

CONSUMERS' RESEARCH

Bulletin



October 1948 CONTENTS

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Two Audio Amplifiers, an AM-FM Phonograph Combination, a High-Fidelity Speaker System, and Circuit for Clarkstan Pickup

Two Audio Amplifiers

A. Recommended

Altec Lansing, Model A-323B Audio Amplifier (Altec Lansing Corp., Hollywood) \$133. Over-all size, 8 in. high, 12 in. wide, 8 in. deep. For use on 110 to 125 volts, 60 cycles a.c. Rated at 15 watts power output. Output impedances of 2.5-5, 8-12, 16-24 ohms (considered adequate range for usual consumer needs). 6 tubes used including two 6L6 "beam power" pentodes for power output and a 5U4 as rectifier. Separate controls for bass, treble, and volume. Two inputs provided — "Radio input" suitable for use with tuner or crystal pickup and "phono input" which had sufficient gain for use with GE or similar magnetic pickups and provided adequate bass. Amplifier was well constructed, using good quality parts, including an excellent output transformer (important). Frequency response (electrical) 20 to 20,000 cycles within 1 db. Power output 21.5 watts at 1000 cycles and held at 18 watts or more between 25 and 15,000 cycles, measured at 2.5 percent distortion, a direct indication of the excellent quality of the output transformer. Hum level not objectionable (60 db. below 15 watts with maximum bass boost). Radio channel required 0.4 volts and phono channel 0.02 volts for 15 watts output. In listening test gave good quality reproduction of phonograph music, but with full bass boost there was some evidence of bass "boom" and "overhang," which might be quite objectionable to some listeners. This was possibly caused partly by the type of bass control used, which eliminates negative feedback at low frequencies. Harmonic distortion was less than 1 percent for outputs under 14 watts. This amplifier is considered definitely superior to the *Thordarson T-31W10-A* but is not to be considered at all comparable to the *Brook* (see April and May 1947 Bulletins). 3

B. Intermediate

Thordarson Tru-Fidelity Amplifier, Model No. T-31W10-A (Thordarson Electric Mfg. Division, Maguire Industries, Inc., Chicago) \$64.58. Two samples tested. Over-all size, including tubes, 8 in. high, 14 in. wide, 8 in. deep. For use on 115 volts, 60 cycles a.c. Rated power consumption, 115 watts. Used two 6B4G power triodes (desirable) in push-pull output; pentodes for input amplifiers (for best amplifiers, CR recommends low-gain triodes throughout). Input for high level radio, or crystal pickup; low level for microphone (low level input required 0.01 volts input, high level input required 0.25 volts, for 10 watts output). Quality of parts, average. Ease of servicing, good. Frequency response (electrical): within 2 db. from 20 to 15,000 cycles in chassis No. 1 at neutral position of tone controls and 30 to 20,000 within 2 db. in chassis No. 2—both very good. Power

output, adequate. Hum not objectionable using tubes supplied. Bass and treble tone controls had good action and supplied sufficient boost and attenuation. Distortion in both samples was high in low frequency range at low power levels (apparently caused by large current unbalance in plate circuits of output tubes). Use of bass boost introduced a "muffled" sound (possibly distortion caused by inductive type of tone control). For these reasons the amplifier is not recommended for use by a person who likes substantial bass content in music or whose loud-speaker, as do most loud-speakers, requires large input to produce good response for low tones. Would have received an *A-Recommended* rating if individual bias resistors for output tubes had been used. 2

An AM-FM Phonograph Combination

B. Intermediate

Westinghouse, Model H-166 (Westinghouse Electric Corp., Home Radio Division, Sunbury, Pa.) \$379.95. Large console with mahogany finish, a.c. only. An 11-tube set (including rectifier) using superheterodyne circuits for AM and FM. 12-in. electro-dynamic speaker. Quality of parts and workmanship, good. Selectivity, good. Sensitivity, excellent on AM and FM. Spurious responses noticed. Power output at 400 cycles with 5% distortion, 12 watts (good). Over-all tonal range for FM and phonograph sections (acoustic), 70 to 6200 cycles; some output at 9000-10,000 cycles. (Exceptional for commercial phonograph equipment, not sufficient for first-class FM reception.) AM electrical response not adequate for high fidelity. (An unimportant fault, perhaps, with present-day AM broadcasting.) Used a single tone control, of an undesirable type, for both bass and treble. The tone quality suffered somewhat due to considerable resonance in the side walls of the console, giving "boominess" which distorted the low-frequency reproduction. A degree of shrillness was also noticed, quite possibly caused by a relative rise in speaker output in the 2500-cycle region. Record changer capacity, twelve 10-in. or ten 12-in. or ten of mixed sizes, at one loading. Phonograph section equipped with the very good *GE VR* cartridge and GE's preamplifier (very good if modified by simple circuit changes discussed in August 1948 Bulletin). Needle pressure, approximately 1 oz. As often happens with this type of receiver, record space provided involved sacrificing some of the speaker baffling area. For this reason, the speaker could operate well only at a moderate output level. 3

