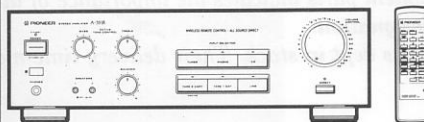


Service Manual



ORDER NO.
ARP2552

STEREO AMPLIFIER

A-351R

A-351R HAS THE FOLLOWING:

Type	Power Requirement	Remarks
HEWZ	AC 220 V-230 V, 240 V (switchable)*	
HE	AC 220 V-230 V, 240 V (switchable)*	
HB	AC 220 V-230 V, 240 V (switchable)*	

* Change the connection of the power transformer's primary wiring.

- This manual is applicable to HEWZ, HE and HB types.
- For HE and HB types, refer to page 18.

CONTENTS

1. EXPLODED VIEWS, PACKING AND PARTS LIST	2
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1. EXPLODED VIEWS, PACKING AND PARTS LIST

NOTES:

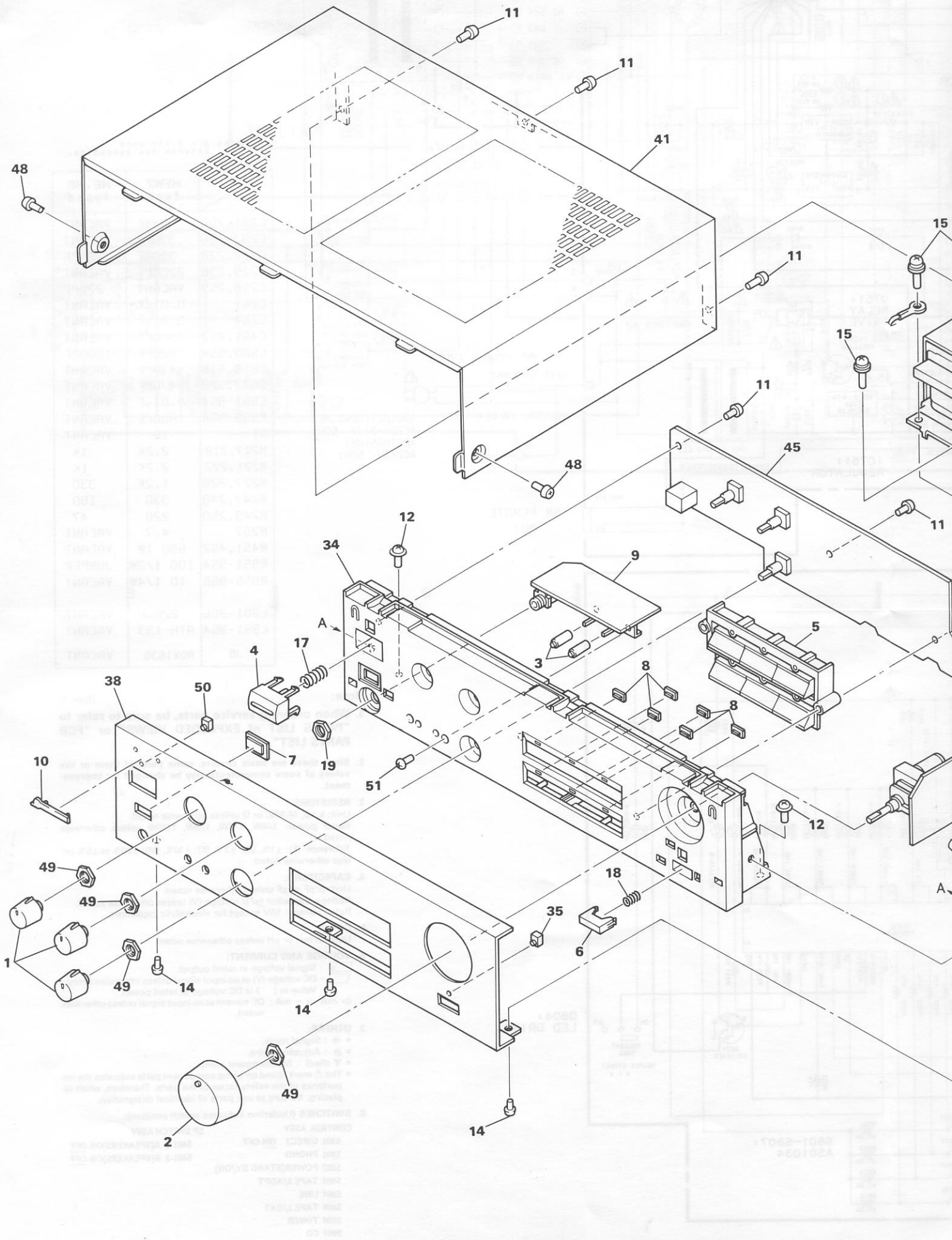
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

