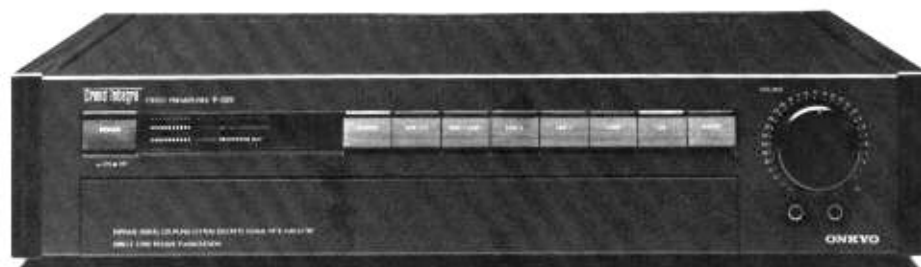


# ONKYO SERVICE MANUAL

## 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  $\Delta$  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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## SPECIFICATIONS

Input Sensitivity and Impedance:	PHONO MC: 160 $\mu$ V/(100/220) ohms PHONO MM: 2.5m/(47 kohms/100 kohms) CD, TUNER, LINE, TAPE PLAY: 150mV/20 kohms	Signal-to-Noise Ratio: PHONO MC: 81dB (IHF A-202) PHONO MM: 92dB (IHF A-202) CD: 101dB (IHF A-202)
Rated Output and Impedance:	TAPE REC: 150mV/1.2 kohms (PHONO) OUTPUT: 1.0V/160 ohms Max. 6V	Tone Control (Vol. -20dB): BASS: $\pm$ 10dB at 20Hz TURN OVER FREQUENCY BASS: 450 Hz CONTRABASS: 200Hz BOOST ONLY TREBLE: $\pm$ 8dB at 20kHz
RIAA Deviation:	$\pm$ 0.2dB, 20-20,000Hz	Filters: HIGH CUT: (TREBLE min.): 6dB/oct, 7kHz
Frequency Response (CD, TUNER, LINE, TAPE):	+0, -3dB, 0.8Hz - 170kHz	Inputs: PHONO, CD, TUNER, LINE 1 & 2, TAPE PLAY 1, 2 & 3
Phono Overload:	PHONO MM: 210mV RMS at 1kHz, THD 0.05% PHONO MC: 13mV RMS at 1kHz, THD 0.05%	Outputs: TAPE REC OUT 1, 2 & 3 OUTPUT: 1 (fixed) 2 (variable)
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	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
Intermodulation Distortion (CD):	0.003% (70Hz: 7kHz = 4:1)	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.

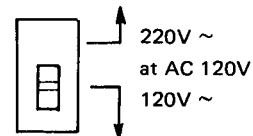
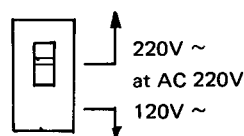
CIRCUIT NO.	PARTS NO.	DESCRIPTION
F901	252045	1A (ST-6), Primary fuse (120V, 120V/220V model)
F902	252063	0.5A-SE-EAWK, Primary fuse (220V, 120V/220V, 240V model)

