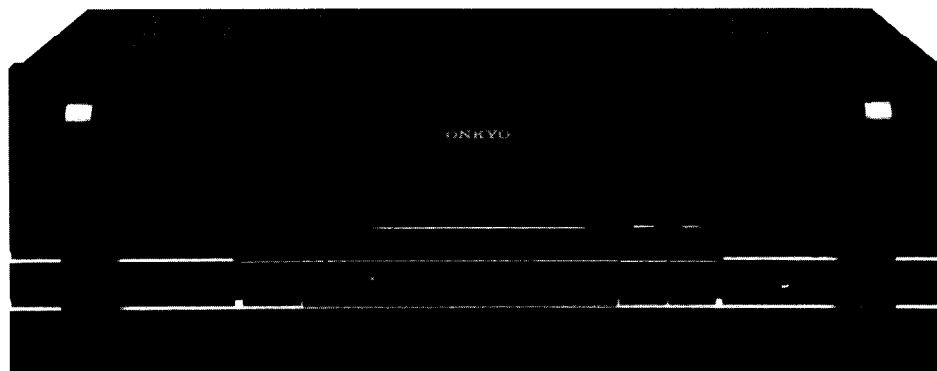


ONKYO® SERVICE MANUAL

Stereo Power Amplifier MODEL M-5200·M-5000



UD	120V AC, 60Hz
----	---------------

SAFETY-RELATED COMPONENT WARNING!!
 COMPONENTS IDENTIFIED BY MARK Δ 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.

TABLE OF CONTENTS

Specifications	2
Block diagram	2
IC Block diagram	3
Chassis-exploded view	4
Precautions	6
Packing parts list	6
Printed board parts list	7
Printed circuit board view	9
Schematic diagram	11

