

# Service Manual

Stereo Integrated Amplifier

## SU-4

[EX],[EF],[EB],[EH],[Ei],  
[EW],[EK],[XA],[XL]

## SU-4(K)

[EX],[EH],[EW],  
[EK],[XA]



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- 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

- [EX] is available in Scandinavia.
- [EF] is available in France.
- [EB] is available in Belgium.
- [EH] is available in Holland.
- [Ei] is available in Italy.
- [EW] is available in Switzerland.
- [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.

## Specifications

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

### (DIN 45 500)

#### ■ AMPLIFIER SECTION

40 Hz~20 kHz continuous power output	
both channels driven	2 × 18W (8Ω)
1 kHz continuous power output	
both channels driven	2 × 20W (8Ω)
Total harmonic distortion	
rated power at 40 Hz~20 kHz	0.8% (8Ω)
rated power at 1 kHz	0.8% (8Ω)
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	10 Hz~25 kHz (8Ω)
Residual hum and noise	0.5 mV
Damping factor	27 (8Ω)
Input sensitivity and impedance	
PHONO	2.5 mV/47kΩ
TUNER, AUX/CD/VIDEO	150 mV/22kΩ
TAPE	150 mV/22kΩ
PHONO maximum input voltage (1 kHz, RMS)	150 mV
S/N	
rated power (8Ω)	
PHONO	68 dB (IHF, A: 72 dB)
TUNER, AUX/CD/VIDEO, TAPE	92 dB (IHF, A: 97 dB)
Frequency response	
PHONO	RIAA standard curve
	±0.8 dB (30 Hz~15 kHz)
TUNER, AUX/CD/VIDEO, TAPE	10 Hz~60 kHz (-3 dB)

### Tone controls

BASS	50 Hz, +10 dB~-10 dB
TREBLE	20 kHz, +10 dB~-10 dB

### Output voltage and impedance

REC OUT	150 mV
Channel balance, AUX/CD/VIDEO 250 Hz~6,300 Hz	±1.0 dB
Channel separation, AUX/CD/VIDEO 1 kHz	45 dB
Headphones output level and impedance	360 mV/330Ω
Load impedance	8Ω~16Ω

### ■ GENERAL

Power consumption	93W
Power supply	
For United Kingdom and Australia	AC 50 Hz/60 Hz, 240V
For continental Europe	AC 50 Hz/60 Hz, 220V
For others	AC 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (W×H×D)	315 × 50 × 248 mm
	(12-13/32" × 1-31/32" × 9-24/32")
Weight	3.1 kg
	(6.9 lb.)

