

Service Manual

**CIRCUIT DESCRIPTIONS
REPAIR & ADJUSTMENTS**



**ORDER NO.
ARP-104-0**

STEREO AMPLIFIER

SA-530

MODEL SA-530 COMES IN SIX VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KU	AC 120V only	U.S.A. model
S	AC 110V, 120V, 220V and 240V (Switchable)	General export model
YP	AC 240V only	Australia model
HE	AC 220V and 240V (Switchable)	Europe model
HB	AC 220V and 240V (Switchable)	United Kingdom model
HEZ	AC 220V and 240V (Switchable)	West Germany model

- This service manual is applicable to the KU type. When repairing the S, YP, HE, HB and HEZ types, please see page 20~26.
- Ce manuel d'instruction se réfère au mode de réglage, en français.
- Este manual de servicio trata del método de ajuste escrito en español.

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1. SPECIFICATIONS

Amplifier Section

Continuous average power output is 35 watts* per channel, min., at 8 ohms from 20 hertz to 20,000 hertz with no more than 0.05% total harmonic distortion.

Total Harmonic Distortion (20Hz to 20,000Hz, 8 ohms, from AUX/VIDEO)

17.5 watts per channel power output

..... No more than 0.03%

Intermodulation Distortion (50Hz : 7,000Hz = 4 : 1, 8 ohms, from AUX/VIDEO)

Continuous rated power output . . . No more than 0.08%

17.5 watts per channel power output

..... No more than 0.05%

Damping Factor (1kHz, 8 ohms) 30
Input (Sensitivity/Impedance)

PHONO 2.5mV/50 kilohms

TUNER, AUX/VIDEO, TAPE 1,2/ADAPTOR

..... 150mV/50 kilohms

Phono Overload Level (T.H.D. 0.01%, 1,000Hz)

PHONO 150mV

Output (Level)

TAPE REC 1,2/ADAPTOR 150mV

Speaker A, B, A+B, OFF

Frequency Response

PHONO (RIAA Equalization)

..... 20Hz to 20,000Hz \pm 0.5dB

TUNER, AUX/VIDEO, TAPE PLAY 1,2/ADAPTOR

..... 10Hz to 60,000Hz \pm 2dB

Tone Control

BASS \pm 10dB (100Hz)

TREBLE \pm 10dB (10,000Hz)

Loudness Contour

(Volume control set at -40dB position) . . . +6dB (100Hz)

Hum and Noise (IHF, short-circuited, A network)

PHONO 72dB

TUNER, AUX/VIDEO, TAPE PLAY 1,2/ADAPTOR

..... 97 dB

Miscellaneous

Power Requirements AC 120V, 60Hz

Power Consumption 95W (UL)

Dimensions 420(W) x 97(H) x 275(D) mm

16-9/16(W) x 3-13/16(H) x 10-13/16(D) in

Weight (without package) 5.1kg (11 lb 4oz)

Furnished Parts

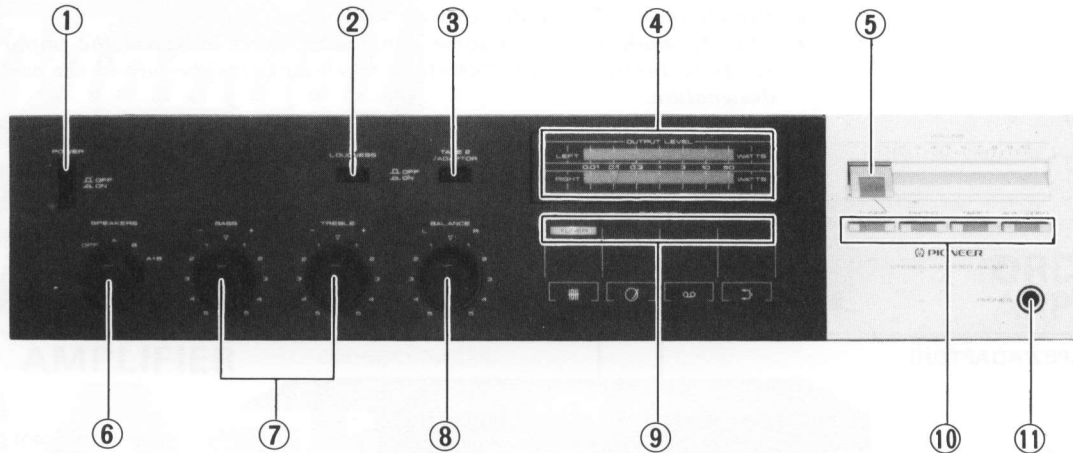
Operating Instructions 1

NOTE:

Specifications and the design subject to possible modifications without notice due to improvements.

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

2. FRONT PANEL FACILITIES



① POWER SWITCH

Push this switch to turn on or turn off power.

② LOUDNESS SWITCH

Set this switch to ON when listening at low volume, bass will be emphasized to compensate for human listening characteristics and provide natural listening curve.

③ TAPE 2/ADAPTOR SWITCH

Set this switch to ON when using a graphic equalizer or a second tape deck (or any equipment) connected to the TAPE 2/ADAPTOR terminals.

④ POWER METER

The power meter shows the output level in watts when speaker systems with a nominal impedance of 8 ohms have been connected to the speaker terminals of this unit.

⑤ VOLUME CONTROL

Slide this control to adjust the output level of the speakers and the headphones. Output is minimum at 0 and increases as the control is slid rightward.

⑥ SPEAKERS SELECTOR

Use this selector to select the speaker system.

OFF: Use this setting when listening through headphones (no sound comes out of the speakers.)

A : Sound is heard from speakers connected to the A speaker terminals.

B : Sound is heard from speakers connected to the B speaker terminals.

A+B: Sound is heard from speakers connected to both A and B speaker terminals.

⑦ BASS AND TREBLE CONTROLS

Use these controls to adjust the tone. The right one controls treble and the left one controls bass. Turning knob clockwise accentuates the bass or treble, and turning counterclockwise attenuates the bass or treble.

⑧ BALANCE CONTROL

This control should normally be set to the center position, when the output from the left and right speakers or headphones is not the same, adjust by turning the control clockwise or counterclockwise.

⑨ FUNCTION INDICATORS

These indicate the function switch positions.

⑩ FUNCTION SWITCHES

Use these switches to select the program sources.

TUNER: Push when listening to a broadcast on the tuner which you have connected to the rear panel TUNER terminals.

PHONO: Push when playing records on the turntable which you have connected to the rear panel PHONO terminals.

TAPE 1: Push when playing back tapes on a tape deck which you connected to the rear panel TAPE1 terminals.

AUX/VIDEO: Push when using a component which you have connected to the rear panel AUX/VIDEO terminals.

⑪ HEADPHONE JACK

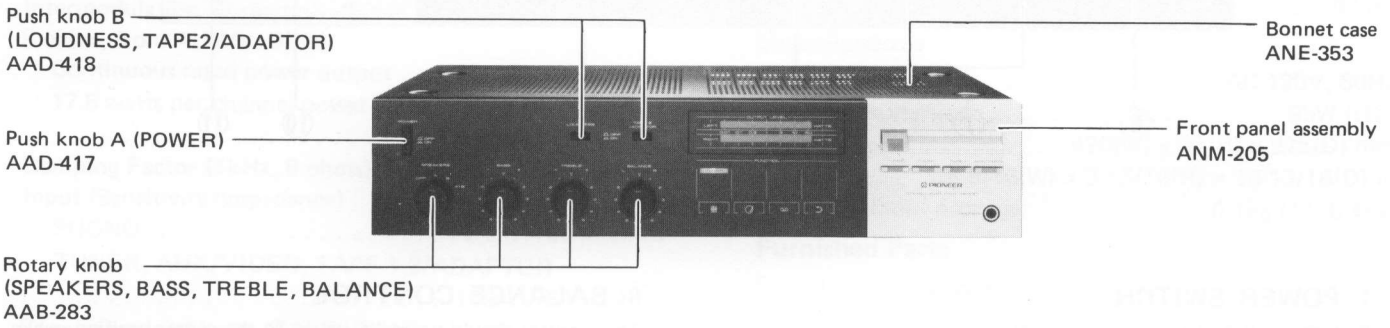
Plug headphones into this jack for private listening through them. Set the SPEAKERS selector to OFF.

3. PARTS LOCATION

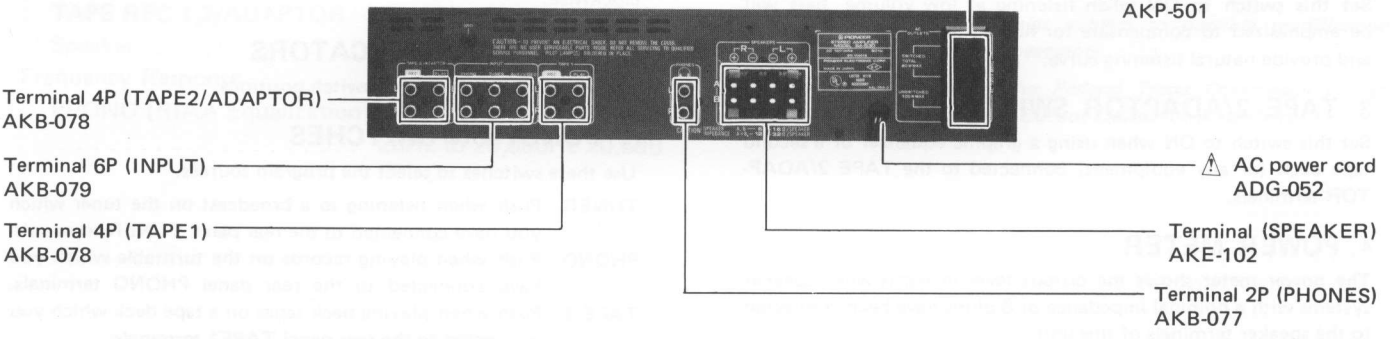
NOTES:

- Parts without part number cannot be supplied.
- The \triangle mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks **★★** and **★**.
★★ GENERALLY MOVES FASTER THAN ★.
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

