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Three ECC83-Based Tube Phono Preamplifier Circuits

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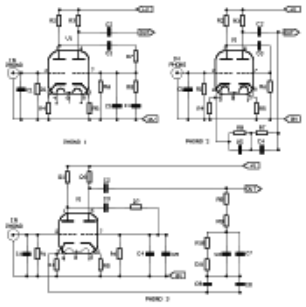

The three circuits were based on the vacuum tube ECC83 designed to produce phono preamplifiers in compliance with the RIAA standards.

- Recording Industry Association of America (RIAA) – the trade group that represents the recording industry in the United States
- Phono Preamplifier – an electronic circuit that equalizes and amplifies the analog output of the cartridge in a phonograph turntable where the output is increased to intensity equal to other audio sources like CDs and tapes and to restore the original signal, RIAA equalization is required
- ECC83 – a high impedance amplifier triode designed specifically for audio use and has a high amplification factor of 100; considered as the European version of 12AX7 which is a high-mu twin triode that operates in typical service as a Class A amplifier, in the preamp stages of high fidelity musical instrument and public address amplifiers as well as professional line and microphone preamps and other communications and audio devices

Each of the three circuits provides a different solution in the amplification of low signals from the moving magnet heads. The moving magnet is one of the types of moving cartridge used in high fidelity systems. It consists of a stylus cantilever positioned between two sets of fixed coils and carries a tiny permanent magnet to form a tiny electromagnetic generator. It induces a tiny current in the coils as the magnet vibrates in response to the stylus following the record groove. They are available in a wide variety of sizes, shapes, and levels of quality which tends to produce mellow sounds.

In the first phono circuit, the weak filter is being stressed out as it is positioned between the two sections of the tube V1. The second phono circuit provides the classic solution for stressing out the energy of the signals. The third circuit is a combination of the two solutions stated earlier by stressing out the high frequencies and concentrating on the signal energy in the low frequencies. The technical characteristics of each head dictates the capacity of the capacitor C1 where it will be best suited for the amplification of signals for each preamplifier.

The tube phono preamplifier using ECC83 is best used when acquiring a signal from old moving magnetic cartridge which are eventually transferred into a mixing board. They may also be attached as an external device in audio or video receiver for audio restoration with high quality. Proper equalization and amplification is being done in some turntables by converting the analog signal from the cartridge into digital PCM.

Source:users.otenet.gr/~athsam/tube_phono_preamplifier.htm

Electronics Portal

Comments (1)

john regala

I thought vacuum tubes are already obsolete? 'Ope not for all circuits bcoz they do give a great help in way to a good circuit design...

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