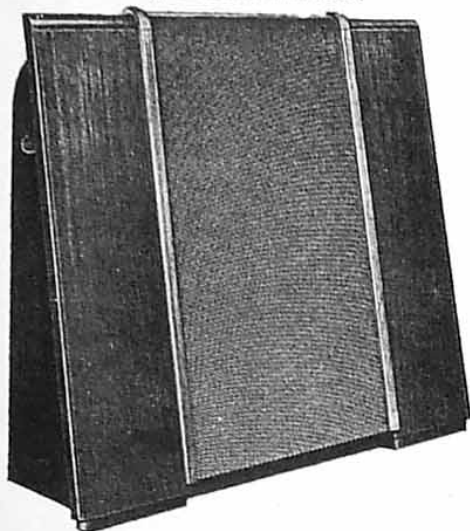


# EQUIPMENT REVIEWED

## Wharfedale Sand-filled Baffle Speaker. Type SFB/3

● A three-speaker system of basically simple design, comprising two baffle mounted driving units and a tweeter.



**Design:** At first sight it may appear to be a retrograde step—a return to a design which was popular twenty years ago, and now almost unknown outside the text-book. Why this apparent resurrection? Or, why did the baffle-mounted speaker fall from favour? Answering the latter question first, the main reason was the relatively high cone resonant frequency of those days—often above 100 c.p.s. for a 12in. unit. Below the resonant frequency the speaker is pretty well useless when only on a baffle, as the output falls so rapidly below resonance. A contributory factor was the very serious distortion that occurred if the cone was allowed to execute large excursions. Hence the crop of cabinet designs which both increased bass output and reduced cone excursions down to some 40-60 c.p.s. Unfortunately, this always added at least one more resonance to the system, in the better designs, admittedly well damped and not obtrusive.

Baffle mounting can give the same results, minus these extra resonances (and there are always a few more than the designer designed!), if the cone resonance can be made very low, by freeing the suspension sufficiently and improving the design, so that large cone excursions can occur without distortion—simple if it can be done! The two requirements depend mainly on the same factor—a free suspension that does not suddenly stiffen up for large cone deflections. For the engineer, one that obeys Hooke's Law for all amplitudes. The speech coil must be long enough to ensure that there is always a gap's length of coil in the gap, however loud the sound.

Cone resonances have been coming down gradually for years, and with the recent introduction of plastic foam surround material by this manufacturer, baffle mounting is definitely "back in the running". A second noteworthy feature of this plastic-foam surround, already mentioned in these columns, is the excellent damping of the cone edge. This results in a very much smoother top resonance, as much of the energy reaching the cone edge is absorbed, instead of being reflected back into the cone to set up resonances. This affects the response mainly in the region 500 c.p.s. to 5,000 c.p.s., but useful damping is obtained down to the lowest frequencies. So much for the general requirements.

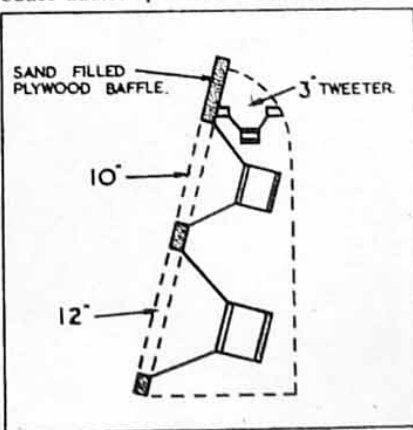
Two other special features are to be seen in this design. The first is the sand filling of the baffle—this ensures that it is heavy enough and therefore, does not move appreciably when longer

amplitude bass notes are played. It is also perfectly damped and, therefore, cannot resonate at any frequency. Making a structure stiffer, does not stop it from resonating; it only raises the frequency at which it resonates. A dry sand filling between plywood is a well-tryed solution to this problem. The second is the use of two speaker units (12in. and 10in.) with carefully chosen resonant frequencies, impedances, and cone design. This provides adequate area of moving cone to produce a useful output down to about 32 c.p.s. in domestic surroundings, and an electrical impedance which does not start to rise appreciably till well below 50 c.p.s., i.e., the speaker really is able to accept considerable power from the amplifier, right down to the 40-50 c.p.s. region. These two units are connected in parallel and receive the full signal.

The system is completed by a 3in. tweeter unit (Super 3) pointing vertically upwards and fed via a 4 mfd condenser as usual. The speaker is intended to stand freely on the floor, and will behave more or less as an acoustic doublet, but slightly more output in the extreme bass can be produced by standing it across a corner, which effectively increases the baffle area.

**Performance** Ever since hearing full-range electrostatic speakers earlier this year, the reviewer has been conscious of the middle and bass registers of practically all other speakers. A more recent chance experience with an old 10in. unit, mellowed with age, on a very large, almost-flat, baffle has further ruffled his serenity. The result of this has been rather less surprise at the excellent reproduction, and a satisfied "I thought so!", on first hearing the speaker in familiar surroundings. Continued listening has confirmed the favourable first impressions—it really does sound less like a loudspeaker than anything previously listened to. The effect is rather like a front-row-balcony seat for large orchestral items, but the apparent sound source recedes and approaches with changes of microphone-artist distance and consequent extreme top (and extreme bass) content in the signal.

