

E-50

MUSIC WORKSTATION

SERVICE NOTES

Second edition

Issued by RES

TABLE OF CONTENTS

SPECIFICATIONS	2/3	FACTORY RESET	50
DISASSEMBLY	4	CHECK OUT THE VERSION	51
LOCATION OF CONTROLS	6/7	OPERATIVE SYSTEM AND MUSIC DATA UPDATE	52
EXPLODED VIEW (SILK+VARN. LCD COVER)	10/11	CIRCUIT BOARD (MAIN)	58
EXPLODED VIEW (TOP)	8/9	CIRCUIT DIAGRAM (MAIN 1/4)	60/61
EXPLODED VIEW (BOTTOM)	12	CIRCUIT DIAGRAM (MAIN 2/4)	62/63
KEYBOARD PARTS LIST	14/15	CIRCUIT DIAGRAM (MAIN 3/4)	64/65
BLOCK DIAGRAM	16/17	CIRCUIT DIAGRAM (MAIN 4/4)	66/67
WIRING DIAGRAM	18/19	CIRCUIT BORD (AUDIO)	68
PARTS LIST	20/24	CIRCUIT DIAGRAM (AUDIO)	70/71
ITEMS REQUIRED	26	CIRCUIT BOARD (RIGHT CONTROL, LEFT CONTROL	72/73
TEST MODE	31	CENTER CONTROL)	74/75
TOUCH SCREEN CALIBRATION	27	CIRCUIT DIAGRAM (RIGHT CONTROL 1/2)	76/77
PROTECT SWITCH TEST	28	CIRCUIT DIAGRAM (RIGHT CONTROL 2/2)	78/79
TOUCH SCREEN CHECK	30	CIRCUIT DIAGRAM (LEFT CONTROL)	80/81
LDC DISPLAY CHECK	31	CIRCUIT DIAGRAM (CENTER CONTROL)	82/83
SWITCH AND LED CHECK	32	CIRCUIT BOARD (VOLUME, ENCODER, CARD PROTECT	84
ENCODER CHECK	33	HEADPHONES,POWER SWITCH)	85
PITCH BENDER CALIBRATION	34	CIRCUIT DIAGRAM (VOLUME)	85
PEDAL AND POTENTIOMETER CHECK	35	CIRCUIT DIAGRAM (ENCODER)	86
MEMORY AND DSP CHECK	40	CIRCUIT DIAGRAM (CARD PROTECT)	86
MIDI AND USB SOCKET CHECK	41	CIRCUIT DIAGRAM (HEADPHONES)	87
FLOPPY DISK DRIVE CHECK	42	CIRCUIT DIAGRAM (POWER SWITCH)	
PCMCIA SLOT CHECK	43		
AUDIO AND MEASUREMENTS	44		



Copyright © 2006 by ROLAND CORPORATION

All rights reserved. No parts of this publication may be reproduced in any form without the written permission of ROLAND CORPORATION.

SPECIFICATIONS

- **Keyboard:**
61-note synthesizer-action keyboard (E-50)
- **Sound source:**

Max. polyphony	64 voices
Sounds	1050 tones in 8 families, 34 Drum Sets
Multitimbral parts	32
Effects processors	3 programmable units: 8x Reverb, 8x Chorus
Compatibility	41x Multi-FX for Keyboard parts GM2/GS
- **Styles:**

136 Styles in 8 families	
80 programmable links to additional Styles (CUSTOM)	
Unlimited access	Internal memory, memory card, floppy disk (via FINDER)
Style Cover	26 ALL Covers 16 Drum Covers 24 Bass Covers
Style Makeup Tools	Instrument-oriented editing
User Style Composer	8 tracks with microscope and macro editing
One Touch	4 programmable registrations per Style
- **Songs:**

Real-time SMF player	4 programmable MARK & JUMP locations
Song Cover	26 ALL Covers 16 Drum Covers 24 Bass Covers
Song Makeup Tools	Instrument-oriented editing
Lyrics & chord display, score display	
Other functions	PLAY LIST function (99 steps) NEXT SONG function Text Import/Export & lyrics syn- chronization
Song Finder	Manages up to 99,999 songs Play & Search function
- **Sequencer:**
16-track sequencer with microscope and macro editing functions, Style Converter
- **Display type & controls**

Monochrome 1/4 VGA	Touch-screen with 3D-SG (3D simulated graphics) 16 grayscale levels
Contrast potentiometer	
- **Panel controls:**

DATA ENTRY dial with switching function	Data entry
Cursor	6 switches (data entry): INC, DEC, Up, Down, Right, Left
PITCH BEND/MODULATION lever, MASTER VOLUME knob, KEYBOARD/ ACCOMP BALANCE knob	
Keyboard Part switches	UP1, UP2, LWR, MBS
Tone Assign	UP1, UP2, LWR, MBS
- **User Programs:**

144 Set List references for access via front panel	
Unlimited access	Internal memory, memory card, floppy disk (via FINDER)
Additional functions	Parameter Hold Song Link MIDI Set Link
- **Music Assistant registrations:**
300 factory registrations
Unlimited number of programmable entries
- **Data storage**

Floppy disk drive	3.5", 2HD/2DD
Internal memory	Solid-State Disk
Memory card	PCMCIA (Compact Flash, Mem- ory Stick, Smart Media, Micro- drive)
Type of files managed	Styles, Songs (SMF), User Pro- grams, MIDI Sets, Play Lists, .txt files
- **Other functions:**

Keyboard Modes	Split (adjustable split point), Whole
Easy Setting	Arranger, Organ, Piano, Guitar Mode
Chord voicing	ACV (Adaptive Chord Voicing)
Melody Intelligence	18 types
Singer Key Adapter	-6~+5 semi-tones (automatic SMF transposition)
Miscellaneous	Tap Tempo, Sync Start/Stop, V-Link, interactive demo (in sev- eral languages)
System updates	Flash memory
USB	Data transfer & MIDI communi- cation
- **Connectors**

Headphone sockets	2
Pedal & footswitch sockets	HOLD FOOTSWITCH/EXPRESSION (programmable)
Audio connections	
OUTPUT sockets	L/Mono, R (1/4")
Data exchange	
PCMCIA slot (CompactFlash, Memory Stick, Smart Media, Microdrive)	
USB port (data storage & MIDI communication)	
MIDI IN & OUT	

■ General specifications:

Speaker power	10W x2 RMS
Power supply	PSB-4U adapter, 12V/3.5A
Dimensions (mm)	E-50: 1020 (W) x 152.5 (H) x 355.5 (D)

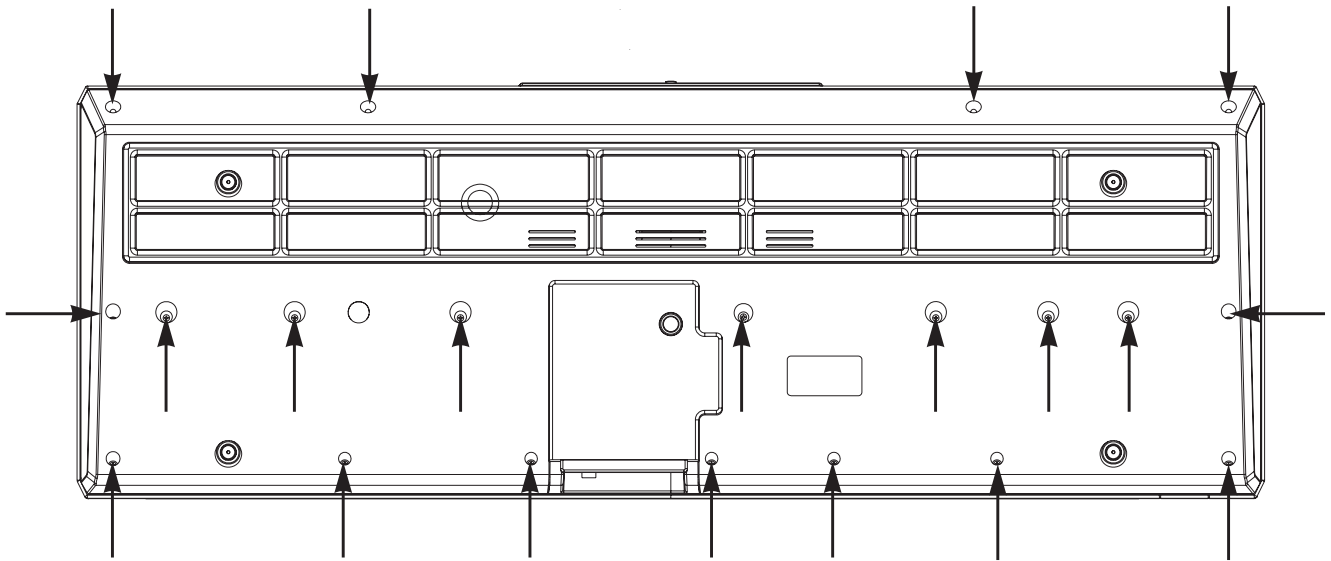
Weight	E-50: 8.5kg
Supplied accessories	Owner's Manual, power cord, metal music stand, CD-ROM, External AC adapter, DATABASE MANAGER software

Options

PK-5A Dynamic MIDI Pedal, MSA/MSD/MSE series floppy disks (Roland & third-party),
RH-25/50/200/300 Headphones, DP-2 Pedal switch, DP-6 Pedal switch (piano type), BOSS FS 5U Foot switch,
EV-5/7 Expression pedal, BOSS FV-300L Volume/Expression pedal, KC-150/350/550 Keyboard amplifiers
Memory cards (third-party manufacturers)

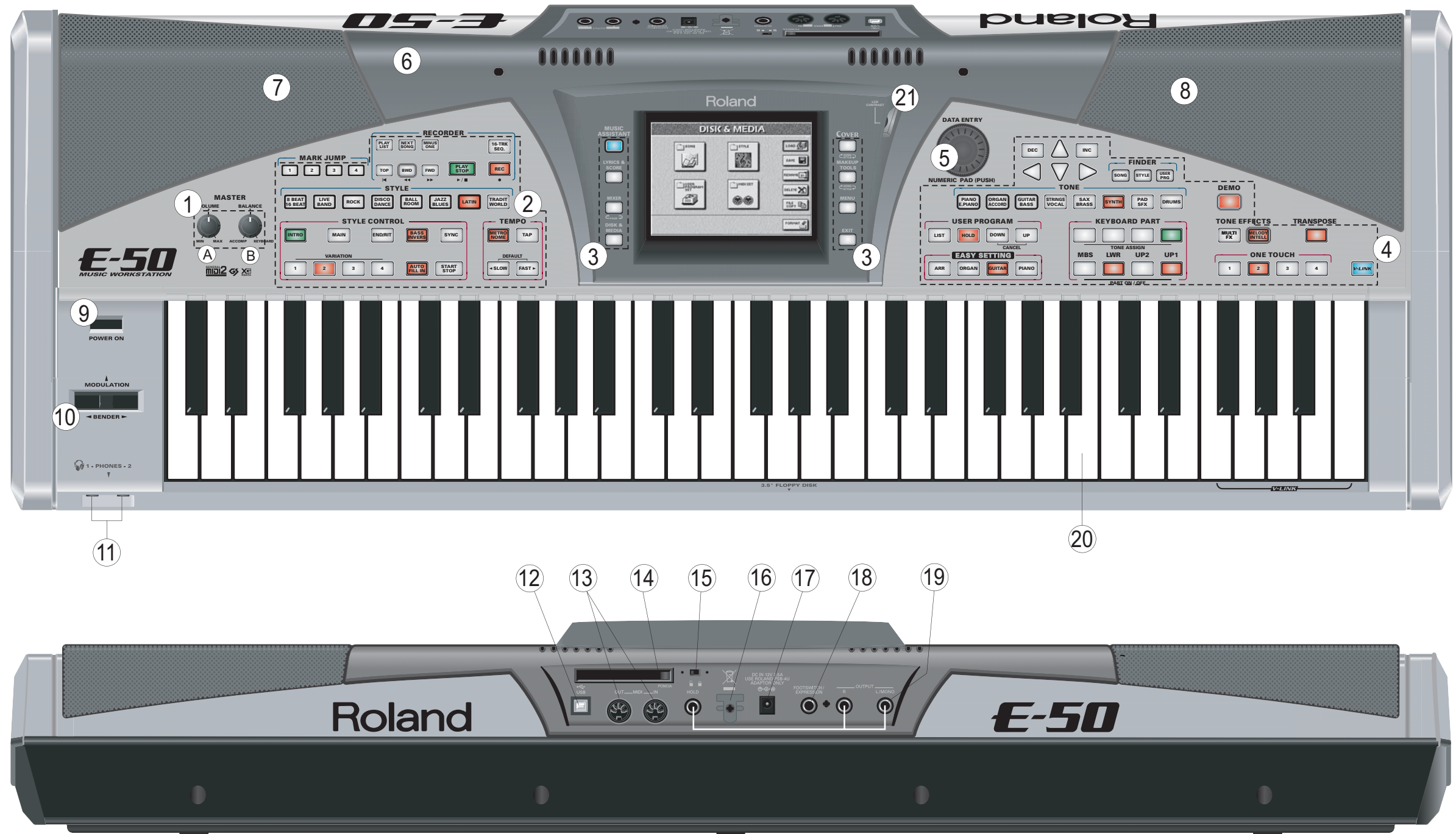
Note: Specifications are subject to change without prior notice.

DISASSEMBLY



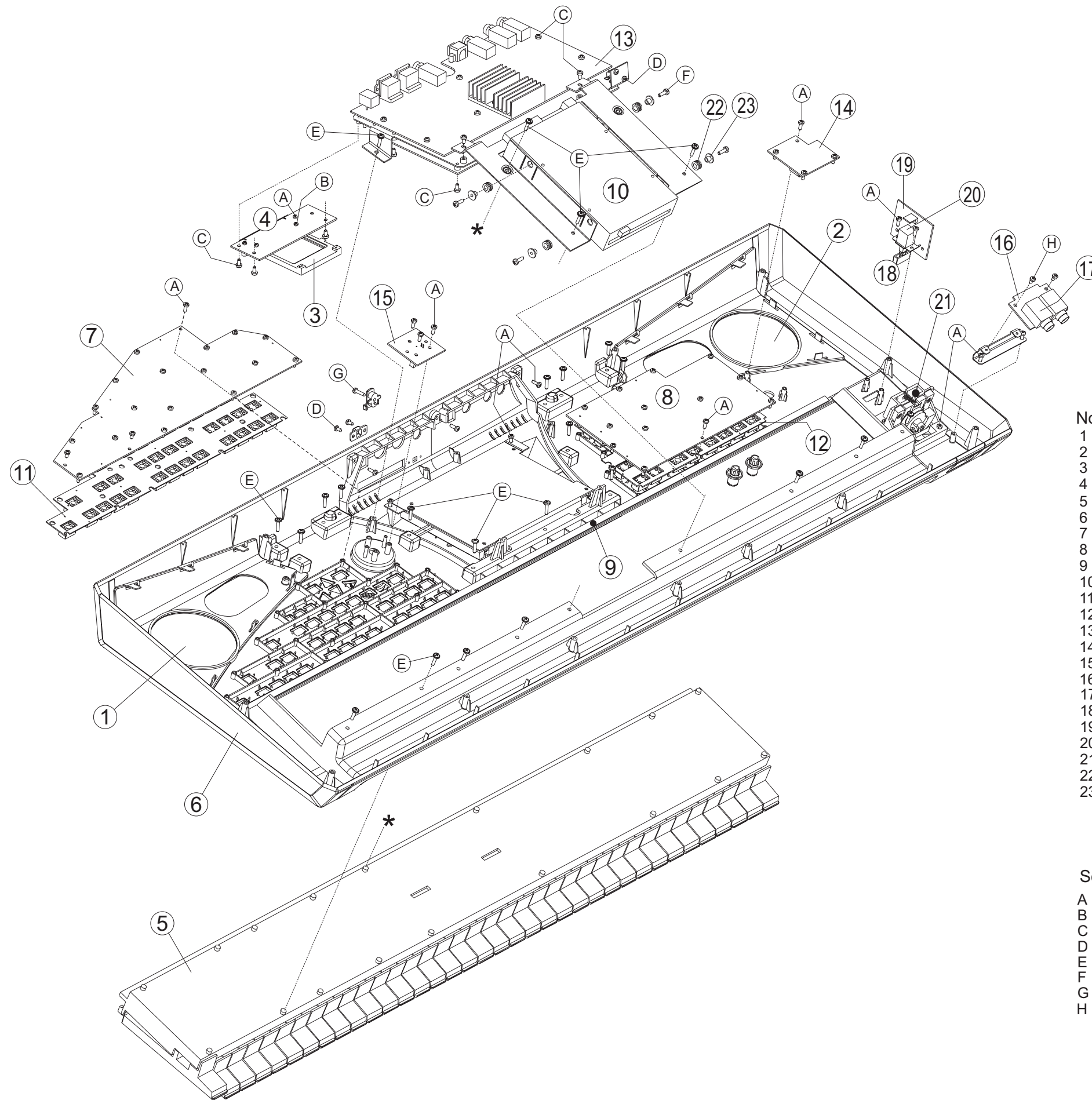
SCREW 2.9X13 TC BZ TFR T.7 TROP HILO #J2289274

LOCATION OF CONTROLS



No.	Part No.	Description	No.	Part No.	Description
1	K2478439	BLACK KNOB+WHITE INSERT E-80	10	K3278112	PITCH BENDER SW + CABLE (36)+1C.
A	00459901	ROT. POT. 10KB 14K 1230	11	13449252	JACK SOCKET YKB 21-5006
B	13289186	RK11K1130 10KB LM1-15C W/CLK	12	01459945	USB SOCKET YKF45-0002
2	K2478441	36-BUTTON GROUP (LEFT CONDUCT.PAD)E50/60	13	13429697	5P DIN SOCKET TCS5350-01-4051
3	K2478442	4-BUTTON GROUP (CENTRAL COND.PAD) E50/60	14	03562156	FANTOM-X6 PC CARD BSCT BLK
4	K2478440	42-BUTTON GROUP (RIGHT COND.PAD) E50/60	15	J3139101	SWITCH SSAB110100
5	K2478418	ENCODER BLACK KNOB G-70	16	22365708	HOLDER F/POWER SUPPLY CBL
	J3119105	ROTARY ENCODER EC12E24244F25	17	J3449104	DC SUPPLY SOCKET 2DC-0005G NL14007
6	K2028148	SILK.+VARN. LCD COVER E-50	18	13449126	JACK SOCKET HLJ0520-01-010
7	K2278105	LEFT SPEAKER GRILL E-50/E-60	19	13449283	JACK SOCKET HLJ7101-01-3010
8	K2278104	RIGHT SPEAKER GRILL E-50/E-60	20	J2589110	61-KEY TP/7BA+C(DR) KEYBOARD 65074700
9	3249559701	SWITCH CAP	21	J3219110	ROT. POT. (10K) RK14J11A000G
	J3129101	SWITCH SDKLA 11000			

EXPLODED VIEW TOP

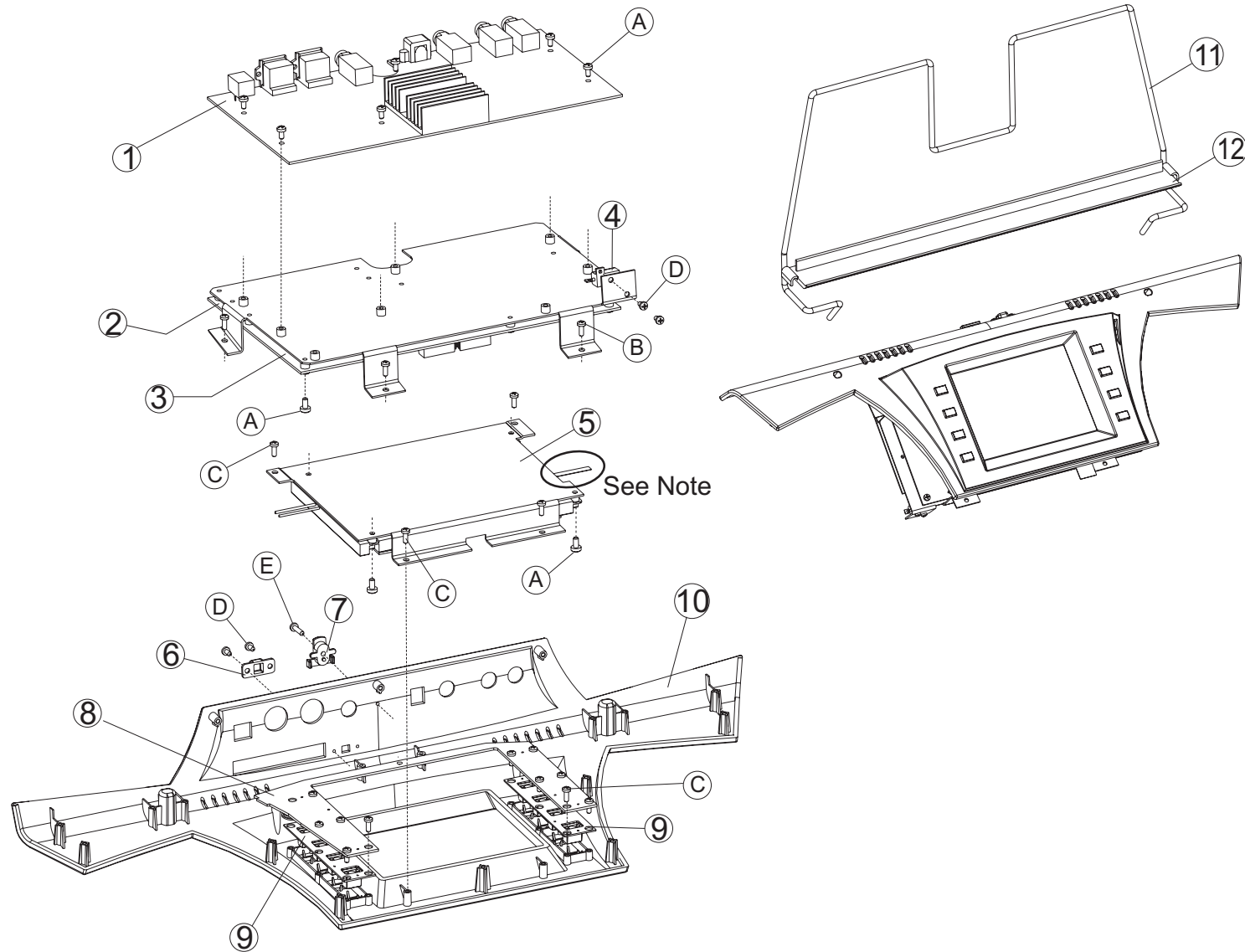


No.	Pat No.	Description
1	K2278104	RIGHT SPEAKER GRILL E-50/E-60
2	K2278105	LEFT SPEAKER GRILL E-50/E-60
3	02900867	CARD EJECTOR SCAB1A5600
4	7778109000	CARD PROTECT PCB ASSY E-50/E-60
5	J2589110	61-KEY TP/7BA+C(DR) KEYBOARD 65074700
6	7778203000	SILK.+VARN. TOP CABINET E-50
7	7778105000	RIGHT CONTROL PCB ASSY E-50/E-60
8	7778202000	LEFT CONTROL PCB ASSY E-50
9	K2248197	AD. FELT(WHITE) MM.860X7 TH.1.5
10	J240910801	FLOPPY DISK DRIVER ALPS DF354H148G
11	K2478440	42-BUTTON GROUP (RIGHT COND.PAD) E50/60
12	K2478441	36-BUTTON GROUP (LEFT CONDUCT.PAD)E50/60
13	7778103000	AUDIO PCB ASSY E-50/E-60
14	7778112000	VOLUME PCB ASSY E-50/E-60
15	7778108000	ENCODER ASSY E-50/E-60
16	7778110000	HEADPHONES PCB ASSY E-50/E-60
17	13449252	JACKS OCKET YKB 21-5006
18	3249559701	SWITCH CAP
19	7778111000	POWER SWITCH PCB ASSY E-50/E-60
20	J3129101	SWITCH SDKLA11000
21	K3278112	PITCH BENDER SW + CABLE (36)+1C.
22	22265242	RUBBER GUIDE BUSHING
23	22165134	BRASS BUSHING

Screw

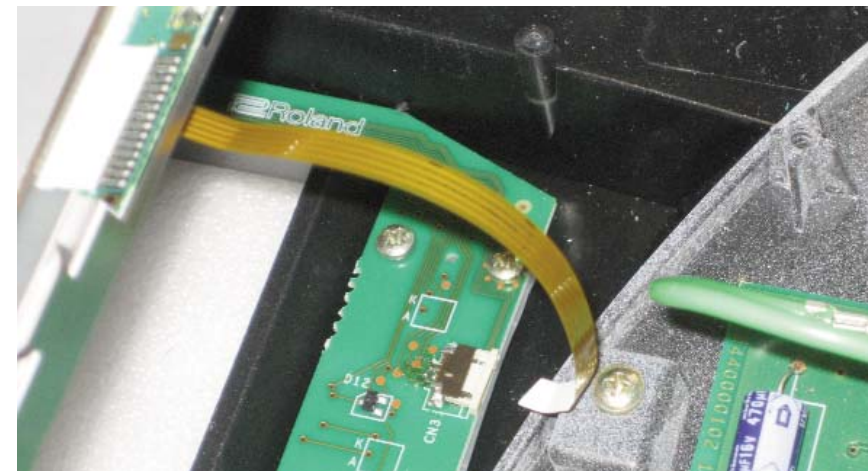
A	J2289126	SELF TAP.SCREW 2.9X 8 TCTCPRBZ
B	40342345	MACHINE SCREW W/SW BZC
C	J2289193	SELF LOCK.SCREW M3X6 TC TC H.6
D	J2289101	SELF TAP.SCREW 2.9X 6T CT C
E	J2289287	SCREW 2.9X13 TC PR BZ TFR H.7H ILO
F	J2289108	SELF LOCK.SCREW M3X10 TCTC H.6
G	J2289160	SELF TAP.SCREW 2.9X13 TCTCPR BR
H	J2289102	SELF TAP.SCREW 2.9X10 TC TC

