



# SERVICE MANUAL

## *Schematic Diagrams*



CODE : 270176



## Index & Warnings

Opening Instructions	2
Autotest Chart, Block Diagram	3
Power Amplifier & Supply Board	4
Keyboard Contact Boards & Keyboard Interface Board	5
Controls Panel Board	6
Cpu & Sound Generator Board	7
Spare Part List	8

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### Notice

Service must be carried out by qualified personnel only. Any tampering carried out by unqualified personnel during the guarantee period will forfeit the right to guarantee.

For a correct operation of the instrument, after having switched off, be careful to wait at least 3 seconds before switching on again. To improve the device's specifications, the schematic diagrams may be subject to change without prior notice.

### Schematic Notes

⚠ All components marked by this symbol have special safety characteristics, when replacing any of these components use only manufacturer's specified parts.

The ( $\mu$ ) micro symbol of capacitance value is substituted by U. The ( $\Omega$ ) omega symbol of resistance value is substituted by E. The electrolytic capacitors are 25Vdc rated voltage unless otherwise specified. All resistors are 1/8W unless otherwise specified.

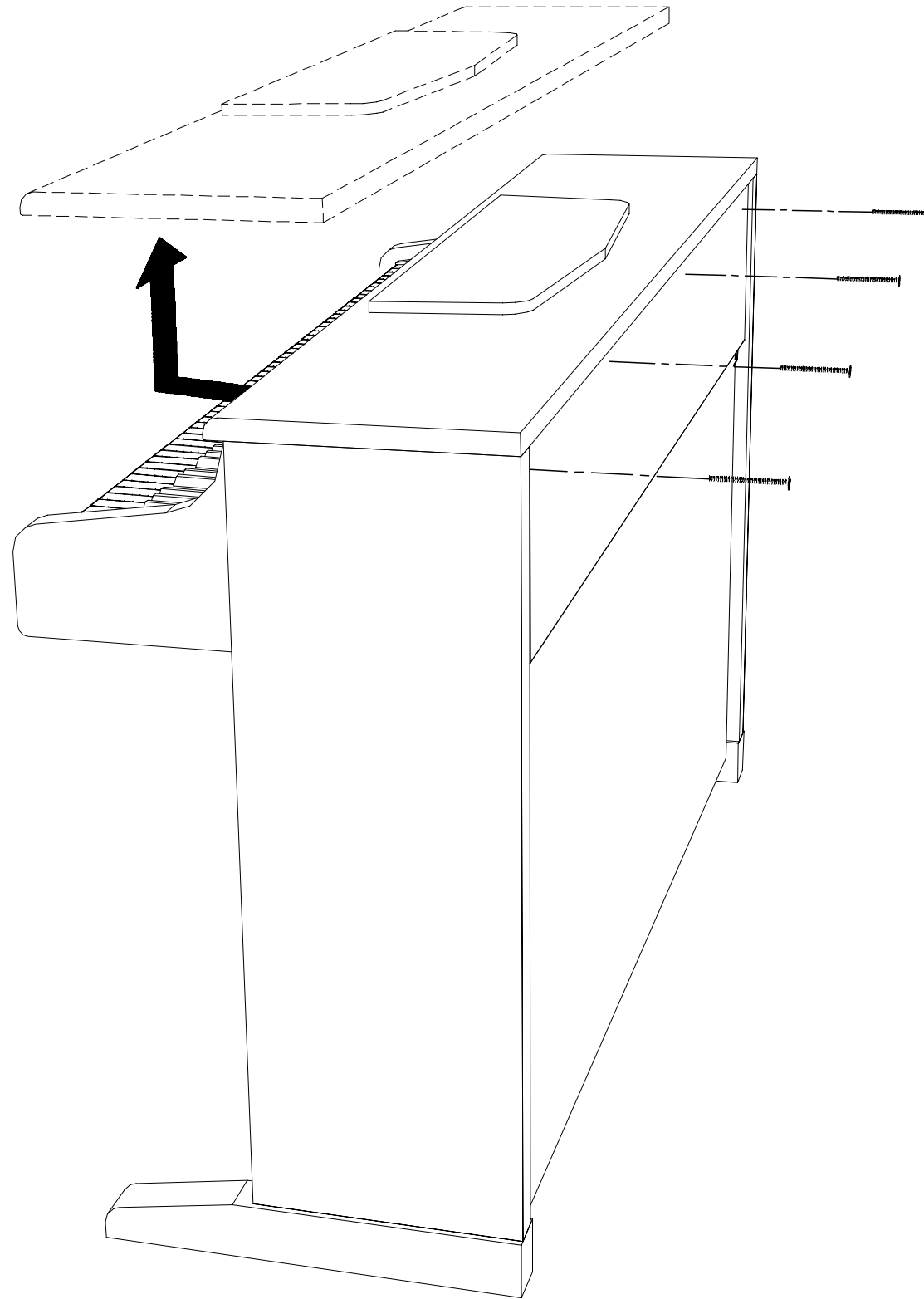
- |   |                         |
|---|-------------------------|
| ← Soldering point.  | ↑ Supply voltage.       |
| • Male connector.   | ⬇ Logic supply ground.  |
| ◌ Female connector.   | ⬇ Analog supply ground. |
| ⚡ M/F faston connector.   | ⬇ Signal ground.        |
| □ Test point.   | ⬇ Chassis ground.       |
| ⬇ Flag joined with one or more flags with the same signal name inscribed. |                         |



**ATTENTION**  
Observe precautions when handling electrostatic sensitive devices

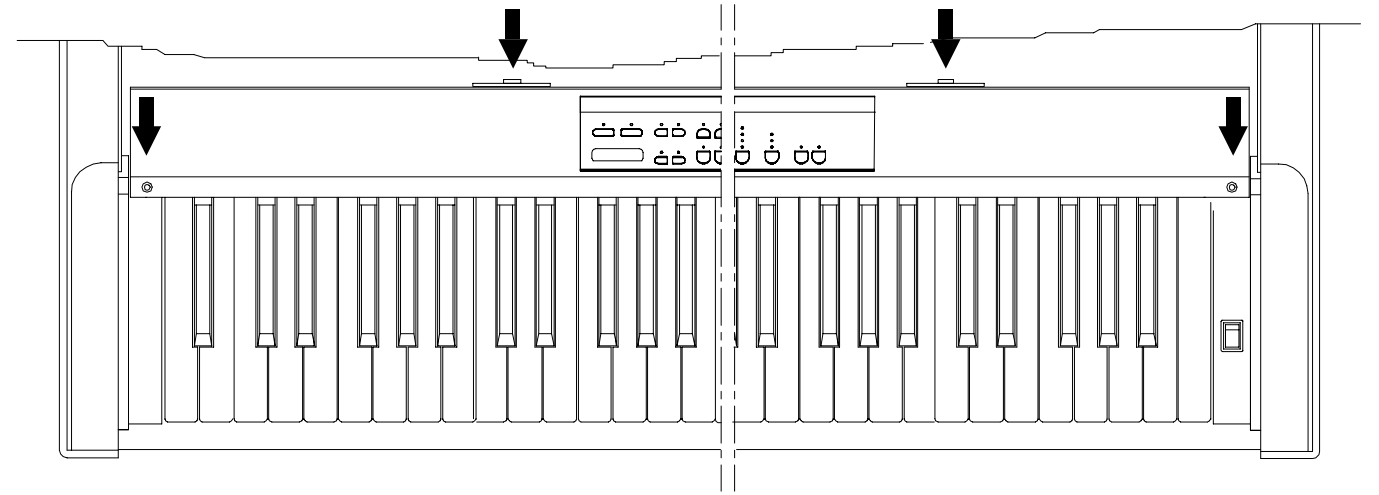
## OPENING INSTRUCTIONS

- ① Remove the screws at the rear side.
- ② Move forward and lift the top side as showed below:



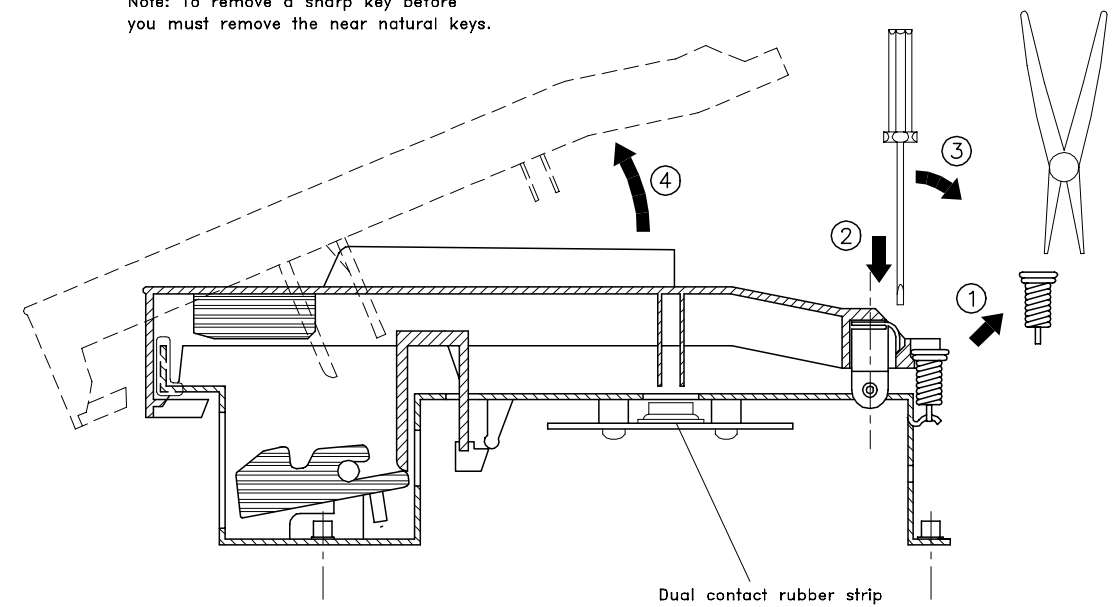
## KEYBOARD DISASSEMBLING INSTRUCTIONS

- ① Take off the bar over the keyboard removing the screws shown below:



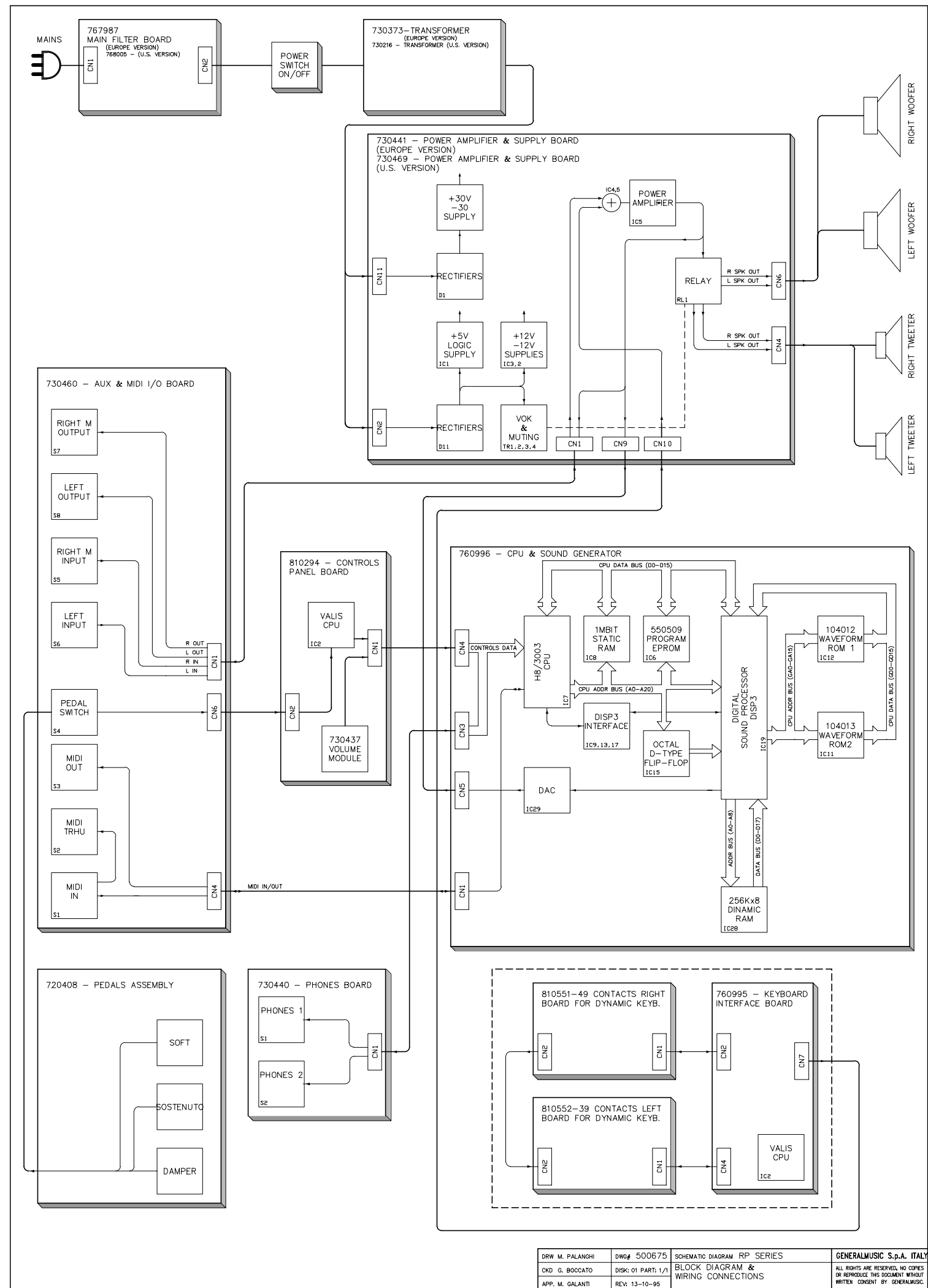
## KEY DISASSEMBLING INSTRUCTIONS

- ① Remove the key return spring
- ②③④ Unlock the key applying not much strenght  
Note: To remove a sharp key before  
you must remove the near natural keys.



