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2. INTRODUCTION

We congratulate you on the purchase of your FINAL electrostatic loudspeaker, you have invested in the finest instrument for audio reproduction available .

The FINAL electrostatic loudspeaker is designed to surpass the performance of other existing speakers and contains some of the most elegant and sophisticated designs ever used for music reproduction .

The FINAL 0.3 is a hybrid electrostatic loudspeaker system, which comprises a electrostatic loudspeaker panel for the mid- and high-frequency reproduction and a dynamic woofer-unit for the lower frequency reproduction.

This elegant and relatively small design enables a transparent, well defined reproduction of the mid- and high frequencies combined with a wonderful profound low frequency performance.

We have provided a brief instruction because we know you are anxious to listen to your new FINAL electrostatic loudspeaker .

Please read and follow these instructions before you connect your FINAL electrostatic loudspeaker to your system . These instructions are important and will prevent you from experiencing any delay or system damage which might occur in a trial and error situation .

FINAL wishes you great listening enjoyment .

3. INSTALLATION

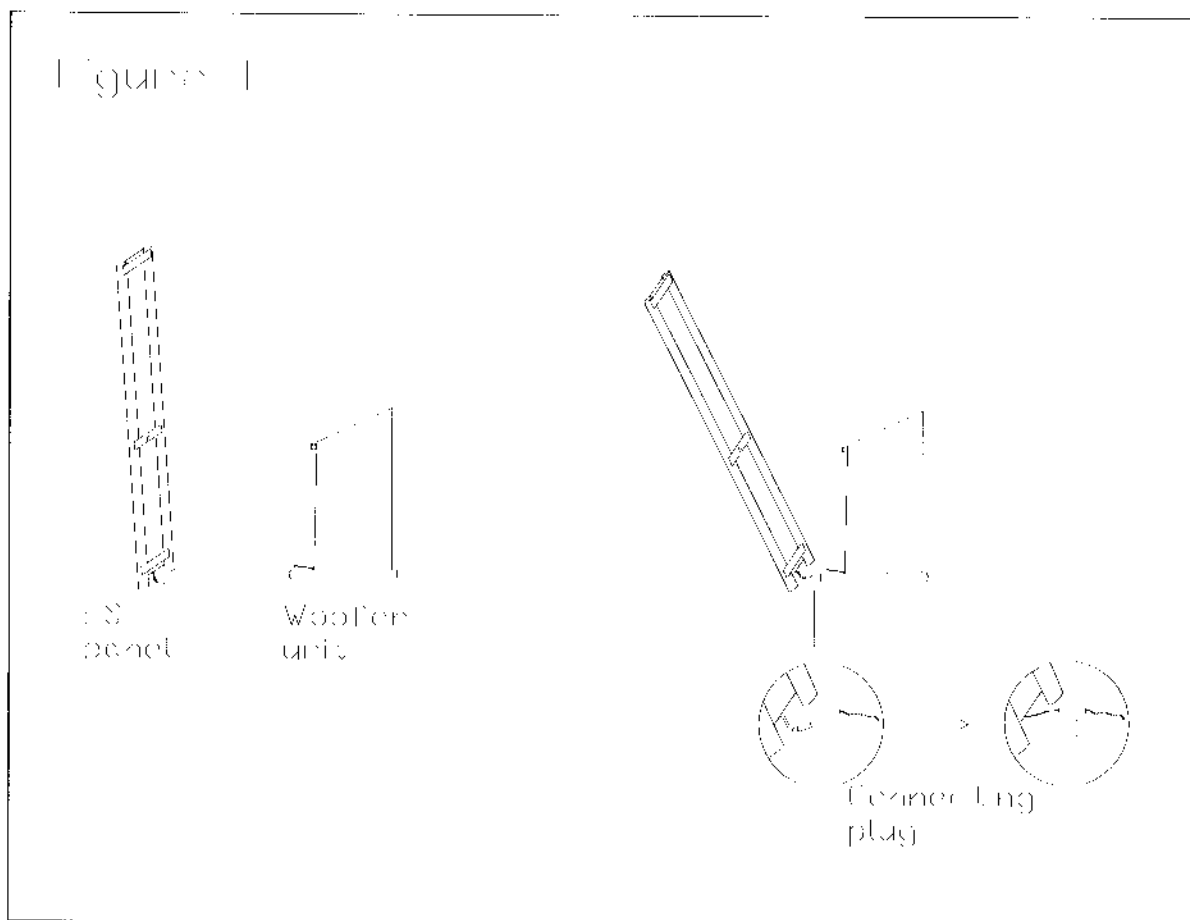
3.1. STEP 1 Unpacking

The FINAL 0.3 electrostatic loudspeaker consists of two bass-units and two electrostatic panels, which are packaged in separate shipping cartons. Unpack each unit carefully, saving the cartons and all packaging material for possible later use. If any unit appears to be damaged when unpacking, **do not operate the damaged unit**. Repack the unit in its original carton and notify your authorized FINAL dealer immediately.

3.2. STEP 2 Installation

Before you can connect your FINAL 0.3 electrostatic loudspeaker to your audio equipment, the electrostatic loudspeaker panel has to be fixed to the woofer unit. To do this you have to carry out the following instructions:

First you have to connect the plug at the rear-side of the electrostatic loudspeaker panel to the plug at the front-side of the woofer-unit, please be careful with the wires ! (see Figure 1)



