

Amateur Radio and the Blind

Part 1: What difficulties does a blind person encounter with Amateur Radio? What advantages and opportunities does Amateur Radio offer the blind? In this series, we'll discuss subjects you may have thought of only occasionally, but you're certain to find interesting and informative.

By Butch Bussen, WA0VJR
Box 142,
Wallace, KS 67761

I've been an active Amateur Radio operator for the past 18 years. Like most of you, I marvel at what technology has brought us. I've watched my ham shack fill with radio and computer equipment as I try RTTY, AMTOR and packet radio.

Think back a few years: Who would have dreamed so many of the technical miracles we enjoy today would be possible so soon? Now, close your eyes for a moment and ask yourself: "How could I make use of all of this marvelous technology if I couldn't see?" That's what this article series is about.

Certainly there are other, possibly better, solutions to the problems I'll be discussing. This article isn't the end, only the beginning; it's the tip of the iceberg. It's written to encourage those handicapped hams who have wanted to try these communications modes and for those hams without handicaps who want to get some idea of how they can help us. I'm writing about some of my experiences and the solutions I found to some of the difficulties I encountered.

Although I'm addressing visually handicapped hams here, let's not forget those who are deaf or have impaired motor skills. And, there are those who have combinations of two or more of these handicaps. Yet, we *can* and *do* enjoy Amateur Radio!

Some Background

I've been totally blind since birth, yet I can now enjoy many facets of our hobby that a few short years ago would have been unreachable. I've always loved technical things, especially electronics. This is probably because I always depended on electronics for entertainment. I love the old radio mysteries and used to listen to them for hours; and I enjoy "watching" TV. Most of the books and magazines I read are either on record or tape, so it was only natural that I looked toward Amateur

Radio for more knowledge and entertainment.

Some Hills to Climb

Many of the problems I faced as a new ham parallel those faced by visually handicapped people all through life. It's hard to explain, but it's the *little* things that really drive you crazy! For instance, it's not knowing when the cup of coffee you ordered has been placed in front of you, or not knowing someone is holding out their new hand-held transceiver for you to see. Some people are thoughtful and understand a blind person's situation without being told. Then there are those who come up to you and say, "Guess who this is!" or, "Do you know who I am?" That kind of thing really can put you on the spot! If you're not sure you will be recognized, just *say* who you are. If I don't recognize the voice right away, at least that way I'll know for sure who I'm talking to. As I said, it's the little things.

I think reading is the thing I miss most.

Two of the big obstacles blind people face are not being able to drive a car and not being able to read printed material. Amateur Radio has helped overcome these hurdles. I can visit anywhere in the world through my radio. Many times I have had another ham—hundreds of miles away—locate a transistor substitute or an address I need.

I think reading is the thing I miss most. Henry Kuhn, W2IRU, of Buffalo, New York, offers a magazine on audio tape. It's called *The Radio Digest*. Henry has been producing this monthly magazine for over

25 years. How do you thank someone for that kind of dedication? Henry reads selections from the various computer, electronics, and Amateur Radio magazines. *The Radio Digest* is available from the Associated Services for the Blind.¹ *QST* is also available on floppy disk from the Library of Congress.²

It's impossible for me to separate Amateur Radio, computers and general electronics from my daily life. They're all tied together and I depend on them so much. Amateur Radio is not just one of my hobbies, it's a *necessity*.

My Introduction to Amateur Radio

I attended the School for the Blind in Kansas City, Kansas, for 11 years. In my senior year, I attended our local high school. When I was in the seventh grade, a Kansas City ham volunteered to teach a Novice license class. His name is Elmer Rose. Elmer showed up without fail each week that year until we all had passed our tests. Jerry Foster, my sixth-grade teacher's husband, was also involved in helping us. Jerry's was the first ham station I saw. I don't remember Jerry's or Elmer's call sign, but I will always remember them. I hope somehow they know their efforts were not in vain. At least one of us out of that class finally upgraded and continued on in Amateur Radio. Jerry and Elmer, wherever you are, thank you!

