
W7TCK NEWS

Capital City Amateur Radio Club

Helena, MT

JOHN MCDUGALL K7JM - EDITOR

FEBRUARY, 2003

From The Pres.

As anyone who has attempted to find a parking spot anywhere near the Capitol Building is painfully aware, the legislature is in town. Due to the nature of my day job with an Internet service provider, I've been watching the bills going through the state legislature fairly carefully. There always seems to be a bill or two which (usually unintentionally) affects the Internet business, and as a result it always seems I end up in at least one hearing.

This year, though, it seems I'm wearing two hats. The one hearing I've attended (and testified in) was on SB175 which would prohibit cell phone use while driving. However, the bill as originally written would have prohibited pretty much all mobile amateur radio operation. As a result, I attended the hearing which occurred on January 16th on this bill.

To make a long story short, the bill had been amended by it's sponsor (Ken Toole) prior to the hearing. The amendment specifically defined cell phones in effect excluding ham radio and other two-way radios. I still got up and testified, indicating that my concerns had been

FEBRUARY MEETING Monday February 3rd Salvation Army Church 1905 Henderson 7:00 PM

addressed in the amendment, and mentioning specifically what my concerns were with the original bill. But that isn't the important part of this story. The important part is that the bill had been amended specifically because of several emails Ken Toole had received from "concerned amateur radio operators". Your voice does matter.

I encourage anyone who is interested in making their voice heard to visit the state web page and take a look at the bills and email your legislators with your concerns or perhaps even attend a hearing or two. It provides a great look into how the state legislature works.

On a similar note, we have another election going on right now. Those of you who are ARRL members should have received a (See **PRES.** Page 5)

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From the Editor

Articles or suggestions for articles are always welcome as are FOR SALE items. E-mail me at jdmcougall@juno.com.
73. John K7JM Editor

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No-Code Technician Class

CCARC is about to begin classes to enable prospective hams to obtain their Technician Class amateur radio license. The classes will be held at Hardee's Restaurant Meeting Room Thursday evenings 7 to 9 p.m. **starting January 30th**. The class is expected to take about 10 weeks to complete and will end with an exam to obtain your own No-Code Technician Class Amateur Radio License. There will be a \$12.00 exam fee. The text book used will be ARRL's "Now You're Talking." Act soon as you will not want to miss out on this opportunity to earn your Technician Class Amateur Radio License. For more information or to order a book (which needs to be done as soon as possible), call **John Geach KS7R at 442-7107**.

ARES News

Within Emergency Communication you will have two levels of communication. The first is in passing traffic on behalf of a served agency. Under those conditions you will pass traffic exactly as written. You change nothing. In some instances you will not understand what the message means. That is fine. Your job is to get the message to the destination as quickly as possible, not to understand it.



When you receive a message from a served agency, read it. If there is any part you cannot read, ask for clarification before accepting the message. You can't accurately transcribe what you cannot read.

When you transcribe a message from a served agency, make no changes! It does not matter if you do not understand the technical meaning. It does matter that you pass traffic exactly as written.

Review the last sentence. Pass traffic exactly as written. If you are the author, make your corrections before you are ready to send it. If the message was initiated by someone else, don't change it!

The second type of communication is where you originate the message, it is not written and where a written response is not required. In that situation you control what the text of the message will be. Therefore phrasing is up to you.

Plan your communications at least as well as you would prepare if you knew you would be quoted. Whenever possible, write down what you will say before you say it.

(excerpted from ARRL Amateur Radio Emergency Communications Course, Level I) Bob K7HLN, ARES Emergency Coordinator



Sound Card - Radio Cables

With the advent of new sound card based ham radio computer programs, a whole new world opens up for the active Ham. With low cost or free software, you can transform your transceiver into a multi-mode computer based operating environment.

It's **EASY** and its **FUN!**

So, you may asking, "What do I need to connect my computer to my radio?" And another question might be: "Does each different program require a different connection between radio and computer?" To answer the second question first, all the different programs that are available use the **SAME** interface, so once you have the cables made up, you just download a new program/mode from the Internet and run your new mode.

New mode? What kinds of modes are available with this computer - radio marriage? Here is a partial list of exciting **EASY FUN** things you can do with your existing setup:

- PSK31 (Very popular digital keyboard to keyboard)
- APRS (Automatic Packet Reporting System)
- SSTV (Slow Scan TV)
- Packet (digital message passing. BBS, etc)
- MFSK16 (digital keyboard to keyboard QSO's)
- HSCW (High Speed CW - meteor scatter)
- WSJT (A very popular meteor scatter mode)
- RTTY (radio Teletype)
- CW (yes, even Morse Code)

Newer programs that are being released, have most of these modes built in plus many others.

Now to answer the first question, "What do I need to connect my computer to my radio?"

Lets get to it!

Three cables are needed.

