E-600

INTELLIGENT KEYBOARD
64-VOICE POLYPHONY

SERVICE NOTES

First edition

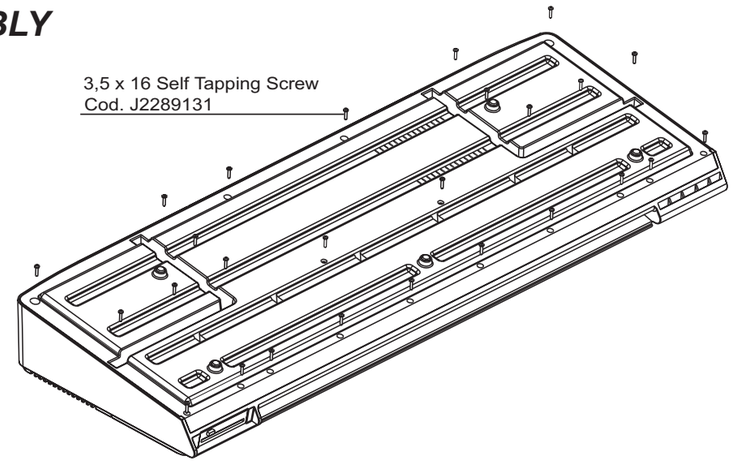
Issued by RES

TABLE OF CONTENTS

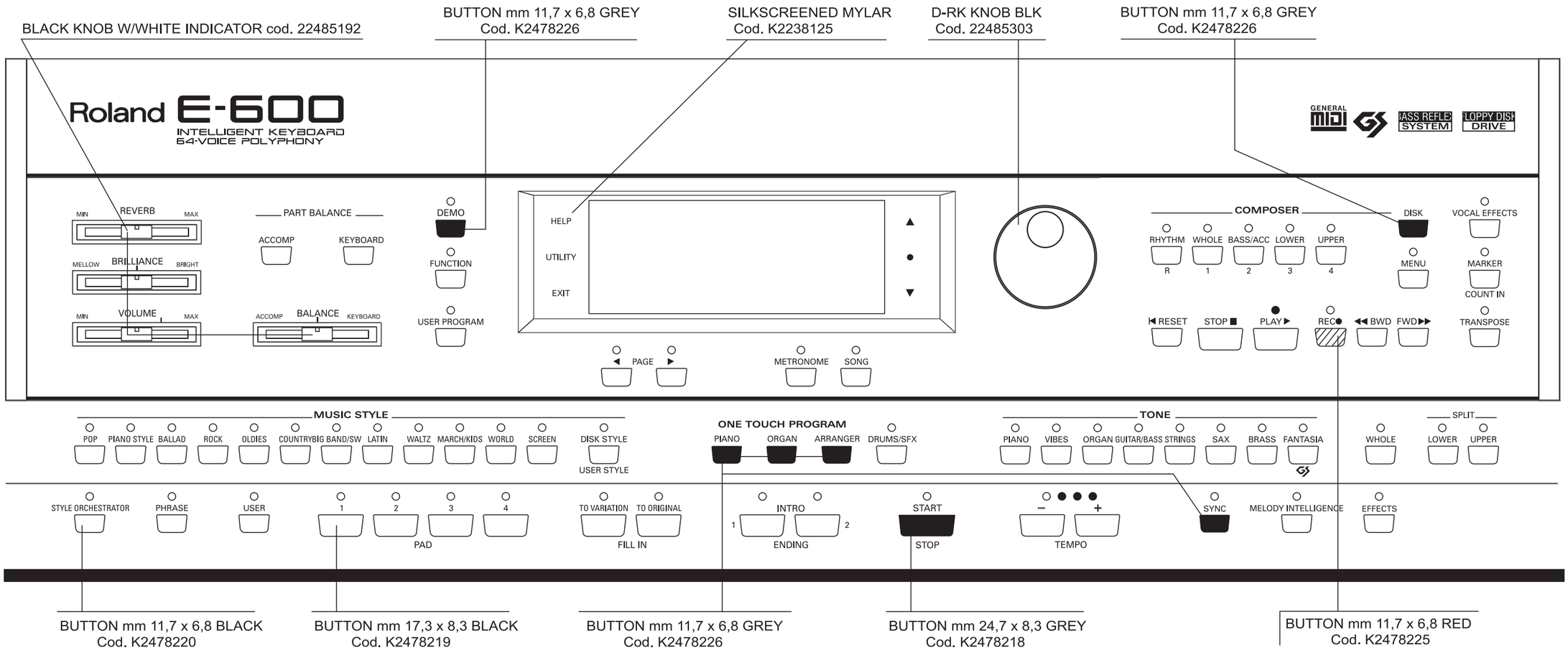
SPECIFICATIONS

- **Keyboard**
  61 Keys
  3 levels touch sensitivity
  Modes:
  - Whole
  - Adjustable Split point
  - Layer
  - Arranger
  - Piano Style Arranger
  - Manual Drum/SFX
- **Sound Source**
  Conforms to GM/GS
  64 voice Polyphony
  499 Tones
  12 Drum Sets + 1 SFX Set
  Footage Organ edit
  Transpose (-6, +5)
  Master Tuning
- **Effects**
  - Reverb (8 types)
  - Chorus (8 types)
  - Sympathetic Resonance, Rotary and 40 other types
- **Vocal Effects**
  Voice Transformer
  Harmonist
  Digital Eco
- **Arranger**
  133 Styles x 4 types
  22 Pianist Styles
  Style Converter
  Style Composer
  Melody Intelligence (24 types)
- **Composer**
  Sequencer: up to 16 tracks
  1 song (30.000 notes)
  30 Rhythm Pattern types
  Graphic Metronome
- **Storage**
  Floppy Disk Drive
  Max 99 songs on floppy disk
  Max 240.000 notes on floppy disk
  User Programs on Floppy Disk (max 99)
  Load while playing
- **Others**
  320 x 128 dot backlit LCD /Touchscreen
  Lyrics on display and via MIDI OUT
  Help (English, German, French, Spanish, Japanese)
  Educational Games on display
  One Touch (Piano, Organ(three types), Arranger)
  32 internal User Programs
  4 assignable pads
- **Controllers**
  Volume slider
  Brilliance slider
  Balance slider
  Reverb slider
  Microphone Volume
  Alpha dial
  Pitch bender & Modulation Lever
- **Connectors**
  Output Jacks (L/Mono, R)
  Microphone Jack
  Headphone Jack (Stereo)
  MIDI IN OUT THRU
  Damper, Sostenuto, Soft Jacks
- **Amplification**
  2 x 10 Watt output power (RMS)
  Two-way stereo system, in bass reflex boxes
  10 cm x 2, 3 cm x 2
- **Power supply**
  Universal switching (AC 100 ÷ 240 V)
- **Power consumption**
  37 W (230 V)
- Weight
  14 kg
- **Dimensions**
  1150(W) x 410(D)X 140(H) mm
- **Accessories**
  See on page 6.

