

# Service Manual

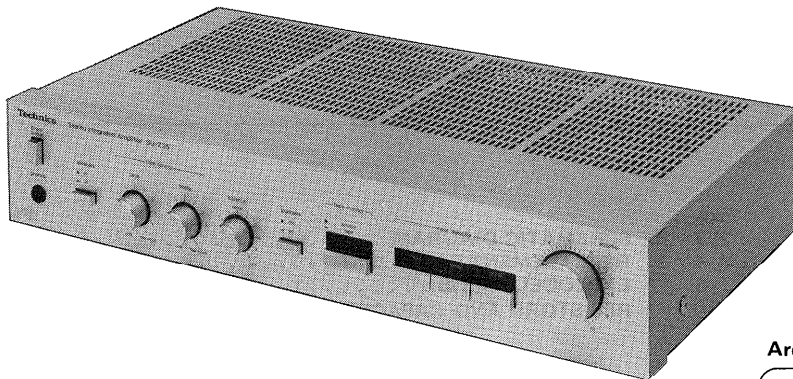
Stereo Integrated Amplifier

## SU-Z25

[E],[EG],[EK],[EH],[Ei],  
[EB],[EF],[XA],[XL]

## SU-Z25(K)

[E],[EG],[EH],[Ei]



- \* 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.
- \* [EG] is available in F. R. Germany.
- \* [EK] is available in United Kingdom.
- \* [EH] is available in Holland.
- \* [Ei] is available in Italy.
- \* [EB] is available in Belgium.
- \* [EF] is available in France.
- \* [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
- \* [XL] is available in Australia.

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

### (DIN 45 500)

#### ■ AMPLIFIER SECTION

20 Hz~20 kHz continuous power output both channels driven	2 × 25W (4Ω) 2 × 25W (8Ω)
40 Hz~16 kHz continuous power output both channels driven	2 × 25W (4Ω) 2 × 25W (8Ω)
1 kHz continuous power output both channels driven	2 × 30W (4Ω) 2 × 30W (8Ω)
Total harmonic distortion	
rated power at 20 Hz~20 kHz	0.05% (4Ω) 0.03% (8Ω)
rated power at 40 Hz~16 kHz	0.05% (4Ω) 0.03% (8Ω)
rated power at 1 kHz	0.01% (4Ω) 0.005% (8Ω)
half power at 20 Hz~20 kHz	0.03% (8Ω)
half power at 1 kHz	0.005% (8Ω)
-26 dB power at 1 kHz	0.01% (4Ω)
50 mW power at 1 kHz	0.01% (4Ω)
Intermodulation distortion	
rated power at 250 Hz: 8 kHz=4:1, 4Ω	0.05%
rated power at 60 Hz: 7 kHz=4:1, SMPTE, 8Ω	0.03%
Power bandwidth	
both channels driven, -3 dB	10 Hz~25 kHz (4Ω) 10 Hz~25 kHz (8Ω)
Residual hum and noise	0.6 mV
Damping factor	20 (4Ω), 40 (8Ω)

#### Input sensitivity and impedance

PHONO	2.5 mV/47kΩ
TUNER, AUX	150 mV/22kΩ
TAPE	150 mV/22kΩ

PHONO maximum input voltage (1 kHz, RMS) 150 mV  
S/N

#### rated power (4Ω)

PHONO	73 dB (IHF, A: 78 dB)
TUNER, AUX, TAPE	86 dB (IHF, A: 97 dB)

#### -26 dB power (4Ω)

PHONO	65 dB
TUNER, AUX, TAPE	65 dB

#### 50 mW power (4Ω)

PHONO	62 dB
TUNER, AUX, TAPE	62 dB

#### Frequency response

PHONO	RIAA standard curve ±0.8 dB (30 Hz~15 kHz)
TUNER, AUX, TAPE	5 Hz~80 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
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#### Output voltage

REC OUT	150 mV
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#### Channel balance, AUX 250 Hz~6,300 Hz

	±1 dB
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#### Channel separation, AUX 1 kHz

	50 dB
--	-------

#### Headphones output level and impedance

	340 mV/330Ω
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#### Load impedance

	4Ω~16Ω
--	--------

## ■ GENERAL

**Power consumption** 260W  
**Power supply** AC 50 Hz/60 Hz, 220V  
 (For continental Europe)  
 AC 50 Hz/60 Hz, 240V  
 (For United Kingdom and Australia)  
 AC 50 Hz/60 Hz, 110V/120V/220V/240V  
 (For others)

**Dimensions (W×H×D)** 430 × 86 × 252 mm  
 (16-15/16" × 3-3/8" × 9-15/16")  
**Weight** 4.8 kg  
 (10.6 lb.)

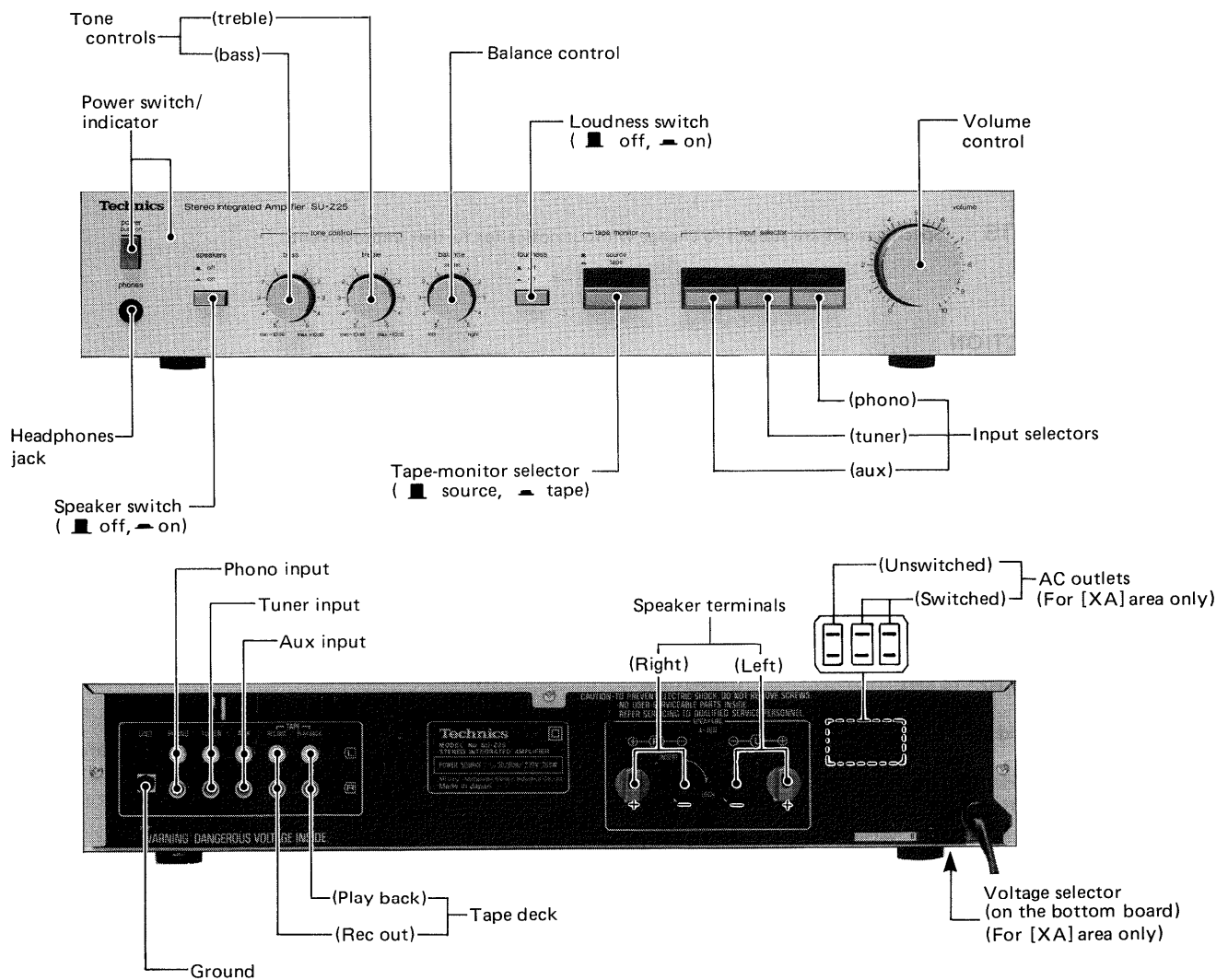
**Note:**  
 Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).

