

W8KEA



MARCA

MIDLAND AMATEUR RADIO CLUB
PO BOX 1049, MIDLAND, MICHIGAN 48641
www.w8kea.org

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	Pat Mullet KC8RTW	(989) 828-6657
Swap Committee	Mark Rodgers, KC8GRQ/Ch	(517) 672-1060
	Pat Mullet KC8RTW	(989) 828-6657

LIFE MEMBERS

Don W8WOJ, Lee KC8ITI, Dennis N8ERF, Larry N8CGP, Denny WD8BPT, John WB8RCR

Midland County Public Service Net, Thursdays at 9 PM
W8KEA Repeater — 147.000 MHz+ PL 103.5 • W8QN Repeater — 443.325 MHz+ PL 103.5
W8KEA Digipeater — 145.090 MHz

Next ARES®/RACES Meeting — **July Meeting Cancelled!**
Law Enforcement Center, 2727 Rodd St.
Next CLUB Meeting — **July Meeting Cancelled!**
Salvation Army Building, 330 Waldo.
Talk-in 147.000+

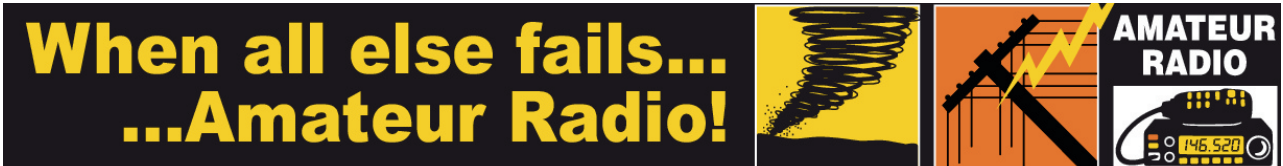
July 2014

Static Discharge

Kevin Martin, KD8QAM

I would like to thank all of you that have taken the time to volunteer. There were plenty of things to choose from at the swap and I hope you were able to find what you were looking for. If you are able to make it to Field Day, please do. Operators are needed to keep things going. If you would like to stop in and just chat the evening away, we will be at Chippawasee park. See you there.

Kevin, KD8QAM



MARC Minutes

Dorie French, N8WTQ

The meeting was called to order at 7:40 p.m. with 33 members and guests present.

- John W8QN gave the treasurer report. Also, he said the West Midland Family Center repeater link has been turned off. If you are having problems let him or Larry, N8CGP, know. There will

MARC MEETINGS

Art Peters, KOACP, is in charge of special events and topics for the MARC monthly meetings. If you have any agenda items, or topics for the meetings, please contact Art at (989) 400-3745, or via e-mail: k0acp@arrl.net

COMMUNICATIONS

Pat Mullet, KC8RTW, is in charge of communications and publicity for the club. If you have any questions or ideas regarding these areas, please contact Pat at kc8rtw@arrl.net

EXAMINATION SCHEDULE

Saginaw - All future VE testing will be done on an appointment basis only.

Corunna - Contact Thomas Carpenter (517) 579-0599 ki8as@charter.net.

Bay City - All future VE testing will be done on an appointment basis only.

Isabella/Clare Counties - Contact Gus Glass, K8GUS at k8gus@arrl.net

With all examinations, your original license, a copy of that license, a second photo identification (drivers license, etc.) and a check or money order for \$15.00 made out to "ARRL/VEC" are required.

The address listed below gives testing sessions scheduled for Michigan. <http://www.arrl.org/arrlvec/exam-search.phtml?State=MI>

SUBMISSIONS FOR NEWSLETTER

Contact Pat Mullet, KC8RTW at kc8rtw@arrl.net if you want to submit anything for the newsletter.

I need your items by the 15th of the month. Anything received after that may not make it into the newsletter for that month.

If you prefer to download the MARC newsletter from our web site, or have trouble with delivery via USPS, contact Keith, KB8SOE, at kb8soe@arrl.net.

MEDIA HITS!

Have you seen or heard mention of the Midland Amateur Radio Club in the news or in the paper? If so, please forward it, or mention of it to either Pat, KC8RTW (kc8rtw@arrl.net) or Kevin (cherryrediroc@sbcglobal.net)

not be an ARES®/RACES meeting in July and the drill with packet will take place at the August meeting. The SET is scheduled for October.

- The Michigan Section Outing is scheduled for July 10th through 13th in Lupton.

