

Equipment Report



McIntosh MC451 Power Amplifier

The Best of Both Worlds

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There is something that seems especially appropriate about reviewing a new McIntosh amplifier so close to the 50th anniversary of *The Absolute Sound*. McIntosh is one of the few operating high-end audio firms that is actually older than TAS. More than that, I'm reviewing the McIntosh MC451—a mono power amp with two separate channels that combines a tube amp for driving a bi-amped speaker's midrange and treble section, and a solid-state amplifier for the bass, which allows you to bi-amp your speakers and get the best of tube sound while exploiting the best of solid-state. It combines power-amplifier technologies that span the entire history of TAS and seeks to resolve the debate over which technology sounds best by combining them to provide the sound of both.

At the same time, the MC451—like its more powerful and more expensive counterpart the MC901—involves a truly innovative approach to combining these technologies. Most past efforts to get the best out of both tube and transistor technology used a high-level input to drive a tube preamp that then drove a solid-state power amplifier, or a separate crossover to drive two separate amplifiers. The MC451 uses a single input and tube gain stage to drive a crossover to a separate 150-watt tube power amp

for the midrange and treble and a 300-watt solid-state amp for the bass and lower midrange with both amplifiers and the crossover on the same chassis.

A Truly Innovative Mix of Technologies

This requires real technical innovation, and the MC451 uses a complex mix of technologies that McIntosh calls a "Hybrid Drive." It is designed to allow you to adjust the crossover frequency to replace the crossover in a given bi-ampable speaker in ways that get the best sound both amplifiers can deliver in midrange and treble smoothness and bass power. It is also designed to provide a compati-

ble level of power in ways that both match the separate loads of a bi-amped speaker, and to create a circuit design that can fully protect both the amplifier and speaker.

As the specifications for the MC451 show, it also uses tube and solid-state amplifiers that have exceptionally low harmonic and intermodulation distortion, good dynamic headroom and damping factors, and excellent signal-to-noise ratios, and that can deliver top-quality sound to the loads of very different speakers.

This is a completely different design approach from taking a separate tube and solid-state amplifier and driving them with a custom crossover tailored to the specific speakers in a specific system. I've heard a number of such systems over the years, and the best have succeeded in providing a smoother or "warmer" upper midrange than most solid-state amplifiers while still providing truly excellent bass. However, even the best such combinations I've heard have never quite gotten the crossover right. While the upper midrange and treble were smoother and more musical, the overall coherence and mix of nuances in their sound was inferior in some respects to the best tube or solid-state power amps, as well as to the hybrid power amps that used tubes to drive a solid-state power stage.

You can see some of this level of innovation simply by looking at the back of the MC451. It has a conventional choice between an RCA and XLR input, but it also has two separate sets of speaker terminals for its outputs—one for solid-state and one for

Equipment Report McIntosh MC451 Power Amplifier

Specs & Pricing

Power output: Solid-state section, 300 watts @ 2, 4, or 8 ohms; vacuum tube section, 150 watts @ 2, 4, or 8 ohms

S/N below rated output: Solid-state section, 122dB; vacuum tube section, 118dB

Dynamic headroom: Solid-state section, 2.5dB; vacuum tube section, 1.2dB

THD: Solid-state section, 0.005% at any power level from 250 milliwatts to rated power, 20Hz to 20kHz; vacuum tube section, 0.5% at any power level from 250 milliwatts to rated power, 20Hz to 20kHz

Damping factor: Solid-state section, >40; vacuum tube section, >18

Dimensions: 17 7/8" x 13 3/4" x 12 1/2"

Weight: 133 lbs.

Price: \$14,000 each

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tube. Moreover, both sets of massive gold-plated output terminals have 2-ohm, 4-ohm, and 8-ohm connections. They are outputs from an Autoformer that helps provide the best possible match to a speaker load and provides the first such set of outputs for a solid-state amp that I've ever seen. Moreover, they allow the MC451 protection circuitry to be almost bulletproof. A shorted cable or internal problem in the amp may shut it off or blow a fuse, but the chances of a melt-down or a self-destruct are close to zero.

