

SP-303

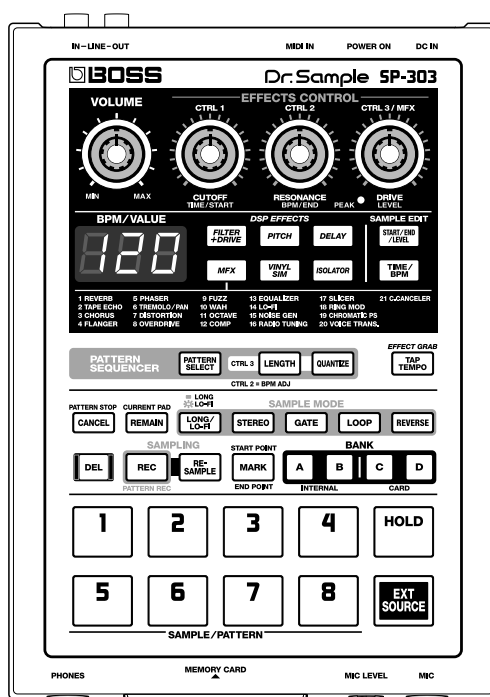
Dr. Sample

SERVICE NOTES

Issued by RJA

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SPECIFICATIONS

SP-303: Dr. Sample

● Maximum Polyphony

8 voices

● Internal Memory

Samples: 16 (8 samples x 2 banks)

Patterns: 16 (8 patterns x 2 banks)

● Memory Card (SmartMedia)

Samples: 16 (8 samples x 2 banks)

Backup: 112 (2 banks x 7 sets)

Patterns: 16 (8 samples x 2 banks)

Backup: 112 (2 banks x 7 sets)

* Only 8 MB to 64 MB SmartMedia with a power-source voltage of 3.3 V can be used.

● Maximum Sampling Time

Internal Memory (Times Approximate)

STANDARD	LONG	LO-FI
31 seconds	63 seconds	3 minutes 10 seconds

Memory Cards (Times Approximate)

Capacity	STANDARD	LONG	LO-FI
8 MB	4 minutes	8 minutes	25 minutes
16 MB	8 minutes	16 minutes	50 minutes
32 MB	16 minutes	33 minutes	101 minutes
64 MB	33 minutes	66 minutes	202 minutes

● Sampling Frequency

STANDARD: 44.1 kHz

LONG: 22.05 kHz

LO-FI 11.025 kHz

● Pattern Sequencer

Maximum Note Storage

Internal Memory: Approx. 7,500 notes

Memory Card: Approx. 7,500 notes
(SmartMedia)

Resolution: 96 ticks per quarter note

Pattern Length: 1-99 measures

● Effects

26 types

Signal Processing

A/D Conversion: 20 bit

D/A Conversion: 20 bit

● Nominal Input Level

Input (mic): -40~ +4 dBu

Input (line): -10 dBu

● Input Impedance

23 k ohm (line)

2 k ohm (mic)

● Nominal Output Level

Output (line): -10 dBu

● Output Impedance

2 k ohm

● Display

7 segments, 3 characters (LED)

● Connectors

LINE INPUT Jacks (L, R)

LINE OUTPUT Jacks (L, R)

Headphone (PHONES) Jack (Stereo 1/4 inch phone type)

MIC Jack

MIDI IN Connector

AC Adaptor Jack

Memory Card Slot

● Power Supply

AC Adaptor

120/230 V: Roland ACI-Series

230 (UK)/240 V: Roland ACB-Series

● Current Draw

1000 mA

● Dimensions

170 (W) x 241 (D) x 67 (H) mm

6-3/4 (W) x 9-1/2 (D) x 2-11/16 (H) inches

● Weights

850 g / 1 lb 14 oz (excluding AC adaptor)

● Accessories

Owner's Manual English (#71890456)

AC Adaptor

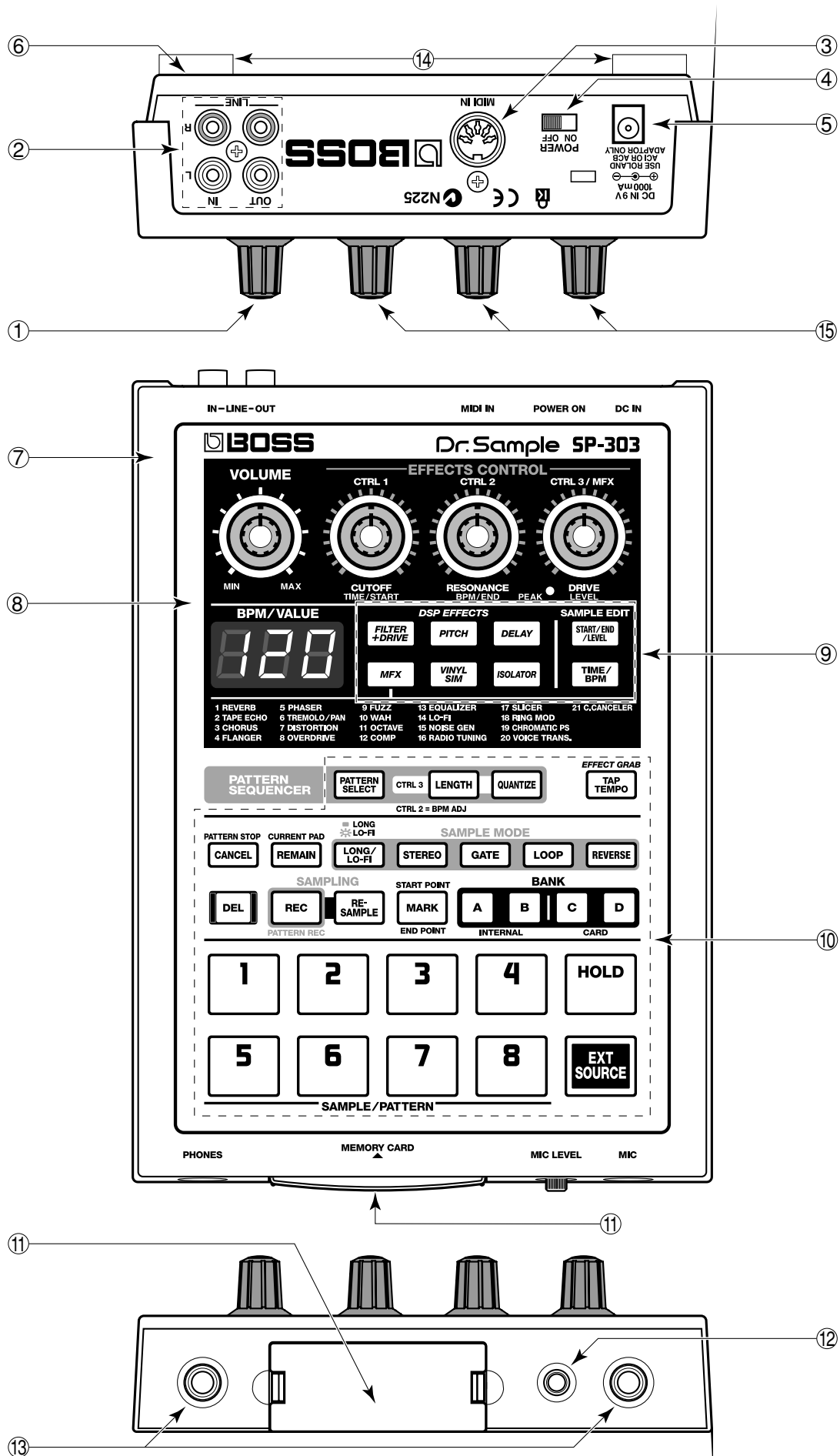
(120/230 V: Roland ACI-Series, 230 (UK)/240 V: Roland ACB-Series)

Roland Service (information sheet)

* 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	Part Name	Description	Q'ty
1	02457512	J R-KNOB	SFA BLK/LCG	1
	02451945	9M/M ROTARY POTENTIOMETER	RK09L12C 50KAx2(20MM)	1
2	13449645	JACK (PIN)	YKC21-3049 (4P) RED/WHITE	1
3	13429672	MIDI JACK	YKF51-5047	1
4	02452134	SLIDE SWITCH	SLG-12-465A	1
5	13449720	DC JACK	HEC2305-01-250	1
6	02452423	BOTTOM COVER		1
7	02451767	TOP CASE		1
8	02451823	PANEL SHEET		1
9	02451978	RUBBER SW	EFFECT	1
10	02451845	RUBBER SW	PAD	1
11	02451812	CARD COVER		1
12	02451956	9M/M ROTARY POTENTIOMETER	RK9K111A 250KRD(25MM)	1
13	00569278	6.5MM JACK	LGR4609-7100	2
14	02236489	FOOT	14.5x14.5	4
15	02457512	J R-KNOB	SFA BLK/LCG	3
	02457556	9M/M ROTARY POTENTIOMETER	RK09K113A 50KB(20MM)	3

EXPLODED VIEW PARTS LIST

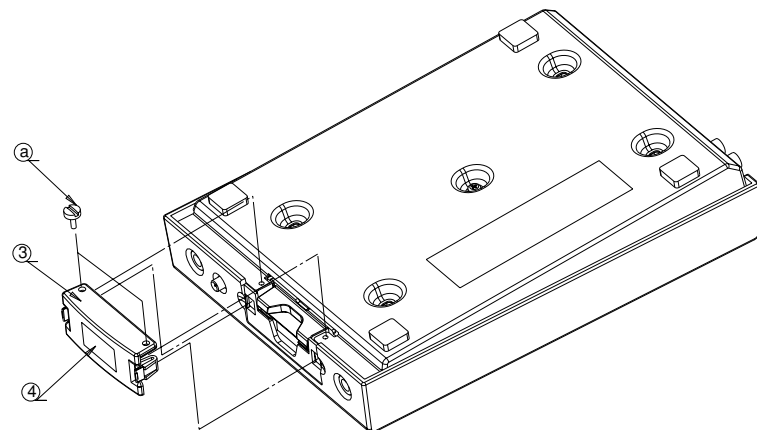
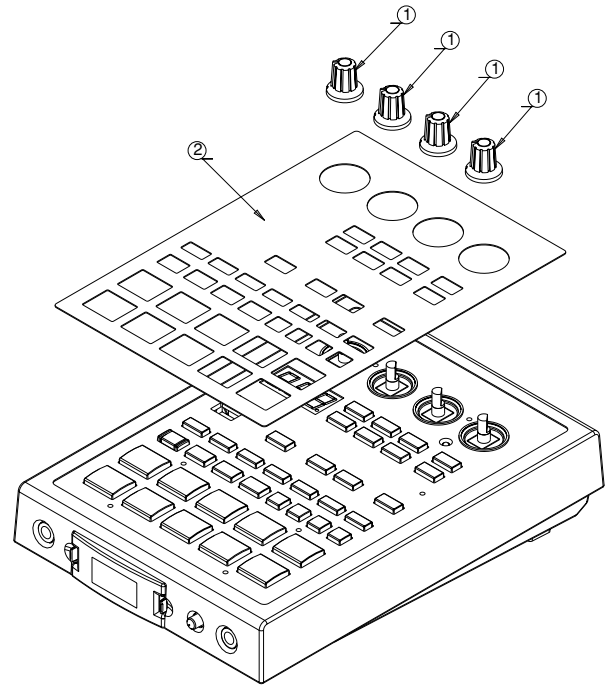
[Parts]

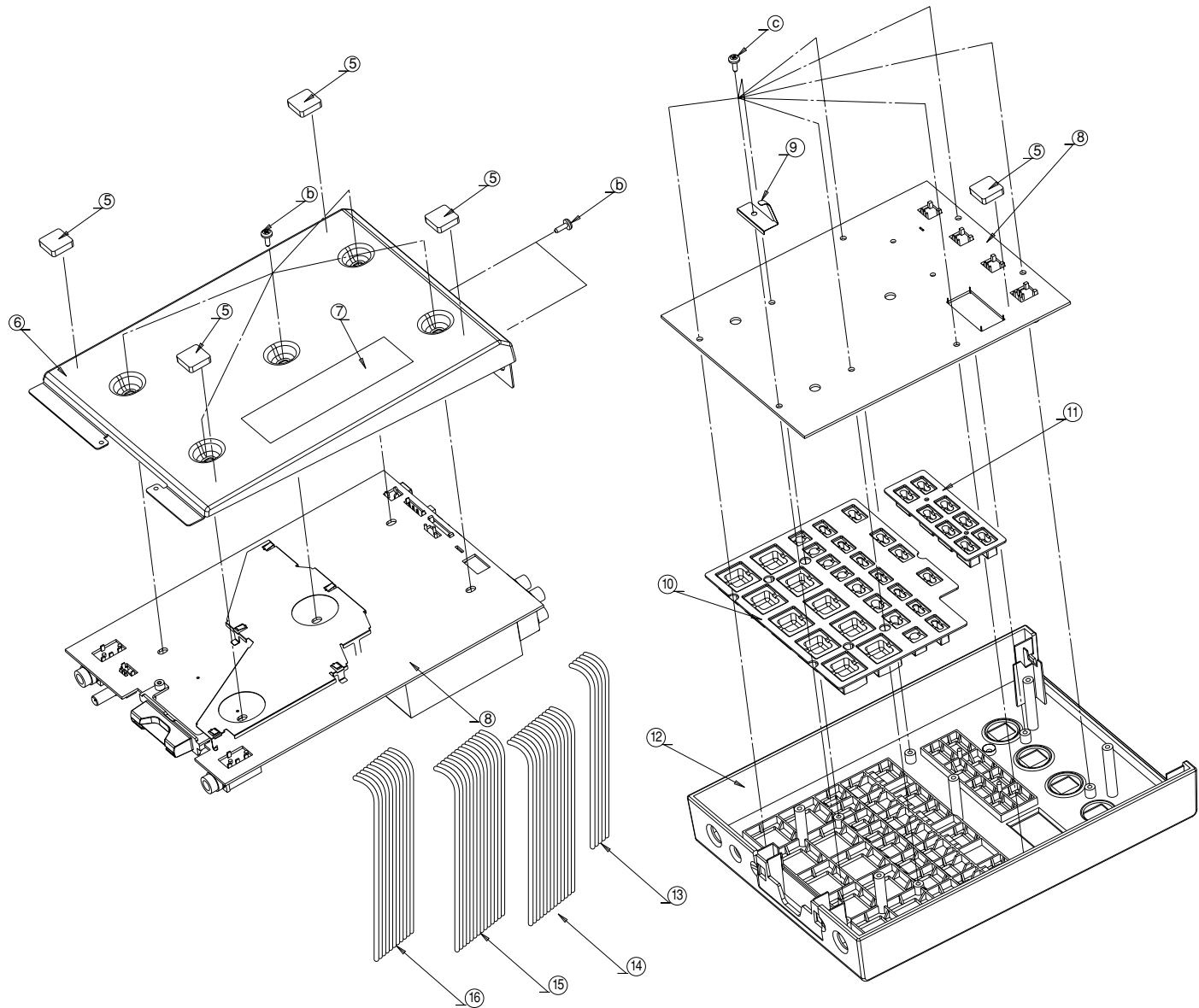
No.	Part Code	Part Name	Description	Q'ty
1	02457512	J R-KNOB	SFA BLK/LCG	4
2	02451823	PANEL SHEET		1
3	02451812	CARD COVER		1
4	40347767	LABEL	SMARTMEDIA	1
5	02236489	FOOT	14.5X14.5	5
6	02452423	BOTTOM COVER		1
7	40344445	LABEL FCC CAUTION		1
8	71785956	PWB ASSY	(EXG)	1
	*****	SW BOARD ASSY		1
9	02568590	LEAF		1
10	02451845	RUBBER SW	PAD	1
11	02451978	RUBBER SW	EFFECT	1
12	02451767	TOP CASE		1
13	02671190	RIBBON CABLE	JWFV 5x125 - P2.0	1
14	02671189	RIBBON CABLE	JWFV 14x125 - P2.0	1
15	02671178	RIBBON CABLE	JWFV 13x150 - P2.0	1
16	02671167	RIBBON CABLE	JWFV 11x125 - P2.0	1

[Screws]

No.	Part Code	Part Name	Description	Q'ty
a	40451234	COIN SCREW M3x8	BZC	2
b	40011312	SCREW 3x8	BINDING TAPTITE P BZC	7
c	40011278	SCREW 3x8	BINDING TAPTITE P FE ZC	8

EXPLODED VIEW





PARTS LIST

SAFETY PRECAUTIONS:

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

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

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

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

NOTE: The parts marked # are new. (initial parts)

MB → MAIN BOARD ASSY, SB → SW BOARD ASSY

CASING

#	02451767	TOP CASE	1
#	02451812	CARD COVER	1
#	02451823	PANEL SHEET	1

CHASSIS

#	02452423	BOTTOM COVER	1
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KNOB, BUTTON

#	02457512	J R-KNOB	SFA BLK/LCG	4
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SWITCH

#	02451845	RUBBER SW	PAD		1
#	02451978	RUBBER SW	EFFECT		1
#	02452134	SLG-12-465A	SLIDE SWITCH	SW1 on MB	1

JACK, SOCKET


	00569278	LGR4609-7100	6.5MM JACK	JK7,JK9 on MB	2
	13449645	YKC21-3049 (4P) RED/WHITE	JACK (PIN)	JK8 on MB	1
	13449720	HEC2305-01-250	DC JACK	JK6 on MB	1
	13429672	YKF51-5047	MIDI CONNECTOR	JK5 on MB	1
	01780712	CN015P-3013-0	CARD CONNECTOR	CN1 on MB	1

DISPLAY UNIT

	00239767	LB-603VF	LED (7SEG.)	LED35 on SB	1
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NOTE: Replacement LB-603VF should be made on a unit base.