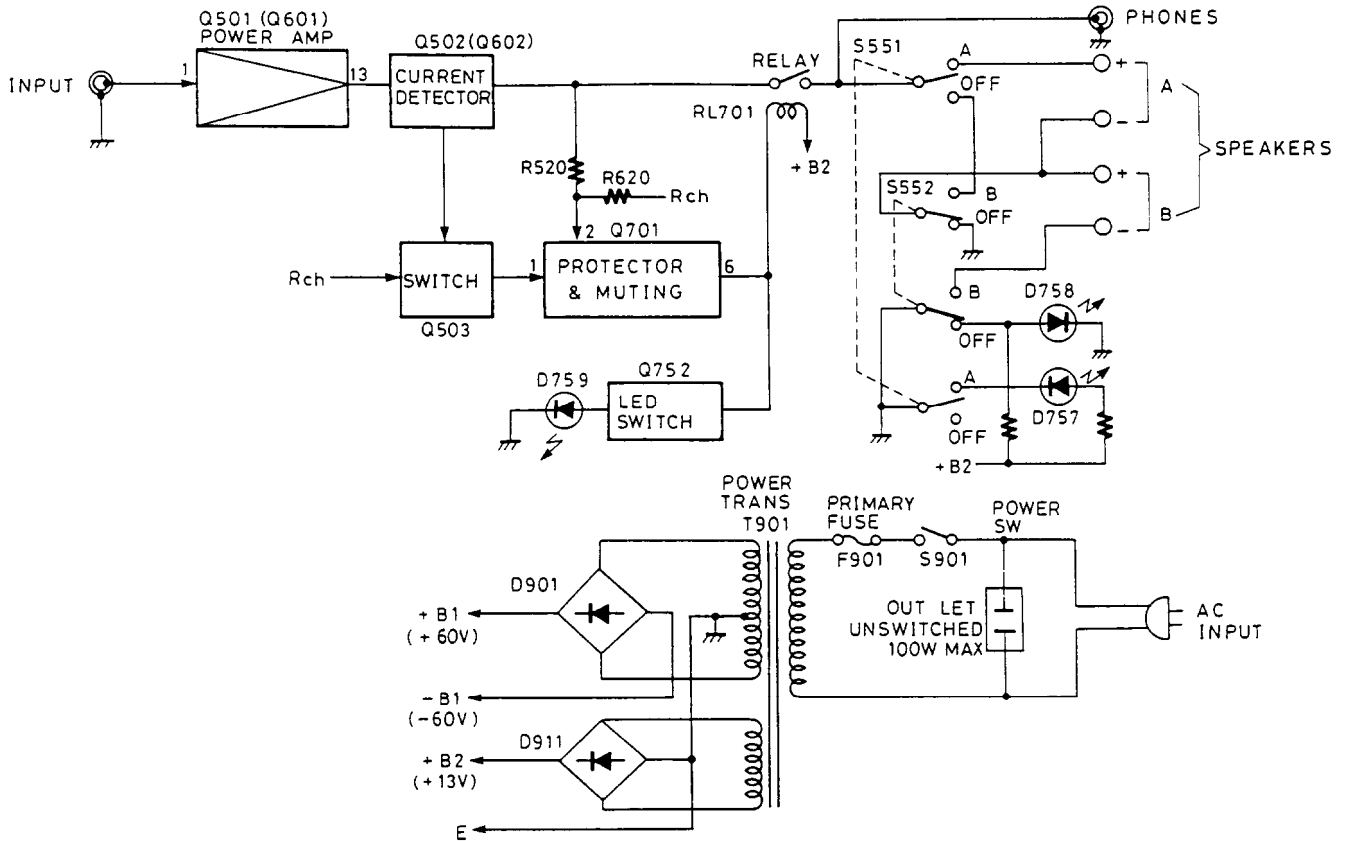


SPECIFICATIONS

	M-5200	M-5000
Power Output:	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
Total Harmonic Distortion:	0.09% at 150 watts	0.09% at 105 watts
IM Distortion:	0.09% at 150 watts	0.09% at 105 watts
Damping Factor:	40 at 8 ohms	40 at 8 ohms
Frequency Response:	5 - 100KHz \pm 1dB	5 - 100KHz \pm 1dB
Sensitivity and Impedance:	1V/50kohms	1V/50kohms
Signal to Noise Ratio:	100dB (IHFA-202 1 watt output)	100dB (IHFA-202 1 watt output)
General		
Power Supply:	AC120V, 60Hz	AC120V, 60Hz
Dimensions (W x H x D):	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"
Weight:	9.1kg, 20.1 lbs.	7.7kg, 17.0 lbs.

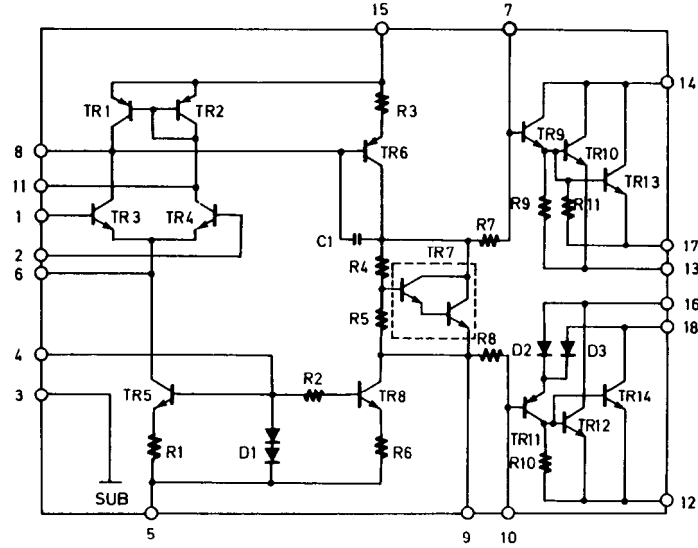
Specifications and features are subject to change without notice.

