

# hi-fi news

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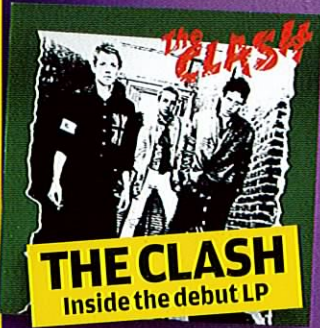
& Record Review

## POWER RANGER

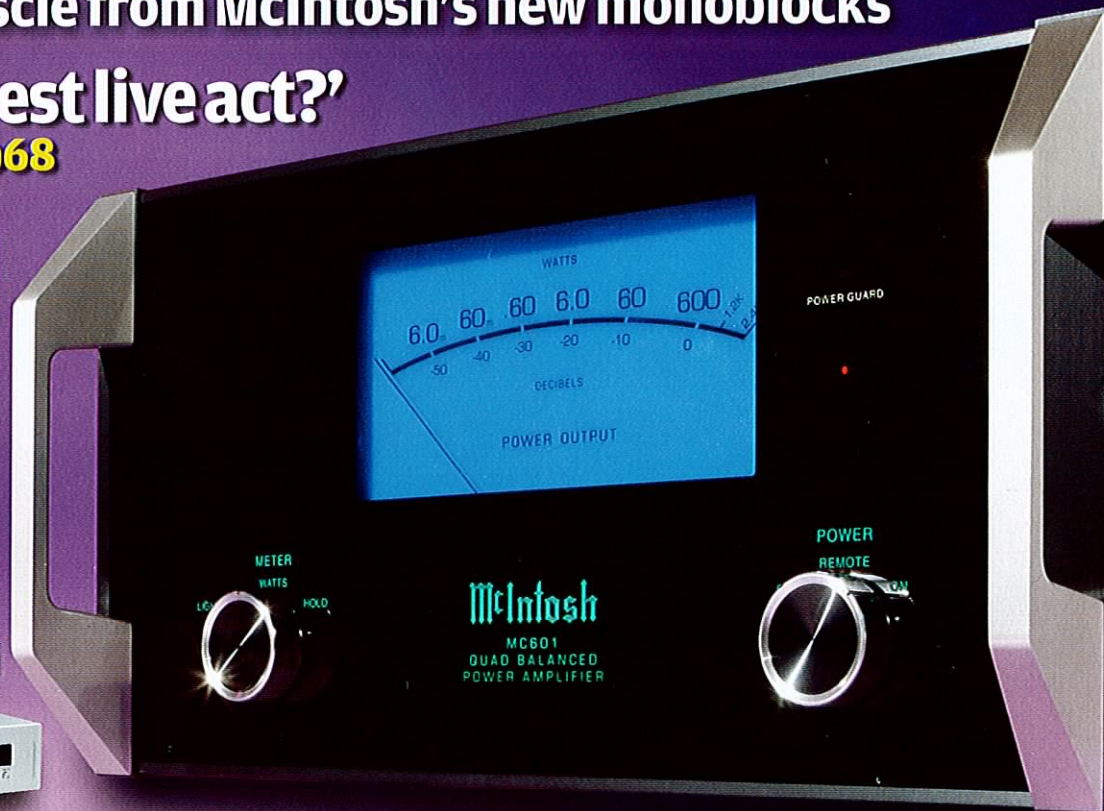
Musical muscle from McIntosh's new monoblocks

'World's best live act?'

Vinyl release, p68



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**JBL Studio 190**

Big value floorstander



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LOUDSPEAKER

Three-and-a-half-way floorstanding loudspeaker  
Made by: Harman International Industries Inc  
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AUDIO  
FILE

# JBL Studio 190 (£480)

Revealed exclusively here in *HFN*, JBL's new 'Weave' design floorstander leaves us wondering how they do it for the price  
Review & Lab: Keith Howard

**H**ow does JBL do it? To look at the Studio 190 – top of the new four-model Studio 1 series, standing over 1.1m tall and sporting four drive units – you wouldn't be surprised to learn that its suggested retail price was knocking on the door of four figures. But actually it's half that, at just £480. Not for the first time with inexpensive JBLs, I find myself wondering how – if – they can possibly turn a profit. Let Harman International's bean-counters worry about that, though, while we gratefully accept that the Studio 190 offers, in terms of real estate, at the very least, outstanding value.

In other respects this speaker mostly represents familiar fare for a modern floorstander: the cabinet is a conventional tall, narrow box with what knuckle-raps reveal to be rather resonant side panels; and the bass is reflex loaded via a single rear-firing port. Just two finishes are offered, black or cherry as shown here.