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

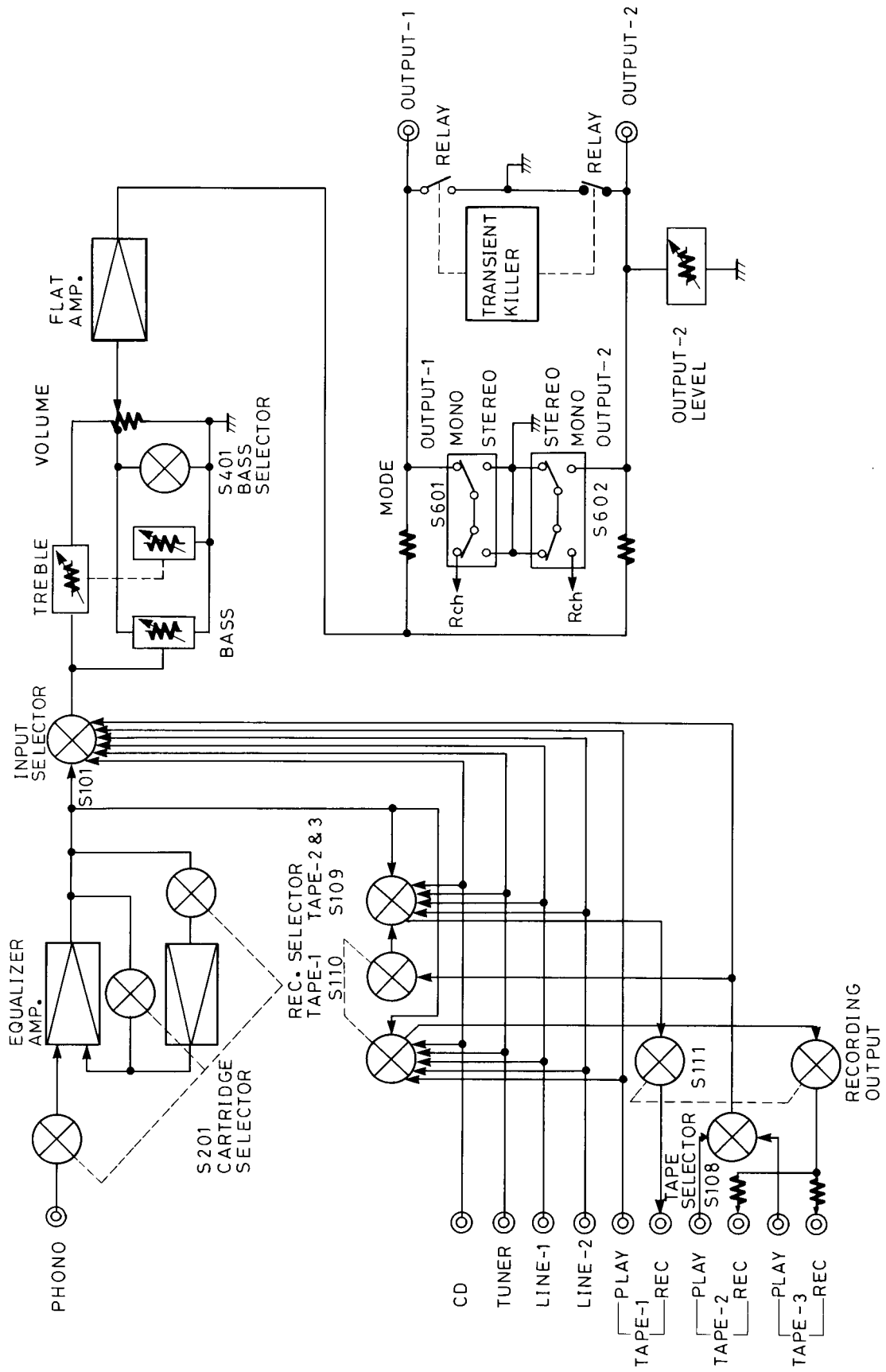
Connect the insulating-resistance tester between the plug of power supply cable and the terminal GND on the back panel. Specifications; More than 10 M $\Omega$  at 500V.

