

CASIO®

Service Manual

(without price)

AP-60R

JUNE.1999



AP-60R

ELECTRONIC KEYBOARD

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SAFETY NOTICE

CAUTION!

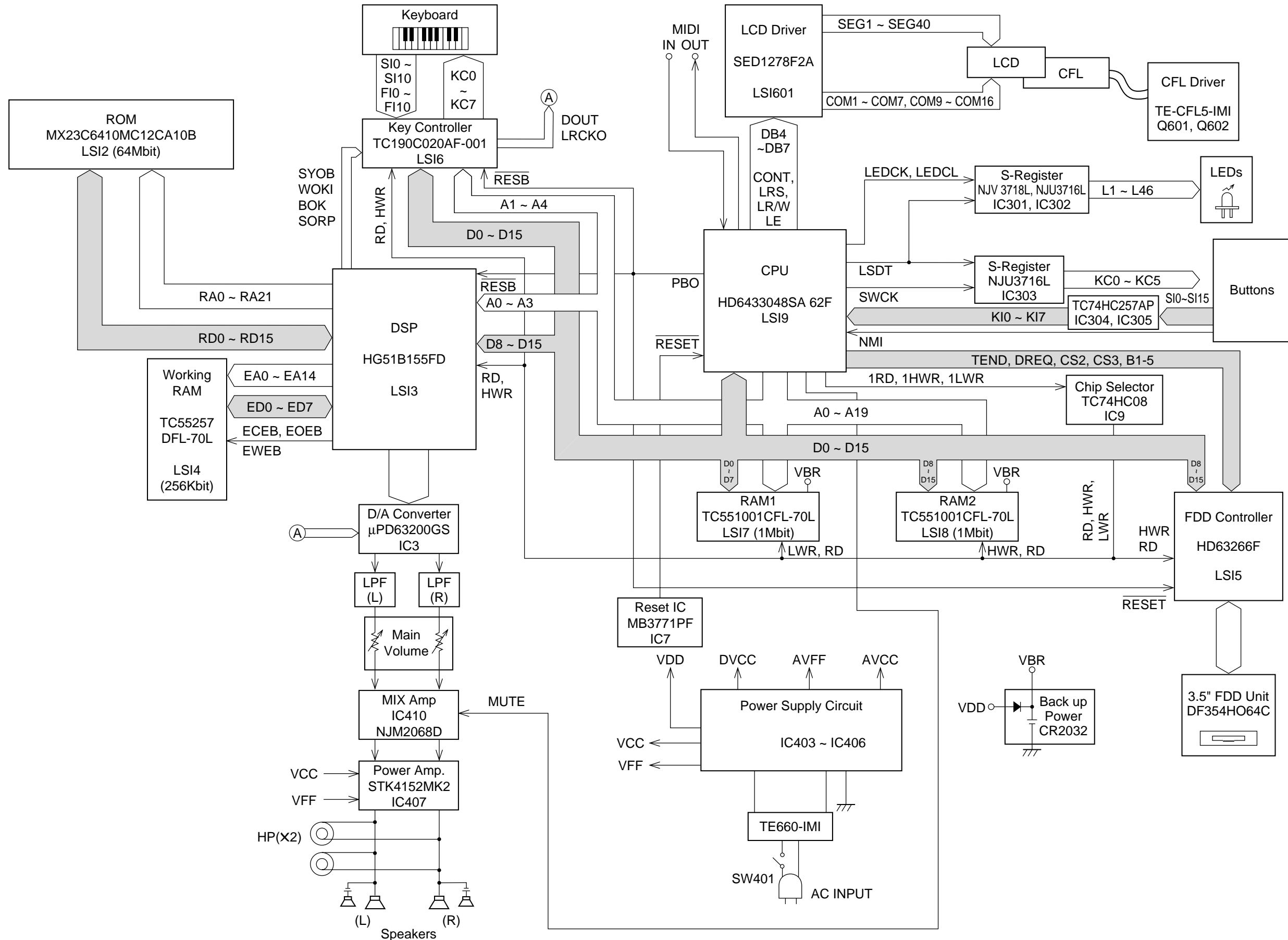
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended
by the appliance manufacturer. Discard used batteries
according to manufacturer's instructions.

SPECIFICATIONS

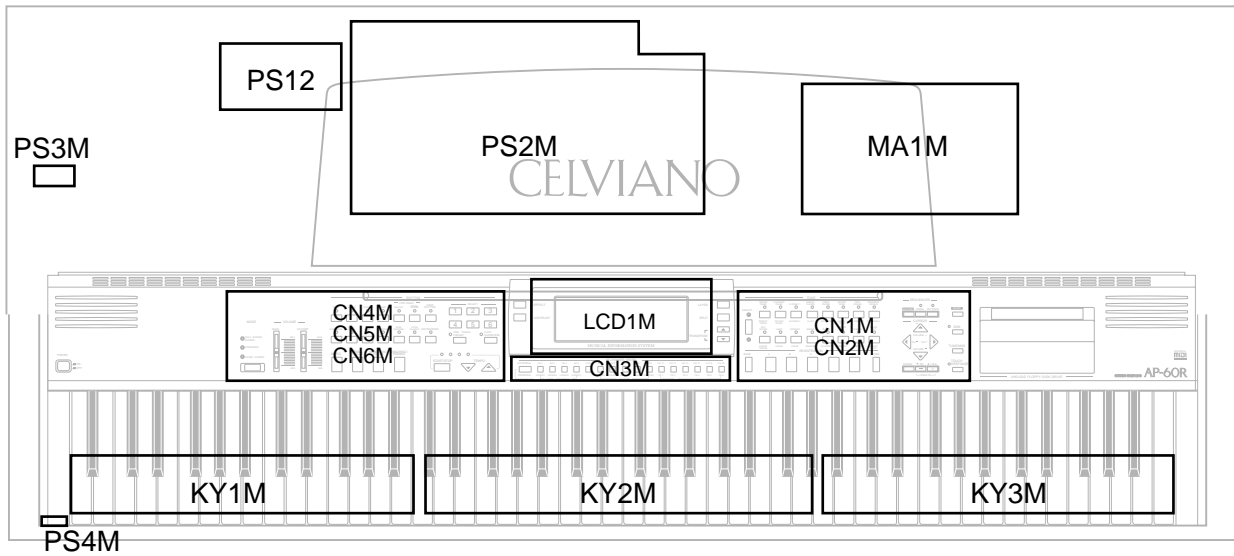
GENERAL

Number of keys	88
Polyphonic:	32-note
Preset tones:	72, Tone, Tempo, Layer, Auto-Harmonize
Key transpose:	±12 semitone
Effects:	10, Reverb (1, 2, 3), Chorus, Tremolo, Phase Shifter, Organ Speaker, Enhancer, Flanger, Loudness
Demo tunes:	12
Memory:	Number of Songs: 2 System: Real-time recording Memory Capacity: Approximately 4,900 notes total Memory Backup Battery: Built-in lithium battery Battery Life: Approximately 5 years
Pedals:	Soft, Sostenuto, Damper
Tuning control:	440Hz ±50 cents
Built-In Speakers:	16 cm dia. x 2 + 5 cm dia. x 2 (Output: approx. 30 W + 30 W)
MIDI:	16-channel, multi-timbral reception
Terminals:	PHONES 1 and 2, MIDI (IN/OUT/THRU), LINE OUT L and R (Output Impedance: 1.1 KΩ; Output Voltage: 3.5 V, RMS, max.), LINE IN R and L (Input Impedance: 32 KΩ, Input sensitivity: 200 mV)
Power source:	120V (for Taiwan, Brazil, Mexico, USA, Canada), 220V, 230V and 240V (for other countries)
Power consumption:	91W (with 120V AC), 97W (with 220V, 230V and 240V AC)
Dimensions (HWD):	Without stand: 219 × 1376 × 592 mm (8-5/8 × 54-3/16 × 23-5/16 inches) With stand: 850 × 1376 × 592 mm (33-1/2 × 54-3/16 × 23-5/16 inches)
Weight:	Without stand: 53.0 kg (117.0 lbs) With stand: 66.0 kg (145.7 lbs)

BLOCK DIAGRAM



PCB LAYOUT



PCB	JCM660	Components
Main PCB	MA1M	CPU, DSP, Sound Source ROM Working storage RAM, Effect RAM Reset IC, DAC, Filter, Key controller, Power amp, Power supply circuit
Jack PCBs	PS2M	LINE IN/OUT jack, MIDI jacks
	PS3M	Phone jacks
	PS4M	Power indicator
Console PCBs	CN1M,CN2M	Tone, Registration, Sequencer, Cursor, Demo
	CN3M	CHANNEL buttons (CH1 to CH16)
	CN4M,CN5M,CN6M	Mode, Volume, Rhythm, Select, Tempo
LCD PCB	LCD1M	LCD driver, CFL drever
Power PCB	JCM431-PS12	Fuse, Noise filter

DISASSEMBLY INSTRUCTIONS

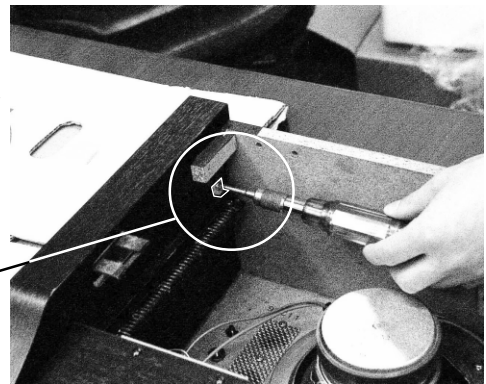
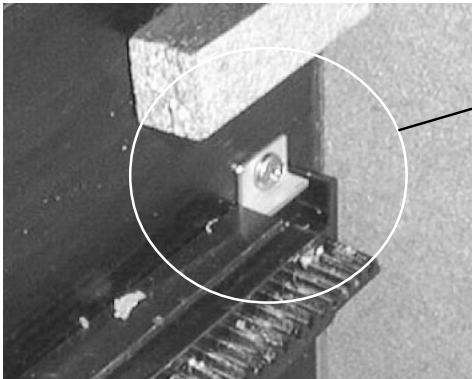
1. Removal of top board

- 1-1. Remove 8 screws affixing the top board on the back.
- 1-2. Slide the top board forward and remove it from the main unit.

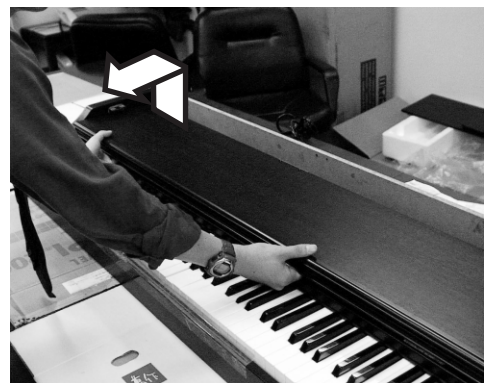


2. Removal of keyboard cover

- 2-1. Lift up the keyboard cover full open position.
- 2-2. Unscrew the L-shaped stopper metal located on the inner left corner.



- 2-3. Lift up the keyboard cover gear from the opening where stopper metal is fixed, then remove the keyboard cover.



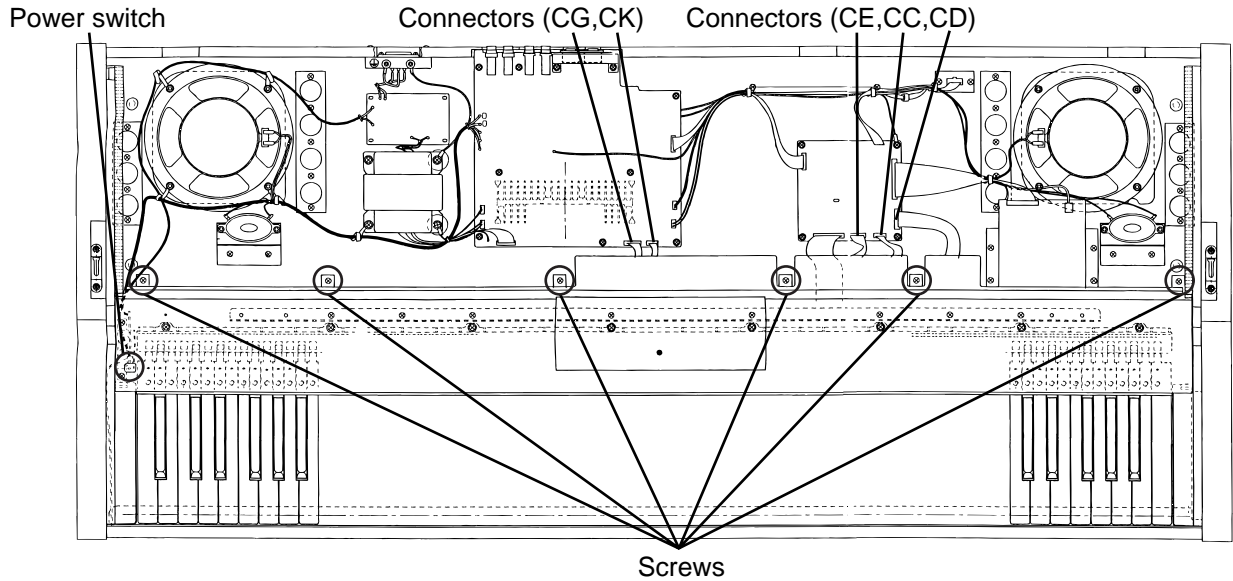
3. Removal of console panel

3-1. Remove 6 screws of the console panel.

3-2. Disconnect connector CC,CD,CE on PCB MA1M, connector CG,CK on PCB PS2M.

3-3. Lift the console panel and turn it over and remove the power switch, which is affixed by 2 screws. Then remove the side panel.

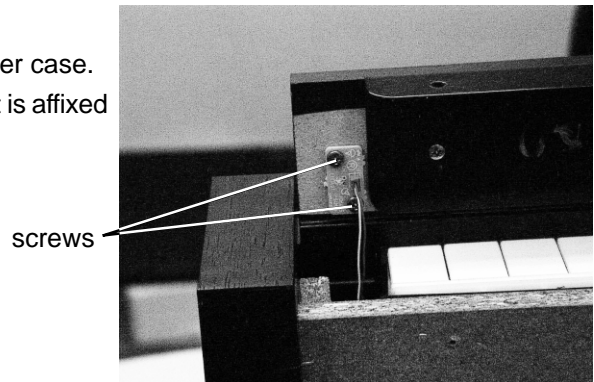
Caution: Be careful not to scratch the side panels.



4. Removal of front cover

4-1. Remove 6 screws from the front end of the lower case.

4-2. Lift the front cover and remove the pilot lamp that is affixed by 2 screws. Then remove the front cover.

