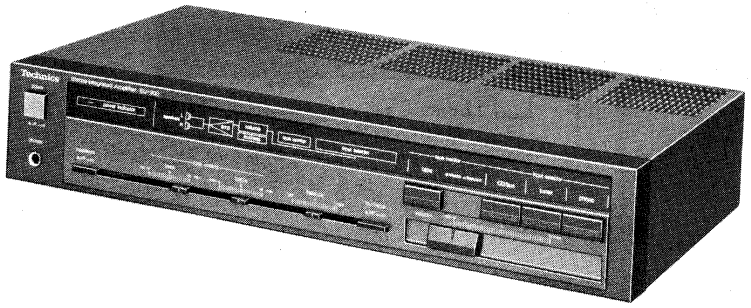
ORDER NO. HAD8604463C8

Service Manual

Stereo Integrated Amplifier

Amplifier

SU-300



Color	Area
(S)(K)	[E] . . . . Continental Europe
(S)(K)	[EG] . . . F.R. Germany
(S)(K)	[EK] . . . United Kingdom
(S)(K)	[EF] . . . France
(S)(K)	[EH] . . . Holland
(S)(K)	[EB] . . . Belgium
(S)(K)	[Ei] . . . Italy
(S)(K)	[XL] . . . Australia
(S)(K)	[XA] . . . Asia, Latin America, Africa, Middle Near East and Oceania
(S)(K)	[XB] . . . Saudi Arabia

Color

(S) · · · · Silver Type
(K) · · · · Black Type

SPECIFICATIONS

(DIN 45 500)

■ AMPLIFIER SECTION

1 kHz continuous power output	
both channels driven	2 × 30W (8Ω)
Total harmonic distortion	
half power at 1 kHz	0.05% (8Ω)
Intermodulation distortion	
rated power at 60 Hz: 7 kHz=4:1, SMPTE, 8Ω	0.8%
Power bandwidth	
both channels driven, −3 dB	15 Hz~25 kHz (8Ω)
Damping factor	40 (8Ω)
Input sensitivity and impedance	
PHONO	2.5 mV/47kΩ
TUNER, CD/AUX, TAPE/EXT	150 mV/22kΩ
PHONO maximum input voltage (1 kHz, RMS)	150 mV
S/N	
rated power (8Ω)	
PHONO	71 dB (IHF, A: 71 dB)
TUNER, CD/AUX, TAPE/EXT	85 dB (IHF, A: 96 dB)
Frequency response	
PHONO	RIAA standard curve ±0.8 dB (30 Hz~15 kHz)
TUNER, CD/AUX, TAPE/EXT	10 Hz~70 kHz (−3 dB)
Tone controls	
BASS	50 Hz, +10 dB~ −10 dB
TREBLE	20 kHz, +10 dB~ −10 dB
Loudness control (volume at −30 dB)	50 Hz, +9 dB
Output voltage	
REC OUT	150 mV
Channel balance, CD/AUX 250 Hz~6,300 Hz	±1 dB
Channel separation, CD/AUX 1 kHz	55 dB
Headphones output level and impedance	370 mV/330Ω
Load impedance	8Ω~16Ω

■ GENERAL

Power consumption	160W
Power supply	
For Australia and United Kingdom	AC 50 Hz/60 Hz, 240V
For continental Europe	AC 50 Hz/60 Hz, 220V
For others	AC 50 Hz/60 Hz, 110V/127V/220V/240V
Dimensions (W×H×D)	430 × 86 × 240 mm (16-30/32" × 3-3/8" × 9-7/16")
Weight	3.8 kg (8.4 lb.)

Note:
Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).

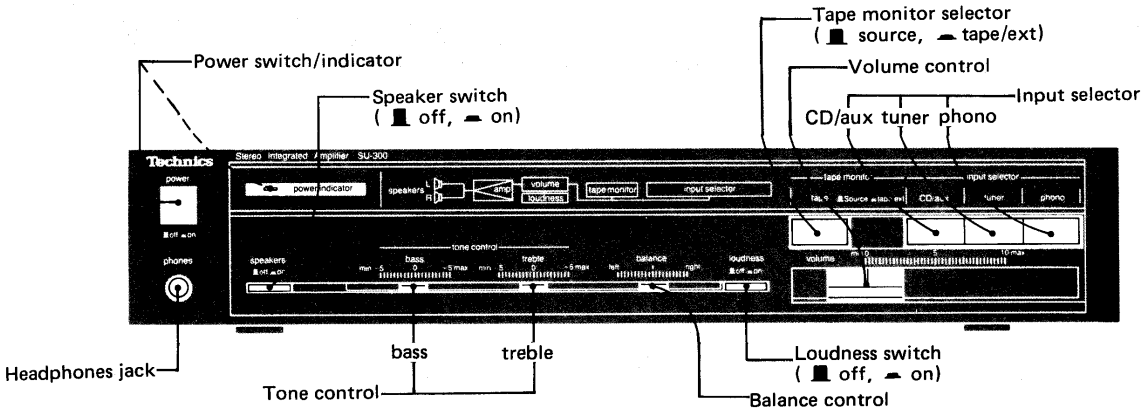
Specifications are subject to change without notice.
Weight and dimensions shown are approximate.

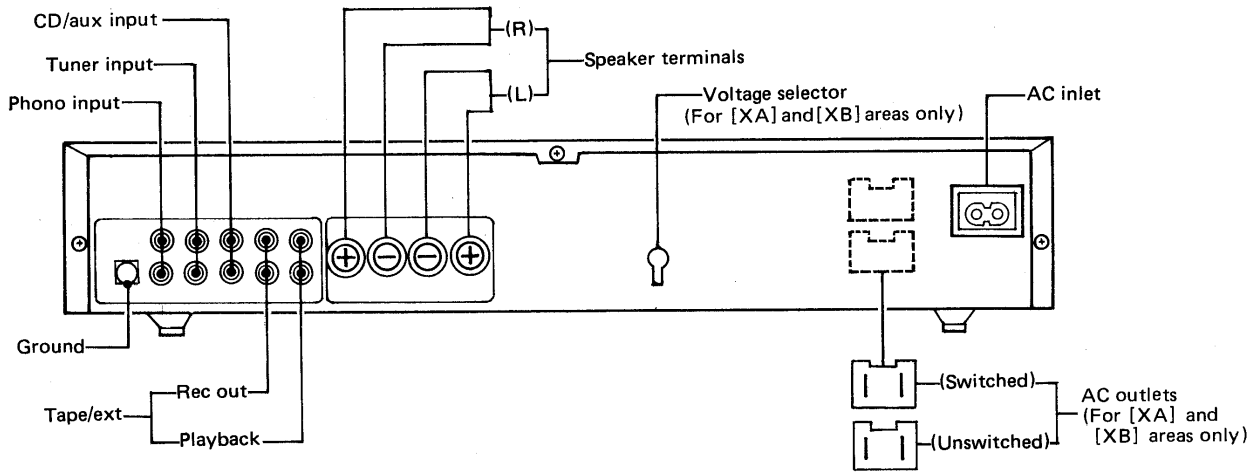
■ CONTENTS

Technics

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

■ LOCATION OF CONTROLS





- The power supply for this unit varies depending upon the areas. Also, the parts used for power supply are different. So, refer to the circuit diagram and replacement parts list.

