

## MISSION 767/LFAU OPERATING INSTRUCTIONS AND OWNER'S MANUAL

Congratulations on your choice of loudspeakers. Your MISSION 767 loudspeakers are precision manufactured products using the latest computer controlled technology and have been matched and tested to the highest standards to give years of trouble free performance. A few minutes spent in studying this instruction manual will ensure breathtaking results.

### SYSTEM DESCRIPTION

The 767 speaker system consists of three units; two loudspeakers and one Low Frequency Alignment Unit (LFAU). The LFAU is a dedicated amplifier for the 767 bass units, the remaining drivers being powered from an additional standard amplifier. The controls on the LFAU differ from those of a standard amplifier as the bass response of the 767 system may be fine-tuned to suit your listening environment.

It should be noted that only the LFAU should be used to drive the 767's bass units. Similarly, the LFAU should not be used to drive any other type of loudspeaker other than the 767s. In both cases, damage may result from any cross matching.

### 1. WARNINGS

The LFAU is factory set to operate from a fixed mains supply voltage. This voltage is marked on a label on the rear of the unit. Before connecting, check that this voltage is the same as your mains supply.

Before connecting the LFAU to the mains supply ensure that the on/off switch on the front panel is in the off (down) position.

Do not remove the LFAU cover under any circumstances.

Do not change any component in your system without first switching off the LFAU and your amplifier and then disconnecting your loudspeakers.

Do not allow the positive and negative speaker leads to touch.

Do not obstruct the ventilation grille on the top of the LFAU. Ensure the unit has all round ventilation.

In the interest of improved sound quality your loudspeakers are not fuse protected. They therefore require special care and attention to ensure they are not damaged.

Do not use your amplifier at maximum power. This could "clip" the amplifier and damage your loudspeakers.

When changing records, re-dialling tuners, rewinding tapes, etc. please select MUTE on the LFAU and turn the volume control of your amplifier down to its minimum.

When switching on your system, turn the volume control down for a few seconds as some amplifiers put a "thump" through the loudspeakers which can cause damage.

Do not use the filters, tone controls or graphic equalisers on your amplifier. These are nearly always detrimental to the accurate reproduction of music and should be set at "0".

Do not expose your 767 system to excessive cold, heat, humidity or sunlight – see Maintenance.

Do not connect your loudspeakers to the mains electricity supply.

Do not dispose of the packing materials for your loudspeakers as you may wish to transport them at some future date. Correct packing will ensure that they can be shipped without damage.

## 2. INSTALLATION

### UNPACKING YOUR SYSTEM

The Mission 767 speaker system is supplied in three containers. We strongly recommend that two people unpack the system as the speaker cabinets are very heavy.

If your loudspeakers are high gloss piano finish, we recommend you remove rings, watches etc. when handling to avoid scratching the surface.

The following equipment and parts should be present when the three containers are unpacked:

- Two 767 loudspeakers.
- Two grilles for above.
- Eight Conical metal supports.
- One Stereo Low Frequency Alignment Unit, (LFAU).
- One pair of Loudspeaker cables for connection from the output of your amplifier to the input of the LFAU.
- One power cord for LFAU mains power connection.
- Twelve sets of loose banana plugs (Red & Black), for making up cables to the 767's.

