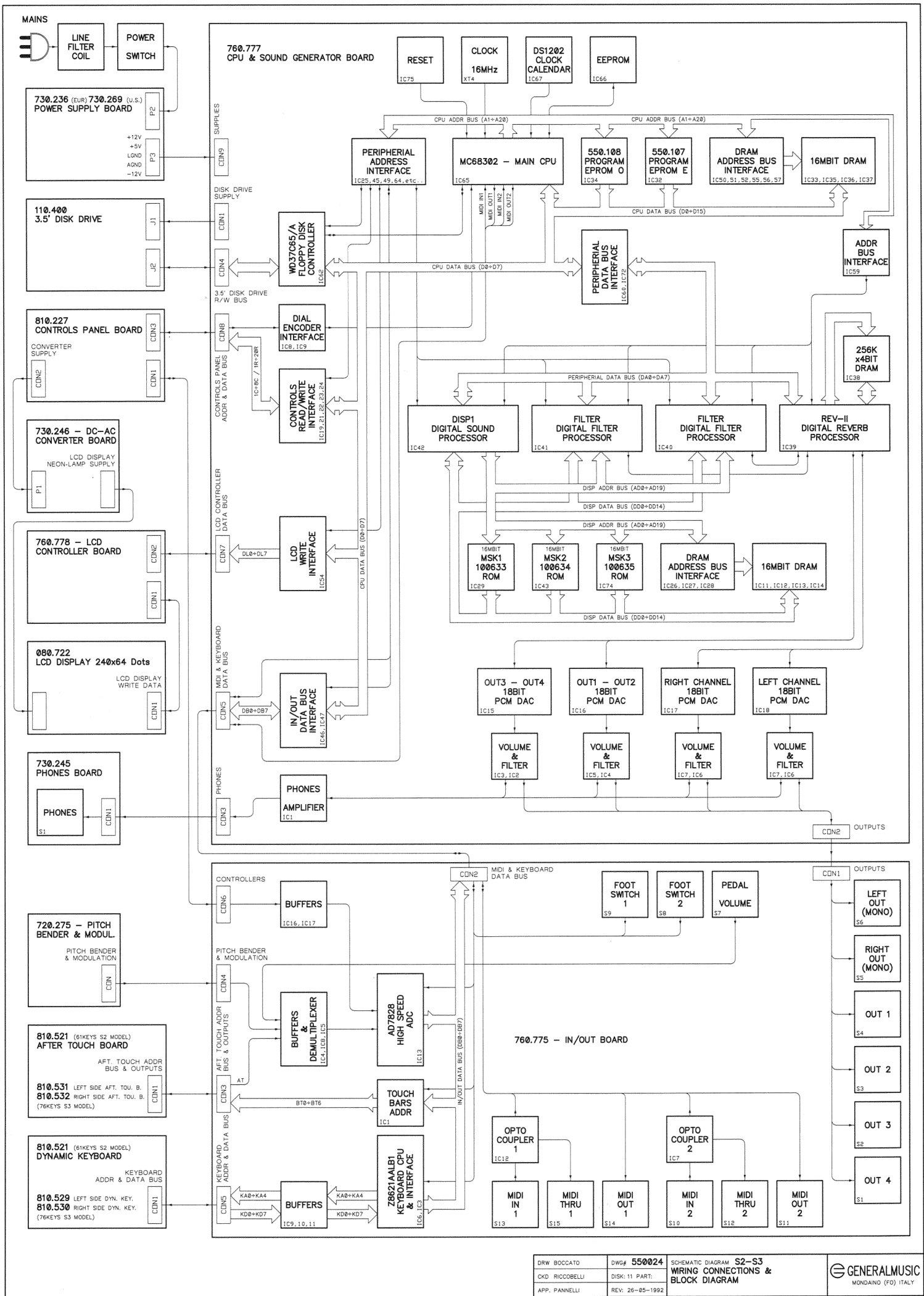


**SERVICE MANUAL**  
**SCHEMATIC DIAGRAMS**

**S2S3**

**MUSIC PROCESSOR**

 **GENERALMUSIC**



**SCHEMATIC NOTES**

ALL COMPONENTS MARKED BY  $\Delta$  HAVE SPECIAL SAFETY CHARACTERISTICS. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY MANUFACTURER'S SPECIFIED PARTS. THE MICRO SYMBOL OF CAPACITANCE VALUE IS SUBSTITUTED BY "U". THE OMEGA SYMBOL OF RESISTANCE VALUE IS SUBSTITUTED BY "R". ALL ELECTROLYTIC CAPACITORS ARE 25VDC RATED VOLTAGE UNLESS OTHERWISE SPECIFIED. ALL RESISTORS ARE 1/4W UNLESS OTHERWISE SPECIFIED. ALL SWITCHES SHOW IN "OFF" POSITION. ALL D.C. VOLTAGES MEASURED TO GROUND WITH A VOLTMETER 20,000 $\Omega$ /V.

