Distortion the basic tone, thereby giving the instrument’s

Food & Diet

Distortion is a sound effect achieved by deformation of a signal by its” hard” amplitude limitation, or a device providing such an effect. Sometimes this term refers to a group of similar sound effects (overdrive, fuzzand others) that realize nonlinear distortion of the signal.

They are alsocalled “ overload” effects, and the corresponding devices are” distortors”. The distortion effect, as a component, is present insynthesizers, effect processors and computer programs for sound processing. A large number of harmonics arise in the spectrum of thedistorted signal. Each harmonic represents a sinusoidal oscillation, with afrequency greater and a multiple of the fundamental frequency. Harmonics ofhigher orders are already outside the sound range and have a small amplitude ofoscillations, so they can be neglected. In accordance with the multiplicity, the harmonics are divided into even and odd. Even harmonics consonant with eachother and with the basic tone, thereby giving the instrument’s timbre volumeand depth. The frequency, for example, of the third harmonic is three timeshigher than the frequency of the fundamental tone and corresponds to a notelying from the fundamental tone at a distance of a fifth through an octave.

Inprinciple, this harmonic can be called a consonant basic tone, but when playingseveral notes simultaneously, it can be discordant with another basic tone andits harmonics. Thus, the odd harmonics of higher orders are less musical andcreate “ mud” in the sound. Low notes sound “ overloaded” high. In high sounds, harmonics will increasingly go beyond earshot, while at low frequencies theyare within the frequency range. It should also be borne in mind that thevibrations of the strings are not pure tones (unless the natural

flajulets areas close to them as possible) and are themselves rich in harmonics. That is, acomplex signal is subjected to distortion and its harmonics generate theiradditional harmonics.

Obviously, for sounds produced by thick strings, thereare more distinguishable harmonics, and, accordingly, more secondary harmonicsgenerated by them. There is also such a phenomenon as intermodulation: twosimultaneously sounding notes cause distortion to produce another sound, determined by the difference in their frequencies. In the case of two notes, this sound is in harmony with the two basic notes, but three notes form threepairs of notes and generate three secondary sounds introducing dissonance.