PCB ASSY

#		71785956	PWB ASSY	(EXG)		1
			NOTE: 'PWB ASSY' includes the following parts.			
#		*****	MAIN BOARD ASSY	Assy		1
			NOTE: 'MAIN BOARD ASSY' includes the following parts.			
#		02568645	MAIN SHIELD	SHIELD		1
#		02568656	SHIELD COVER	SHIELD		1
		01786712	ESCUTCHEON			1
		40011278	SCREW 3x8	BINDING TAPTITE P FE ZC		2
#		*****	SW BOARD ASSY	Assy		1
			NOTE: 'SW BOARD ASSY' includes the following parts.			
#		02671167	RIBBON CABLE	JWV 11x125 - P2.0	CN3 on MB to CN9 on SB	1
#		02671190	RIBBON CABLE	JWV 5x125 - P2.0	CN12 on MB to CN15 on SB	1
#		02671178	RIBBON CABLE	JWV 13x150 - P2.0	CN5 on MB to CN10 on SB	1
#		02671189	RIBBON CABLE	JWV 14x125 - P2.0	CN6 on MB to CN8 on SB	1
#		02568590	LEAF			1
#		40126389	SPACER POLYCA PIPE 3.2x5x2.5			1

IC

#	02673712	UPD703101AGJ-33-R02	IC (16BIT CPU)	IC23 on MB	1
	01235190	TC203C040AF-001(FP)	IC (MR2 CHIP)	IC9 on MB	1
	01783123	LH28F400BVE-BL85	IC (FLASH MEMORY /BLANK)	IC22 on MB	1
#	02453934	MBM29LV800BA-70PFTN-SFK	IC (FLASH MEMORY /BLANK)	IC24 on MB	1
	01780112	AK4522VF	IC (AD/DA)	IC35 on MB	1
	02121556	LC24085B-SD1	IC (I/F)	IC14 on MB	1
	01902212	UPD431000AGW-70LL-E2	IC (SRAM)	IC13 on MB	1
#	02453389	LC32V4265T-25	IC (DRAM)	IC27 on MB	1

IC

#	01901989	TC7SET04F(TE85L)	IC (CMOS)	IC16 on MB	1
	01899167	TC74VHC04FT(EL)	IC (CMOS)	IC43 on MB	1
	15189210	BA15218F-T2	IC (OP AMP)	IC3 on MB	1
	15289105	UPC4570G2-E2	IC (BIPOLAR OP AMP)	IC1,IC2,IC4 on MB	3
	15289109	M5216FP-600D	IC (BIPOLAR OP AMP)	IC5 on MB	1
#	15199137	AN7805F	IC (V.RGL)	IC31 on MB	1
	02453923	TA78M05S	IC (REGULATOR)	IC41 on MB	1
	02234778	NJM2360AM-TE3	IC (REGULATOR)	IC30 on MB	1
#	02453045	S-80927ALMP-DAQ-T2	IC (RESET)	IC28 on MB	1
	15289124	PC-400	IC (PHOTO COUPLER)	IC25 on MB	1
	02453056	BU2090FS-E2	IC (LED DRIVER)	IC33,IC34,IC44 on SB	3

TRANSISTOR

	15309104	2SA1586-GR(TE85R)	TRANSISTOR	Q12 on SB	1
	01784790	2SA1602A-T11-1F	TRANSISTOR	Q7,Q8,Q9,Q22 on MB	4
	00897201	2SA1706S-AN	TRANSISTOR	Q19 on MB	1
	15319107	2SC4116-GR(TE85R)	TRANSISTOR	Q14 on MB	1
	15129844	2SD2012	TRANSISTOR	Q10 on MB	1
	15329505	DTC314TK T146	DIGITAL TRANSISTOR	Q15,Q17 on MB	2
	15329521	RN1307(TE85R)	TRANSISTOR	Q23,Q24,Q25 on MB	3
	02340645	RN1441-A(TE85L)	TRANSISTOR	Q16,Q18 on MB	2
	00898201	RN2421(TE85L)	TRANSISTOR	Q20 on MB	1
	15259901	TD62385AF(EL)	TRANSISTOR DRIVER	IC20 on MB	1

DIODE

	01899723	MA111-(TX)	SWITCHING DIODE	D2,D9 on MB	2
	00902978	SB07-03N-AA	SCHOTTKY DIODE	D11 on MB	1
	01780045	RB051L-40	SCHOTTKY DIODE	D4 on MB	1
	15339135T0	1SS300(TE85R)	DIODE	DA1,DA2,DA3,DA4,DA5,DA6,DA7,DA8,DA9,DA10,DA11,DA12,DA13,DA14,DA15,DA16,DA17,DA18,DA19 on SB	19
	01457167	LNJ208R8ARA (CHIP)	LED (RED)	LED1,LED2,LED3,LED4,LED5,LED8,LED10,LED12,LED14,LED16,LED18,LED20,LED22,LED24,LED25,LED26,LED27,LED28,LED29,LED30,LED31,LED32,LED33,LED36 on SB	24
	01786256	SML-010LT T86	LED	LED7,LED9,LED11,LED13,LED15,LED17,LED19,LED21,LED23 on SB	9
	01904112	SLR-342VCT32 N.P.Q RANK	LED	LED34 on SB	1
	01897189	MA147-(TX)	DIODE ARRAY	DA1,DA2,DA3,DA20 on MB	4

RESISTOR

	15399423	RPC10T 123 J	MTL.FILM RESISTOR	R155,R175 on MB	2
	15399413	RPC10T 472 J	MTL.FILM RESISTOR	R75,R207,R208 on MB	3
	15399373	RPC10T 101 J	MTL.FILM RESISTOR	R82,R161,R177,R189,R240,R242 on MB	6
	15399365	RPC10T 470 J	MTL.FILM RESISTOR	R235 on MB	1
	15399469	RPC10T 105 J	MTL.FILM RESISTOR	R124,(R200),R244 on MB	2(3)
	15399411	RPC10T 392 J	MTL.FILM RESISTOR	R133,R140 on MB	2
	15399421	RPC10T 103 J	MTL.FILM RESISTOR	R62,R63,R65,R83,R84,R123,R127,R130,R132,R136,R144,R146,R148,R162,R180,R181,R182,R185,R192,R193,R199,(R200),R230,R231,R234,R236,R237,R238,R243,R246 on MB (R200)	30 (29)
	15399391	RPC10T 561 J	MTL.FILM RESISTOR	R80,R245 on MB	2
	15399429	RPC10T 223 J	MTL.FILM RESISTOR	R129,R149,R163 on MB	3
	15399425	RPC10T 153 J	MTL.FILM RESISTOR	R156,R176 on MB	2
	15399445	RPC10T 104 J	MTL.FILM RESISTOR	R121 on SB R157,R158,R159,R172, R173,R174 on MB	7
	15399357	RPC10T 220 J	MTL.FILM RESISTOR	R160,R171,R183,R184 on MB	4
	15399375	RPC10T 121 J	MTL.FILM RESISTOR	R81 on MB	1
	15399377	RPC10T 151 J	MTL.FILM RESISTOR	R128,R186 on MB	2
	15399383	RPC10T 271 J	MTL.FILM RESISTOR	R87,R88,R89,R90,R91,R93,R94,R95,R96,R97,R98,R99,R100,R101,R102,R103,R104,R105,R106,R107,R108,R109,R110,R111,R112,R113,R114,R115,R116,R117,R118,R120,R229 on SB R187 on MB	34
	15399389	RPC10T 471 J	MTL.FILM RESISTOR	R122 on SB R138,R141 on MB	3
	15399397	RPC10T 102 J	MTL.FILM RESISTOR	R125,R126,R151,R152,R166,R167,R194,R195,R196,R217,R218,R219,R248,R249 on MB	14
	15399401	RPC10T 152 J	MTL.FILM RESISTOR	R233 on MB	1
	15399405	RPC10T 222 J	MTL.FILM RESISTOR	R86 on MB	1
	15419702	RR1220P-102-D 1K OHM	MTL.FILM RESISTOR	R190 on MB	1
	15399437	RPC10T 473 J	MTL.FILM RESISTOR	R131,R135,R137,R139,R143,R145 on MB	6
	15399433	RPC10T 333 J	MTL.FILM RESISTOR	R150,R170 on MB	2
	15399381	RPC10T 221 J	MTL.FILM RESISTOR	R241 on MB	1
#	02453734	RR1220P-162-D	MTL.FILM RESISTOR	R188 on MB	1
	01344723	MCR25 JZH J 220 OHM 1/4W	MTL.FILM RESISTOR	R247 on MB	1
#	01019767	RSSX1/2 0.33 OHM J	MTL.OXIDE RESISTOR	R191 on MB	1
	01013578	EXBV8V470JV	RESISTOR ARRAY	RA9,RA6 on MB	2
	15409113	EXBV8V103JV	RESISTOR ARRAY	RA26 on MB	1
	00126112	EXBV8V101JV	RESISTOR ARRAY	RA18,RA19,RA20,RA21,RA22,RA23,RA25 on MB	7
	00126134	EXBA10E103J	RESISTOR ARRAY	RA8,RA12,RA15,RA24 on MB	4
	01014001	EXBV8V680JV	RESISTOR ARRAY	RA2,RA3,RA11,RA13,RA14,RA16 on MB	6

POTENTIOMETER

#	02451956	RK9K111A 250KRD(25MM)	9M/M ROTARY POTENTIOMETER	VR6 on MB	1
#	02457556	RK09K113A 50KB(20MM)	9M/M ROTARY POTENTIOMETER	VR2,VR3,VR4 on SB	3
#	02451945	RK09L12C 50KAx2(20MM)	9M/M ROTARY POTENTIOMETER	VR5 on SB	1

CAPACITOR

	15359206	ECJ2VF1E104Z 100000 PF/25 V	CERAMIC CAPACITOR	C148,C149,C150,C240 on SB C60,C61,C62,C63,C65,C66,C67,C68,C69,C70,C73, C77,C92,C97,C99,C101,C102,C106,C107,C109,C115, C116,C118,C121,C122,C123,C133,C134,C140,C141, C146,C147,C155,C161,C162,C165,C172,C173,C175, C177,C193,C195,C213,C264,C265,C305,C306 on MB	50
	15359370	ECJ2VG1H470K	CERAMIC CAPACITOR	C290 on MB	1
#	02453423	ECJ2VC1H100D	CERAMIC CAPACITOR	C103,C104,C126,C128,C246,C247,C248 on MB	7
	15359440	ECJ2VB1H222K	CERAMIC CAPACITOR	C169,C164 on MB	2
#	02453445	ECJ2VC1H151J	CERAMIC CAPACITOR	C181,C196 on MB	2
#	02564089	ECJ2VC1H122J	CERAMIC CAPACITOR	C190,C207 on MB	2
	15359448	ECJ2VB1H103K 0.01 UF/50 V	CERAMIC CAPACITOR	C108,C111,C112,C113,C114,C120,C127,C129,C130, C131,C135,C152,C208,C209,C210,C223,C226,C227, C234,C235,C236,C237,C238,C239,C249,C250,C251, C258 on MB	28
#	15359702	ECJ2VC1H271J	CERAMIC CAPACITOR	C283,C284,C285,C286,C307on MB	5
#	02453456	ECJ2VC1H101J	CERAMIC CAPACITOR	C184,C203,C216,C253,C254,C255,C257,C263,C266, C267,C268,C269,C270,C271,C272,C273,C274,C275, C276,C277,C278,C279,C280,C281,C282,C289,C291, C292,C293,C294,C295,C296,C297,C298,C299,C300, C302,C303,C304 on MB	39
	15359436	ECJ2VB1H102K	CERAMIC CAPACITOR	C288,C287 on MB	2
	00674423	ECA0JM102B 1000 UF/6.3 V	CHEMICAL CAPACITOR	C139,C214 on MB	2
	01900834	RA2-16V101MC-T2 100 UF/16V	CHEMICAL CAPACITOR	C197,C182 on MB	2
	13639602	ECA1HM010B 1 UF/50 V	CHEMICAL CAPACITOR	C185,C199,C224 on MB	2
	01902590	RA2-6V101MC-T2 100 UF/6.3V	CHEMICAL CAPACITOR	C160,C167 on MB	2
	01902612	RA2-6V471MC-T2 470 UF/6.3V	CHEMICAL CAPACITOR	C74, C301,C142 on MB	2
	01909690	RA2-16V471MC-T2 470 UF/16V	CHEMICAL CAPACITOR	C144 on MB	3
	13649269	ECA1CM100B 10 UF/16 V	CHEMICAL CAPACITOR	C74,C110,C119,C163,C176,C178,C180,C187,C194, C205,C211,C225	12
	13639512M0	ECEA0JKA101B 100 UF/6.3V	CHEMICAL CAPACITOR	C100,C105 on MB	2
	13639547M0	ECEA1CKA220B 22 UF/16 V	CHEMICAL CAPACITOR	C154 on MB	1
	13639546M0	ECEA1CKA100B 10 UF/16 V	CHEMICAL CAPACITOR	C64,C78,C117,C124,C132,C156 on MB	8
	13639547M1	ECA1CM220B 22 UF/16V	CHEMICAL CAPACITOR	C159,C171,C183,C189,C198,C204,C242,C243, C244 on MB	9
	13639557M0	ECA1CM102B 1000 UF/16V	CHEMICAL CAPACITOR	C143,C145 on MB	1
	13639605M0	ECA1HM4R7B 4.7 UF/50 V	CHEMICAL CAPACITOR	C174,C166 on MB	2
	02672689	ECEA1HKAR22B 0.22UF/50 V	CHEMICAL CAPACITOR	C308 on MB	

