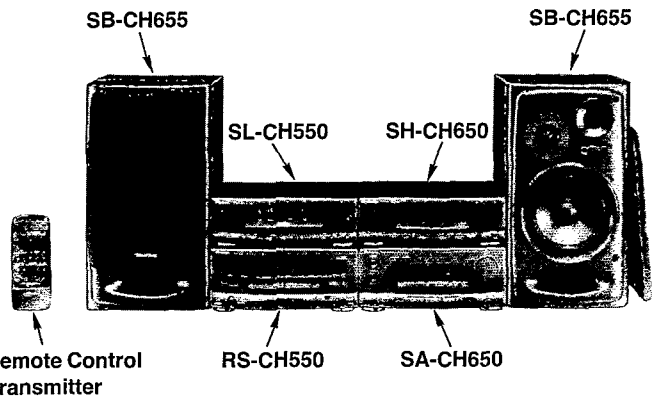
ORDER NO. AD9211363C8

Service Manual

Sound Processor

SH-CH650

Sound Processor



Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

Colour

(K) ..... Black Type

Areas

Suffix for Model No.	Area	Colour
(E)	Europe and Oceania	(K)
(GC)	Asia, Latin America, Middle Near East and Africa	

System: SC-CH650

■ SPECIFICATIONS

(DIN 45 500)

■ PRE AMP. SECTION

Input sensitivity and impedance

For (E) area

PHONO	2.5 mV/47 kΩ
DAT	250 mV/15 kΩ
MIC	0.6 mV/12 kΩ

For (GC) area

DAT, AUX	250 mV/15 kΩ
MIC	0.6 mV/12 kΩ

Output level

DAT REC OUT (ANALOG)	150 mV/1.5 kΩ

■ EQUALIZER, SOUND FIELD PROCESSOR SECTION

Equalizer

Center frequency	63, 160, 400, 1 k, 2.5 k, 6.3 k, 12.5 k(Hz)

Fixed mode

SPACE (3 modes)	HALL, LIVE, DISCO
GEQ (3 modes)	HEAVY, CLEAR, SOFT
CAR/H.P (2 modes)	CARST, HP ST

Frequency response

For (E) area

TUNER, CD, TAPE, DAT	15 Hz–20 kHz
PHONO (RIAA STANDARD CURVE)	30 Hz–15 kHz/+1.5, −2.0 dB

For (GC) area

TUNER, CD, TAPE, DAT, AUX	15 Hz–20 kHz

■ GENERAL

Dimensions (W×H×D)	270×89.5×271 mm
Weight	1.7 kg

Notes:

1. Specifications are subject to change without notice.
2. Weight and dimensions are approximate.
3. Total harmonic distortion is measured by the digital spectrum analyzer.

System	Sound processor	Tuner amplifier	Compact disc player	Cassette deck	Speakers
SC-CH650	SH-CH650	SA-CH650	SL-CH550	RS-CH550	*SB-CH655

***(E) area...Made in PAES.**

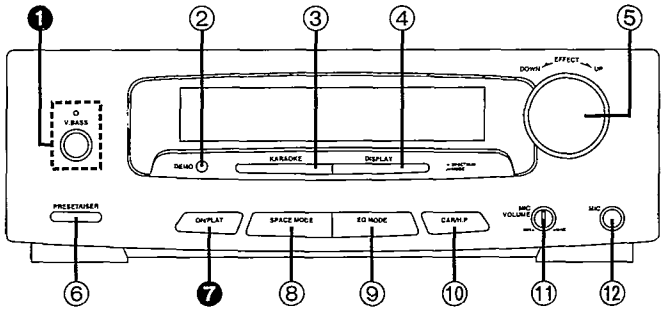
Technics

■ CONTENTS

NOTES:

Refer to the service manual for Model No. SA-CH650, Order No. AD9211362C2 for information on ACCESSORIES, STACKING THE COMPONENTS, CONNECTIONS and PACKAGING.

■ LOCATION OF CONTROLS



The functions indicated by the numbers with black background (for example ❶) can also be activated from the remote control.

❶ V. Bass button and indicator (V. BASS)

Press to boost the dynamic low-frequency ranges.

② Demonstration button (DEMO)

Use for reference of the adjustments of equalization curves and SPACE mode sounds. The pre-programmed equalization curves and SPACE mode sounds will be heard sequentially for adjustment example.

③ Voice mute button (KARAOKE)

Press to perform "KARAOKE" (microphone mixing with an accompaniment).

④ Display mode select button (DISPLAY, -SPECTRUM, -MODE)

Use to select one of 5 spectrum modes.
Press and hold to extinguish the equalization curve.

⑤ Sound effect adjustment control (EFFECT)

Use to adjust the level of SPACE mode sounds (simulated listening environments), and equalizer level.

⑥ Preset/User mode button (PRESET/USER)

Press to select either PRESET mode or USER mode.

❼ Equalizer/SPACE mode ON/FLAT button (ON/FLAT)

Press to switch the equalizer or SPACE mode on or flat.

⑧ SPACE mode button (SPACE MODE)

Press to select the SPACE mode.

⑨ Equalizer mode button (EQ MODE)

Press to select the equalizer mode.

⑩ CAR/H.P mode button (CAR/H.P)

Press to select the equalizer mode especially programmed for the car audio or headphones stereo use.

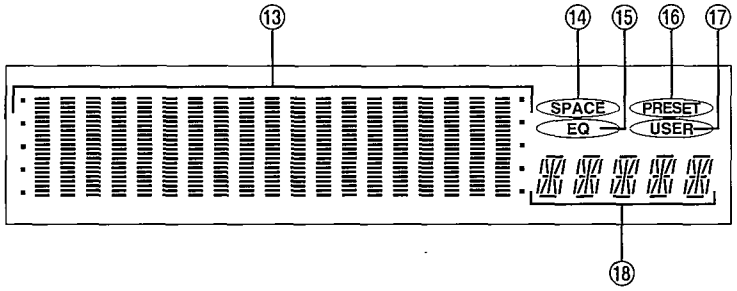
⑪ Microphone volume control (MIC VOLUME)

Use to adjust the microphone volume level.

⑫ Microphone jack (MIC) (∅6, 12 kΩ)

Plug microphone cord into this jack.

•Display section



⑬ Multi level display

Shows the equalization/spectrum analysis level.

⑭ SPACE mode indicator (SPACE)

Lights when you select the SPACE mode (DISCO, LIVE, HALL).

⑮ Equalizer mode indicator (EQ)

Lights when you select the equalizer mode (HEAVY, CLEAR, SOFT).

⑯ Preset mode indicator (PRESET)

Lights when you select the preset mode.

⑰ USER mode indicator (USER)

Lights when you adjust the level of SPACE mode or equalizer level.

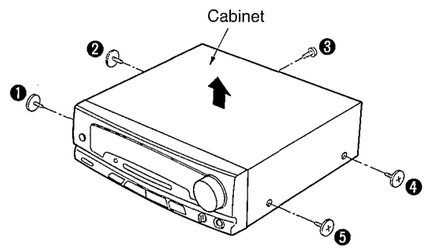
⑱ Sound mode display

Shows the selected mode of equalization curve or SPACE mode sound.

■ DISASSEMBLY INSTRUCTIONS

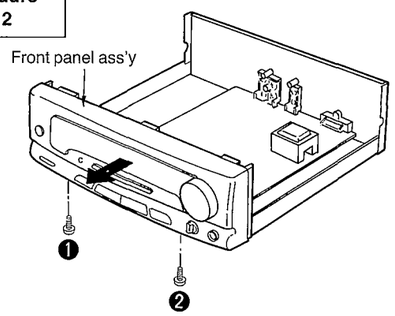
"ATTENTION SERVICER"
Some chassis components may have sharp edges. Be careful when disassembling and servicing.

Ref. No. 1	Removal of the Cabinet
Procedure 1	



1. Remove the 5 screws (❶~❺).
2. Remove the cabinet in the direction of arrow.

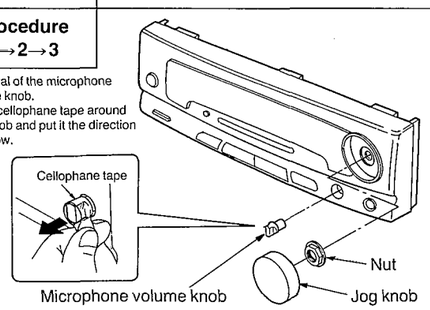
Ref. No. 2	Removal of the Front Panel Ass'y
Procedure 1→2	



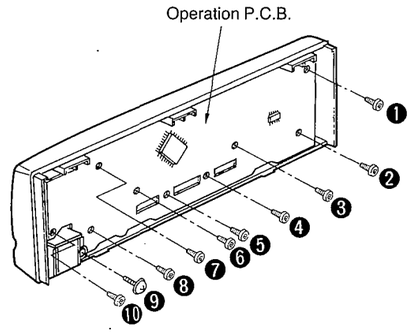
1. Remove the 2 screws (❶, ❷).
2. Remove the front panel ass'y in the direction of arrow.

