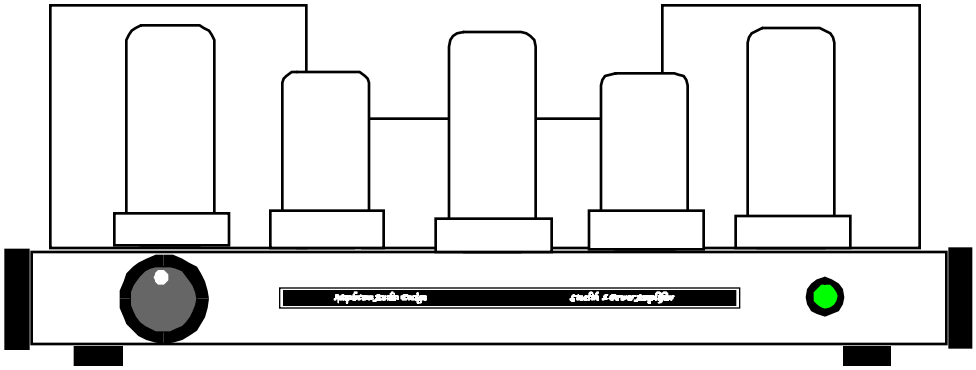
MAPLETREE MAD AUDIO DESIGN

Stealth 5
Monobloc Power Amplifier



User's Manual

Rev. May 21/03

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Introduction

The Mapletree Audio Design Stealth 5 Monobloc Vacuum Tube Power Amplifier offers the audiophile a number of unique features:

- Exclusive use of high quality new old stock (NOS) tubes that can be obtained at modest cost from many suppliers. The tubes provided are North American manufactured brand-name types and should exhibit a long life in this application.
- Class A push-pull beam power tetrodes delivering 6 Watts output power at low distortion.
- Soft-start vacuum tube rectification.
- Wide frequency response: 20 Hz – 20 kHz –1 dB at 5 Watts power output.
- Input volume control and high sensitivity of 0.3 V permit use without a line preamp if desired.
- DC heater power supply for low noise.

The MAD Stealth 5 is a monobloc audio power amplifier with integral power supply. Two units are required for stereo reproduction. While the input level control can be used to set the volume level when feeding the input directly from a line-level source, the use of a line preamplifier is recommended for convenience and flexibility.

For first-time operation, the 5 tubes must be inserted in the sockets in the positions shown in the layout drawing which follows. Carefully align the key on the tube spigot with the notch in the socket before pushing into place. When removing tubes, wiggle slightly as you pull. Tubes supplied are normally 12 V heater types so make sure the heater voltage selector switch is in the 12 V position (with the "12" visible).

Controls_____

The rear panel layout shown below includes (right to left) the IEC ac line cord receptacle, the fuse holder (2 A fast blow fuse required), the speaker binding posts (black is ground), the input level control, and the RCA line input jack. A knob can be attached to the level control if it is to be used as a volume control.

The front panel layout includes an ac power switch on the left and a pilot light on the right. Pressing the power switch on the white dot turns the unit on. A standard IEC detachable line cord connects the ac receptacle to a grounded 115-125 V, 60 Hz ac supply. The chassis is connected to the ac line ground.

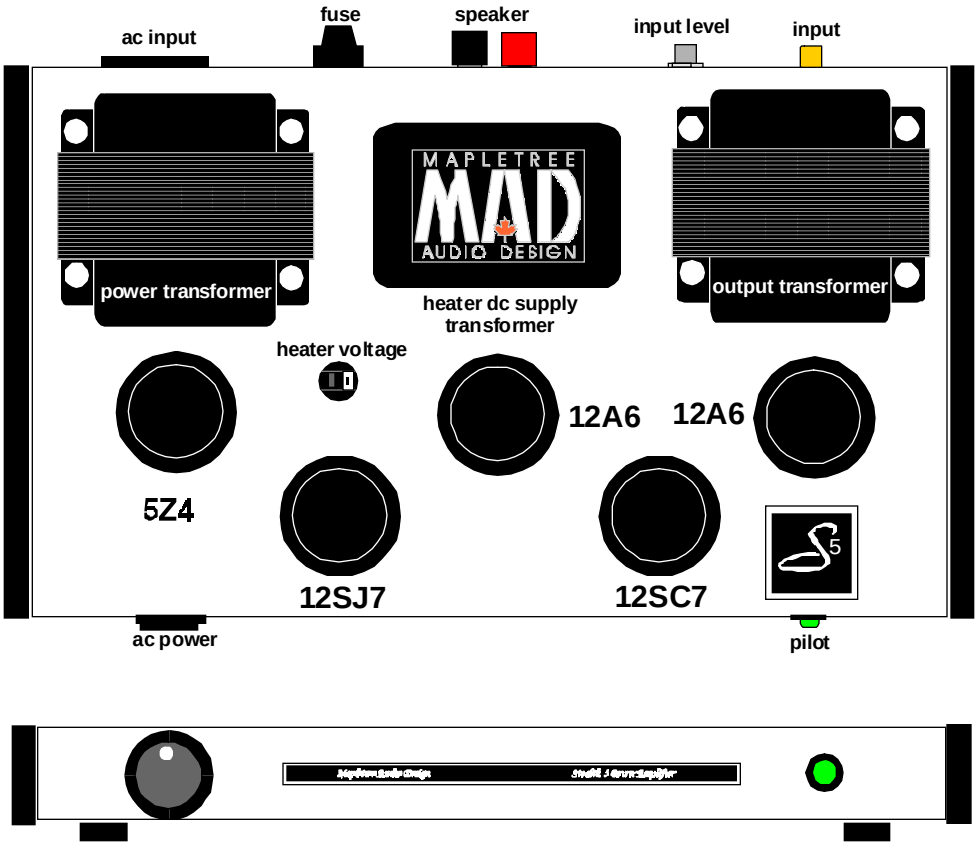
For normal operation with a line preamplifier, the level control should be set to maximum position and the preamp volume control used to set the loudness level. For preamps with high gain, it may be desirable to adjust the level control on the Stealth 5 to enable the preamp volume control to operate around its mid position at normal listening levels.