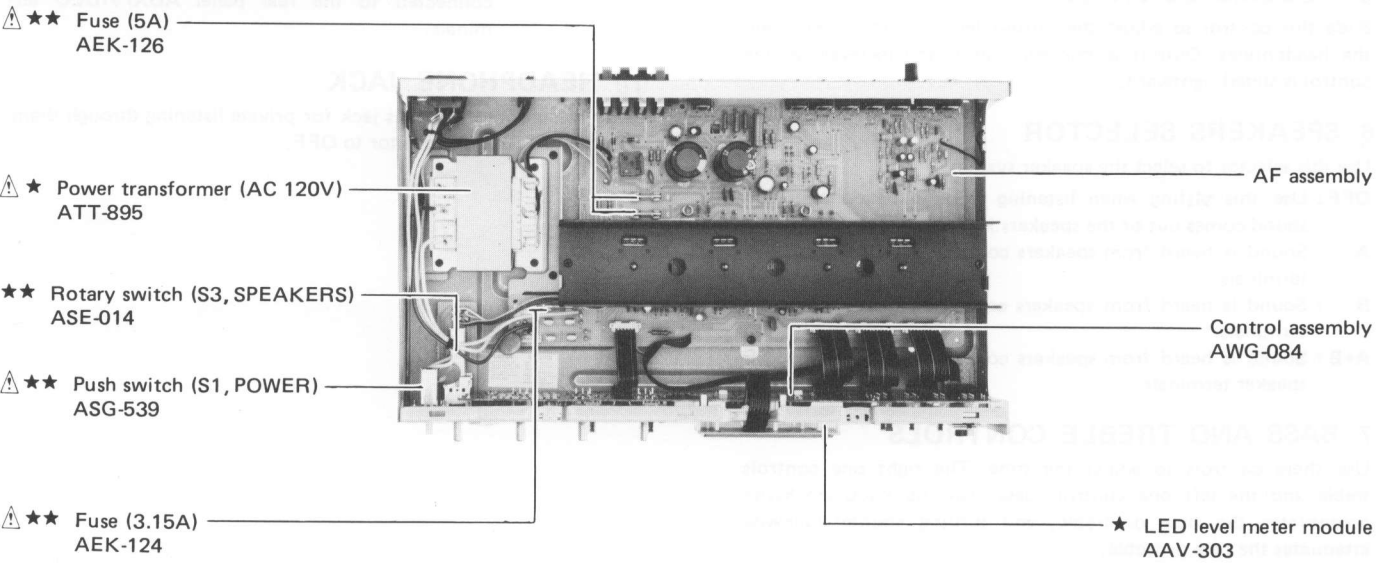
Front Panel



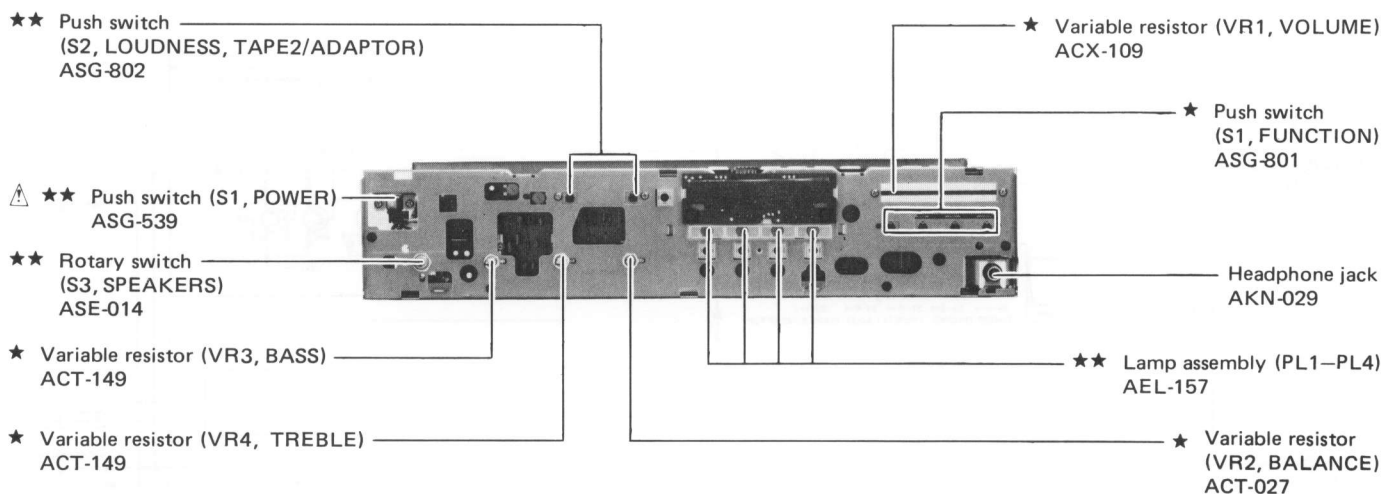
Rear Panel



Top View with Bonnet Case Removed



Front View with Front Panel Removed



4. DISASSEMBLY PROCEDURES

Front Panel Assembly

1. Remove the bonnet case by unscrewing the three screws on the rear panel.
2. Unscrew the two screws ① holding the front panel assembly in place and remove the four rotary knobs.
3. Press down on the three hooks on the front panel assembly (indicated by the three arrows) with a screwdriver to release the panel holder and lock. Then, gently pull the panel outward. (The bottom of the panel assembly is also locked in three places by hooks, so remove the panel very carefully.)

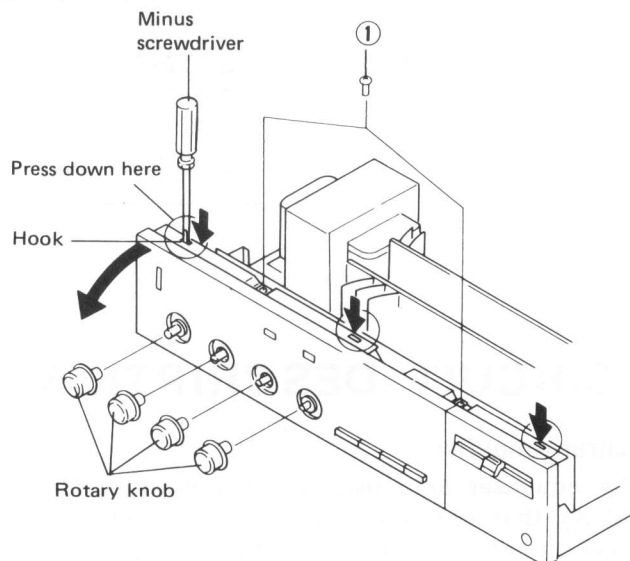
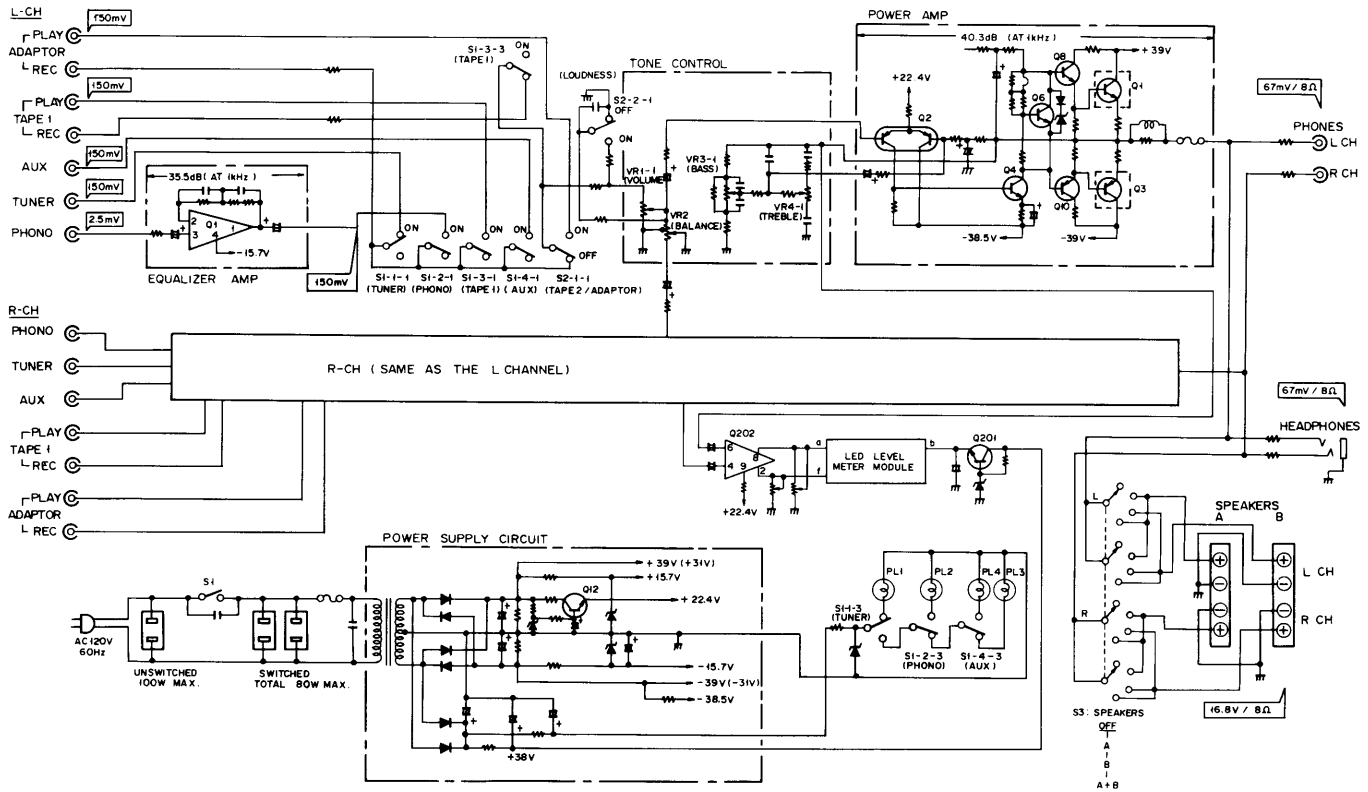


Fig. 4-1 Removing the front panel assembly

5. BLOCK DIAGRAM



6. CIRCUIT DESCRIPTIONS

Equalizer Amplifier

The equalizer amp uses a low-noise IC (NJM 4558DX) that contains both the left and right channel circuits. This IC uses a balanced positive/negative power supply to permit the more than sufficient permissible input level of 150mV (at 1kHz, 0.01%THD).

Power Amplifier

This all-stage direct-coupled pure complementary SEPP circuit features a differential amplifier in the first stage, and incorporates the tone control circuits in the NFB loop.

The power stage is a complementary 2-stage Darlington connection, resulting in an output power rating of 35W+35W (8Ω, 20Hz~20kHz), harmonic distortion of less than 0.05%.

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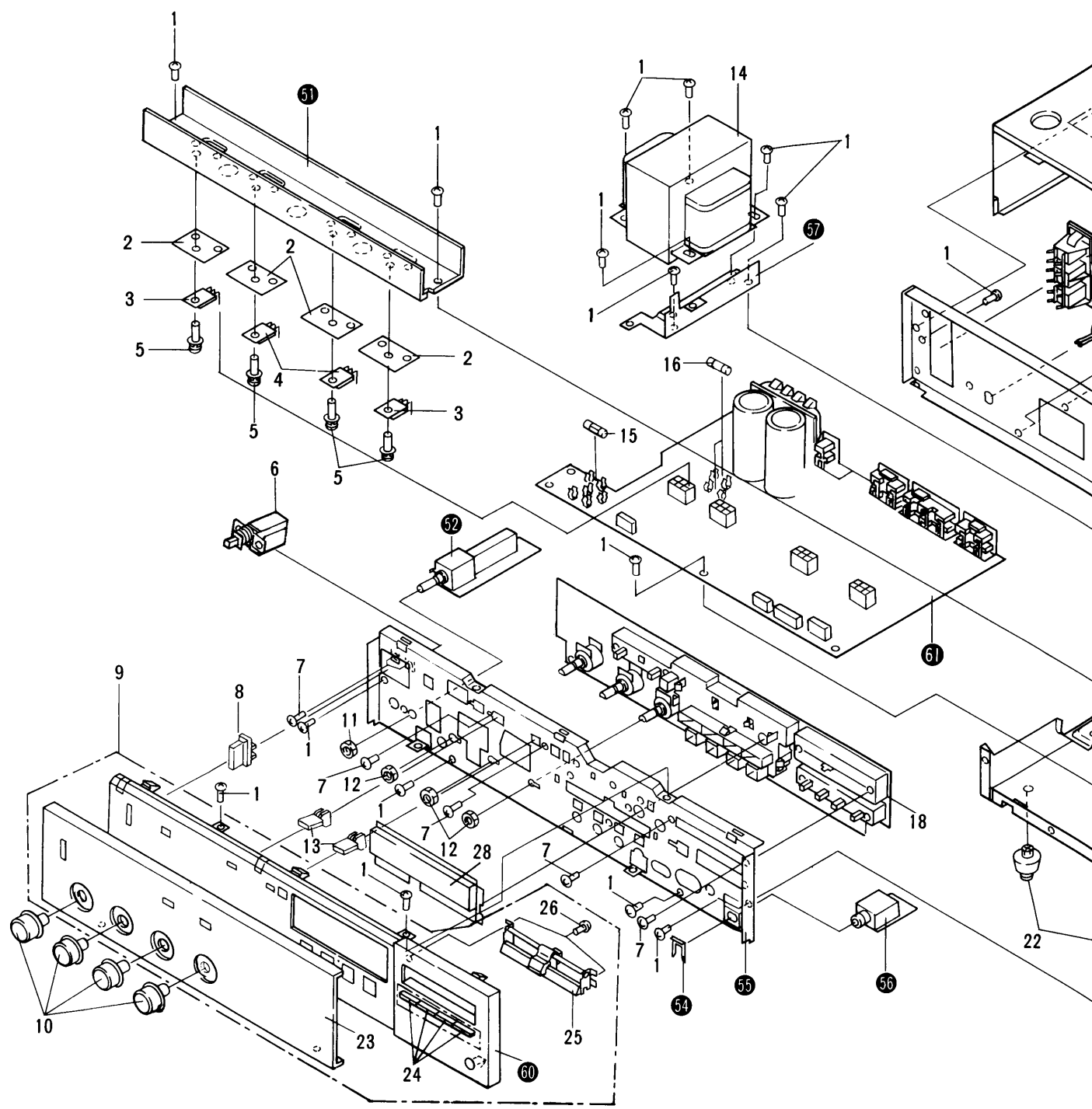
7. EXPLODED VIEW

A

B

C

D



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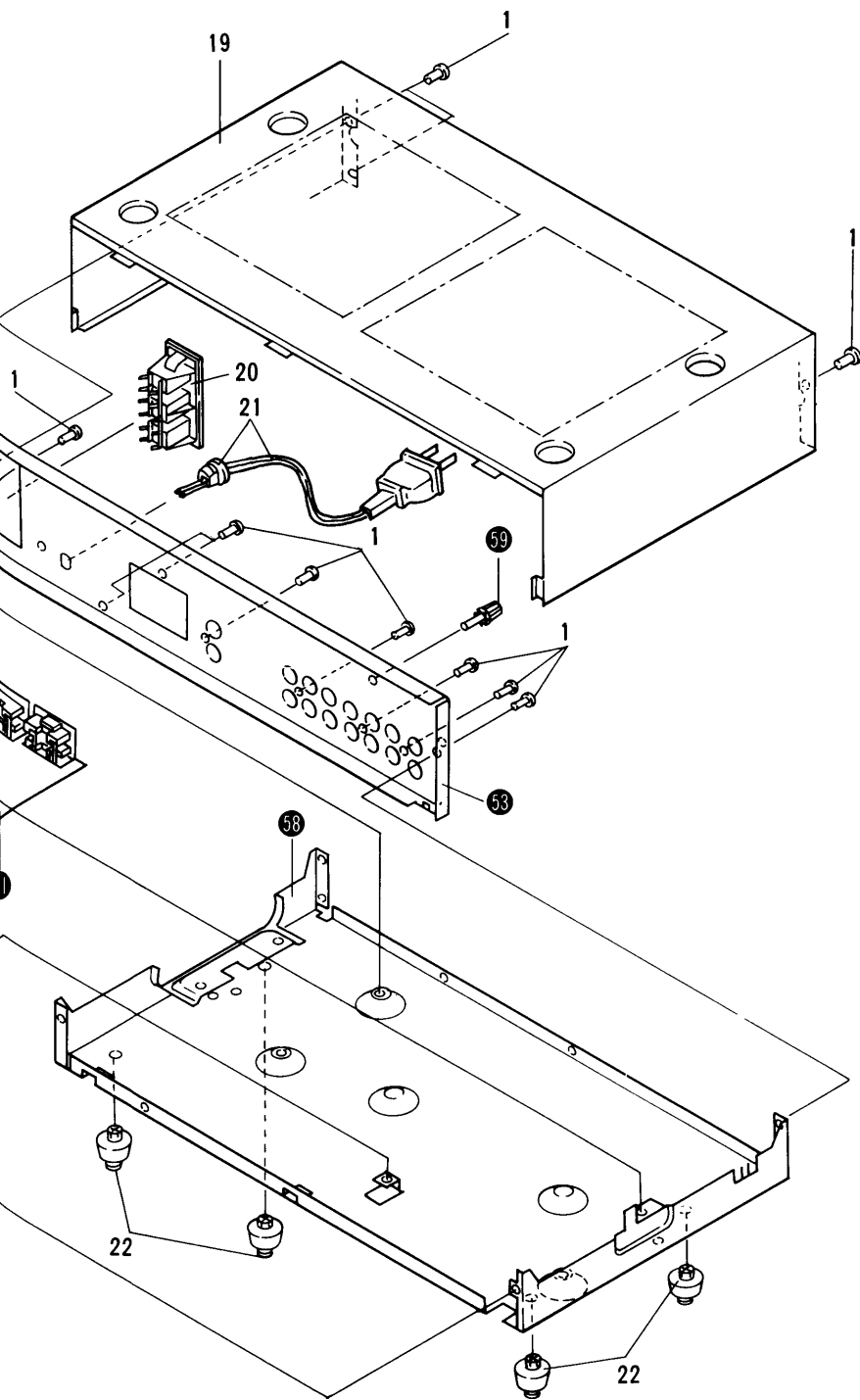
6

