ORDER NO. SD8004-1729

Service Manual

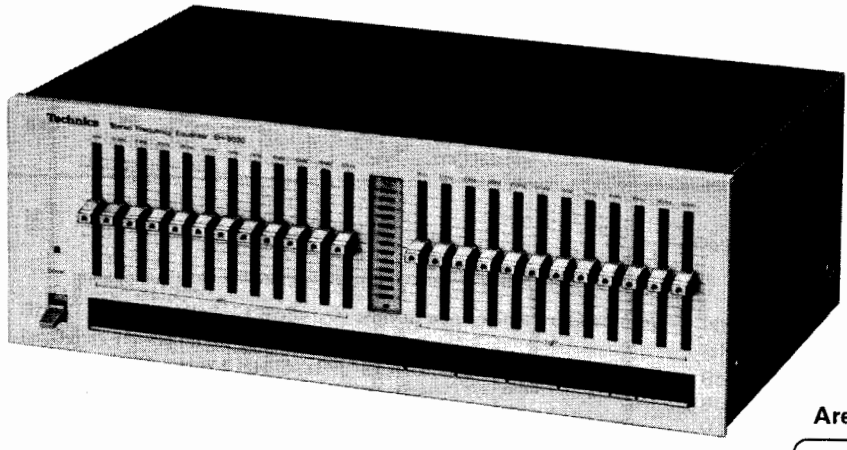
Stereo Frequency Equalizer

SH-8020

〔EG〕,〔E〕,〔XGF〕,〔XGH〕,〔EB〕,
〔XE〕,〔XAL〕,〔XA〕,〔X〕

SH-8020 (K)

〔EG〕,〔E〕,〔XGH〕,〔EB〕,
〔XAL〕,〔XA〕,〔X〕



*** The colors of this model include silver and black. The black type model is provided with (K) in the Service Manual.**

Areas

- * [EG] and [E] are available in European and Scandinavia.
- * [XGF] is available in France.
- * [XGH] is available in Holland.
- * [EB] is available in Belgium.
- * [XE] is available in United Kingdom.
- * [XAL] is available in Australia.
- * [X] and [XA] are available in Asia, Latin America, Middle East and Africa.

TECHNICAL SPECIFICATIONS

Specifications are subject to change without notice for further improvement.

(DIN 45 500)

Maximum output voltage	6V (1kHz)
Total harmonic distortion + noise	0.01% (20Hz~20kHz)
S/N	100dB (106dB, IHF'66)
Frequency response	5Hz~100kHz, −3dB
Rated output voltage	1V
Input sensitivity	1V
Maximum input voltage	6V (1kHz)
Input impedance	47 kilohms
Gain	0±1dB
Channel balance 250Hz~6300Hz	±0.3dB
Channel separation 1kHz	55dB
Band level controls	+3dB~−3dB, +12dB~−12dB (12 elements continuously variable)
Center frequency	16Hz, 31.5Hz, 63Hz, 125Hz, 250Hz, 500Hz 1kHz, 2kHz, 4kHz, 8kHz, 16kHz, 32kHz

GENERAL

Power consumption	15W
Power supply	AC 50Hz/60Hz, 110V/120V/220V/240V
Dimensions (W x H x D)	430 x 153 x 244mm (16-15/16" x 6-1/32" x 9-19/32")
Weight	6kg (13.2 lb.)

■ CONTENTS

Technics

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

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

(DIN 45 500)

Meximalausgangsspannung	6V(1kHz)
Gesamtklirrfaktor + Rauschen	0.01% (20Hz~20kHz)
Rauschabstand	100 dB
Frequenzgang	5Hz~100kHz, −3dB
Nennausgangsspannung	1V
Eingangsspannung	1V
Maximaleingangsspannung	6V(1kHz)
Eingangsimpedanz	47 kilohms
Verstärkung	0±1dB
Kanalsy mmetrie 250Hz~6300Hz	±0.3dB
Kanaltrennung 1kHz	55dB

Frequenzgangregler	+3dB~−3dB, +12dB~−12dB (12 Regler, stufenlos verstellbar)
Mittenfrequenzen	16Hz, 31.5Hz, 63Hz, 125Hz, 250Hz, 500Hz 1kHz, 2kHz, 4kHz, 8kHz, 16kHz, 32kHz

ALLGEMEINE DATEN

Leistungsaufnahme	15W
Stromversorgung	Wechselstrom 50Hz/60Hz, 110V/120V/220V/240V
Abmessungen (B x H x T)	430 x 153 x 244mm
Gewicht	6kg

DONNEES TECHNIQUES Sujet à changement sans préaris.

(DIN 45 500)

Tension de sortie maximale	6V(1kHz)
Distorsion harmonique totale + bruit	0.01%(20Hz~20kHz)
Signal/bruit	100 dB
Courbe de réponse	5Hz à 100kHz à −3dB
Tension de sortie nominale	1V
Sensibilité d'entrée	1V
Tension d'entrée maximale	6V(1kHz)
Impédance d'entrée	47 kilohms
Gain	0±1dB
Equilibrage de canal 250Hz~6300Hz	±0.3dB
Séparation de canal 1kHz	55dB

Commandes de niveau de gamme	+3dB à −3dB, +12dB à −12dB (12 éléments, continuellement variables)
Fréquences charnières	16Hz, 31.5Hz, 63Hz, 125Hz, 250Hz, 500Hz 1kHz, 2kHz, 4kHz, 8kHz, 16kHz, 32kHz

GENERALITES

Consommation	15W
Alimentation	CA 50Hz/60Hz, 110V/120V/220V/240V
Dimensions (L x h x pr)mm	430 x 153 x 224 mm (16-15/16" x 6-1/32" x 9-19/32")
Poids	6kg (13.2lb.)

■ CONTROL OF THE FREQUENCY RESPONSE

● **Band-level controls**

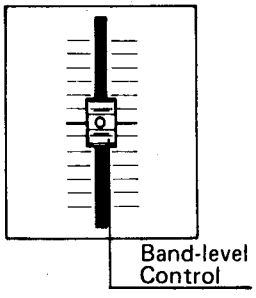
These controls can be used to continuously vary the level of each frequency response from +12 dB to −12 dB (or +3 dB to −3 dB).

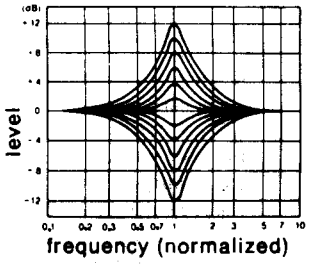
With the frequency response "flat" at the "0" position:

※ When the characteristics selector is set to the "normal" (▰→▮) position, the frequency response will have a "peak" if the controls are moved toward the "+" position, and will reach a maximum peak of +12 dB at the "+12" position when the variable-range selector is set to the "±12 dB" (▰→▮) position, and will reach a maximum peak of +3 dB at the "+3" position when the variable-range selector is set to the "±3 dB" (▮→▰) position.

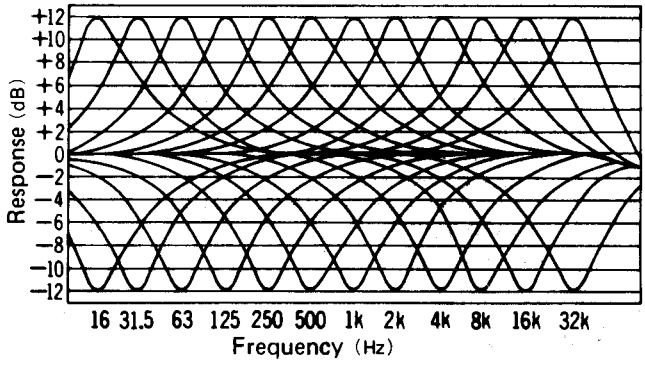
※ When the characteristics selector is set to the "normal" (▰→▮) position, the frequency response will have a "dip" if the controls are moved toward the "−" position, and will reach a maximum dip of −12 dB at the "−12" position when the variable-range selector is set to the "±12 dB" (▰→▮) position, and will reach a maximum dip of −3 dB at the "−3" position when the variable-range selector is set to the "±3 dB" (▮→▰) position. However, if the characteristics selector is set to the "reverse" (▮→▰) position, the polarity of the frequency-response level is the opposite of that shown by the variable-range indicators.

