

Service Manual

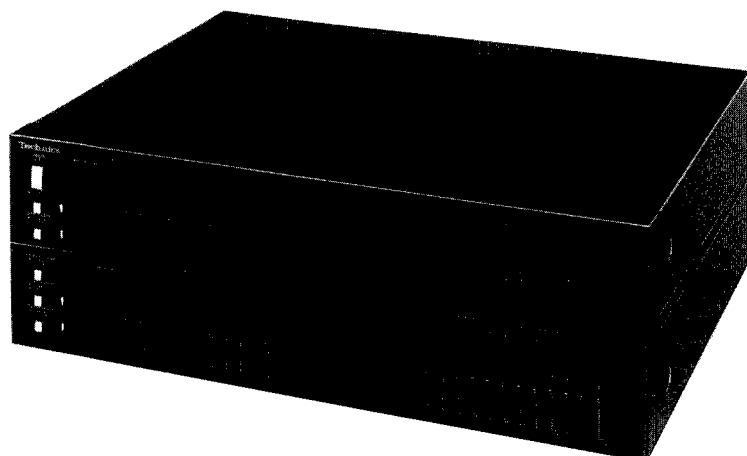
Stereo Graphic Equalizer

SH-8065

[EX], [EK], [EF], [XA]

SH-8065(K)

[EX], [EK], [EF], [XA]



- * The cabinet, front panel and knob are available in black color and silver types.
- * The black type model is provided with (K) in the Service Manual.

Areas

- * [EX] is available in Switzerland and Scandinavia.
- * [EK] is available in United Kingdom.
- * [EF] is available in France.
- * [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.

Specifications

Specifications are subject to change without notice for further improvement.
Weights and dimensions shown are approximate.

(DIN 45 500)

Frequency response (center position):	5 Hz~100 kHz, -1 dB
Maximum output voltage:	8 V (1 kHz, THD 0.01%)
Rated output voltage:	1 V
Rated total harmonic distortion:	0.0025% (20 Hz~20 kHz)
Input sensitivity:	1 V
Signal-to-noise ratio:	100 dB (110 dB, IHF' A)
Maximum input voltage:	8 V (1 kHz)
Input impedance:	47 k Ω
Output impedance:	600 Ω
Gain:	0 $\pm$ 1 dB
Band level controls:	+12 dB~-12 dB, +3 dB~-3 dB (33 elements continuously variable per channel)
Signal level selector:	150 mV/1 V

Center frequency:	16 Hz, 20 Hz, 25 Hz, 31.5 Hz, 40 Hz, 50 Hz, 63 Hz, 80 Hz, 100 Hz, 125 Hz, 160 Hz, 200 Hz, 250 Hz, 315 Hz, 400 Hz, 500 Hz, 630 Hz, 800 Hz, 1 kHz, 1.25 kHz, 1.6 kHz, 2 kHz, 2.5 kHz, 3.15 kHz, 4 kHz, 5 kHz, 6.3 kHz, 8 kHz, 10 kHz, 12.5 kHz, 16 kHz, 20 kHz, 25 kHz
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GENERAL

Power supply:	AC 110 V/120 V/220 V/240 V, 50 Hz/60 Hz
Power consumption:	29 W
Dimensions (H $\times$ W $\times$ D):	153 $\times$ 430 $\times$ 330 mm (6-1/32'' $\times$ 16-15/16'' $\times$ 13'')
Weight:	6.6 kg (14.6 lbs)

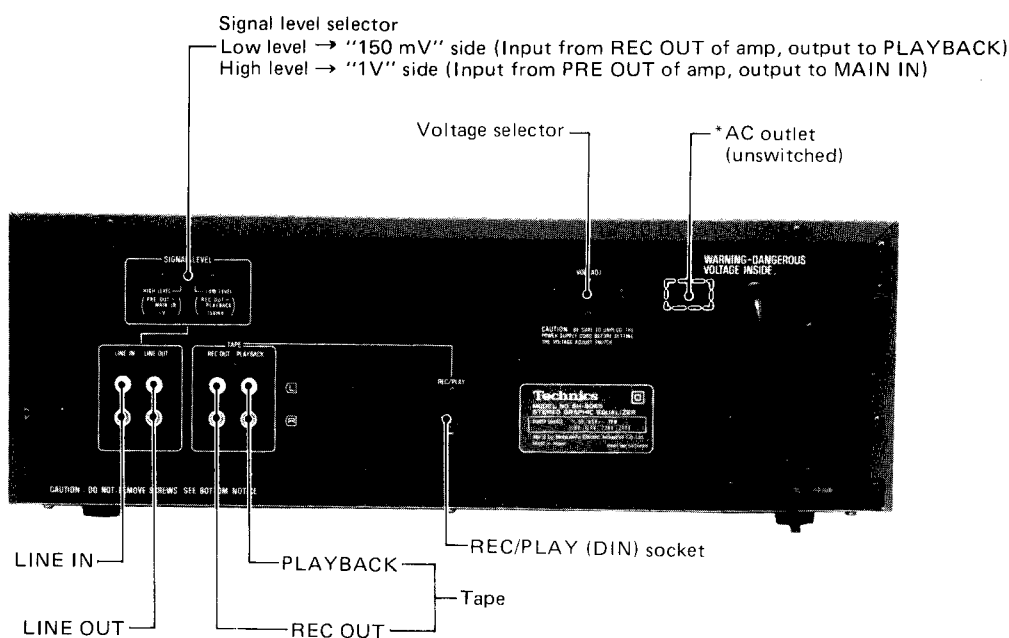
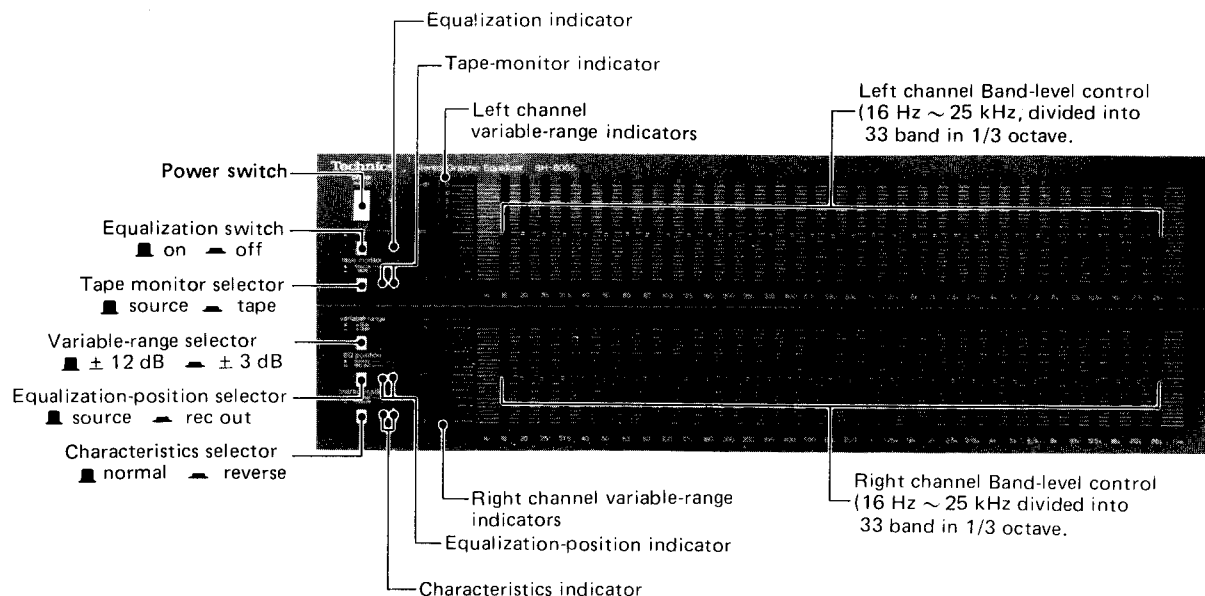
CONTENTS

	Page		Page
LOCATION OF CONTROLS	2	BLOCK DIAGRAM	13
TOTAL FREQUENCY RESPONSE	3	SCHEMATIC DIAGRAM	14
DISASSEMBLY INSTRUCTIONS	4	EXPLODED VIEW	19
REPLACEMENT PARTS LIST		REPLACEMENT PARTS LIST	
Resistors, Capacitors and Electrical Parts	5	Cabinet, Chassis and Packing Parts	20
PRINTED CIRCUIT BOARDS	7		

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

LOCATION OF CONTROLS



* [XA] area is provided with AC outlet.

• Switches

Equalization switch (EQ)

This switch can be used to turn the equalization circuitry on and off.

on: Set to this position for equalizer correction.

off: Set to this position to turn off equalizer correction. By turning this switch on and off, the equalizer effect can also be checked. When this switch is in the "off" position, signals will still pass through the unit and be emitted, regardless of whether the power switch is in the "on" or "off" position.

Tape-monitor selector (tape monitor)

source: Set to this position to listen to the radio or a disc.

tape: Set to this position to listen to a tape deck.

Note:

If the equalization-position selector is set to the "source" position and the equalization switch is set to the "on" position, the frequency response of the radio, disc and tape deck can be controlled.