- Swap – Setup is Friday at 6 p.m. Tables are \$5. Steve, WA8Y will take tickets and handle the talk-in. Dorie, N8WTQ has the kitchen and Linda, KC8MUD has the trunk sales. VE session sign up is at 10 with testing at 10:30. Doug Brinks, N8NTN is bringing the PA system. Doors open at 6 a.m. Saturday for set up with the event beginning at 8 a.m.

- Field Day – Will be at Chipewassee Park again this year. We don't have the pavilion. Dorie, N8WTQ will have a kitchen set up and will cook the turkeys. Steve, WA8Y will bring a generator for the kitchen. We are able to park our vehicles overnight at the site. Dinner is a pot-luck at 5 p.m.

- A motion to give N8WTQ \$250 for swap food was made by Dorie, N8WTQ and seconded by Pat, KC8RTW. Motion passed. A motion to give Dorie, N8WTQ \$75 for Field Day food was made by Dorie, N8WTQ and seconded by Ryan, KB8RCR. Motion passed.

- John, W8QN thanked everyone who helped with the Dow Run

and the Great Lakes Bay Region Marathon. Dennis, N8ERF gave a report on the Midland High School Club. The MHSARC members all got t-shirts. They had an average of 29 participants and 12 adults who had fun working this year.

Net Control:

June 12	KD8QAM
June 19	W8QN
June 26	N8LBF
July 10	KB8SOE
July 17	KC8ITI
July 24	KD8QAM
July 31	W8QN

- Mike is in contact with a person at the Wounded Warrior Project. He suggested the club adopt a vet and help him become a ham.

- Announcements - The D-Day and museum ships special events are on the air this weekend. Roger, K8RI had a stroke and needs help taking down towers on Saturday at 2 p.m. The Saginaw club meets tomorrow night at the Red Cross building at 7 p.m.

A motion to adjourn was made by Larry, N8CGP and seconded by Cindy, KD8JQY. Motion passed and the meeting adjourned at 8:30 p.m.

Respectfully submitted,
Dorie French, N8WTQ
Secretary

My Two Cents

Pat Mullet, KC8RTW

Don't you just hate it when life gets in the way of what you really want to be doing? It seems like that was occurring far too often this last month, and I just didn't seem to be getting on the air as much as I wanted to.

Well, I suppose I really shouldn't say that. I have been making a decent amount of con-

tacts with the various W1AW/P stations operating in conjunction with the ARRL Centennial QSO party, as well taking the time to give stations looking for "points" from the ARRL Field Organization a bump when I hear them.

I've been able to track down a couple of nagging problems that have been hampering my on-air

Amateur Radio is a Contact Sport!

activities, as well. For the last couple of months, I've barely been able to hear the Midland 147.00 MHz repeater. The signal was so far down in the noise floor that I could tell who was operating by their voice, but what they said was un-intelligible. Since I could still hear the Saginaw and Big Rapids machines, I made the assumption that the problem lay in the repeater, not my radio.

After discussing my problem at the last meeting, I swapped antennas, hooking the rig up to a homebrew dual-band twin-lead J-pole about ten feet off the ground. What a difference! I can actually

hear again! I'm still not sure if it is the antenna or the coax, but after Field Day, I'm going to pull the mast down and put my dual-band aluminum J-pole back up.

Next week, the W1AW stations shift to Alaska and Montana, and I need Alaska on both 40 and 80 meters. I'm not to certain how well I'll do on 80, but 40 should be do-able. Wonder what kind of wire I can get into the air to extend my reach on 80? Maybe I could put up an NVIS for close-in work on 15 and 10....

That's it for this month. Hope to hear you on the air.
73, Pat, KC8RTW

ARES®/RACES John Wolters, W8QN

There will not be an ARES®/RACES Meeting in July.

There will be an ARES®/RACES meeting in August. We will have a

short drill using Packet at the EOC and Com vehicle.

John Wolters, W8QN

2014 Hamfest Preliminary Report

I was not able to attend the Club Swap so Larry Macklin took on the responsibilities of the Treasurer for the day – Thanks Larry.

Very preliminary information gives us an estimated gross income of \$1000 prior to any bills. According to Larry, it looks like the number

of people was down slightly and parking lot sales were reported to be down.

Look for a complete accounting at the August meeting.

