THE AMPLIFIER ISSUE

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MAY 2015

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SONY'S NW-ZX2 WALKMAN

FRED KAPLAN

Simaudio Moon Evolution 740P

LINE PREAMPLIFIER

Transparency is a trait we all value in a hi-fi rig, and it's a concept I've long thought I understood. A system that tosses up the illusion of a clear, spacious soundstage, on which you can hear—almost *see*—all of the singers and/or instruments, from side to side and, especially, from front to way, way back: that's the ticket. Still, although such transparency is a sign that you've entered the realm of fine sound, it's not an absolute requirement. Tonal accuracy, dynamic range, a certain *thereness* that conveys the emotional heft or delicacy of music—those things come first. Without them, the most precisely delineated soundstage is like an architect's sketch of an oil painting.

But after listening to Simaudio's Moon Evolution 740P preamplifier, I see that I've had it wrong all these decades. Those other aspects are still more important (I've been right about that), but I'd had only a partial understanding of transparency, because I've never heard before, at any length, a system that delivers the concept full-blown. But now that I've heard it, I also realize that transparency isn't a mere audiophile bonus; it enriches, even transforms, all of those other qualities—tonal accuracy, dynamic range, that *thereness*—that excite us when a great recording sounds so close to the real thing.

But let us begin at the beginning.

Description and Design

Simaudio's 740P ($9500) is a solid-state line-stage preamplifier with a dual-mono configuration and balanced differential audio circuitry—a culmination of the Quebecois company's premier series, the Moon Evolution models, which itself is the latest chapter of their storied 35-year presence in high-end audio. Outwardly, the 740P resembles previous Moon Evolution models: the attractive, curved-edged design (available in all black, all silver, or a combination called 2-Tone); the ultrarigid aluminum case with sharp thumbscrew cones protruding from the bottoms of four triangular pillars, to reduce the effects of spurious vibrations. But there are new refinements, inside and out.

Most touted in the 740P's manual is Simaudio's fully discrete, four-stage, proprietary M-LoVo low-voltage regulator,

SPECIFICATIONS

Description Remote-controlled, solid-state, dual-monophonic line preamplifier. Analog inputs: 2 balanced (XLR), 3 single-ended (RCA). Analog outputs: 1 balanced (XLR); 2 single-ended, fixed and variable (RCA). Gain: 9dB, M-eVOL2 volume knob, 530 increments of 0.1dB. Frequency response: 5Hz–100kHz, +0/–0.1dB. Signal/noise: 120dB at full output, 20Hz–20kHz. Crosstalk: –116dB at 1kHz. Input impedance: 22k ohms. Output impedance: 50 ohms. Power consumption: 20W at idle. **Dimensions** 18.6" (476mm) W by 4" (102mm) H by 16.3" (419mm) D. Shipping weight: 35 lbs (16kg). **Finishes** Black, Silver, 2-Tone. **Serial number of unit reviewed** P9123793. **Price** $9500. Approximate number of dealers: 75. Warranty: 10 years with registration. **Manufacturer** Simaudio, Ltd., 1345 Newton Road, Boucherville, Quebec J4B 5H2, Canada. Tel: (877) 980-2400, (450) 449-2212. Web: www.simaudio.com. US: Simaudio Ltd., 2002 Ridge Road, Champlain, NY 12919.

said to produce "exceptionally fast, precise and stable DC voltage" that results in "a power supply with a virtually unmeasurable noise floor." Also designed especially for the Evolution line is an Independent Inductive DC filter, which isolates all the electronic parts in the signal path that are fed DC power. The signal path is shortened, and its impedance lowered, thanks to a four-layer circuit board—two layers for the audio signals, one for the ground, one for the power supply—etched with tracings of pure copper. The power supply, which has five stages of DC voltage regulation and extensive choke filtering, is oversize so that, as the demand for current swells, the supply of voltage dips only slightly, making possible (the manual claims) effortless dynamic peaks with no change in the music's detail, color, or character.

Simaudio's M-eVOL2 volume control comprises 530 discrete steps of 0.1dB each, with a variation of less than 0.05dB between channels across the entire volume range. Each line input is "home-theater ready," meaning that the volume control can be bypassed. A SimLink controller port allows for two-way communication with other Moon Evolution models. Oddly, I discovered that I could also use the remote control to stop, play, pause, and change tracks with my Krell Cipher SACD/CD player.