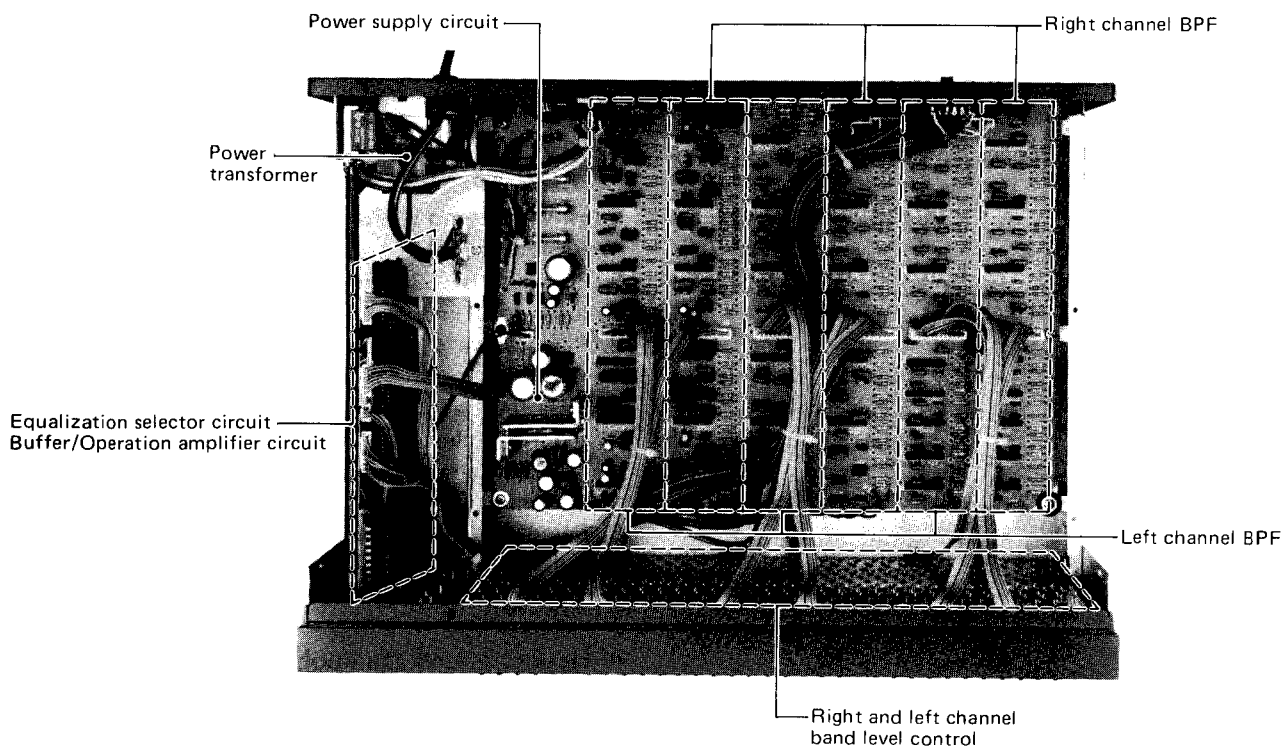
Equalization-position selector (EQ position)

source: Set to this position to record without equalizer correction.

rec out: Set to this position in order to make a tape recording of a radio broadcast or a disc while controlling the frequency response. Also, compensated playback sound can be heard at this position.

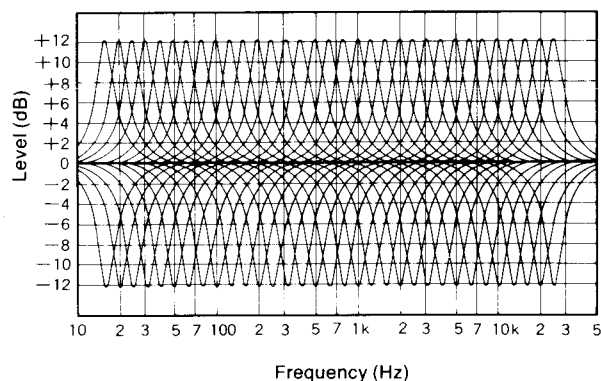
Note:

The equalization switch must be set to the "on" position, otherwise the frequency response cannot be controlled.



■ TOTAL FREQUENCY RESPONSE

Frequency response (± 12 dB position)



DISASSEMBLY INSTRUCTIONS

How to remove the front panel

1. Remove setscrews ① ~ ⑨ in Fig. 1 to remove the cabinet.
2. Remove 5 setscrews of the front panel (Fig. 1).
3. Pull out the connectors J3 and J4 from the switch printed circuit board on the left side.
4. Remove the front panel with care not to damage the knob.

How to remove the bottom board

1. Remove 9 setscrews as in Fig. 2 and remove the bottom board.

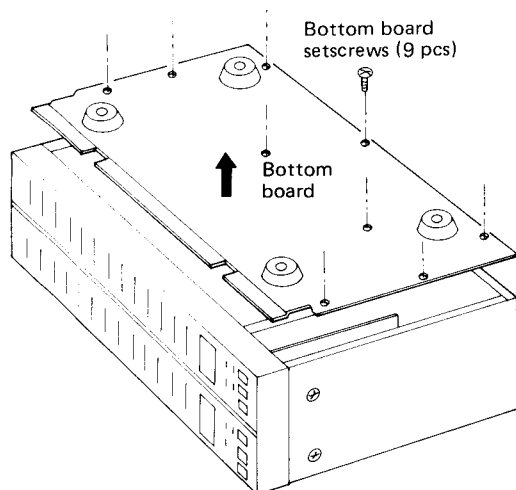


Fig. 2

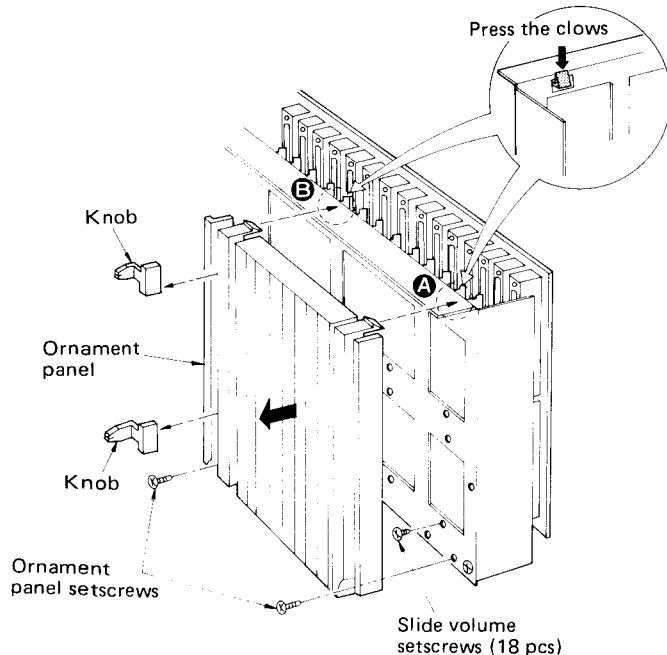


Fig. 3

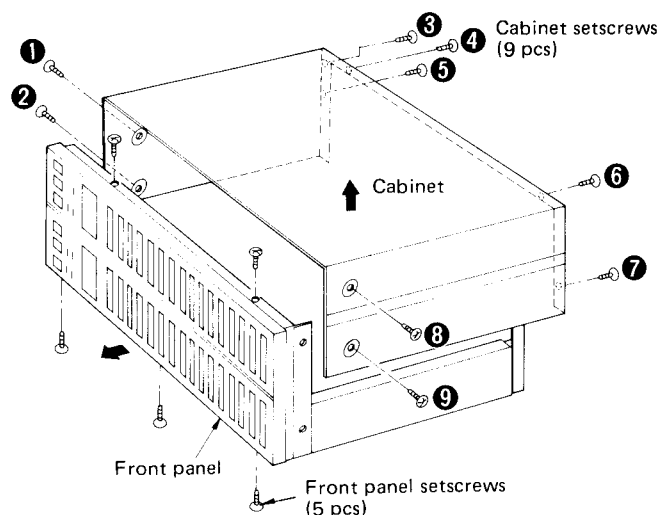


Fig. 1

How to remove the slide volume

1. Remove the cabinet and front panel.
2. Pull out the 33 knobs of the right and left channels, totalling 66 knobs.
3. Remove the 2 setscrews of the ornament panel as in Fig. 3.
4. Press the claws at the top of the ornament panel (A and B) illustrated in order to remove the ornament panel. (Remove the remaining two ornament panels in the same way.)
5. Remove 18 slide volume setscrews to catch the slide volume from the chassis together with the printed circuit board.

How to attach the knobs

Insert the top (left channel) volume lever into the lower hole of the knob, and the bottom (right channel) lever into the upper hole, as shown in Fig. 4.

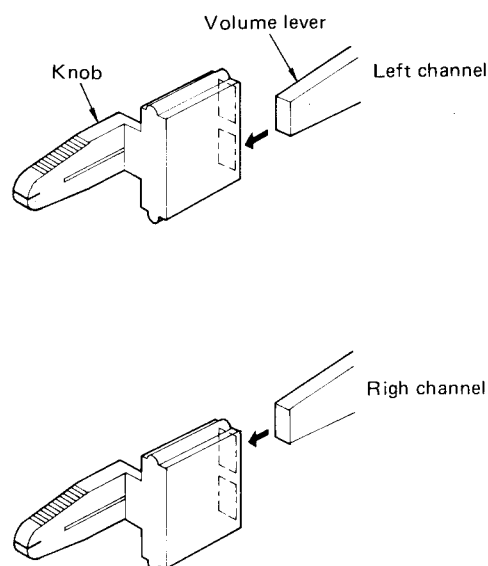


Fig. 4

REPLACEMENT PARTS LIST

Resistors and Capacitors

- Notes:**
1. Part numbers are indicated on most mechanical parts. Please this part number for parts orders.
 2. Important safety notice:
Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components use only manufacturer's specified parts.
 3. The "S" mark is service standard parts and may differ from production parts.

