

Service Manual

**CIRCUIT DESCRIPTIONS
REPAIR & ADJUSTMENTS**



**ORDER NO.
ARP-301-0**

STEREO AMPLIFIER

SA-740

MODEL SA-740 COMES IN SIX VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KU	AC120V only	U.S.A. model
HE	AC220V, 240V (switchable)	European continent model
HB	AC220V, 240V (switchable)	United Kingdom model
S	AC110V, 120V, 220V, 240V (switchable)	General export model
YP	AC240V only	Australia model
HEZ	AC220V, 240V (switchable)	West Germany model

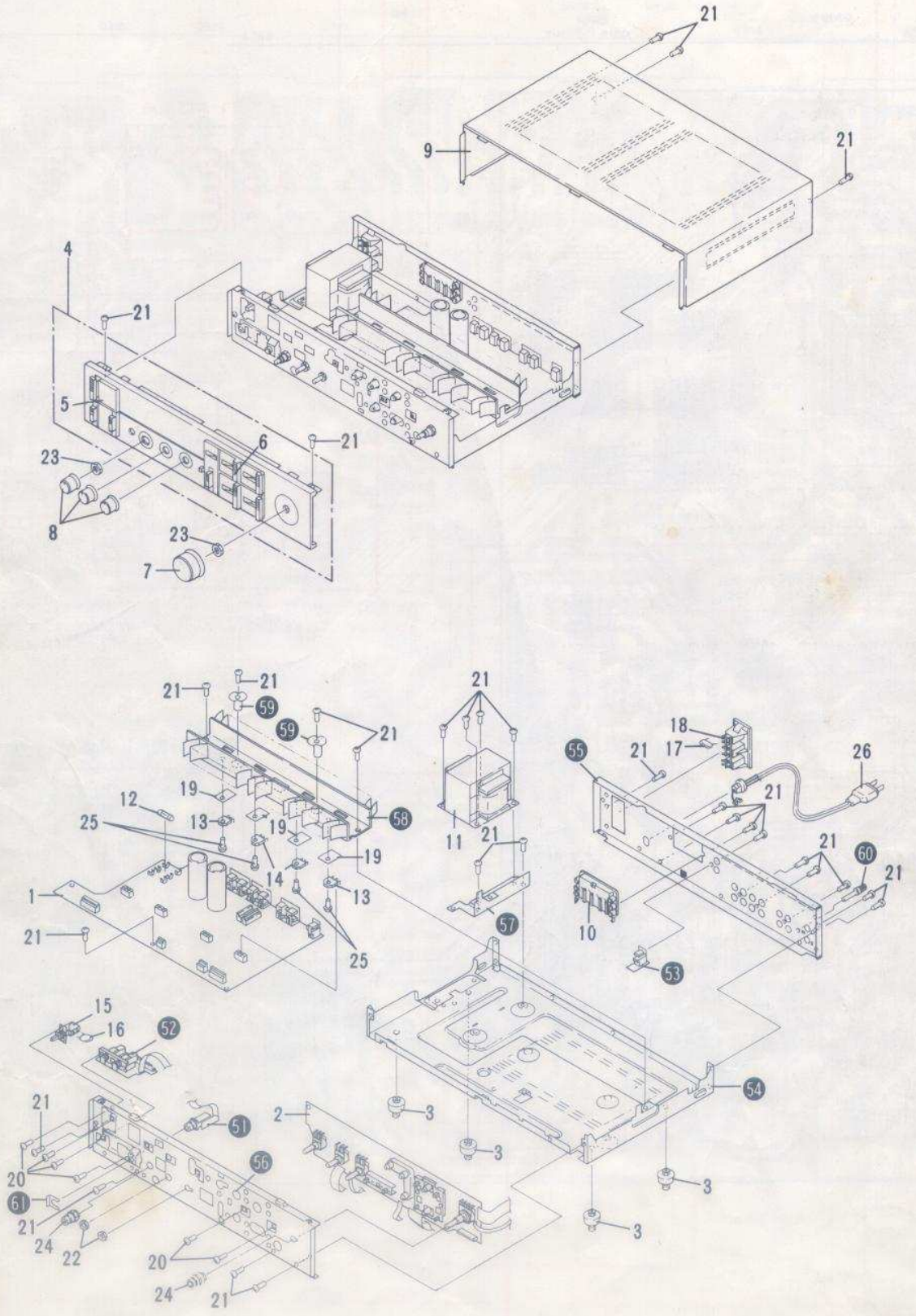
- This service manual is applicable to the KU type. For servicing of the HE, HB, S and YP types, please refer to the pp. 25~28. For servicing of the HEZ type, please refer to the Additional Service Manual.
- Ce manuel d'instruction se réfère au mode de réglage, en français.
- Este manual de servicio trata del método de ajuste escrito en español.

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PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS (USA) INC. 1925 E. Dominguez St., Long Beach, California 90810 U.S.A.
PIONEER ELECTRONIC (EUROPE) N.V. Keetberglaan 1, 2740 Beveren, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia

4. EXPLODED VIEW



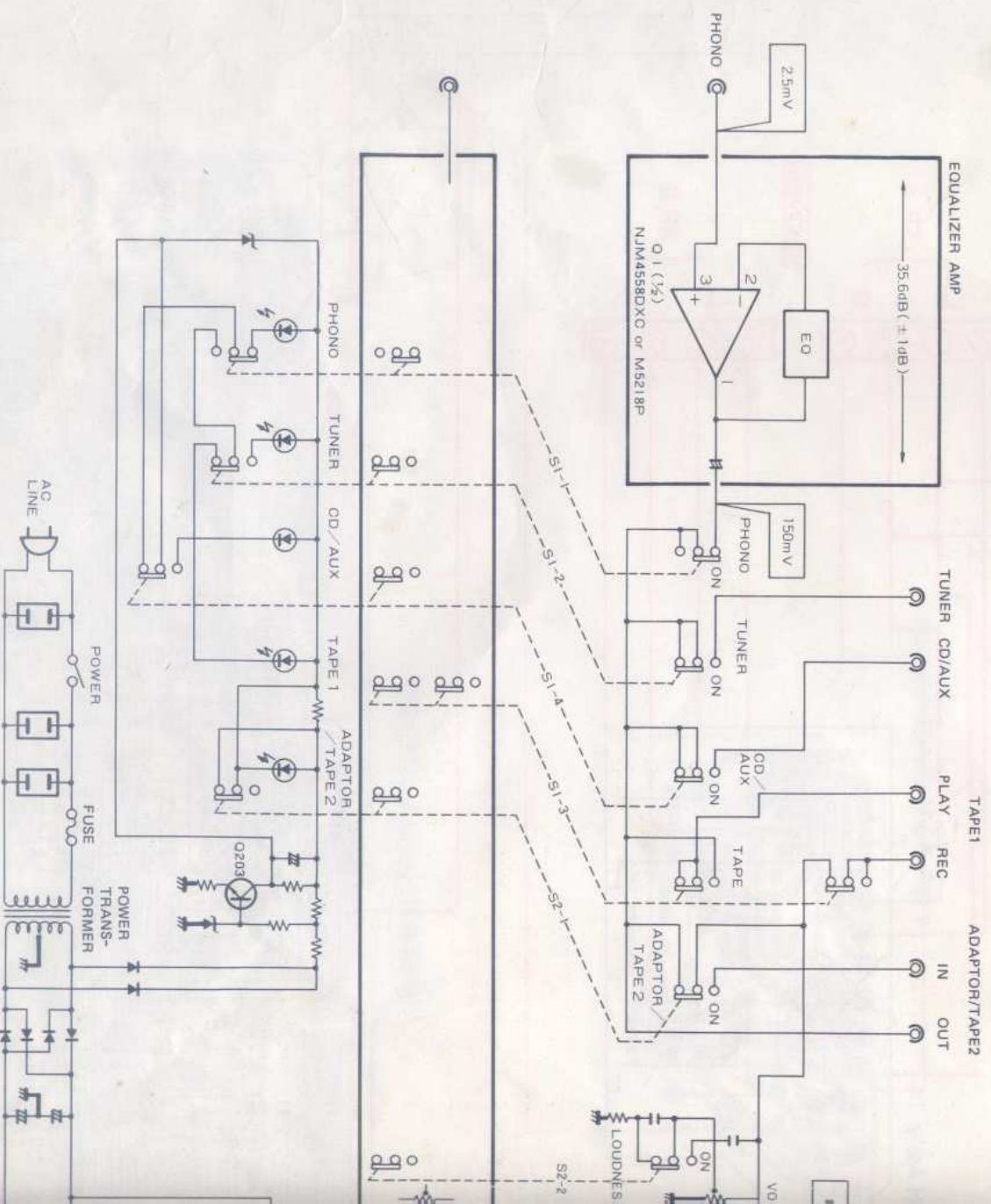
NOTES:

