



THE QUEEN'S
AWARD TO
INDUSTRY
1973

B&W DM70 IMPROVED

Instruction
manual
test certificate
and guarantee

B&W electronics

B&W

DM70
IMPROVED

B&W DM. Trade mark of B&W electronics



General description and introduction

The DM70 is a precision monitor loudspeaker for domestic and professional use, built to very high standards.

This loudspeaker, employing the combination of dynamic bass drive unit in conjunction with an electrostatic transducer for the mid-range and upper frequencies, is capable of most realistic reproduction of both speech and music programme material. Because of its low distortion, wide and balanced frequency response, and relative freedom from colouration, it will be analytical and may well reveal shortcomings in programme material and defects in ancillary equipment which an inferior product would mask.

We hope that this instruction book will help you to assemble with ease, and in connecting and placing your loudspeakers, and we have quite deliberately restricted these instructions to be simple and non-technical wherever possible.

For an explanation of unpacking and assembling your loudspeakers (each DM70 system, excluding stands, is packed in two cartons) refer to section 3 of this booklet.

In common with all B&W loudspeaker systems, the DM70 is subjected to stringent quality control through every stage of manufacture and dispatch. Individual frequency response tests are made on every DM70 during manufacture and before dispatch, and we provide you with a calibration curve.

Provided the instructions are followed, your loudspeaker should give you many years of completely trouble-free service. In the event of any query we would ask you to adopt the following procedure if service is required:—

England, Scotland & Wales :

Contact the dealer from whom you purchased the loudspeakers.

All other Countries :

Contact our distributor for your country—name and address supplied from our factory if in doubt.

B&W have appointed agents throughout the world, selected with great care to give you the best possible service. Should you have any reason to feel dissatisfied or if any queries arise, we will be pleased to assist wherever possible.



The listening room

Most people have relatively little control over their listening room in terms of size or shape, but as the environment in which the loudspeaker is used plays such a big part in the quality of sound we hear, some comments on room characteristics may be helpful before we proceed in section 3.

There are two aspects of listening rooms which will most widely influence sound reproduction: The basic dimensions of the room and large items of furniture controlling the lower frequencies; and items of soft furnishing together with wall and other coverings affecting the middle and upper frequencies.

All rooms have resonances, and so indeed does the concert hall, but in the case of the latter these are so low in frequency, and by design, so well spaced that they add ambience rather than colouration: The worst example in a listening room or studio would be the unlikely event of all dimensions being the same and the room forming a cube. The best case being a relatively large room where all dimensions are different. Fortunately the worst example is rarely, if ever, encountered but where a choice is possible as between a square or rectangular room the latter is to be preferred as the room resonances — known as eigentones — occur at spaced frequencies and are therefore of lower amplitude.

The most pronounced eigentones occur at low frequencies below approximately 200Hz. In addition to these eigentones there is another important influence the room has over the lower octaves of reproduced sound. Due to the relatively small dimensions of the loudspeaker compared with wavelengths of sound in the lower octaves, the radiation pattern or distribution of sound at these frequencies is effectively spherical. When operating a loudspeaker in a room, this sphere of sound is contained, to a greater or lesser degree, depending on position within a series of plain surfaces formed by the walls, floor and ceiling. This produces a factor known as 'room gain' and does in fact make the lower frequencies considerably louder than if, for instance, the loudspeaker were operated in the open air.

As a result of research carried out into the "room gain" and how this affects loudspeaker performance, the stand of the DM70 has been specifically designed to give optimum results over a range of listening conditions.

Before leaving the way in which the room affects the low frequency part of the sound spectrum, a word should be said on the construction especially of the floor.

The ideal is a solidly built ground floor room with a concrete floor. In rooms where there is a board and joist floor this will play a part in both adding to bass gain and room colouration. The suspended floor acts as a supplementary bass radiator operating at the main resonance of the room. If your listening room has other than a solid floor and you are troubled by excessive or resonant bass response as a result, positioning your loudspeaker away from the corners will assist.

The subject of positioning your loudspeakers is dealt with in section 4, but before leaving the listening room we will mention its effect on middle and high frequencies.

The soft furnishings — chairs, curtains and carpet, together with wall and ceiling coverings are the main factors governing the performance of a room at middle and upper frequencies. Position of cupboards, bookshelves and other items of wall furniture also play an important role in these parts of the spectrum.

A room with insufficient soft furnishing will give a hard or steely tonal quality to middle and upper frequencies, with strings suffering especially. A room with too many soft furnishings — an over-damped room — will sound dull and lifeless, a somewhat similar effect to putting 'top cut' on your amplifier tone control.

The ideal mid/high frequency reverberation times (a measure of acoustic 'brilliance' or 'dullness') are somewhat subjective, but generally a good balance can be obtained by opposing a reflective surface with an absorbent one. As an example ceilings are usually bare and reflective and this can be well balanced by a fitted carpet. An unbroken wall facing large window areas can be broken by a bookcase on the opposite wall.

