Full Range Ribbon Loudspeakers

Raffaello

User's Manual

We would like to congratulate on your purchase of ALSYVOX Raffaello!

Our mission is to make loudspeakers that can bring the musicians in your room by giving the same emotion of a great live performance.

To reach this goal we have experienced that the use of thin diaphragm ribbons and ribbon-planar transducers radiating sound as a dipolar (from both sides) line source is the best approach: the sound vibration is created with all its energy as well as all the details needed to fully respect its message. The diaphragm moves exactly like a layer of air as it is crossed by the sound wave. This gives the sensation of transparency and the sound does not seem to come from the speakers, music is filling all our listening room, or even our house if it is an open loft, with the same coherence and tonal balance that you can experience in the classical center listening position.

All design choices were made to reach our goal, making in house all the critical parts with no cost compromise. With the typical Italian attention to style we have taken top care both in the design and in the quality of each detail.

The company Alsyvox™ audio design

Our designer is an Italian Aerospace Engineer, so Italian Design comes out naturally.

Our speakers are made by hand with love, using exclusive and patented design. All critical parts are made by us, the other parts are sourced from the best worldwide suppliers, typically aesthetical parts are made in Italy, electrical parts are made in Germany, everything is assembled, carefully tested and signed by our chief engineer in our laboratories in Spain.

Our designer started in 1984 by studying the interaction of a dipolar speaker with the room walls using an array of conventional cone speakers mounted on a baffle.

A few years later he studied the technology of ribbon mid-tweeters to extend the line source concept to higher frequencies and in 1994 he designed a ribbon loudspeaker for RES Audio, the Sky 1.

In 2005 he started using neodymium magnets for the Sky 2 to raise the sensitivity of the ribbon speaker.

In 2009 the revolutionary ribbon-planar woofer was born. It reached the same high sensitivity of the neodymium ribbon mid-tweeter thanks to a patented design and a proprietary mix of design skills, covering the technology to make diaphragms, magnet dimensioning, push-pull magnets and steel frame design.

In 2016 he developed a compact mid-tweeter + super-tweeter unit that is seaminglessly extending the frequency response beyond human listening threshold to improve sound harmonics and liveliness.

Using these three transducers the result is a breathtaking coherent sound as all the audio frequency band is covered by loudspeakers of the same height, made with the same diaphragm materials and magnets, with a sensitivity of 93dB or more.

Our Technology

All our speakers are dipoles that approximate the ideal concept of a line source. This is giving the best interaction with the room acoustics without the need for heavy room treatment and minimum influence on sound given by the listening position.

Cross-over frequency is low enough to avoid interference and directivity problems, typically at about 700Hz between woofer and mid-tweeter and about 5000Hz between mid-tweeter and super-tweeter. Any phase rotation is limited by the use of moderate slope filtering.

Top quality Mundorf, Duelund and Jantzen components are used in the cross-over to respect the information contained in the signal, including the very big binding posts.

All our speakers use similar technology with push-pull ribbon (planar) woofer and an exclusive compact unit of ribbon mid-tweeter and ribbon super-tweeter with a frequency response well beyond the audio frequency top limit.

Extremely powerful magnets allow high sensitivity and dynamics.

Our ribbon woofers merge the typical wide surface of planar speakers with the long stroke of cone speakers. This is making an incredibly powerful low frequency response, together with all the typical benefits of planar speakers in terms of speed and micro-dynamics.

The push-pull design used in every transducer is creating low harmonic distortion and the proprietary diaphragms are powered on almost all the surface to create the best control and the reduction of all time domain distortions, the most harmful to the sound.

Heavy gauge steel is used for the structure and it is keeping the distortions related to the frame at the minimum, with the help of the considerable total weight and of our proprietary insulating feet that keep the energy reflected by the constraint to the floor as small as possible. All the other materials used are chosen for their vibration damping behavior like acrylic plastic, PVC and precious solid teak wood.

All these features contribute to the incredible sense of sound out of the air as opposite to the sound out of the speakers, an amazing sense of effortless power and coherence throughout the audio spectrum, so that you can listen to the music and forget about loudspeakers and hi-fi equipment.

Our preferred standard finish is black glossy acrylic with natural teak profiles, but other colors and finishes can be made on request.

