



ARES COMMUNICATOR

Information for Scott County Amateurs



January, 2011

Accurate, Reliable Emergency Communications

Volume 11, Number 1

Automatic Digital Radio

Use the RSID

There are a dozen different digital modes available in the Narrow Band Emergency Messaging System suite. Each of the digital modes is further divided into a number of options within that particular mode. There are over sixty eight different digital modes available! Sixty eight!

Whew, how can you tell which mode is being used by the station sending you a message? The answer is contained in the two buttons on the Fldigi menu bar titled RxID and TxID. These selections activate the Reed-Solomon ID, RSID, system that will automatically select the proper mode if both the sending and receiving stations are using the RSID option.

Reed-Solomon Identification (RSID) of digital modes is a creation of Patrick Lindecker, F6CTE, and kindly released to the public domain. It is used in several digital mode programs. Patrick maintains the master list of code / mode assignments in order to maintain compatibility between these programs.

RSID allows the automatic identification of any digital transmission which has been assigned a unique code identifier. All RSID's are detected by *fldigi*, but not all are decoded. All detected codes are annunciated. On reception of a RSID, two events occur: the mode used is detected and the central frequency of the RSID, which is also the central frequency of the identified mode, is determined with a precision of 2.7 Hz. This is sufficient to allow all current modes to begin accurate decoding. This is an excellent way to insure that signals like MFSK are properly tuned and decoded.

Fldigi allows the RSID signal to be sent at the beginning and the end of each transmission. The leading RSID is the

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 Reader submissions encouraged!

Minnesota Section Net Change

Winter Propagation Sets In

Beginning on Monday, December 6, and continuing through Sunday, January 30, MSN/1, will operate at 4:30 pm central time on the usual frequency of 3568 kHz.

During the same December - January time-frame, MSN/2 will continue to operate at 9:50 pm on 3568 kHz with the option of a follow-up MSN/2 session ten minutes later at 10:00 pm on 1806 kHz as needed.

These temporary changes are being made to maintain communications during challenging winter HF propagation conditions.

BREAK - OVER



ARES Activities

Weekly Net Monday 7 PM 146.535 mhz (s)
Breakfast Saturday, January 8th
Digital Monday January 10th

ARES Nets

MN ARES Phone Net	6:00PM Sunday	Freq: 3.568 mhz
ARRL MN Phone Net	12:00p, 4:30p CST Daily	Freq: 3.568 mhz
ARRL MN CW Net	6:30p, 9:50p CST Daily	Freq: 3.568 mhz

NETS WITH OUR NEIGHBORS

North Dakota:	Daily 3.937 mhz	6:30pm
South Dakota:	Daily 3.870 mhz	6:00pm
Wisconsin:	Daily 3.985 mhz	5:30pm
Iowa:	Daily 3.970 mhz	12:30/5:30pm

Automatic Digital Radio - cont'd from page 1

normal position. Detection of the RSID signal is possible down to a Signal to Noise ratio of about -16 dB, so with a sensitivity equal or better than the majority of the digital modes, it is possible to detect RSID and not be able to decode the ensuing data signal due to it being too weak a signal.

The RSID signal is limited to a set composed of only 272 unique values. This list was developed to make it virtually impossible for an error to occur in a RSID code. If every known digital signal were assigned a unique code the list of 272 would quickly be exhausted. It is for that reason that not every combination of baud rate, tone numbers, and bandwidth is currently supported with an RSID.

The algorithm used to decode the RSID in fldigi results in only two options:

- either the RS ID identifier is not received because the signal is too weak,
- or it is received and it is correct

The probability of detecting a wrong RSID is almost nil.

To set fldigi up in the RSID mode, select IDs from the configuration menu and check the first two options under "Receive Modes". Make sure the RxID and TxID buttons on the menu bar are checked. That's all it takes to make use of the Reed-Solomon ID feature.

BREAK - OVER

Test Your NIMS Knowledge

ARES members are familiar with the Incident Command System from their study of the FEMA Institute courses. Now it is time to see how much you remember from those courses! Each month you will have the opportunity to test your ICS knowledge on a questions dealing with one ICS area.