The figure shows the changes in the frequency response when the band-level controls are used. Each of the 12 left and 12 right controls can be used to vary the frequency response with the same characteristic curve.

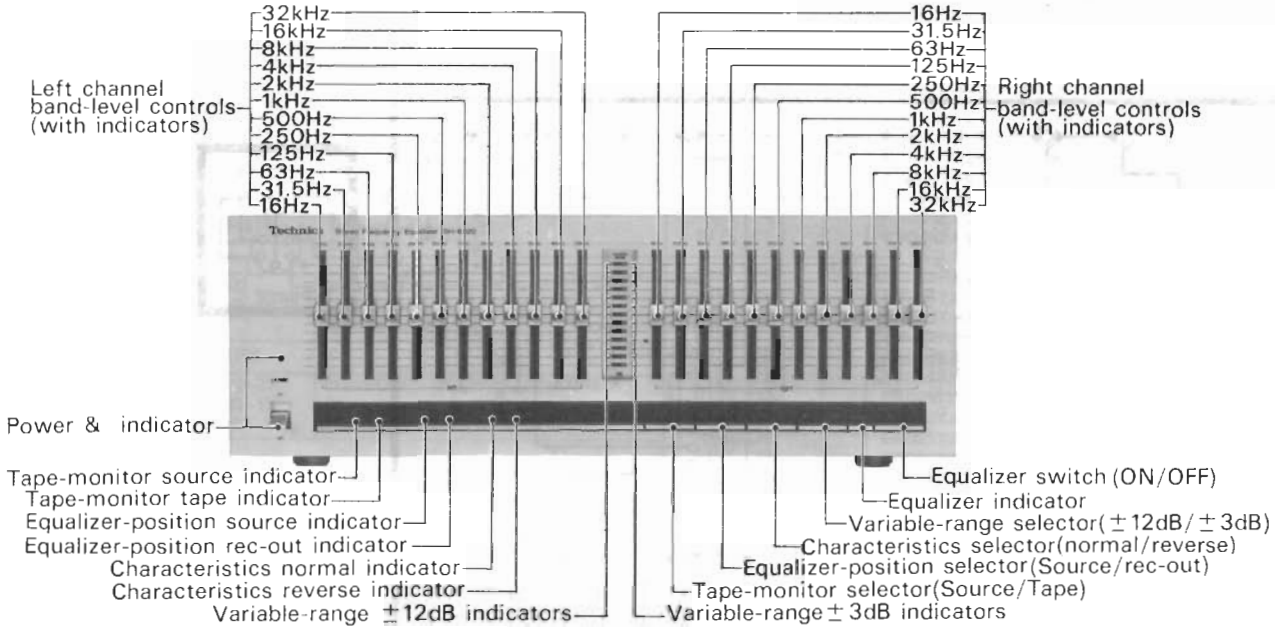


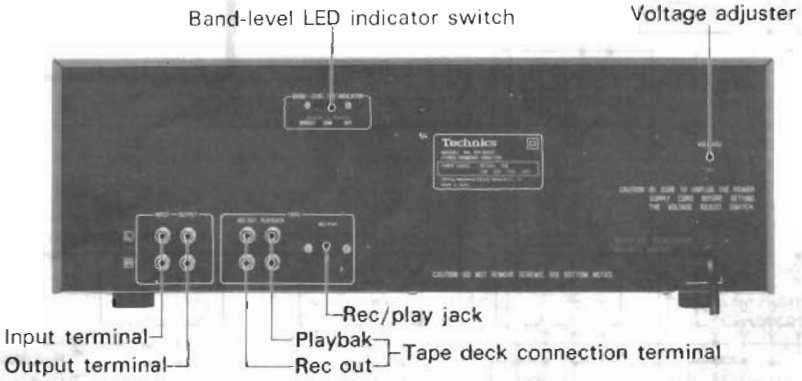


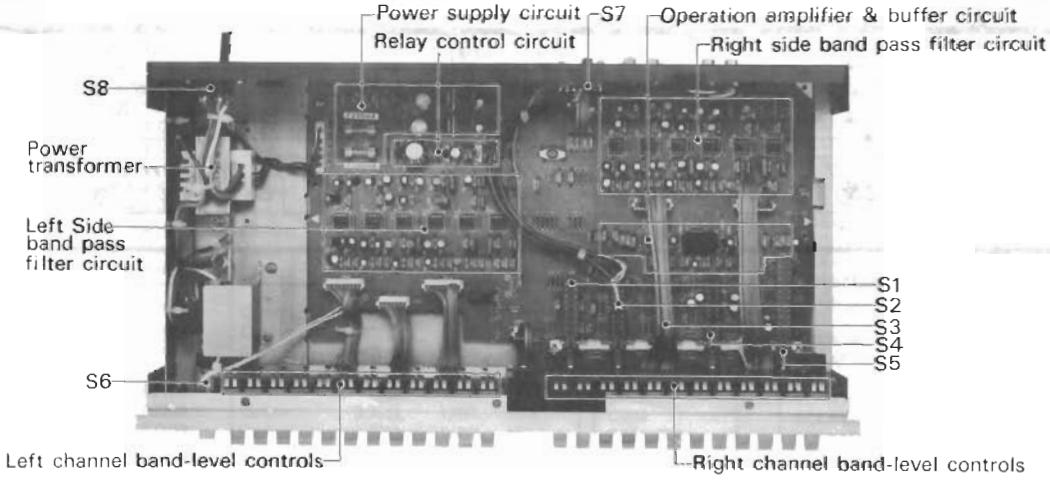
