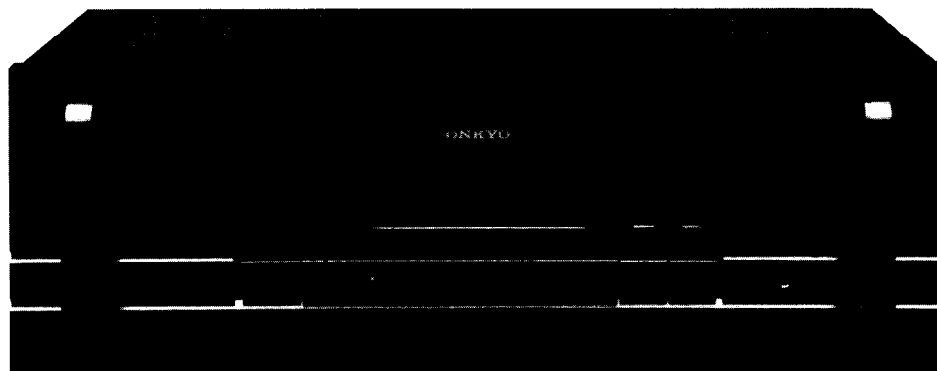




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# ONKYO® SERVICE MANUAL

## Stereo Power Amplifier MODEL M-5200·M-5000



UD	120V AC, 60Hz
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**SAFETY-RELATED COMPONENT WARNING!!**  
COMPONENTS IDENTIFIED BY MARK  $\Delta$  ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PARTS NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

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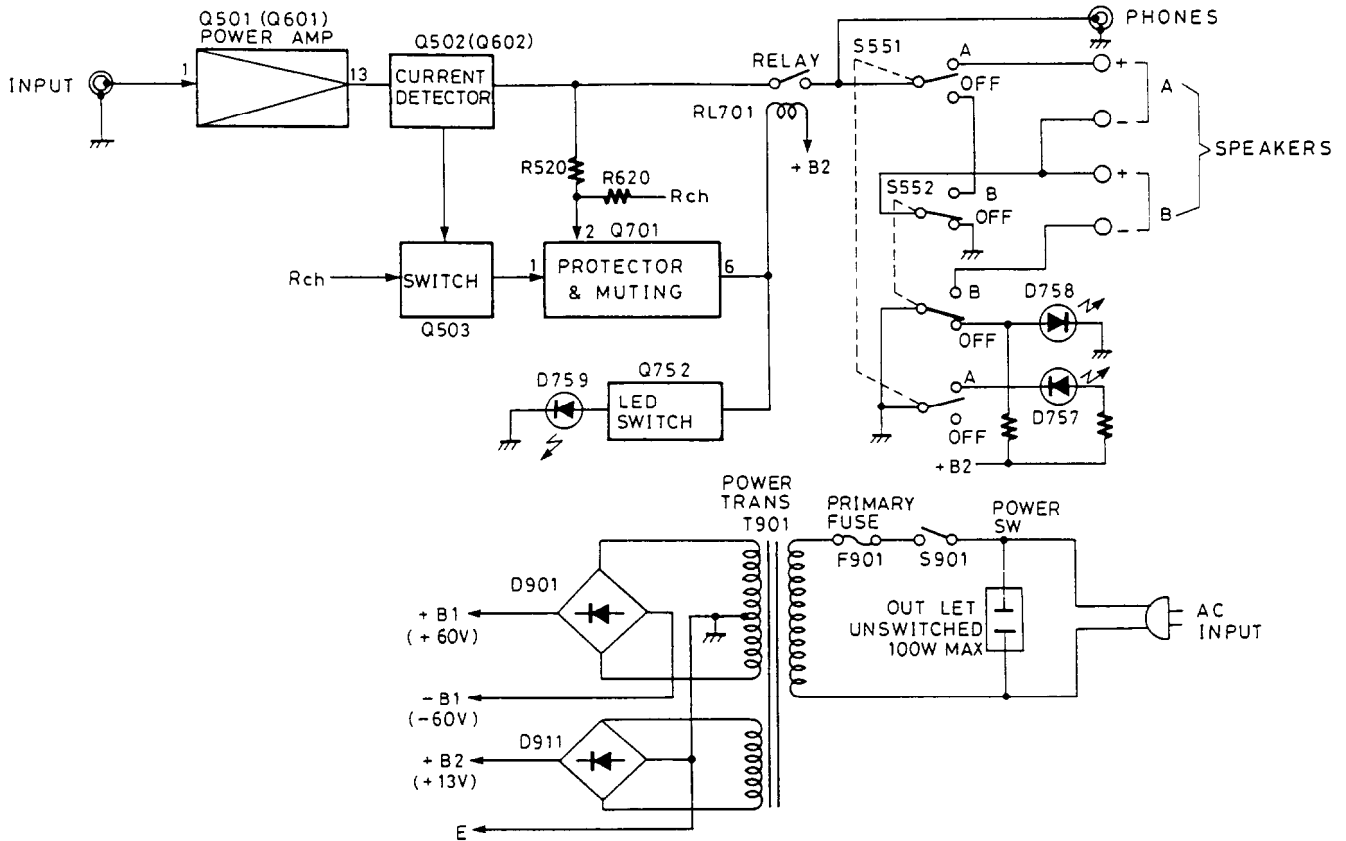


