. Point B at either end is simply ground. Ira Cooper, the submitter of this excellent mod, chose the LED S-Meter (MOD-26) from Vol-2 of my Scanner Modification Handbook. Mr. Cooper went on to build his LED S-Meter into the PRO-39, an excellent idea.

You may prefer the easier and safer method of an external S-Meter that can be disconnected from the scanner as

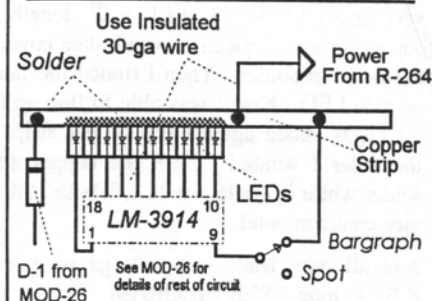
desired. If this is the case, build the detector into as small of a volume as possible and connect Point A to the cathode of D-202. Install a small phone jack in the side of the scanner's case. Connect Point C of the detector to the center lug of the phone jack. Connect Point B to scanner ground at one end and to the shell of the phone jack at the other end.

Then build the S-Meter of choice in a metal box or other enclosure with a short cable terminated in a phone plug to mate with the phone jack on the scanner.

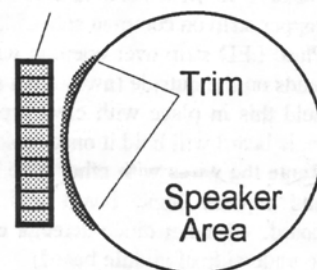
Your S-Meter can be the LED type like MOD-26 in my SMH-Vol 2, or it can be the analog type described as MOD-25 in the same book. If you don't have that book, you can get the needed information from a back issue of the WSR (*V3N3P5*). In fact, that issue offers a very detailed S-Meter mod for the PRO-43, the details of which are precisely applicable for the PRO-39, except as noted herein.

Ira Cooper now explains how he adapted my MOD-26 to a surface-mount LED S-meter for his PRO-39 as shown in the remainder of this article: ⇨ ⇨ ⇨ ⇨ ⇨

## SMT LED "MODULE"



Cut opening for LEDs



Inside View of PRO-39 Front Panel



*Ira Cooper goes on to say.....*

I used a copper strip with sticky back (From RS... part# unknown) and the LED common side. This made it easy to line up the ten

9/19/95 ~ 4:38 PM ~ The "World Scanner Report" © 1991-95; Volume 5, No 7; Page 7

CONFIDENTIAL SUBSCRIPTION ORDER: Please Print Clearly!		Subscriber No.	09/09/95 SUBSCRIPTION RATES & ORDER BLANK	V5N07
NAME:			USA RATES shown: Canada add 25%; Other Foreign +25%-surf or +50%-Air	
STREET			<b>BACK ISSUES ONLY</b> Single copy 1 ea \$ 5.00 s	
CITY:		STATE:	ZIP:	1991-94: any one year set-----10 ea \$30.00 s
Work Ph: ( ) - Career or				1991-92: first two years, set-----20 ea \$40.00 s
Home Ph: ( ) - Profession				1993-94: second two years, set-----20 ea \$40.00 s
TYPE OF SCANNERS >>				1991-94: all four years, set-----40 ea \$75.00 s
& Other Radios >>				<b>World Scanner Report CURRENT SUBSCRIPTIONS</b> s
METHOD OF Check Cash M.O. Visa MstCard COD (+ \$8.50)		Amount Enclosed		First or second Half Year --- 5 ea \$20.00
PAYMENT >> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		\$		One Year --- 10 ea \$35.00 s
Credit Card		Amount Charged		Two Years --- 20 ea \$65.00 s
Acct No: >> - - - - -		\$		<b>BOOKS &amp; OTHER PRODUCTS</b> s
Name of Issuing Bank		Expiration Date: / /		Scanner Mod Hndbk, Vol-1: \$17.95 + \$4.00 S&H *
Signature Required (for credit card purchases)				Scanner Mod Hndbk, Vol-2: \$17.95 + \$4.00 S&H *
X				Ultimate Scanner ( <i>Cheek3</i> ): \$29.95 + \$4.00 S&H *
What else to tell us?				Scanners & Secret Frequencies: \$19.95 + \$4.00 S&H *
US FUNDS PAYABLE TO: COMMtronics Engineering				* Canada US\$9 S&H; Other Foreign US\$11 S&H; all add extra for Air
				CE-232 Interface Kit \$194.95 + \$5 S&H; All Foreign add \$10-surf
				Hertzian Intercept BBS Subs: \$8/mo \$15/3-mo \$25/6-mo \$40/yr \$75/2-yr
				HOBBY RADIO BUYER'S DIRECTORY \$14.95 ppd. surf
				Callf addresses: add 7.25% sales tax to all orders except subscriptions
				<b>TOTAL THIS ORDER: &gt;&gt;&gt;</b> s

very small LEDs. I stuck a 2" length of copper strip on a piece of wood, then covered the piece in solder. Then I tinned the lands of each LED. Now I was able to line up the 10 LEDs anode against the copper strip, in the order I wanted. Heat the copper strip solder while in contact with LEDs to make a nice common bond.

