


# ONKYO SERVICE MANUAL

## Integrated Stereo Amplifier MODEL A-8150

UD	120V AC, 60Hz
UG	220V AC, 50Hz
UQ	240V AC, 50Hz
UW	120V/220V AC, 50/60Hz

### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  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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**ONKYO**  
**AUDIO COMPONENTS**

## SPECIFICATIONS

Power Output:	60 watts per channel, min, RMS, at 8 ohms, both channels driven from 20 Hz to 20 kHz, with no more than 0.06% THD.
Total Harmonic Distortion	0.06% at 60 watts
IM Distortion	0.06% at 60 watts
Damping Factor:	40 at 8 ohms
Frequency and Response:	15 – 30,000 Hz $\pm$ 1 dB
Sensitivity and Impedance	Phono (MM): 2.5 mV/50 kohms Phono (MC): 350 $\mu$ V/330 ohms Tuner/CD/AUX: 150 mV/50 kohms Tape/Play: 150 mV/50 kohms Tape/Rec: 150 mV/4.5 kohms (phono)
Phono Overload:	150 mV RMS at 1 kHz, 0.06% THD (MM)
Bass Control:	$\pm$ 10 dB at 100 Hz
Treble Control:	$\pm$ 10 dB at 10,000 Hz
Signal to Noise Ratio:	Phono: 83 dB (IHF A), 5 mV input CD & Tape: 95 dB (IHF A)
Loudness Control:	+7 dB at 70 Hz/+5 dB at 10 kHz
Muting:	-20 dB
Selective Tone Control	$\pm$ 15 dB at 50 Hz/ $\pm$ 6 dB at 10 kHz
<b>General</b>	
Power Supply:	European models: AC220V, 50Hz Canadian models: AC120V, 60Hz British & Australian models: AC240V, 50Hz Worldwide models: AC120V and 220V switchable, 50/60 Hz
Dimensions (W x H x D):	435 x 110 x 272 mm 17-1/8" x 4-5/16" x 10-11/16"
Weight:	7.0 kg, 15.4 lbs.

## PRECAUTIONS

### 1. Replacing the fuses

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

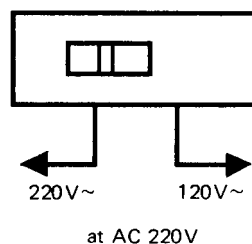
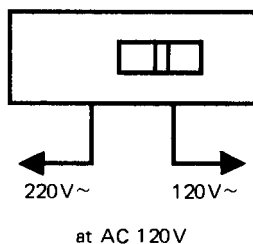
CIRCUIT NO.	PART NO.	DESCRIPTION
F901	252050	5A(ST-6), Primary fuse (120V model)
F902	252075 or 252075CC	2.5A-SE-EAK Primary fuse (220V, 240V, 120V/220V model)
F911, F912	252078 or 252078CC	5A-SE-EAK, Secondary fuse (220V, 240V model)
		5A-SE-EAK, Secondary fuse (220V, 240V model)