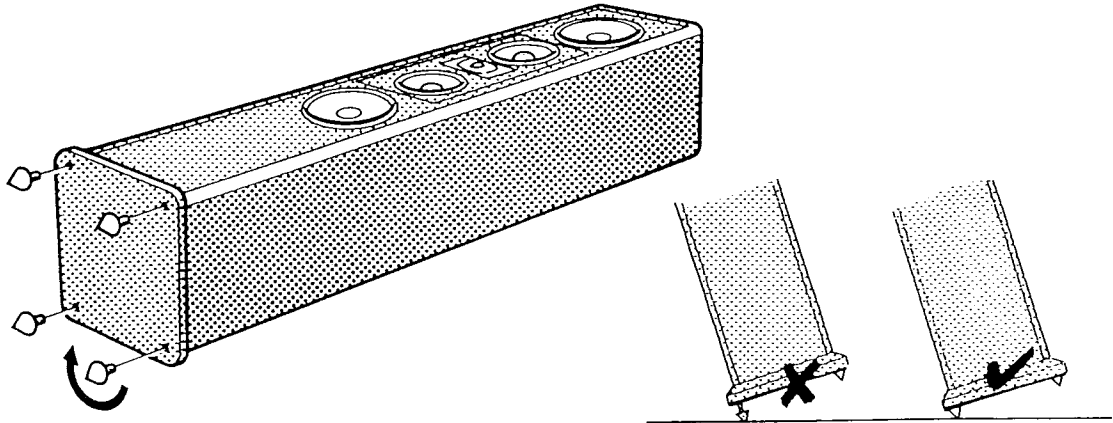
### INSTALLATION

**WARNING** These speakers are liable to serious damage if incorrectly connected. Faulty connection damaging the LFAU or speakers will invalidate warranty.

The LFAU may be sited either close to the loudspeakers or near the rest of your amplification units. It is generally recommended however, that for convenience the LFAU be placed as part of your equipment rack.

The 767 system, through the LFAU, provides its own dedicated alignment and amplification for the low frequency drive units. The Mid and High frequency units, however, are Bi-wireable/Bi-Ampable from your existing amplification system.

Lay the 767 cabinets on their backs on a soft floor covering so as not to damage the cabinets. Do not place face down as this may damage the drive units. Install the conical metal supports as indicated in the diagram below, turn them fully home. When moving your speakers ensure that the spikes are turned fully home as the weight of the cabinets may bend the threaded spindle on the spikes.



Stand the speakers up taking care when positioning them as the spikes can damage floorcoverings. Due to general unevenness of floors you may have to adjust one of the supports to eliminate any rocking. These supports ensure that:

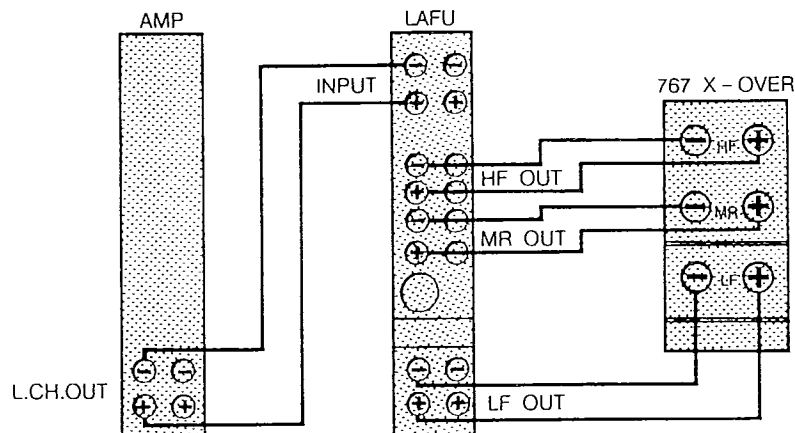
- The 767s are rigidly coupled to the floor for optimum behaviour of the system.
- The cabinets sit upright and do not rock.

#### CONNECTING YOUR LOUDSPEAKERS

Your loudspeaker terminals are equipped to take 4mm banana plugs or bare wire. However, most 4mm banana connectors make poor contact. We recommend a high quality plug such as the MISSION banana plugs supplied or bare wire tightly attached to the loudspeaker connectors. We also recommend the use of Cyrus solid core cable.

