



MINNESOTA MARSGRAM



Information for Minnesota Navy-Marine Corps. MARS Members

September, 2008

Volume 12, Number 9

NNN0ALL Minnesota

by NNN0GAZ Tim

Greetings to all. Wow, mid-September darn near October already? Where did July, August and most of September escape to? I've been asking that since about the 4th of July and finally, yes finally most of my major projects at home and work are slowing down. If you were wondered where the August and September issue of the newsletter went – well feel free to blame me.

To those that have filled in for me over the past three months, many thanks. I truly appreciate your willingness to step in to fill open spots in the schedule. In terms of managing the state director duties, I thank Bob (XYA), Bob (SXU) and Al for making sure wheels keep turning.

What have I been up to in the last three months? The college opened a new science building – Regents Hall of Natural Science. Of course a new building has plenty of technology resulting in IIT staff spending many hours doing a variety of tasks from moving equipment to configuring security systems. Add to this project that one takes on at home and soon there aren't enough hours in the day. I'm sure we've all been there.

Since our last newsletter, all of our traffic has moved to WinLink 2000. The MDS station is now silent and we are looking for ways to interface some of the existing equipment to the WL2K system. Many of you have made the transition – thank you for patience and cooperation. Those of you looking to make the transition – what can we do to help?

We passed on having a MN Area Conference this year – probably the main reason is the cost. None of us are accustomed to \$4/gallon gas. For me it was both time and cost – in August we were still looking at working weekends to get our new Science Building operational.

There will be a Region Five conference this year at Great Lakes, October 25. If you have nominees for Member or Communicator of the Year, please forward to me for consideration. If you are planning on attending the Region Five Conference, let me know. At the region level the idea of having different states host the Region Conference has received some discussion. I have

been approached about MN hosting the conference – as soon as 2009. Maybe something we want to consider and combine with our State Conference.

If you are looking for something fun in October, the 51st annual Boy Scout “Jamboree on the Air” is scheduled for October 18-19. We've included material in this month's newsletter detailing the event and how easy it is to participate. Take a few minutes to review the material. If you want – contact a local Cub Scout Pack or Boy Scout troop and invite them to your shack for an introduction to amateur radio. If you need assistance in locating a scout group in your area, contact your local Boy Scout or Girl Scout council office.

Enjoy this issue of the Minnesota MARSGRAM. We look forward to hearing each of you on one of our evening nets.

BTOVER



The MINNESOTA MARSGRAM is published for the benefit of Amateur Radio Operators in Minnesota and other interested individuals. The contents DO NOT reflect official Navy positions.

EDITOR: Bob Reid NNN0XYA / NNN0GAZ3

Snail Mail: 13600 Princeton Circle

Savage, MN. 55378-2625

E-Mail: n0bhc@aol.com

Minnesota State Coordinator:

Tim Isom NNN0XEE / NNN0GAZ

Content Contributions Welcomed and Encouraged

MINNESOTA TRAFFIC NETS

Designator	Frequency	Local Times
5G1B	Pri. NCE Sec. NBG Ter. NAR	18:30 Daily

MINNESOTA ADMIN. NET

5G4A	Pri. NCE	19:00 2nd Sunday
------	----------	---------------------

MARS DATA SYSTEM

NN0DVD	Freq. NCO AFSK/USB
--------	--------------------

Website <http://www.mnmars.org>

Intranet site <http://www.communityzero.com/mnmars>

Region FIVE Conference

Region 5 Conference is scheduled for Saturday, 25 October in Great Lakes. The conference took some time to get organized this year for many reasons, however now that it is official, they would like to see as many members as possible to attend.

This conference will be a good chance to meet our new Chief Anderson in person as well as Dave O. NNN0EPY. Chief Anderson's wife has organized a shopping tour for your spouses.

As usual, NAV 4 will be open. The conference will be held at the "Port O'Call" as in the past. Lodging is available at the Navy Lodge at \$62.00 per night. For more information, refer to Central Region Best 06/08. Please contact Chief Anderson at 847-525-0734 as soon as you can so he can make arrangements.

