CQ CHATTER

JUNE 2017 VOLUME B17 • ISSUE 4

WOOD COUNTY AMATEUR RADIO CLUB

President	N1RB	Bob Boughton
Vice President	KD8VWU	Doug Perez
Secretary	WB8NQW	Bob Willman
Treasurer	KD8NJW	Jim Barnhouse
Board Member	KE8CVA	Terry Halliwill

http://wcarc.bgsu.edu

Field Day Plans

Field Day this year is scheduled for the weekend of Sat/Sun, June 24-25. As we have done for the past several years, the WCARC has plans to use the facilities of the Wood County Historical Museum on County Home Rd. The operation will begin at noon on Saturday with the traditional raising of the loop antenna.

The evening meal will be a cook out with potluck for side dishes (see Field Day Food Plans following). If you can help with food, contact: Craig-NM8W (magrum21@gmail.com) or Bob-WB8NQW (blcksmth@wcnet.org) If you have equipment or an antenna that you would like to contribute to the effort please contact: Bob-N1RB (boughton@bgsu.edu).

Field Day is a great opportunity for hams who have recently received their licenses to get some tips and experience in erecting antennas, setting up a station, and operating under very busy conditions.

It is a worthwhile experience if only for these activities, but it also gives us all a chance to meet our fellow hams in person. ■

Food Plans for Field Day

Craig (NM8W) and Bob (WB8NQW) propose the following plans for dining at Field Day 2017. We will have 2 coolers with ice and bottled water available throughout the weekend. Those who prefer other drinks can bring them and put them in the coolers.

A Saturday potluck at 6:00 PM. Sloppy Joes and hot dogs with all the trimmings will be provided. Members should bring a dish to pass. We have plates, cups, napkins and utensils left from last year.

We are planning a pancake and sausage breakfast with orange juice on Sunday morning. We would like to know how many will be there for breakfast. Please let Craig or Bob know if you plan to join us for breakfast.

We also have it on reliable authority that there may be an assortment of cookies available for your enjoyment. ■

Net Check Ins

May 9 Traffic: 0

KD8VWU (NCS)
KA8VNG
N8PYA
KD8RNO
KD8NJW
N8VNT
K8BBK
W8PSK
KG8FH
WD8JWJ
KE8CVA
KC8EKT
WB8NQW
N8YAE (14)

May 16 Traffic: 0

N1RB (NCS)
KD8NJW
KD8RNO
N8VNT
KD8VWU
KG8FH
KC8EKT
WB8NQW
WD8LEI/M
KE8CVA
W8KJR
KA8VNG
W8PSK
K8JU
WD8JWJ
K8BBK/REM
KE8CUZ
WD8ICP
N8YAE (19)

Brain Teasers

1. Which of the following is a form of amplitude modulation?

a.) spread spectrum

b.) packet radio

c.) single sideband

d.) phase shift keying

2. What is the approximate SWR value above which the protection circuits in most solid state transmitters begin to reduce transmitter power?

a.) 2:1

b.) 1:2

c.) 6:1

d.) 10:1

3. How much power is being used in a circuit when the applied voltage is 12 VDC and the current is 2.5 A?

a.) 4.8 W

b.) 30 W

c.) 14.5 W

d.) 0.208 W

June Contests

The contest lineup for the month of June is given below. Please note that the WARC bands (60, 30, 17 and 12 m) are never open to contesting.

Jun 3-4	*0000 to 2359 Z*	10 m
10-10 Int'l PSK 'test		**PSK**
Jun 3-4	*1600 to 0400 Z*	160 m to 10 m
Alabama QSO Party		**all modes**
Jun 10-11	*1200 to 1200 Z*	80 m to 10 m
Portugal Day 'test		**all modes**
Jun 10-12	*1800 to 0259 Z*	6 m and up
ARRL VHF 'test		**all modes**
Jun 17-18	*0000 to 2359 Z*	160 m to 10 m
All Asian DX 'test		**CW**
Jun 17-18	*1600 to 0200 Z*	80 m to 10 m
West Virginia QSO Party		**all modes**
Jun 18	*1800 to 2359 Z*	80 m to 10 m
Kid's Day 'test		**Phone**
Jun 24-25	*1200 to 1200 Z*	160 m to 10 m
King of Spain 'test		**phone**
Jun 24-25	*1800 to 2100 Z*	160 m to 10 m
ARRL Field Day		**all modes**

June Hamfests

June 3 Fulton County ARC. Annual Hamfest. Tedrow Family Woodlot Park, Wauseon, OH. **web:** http://k8bxq.org/hamfest

