



**JOHNSON COUNTY RADIO  
AMATEURS CLUB, INC.**  
P.O. Box 93  
Shawnee Mission, KS 66201

# FEEDBACK

**NOVEMBER 2021**

## Club Members Gather for Ensor Auction

In a sign that the world might be returning to something that someday might approach normalcy, members of the JCRAC and friends of the hobby gathered at the Ensor Farm Site Museum and Park its second October club meeting and, the following morning, for the club's annual auction of radio gear, electronic doo-dads and essential curiosities.

Auction proceeds benefit both the Olathe city park and the JCRAC. Auction results were not available at deadline.

November's single club meeting features a video on "Grounding and Bonding" from Ward Silver, NØAX, presented the JCRAC's own grounding and bonding expert, Bill Brinker, WAØCBW.

Silver, of St. Charles, Missouri, writes on a variety of radio topics from, among other pulpits, his

vantage point as a contributing editor to the ARRL's QST magazine. The enthusiastic ham is quoted as having observed that:

*Amateur Radio is the most powerful form of communication available to the private citizen on the face of the planet. At it's simplest, hams communicate with complete independence. At its most sophisticated, hams exchange data with complete reliability under extraordinary conditions. Thousands around the world compete in global radiosporting events. Hams expand technical frontiers yet respond quickly and effectively in emergencies. And by simply listening with basic amateur equipment, a human being can listen to the world turning as it travels in its yearly journey around the Sun.*

## NOVEMBER MEETING

**November 12 – Grounding and Bonding**  
– Ward Silver, NØAX, presented by Bill Brinker, WAØCBW

**November 26 - No Meeting - Happy Thanksgiving**

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## **-> FEEDBACK <-**

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Johnson County Radio Amateur Club, Inc.*

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*Photography by Charlie Van Way, NØCVW*

## **PRESIDENT'S CORNER**

The turnout for the Ensor auction was great! It was good to see everyone in person for a change.



I do hope you were a successful bidder on that item you just had to have.

We must thank all that helped with the auction. Dave the auctioneer provided all the equipment

and his time for the auction. Diana (KDØOBP), Herb (NZØF), Ted (NØTEK), Cal (KCØCL) and John (WØBBQ) for stepping up to assist with clerking and handling the check ins. Thanks to everyone who donated items for the auction. Please do not forget Vince KEØCGR) for all his time and work for the raffle again this year.

There is only one meeting in November. Please join us on Friday November 12. We will have some information on our Christmas party for 2021.

Thanks to all members that volunteered as guides at Ensor. Your name is in the hat for the gift certificate. The drawing will be at our November meeting. Also thanks to Ted for his work scheduling volunteers.

I hope everyone has a safe and Happy Thanksgiving.

**– Bill Gery – KA2FNK**

## ***Johnson County Radio Amateurs Club - October 8, 2021***

Meeting Date: Friday October 8, 2021. The meeting Started at 7:00 PM.

Attendance: Due to COVID-19 restrictions, this Meeting took place online using Zoom Video Conferencing. 35 were present.

The Minutes from the September 24, 2021 meeting were read and accepted unanimously.

The Treasurer's report was read and accepted unanimously.

### Old Business:

- We welcomed all 1st time visitors to the meeting.
- Repeater Update – Bill Brinker, WA0CBW reported the 443.725 Repeater at Black & Veatch experienced a power Failure. The outlet supplying power was faulty and was fixed by Black & Veatch.
- The Ensor Auction is on for Saturday, 10/23/21. Donations and consignments are being accepted.
- October will be the JCRAC's turn to provide Volunteers to the Ensor Museum, we are looking for signups.

### New Business:

- WW1USA Special Event November 13<sup>th</sup>. This will be done Remotely.

### Reports:

- 6 m – NR.
- 10 m SSB Roundtable – 4 participated on October 7 and 3 participated on September 30.
- 40m SSB Roundtable – 2 participated on October 6 and 3 participated on September 29.
- Fusion Digital 440 net – 9 Check-ins on October 6 and 13 for Check-ins on September 29.
- 2m Wheat Shocker net – 15 Check-ins on October 7 and 8 Check-ins on September 30.
- HF Activity – Gibraltar 15m. Antarctica. São Tomé and Príncipe Island off the coast of Africa.