I never understood the logic of it, but after we got our Novice tickets, we were not allowed to assemble a station at school! The school let us hold the Novice instruction classes, but antennas and radios were "too ugly," so, no ham station. I came home with my license and had no idea where to turn! I ran an ad on a local radio station and was contacted by a couple of hams from Colby, Kansas. One of them

¹Notes appear on page 31.

Hammarlund HQ-110 receiver he wanted to sell; I finally convinced my Dad that I just *had* to have it! I barely figured out how to run the receiver. I had no idea how to put up and tune an antenna, or how to tune and operate a CW transmitter. No one else in my family knew anything about electronics, and they weren't interested in it, so I was on my own. I listened a lot, but never got on the air. I never made one contact. My license expired, I sold the receiver, bought my first stereo and joined a record club. Novice tickets weren't renewable in those days.

The Ham Bug Keeps Biting

In 1966, I graduated from high school and enrolled at a local vocational technical school to study electronics. I'd tried enrolling in a couple other schools in Kansas, but they refused me, saying: "There is no future in a blind person studying electronics," and "We have no idea how to teach you, anyway." One of the first things our vocational school class did was tour the KLOE TV and radio stations in Goodland, Kansas. That is where I met John (Darel) Graves, WA0GBN. I told him I was interested in Amateur Radio, and he said he would be glad to help. The ham bug just would not go away!

Darel loaned me an old paper-tape code-

practice machine and read the sample questions and answers to me on tape so I could study the theory. He had to learn how to read and describe schematic diagrams to me. To a blind person, everything is point-to-point wiring. It is done like this: "The base of transistor Q1 goes through R2, a 47-kΩ resistor, to ground. The base also goes through a 0.001-μF capacitor to the hot side of J1, the audio-input jack." Explained that way, the diagram can be written in Braille, or put on tape for review later. We blind people learn to read descriptions like that and put the picture together in our heads.

A Shocking Experience

At that time, I didn't have a receiver to copy CW, but some people I met in Goodland gave me a Hallicrafters S-38C. I spent a lot of hours listening to that receiver (and I still have it). I strung a wire out the window for an antenna and tied it to the clothesline. It was steel wire and really worked fine. One damp and rainy day, Mom wanted to know why she got shocked when she touched the clothesline. It didn't take me long to figure that one out: The S-38 receiver is a 5-tube ac/dc set!

My First Real Rig

One Sunday afternoon I was listening to

my receiver (no longer hooked to the clothesline), and I heard a strong signal. It belonged to Ray Penington, WA0CTP, who lived in Oakley. That's a town about 40 miles east of me; Ray ran a drugstore there. The next time I was in Oakley, I walked in, asked for Ray, and introduced myself. He acted as if he had known me forever, and promised me this time I *would* get on the air! It took less than 10 minutes for him to get my name and phone number and to offer the loan of a rig, a Heath HW-12.

Because of my handicap and the distance I lived from an FCC field office, I was eligible to take the Conditional-class license test. Roy Sanderson (Sandy), W0EKL, gave me my test. He said he was sure I had passed, but I wasn't convinced. In a couple weeks I got a letter from the FCC. I knew it had to be bad news—you don't get a license that quickly! Sure enough, no license; I had forgotten to sign something. Well, at least they didn't say I had failed. Finally, the license came!

The next day, it was back to Oakley to get the HW-12, an ac-operated power supply and portable dipole from Ray. I went home, ate dinner in record time and put up the antenna. Ray had sent everything, including the transmission line. All I had to do was climb my tower, affix the

Where to go for Help

Lloyd Rasmussen, National Library Service for Blind, 1291 Taylor St, NW, Washington, DC 20011, tel 202-287-9324. Check here for the location of your regional library. Many books, magazines and journals, such as *QST*, are available free of charge.

