

Mtg last Fri of month 6:30 PM
at the MCL Cafeteria in Kettering

Apr/May 2015

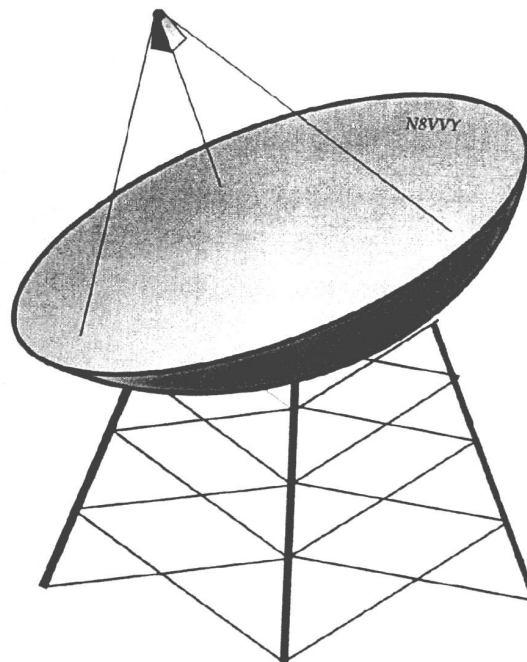
ANOMALOUS PROPAGATION

Newsletter: *The Midwest VHF/UHF Society*

Editors:

Gerd Schrick, WB8IFM
4741 Harlou Drive
Dayton, OH 454 32
(937) 253-3993
WB8IFM@ARRL.net

Steve Coy, K8UD
3350 Maplewood Dr.
Beavercreek, OH 45434
(937) 426-6085
K8UD@ARRL.NET



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Annual Society membership is \$ 12.00. Please
make checks payable to Gerd Schrick



Beacons: 1296.079 **W8KSE** EM79ur Dayton, OH---- 2W to Big Wheel at 800' AGL.

Listen for the **K9AYA Beacons** at EM79qk, 2W @ 10,368.000 MHz
both are copied by K4TO daily. 1W @ 5,760.000 MHz

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Dayton Hamvention, May 15-17 CU There MVUS Booth: SA 332

Flea Market

Friday: 8:00 AM to 6:00 PM
Saturday: 8:00 AM to 5:00 PM
Sunday: 8:00 AM to 1:00 PM

Inside Exhibitors

Friday: 9:00 AM to 6:00 PM
Saturday: 9:00 AM to 5:00 PM
Sunday: 9:00 AM to 1:00 PM

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MVUS Officers:

Pres. Tom Holmes, N8ZM,
Vice Pres. Bob Mathews, K8TQK
Secretary, Steve Coy, K8UD
Treasurer, Bulletin Editor, Gerd Schrick, WB8IFM

DE N8ZM:

About the time you are reading this, several of us will be packing to head down to the Southeast VHF Conference at Morehead State; yes, the land of Jeff Kruth! Jeff is well known for his treasure trove of vhf and microwave goodies (and some HF stuff too), so any excuse to head that way is a good one. The Thursday picnic at Jeff's house is a great opportunity to renew old friendships and make some new ones before the conference gets rolling. There will be plenty of great presentations across a wide range of topics and fun stuff like antenna and noise figure measurements. Not too late to go!

Of course next month is the big show and things are coming together well for that as well. MVUS will again be in booth SA0332, staffed by N8QHV, N8VZW, WB8IFM, and K8TQK among others. Stop by and say hi, and even offer to let the guys take a break when you can.

W8RKO has been working in the 2m and 432 beacons that we put on the roof at HARA each year, and with a little luck they might get to stay on the air from there all year. After being chastised last year by some self-appointed frequency police for not being in the 'approved' beacon band, Mike has corrected that situation.

The VHF forum will start at 3:45 on Saturday but I don't have the room number in front of right now. It will be in the program and on a sign outside the forum room door so I have faith you'll be able to find it. Tony, WA8RJF, has pulled together a great lineup for this year so don't miss it.

Sorry to say that the flu has caught up with me this past week and my brain is a little more addled by drugs than usual, so my apologies for the few words and even fewer bad jokes.

Oh, since most of the MVUS officers will be at the VHF conference, you guys who stay home should probably get together anyway just to enjoy the time chatting without being interrupted by an annoying meeting.

