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Sophia Electric TJ Meshplates 2.5 volt 300B Triode for a 2A3 Amp and the 274B Rectifier Tube

[\[Italian version\]](#)

Product: TJ Meshplates 2.5 volt 300B Triode for a 2A3 Amp and the 274B Rectifier Tube

Manufacturer: [Sophia Electric](#)

Approx.cost: \$ 299.99 and \$ 99 USD (respectively)

Reviewer: [Scott Faller](#) - TNT USA

Published: September, 2004



**Sophia 274B Rectifier and the
2.5 Volt 300B (2A3) Meshplate**

Trivial Bits

Late last year my wife and I decided to take our kids up to Chicago for a long weekend so they could experience [Blue Man Group](#) first hand. Chicago is only about a 5-hour drive from St Louis straight up highway 55. Chicago is a great town to visit. It's got all the cool stuff a really big city should have, yet it's nestled in the heart of the Midwest. That means (generally) everywhere you go the people you meet are friendly. That's not saying the rest of the country isn't friendly by any means. It's just that Midwest folk are wired a little different. We tend to take things a bit slower than the rest of the country. In turn the people tend to be a little more outgoing. People

typically extend a welcome hand to you no matter where you are from or for what ever reason your paths may cross.

My kids really aren't kids anymore. My oldest is about to turn 22, my son is 20 and my youngest is *gasp*.....15. Gee, I guess that means everybody around me is getting old. Anyway, we spent the weekend playing in the Windy City. We all caught a play on Friday night then Saturday after playing in some Frank Lloyd Wright creations we all went down to the Briar Street Theatre to see [Blue Man Group's](#) stage show. Afterwards we all walked up a few blocks and grabbed a deep dish, Chicago style, pizza pie at Giordano's, a Chicago institution. Really good stuff, highly recommended.

While we were there, Jon VerHalen of [Lowther America](#) invited my son and I over to give a listen to his system. Knowing Jon's place was on short list of things to do for the weekend, I decided to bring along my Handmade Deluxe Classic 2a3 so we could hear the differences between our amps. Jon runs a highly modified Bottlehead 2a3 amp and the Lowther PM2A's in the Medallion cabinets.

In the Bottlehead, Jon was using the TJ Meshplates as his output tubes. When we first got to Jon's house, we listened to the Bottlehead for a while. The sound was nice, full and detailed, everything you would expect from a 2a3. After listening to his system for a bit we decided to give my Deluxe 2a3 a shot. I went ahead and plugged in the Sovteks and flipped the switch. Neither of us paid much attention right away because we knew it needed a chance to warm up a bit. So we drank beer and wasted some time talking about audio. Oh BTW, Boddington Ale, good stuff, highly recommended. Anyway, after the amp warmed up, we gave it a listen.

We started by playing some vinyl that I wasn't really familiar with. It was an orchestral piece on the old RCA Living Voice label. While the piece was playing, I could see Jon fidgeting a bit and making faces. What I was hearing sounded a bit thin and steely. Shortly after that Jon offered up the sweet spot. We popped on Pat Metheny's Still Life Talking. This is one of those albums I know inside and out. Sure enough it sounded like crap too. The sound was thin and well.....thin. At just about the same time, Jon and I looked at each other and said the same thing, output tubes.

Well, I bellied up to the Handmade 2a3 and snatched the out the Sovteks and put Jon's TJ Meshplates in. We flipped on the switch and instantly the system was transformed. Needless to say, at that point I turned to Jon and said "I **need** a pair of those."

