

Fifteen-watt Sonotone HFA-150 Amplifier

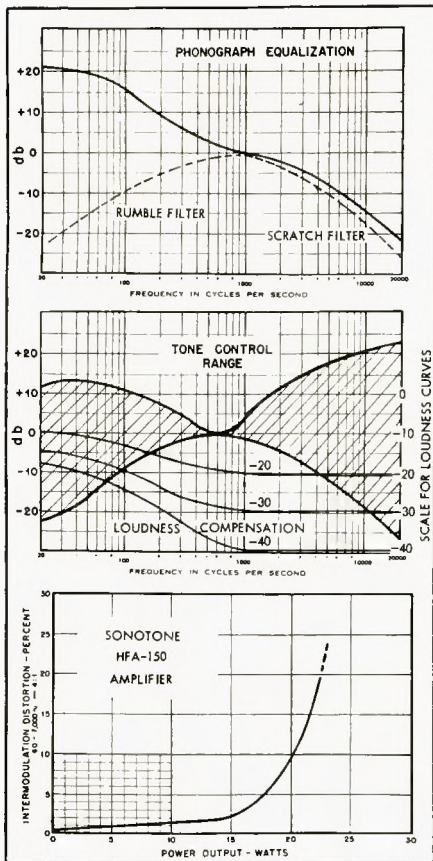


Fig. 1. Performance curves for the HFA-150.

ONE OF THE MOST COMPACT 15-watt amplifiers we have encountered lately is the Sonotone HFA-150, shown in Fig. 2. This unit combines an attractive design with good performance and indicates a conscientious study of the problem from both engineering and styling standpoints.

The amplifier employs only five tubes—two 6AN8's, two 12V6GT's, and a 12BW4 rectifier. The pentode section of the first 6AN8 serves as the phono preamp, and is equalized approximately in accordance with the RIAA curve. Five high-level inputs and the output from the preamp section are switched by the selector switch and fed to the triode section of the tube, which in turn drives the tone control network. The pentode section of the second 6AN8 is a voltage amplifier and the triode section is a phase splitter, driving the output tubes from the split-load circuit.

Three unique features appear in the circuit, shown in Fig. 3. *S-2*, across a portion of the bass tone control, serves as a rumble filter. The switch is actuated by pulling the knob outward slightly. *S-3*, across a portion of the treble control is actuated in the same manner and serves as a scratch filter. Curves for both of these filter circuits are shown by the dotted lines in the upper section of Fig. 1. The con-

trol consists of a dual potentiometer with each section across one of the capacitors in the tapped volume control circuit. In the flat position, both of these capacitors are shorted out; as the control is rotated, the low-frequency response is increased in the lower-volume settings of the volume control, resulting in the curves shown in the center section of Fig. 1. The tone control range is also shown in this section. Intermodulation distortion is shown in the lower section of Fig. 1. Provision is made for 8- and 16-ohm speaker loads, and the amplifier is extremely stable with respect to the reactive loads, with no instability being evidenced with a 2.0- μ f capacitor across the 16-ohm output—which is somewhat unusual with feedback amplifiers.

One of the more important features of the amplifier is the use of d.c. on the filaments of the two 6AN8's. This results in a low hum level, which measures 66 db below one watt at the operating point of the volume control on phono input, or 74 db below 1 watt on the high-level inputs. These figures correspond to approximately 78 and 86 db below maximum output (15 watts) which is the usual method of indicating hum and noise.

The tone controls seem to be somewhat more abrupt than is usual, but with the smaller amplifiers it is considered likely that the user may not be using a speaker system with extremely good response at the top and bottom of the audio spectrum, and the additional boost and cut is provided to compensate for speaker deficiencies. Actually, however, the subjective effect is excellent, and the amplifier sounds clean throughout normal operating outputs.

Sensitivity is such that a 1-watt output is obtainable from a phono input of 1.65 mv, and from a high-level input of .079 volts, and the signal at the TAPE OUTPUT jack is 0.5 volts from these inputs. Separate level adjustment potentiometers are provided for three of the high-level inputs. Physically, the perforated metal cover is arranged to mount with a slight overhang in front for a modern appearance, or flush with the front panel for a more conventional appearance. The unit is available in a wide range of colors.



Fig. 2. Sonotone's "15-watt amplifier at a 10-watt price," Model HFA-150.

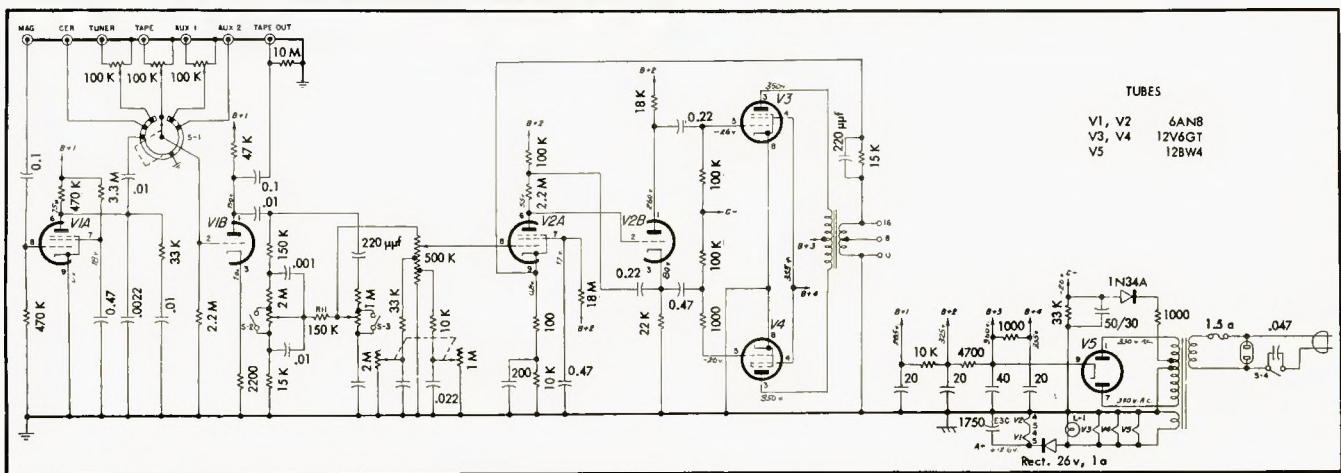


Fig. 3. Complete schematic of the Sonotone HFA-150.