

KEF Reference Series

Model 107/2

Installation Manual



Raymond Cooke  
Founder and Life President of KEF



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**Thank you for purchasing the KEF Reference Series Model 107/2 Raymond Cooke Special Edition loudspeakers. These loudspeakers have been designed to give high quality sound over many years of use and should provide realistic reproduction of music and speech. Please take a little time to read these instructions prior to use.**

## 1.0 Introduction

Since being founded by Raymond Cooke (O.B.E.) in 1961, KEF has pioneered many innovations in loudspeaker technology and design, and specifically towards improving levels of manufacturing consistency between loudspeakers. The use of synthetic materials, computer-optimised cross-over networks and close tolerance matching of drive units has been common in all KEF Reference Series loudspeakers. Descended from the mould-breaking Model 105, further KEF development created the Model 107/2: a domestic loudspeaker of high efficiency, comparatively compact volume which is capable of reproducing deep bass down to (and below) 20 Hz. KEF now bring to you the ultimate Model 107/2 – The Raymond Cooke Special Edition.

## 1.1 Overview

KEF Model 107/2 is a free-standing three-way loudspeaker system of the highest quality. The system uses four drive units and includes active low-level equalisation in the form of the KUBE (KEF User-variable Bass Equaliser).

The low frequency section comprises two 250 mm (10") drive units, linked by a force-cancelling rod, mounted inside the main enclosure in a Twin Coupled Cavity configuration. This arrangement allows maximum low-frequency power handling, with extremely low distortion. Bass energy radiates vertically through a port in the top face, well clear of the floor and any likely room furnishings, and immediately adjacent to the midrange drive unit for the best output integration.

The midrange and high-frequency units are mounted in a separate enclosure above the bass section. This head assembly is specially contoured to control diffraction effects. It contains mineral-loaded polymer damping to eliminate mid-band colourations, and can be rotated to permit precise focusing of the stereo image, independent of the orientation of the main cabinet. Mesh grilles help protect these drive units from damage if the grilles provided are not used.

Conjugate Load Matching in the dividing network enables the speaker to present a flat, resistive load to the amplifier. This technique, pioneered by KEF, electronically balances the load which the loudspeaker offers to the amplifier. The impedance is set at 4 ohms, resulting in a doubling of the loudspeakers effective sensitivity and therefore of output level, over a conventional nominal 8 ohm load, without the need for a more powerful amplifier.

What differentiates Model 107/2 from conventional loudspeakers is the inclusion of the KUBE as an integral part of the system. The KUBE serves as part of Model 107/2's hybrid dividing network to combine passive frequency division with active response shaping. This arrangement maximises the system's dynamic range with any amplifier and provides independent control over low and high frequency balance. By employing this combination, KEF allow the user to optimise the tonal characteristics to suit the loudspeakers' room position.

KEF Model 107/2 combines excellent dynamic range and power handling with unusually realistic stereo imaging and a remarkable freedom from cabinet induced colourations. As with all Reference Series loudspeakers, each Model 107/2 drive unit is pair-matched to within 0.5 dB of the factory maintained 'reference' while the Conjugate Load Matched dividing network preserves phase linearity and presents the amplifier with the easiest of loads.

Set-up is simple, but a little more critical than with most conventional loudspeakers. Therefore, we ask you to take the time to read this manual carefully as the set-up procedures for assembling and connecting your Model 107/2 will ensure optimum performance, if followed correctly.

If you are at all uncertain, your dealer will be pleased to assist you.

## 1.2 Input Terminals

Wide entry, gold-plated bi-wire/bi-amping terminals are fitted to the at the rear of the speaker cabinet. This allows the use of the many different gauges of speaker cable that are available.

## 2.0 MODEL 107/2 INSTALLATION

### 2.1 Unpacking and Assembly

One pair of KEF Model 107/2 loudspeakers are supplied in four separate cartons:

Two cartons each containing one bass enclosure

One carton containing two grilles

One carton containing:

Two MF/HF head assemblies

One KUBE 107/2 active equaliser

One KUBE power supply

We suggest you retain the packaging in case a need arises for you to transport the speakers at a later date. Please also ensure that the serial numbers of the speakers supplied to you match each other (e.g. 05000L and 05000R) as each pair of cabinets and head assemblies are matched to each other, both acoustically and cosmetically.

### 2.1.1 Unpack bass cabinets, head assemblies, KUBE and power supply

Carefully remove the staples from each end of the two largest (and heaviest) cartons and then spread the top and bottom carton flaps open. Lift off the cartons and then remove the polystyrene end caps. Remove the bass cabinets from their plastic bags and position the enclosures near to where they will be used, taking note of the relevant Left and Right markings on the rear of the enclosures.

Again, carefully remove the staples from the carton containing the head assemblies KUBE and power supply. Unpack the two head assemblies from their carton. Remove from the heads from their protective plastic bags and identify each head by way of the L and R markings on the rear of the heads.

Unpack the KUBE, its power supply and the set of interconnecting leads from the carton containing the head assemblies. Do not connect the KUBE to your amplifier at this time. Also check that the KUBE power supply is the correct voltage for your particular country. If it is not, contact your supplier. **Under no circumstances should you connect KUBE power supplies that are unsuitable for your type of mains supply voltage.**

### 2.1.2 Fit and connect the head assemblies to the bass cabinets

Carefully lower the Left head assembly into the socket on the top of the Left bass cabinet. This will be a tight fit so take care to insert it as vertically as possible to avoid any damage to the bearing surfaces. Connect the flying lead/XLR plug to the socket on the rear of the head assembly. Follow the same procedure with the Right head and Right bass cabinet.