### Note:

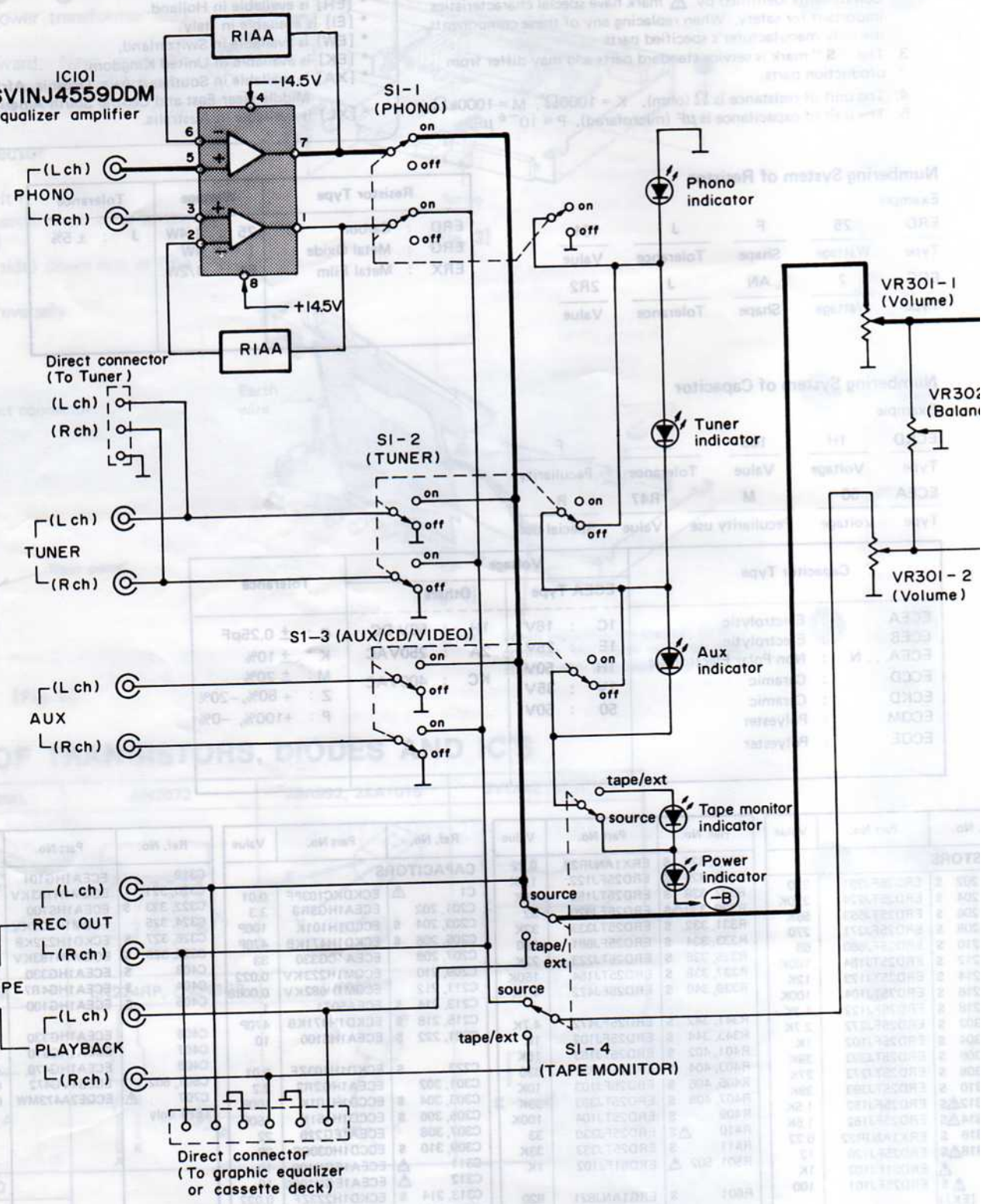
Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).

