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SERVICE MANUAL

English
Deutsch
Français

No. 170



SPECIFICATIONS

Specifications and designs may be changed without notice for improvement.

* Measured pursuant to the Federal Trade Commission's Trade Regulation Rule on Power Output Claims for Amplifiers.

Power output

30 watts* per channel, min. RMS, at 8 ohms from 20 Hz to 20kHz, with no more than 0.05% total harmonic distortion.

33 W/ch + 33 W/ch (Both channels driven into 8 ohms, 20-20,000 Hz, T.H.D. 0.05%)

36 W/ch + 36 W/ch (8 ohms, 1 kHz, T.H.D. 0.05%)

38 W/ch + 38 W/ch (4 ohms, 1 kHz, T.H.D. 0.15%)

10 Hz - 50 kHz

Power bandwidth

Frequency characteristics

TUNER, TAPE 1, 2

10 Hz - 40 kHz (+0.5, -1.5 dB)

PHONO

RIAA ±0.3 dB

Harmonic distortion (8 ohms) (at rated output)

Less than 0.05%

(at 1/2 rated output)

Less than 0.03%

Intermodulation distortion (at 1/2 rated output)

Less than 0.03%

Input sensitivity (Impedance)

PHONO

2.5 mV (47 k-ohms)

TUNER

150 mV (33 k-ohms)

TAPE 1, 2

150 mV (33 k-ohms)

Output level

TAPE OUT

150 mV (PHONO, TUNER)

Phono overload level (at 1 kHz, T.H.D. 0.05%)

200 mV

Signal-to-noise ratio (IHF, A network)

PHONO

75 dB

TUNER, TAPE 1,2

90 dB

Damping factor

30 (1 kHz, 8 ohms)

Bass control

±10 dB (100 Hz)

Treble control

±10 dB (10 kHz)

Loudness control

+9 dB (100 Hz) +4 dB (10 kHz)

Subsonic filter

20 Hz (-12 dB/oct)

Semi-conductors

4 ICs, 24 transistors and 18 diodes (2 LEDs)

Power supply

AC 120 V 60 Hz, ~220 V 50/60 Hz, ~240 V 50/60 Hz or ~120 V/220 V/240 V 50/60 Hz)

Power consumption

160 W (at 1/3 rated output) 240 W (at rated output)

Dimensions

435 (W) x 110 (H) x 275 (D) mm

Weight

6 kg

FEATURES

1. Low-distortion power amplifier
2. Power level meters for output power readout
3. Connection facilities for two pairs of speakers
4. New ICs in the Equalizer and Pre-amplifier
5. Subsonic filter that cuts out rumble and wow in the ultra-low frequencies without impairing the sound quality.
6. LED program source indicators.

STEREO AMPLIFIER

April 1979

TECHNISCHE DATEN

Änderungen der Konstruktion und technischen Daten bleiben im Sinne der ständigen Verbesserung vorbehalten.

Ausgangsleistung	33 Watt/Kanal +33 Watt/Kanal (beide Kanäle angesteuert) in 8 Ohm, 20 Hz-20 kHz, T.H.D. 0,05%.
DIN 8 Ohm	36 Watt/Kanal + 36 Watt/Kanal (8 Ohm, 1 kHz, T.H.D. 0,05%)
DIN 4 Ohm	38 Watt/Kanal + 38 Watt/Kanal (4 Ohm, 1 kHz, T.H.D. 0,15%)
Leistungsbandbreite	10 Hz – 50 kHz
Frequenzcharakteristik	
TUNER, TAPE 1, 2	10 Hz – 40 kHz (+0,5, -1,5 dB)
PHONO	RIAA-Kennlinie ±0,3 dB
Klirrfaktor (8 Ohm) (bei Nennleistung)	Kleiner als 0,05%
(bei halber Nennleistung)	Kleiner als 0,03%
Intermodulations-Verzerrung (bei halber Nennleistung)	Kleiner als 0,03%
Eingangsempfindlichkeit (Impedanz)	
PHONO	2,5 mV (47 kOhm)
TUNER	150 mV (33 kOhm)
TAPE 1, 2	150 mV (33 kOhm)
Ausgangspegel TAPE OUT	150 mV (PHONO, TUNER)
Phonoüberlastungspegel (bei 1 kHz, 0,5% T.H.D.)	200 mV
Geräuschspannungsabstand (IHF, A-Netz)	
PHONO	75 dB
TUNER, TAPE 1, 2	90 dB
Dämpfungsfaktor	30 (1 kHz, 8 Ohm)
Tiefeneinstellung	±10 dB (100 Hz)
Höheneinstellung	±10 dB (10 kHz)
Gehörliche Lautstärkekontur	+9 dB (100 Hz) +4 dB (10 kHz)
Subsonicfilter-Schalter	20 Hz (-12 dB/oct)
Bestückung	4 ICs, 24 Transistoren und 18 Dioden (2 LED)
Netzspannung	Wechselstrom 120/60 Hz, ~ 220 V 50/60 Hz, ~ 240 V 50/60 Hz oder, ~ 120 V/220 V/240 V 50/60 Hz
Leistungsaufnahme	160 W (bei 1/3 Nennleistung) 240 W (bei Nennleistung)
Abmessungen	435 (B) x 110 (H) x 275 (T) mm
Gewicht	6,0 kg

MERKMALE

1. Verzerrungsarmer Leistungsverstärker
2. Leistungspegelmessung zur Ablesung der Ausgangsleistung
3. Anschlüsse für zwei Lautsprecherpaare
4. Neue integrierte Schaltkreise (ICs) im Phono-Entzerrer und Vorverstärker
5. Subsonic-Filter, unterdrückt Rumpeln und Jaulen in den extrem niedrigen Frequenzen, ohne die Klangqualität zu beeinträchtigen
6. Programmquellen-LED Lichtsegmente

CARACTERISTIQUES TECHNIQUES

Les caractéristiques techniques et la présentation peuvent être modifiées sans préavis pour des raisons d'amélioration.