3. INSTALLATION

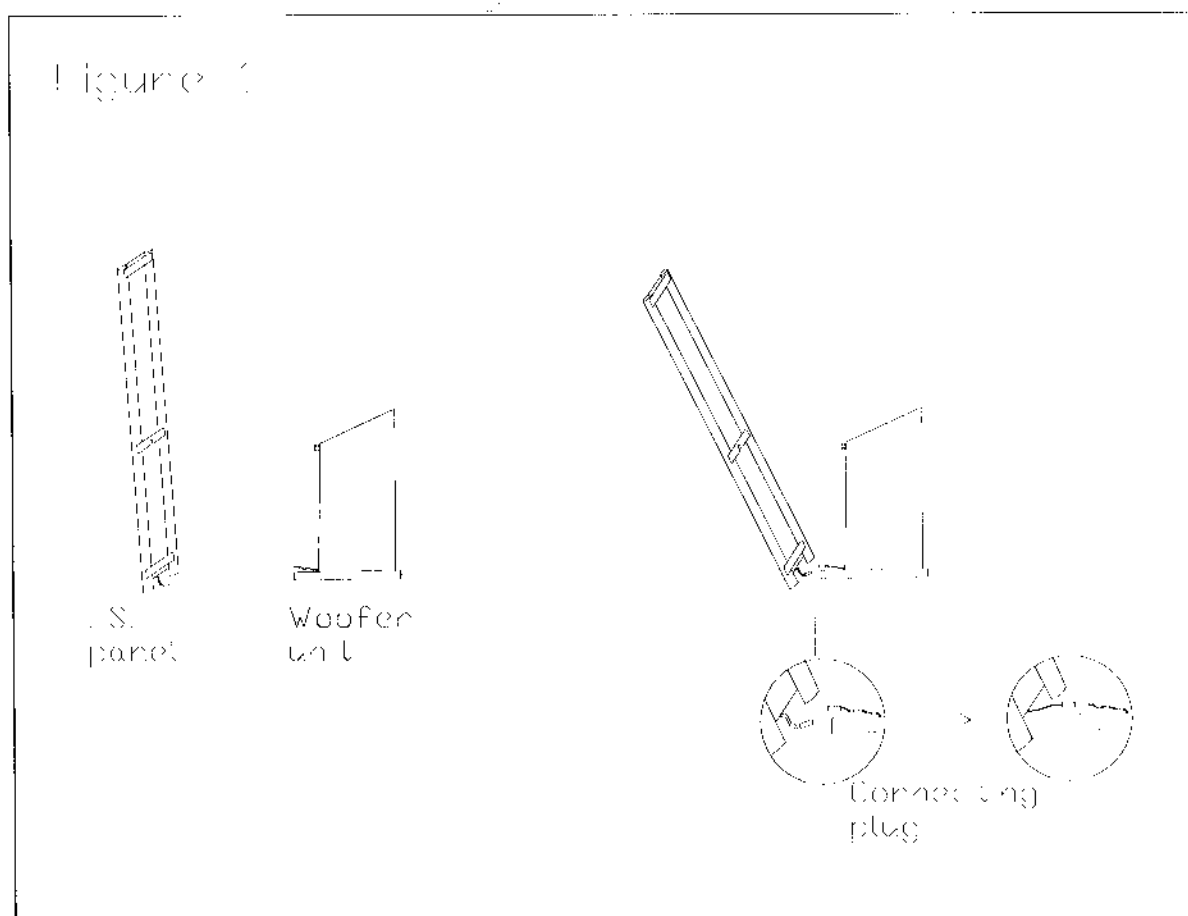
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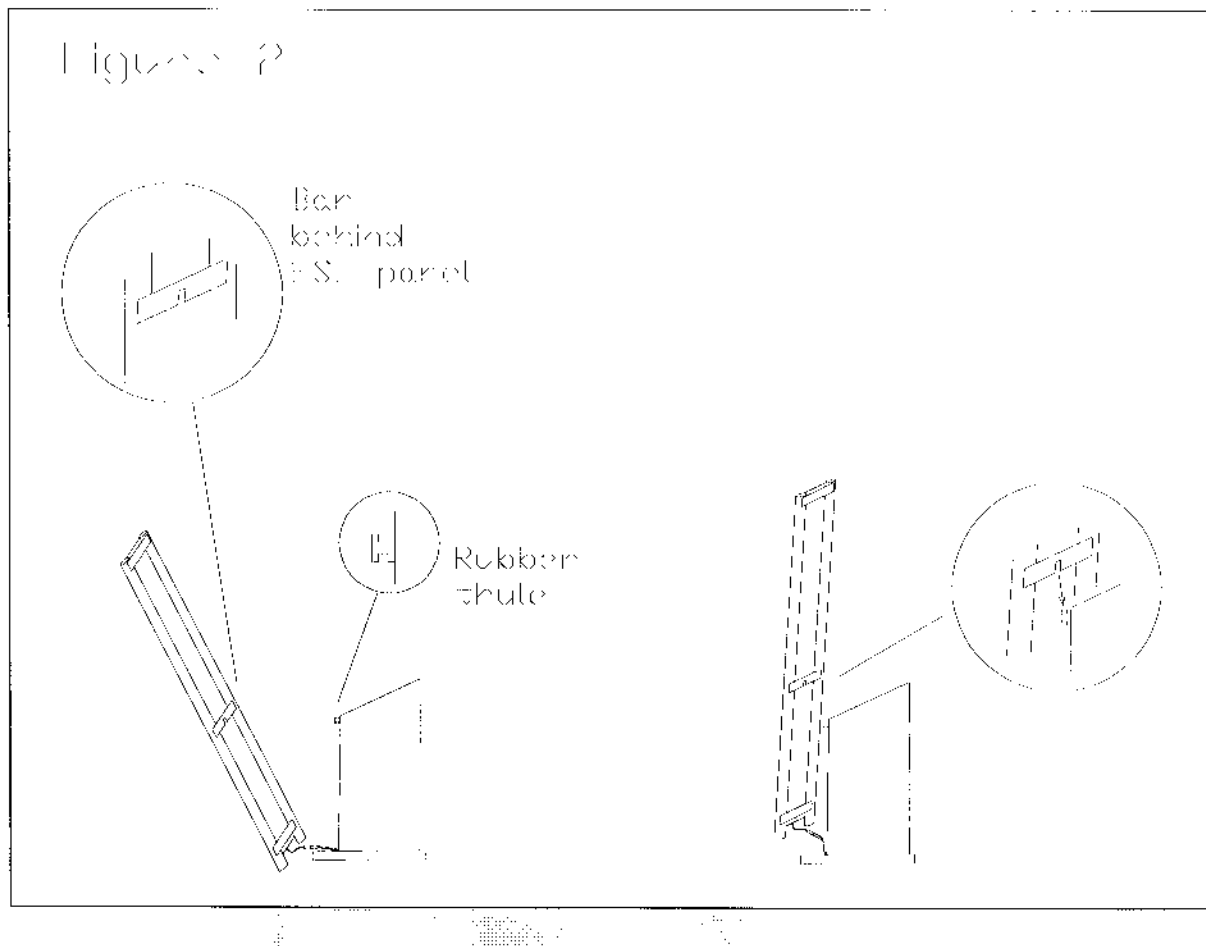
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First you have to connect the plug at the rear-side of the electrostatic loudspeaker panel to the plug at the front-side of the woofer-unit, please be careful with the wires ! (see Figure 1)



The woofer unit contains a rubber mounting thule at the front-side, where the bar at the rear-side of the electrostatic loudspeaker panel has to be mounted.

