

AHLBORN

Classic Organ

PL 230

PL 227

SERVICE MANUAL

Schematic Diagrams



CODE : 270200



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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.

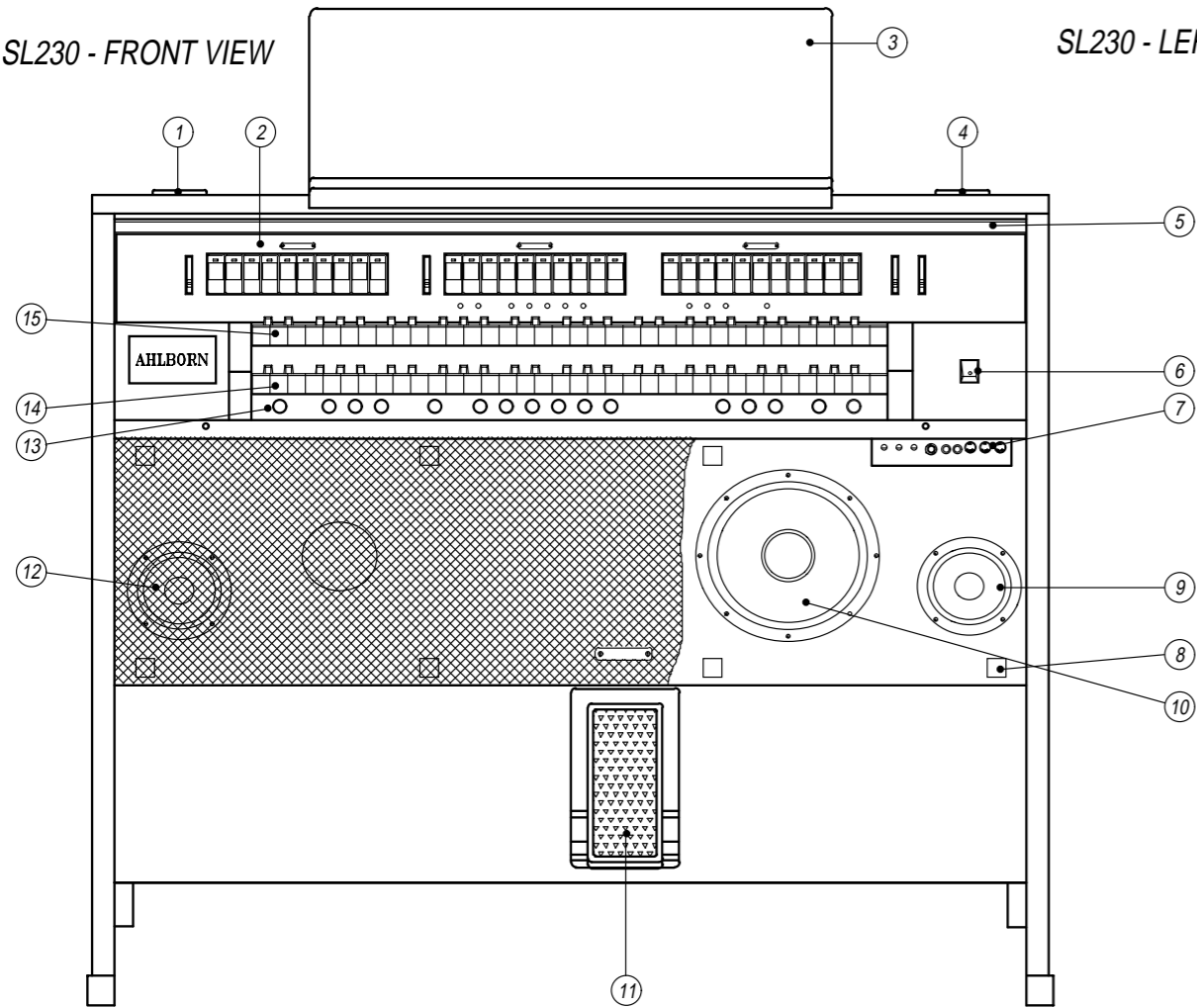
The (μ) micro symbol of capacitance value is substituted by U. The (Ω) omega symbol of resistance value is substituted by E. The electrolytic capacitors are 25Vdc rated voltage unless otherwise specified. All resistors are 1/8W unless otherwise specified. All switches shown in the "OFF" position. All DC voltages measured to ground with a voltmeter 20KOhm/V.

- | | |
|---|-------------------------|
| ← 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. | |