### Announcements:

- Skywarn Recognition Day first weekend in December.
- JCRAC POTA October 9. See Kevin van der Does, AD0IM
- Santa Fe Trail Amateur Radio Club Lone Elm Park POTA Party October 9.
- Garmin Olathe Marathon November 6<sup>th</sup>. See Herb Fiddick, NZ0F..
- See Larry's List for upcoming Events.

Business meeting adjourned at 7:47 PM.

### Program:

The Program was a presentation on the Morserino-32 by Charlie Van Way, N0CVW.

## ***Johnson County Radio Amateurs Club - October 22, 2021***

Meeting Date: Friday October 22, 2021.

Due to the Club's annual Auction, no official meeting took place. We did gather around the campfire at the Ensor Park and Museum.

## A Hambone Story - Jaimie Charlton, ADØAB

### Hambone Cooks

“Hi Unck,” said Hambone as he approached his uncle Elmer working on something in his back yard. “Watcha doin?”

It was a crisp, sunny Fall Day, ideal for working on outdoor antennas and that’s exactly what Elmer was doing. Upon observing Elmer, an uninitiated person might think that he was hanging bricks in trees, maybe as some sort of pagan Fall ritual. But that person would be wrong.

“Hi Hambone,” greeted Elmer. “I’m just checking and repairing the counterweights that support my wire antennas.”

“That’s nice, Unck. But why don’t you just attach the antenna wires directly to the trees? Wouldn’t that be easier?”

“It would be easier, but when the trees sway in the wind they would stretch the wire and it would snap.

What I’m doing is running each wire through a pulley up in the tree and down to a counterweight. Now, as the wind blows the tree branches, the counterweight moves up and down keeping the wire taut without breaking.”

“That’s nice, Unck,” said Hambone ending the small talk and getting down to the real reason for his visit, “But I need your help.”

“I need your help, too,” replied Elmer. “What’s your problem. Maybe we can make a deal.”

“My transceiver won’t transmit,” said Hambone holding up a small black mobile rig.



“That’s not good. I have a pulley that won’t turn. You see that pulley up in this tree?” asked Elmer

pointing to a small shiny thing up among the branches. “The tree has grown around it and now it won’t rotate. I need some young, strong, handsome guy, like you, to climb the tree and replace that pulley with this new one,” said Elmer holding out a brand new shiny thing.

“I can do that,” said Hambone placing his transceiver on the ground, stuffing the new pulley in his pocket and heading toward the tree.

“Great! Just mount the new pulley near the old one and run the rope that’s already up there through it. When that’s done, come down and tie the brick to the end of the rope. I’ll be in the shack having a look at your transceiver,” shouted Elmer to the boy who was already half-way up the tree.

Elmer picked up the transceiver and headed for his shack. He had just finished removing the case and connecting a 13.8-volt power supply and a dummy load with a wattmeter when Hambone entered.

“All done, Unck. It was no problem at all. The tree really had swallowed up the old pulley.

So, why doesn’t my rig transmit?”

“I’ve just turned it on and am checking a few things. It looks like the receiver’s fine.”

“Yeah, Unck, it receives good. It’s the sending that’s the problem.”

Elmer made a few more measurements with his meters and oscilloscope murmuring to himself much like a doctor with his stethoscope. Finally, Elmer looks up and after a suitable dramatic pause, announces his diagnosis.

“It looks like you fried the final output transistor. There’s drive to it, but almost no output, just leak through.”

Elmer shut off the power supply and removed the transistor. Using his ohmmeter, he measured the resistance between the transistor’s terminals.

“Yup. This transistor is burned out. Look, there’s low resistance between the source, drain and gate. Somehow, you’ve managed to convert a MOSFET into a forty-dollar resistor.”

“Geeze Unck, that sounds bad. What’s a MOSFET?”

“A MOSFET is a metal oxide semiconductor field effect transistor. The voltage on the gate terminal more or less determines the resistance between the drain and the source terminals. It works differently from a regular junction transistor in which the *base current* determines the *collector current*.”

“Oh. What do you think could have caused that to happen?”

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“Well, maybe you’ve got some voltage regulation problems in your car. Most of the time, a car’s electrical system voltage is around 12-14 volts. But sometimes when you first start the engine, you can get a voltage spike that’s much higher.

Another possibility is that there is a loose connection to your antenna. Most radios will not tolerate operating at full power without an antenna or even into a high SWR.”

“Those are good ideas, Unck, but I don’t think either is the cause.”

“Why?”

“This is not my car transceiver, it’s from my go-box.”