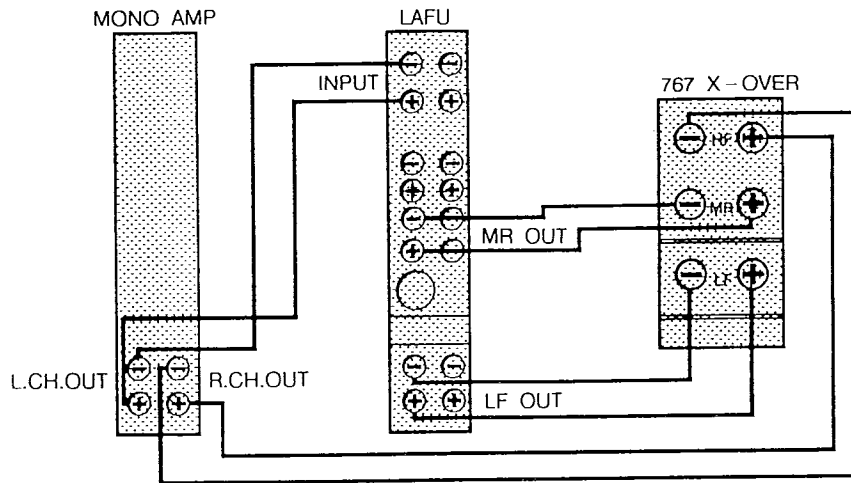
If you have just one stereo amplifier (or two monoblocks), then it is recommended that the 767s be Bi-Wired in accordance with figure 1. On the other hand, if you have two stereo amplifiers (or four monoblocks), Bi-Amping is recommended as per figure 2.

Fig 1: Single Amplifier - Bi-wired



System Left Channel Shown Only

Fig 2: Two Mono Amplifiers - Bi-amped



System Left Channel Shown Only

Please take care to ensure that no strands stray across to the other loudspeaker terminals presenting the amplifier with a short-circuit, thus potentially causing damage.

Do not use short lengths of loudspeaker cable joined together.

#### POSITIONING YOUR LOUSPEAKERS

The interface between the loudspeaker and the room is extremely complex and has been the subject of research by engineers and academics for many years. The problem is compounded since domestic rooms have no fixed architectural/acoustic specifications. In the design of the new generation of MISSION loudspeakers, we have taken steps to make loudspeaker positioning as easy as possible.

The loudspeakers are designed for an extremely smooth "off axis" frequency response performance. This means that they are not to be "toed in" or angled towards the listener - this angle has always been a point of concern when optimising loudspeaker positions. This variable is now resolved by MISSION ELECTRONICS recommending that you position your loudspeakers with their backs parallel to the rigid back wall.

The loudspeakers should be positioned some 20 cm (8") away from the back wall and 1.8 metres (6 feet) apart with their fronts facing straight out. The distance from either loudspeaker to the side wall should be a minimum of 0.5 metres. Vary the distance between the two loudspeakers from 1.5 to 2.5 metres until a perfect stereo stage is achieved. Adjusting the distance of the loudspeaker from the back wall will affect the virtual image of the loudspeaker behind the wall. The bass response will also be affected, the closer the loudspeakers are to the wall the more the bass will be enhanced.

When positioned correctly the high frequency response sounds smooth and the bass response is definitive, compact and solid. When correctly positioned the loudspeakers will disappear as point sources.

As far as the rest of your hi-fi system is concerned, it should be positioned well away from the loudspeakers on a rigid and light stand or cabinet. To reduce airborne interference we recommend the use of the Cyrus Isoplat.

### 3. CONNECTING THE MAINS SUPPLY (LFAU ONLY)

#### MAINS SUPPLY (LFAU ONLY)

A label at the rear of the LFAU shows the appropriate mains supply voltage and fuse rating of the unit. If the mains supply voltage in your area is different contact your dealer or the Mission service organisation.

The LFAU is connected to the mains supply via a IEC socket and mains cable. The IEC socket has an internal fuse. When connecting the mains supply ensure that the cable is connected to the LFAU first.

#### MAINS CABLE

The mains cable supplied with the unit is a three core type, and has an internal plug attached. Units supplied for the UK market do not have a mains plug, and therefore, an appropriate plug must be wired according to the colour code below and on the label attached to the lead.

All types of mains lead supplied, have a moulded IEC plug which matches the IEC socket on the rear of the LFAU.

#### FITTING A MAINS PLUG (UK ONLY)

The mains supply cable should be attached to a standard 13-Amp mains plug fitted with a 3-Amp fuse.

The wires in the mains supply cable are colour coded as follows;


Brown.....Live

Blue.....Neutral

Green/Yellow.....Earth

The Brown wire must be connected to the terminal that is marked L or coloured RED.

The Blue wire must be connected to the terminal that is marked N or coloured BLACK.

