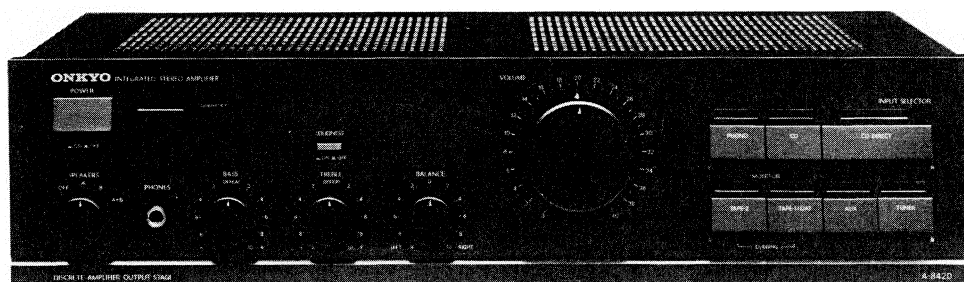


ONKYO® SERVICE MANUAL

Integrated Stereo Amplifier MODEL A-8420



UG

220V AC, 50Hz

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:	40 watts per channel, min RMS, at 8 ohms, both channels driven from 20 Hz to 20 kHz, with no more than 0.08% THD.
Total Harmonic Distortion	0.08% at 40 watts
IM Distortion	0.08% at 40 watts
Damping Factor:	40 at 8 ohms
Frequency and Response.	15–30,000 Hz ± 1 dB
Sensitivity and Impedance	Phono: 2.5 mV/50 kohms
	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, 0.08% THD
Bass Control:	± 10 dB at 100 Hz
Treble Control:	± 10 dB at 10,000 Hz
Signal to Noise Ratio:	Phono: 80 dB (IHF A), 5 mV input
	CD & Tape: 95 dB (IHF A)
Loudness Control:	+7 dB at 70 Hz/+5 dB at 10 kHz
General	
Power Supply:	AC220V, 50Hz
Dimensions (W x H x D):	435 x 110 x 272 mm
	17-1/8" x 4-5/16" x 10-11/16"
Weight:	6.2 kg, 13.7 lbs.