### 2.1.3 Unpack (but do not fit) grilles

Unpack the grilles and put them to one side. Their use is optional. If you intend to use them we suggest you place them on the speaker only after listening and positioning tests have been concluded.

### 2.1.4 General Notes

Run appropriate speaker cables from your amplifier to the loudspeakers, having first read Section 2.5 through to 2.8. Follow the procedure within Section 3.0 for connecting the KUBE to your amplifier(s). Ensure that you have a mains power outlet near to the KUBE as the KUBE power supply will require it.

## 2.2 Aftercare

Model 107/2 loudspeakers are supplied in one of two different finishes – Real Wood Veneer or Piano Black Lacquer. Both finishes should be treated with the same care as you would treat fine furniture. For wood veneer finish the use of a good quality wax polish is recommended, whilst a soft non-scratch cloth should be used on the lacquer finish. It is normal for wood veneer to change colour with the passing of time, but locations in direct sunlight should, if possible, be avoided. Furthermore, the cabinets should not be allowed to become wet.

## 2.3 Speaker Placement and Room Acoustics

The listening room is one of the most variable elements in the hi-fi chain and its effect cannot be emphasised too strongly, nor can its effects be reliably predicted. Similarly, the distance between the loudspeakers and their distance from the listener is also critical for correct operation. Spacing the speakers approximately 2 m – 3 m (6' – 10') apart will allow the stereo images to develop fully. You should sit at a distance at least equal to and preferably greater than the distance between the speakers.

Positioning the speaker in a corner or near to a side wall is not recommended as the significant bass boost caused by this position will affect the sound and cause the stereo image to deteriorate.

It is best to place the speakers symmetrically within the room, relative to the walls, ceiling and floor, where possible. Be aware also that soft furnishings near to a speaker will deaden the sound – similarly, nearby reflective surfaces may cause high frequency sounds to be over emphasised. These influences can alter the character of perceived sound dramatically. Tonal quality and clarity of the reproduction, and above all, the sharpness of the stereo image, are determined by the sound that reaches the listener directly, without reflection from walls, floor or ceiling.

The Model 107/2 is designed to stand on the floor. It does not require any other form of stand or support and should be used in free space conditions, away from rear and side walls, although the actual distance is a matter for experimentation. Model 107/2 is capable of giving stable stereo image over a wide listening area with an unusually vivid sense of depth perspective. Since this is achieved in part by the shaping and proportioning of the enclosures to permit sound to diffract smoothly, these benefits may be impaired by reflections from nearby walls. KEF suggest as a guide that you initially position the speakers at least 1 m (39") from side walls and a minimum of 50 cm (19") from any back wall.

Improvements in stereo imaging may sometimes result from rotating the head assembly on Model 107/2 to allow the midrange and high-frequency direction information to be directed towards the listener independently of the position of the bass cabinet. Thus it is possible to place the speaker to fit in with other furniture in the room, or to be sited parallel to walls for neatness, whilst still allowing the listener to achieve optimum stereo performance.

Noticeable changes can also be made to the sound of the hi-fi system by altering the relative position of the speakers, sometimes by only a few inches. If required, reposition the speakers until you are satisfied that the sound is right and that the stereo image is well defined.

#### **Important**

To avoid damage to the mid/high frequency enclosure mounting, we recommend that the speakers be moved by lifting from the bottom front of the bass enclosure, with one hand at the upper rear. NEVER attempt to move your 107/2's by holding the head assemblies.

#### **2.4 Adjusting the Feet and/or Spikes**

KEF strongly recommend that you do not attempt to level your speakers single-handed. Recruit the assistance of another adult – or consult your dealer for assistance. The feet on your speakers are designed to provide small adjustments, not to compensate for seriously irregular floors.

A rigidly-sited speaker performs better than one that can move because it allows the cabinet to remain fixed while the drive-units are allowed to move as determined by the source signal. Even seemingly insignificant movements can affect the overall sound – hence why in a perfect speaker, the drive-units are the only moving parts. The audible gains include better control of the positioning of the sounds with 'images' occupying a specific space and a reduction in 'smearing', which can affect the quality of musical notes' attack and decay. This is especially noticeable when the notes should have a crisp, sharp beginning and ending.

Best results will be obtained if the speakers are level and stable. Check the level of the speakers from front-to-rear and then from side-to-side using a spirit level, preferably of the type available for levelling turntables that have a bubble within a circle – or one that has two spirit-levels in the same plane, but at 90° to each other. Check the general stability of each speaker by gently rocking each from side to side, front-to-back and diagonally.

If the general stability is good, but the speaker is leaning to left, right, backward or forward, then equal minor adjustments to the two feet opposite to the direction of lean should be made. Often, you will find that the speaker is reasonably vertical, but rocks because one foot (or two feet diagonally) seem too short.

Check this by sliding thin pieces of card under the foot or feet that seem too short, while your helper tells you the effect of your actions by reading the spirit level(s) on top of the product. Once the speakers are upright and stable, withdraw the packing from under one foot and gently adjust that foot by rotating the gold-plated foot until it makes firm contact with the flooring. Check stability and level with your helper before removing packing from beneath or adjusting any other feet.