### 2. Insulation resistance measurement (Only U.S.A. model)

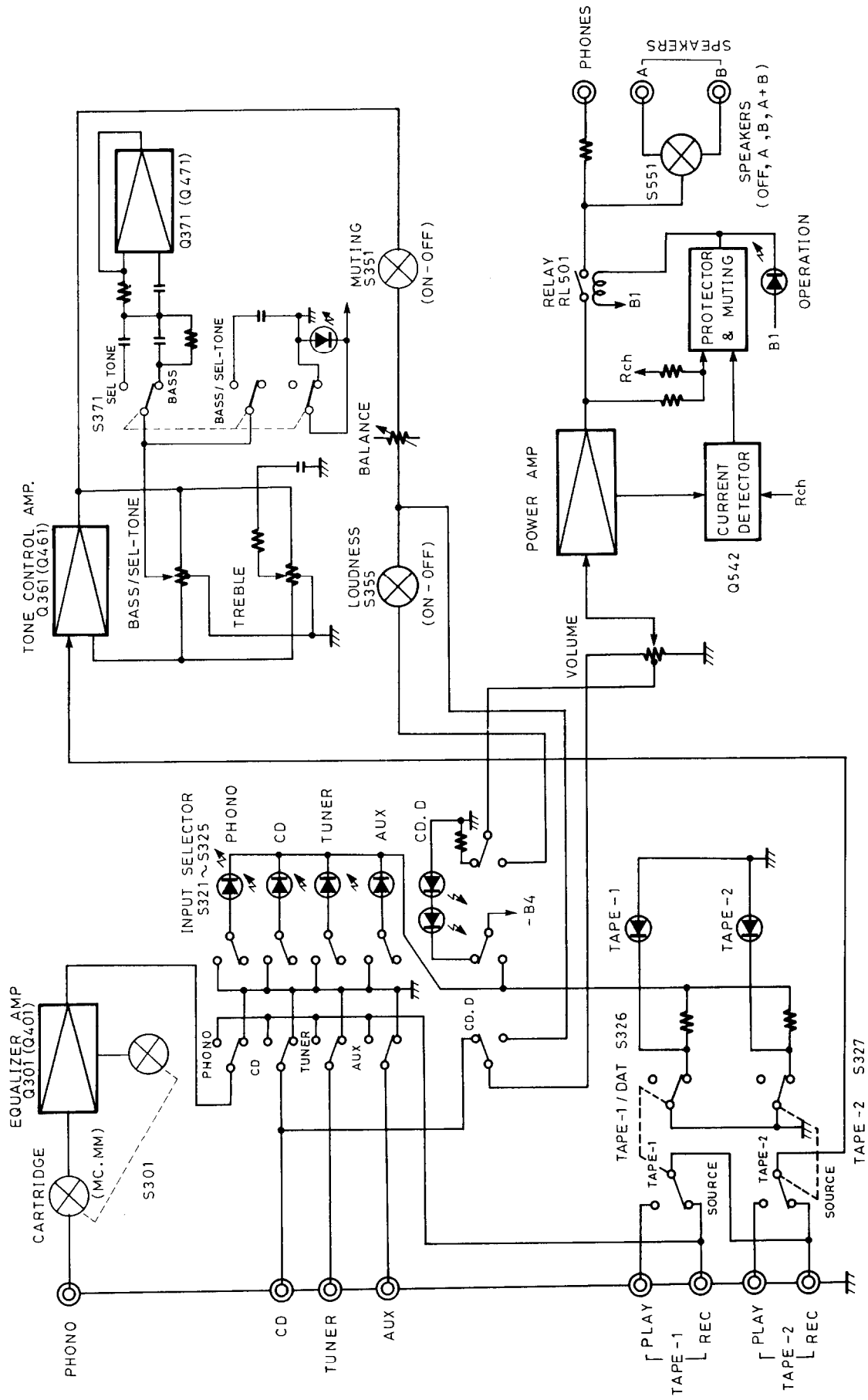
Connect the insulating-resistance tester between the plug of power supply cable and the terminal GND on the back panel. Specifications; More than 10 M $\Omega$  at 500V.

### 3. Voltage selector (rear panel)

Worldwide models are equipped with a voltage selector to conform with local power supplies. Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on. Voltage is changed by sliding the groove in the switch with a screwdriver or similar instrument to the right or left position. Confirm that the switch has been moved all the way to the right or left before turning the power switch on. If there is no voltage selector switch on the unit you have purchased, it can only be used in areas where the power supply voltage is the same as that of the unit.

