

Contraries

(resonances)

for alto flute, quadraphonic tape and live-electronics

[2nd Version of **Gegensätze** (*gegenseitig*)]

© Javier Alejandro Garavaglia (1996)

Indications for the performance

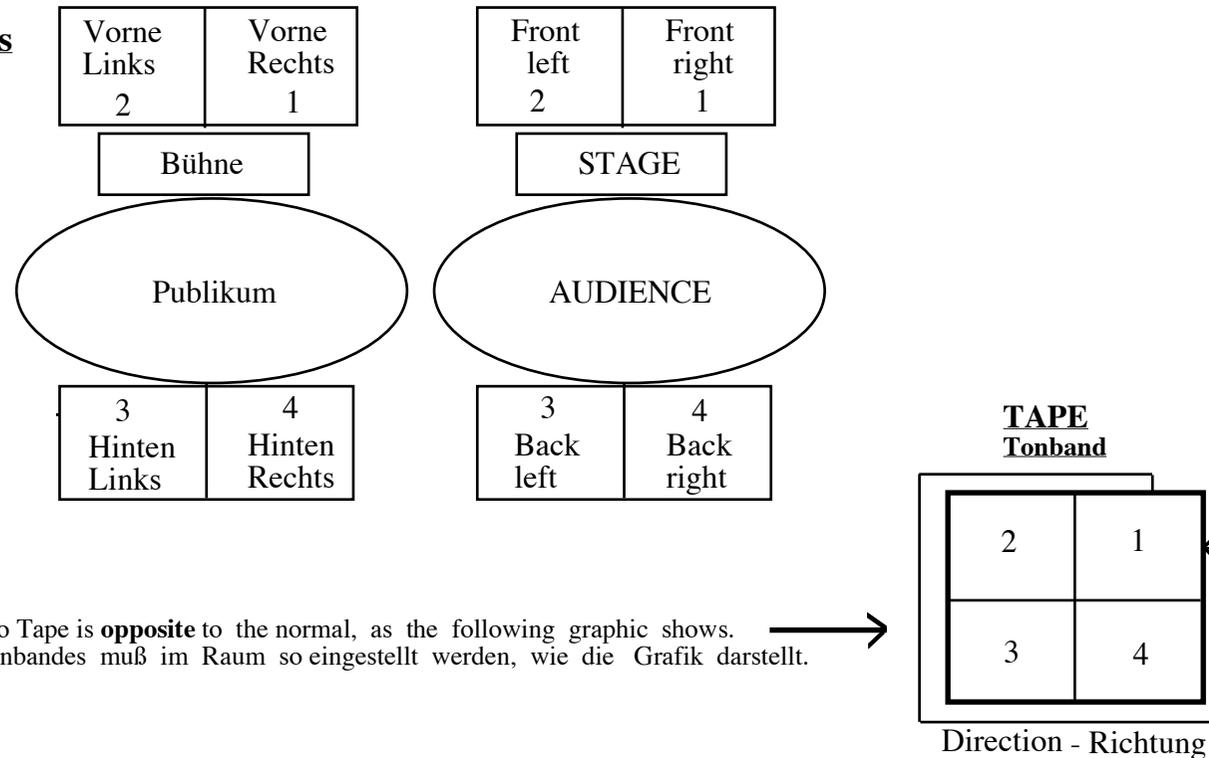
Schaltplan für die Aufführung

- 4 Channels for the **Output of the Tape** (Routing matrix to the OUTPUT CHANNELS 1 - 4)
- 4 Kanäle für den **Output des Tonbandes** (geroutet jeweils zu den OUTPUTKANÄLEN 1 - 4)
- 2 Channels for the **Input of the Stereo Echoes** (live-electronics).
- 2 Kanäle für den **Input des STEREOHALLGERÄTES** (live-electronics).
- 2 Channels for the **Output of the Stereo Echoes (live-electronics)** (Routing matrix to the OUTPUT CHANNELS 3 - 4).
- 2 Kanäle für den **Output des STEREOHALLGERÄTES** (geroutet jeweils zu den OUTPUTKANÄLEN 3 - 4).
- 1 Channel for the **Flute-Microphon** (routing to the INPUT of the Stereo Echoes).
- 1 Kanal für das **Flöten-Mikrofon** (geroutet zum Eingang des STEREOHALLGERÄTES).

Total = 9 Channels + 4 OUTPUT Channels (1 - 4)
 Insgesamt = 9 Kanäle + 4 OUTPUTKANÄLE (1 - 4)

Disposition of the 4 Speakers

Disposition aller 4 Lautsprecher



The distribution of the Quadro Tape is **opposite** to the normal, as the following graphic shows.
 Die Kanalverteilung des Tonbandes muß im Raum so eingestellt werden, wie die Grafik darstellt.

Indications for the player

- 1- The player must be dressed in black
- 2- "Light on" or "Light off" refers always to one spot, which illuminates only the player.
- 3- Before every "Light on" indication, the player must adopt the playing position.
- 4- The stage should be totally dark.
- 5- EXPLANATION of the notation signs:



A bit higher



A bit lower



One quarter-tone higher



One quarter-tone lower



3 quarter-tones higher



3 quarter-tones lower



or



Frullato



Key-noise + Slaptone



Singing + playing



or



Only Breath noise

Multiphonic 1



Multiphonic 2

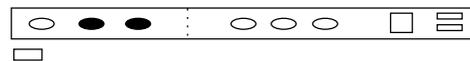


Multiphonic 3

(Written . Sounds a fourth lower)

(Written . Sounds a fourth lower)

(Written . Sounds a fourth lower)



The Score is written transposed (sounds a fourth lower than written)

Duration = ca. 33 Min.

Anmerkungen für den Ausführenden

- 1- Der Interpret soll schwarze Kleidung tragen.
- 2- "Licht an" bzw. "Licht aus" bezieht sich immer auf einen Lichtspot, der auf den Interpret gerichtet ist.
- 3- Der Interpret soll vor allen "Licht an" Anmerkungen in der Spielhaltung verharren.
- 4- Die Bühne soll dunkel sein.
- 5- ERLÄUTERUNGEN zur NOTATION:



Etwas höher



Etwas tiefer



Ein Viertelton höher



Ein Viertelton tiefer



Drei Viertelton höher



Drei Viertelton tiefer



bzw.



Flutterzunge



Klappengeräusch + Slaptone



Gesungen + gespielt



bzw.



Nur Luftgeräusch

Multiphonic 1

Multiphonic 2

Multiphonic 3

(Notiert . Klingt eine Quarte tiefer)

(Notiert . Klingt eine Quarte tiefer)

(Notiert . Klingt eine Quarte tiefer)

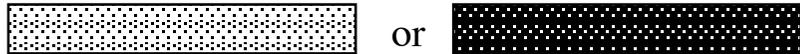


Die Partitur ist transponierend notiert (klingt eine Quarte tiefer), außer bei den 4-Kanal Tonbandstimmen ab Takt 273, die klingend notiert sind.

Gesamtdauer = ca. 33 Min.

Explanation of the signs on the tape part of the score.

The tape was mainly composed with 9 different TAKES, which are shown on the score with different grey graduations, for example:



Explanation of some signs

A.M. = Amplitude modulation

F.M = Frequency modulation

S.&H. = Sample & Hold

Tr.rt = Transposition-ratio (zb. 2:1 meaning one octave higher, 3:2 meaning one fifth over the octave, etc)

General information

There are two different versions of the piece:

- 1- Alto flute, quadro tape and live-electronics, the latter produced with the AUDIACsystem of the ICEM Folkwang-Hochschule in Essen (Germany). This Version is called "Gegensätze (gegenseitig)"

- 2 - Alto flute, quadro tape and live-electronics, which are produced with a reverberation device (or a MAXMSP Patch). In this case the live-electronics of the first version are already recorded on the quadro tape. This is the version of the present score.

Erläuterungen zum Tonbandteil

Der Tonbandteil besteht aus 9 verschiedenen 4-Kanal Takes, die in der Partitur mit verschiedenen Graustufen dargestellt sind. zB.



Erläuterungen zum Live-elektronikteil

A.M. = Amplitudenmodulation

F.M = Frequenzmodulation

S.&H. = Sample & Hold

Tr.rt = Transpositionsratio (zb. 2:1 bedeutet eine Oktave höher, 3:2 bedeutet eine Quinte über die Oktave, usw)

Allgemeines

Das Stück existiert in 2 Aufführungsmöglichkeiten:

- 1- Altflöte, 4-Kanal-band und Live-elektronik, wobei die Live-elektronik vom AUDIACsystem der Folkwang-Hochschule in Essen (Deutschland) gesteuert wird. Diese Aufführungsmöglichkeit trägt der Namen *Gegensätze* (*gegenseitig*).
- 2- Altflöte, 4-Kanalband und Stereohallgerät bzw. a MAXMSP patch, wobei die vom Audioprozessor AUDIAC in der ersten Version erzeugten Klänge hierbei auf dem 4-Kanalband gespeichert sind. Diese Partitur stellt diese letzte Aufführungsmöglichkeit dar.