# Technics

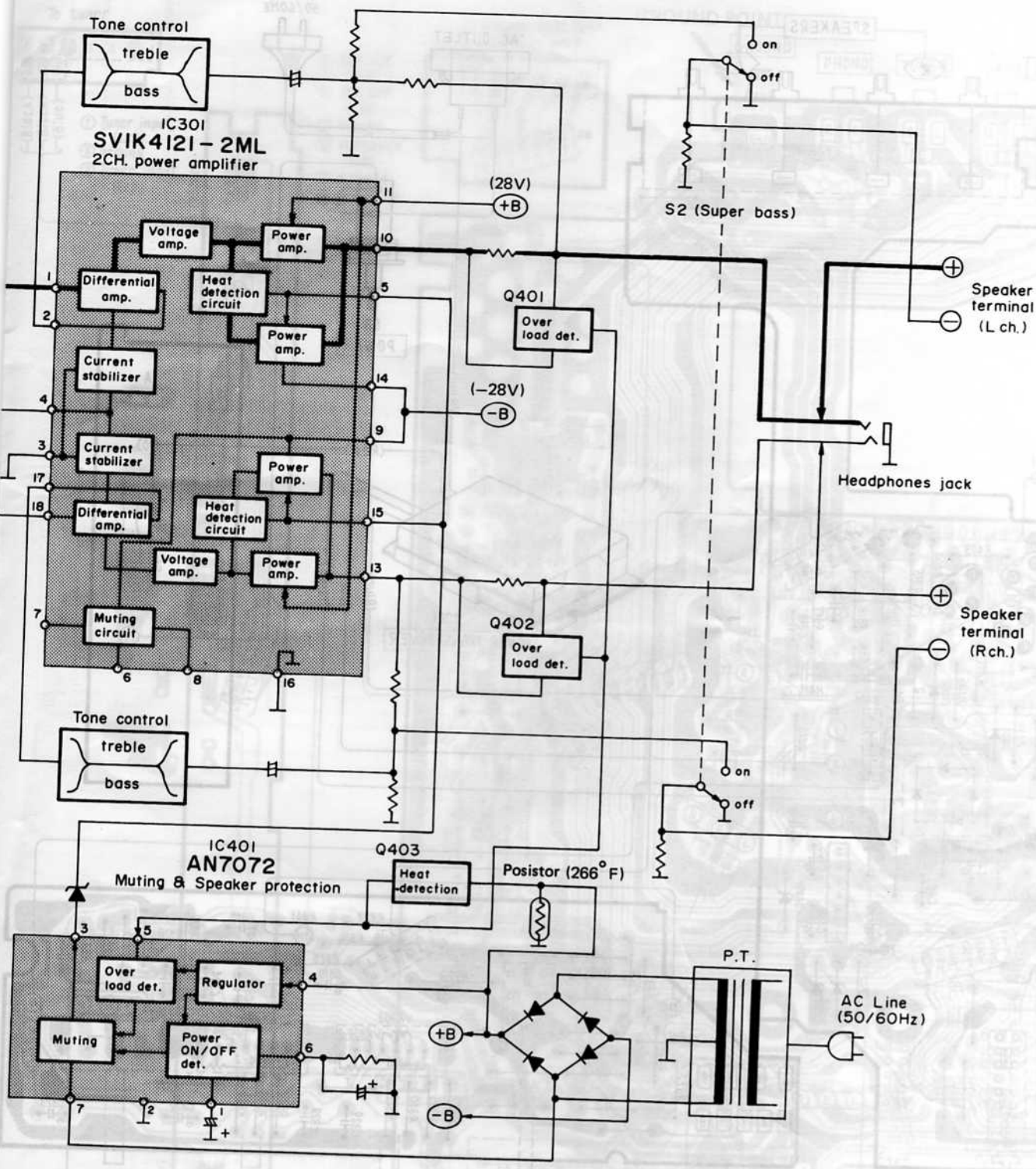
Matsushita Electric Trading Co., Ltd.  
P.O. Box 288, Central Osaka Japan