Ref. No. 3	Removal of the Operation P.C.B.
Procedure 1→2→3	

*Removal of the microphone volume knob.
●Wind cellophane tape around the knob and put it the direction of arrow.

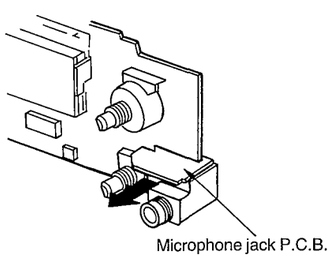


1. Pull out the microphone volume knob.
2. Pull out the jog knob.
3. Remove the nut.



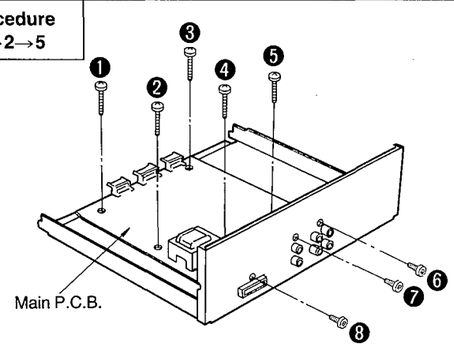
4. Remove the 10 screws (❶~❿).

Ref. No. 4	Removal of the Microphone Jack P.C.B.
Procedure 1→2→3→4	



●Remove the microphone jack P.C.B. in the direction of arrow.

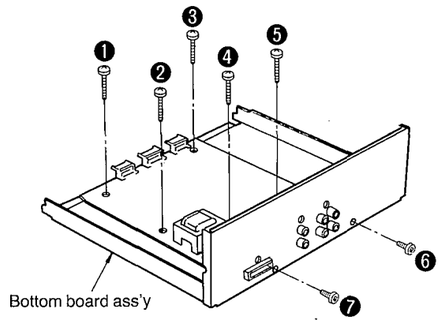
Ref. No. 5	Removal of the Main P.C.B.
Procedure 1→2→5	



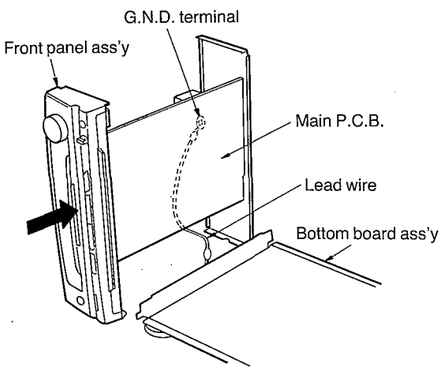
●Remove the 8 screws (❶~❽).

Ref. No. 6	How to check the Main P.C.B.
Procedure 1→2→6	

●When checking the soldered surfaces of main P.C.B. and replacing the parts, do as shown below.



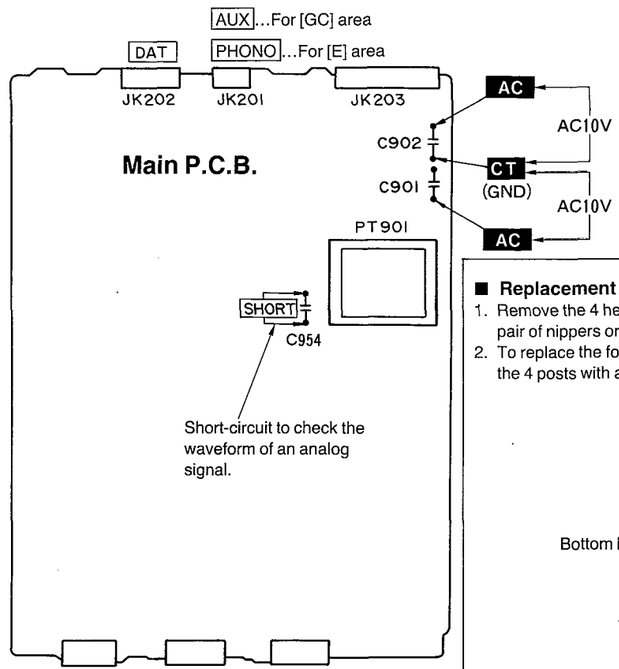
1. Remove the 7 screws (❶~❼).
2. Remove the bottom board ass'y.



3. Reinstall the front panel ass'y to the main P.C.B.
4. Connect the G.N.D. terminal to the bottom board ass'y using the lead wire.

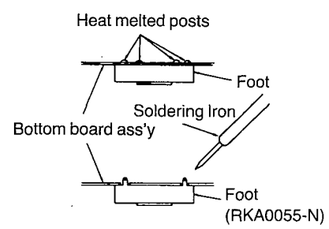
■ This unit (SH-CH650) is actuated by power supply from the tuner amplifier SA-CH650. If you wish to actuate this unit without using the tuner amplifier SA-CH650 for checking or repairing, follow the below procedures.

1. Short-circuit the terminal of the capacitor (C954).
2. Apply AC 10 V between AC (C901)– CT (C901, C902)– AC (C902).

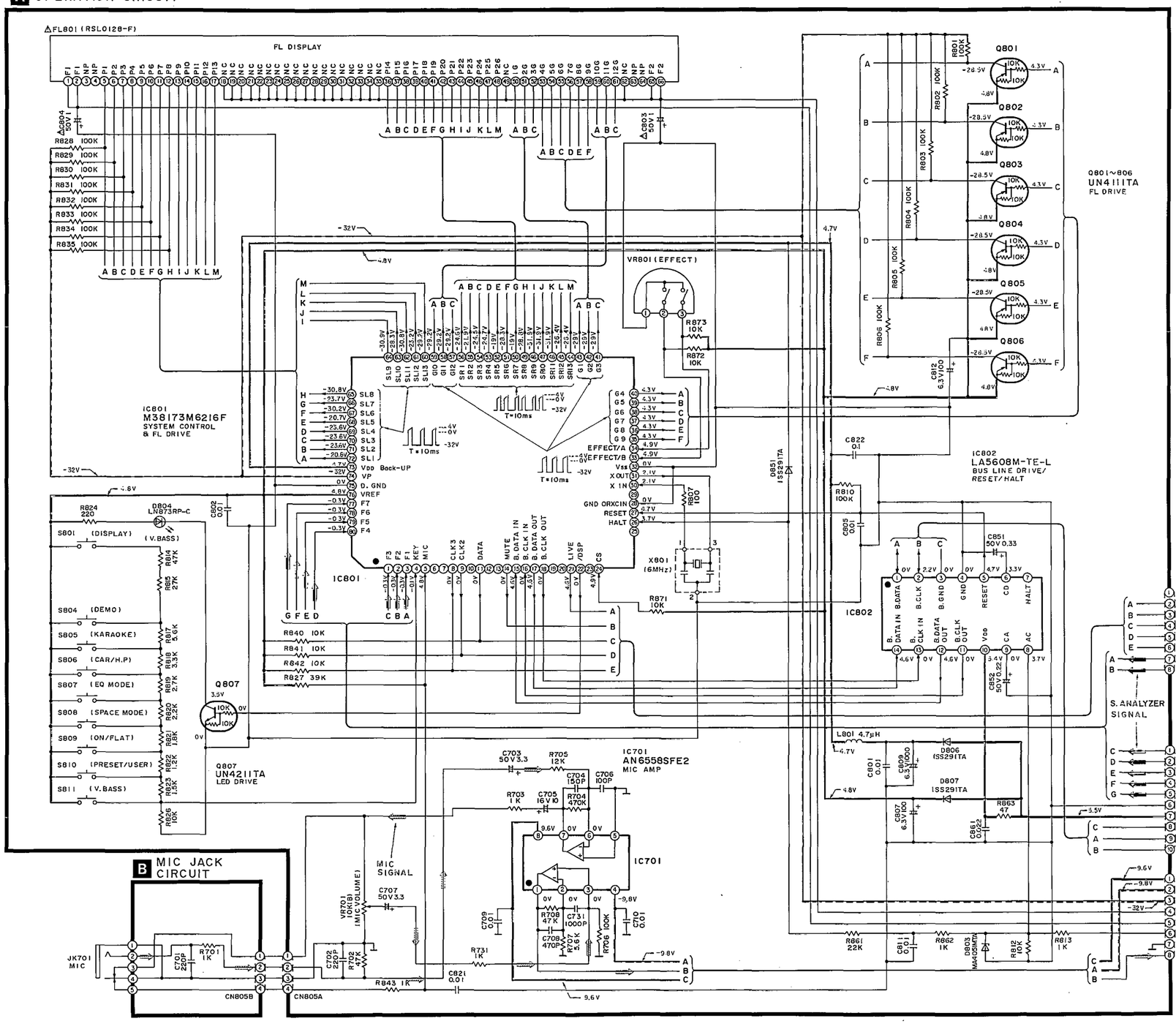


■ Replacement of the Foot

1. Remove the 4 heat melted posts on the bottom board ass'y with a pair of nippers or similar tool.
2. To replace the foot (RKA0055-N) on the bottom board ass'y, melt the 4 posts with a soldering iron.



■ SCHEMATIC DIAGRAM •OPERATION/MIC JACK CIRCUIT (Parts list on pages 18, 19, 21, 22.)



