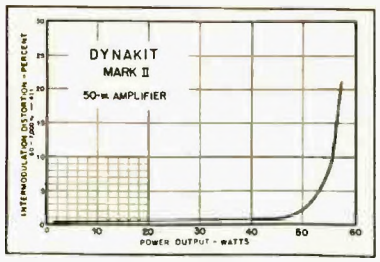

Fig. 1. Intermodulation distortion curve for the Dynakit 50-watt amplifier.

Dynakit "build-it-yourself" 50-watt amplifier—AMI music system amplifier, model R-1250—United Speaker Systems' "Premiere"—Racon 15HTX "high-compliance" loudspeaker.

WITH MOST SERIOUS AUDIO HOBBYISTS aware that there are some advantages to higher power for their home systems, particularly when they may be driving speakers in several locations at the same time, the availability of a 50-watt amplifier in kit form should be interesting.

Further, when the kit amplifier exhibits really excellent quality throughout, is quite simple to construct, and because it is a kit somewhat less costly than a comparable factory-built amplifier, it is likely to excite the serious hobbyist.

Fig. 2. The Dynakit amplifier with its protective cover.

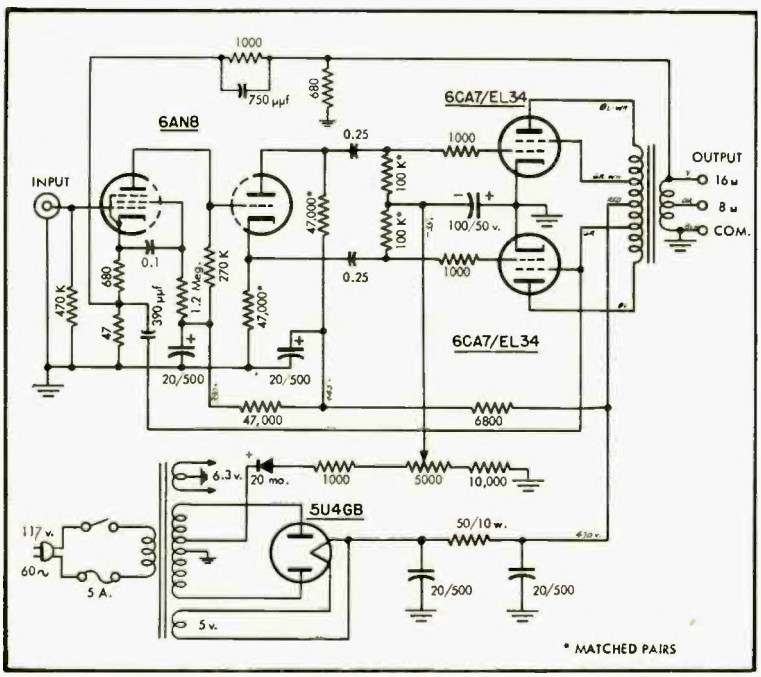

Fig. 3. Complete schematic of the Dynakit. The suppressor grids of the output stage are not shown, but are connected to the cathodes and thence to ground at the tube socket.

The Dynakit amplifier, shown in *Fig.* 2, is attractive in appearance, carefully prepared so that all parts go together without any mechanical work being required by the constructor, and can be assembled easily in less than three hours, even by the least experienced amateur. The more complicated wiring of the input and driver stages is already completed in the form of a printed circuit board, and requires only mounting on the chassis and the connecting of seven wires into pretinned eyelets. The remainder of the construction is straightforward, and requires only the use of screwdriver, diagonal cutters, pliers, and a soldering iron.

The circuit, *Fig.* 3, is a new development by Dave Hafler, and employs two 6CA7/EL84's in the Ultra-Linear output stage, working with fixed bias, and a single 6AN8 in the input and phase-splitter stages. Since these two stages are direct coupled, there is only one RC network between input and output, which reduces problems of phase shift in relation to the feedback circuitry. The input stage consists of the pentode section of the 6AN8, and it is direct coupled to the triode section which serves as a cathodyne phase splitter, and thence driving the output grids directly. Fixed bias is supplied from a tap on the power transformer secondary and a separate selenium rectifier.

Since it is hardly necessary to show the frequency response of a simple power amplifier of modern design—practically all of them are within a fraction of a db from 20 to 20,000 cps—the only curve shown, *Fig.* 1, is that of intermodulation distortion, indicating that the unit is slightly under two per cent at 50 watts, measured into a resistance load. For comparison purposes, an output of 1 watt is obtained from an input signal of 0.198 volts, and an input of 2.78 volts will provide the full 50-watt output. As a matter of interest, the IM distortion at outputs of less than 35 watts is well under 0.5 per cent. The amplifier will furnish 1 amp. at 6.3 volts and 20 ma at 200 to 400 volts for an external preamplifier. Output impedances of 8 and 16 ohms are regularly supplied, with an additional 4-ohm output being available at extra cost. Measured output impedance across the 16-ohm tap is 1.1 ohms, corresponding to a damping factor of 15.

The crucial test of any amplifier is, of course, how it sounds in actual use, and the Dynakit serves to show the advantage of thoroughly adequate power. With 50 watts available, there is a definite difference in the way the system handles music peaks, and a direct comparison between this unit and a 5-watt unit, for example, will indicate that oftentimes the distortion we attribute to pickup, record, or what not might better be attributed to the power amplifier. With 50 watts, one is not likely ever to hear an overloaded signal—that is, not in the average speaker system.