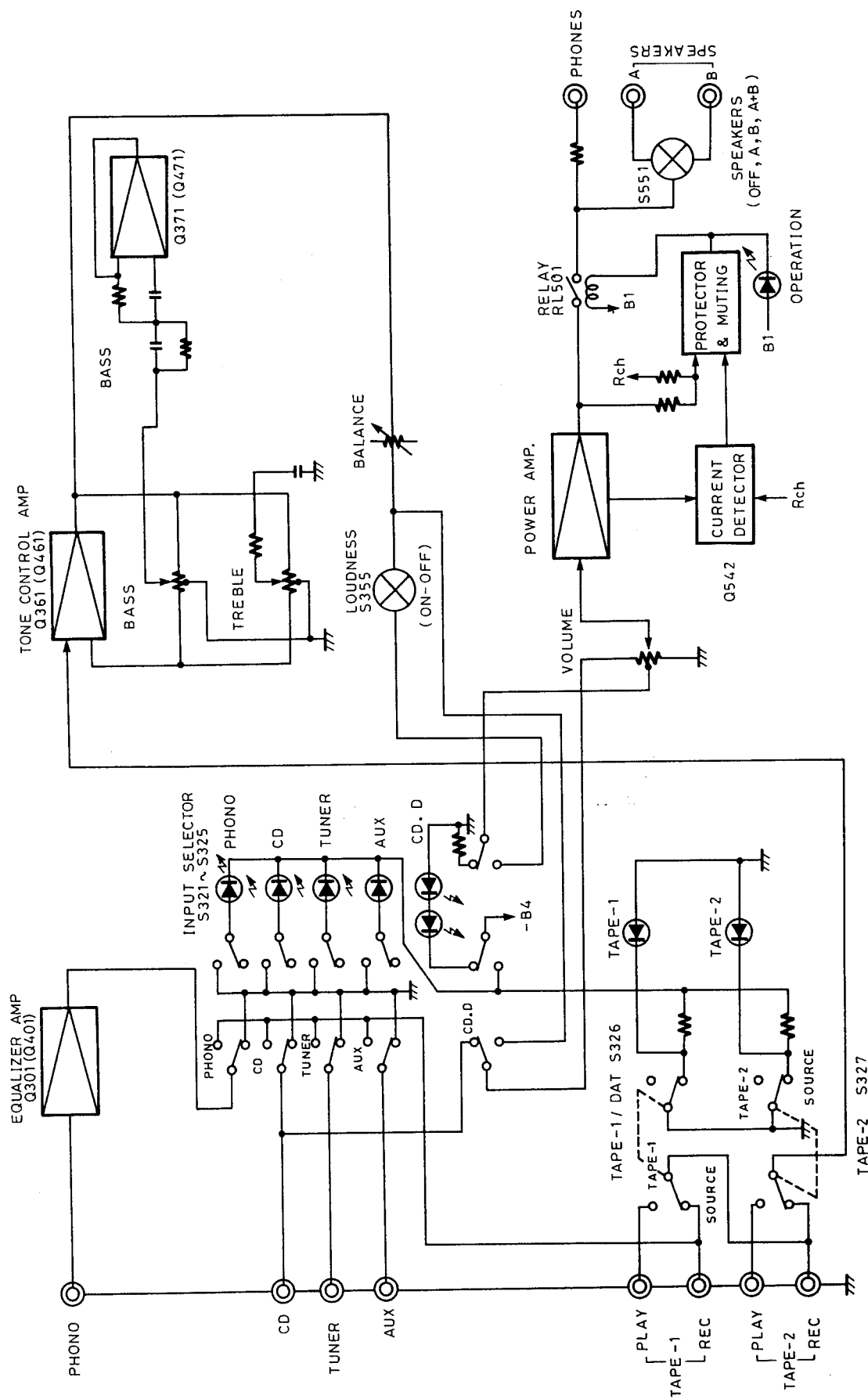
PRECAUTIONS

1. Replacing the fuses

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

CIRCUIT NO.	PART NO.	DESCRIPTION
F902	252074 or	2 A-SE-EAK Primary fuse
	252074CC	2 A-SE-EAK Primary fuse
F911, F912	252078 or	5A-SE-EAK, Secondary fuse
	252078CC	5A-SE-EAK, Secondary fuse

BLOCK DIAGRAM



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

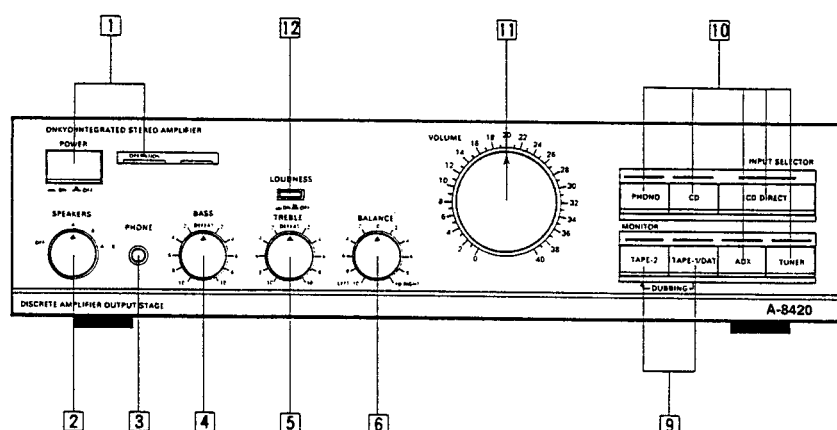
- 1) Turn ON the power switch, and leave the unit as is for about 5 minutes.
- 2) Adjust the semi-fixed resistor R513 (R613) so that the voltage between the terminals V_{CT} and I_{IO} of the printed circuit board NAAF-2956 is 7.5mV.

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.

