

LAFAYETTE KT-250-A 50-WATT INTEGRATED STEREO AMPLIFIER KIT

ONE OF THE PROBLEMS of acquiring a complete stereo system is the need for two of everything—practically—which naturally is more expensive than the monophonic systems were. In most instances, modern stereo amplifiers are all built on one chassis, to be sure, but there has not been enough simplification to result in a noticeable reduction in cost—simplification that could provide almost the same facilities at much less expense.

Kits are a step in the direction of permitting the audioman to save considerable money. Amplifiers are the most common form of kit construction because quite a bit of labor goes into building an amplifier, even on an assembly-line basis, and most of this can be provided by the audioman with no outlay of money. Most kit builders get pleasure out of the actual construction, and while their rate of "pay" for the time spent in putting a kit together may be much lower than factory labor, it is at least more profitable than watching television, for instance.

But taking another forward step in the direction of reducing cost has usually resulted in the elimination of some of the facilities desired—or presumed to be desired—by the ultimate user. Therefore,

practically every amplifier on the market—both kit and factory-built—follows the conventional form of circuitry, which means that there will be a selector switch, a function switch, bass and treble tone controls, volume and/or loudness controls, balance control, and so on. In the Lafayette KT-250-A, shown in Fig. 1, the design has been simplified greatly and without eliminating any of the desired functions—so much so that one is inclined to wonder why someone didn't think of it before.

First, there is the conventional and most necessary selector switch, separate bass and treble tone controls, a ganged but clutched volume control which provides for balancing, a separation (or blend) control, and four slide switches. Of these latter, one cuts in or out the loudness contour compensation, the second provides phase reversal for one speaker, and the other two serve as the function control—one connects the A amplifier to either A or B inputs, and the other connects the B amplifier to either A or B inputs. This simplifies both wiring and operation, and certainly reduces cost. For a mono source to be fed to both speakers, both switches are set at A or B, depending on which source is desired. For stereo, one is set at A and the other at B; for stereo reverse the two switches are simply reversed. If the FM tuner is on A and the AM tuner is on B, two separate programs may be fed to the speaker systems—pos-



Fig. 1. External appearance of the Lafayette KT-250-A dual-25 integrated stereo amplifier.

