FARFISA

Polychrome

(Vintage circa 1982)

Keyboard.

Service Manual.

(Copy)

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Reproduction Notice.

We are sorry to advise that the original version of this Service Manual, which may have contained some long pages showing the instrument circuits and layouts is long out of print, and the cost to produce the occasional copy requested today, in the original page size and format is far too expensive to consider, and we have provided a reproduction manual.

Since the original artwork is no longer available, we need to copy any long pages in sections, which will overlap, and we ask that you join them to form a long print if you wish.

Additionally, given the age of some instruments, it may be that the condition of the only manual we have - or can obtain - has deteriorated to a degree, and may show signs of 'age' discolouration or have some other minimal defects.

This reproduction has tried to faithfully reproduce the original manual with all important features and information left intact.

It is regretted that this situation exists, but wish you to know that this copy has been reproduced as best as can be achieved, given the circumstances available now, at an acceptable cost.

We sincerely hope that this is acceptable to you and enables you to enjoy the full use of your instrument.

WARNING

THE MAINS SUPPLY MUST BE DISCONNECTED
BEFORE COMMENCING ANY SERVICE
OR MAKING ANY ADJUSTMENTS.

Safety first at all times.

FARFISA

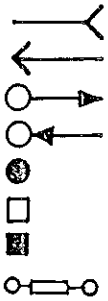
Polychrome

SCHEMATIC DIAGRAM
&
TECHNICAL INFORMATION

Model No 111225

SE 313
June '82

SCHEMATIC NOTES



FEMALE CONNECTOR
MALE CONNECTOR
OUTPUT SIGNAL (to DWG .....) or (to PA .....)
INPUT SIGNAL (from DWG .....) or (from PA .....)
CONNECTING POINT (ON p.c.b.)
TEST POINT (TP .....)
CONNECTING POINT (OFF p.c.b.)
RESISTOR MOUNTED ON RIVET (ELEVATED ON p.c.b.)

All Resistors 1/4w unless otherwise specified
All Capacitors are in microfarad unless otherwise specified
All Tabswitches, Keyswitches and Push button switches show OFF position
See part list for component part numbers
All D.C. voltages measured to ground with a voltmeter 20.000 Ω /V

WIRE COLOURS CORRISPONDING TO SUPPLY VOLTAGE:

Grey	V > +15V	Green	SUPPLY GROUND ⊥
Blue	+15V	Black	CHASSIS GROUND ⏚
Red	+12V	White	−12V
Orange	+ 5V	Yellow	−15V

ABBREVIATIONS OF WIRE COLOURS

WHITE	(WH)	ORANGE	(OR)	VIOLET	(VI)
RED	(RE)	GREEN	(GR)	IVORY	(IV)
BLACK	(BK)	BROWN	(BR)	SKY BLUE	(SB)
YELLOW	(YE)	GREY	(GY)	PINK	(PK)
BLUE	(BL)	BLACK-GREY	(BG)		

PLEASE NOTE

For a correct operation of the instrument, after having switched it off, be careful to wait at least 3 secs. before switching it on again.

AVVERTENZA

Dopo aver spento lo strumento, per un corretto funzionamento, attendere almeno 3 secondi prima di riaccenderlo.

ATTENTION

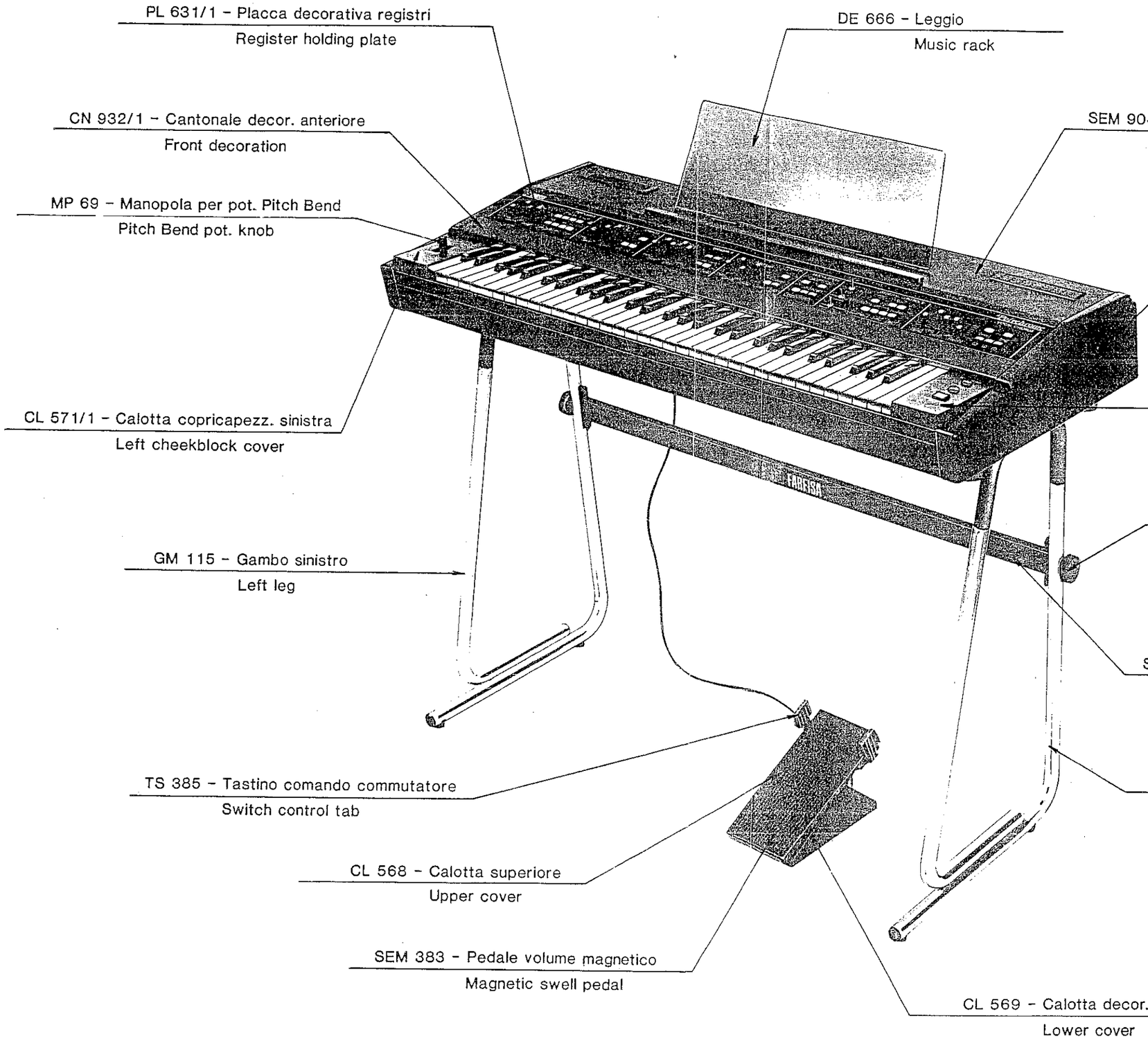
Pour un usage approprié de l'instrument, attendre environ 3 secondes pour le rallumer après l'avoir éteint.

ACHTUNG

Damit das Instrument gut funktionieren kann, nach seiner Ausschaltung müssen wenigstens 3 Sekunden vergehen, bevor es wieder eingeschaltet wird.

POLYCHROME INDEX

POLYCHROME INDEX



PL 631/1 – Placca decorativa registri
Register holding plate

DE 666 – Leggio
Music rack

CN 932/1 – Cantonale decor. anteriore
Front decoration

SEM 9044 – Coperchio superiore completo
Complete top cover

MP 69 – Manopola per pot. Pitch Bend
Pitch Bend pot. knob

MOB 187 – Mobile legno
Wooden cabinet

CL 571/1 – Calotta copricapezz. sinistra
Left cheekblock cover

CL 570/1 – Calotta copricapezz. destra
Rigth cheekblock cover

PM 43/1 – Pomolo per fissaggio gambi
Knob fixing leg to cabinet

GM 115 – Gambo sinistro
Left leg

SOG 350 – Gruppo fiancata trasversale
Leg holding bar group

TS 385 – Tastino comando commutatore
Switch control tab

GM 114 – Gambo destro
Rigth leg

CL 568 – Calotta superiore
Upper cover

SEM 383 – Pedale volume magnetico
Magnetic swell pedal

CL 569 – Calotta decor. inferiore
Lower cover

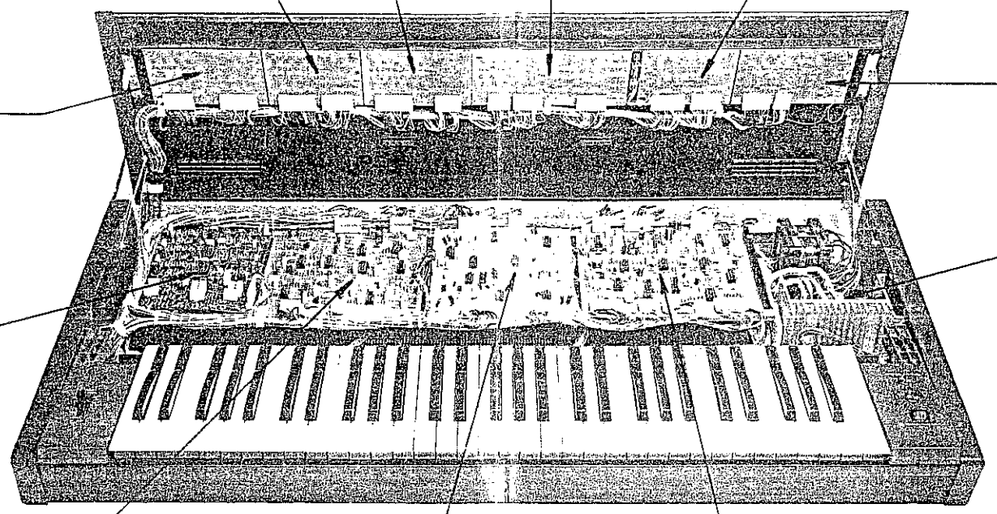
Polychrome

Ensemble controls & Tabs
PA 1194 - DWG 6-7

Phaser controls & Modulation tabs
PA 1195 - DWG 5-7-10

Strings controls & Tabs
PA 1193 - DWG 6-7

General controls & Tabs
PA 1196 - DWG 7



Percussive controls & Tabs
PA 1192 - DWG 5-7

Chorus controls & Tabs
PA 1197 - DWG 11-12

Stabilizer & Fuses board
PA 1104 - DWG 13

Fast delay lines
PA 1043/1 - DWG 9

Percussive filters
PA 1106 - DWG 5

Phaser - Preamplifier - Headphone ampl. & Volume control
PA 1109 - DWG 10

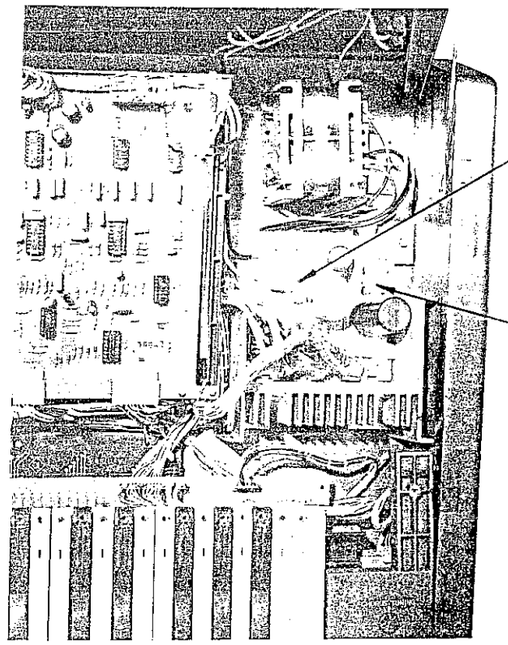
Soft filters
PA 1108 - DWG 6

COME CAMBIARE I FUSIBILI :

Svitare le due viti del coperchio posteriore e ruotarlo verso il basso con attenzione, allentare le 4 viti poste sui fianchini in legno e sollevare coperchio superiore.

HOW TO CHANGE FUSES :

Carefully turn the back cover downward after having unscrewed the two relevant screws.
Then unfasten the four screws located on the wooden side panels and lift the upper cover.



