LORELEI
TUBE REDEFINED

Andrzej Marków has been constructing tube amplifiers for 30 years. Not only is he famous for interesting constructions of his own idea, but also because during the Audio Show of 1997 he pointed out in public some deficiencies of the legendary AudioNote Ongaku. And that in the presence of Peter Qvortrup himself!

If daily newspapers wrote about high–end this event would have been on the front page of the Monday edition. This article however will not focus on that incident. Despite years of experience in constructing amplifiers, Andrzej Marków has never gone beyond the fames of his own workshop, located in a small apartment in one of blocks of flats in Warsaw Mokotów district. The reason is simple. This much likable man prefers to do everything with his own hands. Even loudspeaker transformers which he winds up 3 days each! And as the amplifiers are his passion – he doesn't leave them for a second. Such a hobbistic style of activity is performed in Poland not only by Andrzej Marków. Somebody might say that this kind of products does not deserve to be reviewed - at least not in respectable hi-fi magazines – as such constructions cannot be bought in stores. It is a naive way of thinking, although I admit that our editorial office follows the principle of limited trust. We follow a "three stores rule" – a product has to be available in at least that many stores to have a chance to appear in our review. Despite appearances, we do not breach this rule by publishing the analysis of Lorelei. Firstly, Andrzej Marków is not a person from nowhere. He is not an experimenter who considers production of tube amps in the context of doing business. Besides, there is a possibility of making an appointment for an individual listening session and it is always guaranteed that the amplifier is there. Because it is always there.

The aim of this article is to attract more attention to this unusual construction having an equally mysterious name. It is also to show that a splendid amplifier – different than all the others - can be built with inexpensive components.

Genesis

Lorelei is a rock in the river Rhine, near Bingen. It is famous for its links with many legends. It towers 120 meters above the water and it is located in the narrowest part of the Rhine. According to one of the legends, treasure of Nibelungs is hidden under Lorelei. Another legend, which inspired a Heine's poem, said that a young girl, Lorelei, cheated by her lover, thrown herself down into the waters of the Rheine. She was transformed into a mermaid and she beguiled fisherman, who sailed the river, by leading them onto the rocks. Apart from Heine, Clemens Brentano wrote about her in his poetry and Franz Liszt composed music to the lyrics.

Lorelei is also a name of one of planetoids, discovered in 1876, as well as a name of a beauty contest, broadcast by ARD1 and ZDF channels. Finally, Lorelei is the latest achievement of the Polish tube amplifier guru.

Construction

Like all constructions by Andrzej Marków, Lorelei is based on a classical, even a purist case, What's more interesting, it is made of a nonmagnetic material, covered with matt varnish. Naturally one can utter many bitter words about the beauty of such a design, but we need to bear in mind the final price of the product and capabilities of outsourced companies, which must fit to this radically defined calculation.

My experience says that only some always-dissatisfied and all-criticizing internauts from all sorts of forums will find it problematic. To those who dislike the design of this amplifier or the use of some military components from the arsenal of the former Warsaw Pact armies I recommend that they stop reading this article at this stage. As for the others, I recommend them making a nice cup of tea or coffee.

The interior of the case brings associations with the good old school of constructing precise electronic devices, aimed at producing things that would work unfailingly for dozens of years. Therefore we will not find any Japanese mini electrolytes with silk or graphite dielectrics, nor any resistors colorful as traditional Easter eggs, nor cheep polypropylenes with hypnotic labels, nor terminals made of precious metals. Instead, we have only the elements that are really important. All the systems are assembled on separate printed circuit boards linked by bunches of colorful wires. At the first glance, it may seem too complicated, however a closer analysis shows existence of a deeper logic and some well-thought-of solutions. For instance, the ground wires are connected in the shape of a star and go into one common point in a power supply. This means that it is designed in the most audiophile way we can imagine. Moreover, there are some complex stabilization systems for incandescence voltage used with Schottky diodes, delayed anode voltage connection, as well as a circuit preventing loudspeakers outputs from disconnecting or opening accidentally. Not to mention a classic DIN socket used as a servicing output with galvanometers connected in a way so that they can check and calibrate currents that go through power output tubes.
After going through a selector, the signal from input receptacles arrives directly to a two step preamplifier, which is - together with the phase inverter - largely responsible for the characteristic of the sound.