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage (1/4W)	Shape	Tolerance	Value
	50			
	Wattage (1/2W)			

Numbering System of Capacitor

Example

ECKD	1H	102	K	D
Type	Voltage	Value (0.001μF)	Tolerance	Peculiarity
ECEA	50	M	R47	R
Type	Voltage (50V)	Peculiarity use	Value (0.47μF)	Special use

Capacitor Type		Voltage		Tolerance
		ECEA Type	Others	
ECEA	: Electrolytic	1A : 10V	1H : 50VDC	C : $\pm 0.25\text{pF}$
ECEA...N	: Non Polar Electrolytic	1C : 16V	1 : 125VDC	J : $\pm 5\%$
ECCD	: Ceramic	1E : 25V	KC : 400VAC	K : $\pm 10\%$
ECKD	: Ceramic	25Z : 25V		Z : $+80\%, -20\%$
ECQM	: Polyester	1V : 35V		P : $+100\%, -0\%$
ECQE	: Polyester	1H : 50V		
		50M : 50V		

Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
RESISTORS			R87, 88	S ERD25TJ123	12kΩ	R163, 164	S ERD25FJ151	150Ω	R301, 302	S ERD25TJ823	82kΩ
R1, 2	S ERD25FJ222	2.2kΩ	R89, 90	S ERD25FJ222	2.2kΩ	R165, 166	S ERD25FJ151	150Ω	R303, 304	S ERD25TJ104	100kΩ
R3, 4	S ERD25TJ104	100kΩ	R91, 92	S ERD25FJ152	1.5kΩ	R201, 202	S ERD25FJ391	390Ω	R305, 306	S ERD25TJ104	100kΩ
R5, 6	S ERD25FJ822	8.2kΩ	R93, 94	S ERD25FJ152	1.5kΩ	R203, 204	S ERD25FJ391	390Ω	R307, 308	S ERD25TJ104	100kΩ
R7, 8	S ERD25FJ332	3.3kΩ	R101, 102	S ERD25FJ680	68Ω	R205, 206	S ERD25FJ391	390Ω			
R9, 10	S ERD25TJ224	220kΩ	R103, 104	S ERD25FJ680	68Ω	R207, 208	S ERD25FJ391	390Ω	R309, 310	S ERD25TJ104	100kΩ
R11, 12	S ERD25TJ224	220kΩ	R105, 106	S ERD25FJ680	68Ω				R311, 312	S ERD25TJ124	120kΩ
R13, 14	S ERD25FJ822	8.2kΩ				R209, 210	S ERD25FJ471	470Ω	R313, 314	S ERD25TJ104	100kΩ
R15, 16	S ERD25FJ332	3.3kΩ	R107, 108	S ERD25FJ680	68Ω	R211, 212	S ERD25FJ391	390Ω	R315, 316	S ERD25TJ124	120kΩ
R17, 18	S ERD25FJ102	1kΩ	R109, 110	S ERD25FJ151	150Ω	R213, 214	S ERD25FJ471	470Ω	R317, 318	S ERD25TJ104	100kΩ
R19, 20	S ERD25FJ222	2.2kΩ	R111, 112	S ERD25FJ181	180Ω	R215, 216	S ERD25FJ471	470Ω	R319, 320	S ERD25TJ104	100kΩ
R21, 22	S ERD25TJ333	33kΩ	R113, 114	S ERD25FJ680	68Ω	R217, 218	S ERD25FJ471	470Ω	R321, 322	S ERD25TJ104	100kΩ
R23, 24	S ERD25TJ104	100kΩ	R115, 116	S ERD25FJ101	100Ω	R219, 220	S ERD25FJ471	470Ω	R323, 324	S ERD25TJ104	100kΩ
R25, 26	S ERD25TJ104	100kΩ	R117, 118	S ERD25FJ680	68Ω	R221, 222	S ERD25FJ471	470Ω	R325, 326	S ERD25TJ104	100kΩ
R27, 28	S ERD25TJ104	100kΩ	R119, 120	S ERD25FJ680	68Ω	R223, 224	S ERD25FJ471	470Ω	R327, 328	S ERD25TJ124	120kΩ
R29, 30	S ERD25TJ394	390kΩ	R121, 122	S ERD25FJ101	100Ω	R225, 226	S ERD25FJ471	470Ω	R329, 330	S ERD25TJ104	100kΩ
R31, 32	S ERD25FJ472	4.7kΩ	R123, 124	S ERD25FJ151	150Ω	R227, 228	S ERD25FJ471	470Ω	R331, 332	S ERD25TJ104	100kΩ
R33, 34	S ERD25TJ824	820kΩ	R125, 126	S ERD25FJ680	68Ω	R229, 230	S ERD25FJ471	470Ω	R333, 334	S ERD25TJ104	100kΩ
R35, 36	S ERD25FJ472	4.7kΩ							R335, 336	S ERD25TJ104	100kΩ
R37, 38	S ERD25FJ331	330Ω	R127, 128	S ERD25FJ101	100Ω	R231, 232	S ERD25FJ471	470Ω	R337, 338	S ERD25TJ104	100kΩ
R39	S ERD25FJ331	330Ω	R129, 130	S ERD25FJ680	68Ω	R233, 234	S ERD25FJ471	470Ω			
R40, 41	S ERD25FJ561	560Ω	R131, 132	S ERD25FJ101	100Ω	R235, 236	S ERD25FJ471	470Ω	R339, 340	S ERD25TJ104	100kΩ
R42, 43	S ERD25FJ561	560Ω	R133, 134	S ERD25FJ101	100Ω	R237, 238	S ERD25FJ471	470Ω	R341, 342	S ERD25TJ104	100kΩ
R50	S ERD25TJ153	15kΩ	R135, 136	S ERD25FJ680	68Ω	R239, 240	S ERD25FJ471	470Ω	R343, 344	S ERD25TJ104	100kΩ
R51	S ERD25TJ223	22kΩ	R137, 138	S ERD25FJ101	100Ω	R241, 242	S ERD25FJ471	470Ω	R345, 346	S ERD25TJ104	100kΩ
R52	S ERD25TJ683	68kΩ	R139, 140	S ERD25FJ680	68Ω	R243, 244	S ERD25FJ471	470Ω	R347, 348	S ERD25TJ104	100kΩ
R53	S ERD25TJ224	220kΩ	R141, 142	S ERD25FJ680	68Ω	R245, 246	S ERD25FJ391	390Ω	R349, 350	S ERD25TJ104	100kΩ
R54	S ERD25TJ333	33kΩ	R143, 144	S ERD25FJ680	68Ω	R247, 248	S ERD25FJ391	390Ω	R351, 352	S ERD25TJ104	100kΩ
R55	S ERD25TJ223	22kΩ	R145, 146	S ERD25FJ181	180Ω	R249, 250	S ERD25FJ391	390Ω	R353, 354	S ERD25TJ104	100kΩ
R56	S ERD25FJ562	5.6kΩ	R147, 148	S ERD25FJ151	150Ω	R251, 252	S ERD25FJ391	390Ω	R355, 356	S ERD25TJ104	100kΩ
R57	Δ S ERD50FJ681	680Ω	R149, 150	S ERD25FJ181	180Ω				R357, 358	S ERD25TJ104	100kΩ
R58, 59	Δ S ERD25FJ4R7	4.7Ω	R151, 152	S ERD25FJ101	100Ω	R253, 254	S ERD25FJ391	390Ω	R359, 360	S ERD25FJ103	10kΩ
R60, 61	Δ S ERD25FJ2R2	2.2Ω	R153, 154	S ERD25FJ151	150Ω	R255, 256	S ERD25FJ391	390Ω			
R62	Δ S ERD25FJ2R2	2.2Ω				R257, 258	S ERD25FJ471	470Ω	R361, 362	S ERD25FJ103	10kΩ
R81, 82	S ERD25FJ272	2.7kΩ	R155, 156	S ERD25FJ680	68Ω	R259, 260	S ERD25FJ471	470Ω	R363, 364	S ERD25FJ103	10kΩ
R83, 84	S ERD25FJ821	820Ω	R157, 158	S ERD25FJ680	68Ω	R261, 262	S ERD25FJ471	470Ω	R365, 366	S ERD25FJ103	10kΩ
R85, 86	S ERD25FJ682	6.8kΩ	R159, 160	S ERD25FJ221	220Ω	R263, 264	S ERD25FJ471	470Ω			
			R161, 162	S ERD25FJ221	220Ω	R265, 266	S ERD25FJ471	470Ω			

Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
CAPACITORS			C111, 112	ECQE1334KZ	0.33μF	C209, 210	ECQE1334KZ	0.33μF	C305, 306	S ECQE1474KZ	0.47μF
C1, 2	S ECEA25Z4R7	4.7μF	C113, 114	ECQE1474KZ	0.47μF	C211, 212	ECQE1334KZ	0.33μF	C307, 308	S ECQE1274KZ	0.27μF
C3, 4	S ECCD1H818K	180pF	C115, 116	ECQE1334KZ	0.33μF	C213, 214	ECQE1274KZ	0.27μF	C309, 310	S ECQE1474KZ	0.47μF
C5, 6	S ECEA1ES470	47μF	C117, 118	ECQE1334KZ	0.33μF	C215, 216	ECQE1184KZ	0.18μF	C311, 312	S ECQE1334KZ	0.33μF
C7, 8	S ECEA1ES470	47μF	C119, 120	ECQE1274KZ	0.27μF	C217, 218	ECQE1154KZ	0.15μF	C315, 316	S ECQM1H473JZ	0.047μF
C9, 10	S ECCD1H121KC	120pF	C121, 122	ECQE1224KZ	0.22μF	C219, 220	ECQE1124KZ	0.12μF	C349, 350	S ECQM1H122JZ	0.0012μF
C11, 12	S ECQM1H102JZ	0.001μF	C123, 124	ECQE1184KZ	0.18μF	C221, 222	S ECQM1H104JZ	0.1μF	C351, 352	S ECQM1H102JZ	0.001μF
C13, 14	S ECEA1ES470	47μF	C125, 126	ECQE1124KZ	0.12μF	C223, 224	S ECQM1H683JZ	0.068μF	C357, 358	S ECKD1H331KB	330pF
C50, 51	S ECKD1H223ZF	0.022μF	C127, 128	S ECQM1H104JZ	0.1μF	C225, 226	S ECQM1H683JZ	0.068μF	C361, 362	S ECKD1H331KB	330pF
C52	S ECEA1CS222	2200μF	C129, 130	S ECQM1H823JZ	0.082μF	C227, 228	S ECQM1H473JZ	0.047μF	C363, 364	S ECKD1H391KB	390pF
C53	S ECEA1AS101	100μF	C131, 132	S ECQM1H683JZ	0.068μF	C229, 230	S ECQM1H393JZ	0.039μF	C403, 404	S ECQE1334KZ	0.33μF
C54	S ECEA1AS221	220μF	C133, 134	S ECQM1H563JZ	0.056μF	C231, 232	S ECQM1H333JZ	0.033μF	C409, 410	S ECQM1H223JZ	0.022μF
C55, 56	S ECKD1H223ZF	0.022μF	C135, 136	S ECQM1H393JZ	0.039μF	C233, 234	S ECQM1H223JZ	0.022μF	C413, 414	S ECQM1H273JZ	0.027μF
C57, 58	S ECEA1VS102	1000μF	C137, 138	S ECQM1H333JZ	0.033μF	C235, 236	S ECQM1H223JZ	0.022μF	C417, 418	S ECQM1H153JZ	0.015μF
C59, 60	S ECEA1ES221	220μF	C139, 140	S ECQM1H273JZ	0.027μF	C237, 238	S ECQM1H153JZ	0.015μF	C419, 420	S ECQM1H153JZ	0.015μF
C61, 62	S ECQM1H473JZ	0.047μF	C141, 142	S ECQM1H223JZ	0.022μF	C239, 240	S ECQM1H123JZ	0.012μF	C423, 424	S ECQM1H822JZ	0.0082μF
C63, 64	S ECEA1ES101	100μF	C143, 144	S ECQM1H183JZ	0.018μF	C241, 242	S ECQM1H103JZ	0.01μF	C425, 426	S ECQM1H682JZ	0.0068μF
C65, 66	S ECEA1ES221	220μF	C145, 146	S ECQM1H153JZ	0.015μF	C243, 244	S ECQM1H682JZ	0.0068μF	C429, 430	S ECQM1H332JZ	0.0033μF
C67, 68	S ECEA1HS100	10μF	C147, 148	S ECQM1H123JZ	0.012μF	C245, 246	S ECQM1H682JZ	0.0068μF	C433, 434	S ECQM1H182JZ	0.0018μF
C69, 70	S ECEA1HS100	10μF	C149, 150	S ECQM1H103JZ	0.01μF	C247, 248	S ECQM1H562JZ	0.0056μF	C437, 438	S ECQM1H222JZ	0.0022μF
C71, 72	S ECKD1H223ZF	0.022μF	C151, 152	S ECQM1H682JZ	0.0068μF	C249, 250	S ECQM1H332JZ	0.0033μF	C439, 440	S ECQM1H122JZ	0.0012μF
C73, 74	S ECKD1H223ZF	0.022μF	C153, 154	S ECQM1H682JZ	0.0068μF	C251, 252	S ECQM1H332JZ	0.0033μF	C443, 444	S ECKD1H391KB	390pF
C75, 76	S ECKD1H223ZF	0.022μF	C155, 156	S ECQM1H472JZ	0.0047μF	C253, 254	S ECQM1H222JZ	0.0022μF	C449, 450	S ECKD1H331KB	330pF
C77, 78	S ECKD1H223ZF	0.022μF	C157, 158	S ECQM1H332JZ	0.0033μF	C255, 256	S ECQM1H222JZ	0.0022μF	C453, 454	S ECKD1H221KB	220pF
C79	S ECEA1AS102	1000μF	C159, 160	S ECQM1H332JZ	0.0033μF	C257, 258	S ECQM1H152JZ	0.0015μF	C459, 460	S ECKD1H331KB	330pF
C81, 82	S ECEA1VS330	33μF	C161, 162	S ECQM1H182JZ	0.0018μF	C259, 260	S ECQM1H103JZ	0.01μF	C465, 466	S ECKD1H391KB	390pF
C101, 102	Δ ECEA1HN2R2S	2.2μF	C163, 164	S ECQM1H122JZ	0.0012μF	C261, 262	S ECQM1H103JZ	0.01μF	C1001	Δ ECKDKC103PF	0.01μF
C103, 104	Δ ECEA1HN010S	1μF	C165, 166	S ECQM1H122JZ	0.0012μF	C263, 264	S ECQM1H822JZ	0.0082μF			
C105, 106	Δ ECEA1HN010S	1μF	C201, 202	S ECEA50Z1	1μF	C265, 266	S ECQM1H682JZ	0.0068μF			
C107, 108	Δ ECEA1HN010S	1μF	C203, 204	ECQE1474KZ	0.47μF	C301, 302	S ECEA50MR68R	0.68μF			
C109, 110	ECQE1474KZ	0.47μF	C205, 206	S ECEA50MR68R	0.68μF	C303, 304	Δ ECEA1HN010S	1μF			
			C207, 208	S ECEA50ZR47	0.47μF						

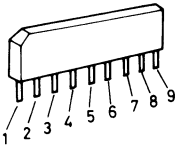
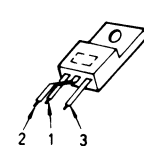
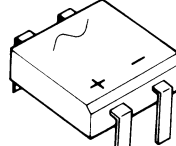
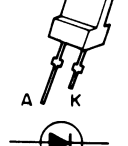
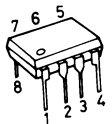
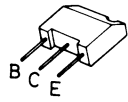
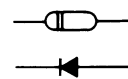
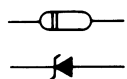
• Electrical Parts

- Notes:**
- Part numbers are indicated on most mechanical parts. Please this part number for parts orders.
 - Important safety notice:
Components identified by **Δ** mark have special characteristics important for safety.
When replacing any of these components use only manufacturer's specified parts.
 - The "S" mark is service standard parts and may differ from production parts.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
INTEGRATED CIRCUITS			D5, 7, 9, 11	LN824WP	Switch Position Indicator	RELAY		
IC1 ~ 38	SVINJM2043SD	Band Pass Filter	D6, 8, 10	LN424WP	Switch Position Indicator	RLY1	SSY9	Muting
IC101, 102	SVINJM2043DD	Operation Amplifier	D13	SVD05Z3.0F-3	Zener, 3V	SWITCHES		
IC103	SVIL78M20	Regulator, ⊕B Voltage	VARIABLE RESISTOR			S1, 5	SSHK19	Equalizer, Tape Monitor
IC104	SVIUPC7918H	Regulator, ⊖B Voltage	VR1 ~ 66	EVAD02C15G25	Band Level Control, 200kΩ (G)	S2 ~ 4	SSHK20	EQ Position, Characteristics
TRANSISTORS			TRANSFORMER			S6	SSSK5	Variable Range
Q1, 3	2SB745-S	Switching	T1	Δ SLTK5L6-Z	Power Source	S7	Δ ESB90619S	Input Signal Level
Q2	2SD636	Switching	COIL			S8	Δ ESE3787	Power Voltage Selector
DIODES			L1	Δ SLQK3	Choke	FUSES		
D1, 2	Δ SVD1B4B42	Rectifier	LAMP			F1 ~ 3	Δ XBA2C05TR0	250V, T 500mA
D3, 4	S MA162A	Rectifier & Pulse Killer	PL1 ~ 4	Δ XAMR81S10	Range Indicator, 8V, 0.15A			