BLOCK DIAGRAM

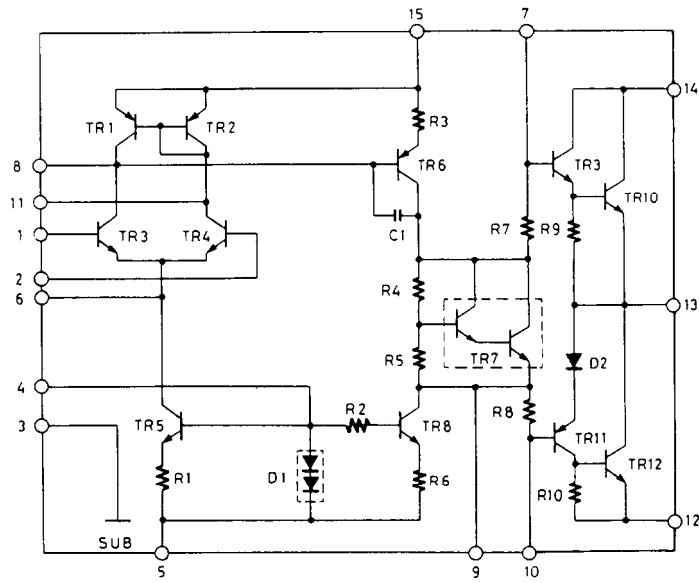


IC BLOCK DIAGRAM

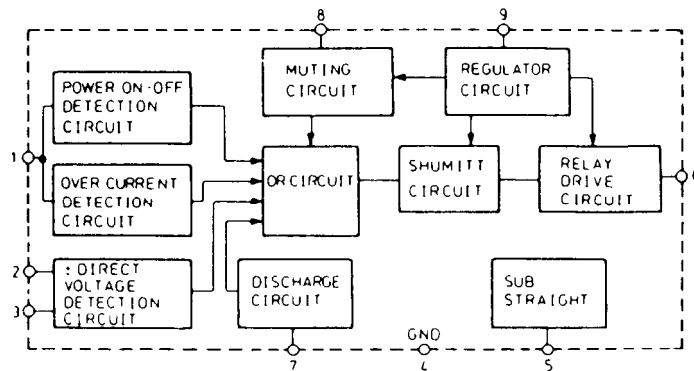
STK4048V (Power Amp.)



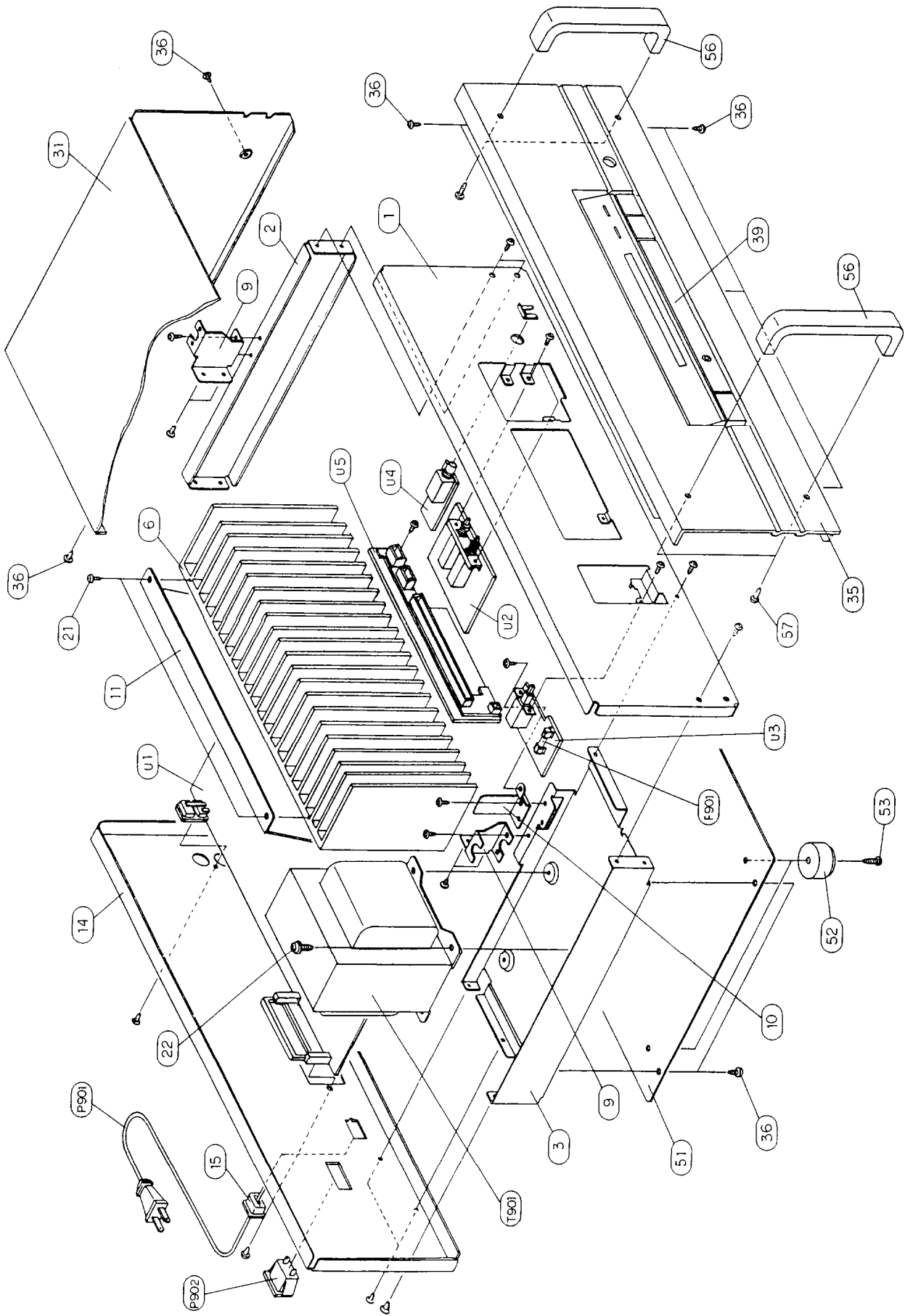
STK4044V (Power Amp.)



