

Service Manual

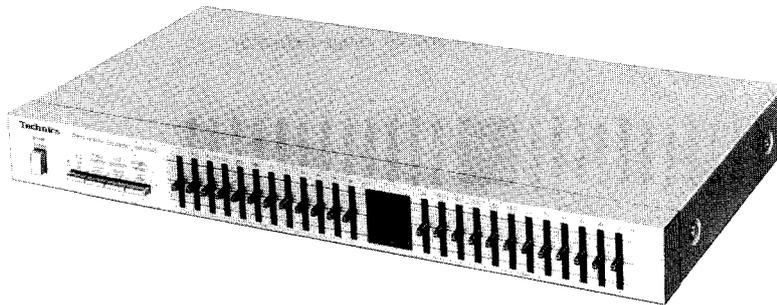
Stereo Graphic Equalizer

SH-8045

[E], [EK], [XA], [XL], [EF], [EB]

SH-8045(K)

[E], [EK], [XA], [XL], [EF], [EB]



- * 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

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

Specifications

(Specifications are subject to change without notice for further improvement.)

(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	: 0.005% (20 Hz~20 kHz) 0.003% (1 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
Gain	: 0 \pm 1 dB
Channel balance 250 Hz~6300 Hz	: \pm 0.5 dB
Channel separation 1kHz	: 70 dB

Band level controls	: +12 dB~-12 dB, +3 dB~-3 dB (12 elements continuously variable per channel)
Center frequency	: 16 Hz, 31.5 Hz, 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, 16 kHz, 32 kHz

GENERAL

Power supply	: AC 110 V/120 V/220 V/240 V, 50 Hz/60 Hz. AC 240 V 50 Hz only (For Australia)
Power consumption	: 19 W
Dimensions (H\timesW\timesD)	: 53 \times 430 \times 235 mm (2-3/32" \times 16-29/32" \times 9-1/4")
Weight	: 2.6 kg (5.7 lb)

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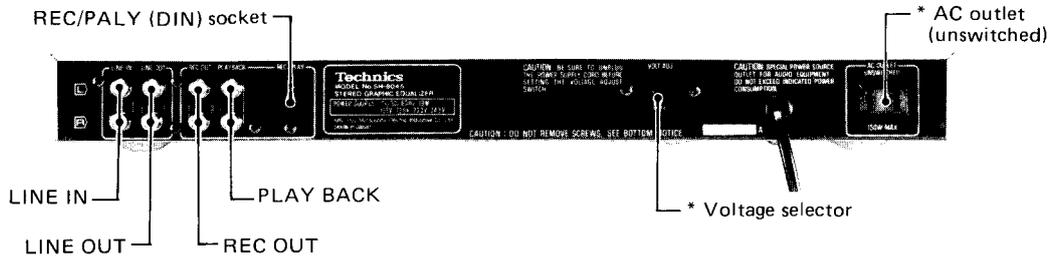
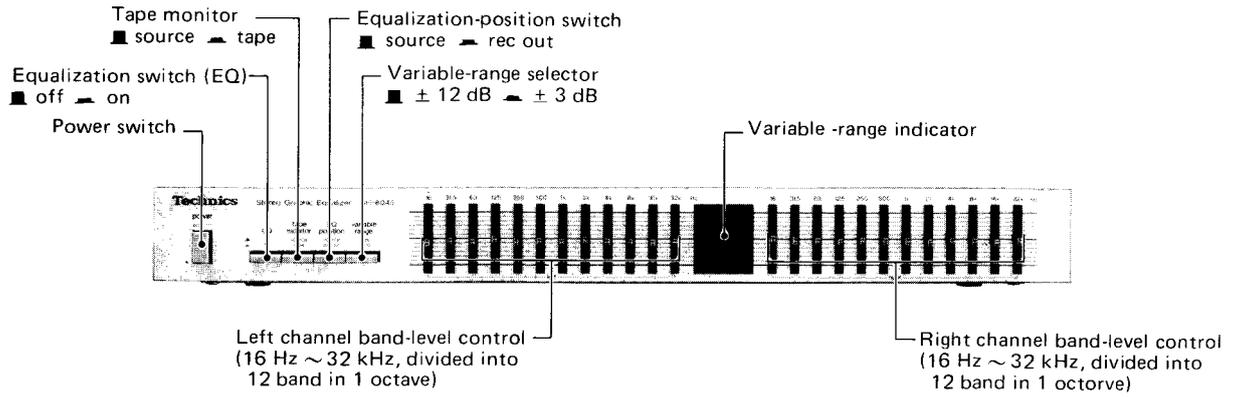
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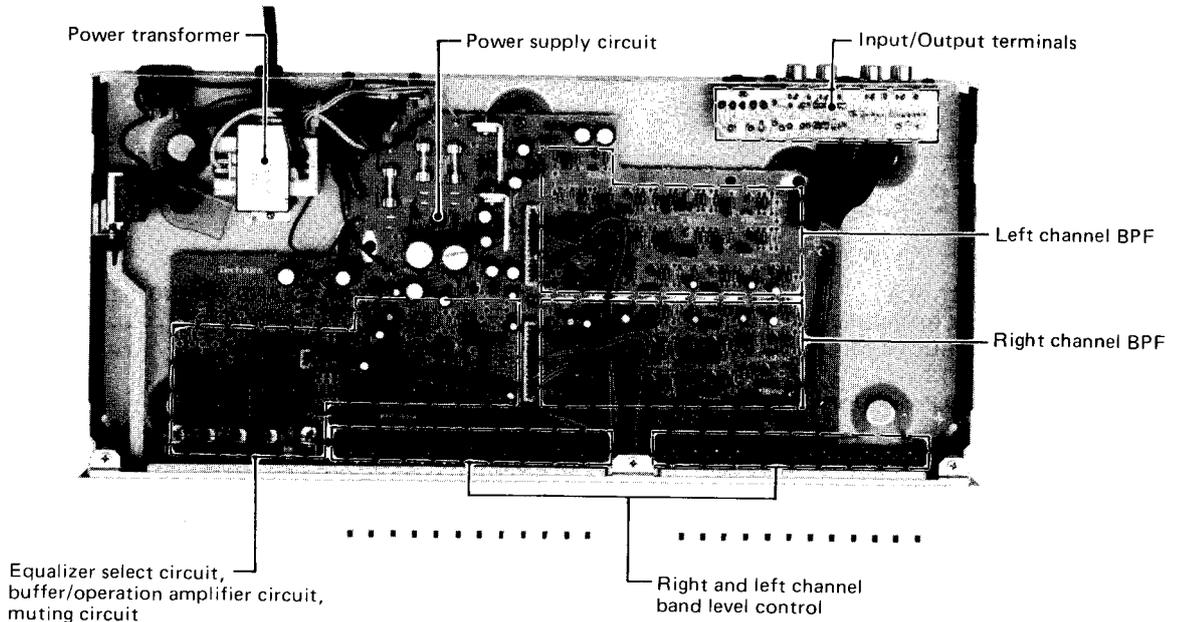
Technics

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

LOCATION OF CONTROLS



* This power supply for this unit varies depending the areas. Also, the parts used for power supply are different. So, refer to the circuit diagram and replacement part list.
 * [XA] area is provided with AC outlet.
 * [XL] area is not provided with voltage selector.



Stereo Graphic
Equalizer

SH-8045/SH-8045(K)

This booklet contains the specifications for SH-8045, written in Germany, French and Spanish, and the circuits to be changed according to the areas.

File this manual together with the SH-8045 service manual (Order No. SD82042179C8).

DEUTSCH

FRANÇAIS

DEUTSCH

■ TECHNISCHE DATEN (Spezifikationen können infolge von Verbesserungen ohne Ankündigung geändert werden.)

