

G Seven



GENESIS
ADVANCED TECHNOLOGIES

READ THIS FIRST

Genesis loudspeakers in general are heavy and slippery. This is due to the high gloss finishes that we put on the speakers to make them beautiful and an object of art. They have a luxurious feel as well as an elegant look.

The cabinet is solidly made of high-quality mdf and/or composite material. Transducers have large magnetic assemblies and the crossovers use large, high grade components. All this results in a very heavy object for its size. We always recommend a minimum of two people to unpack, move around, and set up the Genesis 7.1f.

Your speakers will come wrapped in a fabric “sock” inside a double-corrugated cardboard carton. Examine the carton for shipping damage. Dented corners are an indication of something having gone wrong during shipping.

Lift the speaker in its sock out of the shipping carton. Do NOT just grab the sock to lift the loudspeaker. The sock may tear! Be careful that you do not inadvertently put a finger through a driver and dent a cone.

Examine all the foam inserts as the speaker grills may be hidden away in a recess. A power cord is also included with each loudspeaker.

Collapse the shipping carton, and store it in a safe, dry place together with the sock and the foam inserts. You will need this if you need to ship the speakers in the future.

Read this owner’s manual, fill in your warranty registration, and get started.

Owners Manual and Set-up Guide:

Genesis 7.1 floor-standing loudspeaker

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A Message from Genesis

Congratulations! You are now the owner of one of the finest loudspeakers in the world. The Genesis 7.1 floor-standing (G7.1f) tower loudspeaker won the prestigious Best of Innovations Design and Engineering award with the highest scores in its category. This award recognizes outstanding design and engineering in cutting edge consumer electronics products and is sponsored by the Consumer Electronics Association of the USA and endorsed by the Industrial Designers Society of America.

The G7.1f is designed to be as flexible as possible. It can be used as a pair of audiophile stereo loudspeakers or, in a multi-channel system. It features the world's first solid titanium cone mid-woofer, and shares technologies developed for our flagship Genesis 1 loudspeaker system.

So that it will fit into the décor of any home, the cabinet design is a combination of acoustic, furniture, interior design and architectural principles.

Sound structural engineering principles have been applied to make the G7.1f cabinet rigid and well damped. The construction ensures that the cabinet is the best environment on which to mount the transducers. This results in low cabinet coloration, and excellent soundstaging and imaging. Classic Greek proportions are used for the cabinet so that it would be visually pleasing and elegant.

Please read this Owners Manual and Set-up Guide to get the maximum enjoyment out of your purchase. Also, check out our website at www.genesisloudspeakers.com for the latest updates, tips & tricks, and support for our owners.

Please write the serial number and purchase details of your Genesis 7.1f here for future reference.

Purchased at: _____ Date: _____

1 A Quick Start Set-up Guide

Now that you have your new Genesis 7.1f loudspeaker, we realize that you can't wait to hook it up and start playing! However, please read this quick set-up guide (even if your dealer is setting it up for you) before you proceed.

1.1 Unpacking

Your loudspeakers will come to you in two shipping cartons weighing nearly 100lbs (45 kgs) each. Care must be taken when moving the carton around, and taking the speaker out of the carton. While the speaker is not large, it is slippery and heavy for its size.

We will **not** be held liable for damage to either the speakers or your backs during unpacking and setting up. So, enlist a friend to help!!

Place the carton flat on the floor. It should be obvious which side should be up. Open the flaps, and lift the speaker with the out of the carton. Be careful as you may inadvertently damage the drivers if the cabinet slips and you grab at it and put a finger into the woofers. Do not try to lift the cabinet by the shield or the acoustic suspension frame (it is not a handle!). Hold the back of the speaker cabinet (but be careful not to dent the rear tweeter).



Long spike screws are provided on each corner of the acoustic suspension to make it easy to adjust the height and alignment of the loudspeakers. The provided spikes are screwed in all the way for shipping. Un-screw them up until you can just feel the point at the other end of the threaded hole with your fingertips. This will make positioning of the loudspeaker far easier.

A second set of shorter spikes with hole covers are provided which give you a much better cosmetic appearance. These should be used only after you have completed set-up and fine-tuning.

Flatten the cartons and put them away together with the foam inserts. You will need them if you decide to move the speakers.

