

OPTICAL DISK RECORDERS

Optical disk recorders can have short lives regardless of brand or type (CD or DVD). A warning sign is the player's choking on a blank disk, and it's close to the end when recordings abruptly stop, accompanied by the dreaded bad-disk message on the front panel. Purchase these units with extended warranties; out-of-warranty repairs are expensive because they basically replace the guts of the unit.

Much has been made about the quality of third-party warranties (manufacturers do not sell extended warranties), and you may achieve better satisfaction if you purchase the unit in a store. Often, you can order units online with the extended warranty from a brick-and-mortar store. This gives you the flexibility to return the unit to the store for repairs (assuming the recession has not downsized store locations or the store disappears completely). Amazon offered extended warranties, but stopped the practice after a few months. Most other online-only sites, including those that sell the semi-professional products, do not offer extended warranties.

Because units can often recover from their own mistakes, bad recordings may not be readily apparent unless you try the disk in a second machine. It is best to get into the habit of finalizing the disk and then playing it on another machine. *Check all tracks.* The higher-numbered tracks have the highest fault frequency. If you do not diligently follow this routine, black vinyl thought to be successfully archived on another medium may be thrown out when, in reality, it has not been copied.

Some recorders are more prone to disk errors than others, but I have found no player that is completely reliable. Semi-professional equipment is not immune to these problems. Make sure you have a money-back guarantee on your units, and avoid stores that do not offer this option. We all know to scan for return-policy differences across stores, but exchange policies can also vary. For some policies, the window of opportunity may be no

longer than seven days, which may be insufficient for identifying premature optical drive failure.

Some machine brands are unreliable and, in the case of a DVD-R, often make recordings that will not play on other machines or will play only part of the DVD-R. The title list format is often the bottleneck.

Sometimes, it is best to avoid exchanges of a unit that appears problematic out of the box, and simply buy a unit from another manufacturer. Price does not correlate with reliability or the ability to play a recording on another machine. Internet reviews and blogs may give you clues about reliability, but there are few that have touched on the issue of transportability of disks.

The quality control of the CD-R recordable media is very important. If the media is defective, a bad disk error can occur in the middle of a recording. Once the error occurs, the machine stops. This means you are out of luck unless a backup machine is running as well. Semi-professional recorders accept standard CD-R disks, but I have found CD-Rs can have non-trivial 5%+ defect rates. Maxell CD-R music disks almost never generate a bad disk error (less than 1%) in my experience.

You should check any optical media before you use it. Look for small holes or other defects on the surface. Check to make sure the disk is clean with no fingerprints or scratches, which happen most often with a disk that you did not fill up when you did the first recording, placed the CD-R aside, and then used it sometime later to make an additional recording. It is important to remember that disk cleanliness is much more important during the record process than when a finalized disk is being played back. For DVD-R disks, I have not been able to determine a brand that differentiates itself with regard to minimizing bad disk errors from occurring.

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HELP

I want to build very tall line source ribbon loudspeakers. Despite reading *Ribbon Loudspeakers* by Justus V. Verhagen and other *Speaker Builder* articles on ribbon loudspeakers, I am at a loss as to how to properly orient the magnets (in the case of bar magnets). I really need descriptive drawings that are specific to orientation.

Just how are bar magnets oriented in relation to the gap the single strip of aluminum foil sits in? How are they stacked on top of one another in relation to the magnet below and above? How about in relation to the opposing stack of magnets?

I would love to hear back from experienced ribbon loudspeaker builders. Note: I am *not* referring to the pseudo-ribbon, planar types, but the straightforward single strip of aluminum foil

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running between two stacks of bar magnets.

Angel Rivera
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JUNE ISSUE IS A HOME RUN!

I never write to say how much I enjoy an issue of anything, but the June issue was outstanding. I received it yesterday at my post office box. I came home, and after dinner I read it cover to cover. The only thing I didn't read was the dipole microphone article. Not because it wasn't good, but I'm just not interested in that subject.

Twice a year, I send out a music compilation to my friends. Every now and then, I get a bunch of e-mails back saying, "Thanks. This was the best one yet." I'm sure they enjoyed that particular disc and are just being nice, but there's a little voice in my head that says, does that mean all the rest of them were sh*t and they were just not saying anything?

So, I don't want to insult you by this. All of the issues are good, and I usually

find the majority of the articles to be interesting. That's a great achievement when you're trying to appeal to three diverse groups at the same time. But somehow, this issue just really hit it. All of the articles were interesting to me: solid state, glass, and speaker building.

Also, the reason I've never sent you a music compilation is that I don't send them to audiophiles because they generally tend to not enjoy hard rock, which these compilations are mostly composed of, despite the fact that I'm way in my 50s! My tastes run from rock and roll to classical. The only audiophile who I send one to is Noel Keywood from Hi-World in the UK. As a 20-something person, he actually followed the Sex Pistols around in a van with his friends. Hard to believe, until you see what music he uses today to test and review equipment.

To conclude this long-winded epistle, thanks for a *great* June issue. Keep up the good work and don't get insulted!

Clayton Mitchum
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Rebuilding a Cheap Chinese EL84 Amp

By Merlin Blencowe

A cheap and cheerful valve amp gets a lobotomy.