# SPECIFICATIONS

	<b>M-5200</b>	<b>M-5000</b>
<b>Power Output:</b>	150 watts per channel, min. RMS, at 8 ohms, both channels driven, from 20Hz to 20kHz, with no more than 0.09% THD	105 watts per channel, min. RMS, at 8 ohms, both channels driven, from 20Hz to 20kHz, with no more than 0.09% THD
<b>Total Harmonic Distortion:</b>	0.09% at 150 watts	0.09% at 105 watts
<b>IM Distortion:</b>	0.09% at 150 watts	0.09% at 105 watts
<b>Damping Factor:</b>	40 at 8 ohms	40 at 8 ohms
<b>Frequency Response:</b>	5 - 100KHz ±1dB	5 - 100KHz ±1dB
<b>Sensitivity and Impedance:</b>	1V/50kohms	1V/50kohms
<b>Signal to Noise Ratio:</b>	100dB (IHFA-202 1 watt output)	100dB (IHFA-202 1 watt output)
<b>General</b>		
<b>Power Supply:</b>	AC120V, 60Hz	AC120V, 60Hz
<b>Dimensions (W x H x D):</b>	435 x 158 x 289.5mm 17-1/8" x 6-3/16" x 11-13/16"	435 x 158 x 289.5mm 17-1/8" x 6-3/16" x 11-13/16"
<b>Weight:</b>	9.1kg, 20.1 lbs.	7.7kg, 17.0 lbs.

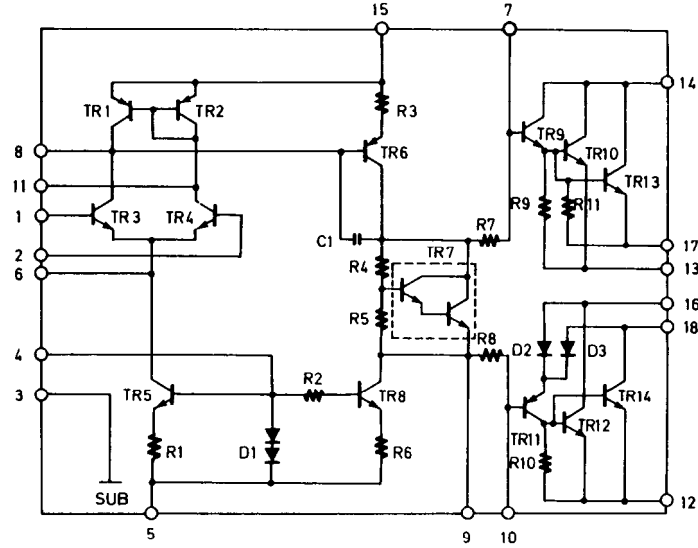
Specifications and features are subject to change without notice.

