# Vacuum Tube Amplifier CDR

April 08, 2009

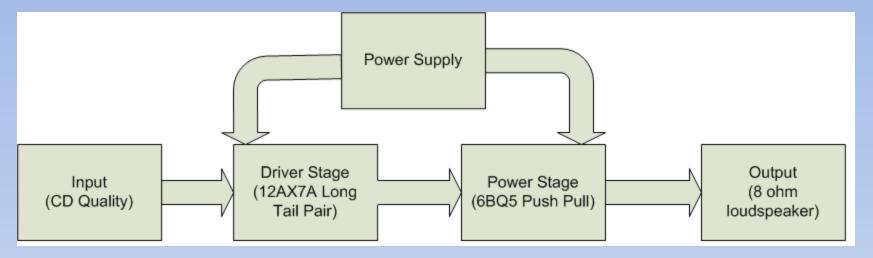
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### Objectives and Description

- Design, construct and test a high-fidelity vacuum tube amplifier
  - Comparable sound quality
  - Appeal to audiophiles an inexpensive and simple to build amplifier

High sound quality Maintain output faithful to the origin for audiophile audio input							
In expensive \$200.00							
R C A Input							
Volume Control							
Sim ple circuit design for am ateur							

#### Technical Details

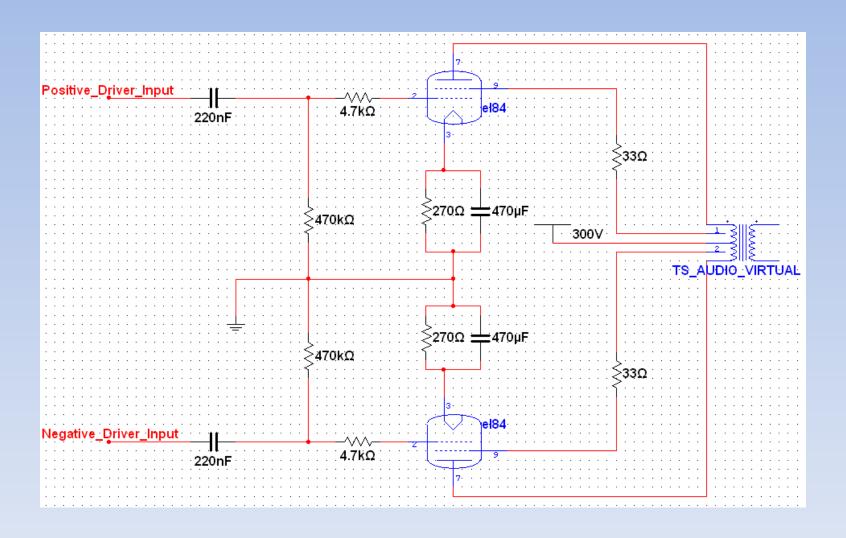


- Power Supply Heater, High Voltage, LED, Current Biasing
- Driver Stage Differential Triode Amp
- Power Stage Push Pull, Ultra Linear Connection
- Power Transformer Hammond 270FX
- Output Transformer Hammond 1608A
- Construction will be on Pine board.

