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EQUIPMENT REPORT



Mystère CA21 Line Preamplifier and PA21 Power Amplifier

Tubular Magic

Dick Olsher

Invoking yet again the mystery of Stonehenge and its ineffable inner circle, Mystère has recently launched a pair of flagship products aimed squarely at sharing tube magic with a wide audience. Both models use similar chassis and share the high-gloss piano-black cosmetics of the line. As I said in my review of the Mystère IA21 integrated amp, the massive tube cage is best left off during play to improve air flow and heat dissipation.

The PA21, rated honestly (55Wpc at 1% THD), continues Mystère's "heretical" motif of output-stage pentode connection. Ever since Keroes and Hafler popularized the ultra-linear (UL) connection of the push-pull output stage in the early 1950s, pure pentode designs seem to have fallen off the map. Some of the most popular and highly respected power amps of all time used the UL connection. Classics such as Marantz 8B, Citation II, and several Dynaco models, including the ubiquitous ST-70 all fall in that camp. Even the McIntosh unity-coupled output stage can be considered a variation on the UL theme. Pentode designs have been castigated in the past for their poor damping factors (pentode boom) and susceptibility to load interactions. So what exactly is their discrete charm all about, you ask?

A pentode stage's primary payoff is efficient power delivery with minimal stressing of the power tubes, especially when used in combination with fixed bias. Power output is approximately proportional to plate voltage. A pentode or beam power tetrode allows large plate voltage swings with only small variation in plate current. A triode's plate current, on the other hand, increases rapidly with increasing plate voltage, which limits maximum plate

voltage. This is the reason triodes can't source as much power as pentodes or tetrodes. For example, a KT88 push-pull pair with a plate voltage of 400Vdc and fixed bias can generate 50Wpc. In triode connection, this same pair can safely manage only about 20 watts. The PA21's stock KT88s are operated at a plate voltage of only 422Vdc while the screens are held at a fixed voltage of 405Vdc. An adaptive auto-bias circuit continuously monitors bias current and adjust the output tubes to their optimal operating point. There is also the flexibility of easily rolling in EL34 power pentodes. A switch on the left side of the chassis sets the auto-bias-circuit calibration for either KT88 or EL34 use.

The Mystère design team continues to embrace the 6SN7 dual triode—two thumbs up for that. Nine-pin miniatures need not apply! One 6SN7 is configured as an SRRP voltage gain stage, which is direct-coupled to the phase splitter—another 6SN7 connected as a long-tailed pair. Global feedback is applied from the 8 ohm output tap to the input stage. Feedback is good in this context. It is an essential ingredient in linearizing the operation of beam power and pentode output stages, and as an added benefit, reduces the amp's source impedance. A large power transformer with multiple windings provides all the necessary AC voltages. Solid-state rectification is followed by RCR smoothing filters for the output tube plate and bias voltage. DC filament supplies are used for the front-end tubes.

Several decades ago the primary reason for purchasing a preamplifier was for vinyl playback. The phono stage was the focus of attention. There were of course line-level inputs for

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tuner and tape deck, etc., but they were of secondary sonic importance. That pecking order has been drastically altered over the course of the past decade due to (in my opinion) an overreliance on CD program material. Most preamps today are merely line preamps, and at best may offer an optional phono board, or you may be forced to purchase a separate phonostage. Functionality has also diminished. Gone are tone controls, tape-dubbing facilities, subsonic filters, and headphone jacks. I have to wonder out loud if audiophiles today are much more simplistic than they were back then. The CA21 is a fine example of the minimalist approach. It's a line preamp with an input selector (four line inputs) and a volume control. It can't get any simpler than that. Old-timers (like me) will certainly squawk at the omission of a balance control.

However, I'm most pleased with the circuitry and design execution. First of all, you're bound to notice the first time you try to move this guy just how heavy it is. At 44 pounds it outweighs many small tube amps. The important point, though, is that the CA21 is built much like a power amp featuring a massive power supply. I'm glad to report that the CA21 has been "sprayed" with solid-state repellent. With the exception of rectifier bridges for the filament supplies and a handful of zener diodes, this preamp is pure tube. All plate voltages are rectified by a 5AR4 followed by a pi filter. In keeping with its minimalist philosophy, the signal path consists of a single voltage gain stage followed by a buffer. As a consequence, the output is polarity-inverting, and there's only a single coupling cap. One 6SN7 dual triode is configured as an SRRP and is direct-coupled to another 6SN7 connected as a buffer stage said to be a modified White cathode follower. The volume control is a 24-step attenuator resistor ladder. Not all the step sizes are identical and some thought obviously must have gone into selecting individual resistor values, presumably to optimize performance with a moderate sensitivity amp and speaker. However, with a high-sensitivity speaker I did experience some difficulty in nailing down a desired volume level as I was forced to operate near the bottom of the ladder.

