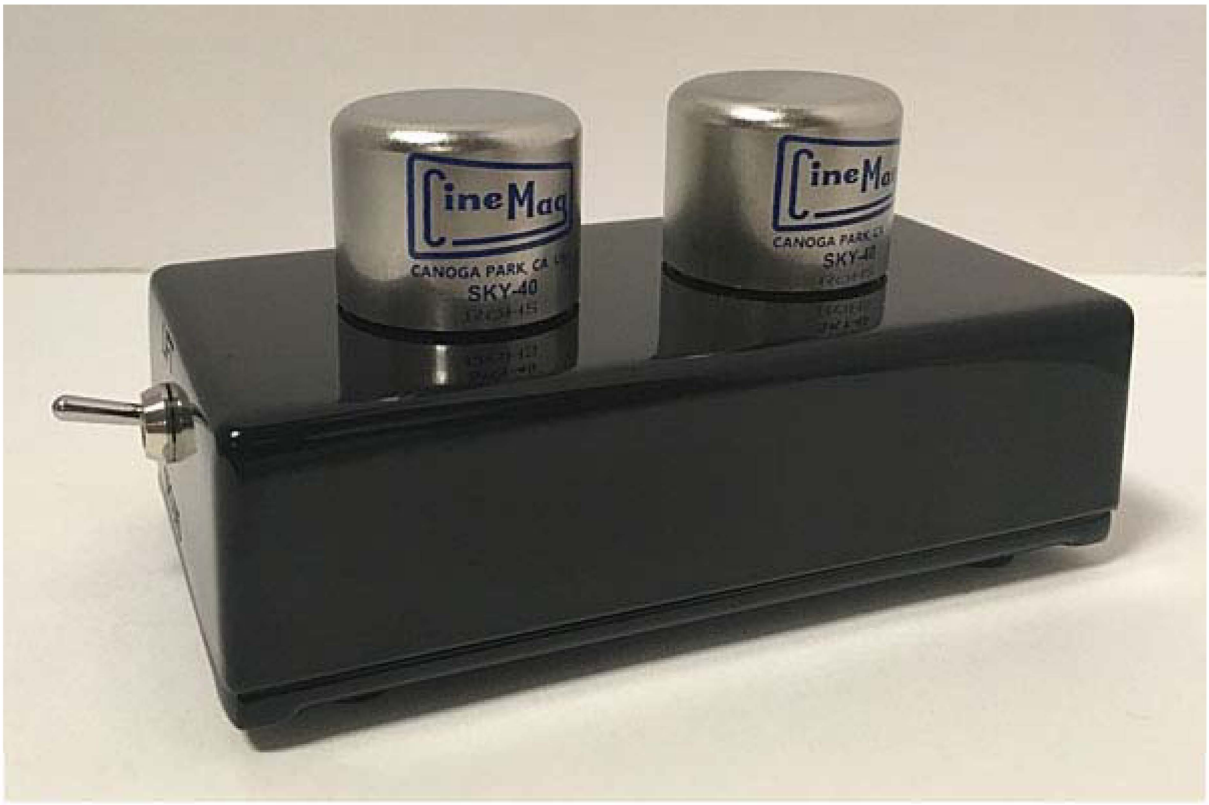
ART DUDLEY LISTENING

Listening #171: Bob's Devices Sky 40 transformer

By Art Dudley • Posted: Feb 21, 2017



In contrast with such line-level source components as DACs and CD players, record players generate a lower-voltage signal that requires extra gain (footnote 1) from either a standalone phono preamplifier or the phono stage of another, more comprehensive component in one's system—typically, a full-function preamplifier or an integrated amp.