INDUCTOR, COIL, FILTER

#	02563301	ELC10D221E	CHOKE COIL	L7 on MB	1
	13529246	DSS310-91D223S-50ATL12-134	EMI FILTER	FL1 on MB	1
	00903167	N2012Z601T02 (CHIP)	FERRITE-BEAD	L1,L2,L3,L4,L8,L9,L10,L11,L13,L14,L15,L20,L21, L22,L23,L24,L26,L27,L28,L29,L30,L31,L32,L33, L34,L35,L36,L37,L38,L39,L40,L41,L42,L43,L44,L45, L46,L47,L48,L49,L50,L51,L52,L53 on MB	44
	01233345	N2012Z121T02 (CHIP)	FERRITE BEAD	L16,L17,L18,L19 on MB	4

CRYSTAL, RESONATOR

#	02561323	MA-406 33.8688MHZ TE24	CRYSTAL	X1 on MB	1
	01899745	AT-41CD2 6.4MHZ	CRYSTAL	X2 on MB	1

SCREW

#	40451234	COIN SCREW M3x8	BZC		2
	40011312	SCREW 3x8	BINDING TAPTITE P BZC		7
	40011278	SCREW 3x8	BINDING TAPTITE P FE ZC		8

PACKING

#	02567312	FRONT PAD			1
#	02567323	REAR PAD			1
#	02567301	PACKING CASE			1
#	02567334	ACI ADAPTOR PAD	ACI ADAPTOR(100 V,120 V,230 V only)		1
#	02568412	ACB ADAPTOR PAD	ACI ADAPTOR(230 VE,240 VA only)		1

MISCELLANEOUS

	02236489	FOOT	14.5x14.5		4
	40344445	LABEL FCC CAUTION			1

ACCESSORIES (STANDARD)

#	71785990	OWNER'S MANUAL	JAPANESE	1
#	71890456	OWNER'S MANUAL	ENGLISH	1
△	00905756	AC ADAPTOR	ACI-100C	1
△	00905767	AC ADAPTOR	ACI-120C	1
△	01018312	AC ADAPTOR	ACI-230C	1
△	01458278	AC ADAPTOR	ACB-230E (230 VE)	1
△	12449549	AC ADAPTOR	ACB-240(A)	1
	40232389	WARRANTY CARD	(JAPAN only)	1
#	40451756	LEAFLET	ENGLISH/JAPANESE	1

IDENTIFYING THE VERSION NUMBER

Turn on the power of the main unit while pressing the [FILTER+DRIVE], [PITCH] and [DELAY] buttons.

At this time, when “Ver” appears, the version number in actual use is displayed for about a second.

After checking the version number, if “Crd” appears, turn off the main power.

SAVING USER DATA & RELOADING SAVED DATA

Initializing SmartMedia.

When using the new SmartMedia in the test mode for saving user sample and pattern data, always initialize it using the following procedure.

The FACTORY DATA CARD (P/No. 17041008) supplied by the service center does not need to be initialized.

1. Insert the card when the power of the SP-303 is turned off.
2. Turn on the power.
3. Press the [REMAIN] button while pressing the [CANCEL] button. The BANK [C] and [D] buttons blink and “FMt” appears.
4. Press either the BANK [C] or [D] button. The BANK [C] and [D] buttons will light up and the [DEL] button blinks.

* To cancel formatting, press the [CANCEL] button.

5. Press the [DEL] button. The [DEL] button lights up and formatting is executed. While formatting, the display dot blinks. When the dot goes out, formatting is completed.

* Do not turn off the power while the dot is blinking.

Otherwise the memory card may be destroyed.

Formatting erases all data on the card.

* Once the SmartMedia is formatted by the SP-303 it may not be usable in other SmartMedia supporting machines.

SAVING USER DATA

The SP-303 includes two kinds of user data, “sample data” and “pattern data.” When upgrading the version and test mode, always save the user sample and pattern data using the following procedure.

Also, when creating SmartMedia with factory data from a new unit and a new SmartMedia, always save the factory-shipped sample and pattern data using the following procedure, “Saving user samples” and “Saving user patterns.”

* Do not insert or pullout the SmartMedia with the power on while performing the following operation.

Otherwise the contents of the card may be destroyed.

- * To save the following sample and pattern data, a SmartMedia (3.3V, more than 8MB of available space) with no write protect seal attached is required.
- * When saving the user data, always use SmartMedia that has been initialized in the [Initialize SmartMedia] procedure.
- * After creating the SmartMedia including the factory data using the following procedure, always use it in [return to test mode & factory shipment condition] after attaching the write protect seal.

Saving user samples (sample saving)

Save sample data of the user.

1. Insert already initialized SmartMedia into the SP-303 while the power is turned off.
2. Turn on the power.
3. Confirm that the [PATTERN SELECT] button is turned off.

Press the [PATTERN SELECT] button and turn it off if it is lit.

* When the [PATTERN SELECT] button is lit, pattern save operation is selected so be careful.

4. Press either the [C] or [D] button while pressing the [CANCEL] button. The BANK [C] and [D] buttons light up and the pad corresponding to the empty backup area blinks.

* Press the [C] button when creating the SmartMedia including the factory data.

5. Press the pad and specify the number of the area which you want to save. The pressed pad lights up and the other pads goes off.

* Press the [1] button when creating the SmartMedia including the factory data.

* The number of the area is also selectable by pressing a pad which is not blinking (excluding pad [8]).

In this case, data already saved in that area will be overwritten, so care is need.

* To cancel saving, press the [CANCEL] button.

6. Press the [REC] button. The [REC] button lights up and the display dot blinks.

During saving, all the pads [1]-[8] light up once and go out sequentially from pad [1] with as saving progresses.

When the dot goes off, formatting is completed.

* Saving may take awhile to complete.

* Do not turn off the power while the dot is blinking.

Otherwise the memory card and memory data may be destroyed.

Saving user patterns (pattern saving)

Save pattern data of the user.

1. Insert already initialized SmartMedia into the SP-303 while the power is turned off.

2. Turn on the power.

3. Press the [PATTERN SELECT] button to light it up.

There is no need to press it if it is already lit.

* When the [PATTERN SELECT] button goes off, sample saving is selected, so be careful.

4. Press either the BANK [C] or [D] button while pressing the [CANCEL] button.

The BANK [C] and [D] buttons light up and the pad corresponding to the empty backup area blinks.

* Press the [C] button when creating the SmartMedia including the factory data.

5. Press the pad and specify the number of the area which you want to save. The pressed pad lights up and the other pads go out.

* Press the [1] button when creating the SmartMedia including the factory data.

* The number of the area is also selectable by pressing a pad which is not blinking (excluding pad [8]).

In this case, data already backed up in that area will be overwritten, so care is need.

* To cancel saving, press the [CANCEL] button.

6. Press the [REC] button. The [REC] button lights up and saving is executed. While saving, the display dot blinks.

When the dot goes out, saving is completed.

* Do not turn off the power while the dot is blinking.

Otherwise, the memory card and memory data may be destroyed.

RELOADING SAVED DATA

The SP-303 includes two kinds of user data, “sample data” and “pattern data.”

When returning the user sample and pattern data saved on the memory card to the SP-303's memory, perform the following procedure.

Load sample data from the SmartMedia (sample loading)

Load sample data.

1. Insert the SmartMedia that contains the sample data into the SP-303.

2. Turn on the SP-303's power while pressing the [CANCEL] button.

3 Confirm that the [PATTERN SELECT] button is turned off.

Press the [PATTERN SELECT] button and turn it off if it is lit.

* When the [PATTERN SELECT] button is lit, pattern loading is selected, so be careful.

3. Press either the BANK [A] or [B] button while pressing the [CANCEL] button.

The BANK [A] and [B] buttons light up and the pad corresponding to the number of the area with data blinks.

* If the saved sample does not exist on the memory card, "EMP" is displayed and the following operation cannot be performed.

4. Press the pad and specify the number of the area which you want to load. The pressed pad lights up and the [REC] button blinks.

* To cancel loading, press the [CANCEL] button.

5. Press the [REC] button

The [REC] button lights up and the display dot blinks.

During loading, all the pads [1]-[8] light up once and go out sequentially from pad [1] as loading progresses.

When the dot goes off, loading is completed.

* Loading may take awhile to complete.

* Do not turn off the power while the dot is blinking.

Otherwise, the memory card and memory data may be destroyed.

Load the pattern from the memory card (pattern loading)

Load pattern data.

1. Insert the SmartMedia that contains the pattern data into the SP-303.

2. Turn on the SP-303's power while pressing the [CANCEL] button.

3. Press the [PATTERN SELECT] button to light up the button.

There is no need to press it if it is already lit.

* When the [PATTERN SELECT] button goes off, sample loading is selected, so be careful.

4. Press either the BANK [A] or [B] button while pressing the [CANCEL] button.

The BANK [A] or [B] buttons light up and the pad corresponding to the number of the area with data blinks.

* If the saved pattern does not exist on the memory card, "EMP" is displayed and the following operation cannot be performed.

5. Press the pad and specify the number of the area which you want to load. The pressed pad lights up and the [REC] button blinks.

* To cancel loading, press the [CANCEL] button.

6. Press the [REC] button

The [REC] button lights up and loading is executed.

While executing loading, the display dot blinks.

When the dot goes off, loading is completed.

* Do not turn off the power while the dot is blinking.

Otherwise, the memory card and memory data may be destroyed.

HOW TO UPDATE SYSTEM SOFTWARE

The SP-303 can be updated in two ways, [Updating by SmartMedia] and [Updating by SMF].

However, when updating the SP-303, the sampling tone and pattern data are all initialized.

When updating, save user area data on the SmartMedia by using [SAVING USER DATA] in this service note.

Notes

Do not turn off the SP-303 while updating.

The contents of the flash ROM may be damaged and the SP-303 will stop functioning.

In this case, update again using the following [HOW TO UPDATE SYSTEM SOFTWARE] procedure below.

1. Updating by SmartMedia

What is needed

SmartMedia for updating (P/No. 17041008)

Perform the following procedure when updating with SmartMedia.

1. Insert the delivered SmartMedia (P/No. 17041008) for updating into the SP-303.

2. Turn on the power while pressing the [FILTER+DRIVE], [PITCH] and [DELAY] buttons.

3. The following indications will each appear consecutively for about a second.

"Ver" -> "version number (1.**)" presently in use" "Crd" -> "Ver" -> "system version number (1.**)" included in the SmartMedia"

After "system version number included in the SmartMedia" is displayed, "REC" appears and the [REC] button LED blinks.

Press the [REC] button when updating.

4. While updating, after displaying the Checksums corresponding to each NUMBER SW[1]-[8], the LEDs of number switches [1]-[8] will light up consecutively and dots will light up for the Checksum value accordingly to the each lit LED.

5. When updating is completed, "End" and Checksum number are displayed alternately.

After checking the Checksum number, turn off the power and remove the SmartMedia from the SP-303.

* After all procedures are completed, load user sample and pattern data by using [Reloading saved data].

2. Updating by SMF

The SP-303 system is supplied in standard MIDI file (SMF, P/No.17041007) format.

What is needed

Floppy disk for updating (P/No. 17041007)

MIDI cable

MIDI sequencer

(For MIDI sequencer, use SMF data playbackables such as the MC-80.)

The following SMF data are saved on the disk.

```
SP-303 SYSTEM VER 1.**
_00001.MID
_00002.MID
_00003.MID
_00004.MID
_00005.MID
_00006.MID
_00007.MID
_00008.MID
```

Perform the following procedure when updating with MIDI.

1. Connect MIDI OUT if the MIDI sequencer can playback SMF data and SP-303 MIDI IN by MIDI cable.

2. Turn on the power while pressing the [MFX], [VINYL SIM] and [ISOLATOR] buttons.

3. The following indications will each appear consecutively for about a second.

"Ver" -> "version-> (1.**)" of machine presently in use" -> "SMF"

After "SMF" is displayed, it enters the data receiving waiting condition.

4. Insert the delivered 3.5 inch disk (P/No. 17041007) for updating into the MIDI sequencer.

5. Playback "_00001.MID" from the MIDI sequencer.

While writing, the display changes from "100" to "1FF" as receiving is completed, and after the Checksum is displayed, the dot and the NUMBER SW[1] light up.

Following the same procedure, send _00001.MID to _00008.MID sequentially from the MIDI sequencer to the SP-303.

- * The first number of the 3-digit displayed on the SP-303 and the NUMBER SW which lights up represent the song number being received and the song number already received.
- 6. When updating is completed, “End” and the Checksum are alternately displayed.
- 7. Turn off the power after checking the Checksum.
- * After all procedures are completed, load user sampling and pattern tone data by using [Reloading saved data].

TEST MODE & RESORTING THE FACTORY SETTING

Required items

1. Machine which enables output of note data from MIDI OUT (PC-200 etc.)
2. MIDI cable
3. Oscillator
4. Oscilloscope
5. Noisemeter
6. SmartMedia 1 (FACTORY DATA CARD (P/No.17041008) supplied by the service center)
7. SmartMedia 2 (3.3V product, initialized with more than 8MB available space)
- * To perform all test modes, SmartMedia 1 and 2 are required.
- * Always use SmartMedia 2 after initializing by [Initializing SmartMedia].

1. Entering the TEST MODE

Insert the SmartMedia that contains the factory preset data created by the new product and the SmartMedia (see [SAVING USER DATA & RELOADING SAVED DATA] for the method) or FACTORY DATA CARD (P/No.17041008) supplied by the service center, and turn on the power while pressing the BANK [A], [B], [C] and [D] buttons.

“tst” appears and the test mode starts.

- * Starting the test mode with the following operation enables you to start each test at a preferred point.

1. Turn on the power while pressing the BANK [A], [B], [C] and [D] buttons.
-> Enables you to start each test from the beginning.
2. Turn on the power while pressing the BANK [A], [B] and [C] buttons.
-> Enables you to start from [5. LINE IN/OUT TEST] in the test mode.
3. Turn on the power while pressing the BANK [B] and [C] buttons.
-> Enables you to perform each test separately.

When turning on the power, “tSt” appears and NUMBER SW [1]-[8] buttons blink.

The following tests can be executed separately by pressing NUMBER SW [1]-[8] buttons.

NUMBER SW [1]:1.VERSION & DEVICE CHECK
 NUMBER SW [2]:2.SMART MEDIA & SUM CHECK
 NUMBER SW [3]:3.SWITCH & LED CHECK
 NUMBER SW [4]:4.VOLUME CHECK
 NUMBER SW [5]:5.LINE IN/OUT CHECK
 NUMBER SW [6]:6.PHONE CHECK
 NUMBER SW [7]:7.MIC CHECK
 NUMBER SW [8]:8.CARD CHECK

4. When executing the test in 3. above, after completing all the tests excluding [1. VERSION & DEVICE CHECK], the [REC] button blinks.

When pressing the [REC] button, NUMBER SW [1]-[8] buttons blink, enabling tests to be selected separately.

2. Test item list

The [Test mode] includes the following:

Digital circuit test

- 1.VERSION & DIGITAL CHECK
- 2.SMART MEDIA & SUM CHECK
- 3.SWITCH & LED CHECK
- 4.VOLUME CHECK
- 8.CARD CHECK
- 9.MUTE CHECK (*)
- 11.EFFECT CHECK (*)
- 12.MIDI CHECK (*)
- 13.PROTECT CHECK (*)

Analog circuit test

- 5.LINE IN/OUT CHECK
- 6.PHONE CHECK
- 7.MIC CHECK
- 10.NOISE CHECK (*)

- * Perform this test (*) with in usual operation mode.

3. Modifying test items

The test items for performing the following operations can be modified during test mode.