EXPLODED VIEW SILK.+VARN. LCD COVER



No.	Part No.	Description
1	7778103000	AUDIO PCB ASSY E-50/E-60
2	7778109000	CARD PROTECT PCB ASSY E-50/E-60
3	7778201000	MAIN BOARD PCB ASSY E-50
4	J3809164	RESISTOR 3.3 OHM 10W +HEATSINK
5	J5039111	LCD SP14Q006-ZZA+TOUCH PANEL

Note: When you substitute the LCD SP14Q006-ZZA+TOUCH PANEL #J5039111 pay attention to disconnect the cable from CN3 Connector CFP1504-0401F #04123090 on Center Control B. as shown:

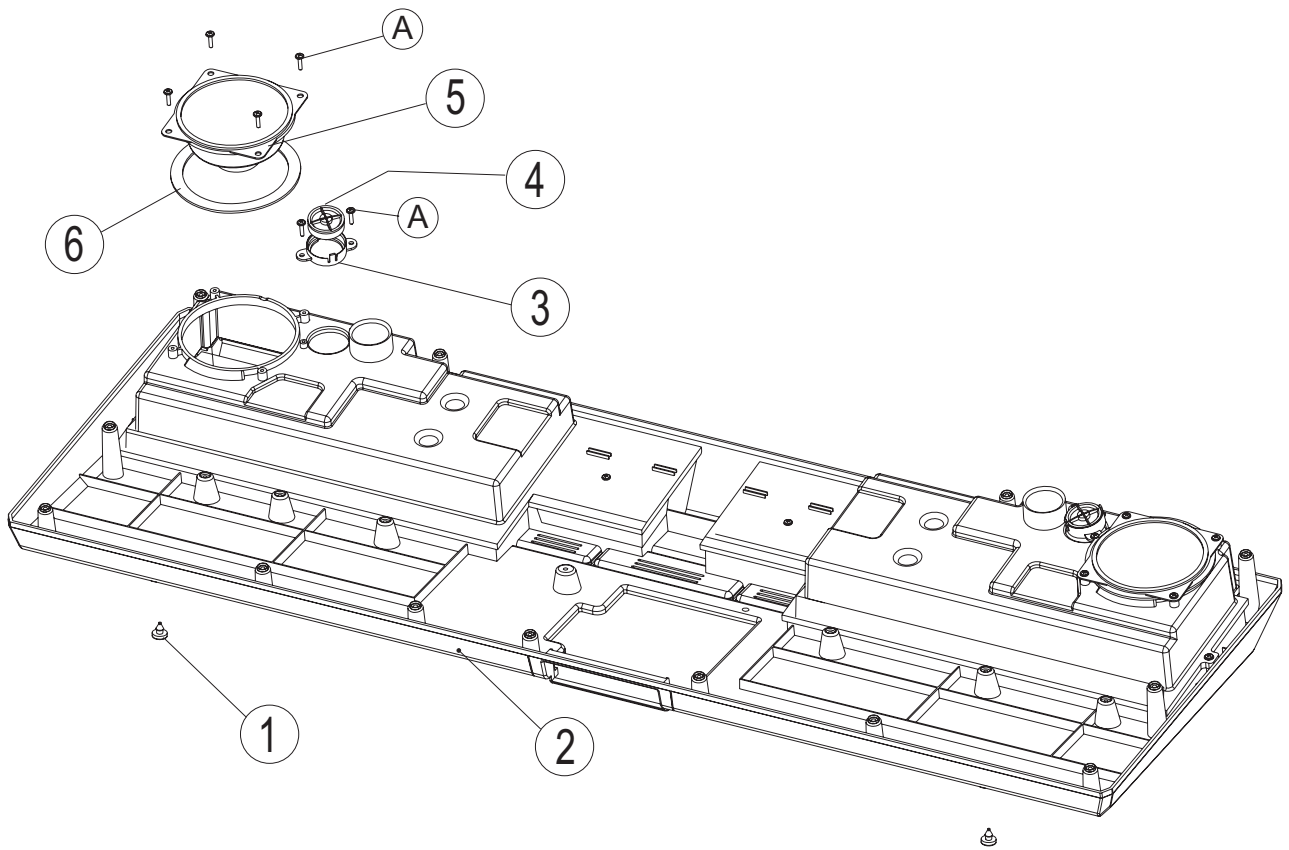


6	K2248193	PCMCIA SLOT ESCUTCHEON G-70
7	22365708	HOLDER F/POWER SUPPLY CBL
8	7778106000	CENTRAL CONTROL PCB ASSY E-50/E-60
9	K2478442	4-BUTTON GROUP (CENTRAL COND.PAD) E50/60
10	K2028148	SILK.+VARN. LCD COVER E-50
11	K2198121	BLACK VARNISHED MUSIC REST E-50/E-60
12	22208320	MUSIC SCORE HOLDER

Screw

A	J2289193	SELF LOCK.SCREW M3X6 TC TC H.6
B	J2289287	SCREW 2.9X13 TC PR BZ TFR H.7H ILO
C	J2289126	SELFT AP.SCREW 2.9X 8T CTCPRBZ
D	J2289101	SELF TAP.SCREW 2.9X 6T CT C
E	J2289160	SELF TAP.SCREW 2.9X13 TCTCPR BR

EXPLODED VIEW BOTTOM

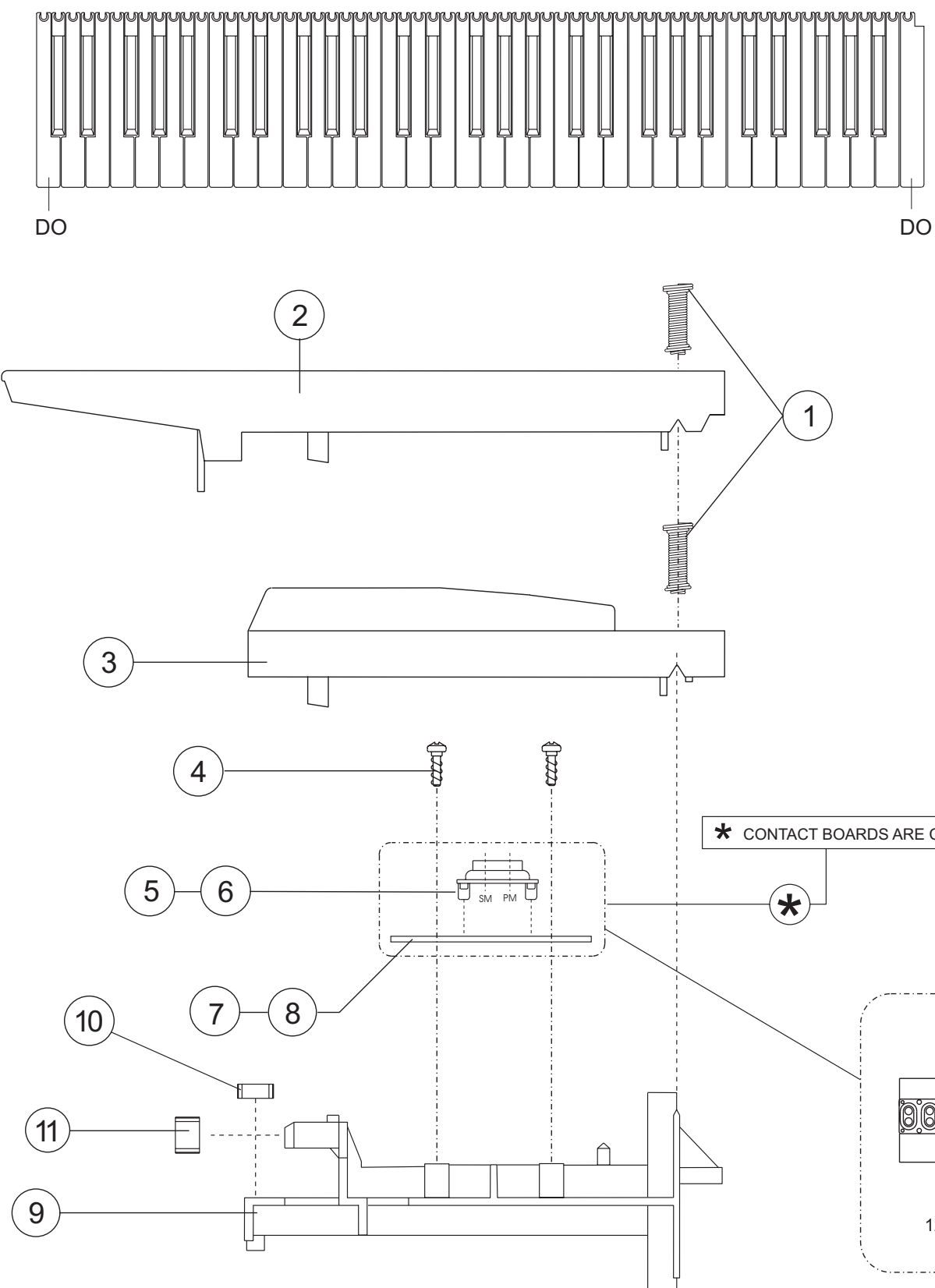


No.	Part No.	Description
1	K2358105	PRESSURE RUBBER FOOT
2	K2018131	SOUNDPROOFED BOTTOM CBNT+BOX E-50
3	K1188130	TWEETER SUPPORT EM2000/EG101
4	K2418131	TWEETER SPEAKER 4 OHM E-50/E-60
5	K2418130	WOOFER SPEAKER 4 OHM Z001401
6	K2228103	SPEAKER GASKET 108/88 TH.2

Screw

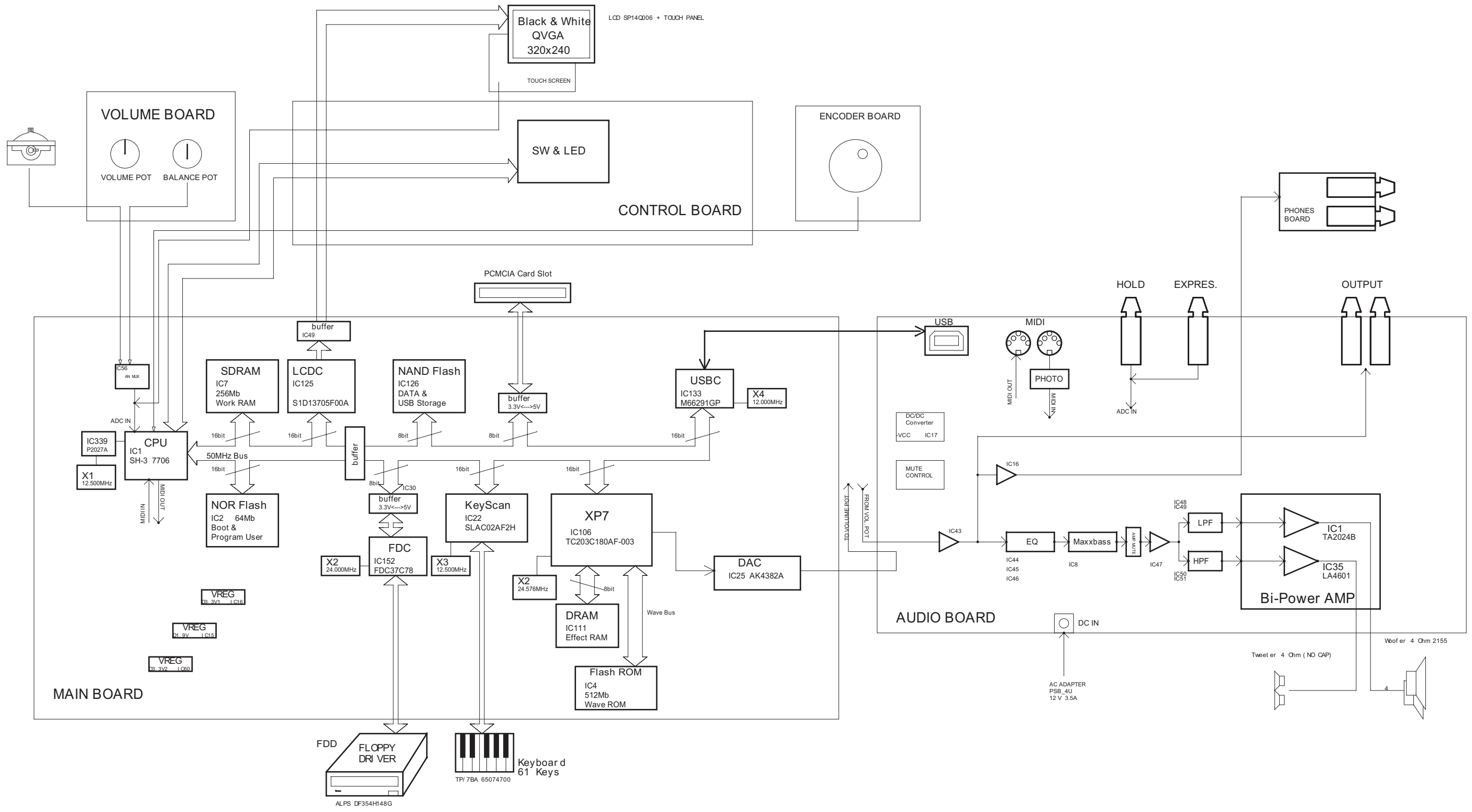
A	J2289287	SCREW 2.9X13 TC PR BZ TFR H.7 HILO
---	----------	------------------------------------

KEYBOARD PARTS LIST

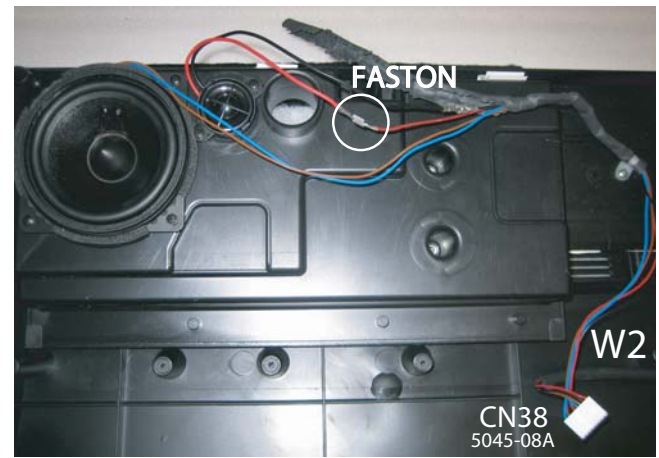
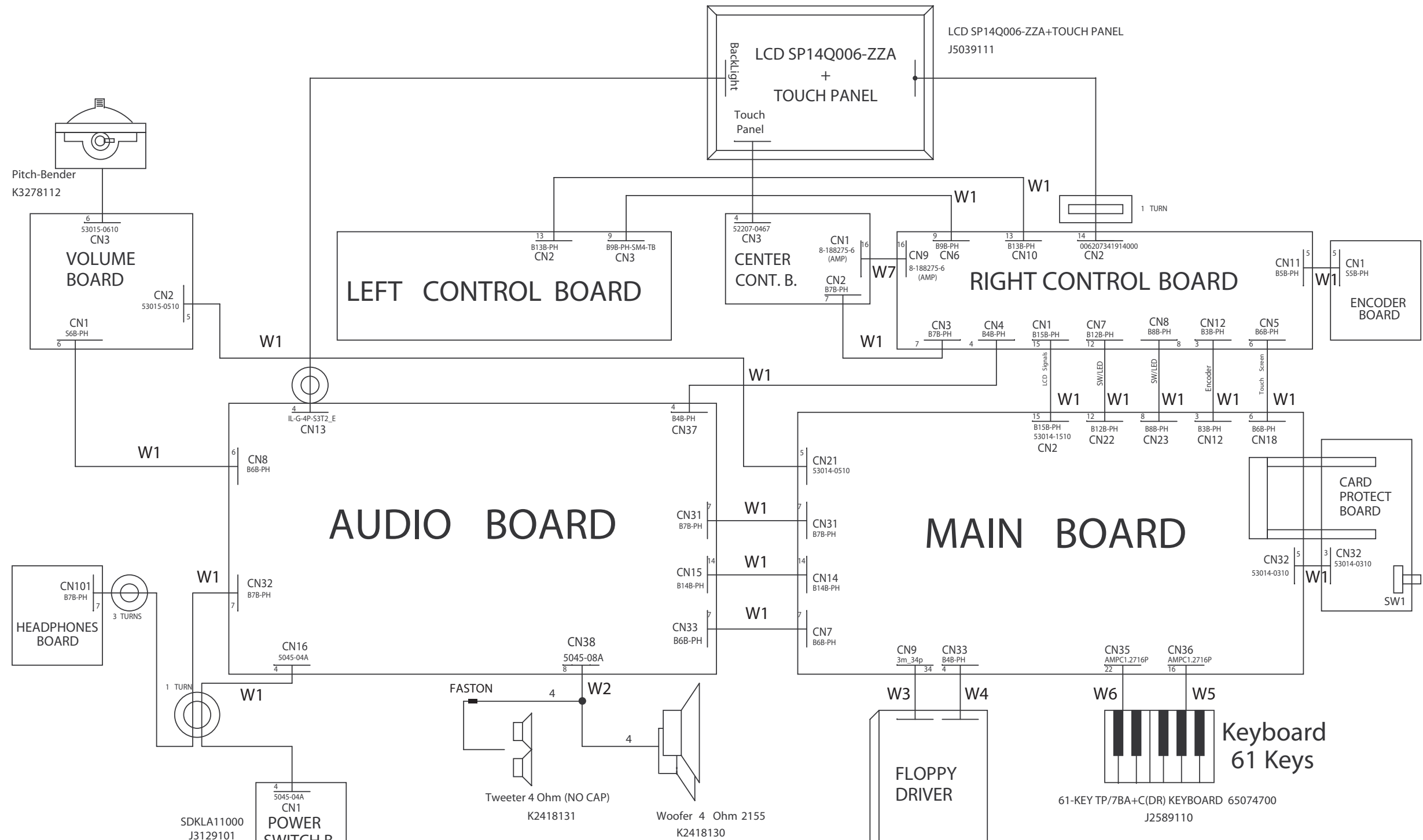


No.	PARTS NAME	CODE RJA	Num.
1	SPRING F/KEY 55 GR. No.118(23105270)	J2179116	61
2	NATURAL KEY C5 DO	J2579123	5
	NATURAL KEY D6 RE	J2579124	5
	NATURAL KEY E7 MI	J2579125	5
	NATURAL KEY F1 FA	J2579126	5
	NATURAL KEY G2 SOL	J2579127	5
	NATURAL KEY A3 LA	J2579128	5
	NATURAL KEY B4 SI	J2579129	5
	NATURAL KEY C8 DO (F)	J2579130	1
3	SHARP KEY	22578318	25
4	SCREW 2,9x10 TCTCPR TROP	J2289125	34
5	12P RUBBER CONTACT ADI-LR13/12(25640210)	J3169110	4
6	13P RUBBER CONTACT ADI-LR13/13(25640220)	J3169111	1
7	LEFT CONT. PCB ASSY+RUBBER 32 KEY (26043130)	J2929106	1
8	RIGHT CONT. PCB ASSY+RUBBER 29 KEY (26043120)	J2929105	1
9	KEYBOARD SUPPORT 61 KEYS	22818746	1
10	FELT FOR KEYBOARD ASSY	2235815101	1
11	UPPER GUIDE BUSHING	22158789	1

BLOCK DIAGRAM




WIRING DIAGRAM



W	Code	Description	Qty
W1	7778206000	3P CABLE ASSY 2N/1R (10) 4P CONNEC.	1
W2	K3468302	8P CABLE (RES+BLACK/BLACK+BROWN)-1C P2.5	1
W3	7778206000	3P CABLE ASSY 2N/1R (10) 4P CONNEC.	1
W4	K3468203	34P FLAT CABLE (12) -2C	1
W5	2348854501	16P FLAT CABLE (18) -2C D/R	1
W6	K3468234	16P FLAT CABLE ASSY (28) -2C	1
W7	K3468189	16 FLAT CABLE (16) -2C	1



PARTS LIST

SAFETY PRECAUTIONS:
The parts marked  have safety-related characteristics. Use only listed parts for replacement.

Due to one or more of the following reasons, parts with parts code ***** cannot be supplied as service parts.
 • Part supplied only as a component in a complete assembly
 • Copyright does not permit the part to be supplied
 • Part is sold commercially

NOTE: The parts marked # are new. (initial parts) The description "QTY" means a necessary number of the parts per one product.

NOTE:

- # The parts marked "# " are new (Initial Parts).
- A The parts marked "A " are **new (Initial Parts) for RES but already used by RJA**
-  The parts marked  have Safety - Related characteristics. Use only listed parts for replacement.

<< EMI >> Component for EMC.

Note : Replacement should be made on a unit basis. No replacements available for individual parts. Replacement only be a unit.

CASING

Q.ty

#	K2278104	RIGHT SPEAKER GRILL	E-50/E-60	1
#	K2278105	LEFT SPEAKER GRILL	E-50/E-60	1
#	K2018131	SOUNDPROOFED BOTTOM CBNT+BOX	E-50	1
#	K2028148	SILK.+VARN. LCD COVER	E-50	1
#	7778203000	SILK.+VARN. TOP CABINET	E-50	1
#	K2198121	BLACK VARNISHED MUSIC REST	E-50/E-60	1
	22208320	MUSIC SCORE HOLDER		1

KNOB BUTTON

	K2478418	ENCODER BLACK KNOB	G-70	1
	K2478439	BLACK KNOB+WHITE INSERT	E-80	2
	3249559701	SWITCH CAP		1
#	K2478440	42-BUTTON GROUP (RIGHT COND.PAD)	E50/60	1
#	K2478441	36-BUTTON GROUP (LEFT CONDUCT.PAD)	E50/60	1
#	K2478442	4-BUTTON GROUP (CENTRAL COND.PAD)	E50/60	2

SWITCH

	J3129101	SWITCH SDKLA11000	SW1 on Power Switch B.	1
#	J3139101	SWITCH SSAB110100	SW1 on Card Protect	1

JACK, SOCKET

	J3449104	DC SUPPLY SOCKET 2DC-0005G NL14007	JK5 on Audio B.	1
	13449252	JACK SOCKET YKB 21-5006	JK11,JK12 on Card Protect B.	2
	13449126	JACK SOCKET HLJ0520-01-010	JK2 on Audio B.	1
	13449283	JACK SOCKET HLJ7101-01-3010	JK3,JK4,JK8 on Audio B.	3
	13429697	5P DIN SOCKET TCS5350-01-4051	JK6,JK11 on Audio B.	2
	01459945	USB SOCKET YKF45-0002	JK10 on Audio B.	1

DISPLAY UNIT

#	J5039111	LCD SP14Q006-ZZA+TOUCH PANEL		1
---	----------	------------------------------	--	---

DISK DRIVE UNIT

Note :

J240910801	FLOPPY DISK DRIVER ALPS DF354H148G	1
------------	------------------------------------	---

BENDER UNIT

Note :

K3278112	PITCH BENDER SW + CABLE (36)+1C.	1
----------	----------------------------------	---

SPEAKER

#	K2418131	TWEETER SPEAKER 4 OHM	E-50/E-60	2
#	K2418130	WOOFER SPEAKER 4 OHM	Z001401	2

KEYBOARD ASSY

J2589110	61-KEY TP/7BA+C(DR) KEYBOARD	65074700	1
----------	------------------------------	----------	---

NOTE: For details, refer to KEYBOARD PARTS LIST

PCB ASSY

#	7778201000	MAIN BOARD PCB ASSY	E-50	1
#	7778103000	AUDIO PCB ASSY	E-50/E-60	1
#	7778105000	RIGHT CONTROL PCB ASSY	E-50/E-60	1
#	7778202000	LEFT CONTROL PCB ASSY	E-50	1
#	7778106000	CENTER CONTROL PCB ASSY	E-50/E-60	1
#	7778112000	VOLUME PCB ASSY	E-50/E-60	1
#	7778108000	ENCODER ASSY	E-50/E-60	1
#	7778109000	CARD PROTECT PCB ASSY	E-50/E-60	1
#	7778110000	HEADPHONES PCB ASSY	E-50/E-60	1
#	7778111000	POWER SWITCH PCB ASSY	E-50/E-60	1