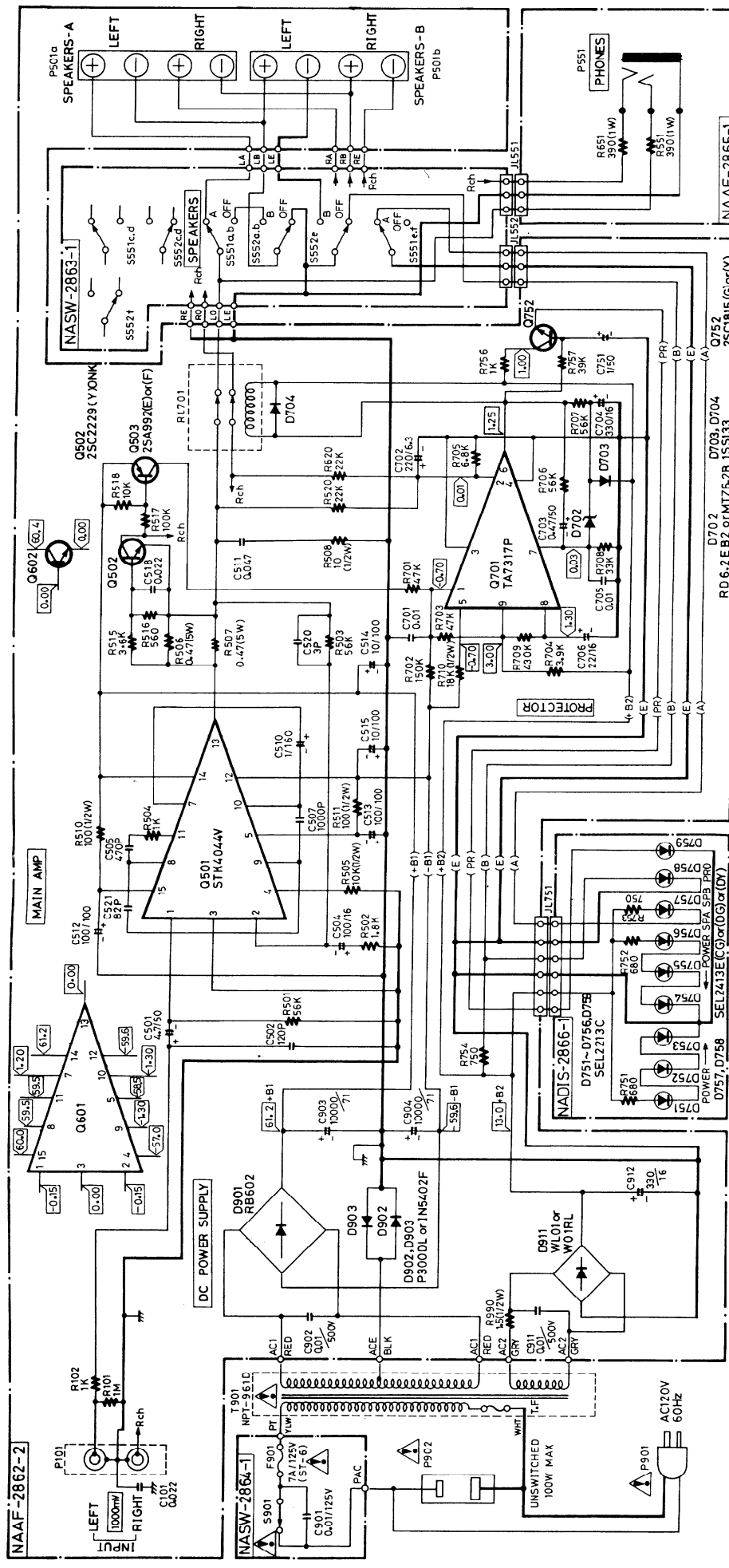
TA7317P (Protective Circuit)