Live-electronics: Digital Hall Echoes - Set 1

The following example is based on a LEXICON digital effects 480L. The most important data inputs (which should be so accurate as possible with the values shown here) are that of the **RTM** (Reverb time), of the **PDL** (Pre-delays) and of the **SIZE**, whereas not every equipment has got all the other parameters described here. When not using a Lexicon 480L, these values are only meant to be used as a guide. There is also a MAXMSP Patch (obtainable by the composer) for this purpose.

Program: **LARGE CHURCH** (could also be **LARGE HALL**)

Page 1

RTM	SHAPE	SPREAD	SIZE	HFC <small>(High Freq. Cut-Off)</small>	PDL
10:46s	255	25	38m	Full Range	0ms

Page 2

Bass Mult	XOVER <small>(Crossover)</small>	RTC <small>(High Freq. Cut-Off)</small>	DIFFUSION	DCYOPT	MIX
x 1.5	1.020Hz	26.91	99	9	All effects (wet 100%)

Page 3

Echo level	1	2	3	4	5	6
Full up	L>L	R>R	R>L	L>R	L>L	R>R

Page 4

Echo dlys	1	2	3	4	5	6
	206ms	214ms	226ms	242ms	236ms	270ms

Live-electronics: Digital Hall Echoes - Set 2

The following example is based on a LEXICON digital effects 480L. The most important data inputs (which should be so accurate as possible with the values shown here) are that of the **RTM** (Reverb time), of the **PDL** (Pre-delays) and of the **SIZE**, whereas not every equipment has got all the other parameters described here. When not using a Lexicon 480L, these values are only meant to be used as a guide. There is also a MAXMSP Patch (obtainable by the composer) for this purpose.

Program: **LARGE CHURCH** (could also be **LARGE HALL**)

Page 1

RTM	SHAPE	SPREAD	SIZE	HFC <small>(High Freq. Cut-Off)</small>	PDL
32:44s	255	25	38m	Full Range	510ms

Page 2

Bass Mult	XOVER <small>(Crossover)</small>	RTC <small>(High Freq. Cut-Off)</small>	DIFFUSION	DCYOPT	MIX
x1.5	1.020Hz	26.91	99	9	All effects (wet 100%)

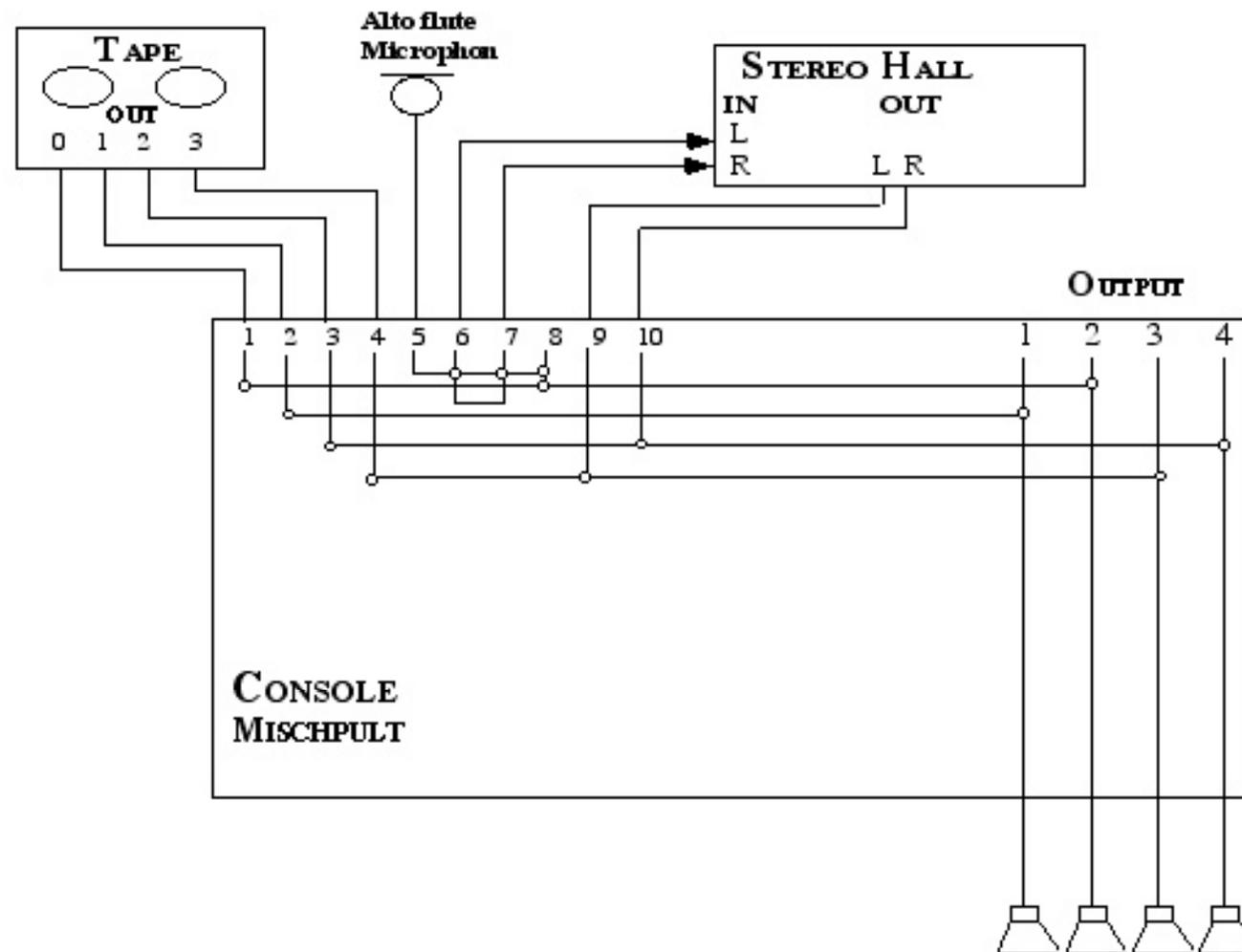
Page 3

Echo level	1	2	3	4	5	6
Full up	L>L	R>R	R>L	L>R	L>L	R>R

Page 4

Echo dlys	1	2	3	4	5	6
	206ms	214ms	226ms	242ms	236ms	270ms

Console configurations for the performance
Schaltplan für die Aufführung



Contraries (*resonances*)

for Alto flute, quadraphonic Tape and live - electronics.
(2nd. version of "Gegensätze (*gegenseitig*)")

Javier Alejandro Garavaglia (1996)

PART 1
Molto lento e tranquillo
(un poco libero)
♩ = 10 (♩ = 40)

Light on

Alto Flute

Alto Flute (Reverb)
(Flute with contact microphone for live electronics)

VCA-Flute Input

Reverb - Set 1

Channel 1 (a) (b)

Channel 2 (a) (b)

Channel 3 (a) (b)

Channel 4 (a) (b)

ppp - ∞ db

pp 0 db

p

mp

mf

molto fff

fff

al niente

Frullato (rústico)

1

3''

*1

*2

*3

*1 The player takes his position in the darkness.
Der Interpret nimmt schon im Dunkeln die Spielhaltung ein.

*2 At the beginning only air-noise, giving very slowly more tone,
up to the next measure (breath - in - and - out not noticeable)
Am Anfang nur Luft. Allmählich mehr Ton bis zum nächsten
Takt. (ggf. Unhörbar Ein - und - Ausatmen)

*3 This voice will be returned by Channel 3 & 4 (rear).
Dieses System wird durch die Lautsprecher 3 und 4 wiedergegeben (hinten).

6

A. F. (Rvb)

f < *sfz* *ff* < *fff* *mf* <> *mf* *mp* <> *mp* *fff* *fff*

VCA-FI. Input

Output of this in-line always on Channel 3 and 4.
Output dieser in-line immer auf Kanäle 3 und 4.