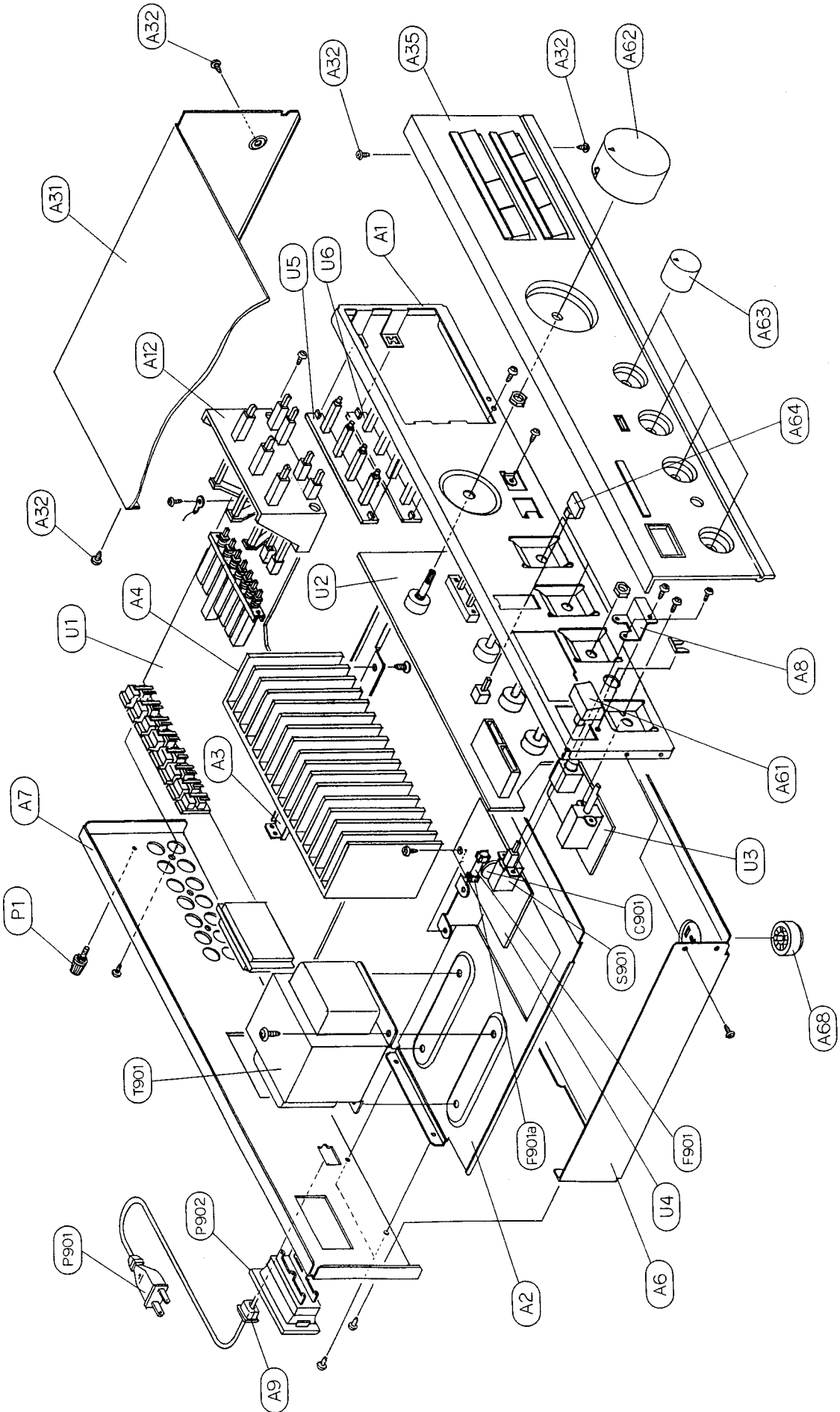
Caution: During this test, there should be absolutely no load connected and the load terminals must not be shorted.