(DIN 45 500)

Frequenzgang (mittelstellung)	: 5 Hz ~ 100 kHz, -1 dB
Maximalausgangsspannung	: 8 V (1 kHz, THD 0.01%)
Nennausgangsspannung	: 1 V
Nennklirrfaktor	: 0.005% (20 Hz ~ 20 kHz) 0.003% (1 kHz)
Eingangsspannung	: 1 V
Geräuschabstand	: 100 dB (110 dB, IHF, A)
Maximaleingangsspannung	: 8 V (1 kHz)
Eingangsimpedanz	: 47 kΩ
Verstärkung	: 0 ± 1 dB
Kanalsymmetrie 250 Hz ~ 6300 Hz	: ± 0.5 dB

Kanaltrennung 1kHz	: 70 dB
Frequenzgangregler	: +12 dB ~ -12 dB, +3 dB ~ -3 dB (12 Regler, stufenlos verstellbar)
Mittelfrequenzen	: 16 Hz, 31.5 Hz, 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, 16 kHz, 32 kHz

ALLGEMEINE DATEN

Stromversorgung	: Wechselstrom, 110 V/120 V/220 V/ 240 V, 50 Hz/60 Hz
Leistungsaufnahme	: 19 W
Abmessungen (H×B×T)	: 53×430×235 mm (2-3/32"×16-29/32"×9-1/4")
Gewicht	: 2.6 kg (5.7 lb)

FRANÇAIS

■ CARACTERISTIQUES (Sujet à changement sans préavis.)

(DIN 45 500)

Courbe de réponse (position centrale)	: 5 Hz ~ 100 kHz, -1 dB
Tension de sortie maximale	: 8 V (1 kHz, THD 0.01%)
Tension de sortie nominale	: 1 V
Distortion harmonique totale	: 0.005% (20 Hz - 20 kHz) 0.003% (1 kHz)
Sensibilité d'entrée Signal/Bruit	: 100 dB (110 dB, IHF, A)
Tension d'entrée maximale	: 8 V (1 kHz)
Impédance d'entrée	: 47 kΩ
Gain	: 0 ± 1 dB
Equilibrage de canal 250 Hz ~ 6300 Hz	: ± 0.5 dB
Séparation de canal 1 kHz	: 70 dB

Commandes de niveau de gamme

	: +12 dB ~ -12 dB, +3 dB ~ -3 dB (12 éléments, continuellement variables)
Fréquences charnières	: 16 Hz, 31.5 Hz, 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, 16 kHz, 32 kHz

GENERALITES

Alimentation	: CA, 110 V/120 V/220 V/240 V, 50 Hz/60 Hz
Consommation	: 19 W
Dimensions (h×l×pr) mm	: 53×430×235 mm (2-3/32"×16-29/32"×9-1/4")
Poids	: 2.6 kg (5.7 lb)

ESPAÑOL

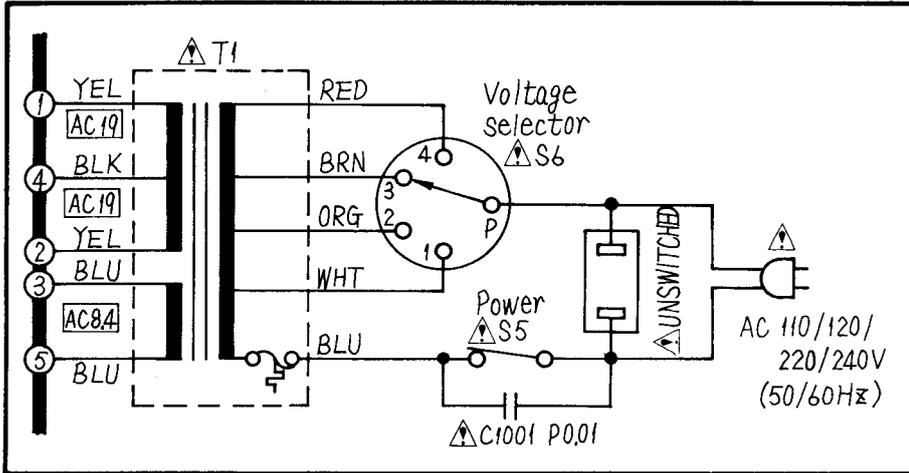
■ ESPECIFICACIONES (Estas especificaciones están sujetas a cualquier cambio sin previo aviso.)

(DIN 45 500)			
Respuesta de frecuencia (posición central)	: 5 Hz ~ 100 kHz, -1 dB	Controles de nivel de banda	: +12 dB ~ -12 dB, +3 dB ~ -3 dB :(12 elementos, continuamente variables)
Tensión de salida máxima	: 8 V (1 kHz, THD 0.01%)	Frecuencia central	: 16 Hz, 31.5 Hz, 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, 16 kHz, 32 kHz
Tensión de salida de régimen	: 1 V	EN GENERAL	
Distorsión armónica total nominal :	0.005% (20 Hz ~ 20 kHz) 0.003% (1 kHz)	Alimentación de corriente	: C.A. de 110 V/120 V/220 V/ 240 V, 50 Hz/60 Hz
Sensibilidad de entrada	: 1 V	Consumo de corriente	: 19 W
Relación de señal ruido	: 100 dB (110 dB, IHF 'A)	Dimensiones (alto x ancho x prof.)	: 53 x 430 x 235 mm (2-3/32" x 16-29/32" x 9-1/4")
Tensión de entrada máxima	: 8 V (1 kHz)	Peso	: 2.6 kg (5.7 lb)
Impedancia de entrada	: 47 kΩ		
Ganancia	: 0 ± 1 dB		
Equilibrio de canales 250 Hz ~ 6300 Hz	: ± 0.5 dB		
Separación de canales 1 kHz	: 70 dB		

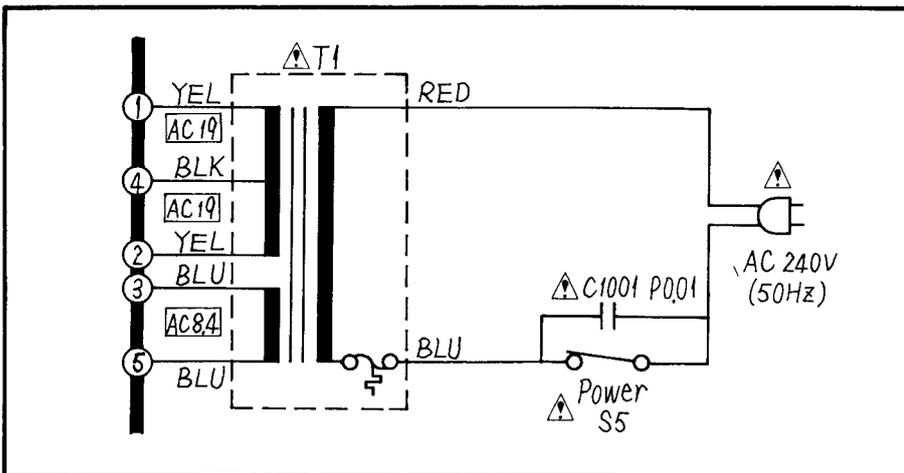
■ CIRCUITS TO BE CHANGED AND THE AREAS

- Power source circuit

[XA] area

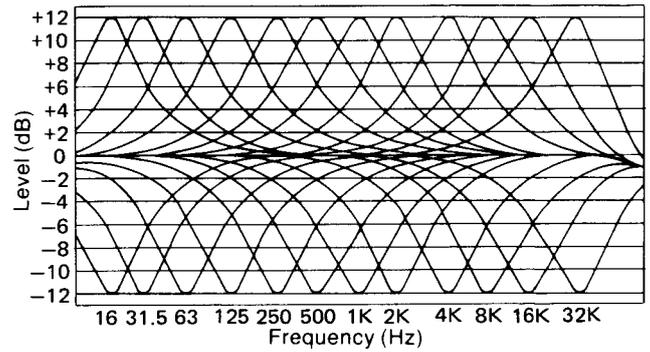


[XL] area



■ TOTAL FREQUENCY RESPONSE

Frequency response (± 12 dB position)



■ DISASSEMBLY INSTRUCTIONS

● How to remove the front panel

1. Remove the setscrews ① ~ ④ in Fig. 1 to remove the cabinet.
2. Remove the 6 setscrews (Fig. 1 : ⑤ ~ ⑪) of the front panel.
3. Pull the connector out of the main P.C.B.
4. Remove the front panel with care not to damage the knobs.