## ■ CONTENTS

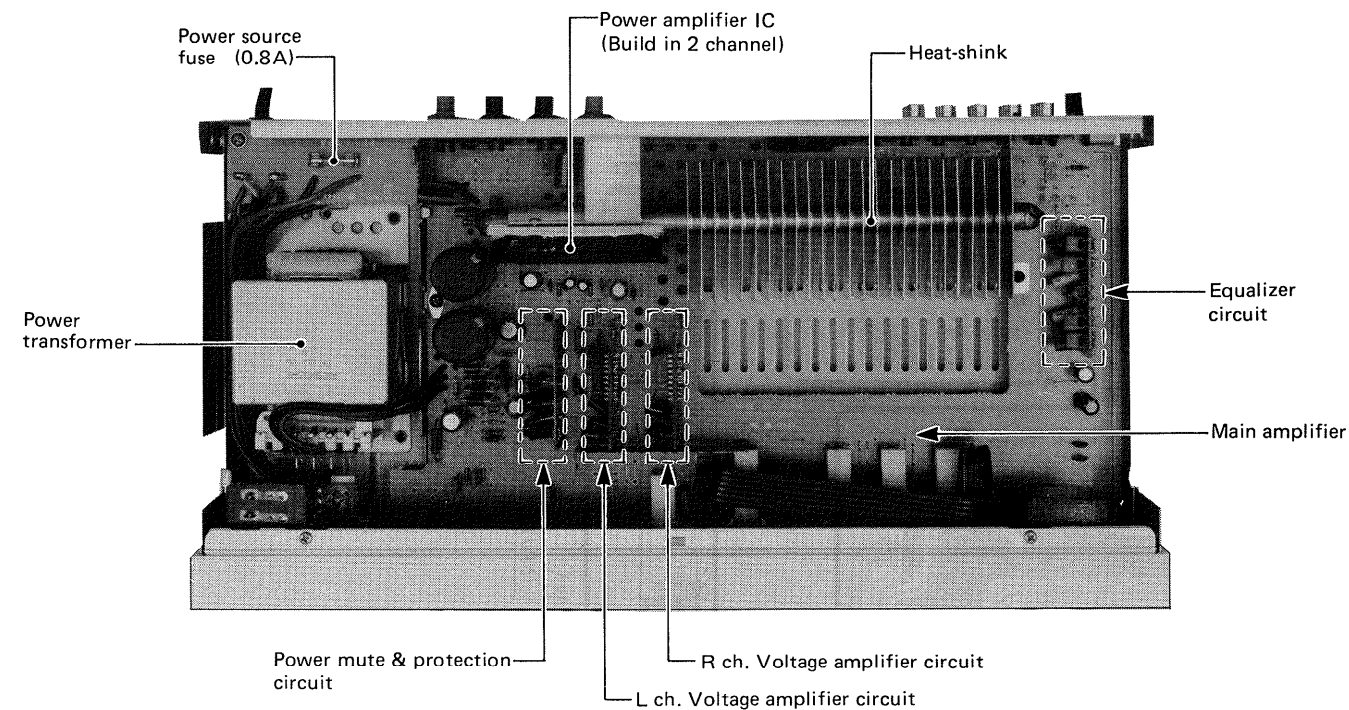
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## ■ LOCATION OF CONTROLS

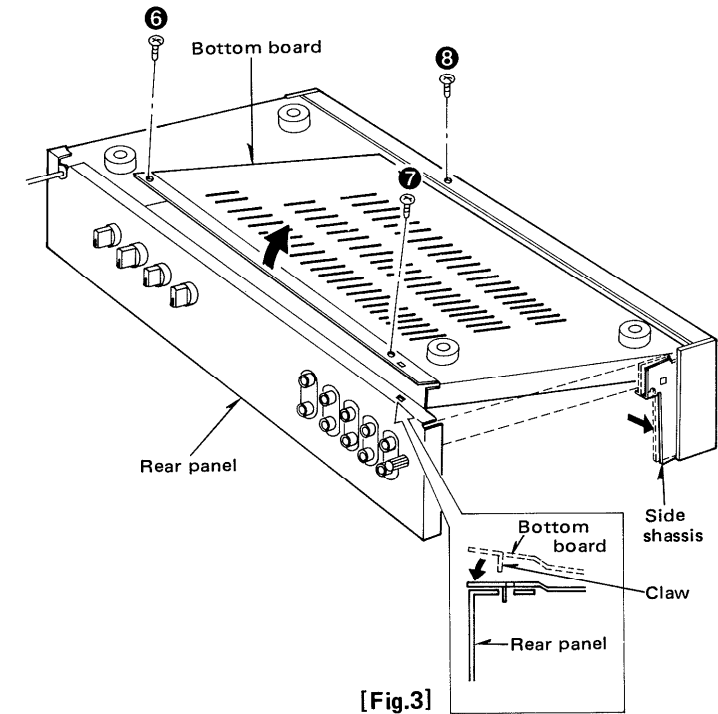


- The power supply for this unit varies depending upon the areas. Also, the parts used for power supply are different. So, refer to the circuit diagram and the replacement parts list.
- \* 220V (50/60Hz) for continental Europe.
- \* 240V (50/60Hz) for United Kingdom and Australia.
- \* 110V/120V/220V/240V (50/60Hz) for other areas.
- [XA area] for other areas is provided with voltage selector and AC outlets.
- \* Phono input capacitance is about 150pF.



**3. How to the remove the bottom board**

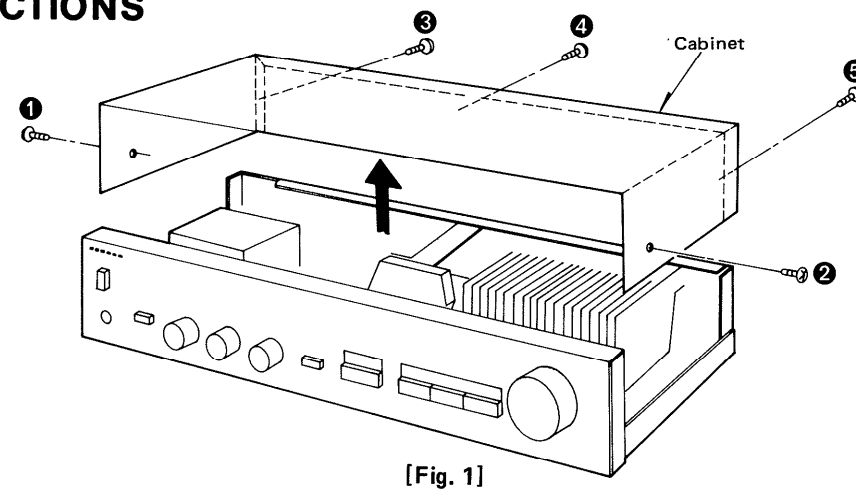
1. Remove the 3 setscrews (Fig. 3: ⑥ ~ ⑧) of the bottom board. Next, slightly widen side chassis to remove the bottom board in the direction of the arrow.
2. When fitting the bottom board, insert the claws of the bottom board into the holes in the rear panel before tightening the setscrews. (Fig. 3)



**DISASSEMBLY INSTRUCTIONS**

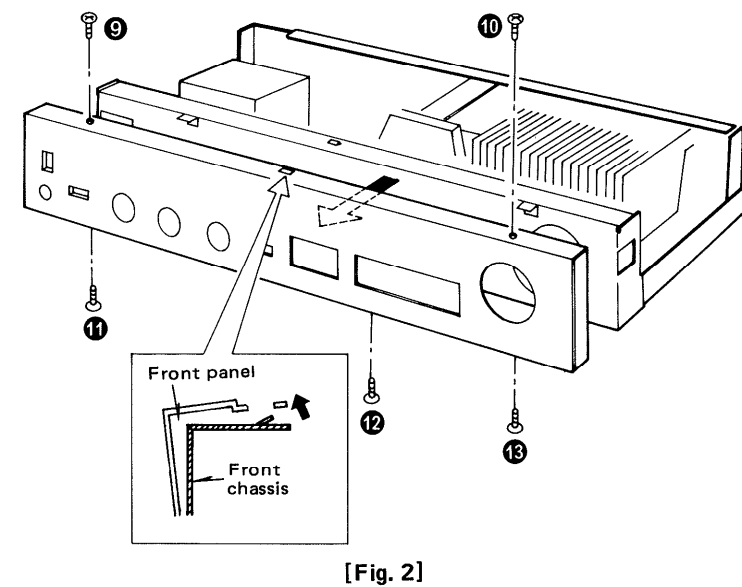
**1. How to remove the cabinet**

1. Remove the 2 setscrews (Fig. 1: ①, ②) on the side and 3 setscrews (Fig. 1: ③ ~ ⑤) on the back of the cabinet.
2. Remove the cabinet.



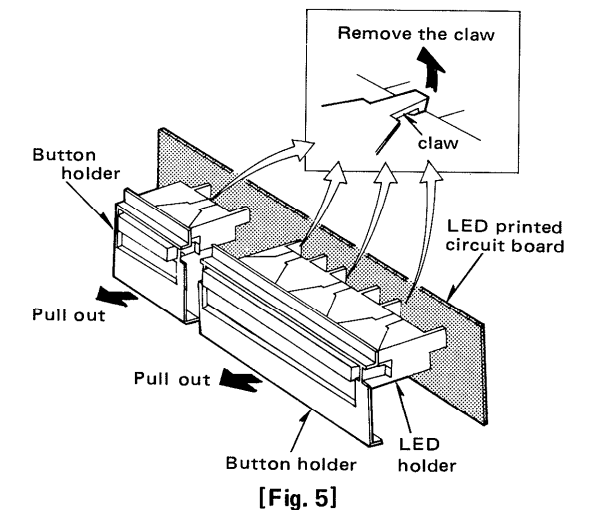
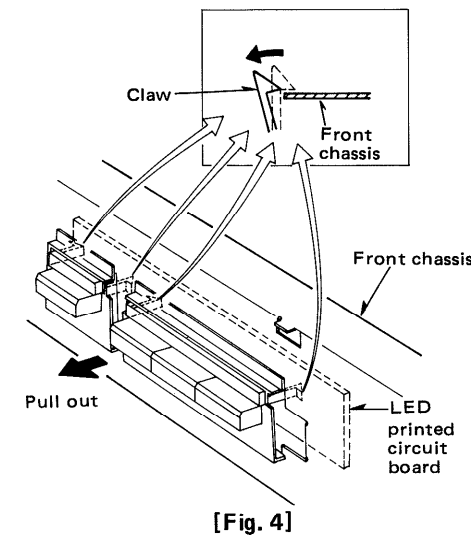
**2. How to remove the front panel**

1. Remove the cabinet. (Refer to "How to remove the cabinet.")
2. Remove the 5 setscrews (Fig. 2: ⑨ ~ ⑬) of the front panel. The center of the front panel is secured by the claw projected from the front chassis. So, release the front panel from the claw by using a screwdriver to remove it as shown in Fig. 2.



