

# ONKYO® SERVICE MANUAL

## Integrated Stereo Amplifier MODEL A-8500

U D	120V AC, 60Hz
U G	220V AC, 50Hz
U Q	240V AC, 50Hz
U W	120V/220V AC, 50Hz/60Hz

### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  $\triangle$  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

Continuous Power Output:	2 × 120 watts at 4 ohms, 1 kHz (DIN) 2 × 90 watts at 8 ohms, 1 kHz (DIN) 80 watts per channel, min, RMS, at 8 ohms, both channels driven from 20 Hz to 20 kHz, with no more than 0.008% Total harmonic distortion.
Dynamic Power:	210 watts at 2 ohms, 167 watts at 4 ohms
Total Harmonic Distortion	0.008% at rated power 0.008% at 1 watt output
Intermodulation Distortion:	0.005% at rated power
Damping Factor :	150 at 8 ohms (1 kHz)
Input Sensitivity/ Impedance:	Phono (MM): 2.5 mV/50 kohms Phono (MC): 160 $\mu$ V/130 ohms CD: 150 mV/30 kohms TUNER: 150 mV/30 kohms Tape Play: 150 mV/30 kohms
Output Level/Impedance:	Tape Rec: 150 mV/1.0 kohms (Phono)
Phono Overload:	Phono (MM): 180 mV RMS. at 1 kHz. 0.015% THD.
Tone Control (Vol – 20dB):	BASS: $\pm 8$ dB at 100 Hz TREBLE: $\pm 8$ dB at 10 kHz
High Cut:	6 kHz (6 dB/Octave) (TREBLE min.)
Frequency Response:	CD, Tuner: 2 Hz – 50 kHz (+0, –1 dB)
RIAA Deviation:	Phono (MM): $\pm 0.3$ dB, 20 Hz – 20 kHz
Subsonic Filter (MM SUBSONIC, MC SUBSONIC):	20 Hz (–3 dB, 6 dB/Oct.)
Signal to Noise Ratio (IHF-A):	Phono (MM): 93 dB (5.0 mV input) Phono (MC): 74 dB (0.5 mV input) CD (DIRECT): 107 dB
Muting:	–20 dB
Power Supply:	European models: AC220V, 50 Hz USA & Canadian models: AC 120V, 60 Hz U.K & Australia models: AC240V, 50 Hz Worldwide model: AC120 and 220V switchable, 50/60 Hz
Dimensions (W×H×D):	435 × 157 × 391 mm 17-1/8" × 6-3/16" × 15-3/8"
Weight:	12.5 kg, 27.6 lbs

Specifications and features are subject to change without notice.

## 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	252051	6A ST-6, Primary fuse (120V, 120V/220V models)
F902	252076 or 252076CC	3.15A-SE-EAK or 3.15A-SE-EAK Primary fuse (220V, 240V, 120V/220V models)

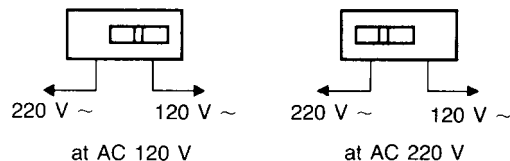
### 2. Insulation resistance measurement (Only U.S.A. model)

Connect the insulating-resistance tester between the plug of power supply cable and the terminal GND on the back panel.

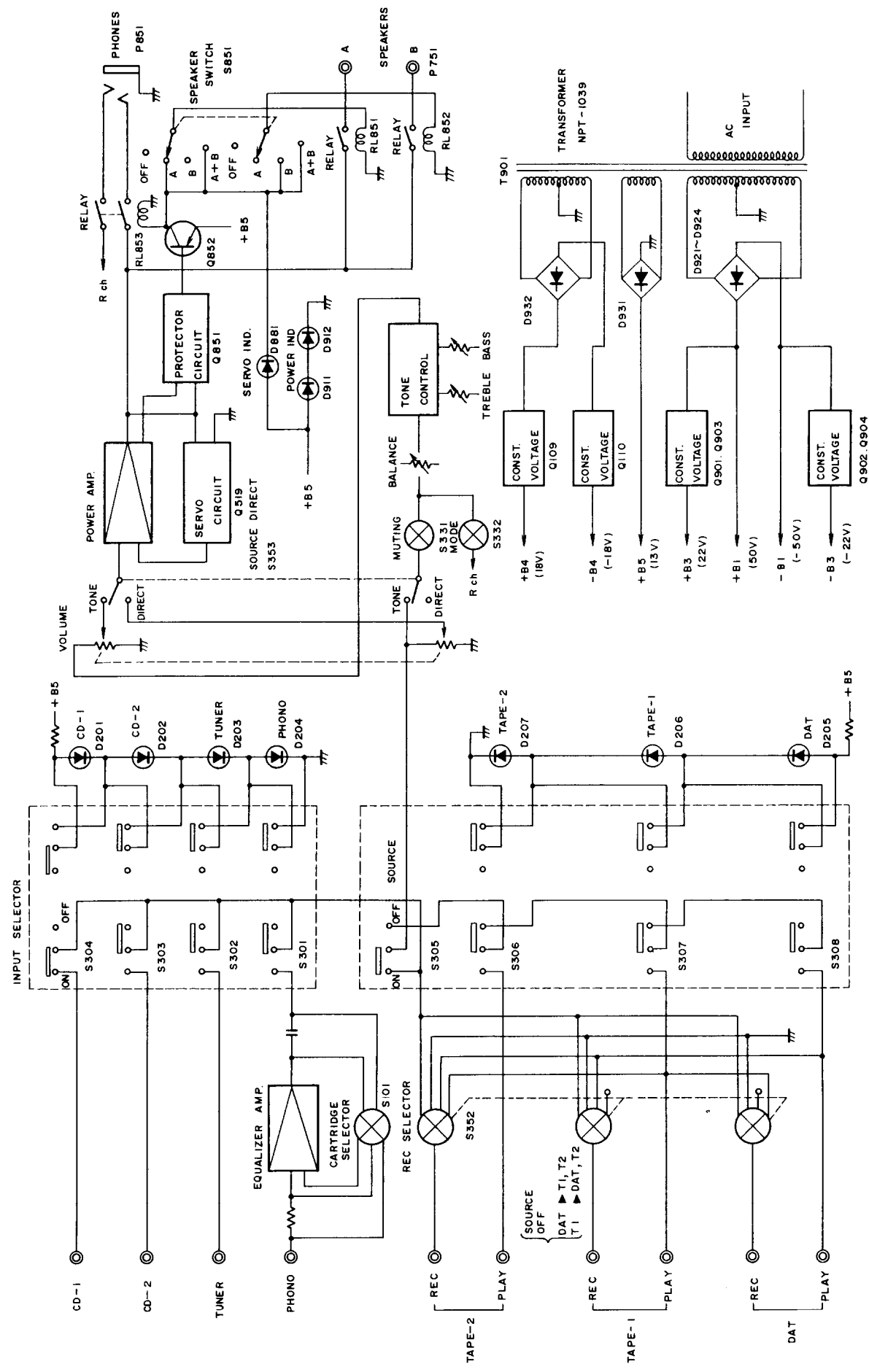
Specifications; More than 10 M $\Omega$  at 500V.