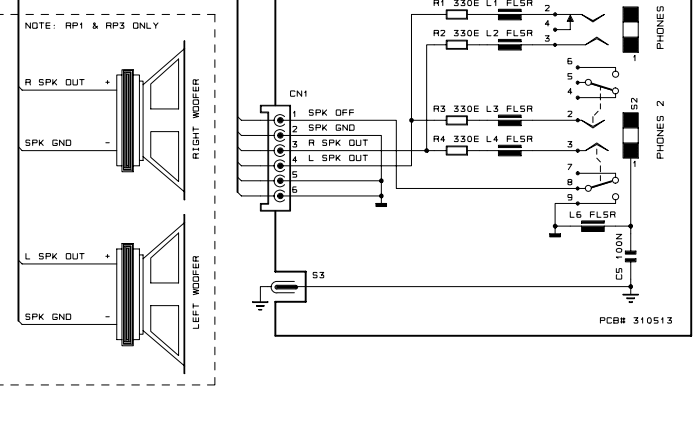
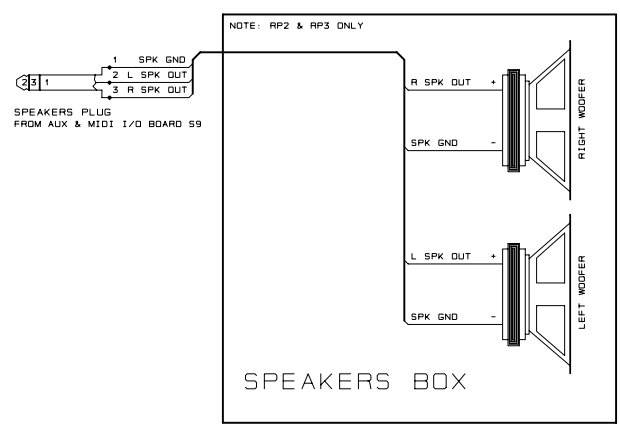
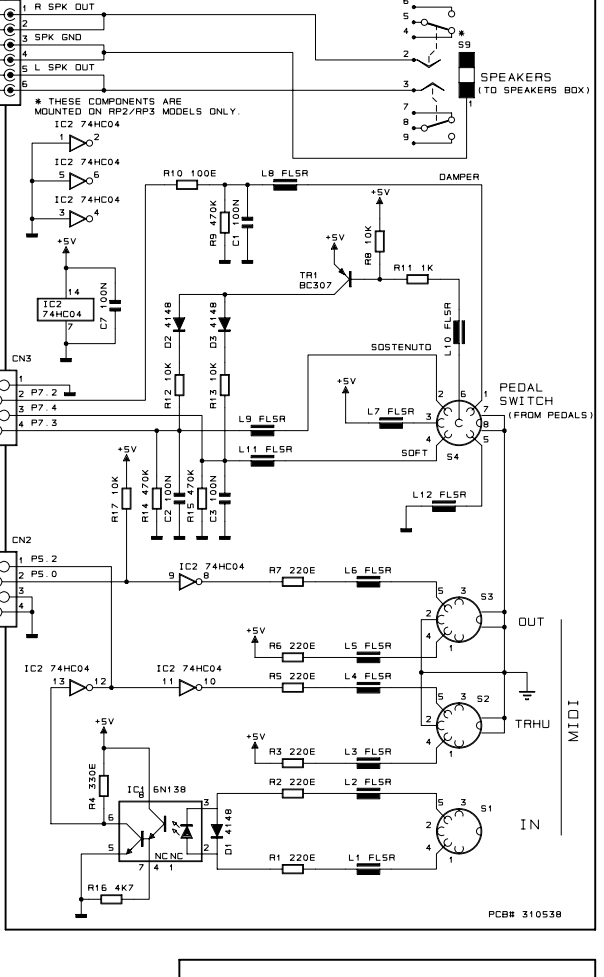
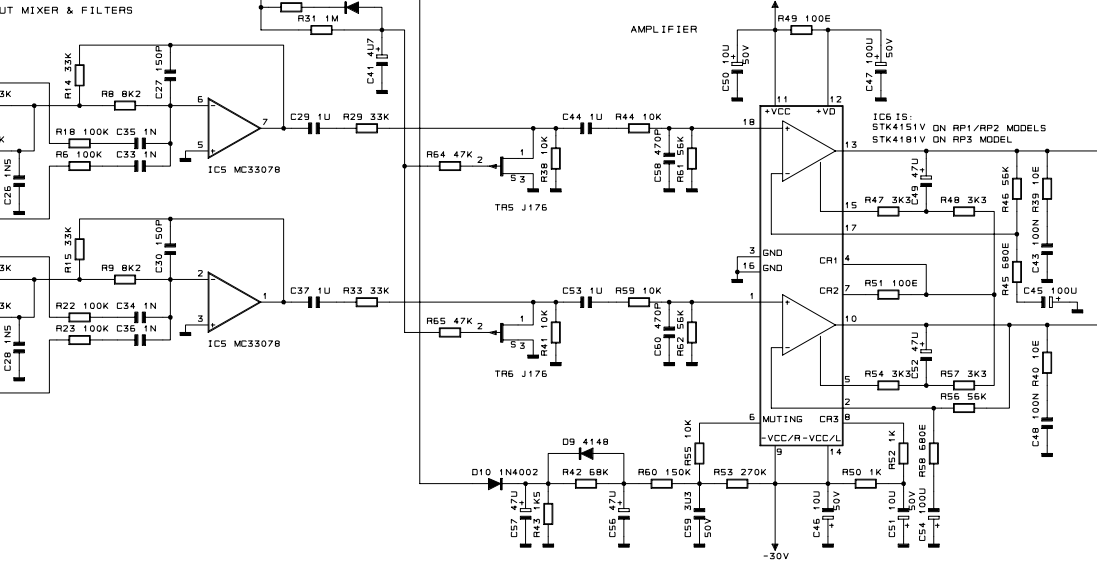
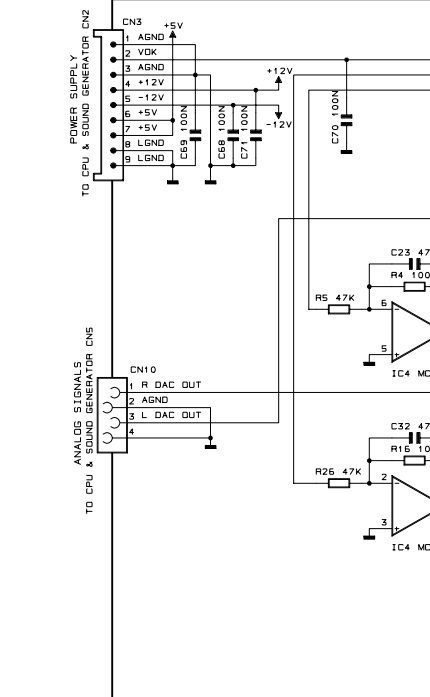
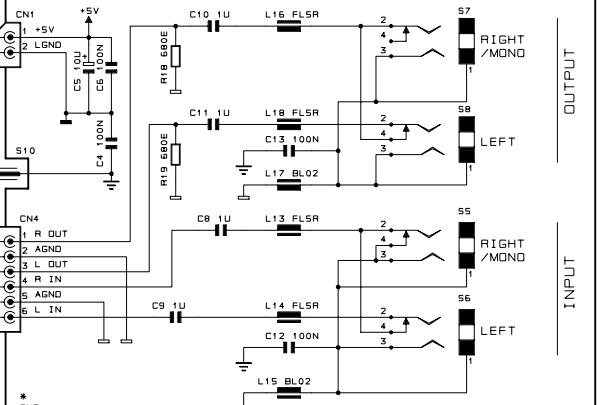
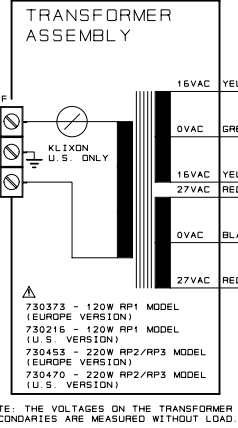
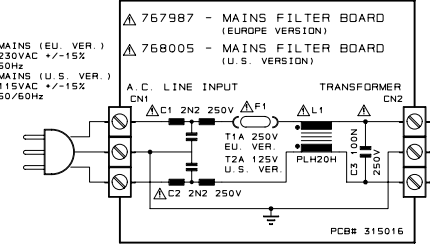
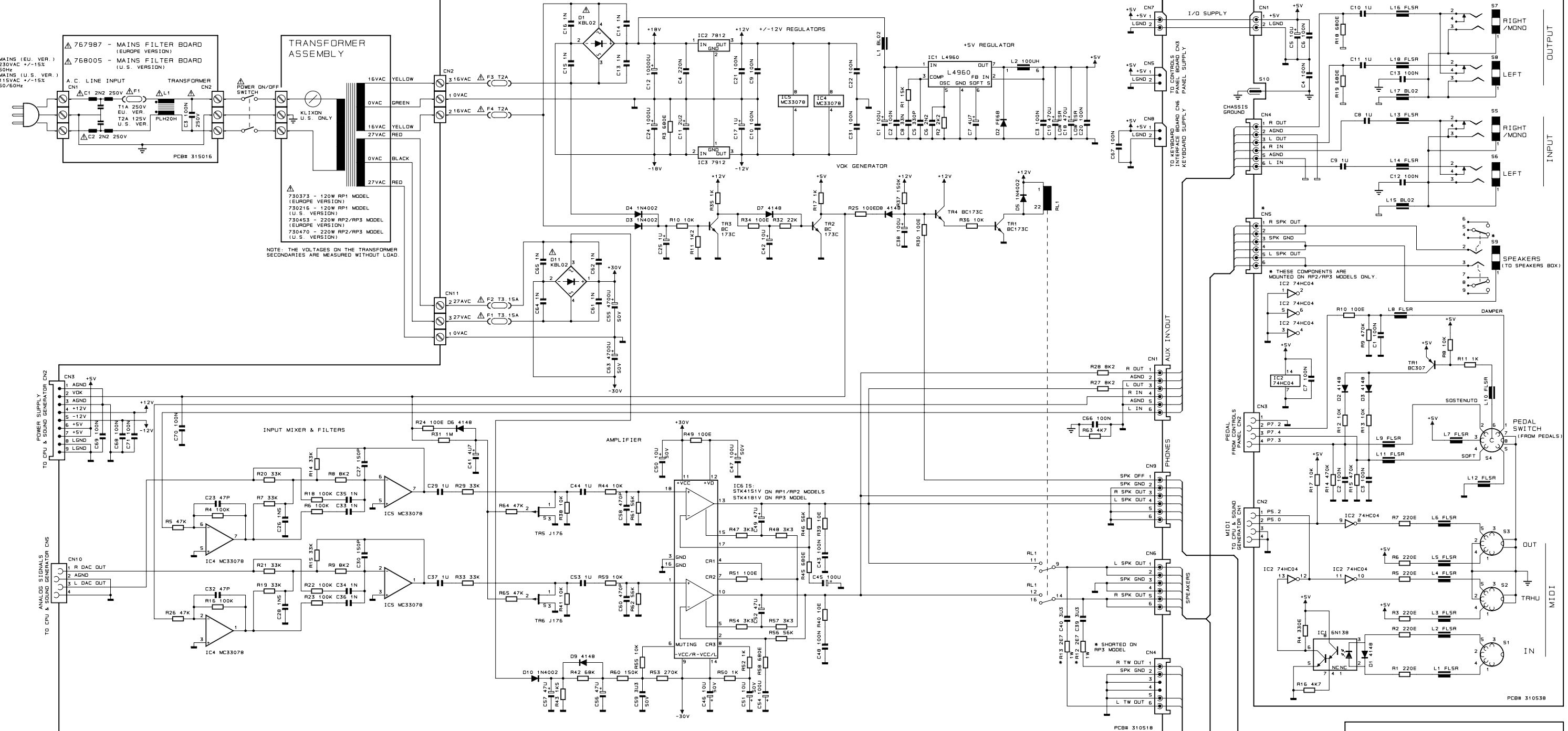
DRW: PALANGHI	DWG#: 500676	SCHEMATIC DIAGRAM: REAL PIANO 1	GENERALMUSIC S.p.A. ITALY
OKD:	DISK: 1 PART: 1/1	OPENING INSTRUCTIONS	ALL RIGHTS ARE RESERVED. NO COPIES
APP: DALANTI	REV: 19-10-95	KEYBOARD DISASSEMBLING INSTR.	OR REPRODUCE THIS DOCUMENT WITHOUT
		KEY DISASSEMBLING INSTRUCTIONS	WRITER CONSENT BY GENERALMUSIC.

