

Valve Itch Circuit

Sch ref	Quantity	Description	Notes
C6	2	Mouser No: 505-MKP42 2400/10P Mfr. #: MKP4G024200F00KYS Manufacturer: WIMA Desc.: Polypropylene Film Capacitors 400V 2.2uF 10% P27.5	Output cap, many different options here.
C1, C5	4	Mouser No: 505-MKP4.0/1630/5 Mfr. #: MKP401004D00SSD Manufacturer: WIMA Desc.: Polypropylene Film Capacitors 630V 0.1uF 5%	Caps between the upper and lower tier valves.
C4	2	Mouser No: 505-MKP4.047/400/10P Mfr. #: MKP4G024703C00KSSD Manufacturer: WIMA Desc.: Polypropylene Film Capacitors 400V .047uF 10%	Wima shown for example only. Many options available eg. K72P-6 tested and sounds good
C3	2	Mouser No: 75-71SP600V.0.015 Mfr. #: 71SP15356KD3 Manufacturer: Vishay Desc.: Polypropylene Film Capacitors 600volts .015uF 5% ORANGE DROP	RIAA cap – Caps shown for example only and are 5%. K40Y-9 sounds very good and is recommended. Aim to buy several and then match to get ~1% between channels Note that these are 5% - and that RIAA matching needs to be closer than that.
C2	2	Mouser No: 75-71SP600V.0.047 Mfr. #: 71SP47356LD3 Manufacturer: Vishay Desc.: Polypropylene Film Capacitors 600volts .047uF 5% ORANGE DROP	RIAA cap – Caps shown for example only and are 5%. K40Y-9 sounds very good and is recommended. Aim to buy several and then match to get ~1% between channels Note that these are 5% - and that RIAA matching needs to be closer than that.
C7	2	Mouser No: 667-ECW-F2W475JA Mfr. #: ECW-F2W475JA Manufacturer: Panasonic Desc.: Polypropylene Film Capacitors 4.7UF 450VDC 5%	These or similar Russian MGBO
R7	2	Mouser No: 71-CC107-J-22K Mfr. #: CCF0722K0KR36 Manufacturer: Vishay Desc.: Metal Film Resistors - Through Hole 1/8watt 22Kohms 5% Rated to 1/2watt	
R10	2	Mouser No: 594-5083NW33K00J Mfr. #: PR0200020302JR500 Manufacturer: Vishay Desc.: Metal Film Resistors - Through Hole 2watts 33Kohms 5%	
R9, R11	4	Mouser No: 660-MF14DC5600F Mfr. #: MF14DC5600F Manufacturer: KOA Speer Desc.: Metal Film Resistors - Through Hole 560ohm 1% 100PPM	
R8, R13	4	Mouser No: 594-SFR16S0008203R3 Mfr. #: SFR16S0008203R500 Manufacturer: Vishay Desc.: Metal Film Resistors - Through Hole 1/2watt 820kohms 1%	
R6	2	Mouser No: 271-6.8K-RC Mfr. #: 271-6.8K-RC Manufacturer: Xicon Desc.: Metal Film Resistors - Through Hole 6.8Kohms 1% 50PPM	
R1	2	Mouser No: 71-CC107-J-47K Mfr. #: CCF0747K0KR36 Manufacturer: Vishay Desc.: Metal Film Resistors - Through Hole 1/8watt 47Kohms 5% Rated to 1/2watt	Resistor to set the impedance. If no step-up Tx is used, this resistor equals the input impedance (eg 47k for MM). Using a step up changes the impedance seen by the cart. Information on b
R5	2	Mouser No: 71-RS660-5002D Mfr. #: RS660-5002DB14 Manufacturer: Vishay Desc.: Metal Film Resistors - Through Hole 1/8watt 50Kohms 5% 50ppm	
R2	2	Mouser No: 594-5073NW82K00J Mfr. #: PR0100010820JR500 Manufacturer: Vishay Desc.: Metal Film Resistors - Through Hole 1watt 82Kohms 5%	
R3	2	Mouser No: 660-MF14LCT52R470J Mfr. #: MF14LCT52R470J Manufacturer: KOA Speer Desc.: Metal Film Resistors - Through Hole 1/4 WATT 47 OHM 5%	
R4, R12	4	Mouser No: 594-SFR16S0001003R3 Mfr. #: SFR16S0001003R500 Manufacturer: Vishay Desc.: Metal Film Resistors - Through Hole 1/2watt 100Kohm 5%	