IC

#	03674545	I.C. K4S561632H-UC75 FLAT	IC7 on Main B.	1
#	J5159120	I.C. TC74VHC08FT(EL)	IC6 on Main B.	1
#	J5159122	I.C. LA4601N-E (RoHS)	IC35 on Audio B.	1
#	J5259196	I.C. 74LV20ATELL-E FLAT	IC342,IC344 on Main B.	2
#	J5259197	I.C. 74LV573ATELL-E FLAT	IC3,IC5 on Main B.	2
#	J5259198	I.C. TA2024B FLAT	IC1 on Audio B.	1
A	03561112	I.C. TC7SH14FU(T5L, F, T) FLAT	IC38 on Main B.	1
#	J5259199	I.C. TC 74VHCT32AFT(EL) FLAT	IC43 on Main B.	1
	K5258186	I.C. 74 HC 238 FLAT	IC4 on Right Control B. IC3 on Left Control B.	2
	J5259161	I.C. M66291GP USB CONTROLLER	IC133 on Main B.	1
	03344445	IC MX3000AS	IC8 on Audio B.	1
	01455312	I.C. TC7WH74FU	IC91 on Main B.	1
	01348945	I.C. TC7SH32FU FLAT	IC21 on Main B.	1
	00236845	I.C. TC 74VHC245F	IC3 on Right Control B. IC2 on Left Control B.	2
	J5259135	I.C. TC 74VHC175FT	IC79 on Main B.	1
	J5259175	I.C. TC 7SH04FU (TE85L.J)	IC52,IC63,IC64,IC336 on Main B.	4
	01455301	I.C. TC7WH04FU (TE12L) FLAT	IC33,IC35 on Main B.	2
	J5259142	I.C. TC74VHCT138AF FLAT	IC2 on Right Control B. IC1 on Left Control B.	2
	J5259145	I.C. TC7WH08FU FLAT	IC338 on Main B.	1
	J5259147	I.C. TC7WU04FU FLAT	IC10,IC18,IC347 on Main B.	3
	02565212	I.C. SN74LV245A-PW	IC8,IC11,IC30,IC335 on Main B.	4
	J5259157	I.C. TC74VHCT245AFT FLAT	IC49,IC88,IC89,IC93 on Main B.	4
	15269214	I.C. 74LS05 FLAT TTL	IC2 on Audio B.	1
	15189210	I.C. BA 5218F (OP AMP)	IC16,IC43,IC44,IC45,IC46 IC47,IC48,IC49,IC50,IC51 on Audio B. IC1 on Right Control B.	11
	15289105	I.C. UPC 4570G (OP AMP)	IC26 on Main B.	1
	15199937	I.C. M51953 BFP FLAT	IC10 on Audio B.	1
	00458312	I.C. NJM 2360M FLAT	IC13 on Main B. IC17 on Audio B.	2
	15289141	I.C. M5223FP-600D	IC51 on Main B. IC5 on Right Control B.	2
	J5199110	I.C. L4940V5	IC14 on Audio B.	1
	01458445	I.C. UPC29M33T-T1 FLAT (REGULATOR)	IC16,IC60 on Main B.	2
	J5259133	I.C. TA7805 AF	IC24 on Main B.	1
	J5259163	I.C. LP2950 CZ-3.3	IC2 on Audio B.	1
#	7778204000	I.C. FLASH 512M IC4 CPU E-50/E-60	IC 4 on Main B.	1
#	7778207000	I.C. FLASH IC2 CPU E-50	IC2 on Main B.	1
#	J5259194	I.C. HD6417706F133V	IC1 on Main B.	1
	J5259177	I.C. TC7SH08FU FLAT	IC14,IC124,IC341 on Main B.	3
	J5259186	I.C. PQ070XZ01ZPH	IC15 on Main B.	1
	02455212	IC (CUSTOM) SLAC02AF2H (KSM) KEY SCAN	IC22 on Main B.	1
A	02908656	IC AK4382AVT-E2 FLAT	IC25 on Main B.	1
#	J5259192	I.C. TC74VHC138FT(EL) FLAT	IC31 on Main B.	1
#	J5159121	I.C. TC74VHC32FT(EL)	IC48 on Main B.	1
#	J5169109	I.C. 74LV4051ATELL-E	IC56 on Main B.	1
#	J5259189	I.C. HD74LV32ATELL-E	IC80,IC92,IC94 on Main B.	3
#	J5259191	I.C. TC74VHC139FT(EL)	IC81,IC85 on Main B.	2
#	J5259188	I.C. 74LV21ATELL-E	IC82,IC127 on Main B.	2
	J5159117	I.C. TC74LVX4245FS(EL)	IC86,IC87 on Main B.	2
	J5259190	I.C. HD74LV00ATELL	IC90 on Main B.	1
	02677490	IC TC203C180AF-003 FLAT	IC106 on Main B.	1
	03787889	I.C. M11L416256SA-35T	IC111 on Main B.	1
#	J5259193	I.C. S1D13705F00A200	IC125 on Main B.	1
#	J5259195	I.C. ROM TC58DVM72A1TG00BBH FLAT	IC126 on Main B.	1
	02568456	I.C. FDC37C78	IC152 on Main B.	1
#	J5259187	I.C. P2027AF-08TR	IC339 on Main B.	1

TRANSISTOR

	00901523	TRANSISTOR 2SA-1681K	Q14,Q32,Q45 on Audio B.	3
	02671023	TRANSISTOR 2SC-3052	Q13,Q15,Q34 on Audio B.	3
	02671267	TRANSISTOR RT1N141C-T12-1	Q12,Q33 on Audio B.	2
#	J5119112	TRANSISTOR SSM3J02T(TE85L, F) CHIP	Q7 on Main B.	1
#	J5119113	TRANSISTOR RN1426	Q14,Q15,Q16,Q17,Q18,Q19, Q20,Q21 on Right Control B. Q9,Q10,Q11,Q12,Q13,Q14, Q15,Q16 on Left Control B.	16
#	J5119114	TRANSISTOR RN1308(TE85L,F)	Q7 on Audio B.	1
#	J5119115	TRANSISTOR RN2307(TE85L,F) CHIP	Q5 on Audio B.	1
	15129114	TRANSISTOR 2SC-1815GR	Q1,Q6 on Audio B.	2
	15119113	TRANSISTOR 2SA-1015 GR	Q3,Q9 on Audio B.	2
	15319101	TRANSISTOR 2SC-2412K	Q31,Q38,Q39 on Audio B.	3
	15309101	TRANSISTOR 2SA-1037KR	Q22 on Right Control B.	1
	15319105	TRANSISTOR 2SC-3326A	Q2,Q8,Q10,Q11,Q41,Q42, Q43,Q44 on Audio B.	8
	J5119104	TRANSISTOR DTA-114 EK CHIP	Q2,Q5 on Right Control B.	2
#	J5119116	TRANSISTOR DTA-114 EVA CHIP	Q4 on Audio B.	1
#	J5119117	TRANSISTOR DTC-114 EVA CHIP	Q8,Q9,Q10 on Main B.	3
	15319107	TRANSISTOR 2SC-4116GR	Q4,Q7 on Right Control B.	2
	02451378	TRANSISTOR RN2427	Q8,Q9,Q10,Q11,Q12,Q13 on Right Control B. Q2,Q3,Q5,Q7,Q8 Left Control B.	11
	J5119107	TRANSISTOR 2SA-1586-GR (TE85R)	Q1,Q3,Q6 on Right Control B.	3
	15129623	TRANSISTOR 2SD-667C	Q18 on Audio B.	1

DIODE

	01897189	DIODE MA147-(TX)	CHIP	D8 on Main B.	6
	J5019123	DIODE SCHOTTKY SK13	CHIP	D5,D10,D25,D26,D28 on Audio B.	
A	02780401	CEA SCHOTTKY DIODE MA720-(TX)		D2,D4,D6,D8 on Audio B.	4
				D1 on Main B.	2
#	J5029125	LED DIODE SML-012UTT86A	RED SMD	D4 on Center Control B.	
				D1,D3,D4,D5,D6,D8,D9,	62
				D11,D12,D13,D14,D15,D16,	
				D17,D19,D20,D22,D23,D24,	
				D25,D27,D28,D29,D30,D31,	
				D32,D33 on Right Control B.	
				D1,D2,D3,D4,D5,D6,D7,D8,	
				D9,D10,D11,D12,D13,D14,	
				D15,D17,D18,D19,D20,D21,	
				D22,D24,D25,D26,D27,D28,	
				D29 on Left Control B.	
				D1,D2,D3,D5,D6,D7,D8 on Center Control B.	
				D27 on Audio B.	
#	J5029126	LED DIODE SML-012BCTT86	BLUE SMD	D34 on Right Control B.	2
				D4 on Center Control B.	
#	J5029127	LED DIODE SML-012ECTT86	GREEN SMD	D2,D10,D18,D26 on Right Control B.	9
				D16,D23,D30,D50,D52 on Left Control B.	
	15339109	DIODE DAP 202K	CHIP	D13 on Audio B.	45
				D35,D36,D37,D38,D39,D40,	
				D41,D42,D43,D44,D45,D46,	
				D47,D48,D49,D50,D51,D52,	
				D53,D54,D55,D56 on Right Control B.	
				D9,D10,D11,D12 on Center Control B.	
				D31,D32,D33,D34,D35,D36,	
				D37,D38,D39,D40,D41,D42,	
				D43,D44,D45,D46,D47,D48 on Left Control B.	
	01121323	DIODE DA-204U	T-106 CHIP	D3,D4,D5,D6,D7 on Main B.	5
	00019356	DIODE 1SR139-400	T-32	D17 on Audio B.	1
	01905134	SCHOTTKY DIODE MA7D49		D24 on Audio B.	1

RESISTOR

#	J3919119	RESISTOR ARRAY EXB28V103JX		RA18,RA21,RA24,RA26,RA41,	14
				RA46,RA95,RA100,RA140,	
				RA141,RA142,RA143,RA144,	
				RA145 on Main B.	
#	J3919120	RESISTOR ARRAY EXB2HV330JV		RA2,RA35,RA36,RA39,RA42,	14
				RA113,RA114,RA115,RA116,	
				RA117,RA150,RA151,RA152,	
				RA153 on Main B.	
#	J3919121	RESISTOR ARRAY EXB2HV103V		RA9,RA14,RA31,RA44,RA118,	6
				RA119 on Main B.	
#	J3919122	RESISTOR ARRAY EXB28V330JX		RA16,RA17,RA22,RA23,RA27,	19
				RA29,RA33,RA37,RA38,RA45,	
				RA47,RA128,RA135,RA136,	
				RA137,RA138,RA139,RA154,	
				RA155 on Main B.	
#	J3919123	RESISTOR ARRAY EXB2HV104JV		RA129,RA130,RA131 on Main B.	3
#	J3919124	RESISTOR ARRAY EXB-2HV-R00-0V		RA4,RA7,RA11,RA19,RA30,	9
				RA32,RA34,RA146,	
				RA147 on Main B.	
#	J3919125	RESISTOR ARRAY EXB-2HV-102-JV		RA127 on Main B.	1
	J3919104	RESISTOR ARRAY EXB-A10E-103-J		RA3 on Right Control B.	2
				RA3 on Left Control B.	
	J3919108	RESISTOR ARRAY EXB-V8V-103-JV		RA65,RA134 on Main B.	2
	J3919116	RESISTOR ARRAY EXB-V8V-220-JV		RA106 on Main B.	8
				RA1,RA2,RA4 on Right Control B.	
				RA1,RA2,RA4,RA5 on Left Control B.	
	01457145	RESISTOR ARRAY EXB-E10C-103-J		RA1,RA8,RA40,RA43,RA50,	16
				RA52,RA57,RA90,RA91,RA92,	
				RA93,RA96,RA112,RA120,	
				RA121,RA122 on Main B.	
	02456878	RESISTOR ARRAY EXB-2HV-220-JV		RA108,RA124,RA125,RA126 on Main B.	4
	J3809156	UNINFL. RES. 47 OHM 0.6W 5%		R238,R239,R241,R242 on Phones B.	4
	J3809162	METAL OXIDE RESIST.120 OHM 2W10%		R66,R69,R93 on Audio B.	3
#	J3809164	RESISTOR 3.3 OHM 10W +HEATSINK		R228 on Audio B.	1
	J3709168	RESISTOR 2010 1 OHM 1/2W 5% (MCR50)		R126 on Audio B.	1
	01783623	RESIST. 2010 10 OHM1/2W 5%		R247 on Main B.	6
				R6,R7,R118 on AudioB.	
				R15 on Right Control B.	
				R1 on Left Control B.	
#	J3709170	RESISTOR 2010 0.22OHM 1/2w 5% (MCR50)		R64 on Main B.	1
#	J3709171	RESIST. 2010 22 OHM1/2W 5%		R24 on Right Control B.	2
				R10 on Left Control B.	
#	J3709172	RESISTOR 2010 33 OHM 1/2W 5% (MCR50)		R292 On Main B.	15
				R17,R18,R19,R20,R21,R22,	
				R23 on Right Control B	
				R3,R4,R5,R6,R7,R8,R9 on Left Control B..	
	15399989	RESIST. 2010 68 OHM1/2W 5%		R19,R30 on Audio B.	2

POTENTIOMETER

00459901	ROT. POT. 10KB 14K 1230	VR1 on Volume B.	1
J3219110	ROT. POT. (10K) RK14J11A000G	VR1 on Center Control B.	1
13289186	RK11K1130 10KB LM1-15C W/CLK	VR2 on Volume B.	1

CAPACITOR

15359774	POLYEST.COND. 0805 680P 5%	C157,C171,C187,C203 on Main B.	4
J3629144	ELECTRL.COND. 470UF 16V AX	C3 on Left Control B	1
13639154	ELECTRL.COND.-V 1000UF 16V	C28,C142,C154,C189,C191 on Audio B.	5
13639153RI	ELECTRL.COND.-V 470UF 16V	C8 on Right Control B.	1
J3629122	ELECTRL.COND.-V 1000UF 25V	C190 on Audio B.	1
J5369103	ELECTR.CAPACITOR RV2 100U 16V (SMD)	C74,C235,C401 on Main B. C1 on Right Control B. C25,C29,C33,C35,C57,C99, C100,C109,C146,C148,C149, C187,C235 on Audio B.	17
J5369104	ELECTR. COND. RV2 10U 16V (SMD)	C145,C241,C243,C491on Main B. C41,C43,C44,C45,C65,C85, C103,C125,C136,C221,C265, C266,C306,C307 on Audio B	18
J5369107	ELECTR. COND. RV 330U 16V (SMD)	C487 on Main B. C141 on Audio B.	2
J5369105	ELECTR.CAPACITOR RV3 33U 16V (SMD)	C21,C26,C31,C34,C51,C80, C83,C84,C87,C168,C183, C200,C202,C254,C255,C270, C273,C456,C476 on Main B. C36,C254,C255 on Audio B. C2,C3,C7,C14 on Right Control B. C2 on Left Control B.	27
J5369102	ELECTR.COND. RV2 47U 16V SMD	C66,C69,C75,C80,C81,C87, C116,C129,C155,C156,C161, C267,C268,C269,C270 on Audio B.	15
J5369111	ELECTR. COND. RV2 10U 25V (SMD)	C150,C157,C194,C195 on Audio B. C17 on Right ControlB.	5
J5369108	CONDENSER SMD RV2 4.7U 25V ELET. ELNA	C193 on Audio B.	2
J5369106	ELECTR. COND. RV2 1U 50V (SMD)	C4 on Right Control B. C56 on Main B.	5
J3629137	ELECTR. COND. 33U 16V H.7	C123,C124,C259,C308 on Audio B.	1
J3629172	CAPACITOR ECJ3FB1C105K	C3 on Volume B.	1
J3629173	ELECTR. CAPACITOR EEUFC1E181B 180UF 25V	C7,C24 on Audio B. C2,C23 on Audio B.	2

INDUCTOR, COIL, FILTER

	12449382RI	NOISE SUP. PLT1-R53C	FL4 on Audio B.	1
	J2399104	CHIP NOISE SUP. EXCCL4532U1	L57,L58 on Audio B.	2
	12449355	NOISE SUP. FBR07H850TB00	L40,L41 on Card Protect B.	2
	01340834	FERRITE BEAD EXCML 20A390	L1,L2,L44,L45,L46,L47 on Audio B.	6
A	01787056	N1608Z 102T01 FERRITE-BEAD	L1,L3,L16,L23,L24,L25, L27,L28,L29,L30,L31,L32, L33,L34,L37,L38,L50,L52, L95,L96,L97,L98,L99,L100, L101,L102,L103,L104,L105, L106,L107 on Main B. L8,L13,L37,L38,L48,L49, L50,L52,L53,L54,L55,L56 on Audio B.	43
	01909645	FERRITE BEAD EXCML16A270U	L17,L19 on Main B.	2
A	01565578	NOISE SUPPRESSOR N1608Z601T01	L18,L21 on Main B.	2
A	01893634	INDUCTOR LQH43MN151K03L 150uH CHIP	L12 on Main B. L16 on Audio B.	2
#	J2399113	INDUCTOR RCB0708P-100K-LF	L3,L4,L5,L6 on Audio B.	4

CRYSTAL, RESONATOR

A	02561712	CEM X'TAL MA-406 12.500 MHZ TE24	X1,X3 on Main B.	2
	00901912	X-TAL 24.576 MHZ MA-406	X2 on Main B.	1
	00891801	QUARTZ 24 MHZ MA-406	X6 on Main B.	1
	01340745	XTAL MA-406 12MHZ	X4 on Main B.	1
	J2389104	RESONATOR CSTLS4M00G53-BO (4MHZ)	X2 on Audio B.	1

ENCODER

	J3119105	ROTARY ENCODER EC12E24244F25	ENC1 on Encoder B.	1
--	----------	------------------------------	--------------------	---

CONNECTOR

	J3439197	14P MALE CONNECTOR B14B-PH-K-S JST	CN14 on Main B. CN15 on Audio B.	2
	13369567	4P MALE CONNECTOR B4B-PH-K-S (JST)	CN13,CN30,CN33 on Main B. CN37 on Audio B.	4
A	02900834	CONNECTOR SCAA1A4900	CN29 on Main B.	1
	J3439206	15P MALE CONN. B15B-PH-K-S (JST)	CN2 on Main B.	1
	J3439208	6P MALE CONNECTOR(90) S6B-PH-K-S P.2 JST	CN1 on Volume B.	1
	J3429132	16P FEM.CONNECTOR AMP1.27 8-188275-6	CN9 on Right Control B. CN1 on Center Control B.	2
	J3439209	MALE CONNECTOR 5V.90°S5B-PH-K-S P.2 JST	CN1 on Encoder B.	1
	04123090	CONNECTOR CFP1504-0401F	CN3 on Center Control B.	1
	00451401	16P FEM. CONNECTOR AMP 1.27	CN35,CN36 on Main B.	2
	13419676RI	8P MALE CONN. P/2.5 MOLEX	CN38 on Audio B.	1

13369688RI	4P MALE CONN. P 2.5 M	CN1 on Power Switch B. CN16 on Audio	2
J3439125	5P MALE CONNECTOR P.2 M	CN21 on Main B.	1
J3439143	34P MALE CONN. P. 1.27 M	CN11 on Main B.	1
J3439123	6P MALE CONN. P. 2 M 90	CN3 on Volume B.	1
J3429120	3P MALE CONNECTOR P.2 M	CN32 on Main B. CN32 on Card Protect B.	2
13369568	B3B-PH-K-S CONNECTOR	CN12 on Main B.	1
13369566	B6B-PH-K-S CONNECTOR	CN7,CN18 on Main B. CN8,CN31 on Audio B.	4
13369503	B7B-PH-K-S CONNECTOR	CN31 on Main B. CN101 on Card Protect B. CN31,CN32 on Audio B.	4
13369564	B12B-PH-K-S CONNECTOR	CN22 on Main B.	1
J3439182	5P MALE CONNECTOR 90 P.2 M	CN2 on Volume B.	1
J3439178	4P MALE CONNECTOR IL-G-4P-S3T2-E	CN13 on Audio B.	1
J3439189	8P MALE CONNECTOR B8B-PH-K-S P.2 JST	CN23 on Main B.	1

WIRING, CABLE

#	K3468302	8P CABLE (RES+BLACK/BLACK+BROWN)-1C P2.5	1
	K3468189	16 FLAT CABLE (16) -2C	1
#	K3468234	16P FLAT CABLE ASSY (28) -2C	1
	K3468203	34P FLAT CABLE (12) -2C	1
#	7778206000	3P CABLE ASSY 2N/1R (10) 4P CONNEC.	1
	2348854501	16P FLAT CABLE (18) -2C D/R	1
#	7778205000	WIRE STRAND E-50	1

SCREW

	J2289122	SCREW 2.2X6 TC TC BRUN	2
	J2289101	SELF TAP.SCREW 2.9X 6 TC TC	4
	J2289102	SELF TAP.SCREW 2.9X10 TC TC	2
	J2289126	SELF TAP.SCREW 2.9X 8 TCTCPRBZ	69
	J2289125	SCREW 2.9X10 TC TC PR TROP	34
	J2289160	SELF TAP.SCREW 2.9X13 TCTCPR BR	1
	J2289108	SELF LOCK.SCREW M3X10 TCTC H.6	6
	J2289193	SELF LOCK.SCREW M3X6 TC TC H.6	22
	J2289274	SCREW 2.9X13 TC BZ TFR T.7 TROP HILO	20
	J2289287	SCREW 2.9X13 TC PR BZ TFR H.7 HILO	47
#	40342345	MACHINE SCREW W/SW BZC	4





PACKING

	K2678102	POLYETH. ENVELOPE 25X45	1
	K2678105	CARTENE ENVELOPE HD 140X57	1
	K2678106	POLYETH.ENVELOPE 40X55	1
#	K2638340	RIGHT LDPE PROTECTION E-50	1
#	K2638341	LEFT LDPE PROTECTION E-50	1
#	K2638342	CENTRAL LDPE PROTECTION E-50	1
#	K2638343	ADHESIVE LDPE WEDGE E-50/E-60	1
#	K2668107	DIE-CUT CARDBOARD SHEET 450X1153	1
#	K2618330	OUTER PACKAGE E-50	1

MISCELLANEOUS

	J2289113	NUT 3MA H.3	2
	J2139101	FLAT WASHER I/D 4	4
	J2139102	TOOTHED WASHER I/D 3	2
	22165134	BRASS BUSHING	4
	J2359101	SPACER 3M ART. SJ5012	1
	22265242	RUBBER GUIDE BUSHING	4
	K2358105	PRESSURE RUBBER FOOT	4
	J2369101	SPECIAL LOCK I/D 4	3
	J3469144	COPPER ADHESIVE STRIP	1
	K2228103	SPEAKER GASKET 108/88 TH.2	2
	2235815101	FELT FOR KEYBOARD ASSY	1
#	K2248197	AD. FELT (WHITE) MM.860X7 TH.1.5	1
	13429823RI	P. SUPPLY PLUG LOCKING	1
	22365708	HOLDER F/POWER SUPPLY CBL	1
	K1188130	TWEETER SUPPORT EM2000/EG101	2
#	K2268209	ADHESIVE FELT (BLACK) MM.280X13X1	4
	13429823RI	P. SUPPLY PLUG LOCKING	1
	03562156	FANTOM-X6 PC CARD BSCT BLK	1
	K2248193	PCMCIA SLOT ESCUTCHEON G-70	1
A	02900867	CARD EJECTOR SCAB1A5600	1

ACCESSORIES

#	K6018644	PARAMETER REFERENCE	E-50/E-60		1
	K6018636	OWNER'S MANUAL (E)	E-50/E-60		1
	K6018646	OWNER'S MANUAL (F)	E-50/60		1
	K6018645	OWNER'S MANUAL (G)	E-50/60		1
#	K2378138	CD-ROM DRIV./USB/O.M/BCK-UP DATA	E50 E60		1
	K244811503	SWITCHING ADAPTER SA165A-1250U-3	PSB-4U		1
	J3439188	AC CORD 230V FOR ADAPT.SA165A-1250U		(only for 230V)	1
	J3439190	AC CORD 117V FOR ADAPT.SA165A-1250U		(only for 117V 117V-US)	1
	J3439210	AC CORD 240VA F/PSB-4U (INSULATED PIN)		(only for 240VA)	1
	J3439192	AC CORD 230VE FOR ADAPT.SA165A-1250U		(only for 230VE)	1

TEST MODE

Items required

- ① 2 SWITCH PEDAL (i.e. DP-8)
- ② 1 EXPRESSION PEDAL (i.e. EV-5)
- ③ PERSONAL COMPUTER
- ④ ROLAND RH-50 HEADPHONES
- ⑤ TOUCH SCREEN PEN
- ⑥ 3 TEST DISKS: 1 for DD – 1 for HD – 1 for HD PROTECTED (for FDC tests)
- ⑦ 2 PCMCIA CARDS 128MB: 1 for test – 1 for NAND FLASH (+ possible OPERATION SYSTEM)
- ⑧ 1 MIDI CABLE
- ⑨ 1 USB CABLE

1.1 How to enter the "INTERNAL TEST" mode

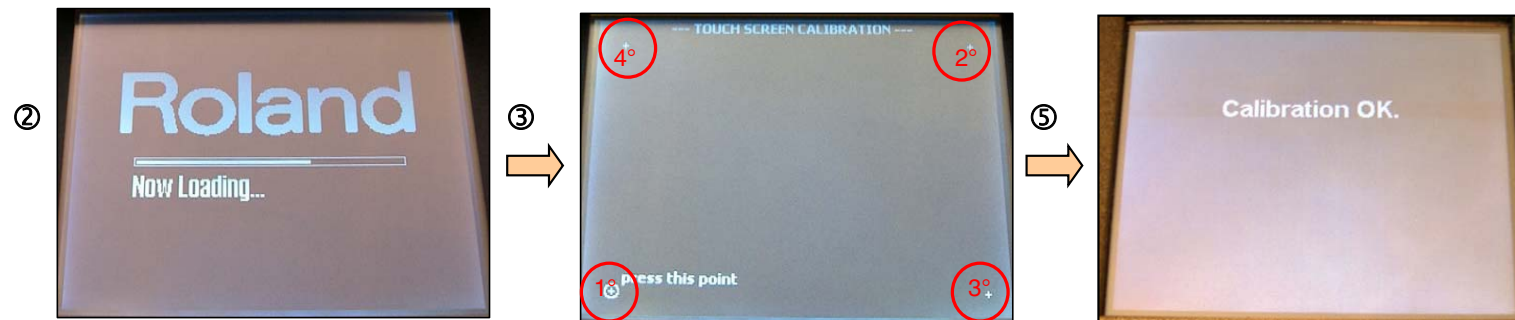
- ① Keep the buttons MUSIC ASSISTANT , COVER, MAKEUP TOOLS pressed and turn on the E-50



N.B. The performance of the tests is checked by the E-50, it is therefore necessary to perform them all, otherwise it will not be possible to continue in some cases. In any case to pass to one test (without performing it) to another at any moment, keep the button ONE TOUCH 1 pressed and then press the VARIATION 1 button pressed.

1.2 Touch Screen Calibration

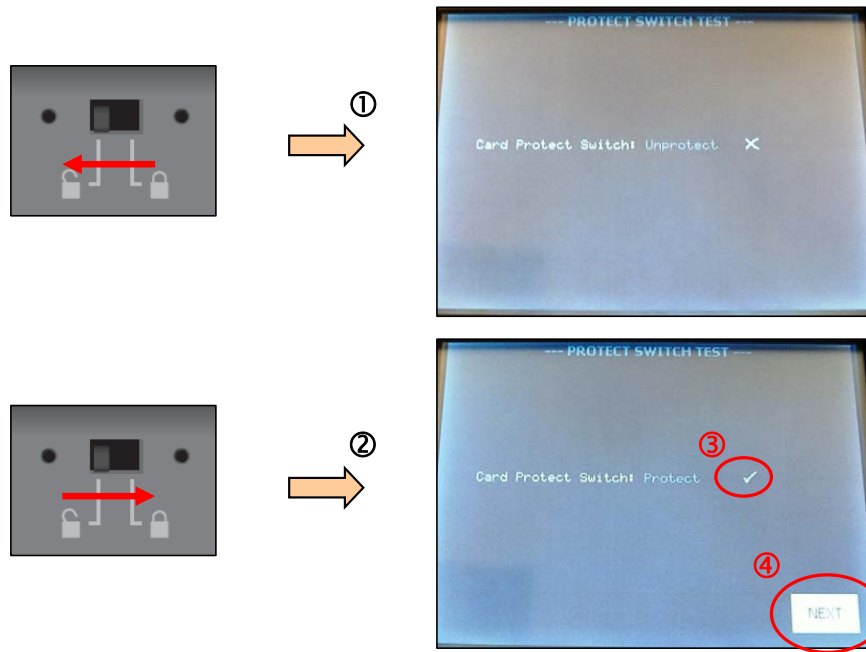
- ① Enter the "INTERNAL TEST" mode (cf. paragraph 1.1)
- ② Wait for the initialization of the E-50 to start.
- ③ Using the touch screen pen, touch for a second, the points shown on the display, the sequence is the following:
 - down on the left
 - up on the right
 - down on the right
 - up on the left
- ④ If the operation is not successful, the display shows NG:Calibration , in that case repeat the operation from scratch (point 3): after the error message wait until the calibration video appears again
- ⑤ If the operation is successful, the display will show Calibration OK and after a while the instrument will pass to the next test.