The GREEN/YELLOW wire must be connected to the terminal that is marked with the letter E or by the safety earth symbol  or coloured GREEN or coloured GREEN AND YELLOW.

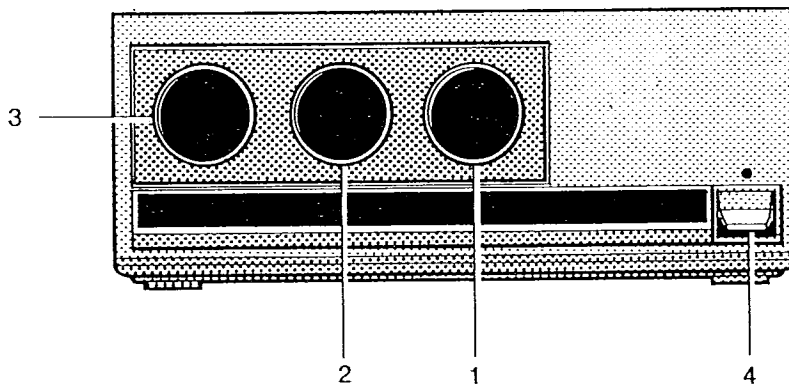
## MAINS FUSE

There is a fuse in the IEC socket at the rear of the LFAU, the fuse value should be as follows;

UK/Europe 240/220V.....	63mA
N.America/Far East 120/110V.....	100mA

## 4. CONTROL FUNCTIONS

There are three control functions designed into the LFAU for enhancement of the performance of the 767 system. Through intelligent adjustment of these controls the 767 system can be acoustically matched to the listening environment. When adjusted correctly, the loudspeakers will totally disappear as a sound source and the sound stage will be projected beyond the loudspeakers and the room.



### 1. Extension Control.

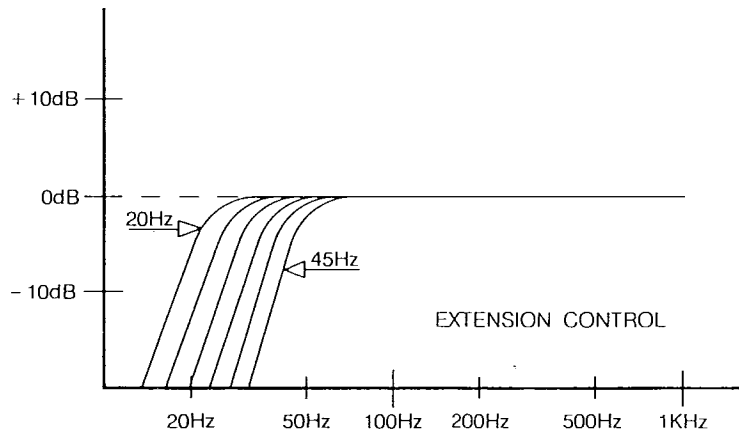
This control adjusts the lower cut-off frequency of the system. In its wide-band mode, the system extends acoustically down to 20 Hz. You can reduce extension up to 45 Hz in 5Hz steps. Bass extension should be reduced, that is the control turned clockwise towards 45 Hz in one or a combination of the following cases:

a. If the physical size of the listening room is small. As a rule of thumb the following dimensions can be used as a relative scale:

ROOM SIZE	EXTENSION CONTROL SETTING
50 <sup>2</sup> m or more = Very Large	20Hz
40 to 49 <sup>2</sup> m = Large	25Hz
26 to 39 <sup>2</sup> m = Medium to Large	30Hz
16 to 25 <sup>2</sup> m = Medium	35 - 40Hz
Smaller than 15 <sup>2</sup> m = Small	40 - 45Hz

b. If you are playing Synthesized Rock or Reggae type music at very high volume levels. This is important since at very high levels the cone excursion of the Low Frequency units become large and you may damage your loudspeakers.

The extension, however, should be set to 20 Hz in normal usage especially when Classical or Acoustical recordings are played. You may not immediately notice much difference when this control is used; The reason for this is that unless the very low frequency content of the recording is considerable and the listening room is large, then the perceived effect could be minimal. See graph 1.