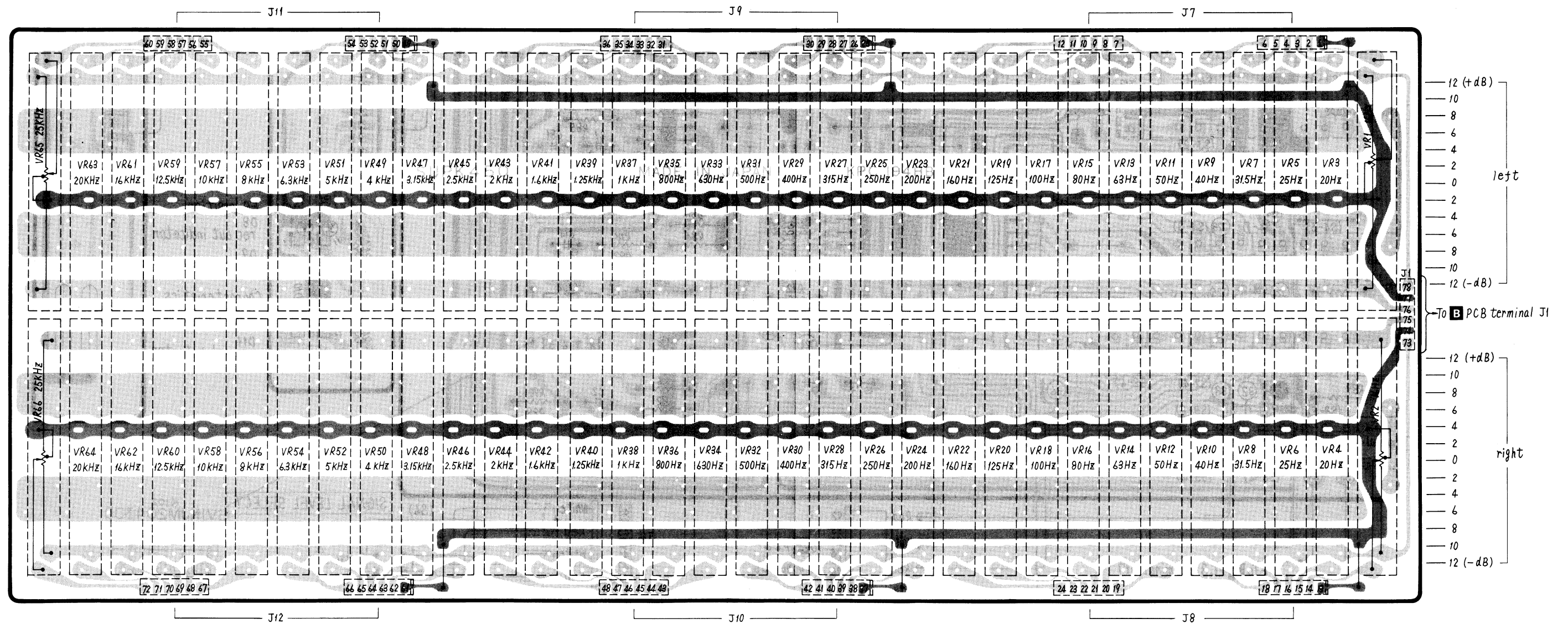
■ PRINTED CIRCUIT BOARDS

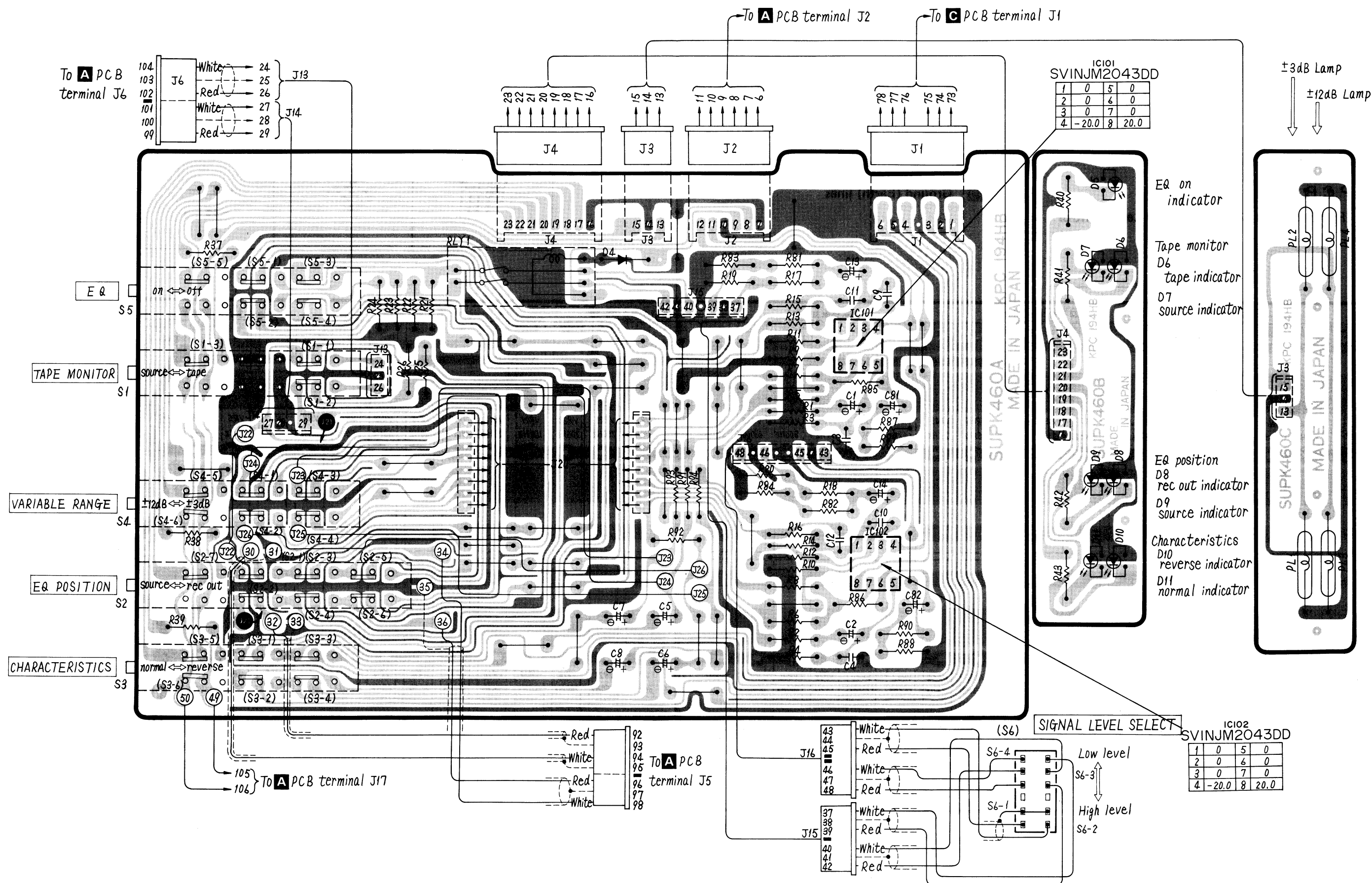
● Terminal guide of transistors, IC's and diodes

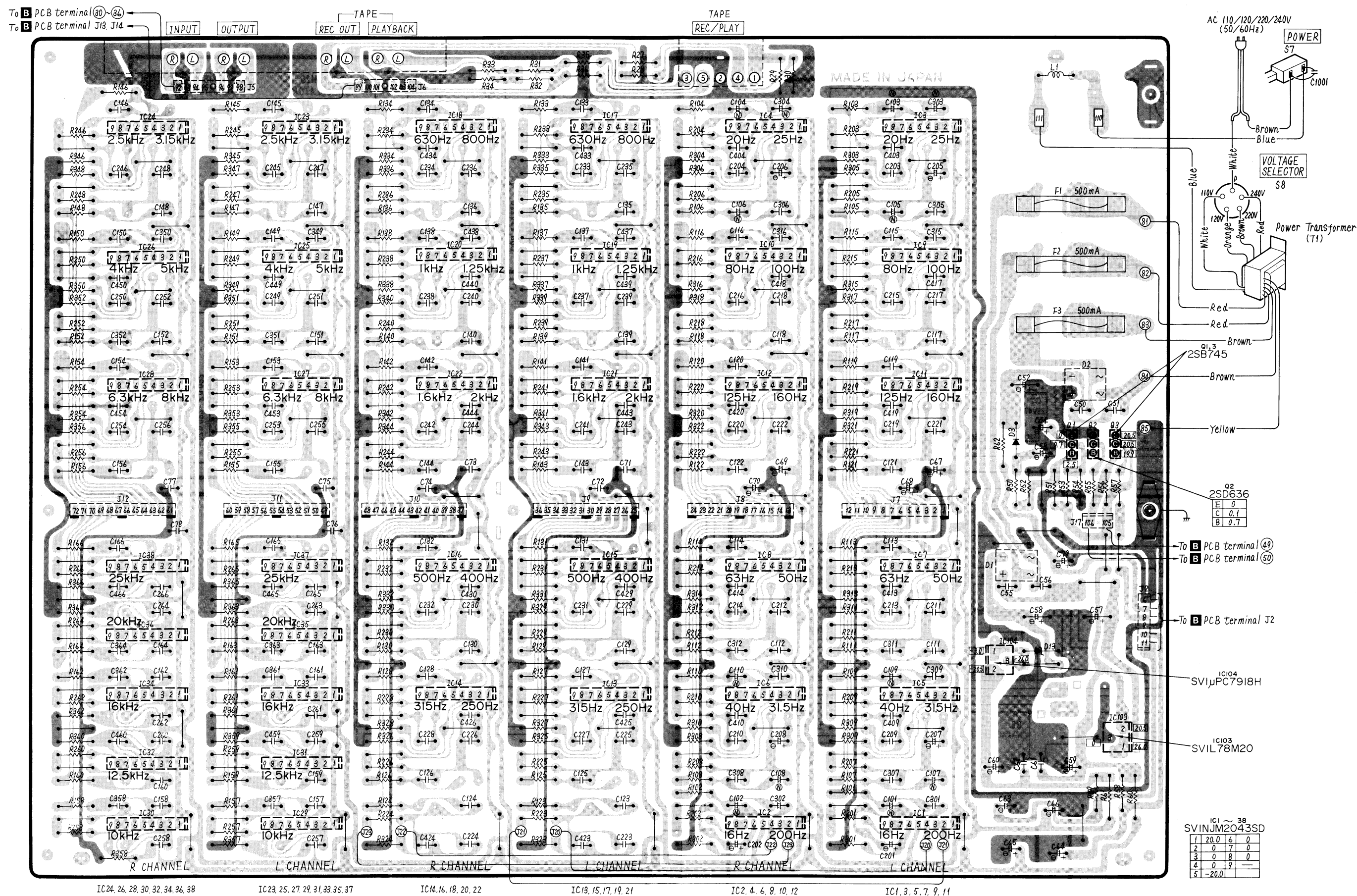
SVINJM2043SD 	SVIL78M20 SVI μ PC7918H 	SVD1B4B42 	LN424WP, LN824WP 
SVINJM2043DD 	2SB745, 2SD636 	MA150 	SVD0523.0F-3 

C P.C.B.