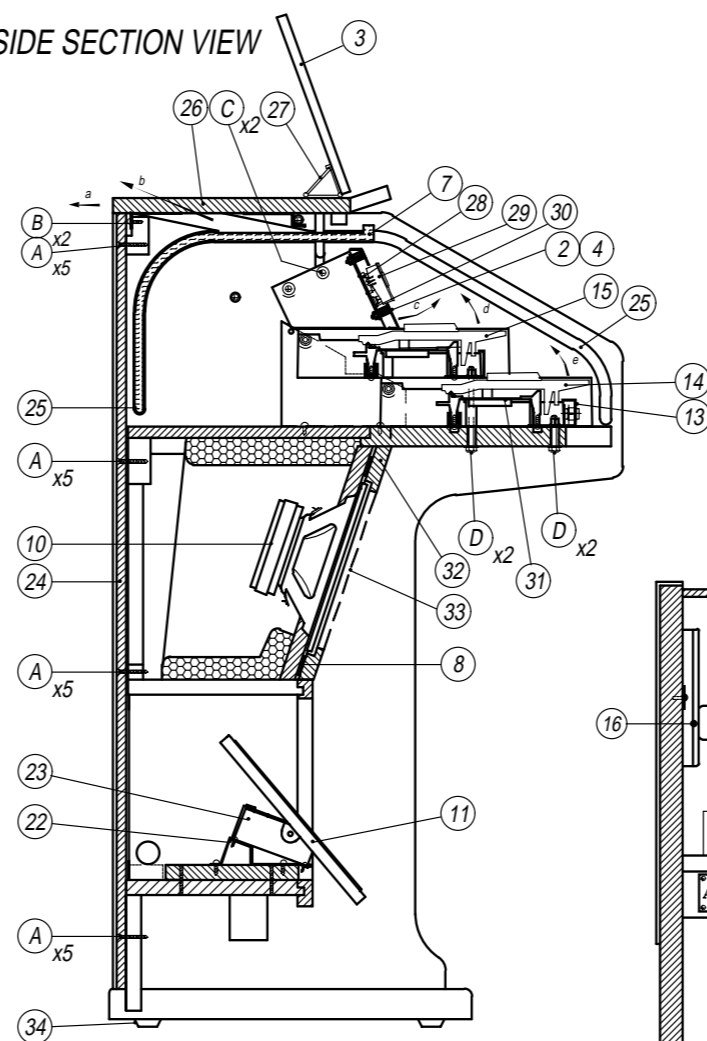


ATTENTION
Observe precautions when handling
electrostatic sensitive devices

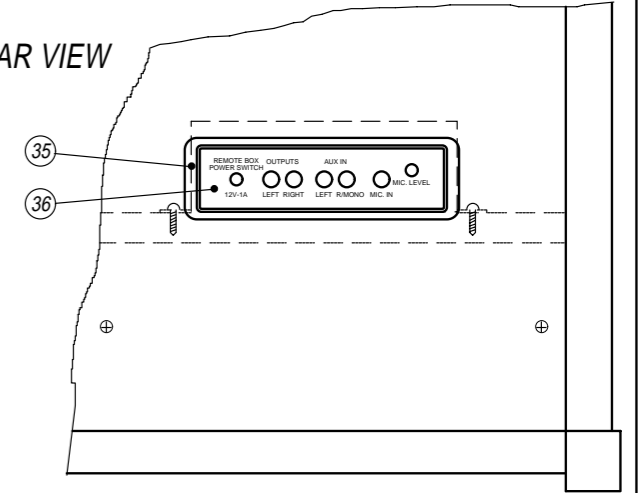
SL230 - FRONT VIEW



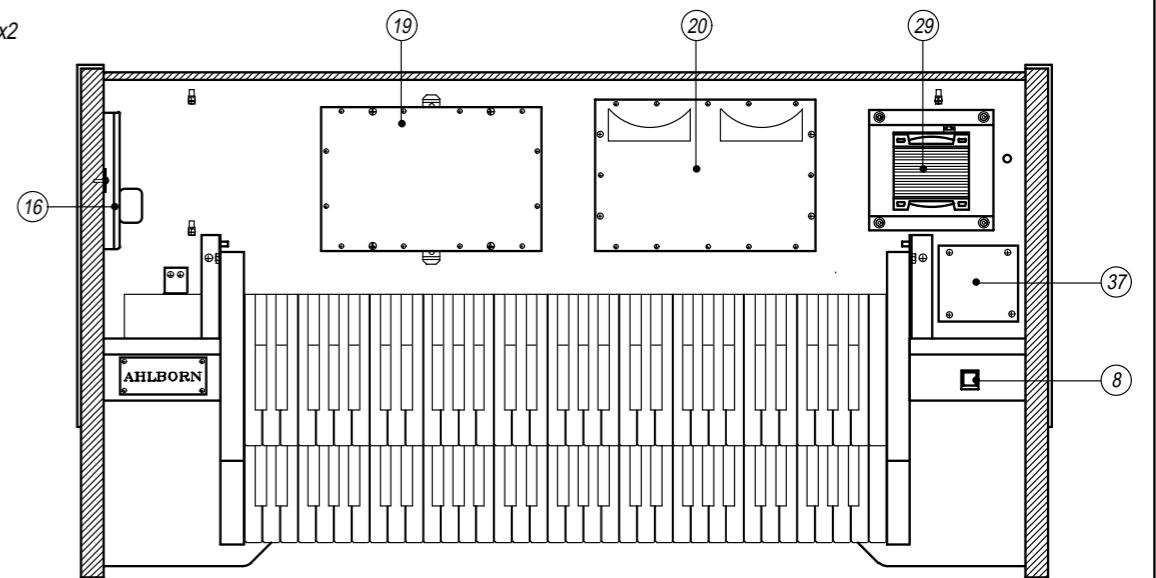
SL230 - LEFT-SIDE SECTION VIEW



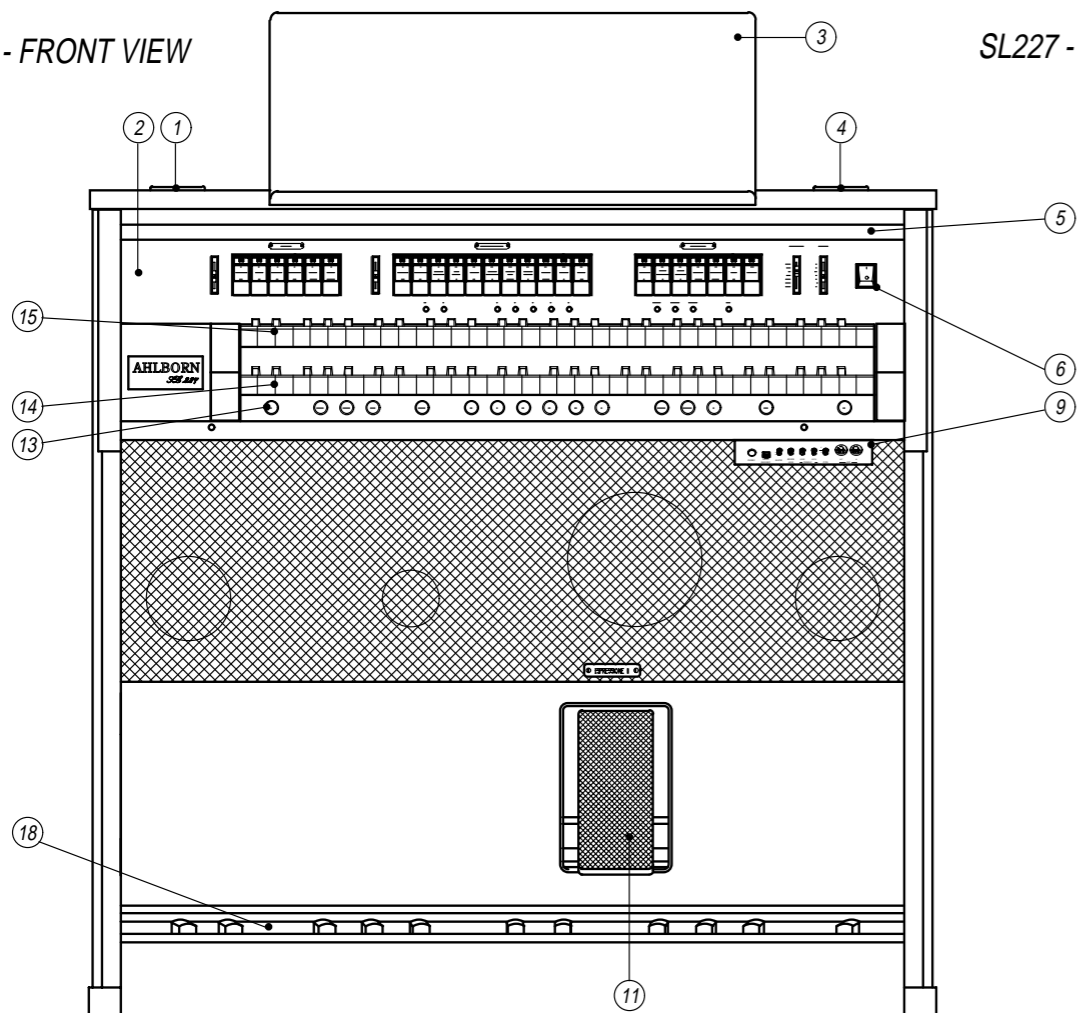
REAR PARTICULAR VIEW



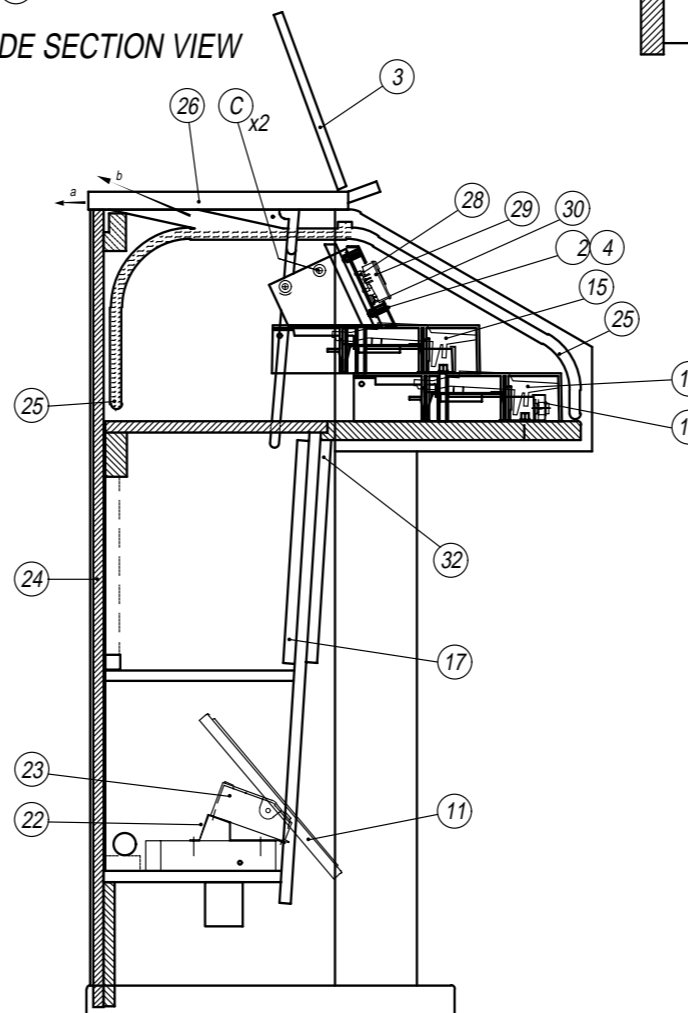
UPPER-INTERNAL VIEW



SL227 - FRONT VIEW



SL227 - LEFT-SIDE SECTION VIEW

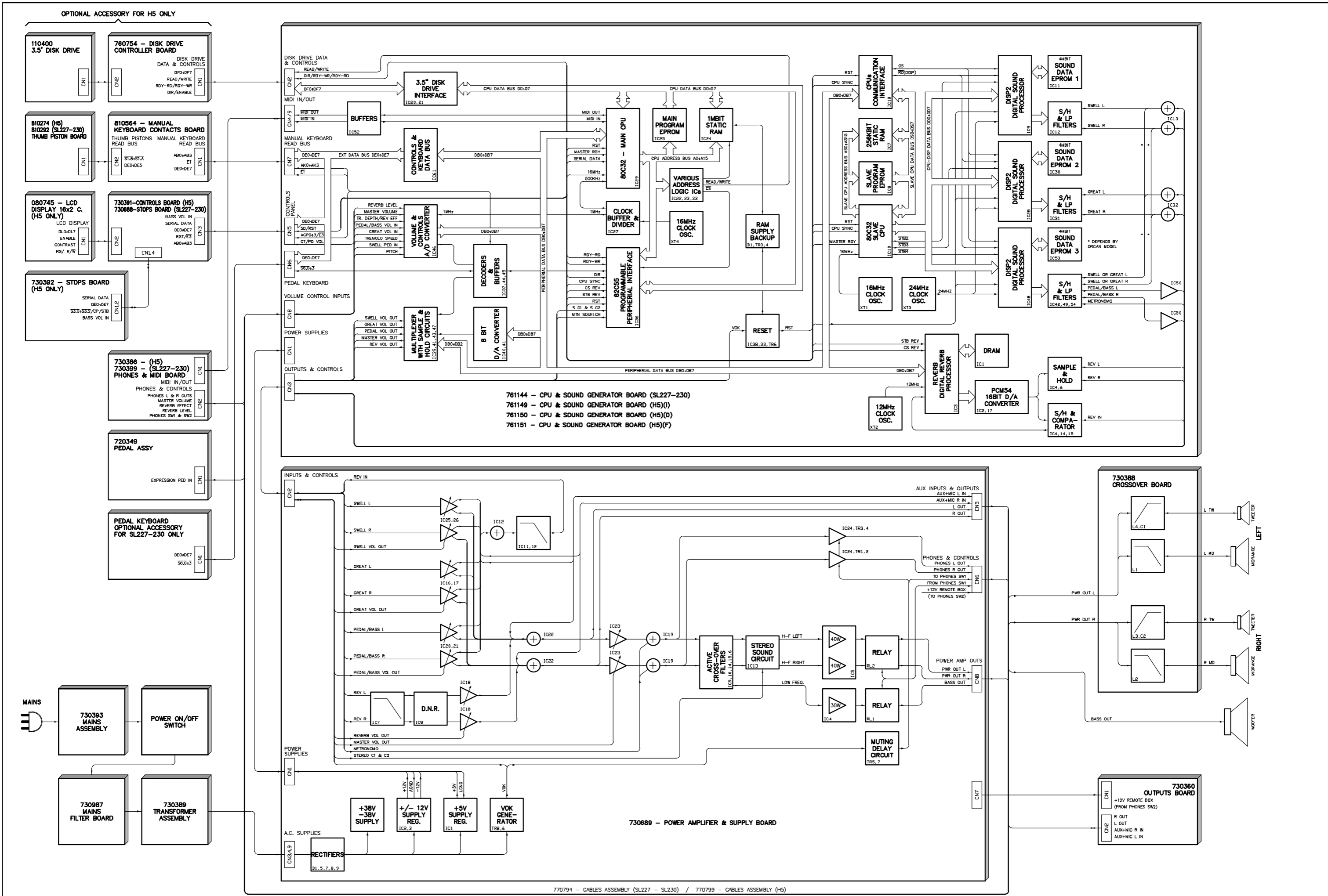


CABINET OPENING INSTRUCTIONS

1. UNSCREW THE SCREWS (A) AND REMOVE THE CABINET REAR PANEL (33).
2. UNSCREW THE SCREWS (B) AND PULL OUT THE CABINET COVER (34) IN THE DIRECTION (a).
3. CLOSE THE SLIDING COVER (35) AND MOVE IT OUT FROM THE (b) GUIDE.
4. REMOVE THE SCREWS (C) FROM THE FRONT PANEL SUPPORTS TO ROTATE THE FRONT PANEL IN THE (c) DIRECTION.
5. REMOVE THE SCREW BOLT (D) UNDER THE KEYBOARDS TO ROTATE THE KEYBOARDS IN THE (d) AND (e) DIRECTIONS.

PART DESCRIPTIONS TABLE

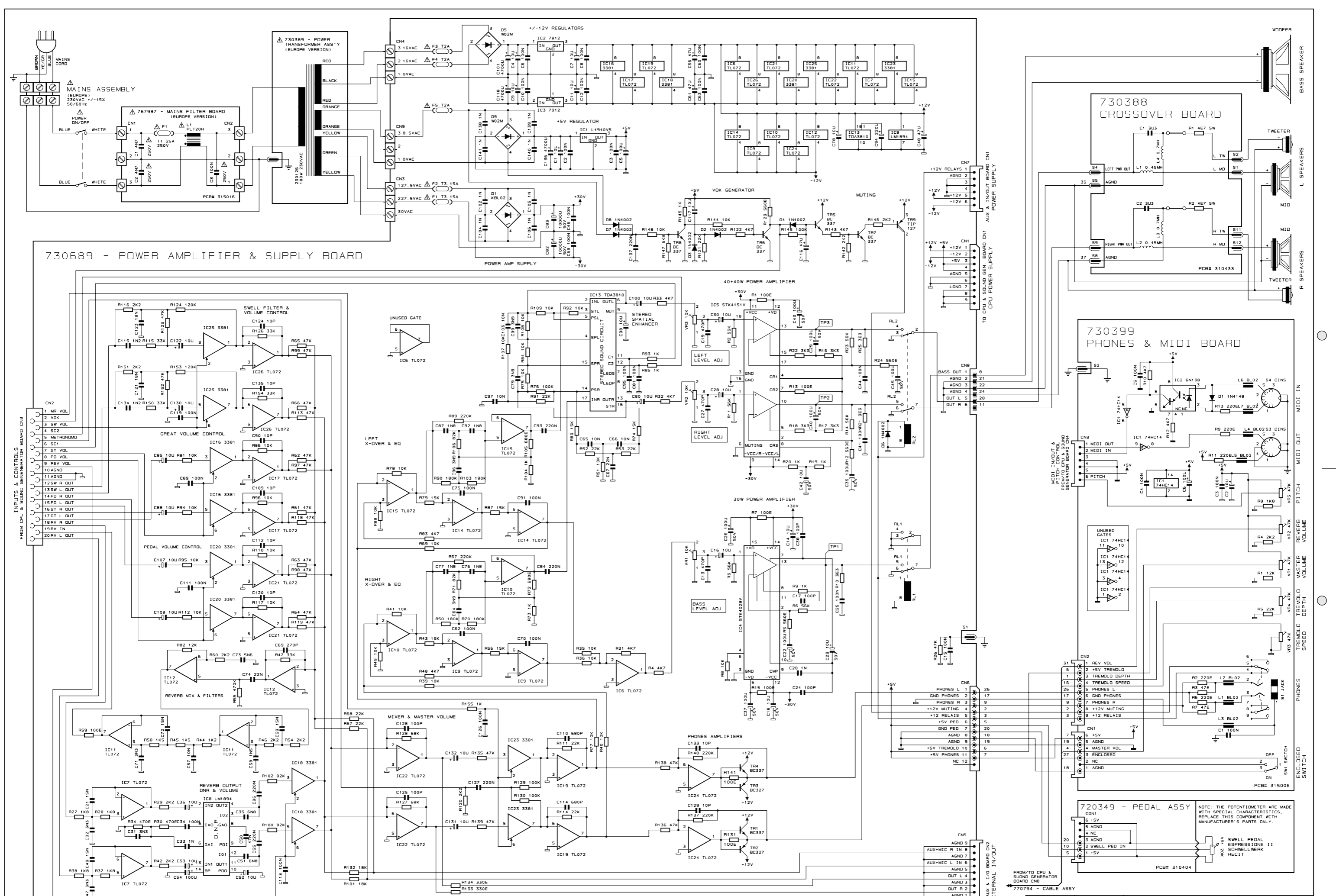
REF.	DESCRIPTION	REF.	DESCRIPTION
1	LEFT TWEETER SPEAKER	23	PEDALBOARD SUPPORT