John Wolters, W8QN
Club Treasurer

2014 Hamfest VE Session Results

We had one of the busiest VE Sessions that we have seen in a long time at the Swap. We had 14 candidates take exams with 11 of them walking away with either a new license or an upgrade. A total of 21 exams were administered.

The VEs working the session were: Dennis Klipa, N8ERF, VE Liaison; Del Lefevor, WB8FYR; Larry Macklin, N8CGP; Art Peters, K0ACP; John Tallman, KB8PGW; Pat Russell, W8PMR; Michael Dougherty, KD8MMH and Jim Curtis, KB8TBI.

The new Technicians are George Huegel, Gerald Arch, Michael Byard, Dennis Byard, Joe

Baker, John Lund, Joshua Peters, and Ivan Herman. Upgrading to General were Charles Nielsen, KD8YGE and Desmond Stern, KD8YJH. Upgrading to Extra was Fritz Kuhlman, KD8CEL. We had one special request for assistance with an exam. One applicant requested that the exam be read to them. Jackie Klipa, N8NNA, volunteered to be the exam reader. Jackie is not a VE nor does that role require her to be one. Thank you, Jackie.

Best Regards,
Dennis, N8ERF

Upcoming Events	
6/22-23	Field Day
7/11-14	Lupton
Michigan Hamfests	
6/21	Lowell
7/19	Shelby Township
7/26	Lansing
8/2	Escanaba
8/3	Port Huron
9/13	Wyoming
9/14	Adrian
10/18	Muskegon
10/19	Kalamazoo
10/26	Madison Heights
* Denotes date based on 2013 event	

Area Nets	
SVARA; Mn, 147.24 MHz, 2100 ET	
Gladwin; Tu, 147.18 MHz, 2000 ET	
BAARC; Tu, 145.31 MHz, 2100 ET	
Isabella Co EOC 146.72 Mhz, 1900 ET	
Canadian Lks, Wed, 146.8, 2100 ET	
Edmore, Th, 146.8, 2000 ET	
MARC; Th, 147.00 MHz, 2100 ET	
District 3 ARPSC; Su, 145.31 MHz, 1830 ET	
Mi VHF Trffc Net; MWF, 145.15 MHz, 0900 ET	
TMMTN; Mon-Sat, 147.30 MHz, 2130 ET	
MACS; Sun-Sat, 3953 kHz 1100 ET	
MIARPSC; Su, 3932 kHz, 17:00 ET	
UPN; Sun-Sat, 3920 KHz, 17:00 ET	
MITN; Sun-Sat, 3952 kHz, 1800 ET	
QMN; Sun-Fri, 3563 kHz, 1830 & 2200 ET	
WSSBN, 3932 kHz, 1900 ET	
UP-ARES; Fr, 3932 kHz, 1930 ET	
GLETN; Sun-Sat, 3932 kHz, 2030 ET	
SEMTN; Sun-Sat, 145.33, 2215 ET	
MIDTN - 1900 local Tu, Th, Sat 3.583	
+waterfall, Oivia 8/500	

MARC MERCHANDISE		
T-Shirt	S- XL	\$10
	2X - 3X	\$12
Long-Sleeve Tee	S- XL	\$12
	2X - 3X	\$15
Crew Sweatshirt	S- XL	\$18
	2X - 3X	\$20
Hoodie	S- XL	\$24
	2X - 3X	\$26
Zipper Hoodie	S- 3X	\$30
Winter Coat	S- XL	\$42
	2X - 3X	\$45
Spring Jacket	S- XL	\$32
	2X - 3X	\$35
Hat		\$10
All garments are royal blue with white print and embroidered name and number. Extended sizes available.		
Please call Bill Lee at B&C Sportswear with questions @ (989) 839-4537.		

K8RI Tower Party

Dennis Klipa, N8ERF

A tower/antenna party was held at the K8RI QTH on June 7th at 2:00 PM. Roger Halstead, K8RI had a 40 ft steel tower that he no longer needed and wanted to get back to its owner, Bob Winchester, W8LSS. Roger also had a two meter vertical on a pole attached to the side of his workshop that was in need of some TLC so that had to come down as well. Steve Linley, WA8Y, brought along his climbing gear and climbed to the top of the 40 feet tower to remove and lower the GIN pole that Roger had left up there just before he had his stroke a year or so ago. Roger is getting around quite well, but climbing is not on his activity list.