Slap + key-noise
Slap + Klappen

5''

10

A. F. (Rvb)

f < *p* > *ff* < *pp* *f* < *ff* < *fff* *ppp* subito *mp* *pp* > *ppp* >

VCA-FI. Input

dolce deciso dolce deciso dolce Frullato Flageolet

5:4 3:2 6:4 3:2

13

A. F. (Rvb)

f *p* *f* *mf* *mp* *p* (sempre)

VCA-FI. Input

Slap 3:2 12:8 5:4 5:4 5:4

9''

PART 2 Piú Mosso

♩ = 30 (♪ = 120)

15

A. F. (Rvb)

ppp (non cresc.)

pp mf

p

3:2

3:2

Frullato

mp

5:4

5:4

VCA-FI. Input

TAPE <PLAY>

Entire duration / TAPE SMPTE
04:00 / 00:00:00:00

Ch. 1

Ch. 2

Ch. 3

Ch. 4

TAKE 1 -> CommonMusic Algorithm / Crescendo structure + Glissandi groups (up to measure 85)

TAKE 1 -> CommonMusic Algorithm / Crescendo structure + Glissandi groups (up to measure 85)

TAKE 1 -> CommonMusic Algorithm / Crescendo structure + Glissandi groups (up to measure 85)

TAKE 1 -> CommonMusic Algorithm / Crescendo structure + Glissandi groups (up to measure 85)

18

A. F. (Rvb)

mf

mp

mf

p

p

mp

pp

ppp

mf

p

dolce

7:8

7:8

5:4

5:4

5:4

5:4

VCA-FI. Input

Ch. 1

Ch. 2

Ch. 3

Ch. 4

21

A. F. (Rvb)

ppp *mf* 9:4 *p* *mp* *p* *mf* (cantabile) 3:2 3:2 3:2 *p* *mf* *p* *ppp*

VCA-FI. Input

Ch. 1 Glissando 1

Ch. 2 Glissando 1

Ch. 3 Glissando 1

Ch. 4 Glissando 1

24

A. F. (Rvb)

p 3:2 5:4 3:2 *mf* (marcatissimo) *f* 5:4 *f* 5:4 *f* 5:4 *f* *f* *f* *mp* *p*

VCA-FI. Input

Ch. 1

Ch. 2

Ch. 3

Ch. 4

27

A. F. (Rvb)

mf *pp* (dolcissimo) *p* *mp* *f*

Frullato

5:4 5:4 5:4 6:4

VCA-FI. Input

Ch. 1

Ch. 2

Ch. 3

Ch. 4

32

A. F. (Rvb)

f *pp* *mp* *p* cresc. *pp* *mp* *f* *mp*

6:4 5:4 5:4

VCA-FI. Input

Ch. 1

Ch. 2

Ch. 3

Ch. 4

38

A. F. (Rvb)

f 5:4 5:4 5:4 *mf* *mp* 3:2 *f* 5:4 *f p* *mf* *mf* 3:2

VCA-FI. Input

Ch. 1

Ch. 2

Ch. 3

Ch. 4

Glissando 2

Glissando 2

Glissando 2

Glissando 2

42

A. F. (Rvb)

3:2 *ff* *p* (Quasi Echo) *mp* (poco) *mf* *f* 3:2 3:2 3:2

VCA-FI. Input

Ch. 1

Ch. 2

Ch. 3

Ch. 4

46

A. F. (Rvb)

ff *p* *mp* *molto* *mf* *ff* *mf* *p* *mp* *f* *ff* *p* *ff*

3:2 5:4 3:2 5:4 5:4 5:4

VCA-FI. Input

Ch. 1

Ch. 2

Ch. 3

Ch. 4

49

A. F. (Rvb)

p *ff* *mf* *f* *ff* *mp* *p* *f* *p* *mp* *p*

5:4 5:4 5:4 6:4

VCA-FI. Input

Ch. 1

Ch. 2

Ch. 3

Ch. 4

54

A. F. (Rvb) Frullato

mf *molto* *fff* *mf* *mp* *f* *f* *mp*

6.4

5.4 5.4 5.4

VCA-FI. Input

Ch. 1 Glissando 3

Ch. 2 Glissando 3

Ch. 3 Glissando 3

Ch. 4 Glissando 3

59

A. F. (Rvb)

mf *f* *f* *f* *mp* *mf* *ff* *mp* *fff* *mp* *f* *ff*

5.4 5.4 5.4

3:2 5.4 3:2

VCA-FI. Input

Ch. 1

Ch. 2

Ch. 3

Ch. 4

06:54 / 00:02:54:000

63

A. F. (Rvb)

fff *mp* *f* *ff* *f* *ff*

3:2 3:2 3:2 (sempre)

Frullato 9:4

VCA-FI. Input

Ch. 1

Ch. 2

Ch. 3

Ch. 4

Glissando 4

Glissando 4

Glissando 4

Glissando 4

65

A. F. (Rvb)

mf *f* *ff* *fff* *fff* *sfz* *sfz* *ff* *ff* *ff* *mf* *ff* *mf* *f*

5:4 5:4 5:4 5:4

7:8 7:8

VCA-FI. Input

Ch. 1

Ch. 2

Ch. 3

Ch. 4

07:23 / 00:03:23:000

66

A. F. (Rvb)

ff *f* *ff* *mf* *ff* *ff*

VCA-FI. Input

Ch. 1 Glissando 5

Ch. 2 Glissando 5

Ch. 3 Glissando 5

Ch. 4 Glissando 5

69

A. F. (Rvb)

fff *f* *fff* *f* *fff*

VCA-FI. Input

Ch. 1

Ch. 2

Ch. 3

Ch. 4

3:2 3:2 3:2 9:4

71

A. F. (Rvb)

VCA-FI. Input

Ch. 1

Ch. 2

Ch. 3

Ch. 4

Glissando 6

74

A. F. (Rvb)

VCA-FI. Input

Ch. 1

Ch. 2

Ch. 3

Ch. 4

08:22 / 00:04:22:000

77

A. F. (Rvb)

Frullato

fff < *molto* *ff fff* < *molto* *fff* < *molto* *sfz fff* *ffff* *fff* < *sfz* *fff* < *sfz*

VCA-FI. Input

Ch. 1 Glissando 7

Ch. 2 Glissando 7

Ch. 3 Glissando 7

Ch. 4 Glissando 7

08:50 / 00:04:50:000

82

A. F. (Rev)

fff < *sfz* *ffff* *ffff* *ffff* *ffff* *7''* *molto*

VCA-FI. Input

Ch. 1 Glissando 8

Ch. 2 Glissando 8

Ch. 3 Glissando 8

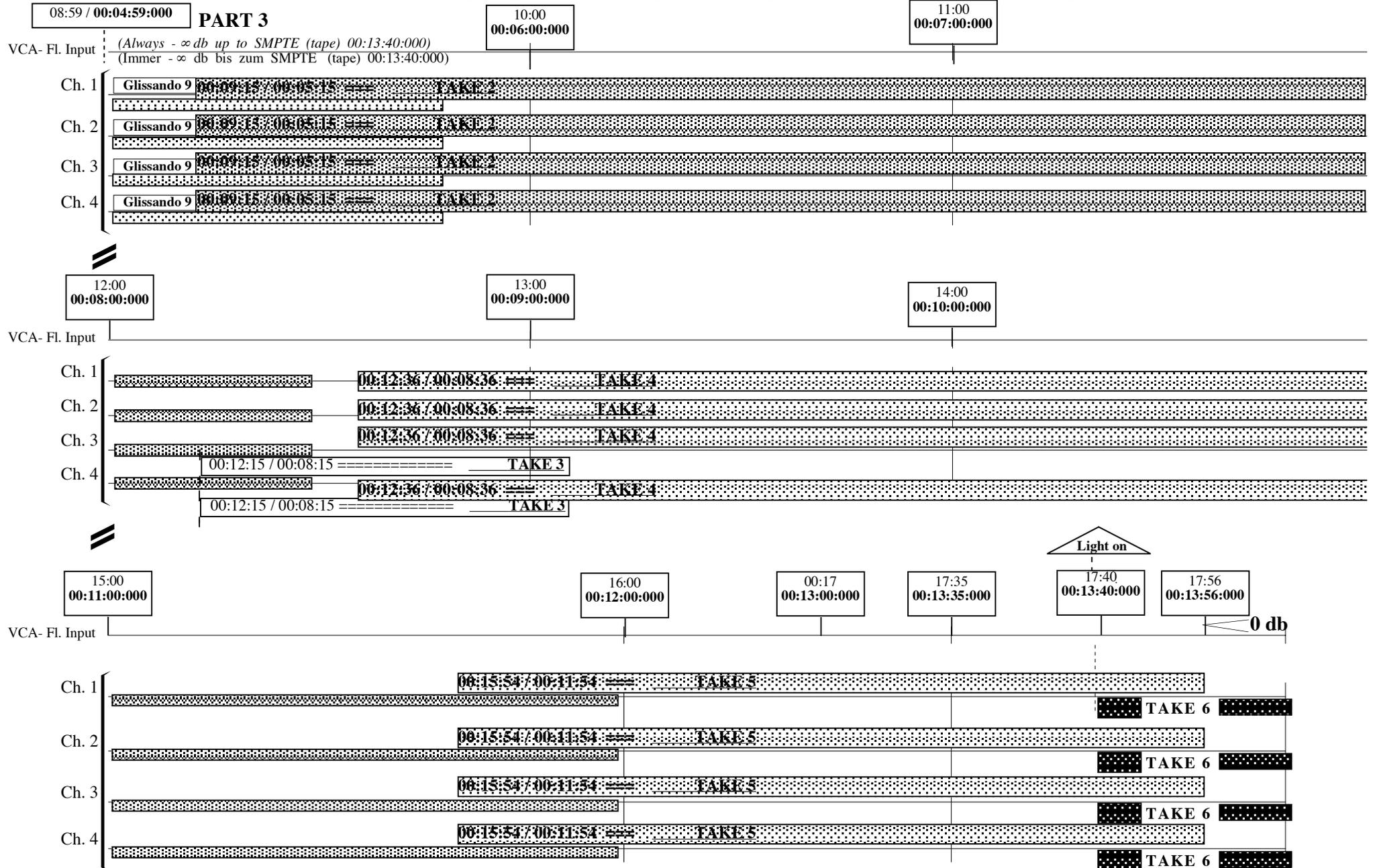
Ch. 4 Glissando 8

Light off

(*3) (Unnoticeable breathi. (but no more than twice)) (ggf. unhörbar atmen aber AUF KEINEN FALL mehr als zweimal)