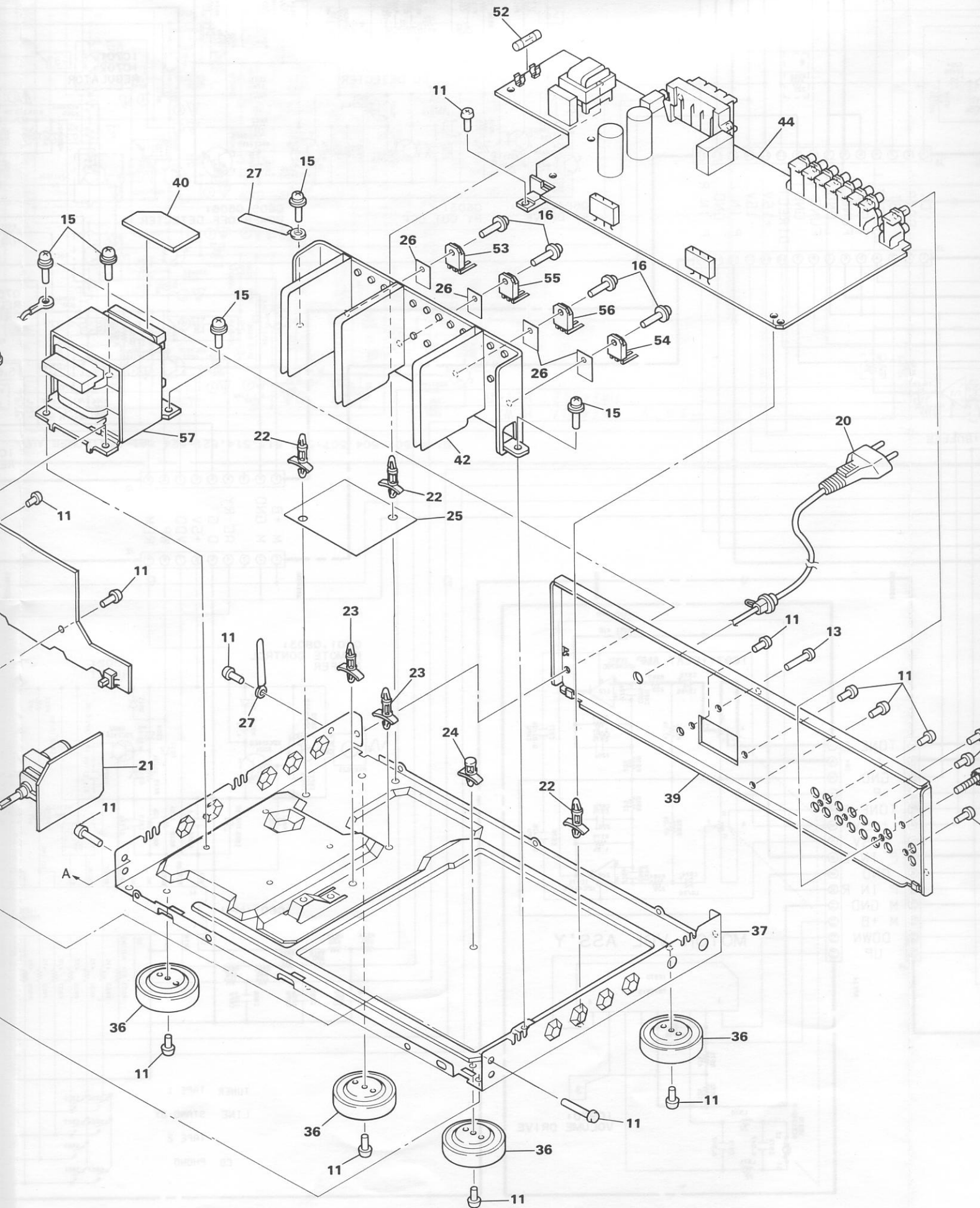
1.1 PARTS LIST

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	ROTARY KNOB S (PLS)	AAB1276		31	PACKING CASE	AHD2229
	2	ROTARY KNOB L (PLS)	AAB1277		32	PACKING SHEET	AHG1016
	3	PUSH KNOB	AAD1366	NSP	33	TERMINAL SCREW	AKE-031
	4	POWER KNOB	AAD1984		34	PANEL BASE	AMB1951
	5	FUNCTION KNOB	AAD2214		35	INDICATING LENS	AMR1160
	6	PUSH KNOB	AAD2221		36	INSULATOR ASSY	AMR2140
	7	SENSOR WINDOW	AAK1783	NSP	37	CHASSIS	ANA1110
	8	LENS (PLS)	AAK2048		38	FRONT PANEL	ANB1493
NSP	9	SP SWITCH ASS'Y	AWZ4109	NSP	39	REAR PANEL	ANC1847
	10	NAME PLATE (METAL)	AAM1029	NSP	40	TRANS ASS'Y	AWZ4111
	11	SCREW	ABA-298		41	METAL BONNET	ANE1363
	12	SCREW (STEEL)	ABA1011	NSP	42	HEAT SINK	ANH1319
	13	SCREW (STEEL)	ABA1047		43	OPERATING INSTRUCTIONS (German)	ARC1328
	14	SCREW (STEEL)	ABA1048	⊙	44	AF ASS'Y	AWZ4107
	15	SCREW	ABA1054	⊙	45	CONTROL ASS'Y	AWZ4108
	16	SCREW	ABA1082		46	REMOTE CONTROL UNIT (CU-A002)	AXD1260
	17	COIL SPRING	ABH1064		47	BATTERY LID	AZA1297
	18	SPRING B	ABH1082		48	SCREW	BBZ30P060FZK
	19	NUT	ABN-065		49	NUT	NK90FUC
Δ	20	AC POWER CORD	ADG1021		50	LED LENS	PNW2019
NSP	21	MOTOR VOL ASS'Y	AWZ4110		51	SCREW	VMZ30P060FMC
NSP	22	PCB SUPPORT	AEC1215	Δ	52	FUSE(FU1)(T1.25A/250V)	AEK-509
NSP	23	PCB SUPPORT	AEC1216	Δ	53	TRANSISTOR(Q1)	2SC3180N
NSP	24	PCB SUPPORT	AEC1232	Δ	54	TRANSISTOR(Q2)	2SC3180N
NSP	25	BARRIER	AEC1241	Δ	55	TRANSISTOR(Q3)	2SA1263N
	26	SHEET	AEE1014	Δ	56	TRANSISTOR(Q4)	2SA1263N
NSP	27	BINDER	AEP-215	Δ	57	POWER TRANSFORMER(T1)	ATS1421
NSP	28	BATTERY(R03,AAA)	AEX-021				
	29	FRONT PAD	AHA1336				
	30	REAR PAD	AHA1337				

1.2 EXTERIOR

C
D
E
F





2. SCHEMATIC AND PCB CONNECTIONS DIAGRAMS

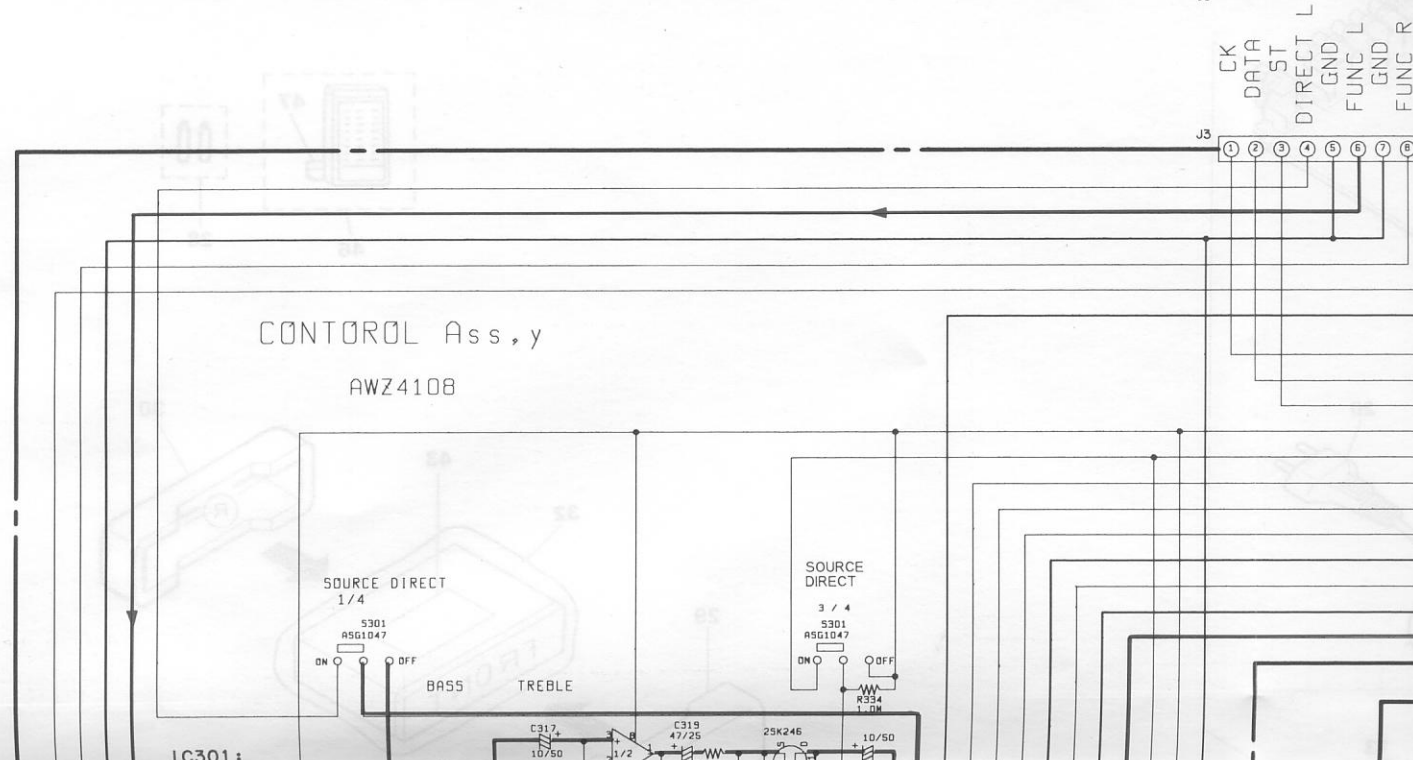
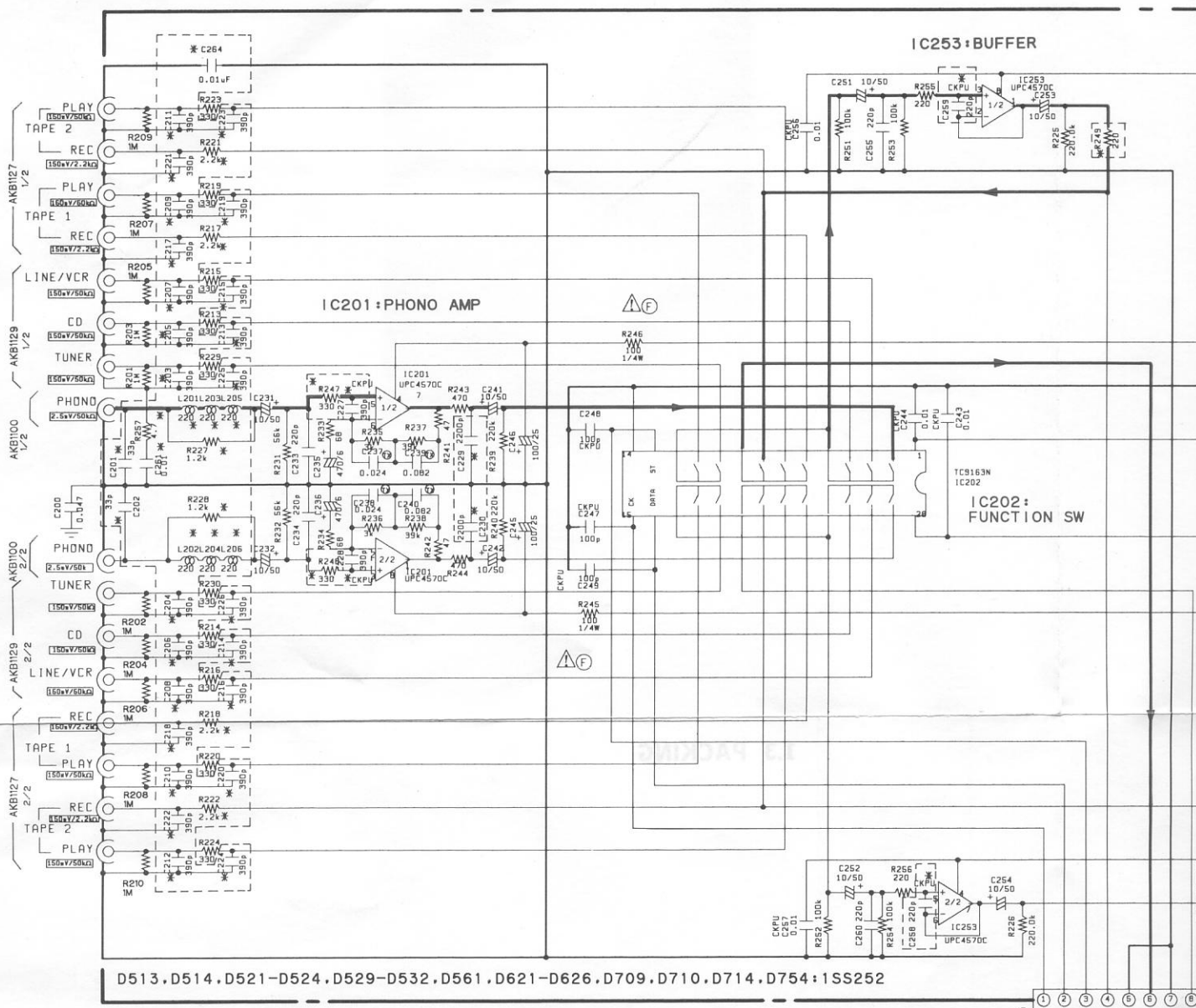
2.1 SCHEMATIC DIAGRAM