A

B

C

D



4

5

6

8

Parts List

NOTES:

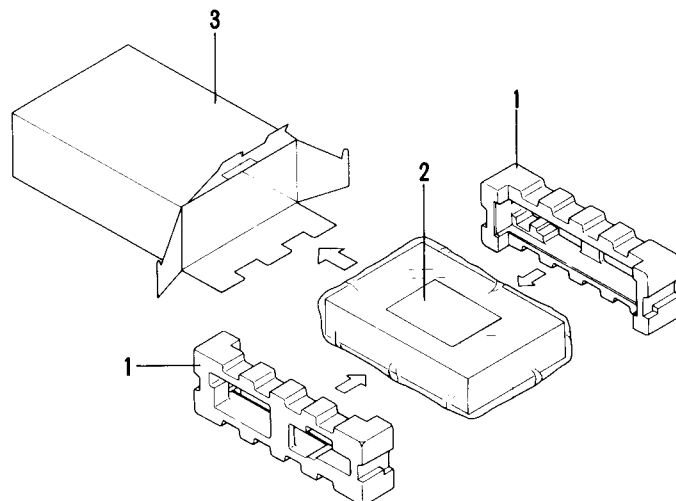
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★★ GENERALLY MOVES FASTER THAN ★.
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Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1.	BBZ30P080FZK	Screw 3 x 8	\triangle	21.	ADG-052	AC power cord
	2.	AEC-818	Mica wafer		22.	AEC-784	Foot assembly
★★	3.	2SC2579/A/-O* (2SC2579/A/-P)* (2SC2579/A/-Y)*	Transistor (Q1, Q2)		23.	ANM-204	Front panel cover
★★	4.	2SA1104/A/-O* (2SA1104/A/-P)* (2SA1104/A/-Y)*	Transistor (Q3, Q4)		24.	AAD-419	Push knob C (TUNER, PHONO, TAPE1, AUX)
			*hfe of Q1—Q4 should have the same value.		25.	AXC-012	Slide knob assembly
	5.	ABA-258	Screw ϕ 3		26.	PTZ26P080FMC	Screw 2.6 x 8
\triangle ★★	6.	ASG-539	Push switch (S1, POWER)	\triangle ★	27.	AEC-327	Strain relief
	7.	PMZ30P060FMC	Screw 3 x 6		28.	AAV-303	LED level meter module
	8.	AAD-417	Push knob A (POWER)			ACG-017	Ceramic capacitor (0.01/AC125V)
	9.	ANM-205	Front panel assembly		51.		Heat sink
	10.	AAB-283	Rotary knob (SPEAKERS, BASS, TREBLE, BALANCE)		52.		Switch assembly
	11.	NK90FUC	Nut M9		53.		Rear panel
	12.	B71-010	Nut M7		54.		Mounting plate
	13.	AAD-418	Push knob B (LOUDNESS, TAPE2/ADAPTOR)		55.		Panel stay
\triangle ★	14.	ATT-895	Power transformer (T1, 120V)		56.		Headphone assembly
\triangle ★★	15.	AEK-124	Fuse (FU1, 3.15A)		57.		Transformer frame
\triangle ★★	16.	AEK-126	Fuse (FU2, FU3, 5A)		58.		Chassis
	17.	.....			59.		Terminal (GND)
	18.	AWG-084	Control assembly		60.		Front panel base
	19.	ANE-353	Bonnet case		61.		AF assembly
\triangle	20.	AKP-501	AC socket (AC OUTLETS)				

8. PACKING

Parts List

Mark	No.	Part No.	Description
	1.	AHA-298	Front rear pad
	2.	ARB-476	Operating instructions (English)
	3.	AHE-030	Packing case



9. P.C. BOARD CONNECTION DIAGRAM

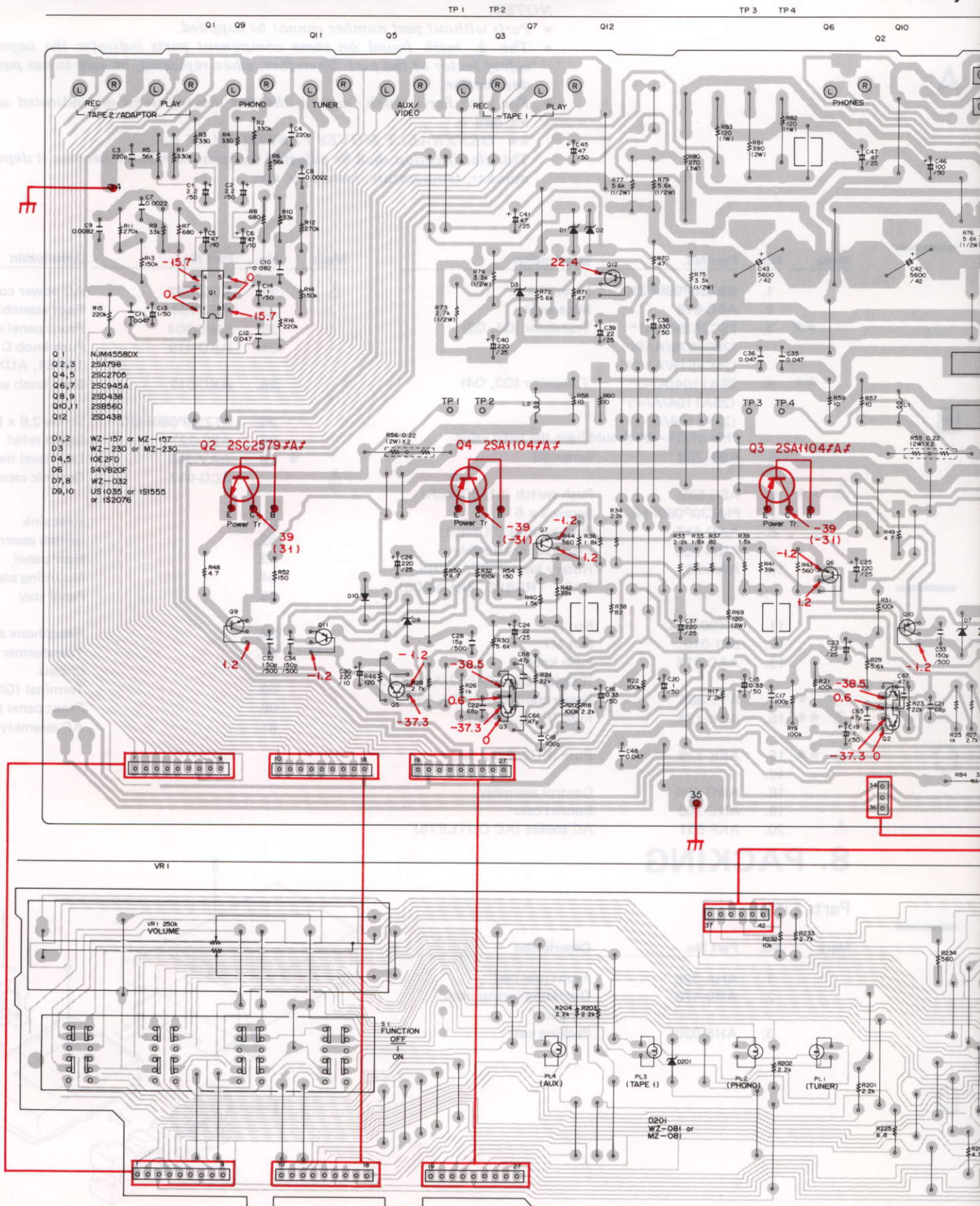
AF Ass'y

A

B

C

D

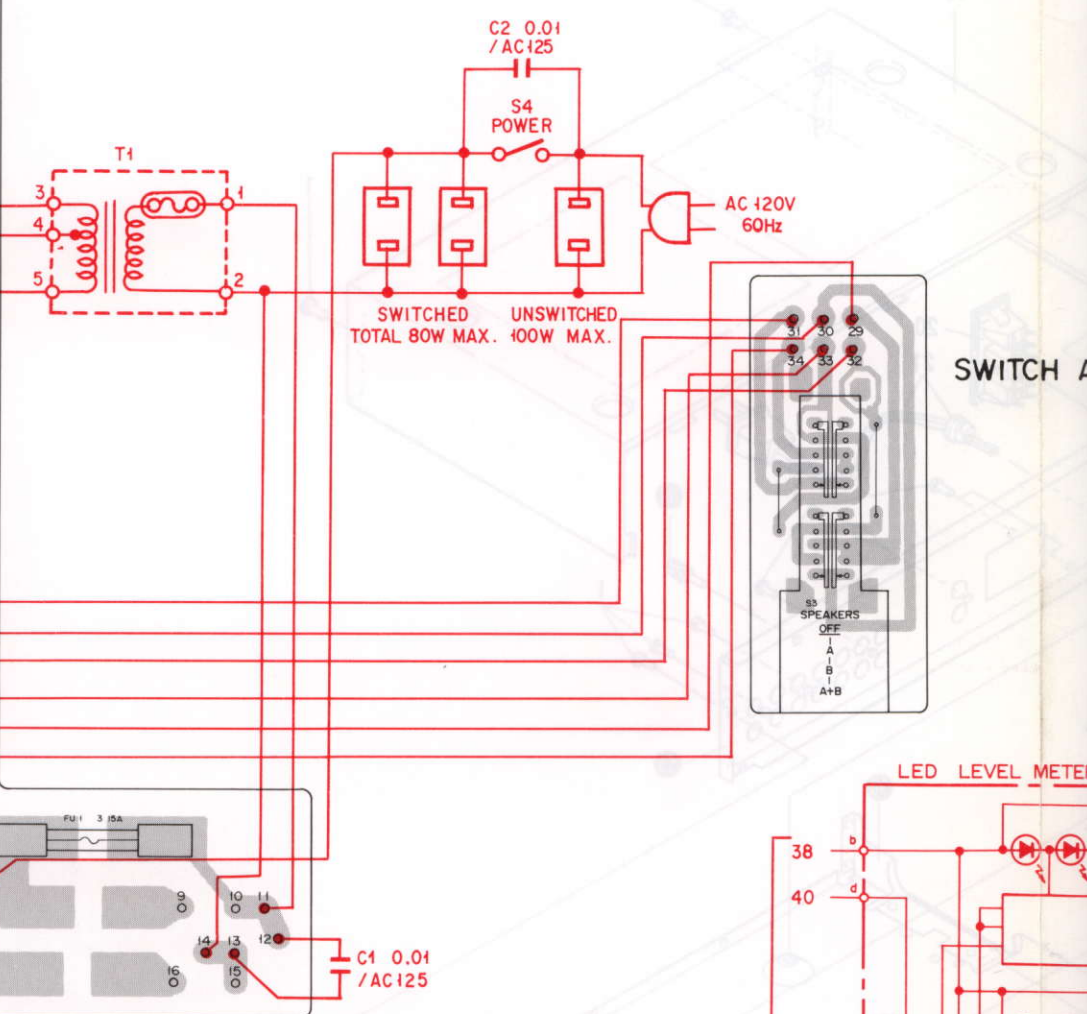
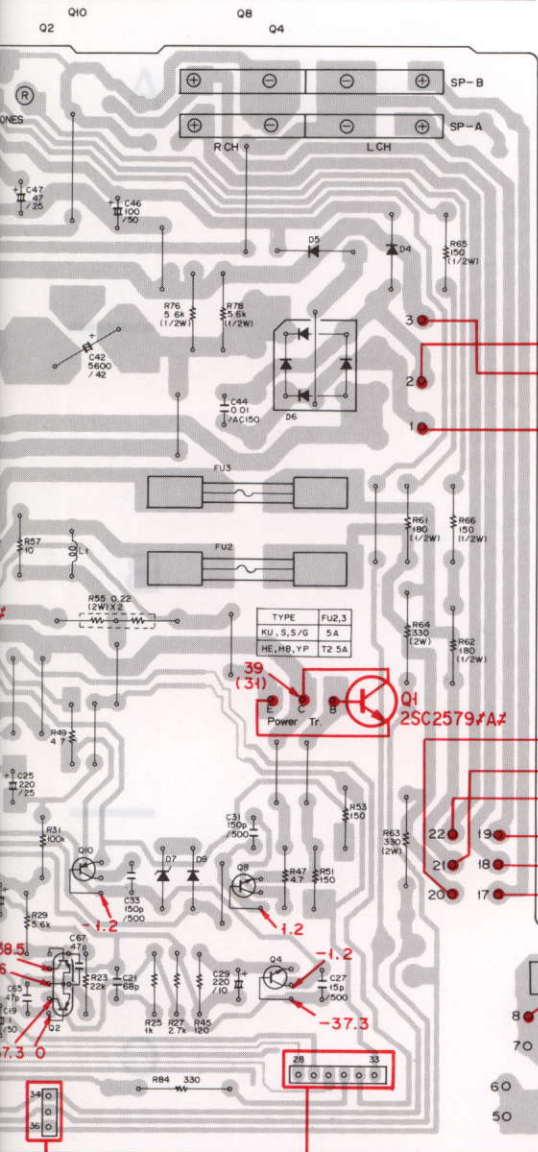