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)
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

CHASSIS-EXPLODED VIEW



CHASSIS-EXPLODED VIEW PARTS LIST

REF. NO.	PART NO.	DESCRIPTION				
A1	27110360A	FRONT BRACKET		F911, F912	252078 or	FUSE 5A-SE-EAK or
A2	27130471	BRACKET (PT)			252078CC	FUSE 5A-SE-EAK
A3	27130472	BRACKET (H)	⚠	F902a	25050065	FUSE HOLDER, YSH403T
A4	27160205	HEATSINK		P1	25060044	TERMINAL (GROUND)
A6	27100130B	CHASSIS	⚠	P2	25060092	TERMINAL (POWER SUPPLY)
A7	27120996	BACK PANEL	⚠	T901	2300214	POWER TRANSFORMER,
A8	27141124	BRACKET (POW)				NPT-958G
A9	27300750	BUSHING (CORD)		U1	1A018556-2A	NAAF-2956-2A, MAIN CIRCUIT
A12	27273070B	JOINT AS				PC BOARD ASS'Y
A31	28184360A	TOP COVER		U2	1A018557-2A	NAETC-2957-2A, EQUALIZER
A31	28184361A	TOP COVER [BLACK]				& TONE CONTROL CIRCUIT
A32	834430088	TAP-TIGHT SCREW 3TTS+8BBC				PC BOARD ASS'Y
A35	1A020121	FRONT PANEL		U3	1A018558-2	NASW-2958-2, SPEAKER
A35	1A019121	FRONT PANEL [BLACK]				SWITCH CIRCUIT PC BOARD
A61	28322796	KNOB (POW)				ASS'Y
A61	28322795A	KNOB (POW) [BLACK]		U4	1A018559-2A	NAPS-2959-2A, POWER SWITCH
A62	28323021	KNOB (VOL)				CIRCUIT PC BOARD ASS'Y
A62	28323022	KNOB (VOL) [BLACK]		U5	1A018560-2	NADIS-2960-2, DISPLAY LED
A63	28323023	KNOB (TONE)				PC BOARD ASS'Y
A63	28323024	KNOB (TONE) [BLACK]		U6	1A018561-2	NADIS-2961-2, DISPLAY LED
A64	28323025A	KNOB (PUSH)				PC BOARD ASS'Y
A64	28323026A	KNOB (PUSH) [BLACK]				
A68	27175142	LEG				
Q509, Q609	2201783 or	2SC3854-O or				
	2201784 or	2SC3854-Y or				
	2201786	2SC3854-P				
Q510, Q610	2201773 or	2SA1490-O or				
	2201774 or	2SA1490-Y or				
	2201776	2SA1490-P				
⚠ S901	25035398	POWER SWITCH, NPS-111-L362P				
⚠ C901	3500065A	0.01μF, AC400V/125V				
⚠ P901	253130A or	AC CORD AS-CEE or				
	253128B	AC CORD AS-CEE				
⚠ F902	252074 or	FUSE 2A-SE-EAK or				
	252074CC	FUSE 2A-SE-EAK				