You may wish to enhance the performance of the speakers by using the spikes. In this case, unscrew each of the gold plated feet and remove the threaded screw from the base of the speaker cabinet. A slot is provided in the end of the threaded screw to permit use of a flat-bladed screwdriver – do not use excessive force as you may damage the slot. Once removed, the threaded spikes should be inverted and fully screwed back into the base of the cabinet.

Much the same adjustment method applies to spiked feet, except that the gold-plated foot is used as a locking device (except on very deep pile carpet when a separate lock-nut may be required, see note in text). Finger-adjustment of the threaded spiked-foot is less convenient than adjusting the large foot and may require you to lean the speaker in order to lift the spike clear of the ground. It is here that your helper will be invaluable in facilitating a quick and safe result.

The spikes may then be locked in place using the gold plated feet. This will enable you to get the best performance from the speaker and ensures that the loudspeakers are stable. (In some circumstances, for instance thick pile carpet, it may be necessary to fit an alternative lock nut, of M6 thread (not supplied), instead of replacing the gold foot.)

#### **IMPORTANT SAFETY NOTICE**

Your KEF Reference Loudspeakers are tall, slim and extremely heavy. Installed correctly on a smooth, level surface, your speakers should be entirely safe to listen to and to live with. However, if you have small children, large pets, the infirm, uneven flooring or unusually thick carpeting in your home, then correct adjustment of the foot assemblies is imperative, if safe, stable operation is to be achieved.

#### **2.5 Speaker Cables**

Poor quality cables can seriously affect the overall sound of your hi-fi system. KEF recommends that high quality speaker cable be used for connecting your Model 107/2 loudspeakers. It is good practice to keep the cables as short as possible. The left and right channel speaker cables should be the same length otherwise there may be a perceptible change in output level between the speakers. Any excess cable should be folded neatly, concertina fashion and secured with a cable tie or elastic band. In a high resolution system, speaker cable differences may be detectable. In short, you should buy the best quality cables that you can afford.

#### **2.6 Amplifier to Speaker Connections**

All connections should be made with the amplifier switched OFF and disconnected from the mains supply. Ensure the integrity of connection prior to switching the amplifier ON.

KEF Reference Series loudspeakers are fitted with purpose designed gold-plated bi-wire/bi-amp terminals which will accept either bare wire, 4 mm 'banana' plugs or spade connectors.

Most good quality speaker cables have some indication, such as colour coding or 'ribbing' on the insulating material, as to which conductor is '+' or positive. Connection to the speakers can then be made as follows:

*The left channel amplifier output terminal marked '+' or coloured RED connects to the left speaker terminal marked '+' (coloured RED). The left channel amplifier output terminal marked '-' or coloured BLACK connects to the left speaker terminal marked '-' (coloured BLACK). Similarly, these instructions should be followed for making connections between the right channel amplifier output and the right speaker.*

Bare wire connections are the most popular and involve stripping 12.5 mm (1/2") of insulation to expose the speaker wire core. (You should twist together, using clean fingers, the ends of each multi-stranded core prior to the next stage to ensure a better signal contact). Having unscrewed the lower terminal cap, push the wire through the exposed hole in the terminal body and screw the cap down tightly.

Make sure that no stray strands come into contact with the opposite terminal; this could cause a short circuit between the terminals and may damage your amplifier.

If 4 mm 'banana' plugs are employed, always select a good quality sprung or expanding type, making sure that the cable is properly connected and that the plugs fit tightly into the sockets. These are simply inserted in the large hole in the terminal cap.

## 2.7 Bi-wiring/Bi-amping Terminals

The two sets of input terminals are linked by a gold-plated shorting link. Removal of this link will allow the MF/HF and LF sections to be connected separately, either by a parallel connection from one amplifier (known as bi-wiring) or to separate power amplifiers driven from the same pre-amplifier (bi-amping). If bi-amping, please also read Section 3.2.2.

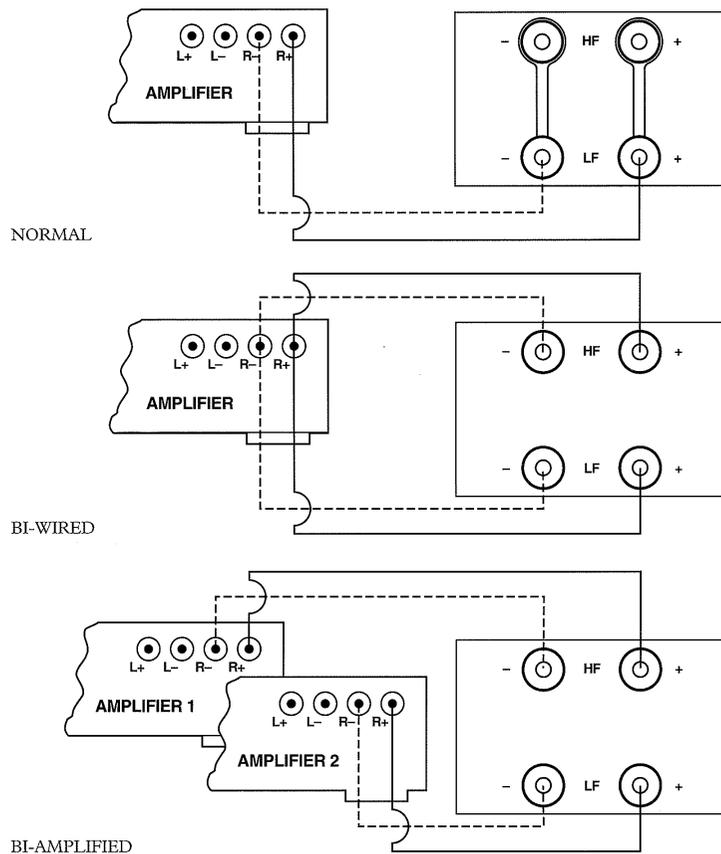


Figure 1 (Only one channel shown)