1. To move from the presently executed test to the previous test item.
-> Press the [DEL] button
(For [3. SWITCH & LED CHECK], press the [DEL] button while pressing the [CANCEL] button.)
2. To move from the presently executed test to the next test item.
-> Press the [REC] button
(For [3. SWITCH & LED CHECK], press the [REC] button while pressing the [CANCEL] button.)
3. To re-execute the presently executed test.
-> Press the [CANCEL] button
(For [3. SWITCH & LED CHECK], press the [REMAIN] button while pressing the [CANCEL] button.)
4. To re-test by escaping an “Err” indication.
-> Press the [CANCEL] button
5. To select each test from the presently executed test.
-> Press the [DEL] or [REC] buttons.
(Only when entering the test mode from [1. Entering the test mode] 3. For [3. SWITCH & LED CHECK], return to the selection screen using the [DEL] button while pressing the [CANCEL] button.)

4. Test contents

Note:

- * During the test mode, do not turn the power off while the dot on the display is blinking. Otherwise, the memory card and memory data may be destroyed.

1.VERSION & DIGITAL CHECK

Check the version of the machine in use and device function.

1.1 VERSION CHECK

After “Ver” appears on the display, the version number of the program of the Flash ROM (IC22) in actual use appears.

1.2 DEVICE CHECK

The following four tests are executed automatically and the [2.1 SMART MEDIA CHECK] writing function shown below starts.

Check that the [2.1 SMART MEDIA CHECK] writing function is displayed without error .

If an error occurs, its content will be displayed.

Re-execute the test after turning on the power again.

(The contents of the error message are written in the [Error message list]).

1. Check the function of the CPU (IC23) and FLASH MEMORY 4M, 8M (IC22, IC24).
 2. Check the function of the CPU RAM (IC23) and DRAM (IC27).
 3. Check the function of the DSP (IC9) and CPU (IC23).
 4. Check the function of the DSP (IC9) and SRAM (IC13).
- * When entering the test mode in [1. Entering the test mode] 3., the test is completed automatically and returns to the selection screen of each test.

2. SMARTMEDIA & SUM CHECK

Check the writing of the factory-shipped sample and pattern data and Checksum.

- * In this test, pressing the [CANCEL] button retests only the [2.2 SUM CHECK].

2.1 SMARTMEDIA CHECK

Write the factory-shipped sample and pattern data into the machine in use from the SmartMedia that contains the factory preset data.

During writing, "uPd" appears and the dot blinks.

After writing is completed, the test proceeds to the next test automatically.

- * To perform this process, a SmartMedia containing the factory data is required.

SmartMedia containing the factory data can be created using a new machine and new SmartMedia.

(See [SAVING USER DATA & RELOADING SAVED DATA] for the method) Also, SmartMedia containing factory data (P/No.17041008) can be supplied as a service part from the service center.

- * While writing to the machine in use, the [CANCEL] and [REC] buttons cannot be operated.

- * If the SmartMedia is not inserted, writing is not performed and the machine automatically proceeds to the next test.

2.2 SUM CHECK

Checksum is displayed.

2.2 Upon reaching Checksum without any problems, proceed to the next test by pressing the [REC] button.

3. SWITCH & LED CHECK

Check the SWITCH function and display appearance.

Each segment and point of the display lights up sequentially. Check that everything lights up.

Check the function by pressing each SW. The peak LED lights up when the SWITCH is pressed.

LEDs can be turned off by pressing the appropriate SWITCH.

- * When two SWITCHes are pressed simultaneously, "Err" is displayed and the test mode stops.

In which case, turn the power off and on again and start the test from the beginning.

After pressing all the SWITCHes, "End" appears.

Pressing the blinking [REC] button proceeds to the next test.

- * When entering the test mode in [1. Entering the test mode] 1., the machine automatically proceeds to the next test after the present test is completed.

4. VOLUME CHECK

"CtL" appears. Check the function of each handle.

Rotate the CTRL1 handle "all the way to the left."

Rotate the CTRL1 handle "all the way to the right."

At this time, check to see that the display changes from "0-127."

Repeat the same procedure for CTRL2 and CTRL3/MFX and check that the same display changes occur. When all handles function without any problem, "End" appears. Pressing the blinking [REC] button proceeds to the next test.

- * When entering the test mode in [1. Entering the test mode] 1., the machine automatically proceeds to the next test after the present test is completed.
- * When operating handles other than the ones you are checking, "Err" appears and the test stops.

Press the [CANCEL] button and execute [4. VOLUME CHECK] again from the beginning.

5. LINE IN/OUT CHECK

"Lin" appears.

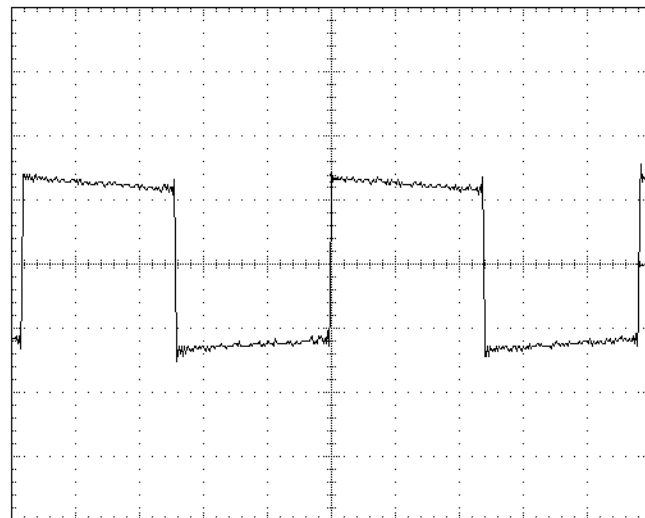
Check the function of the signal input to INPUT L and R at the time of output from OUTPUT L and R.

5.1 INPUT/OUTPUT LEVEL CHECK

Set the oscillator to a rectangular "200 Hz and 100m Vp-p" wave and input to INPUT L.

Rotate the VOLUME handle "all the way to the right."

Connect OUTPUT L to the oscilloscope and check that the following rectangular wave is output.



(200 mV/DIV, 1.00 ms/DIV)

Rotate the VOLUME handle "all the way to the right" -> "all the way to the left" -> "all the way to the right" and check that the amplitude of the waveform changes from maximum -> minimum (without amplitude) -> maximum.

In the same way, check that the above waveform is output by connecting the oscillator and oscilloscope to INPUT R and OUTPUT R, and that the amplitude changes when the VOLUME handle is operated.

5.2 Residual noise check

Rotate the MIC VOLUME handle "all the way to the left" and VOLUME handle "all the way to the right," and connect the Noisemeter to OUTPUT L. Set the Noisemeter to "JIS-A(IHF-A)" and check that the following value is acquired for residual noise.

OUTPUT L -70.0[dBm] or below

OUTPUT L -70.0[dBm] or below

In the same way, check to see if the above value is acquired for residual noise for OUTPUT R.

Pressing the blinking [REC] button proceeds to the next test.

6. PHONE CHECK

"PHo" appears on the display.

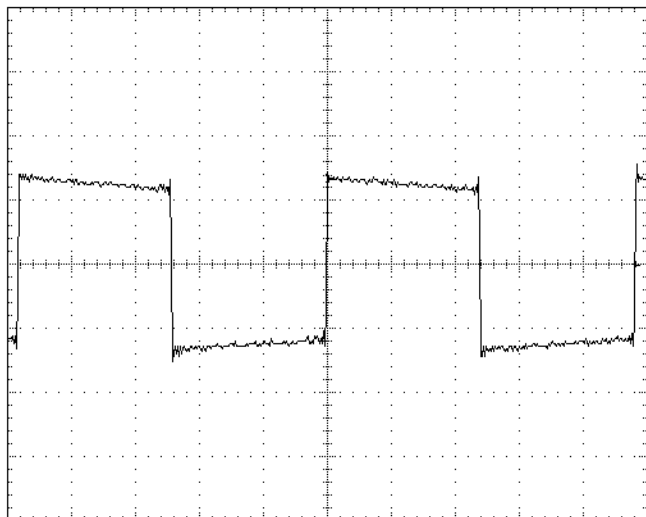
Check the function of the signal input to INPUT L and R at the time of output from the PHONE terminal.

6.1 INPUT/PHONE OUT LEVEL CHECK

Set the oscillator to rectangular "200 Hz and 100m Vp-p" wave and input to INPUT L.

Rotate the VOLUME handle "all the way to the right."

Connect the L channel side of the PHONE terminal to the oscilloscope and check that the following rectangular wave is output.



(200 mV/DIV, 1.00 ms/DIV)

Rotate the VOLUME handle "all the way to the right" -> "all the way to the left" -> "all the way to the right" and check that the amplitude of the waveform changes from maximum -> minimum (without amplitude) -> maximum.

In the same way, check that the above waveform is output by connecting the oscillator and oscilloscope to INPUT R and R channel side of the PHONE terminal and if the amplitude changes with the function of the VOLUME handle. Pressing the blinking [REC] button proceeds to the next test.

7. MIC CHECK

"MiC" appears.

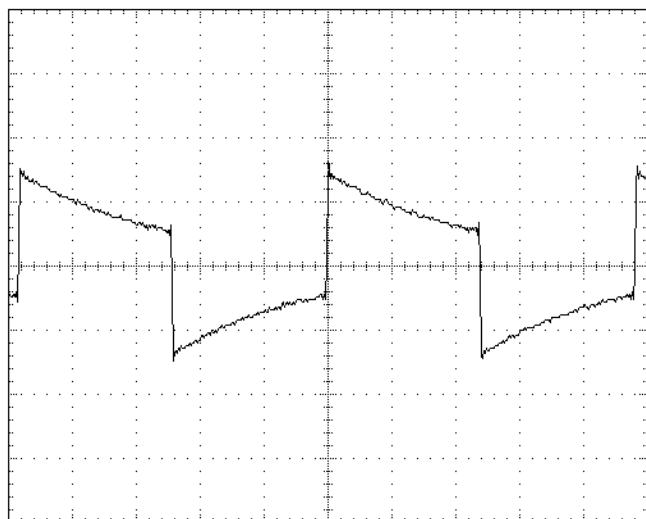
Check the function of the signal input to MIC IN at the time of output from OUTPUT L and R.

7.1 MIC LEVEL CHECK

Set the oscillator to rectangular "200 Hz and 15m Vp-p" wave and input to MIC IN. Rotate the VOLUME handle "all the way to the right."

Rotate the MIC VOLUME handle "all the way to the right."

Connect OUTPUT L to the oscilloscope and check that the following rectangular wave is output.



(200 mV/DIV, 1.00 ms/DIV)

Rotate the VOLUME handle "all the way to the right" -> "all the way to the left" -> "all the way to the right" and check that the amplitude of the waveform changes from maximum -> minimum (without amplitude) -> maximum.

Rotate the MIC VOLUME handle "all the way to the right" -> "all the way to the left" -> "all the way to the right", and check if the amplitude of the waveform changes from maximum -> minimum (without amplitude) -> maximum.

In the same way, check if the above waveform is outputted by connecting the oscilloscope to OUTPUT R, and if the amplitude changes with the function of the VOLUME and MIC VOLUME handles.

8. CARD CHECK

"Crd" appears.

Check the loading and writing function of the SmartMedia.

When executing this test, always use the SmartMedia initialized in the [Initializing SmartMedia.] procedure.

Insert initialized but not write protected SmartMedia.

"Wr" appears and the dot blinks, and writing test is executed automatically.

"rd" appears and the dot blinks, and loading test is executed automatically.

When stopping with "Err" display, press the [CANCEL] button and execute the test again.

When the test is completed without any problems, "End" is displayed.

Turn off the power and end the test mode.

Remove the SmartMedia and execute the following test after turning the power on as usual.

9. MUTE CHECK

Check that the MUTE function is functioning

Connect a headphone to the PHONE terminal.

Rotate the VOLUME handle "all the way to the right."

Turn on the power while listening to the headphone sound.

At this time, check if no sounds are produced after hearing a "snap" from the headphone.

10. NOISE CHECK

Check that noise from the wiring is not heard from the headphone.

Connect a headphone to the PHONE terminal.

Turn on the power.

While listening to the headphone sound, check if no [clicking] noise is heard from the headphone when rotating the VOLUME handle to 9, 12 and 3 o'clock to the right sequentially.

* When a noise is heard, shape the wiring with [Shaping the wiring] and execute the test again.

11. EFFECT CHECK

Check if the Effect function is functioning

Turn on the power.

After "303" and dot of a display disappears, keep pressing the NUMBER SW [1] button.

At this time, if in a factory shipment condition, the sample sound of the drum playbacks in loop.

Press the [MFX] button

Rotate CTL1, CTL2 and CTL3 "all to the left" and then "all to the right."

Check if sample sounds have reverberation.

12. MIDI CHECK

Check the function of the MIDI note data at the time of input.

Connect the MIDI OUT of machine (PC-200 etc) which can output MIDI note data and MIDI IN of SP-303.

Set the MIDI channel of the connected machine to "1 ch."

* When all test mode ends, SP-303 is set to "1ch."

Turn on the power.

When sending the note number (C2-G2, D#3) from the connected machine, check that the SP-303 pad (BANK A, 1-BANK A, 8, BANK B, 8) rings.

* Receiving a note number of pad with no sample sound will produce no sound.

13. PROTECT CHECK

Check the SmartMedia protect function.

Attach a write protect seal to the SmartMedia used in [8. Card Check].

Insert the card when the power of the SP-303 is turned off.

Turn on the power.

Press the BANK [C] button

Press the [REC] button

At this time, check that "Prt" appears.

All tests are now completed.

ERROR MESSAGE

In usual function, when problems occur is the test mode function, the following letters appear.

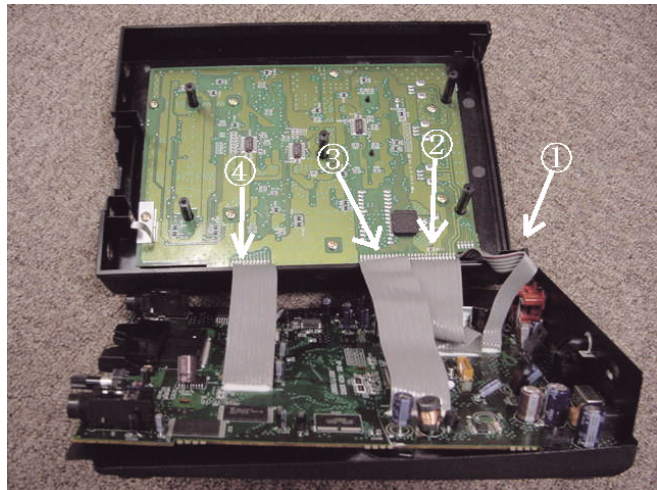
Err cause: Error in test items other than the device check

- | | |
|------|--|
| E.0 | cause:4M Flash ROM device error
(Solder, pattern and device defection, and device mistake of the 4MB FLASH ROM IC) |
| E.1 | 8M Flash ROM device error
(Solder, pattern and device defection, and device mistake of the 8MB FLASH ROM IC) |
| E.2 | CPU RAM error
(CPU IC device defection) |
| E.3 | DRAM error
(Solder, device and pattern defection of DRAM IC) |
| E.5 | DSP read/write error |
| E.6 | DSP IRAM error |
| E.7 | DSP ERAM error |
| E.8 | DSP error
(Solder and pattern defection around the DSP IC and EFFECT RAM IC. Solder and pattern defection between the DSPIC and CPU IC. Device defection of DSP IC or EFFECT RAM IC.) |
| E.9 | Card Not Formated |
| E.10 | Card Not Protected |
| E.11 | No Sample Data |
| E.12 | No Pattern Data |
| E.13 | Card Read error |
| E.14 | Data Memory Write error |

ABOUT THE SHAPING OF THE WIRING

After disassembling the SP-303 for replacing the basal board and when hearing a noise in [10. NOISE CHECK] in [Return to test mode & factory shipment condition], always shape the ribbon cable 1-4 (P/No.02671167, 02671178, 02671189, 02671190) as described in the figure below.