2	STOPS BOARDS	24	CABINET REAR PANEL
3	MUSIC STAND	25	RIGHT SLIDING COVER GUIDE
4	RIGHT TWEETER SPEAKER	26	CABINET COVER
5	SLIDING COVER	27	MUSIC STAND HINGE
6	POWER ON/OFF SWITCH	28	STOP KEY SUPPORT
7	PHONES & CONTROLS ASSEMBLY	29	STOP KEY
8	ADHESIVE "3M DUAL LOCK"	30	RUBBER MICROSWITCH
9	RIGHT MIDRANGE SPEAKER	31	CONTACT KEYBOARD
10	WOOFER SPEAKER	32	SPEAKERS CLOTH PANEL
11	SWELL PEDAL	33	SPEAKERS CLOTH
12	LEFT MIDRANGE SPEAKER	34	METAL FOOT
13	GREAT THUMB PISTONS	35	OUTPUTS PANEL FRAME
14	GREAT MANUAL KEYBOARD	36	OUTPUTS ASSEMBLY
15	SWELL MANUAL KEYBOARD	37	A.C. LINE FILTER BOARD
16	REMOTE CONTROL RECEIVER		
17	WOOFER ADAPTER PANEL		
18	PEDAL KEYBOARD		
19	CPU & SOUND GENERATOR BOARD		
20	POWER AMPLIFIER & SUPPLY BOARD		
21	TRANSFORMER ASSY		
22	PEDAL SUPPORT		



761144 - CPU & SOUND GENERATOR BOARD (SL227-230)
 761149 - CPU & SOUND GENERATOR BOARD (H5)(I)
 761150 - CPU & SOUND GENERATOR BOARD (H5)(D)
 761151 - CPU & SOUND GENERATOR BOARD (H5)(F)

730689 - POWER AMPLIFIER & SUPPLY BOARD

770794 - CABLES ASSEMBLY (SL227 - SL230) / 770799 - CABLES ASSEMBLY (H5)