Right and Left Channel 33 Band Level Control

 Ground (Earth) lines





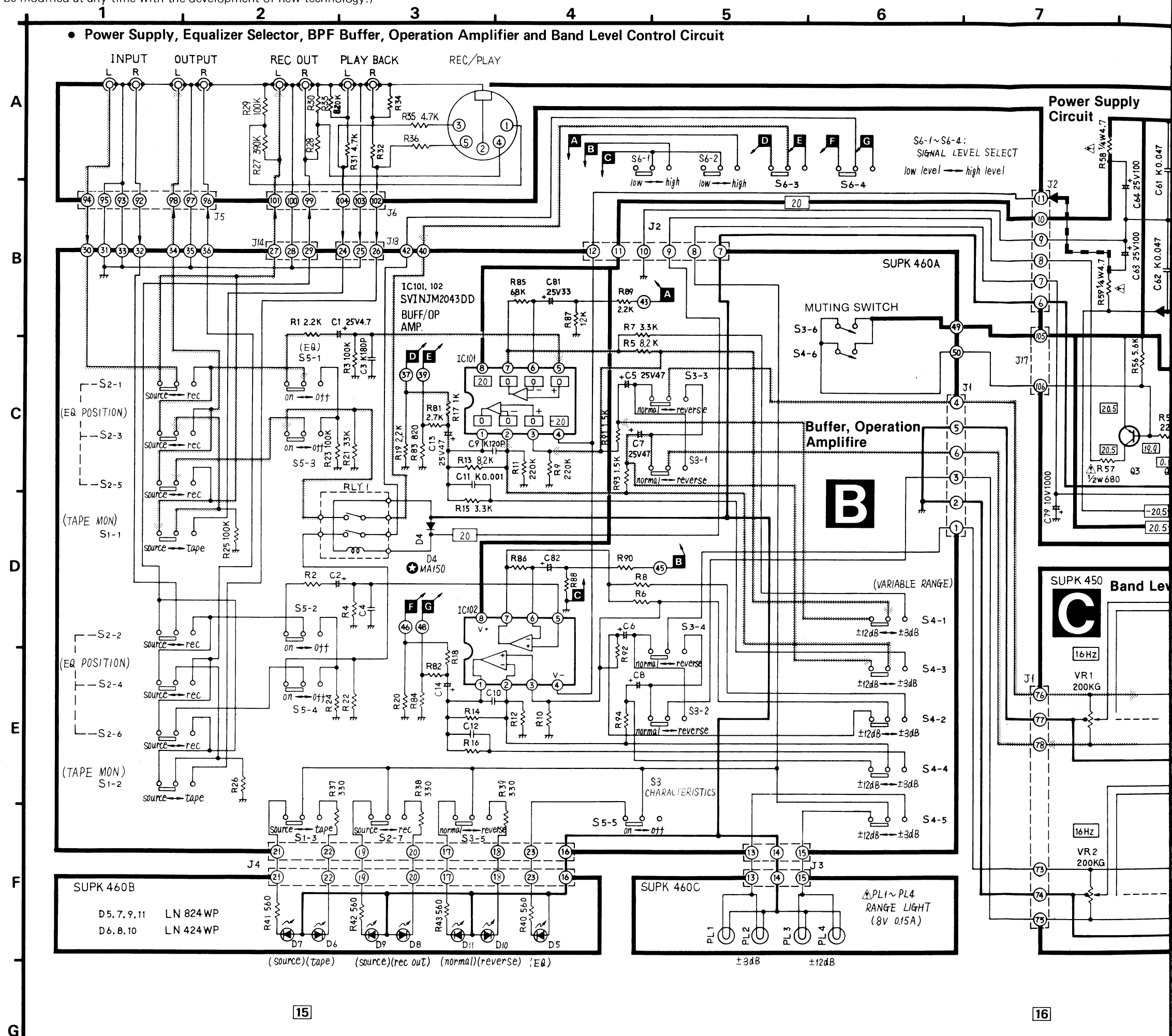
SCHEMATIC DIAGRAM (A) (This schematic diagram may be modified at any time with the development of new technology.)

Notes:

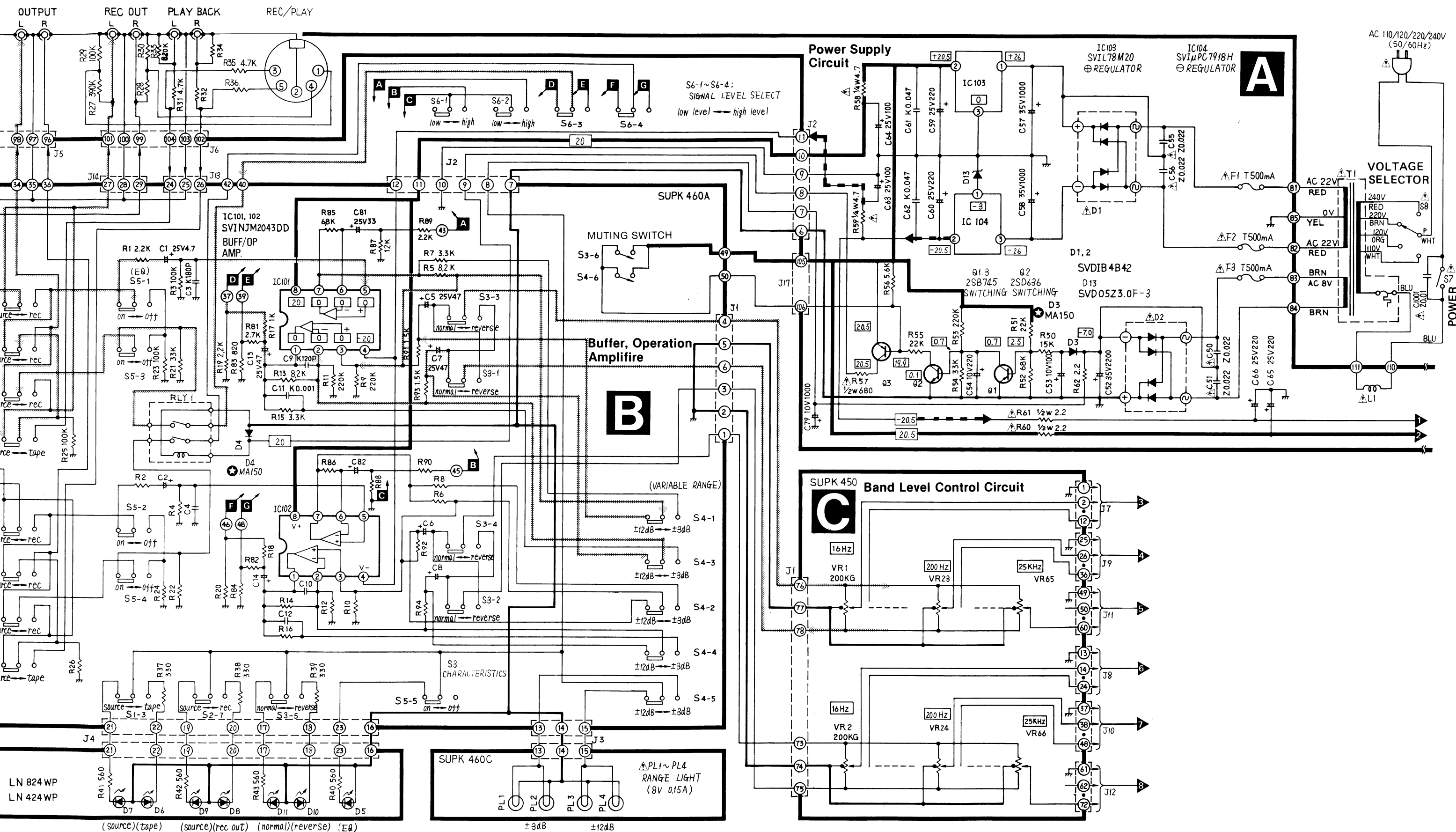
* The part No. of transistors, IC and diodes mentioned in schematic diagram stand for production Part No.
Regarding the Part No. without $\star$ mark, the production Part No. are different from the replacement part No.
Therefore, when placing an order for replacement parts, please use the Part No. in the replacement parts list.

- S1-1 ~ S1-3** : Tape monitor switch in "source" position.
source $\leftrightarrow$ tape
- S2-1 ~ S2-7** : Equalization - position selector switch in "source" position.
source $\leftrightarrow$ rec out
- S3-1 ~ S3-6** : Characteristics selector switch in "normal" position.
normal $\leftrightarrow$ reverse
- S4-1 ~ S4-6** : Variable - range selector switch in " ± 12 dB" position.
 ± 12 dB $\leftrightarrow$ ± 3 dB
- S5-1 ~ S5-5** : Equalization switch in "on" position.
- S6-1 ~ S6-4** : Signal level selector switch in "low level" position.
low level (150mV) $\leftrightarrow$ high level (1V)
- S7** : Power switch in "on" position.
- S8** : Voltage selector switch in "220V" position
110V $\leftrightarrow$ 120V $\leftrightarrow$ 220V $\leftrightarrow$ 240V
- S3-6 and S4-6 are muting switches for changeover.
These switches momentarily turns on the relay off.
- The circuit is same for both L and R channels.
For the resistance value and Capacity of R channel Op amp. (IC102), refer to the L channel (IC101).
- Indicated voltage values are the standare 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.
- Signal lines of left channel.
- Positive ($\oplus$) voltage lines. Negative ($\ominus$) voltage lines
- Important safety notice:
Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Power Supply, Equalizer Selector, BPF Buffer, Operation Amplifier and Band Level Control Circuit