Lee Hodges, KC8ITI climbed the tower to the 16 ft mark to remove the bracket holding the tower to the roofline of the workshop. The tower came down without incident and was disassembled and placed in Bob's trailer so he could take it home. The two meter antenna came down easily and was removed from the mast so Roger could make repairs. Also participating in the events were John Wolters, W8QN; Dave Wallick, N8LBF; and myself, Dennis, N8ERF.

(Roger, K8RI appends this account—)

I would like to thank:

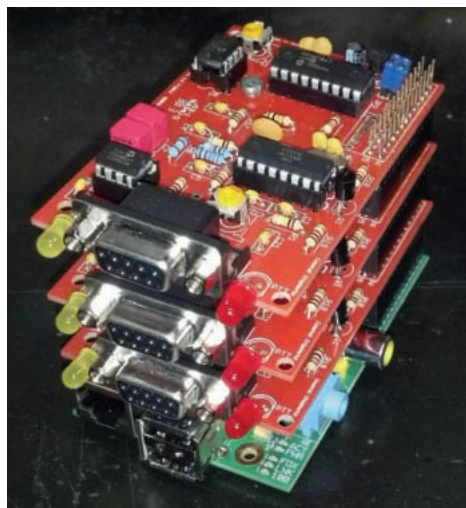
(N8ERF) Dennis Klipa, (W8LSS) Bob Winchester, (WA8Y) Steve Linley, (N8LBF) Dave Wallick, (KC8ITI) Lee Hodges, and (W8QN) John Wolters for taking down the 25G tower on the west end of my shop Saturday June 7th, while I mainly got to watch. Well I did get to pull on one rope for a minute or two. (N8JBW) Joyce, my wife served cookies and some cold 807s.

It's things like this that make me really appreciate the 53 years I've spent in Amateur Radio and the hams I've gotten to know.

73 and thanks again,
Roger (K8RI)

New Midland Hamgate

John McDonough, WB8RCR



(Here is an e-mail from John McDonough, WB8RCR, concerning the replacement computer and TNCs for the malfunctioning Midland Hamgate that MARC recently purchased-ED)

Here is a picture of the new Midland Hamgate. Actually, we will only be using two of the 3 TNCs shown. John Wolters, W8QN bought an extra, I have all three now set up and calibrated, however only one has

an I2C address at this time.

The green board at the bottom is a Raspberry Pi Model B. The three red boards are TNC-Pi's.

Actually, if we got another radio we could consider a link to Lansing. Will be pretty tough slugging right now, but I suspect when we get the new SEOC (State Emergency Operations Center) in place we might be able to make the trip reliably.

KB8SWR offered a radio to replace the broken Yaesu. He said he had a whole pile of them, so perhaps we could weasel a second.

I still have some software work to do, but the Pi and all the TNCs are now known working.

Oh, by way of FYI, the radios connect to the DB9 connectors. The yellow LEDs indicate that TNC has detected a signal, and the red LEDs that TNC is transmitting. The two bright yellow things are pots. The near one sets the audio level and the rear one sets the TxDelay. The rear one isn't used because we are configuring TxDelay via I2C (even with

serial connection to the TNC).

— John McDonough, WB8RCR

(To which Del Lafavor, WB8FYR, replies)

Wow, John, that is a neat picture.

Does that all operate from one little cell phone power supply as mine does for one TNC and PI?

Thanks to KB8SWR. I had to look up that call and find he is Jeff Metiva of Frankenmuth. Will that be the same model and all so it will be direct replacement for the Yaesu we currently have at hospital?

When we put the PI at the hospital will it all go in that big box we currently have with all the fans and all? Of course if we put it in a box to fit, it might get lost in all the other hardware (other residents) there in the hospital.

Another question would be whether we will have a local monitor, keyboard, and mouse for the PI when it is at the hospital?

It's Not Your Grandfather's Amateur Radio!

4

Michigan Section News

FCC Announcement

A couple of days ago, the FCC dropped a bombshell on the amateur community by releasing a Report and Order that makes a major change in our licensing structure as it applies to expired licenses.

From the ARRL bulletin (in part):

In a wide-ranging Report and Order (R&O) released June 9 that takes various proceedings into consideration, the FCC has revised the Amateur Service Part 97 rules to grant credit for written examination elements 3 (General) and 4 (Amateur Extra) to holders of "expired licenses that required passage of those elements." The FCC will require former licensees - those falling outside the 2-year grace period - to pass Element 2 (Technician) in order to be relicensed, however. The Commission declined to give examination credit to the holder of an expired Certificate of Successful Completion of Examination (CSCE) or to extend its validity

to the holder's lifetime.