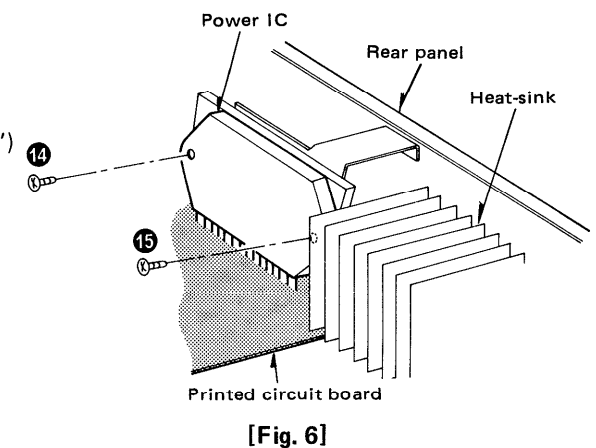
**4. How to remove the input selector and tape monitor button.**

1. Remove the cabinet and front panel. (Refer to "How to remove the cabinet" and "How to remove the front panel")
2. As in Fig. 4, release the 4 claws of the input selector and tape monitor button sleeves, then draw out the front panel. Next, the button sleeves can be removed by releasing the claw which fastens the LED holder. (Fig. 5)



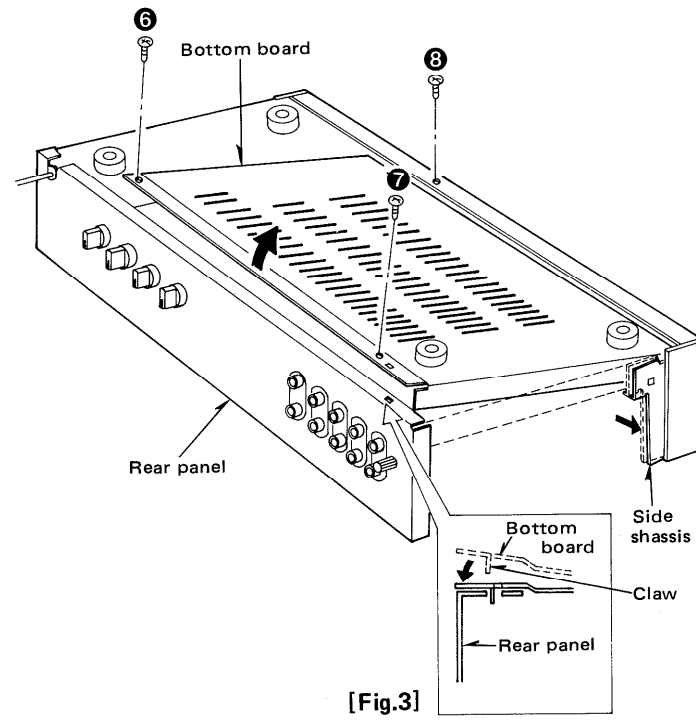
**How to remove the power IC**

1. Remove the cabinet and bottom board. (Refer to "How to remove the cabinet" and "How to remove the bottom board")
2. Unsolder the power IC.
3. Remove the 2 setscrews (Fig. 6: ⑭, ⑮) used to secure the power IC on the heat-sink, and then pull out the power IC.
4. When installing the power IC, apply heat diffusing agent (silicon powder, etc.) to back side of the IC, and secure it on the heat-sink with setscrews.



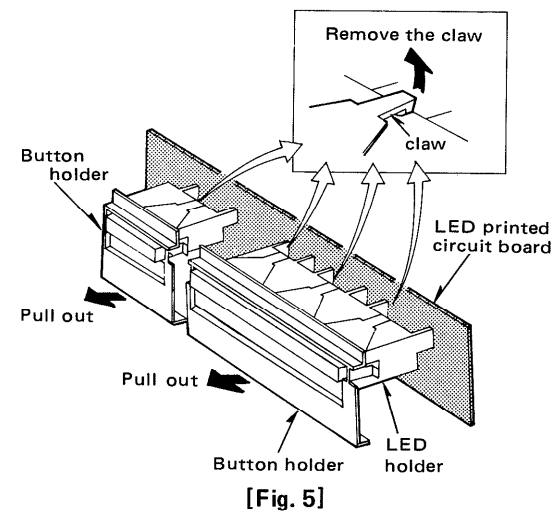
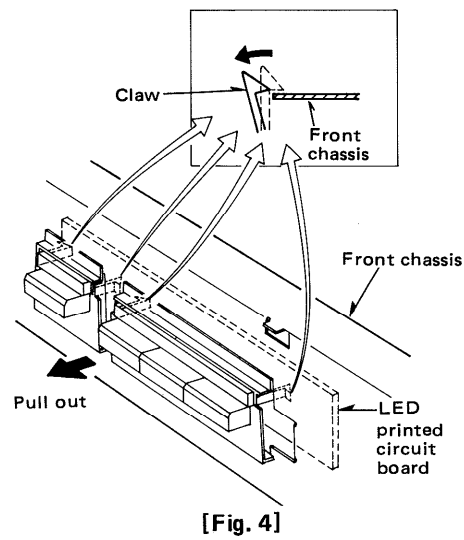
**3. How to the remove the bottom board**

1. Remove the 3 setscrews (Fig. 3: ⑥ ~ ⑧) of the bottom board. Next, slightly widen side chassis to remove the bottom board in the direction of the arrow.
2. When fitting the bottom board, insert the claws of the bottom board into the holes in the rear panel before tightening the setscrews. (Fig. 3)



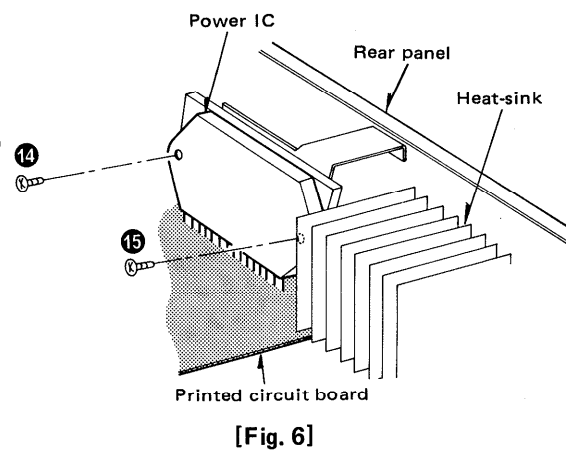
**4. How to remove the input selector and tape monitor button.**

1. Remove the cabinet and front panel. (Refer to "How to remove the cabinet" and "How to remove the front panel")
2. As in Fig. 4, release the 4 claws of the input selector and tape monitor button sleeves, then draw out the front panel. Next, the button sleeves can be removed by releasing the claw which fastens the LED holder. (Fig. 5)