## 2.8 Speaker Phasing

Correct polarity is vital to the proper operation of any hi-fi system. Once you have made the connections described, with the KUBE connected, the sound from your speakers should be as KEF intended them to sound. However, if the stereo image is confused or you feel that the bass sound is weak then you should check the speaker phasing in the following manner:

If the loudspeaker shorting links have already been removed to permit bi-wiring/bi-amping, replace the links and connect one amplifier to each speaker using the lower 'LF' terminals. Place the two loudspeakers about 5 cm - 7 cm (2" - 3") apart and facing each other. Play a recording which has plenty of deep bass such as an organ solo and ensure that both speakers are working correctly (confirm that the amplifier balance control is in the centre position). When both speakers are connected IN-PHASE, you will perceive that the bass sounds full and deep. If the speakers sound weak and thin, switch off the amplifier and reverse the connections at ONE END ONLY of ONE speaker cable. Repeat the test. Performance should now be correct. No damage will be done to the speaker or amplifier if one speaker is connected out of phase, but performance will noticeably suffer.

## 2.9 Grilles

The Model 107/2 feature a carefully designed head cover covering which serves two primary functions. On a most basic level, the grille cloth protects the drive units from dust and damage, while on an aesthetic level, they soften the look of the loudspeakers. Some listeners, however, believe that the presence of a grille cloth between the drive units and the listener will act as a 'filter' on the sound, possibly affecting the upper frequencies and 'openness' of the sound.

The grilles of the Model 107/2 are positioned on top of the bass enclosures and may be removed during extended listening periods. KEF does recommend, however, that they be left in place at all other times. If you need to clean the covers, do so with a soft brush, having first removed them from the cabinet.

## 2.10 Amplifier Requirements and Power Handling

In KEF literature and within the specification table within these instructions are listed a range of amplifier power outputs to match your Reference Series loudspeakers. Conditions of use (room size, type of programme, preferred listening level) and the nature of the loudspeaker/amplifier interface vary so widely that it is not possible to lay down hard and fast rules about amplifiers and the loudspeakers they drive.

KEF loudspeakers are built to rigorous standards of quality and consistency and the upper limits of the amplifier requirements shown are those which the loudspeaker in question should handle without distress or damage when used under normal domestic conditions.

If higher than specified amplifier powers are used, great care should be taken to avoid abnormal conditions such as switch-on surges or gross distortion, either of the amplifier or the speaker, resulting in power peaks greatly in excess of the ratings specified. Care should be taken as the possibility still exists under certain conditions (such as excessive bass or treble boost caused by tone and/or loudness controls, graphic equalisers, etc.) that the speakers can be overloaded and damaged. The lower limits of amplifier power are those necessary to give a reasonable sound pressure level under domestic conditions.

Remember it is very easy to damage the loudspeaker by using a small amplifier driven into distortion by too much volume possibly with bass and treble boost, than by using a larger amplifier which has power in reserve. If in doubt, ask your dealer.

Should you decide to buy a new amplifier, or upgrade your existing one, always try to audition new equipment through your own type of loudspeakers, ideally in your home, prior to purchase.

## 3.0 KUBE 107/2 INSTALLATION

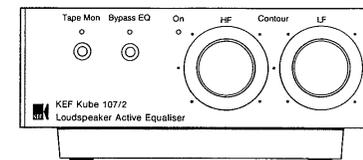


Figure 1 Front Panel Controls and Indicators

The KUBE 107/2 is an active low-level equaliser specifically designed only for use with KEF Reference Series Model 107/2. Damage may be caused to other loudspeakers which are not designed to handle the significant bass equalisation that KUBE 107/2 provides.

It is mandatory that KUBE 107/2 is used with the Model 107/2 if the loudspeakers are to work as intended. Use of the Model 107/2 without the KUBE will not harm the loudspeakers; however, they will not be operating optimally and will sound 'wrong'.

KUBE provides fixed equalisation which extends the loudspeakers bass response to below 18 Hz (-6 dB, Q=0.5). KUBE also provides user adjustable LF and HF equalisation to suit the listening environment, loudspeaker placement, and user preferences. The front panel controls and indicators shown in Figure 1 are described below.

**LF Contour** adjusts low frequency level below 160 Hz, to control LF/MF balance.

**HF Contour** adjusts high frequency level above 1 kHz.

**Bypass EQ** switches the LF and HF Contour controls completely out of circuit. This permits instantaneous comparison to be made between the factory default settings and the user adjustable settings, and can help you arrive at the correct adjustment for your installation. A yellow led above this switch illuminates when Bypass has been selected.

**Tape Mon** replaces the function of the amplifier's tape monitor switch in cases where the KUBE is to be connected in the tape monitor loop of an amplifier. A yellow led above this switch illuminates when Tape Monitor has been selected.