Notes:

- •S801 : Display mode select switch (DISPLAY, -SPECTRUM, –MODE)
- •S804 : Demonstration switch (DEMO)
- •S805 : Voice mute switch (KARAOKE)
- •S806 : CAR/H.P mode switch (CAR/H.P)
- •S807 : Equalizer mode switch (EQ MODE)
- •S808 : Space mode switch (SPACE MODE)
- •S809 : Equalizer/Space mode ON/FLAT switch (ON/FLAT)
- •S810 : Preset/User mode switch (PRESET/USER)
- •S811 : V. Bass switch (V. Bass)
- •Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard.
  Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
- •Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety.
  Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
- **•This schematic diagram may be modified at any time with the development of new technology.**

- **•Caution!**
  IC and LSI are sensitive to static electricity.
  Secondary trouble can be prevented by taking care during repair.
  Cover the parts boxes made of plastics with aluminum foil.
  Ground the soldering iron.
  Put a conductive mat on the work table.
  Do not touch the legs of IC or LSI with the fingers directly.

: Source signal line

: Rec out signal line

: V. Bass signal line

: Spectrum analizer signal line

: Mic signal line

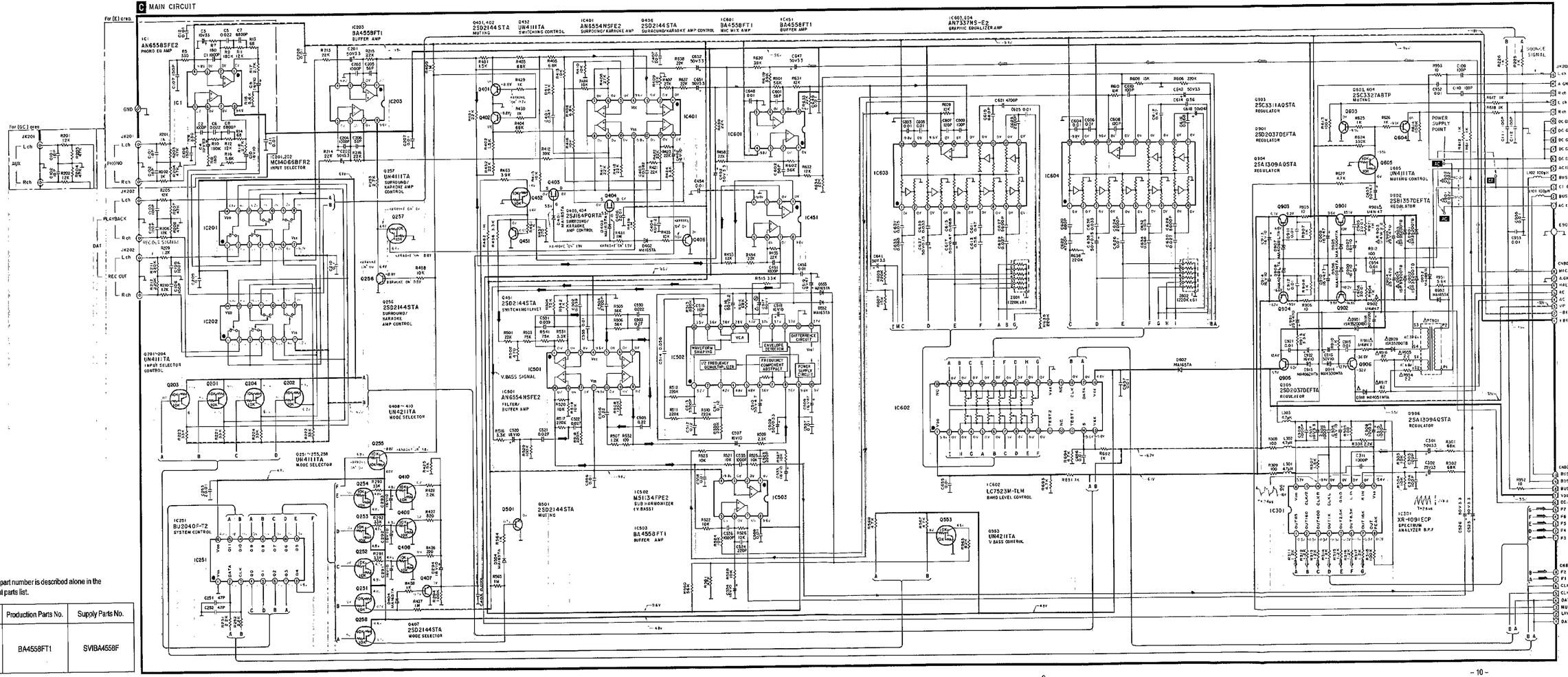
: Positive voltage line

: Negative voltage line

SH-CH650 SH-CH650

■ SCHEMATIC DIAGRAM • MAIN CIRCUIT (Parts list on pages 18, 19, 21, 22.)