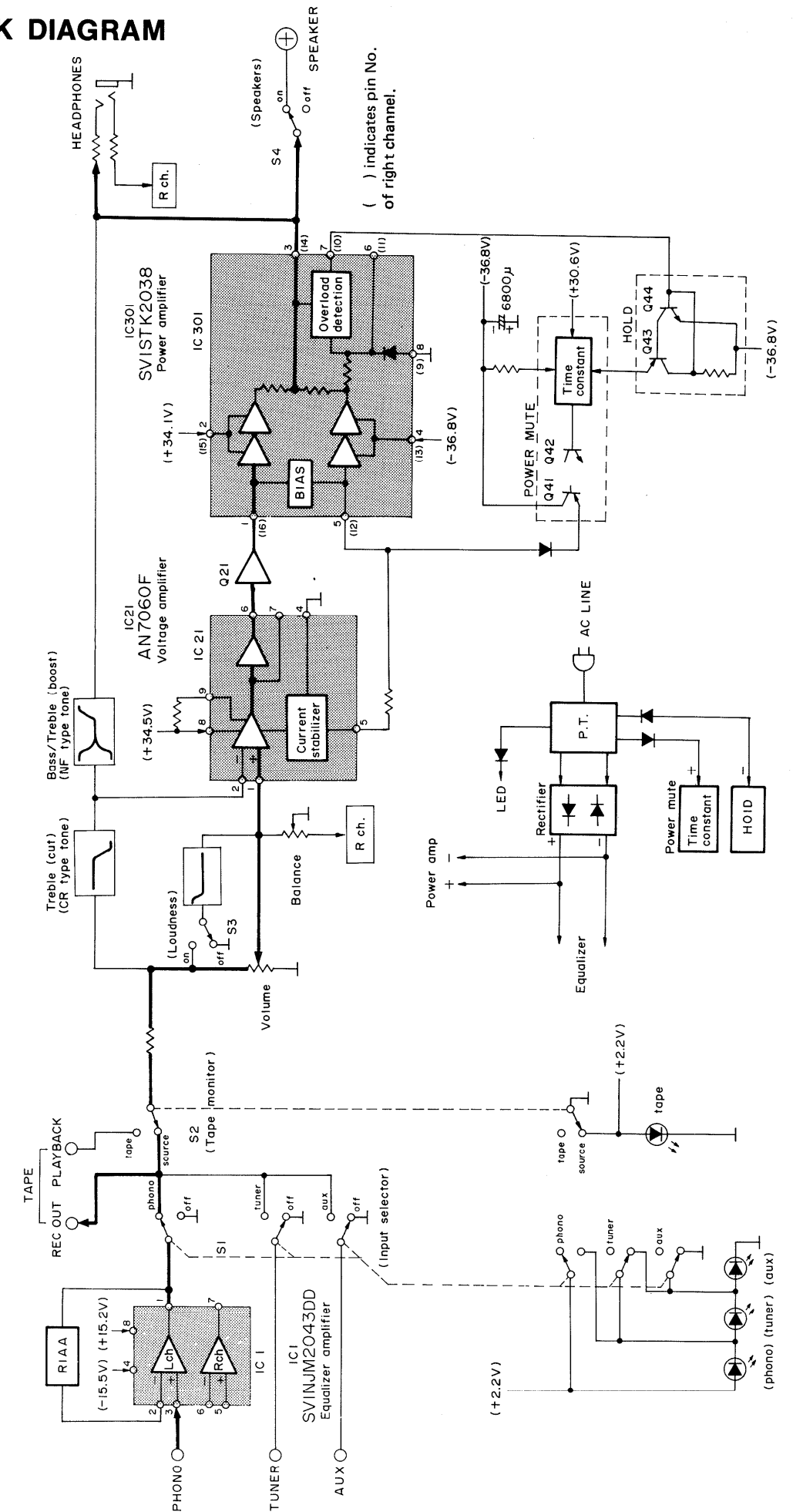


**• How to remove the power IC**

1. Remove the cabinet and bottom board. (Refer to "How to remove the cabinet" and "How to remove the bottom board")
2. Unsolder the power IC.
3. Remove the 2 setscrews (Fig. 6: ⑭, ⑮) used to secure the power IC on the heat-sink, and then pull out the power IC.
4. When installing the power IC, apply heat diffusing agent (silicon powder, etc.) to back side of the IC, and secure it on the heat-sink with setscrews.

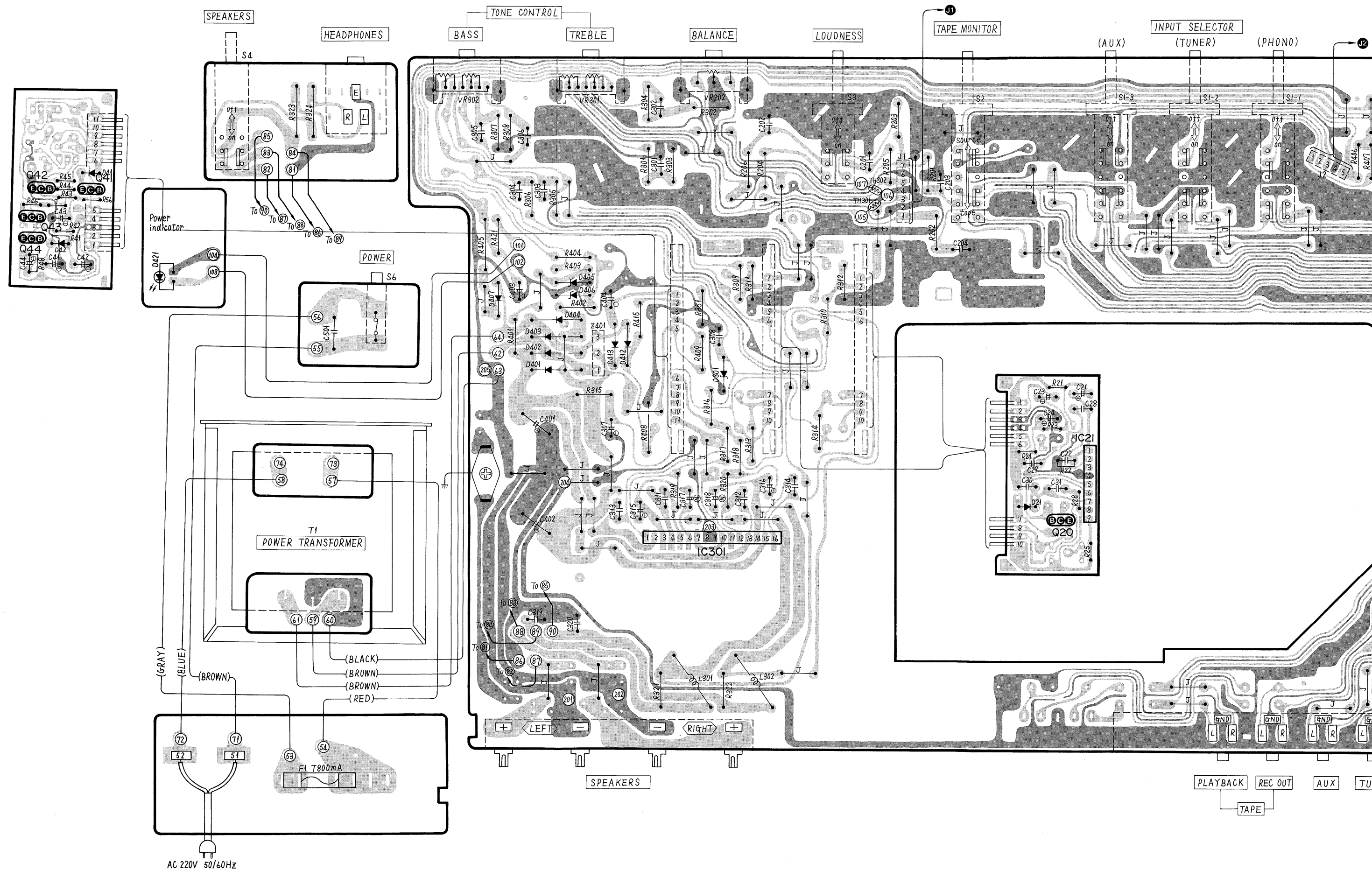


**■ BLOCK DIAGRAM**



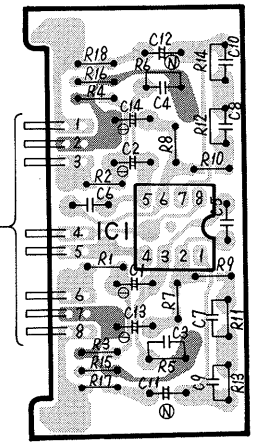
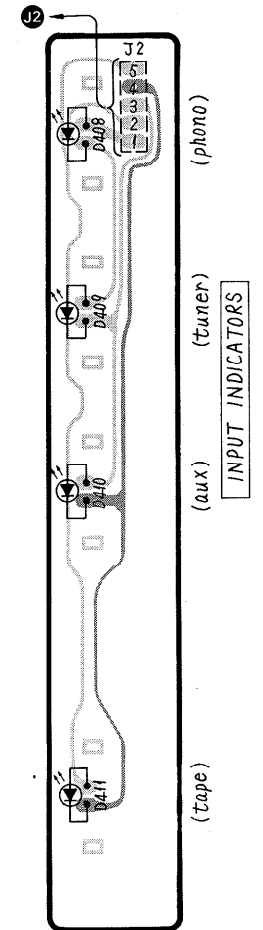
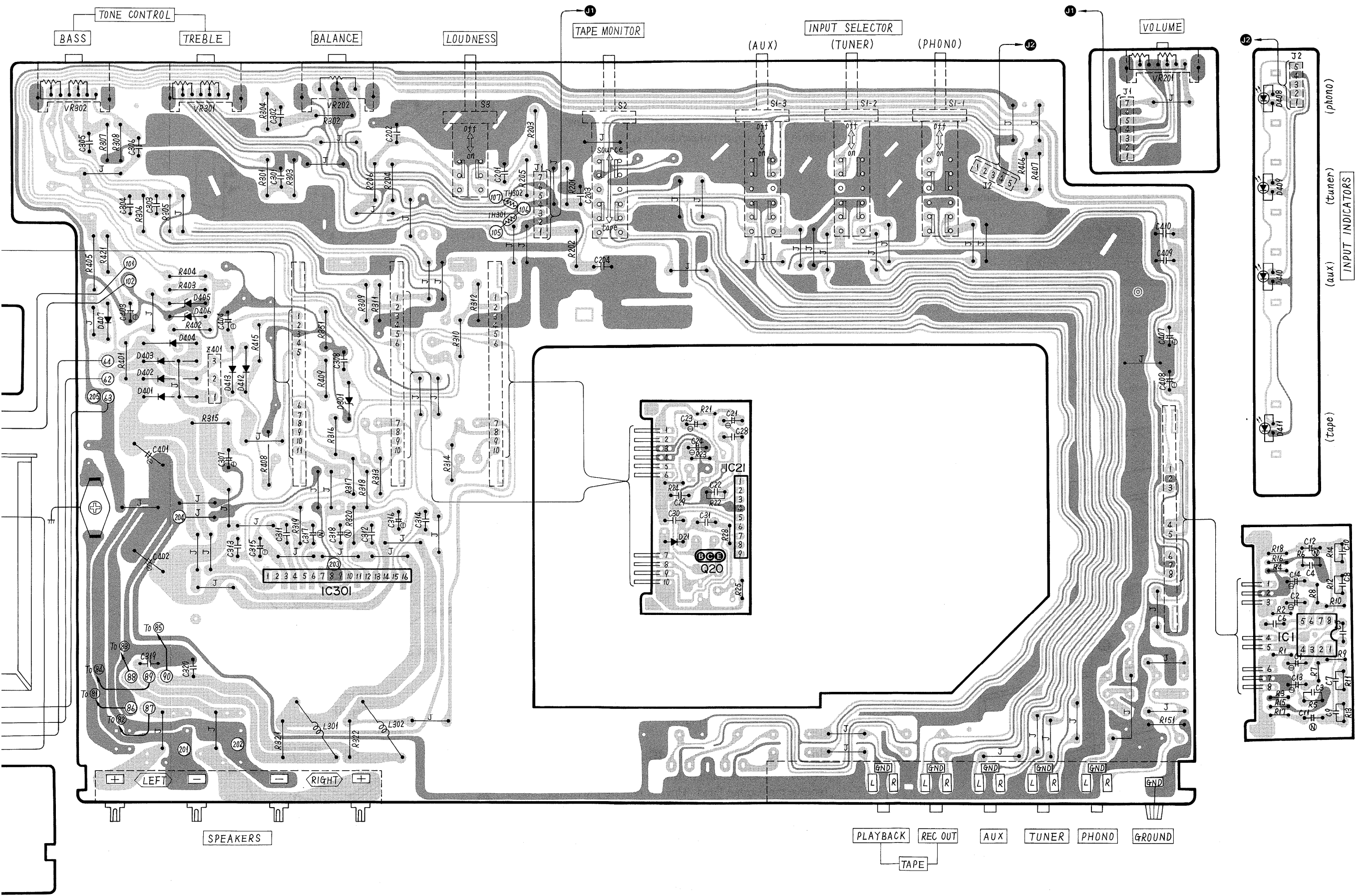
CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM

Ground (Earth) circuit





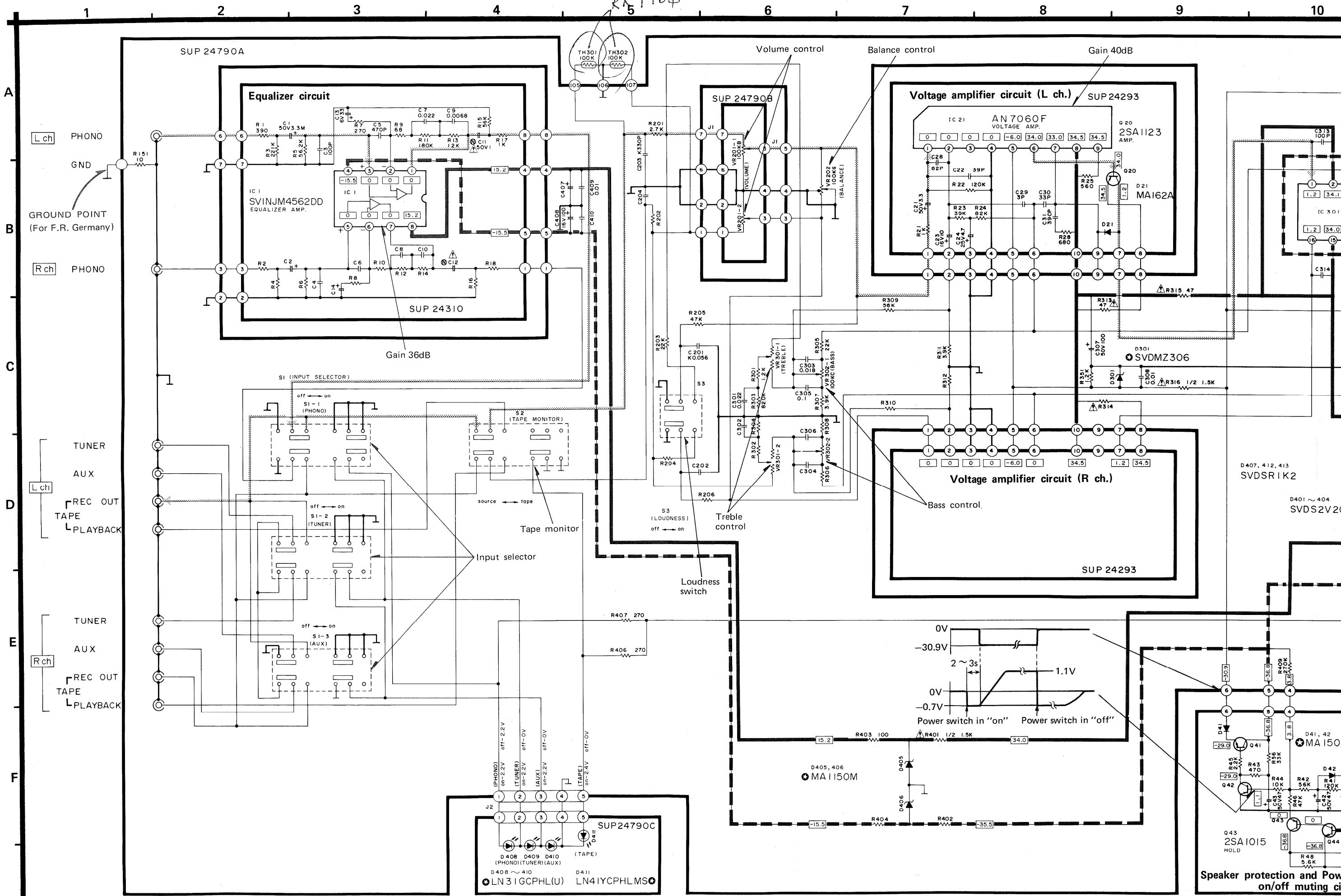
Ground (Earth) circuit

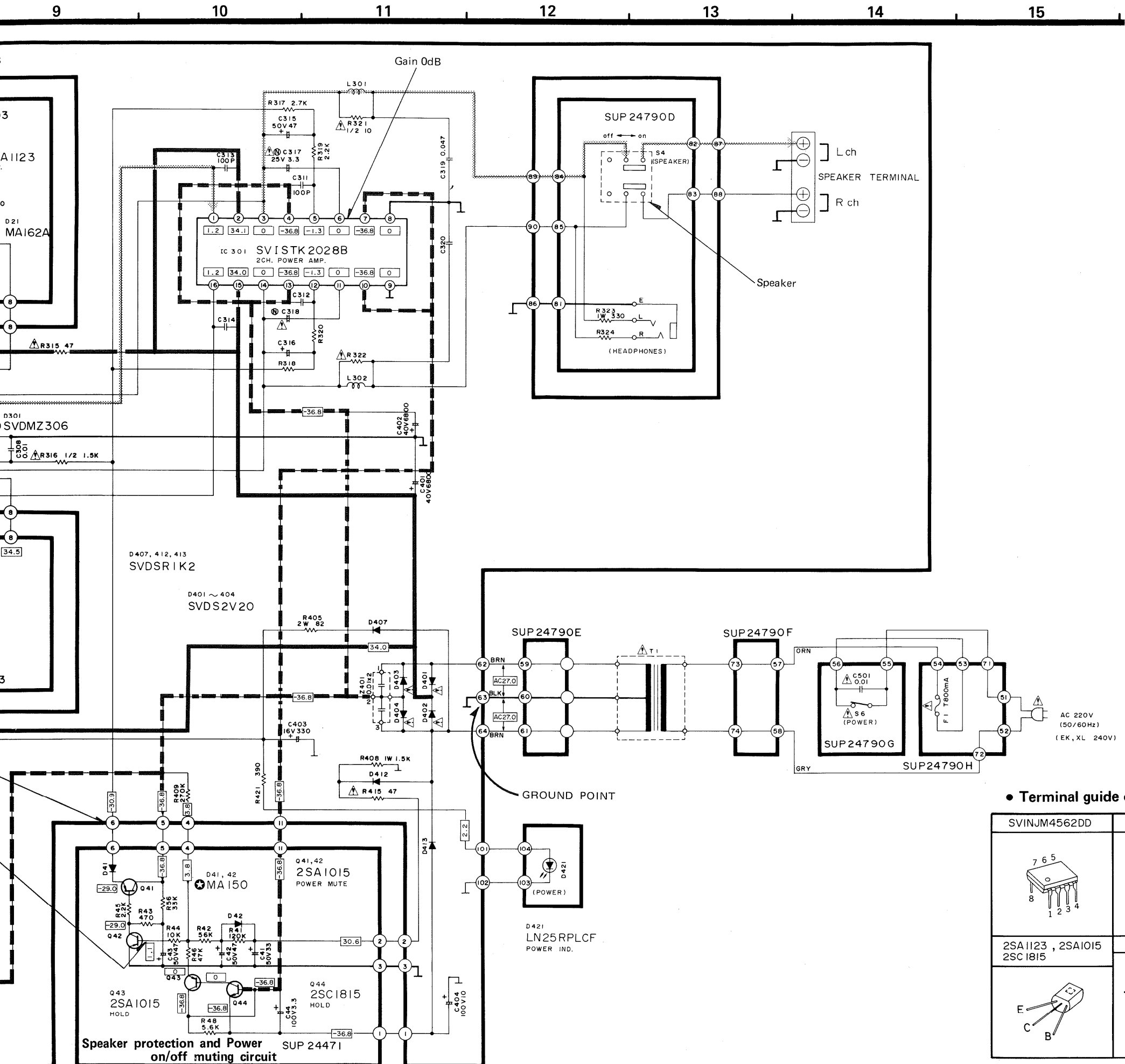


SPEAKERS

PLAYBACK REC OUT AUX TUNER PHONO GROUND

TAPE





**SCHEMATIC DIAGRAM**

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

\* The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. without  $\odot$  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.

