

Gordon Monahan

Music For Mechanical Metal

1995

Description:

All sounds are produced acoustically (without loudspeakers) but are controlled by computer.

The sounds are created by mounting variable speed (24 V DC) motors onto steel sheets of various sizes; the motors have off-centre weights attached to the shafts so that when the motors turn, a physical modulation is transferred to the metal sheets. The sheets are stainless steel and have a dynamic range from extremely quiet to extremely loud. The motor speeds are varied so that an extreme spatial effect takes place, where the sound travels around the room as each of the six motors change speed (causing timbral and dynamic changes) in relation to each other. This spatial effect is not apparent on the recording. Also, the true dynamic range and the acoustic difference tones are not properly captured on recording.

The piece is controlled using MAX music software to precisely control the speeds of the motors. Each motor is assigned to a MIDI note name, and velocity numbers from 0 to 127 correspond to voltage values from 0 to 24 volts DC. The velocity numbers can be pre-programmed or run in real-time using mouse control. In the case of this recording, the velocity numbers were pre-programmed and read from a value table.

The MIDI information is sent to a MIDI-to-control-voltage processor that converts MIDI velocity numbers to voltage values of corresponding proportion. The voltages are sent out to the corresponding connector and sent to the motor(s) via electrical cable. Each motor draws up to 2 amperes of current.