National Braille Press, 88 St Stephens St, Boston, MA 02115, tel 617-266-6160. Source for some Braille information. Publications include *The Second Beginner's Guide to Personal Computers for the Blind and Visually Impaired* and *Add-Ons: The Ultimate Guide to Peripherals for the Blind Computer User*. Copies are available in Braille, audio cassette and printed form.

Stanley Doran, Newsreel Club, 176 Braille Ave, Columbus, OH 43223, tel 614-279-0780. An audio tape newsletter.

Ed Potter, *Playback*, 1308 Evergreen Ave, Goldsboro, NC 27530, tel 919-734-9173. This is an audio tape newsletter of general interest that reviews various types of electronic equipment and includes many addresses and toll-free telephone numbers.

American Printing House for the Blind, 1839 Frankfort Ave, Louisville, KY 40206 tel 502-895-2405. Sells tape recorders, appliances and books recorded on audio tape and in Braille.

Bill Gary, Smith-Kettlewell Visual Sciences, 2232 Webster St, San Francisco, CA 94115, tel 415-567-0667. Produces a quarterly electronics magazine in Braille called the *Smith-Kettlewell Technical File*.

Educational Tape Recording, 10234 S Kedzie Ave, Evergreen Park, IL 60642-3795, tel 312-499-3666. Offers books on audio tape; several computer manuals are also available.

Recorded Periodicals, 919 Walnut St, 8th Floor, Philadelphia, PA 19107, tel 215-627-4230. Several technical magazines are available on audio tape. You may rent these at a cost of \$20 a year. (I highly recommend *The Radio Digest*.)

Recordings for the Blind, 215 East 58th St, New York, NY 10022, tel 212-751-0860. Several books (including computer

manuals) are available on tape.

IRTI, 26699 Snell La, Los Altos Hills, CA 94022, tel 415-948-8588. Sells audio tape and other products of interest.

Trian Corp, 302, 177 Telegraph Rd, Bellingham, WA 98226, tel 800-628-2828. Sells a talking clock for \$30 and talking watch for \$50.

Sense-sations, 919 Walnut St, Philadelphia, PA 19107, tel 215-627-0600. A source for appliances and other aids for the blind.

Street Electronics Inc, 1140 Mark Ave, Carpinteria, CA 93103, tel 805-684-4593. Comments: Manufactures the Echo GP, Echo PC and Echo Plus speech synthesizers.

Stone Mountain Engineering Co, PO Box 1573, Stone Mountain, GA 30086, tel 404-879-0241; in Canada, Atlantic Ham Radio Ltd, 416-636-3636. Comments: Offers the QSYer, a DTMF keypad that plugs into the Yaesu FT-757GX and IC-735 transceivers to permit direct entry of frequency. Price: \$89.50 plus \$2.50 shipping and handling. (See also S. Reyer, "The DIGI-CAT," Apr 1987 *QST*, pp 40-43.)

Franklin Research Center, 20th and Race St, Philadelphia, PA 19103, tel 215-448-1416. Offers a talking digital multimeter (\$450).

American Foundation for the Blind, Consumer Products Department, 15 West 16th St, New York, NY 10011, tel 212-620-2000. They sell many products especially adapted for the visually handicapped—games, tools, kitchen appliances and more.

Talking Computer Products, Ronald (Butch) Bussen, Box 142, Wallace, KS 67761, tel 913-891-3532. A source for computer aids for the blind including speech synthesizers, the Laser 128 (an Apple compatible computer), talking software and items produced by Computer Aids of Fort Wayne, Indiana. Talking Computer Products items, such as The Talking Checkbook program, are also available.

Computer Aids, 124 West Washington, Lower Arcade, Fort Wayne, IN 46802, tel 219-422-2424.

center insulator, tie the ends of the dipole to tent stakes driven in the ground and that was it. I connected everything together—and I was on the air! Ray was my second contact that afternoon. Over the years, we spent hundreds of joyful hours on the air. Ray is now a Silent Key, but I will never forget him.