730689 - POWER AMPLIFIER & SUPPLY BOARD

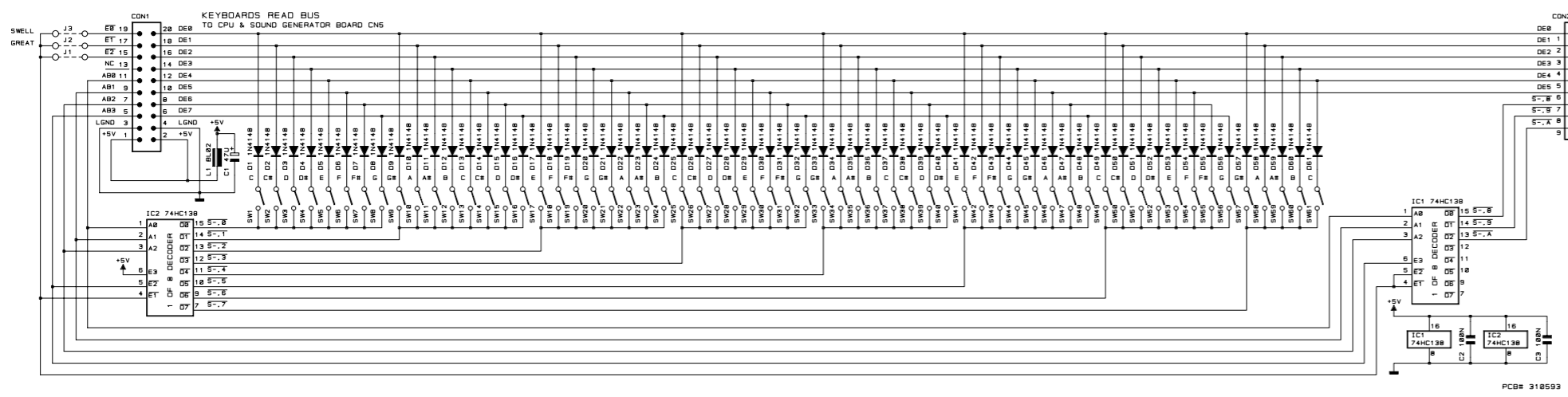
INPUTS & CONTROLS
FROM CPU & SOUND GENERATOR BOARD CN3

FROM TO CPU & SOUND GENERATOR BOARD CN8

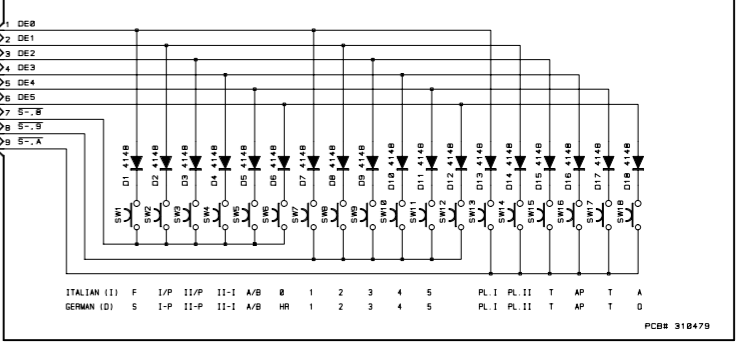
770794 - CABLE ASSY

DRW G. BOCCATO	DWG# 500843	PCB# 315016/315006/310580/310404/310433	GENERALMUSIC S.p.A. ITALY
CKD M. FRATERALI	DSK# PART: 1/1	SCHEMATIC DIAGRAM SL227 - SL230 MIXER, POWER AMP. & SUPPLY, PHONES & MIDI, CROSSOVER BOARD	ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC.
APP P. CIMARDI	REV: 17-02-98		

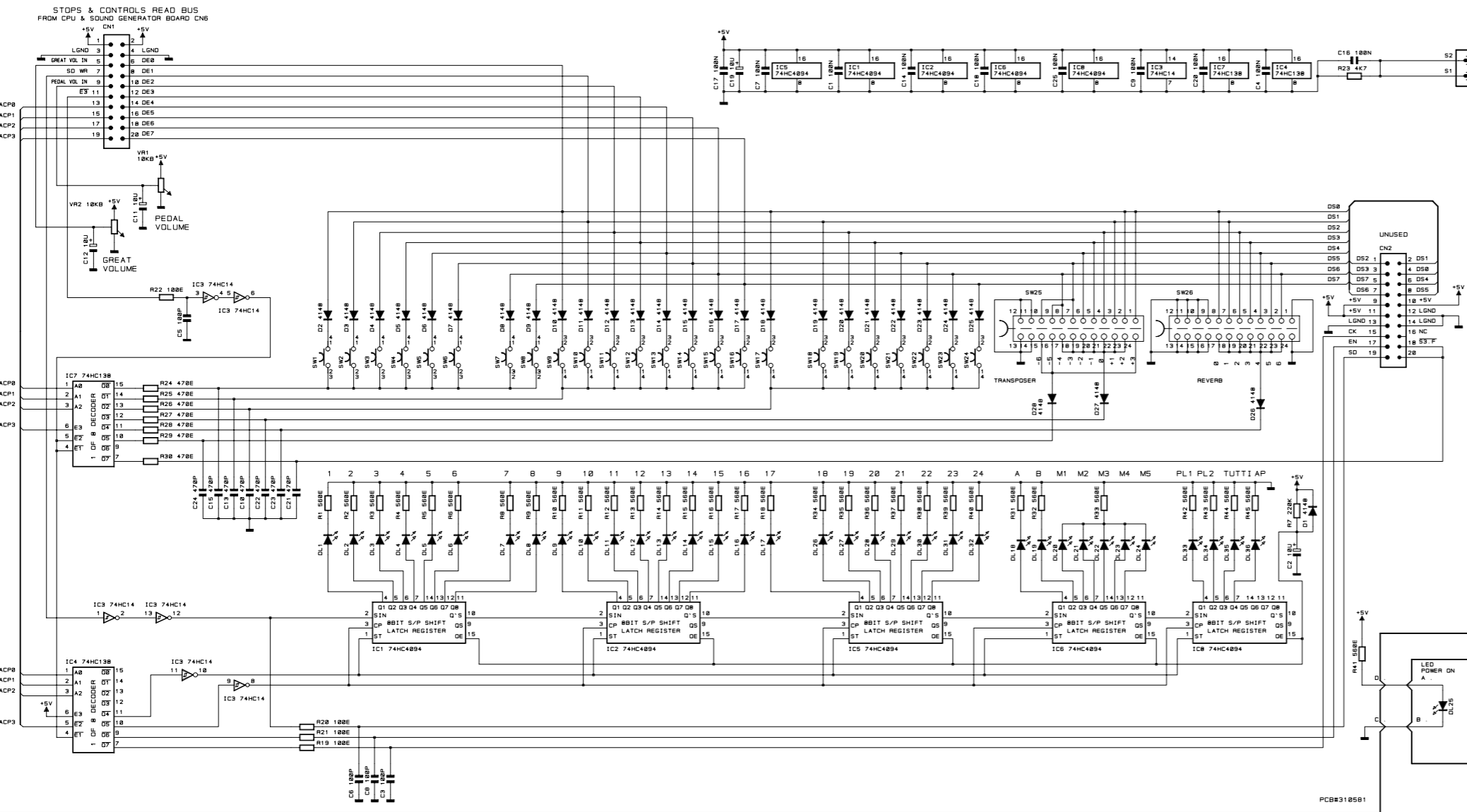
810564 - CONTACTS BOARD (TP8L)