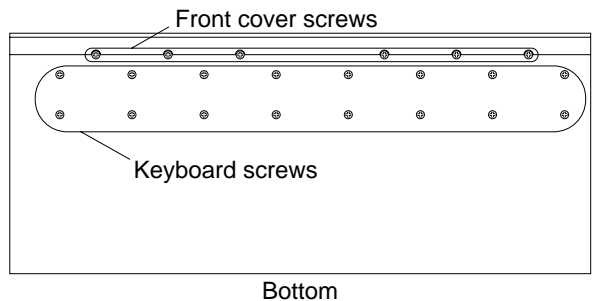
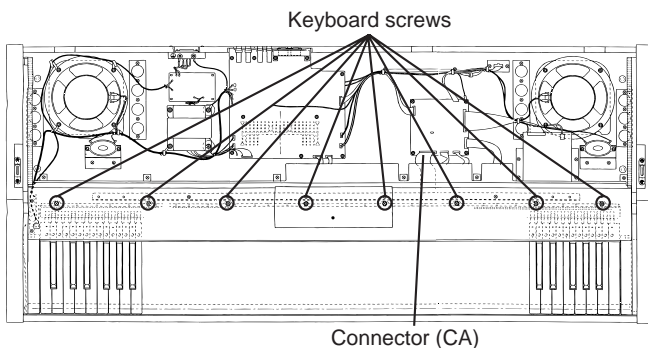


5. Removal of keyboard unit

5-1. Disconnect connector CA on the PCB MA1M.

5-2. Remove 24 screws that affix the keyboard unit (16 on the bottom of the case and 8 on the keyboard unit).

5-3. Lift and remove the keyboard unit.



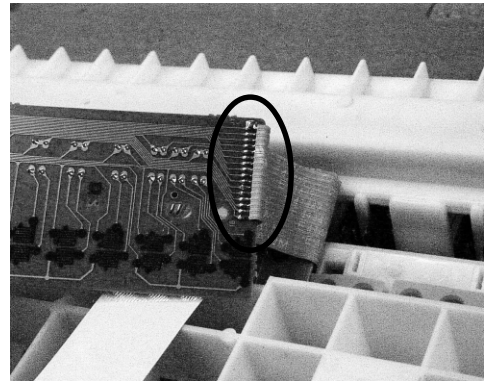
6. Removal of keys

6-1. While prying the side partition plastics with tweezers, lift the edge of the key toward front.



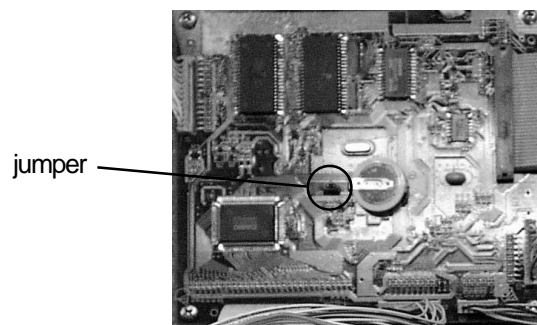
7. Removal of keyboard PCB

7-1. Lay the keyboard so that keyboard PCBs face upward.
7-2. Remove screws on keyboard PCBs (10 screws on PCBs KY1M and KY3M, 12 screws on KY2M).
7-3. Unsolder the cable.



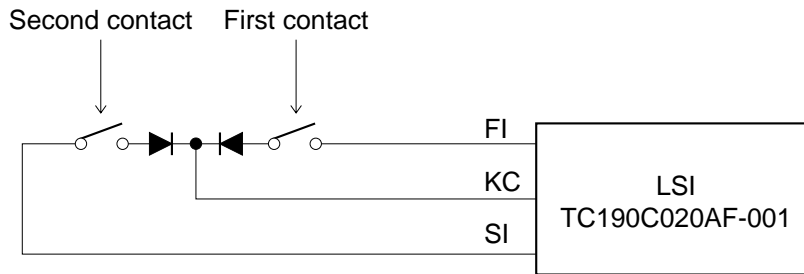
8. Notes on replacing the main PCB.

A lithium battery is set on the main PCB for memory protection.
When you replace the main PCB, disconnect the jumper to open battery circuit.
Since there is no jumper on a new main PCB, be sure to set a jumper.



CIRCUIT DESCRIPTION

KEYMATRIX



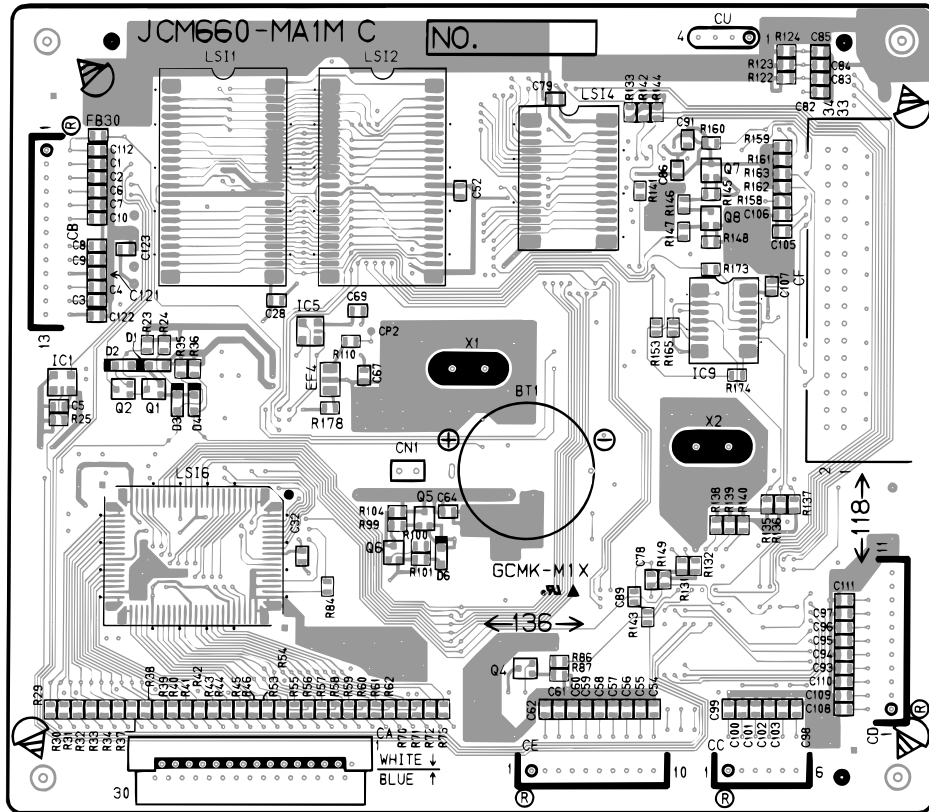
	KC0	KC1	KC2	KC3	KC4	KC5	KC6	KC7
FI0	A0 ①	A0 # ①	B0 ①	C1 ①	C1 # ①	D1 ①	D1 # ①	E1 ①
SI0	A0 ②	A0 # ②	B0 ②	C1 ②	C1 # ②	D1 ②	D1 # ②	E1 ②
EI1	F1 ①	F1 # ①	G1 ①	G1 # ①	A1 ①	A1 # ①	B1 ①	C2 ①
SI1	F1 ②	F1 # ②	G1 ②	G1 # ②	A1 ②	A1 # ②	B1 ②	C2 ②
FI2	C2 # ①	D2 ①	D2 # ①	E2 ①	F2 ①	F2 # ①	G2 ①	G2 # ①
SI2	C2 # ②	D2 ②	D2 # ②	E2 ②	F2 ②	F2 # ②	G2 ②	G2 # ②
FI3	A2 ①	A2 # ①	B2 ①	C3 ①	C3 # ①	D3 ①	D3 # ①	E3 ①
SI3	A2 ②	A2 # ②	B2 ②	C3 ②	C3 # ②	D3 ②	D3 # ②	E3 ②
FI4	F3 ①	F3 # ①	G3 ①	G3 # ①	A3 ①	A3 # ①	B3 ①	C4 ①
SI4	F3 ②	F3 # ②	G3 ②	G3 # ②	A3 ②	A3 # ②	B3 ②	C4 ②
FI5	C4 # ①	D4 ①	D4 # ①	E4 ①	F4 ①	F4 # ①	G4 ①	G4 # ①
SI5	C4 # ②	D4 ②	D4 # ②	E4 ②	F4 ②	F4 # ②	G4 ②	G4 # ②
FI6	A4 ①	A4 # ①	B4 ①	C5 ①	C5 # ①	D5 ①	D5 # ①	E5 ①
SI6	A4 ②	A4 # ②	B4 ②	C5 ②	C5 # ②	D5 ②	D5 # ②	E5 ②
FI7	F5 ①	F5 # ①	G5 ①	G5 # ①	A5 ①	A5 # ①	B5 ①	C6 ①
SI7	F5 ②	F5 # ②	G5 ②	G5 # ②	A5 ②	A5 # ②	B5 ②	C6 ②
FI8	C6 # ①	D6 ①	D6 # ①	E6 ①	F6 ①	F6 # ①	G6 ①	G6 # ①
SI8	C6 # ②	D6 ②	D6 # ②	E6 ②	F6 ②	F6 # ②	G6 ②	G6 # ②
FI9	A6 ①	A6 # ①	B6 ①	C7 ①	C7 # ①	D7 ①	D7 # ①	E7 ①
SI9	A6 ②	A6 # ②	B6 ②	C7 ②	C7 # ②	D7 ②	D7 # ②	E7 ②
FI10	F7 ①	F7 # ①	G7 ①	G7 # ①	A7 ①	A7 # ①	B7 ①	C8 ①
SI10	F7 ②	F7 # ②	G7 ②	G7 # ②	A7 ②	A7 # ②	B7 ②	C8 ②

BUTTON MATRIX

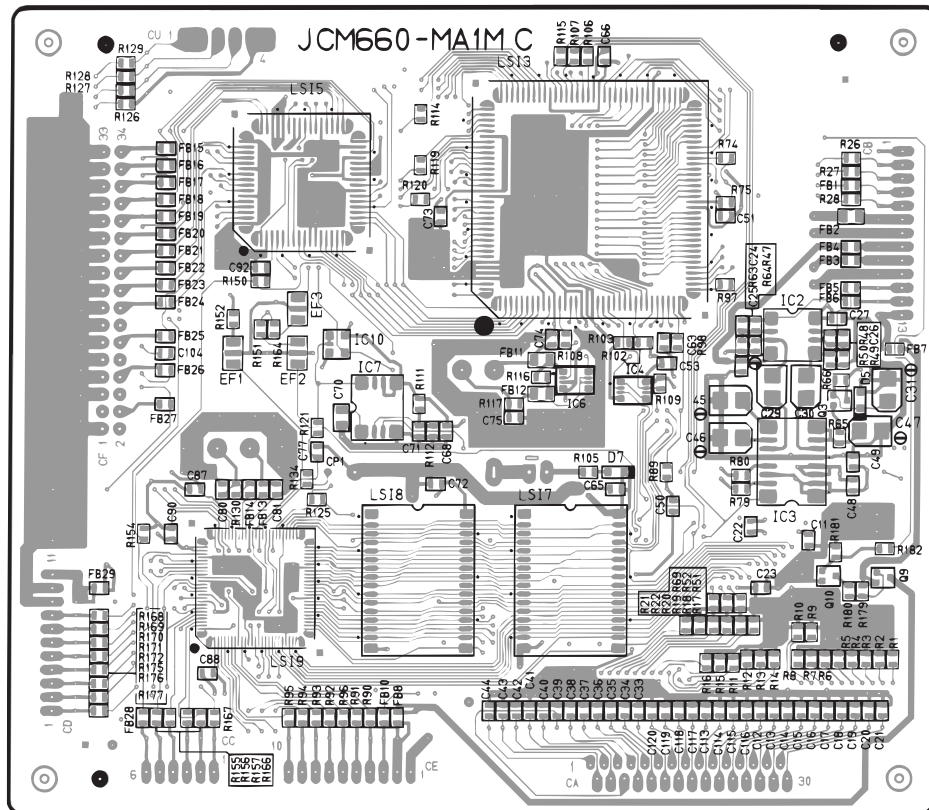
	KC0	KC1	KC2	KC3	KC4	KC5
SI0	MODE	BALLAD	POPS	SELECT	GRAND PIANO BRIGHT PIANO	GUT GUITAR ACOUS GUITAR
SI1	AUTO HARMONIZE	POPS/OLDIES	16BEAT	BANK	E.GRAND PIANO OCTAVE PIANO	HARP VIOLIN
SI2	ONE TOUCH PRESET	JAZZ/RAGTIME	ROCK	A	E.PIANO 1 E.PIANO 2	STRINGS CHOIR
SI3	INTRO	LATIN/CLASSIC	JAZZ	B	HARPSI CHORD CLAVI	BRASS NEWAGE
SI4	NORMAL/FILL/IN	–	EUROPIAN	C	VIBRAPHONE CELESTA	FLUTE CLARINET
SI5	VARIATION/ FILL-IN	OSER/Rythm	BALL ROOM	D	ACCORDION HONKY-TONK	TENOR SAX TRUMPET
SI6	SYNCRO/ ENDING	–	LATIN	E	PIPE ORGAN E.ORGAN 2	DRUM SET BRIGHTNESS
SI7	STRAT/STOP	METRONOME	VARIOUS	STROE	DRAWBAR ORGAN E.ORGAN 2	DRUM SET BRIGHTNESS
SI8	TEMPO DOWN	4	1	RECORD	ch–	–/NO
SI9	TEMPO UP	5	2	PATTERN	VOLUME +	+/YES
SI10	–	6	3	SONG	ch+	ENTER
SI11	LAYER	CONTRAST	EFFECT	DEMO	VOLUME–	TOUCH RESPONS
SI12	SPLIT	TRANSPOSE DOWN	TRANSPOSE UP	DISK	–	TUNE/MIDI
SI13	–	EXTERNAL/ INTERNAL	ch1	ch2	ch3	ch4
SI14	ch5	ch6	ch7	ch8	ch9	ch10
SI15	ch11	ch12	ch13	ch14	ch15	ch16