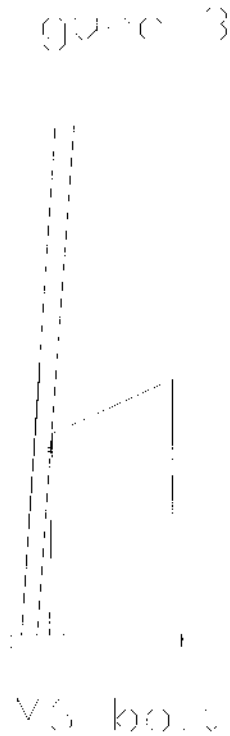
Hold the electrostatic loudspeaker panel (in a vertical position) in front of the woofer-unit, so that the bar of the electrostatic loudspeaker panel is positioned slightly above the rubber mounting thule. (see Figure 2)



Shift the electrostatic loudspeaker panel carefully downwards into the rubber thule, in such a way that the light alloy tubes on the bottom side of the electrostatic loudspeaker panel drop in the holes of the bottom-plate of the woofer-unit.

Turn the electrostatic loudspeaker carefully on its back and fix the electrostatic loudspeaker panel by screwing the two M6 bolts into the holes at the underside of the bottom-plate. Do not over tighten the bolts.
(see Figure 3)

If you don't manage to perform these procedures, please let them carry out by your FINAL-dealer.



3.3. STEP 3 Placement

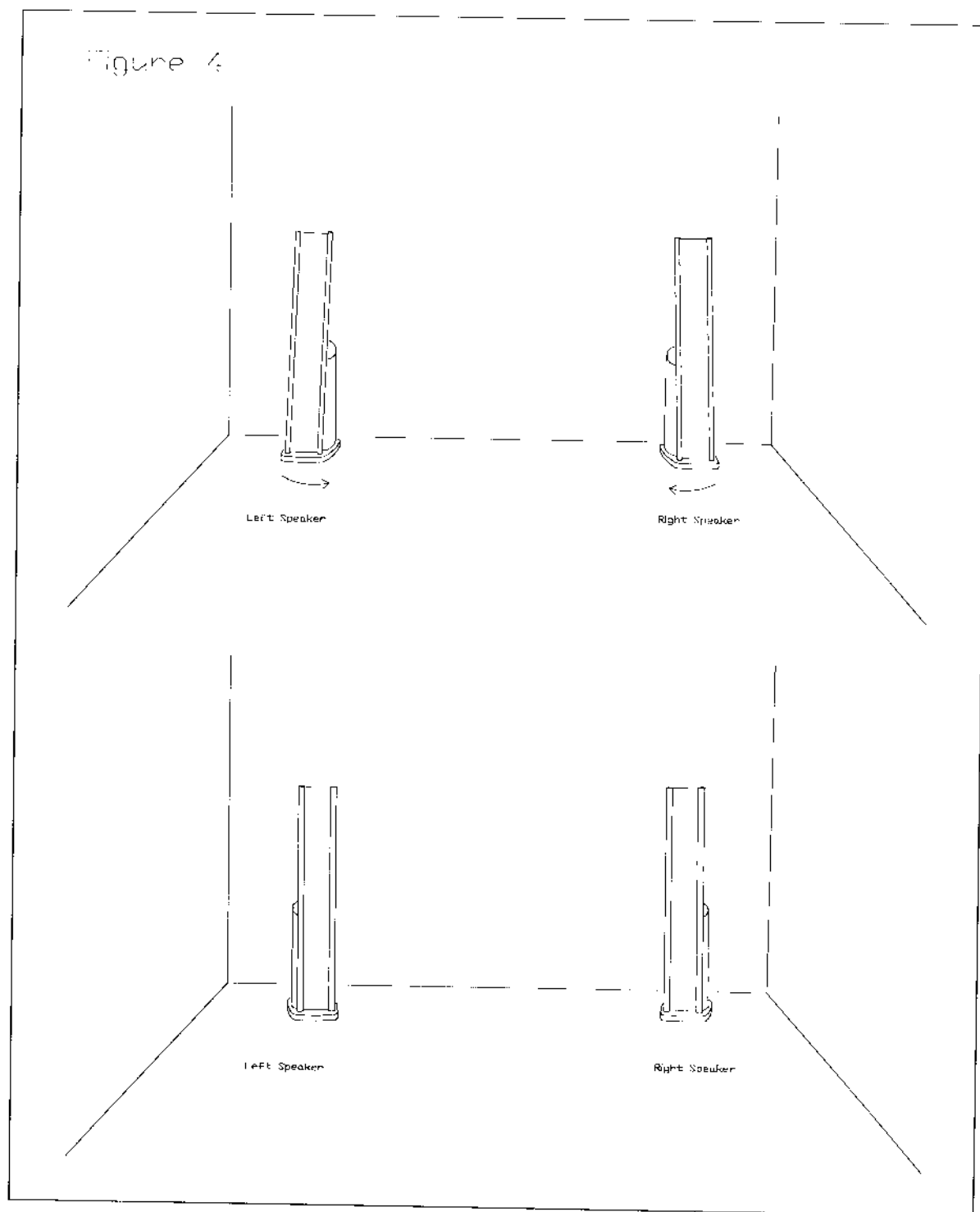
The FINAL 0.3 electrostatic loudspeaker has a left and a right side loudspeaker. The narrow strips of the electrostatic loudspeaker panel are designated to be on the inside, at the rear of your FINAL 0.3 electrostatic loudspeaker there is a letter 'R' or 'L' behind the serial-number, so you can see what is a right or a left electrostatic loudspeaker. (see Figure 4)