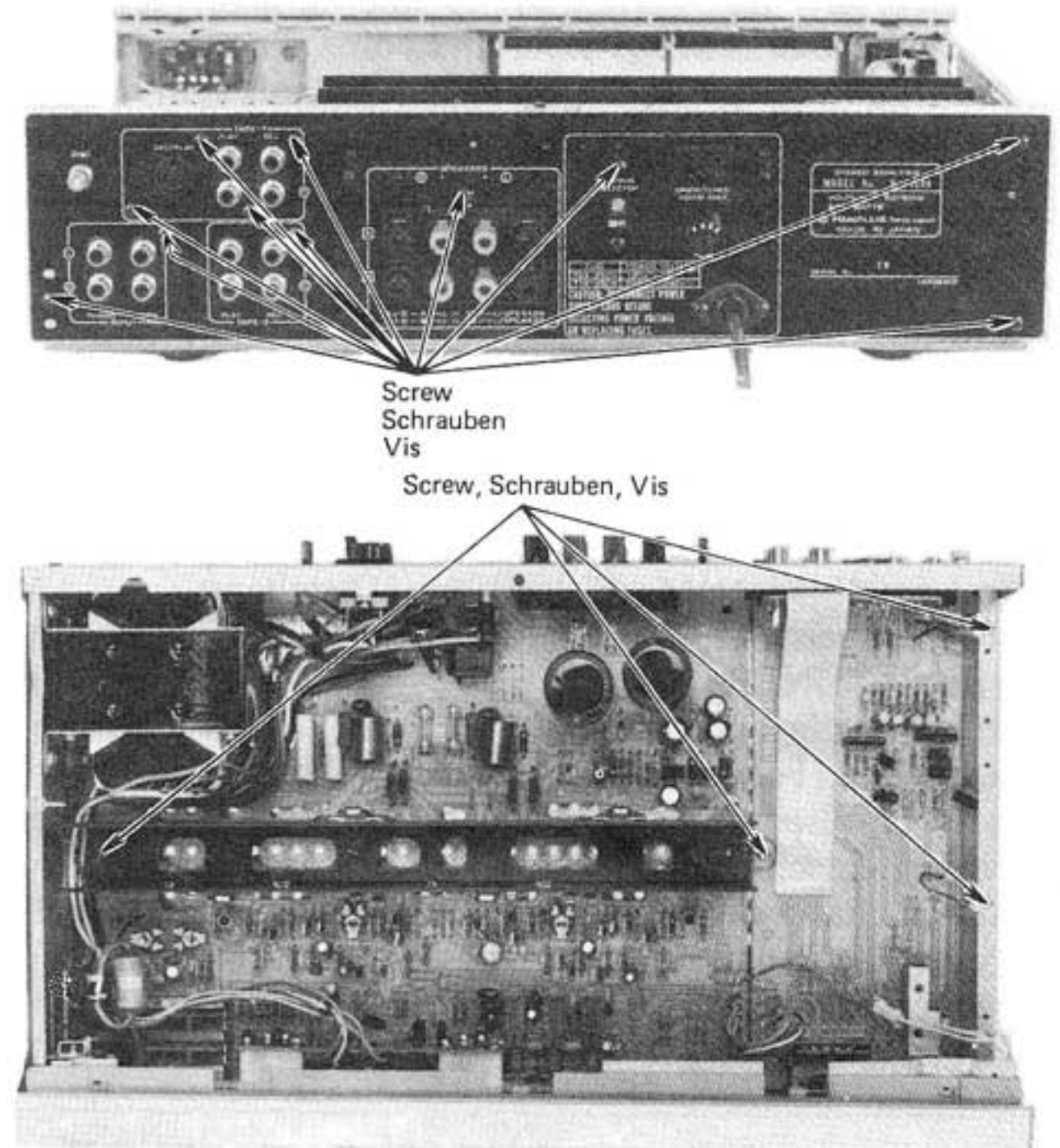
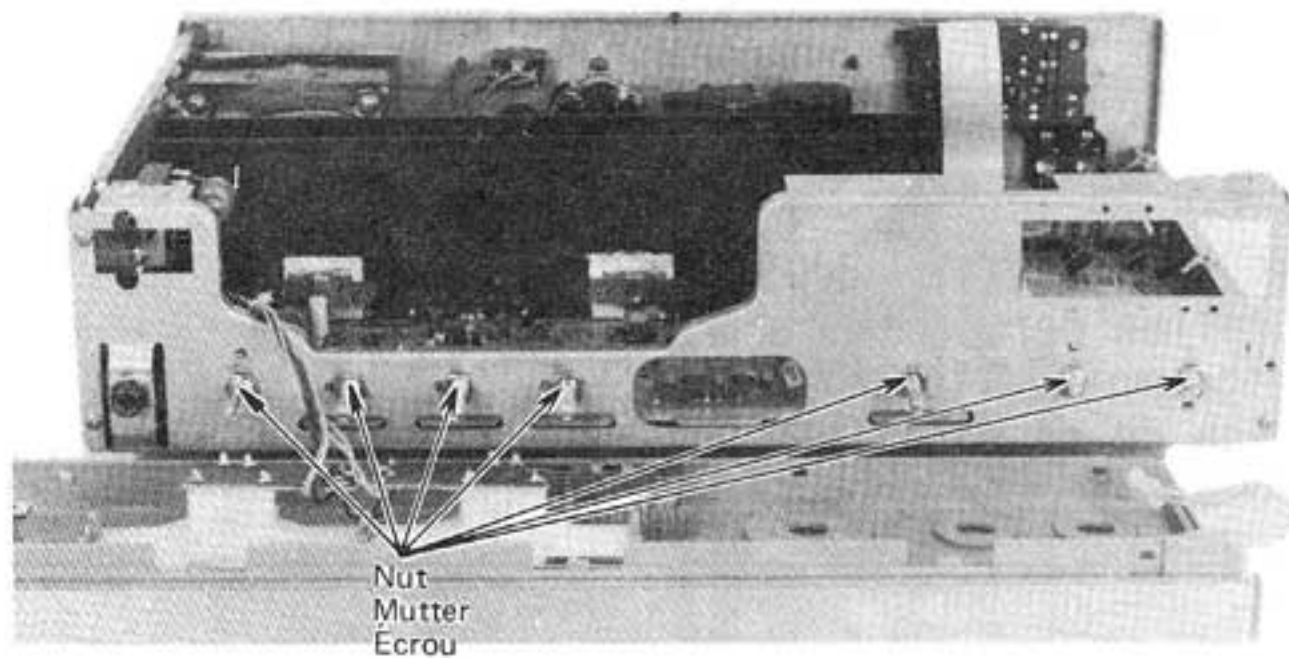
Puissance de sortie	33 W/can. +33 W/can. (deux canaux en fonction sous 8 ohms, 20 – 20,000 Hz, D.H.T. 0,05%).
	36 W/can. +36 W/can. (8 ohms, 1 kHz, D.H.T. 0,05%)
	38 W/can. +38 W/can. (14 ohms, 1 kHz, D.H.T. 0,15%)
Bande passante	10 Hz – 50 kHz
Caractéristiques de fréquence	
TUNER, TAPE 1, 2	10 Hz – 40 kHz (+0,5, -1,5 dB)
PHONO	RIAA ±0,3 dB
Distorsion harmonique (8 ohms) (à la puissance nominale)	Inférieure à 0,05%
(à la moitié de la puissance nominale)	Inférieure à 0,03%
Distorsion d'intermodulation (à la moitié de la puissance nominale)	Inférieure à 0,03%
Sensibilité d'entrée (Impédance)	
PHONO	2,5 mV (47 k-ohms)
TUNER	150 mV (33 k-ohms)
TAPE 1, 2	150 mV (33 k-ohms)
Niveau de sortie TAPE OUT	150 mV (PHONO, TUNER)
Niveau de surcharge phono (à 1 kHz, D.H.T. 0,05%)	200 mV
Rapport signal/bruit (IHF, réseau A)	
PHONO	75 dB
TUNER, TAPE	90 dB
Facteur d'atténuation	30 (1 kHz, 8 ohms)
Réglage de graves	±10 dB (100 Hz)
Réglage des aigus	±10 dB (10 kHz)
Correction physiologique	+9 dB (100 Hz)
	+4 dB (10 kHz)
Filtre subsonique	20 Hz (-12 dB/oct)
Semiconducteurs	4 CI, 24 transistors et 18 diodes (2 LED)
Alimentation	CA 120 V 60 Hz, ~ 220 V 50/60 Hz, ~ 240 V 50/60 Hz ou ~ 120 V/220 V/240 V 50/60 Hz
Consommation	160 W (à 1/3 de la puissance nominale) 240 W (à la puissance nominale)
Dimensions	435 (L) x 110 (H) x 275 (P) mm
Poids	6,0 kg

CARACTERISTIQUES

1. Amplificateur de puissance à faible distorsion
2. Indicateurs de débit de puissance à lecture directe
3. Possibilité de raccordement de deux paires d'enceintes
4. De nouveaux circuits intégrés dans le correcteur et le pré-amplificateur
5. Un filtre subsonique qui permet de supprimer le rumble et le pleurage dans les très basses fréquences sans réduire la qualité du son
6. Témoin de fonction LED

DISASSEMBLY AND REPLACEMENT · ZERLEGUNG UND AUSTAUSCH · DEMONTAGE ET REMONTAGE

- Removing the printed wiring boards
- Ausbau der Leiterplatten
- Déposer des plaquettes à circuit imprimé



ADJUSTMENT · ABGLEICH · REGLAGE

● IDLE CURRENT

Adjust R751 so that the voltage of both terminals of the emitter resistor R720 (0.22 ohms) of the output transistor Q710 become 8.8 mV $\begin{matrix} +6.6 \\ -4.4 \end{matrix}$ mV (current value 40 mA $\begin{matrix} +30 \\ -20 \end{matrix}$ mA).

[Note] This adjustment should be performed more than 5 minutes after the power switch is turned ON.