1.3 Protect Switch Test

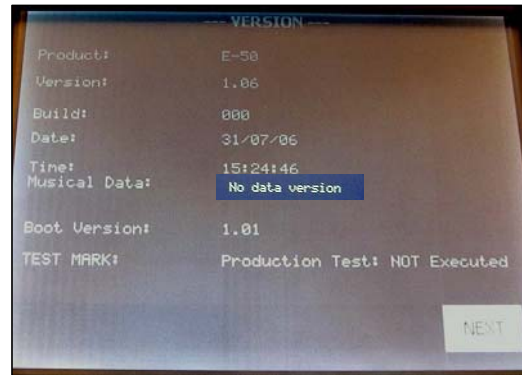
- ① Make sure that the display shows Unprotect with the switch in the “NON PROTECTED” position.
- ② Make sure that the display shows Protect with the switch in the “PROTECTED” position.
- ③ If both conditions have occurred the “marking” symbol will appear to confirm the positive outcome of the test.
- ④ Press the icon NEXT to pass to the next test.

ATTENTION! Before covering the switch with its cap, make sure that you have left it on the “PROTECTED” position.

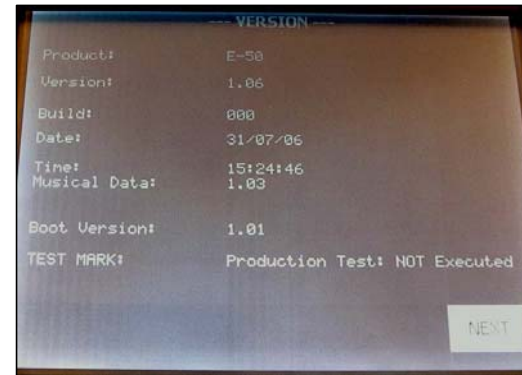


1.4 Version

- ① The video will show the information on the versions installed.



MUSICAL DATA
missing



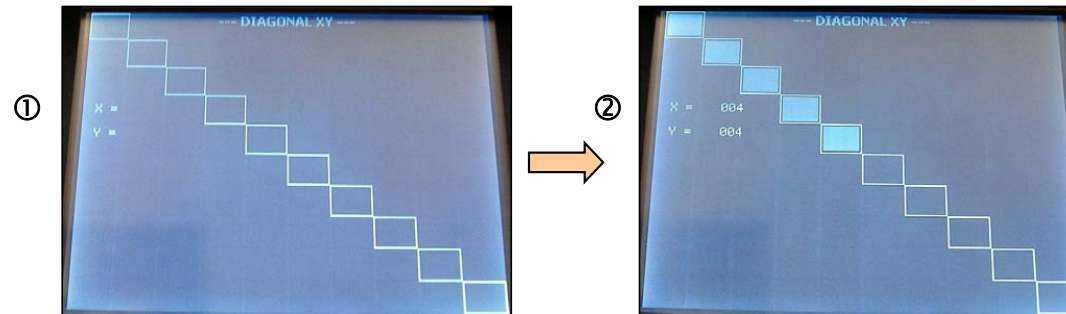
MUSICAL DATA
present

- ② Check that the data of the versions match with the Ia test updates available; if the version of the Musical Data is not displayed, it means that the loading of the data has not been carried out.
- ③ Press the icon NEXT to pass to the next test.

Attention!! The images shown are only examples, the version numbers may change in time.

1.5 Touch Screen Check

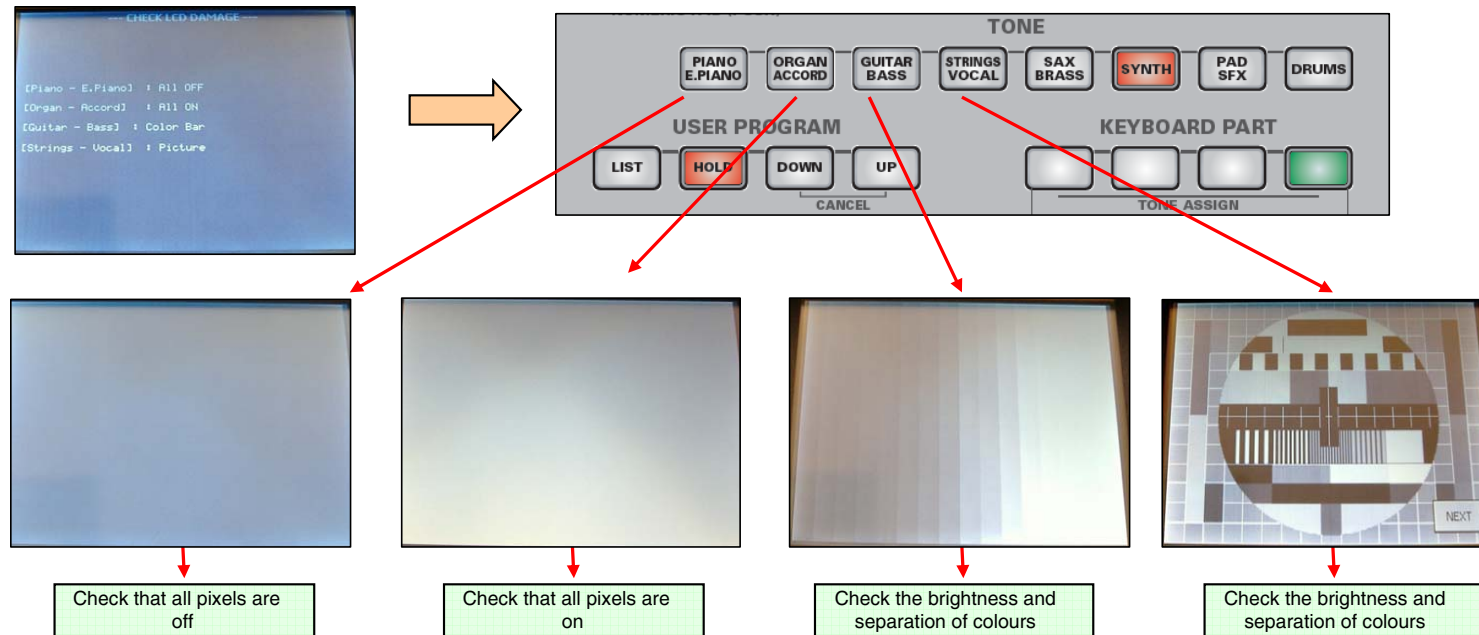
- ① Using the Touch Screen pen, touch all 10 squares outlined on the display or trace a diagonal line from top to bottom
- ② If the Touch Screen works correctly, each square touched will be coloured in grey.



- ③ After having touched all the squares the instrument will automatically pass to the next test.

1.6 LCD display Check

① Each of the four buttons of the TONE section flashing (PIANO E. PIANO, ORGAN ACCORD, GUITAR BASS, STRINGS VOCAL) is associated with a test for the LCD; press them one at a time and check that the LCD works correctly.



② In the 4th image, adjust the potentiometer LCD CONTRAST (on the right of the LCD tower) until you find a good contrast condition.

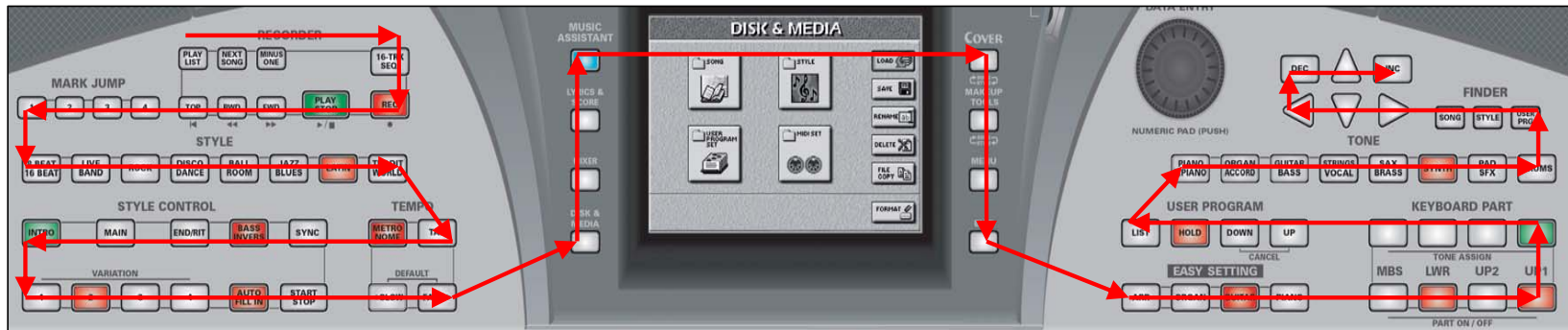
③ At the end of the four tests, press the icon NEXT, to pass to the next test.

1.7 Switch and Led Check

① From the previous test the display shows:



② Press one at a time all the buttons, respecting the sequence shown in the figure below; the display shows the button to be pressed each time and, if any, the associated led flashes.



③ Make the following checks for each button:

- a “beep” will be heard to confirm it is working correctly
- the counter on the display will start growing when the button is released
- in case of error a louder “beep” will be heard (buttons in short-circuit) or no sound at all (the button does not work)

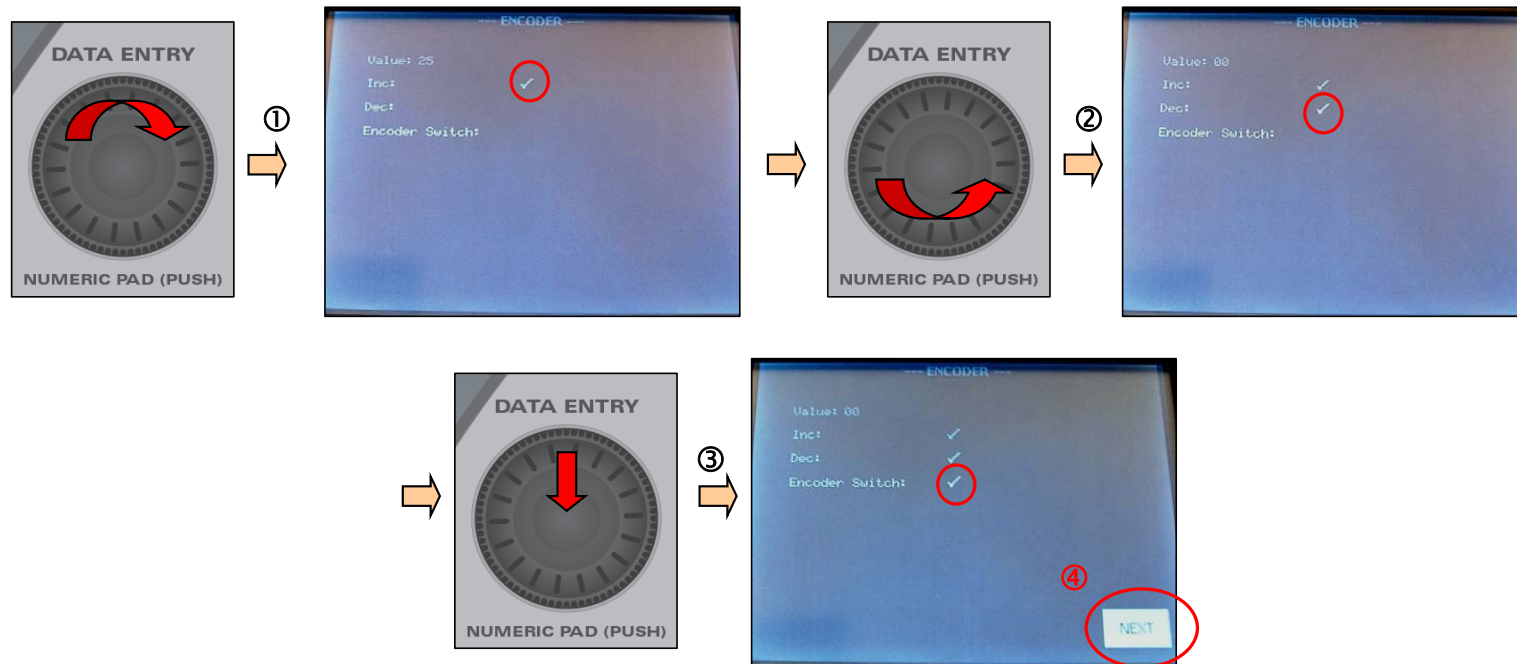
④ If the button has a led associated to it carry out the following checks:

- before pressing the button the associated led will flash (make sure that it is the only one to flash)
- once the button is pressed, the associated led will be lit
- if the led is bi-colour the associated button will have to be pressed twice (check that the first time the led becomes red and the second one green)

⑤ At the completion of the buttons' sequence, the instrument will pass to the next test

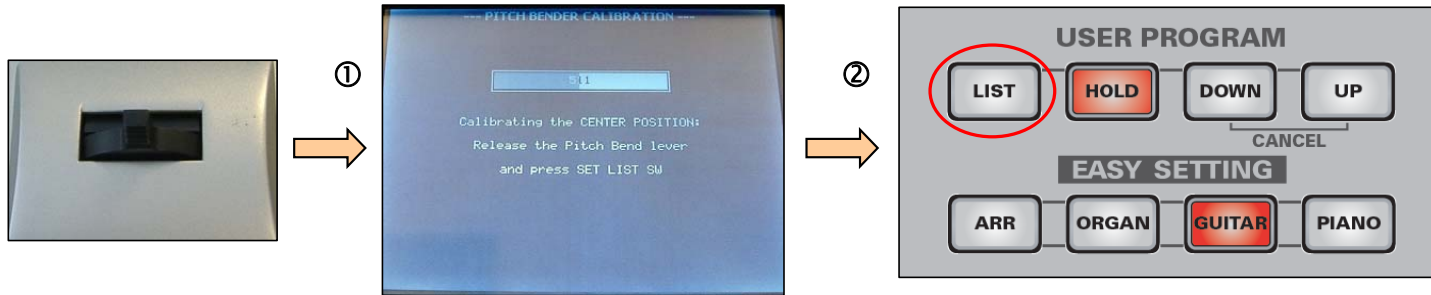
1.8 Encoder Check

- ① Let the Encoder make a complete turn clockwise: the display should show a growing value from 0 to 25 (Value) and the “marking” symbol near Inc
- ② Let the Encoder make a complete turn counter-clockwise: the display should show a decreasing value from 25 to 0 (Value) and the “marking” symbol near Dec
- ③ Press the Encoder and make sure that the “marking” symbol appears near Encoder Switch:
- ④ At the end of the tests, touch the icon NEXT, to pass to the next test

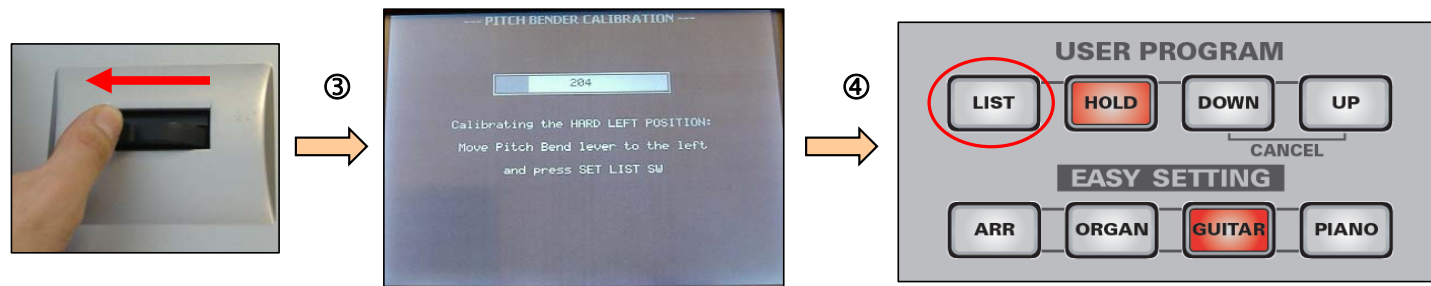


1.9 Pitch Bender Calibration

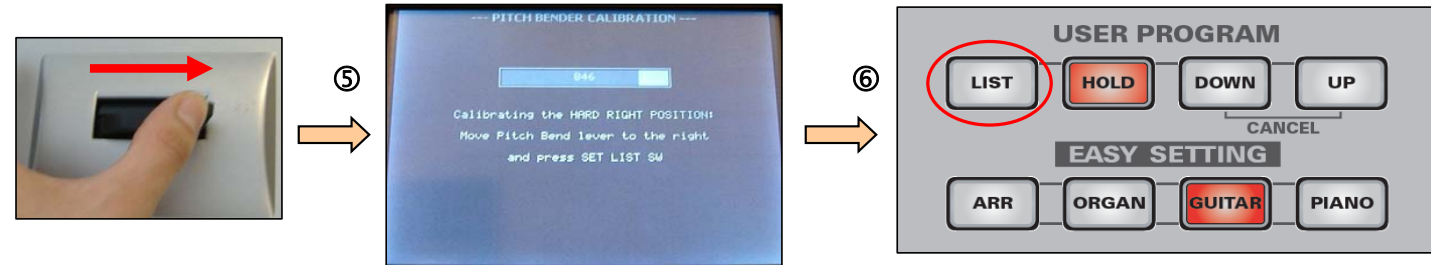
- ① Leave the Pitch Bender lever in the rest position (the bar on the LCD should be coloured in red for about its half)
- ② Press the LIST button (USER PROGRAM section) on the E-50.



- ③ Keep the lever of the Pitch Bender all to the left, without forcing it, (the bar on the LCD should be almost completely white)
- ④ Press the LIST button on the E-50



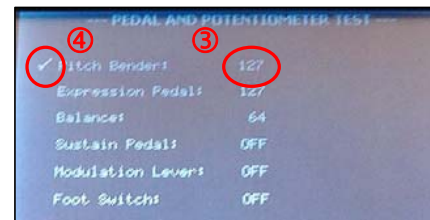
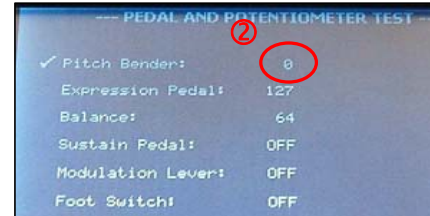
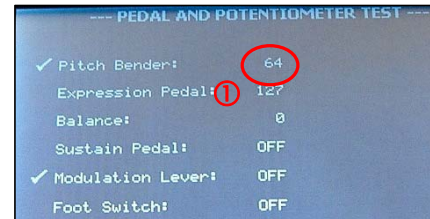
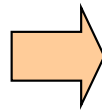
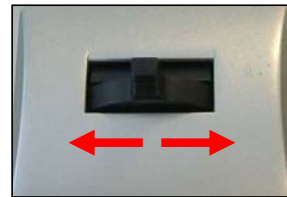
- ⑤ Keep the lever of the Pitch Bender all to the right, without forcing it, (the bar on the LCD should be almost completely red)
- ⑥ Press the LIST button on the E-50



Pedal and Potentiometer Check

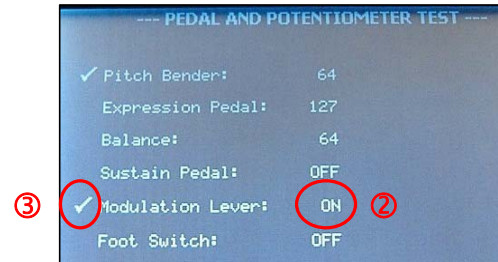
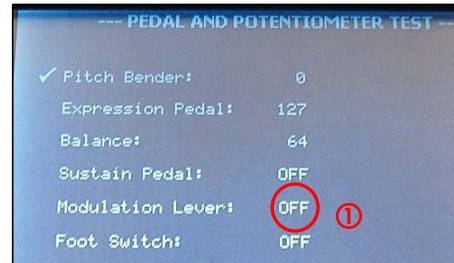
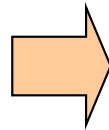
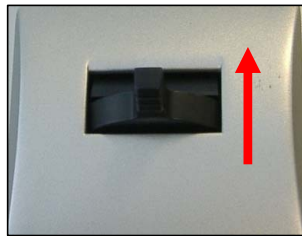
1.10.1 PITCH BENDER Check

- ① With the PITCH BENDER lever released, check that the display shows the value 64 (near the writing Pitch Bender:)
- ② Move the lever all to the left: check that the display shows the value 0
- ③ Move the lever all to the right: check that the display shows the value 127
- ④ If all the tests were carried out correctly, the display will show a “marking” symbol.



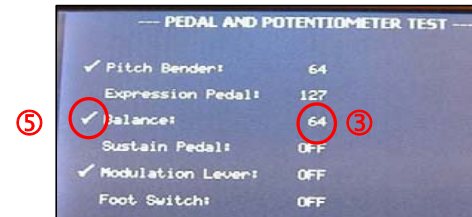
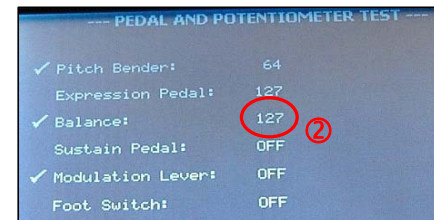
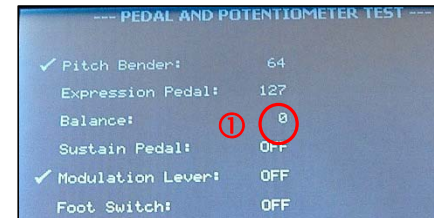
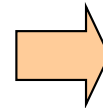
1.10.2 MODULATION Check

- ① With the MODULATION lever released, check that the display shows the value 0 (near the writing Modulation Lever:)
- ② Move the lever all up: check that the display shows the value 127.
- ③ If all the tests were carried out correctly, the display will show a “marking” symbol.



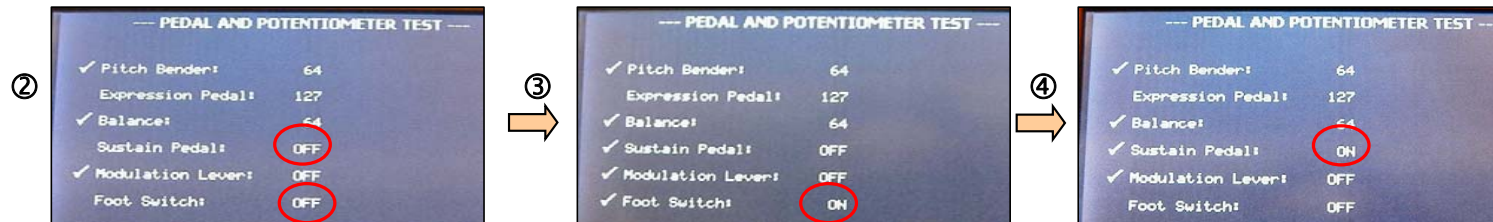
1.10.3 BALANCE potentiometer check

- ① Turn the BALANCE potentiometer all to the left (ACCOMP) and check that the display shows the value 0 (near the writing Balance:)
- ② Turn the BALANCE potentiometer all to the right (KEYBOARD) and check that the display shows the value 127
- ③ Bring the BALANCE potentiometer to the central position and check that the display shows the value 64
- ④ During the test check that the potentiometer runs smoothly and in particular make sure that it “clicks” in its central position.
- ⑤ If all the tests were carried out correctly, the display will show a “marking” symbol.



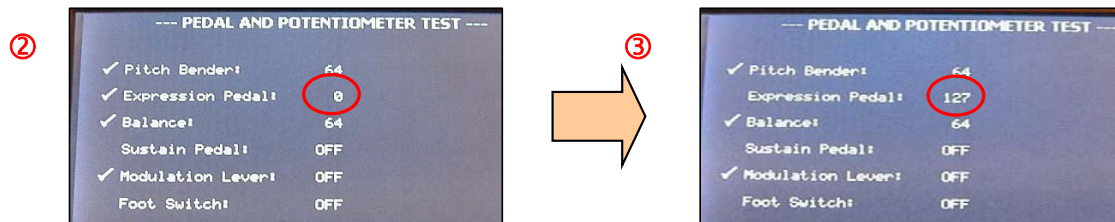
1.10.4 FOOTSWITCH and HOLD pedal sockets Check

- ① Connect the two switch pedals (i.e. DP-8) on the Foot Switch/Expression and Hold sockets.
- ② Check that the display of the E-50 shows the writing OFF near the writings Sustain Pedal and Foot Switch
- ③ Press the SWITCH PEDAL relative to the Foot Switch/Expression and check that the display shows ON near the writing Foot Switch
- ④ Press the SWITCH PEDALS relative to the Hold socket and check that the display shows ON near the writing Sustain Pedal
- ⑤ If all the tests were carried out correctly, the display will show two “marking” symbols.