HV & Heater supplies

Sch ref	Quantity	Description	Notes
R1	1	Mouser No: 660-MOS3CT631R221J Mfr. #: MOS3CT631R221J Manufacturer: KOA Speer Desc.: Metal Oxide Resistors 3W 220 ohm 5%	
R2, R3	2	Mouser No: 81-PV36W103C01B00 Mfr. #: PV36W103C01B00 Manufacturer: Murata Desc.: Trimmer Resistors - Through Hole 10Kohms 10mm Square 25turn	
C8, C9	2	Mouser No: 647-UVR1E220MDD1TD Mfr. #: UVR1E220MDD1TD Manufacturer: Nichicon Desc.: Aluminum Electrolytic Capacitors - Leaded 25volts 22uF	
D1, D2	8	Mouser No: 863-MSR860G Mfr. #: MSR860G Manufacturer: ON Semiconductor Desc.: Rectifiers 600V 8A UltraSoft	Can be used for heaters and SSHV
D3	4	Mouser No: 863-MUR1100EG Mfr. #: MUR1100EG Manufacturer: ON Semiconductor Desc.: Rectifiers 1000V 1A UltraFast	1000V diodes use for HV supply
R5, R6	2	Mouser No: 594-5073NW470R0J Mfr. #: PR0100010470JR500 Manufacturer: Vishay Desc.: Metal Film Resistors - Through Hole 1watt 470ohms 5%	
U1, U2	2	Mouser No: 1124LM317T Mfr. #: LM317T Manufacturer: Fairchild Semiconductor Desc.: Linear Regulators - Standard TO-220 1.5A ADJ VREG	
C5, C6	2	Mouser No: 667-ECW-F2W104JAQ Mfr. #: ECW-F2W104JAQ Manufacturer: Panasonic Desc.: Polypropylene Film Capacitors 0.10uF 450VDC 5%	0.1uF, 450V cap at low price, handy to have.
C1, C2	2	Mouser No: 647-UV21E472MHD Mfr. #: UV21E472MHD Manufacturer: Nichicon Desc.: Aluminum Electrolytic Capacitors - Leaded 25volts 4700uF 16x31.5 20% 7.5L	
C10, C11	2	Mouser No: 647-UUV1E221MED1TD Mfr. #: UUV1E221MED1TD Manufacturer: Nichicon Desc.: Aluminum Electrolytic Capacitors - Leaded 220uF 25V 105c	
C3, C4	2	Mouser No: 647-LGL2W221MELZ40 Mfr. #: LGL2W221MELZ40 Manufacturer: Nichicon Desc.: Aluminum Electrolytic Capacitors - Snap In 450volts 220uF Ultra Small Sz	
C7, C12	2	Mouser No: 667-ECW-F2W105JA Mfr. #: ECW-F2W105JA Manufacturer: Panasonic Desc.: Polypropylene Film Capacitors 1.0uF 450VDC 5%	
R4	1	Mouser No: 594-5083NW220K0J Mfr. #: PR02000202203JAC00 Manufacturer: Vishay Desc.: Metal Film Resistors - Through Hole 3watts 220Kohms 5%	Bleeder resistor
R7, R8	2	Mouser No: 660-MF14LCT52R474J Mfr. #: MF14LCT52R474J Manufacturer: KOA Speer Desc.: Metal Film Resistors - Through Hole 1/4 WATT 470K OHM 5%	