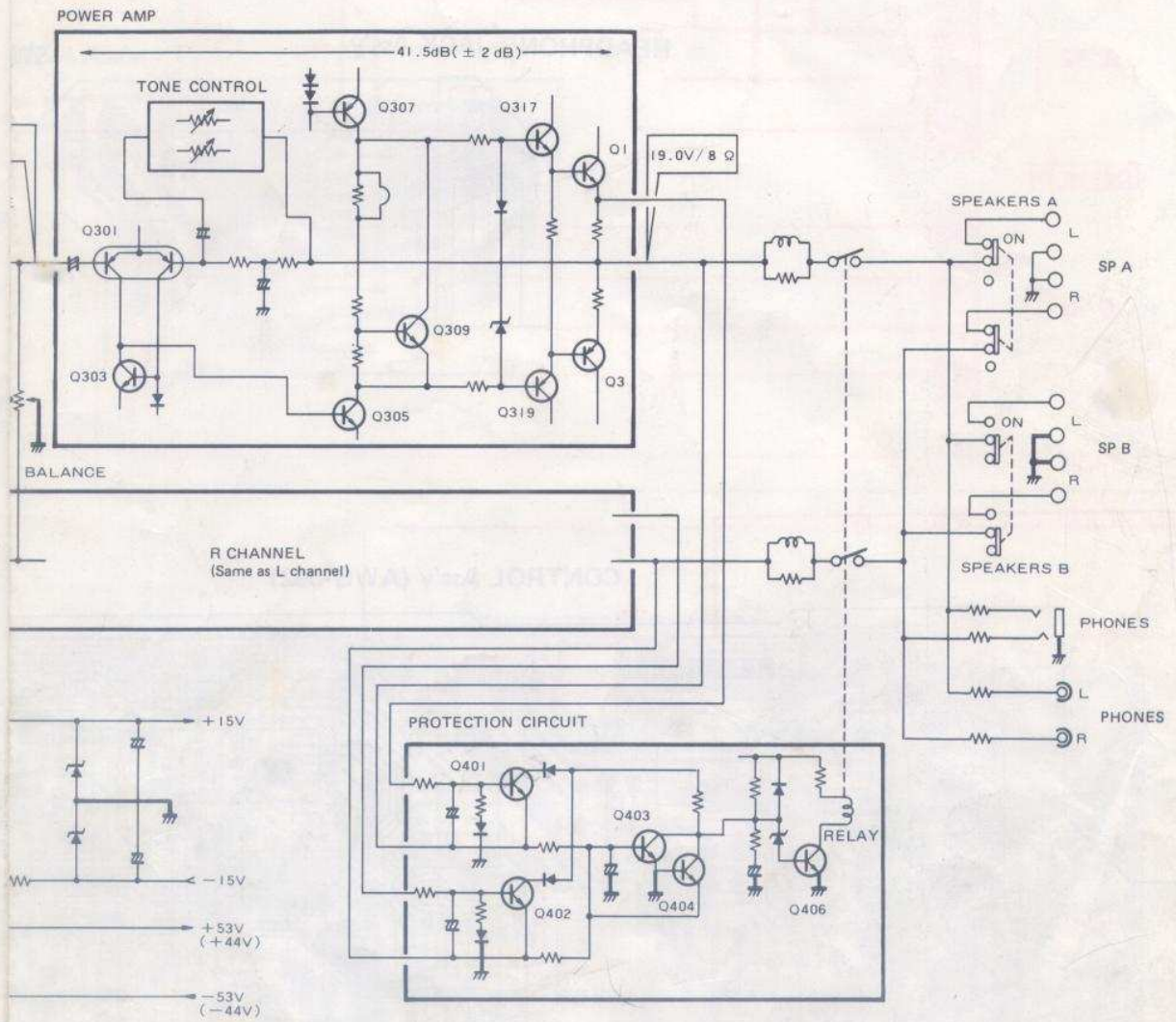
- *Parts without part number cannot be supplied.*
- *The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with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

Mark	No.	Part No.	Description
	1.	GWK-230	AF ass'y
	2.	AWG-092	Control ass'y
	3.	AEC-784	Foot ass'y
	4.	ANM-396	Front panel ass'y
	5.	AAD-677	Push knob ass'y A
	6.	AAD-695	Push knob ass'y B
	7.	AAB-324	Rotary knob A
	8.	AAB-325	Rotary knob B
	9.	ANE-419	Bonnet case
	10.	AKE-105	Terminal (SPEAKERS)
Δ	★	11. ATS-006	Power transformer
Δ	★	12. AEK-125	Fuse (4A)
★★	13.	2SC3182N/A/-0* (2SC3182N/A/-R)	Transistor
★★	14.	2SA1265N/A/-0* (2SA1265N/A/-R)	Transistor
		*hfe should have the same value.	
Δ	★★	15. ASG-541	Push switch (POWER)
Δ		16. ACG-562	Ceramic capacitor (0.01/125V)
		17.	
Δ		18. AKP-501	AC socket
		19. AEC-818	Mica wafer
		20. PMZ30P060FMC	Screw (3x6)
		21. BBZ30P080FZK	Screw (3x8)
		22. NK70FUC	Nut
		23. NKX1FUC	Nut
		24. ABN-075	Guide nut
		25. ABA-258	Screw
Δ		26. ADG-073	AC power cord
		51.	Headphone jack ass'y
		52.	Switch ass'y
		53.	Terminal ass'y
		54.	Chassis
		55.	Rear panel
		56.	Panel stay
		57.	Frame
		58.	Heat sink
		59.	Heat cap
		60.	Terminal (GND)
		61.	Mounting plate

importance of the use parts of identical rated with the marks it depends on model

5. BLOCK DIAGRAM





6. P.C. BOARDS CONNECTION DIAGRAM

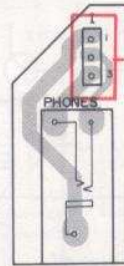
A

B

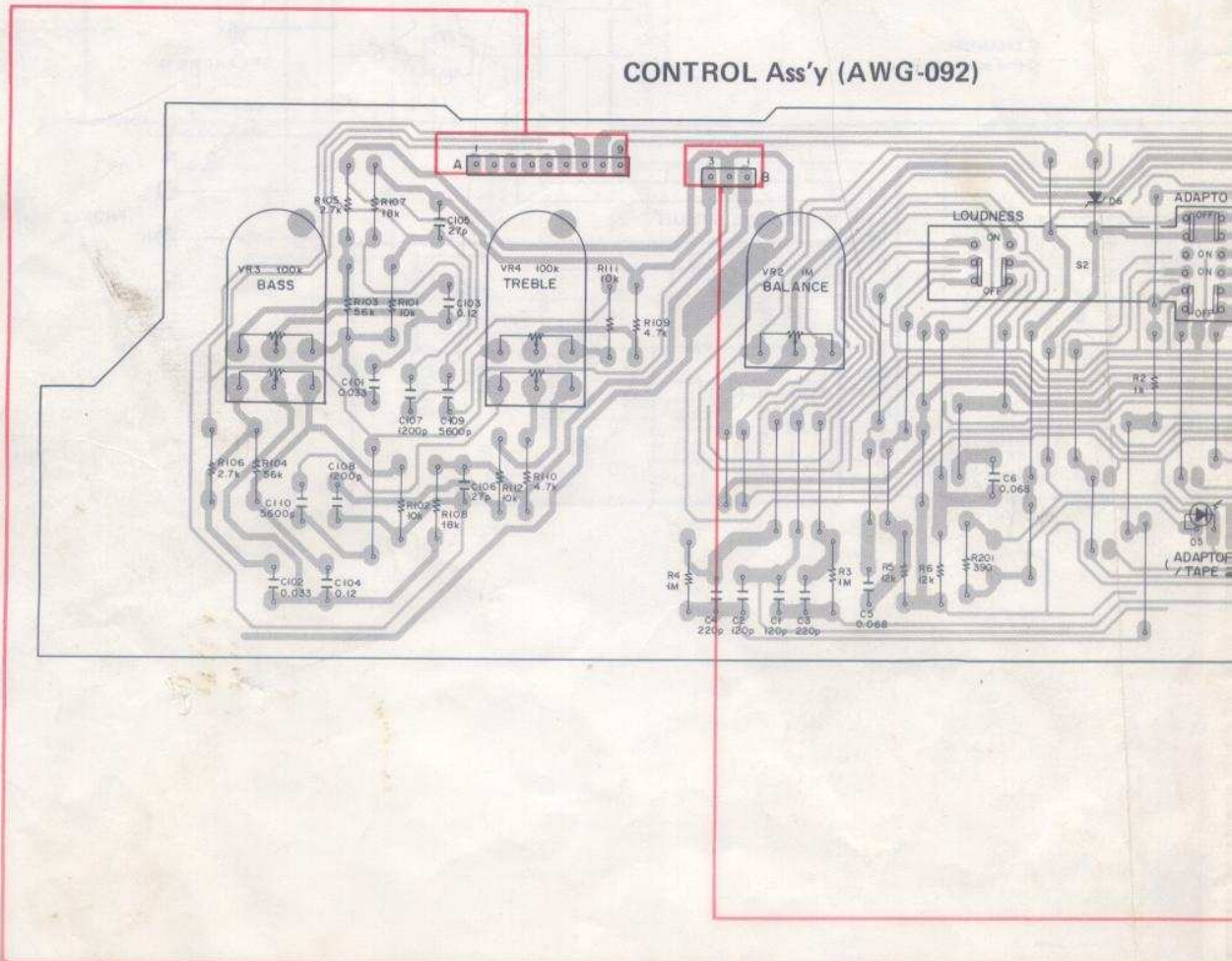
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D