Fusibile primario
Primary fuse

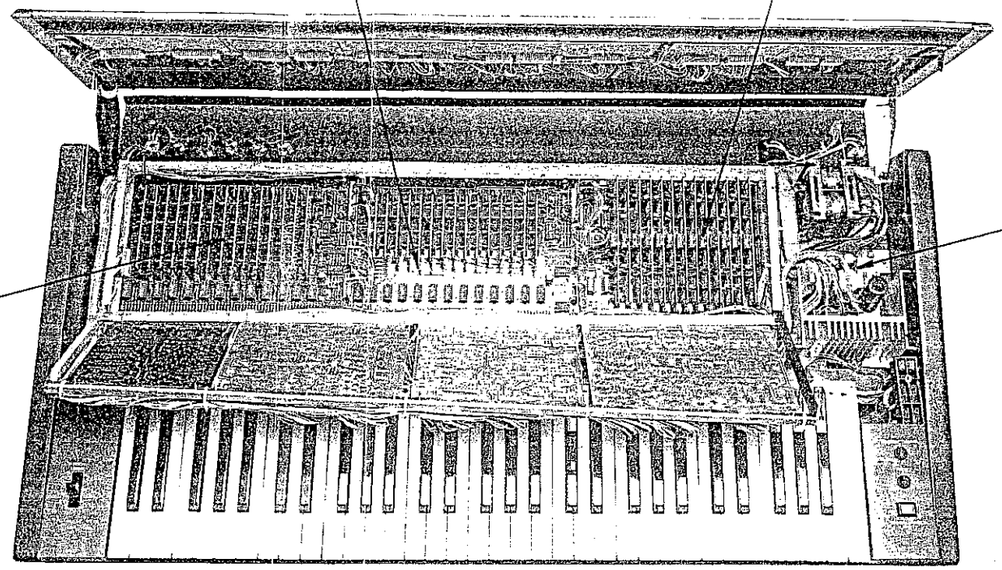
Fusibili secondario
Secondary fuses

Soft generation

PA 1135 - DWG 4

Chorus conversion & Scanning

PA 1177/1 - DWG 11

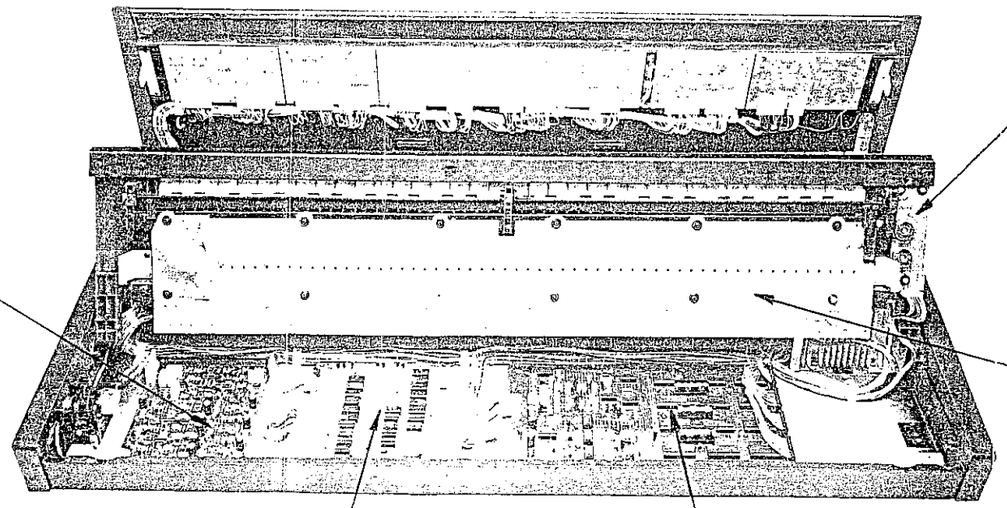


Stabilizer & Fuses board

PA 1104 - DWG 13

Percussion generation

PA 1135/1 - DWG 4



Split memory & Pitch

PA 1214 - DWG 3-11

Slow delay lines

PA 1043/3 - DWG 8

Keyswitches & Touch control

PA 1105 -DWG 2

Generation & Scanning logic

PA 1110 - DWG 3

Chorus generation & Filters

PA 1178/1 - DWG 12

BLOCK DIAGRAM

PA 1135/1 - DWG 4
BUFFERS
SERIAL TO PARALLEL CONVERTERS
PERCUSSION ENVELOPE MODULE PA 1137
TDA 1008
MIXER
PERCUSSIVE TABS PA 1192-DWG 7
PA 1106 DWG 5
PIANO HARPSICH. HONKY TONK FILTERS
V.C.F. GUITAR
EL. GUITAR & CL. GUITAR FILTERS
SWITCHES
MIXER
DRIVER
A.D.S.R.
SUSTAIN & DECAY CONTROL
TREMOLO
TREMOLO
EXT. INSTRUMENT
SENSITIVITY
AMPLIFIER
EXT. INSTRUMENT SWITCHES
PA 1109 - DWG 10
PHASER MUTING CONTROL
PERCUSS. SWITCHES
STRINGS SWITCHES
ENSEMBLE SWITCHES
MIXER
PHASER
PHASER MUTING
PHASER OSCILLATOR
IN CHORUS
BUFFER
MAIN MIXER
VOLUME CONTROL
GENERAL OUT
CHORUS OUT
HEADPHONE
HEADPHONE AMPLIFIER
PERC. VOL.
ENSEMBLE VOL.
PERCUSS. SWITCHES
ENSEMBLE SWITCHES
MIXER
MIXER
SLOW DELAY LINES PA 1043/2 DWG 8
MIXER
MIXER
FAST DELAY LINES PA 1043/1 DWG 9
STRINGS SWITCHES
STRINGS VOL.
SWELL PEDAL DWG 10
PITCH & MEMORY SPLIT PA 1214 - DWG 3-11
PITCH BEND
PITCH BEND & PEDAL VIBRATO
MASTER OSCILLATOR
T.O.S.
PA 1110 DWG 3
PA 1105 DWG 2
KEYSWITCHES
SCANNING FREQUENCY GENERATION
SCANNING OSCILLATOR
KEY PRESSED INFORMATION
DATA SWITCHES
TOUCH CONTROL
PROGRAMMABLE SPLIT LOGIC
+6V +9V STABILIZER
PA 1135 - DWG 4
BUFFERS
SERIAL TO PARALLEL CONVERTERS
SOFT ENVELOPE MODULE PA 1136
TDA 1008
MIXER
NOISE
V.C.F.
V.C.A.
ACCORDION FILTER
DRIVER
DRIVER
A.D.S.R.
SWITCHES
STRINGS FILTERS
V.C.A.
V.C.F. BRILL.
STRINGS ATTACK
SUSTAIN CONTROL
PA 1108 - DWG 6
PA 1196 - DWG 7
TOUCH-CONTROL TAB
DOUBLE OCTAVE SPLIT INVERTING SWITCHES
NOISE SWITCHES
EXT. INSTRUMENT
CANCEL PHASER & MODULATION
STRINGS TAB & CONTROLS
PA 1193 - DWG 7
ENSEMBLE TAB & CONTROLS
PA 1194 - DWG 7
PHASER TABS
MODULATION TABS
PA 1195 DWG 7
VOCAL CHORUS
BUFFER COUPLER
S.P CONVERTERS
ENVELOPE MODULE PA 1190
ATTACK OSCILLATOR
PA 1177/1 DWG 12
OSC. 1
OSC. 2
OSC. 3
GENER. 1
GENER. 2
GENER. 3
CURRENT-VOLTAGE CONVERTER
LOW-PASS FILTERS
MIXER
V.C.F.
V.C.A.
DRIVER
ENVELOPE MODULE
PA 1178/1 - DWG 11
ATTACK POT.
SUSTAIN POT.
TAB CHORUS
RESONANCE & CUTOFF POT.
VOLUME POT.
PA 1197 - DWG 11-12
MAINS
POWER SUPPLY & STABILIZER
PA 1104 - DWG 13
+25V
+15V
+12V
+5V
GND
-15V

Drawn by	Date MAY '82	Model POLYCHROME	Serial No
Checked by	Date	Code SE 313	Revision
Approved by	Date	DWG 1 OF 13	Date

I.C.20-22-23-25 4049 · I.C.7-12 4098 · I.C.9-27 4071 · I.C.8-16 4081 · I.C.11 4011 · I.C.10 4016 · I.C.17 4069 · I.C.4-5 4030

SP CONVERTER

SPLIT LOGIC

DOUBLE OCTAVE CONTROL IN SPLIT

CKCE

LOAD

DATI

DAPE

POWER ON RESET

SPLIT MEMORY PA-1214 1/3

PA-1105 DWG 2

PA-1196 DWG 7

DOUBLE OCTAVE SPLIT INVERTING

PITCH BEND

TUNING

MC1456

CA3080

6 Hz

SWELL PEDAL SOCKET PIN-4

PEDAL VIBRATO MODULATOR

PITCH

PA-1214 - 2/

BUFFER

MASTER OSCILLATOR

SN74221

TONE GENERATOR

MO86 B1

SCANNING FREQUENCIES GENERATOR

SCANNING OSCILLATOR

STABILIZERS

1 TO 64 COUNTER

CLOCK GENERATION AND SCANNING LOGIC PA-1110

Drawn by	Date MAY '82	Model POLYCHROME	Serial no
Checked by	Date	Code SE-313	Revision
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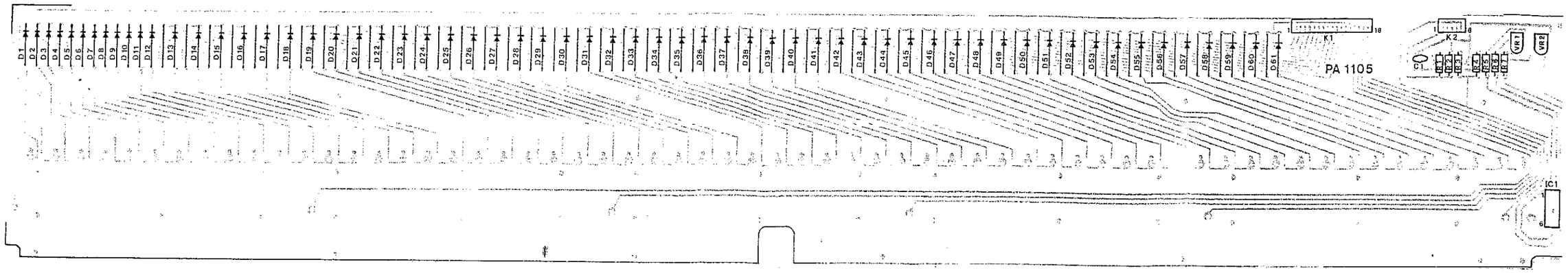
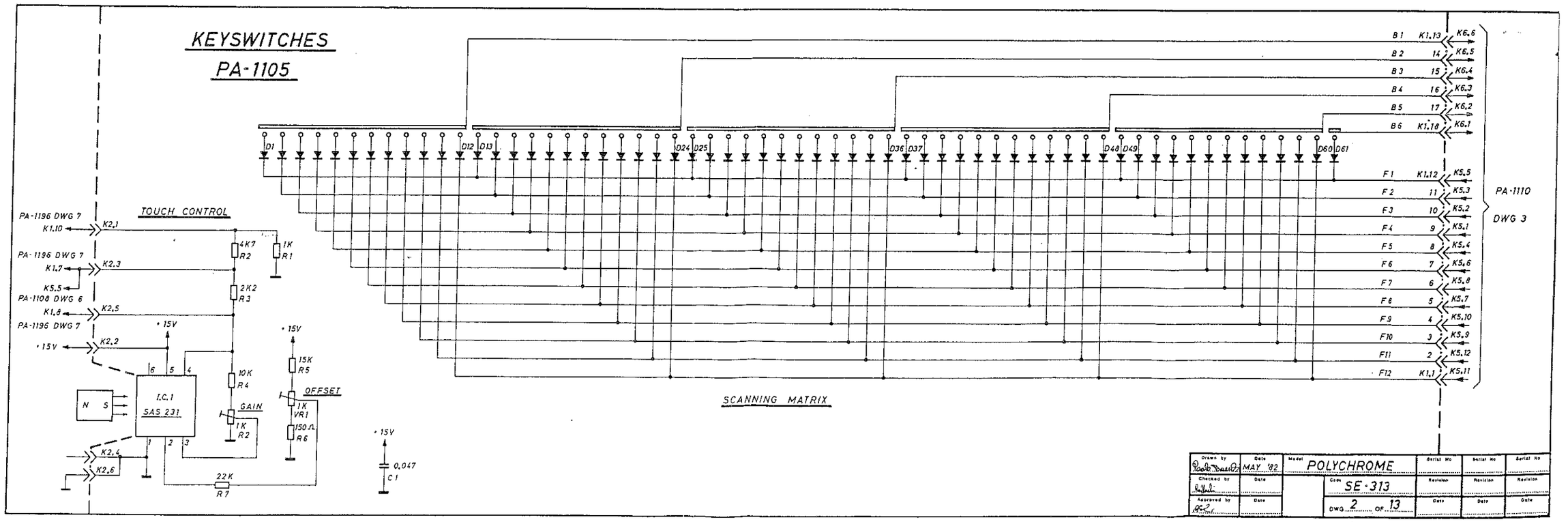