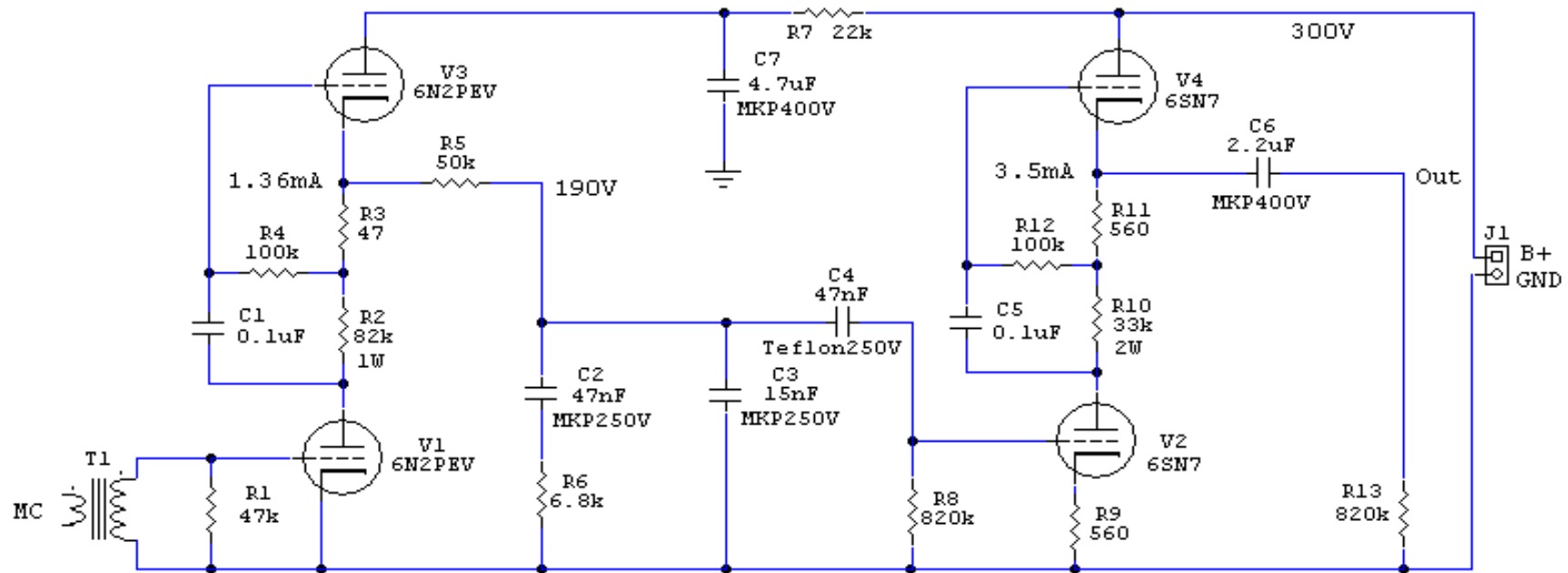
Other items:

Sch ref	Quantity	Description	Notes
V1, V3 V2, V4	2 6n2P 2 6N8S 2 Octal sockets 2 B8a sockets 2 Step-up Tx wire 4 or 6 RCA jacks 2 Tx 1 Tx 2 Chassis 3 Heatsinks Russian caps Umbilical	Ebay sellers, Alexer1, Langrex and uralsprint have worked well and have good feedback Ebay sellers, Alexer1, Langrex and uralsprint have worked well and have good feedback Ebay sellers, Alexer1, Langrex and uralsprint have worked well and have good feedback Lundahl 9902 and Partridge 977 tested and work well. Lundahl from K&K audio, Partridge from d-tron on ebay Silver in teflon from navships on ebay, a mix of regular and shielded needed Various sources 9V 30VA 250V secondary 200mA (50VA) Various sources, make sure phono box is vented 2 needed for heater supplies, 1 needed for SSHV Ebay sellers, Alexer1 and uralsprint have worked well and have good feedback Wire, connectors etc needed for umbilical between boxes.	

Notes:

Highly recommended to use the SSHV shunt supply (last sheet in this workbook), however, components needed are not shown here.
 Highly recommended to use the Russian caps for RIAA and coupling
 Highly recommended to use the Russian MGBO caps for C7
 This is a high gain circuit so close attention is needed for grounding. Good information is available at akenamps
 Please report your build and findings to the Valve Itch thread on diyaudio.