● **Total frequency response**



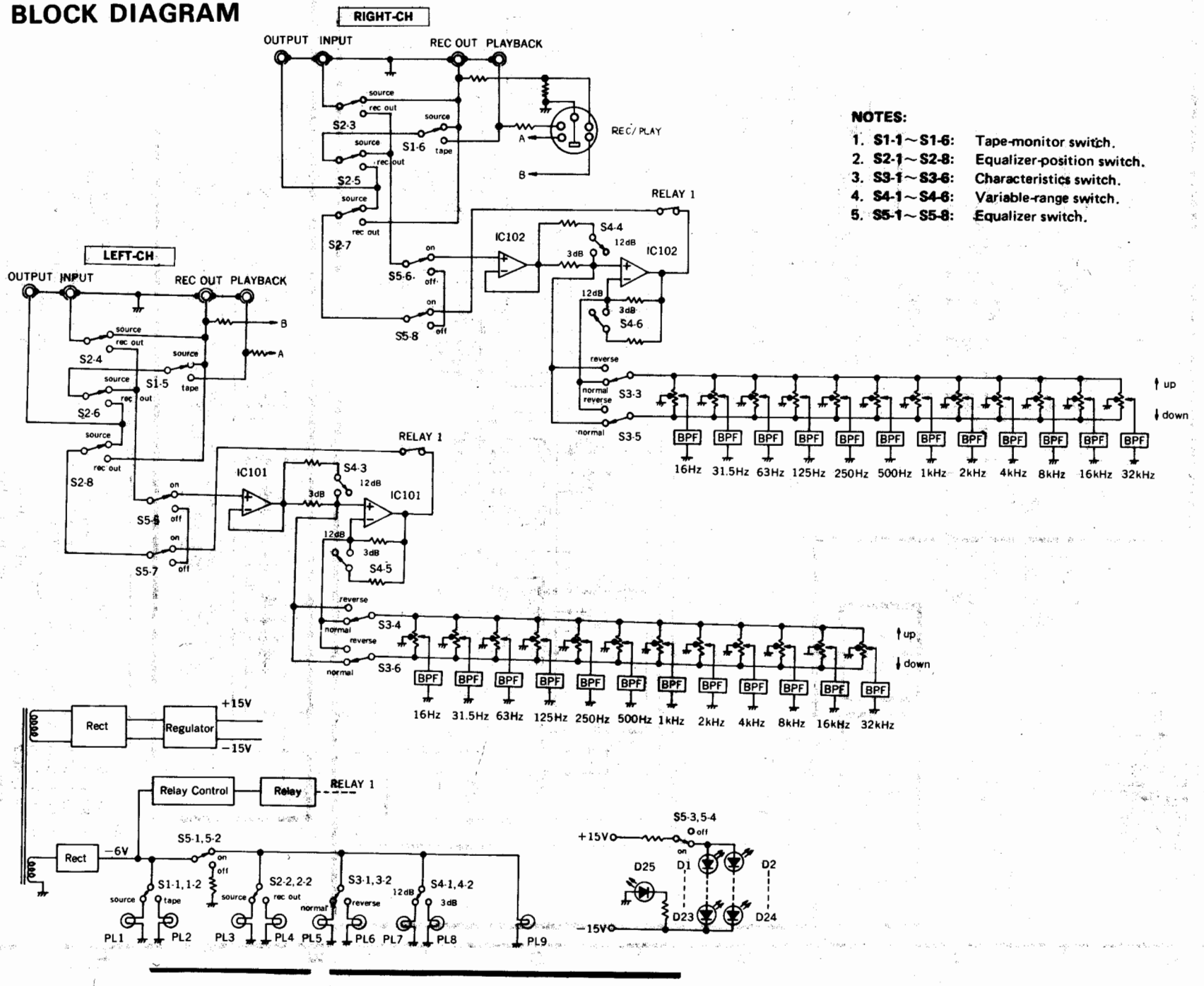
■ LOCATION OF CONTROLS







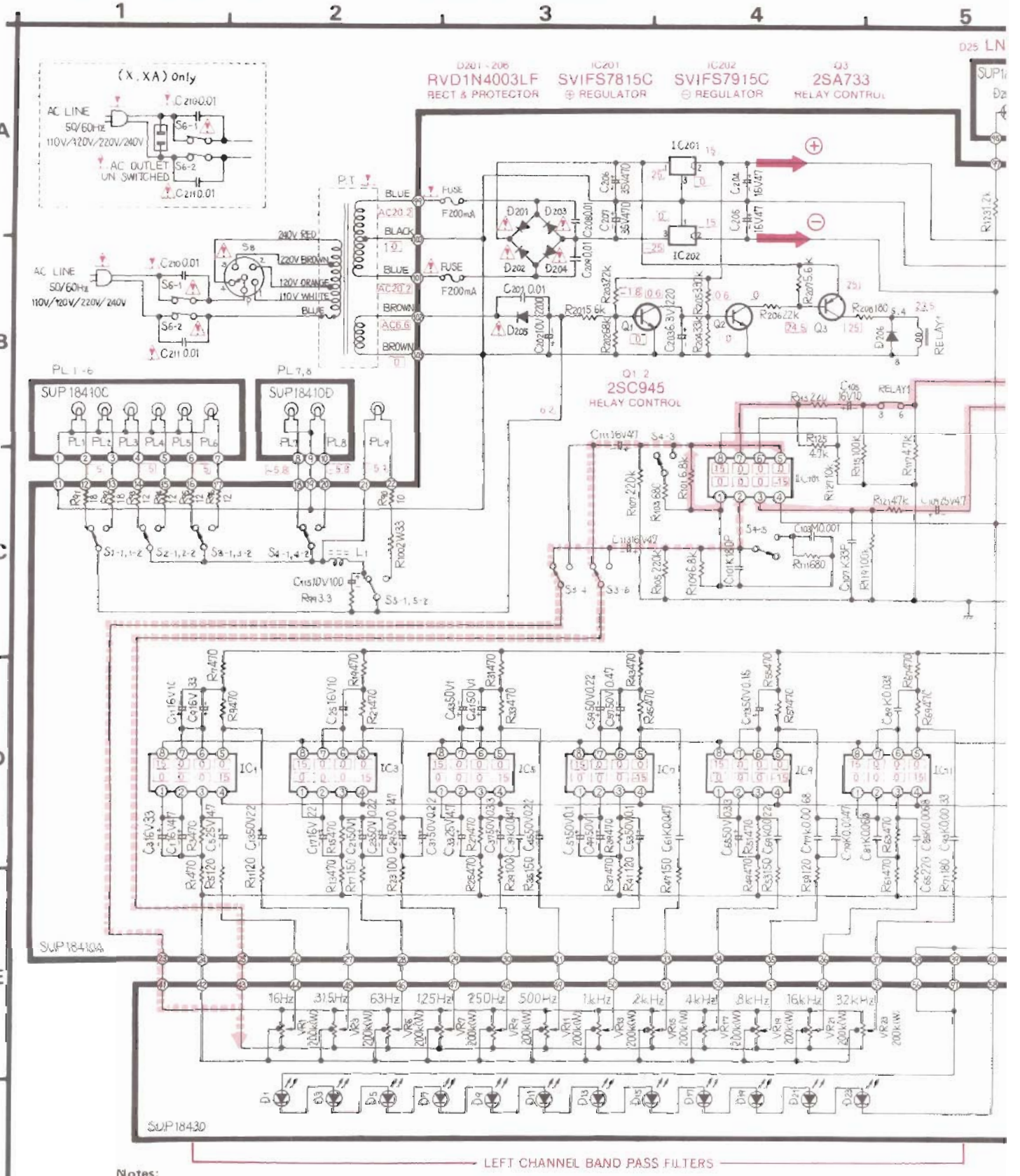
■ BLOCK DIAGRAM



NOTES:

1. **S1-1～S1-6:** Tape-monitor switch.
2. **S2-1～S2-8:** Equalizer-position switch.
3. **S3-1～S3-6:** Characteristics switch.
4. **S4-1～S4-6:** Variable-range switch.
5. **S5-1～S5-8:** Equalizer switch.

