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**CASTLE**  
CLASSIC SERIES  
LOUDSPEAKER RANGE



**IAG**

International Audio Group


IAG House, Sovereign Court, Ermine Business Park, Huntingdon, Cambridgeshire, PE29 6XU, England

INSTRUCTION MANUAL






User Cautions



**CAUTION!**  
RISK OF ELECTRIC SHOCK  
DO NOT OPEN



TO REDUCE THE RISK OF ELECTRIC SHOCK  
DO NOT REMOVE COVER (OR BACK)  
NO USER-REMOVEABLE PARTS INSIDE  
REFER SERVICING TO QUALIFIED PERSONNEL

ADVERTISSEMENT: RISQUE DE CHOC ELECTRIQUE- NE PAS OUVRIR



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.



This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.

IMPORTANT SAFETY INFORMATION

Read these instructions.  
Keep these instructions.  
Heed all warnings.  
Follow all instructions.  
Do not use this apparatus near water.  
Clean only with dry cloth.  
Do not block any ventilation openings.  
Install in accordance with the manufacturer's instructions.  
Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.  
Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.  
Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.  
Use only attachments/accessories specified by the manufacturer.



Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

Unplug this apparatus during lightning storms or when unused for long periods of time.

Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Warning: To reduce the risk of fire or electrical shock, do not expose this product to rain or moisture. The product must not be exposed to dripping and splashing and no object filled with liquids - such as a vase of flowers - should be placed on the product.

No naked flame sources such as candles should be placed on the product.

Caution: Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this device.

Warning Castle Subwoofer: The mains power switch for this

appliance is located on the rear panel. To permit free access to this switch, the apparatus must be located in an open area without any obstructions.

NOTE: Castle Subwoofer:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.


IMPORTANT NOTICE TO UK USERS

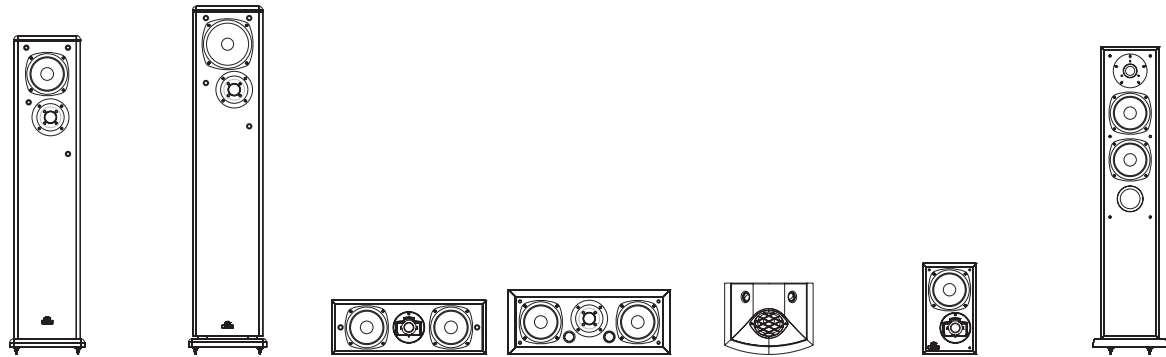
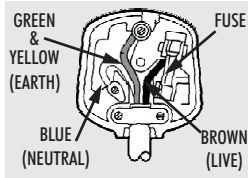
The power cord on your subwoofer may be supplied with a plug incorporating a fuse, the value of which is indicated on the pin face of the plug. Should the fuse need to be replaced, an ASTA or BSI approved BS1362 fuse must be used of the same rating. If the plug is cut off it must NOT be re-used. Dispose of any such plug safely. There is a danger of electric shock if a cut-off plug is inserted into a mains socket.

Connecting a Mains Plug

The wires in the mains lead are coloured in accordance with the code:

Blue: NEUTRAL, Brown: LIVE: Green/Yellow: Earth.

As these colours may not correspond to the coloured markings identifying the terminals in your plug, proceed as follows: The BLUE wire must be connected to the terminal marked with the letter N or coloured BLUE or BLACK. The BROWN wire must be connected to the terminal marked with the letter L or coloured BROWN or RED. The GREEN/YELLOW wire must be connected to the terminal marked with the letter E or coloured GREEN or marked with the symbol 



RICHMOND CLASSIC SERIES

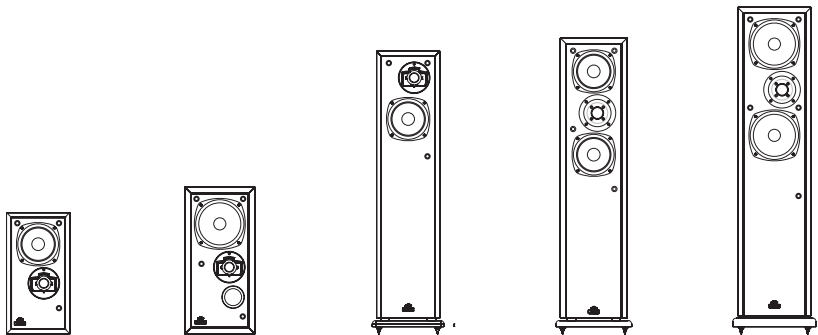
| Harlech S2       | Howard S3           | Classic Keep 2    | Bastion            | Oriel             | Classic 3i        | Classic 7i        |
|------------------|---------------------|-------------------|--------------------|-------------------|-------------------|-------------------|
| 2 channel        | 2 channel           | AV Centre         | AV Centre          | AV Surround       | 2 Ch & AV         | 2 Ch & AV         |
| Floorstanding    | Floorstanding       | Centre position   | Centre position    | Wall Mount        | Stand Mount       | Floorstanding     |
| 2 x 130mm        | 2 x 150mm           | 2 x 130mm         | 2 x 130mm          | 100mm             | 130mm             | 2 x 130mm         |
| 28mm             | 28mm                | 19mm              | 28mm               | 2 x 25mm          | 19mm              | 25mm              |
| 25 - 150W        | 25 - 175W           | 15 - 110W         | 25 - 150W          | 15 - 75W          | 15 - 80 W         | 15 - 150 W        |
| 8 ohms           | 8 ohms              | 8 ohms            | 8 ohms             | 8 ohms            | 8 ohms            | 8 ohms            |
| no               | no                  | yes               | yes                | no                | yes               | yes               |
| 89 dB            | 90 dB               | 89 dB             | 91 dB              | 87 dB             | 88 dB             | 90 dB             |
| 45Hz - 20kHz     | 35Hz - 20kHz        | 70Hz - 20kHz      | 65Hz - 20kHz       | 70Hz - 20kHz      | 65Hz -20kHz       | 45Hz - 22kHz      |
| 40Hz             | 40Hz                | 65Hz              | 60Hz               | 90Hz              | 65Hz              | 45Hz              |
| 1.8kHz           | 250Hz, 1.8kHz       | 2.1kHz            | 2.1kHz             | 3.9kHz            | 2.8kHz            | 2.6kHz            |
| 915 x 200 x 335  | 1000 x 210 x 335    | 162 x 465 x 195   | 195 x 486 x 240    | 245 x 275 x 130   | 280 x 165 x 235   | 900 x 180 x 275   |
| 951              | 1043                | -                 | -                  | -                 | -                 | 945               |
| 225x375          | 230x375             | -                 | -                  | -                 | -                 | 210 x 317         |
| 22kg ( 48.4 lbs) | 26kg ( 57.2 lbs)    | 6.8kg (14.96 lbs) | 10.2kg (22.4 lbs)  | 4.0kg (8.8 lbs)   | 4.85kg (10.6 lbs) | 17.2kg (37.8 lbs) |
| 1105 x 295 x 440 | 1165 x 310 x 425    | 580 x 305 x 265   | 590 x 345 x 310    | 330 x 330 x 310   | 365 x 445 x 345   | 410 x 1085 x 315  |
| 25kg ( 55lbs)    | 28.5 kg ( 62.7 lbs) | 7.5kg ( 16.5 lbs) | 11.5kg ( 25.3 lbs) | 5.6kg (12.3 lbs ) | 11kg (24.2 lbs)   | 19.7kg (43.4 lbs) |



Produced after 13th August 2005.  
Waste electrical products should not be disposed of with household waste. Please recycle where facilities exist.  
Check with your Local Authority or retailer for recycling advice.