DISASSEMBLY

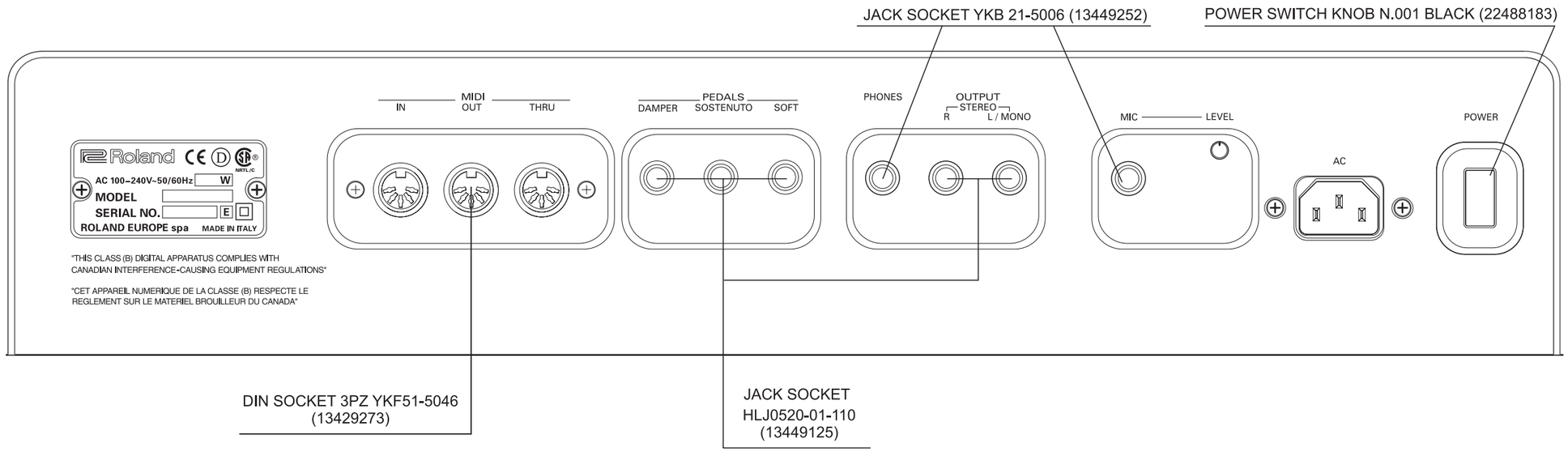


LOCATION OF CONTROLS

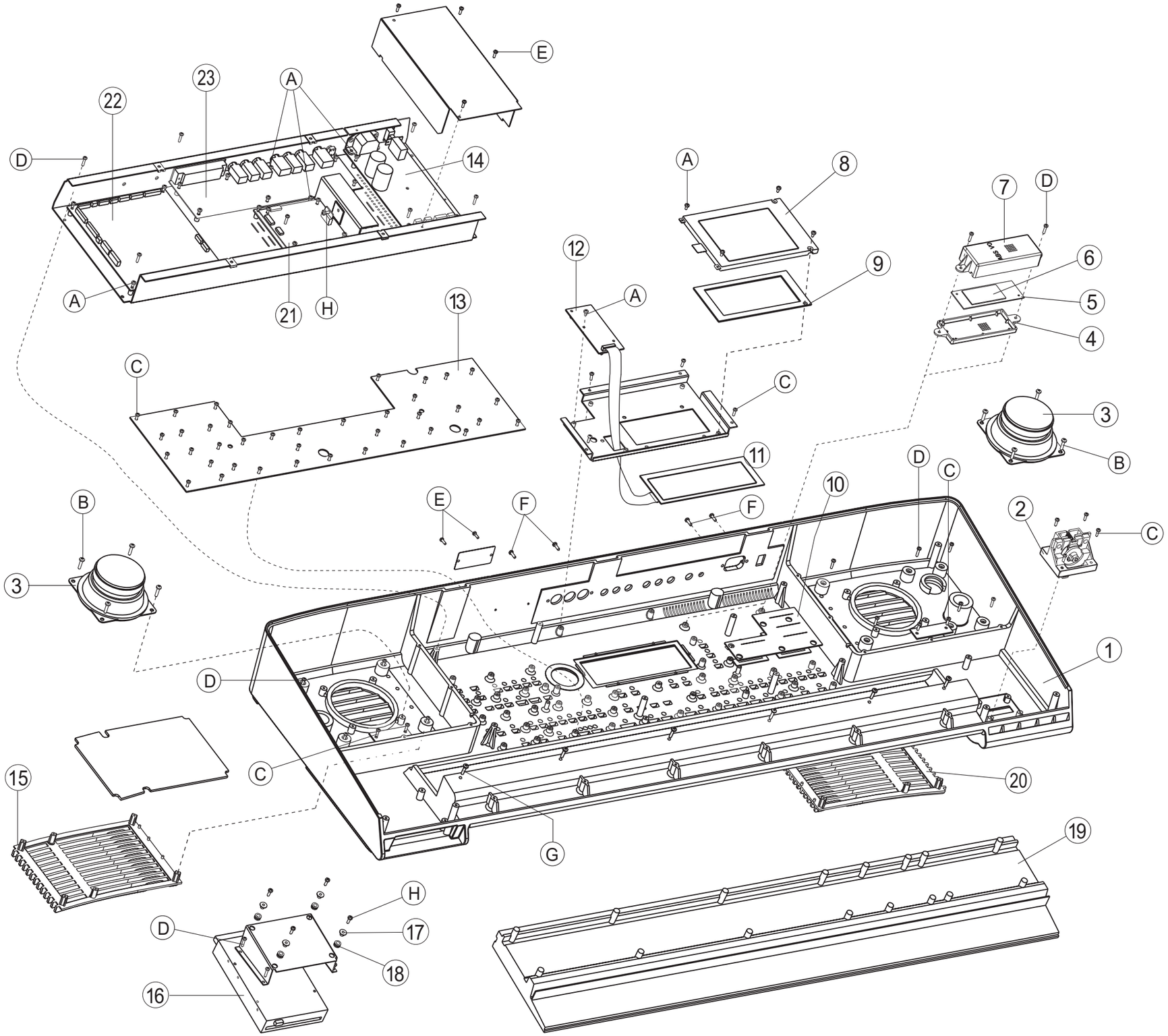


LED DIODE TLHG4401-GREEN cod. 15029320RI
LED DIODE TLHR4401-RED cod. 15029284RI

REAR VIEW



EXPLODED VIEW

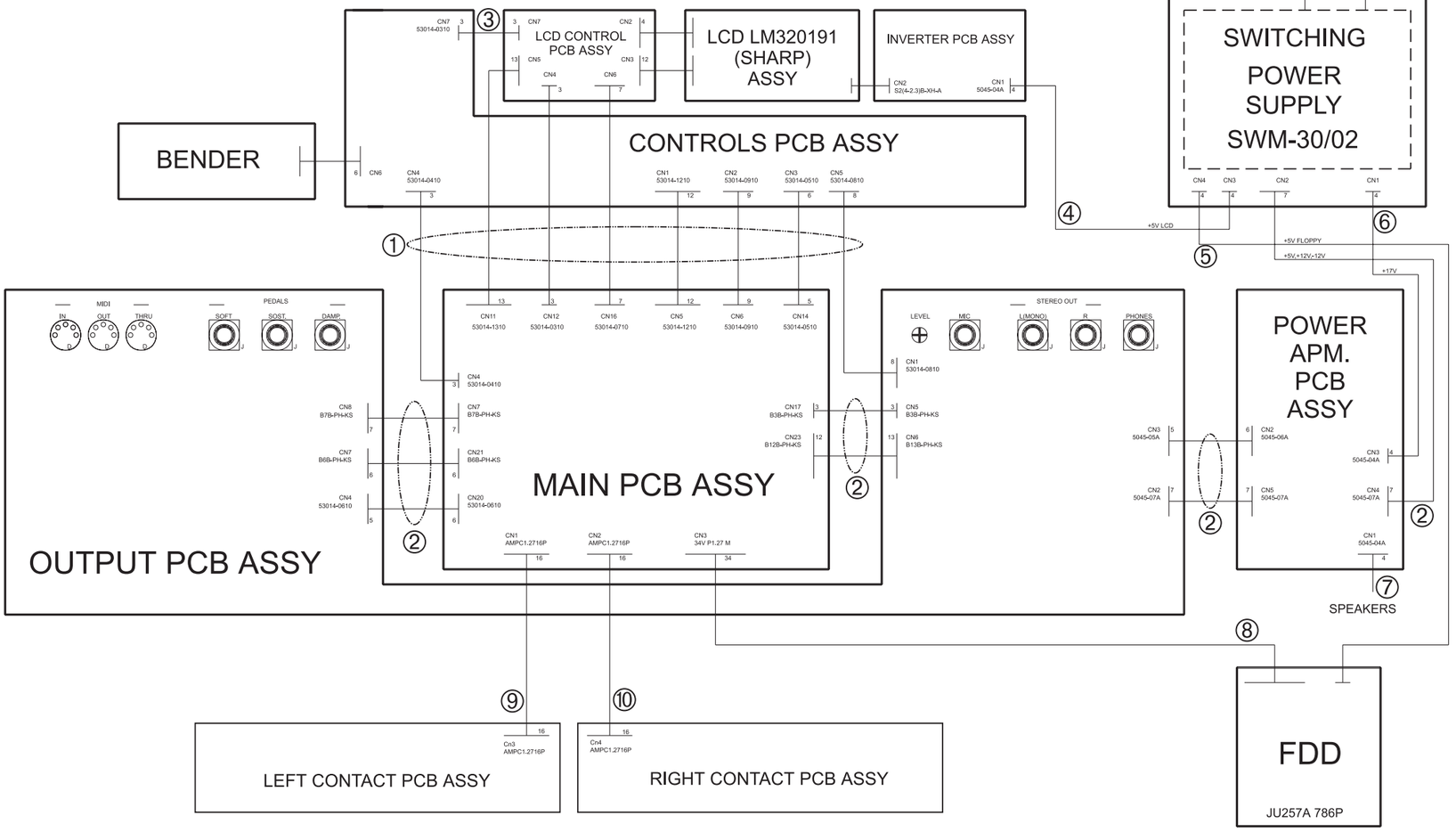


No	PART NAMES	PART NUMBERS
1	VARN.+SILK. TOP CABINET	7711209000
2	PITCH BENDER "SE" W/CABLE CM52+CONN	K3278108
3	WOOFER SPEAKER D.90 MM	K2418117
4	PROTECTING BOX BASE F/INVERTER	K2248128
5	INVERTER PCB ASSY	7711203000
6	INVERTER MODULE CXA-M10AL	00900901
7	PROTECTING BOX COVER F/INVERTER	K2248127
8	LCD LM320191(SHARP) ASSY	7711210000
9	ANTIDUST F/LCD	K2248148
10	ANTIDUST COVER PL30N	K2248126
11	POSITION SENSOR ROS-03-ID	01345012
12	LCD CONTROLS PCB ASSY	7711202000
13	CONTROL PCB ASSY	7711201000
14	SWITCHING POWER SUPPLY SWM-30/02	J240910302
15	LEFT GRILL F/LOUDSPEAKER	K2248124
16	FLOPPY D. DRIVER JU-257 A786P	J2409102
17	BRASS BUSHING	22165134
18	RUBBER GUIDE BUSHING	22265242
19	61-KEY KEYBOARD ASSY TP/9	7626223001
20	RIGHT GRILL F/LOUDSPEAKER	K2248123
21	AMPLIFIER PCB ASSY	7698701000
22	MAIN BOARD PCB ASSY	7711204000
23	OUTPUT PCB ASSY	7711205000
	SCREW	
A	SELF LOCK.SCREW M3x6 TC TC H6	J2289193
B	SCREW 3,5x16 TCPR TFR H8 BRUN	J2289186
C	SCREW 2,9x10 TC TC PR TROP	J2289125
D	SCREW 2,9x13 TC TC PR TROP	J2289130
E	SELF TAP.SCREW 2,9x10 TCTC	J2289102
F	SCREW 2,9x16 TC TC PR BRUN	J2289118
G	SELF TAP.SCREW 3,5x16 TCTCPRBZ	J2289131
H	SELF LOCK.SCREW M3x10 TC TC H6	J2289108

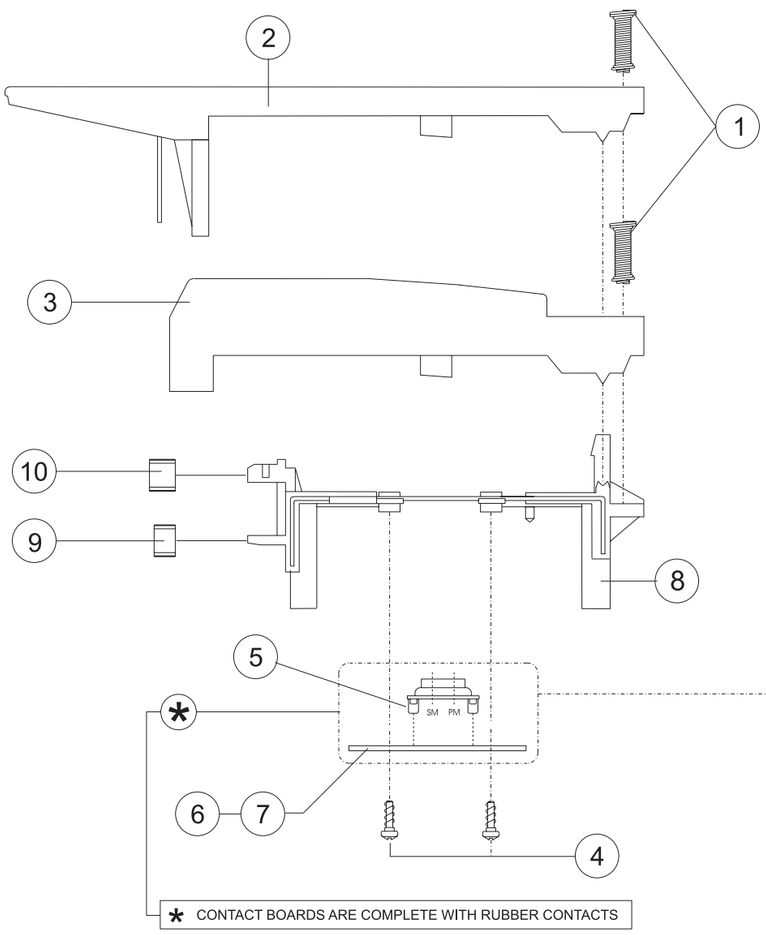
Ref	Code	Description	
①	7711206000	CONTROL WIRING ASSY	E-600
②	7711207000	BOTTOM WIRING ASSY	E-600

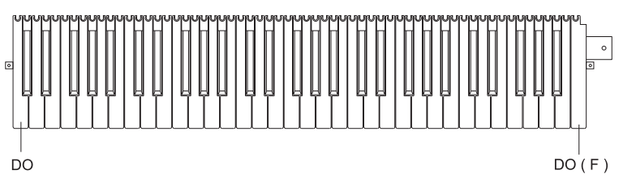
NOTE : When you substitute the BOTTOM WIRING ASSY code 7711207000 , please replace the:"FERRITE CORE VOGT 235 07 857 10 code J2399108" too, because it does not belong to the "BOTTOM WIRING ASSY"

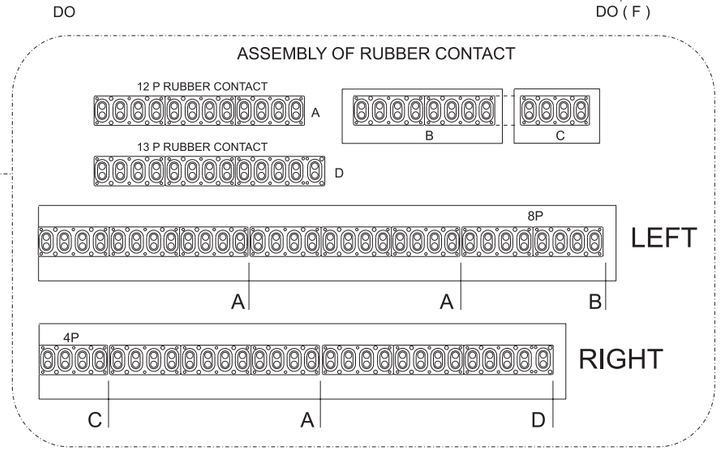
③	7711208000	3P CABLE ASSY (8) -2C P.2	E-600
④	K3468206	4P CABLE (44) -2C D/D	E-600
⑤	7698713000	3P CABLE ASSY (78) (W/4PC+4PC)	
⑥	K3468155	4P CABLE 2R/2N (28) 2C D/R	
⑦	K3468154	4P CABLE ASSY (52/58) (W/4PC)	
⑧	K3468207	34P FLAT CBL. ASSY (60) -2C+FERR. E-600	
⑨	K3468177	16P FLAT CABLE (56) -2C	
⑩	K3468166	16P FLAT CABLE (44) -2C	



No.	PARTS NAME		CODE
1	KEY SPRING		22178233
2	NATURAL KEY C5	DO	22578319
	NATURAL KEY D6	RE	22578328
	NATURAL KEY E7	MI	22578329
	NATURAL KEY F1	FA	22578330
	NATURAL KEY G2	SOL	22578331
	NATURAL KEY A3	LA	22578332
	NATURAL KEY B4	SI	22578333
	NATURAL KEY C8	DO (F)	22578334
3	SHARP KEY		22578335
4	SELF TAP SCREW 2.9x8 TCTCPRBZ		J2289126
5	12P RUBBER CONTACT 13P RUBBER CONTACT		2218523801 2218523901
6	LEFT CONTACT PCB ASSY+RUBBER CONTACT		7624505000
7	RIGHT CONTACT PCB ASSY+RUBBER CONTACT		7624504000
8	PLASTIC CHASSIS		22818761
9	GUIDE BUSHING INFERIOR		J2359104
10	GUIDE BUSHING SUPERIOR		22158789







PARTS LIST E-600 (117V/230V/230VE/240VA)

SAFETY PRECAUTIONS :

The parts marked ⚠ have safety-related characteristics. Use only listed parts for replacement.

CONSIDERATION ON PARTS ORDERING

When ordering any parts listed in the parts list,please specify the following items in the order sheet.

	QTY	PART NUMBER	DESCRIPTION	MODEL NUMBER
Ex.	10	22575241	Sharp Key	C-20/50
	15	2247017300	Knob (orange)	DAC-15D

Failure to completely fill the above items with correct number and description will result in delayed or even undelivered replacement.