The rear panel of the MC451 also provides separate tube and solid-state inputs and has controls that allow you to bypass the MC451's crossover and use a custom crossover. Another control switch allows you to use the tube amplifier as a full-range amp.

More importantly, given the MC451's design goals, there are rear-panel crossover settings that range from 100Hz to 1kHz to match the bypassed crossover in a particular speaker design, and a separate level adjustment for the tube amp. The variable crossover setting is critical in ensuring that you can match the sound of the MC451's crossover to the point your speaker was designed to use, and while you may never need the treble gain control—which came almost perfectly adjusted when I measured the output of both amplifiers into my speakers—it does allow you to ensure you have a perfect balance between the gain in both channels.

There is also a Power Control that can be used to turn on or shut off other McIntosh components and a highly useful Auto Off switch that turns the power amp off if you don't send an audio signal through the amp for 30 minutes—a key to ensuring

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longer tube life and to limiting unnecessary heat and wear.

I should also note, however, that McIntosh is famous for having its own style, and the MC451 has a size and visual profile that are not designed to be ignored by your wife or partner. Moreover, its performance benefits from using short speaker cables. Putting two amps on one chassis has created a unit with a weight of some 133 pounds (60.3kg) per side and a size of 17 1/4 inches (43.8 cm) wide, 28 inches (71.1 cm) high, and 31 inches (78.7 cm) deep. The good news, however, is that you can use longer cables to hide the amps if the cables have the sufficient gauges recommended in the owner's manual. Moreover, McIntosh has reason to be proud of its styling. The MC451 looks like the audio equivalent of a Ferrari or Rolls.

If you are into teasing your fellow audiophiles, this styling also gives you some additional options. McIntosh is famous for its level meters. Only the MC451 and MC901, however, have a meter with two separate needles to separately measure the output of each amplifier. Accordingly, you can trump other audiophiles whose amplifier has only one meter and cast a pitying look on other audiophiles whose different McIntosh amplifiers have large glamorous

level meters. In that case, I'd recommend you say the following line with great disdain: "Oh! Your amp's meter has only one needle." A bit more seriously, McIntosh informs me that these meters really are accurate. You can see the real peaks in power in both the tube and solid-state amplifiers, measured in something close to actual watts.

Moreover, you can see the drive tubes from the front, and there are green LEDs under them that look like filament lights once the amp is fully on. This means you can also tease fellow tube audiophiles for being outdated. Just ask them if they too have "modern tubes with green filaments." After all, truth is only truth. Status is status!

More seriously, a few setup tips. The MC451's instructions are good, but they tend to assume familiarity in setting up a complex amplifier and speaker system. If you have experience with both tube and solid-state amps and with bi-amping—or actually read and follow the instructions—you'll have no problem with the physical setup and wiring. You do, however, need to check the control settings on the back. You need to check the vacuum tube level setting and select the crossover point, which should be the lower crossover frequency in a three-way speaker system (trying different settings may improve the sound). If you haven't done this kind of setup before, I'd recommend you get your dealer or an experienced friend to walk you through the process to get it right the first time and to be able to fix things if some connection comes loose or

Equipment Report McIntosh MC451 Power Amplifier

you replace your preamp or speakers.

I'd also recommend trying out different speaker spacing and toe-in to get the best overall timbre and soundstage, particularly if you have a tweeter with a relatively limited width of coverage or a room with high sensitivity to speaker distance from the rear wall and corners. Such adjustments may not improve the sound of your system, but tweaking your speaker setup after a major change in components can often improve at least some aspects of the overall sound.

Getting Truly Musical Sound Quality

And now we come to sound quality, and here I should stress that the only way to really understand how subtly different the nuances in the MC451's sound really is is for you to actually go and listen to the MC451. Using words like "soft" or "warm" to describe the upper midrange and treble imply an unrealistic degree of coloration, when the real result of the MC451's design in many systems will be to make the midrange and treble sound more musically realistic and natural with a wide range of recordings and to do a better job of achieving synergy with a given mix of front-end components, speakers, listening rooms, and listening positions.

Adjectives also can't explain the subtle degree to which the MC451's use of tubes in the midrange and treble can sound more musically realistic than hybrids that use tubes to drive solid-state power amps or custom crossovers for entirely separate tube and solid-state amps. Actually, listening to the MC451 with real world recordings can.