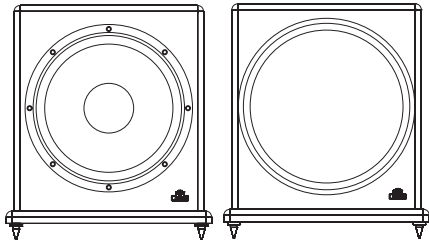
Specifications



CLASSIC SERIES

| Parameter                   | Durham 3   | Warwick 3         | Pembroke         | Stirling 3       | Conway 3         |
|-----------------------------|--|-------------------|------------------|------------------|------------------|
| Function                    | 2 channel  | 2 channel         | 2 channel        | 2 channel        | 2 channel        |
| Format                      | Stand Mount  | Stand Mount       | Floorstanding    | Floorstanding    | Floorstanding    |
| Bass Driver                 | 130mm  | 150mm             | 130mm            | 2 x 130mm        | 2 x 150mm        |
| Tweeter                     | 19mm   | 19mm              | 19mm             | 28mm             | 28mm             |
| Amplifier power (rec.)      | 15 - 75W   | 15 - 110W         | 15 - 75W         | 25 - 150W        | 25 - 175W        |
| Impedance (Nominal)         | 8 ohms   | 8 ohms            | 8 ohms           | 8 ohms           | 8 ohms           |
| A/V shielded                | yes  | yes               | no               | yes              | yes              |
| Sensitivity (1W@1M)         | 88 dB  | 87 dB             | 87 dB            | 91 dB            | 91 dB            |
| Nominal Frequency Range     | 55Hz - 20kHz   | 50Hz - 20kHz      | 45Hz - 20kHz     | 45Hz - 20kHz     | 40Hz - 20kHz     |
| Freq. Fb                    | 60Hz   | 45Hz              | 50Hz             | 45Hz             | 45Hz             |
| Crossover Frequency         | 3kHz   | 2.2kHz            | 2.5kHz           | 2.2kHz           | 1.8kHz           |
| Dimensions (HxWxD) (mm)     | 365 x190 x 225   | 440 x 210 x 245   | 710 x 190 x 220  | 845 x 200 x 245  | 925 x 220 x 270  |
| Height on plinth and spikes | -  | -                 | 746              | 881              | 968              |
| Plinth Size (W x D) (mm)    | -  | -                 | 215x265          | 225 x 275        | 245 x 295        |
| Net weight                  | 6.3kg ( 13.9 lbs)  | 8.5kg(18.7lbs)    | 9.7kg (21.3 lbs) | 15kg (33 lbs )   | 21kg (46.2 lbs)  |
| Carton size (mm)            | 460 x 605 x 295  | 585 x 615 x 345   | 1000 x 605 x 295 | 1015 x 295 x 345 | 1085 x 315 x 365 |
| Gross weight                | 14kg (30.8 lbs)  | 19kg ( 41.8 lbs ) | 22kg ( 48.4 lbs) | 16.5kg (36.3lbs) | 23kg (50.6lbs)   |
| Finishes                    | Real wood veneer: cherry, maple, natural oak, black oak, antique oak, mahogany, walnut, rosewood |                   |                  |                  |                  |

| Parameter                  | Classic Sub                 |
|----------------------------|-----------------------------|
| Bass Driver                | 300mm                       |
| A/V shielded               | no                          |
| Amplifier power            | 300W                        |
| Line Input Sensitivity     | 325mv for 150W              |
| Avg. Max output at 1 metre | 120dB                       |
| Boundary response          | 35Hz - 120Hz                |
| Crossover Range            | 35 - 85Hz (in 6x10dB steps) |
| Dimensions (HxWxD) (mm)    | 435 x 380 x 420             |
| Height on spikes (mm)      | 460 mm                      |
| Plinth Size (W x D) (mm)   | 410 x 375                   |
| Net weight                 | 28kg ( 61.6lbs )            |
| Carton size (mm)           | 515 x 495 x 615             |
| Gross weight               | 30.5 kg (67.1lbs)           |
| Finishes                   | To match Castle range       |



Introduction – A Tradition Renewed



Castle Acoustics was founded in 1973 by a group of six senior designers then working for one of the world’s oldest and most respected hi-fi brands, Wharfedale. They had a vision of a new direction for loudspeaker development.

This gifted group of engineers rated craftsmanship and quality of materials as fundamental in loudspeaker design. The newly founded Castle Acoustics decided to go its own way and manufacture each Castle loudspeaker to the finest furniture-quality standard using the most sought after woods and veneers allied to the most advanced acoustic materials and technology of the time.

Now part of the International Audio Group, and under the watchful eyes of Chief Engineer, Steve Hewlett, Castle Acoustics faces a bright future. The new Classic series re-establishes Castle products at the very cutting edge of research into acoustics, while retaining the traditional virtues of impeccable design and presentation – a perfect balance of form and function.

Contents

Cautions ..... Ifc

Introduction ..... 1

Good Practice Guide ..... 2

Unpacking The Equipment ..... 3

Fitting Spikes..... 3

Cables and Connectors ..... 4

Crossovers..... 5

Positioning Stereo Loudspeakers..... 6

Connecting Stereo Loudspeakers -1 ..... 7

Connecting Stereo Loudspeakers -2 ..... 8

Positioning Castle AV Loudspeakers..... 9

Wall Mounting the Castle Oriel ..... 10

Connecting Castle AV Loudspeakers ..... 10

The Castle Classic Subwoofer ..... 11

Preparing The Subwoofer..... 12

Connecting The Subwoofer..... 13

Operating the Subwoofer ..... 15

Fine Tuning Procedures ..... 16

Setting Up a Home Theatre System ..... 17

Final Thoughts ..... 19

Service And Warranty ..... 19

Specifications ..... 20



## Foreword

Before connecting and using your loudspeakers, please bear the following points in mind:

- Switch off the amplifier and all sources before making connections to your sound system. When you switch on the system or change sources, set the volume control to minimum and turn up the level gradually.
- The position of your Volume Control is NOT a reliable guide as to the maximum capabilities of your sound system. Playing the system with extreme settings of volume and tone controls may damage the amplifier and loudspeakers.
- Do not connect loudspeaker terminals to the mains supply.
- Ensure that your loudspeakers are correctly wired and are in phase.
- Do not subject your loudspeakers to excessive cold, heat or sunlight.
- If you are shelf mounting your loudspeakers, make sure they are not placed on the same shelf as your source components.
- Do not place heavy objects on top of loudspeaker cabinets. If you play the loudspeakers with the grilles removed be careful to protect the drive units from children and pets.
- Do not use makeshift stands. Always fit a manufacturer's approved stand using the instructions and the fixings provided. Your dealer will advise you.
- Do not attempt to dismantle the loudspeaker. There are no user serviceable parts inside and you will invalidate the warranty.
- Some Front and all Centre loudspeakers are magnetically screened. You should site front loudspeakers at least 0.5 m away from TV sets and magnetic storage media. All Castle centre loudspeakers may be sited close to a TV screen with no adverse effects. The specifications on Pages 20 and 21 have AV shielding details for your loudspeakers.
- When connecting your loudspeakers, do not run cable across areas of open floor where they may be a source of danger. Run them safely, around room boundaries if necessary.

## Final Thoughts

### Looking After Your Loudspeaker

- Your Castle Loudspeakers use a specially hardwearing sealed finish. They should bot be waxed or treated with spray polishes which will smear and dim their lustrous finish.. Occasionally polish them with a dry or barely moist cloth to remove dust and finger marks, etc.
- Occasionally, remove the loudspeaker grilles and brush them gently with a soft brush before replacing them carefully.
- Never stand objects on your loudspeakers. In particular do no stand flowers atc on them - they are not jardinieres!
- Avoid getting any liquid behind the grille. If you accidentally spill liquid on your loudspeakers, take them to your dealer for attention before using them again.
- Do not open the speakers; there are no user serviceable parts inside. Never touch the drive units either with an object or your hands.

### Quality Assurance

Your Castle loudspeakers have been constructed to the highest standards. From the top grade furniture construction and finish to the carefully designed and selected acoustic components, the Castle range is a testament to fine design, fine engineering and fine craftsmanship. Our speakers are built to provide a lifetime of pleasure to the eye, the ears and through the music they play, the soul. We hope you will derive many years of good service from our products.

### Servicing

Servicing of Castle products should only be carried out by authorised service agents. If service is required the equipment should be returned, securely packaged, preferably using original packaging, to your dealer.

In the UK equipment may be returned to the IAG Service Centre. In the USA equipment may be returned to the Service address shown on this page. Always telephone before returning any equipment. A note should be enclosed giving your name, address, telephone number, and a brief description of the reason for return.

If you require service outside the Warranty period, do not hesitate to contact your dealer.

### Service Addresses

For technical support, servicing or product queries and information please contact either your local retailer or the offices below.

#### UK

IAG Service Dept.  
Unit 4  
St Margaret's Way  
Stukeley Meadows Industrial Estate  
Huntingdon  
Cambs  
PE29 6EB  
England  
Tel: +44 (0)1480 452561  
Fax: +44 (0)1480 413403

#### USA

IAG America, Inc.  
8440 154th Avenue NE  
Redmond, Washington 98052  
USA  
Tel: +1 425 861 3909  
Fax: +1 425 861 3906

#### Asia

IAG  
Room 2310 - 2311 Press Building,  
Shennan Road C,  
Shenzhen,  
China  
Tel: +86-755-82091200  
Fax: +86-755-82091205





## Delay and LFE Settings

The purpose of delay is to enable surround and dialogue information to arrive at the listener's ears at the same time as the Front channels, even when the listening seat is in a non-ideal position.

Rear Delay: If the listening position is equidistant from the Front and Rear speakers, a low delay setting should be set. The closer the listener is to the Rear speakers the higher should be the delay setting used,

Centre Delay: If the Centre speaker is level with (or slightly behind) the Front speakers, set the delay to zero. If the Centre speaker is forward of the Front speakers, increase the delay.