All 6SN7 tubes are tightly selected new production from the Chinese Shuguang factory. I've been on record before about my dislike of modern 6SN7 tube brands, having developed an allergic reaction to both Russian and Chinese versions. Sonically, the Chinese trump the Russian, but even so, they're a bit grainy and bright through the upper octaves. Fortunately, there are plenty of reasonably priced NOS 7N7 Loktal types out there, which I have come to prefer over most vintage 6SN7 types. Being internally electrically identical to a 6SN7 but with a different pin-out, means that with a 7N7 to 6SN7 adapter, they may be substituted for any 6SN7. Then there's the 7AF7 Loktal, a slightly lower-gain version of the 7N7 and the absolute champ when it comes to rendering palpable spatial outlines. It didn't take me long to replace all of the CA21's 6SN7s with 7AF7s, but actually much longer before giving the PA21 the 7N7 treatment.

Even right out of the box my first impression was that the CA21 was no ordinary preamp. Of course, the 7AF7 substitution catapulted it to even a higher level in clarity, upper-octave smoothness, soundstage transparency, and low-level resolution. It was able to reveal a venue's reverberant signature with excellent fidelity. Its relaxed, totally edgeless presentation was devoid of gratuitous tube brightness or upper-midrange grain. Yet, unlike so many vintage preamps, it did not gloss over detail with a broad brush. A slightly closed-in treble range highlighted the midrange. Tonally, the center of gravity was centered in the lower midrange, enabling a big-tone portrayal of cello and upright bass.

Harmonic textures were rich, luxuriant, with a textural density approaching the real thing. So many other preamps, solid-state and tube alike, dilute textures much like watered down wine. Of course, threadbare textures are not my cup of tea, nor I suspect are they yours. It seems that a common denominator of all of my favorite preamps is tube rectification. The iconic marques of audio's golden age—McIntosh, Marantz, and Harman Kardon—gave up on tube rectification in the 60s. Audio Research wasn't a fan either in the 70s. Conrad-johnson's Premier Two, quite a preamp by the way, was introduced in 1981 outfitted with a 12X4 rectifier tube.

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But that was pretty much it for c-j, as well. Today tube rectifiers are still the exception (e.g., Air Tight and deHavilland) rather than the norm. Low cost and engineering specifications argue in favor of solid-state rectifiers. But it was never just about specifications, as, otherwise, tube audio would be as extinct as the dinosaur. While I can't prove cause and effect, there appears to be strong correlation between tube rectification and authentic textural density.

Another specific area in which tube preamps excel in is image palpability. But wait—you probably haven't experienced image palpability to this extent. I'm talking flesh and bones, a reach-out-and-touch-someone gestalt that is very rare even in the confines of high-end audio. For the illusion to come off optimally requires full cooperation from the power amp and speakers. But I can safely state that time and again the CA21 facilitated some of the best sound I've ever experienced. You normally don't associate bass authority with tube preamps. Yet the CA21 managed just that—bass definition and drive—again with careful attention to the associated power amp.

The PA-21 very much sounded like a tube amp. Harmonic textures were slightly soft, liquid, and plush. Transient speed was slightly blunted. The soundstage was populated by robust image outlines and depth perspective was well delineated. Partnered with the CA21, the PA21 produced a warm vibrant midrange with excellent microdynamic expressiveness. However, the upper mids and lower treble lacked the ultimate in purity, sounding a bit hard, grainy, and at times bright. The magnitude of the problem was not only load-dependent but was also exacerbated by the stock KT88 output tubes, which tend to run a bit strident through the upper mids. I took advantage of the PA21's flexibility to roll in a quad of New Sensor's Mullard reissue EL34s, and I was surprised at the degree of sonic relief they provided. Upper-midrange grain and treble harshness disappeared almost totally. Textures assumed a sweeter disposition, and at least with the DALI Helicon Mk.II there was an enhanced sense of speed. It seems to me that the vanquishing of tetrodes, in the context of the PA21, by true pentode power tubes is a case of poetic justice. RCA most likely developed the beam power tube in the 1930s to get around Philips' pentode patent, which was being fiercely guarded. Philips introduced the EL34 in 1954 as a cheaper and higher-power alternative in an effort to compete with the popular beam power tube and its British equivalent—the kinkless tetrode.