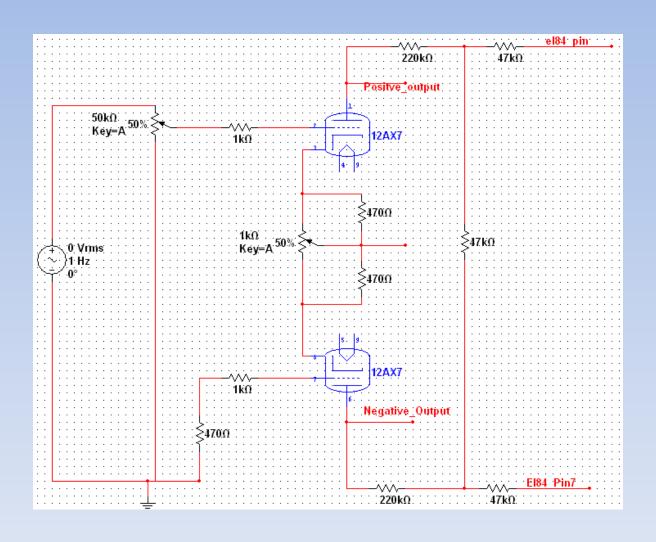
## Specifications

	Minimum	Optimum
Frequency Response	30 – 16000Hz	20 – 20000Hz
Total Harmonic Distortion (THD)	Less than 8%	Less than 1%
Output Load	8 Ohm	8 Ohm
Output Power	Greater than 5W	10W
Signal-to-Ratio (SNR)	80dB	90dB
Cost (\$168 )!!	Less than \$300	Less than \$200