Setup

I did all of my listening through Revel's Ultima Studio2 loudspeakers. LPs were spun on a VPI Classic turntable with JMW Memorial tonearm and an Ortofon Blue Cadenza cartridge, plugged into a Nagra BPS battery-powered phono preamp. Digital discs were loaded into the Krell Cipher. Cables (single-ended from the phono, balanced from the CD player) were all by Nirvana. For a power amp, I mainly used Simaudio's Moon Evolution 860A (review in the works), occasionally switching to the power-amp section of their Moon Evolution 700i integrated amp (which I've had in my system for some time). To isolate the 740P's sound, I also plugged the 700i's preamp section into the 860A. For another comparison, and for other reasons discussed below, I borrowed a Pass Laboratories XP-30 preamp and connected it to the 860A.

The 740P's manual says that it needs 400 hours of playing time to break in fully; based on my experience, I second that advice. Simaudio also recommends keeping the 740P on at all times: Turn it off for three days, and it takes another three days to warm up again. The good news: If you turn it off for a week or a month, it also takes three days to warm back up.

Sound

In his review of the Pass Labs XP-30 line preamp in the April 2013 issue, John Atkinson concluded that that unit validated the notion that "the beating heart of an audio system is the preamplifier."[1] I cocked an eyebrow when I read that, but after spending a few months with the Moon Evolution 740P, I'm inclined to agree. It makes sense: the signal passed through the preamp is what is amplified and converted to acoustic waves; the preamp does its work at extremely low levels that, by themselves, are nearly inaudible; any noise it contributes will be hugely magnified further down the

1 See www.stereophile.com/content/pass-laboratories-xp-30-line-preamplifier.

MEASUREMENTS

I measured the Simaudio Moon Evolution 740P's electrical performance with my Audio Precision SYS2722 system (see www.ap.com and the January 2008 "As We See It," http://tinyurl.com/4ffpve4). The volume control operated in accurate 0.1dB steps, the 740P preserved absolute polarity (*ie*, was non-inverting) for both fully balanced and fully unbalanced operation, and pin 2 of its XLR jacks was wired hot. The maximum gain was 6.2dB for the balanced and unbalanced inputs and outputs, rather than the specified 9dB. The input impedance is specified at 22k ohms; for the unbalanced inputs I measured 21.4k ohms at 20Hz and 1kHz, and 11.2k ohms at 20kHz; for the balanced inputs, 35.2k ohms at 20Hz and 1kHz, and 24.8k ohms at 20kHz. The unbalanced output impedance was very low at all audio frequencies, at 75 ohms; the balanced output impedance was twice this value, as expected.

With the volume control set to its maximum value of "80," the 740P's balanced frequency response was flat within the audioband, and down by 0.7dB at 200kHz (fig.1, blue and red traces). The response was not affected by reducing the load to 600 ohms (fig.1, cyan and magenta traces), but turning the volume control down to "60" (-20dB) resulted in an ultrasonic rolloff of just 0.3dB at 200kHz. For unbalanced operation, the frequency response was identical to that in balanced operation. Crosstalk was unmeasurable, and the Simaudio's noise floor was virtually free from power-supply-related spuriae (fig.2). The

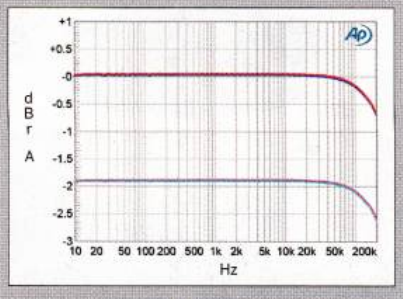

Fig.1 Simaudio Moon Evolution 740P, balanced frequency response with volume control set to maximum gain at 1V, into: 100k ohms (left channel blue, right red), 600 ohms (left cyan, right magenta) (0.5dB/vertical div.).

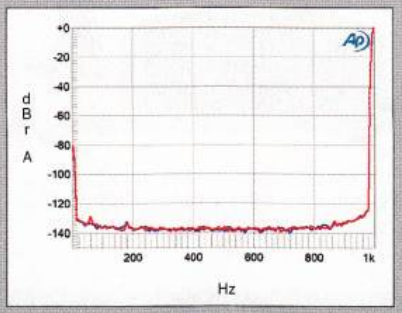

Fig.2 Simaudio Moon Evolution 740P, balanced spectrum of 1kHz sinewave, DC–1kHz, at 2V into 100k ohms (left channel blue, right red) (linear frequency scale).

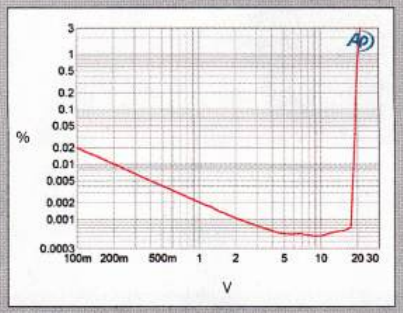

Fig.3 Simaudio Moon Evolution 740P, balanced distortion (%) *vs* 1kHz output voltage into 100k ohms.

chain. As you may have noticed from my summary, nearly all of the technical features highlighted in the 740P's manual are claimed to reduce vibrations, distortions, and noise of all kinds. Perhaps this accounts for the 740P's *transparency*.