LFE: In domestic systems the LFE channel typically feeds into the subwoofer. Where no subwoofer is used, the LFE signal is combined with Front Channel information. When you set the LFE level at your AV processor, use care as the powerful low frequencies can overload domestic loudspeakers.

If you hear popping or thumping noises coming from the front loudspeakers or subwoofer, immediately turn the AV Processor's volume level down and then back off the LFE level. This should cure the problem. If it does not, back off the volume level at the subwoofer (if you are using one) until the problem disappears.

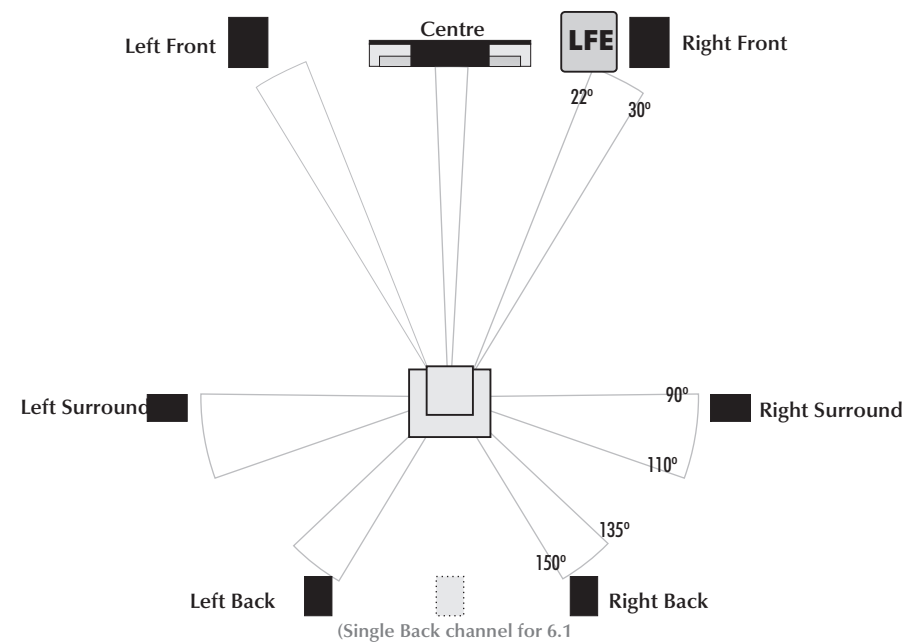
Please read the relevant sections of your AV amplifier manual and familiarise yourself with the various issues. If you are unsure, consult your dealer for help.

## Expanding the System

Dolby Labs, DTS and THX offer 6.1 and 7.1 formats. Although the precise configuration of these systems will depend on the capabilities of your processor and you should be guided by those instructions, we would make some observations.

For most 6.1 and 7.1 formats, and especially Dolby ES, the listening seat should not be too close to the rear wall. Optimising the time delay so that information from all speakers arrives at the listening seat coherently is critical if the benefits of these systems are to be fully realised.

### Dolby Labs Recommended 7.1 Placement



## Unpacking Your Loudspeakers

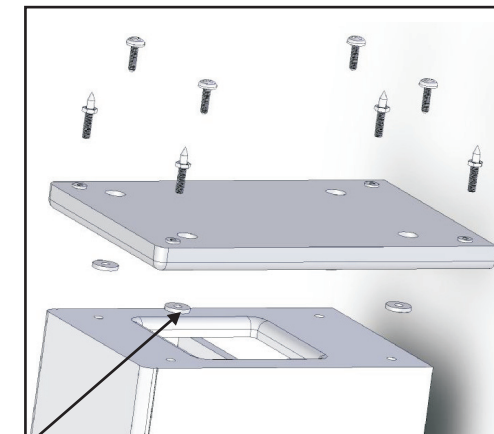
- Castle loudspeakers come in many shapes and sizes. Now you have opened the carton, we hope you are reading this manual.
- If you are unpacking the larger loudspeakers or the Classic Subwoofer, please remember that these units are heavy. We suggest that you have someone to assist you.
- Lift the loudspeaker carefully out of the packing. Do NOT try and lift the loudspeaker using the cloth bag.
- Unpack any accessories carefully. The larger loudspeakers will need to be assembled on their plinths and spike kits.
- If there is any sign of damage or if the contents are incomplete, report this to your dealer as soon as possible.
- Retain the packing for future safe transport of the product. If you dispose of the packing, do so with respect to any recycling provisions in your area.
- Stand mounting and AV loudspeakers are ready to be connected after unpacking. The larger loudspeakers will need to be assembled on their plinths and spike kits.
- The Castle Oriel has a specific requirement for wall mounting. Instructions are on Page 10.

## Attaching the Plinth and Spikes to Floorstanding Models

### Castle Pembroke, Stirling 3, Conway 3, Harlech S2, Howard S3:

- Make you have plenty of unobstructed working space.
- Place a soft cloth on the floor to protect the loudspeaker.
- Invert the loudspeaker onto the cloth.
- Thread a locknut onto each spike and loosely run it up the thread
- **Castle Howard and Harlech models ONLY:** Place the provided plastic spacing washers over the holes as indicated.
- **Attaching the Plinth:** Place the plinth on the loudspeaker. Place a washer over each of the four round head screws. Insert the screws into the threaded holes on the loudspeaker and tighten securely.
- Thread the spikes onto the spike inserts. Tighten them finger tight.
- Invert the loudspeaker. Be careful not to damage the floor with the spikes.

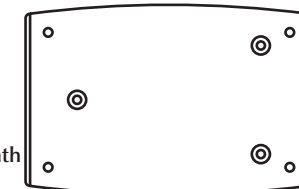
\*The four spacers are for the Howard and Harlech



### Castle Richmond Classic 7i

- The procedure is the same as that outlined above except that the plinth uses three fixing screws

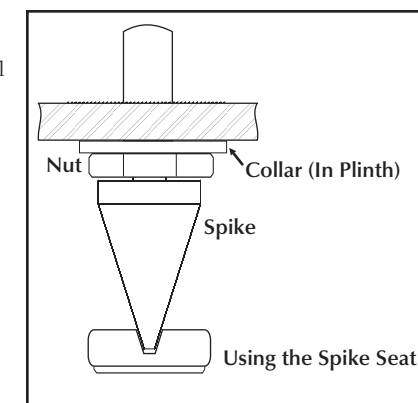
Richmond Classic 7i Plinth



## Levelling the Loudspeakers

- **When the speaker is upright:** You will probably find that the speaker will wobble with one spike not contacting the floor. Adjust this spike until all four spikes are on the floor. With the aid of a spirit level move each spike in and out until the loudspeaker is level and sitting squarely on all four spikes with no rocking.
- Now tighten each locknut securely against the collar in the plinth to secure the spike
- A spike seat is provided for use on wood or stone floors etc. and should be placed as shown.

\* On most models four self leveling soft rubber feet are included as an alternative to spikes.







## Cables and Connectors

### Choosing Loudspeaker Cable

Specialist audio cable usually offers better performance than general purpose ‘bell’ or ‘zip’ wire.

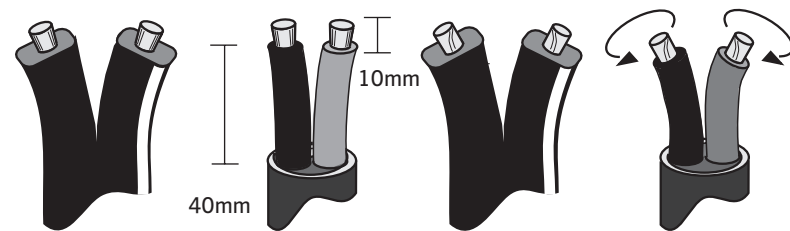
Choose a cable of suitable diameter – cable that is too thin will limit the dynamics of the sound and may impair the bass response. Audio cable is polarised, with two cores of different colours, or often a raised rib or coloured tracer in the case of twin cable.

Before you purchase your cable, we suggest that you give careful thought to the positioning of your loudspeakers. This is especially the case if you are bi- or tri-wiring your loudspeakers.

Cable lengths to loudspeaker pairs should be the same for left and right channels in order to equalise the signal transmission. Allow some slack in your speaker cables so you can alter their position to best advantage, but do not have your cables over-long.

### Preparing Loudspeaker Cable

Split the twin cores to a depth of about 40mm. Carefully strip the insulation from each end, leaving about 10mm of bare wire. If the cable is stranded, lightly twist to gather any loose strands.



### Connecting Screw Terminals

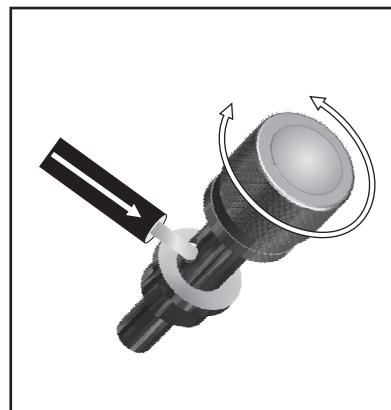
All the Castle loudspeakers use screw terminals.

#### Safe Connection of Terminals

Unscrew the terminal. Insert the bare end of the cable into the hole in the base of the terminal. Tighten securely.