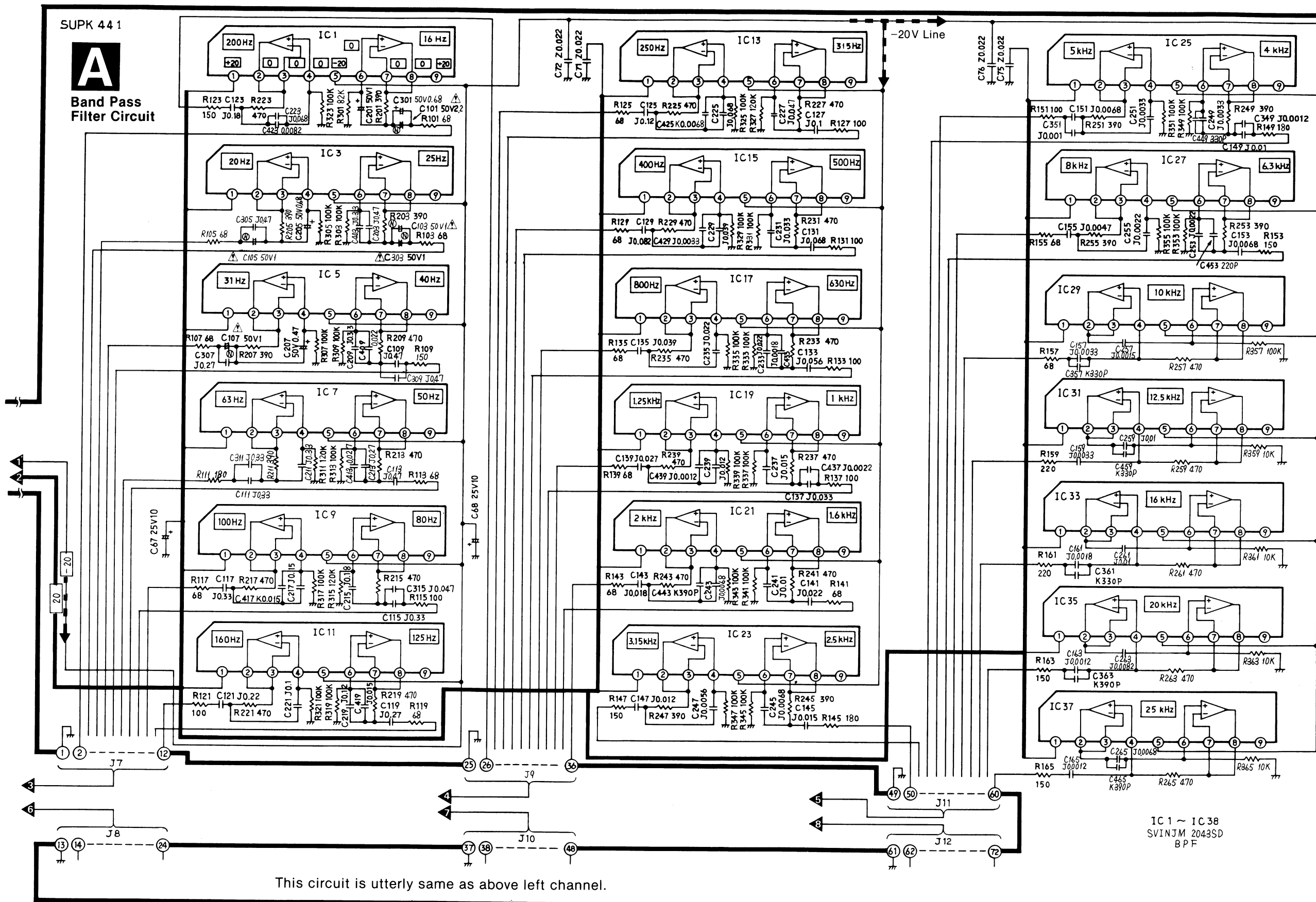


ply, Equalizer Selector, BPF Buffer, Operation Amplifier and Band Level Control Circuit



SCHEMATIC DIAGRAM (B) (This schematic diagram may be modified at any time with the development of new technology.)

• Band Pass Filter Circuit



EXPLODED VIEW

Areas

- * [EX] is available in Switzerland and Scandinavia.
- * [EK] is available in United Kingdom.
- * [EF] is available in France.
- * [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.

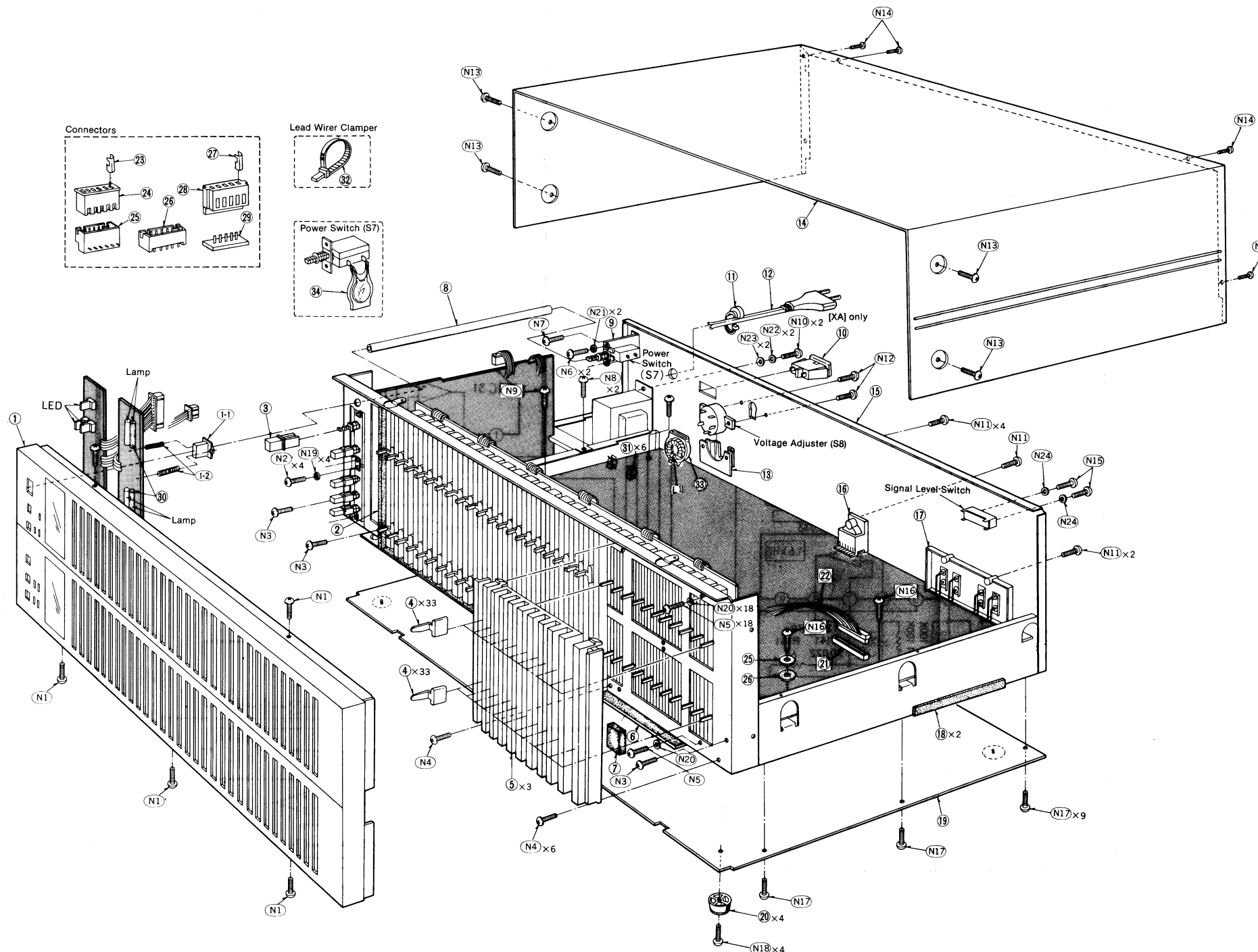
REPLACEMENT PARTS LIST.....Cabinet, Chassis and Packing Parts

Notes:

- Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
- Important safety notice:
Components identified by Δ make have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- Bracketed indications Ref. No. columns specify the area. Parts without these indications can be used for all areas.

- The "S" mark is service standard parts and may differ from production parts.
- $\square$ -marked parts are used for black type only, while $\circ$ -marked parts are for silver type only.
- Parts other than $\square$ and $\circ$ -marked are used for both black and silver types.
- The parenthesized numbers in the columns of description stand for the quantity per set.

Black type model No. : SH-8065 (K)



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
CABINET and CHASSIS PARTS					
1	$\square$ SYWK140	Front Panel Ass'y (Black), W/Power Button	30	SDUK4	Tube, Lamp (2)
1	$\circ$ SYWK150	Front Panel Ass'y (Silver) W/Power Button	31	SJT347	Clip, Fuse (6)
1-1	SBC435	Button, Power (1)	32	SHR301	Clamper, Lead Wire (9)
1-2	SUS159	Spring, Power Button (2)	33	SMXK12-2	Cover, Coil (1)
2	SHGK457	Rubber (1)	34	SMXA65	Cover, Capacitor (1)
3	SBC367	Button, Switches (5)	SCREWS		
4	SBDK3	Knob, Band Level Control (6)	N1	XTS3+6BFZ	Tapping, $\oplus$ 3 x 6 (5)
5	SGXK42-1	Ornament, Band Level Control Volume (3)	N2	S XSN3+6S	$\oplus$ 3 x 6 (4)
6	SHSK149-1	Rubber (1)	N3	S XTB3+8BFZ	Tapping, $\oplus$ 3 x 8 (3)
7	SHG6051	Rubber, Printed Circuit Board (1)	N4	S XTS3+8BFZ	Tapping, $\oplus$ 3 x 8 (6)
8	SUBK5	Coupling Rod (1)	N5	S XSN2+4BV	$\oplus$ 2 x 4 (18)
9	SUWK260	Bracket, Power Switch (1)	N6	S XSN3+6S	$\oplus$ 3 x 6 (2)
10 [XA] Δ only	SJS9221-1	Socket, AC Outlet (1)	N7	S XTB3+8BFZ	Tapping, $\oplus$ 3 x 8 (1)
11	SHR127	Bushing, AC Cord (1)	N8	S XTB3+8BFZ	Tapping, $\oplus$ 3 x 8 (2)
11 [EK] only	SHR129	Bushing, AC Cord (1)	N9	S XTB3+8BFZ1	Tapping with Detent $\oplus$ 3 x 8 (2)
12	SJA88	AC Cord (1)	N10	S XSN4+10BVS	$\oplus$ 4 x 10 (2)
12 [EK] Δ only	RJA45YA	AC Cord (1)	N11	S XTB3+8BFZ	Tapping, $\oplus$ 3 x 8 (7)
13	SMN1635	Bracket, Switch (1)	N12	S XTB3+16BFZ	Tapping, $\oplus$ 3 x 16 (2)
14	$\square$ SKCH8065KN	Cabinet (Black) (1)	N13	S $\square$ XTB4+8BFZ	Tapping, $\oplus$ 4 x 8 (4)
14	$\circ$ SKCH8065N	Cabinet (Silver) (1)	N13	S $\circ$ XTB4+8BFN	Tapping, $\oplus$ 4 x 8 (4)
15 [EX]	SGP130-1A	Rear Panel (1)	N14	S $\square$ XTB3+8BFZ	Tapping, $\oplus$ 3 x 8 (5)
15 [XA]	SGP130-2A	Rear Panel (1)	N14	S $\circ$ XTB3+8BFN	Tapping, $\oplus$ 3 x 8 (5)
15 [EF, EK]	SGPH8065H	Rear Panel (1)	N15	S XSN26+6BV	$\oplus$ 2.6 x 6 (2)
16	SJS6513	Socket, DIN (1)	N16	S XTB3+8BFZ	Tapping, $\oplus$ 3 x 8 (2)
17	SJF3049-1N	Terminal, Input & Output (1)	N17	S XTB3+8BFN	Tapping, $\oplus$ 3 x 8 (9)
18	SHGK458	Rubber, Side (2)	N18	S XTB3+10BFZ	Tapping, $\oplus$ 3 x 10 (4)
19	SKUK100	Bottom Board (1)	WASHERS		
20	SKL227-2	Foot, Set (4)	N19	S XWA3B	Spring, ϕ 3 (4)
21	SJT3013	Connector (12 Pin) (6)	N20	S XWA2BFZ	Spring, ϕ 2 (18)
22	SWKKH8065-10	Lead Ass'y (6)	N21	S XWA3B	Spring, ϕ 3 (2)
23	SJT783	Terminal, Socket (38)	N22	S XWA4BFZ	Spring, ϕ 4 (2)
24	SJS5331	Socket (3 Pin) (2)	N23	S XWG4FZ	Plain, ϕ 4 (2)
24	SJS5629	Socket (6 Pin) (1)	N24	S XWA26BFZ	Spring, ϕ 2.6 (2)
24	SJS5715	Socket (7 Pin) (2)	N25	S XWE3E10	Plain, ϕ 3 (1)
24	SJS5811	Socket (8 Pin) (2)	ACCESSORIES		
25	SJT3321	Connector (3 Pin) (1)	A1	SJP2129-5	Pin Cord (2)
25	SJT3613	Connector (6 Pin) (1)	A2 [XA] Δ only	SJP5213-1	Plug Adapter, Power Source (1)
25	SJT3711	Connector (7 Pin) (1)	A3	SQFK10005	Instructions Book (1)
25	SJT3811	Connector (8 Pin) (1)	A3 [XA] only	SQFK10004	Instructions Book (1)
26	SJT3319	Connector (3 Pin) (1)	A3-1	SQXK50007	Chart, Frequency Level Memory (3)
26	SJT3709	Connector (7 Pin) (1)	PACKING PARTS		
26	SJT3809	Connector (8 Pin) (1)	P1 [EF] only	SPGK82	Carton Box (1)
27	SJT779	Terminal, Socket (12)	P1	SPGK83	Carton Box (1)
28	SJS5703	Socket (7 Pin) (1)	P1 [XA] only	SPGK84	Carton Box (1)
28	SJS5803	Socket (8 Pin) (1)	P2	$\circ$ SGK1411	Label (Silver) (2)
29	SJT3707	Connector (7 Pin) (1)	P3	$\circ$ SPSK36	Pab, Side (2)
29	SJT3805	Connector (8 Pin) (1)	P4	$\square$ SPP651	Polyethylene Bag (1)
			P4	$\circ$ SPP703	Polyethylene Bag (1)
			P5	SPJ15	Polyethylene Bag, AC Cord (1)