Q 1 NJM4558DX
 Q 2, 3 2SA798
 Q 4, 5 2SC2705
 Q 6, 7 2SC945A
 Q 8, 9 2SD438
 Q 10, 11 2BR560
 Q 12 2SD438

D 1, 2 WZ-157 or MZ-157
 D 3 WZ-230 or MZ-230
 D 4, 5 10E2FD
 D 6 S4VB20F
 D 7, 8 WZ-D32
 D 9, 10 US 1035 or IS1555
 or IS2076

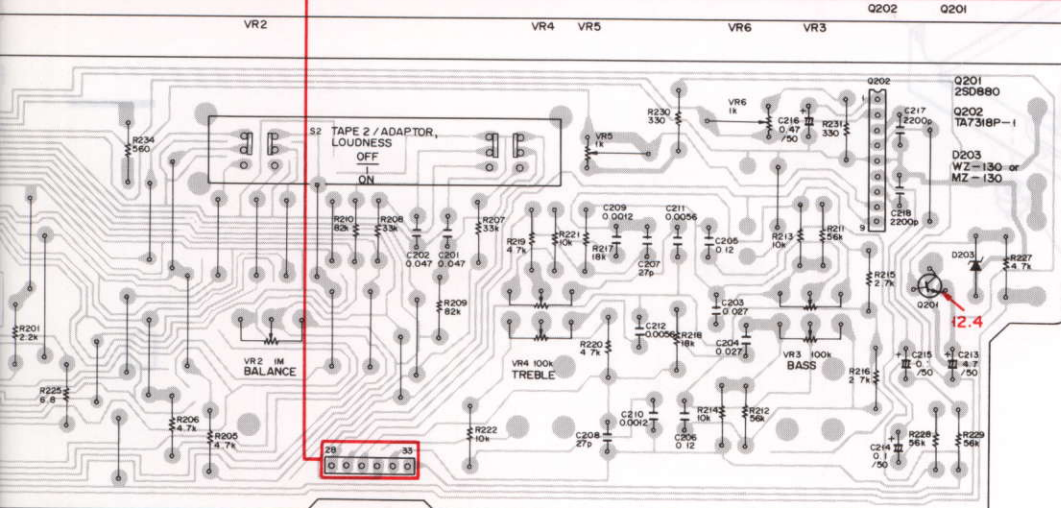
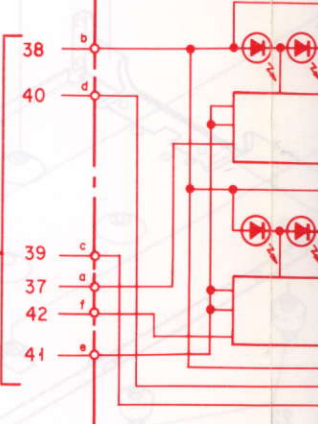
CONTROL Ass'y

AF Ass'y

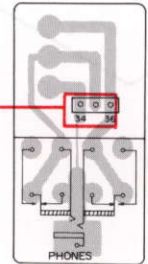


SWITCH A

LED LEVEL METER



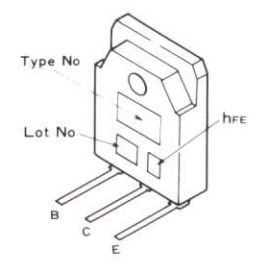
HEADPHONES JACK Ass'y



CONTROL Ass'y

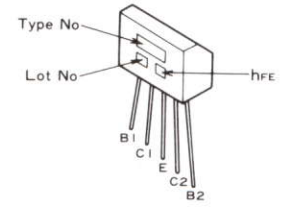
External Apperance of Transistors and ICs

2SA1104/A/
2SC2579/A/

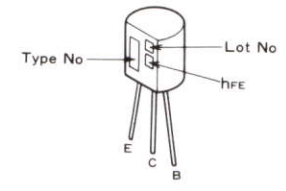


A

2SA798

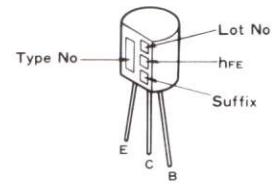


2SC2705

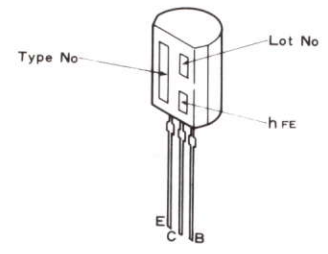


B

2SC945A

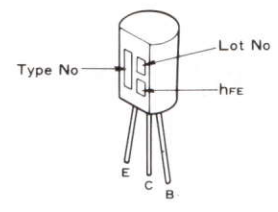


2SD438

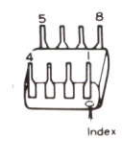


C

2SB560



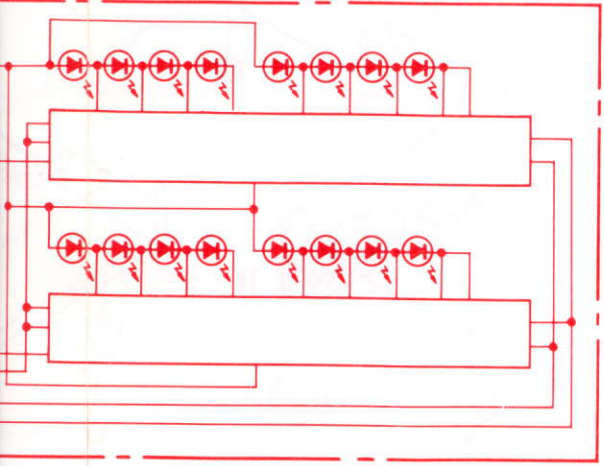
NJM4558-DX



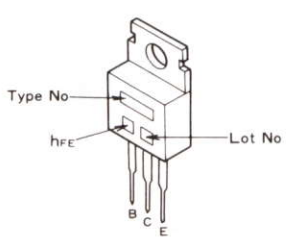
D

SWITCH Ass'y

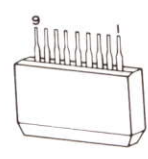
LEVEL METER MODULE AAV-303



2SD880

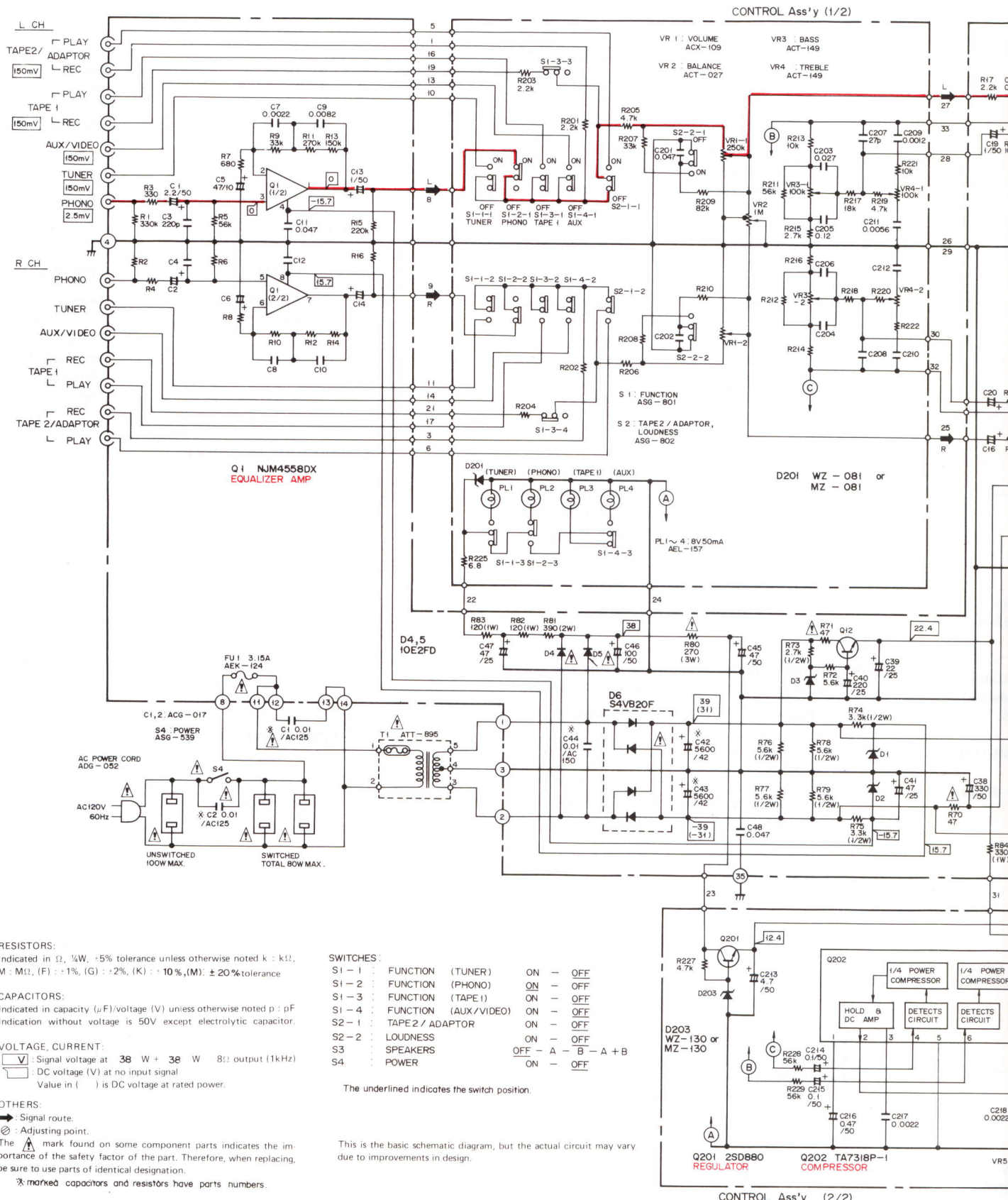


TA7318P-1



PHONES Ass'y

10. SCHEMATIC DIAGRAM



A

B

C

D

1. RESISTORS:

Indicated in Ω , $\frac{1}{4}W$, +5% tolerance unless otherwise noted k : k Ω , M : M Ω , (F) : +1%, (G) : +2%, (K) : +10%, (M) : $\pm 20\%$ tolerance

2. CAPACITORS:

Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:

∇ : Signal voltage at 38 W + 38 W 8 Ω output (1kHz)
 \square : DC voltage (V) at no input signal
 Value in () is DC voltage at rated power.

4. OTHERS:

\rightarrow : Signal route.
 \odot : Adjusting point.
 The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
 \ast : marked capacitors and resistors have parts numbers.

SWITCHES:

S1-1	: FUNCTION (TUNER)	ON	-	OFF
S1-2	: FUNCTION (PHONO)	ON	-	OFF
S1-3	: FUNCTION (TAPE I)	ON	-	OFF
S1-4	: FUNCTION (AUX/VIDEO)	ON	-	OFF
S2-1	: TAPE 2 / ADAPTOR	ON	-	OFF
S2-2	: LOUDNESS	ON	-	OFF
S3	: SPEAKERS	OFF	-	A - B - A + B
S4	: POWER	ON	-	OFF

The underlined indicates the switch position.

