

Service Manual

Stereo Integrated Amplifier

Amplifier

SU-V50



Color

(K) Black Type
(S) Silver Type

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

SPECIFICATIONS

(DIN 45 500)

■ AMPLIFIER SECTION

20 Hz~20 kHz continuous power output

both channels driven

 $2 \times 65W (8\Omega)$

1 kHz continuous power output

both channels driven

 $2 \times 85W (4\Omega)$

Total harmonic distortion

rated power at 20 Hz~20 kHz

0.002% (8 Ω)

rated power at 1 kHz

0.005% (4 Ω)

half power at 20 Hz~20 kHz

0.0009% (8 Ω)

half power at 1 kHz

0.002% (8 Ω)0.002% (4 Ω)0.0008% (8 Ω)

Intermodulation distortion

rated power at 250 Hz: 8 kHz=4:1, 8 Ω

0.005%

rated power at 60 Hz: 7 kHz=4:1, SMPTE, 8 Ω

0.005%

Power bandwidth

both channels driven, -3 dB

5 Hz~60 kHz (8 Ω , 0.03%)

Residual hum and noise

0.8 mV

Damping factor

30 (4 Ω), 60 (8 Ω)

Input sensitivity and impedance

PHONO MM

2.5 mV/47k Ω

MC

170 μ V/220 Ω

TUNER, CD, AV/AUX, TAPE 1/DA TAPE

TAPE 2

150 mV/22k Ω

PHONO maximum input voltage (1 kHz, RMS)

MM

160 mV

MC

12 mV

S/N

rated power (4 Ω)

PHONO MM

77 dB (83 dB, IHF, A)

MC

64 dB (65 dB, IHF, A)

TUNER, CD, AV/AUX, TAPE 1/DA TAPE

TAPE 2

91 dB (IHF, A: 100 dB)

-26 dB power (4 Ω)

PHONO MM

68 dB

MC

62 dB

TUNER, CD, AV/AUX, TAPE 1/DA TAPE

TAPE 2

70 dB

50 mW power (4 Ω)

PHONO MM

62 dB

MC

61 dB

TUNER, CD, AV/AUX, TAPE 1/DA TAPE

TAPE 2

62 dB

Frequency response

PHONO

RIAA standard curve

 ± 0.8 dB (30 Hz~15 kHz)

TUNER, CD, AV/AUX, TAPE 1/DA TAPE

TAPE 2

5 Hz~120 kHz (-3 dB)

+0, -0.2 dB (20 Hz~20 kHz)

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

TAPE, 1, 2 REC OUT

150 mV

Channel balance, AUX 250 Hz~6,300 Hz

 ± 1 dB

Channel separation, AUX 1 kHz

50 dB

Headphones output level and impedance

500 mV/330 Ω

Load impedance

MAIN or REMOTE

4 Ω ~16 Ω

MAIN and REMOTE

8 Ω ~16 Ω

■ GENERAL

Power consumption

420W

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/127V/220V/240V

Dimensions (W×H×D)

430 × 116 × 290 mm

(16-15/16" × 4-9/16" × 11-7/16")

Weight

7.7 kg (17.1 lb.)

Notes:

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

Specifications are subject to change without notice for further improvement.

Technics

Matsushita Electric Trading Co., Ltd.

P.O. Box 288, Central Osaka Japan

TECHNISCHE DATEN

(DIN 45 500)

■ VERSTÄRKERTEIL

Dauer-Ausgangsleistung bei 20 Hz ~ 20 kHz
beide Kanäle ausgesteuert $2 \times 65W$ (8 Ω)

Dauer-Ausgangsleistung bei 1 kHz
beide Kanäle ausgesteuert $2 \times 85W$ (4 Ω)

Gesamtklirrfaktor

Nennleistung bei 20 Hz ~ 20 kHz 0,002% (8 Ω)

Nennleistung bei 1 kHz 0,005% (4 Ω)

0,0009% (8 Ω)

halbe Nennleistung bei 20 Hz ~ 20 kHz 0,002% (8 Ω)

halbe Nennleistung bei 1 kHz 0,002% (4 Ω)

0,0008% (8 Ω)

Intermodulationsfaktor

Nennleistung bei 250 Hz: 8 kHz = 4:1, 8 Ω 0,005%

Nennleistung bei 60 Hz: 7 kHz = 4:1, nach SMPTE, 8 Ω 0,005%

Leistungsbandbreite

beide Kanäle ausgesteuert bei -3 dB

5 Hz ~ 60 kHz (8 Ω , 0,03%)

Restbrumm und Geräusch

0,8 mV

Dämpfungsfaktor

30 (4 Ω), 60 (8 Ω)

Eingangsempfindlichkeit und -impedanz

Phono - magnetisch (PHONO MM) 2,5 mV/47 k Ω

Phono - dynamisch (PHONO MC) 170 μ V/220 Ω

TUNER, CD, AV/AUX, TAPE 1/DA TAPE

TAPE 2 150 mV/22 k Ω

Maximale TA-Eingangsspannung (1 kHz, eff.)

magnetisch (MM) 160 mV

dynamisch (MC) 12 mV

Geräuschspannungsabstand

Nennleistung (4 Ω)

Phono - magnetisch (PHONO MM)

77 dB (83 dB nach IHF, A)

Phono - dynamisch (PHONO MC)

64 dB (65 dB nach IHF, A)

TUNER, CD, AV/AUX, TAPE 1/DA TAPE

TAPE 2 91 dB (nach IHF, A: 100 dB)

-26 dB Leistung (4 Ω)

Phono - magnetisch (PHONO MM) 68 dB

Phono - dynamisch (PHONO MC) 62 dB

TUNER, CD, AV/AUX, TAPE 1/DA TAPE

TAPE 2 70 dB

50 mW Leistung (4 Ω)

Phono - magnetisch (PHONO MM) 62 dB

Phono - dynamisch (PHONO MC) 61 dB

TUNER, CD, AV/AUX, TAPE 1/DA TAPE

TAPE 2 62 dB

Frequenzgang

Phono MM

RIAA-Standardkurve,

$\pm 0,8$ dB (30 Hz ~ 15 kHz)

TUNER, CD, AV/AUX, TAPE 1/DA TAPE

TAPE 2 5 Hz ~ 120 kHz (-3 dB)

+0, -0,2 dB (20 Hz ~ 20 kHz)

Klangregler

Baßregler (BASS) 50 Hz, +10 dB ~ -10 dB

Höhenregler (TREBLE) 20 kHz, +10 dB ~ -10 dB

Gehörrichtige Lautstärkekorrektur (Loudness)

(bei -30 dB Ausgangsleistung) 50 Hz, +9 dB

Ausgangsspannung und -impedanz

Tape 1/2 Aufnahme (TAPE 1, 2 REC OUT) 150 mV

Kanalabweichung (Aux, 250 Hz ~ 6300 Hz)

± 1 dB

Übersprechdämpfung (Aux, 1 kHz)

50 dB

Kopfhörerpegel und -impedanz

500 mV/330 Ω

Lautsprecherimpedanz

MAIN oder REMOTE 4 Ω ~ 16 Ω

MAIN und REMOTE 8 Ω ~ 16 Ω

■ ALLGEMEINE DATEN

Leistungsaufnahme

420 W

Netzspannung

Für Kontinentaleuropa Wechselstrom 50 Hz/60 Hz, 220V

Für andere Länder Wechselstrom 50 Hz/60 Hz,

110V/127V/220V/240V

Abmessungen (B×H×T)

430 × 116 × 290 mm

Gewicht

7,7 kg

Bemerkung:

Der Gesamtklirrfaktor wurde mit einem digitalen Rauschspektrometer (Anlage H.P. 3045) gemessen.

Spezifikationen können infolge von Verbesserungen ohne Ankündigung geändert werden.

CARACTERISTIQUES

(DIN 45 500)

■ SECTION AMPLIFICATEUR

Puissance de sortie continue de 20 Hz ~ 20 kHz,
les deux canaux en circuit $2 \times 65W$ (8 Ω)

Puissance de sortie continue à 1 kHz
les deux canaux en circuit $2 \times 85W$ (4 Ω)

Distorsion harmonique totale

à puissance nominale (20 Hz ~ 20 kHz) 0,002% (8 Ω)

à puissance nominale (1 kHz) 0,005% (4 Ω)

0,0009% (8 Ω)

à demi-puissance (20 Hz ~ 20 kHz) 0,002% (8 Ω)

à demi-puissance (1 kHz) 0,002% (4 Ω)

0,0008% (8 Ω)

Distorsion d'intermodulation

à puissance nominale à 250 Hz: 8 kHz=4:1, 8 Ω 0,005%

à puissance nominale à 60 Hz: 7 kHz=4:1, SMPTE, 8 Ω 0,005%

Réponse de fréquences

les deux canaux en circuit, -3 dB

5 Hz ~ 60 kHz (8 Ω , 0,03%)

Bruit et ronflement résiduels

0,8 mV

Coefficient d'amortissement

30 (4 Ω), 60 (8 Ω)

Sensibilité et impédance d'entrée

PHONO, AIMANT MOBILE (PHONO MM) 2,5 mV/47k Ω

PHONO, BOBINE MOBILE (PHONO MC) 170 μ V/220 Ω

TUNER, CD, AV/AUX, TAPE 1/DA TAPE

TAPE 2 150 mV/22k Ω

PHONO (tension d'entrée maximum, 1 kHz RMS)

AIMANT MOBILE (MM) 160 mV

BOBINE MOBILE (MC) 12 mV

Signal/Bruit

à puissance nominale (4 Ω)

PHONO, AIMANT MOBILE (PHONO MM)

77 dB (83 dB, IHF, A)

PHONO, BOBINE MOBILE (PHONO MC)

64 dB (65 dB, IHF, A)

TUNER, CD, AV/AUX, TAPE 1/DA TAPE

TAPE 2 91 dB (IHF, A: 100 dB)

puissance de -26 dB (4 Ω)

PHONO, AIMANT MOBILE (PHONO MM) 68 dB

PHONO, BOBINE MOBILE (PHONO MC) 62 dB

TUNER, CD, AV/AUX, TAPE 1/DA TAPE

TAPE 2 70 dB

puissance de 50 mW (4 Ω)