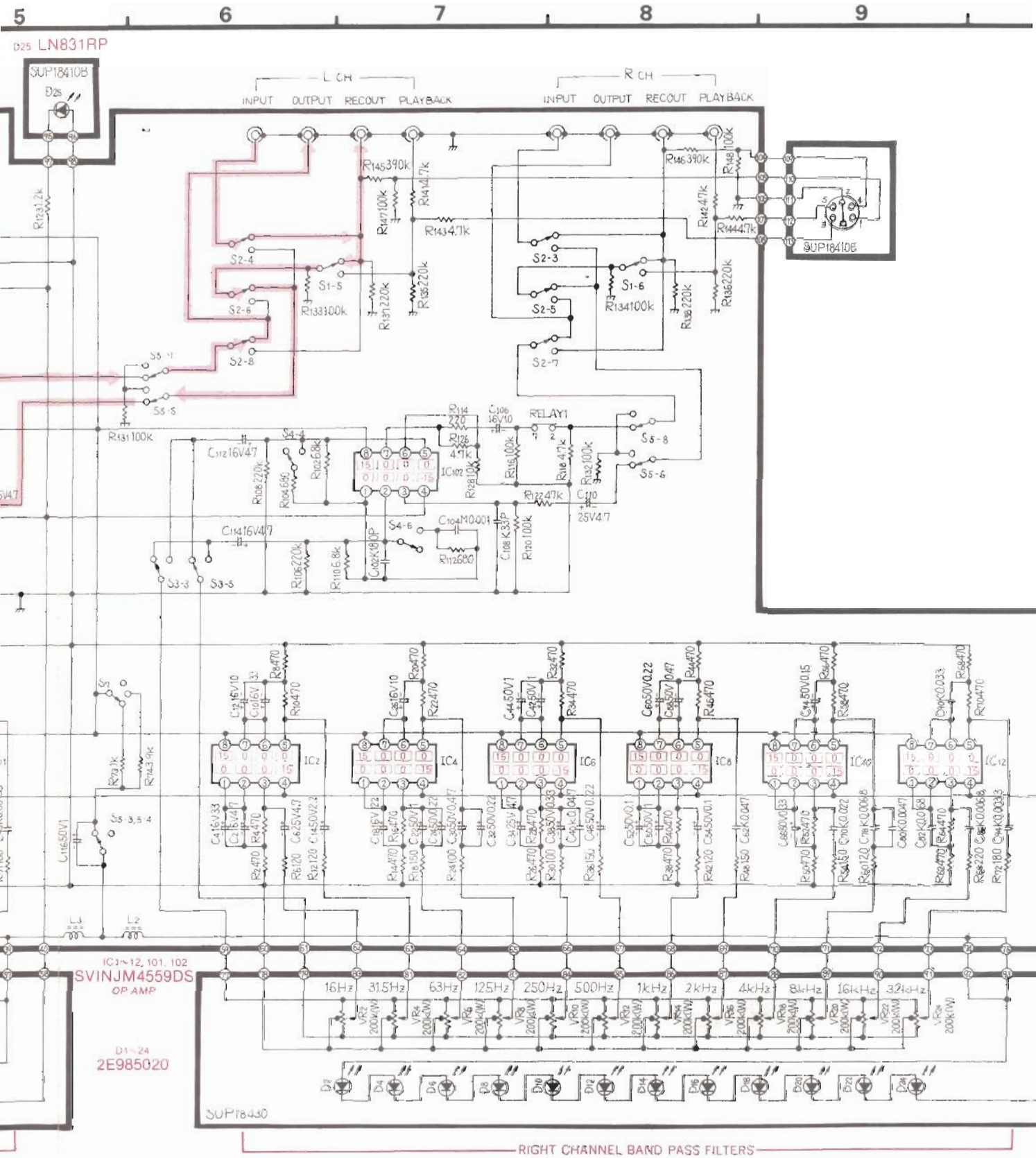
■ SCHEMATIC DIAGRAM ..... MODEL SH-8020 * This schematic diagram may be modified a



Notes:

1. **S1-1~S1-6:** Tape monitor switch in **"source"** position.
2. **S2-1~S2-8:** Equalizer position switch in **"source"** position.
3. **S3-1~S3-6:** Characteristics switch in **"normal"** position.
4. **S4-1~S4-6:** Variable range switch in **"±12dB"** position.
5. **S5-1~S5-8:** Equalizer switch in **"on"** position.
6. **S6-1~S6-2:** Power source switch in **"on"** position.
7. **S7:** Band level indicator switch in **"normal"** position.
8. **S8:** Voltage adjuster switch in **"240V"** position.
9. 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 some errors in the voltage values, depending on the in impedance of the DC circuit tester.
   - Standards values
10. Signal lines of left channel
11. This schematic diagram may be modified at any time w development of new technology.
12. ⚠ indicates that only parts specified by the manufacturer for safety.

dified at any time with the development of new technology.



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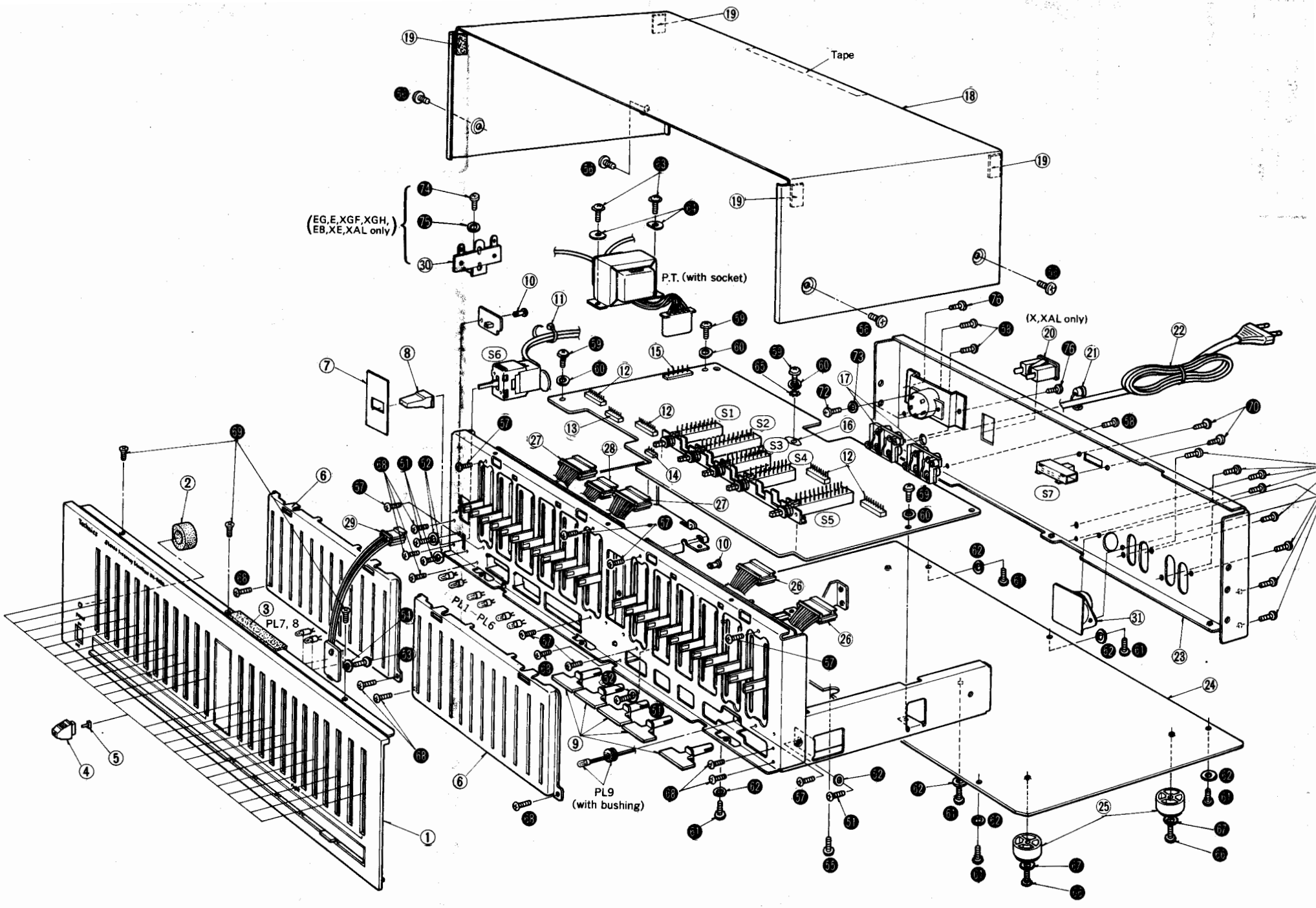


Ref. No.		Part No.	Part Name & Description
ACCESSORIES			
A1		SJP2129-5	Cord, Connection
A2 [X,XA] only	⚠	SJP5213–1	Plug Adapter, AC Power
PACKING PARTS			
P1		SPP649	Polyethylene Bag

Areas

* [EG] and [E] are available in European and Scandinavia

■ REPLACEMENT PARTS LIST (Electric Parts)

Notes: 1. Part numbers are indicated on most mechanical parts.
Please use this part number for parts orders.
2. ⚠ indicates that only parts specified by the manufacture be used for safety.