1.2 Placement

As a stereo pair of speakers, a good starting position for your G7.1f is at least 18 inches (45cm) into the room as measured from the front wall (the wall you look at as you are seated listening to the speakers) to the back of the speakers, and about six feet (1.8 metres) apart. Point the loudspeakers straight ahead with no toe-in.

You will want to sit eight to twelve feet (2.5 to 3.5 metres) away from the speakers. When sitting further away, you should place the speakers further apart. When sitting nearer the speakers, move the speakers closer together or toe them in by a tiny bit – 1 to 5 degrees – no more. Once you have the speakers about where you want them, screw the spikes down to “ground” the speakers. You will want to barely lift the speakers off the surface on which they are sitting. There should be only about 1/8” (3mm) and no more between the bottom of the suspension and the carpet or floor.

1.3 Connections

The speakers should be connected directly to the speaker-level output of your power amplifiers using high quality speaker cables between the power amplifier and the 5-way binding posts labelled **HIGH LEVEL INPUT**.

The IEC power inlet supplies power to the built-in servo-controlled bass amplifier. This needs to be plugged into a wall outlet using the supplied power cord (or an aftermarket power cord of your choice). Check that the voltage select switch is correctly set before powering the servo on.

If a power conditioner is used, please ensure that it is a high-power, non-current limiting one.

1.4 Adjustments

Don't be too worried by all the knobs and switches on the back of the G7.1f. A good starting point is to set the tweeter level knob and the bass gain knob to the 12 o'clock position pointing straight up. This is the *nominally flat* position, and it will work well in *most* cases, in *most* rooms.

If you have at least 12 inches (30cm) of space between the back of the speaker and the rear wall, the rear tweeter should be left ON. Otherwise, turn the rear tweeter off with the tweeter defeat switch on the back panel.

The G7.1f will sound great, straight out of the box. As you play your system for the next few hundred hours, the speaker will settle down and “break-in” and begin to sound even better. Before the speaker breaks-in, the drivers will be *tight*, and the woofer may clip with very bass heavy music when played loud. If this happens, back off a bit on the volume, or reduce the gain of the built-in bass amplifier until the woofer suspension breaks in (about 400 hours).



If you play a lot of commercially mixed pop or rock recordings, you may also find that a lot of these have a rising response in the bass because they are not expected to be played on audiophile loudspeakers with a flat frequency response. The mastering or recording engineer puts a boost to the bass frequencies so that they sound good on speakers that roll off the bass frequencies. On the G7.1f, you may find that these tracks “bottom out” the woofers. If it happens only occasionally, it will not damage the woofers, but long-term exposure will cause the woofer to prematurely break down, and the sound of the amplifier clipping to protect the woofer can be scary on first listen.

If this happens much, you will have to reduce the bass gain on the built-in bass amplifier. Once you familiarize yourself with the G7.1f's performance, putting a little bit of additional effort into tuning the speaker properly for your room and system will give you great long-term enjoyment and benefits.

1.5 A Word About Grills and Spikes

The grills of the G7.1f have been engineered to intrude minimally on the sound. Moreover, the tweeter control allows you to almost completely overcome the “sound” of the grills. The cover for the woofer does not affect the sound at all.

They “snap” on magnetically, and hence even without the grills on, you are not presented with ugly post holes on the face of the loudspeaker. Nevertheless, we encourage you to listen to the G7.1f with the grills on. They look better, and at the same time, it will keep little fingers away from the drivers.

The long spike screws provide an easy means to adjust the height and tilt of the G7f. They are also long enough to securely spike the speakers through deep pile carpet. A second set of shorter spikes is also provided together with a ball-end hex key for adjustment.

Hole covers are supplied for a much neater cosmetic. These need to be pressed on firmly, and this should be done only after all adjustments and fine tuning is completed.



2 Setting up as Stereo Pair

2.1 Positioning

Used as a stereo pair, the G7.1f should be placed at least 18 inches (0.45m) into the room as measured from the front wall (the wall you look at as you are seated listening to the speakers), to the back of the speaker.

Start with the speakers about six feet (1.8m) apart with the tweeters placed closest together and the woofers firing outwards. Do not toe-in the speaker as they perform best when firing straight ahead.

You will want to sit 8 to 12 feet (2.5 to 3.5 metres) away from the speakers (if you have the space). We will experiment with moving the speakers around later.