HEADPHONE JACK Ass'y



CONTROL Ass'y (AWG-092)

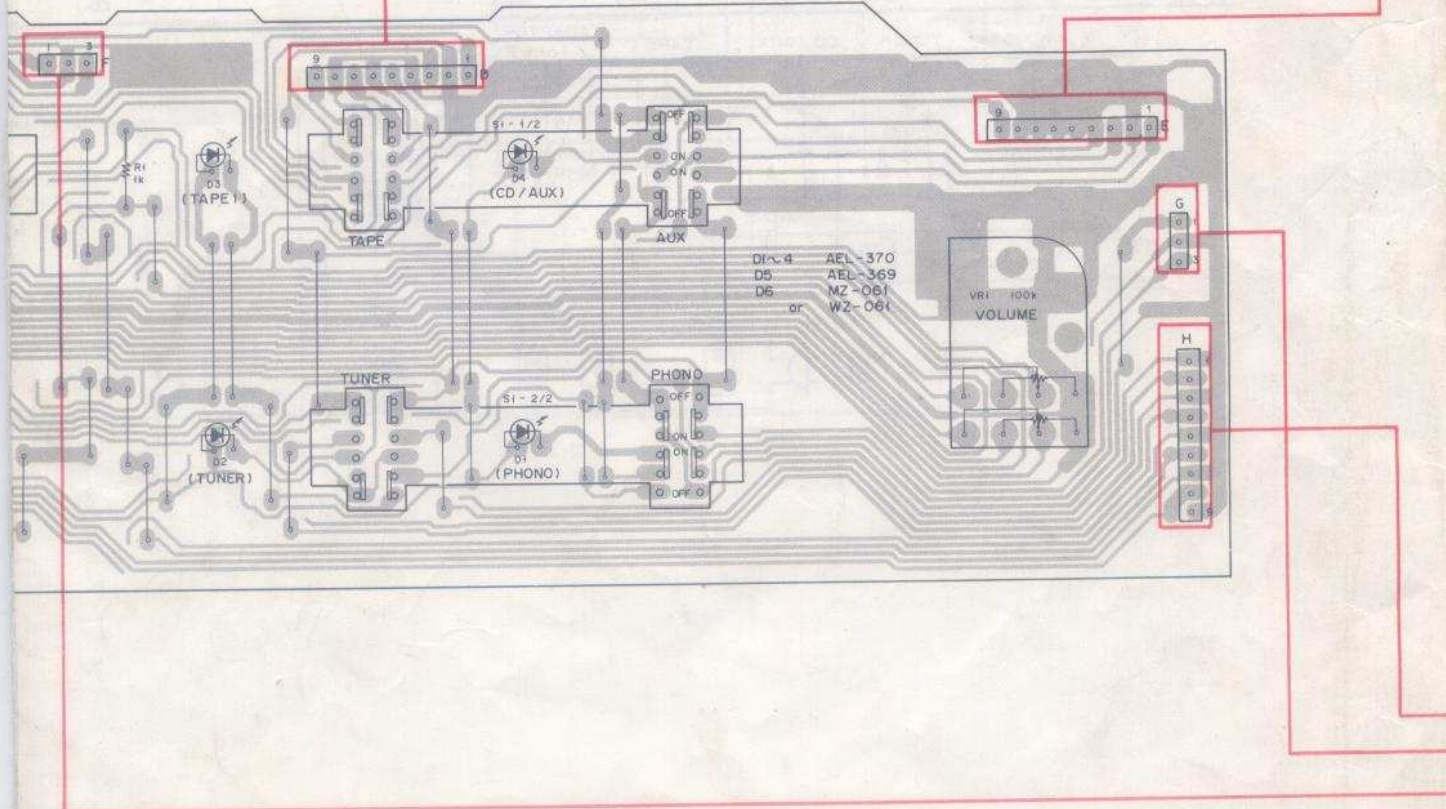
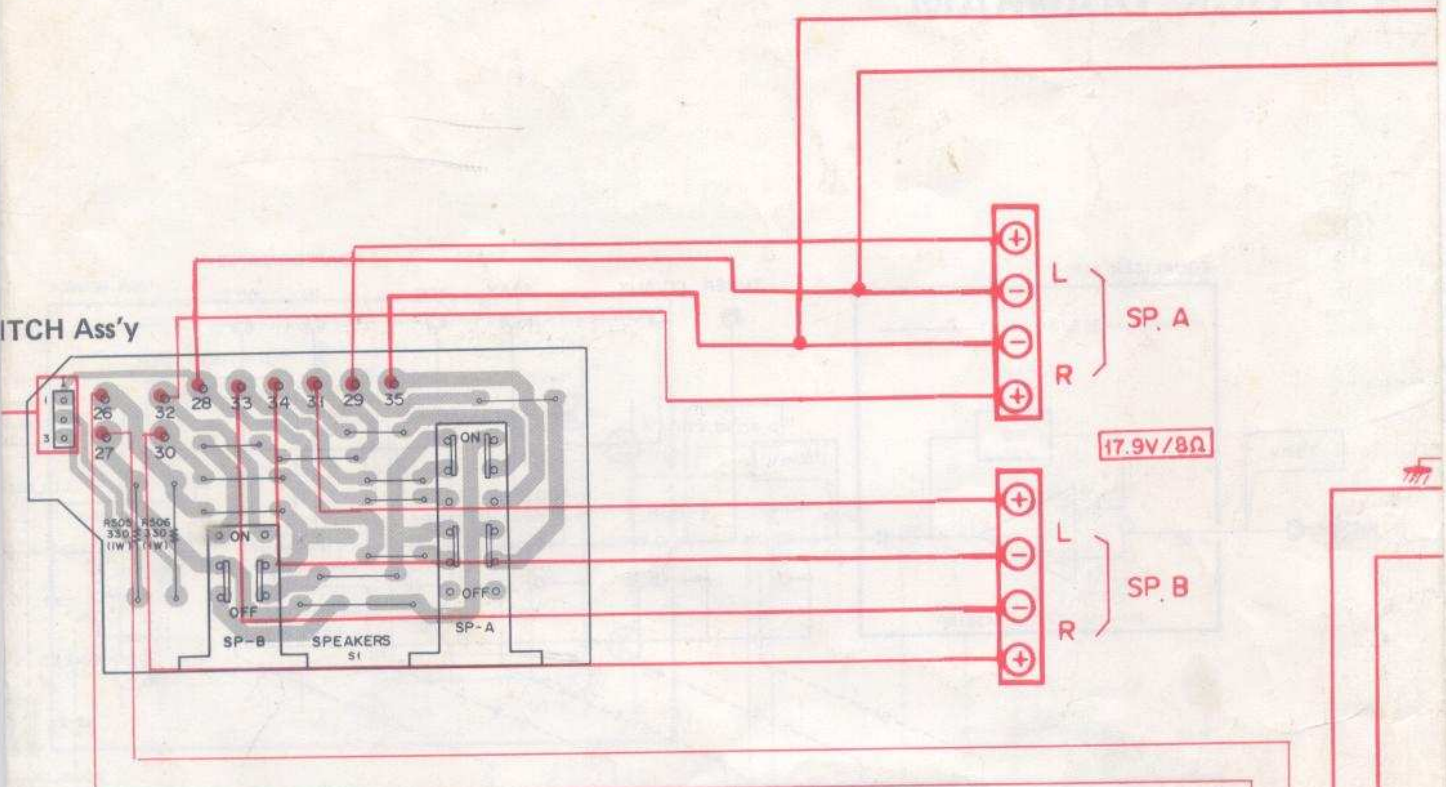