The HW-12 didn't really need any tuning. I had no idea what the antenna system SWR was. I wasn't even sure that it mattered, and I didn't have an SWR meter anyway. I had no way to tell what frequency I was on, but that didn't matter either, as the rig covers 3.8 to 4.0 MHz, so I was "legal" anywhere the rig would go. But, you know hams—we always want more. There were all those other bands... and I needed *my own* radio.

...how do I tune the radio?

Finally, I bought a National NCX-300. This is a 5-band version of the NCX-3 tri-band transceiver. But now, I had real problems. How could I tell what frequency I was on? This transceiver can cover entire amateur bands! The rig has tuning and loading controls! How do I tune the radio? I had to get someone to read the manual to me so I would know what to do with all those "extra" knobs.³

Receiver/Transceiver Tuning

Until the days of microprocessor-controlled radios, determining my operating frequency was a problem I never solved. The best solution I ever came up with was to use a crystal calibrator, find the beat notes and count the turns of the VFO knob. If I lost count, I went clear to the top or bottom of the band and started counting all over. At least I had an idea where I was—sort of. Once I called an SSB CQ on 3.770, before this was part of the US phone band. When I finally discovered where I was, I dreaded getting the mail for a month fearing someone had heard me!

Transmitter Tuning

Tuning a tube-type transmitter is critical, and I've tried several approaches. I found I could take a standard broadcast radio, key the transmitter and find a heterodyne. By listening to this, I could adjust the drive, plate and load controls. Then, I got a little E. F. Johnson monitor from Ray. In the AM position, I could hear and peak the audio hum from my transmitter to get maximum output.

Then I *really* came up in the world! A ham in California sent me a transistor device that hooked across my plate-current meter and gave me an audible indication of what was going on. As the current rose, so did the tone pitch; if the current fell, so

did the pitch. I know several articles have been published describing such devices (see the bibliography), but this one is the best I've found so far. It's the most sensitive and stable. I use this same device plugged into my SWR meter, and by listening to the pitch of the tones on forward and reflected power, I can get an idea of the SWR.

Radios and What to Look For

I've spent a small fortune trying to keep pace with technology, and have owned quite a few different radios. After the NCX-5, I bought a Yaesu FT-101. This is a nice radio, but I still had to use a crystal calibrator to determine my operating frequency, and I used an audio device tied across the plate-current meter for tuning. I could get the drive adjustment close just by peaking the receiver noise.

When the all-solid-state radios appeared on the market, I knew I *had* to have one! It's so neat to change bands at the flip of a switch, and no transmitter tuning is required! If you remember the old rigs, try and imagine the fun I had trying to tune my old E. F. Johnson Viking One on 160 meters!

The solid-state transceivers still left me with the problem of getting to a specific frequency or telling me where I was. I had a Ten-Tec transceiver equipped with the optional speech synthesizer. The synthesizer helped a lot, but it was difficult to find an exact frequency as I had to turn the dial a bit, listen to the readout, and then turn the knob again. What a sighted person can see at a glance, I have to listen to. My next rig, an IC-701, was equipped with the optional RM-2, which allows direct keyboard entry of the operating frequency. I still could not read the display, but I could at least key in my operating frequency. The keys on the RM-2 are laid out like those of a Touch Tone® telephone, so it's easy to use.

Gary McDuffie, AGØN, recorded the '701 manual on audio tape and did a lot of work on the radio for me, including some modifications. I used the '701 for quite a while and traded it in for a Yaesu FT-980. I liked this rig a lot, but I missed the IC-701's keypad layout; the '980 keypad is unlike a Touch Tone pad or calculator key pad. Also, the FT-980 has no provision for a speech synthesizer. I really think the keypad and synthesizer are helpful. If I had to pick one or the other, I would choose the keypad, but a synthesizer makes it easy to tell exactly where you are. It just goes to show you: There is no end to a wish list! Enter Kenwood's TS-940S and '440 (I now own a '440). They have keyboard entry, an optional speech synthesizer and CW announcement of the mode you've selected.