As these speakers are dipolar in the high frequencies, they are pretty room-friendly and you are free to move the speakers closer to, or further away from the front and side walls. We do recommend, however, that you give the speakers a little bit of breathing space behind them, so don't push them up too tight against the wall.

If you have the speakers too close to the front wall, you will find that the image depth is not as good - the soundstage becomes a little two-dimensional. If you have the space to move the speakers away from the wall, do so. You will be rewarded with the deep, broad soundstage that this loudspeaker is capable of.

You should be able to "see" the soundstage behind, as well as in front of, the loudspeakers. The sound stage will also extend outside the left and right sides of the speakers when they are properly set-up.

2.2 Loudspeaker Controls

2.2.1 Tweeter Control

The knob marked **TWEETER** on the plate on the back of the speaker tailors the high-frequency response of the G7.1f. It is a subtle control with only a +/-2.5 dB range, but can make a great difference in gaining that last bit of additional performance in tuning your speakers for the room in which you are using them. It can turn your system from very good to exceptional, so take the time to work through this process.



Turning this control clockwise will increase the level of the front tweeter. Use this control if you need a bit more treble in a highly absorbent room, or to increase the apparent space of the soundstage. Too high a tweeter level, and you will feel that crashing cymbals are leaping out at you, and nylon-stringed classical guitars sound like steel-stringed acoustic guitars. Start with this control at the “nominal flat” 12 o'clock position.

2.2.2 Bass Gain

The **BASS GAIN** knob is unique to Genesis, and it controls the gain in the built-in servo-controlled bass amplifier. It allows you tune the bass performance of the G7.1f into your system, and your room. As you rotate the knob clockwise, it will give you more bass.

Again, the 12 o'clock position is the “nominal flat” response and can be used in most rooms. When you move the speakers closer to walls and corners, you will find that you need less gain in the bass. When you move the speakers further out in the room, you will need more gain in the bass.

The sweet spot for this control is about 9 o'clock to 3 o'clock. Go beyond 4 o'clock at your own risk. Some malicious “speaker killer” tracks could bottom out and damage your woofer.

The bass amplifier in the G7.1f is generously endowed with 180W. We do this in order to give the speaker the speed and dynamics that is the hallmark of the “Genesis sound”. Just like a sports car with 400 horsepower, if indiscriminately used, having so much power also means that you could do damage to yourself and your neighbors.

We have resisted putting in power limiters or speed limiters in the bass amplifier as we found that speed, dynamics, and transparency are compromised. An over-load current limiter built into the amplifier chops current off at 20A after 10ms to protect the woofer's voicecoil from melt-down.

2.2.3 Tweeter Defeat

The optimal way to use these speakers as a stereo pair is to leave the rear tweeters on, and run them as dipole and at least 18-inches from the front wall. However, in some cases, this may not be possible. Should the speakers have to be placed with their backs less than 12 inches from the wall, the rear tweeters should be turned off.

With the rear tweeter turned off, the G7.1f will also behave as standard, sealed-box point source loudspeakers.

2.3 Tuning the system

Music is the best way to begin your set-up procedure. We suggest that video sources be used only after you have set-up the system to properly reproduce music. There is no “perfect” setting for the G7.1f. Every listening room is different, and we recommend that you take the time to carefully tune the system for the environment in which it is placed.

Your Genesis loudspeakers should sound great straight out of the box. If you don't like the sound, several hundred hours of breaking-in will not change the sound of your speakers, although it may break-in your ears! Unfortunately, the extreme transparency of the G7f may highlight deficiencies up the reproduction chain.

2.4 One Small Change at a Time

One rule of thumb that you should always keep in mind: Make one change at a time! Do not, for instance, change position of the speakers and make adjustments to the tweeter and bass all at once. Make each of these changes separately and note the difference - by listening with each adjustment - then make the next change.

When you make adjustments, make only small changes. For example, when locking in the “image” and tonality, move the speakers about $\frac{1}{4}$ ” (5mm) at a time. Changes to the tweeter and bass level should be less than a “notch”.

2.5 Imaging and Soundstage

We suggest that you start with a single vocal with simple instrumental accompaniment because the sound of the human voice is more easily recognizable than many instruments and is a less complex sound to deal with. Use a good recording that you know has atmosphere and low bass content.

The performer should appear to be positioned behind the loudspeakers and be at the appropriate height for a standing person. If it is not, there are several remedies that will address this shortfall.

