

# **Music for strings and prepared grand piano**

**Piano quartet**

## Preparations

The piano should be prepared with 13 small neodymium magnets (approximately 10 mm diameter) as described below. To make this preparation work, it is crucial to use a grand piano and not an upright piano.

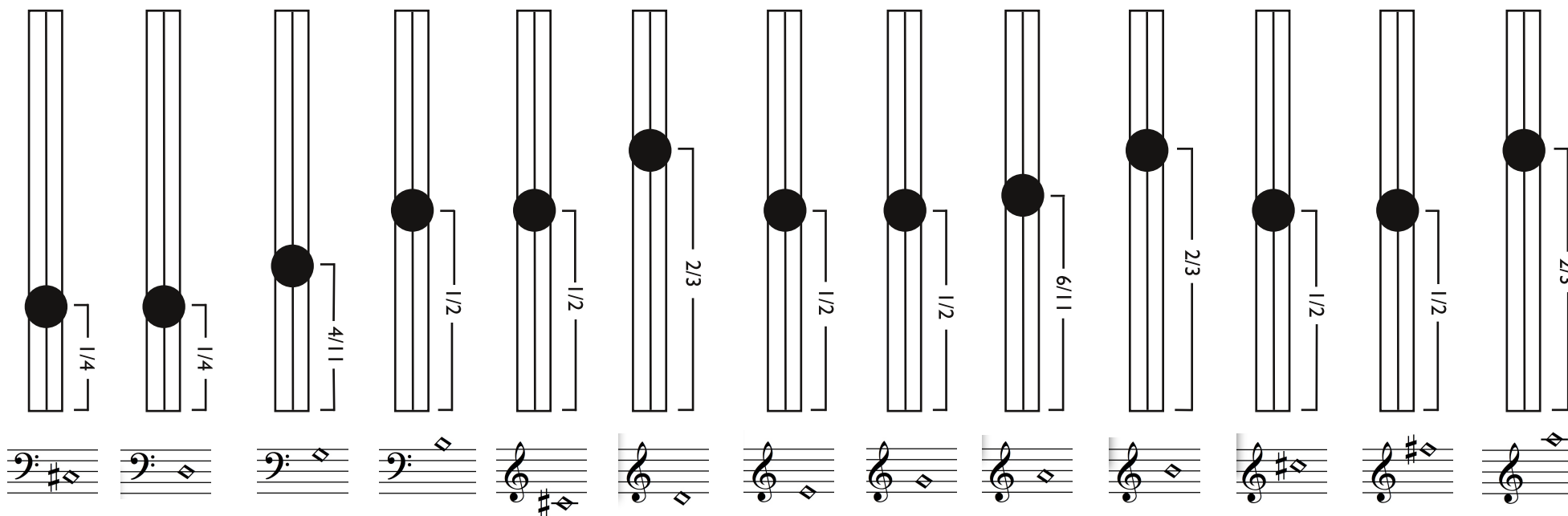
The magnets should be placed flat on the strings of the piano at certain specified positions. These positions are illustrated in the figure below. The three vertical lines over each note below represent the three strings associated to one key on the piano. The diamond notation is to illustrate that the key is prepared with a magnet and does not indicate a particular way of playing the note.

The black circles represent the positions of the respective magnets, and the bracket indicates where the magnet should be placed. To find the ratios of the strings, play flageolettes by gently putting a finger on the strings and pressing the key. Place the magnet where you find the overtone corresponding to the given ratio. For example, to find the position for  $1/4$  of the key  $C\#$ , search for the 4th overtone (counting the fundamental tone as the first) i.e.  $C\#$  two octaves above.

To find the position  $4/11$  on G it is not necessary to find the 11th overtone. Instead use that  $4/11$  is halfway between  $1/3$  and  $2/5$ . I.e. find  $1/3$  and  $2/5$  and place the magnets between them. Similarly,  $6/11$  on A can be found between  $1/2$  and  $2/3$ .

Note that this preparation produces an inharmonic spectrum so it is easier to find the overtone for a given string before placing the magnet (as described above), rather than placing the magnet and then trying to find the correct position.

Note also that the figures below are just illustrations to show the ratios. The strings on different keys will have different lengths and so the positions of the magnets relative to each other will be different than illustrated.



## Playing instructions

### General instructions

The preparations described above result in an inharmonic spectrum which is mimiced by the strings. To intonate the microtones which are described later, one should always try to listen for the corresponding pitch from the piano. Throughout, the strings should be played with as little vibrato as possible.

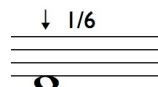
Each part (indicated by a rehearsal letter) except part A starts with a chord. Preferably, this chord is qued by someone in the ensemble. Part A starts with the piano and the strings should start playing notes from the box soon after. The piece is open in duration, but it is recommended that each page is played for approximately 5 minutes.

### Dynamics

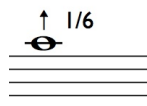
Throughout, the piano should be played as loud as possible without the magnets starting to make too much noise in themselves (when a prepared key is struck too hard the magnet will vibrate). This is usually around mezzo forte, though the exact dynamics are intentionally left out as this depends on the piano and the magnets. The strings should adapt their dynamic after the piano so that their loudest is approximately as loud as the piano.

## Notation for the strings

### Microtones



Play the note lowered 1/6 of a whole tone, i.e. lowered 33 cent.



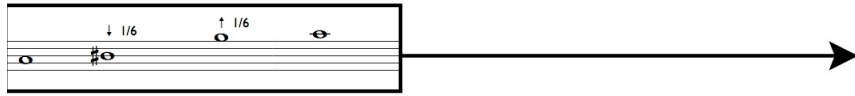
Play the note raised 1/6 of a whole tone, i.e. raised 33 cent.

