

**M&A TVA 1 - Component list (original schematic, rev 3, review photos - Repair Case 7, actual TVA-1 purchased from Emporium HiFi)**

I will use the actual components (i.e. Of the TVA-1 as received from Emporium HiFi) except where indicated with a color code

Resistors	Original	Rev.3	Photo R.C.7	Actual	GO Revamp	Unit	Power	Type	Number	Note
R1	100	100	100	100	100	Kohm	0,25	metal film	2	Signal inlet - could be replaced with a 100K log potentiometer (volume control)
R2	150	150	150	150	150	Kohm	0,25	metal film	2	ECC83 Cathode resistor
R3	150	150	150	150	150	Kohm	0,25	metal film	2	
R4	33	33	33	33	33	Kohm	0,25	metal film	1	In the scheme is a parallel of 100K / 47K (which gives 32 Kohm)
R5	100	100	100	100	100	Ohm	0,25	metal film	2	ECC83 Grid to ground
R6	68	68	68	68	68	Kohm	0,25	metal film	2	
R7	330	180	100	221	221	Kohm	0,25	metal film	2	
R8	330	180	100	221	221	Kohm	0,25	metal film	2	
R9	470	470	470	470	470	Kohm	0,25	metal film	2	
R10	470	470	470	470	470	Kohm	0,25	metal film	2	
R11	4,7	1,5	4,7	4,7	4,7	Mohm	1	Carbon	2	Grid resistor - in the schematic is indicated as 4.7 Mohm / Rev3 = 1.5 Mohm - From the photos is clearly 4.7 Mohm
R12	4,7	1,5	4,7	4,7	4,7	Mohm	1	Carbon	2	Grid resistor - in the schematic is indicated as 4.7 Mohm / Rev3 = 1.5 Mohm - From the photos is clearly 4.7 Mohm
R13	33	2,2	2,2	2,2	2,2	Kohm	0,25	metal film	2	The value in the original scheme is wrong
R14	12	4,7	6,8	6,8	6,8	Kohm	2	Carbon	2	
R15	47	47	33	33	33	Kohm	2	Carbon	2	
R16	47	47	33	33	33	Kohm	2	Carbon	2	
R17	3,9	3,9	3,9	3,9	3,9	Kohm	0,25	metal film	2	Feedback resistor
R18	10	0	10	10	10	Kohm	0,25	metal film	0	In the rev 3 scheme was abolished
R19	10	0	10	10	10	Kohm	0,25	metal film	0	In the rev 3 scheme was abolished
R20	100	100	100	203	203	Kohm	0,25	metal film	2	Resistor in the separate Power Supply / Bias Control board - The actual value differs from all schematics!!
R21	100	100	100	203	203	Kohm	0,25	metal film	2	Resistor in the separate Power Supply / Bias Control board - The actual value differs from all schematics!!
R22	100	82	100	100	100	Kohm	2	metal film	2	Rev 3 = 82 kohm (although wrongly indicated in 820 Kohm!!) - The installed ones were crap - replaced
R23	22	22	22	22	47	Kohm	0,25	metal film	2	Bias resistor on the power supply board - 47kohm + 20K trimmer for KT88, With KT90 better 22 Kohm + 100Kohm trimmer
R24	22	22	22	22	47	Kohm	0,25	metal film	2	Bias resistor on the power supply board - 47kohm + 20K trimmer for KT88, With KT90 better 22 Kohm + 100Kohm trimmer
R25	22	22	22	22	22	Kohm	0,25	metal film	2	Bias resistor - Located on the power supply board
R26	22	22	22	22	22	Kohm	0,25	metal film	2	Bias resistor - Located on the power supply board
R27	47	33	47	1,5	33,4	Ohm	10	Wire	2	Installed on the main tubes socket - 1.5 Ohm is for the KT90 - For KT88 I put 33 Ohm
R28	47	33	47	1,5	33,4	Ohm	10	Wire	2	Installed on the main tubes socket - 1.5 Ohm is for the KT90 - For KT88 I put 33 Ohm
R29	470	470	470	330	470	Ohm	5	Wire	2	Installed on the main tubes socket - Probably 330 Ohm is for KT90 - I will use 470 for KT88
R30	470	470	470	330	470	Ohm	5	Wire	2	Installed on the main tubes socket - Probably 330 Ohm is for KT90 - I will use 470 for KT88
R31	2,2	0	2,2	2,2	2,2	Kohm	0,25	metal film	2	Grid stopper on KT88 socket - Abolished in the rev 3 scheme - I will keep it for safety
R32	2,2	0	2,2	2,2	2,2	Kohm	0,25	metal film	2	Grid stopper on KT88 socket - Abolished in the rev 3 scheme - I will keep it for safety
R33	0	0	1,8	0	0	Kohm	N.A.	Wire	1	Connect the ground of the filter condensers to the chassis (earth) - I put a wire
R34	0	0	0	0	470	Kohm	0,5	metal film	2	In parallel to the C5a capacitor to ensure proper voltage sharing between the two capacitors in series
R35	0	0	0	0	470	Kohm	0,5	metal film	2	In parallel to the C5a capacitor to ensure proper voltage sharing between the two capacitors in series