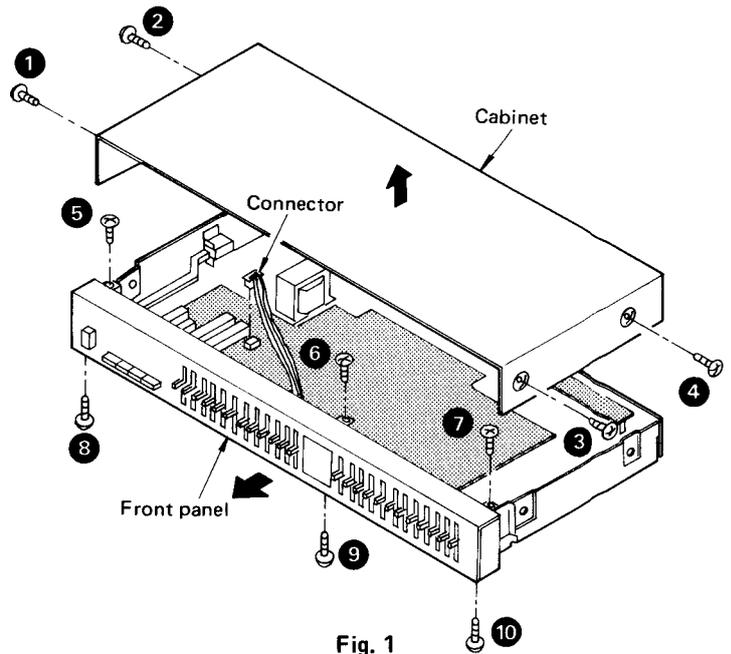


Fig. 1

● How to remove the P.C.B.

1. Remove the cabinet and front panel.
2. Remove the power supply knob and 4 setscrews (Fig. 1 : ⑪ ~ ⑭) of the front plate.
3. Remove the 5 setscrews (Fig. 2 : ⑮ ~ ⑲) of the P.C.B.
4. Remove the front plate from the chassis as in Fig. 3.

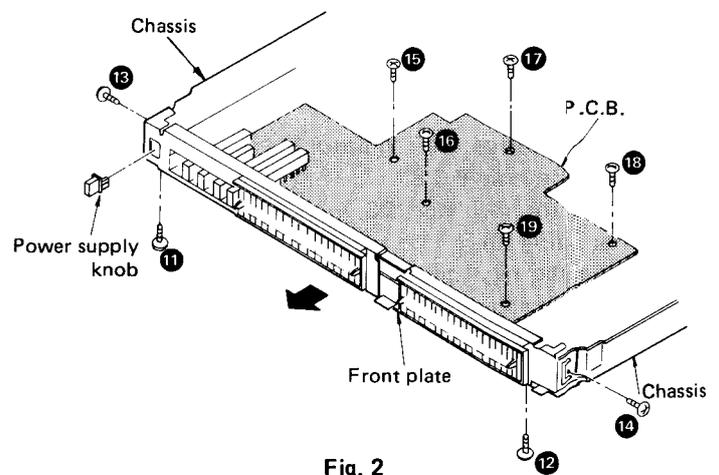


Fig. 2

Push the chassis by hand and pull the front plate toward you while releasing the stopper of front plate.

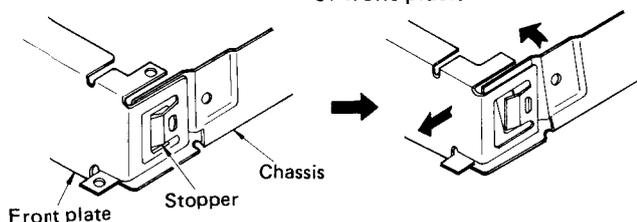


Fig. 3

• How to remove the slide volume

1. Remove the cabinet and front panel.
2. Remove the power supply knob and 4 setscrews (Fig. 4 : ⑪ ~ ⑭) of the front plate.
3. Pull the 2 connectors out of the main P.C.B.
4. Remove the 2 setscrews (Fig. 4 : ⑳, ㉑) of the switch and remove the front plate from the chassis as in Fig. 3.
5. Pull out the 12 knobs for the right and left channels, totalling 24 knobs.
6. Remove the ornament panel by pressing the right and left claws (A & B) from the inside of the chassis as in Fig. 5. (There are 2 ornament panel. Remove another panel in the same manner.)
7. Remove the 8 setscrews for the volume and detach the volume along with the P.C.B. from the front plate.

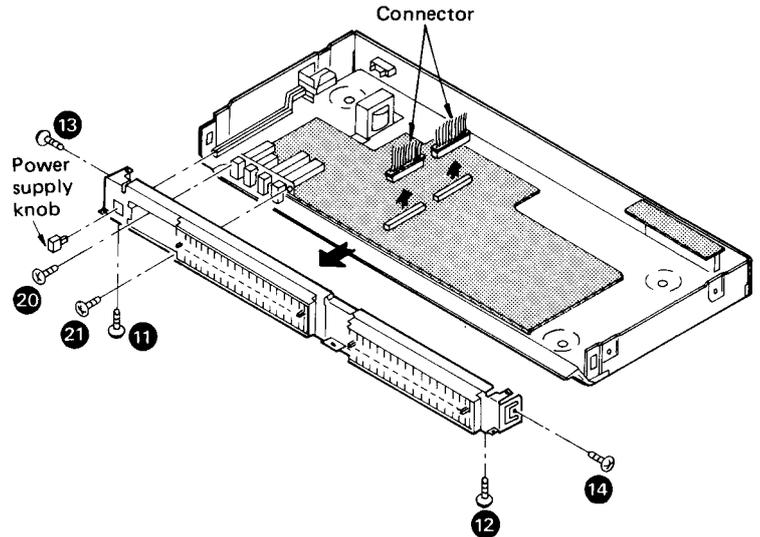


Fig. 4

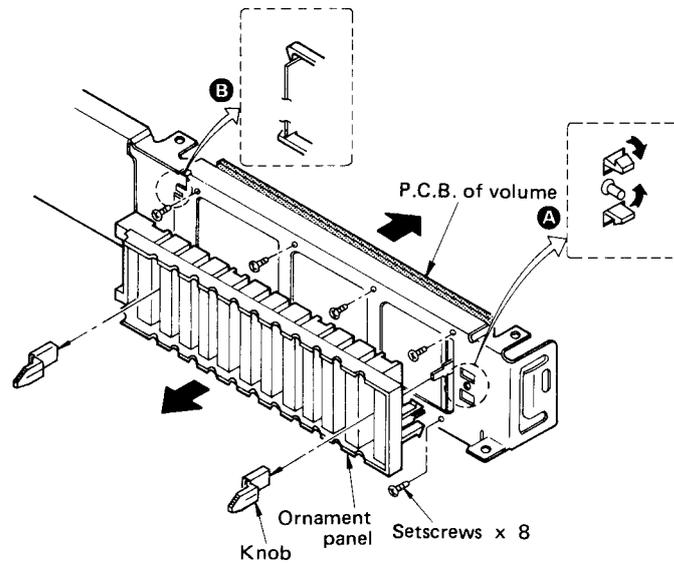


Fig. 5

• How to remove the regulator

1. Remove the main P.C.B.
2. Unsolder the regulator (Q3, 4) at 3 portions and the radiation plate at 1 portion. (Fig. 6)
3. Remove the regulator along with the radiation plate, and the setscrews.
4. When soldering the regulator, apply silicone compound (or equivalent heat diffusing agent) to the back of regulator.