BTOVER

Coming Attractions!

WinLink 2000

Starting next month we will have a regular column dealing with the installation, operation, and trouble shooting of WL2K.

Boy Scout JOTA

Details of the 51st annual Jamboree on the air for the weekend of Oct. 18 – 19. Contact your local scouting groups to see if they are planning on participating in the JOTA.

MN Navy-Marine Corps MARS Staff

Minnesota State Director
 NNN0GAZ - Tim Isom - NNN0XEE
 Assistant to the State Director
 NNN0GAZ ONE
 Al Doree - NNN0KZC
 Assistant to the State Director: Em. Comm.
 NNN0GAZ TWO
 Al Doree - NNN0KZC
 Assistant to the State Director: Net Ops/Rpts
 NNN0GAZ THREE
 Bob Reid - NNN0XYA
 Assistant to the State Director: Training
 NNN0GAZ FOUR
 Robert King - NNN0SXU

Test Your NIMS Knowledge

Each month we take a look at a topic covered in the FEMA on-line courses required of all emergency communications volunteers. See how much you recall from the course.

Check-in officially logs you in at the incident. The check-in process and information help to:

- Ensure personnel accountability
- Track resources
- Prepare personnel for assignments and reassignments
- Organize the demobilization process
- ????

- A. Determine procedures for reimbursing your headquarters
 - B. Identify purchasing authority and procedures
 - C. Determine how food and lodging will be provided
- Locate personnel in case of an emergency

Check in next month's MARSGRAM for the answer.



Patriot Day

September 11

July NIMS 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 guidance is referred to as:

- B. Span of control

Get Your NIMS Answers Here

Training requirement for emergency communications volunteers are constantly changing. The following FEMA on-line courses are required for MARS members working with any government served agency.

The four on-line self-study courses are;
 IS-100 Introduction to Incident Command System,
 IS-200.FW Basic Incident Command System
 IS-700 National Incident Management System (NIMS)
 IS-800.A National Response Plan (NRP)

The address for the FEMA courses is: <http://training.fema.gov/EMIWeb/IS/crslst.asp>. When you complete the course, send the documentation to NNN0GAZ.

Training Corner

The Shared Recourses Program SHARES

by: Bob, NNN0GAZ FOUR

NAVMARCORMARS stations are information addresses on SHARES messages although only a minority are SHARES stations. We see these messages during hurricane season, most recently in connection with tropical storm, later hurricane, DOLLY. For a summary of the SHARES program the MARS Operator Course is a good review. It provides, in part:

SHARES grew out of Executive Order 12472 of April 1984, which was based on Presidential Directive/NSC-53 of November 1979. Navy-Marine Corps MARS and the National Communications System signed an MOU in November 1983. NCMCMARS thus became a charter member of SHARES.

Although the MARS programs are major participants in the SHARES system, each service is limited in the number of members who are authorized to operate in the program.

NMCMARS participation in the SHARES program is an important role in the overall scope of emergency communications. Even if you are not a designated SHARES member station, you still have a vital role in the SHARES system.

Background:

The National Communications System, or "NCS" began in 1962 after the Cuban missile crisis when communications problems among the United States, the Soviet Union, NATO, and foreign heads of state threatened to complicate the crisis. (Remember in Unit One, the time frame for the advent of NCMCMARS as a separate MARS entity?)

After the missile crisis, President Kennedy ordered an investigation of national security communications, and the result was a single unified communications system to serve the President, Department of Defense, diplomatic and intelligence activities, and civilian leaders. A Presidential Memorandum on 21 August 1963 established the NCS, whose mandate included linking, improving, and extending the communications facilities and components of various Federal agencies, focusing on inter-connectivity and survivability. The NCS program is structured to ensure that a national telecommunications infrastructure is in place and is designed to interchange traffic in support of the needs of the U.S. Government. A segment of this effort includes the sharing of federally controlled HF radio resources to establish a robust national emergency HF communications system. The SHARES HF Radio program of today is just one component of the NCS and helps ensure this critical

connectivity (note that "SHARES" is derived from the program's title -SHARed RESources).