When furnishing a new room which is to be used for listening to reproduced music, it is usually wise initially to underdamp the room and then add absorbent articles after the correct balance has been determined.



Installation - unpacking and connection

For safety in transport the DM70 Improved system is packaged in three cartons, for each loudspeaker:—

Carton 1 Main cabinet with fitted power supply unit.

Carton 2 Two metal stands for the pair of loudspeakers.

Carton 3 The "702" electrostatic unit complete.

WARNING

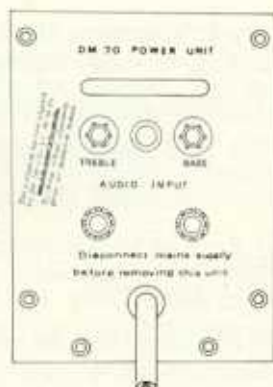
IT IS ESSENTIAL THAT THE ASSEMBLY AND INSTALLATION INSTRUCTIONS BE CAREFULLY READ BEFORE CONNECTING THIS SYSTEM TO THE MAINS OR AUDIO SUPPLY.

Unpacking. Unpack the largest cartons and remove the accessory bag tied to the rear of the power pack at the back of each cabinet. This bag contains all necessary hardware and spares, such as fuses. The smaller packages should then be unpacked. It is a worthwhile precaution to save the polystyrene pieces in which the electrostatic units are packed in case of any future transportation.

The stands may now be fitted to the base of the cabinets by means of the metal bolts provided which will mate with sealed captive nuts inside the base of the cabinet.

Mains. Before attempting to connect the mains supply to your DM70 check that your supply voltage agrees with the adjustment made to the system before it left our factory.

Fig. 1
Rear view of power supply unit, showing label indicating the power supply voltage.

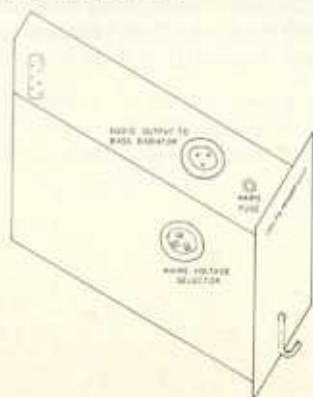


The regulation of the power supply is such that, normally, no adjustment will be necessary and the unit is set for the country of destination, e.g. European or America, etc. If, after having made this check on mains supply, it is necessary to adjust the mains voltage, please refer to the above diagram and read the instructions regarding the removal of the power supply from the cabinet.

Adjustment of mains voltage setting.

IT IS IMPORTANT TO DISCONNECT THE MAINS POWER SUPPLY AND AUDIO FEED FROM AMPLIFIER (IF CONNECTED) BEFORE ATTEMPTING TO REMOVE THE POWER SUPPLY UNIT FROM THE CABINET.

Fig. 2
The power unit removed from the cabinet.



To remove the power supply unit from the cabinet, unscrew the four screws at the side of the rear panel of the unit and withdraw it, unplugging the **audio output** to the bass unit. (If the 702 electrostatic unit has already been fitted to the cabinet, it will be necessary first to remove this, by reversing the assembling instructions which follow.)

The various adjustments to the mains voltage selector are self-explanatory. Re-insert the power supply unit into the cabinet, securing by means of the four screws.

Final Assembly. Having made the checks, and adjustments, if necessary, the 702 electrostatic unit may now be fitted. With the cabinet secured to its stand, the electrostatic may now be inserted into the sockets on the top of the cabinet. Spigots on both feet of the 702 locate in corresponding sockets and they can only be assembled in the correct manner. Having inserted the electrostatic unit, make it secure by screwing down to the cabinet through the hole in the rear of each 702 foot with the screws provided.

Connection. UNDER NO CIRCUMSTANCES SHOULD THE 702 ELECTROSTATIC UNIT BE REMOVED WITH EITHER THE MAINS SUPPLY OR THE AUDIO FEED FROM THE AMPLIFIER CONNECTED.

With the system completely assembled, connection may now be made to the necessary alternating current power supply — the power drain is negligible. Where the appropriate mains plug has not been fitted, connection to the mains is made by the three-core cable provided, the standard colour-coding of which is:—

YELLOW/GREEN	—	EARTH
BROWN	—	LIVE
BLUE	—	NEUTRAL

FOR COMPLETE SAFETY, IT IS IMPORTANT TO USE A THREE PIN SUPPLY MAKING A SOUND EARTH CONNECTION.

The output from your amplifier should, of course, be connected to the **AUDIO INPUT** of the loudspeaker — located on the back panel of the power supply unit. Connection is made to the terminal sockets, either by connecting bared wires to the binding posts, or by using standard 4mm. "banana" plugs, or similar. The terminals are colour-coded red and black and these are connected to the positive and negative loudspeaker outputs, respectively, of your amplifier.