CHASSIS-EXPLODED VIEW

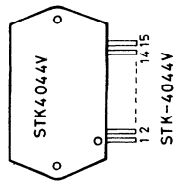


SCHEMATIC DIAGRAM
MODEL M-5000



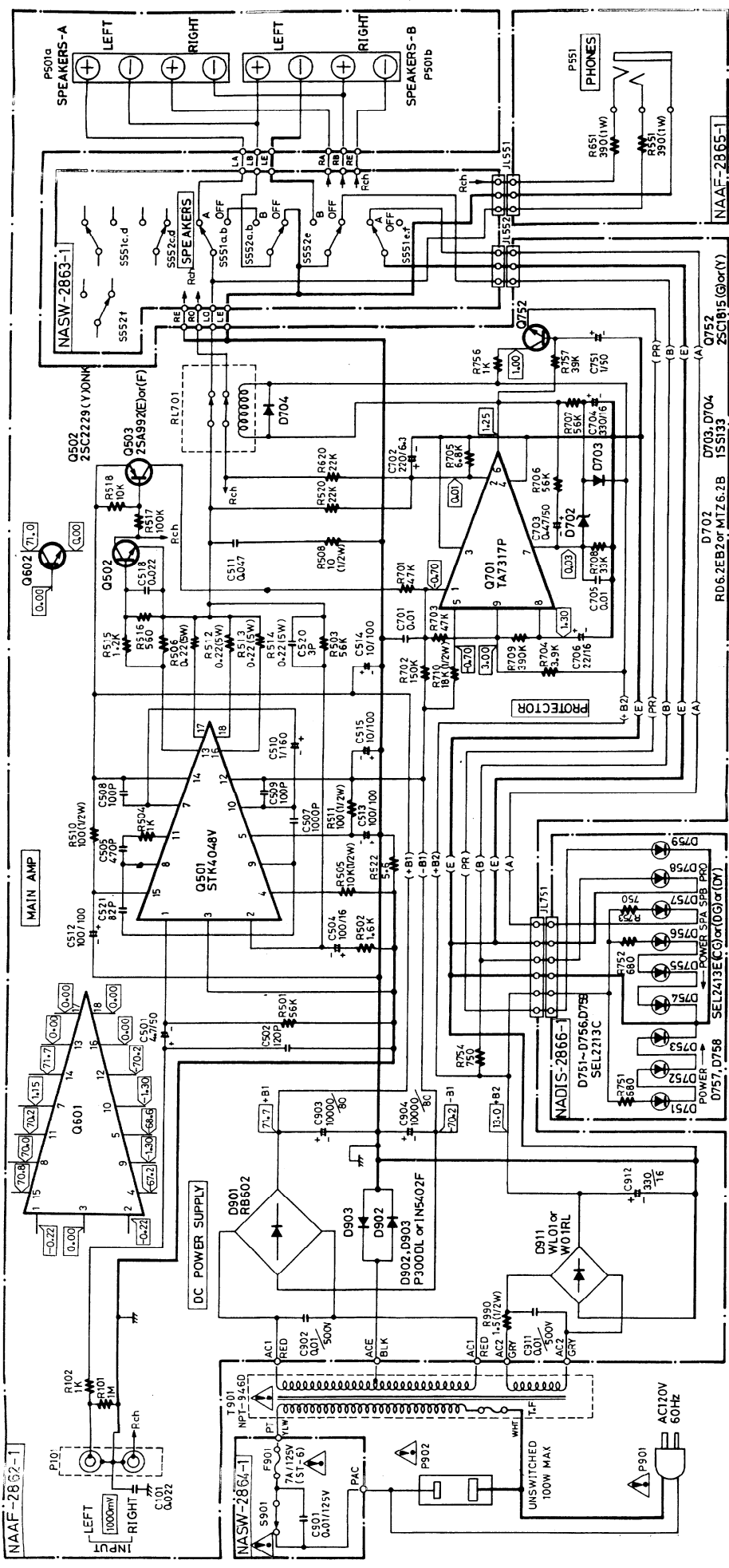
NO	FUNCTION	POSITION
S901	POWER	OFF <input type="checkbox"/> ON <input type="checkbox"/>
S551	SPEAKERS A	OFF <input type="checkbox"/> A <input type="checkbox"/>
S552	SPEAKERS B	OFF <input type="checkbox"/> B <input type="checkbox"/>