We will have a meeting in May, so put the 4th Friday on your calendar.

73, Tom, N8ZM.

This and That 4+5-15

Life. He said: "In three words I can sum up everything I've learned about life: it goes on!" [Robert Frost]

Adrift at Sea. For 66 days Louis Jordan was lost at sea after his 35 foot sailboat lost its mast in a storm. He had gone out fishing and now was surviving on rain water he caught with a bucket and fish he caught with his undershirt. After being rescued by a passing German freighter he was in good enough shape to walk on land on his own. Asked how he'd survived mentally he mentioned that he had read the entire bible and had faith that eventually he would be saved! [newspaper account 4-4-15]

Fantasy is an exercise bicycle for the mind. It might not take you anywhere, but it tones up the muscles that can. [Terry Pratchett]

Being Good. "On the whole human beings want to be good, but not too good, and not quite all the time. [George Orwell]

Rust. Metal corrosion costs the US 437 billion a year- "more than all other natural disasters combined. It topples bridges, causes sewers to explode, and pulls planes down from the sky." [Gregory Coles, NYT, reviewing the book: "Rust, The Longest War." by Jonathan Waldman]

Peace and Quiet. "To a skydiver, free fall is peace. The 120 mph winds notwithstanding, up there is one of the only truly quiet places humans can go anymore." [Michael Graff]

Talk, Talk. "I never learned anything while I was talking." [Larry King]

No Sense. "Nonsense wakes up the brain cells." [Dr. Seuss]

Big Fish. Measuring nearly 100feet long, and weighing some 300,000 pounds, the blue whale is the largest animal on earth. [The Week, 3-3-2015]

Different World. Ray Hillton, wrongfully locked up for a crime he didn't commit was released from death row after 30 years. At 58, "the world (for him) is a very different place. Then there was no Internet, no e-mail. He was given an i Phone, which completely mystified him. [newspaper report 4-4-15]

Only 3 Countries... are not using the Metric system. They are the USA, Liberia and Miamar. Read more about it on page 9. [Gerd, WB8IFM]

What Facts? "One of the signs of these confusing times we live in is that facts don't matter. What matters are feelings and opinions, which are often confused and confusing." [John Rosemond]

Alzheimer. In 1888, Dr. Alois Alzheimer started his first position treating mentally ill patients at the Community Psychiatric Hospital in Frankfurt am Main, Germany. The 24 year old physician had an intimidating appearance: he was a beefy athlete, six feet tall, with a deep scar on the side of his face from a fencing injury. His personality, in contrast, was calm and gentle. [David Vachon in "Old News"]

Fitness Trainer. "Everywhere you look, people that can barely spell "fitness" are becoming fitness celebrities because they have a nice body, or work out in their underwear." [Rocco Castellano]

LEDs. If you haven't put LED lights in your light sockets now is a good time, and if you live in Dayton, you have even help from the power company. They pay a subsidy for the smaller bulbs like the 40 and 60 W replacements. However, they just need 6.3 rsp. 9.5W to operate. These being "diodes" you can turn them on and off to your hearts content too w/o any shortening of their lifetime. [Gerd, WB8IFM]

Comments from Members:

What have we got this month from our members? Zilch! Now is the good or bad? Let's assume : No news is good news! So here are some of my comments: first we have the Hamvention coming up in just a few weeks. Look at the HV website to get a feel what is out there and if you are coming, what you might want to put on your list of what to do etc. There are the forums, and you might find something that interests you, or you might just wander around to look and get ideas. Stop here and there to greet a friend or talk to an exhibitor and ask questions. Thing is, as Lloyd would say, you pick up new ideas in the most unsuspecting places. Stop by at the MVUS Booth and say Hello! **Gerd, WB8IFM.**

However, just found a note, I got earlier from **Jack, AB4CR**: The first nice wx we had was during the January VHF Contest weekend. I grew up in Cleveland and was very use to snow...snow days did not happen when I was in school....cold weather and/or snow were no excuses for not going to school. School has been called off here the night before an "event." I hope to be roving here in June - 50 MHz - 24 (or 47) MHz. Compared to roving in Ohio, Kentucky, Tennessee - there is a lot more activity here on the east coast. I hope to get up in the mountains and try to work into Ohio during the 'test.

