



# Owner's Manual

## The Gryphon MojoS Speaker System



*Pronunciation [moh-joh]*

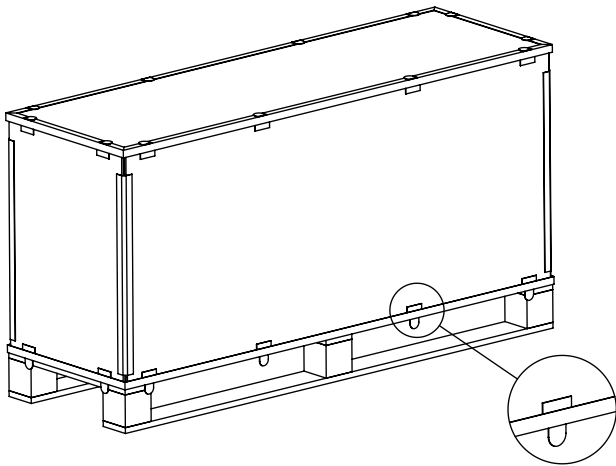
*–noun, plural -jos, -joes.*

*1. the art or practice of casting magic spells;  
magic; voodoo.*

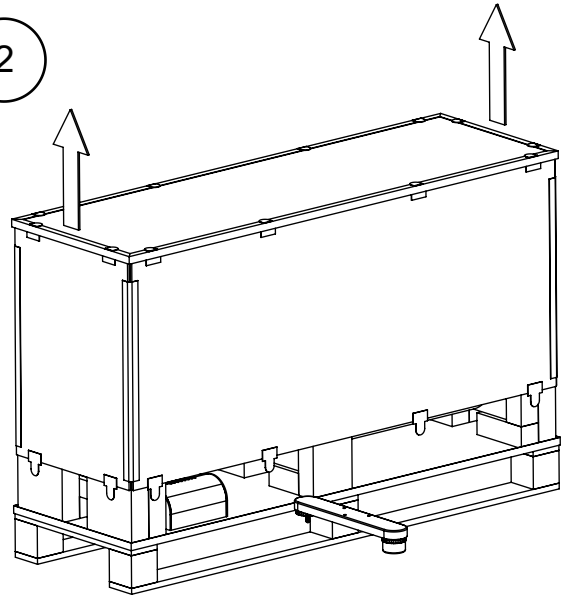
*2. an object, as an amulet or charm, that is  
believed to carry a magic spell.*