4

5

6

ITCH Ass'y

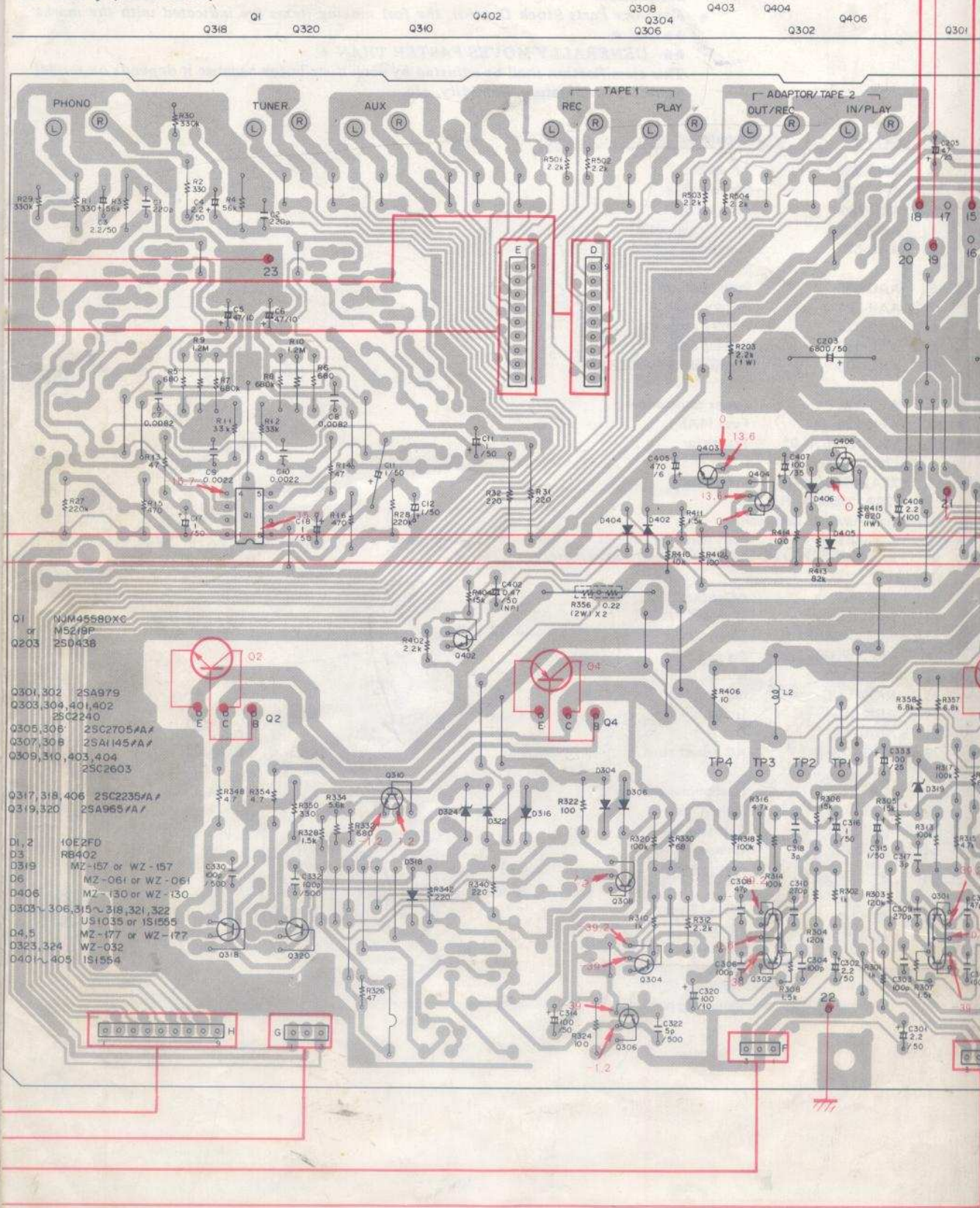


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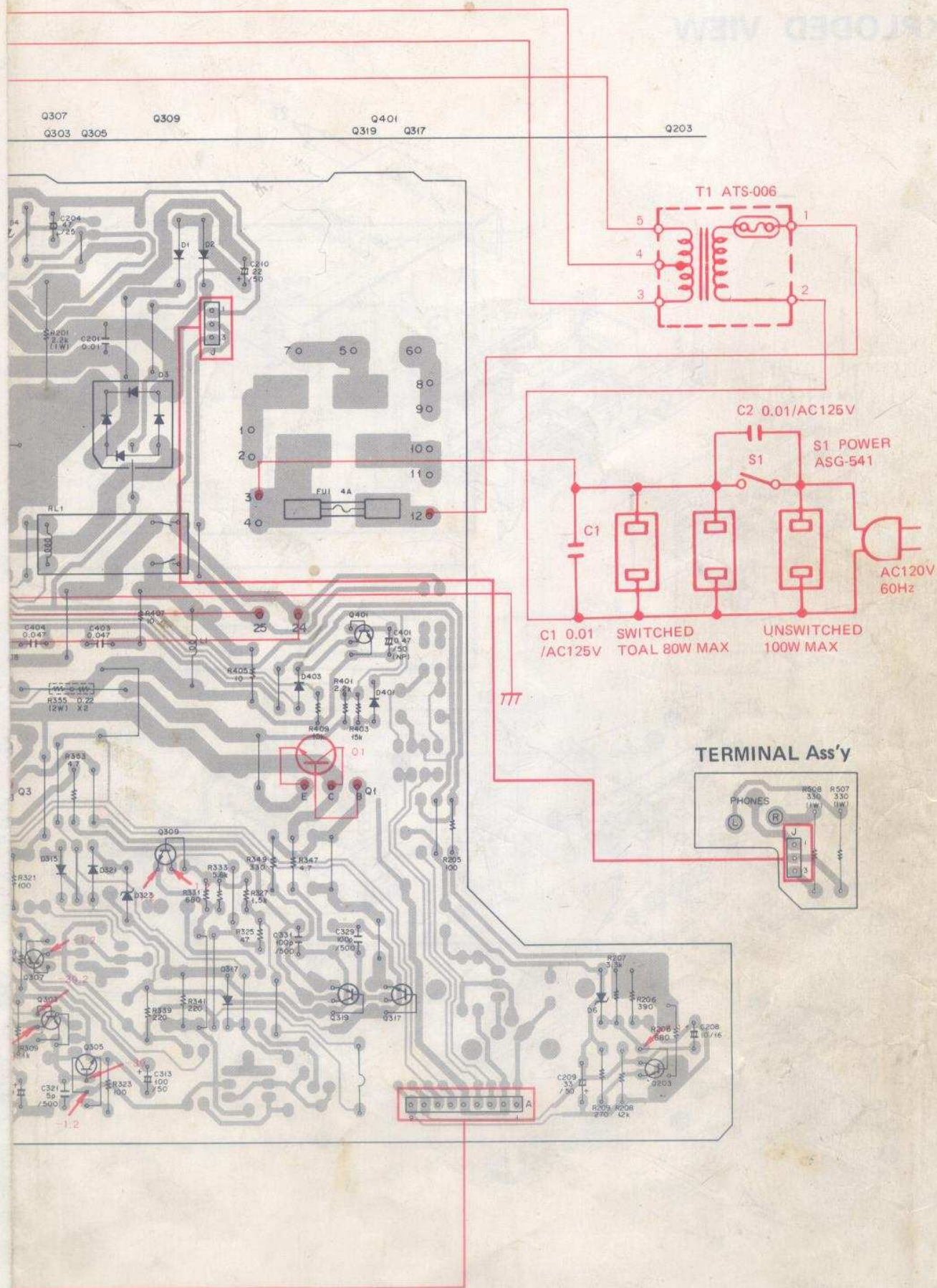
5

6

AF Ass'y (GWK-230)



