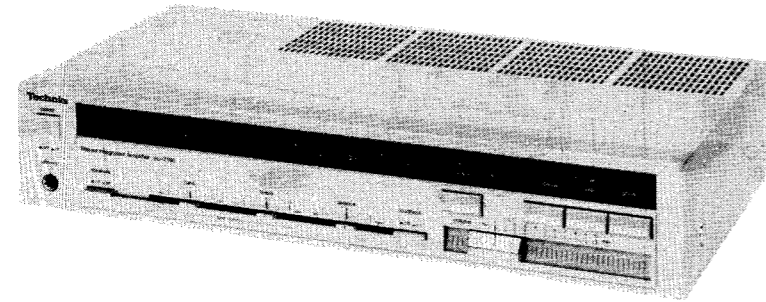


Service Manual

Stereo Integrated Amplifier Amplifier
SU-Z150



Color
(S) Silver Type
(K) Black Type

Color	Area
(K) (S) [E] Switzerland and Scandinavia
(K) (S) [EK] United Kingdom
(K) (S) [EF] France
(K) (S) [EH] Holland
(K) (S) [EB] Belgium
(K) (S) [Ei] Italy
(K) (S) [XL] Australia
(K) (S) [XA] Asia, Latin America, Africa, Middle Near East and Oceania

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	150 mV/22kΩ
TAPE/EXT	150 mV/22kΩ
PHONO maximum input voltage (1 kHz, RMS) S/N	150 mV
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 and impedance 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 for further improvement.

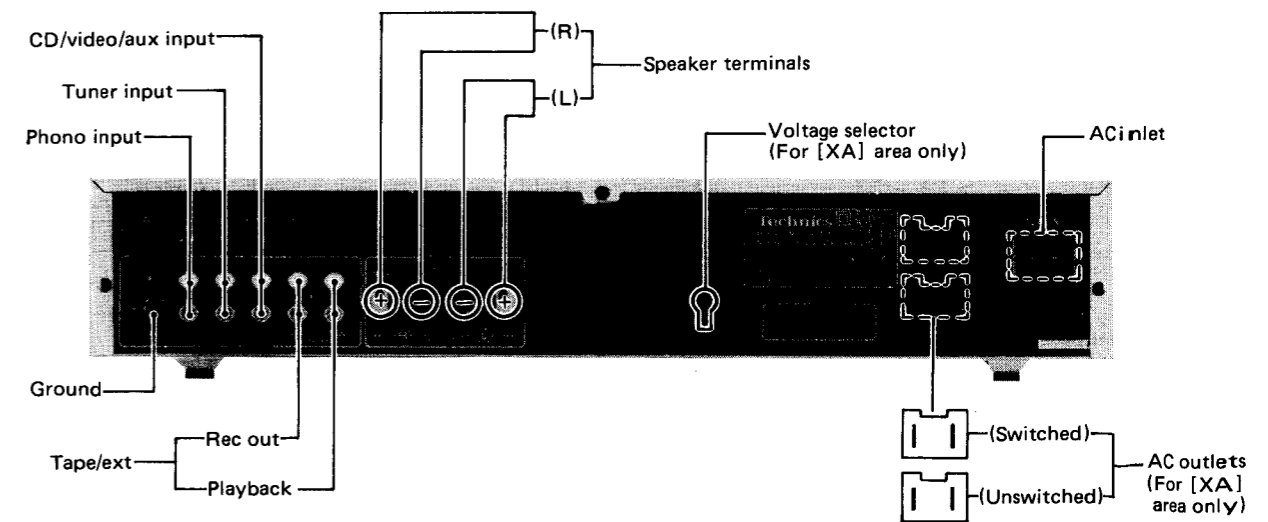
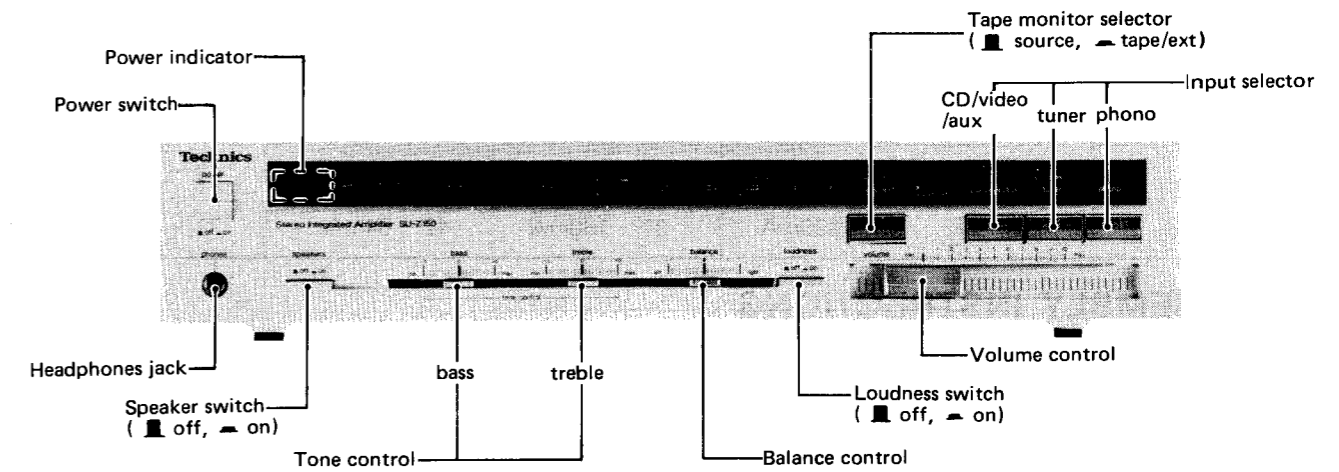
SU-Z150

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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 replacement parts list.
- * [XA] area is 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] area.
- * 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:

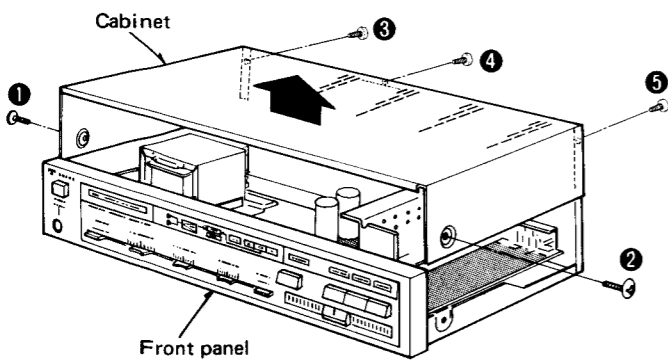
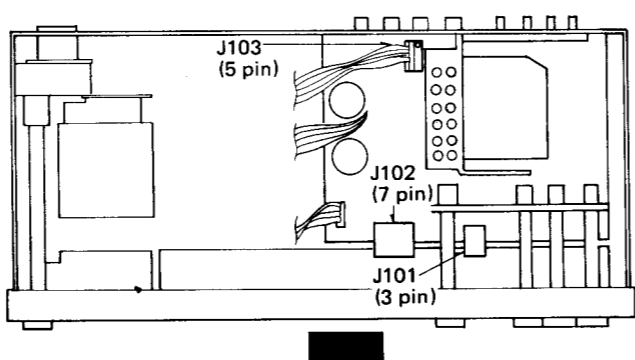