# BLOCK DIAGRAM

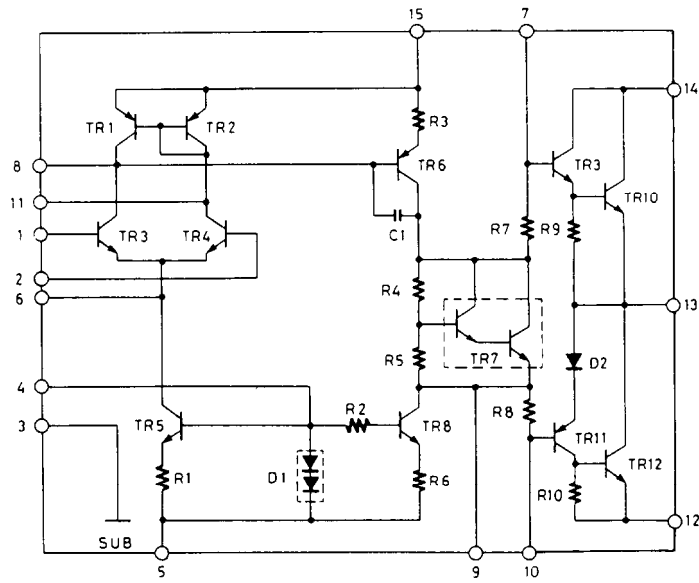


# IC BLOCK DIAGRAM

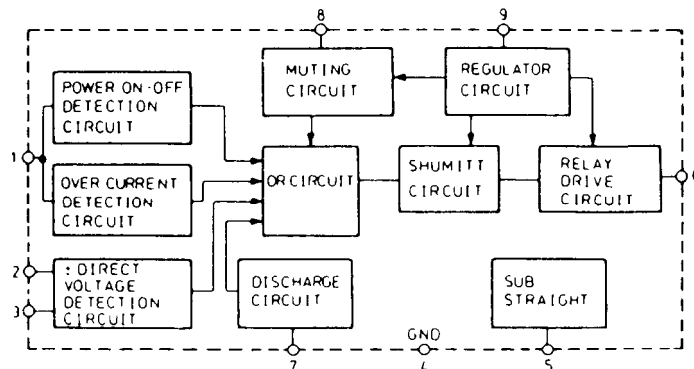
**STK4048V (Power Amp.)**



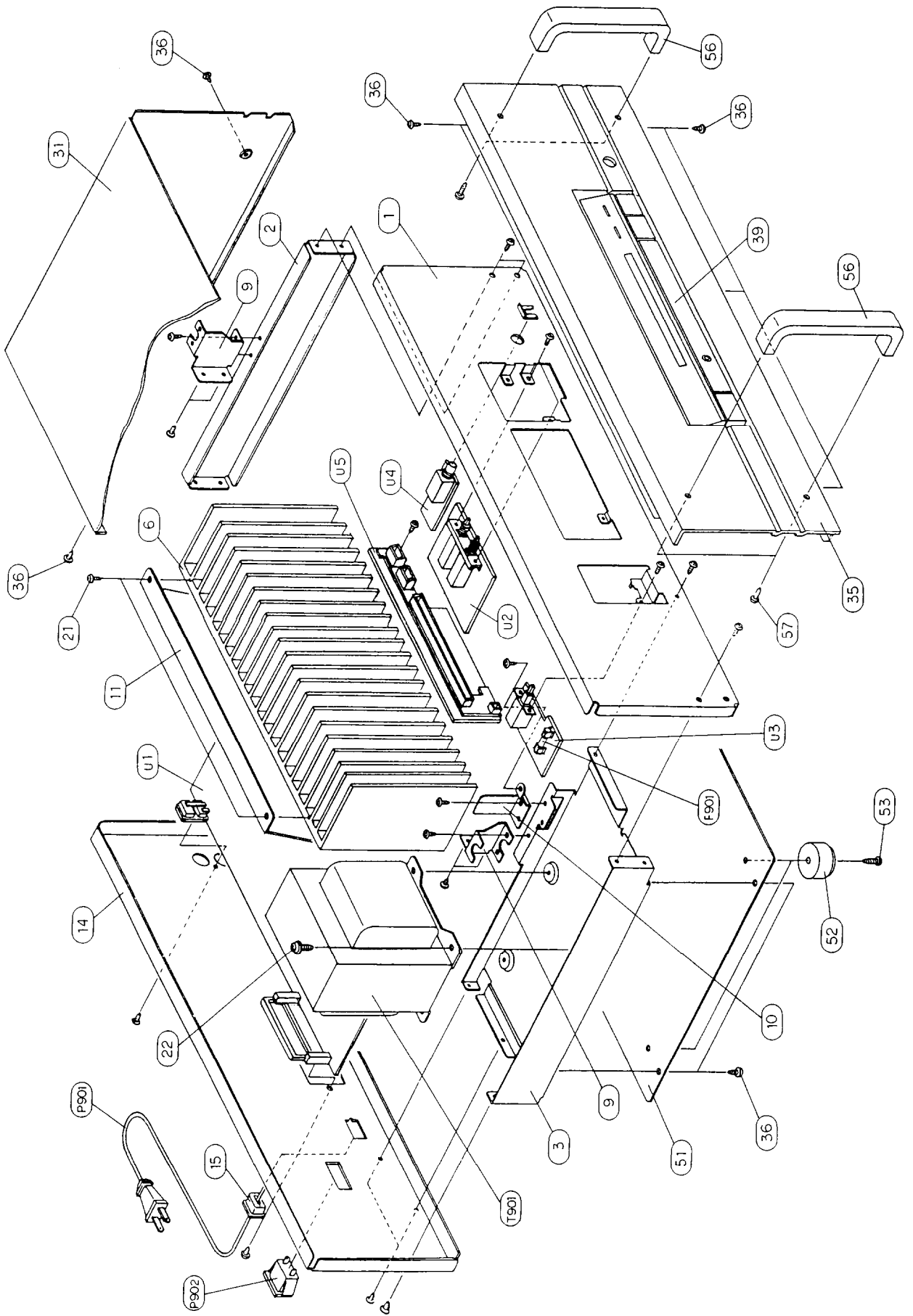
