



# McINTOSH C53/MC462

## PRE/POWER AMPLIFIERS

**Reviewer** Eric Haswell

△ McINTOSH COULDN'T TRADEMARK ITS CLASSIC 'VALVE SOUND,' SO IT DID THE NEXT BEST THING AND TRADEMARKED THE BLUE METERS THAT ARE ON THE FRONT PANEL OF EVERY McINTOSH AMPLIFIER.

Everyone knows what a Harley-Davidson engine sounds like—even if they don't ride a motorcycle. It's part of what makes the marque so famous. But not everyone knows that Harley-Davidson has trademarked that sound so that no other motorcycle manufacturer can build a bike that imitates it. In the audio world, McIntosh amplifiers have a sound quality that's just as famous, but unlike Harley-Davidson, McIntosh couldn't trademark its classic 'valve sound,' so it did the next best thing and trademarked the blue meters that are on the front panel of every McIntosh amplifier... be it valve, solid-state or hybrid. So how did McIntosh get its solid-state amplifiers to sound like its valve amplifiers?

It's because McIntosh decided that since it was using transformers in the output stages of its valve amplifiers, it would use very similar devices, called autoformers—in the output stages of its transistor amplifiers.

Although the two devices are quite different in design, their theory of operation is essentially the same but, more importantly they ‘look’ exactly the same (electronically speaking) to any loudspeaker that is connected to one. The importance of this is that with any solid-state amplifier, the power output of that amplifier will vary depending on the impedance of the speakers you connect to it whereas the power output of an amplifier with an autoformer in its output will remain the same, irrespective of the impedance of the loudspeaker, or the frequency at which the power is delivered.

McIntosh also uses its autoformer for another purpose, which is to combine the outputs of the four amplifiers inside the MC462 into two channels. Unlike most stereo power amplifiers, which have exactly what you’d expect: two amplifiers, one for each channel, the McIntosh MC462 has two amplifiers *per channel*, with each pair operating in balanced differential mode... a mode McIntosh calls ‘Quad balanced’. This amplifier topology offers several advantages over conventional topologies, including higher power output, immunity to noise; increased dynamic range, and lower distortion. But there’s more to the McIntosh MC462 than just its autoformer output and quad balanced circuitry. McIntosh has invented and patented many different circuits over the 72 years it’s been in business, and you’ll find more than a few of them inside the MC462. Two important ones are ‘Power Guard’ and ‘Sentry Monitor’ (both terms are trademarked by McIntosh).

Power Guard is essentially a circuit that detects when the output transistors are overloaded and automatically reduces the signal to a safe level. It’s a good safeguard. As for ‘Sentry Monitor’, that’s a circuit that most high-quality, well-designed amplifiers have fitted that monitors the current in the output stage and if it gets high enough to damage the output transistors will shut the amplifier down.

#### OUTSIDE THE MCINTOSH MC462

The front panel of the McIntosh MC462 is dominated by McIntosh’s famous blue power meters, which are calibrated from 4.5mW to 450W, with smaller markings labelled 900W and 1.8kW. The meters are also calibrated in dB, with –50dB coinciding with the 4.5mW calibration and 0dB with the 450-watt calibration.

The left-most knob on the front panel controls the operation of the meters. The ‘Off’ position only switches the meter lighting off—the meters continue to operate in their ‘fast’ mode, where the needles show the exact power going to the speakers. In ‘Watts’ mode, meter operation is the same, except the meter lighting is now on. In ‘Hold’ mode, the needle ‘locks’ to the highest power output measured until a higher power

output is detected, upon which it then locks to the higher level. If the same level or a higher level isn’t detected after a few milliseconds, the needles will fall to the next lowest peak or, if no output is detected, back to 0dB. The decay rate is approximately 6dB per minute. The right-most knob is a three-position power switch.

#### MCINTOSH C53 PREAMPLIFIER

The front panel of the C53 looks very ‘busy’ simply because of the number of controls on it, but most are to do with just one of the C53’s many features—its multi-band equaliser, which McIntosh has implemented via the rather old-fashioned method of providing a separate physical rotary control for each equaliser band, of which there are eight, with centre frequencies at 25Hz, 50Hz, 100Hz, 200Hz, 400Hz, 1kHz, 2.5kHz and 10kHz. The large rotary control to the left of the equaliser controls allows you to select input, of which there are plenty!

In all there are three balanced line-level inputs (via XLR), four unbalanced inputs (via RCA), two phono inputs (moving-coil and moving-magnet), and seven digital inputs (two optical, two coaxial, HDMI (ARC), USB and MCT).

It’s important to point out that the digital circuitry for the C53 is contained within a single module (DAC2) which is able to be upgraded so if a new digital format is developed or McIntosh decides to add a new capability, such as MQA, that can’t be addressed by a firmware upgrade, it will be possible to upgrade the C53 by switching in a totally new module. This makes the C53 essentially future-proof in this regard, which is a reassuring feeling considering the not-inconsiderable investment in amplification.

