Harmonix Reimyo PAT-777

Price: 23,400 euros
by Roland Kraft, Photos: Rolf Winter

Okay, you saw the price. And you think that for that kind of money these tubes had better do e-mails, toast bread and give foot massages …

Well, as far as that goes, we're both of the same opinion. Let me just add that something of this caliber should also produce a heavenly sound – anything else would be far too little. If you are one of those who sizes things up using some sort of purely objective price-to-benefits ratio or simply calculates in terms of cost per watt, then you've come to the wrong place. Sorry. And yet, 23 grand for a nice seven watts from a 300B is, when you come to think of it, pretty darn cool. That's 7000 milliwatts for low riders and you owners of complete designer component systems.

Okay: We've reached the point where about the only thing that matters are artists' fees or possibly rewarding the reputation of some famous audio designer. You could also say we're in the high-end scene. But even that's not quite right, because for its price the Reimyo PAT-777, at 25 kilos, is actually too light. For 23 kilo-euros John Q. Highender normally gets about 80 kilos worth of material, a combination that even those of steadfast character happily succumb to. But of course even here a couple undeniable truths still rule, such as the one saying there is a linear relationship between the result and the amount of material used. Those who think it's cool to be cheap should not be surprised when they wind up with a rather un-cool result, especially since sorcery was declared dead shortly after the Middle Ages. Even the electro-savvy do-it-yourselfers with soldering iron in hand could only create a halfway decent system from a box of odds and ends, and certainly no audio miracle. And that fairy tale making the rounds among Internet tube circles, whereby tubes can create marvelous sound at clearance prices, is nonsense. And even what appear at first glance to be structurally uncomplicated circuits, such as that indelible simple-sounding title *single-ended tube amplifier*, rely on highly sophisticated ingredients.

First, let's take a long look back in time, or more precisely some 70 or so years ago. Because this is exactly from where the basic concept and several components of the Reimyo PAT-777 made their escape and survived till today. Those who've taken a closer look will have noticed a tube ensemble that by now could be considered as most unusual for a single-ender; even though it is precisely the same set of tubes – and therefore the basic circuitry structure – with which the audio legend of the "single-ended" tube amplifier made its start, i.e. the WE 300B and the WE 310A.

There are differences of opinion among researchers regarding the birth year of the 300B – at that time called the 300A. These range from 1929 to 1933. It's for certain, however, that the 300A was inside the extremely complex Western Electric 86A push-pull theater amplifier, which back then delivered limitless power – a whopping 15 watts. And, if you can overlook the gigantic high-powered horn speakers, formed the reproduction end of a chain of electronics with which WE supplied the motion-picture and theater industry. It was under the label Mirrophonic that WE developed and manufactured all the equipment used from recording to playback, even then, by the way, in competition with RCA. Theater operators in the early '30s who wanted something a bit smaller were served up with an amp called the Model 91 under a leasing agreement. In 1938 this single-ended amp apparently used a 300B as the output – it differed from the 300A only in the positioning of a side alignment pin on the socket. At that time there was no exact counterpart for the triode, specifically conceived as a more robust audio amplifier, and so it remained, as the Americans would say, "in service" for quite some time. As a

fervent reader about triodes, you certainly know that the last well of WE300Bs, which genuine freaks accept as "original", was pumped dry in 1988. It has become suspiciously quiet recently regarding those newly manufactured and highly promising WE tubes – to include a particular website that hasn't been updated for quite a while. The last word is that tube production has to relocate. We'll see …

Back to the WE 91, or more accurately, the WE91A: The input of this amplifier, built strictly with practicality in mind and no regard for beauty, is where you could find two voltage amps of type 310A, a big, really lovely and indirectly heated pentode that normally whiled its existence away inside telephone amplifiers. In his book, WE specialist Bernard Magers authenticates the 310's year of birth as 1937 and its MD (manufacturer discontinued) as 1982. But even as late as 1977 there were allegedly some 7,500 of these low-noise tubes of exceptionally fine internal manufacture were placed in their little boxes – undoubtedly a wonderful piece of contemporary electronic history, which we find as WE originals in the PAT-777 and from which other manufacturers make similar parts. These include, by the way, a Valvo variant adorned with the imperial German eagle, which is extremely popular among Asian display-cabinet stackers (as far as I know there is not yet a more recent German version available decorated with the vulture of corporate bankruptcy).