- Q1 or Q203 NJM45580XC
M5219P
250438
- Q301,302 2SA979
- Q303,304,401,402 2SC2240
- Q305,306 2SC2705A/A'
- Q307,308 2SA145A/A'
- Q309,310,403,404 2SC2603
- Q317,318,406 2SC2235A/A'
- Q319,320 2SA965A/A'
- D1,2 10E2F0
- D3 RB402
- D319 MZ-157 or WZ-157
- D6 MZ-061 or WZ-061
- D406 MZ-130 or WZ-130
- D305~306,319~318,321,322 US1035 or IS1555
- D4,5 MZ-177 or WZ-177
- D323,324 WZ-032
- D401~405 IS1554



EXPLODED VIEW

Q307 Q309 Q401 Q203
Q303 Q305 Q319 Q317

T1 ATS-006

C2 0.01/AC125V

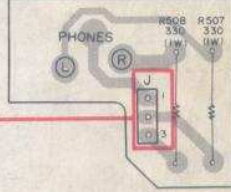
S1 POWER
ASG-541

AC120V
60Hz

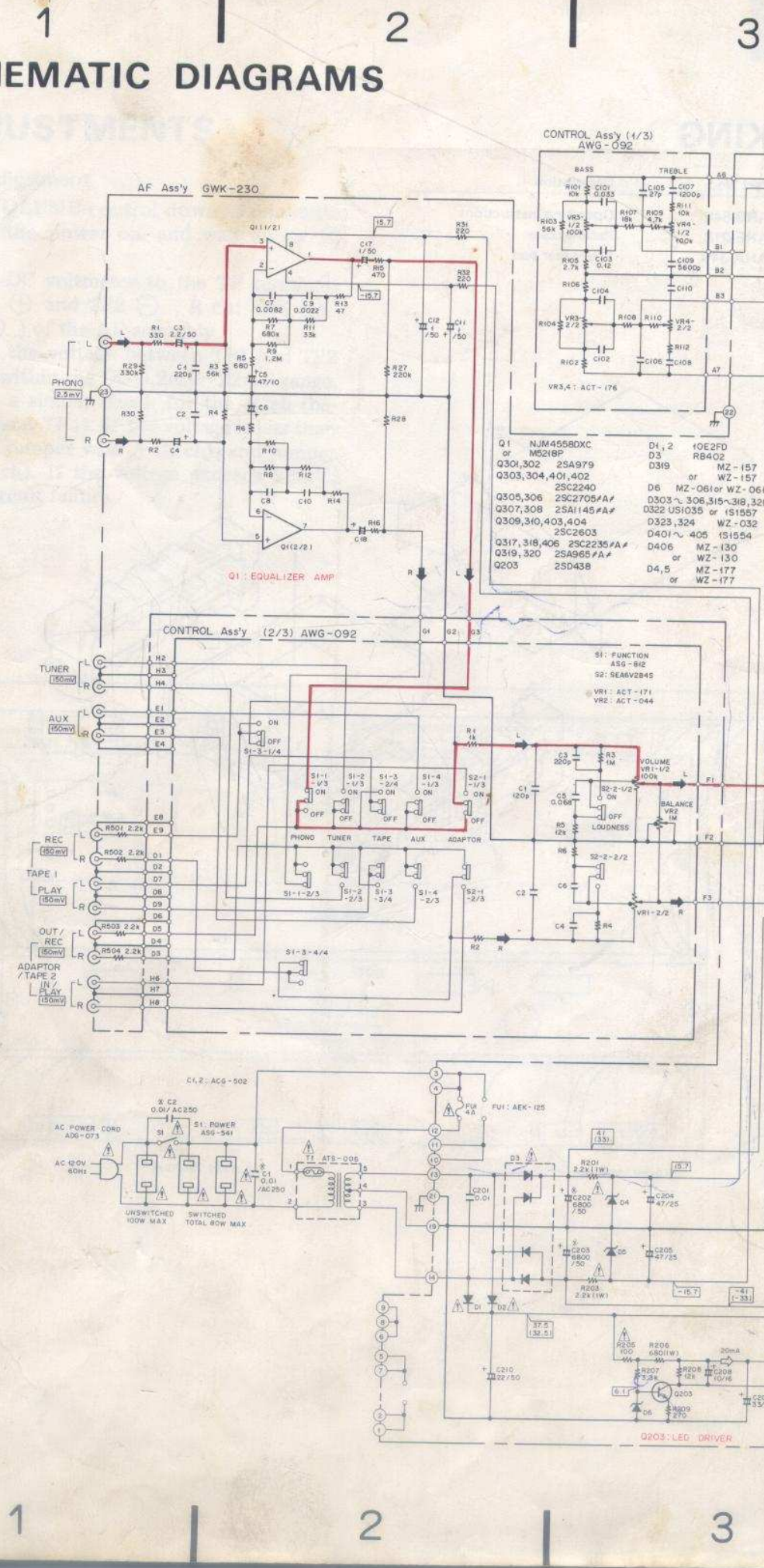
C1 0.01 SWITCHED
/AC125V TOAL 80W MAX

UNSWITCHED
100W MAX

TERMINAL Ass'y



7. SCHEMATIC DIAGRAMS



Q1: EQUALIZER AMP

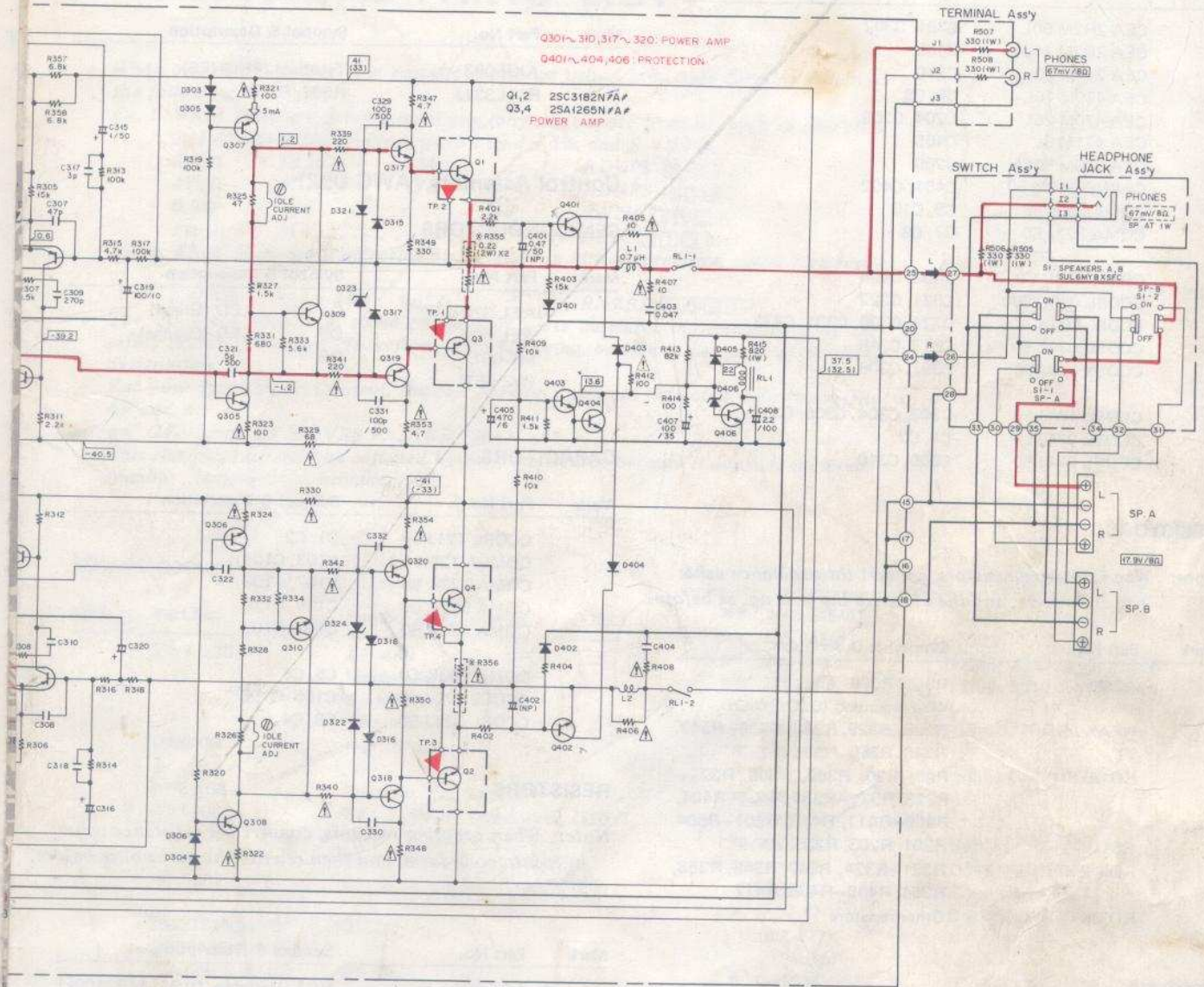
Q1	NJM4558DXC or M521BP	D1, 2	10E2FD
Q301, 302	2SA979	D3	R8402
Q303, 304, 401, 402	2SC2240	D319	MZ-157 or WZ-157
Q305, 306	2SC2705FA#	D6	MZ-061 or WZ-061
Q307, 308	2SA1145FA#	D303, 306, 315, 318, 321, D322	US1035 or 1S1557
Q309, 310, 403, 404	2SC2603	D323, 324	WZ-032
Q317, 318, 406	2SC2235FA#	D401, 405	1S1554
Q319, 320	2SA965FA#	D406	MZ-130 or WZ-130
Q203	2SD438	D4, 5	MZ-177 or WZ-177