● BLINDSTROM

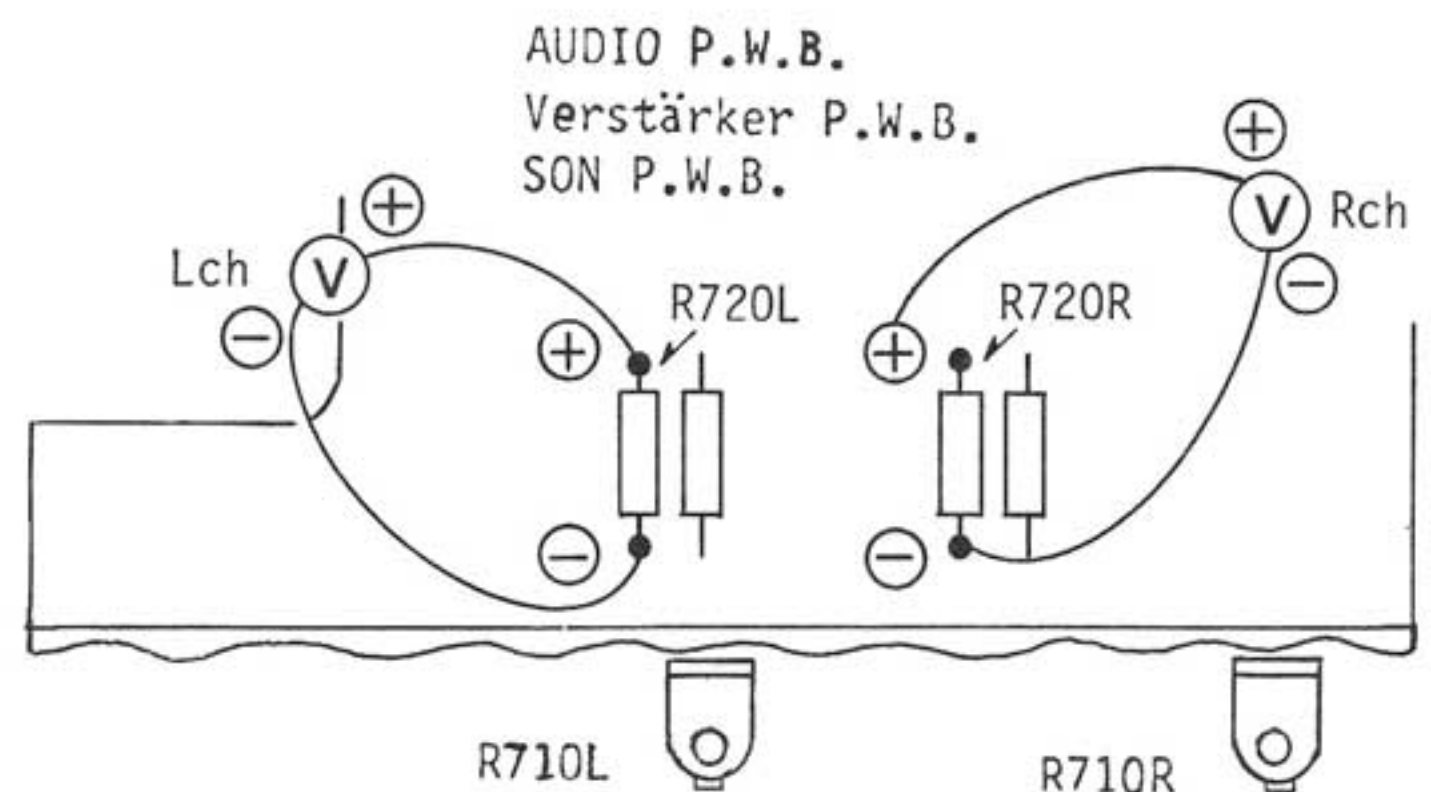
R751 ist so einzustellen, daß die Spannung an beiden Klemmen des Emitter-Widerstandes R720 (0,22 Ohm) des Leistungstransistors Q710 8,8 mV $\begin{matrix} +6,6 \\ -4,4 \end{matrix}$ mV beträgt (Stromstärke 40 mA $\begin{matrix} +30 \\ -20 \end{matrix}$ mA).

[Hinweis] Dieser Abgleich ist mindestens fünf Minuten nach dem Einschalten des Netzschalters durchzuführen.

● COURANT DEWATTE

Ajuster R751 de telle sorte que la tension des deux bornes de la résistance d'émetteur R720 (0,22 ohms) du transistor de sortie Q710 atteigne 8,8 mV $\begin{matrix} +6,6 \\ -4,4 \end{matrix}$ mV (valeur du courant: 40 mA $\begin{matrix} +30 \\ -20 \end{matrix}$ mA).

[Remarque] Ce réglage doit être fait plus de 5 minutes après la mise en marche de l'interrupteur général.



HITACHI HA-3500

● METER SENSITIVITY

1. Set the volume control to (O) position.
2. Set the power switch to ON. (FUNCTION switch: TUNER)
3. Connect the OSC output to the TUNER input. (Frequency: 1 kHz)
4. Connect the AC voltmeter to the speaker terminals.
5. Adjust the OSC output level and volume control so that the output voltage at the speaker terminals is 8.94V rms without speaker connections.

Item	Measuring instrument	Adjust	Deviation of needle
Meter adjustment	Oscillator AC voltmeter	R553L,R	10W

● SENSIBILITE DE COMPTEUR

1. Régler la commande de volume sur la position (O).
2. Régler l'interrupteur général sur la position de marche "ON" (le sélecteur de fonction sur TUNER).
3. Raccorder la sortie OSC à l'entrée TUNER (fréquence: 1 kHz).
4. Brancher un voltmètre C.A. aux bornes de haut-parleurs.
5. Ajuster le niveau de sortie OSC et la commande de volume pour que la tension de sortie aux bornes de haut-parleurs soit de 8.94V efficaces sans que les haut-parleurs ne soient branchés.

Désignation	Appareil de mesure	Réglage	Course de l'aiguille
Courant déwatté	Voltmètre à courant alternatif	R553L,R	10W

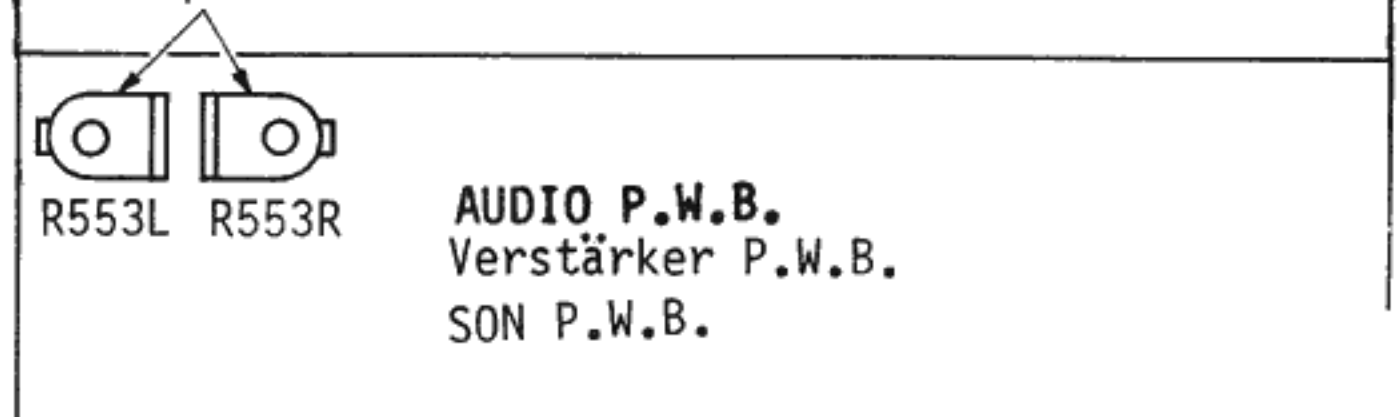
● ANZEIGEEMPFINDLICHKEIT

1. Den Lautstärkereger auf Position (O) stellen.
2. Den Netzschalter einschalten (Funktionsschalter auf Position: TUNER).
3. Den Oszillatorausgang an den TUNER-Eingang anschließen (Frequenz: 1 kHz).
4. Ein Wechselspannungs-Voltmeter an die Lautsprecherklemmen anschließen.
5. Den Oszillator-Ausgangspegel und den Lautstärkereger so einstellen, daß die Ausgangsspannung an den Lautsprecherklemmen 8,94V beträgt, wenn die Lautsprecher nicht angeschlossen sind.