* [XA] and [XB] areas are provided with voltage selector and AC outlets.
* 240V (50/60Hz) for Australia and United Kingdom.
* 220V (50/60Hz) for Continental Europe.
* 110V/127V/220V/240V (50/60Hz) for other [XA] and [XB] areas.
* Phono input capacitance is about 150pF.

■ PROTECTION CIRCUITRY

The protection circuitry may have operated if either of the following conditions is noticed:

- **No sound is heard when the power is turned on.**
- **Sound stops during a performance.**

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of this unit are used.

If this occurs, follow the procedure outlined below:

1. **Turn off the power.**
2. **Determine the cause of the problem and correct it.**
3. **Turn on the power once again.**

Note:
When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

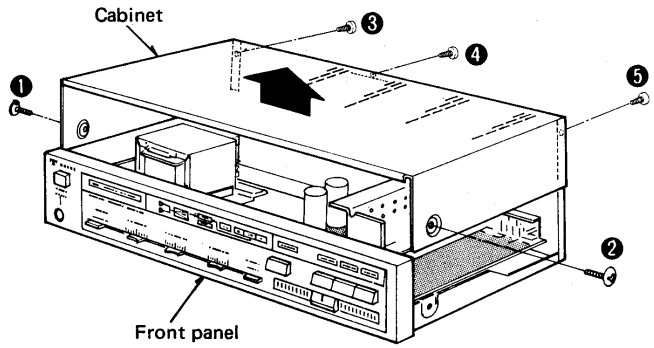
■ BEFORE REPAIR

1. Turn off the power, Discharge both power supply capacitors (C603, C604, 3300μF) through a 10 ohm, 5W resistor to ground. Do not short between C603 and C604. It may damage the capacitors.
2. After completion of repair, slowly apply the primary voltage by using a variac to avoid over current. Current consumption at 60Hz/50Hz in no signal mode should by shown below with respect to supply voltage 110V/127V/ 220V/ 240V.

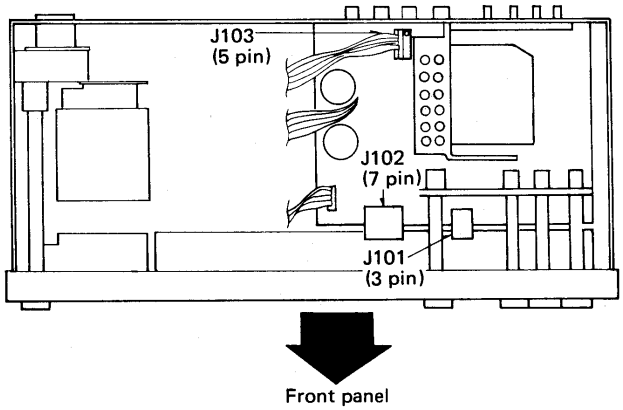
Power supply voltage		AC110V	AC127V	AC220V	AC240V
Consumed current	50Hz	95 ~ 190mA	80 ~ 180mA	47 ~ 94mA	43 ~ 86mA
	60Hz	———	———	42 ~ 84mA	38 ~ 76mA

■ DISASSEMBLY INSTRUCTIONS

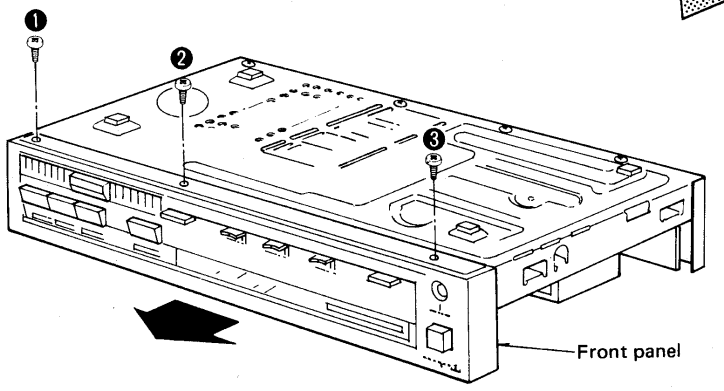
Ref. No. 1	How to remove the cabinet
Procedure 1	● Remove the 5 screws. (❶ ~ ❺)



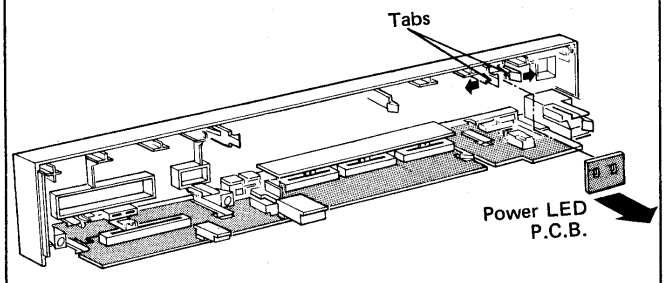
Ref. No. 2	How to remove the front panel
Procedure 1 → 2	● Remove the 3 connector (J101 ~ J103)



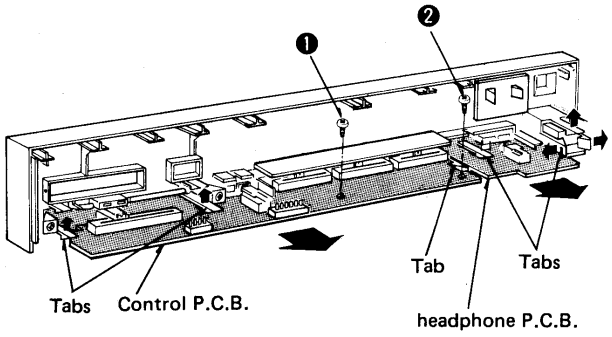
● Remove the 3 screws. (❶ ~ ❸)



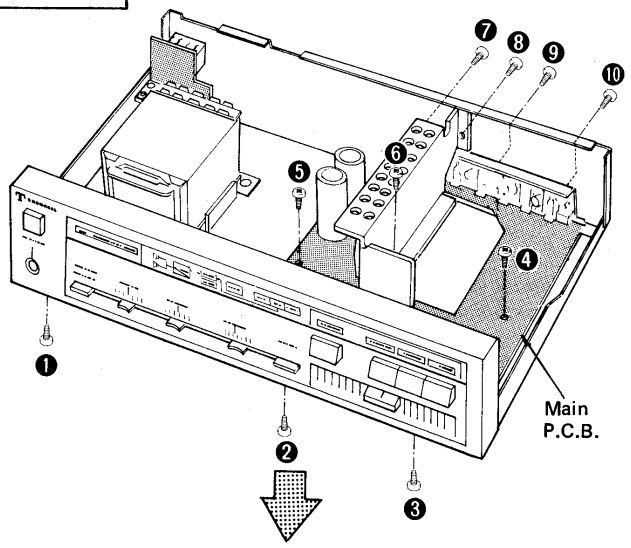
Ref. No. 3	How to remove the power LED P.C.B.
Procedure 1 → 2 → 3	● Push the 2 tabs aside.