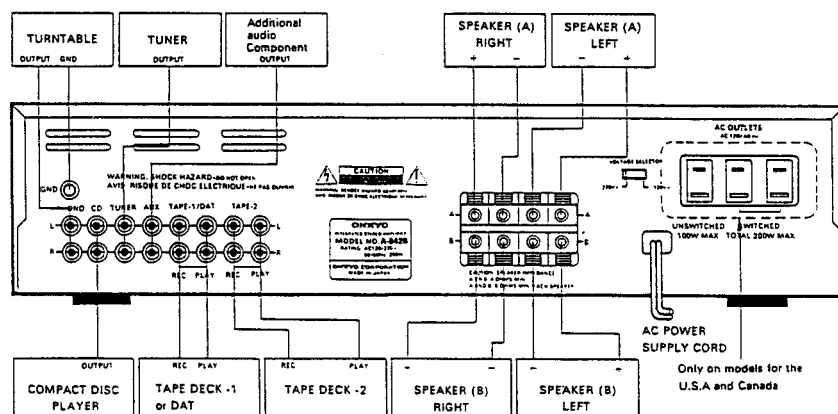
NOTE: [BLACK]: Only Black model

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

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SYSTEM CONNECTIONS



PRINTED CIRCUIT BOARD PARTS LIST

MAIN PC BOARD (NAAF-2956-2A) PARTS LIST

CIRCUIT NO. PART NO. DESCRIPTION

ICs		
Q701	222584	TA7317P
Transistors		
Q501, Q601	2211371 or 2211372	2SC2259 O-001 or 2SC2259 O-002
Q502, Q602	2211455 or 2210803	2SA1015 GR or 2SA733 P
Q503, Q541	2211732 or	2SC1845 F or
Q603, Q641	2211733	2SC1845 E
Q504, Q604	2211353 or 2211354	2SA949 O or 2SA949 Y
Q505, Q605	2211633 or 2211634	2SC2229 O 2SC2229 Y
Q506, Q606	2211255 or 2210746	2SC1815 GR 2SC945A P
Q507, Q607	2211653 or 2211654	2SC2235 O or 2SC2235 Y
Q508, Q608	2211643 or 2211644	2SA965 O or 2SA965 Y
Q542	2211792 or 2211793	2SA992 F or 2SA992 E
Diodes		
D501, D601	4000068	VD1222
D502, D503 D701	223163	1SS133
D911~D916	223897F or 22380003F	P300DL or 1N5402F
D917, D918	2239672 or 2243252	RD15EB2 or MTZ15B
D919~D921	223880F or 223896F	GP101N4003 or 1N4003F
Coils		
L321, L421	231074	NCH-0122
Capacitors		
C331	379122235	0.022 μ F, 50V, FILM (DEW)
C501, C601	354780229	2.2 μ F, 50V, Elect.
C502, C509 C602, C609	354721019	100 μ F, 6.3V, Elect.
C514, C614	371121044	0.1 μ F, 50V, Mylar
C515, C615	371124734	0.047 μ F, 50V, Mylar
C523, C524 C623, C624	354780339	3.3 μ F, 50V, Elect.
C527	354724719	470 μ F, 6.3V, Elect.
C547, C647	354783319	330 μ F, 50V, Elect.
C701	354782209	22 μ F, 50V, Elect.
C702	354784799	0.47 μ F, 50V, Elect.
C704	354744709	47 μ F, 16V, Elect.
C912, C913	3504207	6800 μ F, 50V, Elect.
C914, C915	354761019	100 μ F, 35V, Elect.

C916, C917	354742219	220 μ F, 16V, Elect.
C918	354780109	1 μ F, 50V, Elect.
C919	354782219	220 μ F, 50V, Elect.

Resistors

R511, R512 R611, R612 R513, R613	442529104F 5210013	91 Ω , 1/2W, Metal oxide film N06HR10KBDM, Semi-fixed variable
R516, R616 R519, R619 R520, R521 R620, R621	442522714F 441620104F 4000063	270 Ω , 1/2W, Metal oxide film 1 Ω , 1W, Metal oxide film 0.47 Ω , 2W, Metal plate
R523, R623 R531 R547, R647 R701 R702 R703 R704 R911, R912 R913, R914 R915 R916 R951~R954	442520824F 442525134F 441622204F 442521024F 441521224F 442521634F 442521534F 441624714F 441624314F 442520104F 442525634F 441622724F	8.2 Ω , 1/2W, Metal oxide film 51k Ω , 1/2W, Metal oxide film 22 Ω , 1W, Metal oxide film 1k Ω , 1/2W, Metal oxide film 1.2k Ω , 1/2W, Metal oxide film 16k Ω , 1/2W, Metal oxide film 15k Ω , 1/2W, Metal oxide film 470 Ω , 1W, Metal oxide film 430 Ω , 1W, Metal oxide film 1 Ω , 1/2W, Metal oxide film 56k Ω , 1/2W, Metal oxide film 2.7K Ω , 1W, Metal oxide film

Relay

RL501	25065134	NRL-2P5A-DC24-07
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Terminals

P321 P322, P323 P501	25045171 25045213 25060094	NPJ-4PDBL-65 NPJ-6PDBL-92 NTM-8P-DML35, Speaker
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Switches

S321~S327	25035562	NPS-162-642-L524
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Fuse holder

