

welcome



Dr. Udo Zucker – Physicist, PhD in Science, designer of award-winning control electronics, dedicated audiophile and Chief Executive Officer of TAG McLaren Audio

Award-winning TAG McLaren technology - the TAG2000 F1 powertrain control system has been selected as a Millennium Product by the British Design Council



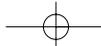
welcome to



TAG McLaren Audio exists with one aim in mind: to produce the very best high-end audio equipment in the world.

Like many people, I often have my best ideas when relaxing to a piece of music. For years, knowing the technical capabilities of TAG McLaren, I have nurtured the ambition to push sound reproduction to the absolute limit; that's why we formed TAG McLaren Audio.

At the core of our development team are highly experienced electronics engineers whose heritage of award-winning hi-fi and world-beating electronic control systems is envied by many and equalled by few.



TAG McLaren Audio F1-RLA AvantGarde loudspeaker

In addition to our experience in the world of hi-fi we are able to utilise our expertise in mechanical engineering, composite material technology, multi-layer printed circuit boards, fast digital signal processing, electronic noise suppression, radio frequency technology and software design to name but a few.

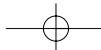
All these skills are sharpened to compete in the toughest of all technical sports: Formula One motor racing. We directly apply them to enhance our high-end audio products; for example composite material technology is used to make resonant-free loudspeaker cabinets, suspension

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technology decouples electronics from the sound field and digital signal processing makes better home cinema products. The list is almost endless.

I have been an audiophile for more than 30 years, and have used and upgraded many, many audio systems in that time. Our aim is sonic perfection combined with aesthetic delight and solid build quality – a rare combination in hi-fi but one which TAG McLaren Audio is delivering

It is our audio engineers' technical capability which provides outstanding sound quality and our stylists' ability to look into the future which makes the F1 AvantGarde loudspeaker so desirable. Employing 'Composite Sandwich Technology', combined with aluminium reinforced low distortion drive units the F1 AvantGarde loudspeaker sounds so good, as if the technology comes from another world.



*Thank you for purchasing the TAG McLaren Audio F1 AvantGarde 'Composite Sandwich Technology' loudspeaker.*

## F1 AvantGarde loudspeakers

We are convinced this loudspeaker will redefine your listening experience.

The F1 AvantGarde 'Composite Sandwich Technology'  loudspeaker is a high performance, 3 $\frac{1}{2}$  way, 4th order reflex-loaded loudspeaker system capable of reproducing music with outstanding clarity and transparency. The F1 AvantGarde is ideal for all room sizes, including larger rooms which require greater sound pressure level to recreate a performance with realistic volume levels. The combination of a unique enclosure with lowest distortion drive units and no-expense-spared crossovers generates sound reproduction at a level of transparency and clarity which is extremely rare to find. Music reproduction pushed to a new limit.

type: RLA 



## TAG McLaren 'Composite Sandwich Technology'

TAG McLaren pioneered the use of composite technology in F1 motor racing almost 20 years ago, at a time when only the most advanced aerospace programmes used carbon fibre composites exploiting their extraordinary combination of strength and weight.

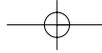
The F1 AvantGarde's loudspeaker cabinets are constructed using an open mould system with multiple split lines to allow the lamination of shapes with complex curvatures. The enclosure walls incorporate integrally moulded damping cores with two composite epoxy skins. The enclosures are subdivided to provide three chambers. These chambers are created by two solid bulkheads dividing the cabinet in such a way as to provide the required chamber volumes, brace the cabinet walls and ensure there are no parallel reflective surfaces.

This construction, which we call 'Composite Sandwich Technology' creates a structurally inert and inherently well damped enclosure to ensure that the only acoustic energy generated emanates from the drive units and not the enclosure. Preventing the enclosure from flexing and re-radiating energy reduces distortion and colouration offering a neutral and accurate portrayal of the performance.

The resulting sound quality of this rather complex design process is extremely clear and transparent, almost like an electrostatic speaker, but still with the punch which makes electro-dynamic speakers so desirable. It is sound reproduction at the very forefront of technology!

