



The Oscillator



"All the Electrons that are Fit to Flow . . . "

The Official Newsletter of the DVHRC

January 2010

A 1930's radio in "kit form" - Part III

The Jackson Bell Model 62 radio is about 90% finished.

Assembly progress

All caps and all but one resistor were replaced with new parts stuffed inside the original shells.

I completed a schematic using "The Gimp" software that clearly reflects this particular radio (included in this newsletter). If you recall, I was working with three separate schematics, all a bit different, which was slowly burning out brain cells.

Speaker

Some of you may be familiar with the idea of "crippled" PC software, where the software is designed to give you an idea of how the software functions, but key parts of it are disabled. An example would be a tax preparation package that allows you to do your taxes, but the ability to save the rerun, print it or transmit it to the IRS is disabled.

Well the speaker on the radio was similar. The cone was nice, the cage was in good shape, but after removing the back cover, there was a lot of parts missing.

Luckily I had a speaker of the same style, vintage and size. I had to fabricate a 4-pin male plug and female jack as the original was broken beyond repair.

Hot resistor

R11, which is a 2200 Ω 1 watt resistor ran very hot. I eventually replaced it with a power resistor of about 5 watts. Some discussion is needed here to determine if further investigation is warranted.

Volume and Tone controls

Both of the controls were missing from the "kit". Temporarily, I installed a 3k Ω control without the required switch and hard-wired the power cord.

I installed the proper sized tone control (10K Ω) but the shaft is serrated and too short.

Both of these controls will have to be replaced with the proper units.

Alignment

Next was the alignment – this should be pretty easy, after all, I've probably aligned scores of superheterodyne radios.

Since the schematic had no men-

tion of the IF frequency, I loosely coupled my signal generator and tried to determine the intermediate frequency of the set. I tried the usual 455KC and could hear the tone at certain points of the dial, but not at all points as you would expect. OK, its not 455KC, so I tried lower frequencies knowing that various lower values were used in older sets. Each time I was able to hear the tone at only certain points of the dial. Confused, I sent out an email for help to a few members.

Lew Newhard had the answer. I made a rookie assumption that it was a superheterodyne radio, which is all I've ever dealt with in any level of detail. (Sort of like the old joke – when all you have is a hammer, all your problems start to look like nails).

Well, it is not a superheterodyne, but rather a TRF (Tuned Radio Frequency), set. So the whole idea of intermediate frequencies does not apply. This also helps to explain the absence of any IF transformers and the extra RF coils.

What I had been hearing was sec-



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The Oscillator is the monthly newsletter of the Delaware Valley Historic Radio Club.

We welcome information relating to radio and television history and collecting. Submissions should be sent by the 25th of the prior month to saegers@ptd.net. Personal views, opinions and technical advice do not necessarily reflect those of members, officers or Board of Directors of the DVHRC, nor is the DVHRC responsible for any buying or selling transactions.

Dues are \$20 per year and can be paid at a meeting or mailed to the above address.

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ond and sometimes third harmonics of the frequencies I was injecting. A second harmonic is a frequency that is twice that of the fundamental, or chosen frequency. A third harmonic is a frequency three times the fundamental frequency.

For example, when I applied 455KC, I was able to hear the tone when the dial was tuned to 910KC (455 times 2), and at 1365KC (455 times 3).

A little red-faced, I returned to the radio, forgetting about intermediate frequencies and loosely coupled the signal generator and set it for 1400KC, and peaked the 3 RF coils. The result is pretty good, but perhaps could use some additional tweaking. The radio receives stations above 900KC quite well, but not to much below that point of the dial.

AVC

An interesting thing about older radios such as this is there is no automatic volume control or AVC. This basically means that a strong local station (like 50,000 watt KYW 1060, Philadelphia) produces much more volume than a weaker station (250 watt WGPA 1100, Bethlehem, PA) or more distant station (WHAM 1180, Rochester, NY).