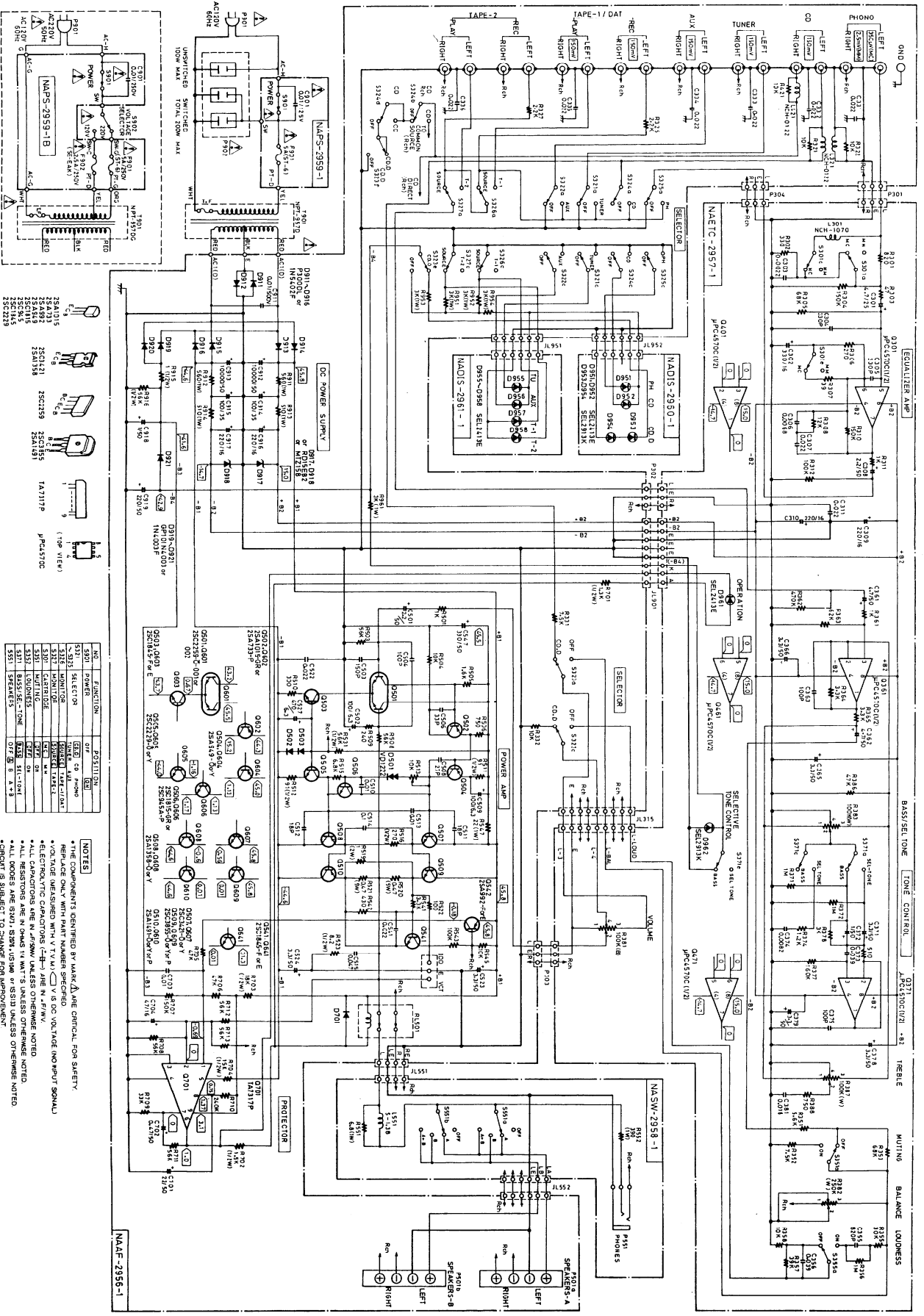


# BLOCK DIAGRAM



# SCHEMATIC DIAGRAM

(120V, 120V/220V Model)



## ADJUSTMENT PROCEDURES

### 1. Preparations

- 1) Leave the machine in a normal condition parallel to the work bench, maintaining a clearance of 15mm from the bottom for air circulation.
- 2) Set the level to minimum with no load and no signal.
- 3) When making the adjustment, there must be no breeze blowing from the outside.

### 2. Adjustment of idling current

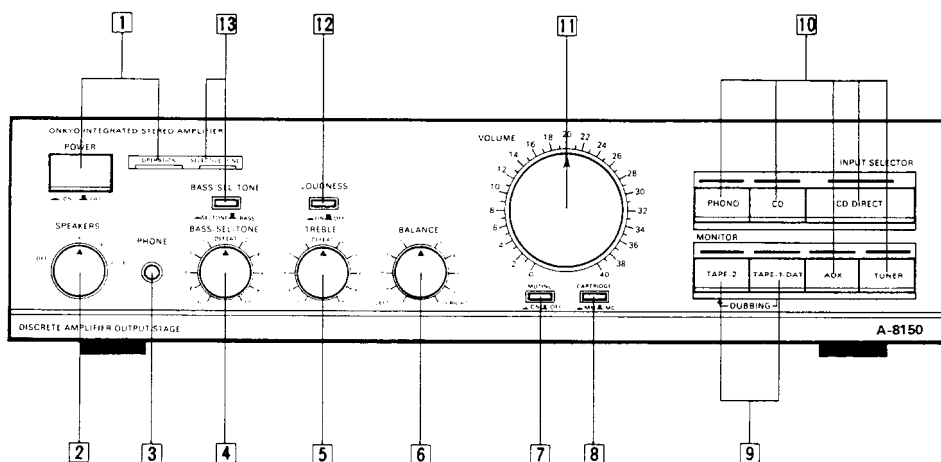
- 1) Turn ON the power switch, and leave the unit as is for about 5 minutes.
- 2) Adjust the semi-fixed resistor R513 (R613) so that the voltage between the terminals  $V_{CT}$  and  $I_{ID}$  of the printed circuit board NAAF-2956 is 7.5mV.

