

## Bill of Materials - MNATS Revision G

All Revisions

**Mouser Cart Link:** <http://www.mouser.com/ProjectManager/ProjectDetail.aspx?AccessID=539874ec88>

Designation	QTY	value	Description	Manufacturer	Part Number	Notes/Alternates
<b>Non PCB Components</b>						
	1		XLR Out - DL Series	Neutrik	NC3MD-L-1	Any Neutrik D Series Connectors
	1		XLR In - DL Series	Neutrik	NC3FD-L-1	Any Neutrik D Series Connectors
	1		IEC Inlet	Qualtek	719W-00/02	See Hairball Enclosure Product Page For Alternatives
	1		1/4 Amp Slow-Blow Fuse - 5mm x 22mm	Schurter	34.3111	
R5		10K	Input Pot - Log	Alpha	RV24AF-10-15R1-A10K	
R23	1	100K	Output Pot - Log	Alpha	RV24AF-10-15R1-A100K	
R55	1	25K	Attack Pot - Lin or Log w/ SPDT Switch	Alpha	RV24A02F-10-15S1-BF4	*See Note About Pots
R56	1	5M	Release Pot - Lin	Alpha	RV24AF-10-15R1-B5M	*See Note About Pots
R71	1	2K	Zero Adjust Pot	Clarostat	53C22K	
<b>Capacitors</b>						
C1,C9	2	1uF	Capacitor - Film	Wima	MKS2-1.0/63/5	
C10	1	.15uF	Capacitor - Film	Wima	MKP2-.15/100/5	
C11,C18,C34	3	47uF	Capacitor - Electrolytic	Nichicon	UPW1H470MED	Panasonic FC/FM and Nichion HE/PW
C12	1	10pF	Capacitor - Ceramic	Kemet	C315C100J2G5CA	Xicon ceramic disc:140-50N5-100J-RC
C13	1	.0022uF	Capacitor - Film	Wima	MKP2-2200/400/5	
C14	1	22uF	Capacitor - Electrolytic	Panasonic	EEU-FC1V220	Panasonic FC/FM and Nichion HE/PW
C15	1	470uF	Capacitor - Electrolytic	Panasonic	EEU-FC1V471	Panasonic FC/FM and Nichion HE/PW
C17	1	1uF	Capacitor - Electrolytic	Nichicon	UPW1H010MDD	Panasonic FC/FM and Nichion HE/PW
C19,C20	2	6.8uF	Capacitor - Tantalum	Kemet	T350F685K035AT	
C2, C7, C8, C21	4	100uF	Capacitor - Electrolytic	Panasonic	EEU-FC1V101	Panasonic FC/FM and Nichion HE/PW
C22	1	.022uF	Capacitor - Film	Wima	MKS2-.022/100/10	Located on Attack Pot
C23,C89,C33	3	10uF	Capacitor - Electrolytic	Nichicon	UPW1J100MDD	Panasonic FC/FM and Nichion HE/PW
C24	1	2200uF	Capacitor - Electrolytic	Panasonic	ECA-1VHG222	
C25,C26	2	2200uF	Capacitor - Electrolytic	Panasonic	ECA-1HHG222	
C28, C35	2	.1uF	Capacitor - Film	Wima	MKP2-.1/100/5	