A red led, labelled "On", indicates when power is applied to the KUBE.

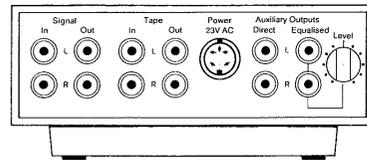


Figure 2 Rear Panel Connections

Rear panel connections include, in addition to "Signal In/Out" and "Tape In/Out", two additional sets of "Auxiliary Outputs", one of which is controlled by a separate Level control knob. (See Figure 2)

"Direct" is an unequalised output which allows the connection of a second power amplifier and loudspeakers elsewhere in the house.

"Equalised" allows the connection of a second power amplifier to the main system, for bi-amplification. The variable output level control can be used to compensate for amplifiers having differing input sensitivity or power output, or to drive the LF and MF/HF sections at different levels.

The KUBE is powered by a separate power supply, which should be connected to the DIN socket located on the rear panel of the KUBE.

### 3.1 Installing the KUBE

The KUBE may be connected to your hi-fi system in one of two ways:

- In line between pre-amplifier and power amplifier
- In the tape loop or processor loop of your pre-amplifier, integrated amplifier or receiver

If you are in any doubt about connecting the KUBE to your equipment, please consult your dealer.

### SWITCH OFF ALL THE EQUIPMENT IN YOUR SYSTEM BEFORE ALTERING OR MAKING ANY SIGNAL CONNECTIONS.

#### IMPORTANT

When assembling and setting up the loudspeakers, always make the connections according to the channel identification (L for Left and R for Right) marked on the rear labels of the head assemblies, the KUBE and the bass cabinets. Always assemble and connect up to your hi-fi system so that the left and right loudspeakers are connected to the left and right channel amplifier outputs respectively. Care should also be taken to connect the KUBE correctly to your amplifier.

### 3.2 Signal Connections

Take care to observe Left and Right channel orientation when making connections. The cables supplied with the KUBE are colour-coded to help you achieve this. Always connect the White phono plugs to the Left phono sockets and similarly, the Red plugs to the Right sockets.

#### 3.2.1 Single Amplifier Operation

The following connection procedure applies to a normal stereo amplifier operation. For bi-amplification, please see Section 3.2.2 and Section 3.6.

#### Method 1: (see Figure 3)

Connect the KUBE "Signal In" sockets to the pre-amplifier "OUTPUT" sockets. Then connect the KUBE "Signal Out" sockets to the power amplifier "INPUT" sockets.

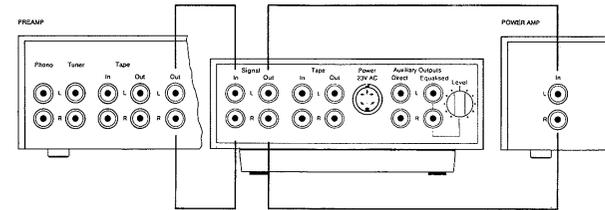


Figure 3 Connection of KUBE (Method 1)

#### Method 2: (see Figure 4)

Connect the KUBE "Signal In" sockets to the amplifier sockets marked "Tape Out/Record Out/Line Out", and then connect the KUBE "Signal Out" to the amplifier sockets marked "Tape In/Tape Replay/Line In". For the KUBE to operate correctly, you must set your amplifier's "Tape Monitor" switch to the 'ON' position.

If you have only one set of tape sockets into which a tape deck is already connected, disconnect the tape deck from your amplifier and re-connect it to the tape sockets provided on the rear of the KUBE: Your tape deck should then be connected to the KUBE as follows: KUBE "Tape Out" to tape deck "Input" sockets, tape deck "Replay" to the KUBE "Tape In".

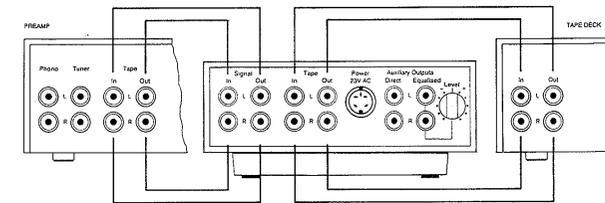


Figure 4 Connection of KUBE (Method 2)

The KUBE's equalisation affects only the replayed signal. The signal recorded onto the tape is unaffected, allowing normal playback on the other tape decks, or in the car.

If your amplifier/receiver is equipped with an external processor loop facility, then connect the KUBE "Signal In" to the "Processor Loop Output Sockets", and KUBE "Signal Out" to the "Processor Loop Input Sockets".

#### NOTE

When the KUBE is connected in a tape or processor loop, the output from the KUBE auxiliary sockets is fixed at the input level and is not controlled by the pre-amplifier or amplifier volume control. Bi-amplification is therefore not possible in this type of installation. However, you may wish to connect other hi-fi equipment to the KUBE "Auxiliary Direct" provided that the amplifier used has its own independent volume control.

### 3.2.2 Bi-Amplifier Operation (see Figure 5)

Your Model 107/2 loudspeakers are provided with two sets of terminals so that, if desired, the MF/HF and LF sections may be driven by two separate stereo power amplifiers. The following connection procedure should apply if you wish to use this mode of operation.