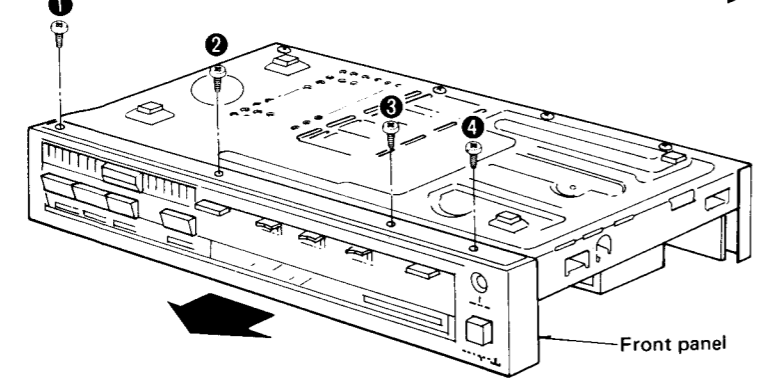
When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

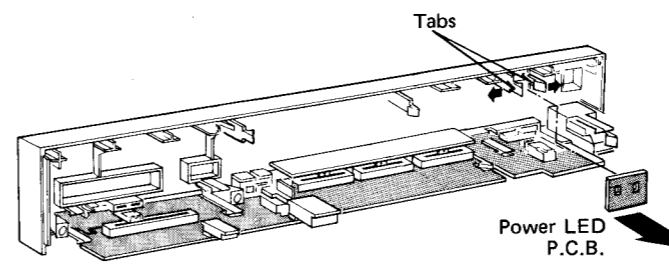
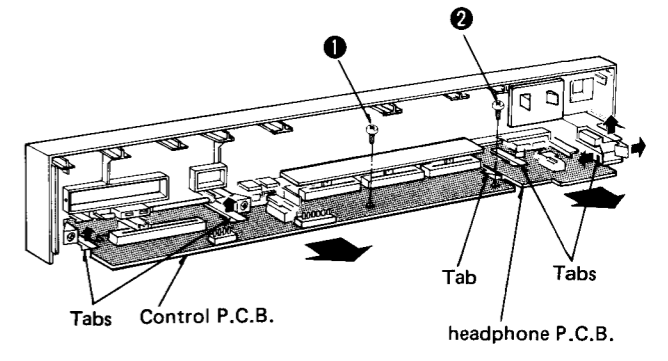
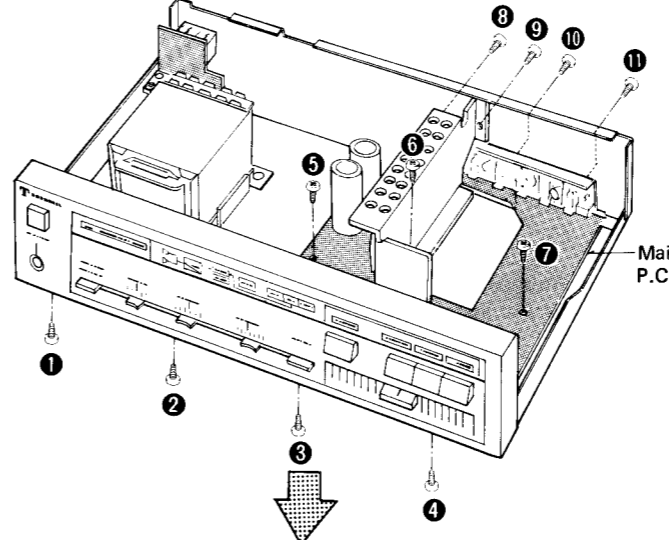
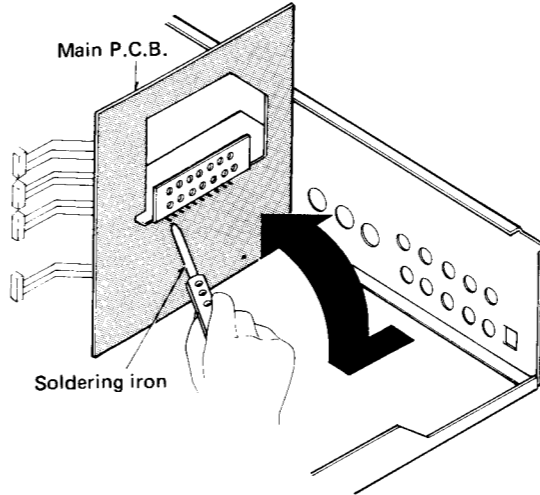
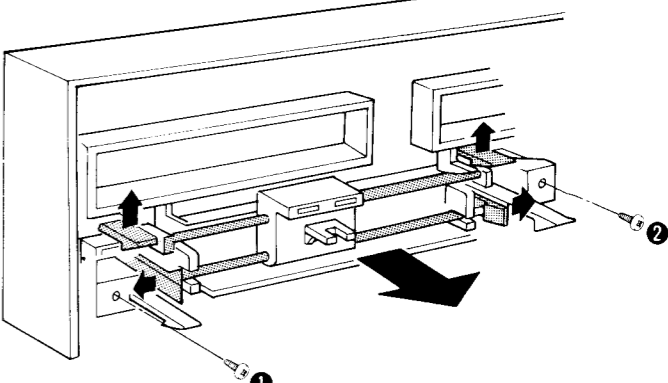
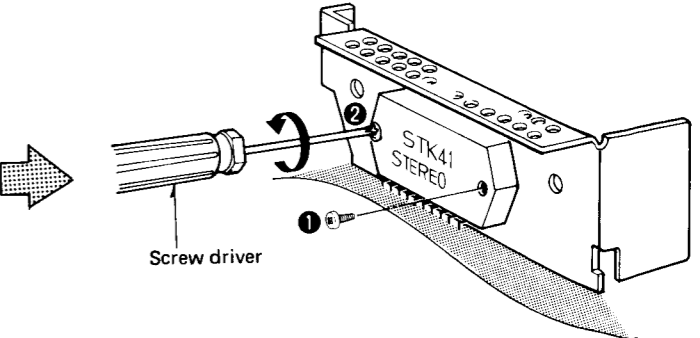
BEFORE REPAIR AND ADJUSTMENT

1. Turn off the power, Discharge both power supply capacitors (C603, C604, 3300 μ F) 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 be 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	95 ~ 190mA	80 ~ 180mA	42 ~ 84mA	38 ~ 76mA