**STK4044V (Power Amp.)**



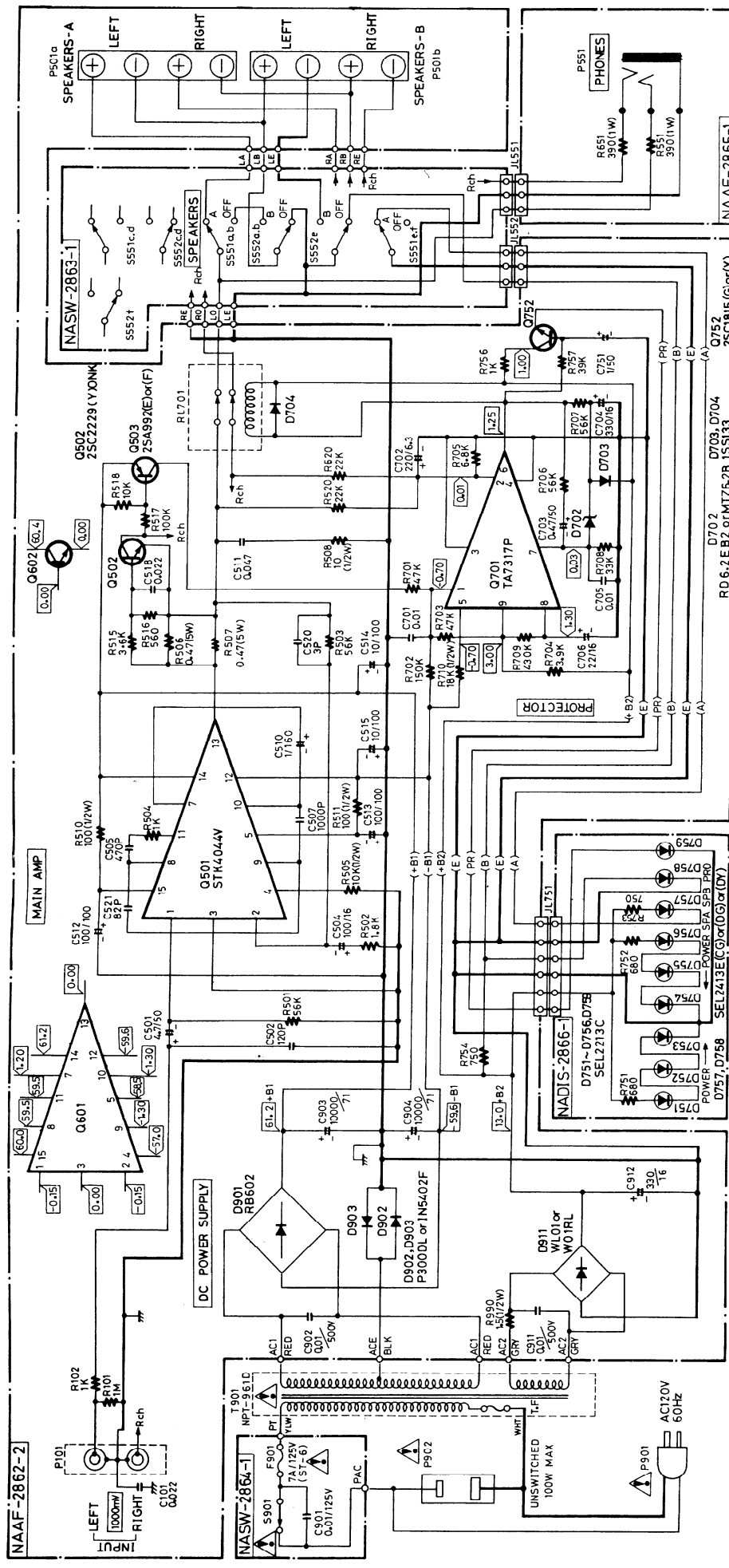
**TA7317P (Protective Circuit)**



**CHASSIS-EXPLODED VIEW**

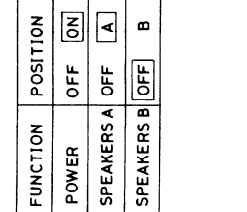
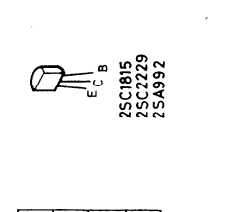
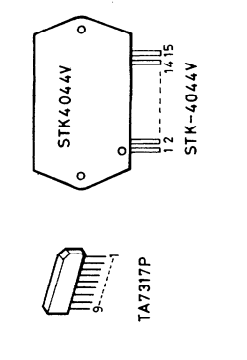