Whatever the cause, with every album and song I played, I found it hard to take notes. I just sat back—or leaned forward—and soaked in the music, sometimes with an idiotic smile on my face, even if I'd heard the record a hundred times before. Finally, I tried to analyze what was happening. My first scribbled note: "All the music is breathing forth at the same time."

Six months ago, if I'd read that sentence in a review, I'd have shrugged and muttered, "Yeah, well, *my* system does that too." I would have been wrong. My system—an assemblage of perfectly respectable high-end components—*didn't* quite do that.

Take "Nuages," from *Chasin' the Gypsy*, James Carter's tribute to Django Reinhardt (CD, Atlantic 83304-2). In many past reviews I've marveled at how some piece of gear captured the oomph of the bass drum, the clinging of the bells, the clang of the triangle, or the distinctive strumming of each guitar, one metal-strung, the other nylon. But until the 740P, I'd never heard all of these elements in tandem; I'd never heard, at least not continuously, the *rhythm* of the bells playing off the *rhythm* of the drums, or the accordion playing off the violin, or the guitars trading fours. I'd heard the *sounds*, but I'd been missing something vital about the *music*.

What I'm describing might strike some as mere detail, and they'd be right. It *is* detail: detail that lives in the low-level signals, detail that most preamps (including many very good ones) smudge but that the 740P let shine through—and, in doing so, pumped blood into "the beating heart" (to riff on JA's image) not only of my audio system but also of my music.

Or take "Like a Rolling Stone," from Bob Dylan's *Highway 61 Revisited*, either the SACD (Columbia CH 90342) or, still better, Mobile Fidelity Sound Lab's set of two 45rpm LPs (Columbia/MFSL 2-422). I don't know how many times I've heard this song, but I'd never heard so much of the piano in the mix, or the airy whoosh of the Hammond B-3 so distinctly, or—as a visiting friend, a Dylan fanatic but not an audiophile, commented after listening with me—the raw edge of so much anger in Dylan's voice. But, as with Carter's cover of Reinhardt's "Nuages," what I found most riveting was the band's cohesion: all the music breathing forth at the same time.

I was particularly struck by how the 740P captured the sound of acoustic pianos. One reason pianos don't sound convincing through most stereos (or from most recordings) is that there's so much going on across the range of loudness and frequencies: the percussiveness of the pianist coaxing

measurements, continued

unweighted, wideband signal/noise ratio (ref.1V output into 100k ohms, with the input shorted to ground but the volume control set to "80") was an impressive 85dB, while A-weighting improved this to 102.5dB. This is a very quiet preamp!

Through its balanced inputs and outputs, the 740P clipped at just over 20V into 100k ohms (fig.3), and at 12V into the punishing 600 ohm load (not shown). For unbalanced operation (fig.4), clipping occurred at just over 10V, which is still well above the voltage required to drive any power amplifier into overload. The fact that in these two graphs the traces slope downward with increasing output voltage indicates that the actual distortion is below the noise floor almost until actual waveform clipping occurs. I therefore examined how the percentage of THD+noise changed with frequency at a very high level, 10V. Even so, the distortion hardly varied with load or frequency (fig.5).

What distortion there was was primarily the third harmonic, at -110dB (0.0003%), with some second harmonic 10dB lower (fig.6). This graph was taken into 100k ohms; reducing the load to 600 ohms increased the third harmonic by 6dB but dropped the second harmonic by 6dB in the left channel, 12dB in the right (not shown). This very low distortion was repeated for unbalanced operation, while intermodulation distortion at a typical output level was extremely low (fig.7).

The Moon Evolution 740P's measured performance is beyond reproach.—**John Atkinson**

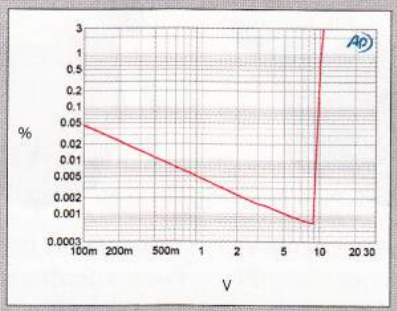

Fig.4 Simaudio Moon Evolution 740P, unbalanced distortion (%) vs 1kHz output voltage into 100k ohms.

