

The frequency response is notable for wide bandwidth and the lack of any peaking at the higher frequencies.

other partners, formed A & M Ltd. to pursue his dream of making premium vacuum-tube audio electronics.

The ATM-1 is a stereo tube power amplifier built on one chassis, and it is rated at 36 watts per channel. Some of its features include the use of oxygen-free copper wire in its hand-wired construction, two rectifier tubes instead of solid-state diodes, generous-sized Tamura output transformers, a copper-plated chassis, select tubes from name-brand manufacturers, and two sets of switchable signal inputs.

Front-panel attributes, from left to right, include two signal input phono jacks, a rotary selector switch, two rotary input level controls, the gold-colored brand and model plate, and a pushbutton power switch with a pilot light above it. On the rear panel are the a.c. power cord, three speaker output binding posts per channel, two additional signal input phono jacks, and a ground post. An a.c. line fuse is inside the chassis. Being built in the old, traditional tube-amp way, the ATM-1 has all its tube sockets and transformers fastened to the top surface of the chassis. A series of large holes around the output- and rectifier-tube sockets insures a generous flow of cooling air for these tubes. The main filter capacitors appear to be mounted to the top of the chassis too, but are actually mounted with capacitor clamps underneath the top surface. Looking underneath the chassis reveals a beauty of construction rarely seen in a modern tube amplifier. The input and phase-inverter tube sockets are mounted on a copper plate held below the main chassis by 1/8-inch standoffs. A series of insulated terminals on standoffs, and the tube socket pins, serve as tie points for the circuit wiring. A number of ancillary components, such as bias-adjusting pots and the main high-voltage filter choke, are mounted underneath in the wiring area. About the only concession to modern practice here is the use of plastic tie wraps instead of the old lacing cord! Parts and construction quality appear to be first-rate in this unit.

The amplifier's construction couldn't be much simpler. A piece of steel is bent up to form the top, sides, front sub-panel, and rear panel, with the bottom being open. A separate copper-plated bottom piece and a handsome front panel complete the picture. The bottom piece is slotted to allow air flow up through the interior space and out the holes around the output and rectifier tubes.



Circuit Description

Circuitry of the ATM-1 is quite conventional and topologically similar to a Marantz 8B, a classic old amp long out of production. From the switch that selects the front or rear input jack, the signal passes into a 100-kilohm input level control. Variable output from this control passes through an input coupling capacitor and a series resistor to the input tube's control grid. A 12AX7 dual triode is used for the left and right input stages, which are configured as ordinary common-cathode amplifier stages. The plate outputs of this first tube are direct-coupled into the grid of one of two tubes acting as long-tailed-pair phase inverters. A separate 12AU7 dual triode is used for this phase-inverter function in each channel. This kind of a phase inverter is, in reality, a differential amplifier with one input dynamically grounded through a capacitor and the other input driven with the signal from the first stage. The plate outputs of the phase-inverter stage are capacitor-coupled to the output tubes' control grids. Operation of the output stage is ultralinear, with fixed bias. A potentiometer in each output-stage grid circuit balances the plate current between the two output tubes. A bias level potentiometer in the power supply sets the overall bias voltage for both channels. Overall negative feedback, taken from the 16-ohm tap, is applied to the cathode of the first stage; this results in an overall noninverting input/output phase relationship.

High voltage from the power transformer secondary winding is full-wave rectified with the two 5AR4/GZ34 rectifier tubes, whose elements are wired in parallel, effectively forming two higher current diodes. Filtering is of the capacitor input type, with an input capacitance of 47 μ F. A series filter choke of some 1.25-H inductance feeds into a final filter capacitance of about 150 μ F to form the B+ supply to the output stages. This supply is resistor-capacitor decoupled to the driver or phase-inverter stage, and that supply point is, in turn, further decoupled as the supply to the first stage. A tap on the high-voltage secondary is half-wave rectified with a solid-state rectifier and RC-filtered to form the output-stage bias supply. All tubes in this design are run on a.c. from suitable secondary windings on the power transformer, which is typical practice in tube power amplifiers.