**SCHEMATIC DIAGRAM**  
MODEL M-5000



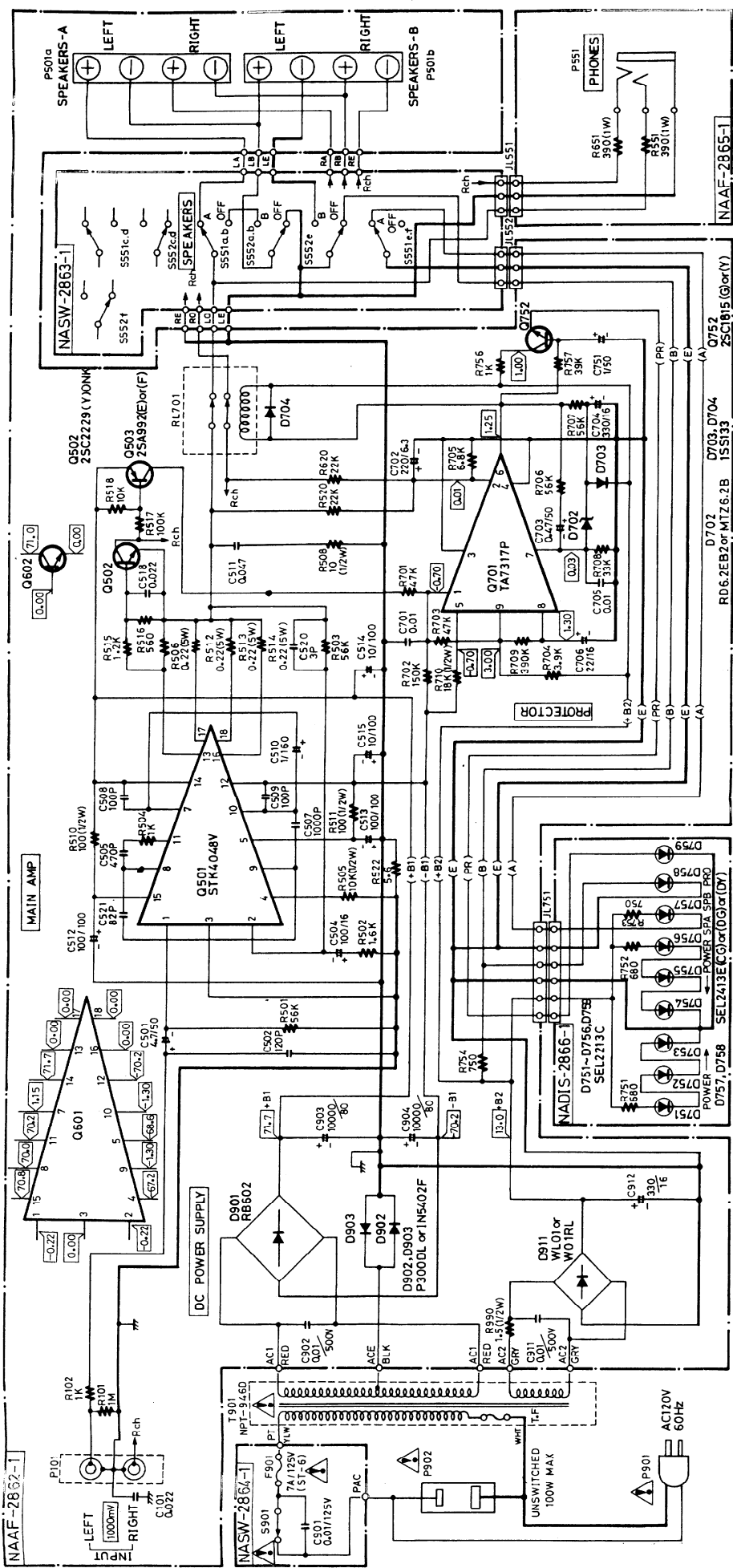
**NOTES**

- ALL RESISTORS ARE IN OHMS 1/4WATTS OR 1/6WATTS UNLESS OTHERWISE NOTED.
- ALL CAPACITORS ARE IN  $\mu$ F/50V UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS (-E) ARE IN  $\mu$ F/W.
- ALL DIODES ARE 1SS133 UNLESS OTHERWISE NOTED.
- VOLTAGE (MEASURED WITH V.T.V.M) IS DC VOLTAGE, (NO INPUT SIGNAL).
- THE COMPONENTS IDENTIFIED BY MARK  $\Delta$  ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.



