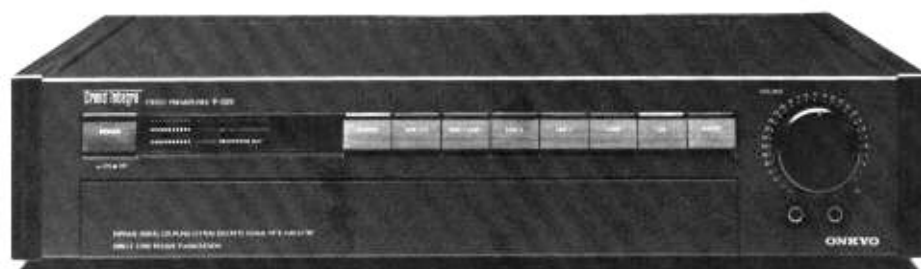


ONKYO SERVICE MANUAL

Stereo Preamplifier

MODEL P-308



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

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.

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ONKYO
AUDIO COMPONENTS

SPECIFICATIONS

Input Sensitivity and

Impedance:	PHONO MC: 160 μ V/(100/220) ohms
	PHONO MM: 2.5m/(47 kohms/100 kohms)
	CD, TUNER, LINE, TAPE PLAY: 150mV/20 kohms

Rated Output and

Impedance:	TAPE REC: 150mV/1.2 kohms (PHONO)
	OUTPUT: 1.0V/160 ohms Max. 6V

RIAA Deviation: ± 0.2 dB, 20–20,000Hz

Frequency Response

(CD, TUNER, LINE, TAPE): +0, –3dB, 0.8Hz – 170kHz

Phono Overload: PHONO MM: 210mV RMS at 1kHz, THD 0.05%
PHONO MC: 13mV RMS at 1kHz, THD 0.05%

Total Harmonic

Distortion: 0.0008% at PHONO MM, 3V output
0.003% at PHONO MC, 3V output
0.0005% at CD, TUNER, LINE and TAPE, 3V output

Intermodulation

Distortion (CD): 0.003% (70Hz: 7kHz = 4:1)

Signal-to-Noise Ratio: PHONO MC: 81dB (IHF A-202)
PHONO MM: 92dB (IHF A-202)
CD: 101dB (IHF A-202)

Tone Control

(Vol. –20dB): BASS: ± 10 dB at 20Hz
TURN OVER FREQUENCY
BASS: 450 Hz
CONTRABASS: 200Hz BOOST ONLY

Filters:

TREBLE: ± 8 dB at 20kHz
HIGH CUT: (TREBLE min.): 6dB/oct, 7kHz

Inputs:

PHONO, CD, TUNER, LINE 1 & 2, TAPE PLAY 1, 2 & 3,

Outputs:

TAPE REC OUT 1, 2 & 3
OUTPUT: 1 (fixed) 2 (variable)

Power Supply:

Canadian models: AC 120V, 60Hz
European models: AC 220V, 50Hz
British and Australian models: AC 240V, 50Hz
Worldwide models: AC 120V, 60Hz/AC 220V, 50Hz

Dimensions:

465(W) $\times$ 103(H) $\times$ 403(D) mm
18 5/16" $\times$ 4 1/16" $\times$ 15 7/8"

Weight:

8.5 kg, 18.7 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.

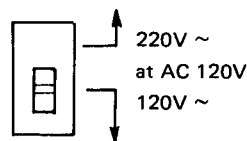
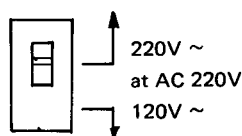
CIRCUIT NO.	PARTS NO.	DESCRIPTION
F901	252045	1A (ST–6), Primary fuse (120V, 120V/220V model)
F902	252063	0.5A–SE–EAWK, Primary fuse (220V, 120V/220V, 240V model)