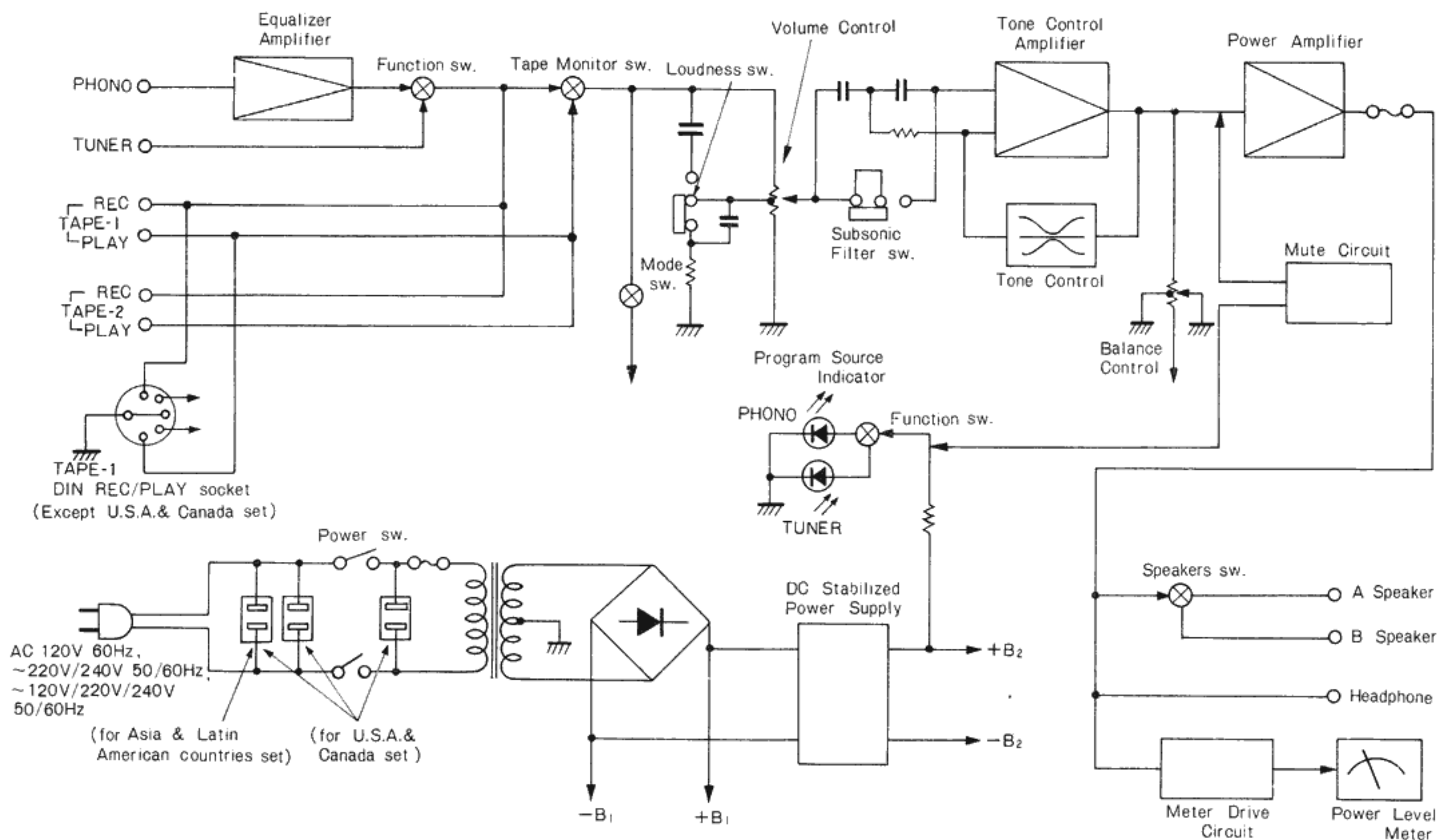
Benennung	Meßinstrument	Anzeige	Nadel-ausschlag
Abgleich des Blindstromes	Wechselspannungsmesser	R553L,R	10W

METER SENSITIVITY ADJUSTMENT

Einstellen der Anzeigeempfindlichkeit
Réglage de sensibilité du compteur



BLOCK DIAGRAM · BLOCK SCHEMA · SCHEMA



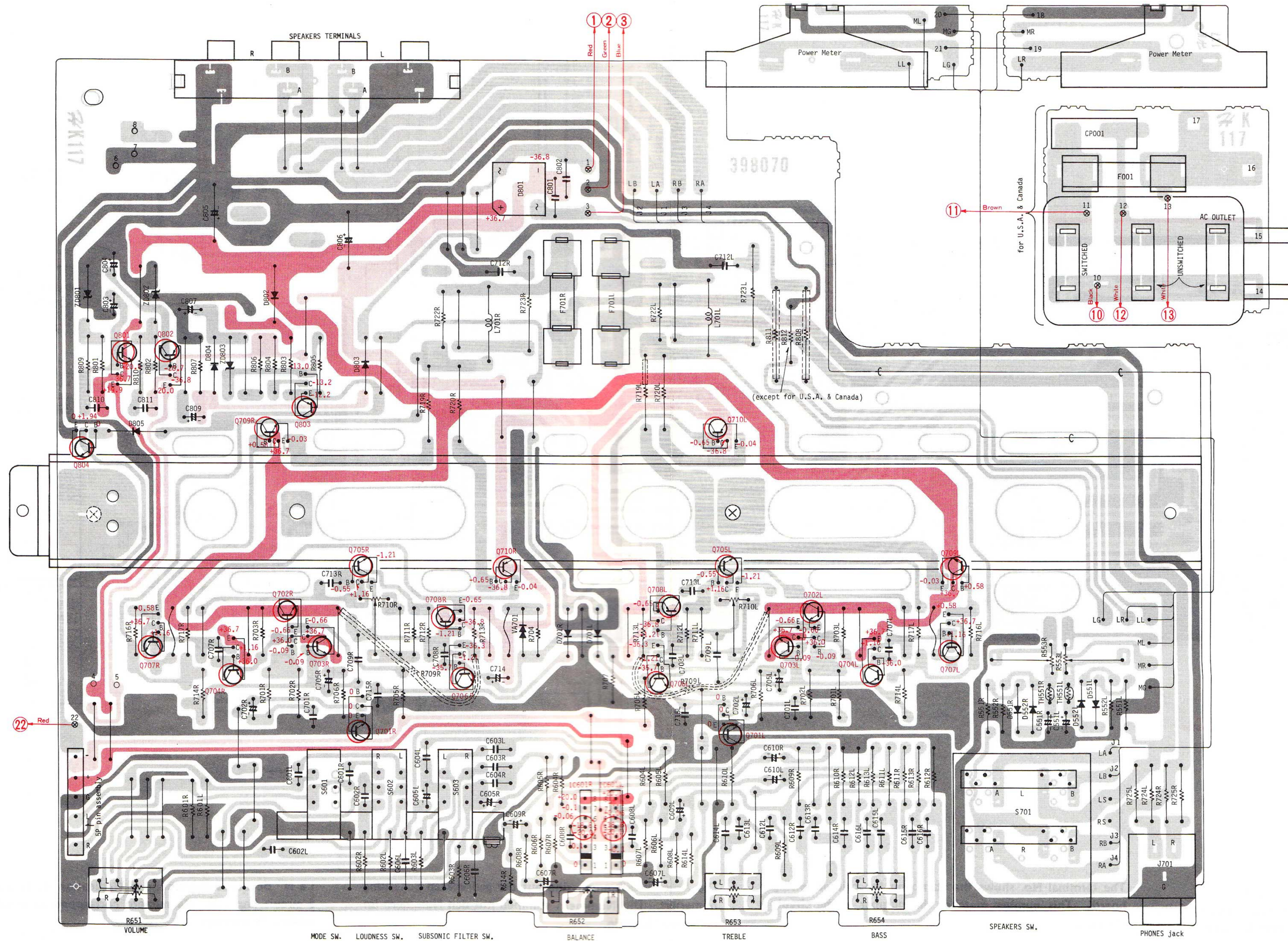
One channel only shown.

PRINTED WIRING BOARD · PRINTPLATTEN · PLAN DE BASE

Audio P.W.B.

[: +B, : -B, : Earth, : Other]

- *: Axial lead cylindrical ceramic capacitor
- *: Zylindrischer Keramik Kondensator mit axialer Zuleitung
- *: Condensateur céramique cylindrique à conducteur axial



The terminal No. shows the stamp on the printed wiring board. This number matches the number in the circuit diagram.