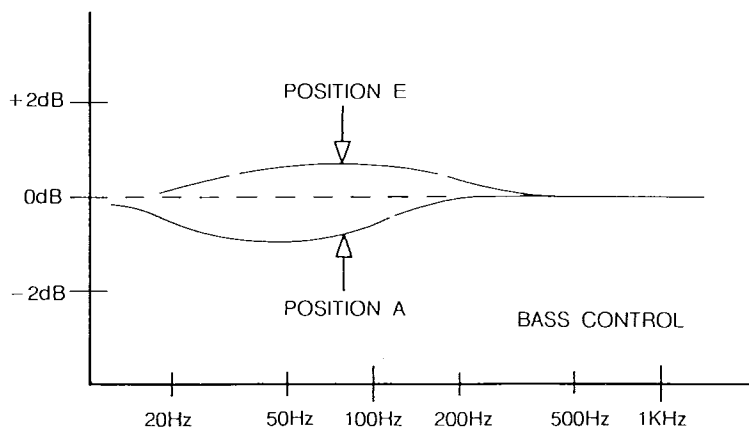


Graph 1

## 2. Bass Control.

This knob controls the general level of the bass frequencies in the band 20 Hz to 150 Hz, with emphasis in the 60 to 120Hz range. You will notice that the Upper Bass quality is mostly affected by this control. The total adjustment available is only 1.5 dBs, however the perceived effect is substantial.

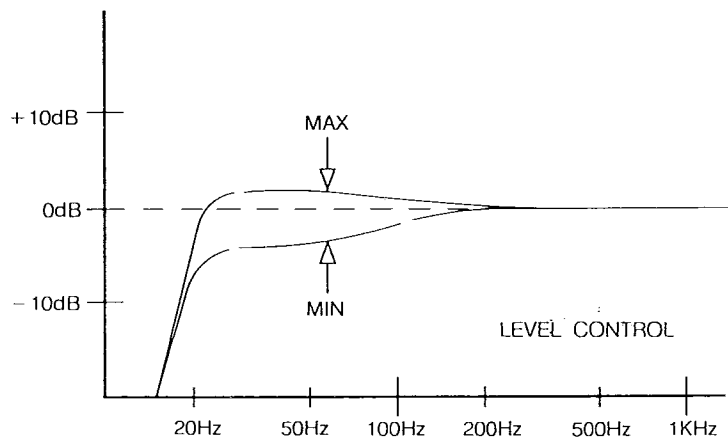
It is the combination of this control and the LEVEL control that is responsible for shaping of the system's low frequency response and hence the acoustic interface with the room. See graph 2.



Graph 2

### 3. Level Control.

This knob controls and adjusts the acoustic level of the Low Frequency unit in relation to the Mid Range units. This control gives a total adjustment of 6dB in Bass level, primarily in the lower two octaves of the audio band. The level set on this control depends largely on the room size and the distance of the 767s from the back wall and the side walls. See graph 3.



Graph 3

### 4. Power Switch.

The LED above the power switch will light up to indicate that the LFAU is turned on. If a PSX power supply has been added to the LFAU as an upgrade, the power switch on the LFAU will become ineffective in as far as turning the unit on and off. The power to the LFAU will now be controlled by the power switch on the PSX unit.

## 5. OPERATING THE 767'S AND THE LFAU

Place the 767s in the desired position in your listening room, and having wired the system up according to the installation procedure, switch the system on in this sequence:

- \* Source (ie CD player, record deck, etc)
- \* Main amplifier
- \* LFAU



Select the following controls of the LFAU:

- \* Set the LEVEL control to the Mid position marker.
- \* Set the BASS control to position "C".
- \* Set the EXTENSION control to 20 Hz.

Play a piece of music that you know very well in tonal balance, stereo imaging and depth. Adjust the LEVEL control until you get the best overall result. Note the position of the LEVEL control. Repeat this for the other positions of the BASS control, ie. A, B, D and E. and note the level related to these positions.