A

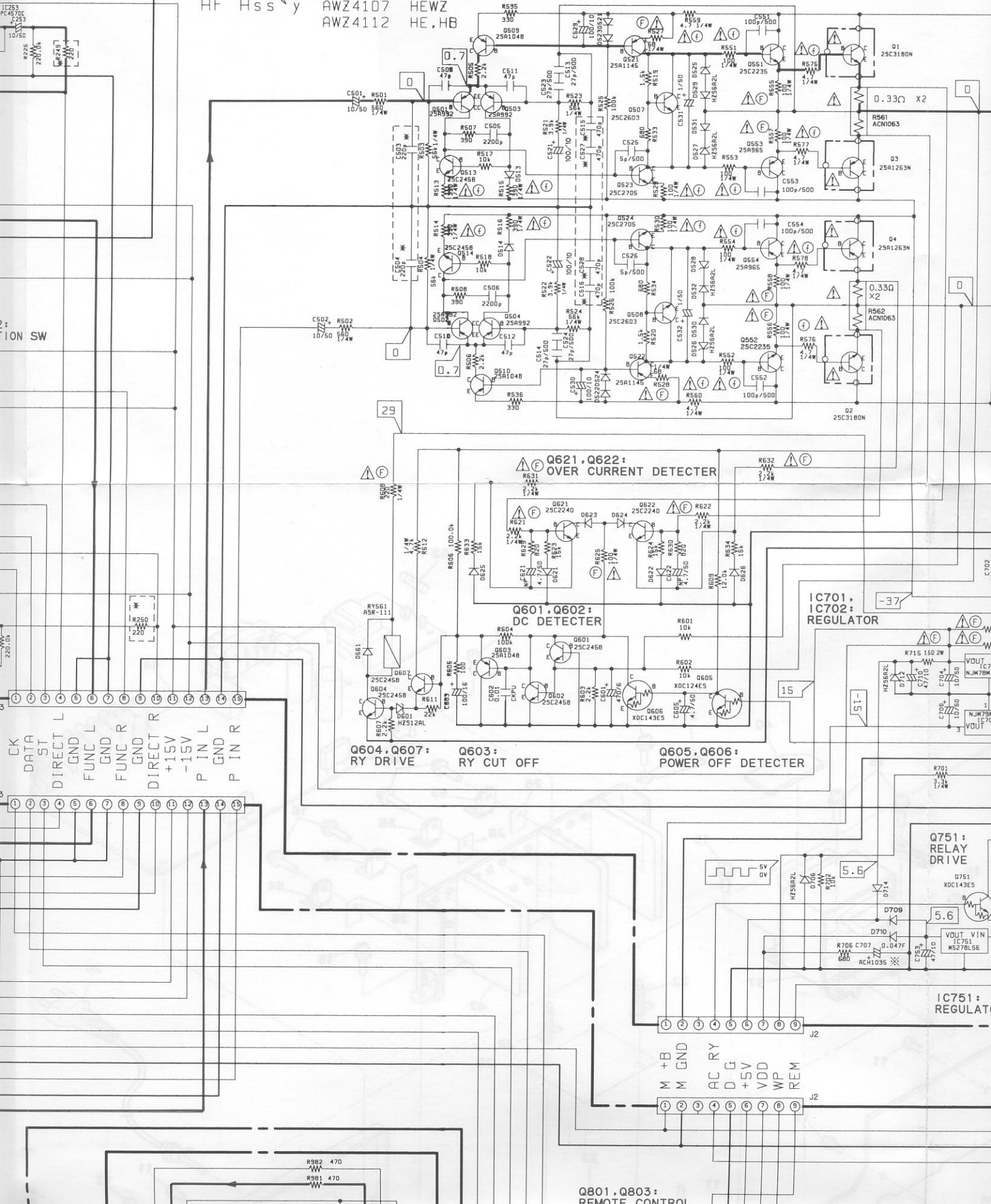
B

C

D



AF Ass'y AWZ4107 HEWZ
AWZ4112 HE, HB



ER

ION SW

CK
DATA
DIRECT L
ST
GND
FUNC L
GND
FUNC R
GND
DIRECT R
+15V
-15V
P IN L
GND
P IN R

M +B
M GND
AC RY
D +G
+5V
VDD
WP
REM

IC971: ELAT AMP IC972

Q801, Q803: REMOTE CONTROL

Q802:

Q751: RELAY DRIVE

IC751: REGULATOR

IC701, IC702: REGULATOR

Q621, Q622: OVER CURRENT DETECTOR

Q601, Q602: DC DETECTOR

Q604, Q607: RY DRIVE

Q603: RY CUT OFF

Q605, Q606: POWER OFF DETECTOR

VOUT V IN IC751 MS278LS56

VOUT IC7 NJM79L170

VOUT IC7 NJM79M170

VOUT IC7 NJM79M170

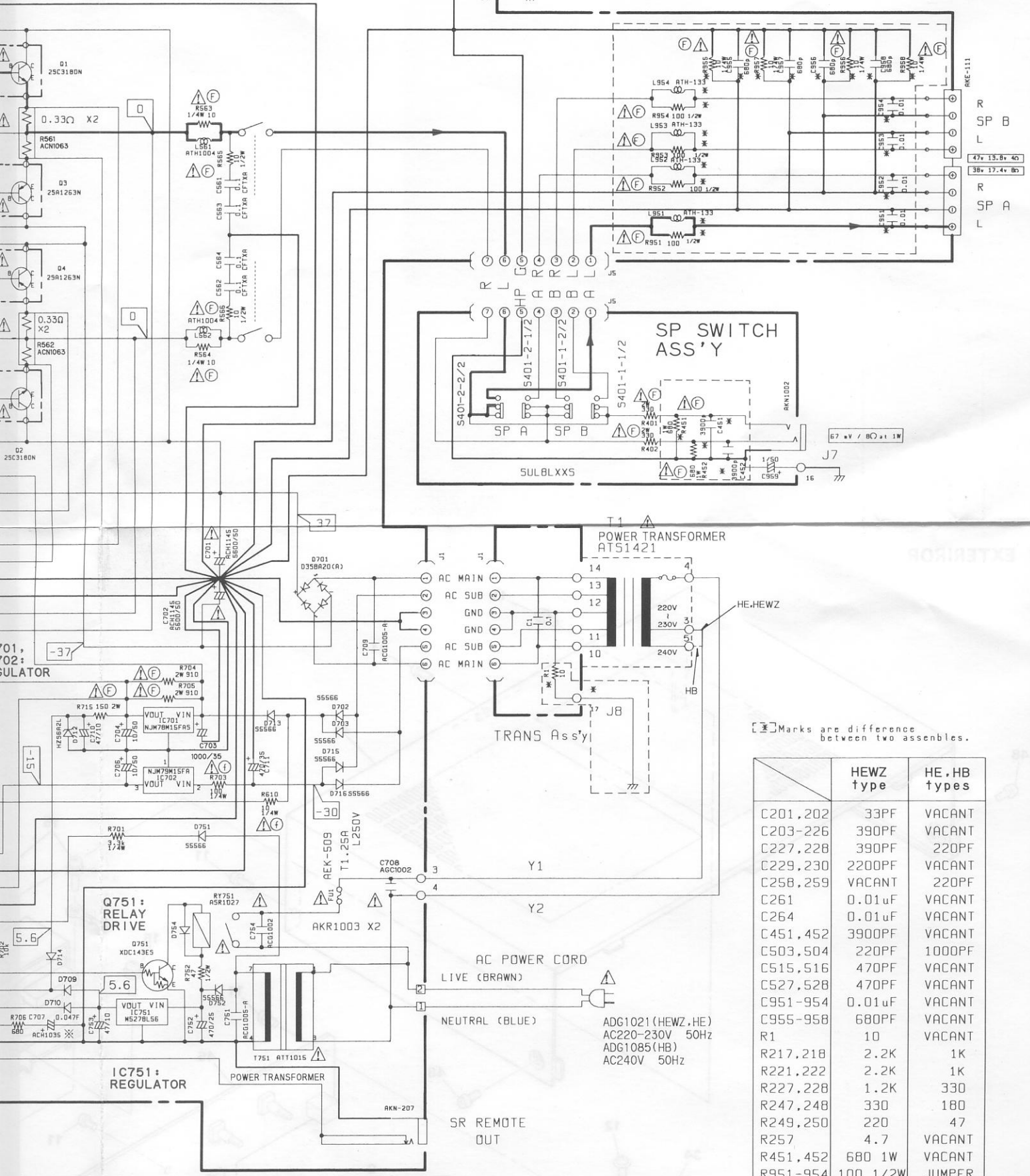
VOUT IC7 NJM79M170

VOUT IC7 NJM79M170

VOUT IC7 NJM79M170

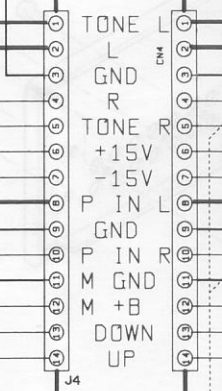
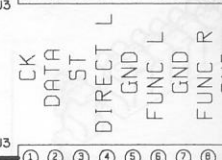
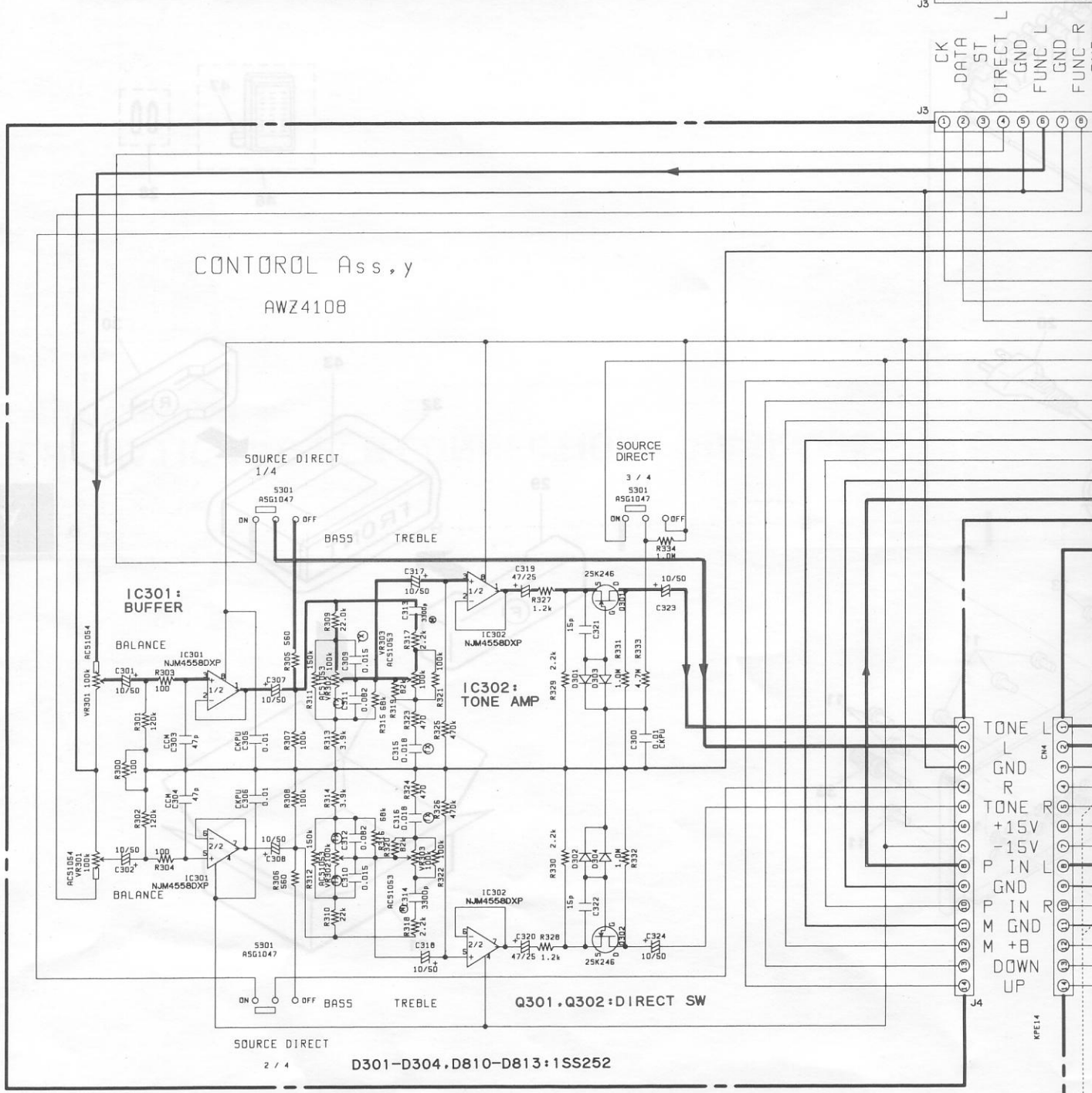
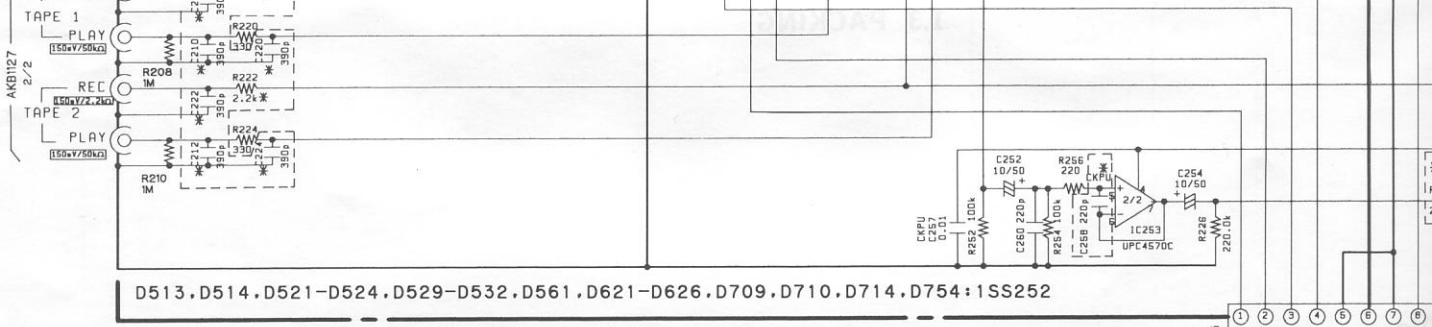
VOUT IC7 NJM79M170