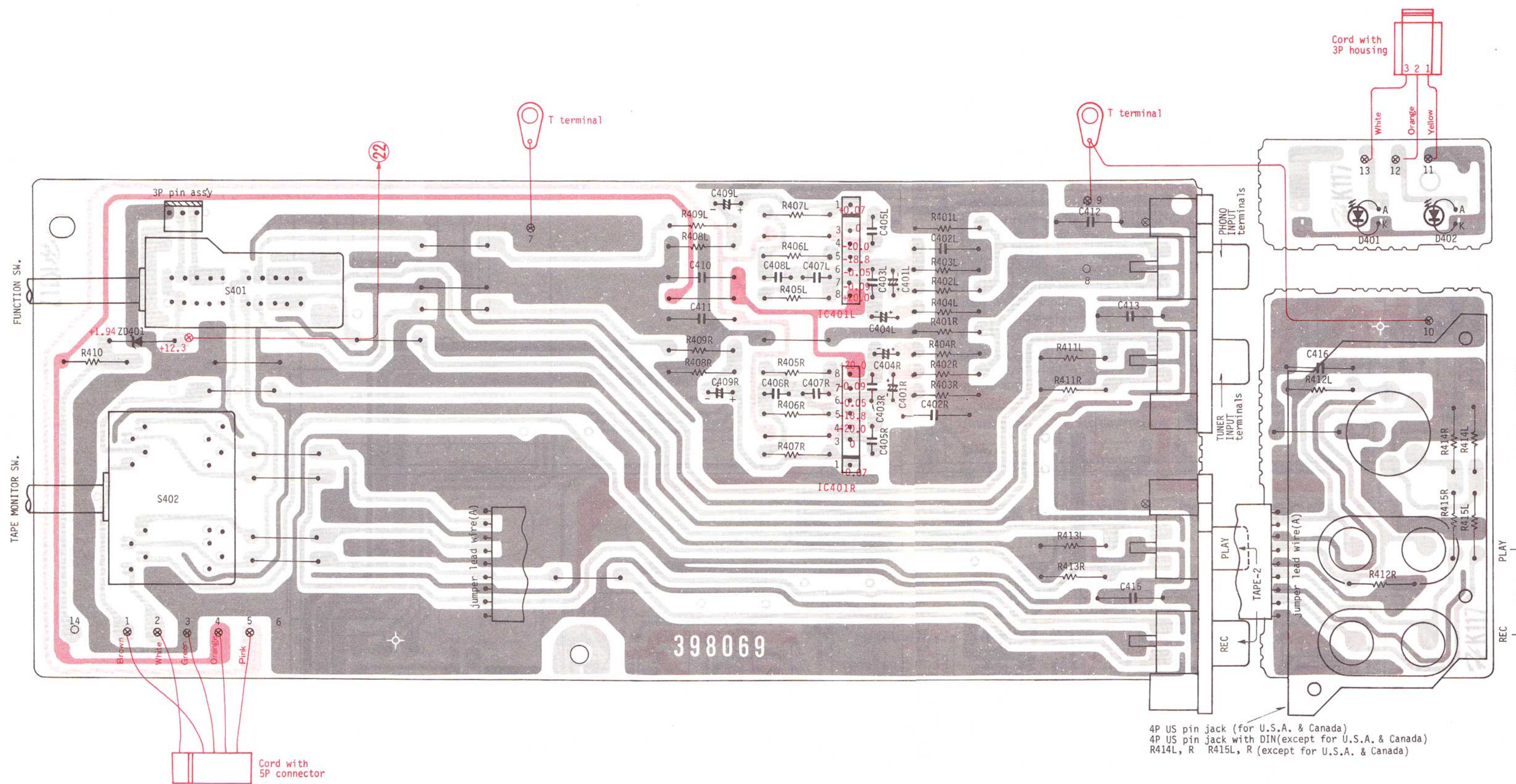
Die Anschlussklemmen sind auf der gedruckten Schaltung nummeriert. Die Nummern stimmen mit den Nummern im Schaltplan überein.

Le N° de borne correspond à l'indication de la plaquette à circuit imprimé. Ce numéro correspond au numéro du schéma de montage.

PRINTED WIRING BOARD · PRINTPLATTEN · PLAN DE BASE

[: +B, : -B, : Earth, : Other]

Equalizer P.W.B.



2SC1344, 2SA844	1N34A
2SA1038, 2SC2389 2SD666, 2SB646 2SD667A, 2SB647A 2SC458	S4VB20
2SB616, 2SD586	ERB15-01
HA1457	TLR205
1S2076, HZ-20 HZ-6 (B), HZ-11 (A) 1S2076A	MV-5W

- *: Axial lead cylindrical ceramic capacitor
- *: Zylindrischer Keramikcondensator mit axialer zuleitung
- *: Condensateur céramique cylindrique à conducteur axial

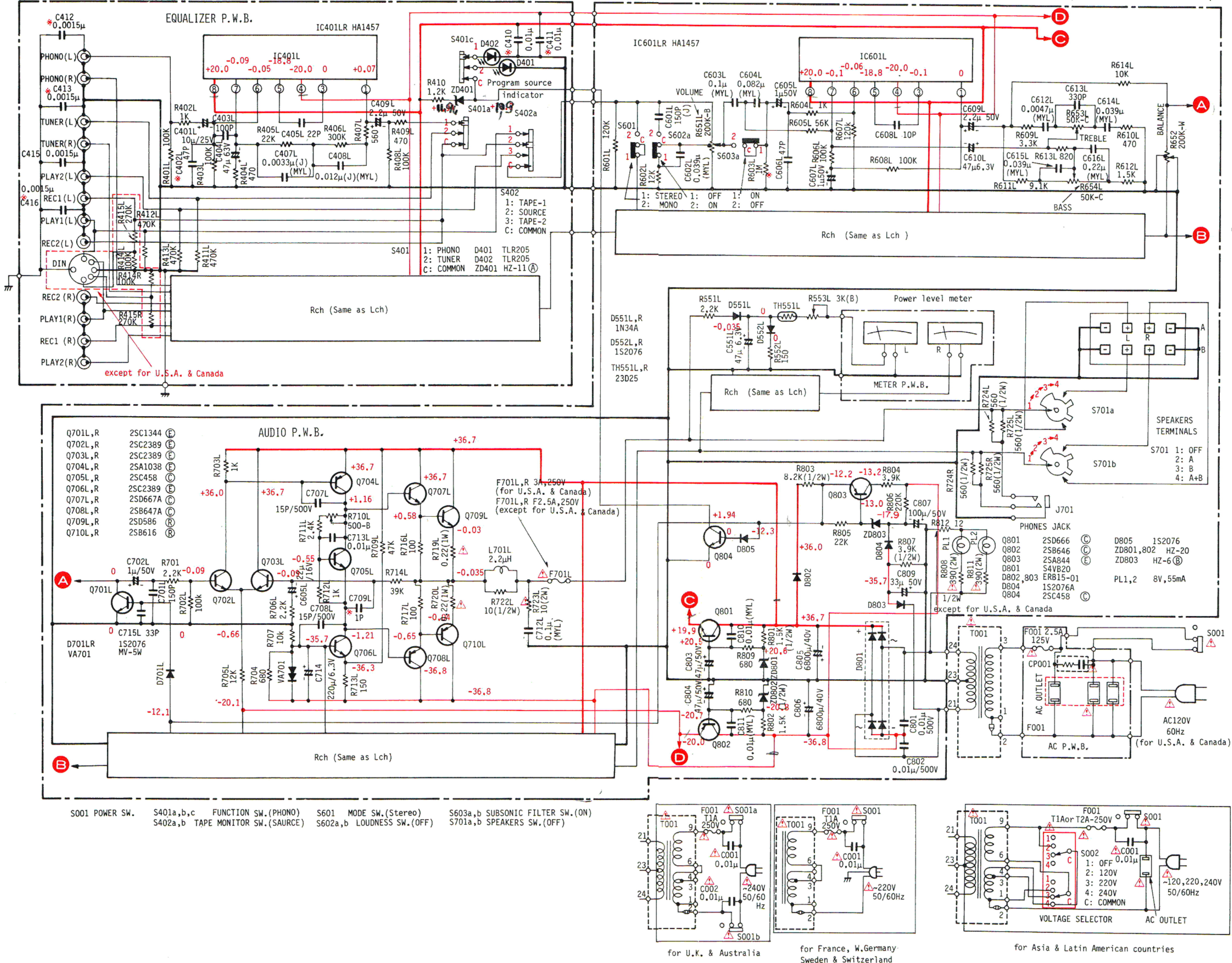
The terminal No. shows the stamp on the printed wiring board. This number matches the number in the circuit diagram.

Die Anschlussklemmen sind auf der gedruckten Schaltung nummeriert. Die Nummern stimmen mit den Nummern im Schaltplan überein.

Le N° de borne correspond à l'indication de la plaquette à circuit imprimé. Ce numéro correspond au numéro du schéma de montage.

CIRCUIT DIAGRAM · SCHALTPLAN · PLAN DE CIRCUIT

PRODUCT SAFETY NOTE: Components marked with a Δ have special characteristics important to safety.
 SICHERHEITSHINWEIS: Die mit Δ gekennzeichneten Komponenten haben wichtige Sicherheitsaufgaben.
 NOTICE DE SECURITE DE FABRICATION: Les composants qui sont accompagnés du symbole Δ possèdent des caractéristiques spéciales.



*: Axial lead cylindrical ceramic capacitor
 *: Zylindrischer Keramik Kondensator mit axialer Zuleitung
 *: Condensateur céramique cylindrique à conducteur axial

The circuit diagram is subject to change for improvement without notice.
 Änderungen des Schaltplans im Sinne ständiger Verbesserung vorbehalten.
 Le schéma de montage est sujet à modification sans préavis, pour des raisons d'amélioration.