PHONO, AIMANT MOBILE (PHONO MM) 62 dB

PHONO, BOBINE MOBILE (PHONO MC) 61 dB

TUNER, CD, AV/AUX, TAPE 1/DA TAPE

TAPE 2 62 dB

Réponse de fréquence

PHONO

Courbe nominale RIAA

$\pm 0,8$ dB (30 Hz ~ 15 kHz)

TUNER, CD, AV/AUX, TAPE 1/DA TAPE

TAPE 2 5 Hz ~ 120 kHz (-3 dB)

+0, -0,2 dB (20 Hz ~ 20 kHz)

Réglage de la tonalité

BASSES (BASS) 50 Hz, +10 dB ~ -10 dB

AIGUS (TREBLE) 20 kHz, +10 dB ~ -10 dB

Compensateur physiologique (volume à -30 dB)

50 Hz, +9 dB

Tension de sortie et impédance

SORTIE ENREGISTREMENT/BANDE 1, 2

(TAPE 1, 2 REC OUT) 150 mV

Equilibrage des canaux, AUX 250 Hz ~ 6 300 Hz

± 1 dB

Séparation des canaux, AUX 1 kHz

50 dB

Niveau de sortie des casques et impédance

500 mV/330 Ω

Impédance de charge

PRINCIPALE ou AUXILIAIRE (MAIN or REMOTE)

4 Ω ~ 16 Ω

PRINCIPALE et AUXILIAIRE (MAIN and REMOTE)

8 Ω ~ 16 Ω

■ DIVERS

Consommation

420 W

Alimentation

Pour l'Europe

CA 50 Hz/60 Hz, 220V

Autres

CA 50 Hz/60 Hz, 110V/127V/220V/240V

Dimensions (L×H×Pr)

430 × 116 × 290 mm

Poids

7,7 kg

Remarque:

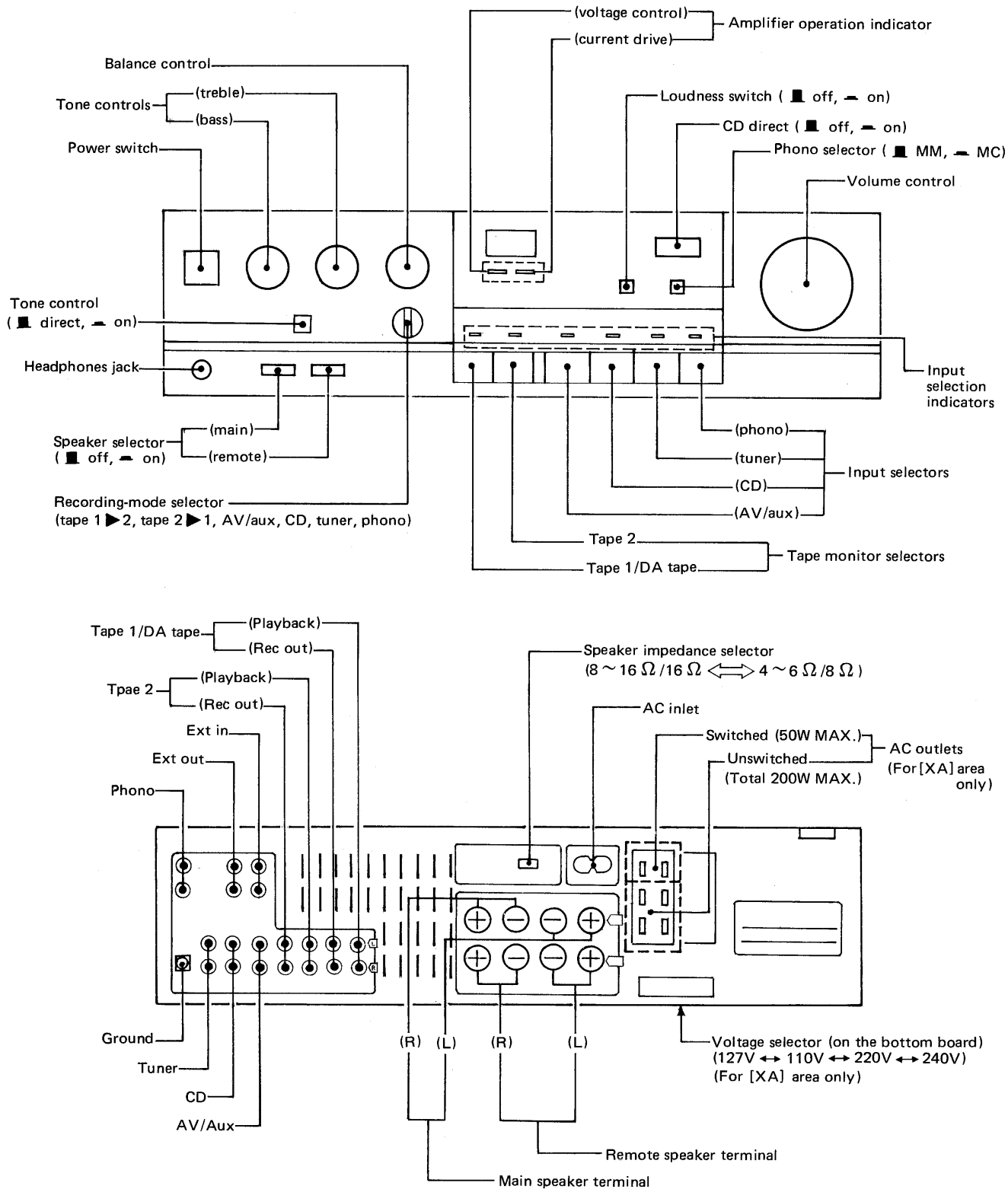
On mesure la distorsion harmonique totale au moyen d'un analyseur de spectre digital (Système H.P. 3045).

Sujet à changement sans préavis.

CONTENTS

	Page		Page
LOCATION OF CONTROLS	3	BROCK DIAGRAM	9, 10
PROTECTION CIRCUITRY	4	PRINTED CIRCUIT BOARD	11 ~ 14
BEFORE REPAIR AND ADJUSTMENT	4	WIRING CONNECTION DIAGRAM	15, 16
DISASSEMBLY INSTRUCTIONS	5, 6	SCHEMATIC DIAGRAM	17 ~ 21
MEASUREMENTS AND ADJUSTMENTS	6, 7	REPLACEMENT PARTS LIST	22
RESISTORS & CAPACITORS	8	EXPLODED VIEWS	23

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.
- * 127V/110V/220V/240V (50/60Hz) for other [XA] area.
- * Phono input capacitance is about 150pF.

Suggestions

- If noise is very annoying while listening to an FM or AM broadcast, switch OFF the video disc player, compact-disc player and turntable.
- Switch OFF the video disc player power if noise is excessive while listening to an audio tape, compact disc or regular phono disc.

Notes:

- To record sounds from a compact disc, press the input selector marked "CD".
The compact-disc-direct switch is for listening only; it cannot be used to select the compact disc as a recording source.

PROTECTION CIRCUITRY

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

- No sound is heard when the power is switched 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. Switch OFF the power.
2. Determine the cause of the problem and correct it.
3. Switch ON the power once again.

Note:

When the protection circuitry functions, the unit will not operate unless the power is first switched OFF and then ON again.

BEFORE REPAIR AND ADJUSTMENT

- (1) Turn off the power supply. Using a 10 Ω , 5W resistor, shortcircuit both ends of power supply capacitors (C705, C706, 8200 μ F) in order to discharge the voltage.
- (2) Before turning on the power switch of the set . . .
 - A. Connect the voltage controller to the primary side.
 - B. Connect the AC ampere meter to the primary side or connect the DC voltage meter to the " $\pm$ B" circuit of the secondary side.
 - C. Turn the VR of ICQ (VR401 and VR402) to minimum (counterclockwise).
 - D. After setting the output to zero of the voltage controller, turn on the power switch of the set.
And increase the output of voltage controller gradually.
Then, check carefully whether the current value of primary side become more than followings value or whether the DC voltage of secondary side is increasing slowly.
 - E. If the value of current is increasing unusually or the DC voltage is not increasing, lower the output level of voltage controller immediately.
 - F. Check the transistors of voltage amplifier and current amplifier IC501.
 - G. After repairing, adjust the ICQ.
 - The current value of the primary side at no signal. (Confirm the power supply voltage of each area and provided voltage of the set.)

Power supply voltage		AC110V	AC127V	AC220V	AC240V
Consumed current	50/60Hz	280 ~ 560mA	260 ~ 520mA	140 ~ 280mA	130 ~ 260mA

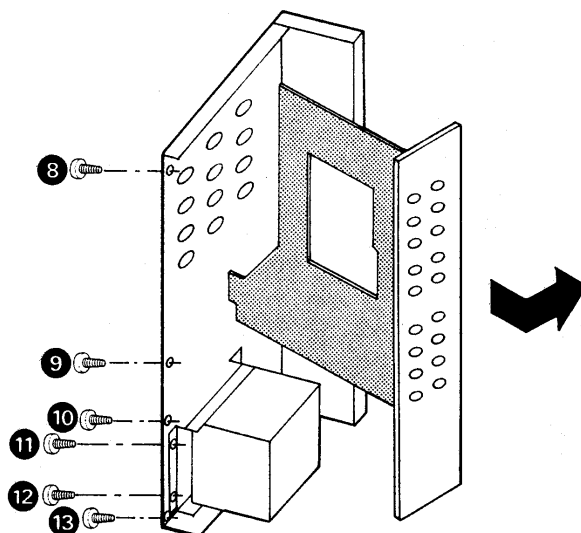
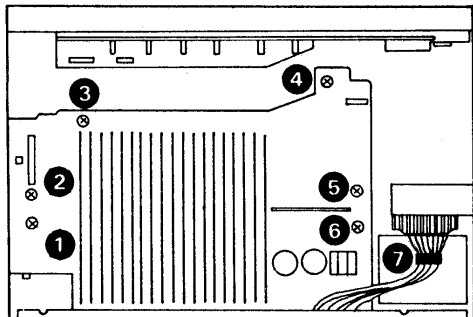
DISASSEMBLY INSTRUCTIONS

Ref. No. 1	How to remove the front panel
Procedure 1	1. Remove the connection rod. 2. Remove the 5 knobs (❶ ~ ❺). 3. Remove the 5 nuts (❻ ~ ❿). 4. Remove the 4 screws (⓫ ~ ⓭). 5. Remove the connector (J102 ~ J105, J118, J119). 6. Remove the 1 lock pin (⓮). 7. Remove the "Rec-select" switch (⓯). • How to remove the "Rec-select" switch Pushing the rec switch, shift it up as in Fig. 1. • How to fit the rec switch (1) Shift the switch contact inside. (2) Turn the "Rec-select" switch (selector knob) counterclockwise. (3) Let the "Rec-select" switch claw change with the switch, and shift the "Rec-select" switch down while pushing in.
Ref. No. 2	How to remove the P.C.B.
Procedure 1 → 2	1. Push the 9 tabs (❶ ~ ❹). 2. Remove the tone control P.C.B. 3. Remove the 3 screws (❿ ~ Ⓛ). 4. Remove the LED P.C.B. 5. Remove the 1 screw (⓫). 6. Push the 2 tabs (⓭ , ⓮). 7. Remove the headphones P.C.B.