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

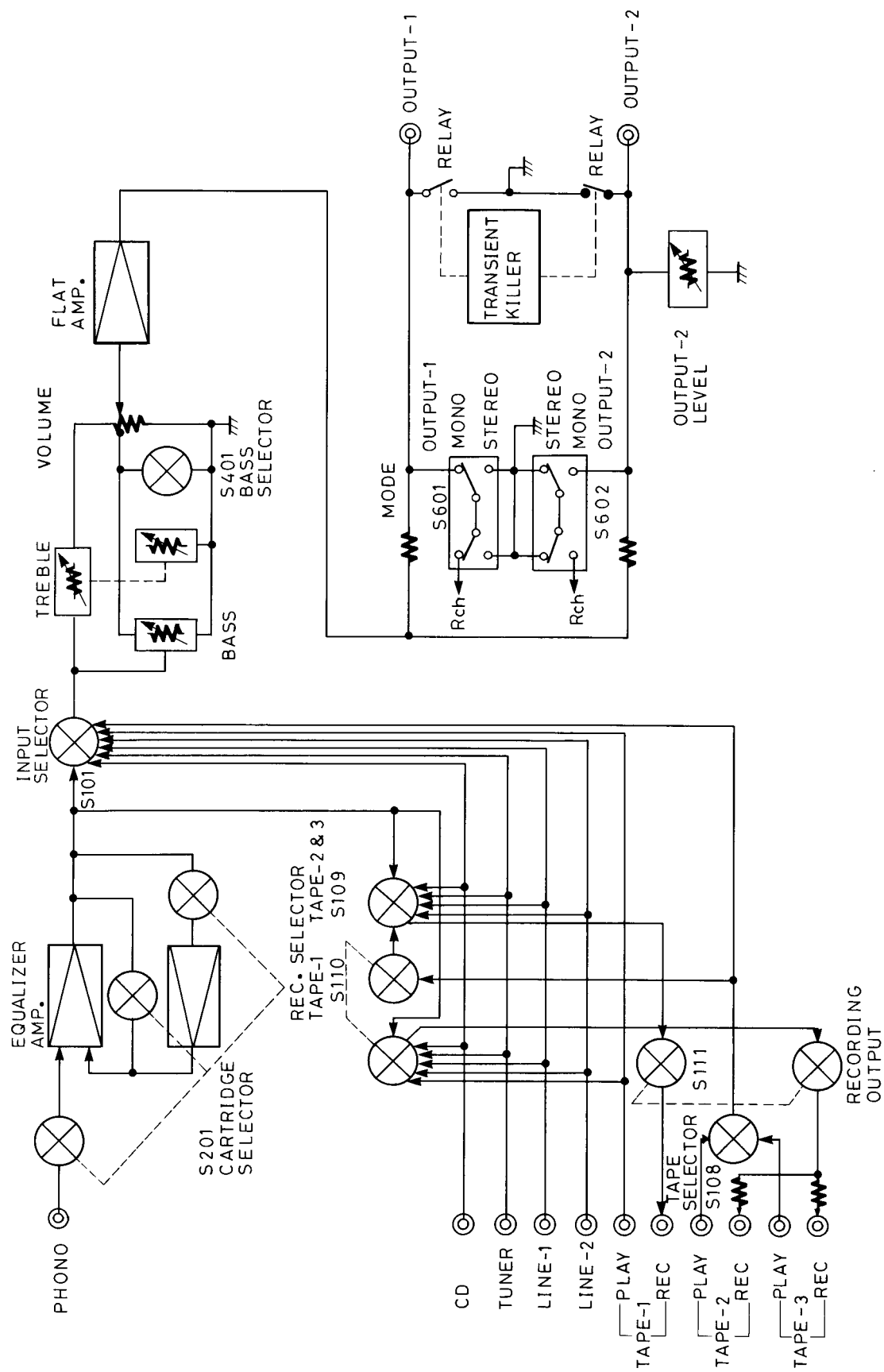
Connect the insulating-resistance tester between the plug of power supply cable and the terminal GND on the back panel.
Specifications; More than 10 M Ω at 500V.