Box Content

You have received the speakers in 2 professional flight cases.
There are a third and a fourth box for the two crossovers and acrylic transparent bases.
The right speaker case shall be opened first leaving it on top of the other.
Opening the top you will see the speaker with the base laying on top of it as shown in **Photo 2**.
You will also find one or two cardboard boxes that contains 12 bolts with 6 special double washers, 1 M6 bolt with washer (grounding screw **Photo 10**), an M10 hexagon wrench, 6 grub screws and nuts and 4 umbilical cables to connect the crossovers, they are under each speaker.
In the other flight case (left speaker) you will find one or two cardboard boxes that contains 12 bolts with 6 special double washers, 6 grub screws and nuts and 4 umbilical cables, a microfiber cleaning cloth and a pair of white gloves.
The speakers are symmetrical so the only difference is the position of the Neutrik® connectors, we have considered them at the inner side but you can use them on the outer side if you prefer, this would make the left speaker right and the right speaker left.
Each flight case is very heavy, about 220Kg each (480Lb) and you will need the help of 3 people to move each of them and heavy duty handles on each side are provided for them.

Of course a cart will help moving them, but you will need extra attention to avoid tipping over.

Important Safety Instructions

1. Read carefully this manual before using our speakers.
2. Keep the manual.
3. Head all warnings.
4. Follow the instructions.
5. Do not use the product with water.
6. Clean only with dry cloth and treat it as a fine piece of furniture.
7. Do not install near any source of heat such as radiators, heat registers, stove.
8. Use only on floor, no stands or other apparatus to make it higher.
9. Refer all servicing to qualified service personnel.
10. This apparatus shall not be exposed to dripping or splashing water and no objects filled with liquids such as vases shall not be placed on the apparatus.
11. This product is not for use on airplanes.
12. No naked flame sources, such as lighted candles, should be placed on the apparatus.
13. We do not recommend the use of the speakers in high humidity, extreme hot or cold or outdoor environments. Direct sun exposure shall be avoided.

Packaging

Save all packaging! We invested a significant amount of money to make a strong and reusable packaging. If you need to transport the speakers they can be shipped safely only in the original packaging.
You may never have to ship or move your loudspeakers, but should the occasion arise, they should not be shipped in any packaging but the original.

Opening the flight case and Assembly

1. Read carefully all the instructions before you start.

2. You will need the help of 3 strong professional movers as the speaker's flight case is very heavy. Everyone shall wear safety shoes and gloves.

3. The 2 flight cases should be delivered in horizontal position one on top of the other (recommended travel position). **Picture 1**

4. Always keep the case you are opening with the other under it or something else with a thickness of 15-20cm to get the right height and put a thick anti-slip rug, rubber mat or carpet with no possibility to shift close to the cases were the speaker will touch the floor when you lift it up. **Picture 1 and Photo 1**.

5. Open the top of the top case and remove it. The speaker is laying flat on the lower part of the case, with binding posts upward. **Picture 2 and Photo 2**. You can see that there is a metal sheet magnetic shield on the tweeter (only if you received the speakers by air), this must be removed and we recommend that you keep it in the PE bubble packaging to avoid sharp edges to be exposed.

6. Push the speaker sliding it till the edge of the speaker closer to the binding posts (lower edge once it will be standing up) is free of the edge of the case. **Picture 3 and Photo 3, be careful to keep the light grey fabric lip between the speaker and the aluminum edge of the flight case.**

7. Clear off the edge of the PE protective film. **Photo 4.**

8. Take one of the bases and notice that 3 special washers are already glued in position, take the others and the screws and. **Photo 5.**

9. Secure the base to the speaker using the screws, tightening them as much as possible **Photo 7**. After them you can insert the grounding screw with washer without tightening it **Photo 10**.

10. Prepare the levelers screwing in the grub screws as tight as possible with the 5mm wrench and add the nut **(Photo 13)** and assemble them in the holes in the position as shown in the detail of **Photo 5 and 6.**

11. Taking the speaker from the edges in a position far away from the base lift it up with one leveler touching the floor well protected by the rug or carpet (**Photo 8**). This rug is not only needed to avoid damages to the floor or the leveler but also to avoid slipping of the leveler as it would make things way more difficult and dangerous; **so be careful, no slipping shall occur.** To lift the speaker upright 2 or 3 strong people are necessary as the total force needed is about 90Kg. Please be also very careful to avoid bending our back as you might hurt yourself, always bend your knees. **Picture 4 and Photo 9**

12. Once the speaker is out of the crate you can move it on the floor using a cart or making it walk by making leverage on side levelers. You can also slide the speaker pushing it in a low position, never close to the top to avoid deflecting the base or tipping over.