### **optimised dispersion enclosure geometry**

Marrying form and function harmoniously, the smooth and irregular curvature of the enclosure has been carefully designed to



optimise the dispersion of sound energy from the enclosure. The F1 AvantGarde generates an even and consistent energy output both on and off axis resulting in a solid and accurate image within a very wide listening area. As a result the F1 AvantGarde loudspeaker will easily integrate into your room, providing superb sound quality even from less than ideal locations.

#### **drive unit technology at its best**

The F1 AvantGarde's drive units have been optimised to maximise their performance within their respective bands. Both the 250 mm and 180 mm bass units employ carbon fibre-loaded pulp cones to create a stiff yet well damped diaphragm that remains pistonic through the pass-band. The midrange unit uses a diaphragm manufactured from several paper 'petals' that are married to a visco-elastic interface. This eliminates spurious vibration and

suppresses unwanted energy reflection up and down the cone profile. The motor unit pole pieces contain copper rings to create a series of shorted turns in the magnetic air gap. This eliminates Eddy current distortion caused by the current flow through the voice coil in close proximity to the intense magnetic field. The tweeter possesses an extremely low free-air resonance achieved by damping and loading the rearward energy with three chambers. The result is one of the lowest distortions available today.

#### **high quality vibration isolated passive crossover**

The passive crossover is mechanically de-coupled from the sub-structure of the loudspeaker to prevent microphony in the components. The crossover network is mounted inside the plinth in order to electro-magnetically isolate it from the

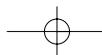
drive units in the system. The components used throughout the crossover are of the highest quality to ensure signal integrity and clarity. The inductors use high purity copper wound on either toroidal or bobbin cores to improve saturation current limits, reduce d.c resistance and minimise stray magnetic field leakage. The capacitors are manufactured with an over-size polypropylene dielectric and are rated at 630 V DC to guarantee uncompressed power output. The resistors are of flat, thick metal film construction as opposed to the common wire-wound variety. These non-inductive resistors are manufactured from cermet mounted upon an alumina base offering extremely high peak voltage operation without compression. This no-compromise crossover guarantees that sound energy is split between the drive units without affecting the purity of the sound.

#### **OFHC loudspeaker connection terminals**

By fitting proprietary OFHC, gold plated binding posts, manufactured by TAG McLaren, a clear sonic improvement has been achieved compared to the typically used alternatives employing high copper content alloys. Furthermore no nickel plating has been used between the OFHC foundation and the gold finish as it added 'grain' to the sound. Whilst this will lead in the long term to some discolouration of the binding post due to copper atoms partially diffusing into the anti-corrosion gold layer, the customary, nickel plate interlayer is well known (as a ferro-magnetic and hard oxidised metal) to affect sound quality and was eliminated.

#### **single input connection**

After extensive research into the sound quality of the F1 AvantGarde loudspeaker,



## features

it was discovered that at this very high quality level the potential benefits of multi-wired terminals for loudspeaker cable connection were outweighed by the losses incurred in their implementation, e.g. additional contact interfaces and electrical connection straps. In addition, it has been found that even with the finest top grade power amplifiers, star grounding improved perceived dynamics and musical expression. We therefore designed a true star connection feed from high power OFHC, copper alloy binding posts. The signal path is as perfect as it is possible to achieve, the sound is clearer and more transparent, with a more precise sound stage.

### **Peripheral Slot Technology (PST) reflex port**

The lower bass unit is reflex tuned in its enclosure by a downward firing port employing Peripheral Slot Technology

(PST). The low frequency sound pressure from the port is distributed into the room evenly through a slot (which is kept slightly non-parallel to reduce standing waves) between the bottom of the enclosure and the top of the plinth. This prevents audible 'chuffing' and high frequency harmonics from the port interfering with and degrading the sound energy from the drive units. Again adding another dimension of purity to the sound.