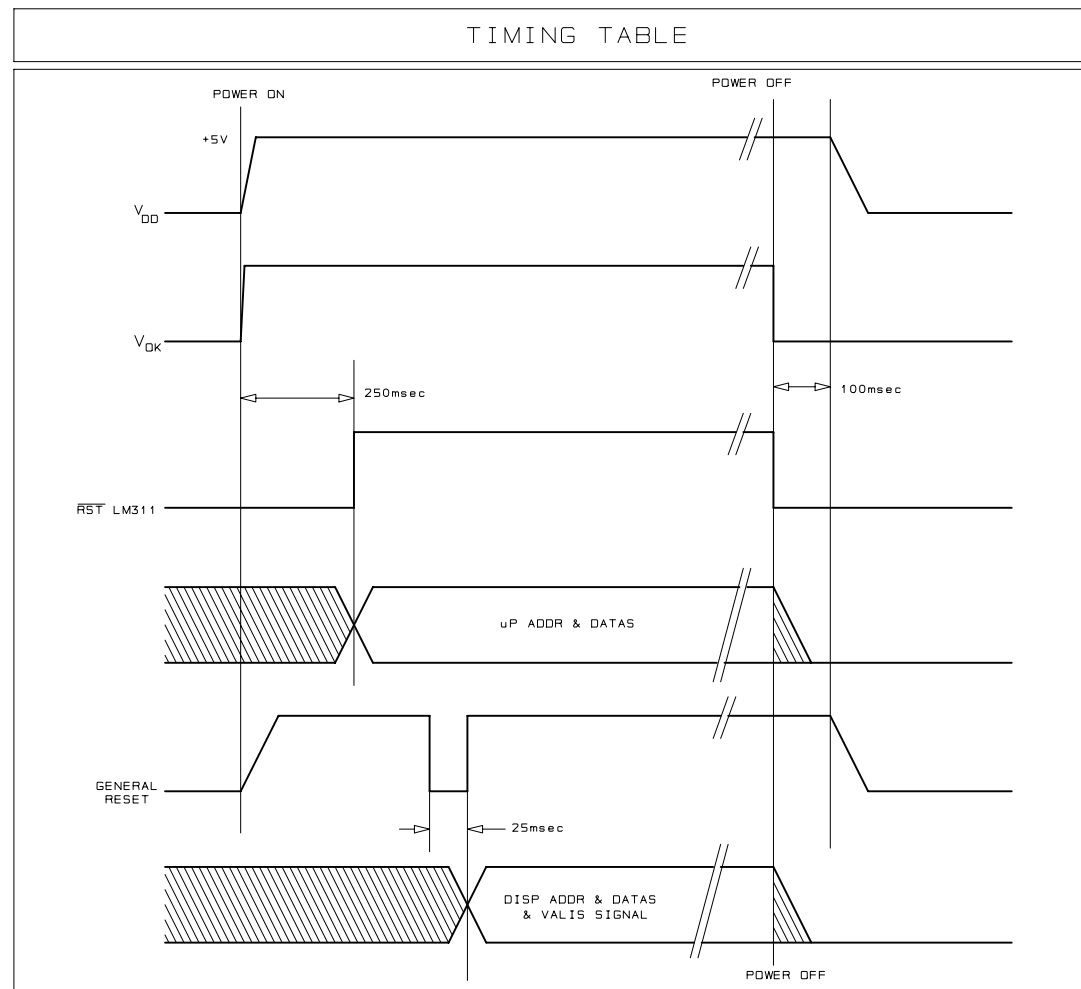
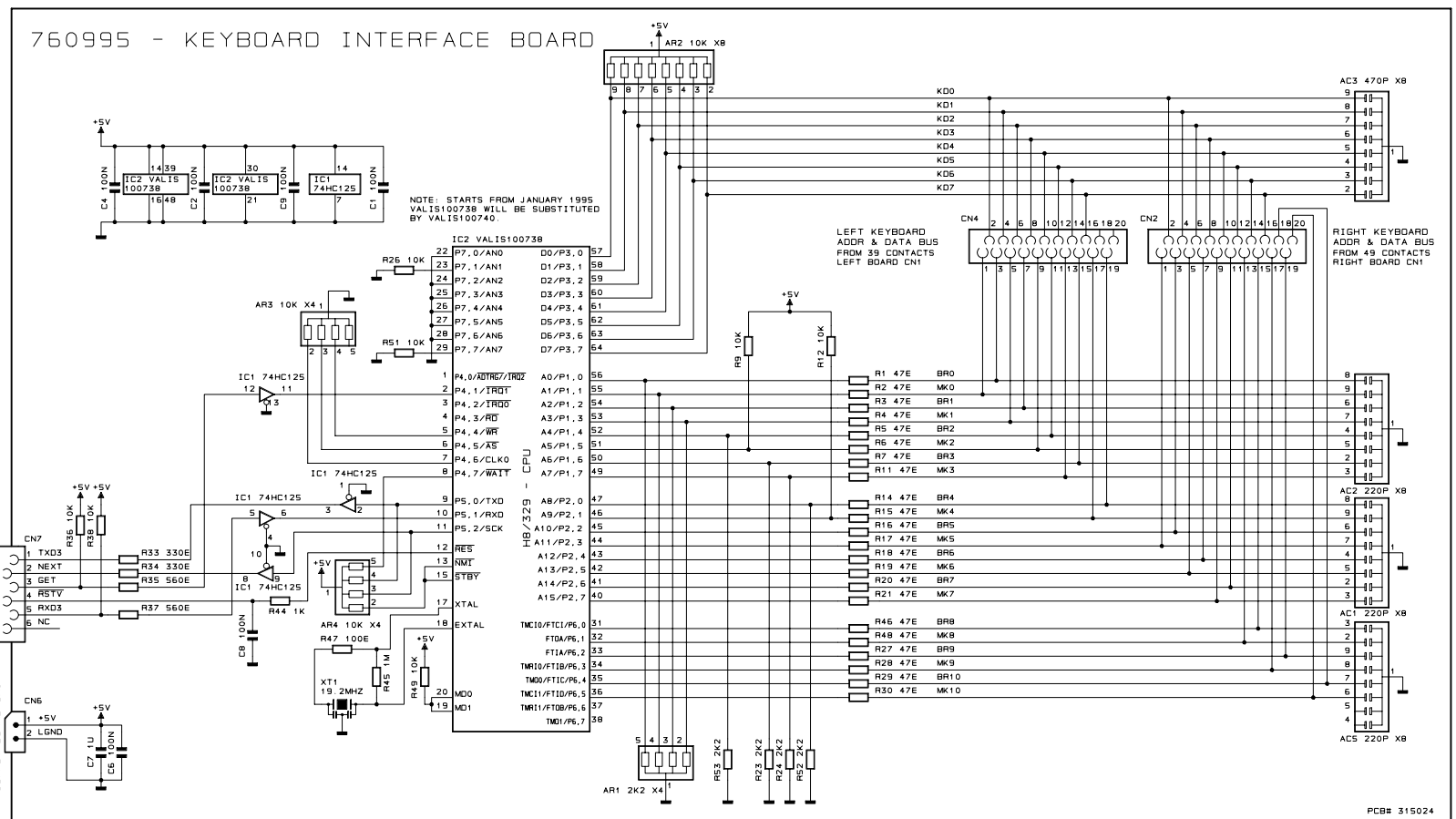
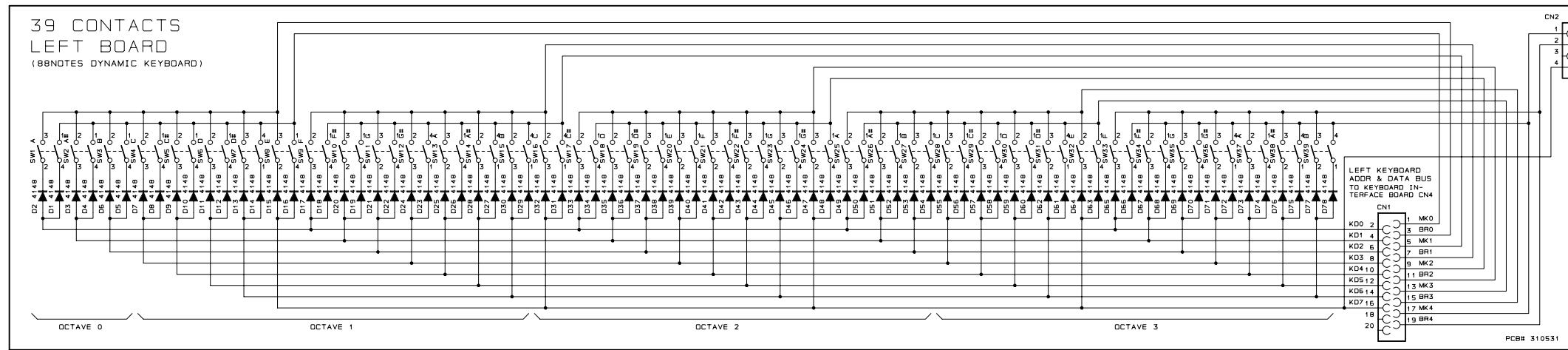
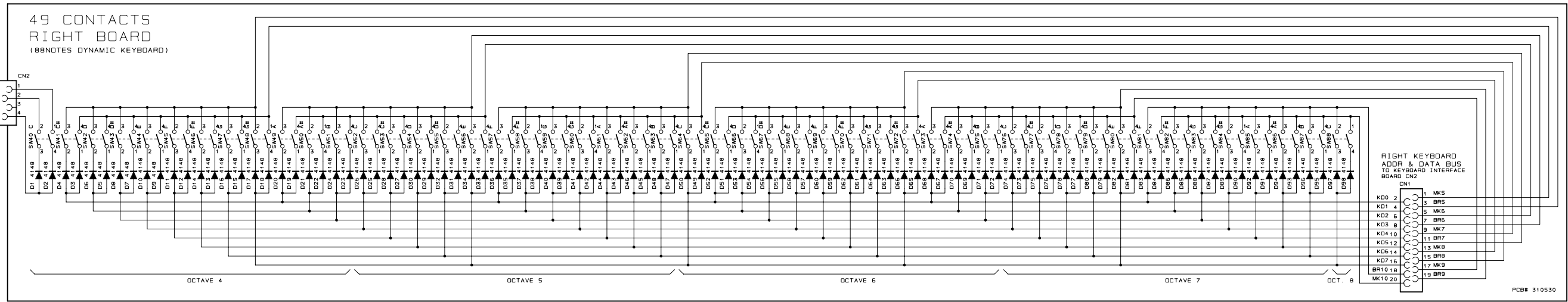
AUTOTEST CHART		
TEST	OPERATIONS	DISPLAY
<b>Start</b>	Turn on instrument while holding pressed "A.S.B." button.	All REVERB and DSP EFFECT leds are flashing.
<b>LED</b>	Press "A.S.B." button.	REVERB-HALL led go on.
	Press "A.S.B." button again	All leds go on.
<b>Buttons</b>	Press "A.S.B." button	Only "A.S.B." button led is on.
	Press all panel buttons one by one except "A.S.B." button	Every button pressed must light corresponding led.
<b>Pedals</b>	Press "A.S.B." button	REVERB-HALL led is on and REVERB-STAGE led is flashing.
	Press left pedal [SOFT]	The first 4 leds starting from PIPE ORGAN button are on with pedal pressed, off with pedal released.
	Press center pedal [SOSTENUTO]	The next 4 leds up to EL.BASS button are on with pedal pressed, off with pedal released.
	Press right pedal [DAMPER]	The 8 leds of presets from CONCERT GRAND to HARPSI progressively go on with increased pedal pressure.
<b>MIDI IN &amp; OUT</b>	Press "A.S.B." button	REVERB-HALL and STAGE leds are on and REVERB ROOM led is flashing.
	Loop the two MIDI connectors with a single MIDI cable.	If a loop is verified all leds from CONCERT GRAND to HARPSI go on. If you disconnect the loop, all leds go off.
<b>Sinus Test</b>	Press "A.S.B." button	All REVERB leds go on and DSP EFFECT PHASER led flashes. A 1000 Hz sinusoidal tone must sound. TRANSPOSE +/- buttons should slightly modify frequency within range 10 - 2756 Hz if pressed and instantly released. Move the VOLUME to set the output level.  This test signal is useful to check power amplifier and speakers.
<b>Exit</b>	Press "A.S.B." button	DSP EFFECT PHASER led remain on confirming end of test.
<b>Repeat</b>	Press and hold "A.S.B." button until starting display shows.	Autotest starts again.
	Press "A.S.B." button to stop.	The instrument is ready to play.
<b>Note</b>	During autotest, keyboard does not respond and volume level is fixed. During test all normal keyboard functions are disabled. At the end of autotest a memory reset takes place. A loud "click" during reset is normal.	