With the help of the rectifier – a WE 274 – in use at the time, the model 91 was a heavyweight putting eight watts onto its terminals. There is a lot of speculation surrounding how the old 91 ultimately became the audiophile icon of sound. What is known at least, is that in the late '50s and early '60s a few collectors and music listeners quietly and unassumingly hoarded and used ancient WE equipment – including speakers – which at that time were picked up at comparatively laughable prices. Significantly more money had to be paid when mostly Japanese reconnaissance units began systematically scouring America to relieve it of its WE "junk". Things finally got really expensive once the audiophiles and tube freaks in the States, sparked by rumors and equipment from Europe and Japan, renewed their pursuit of audio archeology by digging deeper than just down to McIntosh, Marantz, Leak and Fisher. Things then happened as they had to: A single-ended wave took off in the United States at the start of the '90s. And naturally the U.S. high-enders, having just warmed themselves up on two-meter-long silicon plantations, suddenly discovered, so to speak and as if they were the first, the subject of HiFi serviceability of the 300B. Only a very few of them were open minded enough to admit that the SE triode was considered old hat in Japan and long since socially acceptable in Europe.

It was and is the same way with high efficiency speakers. This author, who screwed together his first 300B amp some 17 or 18 years ago, has since 1995 been amused by that handful of U.S. manufacturers who secretively inquire if I had ever heard of something called triodes … But then sometimes it's hard to look beyond the borders of Massachusetts, right? (It's a wonder those guys on aircraft carriers can find where they're going.)

The rediscovery of these ancient triodes amid those private circles of tube buffs has naturally resulted in another breed taking up the scent of potential sales revenues: the professional audio designers. Exactly: The same guys who wanted to use some 48 KT88s to generate 600 watts and digitally control quiescent current, now innocently declaring that they have been building five-watt amps for decades in their quiet little dens, have indeed always subsisted on oilpaper capacitors and are therefore the ones who have unleashed, and now I quote, the “American audio revolution”. And anyway, the old WE circuitry was just so wrong and totally obsolete and of course so much in need of improvement. With that, the primeval configuration – 310 pentode input, 300B output – was declared dead as a doornail. As the icing on the cake, they hooked the freshly soldered-together seven-watt single-ender to Martin-Logans, Apogees and similar high-powered wonders. After two minutes they declared the 300B to be incredible, but “undynamic”, and then turned to the push-pull 1200-volt tubes for the usual four-point-five speakers.

Of course when it came to controlling the power triodes, these same people later fell back on “reliable”, so as not to have to say “boring”, components: The 65N7, ECC83, ECC82, ECC81 had (and still have) to serve this and any and all varieties of possible and impossible circuitry. Besides, it's pretty much certain that some young developer will soon need 1200 lines of software language … in order to simply switch on a 300B. (Personally I believe that any respectable triode would commit suicide should it ever be expected to have anything to do with a digital signals processor.)

Against the backdrop of today's equipment, the Reimyo, with its tube ensemble in WE-91 style, would have to be considered as absolutely unusual, if not anachronistic in more ways than one. Upon closer look, the working of this amplifier indicates a production “strategy” that is hardly any different from the time-consuming handcrafting of the earliest days of tube technology, and which might even be deemed to involve a much greater effort in certain parts. The fact is that whoever designed this amp – and has it built by some poor, infinitely patient human being, able to cope pressure and suffering – must never have heard a thing about standard cost accounting. Or, what to me seems more likely: This somebody is a perpetrator of high stature so convinced of the rightfulness of his cause that he will press on with it regardless of the cost.

Anyone who has heard anything about production engineering knows that a product should, to the greatest extent possible, be designed so that it can 1) actually and 2) economically be built. If you don't adhere to this rule, then it might well happen that you have to remove the engine of your car to give it an oil change. If you ask me, it looks you have to remove the engine from the Reimyo 300B … If you want to look inside it you have to unscrew the upper cover, not the chassis - after all the tubes have been removed, of course. What then comes to light is a freely wired construction amid the most beautiful arrangement of wrapping, which is so intertwined that the soldering artist crafting it must have broken a finger or two. (Wrapping, by the way, is when you firmly wrap the wire around the contact before soldering it; in case of emergency the whole thing should in any case have a perfect connection without soldering.) And yet a large number of other electrical contacts in this amplifier were not soldered at all, but crimped using little metal collars, with solder posts being even harder to find. Then we come to the cables: Seemingly thick copper strands with some sort of cloth insulation, on top of which is standard plastic insulation. Surrounding it all is a probable conductive shell or shielding that is partially grounded on one side, while in other instances has no grounding contact at all. And each individual strand of wire – regardless of how short it might be – has at its halfway mark some sort of copper-foil wrap of about one centimeter in width with a directional arrow on it …