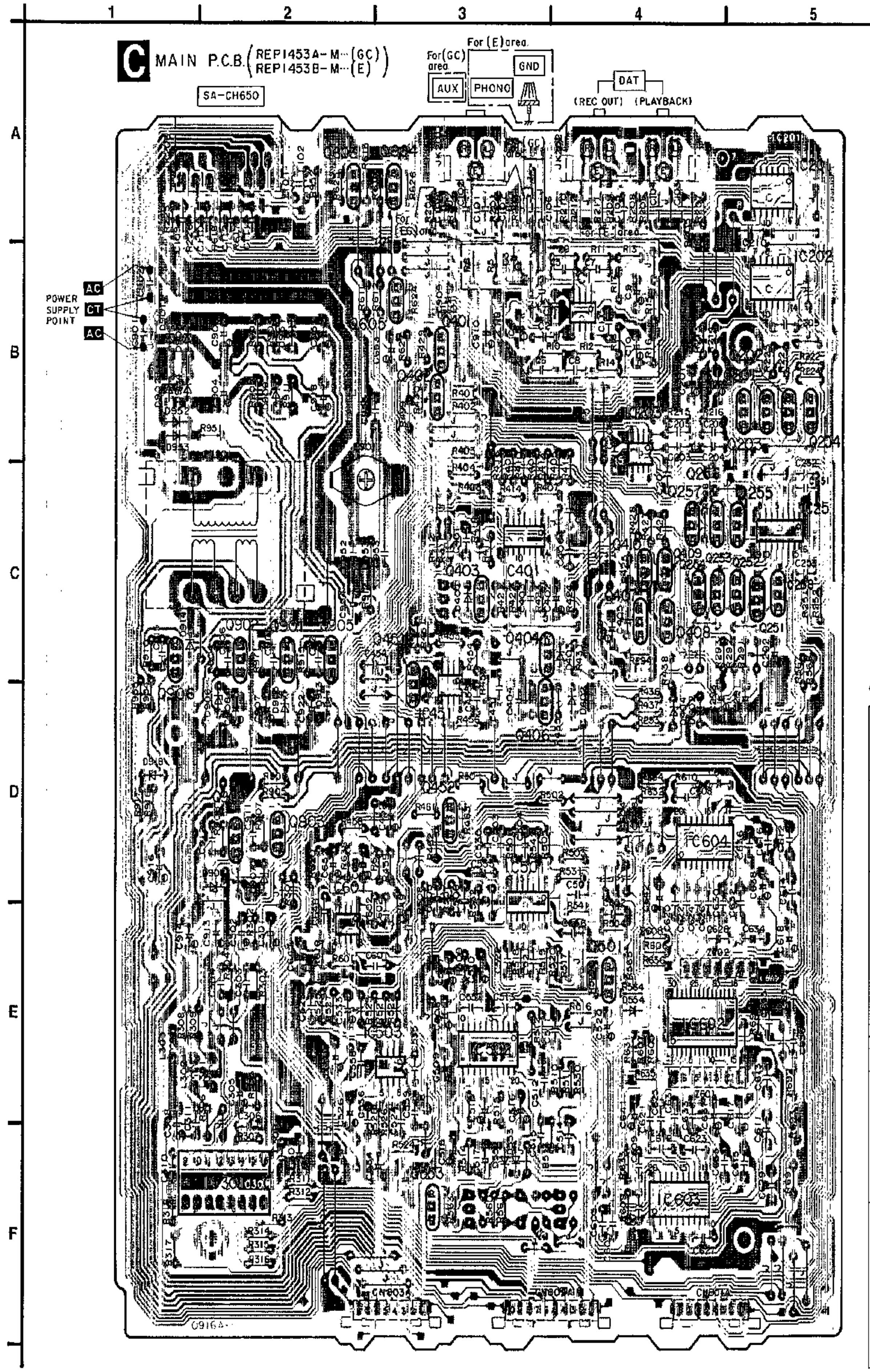
C MAIN CIRCUIT



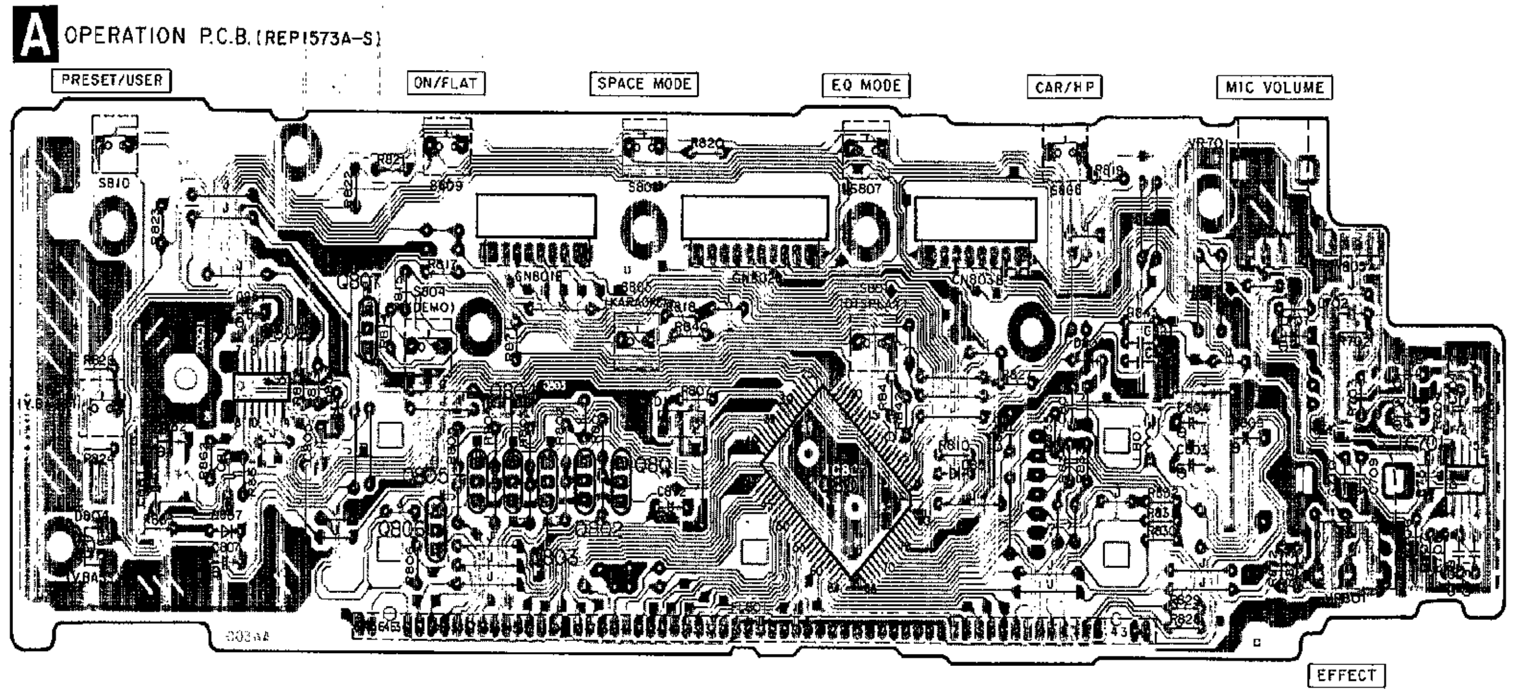
• The supply part number is described alone in the replacement parts list.

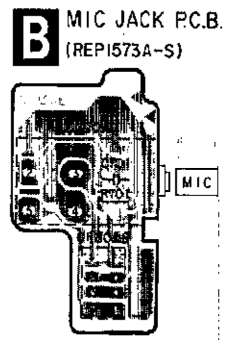
Ref. No.	Production Parts No.	Supply Parts No.
IC203 IC451 IC503 IC601	BA4558FT1	SVIBA4558F

■ PRINTED CIRCUIT BOARD DIAGRAM



•This circuit board diagram may be modified at any time with the development of new technology.



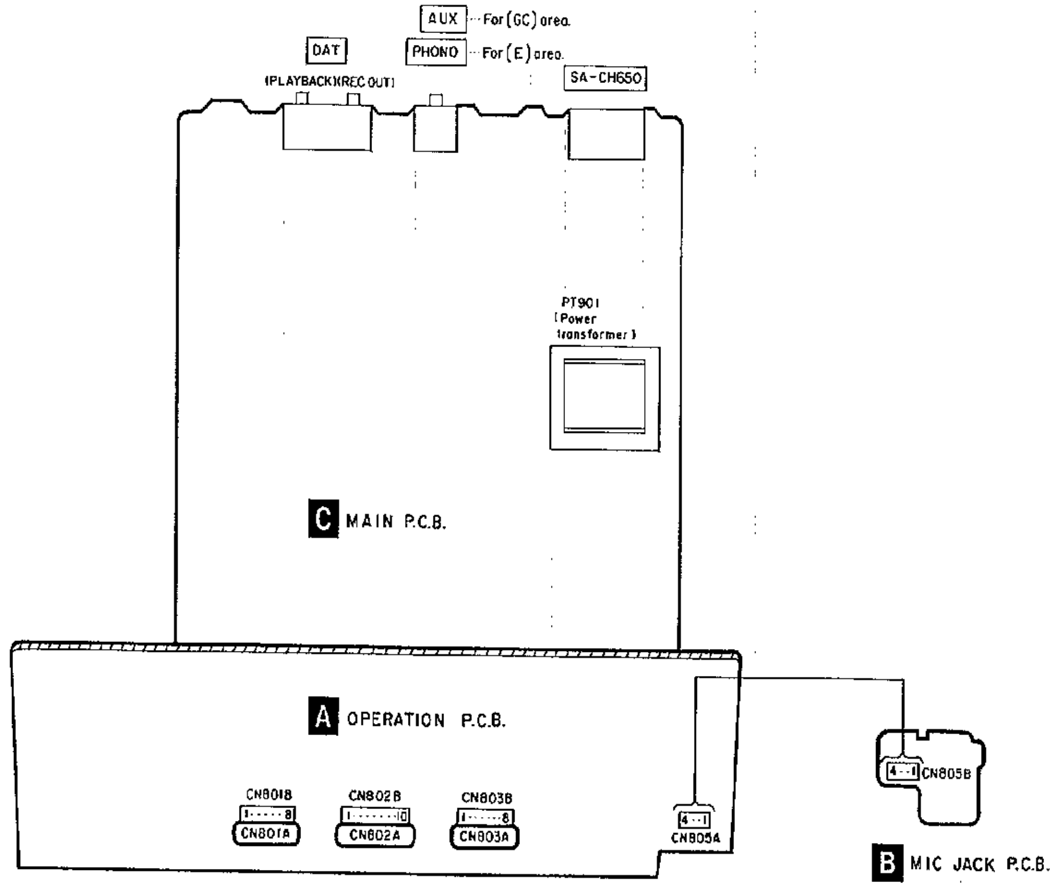


•Terminal guide of IC's, transistors and diodes.

BA4558FT1	AN6554NSFE2 14Pin, M51134FPE2 20Pin, LA5608M-TE-L 14Pin, LC7523M-TLM 30Pin, MC14066BFR2 14Pin, AN6558SFE2 8Pin, BU2040F-T2 16Pin, AN7337NS-E2 20Pin		
M38173M6216F	XR-1091ECP	2SC3327ABTP 2SD2144STA	2SB1357DEFTA 2SD2037DEFTA
	2SA1309AQSTA 2SC3311AQSTA UN4111TA UN4211TA	2SJ164PQRTA	MA165TA MA185TA 1SR35200TB
1SS291TA	MA4100MTA MA4300MTA	MA4051MTA MA4062HTA MA4068LTA	LN873RP-C

AN6554NSFE2	14Pin	M51134FPE2	20Pin
LA5608M-TE-L	14Pin	LC7523M-TLM	30Pin
MC14066BFR2	14Pin	AN6558SFE2	8Pin
BU2040F-T2	16Pin		
AN7337NS-E2	20Pin		

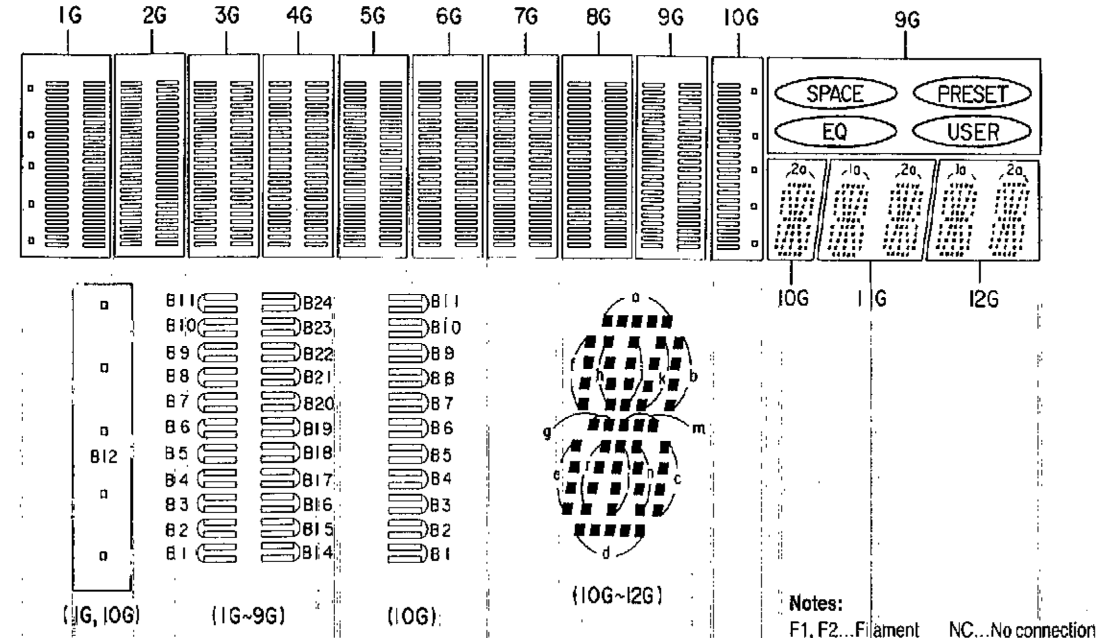
■ WIRING CONNECTION DIAGRAM



SH-CH650 SH-CH650

■ DESCRIPTION OF FL PANEL (FL801: RSL0128-F)

