



10 audiophile Tracks aus der Goldenen Stereo-Zeit

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**10  
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09





# Ultima Ratio

Cost? Who cares. Effort? Huge. Workmanship? Uncompromising. Result? Perfect. And not of this world (any more).

**W**e don't know if the controller and the accountant came together at Andreas Hofmann's laboratory to urgently advise the boss of Octave Audio with a worried smile to take a two- or three-week holiday. At the Riviera maybe? Or some placid spa resort?

Octave. Just remember the Jubilee Mono SE, another genuine monster, admittedly one with 400 watts. Aiming at a similar weight and price range with a 300 B amplifier, though, is at least brave, if not even a little crazy. Well, Andreas Hofmann – who is actually known for being a notorious

**“Hence the Jubilee 300 B are a modern and uncompromising implementation of the probably best amplifier technology”**

To be honest, we don't even know if Octave has hired a controller at all. But we believe that the finance department would definitely have had their own view on the decision of building an amplifier which puts two kilograms on the scales for each generated watt and weighs 60 kilograms with a mono block design – per unit, mind you.

To put it in a more sober way: the Octave Jubilee 300 B delivers 30 watts per channel, one mono block is 24 centimetres wide, 66 centimetres high and 40 centimetres deep, together both monos weigh in at 120 kilograms.

However, projects of this magnitude have a certain tradition at





push-pull pentode designer – has recently become addicted to the single-ended virus, yet by no means gone crazy. Fortunately, we need to admit, because (apart from a very few exceptions) there has been sophisticated boredom and technological gridlock with the 300B topic. True, simple “short” circuit layouts and good parts can soundwise substantiate the hype of the single-ended 300B amps established by an ancient Western Electric cinema amplifier, but the fundamental problems of this design, starting with low output power, remained unsolved.

The first hint into the new direction came with the Octave V16 Single Ended, an integrated and headphone amplifier which used the indirectly heated “modern” KT120. One of

the most urgent problems of the single-ended had already been solved here in an ingenious way, i.e. the anode current preload of the output transformer. Sure, on the occasion of the V16 review (stereoplay 5/17), Andreas Hofmann had already confirmed with a twinkling eye to “take care” of the 300B as well. But with regard to the size of this project, the designer kept a low profile.

### Single-ended parallel mode

The Jubilee 300B renders triple homage to the famous triode by wiring no less than three of these valves in parallel for increased power. This results in 30 watts of nominal output and thus compatibility with many loudspeakers. What’s more: with his new amps Andreas Hofmann has managed to solve



An energy management for the supply and heating voltages ensures a long valve life, a protection and overload system keeps safe from operating errors and valve malfunctions. The quiescent current of the three power valves is checked by a measuring device with a digital display.





## Notes on the 300 B in single-ended mode

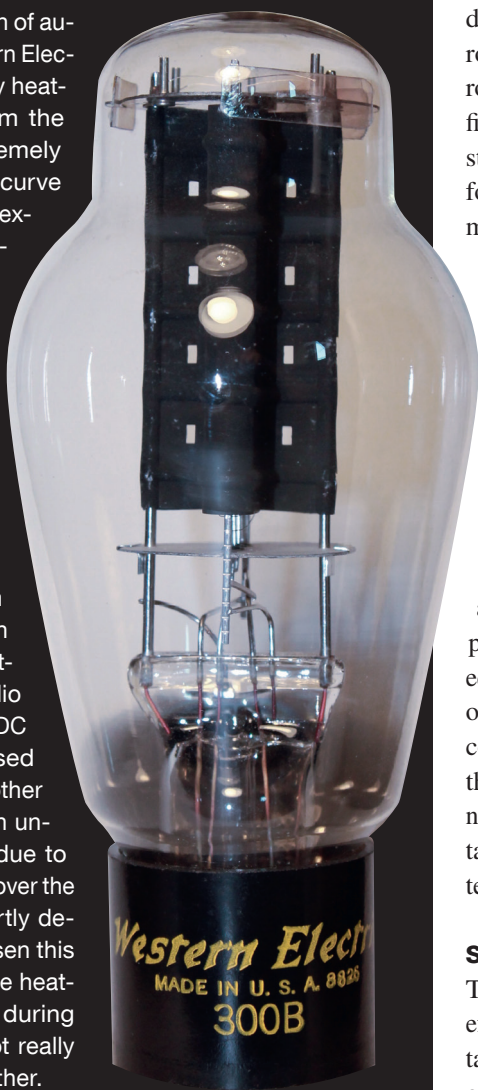
The uncrowned queen of audio triodes, the Western Electric 300 B, is a directly heated power triode from the 1930s with an extremely linear characteristic curve field. It was designed explicitly for audio amplification, and with its direct 5-volt AC heating (the filament doubles as cathode), it conforms to the valve technology of that time, of course.