REPLACEMENT PARTS · LIST · ERSATSTEILLISTE · TABLEAU DES PIECE

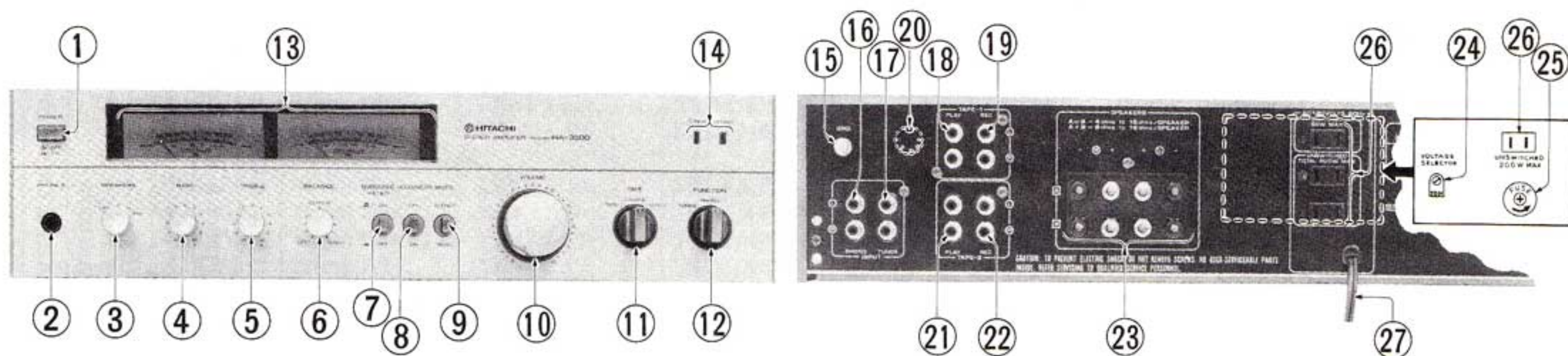
SYMBOL No.	STOCK No.	DESCRIPTION			SYMBOL No.	STOCK No.	DESCRIPTION		
CAPACITORS									
for EQUALIZER PRINTED WIRING BOARD									
C401L, R	1252621	Electrolytic	10 μ F	25V	C805	0250488	Electrolytic	6800 μ F	40V
C402L, R	H230028	Ceramic, discal	47pF \pm 5%	50V	C806	0250488	Electrolytic	6800 μ F	40V
C403L, R	1248684	Ceramic, discal	100pF \pm 5%	50V	C807	0252831	Electrolytic	100 μ F	50V
C404L, R	1252225	Electrolytic	47 μ F	6.3V	for DIAL MECHANISM ASSEMBLY				
C405L, R	1248668	Ceramic, discal	22pF \pm 5%	50V	C809	0252823	Electrolytic	33 μ F	50V
C407L, R	1274214	Mylar, film	3300pF \pm 5%	50V	C810	0275011	Mylar, film	0.01 μ F \pm 10%	50V
C408L, R	1275231	Mylar, film	0.012 μ F \pm 5%	50V	C811	0275011	Mylar, film	0.01 μ F \pm 10%	50V
C409L, R	1252812	Electrolytic	2.2 μ F	50V					
C410	H240106	Ceramic, discal	0.01 μ F \pm 30%	25V					
C411	H240106	Ceramic, discal	0.01 μ F \pm 30%	25V					
C412	H240101	Ceramic, discal	1500pF \pm 30%	25V					
C413	H240101	Ceramic, discal	1500pF \pm 30%	25V					
C415	H240101	Ceramic, discal	1500pF \pm 30%	25V					
C416	H240101	Ceramic, discal	1500pF \pm 30%	25V					
for AUDIO PRINTED WIRING BOARD									
C551L, R	0252225	Electrolytic	47 μ F	6.3V					
C601L, R	1248688	Ceramic, discal	150pF \pm 10%	50V					
C602L, R	0275034	Mylar, film	0.039 μ F \pm 10%	50V					
C603L, R	1276011	Mylar, film	0.1 μ F \pm 10%	50V					
C604L, R	1275036	Mylar, film	0.082 μ F \pm 10%	50V					
C605L, R	0252811	Electrolytic	1 μ F	50V					
C606L, R	H230028	Ceramic, discal	47pF \pm 5%	50V					
C607L, R	0252811	Electrolytic	1 μ F	50V					
C608L, R	1248650	Ceramic, discal	10pF \pm 0.5pF	50V					
C609L, R	0252812	Electrolytic	2.2 μ F	50V					
C610L, R	1252225	Electrolytic	47 μ F	6.3V					
C612L, R	0274015	Mylar, film	4700pF \pm 10%	50V					
C613L, R	1248736	Ceramic, discal	330pF \pm 10%	50V					
C614L, R	1275034	Mylar, film	0.039 μ F \pm 10%	50V					
C615L, R	1275034	Mylar, film	0.039 μ F \pm 10%	50V					
C616L, R	1276013	Mylar, film	0.22 μ F \pm 10%	50V					
C701L, R	1248688	Ceramic, discal	150pF \pm 5%	50V					
C702L, R	0252811	Electrolytic	1 μ F	50V					
C705L, R	0252522	Electrolytic	22 μ F	16V					
C706L, R	0252231	Electrolytic	100 μ F	6.3V					
C707L, R	0247834	Ceramic, discal	15pF \pm 5%	500V					
C708L, R	0247834	Ceramic, discal	15pF \pm 5%	500V					
C709L, R	H230000	Ceramic, discal	1pF \pm 20%	50V					
C712L, R	1276011	Mylar, film	0.1 μ F \pm 10%	50V					
C713L, R	0245017	Ceramic, discal	0.01 μ F \pm 80% -20%	25V					
C714	1252232	Electrolytic	220 μ F	6.3V					
C715L, R	1248672	Ceramic, discal	33pF \pm 5%	50V					
C801	0245408	Ceramic, discal	0.01 μ F \pm 20%	500V					
C802	0245408	Ceramic, discal	0.01 μ F \pm 20%	500V					
C803	1252825	Electrolytic	47 μ F	50V					
C804	1252825	Electrolytic	47 μ F	50V					
					RESISTORS				
					for EQUALIZER PRINTED WIRING BOARD				
R401L, R	H129661	Carbon film	100k Ω \pm 5%	SRD1/8P	R401L, R	H129661	Carbon film	100k Ω \pm 5%	SRD1/8P
R402L, R	H129601	Carbon film	1k Ω \pm 5%	SRD1/8P	R402L, R	H129601	Carbon film	1k Ω \pm 5%	SRD1/8P
R403L, R	H129661	Carbon film	100k Ω \pm 5%	SRD1/8P	R403L, R	H129661	Carbon film	100k Ω \pm 5%	SRD1/8P
R404L, R	H129577	Carbon film	470 Ω \pm 5%	SRD1/8P	R404L, R	H129577	Carbon film	470 Ω \pm 5%	SRD1/8P
R405L, R	H129639	Carbon film	22k Ω \pm 5%	SRD1/8P	R405L, R	H129639	Carbon film	22k Ω \pm 5%	SRD1/8P
R406L, R	0129672	Carbon film	300k Ω \pm 5%	SRD1/8P	R406L, R	0129672	Carbon film	300k Ω \pm 5%	SRD1/8P
R407L, R	H129579	Carbon film	560 Ω \pm 5%	SRD1/8P	R407L, R	H129579	Carbon film	560 Ω \pm 5%	SRD1/8P
R408L, R	H129661	Carbon film	100k Ω \pm 5%	SRD1/8P	R408L, R	H129661	Carbon film	100k Ω \pm 5%	SRD1/8P
R409L, R	H129577	Carbon film	470 Ω \pm 5%	SRD1/8P	R409L, R	H129577	Carbon film	470 Ω \pm 5%	SRD1/8P
R410	H129603	Carbon film	1.2k Ω \pm 5%	SRD1/8P	R410	H129603	Carbon film	1.2k Ω \pm 5%	SRD1/8P
R411L, R	H129677	Carbon film	470k Ω \pm 5%	SRD1/8P	R411L, R	H129677	Carbon film	470k Ω \pm 5%	SRD1/8P
R412L, R	H129677	Carbon film	470k Ω \pm 5%	SRD1/8P	R412L, R	H129677	Carbon film	470k Ω \pm 5%	SRD1/8P
R413L, R	H129677	Carbon film	470k Ω \pm 5%	SRD1/8P	R413L, R	H129677	Carbon film	470k Ω \pm 5%	SRD1/8P
R414L, R	H129661	Carbon film	100k Ω \pm 5%	SRD1/8P	R414L, R	H129661	Carbon film	100k Ω \pm 5%	SRD1/8P
R415L, R	H129671	Carbon film	270k Ω \pm 5%	SRD1/8P	for AUDIO PRINTED WIRING BOARD				
					for AUDIO PRINTED WIRING BOARD				
R551L, R	0114169	Carbon film	2.2k Ω \pm 5%	SRD1/4P	R551L, R	0114169	Carbon film	2.2k Ω \pm 5%	SRD1/4P
R552L, R	0114135	Carbon film	150 Ω \pm 5%	SRD1/4P	R552L, R	0114135	Carbon film	150 Ω \pm 5%	SRD1/4P
R601L, R	0114283	Carbon film	120k Ω \pm 5%	SRD1/4P	R601L, R	0114283	Carbon film	120k Ω \pm 5%	SRD1/4P
R602L, R	0114203	Carbon film	12k Ω \pm 5%	SRD1/4P	R602L, R	0114203	Carbon film	12k Ω \pm 5%	SRD1/4P
R603L, R	0114311	Carbon film	1M Ω \pm 5%	SRD1/4P	R603L, R	0114311	Carbon film	1M Ω \pm 5%	SRD1/4P
R604L, R	0114161	Carbon film	1k Ω \pm 5%	SRD1/4P	R604L, R	0114161	Carbon film	1k Ω \pm 5%	SRD1/4P
R605L, R	0114219	Carbon film	56k Ω \pm 5%	SRD1/4P	R605L, R	0114219	Carbon film	56k Ω \pm 5%	SRD1/4P
R606L, R	0114281	Carbon film	100k Ω \pm 5%	SRD1/4P	R606L, R	0114281	Carbon film	100k Ω \pm 5%	SRD1/4P
R607L, R	0114283	Carbon film	120k Ω \pm 5%	SRD1/4P	R607L, R	0114283	Carbon film	120k Ω \pm 5%	SRD1/4P
R608L, R	0114281	Carbon film	100k Ω \pm 5%	SRD1/4P	R608L, R	0114281	Carbon film	100k Ω \pm 5%	SRD1/4P
R609L, R	0114173	Carbon film	3.3k Ω \pm 5%	SRD1/4P	R609L, R	0114173	Carbon film	3.3k Ω \pm 5%	SRD1/4P
R610L, R	0114147	Carbon film	470 Ω \pm 5%	SRD1/4P	R610L, R	0114147	Carbon film	470 Ω \pm 5%	SRD1/4P
R611L, R	1114184	Carbon film	9.1k Ω \pm 5%	SRD1/4P	R611L, R	1114184	Carbon film	9.1k Ω \pm 5%	SRD1/4P
R612L, R	0114165	Carbon film	1.5k Ω \pm 5%	SRD1/4P	R612L, R	0114165	Carbon film	1.5k Ω \pm 5%	SRD1/4P
R613L, R	0114153	Carbon film	820 Ω \pm 5%	SRD1/4P	R613L, R	0114153	Carbon film	820 Ω \pm 5%	SRD1/4P
R614L, R	0114201	Carbon film	10k Ω \pm 5%	SRD1/4P	R614L, R	0114201	Carbon film	10k Ω \pm 5%	SRD1/4P
R701L, R	0114169	Carbon film	2.2k Ω \pm 5%	SRD1/4P	R701L, R	0114169	Carbon film	2.2k Ω \pm 5%	SRD1/4P
R702L, R	0114281	Carbon film	100k Ω \pm 5%	SRD1/4P	R702L, R	0114281	Carbon film	100k Ω \pm 5%	SRD1/4P
R703L, R	0114161	Carbon film	1k Ω \pm 5%	SRD1/4P	R703L, R	0114161	Carbon film	1k Ω \pm 5%	SRD1/4P
R704	0114151	Carbon film	680 Ω \pm 5%	SRD1/4P	R704	0114151	Carbon film	680 Ω \pm 5%	SRD1/4P
R705L, R	0114203	Carbon film	12k Ω \pm 5%	SRD1/4P	R705L, R	0114203	Carbon film	12k Ω \pm 5%	SRD1/4P