### 3. Operating check of protection circuit

- 1) When the power switch is turned ON.
  - After about 6 second, relay RL501 of the NAAF-2956 printed circuit board go ON.
  - Operation indicator lights.
- 2) When the power is turned OFF.
  - Immediately a relay go OFF.
- 3) With no load, when 1.5V DC is input, the speaker relay go OFF.

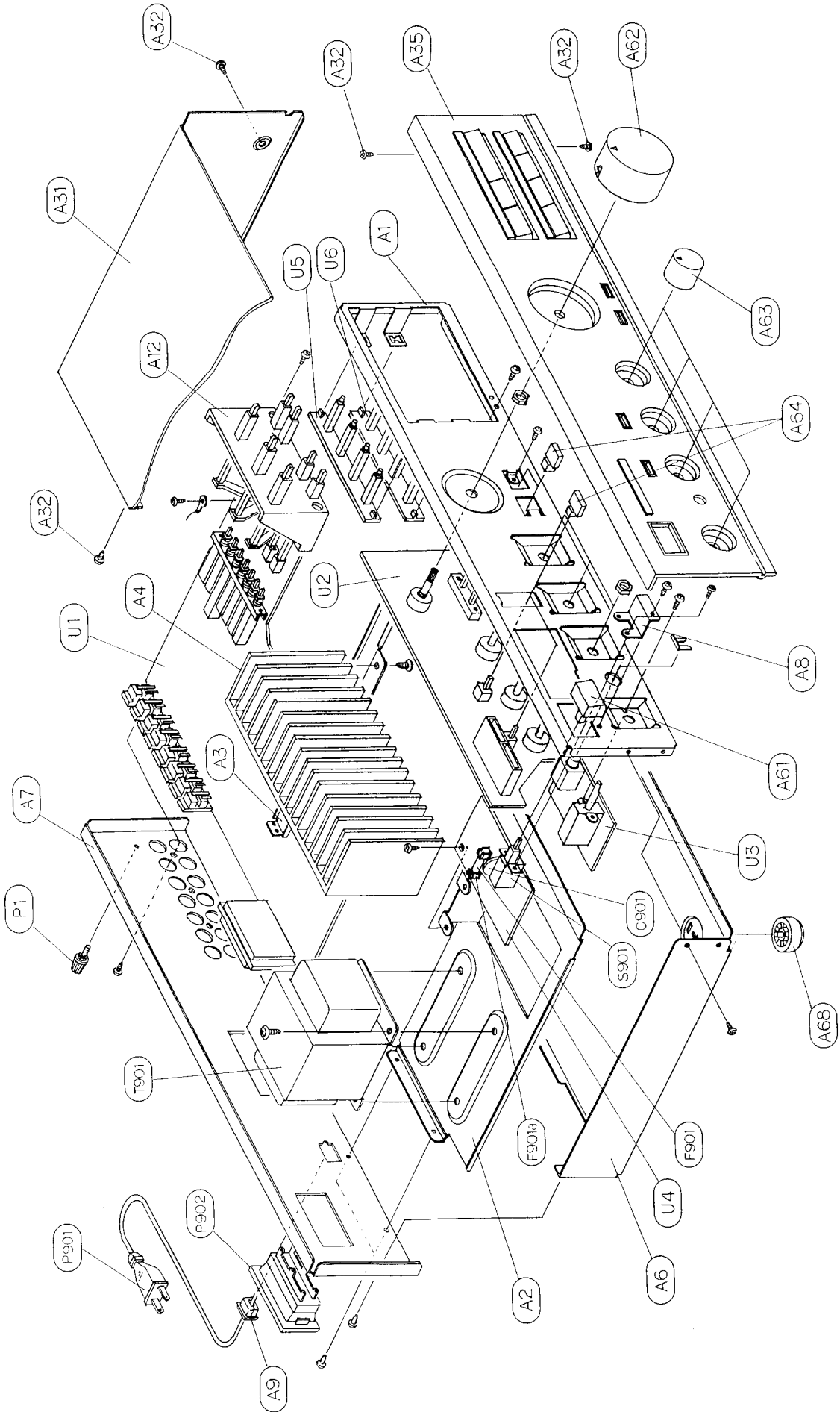
Caution: During this test, there should be absolutely no load connected and the load terminals must not be shorted.