Keyboard frequency entry, a speech synthesizer, or both, make it so easy to get on or find a particular frequency. Much Amateur Radio operation these days is channelized, and it's essential to be on the

proper frequency. VFO stability is very important; I want to be—and stay—where the readout, keyboard or speech synthesizer say I am. Stability is important because of the narrow bandwidth of these digital modes and also because I cannot read the modem tuning lights or an oscilloscope display. If my radio drifts, it's very difficult to chase the station I'm talking to up and down the band. Things like that can drive you nuts if you are trying to figure out what is wrong and there is no sighted ham around to give you a clue!

For AMTOR, TR (transmit/receive) switching time is another factor to consider. Though this is important to a sighted person, I feel it is even more so for me as I have enough things to keep track of.

VHF and Up

For operation on 6 meters and above, we must be more selective. A lot of this equipment, though digital, has just up and down frequency control keys. Not many such rigs have provision for keyboard entry of the operating frequency. Blind hams should try and spend some time with a particular radio at the store or at a friend's house before deciding on what they're going to buy. For instance, I bought an IC-551 6-meter transceiver a few years ago. I kept it only about six months because it was so difficult for me to operate. There is no provision for a frequency entry keyboard or speech synthesizer. Every time you power it up, it comes on tuned to the bottom of the band. The problem is that its VFO "tunes forever." There is no mechanical stop for reference, and if I got lost, I had to power down and start over. All I could do was count the turns of the knob. If I got down to 50.000 MHz and moved slightly below, the rig went to 53.999 MHz.

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I've owned radios with thumbwheel switches. There is usually no way to mark such switches; they just keep going round and round. So, if you forget what frequency you're on, you'll need sighted help.

If a radio has frequency-controlling keys, be sure you can enter the operating frequency directly. There was a 10-meter FM radio I wanted, but the frequency controlling keys were just up/down keys. I could not enter the *exact* operating frequency I wanted. Some hand-held transceivers are also set up this way. The presence of a speech synthesizer doesn't solve all the problems. Be sure it will tell you *all* you want to know. Does it announce the offset, memory number and the frequency stored? If the radio has an



Fig 1—Here's how the Dymo label is used to identify a floppy disk. (photos by Gary McDuffie, AG0N)

optional subaudible tone, does the synthesizer voice the tone settings as well? Can you tell if you are transmitting on VFO A or B? Can you tell if you are operating "split" between the two? The synthesizer should also be able to speak when the radio is in the transmit mode so you can be sure where you are transmitting.

I have an IC-02AT. I don't have much trouble operating it, except for the keyboard lock. To lock or unlock the keyboard, you hold down the FUNCTION key and press the LOCK/UNLOCK key. The problem is that there is no way to tell whether the keyboard is locked or unlocked unless you have a local repeater you can bring up as a reference. What's really needed is a hand-held with a built-in speech synthesizer.

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I find the Kenwood '7800 and '7900 series radios easy to use on 2 meters. The '7900 series has a feature that really comes in handy. The radio emits an audible beep each time you select the first memory. I've also used the KDK-2016. The frequency switches on this radio have stops on them,



Fig 2—A Simpson 260 VOM outfitted with a Braille dial and a tone generator. The pointer-equipped knob is turned until the tone is nulled out; then you read the Braille scale. Since this is a linear scale, a Braille conversion table must be used for reading resistance.

so it's easy to dial up what you want.

Something else to look for in a rig is the control layout and presence of knobs with pointers or notches that are easy to feel. Such knobs are especially important on microphone gain and transmitter drive controls that are difficult to set without reading a meter. Once I know where to point the knob, I can get pretty close. If I have no way to read the meter, I have a sighted friend check me once in a while to be sure things are as they should be. If I can get someone to read the instruction manual to me, and go over the location of the various front- and rear-panel controls, switches and jacks of the radio with me, I put this information on audio tape for later reference. Such a recording is handy until I get things memorized; and the recording is nice to have around for later reference.

There are different methods you can use to identify things around the shack. One method I use is to put Braille characters on half-inch-wide Dymo® tape to label switches, disks, audio and video tapes and other items (see Fig 1).