Despite a balanced heating via two resistors, the 50-hertz hum issue associated with AC heating is unacceptable in a modern audio amplifier. Therefore a DC heating is mostly used today which, beside other problems, leads to an uneven cathode wear due to the potential gradient over the filament length. Smartly designed amplifiers lessen this effect by reversing the heating voltage polarity during power-up, but will not really solve the problem, either.

In the (soundwise most popular) single-ended mode of the triode, the preload (magnetisation) of the output transformer by the anode DC current requires transformers with an air gap and a generously sized core, whereby the air gap will significantly downgrade the qualities of the transformer (shunt inductance).

Empirically concepts with (phase-shifting) capacitors between a power valve and a transformer, this time without air gap (single-ended para-feed), often sound better than conventionally designed SE amps. Another factor – given

the power demand of modern loudspeakers – is the manageable output of a realistic six to seven watts by a single 300 B (performance specs of ten or twelve watts are “optimistic”). The output could be boosted by switching several power valves in parallel (single-ended parallel mode), but that way the magnetisation problem of the output transformer would sort of be multiplied by the now summed up anode currents of two or even three power valves, which is why such amplifiers are very rarely built.



virtually all inherent problems of the single-ended technology at one go! The effort is accordingly massive, even monstrous, and we're now going to roll up this exceptional amplifier from behind: other than the standard Octave output transformers, this newly developed model, which sits quite on top in the housing right below the valve “floor”, has now four- and eight-ohm speaker taps.

The core laminates have no air gap; instead an extra, quasi inversely applied winding compensates the core magnetisation by the anode current of the three power valves. This winding is fed by an elaborate current source the performance of which must be equivalent to the added currents of the three valves; since this compensation winding lies on the transformer core, it must not induce any interference voltages and therefore be absolutely “clean”.

### Seven hertz – with power!

The heating of the 300 Bs is effected by means of an AC voltage, more precisely a distortion factor optimised, pure sine wave with a frequency of seven hertz. Since the heating of the 300 B also acts as its cathode, it must be galvanically isolated. This is why an analogue generator, actually an amplitude-stabilised 7-hertz power stage, generates this AC voltage which is fed into a heating transformer on the primary side. Three secondary windings supply the 300 Bs in a long-time stable manner with exactly five volts at 1.2 amperes each. The mentioned transformer sits in the middle compartment of the Jubilee 300 B and contributes significantly to the overall weight. This technology is absolutely

immune to sound-influencing hum and HF interferences via the heating.

Finally in the “basement” of the two mono biggies we have the power supply: two mighty, low stray field transformers with almost one kilowatt of overall output take care of the anode high voltage, all auxiliary voltages and also the supply of the heating generator. Of course, the current supply of the power amp including the anode voltages is electronically stabilised all the way and even short-circuit proof. Instabilities due a fluctuating mains voltage are hence no longer an issue. Andreas Hofmann's dry remark on this: “Voltage fluctuations are current fluctuations”, a stabilisation is “mandatory” with triodes.