## FRONT PANEL FACILITIES



1. Power switch and Operation indicator (POWER and OPERATION)
2. Speaker selector (SPEAKERS) OFF, A, B, A+B
3. Headphone jack (PHONES)
4. Bass control/Selective Tone control (BASS/SEL-TONE)
5. Treble control (TREBLE)
6. Balance control (BALANCE)
7. Audio muting (MUTING)
8. Cartridge selector (CARTRIDGE) MM, MC
9. Tape monitor switches and indicators (MONITOR) TAPE-1/DAT, TAPE-2
10. Input selector switches and indicators (INPUT SELECTOR) CD DIRECT, CD, PHONO, TUNER, AUX, TAPE-1/DAT, TAPE-2
11. Volume control (VOLUME)
12. Loudness control (LOUDNESS) ON/OFF
13. Selective tone switch (BASS/SEL-TONE) and Selective tone indicator (SELECTIVE TONE) BASS, SEL-TONE

CHASSIS-EXPLODED VIEW



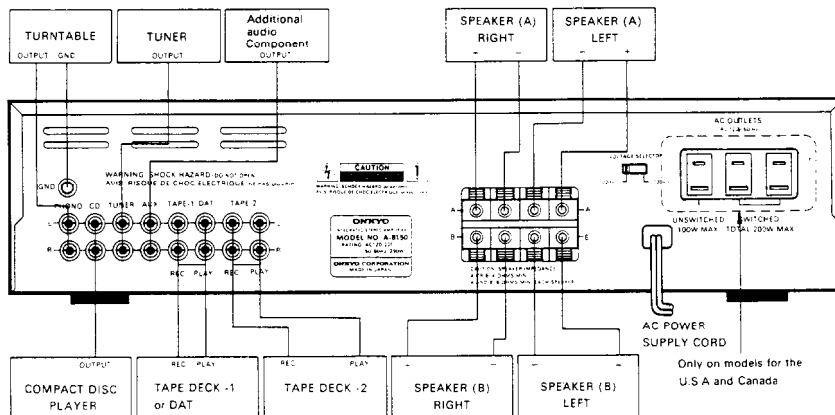
# CHASSIS-EXPLODED VIEW PARTS LIST

REF. NO.	PART NO.	DESCRIPTION			
A1	27110360A	FRONT BRACKET		F901a	250113
A2	27130471	BRACKET (PT)		F902a	25050065
A3	27130472	BRACKET (H)			
A4	27160204	HEATSINK		P1	25060044
A6	27100130A	CHASSIS	⚠	P2	25060092
A7	27120989	BACK PANEL			
A7	27120990	BACK PANEL [G]	⚠	T901	2300211
A7	27120992	BACK PANEL [W]	⚠	T901	2300212
A7	27121013	BACK PANEL [A][B]			
A8	27141124	BRACKET (POW)	⚠	T901	2300213
A9	27300750	BUSHING (CORD)			
A12	27273070B	JOINT AS	⚠	T901	2300238
A31	28184361A	TOP COVER			
A32	834430088	TAP-TIGHT SCREW 3TTS+8BBC		U1	1A022556-1
A35	1A021121	FRONT PANEL			
A61	28322795A	KNOB (POW)		U1	1A022556-1A
A62	28323022	KNOB (VOL)			
A63	28323024	KNOB (TONE)		U2	1A022557-1
A64	28323026A	KNOB (PUSH)			
A68	27175142	LEG			
Q509, Q609	2201703 or 2201704 or 2201706	2SC3855-O or 2SC3855-Y or 2SC3855-P		U2	1A022557-1A
Q510, Q610	2201693 or 2201694 or 2201696	2SA1491-O or 2SA1491-Y or 2SA1491-P		U3	1A022558-1
⚠ S901	25035398	POWER SWITCH, NPS-111-L362P		U4	1A022559-1
⚠ S902	25065123	SLIDE SWITCH, NSS-1258P [W]		U4	1A022559-1A
⚠ C901	3500065A	0.01μF, AC400V/125V			
⚠ P901	253123 or 253136 or 253140 or 253146	AC CORD AS-UC6-#18 AC CORD AS-UC6-#18 AC CORD AS-UC6-#18 AC CORD AS-UC6-#18		U4	1A022559-1B
⚠ P901	253130A or 253128B	AC CORD AS-CEE or [G] [W] AC CORD AS-CEE [G] [W]		U5	1A022560-1
⚠ P901	253118	AC CORD AS-SAA [A]		U6	1A022561-1
⚠ P901	253104 or 253105 or 728320 or 728328	AC CORD C.2.5BS2 or [B] AC CORD C.2.5BS2 or [B] 2-0.75BS16 BLK/GRY or [B] 2-0.75BS16 BLK/GRY [B]			
⚠ P902	25050293	AC OUTLET NSCT-6P120			
⚠ F901	252050	FUSE 5A ST-6			
⚠ F902	252075 or 252075CC	FUSE 2.5A-SE-EAK or [G][W][A][B] FUSE 2.5A-SE-EAK [G][W][A][B]			
F911, F912	252078 or	FUSE 5A-SE-EAK or [G][A][B]			