Antenna Work

I don't have much trouble doing my own antenna work. I can climb towers well enough, but sometimes need help to tell which way the antenna is pointed, or to make sure I don't have any wires crossed. I use a noise bridge or an audio device plugged into the SWR meter for making antenna adjustments. A speech synthesizer connected to the meter would be a welcome addition; it could tell me at which frequency the SWR dip occurred. Fortunately, my TS-440 has a built-in automatic antenna

tuner, so tuning for minimum SWR is one less thing I have to worry about. Aiming a rotatable antenna can be a problem. Telex manufactured a Braille rotator control box, but it is no longer in production. The only rotator I know of that can be equipped with a speech synthesizer that tells you which way your antenna is pointed is the controller from Prosearch.⁴ I saw one at Dayton a year or two ago, and put it on my wish list. It's a very smart box with memory, direct degree entry from a keyboard, and it talks! It costs about \$500 with the synthesizer, but some day I hope to have one.

Test Equipment

When I began studying electronics, I had a need for various types of test equipment. One of the first things I got was an aural signal tracer. Because I cannot read a scope, this was the best way to trace a signal path through a piece of equipment. I now have a new Heath solid-state unit with a built-in audible continuity checker. It is completely portable and very handy.

Science Products (formerly Science for the Blind) offers an audible VOM, among many other items.⁵ The meter is a modified Simpson 260 with a Braille dial (see Fig 2). A pointer-equipped knob is turned until the tone is nulled, then you read the Braille dial. (This company also makes a device that can be connected across an existing voltmeter.) I have never found this meter practical for tuning a circuit as it is much too slow to follow circuit action with the pointer. Listening to a changing tone is much easier and faster, so I usually use this type of device for adjusting trans-

mitters, aligning tape heads and the like.

I also have a talking digital voltmeter. This one speaks the reading every six seconds or so, or you can use a foot switch to make it speak when you want. The meter works fine for monitoring power-supply voltages and is quite accurate, but it's also not practical for tuning purposes. This is true of most digital measuring equipment, whether or not it talks.

Some Hints

Before anyone gets really excited about all this great talking technology, I must warn you that all of it is not cheap! I'm lucky to be able to afford what I have over the years. The talking digital meter costs around \$500. My first talking calculator cost \$395. Now, Sharp and other companies have talking calculators for around \$50.

A lot of features and equipment that are novelties for most people are necessities for the blind. Be careful when purchasing equipment. Remember, most of this stuff talks because modern electronics has made synthesized voice cheap and cute, not because it's designed for use by the blind. Radio Shack's talking watch (RS 63-5040) and talking clocks (RS 63-903 and 63-906) are great buys. The Radio Shack talking clocks are easy to set and use. I've not tried setting their talking watch. The talking watch I have (a Setoki) speaks the time when you press the button, but nothing talks when you set it, so you can get into some real problems trying to set the time. My watch has a calendar, alarm, elapsed time and all that, but only the time is announced.

I mention my watch to stress a point. If at all possible, *try before you buy!* As you will find when I discuss talking computers and software, there are very few sighted people who *really* understand or appreciate what we need. Something that may talk well enough for them, may not talk enough for us—or it may talk *too much*. What may be fast and convenient for a sighted person to use may be impossible for us to use independently.

If you are assisting a handicapped person, try to be patient. Give that person time to become familiar with the controls and features of the equipment. On the other side of the coin, a handicapped person who goes shopping should take someone along who is willing to take the time to explain things and read controls and specifications from the instruction manual.

Enter the Computer

About three years ago, I got an Apple® computer and equipped it with a speech synthesizer. I use software especially written to allow the computer to talk, and I cannot begin to tell you the changes the computer has made in my life! As far as Amateur Radio is concerned, the computer has opened the door to digital communication for me. I put my talking computer

...most of this stuff talks because modern electronics has made synthesized voice cheap and cute, not because it's designed for use by the blind.

together with some of the modern modems and I have access to RTTY, AMTOR and packet. The problems and solutions associated with interfacing a computer and Amateur Radio equipment are subjects for future discussion. In upcoming installments, I'll cover computers, voice synthesizers, software, modems, RTTY/AMTOR and packet-radio operation. Computers are a dream come true for many of the handicapped.

