



ARES COMMUNICATOR

Information for Scott County Amateurs



December, 2014

Accurate, Reliable Emergency Communications for our Community Volume 14, Number 12

SKYWARN Recognition Day

Saturday, Dec 6th

The Metro SKYWARN Annual Spotter Meeting will be held Saturday, December 6 from 10-12 at the National Weather Service in Chanhassen (1733 Lake Drive West). This meeting is meant for the spotters to attend to talk to the board and visit the NWS.

In addition to a recap of the past year's weather activity there will be a presentation of "Anoka and the Tornado of 1939" - A locally made documentary about the Anoka tornado of 1939. From NorthMetroTV.com: "On June 18, 1939, a tornado ripped through Anoka, killing nine, injuring 144, and creating more than two million dollars worth of damage to the small Minnesota town.



Saturday, December 6 is also National Skywarn Recognition Day.

National Weather Service offices around the country will sponsor special event stations from their offices during the event.

The object of the operating event is for amateur stations to exchange QSO information with as many National Weather Service Stations as possible on 80, 40, 20, 15, 10, 6, 2 M, and 70 cm band. Repeater contacts are allowed.

The NWS stations will operate on December 6, 2014, from 0000 - 2400 UTC (6pm Friday night - 6pm Saturday night).

The recognition day contact exchange includes your call sign, signal report, QTH, and a one or two word description of the weather occurring at your site ("sunny", "partly cloudy", "windy", etc.). This year's event happens to occur on *The*

SKYWARN Recognition Day *cont'd on page 2*

The ARES COMMUNICATOR is published for the benefit of Amateur Radio Operators in Scott County and other interested individuals.
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Reader submissions encouraged!



ARES Activities

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

ARES Nets

MN ARES Phone Net
6:00PM Sunday Freq: 3.860 mhz
ARRL MN Phone Net
12:00p, 5:30p CST Daily Freq: 3.860 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 3.860 mhz 6:00pm
Wisconsin: Daily 3.985 mhz 5:30pm
Iowa: Daily 3.970 mhz 12:30/5:30pm

SKYWARN Recognition Day *cont'd from page 1*

National Pearl Harbor Remembrance Day. In an effort to commemorate the day NWS offices may report, from 18z-19z, that “Conditions at Pearl Harbor on December 7, 1941, were mostly sunny and 75 degrees” instead of the local weather in the exchange.

NWS stations will work various modes including SSB, FM, AM, RTTY, CW, and PSK31. While working digital modes, special event stations will append “NWS” to their call sign (e.g., N0A/NWS).

You can be a part of the on-air activity from MPX. You can sign up to operate the radios and chat with other Skywarn members from across the country. To sign up for a shift, please contact John by email at Mpx-hams@wxchaser.com

BREAK - OVER

United States Citizenship!

Have you ever thought about your United States citizenship? Probably not since that Civics course a long time ago! Foreigners who want to become a United States Citizen must pass a short exam that covers some key concepts important to America. Test your knowledge on the citizenship test.

Check next month for the answer to this month’s question.

What does the President’s Cabinet do?

- A commands the U.S. Armed Forces
- B makes laws
- C all of these answers
- D advises the President
- E writes laws

November Citizenship Exam Answer

What is the name of the Speaker of the House of Representatives now?

- D. John Boehner

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The Japanese attack on Pearl Harbor began at 7:55 am on December 7, 1941. Japanese naval forces compiled for the raid included 4 heavy aircraft carriers, 2 heavy cruisers, 35 submarines, 2 light cruisers, 9 oilers, 2 battleships and 11 destroyers.

The attacking forces came in two waves, the first consisting of 183 aircraft which included 40 torpedo planes, 49 level bombers, 51 dive bombers and 43 fighters. The second wave included 170 planes, 54 of them level bombers, 80 dive-bombers and 36 fighters. Over 350 Japanese planes were involved in overall attack, which surprised the United States. At the end of the day, over 2,000 men lost their lives.