3. Voltage selector (rear panel)

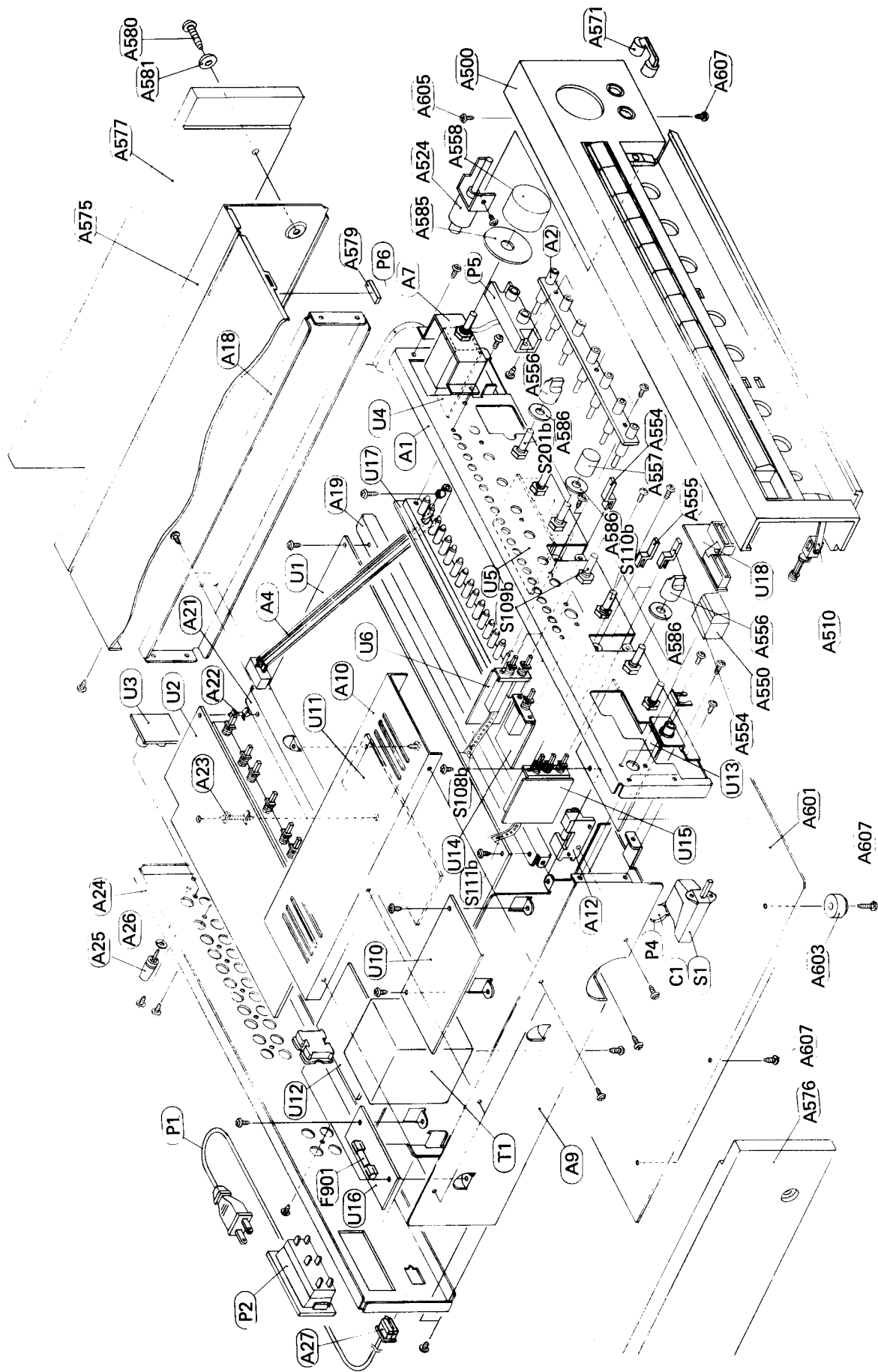
Worldwide models are equipped with a voltage selector to conform with local power supplies. Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on. Voltage is changed by sliding the groove in the switch with a screwdriver or similar instrument to the up or down position. Confirm that the switch has been moved all the way to the up or down 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