Ref. No.
3

How to remove the main P.C.B.

1. Remove the 6 screws (1 ~ 6).
2. Cut the clumper (7).
3. Remove the 6 screws (8 ~ 13).
4. Remove the main P.C.B.



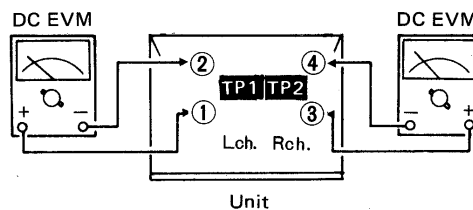
MEASUREMENTS AND ADJUSTMENTS

Control positions and equipment used.

- Volume knob ∞ (Minimum)
- Main speaker selector off
- Remote speaker selector off
- Speaker impedance switch $8\Omega \sim 16\Omega$
- DC electronic voltmeter (EVM)

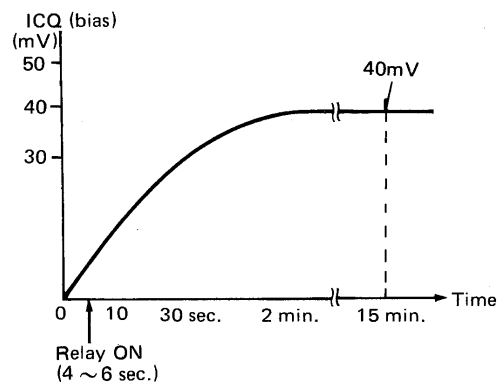
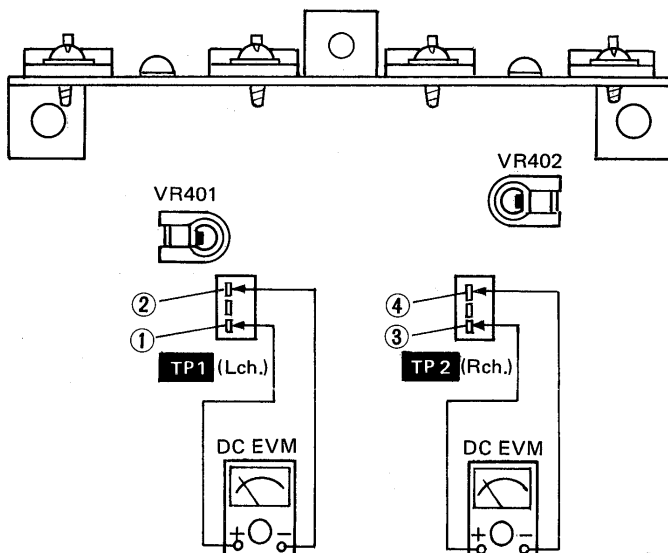
IDLING (ICQ) ADJUSTMENT

1. Test equipment connection is shown in figure. Connect the DC EVM. on both channels.
2. Turn the ICQ control volume (VR401, VR402) counter-clockwise.
3. Turn ON the set when it is cold, and 15 sec. later, adjust VR401 and VR402 so that the voltage is 20mV. Also, check that the voltage is 18 – 47mV (standard: 40mV) after lapse of 10 – 15 minutes. (Below 50mV after lapse of 60 min.).



• Adjustment points

Voltage control Amp.



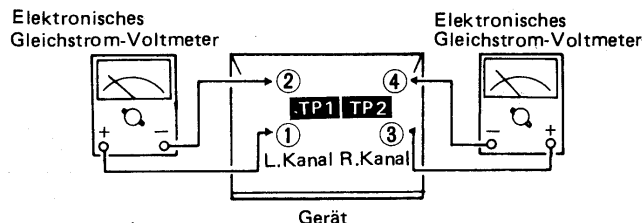
MESSUNGEN UND JUSTIERUNGEN

Einstellungen der Bedienelemente und zu verwendende Geräte

- Lautstärkeregler ∞
- Hauptlautsprecher-Wahlschalter off
- Nebenlautsprecher-Wahlschalter off
- Lautsprecherimpedanz-Schalter $8\Omega \sim 16\Omega$
- Elektronisches Gleichstrom-Voltmeter

LEERLAUF-(ICQ)-JUSTIERUNG

1. Anschlußverbindungen wie gezeigt vornehmen.
(Das Gleichspannungs-Voltmeter an beide Kanäle anschließen.)
2. Die ICQ-Volumenregler (**VR401, VR402**) entgegen dem Uhrzeigersinn drehen.
3. Das Gerät einschalten, wenn es kalt ist, und 15 Sekunden später **VR401** und **VR402** so justieren, daß die Spannung **20mV** beträgt. Ebenfalls überprüfen, daß die Spannung nach Ablauf von **10 – 15** Minuten zwischen **38 – 47mV** (Standardwert ist **40mV**) liegt. (Nach Ablauf von **60** Minuten: unter **50mV**)



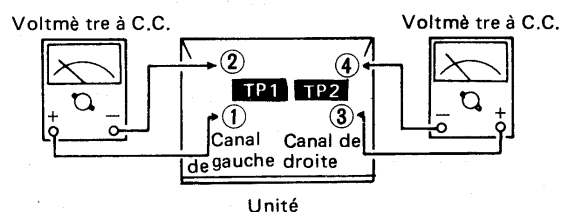
MESURAGES ET RÉGLAGES

Positions de réglage et équipement utilisé

- Bouton du volume ∞
- Sélecteur du haut-parleur principal hors circuit
- Sélecteur du haut-parleur auxiliaire hors circuit
- Sélecteur d'impédance des enceintes $8\Omega \sim 16\Omega$
- Voltmètres électroniques à C.C.

RÉGLAGE DU TEMPS MORT (ICQ)

1. Effectuer le raccordement comme il est montré.
(Raccorder le voltmètre à C.C. sur les deux canaux.)
2. Tourner le volume de contrôle de ICQ (**VR401, VR402**) dans sens inverse des aiguilles d'une montre.
3. Mettre l'appareil en marche lorsqu'il est froid, et 15 sec. plus tard, régler **VR401** et **VR402** de telle sorte que la tension soit de **20mV**. Vérifier aussi que la tension soit de **38 – 47mV** (normale: **40mV**) après un intervalle de **10 – 15** minutes. (Au-dessous de **50mV**, après un intervalle de **60** min.)



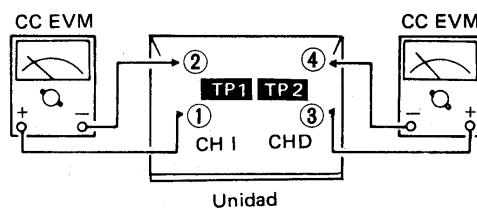
MEDICIONES Y AJUSTE

Posiciones de control y equipo usado

- Perilla de volumen ∞
- Selector de altavoz principal off (desconectado)
- Selector de altavoz remoto off
- Selector de impedancia de altavoces $8\Omega \sim 16\Omega$
- Voltímetro electrónico de CC (EVM)

AJUSTE DE MARCHA EN VACÍO (ICQ)

1. Hacer la conexión como se muestra.
(Conectar el voltímetro de CC en ambos canales.)
2. Girar el volumen de control ICQ (**VR401, VR402**) a la izquierda.
3. Prender el aparato cuando está frío y, 15 seg. más tarde, ajustar **VR401** y **VR402** de manera que el voltaje sea **20mV**. También, comprobar que el voltaje sea **38 – 47mV** (estándar: **40mV**) después de un lapso de **10 – 15** minutos. (Inferior a **50mV** después de un lapso de **60** min.)



RESISTORS & CAPACITORS

- Notes:**
- Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
 - Important safety notice:
Components identified by Δ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
 - $\otimes$ — marked parts are used for black only, while $\bigcirc$ — marked parts are for silver type only.
 - Part other than $\otimes$ — and $\bigcirc$ — marked are used for both black and silver type.
 - 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.
 - The unit of resistance is OHM (Ω).
K = 1000 Ω , M = 1000K Ω
 - The unit of capacitance is MICROFARAD (μ F).
P = 10⁻⁶ μ F.

Resistor Type	Wattage	Tolerance
ERD: Carbon	25 : 1/4W	J : $\pm$ 5%
ERG: Metal Oxide	2F : 1/4W	G : $\pm$ 2%
ERC: Solid	S2 : 1/4W	K : $\pm$ 10%
	S1 : 1/2W	
	12 : 1/2W	

Capacitor Type	Voltage		Tolerance
	ECEA Type	Other	
ECEA...N : Non-polar Electrolytic	2R3: 2.3V	05 : 50V DC	C : $\pm$ 0.25 μ F
ECEA : Electrolytic	DC	1H : 50V DC	J : $\pm$ 5%
ECCD : Ceramic	OJ : 6.3V	1 : 125V DC	K : $\pm$ 10%
ECKD : Ceramic	1C : 16V	2H : 500V DC	Z : +80%, -20%
ECQM : Polyester	1E : 25V	KC : 400V AC	M : $\pm$ 20%
ECQV : Polyester	1V : 35V		
ECQP : Polypropylene	1H : 50V		
EECW : Liquid electrolyte	50 : 50V		
ECKF : Ceramic	double layer capacitor	25 : 25V	
		2A : 100V	