Now you can compare the five settings, obtained above, on a number of program sources and reach a decision as to the correct setting. You will find that with time, and getting accustomed to the extended bandwidth available from your 767 system, you will want to go back to your original settings and fine tune them. The reason for this is that for most users of quality high fidelity products the initial reaction in experiencing the 767s will be one or a combination of the following:

- One is overwhelmed by their sheer power and weight and would like to exploit this area as much as possible. This over enthusiasm may result in a somewhat compromised midband accuracy.
- One could be so used to the conventional systems, that one might tend to set the 767 system to sound similar to a conventional system and hence under-utilize their full capability.

Either way, after having lived with the new system for a while, you will soon realize that fine tuning is required. This is essential in optimizing your 767s to match the listening environment in order to provide you with the musical experience that they have been designed for.

#### IMPORTANT

It is very important to appreciate that the control functions on the LFAU are essentially designed for optimizing the performance of the 767s in your listening environment. The controls do not emulate, or replicate the effects obtained from conventional Bass control on amplifiers and receivers. This means that if you increase the LEVEL, for instance, you will not necessarily hear an increase in bass, rather, a bass quality change will be perceived.

## 6. UPGRADING THE SYSTEM

You may upgrade your 767 system by adding a dedicated external DC power supply to the LFAU. The PSX, as it is called, is a standard item in the Cyrus Electronics range. The PSX will match the LFAU aesthetically, and will connect through an umbilical cable to your LFAU.

Note: To ensure satisfactory system upgrade, it is essential that your dealer or the Mission Service Organisation make certain adjustments to your LFAU before connecting the PSX power supply.

## 7. MAINTENANCE/SERVICE

There are no user serviceable parts inside your loudspeakers or the LFAU. Any attempt to dismantle these units will result in loss of warranty.

It is very important for the mid/bass and bass drive units to be rigidly fixed. We recommend that you tighten up the screws on these drivers occasionally. Do not touch the high frequency drive unit fixings.

### CLEANING

Your MISSION loudspeakers are treated with a special sealant which makes regular polishing unnecessary. In fact, frequent wax polishing will darken and dull the finish. Use a lightly dampened soft cloth to clean your loudspeakers and very occasionally use a household spray polish to restore their original sheen. When using a household spray we recommend that you spray into a soft polishing cloth first, well away from the loudspeaker itself (to avoid overspray falling on the drive units), and then apply the cloth to the cabinet. If you need to clean the grille we recommend that this first be removed from the loudspeaker cabinet to avert damage to the drive units. Brush the grille gently with a soft, clean brush to remove any deposits.

To clean the LFAU we recommend that a slightly damp soft cloth should be used, do not use any chemicals as they may tarnish the unit cover.

Should a fault occur with your loudspeakers you should contact your dealer. If the speakers need to be returned, use the original packing materials, taking care to pack them correctly.

## 8. TECHNICAL SECTION

Most people do not associate loudspeakers with complex technology. But in reality, of all the components in the audio reproduction chain the loudspeaker proves the most difficult to design. The role of the loudspeaker is an intricate one, in that the transducer is required to transform electrical energy into mechanical energy. The complexities of this process, together with the subtle nature of music itself, have created countless controversies over the years and have resulted in many conflicting design philosophies. As a result listeners can discern marked differences between various models. Different designers emphasise different aspects of the loudspeaker's characteristics. For example, some loudspeakers offer high efficiency to the detriment of accuracy; others produce smoothness and low coloration but fail to generate adequate sound levels and musical dynamics; many impress on initial listening but in the long term produce fatigue and become irritating.

### DYNAMIC RANGE

*This we define as the differential decibels between the least audible musical information and the loudest attainable transients, while they are simultaneously present.*

Dynamic range is perhaps the single most important parameter of concern to our designers. Also, it is not a coincidence that the greatest difference between live and recorded music is in dynamic range differential. Nearly all hi-fi systems compress the dynamics of live music – not so with MISSION. High dynamic reproduction of music

has become the company's signature. Indeed, this is recognised by reviewers and commentators throughout the world in their repeated references to MISSION's ability to achieve exceptional realism.

Linearity of the power response within the dynamic "window" may be even more important than the dynamic range itself. MISSION systems preserve power response linearity throughout the wide dynamic range, allowing the reproduction of large transients while preserving quality at the lowest levels.