CHASSIS-EXPLODED VIEW



CHASSIS-EXPLODED VIEW-PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION	REF. NO.	PARTS NO.	DESCRIPTION
A1	27110283	Front panel ass'y	U1	17828545-1	NAEF-2645-1, Equalizer amplifier
A2	27267469A	Guide ass'y (Joint)	U2	17828546-1	pc board ass'y
A4	27273051A	Joint (M)	U3	17828547-1	NASW-2646-1, Input selector switch
A7	27141062	Bracket (VOL)	U4	17828548-1	pc board ass'y
A9	27115201A	Side bracket (L)	U5	17828549-1	NAPJ-2647-1, Phono input terminal
A10	27150213	Shield plate	U6	17828550-1	pc board ass'y
A12	27300817	Damper ass'y	U10	17828554-1	pc board ass'y
A18	27115203A	Side bracket (R)	U11	17828555-1	NASW-2654-1, Power supply pc
A19	27130423	Bracket (FR)	U12	17828556-1	board ass'y
A21	27130425	Bracket (RE)	U13	17828557-1	NASW-2655-1, REC.Selector switch
A22	27190480	Holder	U14	17828558-1	pc board ass'y
A23	27190470	Holder	U15	17828559-1	NATK-2656-1, Transient killer
A24	27120844	Back panel	U16	17828560-1	circuit pc board ass'y
A25	25060041	Ground terminal	U17	17828561-1	pc board ass'y
A26	87644010	W4 × 10F(BC), Washer	U18	17828562-1	NASW-2660-1B, Fuse pc board
A27	27300750	Bushing (AC cable)	U19	17824563-1A	ass'y [G][W][Q]
A500	17828121	Front panel ass'y			
A510	27273055A	Joint ass'y (Damper)			
A511	27141072	Bracket (Damper)			
A512	27300825	Joint (Damper)			
A513	27260217A	Damper pin			
A514	8930201S	ES-2S, Clip			
A524	27230019	Push latch ass'y			
A550	28322522A	Knob ass'y (POW)			
A554	28322525	Knob (PUSH)			
A555	28322526	Knob (PUSH)			
A556	28322527	Knob (HANE)			
A557	28322528A	Knob (TONE)			
A558	28322529A	Knob (VOL)			
A571	28330071	Cap			
A575	28184318A	Top cover			
A576	28185255	Side board (L)			
A577	28185256	Side board (R)			
A579	28140020	4 × 10 × 40mm, Cushion			
A580	836440303	4STV + 30CQ(BC), Screw			
A581	870086	4 × 12BC(BC), Special washer			
A585	28140126	φ53, Cushion			
A586	28140219	φ20, Cushion			
A601	27170227	Bottom board			
A603	27175009A	Bottom leg			
A605	838430068	3TTB+6B(BC), Tapping screw			
A607	831430088	3TTW + 8B(BC), Tapping screw			

Use this one

NOTE

- [D]: Only 120V models
 [G]: Only 220V models
 [W]: Only 120V/220V models
 [N]: Only U.S.A. models
 [X]: Only Military market models
 [Q]: Only British and Australian models

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

PRINTED CIRCUIT BOARD PARTS LIST

EQUALIZER AMPLIFIER PC BOARD (NAEF-2645-1)