S1: FUNCTION
ASG-842
S2: SEAV2845
VR1: ACT-171
VR2: ACT-044

RL1: ASR-107
C202, 203: ACH-250
R355, 356: ACH-131
C201: ACG-019

1. RESISTORS Indicated in Ω, M, MΩ, (K).
2. CAPACITORS Indicated in p, pF, Inductor.
3. VOLTAGE COEFFICIENT Signifies DC Value, m.A., DC.

Q203: LED DRIVER



Q301~310,317~320: POWER AMP
 Q401~404,406: PROTECTION

Q1,2 2SC3182N PNP
 Q3,4 2SA1265N NPN
 POWER AMP

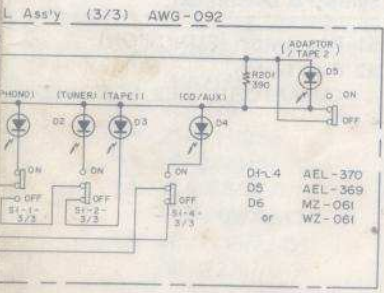
1. W, W, 1/2 W: ±5% tolerance unless otherwise noted; k: ×1,000; M: ×1,000,000; G: ×0.1; K: ×10; M: ×100 tolerance
 2. Capacity (μF)/Voltage (V) unless otherwise noted
 3. Voltage (V) at () 40 W ± 40 W, 8Ω output (1kHz)
 4. Voltage (V) at no input signal
 5. Current (A) at no input signal

4. OTHERS:
 () : Signal route.
 () : Adjusting point.
 The 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.

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

SWITCHES:
 CONTROL Ass'y
 S1-1: FUNCTION (PHONO) ON - OFF
 S1-2: FUNCTION (TUNER) ON - OFF
 S1-3: FUNCTION (TAPE 1) ON - OFF
 S1-4: FUNCTION (CD/AUX) ON - OFF
 S2-1: ADAPTOR/TAPE 2 ON - OFF
 S2-2: LOUDNESS ON - OFF
 SWITCH Ass'y
 S1-1: SPEAKER A ON - OFF
 S1-2: SPEAKER B ON - OFF
 OTHERS
 S1 : POWER ON - OFF

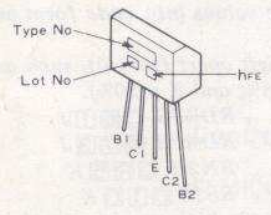
The underlined indicates the switch position.



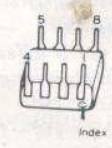
NOTE:
 The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.

External appearances of transistor and IC

2SA979

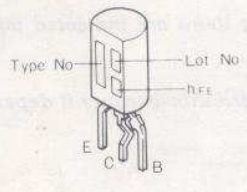


NJM4558DXC
 M5218P

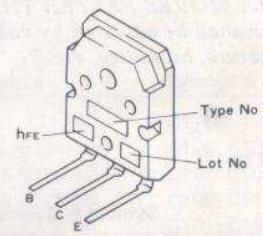


A

2SA1145/A/
 2SC2705/A/
 2SC2235/A/

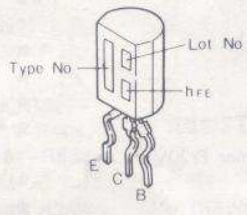


2SC3182N
 2SA1265N



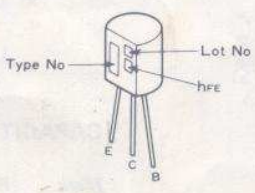
B

2SA965/A/
 2SD438/A/

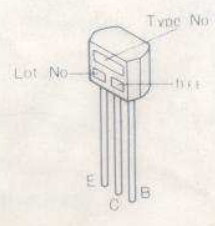


C

2SC2240



2SC2603



D

8. ELECTRICAL 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	0R5K
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
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- 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

Mark	Part No.	Symbol & Description
	GWK-230	AF ass'y Headphone jack ass'y Switch ass'y Terminal ass'y
	AWG-092	Control ass'y
	AKE-105	Terminal (SPEAKERS)
Δ ★	ATS-006	T1 Power transformer (120V)
Δ ★★	AEK-125	FU1 Fuse (4A)
Δ ★★	ASG-541	S1 Push switch (POWER)
Δ	ACG-502	C1, C2 Capacitor (0.01/AC125V)
	2SC3182N/A/-O*	Q1, Q2
	(2SC3182N/A/-R)	
	2SA1265N/A/-O*	Q3, Q4
	*hfe of Q1-Q4 should have the same value.	
Δ	ACG-502	AC socket (AC OUTLETS)
Δ	ADG-073	AC power cord

AF Assembly (GWK-230)

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
★★	NJM4558DXC (M5218P)	Q1
★★	2SA979	Q301, Q302
★★	2SA1145/A/	Q307, Q308
★★	2SC2705/A/	Q305, Q306
★★	2SA965/A/-O* (2SA965/A/-Y)	Q319, Q320
★★	2SC2235/A/-O* (2SC2235/A/-Y)	Q317, Q318
	*hfe of Q317-Q320 should have the same value.	

Mark	Part No.	Symbol & Description
★★	2SC2235/A/	Q406
★★	2SD438/A/	Q203
★★	2SC2240	Q303, Q304, Q401, Q402
★★	2SC2603	Q309, Q310, Q403, Q404
Δ ★	RB402	D3
Δ ★	10E2FD	D1, D2
★	WZ-032	D323, D324
★	MZ-061 (WZ-061)	D6
★	MZ-130	D406
★	MZ-157 (WZ-157)	D319
★	MZ-177 (WZ-177)	D4, D5
★	US1035	D303-D306, D315-D318, D321, D322
	US1554	D401, D402, D403, D404, D405

CAPACITORS

Mark	Part No.	Symbol & Description
	ACH-258	C202, C203 Electrolytic (6800/50)
	CEA 101M 50L	C313, C314
	ACG-019	C201 Ceramic
	CEANL 010M 50	C315, C316
	CEANL 2R2M 50	C3, C4
	CEA 010M 50L	C17, C18, C11, C12
	CEA 100M 16L	C208
	CEA 101M 10L	C319, C320
	CEA 101M 35L	C407
	CEA 101M 25L	C333

Mark	Part No.	Symbol & Description
	CEA 2R2M 50L	C301, C302
	CEA 2R2M 100L	C408
	CEA 220M 50L	C210
	CEA 470M 10L	C5, C6
	CEA 470M 25L	C204, C205
	CEA 471M 6L	C405
	CEA 330M 50L	C209
	CEANP R47M 50	C401, C402
	CQMA 222J 50	C9, C10
	CQMA 822J 50	C7, C8
	CQMA 473K 50	C403, C404
	CCDSL 050C 500	C321, C322
	CCDSL 101K 500	C329, C330, C331, C332
	CCDSL 030C 50	C317, C318
	CCDSL 470J 50	C307, C308
	CCDSL 101J 50	C303, C304, C305, C306
	CCDSL 221J 50	C1, C2
	CCDSL 271J 50	C309, C310