PRODUCT SAFETY NOTE: Components marked with a Δ have special characteristics important to safety.
SICHERHEITSHINWEIS: Die mit Δ gekennzeichneten Komponenten haben wichtige Sicherheitsaufgaben.
NOTICE DE SECURITE DE FABRICATION: Les composants qui sont accompagnés du symbole Δ possèdent des caractéristiques spéciales.

SYMBOL No.	STOCK No.	DESCRIPTION			SYMBOL No.	STOCK No.	DESCRIPTION					
R706L, R	0114169	Carbon film	2.2k Ω \pm 5%	SRD1/4P	ZD401	2337321	HZ-11 $\text{\textcircled{A}}$					
R707	0114201	Carbon film	10k Ω \pm 5%	SRD1/4P	for AUDIO PRINTED WIRING BOARD							
R708	0114135	Carbon film	150 Ω \pm 5%	SRD1/4P								
R709L, R	0114217	Carbon film	47k Ω \pm 5%	SRD1/4P								
R711L, R	0114170	Carbon film	2.4k Ω \pm 5%	SRD1/4P								
R712L, R	0114161	Carbon film	1k Ω \pm 5%	SRD1/4P	D551L, R	0575002	1N34A					
R713L, R	0114135	Carbon film	150 Ω \pm 5%	SRD1/4P	D552L, R	2337011	1S2076					
R714L, R	0114215	Carbon film	39k Ω \pm 5%	SRD1/4P	D701L, R	2337011	1S2076					
R716L, R	0114131	Carbon film	100 Ω \pm 5%	SRD1/4P	VA701	2347042	Varistor MV-5W					
R717L, R	0114131	Carbon film	100 Ω \pm 5%	SRD1/4P	D801	2337461	S4VB20					
Δ R719L, R	0119013	Metal	0.22 Ω \pm 10%	RN1B	D802	2337421	ERB15-01					
Δ R720L, R	0119013	Metal	0.22 Ω \pm 10%	RN1B	D803	2337421	ERB15-01					
R722L, R	0134289	Composition	10 Ω \pm 10%	RC1/2GF	D804	2337151	1S2076A					
Δ R723L, R	1119151	Metal	10 Ω \pm 10%	RN2B	D805	2337011	1S2076					
R724L, R	0134370	Composition	560 Ω \pm 10%	RC1/2GF	ZD801	2337183	HZ-20					
R725L, R	0134370	Composition	560 Ω \pm 10%	RC1/2GF	ZD802	2337183	HZ-20					
R801	0134375	Composition	1.5k Ω \pm 10%	RC1/2GF	ZD803	2337122	HZ-6 $\text{\textcircled{B}}$					
R802	0134375	Composition	1.5k Ω \pm 10%	RC1/2GF	TH551L, R	0576041	Thyristor 23D25					
R803	0134384	Composition	8.2k Ω \pm 10%	RC1/2GF	VARIABLE RESISTORS							
R804	0114175	Carbon film	3.9k Ω \pm 5%	SRD1/4P								
R805	0114209	Carbon film	22k Ω \pm 5%	SRD1/4P	for AUDIO PRINTED WIRING BOARD							
R806	0114289	Carbon film	220k Ω \pm 5%	SRD1/4P								
R807	0134380	Composition	3.9k Ω \pm 10%	RC1/2GF	R553L, R	0151255	3k Ω - (B) (for meter sensitivity adj.)					
R808	0119528	Metal oxide	390 Ω \pm 10%	RS2PA	R651	0151856	200 k Ω - (B) (VOLUME)					
R809	0114151	Carbon film	680 Ω \pm 5%	SRD1/4P	R652	0151679	200k Ω - (B) (BALANCE)					
R810	0114151	Carbon film	680 Ω \pm 5%	SRD1/4P	R653	0151673	50k Ω - (C) (TREBLE)					
R811	0119528	Metal oxide	390 Ω \pm 10%	RS2PA	R654	0151673	50k Ω - (C) (BASS)					
R812	0114043	Carbon film	12 Ω \pm 5%	SRD1/4P	R710L, R	0151241	500 Ω - (B) (for idle current adj.)					
ICs & TRANSISTORS					COILS							
for EQUALIZER PRINTED WIRING BOARD												
IC401L, R	23647341	HA1457	for AUDIO PRINTED WIRING BOARD									
IC601L, R	2367341	HA1457										
Q701L, R	2328282	2SC1344 $\text{\textcircled{E}}$	MISCELLANEOUS									
Q702L, R	2328783	2SC2389 $\text{\textcircled{E}}$										
Q703L, R	2328783	2SC2389 $\text{\textcircled{E}}$										
Q704L, R	2328773	2SA1038 $\text{\textcircled{E}}$										
Q705L, R	2328282	2SC458 $\text{\textcircled{C}}$										
Q706L, R	2328783	2SC2389 $\text{\textcircled{E}}$										
Q707L, R	2328632	2SD667A $\text{\textcircled{C}}$										
Q708L, R	2328622	2SB647A $\text{\textcircled{C}}$										
Q709L, R	2328112	2SD586 $\text{\textcircled{R}}$										
Q710L, R	2328102	2SB616 $\text{\textcircled{R}}$										
Q801	2328442	2SD666 $\text{\textcircled{C}}$										
Q802	2328452	2SB646 $\text{\textcircled{C}}$										
Q803	2328083	2SA844 $\text{\textcircled{E}}$										
Q804	2328282	2SC458 $\text{\textcircled{C}}$										
DIODES, VARISTOR & THYRISTORS								for FINAL ASSEMBLY				
for EQUALIZER PRINTED WIRING BOARD												
D401	2337731	LED	3246071	Escutcheon ass'y								
D402	2337731	LED	3285751	Knob-push Knob (POWER)								
			3338598	Spring								
			3285681	Knob-squarish push knob (MODE, others)								
			3339592	Spring								
			3285741	Knob ass'y (VOLUME)								

