





**BILL OF MATERIALS FOR MNATS 1176LN REV D VERSION 2.2 BOARDS**

QUANTITY	VALUE	DESCRIPTION	DESIGNATION	NOTES
1	1uF	CAPACITOR FILM	C1	
1	27pF	CAPACITOR CERAMIC	C2	
2	200pF	CAPACITOR MICA	C3,C6	
5	100uF	CAPACITOR ELECTROLYTIC	C4,C5,C12,C21,C28	35V
3	1uF	CAP ELEC OR FILM	C7,C10,C17	
1	.15uF	CAPACITOR FILM	C8	
2	.22uF	CAPACITOR FILM	C9,C22	
2	1uF	CAP ELEC OR FILM	C10,C17	
1	10pF	CAPACITOR CERAMIC	C11	
1	270pF	CAPACITOR CERAMIC	C13	
1	.033uF	CAPACITOR FILM	C14	
1	.0047uF	CAPACITOR FILM	C15	
1	1uF	CAP ELEC OR FILM	C17	
1	47uF	CAPACITOR ELECTROLYTIC	C18	35V
2	6.8uF	CAPACITOR TANTALUM	C19,C20,	
1	6.8uF	CAPACITOR ELECTROLYTIC	C23	35V
1	2200uF	CAPACITOR ELECTROLYTIC	C24	35V
2	2200uF	CAPACITOR ELECTROLYTIC	C25,C26	50V
1	.022uF	CAPACITOR FILM	C27	ON RATIO BOARD
1	1N914	DIODE	CR1	
2	FDH333	DIODE HIGH CONDUCTANCE	CR2,CR3	DO NOT SUBSTITUTE
1	1N4740A	ZENER	CR6	10V
4	1N4003	RECTIFIER	CR7,CR8,CR9,CR10	
2	2N5457	TRANSISTOR FET	Q1,Q11	
4	2N3391	TRANSISTOR BIPOLAR	Q2,Q3,Q4,Q14	
7	2N3707	TRANSISTOR BIPOLAR	Q5,Q7,Q8,Q9,Q10,Q12,Q13	Q7-Q10 HFE >250;Q12-Q13 MATCHED OR SUB 2N5088 – USE ALTERNATE BASE PADS ON PCB. REFER TO DATASHEET FOR PINOUT
1	2N3053	TRANSISTOR BIPOLAR	Q6	USE TO-5 HEATSINK
1	270R	RESISTOR 1/4 WATT	R4	
2	27k	RESISTOR 1/4 WATT	R5,R28	
2	2.2M	RESISTOR 1/4 WATT	R6,R7	
3	1k	RESISTOR 1/4 WATT	R8,R81,R82	
1	560k	RESISTOR 1/4 WATT	R9	
4	10k	RESISTOR 1/4 WATT	R10,R31,R35,R66	
1	82	RESISTOR 1/4 WATT	R11	
1	1.8k	RESISTOR 1/4 WATT	R12	
2	1M	RESISTOR 1/4 WATT	R13,R36	
1	22k	RESISTOR 1/4 WATT	R14	
2	6.8k	RESISTOR 1/4 WATT	R15,R17	
1	3.6k	RESISTOR 1/4 WATT	R16	ON METER BOARD
3	180	RESISTOR 1/4 WATT	R18,R50,R84	
2	68k	RESISTOR 1/4 WATT	R19,R26	R19 RATIO BOARD
3	56k	RESISTOR 1/4 WATT	R20,R21,R78	R78 RATIO BOARD
5	47k	RESISTOR 1/4 WATT	R22,R38,R46,R52,R53	
1	250k	POTENTIOMETER	R23	AUDIO TAPER
3	2.7M	RESISTOR 1/4 WATT	R24,R25,R74	
6	1.5k	RESISTOR 1/4 WATT	R27,R63,R64,R68,R69,R72	R63 RATIO BOARD
1	1.2M	RESISTOR 1/4 WATT	R29	
1	150k	RESISTOR 1/4 WATT	R30	
1	39R	RESISTOR 1/4 WATT	R32	

2	560R	RESISTOR 1/4 WATT	R33,R62	
3	8.2k	RESISTOR 1/4 WATT	R34,R76,R77	
1	470k	RESISTOR 1/4 WATT	R37	
3	4.7k	RESISTOR 1/4 WATT	R39,R51,R70	
2	2.4k	RESISTOR 1/4 WATT	R40,R49	
1	270	RESISTOR 1/4 WATT	R41	
1	182k	RESISTOR 1/4 WATT	R42	
1	38.3k	RESISTOR 1/4 WATT	R43	
1	1k	TRIMMER POTENTIOMETER	R44	TRACKING ADJUSTMENT
1	10M	RESISTOR 1/4 WATT	R45	RATIO BOARD
1	44.2k	RESISTOR 1/4 WATT	R47	
1	7.68k	RESISTOR 1/4 WATT	R48	
2	470	RESISTOR 1/4 WATT	R54,R61	RATIO BOARD
1	25k	POTENTIOMETER	R55	ATTACK POT
1	5M	POTENTIOMETER	R56	RELEASE POT
1	270k	RESISTOR 1/4 WATT	R57	
2	150	RESISTOR 1/4 WATT	R58,R85	
3	2k var	TRIMMER POTENTIOMETER	R59,R71,R75	MULTITURN OR USE FRONT PANEL POT FOR R71 "0" SET
2	3.9k	RESISTOR 1/4 WATT	R60,R67	
1	3.9M	RESISTOR 1/4 WATT	R65	RATIO BOARD
1	680R	RESISTOR 1/4 WATT	R73	
1	15k	RESISTOR 1/4 WATT	R79	
1	100R	TRIMMER POTENTIOMETER	R86	DISTORTION TRIM
1	1.1k	RESISTOR 1 WATT	R87	MOUNT ABOVE BOARD
1	220R	RESISTOR 1/4 WATT	R89	
1	7824	VOLTAGE REGULATOR	VR1	USE TO-220 HEATSINK
1	4 POLE	LORLIN ROTARY SWITCH	S2	
1	2 POLE	LORLIN ROTARY SWITCH	S4	

#### ADDITIONAL COMPONENTS

1	600 OHM	T ATTENUATOR		
1	C-3837-1	INPUT TRANSFORMER	T1	FROM HAIRBALL AUDIO
1	5002	OUTPUT TRANSFORMER		FROM HAIRBALL AUDIO
1	CM96731	OUTPUT TRANSFORMER		ALTERNATE OUTPUT FROM CINEMAG
1	50V CT	POWER TRANSFORMER		~30VA