# MOJO S - assembly instruction - Page 1 of 2

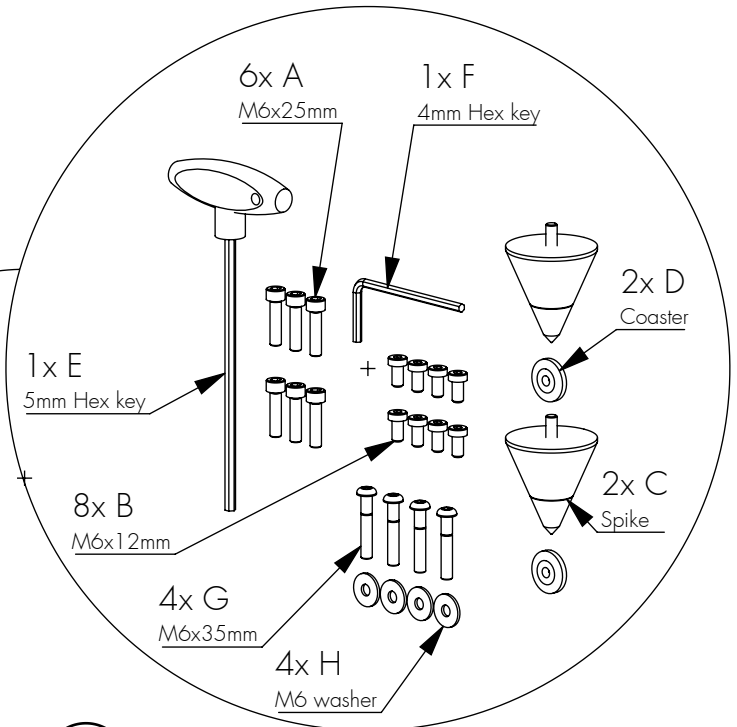
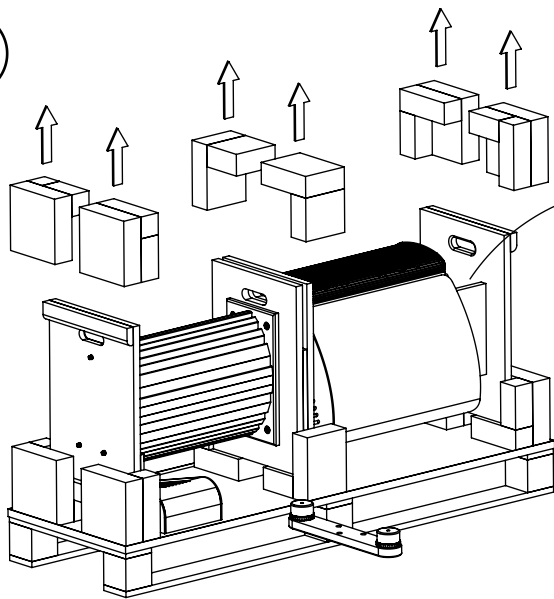
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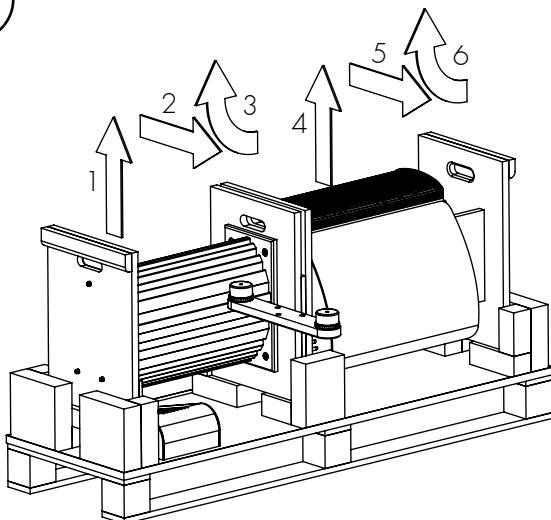
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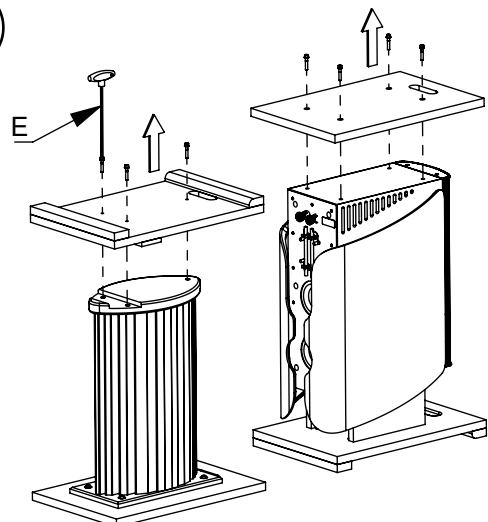