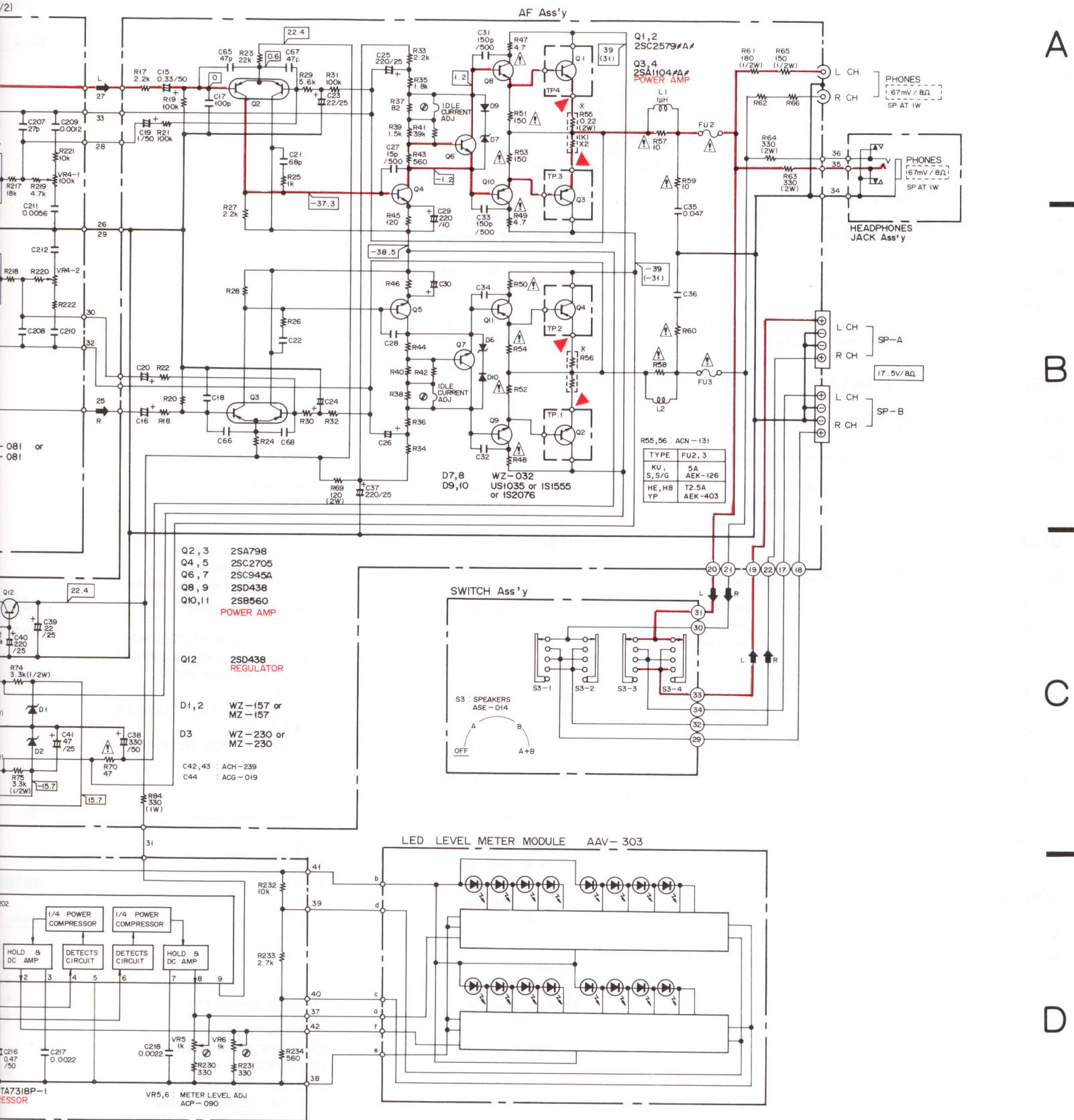
This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

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3

NOTE:
 The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.



A

B

C

D

11. PARTS LIST

NOTES:

- When ordering resistors, first convert resistance values into code form as shown in the following examples.
 - Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	56 × 10 ¹	561	.....	RD¼PS	561J
47kΩ	47 × 10 ³	473	.....	RD¼PS	473J
0.5Ω	0R5	.....	.....	RN2H	05K
1Ω	010	.....	.....	RS1P	010K
 - Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	562 × 100	5621	RN¼SR	5621F
--------	-----------	------	-------	-------	-------
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks **★★** and **★**.
★★ GENERALLY MOVES FASTER THAN ★.
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

MISCELLANEOUS PARTS

P.C. BOARD ASSEMBLIES

Mark	Part No.	Symbol & Description	Mark	Part No.	Symbol & Description
	AWK-199	AF assembly		CCDSL 270J 50	C207, C208
	AWG-084	Control assembly		CKDYB 222K 50	C217, C218

OTHERS

Mark	Part No.	Symbol & Description
Δ ★★	AEK-124	FU1 Fuse (3.15A)
Δ ★★	AEK-126	FU2, FU3 Fuse (5A)
★★	2SC2579/A/-O* (2SC2579/A/-P)* (2SC2579/A/-Y)*	Q1, Q2 Transistor
★★	2SA1104/A/-O* (2SA1104/A/-P)* (2SA1104/A/-Y)*	Q3, Q4 Transistor
	*hfe of Q1-Q4 should have the same value.	
Δ ★★	ASG-539	S1 Push switch (POWER)
Δ	ACG-017	C1, C2 Ceramic capacitor (0.01/AC125V)
Δ	AKP-501	AC socket (AC OUTLETS)
	AEC-818	Mica wafer
Δ	ADG-052	AC power cord

CONTROL ASSEMBLY (AWG-084)

CAPACITORS

Mark	Part No.	Symbol & Description
	CKDYF 473Z 50	C201, C202
	CQMLA 124K 50	C205, C206
	CEA 4R7M 50L	C213
	CEA 0R1M 50L	C214, C215
	CEA R47M 50L	C216
	CQMA122K 50	C209, C210
	CQMA 562K 50	C211, C212
	CQMA 273K 50	C203, C204

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Description
★	ACX-109	VR1 Variable (VOLUME)
★	ACT-027	VR2 Variable (BALANCE)
★	ACT-149	VR3, VR4 Variable (BASS, TREBLE)
★	ACP-090	VR5, VR6 Semi-fixed (METER LEVEL ADJ)
	RD¼PM □□□J	R201-R222, R225, R227-R234

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
★★	2SD880	Q201
★★	TA7318P-1	Q202
★	WZ-081 (MZ-081)	D201
★	WZ-130 (MZ-130)	D203

OTHERS

Mark	Part No.	Symbol & Description
★★	ASG-801	S1 (FUNCTION)
★★	ASG-802	S2 (TAPE2/ADAPTOR, LOUDNESS)
★	AAV-303	LED level meter module
★	AEL-157	PL1-PI4 Lamp assembly (TUNER, PHONO, TAPE1, AUX)

AF ASSEMBLY (AWK-199)

AF assembly CAPACITORS

Mark	Part No.	Symbol & Description
	ACH-239	C42, C43 Electrolytic capacitor (5600/42V)
	ACG-019	C44 Ceramic capacitor (0.01/AC150V)
	CEANL 2R2M 50	C1, C2
	CEA 101M 50L	C46
	CEA 221M 25L	C25, C26, C37, C40
	CEA 331M 50L	C38
	CEA R33M 50L	C15, C16
	CEANL 010M 50	C19, C20
	CEA 010M 50L	C13, C14
	CEA 220M 25L	C23, C24, C39
	CEA 470M 10L	C5, C6
	CEA 470M 25L	C41, C47
	CEA 470M 50L	C45
	CEA 221M 10L	C29, C30
	CQMA 222J 50	C7, C8
	CQMA 822J 50	C9, C10
	CCDSL 150K 500	C27, C28
	CCDSL 151K 500	C31-C34
	CCDSL 680J 50	C21, C22
	CCDSL 101J 50	C17, C18
	CCDSL 221J 50	C3, C4
	CKDYF 473Z 50	C11, C12, C35, C36, C48
	CCDSL 470J 50	C65-C68

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Description
	ACN-131	R55, R56 Wire wound
	RS3L271J	R80
	RS2L□□□J	R63, R64, R69, R81
	RS1L□□□J	R82-R84
	RD½PS □□□J	R61, R62, R65, R66, R73-R79
△	RS¼PMFL □□□J	R47-R54, R57-R60, R70, R71
	RD¼PM □□□J	R1-R46, R72

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
★★	NJM4558DX	Q1
★★	2SA798	Q2, Q3
★★	2SC2705	Q4, Q5
★★	2SC945A	Q6, Q7
★★	2SD438-E* (2SD438-F)*	Q8, Q9
★★	2SB560-E* (2SB560-F)*	Q10, Q11
	*hfe of Q8-Q11 should have the same value.	
★★	2SD438	Q12

Mark	Part No.	Symbol & Description
★	WZ-157 (MZ-157)	D1, D2
★	WZ-230 (MZ-230)	D3
△	★ 10E2FD	D4, D5
△	★ S4VB20F	D6
	★ WZ-032	D7, D8
	★ US1035 (1S1555) (1S2076)	D9, D10

OTHERS

Mark	Part No.	Symbol & Description
	AKB-077	Terminal 2P (PHONES)
	AKB-078	Terminal 4P (TAPE2/ADAPTOR, TAPE1)
	AKB-079	Terminal 6P (INPUT)
	AKE-102	Terminal (SPEAKERS)
	AKH-016	Transistor socket

Headphone assembly

Mark	Part No.	Symbol & Description
	AKN-041	Headphone jack

Switch assembly

Mark	Part No.	Symbol & Description
★★	ASE-014	S3 Rotary switch (SPEAKERS)

Resistor Assembly

Mark	Part No.	Symbol & Description
	RD¼PM102J	R85

12. ADJUSTMENTS

Idle Current

1. Set the SPEAKERS switch to the OFF position, turn the VOLUME all the way down and then turn power on for about 10 minutes.
2. After the power has been left on for about 10 minutes, confirm that the voltages between TP4 ⊕ and TP3 ⊖ (the left channel) and between TP1 ⊕ and TP2 ⊖ are each between 0.9mV and 101mV. If a voltage is below 0.9mV, cut the jumper wire of the channel where the problem exists (jumper wire A for the left, jumper wire B for the right).
2. Set the SPEAKERS switch to the A position, the FUNCTION switch to the AUX setting and turn all other switches OFF. And connect an 8Ω resistor and AC voltmeter to the speaker output terminal.
3. Apply a 1kHz sine wave, 150mV signal to the AUX terminals and adjust the VOLUME (VR 1) so that the voltage at speaker terminal A is AC8.95V.
4. Adjust VR 5 (left) and VR 6 (right), the semi-fixed resistance of the control assembly so that the output indicator reading is 10 watts.

NOTE:

If a voltage is above 101mV, check the circuits to see if there is a malfunction.

Output Indicators (Level Meter)

1. Remove the front panel assembly following the directions in the disassembly section.

Replacing the AF Assembly (AWK-199) P.C. Board

The AF assembly (AWK-199) used in the SA-530 can also be used in the SA-330. When replacing the AF assembly (AWK-199) of SA-530, cut jumper wire C (connected in parallel with R82, 120 ohms).

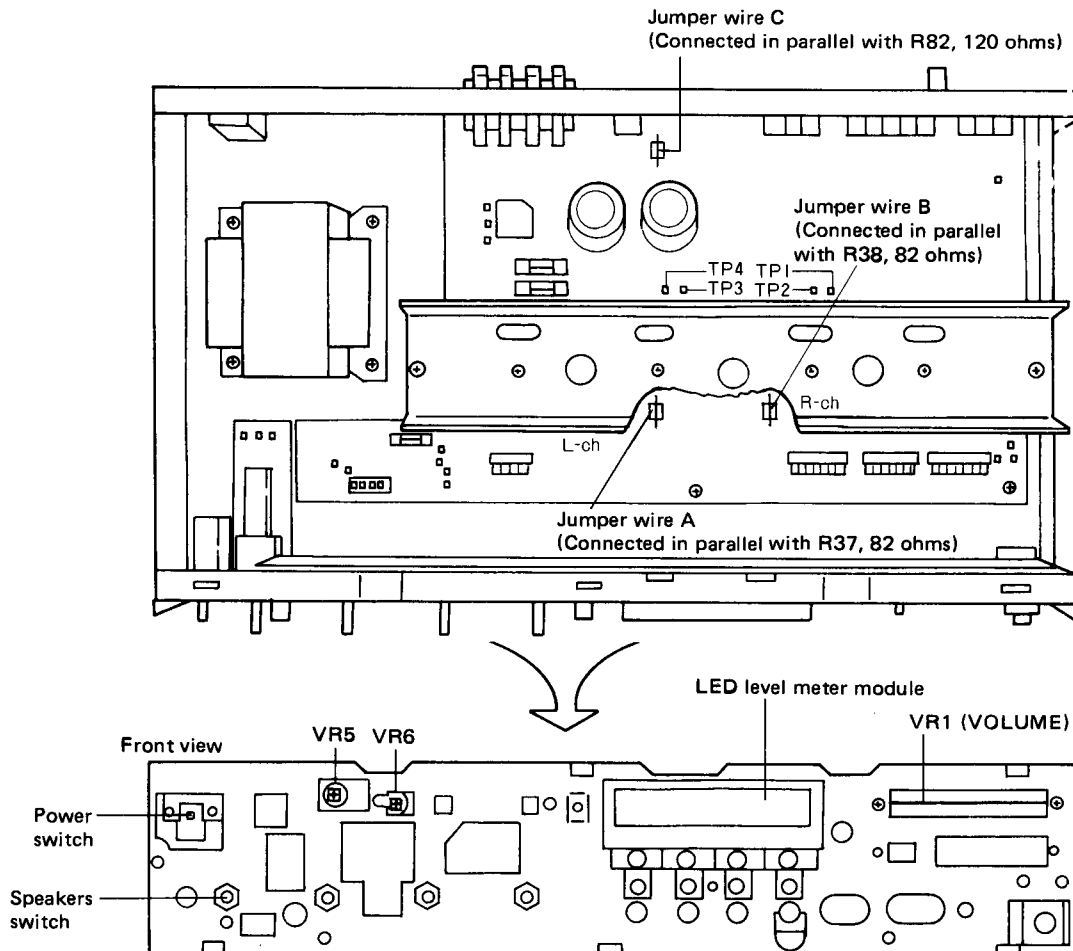


Fig. 12-1 Adjustment of idle current and output indicator

12. RÉGLAGE

Courant déwatté

1. Régler sur OFF le sélecteur d'enceintes (SPEAKERS), réduire au maximum la commande de VOLUME et placer sous tension pendant 10 minutes environ.
2. Après ces quelque 10 minutes, vérifier si les tensions entre TP4 (+) et TP3 (-) (le canal gauche) et entre TP1 (+) et TP2 (-) se trouvent respectivement entre 0,9mV et 101mV. Si la tension est inférieure à 0,9mV, couper la liaison du canal où le problème se manifeste (liaison A pour le gauche ou liaison B pour le droit).