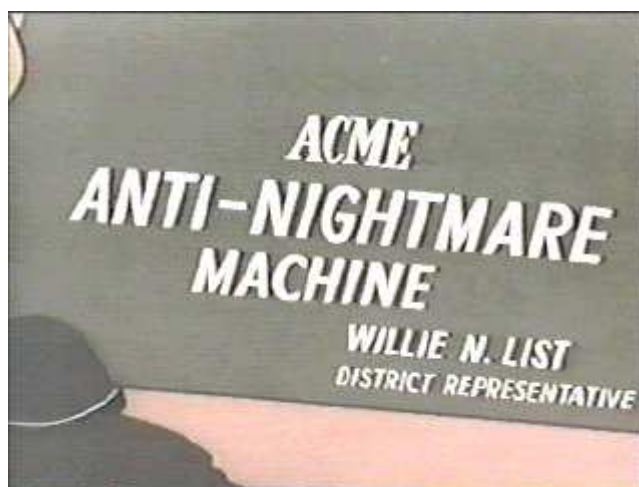
This Turned Into One Damned Expensive Trip

After we got back home from our long weekend I looked up **Sophia Electric** on the web. As I surfed around the site, I noticed that they offered an ultra cool rectifier tube that is supposed to be an exact replica of the Western Electric 274B. Not only in looks but in sound quality too. I've got to say this, I'm running the Mullard GZ34 and it's a *damned fine* sounding rectifier tube, way better than the run of the mill rectifiers out there. Loads of warmth and great dynamics to boot. But as I read the comments from Emotive Audio and people posting at several forums, it made me wonder if I might be missing something. Like everybody, I've been known to be sucked in by really good propaganda on occasion. Well, 30 minutes and \$400 later, I had a pair of the 2.5 volt 300b Meshplates and the 274B on the way to my house.

A few short days later a box showed up from Sophia Electric. The 2.5 volt 300b's and 274B come in this spiffy, royal blue cardboard box with gold lettering. It looks very elegant so they must be good *right*? As I went to install the ultra cool looking globes in my system I immediately found out that these things are about an inch taller than the ST style Sovtek 2a3's. I lowered my amp shelf in my rack and popped them in.

Holding my breath hoping my amp didn't go up in smoke, I turned on the switch to the system (you know what I mean, you've been there before). 3...2...1...gasp...contact.....all is well. The Meshplates began emitting a gentle orange glow. Very cool.

I decided to play some vinyl for the maiden voyage of the Sophia's. As I dropped the needle on the lead in grooves of the album, I backed away and could hear immediately that these would sound like I remembered them back at Jon's place, except better. They're in my system now.



As it is with all electronic gear, the tubes needed a bit of break in time. Nothing near as long as a CD player or speakers, but a solid eight or ten hours definitely benefited the sound. Fast forwarding a number of months and after living with the Sophia's for a few hundred hours, I've

finally decided it's about time I get down to business and write about them.

Caressing the Globes

As I swap the Sovtek 2a3 back and forth with the 2.5 volt 300b, a few things become immediately noticeable. As I mentioned before, the Sovtek, while not a bad sounding tube by any stretch, has a really noticeable lack of mid fullness in the upper mid-bass registers, at least with my Lowthers. The area I'm talking about is where the human voice gets that 'chesty' sound, the area where the lower registers of a piano sound full and where a bari-sax sounds really fat. This is where the Sovtek falls just a bit short. Not too bad mind you, just not quite as 'real' and full sounding as it should be.



For today's test I decided to pop in a relatively obscure piece of music. It's the Mobile Fidelity release of Igor Brill and the All Star Soviet Jazz Band recorded Live at the Village Gate (MFCD 861). While not the most popular piece of music, it's very well recorded. This is pretty typical improvisational jazz. An upright bass, piano, a hollow bodied guitar and sax. Noticeably absent is a drummer. I guess he got hung up at Immigration.

Track 5, My One and Only Love, is an exceptionally nice duet that highlights Igor Brill on the piano and Alexander Oseichuk on an alto sax. Listening to the Meshplates, they have this warm, full bodied presentation to the music. The lower registers of the piano and the alto sax are rich and extremely inviting. The Sophia's show no hints of embellishing the music in any way. When I pop the Sovteks back in everything goes a little weird.

The performers leap forward in the soundstage to the point it becomes overbearing, at least on my Lowthers.