PRINT CIRCUIT BOARD

Main PCB JCM660-MA1M

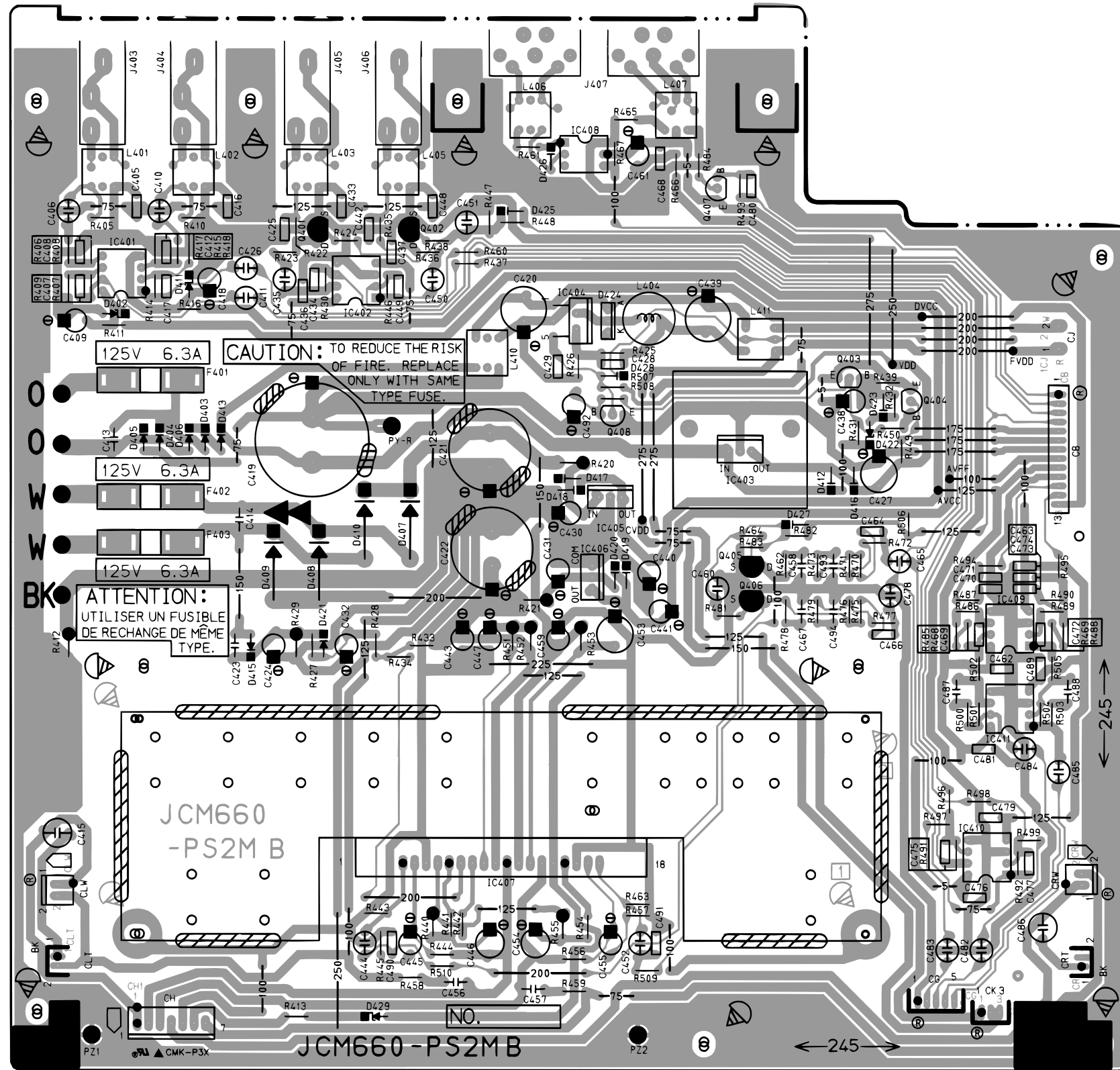


Top View



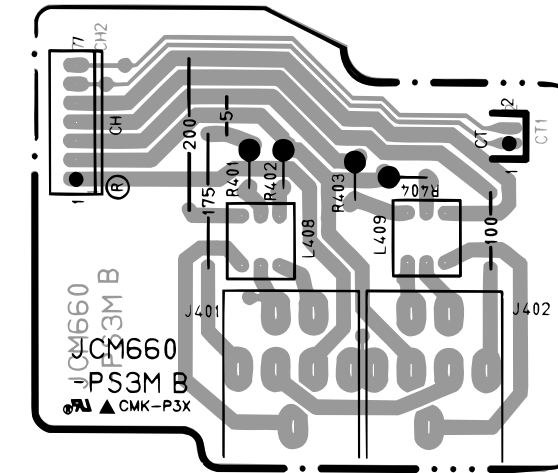
Bottom View

Sub PCB JCM660-PS2M



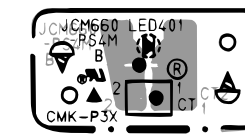
Top View

Sub PCB JCM660-PS3M



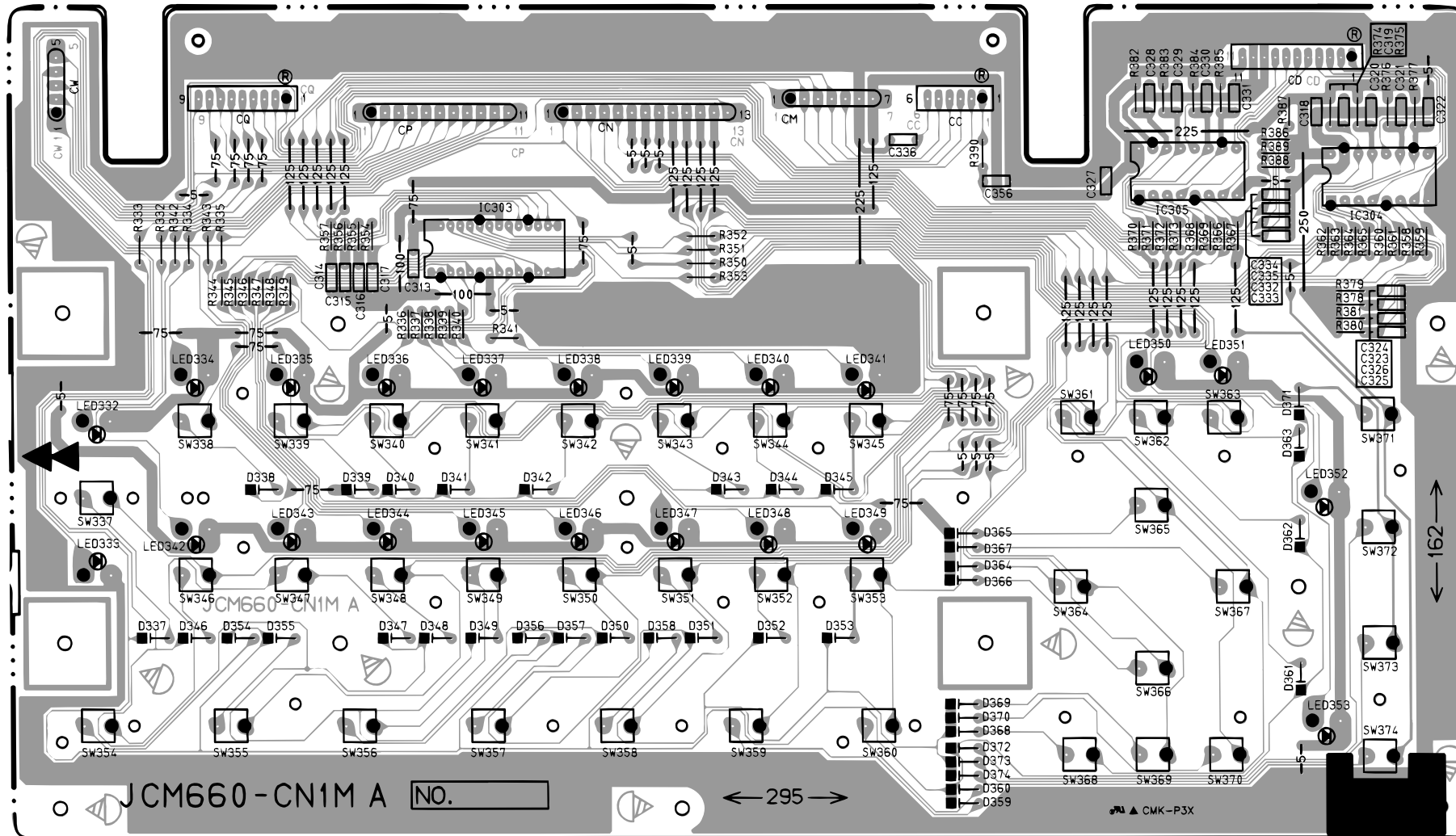
Top View

Sub PCB JCM660-PS4M

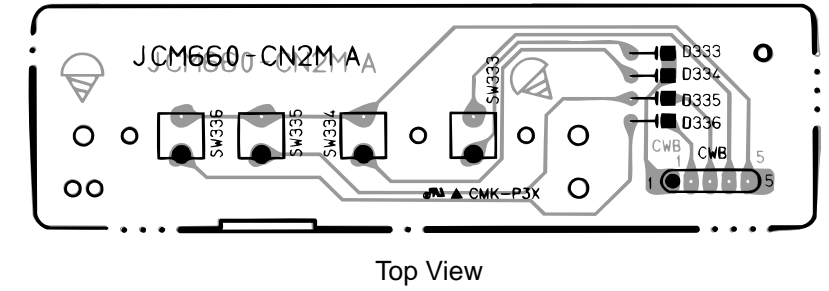


Top View

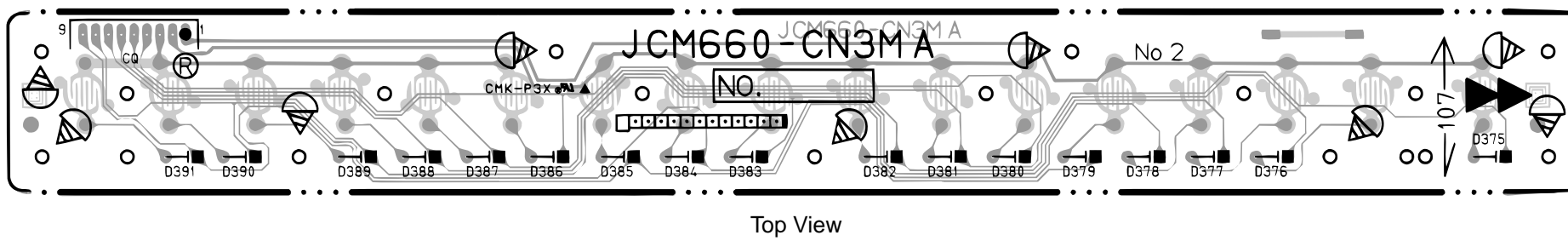
Console PCB JCM660-CN1M



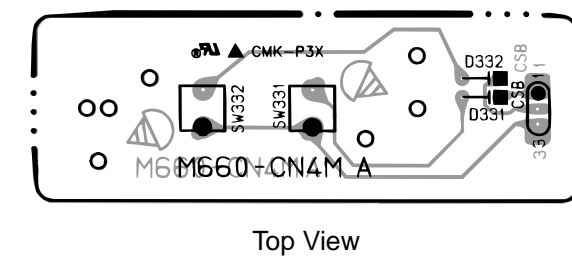
Console PCB JCM660-CN2M



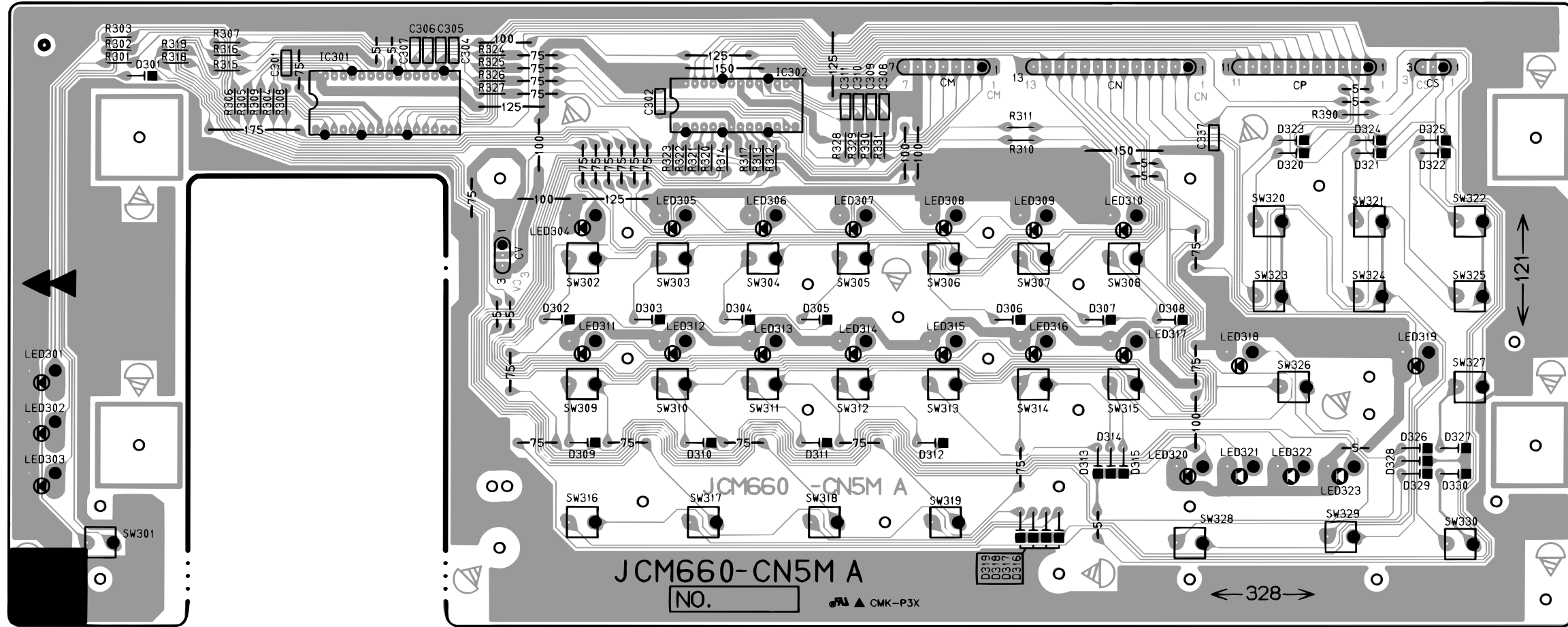
Console PCB JCM660-CN3M



Console PCB JCM660-CN4M

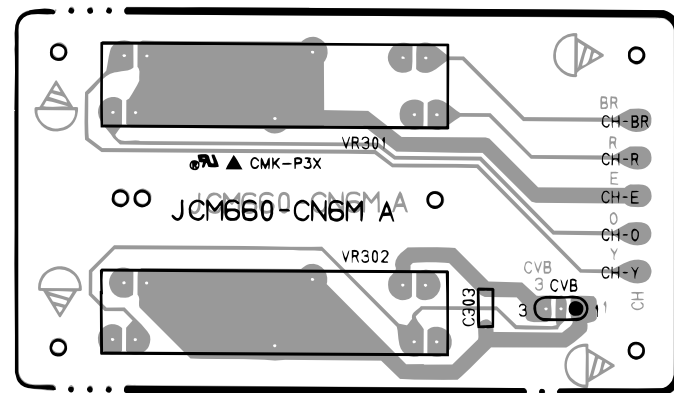