D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 D16 D17 D18 D19 D20 D21 D22 D23 D24 D25 D26 D27 D28 D29 D30 D31 D32 D33 D34 D35 D36 D37 D38 D39 D40 D41 D42 D43 D44 D45 D46 D47 D48 D49 D50 D51 D52 D53 D54 D55 D56 D57 D58 D59 D60 D61
K1
1
18
PA 1105
K2
8
1
VR1
VR2
R1 R2 R3 R4 R5 R6 R7
C1
1
6

PA 1105


KEYSWITCHES
PA-1105
D1 D12 D13 D24 D25 D36 D37 D48 D49 D60 D61
B1 K1,13 K6,6
B2 14 K6,5
B3 15 K6,4
B4 16 K6,3
B5 17 K6,2
B6 K1,18 K6,1
F1 K1,12 K5,5
F2 11 K5,3
F3 10 K5,2
F4 9 K5,1
F5 8 K5,4
F6 7 K5,6
F7 6 K5,8
F8 5 K5,7
F9 4 K5,10
F10 3 K5,9
F11 2 K5,12
F12 K1,1 K5,11
PA-1110
DWG 3
SCANNING MATRIX
TOUCH CONTROL
PA-1196 DWG 7
K1,10
K2,1
K1,7
K2,3
K5,5
PA-1108 DWG 6
K1,8
K2,5
PA-1196 DWG 7
+15V
K2,2
4K7 R2
1K R1
2K2 R3
10K R4
GAIN
1K R2
15K R5
OFFSET
1K VR1
150Ω R6
22K R7
I.C.1 SAS 231
N S
K2,4
K2,6
0,047 C1
Drawn by
Date MAY '82
Model POLYCHROME
Checked by
Date
Approved by
Date
Code SE·313
DWG 2 OF 13

K4.8 K4.11 K4.5 K4.2 K4.10 K4.3

PA 1137 PA 1137 PA 1137 PA 1137 PA 1137 PA 1137 PA 1137 PA 1137 PA 1137 PA 1137 PA 1137

MIXER

TL 084

TL 084

TL 084

PA 1106 - DWG 5

PA 1135/1
PERCUSSION GENERATION

PA 1135
SOFT GENERATION

MIXER

TL 084

TL 084

PA 1108 DWG 6

	OCT. '81	POLYKYDME	
		SE 313	
		DWG 4 OF 13	

ENVELOPE MODULE

BUFFERS

S.P. CONVERTER

PA 1137

PA 1136

PA-1135/1-DWG 4

PA-1106

PIANO FILTER

HARPSICHORD FILTER

HARPSICHORD MUTING

TREMOLO MODULATOR

TREMOLO

CL. GUITAR FILTER

CLAVICHORD FILTER

EMPHASIS

VOLUME

DECAY

BRILLIANCE

A.D.S.R.

V.C.F.

DRIVER

DECAY - RELEASE CONTROL

CERAMIC

LM13700

TL084

CA 3090

UA 741

4016

I.C.1-5-7-12

S1

S2

Drawn by	Date MAY '82	Project POLYCHOME	Serial No
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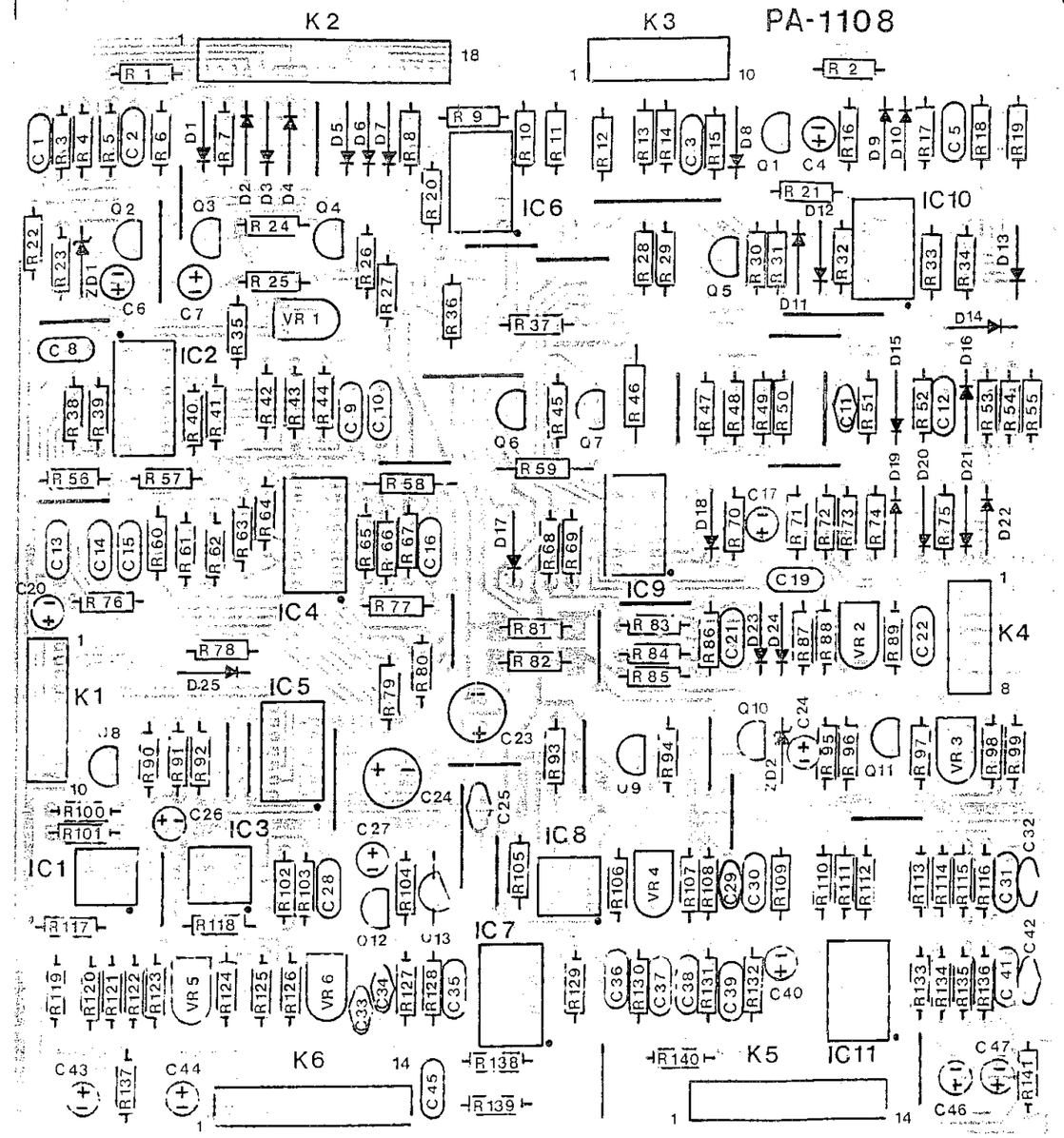
PA-1108



PA 1108

PA-1193 (2/5)
STRINGS BRILLIANCE
100K + 100K LIN. P2
VOLUME STRINGS 10K LIN. P1
PA-1193 (3/5)
PA-1194 DWG 7
PA-1135 DWG 4
PA-1109 DWG 10
PA-1105 DWG 2
PA-1178/1 DWG 12
PA-1195 DWG 7
PA-1106 DWG 5
PA-1196 DWG 7
PA-1194 (4/5)
EMPHASIS 10K LIN. P5
PA-1194 (1/5)
A.D.S.R.
BRASS - REED V.C.F.
LM 13700
ENSEMBLE
ATTACK P3 220K LIN.
BRILLIANCE 10K LIN. P2
SUSTAIN LEVEL 10K LIN. P4
PA-1194 (2/5)
V.C.F. DRIVER
ENSEMBLE V.C.A.
CA 3080
ENSEMBLE VOLUME P1 100K LIN.
PA-1194 (3/5)
SUSTAIN CIRCUIT
STRINGS RELEASE P4 10K LIN.
PA-1193 (4/5)
TL 084
μA 741
NOISE GENERATOR
PA 1108

Drawn by	Date MAY '92	Model POLYCHROME	Serial No	Serial No	Serial No
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STRINGS FILTERS

PA-1193 (2/5) STRINGS BRILLIANCE

100K+100K LIN. P2

VOLUME STRINGS 10K LIN. P1 (3/5)

CA 3086

LM 13700

H1

H2

A.D.S.R.

BRASS-REED V.C.F.

ENSEMBLE

ATTACK

BRILLIANCE

PA-1194 (1/5)

SUSTAIN LEVEL

PA-1194 (2/5)

10K LIN. P4

IC 5-6-11

4016

STRINGS ATTACK PA-1193 (1/5)

ATTACK CIRCUIT

ACCORDION FILTER

TL 084

ENSEMBLE V.C.A.

CA 3080

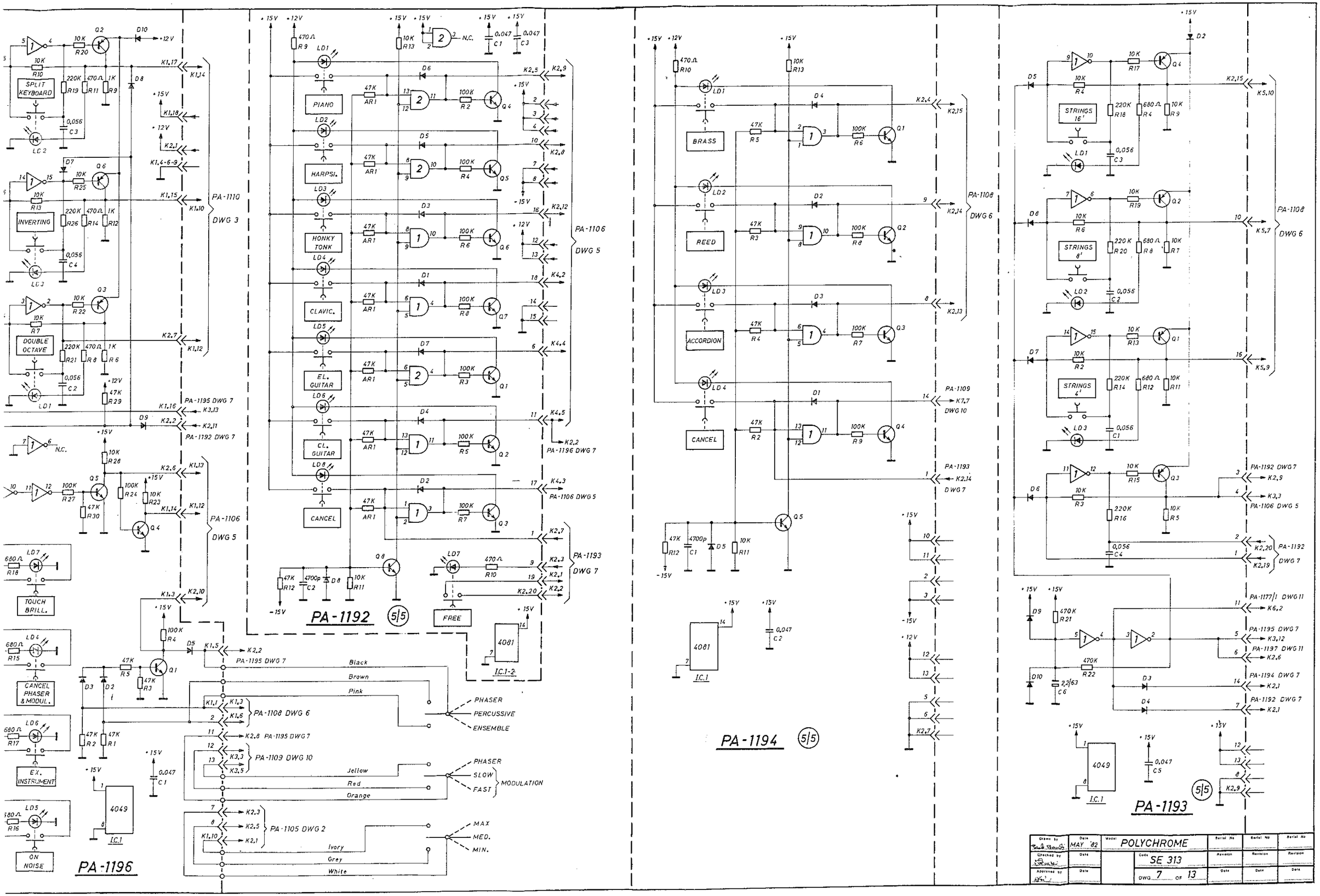
ENSEMBLE VOLUME PA-1194 (3/5)