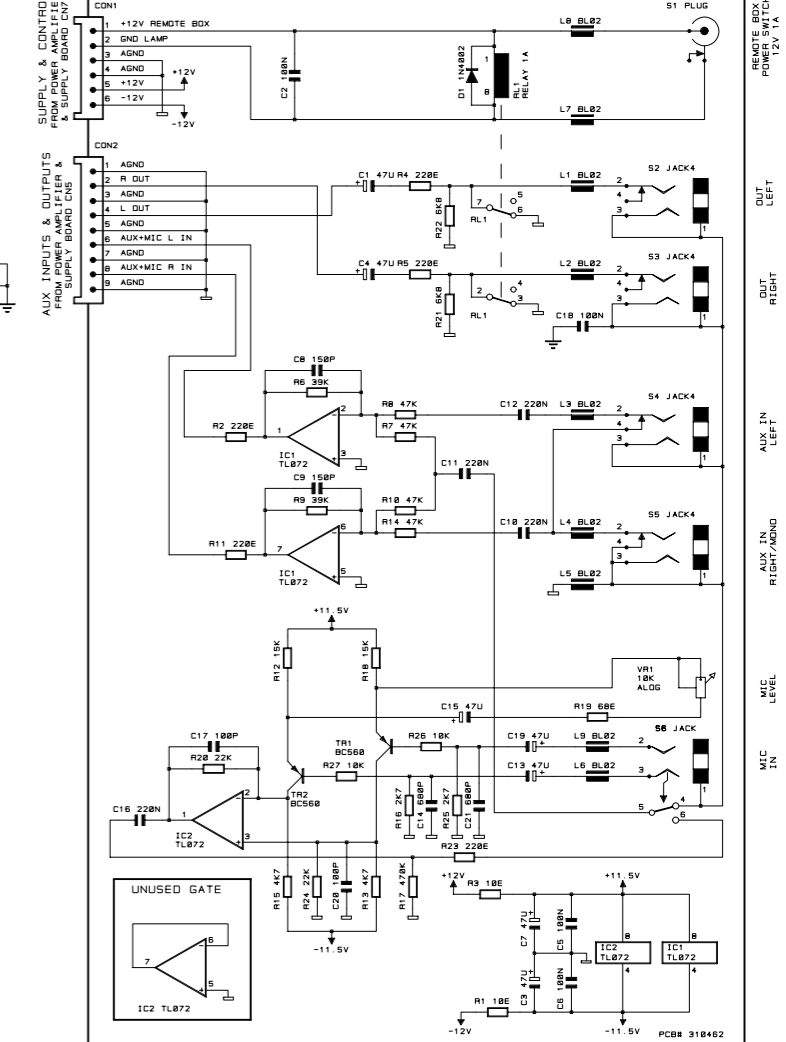
810292 - THUMB PISTONS BOARD



730688 - STOPS BOARD

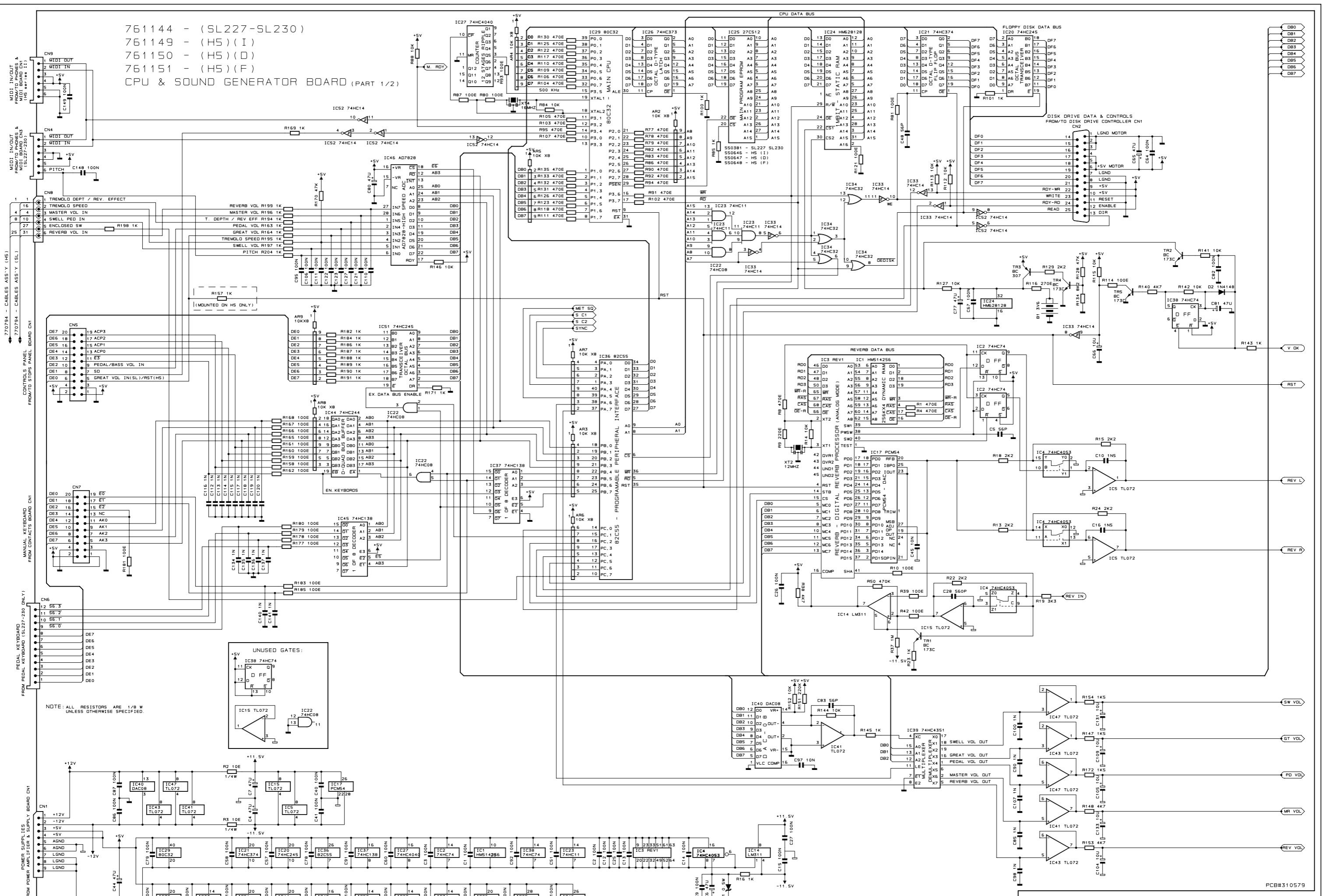


730360 - OUTPUTS BOARD



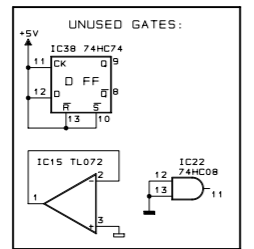
STOPS TABLE			
N.	ITALIAN	GERMAN	
1	SUBBASSO 16"	SUBBASS 16"	13 FLAUTO IN XII 2 2/3"
2	BASSO 8"	OKTAVBASS 8"	14 DECIMA QUINTA 2"
3	BORDONE 8"	GEDACKT' BASS 8"	15 REPIENO 4 FILE
4	TROMBONE 16"	POSALNE 16"	16 TROMBA 8"
5	UNIDNE I-PED	KOPPEL 1-PED	17 UNIDNE II-I
6	UNIDNE II-PED	KOPPEL II-PED	18 BORDONE 8"
7	BORDONE 16"	BORDUN 16"	19 VIOLA DA GAMBA 8"
8	PRINCIPALE 8"	PRINZIPAL 8"	20 CORNO DI NOTTE 4"
9	FLAUTO A CAMINO 8"	ROHR FLOTE 8"	21 CIMBALO 3 FILE
10	VOCE UMANA 8"	UNDA MARI 8"	22 CORNETTO 3 FILE
11	OTTAVA 4"	OKTAVE 4"	23 OBDE 8"
12	FLAUTO A CUSPIDE 4"	SPITZ FLOTE 4"	24 TREMOLO
			NASARD 2 2/3"
			SUPER OKTAVE 2"
			MIXTUR 4F
			TROMPETE 8"
			KOPPEL II-I
			GEDACKT 8"
			GAMBA 8"
			NACHTHORN 8"
			SCHARFF 3F
			OBDE 3F
			OBDE 8"
			TREMLANT

761144 - (SL227-SL230)
 761149 - (H5)(I)
 761150 - (H5)(D)
 761151 - (H5)(F)
 CPU & SOUND GENERATOR BOARD (PART 1/2)

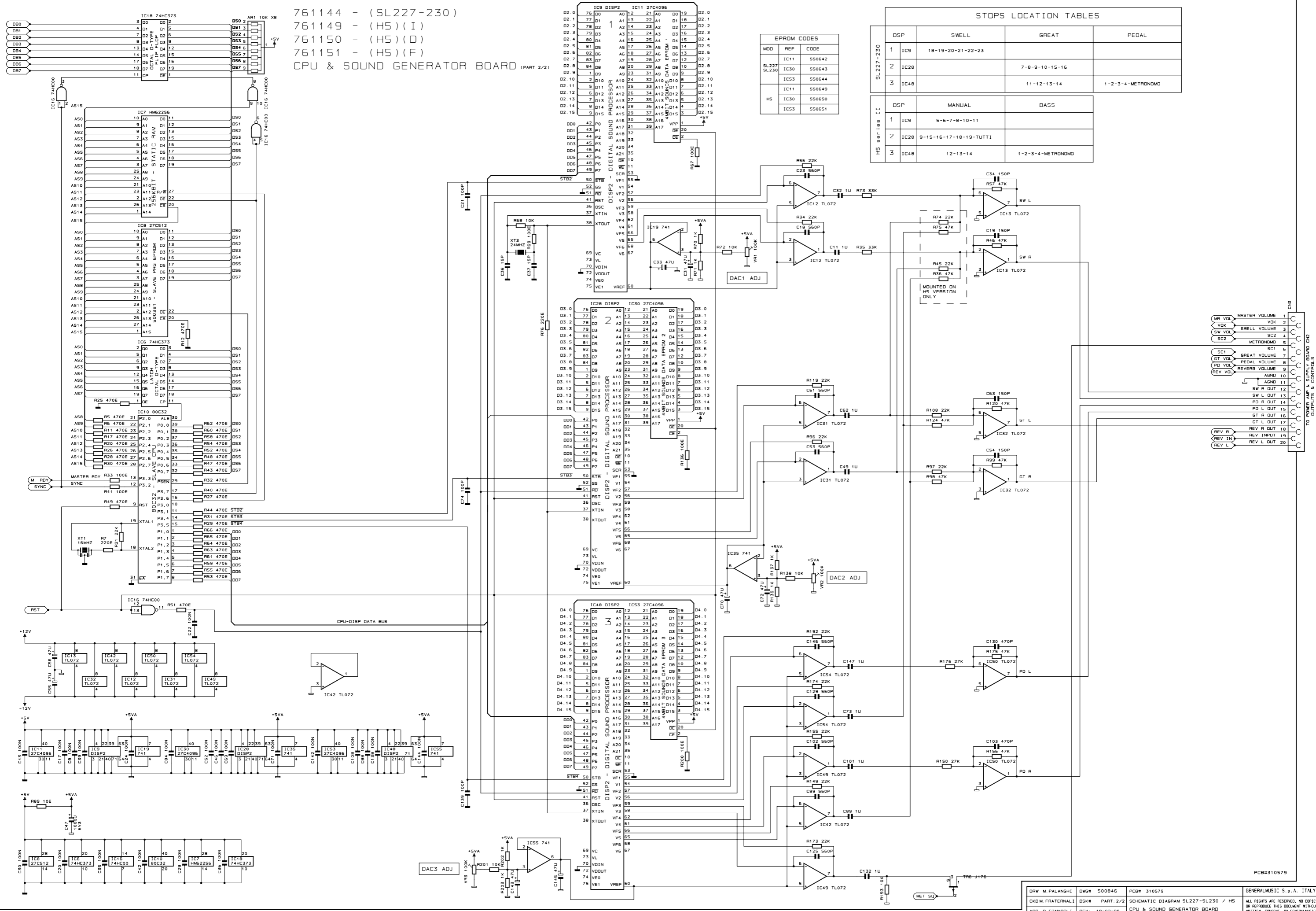


770794 - CABLES ASS'Y (HS)
 770794 - CABLES ASS'Y (SL)
 770794 - CABLES ASS'Y (I)
 770794 - CABLES ASS'Y (D)
 770794 - CABLES ASS'Y (F)

NOTE: ALL RESISTORS ARE 1/8 W UNLESS OTHERWISE SPECIFIED.