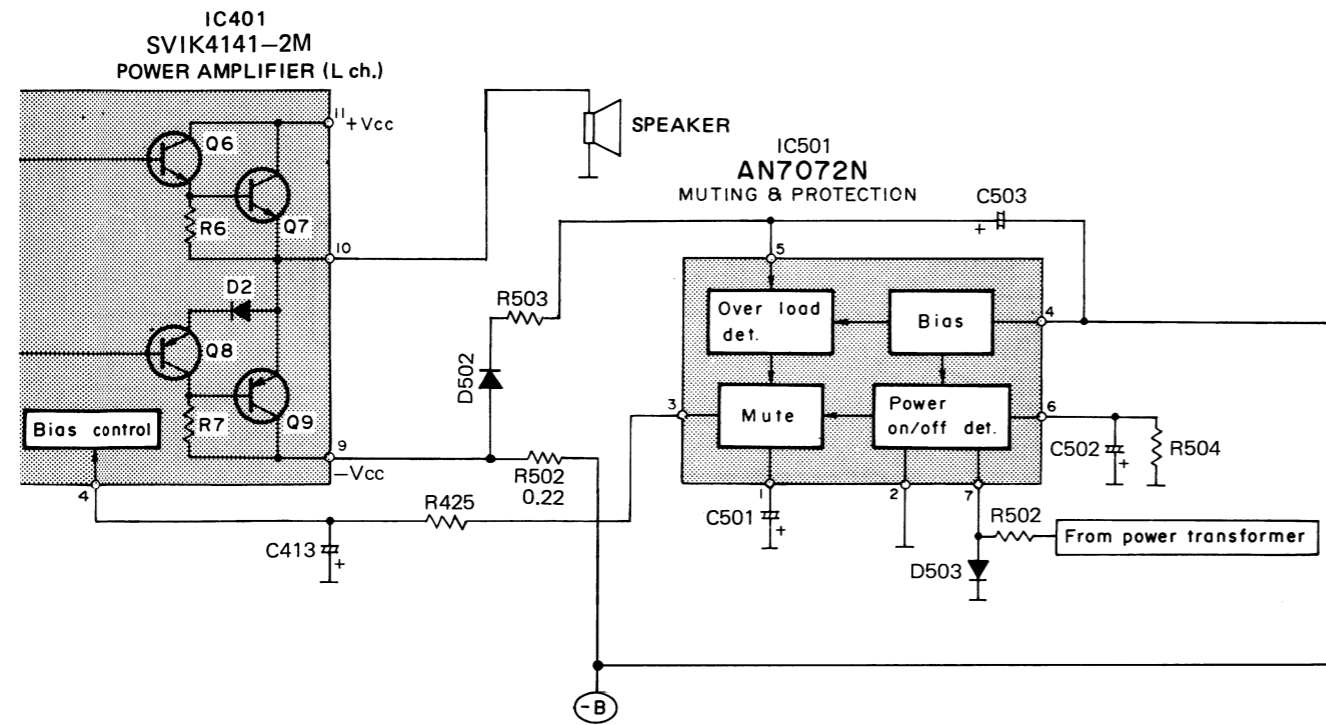
DISASSEMBLY INSTRUCTIONS

<p>Ref. No. 1</p> <p>How to remove the cabinet</p> <p>Procedure 1</p> <ul style="list-style-type: none"> • Remove the 5 screws. (① ~ ⑤) 	<p>Ref. No. 2</p> <p>How to remove the front panel</p> <p>Procedure 1 -> 2</p> <ul style="list-style-type: none"> • Remove the 3 connector (J101 ~ J103) 
	
<p>Procedure 1</p> <ul style="list-style-type: none"> • Remove the 4 screws. (① ~ ④) 	

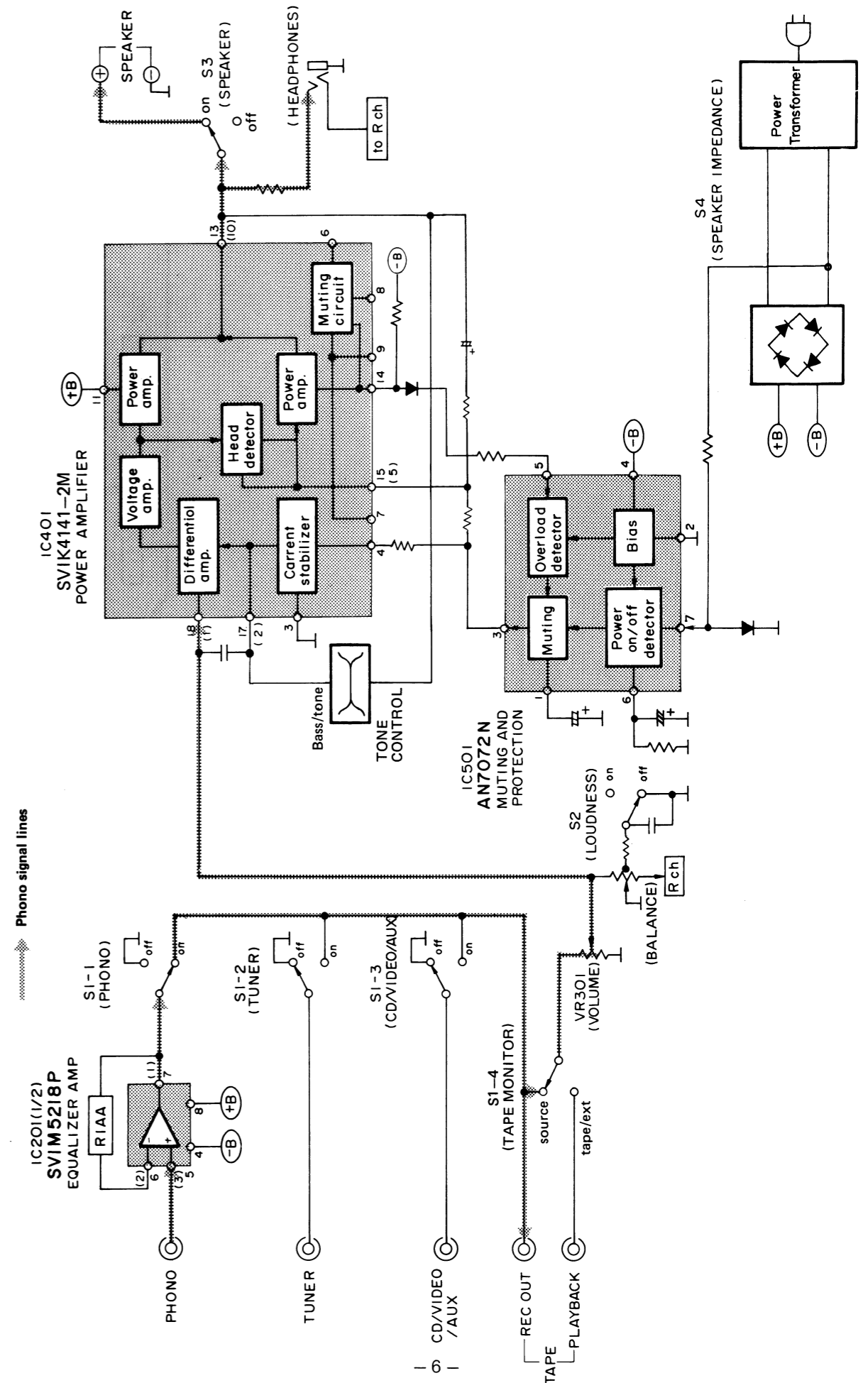
<p>Ref. No. 3</p> <p>How to remove the power LED P.C.B.</p> <p>Procedure 1 -> 2 -> 3</p> <ul style="list-style-type: none"> • Push the 2 tabs aside. 	<p>Ref. No. 4</p> <p>How to remove the control and headphone P.C.B.</p> <p>Procedure 1 -> 2 -> 4</p> <ul style="list-style-type: none"> • Remove the 2 screws. (① , ②) • Push the 3 tabs aside of control P.C.B. • Push the 4 tabs aside of headphone P.C.B. 
<p>Ref. No. 6</p> <p>How to change the power IC</p> <p>Procedure 1 -> 2 -> 6</p> <ul style="list-style-type: none"> • Remove the 11 screws. (① ~ ⑪)  <ul style="list-style-type: none"> • Unsolder the power IC. 	<p>Ref. No. 5</p> <p>How to remove the volume knob</p> <p>Procedure 1 -> 2 -> 4 -> 5</p> <ul style="list-style-type: none"> • Remove the 2 screws. (① , ②) • Push the 4 tabs aside.  <ul style="list-style-type: none"> • Remove the 2 screws. (① , ②)  <p>When mounting the power IC, apply heat-sink compound (SZZ0L15) to the rear of the power IC.</p>