This month we will take a look at some of the concepts from the IS-100 course, Introduction to Incident Command System. This is the first of the FEMA courses all ARES members must complete before participating in any response activities. You can find the course materials at this site: <http://training.fema.gov/EMIWeb/IS/is100.asp>. Now, test your knowledge of the ICS.

Here is the question for this month:

Depending upon the size and type of incident or event, it may be necessary for the Incident Commander to designate personnel to provide public information, safety, and liaison services for the entire organization. In ICS, these personnel make up the:

- A. Deputy Staff
- B. Command Staff
- C. Director Staff
- D. General Staff

Check next month's ARES Communicator for the solution

December NIMS Knowledge Solution

One ICS principle relates to the supervisory structure of the organization and pertains to the number of individuals or resources one incident supervisor can manage effectively. This operating guideline is referred to as:

- D. Span of control

BREAK - OVER

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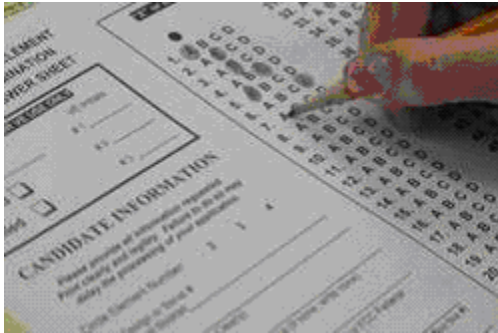
ARABIAN SEA An Aviation Boatswain's Mate directs the ground movement of a F/A-18F Super Hornet assigned to the Bounty Hunters of Strike Fighter Squadron (VFA) 2 aboard the aircraft carrier USS Abraham Lincoln (CVN 72).

General Class Exam Pool

The Question Pool Committee (QPC) of the National Conference of Volunteer Examiner Coordinators (NCVEC) released the new General class (Element 3) question pool on Tuesday, December 7.

This new question pool — including graphics and diagrams —

will become effective for all General class examinations administered on or after July 1, 2011; it will remain valid until June 30, 2015. The current General question pool that became effective July 1, 2007 will expire June 30, 2011. The new General pool contains 457 questions, from which 35 are selected for an Element 3 examination. The current Technician class question pool that was effective July 1, 2010 is valid through June 30, 2014. The current Amateur Extra class pool that was effective July 1, 2008 is valid until June 30, 2012.



BREAK - OVER

Take a Dip in the General Pool

Time to test your knowledge of the information covered by the General Class license exam. Each month we'll take a look at a selection from the question pool. Here is this month's sample:

On which of the following bands is phone operation prohibited?

- A. 160 meters
- B. 30 meters
- C. 17 meters
- D. 12 meters

On which of the following bands is image transmission prohibited?

- A. 160 meters
- B. 30 meters
- C. 20 meters
- D. 12 meters

(Check next month's issue of the ARES Communicator for the answer.)

Severe Weather Events

There are a couple of severe weather related events on the calendar that my interest ARES SKYWARN spotters. These events are not a substitute for SKYWARN spotter training.

2011 Minnesota Storm Chasing Convention

The convention will be held on Saturday, February 26th, 2011 at the Holiday Inn at Arbor Lakes in Maple Grove, Minnesota. The convention runs from 10AM to 5PM with speaker schedule listed at the convention page at: <http://www.mnstormchasingconvention.com/> Convention registration is filled however the events will be available via streaming video. See the convention site or: www.tornadovideos.net/ for more information.

2011 Minnesota Skywarn Workshop

The date for this event has been set for April 9, 2011. The Minnesota Skywarn Workshop is NOT affiliated with Metro SKYWARN, however it is a very good resource for continued training.

The keynote speaker for the 2011 workshop will be Dr. Paul Markowski, Associate Professor of Meteorology at Penn State University. Dr. Markowski is widely considered one of the top tornado scientists in the world.

The workshop will also feature the June 17, 2010 record-breaking tornado outbreak in Minnesota where nearly 50 tornadoes touched down in a little over 6 hours. This shattered the old record of 27 tornadoes on June 16, 1992.