RESISTORS

Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
R101, 102	ERDS2TJ102	1K	R207, 208	ERDS2TJ102	1K	R409, 410	ERDS2TJ561	560	R513, 514	ERDS1FJ100	10
[EGA] only			[EGA] only			R411, 412	ERD25FJ470	47	R515, 516	ERD25FJ100	10
R103, 104	ERDS2TJ102	1K	R209, 210	ERDS2TJ102	1K	R415, 416	ERDS2TJ182	1.8K	R517, 518	ERDS2TJ472	4.7K
[EGA] only			[EGA] only			R417, 418	ERDS2TJ391	390	R519, 520	ERDS2TJ153	15K
R105, 106	ERDS2TJ274	270K	R211, 212	ERDS2TJ473	47K	R419, 420	ERD25FJ101	100	R523, 524	ERG2SJ331	330
R107, 108	ERDS2TJ221	220	R213, 214	ERDS2TJ183	18K	R421, 422	ERDS2TJ223	22K	R601	ERDS2TJ471	470
R109, 110	ERDS2TJ220	22	R219, 220	ERDS2TJ272	2.7K	R423, 424	ERDS2TJ821	820K	R602	ERDS2TJ331	330
R113, 114	ERDS2TJ563	56K	R223, 224	ERDS2TJ102	1K	R425, 426	ERDS2TJ223	22K	R604	ERDS2TJ471	470
R117, 118	ERDS2TJ151	150	[EGA] only			R427, 428	ERD25FJ101	100	R605	ERDS2TJ331	330
R119, 120	ERDS2TJ100	10	R301, 302	ERDS2TJ561	560	R429, 430	ERDS2TJ2R2	2.2	R607, 608	ERDS2TJ473	47K
			R303, 304	ERDS2TJ823	82K						
R123, 124	ERDS2TJ151	150	R305, 306	ERDS2TJ224	220K	R431, 432	ERDS2TJ2R2	2.2	R609	ERDS2TJ153	15K
R125, 126	ERDS2TJ682	6.8K	R307, 308	ERDS2TJ392	3.9K	R433, 434	ERD25FJ101	100	R610	ERDS2TJ124	120K
R127, 128	ERDS2TJ823	82K	R309, 310	ERDS2TJ223	22K	R435	ERDS2TJ103	10K	R611	ERDS2TJ472	4.7K
R129, 130	ERDS2TJ334	330K	R311, 312	ERDS2TJ102	1K	R436	ERD25FJ470	47	R612	ERG3SJ821	820
R131, 132	ERDS2TJ561	560	R313, 314	ERDS2TJ562	5.6K	R437	ERDS2TJ473	47K	R613	ERDS1FJ180	18
R201, 202	ERDS2TJ102	1K	R315, 316	ERDS2TJ392	3.9K	R438, 439	ERD25FJ6R8	6.8	R614	ERDS2TJ183	18K
[EGA] only			R317, 318	ERDS2TJ223	22K	R501, 502	EROS2TKF4220	422	R701, 702	ERDS2TJ153	15K
R203, 204	ERDS2TJ102	1K	R319, 320	ERDS2TJ183	18K	R505, 506	EROS2TKF1000	100	R703, 704	ERD25FJ821	820
[EGA] only			R401, 402	ERDS2TJ561	560	R507, 508	EROS2TKF1000	100	R705	ERDS2TJ122	1.2K
R205, 206	ERDS2TJ102	1K	R403, 404	ERDS2TJ823	82K						
[EGA] only			R405, 406	ERDS2TJ272	2.7K	R509, 510	ERDS2TJ271	270	R707, 708	ERDS1FJ822	8.2K
			R407, 408	ERDS2TJ823	82K	R511, 512	ERDS2TJ271	270			

CAPACITORS

Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
C1 [EK] only	ECKDKC103PF2	0.01	C209, 210	ECCD1H101K	100P	C415, 416	ECQM1H102JZ	0.001	C525, 526	ECQM1H333JZ	0.033
C1 [other]	ECKDNS103ZV	0.01	[EGA] only			C417, 418	ECEA1HU010	1	[EGA] only		
C101, 102	ECCD1H820K	82P	C211, 212	ECCD1H101K	100P	C419, 420	ECCD2H680K	68P	C527, 528	ECKD1H102MD	0.001
[EGA] only			[EGA] only			C421, 422	ECCD2H680K	68P	[EGA] only		
C103, 104	ECQM1H103JZ	0.01	C213, 214	ECQM1H563JZ	0.056	C423, 424	ECKD1H333ZF	0.033	C529, 530	ECQM1H473JZ	0.047
C105, 106	ECCD1H181K	180P	C301, 302	ECEA1HU3R3	3.3	C425	ECEA2AU100	10	[EK] only		
C107, 108	ECEA0JU222	2200	C303, 304	ECCD1H101K	100P	C426 [EGA]	ECKD1H102KB	0.001	C531, 532	ECEA1HU010	1
C109, 110	ECKD1H471KB	470P				C427	ECKD1H223ZF	0.022	C533, 534	ECFTD472K	0.0047
[EGA] only			C305, 306	ECCD1H820K	82P	C501, 502	ECCD1H560K	56P	Except [EGA]		
C111, 112	ECQM1H122JZ	0.0012	C307, 308	ECEA1VU4R7	4.7	C503, 504	ECCD2H330K	33P	C601	ECEA0JU331	330
C113, 114	ECQM1H103JZ	0.01				C505, 506	ECQM1H392JZ	0.0039	C602	ECFTD223KXL	0.022
C115, 116	ECQM1H393JZ	0.039	C309, 310	ECCD1H390K	39P	C507, 508	ECEA1AU101	100	C603	ECEA0JU470	47
C117, 118	ECEA1HN010S	1	C311, 312	ECEA1EU100	10	C509, 510	ECEA1AU101	100			
C119, 120	ECQM1H472JZ	0.0047	C313, 314	ECQM1H823JZ	0.082	C511, 512	ECCD2H330K	33P	C604	ECEA1EU4R7	4.7
C121, 122	ECKD1H103ZF	0.01	C315, 316	ECQM1H153JZ	0.015	C513, 514	ECKD1H561KB	560P	C605	ECEA1CU471	470
C123, 124	ECEA1HU3R3	3.3	C317, 318	ECQM1H183JZ	0.018	C515, 516	ECKD1H333ZF	0.033	C701, 702	ECEA1HU3R3	3.3
C125 [EGA]	ECCD1H331KB	330P	C319, 320	ECQM1H182JZ	0.0018	C517, 518	ECKD1H333ZF	0.033	C703, 704	ECEA1EU330	33
C201, 202	ECCD1H820K	82P	C321, 322	ECKD1H223ZF	0.022	C519, 520	ECQM1H473JZ	0.047	C705, 706	ECES1JU822U	8200
[EGA] only			C401, 402	ECEA1HU3R3	3.3	[EK] only					
C203, 204	ECCD1H101K	100P	C403, 404	ECCD1H151K	150P	C519, 520	ECQM1H223JZ	0.022	C708	ECQE2104KS	0.1
[EGA] only			C405, 406	ECEA1CU220	22	[other]			[EGA] only		
C205, 206	ECCD1H101K	100P							C708 [other]	ECKD2H103PE	0.01
[EGA] only			C407, 408	ECCD1H820K	82P	C521, 522	ECQM1H333JZ	0.033	C709 [EGA]	ECKD1H103ZF	0.01
C207, 208	ECCD1H101K	100P	C409, 410	ECCD1H070D	7P	C523, 524	ECKD1H102MD	0.001	C712 [EGA]	ECKD1H223ZF	0.022
[EGA] only			C411, 412	ECKD1H681KB	680P						
			C413, 414	ECCD2H070D	7P						



SV14004	<table border="1"> <tr> <td>AN6558F</td> <td>8 Pin</td> </tr> <tr> <td>M5219P</td> <td>8 Pin</td> </tr> <tr> <td>AN7062N</td> <td>18 Pin</td> </tr> </table>	AN6558F	8 Pin	M5219P	8 Pin	AN7062N	18 Pin	AN7073	2SC3298, 2SC2592 2SA1306, 2SA1112	2SC1685, 2SA1123 2SA992, 2SC2631	2SA1309 2SC3311	MA4062 MA4033M MA4120M MA4160M	MA162A, MA165 MA167, MA29WA	SVDS3V40 SVDSR1K2	LN463YCPP LN863RCPP
AN6558F	8 Pin														
M5219P	8 Pin														
AN7062N	18 Pin														

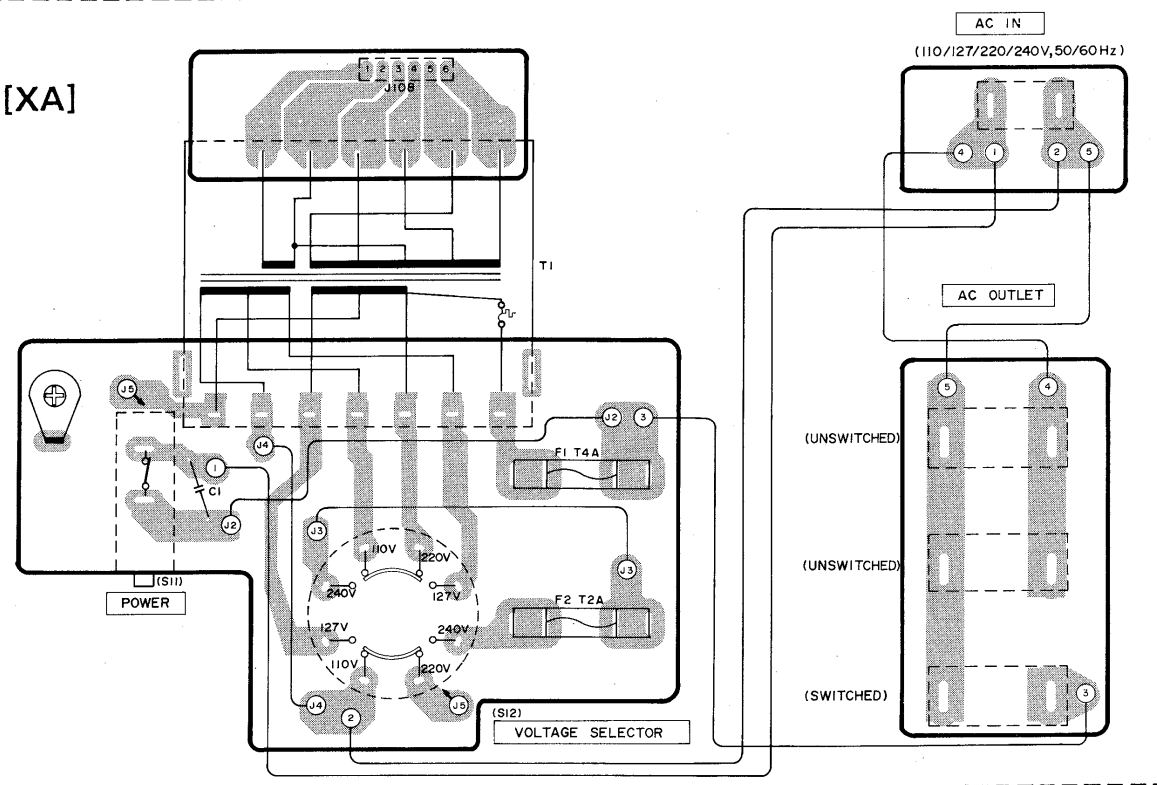
PHONO EXT OUT EXT IN GND TUNER CD AV/AUX TAPE 2 TAPE I/DA TAPE
(REC OUT) (PLAYBACK) (REC OUT) (PLAYBACK)