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	R355, R356
		Wire wounded (0.22/2Wx2)
⚠	RFA¼ PS □□□ J	R205, R329, R330, R339-R342, R349, R350
	RD1/8 PM □□□ J	R29, R30, R307, R308, R325-R328, R331-R334, R401-R404, R409-R411, R413, R501-R504
	RS1L □□□ J	R201, R203, R206, R415
	RD¼ PMFL □□□ J	R321-R324, R347, R348, R353, R354, R405-R408, R412
	RD¼M □□□ J	Other resistors

OTHERS

Mark	Part No.	Symbol & Description
	AKB-093	Terminal
	AKB-094	Terminal
	AKH-017	TR socket
	ASR-107	RL1 Relay

Headphone Jack Assembly

Mark	Part No.	Symbol & Description
	AKN-045	Phone jack (PHONES)

Switch Assembly

Mark	Part No.	Symbol & Description
	SUL6MYBXSF	S1 Push switch (SPEAKERS)
	RS1L331J	R505, R506

Terminal Assembly

Mark	Part No.	Symbol & Description
	AKB-093	Terminal (PHONES)
	RS1L331J	R507, R508

Control Assembly (AWG-092)

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
	AEL-370	D1-D4 LED (Green)
	AEL-369	D5 LED (Orange)
	MZ-061	D6
	(WZ-061)	

CAPACITORS

Mark	Part No.	Symbol & Description
	CCDSL 121J 50	C1, C2
	CQMLA 124K 50	C103, C104
	CQMA 122K 50	C107, C108
	CQMA 562K 50	C109, C110
	CQMA 333K 50	C101, C102
	CQMA 683K 50	C5, C6
	CCDSL 270J 50	C105, C106
	CCDSL 221J 50	C3, C4

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
★	ACT-171	VR1 Variable (VOLUME, 100k)
★	ACT-044	VR2 Variable (BALANCE, 1M)
★	ACT-176	VR3, VR4 Variable (TREBLE, BASS, 100k)
	RD¼ PM □□□ J	Other resistor

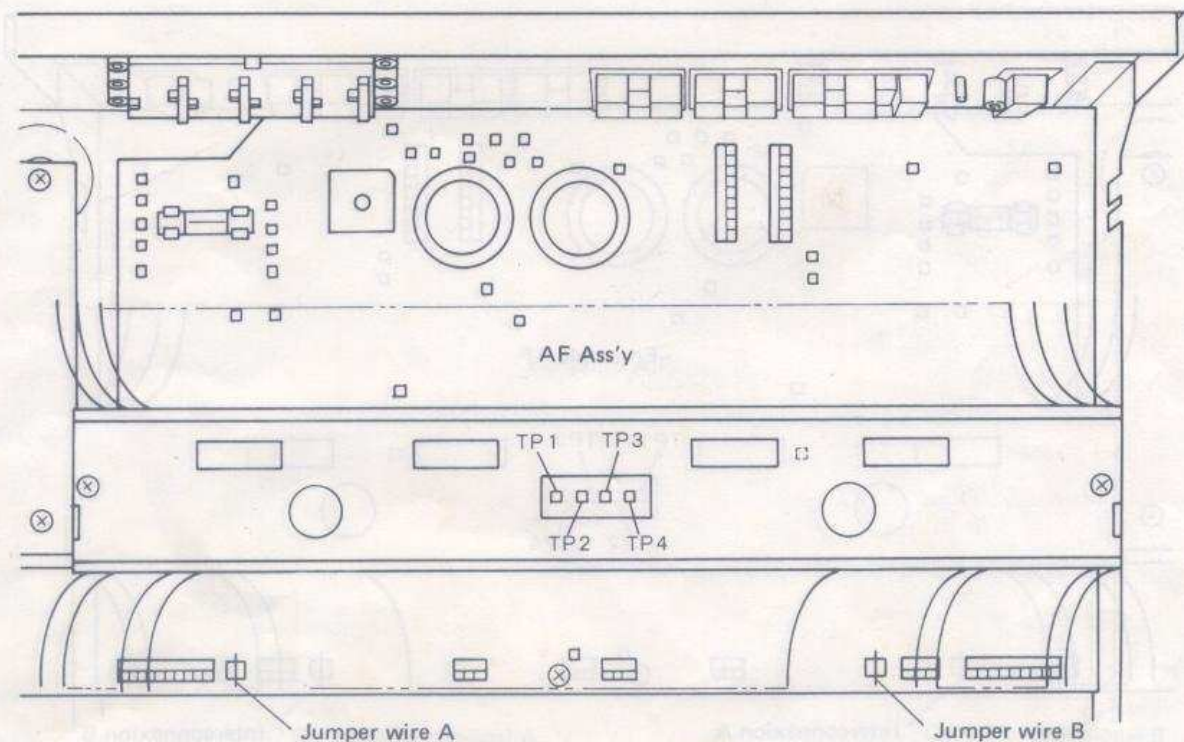
OTHERS

Mark	Part No.	Symbol & Description
★★	ASG-812	S1 Push switch (FUNCTION)
★★	SEA6V2B4S	S2 Push switch (ADAPTOR/TAPE2, LOUDNESS)

10. ADJUSTMENTS

Idle Current Adjustment

1. Turn the VOLUME control down to minimum level, turn the power on, and wait about 10 minutes.
2. Connect a DC voltmeter to the TP terminals (L ch; TP1 ⊕ and TP2 ⊖ , R ch; TP4 ⊖ and TP3 ⊕) of the AF assembly.
3. Check that the voltage between TP1 and TP2 (L ch) lies within the DC 0,2mV~22mV range. Then make a similar check for the R ch (between TP3 and TP4). If the voltage is less than 0,2mV, cut jumper wire A (L ch), and jumper wire B (R ch). If the voltage exceeds 22mV, check for circuit failure.



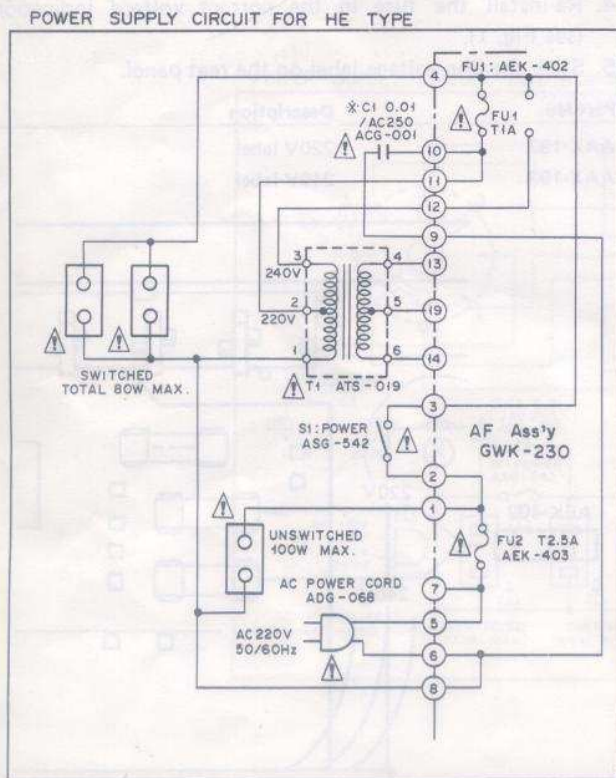
12. FOR HE TYPE

The HE type is the same as the KU type with the exception of the following sections.

Contrast of Miscellaneous Parts

Mark	Symbol & Description	Part No.		Remarks
		KU type	HE type	
⚠ ★	T1 Power transformer (120V) (220V, 240V)	ATS-006	.....
⚠ ★★	FU1 Fuse (4A) (T1A)	AEK-125	.....
⚠ ★★	FU2 Fuse (T2.5A)	.....	AEK-402	
⚠ ★★	S1 Push switch (POWER)	ASG-541	ASG-542	
⚠	C1 Capacitor (0.01)	ACG-502	ACG-001	
⚠	C2 Capacitor (0.01)	ACG-502	.....
⚠	AC socket	AKP-501	AKP-502	
⚠	AC power cord	ADG-073	ADG-068	
	Operating instructions (English)	ARB-546	.....
	(English/French/German/Italian)	.....	ARE-067	
	Packing case	AHE-218	AHE-193	

Schematic Diagram



Line Voltage Selection

Line voltage can be changed with following steps.

1. Disconnect the AC power cord.
2. Remove the top cover.
3. Take out the fuse (AEK-402) from the fuse assembly.
4. Re-install the fuse in the correct voltage indication (see Fig. 1).
5. Stick the line voltage label on the rear panel.