More than 60 Japanese servicemen were killed, injured or captured. The Japanese Navy also lost five midget submarines and 29 aircraft.

The Japanese military had hoped that the attack on Pearl Harbor would prevent the United States of America from increasing her influence in the Pacific. However, the events in Pearl Harbor actually led to the escalation of World War II. The day after the attack, the United States declared war on Japan and so entered World War II. President Franklin Roosevelt in a speech to Congress stated that the bombing of Pearl Harbor was “a date which will live in infamy”. Shortly afterwards, Germany also declared war on the United States. In the months that followed the attack, the slogan “Remember Pearl Harbor” swept the United States and radio stations repeatedly played a song of the same name.

BREAK - OVER

Seasons Greetings

Grow Lights Again?

Internet Discussion Continues

Dateline, Boulder, Colorado A low-band amateur operator reports a disturbance on 40M.

I noticed my 40m noise floor had increased slightly, and since it was a nice day, I went out with my loop and noise receiver to see if I could find it.

I had it located in about five minutes, when the neighbor across the street, who I know and have installed filters for his ballasts, came out and started talking. I was sure I had the house located properly, so I knocked on the door, explained the situation, and offered them a filter.

My friend vouched for me and assured the guy that I was on the level. The grower would not admit to anything so we left.

My friend questioned whether or not I had the correct house. When I moved to a new location to show him, the RFI suddenly disappeared.

My friend commented that I must have scared them. We will see if the RFI stays off.



BREAK - OVER



Wisdom for the New Year

It's not whether you win or lose, but how you place the blame.

We have enough "youth". How about a fountain of "smart"?

The original point and click interface was a Smith & Wesson.

A Fool and his money can throw one heck of a party.

When blondes have more fun, do they know it?

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:

1. What factors affect the Maximum Usable Frequency (MUF)?
 - A. Path distance and location
 - B. Time of day and season
 - C. Solar radiation and ionospheric disturbances
 - D. All of these choices are correct
2. What is the purpose of the "notch filter" found on many HF transceivers?
 - A. To restrict the transmitter voice bandwidth
 - B. To reduce interference from carriers in the receiver passband
 - C. To eliminate receiver interference from impulse noise sources
 - D. To enhance the reception of a specific frequency on a crowded band
3. What condition can lead to permanent damage when using a solid-state RF power amplifier?
 - A. Exceeding the Maximum Usable Frequency
 - B. Low input SWR
 - C. Shorting the input signal to ground
 - D. Excessive drive power

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



November General Pool Answers

1. What is the approximate maximum distance along the Earth's surface that is normally covered in one hop using the E region?
 - B. 1,200 miles
2. What happens to HF propagation when the Lowest Usable Frequency (LUF) exceeds the Maximum Usable Frequency (MUF)?
 - A. No HF radio frequency will support ordinary skywave communications over the path
3. What makes HF scatter signals often sound distorted?
 - D. Energy is scattered into the skip zone through several different radio wave paths

East-West Shrine Game

Saturday, January 17, 2015

The East-West Shrine Game has been a staple in college football since 1925 and is the longest running college all-star game in the country. The game has consistently proven to be a successful starting point for players seeking a professional career in football. Typically, there are more than 265 East-West Shrine Game alumni on NFL rosters each year. For the past 90 years, some of the best collegiate football players from across the United States and Canada have participated in the East-West Shrine Game. In addition to serving as one of the NFL's primary source for players, the East-West Shrine Game benefits Shriners Hospitals for Children.



The 90th East-West Shrine Game will take place on Saturday, January 17, 2015, at Tropicana Field in St. Petersburg, Fla. The game will be broadcast live on NFL Network, with a kickoff time of 4 p.m. EST. To learn more about the game, tickets and a special ticket package offer for Shriners, visit: www.shrinegame.com/

BREAK - OVER

NBEMS Current Versions

The current version of the Fldigi manual is available at NBEMS Info page at www.scottares.org. Look under the 'Help Sheets' heading.

Be sure to check to make sure you have the current software on your thumb drive.