C29	1	47pF	Capacitor - Ceramic	Kemet	C315C470J2G5CA	Xicon ceramic disc:140-50N5-470J-RC
C3, C4	2	200pF	Capacitor - Mica	Murata	RPE5C2A201J2P1Z03B	
C30,C31	2	6.8uF	Capacitor - Electrolytic	Panasonic	ECE-A1VKG6R8	Panasonic FC/FM and Nichion HE/PW
C32,C100,C101	3	100pF	Capacitor - Ceramic	Kemet	C315C101J2G5CA	Xicon ceramic disc:140-100N5-101J-RC
C5,C27	1	.22uF	Capacitor - Film	Wima	MKS2-.22/100/10	
C6	1	27pF	Capacitor - Ceramic	Kemet	C315C270J2G5CA	Xicon ceramic disc:140-100N5-270J-RC
<b>Diodes</b>						
CR11	1	1N4148	Diode - Rectifier	Fairchild	1N4148	
CR1, CR2	2	1N4004	Diode - Rectifier	Fairchild	1N4003	
CR3,CR4	2	FDH333	Diode - High Conductance	Fairchild	FDH333	Do Not Substitute
CR5,CR7,CR8,CR9,CR10	5	1N4004	Diode - Rectifier	Fairchild	1N4004	
CR6	1	1N4740A	Diode - Zener	Fairchild	1N4740A	
<b>Integrated Circuits</b>						
IC1	1	TL071	Op Amp	TI	TL071CP	
IC2	1	NE5532	Op Amp	TI	NE5532P	
<b>Transistors</b>						
Q1,Q10	2	2N5457	Transistor - FET	Fairchild	2N5457	Supplied with Hairball Kit
Q12,Q13,Q14,Q15	4	2N3708	Transistor - Bipolar	Central	2N3708	For MC77 style use 2N5088
Q2,Q3,Q4	3	2N3391	Transistor - Bipolar	Fairchild or Central	2N3391A	
Q5	1	2N2925	Transistor - Bipolar	Central	2N2925	
Q6,Q7	2	2N5087	Transistor - Bipolar	Central	2N5087	
Q8	1	MPSW06	Transistor - Bipolar	ON Semi	MPSW06G	
Q9	1	MPSW56	Transistor - Bipolar	ON Semi	MPSW56RLRPG	
<b>Voltage Regulator</b>						
VR1	1	LM317	Voltage Regulator	Fairchild	LM317AHVT	
	1		Heat Sink for VR1	Aavid	507302B00000G	
<b>Resistors</b>						

R10,R32,R37,R85,R86	5	1k	Resistor - 1/4 Watt	Xicon	271-1k-RC	
R11	1	560k	Resistor - 1/4 Watt	Xicon	71-560k-RC	
R12,R30,R60	3	1M	Resistor - 1/4 Watt	Xicon	271-1.0M-RC	
R13,R14,R73	3	180R	Resistor - 1/4 Watt	Xicon	271-180-RC	
R15,R87	2	150R	Resistor - 1/4 Watt	Xicon	271-150-RC	R87 on Ratio Board
R16	1	100R	Multi-Turn Trim Pot (Distortion)	Vishay	T93YA101KT20	
R17,R21	2	6.8k	Resistor - 1/4 Watt	Xicon	271-6.8k-RC	
R18	1	22k	Resistor - 1/4 Watt	Xicon	271-22k-RC	
R19	1	82R	Resistor - 1/4 Watt	Xicon	271-82-RC	
R2	1	500R	Multi-Turn Trim Pot (CMR Adj)	Vishay	T93YA501KT20	
R20	1	1.8k	Resistor - 1/4 Watt	Xicon	271-1.8k-RC	
R22,R24,R26	3	56k	Resistor - 1/4 Watt	Xicon	271-56k-RC	All on Ratio Board
R23,R62,R68,R74,R75	5	47k	Resistor - 1/4 Watt	Xicon	271-47k-RC	R23 on Ratio Board
R25,R31	2	68k	Resistor - 1/4 Watt	Xicon	271-68k-RC	R25 on Ratio Board
R29	1	6.8M	Resistor - 1/4 Watt	Xicon	291-6.8M-RC	
R33,R63,R70	3	4.7k	Resistor - 1/4 Watt	Xicon	271-4.7k-RC	
R34,R83	2	3.9k	Resistor - 1/4 Watt	Xicon	271-3.9k-RC	
R36	1	100R	Resistor - 1/4 Watt	Xicon	271-100-RC	
R38,R39	2	1.2k	Resistor - 1/4 Watt	Xicon	271-1.2K-RC	
R40,R41	2	4.3R	Resistor - 1/4 Watt	KOA Speer	MF1/4DLT52R4R30F	
R42,R76	2	470R	Resistor - 1/4 Watt	Xicon	271-470-RC	R42 on Ratio Board R76 Located on Attack Pot
R43	1	560R	Resistor - 1/4 Watt	Xicon	271-560-RC	R43 on Ratio Board
R44	1	1.5k	Resistor - 1/4 Watt	Xicon	271-1.5k-RC	R44 on Ratio Board
R45	1	2.2k	Resistor - 1/4 Watt	Xicon	271-2.2K-RC	
R46	1	10M	Resistor - 1/4 Watt	Xicon	291-10M-RC	On Ratio Board
R48	1	3.9M	Resistor - 1/4 Watt	Xicon	291-3.9M-RC	
R49	1	4.32k	Resistor - 1/4 Watt	Xicon	271-4.32K-RC	
R5,R65	2	270R	Resistor - 1/4 Watt	Xicon	271-270-RC	
R50	1	8.2k	Resistor - 1/4 Watt	Xicon	271-8.2k-RC	R50 on Meter Board (+8)
R51,R59	2	3.6k	Resistor - 1/4 Watt	Xicon	271-3.6k-RC	R51 on Meter Board (+4)
R53	1	15k	Resistor - 1/4 Watt	Xicon	271-15k-RC	
R54	1	100K	Multi-Turn Trim Pot (Tracking Adj)	Vishay	T93YA104KT20	