If the vocal appears to be larger than life, you should first check the system volume. Is it a volume that would be appropriate for someone actually singing in your room? If there is too much volume the artist will appear too big and the opposite is true for too little volume. If the volume is set correctly and the image is still too big, place the speakers closer together and re-listen. Place the speakers no less than 5 feet apart. If the image is still too big, toe the speakers in a slight amount.

Conversely, if the image is too small, move the speakers apart. The speakers should be no more than twelve feet apart. Repeat this process until you have it right.

The wider apart you have the speakers, relative to your seating position, the more you will have to toe the speakers in. However, this may result in “audiophile-titis” if you place the speakers too far apart. You get a huge soundstage, but only a tiny sweet spot and you have to sit exactly in between the speakers to enjoy any music, and you cannot move your head. Also, when the speakers are very far apart, you may have to play them louder before you can enjoy a realistic soundstage. The images are more diffuse, and seem larger than life.

If you have the speakers 18 inches into the room, and you are not getting enough front to back depth (the singer not appearing behind the speaker enough), pull the speakers away from the front wall a little bit at a time. However, slightly more than 1/3 of the way into the room is about as far as you want to go. Pulling them halfway into the middle of the room or more than 8 feet from the front wall is unlikely to help.

Find the best compromise for your room, your tastes and your space requirements. If you are not getting proper focus on the voice, you may angle the left and right speaker up to about 5 to 10 degrees (toe-in) towards your listening position until you have a properly defined center image. If the speakers are too far apart, the mid-bass will de-couple and you will lose the side image. If they are too close together you will have too small and congested a center stage.

When properly set up, very little sound should appear to come directly from the speaker. Instead, the sound stage should extend far beyond the left and right edge of the loudspeakers and they should have tremendous front to back depth. When the recording is close-miked (when the instrument or performer is very close to the recording microphone), the music may appear to come directly from the loudspeaker. This is normal. Typically, however, the sound should appear to be detached from the loudspeakers in well engineered recordings.

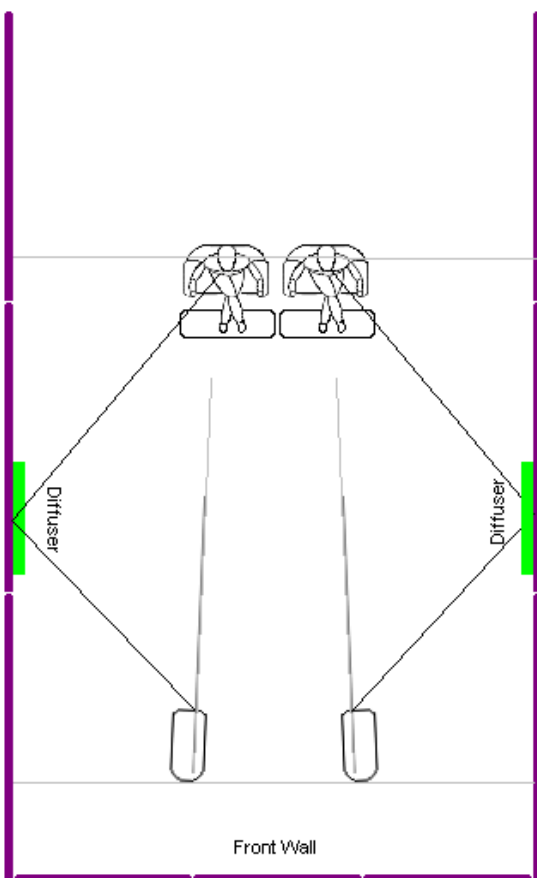
A simple rule of thumb to follow is that focus will be achieved by placing the speakers closer together or farther apart, and front to back depth can be adjusted by the distance from the rear wall. Further, as the system “breaks in”, the depth and width of the soundspace will increase and so will the “smoothness” of the sound.

2.6 Defining the Soundstage

A common problem is a tendency to separate the speakers too far from each other. This gives an unnaturally wide soundstage between the two speakers, and creates problems beyond the unnatural width of the center stage. It focuses the soundstage in between the two speakers, and you lose the “space” and “ambience” of the musical performance.

If you find that the sound is not spacious enough, or you are not getting enough front to back depth, pull the speakers away from the front wall. This is typically preferable to separating the speakers too far, and will almost always give you better depth and soundstage information. A word of caution though: If you move the speakers too far from the front wall you may lose the focus of the image.