SYMBOL No.	STOCK No.	DESCRIPTION	SYMBOL No.	STOCK No.	DESCRIPTION						
	3285711	Knob (TAPE, FUNCTION)									
	3284858	Knob ass'y (SPEAKERS, BASS, others)									
	4743855	Knob ring									
	4567412	3φ × 8DT bind screw (yellow)									
	0812114	3φ washer									
	4567413	3φ × 10DT bind screw									
	0645587	3φ special washer									
	4408763	Cover									
	4567462	4φ × 8DT bind screw									
	4399022	4φ washer									
	3160401	Bottom board									
	for DIAL MECHANISM ASSEMBLY										
	4567422	4φ × 8DT bind screw		2507591	Equalizer P.W.B. ass'y						
	4567432	3φ × 8DT bind screw (black)		2507592	Equalizer P.W.B. ass'y						
	4567412	3φ × 8DT bind screw (yellow)		2507601	Audio P.W.B. ass'y						
	0812114	3φ washer		2507602	Audio P.W.B. ass'y						
	4567411	3φ × 6DT bind screw (yellow)		2677441	4P US pin jack with DIN						
	4572315	3φ × 12 bind tapping screw		2677431	4P US pin jack						
	4567413	3φ × 10DT bind screw	△ F701L, R	2727223	Fuse-3A, 250V						
	4568832	3φ × 8DT flat head screw	△ F701L, R	2727335	Fuse-F2.5A, 250V						
	4567451	3φ × 6DT bind screw (silver)	△ F001	2727191	Fuse-T1A, 250V						
			△ F001	2727564	Fuse-2.5A, 125V						
			△	2657461	AC outlet						
			△	2657281	AC outlet						
			△ CP001	0269019	Spark killer						
			△ T001	2218941	Power transformer						
			△ T001	2218951	Power transformer						
			△ S001	3925791	Capacitor cover						
	4575661	Ground screw	△ S001	2638222	Switch-power switch						
	4408861	Washer	△ S001	2638221	Switch-power switch						
	4567432	3φ × 8DT bind screw (for Asia & Latin American countries)	△ S002	2627361	Voltage selector switch						
	4574231	Nut (except for U.S. A. & Canada)	△	0043793	Bushing (for patch cord)						
	4567411	3φ × 6DT bind screw (except for U.S.A. & Canada)	△	3913001	Bushing (for patch cord)						
			△	3715183	Bushing (for patch cord)						
			△	2748862	AC line cord						
			△	2748751	AC line cord						
			△	2748741	AC line cord						
			△	2747302	AC line cord						
			△	2727181	Fuse holder						
				2727121	Fuse holder						
				2687831	5P terminal board						

FRONT AND REAR PANEL · VORDERE UND HINTERE BEDIENUNGS
TAFEL · PANNEAUX AVANT ET ARRIERE



- ① POWER switch
- ② PHONES jack
- ③ SPEAKERS switch
- ④ BASS control
- ⑤ TREBLE control
- ⑥ BALANCE control
- ⑦ SUBSONIC FILTER switch
- ⑧ LOUDNESS switch
- ⑨ MODE switch
- ⑩ VOLUME control
- ⑪ TAPE monitor switch
- ⑫ FUNCTION switch
- ⑬ Power level meters
- ⑭ Program source indicators
- ⑮ Ground terminal (GND)
- ⑯ PHONO INPUT terminals
- ⑰ TUNER INPUT terminals
- ⑱ TAPE-1 PLAY terminals
- ⑲ TAPE-1 REC terminals
- ⑳ TAPE-1 DIN REC/PLAY socket (except U.S.A. & Canada set)
- ㉑ TAPE-2 PLAY terminals
- ㉒ TAPE-2 REC terminals
- ㉓ SPEAKERS terminals
- ㉔ VOLTAGE SELECTOR (for Asia and Latin American countries)
- ㉕ FUSE holder (for Asia and Latin American countries)
- ㉖ AC outlet (3 outlets for U.S.A. & Canada sets, 1 outlet for Asia & Latin American countries sets)
- ㉗ Power supply cord

- ① Netzschalter (POWER)
- ② Kopfhörer-Buchse (PHONES)
- ③ Lautsprecherschalter (SPEAKERS)
- ④ BASS-Regler
- ⑤ Höhenregler (TREBLE)
- ⑥ BALANCE-Regler
- ⑦ SUBSONIC-FILTER-Schalter
- ⑧ Schalter für gehörrichtige Klangkorrektur (LOUDNESS)
- ⑨ Stereo/Mono-Schalter (MODE)
- ⑩ Lautstärkereglern (VOLUME)
- ⑪ Schalter für Hinterbandkontrolle (TAPE)
- ⑫ Funktionsschalter (FUNCTION)
- ⑬ Leistungspegel-Anzeigeinstrumente
- ⑭ Programmquellen-Leuchtanzeigen
- ⑮ Erdung (GND)
- ⑯ Plattenspieler-Eingangsanschluß (PHONO INPUT)
- ⑰ TUNER-Eingangsanschluß
- ⑱ Wiedergabe-Anschlüsse für Tonbandgerät 1 (TAPE-1 PLAY)
- ⑲ Aufnahme-Anschlüsse für Tonbandgerät 1 (TAPE-1 REC)
- ⑳ DIN-Normbuchse für Aufnahme/Wiedergabe (TAPE-1 REC/PLAY) (außer Modell für USA und Kanada)
- ㉑ Wiedergabe-Anschlüsse für Tonbandgerät 2 TAPE-2 PLAY)
- ㉒ Aufnahme-Anschlüsse für Tonbandgerät 2 (TAPE-2 REC)
- ㉓ Lautsprecher-Klemmen (SPEAKERS)
- ㉔ Netzspannungswähler (VOLTAGE SELECTOR) (für Asien und Lateinamerika)
- ㉕ Halter für Sicherung (FUSE) (für Asien und Lateinamerika)
- ㉖ Wechselstrom-Steckdose (3 Steckdosen bei Geräten für USA und Kanada) (1 Steckdose bei Geräten für Asien und Lateinamerika)
- ㉗ Netzkabel

- ① Interrupteur d'alimentation (POWER)
- ② Prise de casque (PHONES)
- ③ Commutateur d'enceintes (SPEAKERS)
- ④ Commande des graves (BASS)
- ⑤ Commande des aiguës (TREBLE)
- ⑥ Commande d'équilibrage (BALANCE)
- ⑦ Commutateur de filtre subsonique (SUBSONIC FILTER)
- ⑧ Commutateur de correction physiologique (LOUDNESS)
- ⑨ Commutateur de MODE
- ⑩ Commande de VOLUME
- ⑪ Commutateur de contrôle de bande (TAPE)
- ⑫ Commutateur de fonction (FUNCTION)
- ⑬ Indicateurs de niveau de puissance
- ⑭ Témoin de source de programme
- ⑮ Borne de terre (GND)
- ⑯ Bornes d'entrée phono (PHONO INPUT)
- ⑰ Bornes d'entrée TUNER
- ⑱ Bornes de reproduction de bande 1 (TAPE-1 PLAY)
- ⑲ Bornes d'enregistrement de bande (TAPE-1 REC)
- ⑳ Prise DIN de bande 1 (TAPE-1 REC/PLAY) (sauf appareil aux U.S.A. et au Canada)
- ㉑ Bornes de reproduction de bande 2 (TAPE-2 PLAY)
- ㉒ Bornes d'enregistrement de bande (TAPE-2 REC)
- ㉓ Bornes d'enceintes (SPEAKERS)
- ㉔ Sélecteur de tension (VOLTAGE SELECTOR) (pour l'Asie et les pays d'Amérique Latine)
- ㉕ Support de fusible (FUSE) (pour l'Asie et l'Amérique Latine)
- ㉖ Prises C.A. (3 prises pour appareils vendus aux U.S.A. et au Canada, 1 prise pour l'Asie et les pays d'Amérique latine)
- ㉗ Cordon d'alimentation C.A.



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