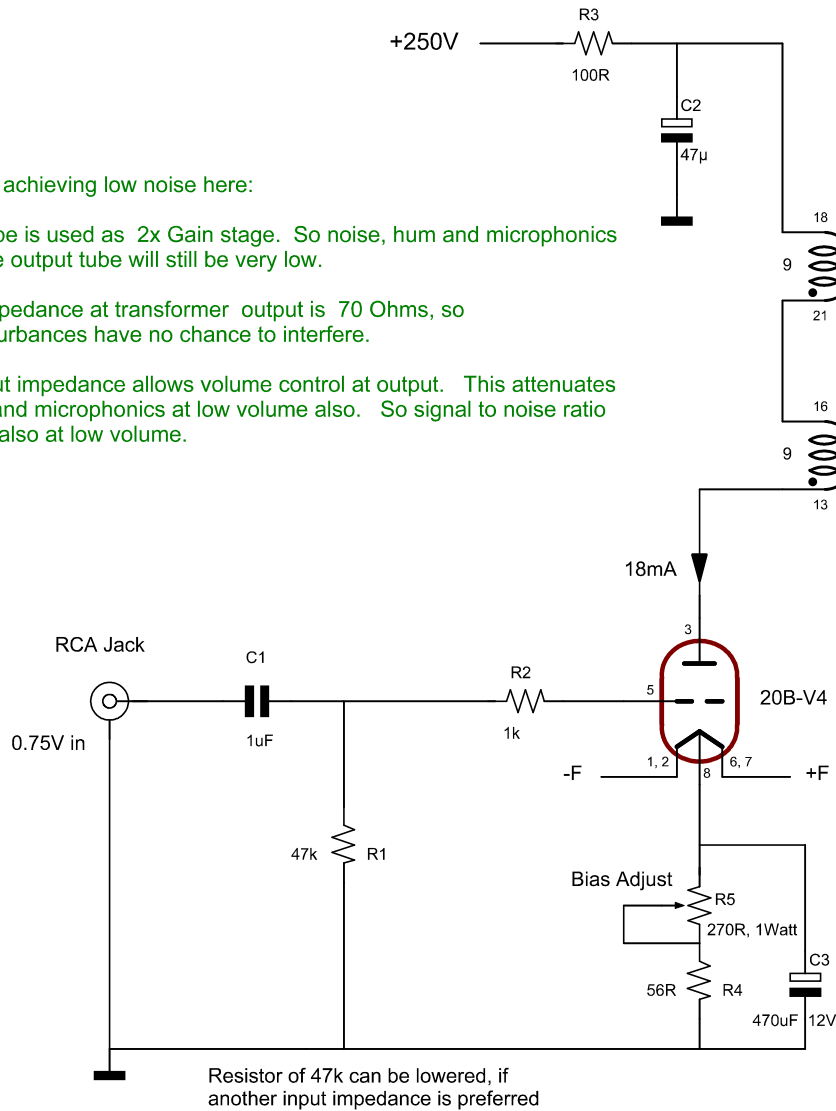


Principles of achieving low noise here:

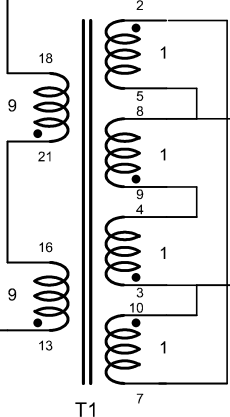
- 1) Output tube is used as 2x Gain stage. So noise, hum and microphonics added by the output tube will still be very low.
- 2) Output impedance at transformer output is 70 Ohms, so external disturbances have no chance to interfere.
- 3) Low output impedance allows volume control at output. This attenuates noise, hum and microphonics at low volume also. So signal to noise ratio will be high, also at low volume.



Resistor of 47k can be lowered, if another input impedance is preferred

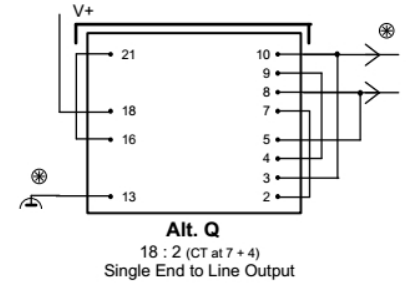
Wired "Alt Q" for 9:1 (recommended)

Lundahl LL1689-18mA or LL1689-AM-18mA



Volume 1.5V Out

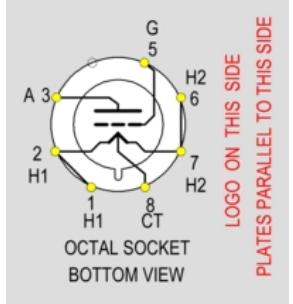
Volume 1.5V Out



Connect F+ and F- to stabilized 5 Volt Supply, with floating output.

First set Bias Potmeter for maximum resistance Then adjust for 1 Volt across 56 Ohms Resistor. Mount Bias pot meter such that all clockwise = Zero ohms. Like the bias adjustment works clockwise for higher bias.

Bias Adjustment, allows nicely 18mA, so to use LL1689 and V20B-4 best way. Second, this allows some variation on the supply voltage of 250V, which does not need to be very precise now.



20B-V4 Connections

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Revisions		Date	Name
Date	Name	Drawn	14-Dec-2017 JW

Dipl. Ing. Jac van de Walle

Name: Non Inverting, Low Noise Line Out Stage with 20B-V4. Total Gain = 2x

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