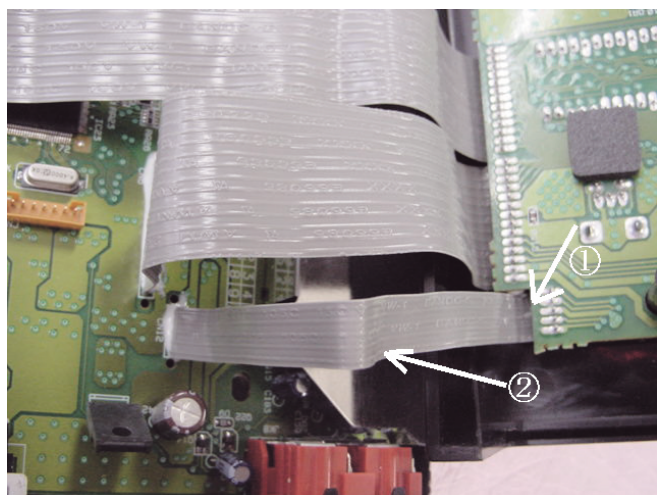
* When hearing a noise in [10. NOISE CHECK], assemble referring to [2. RIBBON CABLE 13P (P/NO. 02671167) shaping method].



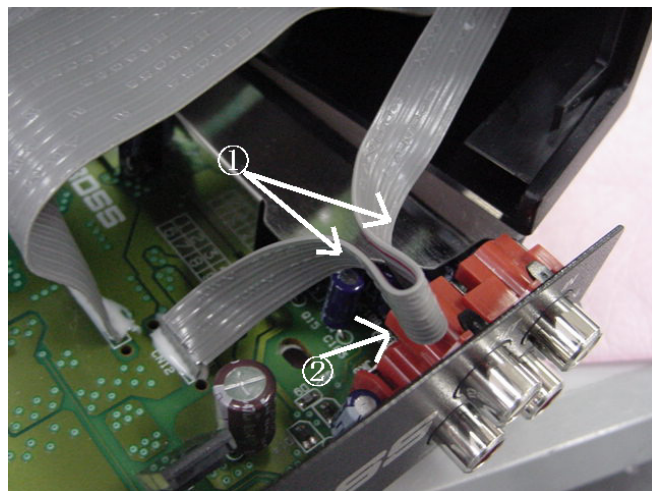
- 1.RIBON CABLE 5P (P/No.02671190)
- 2.RIBON CABLE 14P (P/No.02671189)
- 3.RIBON CABLE 13P (P/No.02671178)
- 4.RIBON CABLE 11P (P/No.02671167)

1.RIBON CABLE 5P (P/No.02671190) shaping method

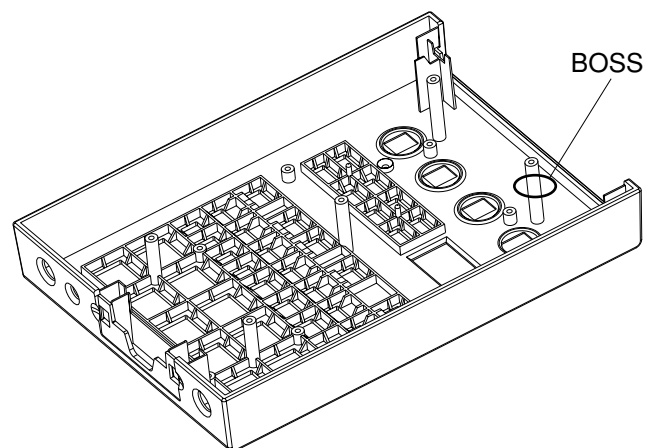
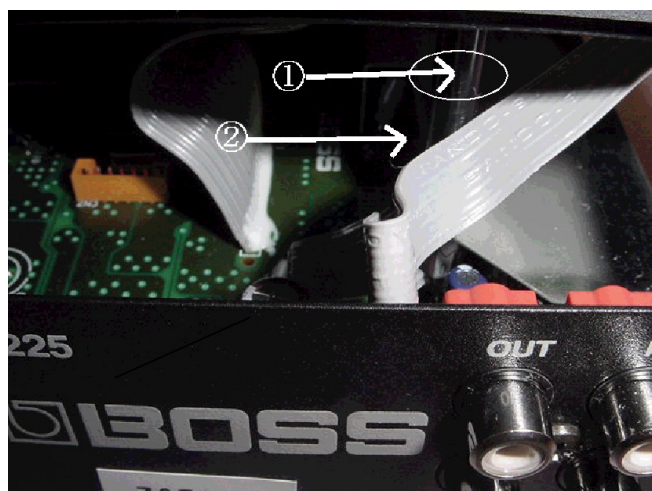
Bend the SW board (P/No. 71785956) and RIBBON CABLE 5P (P/No.02671190) vertically and make a fold line by bending to the center of RIBBON CABLE 5P.



1. Bend the ribbon cable vertically.
2. Bend at the center between main board and SW board.
Centralizing the fold line in the center, pick about 2 cm by finger and press down the part of RIBBON CABLE 5P which was picked by the finger next to the line terminal.
(At this time, make sure the RIBBON CABLE 5P between the SW board and the center fold line goes over the BOSS of the top case.)



1. Make a fold line by bending for about 2 cm.
2. Press down to the direction of the arrow.



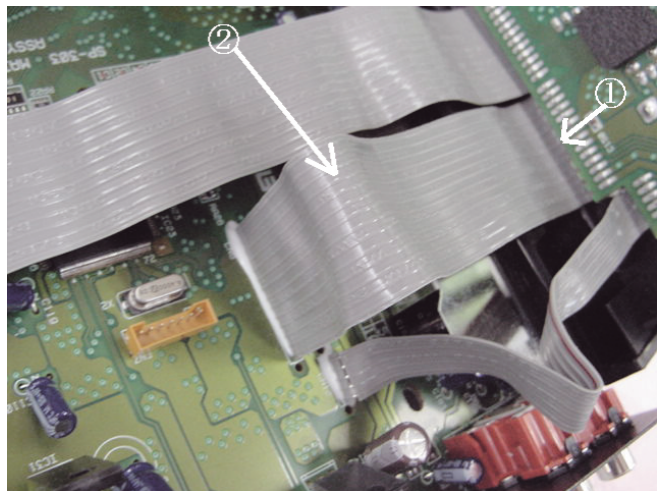
- 1.BOSS
- 2.Step over the BOSS.

* When fastening after building the body, the screw hole of the bottom cover may get covered with the cable when the RIBBON CABLE 5P and BOSS run in to each other.

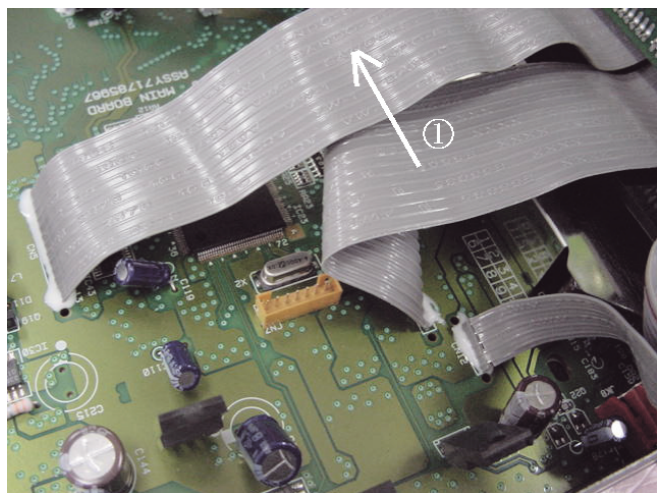
When building up, fit the top case and bottom cover by adjusting the RIBBON CABLE 5P position.

2. RIBON CABLE 14P (P/ No.02671189) shaping method

Bend the SW board (P/No. 71785978) and RIBBON CABLE 14P (P/ No.02671189) vertically, then bend and make a fold line at about 3 cm position from the main board of the RIBBON CABLE 14P (P/No.02671189)



1. Bend the ribbon cable vertically.
2. Make a fold line at about 3 cm position from the main board.
Insert the fold line of RIBBON CABLE 14P under the RIBBON CABLE 13P.

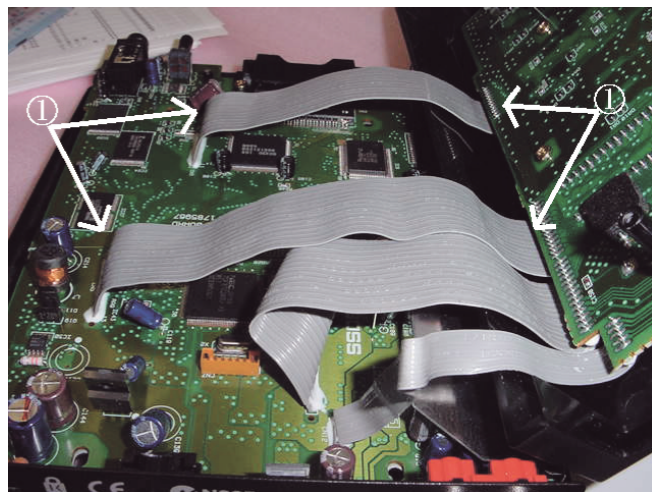


1. Insert to the direction of the arrow.

3. RIBON CABLE 13P (P/ No.02671178), RIBON CABLE 11P (P/No.02671167) shaping method

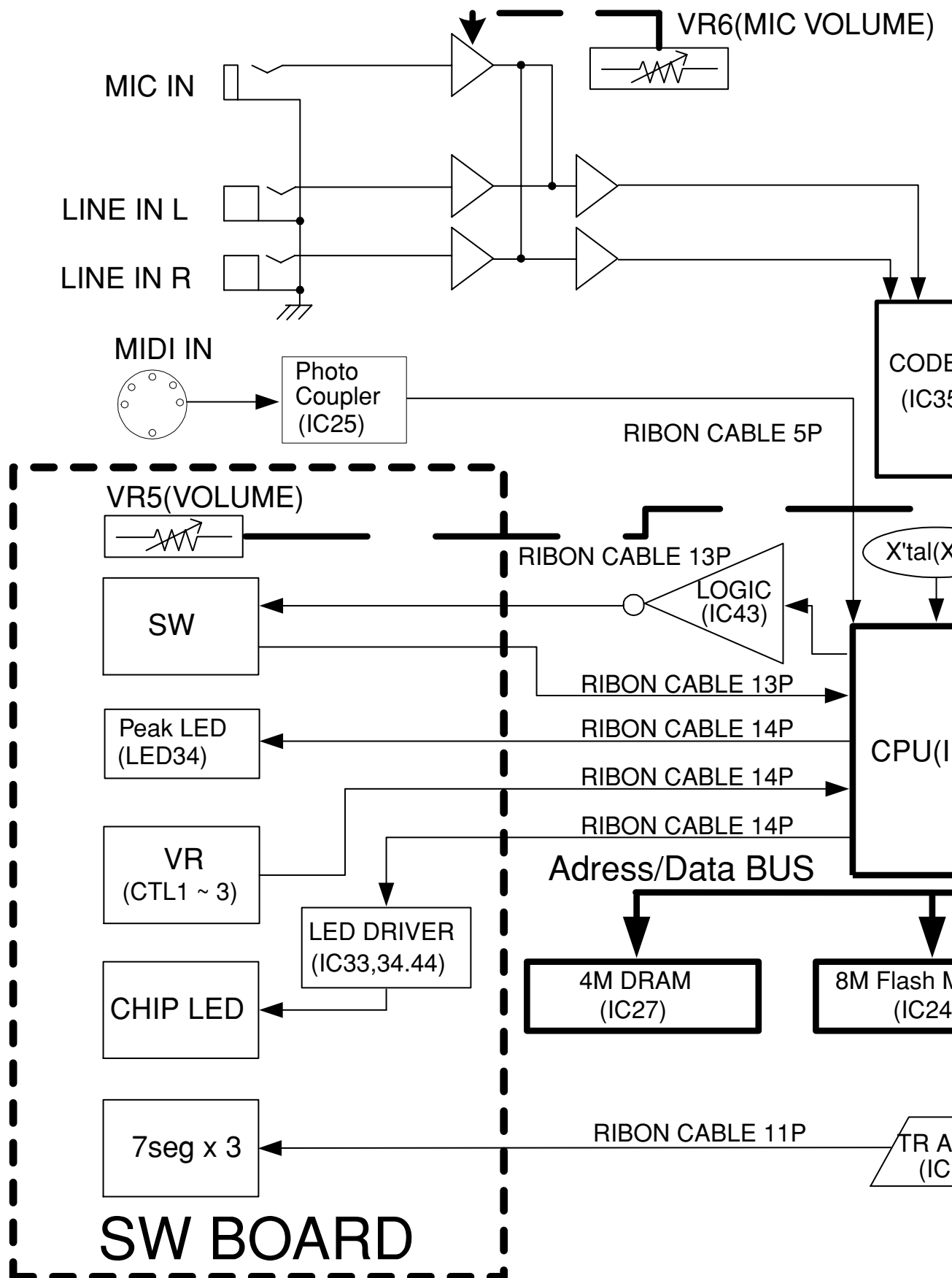
* Same shaping method can be used for these 2 ribbon cables.

Bend the SW board (P/No.71785978), RIBON CABLE 13P (P/No.02671178) and RIBBON CABLE 11P (P/No. 02671167) vertically, and bend them vertically to a position at about 1 cm from the main board (P/No.71785967) of the RIBBON CABLE 13P (P/No.02671178) and RIBBON CABLE 11P (P/ No.02671167).