Overview:

Many Federal departments and agencies use HF radio communication systems to support their mission responsibilities. These systems and the favorable propagation characteristics of the HF spectrum can be valuable assets during National Security and Emergency situations when regular communications links may be overwhelmed, disrupted, or destroyed.

The SHARES network system provides backup capability for the exchange of critical information among Federal entities by HF radio in crisis situations. The program is just one of many that supports inter-operability using existing communications resources in a way that will not interfere with the essential operations of the participating departments and agencies. The bottom line is that the SHARES program enables any Federal station to contact any participating Federal station on an assigned HF operating frequency to pass or relay a SHARES message.

SHARES Objectives:

The objectives of the SHARES HF Radio Program include:

- Provide participating departments and agencies with extended HF coverage and enhanced emergency high frequency radio communications.
- Provides an enduring backup to vulnerable leased telecommunications.
- Establishes the "flag word" SHARES, in other words a unique identifying title for messages, which is used to expedite the identification and processing of emergency Federal government message traffic.
- Standardizes message preparation and procedures to simplify inter-agency message handling.
- Provide an alternate communications resource to potentially compromised normal communications resources (such as wireline or satellite).

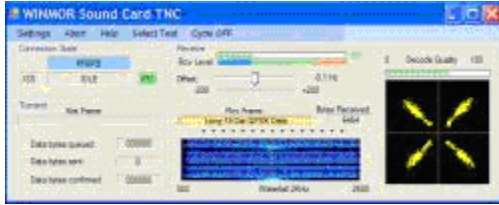
SHARES Concept :

Participants in the SHARES network are Federal departments and agencies, both military and non-military. This may include Amateur Radio operators who have access to Federal HF radio equipment and who are authorized to use it in support of emergency communications by a Federal

New HF Digital Protocol to Debut at DCC

www.ARRL.org/news

WINMOR, an HF digital protocol designed for use with the Winlink 2000 network, will be unveiled at the upcoming ARRL/TAPR Digital



Communica-

tions Conference in Chicago, September 26-28.

According to developer Rick Muething, KN6KB, WINMOR will effectively eliminate the need for external PACTOR hardware. "This new protocol is implemented through a *Windows* application that uses a computer sound card for all the analog-to-digital conversion. It provides error-free ARQ transfers within 200, 500 or 2000 Hz bandwidths," Muething said.

In terms of throughput, Muething said that the 200-Hz WINMOR mode appears to equal the performance of PACTOR I. In WINMOR's 2000 Hz mode, its performance rivals PACTOR III.

"WINMOR is a work in progress," Muething said. "We won't be pulling the wraps off a finished application at the conference. We're close, though. I'd like to see on-air testing in 3 to 6 months."

Conference information and registration is available online or by telephone at 972-671-8277. Rick Muething's presentation paper, *WINMOR. . . A Sound Card ARQ Mode for Winlink HF Digital Messaging*, is included in the conference proceedings. Proceedings will also be available for sale on the ARRL Web after the conference.

BTOVER

SHARES *cont'd from pg. 3*

department or agency. Many other Federal organizations do not possess HF resources, and rely upon National Communications System programs like SHARES to provide back-up emergency communications. Each participating agency provides a set of frequencies authorized for use in exercises or actual emergencies declared by SHARES. These frequencies can be utilized by another SHARES supported agency station to obtain relay assistance during SHARES exercises and emergencies. SHARES communications links are available on a 24-hour basis to provide an emergency communications link to support intra or inter-agency mission requirements. No SHARES "activation" is required.

References: NTP-8(D) Annex D Para. D903, and Annex K, Para K200c. MARS Operator Course (MOC) Vers. 2.1 a, Unit Seven

BTOVER

Veteran's Scholarships Available

The Masonic Grand Lodge of Minnesota with funding support from Minnesota Masonic Charities will once again award two hundred (200) \$1,000 scholarship awards to the members of the Minnesota National Guard and various Minnesota Reserve units serving in combat zones in honor of their service to our country.