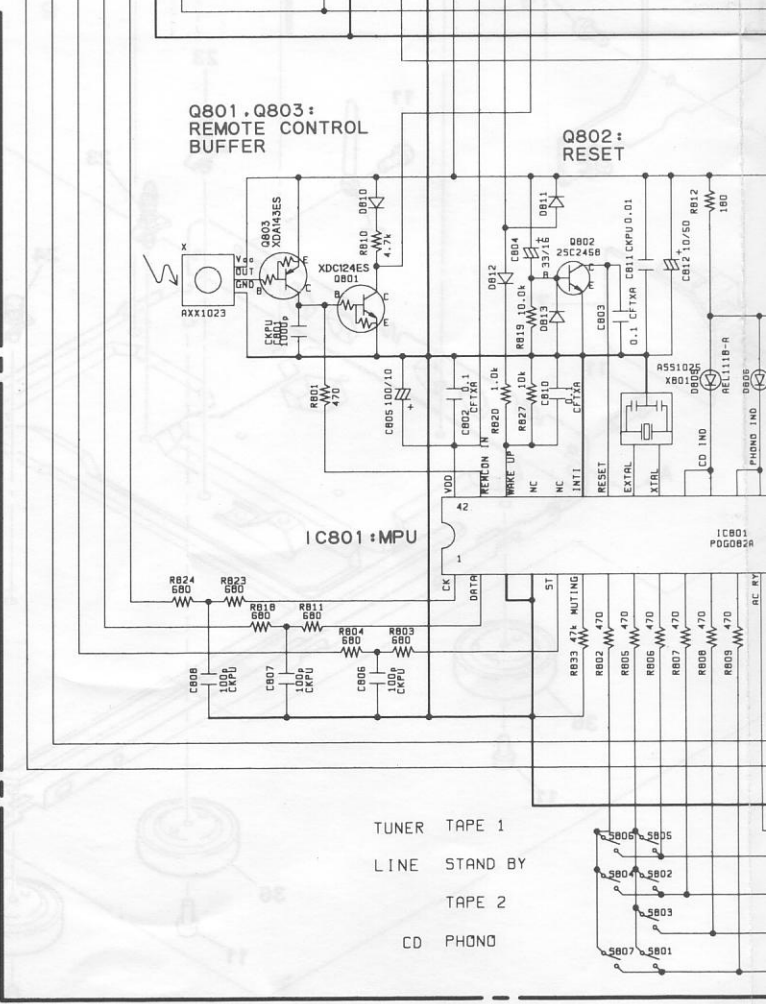
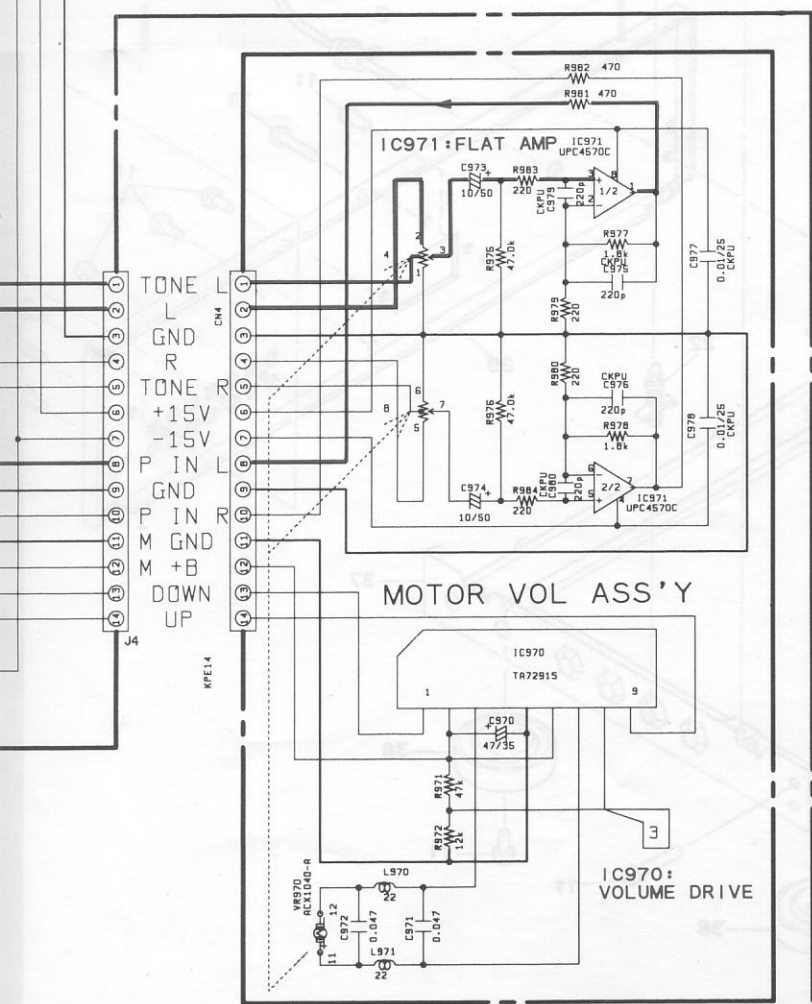
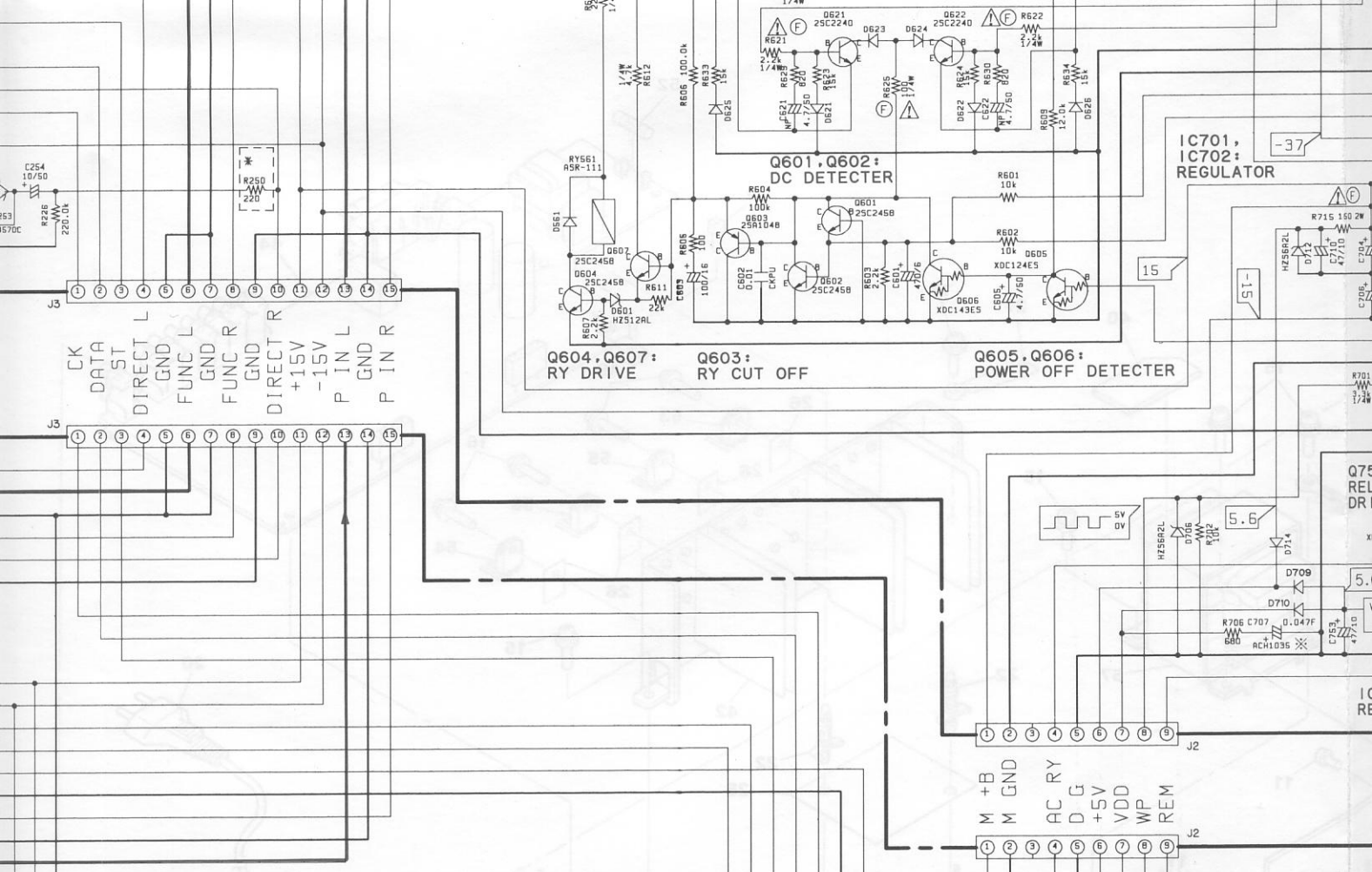
54: POWER AMP