Which brings us to a subject that many – including the author of this article – look at with extreme mistrust: What I mean is “tuning”, “voodoo” or if you prefer “HiFi esoteric”. All of which implies sound-altering measures and actions for which there are few - if any - explanations founded on the laws of physics. This of course is of no concern to the proponents of this genre, claiming in their typical fashion that science is simply not advanced enough to explain these sorts of things. One well-known advocate of this scene is Harmonix (“The science of organic sound”). Both Harmonix tuning products and Reimyo equipment are manufactured by the Japanese company Combak Corporation, making it no surprise that the “master wizard” Kazuo Kiuchi pitched in on the 300B. What came of it is an amp that in terms of its electromechanics is not only – to put it mildly – “unusual”, but has a number of curiosities to offer from a purely electronic aspect. In contrast, the Japanese tube scene might consider the basic structure it uses as being too ordinary. The fact is that any old tube freak can recite the 300B/310A single-end circuitry in his sleep. And, true enough – get ready for this – they can even do it out there in Massachusetts as well – since around 1970.

What's unusual for this Japanese tube is that the PAT-777 has no level regulator at its input. No less unusual is the presence of a two-ohm speaker tap, when you consider that such faulty low-impedance designs hardly rank among the usual chorus partners for a 300B. At 30 watts the related transformers are definitely out of proportion and account for a good part of the overall weight of 25 kilos, not to mention the load thrown on the scales by the two big filter coils in the anode-voltage supply under the chassis. Behind the rectifier, a 5R4WGB, the Reimyo employs one of those famous old oilpaper capacitors, before being joined by two separate highly dimensioned wave filters with expensive audiophile electrolytic capacitors (or *Elko* in German) for the two channels. One little IC chip, the only silicon breach of style within this amplifier if you so will, ensures a nice and smooth start up. On the input side it goes right to the control-grid connection lying up on the glass body of the 310A. It is by way of the coupling capacitor that the pentode supplies the grid of the DC-current-heated power triode, which is outfitted with a symmetrical potentiometer in its cathode. Here the 300B is apparently manipulating with one of its most highly capable working points that – depending on the impedance – delivers between seven and eight watts. Subjectively, I might add, this is far and away the most powerful 300B amp that this author has ever had the pleasure of listening to.

What really stands out are the many large capacitors used both in the power supply and in the amplifier circuitry and which, in all likelihood, are of the extremely mysterious foil type. The high-frequency filters made of small ferrite cores are also popular and can be found in a number places. In the midst of all this you can still bump into new “old” material, such as the 300B's gigantic porcelain cathode resistor. Some parts, among them those objects concealed under plastic shrinkdown sleeves within the power supply, shut themselves off from closer inspection. Whoever wants to find out more about them will have to “slaughter” the amp – a move we'll quite understandably forego. Oh, and by the way: The PAT-777 uses no global feedback. Otherwise you will find under the chassis made exclusively of aluminum plates everything that is considered in the scene as being good and costly – including exceptionally fine porcelain fittings for the glassware.

When turned on the amp reveals itself to be extremely quiet on the loudspeakers with a very good unweighted signal-to-noise ratio. For its part, the mains transformer, neatly encapsulated in metal, adds not the least amount of humming. The PAT-777 runs up very cleanly without producing any extraneous noise at the output. And subjectively, as I mentioned earlier, it gets down to business in a real muscular kind of way, making you sometimes think you're listening to one of those giant type 211 or 845 triodes. Also contributing to this is a crystal-clear, stunning bass as if contoured with a knife. Nevertheless, it is not immediately apparent as to exactly what the trick is that makes this 300B seem subjectively so much more powerful than other amps with

the same triodes. Especially since it avoids the kind of operation that eats gruelingly away at the life expectancy of these expensive tubes, preferring instead one that is in no way overly protective, but rather well within the range of its chosen operating point.

It won't take long to tell the rest of the PAT-777 story. There is no room for sentimentality when it comes to the 300B's price tag: Were the Reimyo to offer anything less than perfection, I would have tossed it in the air and blown it to pieces by now and still be laughing about all this “voodoo” stuff.

But things turned out differently. The aforesaid voodoo doesn't seem to be a bother, except for the standard equipment ain't-seen-nuthin-like-this-before whiz-bang kind of power cable that comes with it, and which would cost an outrageous amount if bought separately. Okay, we can deal with that. The fact is that the PAT-777 is one of the two or three best series-built 300Bs that have ever crossed under my dropped jaw and will rank among that miniscule circle of my absolute best single-ender dream machines. It didn't require three weeks to hear and recognize that, but rather just between five and ten minutes. This doesn't mean that I would credit the result exclusively to the tuning by that Japanese magician of sound. No, instead it is the basic structure that makes this amp so right, not least of course from the technical aspect of its distortion spectrum, which is the stunning result of the age-old, and yet consistent, 300B/310A combination.