### **Tunable Low Frequency Output**

The lower bass unit can be variably mass loaded to adjust the level and extension of low frequency output from your F1 AvantGarde loudspeaker system. This is beneficial for rooms which would otherwise enhance or reduce bass energy too much.



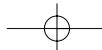
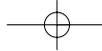
## features

## installation

### installation

**packaging** | Your F1 AvantGarde loudspeakers have been carefully packaged for safe transportation. If you have the storage space, please retain all the original packaging. This will allow you to transport your loudspeakers safely in the future, for example when relocating.

**before you start** | Make sure that all the components of your audio system are disconnected from the AC supply whenever you change any connections.

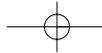


**loudspeaker connection** | Use high-quality loudspeaker cable. Connect the red (positive) terminal of your right loudspeaker to the right positive output terminal on the back of your amplifier. Then connect the black (negative) terminal of your right loudspeaker to the right negative output terminal on the back of your amplifier. Repeat this procedure to connect your left loudspeaker using the left positive and negative terminals on the back of your amplifier.

**connection** | For best sound quality we only recommend that you use loudspeaker cables terminated in spade terminals. Unscrew the terminal enough to push the spade into the slot in the side of the terminal and then tighten the terminal. If you are unable to fully tighten the terminal try pushing the spade connector in a clockwise (tightening) direction. Do not over-tighten the terminal as it is made from soft gold plated oxygen-free high purity copper.

## installation





**room placement**

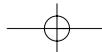
You are no doubt eager to begin enjoying your F1 AvantGarde loudspeakers but we would ask you to read the following installation guide to help you decide on the optimum position for your loudspeakers.

The geometric form of your F1 AvantGarde loudspeakers has been specifically designed to project a wide and even dispersion of sound power into the room in order to eliminate the common problem of 'hot seat' imaging. For the best performance we recommend that you site your F1 AvantGarde loudspeakers within your listening room, following these guidelines:

The listening position should ideally be no more than 1.5 times the distance between the loudspeakers. Avoid choosing a listening position that places your head closer than 40 cm to any room boundary. This seriously affects the perceived tonal balance due to reflections from the walls.



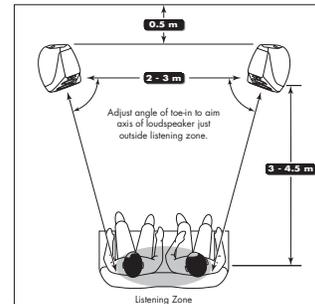
1. The full benefits of the sound will only be enjoyed by a few listeners.



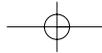
**room placement (continued)**

Try to avoid placing the loudspeakers too close to the walls of the listening room in order to prevent strong interaction with the walls.

Always orientate the channels of your F1 AvantGarde loudspeaker system such that the curvature of the front baffles of the loudspeakers positions the tweeters closer together than the rest of the drive units. This arrangement is shown in the diagram below.



Typical example of room placement. Other installations may also work perfectly.



**finding the best location**

You will get the best sound from your F1 AvantGarde loudspeaker if you follow these guidelines:

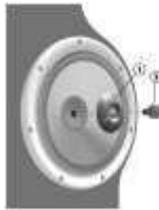
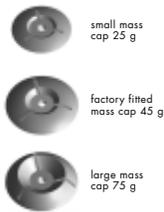
Try to place each loudspeaker approximately 0.5 m (2 feet) from all walls. Space them between 2 and 3 meters (6 - 10 feet) apart. Try to locate both loudspeakers in a similar acoustic environment. Toe the speakers in so that the axis of the loudspeakers points just outside the listening zone (see page 15).

**LF mass tuning**

Your F1 AvantGarde loudspeakers arrive factory fitted with the mean low frequency tuning mass cap fitted to the lower bass drive unit. You can tune the low frequency energy output to your room conditions and subjective preference by removing and/or replacing this mass cap for another graduated mass cap that you will find in your accessory pack.