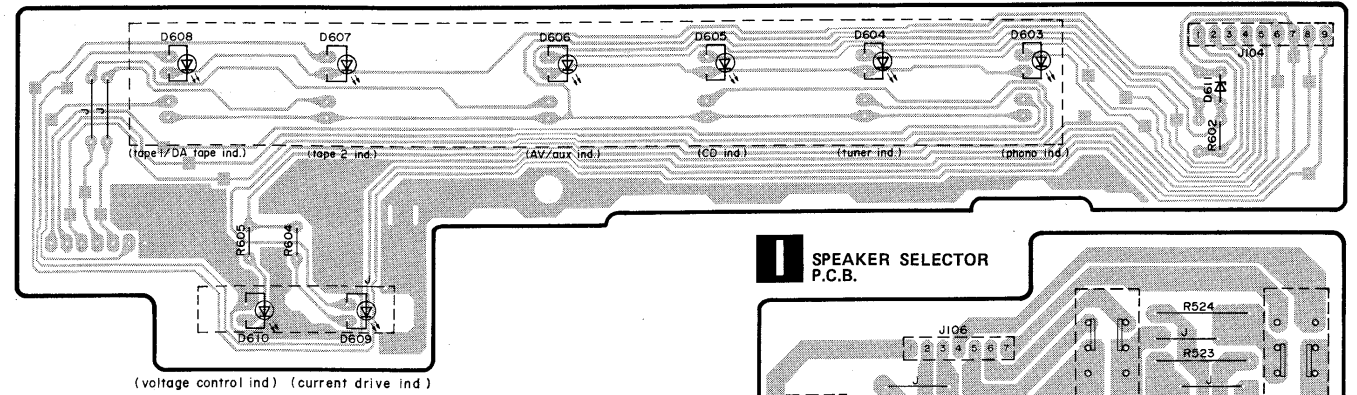
 (C) } Resistors, Capacitors and Coils indicated by (C), (R) or
 (R) }
 (L) } (L) are used only in the EGA (F.R. Germany) area.

G INPUT/OUTPUT
SELECTOR P.C.B.

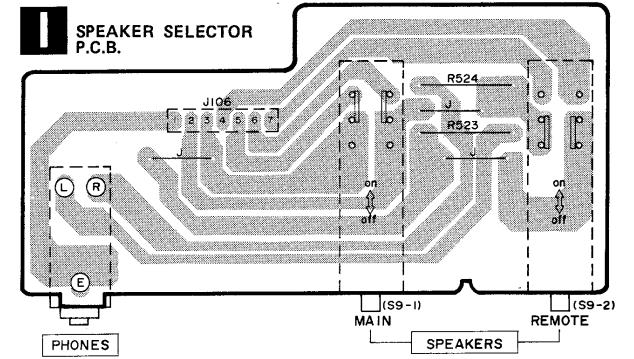
[XA]



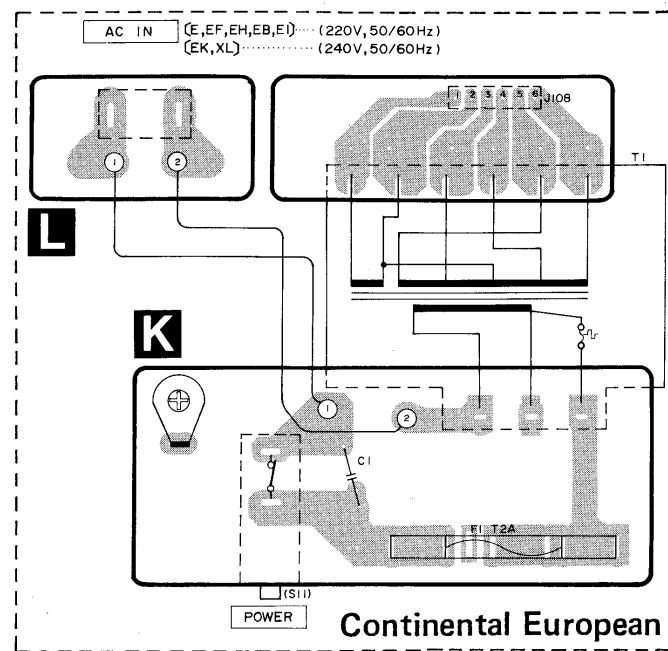
H LED P.C.B.



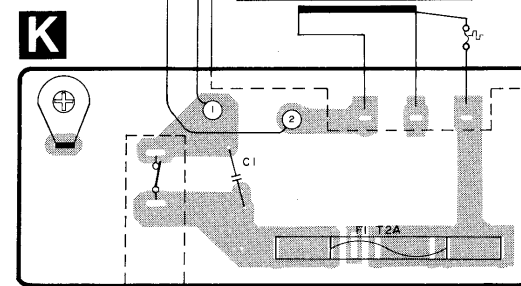
I SPEAKER SELECTOR P.C.B.