BLOCK DIAGRAM

IC101  
SVINJ4559DDM  
Equalizer amplifier



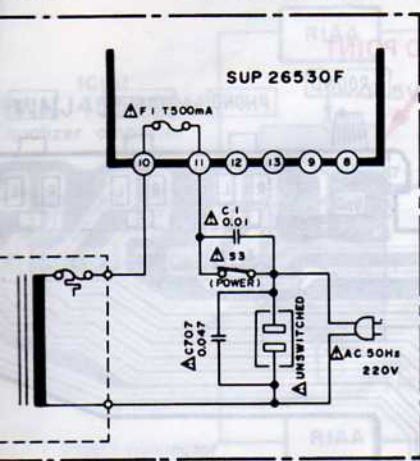
CIRCUIT BOARD AND WIRING DIAGRAM



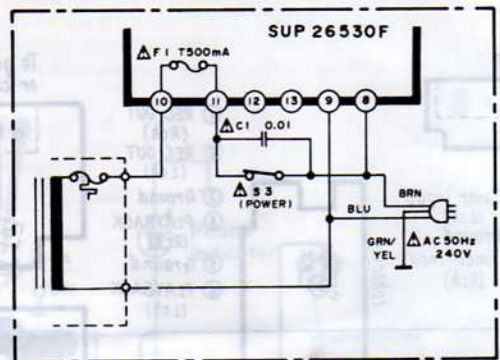
# CIRCUITS TO BE CHANGED AND THE AREAS

## Power source circuit

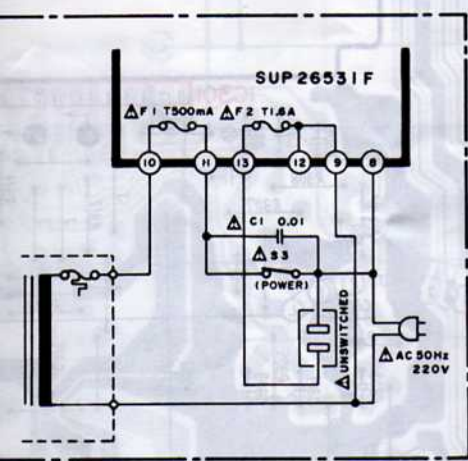
[F] area [EF] is available in France.



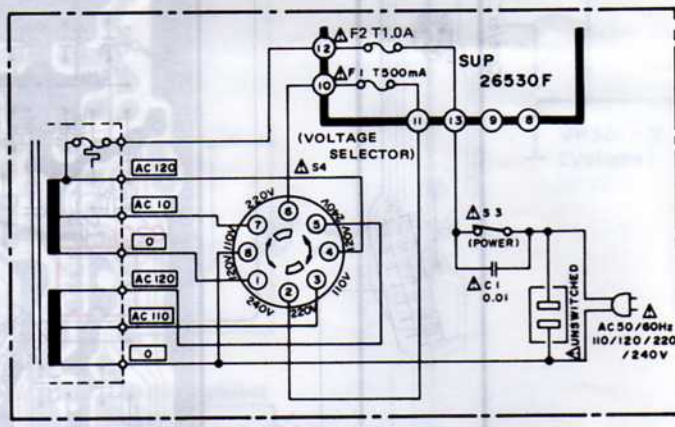
[XL] area [XL] is available in Australia.



[W] area [EW] is available in Switzerland.