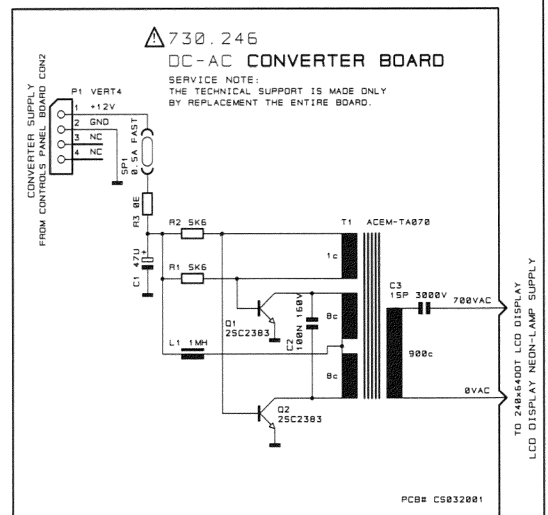
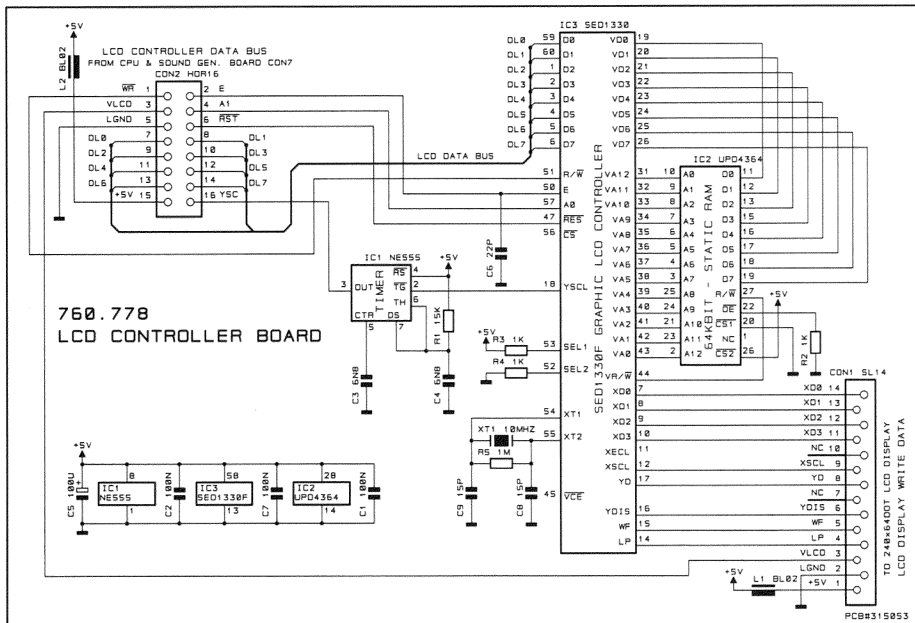
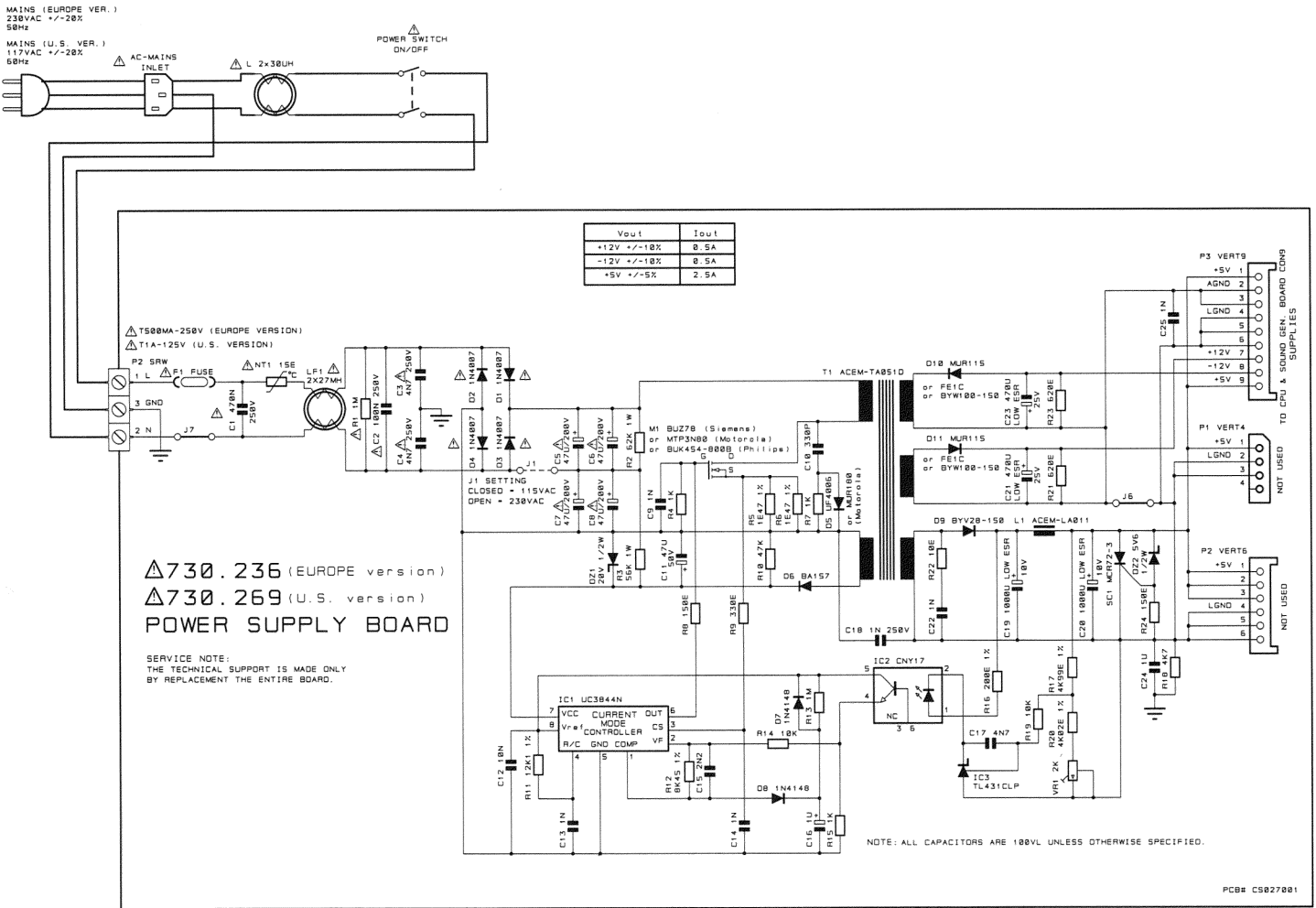
- $\Delta$  SOLDERING POINTS
- $\circ$  MALE CONNECTOR PIN
- $\ominus$  FEMALE CONNECTOR PIN
- $\triangle$  SUPPLY VOLTAGE
- $\square$  TEST POINT
- $\text{---}$  M/F FASTON CONNECTORS
- $\perp$  ANALOGIC SUPPLY GROUND
- $\text{---}$  LOGIC SUPPLY GROUND
- $\text{---}$  CHASSIS GROUND

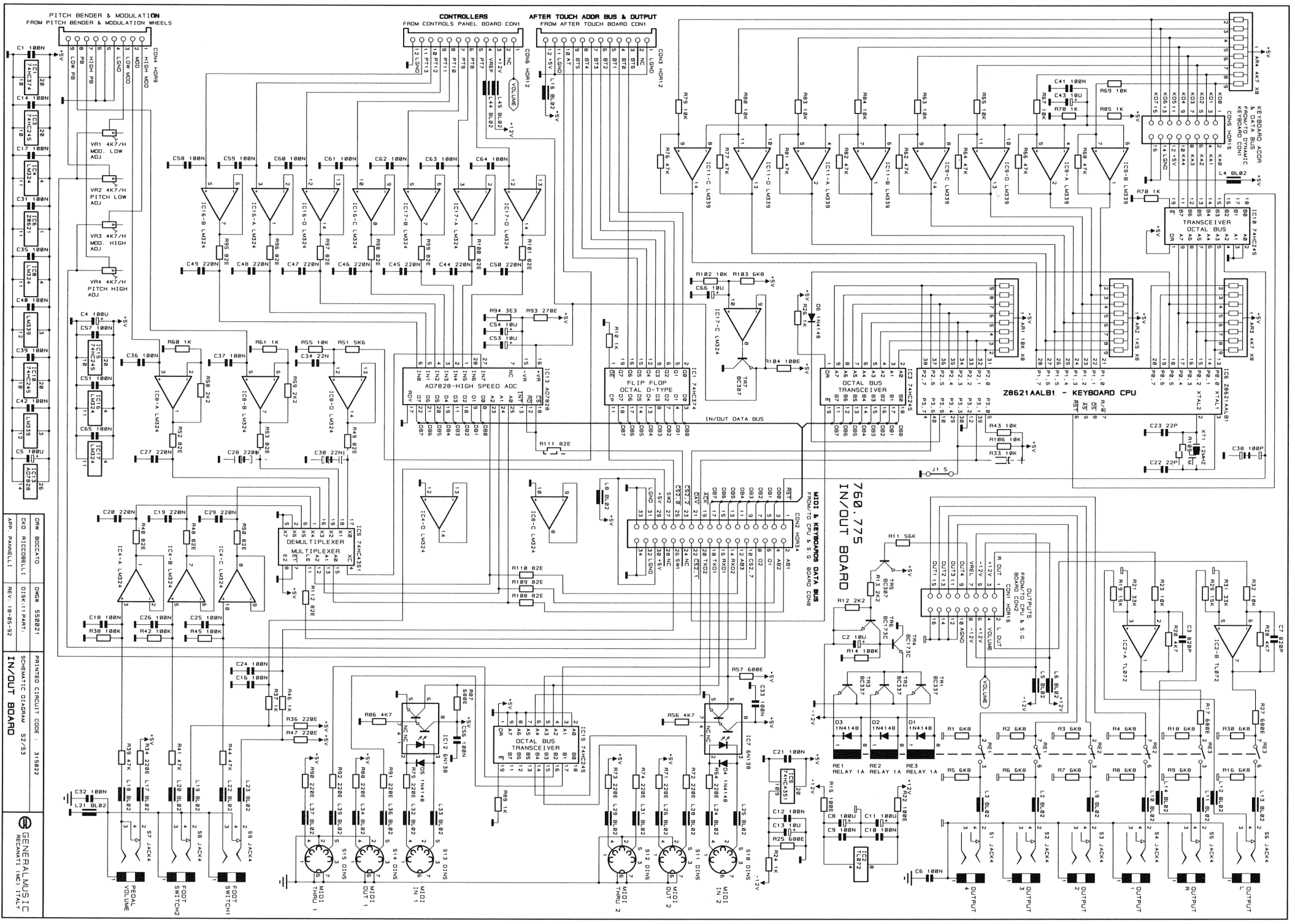
**NOTICE**

SERVICE MUST BE CARRIED OUT BY QUALIFIED OPERATORS. ANY TAMPERING DONE BY UNQUALIFIED OPERATORS DURING THE GUARANTEE PERIOD WILL FORFEIT THE RIGHT TO GUARANTEE.