### 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 to the right or left. Confirm that the switch has been moved all the way to the right or left before turning the power switch on. Models without a voltage selector can only be used in areas where the power supply is the same as that of the unit.

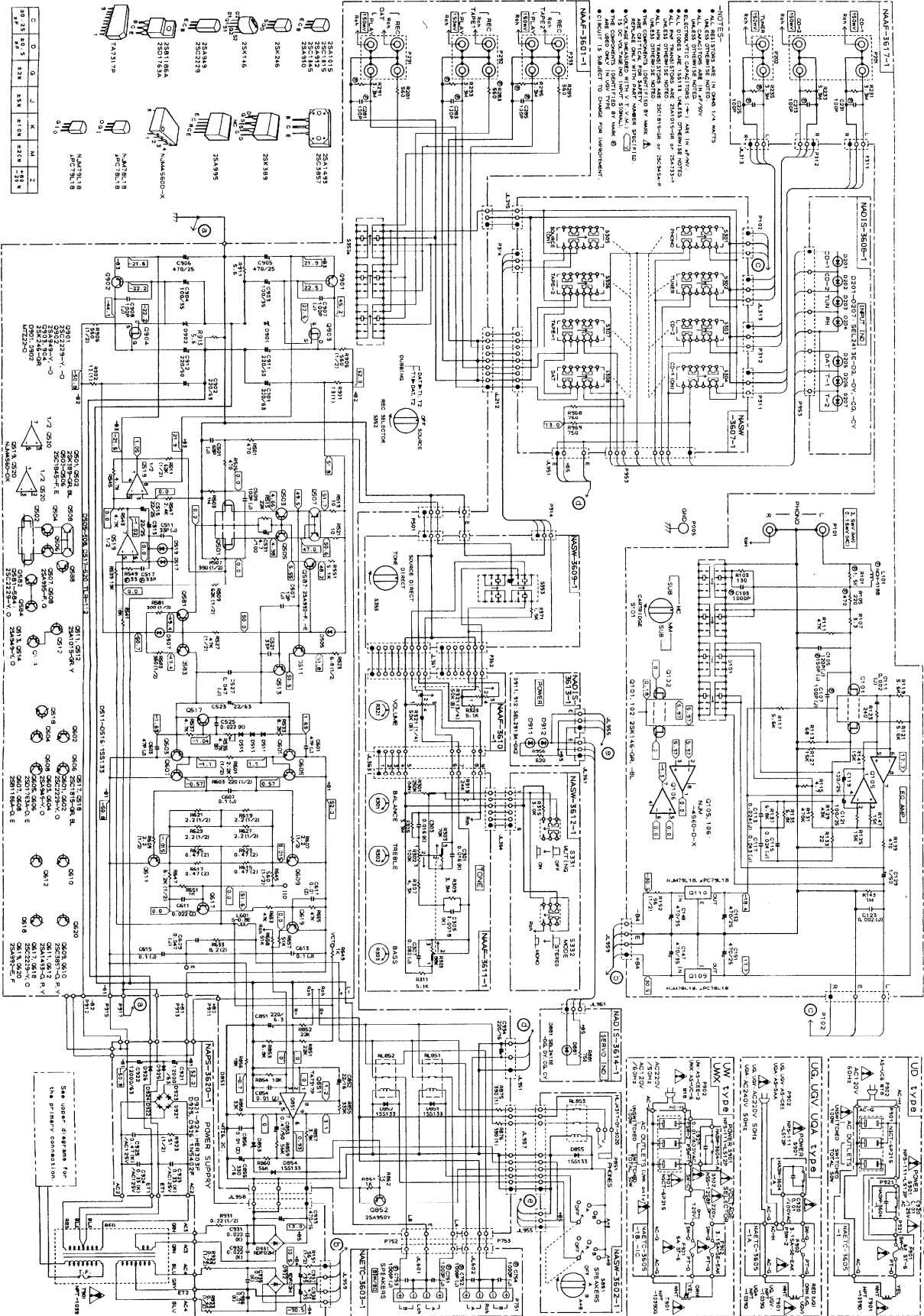


# BLOCK DIAGRAM



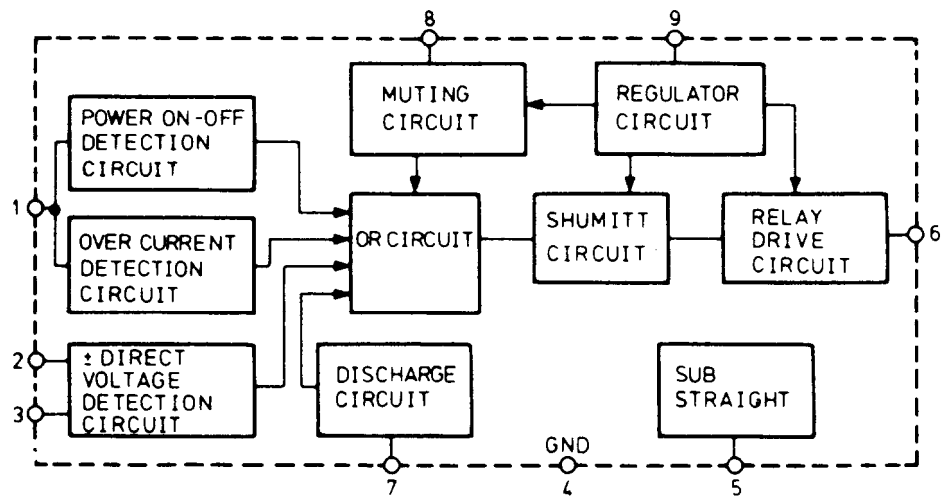
# SCHEMATIC DIAGRAM

A B C D E F G

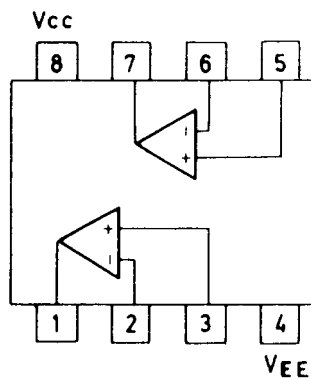


# IC BLOCK DIAGRAM

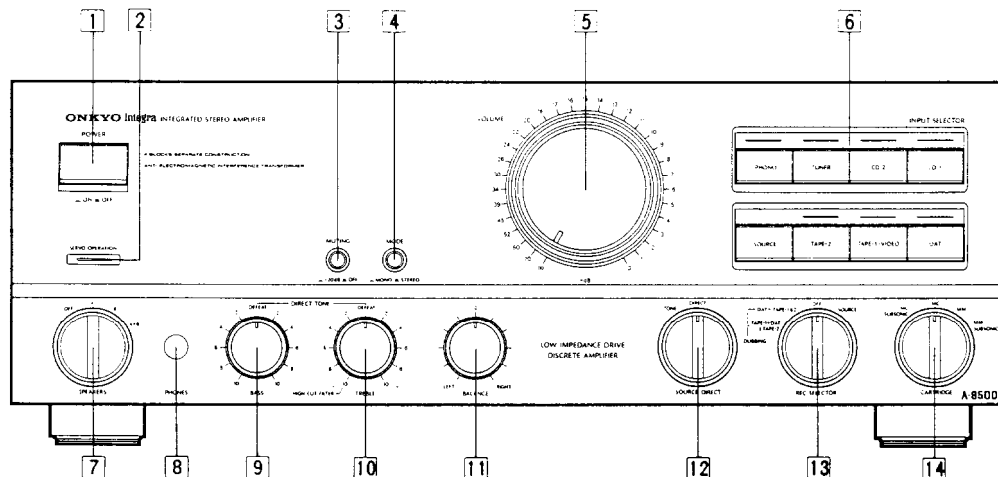
TA7317P (Protective circuit)



NJM4560DX (O.P Amp)



# FRONT PANEL FACILITIES



1. Power switch (POWER)
2. Servo operation indicator (SERVO OPERATION)
3. Muting switch (MUTING)
4. Mode selector switch (MODE)  
STEREO, MONO
5. Volume control (VOLUME)
6. Input selector and Indicators (INPUT SELECTOR)  
PHONO, TUNER, CD-2, CD-1, SOURCE,  
TAPE-2, TAPE-1/VIDEO, DAT
7. Speaker selector switch (SPEAKERS)  
OFF, A, B, A+B
8. Headphone jack (PHONES)
9. Bass control (BASS)
10. Treble control (TREBLE)
11. Balance control (BALANCE)
12. Source direct switch (SOURCE DIRECT)  
TONE, DIRECT
13. Recording source selector switch (REC SELECTOR)  
TAPE-1→DAT & TAPE-2/DAT→TAPE-1 & 2  
OFF  
SOURCE (PHONO, TUNER, CD-1 or CD-2)
14. Cartridge selector switch (CARTRIDGE)  
MC SUBSONIC, MC, MM, MM SUBSONIC

# ADJUSTMENT PROCEDURES

## Adjustments and Checking the Protection Circuitry

### 1. Preparations

- 1) Place the unit on the workbench. (There should be about 15 mm of space between the base plate of the unit and the work surface.)
- 2) Set up the unit as follows.
  - (1) No load
  - (2) No signal
  - (3) Volume turned all the way down
  - (4) Speaker switch OFF
  - (5) Power switch OFF

Note) Check the following points before making adjustments

- (1) The power switch should be OFF.
- (2) The interior of the unit should not be warm.