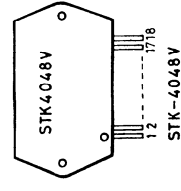
NO	FUNCTION	POSITION
S901	POWER	OFF ON
S551	SPEAKERS A	OFF A
S552	SPEAKERS B	OFF B

**SCHEMATIC DIAGRAM**  
MODEL M-5200



NO	FUNCTION	POSITION
S901	POWER	OFF ON
S551	SPEAKERS A	OFF A
S552	SPEAKERS B	OFF B

EC B  
 STK1815  
 25C2229  
 ZSA992



- NOTES**
- ALL RESISTORS ARE IN OHMS 1/4WATTS or 1/6WATTS UNLESS OTHERWISE NOTED.
  - ALL CAPACITORS ARE IN  $\mu$ F/500V UNLESS OTHERWISE NOTED.
  - ELECTROLYTIC CAPACITORS (E) ARE IN  $\mu$ F/W.
  - ALL DIODES ARE 1SS133 UNLESS OTHERWISE NOTED.
  - VOLTAGE (MEASURED WITH V.T.V.M.) IS DC VOLTAGE. (NO INPUT SIGNAL.)
  - THE COMPONENTS IDENTIFIED BY MARK  $\Delta$  ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
  - CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

# CHASSIS-EXPLODED VIEW-PARTS LIST

## M-5200

REF.NO.	PART NO.	DESCRIPTION
1	27110331A	FRONT BRACKET
2	27115221	SIDE BRACKET
3	27130404-2B	BRACKET (PT)
6	27160200A	HEATSINK
9	27141020C	BRACKET (HE)
10	27141114B	BRACKET (S)
11	27141115B	BRACKET (L)
14	27121221	BACK PANEL
15	27300750	BUSHING (CORD)
21	831130088	TAP-TIGHT SCREW 3TTW+8B
22	830440089	TAP-TIGHT SCREW 4TTC+8CBC
31	28184353A	TOP COVER
35	27211064	FRONT PANEL
36	834430088	TAP-TIGHT SCREW 3TTS+8BBC
39	28323621	KNOB AS, GUID
51	27170238A	BOTTOM BOARD
52	27175221A	LEG
53	834430088	TAP-TIGHT SCREW 3TTS+8BBC
56	28158035	HANDLE
57	830440109	TAP-TIGHT SCREW 4TTC+10CBC
▲ T901	2300174A	POWER TRANSFORMER NPT-946D
▲ P901	253123 or 253136 or 253140 or 253146	POWER SUPPLY CABLE AS-UC-6#18
▲ P902	25050290	AC OUTLET NSCT-2P118T
▲ F901	252052	FUSE 7A (ST-6)
U1	1A044562-1	NAAF-2862-1, POWER AMP. PC BOARD ASS'Y
U2	1A044563-1	NASW-2863-1, SPEAKERS SWITCH PC BOARD ASS'Y
U3	1A044564-1	NASW-2864-1, POWER SWITCH PC BOARD ASS'Y
U4	1A044565-1	NAAF-2865-1, PHONES PC BOARD ASS'Y
U5	1A044566-1	NADIS-2866-1, DISPLAY PC BOARD ASS'Y
U6	1A044567-1	NAETC-2867-1, PC TERMINAL PC BOARD ASS'Y

## M-5000

REF.NO.	PART NO.	DESCRIPTION
1	27110331A	FRONT BRACKET
2	27115221	SIDE BRACKET
3	27130404-2B	BRACKET (PT)
6	27160207A	HEATSINK
9	27141020C	BRACKET (HE)
10	27141114B	BRACKET (S)
11	27141137A	BRACKET (L)
14	27121222	BACK PANEL
15	27300750	BUSHING (CORD)
21	831130088	TAP-TIGHT SCREW 3TTW+8B
22	830440089	TAP-TIGHT SCREW 4TTC+8CBC
31	28184353A	TOP COVER
35	27211065	FRONT PANEL
36	834430088	TAP-TIGHT SCREW 3TTS+8BBC
39	28323621	KNOB AS, GUID
51	27170238A	BOTTOM BOARD
52	27175221A	LEG
53	834430088	TAP-TIGHT SCREW 3TTS+8BBC
56	28158035	HANDLE
57	830440109	TAP-TIGHT SCREW 4TTC+10CBC
▲ T901	2300226	POWER TRANSFORMER NPT-941D
▲ P901	253123 or 253136 or 253140 or 253146	POWER SUPPLY CABLE AS-UC-6#18
▲ P902	25050290	AC OUTLET NSCT-2P118T
▲ F901	252052	FUSE 7A (ST-6)
U1	1A045562-2	NAAF-2862-2, POWER AMP. PC BOARD ASS'Y
U2	1A045563-2	NASW-2863-2, SPEAKERS SWITCH PC BOARD ASS'Y
U3	1A044564-1	FNASW-2864-1, POWER SWITCH PC BOARD ASS'Y
U4	1A044565-1	NAAF-2865-1, PHONES PC BOARD ASS'Y
U5	1A044566-1	NADIS-2866-1, DISPLAY PC BOARD ASS'Y
U6	1A045567-2	NAETC-2867-2, PC TERMINAL PC BOARD ASS'Y

NOTE: THE COMPONENTS IDENTIFIED BY MARK  
▲ ARE CRITICAL FOR RISK OF FIRE AND  
ELECTRIC SHOCK. REPLACE ONLY WITH  
PARTS NUMBER SPECIFIED.