•Grid assignment



Notes:
F1, F2...Filament NC...No connection
NP...No pin 1G~12G...Grid

•Pin connection

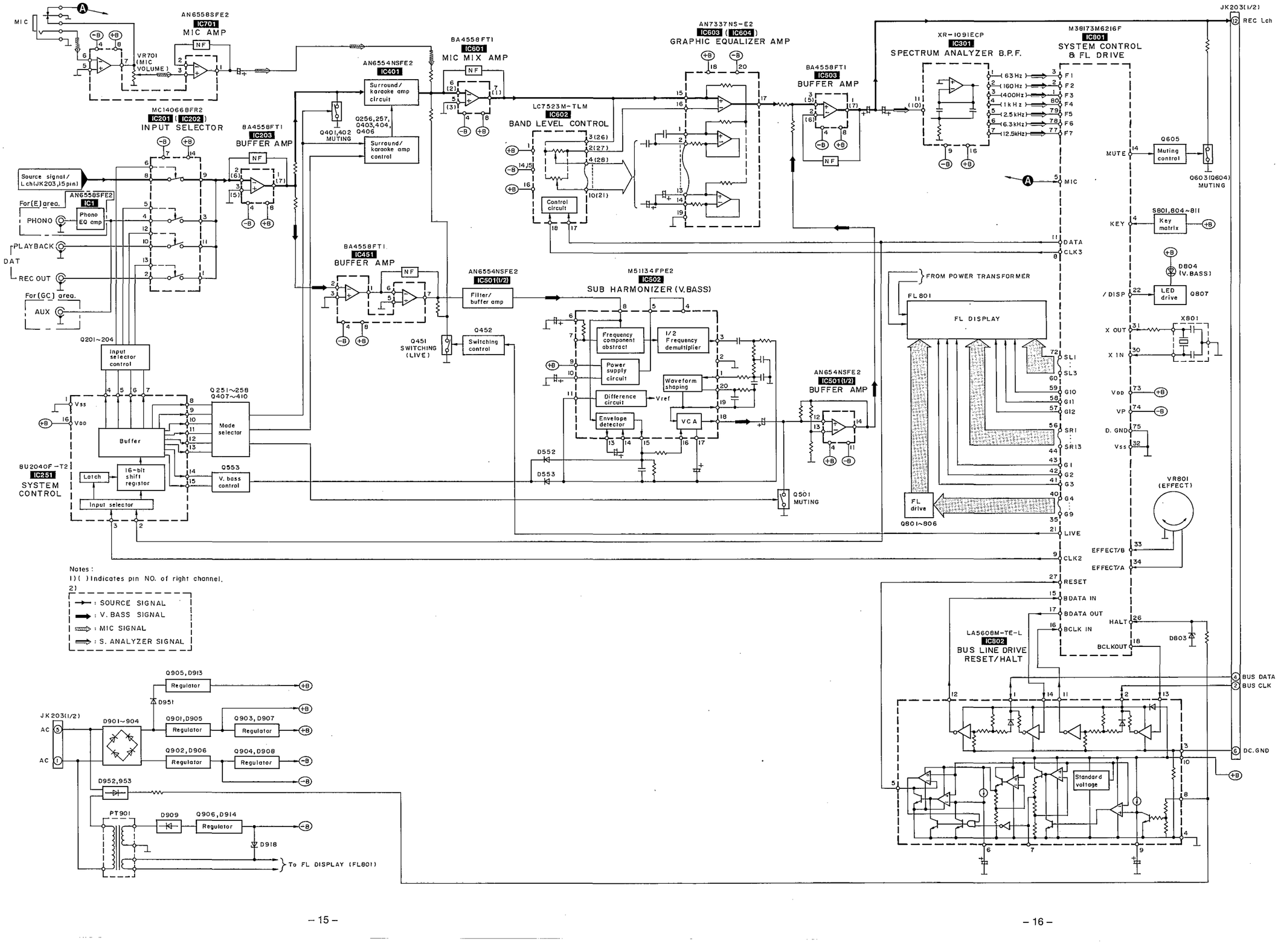
Pin No.	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Terminal Name	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	NP	NP	F1	F1

Pin No.	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34
Terminal Name	F2	F2	NP	NP	NC	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NC	P26	P25	P24	P23	P22	P21	P20	P19	P18	P17	P16	P15	P14	NC	NC

•Anode connection

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G
P1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	1d	1d
P2	B2	B2	B2	B2	B2	B2	B2	B2	B2	B2	1c	1c
P3	B3	B3	B3	B3	B3	B3	B3	B3	B3	B3	1n	1n
P4	B4	B4	B4	B4	B4	B4	B4	B4	B4	B4	1r	1r
P5	B5	B5	B5	B5	B5	B5	B5	B5	B5	B5	1e	1e
P6	B6	B6	B6	B6	B6	B6	B6	B6	B6	B6	1m	1m
P7	B7	B7	B7	B7	B7	B7	B7	B7	B7	B7	1g	1g
P8	B8	B8	B8	B8	B8	B8	B8	B8	B8	B8	1b	1b
P9	B9	B9	B9	B9	B9	B9	B9	B9	B9	B9	1k	1k
P10	B10	B10	B10	B10	B10	B10	B10	B10	B10	B10	1j	1j
P11	B11	B11	B11	B11	B11	B11	B11	B11	B11	B11	1h	1h
P12	B12	–	–	–	–	–	–	–	EQ	B12	1f	1f
P13	–	–	–	–	–	–	–	–	SPACE	–	1a	1a
P14	B14	B14	B14	B14	B14	B14	B14	B14	B14	2d	2d	2d
P15	B15	B15	B15	B15	B15	B15	B15	B15	B15	2c	2c	2c
P16	B16	B16	B16	B16	B16	B16	B16	B16	B16	2n	2n	2n
P17	B17	B17	B17	B17	B17	B17	B17	B17	B17	2r	2r	2r
P18	B18	B18	B18	B18	B18	B18	B18	B18	B18	2e	2e	2e
P19	B19	B19	B19	B19	B19	B19	B19	B19	B19	2m	2m	2m
P20	B20	B20	B20	B20	B20	B20	B20	B20	B20	2g	2g	2g
P21	B21	B21	B21	B21	B21	B21	B21	B21	B21	2b	2b	2b
P22	B22	B22	B22	B22	B22	B22	B22	B22	B22	2k	2k	2k
P23	B23	B23	B23	B23	B23	B23	B23	B23	B23	2j	2j	2j
P24	B24	B24	B24	B24	B24	B24	B24	B24	B24	2h	2h	2h
P25	–	–	–	–	–	–	–	–	USER	2f	2f	2f
P26	–	–	–	–	–	–	–	–	PRESET	2a	2a	2a

■ BLOCK DIAGRAM



■ FUNCTION OF IC TERMINALS

•IC801 (M38173M6216F)

Pin No.	Signal Name	I/O	Description
1 ~ 3	F3 ~ F1	I	Spectrum analyzer input
4	KEY	I	Key input
5	MIC	I	MIC connection detection input (MIC IN="L")
6	——	—	Strobing input for TC916 4N (normally at "L") (No use)
7	——	—	No use (normally at "L") (No use)
8	CLK3	O	Clock output for M50253, switching output video (normally at "L")
9	CLK2	O	Clock output for LC7523 (normally at "L")
10	——	—	Clock output for TC9164 (normally at "L") (No use)
11	DATA	O	Data output for TC9164, BU2040, AND LC7523
12 13	——	—	No use (normally at "L")
14	MUTE	O	Muting signal output (normally at "L")
15	B.DATA IN	I	Bus data input
16	B.CLK IN	I	Bus clock input
17	B.DATA OUT	O	Bus data output (normally at "L")
18	B.CLK OUT	O	Bus clock output (normally at "L")
19	——	—	Video switching output (No use)
20	——	—	
21	LIVE	O	At "L" when SPACE control mode is LIVE
22	/DSP	O	At "H" during BASS SYNTHESIZER ON
23	——	—	No use (normally at "L")
24	CS	—	Chip selection (No use) H: with JOG L: without JOG
25	——	—	No use (normally at "L")
26	HALT	I	Power failure detection input (AC 50 Hz or 60 Hz)
27	RESET	I	RESET input
28	GND OR XCIN	I	Pulls up to +10 V
29	——	—	No use (free terminal)
30	XIN	I	Ceramic oscillator connection for system clock generation (6 MHz)
31	XOUT	O	
32	V_{SS}	—	GND connection
33	EEFECT/B	I	JOG input
34	EEFECT/A	I	
35 ~ 40	G9 ~ G4	O	Grid output for fluorescent character display tube
41 ~ 43	G3 ~ G1	O	Grid output for fluorescent character display tube
44 ~ 56	SR13 ~ SR1	O	Segment output for fluorescent character display tube
57 ~ 59	G12 ~ G10	O	Grid output for fluorescent character display tube
60 ~ 72	SL13 ~ SL1	O	Segment output for fluorescent character display tube
73	V_{DD} Back-up	—	+5 V connection
74	VP	—	VP connection for fluorescent character display tube
75	D.GND	—	GND connection
76	VREF	—	Reference voltage for A/D converter (connected to V_{CC})
77 ~ 80	F7 ~ F4	I	Spectrum analyzer input

■ REPLACEMENT PARTS LIST

Notes: *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.