Moreover, this Japanese creation delivers a more-than-just-remarkable, clean, articulate and – to use a fashionable buzzword – “liquid” sound that brings even the minutest details of its inner workings and structure to light. The whole sound just seems to so effortlessly flow from the speakers like delicately beaded drops that suspicion quickly arises that this single-ender is just as well-behaved as many sand amps are boring. Wrong again. The unfettered freshness stems more from a casual to totally cool way of dealing with the required dynamics, complemented by a talent for timing that just can't be improved upon. And if the menu calls for earthy or grungy sounds, the PAT alters its ego at the speed of light exposing the venerable 300B as an old rocker that must have felt totally out of place in those Clark-Gable-era theaters.

Joking aside: The Reimyo offers a little greater high-end HiFi in the sense of dimensioning, and therefore just more information, in that area where all too often the weaknesses of such tube designs are found, i.e. at the frequency extremes. And because it does this most satisfactorily from a qualitative aspect, the doubters among us might find it to be much more compatible than those tubed amps that intentionally– which also has its benefits – have a less wide-banded design.

You can also make a diagnosis about the price you have to pay for more transparency, greater high-frequency resolution and a deeper bass. To me the PAT-777 comes across a bit more impersonal and less involved than other amps, which admittedly don’t drive themselves to the limits in a purely HiFi-technical sort of way. And so in actuality it has just this one crazy little tic, which is really hardly worth mentioning, and because of the matchless character of the 300B has no impact whatsoever on the ability of this triode single-ender to set emotions free among its listeners. Here lies the crux of the matter: On the one hand, this expensive piece of equipment may well have the ability to really test limits of this rightfully famous triode. On the other hand it has successfully fought off those problems that other low-power single-end amps have to struggle with. These being: Too little HF bandwidth, a lack of transparency – caused quite often, I might add, by leakage current in unsuitable varieties of (oilpaper) coupling capacitors – an even-order distortion that may be beautiful to the ear, but is just too much, as well a sound that is frequently too friendly and excessively rounded. It would be utter nonsense to confer the PAT-777 the title of being today's only 300B amp suitable for HiFi – an honor awarded de facto in a U.S. review. Legends about poorly sounding five to eight-watt single-ended amps originate where testers, influenced by the weight of high-end “softspeakers”, hold steadfastly to the view that such highly specialized amplifiers can only harmonize with equally specialized speakers.

image x-tract

Hats off! A real dream at a nightmare of a price. And let me state for the record that if anything, the esoteric contained in this package does its part to ensure that the listening-experience tuner/crafter/designer succeeded with such a sapient and dignified piece of equilibrium. All the formalities – noise, humming, etc. – are also well in order. Important: Those who want to push it to its limits are well advised not to save on the preamp. You won’t have to worry about the 310As or rectifier tubes that are no longer being manufactured. There are still some available out there on the market, although not at discount prices.

Photo Captions

Page 79:

This, ladies and gentlemen, is one awesome piece of work, not to mention a remarkable bit of Harmonix magic, about which Muggles like me don't understand anything.

Page 80:

The “original” WE amplifier had two 310 amps for greater sensitivity.

Page 81:

Good, but no paragon of beauty: The Raytheon 5R4WG tube rectifier.

There are different varieties of the 310A, NOS items are still affordable.

Page 82:

The porcelain tube sockets are mounted with stud bolts.

Detail of the 310A: Anode plate and the heating contact

Page 83:

Under the electrolytic capacitor: The big porcelain cathode resistor of the WE 300B

To the left below the cables you can see the old oilpaper capacitor

Components of the System Tested	
Turntable:	Platine Verdier
Tonearms:	SME 3012, Ortofon 309
Cartridges:	Ortofon SPU Classic, SPU Meister, Koetsu Black, Denon DL 103
MC Transformers:	Auditorium 23, Ortofon
CD Player:	Sony PSone
Preamplifiers:	Shindo Laboratory Model Seven and Allegro (Version 2003)
Power Amplifiers:	Shindo Laboratory Palmer, Weiter EbIII
Speakers:	Auditorium 23 Rhondo, Triangle Titus XS
Cables:	Auditorium 23, HMS, Ortofon, Sun Wire Phono
Accessories:	"Die Bank" and D172 low-frequency damper from the Norbert Gütte Carpenter's Shop, Einstein The Mains power filter, Sun rack, Weisswein Casa Conforto 2002/Fattoria La Vialla

image infos	
Harmonix Reimyo PAT-777 Tube Power Amplifier	
Power Output (8 _):	2 x 7 Watts
Input:	Cinch
Input Impedance:	100 k_
Output Power Terminals:	2/4/8 _ pole terminals
Power Consumption:	150 Watts
Miscellaneous:	Harmonix power cable and acrylic cover included with amp
Dimensions (W/H/D):	43/19/35 cm
Weight:	25 kg
Warranty:	24 months
Price:	23,400 euros
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