### 2. Idling current adjustment

- 1) Turn the power switch ON and allow the unit to warm up for about 10 minutes.
  - (1) Adjust R535 (R635) so that the voltage at test point VCT-IID on the NAAF-3601 circuit board is  $15\text{mV} \pm 5\text{mV}$ .

Note) Semi-fixed resistors enclosed in parentheses ( ) are for the right channel.

### 3. Check of operation of protection circuitry

- 1) Check of operation of protection relay
  - (1) Confirm that the relay turns ON approximately 5 seconds after the power switch is turned ON.
  - (2) The SERVO indicator LED should light at the same time.
  - (3) The relay should turn OFF approximately 0.5 seconds after the power switch is turned OFF.
- 2) Check of DC detection and servo circuitry operation
  - (1) Turn the power on with no load.
  - (2) After the speaker relay turns ON, apply DC+200mV to the CD input terminals. Confirm that the relay turns OFF.
  - (3) Confirm that operation is the same as (2) above when an input of DC-200mV is applied.

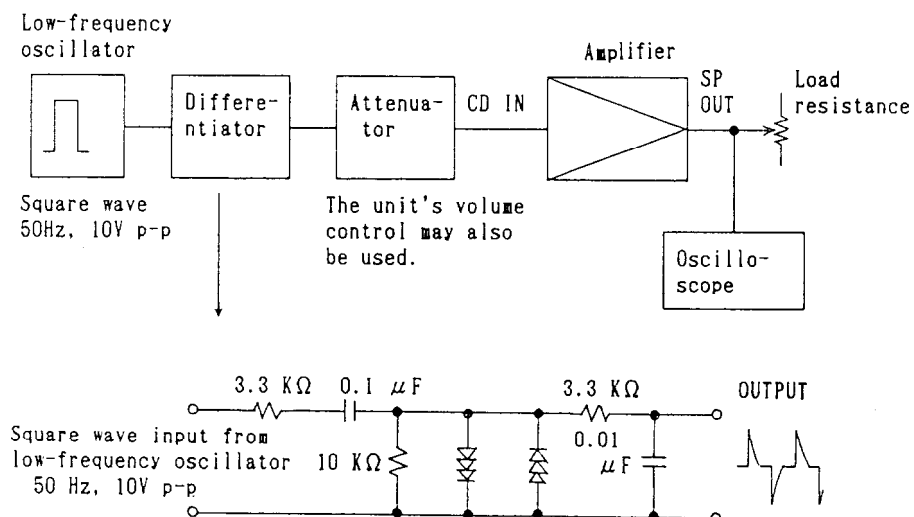
Note) Under no circumstances connect a load or short the speaker terminals when performing the above test.

3) Signal input from the circuit illustrated below with no load.

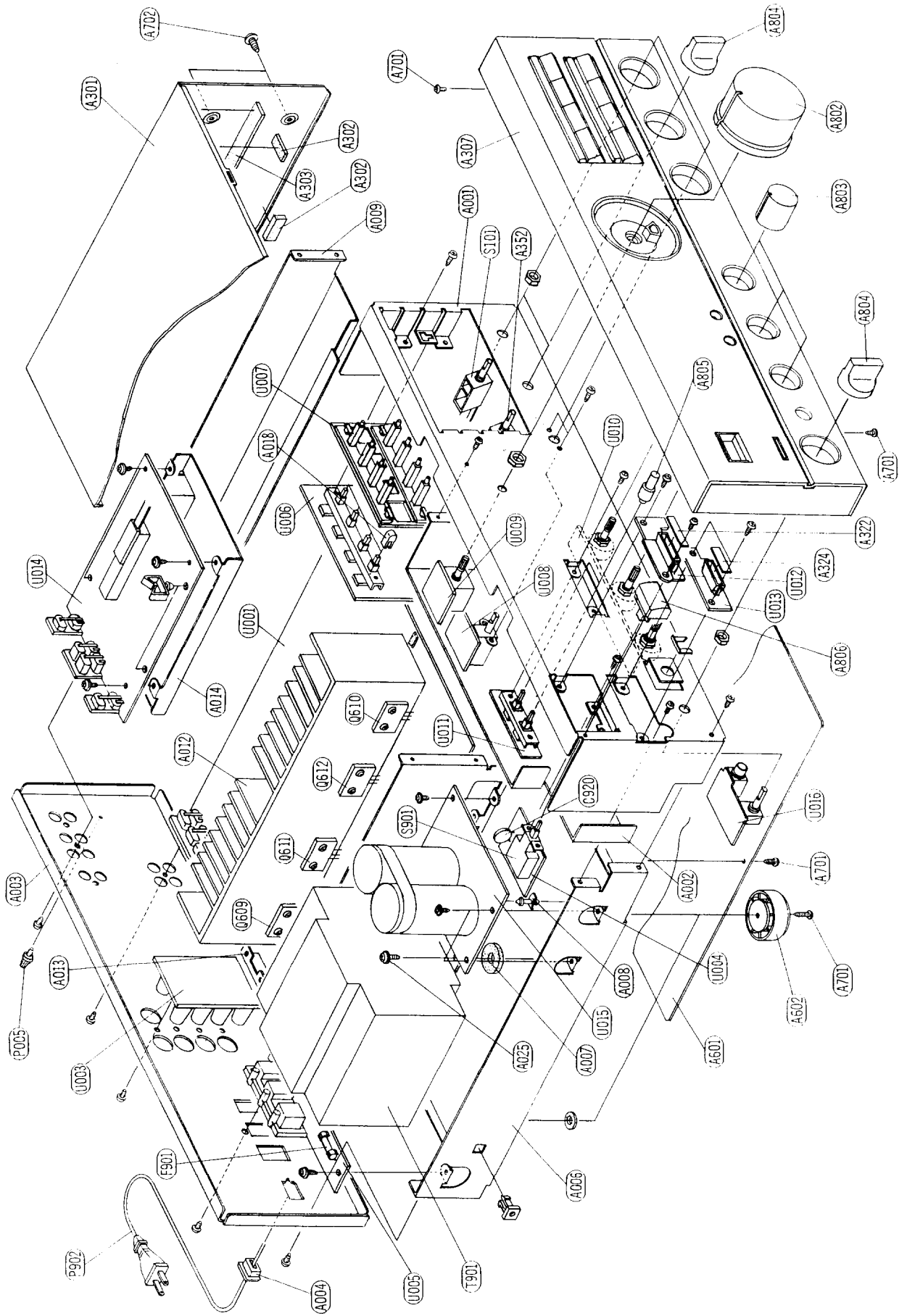
- (1) Confirm that the speaker relay does not turn OFF even when a 2 ohm load is connected when a peak value of 30V p-p is output.
- (2) Next, confirm that when a 1 ohm load is connected the speaker relay switches OFF and ON a couple of times and then stays OFF.