## PRECAUTIONS

### 1. Replacing the fuses

For continued protection against risk fire, replace only with same type and same rating fuse.

CIRCUIT NO.	PARTS NO.	DESCRIPTION
F901	252052	7A (ST-6), Primary fuse

### 2. Insulation resistance measurement

Connect the insulating-resistance tester between the plug of power supply cable and the terminal GND on the back panel. Specifications; More than 10MΩ at 500V.

## PACKING PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
A851	29051862	MASTER CARTON BOX [M5200]
A851	29051864	MASTER CARTON BOX [M5000]
A852	29091152B	PAD, LEFT
A853	29091153B	PAD, RIGHT
A855	29100033A	750×500mm, POLY-VINYL BAG
A856	282301	SEALING HOOK
A857	260012	DAMPLON TAPE
A858	261504	PAPER TAPE
A868	29360778	LABEL (FLASH) [N]

#### ACCESSORY BAG ASS'Y

A901	29341377	INSTRUCTION MANUAL
A902	2010098A	CONNECTION CABLE
A903	29100006A	350×250mm, POLY-VINYL BAG FOR ACCESSARY
A904	29365019	WARRANTY CARD [N]
A905	29358002F	SERVICE STATION LIST [N]

#### NOTE

[N]: ONLY U.S.A. MODELS  
[M5200]: ONLY M-5200 MODELS  
[M5000]: ONLY M-5000 MODELS

# PRINTED CIRCUIT BOARD PARTS LIST

## M-5200

### POWER AMP. CIRCUIT PC BOARD (NAAF-2862-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>ICs</b>		
Q501, Q601 Q701	222059 222584	STK4048V TA7317P
<b>Transistors</b>		
Q502, Q602 Q503	2211639 2211792 or 2211793	2SC2229Y (ONK) 2SA992E or 2SA992F
Q752	2211255 or 2211254	2SC1815GR or 2SC1815Y
<b>Diodes</b>		
D702	2239492 or 2243162	RD6.2EB2 or MTZ6.2B
D703, D704 D901	223163 223898F	1SS133 RB602
D902, D903	223897F or 22380003F	P300DL or 1N5402F
D911	223862 or 223890	WL01 or W01RL
<b>Capacitors</b>		
C501, C601 C504, C604 C510, C610 C511, C611 C512, C513 C612, C613 C514, C515 C614, C615 C702 C703 C704 C706 C751 C903, C904 C912	3500093 354741019 354700109 371124734 354791019 354791009 354722219 354784799 354743319 354742209 354780109 3504204 354743319	4.7 $\mu$ F, 50V, Elect. 100 $\mu$ F, 16V, Elect. 1 $\mu$ F, 160V, Elect. 0.047 $\mu$ F, 50V, Mylar 100 $\mu$ F, 100V, Elect. 10 $\mu$ F, 100V, Elect. 220 $\mu$ F, 6.3V, Elect. 0.47 $\mu$ F, 50V, Elect. 330 $\mu$ F, 16V, Elect. 22 $\mu$ F, 16V, Elect. 1 $\mu$ F, 50V, Elect. 10000 $\mu$ F, 80V, Elect. 330 $\mu$ F, 16V, Elect.
<b>Resistors</b>		
R505, R605 R506, R507 R606, R607 R508, R608 R510, R511 R610, R611 R512~R514 R612~R614 R710 R990	442521034 F 4000076 441521004 F 442521014 F 4000076 442521834 F 442520154 F	10k $\Omega$ , 1/2W, Metal oxide film 0.22 $\Omega$ , 5W, Metal plate 10 $\Omega$ , 1/2W, Metal oxide film 100 $\Omega$ , 1/2W, Metal oxide film 0.22 $\Omega$ , 5W, Metal plate 18k $\Omega$ , 1/2W, Metal oxide film 1.5 $\Omega$ , 1/2W, Metal oxide film
<b>Relay</b>		
RL701	25065275	NRL-2P5A-DC12-38
<b>Terminals</b>		
P101 P501	25045211 25060093	NPJ-2PDBL91, Input NTM-8PDML34, Output
<b>Bracket</b>		
	27141059	Washer