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.***

MB	=	Main Board
CB	=	Control Board
AMP.B	=	Power Amp. Board
OB	=	Output Board
IB	=	Inverter Board
LCDB	=	LCD Control Board
RCB	=	Right Contact Board
LCB	=	Left Contact Board

CASING

	7698612000	VARNISHED BOTT. CABINET	G-600 / E-600
	K2128119	MUSIC REST	(BLACK)
	K2248123	RIGHT GRILL F/LOUDSPEAKER	E-500
	K2248124	LEFT GRILL F/LOUDSPEAKER	E-500
	22208320	MUSIC SCORE HOLDER	
#	7711209000	VARN. + SILKSCR. TOP CABINET	E-600

KNOB BUTTON

A	22485303	D-RK KNOB BLK	
	K2478219	BUTTON MM 17.3X8.3	(BLACK)
	K2478218	BUTTON MM 24.7X8.3	(GREY)
	K2478220	BUTTON MM 11.7X6.8	(BLACK)
	K2478225	BUTTON MM 11.7X6.8	(RED)
	K2478226	BUTTON MM 11.7X6.8	(GREY)
	22488183	POWER SWITCH KNOB N.001-BLACK	
	22485192	BLACK KNOB W/WHITE INDICATOR	

SWITCH

	1312975301	SWITCH	EVQ-QSB 05K GR.160	SW1/SW17 on CB
A	01013223	ENCODER	EVQ-VEM F01-24B	EN1 on LCD Control B.

JACK, SOCKET

13449252	JACK SOCKET	YKB 21-5006	JK3, JK8 on OB
13449125	JACK SOCKET	HLJ0520-01-110	JK1, 2, 5, 6, 7 on OB
13429273	DIN SOCKET	3PZ YKF51-5046	JK4 on OB

DISPLAY UNIT

Note	#	01124234	LCD LM320191(SHARP) ASSY	E-600

DISK DRIVE UNIT

Note	J2409102	FLOPPY D. DRIVER JU-257 A786P

BENDER UNIT

Note	#	K3278108	PITCH BENDER “SE” + CABLE(52)	E-600

SPEAKER

K2418117	WOOFER SPEAKER D.90 MM
K2418118	TWEETER SPEAKER W/CABLES

KEYBOARD

7626223001	61-KEY KEYBOARD ASSY TP/9

NOTE : For details, refer to KEYBOARD PARTS LIST (Page 4)

POWER SUPPLY UNIT

Note # J240910302 SWITCHING POWER SUPPLY SWM-30/02

WARNING!!! : FOR THIS MODEL DO NOT USE THE FOLLOWING PREVIOUS VERSIONS OF SWITCHING POWER SUPPLY SWM-30:

- SWITCHING POWER SUPPLY SWM-30/00 code J2409103

- SWITCHING POWER SUPPLY SWM-30/01 code J240910301

NOTE : Replacement SWITCHING P.S.SWM-30/02 should be made on a unit basis.
No replacements available for individual parts. Replacement only be a unit.

PCB ASSY

	7698701000	AMPLIFIER PCB ASSY	E-500
#	7711201000	CONTROL PCB ASSY	E-600
#	7711203000	INVERTER PCB ASSY	E-600
#	7711202000	LCD CONTROL PCB ASSY	E-600
E#	7711204000	MAIN BOARD PCB ASSY	E-600
#	7711205000	OUTPUT PCB ASSY	E-600
	7624504000	RIGHT CONTACT PCB ASSY W/RUBBER	
	7624505000	LEFT CONTACT PCB ASSY W/RUBBER	

IC

	00900901	INVERTER MODULE CXA-M10AL		on INVERTER Board
	15229718RI	I.C. 6N 137	PHOTO-COUPLER	IC4 on OB
A	01562267	I.C. MASK ROM UPD23C32000AGX517		IC33 on MB
A	01562278	I.C. MASK ROM UPD23C32000AGX518		IC31 on MB
A	01344245	I.C. LHMNOPYL	(32M WAVE ROM)	IC32 on MB
A	01344278	I.C. HD6437034AD72F	CPU	IC14 on MB
	15169550RI	I.C. 74 HC138	DIP CMOS	IC6 > IC9 on CB
	J5159107	I.C. 74 HC574	CMOS	IC4 on CB
	00232645	I.C. TC7W14F	FLAT	IC22 on MB
	J5259102	I.C. 74 HC 273 FLAT	CMOS	IC27 on MB
A	15259821	I.C. TC74HC573AF		IC30 on MB
A	15259864	I.C. TC74HC4052AF		IC24 on MB
	00343823	I.C. M60205-0601FP	CUSTOM IC	IC5 on MB
	00129278	I.C. SSC1080 FOB	CUSTOM IC	IC1 on MB
	J5259110	I.C. HM62256LFP-7T	FLAT SRAM	IC62 on MB
	J5259120	I.C. HM5118160CJ-6	FLAT	IC11 on MB
A	01126612	I.C. TC514260DJS-60	FLAT	IC8, IC53 on MB
A	00899812	I.C. FLASH LH28F800-NF70		IC38 on MB
	15199780	I.C. HD63266FP-64A	FDC	IC2 on MB
	00897078	I.C. TC170C200AF-005	CUSTOM IC	IC18 on MB
	J5259116	I.C. SED1335F0B	LCD CONTR.	IC61 on MB
A	00892556	I.C. TC170C140AF-003 ESP2		IC51 on MB
	15259884	I.C. TC7S08F MOS	CMOS	IC46 on MB
	15259885	I.C. TC7S32F	CMOS	IC7, 17, 20, 36 on MB
	J5169105	I.C. TC7W08F	FLAT	IC6 on MB
	15249116	I.C. TC7W00F TE12L	CMOS	IC15 on MB
	15249104	I.C. TC7S04F	FLAT	IC29, 37 on MB
	K5258146	I.C. TC74VHC139F	FLAT	IC26 on MB
A	15249121	I.C. TC7W04F		IC25 on MB
A	00232634	I.C. TC7W74F		IC66 on MB
A	01455312	I.C. TC7WH74FU		IC52 on MB
A	01560823	I.C. TC74VHC164F		IC44 on MB
A	01348945	I.C. TC7SH32FU	FLAT	IC57 on MB
	15269214	I.C. 74LS05	FLAT TTL	IC5 on OB
	15219183	I.C. M51953 AL	STANDING	IC3, 10 on OB
	15189210	I.C. BA 5218F	OP AMP	IC1, 2 on OB
	15189186	I.C. UPC 4570C	OP AMP	IC1 on LCD Control B.
	15189250	I.C. M5218 AL	STANDING	IC1, 2, 3, 10 on CB
	15289105	I.C. UPC 4570G	OP AMP	IC12, 42, 47, 50, on MB // IC6, 8, 9 on OB
	J5259112	I.C. PCM69AU DAC	RED LINE	IC3 on MB
	J5189102	I.C. TD 62593 AP	DIP	IC5 on CB
	00458312	I.C. NJM 2360M	FLAT	IC7 on OB
A	15289141	I.C. M5223FP-600D		IC65 on MB
A	01126767	I.C. UDA1309H	ADC/DAC	IC48 on MB
	15289402	I.C. TA 78L05F	REGUL.+5V	IC4, 49 on MB
	J5199101	I.C. TDA 7350	POWER AMP	IC6 on AMP.B.

TRANSISTOR

15119155RI	TRANSISTOR	BC/560-B	Q1 on AMP.B.
15119154RI	TRANSISTOR	BC/549-B	Q2 on AMP.B.
15129114	TRANSISTOR	2SC-1815GR	Q2, 4 on LCD Control B.
15119113	TRANSISTOR	2SA-1015 GR	Q1, 3 on LCD Control B.
15129136	TRANSISTOR	2SC-2878-A/B	Q1, 2 on OB
15319101	TRANSISTOR	2SC-2412	Q3, 4, 7, 8 on OB // Q8 on MB
15309101	TRANSISTOR	2SA-1037KR	Q5, 6 on OB
15329516	TRANSISTOR	DTC-114EK	Q7 on MB
15119163	TRANSISTOR	RN2227	Q1 > Q11 on CB
00898201	TRANSISTOR	RN2421	Q1 on MB

DIODE

15019159RI	DIODE	1N-4148		D2 on AMP.B.// D1 > D70 on CB // D1 > D64 on LCB // D65 > D122 on RCB
15339108	DIODE	DA-204K		D2 > D6 on OB
00893912	DIODE	SFPB-56	CHIP	D11 on OB
A 01121323	DIODE	DA-204U T-106	CHIP	DA1 > DA8 on MB
15029320RI	LED DIODE	TLHG4401	GREEN	D76, 96, 97, 98 on CB
15029284RI	LED DIODE	TLHR4401	RED	D71 > D95, D99 > D132 on CB
J5019101	ZENER DIODE	BZX55C 4V7		D1 on OB
# 01560834	DIODE ZENER	02CZ16-X TE85L		D1 on MB
J5019105	DIODE	1N 4002		D1 on AMP.B.

RESISTOR

	15399965	RESISTOR ARRAY	RCE9A-103-JA	RA1, RA4, RA6 > RA12, RA18, 33, 37, 39 on MB
	J3919107	RESISTOR ARRAY	EXB-V8V-101-JV	RA29, 30, 32 on MB
	J3919108	RESISTOR ARRAY	EXB-V8V-103-JV	RA13 > RA17, RA19 > RA22, RA27, 31, 38 on MB
	J3919109	RESISTOR ARRAY	EXB-V8V-470-JV	RA23 > RA26, RA28, RA34 > RA36, RA40 > RA42 on MB
	13819132RI	UNINFL.RES.	100 OHM 0.6W 5%	R14 > R21 on CB // R1, 2, 11, 12 on OB
#	J3809155	UNINFL.. RESISTOR	2200 0.6W 5%	R86, 87 on OB
	J3809132	UNINFL.RES.	270 OHM 1/4W	R30, 31, on CB // R68, 69 on OB
	J3809134	UNINFL.RES.	27 OHM 0.6W 5%	R23 on CB
A	15229941	TERMISTOR	10KD-5	T1 on Control B.
	J3809152	OXIDE RESISTOR	0.22 OHM 1W 5%	R64 on OB

POTENTIOMETER

	13299227RI	TRIM.POT.	22KOHM 5X10 H CERMET	P1, P2 on AMP. B.
	13279988	ROT.POT.	RK09K12A0A2AAc	VR1 on OB
	00671589	SLIDER POT.	NFX-X10 B14	VR2 on CB
	00671556	SLIDER POT.	NNK-X10-B14	VR1, 4 on CB
	00346178	SLIDER POT.	RS30111CA	VR3 on CB

CAPACITOR

	15359780	POLYEST. COND.	1.5N	0805 5%	C151 153, 215, 218, 219, 220, 221 on MB
	15359776	POL.COND.	390P	0805 5%	C49 on OB
	01015889	POLYEST. COND.	470P	0805 5%	C152, 154, 171, 172 on MB
	15359774	POLYEST.COND.	680P	0805 5%	C117, 118, 216, 217 on MB // C38 on OB
#	00568789	CER CONDENSER	ECJIVF 1C224Z		C222, 223, 225, 226 on MB
	J3629144	ELCTRL.COND.	470UF 16V	AXIAL	C31 on CB
	J3469156	ELECTR. COND.	33U 16V	P.5	C32, 33, 34, 45, 51, 53, 54, 55, 58 on OB
	13639661RI	ELECTRL.COND.-V	2200UF 25V		C4, 5 on AMP. B.
	J3629103	ELECTRL.COND.	100U 25V	P.5	C3, 4, 20, 21, 29, 30, 46 on OB // C1, 2 on AMP.B.
	J3629147	ELECTR. COND.	220U 25V	P.5	C3, 9, 10 on AMP.B.
	J3629133	ELECTROL.COND.	22U 25V	P.5	C12 on AMP. B.
	J3629135	ELECTRL. COND.	470U 35V	P.5	C2 on IB
	J3629132	ELECTRL.COND.	100U 50V	P.5	C50 on OB
	J3629104	ELECTRL.COND.	10U 50V	P.5	C59 on OB // C8 on AMP.B.
	J5369103	ELECTR. COND.	100U 16V	(SMD)	C77 on MB
	J5369104	ELECTR. COND.	10U 16V	(SMD)	C160, C275 on MB
#	J5369105	ELECTR. COND.	33U 16V	(SMD)	All on MB
#	J5369106	ELECTR. COND.	1U 50V	(SMD)	C298 on MB
	J3629137	ELECTR. COND.	33U 16V	H.7	C10, 11, 12, 16, 19, 20, 21, 26, 29, 30 on CB
	J3629150	ELECTR.COND.	47U 16V	H.7	C1, 4, 5 on LCD Control B.
	13649103J0	UNPOL.COND.	10U 16V	P.5	C1, 2, 39, 40 on OB // C21, 34 on AMP. B.

INDUCTOR, COIL, FILTER

<<EMI>>	22448240	NOISE SUP.	BL02RN2-R62		L3, 4, 5 on OB
<<EMI>>	12449370	NOISE SUP.	SBT-0160W		L1,2, L7 > L12, 14 on OB
<<EMI>>	12449326	NOISE SUP.	SBT-0460		L6 on OB
<<EMI>>	13529187	NOISE SUP.	ELKTR391CA		FL1 > FL5 on CB
<<EMI>>	12449380	NOISE SUP.	EXC-ELDR25V		L1 on CB
<<EMI>>	12449449	INDUCTOR	RCH-875-151K		L13 on OB
<<EMI>> *A*	01566956	NOISE SUP.	N2012ZA202T01	CHIP	L23, L24, R176, R177, R78, R79 on MB
<<EMI>> *A*	01455623	NOISE SUP.	N2012Z102T01	CHIP	L1 > L18 on MB

CRYSTAL, RESONATOR

	00894023	QUARTZ	20,000 MHZ MA-406	X2 on MB
	00894034	QUARTZ	16,000 MHZ MA-406	X1 on MB
A	01560812	OSCILLATOR	SG-8002JC-49	X3 on MB

RELAY

	12439224RI	RELAY DS2YS-12V	RL1 on AMP.B.