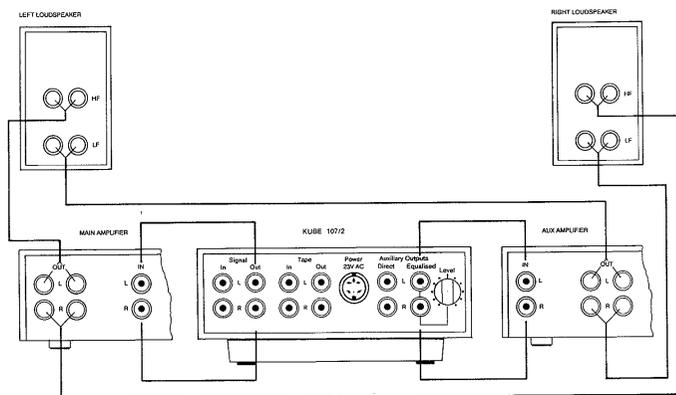


Figure 5 Recommended Connections for Bi-Amplification

Separate the HF and LF terminals of the loudspeakers by removing the supplied shorting links. Connect the HF terminals to the outputs of the Main Power amplifier, and the LF terminals to the outputs of the Auxiliary amplifier, observing correct polarity of connection.

If the Auxiliary amplifier is of a different type to the Main amplifier, it may be necessary to reverse the polarity of the speaker connections at the Auxiliary amplifiers output sockets to ensure that the HF/MF and LF sections of each Model 107/2 are driven "IN-PHASE". (Some amplifiers invert the signal polarity, others do not). If in doubt, consult your dealer.

Connect the KUBE "Signal In" sockets to the Pre-amplifier "Output" sockets. Connect the KUBE "Signal Out" sockets to the "Input" sockets of the Main power amplifier. Connect the KUBE "Equalised Auxiliary Output" sockets to the inputs of the Auxiliary amplifier. Set the KUBE Auxiliary Output "Level" control to its central position. This position is provided with a detent.

If the auxiliary amplifier has a different voltage gain to that of the Main amplifier (possible if it has different rated sensitivity and/or different rated power output), please refer to Section 3.5.5 - "Auxiliary Output - Equalised" and Section 3.6 "Bi-Amplification".

### 3.3 Power Supply Connections

The KUBE is powered by means of an external AC adapter fitted with two flying leads. One of these leads is the power cord, and the other, terminated in a DIN plug, is the low voltage AC supply for the KUBE.

**CAUTION:** Check that the voltage marked on the KUBE AC adapter corresponds to the AC supply in your home.

**SWITCH OFF ALL THE EQUIPMENT IN YOUR SYSTEM BEFORE ALTERING OR MAKING ANY POWER SUPPLY CONNECTIONS.**

If the adapter voltage is correct, plug the DIN plug into the low voltage power input socket on the rear of the KUBE (see Figure 2). Then connect the AC adapter power cord to a suitable AC outlet, either in the wall or, if available, on your amplifier. Check that the front panel red LED is lit when the outlet is active. Then switch your equipment back "ON".

The KUBE's power consumption is negligible, so it is convenient to leave it permanently switched "ON" whenever your system is in regular use. If for any reason your equipment is not going to be used for an extended period, for example holidays, then it is good safety practice to remove the KUBE power cord from the AC outlet.

### 3.4 Using the KUBE

#### 3.4.1 Installation Check

Before switching on your hi-fi system, make a final check on the following points:  
Are the speakers correctly connected to the amplifier?  
Is the KUBE connected correctly, according to the instructions above?

#### 3.4.2 Preliminary Set-Up

Check that the red led on the front panel of the KUBE is illuminated. Identify the "Tape Mon" and "Bypass EQ" push buttons on the KUBE, and make sure they are both OUT.

If the KUBE is connected on the "Tape Monitor/External Processor" loop of your amplifier, select "Tape Monitor/External Processor" on your amplifier controls. If you wish to replay signals from a tape deck, please refer to "Tape Mon" in Section 3.5 "Using The Controls".

Select the desired source, (CD, DISC, etc.). Set the LF and HF Contour controls on the front panel of the KUBE to their central detents.

#### 3.4.3 Operational Check

You can check very simply that the KUBE is in circuit. Using radio or disc as the source, and with any tape deck connected to the rear panel of the KUBE switched off, play some music. Press in the "Tape Mon" button on the KUBE and the signal should mute. If it does, the KUBE is correctly installed and operating. If it does not, or if no sound is heard, check the connections described above, and, if the KUBE is connected in the tape loop, that "Tape Monitor" has been selected on the pre-amplifier or amplifier.

### 3.5 Using the Controls

For the best results adjust the LF Contour control first. Do not adjust HF contour while setting LF Contour - you are likely to end up with confused and incorrect result. You can, at any time, compare the variable settings achieved with the factory preset levels by pressing "Bypass EQ" to defeat the users adjustments.

#### 3.5.1 LF Contour

All loudspeakers interact with the room in which they are used, and the interaction depends on their position within the room. It is unlikely that any loudspeaker will sound equally good in all rooms, and certainly not in all positions. The KUBE 107/2 LF Contour is designed to allow you to optimise bass level for your listening room and preferred sound balance. It does this by raising or lowering the frequencies below 160 Hz by up to 6 dB.