Console PCB JCM660-CN5M



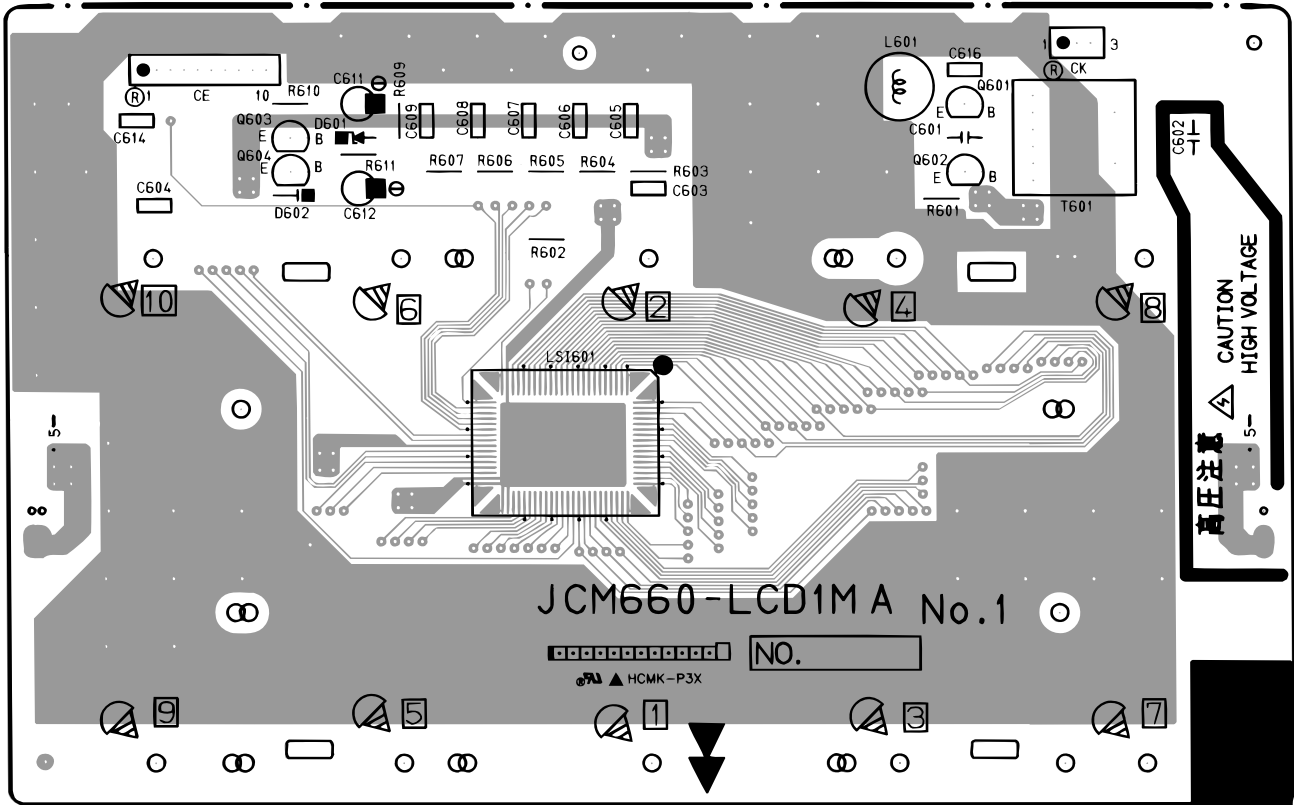
Top View

Console PCB JCM660-CN6M

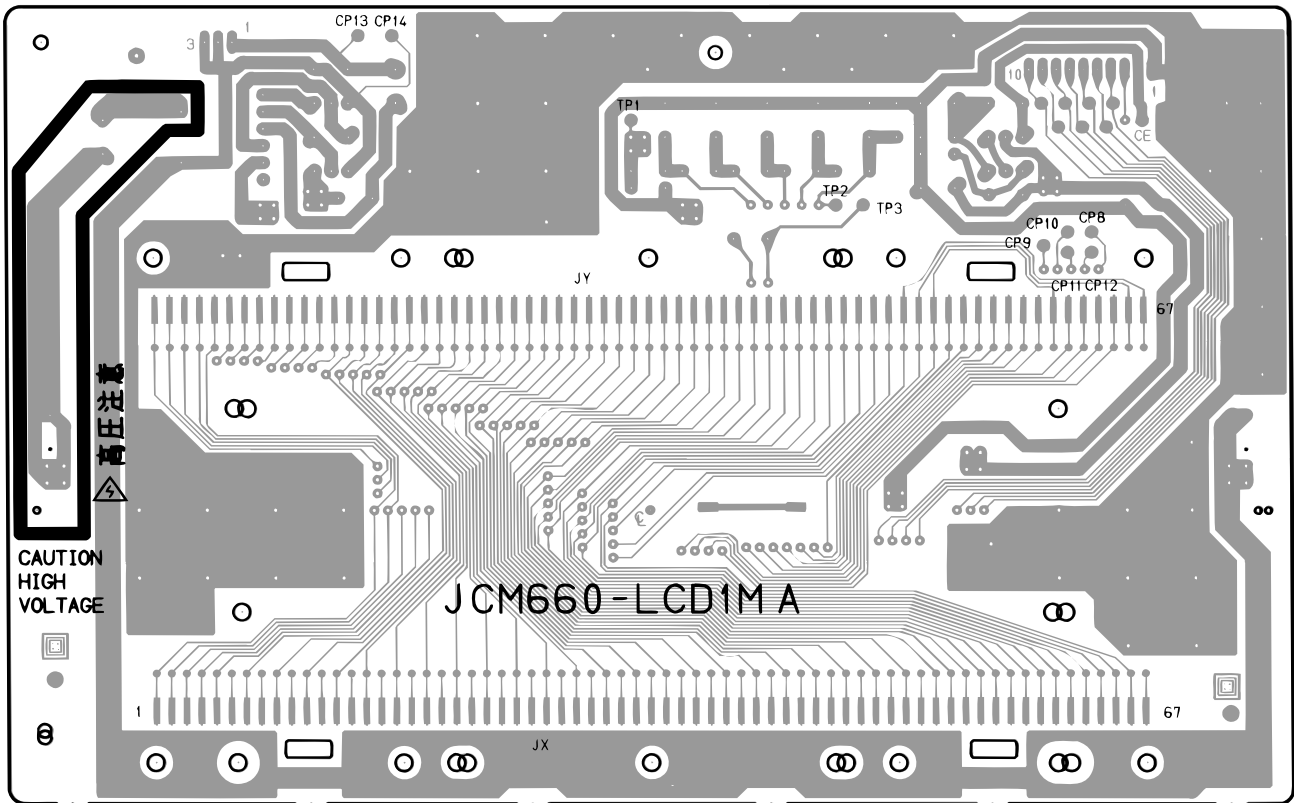


Top View

LCD PCB JCM660-LCD1M



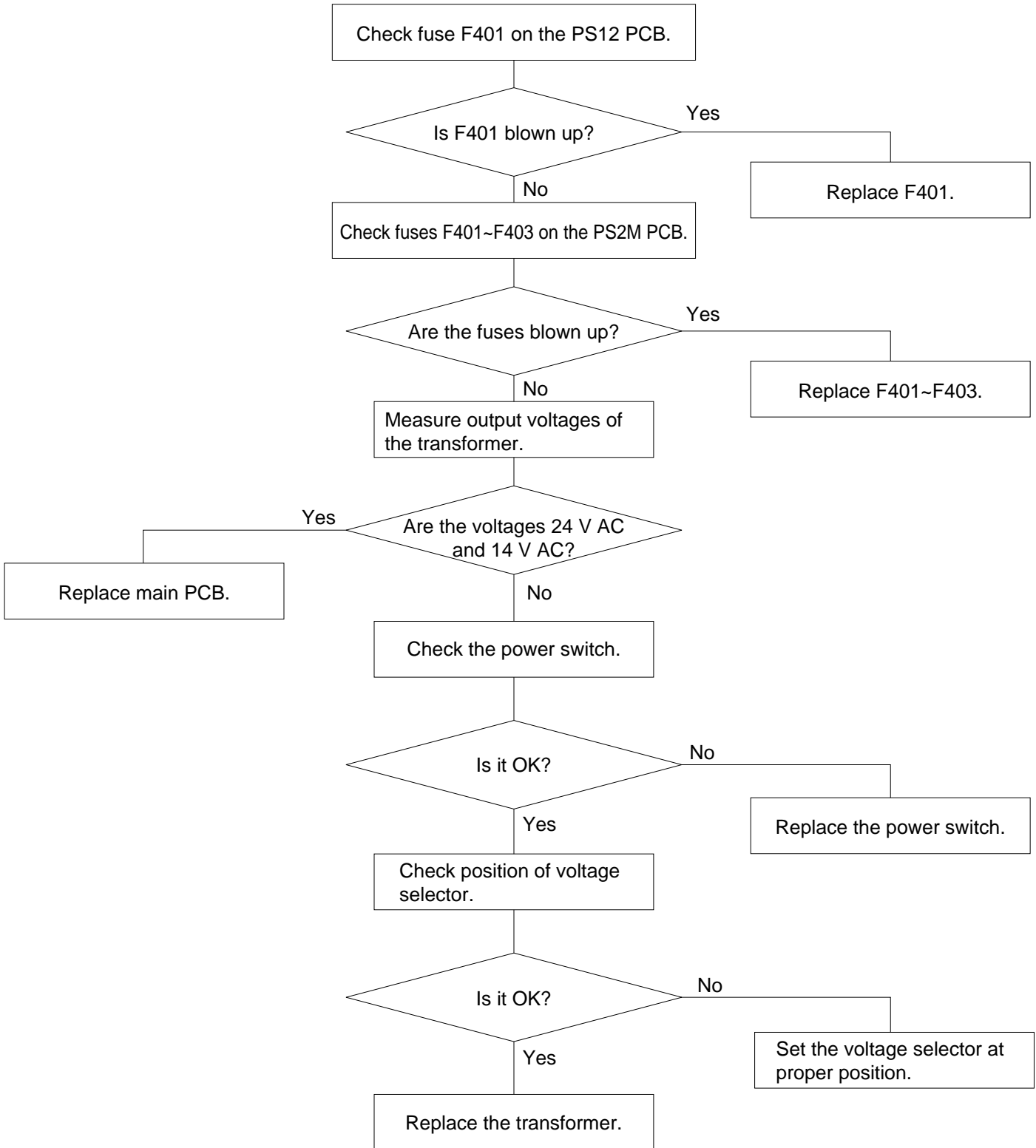
Top View



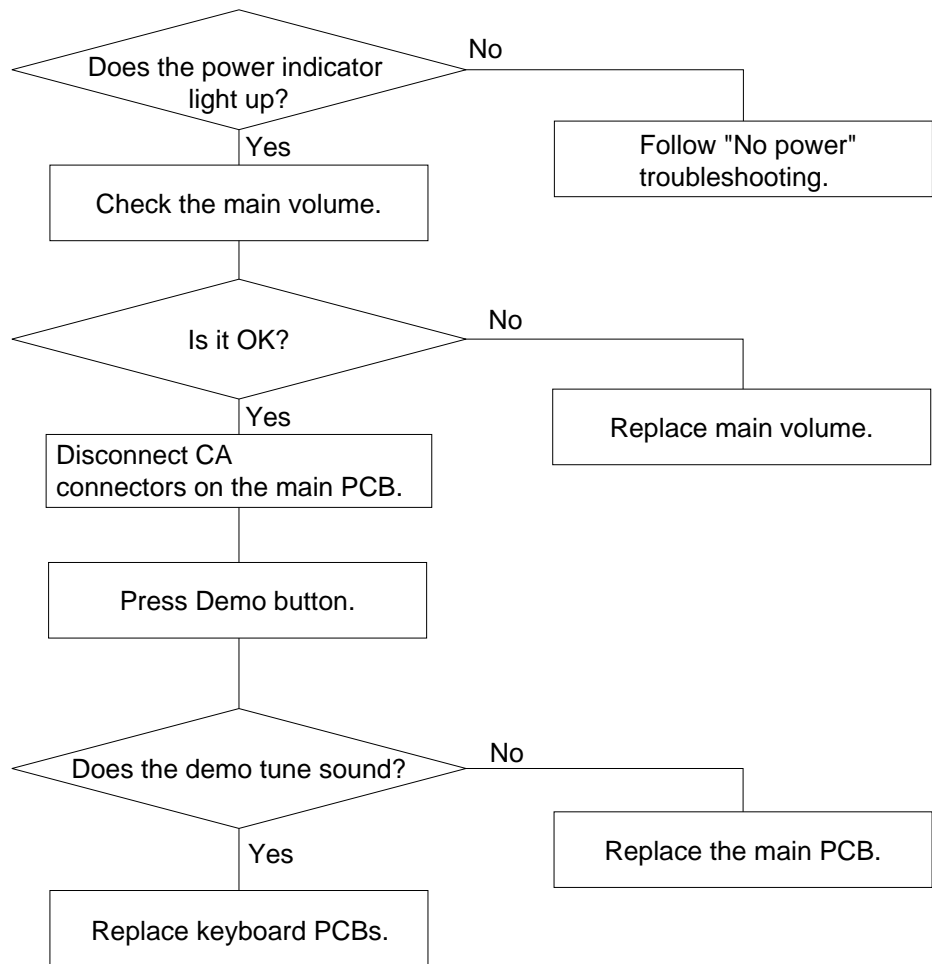
Bottom View

TROUBLESHOOTING

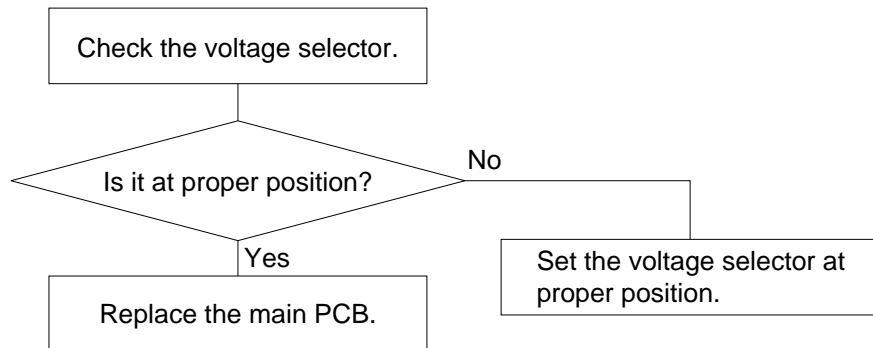
1. No power



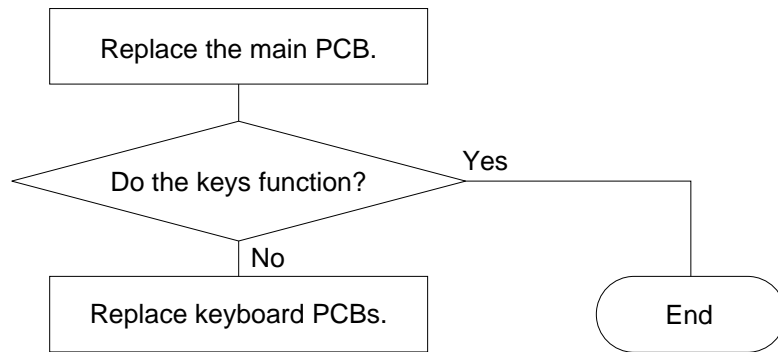
2. No sound



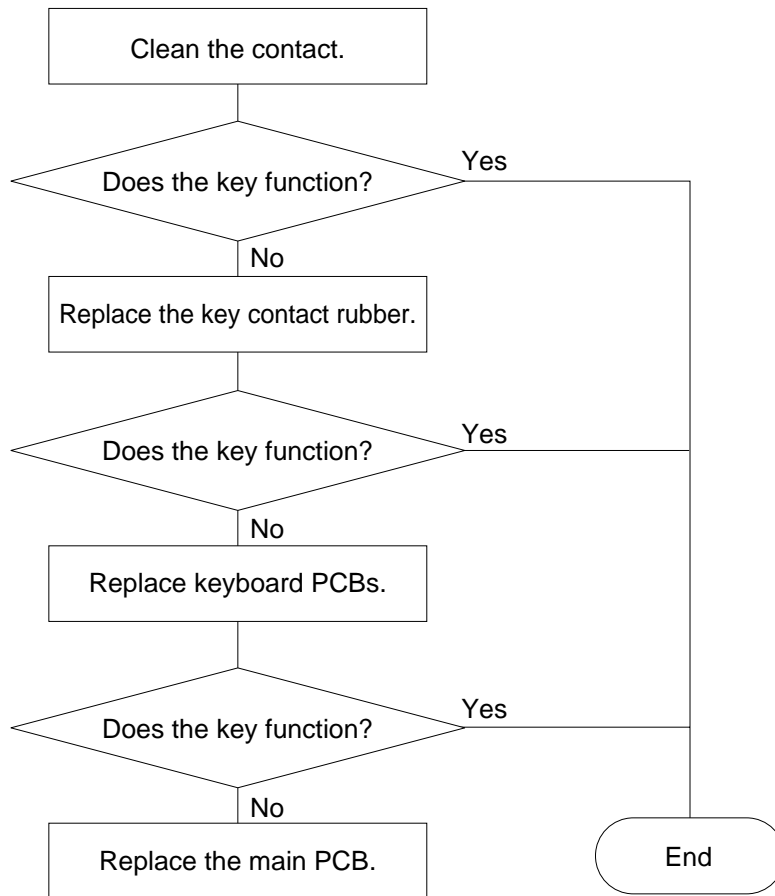
3. Distorted sound



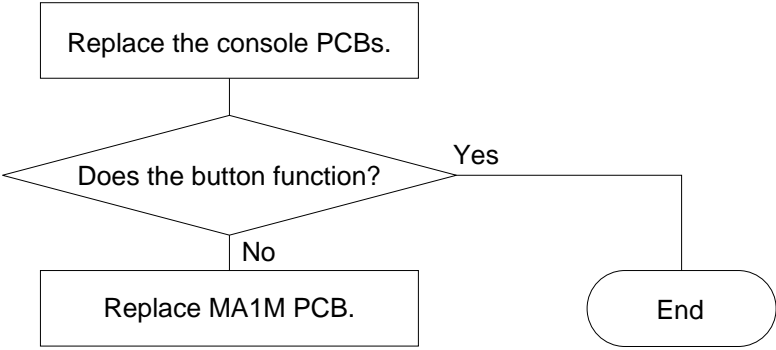
4. Certain keys do not function



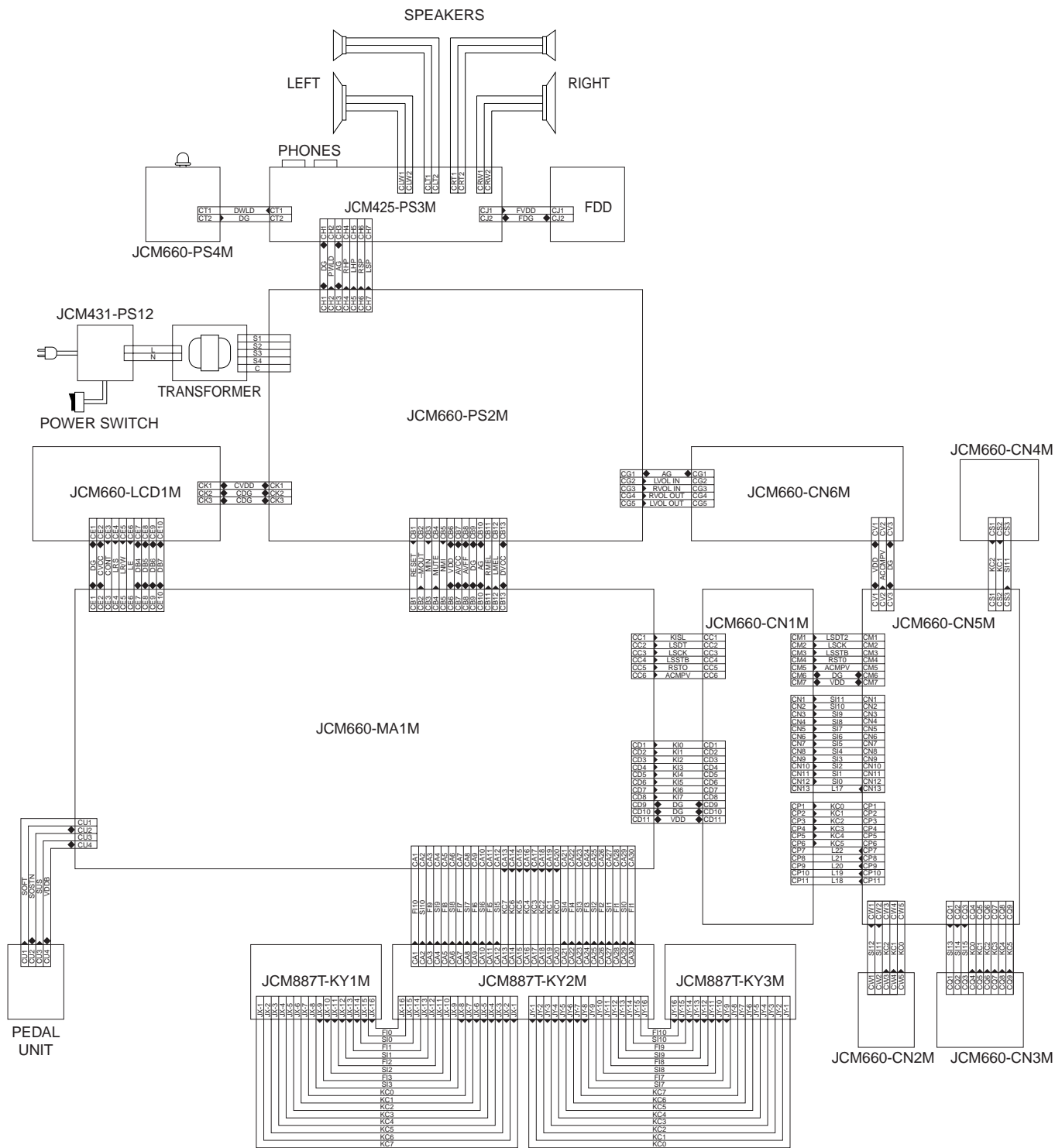