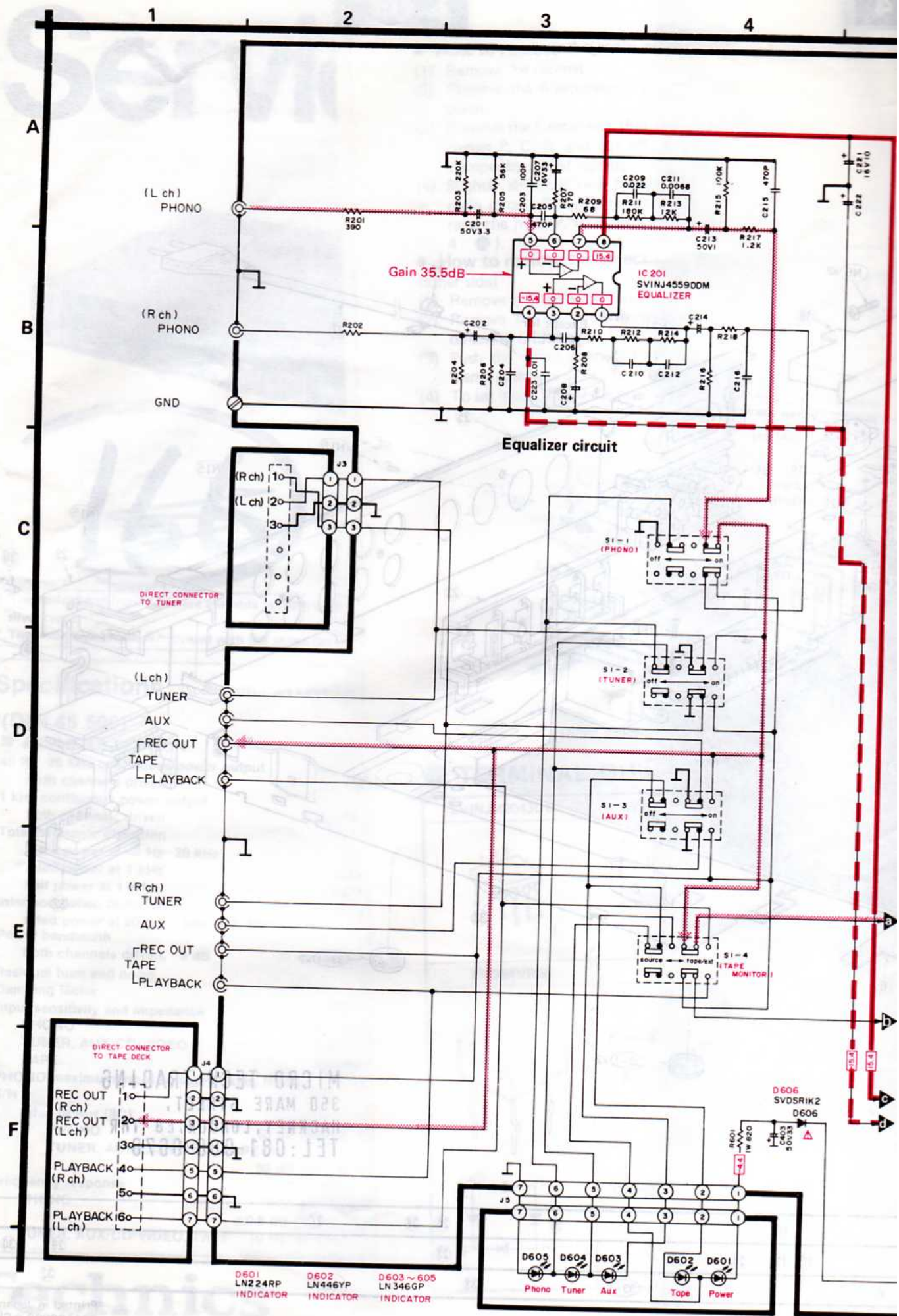


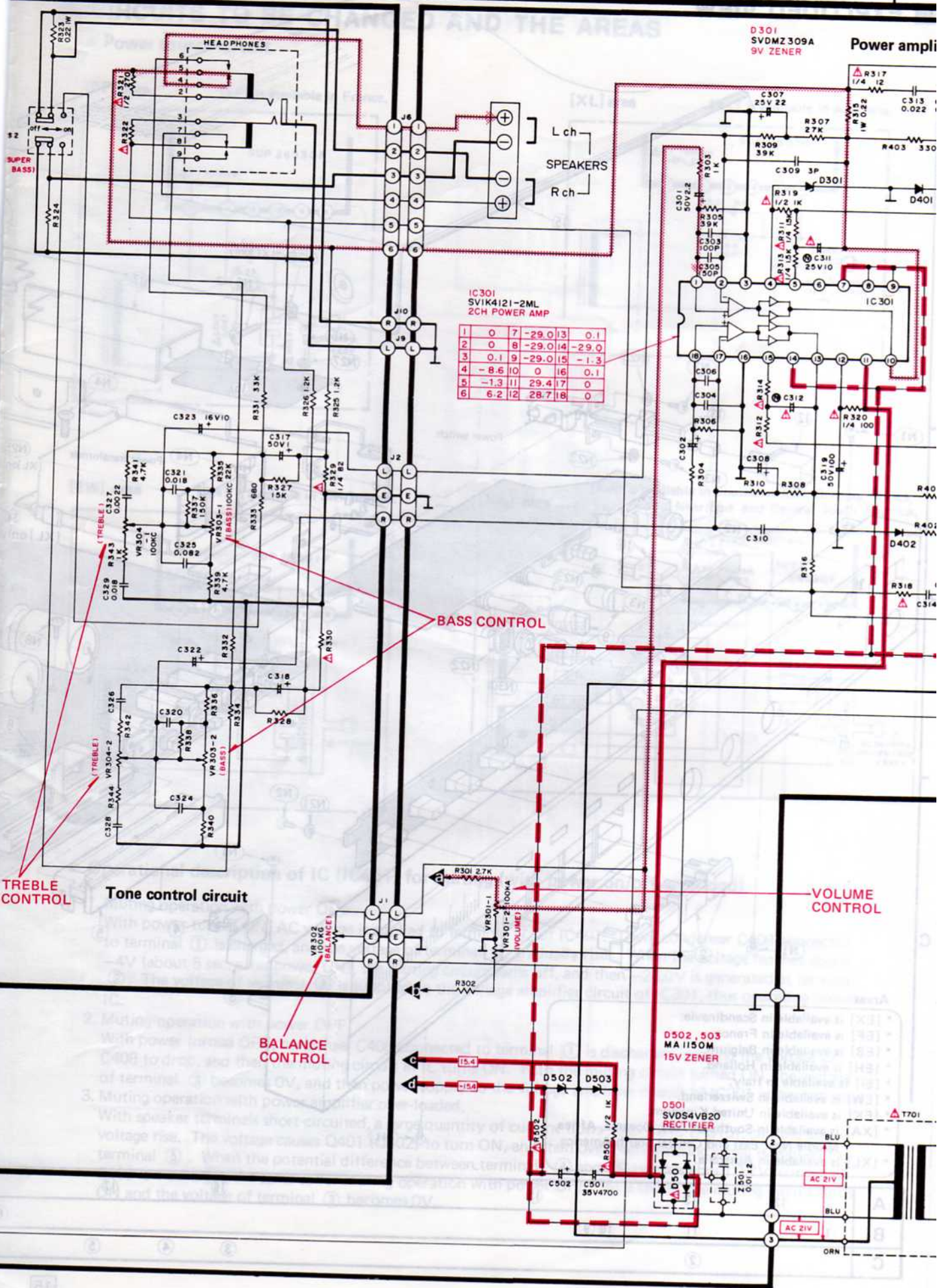
[XA] area [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.