More information regarding the workshop is available at www.mnskywarnworkshop.org.

BREAK - OVER

"Last night I lay in bed looking up at the stars in the sky and I thought to myself, "Where the heck is the ceiling?"

Esau Jabberjaw

January Contests

PODXS 070 Club PSKFest 0000Z-2400Z, Jan 8

North American QSO Party, CW 1800Z, Jan 8 to 0600Z, Jan 9

Info: www.ncjweb.com/naqprules.php?page=1

North American QSO Party, SSB 1800Z, Jan 15 to 0600Z, Jan 16

Info: www.ncjweb.com/naqprules.php?page=1

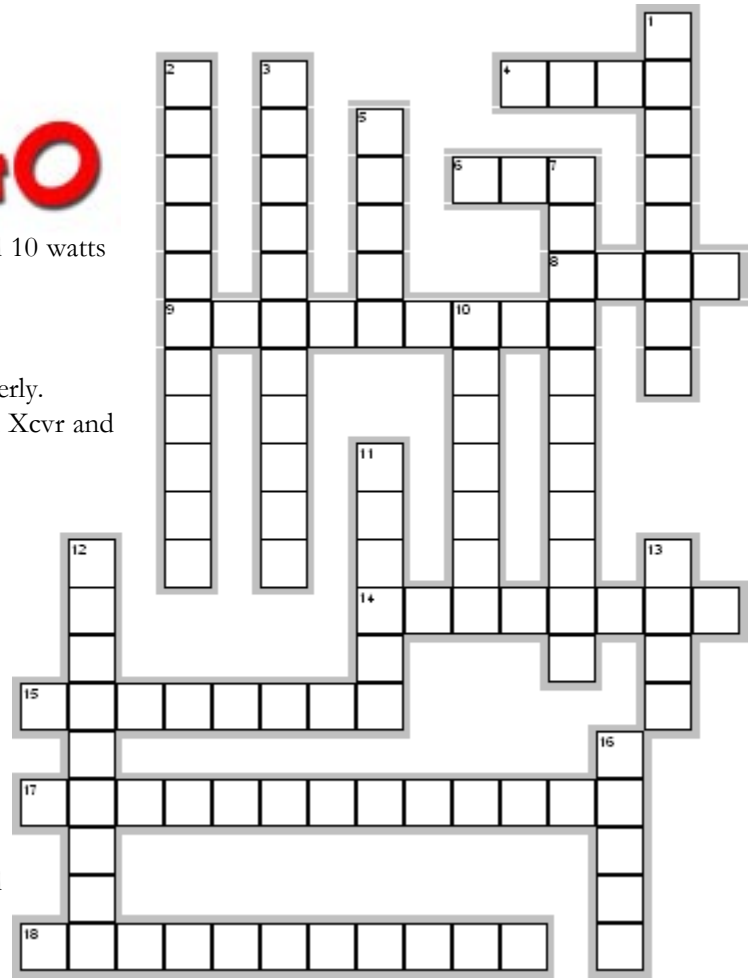
HF LINGO

Across

4. World Administrative Radio Conference at which frequency allocations are determined.
6. Very low-power operating (less than 5 watts on CW and 10 watts (peak) on phone).
8. Antenna made from a long, thin metal rod.
9. Reduce in strength
14. A signal so strong that circuits begin to operate improperly.
15. Cable used to transfer radio-frequency energy (between Xcvr and antenna).
17. A device for connecting a computer to a radio.
18. The receiver's ability to detect weak signals.

Down

1. Monitor a range of frequencies or a set of memory channels for activity.
2. Communication method that exchanges characters instead of voice or Morse Code.
3. A receiver's ability to receive only the desired signal and reject all others.
5. Stands for "balanced-to-unbalanced", provides a transition from parallel wire feed lines or antennas to coaxial feed lines.
7. A device that changes ac power into dc power.
10. A radio that can operate on AM, SSB, CW, Digital, and FM.
11. A simple wire antenna 1/2-wavelength long with feed line attached in the middle.
12. A measure of how easily power can be transferred into a load or through a feed line.