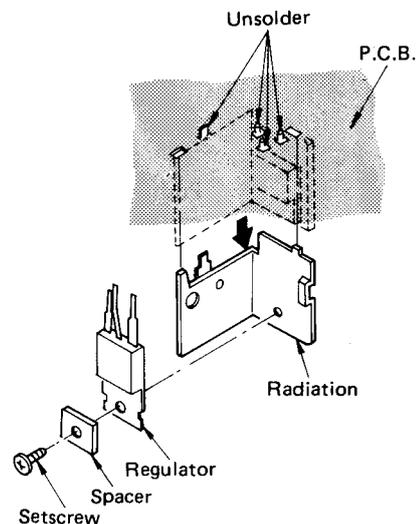


Fig. 6

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.

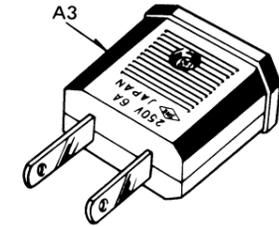
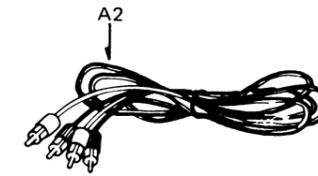
- The "S" mark is service standard parts and may differ from production parts.
- \square -marked parts are used for black type only, while \circ -marked parts are for silver type only.
- Parts other than \square and \circ -marked are used for both black and silver types.
- The parenthesized numbers in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

Black type model No. : SH-8045 (K)

Accessories

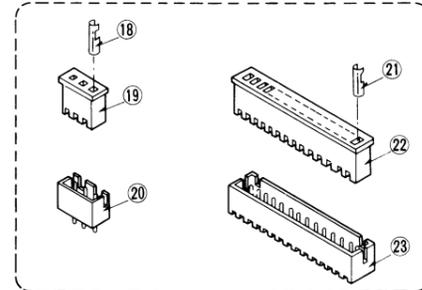
Areas

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

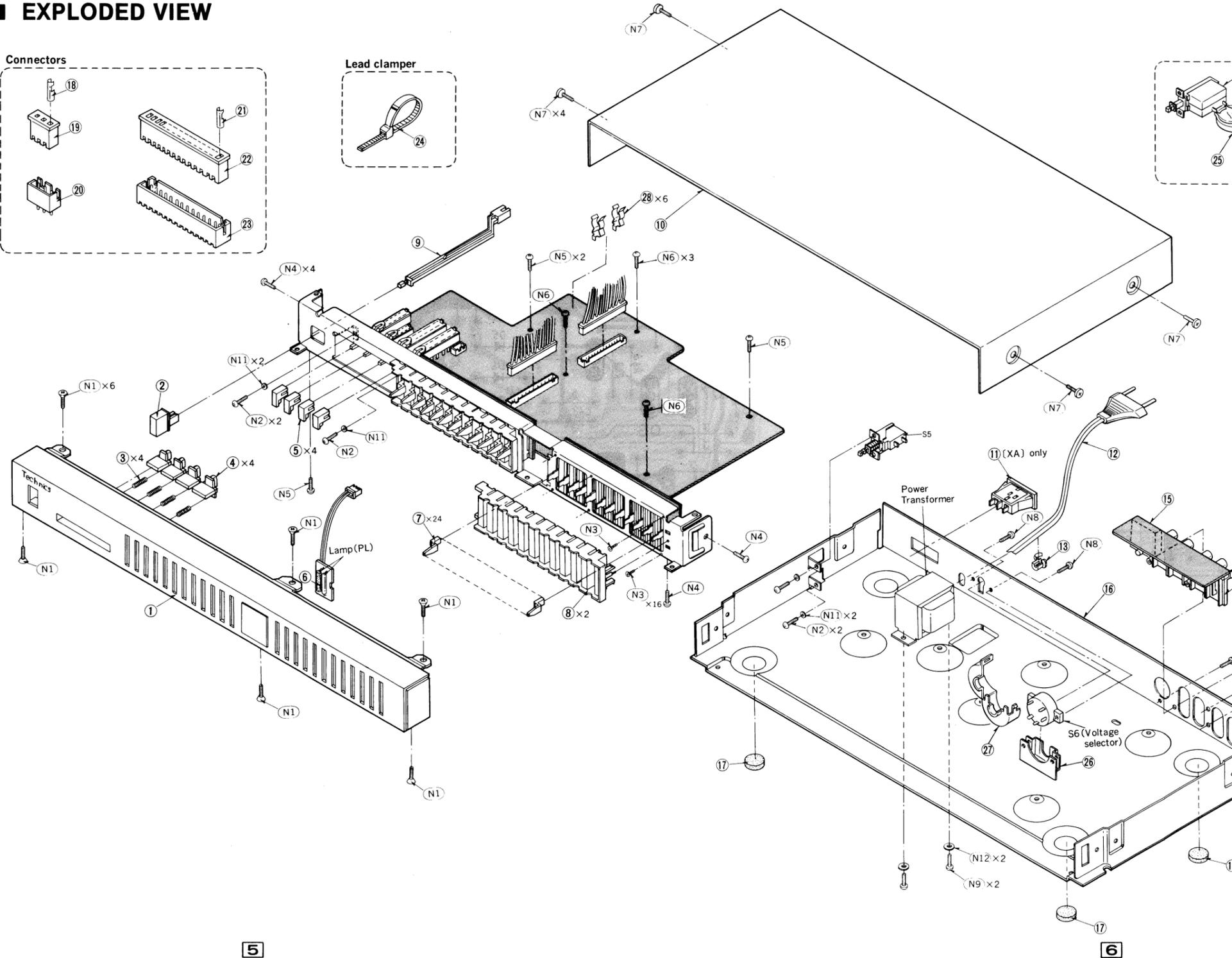
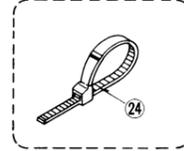