(*3) The light must go off very slowly (around 7 secs.)
Das Licht soll ganz allmählich (mind. 7 Sek.) ausgehen

Stage complete in darkness (The player should not move while the Solo-tape runs, although he needn't keep the play-posture)
Bühne im Dunkeln. (Während der Tonbandsabspielung sollte sich der Interpret kaum bewegen; er braucht aber nicht in der Spielhaltung zu verharren)



PART 4 "A"

Entire duration 18:06
TAPE SMPTE 00:14:06:800

Entire duration 17:56
TAPE SMPTE 00:13:56:000

85

$\text{♩} = 50$

A. F.

fff 9.8 p f 6:4 6:4

meno *f* cantabile 5:4 5:4 5:4 5:4

A. F. (Rvb)

(Nur Luft)
(Only breath-out)

mf *fff*

VCA- Flute Input

0 db - ∞ db

Reverb - Set 2

Ch. 1 (a)

Ch. 1 (b)

Ch. 2 (a)

Ch. 2 (b)

Ch. 3 (a)

Ch. 3 (b)

"A-1" (Luft/breath-out)

The notes that AREN'T bound with a dashed line are already recorded on the TAPE.
Die Noten, die NICHT mit einer punktierter Linie verbunden sind, sind auf dem Band gespeichert.

Ch. 4 (a)

Ch. 4 (b)

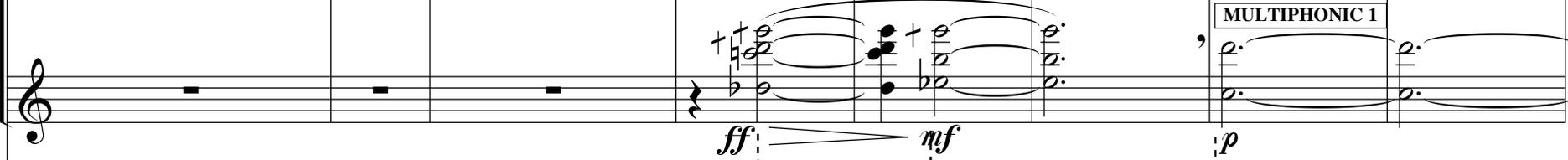
"A-1" (Luft/breath-out)

(*5) Live - electronics over the third line. The sounds recorded on the tape are under the first line.
Live - electronics auf der dritten Linie. Auf dem Band gespeicherten Klängen unten der ersten Linien.

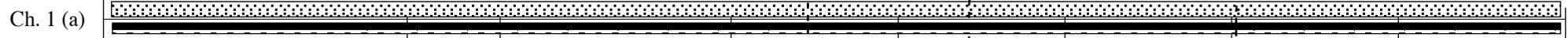
Entire duration 18:23
TAPE SMPTE 00:14:23:600

91

A.F. 

A. F. (Rvb) 

VCA- Flute Input 

Ch. 1 (a) 

Ch. 1 (b) 

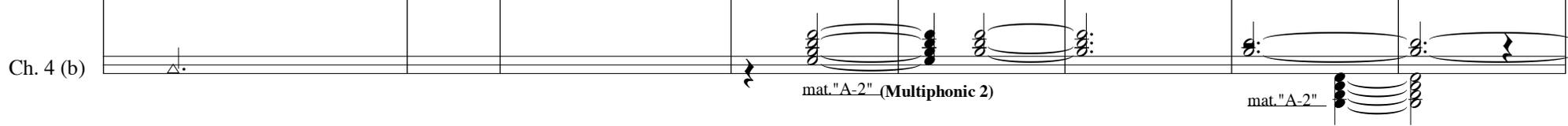
Ch. 2 (a) 

Ch. 2 (b) 

Ch. 3 (a) 

Ch. 3 (b) 

Ch. 4 (a) 

Ch. 4 (b) 

Entire duration 18:53:600
TAPE SMPTE 00:14:53:600

Entire duration 19:04
TAPE SMPTE 00:15:04:000

99

A.F. Musical notation for A.F. staff, including notes, rests, and dynamic markings. *pp* *mp* *f* *sfz* *ff* *mf* *fff* *fff* (sempre)

A. F. (Rvb) Musical notation for A. F. (Rvb) staff, including notes and rests. *pp*

VCA- Flute Input

- ∞ db

Ch. 1 (a)

Ch. 1 (b)

Ch. 2 (a)

Ch. 2 (b)

Ch. 3 (a)

Ch. 3 (b)

Ch. 4 (a)

Ch. 4 (b)

Entire duration 19:13:800
 TAPE SMPTE 00:15:13:800

Entire duration 19:29
 TAPE SMPTE 00:15:29:000

105

A.F.

A. F. (Rvb)

VCA- Flute Input

Ch. 1 (a)

Ch. 1 (b)

Ch. 2 (a)

Ch. 2 (b)

Ch. 3 (a)

Ch. 3 (b)

Ch. 4 (a)

Ch. 4 (b)

Slap + key-noise
 Slap + Klappen

mf dolce

f súbito

mf

0 db

∞ db

***5** AM "1"

mat."A-3" (Slaps)

mat."A-3" (Slaps)

mat."A-3" (Slaps)

mat."A-3" (Slaps)

3:2

5:4

5:4

5:4

***5** A.M "1" Description: Mat. "A-1" (Breath-out) ----> Carrier
 Mat. "A-2" (Multiphonic)----> Modulator

Entire duration 19:40:400
 TAPE SMPTE 00:15:40:400

113

A.F. *ff* *meno f* *ff* *f* *sfz* > *sfz* > *sfz* > *sfz* > *sfz* > *sfz* >

9:3

Frullato

5:4 5:4 5:4

A. F. (Rvb)

VCA- Flute Input < 0 db

Ch. 1 (a)

Ch. 1 (b)

Ch. 2 (a)

Ch. 2 (b) *6 AM "2"

Ch. 3 (a)

Ch. 3 (b)

Ch. 4 (a)

Ch. 4 (b)

The score shows a flute part starting at measure 113. It features a series of dynamic markings: *ff*, *meno f*, *ff*, *f*, and a series of *sfz* (sforzando) markings with accents. A bracket above the first four measures is labeled '9:3'. The word 'Frullato' is written above the fifth measure. Three 5:4 time signature changes are indicated above the sixth, seventh, and eighth measures. The score is split into two systems, with the second system starting at measure 117. Below the musical notation are eight channels (Ch. 1-4) labeled (a) and (b). Channels 1(a) and 2(a) have dotted patterns. Channel 2(b) contains a circled section labeled '*6 AM "2"' with a musical staff showing notes and a wavy line. Channel 4(b) has a wavy line at the end. A VCA- Flute Input line is at the top right with a '< 0 db' marking.

*6 A.M "2" Description: Mat. "A-2" (Multiphonic)----> Carrier
 Mat. "A-3" (Slaps) ----> Modulator

Entire duration 20:12:800
TAPE SMPTE 00:16:12:800

Entire duration 20:00
TAPE SMPTE 00:16:00:000

119

The score is organized into several horizontal tracks:

- A.F.:** Flute part in treble clef. It features a *ff* dynamic marking that transitions to *mf*, and a section marked *ff* (sempre). Above the staff, there are time signatures $3:2$, $9:3$, and $3:2$, and a *r 3:2:1* marking. The word "Frullato" is written above the staff.
- A. F. (Rvb):** Flute part in treble clef, marked *fff*.
- VCA- Flute Input:** A control line with a $-\infty$ db marking.
- Ch. 1 (a) & (b):** Percussion channels. Channel (b) contains a snare drum graphic.
- Ch. 2 (a) & (b):** Percussion channels. Channel (b) contains a cymbal graphic and a box labeled "AM '1'".
- Ch. 3 (a) & (b):** Percussion channels. Channel (b) contains a snare drum graphic and a box labeled "mat. 'A-3' (Slaps)".
- Ch. 4 (a) & (b):** Percussion channels. Channel (b) contains a snare drum graphic and a box labeled "mat. 'A-3' (Slaps)". A circled section of the staff is labeled "AM '2'".

Entire duration	20:29:600
TAPE SMPTE	00:16:29:600

Frullato

125

A.F.