CONNECTOR

	13419677RI	16P FEM. CONNECTOR	AMP 1.27	CN1, 2 on MB // CN3 on LCB // CN4 on RCB //
A	00897923	CONNECTOR SLP4R-5		CN2 on LCD Control B.
A	01454112	CONNECTOR 00 6216 012 100 808		CN3 on LCD Control B.
	13369688RI	4P MALE CONN.	P 2.5 M	CN1, 3 on AMP.B. // CN1 on IB
	J3439103	6P MALE CONNECTOR	P 2.5 M	CN2 on AMP.B.
	J3439109	5P MALE CONNECTOR	P 2.5 M	CN3 on OB
	J3439113	7P MALE CONNECTOR	P 2.5 M	CN2 on OB // CN4, 5 on AMP.B.
	J3439121	6P MALE CONNECTOR	P.2 M	CN20 on MB
	J3439122	8P MALE CONNECTOR	P.2 M	CN5 on CB // CN1 on OB
	J3439125	5P MALE CONNECTOR	P.2 M	CN3 on CB // CN4 on OB // CN14 on MB
	J3439151	9P MALE CONNECTOR	P.2 M	CN2 on CB // CN6 on MB
	J3439143	34P MALE CONNECTOR	P. 1.27 M	CN3 on MB
	J3439126	12P MALE CONNECTOR	P.2 M	CN1 on CB // CN5 on MB
	J3429120	3P MALE CONNECTOR	P.2 M	CN4, 7 on CB // CN4, 7 on LCD Control B. // CN4, 12 on MB
	J3439148	7P MALE CONNECTOR	P.2 M	CN6 on LCD Control B // CN16 on MB
	J3439162	13P MALE CONNECTOR	P.2 M	CN5 on LCD Control B // CN11 on MB
A	13369568	B3B-PH-K-S CONNECTOR		CN5 on OB // CN17 on MB
A	13369566	B6B-PH-K-S CONNECTOR		CN7 on OB // CN21 on MB
A	13369503	B7B-PH-K-S CONNECTOR		CN8 on OB // CN7 on MB
A	13369564	B12B-PH-K-S CONNECTOR		CN23 on MB
A	13369582	B13B-PH-K-S JST CONNECTOR		CN6 on OB
A	01349645	S2(4-2.3)B-XH-A CONNECTOR		CN2 on IB

WIRING, CABLE

	K3468155	4P CABLE 2R/2N	(28)	2C D/R		See “WIRING DIAGRAM” on page 4.
	K3468154	4P CABLE ASSY	(52/58)	(W/4PC)		“
#	K3468206	4P CABLE	(44)	-2C D/D	E-600	“
	K3468166	16P FLAT CABLE	(44)	-2C		“
	K3468177	16P FLAT CABLE	(56)	-2C		“
	7698713000	3P CABLE ASSY	(78)	(W/4PC+4PC)		“
#	K3468207	34P FLAT CABLE ASSY	(60)	-2C + FERRITE	E-600	“
#	7711208000	3P CABLE ASSY	(8)	-2C P.2	E-600	“
#	7711206000	CONTROL WIRING ASSY			E-600	“
#	7711207000	BOTTOM WIRING ASSY			E-600	“

NOTE : When you substitute the BOTTOM WIRING ASSY code 7711207000 , please replace the:
“FERRITE CORE VOGT 235 07 857 10 code J2399108” too, because it does not belong to the “BOTTOM WIRING ASSY”

SCREW

	J2289101	SELF TAP.SCREW 2.9X 6 TC TC
	J2289102	SELF TAP.SCREW 2.9X10 TC TC
	J2289125	SCREW 2.9X10 TC TC PR TROP
	J2289130	SCREW 2.9X13 TC TC PR TROP
	J2289131	SELF TAP.SCREW 3.5X16 TCTCPRBZ
	J2289118	SCREW 2.9X16 TC TC PR BRUN
	J2289108	SELF LOCK.SCREW M3X10 TCTC H.6
	J2289193	SELF LOCK.SCREW M3X6 TC TC H.6
	J2289186	SCREW 3.5X16 TCPR TFR H.8 BRUN
	J2289113	NUT 3MA H.3
	J2139101	FLAT WASHER I/D 4
	J2139102	TOOTHED WASHER I/D 3
	22165134	BRASS BUSHING

PACKING

	K2638175	RIGHT POLYST. END-SIDE E-500
	K2638176	LEFT POLYST. END-SIDE E-500
	K2678105	CARTENE ENVELOPE HD 140X57
	K2678106	POLYETH.ENVELOPE 4OX55
#	K2618211	OUTER PACKING E-600

MISCELLANEOUS

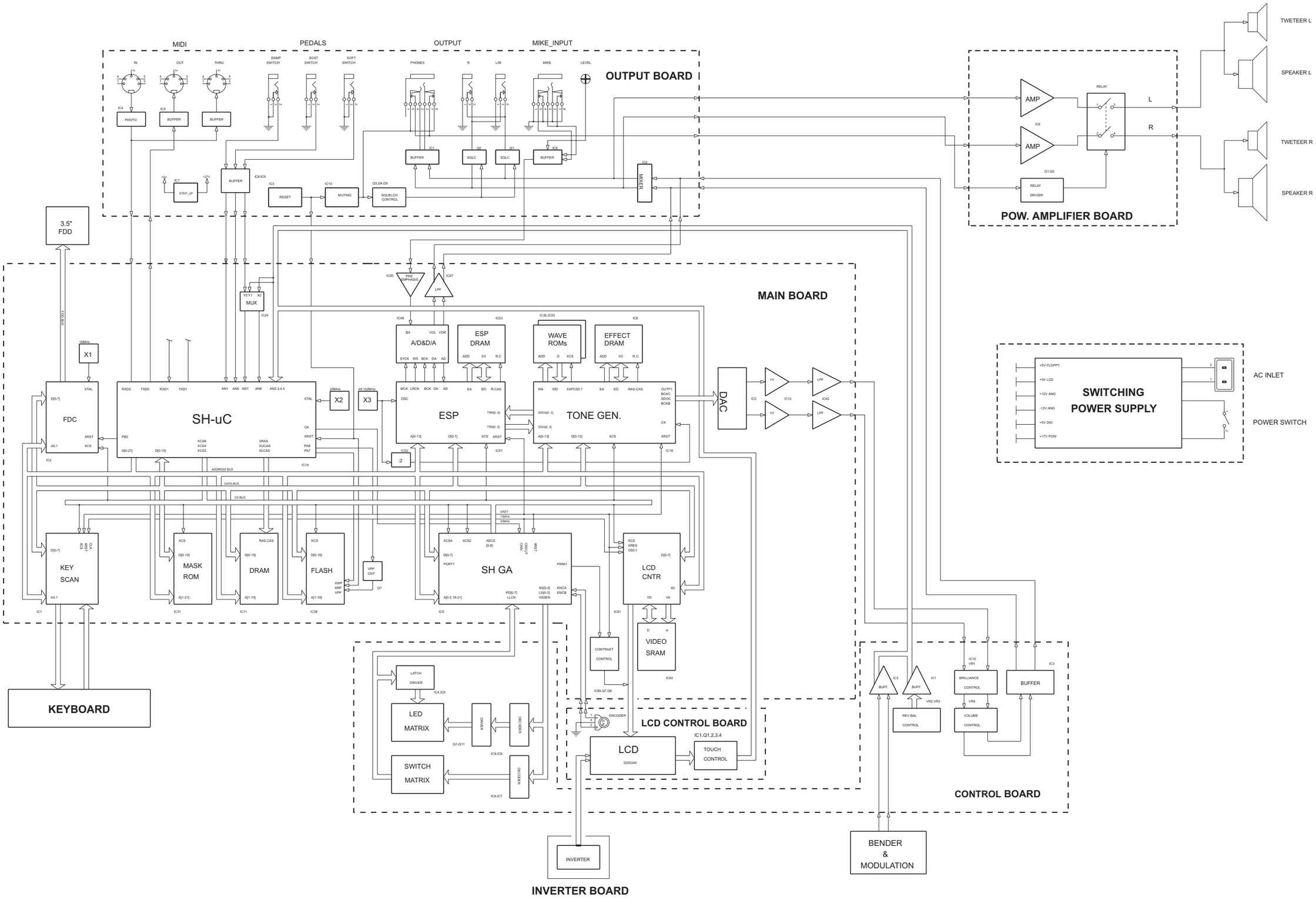
	K2168105	SPACER F/LED H.12 HEX.
	J2359101	SPACER 3M ART. SJ5012
	22265242	RUBBER GUIDE BUSHING
	J2159103	DOUBLE ELASTIC PLATE
	J2399108	FERRITE CORE VOGT 235 07 857 10
	K2248126	ANTIDUST COVER PL30N
#	K2248148	ANTIDUST F/LCD E-600
A	01345012	POSITION SENSOR ROS-03-ID
	K2248127	PROTECTING BOX COVER F/INVERTER
	K2248128	PROTECTING BOX BASE F/INVERTER
#	K2238125	SILKSCREENED MYLAR E-600
	K253810302	FUSE WARNING LABEL

ACCESSORIES

⚠	J3439150	MAINS CABLE H05VV+POL.SOCKET	(230V)
⚠	13499152RI	CABLE BS/13/H05VV-F3G0.75-V	(230VE)
⚠	J3439167	MAINS CABLE SAA/2-H05VV 2X1-C17	(240VA)
⚠	J3439128	CABLE 498/3SJT 2X18 AWG-C17	(117V)
#	K2378113	STYLE / ACOUSTIC DISK E-600	
#	7711211000	VERSION UP DISK E-600	
	K6018109	MIDI GUIDE	
#	K6018350	O.MANUAL (E/D/F)* E-600	
#	K6018351	O.MANUAL (IT/SP/OL)* E-600	
#	K6018352	MIDI IMPLEMENTATION MANUAL E-600	