In order to achieve what the speaker is capable of, we suggest you focus your efforts on a proper balance of soundstage elements that includes information beyond the left and right sides of the speakers, front to back depth well behind the speaker, excellent focus of instruments and voices, with proper vertical information and mid bass fill.



A Genesis loudspeaker system correctly set up, can and should provide a soundstage that is wall-to-wall, with pinpoint focus; the speakers disappearing completely on a recording containing such information.

Ambience of large acoustic spaces is defined by low-bass, and the G7f is capable of adding that critical element when listening to performances recorded in large venues.

2.7 Room Treatment

No room is perfect. To optimize your sonic presentation it may be helpful to treat your room. Here are some guidelines:

Front walls. This loudspeaker is a dipole and therefore, there is sound coming from both the front and back of the speaker. How the front wall (the wall you face while listening), is treated or not treated is important. Generally speaking, the Genesis loudspeakers prefer a live (hard or reflective) front wall to a dead (soft or absorbent) front wall.

By these terms, we mean the amount of reflection of sound. A typical wall of glass, brick, cement or drywall material is a reflective surface. A heavily curtained or sound-proofed wall would be considered a "dead wall" or a non-reflective wall. A normal thin curtain across a window causes only a small amount of absorption.

Sidewalls. Because the speaker is a dipole, it is less sensitive to the sidewalls. However, as a rule of thumb it is a good idea to keep the speaker as far away from the sidewalls as is practical. In some rooms, it may be helpful to add some damping material or diffuser panels to the point of first reflection. This is a point on the sidewalls between the listener and the loudspeaker. It is where the sound from the loudspeaker first hits the sidewall, then bounces to the listener. This reflection is undesirable because it is slightly delayed from the original sound. This point on the sidewall can be easily determined with the help of a second person and a mirror.

Sitting in your listening position, have an assistant hold a mirror up on the sidewall. Move the mirror until you can see the tweeter. This is the point of first reflection. A diffuser (see your audio dealer), an absorptive material, a bookcase, or even a piece of furniture can help break up this point of first reflection.

Rear wall. In many cases it will be unnecessary to do anything with the wall behind your listening position. However, you may want to experiment with diffusers or absorbers behind you for best sound. Absorption behind the listener is usually beneficial.

2.8 Mastering the Refinements of the system

Fine tuning an audio system is an art that will take time and patience. It can be one of the more rewarding learning experiences you will have in the pursuit of music and its enjoyment.

In some problematic rooms a resonance may develop, at one or more frequencies, that is unnatural to the music. By moving the speakers closer to the front wall or farther from the front wall, the resonance may be reduced at the listener's position. Another solution to try may be to place the speakers asymmetrically in the room. They could be placed closer to one side of the room, or even at an angle to the room.

There are no absolute rules concerning problematic rooms, so do not be afraid to experiment with speaker placement to determine the best position of the speakers in your room. In a perfectly square room, we have even had good results by placing the speakers firing down a diagonal.

One of the best pieces of advice we can offer is that you take advantage of your ear's ability to identify similarities in sound. This ability is useful in fine-tuning your system because, if every recording you listen to has a similarity of sound (too much or too little of a certain frequency for instance), then you can be fairly certain that you have yet to perfect your set-up.

A very detailed process of fine-tuning the speaker set-up is given in the white paper on the Genesis loudspeaker set-up procedure available from our website. This paper is attached as an appendix to this owner's manual, and the latest version is always available on the Genesis website.

If you have any questions, feel free to contact us at Genesis. Our website is the first place you can look to for more information, but you are welcome to either send us an email, or just give us a call!

3 Setting up: Multi-channel

3.1 Positioning as Main Left/Right Channel

When positioning the G7.1f as the main left and right channels of a multi-channel, the same principles as positioning for a stereo system apply. This will ensure that your system can be used for two-channel as well as for multi-channel sources.

However, the inclusion of a screen between the speakers may mean that the speakers have to be put much further apart than ideal. In this case, you can toe the speakers in a little more. However, if the primary source of entertainment is multi-channel, more often than not the center channel will “fill in” the soundstage hole caused by the screen.

On the home theatre processor, the speaker should be set to “LARGE”. However, due to the limitations of a single 8” woofer in the G7f, do not use the speaker for the LFE track. The G7f is designed for music, and not explosions, helicopters, or dinosaur footsteps.