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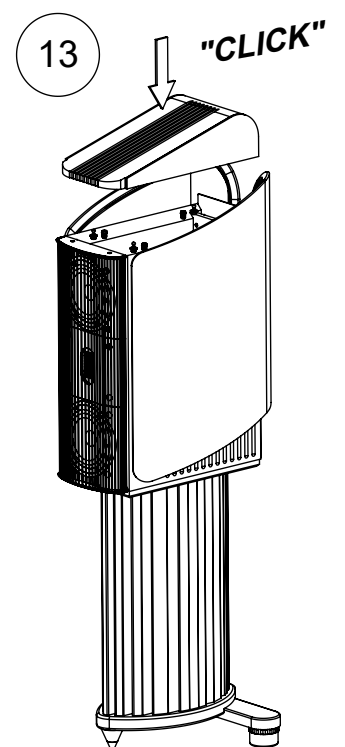
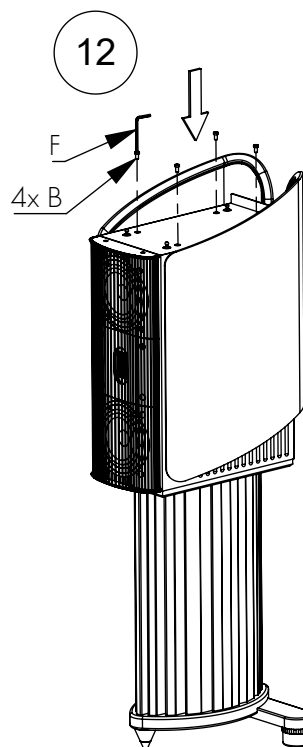
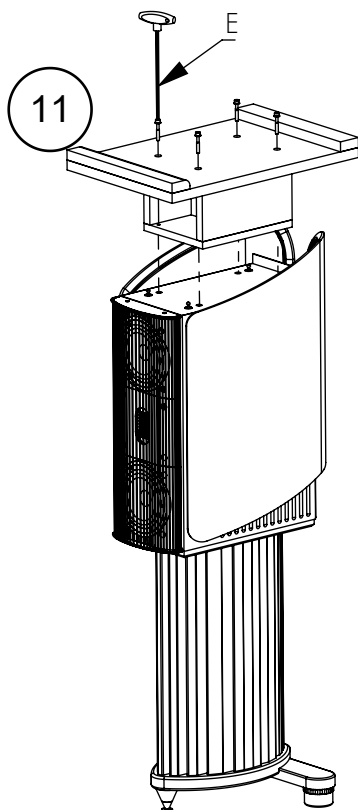
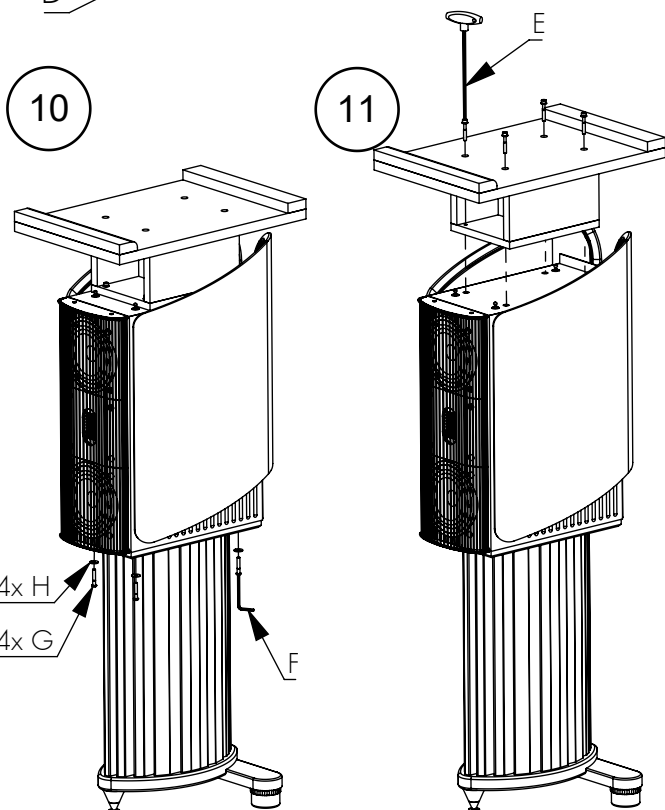
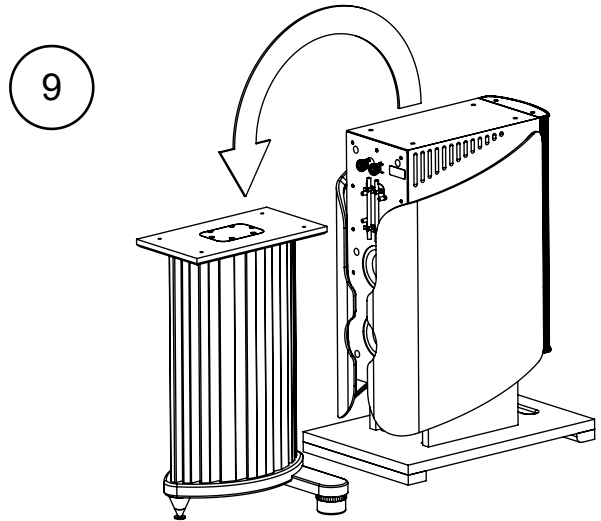