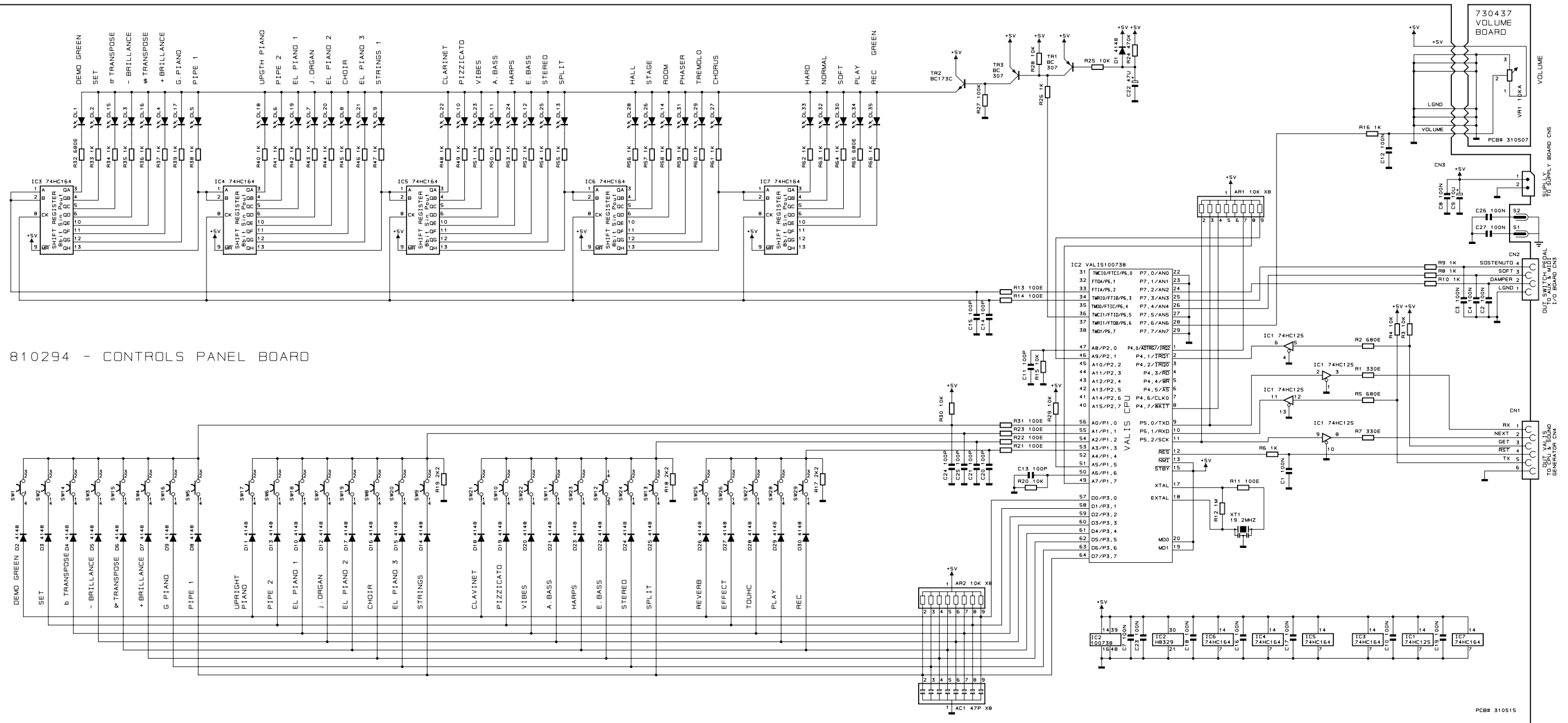
730441 - POWER AMPLIFIER & SUPPLY BOARD RP1/RP2 MODELS (EUROPE VERSION)  
 730469 - POWER AMPLIFIER & SUPPLY BOARD RP1/RP2 MODELS (U.S. VERSION)  
 730471 - POWER AMPLIFIER & SUPPLY BOARD RP3 MODEL (EUROPE VERSION)