- Radio audio out to Computer Sound Card Input.
- Computer Sound Card Output to Radio Mic. Input.
- Computer Serial Port to Radio PPT (Push To Talk) connection.

Receive Audio Connection

Connect an audio cable between the transceiver audio output and the soundcard LINE IN jack. The audio output of the transceiver may be the speaker output, an auxiliary audio output, or an earphone jack. It is best to use a transceiver audio output that is unaffected by the transceiver volume control if available.

Transmit Audio Connection

Connect a shielded audio cable between the transceiver MIC input and the soundcard LINE

OUT jack through a 40 db attenuator, consisting of a 100K series resistor feeding a 1K parallel resistor (see schematic figure). This attenuator will reduce the soundcard LINE OUT level from about 1 Volt down to the normal MIC input level of about 10 millivolts, so the higher soundcard output level does not overdrive and distort the transceiver MIC input.

PTT Connection

Most Sound Card based programs control the transceiver's PTT via the RTS and/or DTR outputs of the computer's RS-232 serial port. Most software give you the choice of which of these or both to switch. I connected my PTT line to RTS and then told all of my software to key both lines. That way, I don't have to remember which line I set up to do the keying.

Signal	DB9 conn.	DB25 conn.
RTS	Pin-7	Pin-4
DTR	Pin-4	Pin-20
Ground	Pin-5	Pin-7

The RTS and DTR outputs of the serial port are not directly compatible with the PTT control of most transceivers. The serial port outputs +12 to +15 VDC for transmit and -12 to -15 VDC for the receive condition. Transceiver PTT circuits on the other hand, generally require a ground for transmit and an open circuit for receive. For most modern solid-state transceivers, a simple NPN switching transistor (2N2222 or equivalent), with a 2.2K resistor inserted in series between the base and the serial port, emitter connected to ground, a diode connected between the base and emitter (to prevent the -12 to -15 VDC from reaching the transistor), and the collector to the transceiver PTT line will suffice.

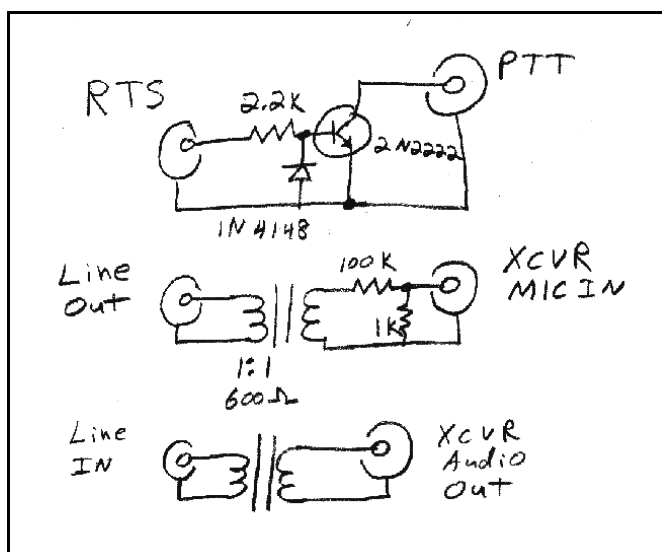
Connect a cable from the computer RS-232 connector to the transceiver PTT line, through a

switching transistor as described above, using pin 7 or pin 4 if a DB-9 (small) connector, or pin 4 or pin 20, if a DB-25 connector (large).

Transceiver PTT operation can also be switched manually if necessary. I did this when I wanted to get up and running PSK31 quickly, but you will soon get tired and confused.

Troubleshooting

In some installations, ground loops on receive or



The Complete Interface: Simple!

transmit, or RF feedback on transmit, may cause problems in reception or transmission. In these cases, it is sometimes helpful to isolate one of both of the audio lines connecting the transceiver and the soundcard with a 1:1 audio isolation transformer to break the ground loops or even help keep unwanted RF out of the audio lines. Feeding the audio lines through small ferrite beads as RF chokes is often helpful in reducing feedback caused by RF on the lines. I chose to use 1:1 600 ohm isolation transformers on both audio lines **and** I used ferrite beads.

Check out [BUX CommCo](http://www.buxcommco.com) web site at www.buxcommco.com. He has complete schematics and parts available on-online. Or, he

has the complete interfaces for reasonable costs. It is a fun site to visit.

I encourage you to put together a Radio to Computer interface. You will have lots of fun with it. If you have a Technicians Class license, this will sure be an incentive for you to upgrade. **ITS FUN!**

K7JM - with excerpts taken from the Digipan help file.

Montana ARISS Contact "a Grand Success"

NEWINGTON, CT, Jan 15, 2003--www.arrl.org
--Youngsters at Sacajawea Middle School in Bozeman, Montana, conversed via ham radio on January 8 with International Space Station resident Don Pettit, KD5MDT. The contact between NA1SS



Al Zoller, N7UB, assists student Arianna Haines, KD7RHA, who got to ask the first question.

and the school club station's K7BZN was the first Amateur Radio on the International Space Station (ARISS) QSO this year with a US school.