EC B
25C1815
25C2229
25A992



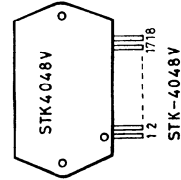
- NOTES**
- ALL RESISTORS ARE IN OHMS 1/4WATTS OR 1/6WATTS UNLESS OTHERWISE NOTED.
 - ALL CAPACITORS ARE IN μ F/50V UNLESS OTHERWISE NOTED.
 - ELECTROLYTIC CAPACITORS (-E) ARE IN μ F/W.
 - ALL DIODES ARE 1SS133 UNLESS OTHERWISE NOTED.
 - VOLTAGE (MEASURED W/SH V.T.V.M) \pm V IS DC VOLTAGE, (NO INPUT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

SCHEMATIC DIAGRAM
MODEL M-5200



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





EC B
S2C1815
S2C2229
S2A992







- NOTES**
- ALL RESISTORS ARE IN OHMS 1/4WATTS or 1/6WATTS UNLESS OTHERWISE NOTED.
 - ALL CAPACITORS ARE IN μ F/500V UNLESS OTHERWISE NOTED.
 - ELECTROLYTIC CAPACITORS (E) ARE IN μ 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 Δ 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
ICs		
Q501, Q601	222059	STK4048V
Q701	222584	TA7317P
Transistors		
Q502, Q602	2211639	2SC2229Y (ONK)
Q503	2211792 or 2211793	2SA992E or 2SA992F
Q752	2211255 or 2211254	2SC1815GR or 2SC1815Y
Diodes		
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
Capacitors		
C501, C601	3500093	4.7 μ F, 50V, Elect.
C504, C604	354741019	100 μ F, 16V, Elect.
C510, C610	354700109	1 μ F, 160V, Elect.
C511, C611	371124734	0.047 μ F, 50V, Mylar
C512, C513	354791019	100 μ F, 100V, Elect.
C612, C613		
C514, C515	354791009	10 μ F, 100V, Elect.
C614, C615		
C702	354722219	220 μ F, 6.3V, Elect.
C703	354784799	0.47 μ F, 50V, Elect.
C704	354743319	330 μ F, 16V, Elect.
C706	354742209	22 μ F, 16V, Elect.
C751	354780109	1 μ F, 50V, Elect.
C903, C904	3504204	10000 μ F, 80V, Elect.
C912	354743319	330 μ F, 16V, Elect.
Resistors		
R505, R605	442521034 F	10k Ω , 1/2W, Metal oxide film
R506, R507	4000076	0.22 Ω , 5W, Metal plate
R606, R607		
R508, R608	441521004 F	10 Ω , 1/2W, Metal oxide film
R510, R511	442521014 F	100 Ω , 1/2W, Metal oxide film
R610, R611		
R512~R514	4000076	0.22 Ω , 5W, Metal plate
R612~R614		
R710	442521834 F	18k Ω , 1/2W, Metal oxide film
R990	442520154 F	1.5 Ω , 1/2W, Metal oxide film
Relay		
RL701	25065275	NRL-2P5A-DC12-38
Terminals		
P101	25045211	NPJ-2PDBL91, Input
P501	25060093	NTM-8PDML34, Output
Bracket		
	27141059	Washer

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

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

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

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

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

CIRCUIT NO.	PART NO.	DESCRIPTION
Resistors		
R551, R651	441623914	390 Ω , 1W, Metal oxide film
Jack		
P551	25045187	HLJ-0541-01-010

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

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

PRINTED CIRCUIT BOARD PARTS LIST

M-5000

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

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

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

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

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

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

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

CIRCUIT NO.	PART NO.	DESCRIPTION
Resistors		
R551, R651	441623914	390 Ω , 1W, Metal oxide film
Jack		
P551	25045187	HLJ-0541-01-010

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

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