```
===COMMUNICATIONS PARAMETERS===

Present parameters: 300,E,7,1

Echo-N Mesg-N Strip-N Pace-N

Options:
    1 -  300,E,7,1  (text)     2 -  300,N,8,1  (binary)
    3 - 1200,E,7,1  (text)     4 - 1200,N,8,1  (binary)
              F - reset params to defaults
              X - exit to terminal
Choose:  4

New parameters are: 1200,N,8,1

Echo-N Mesg-N Strip-N Pace-N

===Proceed ...
```

Amateur Radio and the Blind

Part 4: We'll wrap up this series with a few more comments about modems and general operating procedures. I've included a few operating tricks, too.[†]

```
PrtSc=prnt  Alt- T=tran R=recv V=view D=dial E=echo M=mesg X=exit <Home>=Help
```

By Butch Bussen, WA0VJR
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(photo by Gary McDuffie, AG0N)

RTTY is fun, but there are a couple of problems blind hams may encounter when using this mode. For instance, the AEA AMT-1 modem does not have any kind of squelch or threshold circuit. This means that even when there is no signal on the air, the modem tries to decode the random noise that it detects. A sighted operator can ignore such garbage on the screen, but it can drive you crazy if you have to listen to the speech synthesizer spit everything out when you're just monitoring a channel. With the PK-232, you can circumvent this annoyance by setting the THRESHOLD control so that the modem responds only to real signals. (Actually, if you turn the THRESHOLD control fully clockwise, it will copy the noise, think the channel is busy— the DCD LED will stay lit—and not key the transmitter.)

The second stumbling block for visually impaired amateurs is that Baudot RTTY has no error-checking feature. If signals are strong, things run smoothly. But as signals get weaker or fading sets in, you start to miss characters within words. Sighted

RTTY operators can read a screen and, in most cases, can tell at a glance what should have been received where garbled characters occur. The blind operator, however, is stuck with the speech synthesizer trying to interpret each word. Believe me, that can add up to hearing it say some strange things at times! Sure, you can go into screen review and check out each line and read it a letter at a time, but that's a slow and awkward process when you are in the middle of a contact.

My Preferences

I feel that packet radio and AMTOR are better choices for a blind ham as far as talking digital communications are concerned. AMTOR is my favorite mode. It's not fair to compare AMTOR and packet directly as they were designed for different purposes. I think that HF packet is greatly oversold as a conversational mode. It does allow for digipeating and error correction, both of which are important when sending traffic or computer files. Though AMTOR does not offer these capabilities, it will get through during weak-signal conditions. I was on AMTOR for a year and a half before I was exposed to packet, so I suppose that has something to do with my preference. I enjoy and operate packet on HF

and VHF, and have my own VHF digipeater.

Some Tricks of the Trade

There are all kinds of neat tricks you can do with modems. For instance, I found that I could set the baud rate on the Echo PC synthesizer at 300 and hook it *directly* to the modem. This allows me to monitor whatever is coming out of the modem without using a computer! Naturally, you have no operating control, but you can at least listen to what's going on if you need to use the computer for something else.

One night, Gary (AG0N) hooked his KPC-2 up to his modem and I was able to call him on the telephone with my computer and control his KPC-2 from my keyboard. I enjoy doing stuff like that just for the fun of it!

The thing I like best about the program I'm writing for the Apple //e is that I can type ahead while still receiving and listening to incoming data. This is really useful for AMTOR. Typing ahead does not work well on packet because as soon as you press RETURN, the packet is sent. With packet, there is a lot of information on the screen at one time, especially if you have MONITOR or MCON (monitor while connected) turned on. I find it less confusing

to make my transmission and terminate with some kind of "over" at the end. I usually use the >> as my over. If the other station does the same, it keeps things in some semblance of order and keeps outgoing and incoming text from getting jumbled on the screen. You can also ask the other station to send a space after each letter of his call sign so the speech synthesizer will say it right.