Next up is some Cassandra Wilson. For those of you unfamiliar with her vocal styling, Cassandra offers very unique interpretations to many traditional jazz classics. She offers a very dark and somber tone to the way she presents music. It's quite good actually.

Listening to her release Blue Light 'Til Dawn (Blue Note CDP 0777-7-81357-2-2), Cassandra puts her spin on everything from a couple of old Robert Johnson standards to an original composition or two. On an interesting interpretation of Van Morrison's Tupelo Honey, Cassandra's singing isn't quite as dark as the rest of the album. Her voice takes on nice round dimensions with the Meshplates. When I pop in the Sovteks things change pretty dramatically for the worse. Cassandra becomes undeniably nasal. The gentle whacks in the snare drum now are very thin and forward.

Inutile Measurements

One of the other things that we have to be concerned about is noise and hum. With any single ended triode amp and tube, self generated noise and hum can absolutely ruin what could be an otherwise great sound. Cranking up my pre amp all the way up and comparing both tubes with my geek-o-meter (Sencore SP-295c real time analyzer) reveals a few things.



As I measured these different tubes I found in the lower registers a few peaks. They were primarily at 59, 118, 236 and 298 hertz respectively. At the lowest measurement (59Hz) I found one of the Sophia's to be -9db and the other to be +5db when compared to the Sovteks. Needless to say, somewhat inconsistent between the two tubes. At the other frequencies, I found the Meshplates to be about -4db quieter and much more consistent in comparison.

So much for the hum, now for the hiss and noise. The peaks I found were centered primarily between the 8-10kHz range on the Sovteks. When I brought the Sophia's back into the system and re-measured them, I found the Meshplates to be about +4db noisier than a Sovteks. In addition I picked up some additional noise between 10-13.2kHz. Not loads but it was measurable.

So, just what does all this mean? Honestly, not much. I had my mic sensitively set all the way up and was only reading on average between 35 and 40db of hum and noise. My mic was within a few millimeters of the PM2A's phase plug. In other words, you need to stick your head up close to the speaker in order to hear anything.

Moaning Without Waking the Neighbors

When all is said and done, about the only thing I wished regarding the matching of these tubes is that the hum between the two tubes were matched as closely as the rest of the tubes.

Considering the minimal number of these tubes that get sold coupled with their relatively high price, I don't think that's too much to ask. Does this low level difference in hum effect the overall sound that I hear? Probably not, especially since I listen at 95+db levels. I'll never hear it. Can I hear the hum at my listening seat? Yes, when nobody else in my house and the furnace is off. Then again, I can only hear it between tracks or when I'm changing choices in music. Other than that it's completely inaudible.

Big Bottle Rectifiers

For those of you guys out there that aren't aware (this goes without saying to you SET guys), your rectifier tube has just as big an effect on the sound of your system as your driver and output tubes. I'm fortunate, I've got some pretty good sounding rectifier tubes lying around that I can play with. My best sounding one is the Mullard GZ34. It's one of those short stubby jobs that lives up to all of the hype that surrounds a Mullard tube. The GZ34 is warm, detailed and dynamic without sounding overblown at all.

Enter the Sophia 274B, ST bottle, solid plate rectifier tube. This is one extremely cool looking tube. It's almost the same height and width as the 2.5 volt 300b. The construction is a square plate though after checking the Sophia web site they are now offering this in a Meshplate also.

Apparently, this is a fairly fragile tube (electrically speaking). Richard at Sophia asked me to send him a copy of my schematic before I installed this in my system. He wanted to check to see the value of the first cap of the B+ voltage after the rectifier tube. In the case of the Handmade amp, it's 22uF. Richard recommends that the first cap be no greater than 10uF. In my case I ended up changing out the 22uF cap for a 6.8uf Solens. The reasoning behind this (as I'm told) is so the 274B doesn't have to work as hard pushing the current beyond this first cap. In turn you will receive a rectifier tube with long life and good reliability. I won't even attempt to explain what happens to the voltage and current downstream of the first cap, I'm not qualified. Though after checking with a couple of people that I trust, they said the sonic result of lowering the value of that cap should be fairly benign.