The Major General Edward W. Waldon Scholarship is named in honor of the late Major General Edward W. Waldon, who once commanded the Minnesota National Guards' 47th "Viking" Infantry Division. Most Minnesota Masons knew Ed as a Past Grand Master of the Grand Lodge of Minnesota from 1992.



Major Gen Edward W. Waldon 1925–2003
Grand Master of Masons in MN – 1992

These awards will not be based on the individual recipient's grades or past results as a student. They may be used to pay tuition or they can be applied towards the cost of the Montgomery GI Bill expense. Service in the combat zones since 9/11/2001 is the only prerequisite to apply for this scholarship, no Masonic affiliation is required. Last year over 450 applications were received, and the lottery for the winning 200 scholars was held in January, 2008.

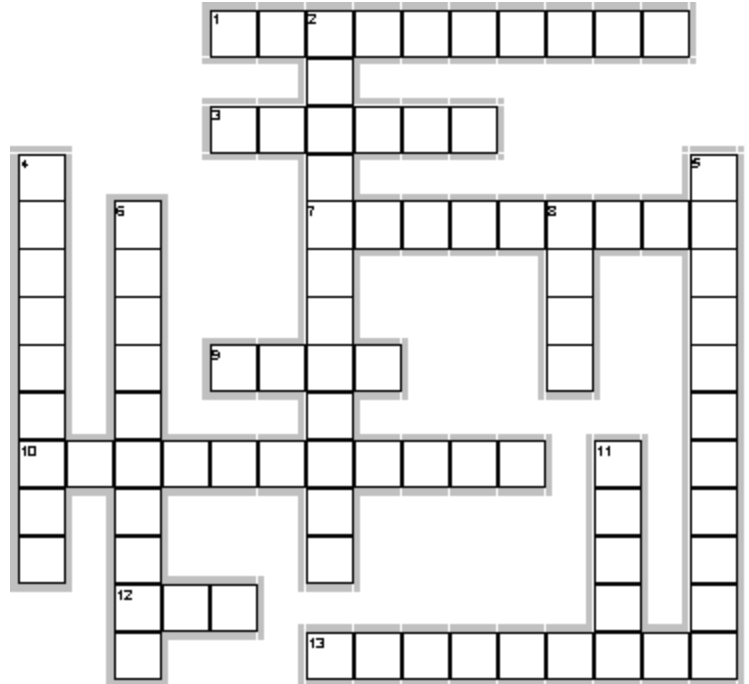
The National Guard and Reserve units will once again broadcast the availability of these scholarships to the men and women who make up their ranks, but if you know of someone who qualifies to receive this award, encourage them to contact the Grand Lodge office by e-mail to grandlodge@qwest.net to receive the simple application form.

BTOVER





ANTENNA TERMS



Across

1. The strongest wire suitable for antenna service.
3. A type of dipole with an impedance four times a half-wave dipole.
7. _____ resistance is the equivalent resistance that would dissipate the power the antenna radiates.
9. Antenna consisting of two or more square loops measuring one quarter wavelength on a side.
10. The property of an antenna to radiate more strongly in one direction than others.
12. A sophisticated computer program capable of modeling almost any antenna type from the simple dipole to extremely complex designs.
13. Determined by the ratio of voltage to current at a specific point on the antenna.

Down

2. Determined by the position of the radiating element with respect to the earth.

4. The range of frequencies over which the antenna can be used to obtain a specified level of performance.
5. A drooping dipole.
6. A feed line consisting of two parallel conductors.
8. Inductance and capacitance in parallel that effectively disconnects the wire beyond.
11. A device for feeding a balanced load with an unbalanced line or vice versa.