Still to be done

There are a few odds and ends to be nailed before the radio is complete, some of which can be topics of discussion at this months meeting:

1. The R11 heat issue – is this a problem?

2. Why do I get so few stations below about 950KC?

3. Were the choices I made amongst the differences in the schematic appropriate?

Parts Needed

Here's how you can help – the following parts are need to complete the project

1. Set of three wooden knobs, (I have examples from the duplicate Model 2 provided by Lew Newhard.

2. Volume control – 3K Ω with power switch on back. Shaft can be a minimum of 7/8 inches long, including the threaded part. Shaft is 1/4 inch full round.

3. Tone Control – 20K Ω with same shaft requirements as the volume control.

If anyone has anything that meets these needs and would like to donate , please contact Stan Saeger.

Tubes Needed

Your club needs the following tubes to replenish the club's inventory: 6A8G, 5W4, 6F6, 6FS5GT, 6B5, 5Z4, 6Q7, 6Q7G, 5Y4G, 5Z3, 12AX7, 6E5, 12Q7GT, 13EM7, 15EA7, 6AN8, 6U8A, 3A3, 5Y3G, 35Y4, 50A5, 6SQ7, 14B6, 6EQ7, 6R7, 7A7(XXL), 83V, 6BA6, 6CS6, 19T8, 12SQ7, 6V6G, 6AS11, 50EH5, 6C5, 1LC6, 1LE3, 7B7, 27 GLOBE, 6A8G, 11BM8, 3Q5, 6JB6, 5AR4, 1L6, 1B6, 6AQ8, and 6HR6. Contact Dave Dean or bring them to a meeting.

The Reflector

Looking for a certain tube? Can't remember which club member said he's familiar with the set you're having trouble with?

The Reflector is a mailing list system that allows DVHRC members to send an email to all other members who have signed up for the service.

Here's how to sign up:

1. Go to www.dvhrc.info, click "Contact Us", then click the Reflector link near the bottom.
2. On the Reflector screen, enter your email address, your name, and a password. Remember your password. You'll need it only on rare, but important occasions.
3. You will receive a "confirm" email. Simply hit "reply" to activate your account.
4. You will then receive a "Welcome" email that includes useful information including your password. Keep this for future reference.
5. If you forget your password, you can recover it at <http://mailman.qth.net/mailman/options/dvhrc/>
6. You will remain on the list until you unsubscribe, your address starts bouncing excessively, or we throw you off. (Unlikely, but you never know.)

Once you're signed up, you will get an email notifying you.

To send messages to subscribers, email dvhrc@mailman.qth.net. You can always go to the DVHRC Contact Us page to get the email address if you forget.

The Reflector is administered for the club by Al Klase. He can be contacted at al@ar88.net.

Club Dues are Due

Dues for 2010 are payable now at \$20 per year. You can tell your current dues status by checking the year in parenthesis, which is the year your dues are paid through. If it reads 2010, you're up-to-date.

To pay your dues send a check to Dave Snellman, or give it to him at a meeting. If you think the club's records are in error (mistakes can happen), contact Dave as well.

DVHRC Golf Shirts

The club is still taking orders for collared golf shirts with the DVHRC logo embroidered on the breast pocket area. Cost is \$30 prepaid for sizes M, L, and XL and \$33 for XXL and 3XL.

Don't wait – the order will be placed after the January meeting with delivery hopefully by the February meeting.

Contact Stan Saeger at 610-967-5340, saegers@ptd.net or see him at a meeting to order.