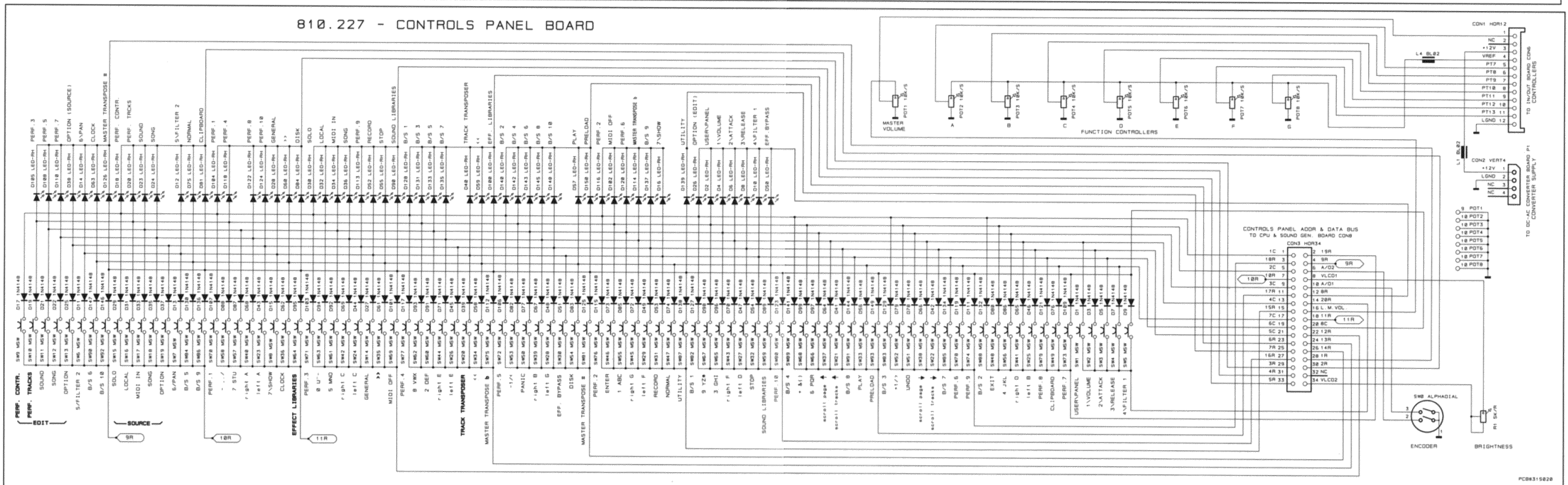
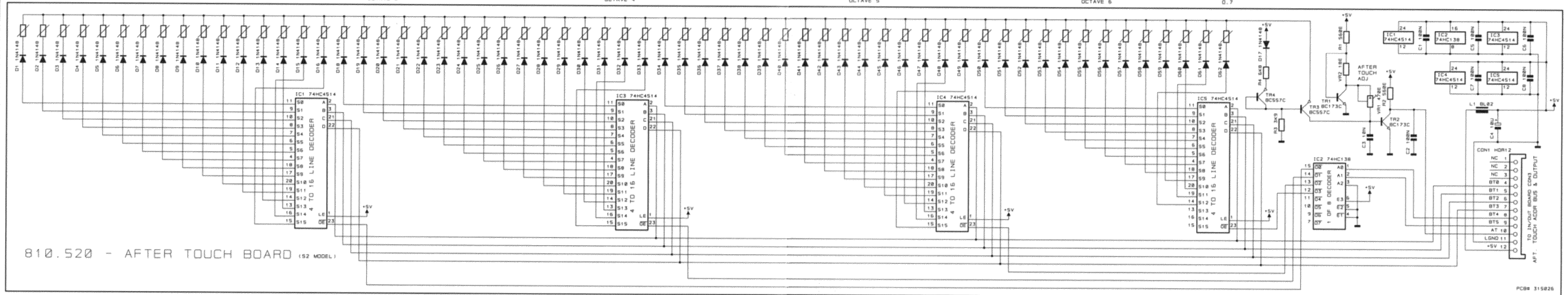
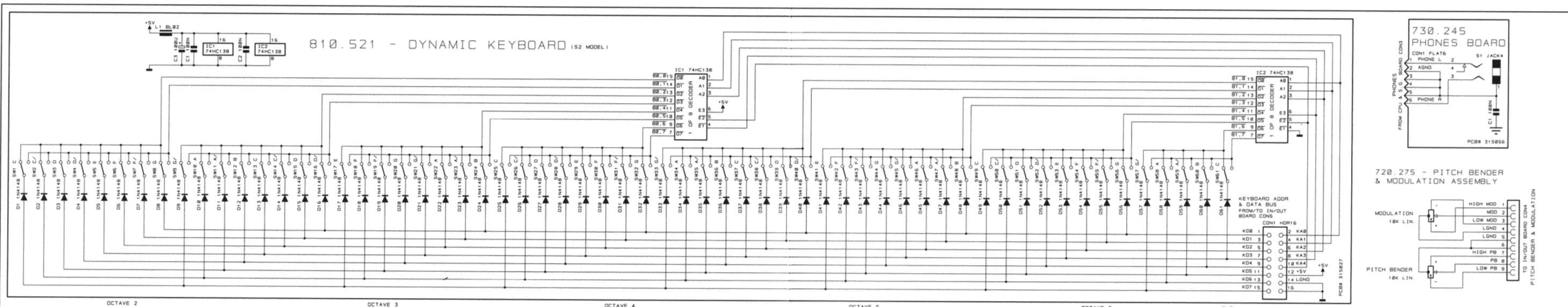
FOR A CORRECT OPERATION OF THE INSTRUMENT, AFTER HAVING SWITCH IT OFF, BE CAREFUL TO WAIT AT LEAST 3 SECONDS BEFORE SWITCHING IT ON AGAIN.

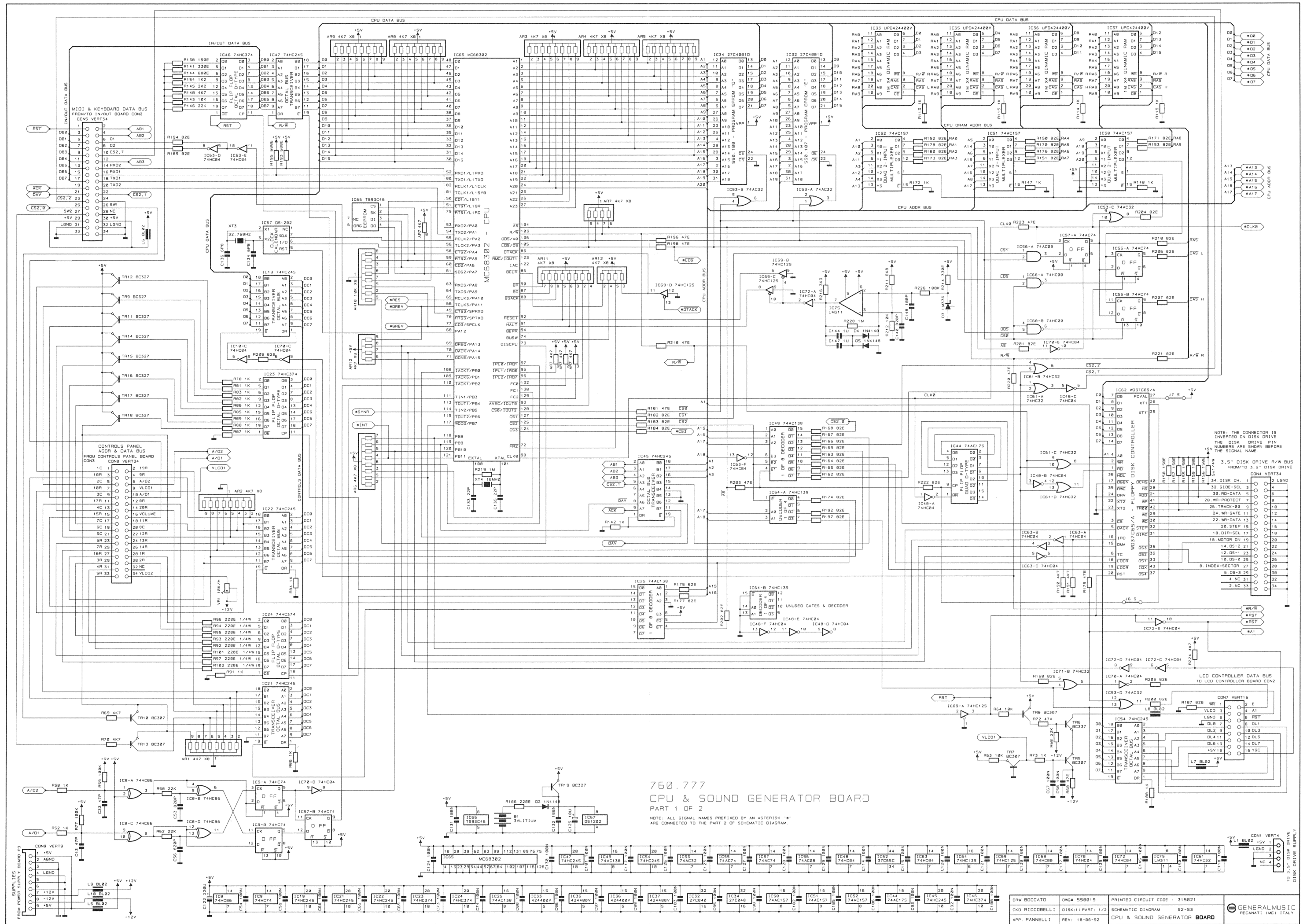
TO IMPROVE THE ORGAN SPECIFICATIONS, THE SCHEMATIC DIAGRAMS MAY BE SUBJECT TO CHANGE WITHOUT NOTICE.