Various positions in the room were tried, and whilst some positions suited certain types of programme more than others, the best position seemed to be with the speaker about 10 feet away from and facing the listener. This, of course, is a matter of personal taste and would also depend on the listening room, but as the speaker is quite portable—there are two very conveniently placed hand-slots in the sides—it is a simple matter to experiment. Also due to its shape, it does not look out of place even in the middle of the room. Bass response was surprisingly good without any bass lift, in fact, it took quite a time to decide whether or not to use a little. The final choice was between +1 and +2 on a Quad II amplifier, i.e., about half of full bass boost, and that would apply to most amplifiers. Experiment showed that it would handle enough power at 35 c.p.s. to give a really loud pure tone, i.e., without frequency doubling or trebling, and even at 32 c.p.s. it was just possible to produce audible pure tone. In other words,



★  
*This diagram shows the layout of the three speaker units of the Wharfedale SFB/3 enclosure reviewed on this page, and illustrated above.*  
★

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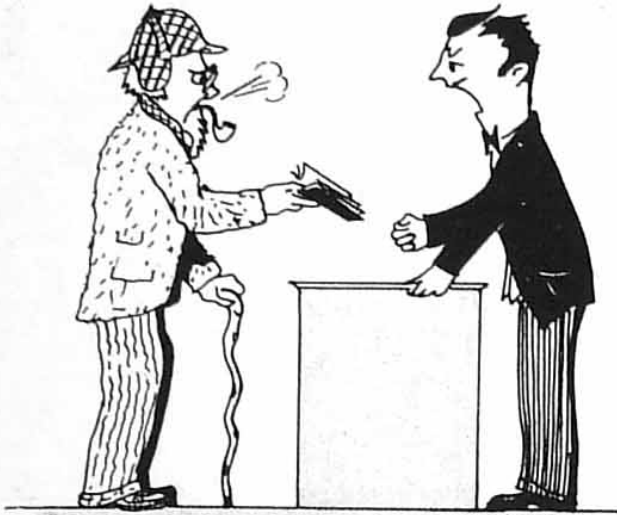
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it is quite adequate for all domestic work, even full enjoyment of organ music.

The complete absence of bass hangover makes the reproduction of the double bass accompaniment quite a revelation. No cabinet, therefore, no cabinet resonance! The top response is very smooth and will stand a little top boost when the signal is deficient in top, yet clean, as sometimes happens. This certainly could not be done unless the top was really smooth. A wide range of programme material has been enjoyed, ranging from organ to the spoken voice; many old records have been played again, and it is felt that it is really a big step forward in loudspeaker design and definitely sets a new standard. This size is 34in. wide x 31in. high x 12in. deep at the base, the workmanship excellent, very solidly made and well able to stand up to continued handling if necessary. The model reviewed was finished in maple and other finishes are available. The speaker is well designed and will harmonise very well with contemporary furniture. As the units are specially matched for this system, the speaker is only sold complete. The cost is £37 10s. 0d. and carries no purchase tax. **R. L. West**



"I don't care what Mr. Briggs says—they don't make sand-filled marble acoustic gramophones . . ."

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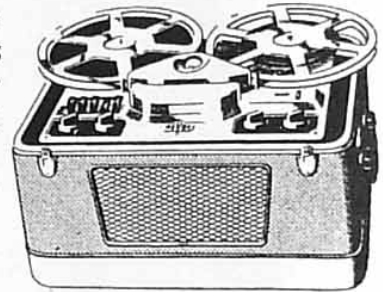
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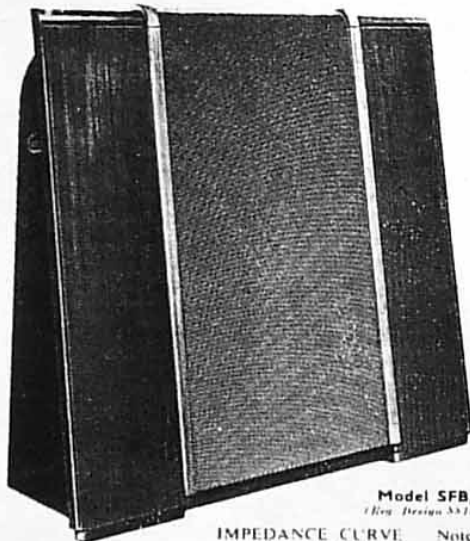
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**UNITS** W12/SFB 10-in. Bronze/CSB, Super 3. The 12-in. and 10-in. units are in parallel. This arrangement gives very smooth results over the full range with a 3 DB gain at low frequencies. The Super 3 is again in parallel via 4 Mfd. capacitor and is mounted on a small baffle facing upwards.

The efficiency of the system is high and will give full domestic volume from any good 5-watt amplifier. The baffle is sandfilled; there is no cabinet resonance because there is no cabinet. The 12-in. and 10-in. units are specially built and MATCHED FOR OPTIMUM RESULTS from this system. Baffles cannot be supplied separately.

Tropical model made with banded plywood can be supplied at £2 · 0 · 0 extra

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