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

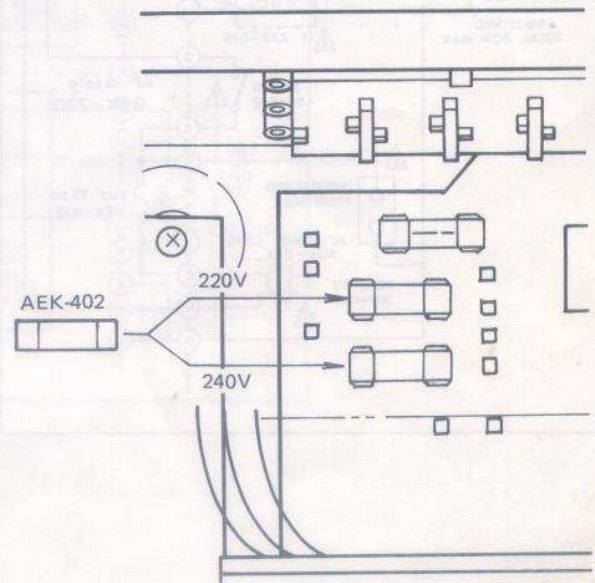


Fig. 1

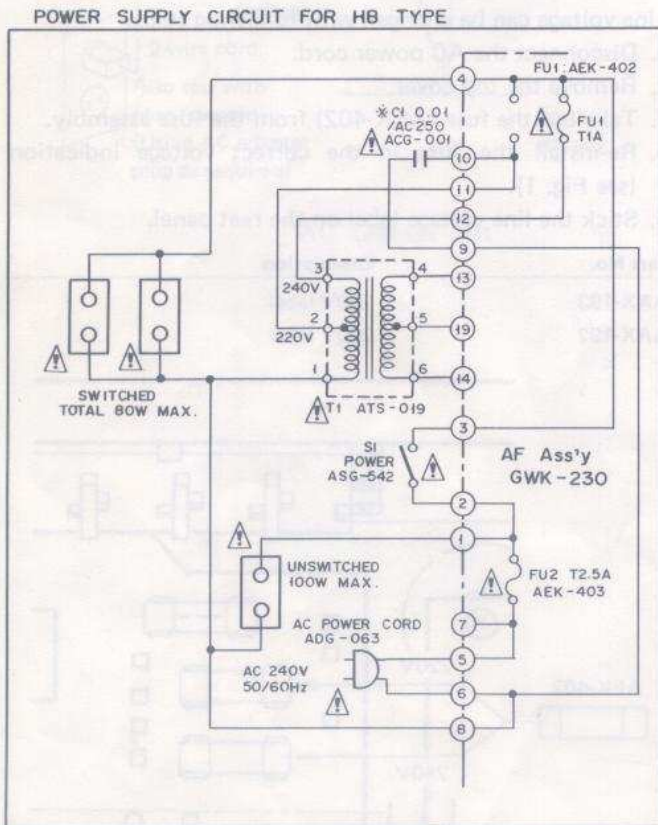
13. FOR HB TYPES

The HB type is the same as the KU type with the exception of the following sections.

Contrast of Miscellaneous Parts

Mark	Symbol & Description	Part No.		Remarks
		KU type	HB type	
⚠ ★	T1 Power transformer (120V) (220V, 240V)	ATS-006	.....
⚠ ★★	FU1 Fuse (4A) (T1A)	AEK-125	.....
⚠ ★★	FU2 Fuse (T2.5A)	.....	AEK-402	
⚠ ★★	S1 Push switch (POWER)	ASG-541	ASG-542	
⚠	C1 Capacitor (0.01)	ACG-502	ACG-001	
⚠	C2 Capacitor (0.01)	ACG-502	.....
⚠	AC socket	AKP-501	AKP-505	
⚠	AC power cord	ADG-073	ADG-063	
	Packing case	AHE-218	AHE-193	

Schematic Diagram



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

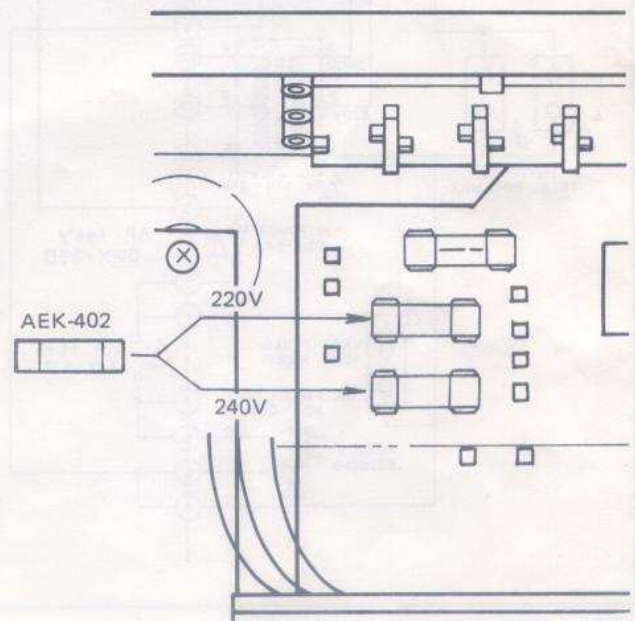


Fig. 1

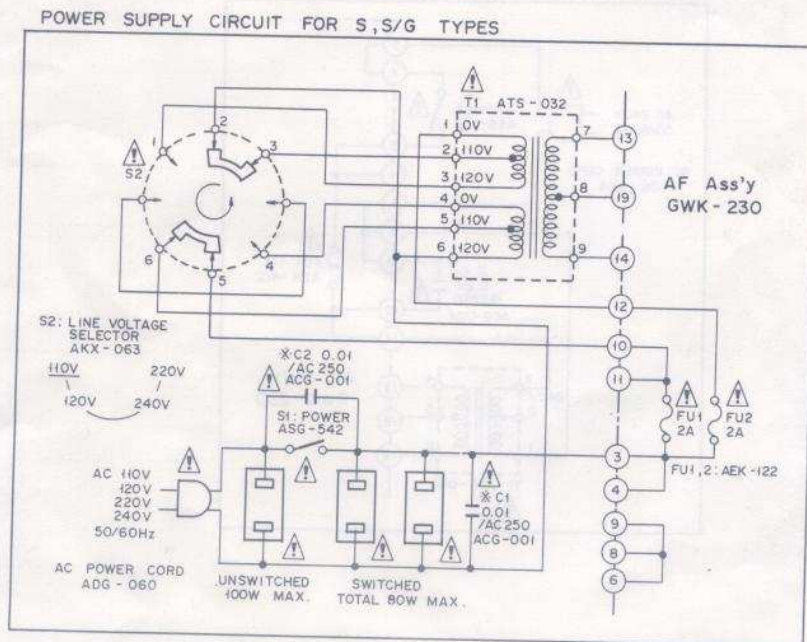
14. FOR S TYPE

The S type is the same as the KU type with the exception of the following sections.

Contrast of Miscellaneous Parts

Mark	Symbol & Description	Part No.		Remarks
		KU type	S type	
△ ★	T1 Power transformer (120V) (110V, 120V, 220V, 240V)	ATS-006	.....
△ ★★	FU1 Fuse (4A) (2A)	AEK-125	.....
△ ★★	FU2 Fuse (2A)	.....	AEK-122	
△ ★★	S2 Line voltage selector	.....	AKX-063	
△	C1, C2 Capacitor (0.01)	ACG-502	ACG-001	
△	AC power cord	ADG-073	ADG-060	
	Operating instructions (English)	ARB-546	ARB-546	
	(Spanish)	.....	ARC-049	
	Packing case	AHE-218	AHE-193	

Schematic Diagram



15. FOR YP TYPE

The YP type is the same as the KU type with the exception of the following sections.

Contrast of Miscellaneous Parts

Mark	Symbol & Description	Part No.		Remarks
		KU type	YP type	
⚠ ★	T1 Power transformer (120V) (240V)	ATS-006	.....
		.....	ATS-019	
⚠ ★★	FU1 Fuse (4A) (1A)	AEK-125	.....
		.....	AEK-402	
⚠ ★★	S1 Push switch (POWER)	ASG-541	ASG-542	
⚠	C1 Capacitor (0.01)	ACG-502	ACG-001	
⚠	C2 Capacitor (0.01)	ACG-502	.....
⚠	AC socket	AKP-501	.....
⚠	AC power cord	ADG-073	ADG-064	
	Packing case	AHE-218	AHE-193	

Schematic Diagram

POWER SUPPLY CIRCUIT FOR YP TYPE