EXPLODED VIEW

Connectors



Lead clasper



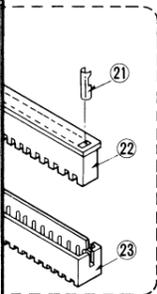
Ref. No.	Part No.	Description	Quantity
CABINET and CHASSIS PARTS			
1	\circ SGWH8045N	Front Panel Ass'y (Silver)	(1)
1	\square SGWH8045KN	Front Panel Ass'y (Black)	(1)
2	SBC337-1	Button, Power Source	(1)
3	SUS159	Spring, Push Switch	(4)
4	SBC413	Button, Push Switch	(4)
5	SUBK7	Coupling Rod, Push Switch	(4)
6	SDUK4	Tube, Lamp	(1)
7	SBCK32	Knob, Band Level Control	(24)
8	SGXK43	Ornament, Slide Volume	(2)
9	SUBK6	Coupling Rod, Power Switch	(1)
10	\circ SKCH8045N	Cabinet (Silver)	(1)
10	\square SKCH8045KN	Cabinet (Black)	(1)
11 [XA] only	SJS9221-1	Socket, AC Outlet	(1)
12 Δ S	SJA88	AC Cord	(1)
12 [EK] Δ	RJA45YA	AC Cord	(1)
12 [XL] Δ S	OFC1208M	AC Cord	(1)
13	SHR127	Bushing, AC Cord	(1)
13 [EK] only	SHR129	Bushing, AC Cord	(1)
14	SJF3431-4N	Terminal, Input & Output	(2)
15	SJS6513	Terminal, REC/PLAY (DIN)	(1)
16	SGPKH8045E	Bottom Board, W/Feet	(1)
16 [XA] only	SGPKH8045X	Bottom Board, W/Feet	(1)
16 [XL] only	SGPKH8045L	Bottom Board, W/Feet	(1)
17	SKL245-2	Foot, Set	(4)
18	SJT783	Terminal, Socket	(3)
19	SJS5331	Socket (3 Pin)	(1)
20	SJT3319	Connector (3 Pin)	(1)
21	SJT783	Terminal, Socket	(30)
22	SJS5047	Socket (15 Pin)	(2)
23	SJT3027	Connector (15 Pin)	(2)
24	SHR301	Clamper, Lead Wire	(5)
25 [E, XA]	SAMA65	Cover, Capacitor	(1)
25 [EK, XL, EB, EF]	SMXK26	Cover, Capacitor	(1)
26	SMN1635	Bracket, Voltage Selector Switch	(1)
27	SUV473	Cover, Voltage Selector Switch	(1)
28	SJT347	Fuse Clip	(6)
SCREWS			
N1	\circ S XTS3+6B	Tapping, \oplus 3 x 6 (Silver)	(6)
N1	\square XTS3+6BFZ	Tapping, \oplus 3 x 6 (Black)	(6)
N2	S XSN3+6S	\oplus 3 x 6	(4)
N3	S XSN2+4BV	\oplus 2 x 4	(12)
N4	S XTBS3+10BFZ	Tapping, \oplus 3 x 10	(9)
N5	S XTBS3+8BFZ1	Tapping, \oplus 3 x 8	(2)
N6	S XTBS3+10BFN	Tapping, \oplus 3 x 10	(3)

Ref. No.	Part No.	Description	Quantity
N7	\circ S XTB4+8BFN	Tapping, \oplus 4 x 8 (Silver)	(4)
N7	\square S XTB4+8BFZ	Tapping, \oplus 4 x 8 (Black)	(4)
N8	S XTB3+16BFZ	Tapping, \oplus 3 x 16	(2)
N9	S XTNB+10B	Tapping, \oplus 3 x 10	(2)
WASHERS			
N11	S XWA3B	Spring, ϕ 3	(4)
N12	S XWG3	Plain, ϕ 3	(2)
PACKING PARTS			
P1	SPGK90	Carton Box	(1)
P1 [EF] only	SPGK89	Carton Box	(1)
P2	\square SGK1413	Label, (Black type only)	(2)
P3	SPSK38	Pad, Right	(1)
P3	SPSK39	Pad, Left	(1)
P5	\circ SPP697	Polyethylene Bag, (Silver)	(1)
P5	\square SPP647	Polyethylene Bag, (Black)	(1)
ACCESSORIES			
A1 [E, EK, EF, EB]	SQFK10011	Instructions Book	(1)
A1 [XA, XL]	SQFK10018	Instructions Book	(1)
A2	SJP2129-5	Pin Cord	(2)
A3 [XA] only	SJP5213-1	Plug, Power Source	(1)

parts

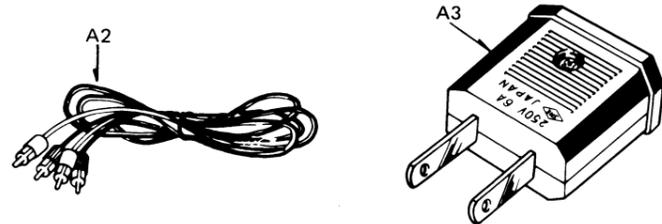
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VIEW

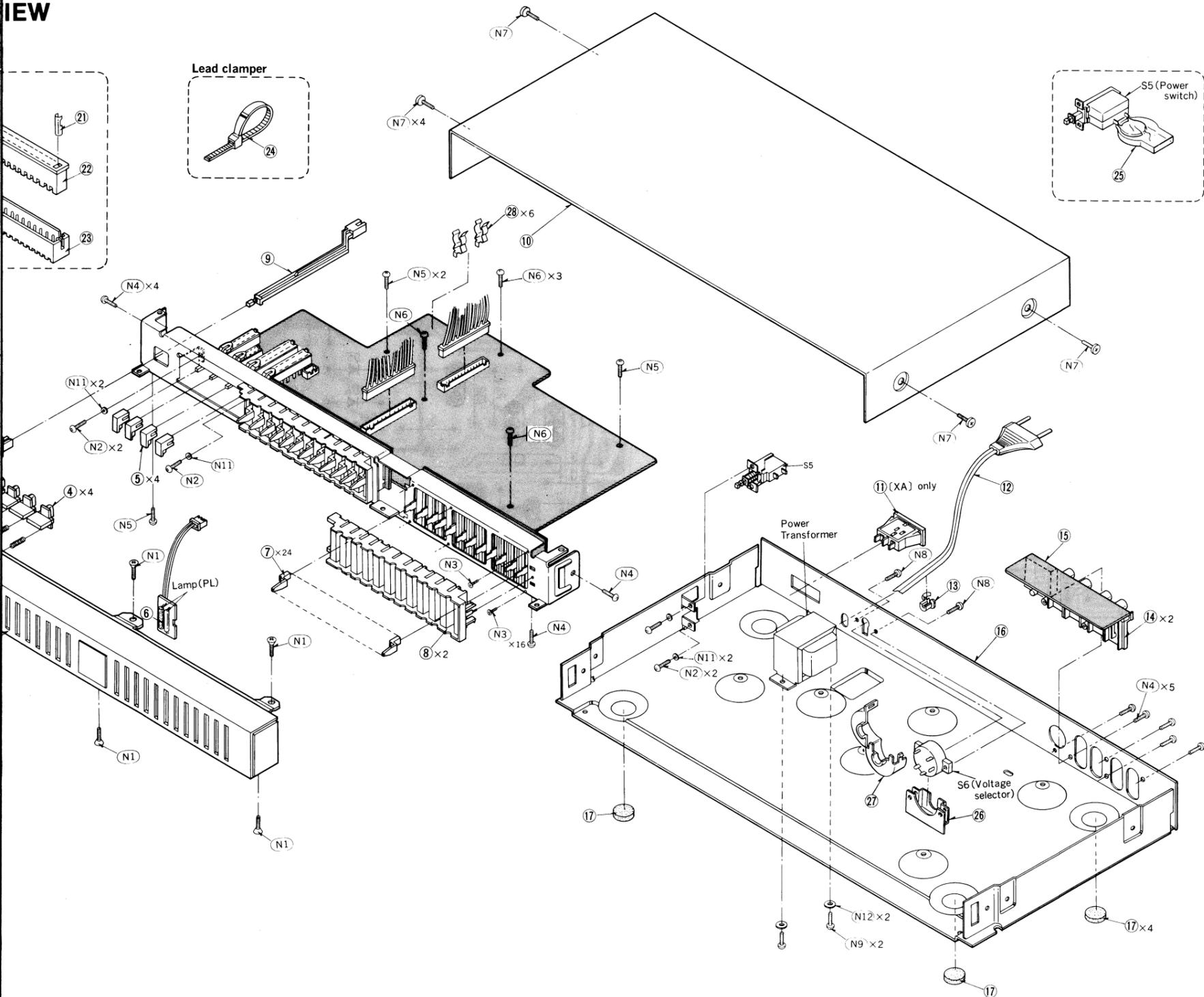
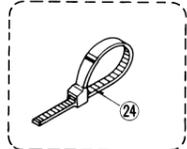