When connecting terminals make sure you leave no strands of bare wire that can short across to adjacent terminals.

As an alternative to bare wire you can use specialist spade connectors. Your Castle dealer will be pleased to advise you.



## Setting Up a Home Theatre System

*Some of this chapter may appear to repeat the content of the Subwoofer pages - the context however is different.*

### Placement

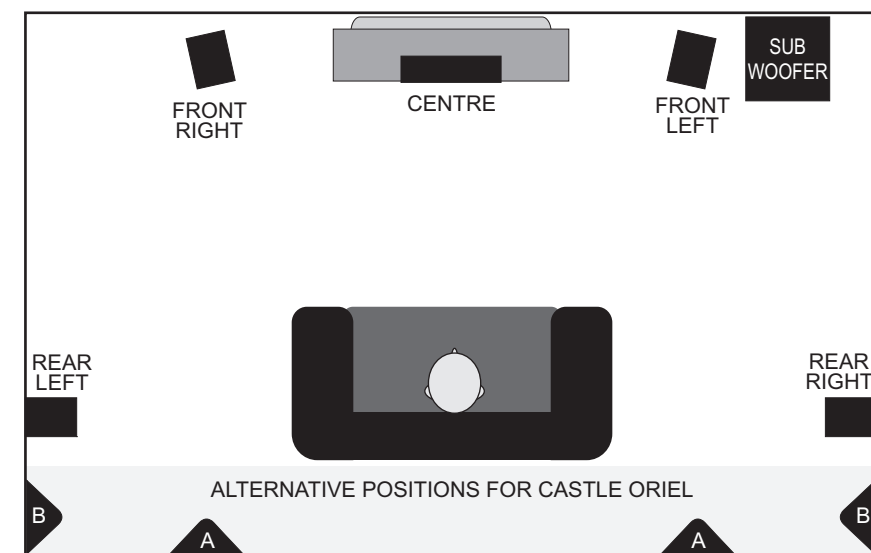
#### Front And Effects Channels

The front loudspeakers are placed on either side of the television screen, 2 to 3 metres apart. The speakers should be angled slightly so they are aimed towards the listeners.

We recommend placing the rear effects speakers in a high position, behind the listener's head. If the rear or side walls are a long way from the listening seat, consider stand mounting the loudspeakers. If the centre loudspeaker is very high or low, angle it towards the listener's ear level. The front faces of the centre and surround loudspeakers should also be in line as far as possible. Note the special position for the Castle Oriel.

#### Subwoofer

As the ear is unable to detect the direction from which deep bass originates, this allows you freedom to position the unit. Varying the distance from the wall alters the bass. Placing the subwoofer across a corner boosts the bass but may impair clarity. The performance of Home Theatre systems can often be enhanced by using a pair of subwoofers.



#### Setting Loudspeaker Sizes

Many digital AV Processors ask you to specify the size of speakers in all channels - usually ‘Large’ or ‘Small’. The Floor standing Castle loudspeakers may be safely set to ‘Large’. The other loudspeakers should be set to ‘Small’

If you are not using a subwoofer: Set the Front Speakers to ‘Large’. Set the ‘Subwoofer’ option on the processor to ‘Off’ or ‘No’. The Front channels will now receive all the system bass.

If you are using a subwoofer: When set to ‘Small’ all the system bass will go into the subwoofer. If you choose ‘Large’ the Front channel bass will be reproduced from the Front speakers.

Once the loudspeaker settings have been finalised, put the AV amplifier into its “Test” mode (see instructions supplied with your processor). Adjust the level of each channel until all channels are reproduced at equal loudness.

You may need to adjust the subwoofer output level. Avoid setting too high a level or you will swamp the sound with bass and may limit the subwoofer's ability to respond to large bass transients. You should also set a sensible level going into the subwoofer from the AV processor.





## Fine Tuning Procedures

*Setting up of the subwoofer should be performed with all tone controls and filters on your amplifier or processor set 'flat'.*

Listening rooms are not ideal. Because of room geometry and construction there will be areas with severe peaks at some frequencies and severe troughs at others. If you site loudspeakers in such areas the response will be highly non-linear. It is easier to treat high frequency irregularities by the use of drapes, soft furnishings etc., but very hard to do the same at bass frequencies due to the very long wavelengths.

To help locate standing waves in your listening room, one idea is to sit in the listening seat and recruit a friend with a deep voice to speak as he moves around the area where you propose to site your subwoofer - you will soon find out where *not* to site it! Where the voice sounds most natural is a good place to start.

Although the subwoofer's bass output is enhanced by walls or corners, so often is coloration. The floor will influence the sound. The surface under the subwoofer should be stable and unobstructed. If the carpet is very thick, consider placing the subwoofer on a solid surface such as a marble slab. If you place the subwoofer where it amplifies the irregularities of the room or the main speakers the result will be bloated, coloured bass. If acoustic guitar and male voice sounds coloured when the subwoofer is operating at normal level and less coloured if the subwoofer volume is reduced, you need to address the positioning first before adjusting any controls.

**Loudspeaker Phasing:** Make sure that all loudspeaker channels are connected in phase. If there is a doubt about the way the loudspeakers are connected, check their phasing by playing a mono source - the sound should appear from a point midway between the front loudspeakers. If this position is indefinite, reverse the connections to one speaker. Correctly connected loudspeakers give a definite centre sound source with fuller bodied tenor and bass registers.

**Setting the Phase of the Subwoofer:** Phase at very low frequencies is not straightforward to detect. Initially we suggest you temporarily set the low pass filter to 'off' and the phase to 0° and play some bass heavy music in Stereo through the main speakers and the subwoofer. From the listening position, switch the phase between 0° and 180°. The setting which appears to give the greater bass output is correct. Now follow the instructions below for setting the low pass filter.

**Crossover Control:** If you are using a digital AV processor the initial subwoofer setting should be 85Hz as the processor will have its own bass management system.

Setting Loudspeaker Sizes: Most digital AV Processors ask you to specify the size of speakers in the various channels. These are usually 'Large' or 'Small'. This sets the bass management for the system. Castle floor standing loudspeakers can be set to 'Large' Smaller loudspeakers (including stand mounted units) should be set to 'Small' for the Front channels. Choose 'Small' for the surround channels and also for the Centre channel, so that any bass from these channels will be directed to the subwoofer. Set the 'Subwoofer' option on the processor to 'On' or 'Yes'.

After experimenting with various sources you may need to adjust the Subwoofer Crossover settings. Try to ensure the subwoofer blends into the sound stage - the more invisible the subwoofer component of the sound field is, the better.

### Setting levels:

Once the loudspeaker settings have been finalised, put the AV amplifier into its "Test" mode (see instructions supplied with your processor.) Adjust the levels until all channels are reproduced at equal loudness.

When adjusting the subwoofer output level avoid setting too high a level or you will swamp the sound with bass which be tiring to listen to and may limit the subwoofer's ability to respond to large bass transients. Set a sensible level going *into* the subwoofer from the processor.

LFE: This channel was originally an additional bass channel with its own dedicated subwoofer. In practice however, if any speakers are set to 'Small', the LFE channel is combined with the bass from those channels and fed into the subwoofer. When you set the LFE level from your AV processor, use care as the LFE channel contains powerful low frequencies which, although normal in a cinema, may overload a domestic subwoofer. If, during a programme, you hear popping or thumping noises from the subwoofer, turn the AV Processor volume level down and back off the LFE level. If this does not cure the problem, lower the subwoofer volume level.



## Crossover Networks

*Castle loudspeakers use a variety of terminal panels. These fall into three types.*

### Biwireable Crossovers

A bi-wiring panel has four terminal binding posts. The upper terminals connect to the treble units, the lower pair to the bass unit.

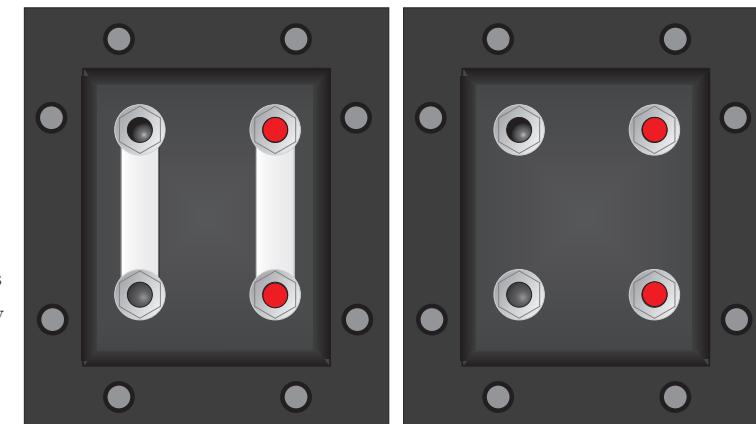
As supplied the treble and bass terminal pairs are connected via removeable straps. This arrangement facilitates standard single wiring, and advanced bi-wiring which offers significant performance advantages. Follow the drawings carefully to see the correct orientation of the loudspeaker terminals.

### Why Bi-Wire?

Bi-wiring involves the use of two separate cables between the amplifier and the loudspeakers. One pair connects to the treble unit the other to the bass driver.

