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Harmonic piano (2). An extensively modified grand piano with conventional keyboard capable of playing 24 notes per octave. The composer and pianist Michael Harrison (*b* Bryn Mawr, Penn., 24 Oct 1958) conceived of the harmonic piano in 1979, while learning to play La Monte Young's work in just intonation entitled "The Well-Tuned Piano" and tuning Young's custom-modified Bösendorfer Imperial concert grand. In 1986, using royalties from his first recording, Harrison purchased a Schimmel model C208 grand piano and collaborated with technicians Rick Wheeler and Don Person, in Portland, Ore., to create the unique instrument.

Five modifications were involved: (1) 1/3 of each hammer was filed off on the right side, so that the narrowed hammers strike only the left and middle unisons; thus, when the una corda pedal is depressed the hammers move slightly to the right to strike only the middle and right unisons. (2) The middle of the three unison strings throughout the piano was removed so that the hammers, in normal position, strike only the left unisons, and when the una corda is depressed the hammers move to the right to strike the right unisons. The result is two sets of single unison strings (except in the bass) that can be tuned to different tunings, and the pianist can alternate between them, while playing, by depressing and releasing the una corda pedal. (3) To minimize unwanted sympathetic resonance, since the two unisons share the same damper, a laterally-shifting rail was installed beneath the strings with small mutes protruding up between the strings where the middle string was originally located; when the una corda is in normal position these mutes damp the right unisons, and when the una corda is depressed the mute rail shifts to the left to damp the left unisons. (4) For every string on the piano a miniature spring-loaded damper was installed that can be clicked into place to silence any string. These dampers are color-coded to identify which damper belongs to each key, and are used to control sympathetic resonance; thus, when only the notes of a particular mode are desired to resonate throughout the piano, the pianist can silence all other notes and still use the damper pedal as needed. In this way, all strings that are harmonically related to that mode will vibrate sympathetically while the damper pedal is depressed. In addition, the pianist can play the muted strings for a pizzicato effect. (5) The final modification enabled each of the piano's three pedals to be depressed, then shifted to the left and locked into position without the pianist's foot having to remain on the pedal.

Because the harmonic piano plays on single strings with most intervals tuned pure to avoid beats, its tone is clearer and lighter than a conventional piano's. Harrison has devised numerous tunings for his piano; however, he frequently employs a five-limit just intonation on one set of strings and a seven-limit just intonation on the other set, with four to six "common tones" (usually including F, C, G, and D) that are the same in both tunings. Traditional notation can be used, with markings to show when the una corda pedal is to be depressed and released.