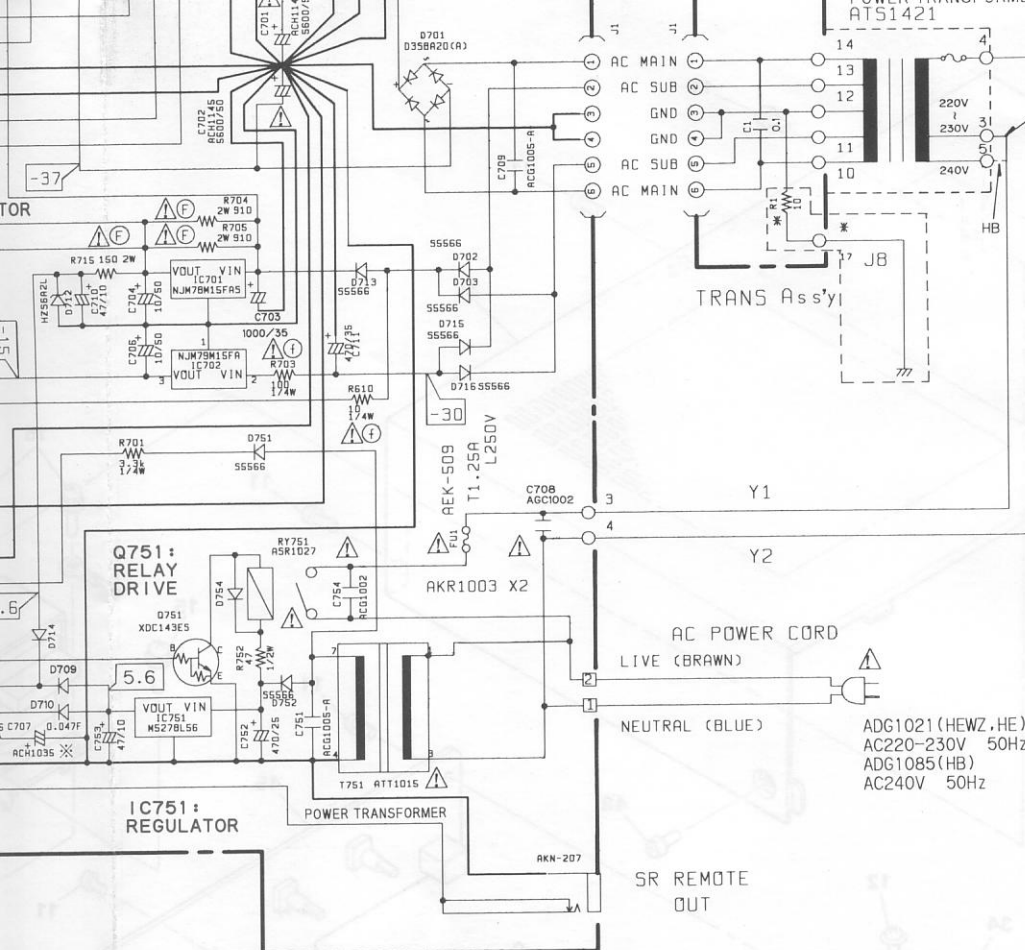


[] Marks are difference between two assemblies.

	HEWZ type	HE, HB types
C201,202	33PF	VACANT
C203-226	390PF	VACANT
C227,228	390PF	220PF
C229,230	2200PF	VACANT
C258,259	VACANT	220PF
C261	0.01uF	VACANT
C264	0.01uF	VACANT
C451,452	3900PF	VACANT
C503,504	220PF	1000PF
C515,516	470PF	VACANT
C527,528	470PF	VACANT
C951-954	0.01uF	VACANT
C955-958	680PF	VACANT
R1	10	VACANT
R217,218	2.2K	1K
R221,222	2.2K	1K
R227,228	1.2K	330
R247,248	330	180
R249,250	220	47
R257	4.7	VACANT
R451,452	680 1W	VACANT
R951-954	100 1/2W	JUMPER
R955-958	10 1/4W	VACANT
L201-206	220uH	VACANT
L951-954	ATH-133	VACANT
J8	ADX1636	VACANT

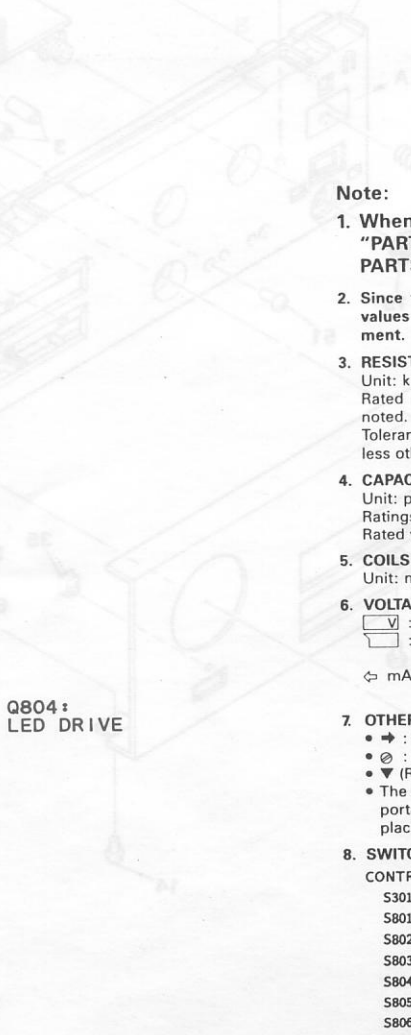
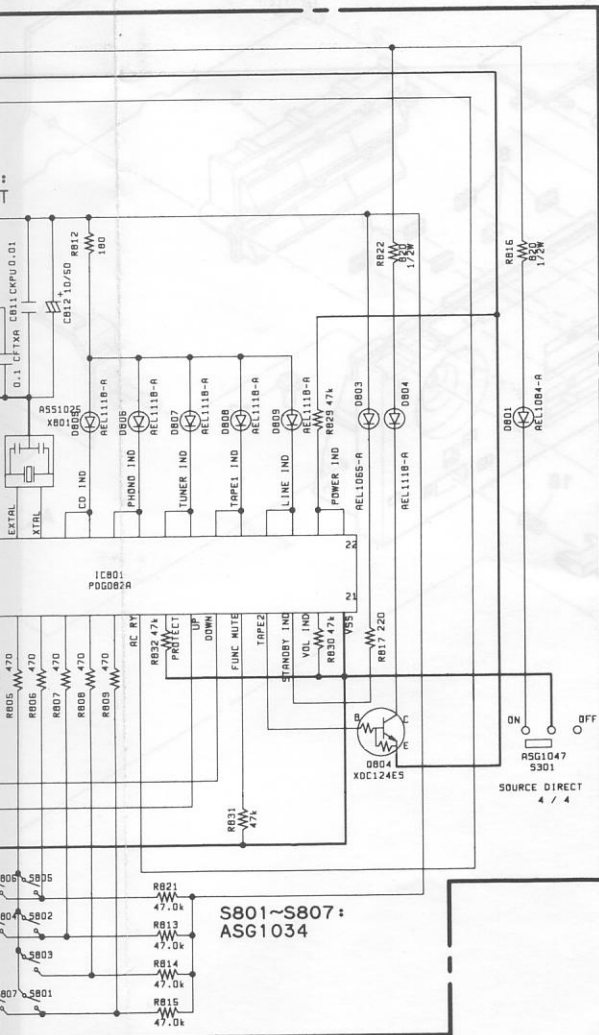






⊠ Marks are difference between two assemblies.