Note) The period before that relay stays OFF should not last for more than 1 minute.

Relay OFF status can be canceled by switching the power OFF.



# CHASSIS-EXPLODED VIEW



# CHASSIS-EXPLODED VIEW-PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
A001	27110504	FRONT BRACKET	△ S901	25035550	NPS-111-L512P, POWER SWITCH
A002	27150273	SHIELD PLATE	△ S902	25065123	NSS-1258P, SLIDE SWITCH [W]
A003	27121272A	BACK PANELL [D]	△ C920	3500065A	0.01μF, AC400V/125V
A003	27121272-1A	BACK PANELL [G]	P005	25060044	GROUND TERMINAL
A003	27121272-3A	BACK PANELL [W]	△ P902	253123 or	AS-UC-6 #18 or [D]
A003	27121272-4	BACK PANELL [A][B]		253136 or	AS-UC-6 #18 or [D]
A004	27300750	BUSHING (CABLE)		253140 or	AS-UC-6 #18 or [D]
A006	27130579-1B (27130579B) (27190317)	BRACKET ASS'Y (LEFT) BRACKET (L) HOLDER (S)	△ P902	253148 or	AS-UC-6 #18, POWER SUPPLY CABLE [D] AS-CEE or [G]
A007	27270213	SPACER (PT)		253150	AS-CEE, POWER SUPPLY CABLE [G]
A008	27190607	KGLS-16S, HOLDER			
A009	27130580-1A (27130580A) (27190717)	BRACKET ASS'Y (RIGHT) BRACKET (R) HOLDER (S)	△ P902	253092-1A	AS-CEE-2, POWER SUPPLY CABLE [W]
A012	27160242	HEATSINK	△ P902	253118	AS-SAA, POWER SUPPLY CABLE [A]
A013	27141334	BRACKET (H)	△ P902	728320 or	2-0.75BS16 BLK/GRY or [B]
A014	27130581	BRACKET (EQ)		728328	2-0.75BS16 BLK/GRY, POWER SUPPLY CABLE [B]
A018	27273120	JOINT (S)			
A025	830440109	4TTC+10CBC, TAP-TIGHT SCREW	△ F901	252051	6A ST-6, FUSE [D][W]
A301	28184441A	TOP COVER	△ F902	252076 or	3.15A-SE-EAK or [G][W][A][B]
A302	28140020	CUSHION		252076CC	3.15A-SE-EAK, FUSE [G][W][A][B]
A303	28140695	CUSHION	U001	1A177501-1	NAAF-3601-1, MAIN CIRCUIT PC BOARD ASS'Y
A304	28140782	CUSHION			
A308	1A175121 (28125204) (28125205) (27265182A) (27265185) (27265186) (27267608) (27267569A) (28198695) (28198719) (28323721B)	FRONT PANEL ASS'Y END CAP (L) END CAP (R) COSMETIC RING (VOL) COSMETIC RING (TONE) COSMETIC RING (SP) GUIDE (PUSH) GUIDE (POW) FACET (POW) FACET (MUT) KNOB ASS'Y (SEL)	U003	1A175503-1	NAETC-3603-1, SPEAKER TERMINAL PC BOARD ASS'Y
A322	28199174	FILM	U004	1A175504-1	NASW-3604-1, POWER SWITCH PC BOARD ASS'Y [D]
A324	28199181	FILM	U004	1A175504-1A	NASW-3604-1A, POWER SWITCH PC BOARD ASS'Y [G][W][A][B]
A601	27170262B	BOTTOM BOARD	U005	1A175505-1	NAETC-3605-1, FUSE PC BOARD ASS'Y [D]
A602	27175227 (28140949)	BOTTOM LEG FELT	U005	1A175505-1A	NAETC-3605-1A, FUSE PC BOARD ASS'Y [G][A][B]
A603	28140761	CUSHION (BOTTOM BOARD)	U005	1A175505-1B	NAETC-3605-1B, FUSE PC BOARD ASS'Y [W]
A701	834430088	3TTS+8BBC, TAP-TIGHT	U006	1A175507-1	NASW-3607-1, INPUT SELECTOR SWITCH PC BOARD ASS'Y
A702	838440108	4TTB+10CBC, TAP-TIGHT	U007	1A175508-1	NADIS-3608-1, INPUT LED PC BOARD ASS'Y
A802	28323760	KNOB (VOL)	U008	1A175509-1	NASW-3609-1, SOURCE DIRECT SWITCH PC BOARD ASS'Y
A803	28323549	KNOB (TONE)	U009	1A175510-1	NAAF-3610-1, VOLUME CONTROL PC BOARD ASS'Y
A804	28323763	KNOB (SP), SCREW UP TYPE	U010	1A175511-1	NAAF-3611-1, TONE CONTROL CIRCUIT PC BOARD ASS'Y
(A804)	28323762	KNOB (SP), INSERT TYPE	U011	1A175512-1	NASW-3612-1, MUTING/MODE SWITCH PC BOARD ASS'Y
A805	(27180431) 28323545-1	SPRING (KNOB) KNOB (PA)	U012	1A175513-1	NADIS-3613-1, POWER LED PC BOARD ASS'Y
A806	28323175	KNOB (POW)	U013	1A175514-1	NADIS-3614-1, SERVO LED PC BOARD ASS'Y
Q609, Q610	2201803 or 2201806 or 2201804	2SC3857-O or 2SC3857-P or 2SC3857-Y, TRANSISTOR	U014	1A175517-1	NAAF-3617-1, EQUALIZER CIRCUIT PC BOARD ASS'Y
Q611, Q612	2201793 or 2201796 or 2201794	2SA1493-O or 2SA1493-P or 2SA1493-Y, TRANSISTOR	U015	1A175520-1	NAPS-3620-1, POWER SUPPLY PC BOARD ASS'Y
△ T901	2300456A	NPT-1039D, POWER TRANSFORMER [D]	U016	1A175502-1	NASW-3602-1, SPEAKER SWITCH PC BOARD ASS'Y
△ T901	2300457A	NPT-1039G, POWER TRANSFORMER [G]			
△ T901	2300458	NPT-1039DG, POWER TRANSFORMER [W]			
△ T901	2300459A	NPT-1039Q, POWER TRANSFORMER [A][B]			
△ S101	25030312A	NRSF-104-20BU, CARTRIDGE SWITCH			
S352	25030314B	NRSF-104-20BU, REC-SELECTOR SWITCH			