July Crossword Solution

Across

5. FEDERALRADIOCOMMISSION—Amateur licenses were issued by this agency prior to the FCC
9. CYCLES—Radio frequency was described with a term other than ‘Hertz,’ kilohertz, megahertz, etc.
10. MOSFET—Metal Oxide Semiconductor Field Effect Transistor
11. HARTLEY—A tapped coil is the defining characteristic of this oscillator.
12. LITTLEAMERICA—DX station in Antarctic much sought after by hams in the early 1930s.
14. THIRTY—How many world time zones are there?
16. WOODPECKER—Nickname for the Soviet radar that plagued the HF bands with QRM a number of years ago.
17. ARES—Amateur Radio Emergency Service

18. CHARLIE—Of the following phonetics: ABLE, BAKER, CHARLIE, and DOG, which is actually in the ITU (ICAO) recommended list?

Down

1. HAMMARLUND—Well known amateur manufacturer located in Mars Hill, North Carolina.
2. BSA—Characters displayed on the Radio Merit Badge
3. HELP—characters displayed on the Emergency Preparedness Merit Badge
4. ANNEMORROWLINDBERG—Lindberg’s radio operator on his flight now referred to as ‘North to the Orient’?
6. RSGB—Radio Society of Great Britain
7. INVERTER—This solid state device converts DC to AC.
8. FIVE—How many callsign districts border the Great Lakes?
13. TITANIC—MGY was the callsign of what ill-fated ship.
15. FORMOSA—Former name of Taiwan

Critical Path Analysis

Jerry Wellman, W7SAR
WorldRadio September, 2008

For those of you with some project management experience you'll recognize the term "critical path analysis." If you're familiar with the concept skip the next few paragraphs.

Let me give you an example. I'm planning on replacing the shingles on my roof and have hired some roofers to do the labor with the understanding that I'll get all of the supplies. If the roofers arrive before the shingles, the project won't happen within my budget as I'll have to pay them extra hours while they wait. If the delivery of shingles isn't made to the roof, the workers are not going to hoist the bundles onto the roof.

There's a "critical path" of events that MUST-occur in proper order and with proper timing for the project to happen effectively. We're not including outside influences such as a thunderstorm or an earthquake. We're just talking about the elements of the project that must happen in a certain timely order for the best conclusion.

What if the workers are on site and the shingles are on the roof but the nails don't arrive? What if all the materials are there but no workers show up? The outcome of the project is "on time, on budget" or "late and on budget" or perhaps "late and over budget." Worst case is simply "not completed." When you diagram the project, certain elements are "critical," without which the project cannot be completed. All of these elements, in their proper order and scheduling, create the "critical path."

Let's apply this to an Amateur Radio response to an event. Can you think of critical elements? What if the radio was there but no operator, the EOC had radios but no licensed operators? A few months ago a fellow responded to an emergency incident but neglected to bring the proper microphone for his radio. He was limited in his ability to program the radio and this affected his effectiveness. Today I got a call from a fellow who is supporting a youth activity. One of his radios was missing a fuse and did I have any suggestions or concerns if they just spliced around the fuse.

I have been on events where I've needed an adapter to match coax to a radio or an antenna. My vehicle can be full of gear but without the needed adapter I could not fulfill my communicator role. Sometimes we can splice a wire or make temporary modifications to allow our "project" to be completed. Sometimes a missing and critical part will delay or prevent our project from happening.

The concept for you is to consider the "critical path" for your communications response and to plan accordingly. For some it's ensuring you have a checklist of necessary items and making sure each item is included. Sometimes it's

carrying spares or redundant systems.

I have been chided (and you may have also been subject to this kidding as well) by well-meaning associates who chuckle at my bringing a lot of spares or complete extra systems. I've been asked why I have a spare radio, several runs of spare coax, a box of adapters, a spare antenna and a spare radio. "After all," I've been told, "you could just borrow a radio if you needed one." Sharing and borrowing of gear is great, as long as the gear is there and the owner is willing to lend.