Now is a good time to check to your digital software to make sure you are running the newest versions. You can find the most recent versions posted at both: www.w1hkj.com/download.html and <http://www.scottares.org/NBEMS.htm>

Here are the most recent releases as of December 01, 2014.

Software	Version
Fldigi	3.22.02
Flwrap	1.3.4
Flmsg	2.0.5
Flamp	2.1.02

The Monday evening training net is a great place to have your digi questions answered and problems solved! Join the Scott ARES group on 146.535 MHz simplex at 7:00pm on Monday evenings.



Test Your NIMS Knowledge

This month we will begin our review of ICS-800: National Response Framework. The purpose of the National Response Framework is to ensure that all response partners across the Nation understand domestic incident response roles, responsibilities, and relationships in order to respond more effectively to any type of incident. The Framework focuses on response and short-term recovery instead of all of the phases of incident management.

• Check your recall of the course material with this question.

The National Response Framework is:

- A. Triggered following a declaration by the Security of Homeland Security.
- B. Written exclusively for professional emergency management practitioners.
- C. A comprehensive guide to preparedness, response, recovery, and mitigation.
- D. Part of the larger National Strategy for Homeland Security.

Check next month's ARES Communicator for the solution

November NIMS Knowledge Solution

The credentialing process involves an objective evaluation and documentation of an individual's:

- Current certification, license, or degree,
- Training and experience, and
- _____.
- D. Compensation amount.

Q: What's the biggest pencil in the world?



A: Pencil-vania!



Gotham City Auto for Sale

Buy the Batmobile!

Everyone knows what the original Batmobile was, right? It was the redesigned Lincoln Futura concept that Adam West drove in the 1966 *Batman* television series – or was it? It turns out that the earliest known officially licensed Batmobile was built in 1963 and is going to auction at Heritage Auctions next month after receiving extensive restoration.

Determining which was the first Batmobile is tricky. The first one in the comic books was a red convertible that graced the



The 1963 Batmobile goes on auction in December.

pages of Detective Comics in February 1941 and the first “real” Batmobile was a painfully ordinary off-the-peg 1939 Cadillac convertible used by the Caped Crusader in the 1943 serial. But it was in 1963 that the first known Batmobile that looked like something that Batman would drive was built and later given official approval by DC comics.

The 1963 Batmobile began life as a 1956 Oldsmobile 88 frame



The Batmobile’s engine, Olds 88 324CID, 200HP Rocket engine was also restored

with a 324 Rocket engine. In 1960, 23-year old Batman fan Forrest Robinson along with his friend Len Perham decided to replace the body with something a bit more Batmanesque. It took until 1963 to complete the job, which turned out to be an open-top two-seater complete with a “bat nose,” pocket side doors, and a single rear fin that made it look very much like the Batmobile seen in the comics, despite its silver paint job.

According to Heritage, Robinson used the car for his personal transport until the 1966 series and its Futura-derived Batmobile caught the public imagination. That was when All Star Dairies stepped in and leased Robinson’s car as a promotional device for its New Hampshire affiliate, Green Acres Ice Cream, which was selling Batman-themed ice cream under a DC Comics license. The silver Batmobile was repainted in a Batman livery and decked out in official Batman badges. It may not have looked like the Futura and it didn’t have a Bat Ray or Batcomputer, but it was close enough to the comic’s version to be dubbed “Batman’s



The 1963 Batmobile’s cockpit

Batmobile” as it traveled around the eastern United States until late 1966, when it was returned to Robinson.

Unfortunately, like a lot of movie & TV cars and other pop culture material, no one realized what the first Batmobile would mean to later collectors. It spent the next fifty years in neglect as it was sold by Robinson for \$200, then ended up rusting quietly in a field. Rediscovered in 2008, it was sold to a rare car dealer and swapped hands several times before being bought by Toy Car Exchange LLC, which commissioned Borbon Fabrications in Sacramento, California to restore it to its former glory right down to the frame and engine. It was exhibited at the Sacramento Autorama earlier this year, where it took first place in the hand-built sports car class.