CIRCUIT NO.	PARTS NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors				
Q201 ~ Q204	2211535 or	2SK146(GR) or	C211,C212	372122214	220pF, 50V, Styrene
	2211536	2SK146(BL)	C213 ~ C216	379121535	0.015 μ F, 50V, Film (DEW)
Q205 ~ Q208	2211895 or	2SC1815L(GR) or	C217,C218	379125625	5600pF, 50V, Film (DEW)
	2211896	2SC1815L(BL)	C219,C220	372122214	220pF, 50V, Styrene
Q209,Q210	2211414	2SC1627(Y)	C221,C222	379127524	7500pF, 50V, Film (DEW)
Q211,Q212	2211515 or	2SA995(F) or	C223 ~ C226	379121034	0.01 μ F, 50V, Film (DEW)
	2211516	2SA995(G)	C227,C228	379124334	0.043 μ F, 50V, Film (DEW)
Q213 ~ Q218	2211975	2SA1015L(GR)	C229,C230	379123634	0.036 μ F, 50V, Film (DEW)
Q219,Q220	2211895 or	2SC1815L(GR) or	C231,C232	372126804	68pF, 50V, Styrene
	2211896	2SC1815L(BL)	C237,C238	391232219	220 μ F, 10V, Elect. (MUSE)
Q221,Q222	2211414	2SC1627(Y)	C239,C240	379122725	2700pF, 50V, Film (DEW)
Q223,Q224	2211424	2SA817(Y)	C241 ~ C244	354751019	100 μ F, 25V, Elect.
Q225,Q226	2211414	2SC1627(Y)	C245,C246	354784709	47 μ F, 50V, Elect.
Q227,Q228	2211424	2SA817(Y)	C301,C302	354741009	10 μ F, 16V, Elect.
Q501,Q502	2212805 or	2SK389(GR) or	C303 ~ C306	391252219	220 μ F, 25V, Elect. (MUSE)
	2212806	2SK389(BL)	C307,C308	372123304	33pF, 50V, Styrene
Q503 ~ Q508	2211255	2SC1815(GR)	C501,C502	372121014	100pF, 50V, Styrene
Q509,Q510	2211515 or	2SA995(F) or	C503,C504	372122214	220pF, 50V, Styrene
	2211516	2SA995(G)	C505,C506	354784799	0.47 μ F, 50V, Elect.
Q511 ~ Q514	2211455	2SA1015(GR)	C507,C508	372122704	27pF, 50V, Styrene
Q515,Q516	2211255	2SC1815(GR)	C515,C516	391232219	220 μ F, 10V, Elect. (MUSE)
Q517,Q518	2211164	2SC2120(Y)	C517 ~ C520	354751019	100 μ F, 25V, Elect.
Q519,Q520	2211504	2SA950(Y)	C521,C522	354784709	47 μ F, 50V, Elect.
Q521,Q522	2211164	2SC2120(Y)	C551 ~ C554	354752209	22 μ F, 25V, Elect.
Q523,Q524	2211504	2SA950(Y)	C555,C556	372123304	33pF, 50V, Styrene
Q931	2201404 or	2SD1406(Y) or	C931,C932	354782219	220 μ F, 50V, Elect.
	2201403	2SD1406(O)	C935,C936	354721019	100 μ F, 6.3V, Elect.
Q932	2201394 or	2SB1015(Y) or	C937,C938	354753319	330 μ F, 25V, Elect.
	2201393	2SB1015(O)	C951,C952	354762219	220 μ F, 35V, Elect.
Q933	2211254 or	2SC1815(Y) or	C955,C956	354721019	100 μ F, 6.3V, Elect.
	2211255	2SC1815(GR)	C957,C958	354743319	330 μ F, 16V, Elect.
Q934	2211454 or	2SA1015(Y) or		Resistors	
	2211455	2SA1015(GR)	R225 ~ R228	442526804	68 Ω , 1/2W, Metal oxide film
Q935	2211254 or	2SC1815(Y) or	R239,R240	442528204	82 Ω , 1/2W, Metal oxide film
	2211255	2SC1815(GR)	R265,R266	442524314	430 Ω , 1/2W, Metal oxide film
Q936	2211454 or	2SA1015(Y) or	R267 ~ R274	442523304	33 Ω , 1/2W, Metal oxide film
	2211455	2SA1015(GR)	R275,R276	441625614	560 Ω , 1W, Metal oxide film
Q951	2201404 or	2SD1406(Y) or	R529 ~ R536	442522404	24 Ω , 1/2W, Metal oxide film
	2201403	2SD1406(O)	R539 ~ R542	441622014	200 Ω , 1W, Metal oxide film
Q952	2201394 or	2SB1015(Y) or		Switch	
	2201393	2SB1015(O)	S201a	25065283	NSS-84111, Remote switch
Q953	2211254 or	2SC1815(Y) or		Sockets	
	2211255	2SC1815(GR)	JC101	25050272	NSCT-8P100
Q954	2211454 or	2SA1015(Y) or	P203	2000556	NSAS-6P512, Socket ass'y
	2211455	2SA1015(GR)	P501	2000557	NSAS-6P513 Socket ass'y
Q955	2211254 or	2SC1815(Y) or	P502,P503	2000558	NSAS-6P514 Socket ass'y
	2211255	2SC1815(GR)		Plugs	
Q956	2211454 or	2SA1015(Y) or	P201a,P202a	25055132	NPLG-2P116
	2211455	2SA1015(GR)	P504a ~ P508a	25055133	NPLG-3P117
	ICs			Radiator	
Q301,Q302	222585	NJM4558DXB	P931,P932	27160176	RAD-56
Q551,Q552	222465	NJM4558D	P951,P952	27160145	RAD-51
	Diodes			Plate	
D201 ~ D204	223145	1S2076TD		25060032B	Bus
D205 ~ D210	225218	LTZ-MR15		Shield case	
D501 ~ D504	223145	1S2076TD		27225075	
D505 ~ D510	225218	LTZ-MR15			
D931,D932,D951	2239511 or	RD6.8E-B1 or			
D952	2243171	MTZ6.8-A			
	Capacitors				
C209,C210	372121814	180pF, 50V, Styrene			