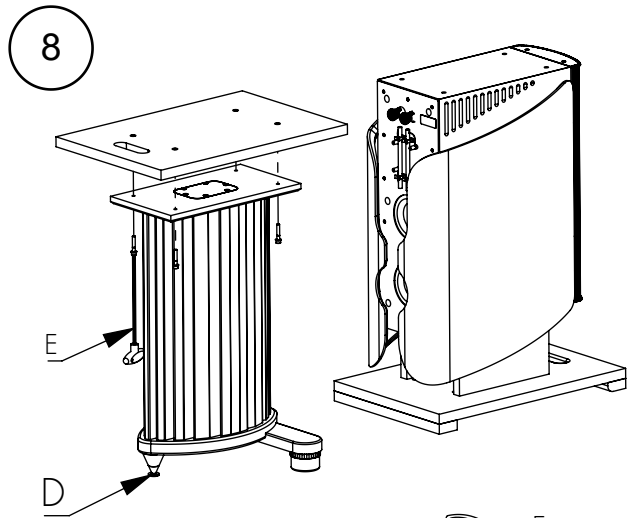
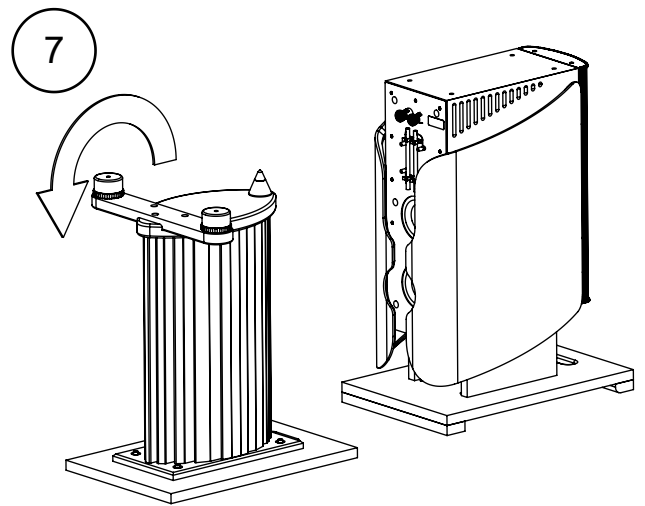
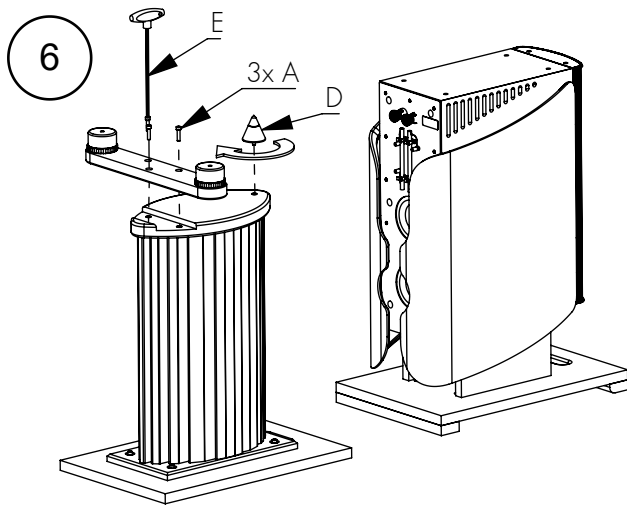
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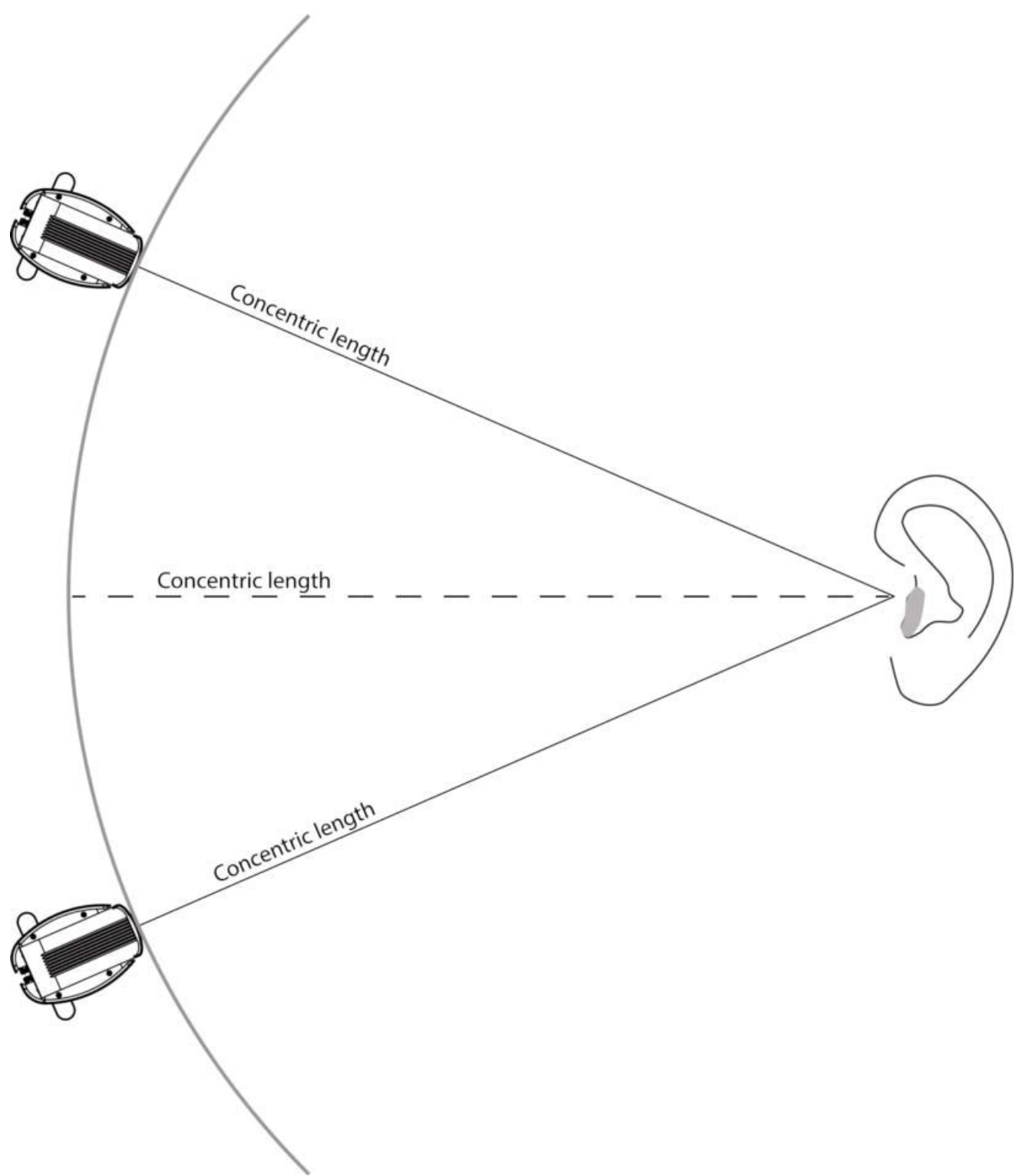
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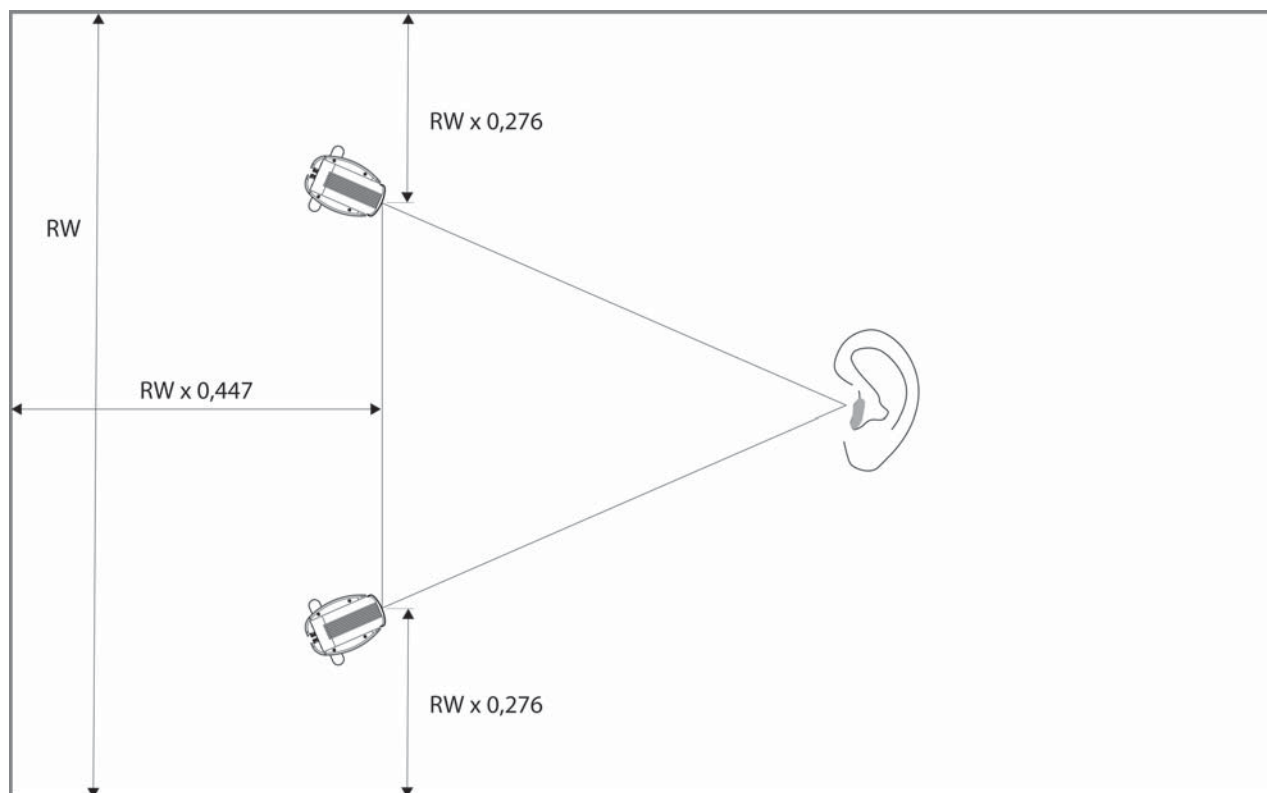