3.2 Positioning for Surround Channel

The G7.1f can also be used as a surround channel loudspeaker. When they are used close to the wall, turn the rear tweeters off with the tweeter defeat switch.

3.3 The Center Channel

The Genesis 7.1c (convertible) plus either the ServoSub™ 4/8 would be the perfect partnering center channel to the G7f as the center channel will then have the same driver complement and the same “voice”. Nevertheless, adding a ServoSub 2/12t corner subwoofer or a Genesis 928 ServoSub will bring into play for LFE a couple of 12-inch woofers. As 8-inch and 12-inch drivers couple differently with the airload of a room, having a mix of bass drivers might be highly beneficial in some rooms and systems.

4 The Technology used

4.1 Dipolar Configuration

What a lot of people don't realize is that the room is as big (if not bigger), a part of their music system as are the loudspeakers. At Genesis, we strive to get the loudspeakers and the room to work well together and hence, design loudspeakers that interact with the room and have enough of adjustment to make them work with most rooms in the world.

All rooms have floors, ceilings and sidewalls that distort sound because of lateral, early-arriving reflections. We aim to suppress undesirable contribution by reflected sound from these four surfaces (which is why a lot of people put sound absorbers or diffusers at the first reflection point of the room). In order to do that with a majority of rooms, we make our loudspeakers dipolar.

Dipoles radiate the same, but out-of-phase, waveform from the front and rear in "push/pull" fashion. Thus, the sound waves from the front and back of the speakers cancel out as they radiate from the sides and tops of the speakers, which means that there is minimum radiation of sound to the sidewalls of the room.

With a rear tweeter, the G7f is a dipole in the high frequencies. Hence, the G7.1f uses the wall behind the speaker to give more depth to the soundstage and "air" to the speaker without detail robbing room reflections from the sidewalls. Hence, it has the advantages of omnidirectional speakers, without the disadvantages.

With fewer spurious reflections to confuse your hearing, the program source emerges more clearly. Imaging is stable, sharply focused, deeper and spacious. Transients are clearer and sharper.

4.2 The Servo-bass Advantage

Very few loudspeakers use servo drive, either because most designers think that it is too difficult to design, too expensive, or because of the extraordinary demands a servo system makes on the amplifier and the transducer.

The concept of the Genesis servo bass system is an easy one to understand: It employs, an accelerometer as a sensor, to constantly monitor the movement of the woofer cone, and instantaneously and continuously compares it to the input signal. This comparison circuit identifies any deviation from the input and applies a corrective signal to compensate, thus practically eliminating the inherent distortion of the woofer.

As an example, when you have a high-impact, low-bass signal that starts and stops suddenly (for example a tympani strike), the inertia of the woofer cone makes it slow to start moving, and then after it is moving, the momentum of the cone makes it continue moving even after the signal has stopped. The sonic result is overhang, bloat, lack of tautness and definition, and a blurring of dynamic impact.

With the servo system, the circuit senses that the woofer is not moving as fast as it should, and it instantaneously applies much more current to make it move faster. When the signal stops, it detects that the woofer will continue to move when it shouldn't and applies a counter-signal to stop the woofer faster and more effectively than an open loop woofer could possibly respond.

Thus, the servo-drive reduces distortion and improves transient response by making the woofer seem effectively massless. Typical non-servo woofer systems have distortion levels that exceed 10% at even moderate levels. The Genesis servo bass system reduces this distortion to below one percent at almost any output level. It also drives the woofer to constant acceleration, which makes its frequency response totally flat!!

The servo system is a more proactive approach to controlling a loudspeaker than high-damping factor and high current in the normal amplifier. However, this also means that the woofer, the wires attaching the woofer to the amplifier, and the power amplifier has to be designed as an integrated system. Thus, the G7f is designed with its own a built-in 180W Class-D amplifier for the bass section.

In the G7f, the bass amplifier is "generously" specified for the single 8" built-in woofer. The resulting benefits include huge dynamics, speed and micro-tonal detail in the bass. The disadvantage of this is that it is then possible to over-drive the woofer. Like a driver of a 400hp sports car, a heavy right foot might wrap you around a lamp post. Nevertheless, having lots of power gives you tremendous control of the woofer, and judicious use of the bass gain control is advised.