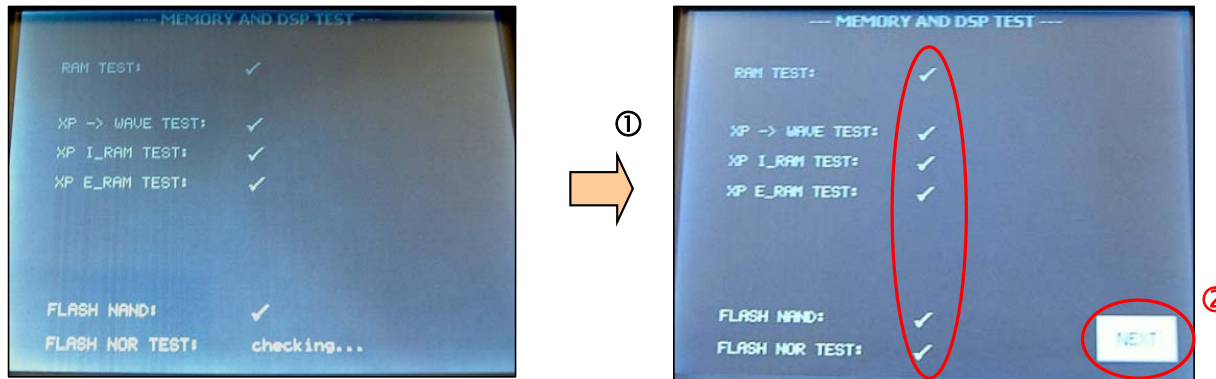
1.10.5 EXPRESSION pedal socket Check

- ① Connect the Expression Pedal (i.e. EV-5) FOOTSWITCH/EXPRESSION socket
- ② With the pedal position at the minimum the display must show 0 (near the writing Expression Pedal)
- ③ With the pedal position at the maximum make sure that the display shows the value 127.
- ④ If all the tests were carried out correctly, the display will show a “marking” symbol.



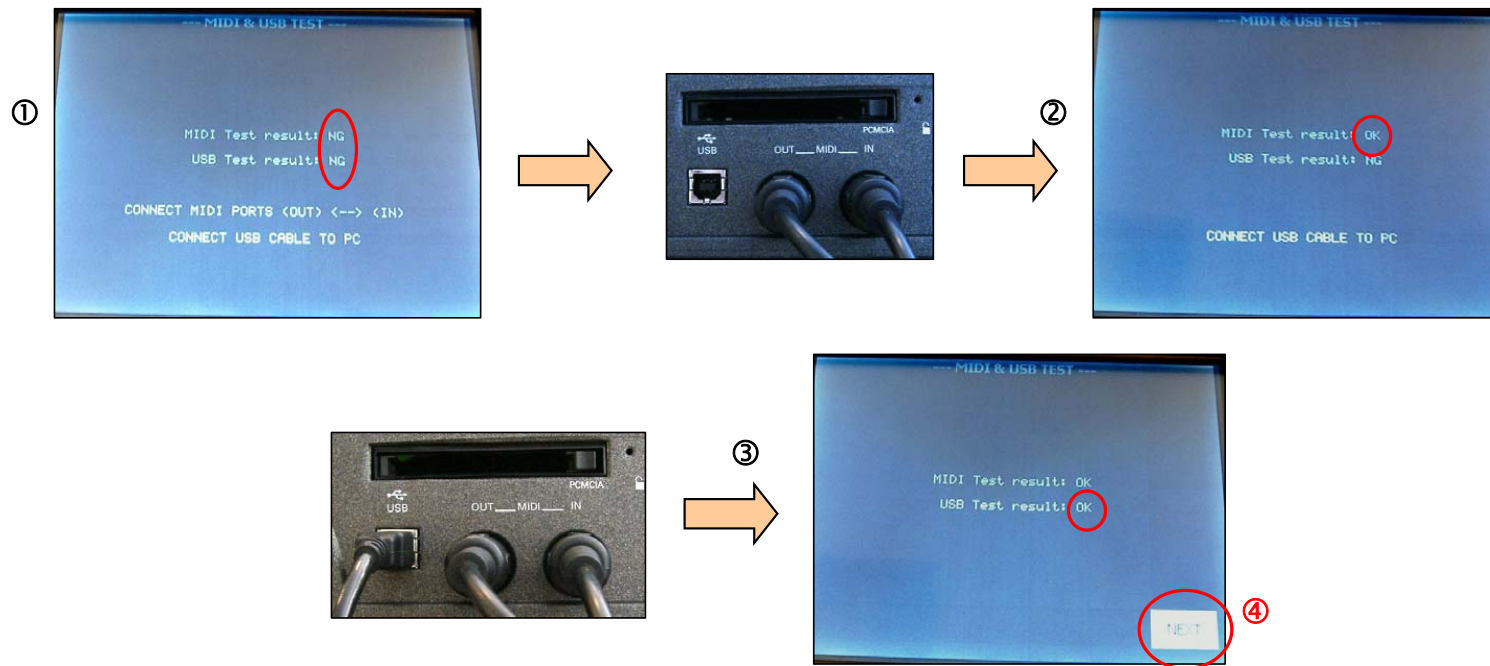
1.11 Memory and DSP Check

- ① Wait for all the tests to be carried out and check that they were all concluded successfully (a “marking” symbol is shown for each test).
- ② At the end of the tests, touch the icon NEXT, to pass to the next test.



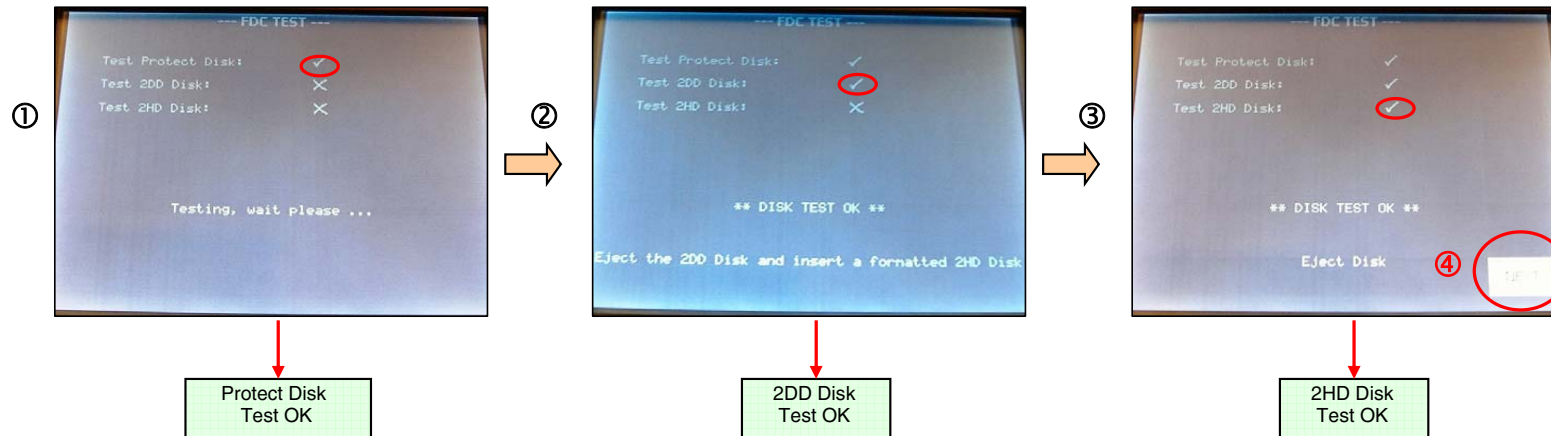
1.12 MIDI and USB sockets Check

- ① Without MIDI and USB connections, check that the display shows NG near the writings MIDI Test result and USB Test result
- ② Using a MIDI cable, connect the MIDI IN with the MIDI OUT of the E-50: check that the display shows OK near the writing MIDI Test result
- ③ Connect the USB cable, coming from the PC, with the USB socket of the E-50: check that the display shows OK near the writing USB Test result
- ④ At the end of the tests, touch the icon NEXT, to pass to the next test.



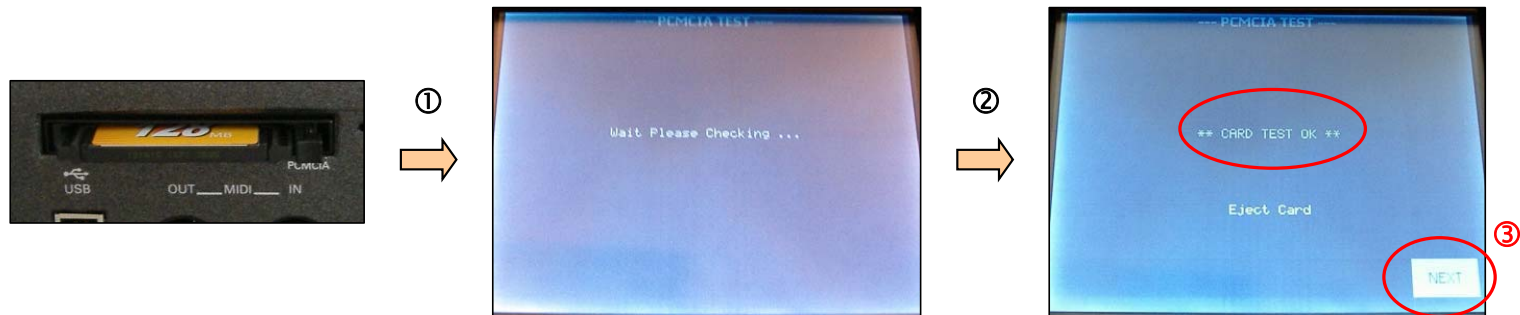
1.13 FLOPPY DISK Driver Check

- ① Insert a protected disk and check that the display shows a “marking” symbol near the writing Test Protect Disk
- ② Insert a DD disk and check that the display shows a “marking” symbol near the writing Test 2DD Disk
- ③ Insert a DD disk and check that the display shows a “marking” symbol near the writing Test 2HD Disk
- ④ At the end of the tests, touch the icon NEXT, to pass to the next test.



1.14 PCMCIA slot Check

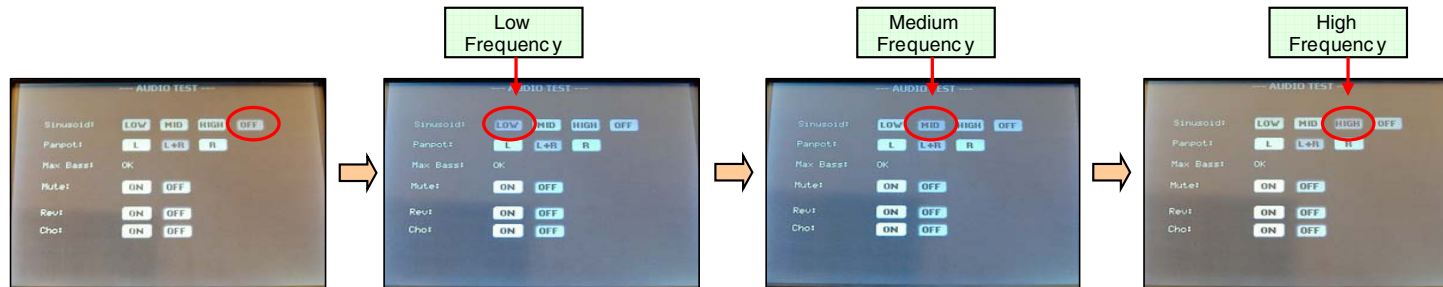
- ① Insert the Card PCMCIA Card for the test
- ② Wait for the result (about 30 seconds) and then check that the display shows the message CARD TEST OK
- ③ At the end of the test, remove the Card and touch the icon NEXT, to pass to the next test.



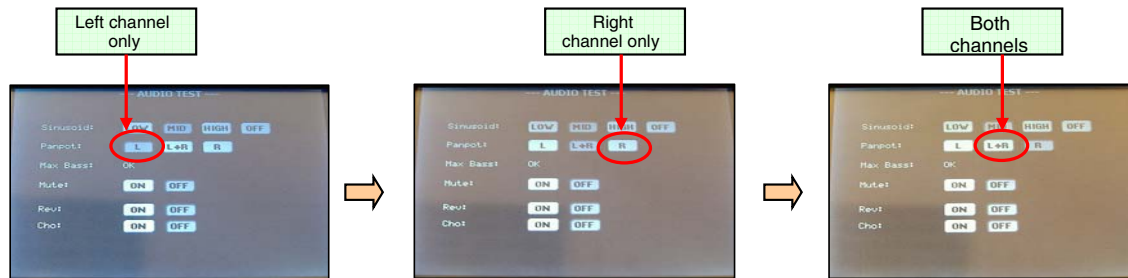
1.15 Audio Checks and Measurements

1.15.1 Audio Check on the Speakers

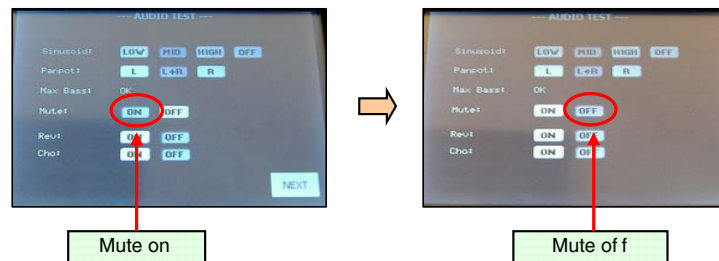
- ① With the VOLUME potentiometer at maximum, check that no noises or bruises can be hear from the speakers
- ② Press the icons LOW, MID, HIGH to listen to the notes with different frequencies from the four speakers; at the end press the icon MID



- ③ Press the icons L, R to chekc the separation of the two channels (2 left or right speakers); at the end press the icons L+R



- ④ Activating/disactivating the MUTE (press the icons ON and OFF), check that the sound is immediately cancelled and then returns after 1-2 seconds respect.ly



- ⑤ Leave the MUTE in the OFF position.

1.15.2 Max Bass and Effects Check

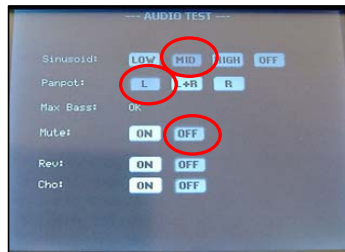
- ① Check that the Max Bass check has been carried out successfully (OK); in cas of error NG will appear
- ② Press the icon ON, first in the Rev section then in the Cho section, to listen to the Reverb and Chorus effects; check the presence of the effect and the quality of the sound.



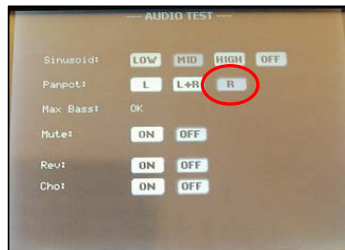
- ③ At the end put both effects in the OFF position again.
- ④ Make sure that with the VOLUME potentiometer at minimum the sound completely disappears.

1.15.3 OUTPUT exits Measurements

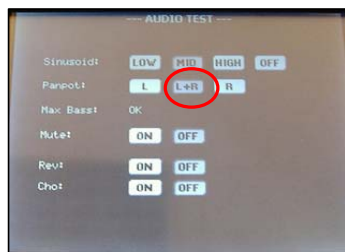
- ① Connect the (L/R) OUTPUT exits with an external amplified instrument.
- ② Press the icons MID and L (the MUTE must be OFF)



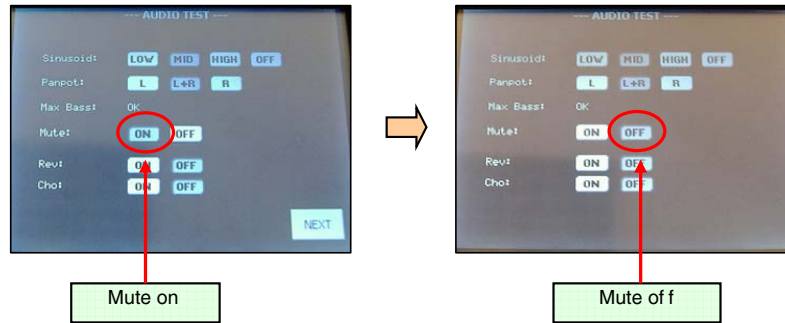
- ③ Check that the sound is clean and comes from the LEFT loudspeaker of the external amplified instrument only.
- ④ Press the icon R



- ⑤ Check that the sound is clean and comes from the RIGHT loudspeaker of the external amplified instrument only.
- ⑥ Press the icon L+R

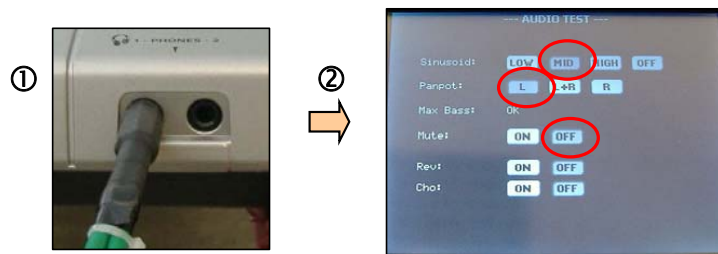


- ① ① Check that the sound is clean and comes from both the loudspeakers of the external amplified instrument.
- ① ① Activating/disactivating the MUTE (press the icons ON and OFF), check that the sound is immediately cancelled and then returns after 1-2 seconds respectively.

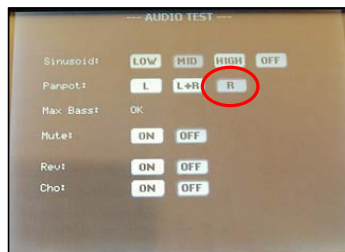


1.15.4 Measurement of the PHONES exits

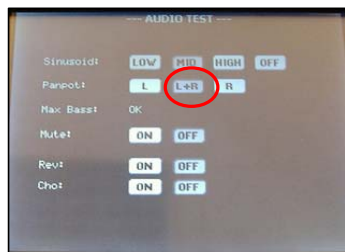
- ① Connect the headphones with the PHONES 1 exit of the E-50
- ② Press the icons MID and L (the MUTE must be OFF)



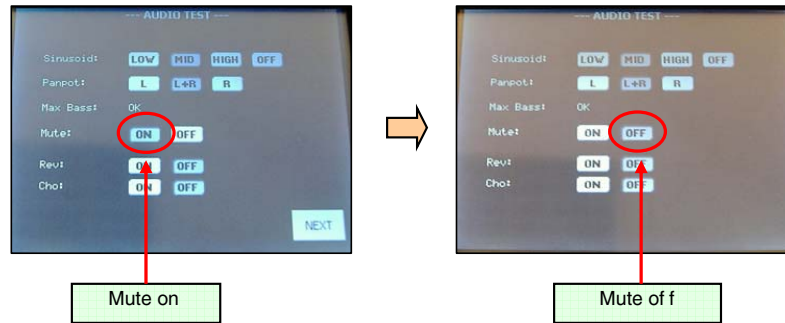
- ③ Check that the sound is clean and comes from the LEFT loudspeaker of the headphones only.
- ④ Press the icon R



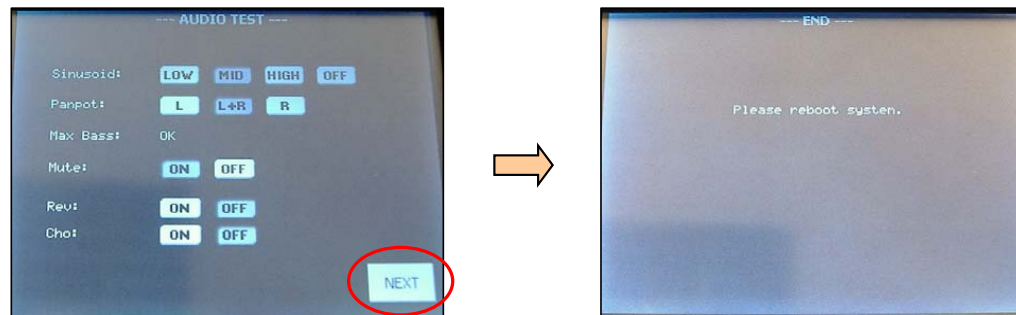
- ⑤ Check that the sound is clean and comes from the RIGHT loudspeaker of the headphones only.
- ⑥ Press the icons L+R



- ⑦ Check that the sound is clean and comes from both the loudspeakers of the headphones.
- ⑧ Activating/disactivating the MUTE (press the icons ON and OFF), check that the sound is immediately cancelled and then returns after 1-2 seconds respectively.

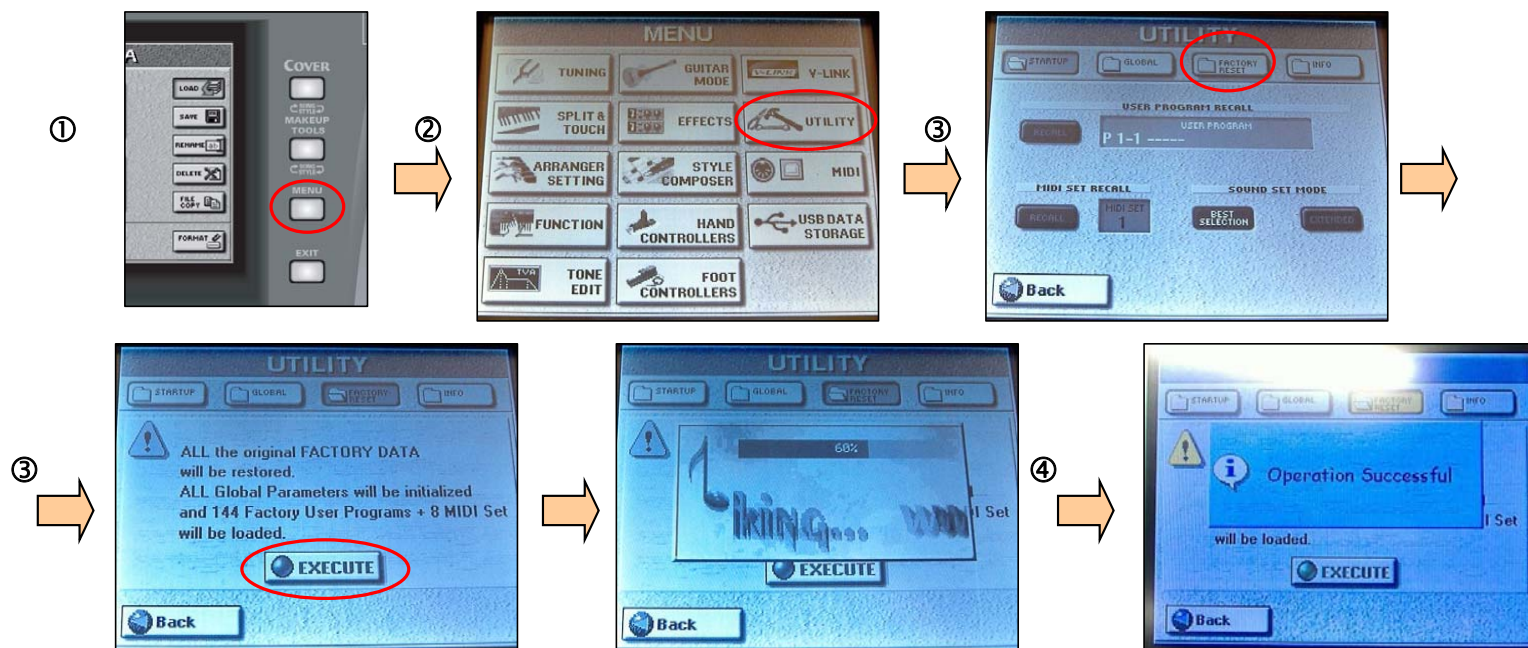


- ⑨ Repeat the above tests by connecting the headphones to the PHONES 2 socket of the E-50.
- ①① Press the icon NEXT
- ①① The Test Mode is now completed.



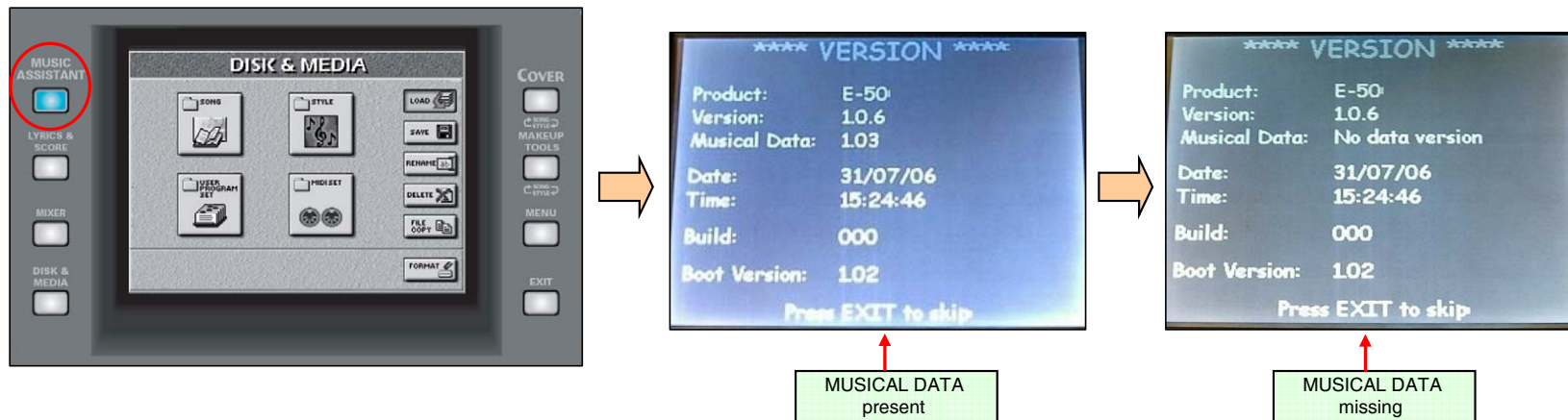
2. FACTORY RESET

- ① Turn on the instrument, wait for the initialization of the E-50, press the MENU button
- ② Select the UTILITY icon on the right side of the display
- ③ Select the FACTORY RESET icon on the top of the display, then select the icon EXECUTE: the Factory Reset will start
- ④ At the end of this operation (100%) a video must appear that confirms the operation has been successful
- ⑤ Check that the test has had a positive outcome
- ⑥ Press the EXIT button



3. CHECK OF THE VERSIONS

- ① Turn on the instrument with the MUSIC ASSISTANT button pressed.
- ② After the initialization, a video will appear with the information of the versions
- ③ Check that the versions are all present; if the version of the Musical Data does not appear, it means that the loading of the musical data was not carried out.



4. Operative system and musical data Update

The goal of this document is to clarify the various update modes of the data and of the operative system of the E-50.

The operative system and boot program are included in the 64 Mbit Nor Flash IC2 TC58FVM6B5BTG65.

The musical data are stored in the 128 Mbit Nand Flash IC73 TC58DVM92A1TG00BBH.

The Nand flash, through a Disk Operative System, is treated like a virtual drive. Before being used it must be formatted like a normal drive.