The loudspeakers should be placed at least 0.5 meters away from the back wall and some 2.5 - 3 meters apart with their fronts facing straight out. The distance of either loudspeaker to a side wall should be a minimum of 0.5 meters. Adjusting the distance of the loudspeaker from the back wall will affect the virtual image of the loudspeaker behind the wall. Bass extension is also enhanced when the loudspeakers are moved closer to the wall.

Under normal conditions the distance between the loudspeakers will be less than the distance from the listening position to the speaker system.

When positioned correctly the high frequency response sounds smooth and the bass response is definitive, compact and solid.

Depending on your acoustics you may angle them slightly toward your listening area. (see Figure 4)



3.4. STEP 4 Power Connection





WARNING ; BEFORE MAKING OR BREAKING ANY SIGNAL CONNECTION, TURN OFF THE AMPLIFIER !

FINAL electrostatic loudspeaker require AC power to energize their electrostatic panel . For the European market your FINAL 0.3 electrostatic loudspeaker can be directly connected to the mains (220-230 Volts, 50-60 Hz) by means of the power cord.

For other markets your FINAL 0.3 electrostatic loudspeaker requires a 12 Volts AC power-supply (adapter), which can deliver at least 830 mA at 12 Volts AC (> 10 W). Connecting the FINAL 0.3 electrostatic loudspeaker to a 12 Volts **DC** power-supply will not give any results.

3.5. STEP 5 Signal Connection

The FINAL 0.3 electrostatic loudspeaker is prepared for bi-wiring. Therefore, it is suited with four connection terminals. Bi-wiring provides direct access to the high frequency electrostatic panel and low frequency bass-unit of the loudspeaker. Their performance can be enhanced by making use of more sophisticated wiring and driving schemes made possible by these separate connections. (see Figure 5) Traditionally, all loudspeakers are connected to an amplifier with a single two-core cable per loudspeaker. If you want to connect your loudspeakers in the conventional way, thus by using only one speaker cable, please ensure that two shorting links are installed.

Attach the Bi-Wire speaker cable to the Signal Input Terminals at the rear side of the FINAL 0.3 electrostatic loudspeaker and take great care to assign the same color to the (+) red colored terminal on both the left and right channels of the amplifier. Consequently the negative (-) black colored terminal has to be connected.

The FINAL 0.3 electrostatic loudspeaker terminals are only suited for banana-plugs. The length and type of speaker cable in your system will have an audible effect, we advice you to use to best cables you can.

Suggestion: check from time to time the loudspeaker connections on both the amplifier and loudspeakers; these should be secure and tight.