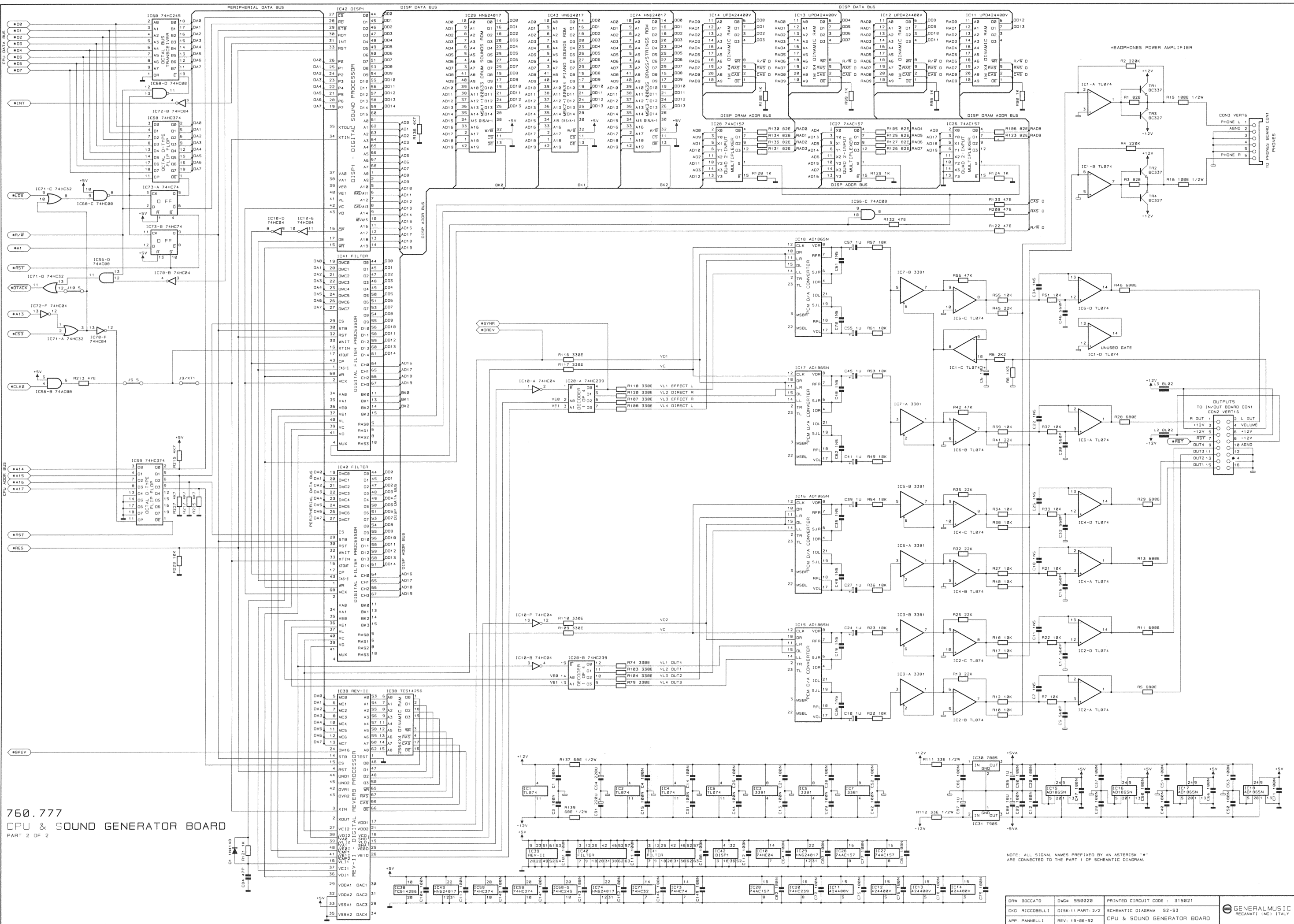
DNM BOCCATO DNGE 558021 PRINTED CIRCUIT CODE : 315822  
 CND RICCIARELLI DISK-I PART: SCHEMATIC DIAGRAM SZ7/53  
 APP. PANNELLI REV: 18-85-92  
**GENERALMUSIC**  
 RECANATI (MC) ITALY