The 1963 Batmobile goes on the block on December 6 at 11: am CST at Heritage Auctions in Dallas, Texas, though internet bids will be accepted the night before. Bidding will start at US\$90,000 – a figure well short of the US\$4,620,000 fetched by the more familiar 1966 Batmobile in 2013.

November Crossword Solution Turkey Day Topics

Across

1. STUFFING—Something cooked inside the turkey and served at dinner.
4. HARVEST—Gather the crops.
5. SET—_____ the table before dinner.
9. PUMPKIN—A large orange vegetable.
11. GRATEFUL—Another way to say thankful.
15. ROAST—_____ a turkey in the oven.
16. SLICE—Have a _____ of pumpkin pie for dessert.
18. VOYAGE—A long journey over the ocean.
21. DINNER—The evening meal.
22. OVEN—A place where things are baked.
23. MAYFLOWER—The ship the pilgrims sailed to America.

Down

2. NOVEMBER—The month of thanksgiving.
3. BAKE—_____ a pie in the oven.
5. SQUASH—An odd shaped vegetable that resembles a pumpkin.
6. GIVE—_____ thanks for the food we eat.
7. PILGRIMS—The people on board the Mayflower.
8. CELEBRATE—Americans _____ Thanksgiving in the autumn.
10. PARADE—A festival with bands, people wearing costumes and floats marching down the street.
11. GET—Families _____ together on Thanksgiving.
12. TURKEY—A large bird eaten on Thanksgiving.
13. FEAST—A large dinner celebration.
14. CARVE—Use a knife to _____ a turkey.
17. CORN—A yellow vegetable that was grown by Native Americans.
19. ACORN—The nut of an oak tree.
20. GRAVY—A sauce that is poured over the turkey.



*“Ability is what you’re capable of doing.
Motivation determines what you do.
Attitude determines how well you do it.”*

Lou Holtz

Lower Cost Power

Advanced Energy Materials

There’s another promising contender in the race to supplant the dominance of lithium-ion and metal-hydride based batteries in the world of energy storage. New research from the Karlsruhe Institute of Technology’s (KIT’s) Helmholtz Institute Ulm (HIU) details the development of an electrolyte that can be used in new magnesium-sulfur battery cells that would be more efficient and inexpensive than the dominant types of batteries in use today.

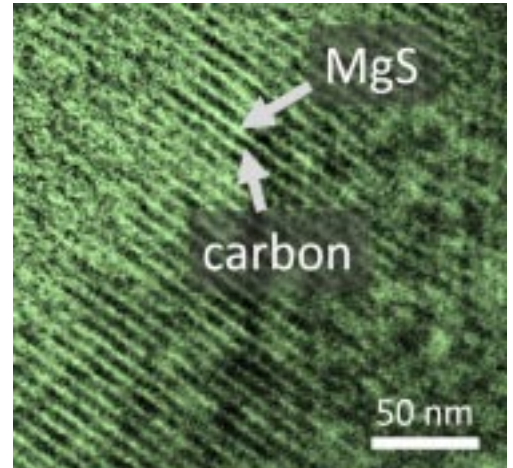
In the past year alone, we’ve seen research into water-based batteries, fast-charging “dual carbon” batteries, performance enhancing sand-based anodes, an aluminum-air EV battery, and even a nanodot-based smartphone battery that can recharge in 30 seconds.

Like all these, KIT’s new electrolyte and the magnesium-based batteries it could enable come with their own list of benefits. The electrolyte’s electrochemical window hits the sweet spot in terms of stability, a key characteristic desirable in materials used in batteries. It also plays well in various solvents and at high concentrations and works with a sulfur cathode, a material that is cheap and efficient when it comes to discharging maximum voltage.

It’s also relatively easy to produce, which when combined with the fact that magnesium is abundant, non-toxic and doesn’t degrade in air, should mean it will also make for inexpensive magnesium-based batteries with greater longevity and storage densities than lithium-ion batteries..