One side benefit of this powered woofer system is that almost any sized amplifier can be used to drive the G7f. No longer must one choose between having an amplifier with enough power to drive the woofers, and a smaller amplifier having better spatial and tonal characters. Nevertheless, we generally recommend 45 watts solid-state or 25 watts tube as an absolute minimum.

4.3 The Transducers

The transducers in the 3-way G7.1f are all proprietary Genesis-designed drivers manufactured to our exacting standards:

4.3.1 The Genesis Ribbon Tweeter

Reviewers in the audiophile press have often remarked that the Genesis circular ribbon tweeter is the world's best. It is a one inch circular planar ribbon design crafted from an extremely thin membrane of Kapton® with a photo-etched aluminium "voice coil" that is a mere 0.0005 inch thick. The entire radiating structure has less mass than the air in front of it! That is why it will accurately reproduce frequencies beyond 36 kHz.

The result of this design is a driver that has a rapid and uniform response to high frequencies and has the speed of the best ribbon/electrostatic designs, without the high distortion and poor dispersion that is typically associated with them.

The G7f uses two of these tweeters per channel. One is front-firing and the other rear-firing; each controlled by a separate crossover with the rear tweeter out of phase to the front tweeter, creating a dipole.

4.3.2 Titanium Mid-Woofers

We sometimes say that the midrange is a window into the mind of a composer or a singer. And indeed, the midrange is where the "magic" is in a well-recorded musical event. The G7f uses a Genesis-designed proprietary 6-inch solid titanium-coned transducer to cover this critical frequency spectrum.

Manufactured out of one of the lightest and stiffest materials known, this low mass cone driver is one of the best midrange transducers ever made, with nearly instantaneous transient response, enabling the G7f to sound lifelike and effortless.

The stiffness of the titanium cone also allows Genesis to use this as a woofer – hence, mid-woofer. It retains its low distortion, even on long throw application needed in delivering the lower frequencies. Hence, the solid titanium cone allows Genesis to develop a driver that is exemplary in the midrange, as well as deliver the heft and impact of a woofer.

We often hear that metal drivers sound "metallic". To an extent, this is true. Every metal cone, no matter how well designed, will have an *oilcan resonance frequency*. This break-up mode frequency is determined by the material, thickness, shape, and size of the cone, and it is largely well understood.

However, outside of this resonance frequency, the metal cone acts as a perfect piston and has zero distortion. When metal drivers sound “metallic” (or “zingy” in the case of metal tweeters) it is because this oilcan resonance is excited.

Genesis uses exclusively metal drivers because outside the oilcan resonance frequency, the driver never sounds distorted or metallic. Hence, if the oilcan resonance is never excited, the driver has almost zero distortion. We use metal drivers far below their oilcan resonance, and hence are able to achieve a warm, distortion-free sound quality, but with huge macro and micro dynamics.

With metal drivers correctly applied, there is no necessity to place any damping material on the cones. We feel that damping the transducer cone is never a good idea as the damping material would not be able to differentiate between distortion and the micro-details of music. Hence, indiscriminately damping music as well as cone ringing and distortion.

Without damping, Genesis loudspeakers are able to play softly, and yet with all the richness of the music, without losing any detail when you want to listen quietly in the dead of the night when the rest of the family are asleep.

4.3.3 Aluminium-cone Woofer

The transducer used in a servo system must be strong enough to withstand the high current approach of the servo, and yet delicate and light enough to react extremely quickly. The G7f features a single 8-inch aluminium cone long-throw woofer per channel.

While the servo system is able to ensure that the driver works linearly as a perfect piston, it is unable to correct for distortion caused by cone wobble, bending, and break-up. Hence, the drivers were designed to minimize these non-linear distortions, allowing the servo system to most effectively eliminate the linear distortions.

The woofers are a uniquely designed metal cone driver made for the Genesis servo system. Made of a cone of solid aluminium, the suspension and voice-coil have been maximized for long distortion-free excursion so as to increase dynamic range. Our aluminium cones are a magnitude stiffer than any plastic or paper cone on the market, and virtually eliminate the problems caused by cone bending and break-up.

The oilcan resonance frequency on the 8-inch aluminium woofer (where there can be any chance of distortion at all) is at 2,000Hz – far above the 16Hz to 120Hz frequency range at which these drivers operate.

Therefore, the driver is a perfect piston within the frequencies used. Thus, low cone break-up distortion is inherent in the driver designed for the G7f.