The rotary control to the right of the equaliser controls is primarily for adjusting volume level, but it’s also used for what McIntosh calls ‘Trim Selection’ operations. McIntosh’s Trim Selection mode is wonderfully comprehensive.



This amplifier topology offers several advantages over conventional topologies, including higher power output, immunity to noise; increased dynamic range, and lower distortion.

▽ MCINTOSH HAS IMPLEMENTED ITS MULTI-BAND EQUALISER VIA THE RATHER OLD-FASHIONED METHOD OF PROVIDING A SEPARATE PHYSICAL ROTARY CONTROL FOR EACH EQUALISER BAND.





▽ THE MC462 WILL DELIVER ITS RATED 450-WATT OUTPUT INTO ANY LOUDSPEAKER LOAD ONLY IF YOU CONNECT THE LOUDSPEAKERS TO THE CORRECT ONE OF THE THREE SEPARATE TERMINALS.



Whereas most trim functions allow you to adjust the gain for every input so that the volume doesn't change when you switch from one source to another, the circuit on the McIntosh C53 allows you to do much, much more than just that. In addition to setting a specific gain for each individual input you can also set channel balance, equaliser mode and mono/stereo mode. Additionally, for the phono inputs, the Trim also lets you set the correct loads to suit your specific phono cartridge.

The 6.35mm headphone output is designed to drive high-end low-impedance (100–600Ω) headphones, and has McIntosh's 'HXD' (Headphone Crossfeed Director) circuitry built in—though you can turn it off if you want. Basically, HXD works the same way other headphone crossfeed circuits work, which is to feed some information from the left channel to the right channel and *vice versa*. The idea is to stop that artificial 'in-your-head' effect that can affect headphone sound.

#### IN USE AND LISTENING SESSIONS

Setting up this McIntosh duo took quite some time, because I decided that I should make the most of this opportunity to fully enjoy the whole 'user experience' of living with a pair of McIntoshes (even if you review equipment, having components of this calibre in your living room is not a regular event). So I renamed all the inputs I was using to reflect the source components I'd connected, and set most—but not all, there were just too many!—of the available options on the 'Trim Selection' menu.

I then had to work out which speaker terminal pair worked best with my loudspeakers: 2Ω, 4Ω or 8Ω. I specifically said 'works best with' because you really don't have to worry too much about impedance-matching, because there's no penalty for getting it wrong, it's just that if you do, you not might get the maximum power possible, and therefore the ultimate listening experience. It's important to note that although McIntosh says (quite correctly) that the MC462 will deliver its rated 450-watt output 'into any loudspeaker load', that's only true if you connect the loudspeakers to the correct terminals. If, say, you connect a pair of 8Ω speakers to the 2Ω terminals, you'll only get around half the rated output.

If you know the minimum impedance of your speakers (many manufacturers now state this in their specifications), I'd suggest using the tap closest to this figure. If you don't know the minimum impedance of your speakers I'd suggest using the 4Ω terminals until you are completely familiar with the sound, then try the 8Ω terminals for a similar period, then switch back to the 4Ω terminals. If you find that switching back lessens the listening experience, you'll know that 8Ω was correct. If the 4Ω tap sounded better, listen until you're familiar again, then repeat the same process with the 2Ω terminals. Funnily enough, when I was hooking everything up (which was a bit tricky when an amplifier weighs as much as the MC462) I was imagining that I was going to be most impressed by how loudly I could play my music without



distortion, because I listen pretty loud and most amplifiers—even my own—tend to clip a little on the peaks. But after living with this McIntosh combo for some time, what I ended up being impressed by the most was kind of the complete opposite. What impressed me the most was how quietly I could be listening without hearing any distortion whatsoever, and absolutely no background noise.

This is essentially an amplifier that has no audible distortion and no audible noise at low to normal listening levels.

That's great news, but do you want the equally great news? It's that the performance is just as good when you're running the C53/MC462 combo with the 'pedal to the metal'. That said, I don't think you'll be able to get the 'pedal to the metal' with any loudspeaker system with which I have experience, because I turned up the volume so high that I heard my woofers poling from excessive cone travel before the McIntosh MC462's needles were anywhere near the right-hand end of their respective meters. You are never going to need more power than the McIntosh MC462 can deliver, irrespective of your loudspeakers' sensitivity or their impedance.

And what does this mean for sound quality? Everything you'd expect. You'll hear kick drum sound with impact and visceral 'thump' like you've never heard before, electric bass guitar with the attack and 'stringiness' that bass guitarists love... in fact, what you'll hear is just great bass, period.

No matter what music I listened to, at whatever level, there was no wooliness or looseness audible. It was all just taut, gutsy bass whose sound accurately rendered the image of the instrument whose sound it was reproducing, whether it was a contrabassoon, cello, double-bass or kick drum. I revelled at the sound of the intro to Christy Baron's *Tomorrow Never Knows*, not only for its superbly realistic low-frequencies, but also for the way you can hear these interact with the recording environment. The superb sonics continued up through the midrange and into the high frequencies, with the C53/MC462 combo sounding super-smooth and superbly balanced at all times, whilst never letting the smoothness of their delivery interfere with their ability to resolve a level of detail that means you will hear nuances you just will not hear with lesser amplifiers.