The Common Mistake

The mistake most people make when engaging in this debate is considering horsepower and torque independently. Almost everyone argues as if they are separate, unrelated values. They aren't.

$$\text{Horsepower} = (\text{Torque} \times \text{RPM}) / 5252$$

This equation is the second most important thing on this page, and it's the reason that anyone telling you that horsepower and torque should be considered equally and separately is significantly off-base. The fact of the matter is that horsepower is the *product* of torque and another value — RPMs (divided by 5252). It's not unrelated, separate, or different.

In fact, there's not a single machine in existence that measures a car's horsepower. It's a man-made number. When a car's performance is tested, it's *torque* is measured using a [dynamometer](#). The measure of an engine's performance is torque. Horsepower is an additional number that's attained by multiplying the torque by the RPM.

To the Moon and Beyond—Future of Spaceflight (2014)

NASA has an exciting new vision of future spaceflight—the return of humans to the moon by 2020 in preparation for visits to Mars and possibly beyond.

Moon missions are essential to the exploration of more distant worlds. Extended lunar stays build the experience and expertise needed for the long-term space missions required to visit other planets. The moon may also be used as a forward base of operations on which humans learn how to replenish essential supplies, such as rocket fuel and oxygen, by creating them from local material.

Such skills are essential to the future expansion of human presence into deeper space.

The **Constellation Program** has near-term scientific objectives as well. Although humans have visited the moon before, our closest neighbor still harbors its own scientific mysteries to be explored—including the investigation of water ice near the moon's poles.

Future human moon missions will be preceded by robotic reconnaissance launches, between 2008 and 2011, to scout landing sites that may have the most resources available to astronauts. The moon's south pole is considered particularly promising because it is rich in hydrogen and may be home to water ice as well.

A New Spacecraft

These new NASA missions are being spearheaded by the development of a state-of-the-art new spacecraft—but one with a retro feel.

The **Orion crew exploration vehicle** echoes the design of the original Apollo missions but updates its systems with modern technology. The new capsules will also be larger, with three times the volume capacity and the ability to accommodate a four-person crew. The new size has led NASA officials to describe the mission as "Apollo on steroids."

The Orion capsule, which launches attached to a solid rocket booster and Apollo-like upper stage, is seen as a safer and more reliable design for future space exploration than the now-familiar space shuttle.

Once in space the flexible Orion vehicles will take astronauts to and from the **International Space Station**. They will also enter lunar orbit, a position from which landers can repeatedly visit the moon's surface.

The Orion capsules, which may be reused up to ten times, will parachute to Earth like those of yesterday—though they will arrive on dry land rather than via ocean splashdowns.

In the years beyond 2020, these spacecraft may aid in assembling Mars-bound vehicles in orbit to take the first humans to the red planet.

[National Geographic]

“Radio DARC” Program Debuts on Ham-Operated German Shortwave Outlet (from the ARRL Bulletin) 03/26/2015

The inaugural transmission of the “Radio DARC” Amateur Radio program aired over the March 21-22 weekend via [Channel 292](#) at 6070 kHz. The German-language program was produced in cooperation with Germany’s national Amateur Radio society — the Deutscher Amateur Radio Club ([DARC](#)).

A group of amateurs in Germany obtained a license to broadcast on the 49 meter shortwave broadcast channel after German national broadcaster the Deutsche Welle closed down a 500 kW shortwave broadcast transmitter near Munich. Using parts scavenged from the Deutsche Welle site, the ham group built up a 10 kW transmitter.

“The response was overwhelming,” said Rainer Englert, DF2NU. “Our dreams were exceeded many times over. The team got over 1500 reception reports from 11 European countries.” These even included S-9 reports from Russia and Iceland. Englert said the station puts in a signal that’s often 60 dB over S-9 within Germany, adding that it will take weeks to answer all QSL requests and comments. The signal has been heard in North America, but it has competition on that channel.