13. Now you can complete the unpacking taking out the protective film (starting from the lower stripe) and adjust the levelers to have the speakers perfectly vertical. Never use cutters on the film to avoid damages to the speaker! Cotton white gloves are provided to avoid leaving finger prints on the black acrylic surfaces.

14. Once leveling is perfect you can block the screws of the feet using the hexagon stainless steel nut pre-assembled on each foot screw, this means moving and tightening the nut against the black steel base (up-word)

15. Connect the speaker cables and Neutrik® connectors paying attention to the phase and cable direction.

16. Once both the speakers are in the first trial position and are connected to the amplifier you can start finding the best position as described in the Positioning Chapter.

Amplifier's Choice

97-98dB effective sensitivity allows the use of low power amplifiers from 5Watt and strong electrical and mechanical design allow the use of high power amplifiers up to 400Watt; of course quality is mandatory as this loudspeaker will cruelly show any deficiency of the components of your system, not only the amplifier, but the source and cables too.

Positioning your ALSYVOX speakers

Positioning in your room requires some move and listen trial, as always, but the line source dipole dispersion will help with minimal room influence on the timbre of the sound.

All sound radiating from the speaker, both directly towards the listener and in any direction to be heard as reflected sound of the room are of the same quality and tonally neutral; so any room will sound quite well. Of course better rooms will sound better and each room will have its best speaker/listener positioning.

Just to start we advise you to position the speakers as symmetrically as possible relatively to the room layout and the listening position.

The speakers should be parallel to the rear wall and only later on toed in to be to find the ideal tonal balance and image.

The front wall (behind the speakers) should be between 0.9m (3 feet) and 2.1m (7 feet) away. **The best result is most of the times achieved with a distance equal to about 30% of the total length of the room.**

Of course what is behind the speaker will highly influence the sound, so avoid any highly absorptive (open door) or highly reflective (window pane) surface.

On the other hand the sound radiated on the plane of the speakers is almost null, so no big influence from reflections of side walls and they can be quite close (not less than 0.15m, 1/2 foot).

The distance between the speakers is not very important, but it should be more than 2.5m (8 feet) and about 0.3m (1 foot) less than the distance from the listener.

The wall behind the listener should be quite absorptive and at least 1.5m (5 feet) away

Trials can be made moving the speakers by 5cm (2”) each time and slightly changing the toe in by 1cm (1/2”) each time.

In general the best toe in is between 35cm (14”) and 46cm (18”).

Be careful: These small movements can be performed sliding the speaker a lot of care. Always apply the force close to the base and do not lift any side. You might even push the levelers one after the other moving 1cm each time.

Be careful and do not forget to wear protective gloves.

What you should look for (listen to) is the best bass sound, deep and strongly controlled, and the ideal sound stage, with good focus and depth. No sound should appear to come directly from the speakers even when the recording is totally on the left or right.

Please do not get bored and accept a less than outstanding result here, your new speakers can a must deliver it.

Subwoofers

When the room is wider than 6m it is possible to add a pair of subwoofer panels at the OUTSIDE of the main Raffaello panels.

The distance from listening position of the center of main speakers and subwoofers shall be the SAME. Subwoofers can be toed in with a bigger angle (about 10 degrees more than main speakers).

Subwoofers come with their own passive crossovers and 2 umbilical cables each, one for the subwoofer itself and the other to connect the W output of the main Raffaello crossover to the W input of the SUB crossover to provide high pass cut of the woofers of the main Raffaello speakers. Not using it would add a lot of bass but this is also an option if desired.

There are several possible connections and adjustments possible, the main two are:

1) Passive resonator subwoofer. The subwofer is positioned at the outer side of the main speaker almost touching it. No electrical connection is in place and external subwoofer crossovers are not in use. This solution allows about 2-3dB boost in the lower octaves

2) Active subwoofers. You need an extra amplifier to run the subwoofers, preferably with a gain control to decide how much extra dB you want in the lower octaves. This amp can be with a power between 50 and 400W. The use of the passive crossover is absolutely recommended. It will give the low pass needed for the subwoofer panels and the high pass of the woofer of the main panels. The wiring can be seen on **(photo 11) and (Photo 12). Basically the Woofer is now connected to the W out plug of the SUB crossover and the W in is connected to W out of the MAIN crossover. The binding posts + and – are connected to the SUB amplifier.**

Cleaning

Do not use strong chemicals, paint thinners, acetone, alcohol, ammonia or vacuum cleaner to clean the speakers!