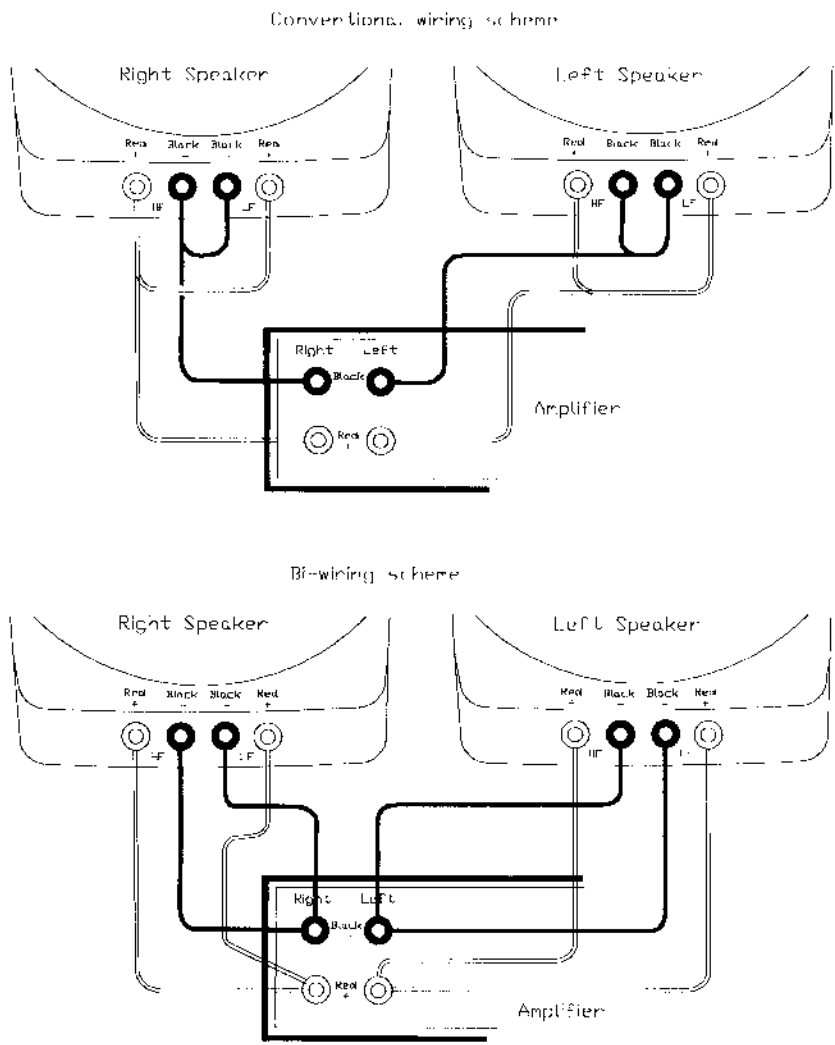
WARNING: Do not make any connections to your amplifier while it is switched on and connected to the mains supply.

Please check all connections thoroughly before attempting to re-connect the mains power supply.

Always ensure that the volume control on your amplifier is set to a minimum before switching on.

After switching on, select the required input, and gradually increase the volume control to the required level. Great listening !

Figure 5





4. ABOUT FINAL

The electrostatic loudspeakers made by FINAL are loudspeakers with remarkable and unique features. Thanks to many years of research, the FINAL design- and engineering team succeeded in effectively suppressing interfering resonance, thus reducing the resulting distortions to an absolute minimum.

The result is an extremely refined and clear sound in which the signal peaks and dynamic extremities are reproduced without any problems. Visually, an electrostatic loudspeaker by FINAL is a transparent appearance which will continue to captivate as a result of its sound reproduction and timeless design.

4.1. Push-Pull principle

In FINAL's design the push-pull principle has been applied. This principle was already introduced during the Berlin Radio Exhibition of 1927. This entirely symmetrical drive of the diaphragm is the basic principle of an extremely low distortion rate. In order to maintain this symmetry we have chosen a level non-curved construction.

4.2. Resonance

Interfering resonance- inherent vibrations- that can occur in all elements of the electrostatic loudspeaker, has an electrical as well as a mechanical origin. Important physical similarities exist between both types of resonance.

The electrical resonance is mainly caused by transformers. Therefore, the latter are developed under our direct supervision and are constructed using first-class materials.