761144 - (SL227-230)
 761149 - (H5)(I)
 761150 - (H5)(D)
 761151 - (H5)(F)
 CPU & SOUND GENERATOR BOARD (PART 2/2)



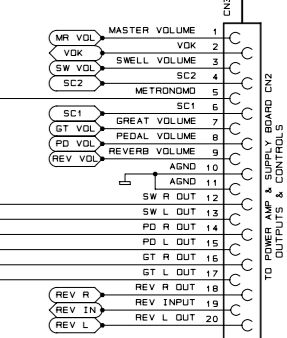
EPROM CODES

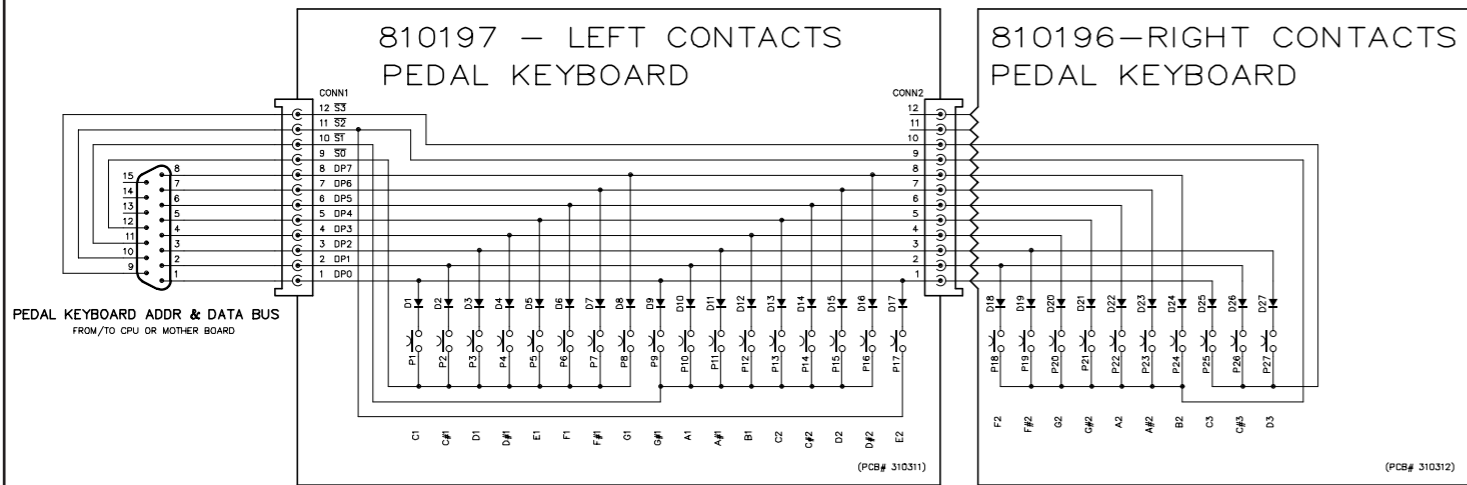
MOD	REF	CODE
SL227	IC1	550642
SL230	IC30	550643
	IC53	550644
	IC11	550649
H5	IC30	550650
	IC53	550651

STOPS LOCATION TABLES

DSP	SL227-230		
	SWELL	GREAT	PEDAL
1	IC9	18-19-20-21-22-23	
2	IC28		7-8-9-10-15-16
3	IC48		11-12-13-14
			1-2-3-4-METRONOMD

DSP	H5 ser rev II	
	MANUAL	BASS
1	IC9	5-6-7-8-10-11
2	IC28	9-15-16-17-18-19-TUTTI
3	IC48	12-13-14
		1-2-3-4-METRONOMD





Spare Part List

Legend

- DO = Specify Dark Oak Version
- NO = Specify Natural Oak Version

Code Description

- 981016 27 Notes Pedal Keyboard Assembly (DO)
- 981032 27 Notes Pedal Keyboard Assembly (NO)
- 810197 * Left Contacts Board (Pcb#310311)
- 810196 * Right Contacts Board (Pcb#310312)
- 140518 ** Rubber Microswitch
- 080103 ** 1N4148 100mA 75V Signal Diode
- 770541 * Pedal Addr & Data Bus Cable
- 510200 * Wooden Parts (DO)
- 261506 ** Rear Upper Finish (DO)
- 261504 ** Front Upper Finish (DO)
- 510201 * Wooden Parts (NO)
- 261507 ** Rear Upper Finish (NO)
- 261505 ** Front Upper Finish (NO)
- 340883 * 3 Keys Pedal Guide
- 340223 * Rubber Foot
- 340201 * Plastic Pedal Support for Sharp Key
- 340200 * Plastic Pedal for Sharp Key
- 340199 * 7 Keys Pedal Guide
- 340198 * 5 Keys Pedal Guide
- 340196 * Acting Rubber for Microswitch
- 340186 * Adhesive Cable Fixing
- 260247 * Sharp Wooden Key
- 260246 * Natural Wooden Key
- 210247 * 7 Keys Upper Felt
- 210246 * 5 Keys Upper Felt
- 210071 * Single Key Lower Felt
- 210019 * Adhesive Brown Felt
- 210017 * 2x10mm Adhesive Black Felt (specify mt)
- 171601 * Pedalboard Cover
- 171600 * Pedalboard Chassis
- 170854 * Pedal Key Return Spring
- 170851 * Acting Support

Note:

Each spare part is single quantity unless otherwise specified.