(E/D/F)* = English/ German/ French
(IT/SP/OL)* = Italian/ Spanish/ Dutch

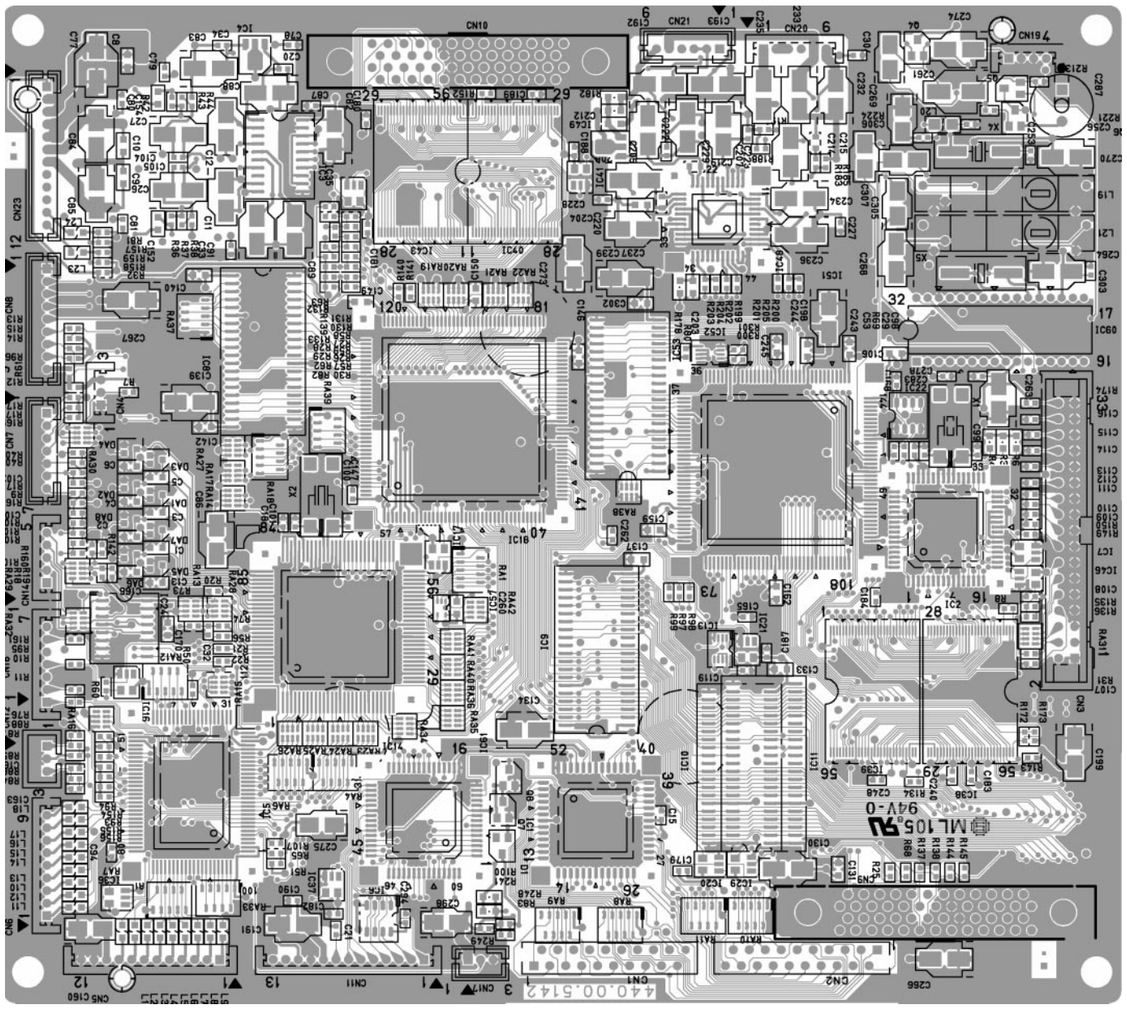
BLOCK DIAGRAM



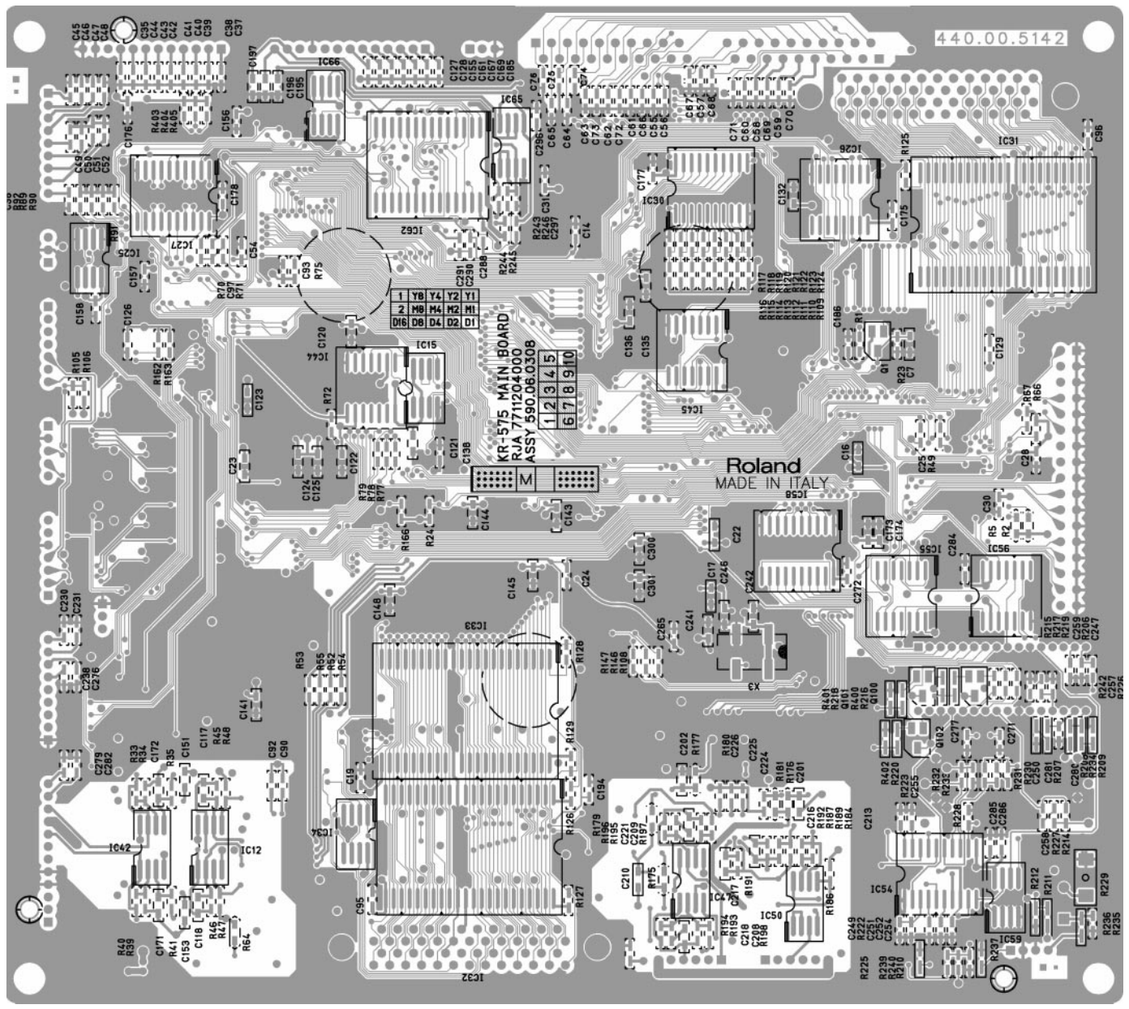
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

A B C D E F G H I J K L M N O P Q R S T U

E MAIN PCB ASSY ASSY 7711204000



View from component side



View from solder side

CIRCUIT DIAGRAM (MAIN PCB ASSY)

ADDRESS MAPPING

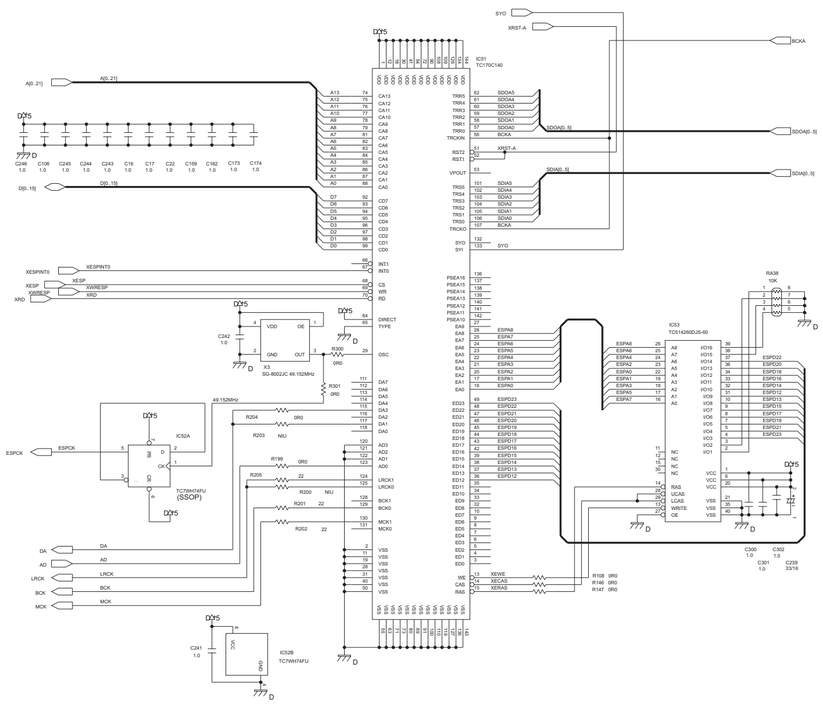
A27 H : WORD ACCESS
L : BYTE ACCESS

ADDRESS		DEVICE	SH CS	EXCITION
00000000 - 000FFFFF	(64KB)	SH ROM	---	---
9000000 - 90FFFFFF	(1MB)	16Mbi DRAM	XRAS	---
A000000 - A0FFFFFF	(1MB)	8Mbi FLASH	XCS2	XECS0
A280000 - A2FFFFFF		ETC.	XCS2	XECS2
2300000 - 23FFFFFF		VGA(SED1335)	XCS2	XECS3
C000000 - C0FFFFFF		XP(MASTER)	XCS4	XECS4
4100000 - 417FFFFF		SSC1080	XCS4	XECS5
4180000 - 41FFFFFF		FDC HD63266	XCS4	XECS6
4200000 - 427FFFFF		ESP	XCS4	XECS7
C280000 - C2FFFFFF		NIU	XCS4	XECS8
4380000 - 43FFFFFF		EXCITION	XCS4	---
E000000 - EFFFFFFF (4MB)		32M(64M) MASK	XCS6	---

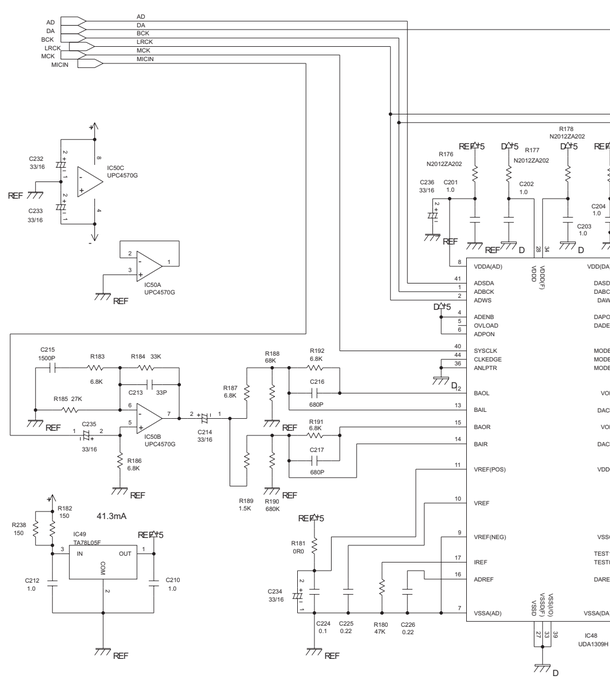
ETC

2280000-229FFFFF OSD1
22A0000-22BFFFFF OSD2
22C0000-22DFFFFF EXTENDED OUTPUT PORT
22E0000-22FFFFFF EXTENDED INPUT PORT

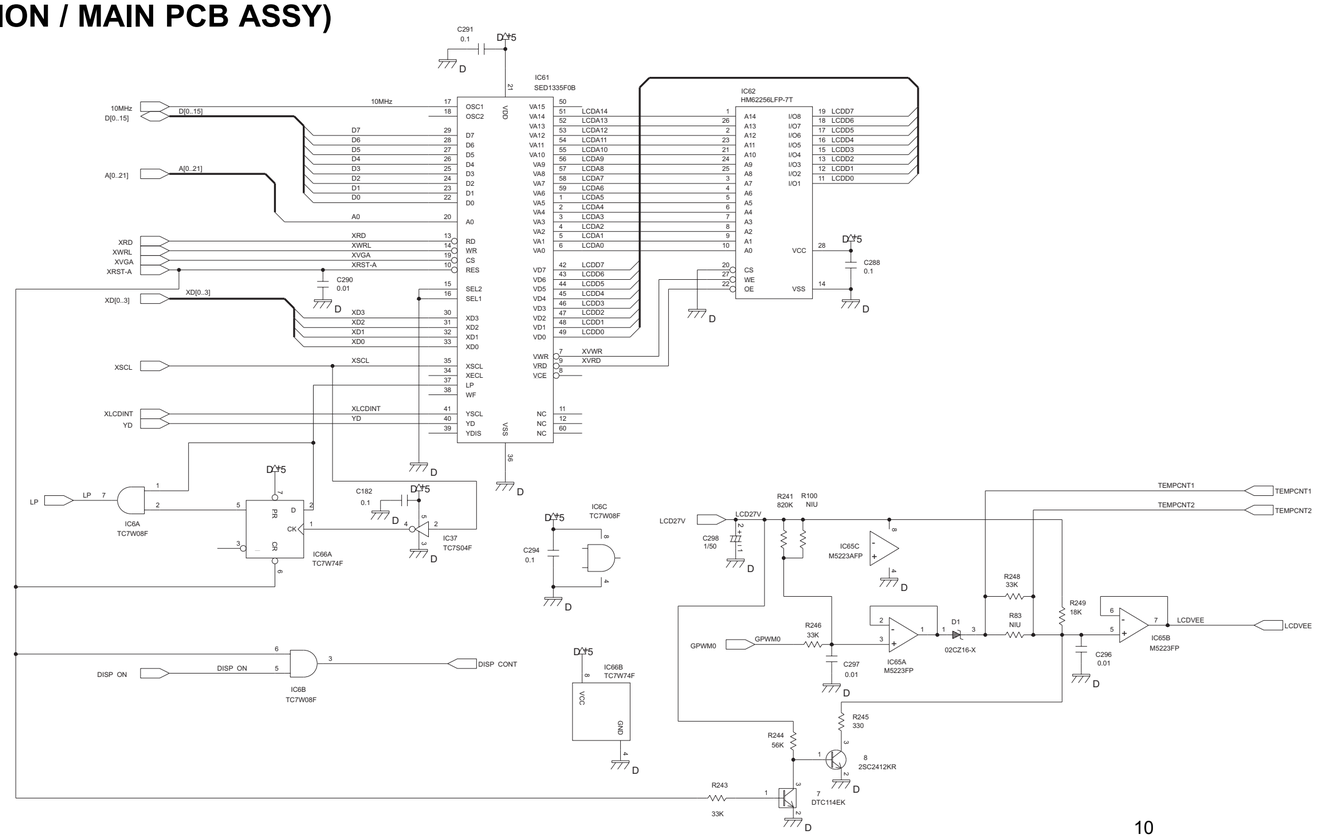
CIRCUIT DIAGRAM (ESP. SECTION / MAIN PCB ASSY)



CIRCUIT DIAGRAM (MIC. SECTION / MAIN PCB ASSY)

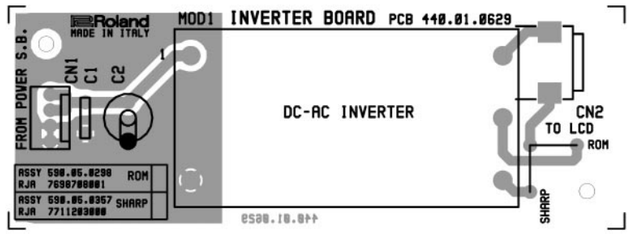


CIRCUIT DIAGRAM (LCDC. SECTION / MAIN PCB ASSY)