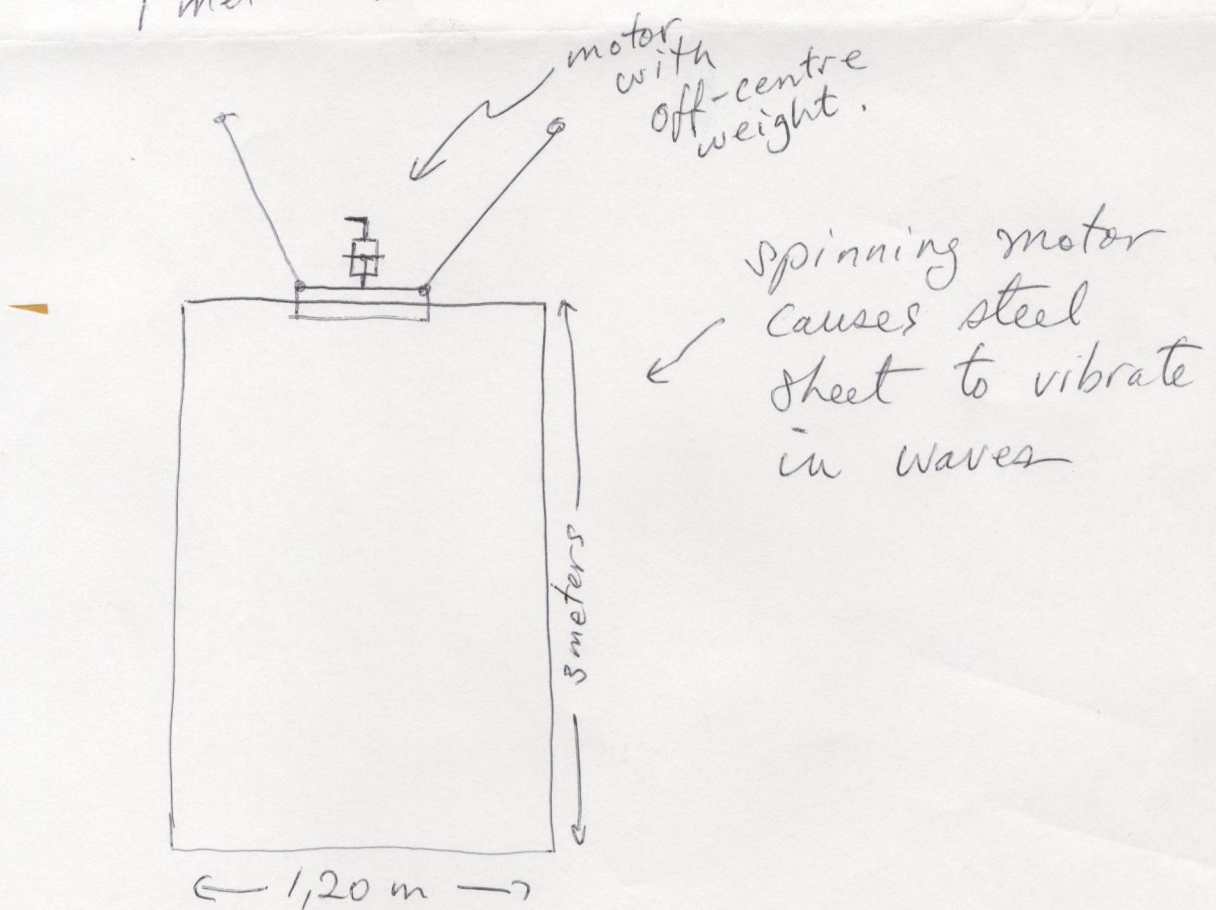
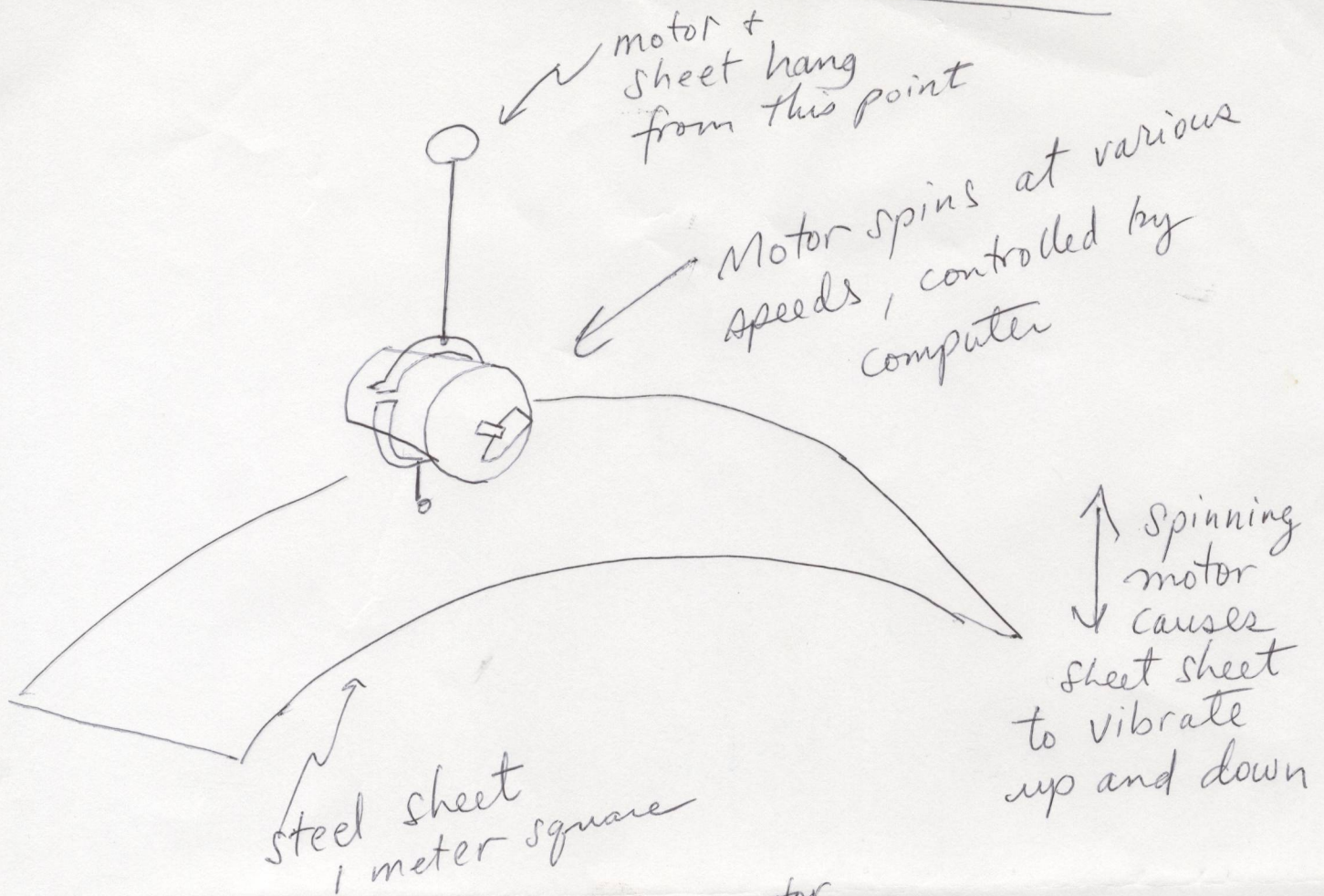
There are two large stainless steel sheets (3 meters x 1.2 meters x 1mm.) that are hung vertically, the motors being mounted on the top of the sheet. There are 4 smaller sheets ranging from approximately 60cm x 80 cm. to one square meter. Each of these four sheets has a motor mounted in the centre, and the sheets are hung horizontal to the ground.

The compositional form of the version of the piece submitted here is a simple crescendo and decrescendo lasting 13:23 minutes with a dynamic peak at approximately 9 minutes.

Conceptually, the piece shows that digitally-controlled computer music can be produced without the use of loudspeakers. The piece is a combination of low- and high-tech, combining computers and trash.

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