5. A certain key does not function



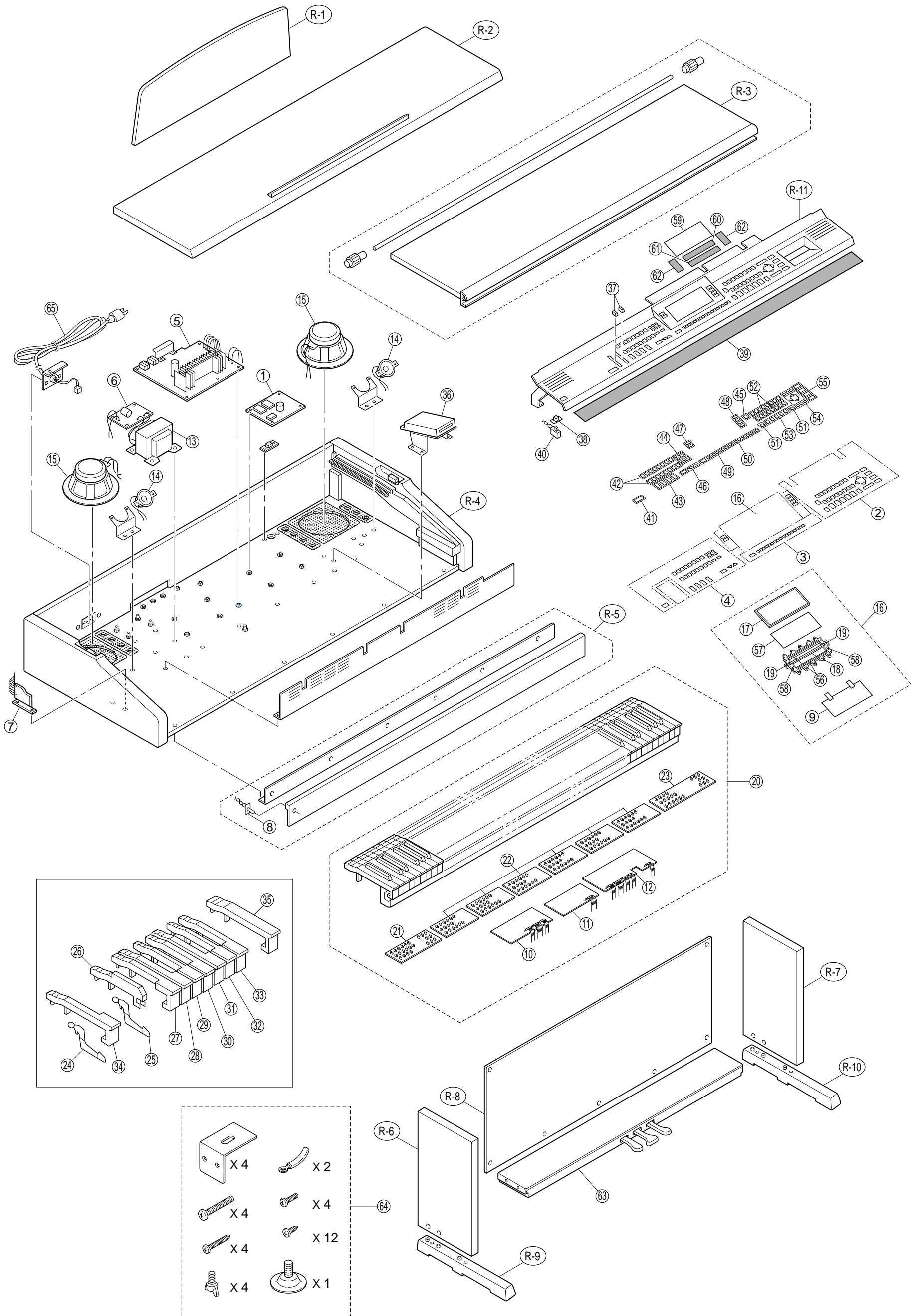
6. A certain button does not function



WIRING DIAGRAM



EXPLODED VIEW



PARTS LIST

AP-60R

Notes: This parts list does not include the cosmetic parts, which parts are marked with item No. "R-X" in the exploded view.

Contact our spare parts department if you need these parts for refurbish.

1. Prices and specifications are subject to change without prior notice.
2. As for spare parts order and supply, refer to the "GUIDEBOOK for Spare parts Supply", published separately.
3. The numbers in item column correspond to the same numbers in drawing.