Using separate cables for treble and bass units in a Bi-Wiring configuration reduces intermodulation effects and improves headroom and clarity. To bi-wire, you will need to install two lengths of twin core cable between the amplifier and each loudspeaker.

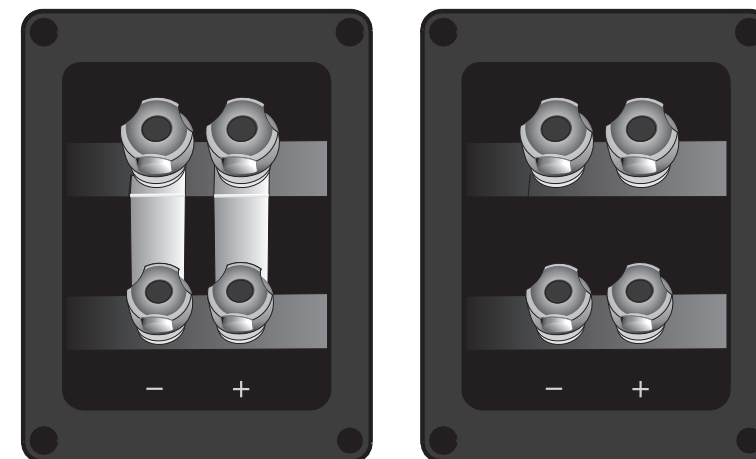
*Castle Classic Range except Howard and Oriel*



*As supplied*

*In bi-wiring mode*

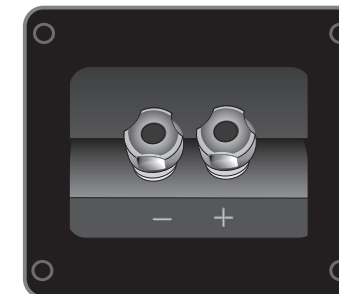
*Castle Richmond Classic 7i*



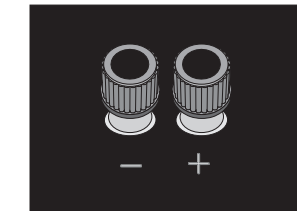
*As supplied*

*In bi-wiring mode*

*Richmond Classic 3i*



*Oriel (detail)*



### Standard Crossovers

The Richmond Classic 3i and Oriel use standard crossovers. The Oriel uses a special version built into the rear wall of the loudspeaker.

*Castle Howard Terminals*



### Castle Howard

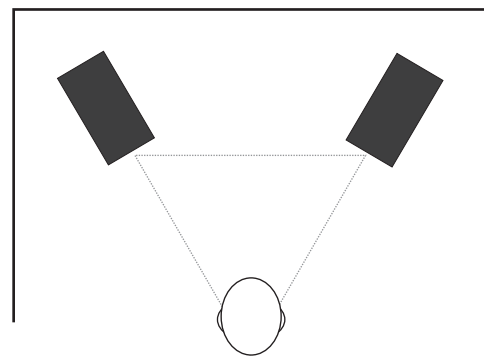
The Howard uses separate terminal panels for the treble and bass sections of the loudspeaker. We recommend that the Howard should only be bi-wired.





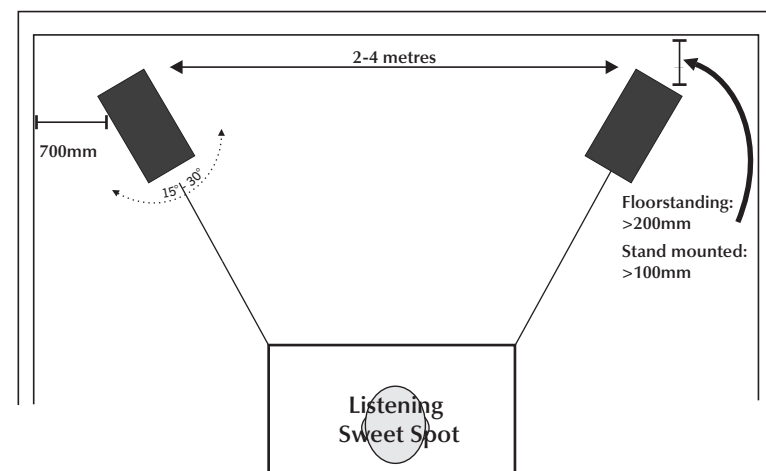
## Positioning Stereo Loudspeakers

The distance between the speakers should be the same as between you and the speakers.



If the loudspeakers are placed too close to the walls the bass will increase but may be boomy and indistinct. If the loudspeakers are placed further away from the walls, the inward angle ("toe in") may be increased by up to 30%. As personal taste plays a large role, experiment with different configurations and play a wide range of programme material before finalising the position of your speakers.

The optimum listening position is in the area broadly known as the 'sweet spot'. The more extreme the angle the narrower the sweet spot is. Castle loudspeakers are designed to cover a medium sonic perspective so there should be no need for extreme settings.



### Stand Mounting Loudspeakers

The Castle Durham, Warwick and Richmond 3i are designed for stand mounting. The stands should be sturdy and offer optimum support for the loudspeaker. As an alternative the speakers may be wall mounted on rigid brackets or placed on rigid shelves.

Ideally the top of the speaker should be at ear level to a seated listener. If the rear panels of the speakers are placed close to the walls the amount of bass will be increased but the clarity may well suffer - you should experiment until you get the best result.



## Operating Your Subwoofer

Check that all connections to the subwoofer have been properly made and that the main volume control is at minimum. Plug the supplied power cord into the mains socket on the rear panel.

### Initial Settings

**Volume Control:** Set the subwoofer volume control to the mid position (12 o'clock) before proceeding.

**Crossover Control:** This control should initially be set to 45 or 55 Hz when the subwoofer is used with small bookshelf speakers and to 35 or 40 Hz when used with large floor standing speakers.

**Phase Switch:** The Phase switch should be initially set to 0°.

### Switching On

Plug in the mains plug and switch the power on. Now switch the subwoofer on with the rest of your system.

The subwoofer ON/OFF switch has a rocker action; press the upper part to switch the equipment on and the lower part to switch it off. When switched on the light above the power switch will glow and the subwoofer will be operational.

### Basic Tuning

**Volume Setting:** Play a programme with extended bass and set the system volume to a reasonable level. Adjust the subwoofer volume control to produce the desired level of bass. The bass should be even and an extension of the main loudspeakers. Do not set the control too high or you will swamp the sound with too much bass and clarity and definition will suffer.

**Phase Switch:** If the bass is indistinct or lacks depth, the Phase switch may need adjustment. Set the switch to 0° and listen carefully to some music with extended bass. If there is insufficient bass output from the sub-woofer set the Phase switch to 180°. Select the position which produces the most natural, extended bass.

**Crossover Adjustment.** This adjusts the blend between the subwoofer and the main speakers, and enables the system to be set up for optimum bass performance. The higher settings are for use with small bookshelf loudspeakers, the lower settings for large floorstanding models. If you choose too low a setting with small speakers, there will be a 'hole' in the bass response; too high a setting with large speakers will result in the upper bass becoming bloated. Again the subwoofer should be an extension of the main loudspeakers.

### Mains Operation

When the system is not in use for extended periods, we suggest you switch off the subwoofer to protect it from switching noises caused by domestic appliances, etc. The best practice is to switch the complete system on and off from a central point. Bear in mind that if you play the system with the subwoofer switched off you will get no bass!

Always turn the main volume control to minimum when you switch the system on or off.



## Connecting Your Subwoofer -3

### High Level Connections

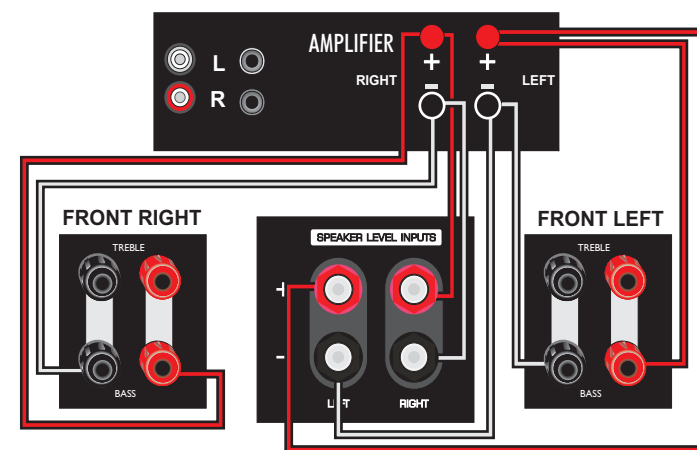
#### Parallel Connection to the Amplifier

You will need two lengths of Loudspeaker cable.

Ensure the Front loudspeakers are correctly connected.