“Two commercially available standard chemicals, a magnesium amide and aluminum chloride, are applied,” explains Maximilian Fichtner, one of the heads of the research team. “They are added to the solvent desired and subjected to stirring. This simple mixture can then be used directly as an electrolyte in the battery.”

The new electrolyte created at KIT could be the key breakthrough thanks to its relative stability and the ease with which it can be produced. Details on its creation were published recently in the journal *Advanced Energy Materials*.



A look at the cathode composite under an electron microscope

Well Regulated



By N1HFX

<http://www.rason.org/Projects/discreg/discreg.htm>

While integrated circuits have become a staple of all modern circuit designs, it is still possible to build circuits without IC's and still achieve a high level of performance. The circuit in Figure 1 is a high performance 5 volt voltage regulator built using discrete components that are readily available.

No IC's were used and even a 1N4001 diode has been substituted in lieu of a zener diode.

The regulator output voltage varies by a mere .4% and has current limiting at 1.5 amps along with short circuit protection. With the exception of thermal shutdown, this circuit closely matches the performance of the 7805 5 volt regulator IC.

To understand how this circuit works, remember that the voltage across diode D1 is exactly .7 volts.

Capacitor C1 prevents the voltage from changing due to sudden increases in the load current. The main reason that the voltage across D1 is so constant is because the current going through it never varies by more than 1/2 milliamps.

Transistor Q1 is a negative feedback amplifier which keeps the voltage across R5 a constant 1.4 volts. These slight changes in load current seen by Q1 are amplified by transistors Q2 and Q3.

The majority of the current flows through Q3, the main pass transistor, which must be heat sunk. Resistors R3, R4 and R5 form the voltage divider which determines the output voltage. Resistor R3 is not really needed but is included to prevent damage to the circuit in the event that R4 is accidentally adjusted to zero ohms.

Transistor Q4 and Resistor R2 provide current limiting at about 1.5 amps. When the voltage drop across the base and emitter of Q4 reaches .7 volts, this transistor turns on and effectively shuts off pass transistors Q2 and Q3.

The voltage drop across R2 has no effect on the output voltage. Capacitor C2 bypasses the output of the regulator to prevent oscillations.

This circuit can be adjusted as a 12 volt regulator by adjusting R4 to the desired output voltage. The input voltage must be at least 18 volts and should not be greater than 25 volts.

If you plan to use this circuit as a 12 volt regulator, increase resistor R1 to 2.2K for best performance. The circuit will still limit at 1.5 amps regardless of the output voltage setting.

All resistors used in this circuit are 1/4 watt except for R2 which must be at least a 2 watt type or larger. Almost any general

purpose NPN transistor can be substituted for the 2N3904 transistors used in this circuit. Any similar TO220 type NPN switching transistor can be used for Q3. If desired, a zener diode can be substituted for D1 but the voltage should be at least 2 volts lower than the desired output voltage. Use of a zener diode may require that resistors R3 and R4 be decreased accordingly.

While it usually makes more sense to use IC's for voltage regulator applications, this circuit has great educational value for those interested in how these circuits work.