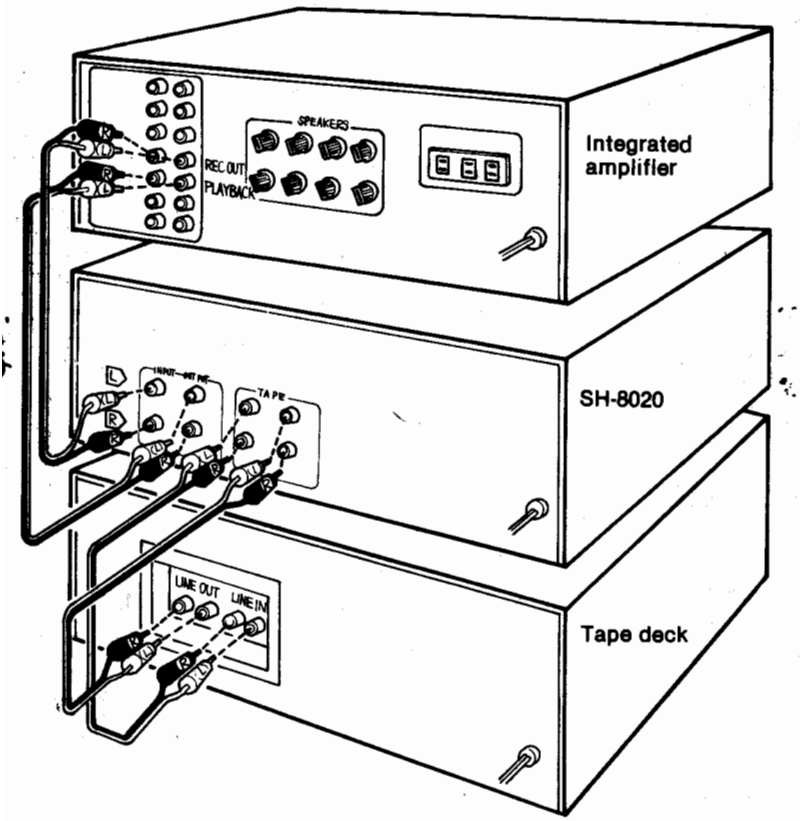
Ref. No.		Part No.	Part Name & Description
INTEGRATED CIRCUITS			
IC1~12,101,102		SVINJM4559DS	IC, Operation Amplifier
IC201		SVIFS7815C	IC, Regulator (+)
IC202		SVIFS7915C	IC, Regulator (–)
TRANSISTORS			
Q1, 2		**2SC945-R**	Transistor, Relay Control
Q3		2SA733–P1	Transistor, Relay Control
DIODES			
D1~24		2E985020	Light Emitting Diode, Volume Indicator
D25		LN831RP	Light Emitting Diode, Power Indicator
D201~206	⚠	**SM112**	Rectifier & Protector
COILS and TRANSFORMERS			
L1		SLQX102–2Y	Choke Coil
L2, 3		SLQX102–1Y	Choke Coil
P.T.	⚠	SLT5K103–W	Transformer, Power (with Socket)
FUSES			
F1, 2	⚠	XBA2CO2SSO	Fuse, 200mA (250V)
VARIABLE RESISTORS			
VR1~24		EVA93S23W25S	Frequency Level Control, 200kΩ (W) (with LED)
LAMPS			
PL1~6		SWLY3	Lamp (6.3V, 75mA)
PL7, 8		SWLY1	Lamp (6.3V, 75mA)
PL9		SWLY2	Lamp (6.3V, 75mA)
SWITCHES			
S1~5		SSHY1	Switch, Tape Monitor, Equalizer Position, Characteristics, Variable Range, Equalizer (EQ)
S6	⚠	ESL21210S	Switch, Power Source
S7		SSSY1	Switch, Band Level Indicator
S8	⚠	ESE372	Switch, Voltage Adjuster
RELAY			
RELAY1		SSY79	Muting

RESISTORS						
R1, 2		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R3, 4		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R5, 6		**ERD25FJ121**	Carbon,	120Ω,	1/4W,	±5%
R7, 8		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R9, 10		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R11, 12		**ERD25FJ121**	Carbon,	120Ω,	1/4W,	±5%
R13, 14		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R15, 16		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R17, 18		**ERD25FJ151**	Carbon,	150Ω,	1/4W,	±5%
R19, 20		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R21, 22		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R23, 24		**ERD25FJ101**	Carbon,	100Ω,	1/4W,	±5%
R25, 26		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R27, 28		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R29, 30		**ERD25FJ101**	Carbon,	100Ω,	1/4W,	±5%
R31, 32		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R33, 34		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R35, 36		**ERD25FJ151**	Carbon,	150Ω,	1/4W,	±5%
R37, 38		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R39, 40		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R41, 42		**ERD25FJ121**	Carbon,	120Ω,	1/4W,	±5%
R43, 44		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R45, 46		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R47, 48		**ERD25FJ151**	Carbon,	150Ω,	1/4W,	±5%
R49, 50		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R51, 52		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R53, 54		**ERD25FJ151**	Carbon,	150Ω,	1/4W,	±5%
R55, 56		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R57, 58		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R59, 60		**ERD25FJ121**	Carbon,	120Ω,	1/4W,	±5%
R61, 62		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R63, 64		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R65, 66		**ERD25FJ221**	Carbon,	220Ω,	1/4W,	±5%
R67, 68		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R69, 70		**ERD25FJ471**	Carbon,	470Ω,	1/4W,	±5%
R71, 72		**ERD25FJ181**	Carbon,	180Ω,	1/4W,	±5%
R73		**ERD25FJ102**	Carbon,	1kΩ,	1/4W,	±5%
R74		**ERD25FJ392**	Carbon,	3.9kΩ,	1/4W,	±5%
R90		**ERD25FJ100**	Carbon,	10Ω,	1/4W,	±5%
R91, 92		**ERD25FJ180**	Carbon,	18Ω,	1/4W,	±5%
R93, 94		**ERD25FJ120**	Carbon,	12Ω,	1/4W,	±5%
R95, 96		**ERD25FJ120**	Carbon,	12Ω,	1/4W,	±5%
R99		**ERD25FJ3R3**	Carbon,	3.3Ω,	1/4W,	±5%

Ref. No.		Part No.	Part Name & Description			
R100		**ERG2ANJ330**	Metal Oxide,	33Ω,	2W,	±5%
R101, 102		**ERD25FJ682**	Carbon,	6.8kΩ,	1/4W,	±5%
R103, 104		**ERD25FJ681**	Carbon,	680Ω,	1/4W,	±5%
R105, 106		**ERD25TJ224**	Carbon,	220kΩ,	1/4W,	±5%
R107, 108		**ERD25TJ224**	Carbon,	220kΩ,	1/4W,	±5%
R109, 110		**ERD25FJ682**	Carbon,	6.8kΩ,	1/4W,	±5%
R111, 112		**ERD25FJ681**	Carbon,	680Ω,	1/4W,	±5%
R113, 114		**ERD25FJ221**	Carbon,	220Ω,	1/4W,	±5%
R115, 116		**ERD25TJ104**	Carbon,	100kΩ,	1/4W,	±5%
R117, 118		**ERD25FJ472**	Carbon,	4.7kΩ,	1/4W,	±5%
R119, 120		**ERD25TJ104**	Carbon,	100kΩ,	1/4W,	±5%
R121, 122		**ERD25TJ473**	Carbon,	47kΩ,	1/4W,	±5%
R123		**ERD25FJ122**	Carbon,	1.2kΩ,	1/4W,	±5%
R125, 126		**ERD25FJ472**	Carbon,	4.7kΩ,	1/4W,	±5%
R127, 128		**ERD25FJ103**	Carbon,	10kΩ,	1/4W,	±5%
R131, 132		**ERD25TJ104**	Carbon,	100kΩ,	1/4W,	±5%
R133, 134		**ERD25TJ104**	Carbon,	100kΩ,	1/4W,	±5%
R135, 136		**ERD25TJ224**	Carbon,	220kΩ,	1/4W,	±5%
R137, 138		**ERD25TJ224**	Carbon,	220kΩ,	1/4W,	±5%
R141, 142		**ERD25FJ472**	Carbon,	4.7kΩ,	1/4W,	±5%
R143, 144		**ERD25FJ472**	Carbon,	4.7kΩ,	1/4W,	±5%
R145, 146		**ERD25TJ394**	Carbon,	390kΩ,	1/4W,	±5%
R147, 148		**ERD25TJ104**	Carbon,	100kΩ,	1/4W,	±5%
R201		**ERD25FJ562**	Carbon,	5.6kΩ,	1/4W,	±5%
R202		**ERD25TJ683**	Carbon,	68kΩ,	1/4W,	±5%
R203		**ERD25TJ223**	Carbon,	22kΩ,	1/4W,	±5%
R204		**ERD25TJ333**	Carbon,	33kΩ,	1/4W,	±5%
R205		**ERD25TJ334**	Carbon,	330kΩ,	1/4W,	±5%
R206		**ERD25TJ223**	Carbon,	22kΩ,	1/4W,	±5%
R207		**ERD25FJ562**	Carbon,	5.6kΩ,	1/4W,	±5%
R208		**ERD25FJ181**	Carbon,	180Ω,	1/4W,	±5%