Any hi-fi enthusiasts who, like me, spend too much time on a certain popular Internet auction site can hardly have failed to notice the enormous influx of very cheap Chinese valve amplifiers in the last couple of years. Many of them boast suspiciously remarkable performance at mouth-watering prices. Against my better judgment this was enough to pique my curiosity, so I decided to buy the cheapest one I could find and see whether it would live up to my (understandably low) expectations. I found a tiny little "Mengyue Mini" push-pull EL84 stereo for £100 including ship-

Esoteric 3D-X

CD-SACD-DVD Optical Disc Enhancer

from Jena Technologies LLC

Specially formulated for polycarbonate, the new Esoteric 3D-X is designed to dramatically enhance surface transmittance and refractive characteristics of CDs and DVDs. It also protects discs from common contaminants such as oils from your hands and accidental contact with water.

When a disc is treated with Esoteric 3D-X, an optical coating is created that acts similarly to the lens coating of a fine camera. The optical signal-to-noise ratio is improved, and there is less jitter in the original datastream off the disc causing less frequent activation of your player's error-cancellation circuitry.

Although not designed to restore damaged discs, it will clean mild filth and most previously applied coatings from CDs, DVDs, and most SACDs.

Available in a 2 oz. Mini Kit for the home user, the Esoteric 3D-X is also available in a 4 oz. standard kit featuring a handy metal carry case. Both kits include disc enhancer cream, non-latex applicator sponges, lint-free optical quality polishing pads, and a plastic box to hold applicator sponge when not in use.



KE-3DX	2 oz. Mini Kit	Sh. wt: 1 lb.	\$40.00
KE-3DXS	4 oz. Standard Kit	Sh. wt: 2 lbs.	\$80.00

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ping (around \$200 US).

About eight weeks later it arrived, astoundingly undamaged, and the box read "Aria Mini"—they seem to re-brand these little amps every few weeks. The power valves supplied were actually 6P14s, which are Russian EL84 equivalents. The outward finish was very good—much nicer than I was expecting, and I decided to go right ahead and plug it in; the tasteless blue LED uplights came on and it actually played music as promised! To its credit it actually sounded quite pleasant—worth the money at least—and managed to drive a pair of Leema Xero bookshelf speakers to a satisfactory volume. I also made power, distortion, and noise tests.

Furthermore, after about five hours of continuous playing the transformer cover became very hot, and removing it revealed the power transformer sweating beneath—clearly being over-run. On further investigation I found the EL84s were biased to a scorching 15W each (3W above their rated maximum), the chassis had no safety earth and one of the screen-grid resistors also caught fire after being shorted by some glue near the PCB. Clearly it needed some internal reworking, by which I mean a complete overhaul!

REDESIGNING THE CIRCUIT

I decided to keep the same valve complement of EL84s and 6N3Ps (similar to a 2C51 or 5670), and to reuse some of the PSU smoothing capacitors (I could find no replacements that were so small) but to redesign the circuit. Tracing the PCB indicated that the original circuit consisted of an input triode feeding one power valve and also a potential divider. The divider then fed a second, identical triode, which inverted the signal and fed this to the other power valve. Global negative feedback was applied to the cathode of the input triode from the speaker terminal, though the gain of the amp rose slightly with frequency, implying poor HF stability.

to continue reading



What's New on the aX website?

Web-exclusive content

An Excel application for calculation of Vg1 from Rudy Godmaire's "Vg1 Correlations" (*aX* 3/09).

Jan Didden's show reports from *aX* 1/09: "The Munich High-End Show 2008," "The Rocky Mountain Audio Fest," and "Burning Amplifier 2008."

Tri-Way PC boards and parts list from Paul Stamler's "Tri-Way Low Voltage Supply, Pt. 1," *aX* 1/09.

The *audioXpress* 2008 index.

Articles from Past Issues:

"ezDAC," by Claudio Negro (*aX* 5/09).

"DIY Microphone Calibration," by Ron Tipton (*aX* 4/09).

SchmartBoards, reviewed by Ed Simon (*aX* 4/09).

The Restoration Preamp, reviewed by Don Walizer (*aX* 4/09).

"Modding the Music Hall CD25.2 CD Player," by Kit Ryan (*aX* 4/09).

i2i Transmitter/Receiver, reviewed by Chuck Hansen (*aX* 3/09).

"Noise Measurements of the LSK389B Dual JFET," by Dennis Colin (*aX* 2/09).

"A De-Emphasis Test CD," by Gary Galo (*aX* 2/09).

Benchmark DAC1 USB, reviewed by Gary Galo (*aX* 1/09).

Measurements for the Benchmark DAC1 USB, by Chuck Hansen (*aX* 1/09).

Tascam CD-RW900SL CD Recorder, reviewed by Gary Galo and Chuck Hansen (*aX* 12/08).

Dayton Audio WT3 Woofer Tester, reviewed by G.R. Koonce and R.O. Wright (*aX* 11/08).

For information on these and others, visit www.audioXpress.com. And don't forget to check out the links to our other magazines, *Voice Coil* and *Multi Media Manufacturer*!

CONTRIBUTORS

Kent Smith (Guest Editorial: Amplifier Differences and Lack of Tests, p. 5) resides in Wylie, Tex.

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George Danavaras ("A True RMS AC Voltmeter," p. 12) graduated from National Technical University of Athens, Greece in 1986 with a degree in Electronic Engineering. He currently works in the R & D division for a Greek Telecommunication company. His hobbies include design and manufacturing of audio crossovers, amplifiers, and loudspeakers.

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