L

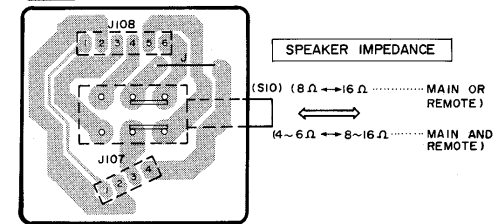


K

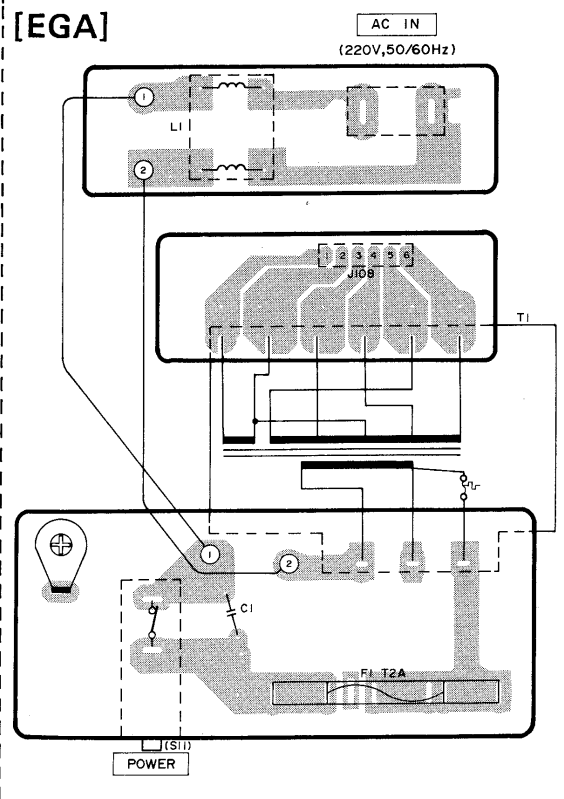


Continental European

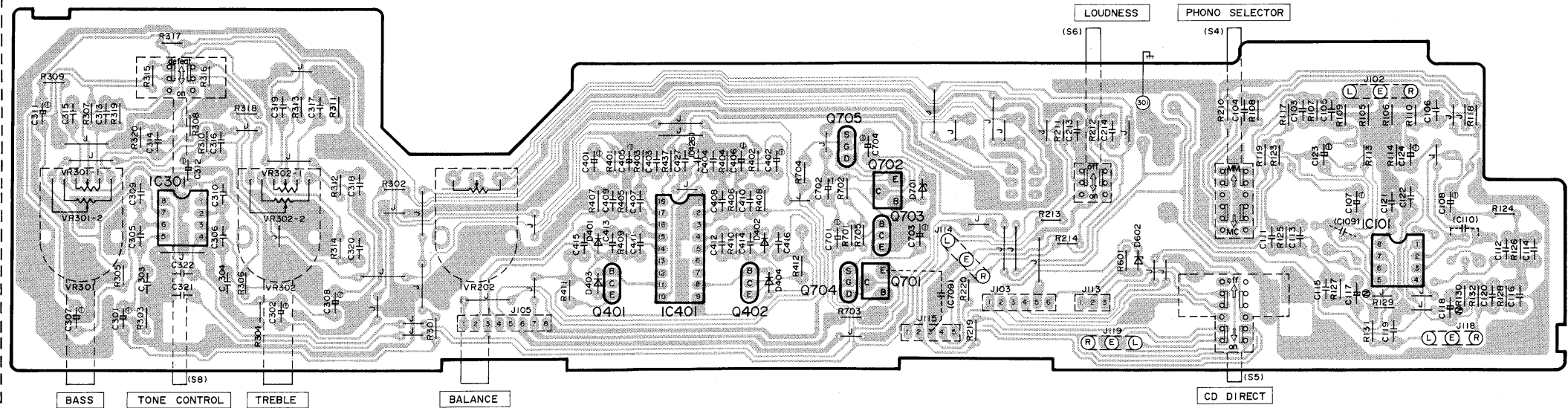
J



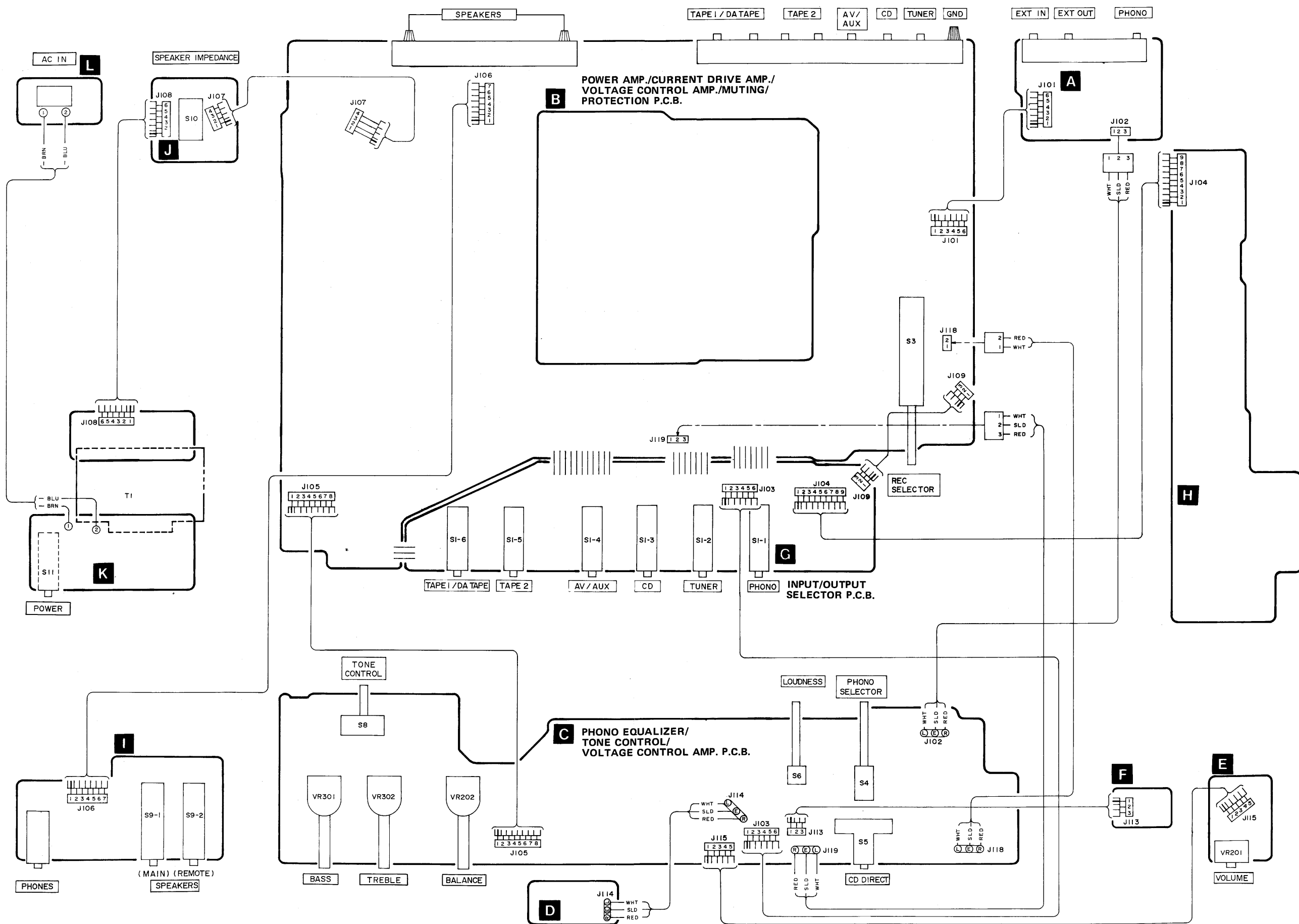
[EGA]

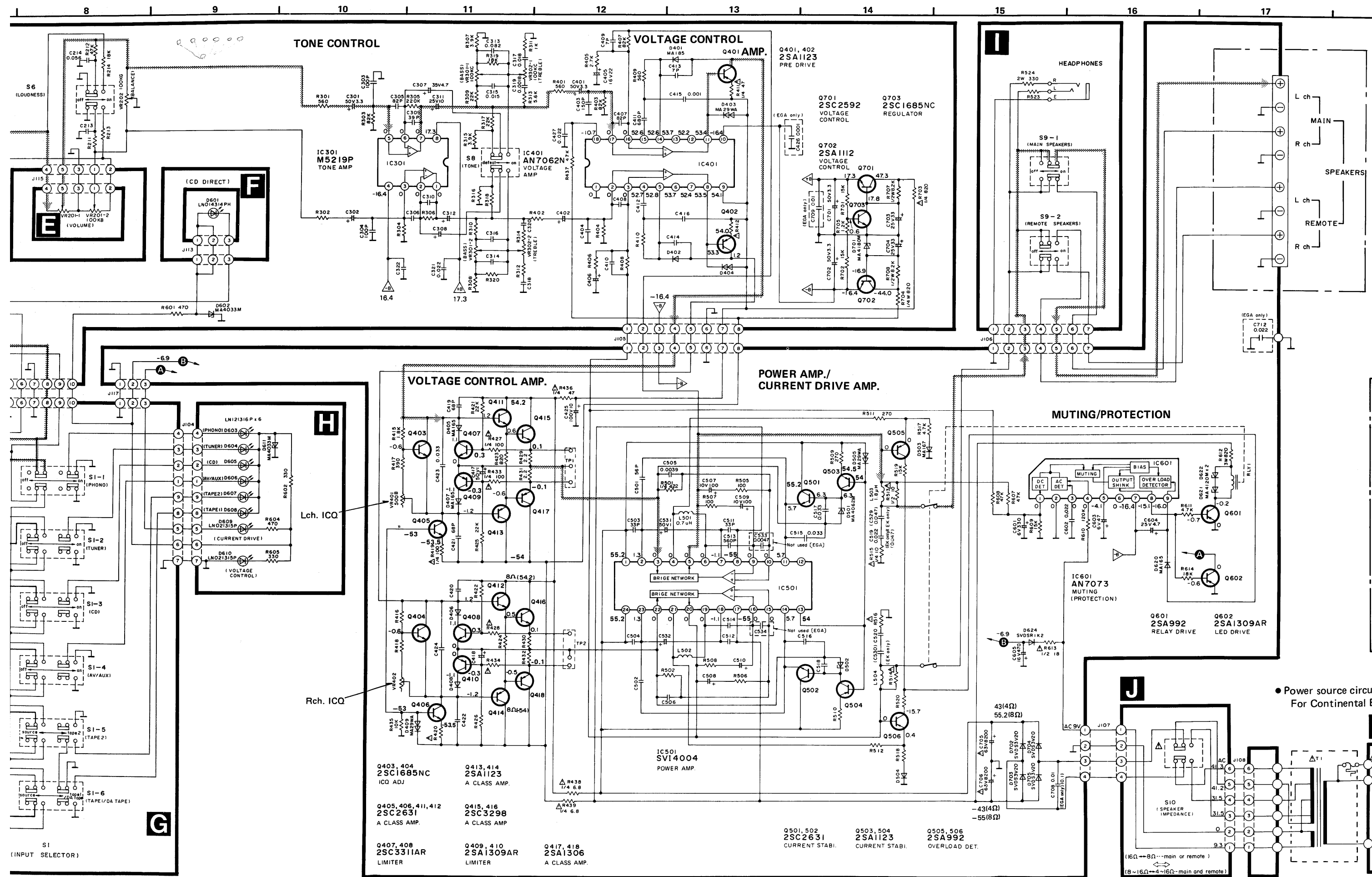


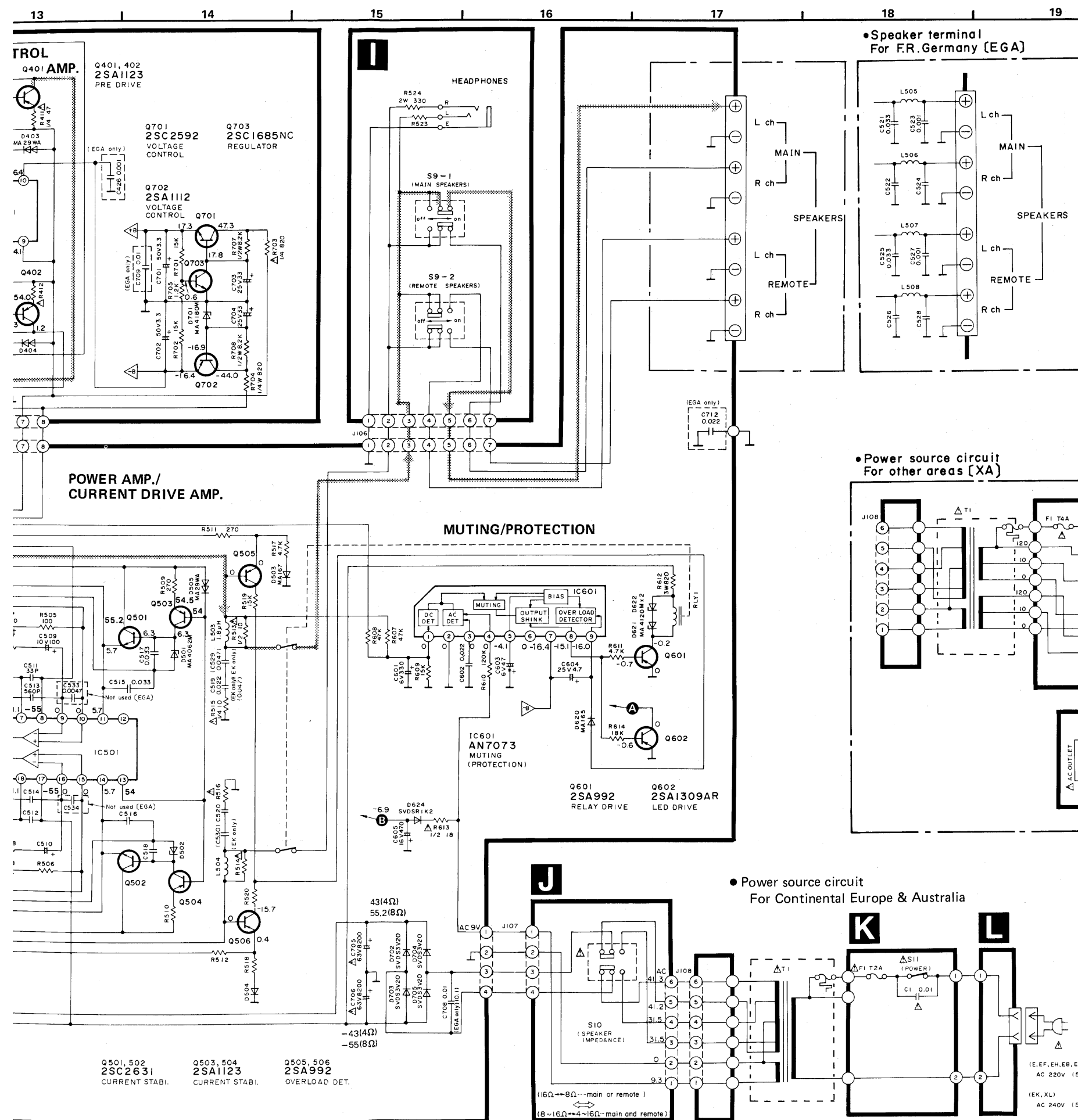
C PHONO EQUALIZER/ TONE CONTROL/ VOLTAGE CONTROL AMP. P.C.B.