PA-1109 DWG 10

V.C.F. DRIVER

SUSTAIN CIRCUIT

STRINGS RELEASE PA-1193 (4/5)


SPLIT KEYBOARD
INVERTING
DOUBLE OCTAVE
TOUCH BRILL.
CANCEL PHASER & MODUL.
EX. INSTRUMENT
ON NOISE
PIANO
HARPSI.
HONKY TONK
CLAVIC.
EL. GUITAR
CL. GUITAR
CANCEL
FREE
BRASS
REED
ACCORDION
CANCEL
STRINGS 16'
STRINGS 8'
STRINGS 4'
PHASER
PERCUSSIVE
ENSEMBLE
PHASER
SLOW
FAST
MODULATION
MAX
MED.
MIN.
Black
Brown
Pink
Jellow
Red
Orange
Ivory
Grey
White
PA-1110 DWG 3
PA-1106 DWG 5
PA-1192
PA-1196
PA-1108 DWG 6
PA-1194
PA-1193
PA-1195 DWG 7
PA-1192 DWG 7
PA-1109 DWG 10
PA-1105 DWG 2
PA-1177/1 DWG 11
PA-1197 DWG 11
PA-1194 DWG 7
5/5
IC.1
IC.1-2
4081
4049
N.C.
POLYCHROME
SE 313
MAY '82

STRINGS PHASER
STRINGS SLOW
ENSEMBLE PHASER
ON ENSEMBLE
PERCUSS. PHASER
ON PERCUSS.
FAST PERCUSS.
FAST ENSEMBLE
SPLIT KEYBOARD
INVERTING
DOUBLE OCTAVE
TOUCH BRILL.
CANCEL PHASER & MODUL.
E.K. INSTRUMENT
ON NOISE
PIANO
HARPSI.
HONKY TONK
CLAVIC.
EL. GUITAR
CL. GUITAR
CANCEL
FREE
BRASS
REED
ACCORDION
CANCEL
PHASER
PERCUSSIVE
ENSEMBLE
MODULATION
SLOW
FAST
MAX
MED.
MIN.
Black
Brown
Pink
Yellow
Red
Orange
Ivory
Grey
White
PA-1195 4/4
PA-1196
PA-1192 5/5
PA-1109 DWG 10
PA-1110 DWG 3
PA-1106 DWG 5
PA-1193 DWG 7
PA-1108 DWG 6
PA-1105 DWG 2
PA-1195 DWG 7
PA-1192 DWG 7
PA-1196 DWG 7
4049
4081
IC.1-2
IC.1

0.6 Hz OSCILLATOR

PHASE SHIFTERS

ASTABLE MODULATORS

DELAY LINES TDA 1022

24dB LOW BASS FILTERS

MIXER

MIXER

MIXER

TDA1022

TDA1022

PA 1109 - DWG 10

PA-1043/3
DELAY LINES
SLOW

	JUNE'82	POLYCHROME			
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		sheet 8 of 13			

0.6Hz OSCILLATOR

PHASE SHIFTERS

ASTABLE MODULATORS

DELAY LINES TDA1022

24dB LOW BASS FILTERS

MIXER

MIXER

MIXER

TDA1022

TDA1022

6Hz OSCILLATOR

K5.12

K5.14

K5.13

K1.4
PA 1110 - DWG 3

PA 1178/1 - DWG 12

K1.1 NC

K1.9

K8.11

K8.14

K8.7

K1.13

PA 1109 - DWG 10

180K
R120

PA-1043/1
DELAY LINES
FAST

DRAWN	Date JUNE '82	MODE POLYCHROME			
CHECKED	Date	FILE SE 313			
APPROVED	Date	DWG 9 OF 13			

HEADPHONE AMPLIFIER

TDA 2611 A

HEADPHONE

GENERAL OUTPUT

CHORUS OUTPUT

TCA 730

VOLUME CONTROL

TL084

MUTING PHASER

PA-1111

PERC. SUSTAIN

VIBRATO

SWELL PEDAL

PA-1253

I.C.1 SAS 231

OFFSET

GAIN

PA-1108 DWG 6

PA-1043/2 DWG 8

PA-1043/1 DWG 9

PA-1106 DWG 5

PA-1194 DWG 7

PA-1197 DWG 12

PA-1110 DWG 3

LM13700

UA 741

I.C.6-10-11-14-16 = 4016 BE

I.C.7 = 4011 BE

I.C.13 = 4049

PHASER CIRCUIT

PA-1196 DWG 7

PA-1195 DWG 7

EXT. INSTRUMENT

SENSIBILITY

MC1458

PA-1195 2/4

SPEED

220K LIN.

L.F.O.

DRIVER

PA-1109

PA-1195 3/4 DWG 7

10K LIN. P2 EMPHASIS

10K LIN. P1 VOLUME

Drawn by	Date MAY '82	Model POLYCHROME	Serial No	Serial No	Serial No
Checked by	Date	Code SE-313	Revision	Revision	Revision
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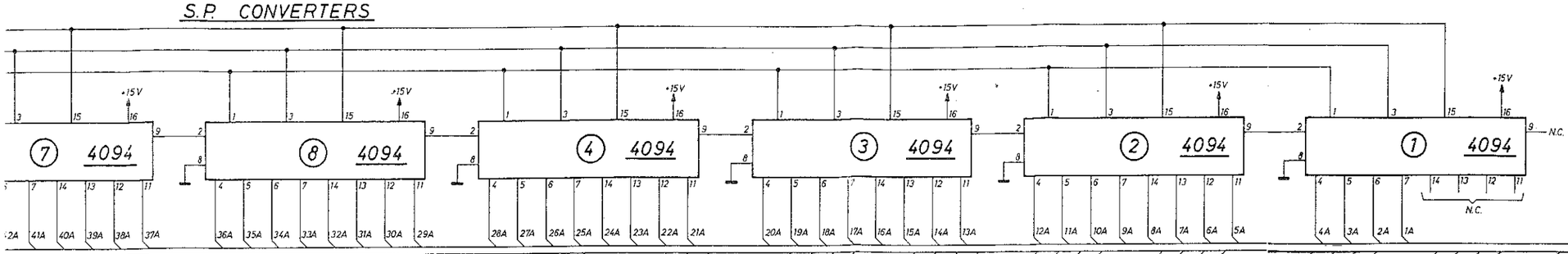
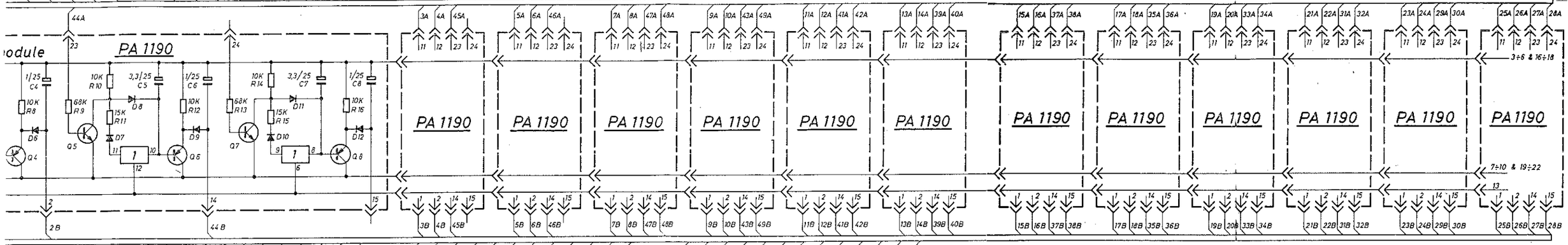
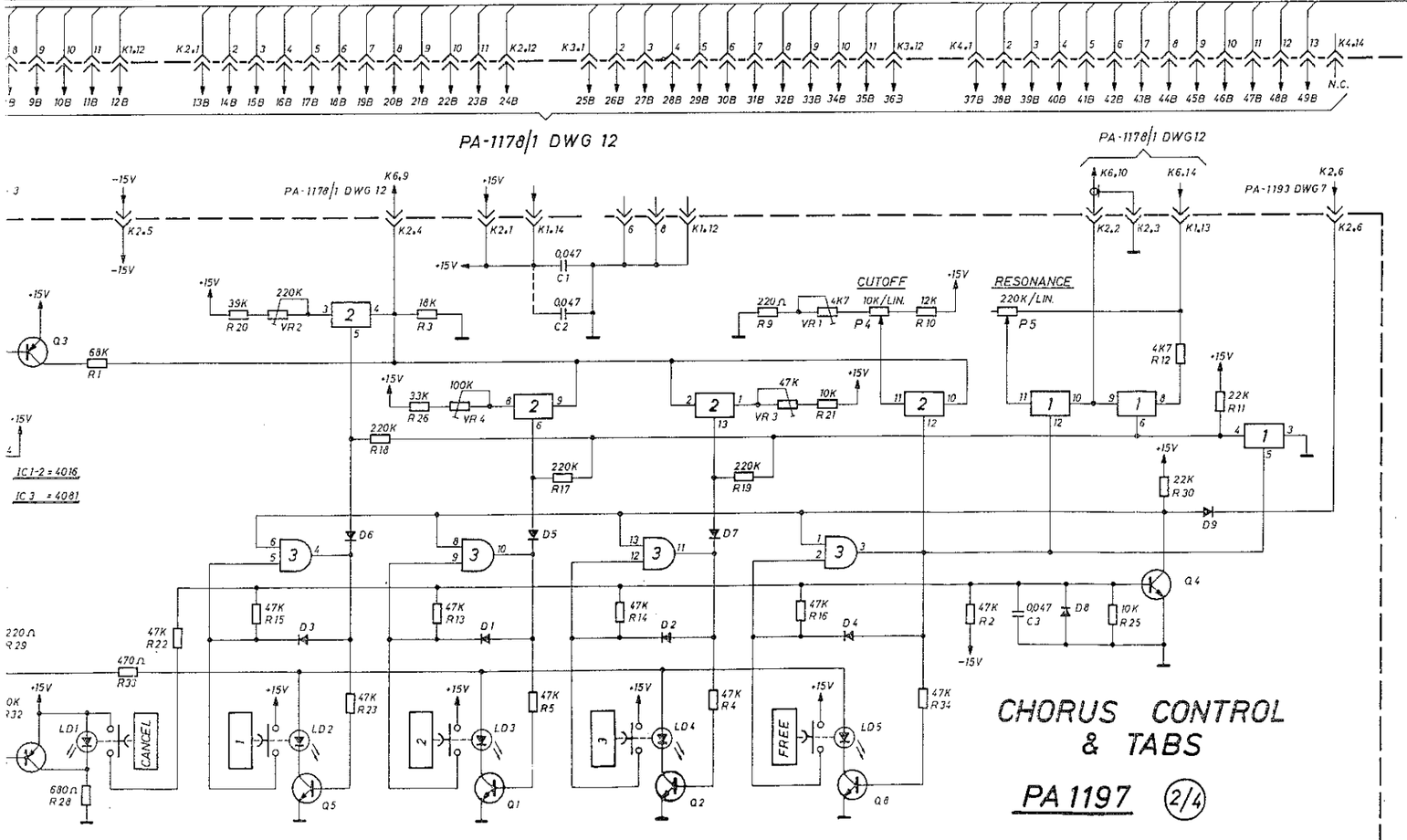
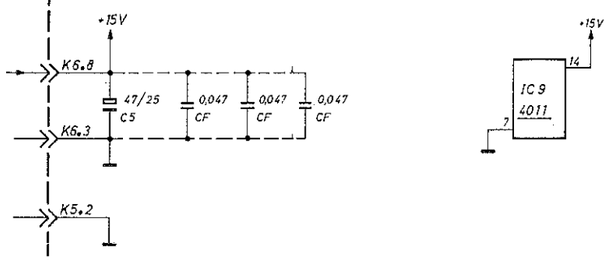
PERCUSSIVE SWITCHES
STRINGS SWITCHES
ENSEMBLE SWITCHES
PHASER SWITCHES
CANCEL
TL084
LM13700
UA 741
TCA 730
MUTING PHASER
PHASER CIRCUIT
VOLUME CONTROL
HEADPHONE AMPLI
TDA 2611 A
PA-1111
PERC. SUSTAIN
SWELL PED.
EXT. INSTRUMENT
SENSIBILITY
MC 1458
SPEED
L.F.O.
DRIVER
I.C. 6-10-11-14-16 = 4016 BE
I.C. 7 = 4011 BE
I.C. 13 = 4049

S.P CONVERTERS









CHORUS CONVERSION & SCANNING
PA 1177/1

Drawn by	Date MAY '82	Model POLYCHROME	Serial No	Serial No	Serial No
Checked by	Date	Code SE 313	Revision	Revision	Revision
Approved by	Date	DWG 11 OF 13	Date	Date	Date

S.P. CONVERTERS

PA-1110 DWG 3

PA 1197 (1/4)

ATTACK

220K/LIN. P2

Envelope module PA 1190

IC 1-2 = 4016

IC 3 = 4081

PA-1178/1 DWG 12

PA-1193 DWG 7

CHORUS CONTROL & TABS

PA 1197 (2/4)

PA 1177/1 - DWG 11

Current Voltage Converter

TMS 36151 (19) TMS 36151 (20) TMS 36151F (21)
TMS 36151 (13) TMS 36151 (14) TMS 36151F (15)
TMS 36151 (7) TMS 36151 (8) TMS 36151F (9)
TMS 36151 (2) TMS 36151 (3) TMS 36151F (4)

TL 084

Oscillator 1

Osc. 2

Osc. 3

SN 74221

Low pass filters

μA 741

V.C.F.