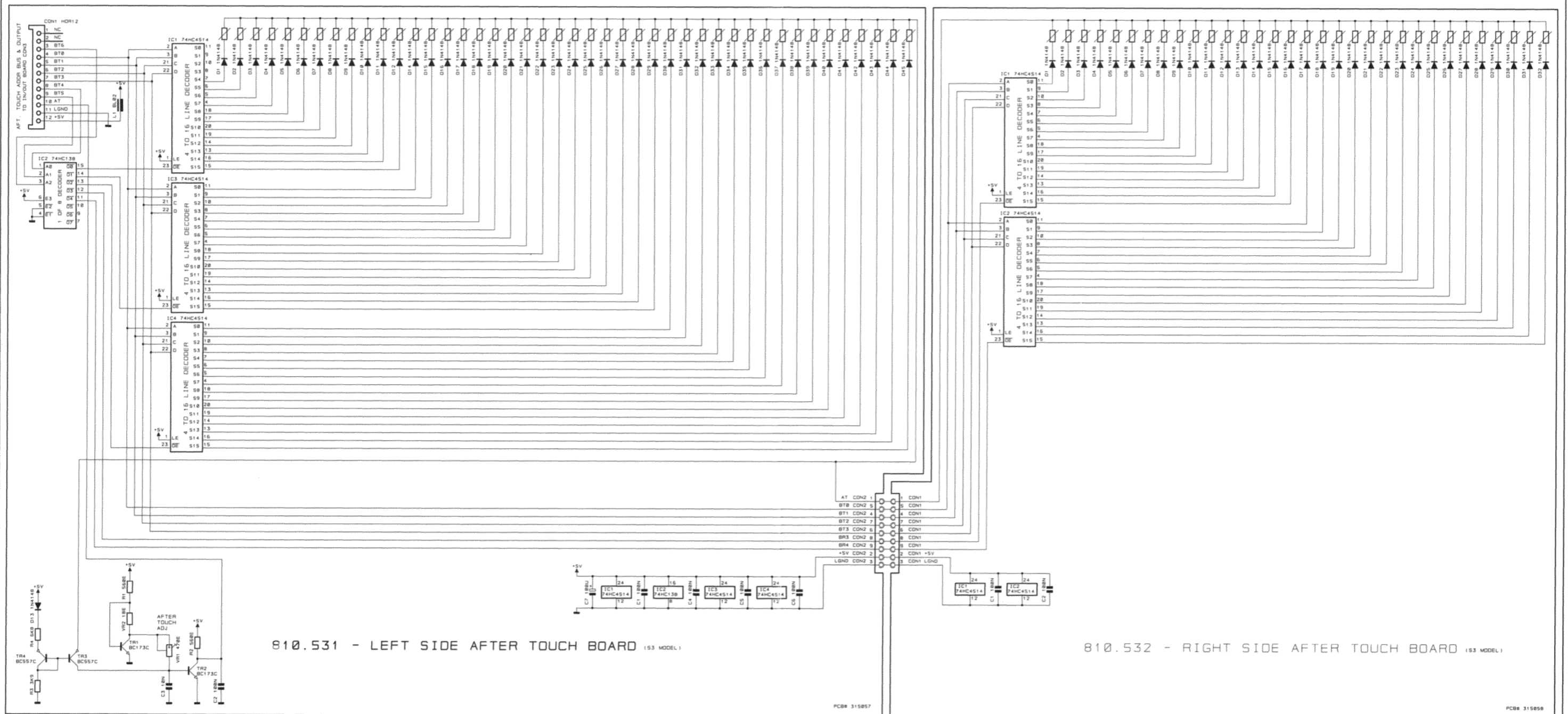
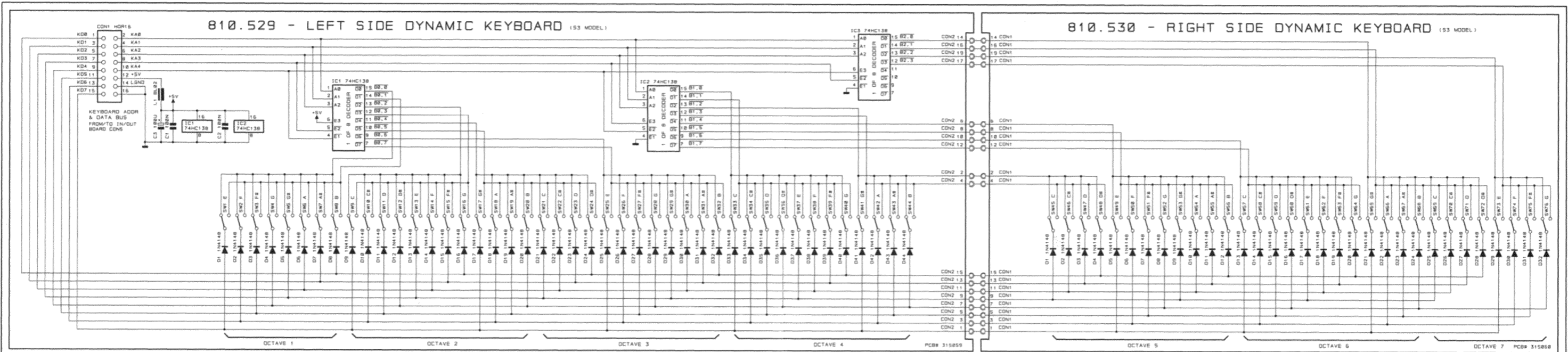
760.777  
CPU & SOUND GENERATOR BOARD  
PART 1 OF 2

NOTE: ALL SIGNAL NAMES PREFIXED BY AN ASTERISK "\*" ARE CONNECTED TO THE PART 2 OF SCHEMATIC DIAGRAM.

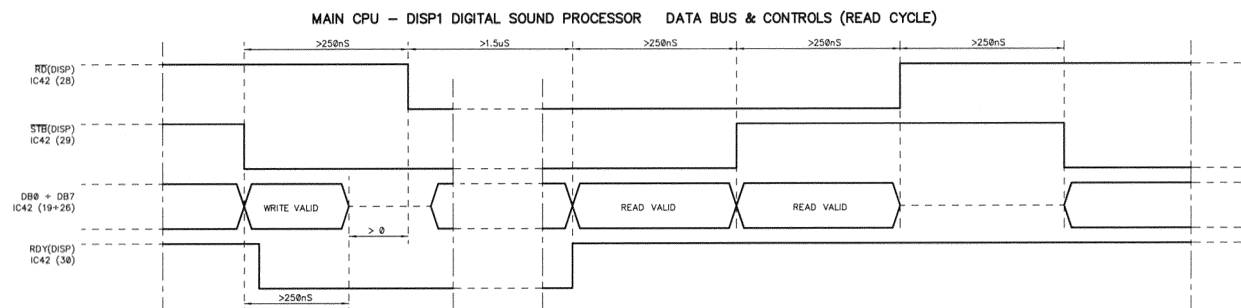
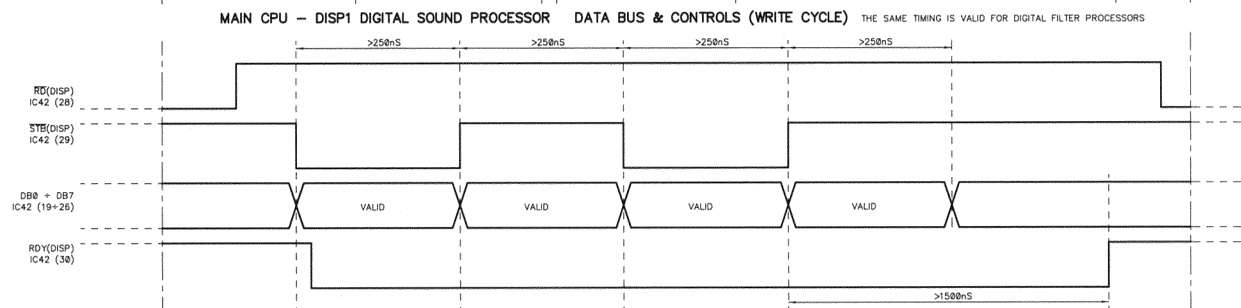
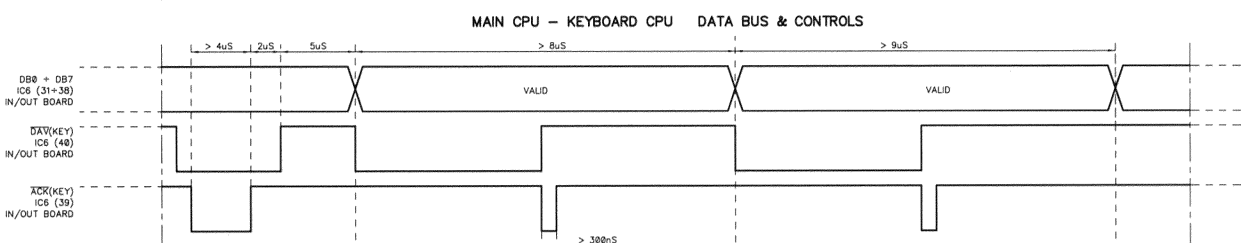
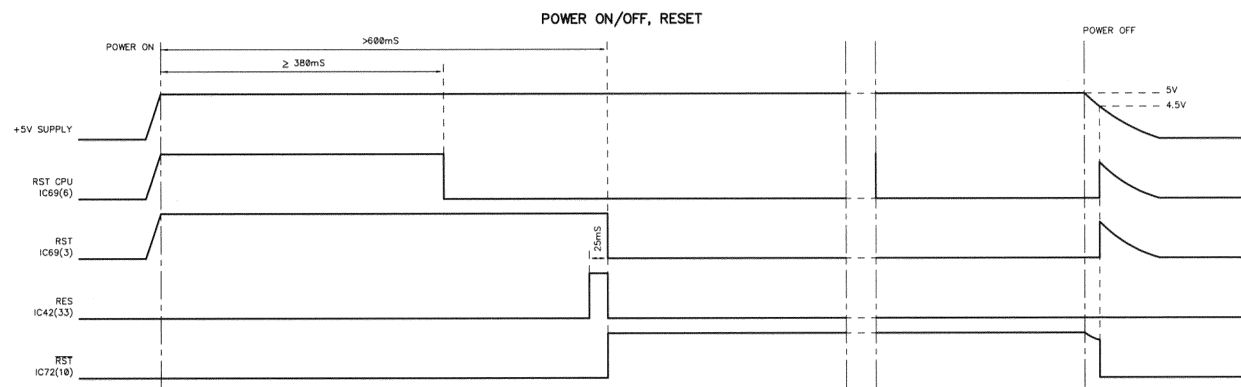