OPERATIONAL DESCRIPTION OF IC501 FOR MUTING

- Muting operation with power ON.
 With power turned ON, DC voltage is applied to terminal ⑦ of IC501. Then capacitor C501 connected to terminal ① is charged, and the voltage of terminal ① gradually rises. When the voltage reaches about -4.5V (about 5 sec. after power ON), the muting circuit turns off, and then -36.6V is generated at terminal ③. The voltage of terminal ③ is supplied to the power amplifier of IC401, then operating power IC.
- Muting operation with power OFF.
 With power turned OFF, capacitor C501 connected to terminal ① is discharged, causing the voltage of C501 to drop, and then the muting circuit in IC turns ON. With the muting circuit turned ON, the voltage of terminal ③ becomes 0V, and then power supply to the power amplifier of IC401 is discontinued.
- Speaker terminals are short-circuited while hearing at a high output level. In this case, a large current flows to the power supply line applied to No. ⑨ terminal of IC401. Then, voltages are generated at the terminals of R502, and when the potential difference exceeds 1.5V, the voltage applied to No. ⑤ pin of IC501 drops, causing No. ③ pin of IC501 to turn ON. So, stop the operation of power amplifier to cut off the output.
 (Note: When the output level is low, short-circuiting the output does not cause operation.)

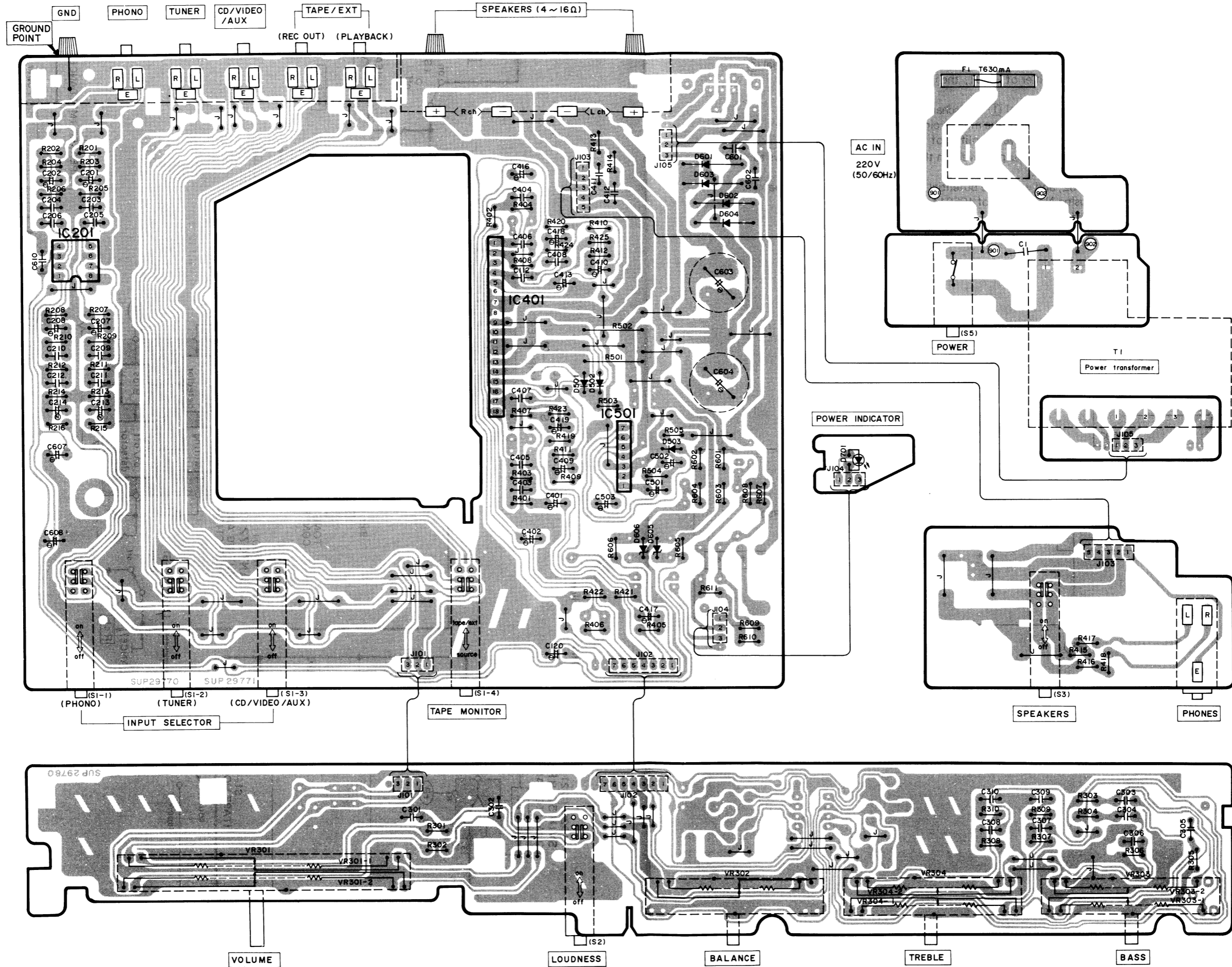


BLOCK DIAGRAM

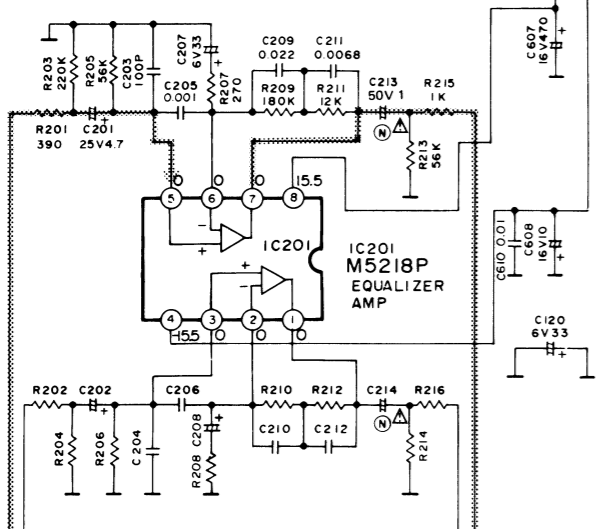


SU-Z150

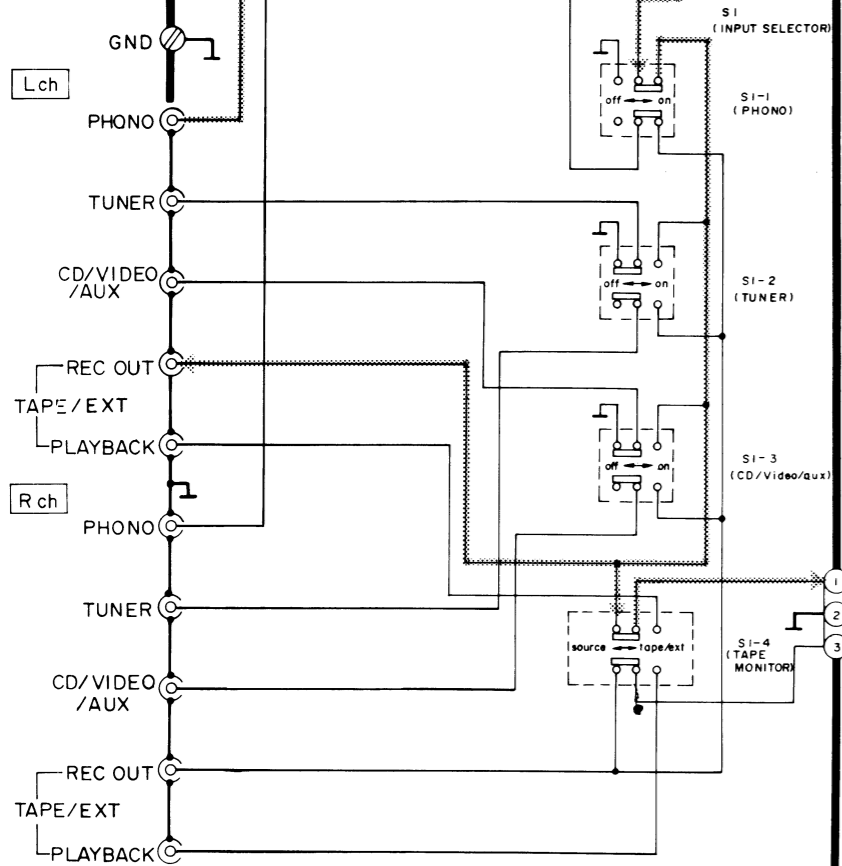
PRINTED CIRCUIT BOARDS



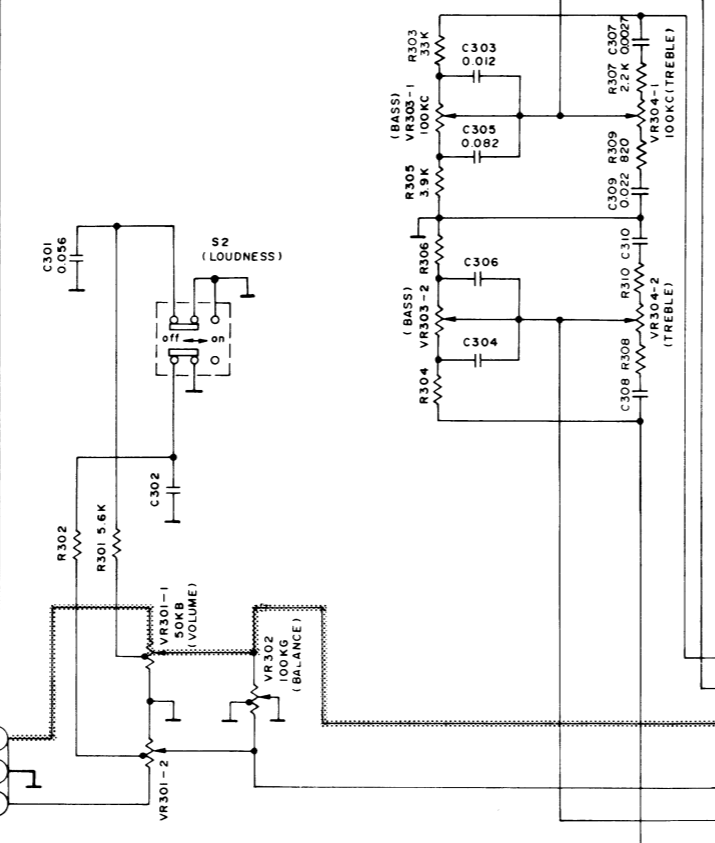
PHONO EQUALIZER



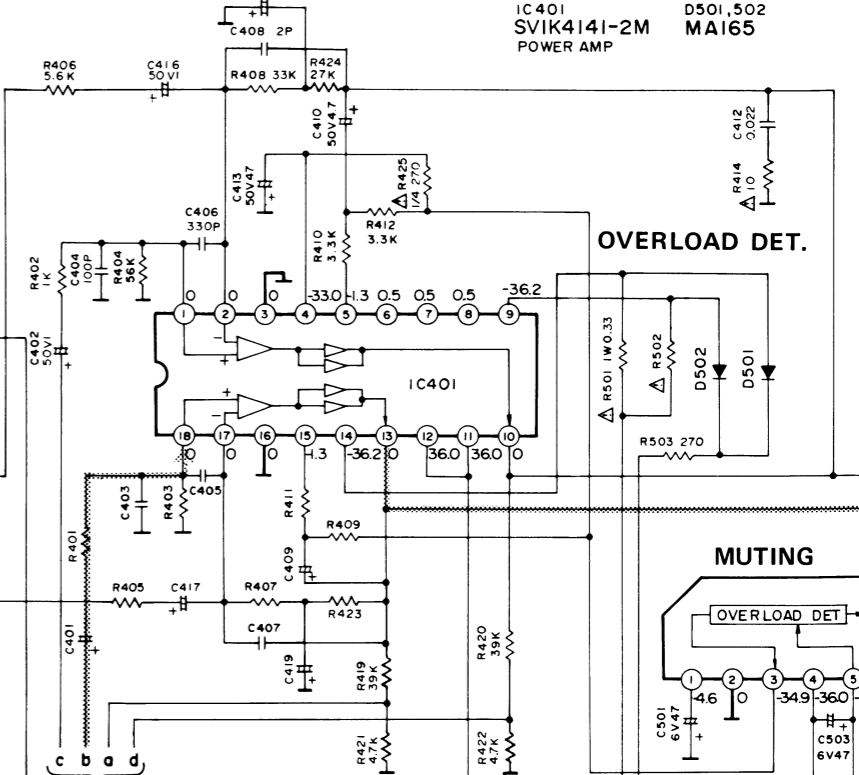
INPUT SELECTOR



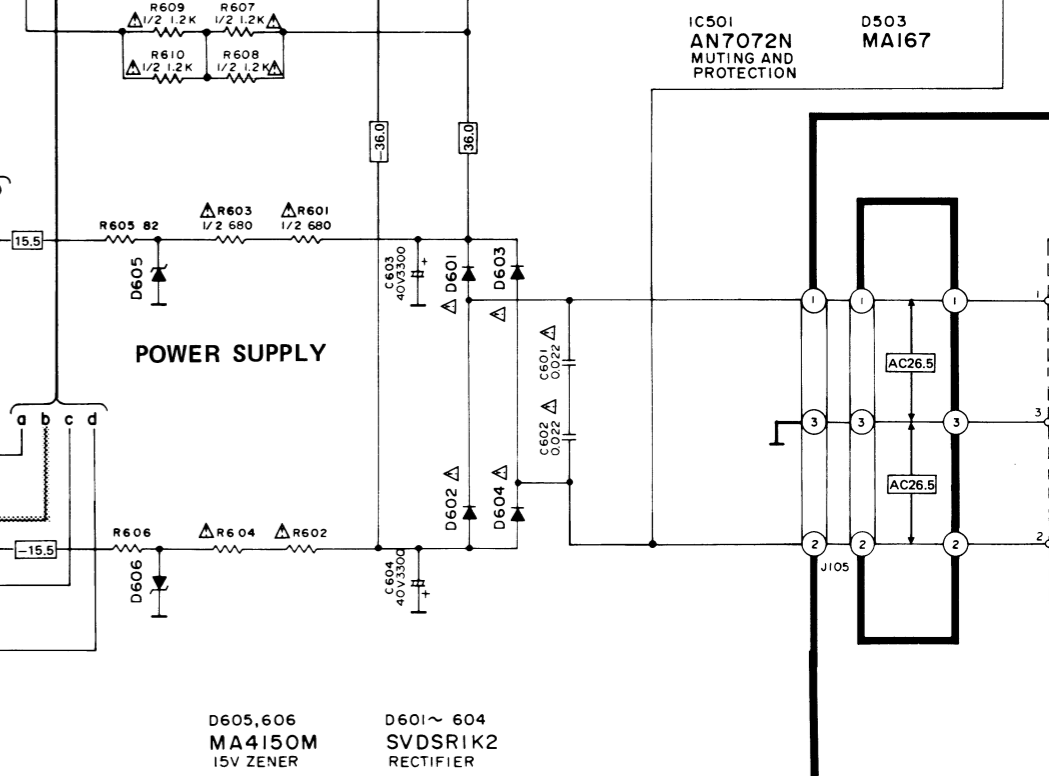
TONE CONTROL



POWER AMPLIFIER