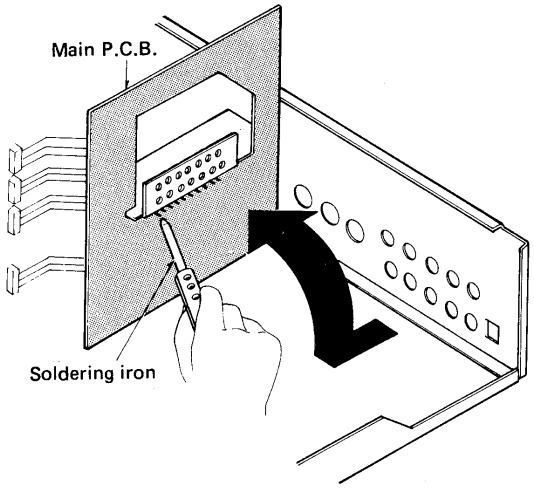
Ref. No. 4	How to remove the control and headphone P.C.B.
Procedure 1 → 2 → 4	● Remove the 2 screws. (❶ , ❷) ● Push the 3 tabs aside of control P.C.B. ● Push the 4 tabs aside of headphone P.C.B.



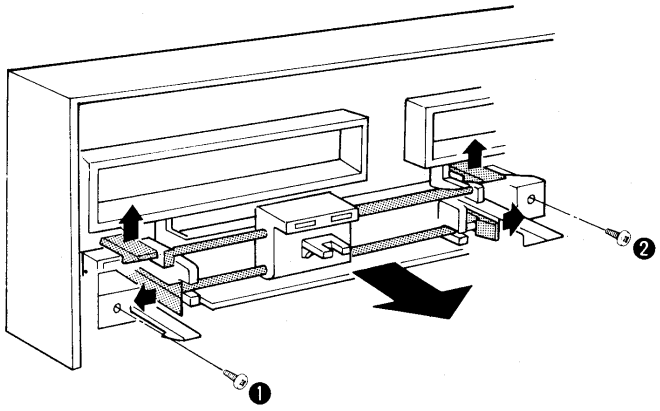
Ref. No. 6	How to change the power IC
Procedure 1 → 2 → 6	• Remove the 10 screws. (❶ ~ ❿)



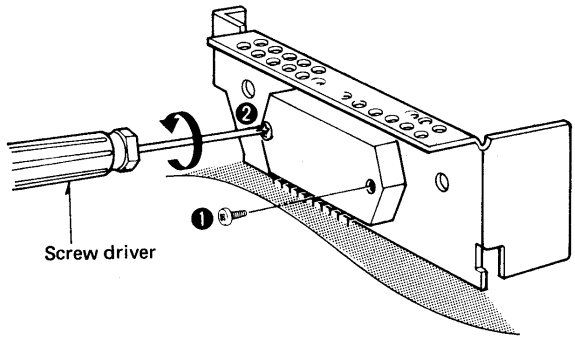
• Unsolder the power IC.



Ref. No. 5	How to remove the volume knob
Procedure 1 → 2 → 4 → 5	• Remove the 2 screws. (❶ , ❷) • Push the 4 tabs aside.

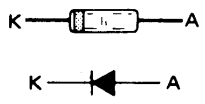
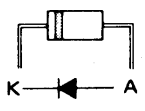
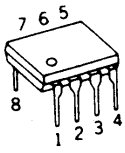
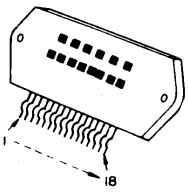
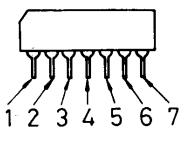
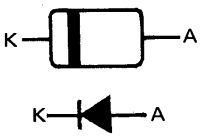
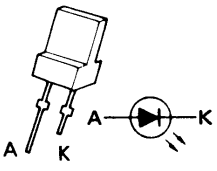
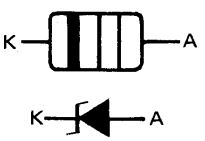


• Remove the 2 screws. (❶ , ❷)



When mounting the power IC, apply heat-sink conpound (SZZ0L15) to the rear of the power IC.

■ TERMINAL GUIDE OF DIODES AND IC'S

MA165 	SVDSR1K2 	M5218P M5220P 	SVIK4141–2M 	AN7072N 
MA167 	LN846RP 	MA4150M 		

■ RESISTORS & CAPACITORS

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
3. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
4. The "Ⓢ" mark is service standard parts and may differ from production parts.
5. The unit of resistance is OHM (Ω). K = 1000Ω, M = 1000kΩ
6. The unit of capacitance is MICROFARAD (μF). P = 10^{-6} μF

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value

Numbering System of Capacitor

Example

ECKD	1H	103	Z	F
Type	Voltage	Value	Tolerance	Peculiarity

ECEA	50	M	R47	R
Type	Voltage	Peculiarity use	Value	Special use

Resistor Type	Wattage	Tolerance
ERD : Carbon ERX : Metal film	25 : 1/4W S1 : 1/2W S2 : 1/4W	J : ±5% K : ±10%

Capacitor Type	Voltage		Tolerance
	ECEA Type	Other	
ECEA : Electrolytic ECCD : Ceramic ECKD : Ceramic ECQM : Polyester ECFT : Semiconductor ECET : Electrolytic	0J : 6.3V 1C : 16V 1E : 25V 1H : 50V 42 : 42V	1H : 50V DC	J : ±5% K : ±10% Z : +80%, −20% P : +100%, −0%

● RESISTORS

Ref. No.	Part No.	Value
R101,102 [EG] only	ERDS2TJ471	470
R103,104 [EG] only	ERDS2TJ102	1K
R105,106 [EG] only	ERDS2TJ102	1K
R107,108 [EG] only	ERDS2TJ102	1K
R201,202	ERDS2TJ391	390
R203,204	ERDS2TJ224	220K
R205,206	ERDS2TJ563	56K
R207,208	ERDS2TJ271	270

Ref. No.	Part No.	Value
R209,210	ERDS2TJ184	180K
R211,212	ERDS2TJ123	12K
R213,214	ERDS2TJ563	56K
R215,216	ERDS2TJ102	1K
R301,302	ERDS2TJ562	5.6K
R303,304	ERDS2TJ333	33K
R305,306	ERDS2TJ392	3.9K
R307,308	ERDS2TJ222	2.2K
R309,310	ERDS2TJ821	820
R401,402	ERDS2TJ102	1K
R403,404	ERDS2TJ563	56K