- Areas**
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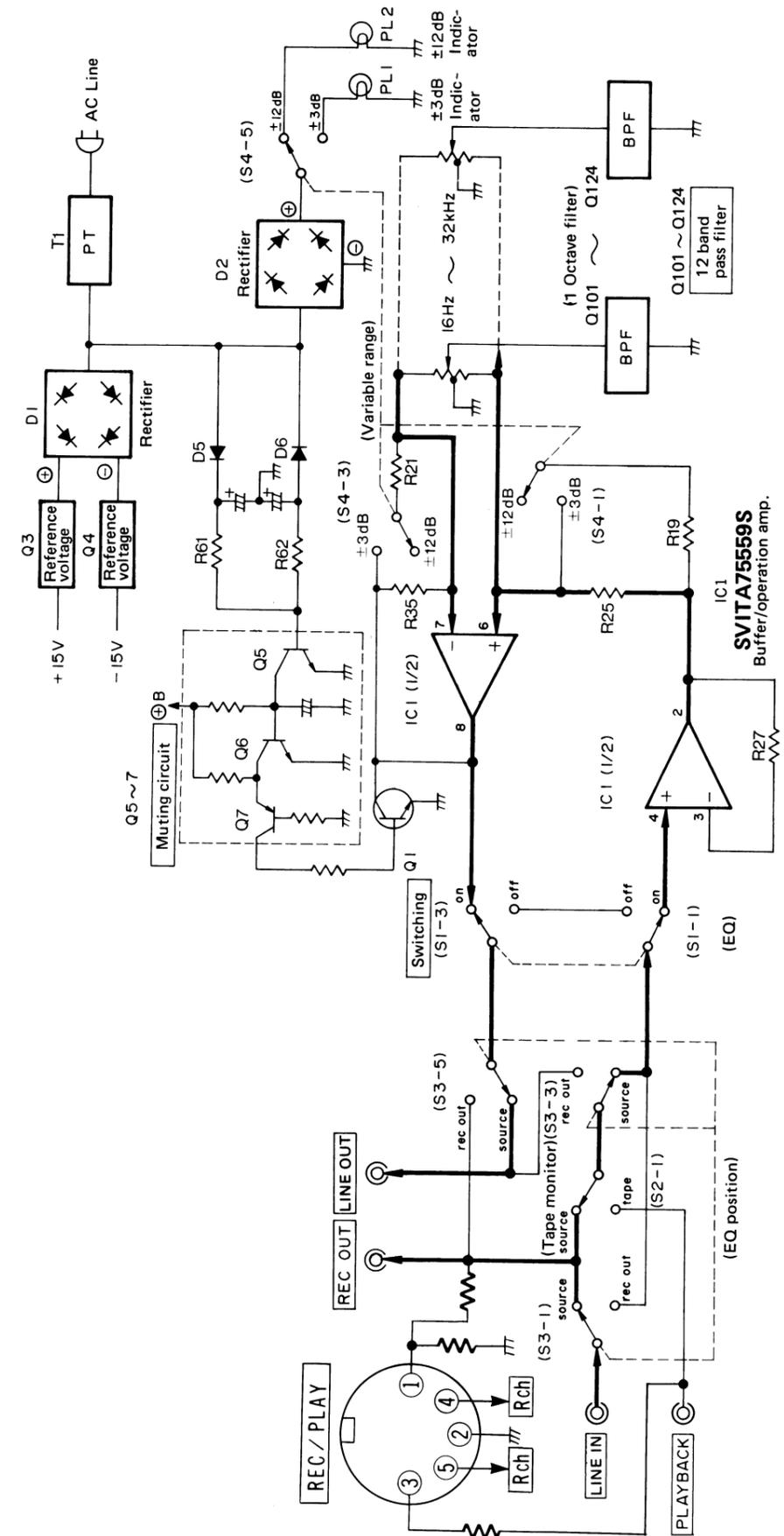
• Accessories



Lead clasper



■ BLOCK DIAGRAM



SH-8045 SH-8045

Ground (Earth) lines

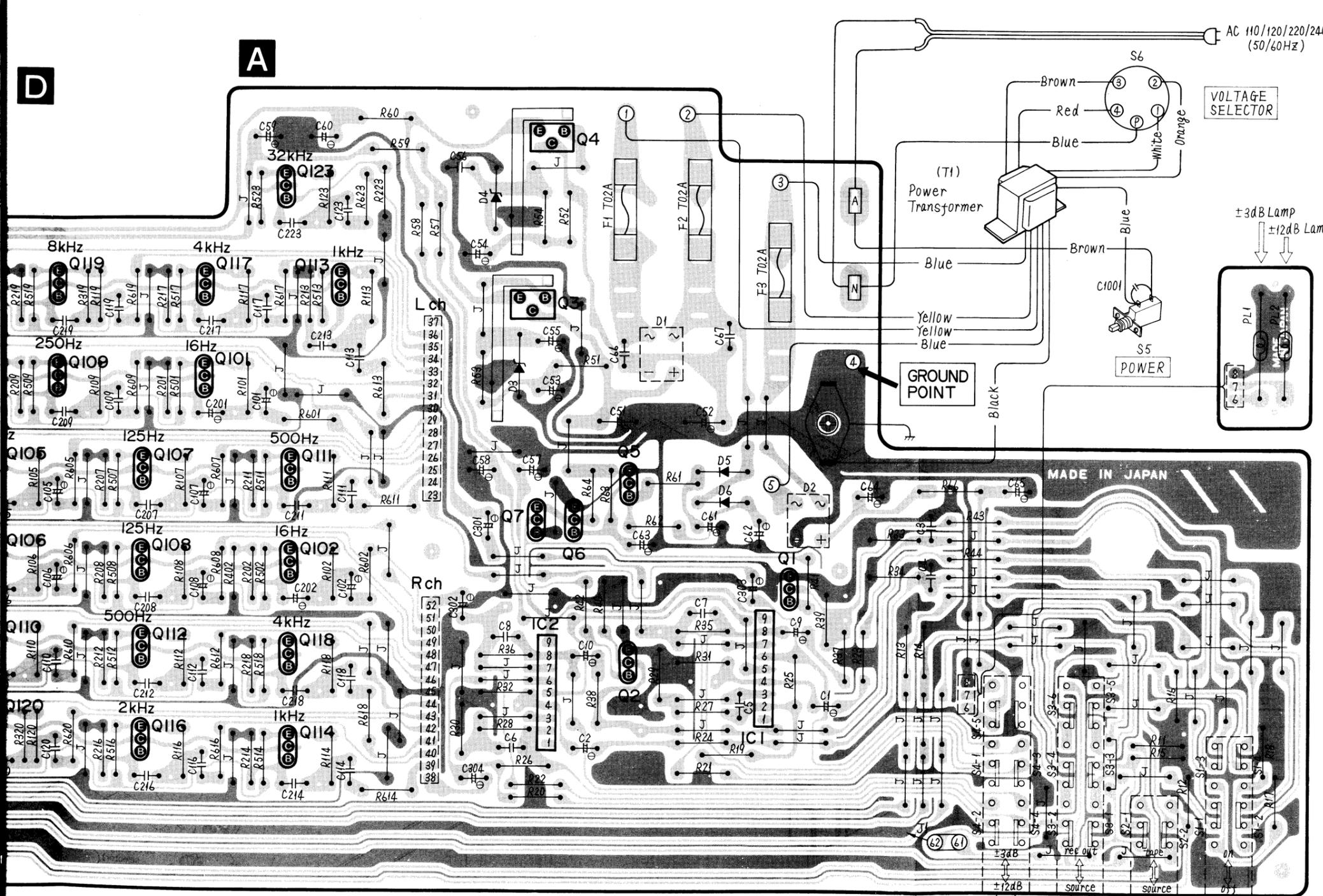
Notes:

* 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 part list.