# MOJO S - assembly instruction - Page 2 of 2



Mojo s set-up, top view





This is only a suggestion to a starting point for experiments,

# The Gryphon Mojo S monitor system

## Welcome to our world

Words by Flemming E. Rasmussen, CEO and Founder of Gryphon Audio Designs

Two decades have passed since the first Gryphon saw the light of day. It wasn't a case of planned parenthood, more an inevitable love child - the fruit of a long-standing love affair with music and audio.

Gryphon embarked on a long journey back then, made long not by detours, but simply because our destination is so far away. I have always believed that we experience music with our hearts as much as with our ears. For me, the ultimate test is very simple - the music must reach out and touch the heart. Looking back over years, I must confess that Gryphon has always developed the audio products that I personally needed and wanted. Nothing was ever built to meet a demand defined by market research. Some might find that arrogant and perhaps it is, but I prefer to see it as an honest approach, while accepting that not everyone shares my point of view.

Fortunately, the passing years have proven that there is a sufficiently large group of like-minded individuals around the world who have come together in this common quest.

I would like to take this opportunity to personally thank all of you who have shared this journey with me.

Down through the years, Gryphon has expanded from a single Head Amplifier to encompass the full audio spectrum with the definitive music playback system. This didn't happen because we can do everything ourselves, but because we recognize quality when we encounter it and have the ability to assemble a team of dedicated specialists for each new project. The Gryphon company - like its products - is greater than the sum of its parts.

There is certainly a family resemblance across the Gryphon range and by that we mean more than mere technology. We like to think that Gryphon is not perceived as Class A amplifiers, upsampling CD players or silver cables, but more as a degree of quality, a sense of "rightness" that brings it all home for you. And you don't reach that place by following your ears, only by following your heart.

In responding to queries as to why Gryphon took the major step of expanding into the field of loudspeaker design, the temptation is to take the easy way out with a flippant reply like "Because it's there." But the simple fact is that, having earned a global reputation for unsurpassed excellence in amplification, it was a natural evolutionary move to broaden our scope and turn our attention to the other links in the audio chain.



Flemming E. Rasmussen  
Gryphon founder and CEO

Beginning with source components, Gryphon designed the world's first single-chassis CD player with onboard upsampling. The third generation of this innovative technology, the Gryphon Mikado, has won numerous awards around the world. The next logical step was to apply the uncompromising Gryphon take-no-prisoners approach to the final link in the chain. But this decision was by no means made on the spur of the moment.

In fact, the Gryphon speaker adventure began nearly 18 years ago with a chance encounter between Gryphon founder Flemming E. Rasmussen and Steen Duelund, a Danish mathematician who has dedicated his professional life to loudspeaker theory.



Steen Duelund 1943 -2005



Lars Matthisen, Chief Acoustic adviser at Gryphon, carrier of the Duelund flame.

