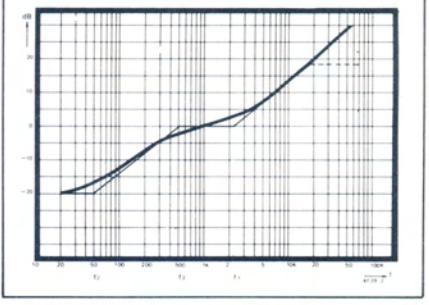
recip-riaa

The performance of bought or self-built preamplifiers for magnetic pickup cartridges is invariably not sufficiently well known. This is mainly due to the

Carrying out measurement on a disc-preamplifier involves two specific, normally time-consuming complications. First of all, one cannot straightforwardly check the frequency response; carrying out such a check on the dynamic preamplifier requires a point-by-point comparison of the meter reading with a voltage-frequency table.

This brings us to the second complication. A correct test of the nominal or maximum available output voltage as a function of frequency is only obtained when the input voltage follows the weighting curve used during cutting (figure 1). The simple and direct solution

1



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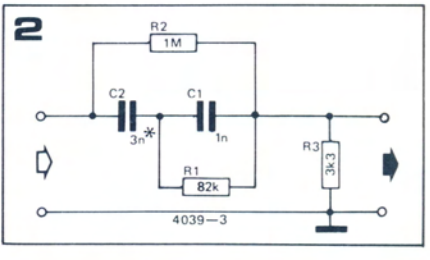


Performance characteristics of the weighting network. Noise and distortion levels will in practice be those of the LF oscillator in use.

Maximum amplitude error with 1% components	± 0,2 dB
Maximum amplitude error with 5% components	± 0.9 dB

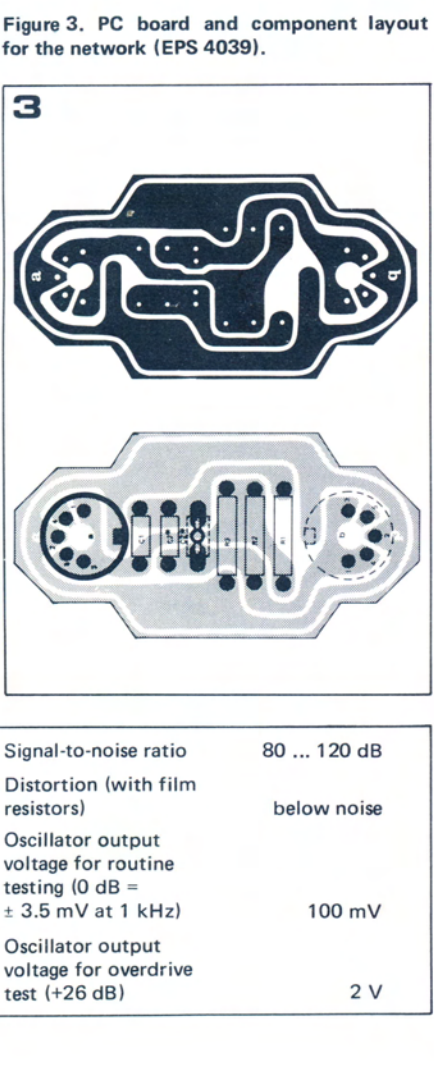
work involved in accurately measuring the amplitude response (RIAA or IEC curve), overdrive margin, distortion, signal-to-noise ratio and hum level. The weighting network described here greatly simplifies the above-mentioned measurements. Despite its simplicity, using only five components, it will deliver a measurement signal that is within 0.2 dB of the standard RIAA cutting-curve. This should make it just about the smallest professional test instrument ever described . . .

to both problems should now be obvious: insert a weighting network having the amplitude-frequency response of figure 1 between the constant-voltage oscillator and the preamplifier under test. A suitable network is shown in figure 2.

Figure 1. The IEC/RIAA weighting curve used during disc cutting. The 'recip-RIAA' network also produces this curve.

Figure 2. Circuit diagram of the network. C2 can be made up by parallel connection of twice 1.5 nF (or 2.2 nF plus 820 pF).

Figure 3. PC board and component layout for the network (EPS 4039).



Signal-to-noise ratio	80 ... 120 dB
Distortion (with film resistors)	below noise
Oscillator output voltage for routine testing (0 dB = ± 3.5 mV at 1 kHz)	100 mV
Oscillator output voltage for overdrive test (+26 dB)	2 V