Notes

¹Associated Services for the Blind, Recorded Periodicals Division, 919 Walnut St, Philadelphia, PA 19107, tel 215-627-0600.

²Library of Congress, Division for the Blind and Physically Handicapped, 1291 Taylor St, NW, Washington, DC 20542, tel 202-287-5100.

³Kantronics and AEA make equipment manuals available as ASCII text files on disk for handicapped hams. Some of the older Kantronics manual files are available on Apple formatted disks; newer manual files are on MS-DOS formatted disks. Contact Kantronics at 1202 East 23rd St, Lawrence, KS 66044, tel 913-842-7745.

AEA manuals for the PK-87 and PK-232 can be obtained from Norm Sternberg, W2JUP, PO Box 125, Farmingville, NY 11738 (telephone no. unpublished), or by contacting AEA at 2006 196th St, Lynnwood, WA 98036, tel 206-775-7373. (Requests sent to AEA are routed to Norm.) Requests should indicate the disk format preferred: IBM PC or AT, Apple, C64 and so on. Almost any disk format (with the present exception of Atari) can be supplied. AEA and Kantronics do not charge for these services: Stamped mailers and formatted disks are not required.

⁴Prosearch Electronics, 1350 Baur Blvd, St Louis, MO 63132, tel 800-325-4016; in Missouri, 314-994-7872.

⁵Science Products, Box A, Southeastern, PA 19399, tel 215-296-2111.

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as other sources of information, are in this book, available free of charge from the ARRL. Send your request to: ARRL Program for the Disabled, 225 Main St, Newington, CT 06111, or call 203-666-1541.

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[If Butch's byline seems familiar to you, it's probably because he authored "The Squawker," which appeared in July 1987 *QST*. You can find his biography there.—Ed.]

Strays



I would like to get in touch with ...

anyone with information on a Swan linear amp. Russ Smith, W6ONK/7, PO Box 141, Brownsville, OR 97327.

anyone with a manual for a General Radio Type 650-A impedance bridge. Robert Weir, HH2WR, MFI Box 15665-WT, West Palm Beach, FL 3406.

anyone with a manual/schematic for a Central Electronics monitor scope, Model MM-2. Burt Engel, W3KFZ, 17425 N 96th Dr, Glendale, AZ 85508.

anyone with a schematic for a W-S Engineering Portapeater board. Duane Kilbourn, W8NZ, 453 W Territorial, Battle Creek, MI 49105.

anyone with information on using a Xerox 400-1 FAX machine for amateur FAX. Hal Wilson, WB9FNN, 11727 Lamey's La, Evansville, IN 47711.

CHECK YOUR LABEL

Are you a League member and FCC-licensed, but your call sign doesn't appear on your *QST* mailing label, and your membership certificate says "Associate Member"? Then you're missing out on the chance to vote for League Directors, Vice Directors and Section Managers. Help us correct your membership records by sending your name, address and call sign (and, if possible, the seven-digit number that appears on your mailing label) to ARRL Circulation Dept, Dept C, 225 Main St, Newington, CT 06111.

Feedback

□ In "Amateur Radio and the Blind, Part 1," Oct 1987 *QST*, please make this change to the sidebar on p 28, left-hand column, fifth entry. The correct spelling of Bill's last name is Gerrey, and his call sign is WA6NPC. (Tnx to Ricardo J. Alfano II, W6FWX, for this information.)

□ Author Steve Stuntz provides us with the following corrections to his article, "A Packet Terminal for Atari Computers," Nov 1987 *QST*, p 17, Fig 4. On the DB-25 connector, the TRANSMIT DATA line should be shown connected to pin 2 (not pin 1); the RECEIVE DATA line connects to pin 3 (not pin 2).

