

OCEC/RACES SIGNALS

For the support of County Government during emergencies



Oswego County Emergency
Communicators/RACES
200 North 2nd Street
Fulton, NY 13069



OFFICERS

Radio Officer John K2QQY
ARO Admin. Tim KC2SKG
ARO Comms Jim N2MGU
ARO Logistics Mark KC2JNI
ARO Ops & Plan Bob WA2AFF
ARO EC ARES Tom W2TQF
Unit Ldr. Packet John N2MKH
Unit Ldr. IT Steve KC2QXE
Unit Ldr. Skywarn Judy KC2SUM

Oswego County Repeaters

147.150 MHz PL not req'd
146.850 MHz PL not req'd
442.350 MHz 103.5 PL

Other repeaters of interest

146.670 MHz PL 151.4 Syracuse
147.345 MHz No PL Phoenix

Packet FlexDigi User Ports

EOC Fulton 145.090 MHz K2QQY
Scriba 145.690 MHz KA2AON
Hannibal 145.770 MHz K1YHR

NETS

OCEC/RACES The 1st and 3rd Sunday
of the month at 2000 Hrs. 147.150 MHz

NYS RACES Net Every Sunday
Morning at 0900 local on 3993.50 kHz

WEB SITES

OCEC/RACES
www.oswegoraces.org

Fulton Amateur Radio Club
www.fultonamateurradioclub.org

Go to our web page for more links to
interesting places.

*A monthly meeting is held in the
lower level of the County Building
on Route 481 North, Fulton,
across from Mimi's restaurant.
Access is through the west door
until the meeting starts. Door is
secured after that. Use the after
hours button if late. Someone will
come up and let you in. Meeting
sign in is at 1850 hours local.*

**Meetings will resume
on January 20, 2010.**

**In the meantime many
thanks to all for their help in
maintaining an alert and
active RACES program.**

**To all, have a very safe and
happy holiday season.**

John K2QQY RO Oswego

UPCOMING EVENTS

A quiet holiday season with
pleasant temperatures and
interesting sights.

The completed "GO BOX" was dispatched to the PMC for the REPP drill held September 22. Ed, KC2SUJ built a furniture quality enclosure for the dual band radio, power supply and the packet radio set up. Even a storage spot in the back. Thank you Ed.



Speaking of the REPP drill, thanks to all that participated. In August the State observed drill was held and we had John, KC2UZT; Mark, WB2PKO; Bob, WA2AFF; Tim, KC2SKG; Dave, WD4EKB; Henry, KC2SUL; Ed, KC2SUJ; John, N2MKH and Judy, KC2SUM doing duty at the EOC, JIC and EOF.



Tim, KC2SKG and John, N2MKH at the digital radio positions.



Tim, KC2SKG operating at the packet bulletin board position.



John, KC2UZT doing net control duties.



John, K2QQY looking at what is coming in on the packet system.



Operations room at the EOC.



SEMO looking over the progress of the scenario.

The August REPP drill was a prelude to the FEMA observed drill September 22, saw the same group of operators that manned the operating positions in August manning positions in September. This time we had operators assigned to the PMC at Parish, which turned out to be a very short operation. The Health Department was able to demonstrate their tasks to the FEMA evaluators and were secured before radio communication was fully established. The radio operators, Dave, WD4EKB and Henry, KC2SUL were reassigned to other locations for the rest of the drill.

Drill practice messages were passed, honing the use of the modified IC-213 form. Glitches and hiccups were discussed afterwards and solutions were suggested. This is proving to be a good format for a message.



Radio Room during drill. Bob, WA2AFF at the VHF/UHF radio, John, N2MKH at the packet station and John talking to the FEMA evaluator.



Radio Room during the drill. John, K2QQY answering questions posed by the FEMA evaluator.



The Operations Room during the drill. All concerned agencies are represented here. All communications of significance are written onto the Oswego version of ICS-213 form so that a record is kept of all transactions. This memo form is working better than the previous form.



Command, where major decisions are made and the progress of the event is monitored. This is where the mountain movers are in case a mountain needs to be moved.

On September 2nd we had the “party on the roof” to try and improve our packet link between Fulton and Scriba. Dave, WD4EKB; John, KC2UZT; Dave, N2P K; Merwin, NB2M and Mark, WB2PKO made the shaky climb up the ladder to the roof where we took down the large 2 meter yagi and erected the UHF yagi in its place. Merwin did the tower climbing and everyone else managed the cables and mechanics. The 2 meter yagi was installed on to a short tripod for use if distance is a factor for communications.

Unhappily, the link did not improve then, but we were convinced that when we finally solved the problem that a strong and stable link would result.