NOTE: [N]: Only U.S.A. model  
 [A]: Only Australian model  
 [B]: Only British model  
 [G]: Only 220V model  
 [W]: Only 120V/220V model

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

## SYSTEM CONNECTIONS



Only on models for the U.S.A and Canada

# PRINTED CIRCUIT BOARD – PARTS LIST

## MAIN PC BOARD (NAAF-2956-1, NAAF-2956-1A) PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION			
	<b>ICs</b>				
Q701	222584	TA7317P	R523, R623	442520824F	8.2Ω, 1/2W, Metal oxide film
	<b>Transistors</b>				
Q501, Q601	2211371 or 2211372	2SC2259 O-001 or 2SC2259 O-002	R531	442525634F	56kΩ, 1/2W, Metal oxide film
Q502, Q602	2211455 or 2210803	2SA1015 GR or 2SA733 P	R547, R647	441622204F	22Ω, 1W, Metal oxide film
Q503, Q541	2211732 or	2SC1845 F or	R701	442521324F	1.3kΩ, 1/2W, Metal oxide film
Q603, Q641	2211733	2SC1845 E	R702	441521524F	1.5kΩ, 1/2W, Metal oxide film
Q504, Q604	2211353 or 2211354	2SA949 O or 2SA949 Y	R703	442521834F	18 kΩ, 1/2W, Metal oxide film
Q505, Q605	2211633 or 2211634	2SC2229 O 2SC2229 Y	R704	442521534F	15 kΩ, 1/2W, Metal oxide film
Q506, Q606	2211255 or 2210746	2SC1815 GR 2SC945A P	R911, R912	441625614F	560Ω, 1W, Metal oxide film
Q507, Q607	2212653 or 2212654	2SC3421 O or 2SC3421 Y	R913, R914	441625114F	510Ω, 1W, Metal oxide film
Q508, Q608	2212643 or 2212644	2SA1358 O or 2SA1358 Y	R915	442520104F	1Ω, 1/2W, Metal oxide film
Q542	2211792 or 2211793	2SA992 F or 2SA992 E	R916	442525634F	56kΩ, 1/2W, Metal oxide film
	<b>Diodes</b>				
D501, D601	4000068	VD1222	R951~R954	441623024F	3KΩ, 1W, Metal oxide film
D502, D503	223163	1SS133	R961		
D701					
D911~D916	223897F or 22380003F	P300DL or 1N5402F			
D917, D918	2239672 or 2243252	RD15EB2 or MTZ15B			
D919~ D921	223880F or 223896F	GP101N4003 or 1N4003F			
	<b>Coils</b>				
L321, L421	231074	NCH-0122			
	<b>Capacitors</b>				
C331	379122235	0.022μF, 50V, FILM (DEW)			
C501, C601	354780229	2.2μF, 50V, Elect.			
C502, C509	354721019	100μF, 6.3V, Elect.			
C602, C609					
C514, C614	371121044	0.1μF, 50V, Mylar			
C515, C615	371124734	0.047μF, 50V, Mylar			
C523, C524	354780339	3.3μF, 50V, Elect.			
C623, C624					
C527	354724719	470μF, 6.3V, Elect.			
C547, C647	354783319	330μF, 50V, Elect.			
C701	354782209	22μF, 50V, Elect.			
C702	354784799	0.47μF, 50V, Elect.			
C704	354744709	47μF, 16V, Elect.			
C912, C913	3504206	10000μF, 50V, Elect.			
C914, C915	354761019	100μF, 35V, Elect.			
C916, C917	354742219	220μF, 16V, Elect.			
C918	354780109	1μF, 50V, Elect.			
C919	354782219	220μF, 50V, Elect.			
	<b>Resistors</b>				
R511, R512	442529104F	91Ω, 1/2W, Metal oxide film			
R611, R612					
R513, R613	5210064	N06HR10KBD, Semi-fixed variable			
R516, R616	442522714F	270Ω, 1/2W, Metal oxide film			
R519, R619	441720104F	1Ω, 2W, Metal oxide film			
R520, R521	4000080	0.47Ω, 5W, Metal plate			
R620, R621					
	<b>Relay</b>				
			RL501	25065134	NRL-2P5A-DC24-07
	<b>Terminals</b>				
			P321	<del>25045171</del>	NPJ-4PDBL-65
			P322, P323	25045213	NPJ-6PDBL-92
			P501	25060093	NTM-8P-DML34, Speaker
			P501	25060094	NTM-8P-DML35, Speaker [G] [Q]
	<b>Switches</b>				
			S321~S327	25035562	NPS-162-642-L524
	<b>Fuse holder</b>				
			F911a, F912a	25050065	YSH403T [G] [Q]