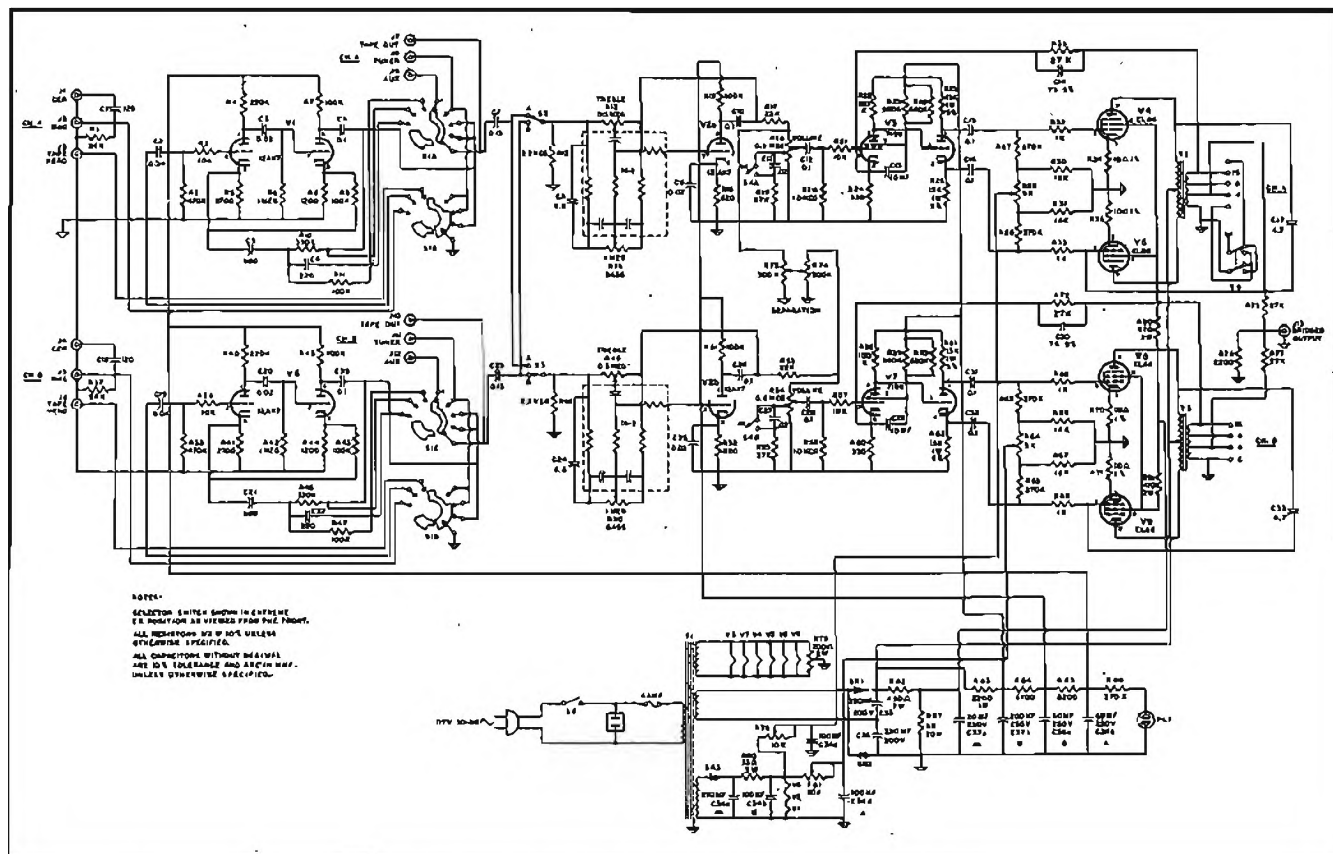


Fig. 2. Complete schematic of the KT-250-A kit amplifier.

sibly requiring external speaker switching, but allowing one program to be fed to one room and a second to another. Certainly the system provides adequate flexibility for most any ordinary home use. To be sure, there is no rumble filter and no scratch filter, but with LP records there is little need for the latter, and when over-all system cost must be kept relatively low, it is not likely that the loudspeaker systems will have enough response in the low-frequency region for rumble to be much of a problem. In addition to the features already listed, there is a "bridged output" jack which provides a high-impedance A+B signal which may be fed to another amplifier for a "center-fill" speaker or for loudspeakers throughout the home.

Circuitry

We have considered the KT-250-A to be sufficiently interesting to reproduce the entire schematic, Fig. 2. Both sections of the amplifier are identical except for the phase reversing switch in the speaker circuit of the A channel. The preamplifier stage, a 12AX7 with equalization in the feedback circuit, accommodates tape head and magnetic or ceramic phono cartridges—the switch has only four positions, so one cannot select between the two types. Two high-level inputs are provided for each channel—tuner and the usual "aux," and the tape out jack is fed from the output of the selector switch. This is followed by the two "function" slide switches which feed the Baxendall-type tone-control network which works with one half of another 12AX7, and its output feeds the clutch-type volume-loudness control and the sepa-

ration control—which consists of a dual 500 k-ohm potentiometer with the top ends connected to the top ends of the volume controls, the bottom ends grounded, and the two arms connected together. The loudness contour switch shorts out a capacitor in the tapped volume control circuit.

A 7199 pentode-triode amplifier and phase splitter follow, and it in turn drives the EL86 output tubes, providing 25 watts in each channel. Output impedances of 4, 8, and 16 ohms are provided, and a DPDT slide switch reverses the speaker leads in the A channel only. Two silicon diodes are used in a voltage-doubler circuit to provide 260 volts at the plates of the output tubes, which are of the low-voltage, high-current type. Another silicon diode provides the fixed bias voltage for the output stages as well as d.c. for the first three tube sections in each channel—the preamplifier stages and the tone-control amplifier stage, V_{g2} and V_{b1} . Both bias adjustment and balance controls are provided for each channel, and a hum control helps reduce the hum level to a satisfactory low.

Construction and Performance

Time required for construction should run from 12 to 15 hours, depending on the individual's proficiency. The instructions are complete and accurate, and we found no errors in lengths of wires, order of construction, or specific application of the hardware furnished. While the finished unit may not be a "deluxe" model, it is certainly a "utility" model, and its performance exceeds specifications in most particulars.

IM distortion measured less than 0.5 per

cent up to 10 watts, then increased gradually to 1.9 per cent at 25 watts (average of the two channels, neither exceeding 2 per cent at 25 watts). Average harmonic distortion at 1000 cps measured 1.1 per cent at 25 watts. Hum measured 56 db below 1 watt on high-level inputs and 41 db below 1 watt on phono and tape inputs. This figure is comparable to the specifications of 70 and 50 db below *rated* output—although not quite as low—since 1 watt is 14 db below 25 watts. We adjusted the hum control for optimum, but made no changes in tubes after first placing them in their sockets before making the measurements. Minor adjustments in lead dress reduced the hum some 6 db further, but this would require individual experimentation. In any case, the hum at this level is not noticeable on loudspeakers of average quality.

Signals of 3.5 and 3.6 mv, respectively, gave the rated output from the two channels on phono and tape-head inputs, with 0.46 and 0.51 volts being required at the high-level inputs for the same outputs. At a 1-watt output on both channels, the bridged (A+B) signal measured 0.14 volts. Tone controls provided boosts and cuts of 12.4 db at 10,000 cps and of 16 db at 50 cps with both channels tracking within 3 db throughout the range. The volume control tracking was within 2 db throughout.

In physical dimensions, the KT-250-A measures 14½ in. wide, 12¾ in. deep, and 5½ in. high, and its weight is 28 lbs. The entire unit is neat, attractive, and a very good performer in spite of, or because of, its simplicity.