Select CD or DISC and play a recording with well defined extended bass - a string quartet or male voice is ideal. Listen carefully to the balance between bass and midrange. If you think the bass is too "full" or over-prominent, turn the LF Contour control counter-clockwise. If the speakers sound "thin", turn the knob clockwise. Experiment with different recordings, giving yourself time to get used to the way the LF Contour control operates. Its effect is subtle, so do not expect any radical changes to the sound.

If you have difficulty achieving a suitable balance, try experimenting with the loudspeakers' position, remembering that moving them closer to a wall or corner will produce more bass, away from walls will give less.

It may take some time, and a number of recordings, before the right setting is achieved. Once the correct speaker position and LF Contour setting have been established, you should be able to leave the contour setting where it is thereafter.

#### 3.5.2 HF Contour

The reflective and absorptive characteristics of listening rooms can vary widely, as can the position of the listener relative to the loudspeakers. The HF Contour control allows this band of high frequencies to be raised or lowered to compensate for off-axis listening positions, or for highly reflective or absorbent rooms.

As with the LF Contour, rotating the control on either side of the centre detent will increase or decrease the treble level.

#### 3.5.3 Tape Mon

If you tape deck is connected to the rear of the KUBE and you wish to play a tape, push in the "Tape Mon" button on the KUBE. For listening to signals going onto the tape when recording, the button should be out. Remember that the signal passing through the KUBE to the tape deck is never modified. The KUBE equalisation only operates on replay. At all other times, leave the "Tape Mon" button out.

### 3.5.4 Auxiliary Output – Direct

This allows the connection of a second amplifier/loudspeaker system in another room which does not require, or which cannot sustain, the additional equalisation provided by the KUBE. This output may also be used for connection of a surround-sound processor to drive centre and/or rear channel loudspeakers.

### 3.5.5 Auxiliary Output – Equalised (variable)

This output carries the same signal as the KUBE “Signal Out” sockets but its output may be adjusted via the rear panel level knob. A second power amplifier may be connected to this output in order to bi-amp the 107/2's. The volume level of the second pair will still be under the control of the pre-amplifier to which the KUBE is connected.

In the case of bi-amplification, the ability to adjust output level gives the user the opportunity to compensate for a second power amplifier having a voltage gain different from that of the main amplifier (see below). It also enables the low-frequency section to be driven at a different level from that of the mid and high-frequency sections. This may be done to compensate for room effects or simply to arrive at the listener's preferred system balance.

This output is at the same level as the “Signal Out” sockets when the variable output control knob is aligned vertically. A detent is provided at this central position. Turning this knob clockwise or counter-clockwise will alter the output over a range of +5 to -10 dB.

### 3.6 Bi-Amplification

#### Use of power amplifiers with unequal gain

It is possible to bi-amp using two different makes and models of stereo power amplifiers by using the variable equalised auxiliary output sockets of the KUBE.

The following simple procedure will enable the two amplifier's outputs to the speakers to be matched. (See Figure 6).

- Ensure that your amplifiers are switched OFF. Identify one as the Main amplifier and the other as the Auxiliary.
- Disconnect the XLR plugs from the rear of the mid/treble 'head' section of both 107/2 loudspeakers.
- Connect the left loudspeaker LF terminals to the left channel of the Main amplifier, and the Main amplifier's left “Input” to the left “Signal Out” socket on the KUBE.
- Connect the right loudspeaker LF terminals to the left channel of the Auxiliary Power amplifier, and this amplifier's left input to the left Auxiliary Output “Equalised” socket on the KUBE.
- Position the loudspeakers face to face about 5 cm – 7 cm (2" – 3") apart and reverse the polarity or phase of the left loudspeaker only by connecting the positive or ‘+’ speaker cable to the speakers ‘-’ LF terminal and the negative or ‘-’ speaker cable to the ‘+’ LF terminal. Switch the system back on and play some music containing significant amounts of bass. Turn the variable “Level” control on the rear of the KUBE until the sound you hear is at its quietest. Note the position of the output level control. It is at this setting that the two amplifier's outputs are the same.
- Switch off the amplifiers and remake all connections as normal.

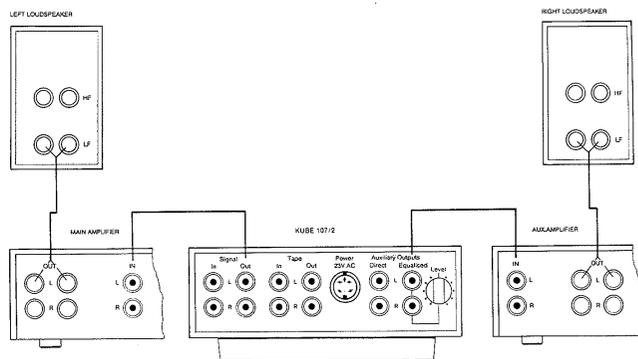


Figure 6 Connections for Matching Amplifier Outputs

### 4.0 WARRANTY

Your KEF Reference Series loudspeakers are guaranteed against manufacturing defects in both materials and workmanship. For further details of how this guarantee affects you, please read the enclosed Warranty leaflet. It should be noted, however, that failure of the loudspeaker due to abuse, improper or inappropriate use and/or operation or damage caused by other faults in your system are NOT covered within the terms of the guarantee. The warranty is also void if the serial numbers have been removed or defaced.

### 4.1 Service Information

Loudspeakers are inherently reliable and rarely give trouble. It is important to remember that faults arising in any part of the reproducing system will be heard via the loudspeakers and therefore when faults occur, careful and analytical diagnosis will be required to locate the actual source of trouble.