Duelund's theories on constant phase in crossover networks can be summed up in a single statement: "All drivers must be in phase at all times at all frequencies." Following this theoretical "Eureka," the hard part then becomes making that happen in a real room with a real loudspeaker. Initially on a strictly informal basis, an in-depth exploration was undertaken that would take full advantage of Gryphon's assembled expertise and extensive experience in design and manufacturing to transform Duelund's theories into real-world products with scant regard for such minor details as pricing, parts availability, prevailing attitudes and preconceived notions.

Steen Duelund passed away in 2005 but the rest of the original design team implement his ideas and spirit, as much as possible, in every Gryphon speaker project. Duelund left a unique library of reference recordings to Gryphon CEO Flemming E. Rasmussen. These recordings are still being used in all projects, allowing us to imagine what the old master would have said.

### **Mojo's design observations**

As with all things known to man, loudspeakers are subject to the laws of physics and to the limitations of human perception. We may bend, manipulate or mask or exploit these laws and limitations, but we cannot ignore them.

In the quest for the finest speaker, music lovers audition numerous models and finally settle on what they believe to be the "best" speaker. What else can you do? But is the "best speaker" truly the best speaker? If you are lucky, you will end up with a speaker that is the best match for a particular room, a speaker that might be a complete disaster when set up in a different room. This explains the differences in opinion about speaker performance. The performance/quality of any given speaker changes radically, depending on its environment.

**In general, a loudspeaker can be no better than the listening room allows it to be.**

Therefore, the listening room is the most important element in a high performance sound system and for this reason is often referred to as the final frontier. Few people have the luxury of a dedicated, purpose-built listening room. Most of us listen to music in a room that also serves as the living room. There are several ways to address this challenge. Here are the most common "solutions"...

A.

The room can be treated in several ways by using passive and/or active absorbents, bass traps, diffusers and other devices. Unfortunately, these methods are usually expensive, an eyesore in the living room and of limited success. In most cases, they simply change the flavor of the problem.

B.

In recent years, sophisticated "room correction systems" have been introduced. The term Room Correction is quite misleading insofar as none of these systems actually correct the room in any real sense. They electronically manipulate the sound of the audio system in order to obtain a better measured match to the room, much like previous generations of equalizers that merely changed the tonal balance of the sound. Unfortunately, they typically introduced a whole new set of problems and are

not usually used in high end sound systems. Lastly, a number of correction systems are basically computers that digitally manipulate the sound for the same reasons. These systems are more sophisticated and can address the task with great precision. However, many critical listeners agree that the digital conversions and extensive signal manipulation involved have a high price, and not just the one on the price tag.

C.

The most popular solution is to experiment and mix products with different flavors and especially to seek out a speaker that has a complementary sonic signature to that of the listening room. At best, "neutral" performance is obtained by forces reacting in different directions, hoping for tonal equilibrium. This is an art approaching alchemy and the proud owner's fragile house of cards collapses if any of the components, especially the listening room, is changed. For many audiophiles, this ongoing quest to find the sonic Holy Grail through constant experimentation is what it is all about.

Most music lovers simply want to listen to great music with great sound without needless hassle.

### **Bass performance**

The most severe problems usually occur in the bass region, typically due to designers' over-imaginative attempts to circumvent the laws of physics. Most people



prefer a speaker with full frequency response from the delicate high-frequency shimmer of a triangle to the lowest notes of a church organ. All speakers should ideally provide superior high frequency performance, but speakers with full output at low frequencies require large drivers and consequently large cabinets with huge internal volume. Low frequencies also require movement of large amounts of air in the room. There is little to be done about these physical facts, as long as we look at the loudspeakers in isolation.

Another often overlooked fact is that, although a speaker may be capable of extended deep bass performance, its performance can be easily compromised by adverse room conditions.

This is a fact that cannot be changed, and when a large speaker is used in a room that is too small, room overload occurs and the compressed air expands like waves in water. This is caused/supported by an acoustic phenomenon called "room gain", the room's automatic amplification of lower frequencies by 12 dB per octave.

The result is what is generally termed "standing waves". This acoustic amplification of bass is heard as an overwhelming emphasis on the lower frequencies. In audio lingo it is referred to as a "boomy" bass.

This type of bass may impress some friends and annoy neighbors but it can hardly be described as high end sound

and is certainly not acceptable to the educated listener.

### **Smaller Speakers**

Many people prefer compact speakers because they usually do not suffer from these problems, but only because their small enclosure and drivers cannot generate enough energy to provide deep bass and consequently excite the room. The smaller speaker often has superior midrange and high frequency response simply because the smaller enclosure provides ideal working conditions. Smaller speakers also often offer a superior soundstage, allowing the speaker to disappear as the soundstage extends well beyond the physical positions of the speakers. The generally smaller drivers are faster and reproduce transients and details without the delay and "overhang" often found in larger drivers.

Again, there are no free lunches and the trade-offs with the small speaker are reduced bass and lower maximum output than larger speakers.

Critical listeners with vast experience in listening to different speakers often comment that they wish that they could combine the soundstage, disappearing act and speed of the small speaker with the bass response of the larger speaker.