### 3. Voltage selector (rear panel)

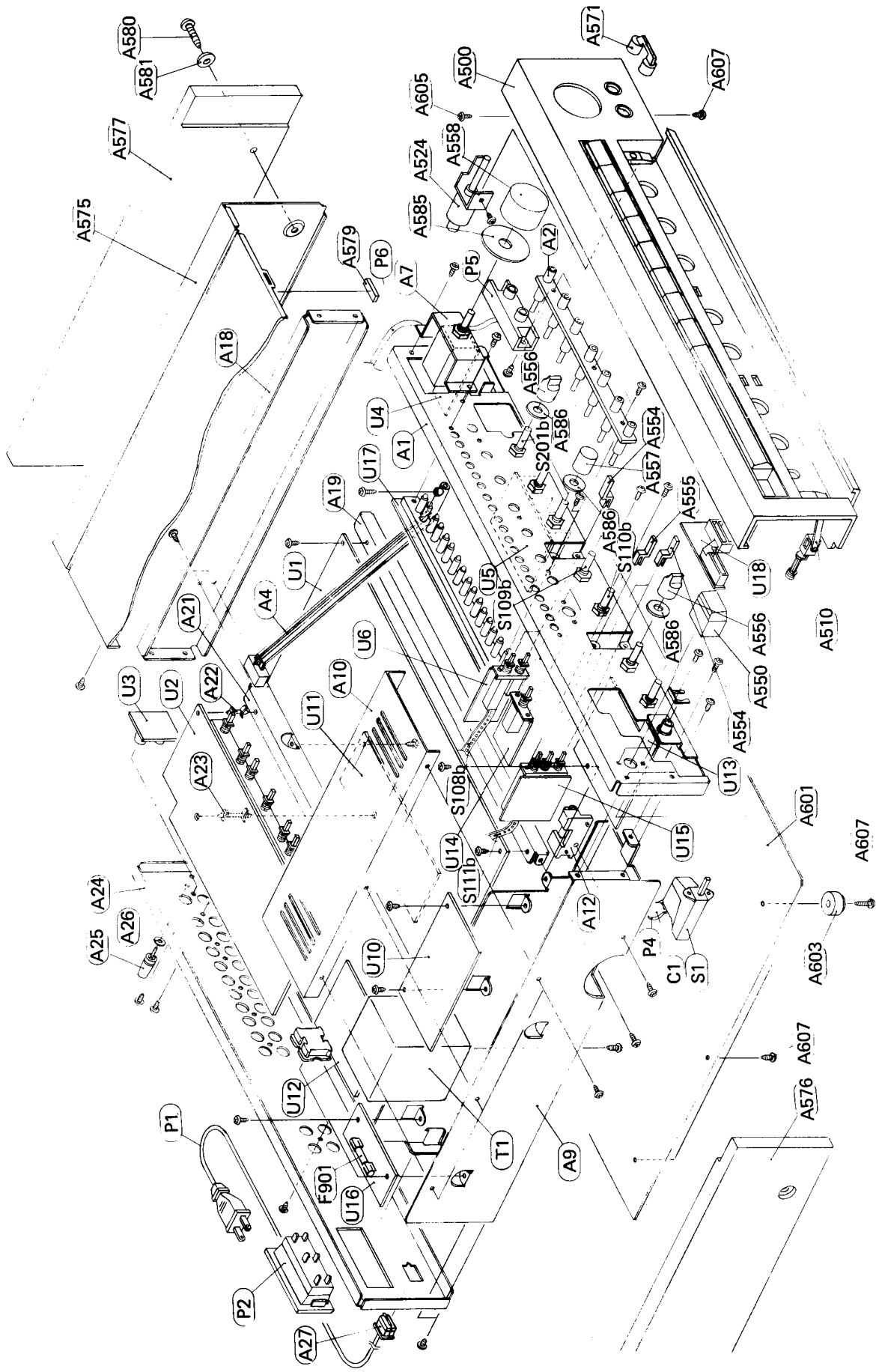
Worldwide models are equipped with a voltage selector to conform with local power supplies. Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on. Voltage is changed by sliding the groove in the switch with a screwdriver or similar instrument to the 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