Doing some really critical listening between the two different tubes, there are some fairly audible differences. Going from the Mullard to the 274B, the most immediate thing that happens is that the soundstage opens up significantly. It becomes wider, deeper and taller. The performers take a solid one to two steps backwards. Next is focus. Where the Mullard GZ34 gives a very nicely rounded presentation of a performer, the 274B has tightened the spotlight on that same

performer.

It's a bit hard to describe. I haven't lost any of the full rich sound of the Mullard but I've picked up (subjectively) a considerable amount of detail and focus with the 274B. Another byproduct is that the notes played have taken on another level of sharpness. Perfect example, Rite of Spring performed by the Cleveland Orchestra has several passages where the trumpets blow quick, sharp notes. These notes now take on more realistic dynamics and timbre. That or in a few quiet where the bassists are plucking the strings. You can now here that finite detail of their fingers leaving the strings. With the Mullard, those micro-details are somewhat glossed over.

Whether you and your system enjoy this amount of detail will be completely up to you. I personally like it. My system has retained enough of the warmth with the 274B to make it that much more enjoyable. The presentation of the music comes across as more real rather than the euphoria that some tubes bring to the table.



So.....

In the end the question ultimately becomes, am I happy with my rather expensive purchase? In a word...Absolutely. I've read the horror stories. just like the rest of you, on the forums where somebody receives a Meshplate and it's either really noisy or all goes haywire, the tube goes to ground out and takes out a big chunk of a channel. Well, after having these in my system for many hundreds of hours I can only say that the Sophia's have only gotten better. I don't even think about

reliability or noise issues because they are non-existent (at least) with this set of tubes.

Sophia 2.5 volt Meshplates are an extremely inviting tube. They are far easier to listen to than the Sovteks without sacrificing any dynamics or detail. In the end it all boils down to system balance and that corporate word I hate most, synergy. The Meshplates have a far lighter touch when it comes to reproducing music than the Sovteks. The music just seems to flow much better. It just seems more natural and effortless.

Couple the Meshplates with the 274a and you've got an extremely nice combination. Warmth and details abound in this combination. Now, you need to take all this with a grain of salt. Remember, I'm listening through a pair of Lowther PM2A's in the Medallion cabinets. These things (as most of you know) are brutally revealing. They give no quarter and themselves can sound a little thin if not implemented properly.

I did have the occasion to listen to these same tubes on a pair of K-Horns and LaScala's. There were several of us there judging the sound quality. Overwhelmingly the Meshplates were a hit. Everybody loved what they did to the old Klipsch's. We were somewhat split on the 274a compared to the Mullard. Some liked it and some didn't. So it goes in our little playground.

Ultimately, when the Sophia 2.5 volt 300b Meshplate's and the 274B rectifier tube finally give up the ghost, I'll definitely be buying another set. I don't think I could live without them in my system.

Reference Equipment Used

- Turntable – Systemdek 2x2, Rega RB 250, [Expressimo Mods](#), Rega Super Elys
- CD Player – [AH! Tjoeb](#) Upsampled
- PreAmp - Korato KVP-10, Dual Mono, Tubed Line Stage
- Phono Pre - Graham Slee Projects - Jazz Club
- Amplification - Bi-Amped
 - Full Range Amp (100Hz and up) – [Handmade Electronics](#) Deluxe Classic 2A3 SET
 - Sub-Woofer Amps – Antique Sound Labs Wave 8's - 8 WPC
- Active Crossover – Audio Research EC-3, Tubed, 2 or 3 way (discrete)

- Speakers
 - Full Range - Lowther PM2A's, 15 ohm coil in the Medallion II Cabinets
 - Woofers - Lafayette Goodmans SK-111's, 15" Dual Concentric in bass reflex cabinets
- Interconnects and Cables,
 - DIY, silver plated copper with teflon insulation,



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