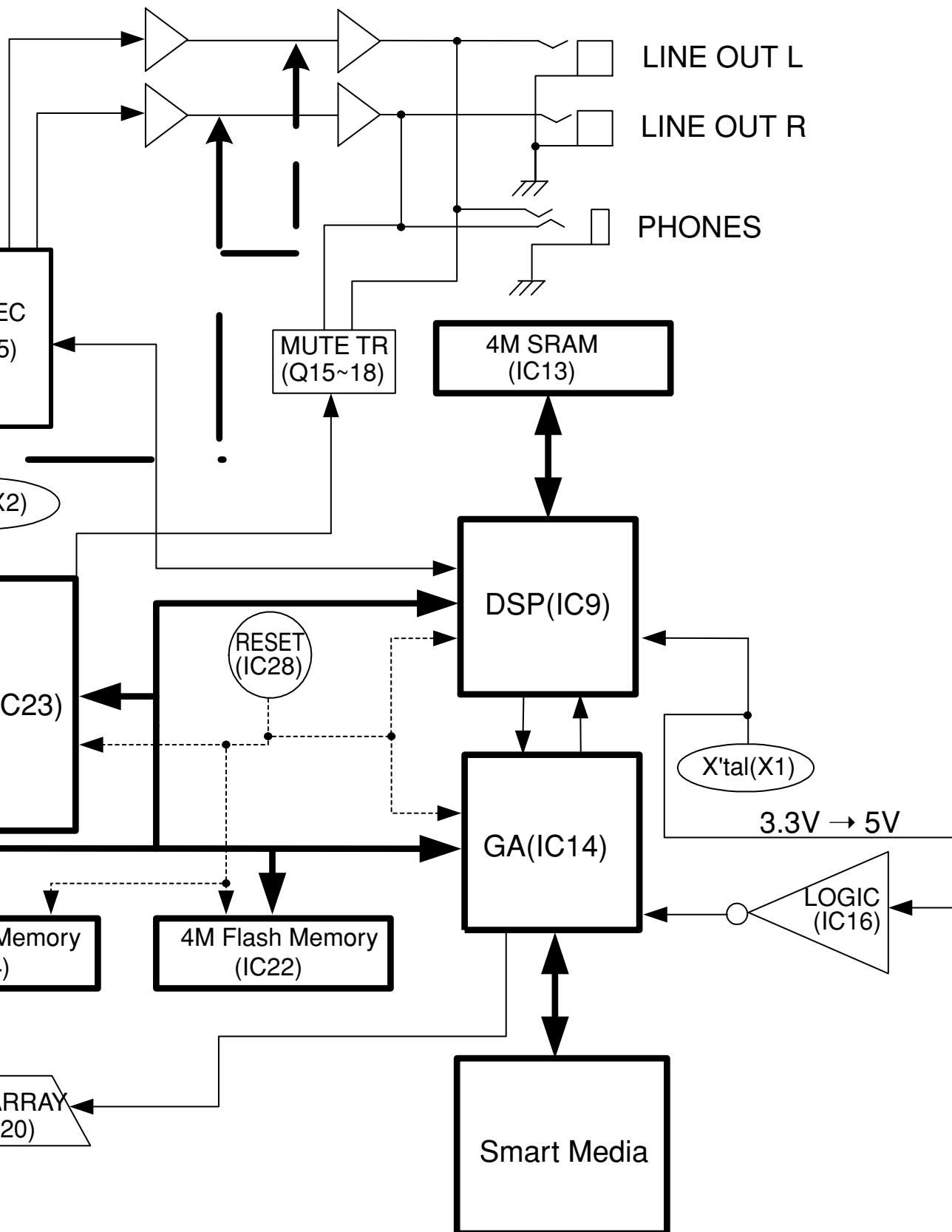


1. Bend vertically.

BLOCK DIAGRAM

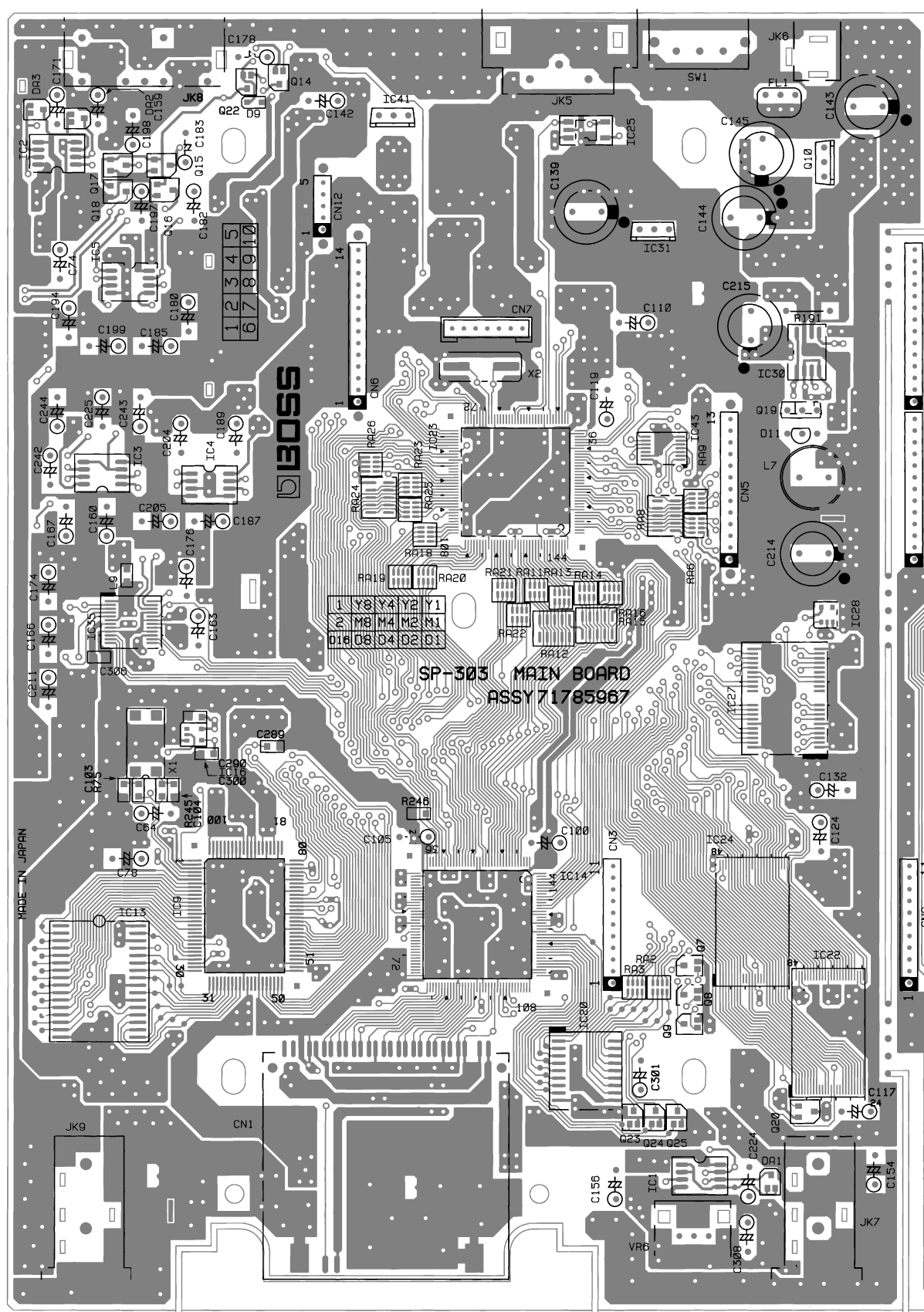


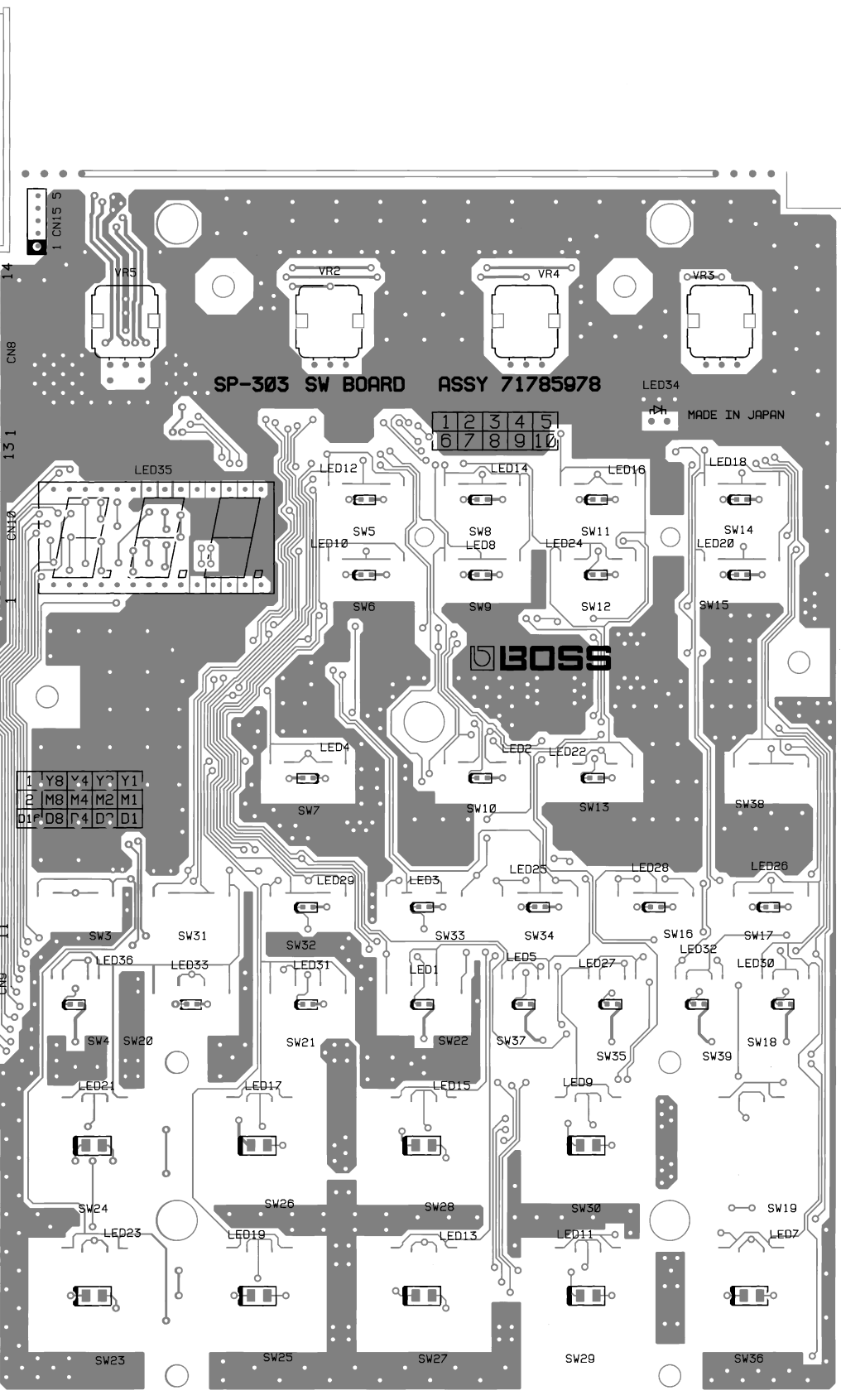
SP-303 BLOCK



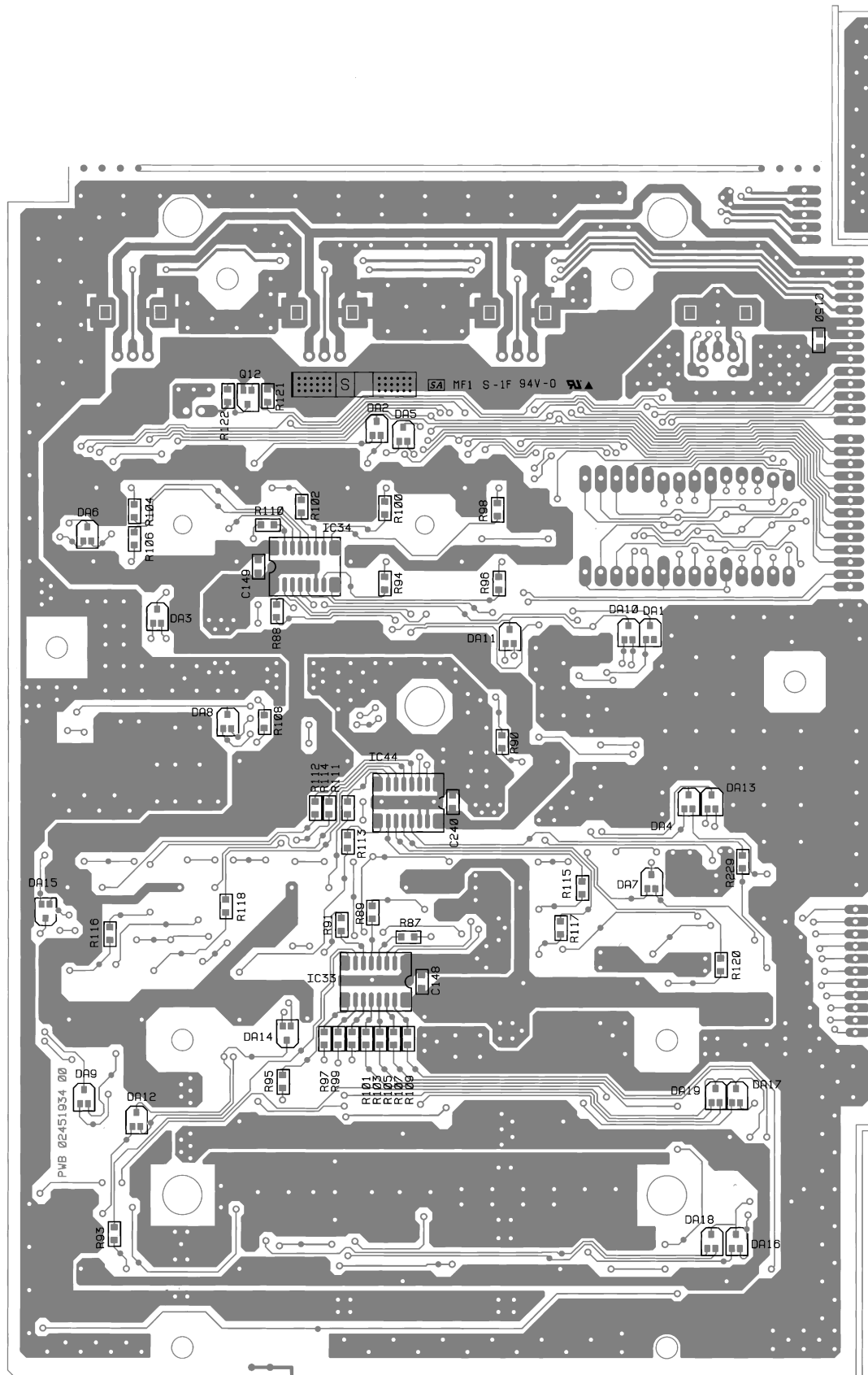
K DIAGRAM

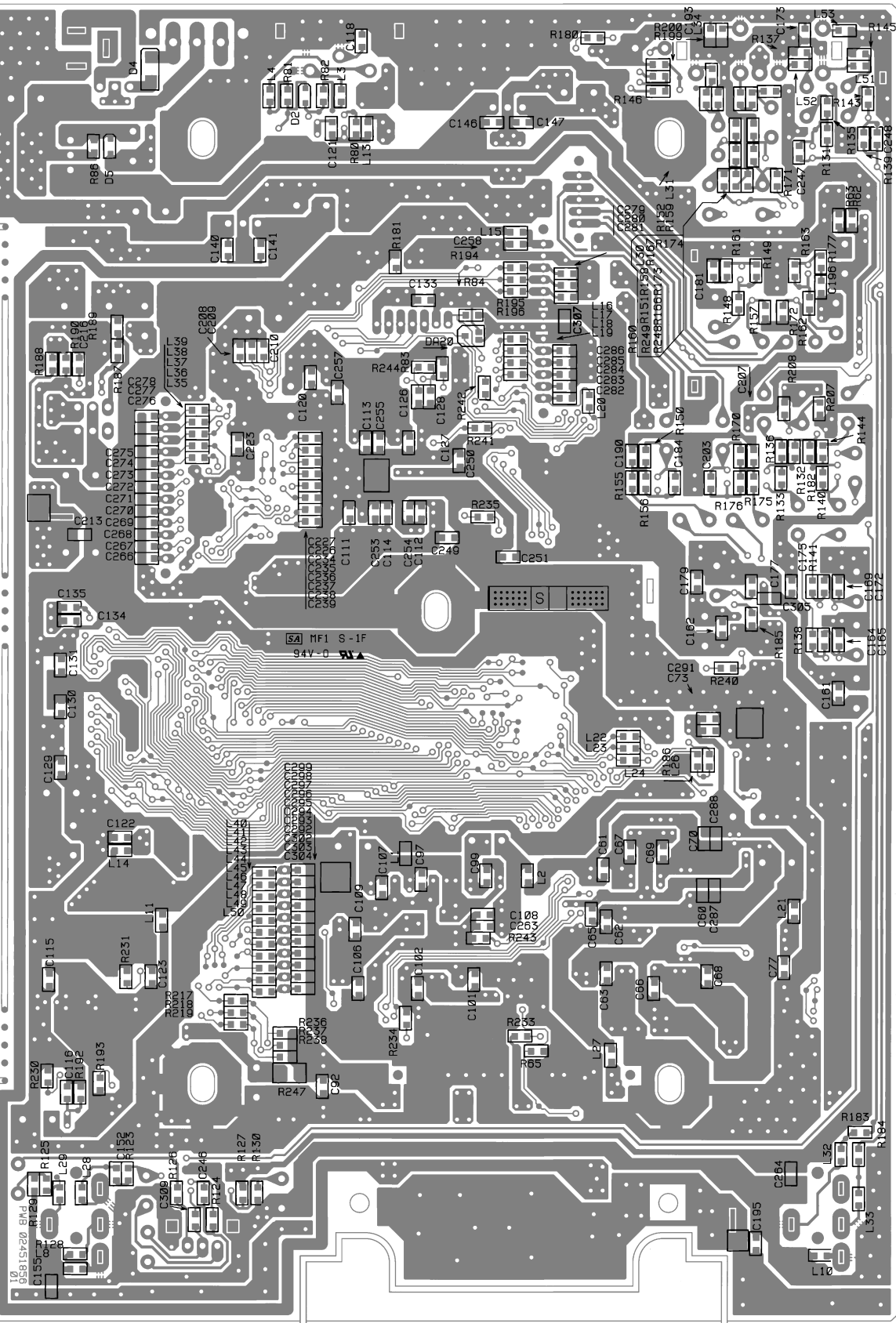
CIRCUIT BOARD





View from compornent side

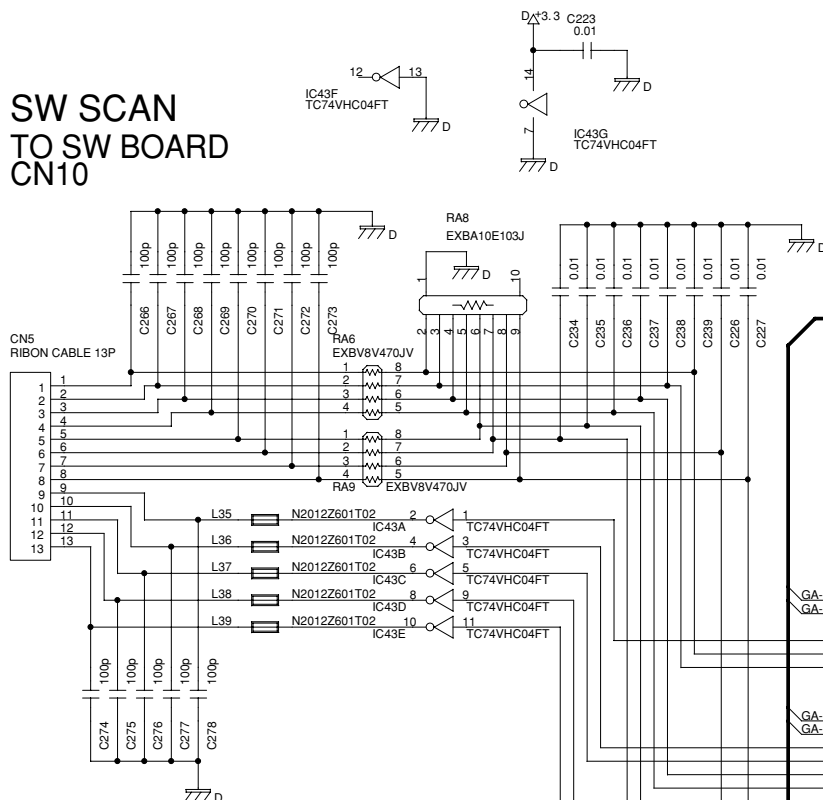




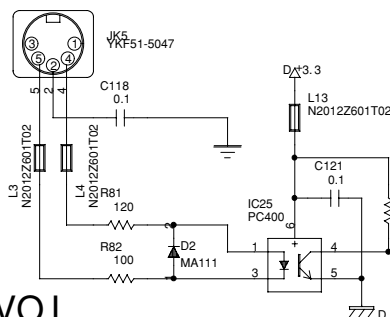
View from foil side

CIRCUIT DIAGRAM(DIGITAL1)

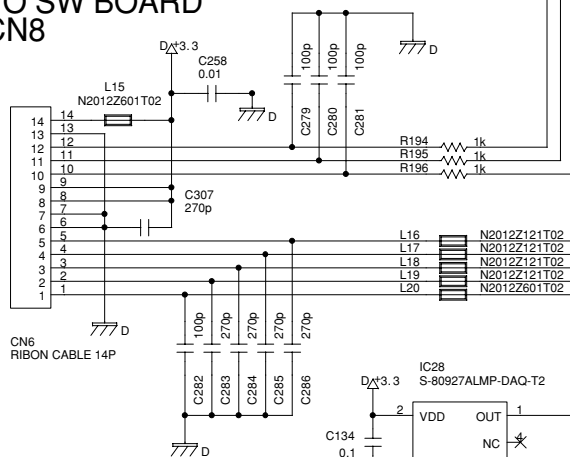
SW SCAN
TO SW BOARD
CN10



MIDI IN



LED & VOL
TO SW BOARD
CN8



CPU
FLASH
DATA

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FLASH