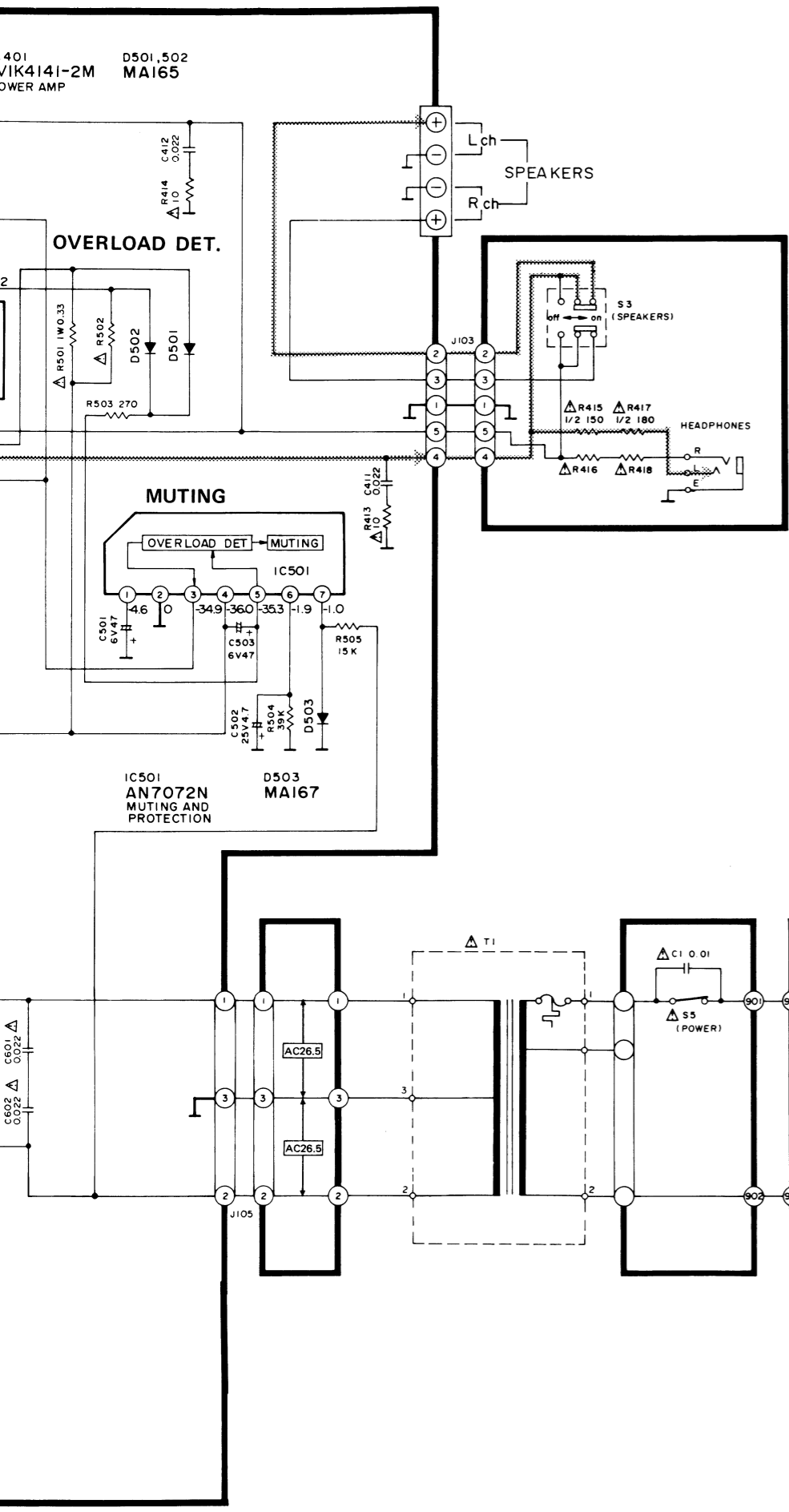
POWER SUPPLY



10 11 12

SCHEMATIC DIAGRAM

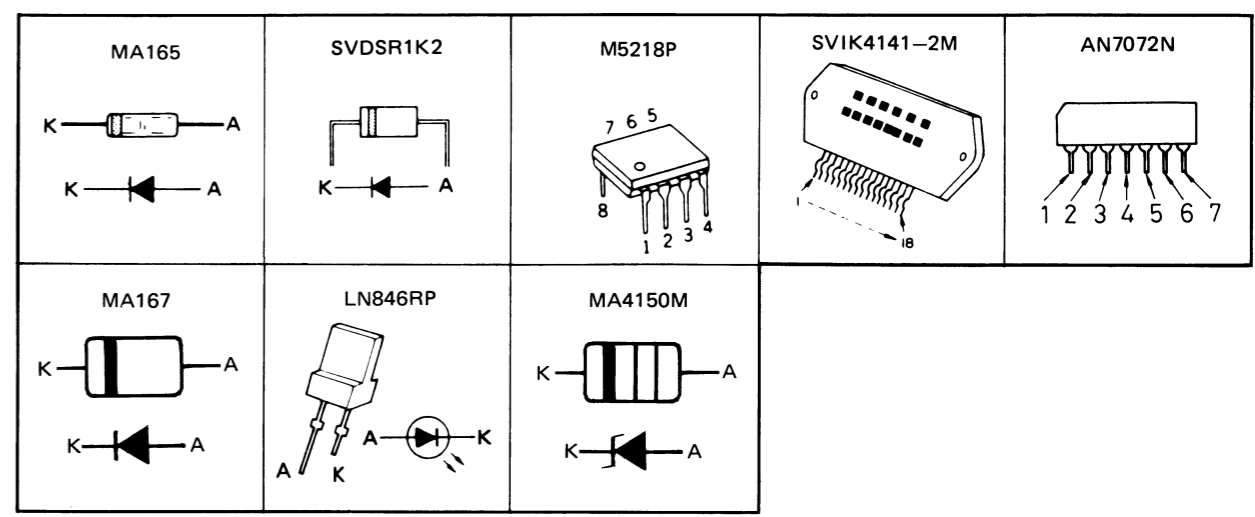
(This schematic diagram may be modified at any time with the development of new technology.)



- Notes:**
- S1-1 ~ S1-3** : Input selector switch in "Phono" position. Phono ↔ tuner ↔ CD/video/aux
 - S1-4** : Tape monitor switch in "source" position. (source, tape/ext)
 - S2** : Loudness switch in "off" position.
 - S3** : Speaker switch in "on" position.
 - S5** : Power switch in "on" position.
 - S7 [XA] 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.

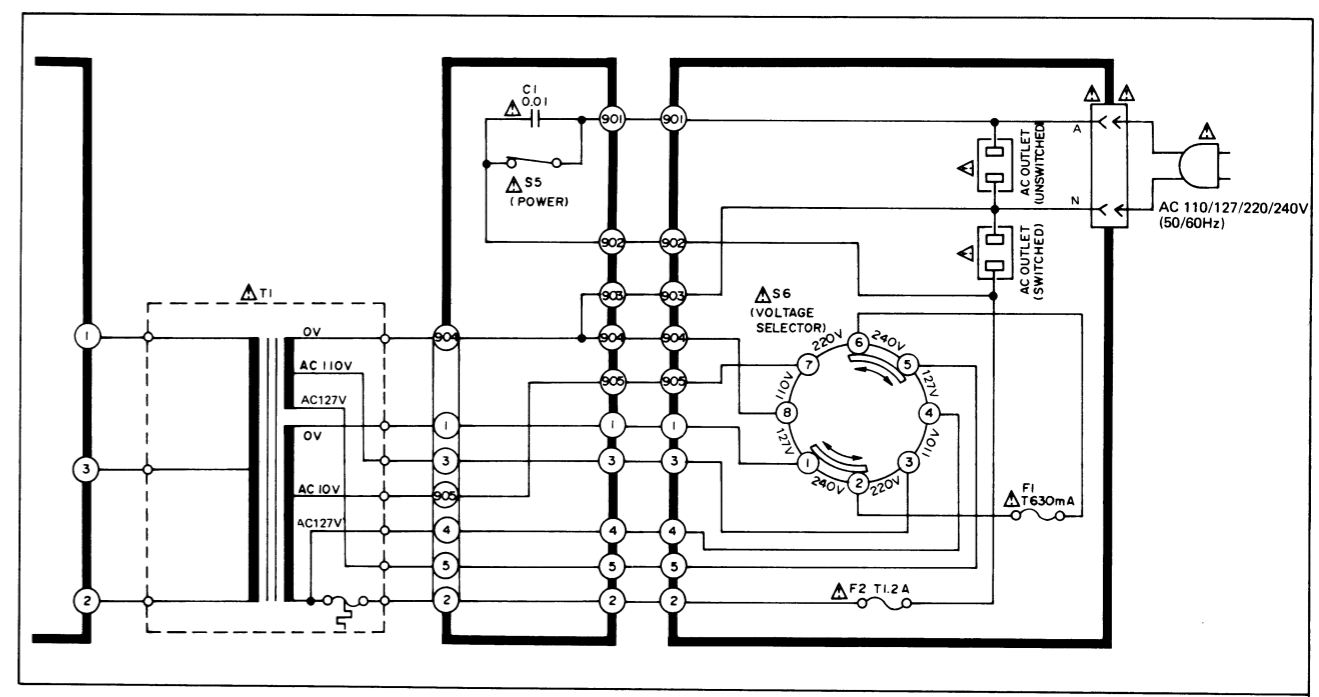
Area	Power source
Continental Europe	AC220V (50/60Hz)
United Kingdom & Australia	AC240V (50/60Hz)

TERMINAL GUIDE OF TRANSISTORS, DIODES AND IC'S



CIRCUIT TO BE CHANGED AND THE AREA

• Power source circuit for [XA] area.



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 triangle mark have special characteristics important for safety...

- The "Circled S" mark is service standard parts and may differ from production parts. 5. The unit of resistance is OHM (Ω). 6. The unit of capacitance is MICROFARAD (μF).

Table with columns: Resistor Type, Wattage, Tolerance. Rows include ERD (Carbon) and ERX (Metal film).

Table with columns: Capacitor Type, Voltage, Tolerance. Rows include ECEA (Electrolytic), ECCD (Ceramic), etc.

Numbering System of Resistor

Example resistor numbering: ERD 25 F J 101. Type, Wattage, Shape, Tolerance, Value.

Numbering System of Capacitor

Example capacitor numbering: ECKD 1H 103 Z F. Type, Voltage, Value, Tolerance, Peculiarity.

RESISTORS

Large table listing various resistor part numbers and values, organized in columns.