■ WIRING CONNECTION DIAGRAM



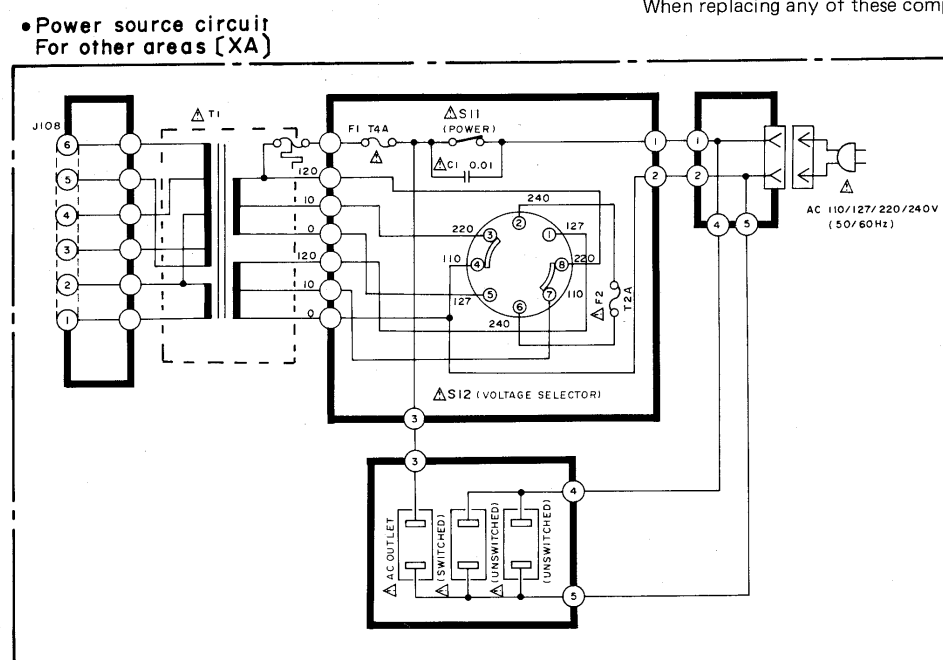




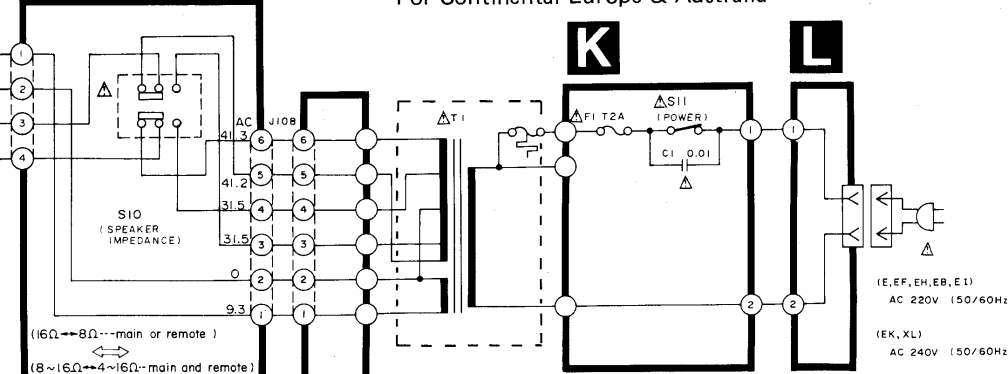
■ SCHEMATIC DIAGRAM (This schematic diagram may be modified at any time with the development of new technology.)

Notes:

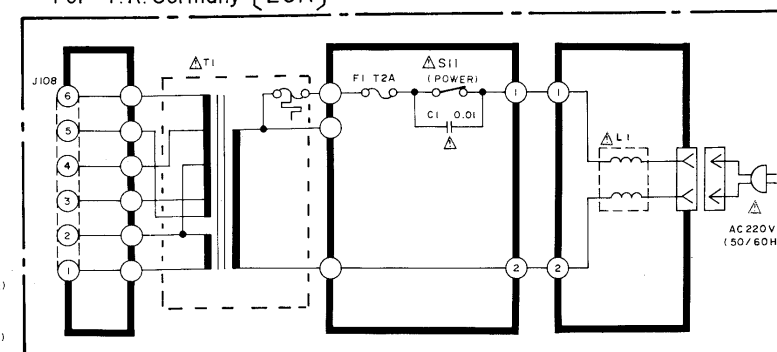
1. **S1-1 ~ S1-6:** Input selector switch in “**phono**” position.
 S1-1: phono S1-2: tuner S1-3: CD
 S1-4: AV/aux S1-5: Tape 2 S1-6: Tape 1/DA tape
2. **S3:** Recording selector in “**CD**” position.
3. **S4:** Phono selector in “**MM**” position.
 ( MM,  MC)
4. **S5:** CD direct switch in “**off**” position.
 ( off,  on)
5. **S6:** Loudness switch in “**off**” position.
 ( off,  on)
6. **S8:** Tone control switch in “**defeat**” position.
 ( defeat,  on)
7. **S9-1:** Main speaker switch in “**on**” position.
 ( off,  on)
8. **S9-2:** Remote speaker switch in “**off**” position.
 ( off,  on)
9. **S10:** Impedance select switch in “**8 ~ 16Ω/16Ω**” position.
 (8 ~ 16Ω/16Ω,  4 ~ 6Ω/8Ω)
10. **S11:** Power switch in “**on**” position.
 ( off,  on)
11. **S12:**(For [XA] area only): Voltage selector switch in “**110V**” position.
 (127V  110V  220V  240V)
12. 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 exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
13.  Phono signal (Lch)
  Positive voltage lines or Negative voltage lines.
14. 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.



- Power source circuit
For Continental Europe & Australia



- Power source circuit
For F.R. Germany (EGA)



REPLACEMENT PARTS LIST

- 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 Δ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
 3. $\otimes$ — marked parts are used for black only, while $\bigcirc$ — marked parts are for silver type only.
 4. Part other than $\otimes$ — and $\bigcirc$ — 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 "S" mark is service standard parts and may differ from production parts.
 7. The parenthesized numbers in the column of description stand for the quantity per set.

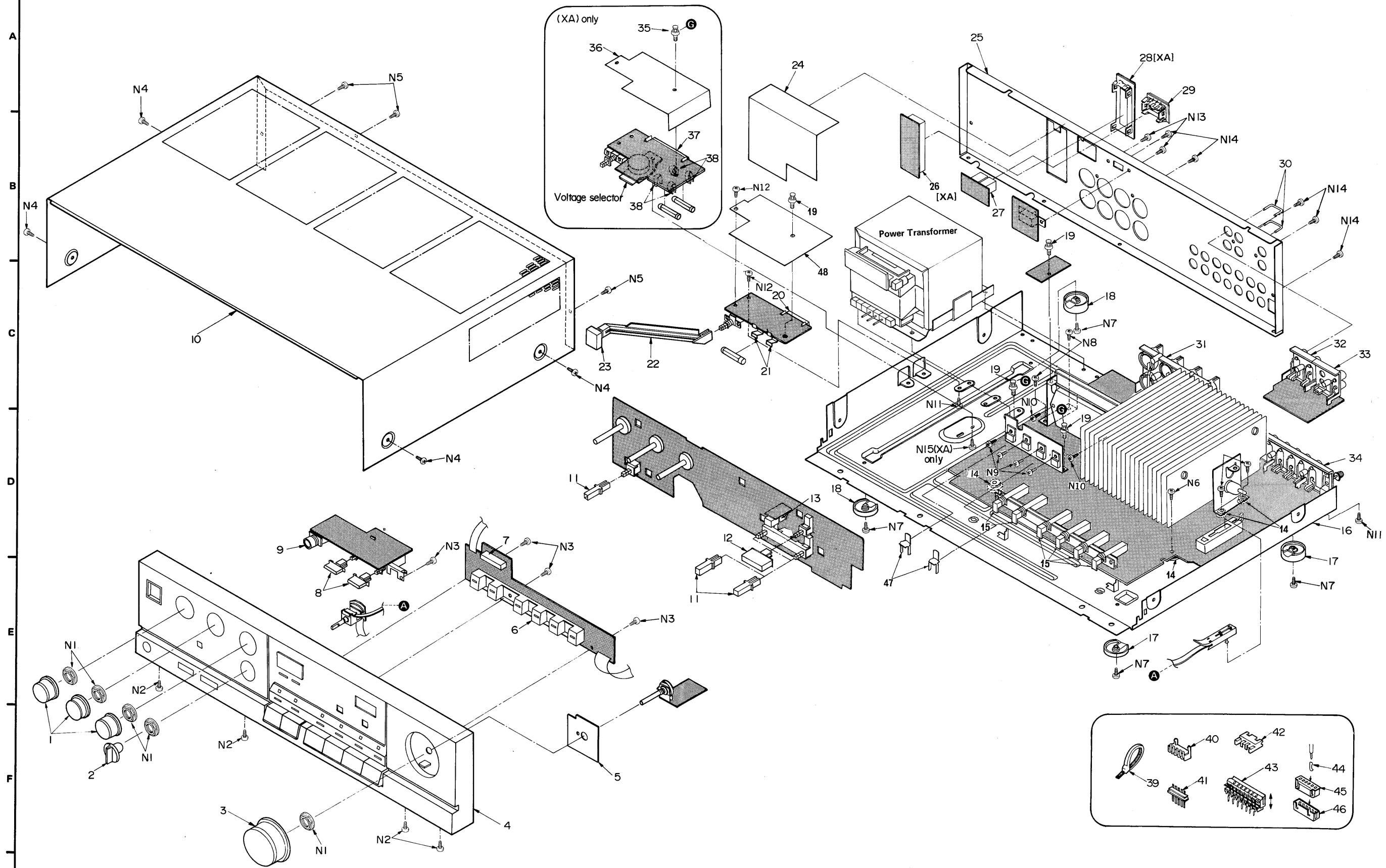
Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC101	AN6558F	IC
IC301	M5219P	IC
IC401	AN7062N	IC
IC501	SV14004	IC
IC601	AN7073	IC
TRANSISTORS		
Q401, 402, 413, 414, 503, 504	2SA1123-R	Transistor
Q403, 404, 703	2SC1685RST	Transistor
Q405, 406, 411, 412, 501, 502	2SC2631-R	Transistor
Q407, 408	2SC3311-Q	Transistor
Q409, 410, 602	2SA1309Q	Transistor
Q415, 416	2SC3298AY	Transistor
Q417, 418	2SA1306AY	Transistor
Q505, 506, 601	2SA992E	Transistor
Q701	2SC2592-R	Transistor
Q702	2SA1112-R	Transistor
DIODES		
D401, 402	MA162A	Diode
D403, 404, 409, 505	MA29WA	Diode
D405-408, 620	MA165	Diode
D501, 502	MA4062-M	Diode
D503, 504	MA167	Diode
D601	LN48YCP	LED
D602, 611	MA4033M	Diode
D603-608	LN863RCPP	LED
D609	LN463YCPP	LED
D610	LN863RCPP	LED
D621, 622	MA4120-M	Diode
D624	SVDSR1K2	Diode
D701	MA4160M	Diode
D702-705	Δ SVDS3V40	Rect
COILS		
L1 [EGA] only	Δ SLQZ650MH49	Coil
L101, 102	SLM1233	Coil
[EGA] only		
L501, 502	SLQY07G-40	Coil
L503, 504	SLQY18G-10	Coil
L505-508	SLQY07G-40	Coil
[EGA] only		
TRANSFORMERS		
T1 [XA] only	Δ SLT5P251-W	Power Source
T1 [EK, XL]	Δ SLT5P250-W	Power Source
T1 [other]	Δ SLT5P249-W	Power Source
VARIABLE RESISTORS		
VR201	EWJKA090B15	Main Volume
VR202	EVH0YA015G15	Balance
VR301, 302	EWCRYA023C15	Bass/Treble
VR401, 402	EVNKA000B52	Lo Adj.
THERMISTERS		
TH201, 202	ERTD2ZHL104S	Thermister
FUSES		
F1 [EK] only	Δ XBA2C20T80	250V, T2A
F1 [XA] only	Δ XBA2C40TR0	250V, T4A
F1 [other]	Δ XBA2C20TR0	250V, T2A
F2 [XA] only	Δ XBA2C20TR0	250V, T2A
SWITCHES		
S1-1~1-6	SSH656	Input Selector
S3	ESA2682	Rec. Selector
S4	SSH2114	Phono Selector
S5	SSH1215	CD Direct
S6	SSH2114	Loudness
S8	SSH1214	Tone
S9-1	SSH2115	Main Speaker Selector
S9-2	SSH2115	Remote Speaker Selector
S10	SSS154	Speaker Impedance Selector