Hosting “Radio DARC” is Conny Ferrin, a former Radio Luxembourg air personality. In the 1970s, Radio Luxembourg deployed a 2 GW medium-wave transmitter on 1440 kHz and a 500 kW shortwave transmitter on 6095 kHz, airing a popular music program in the days before commercial broadcasting licenses were available on the Continent. Replete with jingles and music bumpers, “Radio DARC” includes music that was popular in the 1960s and 1970s, interspersed with news and commentary of interest to radio amateurs and SWLs. As Englert explained in an editorial commentary during the initial broadcast, they want the program to be “at once nostalgic and modern.”

“Radio DARC” airs on Sundays, 0900-1000 UTC, and is rebroadcast on Mondays, 1500-1600 UTC.

Channel 292 also broadcasts the English-language DX magazine program produced by Ed Durrant, DD5LP. It airs Mondays, 1400-1500 UTC — an hour prior to “Radio DARC.” Other ham radio-oriented programs could follow, Englert said.

“The frequency 6070 kHz is likely to become a turntable for many European Amateur Radio clubs from now on,” Englert told ARRL. “Obviously these kinds of radio magazines broadcast on the shortwave broadcast band are really missed by many people.” He said the team would produce 2 hours of programming each week from now on.

According to Englert, the “Radio DARC” project is unique worldwide. “We have not yet heard of an Amateur Radio club operating its own radio station on shortwave,” he said.

Rainer Ebeling, DB8QC, owns the official licensee — Intermedicom GmbH (LLC). He repurposed parts from the driver stages as well as a few transformers from the former Deutsche Welle transmitter for the 10 kW transmitter. “The antenna is a low-hanging, simple dipole with very high radiation angle, optimized for short-range coverage,” Englert explained.

The Metric or the Decimal System.

Only three countries in the world are not using the metric system. Those are the United States, Liberia and Burma (Myanmar). Some timid attempts have been made to introduce the metric system of measurements, but with no success. Occasionally some horrific errors are made when converting to metric from another system. When I ask why not changing to the Metric System, the typical answer is, it's hard enough as it is, we are in no mood to learn another system.

I can attest to that; after the 50+ years in this country I still have to struggle with certain measurements, hard to convert, to memorize etc. I still have to look up weights and volumes, just too awkward to memorize. In 1964 I got a booklet with 18 pages of **conversion factors**, there are about 1300 of them. To this day I use this booklet, which is showing its age.

When you change the word “metric” to “decimal” you have a much better word to describe this system. It is also known as the SI system. SI (St I) is French for international standards. For length on earth you have the meter and all other length measurements are related by multiplication or division of 10s as per the table below. Weight and volume are just as easy and uniform, and as you get into scientific work of the very small all is metric. However, because of the immense distances in space, light years are used.

Now compare this with the US system: you got the foot, and there are 5,280 feet in a mile. On the other end you got 12 inches in a foot. The inch is divided into halves, quarters, eighths, sixteens etc. In fine measurements the inch is divided (metric wise) into “mils” which are 1/1000s of an inch.

Of course, the US has been using the decimal system with money for a long time, but they still had to have quarters, just to make it a little harder to count money. Unnecessary learning effort and confusion can be avoided by switching to metric, which in today's world should be a no-brainer. A good website which explains “metric” very well is: www.mathsisfun.com. I bet you, if you look at it, you will admit that you already know all this and the rest, using it, is a “piece of cake!” So let's get with it. A hint, when it comes to using length measurements: the multiplier 10 and 100 for the meter are seldom used as is 1/10th. So, if you go big, you jump to km (kilo meters) and if you go smaller you go to cm (centi meters).

Gerd, WB8IFM

THESE PREFIXES MAY BE APPLIED TO ALL SI UNITS

Multiples and Submultiples	Prefixes	Symbols
1 000 000 000 000 = 10 ¹²	tera (tēr'á)	T
1 000 000 000 = 10 ⁹	giga (jí'gá)	G
1 000 000 = 10 ⁶	mega (mëg'á)	M*
1 000 = 10 ³	kilo (kíl'ô)	k*
100 = 10 ²	hecto (hëk'tô)	h
10 = 10	deka (dëk'á)	da
0.1 = 10 ⁻¹	deci (dës'í)	d
0.01 = 10 ⁻²	centi (sën'tí)	c*
0.001 = 10 ⁻³	milli (míl'í)	m*
0.000 001 = 10 ⁻⁶	micro (mī'krô)	μ*
0.000 000 001 = 10 ⁻⁹	nano (nän'ô)	n
0.000 000 000 001 = 10 ⁻¹²	pico (pē'kô)	p
0.000 000 000 000 001 = 10 ⁻¹⁵	femto (fëm'tô)	f
0.000 000 000 000 000 001 = 10 ⁻¹⁸	atto (āt'tô)	a