4.3. Mechanical resonance

The mechanical resonance can be divided into frame, stator and diaphragm resonance. The FINAL electrostatic loudspeakers consist of either a fully metal or solid hardwood frame which is extremely stable and does not permit any resonance. Furthermore, the metal tubes can be filled with an acoustically suitable material. The stator is constituted of perforated plates with a diaphragm in between them. It has a fully glued sandwich construction and is therefore free of torsion and virtually free of resonance.

The diaphragm is braced and divided into three segments in such a fashion that the diaphragm resonance is limited to such an extent that it remains outside the audible acoustic range.

4.4. Construction

The construction, the type of glue chosen, the quality of the electronic components and transformers are of vital importance in order to achieve the ultimate quality of



sound reproduction. Together with the accurate assembly which is thoroughly checked in every phase, FINAL guarantees many years of listening pleasure.

4.5. Spatial sound

Final electrostatic loudspeakers make use of the complex push-pull principle. An electrostatic loudspeaker produces sound by allowing a thin flexible diaphragm to move between two fixed plates (stators). An electrostatic loudspeaker is connected to the mains to supply the diaphragm (also called the membrane) with a permanent electrical charge. The audio signal transmitted by the amplifier is converted by means of the audio transformer into a high voltage on the stators. As a result, the stators produce alternately positive and negative electrical fields which cause the diaphragm to vibrate, thus generating sound.

This method has a number of important advantages in comparison with traditional dynamic loudspeakers. The diaphragm of an electrostatic loudspeaker weighs a fraction of the membrane of a conventional dynamic loudspeaker, which means the air can be brought into vibration much quicker and accurately. The large surface area of the diaphragm creates a broad distribution of the sound waves, resulting in an optimum spatial effect. A full-range (i.e. covering the entire frequency range) Final electrostatic loudspeaker doesn't use crossover-filters, and therefore a shift in phase behavior (or accompanying distortion) is absent. As a result, a Final loudspeaker produces a bright and transparent sound with a spectacular spatial effect.

The bass enclosures of the FINAL hybrid loudspeakers are manufactured of a solid reinforced composite-material. The bass enclosures do not possess any parallel surfaces to avoid internal standing waves. These characteristics result in a clean and well defined low frequency reproduction.

4.6. Spatial form

Electrostatic loudspeakers require a considerable surface area to produce superior sound. The advantage of electrostatic loudspeakers is that they are extremely thin and transparent. This results in a slender and transparent form with a superb three-dimensional spatial effect. Not only of the sound, but also of the design. In spite of their large surface area, Final loudspeakers are not detrimental to your interior, to the contrary they may add an element to your interior that is certainly worth seeing.

Although FINAL loudspeakers are thin and slender, they still stand firm on the floor. The hollow tubes of the FINAL 1.2 and 1.4 full range loudspeakers can be filled with sand, giving the speakers an even greater mass. This also offers a technical advantage since the loudspeakers then have an improved contact with the ground and consequently still improve sound reproduction. The larger models also have a supporting rod at the rear in order to further increase the stability of the speaker. A practical benefit of this extra weight is that your children or pets will have to do their very best to knock over a Final loudspeaker!

As every Final loudspeaker is built from individual components made by a partly-automated, partly hand-made manufacturing process, you are able to choose a design for your loudspeaker that best matches your living room environment. Various



natural woods, granites and Italian lacquered colors are available, thus offering everyone great visual as well as sonic satisfaction.

5. ACOUSTICAL CONDITIONS

The acoustical characteristics of the listening-room are of great importance towards the performance of your audio system.

We can distinguish two major acoustical problems in your listening-room:

Standing waves; parallel walls in your room may cause standing waves, which may result in a boomy bass response.

Solution ; Large objects in the room can help to avoid this problem.

Reflections ; hard surfaces in the room close to backside of the FINAL 0.3 electrostatic loudspeaker may cause near-field reflections, which may result in a poor imaging of your system, also harshness of the mid- and high frequency response might occur.

Solution ; Use soft materials at the backside of the speakers or enlarge the distance between the speakers and the hard surfaces.