Ref. No.	Part No.	Value
R405,406	ERDS2TJ562	5.6K
R407,408	ERDS2TJ333	33K
R409,410	ERDS2TJ332	3.3K
R411,412	ERDS2TJ332	3.3K
R413,414 ⚠	ERD25FJ100	10
R415,416 ⚠	ERDS1FJ151	150
R417,418 ⚠	ERDS1FJ181	180
R419,420	ERDS2TJ393	39K
R421,422	ERDS2TJ472	4.7K
R423,424	ERDS2TJ273	27K
R425 ⚠	ERDS25FJ271	270

Ref. No.	Part No.	Value
R501,502 ⚠	ERX1ANJR33S	0.33
R503	ERDS2TJ271	270
R504	ERDS2TJ393	39K
R505	ERDS2TJ153	15K
R601,602 ⚠	ERDS1FJ681	680
R603,604 ⚠	ERDS1FJ681	680
R605,606	ERDS2TJ820	82
R607,608 ⚠	ERDS1FJ122	1.2K
R609,610 ⚠	ERDS1FJ122	1.2K
R611	ERDS2TJ151	150

● CAPACITORS

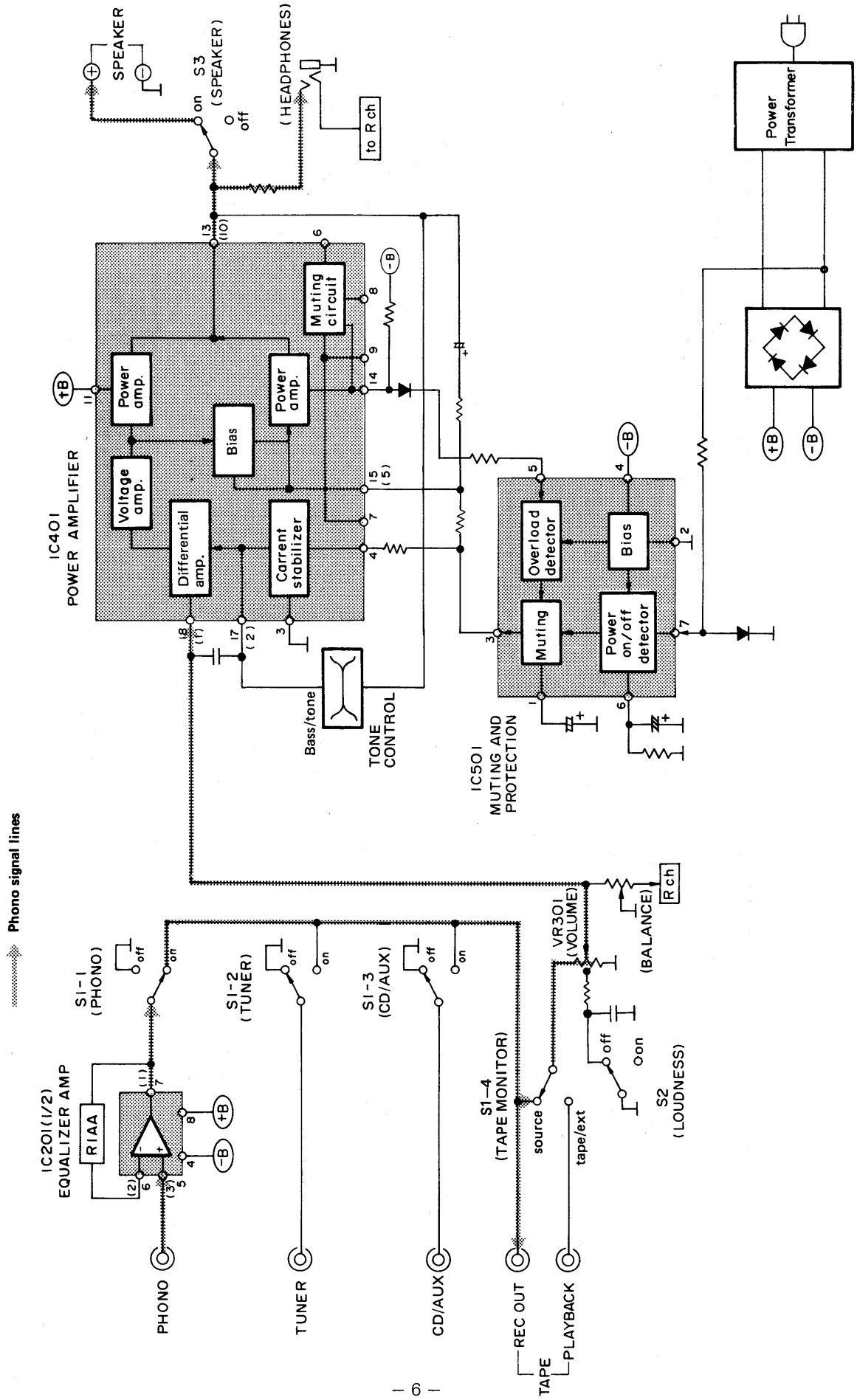
Ref. No.	Part No.	Value
C1 ⚠	ECKDKC103PF2	0.01
C101, 102 [EG] only	ECCD1H180K	18P
C103,104 [EG] only	ECCD1H221K	220P
C105,106 [EG] only	ECCD1H101K	100P
C107,108 [EG] only	ECCD1H101K	100P
C109,110 [EG] only	ECCD1H101K	100P
C111 [EG] only	ECKD1H102KB	0.001
C112	ECCD1H101K	100P
C115,116 [EG] only	ECKD1H223ZF	0.022
C117,118 [EG] only	ECKD1H103ZF	0.01

Ref. No.	Part No.	Value
C119 [EG] only	ECKD1H223ZF	0.022
C120	ECEA0JU330	33
C121,122 [EG] only	ECKD1H221KB	220P
C130 [EG] only	ECKD1H102KB	0.001
C131 [EG] only	ECCD1H010C	1P
C201,202	ECEA1HKS3R3	3.3
C203,204	ECCD1H101K	100P
C205,206	ECKD1H102KB	0.001
C207,208	ECEA0JU330	33
C209,210	ECFTD223KXL	0.022
C211,212	ECFTD682KXL	0.0068
C213,214 Ⓝ	ECEA1HN010	1
C301,302	ECFTD563KXL	0.056

Ref. No.	Part No.	Value
C303,304	ECFTD123KXL	0.012
C305,306	ECFTD823KXL	0.082
C307,308	ECFTD272KXL	0.0027
C309,310	ECFTD223KXL	0.022
C401,402	ECEA1HU010	1
C403,404	ECCD1H101K	100P
C405,406	ECKD1H331KB	330P
C407,408 [EG]	ECCD1H030C	3P
C407,408 [Other]	ECCD1H020C	2P
C409,410	ECEA0JU4R7	0.4
C411,412 [EK]	ECFTD473KXL	0.047
C411,412 [Other]	ECKD1H223ZF	0.022
C413	ECEA1HU470	47