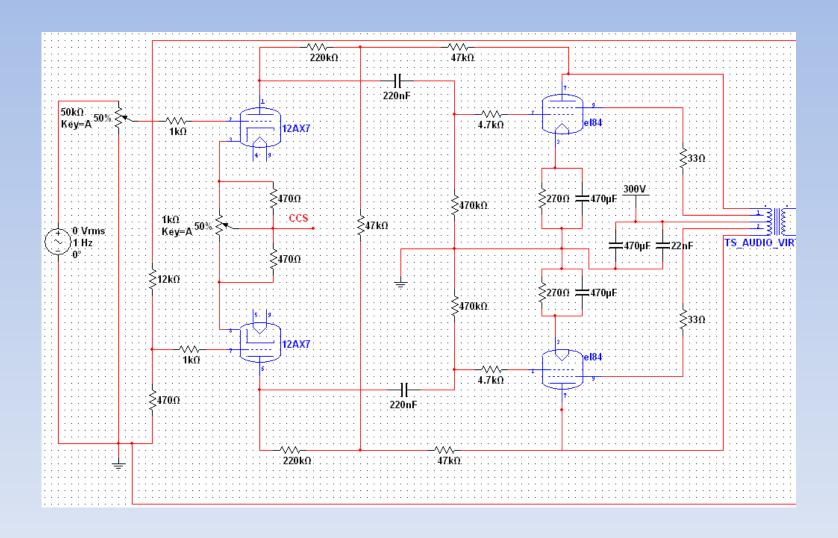
## Output Stage Schematic



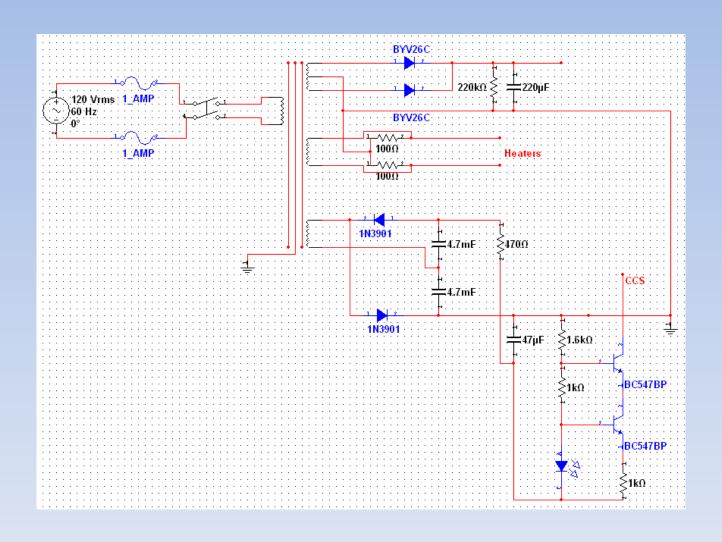
## Input Stage Schematic



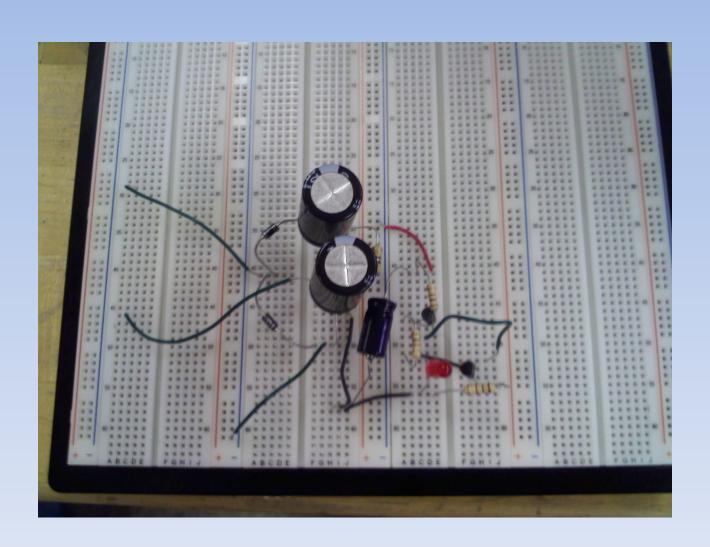
#### Full Schematic



## Power Supply Schematic



#### Constant Current Source



## POA&M

Task Name	Duration	Start	Finish	8, '09 Feb 22, '09					Ma	r 8, '09	)		Mar 2	Mar 22, '09			Apr 5, '09				Apr 19, '09		
				10	14	18	22	26	2	6	10	14	18	22	26	30	3	7	11	15	19	23	27
☐ Design Proposal	5 days	Wed 2/18/09	Sun 2/22/09				7																
Research	1 day	Wed 2/18/09	Wed 2/18/09																				
Division of Tasks	1 day	Wed 2/18/09	Wed 2/18/09																				
Individual Compositions	3 days	Wed 2/18/09	Fri 2/20/09																				
Group Revision	1 day	Sat 2/21/09	Sat 2/21/09				ħ.																
Final Draft	1 day	Sun 2/22/09	Sun 2/22/09				ă																
⊡ Design	22 days	Sat 2/28/09	Wed 3/25/09					<b>—</b>		÷				<del></del>	₽								
Output Stage	5 days	Sat 2/28/09	VVed 3/4/09																				
Pre-amp	3 days	Wed 3/18/09	Fri 3/20/09											h									
Power Supply	3 days	Mon 3/23/09	Wed 3/25/09																				
□ PDR	2 days	Tue 3/17/09	Wed 3/18/09									(											
Power Point	1 day	Tue 3/17/09	Tue 3/17/09										0										
Presentation	1 day	Wed 3/18/09	Wed 3/18/09																				
Gather Materials	3 days	Thu 3/26/09	Mon 3/30/09																				
☐ Construction	8 days	Mon 4/6/09	Wed 4/15/09														V			-			
Layout	1 day	Mon 4/6/09	Mon 4/6/09															h					
Mount on Board	1 day	Tue 4/7/09	Tue 4/7/09															լ					
Point-to-Point Connections	6 days	Wed 4/8/09	Wed 4/15/09															4					
⊡ CDR	3 days	Mon 4/6/09	Wed 4/8/09														V	_					
Powerpoint	1 day	Mon 4/6/09	Mon 4/6/09														1						
Presentation	1 day	Wed 4/8/09	Wed 4/8/09																				
Test and Evaluation	5 days	Thu 4/9/09	Wed 4/15/09																				
Modification	5 days	Thu 4/16/09	Wed 4/22/09																				
☐ Final Presentation	6 days	Wed 4/22/09	Wed 4/29/09																				
Final Report	4 days	Wed 4/22/09	Mon 4/27/09																				
Poster	6 days	Wed 4/22/09	Wed 4/29/09																				
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#### Summary

- Vacuum Tube Amplifier
- Simple circuit approach
- Design fully completed
- Board layout completed
- Ready for point-to-point connections

Questions?