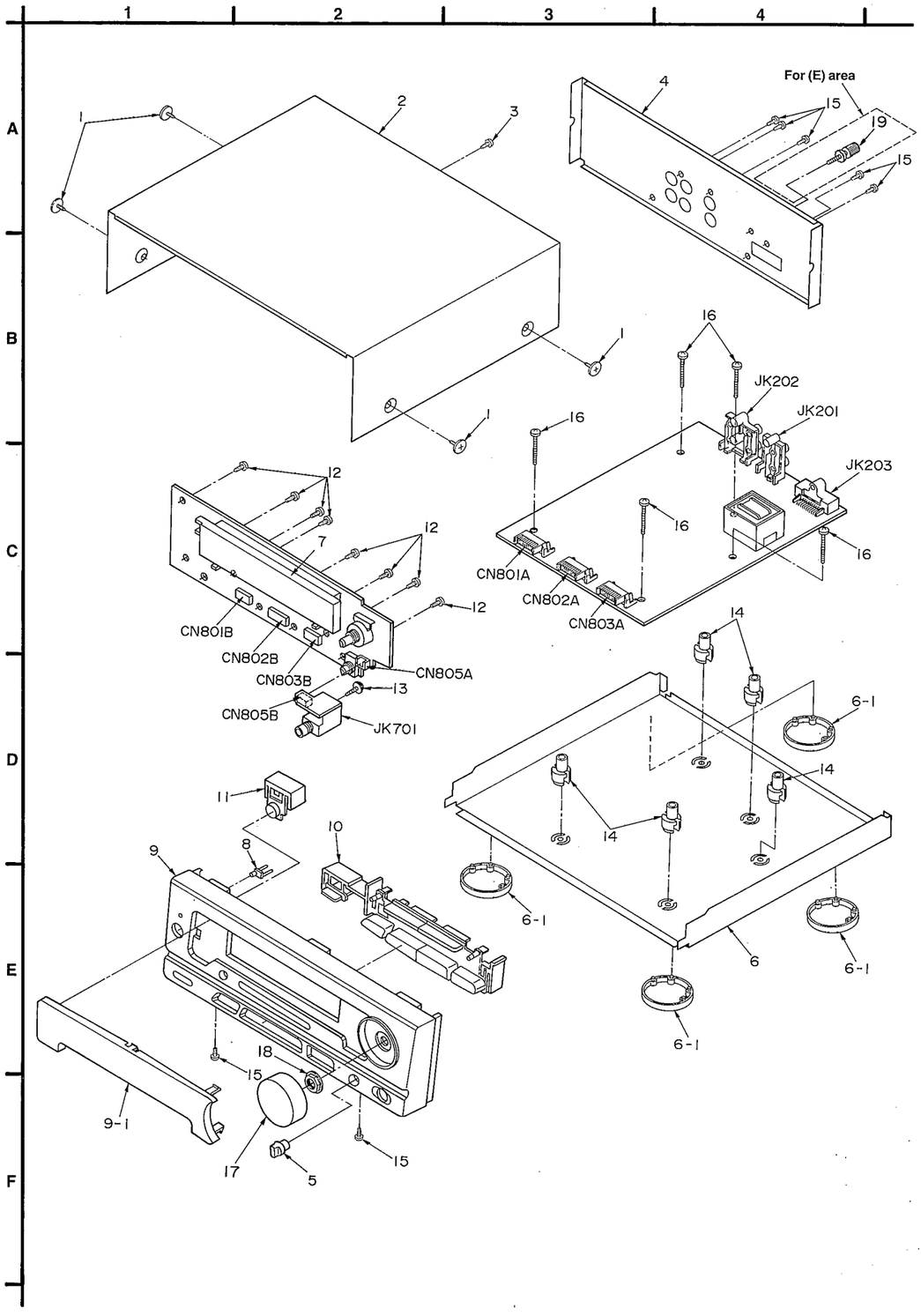
Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC1	AN6558SFE2	I.C, PHONO EQ. AMP.	(E)
IC201, 202	MC14066BFR2	I.C, INPUT SELECTOR	
IC203	SVIBA4558F	I.C, BUFFER AMP.	
IC251	BU2040F-T2	I.C, SYSTEM CONTROL	
IC301	XR-1091ECP	I.C, SPECTRUM ANALYZER	
IC401	AN6554NSFE2	I.C, SURROUND AMP.	
IC451	SVIBA4558F	I.C, BUFFER AMP.	
IC501	AN6554NSFE2	I.C, FILTER/BUFFER AMP.	
IC502	M51134FPE2	I.C, SUB HARMONIZER	
IC503	SVIBA4558F	I.C, BUFFER AMP.	
IC601	SVIBA4558F	I.C, MIC MIX AMP.	
IC602	LC7523M-TLM	I.C, BAND LEVEL CONTROL	
IC603, 604	AN7337NS-E2	I.C, GRAPHIC EQUALIZER AMP.	
IC701	AN6558SFE2	I.C, MIC AMP.	
IC801	M38173M6216F	I.C, FL DRIVE/SYSTEM CONT.	
IC802	LA5608M-TE-L	I.C, BUS LINE DRIVE/RESET	
		TRANSISTOR(S)	
Q201-204	UN4111	TRANSISTOR	
Q251-255	UN4111	TRANSISTOR	
Q256	2SD2144S	TRANSISTOR	
Q257, 258	UN4111	TRANSISTOR	
Q401, 402	2SD2144S	TRANSISTOR	
Q403, 404	2SJ164PQRTA	TRANSISTOR	
Q406, 407	2SD2144S	TRANSISTOR	
Q408-410	UN4211	TRANSISTOR	
Q451	2SD2144S	TRANSISTOR	
Q452	UN4111	TRANSISTOR	
Q501	2SD2144S	TRANSISTOR	
Q553	UN4211	TRANSISTOR	
Q603, 604	2SC3327-A	TRANSISTOR	
Q605	UN4111	TRANSISTOR	
Q801-806	UN4111	TRANSISTOR	
Q807	UN4211	TRANSISTOR	
Q901	2SD2037DEFTA	TRANSISTOR	
Q902	2SB1357DEFTA	TRANSISTOR	
Q903	2SC3311A-Q	TRANSISTOR	
Q904	2SA1309A-R	TRANSISTOR	
Q905	2SD2037DEFTA	TRANSISTOR	
Q906	2SA1309A-R	TRANSISTOR	
		DIODE(S)	

Ref. No.	Part No.	Part Name & Description	Remarks
D401-404	MA165	DIODE	
D552-554	MA165	DIODE	
D602	MA165	DIODE	
D803	MA4051MTA	DIODE	
D804	LN873RP-C	DIODE(L.E.D.)	
D806, 807	1SS291TA	DIODE	
D851	1SS291TA	DIODE	
D901-904	1SR3520OTB	DIODE	⚠
D905, 906	MA410OMTA	DIODE	
D907, 908	MA4068L	DIODE	
D909	1SR3520OTB	DIODE	⚠
D913	MA4062-H	DIODE	
D914	MA4300M	DIODE	
D918	MA4051MTA	DIODE	⚠
D951	1SR3520OTB	DIODE	⚠
D952, 953	MA185TA	DIODE	
		VARIABLE RESISTOR(S)	
VR701	EVJ02BF01B14	V.R, MIC VOLUME	
VR801	EVQWPWF1512B	V.R, JOG CONTROL	
		COMPONENT COMBINATION(S)	
Z601, 602	EXBF7E224JYV	COMPONENT COMBINATION	
		COIL(S)	
L101, 102	ELEXT101KA9	COIL	
L301-303	ELEPK4R7KA	COIL	
L801	ELEXT4R7KA9	COIL	
		OSCILLATOR(S)	
X801	RSXY6M00M01T	OSCILLATOR(6MHz)	
		DISPLAY(S)	
FL801	RSL0128-F	FL DISPLAY	⚠
		SWITCH(ES)	
S801	EVQ21405R	SW, DISPLAY	
S804	EVQ21405R	SW, DEMO	
S805	EVQ21405R	SW, KARAOKE	
S806	EVQ21405R	SW, CAR/H.P.	
S807	EVQ21405R	SW, EQ. MODE	