LM 13700 (18) LM 13700 (18)

4016 IC1

V.C.A.

CA 3080 (6)

SUSTAIN VR1 47K

OFFSET VR5 10K

SUSTAIN

Reset

PA 1214 3/3

Chorus Tuning

PA 1197 (3/4)

VOLUME

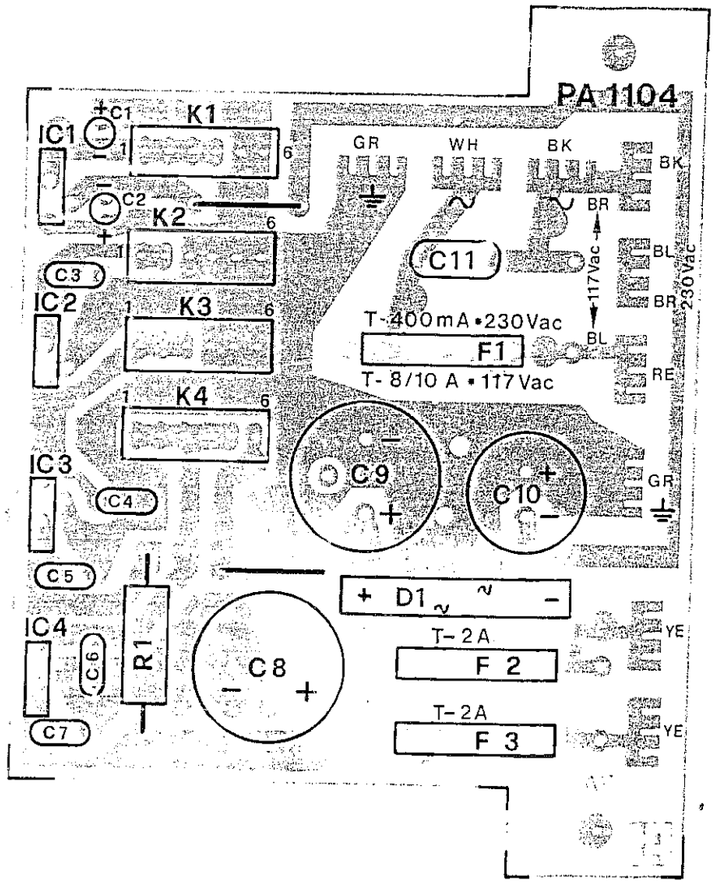
PA 1197 (4/4)

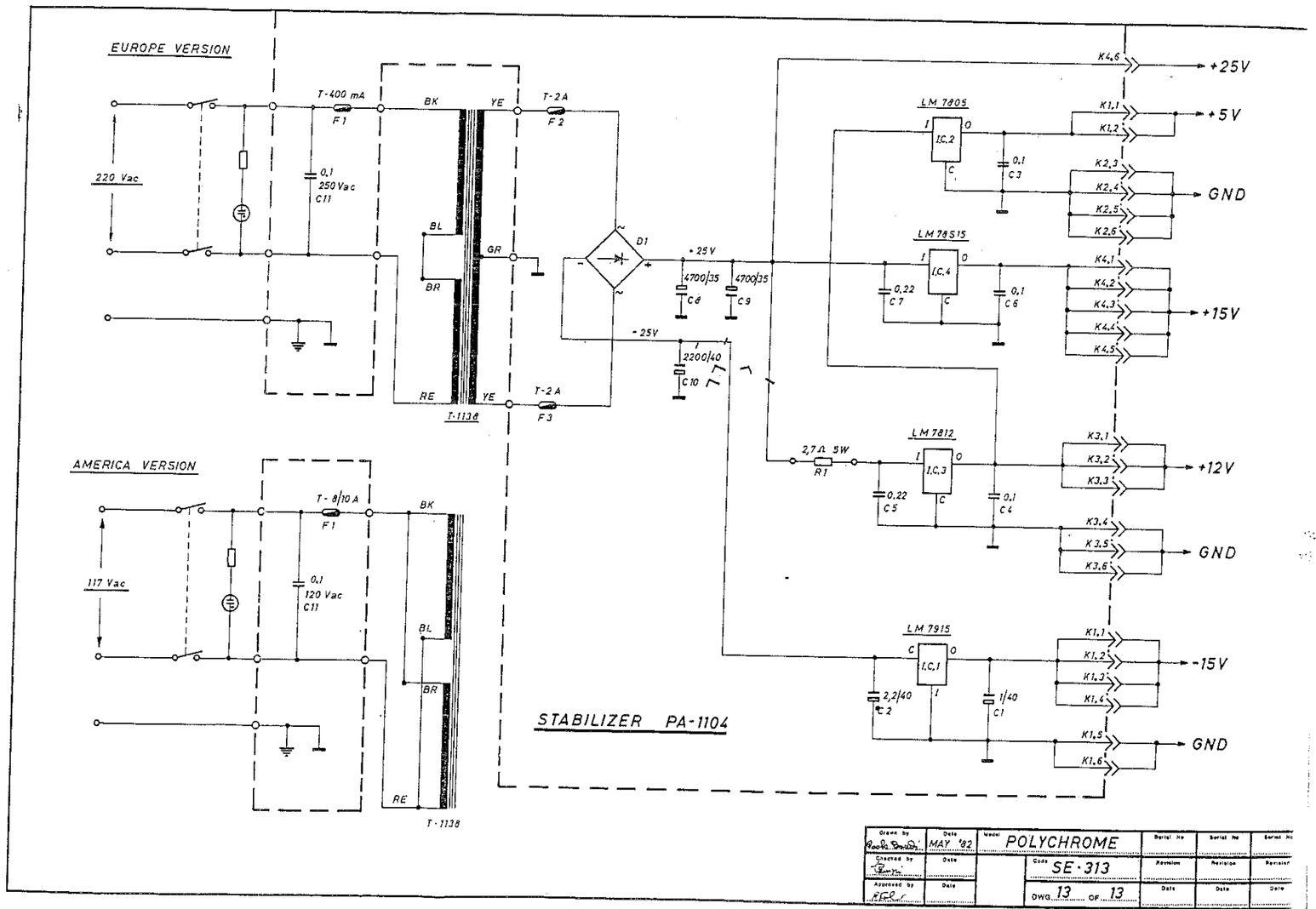
PA 1178/1

CHORUS GENERATION & FILTERS

GENERATIONS

DRAWN BY	DATE JUNE 82	MODEL POLYCHROME	
CHECKED BY	DATE	CODE SE 313	
APPROVED BY	DATE	DWG 12... or 13	





Drawn by	Date	Model	Serial No	Serial No	Serial No
Checked by	Date	POLYCHROME	Revision	Revision	Revision
Approved by	Date	Code SE·313	Date	Date	Date
		DWG. 13 OF 13			

	TARATURE	ADJUSTMENTS
	Tutte le tarature sono eseguite in fabbrica perciò non sono necessarie ulteriori regolazioni. Qualsiasi intervento all'interno dello strumento dovrà essere compiuto da tecnici specializzati.	All the adjustments are performed at the factory, therefore further adjustments are not necessary. Any work inside the organ must be preformed by specialized technicians.
PA 1105 - DWG 2		
VR1 (1 Kohm)	Con un voltmetro sul pin 4 dell'IC 1, si regola l'OFFSET per una tensione di Zero Volt.	With a voltmeter connected to pin 4 of IC 1, adjust the OFFSET to obtain a voltage of "O" V.
VR2 (1 Kohm)	Con un voltmetro sul pin 4 dell'IC 1, pigiando sulla tastiera in modo da inserire il TOUCH CONTROL, si regola il GAIN per una tensione di 10V max.	Pressing the keys so as to insert the TOUCH-CONTROL, adjust the GAIN to obtain a 10V max with a voltmeter connected to pin 4 of IC 1.
PA 1110 - DWG 3		
VR1 (10 Kohm)	Con un voltmetro sul K3.2, si regola per ottenere una tensione di +6V.	Connect a voltmeter to K3.2 and adjust VR 1 until a −6V voltage comes out.
VR2 (4K7)	Con un voltmetro sul K3.4, si regola per ottenere una tensione di +9V.	Connect a voltmeter to K3.4 and adjust VR 2 until a −9V voltage comes out.
VR3 (47 Kohm)	Utilizzando un oscilloscopio con due sonde applicate sui pin 9 e 3 dell'IC 10, dopo aver inserito il registro SPLIT, si regola affinchè pigiando due tasti contigui i dati di scansione escano soltanto da un lato della tastiera.	Connect the two oscilloscope probes to pin 9 and pin 3 of IC 10 and insert the SPLIT register: adjust VR 3 so that when two adjoining keys are pressed the scanning data go out from one side of the keyboard only.
VR4 (470 ohm)	Lasciando in posizione di riposo il potenz. del Pitch Bend e dopo aver inserito un voltmetro sul pin 7 dell'IC 18, regolare affinchè risulti ZERO volt.	With a voltmeter connected to pin 7 of IC 18 and Pitch Bend pot. at zero position, adjust VR 4 to obtain a voltage of "O" V.
VR5 (100 ohm) & VR6 (22 Kohm)	Posizionare il VR5 al centro ed il potenz. Pitch Bend in pos. 0, inserire un voltmetro sul pin 1 dell'IC 18 e regolare il VR 6 per ottenere una tensione di 4,4V. Con il Pitch Bend in pos. - si deve ottenere una tensione di 4V ed in pos. + una tensione di 4,8V. Il VR5 si regola accordando acusticamente l'oscillatore sulla nota LA di 440 Hz.	Set VR5 in the medium position and the Pitch Bend pot. in zero position. Then with a voltmeter connected to pin 1 of IC 18, adjust VR6 to obtain a voltage of +4,4V. When the Pitch Bend pot. is set in the "+" and "-" positions, the voltages of +4,8V and +4V respectively can be obtained. VR5 is adjustable acoustically tuning the oscillator to the "A" note of 440 Hz.
PA 1106 - DWG 5		
VR1 (10 Kohm)	Regola la durata dell'inviluppo Percussioni Orchestra. Con un voltmetro sul K1.3, regolare fino ad ottenere una tensione di +910 mV.	Adjustment of the duration of the Orchestra Percussion envelope. With a voltmeter connected to K1.3, adjust VR1 to obtain a +910 mV voltage.
VR2 (4K7)	Regola la Percussione Decay. Con un voltmetro sul K1.2 si deve ottenere una tensione di +1,85 V.	Adjustment of the Percussione Decay. With a voltmeter connected to K1.2 adjust VR2 to obtain a +1,85 V voltage.
VR3 (10 Kohm)	Regola la durata del comando ripetitivo GUITAR. Con un oscilloscopio sul pin 8 dell'IC 3, regolare per ottenere un *"impulso negativo"* di 6 msec.	Adjustment of the duration of the GUITAR ripetitive control. With an oscilloscope connected to pin 8 of IC 3, adjust VR3 to obtain a *"Negative pulse"* of 6 msec.
VR4 (10 Kohm)	Regola la tensione di OFFSET del Modulatore TREMOLO.	Adjustment of the OFFSET voltage of the TREMOLO Modulator.
VR5 (22 Kohm)	Inserire il registro CLASSIC GUITAR e con un voltmetro sull'emitter del Q7, regolare fino ad ottenere una tensione di +9,6V.	Insert the CLASSIC GUITAR register and with a voltmeter connected to Q7 emitter, adjust VR5 to obtain a +9,6V voltage.