## EQUALIZER & TONE CONTROL CIRCUIT PC BOARD (NAETC-2957-1, NAETC-2957-1A) PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>ICs</b>	
Q301, Q401,	22240050	μPC4570C
Q361, Q461,		
Q371, Q471		
	<b>Diodes</b>	
D961	225137CG or 225137DG or 225137DY	SEL2413E-CG, LED SEL2413E-DG, LED SEL2413E-DY, LED
D962	225142	SEL2913K, LED
	<b>Coils</b>	
L301, L401	231030	NCH-1070
	<b>Capacitors</b>	
C301, C361,	354780479	4.7μF, 50V, Elect.
C362, C401,		
C461, C462		
C302, C402	354743319	330μF, 16V, Elect.
C303, C403	371122225	2200pF, 50V, Mylar
C306, C406	371126825	6800pF, 50V, Mylar
C307, C407	371122234	0.022μF, 50V, Mylar
C308, C408	354780229	2.2μF, 50V, Elect.
C309, C310	354742219	220μF, 16V, Elect.
C309, C310	391242217	220μF, 16V, Elect.(MUSE) [G] [Q]
C356, C456	371123934	0.039μF, 50V, Mylar
C365, C366,	354780339	3.3μF, 50V, Elect.
C371, C378,		
C379, C471		
C372, C472	354780109	1μF, 50V, Elect.
C373, C473	371123934	0.039μF, 50V, Mylar
C374, C474	371128224	8200pF, 50V, Mylar
C381, C481	371121834	0.018μF, 50V, Mylar



## DISPLAY LED PC BOARD (NADIS-2961-1) PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Resistors</b>		
R381, (R481)	5104174	N16RGH100KBT20, Variable
R382	5104192	N16RHC250KW25Z, Variable
R383, (R483)	5104196	N16RGHC100KWT25Z, Variable
R387, (R487)		
<b>Switch</b>		
S301, (S351)	25035561	NPS-122-162-L523
S352	25035537	NPS-122-L499
S371	25035560	NPS-162-L522
<b>Sockets</b>		
P301, P304	2000557	NSAS-6P513
<b>Holder</b>		
	27190529	(LED-2)
<b>Diodes</b>		
D955~D958	225137CG or 225137DG or 225137DY	SEL2413ECG or SEL2413EDG or SEL2413EDY
<b>Holder</b>		
	27190530	(LED-4)
NOTE	[G]: Only 220V Model [Q]: Only 240V Model [W]: Only 120V/220V Model	

## SPEAKER SWITCH CIRCUIT PC BOARD (NASW-2958-1) PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Coils</b>		
L551, L651	231001S	S-1.3B
<b>Resistors</b>		
R551, R651	441620684F	6.8Ω, 1W, Metal oxide film
R552, R652	441623914F	390Ω, 1W, Metal oxide film
<b>Switch</b>		
S551	25030290	NRSF-144-25SS
<b>Terminal</b>		
P551	25045164	HLJ-4317-01-3020, Phones