June 18 Monroe County RCA. Annual Hamfest. Monroe County Fairgrounds, Monroe, MI. **web:** http://www.mcrca.org

Sherlock Investigates Radio Failures

by Paul Signorelli, W0RW

If you don't ask yourself, "why do things fail?" You are missing the most exciting part of your electronic hobby. When you have a piece of equipment that fails, do you just throw it away? Analysis of the failed item can be the most interesting part of your electronic experience. It can lead to new designs or modifications to improve your equipment. Most of our current electronic equipment is designed to be replaced at the Subassembly or Printed Wiring Board Assembly level, but that doesn't prevent you from trying to find the root cause of a failure at the piece part level. Sometimes your investigation will lead to a simpler repair action that will save the subassembly or unit.

Design and construction of Electronic Components can be studied on Wikipedia at: http://en.wikipedia.org/wiki/Electronic_component. It has a large data base on how these components work.

Sherlock's Science of Deduction:

It is keen to apply the precepts of advanced detective procedures in these matters:

"It is a capital mistake to theorize before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts." (A Scandal in Bohemia.)

"When you have eliminated the impossible, whatever remains, however improbable, must be the truth." S.H. (The Sign of Four, Ch. 6.)

"The world is full of obvious things which nobody by any chance ever observes," S.H.

Statement of the Cases:

I have left out all the flummery and verbose descriptions that Dr. Watson would have added if he were recording these stories, so you will have imagine your own settings, However some of these stories did begin "On a Dark and Stormy Night." "Many of these singular happenings have never before until now been fully dealt with in any public print," S.H.

The Episode of the 'Black Widow' Transistor:

One of the most devious failures ever encountered involved the 'Black Widow' transistor in a push pull switching power supply. Female Black Widows have been known to eat their mates. The male spiders still have not figured this out yet.

This failure occurred on a TO39 power transistor (2N3553) that had a big copper slug inside the case that was crimped in place. The case had three dimples on the side of the case that grabbed the internal copper header. In this singular case one transistor in the circuit burned up and shorted, it looked like secondary avalanche breakdown, collector to emitter short. There was significant melting of the die. The transistor was replaced and after a few temperature cycles the newly installed transistor failed

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WCARC Weekly Net

Tuesdays at 2100 all year

147.18 MHz 67 Hz PL

Net Control Roster

Jun 6	*K8OVO*
Jun 13	*WB8NQW*
Jun 20	*N1RB*
Jun 27	*KD8VWU*
Jul 4	*KD8NJW*
Jul 11	*NM8W*

NEXT MEETING

Business Meeting

Monday, Jun 12th

TIME: 7:30pm/7:00

PLACE:

Sheriff's Training Rm

E. Gypsy Lane &

Dunbridge Rd

Bowling Green, OH

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again in the same spot. Ahaa! - The spider got another one.

The root cause of the failure was traced to the 'good' transistor in the push pull pair. It was opening up and latching the other one 'on'. The crimp on the header can was the only electrical connection to the collector and when it opened up the other transistor was turned 'on' with full DC current that just melted it. So remember in any push pull circuit failure the 'good' part might really be the 'bad' part, however improbable it may seem.

The Midnight Flight of Denny Dendrite:

It was a dark and stormy night, really, when the intrepid Denny Dendrite

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Fusion (C4FM) Net

meets Thursday

@1930

on 442.125+

DON'T FORGET!

10 meter Net meets

Sunday@ 2030

on 28.335 MHz

Net Check Ins

May 23 Traffic: 0

KD8NJW (NCS)
K8JU
W8PSK
KD8RNO
NM8W
WD8LEI
KA8VNG
WB8NQW
KE8CVA
N1RB
KD8VWU (11)

May 30 Traffic: 0

NM8W (NCS)
N8VNT
KD8RNO
N8YAE
WD8JWJ
K8OVO
KC8EKT
WD8LEI
KD8VWU
W8PSK
WB8NQW
KE8CVA
KG8FH
KA8VNG
K8JU (15)

Brain Teaser answers: (T) 1-c, 2-a, 3-b

Another Hamvention is in the Books

by the editor

The XYL and I have attended the Dayton Hamvention many times over the past 30-some years. The familiar environs of Hara arena on the northwest side of Dayton, the maze of rooms, and the slightly moldy smell of the ancient hockey arena, all contributed a uniqueness to the event. At Hara, the commercial vendors were distributed over five separate rooms, but the constancy of location for almost all the main amateur manufacturers was something one could rely on. You knew where the ticket barrel was located in the main arena---you knew exactly where the ICOM, Kenwood and Yaesu pavilions were (the latter knowledge was especially important because of the free Yaesu hats that were doled out like popcorn). The flea market was arranged to fill the entire parking lot of the arena.