R57,R61	2	470k	Resistor - 1/4 Watt	Xicon	271-470k-RC	
R58,R3,R4	3	100k	Resistor - 1/4 Watt	Xicon	271-100K-RC	
R6	1	27k	Resistor - 1/4 Watt	Xicon	271-27k-RC	
R64,R72	2	2.4k	Resistor - 1/4 Watt	Xicon	271-2.4k-RC	
R66	1	182k	Resistor - 1/4 Watt	Xicon	271-182k-RC	
R67	1	38.3k	Resistor - 1/4 Watt	Xicon	271-38.3k-RC	
R69	1	44.2k	Resistor - 1/4 Watt	Xicon	271-44.2k-RC	
R7,R9	2	2.2M	Resistor - 1/4 Watt	Xicon	271-2.2M-RC	
R71	1	7.68k	Resistor - 1/4 Watt	Xicon	271-7.68k-RC	
R79	1	270k	Resistor - 1/4 Watt	Xicon	271-270k-RC	
R8,R28,R35,R52,R56,R82,R1A,R1B,R1C,R1D,R1E	11	10k	Resistor - 1/4 Watt	Xicon	271-10k-RC	
R81	1	2K	Multi-Turn Trim Pot (Q Bias)	Vishay	T93YA202KT20	
R87	1	120R	Resistor - 1/4 Watt	Xicon	271-120-RC	
R89	1	2.7k	Resistor - 1/4 Watt	Xicon	271-2.7k-RC	
	1	240R	Resistor - 5 Watt	Xicon	286-240-RC	VU Meter Lamp Resistor
<b>Optional Terminal Blocks</b>						
	5		2 Contact Terminal Block	Molex	39880-0302	*See Note About Headers
	5		3 Contact Terminal Block	Molex	39880-0303	*See Note About Headers
<b>About Pots:</b> We recommend the Bournes 250K pot (sold by DigiKey) for the output control. The output pot is in the audio chain and the Bournes part is a high quality pot with a similar feel to our input attenuator. The shaft is a little too long so you will need to add an extra 3/8" between the pot and rear of the panel for the knob to sit flush. The panel holes are drilled for 3/8" bushings. Our input attenuator and the Bournes output have 3/8" bushings. The Alpha parts have 1/4" bushings so they sit loosely in the hole. This is not an issue as you can center them and tighten the nut.						
<b>About Terminal Blocks:</b> Terminal blocks can be used on the points where wires are connected to the main PCB. They are not required and they do have advantages and disadvantages. The main advantage is that since the wire is connected to the main PCB by a screw terminal block, wiring errors can be easily fixed. The disadvantage is that the screw terminal connection is not as secure as a solder joint.						
<b>Revision History</b>						
09/05/2010						
BOM Created						

08/01/2011						
Changed Q11 to Q10						
Added VU Meter Lamp Resistor						