PARTS PRICE LIST

AP-60R

N	Item	Code No.	Part Name	Specification	Q	Price Code	R	Remarks
Main PCB								
N	BT1	3815 0707	BATTERY, LITHIUM	CR2032-1HM	1	AI	B	
	D1-D4,D7	2390 1820	DIODE	1SS355TE-17	5	AA	B	
	D5	2360 2856	DIODE,ZENER	UDZTE-17 5.6B	1	AA	B	
	D6	2360 3057	DIODE	UDZTE-173.3B	1	AA	B	
N	EF1-EF4	3025 1862	FILTER, EMI	NFM51R00P206	4	AC	B	
	IC1,IC5	2105 2821	IC, CMOS	TC7S04F(TE85R)	2	AC	B	
	IC10	2105 1120	IC, CMOS	TC7S08F(TE85R)	1	AB	B	
N	IC2	2114 5898	IC,MONOLITHIC	NJM2068M(TE1)	1	AG	B	
N	IC3	2105 6665	LSI	UPD63200GS-E1	1	AX	B	
	IC4	2105 5719	IC, CMOS	TC7W32FU(TE12L)	1	AE	B	
	IC6	2105 6083	IC, CMOS	TC7WU04FU(TE12L)	1	AD	B	
	IC7	2114 4060	IC,MONOLITHIC	MB3771PF-EF	1	AK	B	
	IC9	2101 0642	IC, CMOS	TC74HC08AF(TP1)	1	AC	B	
N	LSI2	2012 6498	LSI	MX23C6410MC12CA108	1	BU	A	
	LSI3	2011 7434	LSI	HG51B155FD	1	BU	A	
	LSI4	2012 5572	LSI	TC55257DFL-70L(EL)	1	AS	A	
	LSI5	2010 9990	LSI	HD63266F	1	BT	A	
	LSI6	2012 5987	LSI	TC190C020AF-001	1	BC	A	
N	LSI7,LSI8	2012 6186	LSI	TC551001CF-70L(EL)	2	AZ	A	
N	LSI9	2012 6466	LSI	HD6473048F16	1	CW	A	
	Q1-Q10	2250 1169	TRANSISTOR	2SA1576AT106S	10	AA	B	
	X1	2590 2788	OSCILATOR, CRYSTAL	AT-49-24.576MHZ	1	AS	B	
	X2	2590 2748	OSCILATOR, CERAMIC	CSA16.00MXZ243	1	AD	B	
N	1	6927 7710	PCB ASSY / M660-MA1M	M241139*1	1	EJ	A	
Console PCB								
N	D301-D391	2390 1344	DIODE	1SS133T-77	91	AA	B	
	IC301	2105 6679	IC, CMOS	NJU3718L	1	AW	B	
N	IC302,IC303	2105 6680	IC, CMOS	NJU3716L	2	AV	B	
N	IC304,IC305	2105 6681	IC, CMOS	TC74HC257AP	2	AT	B	
N	LED301-LED320	1000 5470	LED	SLZ-190B-02-T1	42	AS	B	
N	LED332-LED353	1000 5471	LED	SLZ-290B-02-T1	3	AT	B	
N	LED321-LED323	1000 5471	LED	SLZ-290B-02-T1	3	AT	B	
	SW301-SW374	3412 0903	SWITCH, TACT	EVQ-21405R	74	AA	B	
	VR301	2765 0280	VOLUME	EWANAXCH1B14	1	AI	B	
	VR302	2765 2187	VOLUME	EWANFECH1B54	1	AG	B	
N	2	6927 7810	PCB ASSY / M660-CN1,2M	M241141*1	1	DG	A	
N	3	6927 7820	PCB ASSY / M660-CN3M	M341061*1	1	AZ	A	
N	4	6927 7830	PCB ASSY / M660-CN4,5,6M	M241142*1	1	DD	A	
Power supply PCB								
N	D402,D411	2360 1729	DIODE,ZENER	MTZJ5.1AT-77-T	2	AA	B	
	D403-D406	2390 2996	DIODE	1SR139-400T-32	6	AA	B	
	D413,D415	2390 2996	DIODE	1SR139-400T-32	6	AA	B	
	D407-D410	2390 3099	DIODE	3BZ41(LC5-15)	4	AG	B	
	D412	2390 3099	DIODE	3BZ41(LC5-15)	4	AG	B	
	D416-D420	2390 1344	DIODE	1SS133T-77	10	AA	B	
	D423-D427	2390 1344	DIODE	1SS133T-77	10	AA	B	
	D421	2390 1323	DIODE	RB100A-T32-T	1	AC	B	
	D422	2360 2737	DIODE,ZENER	MTZJ10CT-77-T	1	AA	B	
	D424	2390 1463	DIODE,SCHOTTKY	SB20-03B	1	AD	B	
	D428	2390 2828	DIODE,SCHOTTKY	RB441Q-40T-77	1	AA	B	
N	D429	1000 5472	DIODE,ZENER	MTZJ15BT-77-T	1	AA	B	
	F401-F403	3632 0420	FUSE,TIME-LAG	UL-TSC-6.3A-N1	3	AF	A	110 - 127V area
	F401-F403	3632 0427	FUSE,TIME-LAG	(S)T-6.3A	3	AF	A	220 - 240V area
N	IC401-IC402	2114 5897	IC,MONOLITHIC	NJM2068D	5	AC	B	
	IC409-IC411	2114 5897	IC,MONOLITHIC	NJM2068D	5	AC	B	
	IC403	2114 3444	IC,MONOLITHIC	NJM7805FA	1	AE	B	
N	IC404	2114 5896	IC,MONOLITHIC	PQ1CF2	1	AS	B	

N	Item	Code No.	Part Name	Specification	Q	Price Code	R	Remarks
	IC405	2114 5794	IC,MONOLITHIC	NJM78M15FA	1	AE	B	
	IC406	2114 5795	IC,MONOLITHIC	NJM79M15FA	1	AG	B	
	IC407	2114 2149	IC,HYBRID	STK4152MK2	1	BP	B	
	IC408	2114 1421	IC,PHOTO COUPLER	PC900V	1	AK	B	
	J403,J404	3612 0584	JACK	YKB21-5012	2	AD	A	
	J405,J406	3612 0789	JACK	YKB21-5010	2	AC	A	
	Q401,Q402 Q405,Q406	2254 0551	TRANSISTOR,FET	2SK365-BL(TPE4)	4	AC	B	
	Q403,Q404 Q407,Q408	2250 1592	TRANSISTOR	2SC1740STPR	4	AA	B	
N	5	6927 7760	PCB ASSY / M660-PS2M	M241140*2	1	DU	A	110 - 127V area
N	5	6927 7770	PCB ASSY / M660-PS2M	M241140*3	1	DU	A	220 - 240V area
PS12,PS3,PS4M PCBs								
N	F401	3632 0720	FUSE,TIME-LAG	MT4-3.15A-N1	1	AG	A	110 - 127V area
N	F401	3631 1045	FUSE,TIME-LAG	(S)T-1.6A	1	AF	A	220 - 240V area
	J401,J402	3502 2657	JACK,PHONE	YKB22-5006	2	AF	A	
	LED401	2370 1417	LED	SLP-135B-51	1	AA	B	
N	6	6927 7730	PCB ASSY / M425-PS1,2	M341012*5	1	BV	B	110 - 127V area
N	6	6927 7740	PCB ASSY / M425-PS1,2	M341012*6	1	BU	B	220 - 240V area
N	7	6927 7780	PCB ASSY / M660-PS3M	M341059*1	1	CW	B	
N	8	6927 7870	PCB ASSY / M660-PS4M	M341060*1	1	CO	B	
DISPLAY PCB								
	D601	2360 3056	DIODE,ZENER	HZS6A2LTD-T	1	AA	B	
	D602	2390 1344	DIODE	1SS133T-77	1	AA	B	
	LSI601	2012 6018	LSI	SED1278F2A	1	AV	A	
	Q601,Q602	2253 0710	TRANSISTOR	2SD965-R(TA)	2	AB	B	
	Q603	2250 1577	TRANSISTOR	2SA933ASTPS	1	AA	B	
	Q604	2250 1592	TRANSISTOR	2SC1740STPS	1	AA	B	
	T601	3012 1606	TRANSFORMER	TE-CFL5-1M1	1	AL	B	
N	9	6927 7850	PCB ASSY / M660-LCD1M	M241143*1	1	CT	B	
Keyboard PCBs								
	D701-D876	2390 3043	DIODE	1S2076TE	176	AA	B	
	10	6927 3270	PCB ASSY / M887T-KY1M	M240951*1	1	BO	C	
N	11	6927 3280	PCB ASSY / M887T-KY2M	M240952*1	1	BT	C	
	12	6927 5610	PCB ASSY / M887T-KY3M	M241019*1	1	BM	C	
Other electrical parts								
N	13	3012 1618	TRANSFORMER	TE-660-1M1	1	CL	B	110 - 127V area
N	13	3012 1619	TRANSFORMER	TE-660-2M1	1	CM	B	220 - 240V area
	14	3831 1075	SPEAKER	S05JH37A	2	AR	B	
	15	3831 1077	SPEAKER	SG16G51BFA	2	BS	B	
N	16	6927 7840	BL ASSY	M241135*1	1	DD	B	
N	17	3335 6876	LCD	LD-B10500E	1	CJ	C	
N	18	3122 3736	CFL	HMBV4BG2W178NLUAZG	1	AX	B	
	19	6927 3420	HOLDER / CFL	M440758-1	2	AA	C	
Keyboard unit								
	20	6927 3230	KY ASSY	M140830*1	1	EO	B	
	21	6927 3980	RUBBER / CONTACT AB	M240957-1	1	AE	A	
	22	6927 3990	RUBBER / CONTACT CB	M240958-1	6	AH	A	
	23	6927 4000	RUBBER / CONTACT CS	M240959-1	1	AH	A	
	24	6927 3250	HAMMER ASSY / WHITE KEY	M340962*1	52	BF	B	
	25	6927 3260	HAMMER ASSY / BLACK KEY	M340963*1	36	BF	B	
	26	6927 4030	BLACK KEY	M140784-1	36	AG	A	
	27	6927 4040	WHITE KEY / C	M140783-1	7	AH	A	
	28	6927 4050	WHITE KEY / D	M140785-1	7	AI	A	
	29	6927 4060	WHITE KEY / E	M140786-1	7	AH	A	
	30	6927 4070	WHITE KEY / F	M140787-1	7	AI	A	
	31	6927 4080	WHITE KEY / G	M140788-1	7	AH	A	
	32	6927 4090	WHITE KEY / A.	M140789-1	7	AH	A	

N	Item	Code No.	Part Name	Specification	Q	Price Code	R	Remarks
	33	6927 4100	WHITE KEY / B	M140790-1	8	AI	A	
	34	6927 4110	WHITE KEY / SA	M140792-1	1	AM	A	
	35	6927 4120	WHITE KEY / SC	M140791-1	1	AN	A	
Mechanical parts								
N	36	1015 1485	FDD	DF354H064C		CW	B	
N	37	6921 5032	KNOB / SLIDE	M311859B-1 (1)	2	AA	B	
	38	6924 5260	BUTTON / POWER	M340318-1	1	AA	B	
N	39	6927 6600	FELT / KEY	M440829-1	1	AV	C	
N	40	6927 7800	SW ASSY / POWER	M341019*2	1	BJ	B	
N	41	6928 2630	BUTTON / RUBBER / 660A	M341002-1	2	AA	B	
N	42	6928 2640	BUTTON / RUBBER / 660B	M241040-1	2	AG	B	
N	43	6928 2651	BUTTON / RUBBER / 660C	M241041A-1	1	AF	B	
N	44	6928 2660	BUTTON / RUBBER / 660D	M241042-1	1	AG	B	
N	45	6928 2670	BUTTON / RUBBER / 660E	M341021-1	1	AA	B	
N	46	6928 2680	BUTTON / RUBBER / 660F	M241043-1	1	AB	B	
N	47	6928 2690	BUTTON / RUBBER / 660G	M241044-1	1	AB	B	
N	48	6928 2700	BUTTON / RUBBER / 660H	M241045-1	1	AC	B	
N	49	6928 2710	BUTTON / RUBBER / 660I	M241046-1	1	AC	B	
N	50	6928 2720	BUTTON / RUBBER / 660J	M241047-1	1	AC	B	
N	51	6928 2730	BUTTON / RUBBER / 660K	M341022-1	2	AA	B	
N	52	6928 2740	BUTTON / RUBBER / 660L	M241048-1	2	AF	B	
N	53	6928 2751	BUTTON / RUBBER / 660M	M241049A-1	1	AF	B	
N	54	6928 2760	BUTTON / RUBBER / 660N	M241050-1	1	AF	B	
N	55	6928 2770	BUTTON / RUBBER / 660P	M241039-1	1	AC	B	
N	56	6928 2790	CONNECTOR	M440837-1	1	BA	B	
N	57	6928 2800	FILM	M341053-1	1	AN	C	
N	58	6928 2810	PACKING	M440868-1	2	AF	C	
N	59	6928 2820	PLATE / DISPLAY	M341020-1	1	AM	C	
N	60	1000 5478	TAPE / ADHESIVE	M440950-1	1	AA	C	
N	61	1000 5480	TAPE / ADHESIVE	M440951-1	1	AA	C	
N	62	1000 5482	TAPE / ADHESIVE	M440952-1	2	AA	C	
Stand								
N	63	6928 0391	PEDAL-BOX	M241122A*1	1	DL	B	
N	64	1003 4044	SCREW SET	M341367-1	1	BV	B	
AC cord								
N	65	6927 7690	AC-CORD-ASSY	M341018*4	1	CI	C	110 -127V area
	65	3701 1008	CORD-SET	SP22-17022A	1	CD	C	UK(230V)
	65	3701 0595	CORD-SET	EC-654-E06	1	BP	C	Europe(230V) 240V area
Accessories								
N		6928 3260	FLOPPY-DISK	AP60R-DISK-1	1	AP	C	
N		6928 3270	FLOPPY-DISK	AP60R-DISK-2	1	AN	C	

