

BK-5

BACKING KEYBOARD

SERVICE NOTES

FIRST EDITION

Issued by RES

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CAUTIONARY NOTES

Cautionary Notes

Before beginning the procedure, please read through this document. The matters described may differ according to the model.

About Disassembly Operations

- To prevent accidents, when performing disassembly of the unit, be sure to first switch off the power to the unit and unplug the power cord.

Part Replacement

When replacing components near the power-supply circuit or a heat-generating circuit (such as a circuit provided with a heat sink or including a cement resistor), carry out the procedure according to the instructions with respect to the part number, direction, and attachment position (mounting so as to leave an air gap between the component and the circuit board, etc.).

Parts List

A component whose part code is ***** cannot be supplied as a service part because one of the following reasons applies.

- Because it is supplied as an assembled part (under a different part code).
- Because a number of circuit boards are grouped together and supplied as a single circuit board (under a different part code).
- Because supply is prohibited due to copyright restrictions.
- Because reissuance is restricted.
- Because the part is made to order (at current market price).

Circuit Diagram

In the circuit diagram, "NIU" is an abbreviation for "NOT IN USE," and "UnPop" is an abbreviation for "Unpopulated." They both mean non mounted components. The circuit board and circuit board diagram show silk/screened indications, but no components are mounted.

DIGITAL KEYBOARD BK-5 Series

BK-5	230V EU	074021E32
	230VE	074021E49
	220V CN	074021E65
	117V U/CS	074021E28
	240VA	074021E59
	117V US	074021E22
	100V	074021E19
	117V BL	074021E26

Note: Specifications are subject to change without prior notice.

For EU countries



UK This symbol indicates that in EU countries, this product must be collected separately from household waste, as defined in each region. Products bearing this symbol must not be discarded together with household waste.

DE Dieses Symbol bedeutet, dass dieses Produkt in EU-Ländern getrennt vom Hausmüll gesammelt werden muss gemäß den regionalen Bestimmungen. Mit diesem Symbol gekennzeichnete Produkte dürfen nicht zusammen mit den Hausmüll entsorgt werden.

FR Ce symbole indique que dans les pays de l'Union européenne, ce produit doit être collecté séparément des ordures ménagères selon les directives en vigueur dans chacun de ces pays. Les produits portant ce symbole ne doivent pas être mis au rebut avec les ordures ménagères.

IT Questo simbolo indica che nei paesi della Comunità europea questo prodotto deve essere smaltito separatamente dai normali rifiuti domestici, secondo la legislazione in vigore in ciascun paese. I prodotti che riportano questo simbolo non devono essere smaltiti insieme ai rifiuti domestici. Ai sensi dell'art. 13 del D.Lgs. 25 luglio 2005 n. 151.

ES Este símbolo indica que en los países de la Unión Europea este producto debe recogerse aparte de los residuos domésticos, tal como esté regulado en cada zona. Los productos con este símbolo no se deben depositar con los residuos domésticos.

PT Este símbolo indica que nos países da UE, a recolha deste produto deverá ser feita separadamente do lixo doméstico, de acordo com os regulamentos de cada região. Os produtos que apresentem este símbolo não deverão ser eliminados juntamente com o lixo doméstico.

NL Dit symbool geeft aan dat in landen van de EU dit product gescheiden van huishoudelijk afval moet worden aangeboden, zoals bepaald per gemeente of regio. Producten die van dit symbool zijn voorzien, mogen niet samen met huishoudelijk afval worden verwijderd.

DK Dette symbol angiver, at i EU-lande skal dette produkt opsamlles adskilt fra husholdningsaffald, som defineret i hver enkelt region. Produkter med dette symbol må ikke smides ud sammen med husholdningsaffald.

NO Dette symbolet indikerer at produktet må behandles som spesialavfall i EU-land, iht. til retningslinjer for den enkelte regionen, og ikke kastes sammen med vanlig husholdningsavfall. Produkter som er merket med dette symbolet, må ikke kastes sammen med vanlig husholdningsavfall.

SE Symbolen anger att i EU-länder måste den här produkten kasseras separat från hushållsavfall, i enlighet med varje regions bestämmelser. Produkter med den här symbolen får inte kasseras tillsammans med hushållsavfall.

FI Tämä merkintä ilmaisee, että tuote on EU-maissa kerättävä erillään kotitalousjätteistä kunkin alueen voimassa olevien määräysten mukaisesti. Tällä merkinnällä varustettuja tuotteita ei saa hävittää kotitalousjätteiden mukana.

HU Ez a szimbólum azt jelenti, hogy az Európai Unióban ezt a terméket a háztartási hulladéktól elkülönítve, az adott régióban érvényes szabályozás szerint kell gyűjteni. Az ezzel a szimbóllummal ellátott termékeket nem szabad a háztartási hulladék közé dobni.

PL Symbol oznacza, że zgodnie z regulacjami w odpowiednim regionie, w krajach UE produktu nie należy wyrzucać z odpadami domowymi. Produktów opatrzonych tym symbolem nie można utylizować razem z odpadami domowymi.

CZ Tento symbol udává, že v zemích EU musí být tento výrobek sbírán odděleně od domácího odpadu, jak je určeno pro každý region. Výrobky nesoucí tento symbol se nesmí vyhazovat spolu s domácím odpadem.

SK Tento symbol vyjadruje, že v krajinách EÚ sa musí zber tohto produktu vykonávať oddelene od domového odpadu, podľa nariadení platných v konkrétnej krajine. Produkty s týmto symbolom sa nesmú vyhazovať spolu s domovým odpadom.

EE See sümbol näitab, et EL-i maades tuleb see toode olemprügist eraldi koguda, nii nagu on igas piirkonnas määratletud. Selle sümboliga märgitud tooteid ei tohi ära visata koos olmeprügiga.

LT Šis simbolis rodo, kad ES šalyse šis produktas turi būti surenkamas atskirai nuo buitinių atliekų, kaip nustatyta kiekviename regione. Šiuo simboliu paženklinoti produktai neturi būti išmetami kartu su buitiniomis atliekomis.

LV Šis simbols norāda, ka ES valstīs šo produktu jāievāc atsevišķi no mājsaimniecības atkritumiem, kā noteikts katrā reģionā. Produkts ar šo simbolu nedrīkst izmest kopā ar mājsaimniecības atkritumiem.

SI Ta simbol označuje, da je treba proizvod v državah EU zbirati ločeno od gospodinskih odpadkov, tako kot je določeno v vsaki regiji. Proizvoda s tem znakom ni dovoljeno odlagati skupaj z gospodinskimi odpadki.

GR Το σύμβολο αυτό υποδηλώνει ότι στις χώρες της Ε.Ε. το συγκεκριμένο προϊόν πρέπει να συλλέγεται χωριστά από τα υπόλοιπα οικιακά απορρίμματα, σύμφωνα με όσα προβλέπονται σε κάθε περιοχή. Τα προϊόντα που φέρουν το συγκεκριμένο σύμβολο δεν πρέπει να απορρίπτονται μαζί με τα οικιακά απορρίμματα.

For China

有关产品中所含有害物质的说明

本资料就本公司产品中所含的特定有害物质及其安全性予以说明。

本资料适用于 2007 年 3 月 1 日以后本公司所制造的产品。

环保使用期限



此标志适用于在中国国内销售的电子信息产品，表示环保使用期限的年数。所谓环保使用期限是指在自制造日起的规定的期限内，产品中所含的有害物质不致引起环境污染，不会对人身、财产造成严重的不良影响。环保使用期限仅在遵照产品使用说明书，正确使用产品的条件下才有效。不当的使用，将会导致有害物质泄漏的危险。

产品中有毒有害物质或元素的名称及含量



部件名称	有毒有害物质或元素					
	铅(Pb)	汞(Hg)	镉(Cd)	六价铬(Cr(VI))	多溴联苯(PBB)	多溴二苯醚(PBDE)
外壳(壳体)	×	○	○	○	○	○
电子部件(印刷电路板等)	×	○	×	○	○	○
附件(电源线、交流适配器等)	×	○	○	○	○	○

○：表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。
 ×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。
 因根据现有的技术水平，还没有什么物质能够代替它。







USING THE UNIT SAFELY

INSTRUCTIONS FOR THE PREVENTION OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

About WARNING and CAUTION Notices









 WARNING	Used for instructions intended to alert the user to the risk of death or severe injury should the unit be used improperly.
 CAUTION	Used for instructions intended to alert the user to the risk of injury or material damage should the unit be used improperly. * Material damage refers to damage or other adverse effects caused with respect to the home and all its furnishings, as well to domestic animals or pets.

About the Symbols







	The  symbol alerts the user to important instructions or warnings. The specific meaning of the symbol is determined by the design contained within the triangle. In the case of the symbol at left, it is used for general cautions, warnings, or alerts to danger.
	The  symbol alerts the user to items that must never be carried out (are forbidden). The specific thing that must not be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the unit must never be disassembled.
	The  symbol alerts the user to things that must be carried out. The specific thing that must be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the power-cord plug must be unplugged from the outlet.

ALWAYS OBSERVE THE FOLLOWING




WARNING

- Do not open (or modify in any way) the unit or its AC adaptor. 
- Do not attempt to repair the unit, or replace parts within it (except when this manual provides specific instructions directing you to do so). Refer all servicing to your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page. 
- Never install the unit in any of the following locations. 
 - Subject to temperature extremes (e.g., direct sunlight in an enclosed vehicle, near a heating duct, on top of heat-generating equipment); or are 
 - Damp (e.g., baths, washrooms, on wet floors); or are
 - Exposed to steam or smoke; or are
 - Subject to salt exposure; or are
 - Humid; or are
 - Exposed to rain; or are
 - Dusty or sandy; or are
 - Subject to high levels of vibration and shakiness.
- Make sure you always have the unit placed so it is level and sure to remain stable. Never place it on stands that could wobble, or on inclined surfaces. 
- Be sure to use only the AC adaptor supplied with the unit. Also, make sure the line voltage at the installation matches the input voltage specified on the AC adaptor's body. Other AC adaptors may use a different polarity, or be designed for a different voltage, so their use could result in damage, malfunction, or electric shock. 
- Use only the supplied power-supply cord. Also, the supplied power cord must not be used with any other device. 
- Do not excessively twist or bend the power cord, nor place heavy objects on it. Doing so can damage the cord, producing severed elements and short circuits. Damaged cords are fire and shock hazards! 










WARNING

- This unit, in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level, or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should immediately stop using the unit, and consult an audiologist. 
- Never allow foreign objects (e.g., flammable material, coins, pins) or liquids (e.g., water or juice) to enter this unit. Doing so may cause short circuits, faulty operation, or other malfunctions.  
- I immediately turn the power off, remove the AC adaptor from the outlet, and request servicing by your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page when: 
 - The AC adaptor, the power-supply cord, or the plug has been damaged; or
 - If smoke or unusual odor occurs
 - Objects have fallen into, or liquid has been spilled onto the unit; or
 - The unit has been exposed to rain (or otherwise has become wet); or
 - The unit does not appear to operate normally or exhibits a marked change in performance.
- In households with small children, an adult should provide supervision until the child is capable of following all the rules essential for the safe operation of the unit. 
- Protect the unit from strong impact. (Do not drop it!) 

⚠ WARNING

- Do not force the unit's power-supply cord to share an outlet with an unreasonable number of other devices. Be especially careful when using extension cords—the total power used by all devices you have connected to the extension cord's outlet must never exceed the power rating (watts/amperes) for the extension cord. Excessive loads can cause the insulation on the cord to heat up and eventually melt through. 
- Before using the unit in a foreign country, consult with your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page. 
- Do NOT play a CD-ROM disc on a conventional audio CD player. The resulting sound may be of a level that could cause permanent hearing loss. Damage to speakers or other system components may result. 

⚠ CAUTION

- The unit and the AC adaptor should be located so their location or position does not interfere with their proper ventilation. 
- Always grasp only the plug on the AC adaptor cord when plugging into, or unplugging from, an outlet or this unit. 
- At regular intervals, you should unplug the AC adaptor and clean it by using a dry cloth to wipe all dust and other accumulations away from its prongs. Also, disconnect the power plug from the power outlet whenever the unit is to remain unused for an extended period of time. Any accumulation of dust between the power plug and the power outlet can result in poor insulation and lead to fire. 
- Try to prevent cords and cables from becoming entangled. Also, all cords and cables should be placed so they are out of the reach of children. 
- Never climb on top of, nor place heavy objects on the unit. 
- Never handle the AC adaptor or its plugs with wet hands when plugging into, or unplugging from, an outlet or this unit. 
- Before moving the unit, disconnect the AC adaptor and all cords coming from external devices. 
- Before cleaning the unit, turn off the power and unplug the AC adaptor from the outlet (see p. 20). 
- Whenever you suspect the possibility of lightning in your area, disconnect the AC adaptor from the outlet. 

Energy saving function

The BK-5 has an Auto Off function, which automatically switches off the power after a certain amount of time has passed without any buttons being operated.

Shortly before the BK-5 shuts down automatically, the display starts counting down the seconds.

If you want to keep using the BK-5 at this stage, press any button.

You can also disable the "Auto Off" function. For more about the Auto Off function, refer to p.69 on owner's manual.

When the BK-5 is turned off by the "Auto Off" function, the [POWER] button's position doesn't change, which means that you need to press it once, wait a few seconds, then press it again to switch the BK-5 back on.

WARNING – To reduce the risk of fire or electric shock, do not expose this device to rain or moisture.

For EU countries



This product complies with the requirements of European Directive EMC 2004/108/EC.
 Dieses Produkt entspricht der europäischen Richtlinie EMC 2004/108/EC.
 Ce produit est conforme aux exigences de la directive européenne EMC 2004/108/EC.
 Questo prodotto è conforme alle esigenze della direttiva europea EMC 2004/108/EC.
 Este producto cumple con la directrice EMC 2004/108/EC de la CE.
 Dit product beantwoordt aan de richtlijn EMC 2004/108/EC van de Europese Unie.

For the USA

FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
 (1) This device may not cause harmful interference, and
 (2) This device must accept any interference received, including interference that may cause undesired operation.

Unauthorized changes or modification to this system can void the users authority to operate this equipment.
 This equipment requires shielded interface cables in order to meet FCC class B Limit.

For Canada

NOTICE

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

AVIS

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

For C.A. US (Proposition 65)

WARNING

This product contains chemicals known to cause cancer, birth defects and other reproductive harm, including lead.

For the UK

IMPORTANT: THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE.

BLUE: NEUTRAL
 BROWN: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
 The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.
 The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.
 Under no circumstances must either of the above wires be connected to the earth terminal of a three pin plug.

For the USA

DECLARATION OF CONFORMITY Compliance Information Statement

Model Name : BK-5
 Type of Equipment : Backing Keyboard
 Responsible Party : Roland Corporation U.S.
 Address : 5100 S. Eastern Avenue, Los Angeles, CA 90040-2938
 Telephone : (323) 890-3700

SPECIFICATIONS

Display type	
Display	Graphic LCD, 160 x 160 dots, backlit
Keyboard	
Keyboard	61 velocity sensitive keys
Sound Source	
Max. Polyphony	128 voices (GM2/GS/XG Lite compatible)
Sounds	1,172 tones 60 Drum Sets
Multitimbral parts	3 keyboard parts (UP1, UP2, LWR) + 16 song parts
Master Tuning	415.3~466.2 Hz
Key Control (Transpose)	-6~+5 in semitones (for audio/MIDI data)
Tempo change	20~250 BPM for SMF and rhythms 75~125% for mp3 and WAV files
Part mute functions	TRACK MUTE: Rhythms, SMF CENTER CANCEL: mp3, WAV, AUDIO INPUT signals
Effects	
keyboard parts (UP1, UP2, LWR) Rhythms/SMF section	Reverb: 8 types (selectable via Makeup Tools) Chorus: 8 types (selectable via Makeup Tools) MFX: 84 types for keyboard parts (selectable via Tone Part MFX) A & B for rhythm and SMF section (selectable via Makeup Tools) Parametric EQ: 6 presets + 1 User memory Multi-band compressor: 6 presets + 1 User memory
Rhythm section	
Rhythms	305 in 6 "Rhythm" families (localized rhythms for specific areas are included in the WORLD 1 and WORLD 2 families)
Rhythm Composer	Internal Rhythm Composer, SMF-to-Rhythm Converter provided as PC application (Windows) on the bundled CD-ROM
One Touch memories	4 programmable registrations per rhythm
Rhythm Makeup Tools	Instrument-oriented editing
Songs	
Real-time player	SMF (Format 0/1), KAR, mp3, WAV, mp3+CDG
Song chord extractor	Automatic chord detection for SMF files
SMF Makeup Tools	Instrument-oriented editing
Performance Memories	
Performance Lists	Unlimited number (storage on USB memory) Over 500 "Music Assistant" memories (internal memory) 5 "Factory Song" memories (internal memory)
Performance memories per List	Max. 999
Search function	Quick location of SMF, audio and JPG files on the connected USB memory
Demo	
Demo	Yes

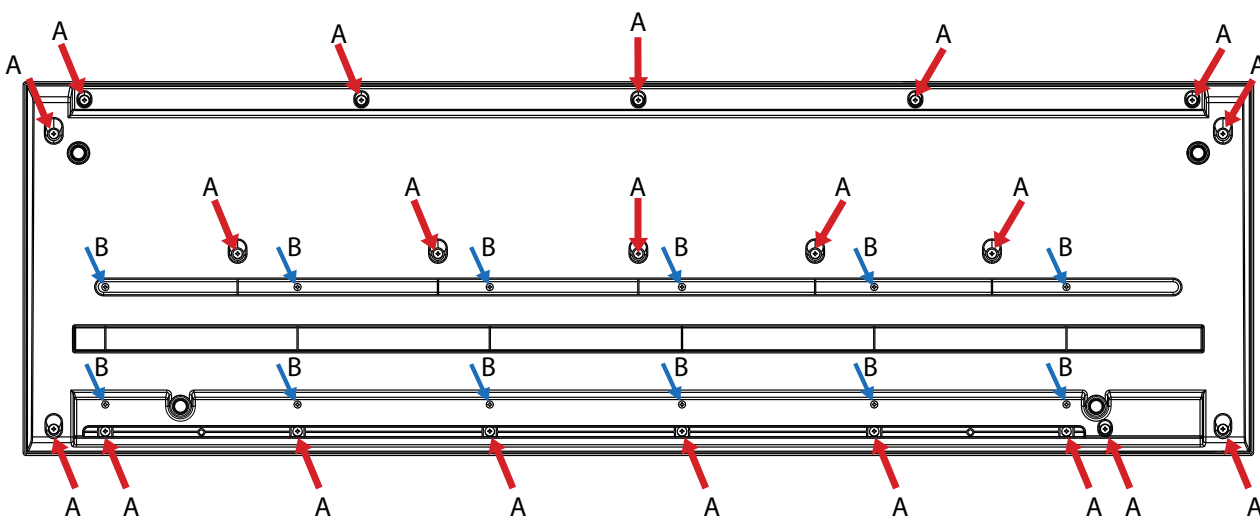
Recording	
Media	USB Flash memory
Save format	Audio files: WAV (44.1 kHz, 16-bit linear)
Video	
Lyrics	SMF, mp3/WAV, mp3+CDG
Slide shows	Picture folder linked to songs (recommended resolution: 512 x 384 or 1024 x 768 pixels)
Panel controls	
Knob	VOLUME
Rotary encoder	Data dial
Connectors	
PHONES jack x2	Stereo 1/4" phone type
AUDIO INPUT jack	Stereo miniature phone type
AUDIO OUTPUT jacks (L/Mono, R/Mono)	1/4" phone type
USB ports	USB COMPUTER connector (Type B, reception and transmission of MIDI data) USB MEMORY (Type A, data storage devices)
MIDI connectors	MIDI IN, MIDI OUT (Visual Control function)
VIDEO OUTPUT jack	RCA-type (CVBS, PAL or NTSC – selectable)
Foot pedal jacks	HOLD, SWITCH/EXPRESSION (programmable)
General specifications	
Speakers	2x 10 cm
Rated power output	2x 12 W RMS
Power supply	AC adaptor (PSB-7U adaptor)
Power consumption	1100mA
Auto Off function	Off, 10min, 30min, 240min
Dimensions	Without music rest: 1044 (W) x 317 (D) x 129 (H) mm 41-1/8 (W) x 12-1/2 (D) x 5-1/8 (H) inches Including music rest: 1044 (W) x 317 (D) x 301 (H) mm 41-1/8 (W) x 12-1/2 (D) x 11-7/8 (H) inches
Weight	7.5 kg (excluding AC adaptor and music rest) 16 lbs 9 oz (excluding AC adaptor and music rest)
Supplied Accessories	
	Owner's Manual, PSB-7U AC adaptor, Power cord (for connecting the AC adaptor), Music rest, CD-ROM (Style Converter 4.0, USB driver)
Options	
USB	USB flash memory (M-UF-series)
Pedals	DP-series/BOSS FS-5U foot switch Roland EV-series expression pedal

Note: In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.

Style Converter 4 system requirements

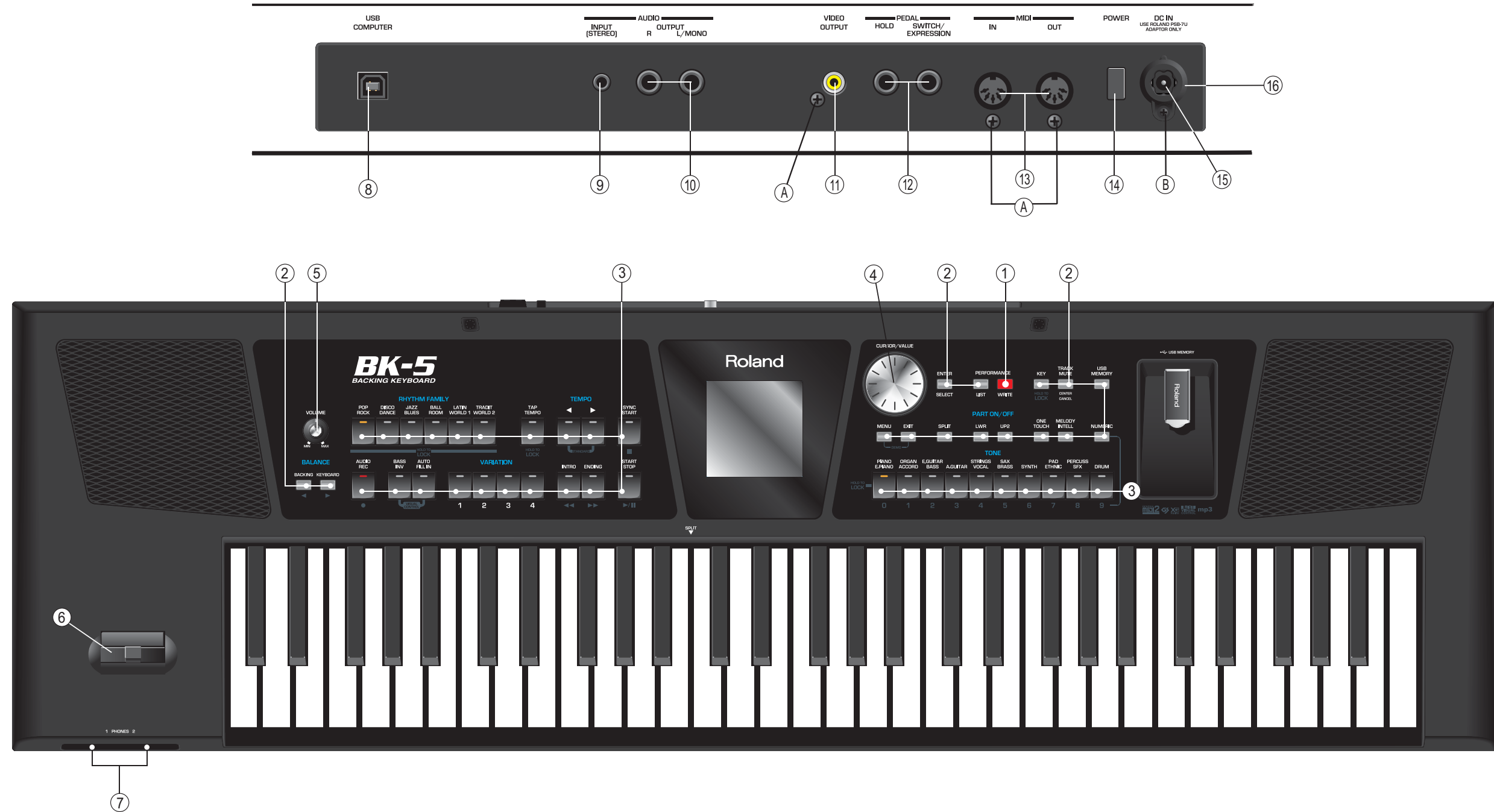
Operating system	Microsoft® Windows® XP
	Microsoft® Windows® Vista® * This does not work with the 64-bit edition of Windows Vista®
	Microsoft® Windows® 7
CPU/clock	Pentium® Celeron® processor 1 GHz or higher
RAM	512 MB or more
Hard disk	2 MB or more
Display/colors	800 x 600 or higher / 65,536 colors (16-bit High Color) or more
Others	CD-ROM drive

DISASSEMBLY



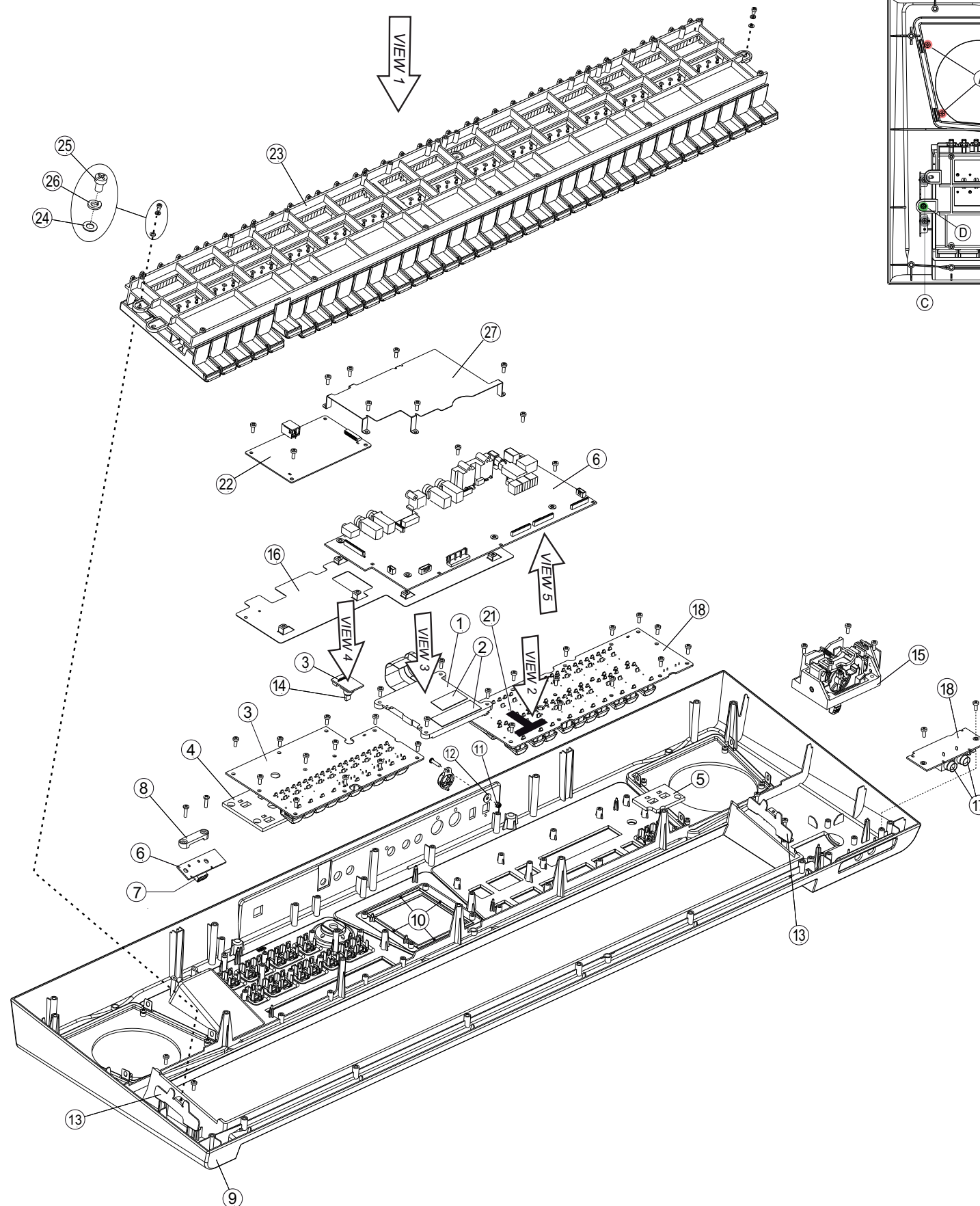
- A K2288154 SCREW 4X10 BINDING TAPTITE P BZN
- B K2288153 SCREW 3X12 BINDING TAPTITE P BZN

LOCATION OF CONTROLS

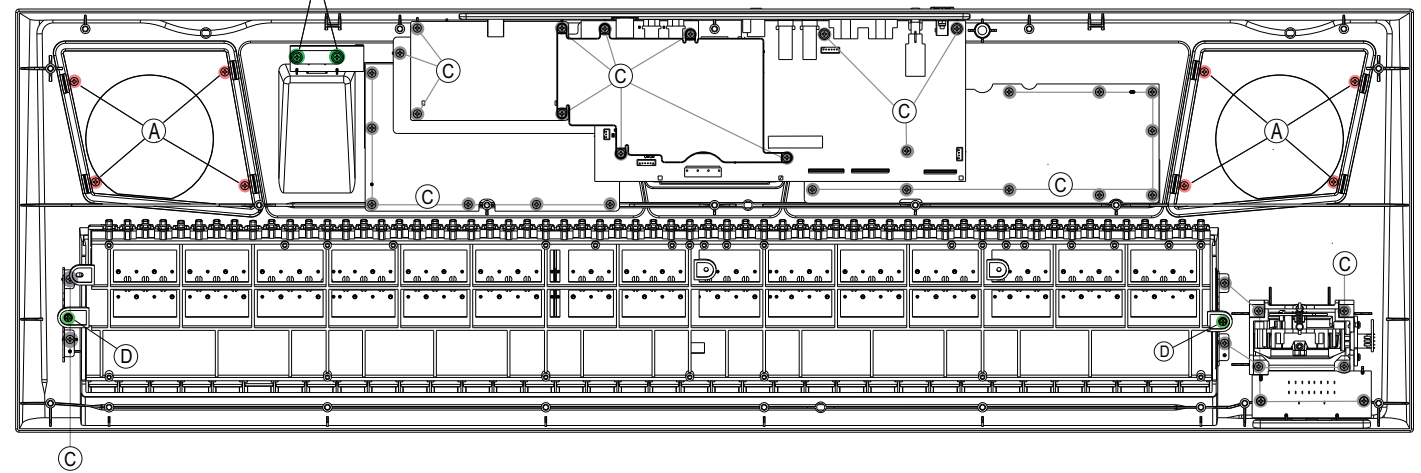


- | | | | | | | | |
|---|---|----------|--------------------------------------|----|------------|----------------------------------|--------------------|
| 1 | ● | K2478469 | RED S-KEYTOP BK-5 | 9 | 04452945 | 3.5MM JACK | YKB21-5344N |
| 2 | ● | K2478456 | S-KEYTOP SMALL | 10 | 13449146 | 6.5MM JACK | YKB21-5012G(W/SW) |
| | └ | 01340290 | PTR TACT SWITCH EVQ11A05R H=5,0 | 11 | 02232245 | RCA(PIN) JACK | YKC21-3661 |
| 3 | ● | K2478467 | T S KEYTOP MD1H BLK | 12 | 13449275 | 6.5MM JACK | YKB21-5074 |
| | └ | J3169104 | SWITCH EVQ QJJ05Q | 13 | 13429825 | 2x5P DIN SOCKET | YKF51-5054V (2PCS) |
| 4 | ● | K2478468 | ZE R-KNOB LF | 14 | 12499175 | JSPUE0011A KNOB | ON-OFF BUTTON |
| | └ | 01905467 | ROTARY ENCODER-VERTICAL EVEGC1F2024B | | 04904123 | SWITCH POWER PWL-2P2T-6SBPA-001 | |
| 5 | ● | 04124267 | J R-KNOB SF-ELA BLK/SLV | 15 | 02900312 | DC JACK | HEC0470-01-640 |
| | └ | 03780934 | POTENTIOMETER RK09D1130C2P(50KB/L25) | 16 | 5100009656 | DC PLUG SUPPORTER | |
| 6 | ● | 03234723 | PITCH BENDER PB-H0204 | | | | |
| 7 | ● | 13449169 | JACK SOCKET YKB21-5078 | A | K2288153 | SCREW 3X12 BINDING TAPTITE P BZN | |
| 8 | ● | 02781189 | YKF45-0021N | B | K2288157 | SCREW M3X12 TC TC M/C PAN BLK | |

EXPLODED 1 - TOP CASE



VIEW 1



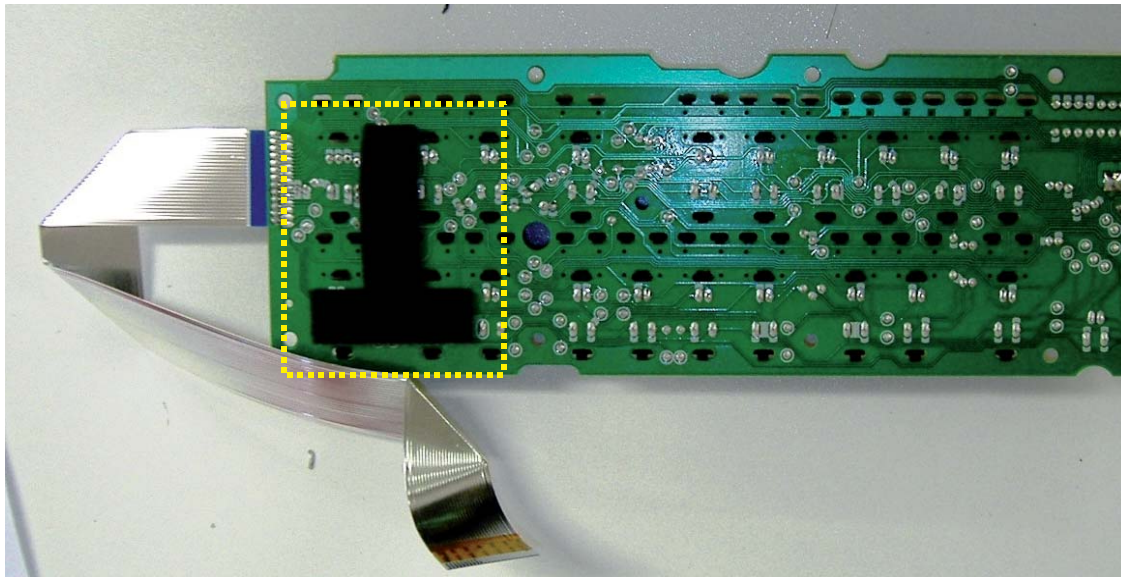
No.	Part No.	Description
1	5100009530	LCD CMF2P0399-E
2	40122923	DOUBLE FACED ADH NITTO NO.501F W20MM 20M
3	7782809000	KIT ASSY RIGHT PANEL B.+ENCODER B. BK-5
4	K2268239	RIGHT SPONGE PANEL CUSHION BK-5
5	K2268238	LEFT SPONGE PANEL CUSHION BK-5
6	7782810000	KIT ASSY JACK BOARD + USB BOARD BK-5
7	04459190	USB CONNECTOR YKF45-0033N
8	K2168129	SPACER PWB USB BK-5 BK-5 OR
9	K2028178	PLASTIC TOP CASE BK-5
10	K2268240	ADHESIVE CUSHION BK-5 BK-5OR
11	J2289326	NUT HEX AX-SYNTH 529-08028-01-00
12	J2139140	WASHER PLAIN 3.5X10X1 MS 519-12351-00-10
13	05014167	SIDE HOLDER
14	01905467	ROTARY ENCODER-VERTICAL EVEGC1F2024B
15	03234723	PITCH BENDER PB-H0204
16	no service	JACK HOLDER BK-5
17	13449169	JACK SOCKET YKB21-5078
18	7782808000	KIT ASSY LEFT PANEL B.+PHONES BOARD BK-5
19	K3468364	FFC 24P 0.05x0.7 P1 L220 UL20861 SHIELD
20	K3468363	FFC 26P 0.05x0.7P1 L260 UL20861 SHIELD
21	K2268242	ADHESIVE SPONGE 45X15X5
22	K2938103	MAIN PCB ASSY BK-5
23	04344189	KEYBOARD MSK-2 61KEY
24	K2138132	WASHER PLAIN ID3.3xOD6.0xT0.3 BZC
25	K2288156	SCREW M3X8 TC TC M/C PAN BLK
26	K2138133	WASHER SPRING ID3.3xOD5.5xT0.9 BZC
27	no service	SHIELD COVER

Screw

A	K2288152	SCREW 3X6 BINDING TAPTITE P BZN
B	K2288153	SCREW 3X12 BINDING TAPTITE P BZN
C	40011312	SCREW 3X8 BINDING TAPTITE P BZC
D	K2288156	SCREW M3X8 TC TC M/C PAN BLK

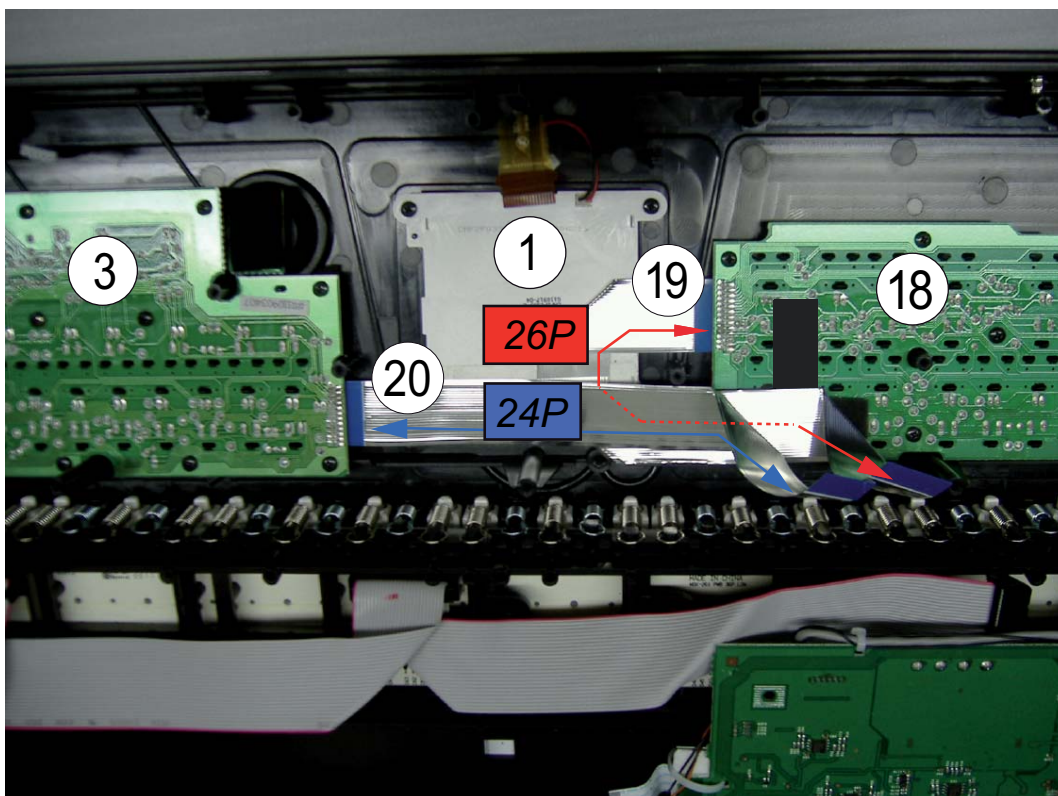
VIEW 2

When you need to replace the Left Panel B. with the new one please replace also two adhesive sponges #K2268242 on the Pcb like in the picture.



VIEW 3

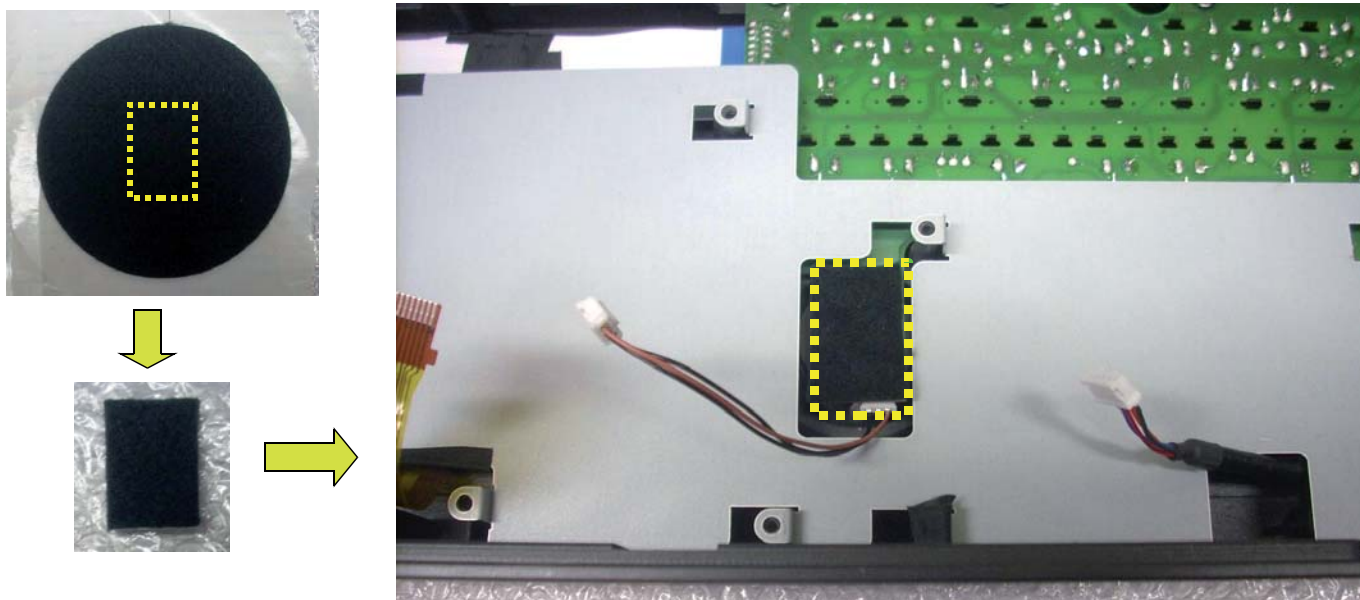
Peel off adhesive tapes (2) #40122923 and fix cables over them.
The 24P cable coming from Right Panel B.
must stay over the 26P cable coming Left Panel B.



VIEW 4

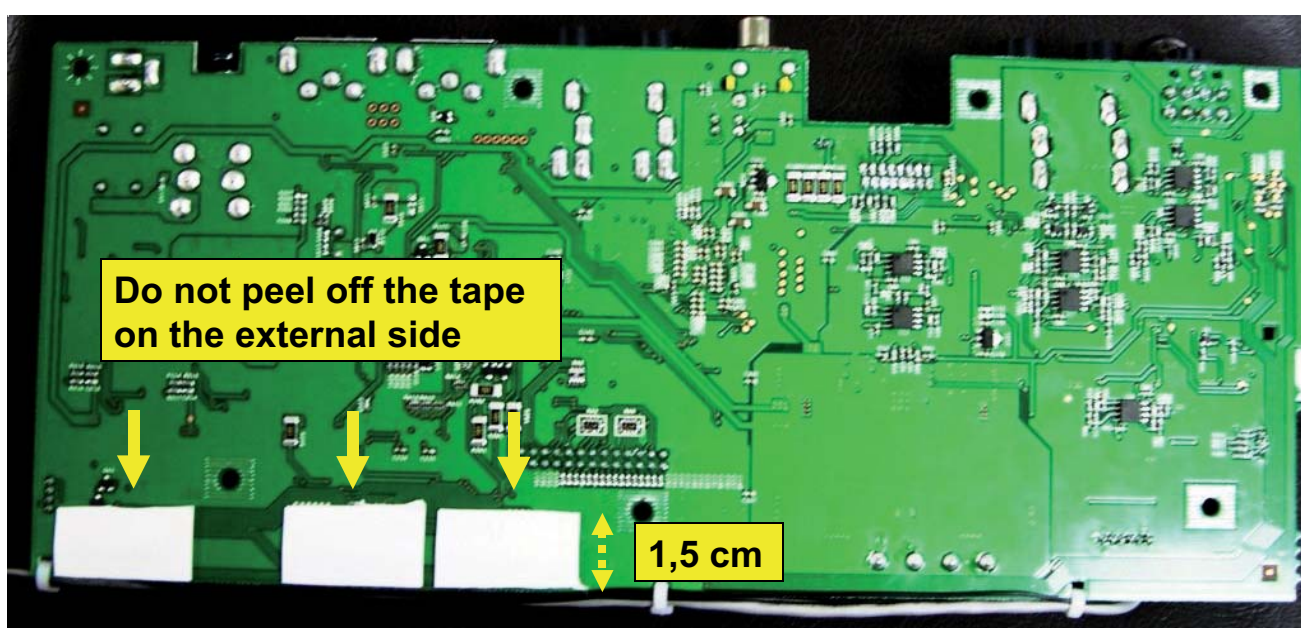
When you need to replace the Encoder B. with the new one please replace also the rectangular black felt.

Cut out the rectangular black felt from one of the “Felt Cushion Speaker” and fix it over the Encoder board.

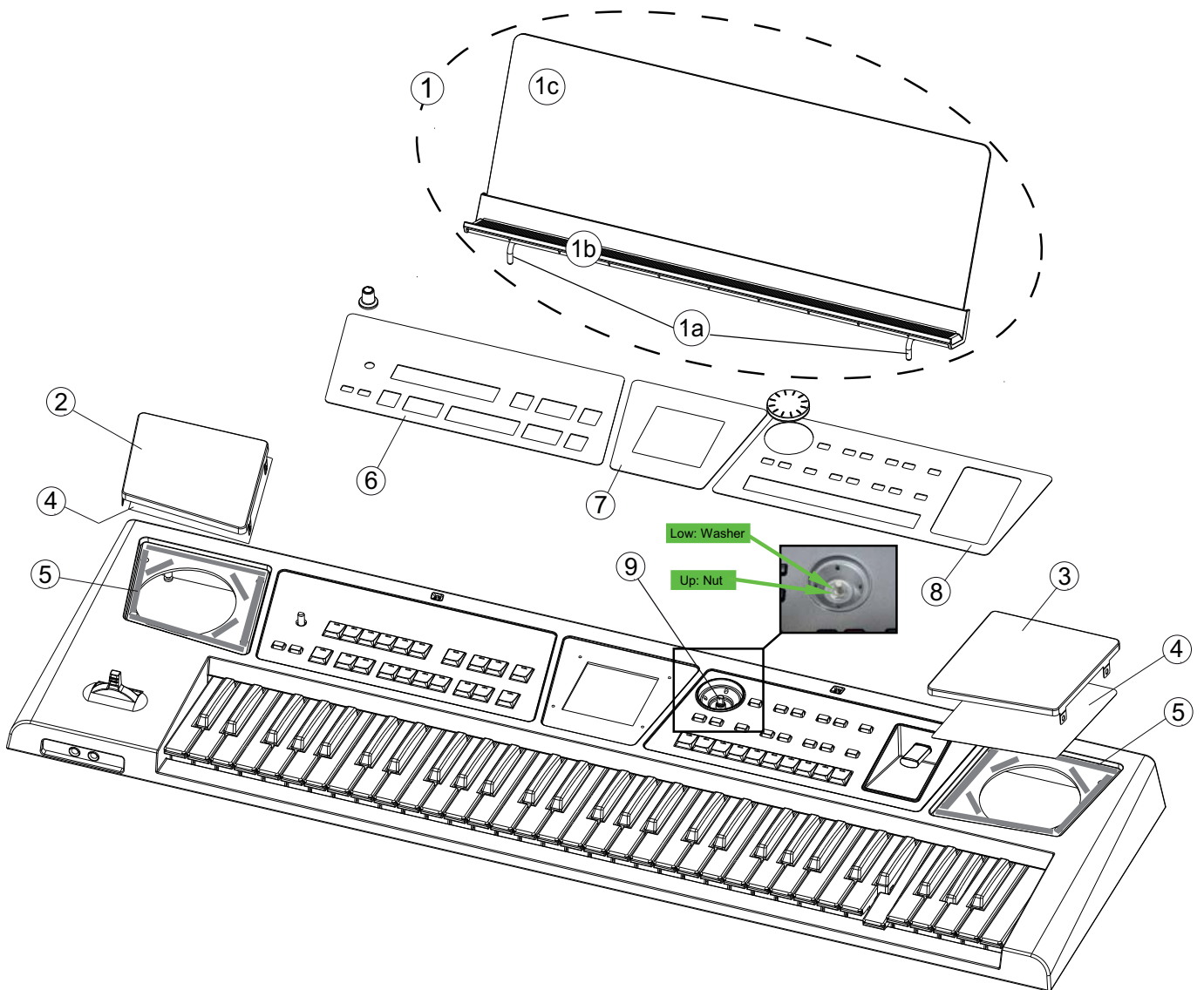


VIEW 5

When you need to replace the Jack B. with the new one please apply 3 pcs of Nitto Bi-Stick Tape #575W 30MM #40122556 under the Jack B., (under the three connectors) without peel off the external side, as indicated below:



EXPLODED 2 - TOP CASE



1 7782807000 MUSIC REST ASSY

Note: The "MUSIC REST ASSY" includes the following part:

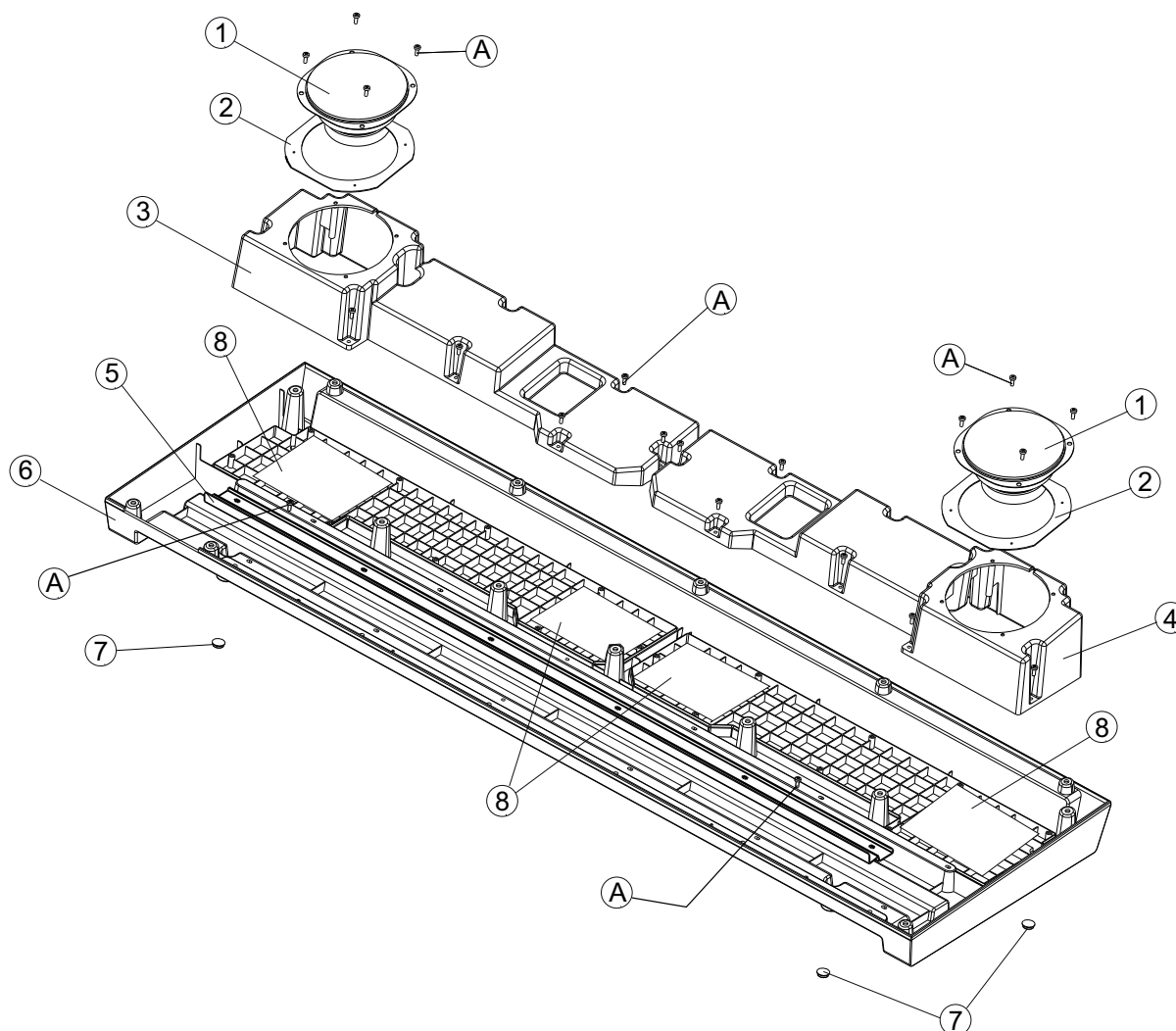
	SCREW 3X6 BINDING TAPTITE P BZN	K2288152	4 pcs
	SCREW 3X12 BINDING TAPTITE P BZN	K2288153	3 pcs
1a	LF MET MUSIC REST HOLDER E-2	*****	2 pcs
1b	MUSIC REST BASE BLACK	04232978	1 pce
1c	MUSIC REST PLATE BK-5 BK-5OR	*****	1 pce

- 2 K2248210 SPEAKER COVER L BK-5
- 3 K2248211 SPEAKER COVER R BK-5
- 4 K2228114 SPEAKER CUSHION BK-5
- 5 ***** DOUBLE TAPE ADH W=5MM NITTO 500
- 6 K2218119 PANEL SHEET L BK-5
- 7 K2218121 PANEL SHEET LCD BK-5 BK-5OR
- 8 K2218120 PANEL SHEET R BK-5
- 9 01905467 ROTARY ENCODER-VERTICAL EVEGC1F2024B

NOTE: Washer and nut are included in the electronic component

***** no service

EXPLODED - BOTTOM CASE



1 5100005594 WOOFER X100DF65-00B 4OHM 20W

Attention:When you replace the WOOFER with the new one see Change Information here below

CHANGE INFORMATION

On the BK-5 the "WOOFER" has been changed.

OLD	NEW
BK-5 First production	BK-5 From July production
5100005594 WOOFER X100DF65-00B 4OHM 20W	5100028323 WOOFER 412-05033-02-01

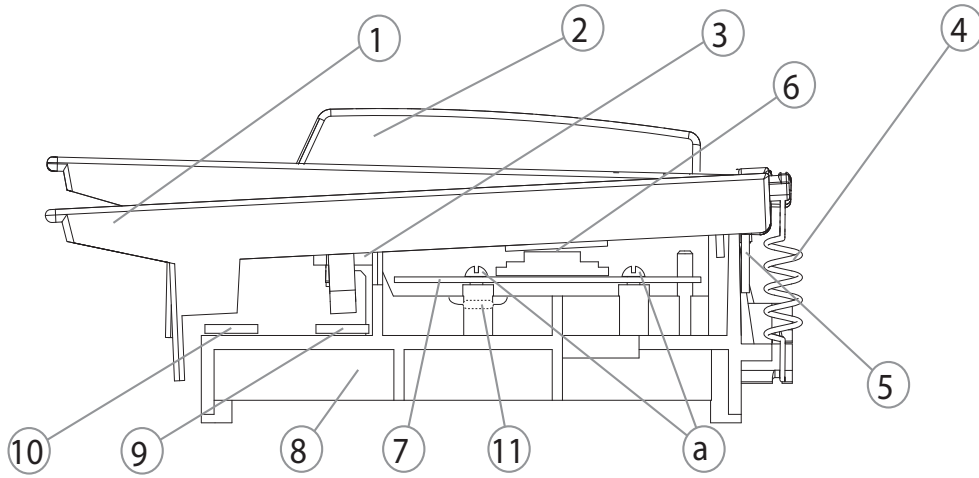
When you need to replace the speaker with the new one never use them by mixture, if you have speaker OLD you have to replace #5100005594, if you have speaker NEW you have to replace #5100028323.

- 2 04128390 SPEAKER CUSHION
 3 K2338103 SPEAKER BOX (L)
 Note: Attention when you substitute #K2338103 see page 23
 4 K2338102 SPEAKER BOX R
 Note: Attention when you substitute #K2338102 see page 23
 5 03894945 REINFORCE BAR
 6 04017645 BOTTOM CASE
 Note: Attention when you substitute #04017645 see page 22
 7 12359137 RUBBER FOOT SJ-5012 BLK
 8 04129989 SPEAKER INNER CUSHION B

SCREW

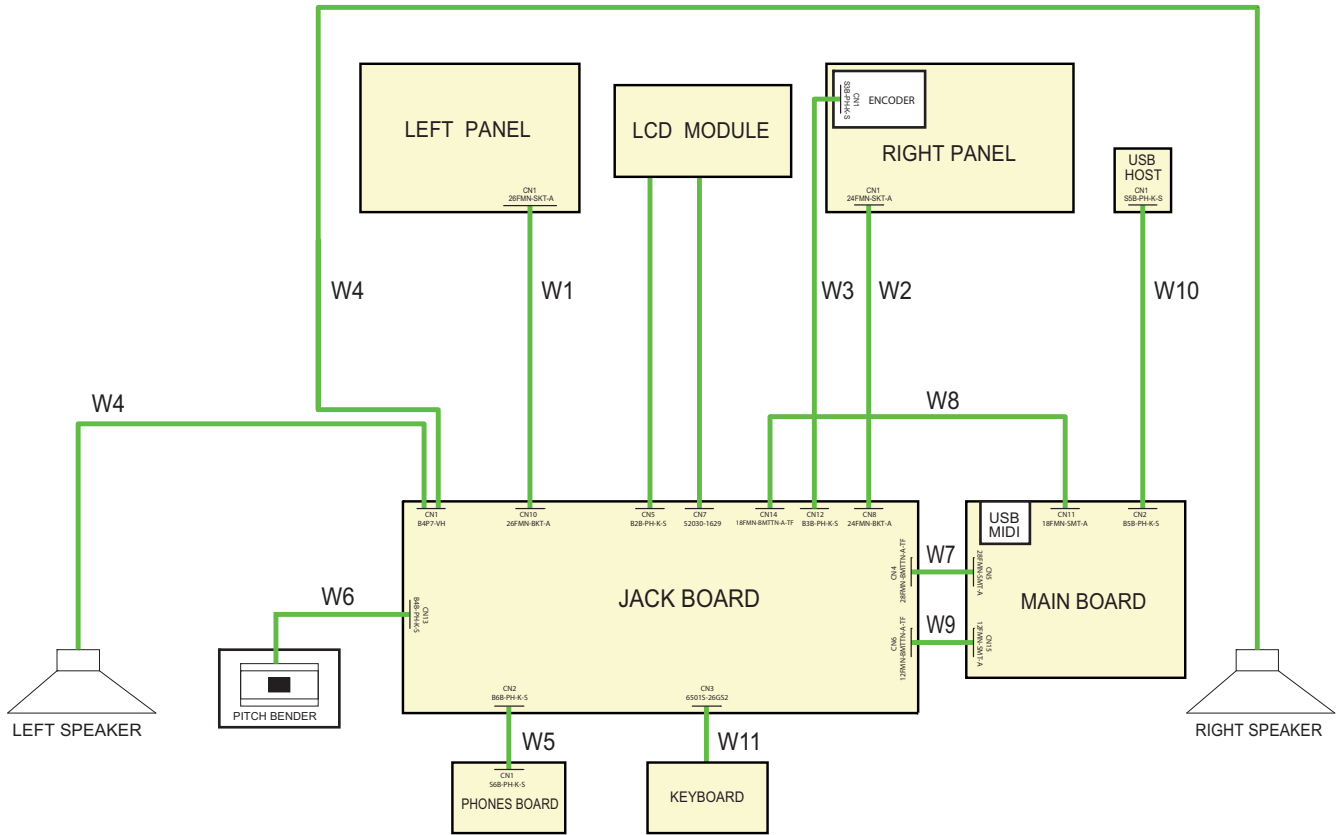
- A 40011312 SCREW 3X8 BINDING TAPTITE P BZC

KEYBOARD PARTS LIST



No.	Part Code	Part Name	Description	Q'ty
	04344189	KEYBOARD ASSY	MSK-2 61KEY (W/O CABLE)	
1	03786378	NATURAL KEY C	FOR MSK-2	5
1	03786389	NATURAL KEY D	FOR MSK-2	5
1	03786390	NATURAL KEY E	FOR MSK-2	5
1	03786401	NATURAL KEY F	FOR MSK-2	5
1	03786412	NATURAL KEY G	FOR MSK-2	5
1	03786423	NATURAL KEY A	FOR MSK-2	5
1	03786434	NATURAL KEY B	FOR MSK-2	5
1	03786445	NATURAL KEY C'	FOR MSK-2	1
2	03786456	SHARP KEY	FOR MSK-2	25
3	03786312	KEY FELT	MSK-2 HOOK T2.0MM L828XW5.5	1
4	03456967	COILED SPRING	MSK-1 NATURAL KEY	36
4	03456978	COILED SPRING	MSK-1 SHARP KEY	25
5	03786301	KEY FELT	MSK-2 BACK T4.0MM L840XW6.0	1
6	04230834	RUBBER SW KEYBOARD 12P	FOR MSK-1	4
6	04230845	RUBBER SW KEYBOARD 13P	FOR MSK-1	1
7	03786345	PWB KEYBOARD LO ASSY	FOR MSK-2	1
7	03786356	PWB KEYBOARD HI ASSY	FOR MSK-2	1
8	*****	CHASSIS KEYBOARD	FOR MSK-2	1
9	03786334	KEY FELT	MSK-2 BOTTOM M T2.0MM L840XW10	1
10	03786323	KEY FELT	MSK-2 BOTTOM L T2.0MM L840XW15	1
11	15019126	SWITCHING DIODE	1S5133 T-77	122
a	40011189	SCREW 3X8	PAN TAPTITE-P FE ZC	34

WIRING DIAGRAM



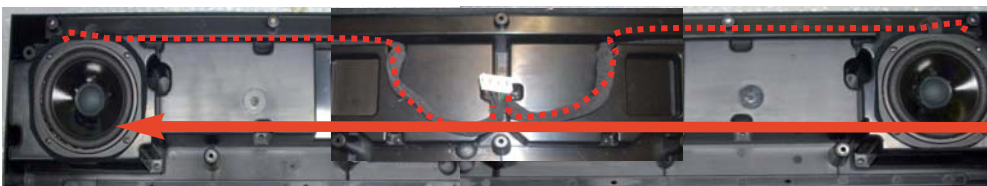
Ref.	Code	Description	Q.ty
W1	K3468363	FFC 26P 0.05x0.7P1 L260 UL20861 SHIELD	1
W2	K3468364	FFC 24P 0.05x0.7 P1 L220 UL20861 SHIELD	1
W3	7782811000	3P CABLE ASSY (80) P.2 JST D/R	1
W4	7782814000	4P CABLE ASSY (640/640) -1C7 P3.96 JST	1
W5	7782813000	6P (3+1) COAXIAL CABLE ASSY(660) P.2 JST	1
W6	7782812000	4P CABLE ASSY (360) P.2 JST D/R	1
W7	K3468359	LF CA FFC 28P 0.05x0.7 P1 L70 UL20624	1
W8	K3468361	LF CA FFC 18P 0.05x0.7 P1 L160 UL20624	1
W9	K3468360	LF CA FFC 12P 0.05x0.7 P1 L200 UL20624	1
W10	7781609000	5P SHIELDED CBL ASSY(12) -2C 5V JST D/R	1
W11	K3468362	LF CA ASSY 26WAY (240+240) UI2651	1

How to replace cable #7782814000

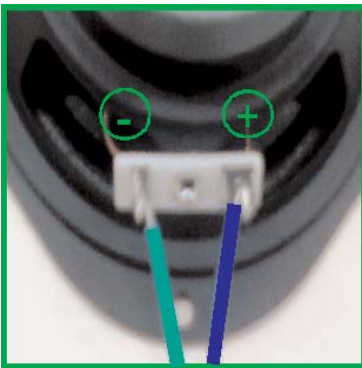
Note: If you have to change “Cable #7782814000” we suggest to order also “SPONGE CUSHION SPEAKER CABLES BK-5/OR #K2268241”

1) Wrap the cable with their sponge cushions speaker cables as showed here under :

START FROM HERE



2) Solder the cables onto the Right and Left speakers #04125312



3) Place the Right and Left Speakers and place the cable through the cut on the felt.cushion. speaker #04128390 as showed here under :

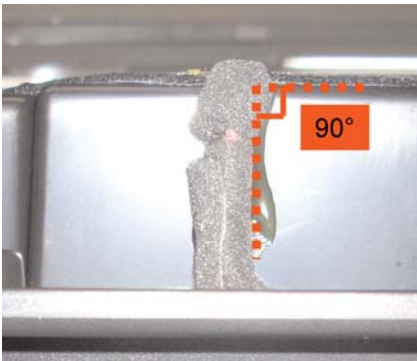
Make sure that the cable stay inside speaker box slot



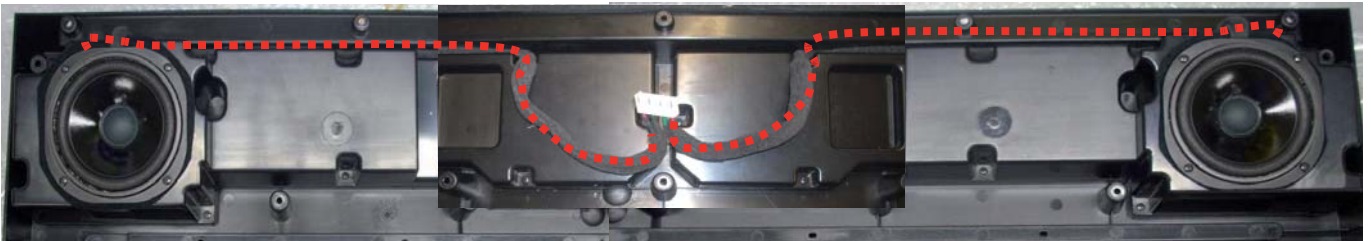
- 4) Add **hot melt** between the cable and speaker box slot (right and left side).



- 5) Bend down the cable with 90° angle and then place the cables in the clearance between the speaker boxes and the rear side of bottom cabinet.



Make sure that the cables are in this position.



How to replace the ADHESIVE FELT and NITTO ACETATE TAPE #5 code #40122612 on Bottom Case and Speaker box R / L

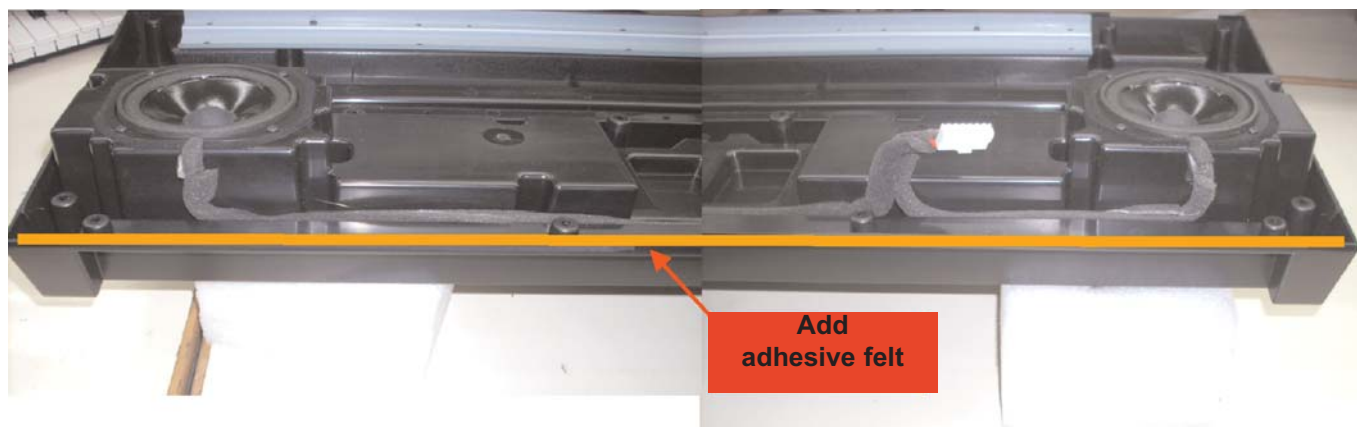
When you substitute the BOTTOM CASE #04017645 you must replace also the code #K2248209 SHORT ADHESIVE FELT MM 290x10 TH. 1 as showed here under :



**NOTE:
bend adhesive felt**

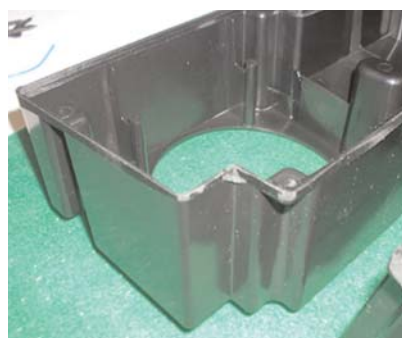


When you apply adhesive felt pay attention not to go beyond the reference mark.




When applying black felt #K2248208 respect the reference mark.

Apply the acetate tape along the whole profile of the Left and Right Speaker Boxes.




Check adhesion on corner.

PARTS LIST BK-5

<p>SAFETY PRECAUTIONS: The parts marked  have safety-related characteristics. Use only listed parts for replacement.</p>	<p>Due to one or more of the following reasons, parts with part 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 not commercially available</p>
--	--

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
#	K2028178	PLASTIC TOP CASE BK-5	1
	04017645	BOTTOM CASE	1
#	K2218119	PANEL SHEET L BK-5	1
#	K2218120	PANEL SHEET R BK-5	1
#	K2218121	PANEL SHEET LCD BK-5 BK-5OR	1
#	K2248210	SPEAKER COVER L BK-5	1
#	K2248211	SPEAKER COVER R BK-5	1

KNOB BUTTON

	12499175	JSPUE0011A KNOB ON-OFF BUTTON	1
	04124267	J R-KNOB SF-ELA BLK/SLV	1
#	K2478468	ZE R-KNOB LF	1
	K2478456	S-KEYTOP SMALL	15
#	K2478469	RED S-KEYTOP BK-5	1
#	K2478467	T S KEYTOP MD1H BLK	30

SWITCH

	01340290	PTR TACT SWITCH EVQ11A05R H=5,0	SW11,SW12 on Left Panel B. SW1,SW2,SW3,SW4,SW5,SW6,SW7,SW8, SW9,SW10,SW11,SW12,SW13,SW24 on Right Panel B.	16
	01905467	ROTARY ENCODER-VERTICAL EVEGC1F2024B	ENC1 on Encoder B.	1
	04904123	SWITCH POWER PWL-2P2T-6SBPA-001	SW1 on Jack B.	1
	J3169104	SWITCH EVQ QJJ05Q	SW1,SW2,SW3,SW4,SW5,SW6,SW7,SW8,SW9, SW10,SW13,SW14,SW15,SW16,SW17,SW18, SW19,SW20,SW21,SW22 on Left Panel B. SW14,SW15,SW16,SW17,SW18,SW19, SW20,SW21,SW22,SW23 on Right Panel B.	30

DISPLAY UNIT

A	5100009530	LCD CMF2P0399-E		1
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JACK, SOCKET

	02232245	RCA(PIN) JACK YKC21-3661	JK9 on Jack B.	1
	02781189	USB CONNECTOR YKF45-0021N	JK2 on Main B.	1
	04452945	3.5MM JACK YKB21-5344N	JK1 on Jack B.	1
	13449275	6.5MM JACK YKB21-5074	JK7,JK8 on Jack B.	2
	02900312	DC JACK HEC0470-01-640	JK4 on Jack B.	1
	04459190	USB CONNECTOR YKF45-0033N	JK1 on Usb B.	1
	13449146	6.5MM JACK YKB21-5012G(W/SW)	JK2,JK3 on Jack B.	2
	13449169	JACK SOCKET YKB21-5078	JK1,JK2 on Phones B.	2
	13429825	2x5P DIN SOCKET YKF51-5054V (2PCS)	JK6 on Jack B.	1

SPEAKER

A	5100005594	WOOFER X100DF65-00B 4OHM 20W	first production	2
A	5100028323	WOOFER 412-05033-02-01	from July production	2

NOTE: When you need to replace the speaker with the new one please refer to page 17

BENDER UNIT

	03234723	PITCH BENDER PB-H0204		1
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KEYBOARD ASSY

	04344189	KEYBOARD MSK-2 61KEY		1
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NOTE: For details, refer to KEYBOARD PARTS LIST (Page 18)

PCB ASSY

#	K2938103	MAIN PCB ASSY BK-5	1
#	7782808000	KIT ASSY LEFT PANEL B.+PHONES BOARD BK-5	1
#	7782809000	KIT ASSY RIGHT PANEL B.+ENCODER B. BK-5	1
#	7782810000	KIT ASSY JACK BOARD + USB BOARD BK-5	1

IC

J5259192	I.C. TC74VHC138FT(EL) FLAT	IC18,IC19 on Jack B.	2
02455212	IC (CUSTOM) S1L50282F32H200(KSM) KEY SCA	IC10 on Jack B.	1
02563467	IC SWITCHING REGULATOR NJM2374AM-TE1	IC14 on Jack B.	1
01236912	IC OP AMP FLAT NJM4580M(TE3)	IC2,IC3,IC5,IC6,IC7,IC8 on Jack B.	6
04569434	IC(AD/DA) AK4556VT-E2	IC1 on Jack B.	1
03230667	I.C. SWITCHING REGULATOR PQ1CZ41H2ZPH	IC15,IC16 on Jack B.	2
02456756	IC TC74VHCT04AFT FLAT	IC23 on Jack B.	1
J5259215	I.C. MAX9744ETH+ (20W CLASS-D AMPLIFIER)	IC4 on Jack B.	1
J5259219	I.C. TC7SH08FU (T5L-JF-T) FLAT	IC13 on Jack B.	1
03896656	REGULATOR UPD120N15T1B-AZ	IC25 on Jack B.	1
J5259144	I.C. TC74VHC04FT(EL) FLAT	IC21 on Jack B.	1
15289120	I.C.NJM 4565M-TE3 OP AMP	IC9,IC20 on Jack B.	2
01899790	REGULATOR UPC29L33T-E2	IC12 on Jack B.	1
02900545	IC (PHOTO COUPLER) PC410LKNIP0F	ISO1 on Jack B.	1

TRANSISTOR

03344078	TRANSISTOR 2SC4738-GR(TE85L.F)	Q20 on Jack B.	1
15319114	TRANSISTOR 2SC2873-Y(TE12R.C)	Q19 on Jack B.	1
15329514	TRANSISTOR DTC343TKT146	Q22 on Jack B.	1
15319101	TRANSISTOR 2SC-2412K T106 R(PbFree)	Q14,Q15,Q16,Q17,Q18,Q42 on Jack B.	6
15309101	TRANSISTOR 2SA1037AKT146R(PB FREE)	Q1,Q13,Q21,Q41,Q43 on Jack B.	5
15329516	TRANSISTOR DTC-114EK	Q2,Q31,Q32,Q33,Q34,Q35,Q36,Q37,Q38,Q40,Q50 on Jack B.	11
J5119104	TRANSISTOR DTA-114 EKAT146 (PbFree)	Q39 on Jack B.	1
01783612	CEA TRANSISTOR RN2426(TE85L.F)	Q4,Q23,Q24,Q25,Q26,Q27,Q28,Q29,Q30,Q51 on Jack B.	1
J5119106	TRANSISTOR 2SC-4213-A (TE85L.F)	Q3,Q5,Q6,Q7,Q8,Q9,Q10,Q11 on Jack B.	8

DIODE

01780045	DIODE SCHOTTKY RB051L-40TE25	D16,D17,D18 on Jack B.	3
04902023	LED SPI-325MUWT31	D18,D44 on Left Panel B.	2
05010990	DIODE ZENER KDZ TR 13B (SMD)	D15 on Jack B.	1
A 5100008965	LED LHR3EC041	D5,D6,D7,D8,D9,D14,D15,D16,D17,D19,D20, D26,D27,D30,D31,D33,D34,D39,D40,D42 on Left Panel B. D2,D3,D4,D9,D14,D15,D16,D17,D18,D19,D23D24,D29,D30, D31,D32,D33,D34,D35,D40,D45,D46,D47 on Right Panel B.	43
15119126	DIODE 1SS-133T REDUCED PITCH	D1,D2,D3,D4,D10,D11,D12,D13,D21,D22,D23 D26,D27,D30,D31,D33,D34,D39,D40,D42 on Left Panel B. D5,D6,D7,D8,D10,D11,D12,D13,D21,D22,D23,D24,D29,D30, D31,D32,D33,D34,D35,D40,D45,D46,D47 on Right Panel B.	45
01121323	DIODE DA-204U T-106 CHIP	D1,D2,D3,D4,D5,D6,D7,D27 on Jack B.	8

RESISTOR

J3919119	RESISTOR ARRAY EXB28V103JX	RA10,RA12,RA14,RA16,RA21, RA22,RA23,RA24 on Jack B.	8
J3919122	RESISTOR ARRAY EXB28V330JX	RA9,RA11,RA13,RA15,RA17,RA19 on Jack B.	6
J3919107	RESISTOR ARRAY EXB-V8V-101-JV	RA1,RA3,RA4,RA5,RA7,RA8 on Jack B.	6
01566190	CEA R-ARRAY EXB-E10C-473-J	RA2,RA6 on Jack B.	2
01011856	MTL.FILM RESISTOR RPC05T 0R0 J	R1 on Usb B.	1
02673401	MTL.FILM RESISTOR RR0816P-102-D	R216,R217 on Jack B.	2
J3809166	RESISTOR 0603 10 OHM1/16 5%	R1 on Jack B.	1
J3809165	RESISTOR 0603 2.7KOHM 1/16 5%	R209 on Jack B.	1
02014945	RESISTOR 0 OHM1/2W 5% 2010 (MCR50)	R159,R160,R161,R162,R163,R204 on Jack B.	6
01783623	RESIST. 2010 10 OHM1/2W 5%	R228 on Jack B.	1
J3809160	RESIST. 2010 47 OHM1/2W 5%	R53,R54,R62,R63 on Jack B.	4
15399989	RESIST. 2010 68 OHM1/2W 5%	R182,R184,R186,R188 on Jack B.	4

POTENTIOMETER

A	03780934	POTENTIOMETER RK09D1130C2P(50KB/L25)	VR1 on Left Panel B.	1
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CAPACITOR

02783412	CHEMICAL CAPACITOR 6SVP150 OS-CON	C216,C218 on Jack B.	2
J5369103	ELECTR.CAPACITOR RV2 100U 16V (SMD)	C38,C65,C67,C70,C72,C74,C78,C79,C85,C87,C89,C180, C187,C194,C200,C230,C232,C233,C270,C316 on Jack B.	20
J5369104	ELECTR. COND. RV2 10U 16V (SMD)	C1 on Usb B.; C33,C63,C183,C184,C188, C190,C192,C197,C257,C308 on Jack B.	11
J5369101	ELECTR.CAPACITOR RV2 22U 16V (SMD)	C16,C49,C81,C91,C94,C97,C103,C104,C107,C109, C110,C118,C119,C120,C128,C132,C260,C265 on Jack B.	18
03782423	CHEMICAL CAPACITOR EEEFK1C471P	C201,C221,C222,C231 on Jack B.	4
J5369102	ELECTR.COND. RV2 47U 16V SMD	C18,C19,C50,C51,C108,C111,C130,C133 on Jack B.	8
J5369108	CONDENSER SMD RV2 4.7U 25V ELET. ELNA	C56,C102,C131 on Jack B.	3
J5369106	ELECTR. COND. RV2 1U 50V (SMD)	C320,C321 on Jack B.	2
5100009670	CAPACITOR ESR 470U25V EEEFC1E471AP	C2,C8,C167,C168,C169 on Jack B.	5

INDUCTOR, COIL, FILTER

12449370	NOISE SUP. SBT-0160W	FL2 on Jack B.	1
12449381	NOISE SUP. SBT-0460TF	L1,L2,L3,L4 on Phones B.	4
01340834	FERRITE BEAD EXCML 20A390U	L7,L8,L26 on Jack B.	3
00903167	NOISE SUP. N2012Z601T02 CHIP	L31,L32,L33,L34,L35,L36,L37 on Jack B.	7
01909645	FERRITE BEAD EXCML16A270U	L10,L13,L38 on Jack B.	3
01565578	NOISE SUPPRESSOR N1608Z601T01	L9,L11,L12,L14,L27,L28,L29,L30,L40,L41 on Jack B.	10
01346089	CHOKE COIL SBC3-331-551	L18 on Jack B.	1
03239145	CHOKE COIL ACM2012-900-2P-T	L1 on Usb B.	1
J2399117	POWER INDUCTOR CDRH127/LDNP-100MC	L3,L4,L5,L6 on Jack B.	4

CONNECTOR

13369567	4P MALE CONNECTOR B4B-PH-K-S (JST)	CN13 on Jack B.	1
J3439199	MALE CONNECTOR 3V.90 S3B-PH-K-S P.2 JST	CN1 on Encoder B.	1
J3439208	6P MALE CONNECTOR(90) S6B-PH-K-S P.2 JST	CN1 on Phones B.	1
J3439209	MALE CONNECTOR 5V.90?S5B-PH-K-S P.2 JST	CN1 on Usb B.	1
J3429133	26P FEM. CONNECTOR 26FMN-BTK-A	CN10 on Jack B.	1
13369568	B3B-PH-K-S CONNECTOR	CN12 on Jack B.	1
13369566	B6B-PH-K-S CONNECTOR	CN2 on Jack B.	1

WIRING, CABLE

#	K3468359	LF CA FFC 28P 0.05x0.7 P1 L70 UL20624	1
#	K3468360	LF CA FFC 12P 0.05x0.7 P1 L200 UL20624	1
#	K3468361	LF CA FFC 18P 0.05x0.7 P1 L160 UL20624	1
#	K3468362	LF CA ASSY 26WAY (240+240) UI2651	1
#	K3468363	FFC 26P 0.05x0.7P1 L260 UL20861 SHIELD	1
#	K3468364	FFC 24P 0.05x0.7 P1 L220 UL20861 SHIELD	1
	7781609000	5P SHIELDED CBL ASSY(12) -2C 5V JST D/R	1
#	7782811000	3P CABLE ASSY (80) P.2 JST D/R	1
#	7782812000	4P CABLE ASSY (360) P.2 JST D/R	1
#	7782813000	6P (3+1) COAXIAL CABLE ASSY(660) P.2 JST	1
#	7782814000	4P CABLE ASSY (640/640) -1C7 P3.96 JST	1

SCREW

	40011312	SCREW 3X8 BINDING TAPTITE P BZC	77
	K2288152	SCREW 3X6 BINDING TAPTITE P BZN	12
	K2288153	SCREW 3X12 BINDING TAPTITE P BZN	20
	K2288154	SCREW 4X10 BINDING TAPTITE P BZN	21
	K2288156	SCREW M3X8 TC TC M/C PAN BLK	2
	K2288157	SCREW M3X12 TC TC M/C PAN BLK	1

PACKING

#	K2618367	PACKING CASE BK-5	1
#	K2638412	EPE CENTER PAD BK-5 BK-5OR	1
#	K2638413	EPE LEFT PAD BK-5 BK-5OR	1
#	K2638414	EPE RIGHT PAD BK-5 BK-5OR	1

MISCELLANEOUS

	03894945	REINFORCE BAR	1
	K2338102	SPEAKER BOX R	1
	K2338103	SPEAKER BOX (L)	1
	5100009656	DC PLUG SUPPORTER	1
#	K2168129	SPACER PWB USB BK-5 BK-5 OR	1
	J2289326	NUT HEX AX-SYNTH 529-08028-01-00	1
	K2138132	WASHER PLAIN ID3.3xOD6.0xT0.3 BZC	2
	K2138133	WASHER SPRING ID3.3xOD5.5xT0.9 BZC	2
#	J2139140	WASHER PLAIN 3.5X10X1 MS 519-12351-00-10	1
	40122923	DOUBLE FACED ADH NITTO NO.501F W20MM 20M	1
	04128390	SPEAKER CUSHION	2
	04129989	SPEAKER INNER CUSHION B	4
	12359137	RUBBER FOOT SJ-5012 BLK	4
#	K2228114	SPEAKER CUSHION BK-5	2
#	K2268238	LEFT SPONGE PANEL CUSHION BK-5	1
#	K2268239	RIGHT SPONGE PANEL CUSHION BK-5	1
#	K2268240	ADHESIVE CUSHION BK-5 BK-5OR	4
#	K2268241	SPONGE CUSHION SPEAKER CABLES BK-5/OR	2
#	K2248208	ADHESIVE FELT (BLACK) MM 1000X10 TH. 1	1
#	K2248209	SHORT ADHESIVE FELT MM 290x10 TH. 1	2
#	K2268242	ADHESIVE SPONGE 45X15X5	2

ACCESSORIES

#	K6018806	OWNER'S MANUAL (E) BK-5	1
#	K6018808	OWNER'S MANUAL (J) BK-5	1
#	K6018807	OWNER'S MANUAL (CN) BK-5	1
#	K2378144	CD-ROM V1.00 BK-5 BK-5 OR	1
#	7782807000	MUSIC REST ASSY	1

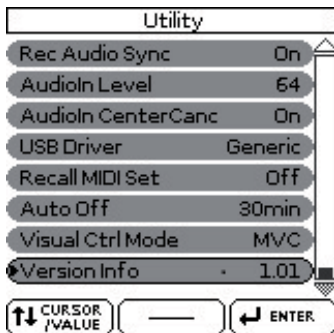
NOTE: MUSIC REST ASSY includes the following parts:

4 pcs	K2288152	SCREW 3X6 BINDING TAPTITE P BZN
3 pcs	K2288153	SCREW 3X12 BINDING TAPTITE P BZN
1 pce	04232978	MUSIC REST BASE BLACK
1 pce	no service	MUSIC REST PLATE BK-5 BK-5OR
2pcs	no service	HOLDER F/MUSIC REST PRELUDE

	04236112	SWITCHING ADAPTER PSB-7U (S)		1
	01903356	AC CORD SET 230V 1.0M FOR PSB	(only for 230V)	1
	510000115	AC CORD SET 230V 1.0M FOR UK (PSB)	(only for 230VE)	1
	02562456	AC CORD SET 120V 1.0M (NON POLAR)	(only for 117V U-117V U/CS)	1
	03785590	AC CORD SET SC-078-NA05 240VA	(only for 240VA)	1
	510000564	AC CORD SET CCC 452-04038-02-01	(only for 220V CN)	1
	01903334	AC CORD SET 100V 1.0M FOR PSB	(only for 100V)	1
	5100012293	AC CORD SET 117VBL 1.0M FOR PSB	(only for 117V BL)	1

Verifying the Version Numbers

1. Press the [MENU] button
2. Select GLOBAL and press the [ENTER] button
3. Select UTILITY and press the [ENTER] button
4. Scroll up to the end of the list to reach the Version Info Label.
The following screen will show the Version number.



Performing a Factory Reset

The following function allows you to recall the BK-5 original factory settings. This has no effect on the data stored on a USB memory.

You can carry out a factory reset in two ways:

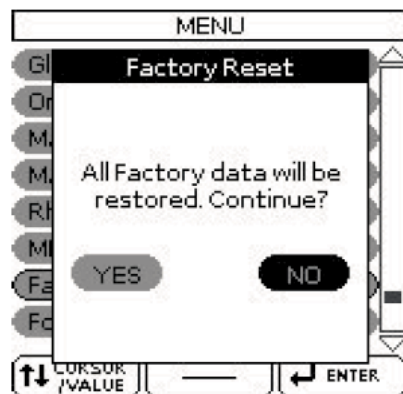
- A. automatically at the end of the Test Mode, refer to Test Mode - 18. Factory Reset (page 41)
- B. with the following procedure:

1. Press the [MENU] button.

The display changes to:



2. Rotate the [CURSOR/VALUE] dial to select the "Factory Reset" entry, then press the [ENTER/SELECT] button.



3. Rotate the [CURSOR/VALUE] dial to select "YES", then press the [ENTER/SELECT] button to load the factory settings. Select "NO" to return to the previous display page without loading the factory settings.
A confirmation message informs you that the BK-5 has been initialized.

Updating the System

Attention:

during the updating system a factory reset will be automatically carried out.

Required Items:

- USB memory
- PC (Windows XP)
- System update file (available from the Service-Net).

Procedure:

1. Decompress the System update file on a personal computer. When decompressed, a folder appears, it contains 5 or 6 files*:
 - update
 - rom.bin
 - Release.txt
 - Waverom.bin *
 - Startup
 - PROGRAM.BIN

2. First delete all existing files from the USB memory then copy the above content (5 files) to the USB memory's root directory.

3. After verifying that the BK-5 power is off, plug the USB memory into the USB port.

4. Keeping the **[WRITE]** button pressed, power on the BK-5 .

Hold the WRITE Button until the "Update Mode:" text appears on the top line of the LCD of BK-5.

5. Wait until the end of the update; the display will show "SUCCESS ".

Note: The update procedure takes about 20 minutes.

6. Switch off the BK-5.

7. Execute a Factory Reset.

Attention:

During the update procedure you must not:

- a. switch off the BK-5
- b. disconnect the Usb Memory

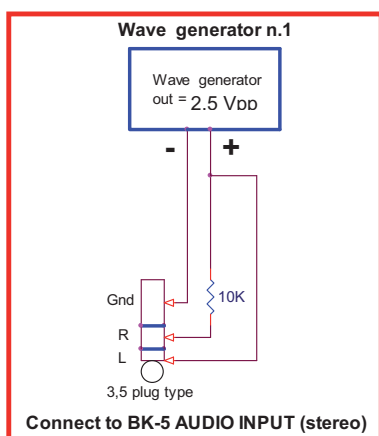
TEST MODE

* user settings are lost when a Test Mode operation is executed.

Required Items

- OSCILLOSCOPE
- NOISE METER
- WAVEFORM GENERATOR
- MONITOR LCD (i.e. 7 inch) with S-VIDEO input and with automatic PAL / NTSC selection
- HEADPHONES
- ROLAND DP-8 PEDAL SWITCH
- ROLAND EV-5 EXPRESSION PEDAL
- USB MEMORY (like ROLAND M-UF2G)
- PSB-7U AC/DC Universal Adapter + AC CORD
- USB CABLE to connect BK-5 **USB COMPUTER** socket to BK-5 **USB MEMORY** socket
- MIDI CABLE to connect BK-5 **MIDI IN** socket to BK-5 **MIDI OUT** socket
- 2 x Mono Audio Cables to connect BK-5 **OUTPUT L/R** mono sockets (6,3mm) to oscilloscope (BNC)
- Stereo Audio Cables to connect BK-5 **PHONES** stereo socket (6,3mm) to oscilloscope (BNC)
- Stereo Audio Cables to connect BK-5 **EXT INPUT** socket (3,5mm) to Waveform generator (refer to SCHEME 1)
- Mono Audio Cables to connect BK-5 **OUTPUT L/R** mono sockets (6,3mm) to Noise Meter input socket (BNC)
- Empty Jack for NOISE CHECK
- Video Cable to connect BK-5 **VIDEO OUTPUT** sockets to Monitor's **VIDEO IN** socket

SCHEME 1



Setting:

Connect the PSB-7U adaptor to the BK-5 **DC IN** socket.
 Connect the Video Cables from BK-5 **VIDEO OUTPUT** to Monitor's **VIDEO IN**.
 Connect the two Mono Audio Cables from BK-5 **OUTPUT L/R** to the oscilloscope.



Entering the Test Mode

Keeping the **[VARIATION 4]**, **[INTRO]** and **[ENDING]** buttons pressed, power on the BK-5 .
 Wait until "Version" test is displayed.

Exiting the Test Mode

Turn the power off.

Moving (forced) between Test Items

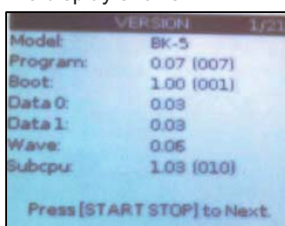
To skip to the next test item: keep the **[POP ROCK]** button pressed and then press **TEMPO [+]** button.
 To return to the previous test item: keep the **[POP ROCK]** button pressed and then press **TEMPO [-]** button.

Test Items

1. Software version check (pg 30)
2. Switch and led check (pg 31)
3. Encoder check (pg 31)
4. Switch pedal / Expression pedal check (pg 32)
5. ADC input check (pg 33)
6. MIDI IN/OUT check (pg 33)
7. USB MIDI check (pg 33)
8. USB MEMORY check (pg 34)
9. LCD check (pg 34)
10. Video out check (pg 35)
11. Keyboard check (pg 35)
12. Speakers check (pg 36)
13. Phones socket check (pg 37)
14. Output L/R sockets check (pg 38)
15. Audio Input socket check (pg 39)
16. Noise check (pg 40)
17. Memories and Devices check (pg 41)
18. Factory Reset and Auto Power off check (pg 41)

1. Software version check

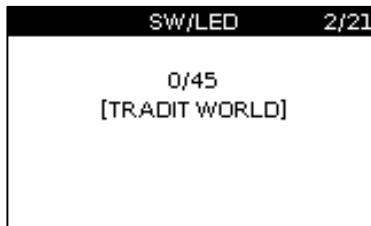
The display shows:



Be sure that the Pitch Bender and Modulation bar are in rest position, then press the **[START/STOP]** button to go to next test.

2. Switch and LED check

The display shows:



The display will show the switch to press and the LED associated to it will blink.
 For each switch pressed the relative LED will be lit.
 At the end of the sequence the test will automatically go to the next test

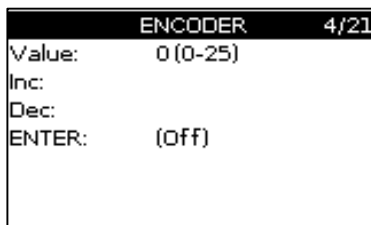
The display shows:



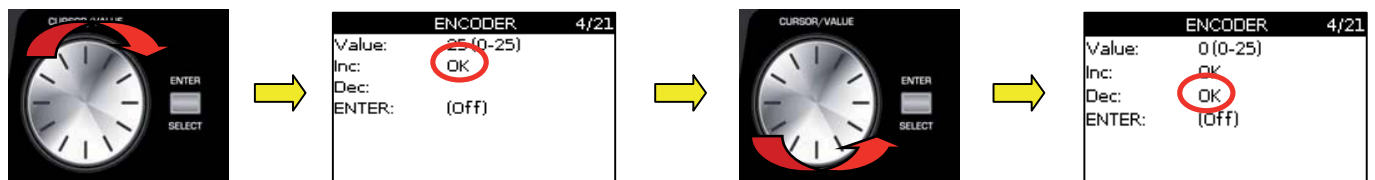
The display will show the switch to press and the LED associated to it will blink.
 For each switch pressed the relative LED will be lit.
 At the end of the sequence the test will automatically go to the next test

3. Encoder check

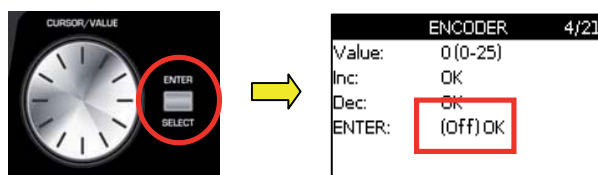
The display shows:



1. Rotate the [CURSOR/VALUE] dial to right (clockwise) and make sure the value on the display changes from 0 to 25.
2. Rotate the [CURSOR/VALUE] dial to left (counter clockwise) and make sure the value on the display changes from 25 to 0.



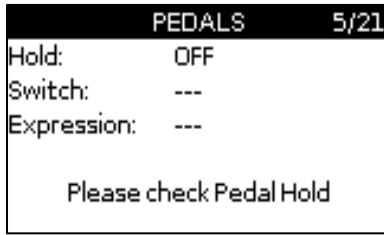
3. Push the [ENTER] button and make sure the display shows **Switch: (On)**.
4. Release the [ENTER] button and make sure the display shows **Switch: (Off) OK**.



5. Press [START/STOP] button to go to next test.

4. Switch pedal / Expression pedal check

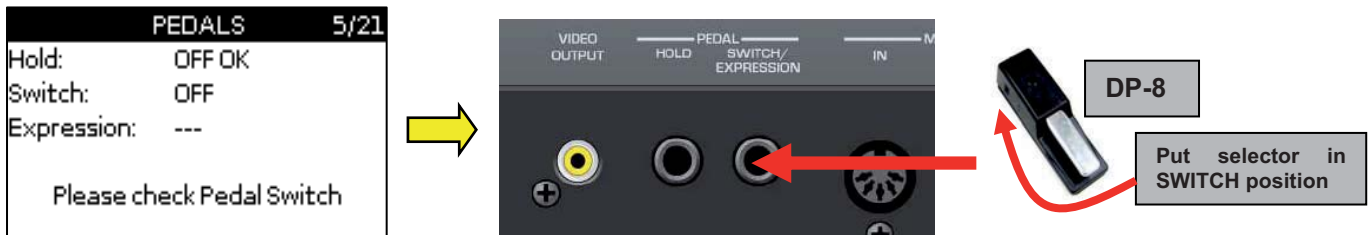
The display shows:



1. Connect the DP-8 to the BK-5 **PEDAL- HOLD** input .



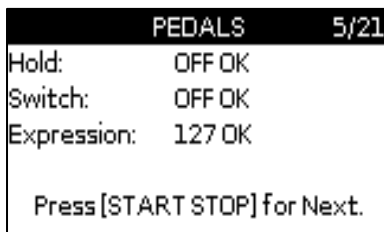
2. Verify that the display shows **"Hold: OFF"**.
3. Press the DP-8 Pedal and verify that the display shows **"Hold: ON"**.
4. Release the DP-8 Pedal and make sure the display shows **"Hold: OFF OK"**.
5. Connect the DP-8 to BK-5 **PEDAL - SWITCH/EXPRESSION** input.



6. Verify that the display shows **"Switch: OFF"**.
7. Press the DP-8 Pedal and verify that the display shows **"Switch: ON"**.
8. Release the DP-8 Pedal and make sure the display shows **"Switch: OFF OK"**.
9. Remove the DP-8 Pedal and connect the EV-5 pedal to BK-5 **PEDAL SWITCH/EXPRESSION** input.



10. Move the EV-5 Pedal and verify that the value shown gradually changes from **000** (minimum) to **127** (maximum). When both extreme values are reached the display will show **OK**.



11. Press **[START/STOP]** button to go to next test.

5. ADC input check

The display shows:

ADC		6/21
Volume:	064	
Bender:	064	
Modulation:	000	

1. Rotate the **MASTER VOL** potentiometer and verify that the value gradually change from **000** (minimum) to **127** (maximum).
2. Check when the **BENDER** lever is in the rest position the display shows "**Bender: 064**".
3. Move **BENDER** lever and check the relative value shown gradually changes from **000** (lever on the left side) to **127** (lever on the right side).
4. Verify that when the **MODULATION** lever is in the rest position the display shows "**Modulation: 000**".
5. Move **MODULATION** lever and verify that the relative value shown gradually changes from **000** (rest position) to **127** (forward position).

ADC		6/21
Volume:	127 OK	
Bender:	064 OK	
Modulation:	000 OK	

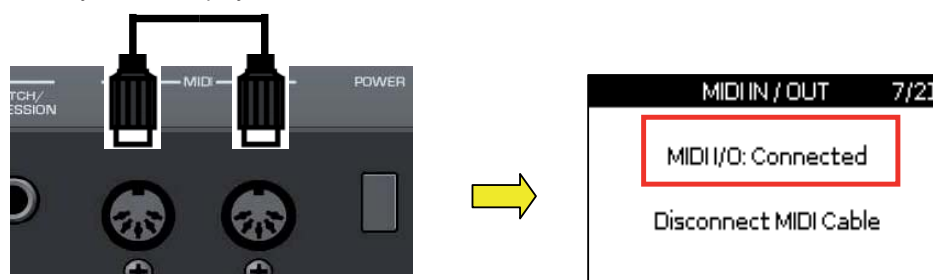
6. Press **[START/STOP]** button to go to next test.

6. MIDI IN/OUT check

The display shows:

MIDI IN / OUT		7/21
MIDI IN/OUT: -----		
Connect MIDI Cable		

1. Connect the MIDI cable between BK-5 **MIDI IN** and **MIDI OUT**.
2. Verify that the display shows "**Connected**".



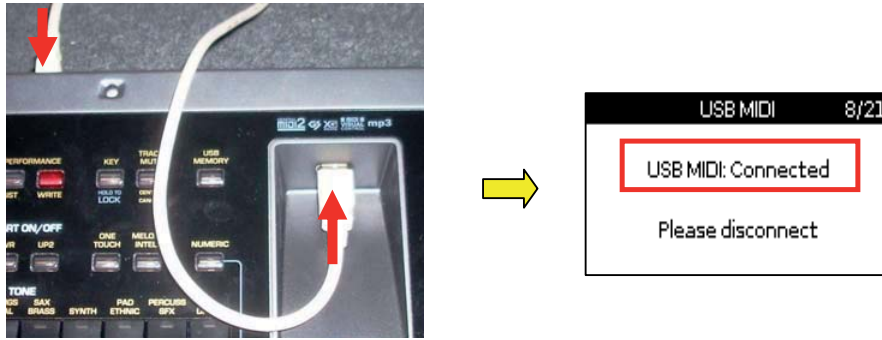
3. Disconnect the MIDI cable from BK-5 **MIDI IN** and **MIDI OUT** and verify that the display shows "**Disconnected OK**".
4. Press **[START/STOP]** button to go to next test.

7. USB MIDI check

The display shows:

USB MIDI		8/21
USB MIDI: -----		
Please connect		

1. Connect the USB cable from **USB COMPUTER** socket to **USB MEMORY** socket.
2. Verify that the display shows "**Connected**".



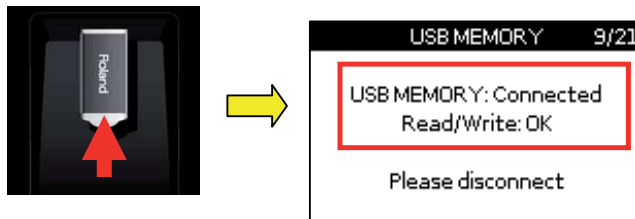
3. Disconnect the USB cable and make sure the display shows “Disconnected OK”.
4. Press [START/STOP] button to go to next test.

8. USB MEMORY check

The display shows:



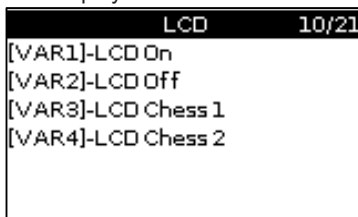
1. Connect the USB Memory (like ROLAND M-UF2G) to **USB MEMORY** socket.
2. Verify that the display shows : **USB MEMORY “Connected”** and **READ/WRITE: OK**.



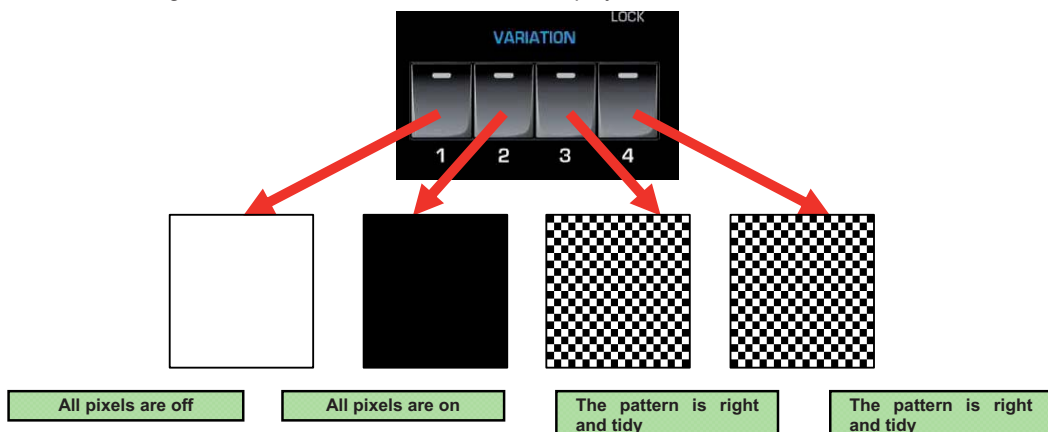
3. Remove the USB Memory and make sure the display shows: **USB MEMORY “Disconnected OK”**.
4. Press [START/STOP] button to go to next test.

9. LCD check

The display shows:



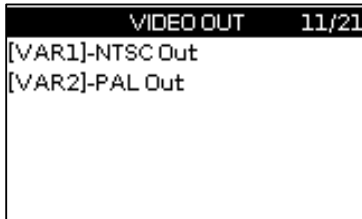
1. Press the following four switches and check the related display-LCD condition:



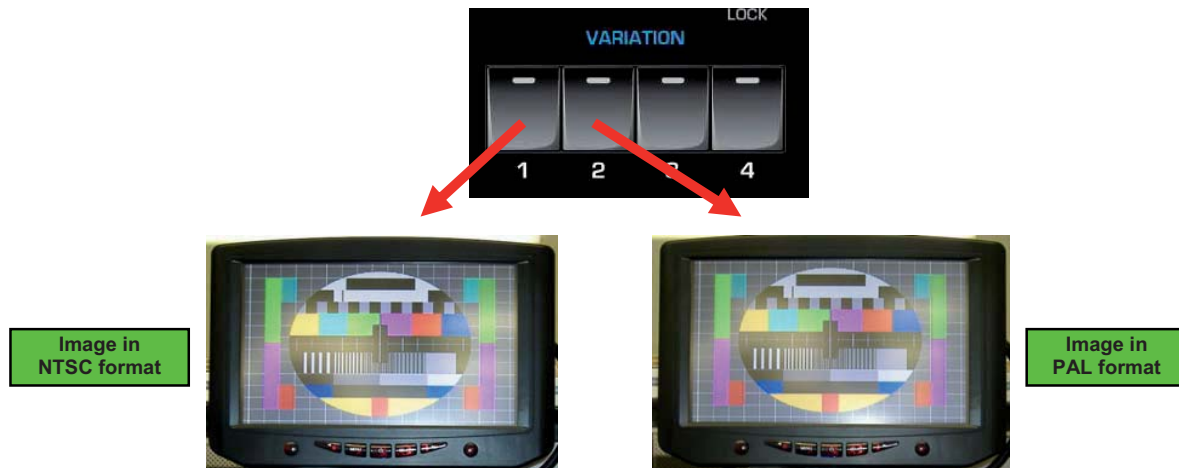
2. Press [START/STOP] button to go to next test.

10. Video out check

The display shows:



Press the following two switches and check the related external Monitor images as follows:



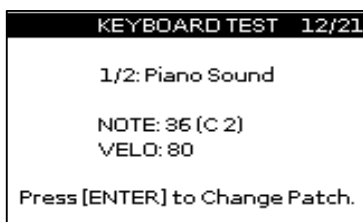
Note:

The two image types (NTSC or PAL) are almost the same. The only difference is that the PAL type is a little bit squashed than the NTSC type, so carefully check this difference.

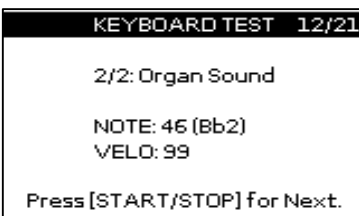
2. Press **[START/STOP]** button to go to next test.

11. Keyboard check

The display shows:



1. Move the **MASTER VOL** knob to the maximum position.
2. Verify that all keys produce a sound.
Press the keys lightly and strongly, verifying that the sound volume changes accordingly.
3. Press the switch **ENTER** to go ahead

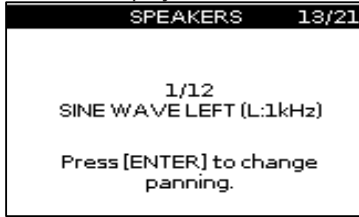


4. Press all keys (one by one) exerting a MEDIUM pressure; for each pressed key you will hear a musical note with the same volume Intensity
5. Press **[START/STOP]** button to go to next test.

12. Speakers check

12.1 Speakers separation check

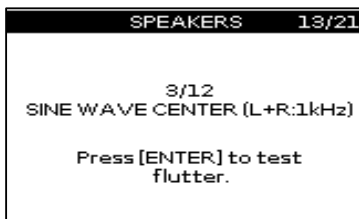
The LCD display shows:



1. Check the sound (1Khz Sine wave) coming out only from Left Speaker with right intensity according to **VOLUME** position.
2. Press the switch **ENTER**; the LCD display shows:



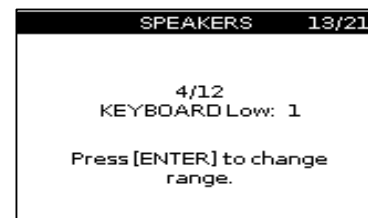
3. Check the sound (1Khz Saw wave) coming out only from Right Speaker with right intensity according to **VOLUME** position.
4. Press the switch **ENTER**; the LCD display shows:



5. Check the sound (1Khz Sine wave) coming out from both Speakers with right intensity according to **VOLUME** position.
6. Check the **VOLUME** potentiometer changes smoothly and, at the minimum position, the sound is completely nil.

12.2 Speakers flutter check (sweep test)

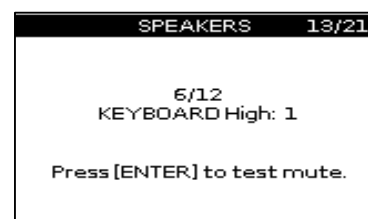
1. Move the **VOLUME** potentiometer to center (12 o'clock) and press the switch **ENTER** to go ahead (**Keyboard Low Range Test**):



2. Confirm a bass-range sine wave (with up and down changes in pitch) is output from speakers and that the speakers audio is free of flutter
3. Press the switch **ENTER** to go ahead (**Keyboard Mid Range Test**):



4. Confirm a mid-range sine wave (with up and down changes in pitch) is output from speakers and that the speakers audio is free of flutter
5. Press the switch **ENTER** to go ahead (**Keyboard High Range Test**):



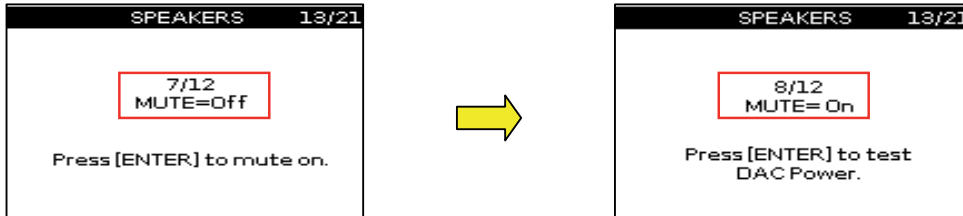
6. Confirm a treble-range sine wave (with up and down changes in pitch) is output from speakers and that the speakers audio is free of flutter.

Note: The following three operations allow more detailed inspection.

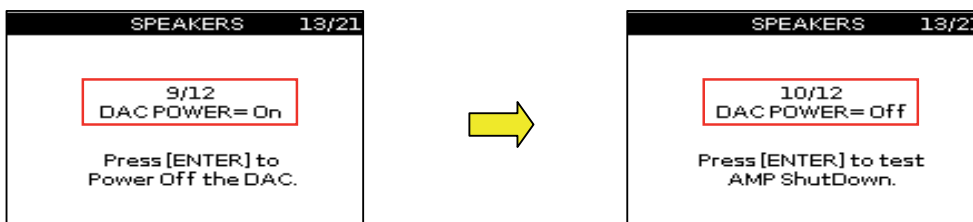
- Pressing the switch \leftarrow makes the pitch-changing stop; pressing it a second time resumes.
- Pressing the switches \wedge or \vee while operation is stopped allows fine adjustment of the pitch.

12.3 Speakers mutes check

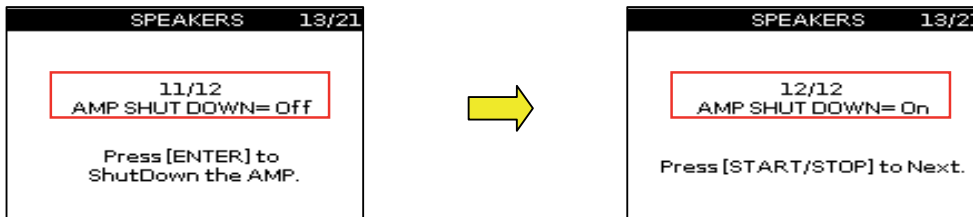
- Press the switch **ENTER** and check the sound coming out from both Speakers.
- Press the switch **ENTER** and check the sound on the speakers is completely nil (MUTE test) .



- Press the switch **ENTER** and check the sound coming out from both Speakers.
- Press the switch **ENTER** and check the sound on the speakers is completely nil (DAC POWER test) .



- Press the switch **ENTER** and check the sound coming out from both Speakers.
- Press the switch **ENTER** and check the sound on the speakers is completely nil (AMP SHUT DOWN test) .



- Press **[START/STOP]** button to go to next test.

13. Phones socket check

The display shows:

```

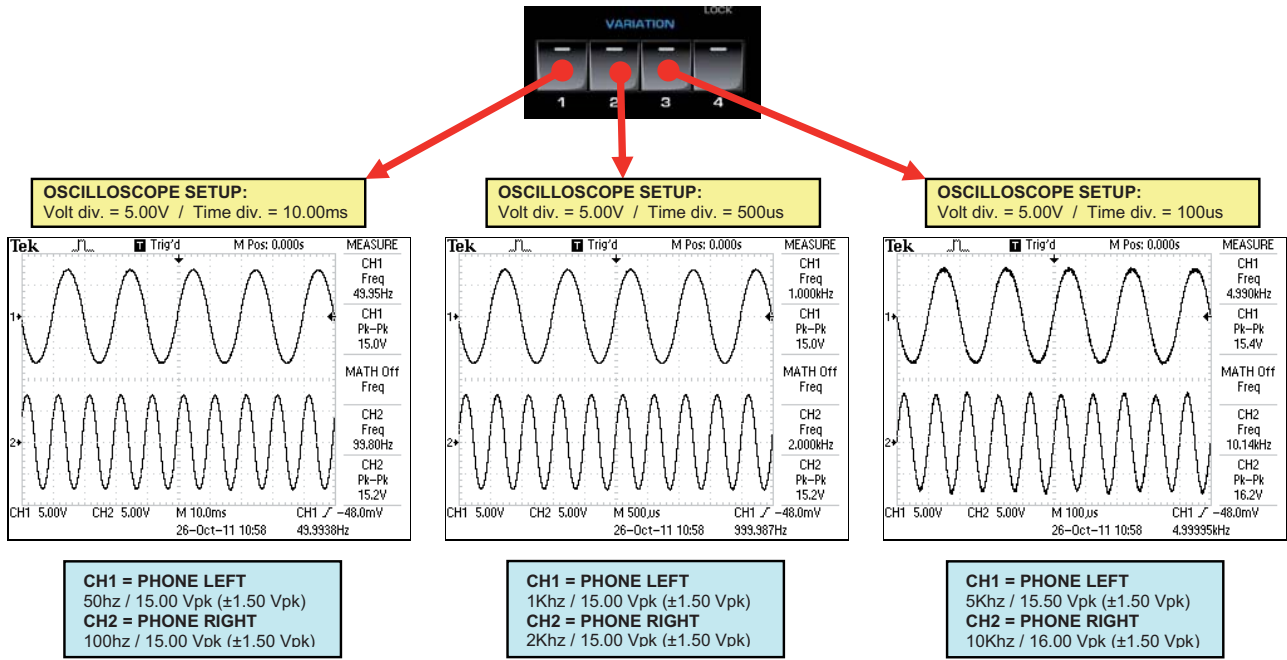
AUDIO PHONES  14/21
[VAR1]-L:50Hz,R:100Hz
[VAR2]-L:1KHz,R:2KHz
[VAR3]-L:5KHz,R:10KHz
[VAR4]-Mute OFF

```

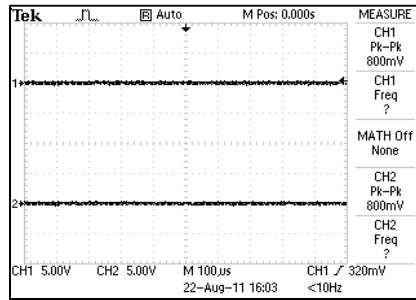
Setting:

Connect the BK-5 **PHONES** to oscilloscope's CH1-CH2 inputs (by means of a STEREO AUDIO CABLE).

- Press one by one **[VARIATION 1]** **[VARIATION 2]** **[VARIATION 3]** buttons and check the following values on the oscilloscope:



2. Keep [VARIATION 4] button pressed and make sure the waveforms are completely nil.



- 3. Repeat all measures on the second PHONES socket.
- 4. Press [START/STOP] button to go to next test.

14. Output L/R sockets check

The display shows:

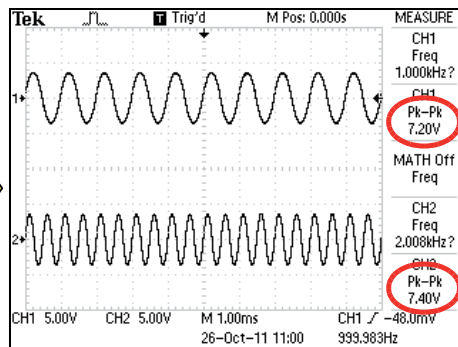


Setting:

Connect the BK-5 OUTPUT L/R to oscilloscope's CH1-CH2 inputs (by means of 2x Mono Audio cables).

1. Press [VARIATION 1] button. Check the following values on the oscilloscope:

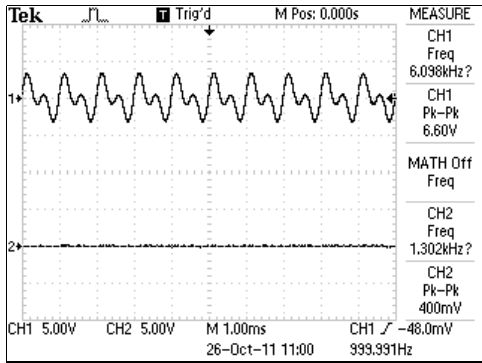
OSCILLOSCOPE SETUP:
Volt div. = 5.00V/ Time div. = 1.00ms



CH1 = OUTPUT LEFT
It must be 1000hz (± 20)
It must be 7.30 Vpk (± 1.00 Vpk)

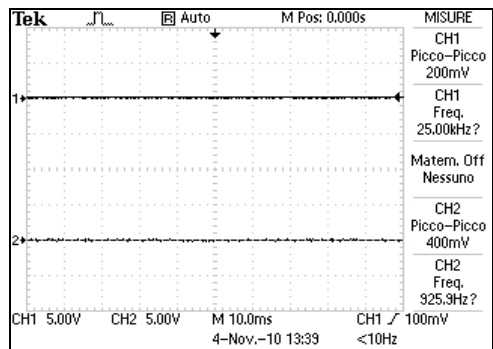
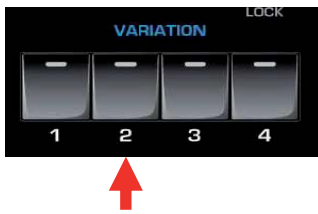
CH2 = OUTPUT RIGHT
It must be 2000hz (± 20)
It must be 7.30 Vpk (± 1.00 Vpk)

- Remove jack from **OUTPUT R** and make sure the Right channel is mixed with Left channel (Mono function); Check the following values on the oscilloscope:



- CH1 = OUTPUT LEFT**
The 2Khz Right signal is mixed with 1Khz Left signal
- CH2 = OUTPUT RIGHT**
No signal

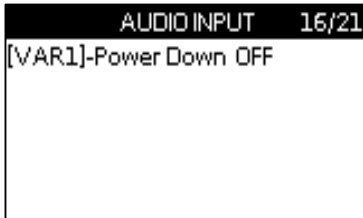
- Insert again the jack into the BK-5 **OUTPUT R** socket.
- Keep **[VARIATION 2]** pressed button and verify that the waveforms are completely nil:



- Press **[START/STOP]** button to go to next test.

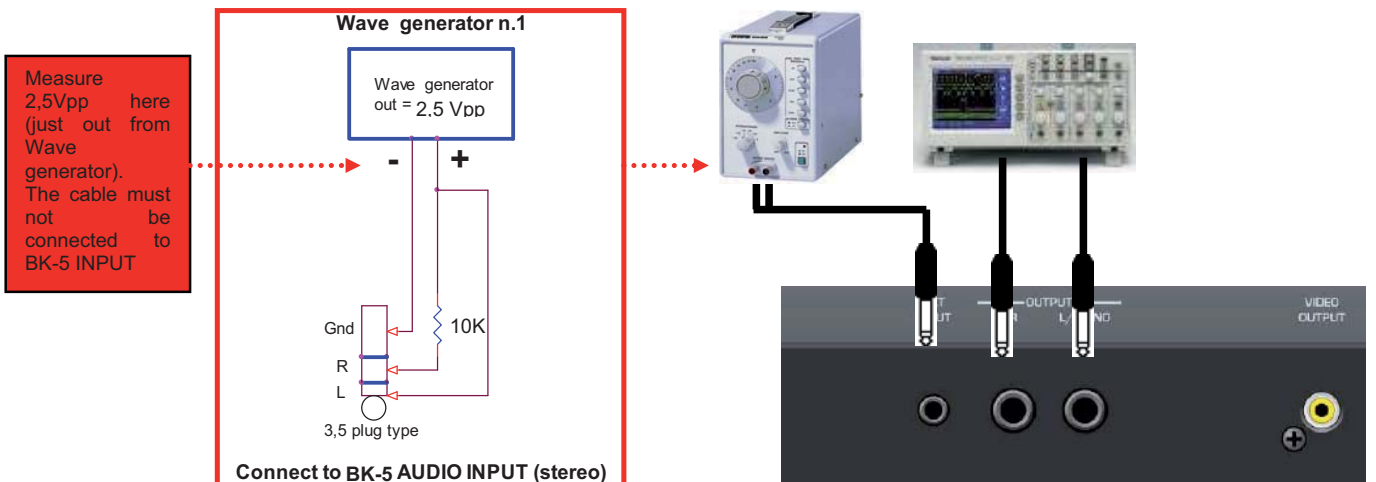
15. Audio Input socket check

The display shows:



Setting:

- Connect the n.2 Mono Audio Cables from BK-5 **EXT INPUT** to the Waveform generator.
- Connect the BK-5 **OUTPUT L/R** to oscilloscope's CH1-CH2 inputs.

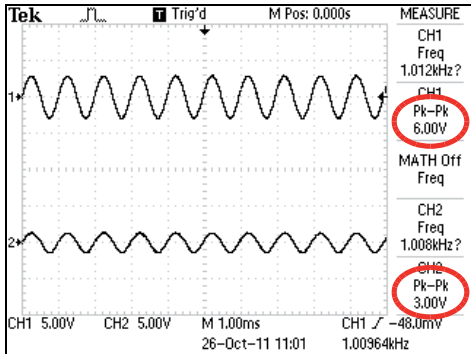


1. Produce following wave with external Waveform generator:

- Wave generator OUT L: Freq =1Khz (sine wave) Amplitude=2,5Vpp (measured with cable not connected to BK-5)
- Wave generator OUT R: Freq =1Khz (sine wave) Amplitude=2,5Vpp (measured with cable not connected to BK-5)

2. Check the following values on the oscilloscope:

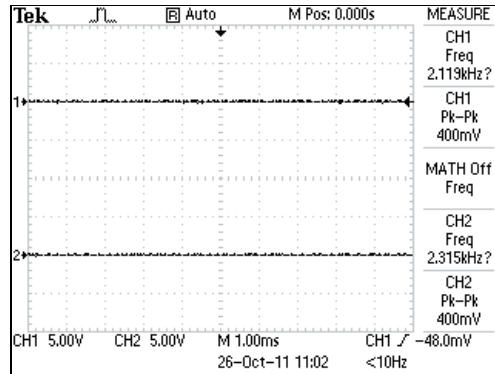
OSCILLOSCOPE SETUP:
 Volt div. = 5.00V / Time div. = 1.00ms



CH1 = OUTPUT LEFT
 It must be 1000hz (± 20)
 It must be 6.00 Vpk (± 1.00 Vpk)

CH2 = OUTPUT RIGHT
 It must be 1000hz (± 20)
 It must be 3.00 Vpk (± 0.50 Vpk)

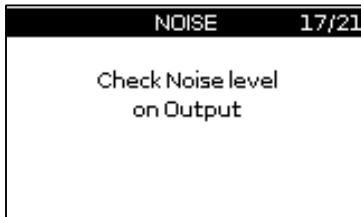
3. Keep pressed **VARIATION 1]** button and verify that the waveforms are completely nil:



6. Press **[START/STOP]** button to go to next test.

16. Noise check

The display shows:



Setting:

- Remove all connections from BK-5 sockets.
- Connect the mono audio cable first from **OUTPUT L/MONO** then from **OUTPUT R** to Noise Meter's input.



When you measure the **OUTPUT L** insert an empty jack on **OUTPUT R**.
 When you measure the **OUTPUT R** insert an empty jack on **OUTPUT L**.

1. Check the following noise level:
 OUTPUT L/MONO : Must be Under -85dBm (Vrms, Din-Audio)
 OUTPUT R: Must be Under -85dBm (Vrms, Din-Audio)

2. Press **[START/STOP]** button to go to next test.

17. Memories and Devices check

1. The first group of tests automatically starts. Verify that **OK** is indicated as the check result.

DEVICE 18/21	
NOR:	OK
SUB-CPU:	OK
SDRAM1:	OK
SDRAM2:	OK
SSC:	OK
SSC ERAM:	OK
WAVE:	OK

2. The second group of tests automatically starts. Verify that **OK** is indicated as the check result.

DEVICE CHECKSUM 19/21	
BOOT:	OK
PROG:	OK
DATA:	OK
WAVE:	OK

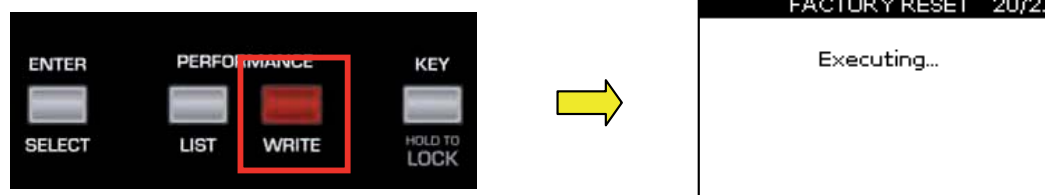
3. At the end of the sequence the test will automatically go to the next test.

18. Factory Reset and Auto Power off check.

The display shows:

FACTORY RESET 20/21	
Please [WRITE] to execute	

1. Press **[WRITE]** button to execute the Factory Reset.

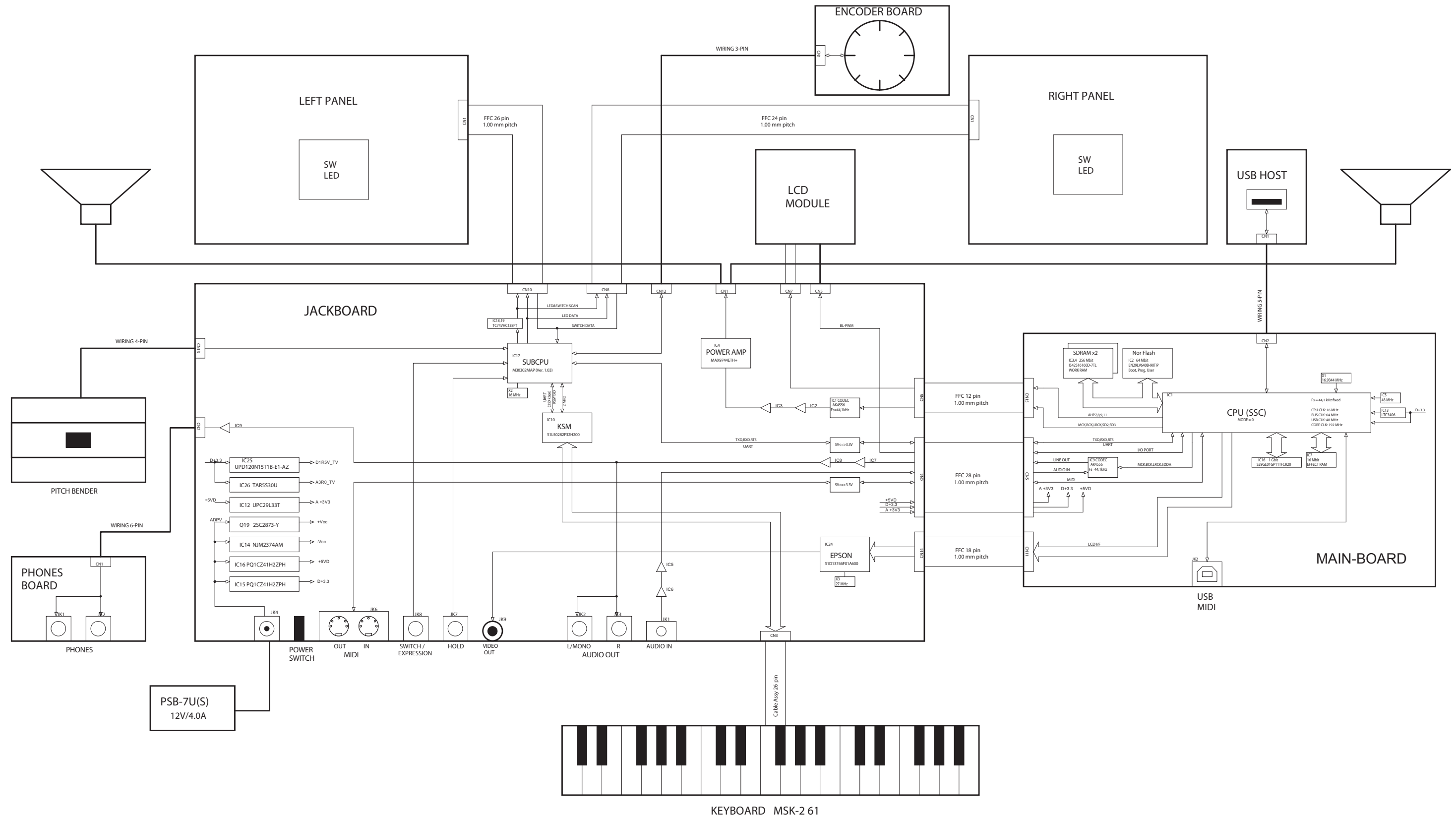


2. At the end the display shows:

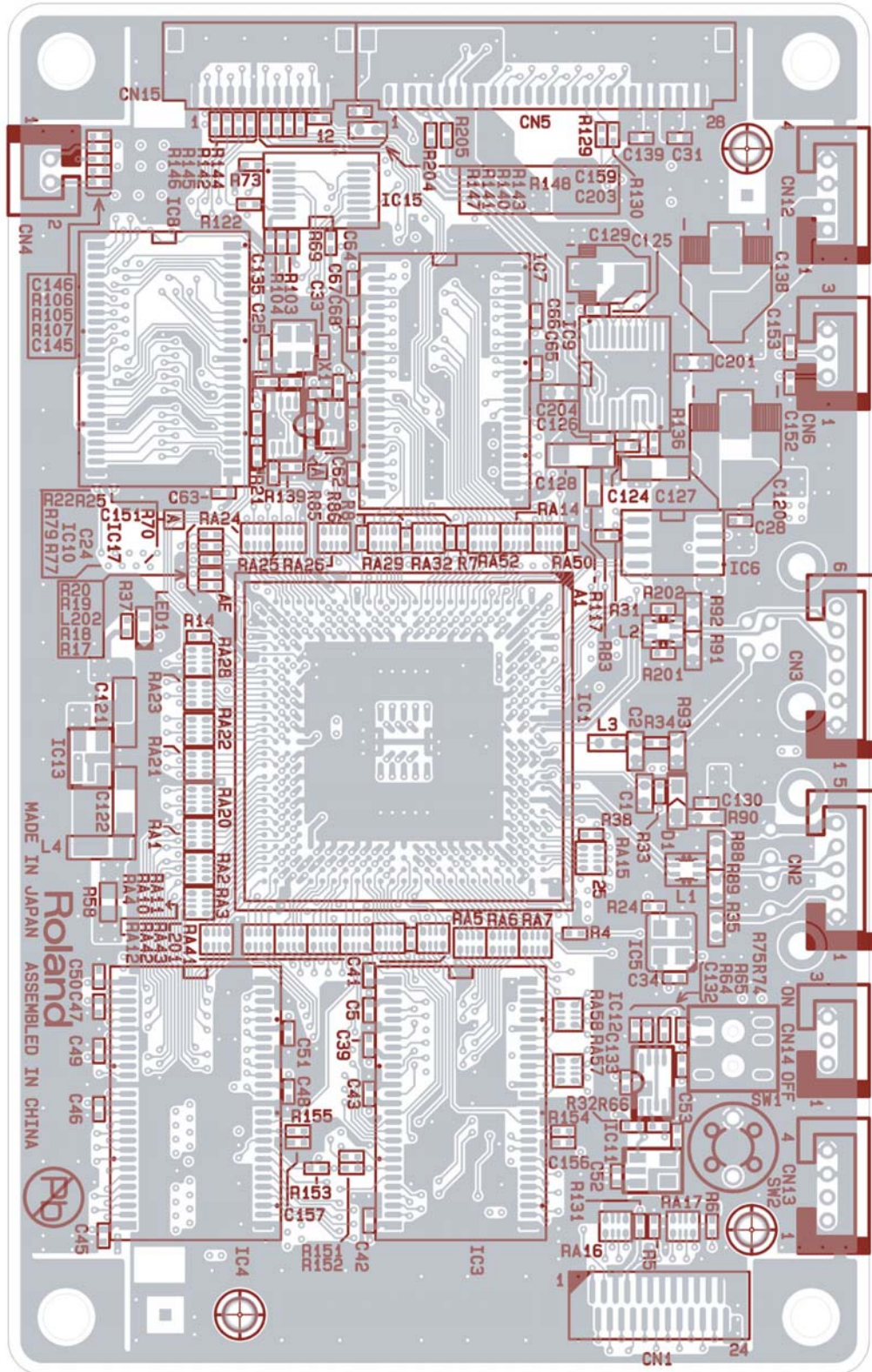
AUTO OFF 21/21	
Press [ENTER] to Off the Instrument and Complete the Test.	

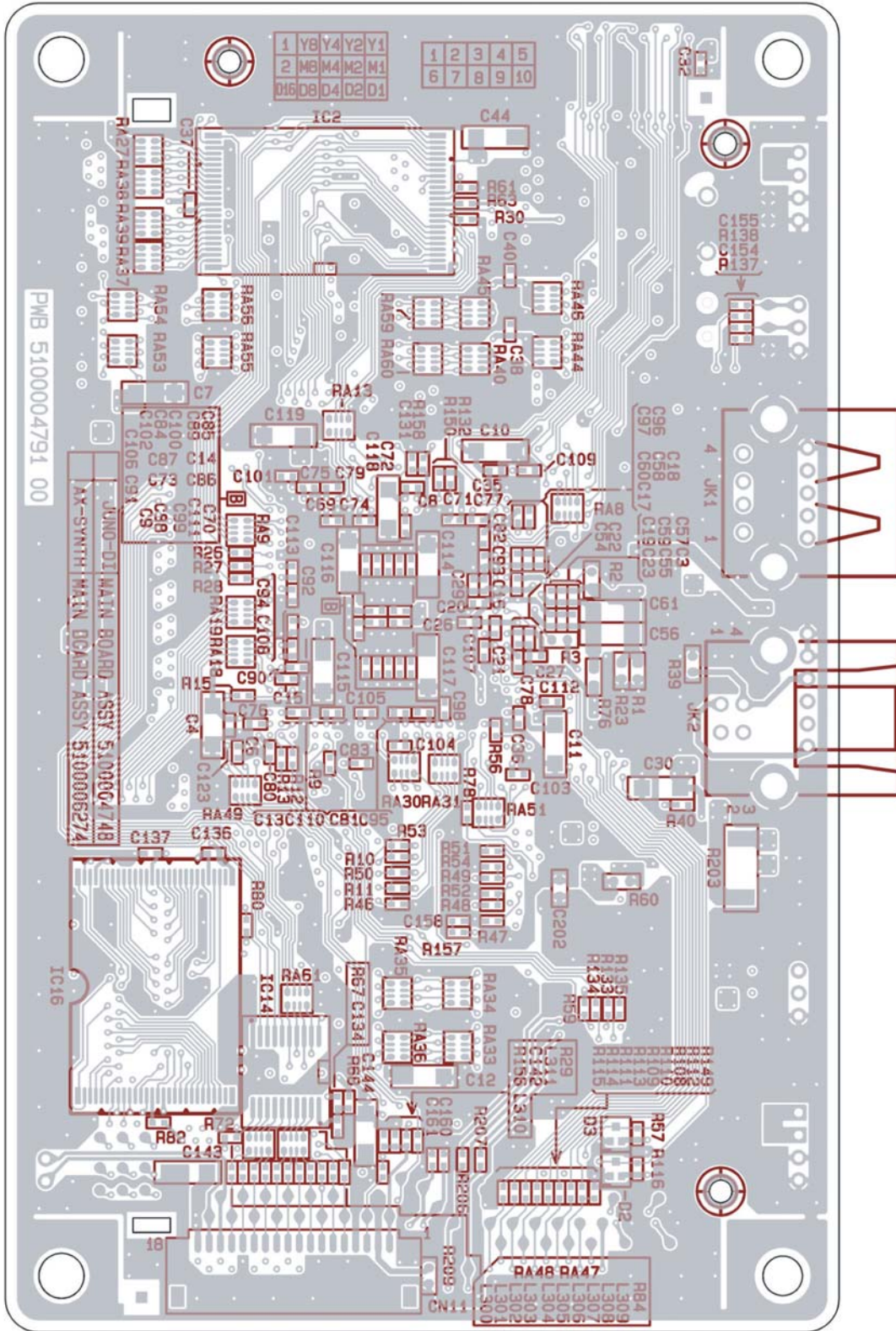
3. Press **[ENTER]** button and verify that the BK-5 will be switched off.

BLOCK DIAGRAM

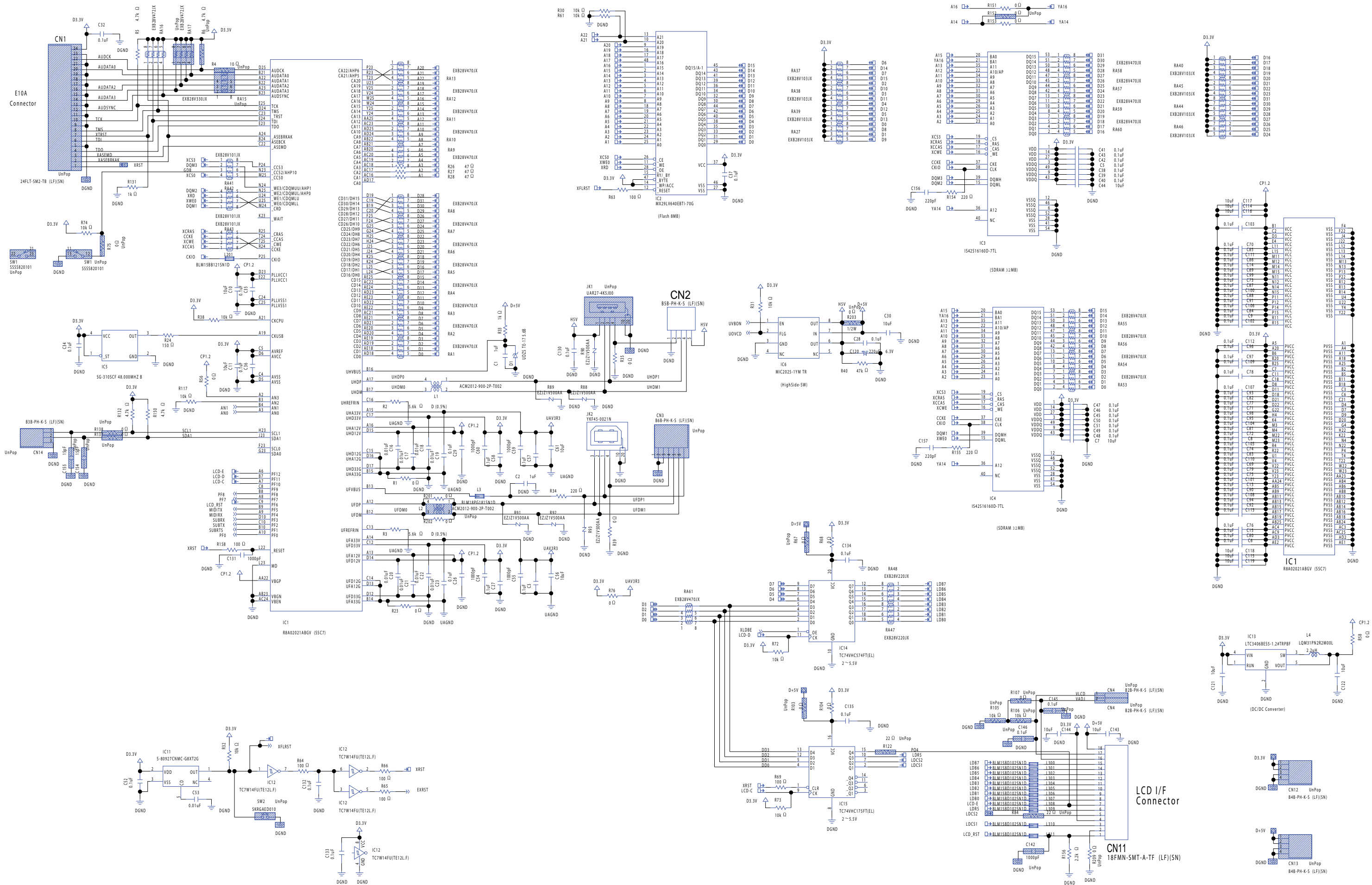


CIRCUIT BOARD (MAIN Board)

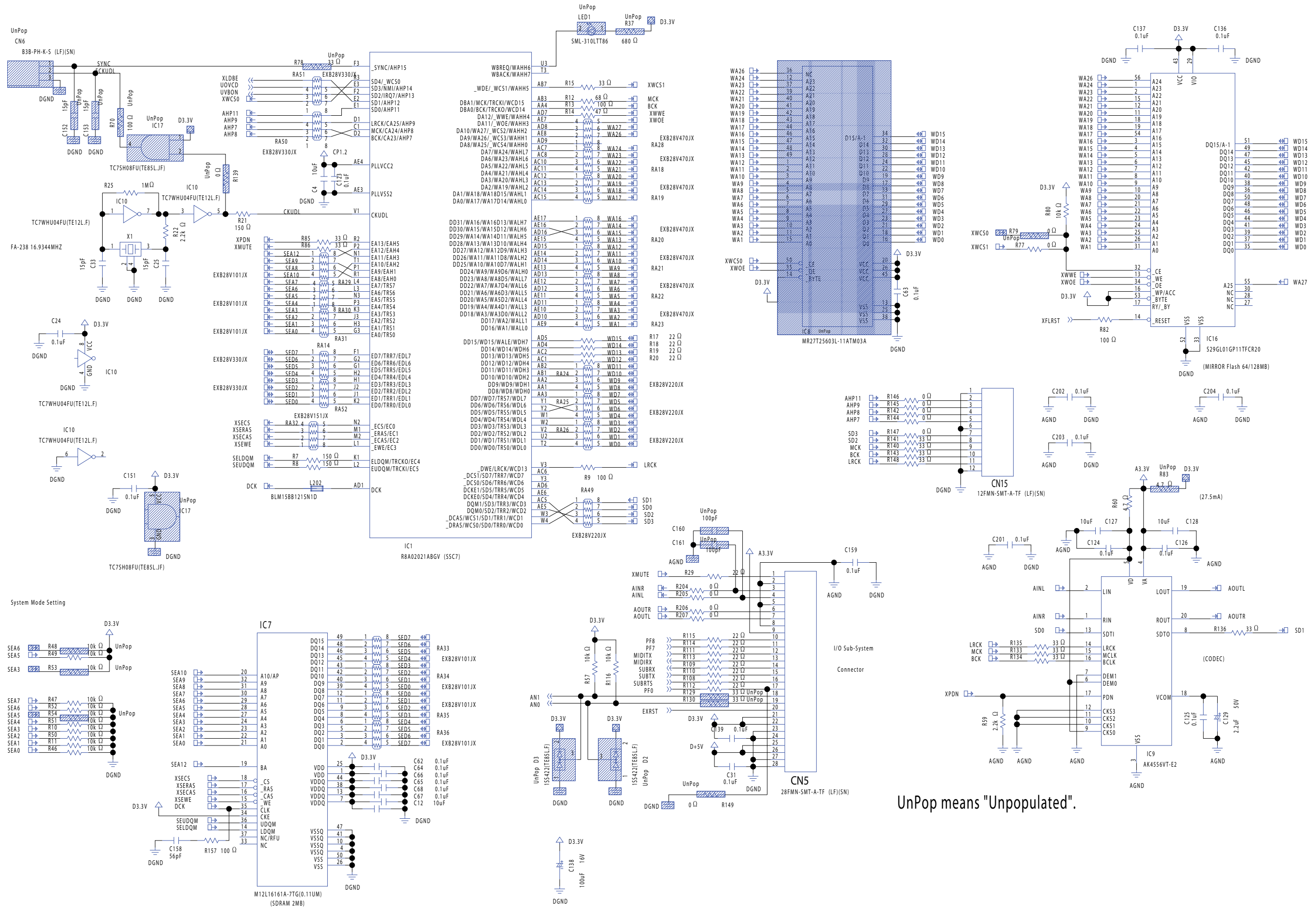




CIRCUIT DIAGRAM (MAIN B. 1/2)

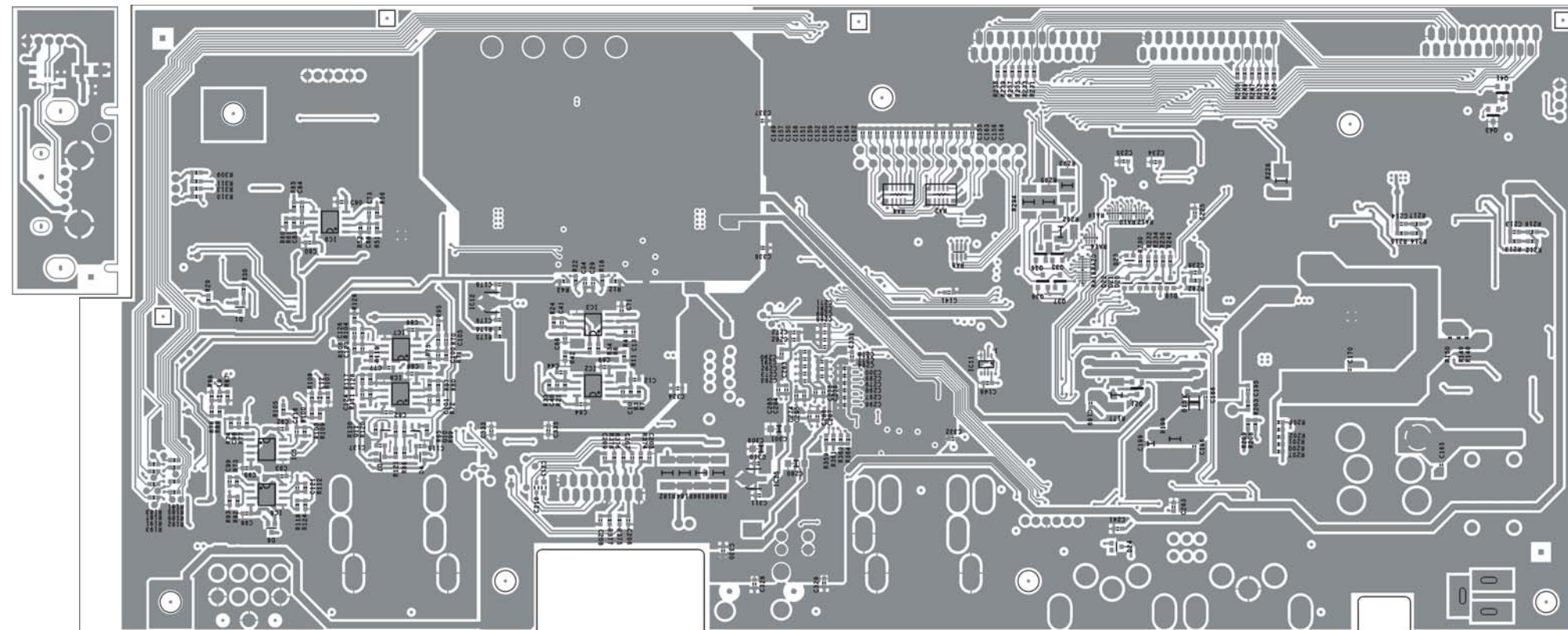
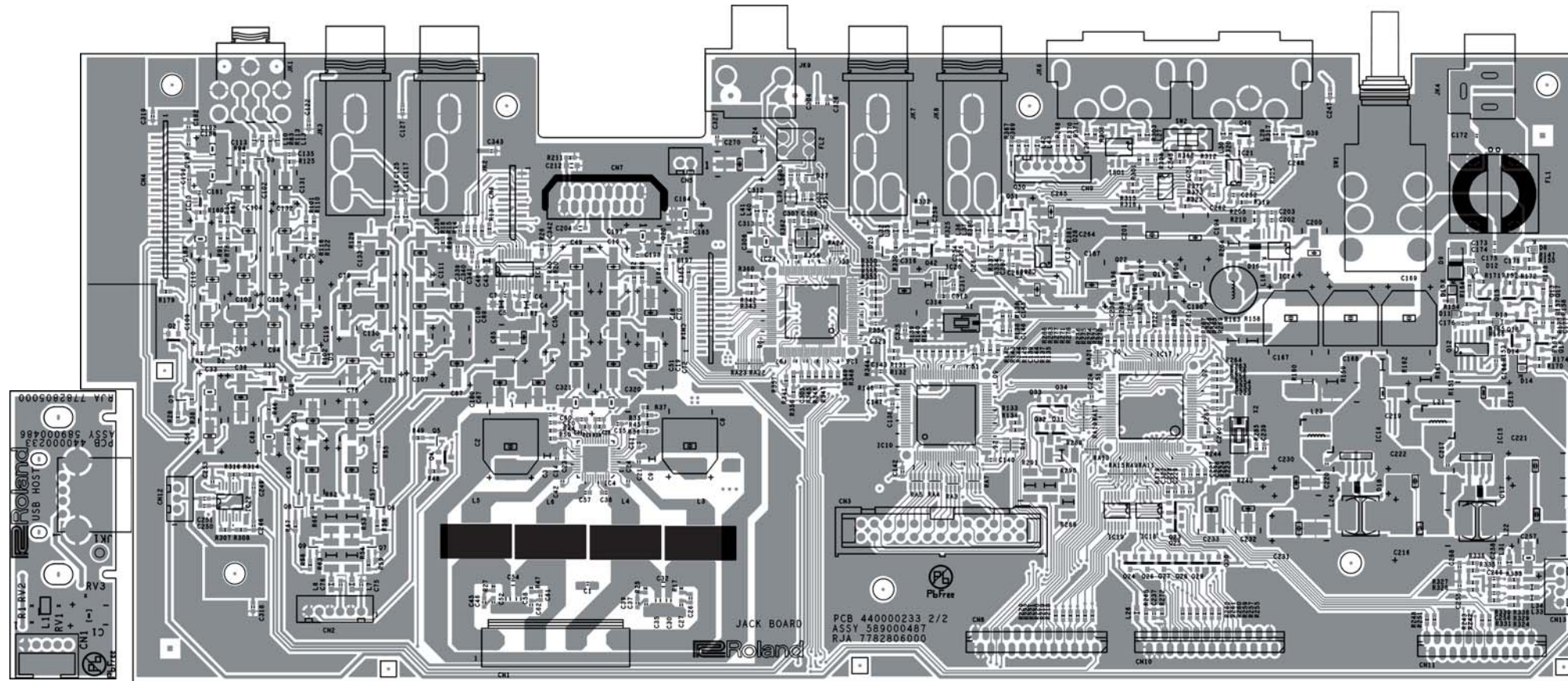


CIRCUIT DIAGRAM (MAIN B. 2/2)

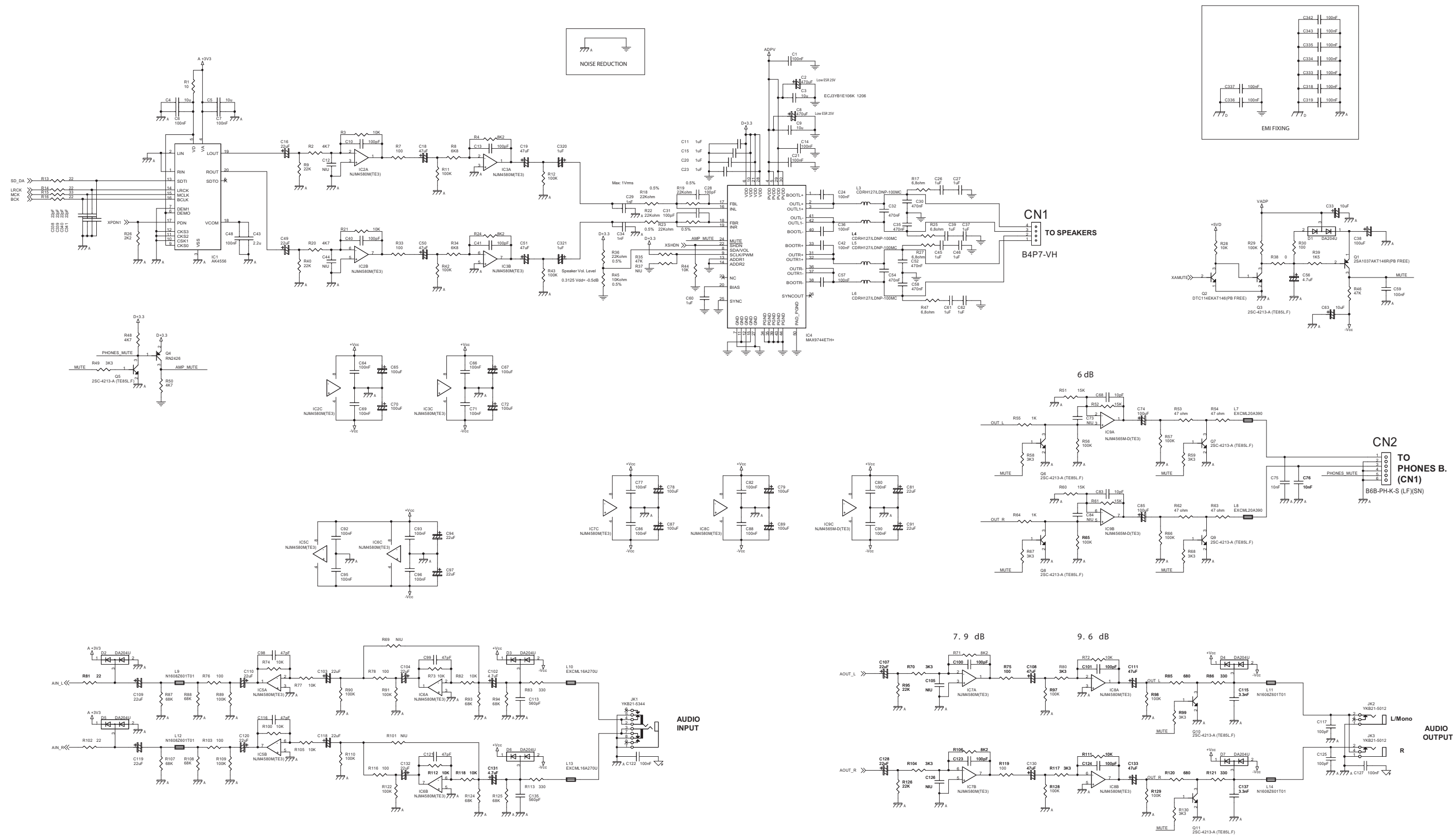


UnPop means "Unpopulated".

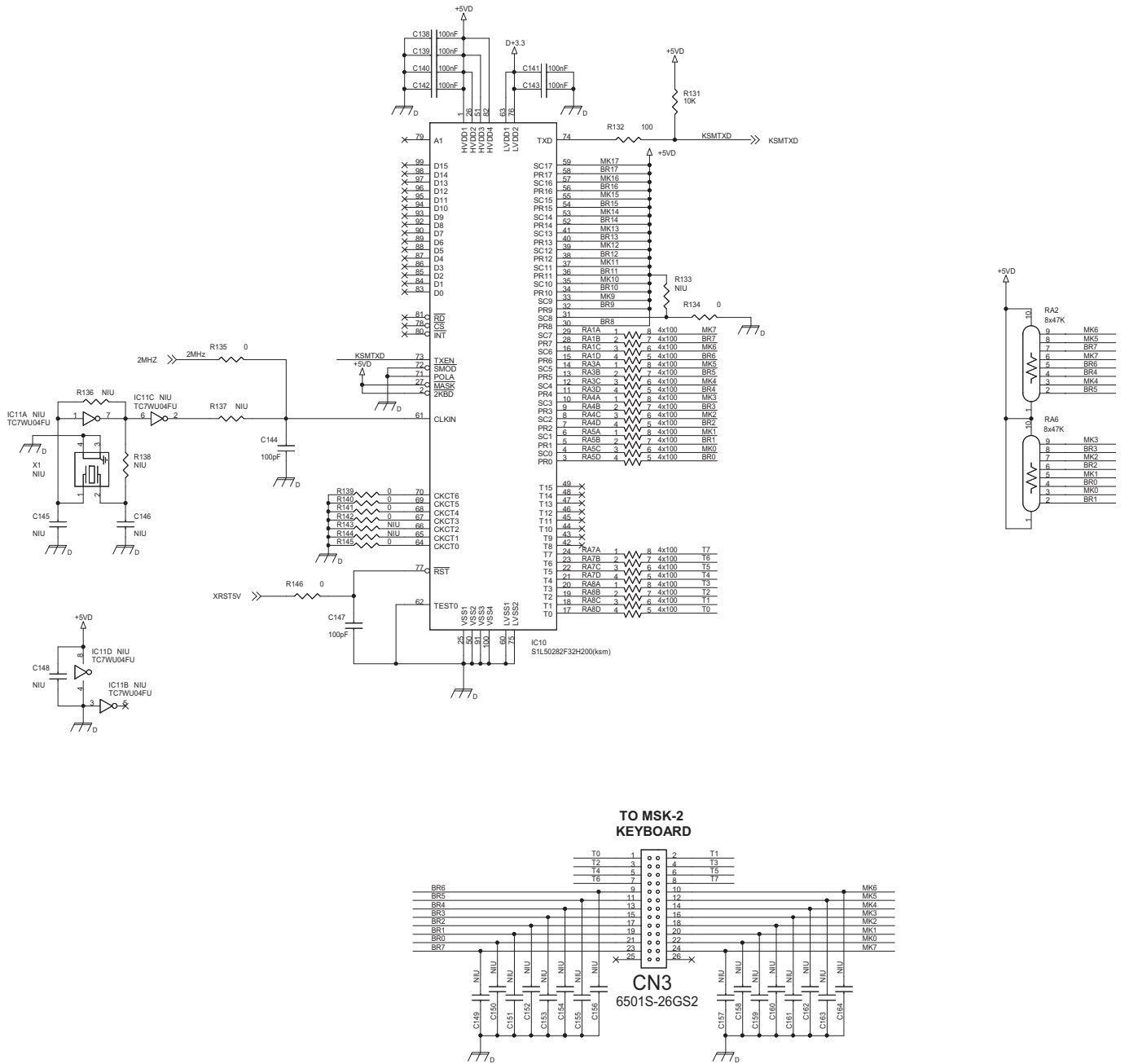
CIRCUIT BOARD (JACK B., USB BOARD)



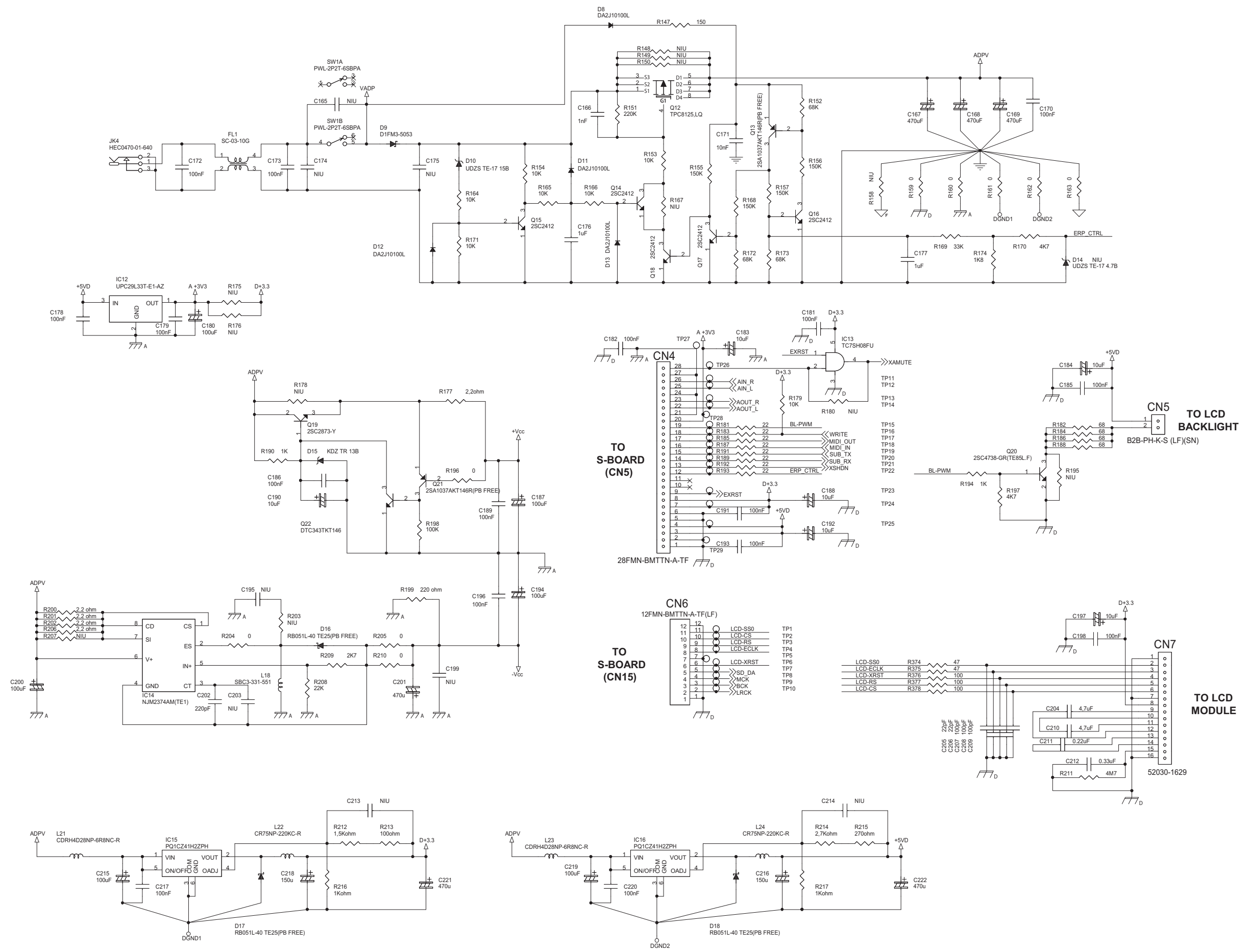
CIRCUIT DIAGRAM (JACK B. 1/5)



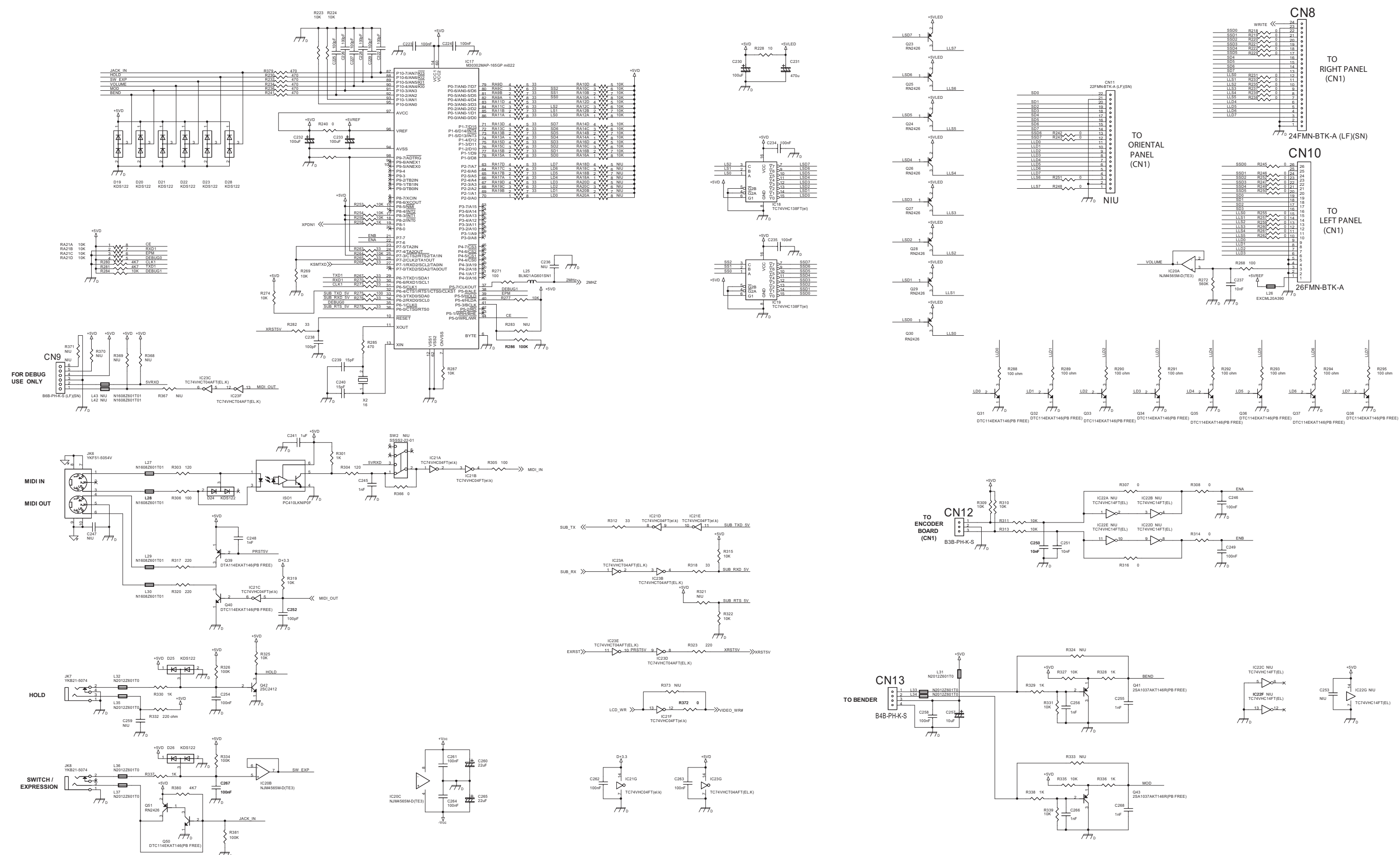
CIRCUIT DIAGRAM (JACK B. 2/5)



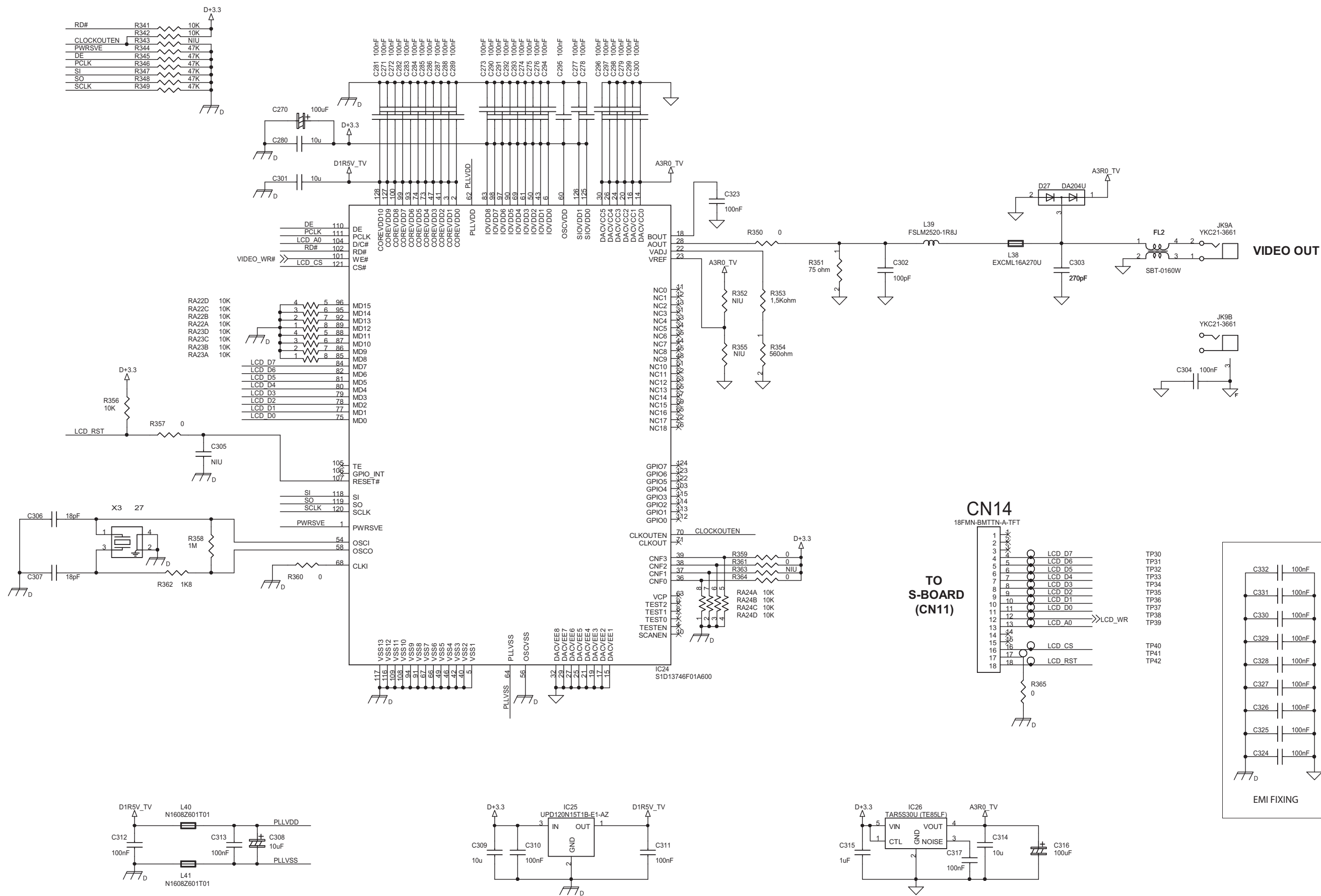
CIRCUIT DIAGRAM (JACK B. 3/5)



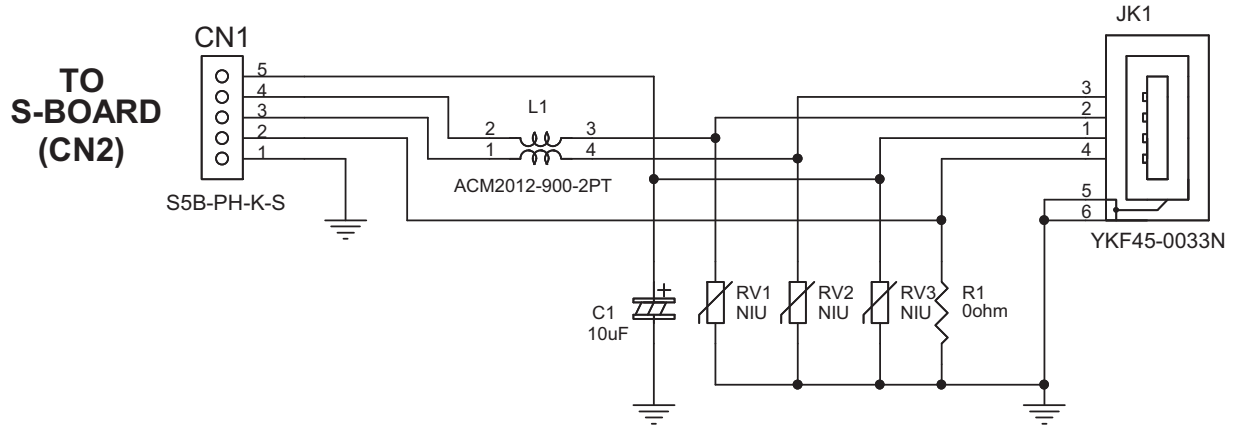
CIRCUIT DIAGRAM (JACK B. 4/5)



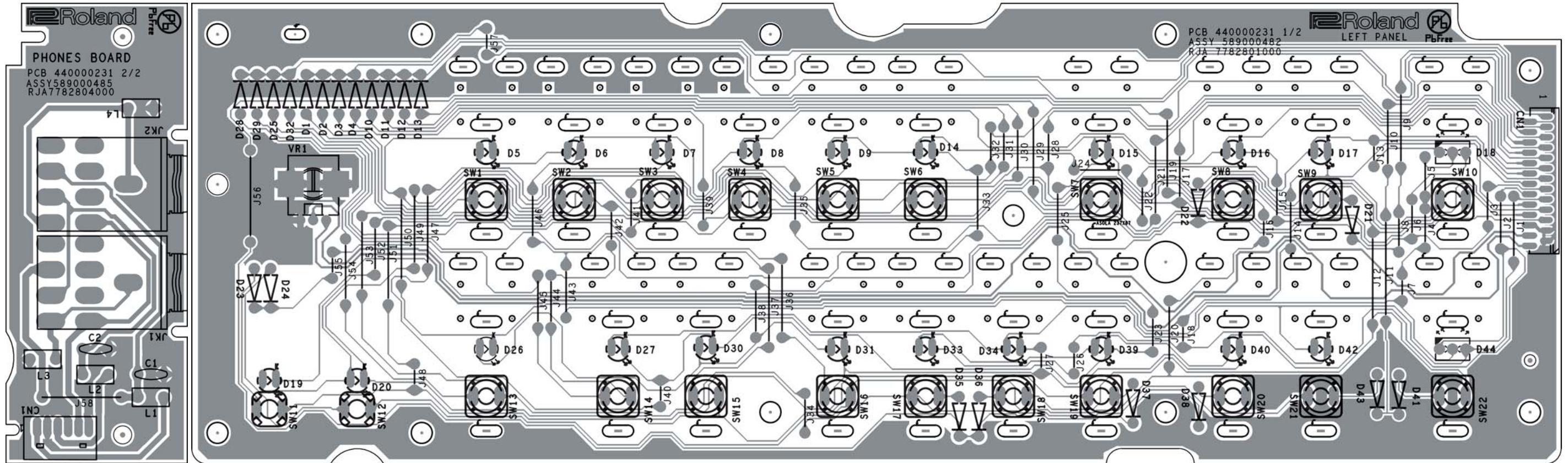
CIRCUIT DIAGRAM (JACK B. 5/5)



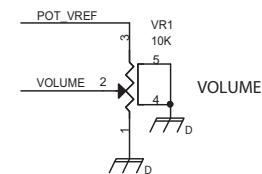
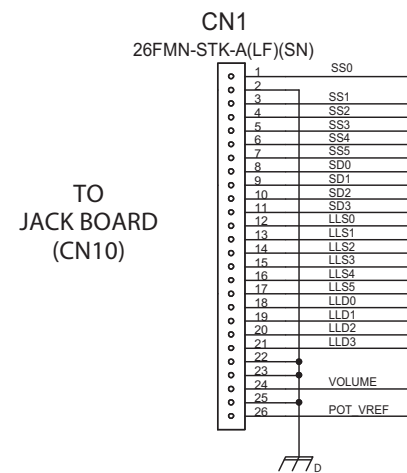
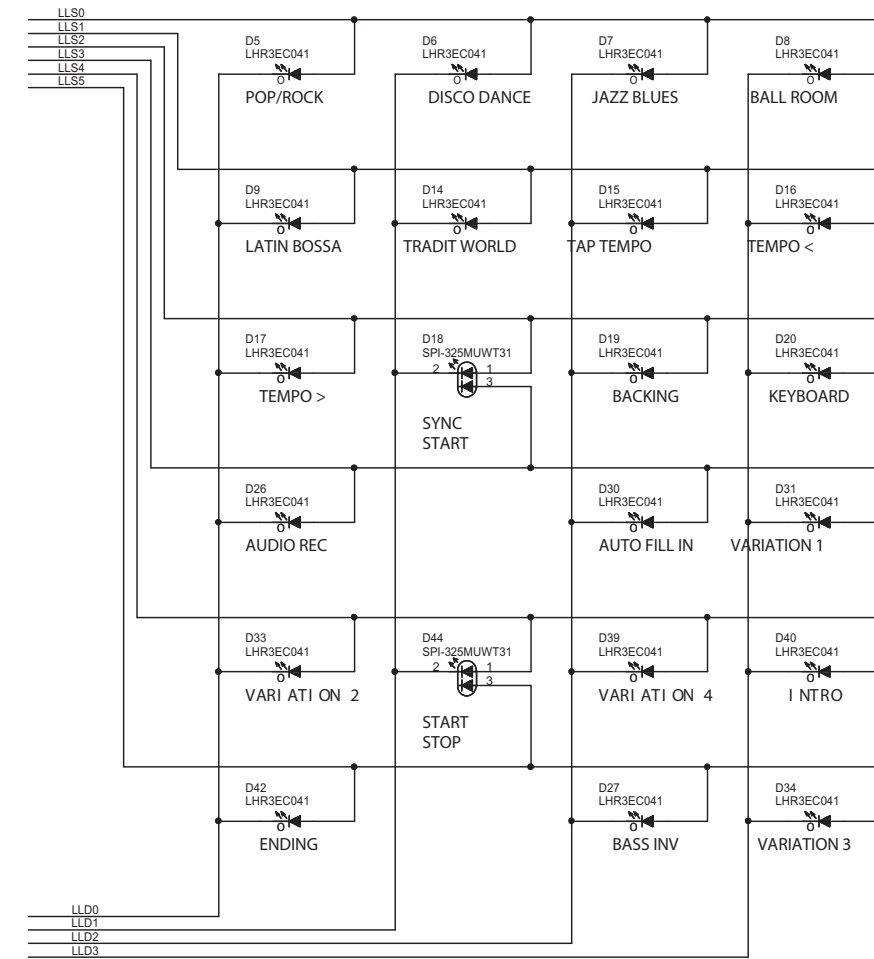
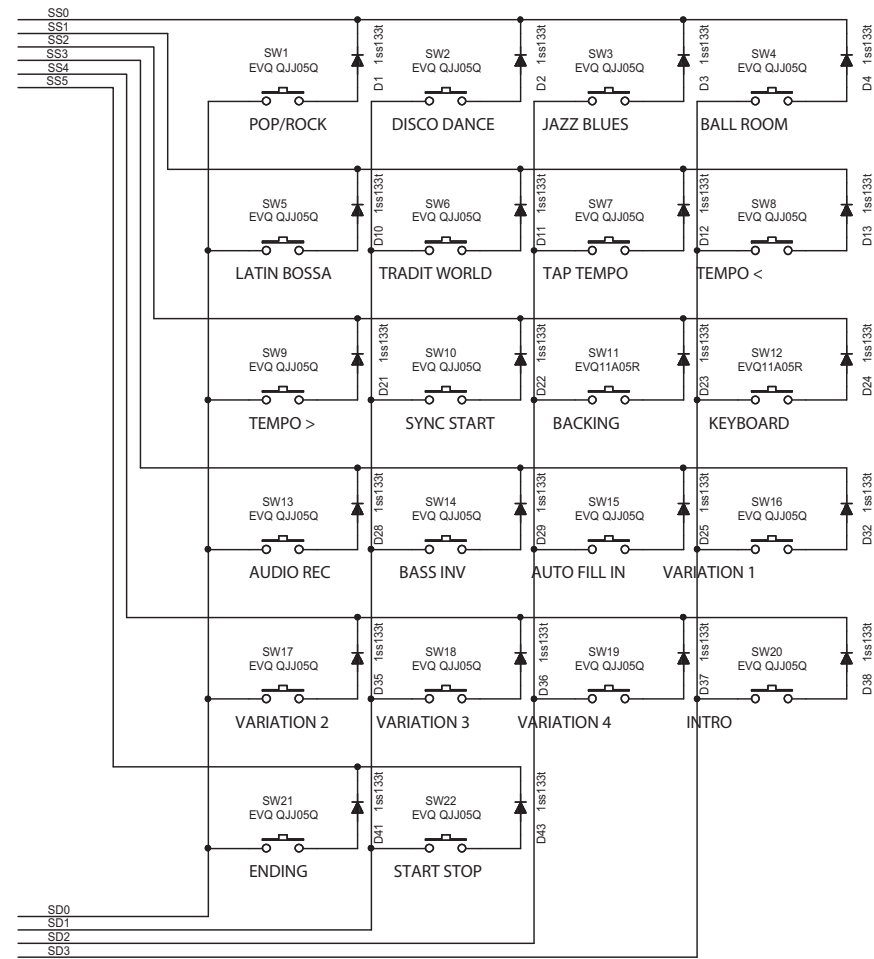
CIRCUIT DIAGRAM (USB B.)



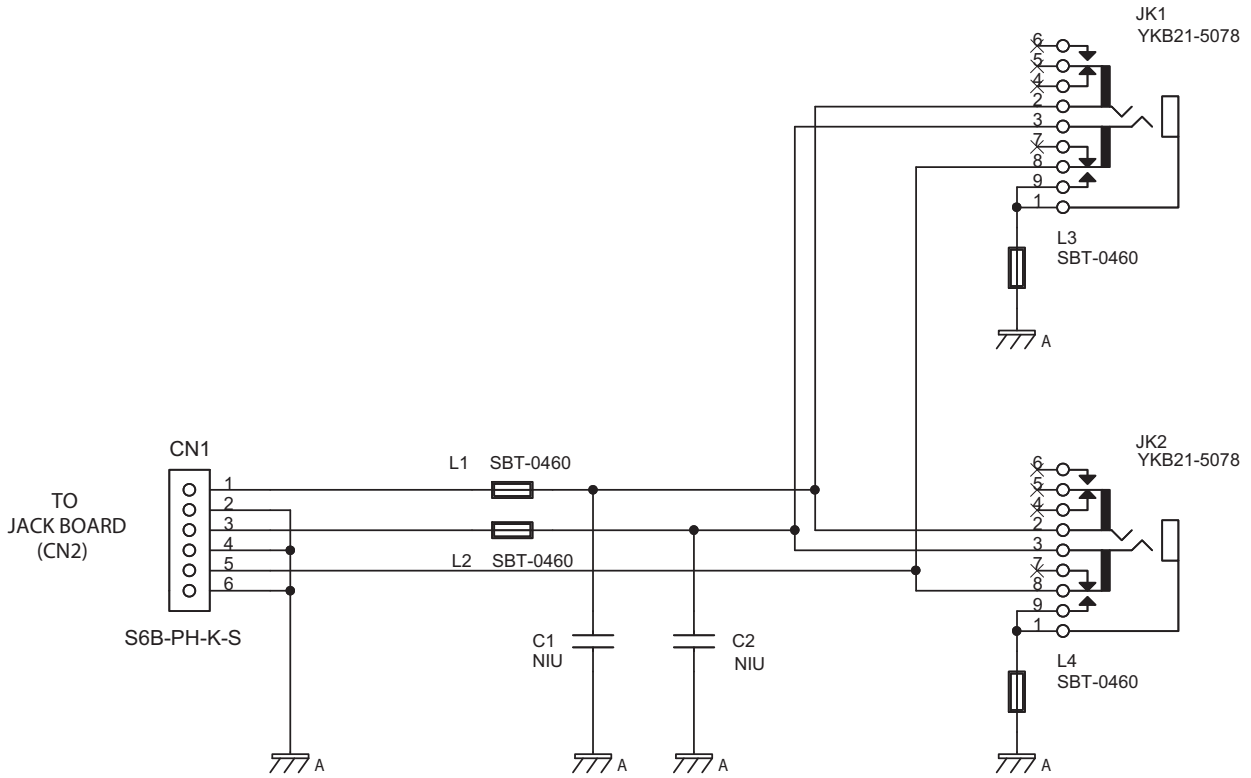
CIRCUIT BOARD (LEFT PANEL BOARD, PHONES BOARD)



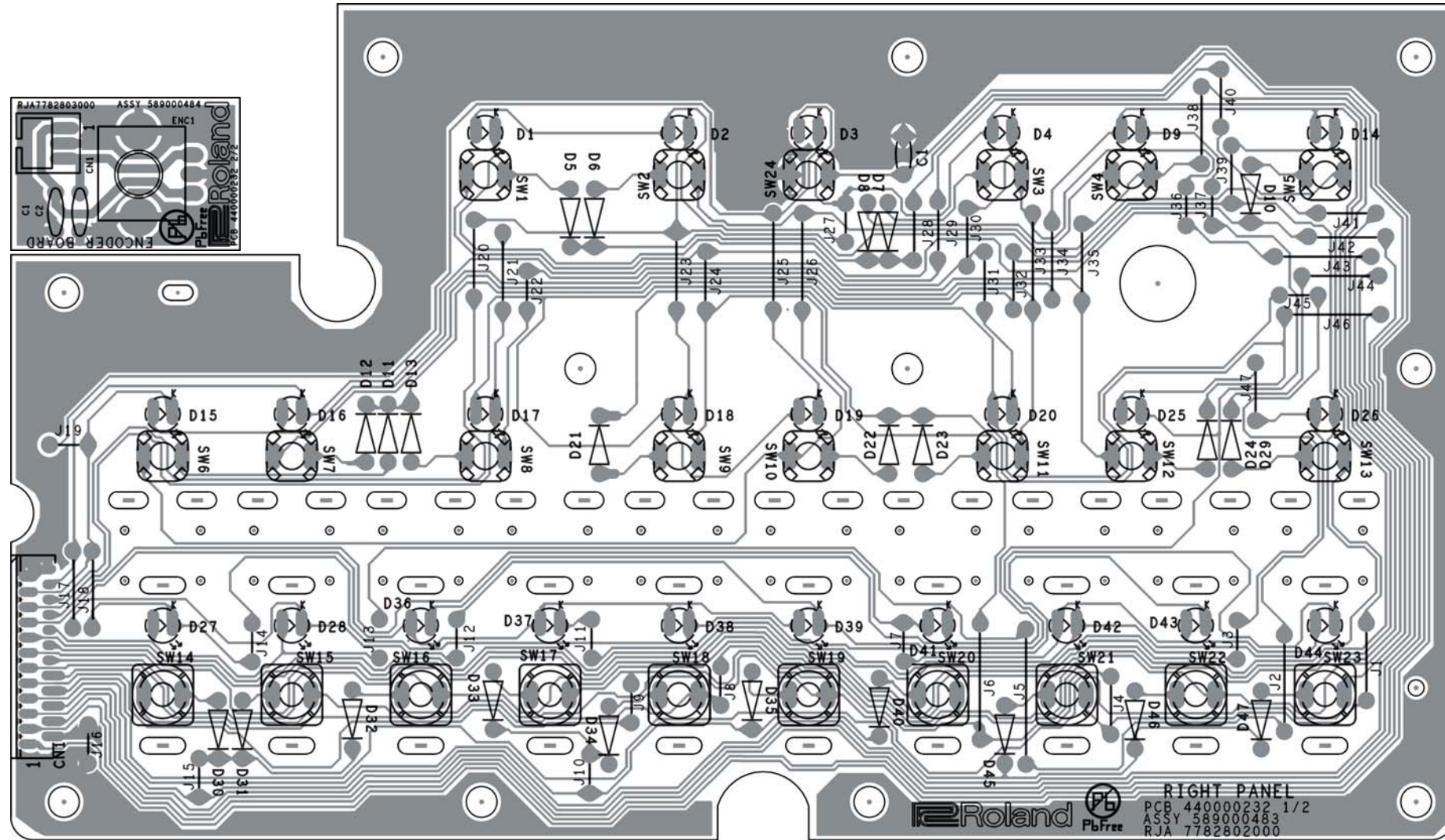
CIRCUIT DIAGRAM (LEFT PANEL B.)



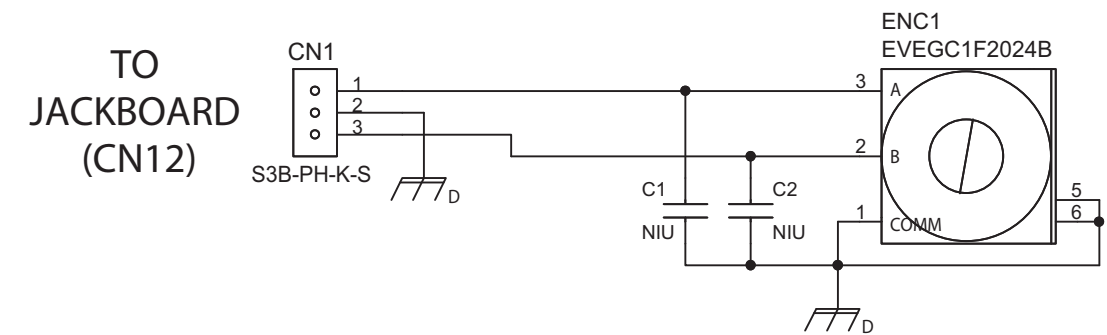
CIRCUIT DIAGRAM (PHONES BOARD)



CIRCUIT BOARD (RIGHT PANEL BOARD+ENCODER B.)



CIRCUIT DIAGRAM (ENCODER BOARD)



CIRCUIT DIAGRAM (RIGHT PANEL BOARD)