**LF mass tuning installation**

The installation of a heavier mass cap will reduce the low frequency output and conversely, installing a lighter mass cap will increase the low frequency output. You may choose not to fit any of the optional mass caps to maximise the low frequency output but always remember to fit the retainer plug to ensure that the only air passage through the lower bass system is conducted via the downward firing reflex port as intended.

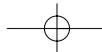


1. mass cap (factory fitted 45 g mass cap shown)
2. retainer plug (must be fitted at all times)

**fine tuning**

To fine tune the position of your F1 AvantGarde loudspeakers, choose some music material you are familiar with and sit in the central listening position. Pay attention to the tonal balance of the reproduction and the accuracy of the stereo sound-stage. Moving the loudspeakers away from the rear wall and into the room will reduce the amount of low frequency energy with respect to the rest of the audible bandwidth. Conversely, moving the loudspeakers closer to the rear wall will increase the low frequency energy. The distance between the loudspeakers and the amount of toe-in will affect the stereo sound-stage. With careful and patient experimentation, you will find a configuration that will provide an even and neutral tonal balance with an accurate sound-stage. Don't be afraid to experiment.

Once you have found the ideal position of your F1 AvantGarde loudspeakers within your listening room, you may add the spikes to fix the loudspeakers physically with respect to your room. Carefully rock the loudspeaker enclosure to one side and insert the spikes one at a time ensuring that the lock nuts have been fastened onto the thread of the spike prior to insertion into the base of the loudspeaker. Gently lower the loudspeaker back onto the floor and repeat the process for the other two spikes.



## running in

### running in

TAG McLaren Audio products are designed to give optimum performance for many years.

**running in** The performance of your F1 AvantGarde will improve during the first 48 hours of operation. You may wish to play some program material at a moderate level continuously for this period of time before seriously listening to your F1 AvantGarde loudspeakers. Your loudspeakers will continue to improve over the next 100 hours of use.

**warming up** Every time you use your F1 AvantGarde loudspeakers, the performance will improve until the components have reached their optimum operating temperature which is usually achieved within 5-10 minutes of operation.

## care and maintenance

### care and maintenance

**cleaning** In order to maintain the appearance of your F1 AvantGarde loudspeakers, you can clean them as follows:

Any grease or dirt on the enclosure may be removed with a soft, lint-free cloth moistened slightly with a mild solution of warm water and detergent or washing up liquid. Do not use any other solutions. Do not use any solvents or abrasives.

Take great care not to get any liquid inside the loudspeaker enclosure or on the drive unit diaphragms. If this happens, you should have your F1 AvantGarde loudspeakers serviced.

**service** Under no circumstances should you attempt to service your F1 AvantGarde loudspeakers. All servicing should be carried out by one of our authorised service agents.

If service is required, please contact your authorised TAG McLaren Audio retailer. If your F1 AvantGarde loudspeakers are still under guarantee, please refer to the guarantee card which gives you details on how to claim against the guarantee.

Please package your F1 AvantGarde loudspeakers carefully when transporting or shipping. If you do not have the correct packaging at this time, please contact TAG McLaren Audio for assistance.



## technical data

### technical data

This section is for those of you who really want to know the 'insides' of your F1 AvantGarde loudspeakers. You will not miss out on any of the functions or performance of your F1 AvantGarde loudspeakers if you choose not to read any further.

<b>frequency response</b>	25 Hz - 20 kHz ( $\pm 3$ dB) 45 Hz - 20 kHz ( $\pm 1$ dB)
<b>sensitivity</b>	87.5 dB/W/m
<b>impedance</b>	6 $\Omega$ nominal
<b>distortion</b>	<0.3% T.H.D. (re. 1 W, 100 Hz - 20 kHz)
<b>power amplifier requirements</b>	15 W minimum recommended
<b>maximum S.P.L.</b>	118 dB (in-room)

## technical data

<b>operating temperature range</b>	18 - 35 °C
<b>dimensions</b>	350 mm wide 1150 mm high 450 mm deep
<b>weight</b>	Approx. 65 kg each loudspeaker

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We reserve the right to alter design and specification without notice  
Specification may vary for different countries