	HEWZ type	HE, HB types
C201, 202	33PF	VACANT
C203-226	390PF	VACANT
C227, 228	390PF	220PF
C229, 230	2200PF	VACANT
C258, 259	VACANT	220PF
C261	0.01uF	VACANT
C264	0.01uF	VACANT
C451, 452	3900PF	VACANT
C503, 504	220PF	1000PF
C515, 516	470PF	VACANT
C527, 528	470PF	VACANT
C951-954	0.01uF	VACANT
C955-958	680PF	VACANT
R1	10	VACANT
R217, 218	2.2K	1K
R221, 222	2.2K	1K
R227, 228	1.2K	330
R247, 248	330	180
R249, 250	220	47
R257	4.7	VACANT
R451, 452	680 1W	VACANT
R951-954	100 1/2W	JUMPER
R955-958	10 1/4W	VACANT
L201-206	220uH	VACANT
L951-954	ATH-133	VACANT
J8	ADX1636	VACANT



- Note:** (Type 1)
- When ordering service parts, be sure to refer to "PARTS LIST OF EXPLODED VIEWS" or "PCB PARTS LIST".
 - Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.
 - RESISTORS:**
Unit: k: kΩ, M: MΩ, or Ω unless otherwise noted.
Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
 - CAPACITORS:**
Unit: p: pF or μF unless otherwise noted.
Ratings: capacitor (μF)/voltage (V) unless otherwise noted.
Rated voltage: 50V except for electrolytic capacitors.
 - COILS:**
Unit: m: mH or μH unless otherwise noted.
 - VOLTAGE AND CURRENT:**
V: Signal voltage at rated output.
V: DC voltage (V) at no input signal unless otherwise noted.
Value in () is DC voltage at rated power.
mA or -mA: DC current at no input signal unless otherwise noted.
 - OTHERS:**
 - : Signal route.
 - ⊙: Adjusting point.
 - (Red): Measurement point.
 - The Δ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
 - SWITCHES (Underline indicates switch position):**

CONTROL ASSY	SP SWITCH ASSY
S301 DIRECT <u>ON-OFF</u>	S401-1 A(SPEAKERS) <u>ON-OFF</u>
S801 PHONO	S401-2 B(SPEAKERS) <u>ON-OFF</u>
S802 POWER(STAND BY/ON)	
S803 TAPE 2/ADPT	
S804 LINE	
S805 TAPE 1/DAT	
S806 TUNER	
S807 CD	

3. PCB PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- 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.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- 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	RD1/8PM	<table border="1"><tr><td>5</td><td>6</td><td>1</td></tr></table> J	5	6	1
5	6	1			
47kΩ → 47 × 10 ³ → 473	RD1/4PS	<table border="1"><tr><td>4</td><td>7</td><td>3</td></tr></table> J	4	7	3
4	7	3			
0.5Ω → 0R5	RN2H	<table border="1"><tr><td>0</td><td>R</td><td>5</td></tr></table> K	0	R	5
0	R	5			
1Ω → 010	RS1P	<table border="1"><tr><td>0</td><td>1</td><td>0</td></tr></table> K	0	1	0
0	1	0			

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ → 562 × 10 ¹ → 5621	RN1/4PC	<table border="1"><tr><td>5</td><td>6</td><td>2</td><td>1</td></tr></table> F	5	6	2	1
5	6	2	1			

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
----------	-------------	-----------	----------	-------------	-----------

LIST OF ASSEMBLIES

● AF ASS'Y	AWZ4107
● CONTROL ASS'Y	AWZ4108
NSP SP SWITCH ASS'Y	AWZ4109
NSP MOTOR VOL ASS'Y	AWZ4110
NSP TRANS ASS'Y	AWZ4111

D706	ZENER DIODE	HZS6A2L
D709,710	DIODE	1SS252
D712	ZENER DIODE	HZS6A2L
D713	DIODE	S5566
D714	DIODE	1SS252
D715,716	DIODE	S5566
D751,752	DIODE	S5566
D754	DIODE	1SS252

AF ASS'Y

SEMICONDUCTORS

IC201	IC	UPC4570C
IC202	E-SW IC	TC9163N
IC253	IC	UPC4570C
IC701	REGULATOR IC	NJM78M15FAS
IC702	REGULATOR IC	NJM79M15FA
IC751	REGULATOR IC	M5278L56(A)
Q501-504	TRANSISTOR	2SA992
Q507,508	TRANSISTOR	2SC2603
Q509,510	TRANSISTOR	2SA1048
Q513,514	TRANSISTOR	2SC2458
Q521,522	TRANSISTOR	2SA1145
Q523,524	TRANSISTOR	2SC2705
Q551,552	TRANSISTOR	2SC2235
Q553,554	TRANSISTOR	2SA965
Q601,602	TRANSISTOR	2SC2458
Q603	TRANSISTOR	2SA1048
Q604	TRANSISTOR	2SC2458
Q605	TRANSISTOR	XDC124ES
Q606	TRANSISTOR	XDC143ES
Q607	TRANSISTOR	2SC2458
Q621,622	TRANSISTOR	2SC2240
Q751	TRANSISTOR	XDC143ES
D513-524	DIODE	1SS252
D525-528	ZENER DIODE	HZS6A2L
D529-532	DIODE	1SS252
D561	DIODE	1SS252
D601	ZENER DIODE	HZS12AL
D621-626	DIODE	1SS252
D701	DIODE	D3SBA20(A)
D702,703	DIODE	S5566

RELAYS

RY561	RELAY	ASR-111
Δ RY751	RELAY	ASR1027

COILS, TRANSFORMER

L201-206	AXIAL INDUCTOR	LAU221K
L561,562	COIL	ATH1004
L951-954	COIL	ATH-133
Δ T751	POWER TRANSFORMER	ATT1015

CAPACITORS

C200	CERAMIC CAPACITOR	CKCYF473Z50
C201,202	CERAMIC CAPACITOR	CCMSL330J50
C203-226	CERAMIC CAPACITOR	CKMYB391K50
C227,228	CERAMIC CAPACITOR	CKPUYB391K50
C229,230	CERAMIC CAPACITOR	CKCYB222K50
C231,232	ELECT. CAPACITOR	CEAS100M50
C233,234	CERAMIC CAPACITOR	CCCSL221J50
C235,236	ELECT. CAPACITOR	CEAS471M6
C237,238	AUDIO FILM CAPACITOR	CFTXA243J50
C239,240	AUDIO FILM CAPACITOR	CFTXA823J50
C241,242	ELECT. CAPACITOR	CEAS100M50
C243,244	CERAMIC CAPACITOR	CKPUYF103Z25
C245,246	ELECT. CAPACITOR	CEAS101M25
C247-249	CERAMIC CAPACITOR	CKPUYB101K50
C251-254	ELECT. CAPACITOR	CEAS100M50
C255	CERAMIC CAPACITOR	CCCSL221J50
C256,257	CERAMIC CAPACITOR	CKPUYF103Z25
C260	CERAMIC CAPACITOR	CCCSL221J50
C261,264	CERAMIC CAPACITOR	CKCYF103Z50
C501,502	ELECT. CAPACITOR	CEAS100M50