My message is to plan on self-sufficiency and have the mind-set of looking at your own gear BEFORE you go and ensuring you have critical items. I've been able to splice or repair coax - but this depends on the size of the coax, the temperature of the coax (try fixing coax in sub-zero weather) and having time to complete the repairs. I've had all sorts of things fail at the worst possible time, fail when they were not supposed to and have loaned "stuff" to others, never to see it again.

It would be a nice world if every radio had the same antenna and power and microphone connector. It would be great if every antenna had the same connector. It would be great if every fuse was the same size and shape.

At one time I was rewiring connectors on my radios so any microphone would be interchangeable. It worked for a while as I replaced four-, five- and six-pin connectors with eight-pin connectors and made sure the wiring was standard. And then came some RJ-45 connectors and other DIN connectors and I'd have to make adapters in order to make everything match. It became too daunting a task and I've abandoned trying.

For a while my "fuse box" only had glass fuses and they were of the same physical size. If I needed a fuse I could find a match or at least find a fuse that would fit in an emergency. And then came blade fuses - tiny ones, medium ones and big ones. And glass fuses in small sizes. Now my fuse box has quite an assortment and I've no assurance that I will have the proper one or could quickly find it!

In my response gear I have an adapter kit that allows me to create RF adapters so I can match coax and antenna and radio. It was great as long as all of the various adapter ends were used by manufacturers. And then came SMA and TNC, connectors. There were mini-UHF connectors. I had to buy some additional parts for my adapter kit to be of value. Who knows what new connector will be included next? It's frustrating.

But here's the advice for you: Please look at your OWN gear

Critical Path *cont'd on pg. 7*

Critical Path *cont'd from pg. 6*

and ensure you have spare critical components so you can complete your project. BEFORE you leave, ensure you have spare fuses for the radios YOU have with you. BEFORE you leave, ensure you have coax with proper connectors' and have a spare. You might want to check the set screws on critical antennas (one operator reported the whip was missing from his vehicle antenna and must have fallen out en route). The systems you need to evaluate are the needed systems for your response. I may have a CB radio as well as a VHF radio in my vehicle. If I'm expected to use the VHF radio for the event, that's the critical system I need to check.

My advice? Use a checklist, check the connections, bring spares. .Don't go crazy and duplicate everything, just plan for the most expected failures, If you're new at responding and supporting communications, please ask some experienced folk for suggestions. This makes a great round-table discussion for your next meeting, i.e. sharing failure stories and talking through ideas on how to "complete the project" when the critical items fail.

Creeping complacency

I was reading a website and found a concept I like. It's called creeping complacency. Here's how it works. In 1999 there was a great concern (and panic some might say) that when all of the computers clicked over to 2000 they would fail and the world would be plunged into crisis. There was an outpouring of preparedness as we planned for major interruptions to life. When life was not interrupted, all of that preparedness was neglected and our generators were neglected and our emergency food was left to go bad.

Shortly after 9/11 we were again in preparedness mode. We readied our gear for terrorist threats. Years later, our preparedness efforts were neglected again.

After the Katrina Hurricane' events, many of us readied our gear, sharpened our skills and prepared to respond when the next "big one" happened. Today our 10 cards are expired, our gear is scattered and we're not as ready to respond as we were a few months after Katrina hit.

Some of you continue to have the vision and are on top of your preparedness. I salute you. Others have fallen prey to "creeping complacency" and have neglected to maintain an effective preparedness level. To the latter group I encourage you to take a reflective moment and spend a little time getting back into a response mode. When responders were needed following Katrina, one criterion was to have hepatitis shots. Several of us discovered the complete series of three shots took six months (and \$150) to complete. Of a dozen or so who discussed the need for the shots I'm the only one locally that's completed the shots -' and we're in the hurricane season. If the call goes out today for volunteers and

one criterion is a hepatitis shot, I'd be the only one from this group that would be allowed to go. An informal poll of several who didn't get the shots revealed reasons like: I forgot. I got busy. I forgot to call the insurance company to see if the cost was covered.