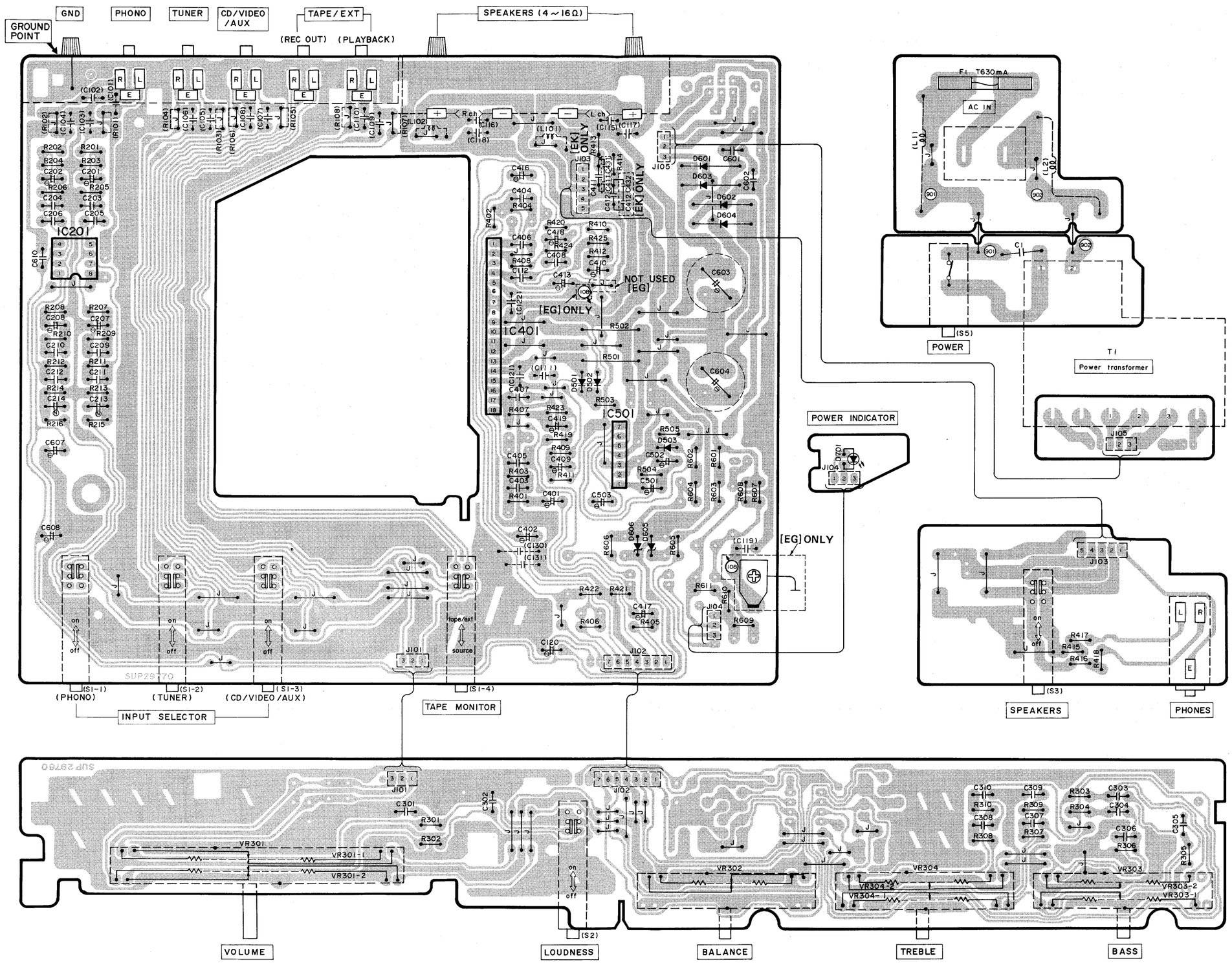
Ref. No.	Part No.	Value
C416,417	ECEA1HU010	1
C418,419	ECEA1EU220	22
C431,432 [EK] only	ECFTD473KXL	0.047
C501	ECEA0JU470	47
C502	ECEA1EU4R7	4.7
C503	ECEA0JU470	47
C601,602 ⚠ [EG,EF]	ECQM1H823JZ	0.082
C601,602 ⚠ [Other]	ECKD1H223ZF	0.022
C603,604	ECETS40V332X	3300
C607	ECEA1CU471	470
C608	ECEA1CU100	10
C610	ECKD1H103ZF	0.01