F911a, F912a	25050065	YSH403T
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EQUALIZER & TONE CONTROL CIRCUIT PC BOARD (NAETC-2957-2A) PARTS LIST

CIRCUIT NO. PART NO. DESCRIPTION

ICs		
Q301, Q401, Q361 Q461, Q371, Q471	22240050	μ PC4570C
Diodes		
D961	225137CG or 225137DG or 225137DY	SEL2413E-CG, LED SEL2413E-DG, LED SEL2413E-DY, LED
Capacitors		
C301, C401 C302, C402 C306, C406 C307, C407 C308, C408	354780229 354721019 371126224 371121824 354780229	2.2 μ F, 50V, Elect. 100 μ F, 6.3V, Elect. 6200pF, 50V, Mylar 1800 pF, 50V, Mylar 2.2 μ F, 50V, Elect.

C309, C310	391242217	220 μ F, 16V, Elect.(MUSE)
C356, C456	371123934	0.039 μ F, 50V, Mylar
C361, C362, C461 C462	354780479	4.7 μ F, 50V, Elect.
C365, C366, C378	354780339	3.3 μ F, 50V, Elect.
C379, C372, C472	354780109	1 μ F, 50V, Elect.
C373, C473	371123934	0.039 μ F, 50V, Mylar
C381, C481	371121834	0.018 μ F, 50V, Mylar
Resistors		
R381, (R481)	5104174	N16RGH100KBT20, Variable
R382	5104192	N16RHC250KW25Z, Variable
R383, (R483)	5104196	N16RGHC100KWT25Z, Variable
R387, (R487)		
Switch		
S352, S355	25035537	NPS-122-L499
Sockets		
P301, P304	2000557	NSAS-6P513
Holder		
	27190529	(LED-2)

SPEAKER SWITCH CIRCUIT PC BOARD (NASW-2958-2) PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
Coils		
L551, L651	231001S	S-1.3B
Resistors		
R551, R651	441620684F	6.8 Ω , 1W, Metal oxide film
R552, R652	441622714F	270 Ω , 1W, Metal oxide film
Switch		
S551	25030290	NRSF-144-25SS
Terminal		
P551	25045164	HLJ-4317-01-3020, Phones

POWER SWITCH PC BOARD (NAPS-2959-2A) PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
Capacitor		
C901	3500065A	0.01 μ F, AC400V/125V
Terminal		
P2	25060092	NTM-1S33
Switch		
S901	25035398	NPS-111-L362P
Fuse holder		
F902a	25050065	YSH403T
Label		
	29360626-1	(Fuse)
	29360364	T2A/250V (Fuse)

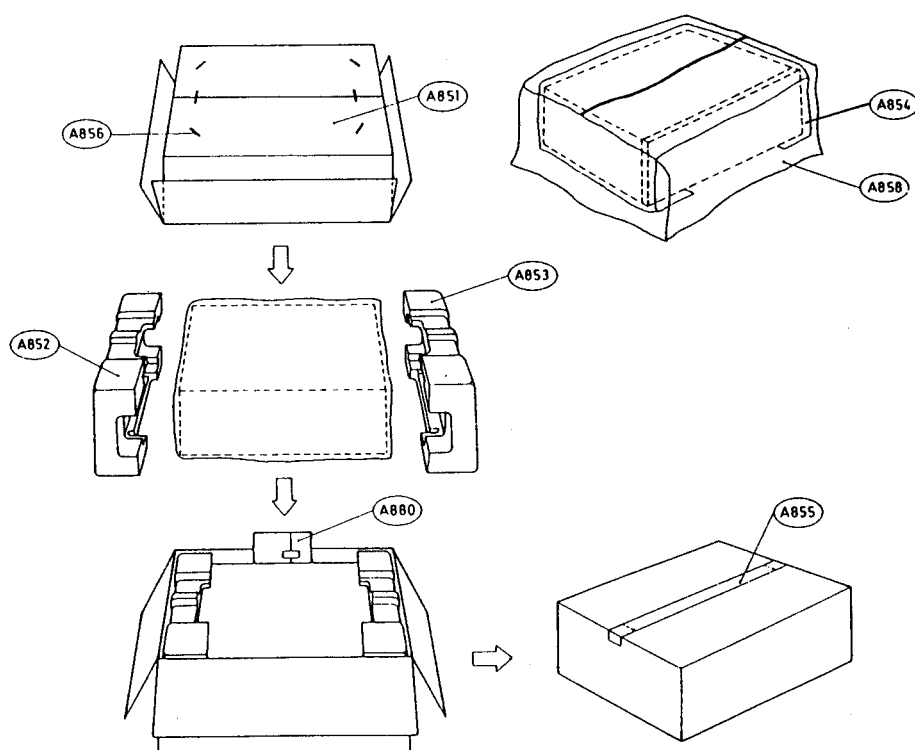
DISPLAY LED PC BOARD (NADIS-2960-2) PARTS LIST