- This is the basic circuit diagram (For continental Europe) of this unit. Note that part of the circuit is subject to change depending on the areas.
- Regarding the circuits to be changed in the basic circuit diagram (For continental Europe) and related areas [XL] and [XA], refer to the separated service manual (Order No. SD82042179C8-A).
- S1-1 ~ S1-4** : Equalization (EQ) switch in "on" position.
- S2-1, S2-2** : Tape monitor switch in "source" position.
source \leftrightarrow tape
- S3-1 ~ S3-6** : Equalization position (EQ position) switch in "source" position.
source \leftrightarrow rec out
- S4-1 ~ S4-6** : Variable range switch in " ± 12 dB" position.
 ± 12 dB \leftrightarrow ± 3 dB
- S5** : Power switch in "on" position.
- S6** : Voltage selector switch in "220V" position.
110V \leftrightarrow 120V \leftrightarrow 220V \leftrightarrow 240V
- The R and L channels use the same circuit. For the resistance and capacity of the R channel operation amp. (IC2), refer to the L channel (IC1). The R channel of B.P.F. circuit is omitted.
- 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.
- Signal lines of left channel.
- Positive (+ B) voltage lines. \dashrightarrow Negative (- B) 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.

Terminal guide of transistors, IC's and diodes

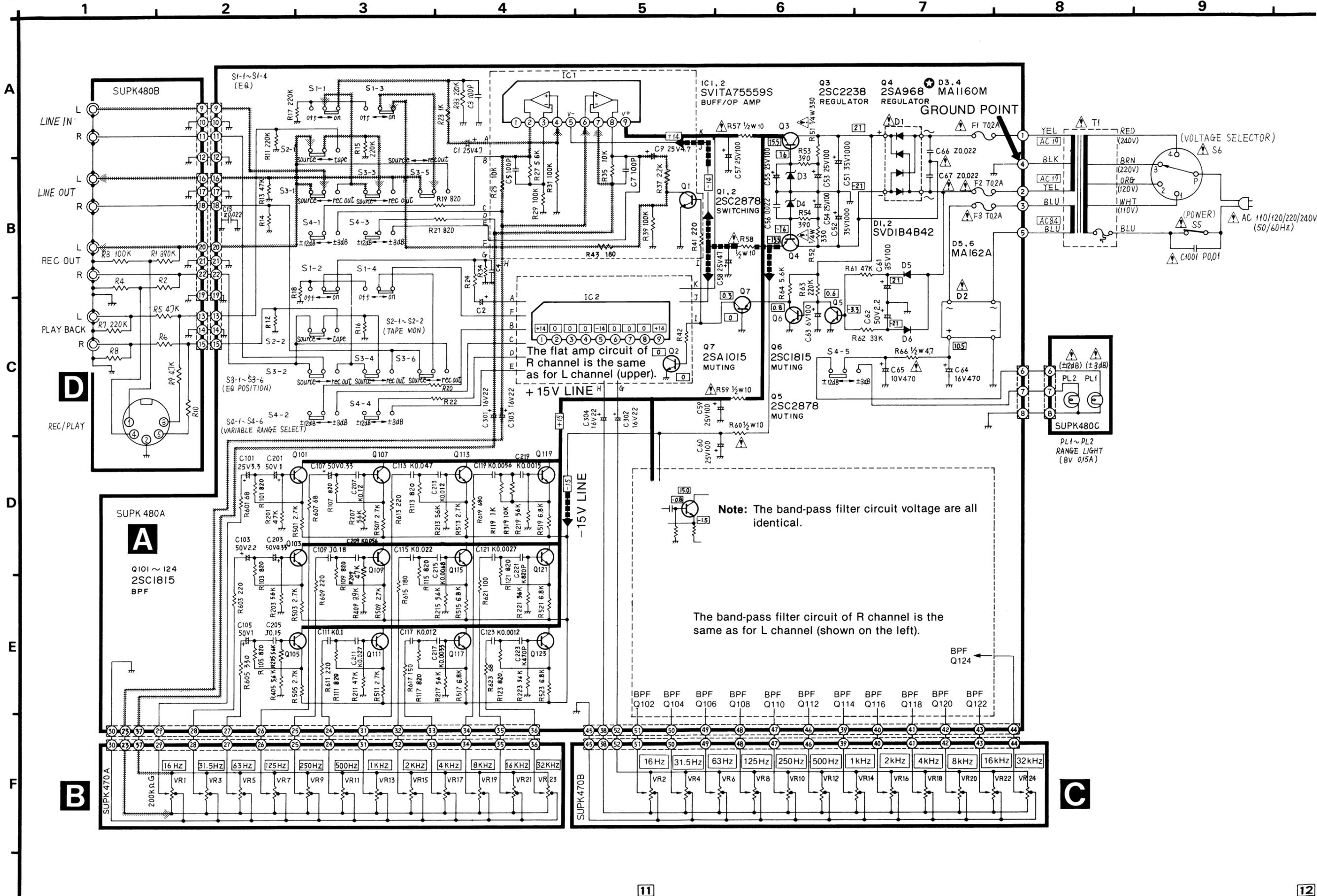
<p>SVITA75559S</p>	<p>2SA1015 2SC1815 2SC2878</p>	<p>2SA968 2SC2238</p>
<p>SVDIB4B42</p>	<p>MA1160</p>	<p>MA150</p>



119	107	117	123	113	4				
109	108	101	111		3		5		
	112		102		7	6	2		
	116		118 11A.						



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



REPLACEMENT PARTS LIST...Electric 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.
- Bracketed indications in 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.

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- * [EF] is available in France.
- * [EB] is available in Belgium.

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC1, 2	SVITA75559S	Operation Amplifier
TRANSISTORS		
Q1, 2, 5 Q3	2SC2878A-T 2SC2238-OLB	Switching Regulator, ⊕ B Voltage Regulator,
Q4	2SA968-OLB	⊖ B Voltage Regulator, ⊖ B Voltage Muting Circuit
Q6	2SC1815L-G	Muting Circuit
Q7	2SA1015L-G	Band Pass Filter
Q101 ~ 124	2SC1815L-G	Band Pass Filter
DIODES		
D1, 2	Δ SVD184B42	Rectifier
D3, 4	S SVDRD16EB	Zener, 16V
D5, 6	S MA162A	Switching
VARIABLE RESISTORS		
VR1 ~ 24	EVACH1C10G25	Band Level Control, 200k Ω (G)

Ref. No.	Part No.	Description
TRANSFORMER		
T1	Δ SLTK5J5-W	Power Source
T1 [XL] only	Δ SLTK5J10-W	Power Source
LAMP		
PL1, 2	Δ XAMR81S10	Range Indicator, 8V, 0.15A
SWITCHES		
S1 ~ 4	SSHK21	EQ, Tape Monitor EQ Position, Variable Range
S5	Δ ESB90619S	Power Source
S6 Except for [XL]	Δ ESE3787	Voltage Selector
FUSE		
F1 ~ 3	Δ XBA2C02TR0	250V, T0.2A