The format also creates the directory structure needed for the functioning of the E-50.

The data (user program, built-in styles, songs, etc.) are stored into the instrument in files.

The data structure is made by the following directories:

- | | |
|-------------------------------|---|
| - Chain | contains the files for the Play List |
| - Db | contains the files of the database |
| - Demo | contains the files of the demo |
| - Midiset | contains the files of the Midi Set |
| - Put New MusicAssistant Here | to import new Music Assistant |
| - Put New Styles Here | to import new Styles |
| - Put New Song Here | to import new Songs |
| - Put New UserPrograms Here | to import new User Programs |
| - ROMStyle | contains the factory styles (built-in styles) |
| - Song | contains the user songs |
| - Style | contains the user styles |
| - Text | contains the text files (.TXT) and the image files (.BMP) |
| - Update | to update the operative system of the instrument |
| - Userprg | Contains the User Program files |

It is possible to access this structure by connecting the E-50 to a PC fitted with Win98ME, Win2000/XP, MAC, by means of a USB cable:

- Connect the E-50 to a PC by means of a USB cable.
- Press the "MENU" switch on the panel
- Press the button "USB DATA STORAGE" on the display
- Press the button "INTERNAL MEMORY" on the display
- A virtual drive will be added (E50_SSD) on computer resources.
- Click 2 times on the icon of the drive will make the internal structure of the E-50 appear.

Musical Data Update

There are 2 ways to update the data into the E-50.

Mode 1: by means of a Card.

- It is made by means of a Card (compact flash, smart media, memory stick ...) of at least 64 Mbyte and a PCMCIA adaptor for that card.

Mode 2: by means of a USB connection.

- It is made by means of a connection USB PC => E-50.

ATTENTION!!! The data update entails the loss of the personal data included in the E-50.

Mode 1 – Updating of musical data by means of a card :

1. Format a card with a E-50
 - Turn on the instrument.
 - Insert one Card (min. 64MB) by means of the relative PCMCIA adaptor into the PCMCIA slot of the E-50.
 - Press the switch “DISK & MEDIA” on the display.
 - Press the button “FORMAT” on the display.
 - Press the button “EXTERNAL MEMORY” on the display. Wait until the formatting is completed.
2. Copy the musical data into the Card
 - Insert the card into a PC by means of the relative PCMCIA adaptor.
 - Decompress the files contained in the zip. update file (E50_Factory_Data_Vxxx.zip) in a temporary file of the PC called for instance “E-50”.
 - Open the file previously created in the PC called “E-50” containing the data.
 - Copy, by selecting and moving all the files of the PC into the card.

ATTENTION! before removing the card, disconnect the drive of the card from the PC by performing a proper function.
THE FAILURE TO DISCONNECT MAY CAUSE THE COPY OF THE FILES TO BE INCOMPLETE.

3. Update of the built-in data.
 - Insert the card with the PCMCIA adaptor into the PCMCIA slot of the E-50.
 - Turn on the instrument by holding the “SONG” “STYLE”, “USER PRG” switches of the FINDER section on the panel.
 - Wait for the instrument to enter into the “UPDATE ALL” video.
 - Press the switch “DISCO DANCE” on the STYLE section.

The instrument will perform the following operations:

- Format of the built-in memory.
- Copy of all the files from the CARD into the built-in memory.
- Factory Reset by loading the User Program Set and MIDI Set.

The operation will be complete once the E-50 will display the following messages:

“Copy Successful” “Factory Reset Done”

- After the display of the message “Power Off and Power On again” turn the instrument off.

Mode 2 – Musical data update by means of the USB :

1. Format the built-in memory of the E-50
 - Turn on the instrument.
 - Press the switch “DISK & MEDIA” on the display.
 - Press the button “FORMAT” on the display.
 - Press the button “EXTERNAL MEMORY” on the display. Wait until the formatting is completed.

2. Copy the musical data into the built-in memory
 - Connect the E-50 to the PC by means of a USB cable.
 - Press the switch MENU on the panel.
 - Press the button “USB DATA STORAGE” on the display.
 - Press the button “INTERNAL MEMORY” on the display. A new virtual drive “E50_SSD” will be added on the computer resources.
 - Decompress the files container in the data update zip (E50_Factory_Data_Vxxx.zip) into a temporary file of the PC called for instance “E-50”.
 - Open the file previously created in the PC called “E-50” containing the data.
 - Copy, by selecting and moving all the files of the PC into the new virtual drive “E50_SSD”.
 - **ATTENTION!** before removing the USB cable and turning the instrument off, disconnect the virtual drive “E50_SSD” from the PC by means of a proper function.
THE FAILURE TO DISCONNECT MAY CAUSE THE COPY OF THE FILES TO BE INCOMPLETE.

3. Carry out the Factory Reset
 - Turn on the instrument.
 - Press the switch MENU on the panel.
 - Press the button “UTILITY on the display
 - Press the button “FACTORY RESET” on the display
 - Press the button “EXECUTE” on the display and wait until the operation is completed.

Update of the operative system

There are 3 ways to update the Operative System of the E-50.

Mode 1: By means of a Card.

- It is made by means of a Card (compact flash, smart media, memory stick ...) of at least 64 Mbytes and a PCMCIA adaptor for that card.

Mode 2: By means of a USB connection.

- It is made by means of a connection USB PC => E-50.

Mode 1 – Update of the Operative System by means of a card :

1. Format a card with a E-50
 - Turn on the instrument.
 - Insert one Card (min. 64MB) by means of the relative PCMCIA adaptor into the PCMCIA slot of the E-50.
 - Press the switch “DISK & MEDIA” on the display.
 - Press the button “FORMAT” on the display.
 - Press the button “EXTERNAL MEMORY” on the display. Wait until the formatting is completed.

2. Copy the operative system into the “UPDATE” directory of the Card
 - Insert the card into a PC with the relative adaptor.
 - Delete a possible previous operative system from the “UPDATE” directory of the card.
 - Decompress the files container in the zip updating file (E50_Vxxx.zip), into a temporary card of the PC.
 - Open the file previously created in the PC containing the operating system.
 - Copy, by selecting and moving the .sys file (E50_VER_x_x_x. .sys) of the operative system from the PC into the “UPDATE” directory of the Card.

ATTENTION! before removing the card, disconnect the drive of the card from the PC by means of a proper function.
THE FAILURE TO DISCONNECT MAY CAUSE THE COPY OF THE FILES TO BE INCOMPLETE.

3. Update of the operative system.
 - Insert the card into the PCMCIA slot of the E-50 by means of an adaptor.
 - Turn on the instrument by holding the “DISK & MEDIA” switch on the panel.
 - Wait until the instrument shows the “SYSTEM UPDATE” video.
 - Press the “8BEAT 16BEAT” switch on the panel, STYLE section.
 - The E-50 will carry out a deep check of the system, if the file will turn out to be correct, it will start the update phase.
A progression bar will show the status of the updating.

4. Carry out the Factory Reset
 - Turn on the instrument.
 - Press the “MENU” switch on the panel.
 - Press the “UTILITY” button on the display.
 - Press the “FACTORY RESET” button on the display.
 - Press the “EXECUTE” button on the display and wait until the operation is completed.

Mode 2 – Operative System Update by means of a USB :

1. Copy the operative system into the “UPDATE” directory of the built-in memory
 - Connect the E-50 to the PC by means of a USB cable.
 - Press the “MENU” switch on the panel.
 - Press the “USB DATA STORAGE” button on the display.

- Press the "INTERNAL MEMORY" button on the display, a new virtual drive "E50_SSD" will be added on the computer resources.
- Copy all the files of the "E50_SSD" virtual drive (except for the file UPDATE) into a temporary file of the PC, called for instance "E50".
- Delete all the files of the "E50_SSD" virtual drive (except for the file UPDATE).

- Delete a possible previous operative system from the "UPDATE" directory of the built-in memory.
- Decompress the files container in the zip updating file (E50_Vxxx.zip), into a temporary card of the PC.
- Open the file previously created in the PC containing the operating system.
- Copy, by selecting and moving the .sys file (E50_VER_x_x_x. .sys) of the operative system from the PC into the "UPDATE" directory of the built-in memory.

ATTENTION! before removing the USB cable and turning the instrument off, disconnect the virtual drive from the PC by means of a proper function.
THE FAILURE TO DISCONNECT MAY CAUSE THE COPY OF THE FILES TO BE INCOMPLETE.

2. Update of the operative system.
 - Turn on the instrument by holding the switch "DISK & MEDIA" on the panel.
 - Wait until the instrument shows the "SYSTEM UPDATE" video.
 - Press the "8BEAT 16BEAT" switch on the panel, STYLE section.
 - The E-50 will carry out a deep check of the system, if the file will turn out to be correct, it will start the update phase.
A progression bar will show the status of the updating.

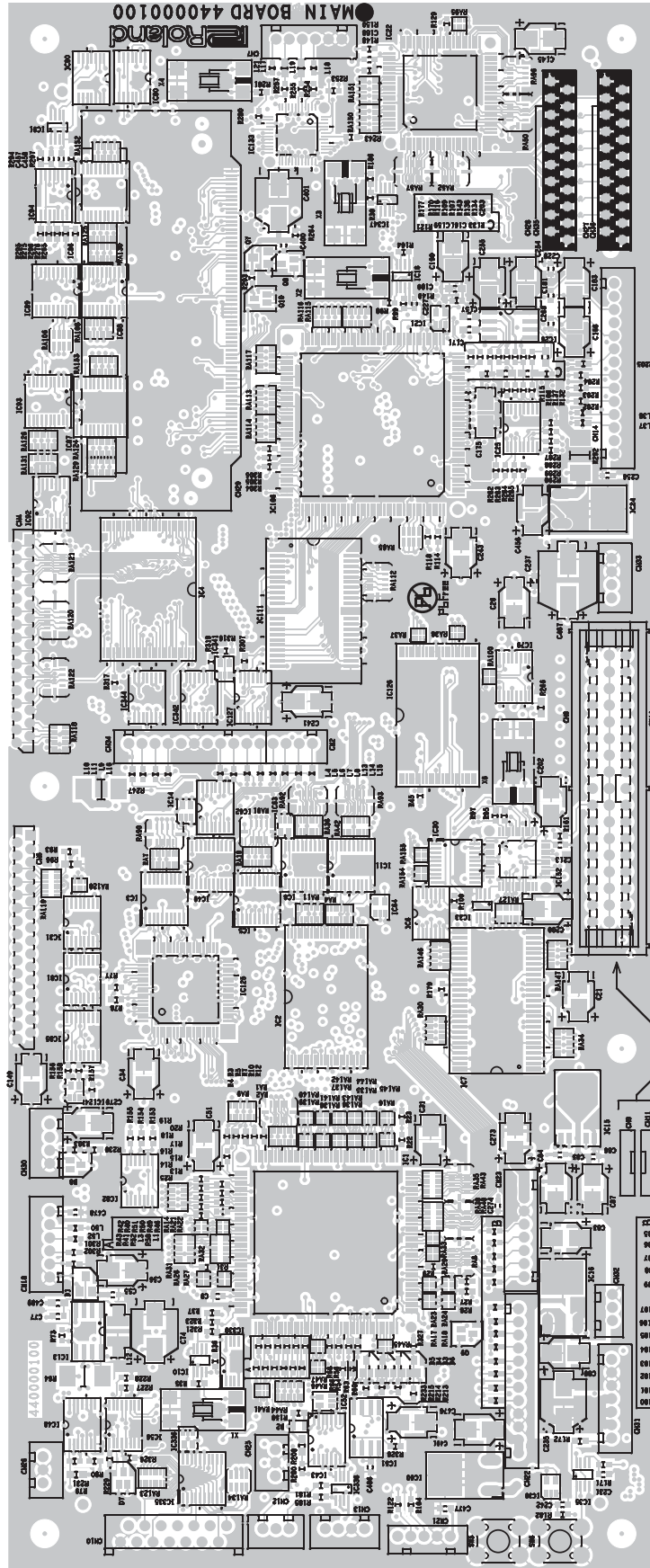
3. Carry out the Factory Reset
 - Turn on the instrument.
 - Press the "MENU" switch on the panel.
 - Press the "UTILITY" button on the display.
 - Press the "FACTORY RESET" button on the display.
 - Press the "EXECUTE" button on the display and wait until the operation is completed.

Then:

- Connect the E-50 to the PC by means of a USB cable.
- Press the "MENU" switch on the panel.
- Press the "USB DATA STORAGE" button on the display.
- Press the "INTERNAL MEMORY" button on the display, a new virtual drive "E50_SSD" will be added on the computer resources.
- Copy all the files previously copied into the temporary file of the PC, called for instance "E50", into the "E50_SSD" virtual drive.

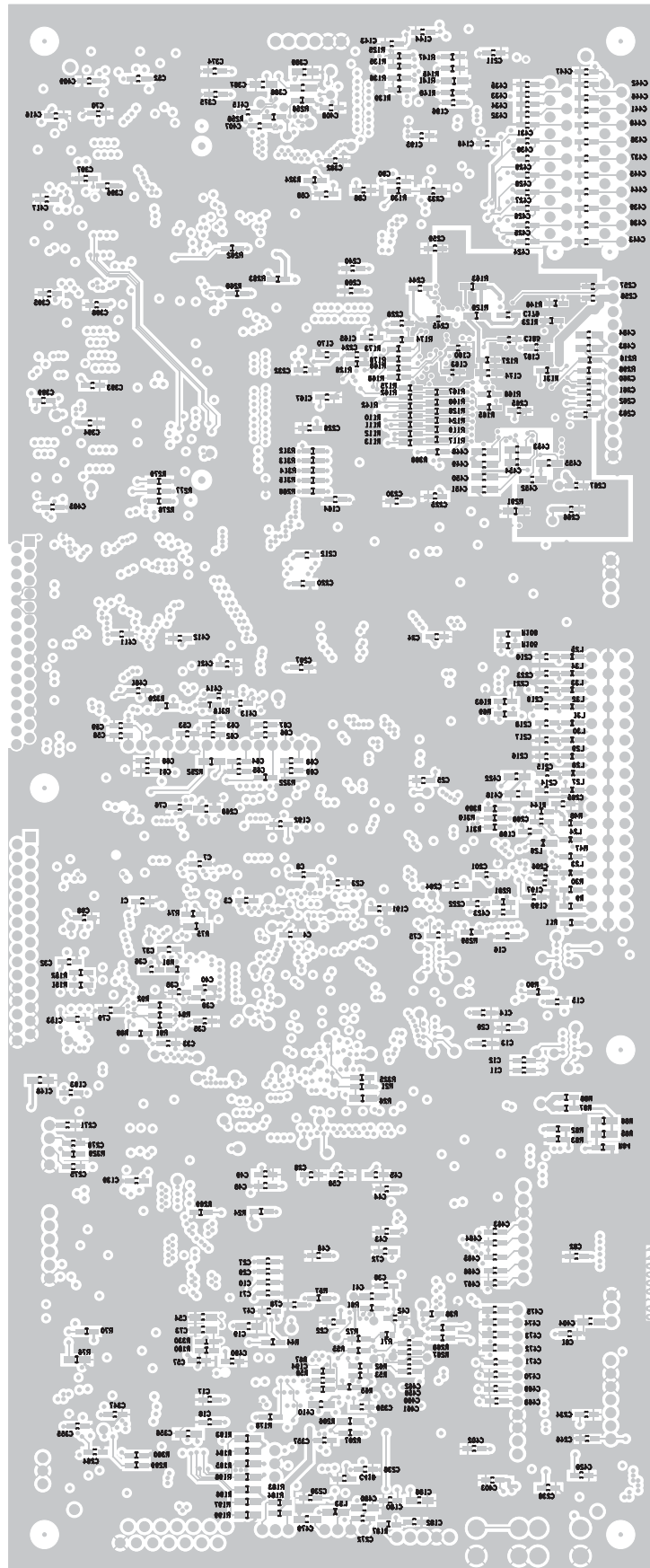
ATTENTION! before removing the USB cable and turning the instrument off, disconnect the virtual drive from the PC by means of a proper function.
THE FAILURE TO DISCONNECT MAY CAUSE THE COPY OF THE FILES TO BE INCOMPLETE.

CIRCUIT BOARD ASSY (MAIN)



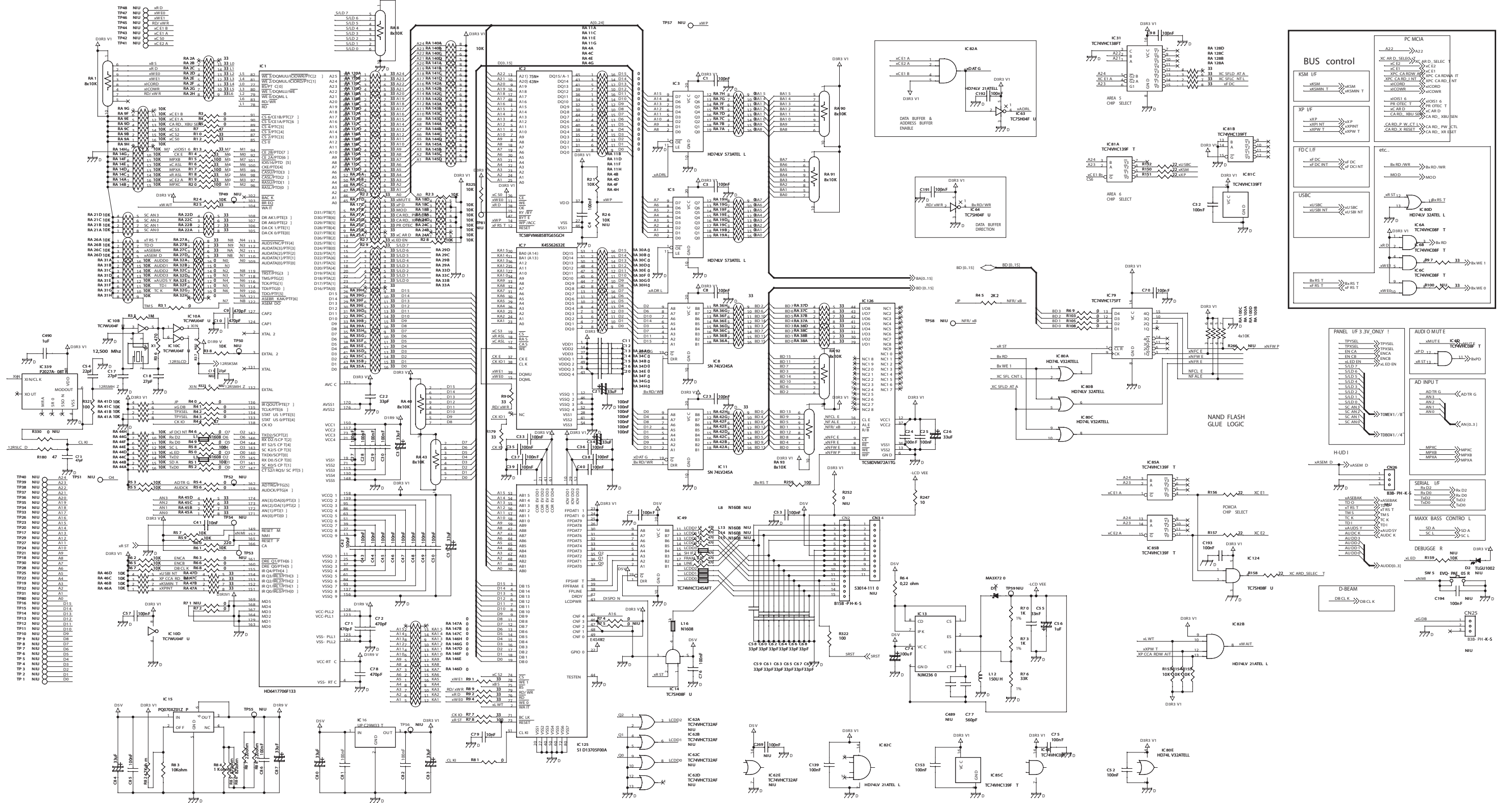
View from component side

CIRCUIT BOARD (MAIN)

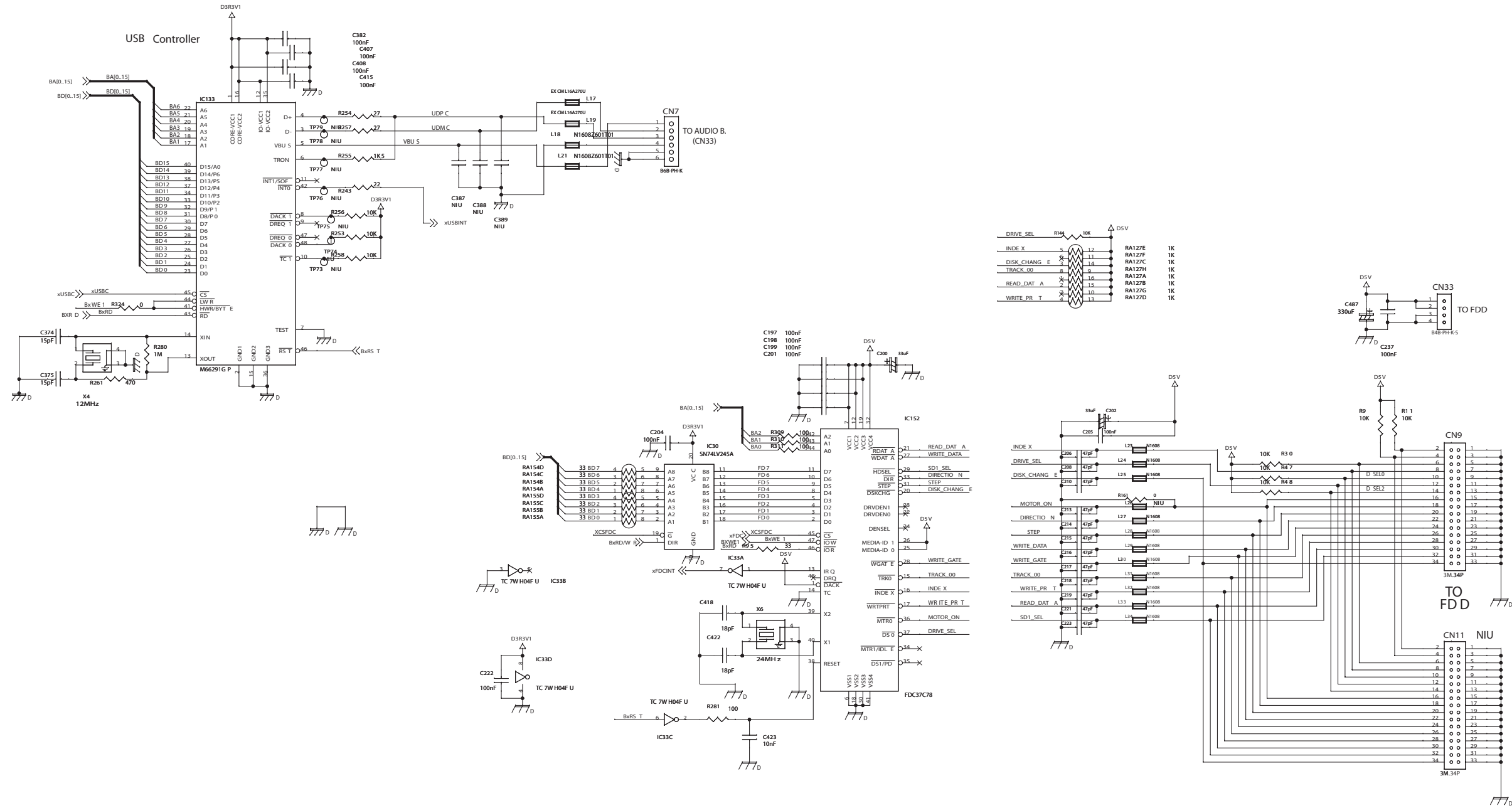


View from solder side

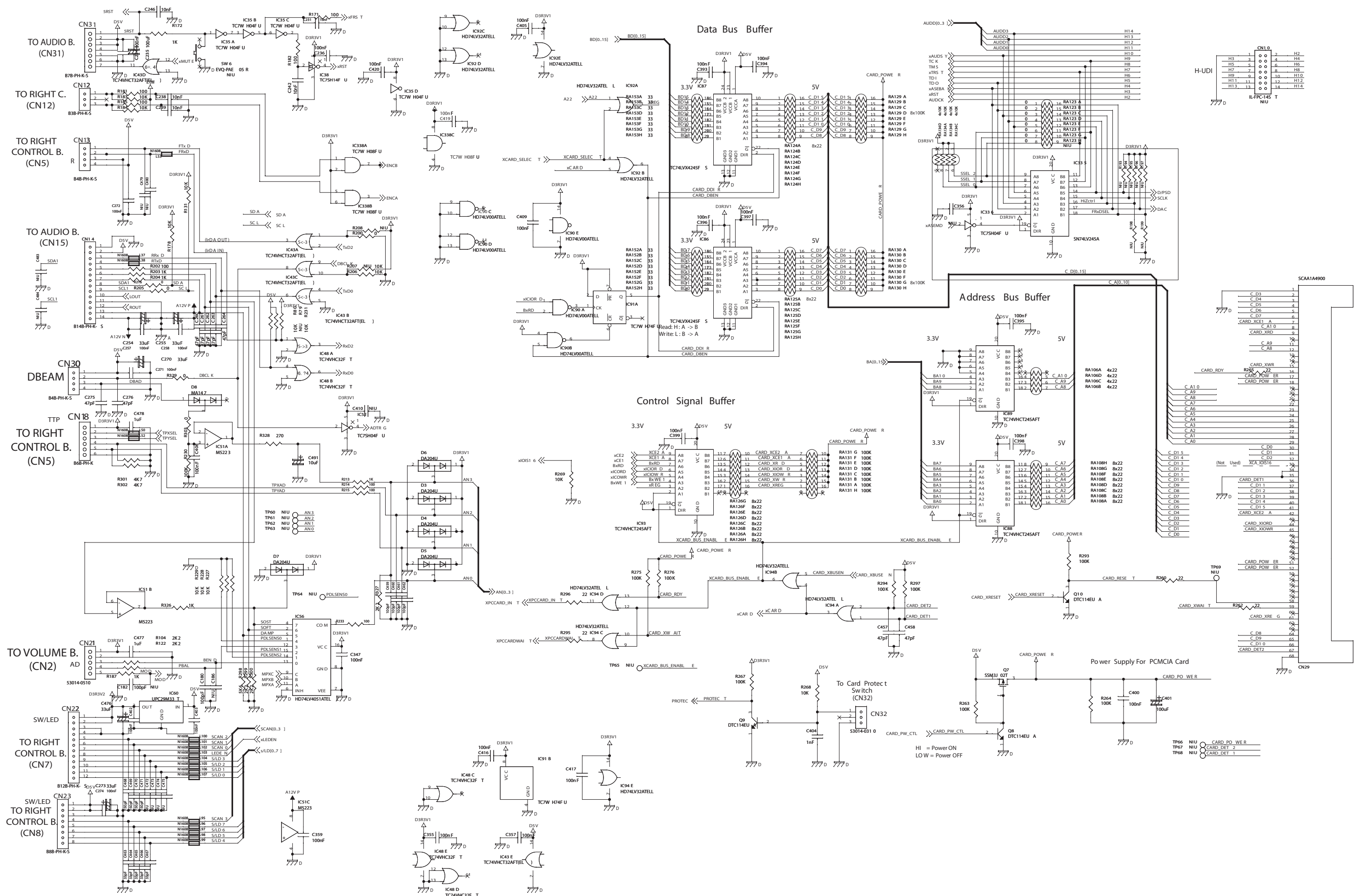
CIRCUIT DIAGRAM (MAIN 1/4)