But the Studio 190 is a little out of the ordinary in two respects: the 'Weave' design of the front baffle (a feature of all the Series 1 models) and the use of a horn-loaded tweeter.

JBL calls the Weave 'bold and dynamic', and that appears to be the sum of its purpose – to catch the eye rather than influence the sound in any way. Indeed, the angular plastic mouldings that comprise the Weave would probably have a deleterious sonic effect, given that they add reflective surfaces near the tweeter, but for the fact that the tweeter's horn is a constant-directivity bi-radial design, which probably narrows the horizontal spread of its output sufficiently to prevent this.

The tweeter itself is a 25mm dome using JBL's CMMD Lite material (CMMD stands for ceramic metal matrix diaphragm), despite which our measurements show it displays a high-Q resonance within the audio band. This crosses over at 3.2kHz to a 100mm midrange driver with PolyPlas doped-cellulose fibre cone which, according to the spec sheet, works down to 800Hz where it crosses over in turn to the two 165mm PolyPlas-coned bass drivers, mounted much lower down the baffle.

From JBL's three-and-a-half-way description you'd expect the crossover to be to the upper of the two bass units, and the second to be

rolled in to supplement it at lower frequencies. But my near-field measurements show that the two drivers operate in parallel throughout their passband, while the midrange driver is only stepped down at 800Hz, contributing significantly until around 200Hz, below which it is rolled off more emphatically.

Interestingly, both crossovers are specified as being first-order, 6dB per octave networks, suggesting that phase distortion through crossover should be low. Although conventional wisdom has it that typical crossover phase distortion is inaudible, I'm not the only person to demur, or to find that well-designed speakers with first-order networks often have a certain something about their sound. All four drivers are magnetically shielded, so there's no problem using the Studio 190 close to a CRT television.

### FOOT NOTES

Four tall rubber feet attached to the base of the cabinet provide for use on hard floors that spikes would mark. The bolts that secure these are threaded internally to accept the supplied spikes, which (hallelujah!) are slender enough to penetrate carpet and so provide a firm foundation. If you make the mistake of expecting to have to remove the feet before fitting the spikes, you'll be disconcerted to find that they will detach complete with the nut inserts, via which they screw into the cabinet.

On the back panel there's little of note apart from the aforementioned reflex port and two pairs of input terminal posts connecting to the split crossover. The upper terminals feed the midrange and tweeter sections of the crossover, and the lower ones the bass section. Gold-plated metal shorting straps are provided for single-wire use, although as I found during the listening, these are beneficially replaced with aftermarket shorting wires.

Although I used the Studio 190s single-wired throughout these tests, it's pertinent to note that had the upper input terminals addressed the tweeter alone it would have been possible, in a bi-amped set-up, to

**RIGHT:** The oddest feature of the Studio 190's front baffle is JBL's Weave design. Comprising plastic mouldings and grille inserts, it's for show only



### HORNS APLENTY

James Bullough Lansing, founder of JBL, began making loudspeakers – mostly for radio sets – in the late 1920s, originally as the Lansing Manufacturing Company. In 1941 it was absorbed by the Altec Service Corporation to become Altec Lansing Corporation, then five years later Lansing struck out on his own again with what became James B Lansing Sound Inc – the company we now know as JBL. Four years later Lansing died at the early age of 47, but his company, after a rocky start in the post-war years, went on to build a reputation for itself in both the domestic and professional audio arenas, the latter initially with speakers for theatre use. Although the use of horn-loading rapidly declined in the hi-fi market as direct radiating speakers took over, horns remained important in the pro field and JBL has continued to develop horn technology ever since. Its Bi-Radial 'constant coverage' horn profile – as used in the Studio 190's tweeter – was introduced in 1980, initially as a means to improve the consistency of audience coverage in sound reinforcement applications.

attenuate the tweeter by 3dB or so, to remove the step-up in output that occurs on crossover from the midrange driver [see on-axis response traces in the Lab Report, next page].

### TOES AND TWEAKS

When you begin listening to any unfamiliar loudspeakers, the first task is to position them optimally. I'm not anal about this – moving them a few millimetres at a time – but I do always take care over toe-in, particularly with speakers (like the Studio 190s) which have a prominent treble. Listening a little off-axis – and I usually prefer to toe the speakers out so that their axes cross behind the listening position, but you can also over-rotate them to cross their axes ahead of the listening seat if you prefer – can make all the difference to tonal balance and long-term listenability.