**Notes:**

- 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 [EG], [EF], [XL] and [XA], refer to the separate service manual (Order No. SD82032140C8-A).
- S1-1 ~ S1-3:** Input selector switch in "phono" position.
  - [ S1-1: phono
  - [ S1-2: tuner
  - [ S1-3: aux
- S2:** Tape-monitor selector switch in "source" position.
  - source  $\leftrightarrow$  tape
- S3:** Loudness switch in "off" position.
  - on  $\leftrightarrow$  off
- S4:** Speaker switch in "on" position.
  - on  $\leftrightarrow$  off
- S6:** Power switch in "on" position.
- S7:** Voltage selector switch in "240V" position.
  - (Product for South East Asia, Oceania, Africa, Middle Near East and Central South America [XA])
  - 120V  $\leftrightarrow$  110V  $\leftrightarrow$  220V  $\leftrightarrow$  240V
- Same circuit is used for both L and R channels. For the resistance and capacity of R channel (lower of circuit diagram), refer to L channel. For the voltage value, refer to R channel.
- Indicated voltage values are the standard values for 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.
- Phono signal lines of left channel
- Positive (+B) voltage lines.
- Negative (-B) voltage lines.
- Important safety notice:
  - Component identified by  $\Delta$  mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- Description of "GROUND POINT"**
  - The GND terminal of the rear panel and the chassis can serve as ground (earth) for signals. However, for direct current, they may sometimes fail to work as ground to check the DC voltage because they are connected to the ground line through 10 $\Omega$  resistor - except for F.R. Germany [EG]. For DC voltage check, the "GROUND POINT" shown in "Printed circuit board" must be used.

**Terminal guide of transistors, IC's and diodes**

SVINJM4562DD	AN7060F	SVISTK2028B	SVDMZ306	SVD2V20, SVDSRIK2	LN31GCPHL LN41YCPHL
2SA1123, 2SA1015 2SC1815	MA162A	MA150	MA1150M	LN25PR	
	Black mark 		Mark 		



**REPLACEMENT PARTS LIST**

- Notes:**
- Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
  - Important safety notice: Componentys identified by  $\Delta$  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.
  - $\square$  - marked parts are used for black only, whole  $\circ$  - marked parts are for silver type only.
  - Parts other than  $\square$  - and  $\circ$  - marked are used for both black and silver types.

- Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
- The encircled numbers in the column of description stand for the quantity per set.

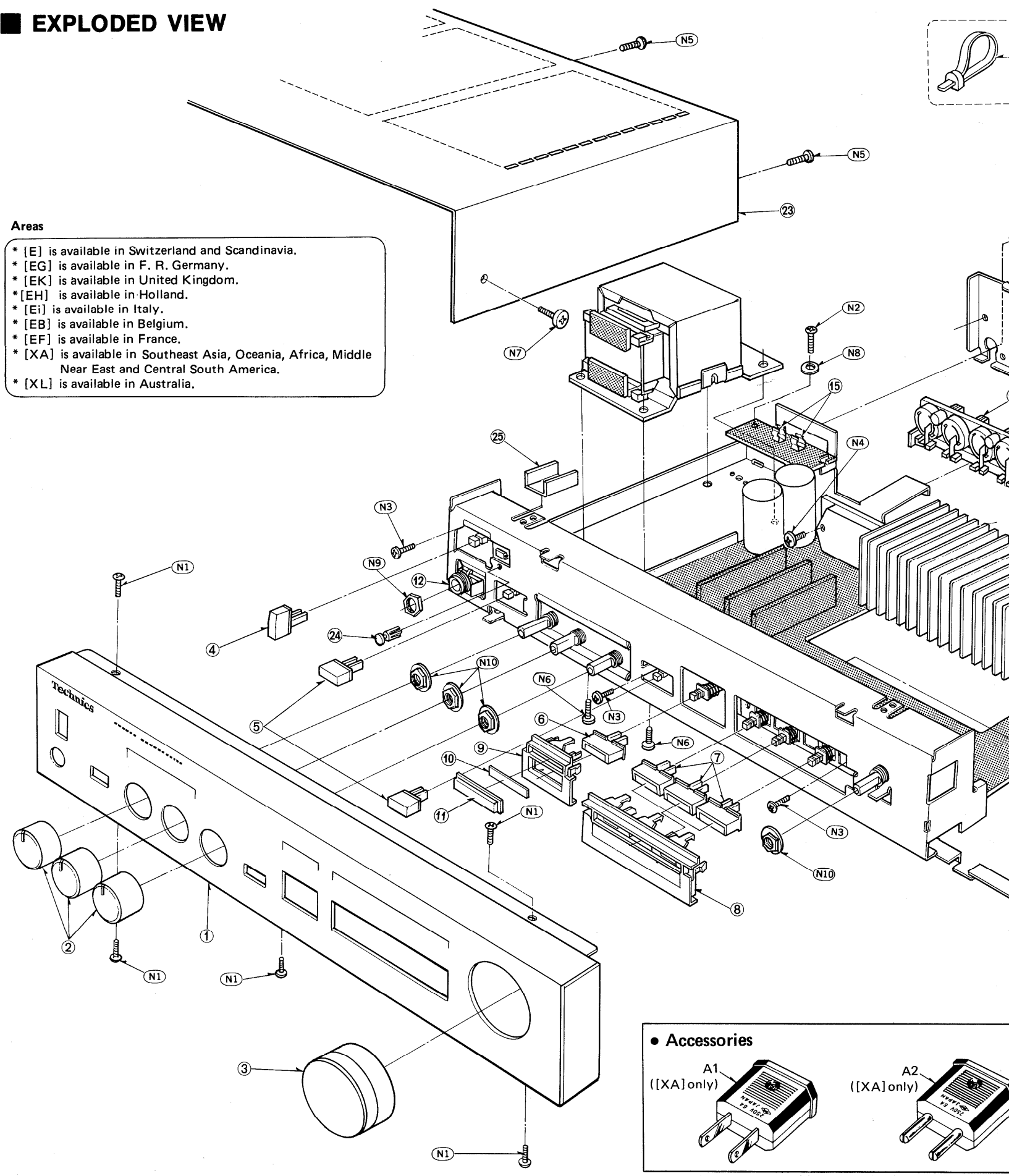
Black type model No. : SU-Z25 (K)

Ref. No.	Part No.	Description
<b>INTEGRATED CIRCUITS</b>		
IC1	SVINJM4562DD	Equalizer Amplifier
IC21	AN7060F	Differential Amplifier
IC301	SVISTK2028B	Power Amplifier
<b>TRANSISTORS</b>		
Q20(X2)	S 2SA1123-R	Pre Drive
Q41, 42, 43	S 2SA1015-Y	Regulator
Q44	S 2SC1815-Y	Muting
<b>DIODES</b>		
D21(X2)	S MA162A	Switching
D41, 42	S MA162A	Switching
D405, 406	S MA1150A	15V. Zener
D301	S RVDEQA0106S	6V. Zener
D401, 402, 403	$\Delta$ SVDS2V20	Rectifier
404		
D408, 409, 410	LN31GCPHL	L.E.D.(Input Selector Ind.)
D411	LN41YCPHL	L.E.D.(Tape Monitor Ind.)
D412, 413, 407	SVDSR1K2	Rectifier
D421	S LN25RP	L.E.D.(Power Ind.)
<b>COILES</b>		
L301, 302	SLQY15G-30	Choke
L303, 304(EG)only	SLQY07G-30	Choke
L101, 102, 103	ELQS181KB	Choke
104	[EG] only	
<b>TRANSFORMERS</b>		
T1 (EK, XL)	$\Delta$ SLT5M215-W	Power Transformer
T1 (XA)	$\Delta$ SLT5M217-W	Power Transformer
T1 (Other Areas)	$\Delta$ SLT5M213-W	Power Transformer
<b>COMPONENT COMBINATION</b>		
Z401	SXRFS203ZSM	Component Combination, 0.01 $\mu$ F $\times$ 2
<b>FUSE</b>		
F1	$\Delta$ XBA2C08TRO	250V, 800mA
<b>VARIABLE RESISTORS</b>		
VR201	EWCSXA020B15	Volume Control, 100k $\Omega$ (B)
VR202	EWHFNAF20G15	Balance Control, 100k $\Omega$ (G)
VR301	EWCS5AF20012	Treble Control, 100k $\Omega$ (C)
VR302	EWCSWAF20C15	Bass Control, 100k $\Omega$ (C)
<b>SWITCHES</b>		
S1	SSH3033	Input Selector
S2	SSH1045	Tape Selector
S3	SSH165	Loudness
S4	SSH104	Speakers
S6 (E, EK)	$\Delta$ ESB822S	Power
S6 (XA, EG)	$\Delta$ ESB90217S	Power
S6 (Other Areas)	$\Delta$ SSH1057	Power
S7	$\Delta$ ES37219	Voltage Adjuster

Ref. No.	Part No.	Description & Pcs
<b>CABINET and CHASSIS PARTS</b>		
1	$\circ$ SYW571	Panel, Front A'ssy (Silver) ①
1	$\square$ SYW571-1	Panel, Front A'ssy (Black) ①
2	SBN1113	Knob, Bass, Treble, Balance ③
3	SBN1125	Knob, Main ①
4	SBC337-1	Button, Power ①
5	SBC433-1	Button, Speaker, Loudness ②
6	SBC445	Button, Tape ①
7	SBC443	Button, Selector ③
8	$\circ$ SGXUZ45E	Holder (Silver) ①
8	$\square$ SGXUZ45KE	Holder (Black) ①
9	$\circ$ SGX7329	Holder (Silver) ①
9	$\square$ SGX7329-1	Holder (Black) ①
10	SDU129	Filter ①
11	SGU285	Transparent Plate ①
12	SJJ71B	Jack, Headphone ①
13	SKU9950	Bottom Board ①
14	SKL249	Foot ④
15	SJT347	Clip Fuse ②
16	SJF4433	Terminal Speaker ①
17	SJF3051-4N	Terminal Input ①
18	SMP323-1	Holder Tape ①
19	SMP321-1	Holder Selector ①
20 (XA)	SGP3150-1A	Panel, Rear ①
20 (XL)	SGP3150-2A	Panel, Rear ①
20 (E)	SGP3150A	Panel, Rear ①
20 (EK)	SGPUZ25E	Panel, Rear Ass'y ①
20 (Other Areas)	SGP3150B	Panel, Rear ①
21 (EK)	$\Delta$ QFC1205M	AC Cord ①
21 (XA)	$\Delta$ SJA111	AC Cord ①
21 (XL)	$\Delta$ QFC1207MA	AC Cord ①
21 (Other Areas)	$\Delta$ SJA88	AC Cord ①
22 (EK)	SHR129	Bushing, AC Cord ①
22 (XL)	SHR131	Bushing, AC Cord ①
22 (Other Areas)	SHR127	Bushing, AC Cord ①
23	$\circ$ SKC1050S1	Cabinet, (Silver) ①
23	$\square$ SKC1050BB1	Cabinet, (Black) ①
24	SHR401-1	Latch ①
25 (EG, XA)	SMX453	Cover ①
25 (Other Areas)	SMX609	Cover ①
26 (XA)	$\Delta$ SJS601-2	Socket ①
27	SHR301	Clamper ①