760.777  
CPU & SOUND GENERATOR BOARD  
PART 2 OF 2

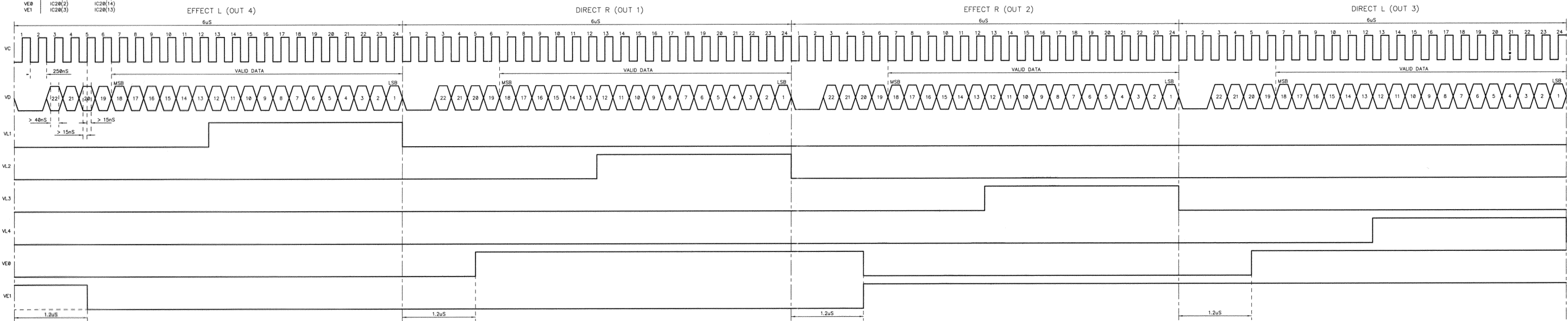
NOTE: ALL SIGNAL NAMES PREFIEXED BY AN ASTERISK "\*" ARE CONNECTED TO THE PART 1 OF SCHEMATIC DIAGRAM.





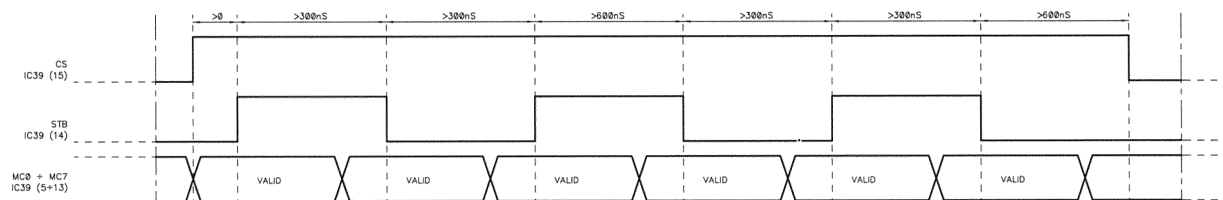


SIGNAL NAME	PIN REFERENCE R & L DACS	OUT 1+OUT 4 DACS
VC	IC18(12)	IC16(12)
VD	IC18(18)	IC16(18)
VL1	IC28(4)	IC28(12)
VL2	IC28(5)	IC28(11)
VL3	IC28(6)	IC28(10)
VL4	IC28(7)	IC28(9)
VE0	IC28(2)	IC28(14)
VE1	IC28(3)	IC28(13)

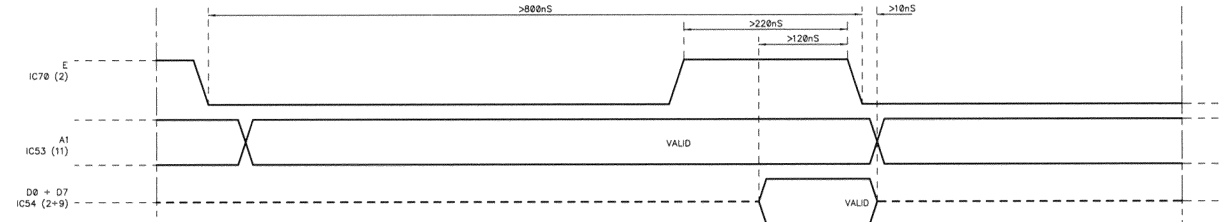


NOTE: THE R & L DACS AND THE OUT 1+OUT 4 DACS HAVE THE SAME TIMING.

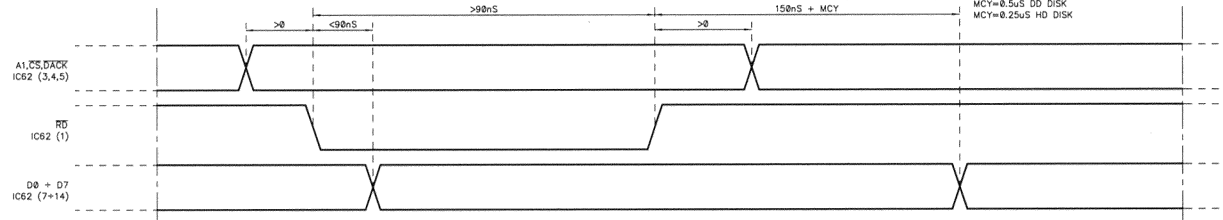
REVERB CPU - DIGITAL REVERB PROCESSOR DATA BUS & CONTROLS



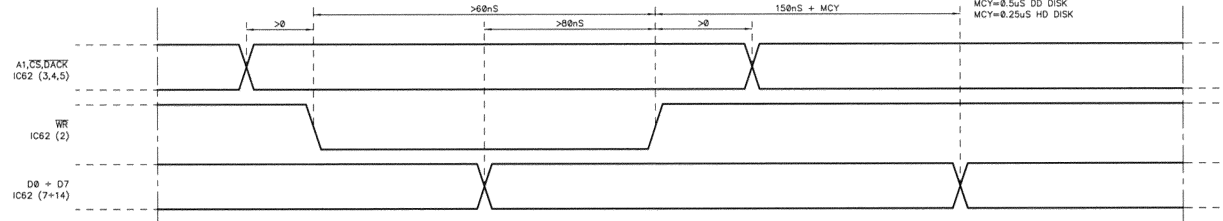
MAIN CPU - LCD CONTROLLER DATA BUS & CONTROLS



MAIN CPU - FLOPPY DISK CONTROLLER DATA BUS & CONTROLS (READ CYCLE)



MAIN CPU - FLOPPY DISK CONTROLLER DATA BUS & CONTROLS (WRITE CYCLE)



ADJUSTMENT TABLE

N.	ADJUSTMENT TYPE	TEST POINT	KEY PRESSED	OPERATION POINT	READING VALUES	NOTE :
1	LCD CONTRAST ADJ	SEE NOTE		VR1 CPU & S.G. BOARD	SEE NOTE	PUT THE CONTRAST CONTROL AT CENTRE POSITION, TURN THE VR1 TRIMMER TO OBTAIN THE BEST CONTRAST SHOWN ON DISPLAY.
2	PITCH HIGH ADJ	R104 SIDE TR7 (PROBE 1) R53 SIDE ICB (PROBE 2)	PITCH WHEEL AT MAX. POS.	VR4 IN/OUT BOARD	SEE NOTE	SET THE OSCILLOSCOPE ON D.C. AT 0.5V/div, 5mS/div. TURN THE TRIMMER TO HAVE ON PROBE 2 100mV MORE THAN PROBE 1 (VREF. ~2.9Vcc)
3	PITCH LOW ADJ	R104 SIDE TR7 (PROBE 1) R53 SIDE ICB (PROBE 2)	PITCH WHEEL AT MIN. POS.	VR2 IN/OUT BOARD	SEE NOTE	SET THE OSCILLOSCOPE ON D.C. AT 0.5V/div, 5mS/div. TURN THE TRIMMER TO HAVE ON PROBE 2 100mV MORE THAN PROBE 1 (VREF. ~2.9Vcc)
4	MOD HIGH ADJ	R104 SIDE TR7 (PROBE 1) R52 SIDE ICB (PROBE 2)	MOD. WHEEL AT MAX. POS.	VR3 IN/OUT BOARD	SEE NOTE	SET THE OSCILLOSCOPE ON D.C. AT 0.5V/div, 5mS/div. TURN THE TRIMMER TO HAVE ON PROBE 2 100mV MORE THAN PROBE 1 (VREF. ~2.9Vcc)
5	MOD LOW ADJ	R104 SIDE TR7 (PROBE 1) R52 SIDE ICB (PROBE 2)	MOD. WHEEL AT MIN. POS.	VR1 IN/OUT BOARD	SEE NOTE	SET THE OSCILLOSCOPE ON D.C. AT 0.5V/div, 5mS/div. TURN THE TRIMMER TO HAVE ON PROBE 2 100mV MORE THAN PROBE 1 (VREF. ~2.9Vcc)
6	AFTER TOUCH ADJ	R51 SIDE IC3	C3 SEE NOTE	VR1 AFTER T. BOARD	~2Vcc	APPLY A 850 gr. WEIGHT ON THE KEY FRONT END AND TURN THE TRIMMER TO HAVE THE READING VALUE. NOTE: IT IS POSSIBLE TO ADJUST THRU THE PROPERLY HOLE UNDER THE KEYBOARD.