▽ THE DIGITAL CIRCUITRY FOR THE C53 IS CONTAINED WITHIN A SINGLE MODULE (DAC2) WHICH IS ABLE TO BE UPGRADED, MAKING IT ESSENTIALLY 'FUTUREPROOF'.



▷ McINTOSH HAS INVENTED AND PATENTED MANY CIRCUITS OVER THE 72 YEARS IT'S BEEN IN BUSINESS. YOU'LL FIND MORE THAN A FEW OF THEM INSIDE THE MC462, INCLUDING POWER GUARD AND SENTRY MONITOR.



## SPECIFICATIONS

### McIntosh C53 Preamplifier

**Price:** \$14,995  
**Freq. Response (Audioband):** 20Hz to 20kHz (+0/-0.5dB)  
**Freq. Response (Wideband):** 15Hz to 100kHz (+0/-3dB)  
**Maximum Output:** 16VRMS/8VRMS (Balanced/Unbalanced)  
**THD:** 0.005%  
**S/N Ratio (High Level):** 100dB  
**S/N Ratio (Moving Coil):** 80dB  
**S/N Ratio (Moving Magnet):** 82dB  
**Voltage Gain (High Level):** 15dB  
**Voltage Gain (Moving Coil):** 60dB  
**Voltage Gain (Moving Magnet):** 40dB  
**Sensitivity (High Level):** 900mV/450mV (Balanced/Unbalanced)  
**Input Impedance:** 44kΩ/22kΩ (Balanced/Unbalanced)  
**Sensitivity (Moving Coil):** 0.45mV  
**Sensitivity (Moving Magnet):** 4.5mV  
**Power Consumption:** 30-watts  
**Dimensions (WHD):** 445×194×458mm  
**Weight:** 12.5kg

### McIntosh MC462 Power Amplifier

**Price:** \$19,995  
**Power Output:** 450-watts per channel (2, 4 or 8Ω)  
**Frequency Response (Audioband):** 20Hz to 20kHz (+0/-0.25dB)  
**Frequency Response (Wideband):** 10Hz to 100kHz (+0/-3dB)  
**THD:** 0.005%  
**Signal-to-Noise Ratio:** 122dB  
**Damping Factor:** >40  
**Dimensions (WHD):** 445×240×573mm  
**Weight:** 52.3kg  
**Contact:** Synergy Audio Visual on (03) 9459 7474 or [www.synergyaudio.com](http://www.synergyaudio.com)



Listening to Herbie Hancock's *Round Midnight* (leading a group that includes one of my favourite saxophonists, Dexter Gordon), I found that, as the producer intended but is rarely heard, all the instruments were in tight focus and in an airy space within the wide and deep soundstage. Hancock's piano not only sounds 'large' but is also completely accurate tonally and Dexter's sax sound is also phenomenal tonally. The sonic dynamism enabled by the McIntosh duo is incredible.

Of course it's essential in any equipment review to include female vocalists, so I rounded up (and played!) all the usual suspects, but I'll focus on just one for this review: Tracy Chapman's *Give Me One Reason* from her 'New Beginnings' album. Listening to it via the McIntosh duo, I heard both the scalpel-like instrumental separation for which this track is famous, plus the incredible amount of detail that makes it a demo favourite. I also confirmed that the McIntosh C53/MC462 combo was able to give the impression of her voice being projected ahead of the speaker plane.

Moving right up to the top end, the highs were sublime, with cymbals and bells beautifully rendered with fine detail and surrounded by an airy lightness. Case in point: If you listen to Rickie Lee Jones' *Chuck E's in Love* you'll hear the glorious 'shimmer' of the cymbals and the air around the harmonics of the higher-pitched instruments is almost palpable.

As for the C53's headphone output, I found that it drove my HD 650s perfectly. In fact, they sounded so good when driven by the C53 that I've changed my mind about upgrading them, which I'd previously been toying with the idea of doing, so my guess is that it will do the same for any pair of headphones it's driving. As for McIntosh's HXD circuit, while I am sure that many people will enjoy HXD experience, I think I prefer my headphone sound to be 'au naturel'... despite the inherent aural drawbacks.

## CONCLUSION

There are many amplifier manufacturers that have arrived in the high-end audio arena only fairly recently, and some of them build products that I think approach the performance of this McIntosh C53/MC462 pre-power pair.

But are those brands as famous? Are they as saleable on the second-hand market? Do they have a proven track record in the audio business? And, most importantly, will they be around five or ten years from now?

While I can't be certain that the newcomers will be able to tick all these boxes, I am absolutely positive that McIntosh can.

And when I am investing in high-end amplification personally, this is very nearly as important to me as sound quality, build quality and appearance.

Buy the McIntosh C53 pre-amplifier/MC462 power amplifier combo and you can have it all. £