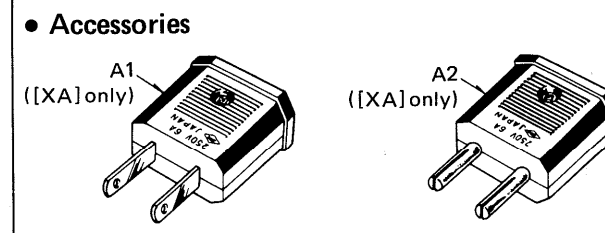
Ref. No.	Part No.	Description & Pcs
<b>SCREWS</b>		
N1	XTBS3+8BFZ1	Tapping, $\oplus$ 3 $\times$ 8 ⑩
N2	S XTB3+10B	Tapping, $\oplus$ 3 $\times$ 10 ④
N3	S XSN3+6S	$\oplus$ 3 $\times$ 6 ④
N4	S XTB3+16BFN	Tapping, $\oplus$ 3 $\times$ 16 ②
N5	$\circ$ S XTB3+8BFN	Tapping, $\oplus$ 3 $\times$ 8 ③
N5	$\square$ S XTB3+8BFZ	Tapping, $\oplus$ 3 $\times$ 8 ③
N6	S XTB4+10BFZ	Tapping, $\oplus$ 4 $\times$ 10 ④
N7	$\circ$ SNE2095-2	Cabinet ②
N7	$\square$ SNE2095-3	Cabinet ②
<b>WASHERS</b>		
N8	XWG3	Plain, $\phi$ 3 ⑤
<b>NUTS</b>		
N9	XNS12	$\phi$ 12, Head Phone ①
N10	SNE4021	Volume, Tone Control ④
<b>ACCESSORIES</b>		
A1 (XA)	$\Delta$ SJP5213-1	Plug ①
A2 (XA)	$\Delta$ SJP5215	Plug ①
A4 (E, EH, EB)	SQF11201	Instructions Book ①
A4 (EG)	SQF11203	Instructions Book ①
A4 (EK, XL)	SQF11205	Instructions Book ①
A4 (EF)	SQF11207	Instructions Book ①
A4 (XA)	SQF11209	Instructions Book ①
A4 (E)	SQF11361	Instructions Book ①
<b>PACKING PARTS</b>		
P1 (EK)	$\circ$ SPG3887	Carton Box ①
P1 (EF)	$\Delta$ SPG3889	Carton Box ①
P1 (E)	$\circ$ SPG3891	Carton Box ①
P1 (XL)	$\circ$ SPG3893	Carton Box ①
P1 (Other Areas)	SPG3885	Carton Box ①
P1 (E, EH, E)	$\square$ SPG3987	Carton Box (Black) ①
P1 (EG)	$\square$ SPG3989	Carton Box (Black) ①
P2	SPS3657	Pad, Left ①
P2 (XL) Only	SPS3657-1	Pad, Left ①
P3	SPS3659	Pad, Right ①
P3 (XL) Only	SPS3659-1	Pad, Right ①
P4	$\circ$ SPP699	Polyethylene Bag (Silver) ①
P4	$\square$ SPP649	Polyethylene Bag (Black) ①

**EXPLODED VIEW**

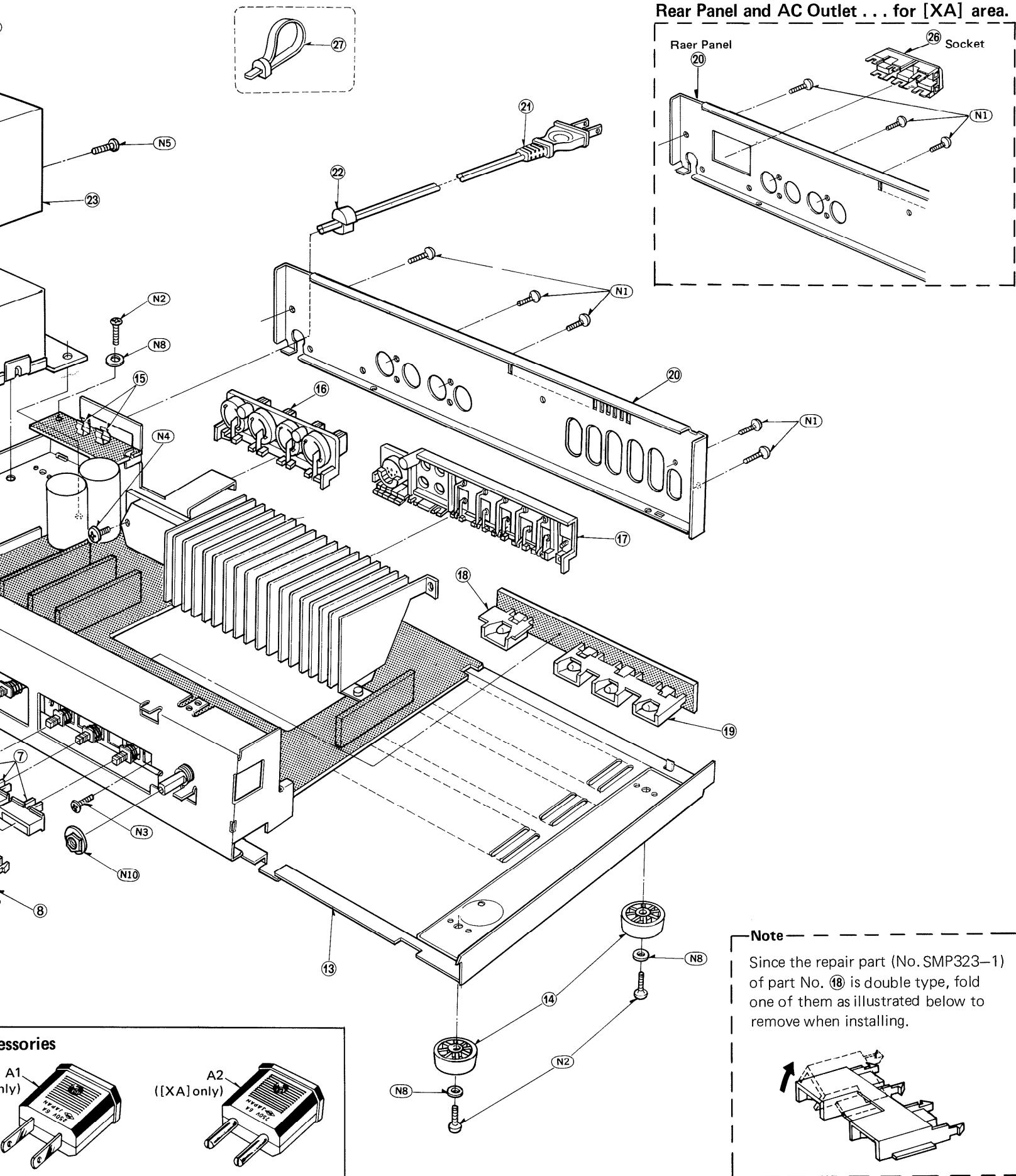


**Areas**

- \* [E] is available in Switzerland and Scandinavia.
- \* [EG] is available in F. R. Germany.
- \* [EK] is available in United Kingdom.
- \* [EH] is available in Holland.
- \* [Ei] is available in Italy.
- \* [EB] is available in Belgium.
- \* [EF] is available in France.
- \* [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
- \* [XL] is available in Australia.



TH 2022 RR T104



Rear Panel and AC Outlet . . . for [XA] area.