But when the phono cartridge of choice is a moving-coil (MC) type, which generates even less voltage than its moving-magnet (MM) and moving-iron (MI) friends, even *more* gain is required. This presents the user with an additional choice: he or she can select from among the many standalone phono preamps that offer sufficient

gain, or augment an existing phono or full-function preamp or integrated amplifier with a phono step-up transformer, which boosts gain passively, without using tubes or transistors (footnote 2)

A transformer can do this because it's naturally good at inverting ratios between certain electrical characteristics—in this case, current and voltage. An MC cartridge is a prodigious source of signal current but a poor generator of signal voltage; when you apply its signal to the primary coil of a transformer configured as a phono step-up, the transformer's secondary coil will output a signal that is comparatively low in current and high in voltage. Just like that.

Why would you buy a step-up transformer instead of just sticking with a high-gain phono preamp? Because, with exceptions, transformers offer better sound—providing more drama, more color, and, especially, greater touch and impact. (Your mileage may vary. Use only as directed. Offer not good after curfew in Sectors R or N.) It has long seemed to me that by loading the coils of a phono cartridge with the primary coil of a transformer, particularly in a system in which the voice-coils of the speakers are driven by the output transformers of a tube amp, a certain magic is achieved—a condition wherein music breathes in and out in a manner not unlike real music. As I wrote in the June 2010 edition of this column, "There may be no better way to load a coil or drive a coil than with a coil."

The primaries were fixed

Which brings us to the new Sky 40 stereo phono transformer ($1250) from Bob's Devices (footnote 3), which joins the identically priced Sky 30. At present, the Sky 40 is available only with a 1:40 turns ratio—*ie*, the ratio between the number of turns of wire in its primary coil and the number of turns in its secondary, which determines the phono transformer's gain. (A higher ratio equals higher gain.) By multiplying the base-10 logarithm of its turns ratio by 20—a formula that works for any step-up transformer—we can predict that the Sky 40 will exhibit 32dB of gain.

According to Bob Sattin, of Bob's Devices, the transformers used in the Sky 40 are a completely new design: CineMag, the Canoga Park, California company that designs and winds those transformers, has reduced the number of turns by 20% compared with their previous phono-transformer design, the CineMag CM-1131. That benefits high-frequency performance—but in order to do so without also diminishing low-frequency performance, CineMag had to come up with a higher-performance core material. According to Sattin, the choices for CineMag were to switch to an amorphous core, or "to improve the [core] laminations to a level that had never been done before." Because amorphous cores are said by Sattin to have "inconsistent" magnetic properties, CineMag's David Geren set about designing and making his own laminations—the metals used are a trade secret—with results that are reportedly superior to those achieved by CineMag's previous core supplier.

Other technical details are in keeping with previous offerings from Bob's Devices. The Sky 40 is supplied in a cast-aluminum case with a gloss-black powder-coat finish, fitted with gold-plated RCA input and output jacks, a gold-plated ground terminal, and a C&K toggle switch that lets the user lift the signal ground from the chassis ground when called for. (The need for this will vary from system to system, dictated by the presence of hum.) Of even greater importance, the Sky 40's internal connections are made by means of *resistance soldering*, a process in which a combination of high current and an electrically resistive stainless-steel soldering contact are used to quickly heat only the solder join—thus avoiding the melting of fragile wires by means of heat conduction. (Interestingly, resistance-soldering stations require a voltage step-down transformer: more symmetry!) As a hobbyist who once ruined a pair of Quad ESL transformers while unsoldering the resistors within their integral crossovers, I am particularly sensitive to this matter.

Don't be denied

The first time I listened to the Bob's Devices Sky 40 in my system, even before it was broken in, two words occurred to me at more or less the same instant: *huge* and *detailed*. As I would learn in the weeks to come, those two qualities consistently worked together to make this one of the two or three very finest transformers I have ever heard.

I'd been listening to the Beatles' *Revolver* (Parlophone PCS 7009) using my Shindo-rebuilt Ortofon SPU pickup and an Auditorium 23 Hommage T1 step-up transformer—a combination that sounded magnificent: big, colorful, impactful, and nuanced, with lots of musical drive. Given the SPU's low output and low internal resistance (respectively, 0.2mV and 2 ohms), I guessed that the high-gain, high-impedance-ratio Sky 40 would suit it—and I guessed right. I went back to side 1 of *Revolver* and listened to "Eleanor Rigby," a recording in which the lead vocal appears in only the right channel during the verses (footnote 4), with its (auto-)double-tracked facsimile added to the left channel for the first two choruses—a bit of trickery, presumably done in the mix, that also makes the recording space as a whole seem to increase in size during those choruses. The Sky 40 not only clarified the difference, it allowed the recording to sound even larger than through the Hommage.