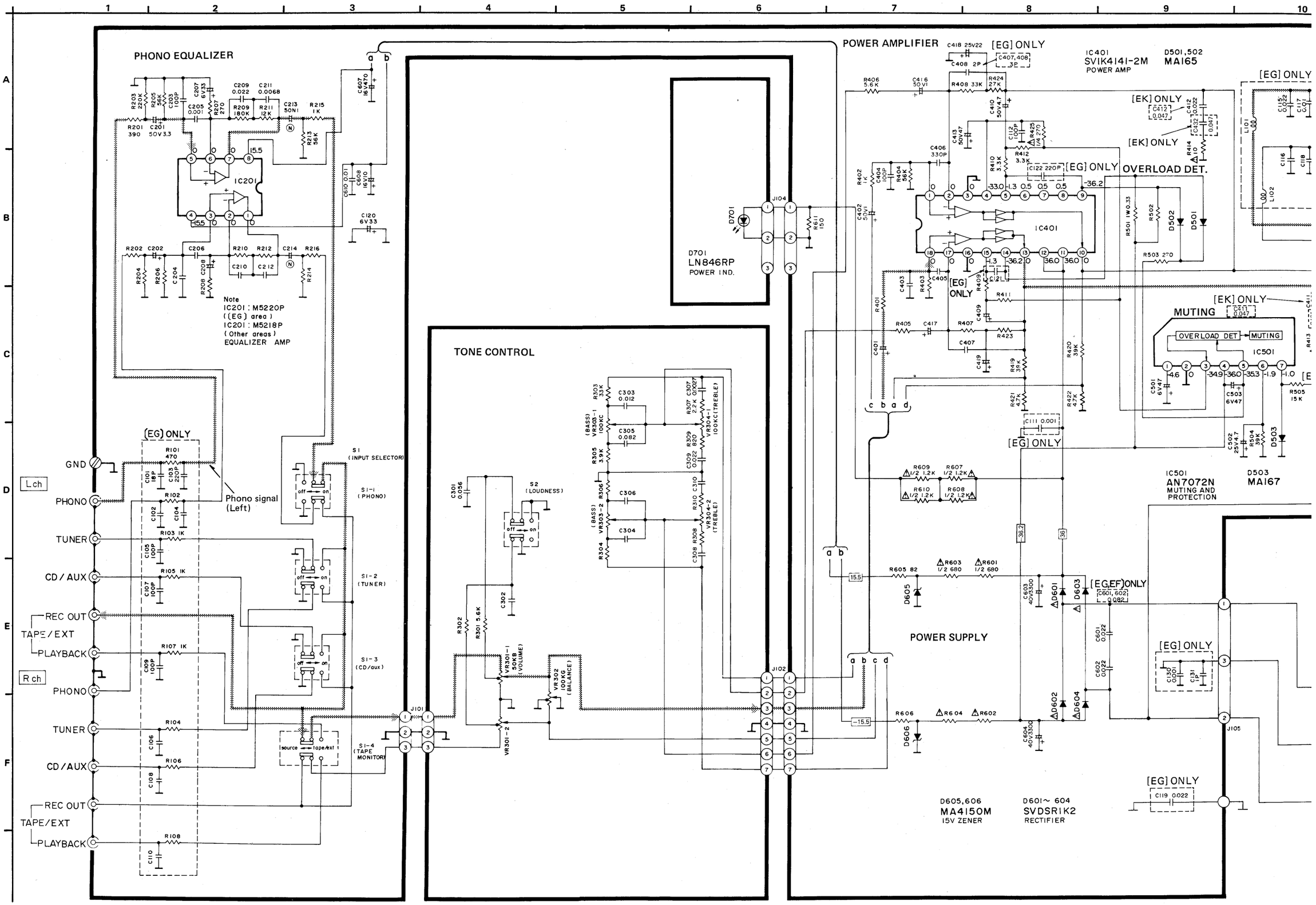
■ BLOCK DIAGRAM



■ PRINTED CIRCUIT BOARDS

Note : ( ) indicates resistor, capacitor and coil are use for [EG] area.




PHONO EQUALIZER
Note
IC201 : M5220P
((EG) area)
IC201 : M5218P
(Other areas)
EQUALIZER AMP
IC201
(EG) ONLY
GND
Lch
PHONO
TUNER
CD / AUX
REC OUT
TAPE / EXT
PLAYBACK
Rch
Phono signal (Left)
S1 (INPUT SELECTOR)
S1-1 (PHONO)
S1-2 (TUNER)
S1-3 (CD/aux)
S1-4 (TAPE MONITOR)
TONE CONTROL
S2 (LOUDNESS)
(BASS) VR303-1 100KC
(BASS) VR303-2
(TREBLE) VR304-1 100KC
(TREBLE) VR304-2
VR301-1 50KB (VOLUME)
VR301-2
VR302 100KG (BALANCE)
D701 LN846RP POWER IND.
POWER AMPLIFIER
IC401 SVIK4141-2M POWER AMP
D501,502 MA165
[EG] ONLY
[EK] ONLY
OVERLOAD DET.
MUTING
IC501 AN7072N MUTING AND PROTECTION
D503 MA167
POWER SUPPLY
[EG,EF] ONLY
D605,606 MA4150M 15V ZENER
D601~604 SVDSRIK2 RECTIFIER

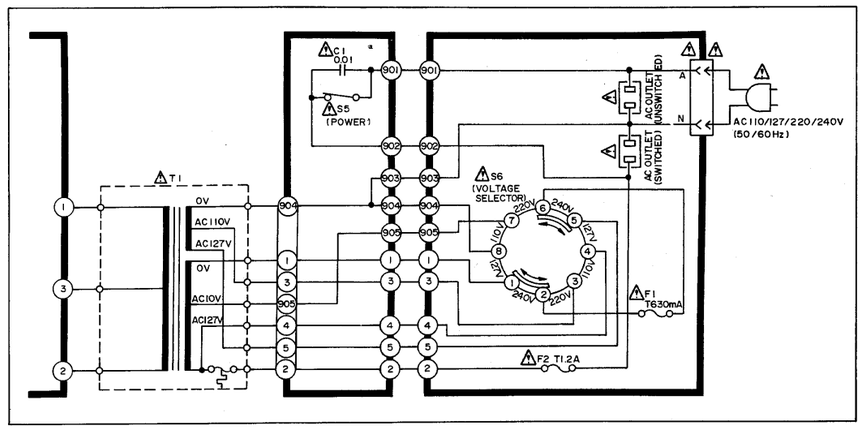
■ SCHEMATIC DIAGRAM

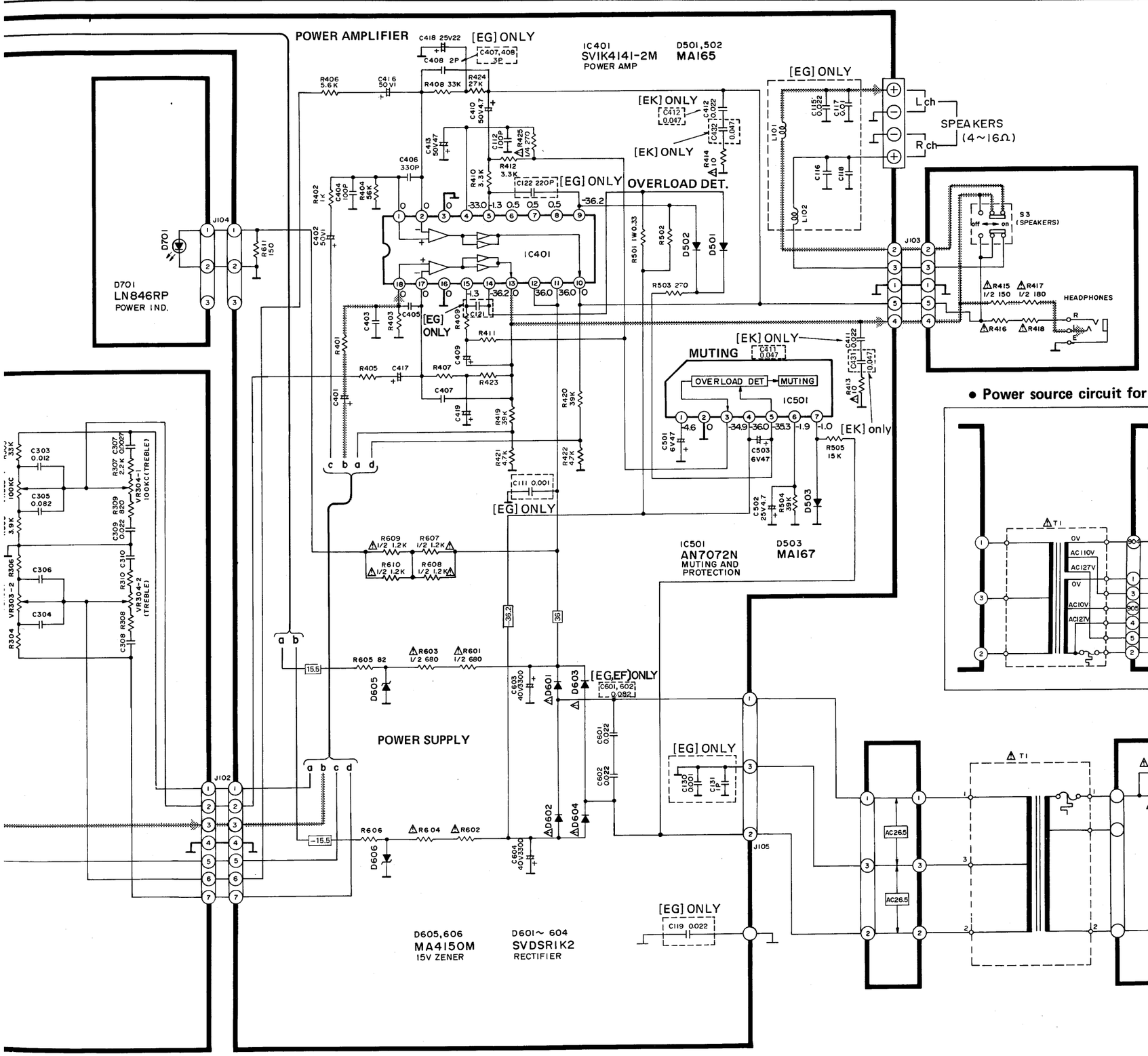
(This schematic diagram may be modified at any time with the development of new technology.)