But with their tweeters' constant directivity horns, would the Studio 190s respond to such fettling? Answer: yes, it worked a treat. With the 190s turned outwards from the listening seat by about 15° they took on an appreciably warmer, fuller tonal balance and – as usually happens when speakers are fired more nearly straight down the room – the stereo image filled out too. Any further than this and the sound was dulled, so I settled on this alignment for the remainder of the listening. Although the treble still sounded less than fully resolved on cymbals and vocal sibilants, the fault was more of omission than commission and after a while I adapted to it.

As already mentioned, I also tried replacing the input terminals' metal

shorting bars with wire links from The Chord Company. You could argue that few owners of such speakers are likely to bother with tweaks like this; but on the other hand the 190s are such good value that perhaps there's a little money left over for gilding the lily. If so then wire links are certainly a good way of spending it.

Although the comparison isn't a quick one to make, the Chord wires (spades to the upper terminals and plugs to the lower ones) were an obvious improvement, bringing clarity and crispness that also had a beneficial effect on rhythmical pulse. I used the HDtracks 24/96 download version of 'Country Dreamer' from *Band On The Run* for the comparison, and the song just sounded significantly

*'It sounded significantly catchier, in spite of inane lyrics'*

catchier with the Chords in place – those inane lyrics notwithstanding.

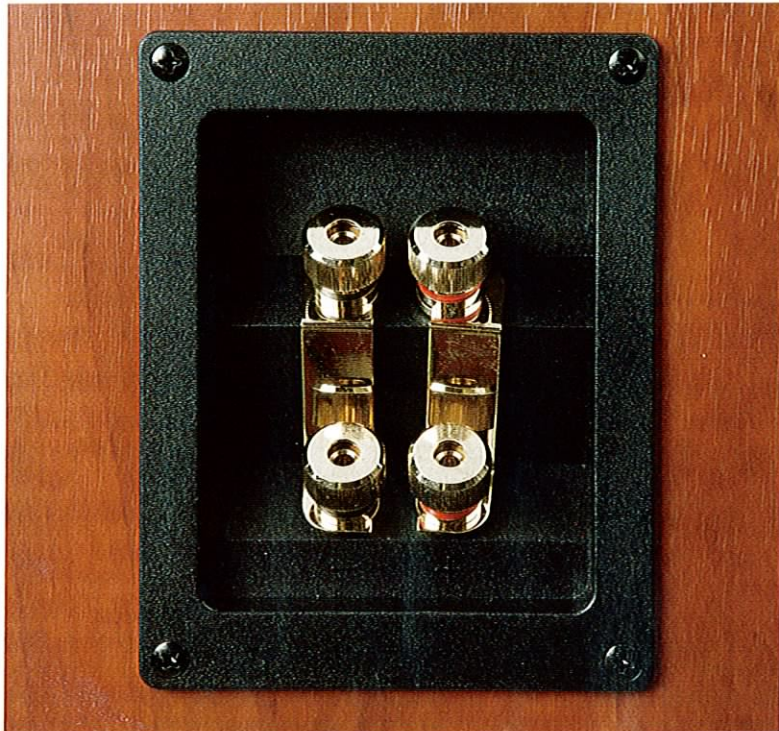
This track also highlighted a surprising weapon in the 190's armoury: its extended bass.

As the Lab Report confirms, this speaker delves a good deal deeper into the lower octaves than many similarly dimensioned floorstanders of twice the price. What's more, that bass extension does not – with careful positioning, in a room without notable bass problems – result in the sort of bass-dominated melange that quickly becomes tiresome to listen to. In fact the 190's bass is quite alert and responsive: rather more so than I was expecting, given that the bass alignment appears to have been optimised for extension rather than transient response. JBL has traded off sensitivity to achieve this extra bass heft, but rock music lovers in particular will likely approve the compromise. ↪



## LOUDSPEAKER

### JBL STUDIO 190 (£480)



**ABOVE:** The reflex-loaded 190 has unusually extended bass, at the cost of some sensitivity. JBL's metal links between the two sets of input terminals are best replaced

All told, the Studio 190 proved to be quite different to the ES80, the last inexpensive JBL floorstander to do time here [*HFN* Nov '07]. The ES80 was fun but in your face; the 190 – though it too has uptilted on-axis treble output – sounds less as if it has been voiced to grab attention in a showroom and more for fatigue-free long-term listening. The equanimity this implies doesn't make the 190 a dull listen but does ensure that you can play most types of music over it with a high probability of enjoyment.

#### PLEASANT SURPRISES

OK, it lacks the precision and the resolution to do full justice to the crisp drum sound of Gwyneth Herbert's 'Annie's Yellow Bag' [*All The Ghosts*, Naim Label naimcd135], for instance, or to blow away the clouds that partly obscure Quatuor Ebène's Debussy String Quartet [Virgin Classics 50999 519045 2 4]. But that is also true of many speakers that are twice the Studio 190's price. The key point is that the 190, correctly positioned, doesn't try to disguise its shortfalls by tonal manipulations, and so is often capable of pleasant surprises.

