The Alabama Historical Radio Society Newsletter

March 2012

NOTE FROM PRESIDENT DEE

Hello again from the desk of Dee. Looks like Spring refuses to come in like a lamb. Hope this is not going to be a repeat of last year.

Birminghamfest is over. Dave and I did our first AHRS Forum for the group, and we had a full house. The room would only hold about 20 people, but we managed to get 21 in to see our show. I was surprised to see well over half remembered the old radio shows. We sold a lot of old *QST* magazines and had some really great displays. Gene brought us his usual early TV display, playing one of John Wayne's "B" grade movies from the 1930's. A good time was had by all.

Well, folks, we are the proud owners of a Raytheon RA-1000 One KW broadcast transmitter. It is huge and weighs in at over 2600 pounds. It first went on the air back in May of 1948 in the town of Sylacauga, Alabama, and was taken down only a couple of months ago. It needs a lot of TLC, so any volunteers?

I looked it up on internet and found this wiki article. We are honorably mentioned a couple of graphs down.

http://en.wikipedia.org/wiki/WYEA

Next month is going to be a very busy month for us. First of all, we have the first annual swap meet and tailgate party where folks from around the country will converge on our spacious parking lot by the shop to sell and trade old radios and related equipment. Doors will open bright and early at 0700 hours CDST. So, get there early for a good parking space. Sellers and traders will set up in our parking lot. All others will use on-street parking. Date for this event is Saturday, April 21, 2012. Please pass the word around.

Also on the agenda will be the 90th anniversary of WSY, the first commercially licensed broadcast radio station in Alabama. We hope to have a display set up in the Alabama Power Co. building on 18th Street between 6th and 7th Ave. North. The display should be up for at least two months, so there is plenty of time to see it. I will keep you posted on the date and times available by email.

That's not all folks. We are trying to schedule our second annual Legends of Broadcast Reunion, where we have many old timers from the broadcast era of the 50's, 60's and 70's. This event will be sometime in April of 2012, but we haven't picked a specific day just yet. We will let you know.

So long for now, I've got to get ready to do a program for some Seniors. Yes, Dave and I are still doing the programs.

Ya'll Come.

Dee Haynes

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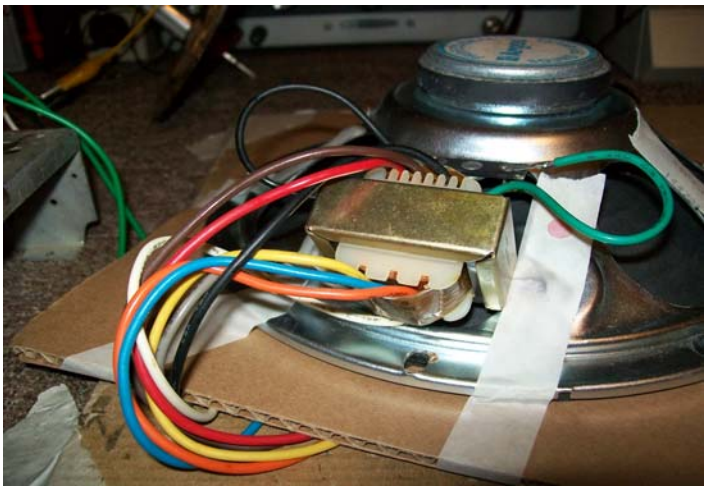
How to check impedance of an Audio Output Transformer

Joe Minor K4JOE

I am working on an Emerson Tube radio model Ed 354. The audio output tube is a 6V6 into an audio transformer to the speaker. The audio transformer and speaker (with a field coil) are bad. I will replace the field coil with appropriate resistors, and compensate with an increase in the electrolytic capacitors in the power supply, if needed. I want to replace the electromagnet speaker with a Permanent Magnet (PM) speaker. I purchased an 8 ohm PM speaker with an audio transformer attached from a local thrift store. The transformer had 8 wires for the input and 2 for the output already attached to the speaker. Which wires do I use for the input?