13. Antenna's ability to receive or transmit energy in a preferred direction.
16. Electronic device that generates Morse code elements.

Q. What do you get when you cross a fast-running clown with a lion?
A. A Happy Meal!



December Crossword Solution

Across

2. HARK—Glory to the newborn king!
7. DRUMMERBOY—Our finest gifts we bring, pa rum pum pum pum
9. CHRISTMASSONG—Jack Frost nipping at your nose,
14. OHCOME—Joyful and triumphant,
15. LETTTSNOW—But the fire is so delightful
16. ANGLES—Singing sweetly through the night
17. FIRSTNOEL—On a cold winter's night that was so deep
18. DOYOUHEAR—Way up in the sky, little lamb,

Down

1. THREEKINGS—O star of wonder, star of night,

3. AWAYINAMANGER—The stars in the sky looked down where he lay
4. HOLLYANDIVY—Of all trees that are in the wood,
5. RUDOLPH—And if you ever saw him,
6. CHRISTMASISCOMING—Please put a penny in the old man's hat
8. WHITECHRISTMAS—Just like the ones I used to know
10. FROSTYTHESNOWMAN—With a corncob pipe and a button nose,
11. SILENTNIGHT—All is calm, all is bright
12. JINGLEBELLS—Over the fields we go, laughing all the way
13. JOYTOTHEWORLD—and heaven and nature sing!

Ceiling Lights Send Coded Internet Data

Flickering ceiling lights are usually a nuisance, but in city offices in St. Cloud, they will actually be a pathway to the Internet. The lights will transmit data to specially equipped computers on desks below by flickering faster than the eye can see. Ultimately, the technique could ease wireless congestion by opening up new expressways for short-range communications.

The first few light fixtures built by LVX System, a local startup, will be installed this month in six municipal buildings in this city of 66,000 in the snowy farm fields of central Minnesota. The LVX system puts clusters of its light-emitting diodes, or LEDs, in a standard-sized light fixture. The LEDs transmit coded messages — as a series of 1s and 0s in computer speak — to special modems attached to computers.

A light on the modem talks back to the fixture overhead, where there is sensor to receive the return signal and transmit the data over the Internet. Those computers on the desks aren't connected to the Internet, except through these light signals, much as Wi-Fi allows people to connect wirelessly. LVX takes its name from the Latin word for light, but the underlying concept is older than Rome; the ancient Greeks signaled each other over long distances using flashes of sunlight off mirrors and polished shields. The Navy uses a Morse-coded version with lamps.

The first generation of the LVX system will transmit data at speeds of about 3 megabits per second, roughly as fast as a residential DSL line.

Mohsen Kavehrad, a Penn State electrical engineering professor, said the approach could be a vital complement to the existing wireless system. He said the radio spectrum usually used for short-range transmissions, such as Wi-Fi, is getting increasingly crowded, which can lead to slower connections.

"Light can be the way out of this mess," said Kavehrad, who is not involved in the LVX project.

But there are significant hurdles. For one, smart phones and computers already work on Wi-Fi networks that are much faster than the LVX system. The second-generation system, that will roll out in about a year, will permit speeds on par with commercial Wi-Fi networks. It will also permit lights that can be programmed to change intensity and color.

For the city, the data networking capability is secondary. The main reason it paid a \$10,000 installation fee for LVX is to save money on electricity down the line, thanks to the energy-efficient LEDs. Pederson said one of his LED fixtures uses about 36 watts of power to provide the same illumination that 100 watts provides with a standard fluorescent fixture.

cont'd col. 2

Ham Congressman "Tweets"

..... / - - - - - / - - - - - / /
- - - - - / / - - - - - / - - - - - /

That's how Rep. Greg Walden (R-OR) — who also happens to be W7EQI — tweeted the news to his "followers" today that he had been named Chairman of the House Energy and Commerce Committee's Subcommittee on Communications and Technology. Among other things, the subcommittee's responsibilities include oversight of the FCC.