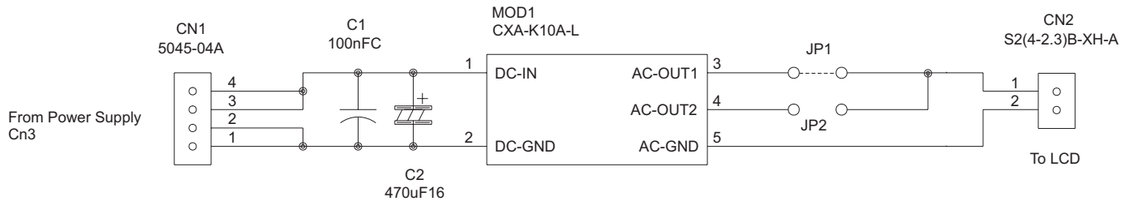


INVERTER PCB ASSY & CIRCUIT DIAGRAM

ASSY 7711203000

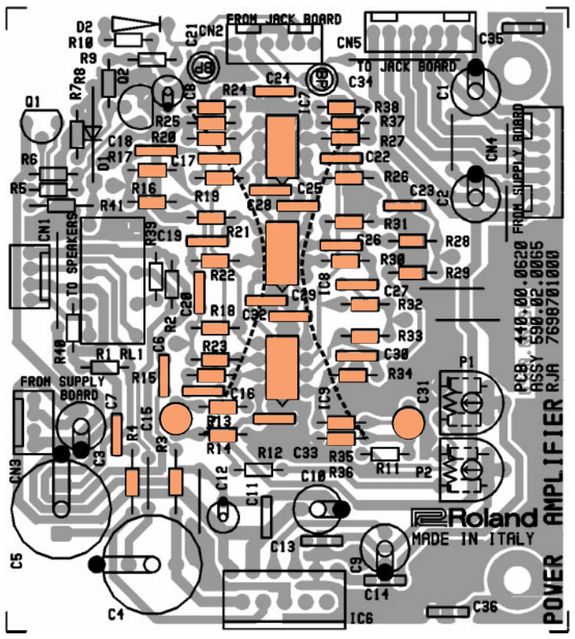


View from component side



POWER AMPLIFIER PCB ASSY & CIRCUIT DIAGRAM

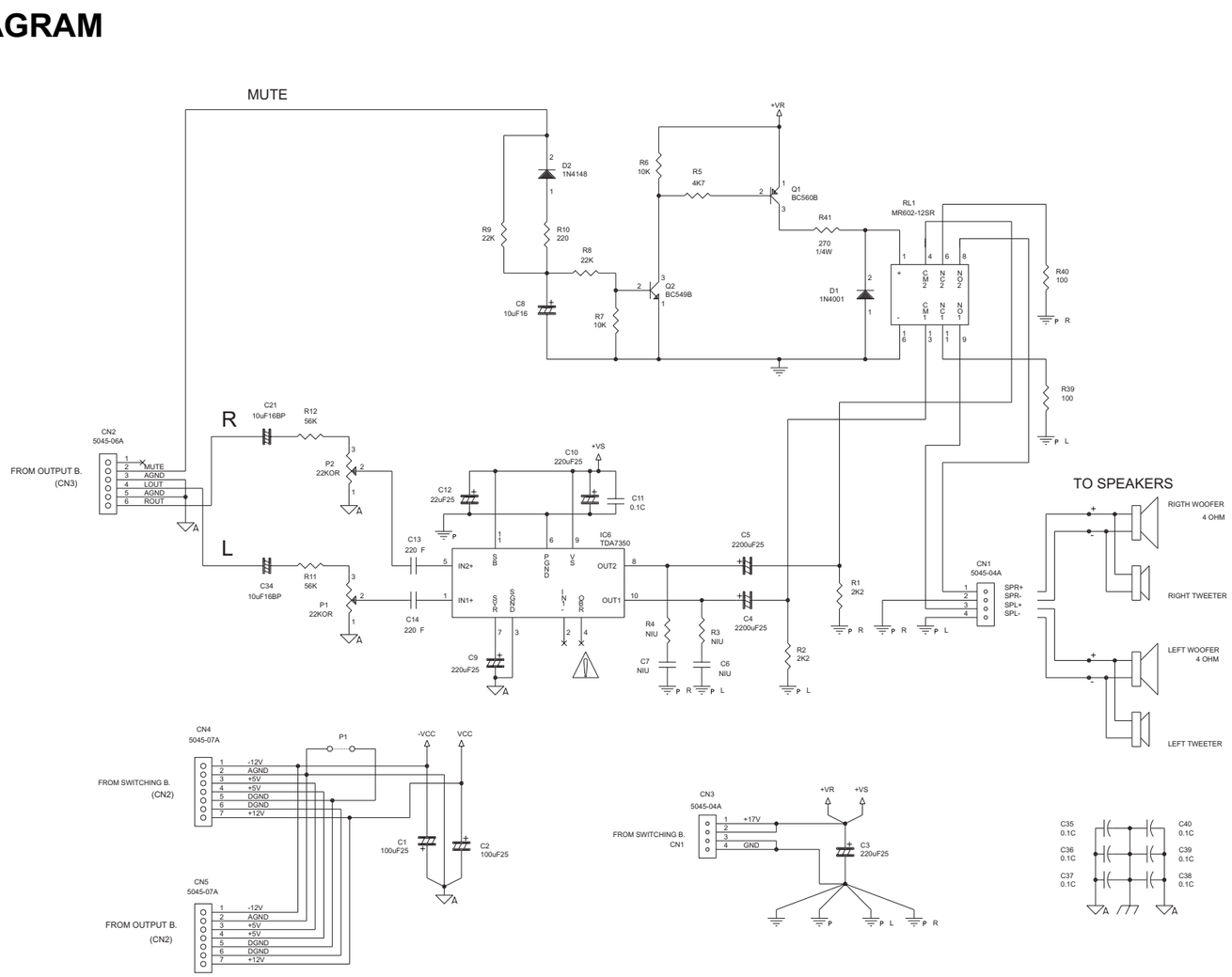
ASSY 7698701000



View from component side

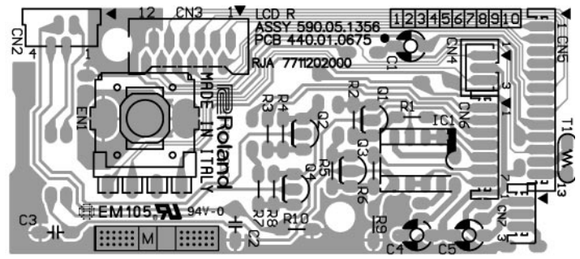
NOT mounted component

Jumper

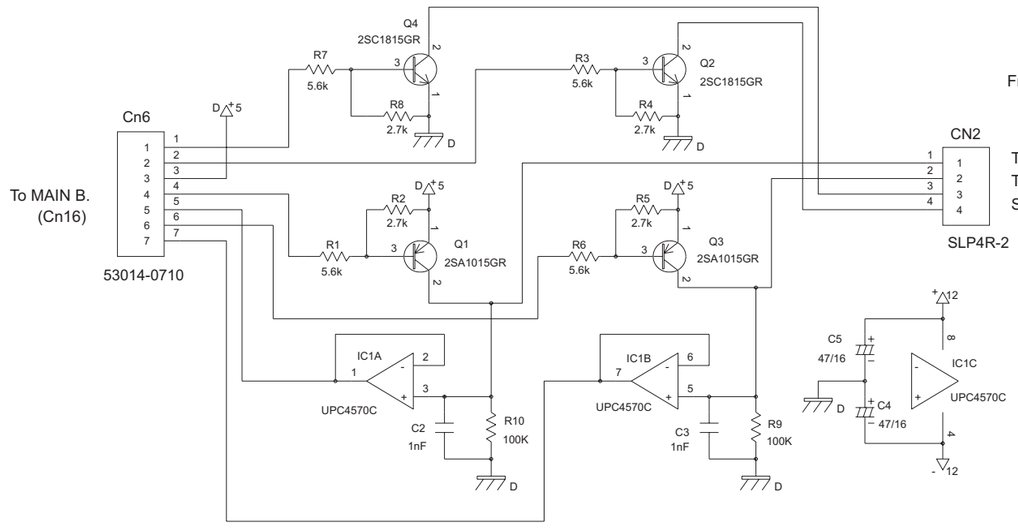


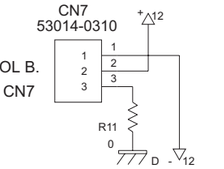
LCD CONTROL PCB ASSY & CIRCUIT DIAGRAM

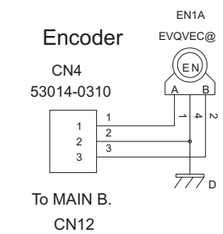
ASSY 7711202000

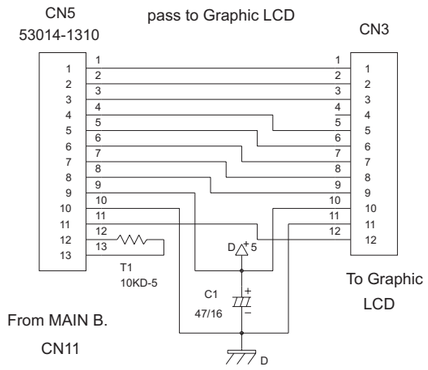


View from component side

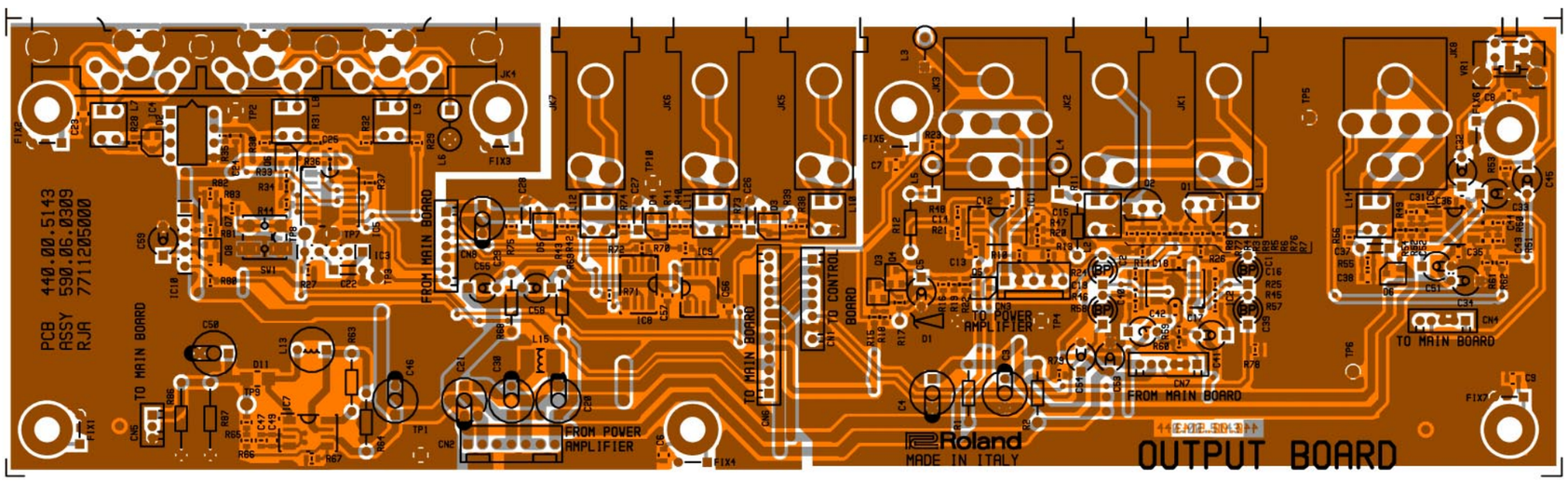






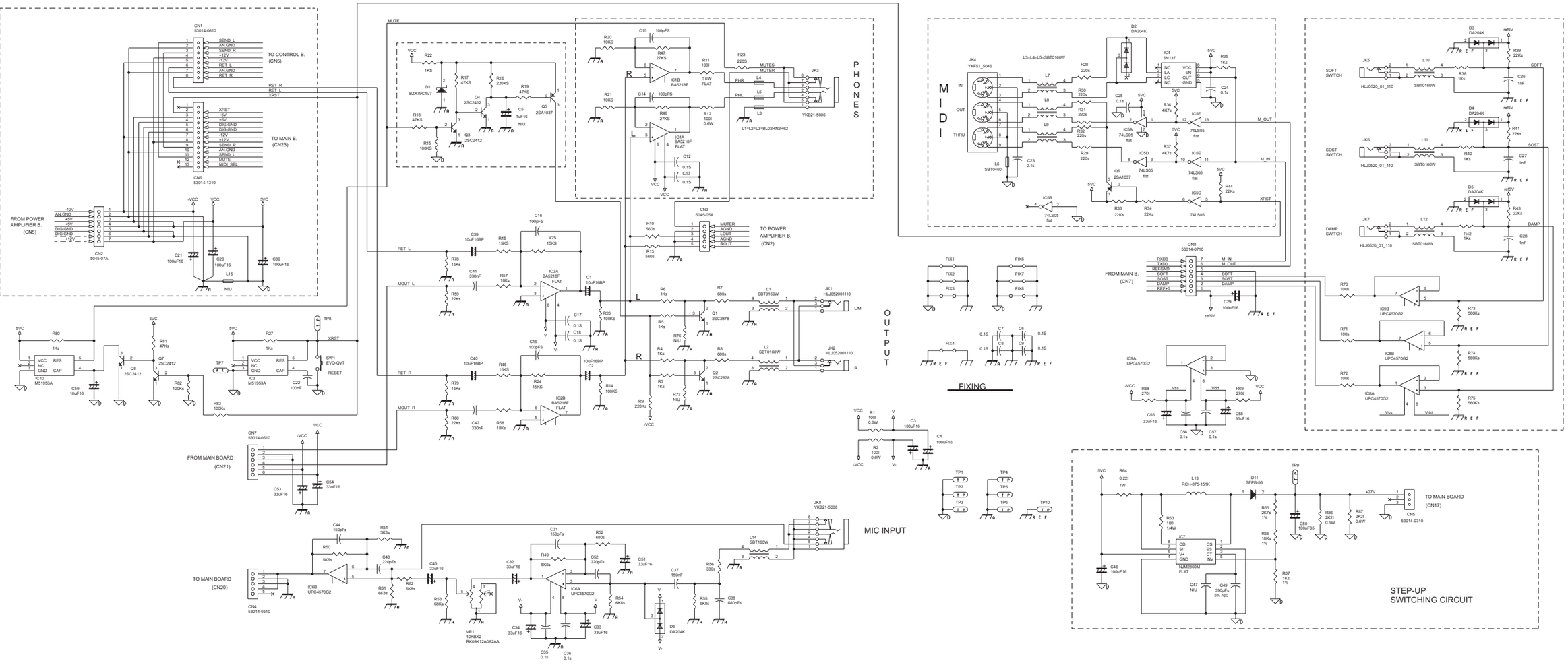


OUTPUT PCB ASSY ASSY 7711205000

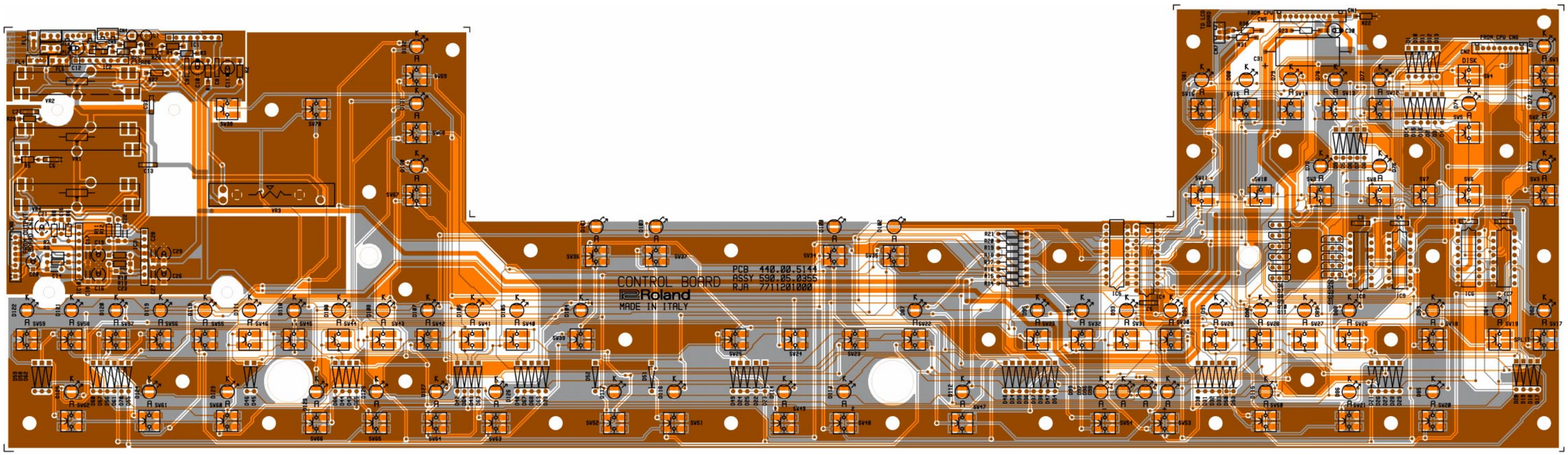


View from component side

CIRCUIT DIAGRAM (OUTPUT PCB ASSY)

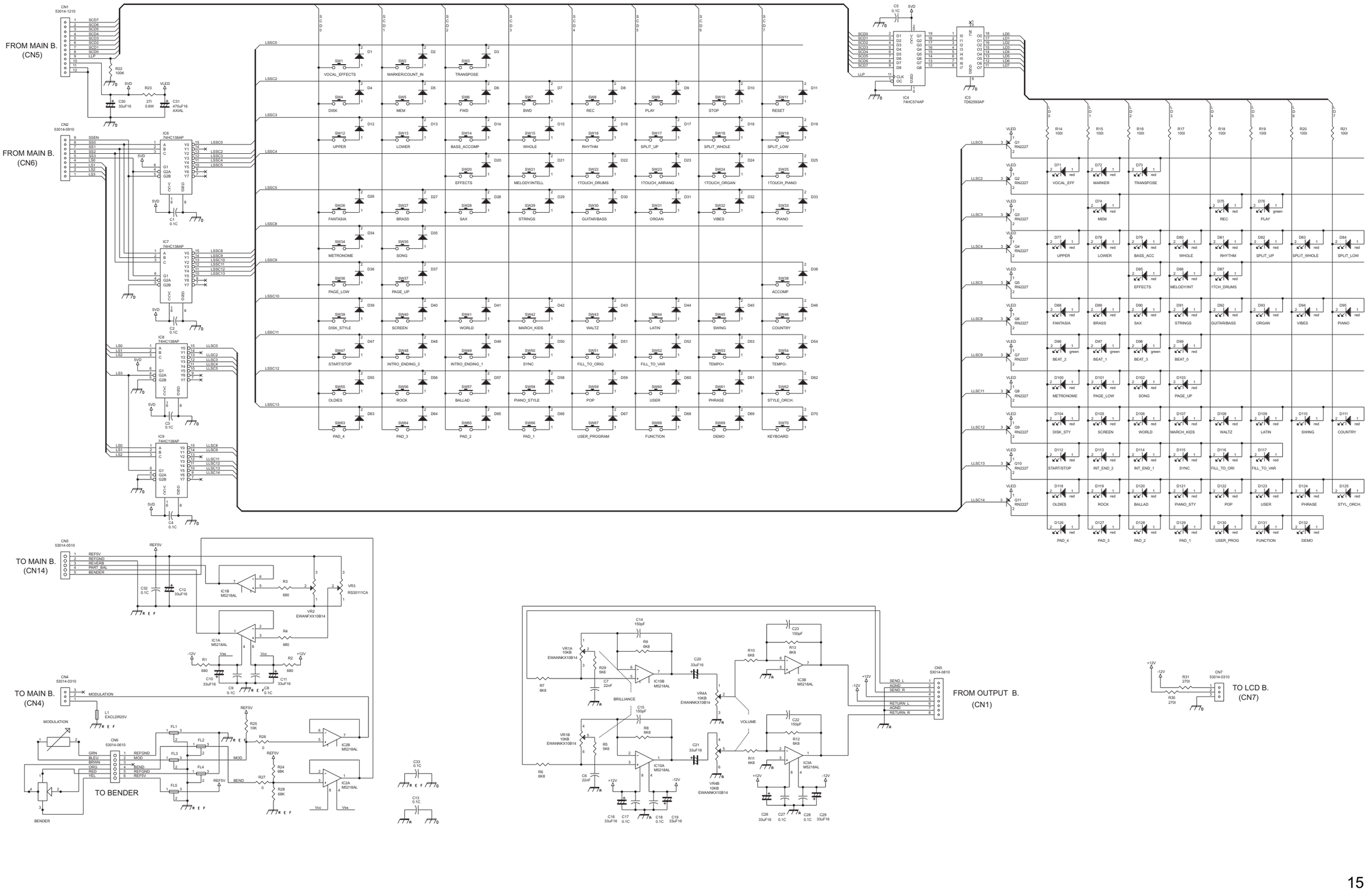