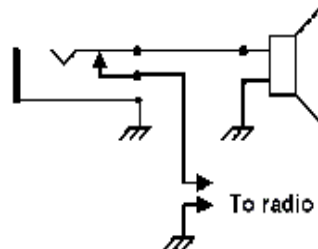
October 13 saw the van on display at the West Monroe Fire Prevention and Safety night exhibition. Bob, WA2AFF; Judy, KC2SUM; Henry, KC2SUL; Tim, KC2SKG; Mark, WB2PKO; and John, K2QQY were on hand to answer questions and hand out literature about RACES and fire safety. Pictures are available on our web site www.oswegoraces.org.

October 31 a few of us met out at Bob’s and Judy’s to see what we needed to do to get our new RTTU-1 (RACES Trailer Tower Unit-1) ready for deployment. Guy lines, stakes, and a mounting bracket for the antennas would be needed. Bob volunteered to make a trailer hitch on the van. Between Ed, KC2SUJ and Bob the van is now sporting a hitch assembly. Nice work. Guy rope has been secured and material for stakes have been obtained. Tim, KC2SKG, Mark, WB2PKO and Dave, WD4EKB all helped even though it was a wet day. Judy’s coffee really hit the spot. Nice work guys. The RTTU-1 is parked with the van at the airport.

Tuesday November 17 John, K2QQY and Slade of Buildings and Grounds were on the roof of the EOC to repair the rotor and antenna. The 2 meter yagi was removed and a dual band yagi installed in its place.

The packet link to Scriba is up and solid. Mark, KC2JNI and John, N2MKH found that the tnc was vad and replaced it. Thanks to them we can now resume packet nets.

The sketch here is how the phone jack was wired in the GO BOX so that when the headphones are plugged in the speaker is silenced. Those that like front facing speakers may want to add a phone jack in the same enclosure so that it makes it easier to use headphones.



And speaking of speakers:

Tech Notes

By Dave Anthony WD4EKB

Brushing up on some of the technical aspects of ham radio

Speakers

Often we will come across a situation where we will want to connect more than one speaker to the output of our radio. We are interested in reproducing good audio. To accomplish this is not just a matter of buying expensive speakers but a matter of correct impedance matching of the speaker to the radio/audio amplifier to produce the best sound possible with what you have and to protect the output of the device driving the speakers.

The audio output of the radio is often designed to drive an 8 ohm speaker (this information is found in the specs for your radio/audio amplifier). This means to obtain the best transfer of power you need to impedance match the speaker(s) to the radio - just as you match the output of your transmitter to the antenna. With one speaker you simply would use a 8 ohm speaker.

With multiple speakers you can calculate the total impedance seen by your radio the same way you calculate total resistance of resistors in series, parallel or series parallel. However it is VITAL to remember you CAN NOT measure the impedance of a speaker with an ohm meter. (Impedance is AC, ohm meter uses DC).

When connecting speakers in series the total impedance will simply be the impedances of all of

the speakers added together. So if you have four 8 ohm speakers connected in series the total impedance will be 32 ohms.

When connecting speakers in parallel the total impedance will be calculated the same way as for resistors: (Impedance is indicated by the letter Z)

$$Z_{\text{total}} = \frac{Z_{\text{speaker 1}} \times Z_{\text{speaker 2}}}{Z_{\text{speaker 1}} + Z_{\text{speaker 2}}}$$

You can see that two 8 ohm speakers connected in parallel will have a Z total of 4 ohms.

If you have more than two speakers connected in parallel you will find the total impedance by dividing into 1 the reciprocal of all of the individual impedances added together. (Reciprocal being one divided by the impedance of the speaker).

An example would be if you have four 8 ohm speakers connected in parallel, you would have: $.125 + .125 + .125 + .125$ added together for the sum of $.5$. This number divided into 1 would be the total impedance of four 8 ohm speakers connected in parallel - 2 ohms.

You can see from the previous discussion that as you add speakers in series impedance increases. Theoretically if you add an infinite number of speakers you would reach a point where the radio would see an open circuit. This would not harm your radio, however you would not have enough power to drive your speakers and they would not work.

If you continue to add speakers in parallel the impedance decreases and theoretically you would reach a point where the radio would see a short circuit. This would probably destroy the output stage of your radios audio amplifier.