A low power voltage gain pentode works in the first step. It has an anode resistance which is made not by a classical resistor but by a power source of a half duotriode 6N8s (equivalent of a popular 6SN7), its second part works as cathode follower, ensuring a remarkable cooperation with volume regulator. In the basic version (offering swift, lucid and spatial sound) a 6Z4 pentode is used (equivalent of the Western 6AC7), but other types of tubes can be used as well. During elaboration of his project, the constructor detailed out several varieties of circuit boards for this module. He adapted them to different types of input tubes (producing different sound), as well as to rectifying tubes, whose impact on the sound is perceptible, but to a lower extend. The signal goes from the volume regulator to the power amplifier. At their input there is a next step with an active anode resistance on a 6N8S tube. However, it is not a fashionable SRPP, but a circuit, in which the signal is taken directly from the amplifying tube anode, thanks to which current efficiency of this step is higher. Then the signal goes to a tube (6P6S), which is phase shift stage. As I have mentioned above, it is a next crucial point, responsible for the quality of the sound. By applying different types of vacuum tubes it is possible to modify the temperament of the amplifier. Some tubes, such as 6F6M (originally designed for multiple telephony) can be inserted directly into the socket,

others will require some additional preparation, so it is better to consult it previously with the designer.

The most interesting “patent” is linked with power output tubes. Its aim is not to strive for a sheer originality, but to force them to transmit a very wide frequency band and big signal amplitudes. In stead of a sluggish capacitor steering and an automatic bias, the constructor used a solution which is wrongly underrated by the purists, namely a cathode follower. It assures a perfect tube driving conditions. Moreover, it is fed from two voltages with regard to ground and it has different load for constant and for variable voltage. Because of that, the amplifier is able to play at high levels and is not afraid of difficult loadings (the sound damping ratio amounts to 48, which is an impressive figure compared to most other tube amplifiers). Easily available and well sounding pentodes 6P14P are used as both the followers and the power tubes. If there are additional letters in the names of such tubes, they denote their special versions: long-lived, shock resistant, resistant to weapons of mass destruction (!) or even to atmospheric factors like salty sea fog.

A lot of attention was paid to the construction of transformers. They are reeled manually. Those used for loudspeakers have several sections (over 20) depending on the needs of particular loudspeakers. Each section is isolated with a thin printing paper (pelur) and then impregnated with hot paraffin. Because the coils are put very closely to one another, and in order to achieve the best audible effect, the constructor does not use any additional taps. That is why audiophiles becomes forced to choose a monogamist relationship with their loudspeaker systems, a thing that he will be reminded of in a merciless way at every attempt of “adultery”. Power transformer has an oversized core so that it produces lower magnetic stream (better characteristics and lower level of noise hum). In a peak it is able to transmit up to 800 VA of power and a label placed on it by the constructor is a expression of his original sense of humor.

The last detail that distinguishes this construction is the use of large filtrating capacities also for the anode power supply and second girds. The overall capacity in the main filter is relatively large as for a tube construction – in a standard version it is approximately 4500 μF. With a high anode voltage this power container is potent enough to lift an adult man up by 1 meter. Clearly, such a solution was not used here to serve this purpose, but in order to obtain the stiffest possible power supply without using high voltage stabilizers. (LI)

Sound

Opinion 1

Lorelei is unusual also in the domain of sound. While listening to it, it is difficult to find a device that plays in a similar manner. Despite the use of pentodes in a push-pull configuration, the sound of this amplifier is far from what can be offered by the competition using the similar type of tubes. Hence, we will not find any excessive romanticism in the sound expressed in an unnatural and mawkish sweetness of high tones or a dimmed sound. Neither can we count on finding a warm, strongly slacken bass most often associated with a relaxing type of sound. Lorelei is very disciplined in this respect and, if it was not for some moderation in reproduction of the bass, one might be very easily mistaken in a blind test and get an impression that lower music parts are reproduced by a semiconductor amplifier.