## COLORATION

*A term widely used to describe a multitude of distortions and other aberrations which occur in loudspeakers.*

A variety of complex "steady-state" and dynamic distortions lead to inaccurate and unrealistic reproduction of music. Subjective terms such as "boxiness", "chestiness", "nasality", "honkyness", etc. are generally used to describe such colorations. Coloration is often defined as "additive distortion" but at MISSION ELECTRONICS we go further and contend that negative distortions can also exist. This occurs in the case of low dynamic systems with poor information retrieval capabilities. In such cases the lost information cannot, obviously, suffer distortion! We call this "subtractive distortion". The MISSION design team is particularly strong in this department. In fact, the new MISSION loudspeakers are so exceptional in terms of low distortion that they are approaching amplifier specifications! MISSION enclosures are precision designed and visco-elastically damped to reduce unwanted acoustic output from the cabinet walls and eliminate internal standing waves. The driver membranes are made of special and rather unusual materials. They are light, but acoustically opaque and very rigid. Their mathematical profile and mechanical terminations are carefully optimised. These drivers are inherently very smooth, have highly controlled break-up modes and minimal other resonances.

Attention to detail extends to the analysis of accelerations involving drive unit displacements measured in microns! The drive units in your loudspeakers are "Direct Coupled" to unusually substantial baffle boards of over 25mm (1") thickness which in turn are made of special materials such as MDF (medium density fibreboard) instead of conventional chipboard used by other manufacturers.

## FREQUENCY RESPONSE

*The characteristic amplitude response in the audio frequency band.*

MISSION loudspeakers incorporate the company's exclusive and high technology drive units to ensure accurate and balanced reproduction of all forms of musical programme. Extensive anechoic research has resulted in careful optimisation of drive units and their interaction. The inherent qualities of the MISSION drivers have further resulted in the use of elegant and "natural" roll-offs and crossover network designs – avoiding the pitfalls of complex filters with the resultant phase shifts, power impedance problems and loss of information.

Essential to the accurate reproduction of music is the system's ability to retrieve maximum information from disc, tape or tuner. Please note, however, that such extraction of information must not be at the expense of frequency balance, otherwise prominence will be given to certain instruments to the detriment of other musical notes.

Loudspeakers with defective frequency balance may sound impressive for a short period but will prove unsatisfactory for serious reproduction of music.

## TRANSIENT RESPONSE

*A system's ability to reproduce and control the speed and attack of the music.*

Music consists of irregular transient impulses. The loudspeaker is called upon to respond instantaneously to sudden changes of electrical energy. The secret is one of dealing with the leading edge of the transient attack but perhaps even more importantly, of terminating the signal when the transient has stopped (no overhang). The latter proves the more complex of the two problems.

MISSION's use of high technology cone, suspension and voice coil materials has resulted in the dramatic reduction in the moving mass. At the same time, powerful motor systems are employed to give both positive and negative accelerations to the moving air piston. Overall enclosure loading and reflex systems have been carefully optimised to assist in such accelerations and recovery of the moving parts.

## DISPERSION

*The ability of the system to reproduce sound accurately and smoothly off axis, both in horizontal and vertical planes.*

Stereo and high fidelity are so closely associated that the two terms now seem interchangeable – and with good reason. Unfortunately, the majority of hi-fi systems tend to produce a two-dimensional sound stage. Those which do not restrict the stage to a wall of sound may produce other aberrations such as a tiny grand piano or an abnormally large flute. Again, the stage perspectives could be distorted and so on. The human perceptual mechanism finds it tiring to decipher the necessary information to reconstruct the original three-dimensional sound stage.

It is, therefore, essential for hi-fi systems to recreate a solid three-dimensional sound stage with correct size and position of instruments in space, little drift, and accurate perspective. Your MISSION loudspeakers will achieve such results, subject to correct positioning and the quality of your ancillary equipment.