Acrylic plastics cover may be cleaned by use of the included microfiber cloth (very slightly humid if necessary). In case of need a mild detergent like hand washing liquid soap can be used.

Never apply pressure when cleaning!

Very light scratches can be eliminated by white car polish and microfiber cloth, deeper scratches will need a professional polishing operation.

Re-cycling

Correct Disposal of Waste Electrical and Electronics Equipment (WEEE) must be followed by Users in Private Households in Europe.

All parts of this product must not be disposed of with your household waste throughout the EU.

It is your responsibility to dispose of your waste equipment by handing it over to a designated WEEE collection point for recycling.

The separate collection and recycling of your waste equipment will help conserve natural resources and ensure that it is recycled in manner that protects human health and the environment.

For more specific information on where you can take your equipment for recycling please contact your local city/council office, your local waste disposal service or the outlet where you bought your product.

CE Declaration of Conformity

We, Alsyvox S.L. (manufacturer)

Calle Doctor JJ Domine 4 puerta 2

46011 Valencia

SPAIN

Declare in own responsibility that the Alsyvox product described in this manual is in compliance with the following standards as specified below.

RoHS 2011/65/EU Restricions of Use of Certain Hazardous Substances

EN IEC 63000:2018

Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. Equipment marketed to a consumer must be capable of complying with the necessary regulations in the configuration in which the equipment is marketed.

Signed by:

Name: D.Coen

Position: CEO

Company: Alsyvox S.L.

RoHS Declaration of Conformity

All parts are compliant with Directive 2011/65/EU of the European Parliament and on the Council on the reduction of the use of certain hazardous substances in electronic equipment.

Background: the RoHS directive restricts the use of Lead (Pb), Cadmium (Cd) Mercury (Hg) hexavalent Chromium (CrV), polybrominated biphenyl (PBDE) compounds in electrical and electronics equipment sold in the European Union.

Data Protection

We at Alsyvox are committed to respecting the wishes and privacy of our customers. Any information you provide will be held in the strictest confidence and only used with our organization for the provision of services such as warranty claims and spare parts.

We may wish to contact you in the future to ensure you are happy with the products and to keep you up to date with the latest products updates.

Should you wish not to be contacted by us please let us know writing us an email.

Warranty

Many parts, like the black acrylic covers and teak wood profiles, are finished by hand. As a consequence minor defects are totally normal and not covered by our warranty.

ALSYVOX warrants to the purchaser that the Raffaello speakers are free of defects in materials and workmanship for a period of **five years** from date of purchase.

To obtain this warranty, the original purchaser must mail to ALSYVOX within thirty (30) days of the date of purchase this warranty registration form completed, dated and signed by both the purchaser and the selling dealer together with a copy of the bill of sale or other proof of purchase of the product.

To register the warranty the purchaser must have bought the speakers through an official dealer respecting the territories of exclusivity.

ALSYVOX will then validate the warranty to the original purchaser. This warranty is subject to the following conditions and limitation. This warranty applies only to the original purchaser. The warranty is void and inapplicable if the product has been handled other than in accordance with the instructions in the owner's manual, abused or misused, damaged by accident or neglect or in being transported, or the defect is due to the product being repaired or tampered with by anyone other than ALSYVOX or an authorized ALSYVOX repair center.

Speakers are intended for home use only and the warranty will not apply to any outdoor or public performance use.

The warranty does not cover normal maintenance.

ALSYVOX shall not be responsible in any way for consequential or indirect damages or liabilities resulting from the use and operation of the product covered herein or resulting from any breach of this warranty or any implied warranty relating to said product.

The speaker system must be packed in its original shipping container and shipped to the designated ALSYVOX repair center or factory. All Freight and Insurance costs shall be prepaid by the owner.

A returned product should be accompanied by the warranty and a written description of the defect.

This is a limited warranty only and there are no express or implied warranties of any kind not set forth above, unless your particular state law provides otherwise. There is no implied warranty of fitness for the purpose, nor is there any implied warranty of merchantability.

