

# Audvance reproduce amplifier board

This board is designed for Telefunken M15A machines with speeds of 76, 38 or 19cm/s as a direct replacement of the Telefunken repro(duce) amplifier board. There are no transformers in the all discrete signal path any longer and no overall feedback is applied. An integrated circuit is used to stabilize just the DC operating point. Filtering is entirely passive. Optimization of sound quality was the main design goal.

The "NAB EQUAL" jumper position can be used to switch the equalization of your machine between IEC/CCIR and NAB. A short will select NAB mode, open is IEC/CCIR mode. When your machine has an original factory implemented method to switch equalization via pin 22 this is of course supported as well.

On the right you see a detail of the board where you determine the time constants of the equalization and mode with jumpers. Below you read how to do this.

## Machines with 19 and 38cm/s speeds

In the upper part you chose the time constant in IEC/CCIR mode for a 19cm/s speed. Common choice is 70us, alternatives are 50us or 100us. There should always be a jumper on one of those three positions. With a speed of 38cm/s the time constant is fixed to 35us.

If you prefer NAB mode a jumper should be on "NAB EQUAL". High frequency time constant will be 50us (default). This can be changed into 30us by applying TWO jumpers on "NAB 30us".

## Machines with 38 and 76cm/s speeds

In the upper part you should place a jumper on "76cm/s". No jumpers should be on any of the three time constants for 19cm/s. With a speed of 38cm/s the time constant is 35us and with 76cm/s it will be 17,5us in CCIR/IEC mode.

If you prefer NAB mode a jumper should be on "NAB EQUAL". Upper time constant will be 50us (default). This can be changed into 30us by applying TWO jumpers on "NAB 30us". There is no industry standard for NAB at 76cm/s.

Since every recorder is slightly different because of production tolerances and wear, the best performance will be achieved with a board that is calibrated on your machine.

## Calibration

The calibration can be done in either NAB or IEC/CCIR mode. Only change of the equalization time constant afterwards will require a new calibration. Calibration for both speeds is needed. Before you start the calibration turn the PEGEL pot fully clockwise and the other two fully anti-clockwise.

You need a test tape and an AC voltmeter or an oscilloscope to do the calibration:

- Use a test tape with a 400Hz or 1kHz tone at 0dB (or lower). Adjust the PEGEL pot so that the output level reads the required level. If there is no required level, set the level as high as possible but equal for both channels.
- Use a test tape with a tone of about 10kHz at -20 dB. Adjust the high frequency pots so that the output level is identical to the level at another frequency that is at about 1kHz at -20dB. Repeat this for both speeds. Adjust the "H-19/76" pot at 19cm/s or 76cm/s speed when applicable. Adjust the "H-38" pot at 38cm/s speed. This will result in a maximally flat frequency response.