"I am happy to say that it was a grand success," said Vivian Linden, K7CUB, a retired science teacher who continues to serve as advisor to the school's

Amateur Radio club. "The contact was crystal clear, the kids did a great job with their questions, and the adult ham club--the Gallatin Ham Radio Club--put it all together."

Some young radio amateurs were among the student questioners. Arianna Haines, KD7RHA, wanted to know if Pettit had any radio experience before



becoming an astronaut and if it influenced his decision to become one. Pettit explained that he became a ham only after joining the astronaut corps. Jeff Nickelson, KD7TQL, asked Pettit how he was chosen to be an ISS crew member.

"You get chosen for the ISS program partly based on interest and partly based on who they happen to need for the mission involved," Pettit replied. "So they look at background, and they look at interest."

Nickelson later expressed a desire to become an astronaut and asked Pettit's advice on what he should do now. "What you need to do is to follow what you want to do in your heart," Pettit responded. He also advised the youngsters to do their best in school and to keep up their grades.

Food is never far from the minds of most youngsters, and so it was with the kids at Sacajawea Middle School. One student wanted to know how the crew ate and how the food was cooked. Pettit explained that it's not that much different from pre-packaged food on Earth. "We eat with spoons, just like you eat with spoons on Earth," said Pettit. Most of the crew's food is freeze-dried. You add hot water and mix, then "just dig in with your spoon," Pettit said.

The ISS "is very much a construction zone up here" at this point. "We're in the process of building and working all the time," he said. In addition to maintenance and repair work, the crew members also are conducting experiments. "I make sure all the science gets done," said Pettit, who serves as the Expedition 6 crew's chief science officer.

The Sacajawea students also invited Pettit to talk about research, outer space, the inside and outside temperatures and what he can see on Earth from his perch in space. More than a dozen questions were asked and answered during the approximately 10-minute 2-meter contact.

Some 50 youngsters, teachers and a handful of reporters were on hand for the contact. Linden said

audio was piped throughout the school. "I was told later that the school was in a buzz the rest of the day," she said. Students from Morning Star Elementary School also attended.

"We really appreciate Don Pettit on the space station for talking with the kids," Linden said. "He answered their questions very well with answers they could understand."

ARISS is an international project with support from ARRL, NASA and AMSAT. For more information, visit the ARISS Web site.

<http://ariss.gsfc.nasa.gov/>



PRES (cont. From page 1)

ballot in the mail to cast a vote for the ARRL Section Manager for Montana. These ballots must be received by ARRL HQ by February 14th to be counted. I'd recommend carefully considering who of the two nominees you feel would do a better job and cast your votes, as the person elected will serve as section manager for two years.

And finally, our program for this month's club meeting will be provided by a representative from the Salvation Army who will be discussing the Salvation Army's role in disaster situations. I'm also told that they will also be discussing how amateur radio has fit into their operations in other areas. This should prove very beneficial to those who (like myself) aren't 100% clear on what services the Salvation Army provides during disasters, and what we should expect when working alongside the Salvation Army in these situations. This program will begin promptly at 7:00, and our normal work meeting will follow afterwards.

As always, if you have any questions, comments, or suggestions, feel free to drop me an email at president@w7tck.org.

73's
- Forrest, AC7DE



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CCARC Regular meetings are at 7:00 PM on the first non-
holiday Monday of each month at the Salvation Army
Church 1905 Henderson.

The CCARC Volunteer Exam Team conducts sessions at
6:30 PM in Jan, Mar, May, Jul, Sep, Nov, and at special
times as announced.

The Phonetic Alphabet

There has been some discussion about the absence
of use of a common phonetic alphabet. I
encourage you to review the **OFFICIAL** phonetic
alphabet. Traffic handling will run smoother.
John K7JM

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All expressions of opinions and all statements of
supposed facts are published on the authority of the
author and are not to be regarded as expressing the
view of CCARC

Biscuits and Gravy

**Come to Hardee's on Saturday. Every
Saturday morning between 9:30 and 11:00, as
many as twenty hams show up for
"EYEBALL QSOS.**

COME JOIN THE FUN!

The Phonetic Alphabet

A - Alpha	N - November
B - Bravo	O - Oscar
C - Charlie	P - Papa
D - Delta	Q - Quebec
E - Echo	R - Romeo
F - Foxtrot	S - Sierra
G - Golf	T - Tango
H - Hotel	U - Uniform
I - India	V - Victor
J - Juliet	W - Whiskey
K - Kilo	X - X-Ray
L - Lima	Y - Yankee
M - Mike	Z - Zulu

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