Remarque:

Si une tension est supérieure à 100mV, vérifier la présence éventuelle d'une défaillance dans les circuits.

Indicateurs de sortie (Niveau)

1. Déposer l'ensemble du panneau avant en suivant les explications de la section de démontage.

2. Placer le sélecteur d'enceintes (SPEAKERS) à la position A, le sélecteur de fonction (FUNCTION) à la position AUX et toutes les autres commandes sur OFF.

Et brancher une résistance de 8Ω et un volt mètre en CA aux bornes de sorties des enceintes.

3. Appliquer une onde sinusoïdale de 1kHz, un signal de 150mV aux bornes AUX et régler la commande de VOLUME (VR1) de sorte que la tension à la borne d'enceinte A soit 8,95V en courant alternatif.
4. Ajuster VT5 (gauche) et VR6 (droit), la résistance semi-fixe de l'ensemble de contrôle de sorte que la lecture de l'indicateur de sortie soit de 10 watts.

Remplacement de la plaquette de circuit imprimé Ensemble AF (AWK-199)

L'ensemble AF (AWF-199) utilisé dans le SA-530, peut également servir dans le SA-330. Lors du remplacement de l'ensemble AF (AWK-199) du SA-530, couper la liaison C (raccordée en parallèle avec le R82, 120 ohms).

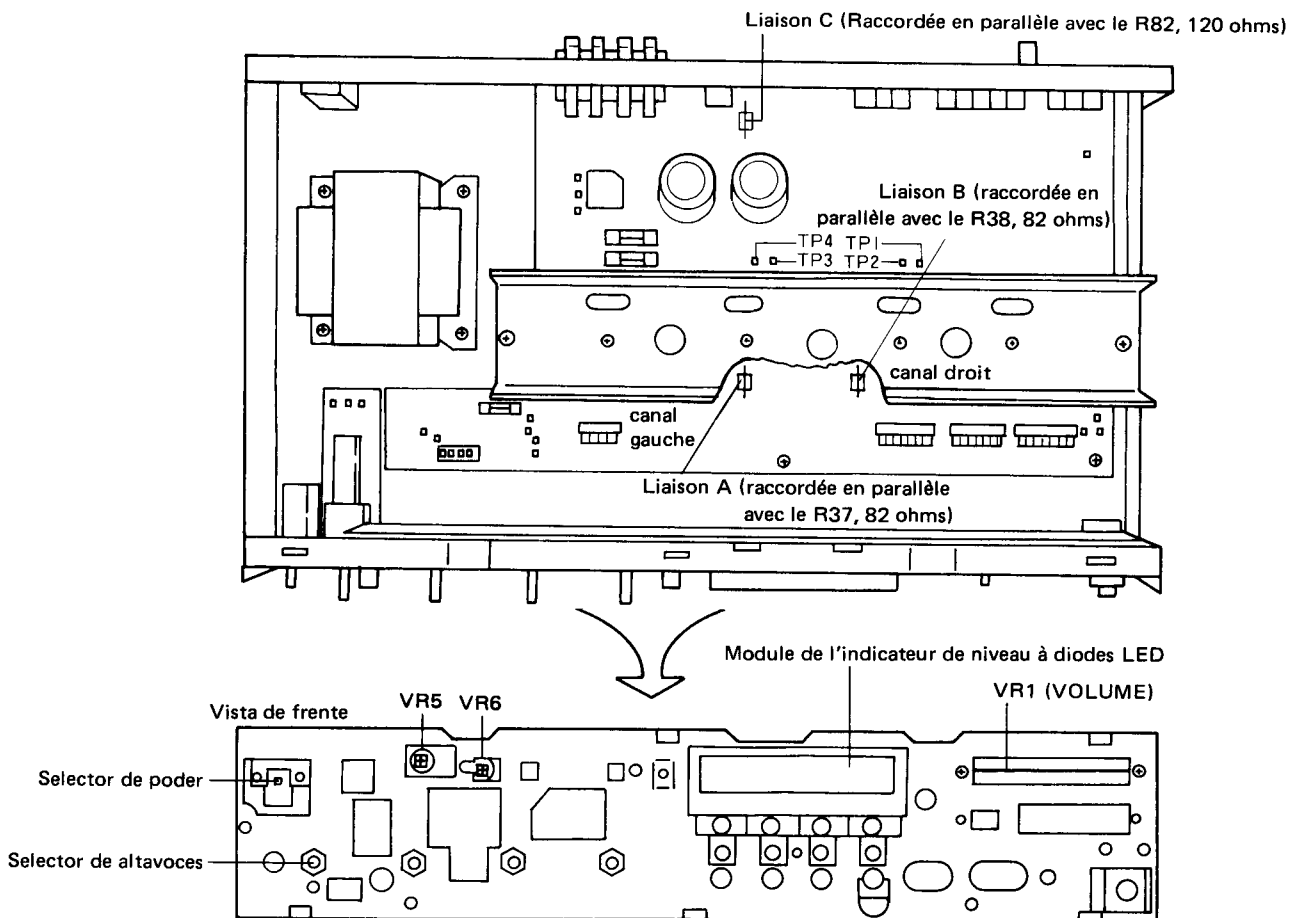


Fig. 12-1 Réglage du courant déwatté et de l'indicateur de sortie

12. AJUSTE

Corriente reactiva

1. Poner el selector de altavoces (SPEAKERS) en la posición OFF, reducir completamente el VOLUMEN y conectar la alimentación durante unos 10 minutos.
2. Después de haber dejado conectada la alimentación durante unos 10 minutos, confirmar que las tensiones entre TP4 (+) y TP3 (-) (canal izquierdo) y entre TP1 (+) y TP2 (-) están entre 0,9mV y 101mV. Si la tensión está por debajo de 0,9mV, cortar el cable de conexión provisional del canal donde exista el problema (cable de conexión provisional A para el izquierdo, y cable B para el derecho).

NOTA:

Si la tensión está por encima de los 100mV, comprobar los circuitos para ver si existe algún malfuncionamiento.

Indicadores de salida (Medidor de nivel)

1. Extraer el conjunto de panel frontal siguiendo las instrucciones de la sección de desmontaje.

2. Poner el selector SPEAKERS en la posición A, el selector de función (FUNCTION) en la posición AUX, y poner todos los demás interruptores en las posiciones OFF.

Entonces, conectar un presistor de 8ohmios y el voltímetro de CA al terminal de salida de altavoz.

3. Aplicar onda sinusoidal de 1kHz, y una señal de 150mV a los terminales AUX y ajustar el VOLUMEN (VR1) de modo que la tensión en el terminal A de altavoz sea de 8,95V CA.
4. Ajustar VR5 (izquierdo) y VR6 (derecho), en la resistencia semifija del conjunto de control de modo que el indicador de salida indique 10 vatios.

Reemplazo del tablero PC del conjunto AF (AWK-199)

El conjunto AF (AWK-199) utilizado en el SA-530 también puede utilizarse en el SA-330. Cuando se reemplace el conjunto AF (AWK-199) del SA-530, cortar el cable de conexión provisional C (conectado en paralelo con la R82, 120 ohmios).

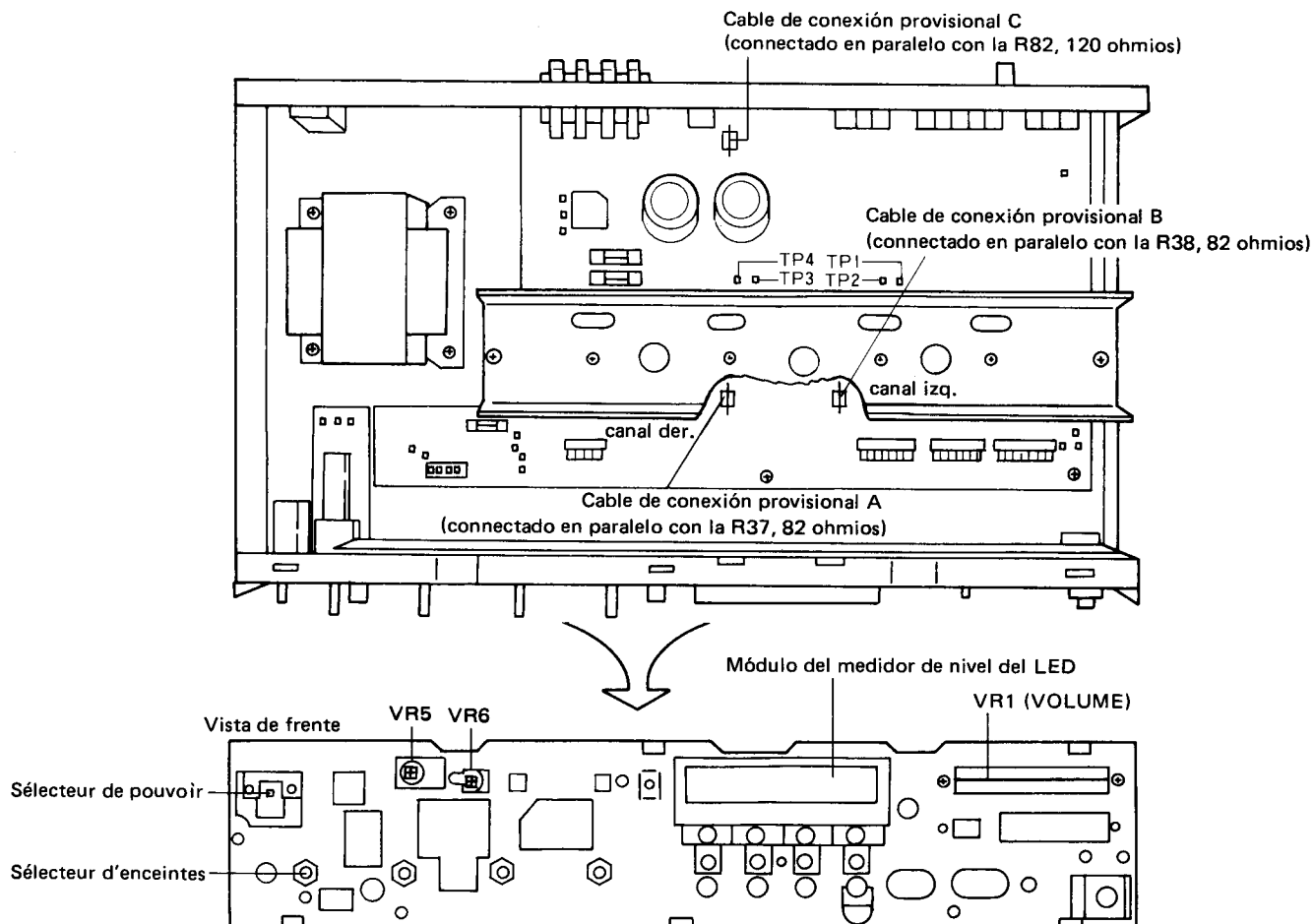


Fig. 12-1 Ajuste de la corriente reactiva y del indicador de salida

13. FOR S, YP, HE, HB AND HEZ TYPES

13.1 CONTRAST PARTS

SA-530/S, YP, HE, HB and HEZ types are the same as the SA-530/KU type except for following sections.