I also will tell you why the sound of the MC451 is truly special. As a reviewer, I'm often conscious that we tend to focus too much in our reviews on a given component, and forget that

no system, listening environment, or listener is ever going to be "pure and perfect forever." A high-end system is always going to be a search for synergy among different recordings and components with different levels of coloration in different listening rooms by audiophiles with at least somewhat different tastes and hearing. Technological puritanism is an impossible goal, and the search for the best musical sound is also very different.

There are good reasons why most TAS readers are constantly exploring the advances in the latest recordings, and why they seek out the best actual recordings and streaming efforts. Getting the most realistic level of musical realism or synergy is anything but easy. It means getting the most natural sound out of a combination of digital and analog front ends, cartridges, high-resolution digital sources, phono preamps, amplifi-

ers, and speakers.

As very experienced audiophile knows, each stage in the audio chain always has its own coloration and its own error budget and is produced and voiced in at least slightly different ways. Moreover, while digital sound and moving coils have made major advances in sound quality over the last few decades, they still tend to have a slightly exaggerated upper midrange or "hardness." Moreover, many audiophiles, including me, have real-world limits to the size of their listening rooms, on how reflective their rooms are, and in choosing their listening position.

System synergy is also only one side of the problem. The ways many current recordings are produced is another. Recordings are getting better, but far too many still are not produced with state-of-the-art equipment, use microphones with a touch too much upper-midrange energy, and are miked too close to the performance. Moreover, many current recordings involve "performances" that are anything but live and are assembled in ways that reshape their sound. This, too, creates a degree of hardness and excessive upper midrange detail that is particularly apparent when the recording is close miked to produce a more "immersive" sound, rather than miked to produce a sound that is close to a normal listening distance.

This again, is why you need to actually listen to the MC451. Its unique combination of tube and solid-state amps produces a midrange and treble that make only small changes in the overall sound but are enough to take the edge out of the upper midrange without losing



meaningful treble and upper-midrange detail. Rather than close-in or “immersive” sound, the MC451 produces more of the sound quality you hear in an actual concert hall, with the natural sound of brass, woodwinds, upper strings, and female voice.

These benefits were particularly clear when I switched to some older moving-coil cartridges, which have their own upper-octave excesses, and CDs that were produced with older digital technology, but they often applied to newer recordings as well. Moreover, and a bit to my surprise, the MC451 often improved the overall detail in the soundstage by raising the level of lower-midrange detail and sometimes limiting

images to more realistic proportions. The MC451 won't compensate for a recording that expands the apparent size of a piano beyond anything approaching a realistic listening perspective or that fails to realistically portray the size and location of voices and instruments, but it will help with good recordings.

Summing Up

The MC451 is not the amplifier for every audiophile or every system, and there are reasons why McIntosh produces separate lines of top-quality solid-state and tube amplifiers. Much depends on your musical taste and listening experiences, as well as the sonic nuances of your current system, your lis-

tening room, and your recordings. Some systems and listening environments are too soft and absorbent rather than a bit hard and bright. Some of my friends prefer listening to close-mike and immersive recordings.

We all hear and listen differently and have different approaches to finding the best path to synergy in our systems and recordings. At the same time, I've heard enough systems and recordings to know that the midrange and treble nuances provided by the MC451 will improve the musicality of a very substantial number of high-end rigs and suit the personal taste of a wide range of audiophiles. It did an outstanding job amplifying every source I auditioned, from the latest LPs and SACD/DSD to high-resolution PCM recordings.

In short, the MC451 is a truly musical alternative if you own loudspeakers that can be bi-amped. An expensive one at \$14,000 a side but well within the price range of competing “cutting-edge” high-end amplifiers. It is also an amplifier you should audition even if you can't afford it, simply to hear the sonic differences that this approach to combining tubes and solid-state can make.

Congratulations to McIntosh for its level of innovation and for taking the commercial risk of marketing such an original design. Put as simply as possible, the MC451 sounds different enough to help redefine the state of the art for many high-end audiophiles. **tas**