CAPACITORS

Large table listing various capacitor part numbers and values, organized in columns.

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 triangle mark have special characteristics important for safety...

Table of Areas: [E] Switzerland and Scandinavia, [EK] United Kingdom, [EF] France, [EH] Holland, [EB] Belgium, [Ei] Italy, [XL] Australia, [XA] Asia, Latin America, Africa, Middle Near East and Oceania.

Table listing parts for INTEGRATED CIRCUITS, DIODES, TRANSFORMERS, VARIABLE RESISTORS, and FUSES.

Table listing parts for SWITCHES and CABINET and CHASSIS PARTS (left column).

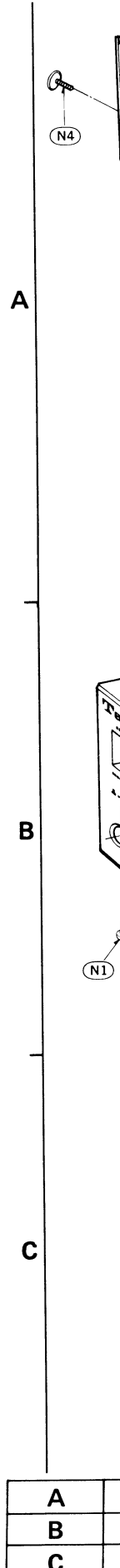
Table listing parts for CABINET and CHASSIS PARTS (right column).

Table listing parts for SCREWS.

Table listing parts for ACCESSORIES.

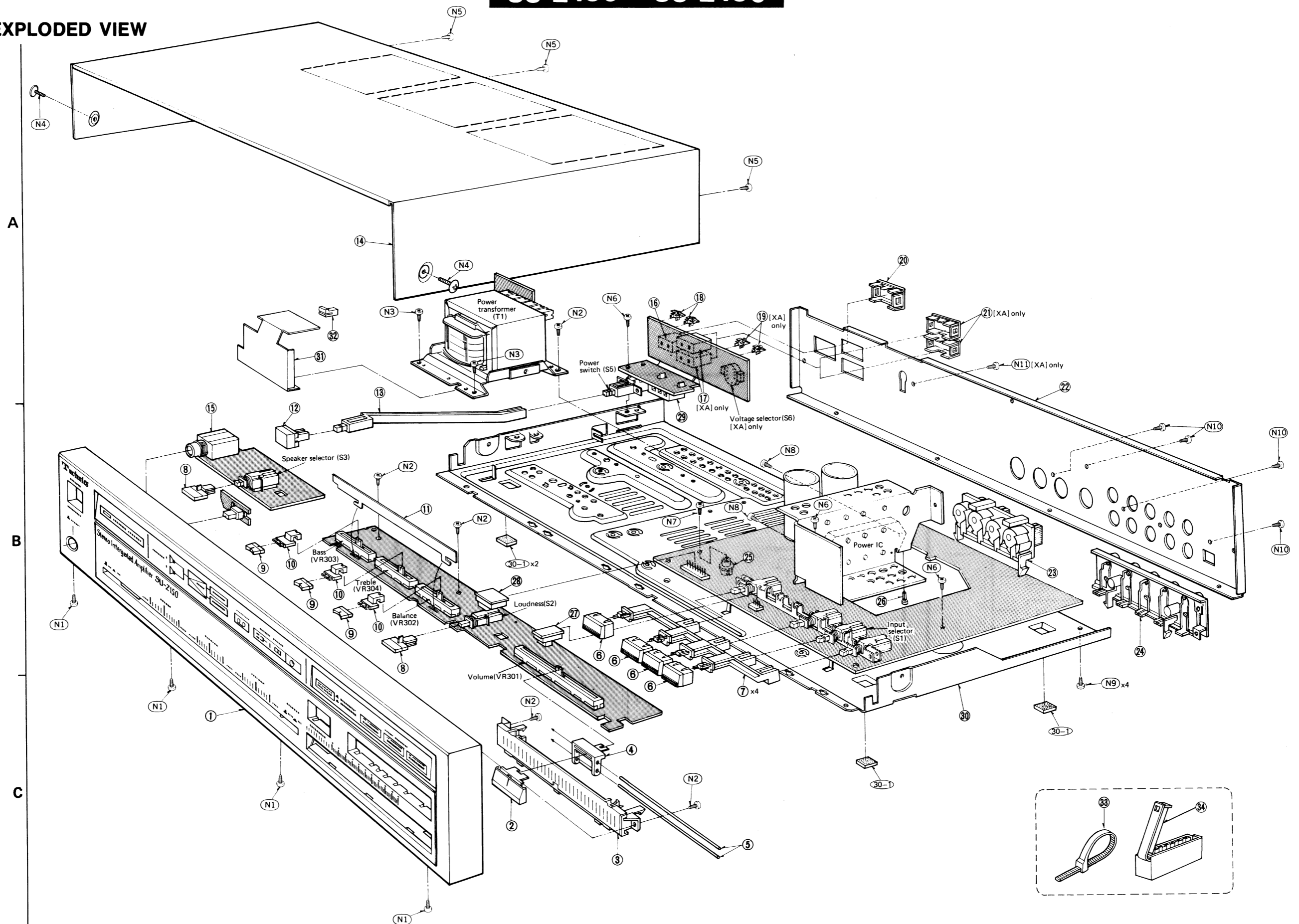
Table listing parts for PACKING PARTS.

EXPLODE



Legend table with columns A, B, C and corresponding symbols.

EXPLODED VIEW



and
a
gdom

America,
Middle Near
ceania

Description	
Capacitor, 100µF, 50V	(4)
Capacitor, 100µF, 50V	(4)
Capacitor, 100µF, 50V	(4)
Cabinet (Silver Type)	(2)
Cabinet (Black Type)	(2)
Capacitor with potentiometer, 100k	(3)
Capacitor, 100µF, 50V	(3)
Capacitor, 100µF, 50V	(1)
Capacitor, 100µF, 50V	(2)
Capacitor with potentiometer, 100k	(4)
Capacitor with potentiometer, 100k	(4)
Voltage Selector	(1)
AC Cord	(1)
AC Cord	(1)
AC Cord	(1)
AC Cord	(1)
Plug Adaptor	(1)
Instruction Book	(1)
Instruction Book	(1)
Instruction Book	(1)
Polyethylene Bag (Silver Type)	(1)
Polyethylene Bag (Black Type)	(1)
Panel, Left Side	(1)
Panel, Right Side	(1)
Panel, Upper	(1)
Carton Box	(1)
Carton Box (Silver Type)	(1)
Carton Box (Silver Type)	(1)
Carton Box (Black Type)	(1)
Carton Box (Black Type)	(1)
Label (Silver Type Only)	(2)

A				31	32	14	13			16	18	19		20		21		22																
B		8	15		9	10	12	9	10	9	10	8	11		28		27	6	6		29	17		25		26		23		24				
C			1												2		3	4	6	6			7	5			30-1		30		30-1	33		34