* Most commonly used

AGM10136

Electric Car

German Forklift Truck Firm Creates Financially Viable Fiat 500 Electric Car

Nov 21, 2014 By Paul Whytock (Electronic Design Europe)

German forklift truck manufacturer **Linde Material Handling**, together with Hamburg-based **Fiat specialists Karabag**, has converted a conventional Fiat 500 into an electric car. The **Karabag 500E** features a three-phase asynchronous motor providing 20 kW of nominal power, and a **125-V, 11-kWh lithium polymer battery**. Performance of the car is best described as leisurely, but it has top speed of 105 km/h and a range of 100 km.

All of the conversion components were drawn from a Linde forklift, with some modifications. **Linde develops and manufactures around 50,000 inverters and 400,000 electric motors per year.**

The two companies teamed up when Karabag was searching for a partner to convert a conventionally powered car into an electric vehicle and approached Linde at the end of 2010.

The engineering approach to this conversion is best described as pragmatic—Linde simply tried most things and changed as little as possible on the car. In an astonishingly quick four days, the prototype was running because Linde was able to use existing forklift components such as the motor, inverter, controller, fuse, and charging circuits. Next came EMC testing and manufacturer's declarations and testing. After nine months the project was complete.

To cut costs, battery capacity was reduced by a factor of two. Despite the small (11 kWh) battery, range only dropped from 140 km to 100 km. Optimal balancing of the motor, inverter, and controller minimized losses. Unlike previous conversion designs, Linde was able to dispense with the complete cooling system.

What about ownership costs?

Scientific American for Jan 2013

How Humans Will Evolve on Multigenerational Space Exploration Missions

How future generations will make the voyage from our earthly home to the planets and beyond—and what it means for our species By [Cameron M. Smith](#)

The Science Of The Next 150 Years: 150 Years in the Future

When space shuttle *Atlantis* rolled to a stop in 2011, it did not mark, as some worried, the end of human spaceflight. Rather, as the extinction of the dinosaurs allowed early mammals to flourish, retiring the shuttle signals the opening of far grander opportunities for space exploration. Led by ambitious private companies, we are entering the early stages of the migration of our species away from Earth and our adaptation to entire new worlds. Mars is the stated goal of Elon Musk of PayPal fortune; polar explorers Tom and Tina Sjogren, who are designing a private venture to Mars; and Europe's privately funded MarsOne project, which would establish a human colony by 2023. The colonization of space is beginning now. It's a commonly held view that electric vehicles are expensive to buy. However Karabag says that whereas the running cost of a combustion-engined Fiat 500 would be approx €412 per month, the Karabag 500E will cost €370 based on the monthly leasing fee of €299 with no special payment and with a four-year guarantee.

Hamvention VHF Forum Sat. 3:45 -- 5:00 PM in Room 3

Zack Widup, W9SZ Portable VHF & UHF antennas.

Zack will describe the antennas he has built for portable operations that can be assembled & disassembled quickly and take a minimum of storage space. Zack manages to pack antennas for 10 bands in a small vehicle like a Toyota Corolla.

Rick Campbell, KK7B Project-Based Approach to VHF-UHF Technology.

Rick will present a set of concepts, with examples, he uses to implement VHF and UHF projects.

Ed Krome, K9EK SDR panadapters: methods for older receivers.

Synopsis: Panoramic band visualization adapters that add new life to older receivers. An investigation of a fascinating and incredibly useful application for simple software defined radio devices.

Mike Kana, AA9IL "Quick! I need a 5.76 GHz transverter!"

Mike will discuss assembling a 5.76 GHz transverter using commonly available "building blocks."

Garry Hess, K3SIW Microwave ATV

Means to receive and transmit fast-scan television signals on the amateur microwave bands are discussed.

Kent Britain, WA5VJB VHF/UHF/Microwave Antennas

Kent will discuss practical VHF/UHF/Microwave antennas.