Operating Hints

When operating packet, be right on channel so you can call and monitor other stations, and others can digipeat through your station if necessary. If you are 1 kHz or less off frequency, you will force others to tune on you, if they bother to answer at all, and you will still tie up the main channel when transmitting.

For tuning AMTOR or RTTY, I have samples of the tones recorded on tape. I keep a small recorder by the rig so I can turn it on and tune the receiver until the tones are matched. You can also tune your receiver slowly until your computer starts talking. I have known people to turn on their transmit audio monitor and then transmit a signal so they have tones to listen and tune to; this is not a recommended practice! The tape recorder method works well, and you don't have to put a signal on the air to tune that way.

There are many parameters that are determined by whether you are on HF or VHF. Some, such as PACLEN and MAXFRAME, may need to be changed as conditions do.[17] There are others that I set just to help the speech synthesizer keep up and to keep some stuff off the screen. These parameters include DAYSTAMP, CONSTAMP and MSTAMP.[18] I generally do not care about those, and it helps cut down on speech synthesizer activity by setting them. You'll want to set the screen line length to 40 with the programs I used on the Apple; the default is 80.

Just Listening

A sighted person has the advantage of very quickly glancing at the screen to see what is going on. If the operator wants to, he or she can ignore the screen just by not looking at it. Unfortunately, if I have the speech synthesizer turned up and MONITOR activated on a busy channel, the darn thing chatters away in the background all the time! Sometimes I just get tired of listening to it and turn MONITOR off. The same thing happens with MCON on. Not only do you get the data from the station you are connected to, but everything else as well.

Gary and I are only about 250 miles apart and usually just too close to work each other direct on 14.103, so we digipeat through a station we can both hear. It is nice to be able to monitor the station we

are digipeating through to see how good the path is. There is a trick to do this without having to listen to everything else that is on. On the KPC-2, I turn BUDLIST on and put my call in BUDCALLS. A similar thing can be done on the PK-232 by putting YES WA0VJR in MFROM. This works quite well and eliminates a lot of chatter from the speech synthesizer. Of course, you want MONITOR and MCON on.

For tuning AMTOR or RTTY, I have samples of the tones recorded on tape.

Another nice feature in the PK-232 is the MBX parameter. Setting MBX to a call lets you monitor that station's transmissions, and you do not get the header all of the time, just the text. To clear MBX, type MBX %. This returns things to normal.

Other Parameters

On the KPC-2, I set HE ON; this puts the header and text on separate lines. Turn ECHO ON on both units and for echoback using AMTOR with the PK-232, set EAS to ON. On both units, the CANLINE command is set at $18, which is a Control X. This works on the Apple even though it is also the SILENCE command for Textalker speech synthesizer. Using Screen-Talk.Pro on my PC, I have to change this character to something else because the Screen-Talk.Pro intercepts the SILENCE character and does not send it on to the modem. You can change either the SILENCE character or the CANLINE character for Screen-Talk.Pro.

It's confusing at times to handle multiple connects, keep track of which stream I am talking on and where the received text is coming from.

Another command used on the KPC-2 is PERM. If this command is issued, all extant modem parameters are stored in EEPROM. The next time you power-up the KPC-2, the parameters are set to the values in effect when the PERM command was

issued. You can change parameters and they will stay in effect only until power is removed from the KPC-2. The nice thing about this is that you can always turn the KPC-2 off and back on again and be at your chosen starting point.

The PK-232 does not have a PERM command. Any changes you make are always kept in battery-backed RAM. There is no way to return to a specific group of settings unless you do as I do and save them to a disk file. You can perform a RESET, but that destroys all the modem parameters, and returns the PK-232 to factory settings, including autobaud. The RESET command on the KPC-2 is different: It appears to be similar to the RESTART command on the PK-232.

There's a lot of traffic on packet channels, and this is especially evident when I'm digipeating through other stations. It's confusing at times to handle multiple connects, keep track of which stream I am talking on and where the received text is coming from. For this reason, I set MAXUSERS to 3 and USERS to 1. On a busy channel, the speech synthesizer is usually behind anyway.