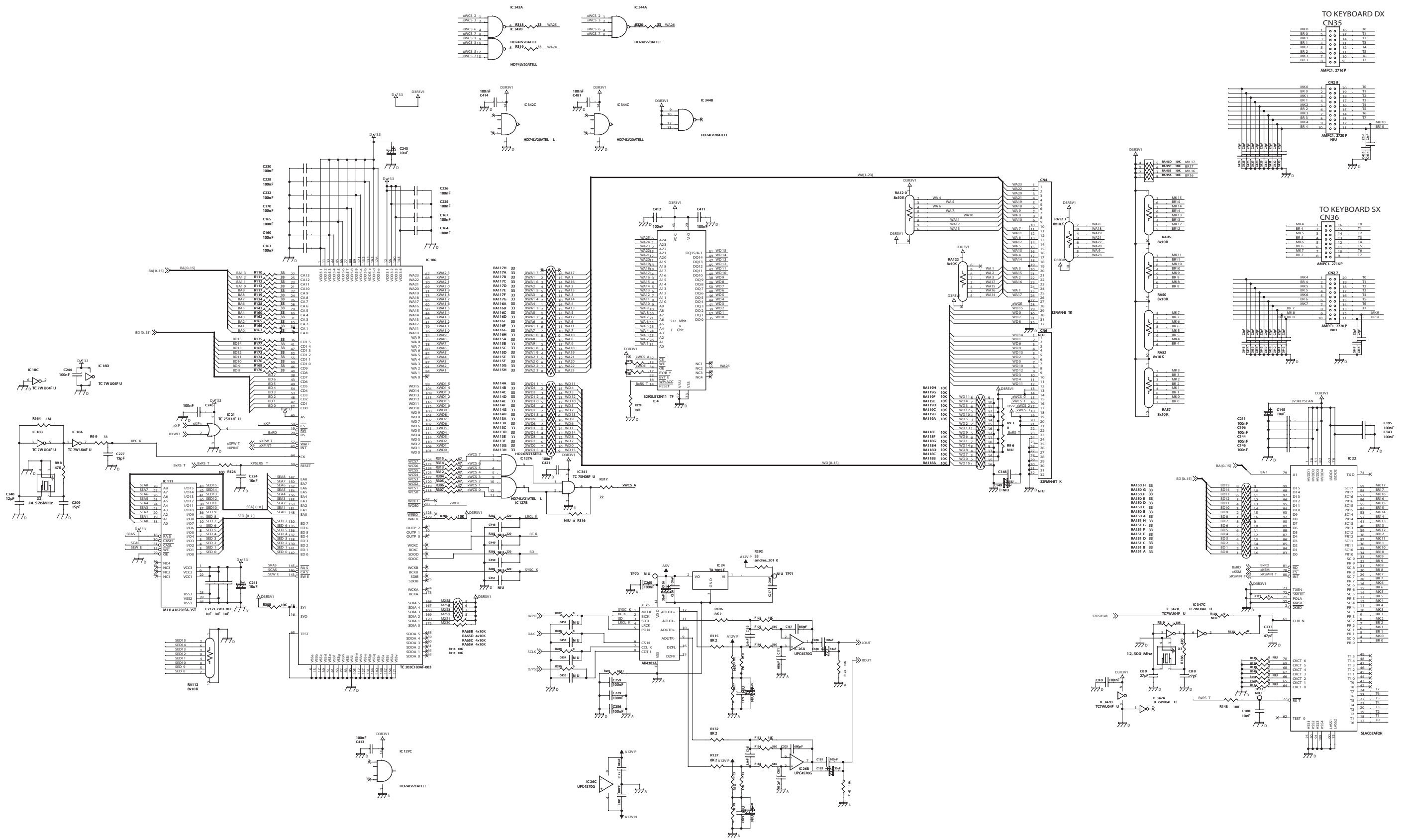
CIRCUIT DIAGRAM (MAIN 2/4)



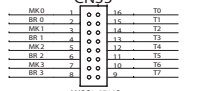
CIRCUIT DIAGRAM (MAIN 3/4)



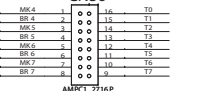
CIRCUIT DIAGRAM (MAIN 4/4)

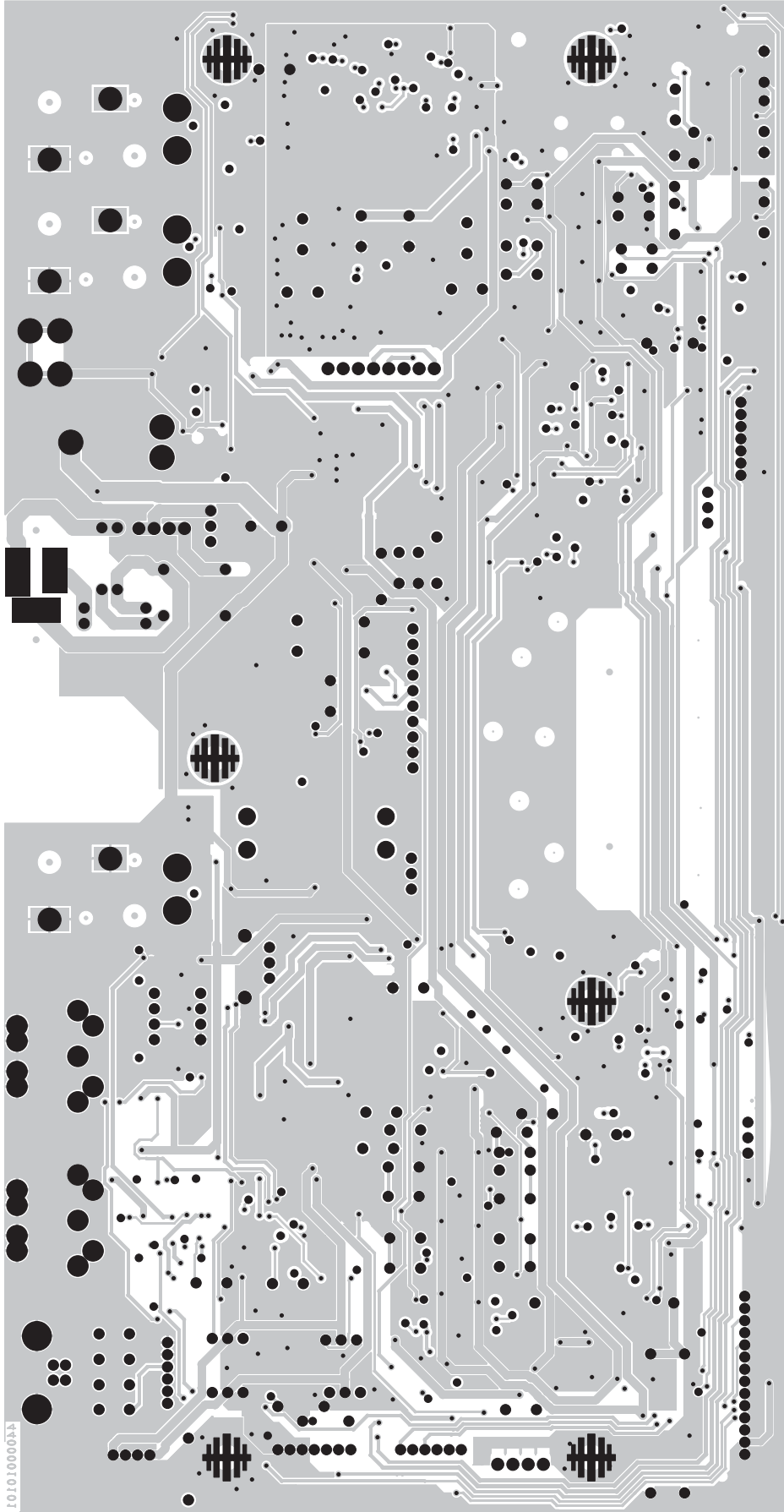


TO KEYBOARD DX



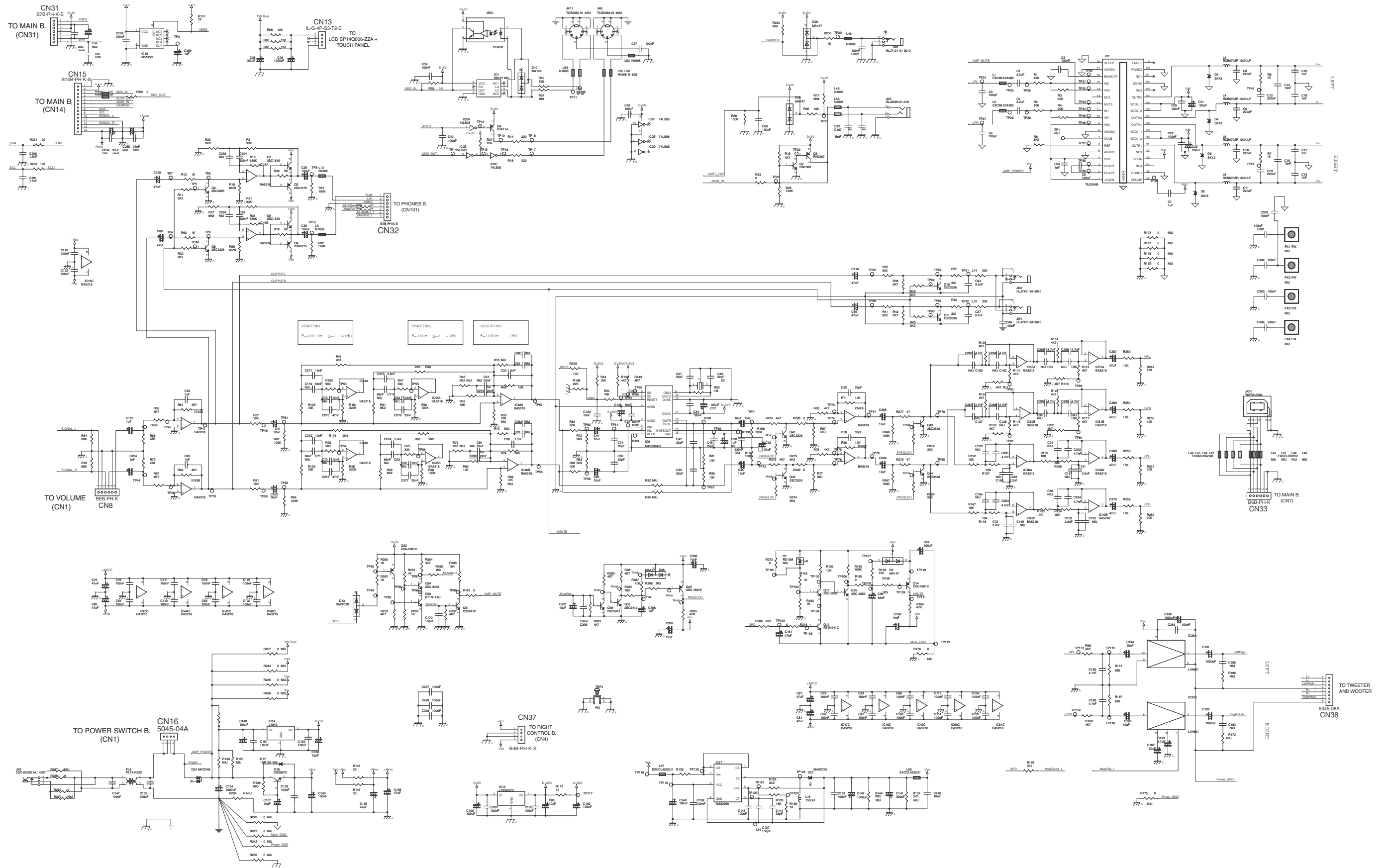
TO KEYBOARD SX



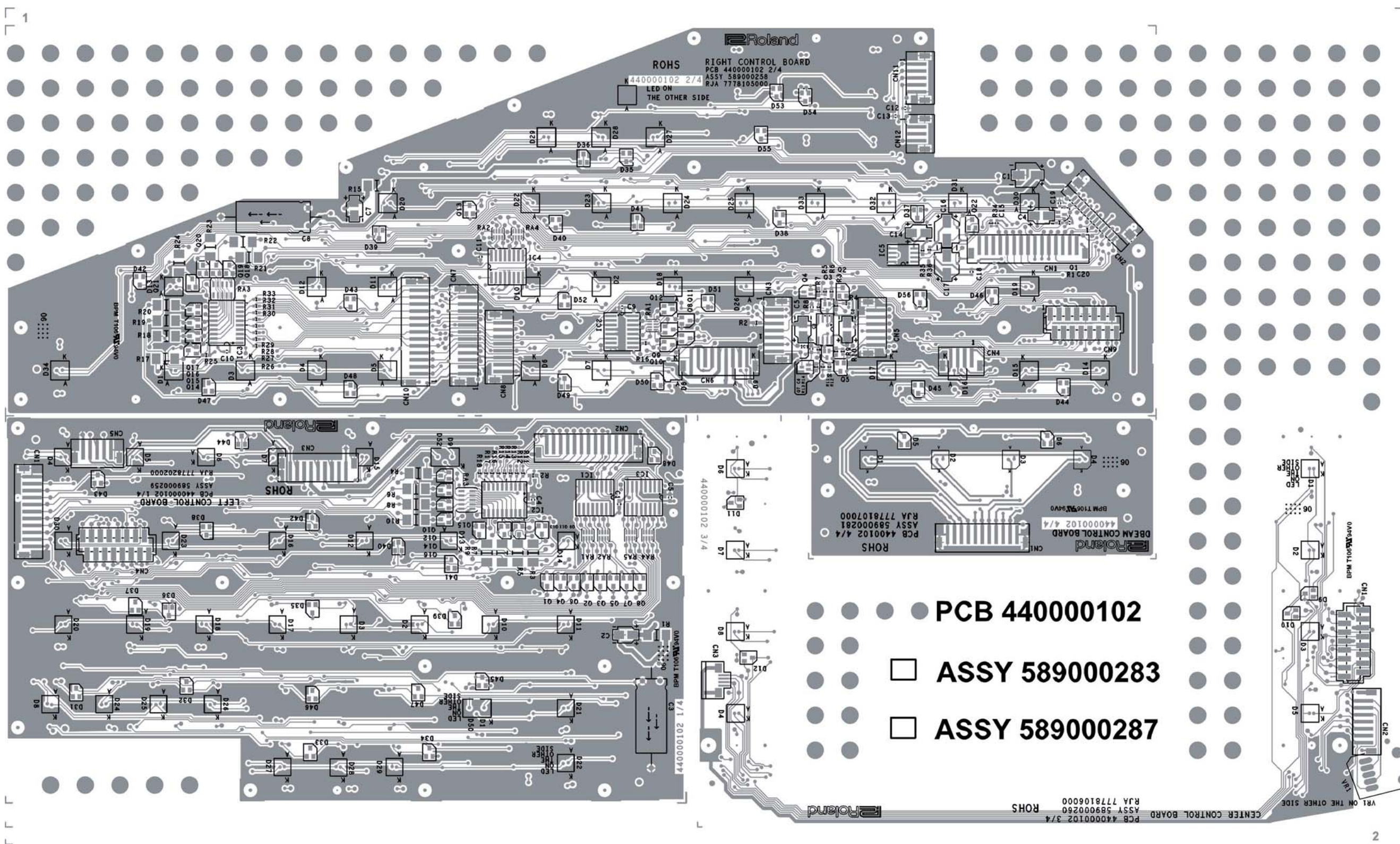


View from solder side

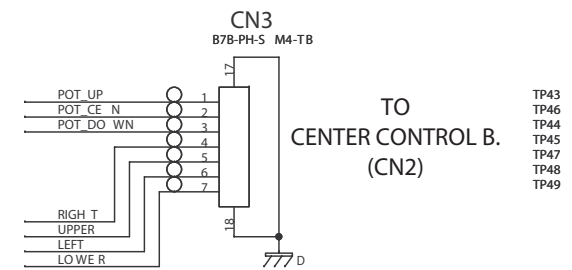
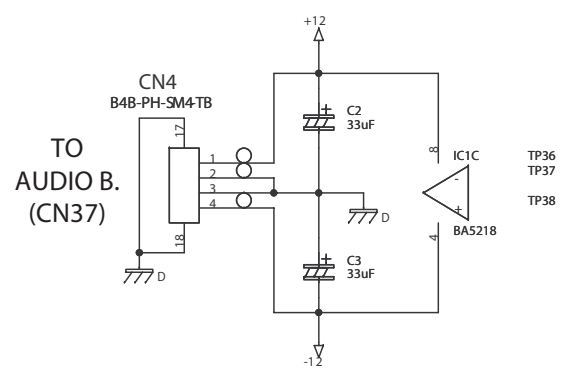
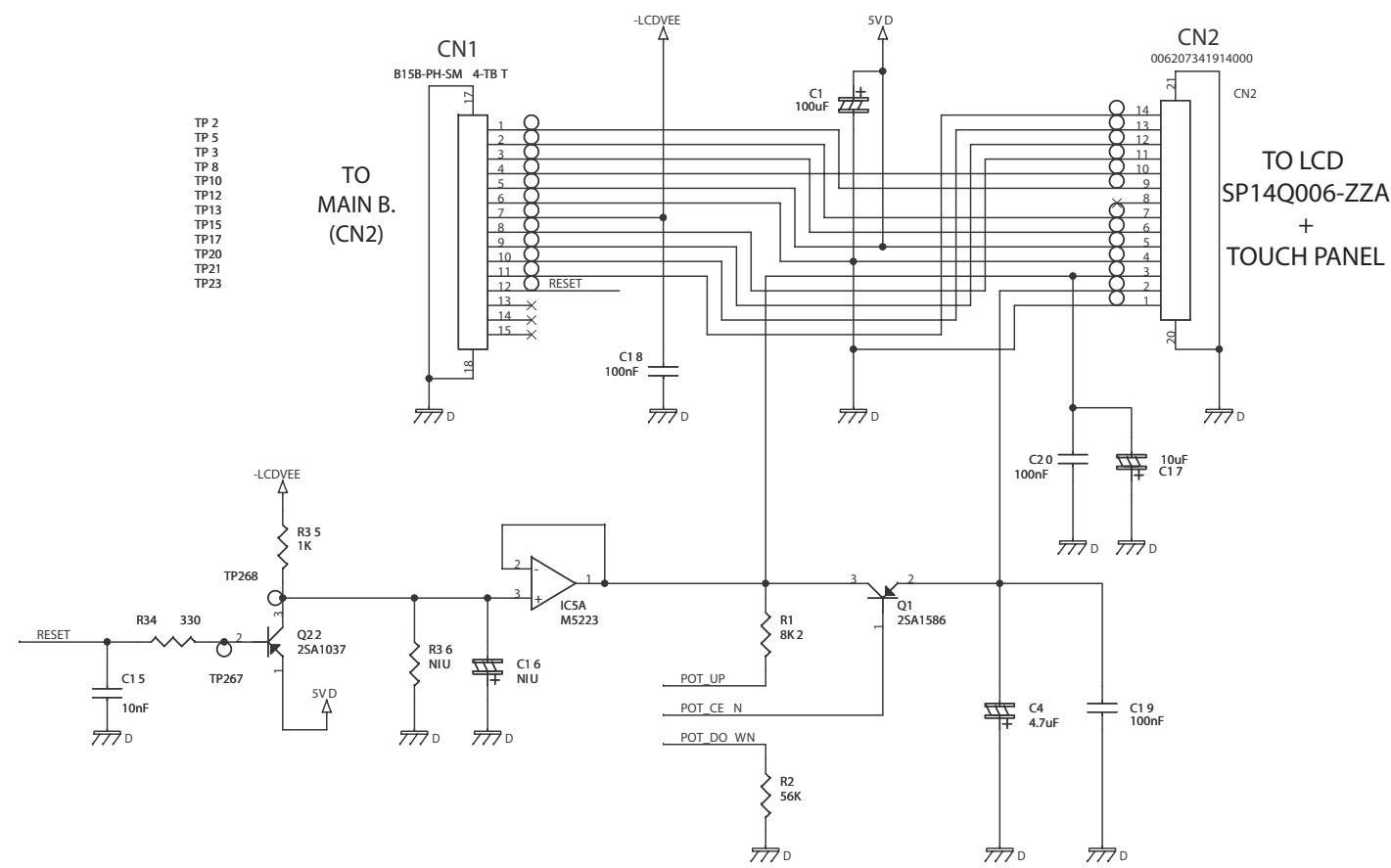
CIRCUIT DIAGRAM (AUDIO)



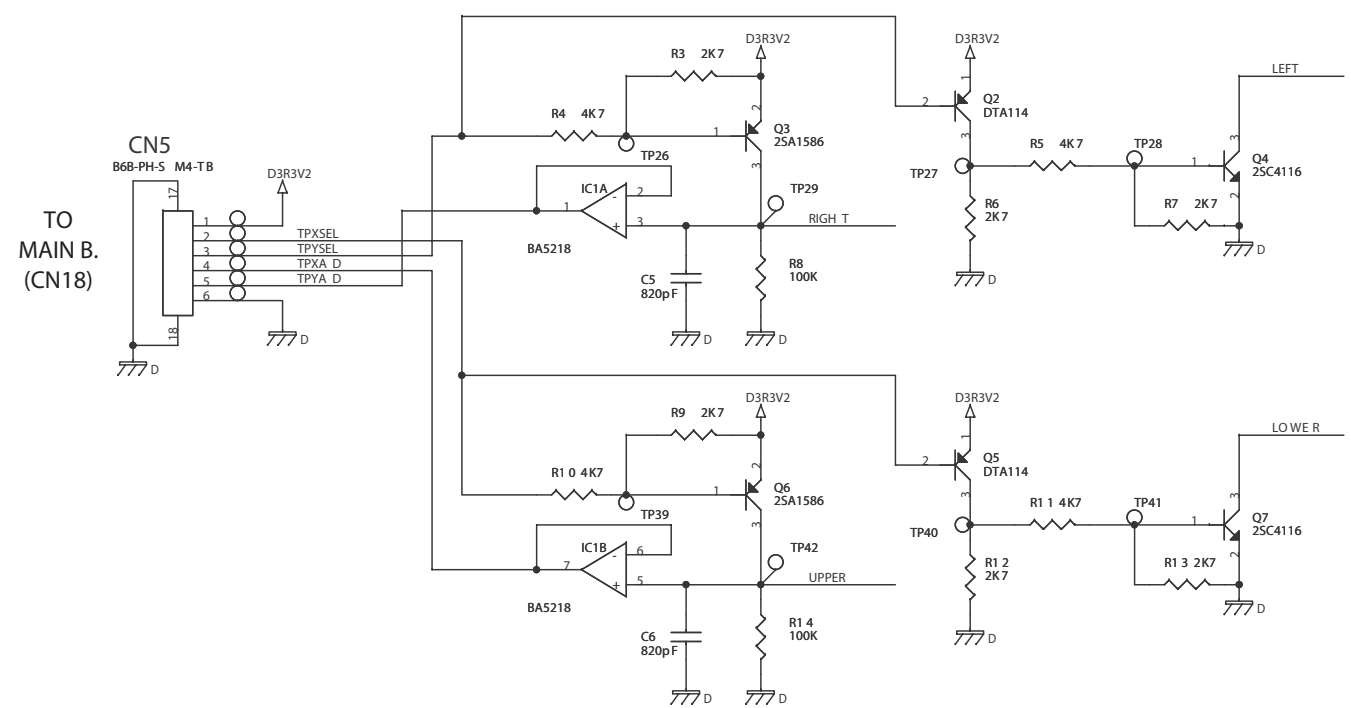
CIRCUIT BOARD (RIGHT CONTROL 7778105000, LEFT CONTROL 7778202000, CENTER CONTROL 7778106000)