MISCELLANEOUS PARTS

Mark	Symbol & Description	Part No.					
		KU type	S type	YP type	HE type	HB type	HEZ type
⚠	★ T1 Power transformer (120V)	ATT-895	.....	.....	.....	.....	.....
⚠	★ T1 Power transformer (220V, 240V)	.....	.....	ATT-896	ATT-896	ATT-896	ATT-896
⚠	★ T1 Power transformer (110V, 120V, 220V, 240V)	.....	ATT-897	.....	.....	.....	.....
⚠	★★ FU1 Fuse (3.15A)	AEK-124	.....	.....	.....	.....	.....
⚠	★★ FU2, FU3 Fuse (5A)	AEK-126	AEK-126	.....	.....	.....	.....
⚠	★★ FU1, FU4 Fuse (1.6A)	.....	AEK-121	.....	.....	.....	.....
⚠	★★ FU1 Fuse (T1A)	.....	.....	AEK-402	AEK-402	AEK-402	AEK-402
⚠	★★ FU2, FU3 Fuse (T2.5A)	.....	.....	AEK-403	AEK-403	AEK-403	AEK-403
⚠	★★ FU4 Fuse (T2.5A)	.....	.....	.....	AKE-403	.....	AEK-403
⚠	★★ S1 Push switch (POWER)	ASG-539	ASG-539	ASG-522	ASG-522	ASG-522	ASG-522
⚠	★★ S2 Voltage selector switch	.....	AKX-063	.....	.....	.....	.....
⚠	C1 Ceramic capacitor (0.01/AC125V)	ACG-017	.....	.....	.....	.....	.....
⚠	C1 Ceramic capacitor (0.01/AC250V)	.....	ACG-001	ACG-001	ACG-001	ACG-001	ACG-001
⚠	C3 Ceramic capacitor	.....	.....	.....	.....	.....	CQMA 223K 50
⚠	Strain relief	ACE-327	.....	.....	.....	.....	.....
⚠	AC power cord	ADG-052	ADG-060	ADG-067	ADG-065	ADG-063	ADG-065
⚠	AC socket (AC OUTLETS)	AKP-501	AKP-501	.....	AKP-502	AKP-503	AKP-502
⚠	Screw (For voltage selector switch)	.....	MTZ30P100FZK	.....	.....	.....	.....
⚠	Tapping screw (For SPEAKERS terminal)	.....	.....	.....	.....	.....	ABA-115
⚠	Operating instructions (English)	ARB-476	ARB-481	ARB-481	.....	ARB-481	.....
⚠	Operating instructions (English/German/French/Italian)	.....	.....	.....	ARE-030	.....	.....
⚠	Operating instructions (German)	.....	.....	.....	.....	.....	ARC-016
⚠	Operating instructions (Spanish)	.....	ARC-021	.....	.....	.....	.....
⚠	Packing case	AHE-030	AHE-036	AHE-036	AHE-036	AHE-036	AHE-036

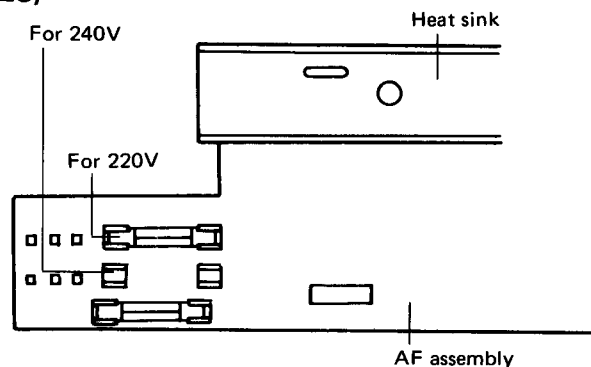
P.C. BOARD ASSEMBLY

Mark	Symbol & Description	Part No.					
		KU type	S type	YP type	HE type	HB type	HEZ type
	AF assembly	AWK-199					AWK-202

LINE VOLTAGE SELECTION (FOR HE, HB, HEZ TYPES)

Line voltage can be changed as follows:

1. Disconnect the AC power cord.
2. Remove the bonnet case.
3. Take out the fuse from the P.C. board.
4. Re-install the fuse in the correct voltage indication.
5. Stick the line voltage lable on the rear panel.



Description	Part No.
220V label	AAX-193
240V label	AAX-192

13.2 PARTS LIST (FOR HEZ TYPE) AF ASSEMBLY (AWK-202)

AF assembly

CAPACITORS

Mark	Part No.	Symbol & Description
	ACH-239	C42, C43 Electrolytic capacitor (5600/42V)
	ACG-019	C44 Ceramic capacitor (0.01/AC150V)
	CEANL 2R2M 50	C1, C2
	CEA 101M 50L-SF	C46
	CEA 221M 25L-SF	C25, C26, C37, C40
	CEA 331M 50L-SF	C38
	CEA R33M 50L	C15, C16
	CEANL 010M 50	C19, C20
	CEA 010M 50L	C13, C14
	CEA 220M 25L	C23, C24, C39
	CEA 470M 10L	C5, C6
	CEA 470M 25L	C41, C47
	CEA 470M 50L	C45
	CEA 221M 10L	C29, C30
	CQMA 222J 50	C7, C8
	CQMA 822J 50	C9, C10
	CCDSL 150K 500	C27, C28
	CCDSL 151K 500	C31-C34
	CCDSL 680J 50	C21, C22
	CCDSL 181J 50	C17, C18
	CKDYF 473Z 50	C11, C12, C35, C36, C48
	CCDSL 470J 50	C63-C68
	CQMA 472K 50	C59-C62
	CKDYB 391K 50	C3, C4, C49-C58

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Description
	ACN-131	R55, R56 Wire wound
	RS3L271J	R80
	RS2L □□□J	R63, R64, R69, R81
	RS1L □□□J	R82-R84
	RD½PS □□□J	R61, R62, R65, R66, R73-R79
⚠	RS¼PMFL □□□J	R47-R54, R57-R60, R70, R71
	RD¼PM □□□J	R1-R46, R72

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
★★	NJM4558DX	Q1
★★	2SA798	Q2, Q3
★★	2SC2705	Q4, Q5
★★	2SC945A	Q6, Q7
★★	2SD438-E* (2SD438-F)*	Q8, Q9

Mark	Part No.	Symbol & Description
★★	2SB560-E* (2SB560-F)*	Q10, Q11
		*hfe of Q8-Q11 should have the same value.
★★	2SD438	Q12
★	WZ-157 (MZ-157)	D1, D2
★	WZ-230 (MZ-230)	D3
⚠	★ 10E2FD	D4, D5
⚠	★ S4VB20F	D6
	★ WZ-032	D7, D8
	★ US1035 (1S1555) (1S2076)	D9, D10

OTHERS

Mark	Part No.	Symbol & Description
	AKB-077	Terminal 2P (PHONES)
	AKB-078	Terminal 4P (TAPE2/ADAPTOR, TAPE1)
	AKB-079	Terminal 6P (INPUT)
	AKE-102	Terminal (SPEAKERS)
	AKH-016	Transistor socket

Headphone assembly

Mark	Part No.	Symbol & Description
	AKN-041	Headphone jack

Switch assembly

Mark	Part No.	Symbol & Description
★★	ASE-014	S3 Rotary switch (SPEAKERS)

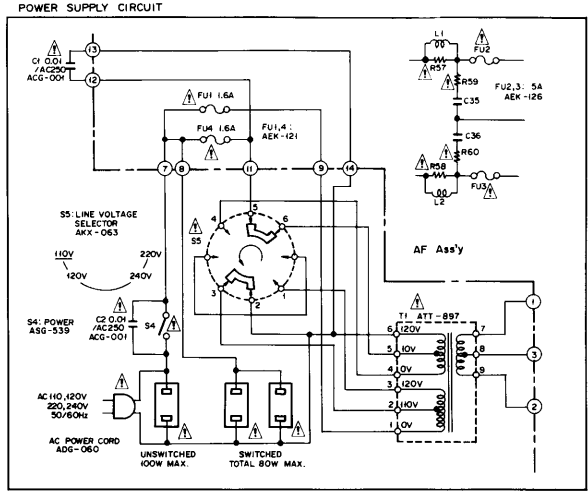
Resistor assembly

Mark	Part No.	Symbol & Description
	RD¼PM102J	R85

13.3 SCHEMATIC DIAGRAMS

For S type

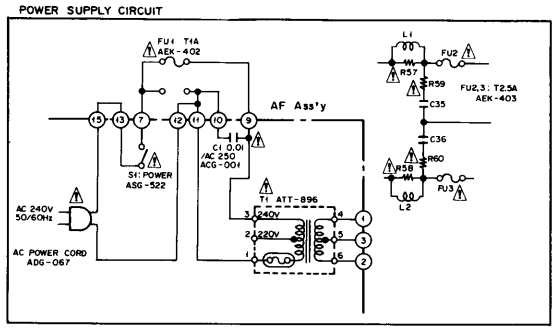
A



A

For YP type

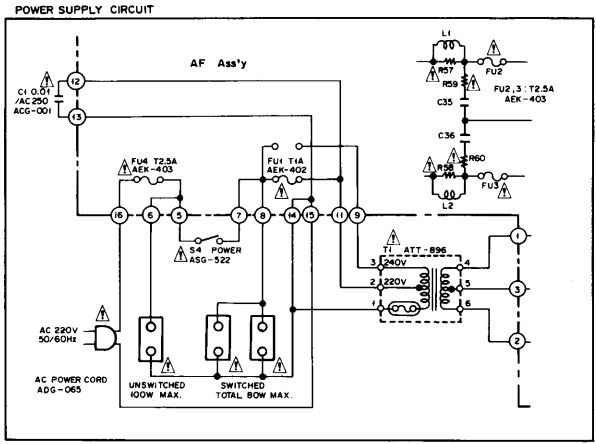
B



B

For HE type

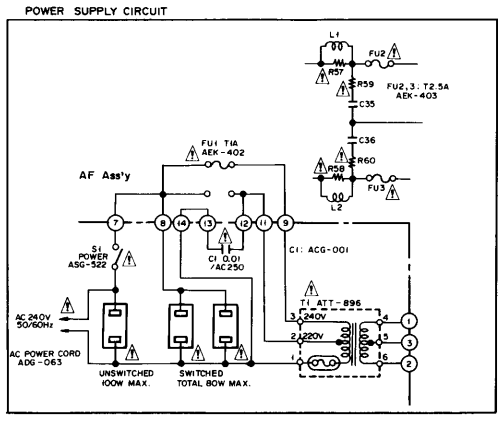
C



C

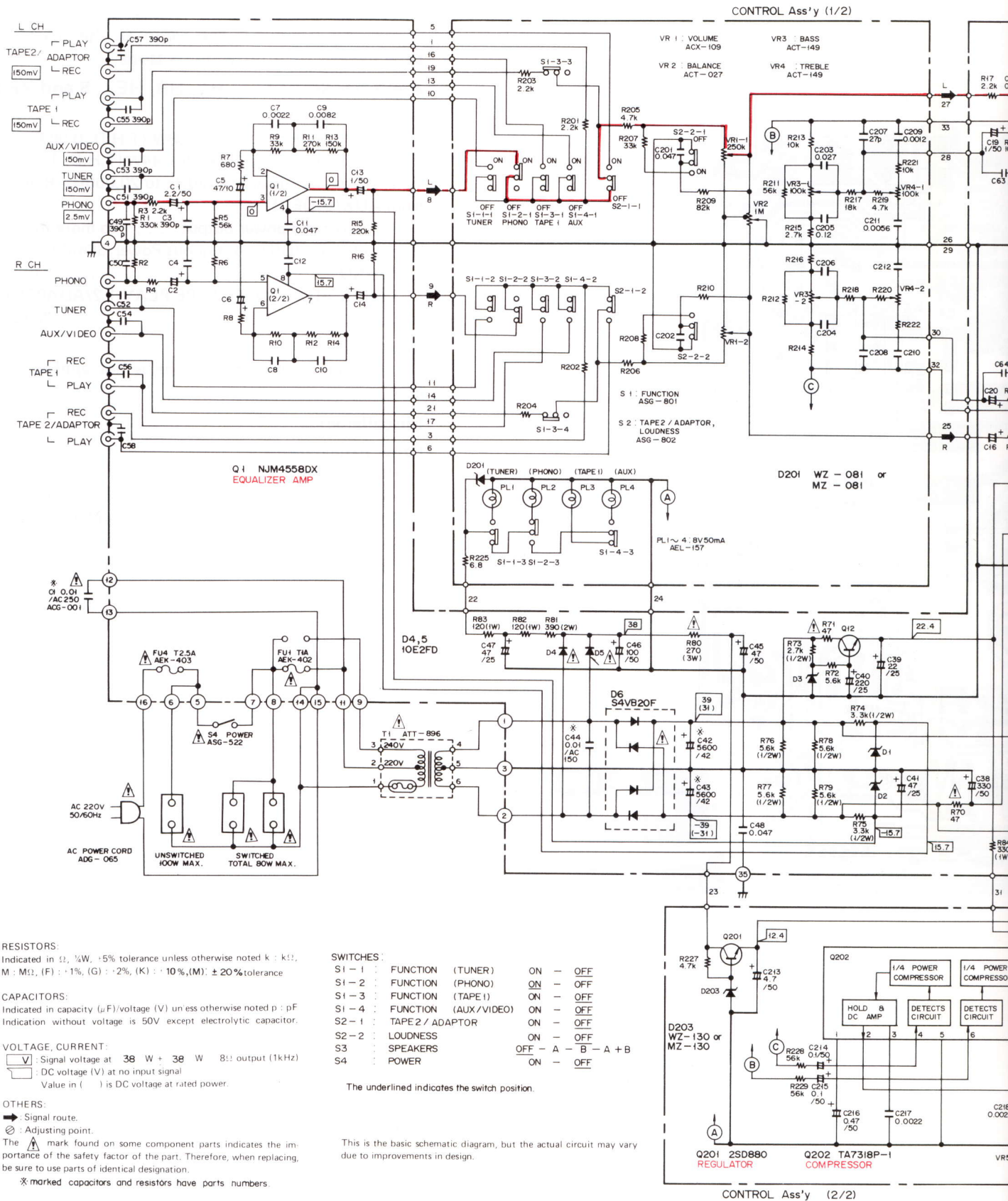
For HB type

D



D

For HEZ type



1. RESISTORS:

Indicated in Ω , $\frac{1}{2}W$, +5% tolerance unless otherwise noted k : k Ω , M : M Ω , (F) : $\cdot 1\%$, (G) : $\cdot 2\%$, (K) : $\cdot 10\%$, (M) : $\pm 20\%$ tolerance

2. CAPACITORS:

Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:

$\frac{V}{\square}$: Signal voltage at 38 W + 38 W 8 Ω output (1kHz)
 $\frac{V}{\square}$: DC voltage (V) at no input signal
 Value in () is DC voltage at rated power.