### Operational description of IC (IC401) for muting (with power on/off, overload)

1. Muting operation with power ON.  
With power turned ON, AC voltage is applied to terminal ⑦ of IC401. Then, condenser C408 connected to terminal ① is charged, and the voltage of terminal ① gradually rises. When the voltage reaches about -4V (about 5 sec. after power ON), the muting circuit turns off, and then -26.0V is generated at terminal ③. The voltage of terminal ③ is supplied to the voltage amplifier circuit of IC301, thus operating power IC.
2. Muting operation with power OFF.  
With power turned OFF, condenser C408 connected to terminal ① is discharged, causing the voltage of C408 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 voltage amplifier circuit of IC301 is discontinued.
3. Muting operation with power amplifier over-loaded.  
With speaker terminals short-circuited, a large quantity of current flows into R315 (R316), causing the voltage rise. The voltage causes Q401 (Q402) to turn ON, and then overload detecting signal is applied to terminal ⑤. When the potential difference between terminals ④ and ⑤ reaches about 0.7V, condenser C408 is discharged the same as for muting operation with power OFF. As a result, the muting circuit turns ON and the voltage of terminal ③ becomes 0V.





IC301  
SVIK4121-2ML  
2CH POWER AMP

1	0	7	-29.0	13	0.1
2	0	8	-29.0	14	-29.0
3	0.1	9	-29.0	15	-1.3
4	-8.6	10	0	16	0.1
5	-1.3	11	29.4	17	0
6	6.2	12	28.7	18	0