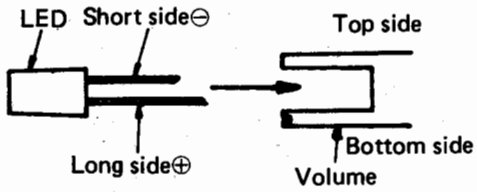
CAPACITORS						
C1, 2		**ECEA1ES470**	Electrolytic,	47μF,	25V	
C3, 4		**ECEA1CS330**	Electrolytic,	33μF,	16V	
C5, 6		**ECEA25Z4R7**	Electrolytic,	4.7μF,	25V	
C9, 10		**ECEA1CS330**	Electrolytic,	33μF,	16V	
C11, 12		**ECEA1HS100**	Electrolytic,	10μF,	50V	
C13, 14		**ECEA50Z2R2**	Electrolytic,	2.2μF,	50V	
C17, 18		**ECEA1ES220**	Electrolytic,	22μF,	25V	
C21, 22		**ECEA50Z1**	Electrolytic,	1μF,	50V	
C23, 24		**ECEA50ZR22**	Electrolytic,	0.22μF,	50V	
C25, 26		**ECEA1HS100**	Electrolytic,	10μF,	50V	
C29, 30		**ECEA50ZR47**	Electrolytic,	0.47μF,	50V	
C31, 32		**ECEA50ZR22**	Electrolytic,	0.22μF,	50V	
C33, 34		**ECEA25Z4R7**	Electrolytic,	4.7μF,	25V	
C37, 38		**ECEA50ZR33**	Electrolytic,	0.33μF,	50V	
C39, 40		ECQM1H473KZ	Polyester,	0.047μF,	50V	±10%
C41, 42		**ECEA50Z1**	Electrolytic,	1μF,	50V	
C43, 44		**ECEA50Z1**	Electrolytic,	1μF,	50V	
C45, 46		**ECEA50ZR22**	Electrolytic,	0.22μF,	50V	
C49, 50		**ECEA50Z1**	Electrolytic,	1μF,	50V	
C51, 52		**ECEA50ZR1**	Electrolytic,	0.1μF,	50V	
C53, 54		**ECEA50ZR1**	Electrolytic,	0.1μF,	50V	
C57, 58		**ECEA50ZR47**	Electrolytic,	0.47μF,	50V	
C59, 60		**ECEA50ZR22**	Electrolytic,	0.22μF,	50V	
C61, 62		ECQM1H473KZ	Polyester,	0.047μF,	50V,	±10%
C65, 66		**ECEA50ZR33**	Electrolytic,	0.33μF,	50V	
C69, 70		ECQM1H223KZ	Polyester,	0.022μF,	50V,	±10%
C73, 74		**ECEA50ZR15**	Electrolytic,	0.15μF,	50V	
C77, 78		ECQM1H682KZ	Polyester,	0.0068μF,	50V,	±10%
C79, 80		ECQM1H472KZ	Polyester,	0.0047μF,	50V,	±10%
C81, 82		ECQM1H683KZ	Polyester,	0.068μF,	50V,	±10%
C85, 86		ECQM1H682KZ	Polyester,	0.0068μF,	50V,	±10%
C89, 90		ECQM1H333KZ	Polyester,	0.033μF,	50V,	±10%
C93, 94		ECQM1H332KZ	Polyester,	0.0033μF,	50V,	±10%
C101, 102		ECCD1H181K	Ceramic,	180pF,	50V,	±10%
C103, 104		ECKD1H102MD	Ceramic,	0.001μF,	50V,	±20%
C105, 106		**ECEA1HS100**	Electrolytic,	10μF,	50V	
C107, 108		ECCD1H330KC	Ceramic,	33pF,	50V,	±10%
C109, 110		**ECEA25Z4R7**	Electrolytic,	4.7μF,	25V	
C111, 112		**ECEA1ES470**	Electrolytic,	47μF,	25V	
C113, 114		**ECEA1ES470**	Electrolytic,	47μF,	25V	
C115		**ECEA1AS101**	Electrolytic,	100μF,	10V	
C116		**ECEA50Z1**	Electrolytic,	1μF,	50V	
C201		ECKD1H103ZF	Ceramic,	0.01μF,	50V,	+80% −20%
C202		**ECEA1CS222**	Electrolytic,	2200μF,	16V	
C203		**ECEA1AS221**	Electrolytic,	220μF,	10V	
C204, 205		**ECEA1ES470**	Electrolytic,	47μF,	25V	
C206, 207		**ECEA1VS471**	Electrolytic,	470μF,	35V	
C208, 209		ECKD1H103ZF	Ceramic,	0.01μF,	50V,	+80% −20%
C210, 211	⚠	ECKDKC103PF	Ceramic,	0.01μF,	400VAC,	+100% 0%

■ CONNECTIONS



■ HOW TO REPLACE VOLUME L.E.D. (D1~D24)

1. Pull out the volume control knob and also remove the LED by using pliers.
2. Connect the LED in correct polarity (negative on top and positive on bottom side). Even when one LED is in wrong polarity, all LED will not light up.



Note: Because of series connection, even when only one LED is defective, all LED will not light up.

■ HOW TO REMOVE CONPONENTS PARTS

• How to remove the front panel

1) Pull out the frequency level adjusting knobs (24 pcs).
2) Remove the setscrews on both sides of the cabinet. (56-4 pcs in Development on page 7, 8.)
3) Remove the cabinet. (Shift the cabinet slightly backwards, then remove it upwards.)
4) Remove the front panel setscrews. (55-1 pc, 61-2 pcs–front side of set, 69-3 pcs in Development on page 7, 8.)
5) Remove the front panel.
6) Detach the connector (3-pin).

• How to remove the pilot lamp base plate

1) Remove the front panel. (Refer to "How to remove the front panel".)
2) Detach the connector (7-pin).
3) Disengage the latch (10-1 pc in Development on page 7, 8) of pilot lamp base plate (PL1~6) and then remove the base plate.
4) Remove the setscrew (53-1 pc in Development on page 7, 8) of pilot lamp base, plate (PL7, 8) of the front panel to remove the base plate.

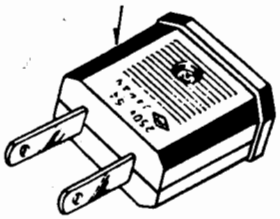
• How to remove the volume control base plate

1) Remove the front panel. (Refer to "How to remove the front panel".)
2) Remove the volume control cover setscrews. (68-4 pcs in Development on page 7, 8.) (Remove the 4 claws on top of the volume control cover by using a screwdriver.)
3) Remove the volume control base plate setscrews. (57-8 pcs in Development on page 7, 8.)
4) Detach the connectors (9-pin 4 pcs).