Add all wire leads using 30 ga wire from R.S., 4" long. SEE DIAGRAM

1. I needed to trim some of the plastic edging around the speaker for my LED package to fit. Also had to trim the copper strip on common side of LEDs.
2. Place LED strip over opening with wire leads on the outside (away from spkr). I held this in place with clear tape. The logic board will hold it once replaced.
3. Route the wires with other wire bundles and replace logic board and middle board. (S-meter diode detector connects to underside of middle board)
4. Connect signal detector wire from LED package to diode detector circuit.
5. Connect power wire to top leg of R264
6. Connect ground to any scanner ground.
7. Replace top board.

When making connections to the 3914, make all connections as close to the body as possible and cut off excess length. Build this circuit point-to-point on the 3914 chip, following instructions in the *Scanner Modification Handbook, Volume II*.

I used glue to hold the 3914 and pot to circuit board. For brightness I connected the pots as instructed, set brightness, measured pot value, then removed pot and replaced it with equal value resistor. This helped keep the size to a minimum. Also, set the gain pot prior to securing components with glue.

*Ira Cooper* (pro-43@aol.com)

## PET PEEVE CONTEST MORE WINNERS!

### SCANNER PRESS COVERAGE

**From: Tony Thornton, Mize, MS**

Received: US Mail.

Hi Bill & Cindy: I need one of those Percon CD rom's, so here's my attempt.....

My favorite gripe on our hobby is the press and their coverage and sometimes lack of coverage on our hobby. (The various rags that have *some* scanner coverage or *only* scanner coverage, I don't read the others) They all seem to make a huge attempt to stay away from stories that are even a little controversial. (*Read Interesting*) I have not seen one mention anywhere of Laura Quarantiello's two-facing of our hobby in "Police" Magazine. Only on the Internet Newsgroups could you find these types of stories. This only backs up your position of computers and our hobby, *you must own one!* I think these rags could make better attempts to cover different subjects each month. If you read one, you've read them all. Even the tech articles in some seem to be sometimes almost the same from one to the next. I won't ramble on, you get the idea, most of these magazines are all the same. I enjoy the WSR a great deal. The almost totally technical format is exactly what I like. Thanks ☺

*ED: Little do some of you guys know how thoroughly politics is embedded in all avenues of Life, including Hobby Radio. The hobby radio press is not truly THE press, for one thing. Almost all, including the WSR, are side ventures of companies just trying to make a living. Most play the political role to the hilt. The WSR tries not to.....but I can tell you right up front, we pay a price! Alas, we cannot subsist on press revenue alone. ☹*

## THE NEW RADIO SHACK "LOGO"

**From: Paul Longo, Stamford, CT**

Received: US Mail.

Who came up with this thing, anyway--some third-grader using his father's PC, or an artistically-challenged graphics wannabe? I mean, c'mon -- a red letter "R" sitting at the edge of a red circle??? That's REALLY sophisticated! Is this the creative pinnacle of a multi-billion-dollar international company? The new logo HAS to be an "inside" design job -- you know, the president's son wanted to show off his new "computer skills" to Dad, who then made sure that Sonny's "artwork" would grace every Radio Shack publication and advertisement in the world! It CAN'T be that they actually PAID for this sorry excuse for a graphics product!

And -- while we're on the subject -- how about the new ("type-face" to you non-artsy-fartsy WSR readers) that the words "Radio Shack" are now set in? It's about as exciting as Helvetica. In fact, it LOOKS like Helvetica! There must be a hundred thousand fonts on the graphics market, and Radio Shack picks the most boring one! (At least the font they used prior to this one looked modern and futuristic, more in keeping with the image of an electronics company. The new font reminds me of a headline in a cheap supermarket tabloid...).

Radio Shack's logo just dropped down to the level of its products with this latest "improvement"! (With exception of scanners, of course.) PS...I bet that Radio Shack still keeps me on their mailing list..(Here's my entry for your "Pet Peeve" contest. Now that summer is over, we grouches can come out of the woodwork again.....)

*ED: Radio Shack plays Super Politics. Now, Computer City and Incredible Universe! ☺*

9/19/95 - 4:38 PM - The "World Scanner Report" © 1991-95; Volume 5, No 7; Page 8



**COMMtronics ENGINEERING's**  
**"WORLD SCANNER REPORT"**  
**PO BOX 262478**  
**SAN DIEGO, CA 92196-2478**

Professional  
Services



DEADLINE FOR CONTEST THIS MONTH IS 9/30/95 - SEE PAGE 1

950909V5N07P08

**IN THIS ISSUE**

ISSN-1061-9240

**FIRST CLASS MAIL**

- Pet Peeve Contest Extended to 9/30/95 - *Some Pet Peeve Winners Announced!*
- Want to build your own computer? - Article: "Sneakers" by Janet Cravens
- *Cheek's Response to USSN's bad review of The Ultimate Scanner*
- *Electronic Eavesdropping - continued: Super Snoop Amplifier*
- PRO-2042 replaces PRO-2035 - Review of Radio Shack's 1996 Catalog
- *LED S-Meter for the PRO-39 - For sale: a Turbohopper PRO-2035*
- More Pet Peeve Winners
- CE-232 Scanner/Computer Interface goes on sale: see loose insert