## IMPEDANCE

*The load characteristics of a loudspeaker as presented to the amplifier.*

Critical to the successful interface between loudspeakers and amplifier is the nature of the loudspeaker's complex impedance. Here it is necessary to ensure that the loudspeaker impedance will not drop below critical levels. At the same time, the phase shift angle throughout the frequency band must be minimised and kept at a realistic level. Loudspeaker loads will otherwise prove too reactive for most amplifiers, resulting in the latter going into premature clipping. The impedance curves of all MISSION loudspeakers are smooth with small phase shift angles, and do not drop too low. All good quality amplifiers (including many inexpensive ones) are perfectly capable of driving your MISSION loudspeakers. The exception is the 765 model; it is an extremely difficult model to drive and is designed for use with CYRUS or other state-of-the-art amplifiers. If in doubt consult your dealer.

## SENSITIVITY

*The efficiency of the loudspeaker in converting electrical energy into acoustical output.*

MISSION maximises this parameter in order to attain reproduction of wide dynamic range musical programme. The obvious benefit of efficiency is that a higher quality, lower powered (for the same cost!) amplifier can be used. But more importantly, our research categorically proves that it is impossible for low efficiency systems to reproduce high dynamic range material and cope with transient signals. Here the reason is that the loudspeaker is a mechanical device and, beyond an optimum level of power, will deteriorate into "compression" and severe distortion. In other words, all else being equal, it is inaccurate to think that a low efficiency loudspeaker with large amplifiers can achieve the same results as a higher efficiency model with small amplifiers.

## POWER HANDLING

*The ability of the loudspeaker to accept, without distortion, large electrical inputs associated with transient impulses, or to operate at very high sound levels without thermal or mechanical fatigue or damage.*

The scientific definition of the true power handling of a loudspeaker system is not a simple one. Manufacturers quote figures of maximum power handling under different definitions and mostly for commercial reasons. Very few of these figures are meaningful in determining a continuous amount of RMS power your loudspeaker can sustain when playing music. As such we have dropped maximum power handling figures from our specifications and only refer to recommended amplifiers both in terms of minimum and maximum amplifier ratings permissible. This will merely indicate to you the range of amplifiers you can use with your respective MISSION model.

The real power handling of your loudspeaker depends on the model that you own, but even more important is the quality of your ancillary equipment, especially your amplifier/compact disc player/turntable/arm and cartridge. In the case of poor "front ends" a great deal of unwanted low frequency energies will be delivered to your loudspeaker limiting its general performance, especially its power handling. As for the amplifier, a lot depends on its available spare headroom when amplifying sudden transients, its "clipping" characteristics and low frequency filter design. (For example, a poor turntable/amplifier combination with a rating of only 30 watts can damage the 764 if driven at maximum volume, whilst we know for a fact that the predecessor of the 764, the 770, is capable of handling high dynamic digital master tape information with 400 watt amplifiers! [tests carried out on the 770 by HI-FI Choice magazine]). All Mission loudspeakers use high temperature materials and cooling systems, and have truly exceptional power handling capabilities when used correctly.

## 9. GUARANTEE CONDITIONS

1. This guarantee only becomes effective if the guarantee card is completed by the Dealer and the Purchaser and returned to MISSION Electronics Limited or Distributor within 8 days of purchase.
2. This guarantee excludes:
  - (i) all damage caused through accident, misuse, wear and tear, neglect or through incorrect installation, adjustment or repair and
  - (ii) liability for damage or loss occurring during transit to or from the Purchaser.
3. Claims under this guarantee must, whenever possible, be made through the Dealer from whom the equipment was purchased or, if that is not convenient, through another authorised Dealer.
4. MISSION Electronics Limited shall not be liable for any consequential damage, loss or injury whatever arising from or in connection with the equipment.
5. The cost of carriage (to or from the Dealer) shall be borne by the Purchaser.
6. This guarantee is personal to the original Purchaser and is not transferable.
7. If equipment returned is found on examination to comply with the published specification, MISSION Electronics Limited reserves the right to make a charge for examination and for return carriage.
8. No Dealer or Distributor has any authority to vary the terms of this guarantee.
9. Any unauthorised servicing will result in the loss of guarantee.
10. We recommend that you retain a copy of your sales receipt for the loudspeakers should you have recourse to return them to an authorised MISSION dealer other than the one who originally supplied them.
11. This guarantee does not affect your statutory rights as a consumer.