### Envelopes



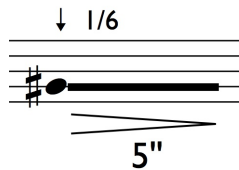
In the first example, the note should start with a crescendo for 3 seconds from quasi niente to the loudest relative to the piano (see "Dynamics" above), then hold the note at this dynamic for as long as it is suitable, then make a diminuendo for 5 seconds to quasi niente. In the second example, the note is started directly at the maximum dynamic, held for a suitable time and finished with a diminuendo of ten seconds. Other envelopes are interpreted simliraly by following the indication of duration at each step. The fermatas are always to be held for as long as the musician find it suitable.

### Box with arrow



Play notes from the box, one note at the time, for as long as the arrow indicates. To each box, there will be a list of envelopes specified (as described above). All notes from the box should be played using one of the specified envelopes. I.e. to play a note, you pick a pitch from the box and pair it with one of the specified envelopes. This pairing is done each time you play the note, so you may use another envelope from the list next time you play the note. Listen to the other players and choose notes and envelopes thereafter.

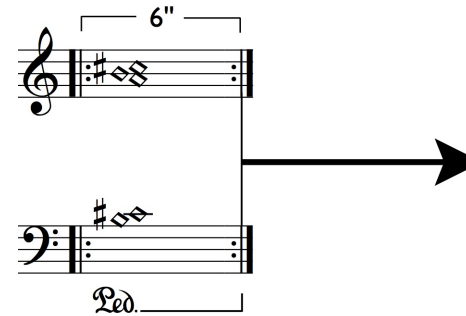
### Start of section



This notation is used only at the chords starting part B, C, D, E and F and means that the note should be taken at a dynamic matching the piano (see above) and followed by a 5 seconds diminuendo. The exact number of seconds of the diminuendo is not very important, but the note should stop just before the piano repeats the chord.

### Notation for the piano

#### Reprise with arrow



The chord should be played repeatedly for as long as the arrow indicates. The length of each reprise should be approximately 6 seconds and the pedal should be lifted between each chord. Notes with diamond heads are those prepared with magnet as described above. Except for the consideration to dynamics described under "Dynamics", these notes should not be played in a particular way. The notation is just to make the pianist aware that the key will not produce the regular piano sound.

There is no need to seek variation in the playing style or exact duration of each chord, neither to strive for an absolute uniformity. Variations will come naturally.

# Music for strings and prepared grand piano

**A**

Piano

6"

As little vibrato as possible throughout the piece.

Violin

As little vibrato as possible throughout the piece.

Viola

As little vibrato as possible throughout the piece.

Violoncello

↑ 1/6

↓ 1/6

↑ 1/6

I\* Play notes from the box with envelopes noted below.

**Possible envelopes for the strings (precise dynamics should be adjusted in accordance with the room):**

|           |           |            |
|-----------|-----------|------------|
| 3"    3"  | 5"    3"  | 10"    3"  |
| 3"    5"  | 5"    5"  | 10"    5"  |
| 3"    10" | 5"    10" | 10"    10" |

## Music for strings and prepared grand piano

**B**

Pno. 6"

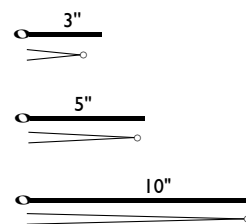
Vln. 5" 2\* 3\*

Vla. 5" 2\* 3\*

Vc. 5" 2\* 3\*

2\* Play notes from the box with the same envelopes as before.

3\* Add the following envelope to possible envelopes:



Music for strings and prepared grand piano

The image shows a musical score for strings and prepared grand piano. At the top left, a box labeled 'C' indicates the starting point. The grand piano part consists of two staves (treble and bass clef) with a 6" envelope bracket above the treble staff and a Ped. marking below the bass staff. Below this are three string parts: Violin (Vln.), Viola (Vla.), and Violoncello (Vc.). Each string part has a 5" envelope bracket above its staff. The Violin part has dynamic markings of  $\uparrow 1/6$  and  $\underline{p}$ . The Viola part has dynamic markings of  $\downarrow 1/6$ . The Violoncello part has dynamic markings of  $\downarrow 1/6$  and  $\uparrow 1/6$ . Each string part line ends with a 4\* marking and a long arrow pointing to the right.

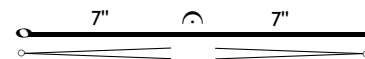
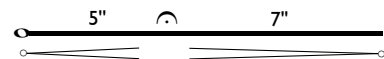
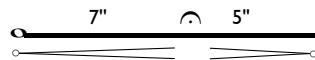
4\* Continue to chose from the same envelopes, but also alternate between playing ordinary and sul tasto.

Music for strings and prepared grand piano

**D**

The score consists of four staves: Pno., Vln., Vla., and Vc. The Pno. part has a 6" envelope. The Vln., Vla., and Vc. parts each have a 5" envelope. A box labeled '5\*' is placed over the first measure of each of these three parts. The Vln. part has a downward 1/6 note, the Vla. part has upward and downward 1/6 notes, and the Vc. part has upward and downward 1/6 notes. Arrows point to the right from the end of each staff.

**5\* Possible envelopes:**





# Music for strings and prepared grand piano

**E** **F**

Pno.

Vln.

Vla.

Vc.

Start by playing the top two notes in the left hand (leaving out the lower d), but alternate by sometimes playing the bottom two notes instead.

**6\* Possible envelopes:**

|    |    |     |     |
|----|----|-----|-----|
| 3" | 5" | 10" | 3"  |
| 3" | 5" | 10" | 5"  |
| 3" | 5" | 10" | 10" |