Notes: N- New parts
Q-Quantity used per unit
R-Rank

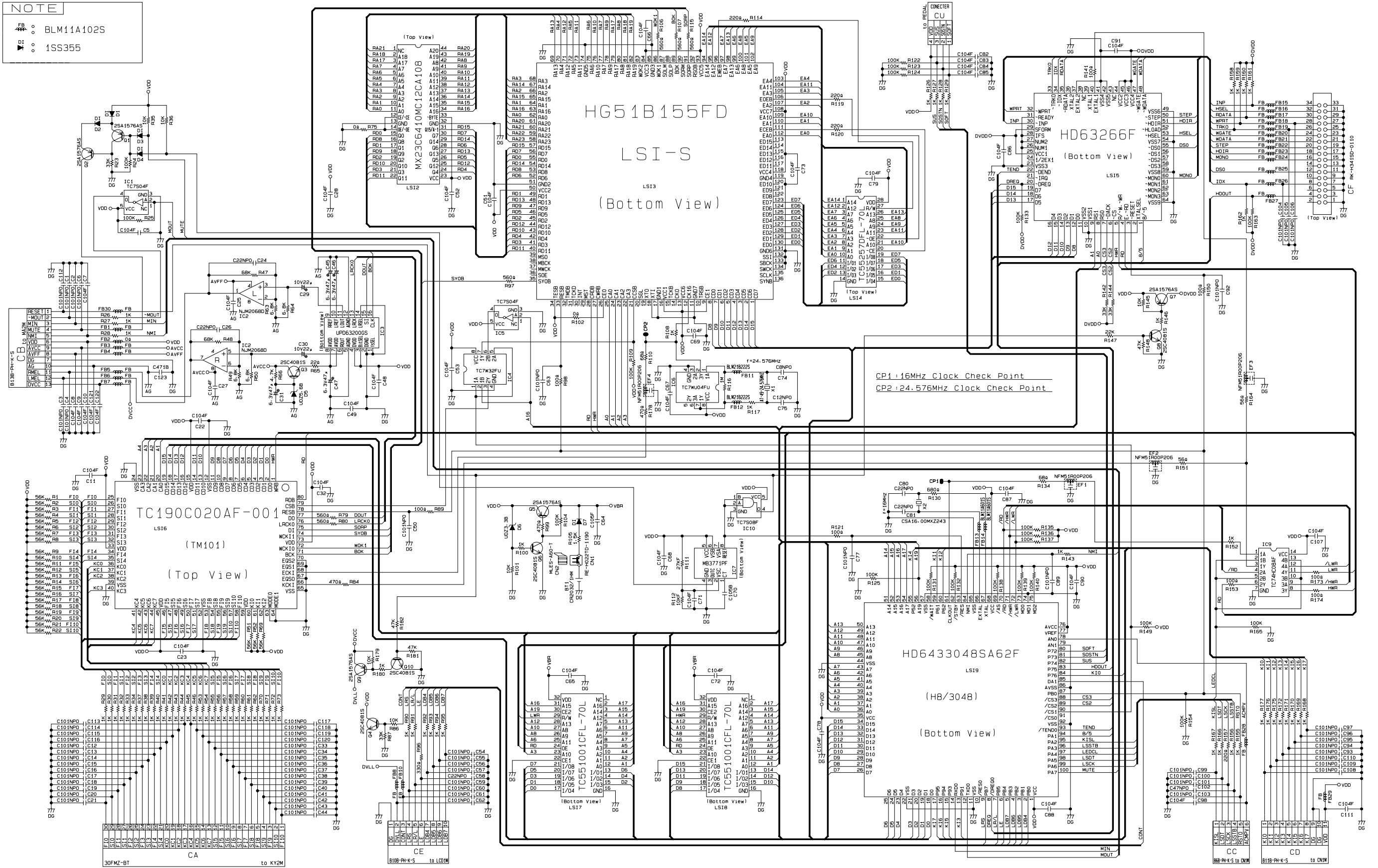
SCHEMATIC DIAGRAMS

MAIN PCB JCM660-MA1M

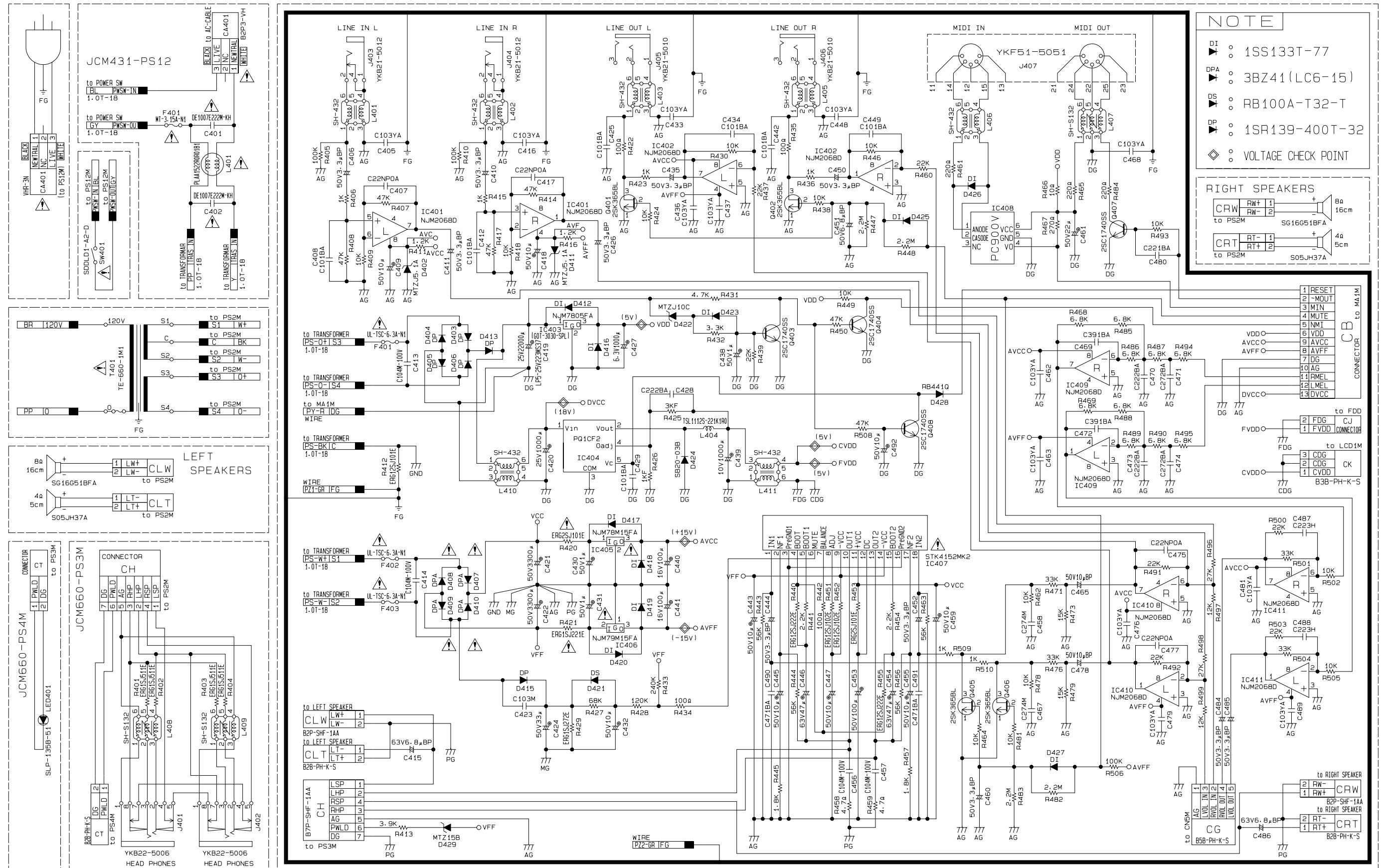
NOTE

FB BLM11A102S

RI 1SS355

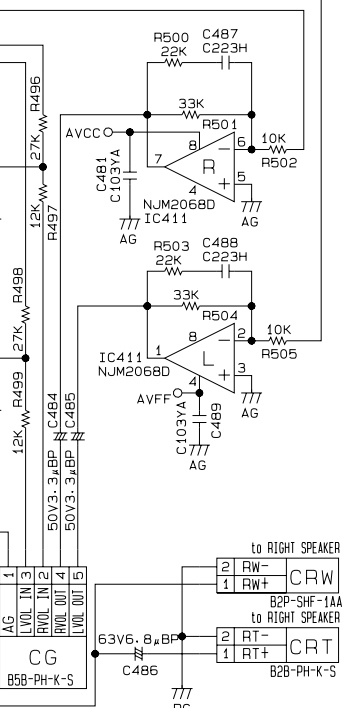
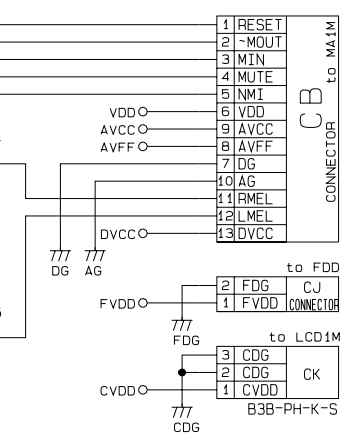
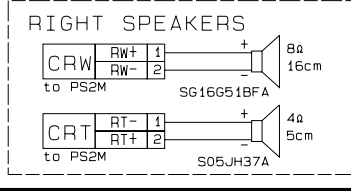


PHONE JACK PCBs JCM660-PS2M,PS3M,PS4M and POWER PCBs JCM431-PS12 (120 V area)

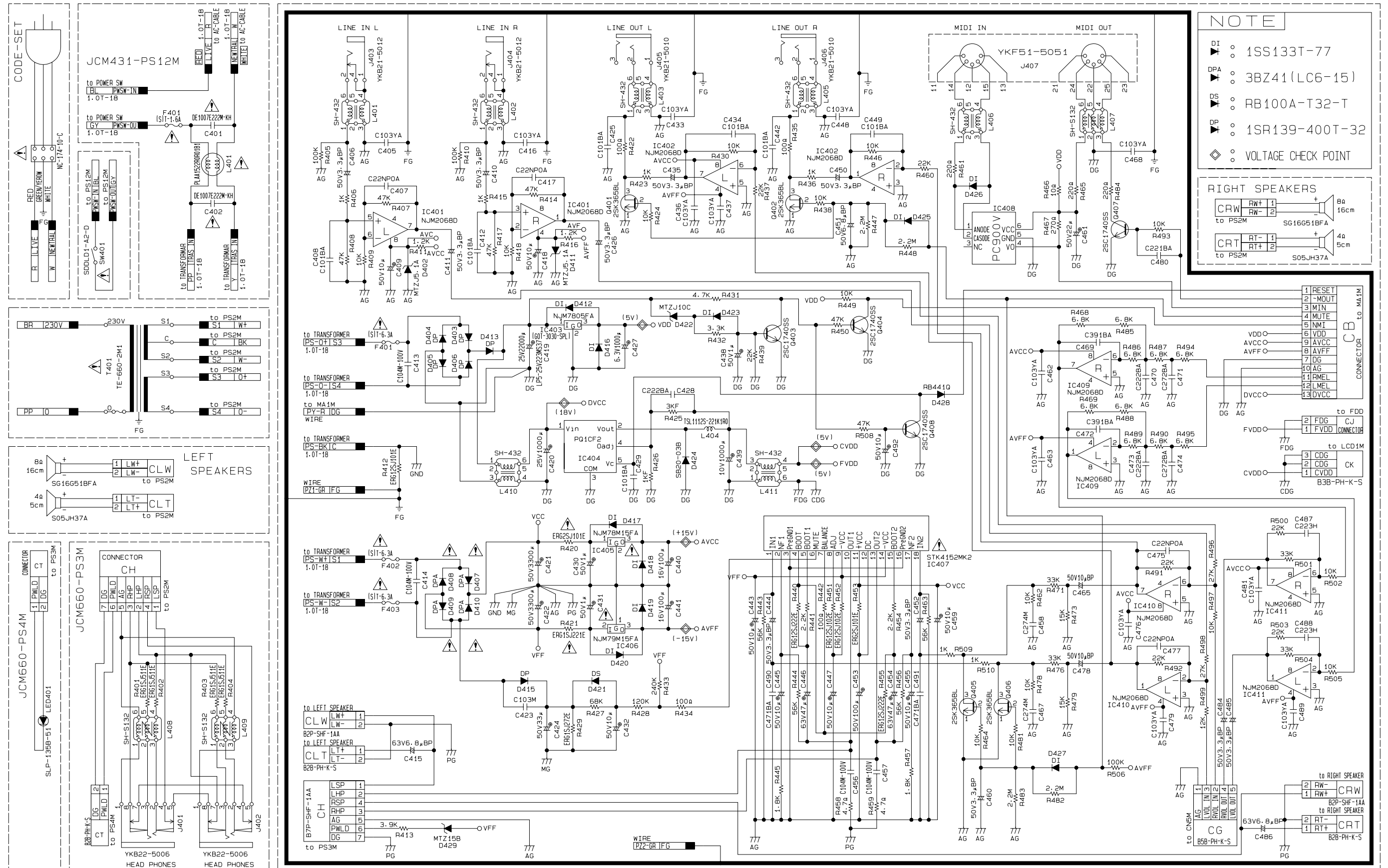


NOTE

- ▷ DI : 1SS133T-77
- ▷ DPA : 3BZ41(LC6-15)
- ▷ DS : RB100A-T32-T
- ▷ DP : 1SR139-400T-32
- ◇ : VOLTAGE CHECK POINT

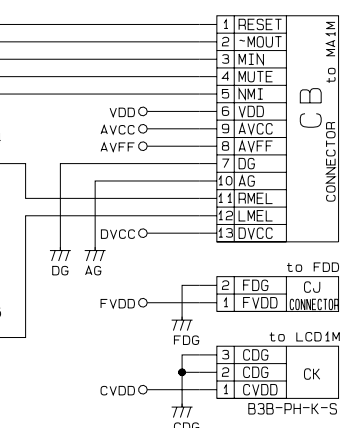
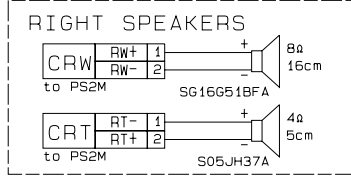


PHONE JACK PCBs JCM660-PS2M,PS3M,PS4M and POWER PCBs JCM431-PS12 (230 V area)



NOTE

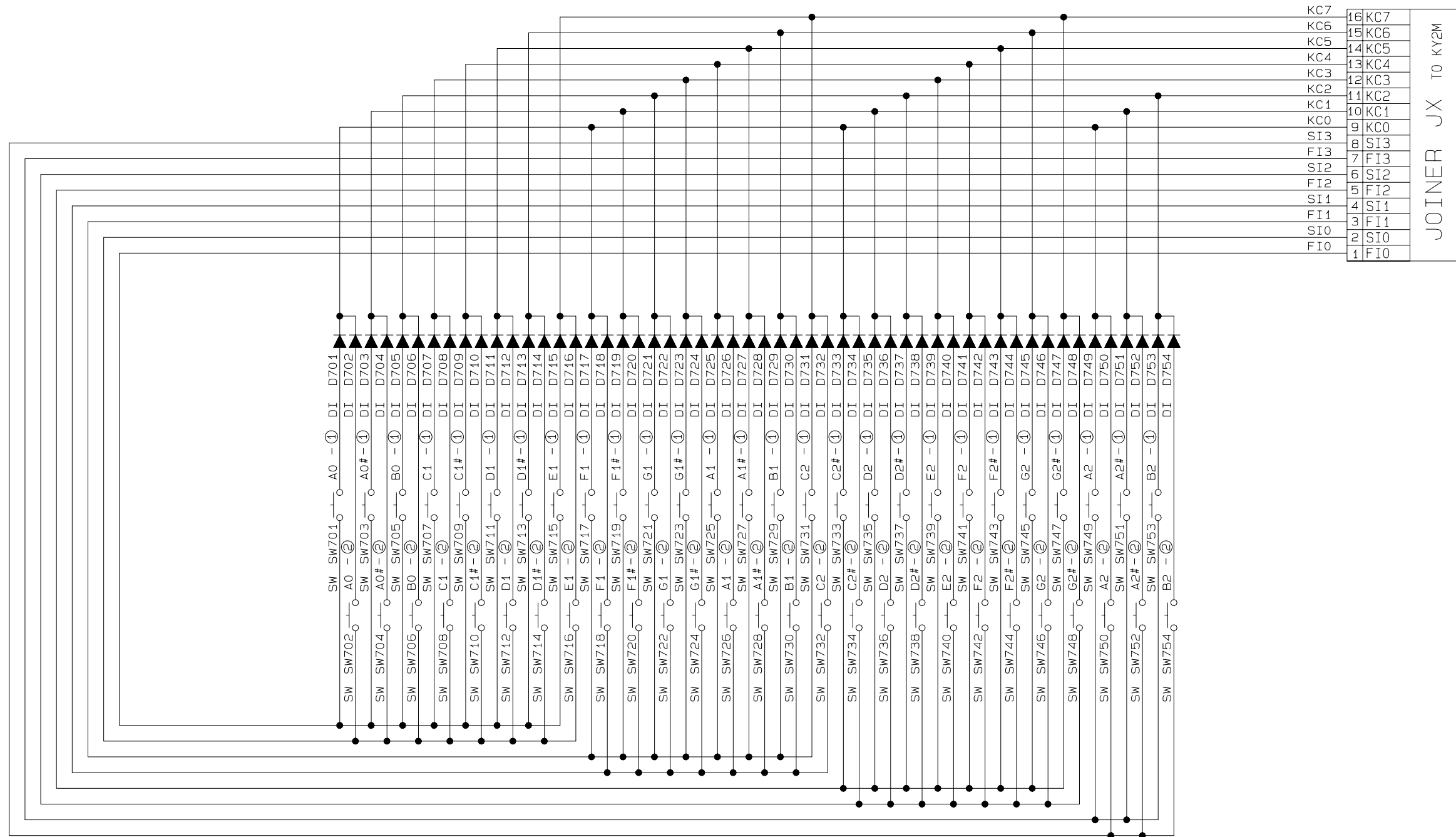
- ▷ DI : 1SS133T-77
- ▷ DPA : 3BZ41(LC6-15)
- ▷ DS : RB100A-T32-T
- ▷ DP : 1SR139-400T-32
- ◇ : VOLTAGE CHECK POINT