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CPU
FLASH
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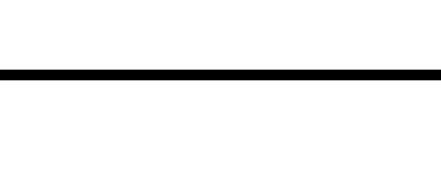
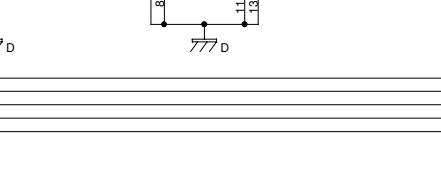
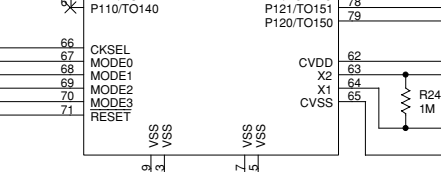
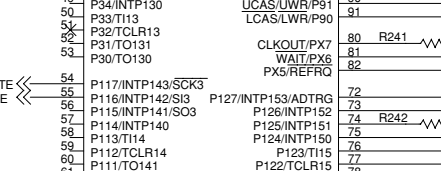
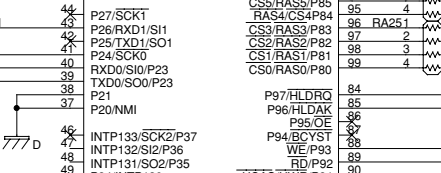
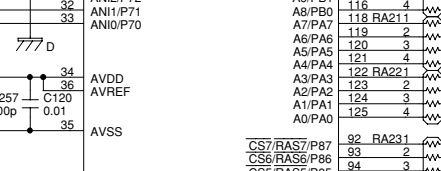
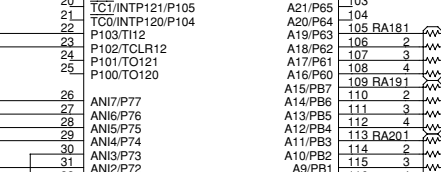
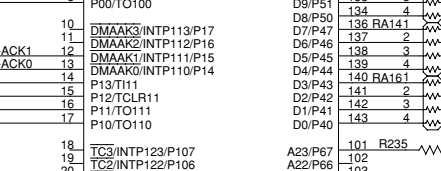
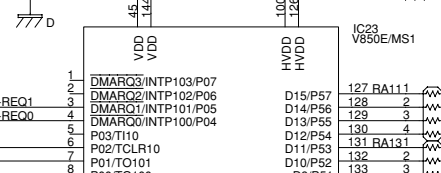
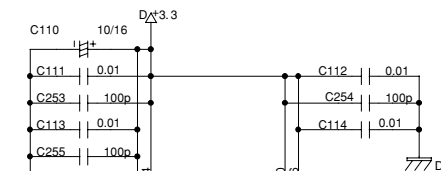
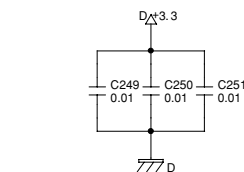
CPU
FLASH
DATA