4. OTHERS:

\rightarrow : Signal route.
 \odot : Adjusting point.
 The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
 *marked capacitors and resistors have parts numbers.

SWITCHES:

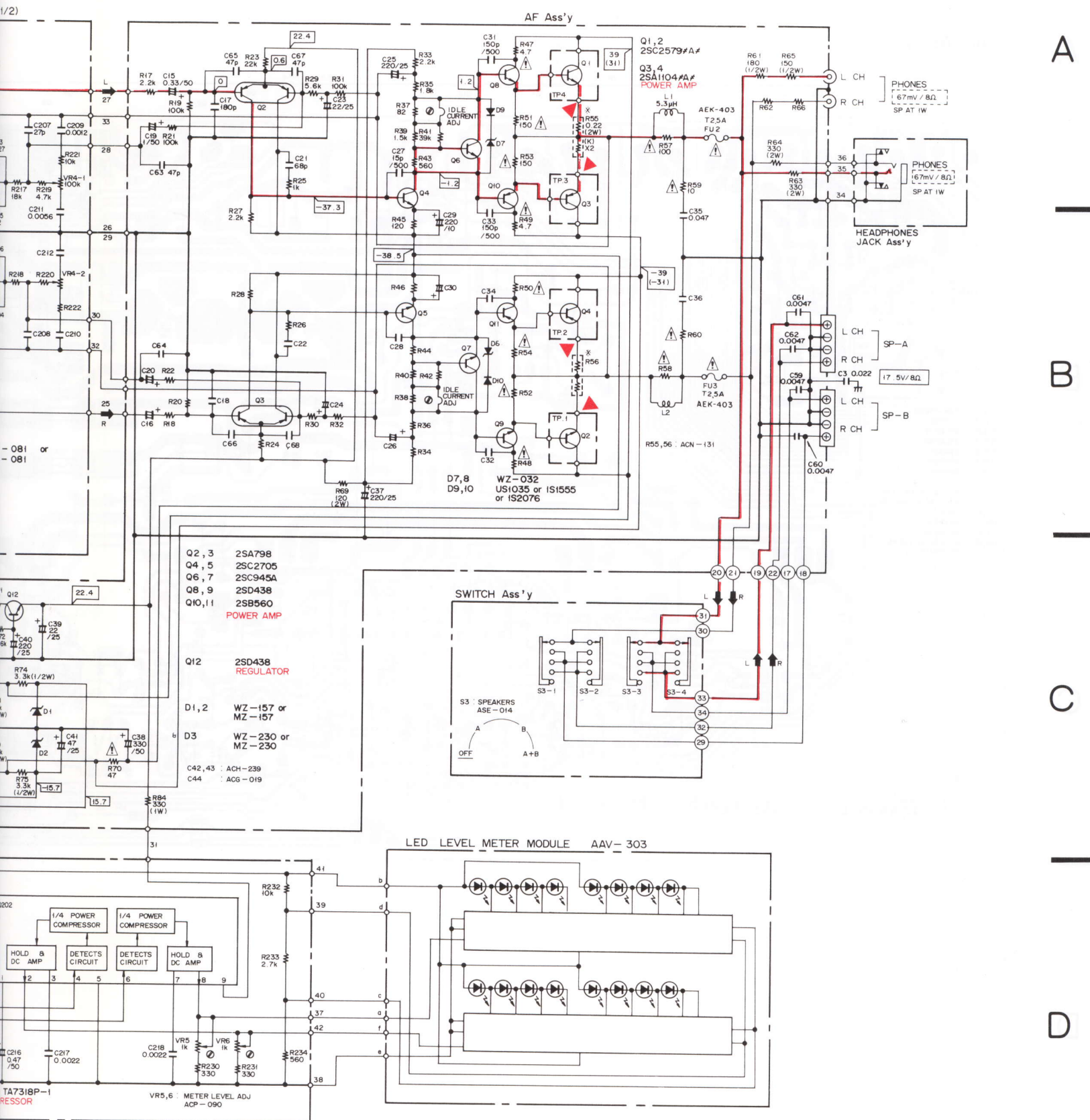
S1-1	: FUNCTION (TUNER)	ON - OFF
S1-2	: FUNCTION (PHONO)	ON - OFF
S1-3	: FUNCTION (TAPE I)	ON - OFF
S1-4	: FUNCTION (AUX/VIDEO)	ON - OFF
S2-1	: TAPE 2 / ADAPTOR	ON - OFF
S2-2	: LOUDNESS	ON - OFF
S3	: SPEAKERS	OFF - A - B - A + B
S4	: POWER	ON - OFF

The underlined indicates the switch position.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

CONTROL Ass'y (2/2)

NOTE:
 The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.



A

B

C

D

13.4 P.C. BOARD PATTERNS

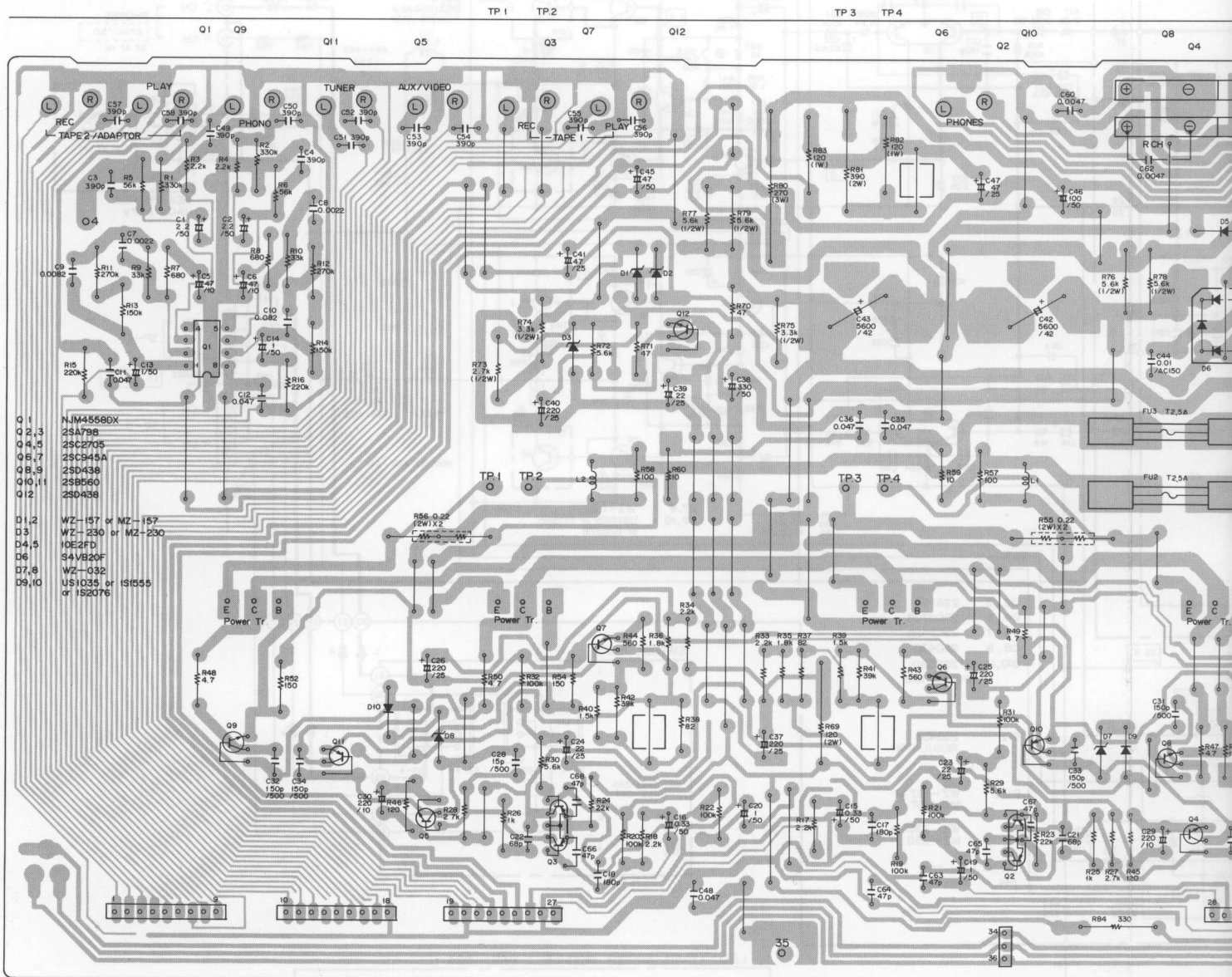
A

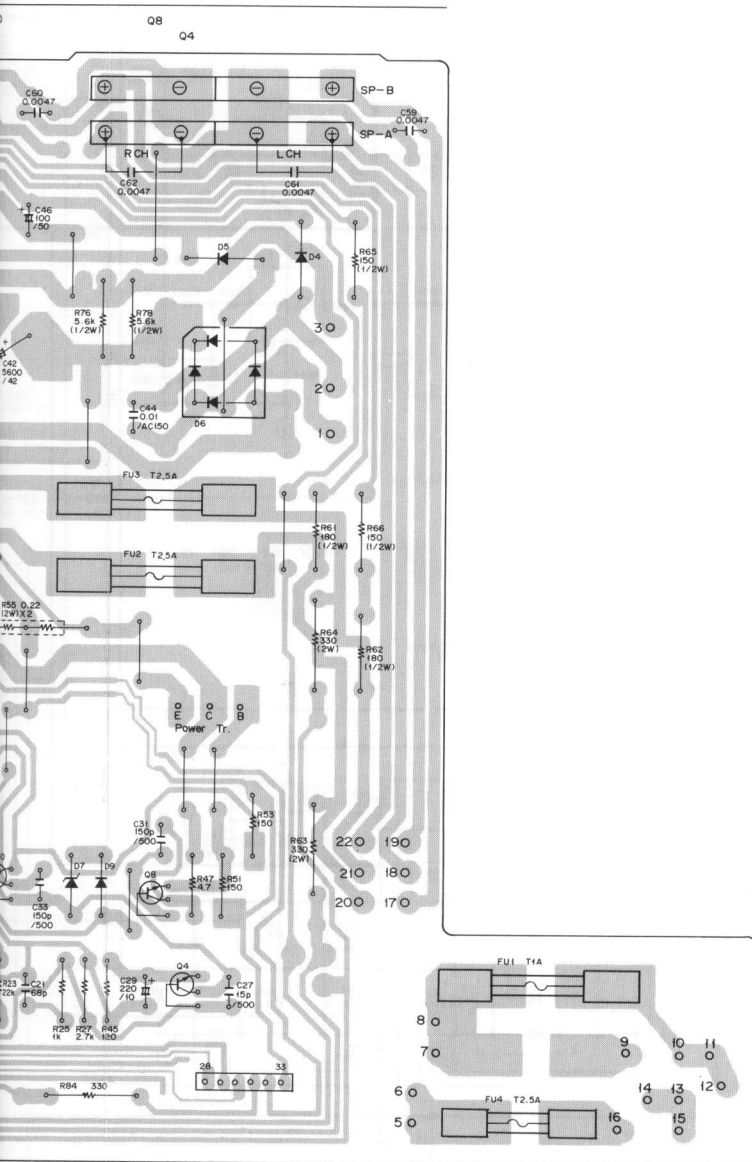
AF Ass'y

B

C

D





13.5 SPECIFICATIONS

SPECIFICATIONS

The specifications for SA-530/HE, HB, HEZ, S and YP types are the same as the SA-530/KU type except for following sections.

Amplifier Section . . . HE, HB, HEZ, S and YP types

Continuous Power Output

30 to 20,000Hz . . . 38W + 38W (T.H.D. 0.08%, 8 ohms)

1kHz (DIN) 44W + 44W (T.H.D. 1%, 8 ohms)

Total Harmonic Distortion (30Hz to 20,000Hz, 8 ohms, from AUX/VIDEO)

Continuous rated power output No more than 0.08%

Hum and Noise (DIN, continuous Power/50mW)

PHONO 71dB/62dB

TUNER AUX/VIDEO, TAPE PLAY 1,2/ADAPTOR

. 88dB/62dB

NOTE:

The damping factor of KU type is not applied to HEZ type.

Miscellaneous

Power Requirements

HB, YP types AC240V, 50/60Hz

HE, HEZ types AC220V, 50/60Hz

S type . . . AC110V, 120V, 220V and 240V, 50/60Hz

Power Consumptions

HE, HB, HEZ, YP types 230W

S type 90W

A

B

C

D