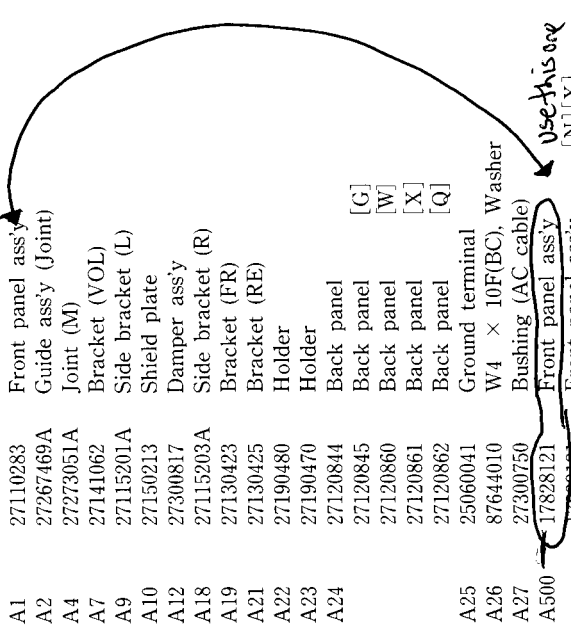
# CHASSIS-EXPLODED VIEW



# 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	271150213	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	NAPS-2654-1, Power supply pc board ass'y
A19	27130423	Bracket (FR)	U12	17828556-1	NASW-2655-1, REC.Selector switch
A21	27130425	Bracket (RE)	U13	17828557-1	pc board ass'y
A22	27190480	Holder	U14	17828558-1	NATK-2656-1, Transient killer circuit pc board ass'y
A23	27190470	Holder	U15	17828559-1	NAPH-2657-1, Phone amplifier circuit pc board ass'y
A24	27120844	Back panel	U16	17828560-1	NASW-2658-1, Output switch pc board ass'y
A26	27120845	Back panel	U17	17828561-1	NASW-2659-1, Recording output switch pc board ass'y
A27	27300750	Back panel	U18	17828562-1	NAFU-2660-1, Fuse pc board ass'y
A500	17828121	Front panel ass'y	U19	17824563-1A	NAFU-2660-1A, Fuse pc board ass'y [G][Q]
A510	27273055A	Joint ass'y (Damper)			
A511	27141072	Bracket (Damper)			
A512	27300825	Joint (Damper)			
A513	27260217A	Damper pin			
A514	8930201S	ES-2S, Circlip			
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 x 10 x 40mm, Cushion			
A580	836440303	45TV + 30CQ(BC), Screw			
A581	870086	4 x 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			
A1	2300104	NPT-919D, Power transformer			
A2	2300105	NPT-919G, Power transformer [G]			
A7	2300106	NPT-919DG, Power transformer [W][X]			
A10	2300107	NPT-919Q, Power transformer [Q]			
A12	3500065A	0.01μF, AC400V, Capacitor			
A18	25035345A	NPS-111-L308P, Power switch			
A19	25035398	NPS-111-362P, Power switch [G][W][Q]			
A22	25065123	NSS-1258P, Slide switch [W]			
A23	25065292	Remote switch, wire section			
A24	25030279	NRSM-106-15BU, Remote switch			
A26	25030280	NRSM-106-15BU, Remote switch			
A27	25065284-1	Remote switch, wire section			
A28	25030281A	NRSM-104-15BU, Remote switch			
A29	253122	AS-UC-6#16, Power supply cable			
A30	253129A	AS-CEE, Power supply cable [G][W]			
A31	253118	AS-SAA, Power supply cable [Q]			
A32	25050293	NSCT-6P120, AC outlet [D][X]			
A33	25108010	LG-2C, Lug terminal [G][W][Q]			
A34	27300601	SB-1925, Cover (Capacitor)			
A35	25045200	NPJ-2PBL81, Terminal			
A36	2000565	NSAS-3P-521, Socket ass'y			
A37	28330072	Cap (AC outlet) [X]			
A38	252045	1A ST-6, Primary fuse [D][N][X][W]			
A39	252063	0.5A-SE-EAWK, Primary fuse [G][Q][X][W]			