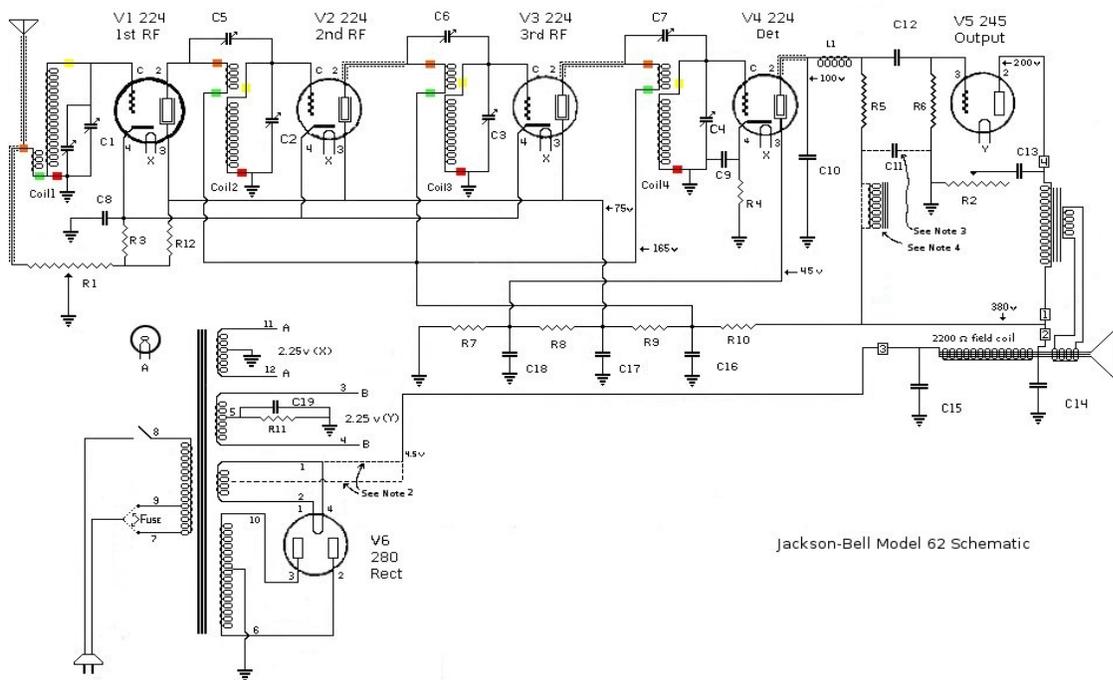
Officer Elections

At the December meeting, the following board members were elected: Dave Abramson, Dave Dean, Dave Snellman and Mike Koste and Stan Saeger. Lew Newhard continues in his role as Kutztown committee chair and Walt Peters has agreed to handle publicity for the club.

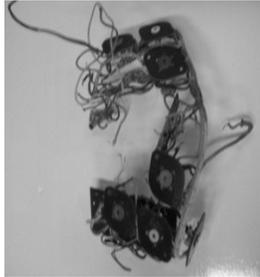
Christmas Party

The annual Christmas Party was its usual time of fun and food. Many members participated in the gift exchange and the food was its usual fine fare. Thanks to Dave Abramson for handling the catering arrangements, and to the many others who helped out.





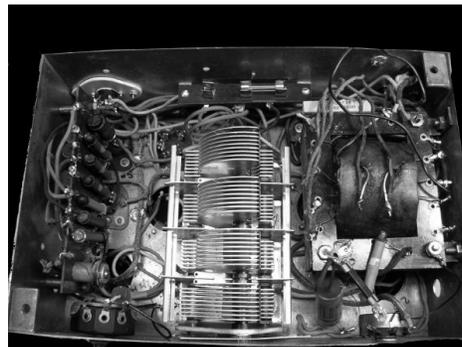
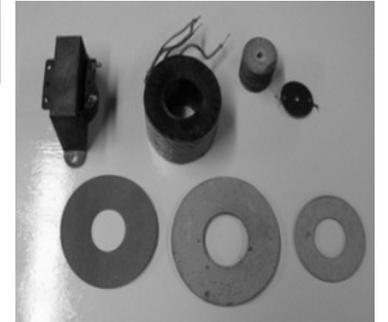
Jackson-Bell Model 62 Schematic