Christy Baron's 'Got To Get You Into My Life' [Chesky JD 152], with

its natural perspectives, clean percussion sound and lack of obvious processing, was persuasively delivered. The 190 had resolution enough to distinguish the HDtracks 24/96 download, with its more fluid, open sound, from the slightly coarser and constrained sounding 16/44.1 CD rip. Patricia Barber's very different 'Bye Bye Blackbird' [Premonition 7243 5 27290 2 9] – a much more created sound from Jim Anderson with delicate cymbal brushes, solid bass underpinning and Barber's huge, mellifluous vocal – was a delight too. ☺

#### HI-FI NEWS VERDICT

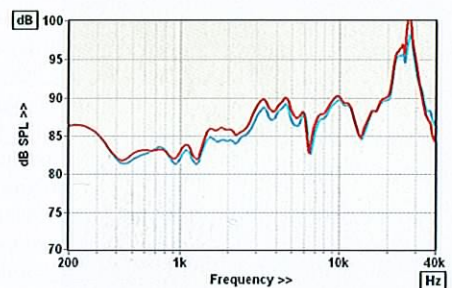
Whichever way you look at it, the JBL Studio 190 is a high-value product. It delivers a lot of hardware for its asking price, and those components have been sufficiently skilfully combined to produce a sound matching that of many more expensive floorstanders of the same general format. To get the best from it, all you have to do is align it a little off-axis, and swap the metal links for wire alternatives.

Sound Quality: 83%

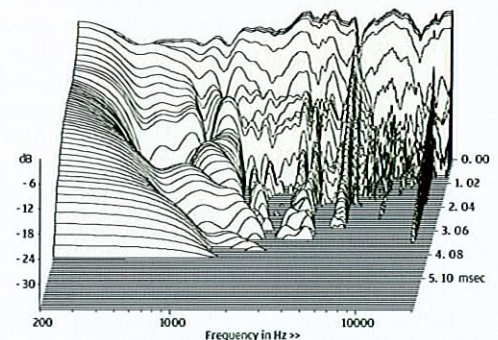


JBL claims 90dB sensitivity for the Studio 190 but our measured pink noise figure fell well short of that at 86.3dB. As the on-axis frequency responses [Graph 1, below] show, like many JBLs before it, the 190 has a prominent presence band output, intended to make it sound more detailed than competitors with flatter responses. But the overall response errors are certainly not excessive for a product of this price at  $\pm 4.2$ dB. The rise in output below 400Hz is confirmed in the diffraction-corrected near-field bass response, which shows a broad peak at around 150Hz. Immediately below this, a dip in output that corresponds with a blip in the impedance modulus suggests a prominent internal air resonance. Bass extension of 36Hz ( $-6$ dB ref 200Hz) is unusually good, and perhaps explains the lower than claimed sensitivity. Pair matching error is a little high at  $\pm 1.4$ dB but a large part of this disparity is due to a slight difference in the frequency of a resonance at around 7.5kHz that results in a narrow response notch. Discounting this error, the pair matching improves to a creditable  $\pm 1.0$ dB.

On the face of it, the 190 appears to present a challenging load given that its minimum impedance modulus is 2.9ohm and its minimum EPDR (equivalent peak dissipation resistance) 1.7ohm, but these minima both occur at high frequency (13.9kHz and 8.3kHz). Of more practical relevance is the lesser EPDR minimum of 3.4ohm at 96Hz, indicating that the 190 is actually an easy load to drive. The cumulative spectral decay [Graph 2, below] confirms the 7.5kHz resonance and others around 1.3kHz and 4kHz, with another in the high treble. KH



**ABOVE:** A prominent presence band could make the 190 sound superficially more forward or impressive



**ABOVE:** The cumulative spectral decay indicates resonances in the mid, treble and high treble regions

#### HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83Vrms - Mean/IEC/Music)	87.9/86.3/86.5dB
Impedance modulus min/max (20Hz-20kHz)	2.9ohm @ 13.9kHz 25.1ohm @ 67Hz
Impedance phase min/max (20Hz-20kHz)	-41° @ 79Hz 42° @ 27Hz
Pair matching (200Hz-20kHz)	$\pm 1.4$ dB
LF/HF extension ( $-6$ dB ref 200Hz/10kHz)	36Hz / >40kHz / >40kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.5% / 0.3% / 0.6%
Dimensions (HWD)	112x200x375mm