### No compromise

The audio circuitry, of course, follows a similarly uncompromising road as well. Since (also with regard to different 300 B types) three quiescent current levels can be adjusted for the 300 Bs, the power stage uses a combination of active grid bias and a so-called automatic grid bias via cathode resistor. Needless to say, the active grid bias must be stabilised and extremely low-noise because it lies right beside the control grids. By the way, the 300 Bs are not simply wired in parallel, but have their own external wiring which is referred to as “indirect parallel operation”. The designer continues to comment: “Our goal was not power for power's sake, but to give the 300 B a perfect environment to show the sound qualities of the valve to their best advantage”.

### Heavenly

Only very rarely we are itching to heap praise on an amplifier

as in this case. Yet the Jubilee 300B seems not to be of this world, but rather needs to be located in some kind of 300B universe. There it combines the supple, highly emotional and always thrilling sound of the old triode with an amount of essential purity, transparency and sheer power now which has never been heard from the 300B (or any other valve amplifier). The fact that the quite rightly world-famous valve is driven with a certain reserve in a traditional circuit technology, will be noticed in incredulous wonder only after pushing the mains switch of the Jubilee 300B. Which also dynamically keeps putting more wood on the fire in such a casual way that it makes a mockery of its own performance data and proves to be a rigid game partner for even demanding loudspeakers. Okay, it will still not be able to move mountains, but the subjectively available output power is far above the mere specs with a

firmly grapping, gnarly and extremely controlled bass on top.

Let's leave reflections over watt and ampere aside for a moment. And instead look for a matching loudspeaker which allows fullrange operation with the Octave. Then we're simply going to listen to music. Over the maybe, nah, the very best valve amplifier you can buy for money and good words.

**Roland Kraft** ■

From a metrological point of view, the Jubilee 300B proves to be exceptionally good. For an amp with no negative feedback, the distortions also remain on a very low level.



Not a hybrid, but a pure valve design and the classic 300B basic circuit in the signal path: in the "Low Gain" setting an EF800 pentode serves as the driver; if a higher amplification is needed, an ECC82 can be switched upstream. Three bias levels of 25, 50, and 70 milliamperes allow to use various 300B derivatives.

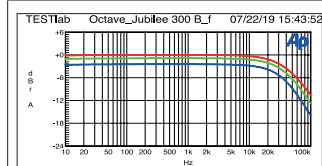
## Octave Audio Jubilee 300B

**54,000 euros**

**Distribution:** Octave Audio  
**Phone:** +49 (0)7248 / 3278  
**www.octave.de**

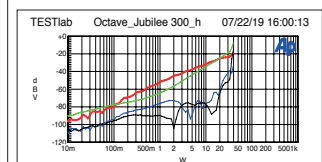
**Dimensions (W x H x D):** 24 x 66 x 40 cm  
(9.5 x 26 x 15.7 in.) mono block  
**Weight:** 60 kg (132.5 lbs) each

### Measured values



### Frequency response charts

Balanced and wide-band with gentle roll-off above 20 kHz, 0 dB at 10 Hz



**Distortion analysis** k2 to k5 vs. power  
Rising evenly over output power with dominant k2

### Practice and compatibility

#### Amplifier compatibility diagram

Medium output with good stability, trouble-free with speakers from medium sensitivity upward

**Voltage** 8 ohms 12.5 V  
**Frequency response** 2.6 dBs  
**Current** 3 ohms 3.1 A

### Measured values

**RMS output power** (1 kHz, k = 3%)  
into 8 Ω 19 watts  
into 4 Ω 30 watts

**Peak output power** (60 Hz burst)  
an 8 Ω 19 Watt  
an 4 Ω 30 Watt

**S/N ratio**  
RCA (2.83 V into 8 Ω) 101 dBs  
XLR (10 V into 8 Ω) 104 dBs

**Power consumption**  
Standby/operation 0/331 watts

### Evaluation

**Bottom line:** Octave's new interpretation of the 300B topic is an amplifier which eliminates all problems associated with the single-ended mode at one go. This pleasure has its price which does not even appear too high for the world's possibly best valve amplifier.

**Measured values** 6 **Field test** 6 **Value** 10

### stereoplay test verdict

**Sound** absolute top class **65**  
0 10 20 30 40 50 60 70

**Overall score** 87 points  
**Price/performance** high-end