	TARATURE	ADJUSTMENTS
	Tutte le tarature sono eseguite in fabbrica perciò non sono necessarie ulteriori regolazioni. Qualsiasi intervento all'interno dello strumento dovrà essere compiuto da tecnici specializzati.	All the adjustments are performed at the factory, therefore further adjustments are not necessary. Any work inside the organ must be preformed by specialized technicians.
PA 1105 - DWG 2		
VR1 (1 Kohm)	Con un voltmetro sul pin 4 dell'IC 1, si regola l'OFFSET per una tensione di Zero Volt.	With a voltmeter connected to pin 4 of IC 1, adjust the OFFSET to obtain a voltage of "O" V.
VR2 (1 Kohm)	Con un voltmetro sul pin 4 dell'IC 1, pigiando sulla tastiera in modo da inserire il TOUCH CONTROL, si regola il GAIN per una tensione di 10V max.	Pressing the keys so as to insert the TOUCH-CONTROL, adjust the GAIN to obtain a 10V max with a voltmeter connected to pin 4 of IC 1.
PA 1110 - DWG 3		
VR1 (10 Kohm)	Con un voltmetro sul K3.2, si regola per ottenere una tensione di +6V.	Connect a voltmeter to K3.2 and adjust VR 1 until a −6V voltage comes out.
VR2 (4K7)	Con un voltmetro sul K3.4, si regola per ottenere una tensione di +9V.	Connect a voltmeter to K3.4 and adjust VR 2 until a −9V voltage comes out.
VR3 (47 Kohm)	Utilizzando un oscilloscopio con due sonde applicate sui pin 9 e 3 dell'IC 10, dopo aver inserito il registro SPLIT, si regola affinchè pigiando due tasti contigui i dati di scansione escano soltanto da un lato della tastiera.	Connect the two oscilloscope probes to pin 9 and pin 3 of IC 10 and insert the SPLIT register: adjust VR 3 so that when two adjoining keys are pressed the scanning data go out from one side of the keyboard only.
VR4 (470 ohm)	Lasciando in posizione di riposo il potenz. del Pitch Bend e dopo aver inserito un voltmetro sul pin 7 dell'IC 18, regolare affinchè risulti ZERO volt.	With a voltmeter connected to pin 7 of IC 18 and Pitch Bend pot. at zero position, adjust VR 4 to obtain a voltage of "O" V.
VR5 (100 ohm) & VR6 (22 Kohm)	Posizionare il VR5 al centro ed il potenz. Pitch Bend in pos. 0, inserire un voltmetro sul pin 1 dell'IC 18 e regolare il VR 6 per ottenere una tensione di 4,4V. Con il Pitch Bend in pos. - si deve ottenere una tensione di 4V ed in pos. + una tensione di 4,8V. Il VR5 si regola accordando acusticamente l'oscillatore sulla nota LA di 440 Hz.	Set VR5 in the medium position and the Pitch Bend pot. in zero position. Then with a voltmeter connected to pin 1 of IC 18, adjust VR6 to obtain a voltage of +4,4V. When the Pitch Bend pot. is set in the "+" and "-" positions, the voltages of +4,8V and +4V respectively can be obtained. VR5 is adjustable acoustically tuning the oscillator to the "A" note of 440 Hz.
PA 1106 - DWG 5		
VR1 (10 Kohm)	Regola la durata dell'inviluppo Percussioni Orchestra. Con un voltmetro sul K1.3, regolare fino ad ottenere una tensione di +910 mV.	Adjustment of the duration of the Orchestra Percussion envelope. With a voltmeter connected to K1.3, adjust VR1 to obtain a +910 mV voltage.
VR2 (4K7)	Regola la Percussione Decay. Con un voltmetro sul K1.2 si deve ottenere una tensione di +1,85 V.	Adjustment of the Percussione Decay. With a voltmeter connected to K1.2 adjust VR2 to obtain a +1,85 V voltage.
VR3 (10 Kohm)	Regola la durata del comando ripetitivo GUITAR. Con un oscilloscopio sul pin 8 dell'IC 3, regolare per ottenere un *"impulso negativo"* di 6 msec.	Adjustment of the duration of the GUITAR ripetitive control. With an oscilloscope connected to pin 8 of IC 3, adjust VR3 to obtain a *"Negative pulse"* of 6 msec.
VR4 (10 Kohm)	Regola la tensione di OFFSET del Modulatore TREMOLO.	Adjustment of the OFFSET voltage of the TREMOLO Modulator.
VR5 (22 Kohm)	Inserire il registro CLASSIC GUITAR e con un voltmetro sull'emitter del Q7, regolare fino ad ottenere una tensione di +9,6V.	Insert the CLASSIC GUITAR register and with a voltmeter connected to Q7 emitter, adjust VR5 to obtain a +9,6V voltage.

	TARATURE	ADJUSTMENTS
VR6 (10 Kohm)	Regola il minimo della BRILLANZA PERCUSS. e la minima corrente di polarizzazione dell'IC 8 e IC 11.	Adjustment of the minimum level of the PERCUSS. BRILLIANCE and of the minimum bias current of IC 8 and IC 11.
VR7 (10 Kohm)	Regola l'entità dell'EMPHASIS dei registri CLAVICHORD, CLASSIC GUITAR ed ELECTRIC GUITAR, con il registro FREE in posizione OFF.	Adjustment of the EMPHASIS level of the CLAVICHORD, CLASSIC GUITAR and ELECTRIC GUITAR registers, with the FREE register in OFF position.
PA 1108 - DWG 6		
VR1 (22 Kohm)	Regola il minimo della BRILLANZA ENSEMBLE e la minima corrente di polarizzazione dell'IC 2 e IC 4.	Adjustment of the minimum level of the ENSEMBLE BRILLANCE and of the minimum bias current of IC 2 and IC 4.
VR2 (10 Kohm)	Con l'oscilloscopio sul pin 14 dell'IC 9, regolare per un *"impulso negativo"* di 4 msec.	With a oscilloscope connected to pin 14 of IC 9, adjust VR2 to obtain a 4 msec. *"negative pulse"*.
VR3 (4K7)	Con l'oscilloscopio sul collettore del Q9 ed il potenz. P3 (PA 1193) al minimo, regolare affinchè risulti Zero volt.	With a oscilloscope connected to Q9 collector and P3 pot. (PA 1193) set to minimum, adjust VR3 so that a Zero voltage is obtained.
VR4 (10 Kohm)	Con l'oscilloscopio sul pin 6 dell'IC 8 e con il potenz. ATTACK - P3 (PA 1193) al minimo, regolare affinchè risulti Zero volt.	With a oscilloscope connected to pin 6 of IC 8 and ATTACK pot. P3 (PA 1193) set to minimum, adjust VR4 so that a Zero voltage is obtained.
VR5 (10 Kohm)	Regola la tensione di OFFSET del Modulatore ENSEMBLE V.C.A. Si regola dopo aver inserito un registro della famiglia Ensemble (Brass, Reed o Accordion) e pigiando un tasto.	Adjustment of the OFFSET voltage of the V.C.A. ENSEMBLE Modulator. VR5 can be adjusted after having inserted one of the Ensemble registers (Brass, Reed, Accordion) and by keeping a key in the depressed position.
VR6 (22 Kohm)	Regola il timbro del NOISE.	Adjustment of the NOISE timbre.
PA 1043/3 DWG 8		
VR1 (100 KOhm)	Regolazione fine dell'oscillatore a 0,6 Hz. Inserire l'oscilloscopio al pin 6 dell'IC1 e regolare VR1 fino ad ottenere un periodo di 1,67 sec.	Fine tuning of the 0,6 Hz oscillator. Connect the oscilloscope to pin 6 of IC1 and adjust VR1 until a period of 1,67 sec is obtained.
VR3-4-5 (4K7)	Servono alla polarizzazione delle linee di ritardo (IC8-IC7-IC9). Si regolano affinchè tra i centrali dei trimmers e la massa risulti una tensione di + 9V.	Adjustment of the Delay Line Bias (IC8-IC7-IC9). Adjustment should be made until a voltage of + 9V between the wipers of VR3-4-5 and the ground comes out.
PA 1043/1 - DWG 9		
VR1 (100 KOhm)	Regolazione fine dell'oscillatore a 0,6 Hz. Inserire l'oscilloscopio al pin 6 dell'IC1 e regolare VR1 fino ad ottenere un periodo di 1,67 sec.	Fine tuning of the 0,6 Hz oscillator. Connect the oscilloscope to pin 6 of IC1 and adjust VR1 until a period of 1,67 sec is obtained.
VR2 (10 KOhm)	Regolazione fine dell'oscillatore a 6 Hz. Inserire l'oscilloscopio al pin 6 dell'IC4 e regolare VR2 fino ad ottenere un periodo di 167 msec.	Fine tuning of the 6 Hz oscillator. Connect the oscilloscope to pin 6 of IC4 and adjust VR2 until a period of 167 msec. is obtained.
VR3-4-5 (4K7)	Servono alla polarizzazione delle linee di ritardo (IC8-IC7-IC9). Si regolano affinchè tra i centrali dei trimmers e la massa risulti una tensione di + 9V.	Adjustment of the Delay Line Bias (IC8-IC7-IC9). Adjustment should be made until a voltage of + 9V between the wipers of VR3-4-5 and the ground comes out.

TARATURE		ADJUSTMENTS
PA 1109 - DWG 10		
VR1 (22 Kohm)	Regola la minima corrente di polarizzazione degli integrati IC 5 - IC 9 e IC 12 e la rotazione del circuito PHASER.	Adjustment of the bias minimum current of IC 5, IC 9 and IC 12 and the PHASER circuit rotation.
PA 1253 - DWG 10 SWELL PEDAL		
VR1 - 2 (1 Kohm)	Con il voltmetro sul pin 13 dell'IC 8 nella PA 1109, regolare VR2 per ottenere una tensione massima di +7V ed il VR 1 per una tensione minima di +5 ÷ 5,2V.	Connect a voltmeter to pin 13 of IC 8 of PA 1109. Then adjust VR2 in order to obtain a maximum voltage +7V and VR1 in order a minimum voltage of +5 ÷ 5,2V.
	SEZIONE CORO	CHORUS SECTION
PA 1197 - DWG 11		
VR1 (4K7)	Con il registro FREE inserito, regola il minimo del potenz. CUTOFF (P4).	Adjustment of the minimum of the CUTOFF pot. (P4) with FREE register inserted.
VR2 (220 Kohm)	Regola il timbro del PRESET 1.	Adjustment of the PRESET 1 timbre.
VR3 (47 Kohm)	Regola il timbro del PRESET 3.	Adjustment of the PRESET 3 timbre.
VR4 (100 Kohm)	Regola il timbro del PRESET 2.	Adjustment of the PRESET 2 timbre.
PA 1178/1 - DWG 12		
VR1 (47 KOhm)	Regola il massimo SUSTAIN del CORO.	Adjustment of the CHORUS max SUSTAIN.
VR2 (100 Ohm)	Taratura dell'oscillatore 1.	Adjustment of oscillator 1.
VR3 (100 Ohm)	Taratura dell'oscillatore 2.	Adjustment of oscillator 2.
VR4 (100 Ohm)	Taratura dell'oscillatore 3.	Adjustment of oscillator 3.
VR5 (10 KOhm)	Premendo un tasto, si regola per avere la minima tensione ai capi della R119.	Press a key and then adjust VR5 to obtain the minimum voltage at R119 terminals.

Schem Rif.	Circuit	Type	Part Code
PA 1043/1	**FAST DELAY LINES (DWG 9)**		
IC1 ÷ IC6	Operational Amplifier	LM 741 CN National	W 1210
IC7-8-9	Bucket Brigade Delay Lines	TDA 1022 Philips	W 1113
Q1-2-3	NPN Transistors	BC 209-B S.G.S.	W 1407
Q4 ÷ Q9	PNP Transistors	BC 416-B Motorola	W 1500
Q10 ÷ Q16	NPN Noise Selection transistors	BC 209-B red dot	W 1413
D1-2-3-4	Diodes	BA 130 Fairchild	B 1003
D5-6-7	Rectifier Diodes	1N 4002 ITT	B 1100
D8 ÷ D19	Diodes	BA 130 Fairchild	B 1003
VR 1	Trimmer 100 Kohm	---	P 1009
VR 2	Trimmer 10 Kohm	---	P 1006
VR 3-4-5	Trimmer 4K7	---	P 1005
PA 1043/3	**SLOW DELAY LINES (DWG 8)**		
IC 1-2-3	Operational Amplifiers	LM 741 CN National	W 1210
IC 7-8-9	Bucket Brigade Delay Lines	TDA 1022 Philips	W 1113
Q 1-2-3	NPN Transistors	BC 209-B S.G.S.	W 1407
Q 4 ÷ Q9	PNP Transistors	BC 416-B Motorola	W 1500
Q10 ÷ Q16	NPN Noise Selection Transistors	BC 209-B red dot	W 1413
D 1-2-3-4	Diodes	BA 130 Fairchild	B 1003
D5-6-7	Rectifier Diodes	1N 4002 ITT	B 1100
D8 ÷ D19	Diodes	BA 130 Fairchild	B 1003
VR 1	Trimmer 100 Kohm	---	P 1009
VR 3-4-5	Trimmer 4K7	---	P 1005
PA 1104	**STABILIZER & FUSES BOARD - EUROPE VERSION (DWG 13)**		
IC 1	- 15V Series Stabilizer	LM 7915 CT National	W 1226
IC 2	+ 5V Series Stabilizer	uA 7805 Fairchild	W 1214
IC 3	+12V Series Stabilizer	LM 7812 CT National	W 1223
IC 4	+15V Series Stabilizer	78S15 CV S.G.S.	W 1248
D 1	Rectifier Bridge	B 80 C 3700/2200 Siemens	B 1209
F 1	Primary Fuse	T - 400 mA	F 3
F 2 - F 3	Secondary Fuses	T - 2 A	F 9
PA 1104/1	**STABILIZER & FUSES BOARD - AMERICA VERSION (DWG 13)**		
IC 1	- 15V Series Stabilizer	LM 7915 CT National	W 1226
IC 2	+ 5V Series Stabilizer	uA 7805 Fairchild	W 1214
IC 3	+12V Series Stabilizer	LM 7812 CT National	W 1223
IC 4	+15V Series Stabilizer	78S15 CV S.G.S.	W 1248
D 1	Rectifier Bridge	B 80 C 3700/2200 Siemens	B 1209
F 1	Primary Fuse	T - 8/10 A	F 63
F 2 - F 3	Secondary Fuses	T - 2 A	F 59
PA 1105	**KEYSWITCHES & TOUCH CONTROL CIRCUIT (DWG 2)**		
IC 1	Hall Effect Linear Integrated Circuit	SAS 231 Siemens	W 1244
D 1 ÷ D 61	Diodes	BA 130 Fairchild	B 1003
VR1 - VR2	Trimmer 1 Kohm	---	P 1003
Supporto per 12 molle	Holder for 12 springs		SU 1013
Supporto per 13 molle	Holder for 13 springs		SU 1014
Molla di contatto	Contact spring		ML 408