A. F. (Rvb)

VCA- Flute Input

Ch. 1 (a)

Ch. 1 (b)

Ch. 2 (a)

Ch. 2 (b)

Ch. 3 (a)

Ch. 3 (b)

Ch. 4 (a)

Ch. 4 (b)

f

ff

fff

0 db

- ∞ db

Slap + key-noise

Slap + Klappen

3:2

mat."A-3" (Slaps)

mat."A-3" (Slaps)

5:4

5:4

5:4

3:2

3:2

3:2

The image shows a musical score for a flute part, divided into several channels. The top two channels, 'A.F.' and 'A. F. (Rvb)', contain melodic lines with dynamic markings *f* and *ff*. The 'A.F.' channel includes a 'Frullato' section and a '5:4' triplet. The 'A. F. (Rvb)' channel features a 'fff' dynamic marking and a '3:2' triplet. Below these are four stereo channels (Ch. 1-4) with various effects and processing. The 'VCA- Flute Input' channel shows a dynamic range from 0 db to -∞ db. The stereo channels contain rhythmic patterns, some with '3:2' triplets and 'mat."A-3" (Slaps)' markings. A vertical dashed line is positioned at approximately 16:29:600 SMPTE time.

134

A.F.

A. F. (Rvb)

VCA- Flute Input

ff súbito stacatto

mf súbito

mf \triangleleft *f*

Frullato

9:3

5:4

5:4

5:4

3:2

Ch. 1 (a)

Ch. 1 (b)

Ch. 2 (a)

Ch. 2 (b)

Ch. 3 (a)

Ch. 3 (b)

Ch. 4 (a)

Ch. 4 (b)

TAKE 7

TAKE 7

TAKE 7

TAKE 7

AM "2"

3:2

3:2

Detailed description: This page contains a musical score for a flute part, starting at measure 134. The score is written on a grand staff with two treble clefs. The top staff is labeled 'A.F.' and the bottom staff is 'A. F. (Rvb)'. Below these are four pairs of channels, each labeled 'Ch. X (a)' and 'Ch. X (b)'. The first two channels (Ch. 1) are filled with a dense, textured pattern labeled 'TAKE 7'. The third channel (Ch. 3) contains a specific musical notation for a trill, labeled 'AM "2"', which is circled in red. The fourth channel (Ch. 4) also contains a trill notation, also labeled 'TAKE 7'. The main staff features various dynamic markings: *ff* súbito stacatto, *mf* súbito, and *mf* \triangleleft *f*. Rhythmic markings include 9:3, 5:4, and 3:2. The word 'Frullato' is written above the final notes. The score concludes with a fermata and a hairpin crescendo.

Entire duration 20:59:600
TAPE SMPTE 00:16:59:600

Entire duration 21:06:800
TAPE SMPTE 00:17:06:800

136

A.F.

A. F. (Rvb)

VCA- Flute Input

Ch. 1 (a)

Ch. 1 (b)

Ch. 2 (a)

Ch. 2 (b)

Ch. 3 (a)

Ch. 3 (b)

Ch. 4 (a)

Ch. 4 (b)

Musical score for A.F. and A. F. (Rvb) staves. The A.F. staff contains a melodic line with dynamics *f*, *mf*, *f*, *p*, *fff*, *mf* (cantabile), and *f*. It includes time signatures 5:4, 3:2, 6:4, and 9:3. The A. F. (Rvb) staff contains a rhythmic accompaniment with rests.

VCA- Flute Input staff, currently empty.

Channel 1 (a) staff, containing a solid black bar.

Channel 1 (b) staff, containing a rhythmic pattern with a 3:2 time signature.

Channel 2 (a) staff, containing a solid black bar.

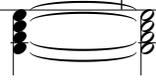
Channel 2 (b) staff, containing a rhythmic pattern with a 3:2 time signature.

Channel 3 (a) staff, containing a solid black bar.

Channel 3 (b) staff, containing a circular pattern and the text "AM '1'".

Channel 4 (a) staff, containing a solid black bar.

Channel 4 (b) staff, containing a rhythmic pattern with a 3:2 time signature.



Entire duration 21:17:000
TAPE SMPTE 00:17:17:000

139

A.F. *fff* 3:2

A. F. (Rvb) Slap + key-noise
Slap + Klappen 3:2
Frullato *p* ord. *mf*

VCA- Flute Input 0 db

Ch. 1 (a)

Ch. 1 (b)

Ch. 2 (a)

Ch. 2 (b)

Ch. 3 (a)

Ch. 3 (b) mat."A-3" (Slaps) 3:2

Ch. 4 (a)

Ch. 4 (b) mat."A-3" (Slaps) 3:2

Detailed description: This musical score page shows a flute part and its processed channels. The top two staves are for the flute: 'A.F.' (Acoustic Flute) and 'A. F. (Rvb)' (Reverb). The flute part starts with a triplet of eighth notes marked *fff* and a 3:2 ratio. The reverb part includes 'Slap + key-noise' and 'Slap + Klappen' (marked 3:2), followed by a 'Frullato' (trill) marked *p*, and ends with a melodic phrase marked *mf* and 'ord.'. Below these is a 'VCA- Flute Input' section with a 0 db gain setting. The bottom half of the page contains four pairs of channels, labeled 'Ch. 1 (a)', 'Ch. 1 (b)', 'Ch. 2 (a)', 'Ch. 2 (b)', 'Ch. 3 (a)', 'Ch. 3 (b)', 'Ch. 4 (a)', and 'Ch. 4 (b)'. Channels (a) are mostly solid black bars, while channels (b) contain musical notation, including slaps (marked 'mat."A-3" (Slaps)') and triplets (marked 3:2). A vertical dashed line is positioned at the beginning of the second measure.

Entire duration 21:35:600
TAPE SMPTE 00:17:35:600

144

A.F.

A. F. (Rvb)

f < *ff* < *fff*

VCA- Flute Input

- ∞ db

Ch. 1 (a)

Ch. 1 (b)

Ch. 2 (a)

Ch. 2 (b)

Ch. 3 (a)

Ch. 3 (b)

Ch. 4 (a)

Ch. 4 (b)

Tr.ratio 1:1

Tr.ratio 1:1

Tr.ratio 1:3

Tr.ratio 5:3

Tr.ratio 3:1

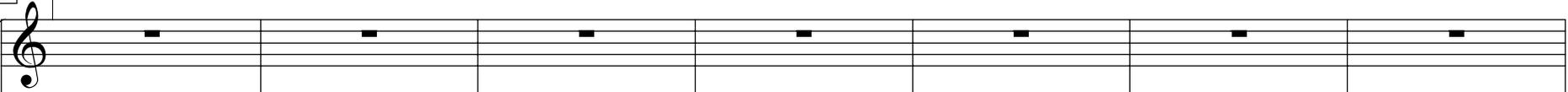
Tr.ratio 3:5

AM "2"

AM "1"

Entire duration 21:57:200
TAPE SMPTE 00:17:57:200

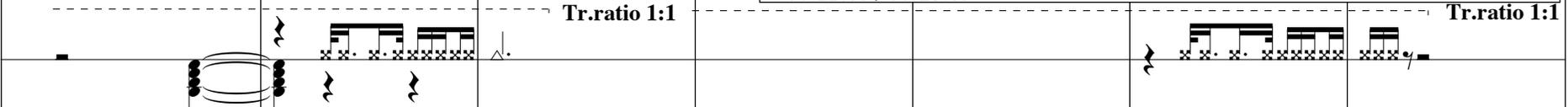
152

A.F. 

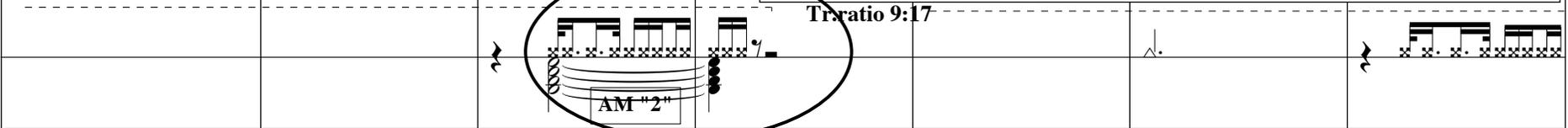
A. F. (Rvb) 

VCA- Flute Input

Ch. 1 (a) 

Ch. 1 (b) 

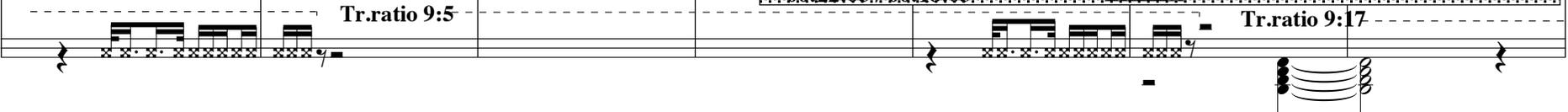
Ch. 2 (a) 

Ch. 2 (b) 

Ch. 3 (a) 

Ch. 3 (b) 

Ch. 4 (a) 

Ch. 4 (b) 

159

A.F.