In a follow-up Twitter message, Walden explained that "The last tweet was Morse code! Just the ham radio operator in me having fun. It says I'll chair the communications and tech subcommittee." Walden is one of two ham radio operators in Congress. The other is Rep. Mike Ross, WD5DVR (D-AR).

The full text of Walden's Twitter message, for those who are not Morse-conversant, is:

"Will chair comm and tech sub 73s w7eqi"

Walden is also chairman of the House Republican Leadership Committee and the Republican Majority Transition Committee, which is overseeing the transfer of power in the House of Representatives from the Democratic Party to the Republican Party as a result of last month's elections.

BREAK - OVER

*"One night a father overheard his son pray:
'Dear God, Make me the kind of man
my Daddy is.' Later that night, the Father
prayed, 'Dear God, Make me the kind of
man my Son wants me to be.'"*

Anonymous

cont'd from col. 1

Besides installation costs, customers such as St. Cloud will pay LVX a monthly fee that's less than their current lighting expenses. LVX plans to make money because the LED fixtures are more durable and efficient than standard lighting. At least initially, the data transmission system is essentially a bonus for customers.

Michael Williams, the city administrator in St. Cloud, said the city had been considering LVX for some time. "It's pretty wild stuff," he said. "They have been talking about it with us for couple of years, and frankly it took a while for it to sink in." Workers will not be required to wear tinfoil hats!

BREAK - OVER

North Where Are You?

Science@NASA.gov

Every few years, scientist Larry Newitt of the Geological Survey of Canada goes hunting. He grabs his gloves, parka, a fancy compass, hops on a plane and flies out over the Canadian arctic. Not much stirs among the scattered islands and sea ice, but Newitt's prey is there—always moving, shifting, elusive. His quarry is Earth's north magnetic pole.

At the moment it's located in northern Canada, about 600 km from the nearest town: Resolute Bay, population 300, where a popular T-shirt reads "Resolute Bay isn't the end of the world, but you can see it from here." Newitt stops there for snacks and supplies—and refuge when the weather gets bad. "Which is often," he says.

Scientists have long known that the magnetic pole moves. James Ross located the pole for the first time in 1831 after an exhausting arctic journey during which his ship got stuck in the ice for four years. No one returned until the next century. In 1904, Roald Amundsen found the pole again and discovered that it had moved—at least 50 km since the days of Ross.

The pole kept going during the 20th century, north at an average speed of 11 km per year, lately accelerating "to 40 km per year," says Newitt. At this rate it will exit North America and reach Siberia in a few decades.

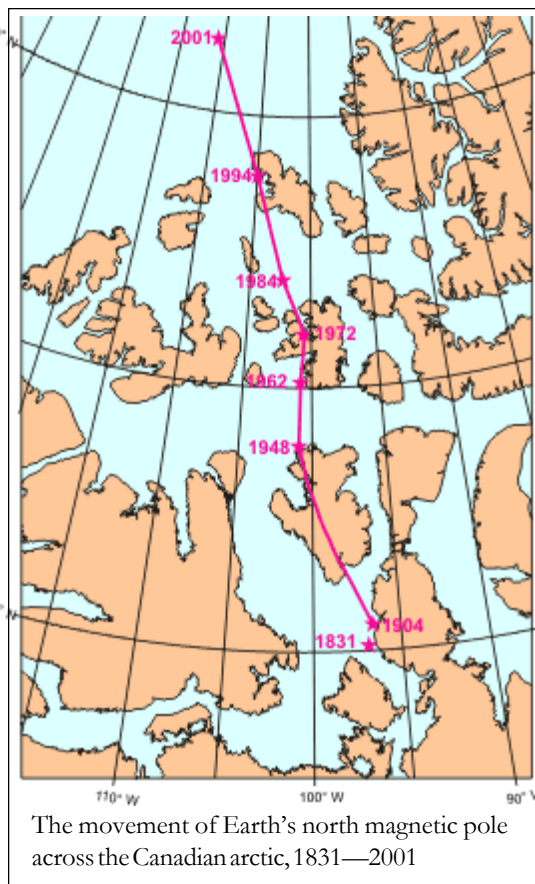
Keeping track of the north magnetic pole is Newitt's job. "We usually go out and check its location once every few years," he says. "We'll have to make more trips now that it is moving so quickly."