730460 - AUX & MIDI I/O BOARD (RP1 MODEL)  
 730462 - AUX & MIDI I/O BOARD (RP2/RP3 MODEL)





DRW BOCCATO	DWG# 500672	PCB# 310531 310530	GENERALMUSIC S.p.A. ITALY
CKD GIORGI	DSK# 14 PART: 1/1	SCHEMATIC DIAGRAM RP SERIES	ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC.
APP. GALANTI	REV: 12/05/95	CONTACTS BOARD & KEYBOARD INTERFACE BOARD	

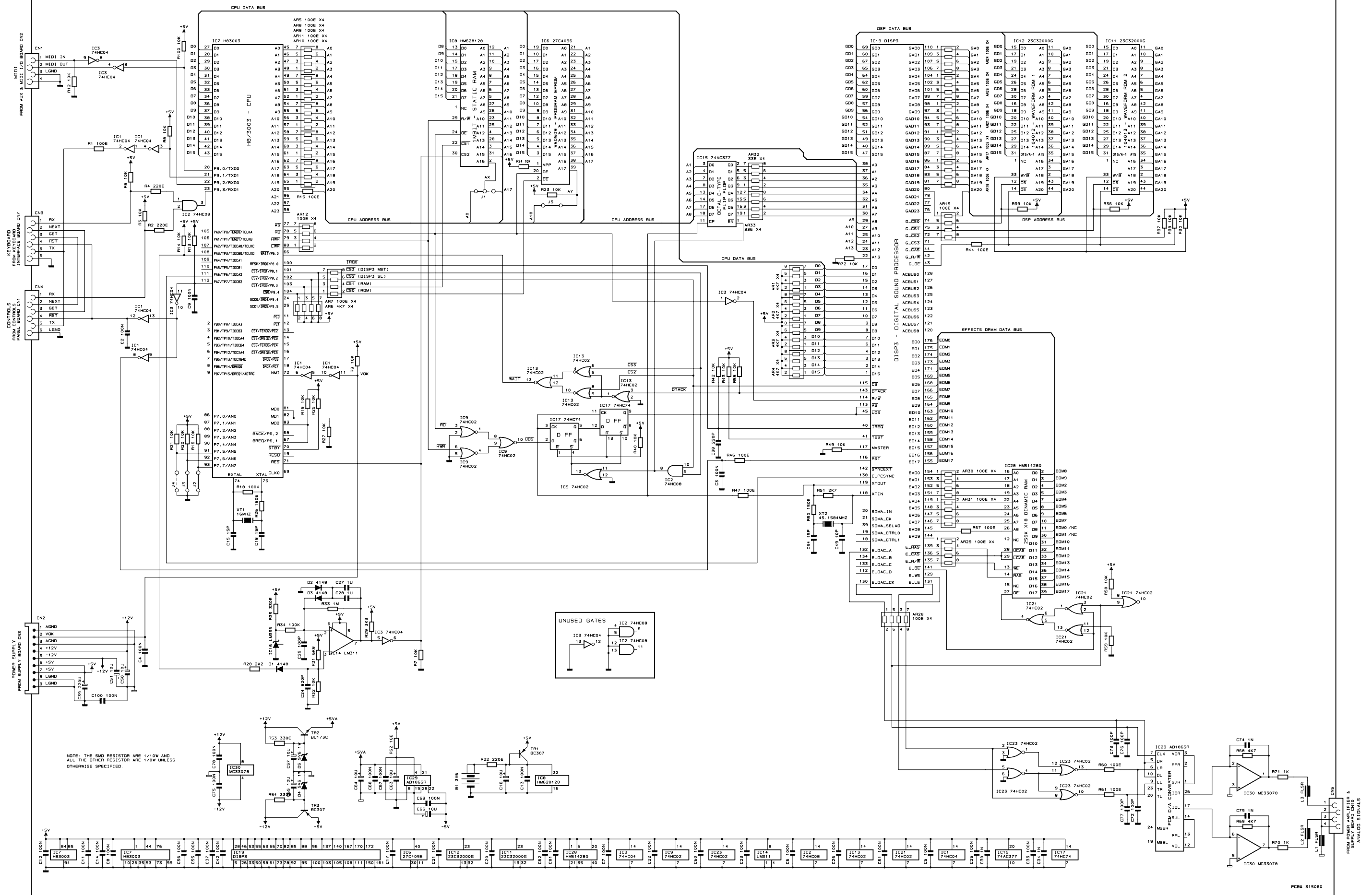


810294 - CONTROLS PANEL BOARD

DRW R. GIORGI	DWG# 500673	PCB# 310515	GENERALMUSIC S.p.A. ITALY
CKD M. PALANGHI	DSK# -- PART:1/1	SCHEMATIC DIAGRAM	ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC
APP. GALANTI	REV: 27-09-95	CONTROLS PANEL BOARD	