4.4 Crossover

We believe that the crossover is the brain of the loudspeaker. In order to manage and maximize the performance of the extensive complement of transducers used in Genesis loudspeakers, we spend more time and effort on the crossover than many other manufacturers put in their entire speaker.

Each crossover is designed by computer modelling plus years of knowledge and experience. The inductors are custom designed and made for Genesis with OFC copper windings. The capacitors used are also custom made for Genesis, using high-quality polypropylene-film and tin-foil.

More importantly, the crossovers are designed with many, many hours of music listening and constant refining, tuning and tweaking of the circuit. Out of this comes the “magic” that is a Genesis-designed loudspeaker system.

4.5 The Acoustic Suspension

The suspension for the speaker comprises three elements:

- 1) The neoprene vibration absorbers are tuned to isolate and decouple the loudspeaker cabinet for optimal bass response no matter what surface the loudspeaker sits on. The result is that the loudspeaker sways like a skyscraper in an earthquake so that it is rigid in the frequencies that enhance clarity, imaging and dynamics, and yet passing the frequencies that detract from the bass.
- 2) The skeletal frame acts as a tuned absorber. Made of a sandwich of Baltic birch ply with a constrained vibration absorbent material, no two parts of the frame will resonate at the same frequencies. This ensures that all midrange frequencies are “dumped” below the base of the cabinet so that floor-borne vibrations do not affect the imaging and soundstage of the loudspeaker.
- 3) The spikes rigidly couple the suspension system to the floor. If you have hardwood floors and do not want to make holes in the wood, use a copper penny (instead of expensive “spike cups”) under the spike.

A pin-point suspension system is designed to pass *all* frequencies. Using a spike cup under the spike will defeat this system. A copper penny gets deformed – the spike making an indentation where it meets the penny, and a little “nipple” on the other side. This still performs the same function as a pin-point suspension system, but at the same time protects your hardwood floor.

4.6 Vibration-free Cabinet

The cabinet was designed for aesthetics, but with an obsession to sonic quality, vibration control, structural strength and rigidity.

In some parts of the cabinet where vibration would have been the greatest, 1 ¾ inches (45mm) of multi-layer bonded MDF was used to provide damping, structural integrity and a rigid platform for the drivers to be located. For other parts, a thinner 18mm MDF was used that allowed induced vibrations to dissipate faster. Incidentally, MDF was chosen as the material of choice for its damping properties and its consistency in hardness, density and rigidity.

In the G7f, the cabinet is asymmetrically braced to reduce standing waves inside the cabinet, as well as in the panels. Innovative thinking reduces the amount of flex and sway caused by the side-firing woofer, resulting in a stable soundstage and image that would not have been possible otherwise.

4.7 Class D Bass Amplification

While the servo-bass system and aluminium woofers bring great advantages, it they require an amplification system with enormous amounts of current to make the woofer follow the input signal faithfully.

In the G7f, the built-in amplifier was specifically designed and tuned for low frequencies in order to produce “floorshakingly musical” bass to power the servo woofer. The G7f also uses the Dynamic Power Delivery System and the Silent Running Voltage Supply technologies developed for the Genesis Reference Amplifiers to deliver quick, clean power to the servo-control preamplifier and Class D bass power amplifier.

One side benefit of this powered woofer system is that almost any sized amplifier can be used to drive the G7f. No longer must one choose between having an amplifier with enough power to drive the woofers, and a smaller amplifier having better spatial and tonal characters.

5 Specifications

- Frequency Response: 22Hz to 36kHz, \pm 3dB
- Sensitivity: 89 dB, 1 watt 1 meter
- Min/Max Power (Tube): 25/250 watts per side
- Min/Max Power (Solid State): 45/800 watts per side
- Input Impedance: 8 ohms (Nominal)
- HF Transducers: Two Genesis 1" Circular Ribbon Tweeters (front & rear)
- Mid/LF Transducers: Two Genesis 6" titanium Cone
- Servo-Subwoofer Transducer: One Genesis 8" aluminium cone
- Controls: Front Tweeter Level
Rear Tweeter Defeat
Bass Gain
- Built-in Bass Amplification: 180W Class D
- Input: High-level with 5-way binding posts
- Dimensions: H 48 " x W 12 " x D 14"
- Weight: 82 lbs (37 kg)
- Finishes: High gloss automotive paint