Ref. No.	Part No.	Part Name & Description	Remarks
S808	EVQ21405R	SW, SPACE MODE	
S809	EVQ21405R	SW, ON/FLAT	
S810	EVQ21405R	SW, PRESET/USER	
S811	EVQ21405R	SW, V. BASS	
		CONNECTOR (S)	
CN801A	RJU003K008M1	SOCKET (8P)	
CN802A	RJU003K010M1	SOCKET (10P)	
CN803A	RJU003K008M1	SOCKET (8P)	
CN805A	RJT057W004-1	CONNECTOR (4P)	
CN801B	RJT003K008-1	CONNECTOR (8P)	
CN802B	RJT003K010-1	CONNECTOR (10P)	
CN803B	RJT003K008-1	CONNECTOR (8P)	
CN805B	RJU057W004	SOCKET (4P)	
		EARTH TERMINAL (S)	
E901	SNE1004-1	GND PLATE	
		TRANSFORMER (S)	
PT901	RTP114G003	POWER TRANSFORMER	⚠
		JACK (S)	
JK201	SJF3068N	PHONO TERMINAL	
JK202	SJF3069-5N	DAT TERMINAL	
JK203	RJT065K15	CONNECTOR (15P)	
JK701	RJJ65MA02	MIC JACK	

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS	
1	RHD30007	SCREW	
2	RKM0203-1K	CABINET	
3	XTB3+8JFZ	SCREW	
4	RGR0146B-H	REAR PANEL	(E)
4	RGR0146B-J	REAR PANEL	(GC)
5	RGW0048-K	KNOB, MIC VOLUME	
6	RFKJHCH550PP	BOTTOM BOARD ASS'Y	
6-1	RKA0055-N	FOOT	
7	RMN0184-1	HOLDER	
8	RGL0169-Q	LENS	
9	RFKGHCH650EK	FRONT PANEL ASS'Y	
9-1	RKW0251-K	FL PANEL	
10	RGU0770-K	BUTTON, EQ.	
11	RGU0832-K	BUTTON, V. BASS	
12	XTBS26+8J	SCREW	
13	XTWS3+10T	SCREW	
14	SHE185-2	P. C. B. SPACER	
15	XTBS3+8JFZ1	SCREW	
16	XTB3+16JFZ	SCREW	
17	RGW0113-2K2	KNOB, JOG CONTROL	
18	SNE4021-1	NUT	
19	SNE2123	GND SCREW	(E)