Ref. No.	Part No.	Value
RESISTORS		
R1, 2	S ERD25TJ394	390K
R3, 4	S ERD25TJ104	100K
R5, 6	S ERD25FJ472	4.7K
R7, 8	S ERD25TJ224	220K
R9, 10	S ERD25FJ472	4.7K
R11, 12	S ERD25TJ224	220K
R13, 14	S ERD25TJ473	47K
R15, 16	S ERD25TJ224	220K
R17, 18	S ERD25TJ224	220K
R19, 20	S ERD25FJ821	820
R21, 22	S ERD25FJ821	820
R23, 24	S ERD25FJ102	1K
R25, 26	S ERD25FJ103	10K
R27, 28	S ERD25FJ562	5.6K
R29, 30	S ERD25TJ104	100K
R31, 32	S ERD25TJ104	100K
R33, 34	S ERD25TJ224	220K
R35, 36	S ERD25FJ103	10K
R37, 38	S ERD25FJ222	2.2K
R39, 40	S ERD25TJ104	100K

Ref. No.	Part No.	Value
R41, 42	S ERD25FJ221	220
R43, 44	S ERD25FJ181	180
R51, 52	Δ S ERD25FJ331	330
R53, 54	S ERD25FJ391	390
R57, 58	Δ S ERD50FJ100	10
R59, 60	Δ S ERD50FJ100	10
R61	S ERD25TJ473	47K
R62	S ERD25TJ333	33K
R63	S ERD25TJ224	220K
R64	S ERD25FJ562	5.6K
R66	Δ S ERQ12HJ4R7	4.7
R101, 102	S ERD25FJ821	820
R103, 104	S ERD25FJ821	820
R105, 106	S ERD25FJ821	820
R107, 108	S ERD25FJ821	820
R109, 110	S ERD25FJ821	820
R111, 112	S ERD25FJ821	820
R113, 114	S ERD25FJ821	820
R115, 116	S ERD25FJ821	820
R117, 118	S ERD25FJ821	820
R119, 120	S ERD25FJ102	1K

Ref. No.	Part No.	Value
R121, 122	S ERD25FJ821	820
R123, 124	S ERD25FJ821	820
R201, 202	S ERD25TJ473	47K
R203, 204	S ERD25TJ563	56K
R205, 206	S ERD25TJ563	56K
R207, 208	S ERD25TJ563	56K
R209, 210	S ERD25TJ473	47K
R211, 212	S ERD25TJ473	47K
R213, 214	S ERD25TJ563	56K
R215, 216	S ERD25TJ563	56K
R217, 218	S ERD25TJ563	56K
R219, 220	S ERD25TJ563	56K
R221, 222	S ERD25TJ563	56K
R223, 224	S ERD25TJ563	56K
R319, 320	S ERD25FJ103	10K
R405, 406	S ERD25FJ562	5.6K
R409, 410	S ERD25FJ392	3.9K
R501, 502	S ERD25FJ272	2.7K
R503, 504	S ERD25FJ272	2.7K
R505, 506	S ERD25FJ272	2.7K
R507, 508	S ERD25FJ272	2.7K

Ref. No.	Part No.	Value
R509, 510	S ERD25FJ272	2.7K
R511, 512	S ERD25FJ272	2.7K
R513, 514	S ERD25FJ272	2.7K
R515, 516	S ERD25FJ682	6.8K
R517, 518	S ERD25FJ682	6.8K
R519, 520	S ERD25FJ682	6.8K
R521, 522	S ERD25FJ682	6.8K
R523, 524	S ERD25FJ682	6.8K
R601, 602	S ERD25FJ680	68
R603, 604	S ERD25FJ221	220
R605, 606	S ERD25FJ331	330
R607, 608	S ERD25FJ680	68
R609, 610	S ERD25FJ221	220
R611, 612	S ERD25FJ221	220
R613, 614	S ERD25FJ221	220
R615, 616	S ERD25FJ181	180
R617, 618	S ERD25FJ151	150
R619, 620	S ERD25FJ680	68
R621, 622	S ERD25FJ101	100
R623, 624	S ERD25FJ680	68

Ref. No.	Part No.	Value
CAPACITORS		
C1, 2	S ECEA25Z4R7	4.7
C3, 4	S ECCD1H101K	100P
C5, 6	S ECCD1H101K	100P
C7, 8	S ECCD1H101K	100P
C9, 10	S ECEA25Z4R7	4.7
C13	S ECKD1H223ZF	0.022
C51, 52	S ECEA1VS102	1000
C53, 54	S ECEA1ES101	100
C55,	S ECEA1ES101	100
C56	S ECKD1H223ZF	0.022
C57	S ECEA1ES101	100

Ref. No.	Part No.	Value
C58	S ECEA1ES470	47
C59, 60	S ECEA1ES101	100
C61	S ECEA1VS101	100
C62	S ECEA50Z2R2	2.2
C63	S ECEA1AS101	100
C64	S ECEA1CS471	470
C65	S ECEA1AS471	470
C66, 67	Δ S ECKD1H223ZF	0.022
C101, 102	S ECEA50Z3R3	3.3
C103, 104	S ECEA50Z2R2	2.2
C105, 106	S ECEA50Z1	1
C107, 108	S ECEA50Z3R3	0.33

Ref. No.	Part No.	Value
C109, 110	S ECQM1H184JZ	0.18
C111, 112	S ECQM1H104JZ	0.1
C113, 114	S ECQM1H473JZ	0.047
C115, 116	S ECQM1H223JZ	0.022
C117, 118	S ECQM1H123JZ	0.012
C119, 120	S ECQM1H562JZ	0.0056
C121, 122	S ECQM1H272JZ	0.0027
C123, 124	S ECQM1H122JZ	0.0012
C201, 202	S ECEA50Z1	1
C203, 204	S ECEA50ZR33	0.33
C205, 206	S ECQV05154JZ	0.15
C207, 208	S ECQM1H124JZ	0.12

Ref. No.	Part No.	Value
C209, 210	S ECQM1H563JZ	0.056
C211, 212	S ECQM1H273JZ	0.027
C213, 214	S ECQM1H123JZ	0.012
C215, 216	S ECQM1H682JZ	0.0068
C217, 218	S ECQM1H332JZ	0.0033
C219, 220	S ECQM1H152JZ	0.0015
C221, 222	S ECKD1H821KB	820P
C223, 224	S ECKD1H471KB	470P
C301, 302	S ECEA1ES220	22
C303, 304	S ECEA1ES220	22
C1001	Δ ECKDKC103PF	0.01

RESISTORS & CAPACITORS

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.
- Unless otherwise specified, All resistors are in OHMS (Ω), K = 1000 Ω , M = 1000k Ω All capacitors are in MICROFARADS (μ F) P = μ μ F

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	Z	F
Type	Voltage (50V)	Value (0.001 F)	Tolerance	Peculiarity
ECEA	50	M	R47	R
Type	Voltage (50V)	Peculiarity use	Value (0.47 F)	Special use

Resistor Type	Wattage	Tolerance
ERD : Carbon	12 : 1/2W	J : \pm 5%
ERQ : Fuse Type Metal	25 : 1/4W	
	50 : 1/2W	

Capacitor Type	Voltage		Tolerance
	ECEA Type	Others	
ECEA : Electrolytic	1A : 10V	1H : 50V DC	J : \pm 5%
ECCD : Ceramic	1C : 16V	2H : 500V DC	K : \pm 10%
ECKD : Ceramic	1E : 25V	KC : 400V DC	Z : +80%, -20%
ECQM : Polyester	1V : 35V	05 : 50V DC	P : +100%, -0%
ECQV : TF	50 : 35V		
	25 : 25V		