INPUT SELECTOR SWITCH PC BOARD (NASW-2646-1)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
L101 ~ L104	Coils	NCH-1119
	231069	
S101 ~ S107 S108a	Switches	NPS-742-L486 NSS-4285, Remote switch
	25035524 25065190	
P102 P103 ~ P105 P106, P107 P108, P109 P110, P111	Terminals	NPJ-2PDBL74 NPJ-6PDBL80 NPJ-4PDBL82 NPJ-4PDBL83 NPJ-4PDBL83
	25045190	
	25045199	
	25045201	
	25045202	
	25045202	
JC151, JC154 (P203, P501)	Sockets	NSCT-9P101 NSAS-6P512, Socket ass'y
	25050273 2000556	
P006a	Plug	NPLG-3P117
	25055133	

PHONO INPUT TERMINAL PC BOARD (NAPJ-2647-1)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
P101	25045197	NPJ-2PDBL78, Terminal
P201	2000554	NSAS-4P510, Socket ass'y
P202	2000555	NSAS-4P511, Socket ass'y

VOLUME CONTROLE PC BOARD (NAVR-2648-1)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
R403	5104185	N27DGL25KT20M, Variable resistor
(P502, P503)	2000558	NSAS-6P514, Socket ass'y

TONE CONTROL CIRCUIT PC BOARD (NATC-2649-1)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
C401, C402 C403, C404 C405, C406 C407, C408 C409, C410	Capacitors	0.018 μ F, 50V, Film (DEW) 3900pF, 50V, Film (DEW) 0.033 μ F, 50V, Film (DEW) 0.16 μ F, 50V, Film (DEW) 0.18 μ F, 50V, Film (DEW)
	379121834	
	379123924	
	379123334	
	379121644	
	379121844	
R415 R417	Resistors	N27DQL11C55K15M, Variable N27DQL11C35K44K15M, Variable
	5104186 5104187	

BASS SELECTOR SWITCH PC BOARD (NASW-2650-1)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
S401	25035525	NPS-100-122-L487, Bass shift switch

CIRCUIT NO.	PART NO.	DESCRIPTION
(S108c)	25035525	NPS-100-122-L487, Remote switch, Operation section

POWER SUPPLY PC BOARD (NAPS-2654-1)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
D901, D902 D903, D904 D905 ~ D910	Diodes	WL02 W01RL 1N4003F
	223867	
	223890	
	223896	
C901, C902 C903 ~ C906 C907, C908 C909, C910 C911, C912 C913 C914	Capacitors	0.47 μ F, 125V, Film (ME) 0.1 μ F, 125V, Film (ME) 2200 μ F, 50V, Elect. 2200 μ F, 35V, Elect. 1000 μ F, 16V, Elect. 330 μ F, 25V, Elect. 0.01 μ F, 50V, Film (DEW)
	375104745	
	375101045	
	354782229	
	354762229	
	354741029	
	354753319	
	379121035	
R901, R902 R903 ~ R906 R907, R908 R909, R910	Resistors	33 Ω , 1/2W, Metal oxide film 1 Ω , 1/2W, Metal oxide film 2 Ω , 1/2W, Metal oxide film 620 Ω , 1/2W, Metal oxide film
	442523304	
	442520104	
	442520204	
	442526214	
JC951	Socket 25050267	NSCT-3P95