■ CABINET PARTS LOCATION



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Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads(pF) F=Farads(F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM) , 1M=1,000k(OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R5, 6	ERDS2TJ331	1/4W 330 (E)
R7, 8	ERDS2TJ181T	1/4W 180 (E)
R9	ERDS2TJ184T	1/4W 180K (E)
R10	ERDS2TJ184T	1/4W 180K (E)
R11, 12	ERDS2TJ123	1/4W 12K (E)
R13, 14	ERDS2TJ680T	1/4W 68 (E)
R15, 16	ERDS2TJ562	1/4W 5.6K (E)
R17, 18	ERDS2TJ272T	1/4W 2.7K (E)
R201, 202	ERDS2TJ102	1/4W 1K (E)
R201, 202	ERDS2TJ123	1/4W 12K (GC)
R203, 204	ERDS2TJ473	1/4W 47K
R205, 206	ERDS2TJ123	1/4W 12K
R207, 208	ERDS2TJ473	1/4W 47K
R209, 210	ERDS2TJ122	1/4W 1.2K
R211, 212	ERDS2TJ224T	1/4W 220K
R213-216	ERDS2TJ223	1/4W 22K
R221-224	ERDS2TJ333	1/4W 33K
R225, 226	ERDS2TJ102	1/4W 1K
R251, 252	ERDS2TJ222	1/4W 2.2K
R253	ERDS2TJ272T	1/4W 2.7K
R291-293	ERDS2TJ333	1/4W 33K
R294	ERDS2TJ104	1/4W 100K
R301, 302	ERDS2TJ683	1/4W 68K
R303, 304	ERDS2TJ103	1/4W 10K
R305	ERDS2TJ101	1/4W 100
R306	ERDS2TJ222	1/4W 2.2K
R307	ERDS2TJ152	1/4W 1.5K
R308, 309	ERDS2TJ101	1/4W 100
R311-317	ERDS2TJ122	1/4W 1.2K
R318	ERDS2TJ104	1/4W 100K
R401, 402	ERDS2TJ152	1/4W 1.5K
R403, 404	ERDS2TJ683	1/4W 68K
R405, 406	ERDS2TJ682T	1/4W 6.8K
R407, 408	ERDS2TJ273	1/4W 27K
R409, 410	ERDS2TJ103	1/4W 10K
R411, 412	ERDS2TJ393	1/4W 39K
R413-416	ERDS2TJ103	1/4W 10K
R417, 418	ERDS2TJ223	1/4W 22K
R421-423	ERDS2TJ223	1/4W 22K
R424	ERDS2TJ332	1/4W 3.3K
R425	ERDS2TJ152	1/4W 1.5K
R426	ERDS2TJ221	1/4W 220
R427	ERDS2TJ821	1/4W 820
R428	ERDS2TJ222	1/4W 2.2K
R429, 430	ERDS2TJ102	1/4W 1K
R431	ERDS2TJ105T	1/4W 1M
R435	ERDS2TJ103	1/4W 10K
R436, 437	ERDS2TJ105T	1/4W 1M
R438	ERDS2TJ102	1/4W 1K
R451, 452	ERDS2TJ223	1/4W 22K
R453	ERDS2TJ123	1/4W 12K
R454, 455	ERDS2TJ223	1/4W 22K
R456	ERDS2TJ332	1/4W 3.3K
R457	ERDS2TJ271	1/4W 270
R458, 459	ERDS2TJ223	1/4W 22K
R461	ERDS2TJ102	1/4W 1K
R462	ERDS2TJ105T	1/4W 1M
R463	ERDS2TJ392T	1/4W 3.9K
R498	ERDS2TJ103	1/4W 10K
R499	ERDS2TJ105T	1/4W 1M
R501	ERDS2TJ223	1/4W 22K
R502	ERDS2TJ471	1/4W 470
R503, 504	ERDAS3G753T	1/4W 75K
R505, 506	ERDAS3G563T	1/4W 56K
R507	ERDAS3G122	1/4W 1.2K
R508	ERDAS3G124T	1/4W 120K
R509	ERDS2TJ222	1/4W 2.2K
R510-512	ERDS2TJ224T	1/4W 220K
R513	ERDS2TJ824	1/4W 820K
R514	ERDS2TJ683	1/4W 68K
R515, 516	ERDS2TJ332	1/4W 3.3K
R517, 518	ERDS2TJ224T	1/4W 220K
R519-528	ERDS2TJ103	1/4W 10K
R529	ERDS2TJ104	1/4W 100K
R530	ERDS2TJ224T	1/4W 220K
R531	ERDAS3G332T	1/4W 3.3K
R532	ERDS2TJ101	1/4W 100
R541	ERDAS3G753T	1/4W 75K
R542	ERDAS3G102T	1/4W 1K
R560	ERDS2TJ563	1/4W 56K
R561	ERDS2TJ473	1/4W 47K
R563	ERDS2TJ823T	1/4W 82K
R564	ERDS2TJ102	1/4W 1K
R565	ERDS2TJ105T	1/4W 1M
R567, 568	ERDS2TJ472	1/4W 4.7K
R601, 602	ERDS2TJ563	1/4W 56K
R605, 606	ERDS2TJ224T	1/4W 220K
R607, 608	ERDS2TJ153	1/4W 15K
R609, 610	ERDS2TJ103	1/4W 10K
R611, 612	ERDS2TJ102	1/4W 1K
R613, 614	ERDS2TJ104	1/4W 100K
R617, 618	ERDS2TJ102	1/4W 1K
R619, 620	ERDS2TJ393	1/4W 39K
R624	ERDS2TJ334	1/4W 330K
R625, 626	ERDS2TJ102	1/4W 1K
R627	ERDS2TJ472	1/4W 4.7K
R631, 632	ERDS2TJ123	1/4W 12K
R633, 634	ERDS2TJ223	1/4W 22K
R635, 636	ERDS2TJ224T	1/4W 220K
R637, 638	ERDS2TJ223	1/4W 22K
R691, 692	ERDS2TJ102	1/4W 1K
R693, 694	ERDS2TJ472	1/4W 4.7K
R701	ERDS2TJ102	1/4W 1K
R702	ERDS2TJ473	1/4W 47K
R703	ERDS2TJ102	1/4W 1K
R704	ERDS2TJ474	1/4W 470K
R705	ERDS2TJ123	1/4W 12K
R706	ERDS2TJ104	1/4W 100K
R707	ERDS2TJ562	1/4W 5.6K
R708	ERDS2TJ473	1/4W 47K
R731	ERDS2TJ102	1/4W 1K
R801-806	ERDS2TJ104	1/4W 100K
R807	ERDS2TJ101	1/4W 100
R810	ERDS2TJ104	1/4W 100K
R812	ERDS2TJ103	1/4W 10K
R813	ERDS2TJ102	1/4W 1K
R814	ERDS2TJ473	1/4W 47K
R815	ERDS2TJ273	1/4W 27K
R817	ERDS2TJ562	1/4W 5.6K
R818	ERDS2TJ332	1/4W 3.3K
R819	ERDS2TJ272T	1/4W 2.7K
R820	ERDS2TJ222	1/4W 2.2K
R821	ERDS2TJ182	1/4W 1.8K
R822	ERDS2TJ122	1/4W 1.2K
R823	ERDS2TJ152	1/4W 1.5K
R824	ERDS2TJ221	1/4W 220
R826	ERDS2TJ103	1/4W 10K
R827	ERDS2TJ393	1/4W 39K
R828-835	ERDS2TJ104	1/4W 100K
R840-842	ERDS2TJ103	1/4W 10K
R843	ERDS2TJ102	1/4W 1K
R861	ERDS2TJ223	1/4W 22K
R862	ERDS2TJ223	1/4W 22K
R863	ERDS2TJ470	1/4W 47
R871-873	ERDS2TJ103	1/4W 10K
R901, 902	ERD2FCVJ4R7T	1/4W 4.7 ⚠
R903	ERD25FJ2R2	1/4W 2.2 ⚠
R904	ERDS2TJ102	1/4W 1K
R905, 906	ERDS2TJ100	1/4W 10
R907, 908	ERDS2TJ102	1/4W 1K
R910	ERDS2TJ102	1/4W 1K
R911	ERD2FCVJ4R7T	1/4W 4.7 ⚠
R912	ERDS2TJ101	1/4W 100
R915	ERDS2TJ332	1/4W 3.3K
R916, 917	ERDS2TJ820	1/4W 82 ⚠
R951	ERDS2TJ562	1/4W 5.6K
R952, 953	ERDS2TJ100	1/4W 10
R954, 955	ERDS2TJ2R2T	1/4W 2.2 ⚠
R971	ERDS2TJ102	1/4W 1K
		CAPACITORS
C1, 2	ECBT1H102KB5	50V 1000P (E)
C3, 4	ECEA1AKA330B	10V 33U (E)
C5, 6	ECBT0J223MS5	6.3V 0.022U (E)
C7, 8	ECBT1C682KR5	16V 6800P (E)
C9	ECEA1CKA100B	16V 10U (E)
C10	ECEA1CKA100B	16V 10U (E)
C11, 12	ECBT1E103ZF	25V 0.01U (E)
C101, 102	ECBT1H180J5	50V 18P
C103-106	ECBT1H101KB5	50V 100P
C107, 108	ECBT1H151KB5	50V 150P (E)
C109-112	ECBT1H101KB5	50V 100P
C201, 202	ECEA1HKA3R3B	50V 3.3U
C203, 204	ECBT1H102KB5	50V 1000P
C205, 206	ECBT1H560J5	50V 56P
C207, 208	ECBT1E103ZF	25V 0.01U
C209, 210	ECBT1H104ZF5	50V 0.1U
C251, 252	ECBT1H470J5	50V 47P
C253	ECBT1E103ZF	25V 0.01U
C291-294	ECEA1CKA100B	16V 10U
C301, 302	ECEA1HKA3R3B	50V 3.3U
C303, 304	ECBT1H101KB5	50V 100P
C305	ECEA1CKA100B	16V 10U
C306	ECBT1H102KB5	50V 1000P
C307, 308	ECEA1AKA330B	10V 33U
C309-311	ECBT1H102KB5	50V 1000P
C401	ECFR1E473KR	25V 0.047U
C402	ECEA1CKA100B	16V 10U
C403	ECFR1E823KR	25V 0.082U
C404	ECFR1E123KR	25V 0.012U
C405	ECBT0J223MS5	6.3V 0.022U
C406, 407	ECBT1E103ZF	25V 0.01U
C451	ECBT1H102KB5	50V 1000P
C452	ECEA1HKA3R3B	50V 3.3U
C453, 454	ECBT1E103ZF	25V 0.01U
C501, 502	ECQB1H393JF3	50V 0.039U
C503	ECQV1H274JM3	50V 0.27U
C504	ECQB1H272JF3	50V 2700P
C505, 506	ECQV1H224JM3	50V 0.22U
C507	ECEA1CKA100B	16V 10U
C508	ECEA1HKAR33B	50V 0.33U
C509	ECEA1CKA470B	16V 47U
C510	ECEA1HKA4R7B	50V 4.7U
C511, 512	ECQV1H124JM3	50V 0.12U
C513	ECBT1C332KR5	16V 3300P
C514	ECFR1E563KR	25V 0.056U
C515	ECBT1H100J5	50V 10P
C516	ECEA1HKA2R2B	50V 2.2U
C517	ECEA1HKN010B	50V 1U ⚠
C518	ECEA1CKA100B	16V 10U
C519	ECEA1CKA470B	16V 47U
C520	ECEA1CKA100B	16V 10U
C521, 522	ECFR1E273KR	25V 0.027U
C523, 524	ECBT1H221KB5	50V 220P
C525, 526	ECEA1HKA3R3B	50V 3.3U
C530	ECBT0J223MS5	6.3V 0.022U
C533, 534	ECEA1CKA100B	16V 10U
C535, 536	ECBT1H102KB5	50V 1000P
C555-559	ECBT1E103ZF	25V 0.01U
C601, 602	ECBT1H560J5	50V 56P
C603-606	ECBT1E103ZF	25V 0.01U
C607, 608	ECBT1H121KB5	50V 120P
C609, 610	ECBT1H101KB5	50V 100P
C611, 612	ECQV1H474JM3	50V 0.47U
C613, 614	ECQV1H564JM3	50V 0.56U
C615, 616	ECFR1E683KR	25V 0.068U
C617, 618	ECEA1HKAR47B	50V 0.47U
C619, 620	ECBA1H681KB5	50V 680P
C621, 622	ECBT1C472KR5	16V 4700P
C623, 624	ECBT1C222KR5	16V 2200P
C625, 626	ECBT1C103KS5	16V 0.01U
C627, 628	ECBT1C562KR5	16V 5600P
C629, 630	ECFR1E273KR	25V 0.027U
C631, 632	ECFR1E153KR	25V 0.015U
C633, 634	ECFR1E683KR	25V 0.068U
C635, 636	ECFR1E333KR	25V 0.033U
C637, 638	ECEA1HKAR15B	50V 0.15U
C641, 642	ECEA1HKA3R3B	50V 3.3U
C647	ECEA1HKA3R3B	50V 3.3U
C648, 649	ECBT1E103ZF	25V 0.01U
C651, 652	ECEA1HKA3R3B	50V 3.3U
C653	ECEA1HKA4R7B	50V 4.7U
C655-657	ECBT1E103ZF	25V 0.01U
C701, 702	ECBT1H221KB5	50V 220P
C703	ECEA1HKA3R3B	50V 3.3U
C704	ECBT1H151KB5	50V 150P
C705	ECEA1CKA100B	16V 10U
C706	ECBT1H101KB5	50V 100P
C707	ECEA1HKA3R3B	50V 3.3U
C708	ECBT1H471KB5	50V 470P
C709, 710	ECBT1E103ZF	25V 0.01U
C731	ECBT1H102KB5	50V 1000P
C801, 802	ECBT1E103ZF	25V 0.01U
C803, 804	ECEA1HKS010	50V 1U ⚠
C805	ECBT1E103ZF	25V 0.01U
C807	ECEA0JKS101B	6.3V 100U
C809	ECEA0JU102	6.3V 1000U
C811	ECBT1E103ZF	25V 0.01U
C812	ECEA0JKS101B	6.3V 100U
C821	ECBT1E103ZF	25V 0.01U
C822	ECBT1H104ZF5	50V 0.1U
C851	ECEA1HKAR33B	50V 0.33U
C852	ECEA1HKAR22B	50V 0.22U
C861	ECBT0J223MS5	6.3V 0.022U
C901, 902	ECKT1H223ZF	50V 0.022U ⚠
C903, 904	ECA1EM471B	25V 470U
C905, 906	ECBT1E103ZF	25V 0.01U
C907, 908	ECEA1CKA100B	16V 10U
C909, 910	ECEA1CKA470B	16V 47U
C911, 912	ECBT1E103ZF	25V 0.01U
C913, 914	ECEA1CKA100B	16V 10U
C915	ECBT1E103ZF	25V 0.01U
C916	ECEA1HKA100B	50V 10U
C918	ECA1HM221B	50V 220U
C921	ECBT1E103ZF	25V 0.01U
C922	ECEA1CKA100B	16V 10U
C951	ECA1EM471B	25V 470U
C952-955	ECKR1H103ZF5	50V 0.01U

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