First I need to know the output impedance of a 6V6 tube. After doing a little research (RCA Tube Manual) I determined that the 6V6 when used as a Single Ended output tube was about 5,000 ohms impedance. Now all I need to know is which wires to use on the input of the audio transformer to match the 5,000 ohms to the 8 ohms on the speaker side of the transformer.
Maximum power is transferred when the impedance is equal or matched to the each side of the circuit. The transformer itself has no impedance. It only reflects impedances and this reflected impedance varies with the change in frequency. The reflected impedance is determined by the turns ratio of the transformer. Now I need to know the turns ratio of the transformer at the different inputs. Once the turns ratio is found, it can be squared and multiplied by the speaker impedance to determine the closest impedance match to the 6V6's 5,000 ohm impedance.

Voltage ratio = Turns Ratio
Z (impedance) = Turns Ratio Squared x 8 ohms of speaker

So I need to know how many volts AC (AC Volt meter set to 100 volt scale) is required input to the unknown audio transformer to give an output of 1 volt (AC Volt meter set to 1 Volt scale).

The following was determined by using a Variable transformer (Variac) with an isolation transformer and 2 voltmeters.

VARIAC (/w VOLTMETER)---->AUDIO TRANSFORMER---->SPEAKER (/W VOLTMETER)

The following data was obtained:

Wire Color	Measured (V) input for 1 VOLT	Calculated (Z) (volts input) squared X 8 ohms
Black	common	--
Brown	6.5 volts	6.5 x 6.5 x 8 = 338
Red	8.4	8.4 x 8.4 x 8 = 565
Yellow	11.1	11.1 x 11.1 x 8= 986
Blue	14.9	14.9 x 14.9 x 8= 1776
Orange	20.3	20.3 x 20.3 x 8= 3296
White	28.1	28.1 x 28.1 x 8= 6316
Gray	38.7	38.7 x 38.7 x 8= 11981

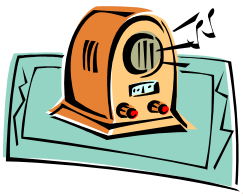
So now I can pick the one closest to 5,000 ohms. I used the Black common and the White (6316 - closest to 5,000) for the input of the audio transformer and the speaker works just fine.

If you do not know the 4 ohms, 8 ohms etc. impedance of the speaker, you can get close to it by disconnecting the speaker wire from the audio transformer and measure the speaker coil with an ohm meter. Then multiply this by 1.25 and it will get you close to the impedance of the speaker. Now you can use all those Audio Transformers that you had in a junk box and know the correct impedance of the input and output.

Want to learn more? Come on down to Robert's class which is on the first Saturday of each month.

Joe Minor K4JOE

References:
http://www.nostalgiaair.org/
http://sarris.info/main/calculating-output-transformer-impedance
http://www.radioremembered.org/outimp.htm
http://www.bunkerofdoom.com/tubes/rc25/index.html
RCA Tube Manual



LISTEN TO THE RADIO!!

Speaking of Old Time Radio,

Who remembers Harry Charles Piano Company and listening to Harry advertise on the radio? Check out the web site below:

http://paramountshome.org/index.php?option=com_content&view=article&id=119:paramount-talent-scout-and-salesman-harry-charles&catid=47:new-york-recording-laboratoriesoral-histories&Itemid=54

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MEETING TIMES

We meet nearly every Saturday of the month at 09:00 AM in the one-story building at the corner of 8th Avenue North and 18th Street (1801 8th Avenue North, Birmingham, AL 35203). Use the rear (Southeast) entrance.

It has also been decided to open the shop on Tuesday, as well as Saturday. We have a lot of projects going on and need the extra day to get it all done. So, until further notice, we will be open Tuesdays from 9am till…and on Saturday morning. Note that parking could be a problem on Tuesdays, because it is a business day, and the lot is usually filled, so you might have to find street parking occasionally.

Come to the Monday Night Meetings, TOO, on the 4th Monday of the month at 7 PM!

FREE ELECTRONICS CLASSES

The first Saturday of the month, there are electronics classes free to members. Topics include test equipment, Resistors and Capacitance testing, Inductors and coil winding, to name only a few subjects!

We hope to see you there!

DUES ARE NOW DUE

Membership dues are $25 a year, payable beginning in January. If you have questions about your dues, you can contact Tom at 205-967-7000.

Dues can be mailed to AHRS @ P.O. Box 131418, Birmingham AL 35213.

WHO TO CONTACT

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