In the medium tone range we are also faced with a completely different vision of sound then the one to which we got used to because of stiff and pompously sounding SET constructions. As the matter of fact, there are no spectacular dynamic contrasts or

excessively fast and dry cracking sounds. There is however a silky tissue with a distinct and colorful picture accompanied by a subtle shades and a noble, even anthracite-like background. The most important feature of this amplifier is that it is listened to with a great pleasure and involvement. This effect is experienced particularly when we have to end the listening session. Accuracy and spaciousness of the sound give a similar impression. Although I heard many different opinions in this respect I think that Lorelei is not limited to reproduction of a direct sound played virtually in one's face. In my own system with small NAD8225 speakers this amplifier reconstructs spacious effects in a very suggestive way without creating any artificial or trivial "supraspace" effects or acres of space that nobody really needs. Sound focus and sound source stability deserve the highest score as well as an ability to show micro-information at the same time as the whole message - a characteristic rather rare in tube amplifiers.

And finally the dynamics. It might seem that 2x17 Watt is not much, especially in the age of amplifiers whose power often exceeds hundreds if not thousands Watts per channel. There could not be anything more illusory then such a conviction. In a normal home conditions (room of 22m^2 and 3m high) and with speakers of a moderate effectiveness 89dB I have achieved a realistic volume level without having to operate the volume knob any further then 9hrs, which was equivalent of 0,4-0,44 V (average measured by a digital voltmeter) at the speaker outputs and at the 3,6 Ω. (LI)

Opinion 2

I have been thinking a lot about how to describe this amplifier. Not because I don't know how it plays but because I don't know who the readers of this text are. Finally I realize – it is just trivial! Readers are those who may possibly be willing buy this device. Surely among them there won't be any audiophiles who dash up in their fancy cars in front of their offices. Neither there will be any record-breakers who for the last 20 years have listened to so many American and European amplifiers that their weight can be measured in tones. Please, don't get me wrong. I have nothing against either of these groups. I just know that even if those people read *Audio Video* they will not call Andrzej Markόw to make an appointment to listen to Lorelei. Simply.

Lorelei is an amplifier for those living with a conviction that commercially available high-end constructions are too expensive with regard to what they can do. Such audiophiles attend the stores, listen, bother salespeople. And buy nothing, still searching for the Holy Grail. The odds are high that they will finally find it – embodied in Lorelei. This amplifier plays a sound that is completely unconstrained (this is the best word that comes to my mind). It doesn't imitate anything it isn't. For instance, it doesn't produce a very low bass. In a configuration with transformers customized to 4-ohm loudspeakers it didn't really make friends with my Zollers. They need more current. But it did sound amazingly light and natural in all the remaining range. It was virtually indifferent when I changed the kinds of music. Well, perhaps except for techno, funk and hip-hop (which is only my presumption as I don't listen to these kinds of music).

Fortunately I had an opportunity to listen to Lorelei with Avantgarde 104 dB efficient horns. That was quite a thing! A fascinating combination of dynamic easiness, distinctiveness, resolution and spaciousness. Markόw's amplifier purged the sound of sharpness and sibilants that were clearly pestering in a combination, with otherwise very good, transistor amplification. What conclusion do I draw from this fact? No, I do not think Lorelei is an

utterly transparent amplifier that does not bring anything to the music it plays. Certainly, it moderates it in its own way and makes it more pleasurable. However it does not do this in a way that we got used to while listening to tubes. Lorelei is what we choose for the pleasure of listening to music. Following this principle, we will not hear any veiled soprano sounds, warmed tones, or softened contours in her sound. Because generally, they are not there. Ear has an adaptative nature and SHE knows it. She perfectly links what we call musicality with an indispensable portion of precision and transparency. The result is astonishing, especially taken into account the price of a mere 4000 PLN.

My review turned out to be more philosophical then it usually is, but it is not appropriate to perceive this amplifier differently. Or not possible. (AF)

Conclusion

A question how Lorelei compares to the competition has just nothing to do with the reality since this amplifier constitutes a class for itself. Moreover, it indicates an alternative way of practicing the audiophile hobby and of listening to music in a very positive way. When it comes to the price-quality relation or an economic calculation – things look similar. Why? Here, it is worth quoting a servicing price list of a certain respectable company from behind the Oder River where a working hour costs 65 Euros. In this context, 250 working hours spend by the constructor while manufacturing each specimen makes one draw unmistakable conclusions. We warmly recommend it.