## REF. NO. PARTS NO. DESCRIPTION



### 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		C211,C212	372122214	220pF, 50V, Styrene
Q201~Q204	2211535 or	2SK146(GR) or	C213~ C216	379121535	0.015 $\mu$ F, 50V, Film (DEW)
	2211536	2SK146(BL)	C217,C218	379125625	5600pF, 50V, Film (DEW)
Q205~Q208	2211895 or	2SC1815L(GR) or	C219,C220	372122214	220pF, 50V, Styrene
	2211896	2SC1815L(BL)	C221,C222	379127524	7500pF, 50V, Film (DEW)
Q209,Q210	2211414	2SC1627(Y)	C223~ C226	379121034	0.01 $\mu$ F, 50V, Film (DEW)
Q211,Q212	2211515 or	2SA995(F) or	C227,C228	379124334	0.043 $\mu$ F,50V, Film (DEW)
	2211516	2SA995(G)	C229,C230	379123634	0.036 $\mu$ F, 50V, Film (DEW)
Q213~Q218	2211975	2SA1015L(GR)	C231,C232	372126804	68pF, 50V, Styrene
Q219,Q220	2211895 or	2SC1815L(GR) or	C237,C238	391232219	220 $\mu$ F, 10V, Elect. (MUSE)
	2211896	2SC1815L(BL)	C239,C240	379122725	2700pF, 50V, Film (DEW)
Q221,Q222	2211414	2SC1627(Y)	C241~ C244	354751019	100 $\mu$ F, 25V, Elect.
Q223,Q224	2211424	2SA817(Y)	C245,C246	354784709	47 $\mu$ F, 50V, Elect.
Q225,Q226	2211414	2SC1627(Y)	C301,C302	354741009	10 $\mu$ F, 16V, Elect.
Q227,Q228	2211424	2SA817(Y)	C303~ C306	391252219	220 $\mu$ F, 25V, Elect. (MUSE)
Q501,Q502	2212805 or	2SK389(GR) or	C307,C308	372123304	33pF,50V, Styrene
	2212806	2SK389(BL)	C501,C502	372121014	100pF, 50V, Styrene
Q503~Q508	2211255	2SC1815(GR)	C503,C504	372122214	220pF, 50V, Styrene
Q509,Q510	2211515 or	2SA995(F) or	C505,C506	354784799	0.47 $\mu$ F,50V, Elect.
	2211516	2SA995(G)	C507,C508	372122704	27pF, 50V, Styrene
Q511~Q514	2211455	2SA1015(GR)	C515,C516	391232219	220 $\mu$ F, 10V, Elect. (MUSE)
Q515,Q516	2211255	2SC1815(GR)	C517~ C520	354751019	100 $\mu$ F, 25V, Elect.
Q517,Q518	2211164	2SC2120(Y)	C521,C522	354784709	47 $\mu$ F, 50V, Elect.
Q519,Q520	2211504	2SA950(Y)	C551~ C554	354752209	22 $\mu$ F,25V, Elect.
Q521,Q522	2211164	2SC2120(Y)	C555,C556	372123304	33pF, 50V, Styrene
Q523,Q524	2211504	2SA950(Y)	C931,C932	354782219	220 $\mu$ F, 50V, Elect.
Q931	2201404 or	2SD1406(Y) or	C935,C936	354721019	100 $\mu$ F, 6.3V, Elect.
	2201403	2SD1406(O)	C937,C938	354753319	330 $\mu$ F, 25V, Elect.
Q932	2201394 or	2SB1015(Y) or	C951,C952	354762219	220 $\mu$ F, 35V, Elect.
	2201393	2SB1015(O)	C955,C956	354721019	100 $\mu$ F, 6.3V, Elect.
Q933	2211254 or	2SC1815(Y) or	C957,C958	354743319	330 $\mu$ F, 16V, Elect.
	2211255	2SC1815(GR)			
Q934	2211454 or	2SA1015(Y) or		Resistors	
	2211455	2SA1015(GR)	R225 ~ R228	442526804	68 $\Omega$ , 1/2W, Metal oxide film
Q935	2211254 or	2SC1815(Y) or	R239,R240	442528204	82 $\Omega$ , 1/2W, Metal oxide film
	2211255	2SC1815(GR)	R265,R266	442524314	430 $\Omega$ , 1/2W, Metal oxide film
Q936	2211454 or	2SA1015(Y) or	R267 ~ R274	442523304	33 $\Omega$ , 1/2W, Metal oxide film
	2211455	2SA1015(GR)	R275,R276	441625614	560 $\Omega$ , 1W, Metal oxide film
Q951	2201404 or	2SD1406(Y) or	R529 ~ R536	442522404	24 $\Omega$ , 1/2W, Metal oxide film
	2201403	2SD1406(O)	R539 ~ R542	441622014	200 $\Omega$ , 1W, Metal oxide film
Q952	2201394 or	2SB1015(Y) or			
	2201393	2SB1015(O)		Switch	
Q953	2211254 or	2SC1815(Y) or	S201a	25065283	NSS-84111, Remote switch
	2211255	2SC1815(GR)			
Q954	2211454 or	2SA1015(Y) or		Sockets	
	2211455	2SA1015(GR)	JC101	25050272	NSCT-8P100
Q955	2211254 or	2SC1815(Y) or	P203	2000556	NSAS-6P512, Socket ass'y
	2211255	2SC1815(GR)	P501	2000557	NSAS-6P513 Socket ass'y
Q956	2211454 or	2SA1015(Y) or	P502,P503	2000558	NSAS-6P514 Socket ass'y
	2211455	2SA1015(GR)			
	ICs				
Q301,Q302	222585	NJM4558DXB	P201a,P202a	25055132	NPLG-2P116
Q551,Q552	222465	NJM4558D	P504a ~ P508a	25055133	NPLG-3P117
	Diodes				
D201 ~ D204	223145	1S2076TD	P931,P932	27160176	RAD-56
D205 ~ D210	225218	LTZ-MR15	P951,P952	27160145	RAD-51
D501 ~ D504	223145	1S2076TD			
D505 ~ D510	225218	LTZ-MR15		Plate	
D931,D932,D951	2239511 or	RD6.8E-B1 or		25060032B	Bus
D952	2243171	MTZ6.8-A			
	Capacitors				
C209,C210	372121814	180pF, 50V, Styrene		Shield case	
				27225075	