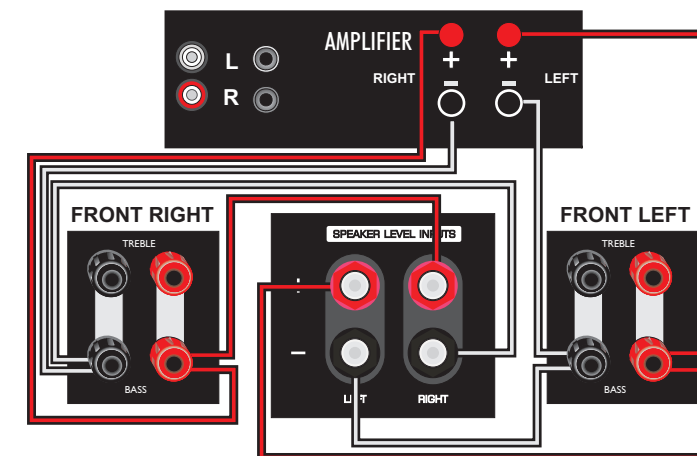
Connect the Left Speaker Terminals on the sub bass unit to the Front Left speaker terminals on the amplifier. Connect the Red (+) speaker terminal on the amplifier to the Red (+) terminal on the subwoofer. Connect the Black (-) speaker terminal on the amplifier to the Black (-) Terminal on the subwoofer.

Now connect the Right Speaker terminals on the subwoofer to the Front Right speaker terminals on the amplifier.



#### Parallel Connection to the Loudspeakers

Alternatively you may connect the subwoofer to the Front speakers instead of to the amplifier.



## Connecting Stereo Loudspeakers -1

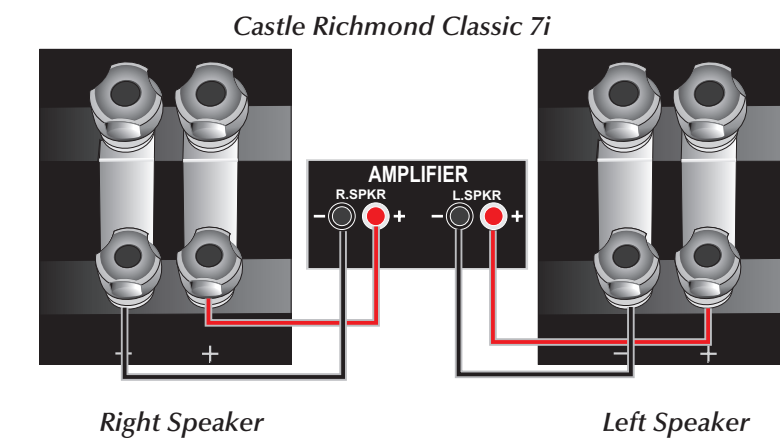
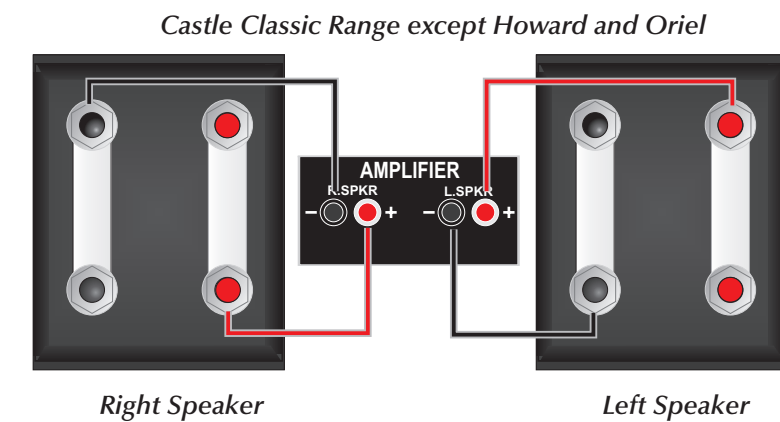
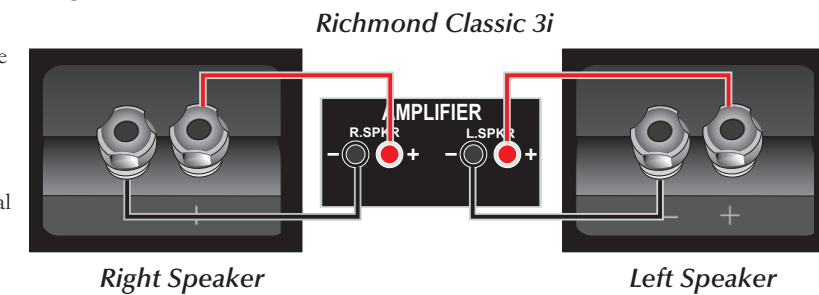
### Standard Loudspeaker Wiring

Choose a suitable length of twin core speaker cable for each channel, and prepare the ends. Unscrew each terminal a few turns.

Connect the red, positive (+) terminal of the Left loudspeaker to the corresponding red, positive (+) amplifier terminal. Connect the black, negative (-) terminals similarly.

Tighten the terminals securely. Repeat this procedure for the Right Channel.

If you are standard wiring a bi-wiring panel make sure that the binding straps are securely in place.

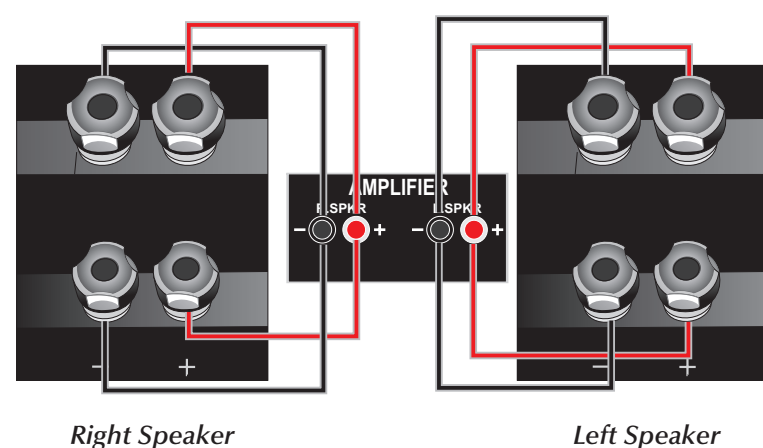
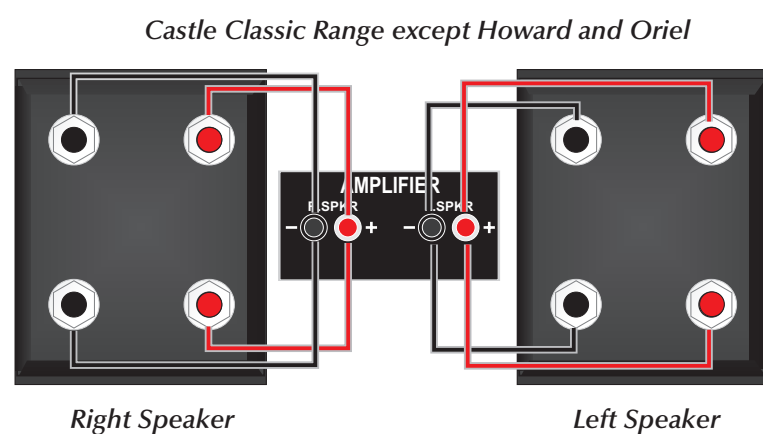


## Connecting Stereo Loudspeakers -2

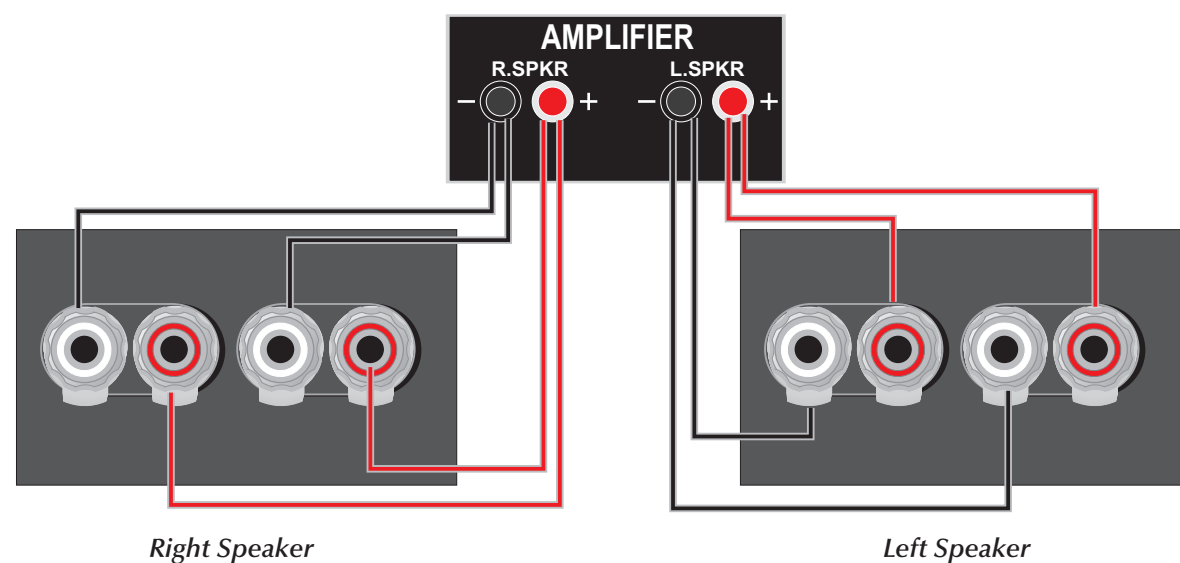
### Bi- Wiring

To Bi-wire, you will need to install two lengths of twin core cable between the amplifier and each loudspeaker.