Warranty info:

Purchase Date_____

Dealer_____

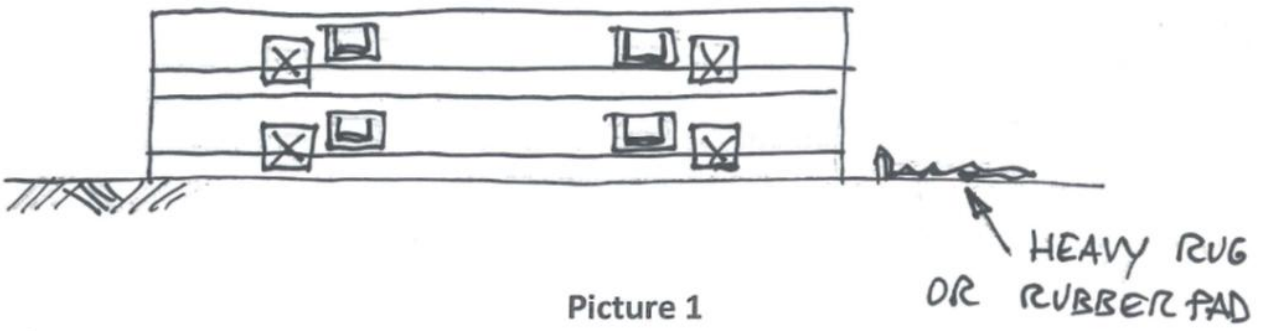
Purchaser_____

Speaker Serial Number_____

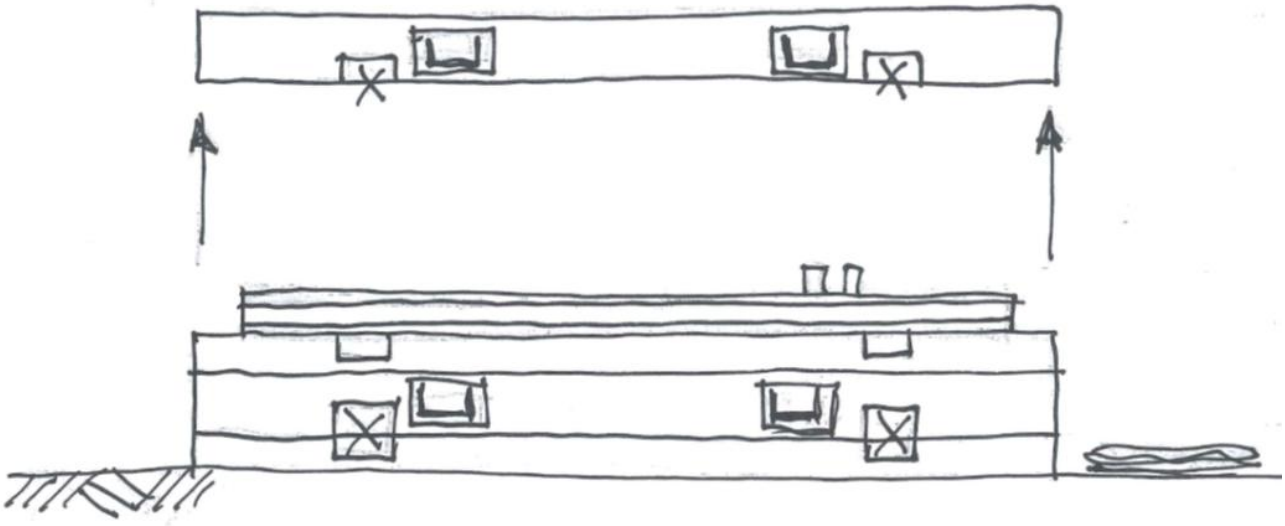
Send to:

ALSYVOX S.L.