The Report and Order may be found on the web in PDF format at, http://transition.fcc.gov/Daily_Releases/Daily_Business/2014/db0609/FCC-14-74A1.pdf

Michigan Section Family Outing

This is the monthly reminder about the 16th annual Michigan Section Family Outing that will be held at the Woodlands Convention Center & Campground near Hale, MI on July 10 - 13. This annual event is an opportunity for us to get together in a very relaxed atmosphere for a day or two or three or four, depending on your interests and time available.

If you are a camper or an RV'er or just like to get out into the woods, the Section Outing is for you! What could possibly be better than being up north in the summer at a beautiful campground with ham radio friends? Of course, the answer is that nothing is better than that! For those that like the comfort of a hotel room, those are

available in West Branch just a short drive from the campground.

There will plenty of fun events along with learning experiences for the whole family. More information can be found at www.sectionouting.info. Saturday is already jam packed with ARPS activities and guest speakers. Friday has a Fox Hunt and a HF Digital Sound Card Mode program and demonstration and time to swap war stories with other hams. Look on the website for full details....

Grab a copy of the flyer that is available on the website (near the bottom) and print some copies to take to club meetings, hamfests or anywhere that you may think there might be interested folks. Check that website often as more activities and details are added as we get closer to the event date.

73 until next month,

Larry Camp, WB8R
ARRL Michigan Section Manager
wb8r@arrl.org

Technical Topics and Information

(ARRL Contest Update—May 21, 2014) The *ARRL Propagation Bulletin* [ARLP018](#) reported that "Robert Steenburgh, KA8JBY is a NOAA Space Weather Forecaster, and he said that on July 23, 2012 there were three CMEs (Coronal Mass Ejections), "the largest had an angular width of 190 degrees, followed by a 132 degree event." How do they know? They use [Cactus](#), a system for computer-aided CME tracking which analyzes data from [LASCO](#), the "Large Angle and Spectrometric Coronagraph Experiment." In addition, the [latest CMEs](#) are tracked and displayed, as well. Anything in color on that hyper-linked web page is a clickable link

to data on each CME, including a movie you can download.

◆ What's the difference? *Electronic Design magazine* has posted a couple of resources explaining the [difference between bit rate and baud](#), which is a good thing to know these days. And how about [watts versus volt-amperes?](#) That's online, too!

◆ Early personal computers will remember *CP/M*, a competitor to the early *DOS* systems, developed by [Gary Kildall](#) and his company, Digital Research. Gary first popularized the terms BIOS (Basic Input-Output System) which is still in use today and BDOS (Basic Disk Operating System). Your editor recalls using

the *CP/M* program *PIP* to manipulate files, back in the day. Kildall is slated to receive an IEEE Milestone Award for his contributions.

◆ In our "Make Something!" department, here are a pair of useful projects just in time for Field Day. *EDN magazine* describes making ["Great-sounding Bucket Speakers in an Afternoon"](#) and *Instructables* delivered the highly useful ["Cordless Tool Battery to USB Charger"](#) project.

◆ Stan K2STN contributed a link to this [article](#) on maintaining steel structures that are exposed to the weather. That would cover most of our towers, wouldn't it? Spring and summer are seasons for tower work and preventative

Explore the World with Amateur Radio!

maintenance so this is worth reviewing. A related topic is cathodic protection which is important in certain types of soils and environments. Gene AD3F discovered a PE (Professional Engineer) continuing education course on the subject that you can take for free, although the certification exam requires a fee. [Register](#) as a user and search for course E181.

◆ Stainless steel galling seems to generate a lot of discussion during the antenna work season. Galling occurs when the surfaces of the threads break down under load, often freezing a bolt and nut together and requiring complete replacement of the entire fastener. Mike NF4L suggests that "A swipe of a *PipeTite* crayon on the threads assures it will come apart." Others recommend [Nev-er-Seez](#) which comes in several grades. Several expressed a cau-

tion that if you are in a salt-spray environment, be sure your compounds are specifically formulated for use in marine environments or you may do more harm than good. (Thanks also, Patrick NJ5G and Jon W4ABC)