There are certain mistakes that all packeteers occasionally make, and if you monitor much at all, you'll see them. For instance, if you are in CONVERSE or TRANSPARENT mode, you must get back to COMMAND mode to change parameters or issue commands. If you forget to do this, your commands will be sent as text. In CONVERSE mode, just press Control C to get the CMD: prompt. If you are in the TRANSPARENT mode, type a Control C three times rapidly to get the CMD: prompt.

You also need to know if you have unacknowledged packets. If you do a disconnect prematurely, these will be dumped UNPROTO and the receiving station may not receive them. You need some way to read the light on the KPC-2 to see if you still have packets outstanding. (See "The Squawker: A Light Detector," July 1987 *QST*, pp 35-37.) On the PK-232, just go to command mode and press C and RETURN. You'll get the connect status and this includes the number of unacknowledged packets. That is a nice feature. To get back to converse mode, just press K and press RETURN.

One thing that neither the PK-232 or KPC-2 has—that I wish they did—is battery backup for the date and time settings. If you lose power on either unit, you have to reset the clock.

Final Comments

Most manufacturers simply do not know or understand the problems faced by the blind not being able to read the screen. General operating procedure, parameter settings and defaults are in the books, and hopefully you have sighted friends who can read you these. Some manufacturers, such as AEA and Kantronics, prepare their

The Best of Both Worlds

Term-Talk is a communications program for the enhanced Apple //e, the Apple //c, Apple //GS or any Apple-compatible computer that emulates any of these machines. The computer must have a minimum of 128 kbytes of RAM. Term-Talk is ProDOS® based, making disk access fast, and it supports the internal Hayes modems and the internal SSM modem. With the aid of a Super Serial Card, or the Apple //GS's serial port, Term-Talk supports any external Hayes or Hayes-compatible modem, as well as any external "dumb" modem.

Term-Talk is written primarily for blind operators using speech synthesizers. However, it can be used just as effectively by the sighted. You might say it offers the best of both worlds.

If you are blind and use a speech synthesizer, you can get very annoyed by the pretty boxes much software draws on the screen. For example, you may hear "asterisk, asterisk, asterisk..." 40 or 80 times in a row. Term-Talk takes this into account and says: "Asterisk, asterisk, asterisk repeats 80 times." Also, you wouldn't want a speech synthesizer to try and pronounce call signs with their alphanumeric mix. Term-Talk takes this into account by spelling out the call sign. Anytime a "word" contains alphabetic and numeric characters, Term-Talk spells the word, character-by-character.

Term-Talk has the ability to send and receive files using the XMODEM protocol. This protocol has become very popular in the past few years. XMODEM is not really designed for file transfers, but for memory-to-memory transfers. Because of this, it's difficult for the Apple to learn certain important facts about the incoming file. Therefore, it's up to you to tell the computer if the file is an Applesoft, binary or text file. Also, if it's a binary file, you must supply the starting address and length of the file.

In order to make this process easier, Term-Talk offers a modified version of XMODEM. (This version was developed, and is being used by, the producers of ASCII Express™.)[20] This modified version of Term-Talk transfers all information regarding the file type, date of creation, and so on. Using this program at both ends of the communications link, you're able to send binary and Applesoft files as easily as text files. Since ASCII Express is probably the most-used Apple terminal program, this version of XMODEM is becoming very popular.

Of course, Term-Talk has a capture buffer. The buffer size is about 40 kbytes. This is a substantial improvement over many other terminal programs. You are able to save the buffer to disk manually, or with the "Auto Buffer Save" option. You're also able to send the contents of the capture buffer and any ProDOS text file to the modem.