At Gryphon we have over the years made similar observations and faced the challenge of small rooms at shows and elsewhere. We are often asked what speakers we use



and which speakers we recommend. Our answer has always been that we recommend the speaker that sounds best in the room in which it will be used. When we use the term "best" we mean correct and realistic in musical terms, essentially neutral, but with all the dynamics and excitement of listening to live music. We find headroom, ambience and tonal coherency to be key elements in the live music experience.

## The Gryphon Mojo s monitors

### The Cabinet

In order to live up to the uncompromising design goal of perfect phase all the time at all frequencies, the enclosure incorporates a concave curved front to form a direct angled, time-aligned system with identical distance from the listener to the acoustic center of each driver. This is the only way of ensuring a true timealignment while maintaining direct on-axis sound from the drivers. It is not seen as often as the usual sloped front that is much less complicated and expensive to make.



### The Bass Driver

We decided to use two 6 inch drivers rather than one large driver. This provides larger surface area while maintaining high driver speed with minimum lag and overhang. This also allows a more narrow front, minimising baffle diffraction.

The drivers employ pulp paper cones, chosen for excel-

lent linearity and controlled behaviour outside its used frequency range, eliminating invasive correction to reduce the negative effects of cone break-up.

The die-cast basket is a very rigid, but open, structure preventing compression behind the cone, even the area behind the spider is ventilated, allowing the spider to work freely. These qualities are basics in the Duelund/Gryphon design philosophy of designing and building the "correct" drivers rather than "fixing it in the mix," as is often the case. - for obvious economical reasons.

### The Tweeter

By unfair tradition, the tweeter is always the star of the show. To much focus is often placed on an exotic tweeter that may be outstanding, but being the star, often fails to play along with the rest of the band. At Gryphon we believe in an "all star" approach to qualify, each driver must be able and willing to join the team to create a complete, seamless speaker with a uniform performance across the band, not only in terms of frequency but just as much in its subjective nature and approach to the task.

In this case, we do use a truly exotic tweeter that was the natural star without being "forced" into the concept. The Tweeter is a Air Motion Transformer units with a extremely light metal diaphragm, providing lightning fast response combined with flat frequency response up and beyond 38kHz with extremely



low distortion and with a total absence of compression. A category of tweeter rarely found in monitor-sized speaker systems.

### **The X-over**

The Mojo s x-over is a showcase of carefully chosen or purpose manufactured components. The extreme Graphite resistors fra Duelund Coherent Audio, handmade conductors from the famous Danish Jensen company and excellent low-memory, precision capacitors from Germany. All parts are hardwired with special Teflon hard-insulated silver wire. Parts such as the entirely handmade Duleund resitors and the Jensen coils are components rarely found in commercial speakers

The speaker terminals are Gryphons proprietary 5 way terminals used on Gryphon products such as the Poseidon and Colloseums.

### **The Mojo s basic stand**

The mojo s stand places the speaker in the correct height for most people. The stand is sandfilled for weight and damping. Adjustable spike with coaster are also provided, ensuring a effective evacuation patch for vibrations from the system and vertical alignment.



Jensen paper/oil coil

because of their prohibitive cost, but they are well known and used in the hardcore DIY community. Due to the intrinsic high pass roll off of the ribbon tweeter, the filter is of fourth order for the tweeter and the bass units to have same phase continuity at all frequencies.



Duelund graphite resistor



## Owner's Manual

When You you purchase the Mojo s system your authorized Gryphon dealer delivers and installs the Mojo s system. His staff has been meticulously schooled in the proper unpacking and set-up of the system. Your dealer will return after a two-week break-in period for final adjustment.

This service is included in the price of the Mojo s system and is crucial to optimizing system performance.

### The Listening Room

This section outlines ideal room dimensions and speaker placement. Specific acoustic conditions may permit some deviation from these recommendations. The Mojo s's curved baffle is designed so that the sound from all drivers integrates at a point 5 m in front of the high frequency driver. (Think of the drivers as

rows of spotlights all angled to illuminate the same spot.)

The cabinets should be at least 1 m from any side wall. We recommend as much distance from the back wall as possible.

Imagine a circle on the floor at a diameter of 10 meters with the listener in the middle. The Mojo s should be set up following the line of this circle, forcing all the drivers to point directly at the listener at a distance of 5 meters. This is the basic design formula and not all locations will allow this. We have tested Mojo s in a number of different room sizes from very small rooms to halls. What is important in all cases to set the speakers up with a toed-in pointing directly at the listener.

Note: plush furnishings provide high acoustic damping, requiring greater system output.

Mojo s was developed in a 50

sq.m. room with typical acoustic damping corresponding to most modern residential spaces.

We do NOT recommend room treatments for added damping behind the loudspeakers. Some damping behind the listening position is recommended, especially if it is close to the rear wall.

Diffusion is generally a far better acoustic solution in that it removes unwanted reflections without restricting dynamics or exerting excessive influence on tonal balance. Because Mojo s design requires angling the cabinets in towards the listener, the influence of side walls is minimal. The curved baffles also reduce reflections from floor and ceiling. If the ceiling is low, a diffuser placed at the point of the first reflection may be useful. A rug on the floor between listener and speakers will help. The conventional coffee table in front of the listener is typically the source of most problems with unwanted reflections.