◆ [Tom W3FRG](#) responds to requests for Yaesu rotator connectors, "I have replacement OEM cable connectors for Yaesu Antenna Rotors & Controllers. Yaesu models:G-450A, 650A, 800A, SA, DXA, 1000A, SA, DXA, 2800DXA, 5500 and many more. Available are the small rectangular ELP & R-06V, 6-pin connector for the controller and the round metal 7-pin connectors, NJC-207-PF, -RM & -Adm, and the 6-pin, NCS-256-P, cable/rotor. For both the cable and units. Mating connectors are also available for making cable extensions. I also have connectors available for

use with many of the Transceiver Antenna Auto Tune functions on the TS-50S, TS-480, TS-570, TS-590S, TS-850S ACC4, TS-990S, TS-2000, TurboTuner, LDG K-OTT and many, many more."

◆ Dave W6NL and Hardy N7RT have discovered a line of insulating tubing clamps from Stauff for boom-to-element mounting. You can get the clamps in tubing or pipe sizes and they are relatively inexpensive. [Technical Specialties](#) carries them in small lots - check out the Stauff and Stauff Hi-Clean catalogs.

Technical Web Site of the Week - If you are learning electronics, the tutorials at [EEV Blog](#) are fun to watch, "presented in Dave's unique non-scripted overly enthusiastic style!" Learning might as well be fun, right? (Thanks, Kirk K4RO)

More Technical Topics and Information

(ARRL Contest Update—June 4, 2014) This is a good time to review your Field Day emergency power safety plans. If you use a generator, be sure to follow the manufacturer's instructions about grounding and load protection. It's too easy to get in a hurry or settle for "that oughta work" which could lead to shock hazards. Don't forget to secure the power cords mechanically to prevent accidental trips - especially at night! References like the ARRL's [Emergency Power for Radio Communication](#) are a good source of information.

◆ On a related subject, some inverter-type generators can also generate RF noise or "hash" strong enough to disrupt HF operation. As with safety plans, now would be a good time to run a few tests to see if that is the case for your Field Day power plant. If noise is present, ferrite chokes can help. Wind all three conductors of the power cord through type 31 or type 43 ferrite toroids or split cores just like a choke balun for

coaxial cable. Jim K9YC describes suitable chokes in his [Choke Cookbook](#) which is part of his excellent RFI tutorial.

◆ Restoration and repair of vintage gear has for years relied on the Vishay/Sprague "Orange Drop" film capacitors to replace leaky paper and electrolytic parts. Due to changing markets, the "Orange Drop" line is now obsolete. Panasonic and Cornell-Dubilier both make capacitors that are close replacements in value and size. Size is important due to power dissipation ratings. Similar concerns about power resistor dissipation require attention there, too. If you need to use carbon composition resistors, new parts are being manufactured by Kayama and stocked by distributors such as Mouser Electronics. (Thanks, Tom WØEAJ)

◆ *EDN magazine* recently ran a couple of good articles about workbench practices. The first discusses [troubleshooting EMI](#) on the bench without a screen room full of expensive equipment. A bit

of repair and modification wizardry shows how to [isolate an IC's lead](#) from its pad when a design changes.

◆ Interesting phenomena in the lower ionosphere and upper troposphere have gotten a lot of attention as study of climate and weather intensifies. Some might benefit radio amateurs! For example, the [plasma irregularities](#) known as "sprites," seen in the vicinity of thunderstorms and being ionized, might possibly reflect radio signals. This sort of propagation could be masquerading as sporadic E or meteor scatter but at a lower altitude. Careful observation of echoes and "pings" might be a worthwhile endeavor for our VHF operators. (Thanks, Bob Dehoney and others)

◆ Speaking of thunderstorms, New Mexico is notorious for lightning and radio astronomer, Paul NA5N relays information on lightning detection. "In our stormy season, employees are supposed to carry a lightning detector before climbing into the

VLA (Very Large Array) antennas. Lightning storms can sneak up on you pretty fast at times. The two models we use are the "Strike Alert" (about \$65) and one from Acu-Rite Weather (about \$35). They seem to perform about the same in spite of the price difference. They are small, about the size of a pocket pager. The units basically gives one, two or three beeps to alert of approaching lightning and how close (3 beeps usually when within 8 miles or so). For a build-it-yourself, I recommend this [Techlib circuit](#) which allows you to adjust the sensitivity, which is useful if you're cloaked by nearby mountains or your shack is down in the basement or something. You can also add an external antenna (a few feet of hookup wire)." If you don't want to carry a standalone

unit, Doug KØDXV notes that "Android and iPhone app WeatherBug has a sub-app called Spark, which is an excellent lightning strike tracker. It uses a detailed, zoomable map and reports to tenths of a mile.