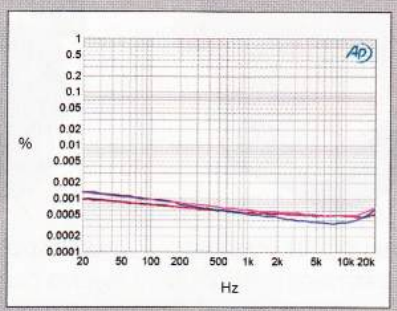

Fig.5 Simaudio Moon Evolution 740P, balanced distortion (%) vs frequency at 10V into: 100k ohms (left channel blue, right red), 600 ohms (left cyan, right magenta).

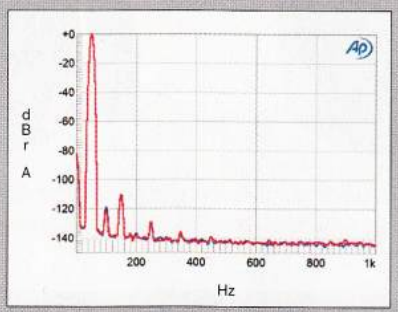

Fig.6 Simaudio Moon Evolution 740P, balanced spectrum of 50Hz sinewave, DC-1kHz, at 5V into 100k ohms (left channel blue, right red) (linear frequency scale).

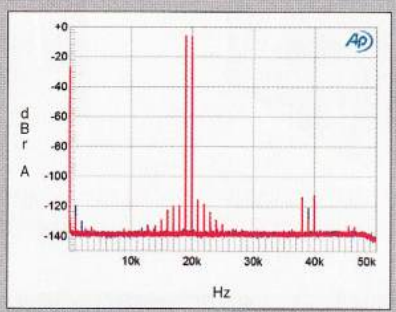

Fig.7 Simaudio Moon Evolution 740P, balanced HF intermodulation spectrum, DC-50kHz, 19+20kHz at 2V into 100k ohms (left channel blue, right red) (linear frequency scale).

the keys and the hammers hitting the strings; the dynamic contrasts in the pressure and release of the pedals; the bouquet of overtones wafting into the air; the resonant vibrations of the piano itself; and the mingling of all these sounds together. To get all of this—and to make it all seem to be coming from the same object in space—demands a lot of a sound engineer and a stereo. A slight discontinuity in frequencies, a slight smearing of time or phase alignment, can mess it up. With the Simaudio 740P, I heard all of it, or at least all that the recording and the rest of my system could parse. I suspect that this, too, has something to do with Simaudio's ways of keeping the low-level signals pure.

Or take Analogue Productions' breathtaking reissue of Duke Ellington's aptly titled *Masterpieces by Ellington*, either the SACD/CD (CAPJ-4418-SA) or, especially, the LP pressed by QRP (APJ-4418). Duke's piano isn't the sonic highlight of this demo-disc jaw-dropper recorded by Columbia in *1950*, but I'd never heard it sound so much like a piano, all its elements (percussiveness, tone, overtones, resonances, etc.) emanating from one place at one time.

Speaking of Analogue Productions, on their 45rpm LP reissue of Ella Fitzgerald and Louis Armstrong's wonderful *Ella & Louis* (AP-4003), I'd previously found the rhythm section undermiked; I'd had to strain to hear what the musicians were doing. The 740P whisked away the burlap: the rhythm section still seemed way back there, no question, but I heard every chord Oscar Peterson played (and his piano was all there), along with Buddy Rich's every snare swipe and cymbal tap (and he hit them in rhythm: it turned out they're an integral piece of the music).

Or listen to Don Pullen play "Resting on the Road," from his final album, *Sacred Common Ground* (CD, Blue Note 7 32800 2). I've hauled out this track for many reviews, sometimes to take note of the flesh-inflected hand drum on the right, always to remark on how well the component in question gets Pullen's keyboard virtuosity: his heartbreak hesitations, elbow rumblings, and fiery cross-octave scrambles. But, again, I'd never heard them so heartbreaking, physical, or fiery. At one point, as Pullen chopped through arpeggios the way a skilled chef chops onions, I thought that maybe the 740P wasn't getting it quite right; I remembered this passage sounding louder or fiercer through other systems, including ones of which the 700i had been a part. But swapping out components and listening again, I realized that, with those other systems, I hadn't clearly heard the notes and chords Pullen was playing; the passage may have seemed louder or fiercer because it was muddier. But in no way, with this or any other album, did the 740P ever sound too analytical; its clarity didn't come at the sacrifice of musical warmth.