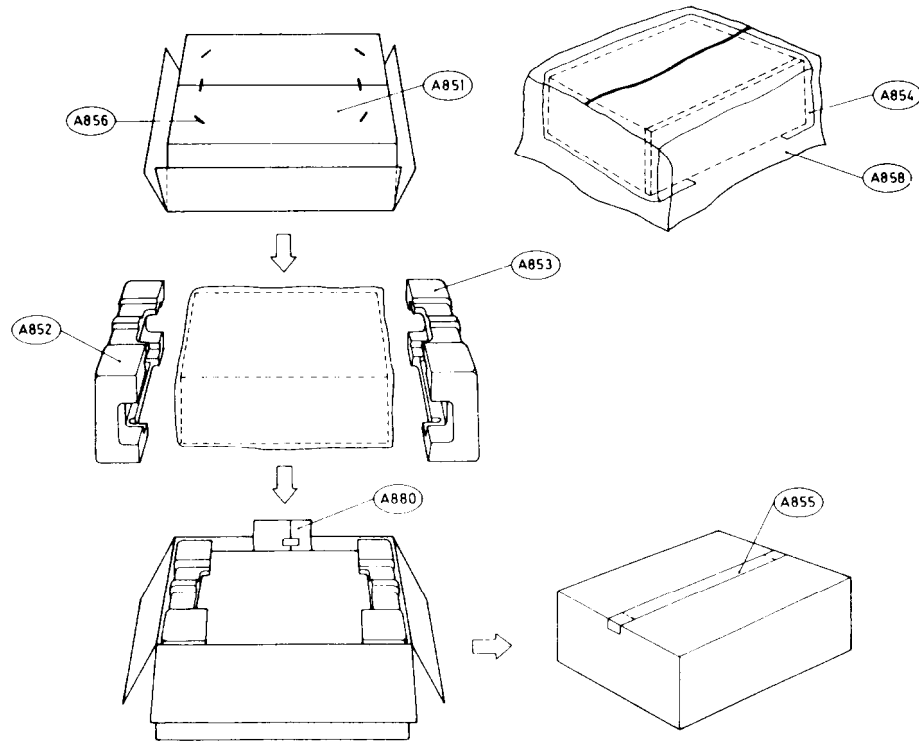
## POWER SWITCH PC BOARD (NAPS-2959-1, NAPS-2959-1A, NAPS-2959-1B) PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Capacitor</b>		
C901	3500065A	0.01μF, AC400V/125V
<b>Terminal</b>		
P2	25060092	NTM-1S33 [G] [Q] [W]
<b>Switch</b>		
S901	25035398	NPS-111-L362P
<b>Fuse holder</b>		
F901a	250113	SN5051
F902a	25050065	YSH403T [G] [Q] [W]
<b>Label</b>		
	29360626-1	(Fuse)

## DISPLAY LED PC BOARD (NADIS-2960-1) PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Diodes</b>		
D951, D952	225137CG or 225137DG or 225137DY	SEL2413ECG or SEL2413EDG or SEL2413EDY
D953, D954	225142	SEL2913K
<b>Holder</b>		
	27190530	(LED-4)

# PACKING PROCEDURES



REF. NO.	PART NO.	DESCRIPTION
A851	29051521	MASTER CARTON BOX
A852	29090987	PAD, LEFT
A853	29090988	PAD, RIGHT
A854	29095012-1	PROTECTION SHEET
A855	260012	DAMPLON TAPE
A856	282301	SEALING HOOK
A858	29100063	750X580, POLY BAG
A880	ACCESSORY BAG ASS'Y	
	29341148	INSTRUCTION MANUAL
	29341149	INSTRUCTION MANUAL [G] [W] [Q]
	29341158	INSTRUCTION MANUAL, 1 [G] [W]
	29365019	WARRANTY CARD [U]
	29358002E	SERVICE STATION LIST [U]
	29100006A	350X250, POLY BAG
	25055018	CV-K-1, CONVERSION PLUG [W]

NOTE [U]: ONLY U.S.A. MODEL  
 [G]: ONLY 220V MODEL  
 [Q]: ONLY 240V MODEL  
 [W]: ONLY 120V/220V MODEL