Footnote 1: It also requires phono-specific equalization, a topic for another day. See my column in the January 2009 issue.

Footnote 2: Head amps, defined by most phonophiles as *active* MC-appropriate gain stages without RIAA de-emphasis, are awfully rare these days, so I'm not going to mess with a perfectly good sentence structure just to fit them in.

Arguably more important, the Sky 40 delivered as much impact, drama, and overall involvement as the more expensive Hommage, so much so that I felt compelled to listen to the album all over again, beginning to end. By the end of "Love You To," I caught myself playing air tabla on my desktop (it seems the Sky 40 also allowed the music its fullest sense of drive), and I enjoyed, among other delights, the enhanced realism of the sound of Ringo's drum entrance—a ride-tom beat followed by a floor-tom beat—in "Here, There and Everywhere." (And, yes, as my dog could probably tell you, it was one of those listening moments when I also caught myself uttering, to the otherwise empty room, such erudite outbursts as "Holy shit" and "Wow.")

From there I proceeded to the Hungarian String Quartet's 1966 recording of Beethoven's Quartet 14 in c-sharp, Op.131 (Seraphim SID-6007). The Sky 40 did a first-rate job of reproducing the unornamented, fugue-like first movement (*Adagio*) with both clarity and texture, and with a fine and ultimately thrilling sense of momentum. The brisker, sunnier fifth movement (*Presto*) was no less well served, pizzicato notes popping out as they should, while the sixth (*Adagio*) and seventh (*Allegro*) movements came across with texture, color, drama, and drive—all as well as I've heard from this record. (That said, I really wouldn't mind hearing an EMI original some day!)

And like all my favorite audio products, the Sky 40 allowed music to sound vivid. The massed violins in Stanislaw Skrowaczewski and the Minneapolis Symphony's recording of Schubert's Symphony 8 (Mercury Living Presence SR90218) comprised a honeyed, colorful, physically huge force that I couldn't have ignored if I'd wanted to. The massed voices and vibraphone in the first part of Britten's *Spring Symphony*, in the recording made by the composer, vocal soloists, and the orchestra and chorus of the Royal Opera House, Covent Garden (Decca SXL 2264), came through with vibrant colors, and the Sky 40 seemed to highlight the dynamic interplay between soloists and chorus in the third part. Even the sound of that second-most-common of all instruments, the piano, became almost exotic in its vivid, colorful presence in the Melos Ensemble's recording of Schoenberg's Suite, Op.29 (L'Oiseau-Lyre SOL 282).

The Sky 40 was also an impact champ. Dave Mattacks's drums in "Tam Lin," from Fairport Convention's *Liege & Lief* (Island ILPS 9115), though compressed in the original recording and more than a little dull, had never sounded so forceful as they did through the new trannie. And in that album's hauntingly beautiful final number, "Crazy Man Michael," the sound of Richard Thompson's electric guitar, played through a Leslie rotating speaker—which itself compresses the signal before it even arrives at the mixing desk—had some of its touch restored on its trip through the Sky 40. The sound of Neil Young's shambolic live album *Time Fades Away* (Reprise MS 2151) also gained in apparent realism. Apart from Johnny Barbata's kick drum, whose sound is small and oddly disconnected from the sound of the rest of his kit, the instrumental sounds on this record have a fine, raw sense of force, and the Sky 40 enhanced those qualities.