◆ [Up the Tower](#) author, Steve K7LXC, responded to a question about how to lift a tower section with a mast and rotator already installed. "In my experience the problem is more a matter of trying to do too many things at once. The consequence is that complications arise that require lowering, re-rigging, and starting again. In the case of the section-mast-rotator, if you pick the section and mast together, you'll have to place the pick point high enough so that the load won't tip over which means that once the section is in, you'll have to climb up the mast to dis-

connect the haul rope - a maneuver very few people can accomplish. The LXC Law of Lifts is that each lift should be broken down into bite-sized chunks so that you're not trying to do two or more things at once." Be safe - keep it simple.

◆ Keeping with the theme of outdoor installations, we tend to use plastic pipe and conduit for lots of uses. How will it hold up out there? John G3JVC/GM3JVC relays a handy online source of [weathering data](#) on plastic pipe.

Technical Web Site of the Week - There's nothing like free tools and *EDN* satisfies once again with a listing of [Top Free Do-It-Yourself Software Tools Every Electrical Engineer Needs](#). Calculators, simulators, and more!

MARC Vital Statistics

Memberships Expiring in June

N8KRL
WA8KJR

Memberships Expiring in July

None

Memberships Expiring in August

KC0CJC
N8NGT

Current Active Club Membership 39

Birthdays Celebrated in June/July

W8LSS 6/2	N8POX 6/25	KG8YG 7/6	WB8RCR 7/21
K8RI 6/16	KC8URV 6/28	K8RRB 7/8	N8LMS 7/27
KB8VSS 6/21	WD8ODG 6/30	KA8ORL 7/11	WA8JGQ 7/28
KD8IWG 6/23	KD8MMH 6/30	N8NGT 7/14	W8OKN 7/30
K8HP 6/24	KB8RCR 7/2	KD8DWX 7/21	

Anniversaries Celebrated in June/July

N8CGP and N8KRL 6/5	N8STF and Mary 6/16	KD8WZG and Mayumi 6/27	KC8RTU and Brenda 7/20
N8KFE and Cheryl 06/12	N8POX and Kris 06/17	KB8PGV and Connie 6/27	W8AWS and Delores 7/20
KB8VSU and Barbara 06/13	W8LSS and WD8AXR 6/19	K8CCE and Clarice 06/28	KD8MQX and Emily 7/20
W8SEX and Myrna 6/13	N8UPP and KC8AVI 06/21	KD8HID and ??? 06/28	
WA8LQD and Kathy 6/16	NX8A and Kristina 6/24	AA8EJ and Beverly 06/28	

Information is from data received 5/7/2014

Any corrections or questions contact John, W8QN

Amateur Radio. . . We Do That!



Pat Mullet
Newsletter Editor
171 E. Orchard Ave.
Shepherd, MI 48883

If you desire to join the Midland Amateur Radio Club, the dues are \$20 per year for an individual membership. A family membership is available for an additional \$5 per year which covers all of the individual's family members. Family members must reside at the same address as the primary member to be eligible for the family member rate. The membership dues help to cover the operating expenses of the Club, and its radio systems. Membership includes Autopatch privileges on the W8KEA repeater (147.000+), voting privileges at MARC meetings, and a monthly newsletter. Please supply the following information:

Name: _____ Callsign: _____ License Class _____
Address _____
City _____ State _____ Zip _____
Home Phone (____) _____ Work Phone (____) _____
E-mail address _____
Spouse: _____ Callsign: _____ License Class _____
Birthday: (mm/dd) _____ Anniversary: (mm/dd) _____
Desired newsletter format: Paper copy via USPS _____ or via e-mail _____

Are you an ARRL Member? Y/N Do you want an ARES Application? Y/N

We request this information so we can communicate with you regarding MARC business, and periodically send you newsletters and congratulatory birthday & anniversary greetings. We do not sell this information nor will we knowingly publicize private information without your permission. Information that is publicly available may be distributed to Club members for various purposes, including membership lists, without prior notification.

You may give this completed form to the MARC treasurer, or you may mail it to:

MARC, PO Box 1049, Midland, MI 48641-1049