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

DISPLAY LED PC BOARD (NADIS-2961-2) PARTS LIST

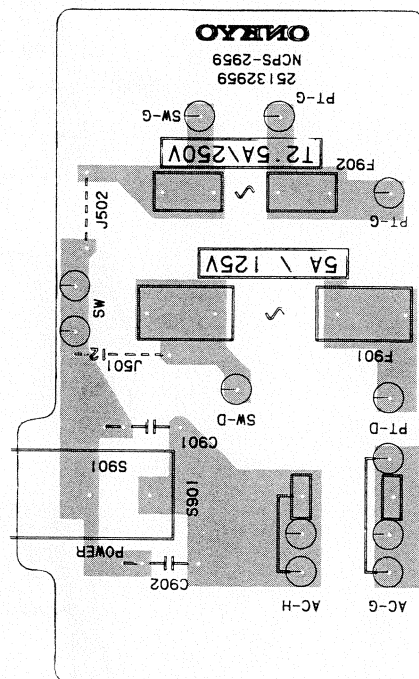
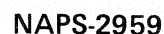
CIRCUIT NO.	PART NO.	DESCRIPTION
Diodes		
D955~D958	225137CG or 225137DG or 225137DY	SEL2413ECG or SEL2413EDG or SEL2413EDY
Holder		
	27190530	(LED-4)

PACKING PROCEDURES

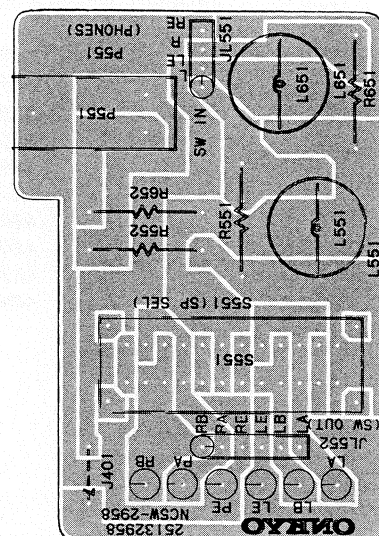


REF. NO.	PART NO.	DESCRIPTION
A851	29051532	MASTER CARTON BOX
A851	29051533	MASTER CARTON BOX [BLACK]
A852	29090987	PAD, LEFT
A853	29090988	PAD, RIGHT
A854	29095012-1	PROTECTION SHEET
A855	260012	DAMPLON TAPE
A856	282301	SEALING HOOK
A858	29100063	750X580, POLY BAG
A880	ACCESSARY BAG ASS'Y	
	29341150	INSTRUCTION MANUAL
	29365020	WARRANTY CARD
	29100006A	350X250, POLY BAG
	29100094	POLY BAG
	29355128	DBP CAUTION