Input/Output___

The preamp line output is connected with a shielded RCA interconnect cable to the Stealth 5 input jack. The input impedance of 100K Ohms is high enough for driving with any solid-state or tube preamplifier.

The speaker output is factory wired according to the customer's specifications, typically 8 Ohms. If a different impedance is required, the output circuit must be re-wired internally. Consult Mapletree Audio Design or a qualified technician. The output transformer wiring diagram is included in the appendices of this manual.

Chassis layout



Tube replacement and experimentation

The tubes supplied are 12 V heater, metal envelope types. These are new old stock (NOS) tubes that are not currently manufactured. While the types used are selected partly for their availability and reasonable cost, some substitution may be necessary or desired according to the listener's tastes. All of the types used are available at higher cost in glass versions. The equivalence is shown in the following table.

Metal type	Function	Glass type
12A6	Beam power output	12A6GT
12SC7/6SC7	Phase splitter	6SC7GT
12SJ7/6SJ7	Voltage amplifier	12SJ7GT/6SJ7GT
5Z4	Full-wave rectifier	5Z4GT

Note that if you want to use the glass 6SC7GT, you will need to use a 6SJ7 or 6SJ7GT as there is no 12SC7GT type. You can substitute a 5W4/5W4GT, 5Y3GT, or 5T4 filament type rectifier for the 5Z4 rectifier tube but you will lose the advantages of soft startup and low voltage drop offered by the cathode type rectifier. The plate voltages will be reduced somewhat which will lower the maximum power output. The GZ34/5AR4 cathode type is also compatible.