D301  
SVDZM309A  
9V ZENER  
Power ampli

Tone control circuit

TREBLE CONTROL

BASS CONTROL

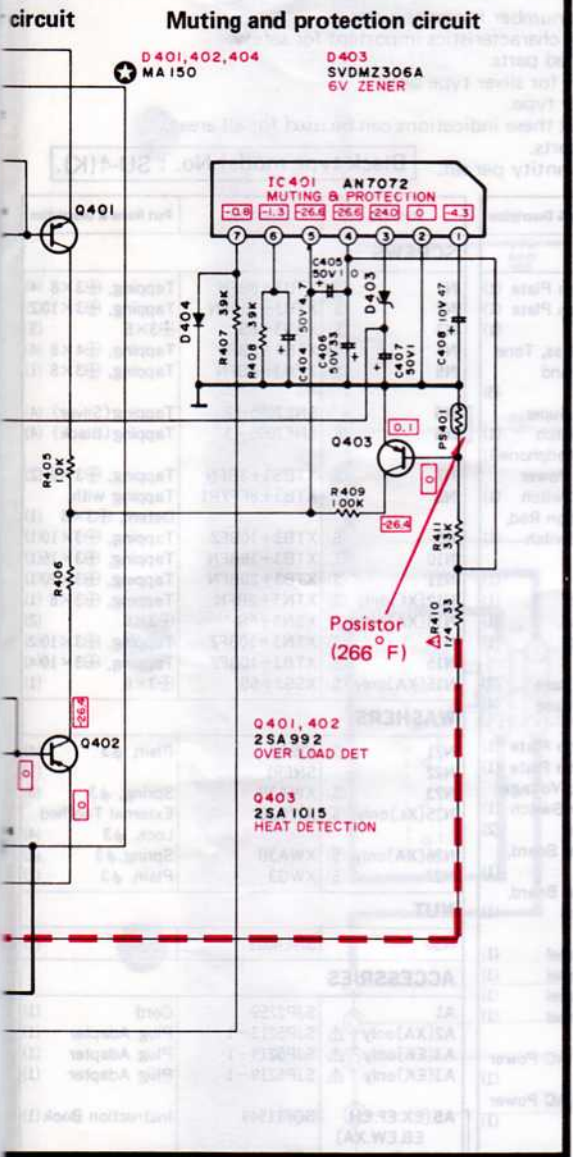
BALANCE CONTROL

VOLUME CONTROL

D502, D503  
MA1150M  
15V ZENER

D501  
SVDS4VB20  
RECTIFIER

# SCHEMATIC DIAGRAM



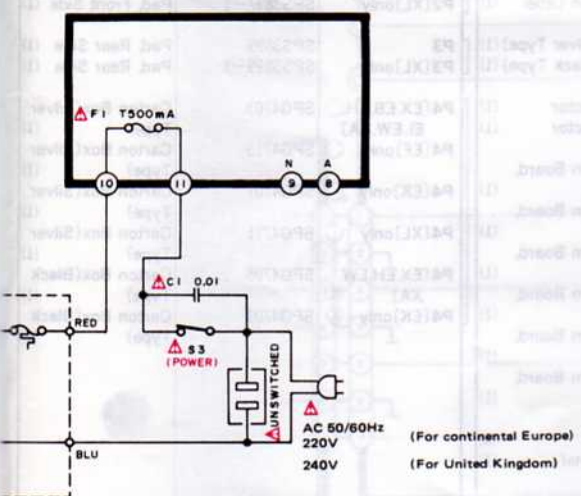
( This schematic diagram may be modified at any time with the development of new technology.)

• The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with **⊙** 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.

• 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 [EF], [XL], [XA] and [EW], refer to "CIRCUITS TO BE CHANGED AND THE AREAS" on page 10.