High-Fidelity Speaker System

A. Recommended

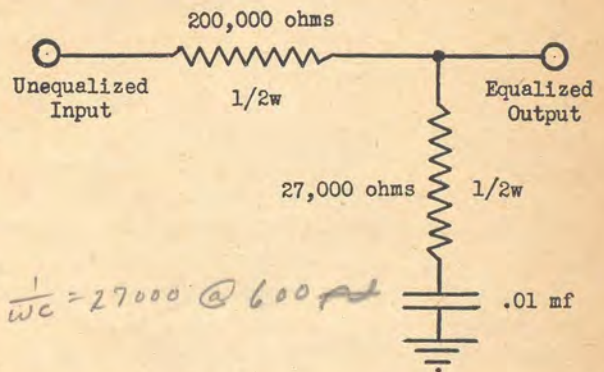
Klipsch Speaker System, Model 1A (Brociner Electronics

Laboratory, 1546 Second Ave., New York 28) \$426. A large corner-location speaker using a combination "woofer" (for low frequencies from 30 cycles up to about 500) driven by a conventional 15-inch cone speaker unit, and a "tweeter" (for high frequencies from 500 to 15,000 cycles per second) with a *Western Electric 713 A* or *Stephens P 15* as driver. The "woofer," by utilizing the two walls of the room extending from a corner in which the unit is placed, gives remarkably realistic performance in the important 30 to 500 cycle range with a very minimum of distortion. The "tweeter" section has a 90° dispersion angle matching that of the "woofer" section. The combination gives over-all reproduction which CR believes has not been approached by any other available speaker or speaker system. A crossover network is necessary, and is supplied. AA3

Frequency Compensating Network for Clarkstan Wide-Range Pickup

IN the listing of the *Clarkstan Wide-Range Pickup* in CR's BULLETIN for May 1948, it was stated that a simple network would be

published later for those users who do not obtain sufficient bass boost when using the circuit recommended by the manufacturer. The



circuit shown, when substituted for the *Clarkstan* circuit, will give a response flat within 2 db. from 50 to 10,000 cycles (when tested with use of a sweep frequency record) and a voltage output at 1000 cycles of 7 millivolts.

★★★

1948-1949 Automobiles

A Note to Our Subscribers

★★★

THE work of reporting and rating the automobiles which were discussed and listed in the August and September issues was exceptionally difficult, due to the confused and rapidly changing conditions in the trade as to prices and other factors, and because of frequent modifications of design and details being carried out by the manufacturers.

The judgments and ratings we have presented are believed to have been as accurate as was possible on the basis of the data available at the time they were prepared; because of the magnitude of the task, several months elapsed, in some cases, before the material could finally appear in print. As was pointed out in the July, August, and September articles, some of the ratings, particularly on those cars which had undergone drastic changes in design, must necessarily be regarded as tentative, until sufficient time has elapsed from the time of first manufacture of the new model to permit ac-

cumulation of information on actual records of the cars in service. (It is wholly impossible to predetermine completely the performance of such a complex mechanism as a modern automobile. No engineer, anywhere, has the capacity or knowledge which will permit fully dependable forecasting of the way a particular automobile made in 1948 will be performing in 1955 — or even in 1949.)

CR will be very glad to receive and study reports from subscribers who have purchased 1948 or 1949 model cars, giving their experience with them in general, characteristics, desirable and otherwise, of the new bodies, various defects experienced, servicing troubles and costs, gasoline and oil mileage, and any other useful, significant data on their cars. Such information will be carefully examined and will provide valuable additional material for our further reports on new automobiles.