Schem Rif.	Circuit	Type	Part Code
PA 1106	**PERCUSSIVE FILTERS (DWG 5)**		
IC 1-5-7-12	Quad Bilateral Switches	HCF 4016 BE S.G.S.	W 1164
IC 2 - 9	Operational Amplifiers	LM 741 CN National	W 1210
IC 3 - 4 - 10	Quad J-Fet Input Operational Amplifiers	TL 084 CN Texas	W 1235
IC 6	Operat. Transc. Amplifier - Red dot	CA 3080 E R.C.A.	W 1242
IC 8 - 11	Dual Operat. Transc. Amplifiers	LM 13700-N National	W 1245
Q 1 - 2 - 8	NPN Transistors	BC 173 - B ITT	W 1407
Q 3 - 5 - 9 - 11	PNP Transistors	BC 416-B Motorola	W 1500
Q 4 - 7 - 10	NPN Transistors	BC 173-C ITT	W 1410
Q 6	NPN Driver Transistor	BC 337-16 Philips	W 1605
D 1 ÷ D 15	Diodes	BA 130 Fairchild	B 1003
ZD 1	Zener Diode 6,2V - 400mW	ZPD 6,2 ITT	B 1310
ZD 2	Zener Diode 5,6V - 400mW	ZPD 5,6 ITT	B 1309
PA 1108	**SOFT FILTERS (DWG 6)**		
IC 1 - 8	Operat. Transcond. Amplifiers	CA 3080 E R.C.A.	W 1227
IC 2 - 4	Dual Operat. Transcond. Amplifiers	LM 13700-N National	W 1245
IC 3	Operational Amplifier	LM 741 CN National	W 1210
IC 5 - 6 - 11	Quad Bilateral Switches	HCF 4016 BE S.G.S.	W 1164
IC 7 - 9 - 10	Quad J-Fet Input Operat. Amplifiers	TL 084 CN Texas	W 1235
Q 1 - 2 - 5 - 12	NPN Transistors	BC 173-C ITT	W 1410
Q 3 - 4 - 6 - 8 - 9 - 11	PNP Transistors	BC 416-B Motorola	W 1500
Q 7	NPN Driver Transistor	BC 337-16 Philips	W 1605
Q 10	NPN Transistor	BC 173-B ITT	W 1407
Q 13	White Noise Generation	FARFISA Selection	B 1604
D 1 ÷ D 25	Diodes	BA 130 Fairchild	B 1003
ZD 1 - 2	Zener Diodes 6,2V - 400mW	ZPD 6,2 ITT	B 1310
VR 1 - 6	Trimmers 22 Kohm	---	P 1007
VR 2 - 4 - 5	Trimmers 10 Kohm	---	P 1006
VR 3	Trimmer 4K7	---	P 1005
PA 1109	**PHASER - PREAMPLIFIER - HEADPHONE AMPLIFIER & VOLUME CONTROL (DWG 10)**		
IC 1 - 4	Quad J-Fet Input Operat. Amplifiers	TL 084 CN Texas	W 1235
IC 2	5W Audio Power Amplifier	TDA 2611 A Philips	W 1229
IC 3	Dual Operational Amplifier	MC 1458 P Texas	W 1246
IC 5 - 9 - 12	Dual Operat. Transcond. Amplifiers	LM 13700-N National	W 1245
IC 6 - 10 - 11 - 14 - 16	Quad Bilateral Switches	HCF 4016 BE S.G.S.	W 1164
IC 7	Quad 2-Input NAND Gate	HCF 4011 BE S.G.S.	W 1150
IC 8	D.C. Volume and Balance Control Circuit	TCA 730-A Philips	W 1249
IC 13	Buffered Hex Inverter	F 4049 BCP Fairchild	W 1155
IC 15	Operational Amplifier	LM 741 CN National	W 1210
Q 1	NPN Transistor	BC 173-B ITT	W 1407
Q 2 - 4 - 5	PNP Transistors	BC 416-B Motorola	W 1500
Q 3 - 6	NPN Transistors	BC 173-C ITT	W 1410
D 1 ÷ D 29	Diodes	BA 130 Fairchild	B 1003
ZD 1	Zener Diode 6,2V - 400mV	ZPD 6,2 ITT	B 1310
VR 1	Trimmer 22 Kohm	---	P 1007

Schem Rif.	Circuit	Type	Part Code
PA 1110	**GENERATION & SCANNING LOGIC (DWG 10)**		
IC 1 - 18	Dual Operat. Amplifiers	MC 1458 P Texas	W 1246
IC 2 - 6	Dual 4-Bit Binary Counter	F 4520 BPC Fairchild	W 1163
IC 3	He D Flip-Flop	F 40174 BPC Fairchild	W 1161
IC 4 - 5	Quad Exclusive-OR Gate	HCF 4030 BE S.G.S.	W 1174
IC 7 - 12	Dual Retrigg. Resett. Monostable Multivibr.	CD 4098 BE R.C.A.	W 1159
IC 8 - 16	Quad 2-Input AND Gate	CD 4081 BE R.C.A.	W 1156
IC 9 - 27	Quad 2-Input OR Gate	HCF 4071 BE S.G.S.	W 1173
IC 10	Quad Bilateral Switch	CD 4016 BE R.C.A.	W 1164
IC 11	Quad 2-Input NAND Gate	CD 4011 BE R.C.A.	W 1150
IC 13	TTL - Double Monostable	SN 74221 Texas	W 1017
IC 14 - 15	Dual D Flip-Flop	CD 4013 BE R.C.A.	W 1157
IC 17	Hex Inverter	HCF 4069 BE S.G.S.	W 1169
IC 19	Operational Transconductance Amplifier	CA 3080 E R.C.A.	W 1243
IC 20 - 22 - 23 - 25	Buffered Hex Inverter	CD 4049 CN National	W 1155
IC 21	Top Octave Synthetizer	M 086 B1 S.G.S.	W 1111
IC 24 - 26	Decade Counter with 10 Decoder Outputs	HCF 4017 BE S.G.S.	W 1178
IC 28	8-Input Multiplexer with 3-State Outputs	CD 4512 BE R.C.A.	W 1167
Q 1 - 2	NPN Driver Transistors	BC 337-16 Philips	W 1605
Q 3	PNP Transistor	BC 416-B Motorola	W 1500
Q 4 - 7 - 11	NPN Transistors	BC 173-B ITT	W 1407
Q 5 - 6 - 8 - 9	NPN Transistors	BC 173-C ITT	W 1410
Q 10	NPN High Switching Transistor	2N 914 S.G.S.	W 1428
D 1 ÷ D 29	Diodes	BA 130 Fairchild	B 1003
VR 1	Trimmer 10 Kohm	---	P 1006
VR 2	Trimmer 4K7	---	P 1005
VR 3	Trimmer 47 Kohm	---	P 1008
VR 4	Trimmer 470 Ohm	---	P 1002
VR 5	Trimmer 100 Ohm	---	P 1100
VR 6	Trimmer 22 Kohm	---	P 1007
PA 1135	**SOFT GENERATION (DWG 4)**		
IC 1 ÷ IC 8	8 Stage Shift/Store Register	HCF 4094 BE S.G.S.	W 1175
IC 9 ÷ IC 21	I^2L Tecnology Freq. Divider + Keyer	TDA 1008 Philips	W 1018
IC 22	Quad 2 - Input NAND Gate	CD 4011 C National	W 1150
IC 23-24	Quad JFet - Input Operat. Amplif.	TL 084 CN Texas	W 1235
Q 1	PNP Transistor	BC 416-B Motorola	W 1500
Q2-3-4-5-6	NPN Transistors	BC 209-B S.G.S.	W 1407
D2-6-7-8-9-10	Diodes	BA 130 Fairchild	B 1003
PA 1135/1	**PERCUSSION GENERATION (DWG 4)**		
IC 1 ÷ IC8	8 Stage Shift/Store Register	HCF 4094 BE S.G.S.	W 1175
IC 9 ÷ IC 21	I^2L Tecnology Freq. Divider + Keyer	TDA 1008 Philips	W 1018
IC 22	Quad 2 - Input NAND Gate	CD 4011 C National	W 1150
IC 23-24	Quad JFet - Input Operat. Amplif.	TL 084 CN Texas	W 1235
Q 1	PNP Transistor	BC 416-B Motorola	W 1500
Q2-3-4-5-6	NPN Transistors	BC 209-B S.G.S.	W 1407
D1 ÷ D10	Diodes	BA 130 Fairchild	B 1003
PA 1136	**SOFT ENVELOPE MODULE (DWG 4)**		
Q 1 ÷ Q 4	PNP Transistors	BC 416-B Motorola	W 1500
D 1 ÷ D 4	Diodes	BA 130 Fairchild	B 1003
PA 1137	**PERCUSSION ENVELOPE MODULE (DWG 4)**		
Q 1 ÷ Q 4	PNP Transistors	BC 416-B Motorola	W 1500
D1 ÷ D20	Diodes	BA 130 Fairchild	B 1003