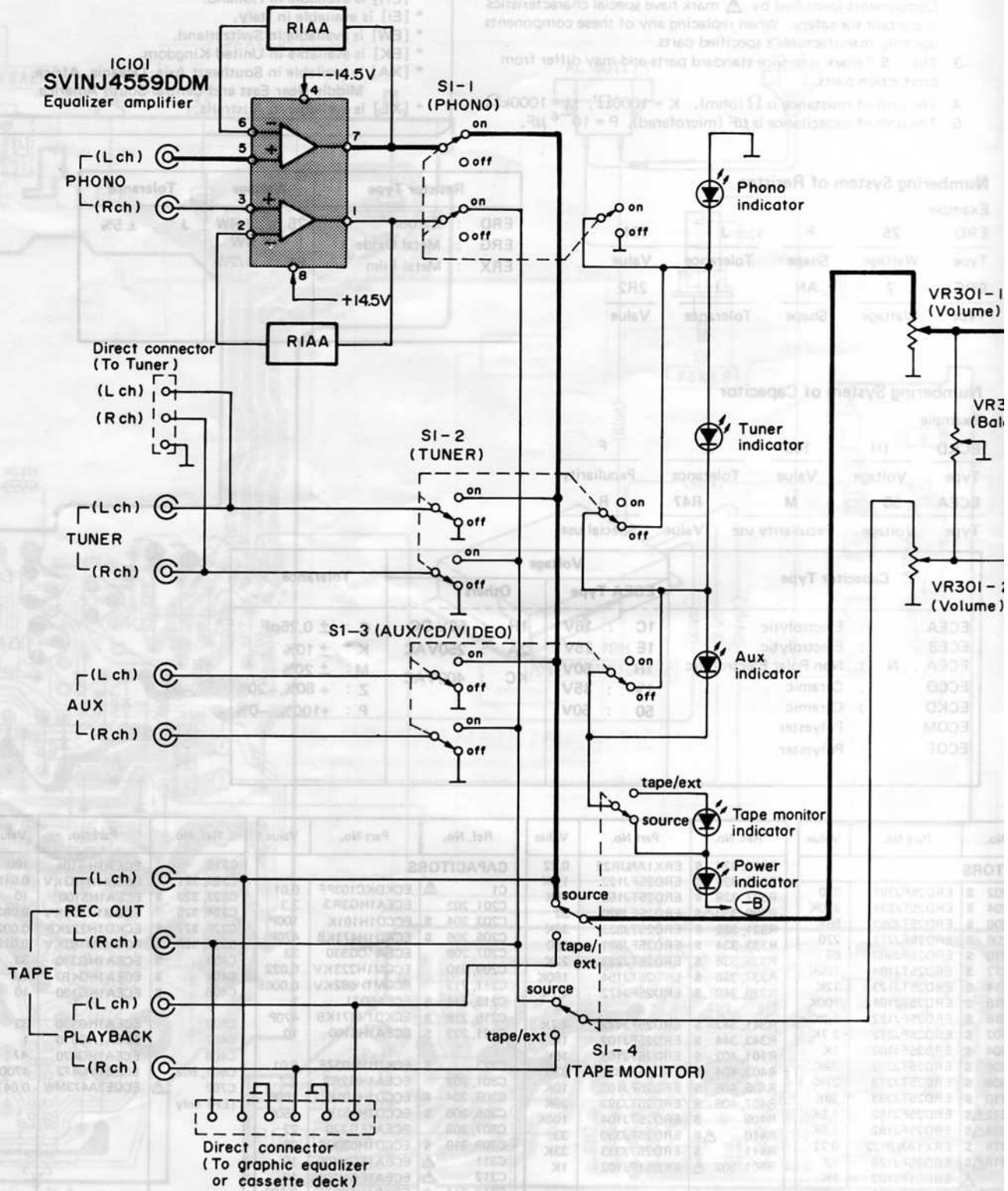
### Notes:

1. **S1-1 ~ S1-3** : Input selector switch in "phono" position.  
 (S1-1 : phono S1-2 : tuner S1-3 : aux)
2. **S1-4** : Tape monitor switch in "source" position.  
 source ↔ tape/ext.
3. **S2** : Super bass switch in "off" position.
4. **S3** : Power source switch in "on" position.
5. **S4 [XA] area** : Voltage selector switch in "110V" position.  
 120V ↔ 110V ↔ 220V ↔ 240V
6. The headphone jack switch is being short-circuited.  
 (With the headphone plug not inserted)
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. (high tap)
9. **⊘** Phono signal lines
10. **—** Positive (+B) voltage lines
11. **---** Negative (-B) voltage lines



**BLOCK DIAGRAM**

RESISTORS & CAPACITORS





RESISTORS & CAPACITORS