We often have the very best intentions just following the event but things like the economy and high fuel prices 'distract us. Following a "BIG" event we get motivated to be ready "next time." When "next time" doesn't come quickly enough we allow complacency to enter the picture. As months become years and the "big one" doesn't happen, our complacency increases and our attention is focused on other concerns.

Please take a few moments and make the resolve to increase your level of preparedness. Don't attempt to do it all today! Just take a few nibbles over the next few days and weeks and months and maintain an effective preparedness and response level.

BTOVER

POW MIA Day

September 19, 2008

A Pentagon ceremony for National POW/MIA Recognition Day will be held on Friday, Sept.19, 2008. This ceremony will feature troops from each of the military services. The president will issue a proclamation commemorating the observances and reminding the nation of those Americans who have sacrificed so much for their country.

Observances of National POW/MIA Recognition Day are held across the country on military installations, ships at sea, state capitols, schools and veterans' facilities. This observance is one of six days throughout the year that Congress has mandated the flying of the National League of Families' POW/MIA flag. The others are Armed Forces Day, Memorial Day, Flag Day, Independence Day and Veterans Day. The flag is to be flown at major military installations, national cemeteries, all post offices, VA medical facilities, the World War II Memorial, Korean War Veterans Memorial, the Vietnam Veterans Memorial, the official offices of the secretaries of state, defense and veterans affairs, the director of the selective service system and the White House.



BTOVER

5G1B Net Schedule

6:30PM 4007 kHz USB

Day	NECOS	Tfc Rep
Sun.	XYA	XEE
Mon.	XEE	XEE
Tue.	BQH	BQH
Wed.	KZC	KZC
Thu.	SXU	SXU
Fri.	???	OCF

Sat. Rotating Duty (see below)

Don't be bashful, if the net has not been called by the net control station within 2 minutes, jump in and start things rolling.



NNN0AAT	Frank Karnauskas	8/6
NNN0AVS	Don Drusch	8/10
NNN0BJJ	Curt Dahleen	8/31
NNN0BQH	Bruce Meyer	9/17
NNN0PLH	Larry Groom	9/21
NNN0EMO	John Oehlenschlager	9/28

Saturday NECOS / TREP Schedule

	NECOS	TREP
Sep 6	XYA	XEE
Sep 13	XEE	XEE
Sep 20	BQH	BQH
Sep 27	KZC	KZC
Oct 4	SXU	SXU
Oct 11	XYA	XEE



Service Recognition

NNN0KWS William Strong 32 yrs

Don't forget your paperwork!



"Blessed are they who can laugh at themselves for they shall never cease to be amused."
Ella Quince

Test Your Analytical Skills

Filtering and Tuning #1

Courtesy of QST

In order to improve a QRP rig's performance on 30 meters, a parallel-LC circuit is to be added to the receiver input. The circuit's attenuation is a minimum at 10.12 MHz and rises to 3 dB at 10.25 and 9.98 MHz. What is the Q of the circuit?

Answer in the next issue of the Minnesota MARSGRAM

Solution for July Test

An Odd Paragraph

Courtesy of The Electron, Cleveland Institute of Electronics

What is particularly unusual about this paragraph? You won't find many paragraphs similar to it. In all probability you will not find out what is so unusual about it right away, but if you look at it and study it for long, it may dawn on you. If you should find out what is odd or unusual, don't say what it is until I ask you; if you can't find out, wait until I supply you with a solution. I could throw you a hint, but I won't.

Answer: You won't find an "e" in the entire paragraph.

School Days Begin!



What is that tower?

<http://www.antennasearch.com/>

Curious about that tower or antenna you pass everyday? There is a site that uses Google Map to locate antennas and towers within a four mile radius of a specific address. The site, Antenna Search www.antennasearch.com/, identifies existing towers and antennas as well as towers in the planning stages.

Go ahead and put in your home address and see if there are towers and antennas you missed. You might find some interesting sites. It is easy to determine the dominant cellular carrier in the area by a quick click on some of the sites. You will also find some antennas apparently used for private data transmission and security on businesses.