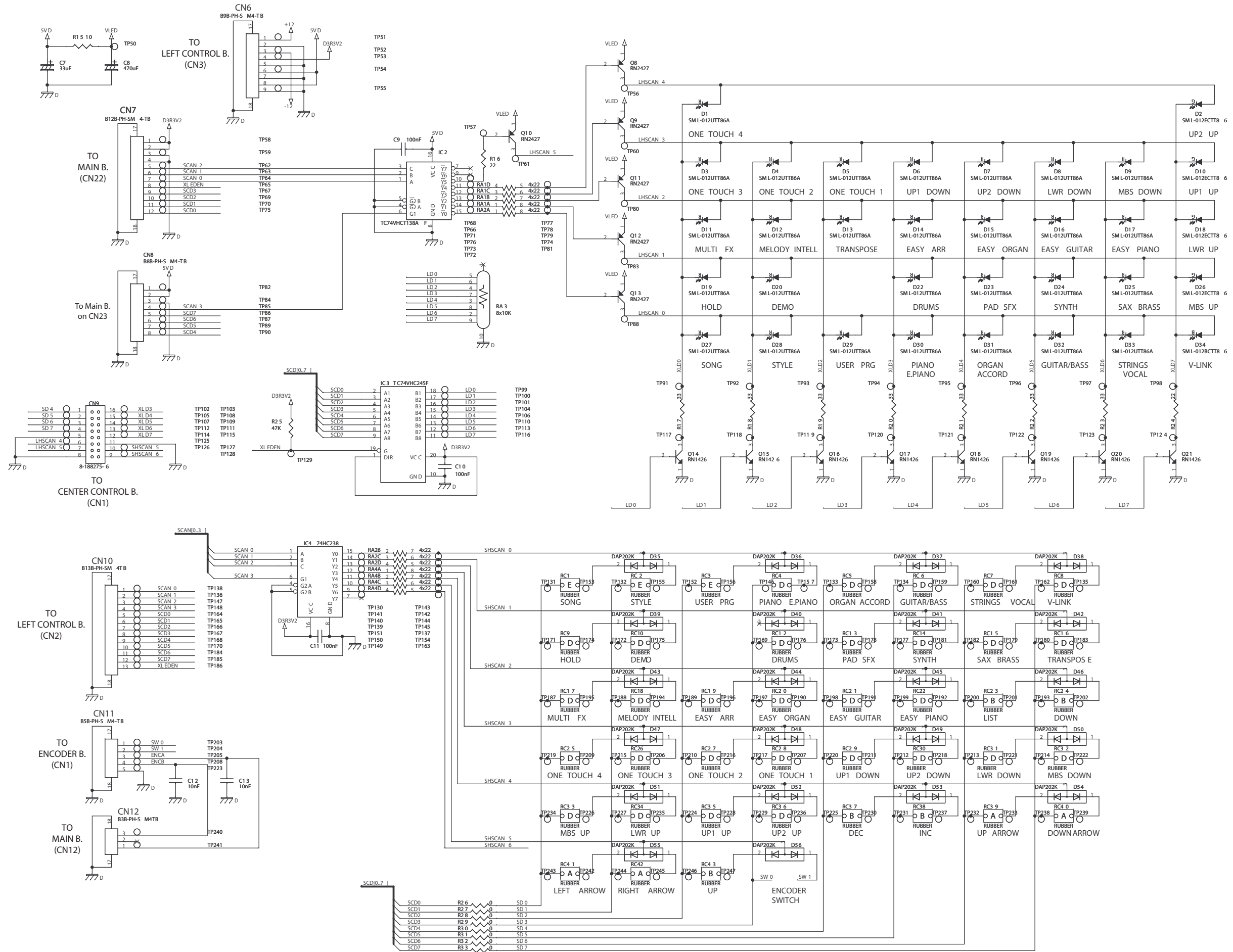
CIRCUIT DIAGRAM (RIGHT CONTROL 1/2)



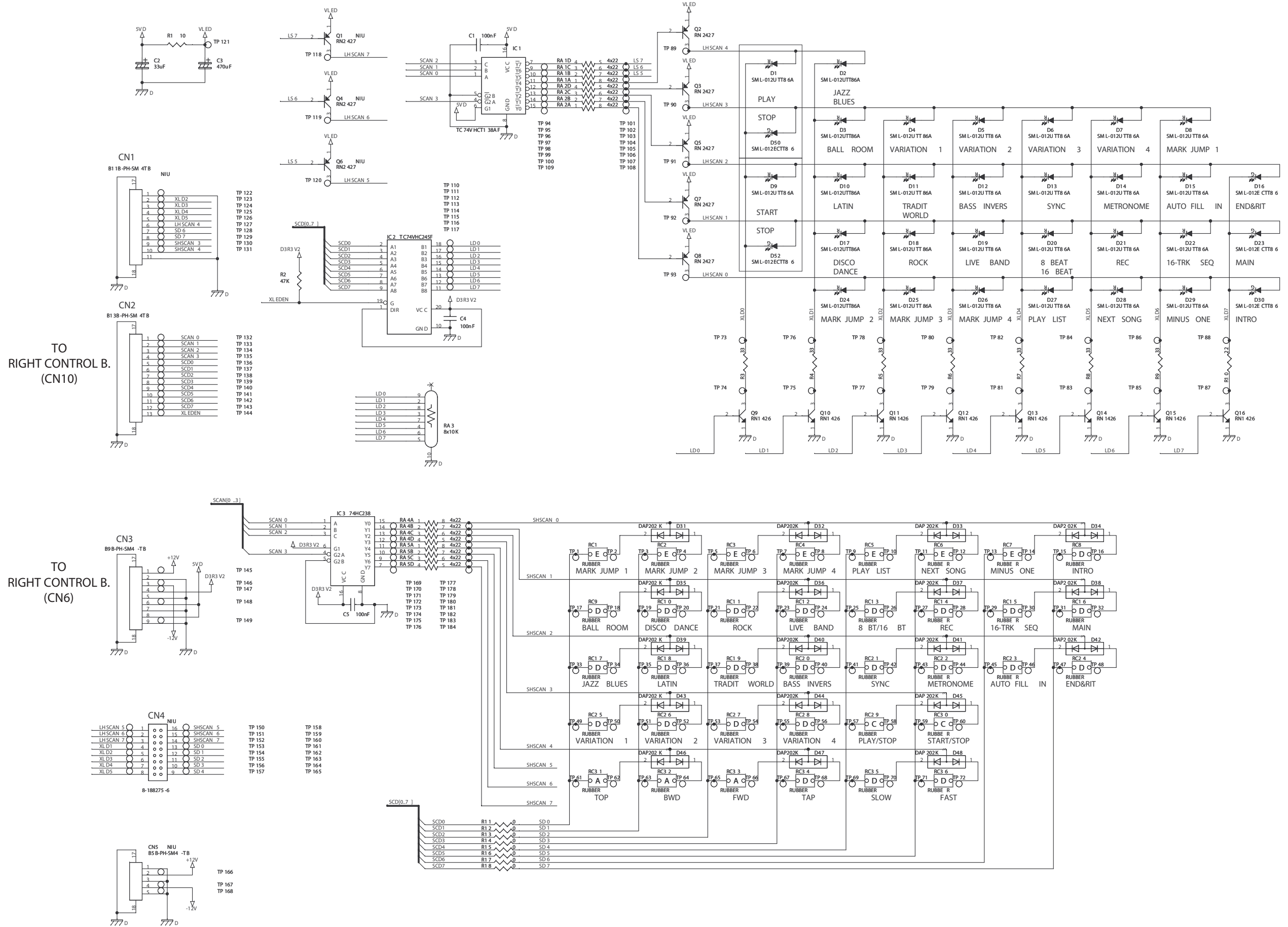
TP30
TP31
TP32
TP33
TP34
TP35



CIRCUIT DIAGRAM (RIGHT CONTROL 2/2)



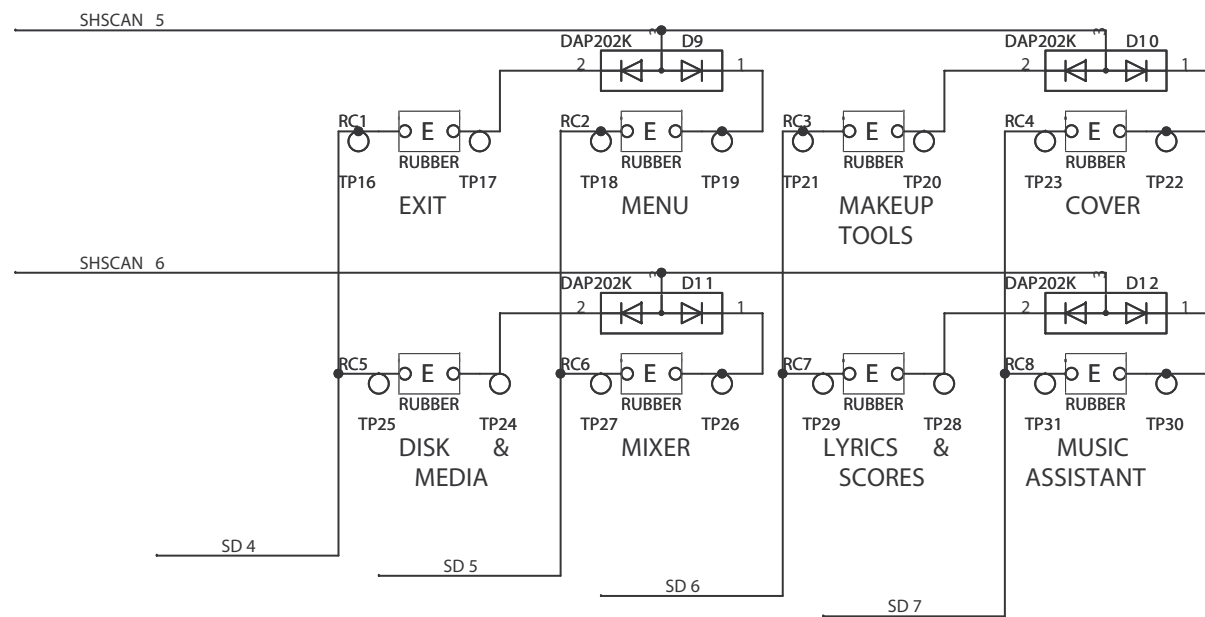
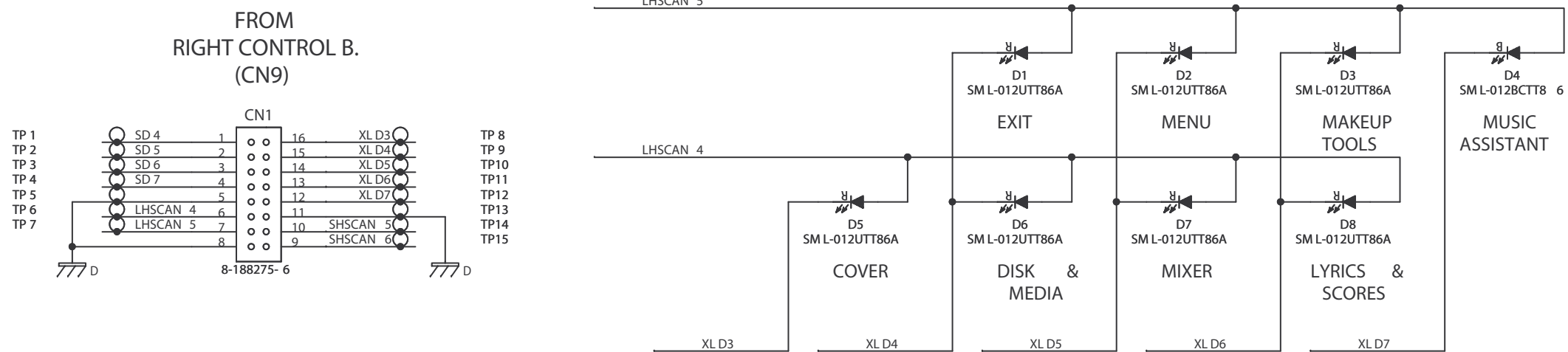
CIRCUIT DIAGRAM (LEFT CONTROL)



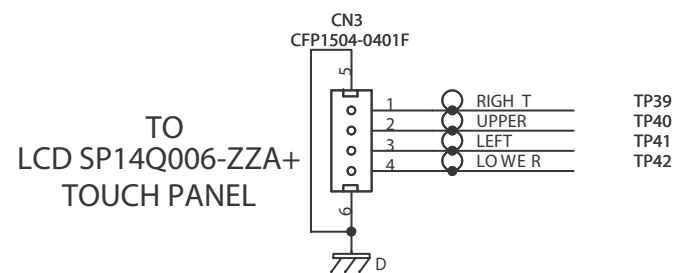
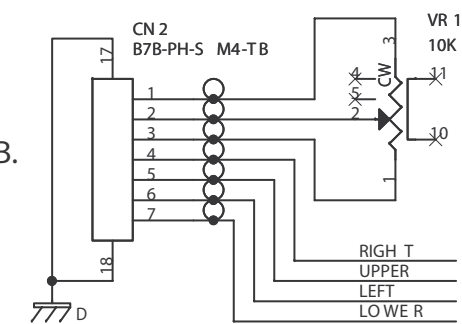
TO RIGHT CONTROL B. (CN10)

TO RIGHT CONTROL B. (CN6)

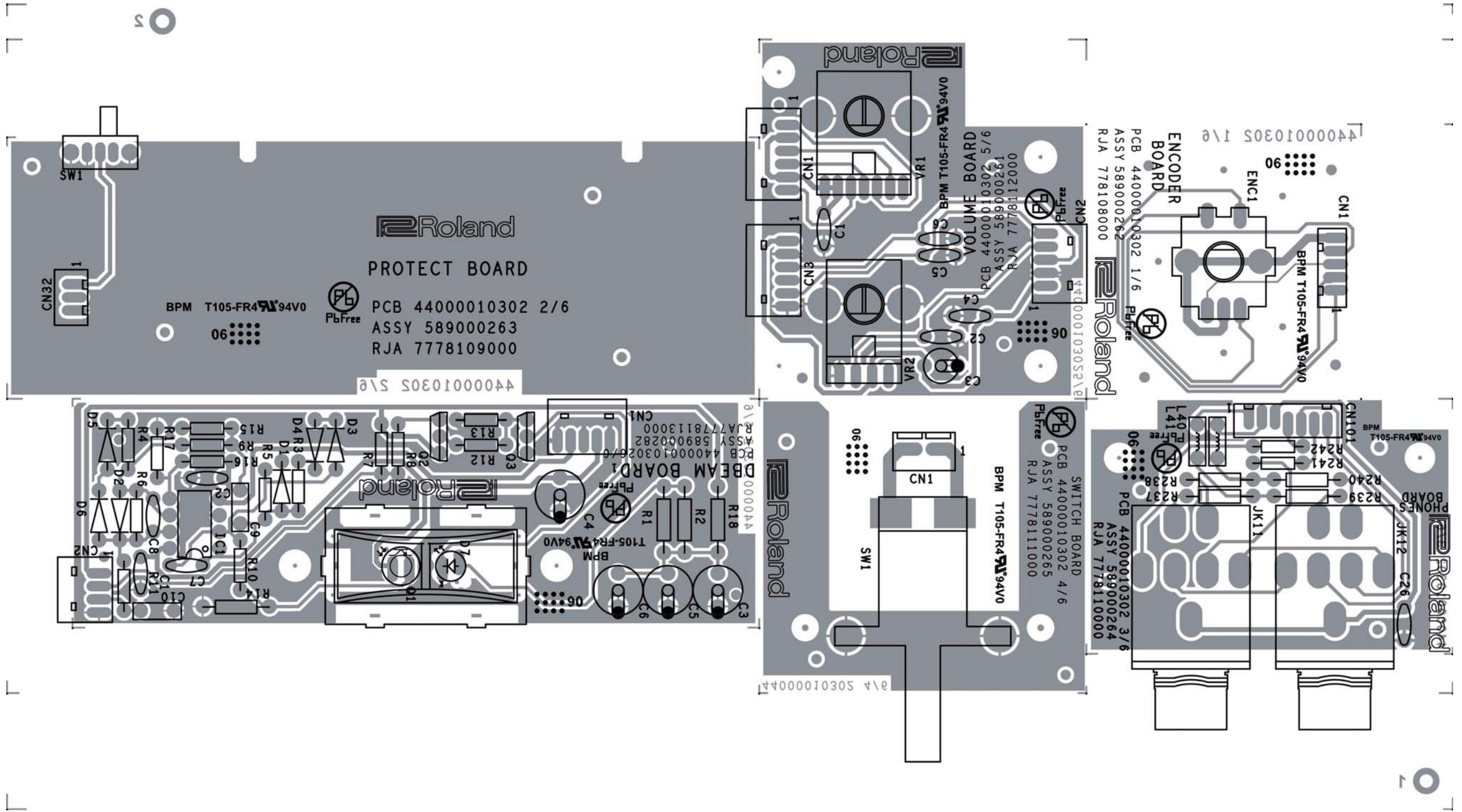
CIRCUIT DIAGRAM (CENTER CONTROL)



TO RIGHT CONTROL B. (CN3)

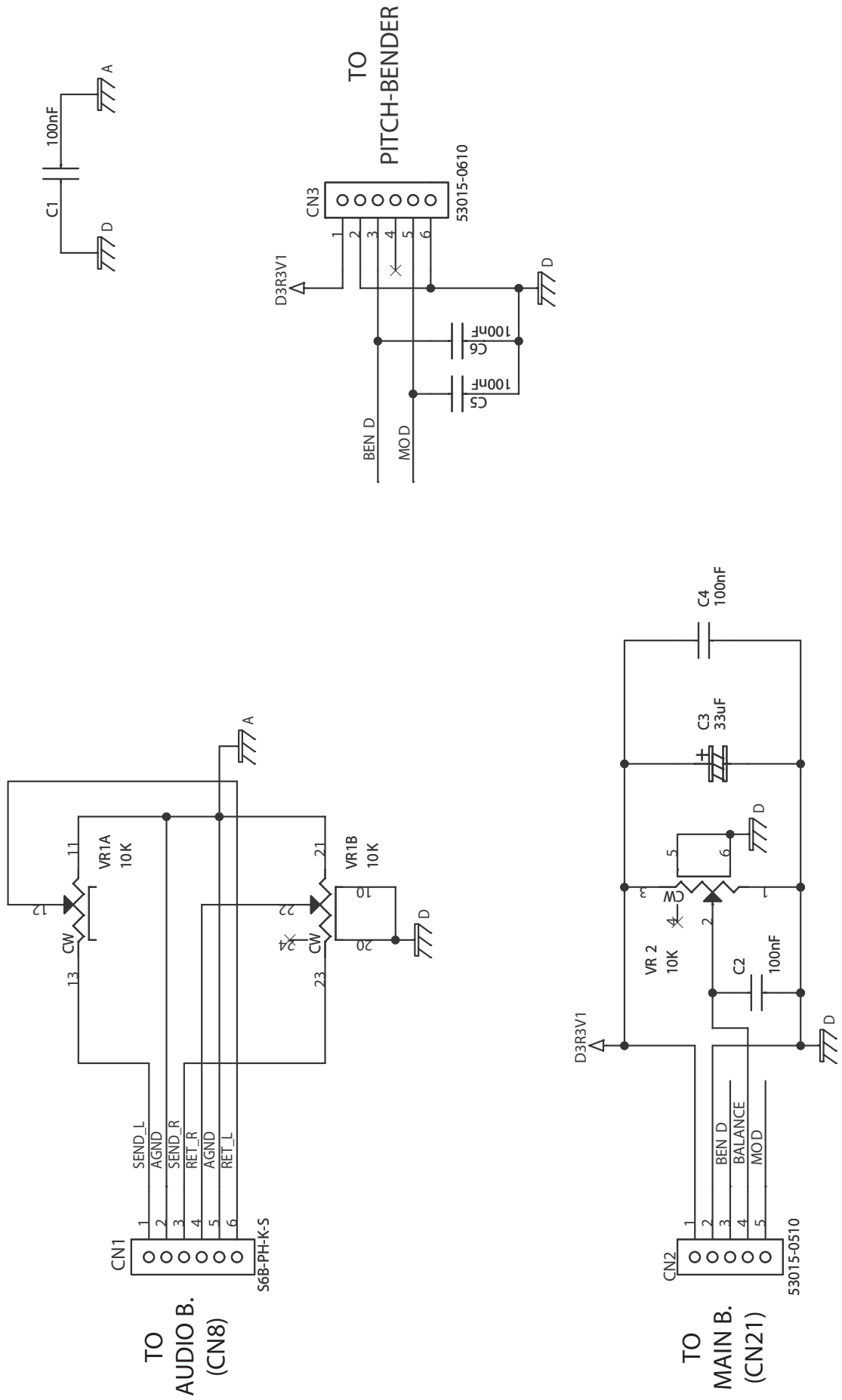


CIRCUIT BOARD (VOLUME 7778112000, ENCODER 7778108000, CARD PROTECT 7778109000, HEADPHONES 7778110000, POWER SWITCH 7778111000)

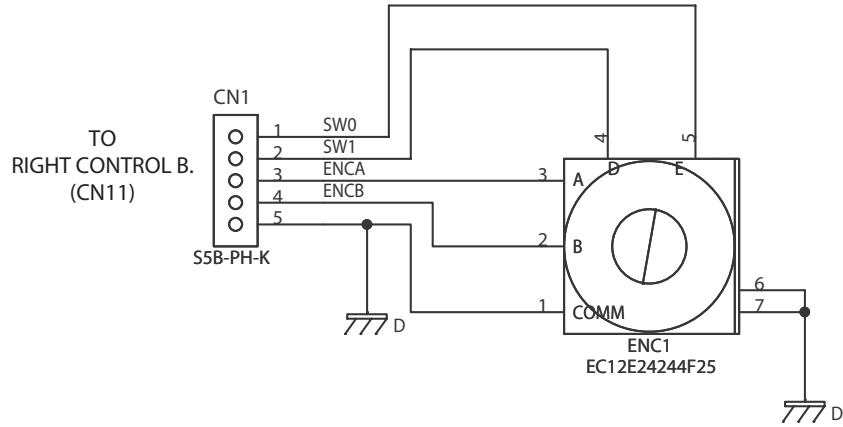


View from component side

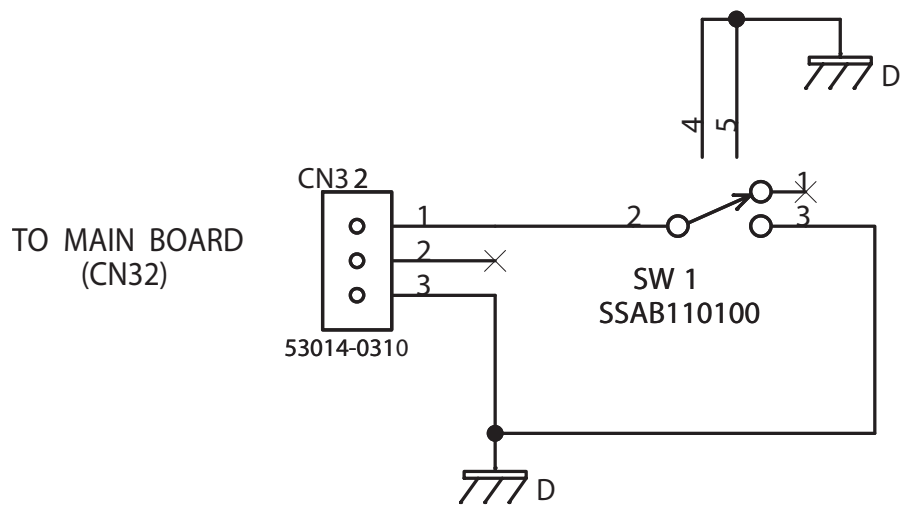
CIRCUIT DIAGRAM (VOLUME)



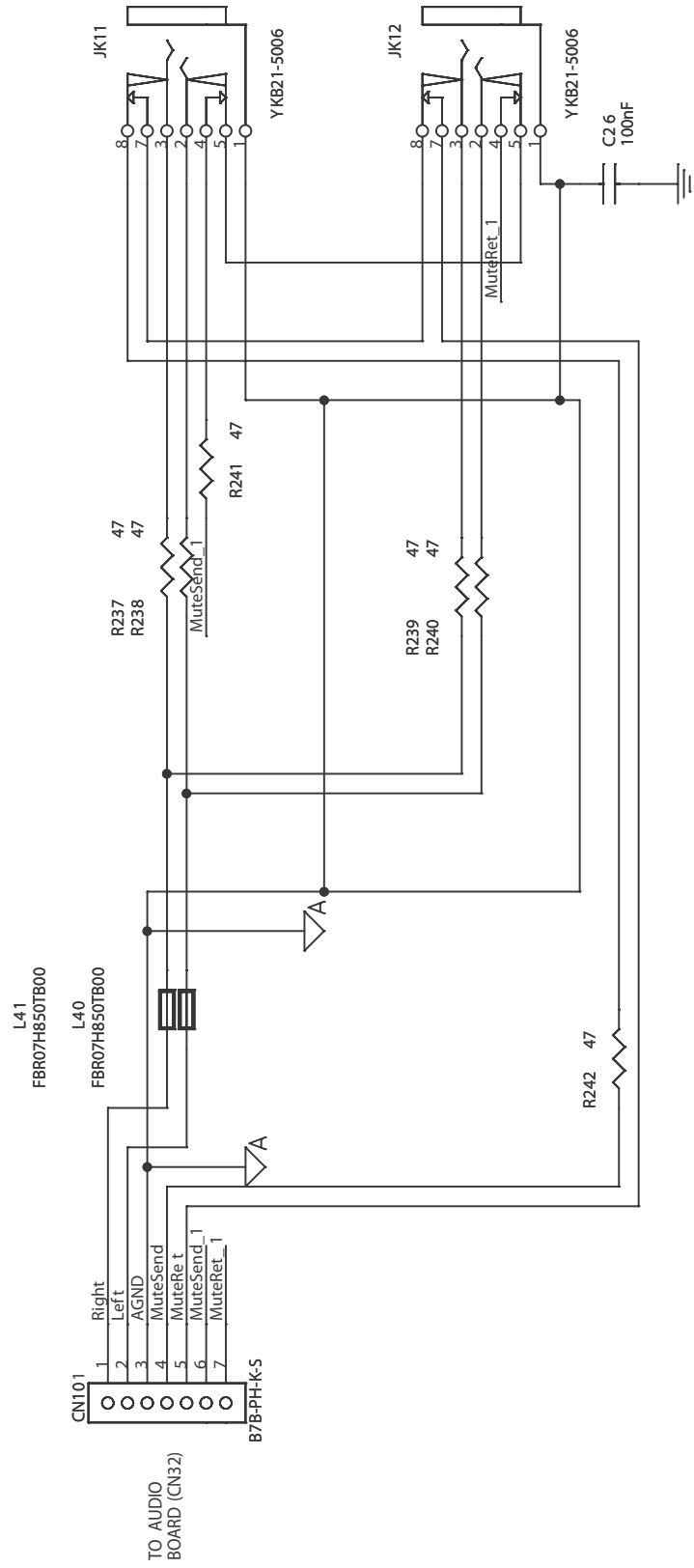
CIRCUIT DIAGRAM (ENCODER)



CIRCUIT DIAGRAM (CARD PROTECT)



CIRCUIT DIAGRAM (HEADPHONES)



CIRCUIT DIAGRAM (POWER SWITCH)