■ ACCESSORY

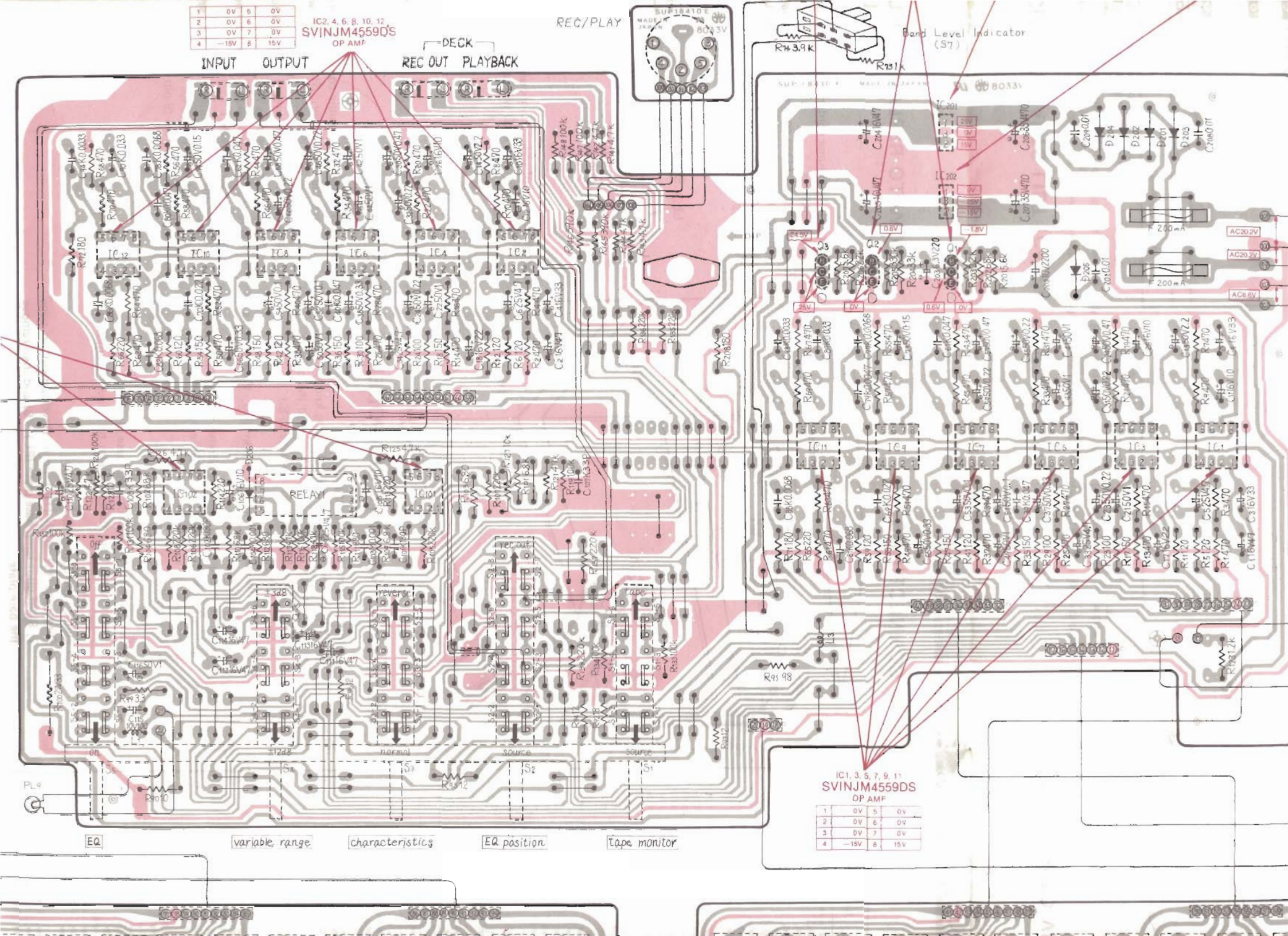
A1 (SJP2129–5)

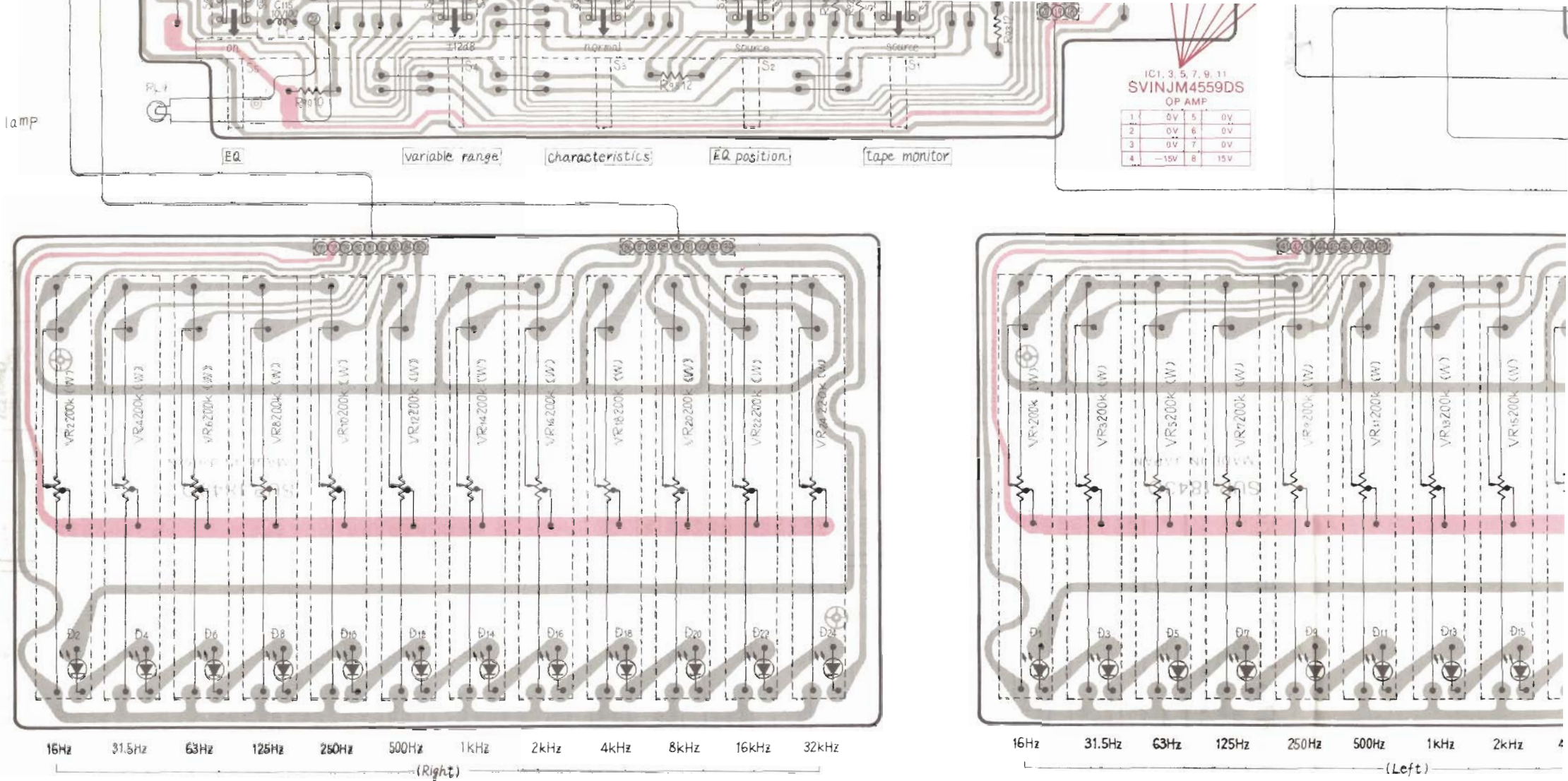
A2 (SJP5213–1)



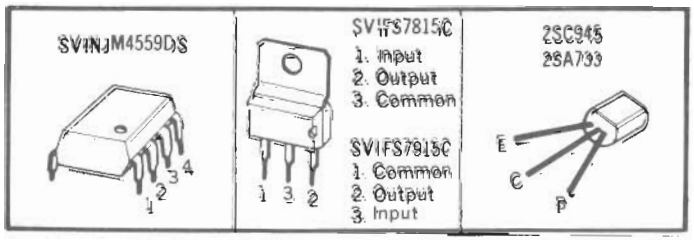
Accessory of A2 is available in Asia, Latin America, Middle East and Africa.