Appendices

Specifications

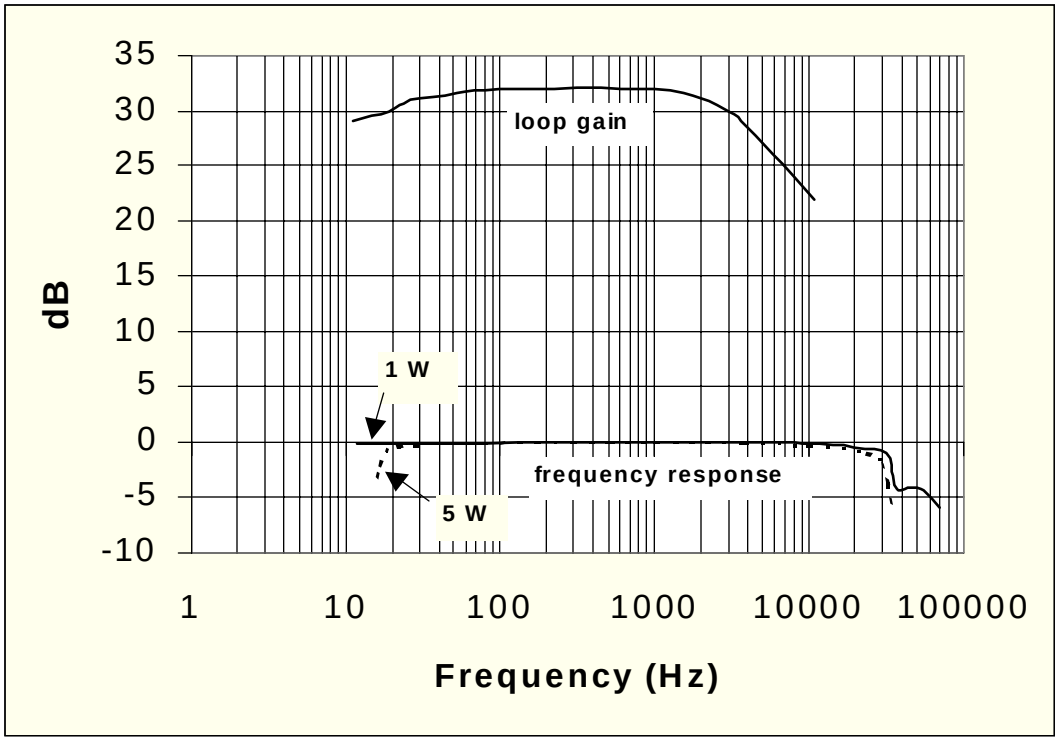
Output transformer wiring diagrams

Replacement parts list

Schematic diagram

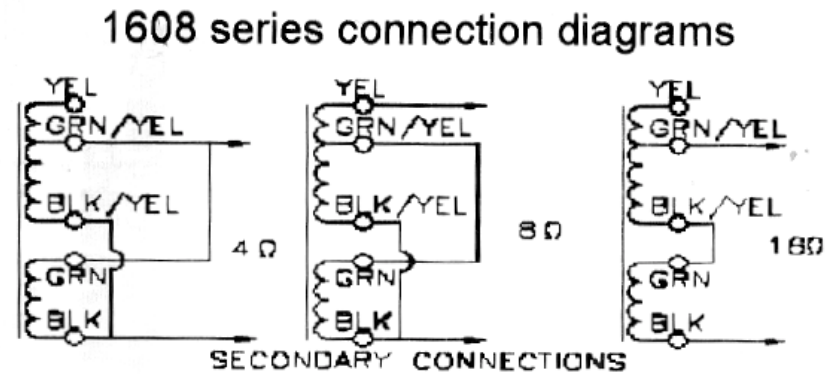
MAD Stealth 5 Specifications_____

Maximum output power into 8 Ω load before clipping: 6 W
Hum and noise output with zero signal in: less than 1 mV (77 dB below 6.5 W)
Input resistance at 1 kHz: 100 kΩ
Output resistance at 1 kHz: less than 0.1 Ω (damping factor greater than 80)
Frequency response (1 W output): 12 Hz–20 kHz – 0.5 dB
Frequency response (5 W output): 20 Hz–20 kHz –1 dB
Sensitivity for full output: 0.3 V rms
Power consumption: less than 25 W



Output transformer wiring diagrams_____

Normally wired for 8 Ohms.



Replacement Parts List

Reference	Description	Qty.
C1	100uF/16V electrolytic capacitor	1
C2, C4	1uF/250V polypropylene capacitor	2
C3	470pF/630V 1% polypropylene capacitor	1
C5, C6	0.56uF/630V polypropylene capacitor	2
C7	47uF/63V electrolytic capacitor	1
C8	2.2nF/250V 1% polypropylene capacitor	1
D1	Green 10 mA light emitting diode (LED)	1
FU1	2 A/250 V 1-1/4" fuse	1
	Fuse holder	1
J1	RCA gold plated phono jack	1
J2, J3	Insulated binding posts (red/black)	2
J4	IEC ac receptacle	1
	IEC ac line cord	1
P1	100K linear potentiometer	1
R1, R6	9.1K 0.4 W 1% metal film resistor	2
R2	3.57K 0.6 W 1% metal film resistor	1
R3	100 Ohm 0.4 W 1% metal film resistor	1
R4	470K 0.6 W 1% metal film resistor	1
R5, R9, R10	100K 0.6W 1% metal film resistor	3
R7	562K 0.4 W 1% metal film resistor	1
R8	150K 0.6 W 1% metal film resistor	1
R11, R12	280K 0.4W 1% metal film resistor	2
R13	200 Ohm 2W 5% metal oxide resistor	1
R14, R15	866 Ohm 0.4W 1% metal film resistor	2
R16	2.2K 0.5W 5% carbon film resistor	1
R17	1.5K 10 W 5% wire wound resistor	1
R18	7.5K 2 W 5% metal oxide resistor	1
R19	75K 0.5W 5% carbon film resistor	1
R20	1K 0.5W 5% carbon film resistor	1
SW1	SPST rocker switch (ac power)	1
SW2	DPDT slide switch (heater voltage selector)	1
TR1	8000CT:4/8/16 10 W output transformer (Hammond 1608)	1
TR2	560VCT/60mA + 5V/2A power transformer (Hammond 271X)	1
TR3	12VDC/1A ac adaptor	1
V1	12SJ7/6SJ7 vacuum tube	1
V2	12SC7/6SC7 vacuum tube	1
V3, V4	12A6 vacuum tube	2
V5	5Z4 vacuum tube	1

Voltage ratings shown for capacitors and power ratings for resistors are minimum values for replacement purposes.

Schematic Diagram