A. F. (Rvb)

VCA- Flute Input

Ch. 1 (a)

Ch. 1 (b)

Ch. 2 (a)

Ch. 2 (b)

Ch. 3 (a)

Ch. 3 (b)

Ch. 4 (a)

Ch. 4 (b)

Tr.ratio 1:1

Tr.ratio 9:5

Tr.ratio 5:9

Tr.ratio 5:3

Tr.ratio 3:5

Tr.ratio 3:1

Tr.ratio 1:3

AM "1"

AM "2"

Detailed description: This musical score page, numbered 159, features two main staves at the top: 'A.F.' and 'A. F. (Rvb)', both in treble clef with a single flat. Below these are two empty staves for 'VCA- Flute Input'. The lower section contains eight channels, each with a patterned background and a musical staff. Channels 1, 2, 3, and 4 are each split into (a) and (b) parts. Channel 1 (b) includes a tritone ratio of 1:1 and a circled area labeled 'AM "1"'. Channel 2 (a) includes tritone ratios of 9:5 and 3:5. Channel 3 (a) includes tritone ratios of 5:9 and 3:1. Channel 4 (b) includes tritone ratios of 5:3 and 1:3, and a circled area labeled 'AM "2"'. Various musical notations, including notes, rests, and tritone symbols, are present throughout the channels.

Entire duration 23:00:800
 TAPE SMPTE 00:19:00:800

167

PART 4 "B"

(l'istesso Tempo)

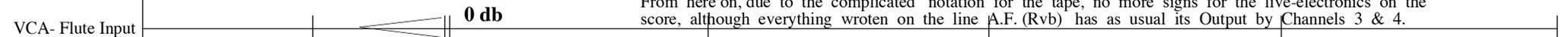
A.F.  MULTIPHONIC 2

A. F. (Rvb)  MULTIPHONIC 1 MULTIPHONIC 3

p sfz mf sfz molto fff ff

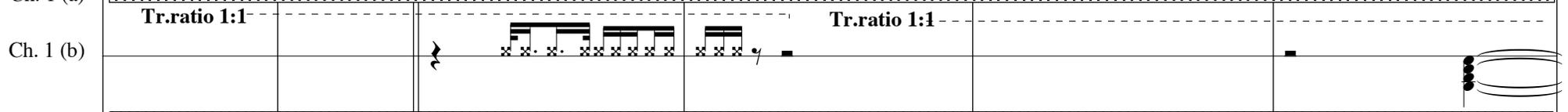
Slap + key-noise
Slap + Klappen

(Only breath-out)
(Nur Luft)

VCA- Flute Input  0 db

From here on, due to the complicated notation for the tape, no more signs for the live-electronics on the score, although everything written on the line A.F. (Rvb) has as usual its Output by Channels 3 & 4.
 Ab dieser Stelle, werden die live-electronics nicht mehr auf der Kanäle 3 & 4 angezeigt, denn die Notation komplizierter wird. Das Output von A. F. (Rvb) klingt trotzdem wie üblich auf Kanälen 3 & 4.

Ch. 1 (a) 

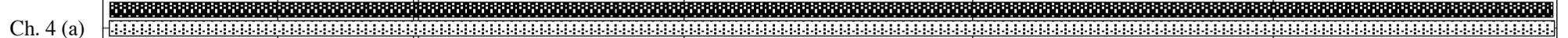
Ch. 1 (b)  Tr.ratio 1:1

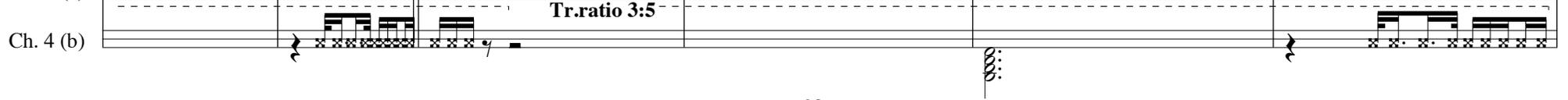
Ch. 2 (a) 

Ch. 2 (b)  Tr.ratio 1:3

Ch. 3 (a) 

Ch. 3 (b)  Tr.ratio 3:1

Ch. 4 (a) 

Ch. 4 (b)  Tr.ratio 3:5

173

A.F.

MULTIPHONIC 2

MULTIPHONIC 3

Slap + key-noise
Slap + Klappen

Slap + key-noise
Slap + Klappen

Frullato

A. F. (Rvb)

mf *mf* *molto*

fff *ff* *molto*

fff *p* *fff*

VCA- Flute Input

Ch. 1 (a)

Ch. 1 (b)

Tr.ratio 1:1

Ch. 2 (a)

Ch. 2 (b)

Part 4 'B' Transposition-ratio 8:3

Ch. 3 (a)

Ch. 3 (b)

Part 4 'B' Transposition-ratio 7:3

Ch. 4 (a)

Ch. 4 (b)

Tr.ratio 9:5

Part 4 'B'
Tr.ratio 2:1

Entire duration 21:38:000
TAPE SMPTE 00:19:38:000

Entire duration 21:52:400
TAPE SMPTE 00:19:52:400

Entire duration 24:03:200
TAPE SMPTE 00:20:03:200

180

A.F.

A. F. (Rvb)

MULTIPHONIC 1 (Only breath-out) (Nur Luft)

MULTIPHONIC 3

Slap + key-noise
Slap + Klappen

MULTIPHONIC 1

VCA- Flute Input

Ch. 1 (a)

Ch. 1 (b)

Ch. 2 (a)

Ch. 2 (b)

Ch. 3 (a)

Ch. 3 (b)

Ch. 4 (a)

Ch. 4 (b)

Entire duration 24:17:600
TAPE SMPTE 00:20:17:600

Entire duration 24:38:600
TAPE SMPTE 00:20:38:600

190

A.F.

A. F. (Rvb)

VCA- Flute Input

Ch. 1 (a)

Ch. 1 (b)

Ch. 2 (a)

Ch. 2 (b)

Ch. 3 (a)

Ch. 3 (b)

Ch. 4 (a)

Ch. 4 (b)

Slap + key-noise
Slap + Klappen Frullato

MULTIPHONIC 2

(Only breath-out)
(Nur Luft)

(Only breath-out)
(Nur Luft)

ff *fff* *p* *p* *ff* *mf* *pp* *fff* (sempre)

Part 4 'B' Transposition-ratio 1:1 *Part 4 'B' Tr.rt. 2:3* *4 'B' Tr.rt 1:3* *(1:3)*

Part 4 'B' Transposition-ratio 1:1 *Part 4 'B' Tr.tr. 1:2* *4 'B' Tr.rt 1:3* *(1:3)*

Part 4 'B' Transposition-ratio 1:1 *Part 4 'B' Transposition-ratio 1:1* *4 'B' Tr.rt 1:3* *(1:3)* *(1:3)*

Part 4 'B' Transposition-ratio 1:1 *Part 4 'B' Transposition-ratio 5:6* *4 'B' Tr.rt 1:3* *(1:3)* *(1:3)*

Entire duration 24:50:00
TAPE SMPTE 00:20:50:000

Entire duration 25:11:600
TAPE SMPTE 00:21:11:600

Entire duration 25:33:200
TAPE SMPTE 00:21:33:200

199

A.F.

A. F. (Rvb)

VCA- Flute Input

Ch. 1 (a)

Ch. 1 (b)

Ch. 2 (a)

Ch. 2 (b)

Ch. 3 (a)

Ch. 3 (b)

Ch. 4 (a)

Ch. 4 (b)

The musical score consists of several staves. The top two staves are for the flute: 'A.F.' (Acoustic Flute) and 'A. F. (Rvb)' (Acoustic Flute with Reverb). The 'A.F.' staff contains a series of rests. The 'A. F. (Rvb)' staff contains a series of notes, starting with a trill (tr) and followed by a sequence of notes with dynamics markings: *pppp* (dal niente) and (non cresc.). Below these are three VCA (Voltage Controlled Amplifier) input channels for the flute: 'VCA- Flute Input', 'Ch. 1 (a)', and 'Ch. 1 (b)'. The 'VCA- Flute Input' staff shows a gain curve that starts at $-\infty$ db and rises to 0 db. The 'Ch. 1 (a)' and 'Ch. 1 (b)' staves show a dotted line representing a transposition ratio of 7:4, with a (1:3) ratio indicated at the beginning. Below these are three more VCA input channels: 'Ch. 2 (a)', 'Ch. 2 (b)', 'Ch. 3 (a)', and 'Ch. 3 (b)'. The 'Ch. 2 (a)' and 'Ch. 2 (b)' staves show a dotted line representing a transposition ratio of 19:12, with a (1:3) ratio indicated at the beginning. The 'Ch. 3 (a)' and 'Ch. 3 (b)' staves show a dotted line representing a transposition ratio of 5:4, with a (1:3) ratio indicated at the beginning. Finally, there are two more VCA input channels: 'Ch. 4 (a)' and 'Ch. 4 (b)'. The 'Ch. 4 (a)' and 'Ch. 4 (b)' staves show a dotted line representing a transposition ratio of 3:4, with a (1:3) ratio indicated at the beginning. The 'Ch. 4 (b)' staff also includes a 'Tr.r.t. 3:4' (Trill ratio) marking.