REC. SELECTOR SWITCH PC BOARD (NASW-2655-1)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
L105, L106	Coils	NCH-1119
	231069	
S109a, S110a S111a	Switches	NSS-4643, Remote switch NSS-4285, Remote switch
	25065079 25065190	
P155	Socket 25050267	NSCT-3P95

TRANSIENT KILLER CIRCUIT PC BOARD (NATK-2656-1)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
Q801 Q802 Q803	Transistors	2SC1815(GR) 2SA1015(GR) 2SC2120(Y)
	2211255	
	2211455	
	2211164	
D801 D802, D803 D804, D805	Diodes	1S2076TD RD6.2E-B2 or MTZ6.2-B 1S2076TD
	223145	
	2239492 or 2243162	
	223145	
L601 ~ L604	Coils 231069	NCH-1119
C801	Capacitors 354744709	47 μ F, 16V, Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION
C802	354751009	10 μ F, 25V, Elect.
	Resistors	
R801	442521324	1.3k Ω , 1/2W, Metal oxide film
R807	442526214	620 Ω , 1/2W, Metal oxide film
	Sockets	
JC801	25050270	NSCT-6P98
P506,P507	2000562	NSAS-6P518, Socket ass'y
	Relaies	
RL801,RL802	25065282	NRL-2P1.25A-DC12-39
	Terminal	
P601,P602	25045201	NPJ-4PDBL82

HEADPHONE AMPLIFIER CIRCUIT PC BOARD (NAPH-2657-1)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	ICs	
Q701	222957	M-5216L
	Diodes	
D701~D704	223145	1S2076TD
	Capacitors	
C701,C702	354760479	4.7 μ F, 35V, Elect.
C703,C704	372122214	220 pF, 50V, Styren
C705,C706	354744709	47 μ F, 16V, Elect.
C707,C708	379121035	0.01 μ F, 50V, Film (DEW)
C709,C710	354741009	10 μ , 16V, Elect.
C711	354760479	4.7 μ F, 35V, Elect.
	Resistors	
R711,R712	441624704	47 Ω , 1W, Metal oxide film
	Switches	
S603,S604	25030278	NRSM-116-15SBU
	Stereo jack	
P701	25045203	HLJ-4318-01-3010
	Sockets	
JC751	25050272	NSCT-8P101
P504,P505	2000560	NSAS-6P516, Socket ass'y
P508	2000564	NSAS-6P520, Socket ass'y

OUTPUT SWITCH PC BOARD (NASW-2658-1)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
S801	25035372	NPS-122-L336, Output ON/OFF switch

RECORDING OUTPUT SWITCH PC BOARD (NASW-2659-1)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	Diodes	
D855	225137CG or 225137DG or 225137DY	SEL2413CG or SEL2413DG or SEL2413DY
	Resistors	
R851~R853	442521324	1.3k Ω , 1/2W, Metal oxide film
	Switches	
S601,S602,(S111C)	25035526	NPS-222-122-L488

FUSE PC BOARD (NAFU-2660-1)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
F901a	250113	S-N5051, Fuse holder

FUSE PC BOARD (NAFU-2660-1A)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
F902a	25050065	YSH-403T Fuse holder

FUSE PC BOARD (NAFU-2660-1B)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
F901a	250113	S-N5051, Fuse holder
F902a	25050065	YSH-403T Fuse holder

INPUT DISPLAY PC BOARD (NADIS-2661-1)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	Diodes	
D857~D872	225137CG or 225137DG or 225137DY	SEL2413CG or SEL2413DG or SEL2413DY
	Resistor	
R854	442521324	1.3k Ω , 1/2W, Metal oxide film
	Holder	
	27190456	Holder (LED)