Stereo Graphic Equalizer

SH-8065/SH-8065(K)

Note: This booklet contains the specifications for SH-8065, written in Germany French and Spanish.

File this manual together with the SH-8065 service manual (Order No. SD82032136C8).

DEUTSCH

■ TECHNISCHE DATEN

(Spezifikationen Können infolge von Verbesserungen ohne Ankündigung geändert werden.)

(DIN 45 500)		Mittenfrequenzen:	16 Hz, 20 Hz, 25 Hz, 31,5 Hz, 40 Hz, 50 Hz, 63 Hz, 80 Hz, 100 Hz, 125 Hz, 160 Hz, 200 Hz, 250 Hz, 315 Hz, 400 Hz, 500 Hz, 630 Hz, 800 Hz, 1 kHz, 1,25 kHz, 1,6 kHz, 2 kHz, 2,5 kHz, 3,15 kHz, 4 kHz, 5 kHz, 6,3 kHz, 8 kHz, 10 kHz, 12,5 kHz, 16 kHz, 20 kHz, 25 kHz
Frequenzgang (mittelstellung):	5 Hz~100 kHz, -1 dB		
Maximalausgangsspannung:	8 V (1 kHz, THD 0.01%)		
Nennausgangsspannung:	1 V		
Nennklirrfaktor:	0.0025% (20 Hz~20 kHz)		
Eingangsspannung:	1 V		
Geräuschabstand:	100 dB (110 dB, IHF, A)		
Maximaleingangsspannung:	8 V (1 kHz)	ALLGEMEINE DATEN	
Eingangsimpedanz:	47 k Ω	Stromversorgung:	Wechselstrom, 110 V/120 V/220 V/240 V, 50 Hz/60 Hz
Ausgangsimpedanz:	600 Ω	Leistungsaufnahme:	29 W
Verstärkung:	0 $\pm$ 1 dB	Abmessungen (H$\times$B$\times$T):	153 $\times$ 430 $\times$ 330 mm (6-1/32" $\times$ 16-15/16" $\times$ 13")
Frequenzgangregler:	+12 dB~-12 dB, +3 dB~-3 dB (33 Regler, stufenlos verstellbar)	Gewicht:	6.6 kg (14.6 lbs)
Eingangssignalschalter:	150 mV/1 V		

FRANÇAIS

■ CARACTERISTIQUES

(Sujet à changement sans preavis.)

(DIN 45 500)		Sélecteur de niveau de signal:	150 mV/1 V
Courbe de réponse (position centrale):	5 Hz~100 kHz, -1 dB	Fréquences charnières:	16 Hz, 20 Hz, 25 Hz, 31,5 Hz, 40 Hz, 50 Hz, 63 Hz, 80 Hz, 100 Hz, 125 Hz, 160 Hz, 200 Hz, 250 Hz, 315 Hz, 400 Hz, 500 Hz, 630 Hz, 800 Hz, 1 kHz, 1,25 kHz, 1,6 kHz, 2 kHz, 2,5 kHz, 3,15 kHz, 4 kHz, 5 kHz, 6,3 kHz, 8 kHz, 10 kHz, 12,5 kHz, 16 kHz, 20 kHz, 25 kHz
Tension de sortie maximale:	8 V (1 kHz, THD 0.01%)		
Tension de sortie nominale:	1 V		
Distortion harmonique totale:	0.0025% (20 Hz~20 kHz)		
Sensibilité d'entrée:	1 V		
Signal/Bruit:	100 dB (110 dB, IHF, A)		
Tension d'entrée maximale:	8 V (1 kHz)	GENERALITES	
Impédance d'entrée:	47 k Ω	Alimentation:	CA. 110 V/120 V/220 V/240 V, 50 Hz/60 Hz
Impédance de sortie:	600 Ω	Consommation:	29 W
Gain:	0 $\pm$ 1 dB	Dimensions (h$\times$l$\times$pr) mm:	153 $\times$ 430 $\times$ 330 mm (6-1/32" $\times$ 16-15/16" $\times$ 13")
Commandes de niveau de gamme:	+12 dB~-12 dB, +3 dB~-3 dB (33 éléments, continuellement variables)	Poids:	6.6 kg (14.6 lbs)

ESPAÑOL

■ ESPECIFICACIONES (Estas especificaciones están sujetas a cualquier cambio sin previo aviso.)

(DIN 45 500)

Respuesta de frecuencia
(posición central): 5 Hz~100 kHz, -1 dB

Tensión de salida
máxima: 8 V (1 kHz, THD 0.01%)

Tensión de salida de
régimen: 1 V

Distorsión armónica total
nominal: 0.0025% (20 Hz~20 kHz)

Sensibilidad de entrada: 1 V

Relación de señal ruido: 100 dB (110 dB, IHF, A)

Tensión de entrada
máxima: 8 V (1 kHz)

Impedancia de entrada: 47 kΩ

Impedancia de salida: 600Ω

Ganancia: 0±1 dB

Controles de nivel de
banda: +12 dB~-12 dB, +3 dB~-3 dB
(33 elementos, continuamente
variables)

Selector de nivel de la
señal: 150 mV/1 V

Frecuencia central: 16 Hz, 20 Hz, 25 Hz, 31,5 Hz,
40 Hz, 50 Hz, 63 Hz, 80 Hz,
100 Hz, 125 Hz, 160 Hz, 200 Hz,
250 Hz, 315 Hz, 400 Hz, 500 Hz,
630 Hz, 800 Hz, 1 kHz, 1,25 kHz,
1,6 kHz, 2 kHz, 2,5 kHz, 3,15 kHz,
4 kHz, 5 kHz, 6,3 kHz, 8 kHz,
10 kHz, 12,5 kHz, 16 kHz, 20 kHz,
25 kHz

EN GENERAL

Alimentación de
corriente: C. A. de 110 V/120 V/220 V/
240 V, 50 Hz/60 Hz

Consumo de corriente: 29 W

Dimensiones
(alto×ancho×prof.): 153×430×330 mm
(6-1/32"×16-15/16"×13")

Peso: 6,6 kg (14,6 lbs)

Service Manual

Stereo Graphic Equalizer

SH-8065

[EB], [EGA]

SH-8065(K)

[EB], [EGA]

* The cabinet and front panel are available in black color and silver types.

* The black type model is provided with (K) in the Service Manual.

Areas

* [EB] is available in Belgium.

* [EGA] is available in F.R. Germany.

* Please use this manual together with the service manual for Model No. SH-8065/(K) [EX, EK, EF and XA areas], Order No. SD82032136C8.

* Mentioned in this parts list are only those changed in Model No. SH-8065/(K) for destination [EX] area.

CHANGES

RESISTORS

Ref. No.	Change of Part No.		Description
	SH-8065/(K) [EX]	 SH-8065/(K) [EB, EGA]	
RESISTORS			
R97, 98	Addition	ERD25FJ102 [EGA] only	Carbon, 1kΩ, 1/4W, ±5%

CHANGE OF CIRCUIT

- Input terminal circuit: [EGA] area only

○ Additional parts