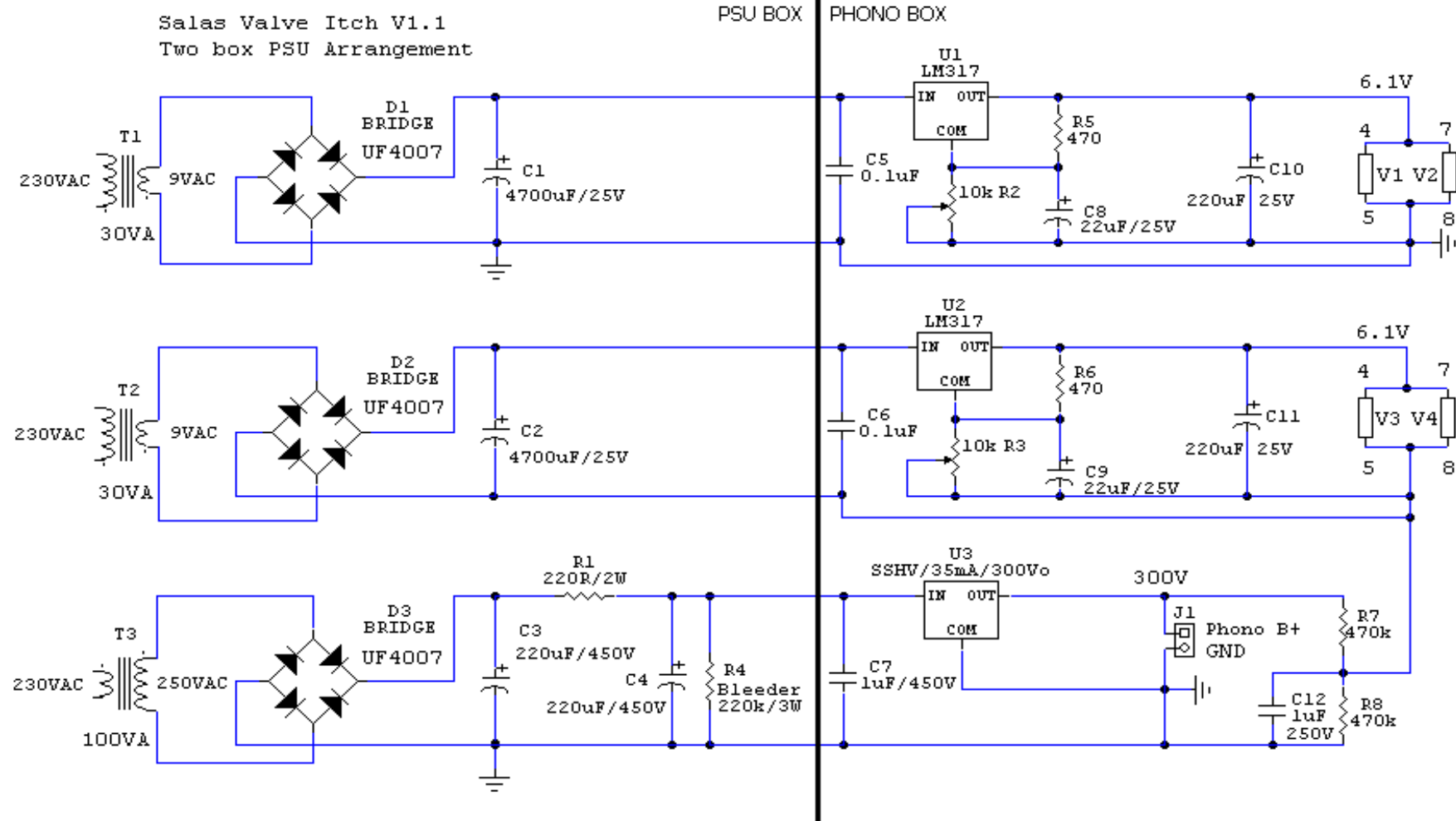
Valve Itch Circuit



Salas Valve Itch Rev1.1

Gain=43dB after the SUT

Valve Itch PSU



SSHV schematic