CONTROL PCB ASSY ASSY 7711201000

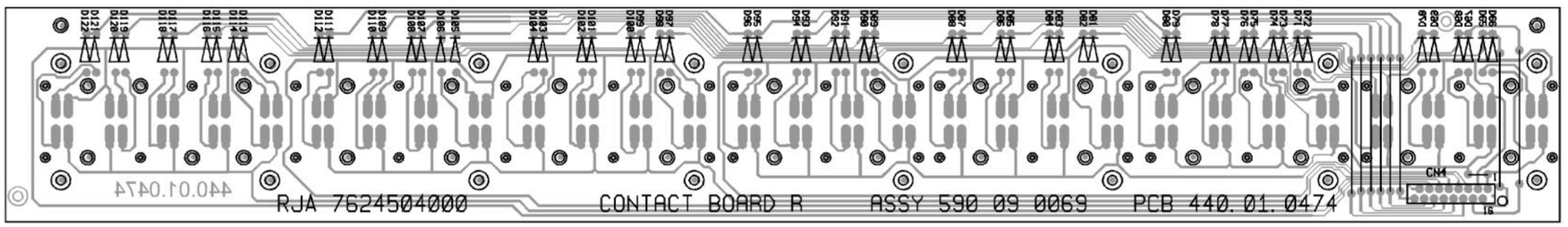


View from component side

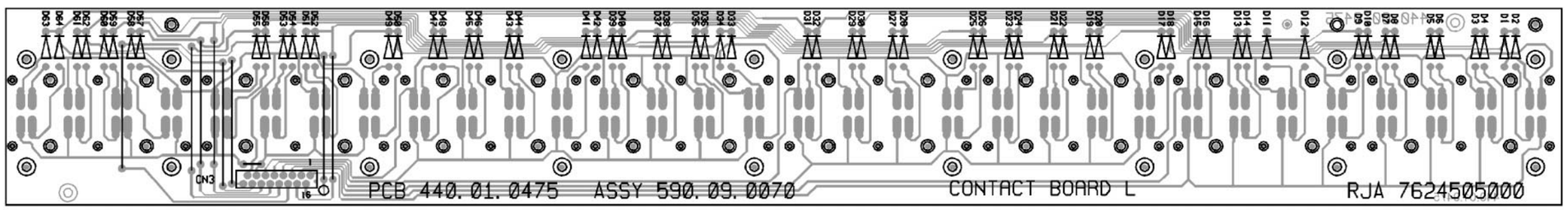
CIRCUIT DIAGRAM (CONTROL PCB ASSY)



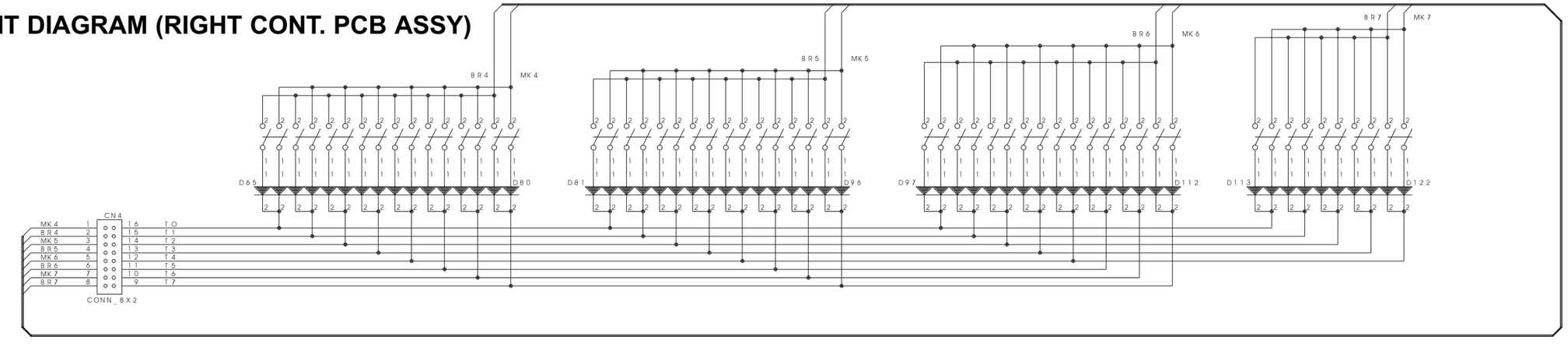
RIGHT CONTACT PCB ASSY w/RUBBER ASSY 7624504000



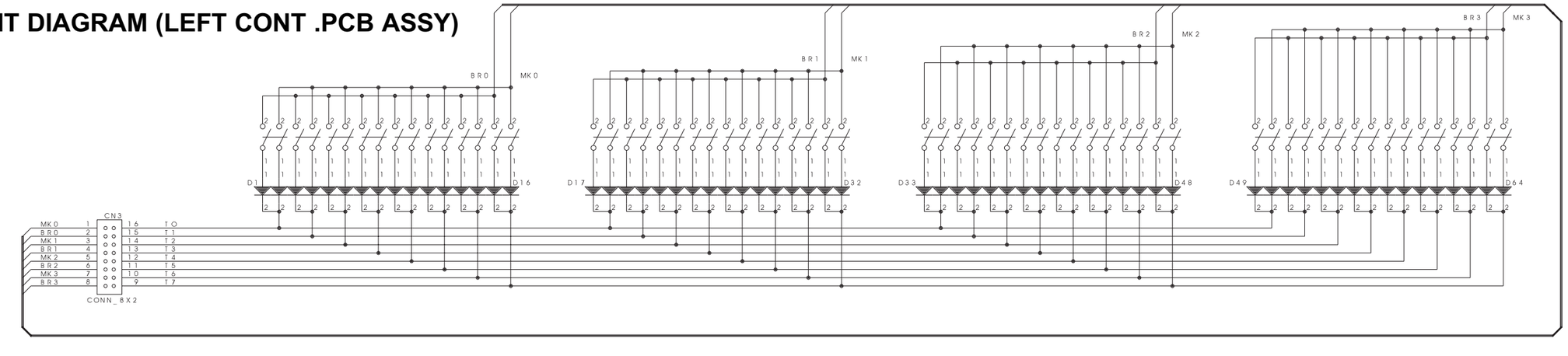
LEFT CONTACT PCB ASSY w/RUBBER ASSY 7624505000



CIRCUIT DIAGRAM (RIGHT CONT. PCB ASSY)



CIRCUIT DIAGRAM (LEFT CONT .PCB ASSY)



TEST MODE

Required items:

- MIDI Cable …… 1 (1.5 m)
- Microphone
- Oscilloscope
- KR-575 LCD Calibration sheet (part number 01675978)
- Touch-pen for PMA-5 (part number 00900545)
- 3,5inch Floppy Disk (formatted by E-600/ 2 HD x 1,2; DD x 1)

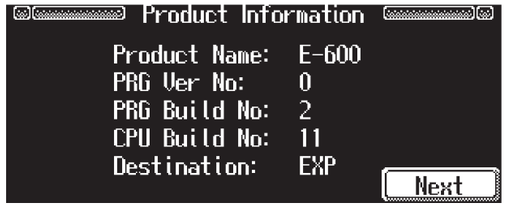
Test Main Menu'

In order to enter the different tests listed below, press each time the button "Next " or the button " Part Volume Accomp ".

1. **Calibration of the Touch Panel**
2. **Display of the Device Check and Rom Version**
3. **Factory Preset Setting**
4. **Control of buttons and LEDs**
5. **Control of the Speaker Panning and of Effect Sound**
6. **Esp check**
7. **A/D check**
8. **Touch Panel A/D check**
9. **Encoder check**
10. **MIDI check**
11. **Microphone check**
12. **FDD check**
13. **LCD check**
14. **LCD contrast check**
15. **Setup and Destination**
16. **Audio check**

To enter the Test Mode

While pressing both [Track 4] and [Play] buttons, press Part Balance [Accomp].
The following display will appear and you will enter test mode.



How to go to the following test.

While you are in test mode, you can go to the following test by pressing the Part Balance [Accomp] button.

When the writing [Next] is displayed at the bottom of the screen, you can go on by touching it ([Next]).

NOTE: Do not play the keyboard while you are in test mode. If there is a malfunction, press the Part Balance [Accomp]button several times until the display "Product Information" will be shown. Then start the test again.

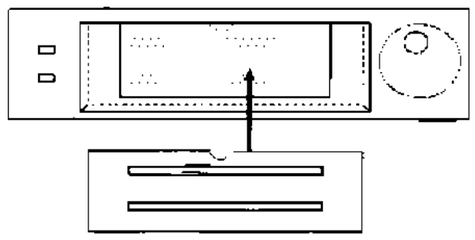
While you are in test mode (except in Device Check mode), you can adjust the LCD contrast by rotating the Rotary Encoder keeping the Part Balance [Keyboard] button pressed.

1. Calibration of the Touch Panel

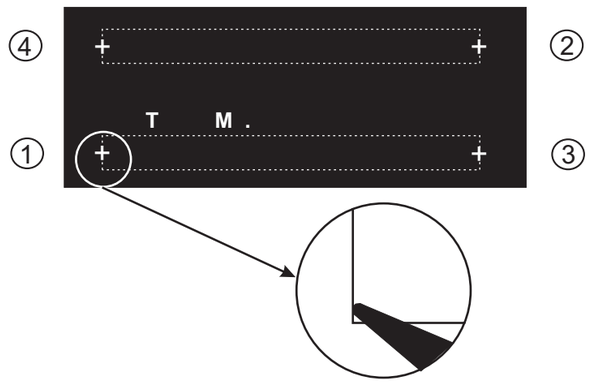
Calibrate the position of the Touch Panel this way.

To perform this test, original pen (Touch Pen for PMA-5, P/no. 00900545) and jig (KR-575Calibration Sheet, P/No. 01675978) are required. Please order these jigs from the local Roland Service Center if necessary.

Place the Calibration sheet on the Touch Panel as shown in the following picture. The side with a notch should become the upper.



After positioning the sheet, the display will appear as follows:
Touch the lower corner of each slit on the sheet with the Touch pen according to the numbering shown in the following picture). When the E-600 recognizes the touch, "+" will change into "O".



This way, the writing "Touch Me" will appear to show the correct order, so please follow this indication. During the Calibration, do not touch any point except "Touch Me". After touching the four points, the calibration step ends and the display will show :

Note: The calibration set will be memorized at the point " 3 " Factory Preset Setting" of the Test mode.
When the calibration fails, the following display will appear:

You have to carry out the calibration again.
Press the Part Balance [Accomp] button to go to the next test.

2. Display of the Device Check and Rom Version

Note: After the calibration, turn down the general volume so as to avoid hearing the audio noise.
This control starts automatically after the calibration step. The display may change as follows:

When no problem is found, "OK" will be shown on the top of the display.
On the contrary, the following error message will appear:

The devices and contents checked are as follows:

DEVICE	CONTENTS
PROGRAM ROM	checks the Checksum
DRAM	checks the working of the DRAM for CPU
Wave rom	checks the Checksum
DSP RAM	checks the RAM for XPDSP
ESP RAM	checks the RAM for ESP
DATA ROM	checks the Checksum
DATA ROM TYPE	checks the type of DATA ROM
FDC Ex Port	checks the FDC port

When the Device Check ends, touch "Next" on the screen or press the Part Balance [Accomp] button to go to the next test.

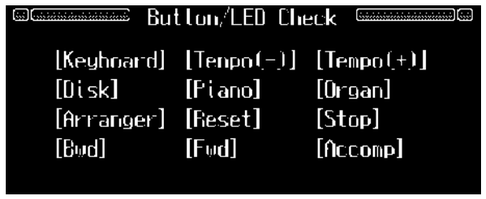
3. Factory Preset Setting

The following display will appear:

Touch "Go" on the screen or press Part Balance [Accomp] to start the loading of the Factory Preset Setting in the internal memory.
For not loading the Factory preset setting in the memory, touch "Skip" on the screen.

4. Buttons and LEDs check

All the LEDs light up and the following display appears:



A piano sound should be heard and the LED corresponding to each pressed button turns off.
When you press the [Metronome], [Song] and [Page] buttons, the Beat indicators turn off.
When you press the buttons without LEDs the relative name indicated on the LCD disappears.
NOTE: If you press the Part Balance [Accomp]button first, you will go on to the following test. Once you begin the checking process for this kind of test, it is not possible to go to the following one before checking all the buttons. Press the Part Balance [Accomp] button in the end and you will go on to the following test.

5. Speaker Panning and Effect Sound check.

The following display will appear:

Press the following buttons to check the effects and the pannings:

BUTTON	OUTPUT
Pop Sound	PIANO 1 Direct sound
Piano Style	PIANO 1 CHORUS sound
Ballad	PIANO 1 REVERB sound
Rock	PIANO 1 RESONANCE sound
Oldies	Sine wave from the LEFT speaker.
Country	Square wave from the RIGHT speaker.
Band/Swing	Sine wave from both speakers.

Once the check ends, touch [Next] on the screen or press Part Balance [Accomp] to go on in the test mode.

6. Esp check

The following display will appear:

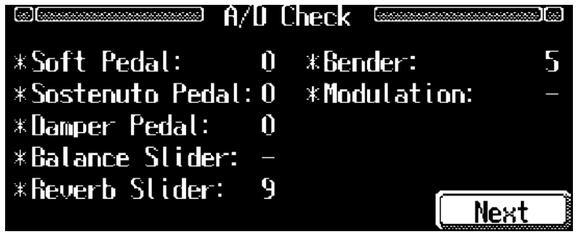
When you press the following buttons, a corresponding sound will be heard.

BUTTON	OUTPUT
Pop	Sawtooth wave from the LEFT speaker
Piano Style	Triangular wave from the RIGHT speaker

Note: You can adjust the output volume by rotating the Rotary Encoder.
You can not change the volume by moving the [volume] slider, instead.

7. A/D Check

The following display will appear:



When you press the pedals or move the potentiometers indicated on the display, the value will change from 0 to 9 and you will hear a Sine wave per time, except for the values "0" and "9". At value "0", you will hear no sound; at value "9" you will hear a Metronome sound. With the [Balance] potentiometer and the Bender level you will hear no sound even at value 5. At the end of the test, when the value has increased from "0" to "9", the asterisk mark will disappear.
Once this check ends, you can go on to the following step.

8. Touch Panel A/D Check

The following display will appear

Move the Touch pen from the upper side of the Touch panel to the lower one and make sure that the values of the "X= " change from "0" to "9" and that the asterisk has disappeared. Then move the pen from the right side of the Touch Panel to the left one and make sure that the values of the "Y= " change from "0" to "9" and that the asterisk has disappeared. When both the asterisks have disappeared, you can go on to the following step.

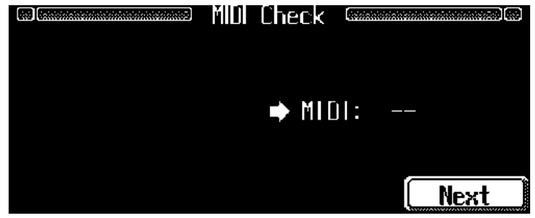
9. Encoder Check

The following display will appear:

Rotate the encoder in clockwise direction and make sure that the value increases until 30.
Then rotate the encoder in anticlockwise direction and make sure that the value goes back to 0.
When the value will be back to "0", you can go on to the following step.

10. MIDI check

The following display will appear:

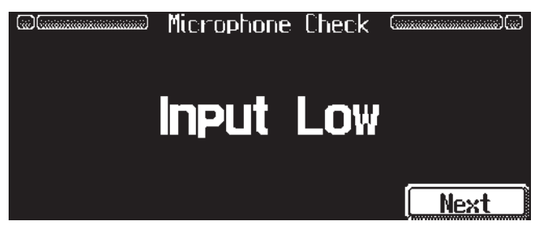


● MIDI check
Connect the (In / Out) MIDI sockets by a MIDI cable and check that the test output is "OK". If you take away one of the two plugs of the cable, the result is " -- ", meaning "Connection failed". If the MIDI cable has been connected properly but the test result is not " OK ", there must be some functional problems in the board.

● MIDI Thru
Always during the MIDI check, take another MIDI cable and connect one of its plugs to the E-600 "Thru " socket left and the other one to a MIDI " In " socket of another instrument. By playing the keyboard of the E-600, you should hear the notes played from the other instrument. This proves that the E-600 Thru socket works properly.

11. Microphone check

The following display will appear:



Make sure that the writing [Input Low] appears when there are no input sounds or when their level is low or when the Level potentiometer is at minimum.

Make sure that the writing [Input High] appears when the input sounds level is high.

After finishing this test, touch "Next" on the screen or press the Part Balance [Accomp] button to go on to the following test.

12. FDD check

The following display will appear:

To make this test you need 3,5" disks (HD or DD kind), formatted by E-600.

Note: When you make this test, the data contained in the floppy disk will be damaged.

Insert a 2DD floppy disk, which is write protected and check that the note "2DD Protected" will appear on the display. Then insert an unprotected 2DD floppy disk and check that the note "2DD:OK" will appear on the display. In the same way, insert an unprotected 2HD floppy disk and check that the note "2HD:OK" will appear on the display.
When you insert an unformatted disk the note "Unformatted" will appear on the display
If there are some problems, the writing "NG". will appear on the display.
When this test is completed, touch "Next" on the screen or press the Part Balance [Accomp] button to go on to the following test.

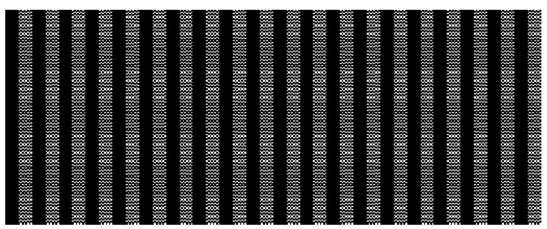
13. LCD Check

The following display will appear:

Press the One Touch Program [Piano] button and make sure that all the LCD dots lighten (White).

Then press the One Touch Program [Arranger] button and be sure that all the LCD dots turn off (Blue).

After this, press the Part Balance [Accomp] button. The following display will appear:



Notice if the vertical lines are shown clearly.
Then press the following buttons and verify the ON and OFF conditions of the display:
One Touch Program [Piano] : ON (LCD with lines)
One Touch Program [Arranger] : OFF (LCD Blue)

At the end of this test, press the Part Balance [Accomp]button to go to the following check

14. LCD Contrast test

The following display will appear:

Rotate the encoder completely and make sure that the number indicated on the dispaly changes from 0 to 9 and that the contrast changes according to the value indicated. Make also sure that the character is recognizable even at value "0".

At the end of this test, touch "Next" on the screen or press the Part Balance [Accomp] button so as to go to the following verification.

15. Destination setup

The following display will appear:

Touch the button corresponding to the destination indicated on the Touch Panel or press the corresponding button, as follows:

Display	Destination	Button
DOM	100V	One Touch Program [Piano]
EXP	230V/240V	One Touch Program [Organ]
US	117V	One Touch Program [Arranger]

Then touch "Write" on the screen or press the Part Balance [Accomp] button to start the destination setup. When the setup ends, you will go automatically to the following step.

The following display will appear:

Turn off the instrument to exit the test mode.

16. Audio Test

When you turn on the instrument while pressing the buttons "Intro / Ending" 1 and 2 you enter Audio Test.
The display will visualize:

You will hear a sine sound going out from both right and left loudspeakers. The " Volume" potentiometer must be in Max position.
Calibrate the trimmers of the amplifier channels (P1 c.dx and P2 c. sx) so as the tension at the loudspeakers is 8,2 Vpp.

Turn off the instrument to exit Audio Test.

How to update the Flash Memory

Since E-600 has a Flash Memory for the recording of the Main Program, you can update it by floppy disk.

✧ **Items required:**

E-600 VERSION UP DISK (code:7711211000)

After inserting the disk in the FDD, turn on the instrument while pressing the [Start/Stop] and [Metronome] buttons contemporarily.

All the LEDs flash and the loading of the program begins.

When the loading ends, the writing "Finished" will appear on the display.