The 800-pound gorilla in the room is bass performance, since Mystère persists in marketing amplifiers with a high source impedance and consequently poor damping factors. Although subjectively a bit better than the previously reviewed IA21, bass definition continues to be a significant issue. A comparison with the recently reviewed Audio by Van Alstine Ultravalve power amp proved to be most telling. While the Ultravalve's textures weren't as plush or liquid, and it couldn't reproduce the depth perspective and palpable image outlines of the PA21, its bass definition and bass impact were light years better. In the long run, the bane of flabby midbass was a real downer for me.

In view of the PA21's chronic lack of bass control, a possible solution suggested itself; namely, a pairing with the MartinLogan Summit X electrostatics. Since the Summit features powered woofers, the internal bass amp would take care of frequencies below about 270Hz, relieving the PA21 of any bass duties. After all, that's how I auditioned the Mystère gear during the 2010 CES. In my show report I enthused about this coupling being “a marriage

made in heaven” on the basis of a single CD (Lorin Rowan's *My Father's Son*), which is a fairly bright recording. I recall wondering about how naturally voiced this recording sounded, and that the bass range was pretty darn good even under show conditions. Given more time to investigate this system in the comfort of my own listening room, the rest of the story became clear. It's one of severe load interaction. The Summit being a capacitive load above several hundred Hertz has a decreasing impedance magnitude with increasing frequency. At 20kHz its impedance is a mere 0.8 ohms. In concert with other low-damping-factor amps, the PA21 rolls off the treble range while driving capacitive loads. The effect starts around 5kHz and reaches a -10dB level at 20kHz. Since most electrostatics beam and sound too bright at the listening seat, some treble roll-off is a good thing in this context. But -5dB at 10kHz and -10dB at 20kHz is probably a bit too much.

The real winner here is the Mystère CA21. It's a genuine giant killer—able to boogie in the company of far more expensive line preamps. If you can accommodate its austere functionality and are willing to invest in a set of 7N7 (or, better yet, 7AF7) tubes, then you shall be rewarded with a healthy dose of tube magic. I can't think of another line preamp under \$8k that I'd rather live with—it's that good! **tas**



SPECS & PRICING

PA21 Power Amplifier

Power output: 55Wpc into 8 ohms at 1% THD

Bandwidth: 4Hz-80kHz, +/-0.3dB at 1 watt; 9Hz-52kHz, +/-1dB at 40 watts

Noise: <-90dB A-weighted

Gain: 26dB (20x)

THD: 0.09% at 1 watt; 0.2% at 10 watts; 1% at 55 watts

Weight: 59.4 lbs.

Dimensions: 16.5" x 7.9" x 17"

Price: \$2995

CA21

Bandwidth: 8Hz-200kHz at 47k ohm load

Noise: -104dB A-weighted ref 1V

Gain: 19dB (9x)

THD: 0.03% at 1V output

Nominal input impedance: 150k ohm

Output impedance: 592 ohms, maximum

Weight: 44 lbs.

Dimensions: 16.5" x 7.9" x 17"

Price: \$2195

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ASSOCIATED EQUIPMENT

DALI Helicon 400 Mk.II, Salk Audio SongTower, Basszilla DIY Platinum Edition Mk2, and MartinLogan Summit X loudspeakers; Kuzma Reference turntable; Kuzma Stogi Reference 313 VTA tonearm; Symphonic Line RG-8 Gold MC phono cartridge; Air Tight ATE-2 phono preamp; SoundTradition Live! MC-10 step-up; PrimaLuna Eight CD player; Weiss Engineering Jason CD transport and Medea DAC; Concert Fidelity CF-080 line preamplifier; Lamm Audio M1.2 Reference monoblocks, Audio by Van Alstine Ultravalve and Berning ZH230 power amps; FMS Nexus-2 interconnects; FMS Nexus speaker cable