Notes:

1. **S1-1 ~ S1-3** : Input selector switch in **"Phono"** position. Phono ↔ tuner ↔ CD/aux
2. **S1-4** : Tape monitor switch in **"source"** position. (▮ source, ▰ tape/ext)
3. **S2** : Loudness switch in **"off"** position.
4. **S3** : Speaker switch in **"on"** position.
5. **S5** : Power switch in **"on"** position.
6. **S6 [XA] and [XB] only** : Voltage selector switch in **"240V"** position. 110V ↔ 127V ↔ 240V ↔ 220V
7. Important safety notice: Components identified by ⚠ mark have special,characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
8. Indicated voltage values are the standard values for the DC electronic circuit tester (high-impedance) with the ground point taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
9. ▒▒▒ Phono signal line, Lch.
10. —▭— Positive and negative voltage line.

• Power source circuit for [XA] nad [XB] areas





■ REPLACEMENT PARTS LIST

Notes:

1. Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. Ⓚ —marked parts are used for black only, while O —marked parts are for silver type only.
4. Part other than Ⓚ — and O —marked are used for both black and silver type.
5. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
6. The parenthesized numbers in the column of description stand for the quantity per set.

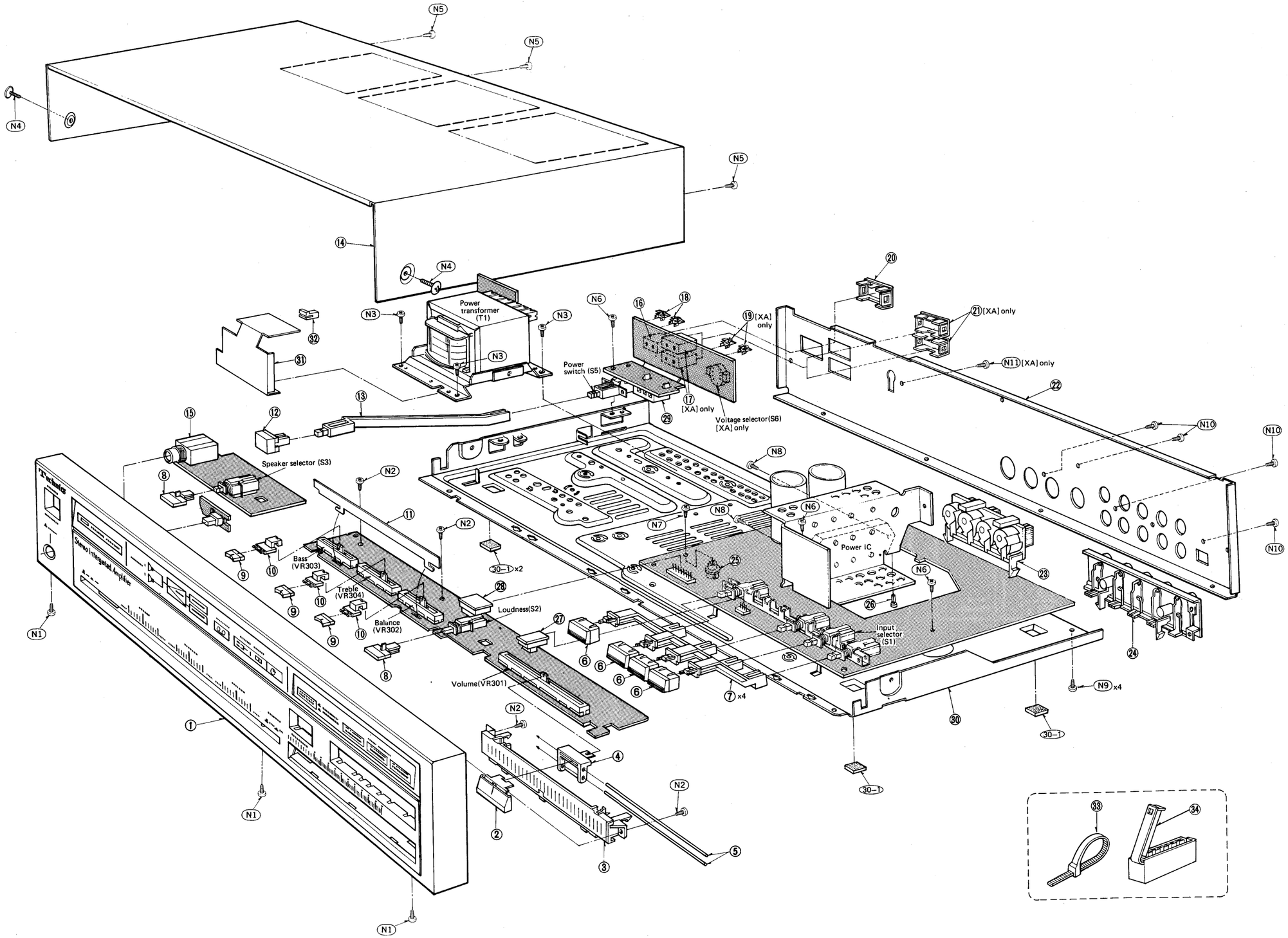
Area
[E] .... Continental Europe
[EG] ... F.R. Germany
[EK] ... United Kingdom
[EF] ... France
[EH] ... Holland
[EB] ... Belgium
[Ei] ... Italy
[XL] ... Australia
[XA] ... Asia, Latin America, Africa, Middle Near East and Oceania
[XB] ... Saudi Arabia