As I wrote at the beginning, transparency isn't the most important trait in audio. But as I also wrote, transparency can enrich all that's good about a component or a system (and, probably, exaggerate all that's bad about it). In all other ways, the Moon Evolution 740P was terrific. Horns, woodwinds, drums, voices, guitars: all sounded as they should, in terms of tone, color, size, and dimension—or at least as much as a given recording allowed.

As for the 740P's bass, how deep it will go will depend a lot on your speakers. As far down as my Revel Ultima Studio2s go—fairly far, if not to subterranean depths—the 740P conveyed the full character of bass instruments. I never heard mere rumble, as I had from the James Carter album with some earlier systems; the 740P let me know (as others had not) that Cyro Baptista's bass drum, heard loud and solo at the start of "Nuages," is banged—or, more often, caressed—*throughout* the song. On *Jasmine*, a lovely duet album by Keith Jarrett and Charlie Haden (CD, ECM 2165), Haden's double bass sounded more present. Though not to the same degree, the sound of the double bass is as complex as the piano's: the snap of the fingers, the pluck of the strings, the vibration of the wood. With the 740P I heard all of this in perfect alignment; it felt almost as if Haden had come back to life, or as if I'd traveled back in time to hear him.

But surely *something* must be wrong with the 740P—or, at least, not completely right?

ASSOCIATED EQUIPMENT

Analog Sources VPI Classic turntable & JMW tonearm, Ortofon Cadenza Blue cartridge.
Digital Sources Krell Cipher SACD/CD player.
Preamplification Nagra BPS battery-powered phono preamplifier, Pass Labs XP-30 line preamplifier.
Power Amplifier Simaudio Moon Evolution 860A.
Integrated Amplifier Simaudio Moon Evolution 700i.
Loudspeakers Revel Ultima Studio2.
Cables Interconnect, Speaker: Nirvana Audio; AC, manufacturer's own.
Accessories Bybee Technologies Signature power conditioner (not for power amp, sometimes for other components), Audiodesksysteme Vinyl Cleaner, AC power from dedicated 20A circuits.—**Fred Kaplan**

Two things

First, in the April 2011 issue, I compared two high-priced, high-powered integrated amps: Simaudio's Moon Evolution 700i and Krell's FBI.[2] The Krell was more adept at handling bass dynamics and the forward edge of transients: the whack of a drum, the pluck of a string, the *sss* of a sibilant. The Simaudio was more agile with the tonal colors of an ensemble or an instrument, the flow of a rhythm, the seamlessness of the audioband from bass through midrange through airiest highs. The Simaudio 740P had this same set of strengths, as well as . . . I won't say *weaknesses* (that would exaggerate it to the point of falseness), but *lesser strengths*. The 740P was remarkably neutral, with a slight tilt toward warmth—which, if there has to be any sort of tilt (and there almost always does), is the tilt I prefer. But these are only general remarks; I no longer have the Krell FBI, so I couldn't make direct comparisons. But I hasten to say that the 740P outperformed the 700i on *all* these fronts.

My second caveat concerns a question of absolutes. After listening to the 740P for a while, I reread JA's review of the Pass Labs XP-30, which he described as something close to the proverbial ideal of a "straight wire with gain." I'd begun to think the same might be true of the 740P, but before I indulged in superlatives, I needed an established world-beater, or something close to it, as a reference. So I borrowed JA's review sample of the XP-30, let it warm up for several days (he'd long ago unplugged it), and listened carefully. It sounded different—maybe leaner—or was I just getting used to it? After

2 See www.stereophile.com/content/simaudio-moon-evolution-700i-integrated-amplifier.

a couple weeks of listening, I concluded that the XP-30 was a bit better, and certainly more transparent, than the 740P. With the XP-30, the stage went farther back, there was a bit more air between instruments, and the elements of the sounds of complex instruments (*eg*, pianos, double basses) seemed a bit more cohesive (there seemed to be more elements, just as a higher-bit HDTV has a more comprehensive color palette). All of my observations here about the 740P's see-through, hear-everything wonders? Add another 20% percent or so of clarity and luster for the Pass XP-30.

Conclusions

I didn't listen to it long enough or closely enough to the Pass Labs XP-30 to make a definitive judgment on its sound quality. I'd borrowed it just to see if the Simaudio was the last word in transparency. Apparently not, it turned out. However, the 740P costs a lot less—$9500 *vs* the XP-30's $16,500 and the Moon Evolution 740P definitely ranked high in the league of last words. It's a league I'd never dwelled in for very long, and I'll be sad to leave it when I send back the Simaudio Moon Evolution 740P—or should I check my bank balances, gulp hard, and make that: "... *if* I send it back"? ■

The Moon Evolution 740P definitely ranked high in the league of last words.