We strongly suggest that all effort are made to optimize the acoustic properties of the room before any electronic manipulation ( room correction ) is considered. - ( electronics can not correct any room, they manipulate the sound to compensate for poor acoustics).

We consider this to be the last resort.

Because of its design and comprehensive adaptability, Mojo s is nowhere near as

demanding as other speakers. However, because of Mojo s's extreme phase linearity, you will discover that it is more revealing than any other loudspeaker this size.

Be prepared for a radical revision of everything you had previously learned about loudspeakers or heard from them.

### **Set-Up**

Mojo s is designed to form two hemispheres - one horizontal and one vertical. The vertical hemisphere is defined by the curvature of the front baffle.

The cabinets must be angled in so that they are aimed at the same point (ear level for a centrally placed listener), forming a curve in front of the listener. PROPER PLACEMENT IS CENTRAL TO THE Duelund CONCEPT AND REQUIRES PATIENCE AND ATTENTION. TRADITIONAL WISDOM IS NOT THE ANSWER HERE.

The difference between the merely outstanding and the ultimate is a fine line.

### **Break-in**

The Mojo s requires at least 100 hours of break-in. Do NOT use special break-in discs. Often, they tend to result in break-down instead. Choose dynamic music instead. Heavy metal is a popular choice for burn-in purposes, ...

### **Tweeter tuning**

Sometimes, room acoustics may require a slight adjustment of HF levels to obtain seamless presentation. We would not consider a potentio-



meter - ruining the fantastic performance of the tweeter- instead the Mojo s is provided with a set of sockets for Duelund Graphite resistors on the back of the speaker. Custom value resistors can be purchased from your Gryphon dealer. The resistors are placed in the clips and the leads connected to the black terminals. Be careful not to break the resistors and **make sure that the leads are not short circuiting to the back plate or the other resistor.**

Standard setting/neutral:

R1 = 5.6 Ohm

R2 = 39 Ohm

Optional

Low setting: ( - 0.5 dB )

R1 = 10 Ohm

R2 = 15 Ohm

Optional

High setting: ( + 0.5 dB )

R1 = 3.9 Ohm

R2 = Empty

### **Tweak alert**

Mojo s is the fruit of an extremely protracted, very open-minded development process. We assure you that it is not possible to improve this system by replacing a few lengths of wire or a capacitor.

### **The Mojo s stand**

The enclosed spike and coaster will ensure a optimal coupling to the floor even on carpets and is adjustable for vertical allignment of the speaker.

### **Maintenance:**

Custom paint in semi gloss/high gloss two-pack automotive paint with a very hard surface. Only use a moist soft cloth to wipe it . Do not use any solvents of any kind. Do not wax or polish.

### **Mojo s Speaker system performance:**

Frequency response:

37 Hz -32,000 Hz

Room dependent

X-over freq: 2000 Hz

4th order

Sensitivity:

89 db / 1W / 1m

Nominal impedance:

4 Ohm

Power handling:

200 Watts

Dimensions:

W: 42 cm D: 47 cm H: 122 cm

Net. weight

2 x 49 kgs.

Shipping weight:

2 x 91 kgs.

## Enjoy

*Flemming E. Rasmussen and the Mojo's design crew take immense satisfaction in this new addition to the history of the company.*

*When the privileged owner of the Mojo's sits back and experiences how music rises above technology as walls fade away and a direct connection is made to the very souls of the performers, we know that our work is done and we take great pride in it.*

*We have made the loudspeakers disappear, leaving in its place the only thing that really matters... Music.*



This speaker system consists of a combination of different materials that respond to temperature and humidity. For prolonged life, maximum performance and reliability, we recommend that it is placed in a room without any large variations in temperature and humidity.

本扬声器系统以多重物料制作，可能受温度和湿度影响。请将本扬声器系统放置于温度和湿度比较稳定的房间，以确保其最佳表现、耐用性及可靠性。

本揚聲器系統以多重物料製作，可能受溫度和濕度影響。請將本揚聲器系統放置於溫度和濕度比較穩定的房間，以確保其最佳表現、耐用性及可靠性。



## Warranty

The Gryphon Mojo s is warranted against failures arising through faulty workmanship and materials for a period of 3 years from date of purchase. The warranty is not transferable.

This warranty is only valid in the country where the product was purchased. All claims under this warranty must be made to the distributor in the buyer's country by returning the unit securely packed in the original box with all accessories, postage/freight prepaid and insured. The unit will be repaired or replaced at no charge for parts and labor.

This warranty remains valid only if the serial number of the unit has not been defaced or removed and if repairs are performed only by authorized Gryphon dealers or distributors. It does not cover damage due to misuse, accident or neglect.

The distributor or manufacturer, Gryphon Audio Designs, Denmark, retains the exclusive right to make such judgement on the basis of inspection.

The retailer, distributor or manufacturer of the Gryphon shall not be liable for consequential damage arising from the use, misuse or failure of this product, including injuries to persons or property.

To qualify, the enclosed warranty registration card must be filled out and returned to the manufacturer within 10 days of purchase.

Alternatively, you may choose to register your Gryphon online

[www.gryphon-audio.com](http://www.gryphon-audio.com)

## Notes:

Serial number:

Purchase date:

Color: