

RC-20XL

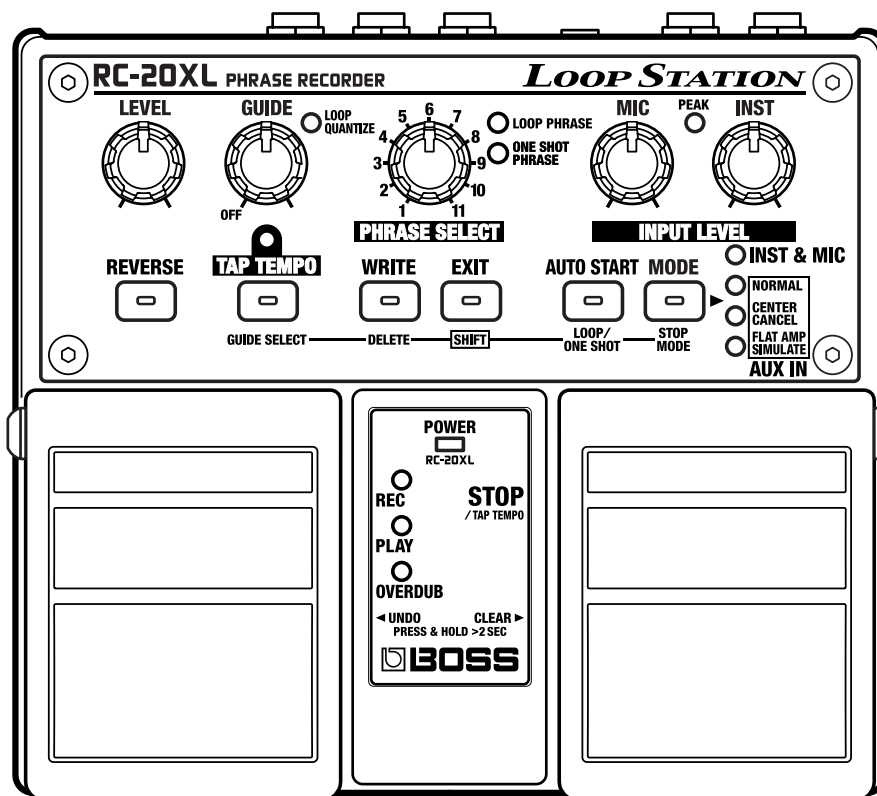
PHRASE RECORDER

SERVICE NOTES

Issued by RJA

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CAUTIONARY NOTES

User data status

User data status after each of the following processes is described below.
Whenever carrying out procedures that involve deleting or erasing user data, always be sure to back up the user data to some form of external media (refer to Saving and Loading Data).

Process	User Data
Checking Version number	Preserved
SERIAL DUMP	Deleted
Test Mode	Preserved

* Executing Test Mode during Factory Reset deletes the user data.

PARTS LIST

Due to one or more of the following reasons, parts with parts code ***** cannot be supplied as service parts.

- Part supplied only as a component in a complete assembly
- Copyright does not permit the part to be supplied
- Part is sold commercially

SPECIFICATIONS

Nominal Input Level

INST:	-20 dBu (variable)
MIC:	-40 dBu (variable)
AUX IN:	-10 dBu

Input Impedance

INST:	1 M ohms
MIC:	1 k ohms
AUX IN:	47 k ohms

Nominal Output Level

OUTPUT:	-20 dBu
Output Impedance	
1 k ohms	

Recommended Load Impedance

10 k ohms or greater

Internal Memory

Recording time: 16 min. (max.)
Maximum number of saved phrases:
11 phrases (max.)

Controls

REC/PLAY/OVERDUB Pedal, STOP/TAP TEMPO Pedal, INST Knob, MIC Knob, PHRASE SELECT Knob, GUIDE Knob, LEVEL Knob, REVERSE Button, TAP TEMPO Button, WRITE Button, EXIT Button, AUTO START Button, MODE Button

Indicators

POWER (serves also as battery check indicator), REC, PLAY, OVERDUB, PEAK, LOOP QUANTIZE, LOOP PHRASE, ONE SHOT PHRASE, TAP TEMPO, REVERSE, WRITE, EXIT, AUTO START, MODE, INST & MIC, NORMAL, CENTER CANCEL, FLAT AMP SIMULATE

Connectors

INST Jack (1/4 inch phone type)
MIC Jack (1/4 inch phone type)

AUX IN Jack (Stereo miniature phone type)
PHRASE SHIFT Jack (1/4 inch TRS phone type)
REVERSE Jack (1/4 inch phone type)
OUTPUT Jack (1/4 inch phone type)
AC Adaptor Jack

Power

DC 9V: Dry battery (R6/LR6 (AA) type) x 6
AC Adaptor (PSA-series)

Power Consumption

120 mA (9 V max.)

* Expected battery life under continuous use:

Carbon:	6 hours
Alkaline:	16 hours

These figures will vary depending on the actual conditions of use.

Dimensions

173 (W) x 158 (D) x 57 (H) mm
6-13/16 (W) x 6-1/4 (D) x 2-1/4 (H) inches

Weight

1.2 kg / 2 lbs 11 oz (including batteries)

Accessories

Owner's Manual ENGLISH:(#G6017384)
JAPANESE:(#G6017382)
Leaflet ("USING THE UNIT SAFELY," "IMPORTANT NOTES," and "Information"):(#*****)
Dry battery (AA type) x 6:(#*****)
Sound Library for RC-20XL (Sample Phrase CD):(#*****)

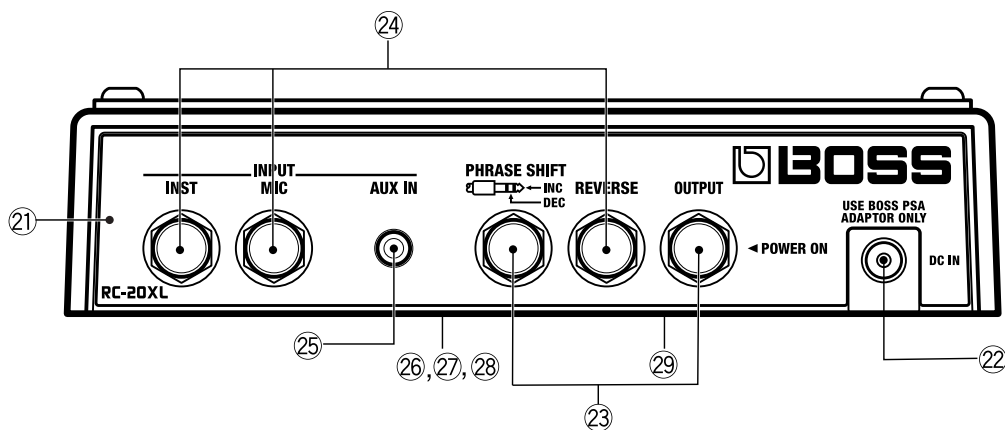
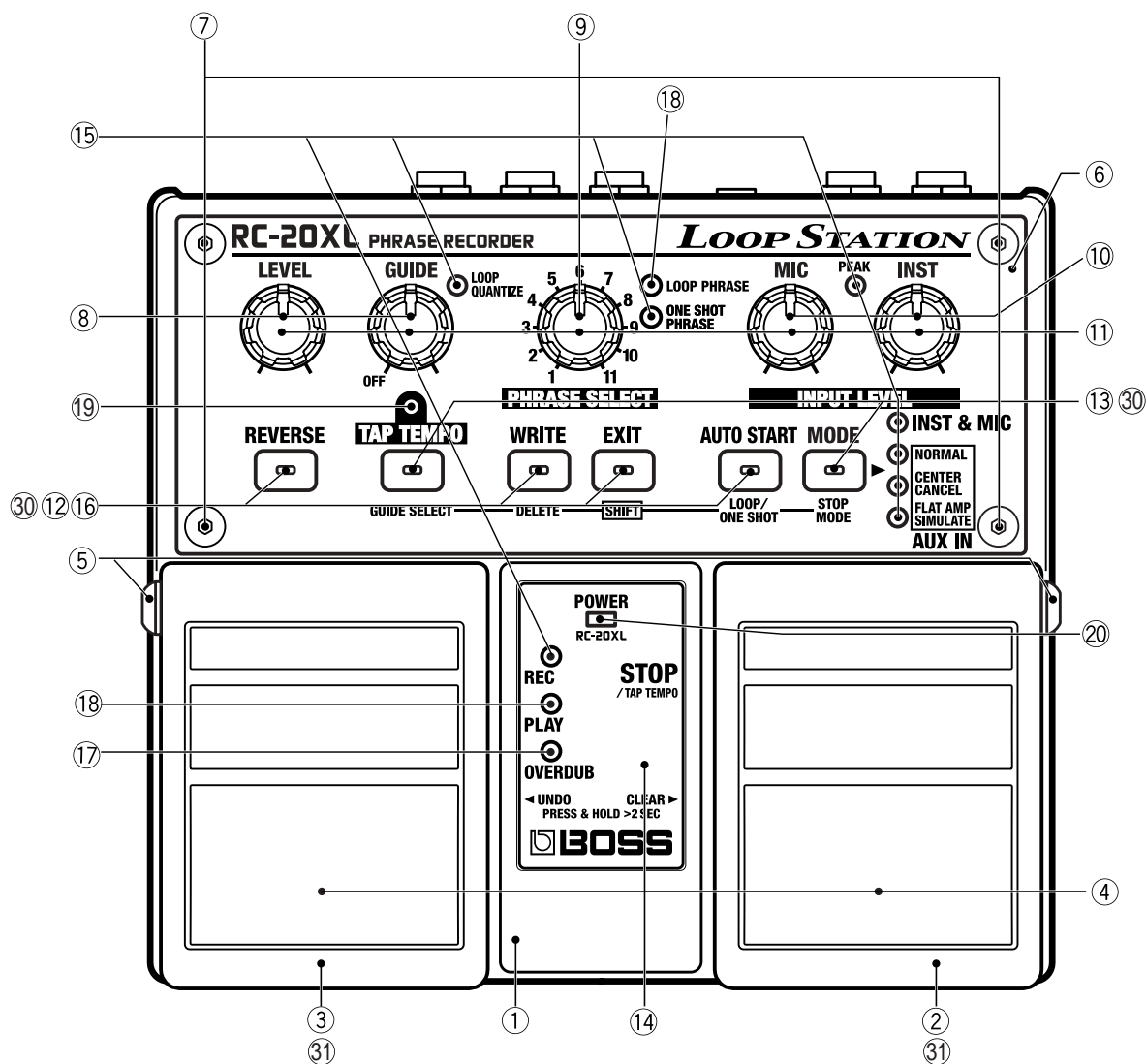
Options

AC Adaptor (PSA-series)
Foot Switch (FS-5U)

* 0 dBu = 0.775 Vrms

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

LOCATION OF CONTROLS

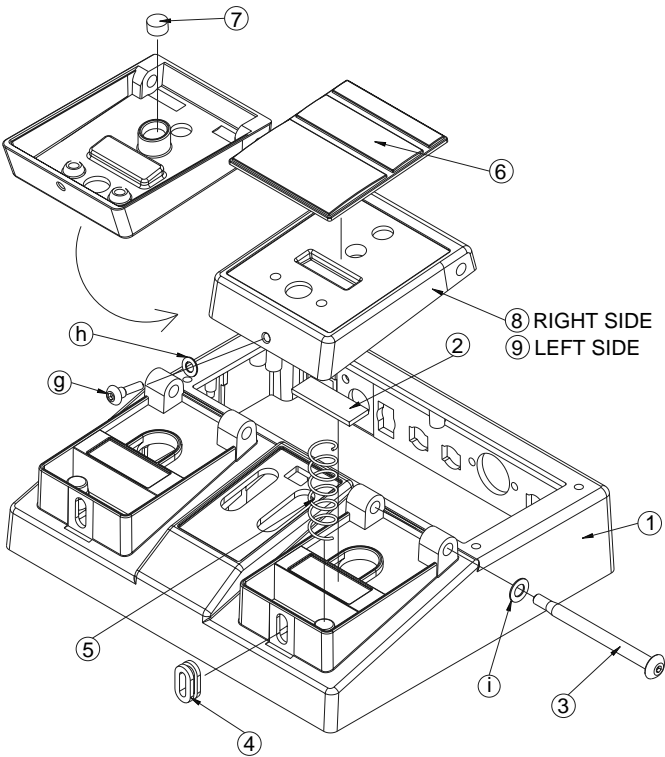


LOCATION OF CONTROLS PARTS LIST

NO	PART CODE	CATEGORY	PART NAME	DESCRIPTION	Q'TY
1	G2017145	CASING	TOP CASE		1
2	G2187530	CASING	PEDAL R		1
3	G2187531	CASING	PEDAL L		1
4	G2357116	CASING	PEDAL PLATE	62X53	2
5	H5029851	CASING	PEDAL SHAFT		2
6	G2217185	CASING	PANEL		1
7	H5029855	SCREWS	SCREW M4X8	HEXAGON BUTTON HEAD NI	4
8	F3279802	POTENTIOMETER	POTENTIOMETERNO CLICK 50KB	RD901-40-125F-B54-00D	2
9	F3279803	POTENTIOMETER	POTENTIOMETER 11 CLICKS 50KB	RD901-40-125F-B54-11D	1
10	F3279805	POTENTIOMETER	POT.(W/O CLICK)	RD901-40-125F-AF5-00D 250KA	2
11	G2477122	KNOB,BUTTON	R-KNOB		5
12	G247751001	KNOB,BUTTON	VGA KEYTOP S BLACK WITH LENS		4
13	G247751301	KNOB,BUTTON	VGA KEYTOP S WITHOUT LENS		2
14	G2217186	CASING	LED PANEL		1
15	1502928100	DIODE	LED (RED)	L-34HDSL	8
16	F5029117	DIODE	LED	L-312LRD	4
17	F5029125	DIODE	LED (YELLOW)	L-34YDSL	1
18	F5029124	DIODE	LED (GREEN)	L-34GDSY	2
19	15029342	DIODE	LED	GL3ED8	1
20	F5029126	DIODE	POWER LED	L-113GDT	1
21	G2527110	CASING	REAR PANEL	PANEL	1
22	F344941501	JACK,EXT TERMINAL	ADAPTOR JK	KM02009BB	1
23	F3449707	JACK,EXT TERMINAL	PHONE JK(STREO)	HTJ-064-12DS	1
24	13449155MF	JACK,EXT TERMINAL	PHONE JACK (MONO)	HTJ-064-12I	3
25	F3449709	JACK,EXT TERMINAL	3.5MM MINI JACK	SHJ-3513TS (STEREO)	1
26	G2017621	CASING	BATTERY COVER		1
27	75D422E000	CASING	BOTTOM COVER		1
28	G2357118	MISCELLANEOUS	BOTTOM FOOT		2
29	G2537558	MISCELLANEOUS	QUICK MANUAL&CAUTION	LABEL	1
30	F3129306	SWITCH	SWITCH	SKQKAB	6
31	13129778	SWITCH	TACT SWITCH	SKQKAh	2

EXPLODED VIEW, EXPLODED VIEW PARTS LIST

EXPLODED VIEW1



EXPLODED VIEW 1 PARTS LIST

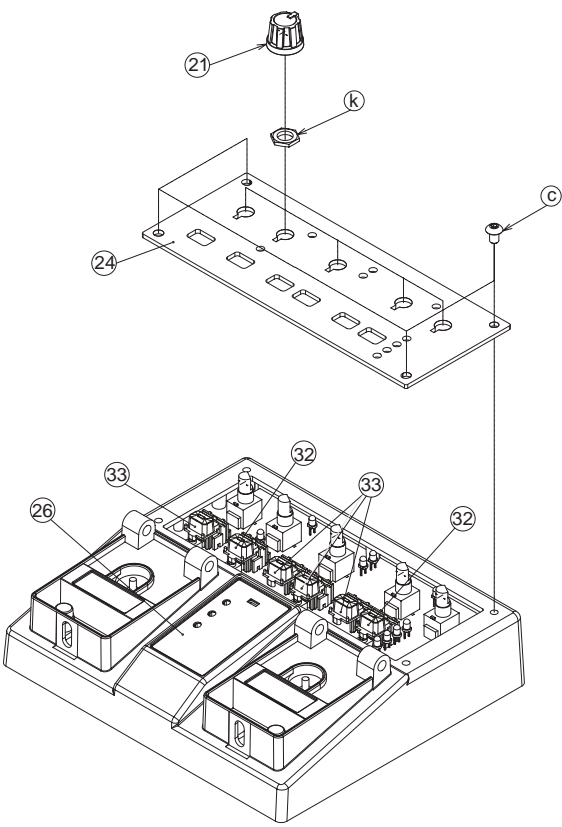
[PART]

NO	PART CODE	PART NAME	DESCRIPTION	Q'TY
1	G2017145	TOP CASE		1
2	G2357111	CUSHION R		2
3	H5029851	PEDAL SHAFT		2
4	2215770201	PEDAL GUIDE BUSH	215-702	2
5	2217710900	COIL SPRING	217-109	2
6	G2357116	PEDAL PLATE	62X53	2
7	G2357115	PEDAL FOOT	M8	2
8	G2187530	PEDAL R		1
9	G2187531	PEDAL L		1

[SCREW]

NO	PART CODE	PART NAME	DESCRIPTION	Q'TY
g	H5029852	SCREW4M3 FEBZC	HEXAGON SOCKET BUTTON HEAD	2
h	H5039413	NYLON WASHER M4.1X7.5X0.5	BLACK	2
i	H5039414	NYLON WASHER M5.1X9.5X0.5	BLACK	2

EXPLODED VIEW 2



EXPLODED VIEW 2 PARTS LIST

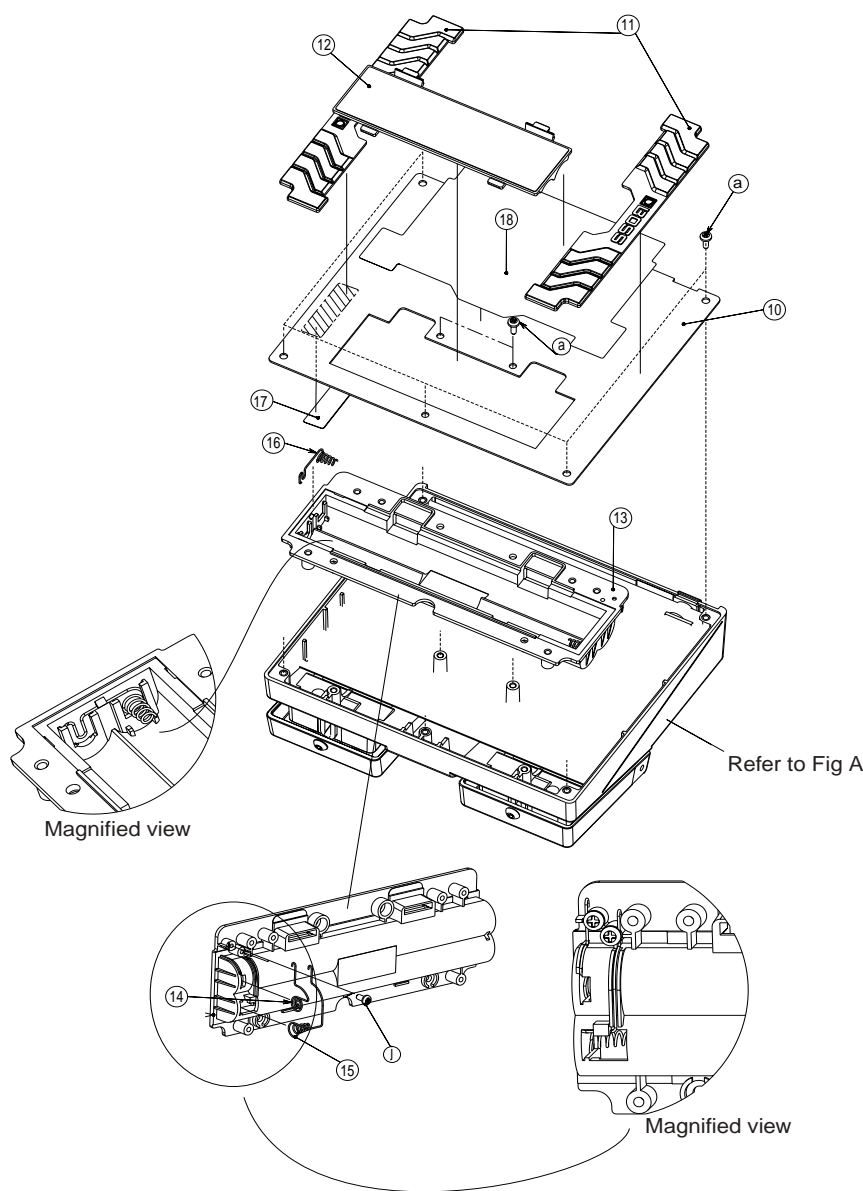
[PART]

NO	PART CODE	PART NAME	DESCRIPTION	Q'TY
21	G2477122	R-KNOB		5
24	G2217185	PANEL		1
26	G2217186	LED PANEL		1
32	G247751301	VGA KEYTOP S WITHOUT LENS		2
33	G247751001	VGA KEYTOP S BLACK WITH LENS		4

[SCREW]

NO	PART CODE	PART NAME	DESCRIPTION	Q'TY
c	H5029855	SCREW M4X8	HEXAGON BUTTON HEAD NI	4
k	H5039521	VR ACCESSORY NUT M7		5

EXPLODED VIEW 3



EXPLODED VIEW 3 PARTS LIST

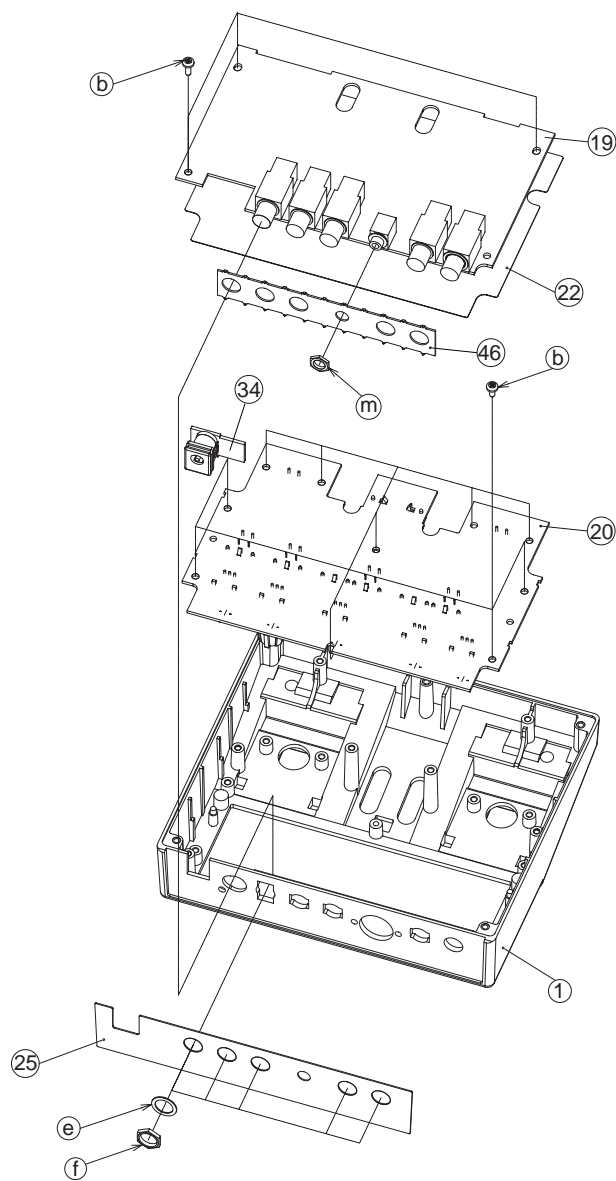
[PART]

NO	PART CODE	PART NAME	DESCRIPTION	Q'TY
10	G2017148	BOTTOM COVER		1
11	G2357118	BOTTOM FOOT		2
12	G2017621	BATTERY COVER		1
13	G2017620	BATTERY CASE		1
14	G2177308	BATTERY TERMINAL(+)		1
15	G2177309	BATTERY TERMINAL(-)		1
16	G2177307	BATTERY TERMINAL(+)		1
17	G2257130	BATTERY INSULATING SHEET		1
18	G2537558	QUICK MANUAL&CAUTION	LABEL	1

[SCREW]

NO	PART CODE	PART NAME	DESCRIPTION	Q'TY
a	H5019115	SCREW M3X8	PAN TAPPING-2 FEBZC	7
j	H5019430	SCREW M2.6X5	BINDING HEAD TAPTITE P FEZC	2

EXPLODED VIEW (Fig. A)



EXPLODED VIEW(Fig. A) PARTS LIST


[PART]

NO	PART CODE	PART NAME	DESCRIPTION	Q'TY
1	G2017145	TOP CASE		1
19	75E183M000	JACK BOARD ASSY		1
20	75E183P000	PANEL BOARD ASSY		1
22	G225712901	INSULATING SHEET CENTER		1
25	G2527110	REAR PANEL		1
34	*****	This PWB ASSY is included the JACK BOARD ASSY.		1
46	G2147821	JACK HOLDER		1

[SCREW]

NO	PART CODE	PART NAME	DESCRIPTION	Q'TY
b	H5019110	SCREW M3X6	PAN TAPTITE FEZC	13
e	H5039510	NUT M9X12X2	FENI	5
f	H5039112	WASHER M9		5
m	H5039324	MINI JACK NUT	AJ324A-3C	1

PARTS LIST

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

Due to one or more of the following reasons,
parts with parts code ***** cannot be supplied as service parts.

- Part supplied only as a component in a complete assembly
- Copyright does not permit the part to be supplied
- Part is sold commercially

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

CASING

#	G2527110	REAR PANEL		1
	G2357116	PEDAL PLATE	62X53	2
	G2017620	BATTERY CASE		1
	G2017621	BATTERY COVER		1
	75D422E000	BOTTOM COVER		1
	G2357118	BOTTOM FOOT		2
#	G2217186	LED PANEL		1
#	G2217185	PANEL		1
	G2187531	PEDAL L		1
	G2187530	PEDAL R		1
	H5029851	PEDAL SHAFT		2
#	G2017145	TOP CASE		1

CHASSIS

	G3487163	WIRING BATTERY	L=80MM 2P	1
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KNOB,BUTTON

	G2477122	R-KNOB		5
	G247751001	VGA KEYTOP S BLACK WITH LENS		4
	G247751301	VGA KEYTOP S WITHOUT LENS		2

SWITCH

	13129778	TACT SWITCH	SKQKAH	SW1,SW8 on PB	2
	F3129306	SWITCH	SKQKAB	SW2,SW3,SW4,SW5,SW6,SW7 on PB	6

JACK,EXT TERMINAL

	F3449709	3.5MM MINI JACK	SHJ-3513TS (STEREO)	JK3 on JK	1
	F344941501	ADAPTOR JK	KM02009BB	JK6 on JK	1
	13449155MF	PHONE JACK (MONO)	HTJ-064-12I	JK1,JK2,JK5 on JK	3
	F3449707	PHONE JK(STREO)	HTJ-064-12DS	JK4,JK7 on JK	2

PWB ASSY

#	75E183M000	JACK BOARD ASSY		1
#	75E183P000	PANEŁk BOARD ASSY		1

IC

#	F5279861	M12L16161A-7T	IC (SDRAM)	IC1 on JK	1
	F5209123	S-80930ALMP-DAT-T2	IC (REST)	IC6 on JK	1
	F5289102	NJM2100M 8P SOP	IC (OP.AMP)	IC13 on JK	1
	15189261	M5218AFP-600E	IC (BIPOlar OP AMP)	IC9,IC10,IC12,IC15 on JK,IC1 on PB	5
	02121556	LC24085B-SD1	IC (I/F)	IC4 on JK	1
	F5179125	S-8520E33MC-BJS-T2	IC (DC-DC)	IC16 on JK	1
#	03675078	UPD703106AGJ-087-UEN	IC (CPU)	IC3 on JK	1
#	F5279306	TC4W66F	IC (CMOS)	IC11 on JK	1
	15259884	TC7S08F(TE85L)	IC (CMOS)	IC7 on JK	1
	02451434	AK4552VT	IC (AD/DA)	IC14 on JK	1
	F5279305	TC4066BFT	IC	IC8 on JK	1

TRANSISTOR

	15319107	2SC4116-GR(TE85R)	TRANSISTOR	Q12 on JK,Q2,Q1 on PB	1
	15329521	RN1307(TE85R)	TRANSISTOR	Q1,Q2,Q3,Q4,Q11,Q13,Q14,Q15,Q16,Q17 on JK	10
	F5139608	IRF7606	POWER MOS FET	Q18 on JK	1
	15329103	2SK880GR-TE85R	FET TRANSISTOR	Q9,Q10 on JK	2
#	F5329522	RN2307	DIGITAL TRANSISTOR	Q5,Q6,Q7,Q8 on JK	4

DIODE

#	F5019309	02DZ5.1-Y	ZENNER DIODE	D9 on PB	1
	F5029126	L-113GDT	POWER LED	LED17 on PB	1
	F5029125	L-34YDSL	LED (YELLOW)	LED6 on PB	1
	1502928100	L-34HDSL	LED (RED)	LED2,LED3,LED4,LED12,LED13,LED14,LED15,LED16	8
	F5029124	L-34GDSY	LED (GREEN)	LED5,LED7 on PB	2
	15029342	GL3ED8	LED	LED1 on PB	1
	F5029117	L-312LRD	LED	LED8,LED9,LED10,LED11 on PB	4
	15339119	1SS-352	DIODE	D1 on JK,D1,D2,D3,D4,D5,D6,D7,D8 on PB	1
	15339120	1SS302	DIODE	DA2,DA5,DA6,DA7 on JK	4
	F5339138	1SS355	DIODE	D2 on JK	1
	F5339137	SS14 VF=0.45V	DIODE	D5,D6 on JK	2

RESISTOR

	F5419707	CRN34101J	RESISTOR ARRAY	RA13 on JK	1
	F5419716	CRN34103J	RESISTOR (CHIP)	RA8,RA14,RA18,RA19,RA20 on JK	5
	F5419715	CRN34680J	RESISTOR (CHIP)	RA1,RA2,RA3,RA4,RA5,RA7,RA11,RA12,RA15,RA16,	11
	F5399115	100 J	RESISTOR	R9,R11,R14,R18,R21,R22 on JK	6
	F5399145	12K J	RESISTOR	R65,R72 on JK	2
	F5399157	39K J	RESISTOR	R80 on JK	1
	F5399133	4.7K J	RESISTOR	R37,R33 on JK	2
	F5399296	4.7J	RESISTOR	R74 on JK	1
	F5399158	47K J	RESISTOR	R30,R32,R34,R39,R40,R49,R50,R51,R52,R53,	12
				R59,R9,R10 on PB	
	F5399166	82K J	RESISTOR	R36 on JK	1
	F2569127	MINISMDC075	POLY SWITCH	R86 on JK	1
	F5399129	1.5K J	MTL.FILM RESISTOR	R24 on JK	1
	F5399104	10 J	MTL.FILM RESISTOR	R83,R7 on JK	2
	F5399170	100K J	MTL.FILM RESISTOR	R35,R43,R46,R89 on JK,R4 on PB	4
	F5399140	10K J	MTL.FILM RESISTOR	R1,R10,R12,R13,R23,R25,R26,R27,R29,R38,	27
				R41,R,R3 on PB	
#	F5399180	150K	MTL.FILM RESISTOR	R45,R56 on JK	2
	F5399147	15K J	MTL.FILM RESISTOR	R66,R70,R71 on JK	3
	F5399128	1K J	MTL.FILM RESISTOR	R88,R100,R102,R105 on JK,R6 on PB	4
	F5399200	1M J	MTL.FILM RESISTOR	R15,R28,R31 on JK,R5,R7 on PB	3
#	F5399117	220	MTL.FILM RESISTOR	R16,R17 on JK	2
	F5399152	22K J	MTL.FILM RESISTOR	R57,R60 on JK	2
	F5399106	47 J	MTL.FILM RESISTOR	R8,R90 on JK	2
#	F5429393	47KD	MTL.FILM RESISTOR	R48,R55,R58,R63,R77,R79 on JK	6
	F5399160	56K J	MTL.FILM RESISTOR	R68,R73,R78 on JK	3
#	F5429394	56KD	MTL.FILM RESISTOR	R75,R82 on JK	2
#	F5399109	68	MTL.FILM RESISTOR	R3,R4,R5,R19,R20,R44,R61,R91,R92,R96,R98,R10	12
#	F5399165	68K	MTL.FILM RESISTOR	R76 on JK	1
	F5399127	1.2K J	RESISTOR	R1 on PB	1
	F5399154	27K J	MTL.FILM RESISTOR	R8 on PB	1
#	F5399118	330	MTL.FILM RESISTOR	R2 on PB	1

POTENTIOMETER

	F3279802	RD901-40-125F-B54-00D	POTENTIOMETER NO CLICK 50KB	VR3,VR2 on PB	2
	F3279803	RD901-40-125F-B54-11D	POTENTIOMETER 11 CLICKS 50KB	VR1 on PB	1
	F3279805	RD901-40-125F-AF5-00D 250KA	POT.(W/O CLICK)	VR4,VR5 on PB	2

CAPACITOR

	F5399158	47K J	RESISTOR		2
	F5349704	ECPU1C474MA5 0.47	MYLAR CAPACITOR (SUBMICRON)	C45,C55,C59 on JK	3
	F5367542	10/16V ALUMINIUM	ELECTROLYTIC CAPACITOR	C62,C72,C77,C78,C81,C85 on JK,C7,C8,C9,C10,C11,C12 on PB	6
	F5367542	10/16V ALUMINIUM	ELECTROLYTIC CAPACITOR		6
	F5367546	100/16V ALUMINIUM	ELECTROLYTIC CAPACITOR	C1,C14,C16,C18,C30,C83,C86,C89 on JK	8
	F5367503	47/6.3V ALUMINIUM	ELECTROLYTIC CAPACITOR	C84 on JK	1
#	F5359348	0.0056	CHIP CAPACITOR	C42,C63,C68 on JK	3
#	F5359328	0.01	CHIP CAPACITOR	C19,C20,C21,C46,C48,C52 on JK	6
#	F5359313	0.1	CHIP CAPACITOR	C2,C3,C4,C5,C6,C7,C8,C9,C10,C11,C12,C13,C17,	32
#	F5359313	0.1	CHIP CAPACITOR	C1 on PB	1
	F5369805	470P	CHIP CAPACITOR	C56,C61 on JK	2
	F5369601	1/50V	CHIP CAPACITOR	C47,C49,C67,C75 on JK,C5,C6 on PB	4
#	F5359311	100P	CHIP CAPACITOR	C51 on JK	1
#	F5359318	10P	CHIP CAPACITOR	C22,C23,C64,C70,C74 on JK	5
#	F5359708	22P	CHIP CAPACITOR	C25,C24 on JK	2
#	F5359309	33P	CHIP CAPACITOR	C53,C57 on JK	2
	F5359387	GRM39B102K50PT 0.001 K	CERAMIC CAPACITOR	C43,C32 on JK	2
	F5359345	0.027U (1608TYPE)	CAPCITOR (CHIP)	C50 on JK	1

INDUCTOR, COIL, FILTER

	F2449210	SLF7032T-4R7M1R7-2(4.7UH)	SMD COIL	L19 on JK	1
	F5409102	N1608Z601T02	FERRITE-BEAD	L1,L2,L3,L4,L5,L7,L9,L10,L16,L17,L22 on JK	11

INDUCTOR,COIL,FILTER

#	F5409117	NFM4516P13C204F	EMI FILTER	C80 on JK	1
	12449386	SBT-0180W	EMI FILTER	FL1 on JK	1
	F2449209	SLF7032T-151MR29-2(150UH)	COIL	L20 on JK	1

CRYSTAL,RESONATOR

	F5299114	HC-49SM 5MHZ	CRYSTAL	X3 on JK	1
#	F5299104	MA-406 (24.576MHZ)	CRYSTAL	X2 on JK	1

CONNECTOR

	F3439160	53015-0210 2P P=2MM	CONNECTOR	CN6 on JK	1
	F3439167	A2001WR2-14P	CONNECTOR	CN1,CN3 on JK	2
#	F3439193	A2001WV2-7P	CONNECTOR	CN2 on JK	1

WIRING, CABLE

	G3477146	RIBBON CABLE	3P L=40X5X5 MM P=2MM	CN4,CN5 on JK	1
#	G3487419	WIRING 14P		CN1,CN2 on PB	2

SCREWS

	H5019110	SCREW M3X6	PAN TAPTITE FEZC		13
	H5019115	SCREW M3X8	PAN TAPPING-2 FEBZC		7
	H5029852	SCREW 4M3 FEBZC	HEXAGON SOCKET BUTTON HEAD		2
	H5029855	SCREW M4X8	HEXAGON BUTTON HEAD NI		4
	H5039510	NUT M9X12X2	FENI		5
	H5039413	NYLON WASHER M4.1X7.5X0.5	BLACK		2
	H5039414	NYLON WASHER M5.1X9.5X0.5	BLACK		2
	H5019430	SCREW M2.6X5	BINDING HEAD TAPTITE P FEZC		2
	H5039324	MINI JACK NUT	AJ324A-3C		1
#	G2147821	JACK HOLDER			1
	H5039521	VR ACCESSORY NUT M7			5
	H5039112	WASHER M9			5

PACKING

#	F2569113	CD PAD			1
	G2607212	PACKING CASE LOWER			1
#	G2627754	PACKING CASE(UPPER)			1
	G2237613	REAR PAD			1
	G2237614	SIDE PAD			1

MISCELLANEOUS

	G2357115	PEDAL FOOT	M8		2
#	G2537558	QUICK MANUAL&CAUTION	LABEL		1
	H2369427	LED SPACER	H=8MM	on PB	8
#	H2369406	LED SPCE	H=7MM(FOR GL3ED8)	on PB	1
	2217710900	COIL SPRING	217-109		2
	2215770201	PEDAL GUIDE BUSH	215-702		2
	G2257130	BATTERY INSULATING SHEET			1
	G2177308	BATTERY TERMINAL(+)			1
	G2177307	BATTERY TERMINAL(+)			1
	G2177309	BATTERY TERMINAL(-)			1
	G2357111	CUSHION R			2
	G225712901	INSULATING SHEET CENTER			1
	G2197126	LED GUIDE		on PB	1

ACCESSORIES (Standard)

#	G6017383	CD MANUAL	ENGLISH/JAPANESE		1
#	*****	CD ROM	DEMO PHRASE		1
	G601730301	IMPORTANT NOTES	ENGLISH/JAPANESE		1
#	G2537733	LEAF CAUTION	JAPANESE/ENGLSIH		1
#	G6017382	OWNER'S MANUAL	JAPANESE		1
#	G6017384	OWNER'S MANUAL	ENGLISH		1

CHECKING THE VERSION NUMBER

1. Completely turn down all volume controls.
2. Hold down the left pedal (ON/OFF) and right pedal (TAPL/MEMORY) and connect the +9 V DC plug to the ADAPTOR JACK.
(This turns on the power).
 - * If no +9 V DC plug is available to connect to the ADAPTOR JACK, the power can be turned on by placing batteries in the unit and connecting a cable to the OUTPUT jack.
3. Only the POWER LED lights up.
4. Release the left and right pedals.
5. Press the left and right pedals, in that sequence, within a period of two second.
6. The unit enters Test mode, and all LEDs other than the PEAK LED light.
 - * Failure of all LEDs other than the PEAK LED to light indicates an error. For more detailed information, refer to the individual test categories in "Test Mode."
7. Press the right pedal.

The internal ROM version and external FLASH version are indicated by the LEDs.

Display of the Internal ROM Version

This is indicated by the four LEDs "FLAT AMP SIMULATE," "CENTER CANCEL," "NORMAL," and "INST & MIC."

LED	Version
Only "FLAT AMP SIMULATE" lit	Ver1.00
Only "CENTER CANCEL" lit	Ver1.01
Only "NORMAL" lit	Ver1.02
Only "INST & MIC" lit	Ver1.03

Display of the External FLASH Version

This is indicated by the four LEDs "REVERSE," "TAP TEMPO," "WRITE," "EXIT," "AUTO START," "LOOP PHRASE," and "LOOP QUANTIZE."

LED	Version
Only "TAP TEMPO" lit	Ver1.01
Only "WRITE" lit	Ver1.02
Only "EXIT" lit	Ver1.03
Only "AUTO START" lit	Ver1.04
Only "LOOP PHRASE" lit	Ver1.05
Only "LOOP QUANTIZE" lit	Ver1.06

SERIAL DUMP(SYSTEM UPDATE, USERS DATA SAVE AND LOAD)

The following data can be transmitted and received between two RC-20 units without using any other devices.

1. Program
The RC-20XL's original external FLASH ROM can be updated by setting the RC-20XL with the latest version as the transmitting device and the RC-20XL with the previous version as the receiving device.
2. Guide sound
The RC-20XL's guide sound can be transmitted and received.
3. Phrases (1-11)
Any RC-20XL phrase to which the Phrase Select Volume has been saved can be transmitted and received.
Use this function to save the user's phrases temporarily during repairs.

Procedure

1. Connect the transmitting RC-20XL and the receiving RC-20XL as follows.

Connect the REVERSE jack and PHRASE SHIFT jack respectively.

Transmitting RC-20XL Receiving RC-20XL

REVERSE -----> PHRASE SHIFT

PHRASE SHIFT -----> REVERSE

2. Start up the transmitting RC-20XL in Dump mode.
 - 1) While holding down the [TAP TEMPO] and [AUTO START] buttons, turn on the power of the transmitting RC-20XL.
 - 2) [EXIT] and the [FLAT AMP SIMULATE] and [REC] [PLAY] [OVERDUB] indicators will light.
3. Start up the receiving RC-20XL in Update mode.
 - 1) Turn the [LEVEL] knob and [GUIDE] knob all the way to the left.
 - 2) Set the [PHRASE SELECT] knob to 1.
 - 3) While holding down the [REVERSE] and [MODE] buttons, turn on the power of the receiving RC-20XL.
 - 4) Within three seconds of turning on the power, press the [REVERSE] button and then the [MODE] button.

[WRITE] and the [FLAT AMP SIMULATE] and [REC] [PLAY] [OVERDUB] indicators will light.

 - * In Dump mode the [EXIT] indicator will light, but in Update mode the [WRITE] indicator will light.
4. Select the data that you want to send from the transmitting RC-20XL
 - 1) Press the [TAP TEMPO] button to select the data that you want to send. The type of data being transmitted is indicated by the [TAP TEMPO] LED.

[TAP TEMPO]	Transmitting data
Dark	Program, Guide sound, All phrases
Green	Specified phrase
Red	Guide sound
Orange	Program

- 2) If the [TAP TEMPO] indicator is green, use the [PHRASE SELECT] knob to select the phrase that will be transmitted.

5. Transmit the data from the transmitting RC-20XL.
Transmission will begin when you press the left pedal of the transmitting RC-20XL.
During transmission, the "CENTER CANCEL" [MODE] indicator lights for both devices.

Transmission and reception are completed when the [MODE] indicator stops at "FLAT AMP SIMULATE" on both the transmitting and receiving RC-20XL. When the [TAP TEMPO] indicator goes off, the [MODE] indicator on the transmitting device stops at "FLAT AMP SIMULATE," and the [MODE] indicator on the receiving device stops at "INST&MIC."

State of the transmitting RC-20XL

"FLAT AMP SIMULATE" Waiting to transmit

- * The RC-20XL will briefly be in this state between data items.
- * Since the guide sound data is divided into two parts, the RC-20XL will briefly be in this state even when transmitting only the guide sound data.

"CENTER CANCEL" Now transmitting

"NORMAL" No data for transmission

State of the receiving RC-20XL

"FLAT AMP SIMULATE" Waiting for reception

- * The RC-20XL will briefly be in this state between data items.
 - * Since the guide sound data is divided into two parts, the RC-20XL will briefly be in this state even when receiving only the guide sound data.
- "CENTER CANCEL" Now receiving
- "NORMAL" Error
- * An error will also occur if memory becomes full.



With the factory settings, transmitting the program, guide sound, and all phrases will require approximately 2 minutes.



Never turn off the power until transmission/reception has been completed.

6. Repeat steps 4. - 5. as necessary.
7. Turn off the power when you are finished.

INSTRUCTIONS FOR FACTORY RESET

The RC-20XL can be restored to its original factory settings with the following procedure.



Restoring the factory settings with this procedure requires another RC-20XL currently programmed with the factory settings.

Procedure

1. Turn on the power to the RC-20XL that is to have the factory settings restored.
2. Turn the PHRASE SELECT knob to "1."
3. Hold down SHIFT(EXIT) and press the DELETE(WRITE) button, causing the two indicators to flash.

The RC-20XL is put in delete standby.

4. Press the DELETE(WRITE) button.

The indicator lights while the delete is in progress; when the delete is finished, the indicator light goes off.



Do not turn off the power to the unit while the WRITE indicator or EXIT indicator is lit.

All data saved to the Phrase tracks is completely deleted.

5. Repeat Steps 2-4 above for the PHRASE SELECT knob settings "2" to "4."
6. Turn off the power to the unit.
7. As per the instructions for "Serial Dump" above, set the RC-20XL to which the factory settings are being loaded as the receiving device and the RC-20XL already containing the factory settings as the transmitting device.
- 1) When the settings are transmitted, the [TAP TEMPO] indicator in Step 4 of "Serial Dump" is green.
- 2) Set PHRASE SELECT VOLUME to "5" to execute transmission/reception of the data.
8. Set PHRASE SELECT VOLUME to "6" and repeat the procedure for 6 to 11.
9. Turn off the power to the unit.
10. Confirm that the phrases with the factory settings are saved to PHRASE SELECT VOLUME 5-11.

TEST MODE

Test items

1. FLASH ROM check
2. Version number check
3. Switch and LED check
4. LEVEL volume check
5. GUIDE volume check
6. DA check
7. Output check
8. INST volume check
9. MIC volume check
10. MUTE check
11. AUX IN (NORMAL) check
12. AUX IN (FLAT AMP SIMULATE) check
13. AUX IN (CENTER CANCEL) check
14. AUX IN (L ch) check
15. solder spot check

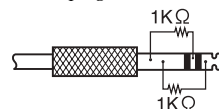
16. PHRASE SELECT volume check

17. Noise check

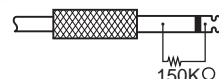
18. Battery operation check

Items required for tests

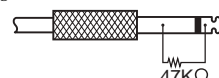
- Oscillators x 2
- Oscilloscope
- Noise meter
- Monitor amp
- FS-5U x 2
- 1k ohm stereo mini short plug:(#17041376)



- 150 ohm short plug:(#17041511)



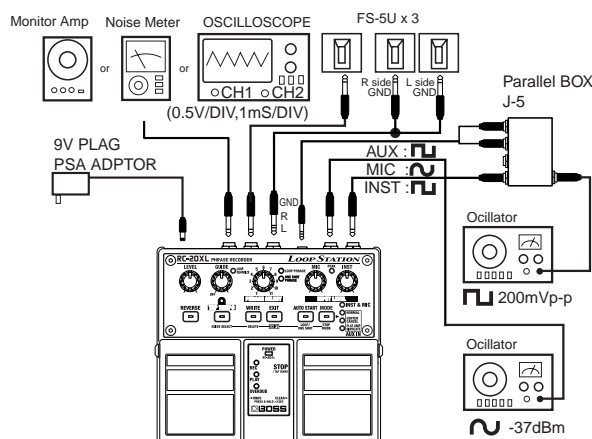
- 47k ohm short plug:(#17041375)



- Parallel box(BOSS J-5 etc.)
- +9V DC PLUG(AC ADAPTOR BOSS PSA-series)
- Stereo phone <-> monaural phone conversion cable(PCS-31 ect.)
- Stereo mini <-> monaural phone conversion cable

Entering test mode

- Refer to the following figure and connect the diagnostic equipment.



- Set all volumes to minimum.
- While holding the left pedal and right pedal, connect the adaptor to the AC ADAPTOR JACK to turn on the power.

When the POWER LED is lit, within two seconds press the left pedal and then the right pedal.

- You will enter Test mode, and all LEDs other than "PEAK" will either light or blink.



A FLASH ROM check is automatically performed when you enter Test mode. The state of the LEDs when you enter

Test mode will depend on the result of this test. For details refer to the following item "1. FLASH check."



For details on how to skip directly to a desired test item, refer to "Skipping directly to the desired test," following the explanations of each test item.

Exiting Test Mode

Turn off the power

Explanation of each test item

1.FLASH ROM check

- Enter Test mode.
- The FLASH ROM check will be performed when you enter Test mode.
- If there are no problems, all LEDs other than "PEAK" will light.

If there is a problem, the state of the LEDs will indicate the problem as follows.

"OVERDUB" (yellow) blinking : MAKER ID error

"PLAY" (green) blinking : DEVICE ID error

"REC" (red) blinking : BUSY error



If a problem was found, operation will stop and it will not be possible to proceed to the next step. Turn off the power to exit Test mode.



If there are any unlit LEDs regardless of whether or not there was a problem, it is possible that the LED is faulty or soldered incorrectly. (With the exception of "PEAK.")

2.Version number check

- Press the right pedal.
- The internal ROM version number and the external FLASH ROM version number will be indicated by the LEDs.

Internal ROM version number display

This is indicated by the four LEDs "FLAT AMP SIMULATE", "CENTER CANCEL", "NORMAL", and "INST & MIC."

"FLAT AMP SIMULATE" only lit : Ver1.00

"CENTER CANCEL" only lit : Ver1.01

"NORMAL" only lit : Ver1.02

"INST & MIC" only lit : Ver1.03

External FLASH ROM version number display

This is indicated by the following six LEDs: "TAP TEMPO", "WRITE", "EXIT", "AUTO START", "ONE SHOT PHRASE", and "LOOP QUANTIZE."

"TAP TEMPO" only lit : Ver1.01

"WRITE" only lit : Ver1.02

"EXIT" only lit : Ver1.03

"AUTO START" only lit : Ver1.04

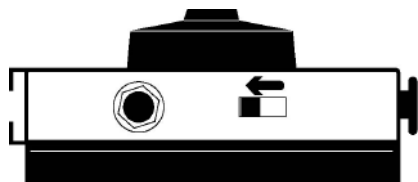
"ONE SHOT PHRASE" only lit : Ver1.05

"LOOP QUANTIZE" only lit : Ver1.06

- After verifying the version, press the right pedal.
- All LEDs other than "PEAK" will light.

3.Switches and LED check

- Connect two FS-5U units to the PHRASE SHIFT jack and REVERSE jack.
- Set the FS-5U polarity switches to the position shown in the diagram.



- Press the REVERSE switch.
- Verify that "REVERSE", "PLAY", and "OVERDUB", go dark, and that "TAP TEMPO" changes from orange to red.
- Press the TAP TEMPO switch, and verify that "TAP TEMPO" goes dark.
- Press the WRITE switch, and verify that "WRITE" goes dark.
- Press the EXIT switch, and verify that goes dark "EXIT."

- Press the AUTO START switch, and verify that "AUTO START" goes dark.
- Press the MODE switch, and verify that "INST & MIC", "NORMAL", "CENTER CANCEL", and "FLAT AMP SIMULATE" go dark.
- Press the FS-5U connected to the PHRASE SHIFT jack (left channel), and confirm that the "ONE SHOT PHRASE" indicator light goes off.
- Press the FS-5U connected to the PHRASE SHIFT jack (right channel), and confirm that the "LOOP PHRASE" indicator light goes off.
- Press the FS-5U that is connected to the REVERSE jack, and verify that all LEDs other than "PEAK" light.

4.LEVEL volume check

- Refer to the connection diagram in "Entering Test Mode" and connect the diagnostic equipment.

Input

INST : 200Hz, square wave, 200 mVp-p

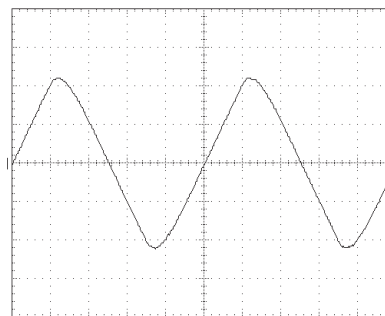
MIC : 200 Hz, sine wave, -34 dBm

AUX IN : 200 Hz, square wave, 200 mVp-p, STEREO

- Move the LEVEL volume to approximately the center position, and then back to the minimum position.
- Move the LEVEL volume from 'minimum' to 'maximum', and verify that the waveform increases smoothly.

At this time, the MODE LEDs will light consecutively from "FLAT AMP SIMULATE," following the waveform.

- With the LEVEL volume at maximum, verify that the output waveform is the same as shown in the diagram.
- Confirm that all LEDs other than PEAK are lit.



(0.5V/DIV, 1mS/DIV)

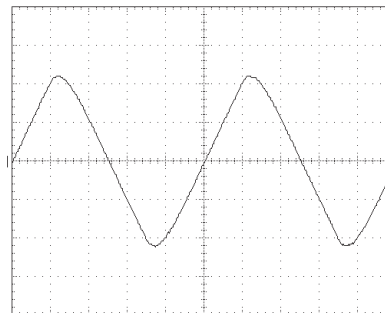
200Hz, 2.2Vp-p \pm 0.2Vp-p

5.GUIDE volume check

- Move the GUIDE volume to approximately the center position, and then back to the minimum.
- Move the GUIDE volume from 'minimum' to 'maximum,' and verify that the waveform increases smoothly.

At this time, the MODE LEDs will change successively from "FLAT AMP SIMULATE," following the waveform.

- With the GUIDE volume at maximum, verify that the output waveform is the same as shown in the diagram.
- Confirm that all LEDs other than PEAK are lit.

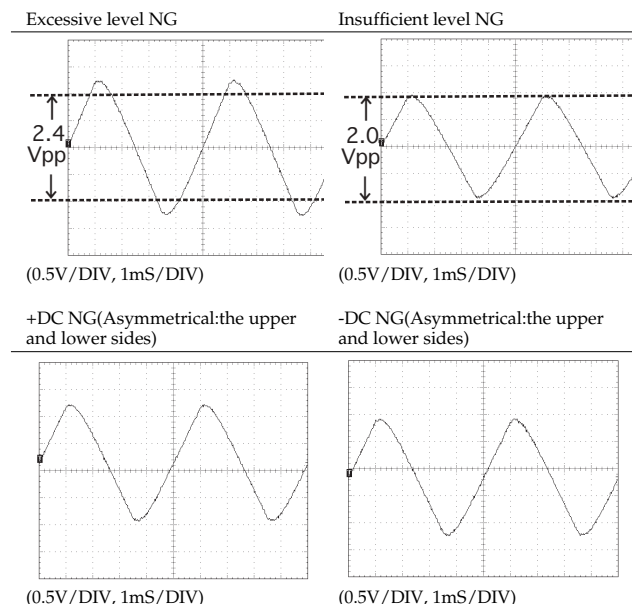


(0.5V/DIV, 1mS/DIV)

200Hz, 2.2Vp-p \pm 0.2Vp-p

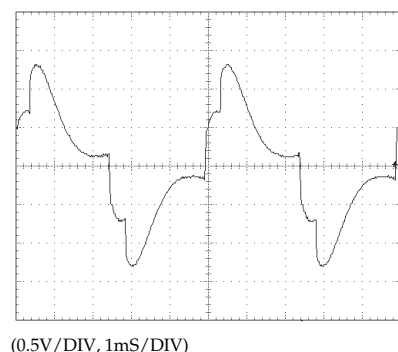
6.DA check

- Once again check the output waveform at the point that "5.GUIDE volume check" is completed, to check the DC leakage and level. In the following cases, the result is NG.



7.OUTPUT check

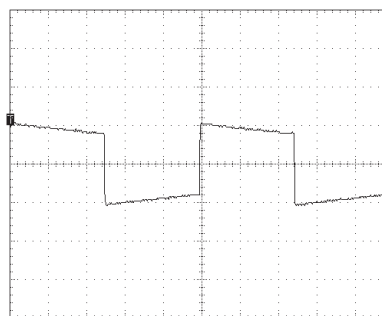
- .Set the INST volume and MIC volume to 'minimum'.
- .Set the PHRASE SELECT volume to the 'REVERSE' are lit.
- .Verify that the output waveform is as shown in the diagram.



The waveform will change slightly depending on the inaccuracy of the input function.

8.INST volume check

- Set the PHRASE SELECT volume to the '3' position.
- Verify that "REVERSE" is dark and "TAP TEMPO" is lit red.
- Set the INST volume to 'minimum,' and slowly move it to 'maximum.'
- Verify that the waveform increases smoothly.
- Verify that that when the INST volume is at maximum, the waveform is the same as shown in the diagram.

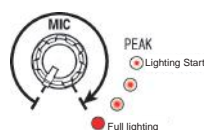


(0.5V/DIV, 1mS/DIV)

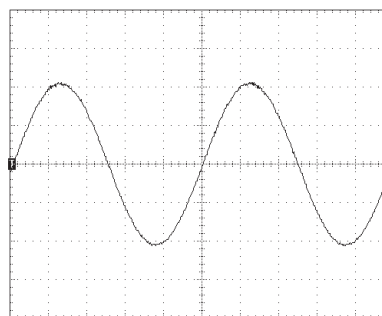
1.2Vp-p \pm 0.2Vp-p

9.MIC volume check

- Set the PHRASE SELECT volume to the '4' position.
- Verify that "TAP TEMPO" changes from red to green.
- Set the MIC volume to minimum, and gradually move it to maximum.
- Verify that the waveform increases smoothly.
- Rotate the MIC volume control and confirm that "PEAK" lights as shown in the figure.



- Confirm that the same waveform as in the figure is produced when the MIC volume control is at maximum.

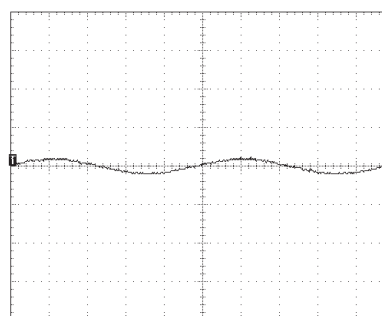


(0.5V/DIV, 1mS/DIV)

- Connect a noise meter to OUTPUT, and verify that the reading is in the range of -1.0 dBm \pm 1.5 dBm.

10.MUTE check

- Set the PHRASE SELECT volume to the '5' position.
- Verify that "TAP TEMPO" is dark and "LOOP QUANTIZE" is lit.
- Verify that the output waveform is the same as the waveform shown in the diagram.

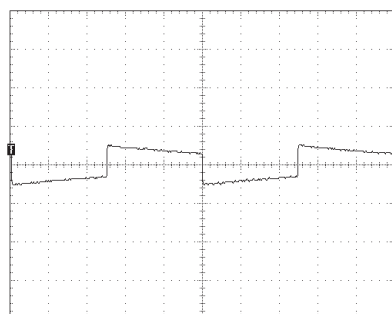


(0.5V/DIV, 1mS/DIV)

- Connect a noise meter to OUTPUT, and verify that the reading is in the range of -22.0 dBm \pm 1.5 dBm.

11.AUX IN (NORMAL) check

- Set the PHRASE SELECT volume to the '6' position.
- Verify that "LOOP QUANTIZE" is dark and "LOOP PHRASE" is lit.
- Verify that the output waveform is the same as the waveform shown in the diagram.

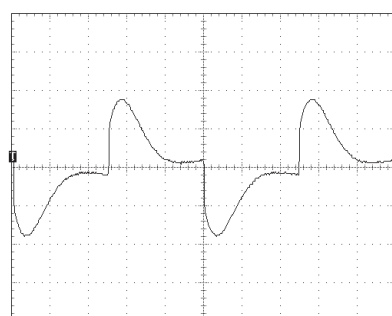


(0.5V/DIV, 1mS/DIV)

0.6Vp-p \pm 0.1Vp-p

12.AUX IN (FLAT AMP SIMULATE) check

- Set the PHRASE SELECT volume to the '7' position.
- Verify that "LOOP PHRASE" is dark and "INST & MIC" is lit.
- Verify that the output waveform is the same as the waveform shown in the diagram.



(0.5V/DIV, 1mS/DIV)

2.0Vp-p \pm 0.2Vp-p

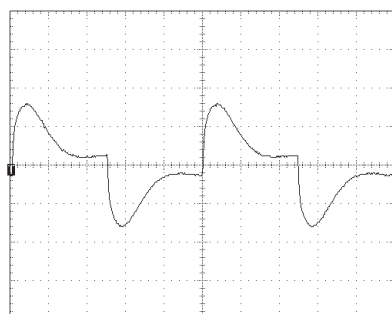
- Press the FS-5U that is connected to the REVERSE jack, and verify that the waveform does not decrease.

13.AUX IN (CENTER CANCEL) check

- Set the PHRASE SELECT volume to the '8' position.
- Verify that "INST & MIC" is dark and "NORMAL" is lit.
- Verify that there is no longer an output waveform.

14.AUX IN (L ch) check

- Set the PHRASE SELECT volume to the '9' position.
- Verify that "NORMAL" is dark and "CENTER CANCEL" is lit.
- Input only the L channel to AUX IN.
- Verify that the output waveform is the same as the waveform shown in the diagram.

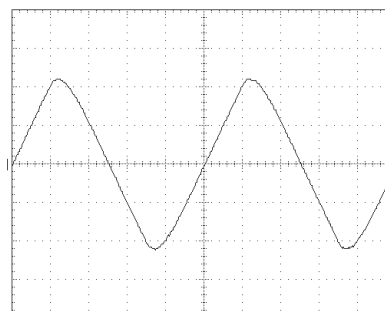


(0.5V/DIV, 1mS/DIV)

1.8Vp-p \pm 0.2Vp-p

15.solder spot check

- Set the PHRASE SELECT volume to the '10' position.
- Verify that "CENTER CANCEL" is dark and "FLAT AMP SIMULATE" is lit.
- Verify that there is no longer an output waveform.
- Set the PHRASE SELECT volume to the '11' position.
- Verify that all LEDs are lit except for "PEAK."
- Verify that the output waveform is the same waveform as shown in the diagram.



(0.5V/DIV, 1mS/DIV)

200Hz, 2.2Vp-p \pm 0.2Vp-p

16. PHRASE SELECT volume check

- Set the PHRASE SELECT control to the "10" position.
- Confirm that the FLAT AMP SIMULATE LED goes off.
- Set the PHRASE SELECT control to the "9" position.
- Confirm that the CENTER CANCEL LED goes off.
- Set the PHRASE SELECT control to the "8" position.
- Confirm that the NORMAL LED goes off.
- Set the PHRASE SELECT control to the "7" position.
- Confirm that the INST & MIC LED goes off.
- Set the PHRASE SELECT control to the "6" position.
- Confirm that the LOOP PHRASE LED goes off.
- Set the PHRASE SELECT control to the "5" position.
- Confirm that the LOOP QUANTIZE LED goes off.
- Set the PHRASE SELECT control to the "4" position.
- Confirm that the TAP TEMPO LED changes from red to orange.
- Set the PHRASE SELECT control to the "3" position.
- Confirm that the TAP TEMPO LED goes off.
- Set the PHRASE SELECT control to the "2" position.
- Confirm that the REVERSE LED goes off.
- Set the PHRASE SELECT control to the "1" position.
- Confirm that all LEDs other than the PEAK LED are lit.
- Confirm that the "POWER" indicator is lit.

17.Noise check

- Set the PHRASE SELECT volume to the '2' position.
- Connect a 47k ohm short plug to the INST jack, a 150k ohm short plug to the MIC jack, and a 1 k ohm stereo short plug to the AUX IN jack.
- Connect a monitor amp to OUTPUT.
- Set the INST volume and MIC volume to the maximum.
- Drop the unit from a height of 10 cm, and verify that no abnormal noise is output.
- Turn the INST volume and MIC volume, and verify that no abnormal noise is output.
- With the INST volume and MIC volume at the maximum positions, measure the residual noise, and verify that it is less than -78 dBm (IHFA).

18.Battery operation check

- Put the battery in the battery compartment and insert the plug into the OUTPUT jack.
- Verify that POWER is lit



Always check the battery after repairing or servicing the product.

Skipping directly to the desired test

- Enter Test mode.
- The FLASH ROM check will occur automatically, and if there is no problem, all LEDs other than “PEAK” will light.
- Follow the procedure described in the section for the test you want to perform.



In order to perform “5. GUIDE volume check,” you must first perform “4. LEVEL volume check.”

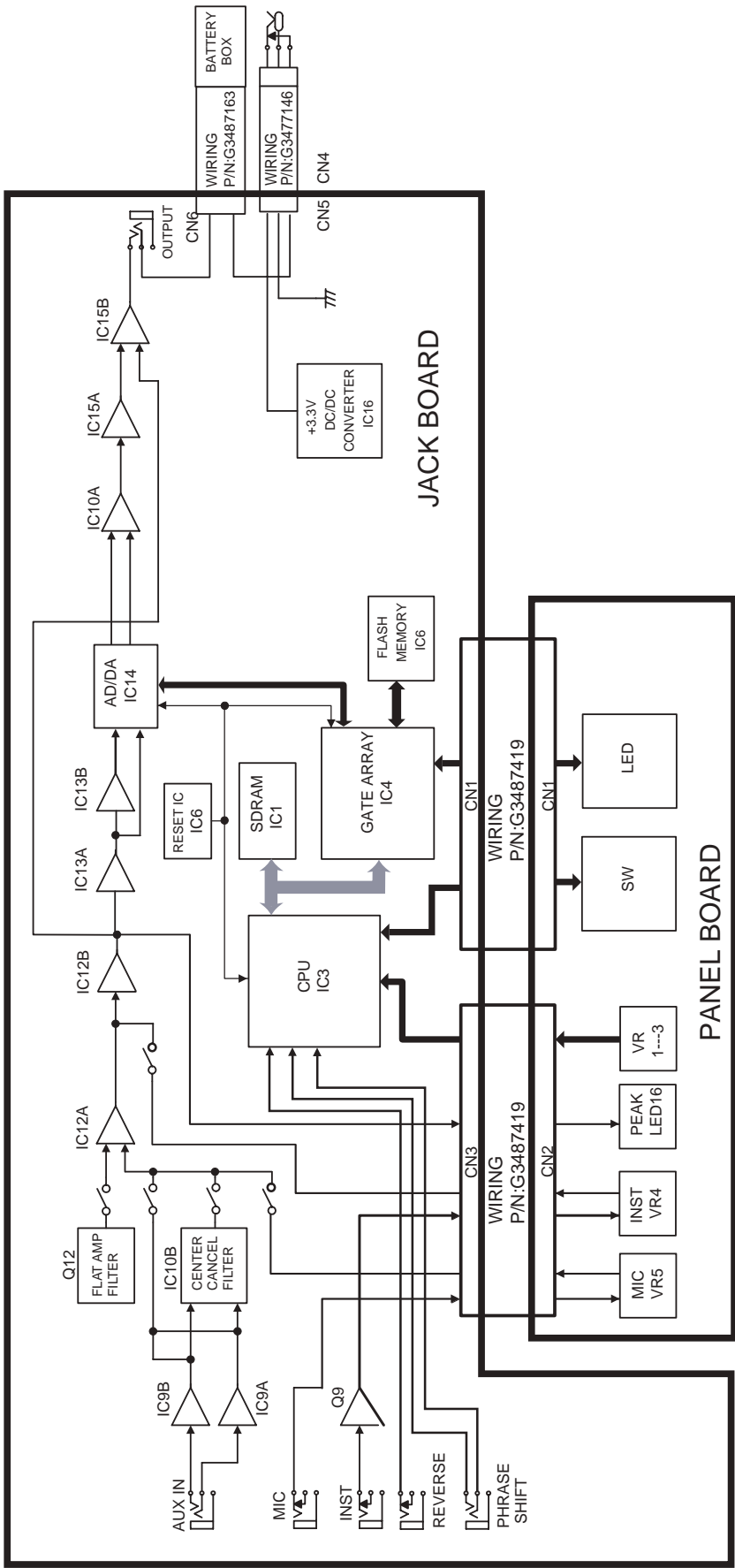
Exiting Test mode

- Disconnect the plug from the ADAPTOR jack to turn off the power.

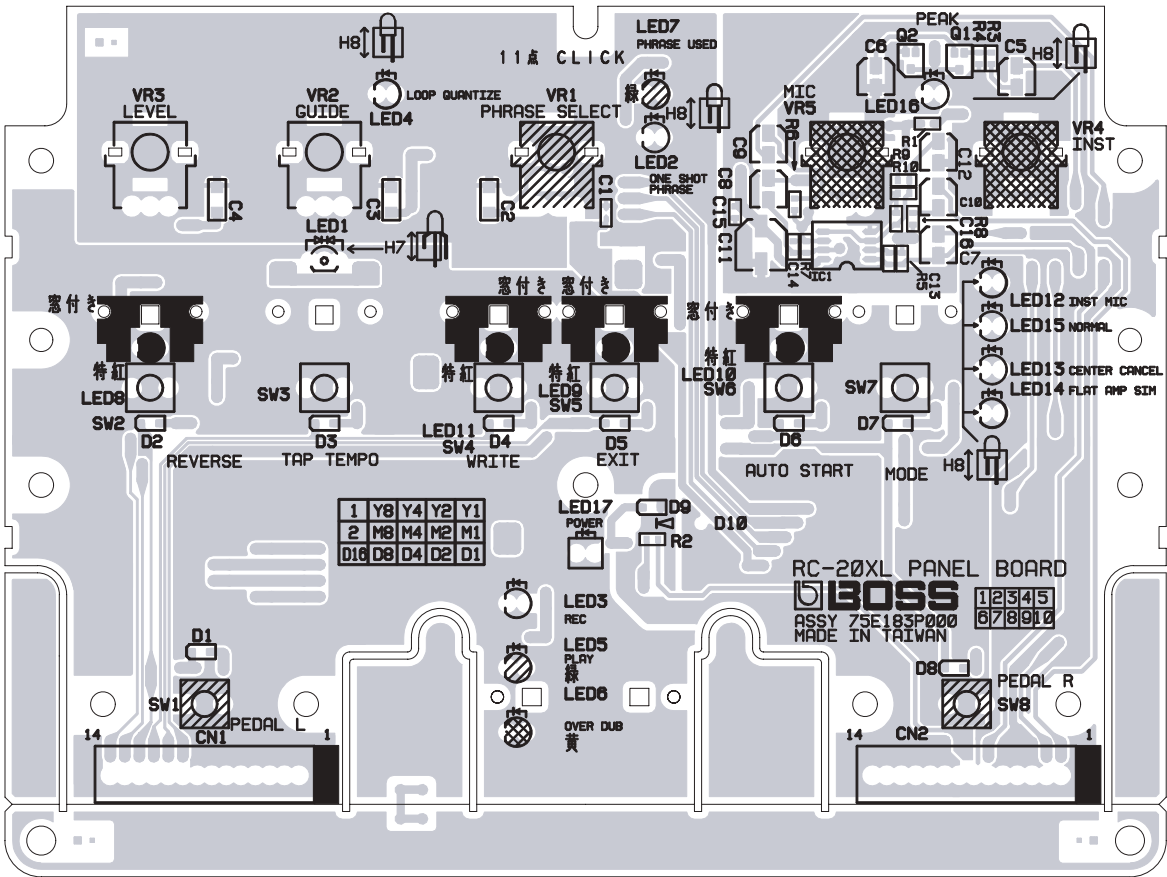
Cautions

After repairing or servicing the product, you must check all test items.

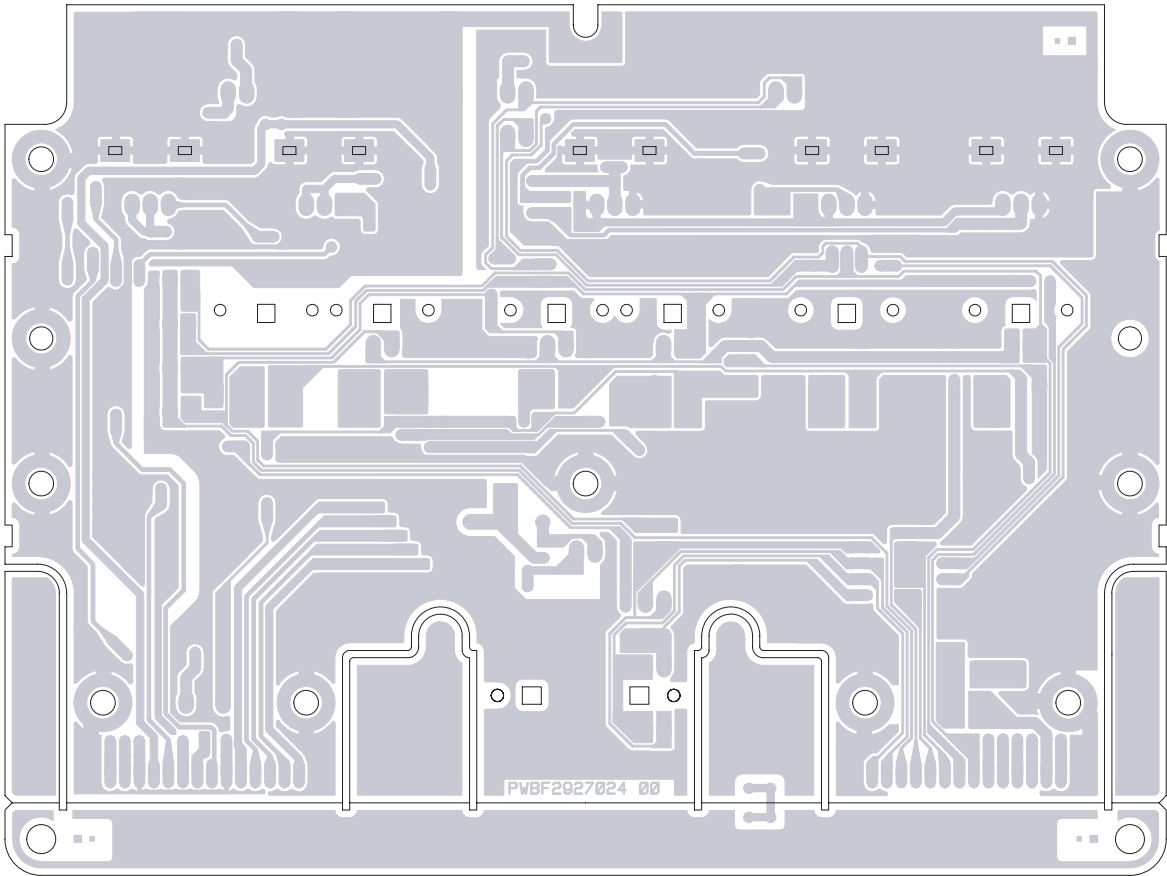
BLOCK DIAGRAM



CIRCUIT BOARD (PANEL)

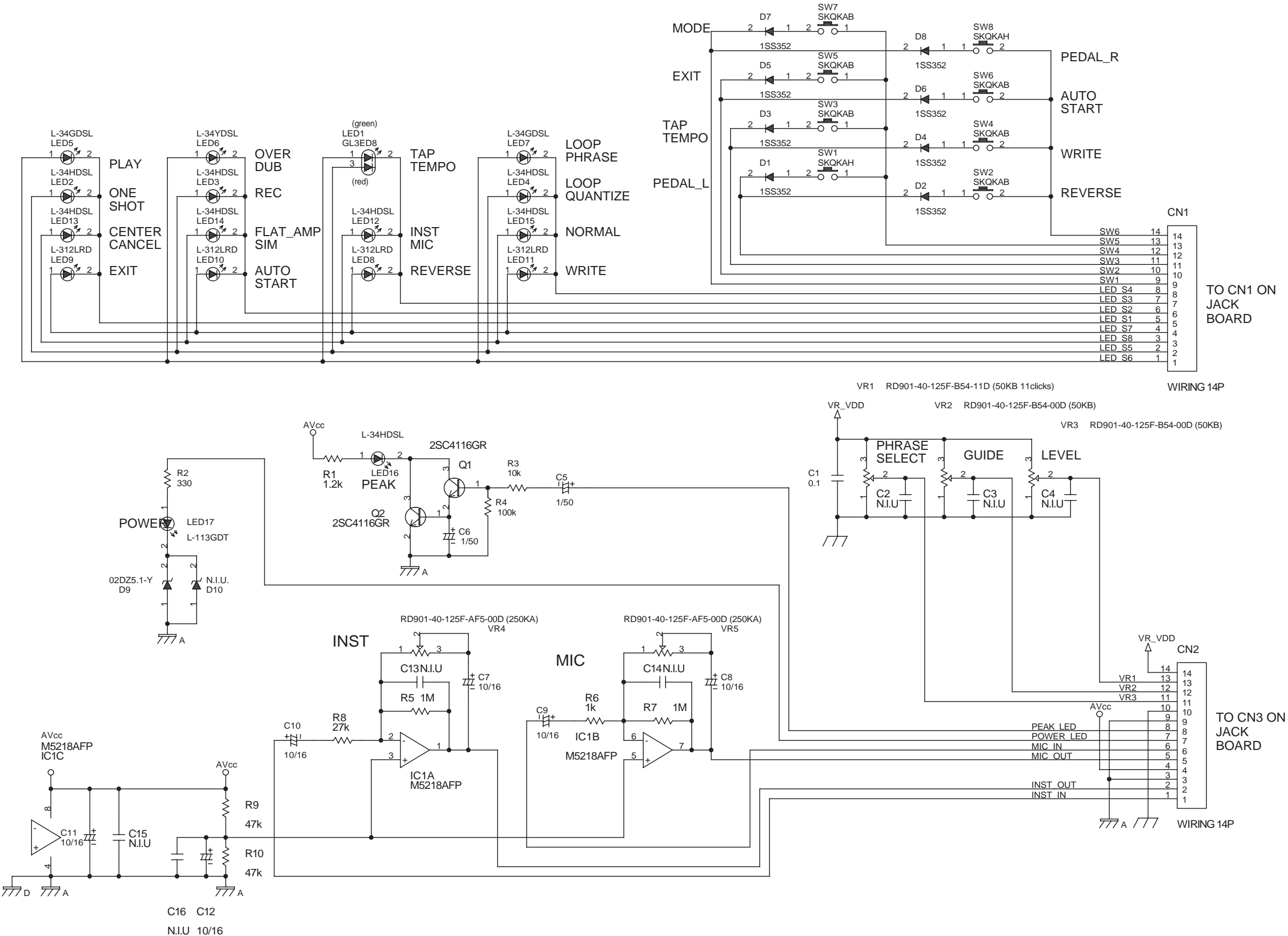


View from components side



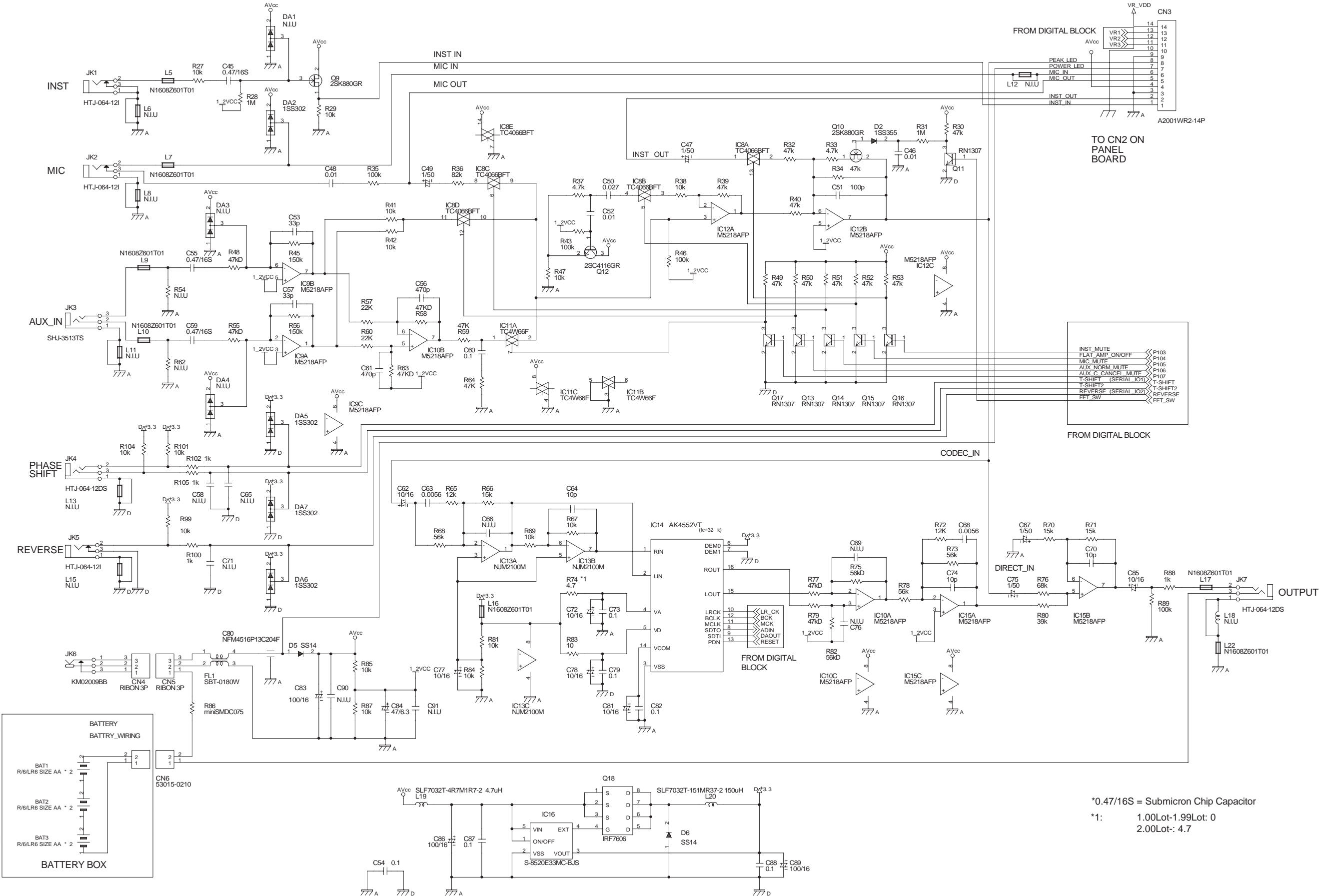
View from foil side

CIRCUIT DIAGRAM (PANEL)





CIRCUIT DIAGRAM (JACK1)



28