Term-Talk has a dialing directory of up to 99 entries. Each entry has room for a name, phone number, data rate (110, 300, 1200, 2400, 4800, 9600 bit/s), parity (even, odd, mark, space, none), number of data bits (7 or 8) and stop bits (1 or 2), choice of duplex operation (half or full) and an auto log-on sequence, if applicable. After connection is established, auto log-on automatically sends the entire sequence required to log onto the machine you are calling. You can also set up Term-Talk so that all you have to do is boot the system with the Term-Talk disk, and it automatically dials the number of your choice and logs onto the system.

At any time, you can have the program enter a screen-review mode. Not only will you be able to review the current screen contents, but also the previous 24 lines.

One of the nicest features Term-Talk contains is the ability to emulate a VT-100 terminal, probably the most common one of all. This means that you can use full-screen editors as opposed to line editors. This greatly enhances your productivity. Earlier terminal programs couldn't handle the cursor addressing needed for full-screen editors.

Term-Talk is menu-driven. This makes it extremely easy to start using the program and grow with it. After you become experienced using the program, you can use the many built-in "hot keys" for even faster response.

Term-Talk is available from Computer Aids Corporation, 124 West Washington Blvd, Suite 220, Fort Wayne, IN 46802, tel 1-800-647-8255, and from Talking Computer Products, Box 142, Wallace, KS 67761, tel 913-891-3532.
—*Butch Bussen, WA0VJR*

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manuals using word processors and make the manuals available as straight ASCII text files on disk.[19] I hope others will do the same.

Summary

Many people feel awkward in the presence of someone who is handicapped. All the handicapped ask is to be treated, as much as possible, like anyone else. I think that is why I enjoy Amateur Radio so much. I can develop the same operating skills as anyone else, and I don't even have to tell anyone I am handicapped unless I want to.

If you're a sighted ham, you now probably have a better appreciation of what the blind have to contend with. Perhaps you'll have the opportunity to give a handicapped ham a helping hand. I'm sure anything you can do will be appreciated. I again want to express my thanks to AEA and Kantronics for their help and providing equipment.

Even though we've covered a lot of territory in this series, we've just scratched the surface of things that I have had to learn to help me get along in a sighted world. Modern electronic technology has opened many doors for me that didn't exist 10 years ago. There's a world of adventure and excitement awaiting you out there on the ham bands! With the aid of the personal computer and other electronic marvels of our time, you can really enjoy Amateur Radio!

Notes

†Parts 1-3 appeared in the Oct-Dec issues of *QST*.
[17]PACLEN sets the maximum number of user data bytes carried in each packet information field. MAXFRAME sets an upper limit on unacknowledged packets and the maximum number of contiguous packets sent during a transmission.
[18]Time and date stamps, connects, disconnects, and so on. The acronyms used vary slightly from one manufacturer's product to another.
[19]See note 3, Oct 1987 *QST*, p 31.
[20]ASCII Express is produced by United Software Industries, 1880 Century Park East, Suite 311, Los Angeles, CA 90067, tel 213-556-2211.

Strays

I would like to get in touch with...

☐ anyone with a manual/schematic for a Heath SB200 amplifier. Ron Distler, W3JEH, 221 Doncaster Rd, Joppatowne, MD 21085.

☐ anyone with a manual/schematic for a Tenna Phase III regulated power supply, 13.8 V, 7 A. Morris Howard, N9BOK, 402 Third St, Box 51, Armington, IL 61721.

☐ anyone with a manual for an Eico Model 315 signal generator. Also any instructions for using grid-dip meters. Harold Blesey, N9CQX, 7810 Central, River Forest, IL 60305-1797.

☐ anyone with sections 4-7 (maintainance, theory and schematics) of the "ALPHA 374 and ALPHA 274" manual. Lu Craner, WB6SSW, 20300 Half Moon Ln, Walnut, CA 91789.

☐ anyone with an instruction manual and data on a Lafayette Radio Electronics HA-410 10-meter phone transceiver. Chalmers Hairstron, KA3PXP, 201 N Broadway, Apt 173, Baltimore, MD 27231, 301-327-4651.