Schem Rif.	Circuit	Type	Part Code
PA 1177/1	**CHORUS CONVERSION & SCANNING (DWG 11)**		
IC1-2-3-4-6-7-8	8 Stage Shift/Store Register	CD 4094 BE R.C.A.	W 1175
IC 5	Dual Retrigg. Resett. Monost. Multivibr.	4528 Fairchild	W 1159
IC 9	Quad 2-Input NAND Gate	CD 4011 C National	W 1150
Q 1 ÷ Q 5	NPN Transistors	BC 173-B ITT	W 1407
D 1 ÷ D 5	Diodes	BA 130 Fairchild	B 1003
PA 1178/1	**CHORUS GENERATION & FILTERS**	**(DWG 12)**	
IC 1	Quad Bilateral Switch	4016 Fairchild	W 1164
IC2-3-7-8	Octave Multiple Tone Synthetizer	TMS 3615 NL-BS Texas	W 1126/1
IC13-14-19-20	Octave Multiple Tone Synthetizer	TMS 3615 NL-BS Texas	W 1126/1
IC 5-10-11	Quad JFet - Input Operat. Amplifier	TL 084 CN Texas	W 1235
IC 6	Operational Transconductance Amplifier	CA 3080 E R.C.A.	W 1243
IC 12	Operational Amplifier	LM 741 CN National	W 1210
IC16-17-22	TTL - Double Monostable	SN 74221 Texas	W 1017
IC 18	Dual Operat. Transconductance Amplif.	LM 13700-N National	W 1245
IC4-9-15-21	Octave Multiple Tone Synthetizer	TMS 3615 NL-BS red dot	W 1138/1
Q1-2-3-9-11	NPN Transistors	BC 173-B ITT	W 1407
Q4-5-6-7-8	NPN Noise Selection Transistors	BC 173-B red dot	W 1413
Q 10	PNP Transistor	BC 416-B Motorola	W 1500
D 1 ÷ D 15	Diodes	BA 130 Fairchild	B 1003
VR 1	Trimmer 47 Kohm	---	P 1008
VR2-3-4	Trimmer 100 Ohm	---	P 1100
VR 5	Trimmer 10 Kohm	---	P 1006
PA 1190	**ENVELOPE MODULE (DWG 11)**		
IC 1	Quad Bilateral Switch	4016 Fairchild	W 1164
Q 1-3-5-7	NPN Transistors	BC 173-B ITT	W 1407
Q 2-4-6-8	PNP Transistors	BC 416-B Motorola	W 1500
D 1 ÷ D 12	Diodes	BA 130 Fairchild	B 1003
PA 1192	**PERCUSSIVE CONTROLS & TABS (DWG 5-7)**		
IC1-2	Quad 2-Input AND Gate	CD 4081 BE RCA	W 1156
Q1 ÷ Q6	NPN Transistors	BC 173-B ITT	W 1407
D1 ÷ D8	Diodes	BA 130 Fairchild	B 1003
LD1 ÷ LD8	Led - Red Color	3212R LITON	B 1616
P1 (DWG5)	Volume Pot.	100 Kohm/lin.	P 2509
P2-P3-P4 (DWG5)	Brilliance-Emphasis Pot.	10 Kohm/lin.	P 2506
Interruttore	- Switch	---	X 1706
Coperchio per tastino	- Cap for pushbutton	---	CP 656
Capsula azzurra	- Blue Cap	---	CA 135/5
Capsula grigia	- Grey Cap	---	CA 135/1
Capsula bianca	- White Cap	---	CA 135/2
PA 1193	**STRINGS CONTROLS & TABS (DWG 6-7)**		
IC1	Buffered Hex Inverters	HCF 4049 UBE S.G.S.	W 1155
Q1 ÷ Q4	PNP Transistors	BC 416-B Motorola	W 1500
D1-D3 ÷ D9	Diodes	BA 130 Fairchild	B 1003
D2	Rectifier Diode	1N 4002 IR	B 1100
LD1 ÷ LD3	Led - Red Color	3213R LITON	B 1616
P1 - P4 (DWG6)	Volume & Release Pot.	10 Kohm/lin.	P 2506
P2 - P3 (DWG6)	Brilliance & Attack Pot.	100K + 100Kohm/lin.	P 2900
Interruttore	- Switch	---	X 1706
Coperchio per tastino	- Cap for pushbutton	---	CP 656
Capsula col. giallo	- Yellow cap	---	CA 135/6

Schem Rif.	Circuit	Type	Part Code
PA 1194	**ENSEMBLE CONTROLS & TABS (DWG 6-7)**		
IC1	Quad 2-Input AND Gate	CD 4081 BE RCA	W 1156
Q1 ÷ Q5	NPN Transistors	BC 173-B ITT	W 1407
D1 ÷ D5	Diodes	BA 130 Fairchild	B 1003
LD1 ÷ LD4	Led - Red Color	3213R LITON	B 1616
P1	Volume Pot.	100Kohm/lin.	P 2509
P2-P4-P5	Brilliance-Sustain-Emphasis Pot.	10Kohm/lin.	P 2506
P3	Attack Pot.	220Kohm/lin.	P 2510
Interruttore	- Switch	---	X 1706
Coperchio per tastino	- Cap for pushbutton	---	CP 656
Capsula col. rosso	- Red Cap	---	CA 135/3
Capsula col. bianco	- White Cap	---	CA 135/2
PA 1195	**PHASER CONTROLS & MODULATION TABS (DWG 5-7-10)**		
IC1-2	Buffered Hex Inverters	HCF 4049 UBE S.G.S.	W 1155
Q1 ÷ Q12	PNP Transistors	BC 416-B Motorola	W 1500
D1	Rectifier Diode	1N 4002 IR	B 1100
D2 ÷ D13	Diodes	BA 130 Fairchild	B 1003
LD1 ÷ LD8	Led - Red Color	3213R LITON	B 1616
P1-P2 (DWG10)	Volume & Emphasis Pot.	10Kohm/lin.	P 2506
P3 (DWG10)	Speed Pot.	220Kohm/lin.	P 2510
P4 (DWG5)	Tremolo Pot.	10Kohm/lin.	P 2506
Interruttore	- Switch	---	X 1706
Coperchio per tastino	- Cap for pushbutton	---	CP 656
Capsula col. azzurro	- Blue Cap	---	CA 135/5
Capsula col. giallo	- Yellow Cap	---	CA 135/6
Capsula col. rosso	- Red Cap	---	CA 135/3
PA 1196	**GENERAL CONTROLS & TABS (DWG 7)**		
IC1	Buffered Hex Inverters	HCF 4049 UBE S.G.S.	W 1155
Q1-Q4-Q5	NPN Transistors	BC 173-B ITT	W 1407
Q2-Q3-Q6	PNP Transistors	BC 416-B Motorola	W 1500
D1 ÷ D10	Diodes	BA 130 Fairchild	B 1003
LD1 ÷ LD7	Led - Red Color	3213R LITON	B 1616
Interruttore	- Switch	---	X 1706
Coperchio per tastino	- Cap for pushbutton	---	CP 656
Capsula col. grigio	- Grey Cap	---	CA 135/1
Capsula col. bianco	- White Cap	---	CA 135/2
PA 1197	**CHORUS CONTROLS & TABS (DWG 11-12)**		
IC1-2	Quad Bilateral Switches	HCF 4016 BE S.G.S.	W 1164
IC3	Quad 2-Input AND Gate	CD 4081 BE RCA	W 1156
Q1-Q2-Q4-Q5-Q8	NPN Transistors	BC 173-B ITT	W 1407
Q3-Q6-Q7	PNP Transistors	BC 416-B Motorola	W 1500
D1 ÷ D9	Diodes	BA 130 Fairchild	B 1003
LD1 ÷ LD5	Led - Red Color	3213R LITON	B 1616
VR1	Trimmer 4K7	---	P 1005
VR2	Trimmer 220Kohm	---	P 1010
VR3	Trimmer 47Kohm	---	P 1008
VR4	Trimmer 100Kohm	---	P 1009
P1 (DWG1)	Volume Pot.	100Kohm/lin.	P 2509
P2-P5 (DWG12)	Attack & Resonance Pot.	220Kohm/lin.	P 2510
P3 (DWG11)	Sustain Pot.	100Kohm/lin.	P 2900
P4 (DWG12)	Cutoff Pot.	10Kohm/lin.	P 2506
Interruttore	- Switch	---	X 1706
Coperchio per tastino	- Cap for pushbutton	---	CP 656
Capsula col. bianco	- White Cap	---	CA 135/2
Capsula col. grigio	- Grey Cap	---	CA 135/1
Capsula col. verde	- Green Cap	---	CA 135/4

Schem Rif.	Circuit	Type	Part Code
PA 1214	**SPLIT MEMORY & PITCH (DWG 3-11)**		
P1-P2	Pitch & Chorus Tuning Pot.	100 ohm/lin.	P 6014
Tastino rosso	- Red Pushbutton	---	TS 402/29
Diffusore per tastino	- Cap for tab	---	RP 622
Interruttore	- Switch	---	X 1705
L1	- Lamp 15V - 30mA	---	LL 18
PA 1253	**SWELL PEDAL (DWG 10)**		
IC1	Hall Effect Linear I.C.	SAS 231 Siemens	W 1244
VR1-VR2	Trimmers 1 Kohm	---	P 1003
	SUNDRY LIST		
DWG 13	Transformer	---	T 1138
DWG 7	3 Pos. Switches	---	X 1002
Po1 (DWG 10)	Sensitivity Pot.	100Kohm/lin.	P 6006
Po2 (DWG 11)	Pitch Bend Pot.	1Kohm/lin.	P 6702
DWG 13	Interruttore rete - Mains Switch	Europe Version	X 1502
DWG 13	Interruttore rete - Mains Switch	America Version	X 1500
Connettore 5 poli DIN	- 5 Poles DIN Socket	---	I 194
Jack Stereo	- Stereo jack	---	I 173
Jack con interruttore	- Jack with switch	---	I 174
Zoccolo per circuito integrato a 14 piedini	- 14 pin I.C. Socket		I 160
Zoccolo per circuito integrato a 16 piedini	- 16 pin I.C. Socket		I 164
Zoccolo per circuito integrato a 28 piedini	- 28 pin I.C. Socket		I 151

Descrizione	Description	Part Code
Mobile legno	Wooden cabinet	MOB 187
Coperchio superiore completo	Complete top cover	SEM 9044
Leggio	Music rack	DE 666
Boccola riferim. riporto	Holder bushing	BC 592
Riporto per fissaggio leggio	Insert fixing music rack	RP 606
Placca decorativa registri	Register holding plate	PL 631/1
Cantonale anteriore decorativo	Front decoration	CN 932/1
Coperchio posteriore	Back cover	CP 650/1
Pomello per coperchio post.	Knob for back cover	PM 45
Manopola per pot. Pitch Bend	Pitch Bend pot. knob	MP 69
Manopola per pot. a slitta	Slider pot. knob	MP 72/1
Manopola per pot. Pitch e Tuning	Pitch & Tuning pot. knob	MP 71/2
Calotta copricapezz. sinistra	Left cheekblock cover	CL 571/1
Calotta copricapezz. destra	Right cheekblock cover	CL 570/1
Sostegno laterale per telaio porta c.s.	Side holder for p.c.b. frame	SO 343
Gambo destro	Right leg	GM 114
Gambo sinistro	Left leg	GM 115
Gruppo fiancata trasversale	Leg holding bar group	SOG 350
Pomolo per fissaggio gambi	Knob fixing leg to cabinet	PM 43/1
Riporto per fissaggio gambi al mobile	Insert fixing leg to cabinet	RP 619
Pedale espressione magnetico	Magnetic swell pedal	SEM 383
Calotta decorativa inferiore	Lower cover	CL 569
Supporto inferiore	Lower holder	SU 1017
Calotta superiore	Upper cover	CL 568
Tastino comando commutatore	Switch control tab	TS 385
TASTIERA	**KEYBOARD**	
Tasto "DO"	Key "C"	TST 6432
Tasto "RE"	Key "D"	TST 6433
Tasto "MI"	Key "E"	TST 6434
Tasto "FA"	Key "F"	TST 6435
Tasto "SOL"	Key "G"	TST 6436
Tasto "LA"	Key "A"	TST 6437
Tasto "SI"	Key "B"	TST 6438
Tasto "DO" finale	Final Key "C"	TST 6440
Tasto "Diesis"	Sharp Key	TST 6442

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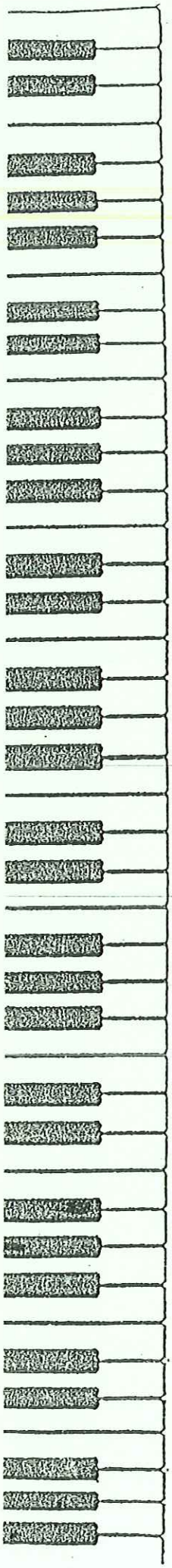

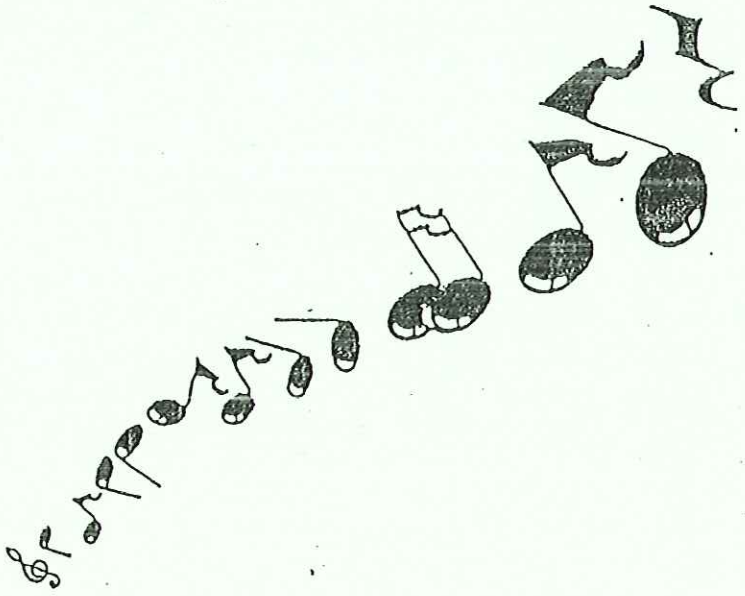

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