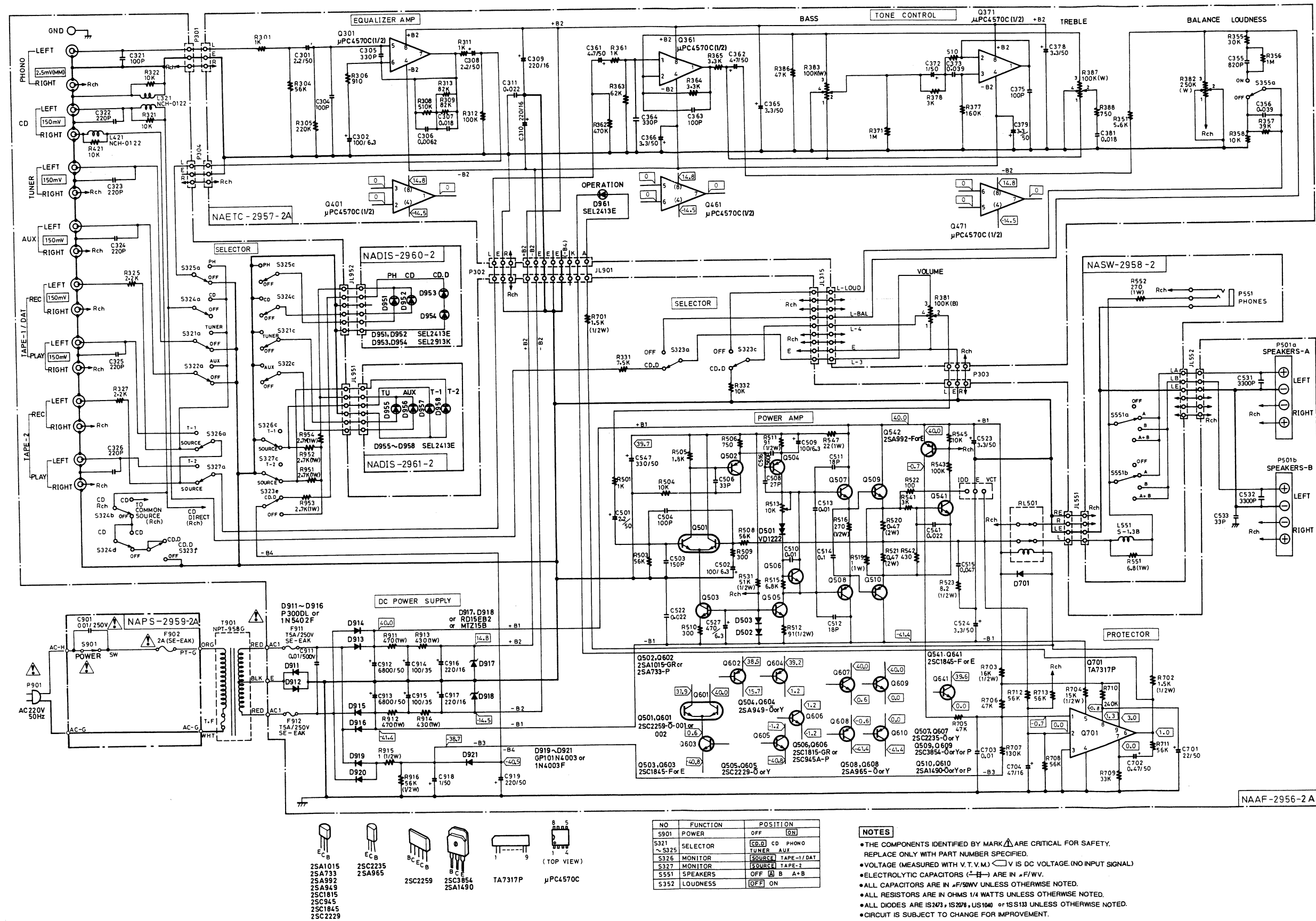
NOTE [BLACK]: ONLY BLACK MODEL



NASW-2958

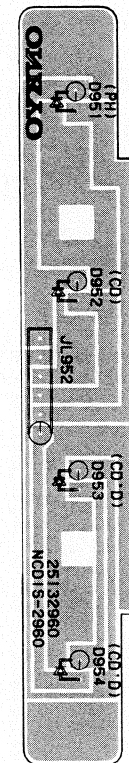


SCHEMATIC DIAGRAM



ONKYO CORPORATION

NADIS-2960



(T-2) D958 (T-1) D957 (AUX) D956 (TUN) D955

25132981
NCD 15-296

ONKYO

JL951

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