Entire duration 25:40:00
 TAPE SMPTE 00:21:40:000

Entire duration 26:50:000
 TAPE SMPTE 00:22:50:000

212 5''

Molto lento $\text{♩} = 10 (\text{♩} = 40)$

Part 4 'C'-1 $\text{♩} = 90$ (Moderato)

A. F.

A. F. (Rvb)

Unnoticeable change between thrill and Frullato (sempre ppp)

sfz sfzpp <molto *sfzpp sfzpp* <molto *ppp* *sfzpp sfzpp* <molto *p*

VCA-Flute Input ∞db

Ch 1 (a)

Ch 1 (b)

Ch 2 (a)

Ch 2 (b)

Ch 3 (a)

Ch 3 (b)

Ch 4 (a)

Ch 4 (b)

(TAPPE)
(Tonband)

***7** Because of the polyphonic density of Part "C", the notes on the (b) Channels (already recorded on the TAPE) should be only understood as a guide (from bar 218 on).
 (Wegen der polifonischen Schwierigkeiten des Teils "C", sind die Angaben von Kanäle 1-4 (b) (schon auf dem Tonband gespeichert) ab Takt 218 nur als Hilfe zu verstehen)

220

A.F.

Musical notation for two tracks: A.F. and A. F. (Rvb). Both tracks use a treble clef. The A.F. track contains a melodic line starting with a dotted quarter note, followed by a half note, and a dotted quarter note, all tied across the first three measures. The A. F. (Rvb) track contains a similar melodic line. In the final three measures, both tracks have a solid black rectangular block on the staff, indicating a mute or a specific performance instruction.

VCA-Flute Input

0 db

Ch 1 (a)

Ch 1 (b)

Ch 2 (a)

Ch 2 (b)

Ch 3 (a)

Ch 3 (b)

Ch 4 (a)

Ch 4 (b)

Musical notation for eight tracks: Ch 1 (a), Ch 1 (b), Ch 2 (a), Ch 2 (b), Ch 3 (a), Ch 3 (b), Ch 4 (a), and Ch 4 (b). Each track uses a treble clef. The notation shows a complex melodic structure with various note values and ties across the measures. Ch 1 (a) and Ch 1 (b) are the most active, with many notes and ties. Ch 2 (a) and Ch 2 (b) have fewer notes, often with ties. Ch 3 (a) and Ch 3 (b) have a similar sparse structure. Ch 4 (a) and Ch 4 (b) have the fewest notes, often with long ties.

Entire duration 27:06:000
TAPE SMPTE 00:23:06:000

(The 9 seconds is the duration
of the 3 3/4 measures + the 1/4 with ♩=90)
(Die 9" entsprechen den angegebenen

Entire duration 27:15:000
TAPE SMPTE 00:23:15:000

Improvisation 1. (Duration 9") Takten in 3/4 bzw. 1/4 mit ♩=90

Part 4 'C'- 2
Tempo giusto ♩=90

226

Free

A.F.

A. F. (Rvb)

VCA-Flute Input

Ch 1 (a)

Ch 1 (b)

Ch 2 (a)

Ch 2 (b)

Ch 3 (a)

Ch 3 (b)

Ch 4 (a)

Ch 4 (b)

f

ff

-∞ db

0 db

Improvisation 1

Improvisation 1

*8 (The articulation and duration of the notes are free, but they must be played in the time given. The same concerns the following Improvisations)
(Die Artikulation und Dauer der Noten sind frei, solange die in dem richtigen Zeitraum gespielt werden. Dasselbe gilt für die folgenden Improvisationen)

Entire duration 27:31:000
TAPE SMPTE 00:23:31:000

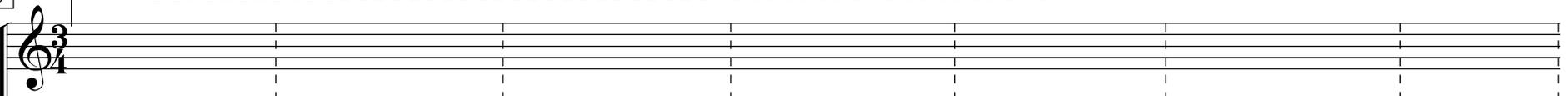
(The 17" seconds is the duration of the 3/4 measures and the 1/4 with ♩=90)

Improvisation 2. Duration 17"

(Die 17" entsprechen den angegebenen Takten in 3/4 bzw. 1/4 mit ♩=90)

Free

239

A.F.  

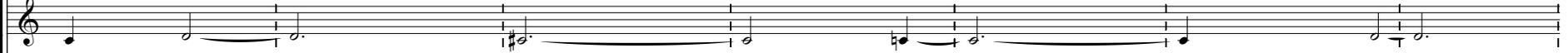
A. F. (Rvb) *ff*

VCA-Flute Input

Ch 1 (a)

Ch 1 (b) 

Ch 2 (a)

Ch 2 (b) 

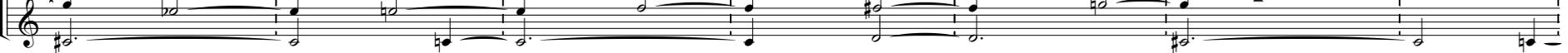
Improvisation 2

Ch 3 (a)

Ch 3 (b) 

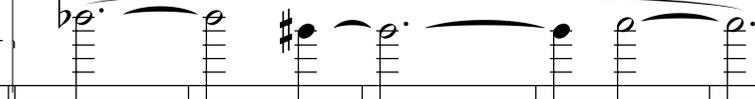
Improvisation 2

Ch 4 (a)

Ch 4 (b) 

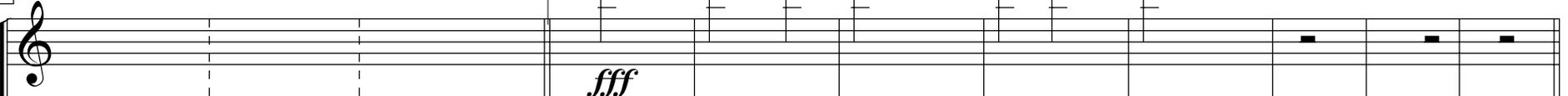
Entire duration 27:48:00
TAPE SMPTE 00:23:48:00

Part 4 'C'-3
Tempo giusto ♩=90



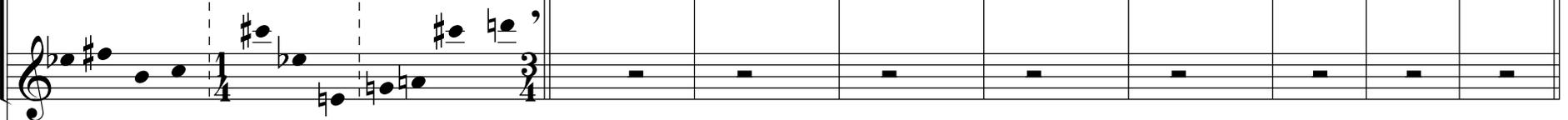
246

A.F.



fff

A. F. (Rvb)

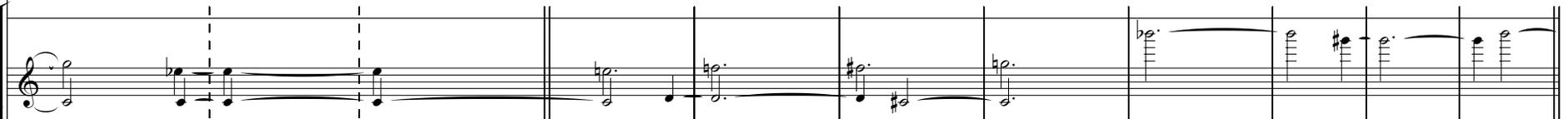


VCA-Flute Input

> -∞ db

< 0 db

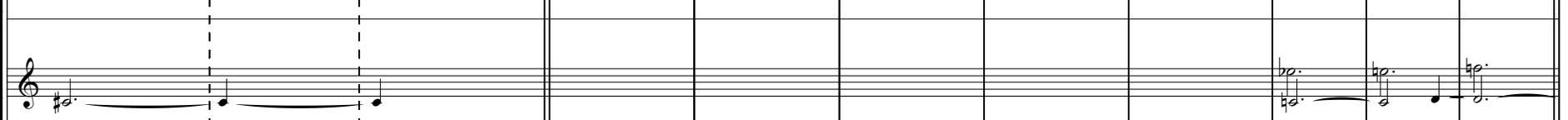
Ch 1 (a)