6. QUESTIONS & ANSWERS

6.1. *What is the advantage of an electrostatic loudspeaker in comparison with ordinary dynamic loudspeakers?*

The distinguishing feature of an electrostatic loudspeaker is its precision in reproducing sound. The sound from an ordinary dynamic loudspeaker is generated by the vibrations of the cone, while in case of an electrostatic loudspeaker it is generated by the vibrations of the diaphragm. The mass of the material used to bring the air into vibration differs considerably. In traditional dynamic loudspeakers the amplifier has to activate a voice coil and a piece of paper, plastic or metal. The mass of the diaphragm which an electrostatic loudspeakers uses to make the air vibrate is many times smaller (usually the diaphragm is one-thirtieth of the weight, or even less). The diaphragms used are capable of much more rapid acceleration and deceleration, which results in a more dynamic and transparent reproduction.

6.2. *Why is an electrostatic loudspeaker often so large?*

In a small loudspeaker the diaphragm will have a limited surface area. This requires a large displacement of the diaphragm to obtain sufficient sound pressure, particularly for the lower frequencies. In practice it is difficult to achieve such displacements, and for this reason larger surface areas are often chosen. This is because a larger surface area of the diaphragm brings more air into vibration, and consequently can readily produce a greater volume. Final's full-range electrostatic loudspeakers combine a large surface area with a large displacement. As a result the low frequency sound reproduced by these Finals is unsurpassed. Final considers a bass loudspeaker driver to be necessary for providing support in the reproduction of the lower frequencies with electrostatic loudspeakers containing a surface area of less than 1 square meter.

6.3. *Why isn't a bass loudspeaker used with Final's larger models?*

The use of a bass loudspeaker in combination with an electrostatic loudspeaker is a compromise. The characteristic (acceleration) of a bass loudspeaker differs from that of an electrostatic speaker. A second disadvantage is that the high and low frequencies are not generated at the same time (and consequently cannot reach you at the same time), or in other terms small phase shifts are created. For these reasons Final has chosen a full-range solution for the larger systems (from 1 square meter). Consequently the sound reproduction consists of the same characteristics in the high-, middle- and low frequency range. The result is a high transparency, and a perfect three-dimensional reproduction of the original sound.

6.4. *Doesn't an electrostatic loudspeaker get dirty?*



This depends for a great deal on the place where the loudspeakers are situated. When put next to the fireplace or the cooker, the answer is yes. You should appreciate that a Final electrostatic loudspeaker is not covered, because that would be detrimental to the sound. Come to that, a little dust is not a problem since the stators can easily be cleaned with a vacuum cleaner. Nonetheless, Final has developed diaphragms which repel dust and dirt to a maximum extent, and consequently guarantee the quality of sound for a very long period of time. However, should the diaphragm become dirty after a couple of years, then you can have your dealer clean it.

6.5. *How long does a Final electrostatic loudspeaker last?*

Electrostatic loudspeakers have been on the market since 1935, although materials allowing for an optimization of the technology have only become available in the last 10 years. Final uses diaphragms which last a great many years.

6.6. *Must Final loudspeakers always be connected to the mains?*

Final loudspeakers are designed to be connected to the mains 24 hours a day. The power consumption is negligible.

Unlike vapor deposited metal coatings, the conductors on the FINAL diaphragms are completely inert, and their electrical conductivity cannot degrade. Moreover, the conductivity of the diaphragms is independent from external factors such as the humidity of the air.

6.7. *Could my children, pets, or myself be shocked by the high-voltage present in the electrostatic panel?*

No. Whilst your Final loudspeakers are indeed connected to the mains, they have excellent insulation. When you remove your sweater in the winter, its electrostatic charge will be considerably greater than the charge on the diaphragm in a Final speaker. But- of course, you should not open the loudspeakers nor repair them, as this work should be carried out by your authorized FINAL distributor, someone who is professionally trained in the workings of all Final products. We stress not to touch any product that is connected to the mains, during operation.

6.8. *Do I need an expensive amplifier?*

Yes and no. A very good amplifier with 50 watts or more is sufficient. If you want to play music loudly, then the amplifier must be able to supply more energy (voltage). The most important factor in this respect is that the amplifier should be stable, i.e. that the power-supply is capable of working correctly under different circumstances. It is important to realize that a Final loudspeaker is very transparent and thoroughly revealing. You will hear everything on your CD's, but you will also be confronted with the characteristics and quality of your amplifier and source. This is why the stability of the amplifier is of considerably greater importance than its maximum power.