KEYBOARD PCB JCM887T-KT1M

JCM887T-KY1M

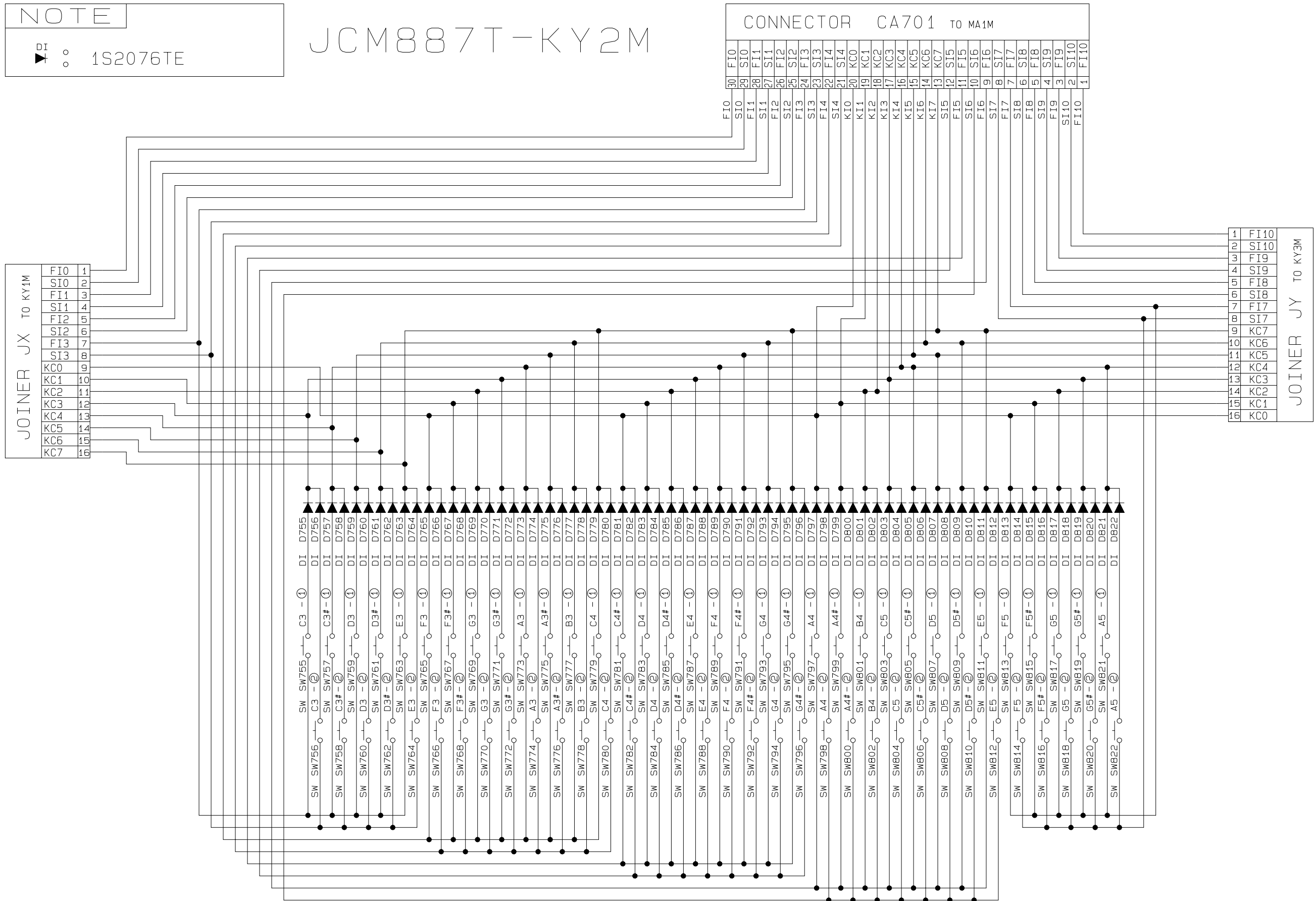
NOTE
 : 1S2076TE



KEYBOARD PCB JCM887T-KT2M

NOTE
 : 1S2076TE

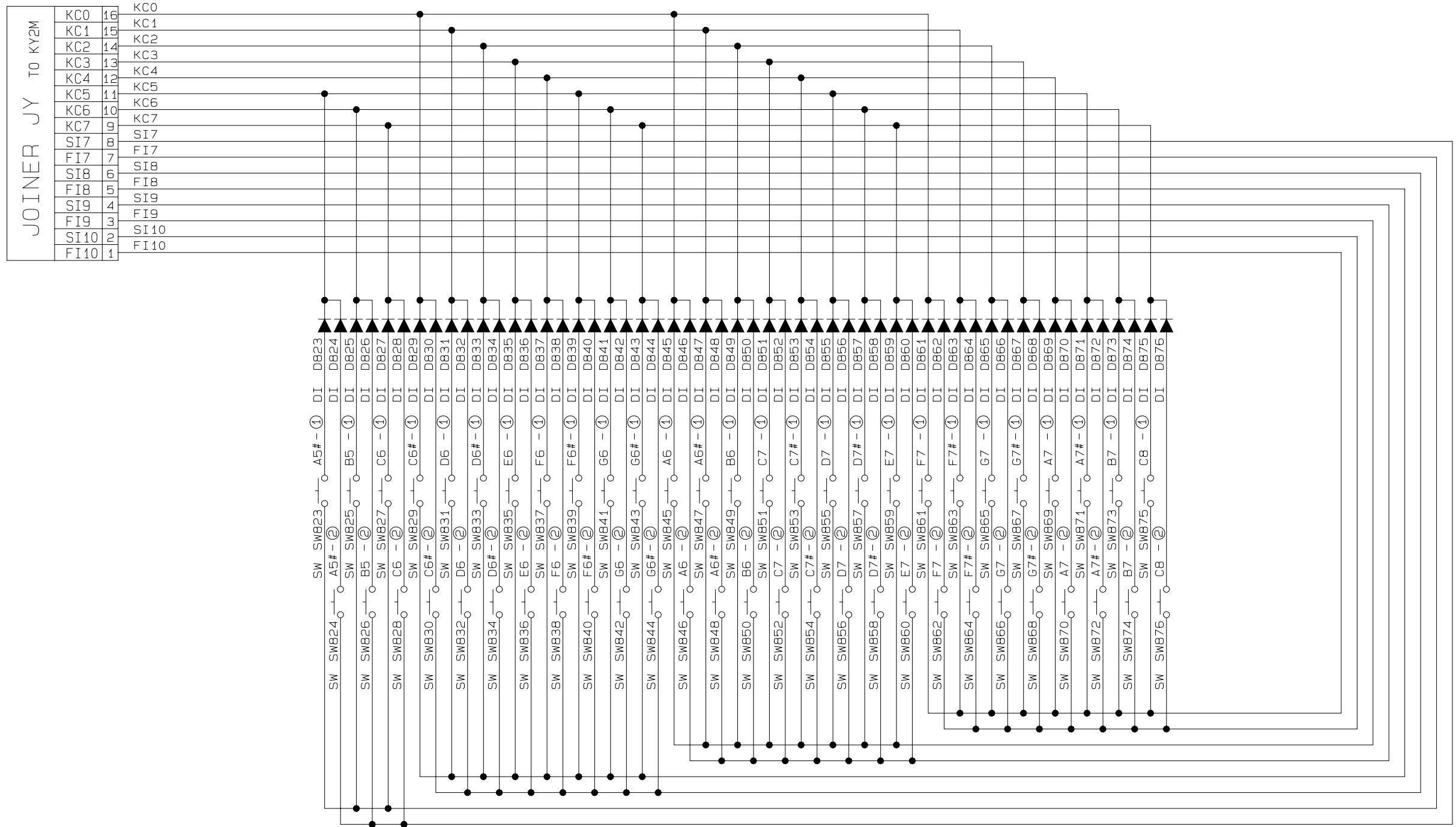
JCM887T-KY2M



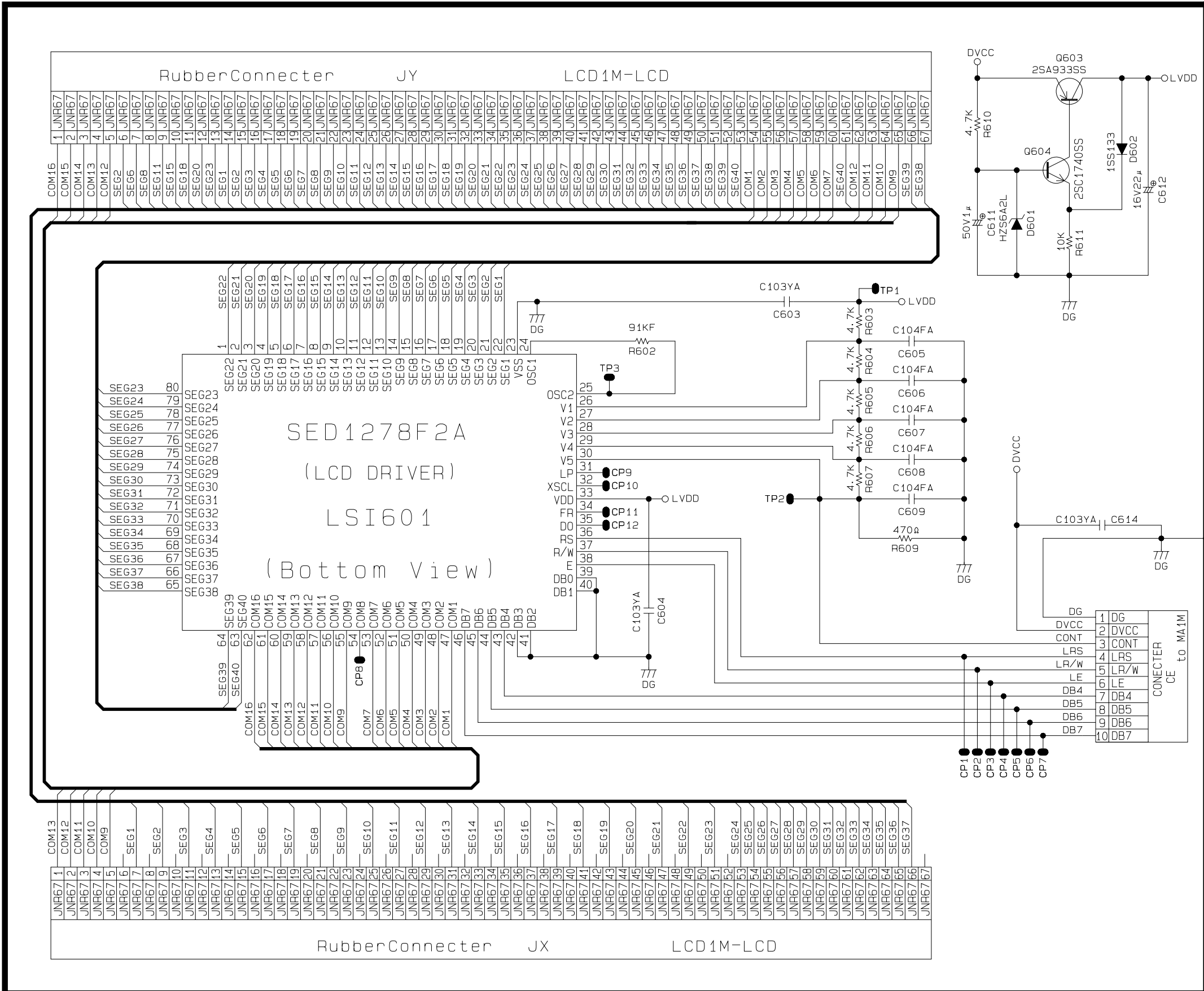
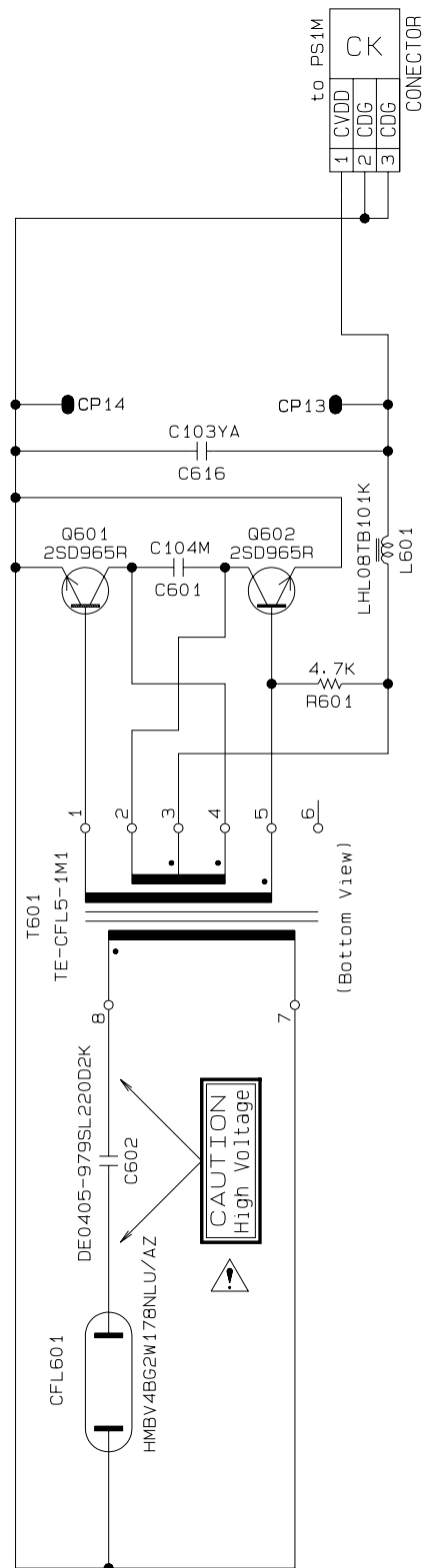
KEYBOARD PCB JCM887T-KT3M

JCM887T-KY3M

NOTE
 : 1S2076TE



LCD PCB JCM660-LCD1M



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