Loudspeakers cannot generate hiss or hum. Spurious noises of this type generally originate in the electronic sections of the equipment or even in the programme source itself. Faults in a loudspeaker or within the KUBE will be audible on all programme sources. A fault which is evident only when playing CD's but not, for example, when using a radio tuner is unlikely to originate with the loudspeakers or the KUBE.

Service problems should be discussed in the first instance with the dealer from whom the speakers were originally purchased. Generally, warranty claims are best handled by your dealer. However, in case of difficulty, please contact:

**Customer Services Department**  
**KEF Audio (UK) Limited**  
Eccleston Road  
Tovil, MAIDSTONE  
Kent, ME15 6QP UK

**Telephone No. +44 (0) 1622 672261**  
**Fax: No. +44 (0) 1622 750653**

**Distributed in the U.S.A. by:**  
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Holliston,  
MA 01746 USA

**Telephone No.: +1 (508) 429 3600**  
**Fax No.: +1 (508) 429 3699**

**TECHNICAL SPECIFICATIONS**

<i>Product:</i>	107/2
<i>Description:</i>	3-way, 4 driver floorstanding loudspeaker
<i>Drive Units:</i>	<i>HF Unit</i> 1 x T33 25 mm (1") Metal Dome high frequency unit <i>MF Unit</i> 1 x B110 110 mm (5") Polypropylene-coned midrange unit <i>LF Units</i> 2 x B250 250 mm (10") Pulp-coned bass units
<i>Frequency Response</i> <sup>1</sup>	20 Hz-20 kHz $\pm$ 2.5 dB (-6 dB @ 18 Hz, Q=0.5)
<i>Directional Characteristics:</i>	Within 2 dB of response on reference axis up to 10 kHz for $\pm$ 10° vertically up to 10 kHz for $\pm$ 30° horizontally
<i>Height and Origin of Reference Axis</i>	1020 mm (40") above base of cabinet (not including feet)
<i>Angle of Reference</i>	Horizontal
<i>Maximum Output</i> <sup>2</sup> :	112 dB
<i>Characteristic Sensitivity Level</i> <sup>3</sup> :	90 dB
<i>Crossover Frequencies:</i>	3 kHz, 150 Hz
<i>Amplifier Requirements</i> <sup>4</sup> :	Suitable for use with amplifiers capable of providing between 50 and 300 W into a 4 ohm resistive load
<i>Nominal Impedance:</i>	4 ohm resistive from 20 Hz - 20 kHz
<i>Enclosure Type:</i>	Twin Coupled Cavity
<i>Internal Volume:</i>	<i>LF Enclosure:</i> 72 litres <i>MF Enclosure:</i> 8.5 litres
<i>Net Weight:</i>	45 kg (99 lb)
<i>Dimensions: (h x w x d) mm</i>	1165 x 330 x 448
<i>in.</i>	45.9 x 13 x 17.6

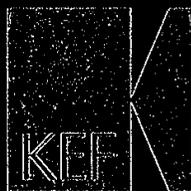
**Notes:**

1. Measured at 2 m on reference axis.
2. Maximum spl, measured at 2 m, on programme peaks under typical listening conditions.
3. Measured at 1 m on reference axis for pink noise input of 2.83 V rms, band limited 50 Hz - 20 kHz (anechoic conditions).
4. Amplifier requirement figures are intended only as a guide. As a general rule buy the biggest amplifier you can afford within the specified range and use it with care. It is easier to damage the loudspeaker by using a small amplifier driven into distortion by too much volume with bass and treble boost, than by using a larger amplifier which has power in reserve. If in doubt, ask your dealer.

**TECHNICAL SPECIFICATIONS**

<i>Product:</i>	KUBE 107/2
<i>Description:</i>	Active equaliser providing fixed and variable equalisation
<i>User Controls:</i>	<i>LF Contour</i> Continuously variable shelf control allowing boost or attenuation over the range +4 to -6 dB. Shelf centre frequency 160 Hz  <i>HF Contour</i> Continuously variable control allowing boost or attenuation over the range +2.5 to -3.5 dB. Centre frequency 4.5 kHz.
<i>Tape Monitor:</i>	Push button controls tape input/output via rear sockets.
<i>Bypass EQ:</i>	Push button by-passes user-variable equalisation only.
<i>Rear Panel Connections:</i>	All signal inputs and outputs via gold plated phono (RCA) sockets. Power in (low voltage AC) via 5-pin DIN connector.
<i>Input Impedance:</i>	51 kohms
<i>Maximum Input Voltage:</i>	> 1.9 V rms above 20 Hz > 8 V rms above 50 Hz
<i>Maximum Output Voltage:</i>	> 5 V rms
<i>Output Impedance:</i>	100 ohms
<i>Output Noise Level:</i>	< 6 $\mu$ V A-weighted
<i>Signal-to-Noise Ratio:</i>	> 104 dBA ref 1 V rms
<i>Distortion:</i>	< 0.005% for 1 V rms input @ 1 kHz
<i>Power Supply:</i>	23 V AC @ 0.3 A from factory supplied power supply adapter
<i>Net Weight:</i>	1.30 kg (2.87 lb)
<i>Dimensions: (h x w x d) mm</i>	65 x 152 x 234
<i>in</i>	2.6 x 6.5 x 9.2

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The experience of sound