760996 - CPU & SOUND GENERATOR BOARD



DRW M. PALANGHI	DSM 500671	PCB# 315080	GENERALMUSIC S.p.A. ITALY
CKD P. FACCHIN	DSK# 0 PART: 1/1	SCHEMATIC DIAGRAM RP1	ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC.
APP. M. GALANTI	REV. 23/10/95	CPU & SOUND GENERATOR BOARD	

## SPARE PARTS

### LEGEND

EU = SPECIFY EUROPE VERSION  
US = SPECIFY UNITED STATES VERSION

## ACCESSORIES

271041 OWNER'S MANUAL (EU)  
271042 OWNER'S MANUAL (US)

## ASSEMBLY

720408 PEDAL ASSEMBLY  
070556 \* 20K-B POTENTIOMETER  
171262 \* POTENTIOMETER SUPPORT  
171263 \* PEDAL RETURN SPRING  
190181 \* METAL PEDAL  
210016 \* BLACK FELT  
340274 \* STOP PEDAL RUBBER  
171261 \* CHASSIS SUPPORT  
340105 \* CHASSIS  
130272 \* PEDAL CABLE  
810168 \* REED SWITCH BOARD (PCB# 310272)  
110243 \* REED  
652851 WOODEN LEFT SIDE  
652850 WOODEN RIGHT SIDE  
340821 MUSIC STAND STOP  
340807 SUPPORT FOR KEYBOARD SLOPE  
220107 WOOFER  
220087 TWEETER  
210248 WOOFER GASKET  
171352 TWEETER SUPPORT  
171331 LEFT COVER FIXING  
171330 RIGHT COVER FIXING  
110362 MAINS SWITCH 4A 250V EU/US

### MISCELLANEOUS PARTS

660401 TOP FIXING  
660402 REFLEX HOLE GRID  
660404 SPEAKER PROTECTION GRID  
660405 HEAT SINK PROTECTION GRID  
660407 ACOUSTIC CABINET BAR FIXING  
710334 WOODEN STAND (EUROPE VERSION)  
710342 WOODEN STAND (U.S. VERSION)  
660406 MUSIC STAND SUPPORT  
660403 MUSIC STAND HINGE  
170585 METAL FOOD

## WOODEN PARTS

260870 \* COVER  
260867 \* TOP  
260858 \* RIGHT LEG  
260857 \* LEFT LEG  
260854 \* PEDAL BAR  
260853 \* MUSIC STAND  
260852 \* INNER BAR

## 760995 KEYBOARD INTERFACE BOARD (PCB# 315024)

100738 \* 100740VALIS CPU (STARTS FROM 01/96)  
100605 \* 74HC125 QUAD 3 STATE NON IVERTING BUFFER  
010726 \* 19.2 MHZ CERAMIC RESONATOR WITH CAP.  
141018 \* 20 CONTACTS FEMALE CONNECTOR  
141011 \* 6 CONTACTS FEMALE CONNECTOR  
141918 \* 2 CONTACTS MALE CONNECTOR

## KEYBOARD ASS'Y

720417 KEYBOARD ASSEMBLY (EUROPE VERSION)  
720451 KEYBOARD ASSEMBLY (U.S. VERSION)  
**810552 \* 39 CONTACTS LEFT BOARD FOR DYNAMIC KEYBOARD (PCB# 310531)**  
340764 \*\* 3 DUAL CONTACTS RUBBER STRIP  
340211 \*\* 12 DUAL CONTACTS RUBBER STRIP  
080103 \*\* 1N4148 100mA 75V SIGNAL DIODE  
**810551 \* 49 CONTACTS RIGHT BOARD FOR DYNAMIC KEYBOARD (PCB# 310530)**  
340212 \*\* 13 DUAL CONTACTS RUBBER STRIP  
340211 \*\* 12 DUAL CONTACTS RUBBER STRIP  
500065 \* MECHANICAL KEYBOARD ASSEMBLY (EU)  
500066 \* MECHANICAL KEYBOARD ASSEMBLY (US)  
151119 \*\* C KEY  
151120 \*\* D KEY  
151121 \*\* E KEY  
151122 \*\* F KEY  
151123 \*\* G KEY  
151124 \*\* A KEY  
151125 \*\* B KEY  
151126 \*\* SHARP KEY  
151127 \*\* FIRST A KEY

151128 \*\* LAST C KEY  
160201 \*\* NATURAL KEYS RETURN SPRING (EU)  
160202 \*\* SHARP KEYS RETURN SPRING (EU)  
160209 \*\* NATURAL KEYS RETURN SPRING (US)  
160210 \*\* SHARP KEYS RETURN SPRING (US)  
150160 \*\* 12 KEYS SNAP STRIP  
150161 \*\* 13 KEYS SNAP STRIP  
150162 \*\* SNAP ACTING FOR KEY

## 730441 POWER AMPLIFIER & SUPPLY BOARD (PCB# 310518)

171350 \* HEAT SINK  
171342 \* LEFT AMPLIFIER SUPPORT  
171341 \* RIGHT AMPLIFIER SUPPORT  
170716 \* TO 220 HEAT SINK  
140352 \* 9 CONTACTS VERTICAL MALE CONNECTOR  
140351 \* 6 CONTACTS VERTICAL MALE CONNECTOR  
140323 \* 6 CONTACTS VERTICAL MALE CONNECTOR  
140010 \* 3 CONTACTS P=10mm VERTICAL TERMINAL BLOCK  
110304 \* 2 WAYS 12V 5 A RELAY  
110119 \* FUSE CLIP  
110010 \* FUSE T 2A 5x20mm (EUROPE VERSION)  
110003 \* FUSE T 3,15A 5x20mm (EUROPE VERSION)  
110083 \* FUSE T 2A 6,3x32 (U.S. VERSION)  
110061 \* FUSE T 3,15A 6,3x32 (U.S. VERSION)  
100919 \* MC33078P LOW NOISE DUAL OP. AMP.  
100900 \* L4960 SWITC.REGUL.POS 2,5A  
100045 \* 7812 12V 1A VOLTAGE REGULATOR  
100043 \* 7912 -12V 1A VOLTAGE REGULATOR  
100039 \* STK4181 HYBRID 2x40W STEREO POWER AMPLIFIER  
090856 \* J-FET BSY 176 TRANSISTOR  
090182 \* BC173C NPN TO92 25V 0,1A TRANSISTOR  
080605 \* KBL02 4A 200V RECTIFIER BRIDGE  
080171 \* 100V 6A RECTIFIER BRIDGE  
080156 \* 1N4002 RECTIFIER DIODE  
080103 \* 1N4148 RECTIFIER DIODE

## 730442 AUX & MIDI I/O ASSEMBLY

652855 \* AUX & MIDI I/O BOX  
171329 \* BOX FIXING  
150474 \* HOLE CLOSER  
**730460 \* AUX & MIDI I/O BOARD (PCB# 310538)**  
140351 \*\* 6 CONTACTS VERTICAL MALE CONNECTOR  
140217 \*\* STEREO JACK WITH SWITCH  
140216 \*\* 6 POLES DIN SOCKET  
140212 \*\* 5 POLES DIN SOCKET  
100602 \*\* 74HC04 HEX INVERTER  
100035 \*\* 6N138 PHOTOCOUPLER  
090192 \*\* BC307 PNP TO92 40V 0,1A TRANSISTOR  
080103 \*\* 1N4148 SIGNAL DIODE

