

TUBE-TECH PA 6 STEREO HEADPHONE AMPLIFIER

General information

Sound quality in headphone monitoring has usually been the end of the line as far as studio engineering is concerned. This is primarily due to the fact that amplification for this type of monitoring is nearly always done with amplifiers that have been exclusively designed for powering loudspeakers.

The **TUBE-TECH PA 6** has been designed especially to be used with headphones and providing the listener with maximum fidelity.

PRECAUTIONS:

THIS AMPLIFIER CAN PRODUCE VERY HIGH SOUND LEVELS.

CARE SHOULD BE TAKEN WHEN LISTENING TO HEADPHONES, AS YOUR HEARING MAY BE DAMAGED WHEN EXPOSED TO HIGH SOUND LEVELS.

Design information

The output stage is designed around a dual power triode working in push-pull class A with a adjustable bias and balancing circuit. The input and driver circuit also uses dual triodes making the whole amplifier symmetrical from the single ended input to the output. All the voltages (except heater voltage for output and driver tubes) are fully stabilised.

Operating information

Several ways of operation are possible:

The **TUBE-TECH PA 6** is used in the control room for high quality listening on headphones in the same way as the various loudspeaker systems are used.

The **TUBE-TECH PA 6** is used as the power amplification to drive the cue system in the studio. Here the **TUBE-TECH PA 6** replaces the customary power amplifiers used with most studio cue systems.

In either case the objective of using the **TUBE-TECH PA 6** is to substantially improve the quality of sound in the headphones, thereby giving the listener a superior sonic experience.

ADJUSTMENT PROCEDURE:

INITIAL ADJUSTMENT:

POWER SUPPLY:

The power supply PCB is located on the rear panel.

1. Adjust the voltage for the output stage to 155V with P1.

AMPLIFIER OUTPUT STAGE:

IMPORTANT:

After replacement of output tubes, it is important that the "initial bias adjustment" is carried out.

If this step is neglected, the output tubes may be permanently damaged, due to the possibility of high cathode current.

INITIAL BIAS ADJUSTMENT:

1. Turn off Volume.
2. Place a voltmeter between TP3 for the left channel (TP6 for the right channel) and 0V.
3. Turn on power.
4. Observe that the voltage does not exceed 10 V after a few minutes, otherwise adjust with the multiturn trimpot marked "BIAS".

BIAS AND BALANCE ADJUSTMENT:

1. 10-15 minutes after power turn on, the current in the output tubes has stabilized and the bias and balance can be adjusted with a voltmeter.
2. Place the voltmeter between **TP1** and **TP3** and adjust the voltage to **50mV** (< +/-2mV) with the multiturn trimpot marked **BIAS**.
3. Place the voltmeter between **TP1** and **TP2** and adjust the voltage to **0V** (< +/-1mV) with the multiturn trimpot marked **BALANCE**.
4. Repeat step 2-4 until correct.

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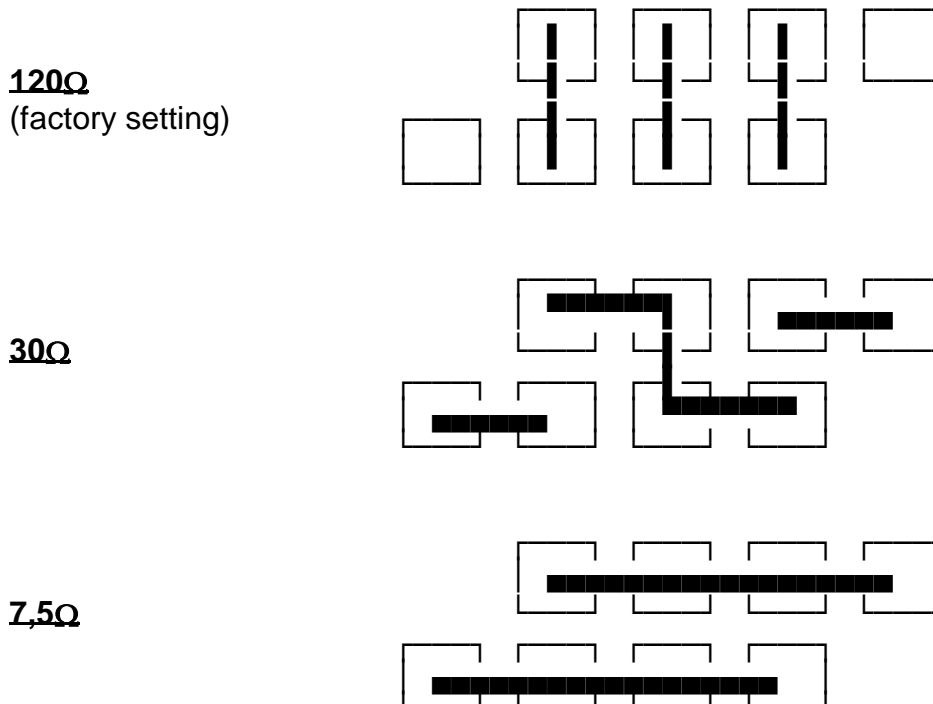
5. Place the voltmeter between **TP4** and **TP6** and adjust the voltage to **50mV** (< +/-2mV) with the multiturn trimpot marked **BIAS**.
6. Place the voltmeter between **TP4** and **TP5** and adjust the voltage to **0V** (< +/-1 mV) with the multiturn trimpot marked **BALANCE**.
7. Repeat step 5-7 until correct.

The adjustment is more quickly made with 2 voltmeters, one hooked up as in step 2 (step 5) and the other hooked up as in step 3 (step 6)

With correct adjusted bias and balance, the voltage measured between **TP3** and 0V, and **TP6** and 0V, will now be between +13,6V - +16,5V

CHANGE OF OUTPUT IMPEDANCE

1. Remove the bottom cover
2. Beneath the output transformer is the impedance strapping located. The following scheme shows how the strapping can be altered:



Technical information:

Output power (40Hz 1% THD):	5W (in minimum load)
Minimum output voltage (RL=600Ω):	30V (strap for 120Ω)
Minimum Load (strapable):	120/30/7,5Ω
Frequency response (-3dB):	5Hz - 80KHz
Input impedance:	>10KΩ (unbalanced)
Input sensitivity:	0 dBU for max output
Noise (22-22kHz):	-70 dBU (strap for 120Ω)
Power requirement:	115/230V
Power consumption:	90W
Dimensions (W/H/D):	225x170x250 mm
Weight:	7 kg

Loading of the output can be lower than the recommended minimum impedance, without damage to the output stage.

The output can withstand shortcuts, but a shortening of the life of the output tubes must be expected if exposed to continuously shortcuts