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC201 [EG]	M5220P	Equalizer
IC201 [Other]	M5218P	Equalizer
IC401	SVIK4141-2M	Power Amp.
IC501	AN7072N	Muting and Protection
DIODES		
D501,502	MA165	Switching
D503	MA167	Switching
D601-604 ⚠	SVDSR1K2	Rectifier
D605,606	MA4150M	Zener, 15V
D701	LN846RP	LED
COILS		
L1,2 [EG] only	SLQX400-D	Coil
L101,102 [EG] only	SLQY15G-10	Coil
TRANSFORMERS		
T1 [XA,XB] ⚠	SLT5M427	Power Source
T1 [EK,XL] ⚠	SLT5M426	Power Source
T1 [other] ⚠	SLT5M425	Power Source
VARIABLE RESISTORS		
VR301	EWAQA8X05B54	Volume, 50KΩ (B)
VR302	EWANF5X05G15	Balance, 100KΩ (G)
VR303,304	EWANA6X05C15	Tone, 100KΩ (C)
FUSES		
F1 [EK] ⚠	XBA2C06TB0	250V, T630mA
F1 [Other] ⚠	XBA2C06TR0	250V, T630mA
F2 [XA,XB] ⚠	XBA2C12TR0	250V, T1.25A
SWITCHES		
S1	SSH488	Input Selector
S2	SSH1159	Loudness
S3	SSH1193-1	Speaker
S5 ⚠	SSH1071	Power Source
S6 [XA,XB] ⚠	ESE37263	Voltage Selector

Ref. No.	Part No.	Description
CABINET and CHASSIS PARTS		
1 O	SGYU300-SE	Front Panel Ass'y (1)
1 Ⓚ	SGYU300-KE	Front Panel Ass'y (1)
2 O	SXE1108	Knob Ass'y, Volume (1)
2 Ⓚ	SXE1108-1	Knob Ass'y, Volume (1)
3 O	SGXU300-SE	Ornament, Volume (1)
3 Ⓚ	SGXU300-KE	Ornament, Volume (1)
4	SHR9765	Slider, Volume Knob (1)
5	SUH609	Shaft, Slider (2)
6 O	SBC722	Button, Selector (4)
6 Ⓚ	SBC722-1	Button, Selector (4)
7	SUB228	Connection Rod, Selector (4)
8 O	SBC723-2	Button, Loudness, Speaker (2)
8 Ⓚ	SBC723-1	Button, Loudness, Speaker (2)
9 O	SBD97	Knob, Tone, Balance (3)
9 Ⓚ	SBD97-3	Knob, Tone, Balance (3)
10 O	SHR9764-6	Slider (3)
10 Ⓚ	SHR9764-7	Slider (3)
11 O	SHR5299-7	Cover (1)
11 Ⓚ	SHR5307	Cover (1)
12 O	SBC666	Button, Power Switch (1)
12 Ⓚ	SBC666-3	Button Power Switch (1)
13	SUB227	Connection Rod, Power Switch (1)
14 [EK] O	SKCU300-SK	Cabinet (1)
14 [XA,XB] O	SKCU300-SX	Cabinet (1)
14 [Other] O	SKCU300-SE	Cabinet (1)
14 [EK] Ⓚ	SKCU300-KK	Cabinet (1)
14 [XA,XB] Ⓚ	SKCU300-KX	Cabinet (1)
14 [Other] Ⓚ	SKCU300-KE	Cabinet (1)
15	SJJ126B	Jack, Headphone (1)
16 [XL] ⚠	SJS9234B	Socket, AC Inlet (1)
16 [Other] ⚠	SJS9231B	Socket, AC Inlet (1)
17 [XA,XB] only ⚠	SJS9232B	Socket, AC Outlet (2)
18	SJT388	Fuse Holder (2)
19 [XA,XB]	SJT388	Fuse Holder (2)
20 [XA,XB]	SJS9234A	Cover, AC Inlet (1)
20 [Other]	SJS9231A	Cover, AC Inlet (1)
21 [XA,XB]	SJS9232A	Cover, AC Outlet (2)
22 [E]	SGP6460E	Rear Panel (1)
22 [EG]	SGP6460F	Rear Panel (1)
22 [EK]	SGP6460G	Rear Panel (1)
22 [XL]	SGP6460H	Rear Panel (1)
22 [XA,XB]	SGP6460-2B	Rear Panel (1)
22 [Other]	SGPU300-KF	Rear Panel Ass'y (1)

Ref. No.	Part No.	Description
23	SJF4437-2	Speaker Terminal (1)
24	SJF3062-1N	Input Terminal (1)
25	SHE185	Spacer, P.C.B. (1)
26	SHR401	Nylon Pin (1)
27	SJS304	Connector (3 pin) (1)
28	SJS701	Connector (7 pin) (1)
29 [XA,XB]	SJS702	Socket (7 pin) (1)
29 [Other]	SJS305	Socket (3 pin) (1)
30	SKUU300-KE	Bottom Board (1)
30-1	(SKL293	Foot (4)
31	SMC1195-1	Shield Cover (1)
32	SHG1636	Rubber (1)
33	SHR301	Clamper (1)
34	SJS5519	Connector, (5 pin) (1)
SCREWS		
N1	XTB3+8GFZ	Tapping, ⊕3×8 (3)
N2	XTB3+8G	Tapping, ⊕3×8 (4)
N3	XTB3+6FFZ	Tapping, ⊕3×6 (4)
N4 O	SNE2095-4	Cabinet (2)
N4 Ⓚ	SNE2095-5	Cabinet (2)
N5	XTBS3+8JFZ1	Tapping, ⊕3×8 (3)
N6	XTW3+8L	Tapping, ⊕3×8 (3)
N7	XTW3+15T	Tapping, ⊕3×15 (1)
N8	XTB3+14J	Tapping, ⊕3×14 (2)
N9	XTBS3+6FFZ1	Tapping, ⊕3×6 (4)
N10	XTBS3+8JFZ1	Tapping, ⊕3×8 (4)
N11 [XA,XB]	SNE2095-5	Voltage Selector (1)
ACCESSORIES		
A1 [EK] ⚠	SFDAC05G02	AC Cord (1)
A1 [XL] ⚠	SJA173	AC Cord (1)
A1 [XA] ⚠	SJA168-1	AC Cord (1)
A1 [XB] ⚠	SJA183	AC Cord (1)
A1 [Other] ⚠	SJA171	AC Cord (1)
A2 [XA,XB]	SJP9215	Plug Adaptor (1)
A3 [EK]	SQF12707	Instruction Book (1)
A3 [EG]	SQF12709	Instruction Book (1)
A3 [XA,XB]	SQF12708	Instruction Book (1)
A3 [Other]	SQF12706	Instruction Book (1)
PACKING		
P1 [EK] O	SPG5653	Carton Box (1)
P1 [EK] Ⓚ	SPG5656	Carton Box (1)
P1 [EF]	SPG5654	Carton Box (1)
P1 O [Other]	SPG5652	Carton Box (1)
P1 Ⓚ [Other]	SPG5655	Carton Box (1)
P2	SPS4089-1	Pad, Left (1)
P3	SPS4091-3	Pad, Right (1)
P4	SPS4141	Pad, Upper (1)
P5 O	SPP699	Polyethylene Bag (1)
P5 Ⓚ	SPP735	Polyethylene Bag (1)
P6 [EF]	SGK1411	Label (2)

■ EXPLODED VIEW



Printed in Japan
860407300 ⊗ TK/TM