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Push-Pull Tube Power Amps

Cary Rocket 88

An IAR Best Buy

This baby stereo amplifier has winning sound at a winning price. Like the Oldsmobile Rocket 88 of yore, it offers a lot of performance value for your dollar.

We've previously discussed at length (most recently in IAR issues 76-79) the pros and cons of different topologies in tube power amps. The push-pull triode configuration brings together the sonic beauty of triode sound with some of the higher power of push-pull amps, and if executed right it can bring you truly the best of both worlds.

Indeed, in our judgment, well executed push-pull triode amps generally have better sound than most single ended triode power amps, because they have lower distortion, wider bandwidth, and lower source impedance (which translates into flatter frequency response from your speaker system). Thus, push-pull triode amps can offer better sound as well as higher power than single ended triode amps. Their power capability is still moderate (typically 20 to 40 watts), so you should still use these amps with moderately efficient speakers, or expect enjoyable music listening without the ability to shake the rafters. But 20 to 40 watts is a lot more realistic, and gives you a lot more choice in speakers, than the 3 to 8 watts typical of single ended triode amps. And meanwhile you're enjoying that special liquid golden glow that only triodes can bring (see IAR issues 76-79 for more discussion of golden glow vs. white light tube amps).

Among triode push-pull amps, one of the very best is the Legend LM-The Triode (now available in a Mk II version, not yet evaluated). But it costs \$5495 per mono block pair, and some of you might not be able to afford that. Now, with the Cary Rocket 88, Dennis Had has created a push-pull triode stereo amp which gives you similar award winning sonics, but which costs less than half as much, only \$2500.

The Rocket 88 offers very transparent, clear, direct, honest reproduction. Then, to give music that subtle golden glow typical of triodes, there's a wonderful sweetness to the sound, coupled with a slight liquidity and a benign slight rounding of transients at the treble extreme of the spectrum. Most notably, the Rocket 88's sound is very clean and distortion free, being much cleaner than most single ended triode amps (including some previous models from Cary).

Bass sounds good, and much better than most single ended triode amps, but naturally you would not expect it to compete with push-pull or solid state amps of much higher power. Source impedance is rated at less than 1 ohm, so frequency response interaction (or variability) with various loudspeakers will be modest.

Though the Rocket 88 is rated at 20 watts per channel, these are, as the saying goes, big triode watts, and so this little amp should work well with a good variety of speaker systems, for enjoyable music listening purposes. We immensely enjoyed the punch, musical dynamics and vividness of the Rocket 88, and found no lack of power and loudness for our kind of music listening.

The Rocket 88 also has a user selectable ultralinear mode, which puts out twice as much power (40 watts per channel). Of course, the output tubes are then no longer being used as triodes, so the sound of the amp changes. We found that these sonic changes were for the worse, so we don't recommend that you use the Rocket 88 in this higher power mode. The sound became thinner and pinched (losing that beautiful golden glow), upper midrange glare was introduced where there was none before, and we heard some distortion in place of the very clean purity of triode mode. In ultralinear mode, this amp sounded like most other competing tetrode and pentode push-pull tube amps (tolerably OK, but nothing special). The Rocket 88's special magic is clearly in its triode mode.

Interestingly, we also found that we could actually play music louder in the triode mode, in spite of the fact that the ultralinear mode puts out twice as much power. How could that be? Well, when you turn up the volume, you usually stop when you hear your amp starting to sound ugly with distortion. This onset of distortion indicates that the amp is unhappy, not performing well, or overloading. But your biggest motivation for stopping is not our altruistic concern for the amp's welfare. More important is the fact that distortion is very unpleasant and fatiguing for us humans to listen to. Thus, you stop and back off on loudness when the amp starts distorting, so you don't have to endure this torture yourself. The Rocket 88 is so clean and pure in triode mode that we could push the volume up to pretty healthy levels. But when we changed to the higher power ultralinear mode, the higher audible distortion of that mode (or at least its uglier harmonic composition) was already obnoxious enough so that we actually had to turn the volume down to a lower level in the higher power mode, in order to lower the distortion to non-fatiguing levels. Note that this contrast is really a tribute to the Rocket 88 and its wonderful triode mode, showing how loudly and cleanly this amp can play in triode mode, while giving you that special musical beauty that triodes can provide. In effect, it proved that the 20 watt Rocket 88 in triode mode can actually play louder than competing 40 watt conventional ultralinear tube amps.

The Rocket 88's tube complement includes 6922 drivers and an EL84 used as a current source. The amp comes with KT88 output tubes, but you can also substitute other output tubes, to alter the personality of the triode sound to suit your taste and system. For example, the KT66 is said to provide an even sweeter sound with this amp, and you can also try a 6L6 or even an EL34 (which was useable in triode mode in the famous classic Marantz tube amps).

The Rocket 88 is designed with very conservative low voltages on its tubes, so your choice of tubes should last a long time (perhaps 5 years of normal usage). Thus, the Rocket 88 is easy on your budget when you first buy it, and will continue to be easy on your tube budget over the years.

If you want the musical beauty of triode tube sound, but have a limited budget, this is the power amp for you.