At first, I tended to think of the Sky 40 as a forward-sounding device, but it turned out to be both more and less than that: In even the subtlest recordings, it found those elements that should be pushed to the front of the stage, so to speak, and did so. In that sense, the Sky 40 had spatial nuance in a manner that escapes lesser transformers—spatial nuance allied with dynamic nuance. I thought of this as I listened to the opening bars of Charles Munch and the Boston Symphony Orchestra's recording of Debussy's *La Mer* (RCA Living Stereo LSC-2111) and heard, clearly, the differently timed chords played by the two harps—and how, as the piece progressed, the two harp parts diverged and then recombined. If a transformer can let me be grabbed by Debussy, it can do anything.

Mono a mano

Before returning my sample of the Bob's Devices Sky 40, I wanted to try it with something other than my Shindo SPU, brilliant thought that match-up was. The nearest cartridge to hand was my EMT ODF 15 true mono pickup head (footnote 5), which outputs 5.75mV and has an internal resistance of 37 ohms—on paper, a terrible pairing! But, as many before me have experienced, there's something about the Hommage T1 transformer, which has the same apparent gain as the Sky 40 and which I presume to have a primary coil of similarly low impedance, that allows it to sound downright brilliant with every high-output mono EMT I've thrown at it.

So I tried it, all the while making sure to reduce the gain of my power amplifiers, in order to let the preamplifier's volume knob function within a reasonable portion of its range (which I also do when using the Hommage T1 with the EMT OFD 15 and the identically specced OFD 25). And here, the sounds of the Hommage and the Sky finally diverged, albeit not by a great deal.

As anyone with an ounce of engineering smarts will tell us, using a 37 ohm pickup to drive a transformer with a *ca* 5 ohm (presumed) primary coil should not work—and yet it did. Listening to my current favorite recording of Schubert's Piano Quintet in A, D.667, "Trout," by pianist Jörg Demus and the Schubert Quartet (Deutsche Grammophon LPEM 19 206), I was stunned by the way the Sky 40 endowed all of the stringed instruments, especially the cello, with a palpable sense of body. Musical momentum, too, was thrillingly good, as was also true when I listened to the Cappella Russian Male Chorus, conducted by Nicholas Afonsky, perform a Russian Orthodox Requiem—a sometimes frightening recording that exhales mystery with every note (Westminster XWN 18263). And when I turned to my old standby "Chelsea Bridge," from *Gerry Mulligan Meets Ben Webster* (Verve MGV-8343), I was pleased to hear the same presence and touch I hear through the Hommage—but not nearly all the bottom-end whomp I hear through the Hommage when, after the first chorus, bassist Leroy Vinnegar switches from bowing to plucking his instrument.

That's no criticism of the Sky 40—which shouldn't work *at all* in this setting. (Short of sawing an Hommage in two to crack the secrets at its core, I doubt that anyone other than designer Keith Aschenbrenner will ever know why it works as crazy-well as it does.) The point seeming to be: If you own various different cartridges and/or pickup heads and you want to limit yourself to owning just a single step-up transformer, you might want to choose one that suits the lowest-output, lowest-impedance cartridge in your collection, because that transformer is likelier to also give satisfactory results with your higher-output cartridges than the other way around. (Although it's been a while since I tried using a low-output cartridge with a low-gain transformer, my experience suggests that the results are often musically dead and sonically dull.) Your higher-output cartridges may sound a bit too

boisterous with that high-gain trannie, but it's easier to make up for that than to restore momentum and drama and impact that have gone missing.

The grander point, of course, is this: If you own an Ortofon SPU or similar low-output MC cartridge and you're looking for a giant-slayer of a step-up transformer, this may be the product you've been waiting for. The Bob's Devices Sky 40 won't make serious phonophiles forget all about the Hommage T1—or the Audio Note AN-S8, or the Western Electric 618B, or any of the other transformers that might lay claim to the title The Best—but it will give hobbyists of less-than-extravagant means a chance to wring even more enjoyment from their favorite records.

Footnote 5: Like EMT's OFD 25 and OFD 65, the OFD 15 contains only a single coil: although it has four output pins, signal appears on only the two right-channel pins, requiring a right-to-left jumper at the preamp stage.