

BOGEN-PRESTO AM/FM-STEREO RECEIVER, MODEL RP-40A

In the unlikely event you haven't noticed it, FM-stereo is here. We mention this because this unit is actually the first FM-stereo receiver with which we have had occasion to become involved. In addition, at the time we were testing this unit, there was only one stereo station on the air (WQXR) in our locality—and the stereo programs being broadcast at this particular time were between 1 and 2 a.m. on week days. Experience indicates that the Bogen-Presto RP-40A is capable of receiving good stereo providing the antenna is appropriate for the location. To demonstrate what this latter point means we should point out that we do our testing some 25 miles from the heart of New York City. When we first set up this unit we used the built-in FM line antenna. The background noise with this arrangement was intolerable on stereo. Then we installed a simple folded-dipole antenna. This produced better results but still not very good. Finally, we connected the unit up to our large high-gain antenna and this eliminated the background noise.

Now back to the receiver. The Bogen Model RP-40A is a complete stereophonic AM/FM-stereo tuner, control center, and 44-watt (22 watts per channel IHFM) audio amplifier. It is an up-to-the-minute unit with complete control over all inputs and outputs independently. This includes separate program selectors which permit directing either mono or stereo programs to either or both audio channels. Thus, the modes and function selection is incorporated in these two controls. Separate slide switch selectors are provided for two remote and two local speaker systems. These permit channeling of mono or stereo programs to local or remote speaker systems from the same or different program sources. Another interesting feature is the use of clear plastic tabs to indicate the location of much-used stations. These tabs are slid along until they are underneath the location of the particular station to be marked. When the sliding indicator is over the station, the clear plastic tab lights up thus providing visual point of reference.

The appearance of the RP-40A is clearly intended to be opulent. The front panel and most of the knobs are finished in gold and some of the trim is jet black. This combination is very rich-looking and this combination is very rich-looking and undoubtedly would blend well with the decor of most homes.

Circuit Description

The FM signal goes from the 300-ohm antenna terminals through an unbalanced line to the tuned grounded-grid r.f. amplifier (6AB4), then to a twin triode (12AT7) oscillator-mixer, through three i.f. amplifier stages (6BA6 and two 6AU6's) with dual limiting action, and then feeds the semiconductor crystal ratio detector. The output of the ratio detector is fed to an EM84 eye tube which is used as a tuning indicator; the output is also fed to the built-in stereo adapter as well as the reactance tube which controls the oscillator. A switch is provided to cut this a.f.c. in and out, as necessary. An a.g.c. circuit maintains audio-level output within 0.5 db with a range of signal variation which is quite considerable. The stereo adapter utilizes the GE-type approach wherein a matrix is used to derive the left and right audio signals. The 19,000-cps pilot is used to lock in a 19,000-cps oscillator which is then doubled to attain the 38,000-cps carrier which is reinserted. A separation control is provided on the back of the chassis which normally is needed only when tubes are changed, or the broadcast signal is below standard for one reason or another.

The AM circuit features a t.r.f. amplifier stage, (6BA6), followed by a converter and one i.f. stage to feed a diode detector. It has its own separate electronic indicator (EM84 "eye tube").

The audio section utilizes four twin triodes (eight tube sections) and two pentodes in each channel. The power output tubes are 7355 pentodes. Three of the four triode sections (two 12AX7 and one 12AU7) are used for preamplification and/or tone compensation. The third twin triode (the 12AX7) is used to drive the output tubes. D.c. is based on the heaters of all the preamp tubes.

Performance

Considered as an integrated audio amplifier, the Bogen RP-40A performs very well. Frequency response is within 1 db from 20 cps to 20,000 cps. Distortion at full output is less than 0.8 per cent. Sensitivity at the magnetic cartridge input is 2.5 mv. FM sensitivity is 2.9 μ v (IHFM) which, of course, is adequate for almost all applications. The AM sensitivity is 3 μ v for 20 db signal-to-noise ratio.

As a control center the RP-40A is very versatile, indicating advanced thinking. As we noted before, the FM-stereo potential of the RP-40A is quite good provided all other conditions are equally good. It is other conditions are equally good. It is striking in appearance and a good performer. K-24



Fig. 2. Bogen AM-FM-stereo receiver, Model RP-40A.