NOTE [D]: ONLY 120V MODELS  
[G]: ONLY 220V MODELS  
[W]: ONLY 120V/220V MODELS  
[A]: ONLY AUSTRALIAN MODEL  
[B]: ONLY BRITISH MODELS

NOTE: THE COMPONENTS IDENTIFIED BY MARK △  
ARE CRITICAL FOR RISK OF FIRE AND ELEC-  
TRIC SHOCK. REPLACE ONLY WITH PARTS  
NUMBER SPECIFIED.



# PRINTED CIRCUIT BOARD PARTS LIST

## MAIN CIRCUIT PC BOARD (NAAF-3601-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>ICs</b>	
Q519, Q520	222570	NJM4560DX
Q851	222584	TA7317P
	<b>Transistors</b>	
Q501, Q502	2212805 or 2212806 or	2SK389GR or 2SK389BL or
Q503~Q506	2211733 or 2211732	2SC1845E or 2SC1845F
Q507, Q508,	2211515 or 2211516	2SA995F or 2SA995G
Q511, Q512	2211455 or 2211454	2SA1015GR or 2SA1015Y
Q513, Q514	2211354 or	2SA949Y or
Q603, Q604	2211353	2SA949O
Q902		
Q517, Q518	2211255 or 2211256	2SC1815GR or 2SC1815BL
Q581~Q584	2211634 or	2SC2229Y or
Q601, Q602	2211633	2SC2229O
Q617, Q618		
Q901		
Q587, Q588	2211792 or	2SA992F or
Q619, Q620	2211793	2SA992E
Q605, Q606	2202034 or 2202035	2SD1763AD or 2SD1763AE
Q607, Q608	2202024 or 2202025	2SB1186AD or 2SB1186AE
Q852	2211504	2SA950Y
Q903, Q904	2211945	2SK246GR
	<b>Diodes</b>	
D505~D508	225251	TLR112, LED
D517~D520		
D511~D516	223163	1SS133
D851, D852		
D854		
D853	224450623	MTZ6.2C, Zener
D901, D902	224452204	MTZ22D, Zener
	<b>Coils</b>	
L601, L602	231134S	S-0.8E
	<b>Capacitors</b>	
C501, C502	372126804	68 pF, 50V, Styrene
C509, C510	372121014	100 pF, 50V, Styrene
C511, C512	372123304	33 pF, 50V, Styrene
C513~C516	391252207	22 $\mu$ F, 25V, Elect. (MUSE)
C523, C524	354772209	22 $\mu$ F, 6.3V, Elect.
C525, C526	379122235	0.022 $\mu$ F, 50V, Film (DEW)
C527, C528	374794734	0.047 $\mu$ F, 63V, Film (TF)
C609, C610		
C531, C532	354790479	4.7 $\mu$ F, 100V, Elect.
C607, C608	374791044	0.1 $\mu$ F, 63V, Film (TF)
C613~C616		
C851	354722219	220 $\mu$ F, 6.3V, Elect.
C852	354742209	22 $\mu$ F, 16V, Elect.
C853	354784799	0.47 $\mu$ F, 50V, Elect.
C855	354743319	330 $\mu$ F, 16V, Elect.
C901, C902	354772219	220 $\mu$ F, 63V, Elect.
C903, C904	354761019	100 $\mu$ F, 35V, Elect.
C905, C906	354754719	470 $\mu$ F, 25V, Elect.
C911, C912	354782219	220 $\mu$ F, 50V, Elect.
C934	354742219	220 $\mu$ F, 16V, Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Resistors</b>	
R523, R524	442520684	6.8 $\Omega$ , 1/2W Metal oxide film
R527, R528	441624734	47 k $\Omega$ , 1W, Metal oxide film
R535, R536	5210062 or 5210216	N06HR4.7KBD or N06HR5KBD, Semi-fixed
R581, R582	442523014	300 $\Omega$ , 1/2W, Metal oxide film
R583, R584	442523614	360 $\Omega$ , 1/2W, Metal oxide film
R601, R602	442522224	2.2k $\Omega$ , 1/2W, Metal oxide film
R603, R604	442522214	220 $\Omega$ , 1/2W, Metal oxide film
R607~R610	442520224	2.2 $\Omega$ , 1/2W, Metal oxide film
R619~R622		
R627~R630		
R615~R618	4000063	0.47 $\Omega$ , 2W, Metal plate