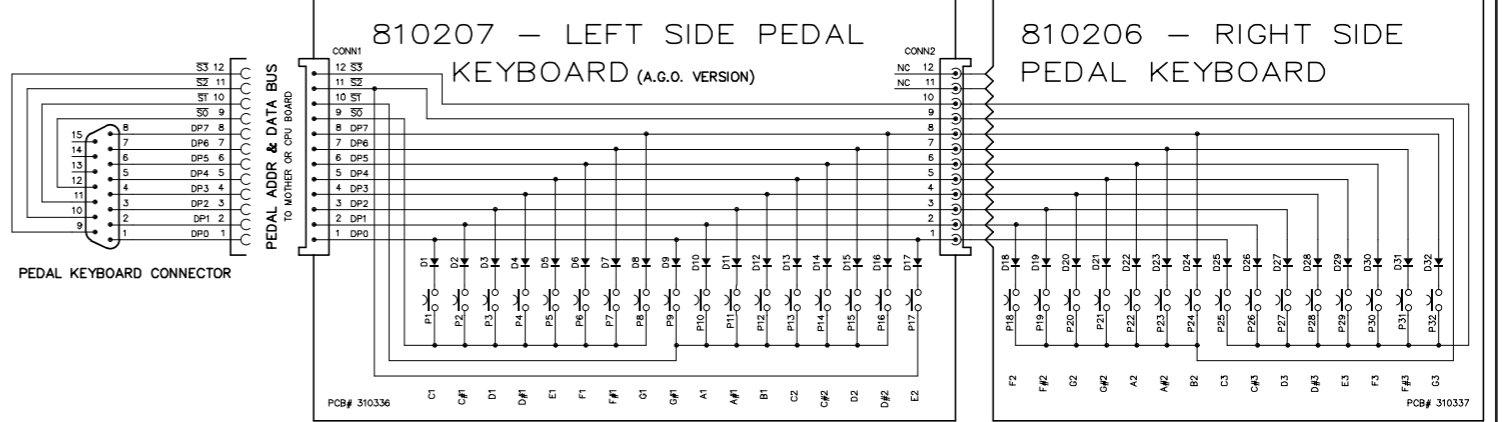
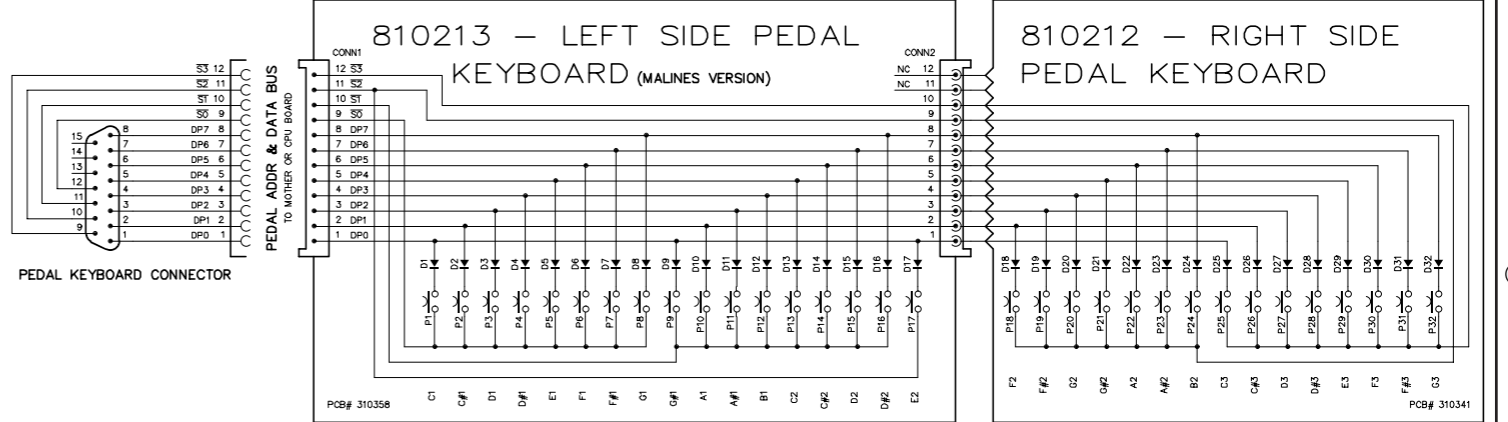
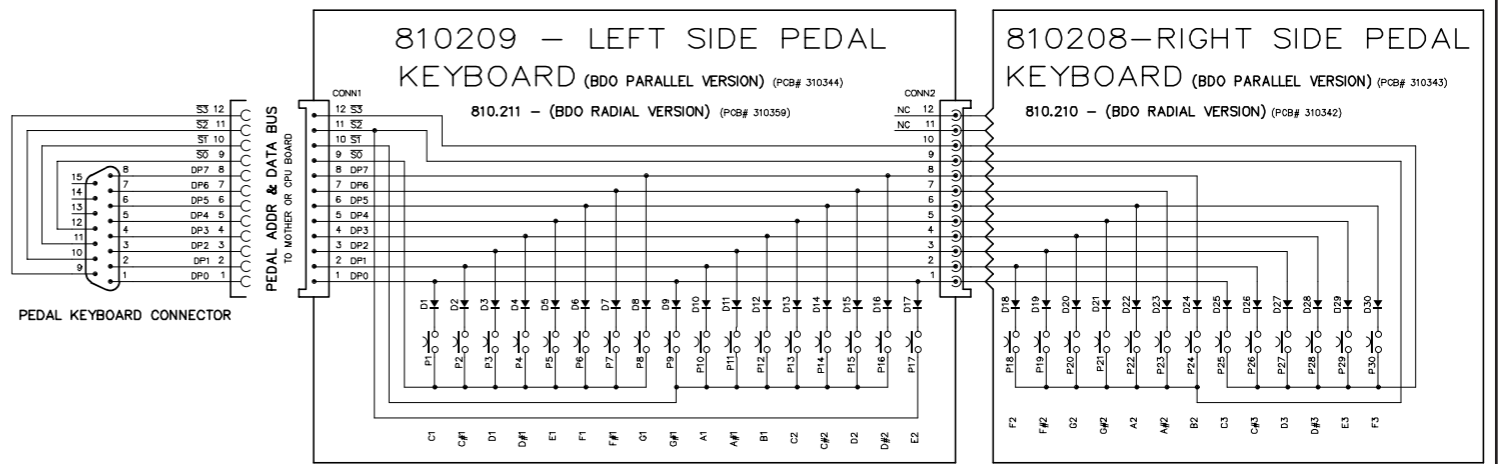
Asterisk prefix explanation:

- 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 name,
- 3) Module code,
- 4) Reference name,
- 5) Quantity number.

DRW: BOCCATO	DWG: 310311/312	SCHEMATIC DIAGRAM SL227	GENERALMUSIC S.p.A. Italy
CKD:	DISK: 62 PART: 1/1	27 Notes Straight Parallel Pedal Keyboard	ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCTIONS WITHOUT WRITTEN CONSENT BY GENERALMUSIC.
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Spare Part List

Legend

- DO = Specify Dark Oak Version
- NO = Specify Natural Oak Version

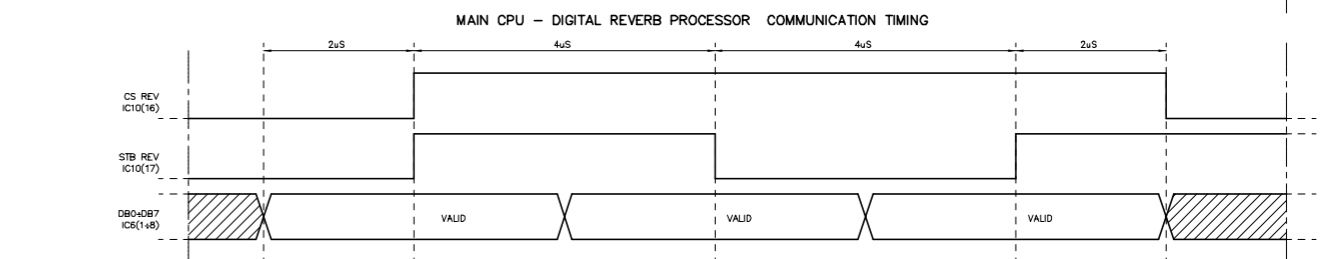
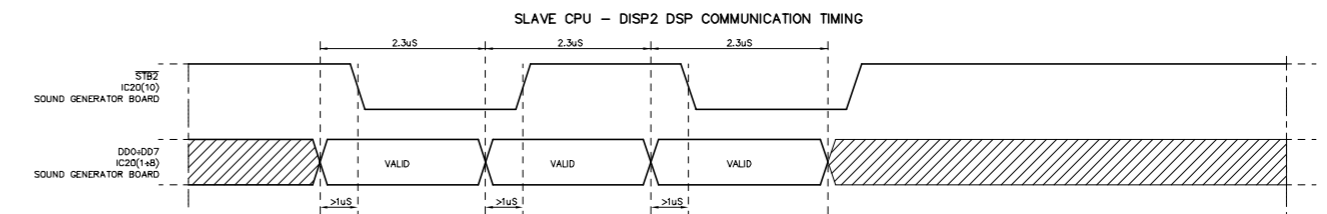
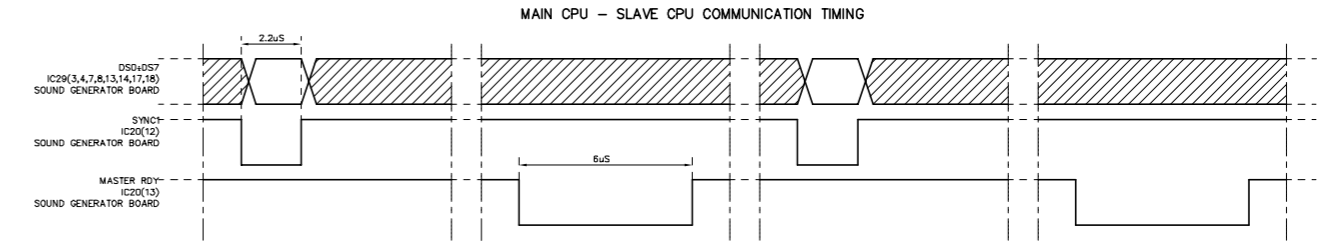
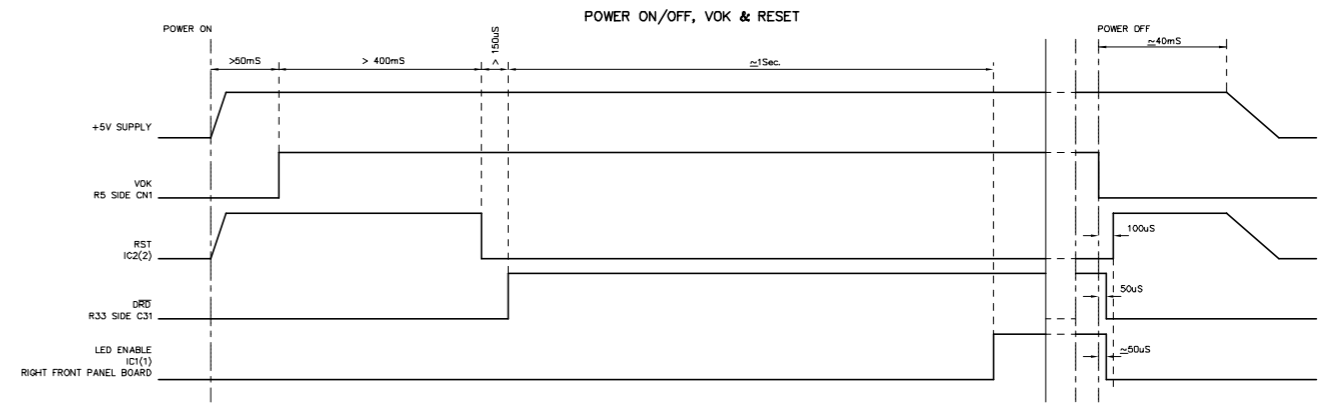
Code Description