Before

And

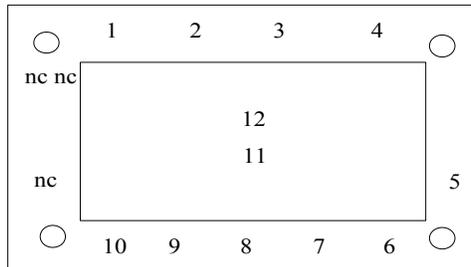
After



Jackson Bell Model 62 Schematic 2 of 2

Coils			
Coil 1	Orange	Antenna	3.6Ω
	Green	Ground	
	Red	Ground	
Coil 2	Yellow	Yellow wire var cap	12Ω
	Orange	Pin2 V1	
	Green	to C16	
Coil 3	Red	Ground	20Ω
	Yellow	Yellow wire var cap	
	Orange	Pin2 V2	
Coil 4	Green	to C16	20Ω
	Red	Ground	
	Yellow	Yellow wire var cap	

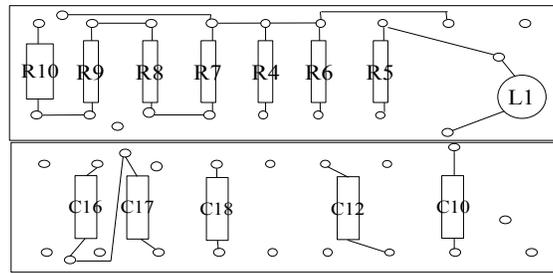
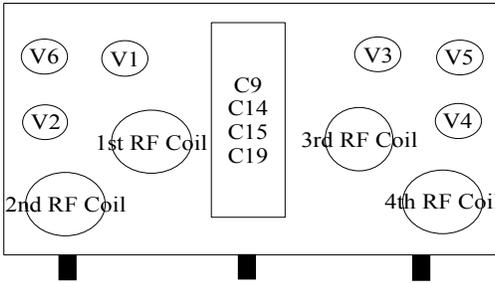
Power Transformer				
Left Leg	CT	Right Leg		Voltage
8		9	Primary	110v
8		7	Primary	125v
10	G	6	High Voltage	650v
1		2	5v 80 Filaments	5v
11	G	12	24 heaters	2.25v
3	5	4	45 filaments	2.25v



Capacitors			
C1-C4	Variable Cap	C11	8μf (opt)
C5	7μf	C12	.02μf
C6	7μf	C13	.25μf
C7	7μf	C14	2μf or 8μf
C8	.25μf or 1.0μf	C15	4μf or 8μf
C9	1.0μf	C16-C18	.1μf
C10	.00025μf	C19	1.0μf

Resistors		
R1	3KΩ	Volume control
R2	10KΩ	Tone Control
R3	250Ω or 300Ω	Wirewound
R4	30KΩ	1 Watt
R5	500KΩ	1 Watt
R6	2MegΩ	1 Watt
R7-R9	10KΩ	1 Watt
R10	5KΩ	2 Watt
R11	2.2KΩ	1 Watt
R12	30KΩ	1 Watt

Tubes		
V1	224	1st RF
V2	224	2nd RF
V3	224	3rd RF
V4	224	Detector
V5	245	Output
V6	80	Rectifier



This schematic is a consolidation of 3 different sources:
 A – Jackson Bell Models 62-63-64 Type 2 (unknown source)
 B – Rider's Volume 3 page 3
 C – Official Radio Service Manual

Differences:

- C8 is .25mf on A, .1mf on B,C
- A doesn't have center tap for secondary to 80 filaments
- B and C shows an additional cap, C11, 8mf
- B shows a choke connected to C11
- C14 is 2mf on B,C, 8mf on A
- C15 is 4mf on B,C, 8mf on A
- R3 is 250ohm on B,C, 300ohm on A