R623~R626		
R633, R634	441720824	8.2 $\Omega$ , 2W, Metal oxide film
R645, R646	442525614	560 $\Omega$ , 1/2W, Metal oxide film
R905, R906		
R647, R648	442526224	6.2k $\Omega$ , 1/2W, Metal oxide film
R875, R876	441623914	390 $\Omega$ , 1W, Metal oxide film
R901, R902	441621304	13 $\Omega$ , 1W, Metal oxide film
	<b>Switch</b>	
S352a	25065367	NSS-64140, Slide
	<b>Relay</b>	
RL851, RL852	25065275	NRL-2P5A-DC12-38
	<b>Terminals</b>	
P291~P293	25045165	NPJ-4PDBL59
	<b>Plug</b>	
P501a	25055133	NPLG-3P117
	<b>Socket ass'y</b>	
P752	2009990003	NSAS-06P0007
P753	2009990004	NSAS-06P0008
	<b>Jumper socket</b>	
JL212	25050273	NSCT-9P101
JL315, JL951	25050267	NSCT-3P95
JL958		
JL957	25050273	NSCT-9P101
	<b>Bracket</b>	
	27141059	
	27300877	Plate, bus
	<b>Clamp</b>	
	27301186	MSA-1606, Holder clamp
	27300833	WS-2NS

## SPEAKER SWITCH CIRCUIT PC BOARD (NASW-3602-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Diode</b>	
D855	223163	1SS133
	<b>Switch</b>	
S851	25030311A	NRSF-124-25BU
	<b>Relay</b>	
RL853	25065174	NRL-2P1A-DC12-09
	<b>Stereo jack</b>	
P851	25045164	HLJ4317-01-3020
	<b>Shield plate</b>	
	27150208	

**SPEAKER TERMINAL PC BOARD (NAETC-3603-1)-PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Terminal</b>	
P751	25060138	NTM-8PDMN066

**POWER SWITCH PC BOARD (NASW-3604-1, NASW-3604-1A)-PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Capacitor</b>	
C920	3500065A	0.01 $\mu$ F, AC400V/125V, Capacitor
	<b>Switch</b>	
S901	25035550	NPS-111-L512P

**FUSE PC BOARD (NAETC-3605-1, NAETC-3605-1A, NAETC-3605-1B)-PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Socket ass'y</b>	
P921	2009990005	NSAS-04P0009 [D]
	<b>Fuse holder</b>	
F901a	250113	S-N5051 [D][W]
F902a	25050065	YSH403T [G][W][A][B]
	<b>Socket</b>	
P901	25050388	NSCT-6P215, AC outlet [D]

**INPUT SELECTOR SWITCH PC BOARD (NASW-3607-1)-PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Switches</b>	
S301, S305	25035613	NPS-442-L575
	<b>Socket ass'y</b>	
P102	2000557	NSAS-6P513
P311	2009990018	NSAS-6P0042
P312	2009990017	NSAS-6P0041
P314	2000896	NSAS-6P852
P953	2009990007	NSAS-16P0011
	<b>Jumper cable</b>	
JL212	2050014	NCS9P2E37

**INPUT LED PC BOARD (NADIS-3608-1)-PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Diodes</b>	
D201~D207	225137DG or 225137DY or 225137CG	SEL2413E-DG or SEL2413E-DY or SEL2413E-CG, LED
	<b>Holder</b>	
	27190530	Holder (LED-4)

**SOURCE DIRECT SWITCH PC BOARD (NASW-3609-1)-PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Switch</b>	
S353	25030313B	NRSF-142-20SS
	<b>Sockets ass'y</b>	
P501	2009990002	NSAS-08P0006
P362	2009990019	NSAS-14P0043

**VOLUME CONTROL PC BOARD (NAAF-3610-1)-PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Resistor</b>	
R321	5144010	N16RQM50KBT25, Variable