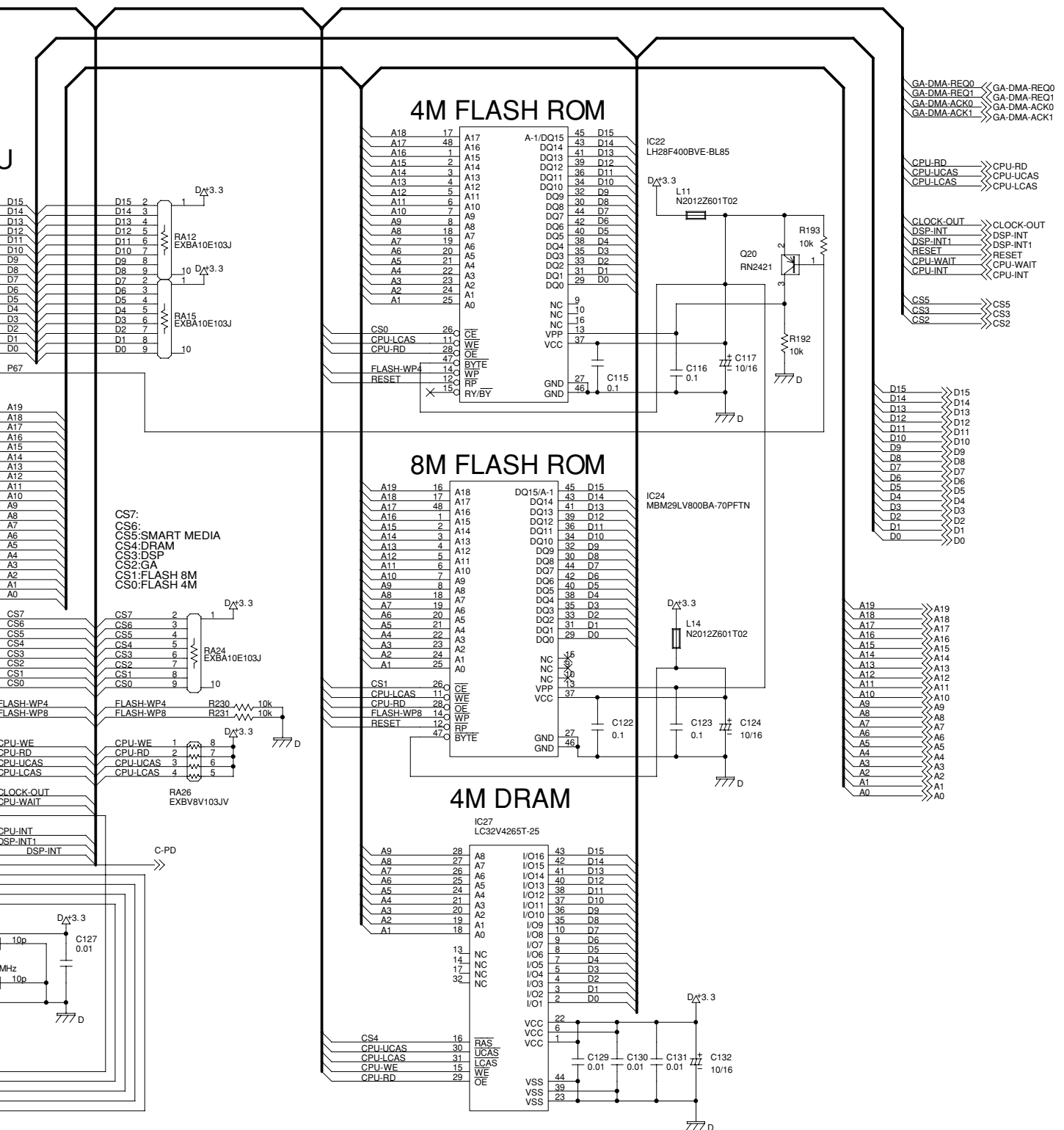
CPU
FLASH
DATA

CPU
FLASH
DATA

CPU
FLASH
DATA

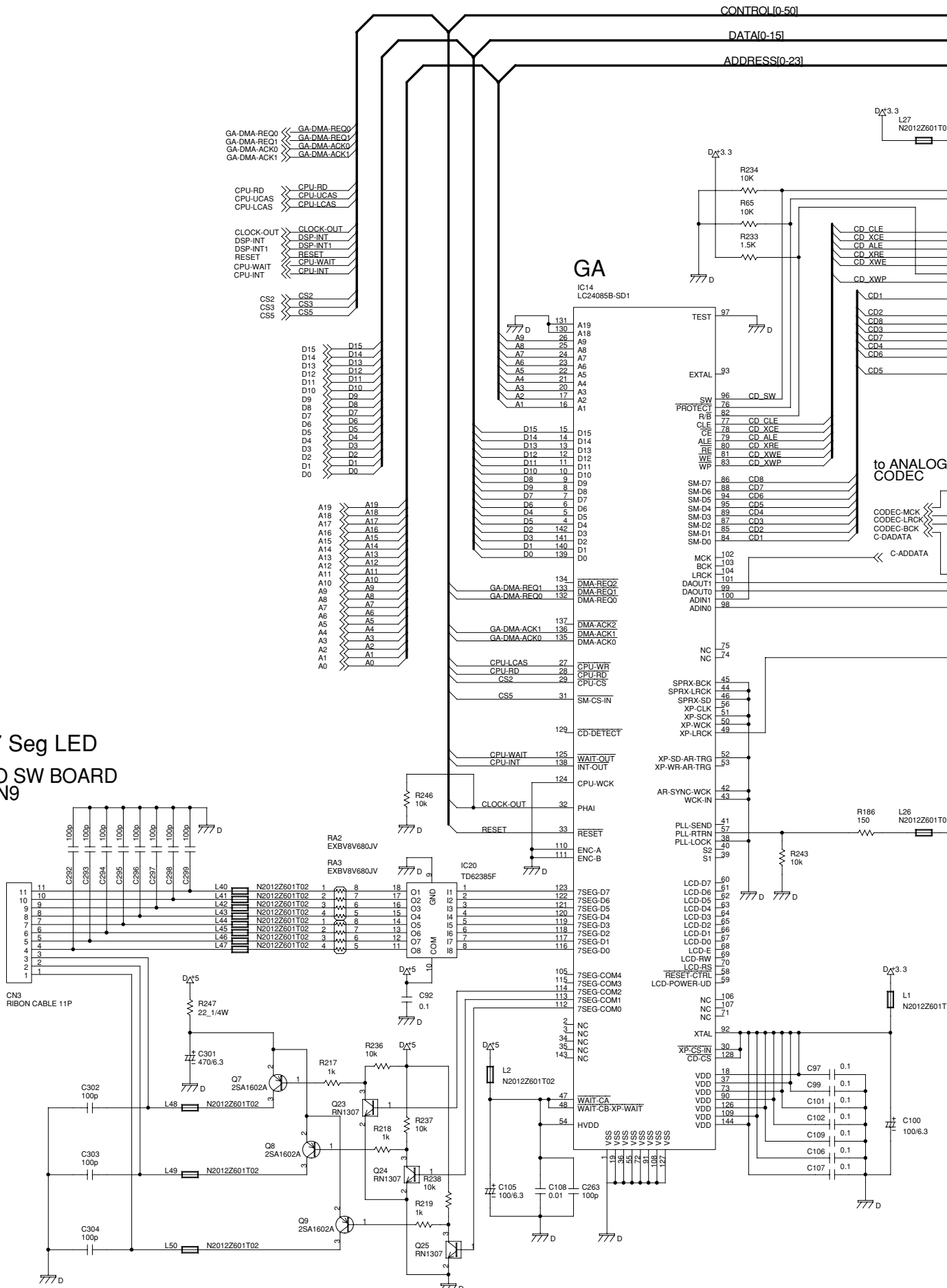
RESET

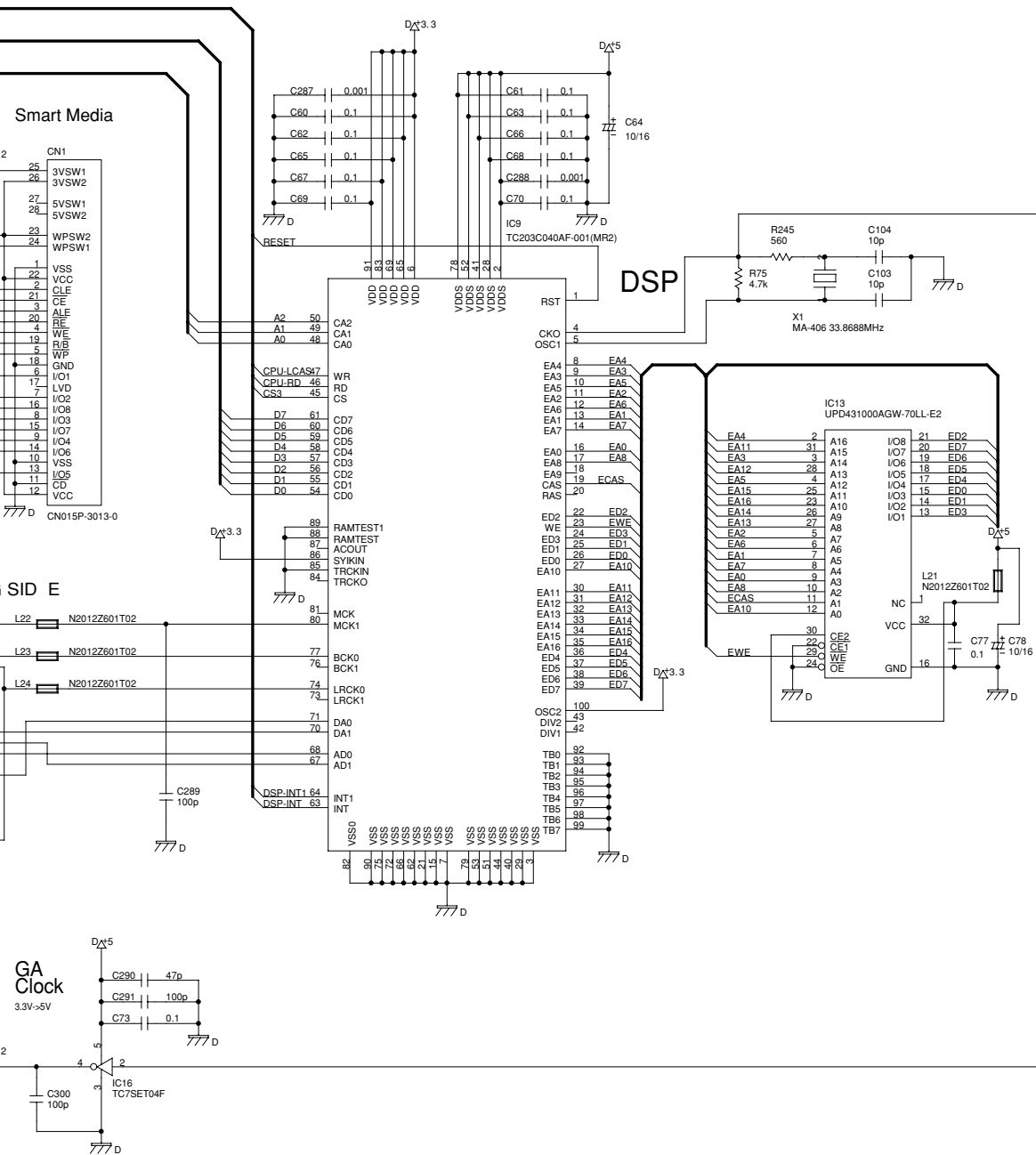




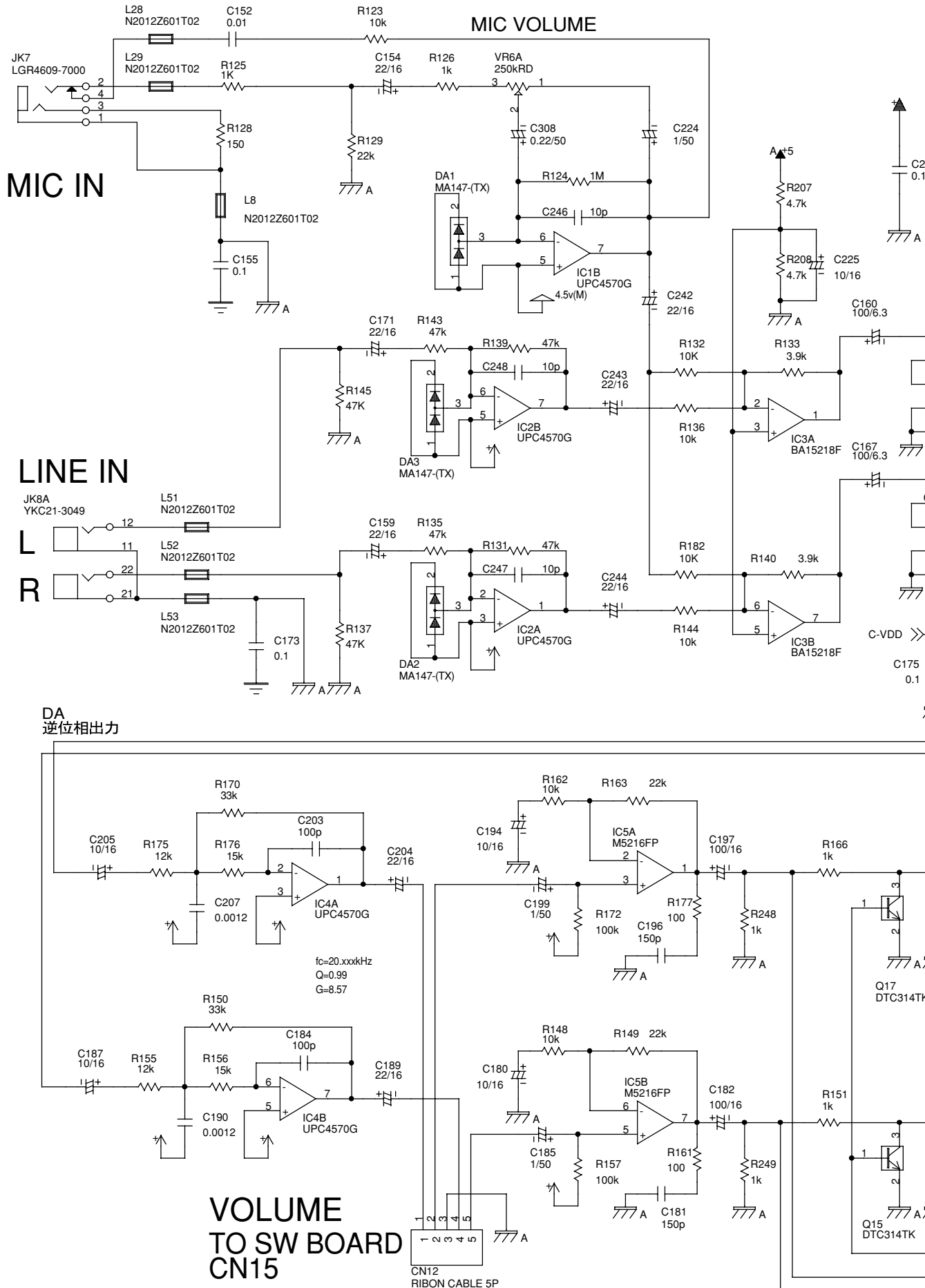
CIRCUIT DIAGRAM(DIGITAL2)

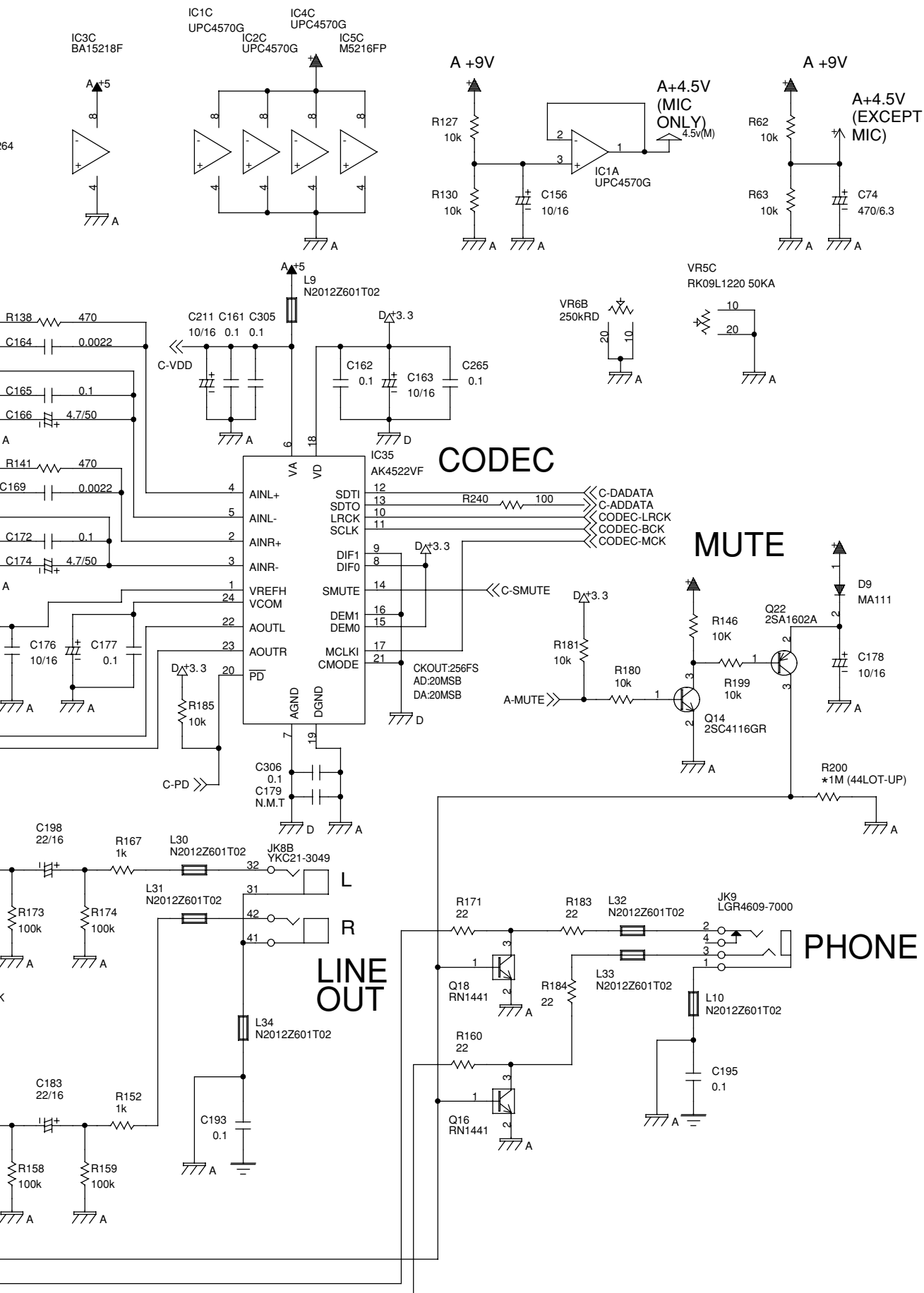
7 Seg LED
TO SW BOARD
CN9



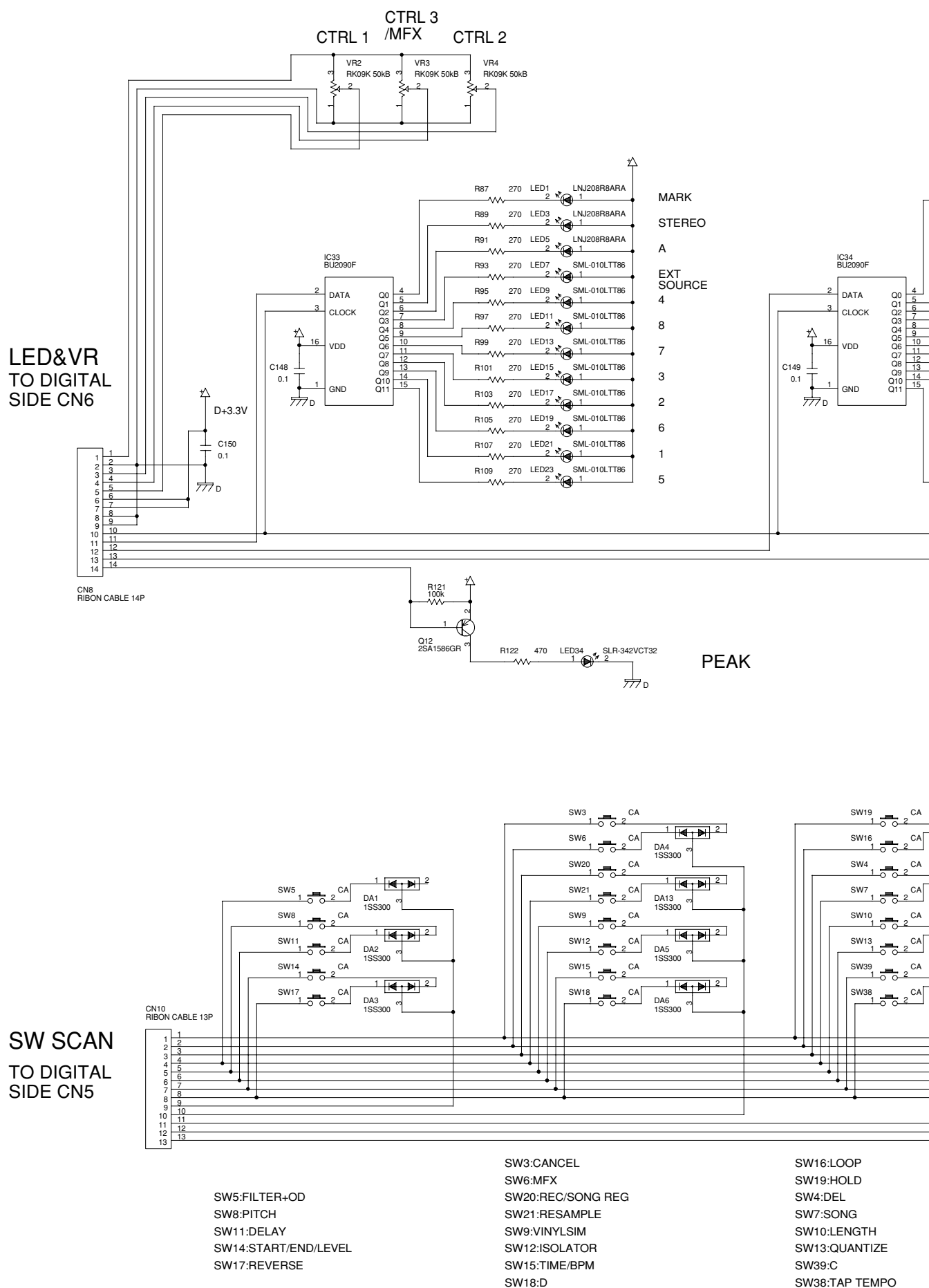


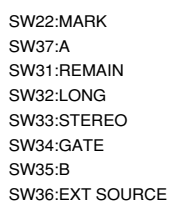
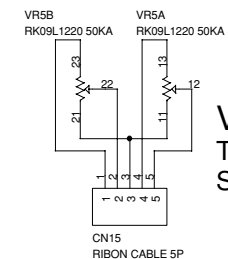
CIRCUIT DIAGRAM(ANALOG)





CIRCUIT DIAGRAM(SW)





CIRCUIT DIAGRAM(POWER)