**Note:** Some amplifiers have two pairs of output terminals to facilitate bi-wiring but this is not essential. The advantages of bi-wiring are fully retained if your amplifier has only one pair of loudspeaker terminals per channel (as in the illustrations).



### Wiring the Castle Howard

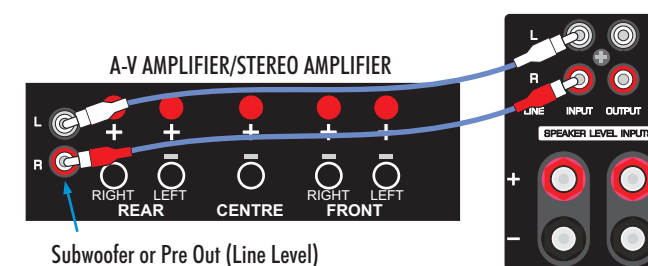


## Connecting Your Subwoofer -2

### Stereo Line Level Connections

If your amplifier has a spare preamplifier output or a stereo sub-woofer output, connect the sub-woofer as shown.

You will need a stereo screened RCA phono cable. Connect a stereo RCA phono cable from the line output of the preamp to the Subwoofer line inputs.

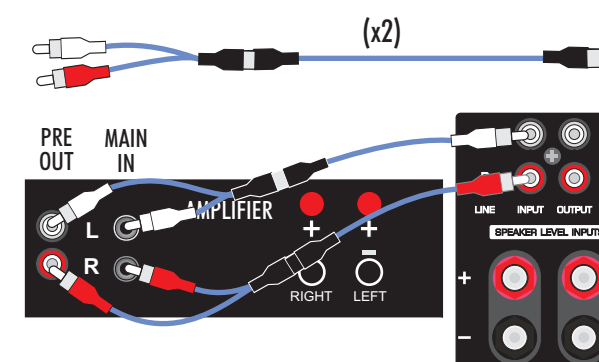


### Pre Out - Main In Connections

If you use a separate stereo pre and power amplifier, or an amplifier where the pre and main amplifier can be separated, connect the sub-woofer as shown. There are two alternative methods.

### Using a Y Adaptor

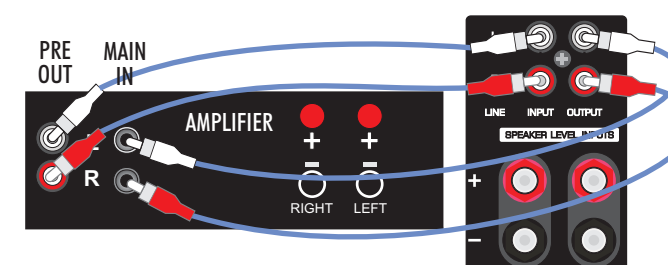
You will need two screened RCA 'Y' adaptors and two single RCA phono cables. Remove the Pre-Main links on your amplifier. Connect the socket (common) of an RCA 'Y' adaptor to one of the mono cables. Connect one leg of the 'Y' adaptor to the Left Channel Pre Out socket on the amplifier and the other leg to the Left Channel Main In socket. Connect the remaining plug on this combination to the Left Channel Line Level Input on the sub-woofer. Repeat this for the Right Channel.



### Placing the Subwoofer in the System Loop

You will need two stereo (or four single) screened RCA cables.

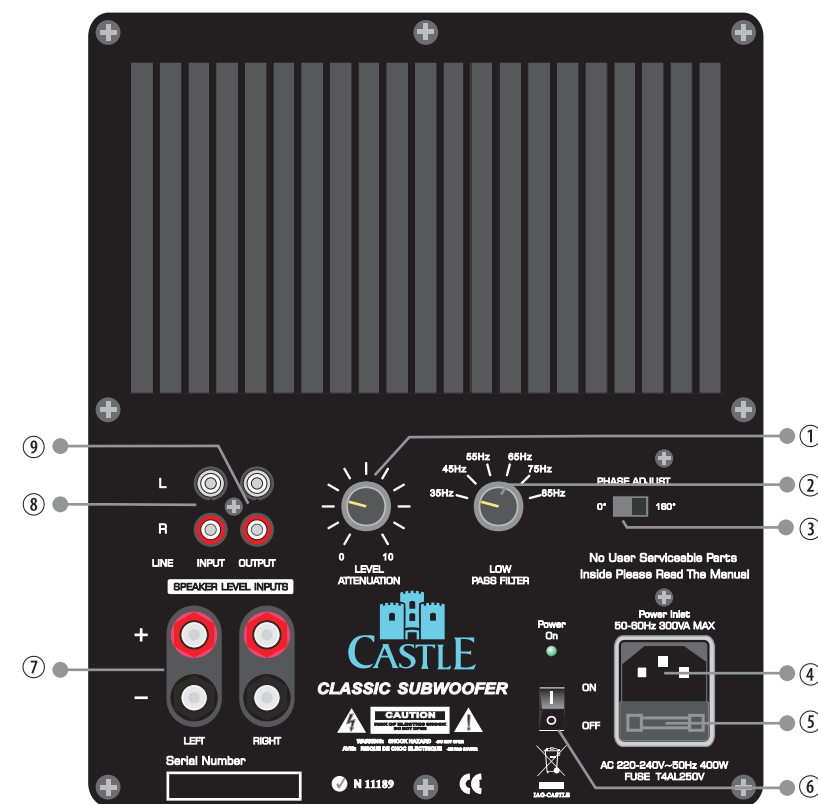
Connect a Stereo cable from the Line Level Inputs of the sub-woofer to the Pre Out sockets of the amplifier. Now connect a second Stereo cable from the Line Level Outputs of the sub-woofer to the Main In sockets of the amplifier. Make sure that the Right and Left Channels are not mixed up! The sub-woofer is now inserted within the system loop.







## Connecting Your Subwoofer

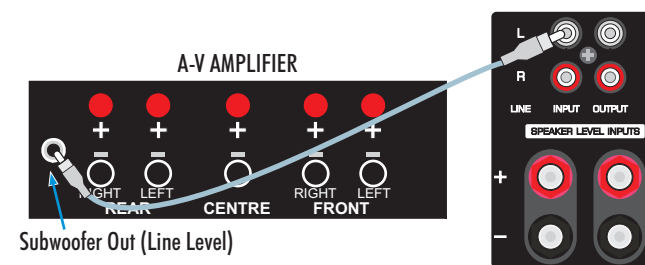


### Control Panel

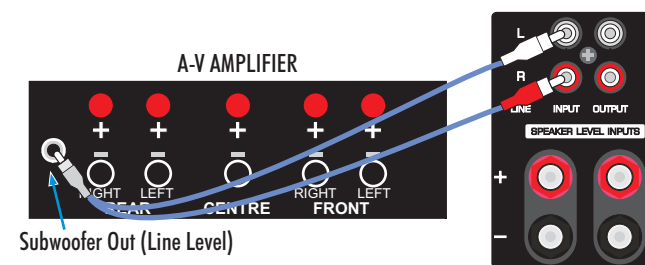
- 1 Subwoofer Volume Control
- 2 Crossover Frequency Control
- 3 Phase Control
- 4 IEC Mains Input Socket
- 5 Mains Power Fuse
- 6 Mains Power Switch
- 7 Speaker Level Inputs
- 8 Line Level Inputs
- 9 Line Level Outputs

## Connecting to a Digital AV Processor

If your AV processor has a line level or LFE subwoofer output you should use this connection. You will need to purchase a single screened RCA phono lead from your dealer. Connect this lead to the Left line input of the Subwoofer as shown.



Alternatively, you may use a split mono lead from the processor to both inputs of the subwoofer. In this case the input level at the subwoofer will be slightly higher.



## Positioning Castle Classic AV Speakers

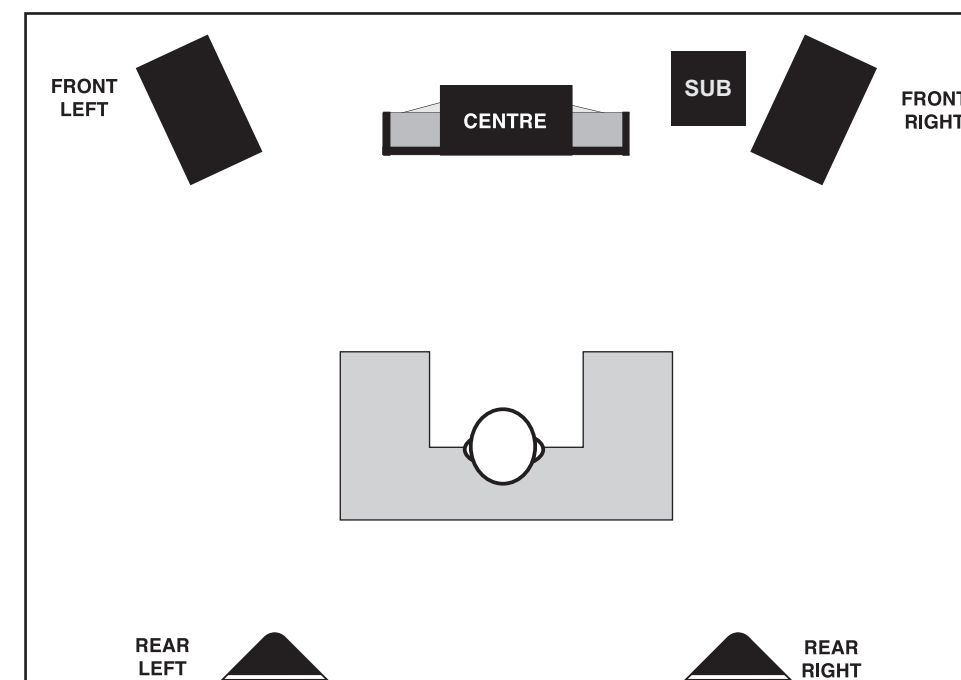
**Front Loudspeakers:** The front loudspeakers are placed on either side of the TV monitor, 2 to 3 metres apart. The speakers should be angled slightly so they are aimed towards the listeners.