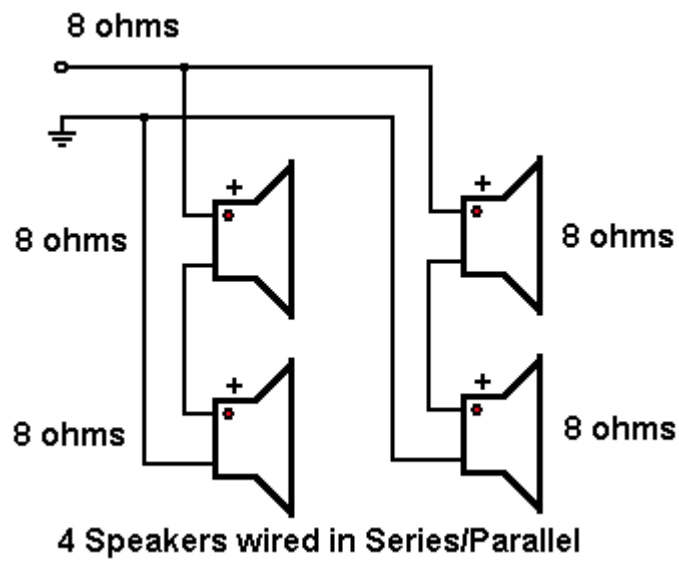
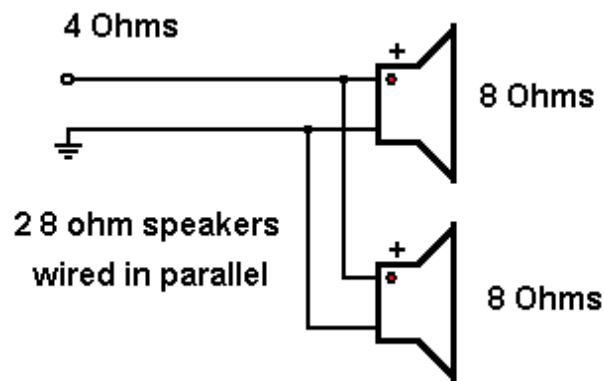
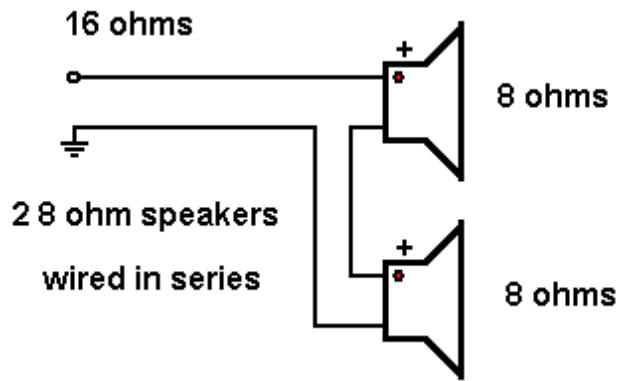
A review of series/parallel resistance circuits will help you configure a number of speakers in such a way as to protect the output of your radio.

An important item of concern when connecting multiple speakers is the polarity of the speakers. This is often indicated on one of the terminals of the enclosure being red, a red dot or a polarity sign (+ or -) on the terminal where the wire is connected directly to the speaker. There should be some kind of marking to indicate the polarity of the speaker.

If there are no markings to indicate the polarity of the speaker a simple way to match speakers is to momentarily touch the terminals with a small battery (this can be a 1.5v or even a 9v battery). When the terminal is touched you will see the cone deflect either in or out, mark the terminal touched by the positive terminal of the battery. Repeat on the other speaker(s), noting the cone deflection in the same direction, in or out, and again mark the terminal touched by the positive terminal of the battery. Remember that the speaker coils resistance to DC is very low and all you need to do is momentarily touch the terminal with the battery to note the direction of deflection. Repeated or long term application of this DC could destroy the speaker coil.

The illustrations below show the proper way to connect speakers in different configurations. If you reverse the connection on any one of the speakers the audio will be out of phase with the other speaker and you will degrade the quality of the audio.

This should satisfy most amateur radio needs concerning additional speakers.



Additional information for Hi Fidelity speaker enclosures. This is not intended to help you design a Hi Fidelity speaker system but to enlighten you as to what you are looking at when you take off the back of a “fancy” speaker enclosure. This is basic and the choices are endless for the design of speaker systems.

A Capacitor has a high impedance to low frequencies (and a low impedance to high frequencies), therefore, if you place a capacitor in series with the wire feeding a speaker you will mostly pass high frequencies - a good choice for a tweeter.

An Inductor has a high impedance to high frequencies (and a low impedance to low frequencies), therefore if you place an inductor in series with the wire feeding a speaker you will mostly pass low frequencies - a good choice for a woofer.

And of course with the proper selection of a capacitor and inductor together placed in series with the speaker you will offer a high impedance to some high and low frequencies - a good choice for a mid range speaker.