PCM SERIAL DATA BUS

NOTE: ALL COMPONENTS PIN REFERENCE ARE LOCATED ON "CPU & SOUND GENERATOR BOARD" UNLESS OTHERWISE SPECIFIED.

DESCRIPTION	CODE
OWNER'S MANUAL (ENGLISH/ITALIAN) S2/S3 DEMO DISK	270930 950592
<b>ACCESSORIES</b>	
2 M1 LENGTH MIDI CABLE X-METAL STAND S2 CARRING BAG S3 CARRING BAG S2 FLY CASE S3 FLY CASE SINGLE FOOT SWITCH PIANO SINGLE FOOT SWITCH VOLUME PEDAL PEDAL SUPPORT METAL PEDALBOARD PEDALBOARD PLASTIC BUSH RUBBER RUG POTENTIOMETER SUPPORT PEDAL CLUTCH SPRING POTENTIOMETER ACTING LEVER POTENTIOMETER RETURN SPRING 20K (90 DEG. STROKE) POTENTIOMETER	130301 970110 970124 970125 970111 970126 970116 970134 970107 340394 171061 340396 340414 171019 160173 340395 160172 070556
<b>CABINET ELECT. &amp; MECH. PARTS ASSEMBLY</b>	
TOP ALUMINIUM CHASSIS (S2 MODEL) (GEM) TOP ALUMINIUM CHASSIS (S2 MODEL) (BACHMANN) TOP ALUMINIUM CHASSIS (S3 MODEL) (GEM) TOP ALUMINIUM CHASSIS (S3 MODEL) (BACHMANN) LEFT-TOP PLASTIC CHASSIS RIGHT-TOP PLASTIC CHASSIS REAR ALUMINIUM CHASSIS (S2 MODEL) (GEM) REAR ALUMINIUM CHASSIS (S2 MODEL) (BACHMANN) REAR ALUMINIUM CHASSIS (S3 MODEL) (GEM) REAR ALUMINIUM CHASSIS (S3 MODEL) (BACHMANN) ANGULAR FIXING (TOP TO REAR CHASSIS) BOTTOM METAL CHASSIS (S2 MODEL) BOTTOM METAL CHASSIS (S3 MODEL) LEFT SIDE PLASTIC BORDER RIGHT SIDE PLASTIC BORDER NUT IN CAGE (TO FIX REAR TO BOTTOM CHASSIS) ADHESIVE ANTISLIDE RUBBER FOOT DISK DRIVE LEFT SUPPORT DISK DRIVE RIGHT SUPPORT 3.5" DISK DRIVE A.C. MAINS INLET POWER SWITCH POWER SWITCH FRAME PHONES BOARD (PCB#315056) (WITH FLAT CABLE) JACK SOCKET PITCH BENDER & MODULATION ASSEMBLY (WITH FLAT CABLE) WHEEL KNOB WHEEL KNOB SUPPORT RETURN SPRING LOCK WASHER BLACK FELT (SPECIFY 50cm) 10K LIN. POTENTIOMETER	660175 660190 660203 660204 651264 651265 660173 660191 660200 660202 171006 660174 660201 651266 651267 120602 340453 171003 171004 110400 140203 110285 340359 730245 140217 720275 340361 171009 160166 120554 210078 070701
<b>POWER SUPPLY</b> THE TECHNICAL SERVICE IS MADE ONLY BY REPLACEMENT THE ENTIRE UNIT.	
POWER SUPPLY BOARD (PCB# CS027001)(EUROPE VERSION) POWER SUPPLY BOARD (PCB# CS027001)(U.S. VERSION)	730236 730269
<b>WIRING CONNECTIONS</b>	
MAINS CORD (EUROPE VERSION) MAINS CORD (U.S. VERSION) 4 WIRES - 60cm LENGTH (DISK DRIVE SUPPLY) 4 WIRES - 10cm LENGTH (CONVERTER SUPPLY) FLAT CABLES 34 WIRES - 55cm LENGTH (3.5" DISK DRIVE R/W BUS) 34 WIRES - 50cm LENGTH (CONTROLS PANEL ADDR & DATA BUS) 34 WIRES - 20cm LENGTH (MIDI & KEYBOARD DATA BUS) 20 WIRES - 5cm LENGTH (FROM RIGHT TO LEFT DYNAMIC KEYBOARD) (76-KEYS S3 MODEL) 16 WIRES - 25cm LENGTH (LCD CONTROLLER DATA BUS) (DYNAMIC KEYBOARD ADDR & DATA BUS) 16 WIRES - 35cm LENGTH (LCD CONTROLLER DATA BUS) (S3 MODEL) 16 WIRES - 12cm LENGTH (OUTPUTS) 12 WIRES - 30cm LENGTH (AFT. TOUCH ADDR BUS & OUTPUTS) 12 WIRES - 20cm LENGTH (CONTROLLERS) 9 WIRES - 45cm LENGTH (PITCH BENDER & MODULATION) 9 WIRES - 10cm LENGTH (FROM RIGHT TO LEFT AFTER TOUCH BOARDS) (76-KEYS S3 MODEL) 9 WIRES - 7.5cm LENGTH (SUPPLIES) 6 WIRES - 68cm LENGTH (PHONES)	130297 130283 840579 840558 840583 840602 840570 840523 840580 840614 840595 840258 840256 840593 840609 840621 840594
<b>KEYBOARD ELECT. &amp; MECH. ASSY</b>	
KEYBOARD ELECTRICAL & MECHANICAL ASSEMBLY (61-KEYS S2 MODEL) KEYBOARD ELECTRICAL & MECHANICAL ASSEMBLY (76-KEYS S3 MODEL) MECHANICAL KEYBOARD ASSY (61-KEYS S2 MODEL) MECHANICAL KEYBOARD ASSY (76-KEYS S3 MODEL) FIRST E WEIGHTED KEY (76-KEYS) C WEIGHTED KEY D WEIGHTED KEY E WEIGHTED KEY F WEIGHTED KEY G WEIGHTED KEY A WEIGHTED KEY B WEIGHTED KEY LAST C WEIGHTED KEY (61-KEYS) LAST G WEIGHTED KEY (76-KEYS) SHARP WEIGHTED KEY KEYS RETURN SPRING KEYS BEATING RUBBER DYNAMIC KEYBOARD BOARD (PCB# 315027) (61-KEYS S2 MODEL) LEFT SIDE DYNAMIC KEYBOARD (PCB# 315059) (76-KEYS S3 MODEL) RIGHT SIDE DYNAMIC KEYBOARD (PCB# 315060) (76-KEYS S3 MODEL) 12 CONTACTS PLASTIC SUPPORT 13 CONTACTS PLASTIC SUPPORT LOWER 4 CONTACTS JUMP (NORMALLY CLOSED) UPPER 4 CONTACTS JUMP (NORMALLY OPEN) LOWER 5 CONTACTS JUMP (NORMALLY CLOSED) UPPER 5 CONTACTS JUMP (NORMALLY OPEN) CONTACT SPRING 1N4148 SIGNAL DIODE I.C. 74HC138 1 OF 8 DECODER RED FELT (SPECIFY 90cm FOR 61-KEYS) (SPECIFY 65+50cm FOR 76-KEYS) AFTER TOUCH ASSEMBLY (61-KEYS S2 MODEL) LEFT AFTER TOUCH ASSEMBLY (76-KEYS S3 MODEL) RIGHT AFTER TOUCH ASSEMBLY (76-KEYS S3 MODEL)	720274 720306 500049 500053 151109 151101 151102 151103 151104 151105 151106 151107 151108 151110 151100 160167 340391 810521 810529 810530 340374 340375 160164 160163 160162 160161 160165 080103 100606 210080 720290 720307 720308