**Rear Surround channels:** The reproduced sound should be as room filling as possible. We recommend placing the speakers in a high position, behind the listeners head. If the rear wall is more than 1 metre behind the listening seat, an alternative position is on the side walls. If the walls are a long way from the listening seat, consider stand mounting the loudspeakers.

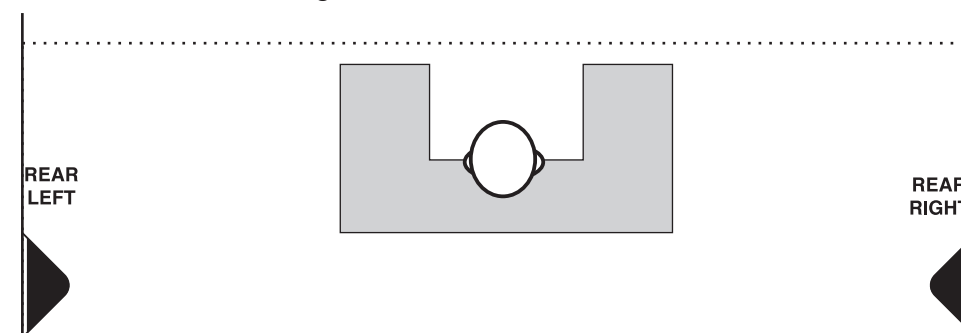
**Centre Channel:** Most of the dialogue comes from the centre loudspeaker. Speech should appear to originate from the actors mouths. Operating height is important. Ideally the front and centre channel speakers should be at the same height. The front of the cabinet should be level with the TV screen.

The Castle Bastion and Keep centre channel loudspeakers may be mounted on a shelf or placed on top of the TV cabinet if it is safe to do so.

The Castle Oriel is designed for wall mounting. The unique design of this loudspeaker enables its use either on the rear or the side walls of the room presenting both direct and ambient reflected sounds

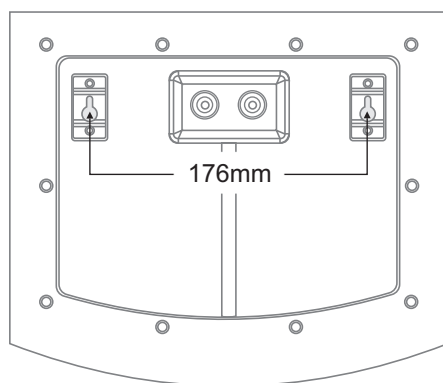


## Alternative Side Mounting for Castle Oriel





## Wall Mounting the Castle Oriel



Ensure the wall is sound, free of obstructions, hidden pipes etc. and capable of supporting the loudspeaker plus a small amount of pulling force. You will also need suitable wall fixings and some No 8 Round Head screws of sufficient depth to suit your wall.

Draw a horizontal line on the wall and mark off two mounting holes at 176mm centres.

Drill and plug two holes.

Screw 2 No.8 screws into the holes leaving 7mm protruding.

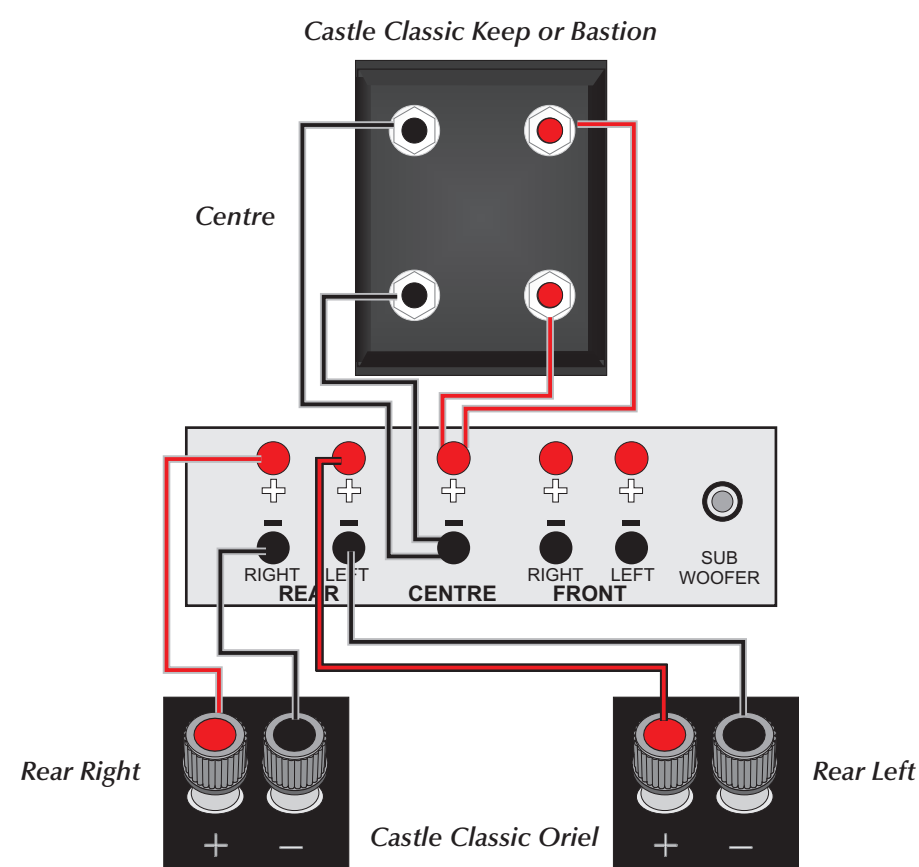
Connect the connecting wire to the loudspeaker but do not connect the cable to the amplifier. You will need to use low profile cable -your dealer will recommend a suitable product.

Lift the loudspeaker up to the mounting position.

Align the keyhole slots over the screw headers and gently pull down until the speaker is securely fastened. You may now connect the loudspeaker to the amplifier.

This operation may need two people. If you are in any doubt about your ability to carry out this procedure, consult a suitably qualified builder or domestic electrician.

## Connecting AV Speakers



## The Castle Classic Subwoofer

### Introduction

The Castle Classic subwoofer is intended for use with high quality domestic sound reproducing. Your subwoofer will probably be used in conjunction with Castle loudspeakers though it will partner any audiophile or top-quality home cinema amplification and loudspeakers.

### Unpacking the Subwoofer

Open the carton and remove all the top packing pieces. Lift the subwoofer out taking care not to damage the cabinet. When lifting the unit from the carton support it from the bottom. **DO NOT** attempt to lift the subwoofer out of the carton using the cloth bag. The unit is heavy; if you cannot manage it easily, get someone to assist you.

### Positioning the Subwoofer

Although the unit may be placed almost anywhere in the room, we recommend that it be placed in front of the listener and as central to the listening position as possible. There should be a mains outlet within easy reach. The subwoofer should not be operated within 450mm of a television set as the drive unit magnet may distort the picture. Remember that there should be a line of sight between the listening position and the front of the subwoofer otherwise the handset remote functions will not be operable.

We suggest you initially position the subwoofer about 20cm (8 inches) from the wall. Placing the unit close to the wall will enhance the bass; placing it across the corner of the room will increase the bass further, possibly at the expense of clarity. Do not place the subwoofer close to surfaces or objects that may rattle. The floor under the subwoofer should be sound with no loose floorboards, etc. Experiment with locations and sources before making a final decision.

### Before Connecting the Subwoofer

- Level the subwoofer taking care to make sure it sits squarely on all its spikes. To protect sensitive floors a set of spike seats is provided. Refer to Page 3 for instructions on levelling the speakers and the use of spike seats.
- Switch off your amplifier and all connected source units at the mains.
- Unplug the power cords to all system components if necessary
- Make sure the subwoofer is disconnected from the mains and that the ON/OFF switch is OFF
- Before re-connecting your system to the AC power supply, check that all the connections are properly made
- Check that all speaker terminals are done up tightly.
- Ensure that there are no strands of wire shorting adjacent speaker terminals
- Signal cables should be properly terminated and fully screened to minimise hum. If you connect your subwoofer via the low level signal inputs, the cable between your control unit or processor and the subwoofer could be quite long so screening is particularly important. Consult your dealer if in doubt.