BREAK - OVER

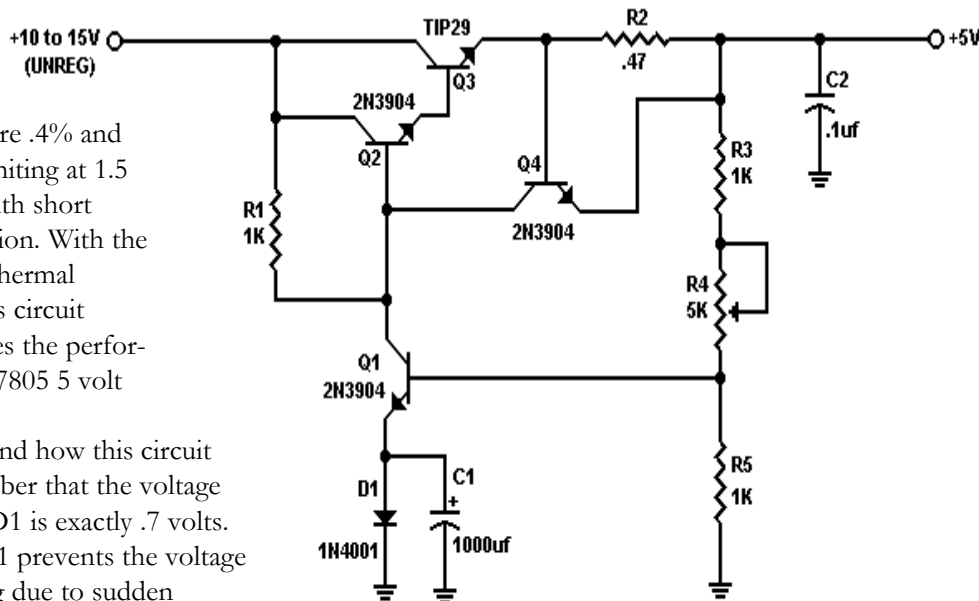


Figure 1



Quick Training Tips

Prowords

The object of emergency communications is the accurate, rapid movement of information. In this article we'll take a look at the definition and use of the most common prowords used in a directed net.

These prowords and procedures have literally been battle-tested by the U.S. Armed Forces and are designed to facilitate rapid, error-free communications.

Prowords are word equivalents of prosigns (used in CW communications) for use in voice procedure.

Prowords are used to facilitate rapid communication by conveying certain frequently used orders, instructions, requests, reports and information related to communications in condensed standard forms.

When operating, all communicators should use prosigns and prowords to the greatest extent possible.

Operating personnel shall not under any circumstances substitute prosigns, prowords, or combinations for the text of a message received for transmission without the consent and approval of the originator. The addressee may not be familiar with the definition of the particular proword and the possibility of misunderstanding is introduced into the communications.

Here are some of the most used and often abused prowords.
OVER -Go ahead; or this is the end of my transmission to you; a response is necessary. CW equivalent is "K".

OUT - End of transmission, no receipt required. CW equivalent is "AR".

BREAK -Break (start or end of msg text). CW equivalent is "BT".

ROGER -I have received your last transmission satisfactorily. CW equivalent is "R"

WILCO -I have received your message, understand it, and will comply. To be used only by the addressee. Since ROGER is included in the meaning of WILCO, the two prowords are never used together. CW equivalent is "WILCO".

Notice there are several phrases often heard on nets that are not on the list: Back to Net, QSL, Copy that, One for the count, and Destinated. Eliminate these 'cute', confusing, time-wasters from your on-air vocabulary.

It is easy to drift off into bad habits and we all need a refresher from time to time. Let's all concentrate on making the best use of prowords and increasing our communications skills.

BREAK - OVER

Hattie's Healthy Advice



Self Help Info.

During an interview with a local newspaper, 101 year-old Hattie Mae MacDonald of Feague, Kentucky reportedly offers some health tips:

Reporter: Can you give us some health tips for reaching the age of 101?

Hattie: For better digestion I drink beer. In the case of appetite loss I drink white wine. For low blood pressure I drink Red Wine. In the case of high blood pressure I drink scotch. And when I have a cold I drink Schnapps.

Reporter: When do you drink water?

Hattie: I've never been that sick.

BREAK - OVER



ARES Breakfast
Saturday December 13th
7:30AM
Perkins Restaurant
Savage, MN

NECOS Schedule December 2014

The first Monday or the month the net is held on the WB0RMK repeater, Carver. You will find WB0RMK here: 147.165/765 PL 107.2

- Dec 1 KB0FH Bob
- Dec 8 WA0DGW John
- Dec 15 KD0UWZ Chad
- Dec 22 KC0YHH Tony
- Dec 29 KB0FH Bob
- 2015
- Jan 5 N0BHC Bob
- Jan 12 KD0UWZ Chad
- Jan 19 KC0YHH Tony
- Jan 26 KB0FH Bob