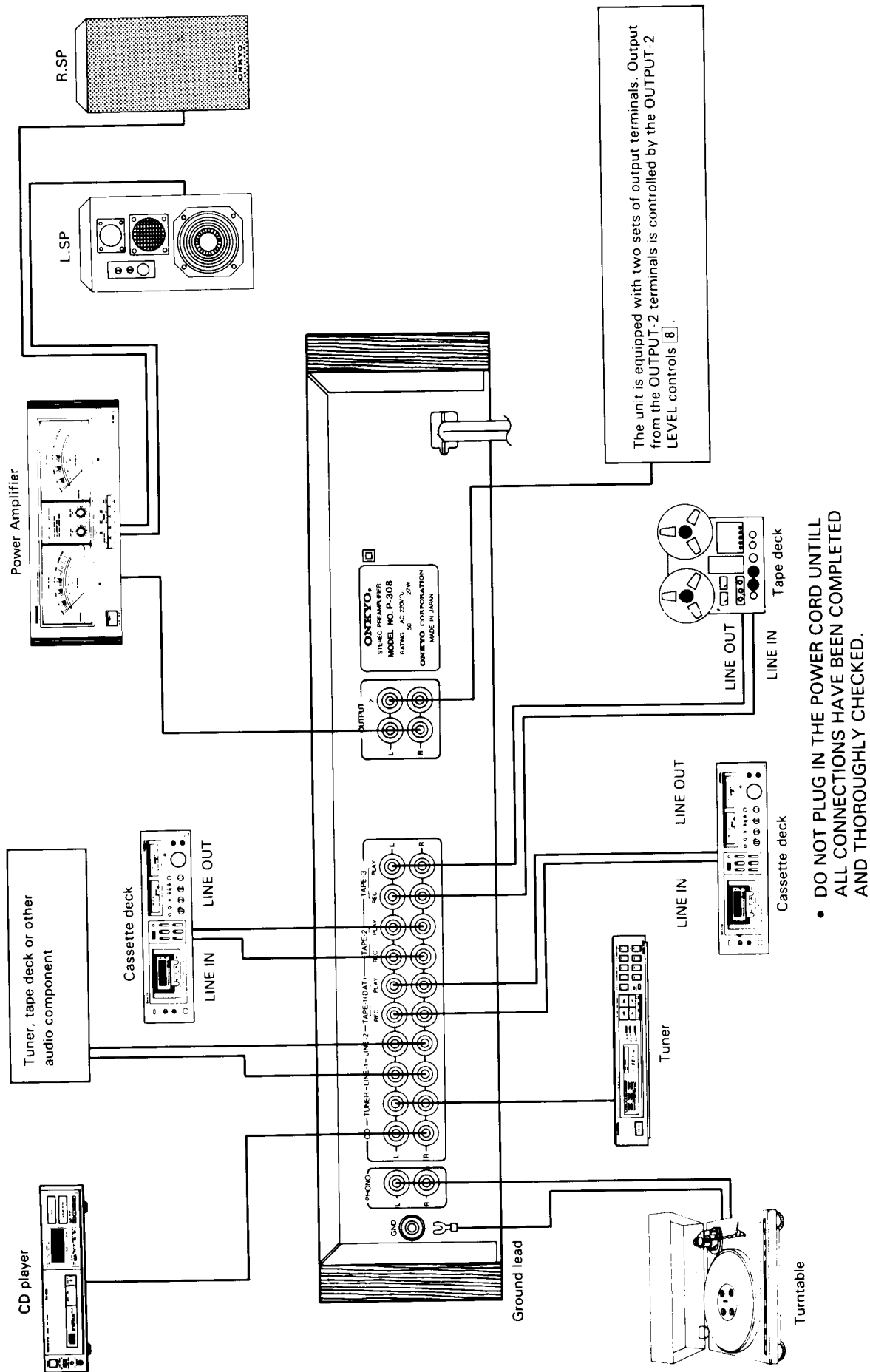
DISPLAY PC BOARD (NADIS-2662-1)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	Diodes	
D851,D852 D853,D854	225142 225142CG or 225142DG or 225142DY	SEL2413K SEL2913CG or SEL2913DG or SEL2913DY
D856	225142	SEL2413K
	Holder	
	27190455	Holder (LED)

SWITCH PC BOARD (NASW-2663-1A)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
C981	3500065A	0.01 μ F, AC400V, Capacitor (IS)
P901	27300601	SB-1925, Cover (capacitor)
S901	25035398	NPS-111-362P, Power switch

SYSTEM CONNECTIONS



ONKYO CORPORATION

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