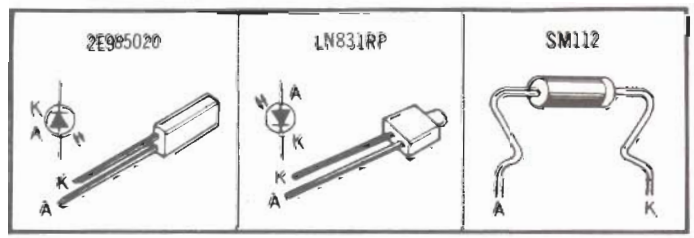
Printed in Japan
80047800®A.M.


IC2, 4, 6, 8, 10, 12
SVINJM4559DS
OP AMP
INPUT
OUTPUT
DECK
REC OUT
PLAYBACK
REC/PLAY
Band Level Indicator
(S7)
IC1, 3, 5, 7, 9, 11
SVINJM4559DS
OP AMP
RELAY1
EQ
variable range
characteristics
EQ position
tape monitor



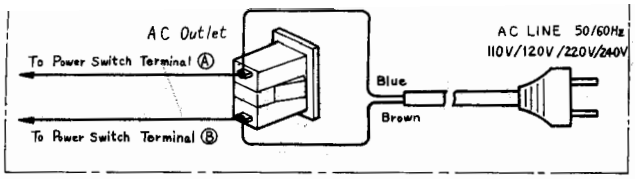
■ TERMINAL GUIDE OF TRANSISTORS, IC'S AND DIODES

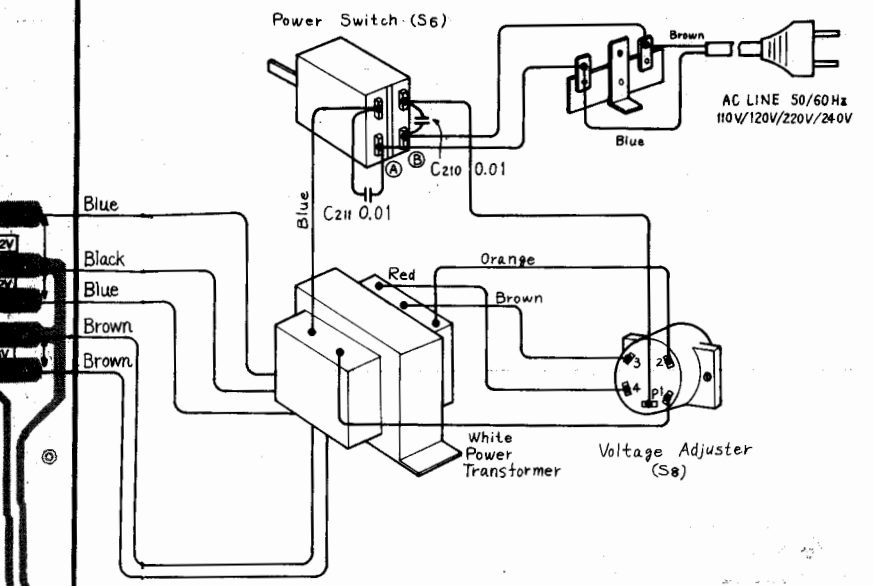


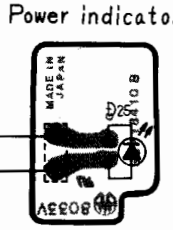


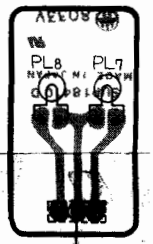
- Production part and standardized part of transistors an

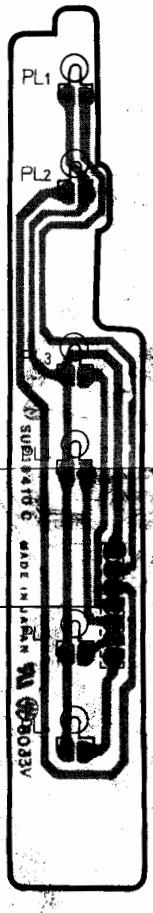
Ref. No.	Production Parts No.	St
Q1, 2	2SC945-Q	
D201 206	RVD1N4003	

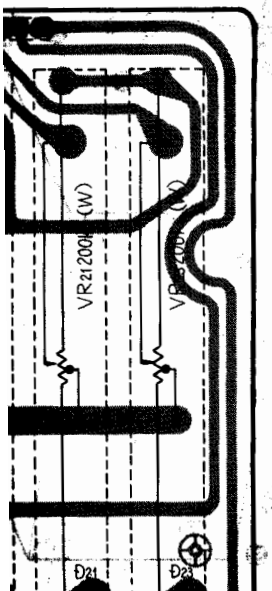






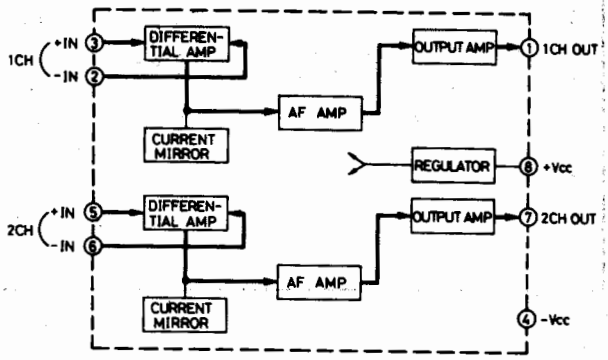




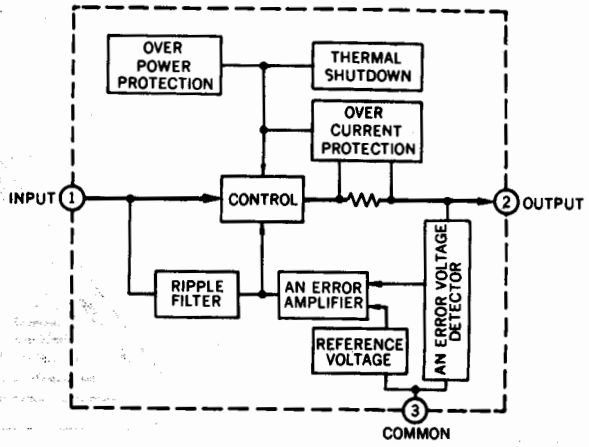


■ BLOCK DIAGRAM OF IC'S

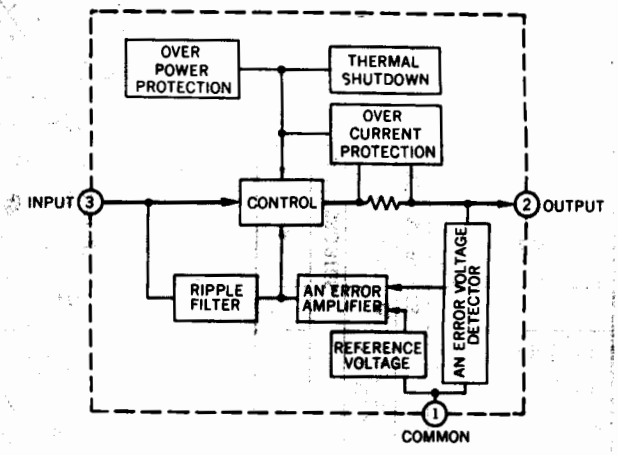
This is the basic block diagram of the inside circuit of IC. In an actual circuit, there may be sometimes idle terminals or some different functions other than the basic circuit.



IC1~12, 101, 102
(SVINJM4559DS)
Operation amplifier



IC201 (SVIFS7815C)
Regulator ⊕



IC202 (SVIFS7915C)
Regulator ⊖