“But it looks like your mobile rig,” replied an astonished Elmer.

“Yes, I have two of these. This one fits nicely in a carrying case with a battery, an AC power supply/charger and tuner. I have a long wire antenna with a counterpoise that stores neatly in the lid.”

“That’s a cat of a different color,” replied Elmer. “We’d better have a look at that go-box before we pronounce everything fixed.

I’ll replace this transistor while you go and get your box.”

“Aw Unck, it’s way over at my house. How could the box be a problem, anyway?”

“Just get it,” ordered Elmer as he started to prepare a new transistor for installation.

Sensing that resistance would be futile. Hambone left. When he returned, Elmer had finished the transistor replacement and was just concluding a QSO on forty meters

with the little transceiver putting out its full fifty watts.

“There it is, good as new. Now show me how this go-box works.”

Hambone slipped the little transceiver snugly into its space in the case right above the power supply. He attached his uncle’s antenna and counter poise to recessed terminals on the back, plugged in the microphone and flipped on the switch. Instantly, the transceiver sprang to life.

“That is pretty slick,” observed Elmer. What happened that caused the transistor to blow?”

“I don’t know,” explained Hambone. “I’ve used this box as a portable battery-operated rig a few times without any problems. But last Saturday, I was net control for a big event. I was set up in a tent with a pretty good antenna. I was using the AC power supply because I was transmitting a lot.

There was a lot of traffic and I was on the air almost constantly. Suddenly, it just stopped transmitting. I was devastated. Luckily, another guy had a spare rig so we could keep going.”

“I think I see the problem,” said Elmer. “This rig simply overheated.”

“How could that happen?” asked Hambone. “It’s got a big heatsink on the back.”

“Yes, and you have killed any heat-sinking ability it might have by cutting off all air flow to it.

The job of a heatsink is to transfer heat from the transistor to the air. To do that, it needs a constant flow of air over its fins. Ideally, the fins should be vertically situated so that as the air warmed by the heatsink

rises, new, cooler air enters at the bottom.

In many cases, this convection air flow is enough, but if it isn’t, the manufacturer adds a fan to force air over the fins. The main point is air must move over the fins.

Although your go-box is beautifully compact, it’s a rig killer. Not only is there no air flow over the rig’s heatsink, you’ve positioned the power supply so it’s heat also rises further heating the rig above it.”

“Yeah, I see,” moaned Hambone. “How can I fix it?”

“I don’t see any easy way because your case is packed solid with stuff. But maybe you could rearrange the items so the rig’s heatsink fins are vertical and clear of any obstructions. Even better, cut a hole in the back have the fins extend slightly outside the case.

You could also get a bigger case and add a fan that sucks air over the fins and blows it out. Oh, and relocate the power supply so its heat doesn’t reach the rig.

Finally, you might have to reduce power to, say, twenty watts or less to further reduce the heat load.”

“But Unck, to add fans and move the pieces around, I’ll need a bigger case and it won’t be so compact and cool.”

“That’s true,” said Elmer. “But don’t feel bad. Many hams neglect heat management when they try to install their equipment in compact spaces like go-boxes or cars. You even see custom-made shack furniture with separate compartments for each piece of equipment. The equipment looks

**see HAMBONE on page 6**



<p><b>from HAMBONE on page 5</b></p> <p>really nice from the front, but it's burning up inside. Most ham equipment is designed to have free air circulation all around it. In fact, there's Charlie's Rule which states that 'cooling equipment is like exotic dancing, always include enough fans'.</p> <p>"Not providing that greatly shortens the equipment's life.</p> <p>"If you really want to keep the small case, you could change your operating style so you remove the</p>	<p>transceiver from the case when you're operating. You could make a little stand so its fins are in free air and vertical. One way or another, you've got to cool your rig or you will continue to fry transistors."</p> <p>As if on cue, Hambone's brother, Dude, pops in, "Hey guys, what's cookin'?"</p> <p>"MOSFETs!" shouts Hambone as he throws the dead transistor at his brother.</p> <p><b>&gt;&gt; JCRAC FEEDBACK &lt;&lt;</b></p>	<p><b>SHOPPING?</b></p> <p>If your shopping happens to take you to Amazon, remember that if you start by clicking</p> <p><a href="http://smile.amazon.com/ch/48-1071476">http://smile.amazon.com/ch/48-1071476</a></p> <p>Amazon gives 1/2% of what you pay to the JCRAC.</p>
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