After a few years of attending the Hamvention, one easily developed a strategy. If you desired a particular piece of old gear or rare part, it was always a good idea to get there early on opening day before somebody else snapped up that item. The food fare was typical arena food---burgers, dogs, nachos. Outdoor vendors seemed to specialize in brats and other sausage varieties. It was always a tiring but fulfilling experience to attend the Dayton Hamvention.

Fast forward to 2017. After learning that 2016 was the last year for Hara Arena, the Hamvention sponsors (DARA) had to scramble to find a place that could accommodate 30,000 plus attendees. The Fairgrounds in neighboring Greene County were chosen as the new venue. The layout consists of four main display buildings, appropriately named for Maxim, Tesla, Marconi and Hertz. There also was a display tent, three smaller forum rooms with air conditioning, and, in the infield of the race track and surrounding parking areas, the flea market stands. Parking was allocated to on-site grass lots plus three satellite locations.

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Because we usually were “late” risers in recent years, Linda and I normally parked at the remote mall lot and were bused in to Hara (cost was $8 per person for a bus pass). This year, I decided to try the Xenia High School lot, which is paved and is really only about 5 to 10 minutes away from the Fairgrounds. There was a continuous stream of school buses shuttling people to and from the Hamvention.

As we moved through the main buildings, it was a fresh experience to learn where the ticket barrel/prize booth was and where the ARRL pavilion was. ICOM, Kenwood, and Yaesu all more or less occupied the same amount of space as before (yes, we both were able to pick up a new Yaesu hat). MFJ had a booming business in their corner of the Maxim building. In a word, I would say that navigating the major buildings was much more straight forward than at Hara.

Around noon, we met up with quite a few fellow WCARC members for a stand-up lunch: WB8NQW, KE8CVA, W8PSK, NM8W, KD8NJZ, K8JTK, and N8ETP. One improvement over the Hara venue was the wide variety and abundance of food vendors. There was everything that you would expect to find at a county fair---and the barbecued pulled pork sandwich that I consumed was delicious. One drawback was the lack of ample seating. The Hara cafeteria was able to accommodate over a hundred eaters at a time. This year however, being outdoors, there were not enough picnic tables to seat everybody at lunch time.

The only damper on the event was that Xenia received a great deal of rain over the weekend. This meant that the grass parking lots and the grass race track infield became mud soup by the

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electronic sleuth made his way carrying a dendrite to a secret laboratory in Washington D.C. for analysis. Arriving at 3am, after a transcontinental flight in the winter, a dozen government investigators stood ready at their SEM and Auger equipment’s. The defect had just been confirmed on an integrated circuit that had used leaded (Pb) glass sealing material. The surface of the sealing glass had provided a platform for pure lead dendrites to grow from one IC lead to another under high impedance electrification. These are easily visible using a microscope. Indeed, many youtube videos show the growth progress. These types of failures are frequently induced by taking a unit from a dry, cold environment into a warm humid environment causing the unit to go through the dew point. When that happens, water condenses out of the air and can cause dendrites. There is usually enough carbon dioxide (CO_2) in the air or acidic residue on a circuit board to start a dendrite growing. So do not apply power to a unit that has gone through or is going through the dew point until it is completely dry. Remove any memory battery back-up battery or it will cause new dendrites.

The use of ‘Freeze Mist’ for trouble shooting is highly discouraged because

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time Saturday afternoon came around. I literally had to hose off my shoes, socks and bottom of my pants when we got home. I did not observe anybody whose vehicle got stuck in the parking lots, but there certainly were an ample number of folks around to assist in case of any difficulty, and as it turned out, the tractors used to haul people around were a nice touch.

My overall assessment of this year's Hamvention is that it was a good experience with ample opportunity to purchase just about anything you might need or want for your station (including the $15,000 automatic extendable tower). The effects of the rain were not good, and definitely restricted my foray into the flea market. All in all, I think it was well worthwhile, and congratulate the organizers for coming up with a serviceable new venue in a short period of time. I am sure they have learned from this first year's experience and will work hard to improve on the deficiencies for next year's event. My advice for anyone who was reticent to attend this year is to come next year--you'll have a good time. ■

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this causes frost to build up on the components and they all get wet as they come back through the dew point. Obviously it can cause dendrites that will mask the clue being investigated. Elementary isn't it? If you must lower the temperature of a part, use an ice cube in a plastic bag.

