

MIXTUR for orchestra (small ensemble), sine-wave generators and ring-modulators

SCH = PERCUSSION

H = WOODWINDS

B = BRASS

P = PIZZICATO

S = STRINGS

There is only one part for each group of instruments. All parts have the same page numbers in the upper right hand corner as in the score. 2 players read from one part and have 2 stands.

SCH 3 percussionists: each 1 cymbal  $\perp$  } each is suspended with several leather straps; for each  $\perp$  and each  $\circ$ , 1 contact microphone fastened onto the straps  
1 tamtam  $\circ$  } or onto the surface of the instruments.



H flute (also piccolo) (Fl)

oboe (Ob)

clarinet (also  $E^b$  clarinet and bass clarinet) (Kl,  $Es-Kl$ ,  $Bkl$ )

bassoon (also contrabassoon) (Fg,  $CFg$ )

B trumpet (Tp)

trombone (with thumb valve) (Ps) } Tp and Ps require 3 mutes: straight, cup, wawa.

high horn (1. Hn)

low horn (2. Hn)

P 2 violins I (V1 I)

2 violins II (V1 II)

2 violas (V1a)

violoncello (Vc)

contrabass (Cb)

S 2 violins I

2 violins II

2 violas

violoncello

contrabass

The parts include transpositions for piccolo,  $B^b$  clarinet,  $E^b$  clarinet,  $B^b$  bass clarinet, contrabassoon, F horns (1. Hn high sounds a 5th lower, 2. Hn low sounds a 4th higher), contrabass.

The contact microphones of the 3 percussionists are to be connected to 3 loudspeakers (see position in the plan).

Each of the groups H B P S should sit concentrated and be separated from the others as much as possible. Every woodwind and brass player and every desk of violins and violas has a microphone; all Vc and Cb have individual microphones. The 4 microphone groups H B P S are each balanced in a mixer by a sound technician sitting with his group. The sum of each group is connected to a separate ringmodulator (if possible, special modulators, which give only the primary sum and difference frequencies).

4 further players, who also sit with their groups, each operate a beat frequency oscillator (sine-wave generator with continuously changeable frequency from 1 – or if possible a still lower frequency – to 4200 Hz). Each of these beat frequency oscillators is connected to one of the modulators. The oscillators are indicated in the score by  $\sim$ .