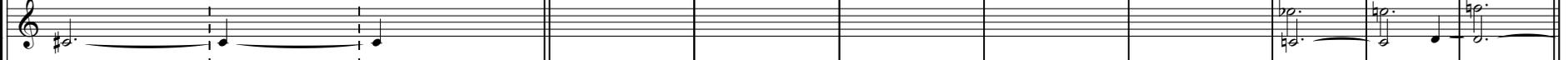
Ch 1 (b)



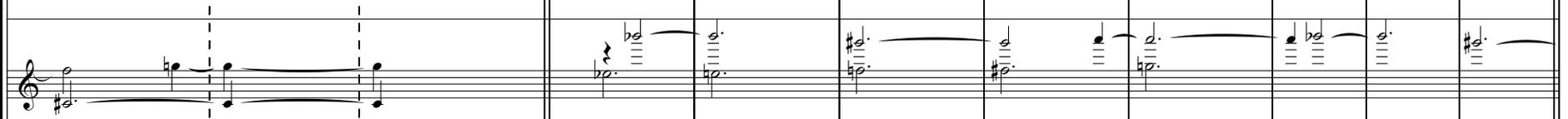
Ch 2 (a)



Ch 2 (b)



Ch 3 (a)



Ch 3 (b)



Ch 4 (a)



Ch 4 (b)



Entire duration	28:04:000
TAPE SMPTE	00:24:04:000

Improvisation 3. (Duration 31")

Free

(The 31" seconds is the duration of the 3/4 measures and the 1/4 with ♩=90), divided into 2 parts of 14" each and a pause of 3".)

(Die 31" entsprechen den angegebenen Takten in 3/4 bzw. 1/4 mit ♩=90), wobei diese Gesamtdauer in 2x 14" Teilen plus 1x 3" Pause untergeteilt ist)

257

A.F.

14"

A. F. (Rvb)

fff sempre (always staccatissimo or Frullato !!!)

VCA-Flute Input

Ch 1 (a)

Ch 1 (b)

Ch 2 (a)

Ch 2 (b)

Ch 3 (a) **Improvisation 3**

Ch 3 (b)

Ch 4 (a) **Improvisation 3**

Ch 4 (b)

Description of the Tape from Measure 257 to 261 = "Flute FM-1" = Modulation of the addition of "C-1", "C-2" and "C-3".

Beschreibung des Tonbandes vom Takt 257 bis 261 = "Flute FM-1" = Modulation der Summe von "C-1", "C-2", und "C-3".

Entire duration 28:21:00
TAPE SMPTE 00:24:21:000

265

A.F.

14"

fff sempre (always staccatissimo or Frullato !!!)

VCA-Flute Input

Ch 1 (a)

Ch 1 (b)

Ch 2 (a)

Ch 2 (b)

Ch 3 (a)

Ch 3 (b)

Ch 4 (a)

Ch 4 (b)

Entire duration 28:29:00
TAPE SMPTE 00:24:29:00

269

A.F.

Musical notation for two tracks: A.F. (top) and A. F. (Rvb) (bottom). Both tracks are in treble clef. The A.F. track contains a series of notes, some with accidentals (flats and sharps). The A. F. (Rvb) track contains a more complex rhythmic pattern with many notes and accidentals. Vertical dashed lines indicate time markers. A double bar line is present on the right side of the notation.

VCA-Flute Input

- ∞ db

Ch 1 (a)

Ch 1 (b)

Ch 2 (a)

Ch 2 (b)

Ch 3 (a)

Ch 3 (b)

Ch 4 (a)

Ch 4 (b)

Waveform displays for eight channels: VCA-Flute Input, Ch 1 (a), Ch 1 (b), Ch 2 (a), Ch 2 (b), Ch 3 (a), Ch 3 (b), Ch 4 (a), and Ch 4 (b). The VCA-Flute Input channel shows a signal that drops to zero at the end of the track. The other channels show a continuous, high-frequency, sawtooth-like waveform. Vertical dashed lines and a double bar line are present, corresponding to the musical notation above.

Entire duration 28:37:000
TAPE SMPTE 00:24:37:000

Entire duration 28:57:000
TAPE SMPTE 00:24:57:000

273

A.F.

A. F. (Hall)

VCA-Flute Input

Ch 1 (a)

Ch 1 (b)

Ch 2 (a)

Ch 2 (b)

AM "3": S & H = *Carrier* (All 4 Channels)
Live-Electr. "B" Material = *Modulator* (Channels 2 + 4 (b))

Ch 3 (a)

Ch 3 (b)

Ch 4 (a)

Ch 4 (b)

Entire duration 29:04:00
TAPE SMPTE 00:25:04:00

287

A.F.

A. F. (Hall)

VCA-Flute Input

Ch 1 (a)

Ch 1 (b)

Ch 2 (a)

Ch 2 (b)

Ch 3 (a)

Ch 3 (b)

Ch 4 (a)

Ch 4 (b)

Entire duration 29:35:000
TAPE SMPTE 00:25:35:000

Entire duration 29:47:000
TAPE SMPTE 00:25:47:000

301

PART 5

A.F.

A. F. (Hall)

VCA-Flute Input

Ch 1 (a)

Ch 1 (b)

Ch 2 (a)

Ch 2 (b)

Ch 3 (a)

Ch 3 (b)

Ch 4 (a)

Ch 4 (b)

Entire duration 29:57:000
TAPE SMPTE 00:25:57:000

Entire duration 30:16:000
TAPE SMPTE 00:26:16:000

311

A.F. 

A. F. (Hall) 

fff *p* *fff* *pp* *sfz* *mf* *cresc. molto*

VCA-Flute Input

Ch 1 (a)

Ch 1 (b)

Ch 2 (a)

Ch 2 (b)

Ch 3 (a)

Ch 3 (b)

Ch 4 (a)

Ch 4 (b)

Entire duration 30:33:000
TAPE SMPTE 00:26:33:000

325

A.F.

A. F. (Hall)

VCA-Flute Input

Ch 1 (a)

Ch 1 (b)

Ch 2 (a)

Ch 2 (b)

Ch 3 (a)

Ch 3 (b)

Ch 4 (a)

Ch 4 (b)

The image shows a musical score for a flute part, starting at measure 325. The score is written on two staves: the top staff is labeled 'A.F.' and the bottom staff is labeled 'A. F. (Hall)'. The music is in 5/4 time and features various dynamics and articulations. The dynamics are marked as *mp*, *mf*, *fff*, *meno f*, *p*, *ff*, and *fff*. The articulations include glissando (gliss.), accents (>), and frullato. The score is accompanied by a VCA-Flute Input section and four pairs of VCA channels (Ch 1, Ch 2, Ch 3, Ch 4), each with a (a) and (b) channel. The VCA channels are represented by horizontal lines and wavy patterns.

Entire duration 30:53:000
TAPE SMPTE 00:26:53:000

Entire duration 31:07:000
TAPE SMPTE 00:27:07:000

341

A.F.

A. F. (Hall)

VCA-Flute Input

Ch 1 (a)

Ch 1 (b)

Ch 2 (a)

Ch 2 (b)

Ch 3 (a)

Ch 3 (b)

Ch 4 (a)

Ch 4 (b)

The image displays a musical score for a flute part and its corresponding VCA channels. The top section features two staves: 'A.F.' (top) and 'A. F. (Hall)' (bottom). The 'A.F.' staff contains a series of dotted quarter notes, while the 'A. F. (Hall)' staff contains a more complex melodic line with slurs and accents. A dynamic marking of *mf* is present. Below these are two boxes for duration and SMPTE time. The bottom section consists of eight VCA channels, labeled 'Ch 1 (a)', 'Ch 1 (b)', 'Ch 2 (a)', 'Ch 2 (b)', 'Ch 3 (a)', 'Ch 3 (b)', 'Ch 4 (a)', and 'Ch 4 (b)'. Each channel has a treble clef staff with a solid line for (a) and a wavy line for (b). The score is divided into measures by vertical bar lines.

Entire duration 31:21:00
TAPE SMPTE 00:27:21:000

Entire duration 31:27:00
TAPE SMPTE 00:27:27:000

Entire duration 31:33:00
TAPE SMPTE 00:27:33:000

355

A.F.

A. F. (Hall)

sempre ff (sino al fine)

VCA-Flute Input

Ch 1 (a)

Ch 1 (b)

Ch 2 (a)

Ch 2 (b)

Ch 3 (a)

Ch 3 (b)

Ch 4 (a)

Ch 4 (b)

Entire duration 31:47:000
TAPE SMPTE 00:27:47:000

365

30"

30"

A.F.

A. F. (Hall)

(bisbigliando + Frullato)

mf

ppp

- ∞ db

VCA-Flute Input

30"

Ch 1 (a)

Ch 1 (b)

decresc.

- ∞ db

Ch 2 (a)

Ch 2 (b)

decresc.

- ∞ db

Ch 3 (a)

Ch 3 (b)

decresc.

- ∞ db

Ch 4 (a)

Ch 4 (b)

decresc.

- ∞ db