Ref. No.	Part No.	Description
SWITCHES		
S11	Δ ESB8215V	Power Source
S12 [XA] only	Δ ESE37263	Voltage Selector
RELAY		
RLY1	SSY129	Relay
Ref. No.	Part No.	Description
CABINET and CHASSIS PARTS		
1	$\bigcirc$ SBN1207-1	Knob, Bass, Treble, Balance (3)
1	$\otimes$ SBN1206	Knob, Bass, Treble, Balance (3)
2	$\bigcirc$ SBN1089-4	Knob, Selector (1)
2	$\otimes$ SBN1089-3	Knob, Selector (1)
3	$\bigcirc$ SBN1210-1	Knob, Volume (1)
3	$\otimes$ SBN1210	Knob, Volume (1)
4	$\bigcirc$ SGWUV50-SE	Front Panel Ass'y (1)
4	$\otimes$ SGWUV50-KE	Front Panel Ass'y (1)
5	SMC6407	Shield Plate (1)
6	LN064316P	L.E.D. Ass'y (1)
7	LN021315P	L.E.D. Ass'y (1)
8	$\bigcirc$ SBC439	Button, S.P Selector (2)
8	$\otimes$ SBC439-2	Button, S.P Selector (2)
9	SJJ126B	Headphone Jack (1)
10 [EK]	$\bigcirc$ SKCUV50-SK	Cabinet Ass'y (1)
10 [other]	$\bigcirc$ SKC1760S982	Cabinet (1)
10 [EK]	$\otimes$ SKCUV50-KK	Cabinet Ass'y (1)
10 [other]	$\otimes$ SKC1760K992	Cabinet (1)
11	$\bigcirc$ SBC719	Button, Loudness, Tone, MM/MC (3)
11	$\otimes$ SBC719-1	Button, Loudness, Tone, MM/MC (3)
12	$\bigcirc$ SBC820-1	Button, CD Direct (1)
12	$\otimes$ SBC820	Button, CD Direct (1)
13	LN014314PH	L.E.D. (1)
14	SHE187-1	P.C.B. Holder (6)
15	SUB254	Connection Rod, Input Selector (6)
16 [XA]	SKUUV50-KX	Bottom Cover Ass'y (1)
16 [other]	SKU11280-6	Bottom Cover (1)
17	SKL299	Foot (Right) (2)
18	SKL299-1	Foot (Left) (2)
19	SHR401-1	Nylon Pin (3)
20	SJS305	Connector (3 Pin) (1)
21	SJT388	Fuse Holder (2)
22	SUB233	Connection Rod, Power (1)
23	$\bigcirc$ SBC666	Button, Power (1)
23	$\otimes$ SBC666-3	Button, Power (1)
24	SMX909	Insulation Cover (1)
25 [E]	SGP6810A	Rear Panel (1)
25 [EK]	SGP6810C	Rear Panel (1)
25 [XA]	SGP6810-1A	Rear Panel (1)
25 [XL]	SGP6810D	Rear Panel (1)
25 [EGA]	SGPUV50-KG	Rear Panel Ass'y (1)
25 [other]	SGPUV50-KE	Rear Panel Ass'y (1)
26 [XA]	Δ SJS9328B	AC Outlet (1)
27 [XL]	Δ SJS9234B	AC Inlet (1)
27 [other]	Δ SJS9231B	AC Inlet (1)
28 [XA]	SJS9328A	AC Outlet Cover (1)

Ref. No.	Part No.	Description
CABINET and CHASSIS PARTS		
29 [XL]	SJS9234A	AC Inlet Cover (1)
29 [other]	SJS9231A	AC Inlet Cover (1)
30	SJP9205-2	Short Pin (2)
31	SJF4815-1	Speaker Terminal (1)
32	SJF3057N	EXT. Terminal (1)
33	SJF3057-5N	Phono Terminal (1)
34	SJF3062NK	Input Terminal (1)
35 [XA]	SHR401-1	Nylon Pin (1)
36 [XA]	SMX916	Insulation Cover (1)
37 [XA]	SJS702	Connector (7 Pin) (1)
38 [XA]	SJT347	Fuse Holder (4)
39	SHR301	Clamper (5)
40	SJS5341	Connector (3 Pin) (1)
41	SJT3311	Post (3 Pin) (3)
42	SJT3321	Post (3 Pin) (1)
42	SJT3711	Post (7 Pin) (1)
43	SJT30843-V	Socket (8 Pin) (1)
43	SJT30943-V	Socket (9 Pin) (1)
44	SJT783	Connector Pin (21)
45	SJS5215	Connector (2 Pin) (1)
45	SJS5331	Connector (3 Pin) (2)
45	SJS5629	Connector (6 Pin) (1)
45	SJS5715	Connector (7 Pin) (1)
46	SJT3213	Post (2 Pin) (1)
46	SJT3319	Post (3 Pin) (1)
46	SJT3611	Post (6 Pin) (1)
47	SMY897	Bracket (2)
48	SMX910	Insulation Cover (1)
Except [XA]		
SCREWS		
N1	SNE4021	Nut (5)
N2	XTBS3+10JFZ1	Tapping, $\oplus 3 \times 10$ (4)
N3	XTB3+10GFR	Tapping, $\oplus 3 \times 10$ (4)
N4	$\bigcirc$ SNE2095-4	Cabinet (4)
N4	$\otimes$ SNE2095-5	Cabinet (4)
N5	$\bigcirc$ XTB3+8JFN	Tapping, $\oplus 3 \times 8$ (3)
N5	$\otimes$ XTB3+8JFZ	Tapping, $\oplus 3 \times 8$ (3)
N6	XTB3+20J	Tapping, $\oplus 3 \times 20$ (4)
N7	XTW3+10T	Tapping, $\oplus 3 \times 10$ (6)
N8	XTBS3+20F1	Tapping, $\oplus 3 \times 20$ (4)
N9	XTW3+8T	Transistor (6)
N10	XYN3+F14	Power IC (2)
N11	XTB3+8FFZ	Tapping, $\oplus 3 \times 8$ (8)
N12	XTW3+8TFR	Tapping, $\oplus 3 \times 8$ (2)
N13	XYN3+C6FZS	Tapping, $\oplus 3 \times 8$ (2)
N14	XTBS3+8JFZ1	Tapping, $\oplus 3 \times 8$ (6)
N15 [XA]	XYN3+F8	Tapping, $\oplus 3 \times 8$ (1)
ACCESSORIES		
A1 [EK]	Δ SFDAC05G02	AC Cord (1)
A1 [XL]	Δ SJA173	AC Cord (1)
A1 [XA]	Δ SJA168-1	AC Cord (1)
A1 [other]	Δ SFDAC05E03	AC Cord (1)
A3 [XA]	SJP9215	Plug (1)
A4 [EGA]	SQFK10141	Instruction Book (1)
A4 [XA]	SQFK10139	Instruction Book (1)
A4 [other]	SQFK10140	Instruction Book (1)
PACKING PARTS		
P1 [EK]	SPGK263	Carton Box (1)
P1 [EF]	SPGK266	Carton Box (1)
P1 [other]	SPGK262	Carton Box (1)
P2	SPSK101	Pad (Left) (1)
P3	SPSK102	Pad (Right) (1)
P4	SPS4613-1	Pad (Upper) (1)
P5	SPP723	Polyethylene Bag (1)
P6 [EF]	SGK1411	Label (2)



EXPLODED VIEW



SU-V50