## 730459 PHONES ASSEMBLY

652854 \* HEAD-PHONE SOCKET BOX  
171327 \* BOX FIXING  
**730440 \* PHONES BOARD (PCB# 310513)**  
140327 \*\* 6 CONTACT VERTICAL MALE CONNECTOR  
140217 \*\* STEREO JACK SLIM SOCKET  
140207 \*\* STEREO JACK SOCKET

## MAINS ASSEMBLY

**730475 MAINS ASSEMBLY (EU)**  
**730476 MAINS ASSEMBLY (US)**  
130277 \* MAINS CORD (US)  
130294 \* MAINS CORD (EU)  
150021 \* CORD LOCK  
770724 INTERNAL MAINS CABLE ASSEMBLY  
**767987 MAINS FILTER BOARD (PCB# 315016)(EU)**  
**768005 MAINS FILTER BOARD (PCB# 315016)(US)**  
010719 \* 2N2 250V 7A 20% AC LINE CAPACITOR "Y" FILTER  
020493 \* 100N 250VAC MKP EMI CAPACITOR (IEC-UL-CSA)  
110011 \* FUSE CLIP 5x20mm (EUROPE VERSION)  
110362 \* FUSE CLIP 6.3x32mm (U.S. VERSION)  
140010 \* 3 CONTACTS P=10 VERT TERMINAL BLOCK  
230565 \* 2.5MH 250V 3A AC LINE FILTER  
110011 FUSE T 1A 5x20mm (EU)  
110083 FUSE T 2A 6.3x32mm (US)

## TRANSFORMER ASSEMBLY

**730373 TRANSFORMER ASSEMBLY (EU)**  
230124 \* TRANSFORMER 230V 120W  
**730216 TRANSFORMER ASSEMBLY (US)**  
230108 \* TRANSFORMER 115V 120W

## CPU & SOUND GENERATOR BOARD

**750996 \* CPU & SOUND GENERATOR (PCB# 315080)**  
140352 \*\* 9 CONTACTS VERTICAL MALE CONNECTOR  
141011 \*\* 6 CONTACTS FEMALE CONNECTOR  
141010 \*\* 4 CONTACTS FEMALE CONNECTORS  
105006 \*\* UP H8/3003 CPU SMD FC=16MHZ  
105002 \*\* DISP3 DIGITAL SOUND PROCESSOR  
104013 \*\* 23C32000G WAVE FORM ROM1  
104012 \*\* 23C32000G WAVE FORM ROM2  
104010 \*\* HM514280AJ-7 CMOS DRAM 256KX18  
104000 \*\* HM628128LPF STATIC RAM 1MB 70NS  
103010 \*\* 74HC04 HEX INVERTER IN SMD SOP14 P=3,81  
103009 \*\* 74HC02 QUAD 2 INPUT NOR GATE SOP14 P=3,81  
103007 \*\* 74HC74 DUAL FLIP-FLOP  
103004 \*\* AD1865R SDP PCM D/A COUNVERTER  
103001 \*\* 74HC08 QUAD 2-INPUT AND GATE  
101501 \*\* 74AC377 OCTAL D FLIP-FLOP  
100920 \*\* LM 336B 2,5 VOLTAGE REFERENCE GENERATOR  
100919 \*\* MC33078P LOW NOISE DUAL OP. AMP.  
100075 \*\* LM311N LINEAR VOLTAGE COMPARATOR  
090192 \*\* BC307 PNP TO92 40V 0,1A TRANSISTOR  
090182 \*\* BC173C NPN TO92 25V 0,1A TRANSISTOR  
081000 \*\* 1N4148 SIGNAL DIODE  
080241 \*\* 5,6V 1W 5% ZENER  
010727 \*\* 45.1584MHz QUARTZ RESONATOR  
010704 \*\* 16 MHz QUARTZ RESONATOR  
550509 \* 27C4002 PROGRAM EPROM  
110282 \* 3,6V 60MAH RECHARGEABLE BATTERY

## CONTROLS PANEL ASS'Y

820421 \* FRONT PANEL ASSEMBLY (EU) (Real Piano)  
820429 \* FRONT PANEL ASSEMBLY (US) (PianoVelle)  
652241 \*\* <PLAY-REC> RUBBER KEYPAD  
652237 \*\* 2+4+8+8<DEMO...SOUNDS>RUBBERKEYPAD  
652236 \*\* 4+1 <ASB-REVERB-DSP EFFECTS-TOUCH-KEY SPLIT> RUBBER KEYPAD  
340820 \*\* SLIDER KNOB  
652848 \*\* CONTROL PANEL  
660392 \*\* FRONT PANEL (EUROPE VERSION)  
660394 \*\* FRONT PANEL (U.S. VERSION)  
**810294 \* CONTROLS PANEL BOARD (PCB# 310515/1)**  
140520 \*\* MICROSWITCH  
100738 \*\* 100740 VALIS CPU (STARTS FROM 01/1995)  
100607 \*\* 74HC164 8BIT SIPO SHIFT REGISTER  
100605 \*\* 74HC125 QUAD 3 STATE NON IVERTING BUFFER  
090192 \*\* BC307 PNP TO92 40V 0,1A TRANSISTOR  
090182 \*\* BC173C NPN TO92 25V 0,1A TRANSISTOR  
080748 \*\* GREEN LED  
080747 \*\* RED LED  
080103 \*\* 1N4148 SIGNAL DIODE  
141011 \*\* 6 CONTACTS FEMALE CONNECTOR  
141010 \*\* 4 CONTACTS FEMALE CONNECTOR  
140918 \*\* 2 CONTACTS MALE CONNECTOR  
140872 \*\* 4 CONTACTS MALE CONNECTOR  
**730437 \*\* VOLUME MODULE (PCB# 310507)**  
140874 \*\*\* 6 CONTACTS STRIP  
070551 \*\*\* 10KE 30mm SLIDER POT.

## WIRING CONNECTIONS

770722 SPEAKERS CABLE ASS'Y  
840901 9 Wires x 35cm FLAT CABLE (from POWER AMPLIFIER to CPU BOARD)  
840850 6 Wires x 5cm FLAT CABLE (from POWER AMPLIFIER to OUTPUTS BOARD)  
840783 6 Wires x 40cm FLAT CABLE (from CPU BOARD to CONTROL PANEL BOARD)  
840782 6 Wires x 35cm FLAT CABLE (from CPU BOARD to KEYBOARD)  
840769 4 Wires x 40cm FLAT CABLE (from OUTPUT BARD to CONTROL PANEL BOARD)  
840768 4 Wires x 10cm FLAT CABLE (from CPU BOARD to POWER AMPLIFIER from CPU BOARD to OUTPUTS BOARD)  
840767 2 Wires x 30cm FLAT CABLE (from POWER AMPLIFIER BOARD to KEYBOARD INT.)  
840766 2 Wires x 10cm FLAT CABLE (from POWER AMPLIFIER to CONTROLS PANEL B.)  
840765 2 Wires x 20cm FLAT CABLE (from POWER AMPLIFIER to OUTPUTS BOARD)  
840738 4 Wires x 5cm FLAT CABLE (from RIGHT KEYBOARD to LEFT KEYBOARD)  
840168 6 Wires x 80cm FLAT CABLE (from POWER AMPLIFIER BOARD to PHONES BOARD)  
840762 20 Wires x 25cm FLAT CABLE (from RIGHT KEYBOARD to KEYB. INTERFACE B.)  
840761 20 Wires x 12,5cm FLAT CABLE (from LEFT KEYBOARD to KEYB. INTERFACE B.)

## Note:

Each spare part is single quantity unless otherwise specified

Asterisk prefix explanation:

Omitted = First level spare part.

One asterisk = Second level, part of previous listed first level part.

Two asterisk = Third level, part of previous listed second level part.

Three asterisk =.....

Any request for not above mentioned part must encompass specific description including:

1) Model name,

2) Section,

3) Module code,

4) Reference name,

5) Quantity number.