PLEASE ASK FOR SHIPPING DIRECTION BEFORE SHIPPING



Picture 1



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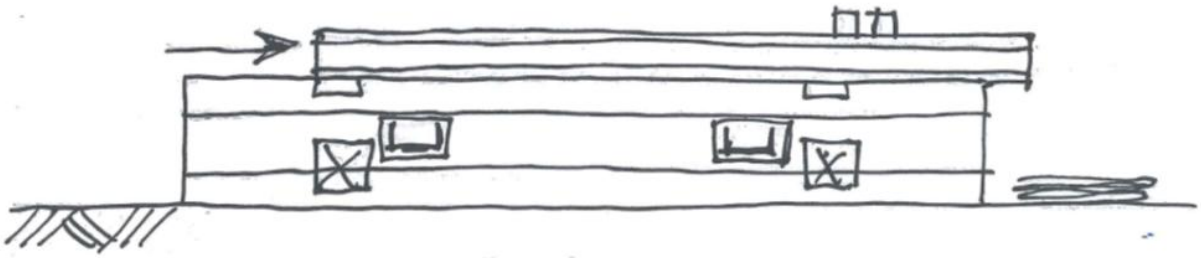
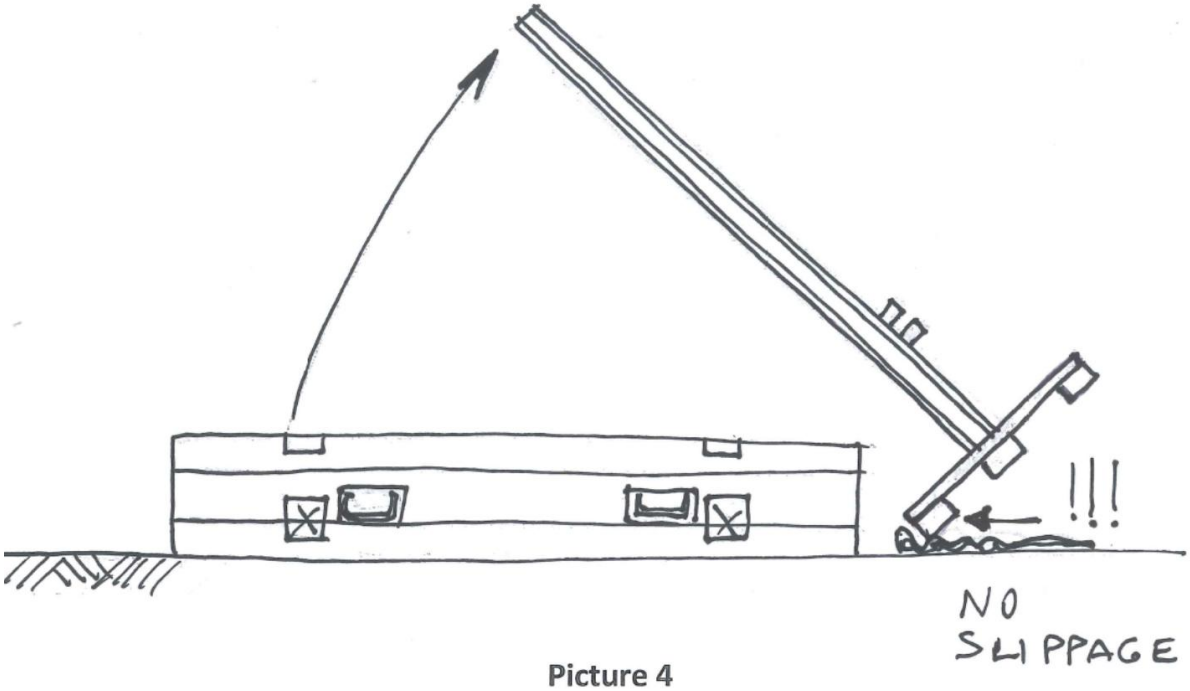


Picture 3



Picture 4

Photo 1 - Always keep the other flight case under the one you are opening to reach the right height (or leave something strong under it with about 20cm height)

Photo 2 - Open the top of the flight case, please notice the protective grey lip that prevents touching the aluminum profile when pushing the speaker out of the edge

Photo 3 - Push the speaker till the end with holes for screws (lower side closer to the binding posts) becomes clear of the edge of the case by at least 50mm (2”)

Photo 4 – Clear off the edge of the protective PE film

Photo 5 - washers at the internal side are already glued on (here Botticelli)

Photo 6 – Put the base in the right orientation (the side marked rear is facing up and front is facing down) and position the screws with 1 washer on the head side

Photo 7 - Tighten the screws applying a high torque (recommend 40-50Nm if you have a torque limiter) and screw in the levelers (without cup and ball)

Photo 8- Make sure a thick rug or rubber pad is positioned under the base before you lift it and screw the levelers in if you have not done it already (here Botticelli)

Photo 9 - Lift the speaker as described in picture 4, minimum 4 strong guys are needed here!

Photo 10 – Grounding screw (M6), it is an option, not mandatory (here Botticelli)

Photo 11 – external crossover (Raffaello)

Photo 12 – Subowoofer crossover

Photo 13 – O2 brass levelers with stud and nut assembled