- 981033 32N CR Pedal Keyboard Ass'y (AGO) (DO)
- 981034 32N CR Pedal Keyboard Ass'y (AGO) (NO)
- 981035 30N CP Pedal Keyboard Ass'y (BDO) (DO)
- 981036 30N CP Pedal Keyboard Ass'y (BDO) (NO)
- 981037 30N CR Pedal Keyboard Ass'y (BDO) (DO)
- 981038 30N CR Pedal Keyboard Ass'y (BDO) (NO)
- 981039 32N CR Pedal Keyboard Ass'y (Malines) (DO)
- 981040 32N CR Pedal Keyboard Ass'y (Malines) (NO)
- 810207 * L Contacts Board (AGO) (Pcb#310336)
- 810206 * R Contacts Board (AGO) (Pcb#310337)
- 810209 * L Contacts Board (CP BDO) (Pcb#310344)
- 810208 * R Contacts Board (CP BDO) (Pcb#310343)
- 810211 * L Contacts Board (CR BDO) (Pcb#310359)
- 810210 * R Contacts Board (CR BDO) (Pcb#310342)
- 810213 * L Contacts Board (Malines) (Pcb#310358)
- 810212 * R Contacts Board (Malines) (Pcb#310341)
- 770541 * Pedal Addr & Data Bus Cable
- 510205 * Wooden Parts (AGO) (DO)
- 261514 ** Lower Rear Finish (DO)
- 261512 ** Upper Rear Finish (DO)
- 261510 ** Front Finish (DO)
- 261508 ** Chassis (DO)
- 510206 * Wooden Parts (AGO) (NO)
- 261515 ** Lower Rear Finish (DO)
- 261513 ** Upper Rear Finish (DO)

- 261511 ** Front Finish (DO)
- 261509 ** Chassis (DO)
- 510207 * Wooden Parts (CP BDO) (DO)
- 261540 ** Spacer (DO)
- 261522 ** Lower Rear Finish (DO)
- 261520 ** Upper Rear Finish (DO)
- 261518 ** Front Finish (DO)
- 261516 ** Chassis (DO)
- 510208 * Wooden Parts (CP BDO) (NO)
- 261541 ** Spacer (NO)
- 261523 ** Lower Rear Finish (NO)
- 261521 ** Upper Rear Finish (NO)
- 261519 ** Front Finish (NO)
- 261517 ** Chassis (NO)
- 510209 * Wooden Parts (CR BDO) (DO)
- 261542 ** Spacer (DO)
- 261530 ** Lower Rear Finish (DO)
- 261528 ** Upper Rear Finish (DO)
- 261526 ** Front Finish (DO)
- 261524 ** Chassis (DO)
- 510210 * Wooden Parts (CR BDO) (NO)
- 261543 ** Spacer (NO)
- 261531 ** Lower Rear Finish (NO)
- 261529 ** Upper Rear Finish (NO)
- 261527 ** Front Finish (NO)
- 261525 ** Chassis (NO)
- 510211 * Wooden Parts (Malines) (DO)
- 261538 ** Upper Rear Finish (DO)

- 261536 ** Lower Rear Finish (DO)
- 261534 ** Front Finish (DO)
- 261532 ** Chassis (DO)
- 510212 * Wooden Parts (Malines) (NO)
- 261539 ** Lower Rear Finish (NO)
- 261537 ** Upper Rear Finish (NO)
- 261535 ** Front Finish (NO)
- 261533 ** Chassis (NO)
- 340226 * 1 Keys Pedal Guide
- 340225 * 3 Keys Pedal Guide
- 340224 * 5 Keys Pedal Guide
- 340223 * Rubber Foot
- 340221 * 7 Keys Pedal Guide
- 340196 * Acting Rubber for Microswitch
- 340047 * Plastic Pedal for Sharp Key
- 260302 * Natural Wooden Key
- 260301 * Sharp Wooden Key
- 210097 * 7 Keys Upper Felt
- 210071 * Single Key Lower Felt
- 210019 * Adhesive Brown Felt
- 170889 * Pedalboard Cover (BDO)
- 170885 * Key Fulcrum Bar (AGO)
- 170886 * Key Fulcrum Bar (CP BDO)
- 170887 * Key Fulcrum Bar (CR BDO)
- 170884 * Lower Pedal Key Return Spring
- 170883 * Acting Support
- 170882 * Pedalboard Cover (AGO) (Malines)
- 160123 * Upper Pedal Key Return Spring

DRW: BOCCATO	DWG: various	SCHEMATIC DIAGRAM SL230, SL250 & SL300	GENERALMUSIC S.p.A. Italy
CKD:	DISK: 62 PART: 1/1	30 & 32 Notes Concave Parallel & Radial Pedal Keyboards (AGO, BDO, Malines)	ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCTIONS WITHOUT WRITTEN CONSENT BY GENERALMUSIC.
APP:	REV: 11-02-98		



NOTE: ALL COMPONENT PIN REFERENCES ARE LOCATED ON "CPU BOARD" UNLESS OTHERWISE SPECIFIED.

Before proceed to the adjustments set the followings controls:

ORGAN CONTROL (SL227 / SL230 / H5)	POSITION	ORGAN CONTROL (H5)	POSITION
MASTER VOLUME	MAX	RESUME THE ORIGINAL VOICING BY PRESSING SIMULTANEOUSLY	
PEDAL VOLUME	MAX	THE FOLLOW BUTTONS: F+1+2+3+4+5	
GREAT VOLUME	MAX	INTERNAL VOLUME	MAX (=20)
"ESPRESSIONE II" PEDAL	MAX	BASS VOLUME	MAX
TRANSPOSER	0	REVERB LEVEL	MIN (=1)
REVERB EFFECT	0	PANORAMIC	MONO

Mod.	N.	Adjustment Type	Test Point	Register On	Key Pressed	Operation Point	Reading Value	Note:	
SL 227 / SL 230	1	BASS CH. LEVEL ADJ	TP1 POWER AMP. & SUPPLY BOARD	8	C1 (GREAT)	VR1 POWER AMP. & SUPPLY BOARD	~3.3Vpp	SET THE OSCILLOSCOPE IN DC POSITION AT 0.5V/div. 1mS/div.	
	2	MID CH. LEVEL ADJ	TP3 POWER AMP. & SUPPLY BOARD	8	C5 (GREAT)	VR3 POWER AMP. & SUPPLY BOARD	~4.2Vpp	SET THE OSCILLOSCOPE IN DC POSITION AT 0.5V/div. 1mS/div.	
		MID CH. LEVEL ADJ	TP2 POWER AMP. & SUPPLY BOARD	8	G4 (GREAT)	VR2 POWER AMP. & SUPPLY BOARD	~4.2Vpp	SET THE OSCILLOSCOPE IN DC POSITION AT 0.5V/div. 1mS/div.	
	3	DSP 1 ADJ.			22	F#5+O6 (SWELL)	VR1 CPU & SOUND GENERATOR BOARD		TURN THE TRIMMER TO REDUCE AUDIBLE DISTORTION
		DSP 2 ADJ.			15	F#5+O6 (GREAT)	VR2 CPU & SOUND GENERATOR BOARD		TURN THE TRIMMER TO REDUCE AUDIBLE DISTORTION
		DSP 3 ADJ.			12	F#5+O6 (GREAT)	VR3 CPU & SOUND GENERATOR BOARD		TURN THE TRIMMER TO REDUCE AUDIBLE DISTORTION
H5	4	BASS CH. LEVEL ADJ	TP1 POWER AMP. & SUPPLY BOARD	8	C1	VR1 POWER AMP. & SUPPLY BOARD	~2.5Vpp	SET THE OSCILLOSCOPE IN DC POSITION AT 0.5V/div. 1mS/div.	
	5	MID CH. LEVEL ADJ	TP3 POWER AMP. & SUPPLY BOARD	8	C5	VR3 POWER AMP. & SUPPLY BOARD	~2.4Vpp	SET THE OSCILLOSCOPE IN DC POSITION AT 0.5V/div. 1mS/div.	
		MID CH. LEVEL ADJ	TP2 POWER AMP. & SUPPLY BOARD	8	C5	VR2 POWER AMP. & SUPPLY BOARD	~2.4Vpp	SET THE OSCILLOSCOPE IN DC POSITION AT 0.5V/div. 1mS/div.	
	6	DSP 1 ADJ.			6	F#5+O6	VR1 CPU & SOUND GENERATOR BOARD		TURN THE TRIMMER TO REDUCE AUDIBLE DISTORTION
		DSP 2 ADJ.			9	F#5+O6	VR2 CPU & SOUND GENERATOR BOARD		TURN THE TRIMMER TO REDUCE AUDIBLE DISTORTION
		DSP 3 ADJ.			12	F#5+O6	VR3 CPU & SOUND GENERATOR BOARD		TURN THE TRIMMER TO REDUCE AUDIBLE DISTORTION