Earth's magnetic field is changing in other ways, too: Compass needles in Africa, for instance, are drifting about 1 degree per decade. And globally the magnetic field has weakened 10% since the 19th century. When this was mentioned by researchers at a recent meeting of the American Geophysical Union, many newspapers carried the story. A typical headline: "Is Earth's magnetic field collapsing?"

Probably not. As remarkable as these changes sound, "they're mild compared to what Earth's magnetic field has

done in the past," says University of California professor Gary Glatzmaier.

Sometimes the field completely flips. The north and the south poles swap places. Such reversals, recorded in the magnetism of ancient rocks, are unpredictable. They come at irregular intervals averaging about 300,000 years; the last one was 780,000 years ago. Are we overdue for another? No one knows.



According to Glatzmaier, the ongoing 10% decline doesn't mean that a reversal is imminent. "The field is increasing or decreasing all the time," he says. "We know this from studies of the paleomagnetic record." Earth's present-day magnetic field is, in fact, much stronger than normal. The dipole moment, a measure of the intensity of the magnetic field, is now 8×10^{22} amps \times m². That's twice the million-year average of 4×10^{22} amps \times m².

To understand what's happening, says Glatzmaier, we have to take a trip ... to the center of the Earth where the magnetic field is produced.

At the heart of our planet lies a solid iron ball, about as hot as the surface of the sun. Researchers call it "the inner core." It's really a world within a world. The inner core is 70% as wide as the moon. It spins at its own

rate, as much as 0.2° of longitude per year faster than the Earth above it, and it has its own ocean: a very deep layer of liquid iron known as "the outer core."

Earth's magnetic field comes from this ocean of iron, which is an electrically conducting fluid in constant motion. Sitting atop the hot inner core, the liquid outer core seethes and roils like water in a pan on a hot stove. The outer core also has "hurricanes"—whirlpools powered by the Coriolis forces of Earth's rotation. These complex motions generate our planet's magnetism through a process called the dynamo effect.

North? *cont'd on page 7*

North? *cont'd from page 6*

Using the equations of magnetohydrodynamics, a branch of physics dealing with conducting fluids and magnetic fields, Glatzmaier and colleague Paul Roberts have created a supercomputer model of Earth's interior. Their software heats the inner core, stirs the metallic ocean above it, then calculates the resulting magnetic field. They run their code for hundreds of thousands of simulated years and watch what happens.

What they see mimics the real Earth: The magnetic field waxes and wanes, poles drift and, occasionally, flip. Change is normal, they've learned. And no wonder. The source of the field, the outer core, is itself seething, swirling, turbulent. "It's chaotic down there," notes Glatzmaier. The changes we detect on our planet's surface are a sign of that inner chaos.

They've also learned what happens during a magnetic flip. Reversals take a few thousand years to complete, and during that time—contrary to popular belief—the magnetic field does not vanish. "It just gets more complicated," says Glatzmaier. Magnetic lines of force near Earth's surface become twisted and tangled, and magnetic poles pop up in unaccustomed places. A south magnetic pole might emerge over Africa, for instance, or a north pole over Tahiti. Weird. But it's still a planetary magnetic field, and it still protects us from space radiation and solar storms.

And, as a bonus, Tahiti could be a great place to see the Northern Lights. In such a time, Larry Newitt's job would be different. Instead of shivering in Resolute Bay, he could enjoy the warm South Pacific, hopping from island to island, hunting for magnetic poles while auroras danced overhead. Sometimes, maybe, a little change can be a good thing.

BREAK - OVER



PACIFIC OCEAN Machinery Repairman 2nd Class Jared C. Anderson, from Anoka, Minn., grinds a grooving tool bit in the machine shop aboard the aircraft carrier USS Ronald Reagan (CVN 76). Ronald Reagan is underway conducting operations in preparation for an upcoming deployment.