### SPEAKER SWITCH CIRCUIT PC BOARD (NASW-2863-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Switches</b>		
S551, (S552)	25035549	NPS-262-L511

### POWER SWITCH CIRCUIT PC BOARD (NASW-2864-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Capacitor</b>		
C901	3500065A	0.01 $\mu$ F, AC400V/125V, IS
<b>Switch</b>		
S901	25035550	NPS-111-1512P
<b>Fuse holders</b>		
	250113	SN5051

### PHONES CIRCUIT PC BOARD (NAAF-2865-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Resistors</b>		
R551, R651	441623914	390 $\Omega$ , 1W, Metal oxide film
<b>Jack</b>		
P551	25045187	HLJ-0541-01-010

### DISPLAY CIRCUIT PC BOARD (NADIS-2866-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Diodes</b>		
D751~D756 D759	225141	SEL2213C
D757, D758	225137CG or 225137DG or 225137DY	SEL2413ECG SEL2413EDG SEL2413EDY
<b>Holder</b>		
	27190510A	(LED)

## PRINTED CIRCUIT BOARD PARTS LIST

### M-5000

#### POWER AMP. CIRCUIT PC BOARD (NAAF-2862-2)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>ICs</b>		
Q501, Q601	222051	STK4044V
Q701	222584	TA7317P
<b>Transistors</b>		
Q502, Q602	2211639	2SC2229Y(ONK)
Q503	2211792 or 2211793	2SA992E or 2SA992F
Q752	2211255 or 2211254	2SC1815GR or 2SC1815Y
<b>Diodes</b>		
D702	2239492 or 2243162	RD6.2EB2 or MTZ6.2B
D703, D704	223163	1SS133
D901	223898F	RB602
D902, D903	223897F or 22380003F	P300DL or 1N5402F
D911	223862 or 223890	WL01 or W01RL
<b>Capacitors</b>		
C501, C601	3500093	4.7 $\mu$ F, 50V, Elect.
C504, C604	354741019	100 $\mu$ F, 16V, Elect.
C510, C610	354700109	1 $\mu$ F, 160V, Elect.
C511, C611	371124734	0.047 $\mu$ F, 50V, Mylar
C512, C513	354791019	100 $\mu$ F, 100V, Elect.
C612, C613		
C514, C515	354791009	10 $\mu$ F, 100V, Elect.
C614, C615		
C702	354722219	220 $\mu$ F, 6.3V, Elect.
C703	354784799	0.47 $\mu$ F, 50V, Elect.
C704	354743319	330 $\mu$ F, 16V, Elect.
C706	354742209	22 $\mu$ F, 16V, Elect.
C751	354780109	1 $\mu$ F, 50V, Elect.
C903, C904	3504191	10000 $\mu$ F, 71V, Elect.
C912	354743319	330 $\mu$ F, 16V, Elect.
<b>Resistors</b>		
R505, R605	442521034F	10k $\Omega$ , 1/2W, Metal oxide film
R506, R507	4000080	0.47 $\Omega$ , 5W, Metal plate
R606, R607		
R508, R608	441521004F	10 $\Omega$ , 1/2W, Metal oxide film
R510, R511	442521014F	100 $\Omega$ , 1/2W, Metal oxide film
R610, R611		
R710	442521834F	18k $\Omega$ , 1/2W, Metal oxide film
R990	442520154F	1.5 $\Omega$ , 1/2W, Metal oxide film
<b>Relay</b>		
RL701	25065275	NRL-2P5A-DC12-38
<b>Terminals</b>		
PI01	25045211	NPJ-2PDBL91, Input
P501	25060093	NTM-8PDML34, Output
<b>Bracket</b>		
	27141059	Washer

#### SPEAKER SWITCH CIRCUIT PC BOARD (NASW-2863-2)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Switches</b>		
S551, (S552)	25035549	NPS-262-L511

#### POWER SWITCH CIRCUIT PC BOARD (NASW-2864-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Capacitor</b>		
C901	3500065A	0.01 $\mu$ F, AC400V/125V, IS
<b>Switch</b>		
S901	25035550	NPS-111-1512P
<b>Fuse holders</b>		
	250113	SN5051

#### PHONES CIRCUIT PC BOARD (NAAF-2865-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Resistors</b>		
R551, R651	441623914	390 $\Omega$ , 1W, Metal oxide film
<b>Jack</b>		
P551	25045187	HLJ-0541-01-010

#### DISPLAY CIRCUIT PC BOARD (NADIS-2866-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Diodes</b>		
D751~D756	225141	SEL2213C
D759		
D757, D758	225137CG or 225137DG or 225137DY	SEL2413ECG SEL2413EDG SEL2413EDY
<b>Holder</b>		
	27190510A	(LED)