Mark No.	Description	Parts No.
C503,504	CERAMIC CAPACITOR	CCCSL221J50
C505,506	CERAMIC CAPACITOR	CKCYB222K50
C509-512	CERAMIC CAPACITOR	CCMSL470J50
C513,514	CERAMIC CAPACITOR	CCCSL270K500
C515,516	CERAMIC CAPACITOR	CKCYB471K50
C521,522	ELECT. CAPACITOR	CEAS101M10
C523,524	CERAMIC CAPACITOR	CCCSL270K500
C525,526	CERAMIC CAPACITOR	CCCSL050C500
C527,528	CERAMIC CAPACITOR	CKCYB471K50
C529,530	ELECT. CAPACITOR	CEAS101M10
C531,532	ELECT. CAPACITOR	CEAS010M50
C551-554	CERAMIC CAPACITOR	CCCSL101K500
C561-564	AUDIO FILM CAPACITOR	CFTXA104J50
C601	ELECT. CAPACITOR	CEAS471M6
C602	CERAMIC CAPACITOR	CKPUYF103Z25
C603	ELECT. CAPACITOR	CEAS101M16
C605	ELECT. CAPACITOR	CEAS47M50
C621,622	ELECT. CAPACITOR	CEANP4R7M50
△ C701,702	ELECTROLYTIC CAPACIT	ACH1145
C703	ELECT. CAPACITOR	CEAS102M35
C704,706	ELECT. CAPACITOR	CEAS100M50
C707	CAPACITOR	ACH1135
△ C708	CKA (0.01/AC400V)	ACG1002
C709	CKA (0.01/AC250V)	ACG1005
C710	ELECT. CAPACITOR	CEAS470M10
C711	ELECT. CAPACITOR	CEAS471M35
C751	CKA (0.01/AC250V)	ACG1005
C752	ELECT. CAPACITOR	CEAS471M25
C753	ELECT. CAPACITOR	CEAS470M10
△ C754	CKA (0.01/AC400V)	ACG1002
C951-954	CERAMIC CAPACITOR	CKCYF103Z50
C955-958	CERAMIC CAPACITOR	CKCYB681K50
RESISTORS		
△ R245,246	CARBON FILM RESISTOR	RD1/4PMF101J
R501,502	CARBON FILM RESISTOR	RD1/4PM561J
R503,504	CARBON FILM RESISTOR	RD1/4PM563J
△ R513-516	FUSIBLE RESISTOR	RFA1/4PS391J
R521,522	CARBON FILM RESISTOR	RD1/4PM392J
R523,524	CARBON FILM RESISTOR	RD1/4PM563J
△ R527,528	CARBON FILM RESISTOR	RD1/4PMF680J
△ R529,530	FUSIBLE RESISTOR	RFA1/4PS101J
△ R551-554	FUSIBLE RESISTOR	RFA1/4PS101J
△ R555-558	CARBON FILM RESISTOR	RD1/4PMF101J
△ R559,560	FUSIBLE RESISTOR	RFA1/4PS4R7J
△ R561,562	RESISTOR (0.33, 5W)	ACN1063
△ R563,564	CARBON FILM RESISTOR	RD1/4PMF100J
△ R565,566	CARBON FILM RESISTOR	RD1/2PMF100J
△ R575-578	FUSIBLE RESISTOR	RFA1/4PS4R7J
△ R608	CARBON FILM RESISTOR	RD1/4PMF221J
△ R610	FUSIBLE RESISTOR	RFA1/4PS100J
R612	CARBON FILM RESISTOR	RD1/4PM472J
△ R621,622	CARBON FILM RESISTOR	RD1/4PMF222J
△ R625	CARBON FILM RESISTOR	RD1/4PMF101J
△ R631,632	CARBON FILM RESISTOR	RD1/4PMF222J
R701	CARBON FILM RESISTOR	RD1/4PM332J
△ R703	FUSIBLE RESISTOR	RFA1/4PS101J
△ R704,705	METAL OXIDE RESISTOR	RS2LMF911J
△ R715	METAL OXIDE RESISTOR	RS2LMF151J

Mark No.	Description	Parts No.
R752	CARBON FILM RESISTOR	RD1/2PM470J
△ R951-954	CARBON FILM RESISTOR	RD1/2PMF101J
△ R955-958	CARBON FILM RESISTOR	RD1/4PMF100J
Other resistors		RD1/8PM□□□J

OTHERS

PIN JACK(2P)	AKB1100
PIN JACK(6P)	AKB1129
PIN JACK(8P)	AKB1127
JACK	AKN-207
SPEAKER TERMINAL 8-P	AKE-111

CONTROL ASS'Y

SEMICONDUCTORS

IC301,302	OP-AMP IC	NJM4558DXP
IC801	SYSTEM CONTROL MPU	PDG082A
Q301,302	N-FET	2SK246
Q801	TRANSISTOR	XDC124ES
Q802	TRANSISTOR	2SC2458
Q803	TRANSISTOR	XDA143ES
Q804	TRANSISTOR	XDC124ES
D301-304	DIODE	1SS252
D801	LED	AEL1084
D803	LED(RED)	AEL1065
D804-809	LED(RED)	AEL1118
D810-813	DIODE	1SS252

SWITCHES

S301	PUSH SWITCH	ASG1047
S801-807	SWITCH	ASG1034

CAPACITORS

C300	CERAMIC CAPACITOR	CKPUYF103Z25
C301,302	ELECT. CAPACITOR	CEAS100M50
C303,304	CERAMIC CAPACITOR	CCMSL470J50
C305,306	CERAMIC CAPACITOR	CKPUYF103Z25
C307,308	ELECT. CAPACITOR	CEAS100M50
C309,310	AUDIO FILM CAPACITOR	CFTXA153J50
C311,312	AUDIO FILM CAPACITOR	CFTXA823J50
C313,314	MYLAR FILM CAPACITOR	CQMA332K50
C315,316	AUDIO FILM CAPACITOR	CFTXA183J50
C317,318	ELECT. CAPACITOR	CEAS100M50
C319,320	ELECT. CAPACITOR	CEAS470M25
C321,322	CERAMIC CAPACITOR	CCCSL150J50
C323,324	ELECT. CAPACITOR	CEAS100M50
C801	CERAMIC CAPACITOR	CKPUYB102K50
C802,803	AUDIO FILM CAPACITOR	CFTXA104J50
C804	ELECT. CAPACITOR	CEAS330M16
C805	ELECT. CAPACITOR	CEAS101M10
C806-808	CERAMIC CAPACITOR	CKPUYB101K50
C810	AUDIO FILM CAPACITOR	CFTXA104J50
C811	CERAMIC CAPACITOR	CKPUYF103Z25
C812	ELECT. CAPACITOR	CEAS100M50

RESISTORS

VR301	VARIABLE RESISTOR	ACS1054
VR302,303	VARIABLE RESISTOR	ACS1053
R816	CARBON FILM RESISTOR	RD1/2PM821J
R822	CARBON FILM RESISTOR	RD1/2PM821J
Other resistors		RD1/8PM□□□J

Mark No. Description Parts No.

OTHERS

X801 CERAMIC RESONATOR ASS1025
(f=4.0MHz)
REMOTE RECEIVER UNIT AX1023

SP SWITCH ASS'Y

SWITCH

S401 PUSH SWITCH SUL8LXXS

CAPACITORS

C451,452 CERAMIC CAPACITOR CKCYB392K50
C959 ELECT. CAPACITOR CEAS010M50

RESISTORS

△ R401,402 METAL OXIDE RESISTOR RS2LMF331J
△ R451,452 METAL OXIDE RESISTOR RS1PMF681J

OTHERS

JACK AKN1002

MOTOR VOL ASS'Y

SEMICONDUCTORS

IC970 MECHANISM DRIVER IC TA7291S
IC971 IC UPC4570C

COILS

L970,971 AXIAL INDUCTOR LAU220K

CAPACITORS

C970 ELECT. CAPACITOR CEAS470M35
C971,972 CERAMIC CAPACITOR CKCYX473M25
C973,974 ELECT. CAPACITOR CEAS100M50
C975,976 CERAMIC CAPACITOR CKPUYB221K50
C977,978 CERAMIC CAPACITOR CKPUYF103Z25
C979,980 CERAMIC CAPACITOR CKPUYB221K50

RESISTORS

VR970 VARIABLE RESISTOR ACX1040
Other resistors RD1/8PM□□□J

OTHER

CN4 CONNECTOR(14P) KPE14

TRANS ASS'Y

CAPACITOR

C1 CQMXA104J100

RESISTOR

R1 CARBONFILM RESISTOR RD1/8PM100J