DESCRIPTION	CODE
MYLAR CONTACT STRIP (SPECIFY 84cm FOR 61-KEYS) (SPECIFY 61+44cm FOR 76-KEYS) RUBBER STRIP (61-KEYS S2 MODEL) LEFT RUBBER STRIP (76-KEYS S3 MODEL) RIGHT RUBBER STRIP (76-KEYS S3 MODEL) FELT STRIP (61-KEYS S2 MODEL) LEFT FELT STRIP (76-KEYS S3 MODEL) RIGHT FELT STRIP (76-KEYS S3 MODEL) AFTER TOUCH BOARD (61-KEYS S2 MODEL) (PCB# 315026) LEFT AFTER TOUCH BOARD (76-KEYS S3 MODEL) (PCB# 315057) RIGHT AFTER TOUCH BOARD (76-KEYS S3 MODEL) (PCB# 315058) I.C. 74HC4514 4 TO 16 LINE DECODER BC173 NPN TRANSISTOR BC557C PNP TRANSISTOR 1N4148 SIGNAL DIODE	340392 210084 210095 210096 210085 210093 210094 810520 810531 810532 100646 090182 090291 090103

<b>CONTROLS PANEL ELECT. &amp; MECH. ASSEMBLY</b>	
LEFT PLASTIC SUPPORT (CONTROLLERS) CENTRE PLASTIC SUPPORT (DISPLAY) RIGHT PLASTIC SUPPORT (BANKS/PERFORMANCE) DIAL DIAL KNOB DIAL WASHER DIAL STEEL SPHERE SLIDER KNOB "CONTRAST" KNOB "ENTER/EXIT" PUSH CAP "ENTER/EXIT" PUSH CAP SUPPORT TRIANGLE PUSH CAP 6x8mm PUSH CAP 6x15mm PUSH CAP LED LIGHT DIFFUSER "1" PUSH CAP "2" PUSH CAP "3" PUSH CAP "4" PUSH CAP "5" PUSH CAP "6" PUSH CAP "7" PUSH CAP "8" PUSH CAP "9" PUSH CAP "0" PUSH CAP "- " PUSH CAP "." " PUSH CAP CONTROLS PANEL BOARD (PCB# 315020) 1N4148 SIGNAL DIODE RED LED MICROSWITCH (0.2mm ACTING-STROKE) 10K LIN. SLIDER POTENTIOMETER 5K LIN. "CONTRAST" POTENTIOMETER LCD DISPLAY 260x64 Dots PLEXIGLASS DISPLAY SCREEN DISPLAY SUPPORT DC-AC CONVERTER BOARD (PCB# CS032001) LCD CONTROLLER BOARD (PCB# 315053) INTEGRATED CIRCUIT: NE555 TIMER 6264 64KBIT STATIC RAM SD1330 LCD CONTROLLER 10MHz CERAMIC RESONATOR	340354 651263 340355 110254 340364 340373 120960 340367 340370 340365 340366 340371 340368 340369 340372 651251 651252 651253 651254 651255 651256 651257 651258 651259 651260 651262 651261 810227 080103 080711 140520 070554 070702 080722 651268 340362 730246 760778 100057 100573 100730 010709

<b>CPU &amp; SOUND GENERATOR BOARD (PCB# 315021)</b>		760777
INTEGRATED CIRCUIT: 74HC00 74HC04 74HC32 74HC74 74HC86 74HC125 74HC139 74HC239 74HC245 74HC374 74AC08 74AC32 74AC74 74AC138 74AC157 74AC175 TL084 LM311 LM3368 7805 7905 3381 DS1202 T93C46 TCSI4256 UPD424400 74AC08B WD37C65/A 550107 550108 MC68302 MSK1-100633 MSK2-100634 MSK3-100635 DISP1 FILTER REV-II AD1865N 16MHz QUARTZ RESONATOR 32.768Hz QUARTZ RESONATOR 4K7x8 RESISTOR ARRAY 3V 200mA LITHIUM BATTERY	QUAD 2-INPUT NAND GATE HEX INVERTER QUAD 2-INPUT OR GATE DUAL D-TYPE FLIP-FLOP QUAD 2-INPUT EXOR GATE QUAD 3-STATE BUFFERS DUAL 1 OF 4 INVERTING DECODER DUAL 1 OF 4 NONINVERTING DECODER OCTAL BUS TRANSCEIVER OCTAL D-TYPE FLIP-FLOP QUAD 2-INPUT AND GATE QUAD 2-INPUT OR GATE DUAL D-TYPE FLIP-FLOP 1 OF 8 INVERTING DECODER QUAD 2-INPUT DEMULTI/MULTIPLEXER QUAD D-TYPE FLIP-FLOP QUAD J-FET INPUT OPERATIONAL AMPLIFIER VOLTAGE COMPARATOR 2.5V VOLTAGE REFERENCE 5V POSITIVE VOLTAGE REGULATOR 5V NEGATIVE VOLTAGE REGULATOR DUAL VOLTAGE CONTROLLED AMPLIFIER CLOCK CALENDAR ERASABLE EPROM 256Kx8BIT DYNAMIC RAM 1Mx4BIT DYNAMIC RAM FLOPPY DISK CONTROLLER (WSD ONLY) UPD27C4001D PROGRAM EPROM "E" UPD27C4001D PROGRAM EPROM "O" MAIN CPU HNE24017 DRUM SOUNDS ROM HNE24017 PIANO SOUNDS ROM HNE24017 BRASS/STRINGS SOUNDS ROM DIGITAL SOUND PROCESSOR DIGITAL FILTER PROCESSOR DIGITAL REVERB PROCESSOR 18BIT PCM DIGITAL TO ANALOG CONVERTER	100600 100602 100619 100614 100620 100605 100623 100647 100610 100612 101006 101007 101002 101001 101005 101003 100084 100075 100920 100059 100058 100906 100731 100642 100586 100641 100591 100510 100640 100633 100634 100635 100580 100596 100628 100643 010704 010710 050452 110283

<b>IN/OUT BOARD (PCB# 315022)</b>		760775
INTEGRATED CIRCUIT: 74HC245 74HC374 74HC4351 6N138 LM324 LM339 TL072 Z8621AALB1 ADC7828 12MHz CERAMIC RESONATOR 10Kx8 RESISTOR ARRAY 10Kx8 RESISTOR ARRAY RELAY 12V 2WAY 1A FEMALE JACK SOCKET (4 PINS) FEMALE 5 POLES DIN SOCKET	OCTAL BUS TRANSCEIVER OCTAL D-TYPE FLIP-FLOP ANALOG MULTI/DEMUTIPLEXER WITH ADDRESS LATCH OPTOCOUPLER QUAD OPERATIONAL AMPLIFIER QUAD VOLTAGE COMPARATORS DUAL J-FET INPUT OPERATIONAL AMPLIFIER KEYBOARD CPU 8BIT HIGH SPEED A/D CONVERTER	100610 100612 100645 100035 100056 100921 100061 100725 100644 050492 050373 110305 140217 140212

NOTE: ANY REQUEST FOR NOT ABOVE MENTIONED PART MUST ENCOMPASS SPECIFIC DESCRIPTION INCLUDING : 1) MODEL NAME, 2) SECTION, 3) EVENTUAL MODULE CODE, 4) SCHEMATIC DIAG. REFERENCE, 5) QUANTITY NUMBER.