TR1	22	22	22	100	20	Kohm	0,25	Trimmer	2	Bias trimmer - 100 kohm are ok for KT90 bias - I put 20 kohm multium for KT88
TR2	22	22	22	100	20	Kohm	0,25	Trimmer	2	Bias trimmer - 100 kohm are ok for KT90 bias - I put 20 kohm multium for KT88
Capacitors	Original	Rev.3	Photo R.C.7	Actual	GO Revamp	Unit	Voltage	Type	Number	Note
C1	22	2,2	47	47	100	µF	250	Polarized	1	In the schematic rev3 is indicated as 2.2µF - From the photos it appears as big as possible, with a bypass MKP
C2	22	2,2	47	20	47	µF	400	Polarized	2	In the actual is Solen 500V - From the photos it is polarized as big as possible, with bypass MKP
C3	22	100	22	33	120	nF	630	MKP	2	Will install 120 nF - Should extend the low frequency response without doing any harm - installah!!
C4	22	100	22	33	120	nF	630	MKP	2	Will install 120 nF - Should extend the low frequency response without doing any harm - installah!!
C5	22	22	22	20	23,5	µF	500	Polarized	2	In the actual Solen 630V - in the photos as high voltage as possible - 2 * 47 µF / 400 V in series, + 0.47µF / 630 V bypass
C6	470	470	330	330	330	pF	400	Polymer	2	Feedback capacitor - I will leave the 330 pF installed
C7	0,47	0,47	0,47	0,47	0,47	µF	1000	Polymer	2	Very important capacitor. Highest possible quality - must withstand 540+100=640Vdc!!!
C8	0,47	0,47	0,47	0,47	0,47	µF	1000	Polymer	2	Very important capacitor. Highest possible quality - must withstand 540+100=640Vdc!!!
C9	47	47	100	100	100	µF	160	Polarized	2	Bias / PSU Board - 33µF/100V installed - I'll put 100µF/160V+0.47µF bypass
C10	47	47	100	100	100	µF	160	Polarized	2	Bias / PSU Board - Can be higher capacity - 100 µF/ 160 V seen in pictures
C11	47	47	100	100	100	µF	160	Polarized	1	Bias / PSU Board - 33µF/100V installed - I'll put 100µF/160V+0.47µF bypass
C12	0,47	0,47	0,47	0,47	0,47	µF	400	Polymer	1	Bias / PSU Board
C13	220	220	220	220	220	pF		Ceramic	2	Installed on the output transformer - I'll leave what was installed
C14	0	0	0,47	15,47	5,47	µF	600	Polymer	1	Bypass of the filter condensers - I have removed the 10µF to make space for the delay board
C15	0	0	0,47	15,47	5,47	µF	600	Polymer	1	Bypass of the filter condensers - I have removed the 10µF to make space for the delay board
C16	800	470	3900	1000	1000	µF	350	Polarized	1	Main Filter Capacitor - As big as possible - 400V - 450V better - I leave the installed one for now
C17	800	470	3900	1000	1000	µF	350	Polarized	1	Main Filter Capacitor - As big as possible - 400V - 450V better - I leave the installed one for now
C18	5	0	10	22	10	pF	500	Silver-mica	2	Bypass of the ECC81 tube - on tube socket - 5 pF in the schematic - was cancelled in Rev 3 - I Put 10 pF/500V
C19	5	0	10	22	10	pF	500	Silver-mica	2	Bypass of the ECC81 tube - on tube socket - 5 pF in the schematic - was cancelled in Rev 3 - I Put 10 pF/500V
Tubes	Original	Rev.3	Photo R.C.7	Actual	GO Revamp	Alt. name	Number	Note		
T1	ECC83	ECC83	ECC83	ECC83	ECC83	12AX7	2	Original: Philips JAN - I bought new ElectroHarmonics - For the moment I'll leave the Philips		
T2	ECC81	ECC81	ECC81	ECC81	ECC81		2	Original: Pinnacle - I bought NOS Mullard - For the moment I'll leave the Pinnacle		
T3	KT88	KT88	KT88	KT90	KT88		2	Original KT90 (with different resistors R27, R28, R29, R30 and bias current) - I bought KT88-EH		
T4	KT88	KT88	KT88	KT90	KT88		2	Original KT90 (with different resistors R27, R28, R29, R30 and bias current) - I bought KT88-EH		
Various										
Delay board				no	yes		1	Delay on the HT from the power transformer - 30 sec after heating the cathodes and establishing the bias		
F1				5 A	5 A		1	Fuse on the inlet 220V		
F2				1 A	1 A		1	Fuse on the power supply board		
Wheaters	6.3VAC	6.3VAC	6.3VAC	6.3VAC	6.3VAC		2	I was considering a Rectifier+CLC filter (10,000µF-2.2mH-22000µF) - but is not necessary		
RCA input				normal	gold plated		1	Inlet RCA sockets - gold plated		
akers connectors				normal	gold plated		4	Outlet speakers sockets - gold plated		