**STONE CONTROL CIRCUIT PC BOARD (NAAF-3611-1)-PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Capacitors</b>	
C301~C304	374721635	0.016 $\mu$ F, 50V, Film (TF)
C305, C306	374721825	1800 pF, 50V, Film (TF)
C307, C308	374728234	0.082 $\mu$ F, 50V, Film (TF)
	<b>Resistors</b>	
R301	5148107A	N16RGMC250KMN25, Variable
R302	5142002	N16RGM11C100K25, Variable
R303	5144011	N16RQM11C70K88K25, Variable

**MUTING/MODE SWITCH PC BOARD (NASW-3612-1)-PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Switch</b>	
S331, S332	25035601	NPS-222-L565

**POWER LED PC BOARD (NADIS-3613-1)-PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Diodes</b>	
D911, D912	225142DX2	SEL2913K-DX2, LED
	<b>Jumper socket</b>	
JL955	25050267	NSCT-3P95
	<b>Holder</b>	
	27190678	Holder, LED

**SERVO LED PC BOARD (NADIS-3614-1)-PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Diodes</b>	
D881	225137DG or 225137DY or 225137CG or 225137CY	SEL2413E-DG or SEL2413E-DY or SEL2413E-CG or SEL2413E-CY, LED
	<b>Holder</b>	
	27190679	Holder, LED

## EQUALIZER CIRCUIT PC BOARD (NAAF-3617-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>ICs</b>		
Q105, Q106	222570	NJM4560D-X
Q109	222780183	78L18
Q110	222790183	79L18
<b>Transistors</b>		
Q101, Q102	2211535 or 2211536	2SK146GR or 2SK146BL
<b>Capacitors</b>		
C105, C106	372121214	120 pF, 50V, Styrene
C111, C112	379122024	2000 pF, 50V, Film (DEW)
C123, C124		
C113~C116	379122434	0.024 $\mu$ F, 50V, Film (DEW)
C117, C118	379124334	0.043 $\mu$ F, 50V, Film (DEW)
C119~C122	391251017	100 $\mu$ F, 25V, Elect. (MUSE)
C129, C130	354780109	1 $\mu$ F, 50V, Elect.
C147, C148	354764719	470 $\mu$ F, 35V, Elect.
C151, C152	354754719	470 $\mu$ F, 25V, Elect.
<b>Resistor</b>		
R152	442525604	56 $\Omega$ , 1/2W, Metal oxide film
<b>Switch</b>		
S101	25065366	NSS-84139, Slide
<b>Terminals</b>		
P101	25045180	NPJ-2PDBL70
P201	25045165	NPJ-4PDBL59
P202	25045182	NPJ-2PDBL72
<b>Jumper socket</b>		
JL959	25050268	NSCT-4P96

## POWER SUPPLY PC BOARD (NAPS-3620-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Diodes</b>		
D921~D924	22380012	HER303F
D925, D926	22380003	1N5402F
D931, D932	22380013	RDF02M
<b>Capacitors</b>		
C921, C922	3504209A	12000 $\mu$ F, 63V, Elect.
C923, C924	374503345	0.33 $\mu$ F, 125V, Elect. (ME)
C925	374504745	0.47 $\mu$ F, 125V, Elect. (ME)
C931, C932	379122235	0.022 $\mu$ F, 50V, Film (DEW)
C933	354744719	470 $\mu$ F, 16V, Elect.
C935, C936	379121035	0.01 $\mu$ F, 50V, Film (DEW)
C937, C938	354764719	470 $\mu$ F, 35V, Elect.
<b>Resistors</b>		
R151	442525604	56 $\Omega$ , 1/2W, Metal oxide film
R923	442525104	51 $\Omega$ , 1/2W, Metal oxide film
R931	442520104	1 $\Omega$ , 1/2W, Metal oxide film
R932~R933	442522294	0.22 $\Omega$ , 1/2W, Metal oxide film
<b>Bracket</b>		
	27301212	Bus

[D]: Only 120V models  
 [G]: Only 220V models  
 [W]: Only 120V/220V models  
 [A]: Only Australian models  
 [B]: Only British models

# PARTS LIST OF PACKING

REF. NO.	PART NO.	DESCRIPTION
A851	29051932	MASTER CARTON BOX
A852	29091125-1D	PAD, LEFT
A853	29091126-1D	PAD, RIGHT
A854	261504	PAPER TAPE
A866	29100063	500 × 750, POLY-VINYL BAG
A867	282301	SEALING HOOK
A868	260012 OR	DAMPLON TAPE (W=50) OR
	29110071-1	DAMPLON TAPE (W=50)
	29360778	LABEL (FLASH) [N]
	29380054	AC COARD TAG [B]
	29360863	LABEL (CAUTION) [B]
ACCESSORY BAG		
29341429	INSTRUCTION MANUAL [D][N]	
29341430	INSTRUCTION MANUAL [G][A][B]	
29341430	INSTRUCTION MANUAL [W]	
29365019	WARRANTY CARD [N]	
29365022	WARRANTY CARD [B]	
29358002G	SERVICE STATION LIST [N]	
25055018	CV-K-1, CONVERSION PLUG [W]	
29100006A	350 × 250, POLY-VINYL BAG	

NOTE [D]: ONLY 120V MODELS  
 [G]: ONLY 220V MODELS  
 [W]: ONLY 120V/220V MODELS  
 [N]: ONLY U.S.A. MODELS  
 [A]: ONLY AUSTRALIAN MODELS  
 [B]: ONLY BRITISH MODELS

# SYSTEM CONNECTIONS

Do not plug in the power cord until all connections have been made.

Ground connection is not necessary for turntables without ground leads.