Amateur's Code

The original Amateur's Code was written by Paul M. Segal, W9EEA, in 1928. The Radio Amateur is:

CONSIDERATE...never knowingly operates in such a way as to lessen the pleasure of others.

LOYAL...offers loyalty, encouragement and support to other amateurs, local clubs, and the American Radio Relay League, through which Amateur Radio in the United States is represented nationally and internationally.

PROGRESSIVE...with knowledge abreast of science, a well-built and efficient station and operation above reproach.

FRIENDLY...slow and patient operating when requested; friendly advice and counsel to the beginner; kindly assistance, cooperation and consideration for the interests of others. These are the hallmarks of the amateur spirit.

BALANCED...radio is an avocation, never interfering with duties owed to family, job, school or community.

PATRIOTIC...station and skill always ready for service to country and community.

BREAK - OVER



Saturday, December 11, 2010, 10:15am. Chase, MD, Mile Post 81 on Amtrak's Northeast Corridor. The Liberty Limited, powered by Bennett Levin's 2 E8 locomotives pulling 19 private cars carrying military personnel wounded in the service of our country, is enroute from Washington, D.C. to the Army-Navy football game in Philadelphia, PA. Waving a flag that had flown over our nation's capitol, retired Army Reserve Colonel Lex Bishop lets the military personnel aboard the special train know that their service & sacrifice is appreciated.

Antenna Work

by: A. Noony Moose, correspondent

A man was in an accident and was therefore required to fill out an insurance claim form. The insurance company contacted him and asked for additional information. This was his response:

“I am writing in response to your request for additional info for Block 3 of the accident reporting form. I put ‘poor planning’ as the cause of my accident.

You said in your letter that I should explain more fully and I trust the following details are sufficient. “I’m an amateur radio operator and on the day of the accident, I was working alone on the top section of my new 80 foot tower. When I had completed my work, I discovered that I had, over the course of many trips up the tower, brought up some 300 pounds of tools and spare hardware.

Rather than carry the now un-needed tools and materials down by hand, I decided to lower the items down in a small barrel by using a pulley, which was fortunately attached to the gin pole at the top of the tower.

Securing the rope at ground level, I went to the top of the tower and loaded the tools and materials into the barrel. Then I went back down and untied the rope, holding it tightly to ensure a slow descent of the barrel. You will note in Block number 11 of the accident reporting form that I weigh only 150 pounds.

Due to my surprise of being jerked off the ground so

cont'd col. 2

suddenly, I lost my presence of mind and forgot to let go of the rope. Needless to say, I proceeded at a rather rapid rate of speed up the side of the tower. In the vicinity of the 40 foot level, I met the barrel coming down. This explains my fractured skull and broken collarbone. Slowed only slightly, I continued my rapid ascent, not stopping until the fingers of my right hand were two knuckles deep into the pulley.

Fortunately, by this time, I had regained my presence of mind and was able to hold onto the rope in spite of my pain. At approximately the same time, however, the barrel of tools hit the ground and the bottom fell out of the barrel. Devoid of the weight of tools, the barrel now weighed approximately 20 pounds. I refer you again to my weight in Block number 11.

As you might imagine, I began a rapid descent down the side of the tower. In the vicinity of the 40 foot level, I met the barrel coming up. This accounts for the two fractured ankles and the lacerations on my legs and lower body. The encounter with the barrel slowed me down enough to lessen my injuries when I fell onto the pile of tools and, fortunately, only three vertebrae were cracked. I’m sorry to report however, that as I lay there on the tools, in pain, unable to stand, and watching the empty barrel 80 feet above, I again lost my presence of mind. I let go of the rope and...”

BREAK - OVER

EAST WEST
SHRINE GAME
MORE THAN JUST A GAME
KICK OFF 4:00PM (EST)
January 22, 2011 | Citrus Bowl, Orlando



ARES Breakfast

Saturday January 8th
7:30AM
Perkins Restaurant
Savage, MN

NECOS Schedule January 2011

3 Jan KC0YHH Tony
10 Jan N0PI Dan
17 Jan W0NFE Bob
24 Jan KB0FH Bob
31 Jan KC0YHH Tony
7 Feb N0PI Dan