The Intermittent Green Radio:

This radio performed perfectly for many years, but it was infrequently used. After field testing in hot weather, the unit would fail after a few hours of operation. The radio has many internal protection circuits so it just shut down and no internal damage was found. The radio would work fine the next day.

Trouble shooting began at the power supply circuit and using a heat gun, the unit could be made to fail quickly when it was hot. Switching to a soldering iron to gently heat the components, the failure was isolated to a Tantalum Capacitor. The capacitor was physically reversed in its circuit and after replacement there was no more intermittent high temperature failure. The part had simply been placed in the unit with reversed polarity. Tantalum capacitors typically can operate for many hours in the reversed direction, but will eventually short out. The printed circuit board did not have any polarity markings on it and it escaped visual inspections. This expensive radio was repaired for the cost of a two dollar part.

Another similar failure occurred in a similar radio that was caused by an over-heating TO-220 Transistor. The transistor was mounted with small insulated plastic bushing to keep the mounting screw from shorting to the chassis. During assembly the bushing/washer became smashed under the transistor body and this prevented the TO-220 transistor from fully seating on its heat sink. The transistor was not able to dissipate the heat on its case and that caused the radio power supply to shut down. Reseating the transistor flush onto the heat sink fixed the unit.

for more of the story, visit eham.net ■

MONROE HAMFEST

and Computer Show

Father's Day - June 18, 2017

7:30am to 1:00pm - Set-up 6:30am Presented by:
The Monroe County Radio Communications Association

Monroe County Fairgrounds

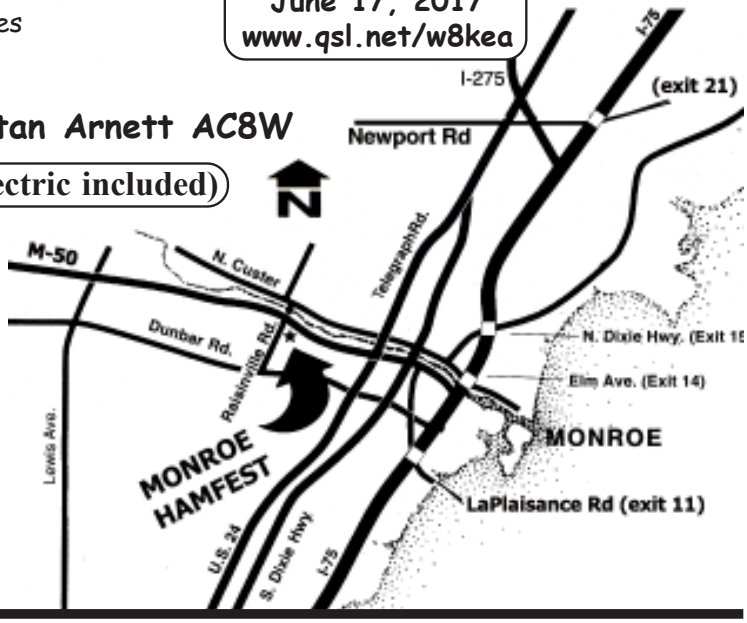
M-50 at Raisinville Rd. (2 Miles west of Monroe)
FREE PARKING
Indoor Facilities / Trunk Sales
Computers and Equipment
Distributors / Hot Food

QSL Card checking by Stan Arnett AC8W

Over Night Camping $25 (electric included)

Midland Swap
Midland, MI
Saturday
June 17, 2017
www.qsl.net/w8kea

Talk-in
146.72/12



Tables indoor 8': $15 each, does not include admission ticket. Electric available in all buildings, bring cords.

Trunk 10' Spaces: $10 each, does not include admission ticket.

Tickets Advance $6 each, come with 2 stubs for drawings.

Ticket, Trunk Sales, & Table Reservations online at: http://www.mcrca.org

Mail to: Fred VanDaele KA8EBI, 4 Carl Drive, Monroe, MI 48162, ka8ebi@yahoo.com

Name_____**Call**_____**e-mail**_____

Address_____**City**_____**State**_____**Zip**_____

No. Tickets____**No. Trunk Spaces**_____**No. of Tables**_____**Amount Enclosed**_____

Advance Tickets $6ea. with 2 stubs / 10 ft Trunk Spaces $10 ea. / 8 ft Tables $15 ea.

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