RESISTORS & CAPACITORS

- Notes:**
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  - Important safety notice: Components identified by  $\Delta$  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.
  - Unless otherwise specified. All resistors are in OHMS ( $\Omega$ ) K = 1000 $\Omega$ , M = 1000k $\Omega$ . All capacitors are in MICROFARADS ( $\mu$ F) P =  $\mu$  $\mu$ F

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value
ERD	Carbon	10	1/8W	G : $\pm$ 2%
ERG	Metal Oxide	25	1/4W	J : $\pm$ 5%
ERO	Metal Film	1	1W	S1 : 1/2W

ERD10TLJ□□□□ → Chip type carbon  
 ERO10MKG□□□□ → Chip type metal film

Numbering System of Capacitor

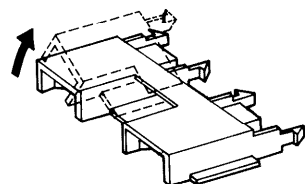
Example

ECKD	1H	103	Z	F	ECEA	50	M	R47	R
Type	Voltage	Value	Tolerance	Peculiarity	Type	Voltage	Peculiarity use	Value	Special use

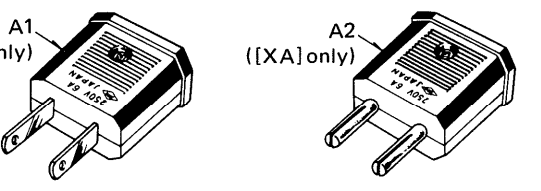
Capacitor Type	Voltage		Tolerance
	ECEA Type	Others	
ECEA : Electrolytic	1A : 10V	1H : 50V DC	C : $\pm$ 0.25pF
ECEA...N : Non Polar Electrolytic	1C : 16V	2H : 500V DC	J : $\pm$ 5%
ECCD : Ceramic	1E : 25V	MY : 125V AC	K : $\pm$ 10%
ECKD : Ceramic	1V : 35V	KC : 400VAC	M : $\pm$ 20%
ECQM : Polyester	1H : 50V	2A : 250VAC	Z : +80%, -20%
ECQE : Polyester	1J : 63V		P : +100%, -0%
ECET : Electrolytic	50 : 50V		
	25 : 25V		
	2A : 100V		

Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
<b>RESISTORS</b>			<b>R201, 202</b> S ERD25FJ272 2.7K			<b>CAPACITORS</b>			C391, 392 S ECKD1H103ZF 0.01		
R1, 2	ERD10TLJ391U	390	(Except for [EG])			C1, 2	S ECEA50M3R3R	3.3	(for [EG] only)	ECKD1H472ZF	0.0047
R3, 4	ERO10MKG2213	221K	<b>R201, 202</b> S ERD25FJ122 1.2K			C3, 4	S ECCD1H101K	100P	C393	ECKD1H472ZF	0.0047
R5, 6	ERO10MKG5622	56.2K	[EG] only			C5, 6	S ECKD1H471KB	470P	(for [EG] only)	ECKD1H333ZF	0.033
R7, 8	ERD10TLJ271U	270	<b>R203, 204</b> S ERD25TJ223 22K			C7, 8	S ECQM1H223JZ	0.022	(for [EG] only)		
R9, 10	ERD10TLJ680U	68	R205, 206 S ERD25TJ473 47K			C9, 10	S ECQM1H682JZ	0.0068			
R11, 12	ERD10TLJ184U	180K	R301, 302 S ERD25FJ122 1.2K			C11, 12	$\Delta$ ECEA1HN010S	1			
R13, 14	ERD10TLJ123U	12K	R303, 304 S ERD25TJ824 820K			C13, 14	S ECEA1CS330	33	C401, 402	ECETS40V682U	6800
R15, 16	ERD10TLJ563U	56K	R305, 306 S ERD25TJ223 22K			(C21) x 2	S ECEA50Z3R3	3.3	C403	S ECEA1CS331	330
R17, 18	ERD10TLJ102U	1K	R307, 308 S ERD25FJ392 3.9K			(C22) x 2	S ECCD1H390K	39P	C404	S ECEA2AS100	10
(R21) x 2	ERD10TLJ102U	1K	R309, 310 S ERD25TJ563 56K			(C23) x 2	S ECEA1HS100	10	C407, 408	S ECEA1ES101	100
(R22) x 2	ERD10TLJ124U	120K	R311, 312 S ERD25FJ392 3.9K			(C24) x 2	S ECEA25Z4R7	4.7	C409, 410	S ECKD1H103ZF	0.01
(R23) x 2	ERD10TLJ393U	39K	R313, 314 $\Delta$ S ERD25FJ470 47			(C26) x 2	S ECKD1H681KB	680P	C501 (Except $\Delta$ for [EG] and [XA])	ECKDKC103PF	0.01
(R24) x 2	ERD10TLJ823U	82K	R315 $\Delta$ S ERD25FJ470 47			(C28) x 2	S ECCD1H820K	82P			
(R25) x 2	ERD10TLJ561U	560	R316 $\Delta$ S ERD1FJ152 1.5K			(C29) x 2	S ECCD1H030CC	3P			
(R28) x 2	ERD10TLJ681U	680	R317, 318 S ERD25FJ272 2.7K			(C30) x 2	S ECCD1H330K	33P			
R41	ERD10TLJ124U	120K	R319, 320 S ERD25FJ222 2.2K			(C31) x 2	S ECKD1H391KB	390P			
R42	ERD10TLJ563U	56K	R321, 322 $\Delta$ ERD1FJ100 10			C41	S ECEA1JS330	33			
R43	ERD10TLJ471U	470	R323, 324 S ERG1ANJ331 330			C42, 43	S ECEA1JS470	47			
R44	ERD10TLJ103U	10K	R351 S ERD25FJ122 1.2K			C44	S ECEA2AS3R3	3.3			
R45	ERD10TLJ222U	2.2K	R401, 402 $\Delta$ ERD1FJ152 1.5K			C101, 102	S ECCD1H180KC	18P			
R46	ERD10TLJ473U	47K	R403, 404 S ERD25FJ101 100			[EG] only					
R48	ERD10TLJ562U	5.6K	R405 S ERG2ANJ820 82			C201, 202	ECQM1H563KV	0.056			
R56	ERD10TLJ333U	33K	R406, 407 S ERD25FJ271 270			C203, 204	ECKD1H331KB	330P			
R101, 102	S ERD25FJ391 390		R408 S ERG1ANJ152 1.5K			(Except for [EG])					
[EG] only			R409 S ERD25TJ274 270K			C301, 302	S ECQM1H223JZ	0.022			
R103, 104	S ERD25FJ272 2.7K		R415 $\Delta$ S ERD2FCG470 47			C303, 304	S ECQM1H183JZ	0.018			
[EG] only			R421 S ERD25FJ391 390			C305, 306	S ECQM1H104KV	0.1			
R105, 106	S ERD25FJ222 2.2K					C307	S ECEA1HS101	100			
[EG] only						C308	S ECKD1H103ZF	0.01			
R107, 108	S ERD25FJ222 2.2K					C311, 312	S ECCD1H101K	100P			
[EG] only						C313, 314	S ECCD1H101K	100P			
R109, 110	S ERD25FJ222 2.2K					C315, 316	S ECEA1HS470	47			
[EG] only						C317, 318	$\Delta$ ECEA1EN3R3S	3.3			
R151 Exsept for [EG]	S ERD25FJ100 10					C319, 320	S ECQM1H473KV	0.047			

**Note**  
 Since the repair part (No. SMP323-1) of part No. (18) is double type, fold one of them as illustrated below to remove when installing.



Accessories



# PRINTING THE ELECTRONIC DOCUMENT

The PDF of this service manual is not designed to be printed from cover to cover. The pages vary in size, and must therefore be printed in sections based on page dimensions.

## NON-SCHEMATIC PAGES

Data that does NOT INCLUDE schematic diagrams are formatted to 8.5 x 11 inches and can be printed on standard letter-size and/or A4-sized paper.

## SCHEMATIC DIAGRAMS

The schematic diagram pages are provided in two ways, full size and tiled. The full-sized schematic diagrams are formatted on paper sizes between 8.5" x 11" and 18" x 30" depending upon each individual diagram size. Those diagrams that are LARGER than 11" x 17" in full-size mode have been tiled for your convenience and can be printed on standard 11" x 17" (tabloid-size) paper, and reassembled.

### TO PRINT FULL SIZE SCHEMATIC DIAGRAMS

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If you have access to a large paper plotter or printer capable of outputting the full-sized diagrams, output as follows:

- 1) Note the page size(s) of the schematics you want to output as indicated in the middle window at the bottom of the viewing screen.
- 2) Go to the File menu and select Print Set-up. Choose the printer name and driver for your large format printer. Confirm that the printer settings are set to output the indicated page size or larger.
- 3) Close the Print Set Up screen and return to the File menu. Select "Print..." Input the page number of the schematic(s) you want to print in the print range window. Choose OK.

### TO PRINT TILED VERSION OF SCHEMATICS

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Schematic pages that are larger than 11" x 17" full-size are provided in a 11" x 17" printable tiled format near the end of the document. These can be printed to tabloid-sized paper and assembled to full-size for easy viewing.



If you have access to a printer capable of outputting the tabloid size (11" x 17") paper, then output the tiled version of the diagram as follows:

- 1) Note the page number(s) of the schematics you want to output as indicated in the middle window at the bottom of the viewing screen.
- 2) Go to the File menu and select Print Set-up. Choose the printer name and driver for your printer. Confirm that the plotter settings are set to output 11" x 17", or tabloid size paper in landscape (  ) mode.
- 3) Close the Print Set Up screen and return to the File menu. Select "Print..." Input the page number of the schematic(s) you want to print in the print range window. Choose OK.

### TO PRINT SPECIFIC SECTIONS OF A SCHEMATIC

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To print just a particular section of a PDF, rather than a full page, access the Graphics Select tool in the Acrobat Reader tool bar.

- 1) To view the Graphics Select Tool, press and HOLD the mouse button over the Text Select Tool which looks like: . This tool will expand to reveal to additional tools. Choose the Graphics Select tool by placing the cursor over the button on of the far right that looks like: .
- 2) After selecting the Graphics Select Tool, place your cursor in the document window and the cursor will change to a plus (+) symbol. Click and drag the cursor over the area you want to print. When you release the mouse button, a marquee (or dotted lined box) will be displayed outlining the area you selected.
- 3) With the marquee in place, go to the file menu and select the "Print..." option. When the print window appears, choose the option under the section called "Print Range" which says "Selected Graphic".

Select OK and the output will print only the area that you outlined with the marquee. 