

## CABINET CONSTRUCTION SHEET (Oct. 1965) — ISSUE 11

### INTRODUCTION

The following diagrams show the essential features of enclosures to give optimum results—in relation to size—with the Wharfedale range of speakers.

Although large enclosures still give the best bass, there is an ever-growing interest in compact models for small rooms and stereo, and remarkable progress has been made in LF performance with roll surround units in comparatively small cabinets during the last few years.

We have also carried out much experimental work recently with vent openings, distributed ports (i.e. slotted backs), absorbent materials, polystyrene diaphragms, tweeter boxes, crossover networks, etc., and this leaflet embodies the latest designs based on our findings.

For a complete account of the principles involved and how to construct and finish a wide range of cabinets, the new *CABINET HANDBOOK* by G. A. Briggs, published in April 1962 at 7/6 (8/6 post free) is recommended as a good buy.

#### Cone Surrounds

One problem with enclosure design has been the effect of cone surrounds on the performance. There are now four types of suspension in common use and these may be detailed as follows:

CE—corrugated edge	FS—foam surround
CS—cloth surround	RS—roll surround

One of the main objectives has been to simplify the problem by designing cabinets, where possible, to suit all the four types. This means discarding the Acoustic Filter in all cabinet models, WHERE IT SUITS ONLY FS AND CS TYPES, but it is retained in columns and pipes, where it cuts down harmonic resonance.

#### Wide Range Units

Now that 8", 10" and 12" units are available with double diaphragms (DD) and roll surrounds (RS) special care has been given to the production of optimum results on a cost/size basis.

#### Minimum Size

For reasonable bass, the minimum size is still 1 cu.ft. and our criterion of performance is that the speaker, when connected to a good FM set or tape recorder, should give much better reproduction than the internal speaker(s) which have to work in a confined space.

#### DISTRIBUTED PORT

This is the main design novelty in the leaflet and takes the form of a slotted back. It is adopted in Figs. R1, R3 and R5. The main advantages are that enclosure tuning is not necessary and any type of cone surround can be used. The ventilated back reduces resonance and improves the reproduction of speech, and the cabinet can be placed within an inch of the wall without upsetting the performance. The actual number of slots is not critical, but reducing them

raises the frequency and the Q of the main cone resonance.

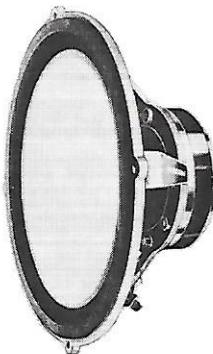
The slots can be replaced by rows of holes which are easily drilled in plywood.

The distributed port has been used with success in our W4 and Airedale speakers, and also in Line Source models.

#### POLYSTYRENE DIAPHRAGM

This represents another important development. It is found that 12" units are more difficult to house satisfactorily in small enclosures than 8" or 10" sizes, because the internal resonances are heard mainly through the cone. These resonances can be masked by fitting a polystyrene diaphragm to the 12" cone as shown in the W12/RS/PST illustrated here, and now available for general use.

#### W12/RS/PST



*12" loudspeaker with 1½" thick polystyrene diaphragm added to absorb enclosure resonances.*

*N.B. In production units, the polystyrene is sprayed black to avoid showing through mesh of cabinets.*

Patent applied for No. 46738/61.

This unit is recommended in a 2 cu.ft. enclosure in preference to an ordinary 12" cone speaker. The response is well maintained up to 4,000 c/s; a crossover and treble unit are necessary additions.