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

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

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

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

### VOLUME CONTROLE PC BOARD (NAVR-2648-1)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
R403 (P502,P503)	5104185 2000558	N27DGL25KT20M, Variable resistor 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 379121834 379123924 379123334 379121644 379121844	0.018 $\mu$ F, 50V, Film (DEW) 3900pF, 50V, Film (DEW) 0.033 $\mu$ F, 50V, Film (DEW) 0.16 $\mu$ F, 50V, Film (DEW) 0.18 $\mu$ F, 50V, Film (DEW)
R415 R417	Resistors 5104186 5104187	N27DQL11C55K15M, Variable N27DQL11C35K44K15M, Variable

### 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 223867 223890 223896	WL02 W01RL 1N4003F
C901,C902 C903~C906 C907,C908 C909,C910 C911,C912 C913 C914	Capacitors 375104745 375101045 354782229 354762229 354741029 354753319 379121035	0.47 $\mu$ F, 125V, Film (ME) 0.1 $\mu$ F, 125V, Film (ME) 2200 $\mu$ F, 50V, Elect. 2200 $\mu$ F, 35V, Elect. 1000 $\mu$ F, 16V, Elect. 330 $\mu$ F, 25V, Elect. 0.01 $\mu$ F, 50V, Film (DEW)
R901,R902 R903~R906 R907,R908 R909,R910	Resistors 442523304 442520104 442520204 442526214	33 $\Omega$ , 1/2W, Metal oxide film 1 $\Omega$ , 1/2W, Metal oxide film 2 $\Omega$ , 1/2W, Metal oxide film 620 $\Omega$ , 1/2W, Metal oxide film
JC951	Socket 25050267	NSCT-3P95

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

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

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

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

CIRCUIT NO.	PART NO.	DESCRIPTION
C802	354751009	10 $\mu$ F, 25V, Elect.
	Resistors	
R801	442521324	1.3k $\Omega$ , 1/2W, Metal oxide film
R807	442526214	620 $\Omega$ , 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 $\mu$ F, 35V, Elect.
C703,C704	372122214	220 pF, 50V, Styren
C705,C706	354744709	47 $\mu$ F, 16V, Elect.
C707,C708	379121035	0.01 $\mu$ F, 50V, Film (DEW)
C709,C710	354741009	10 $\mu$ , 16V, Elect.
C711	354760479	4.7 $\mu$ F, 35V, Elect.
	Resistors	
R711,R712	441624704	47 $\Omega$ , 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 $\Omega$ , 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 $\Omega$ , 1/2W, Metal oxide film
	Holder	
	27190456	Holder (LED)

**DISPLAY PC BOARD (NADIS-2662-1)**

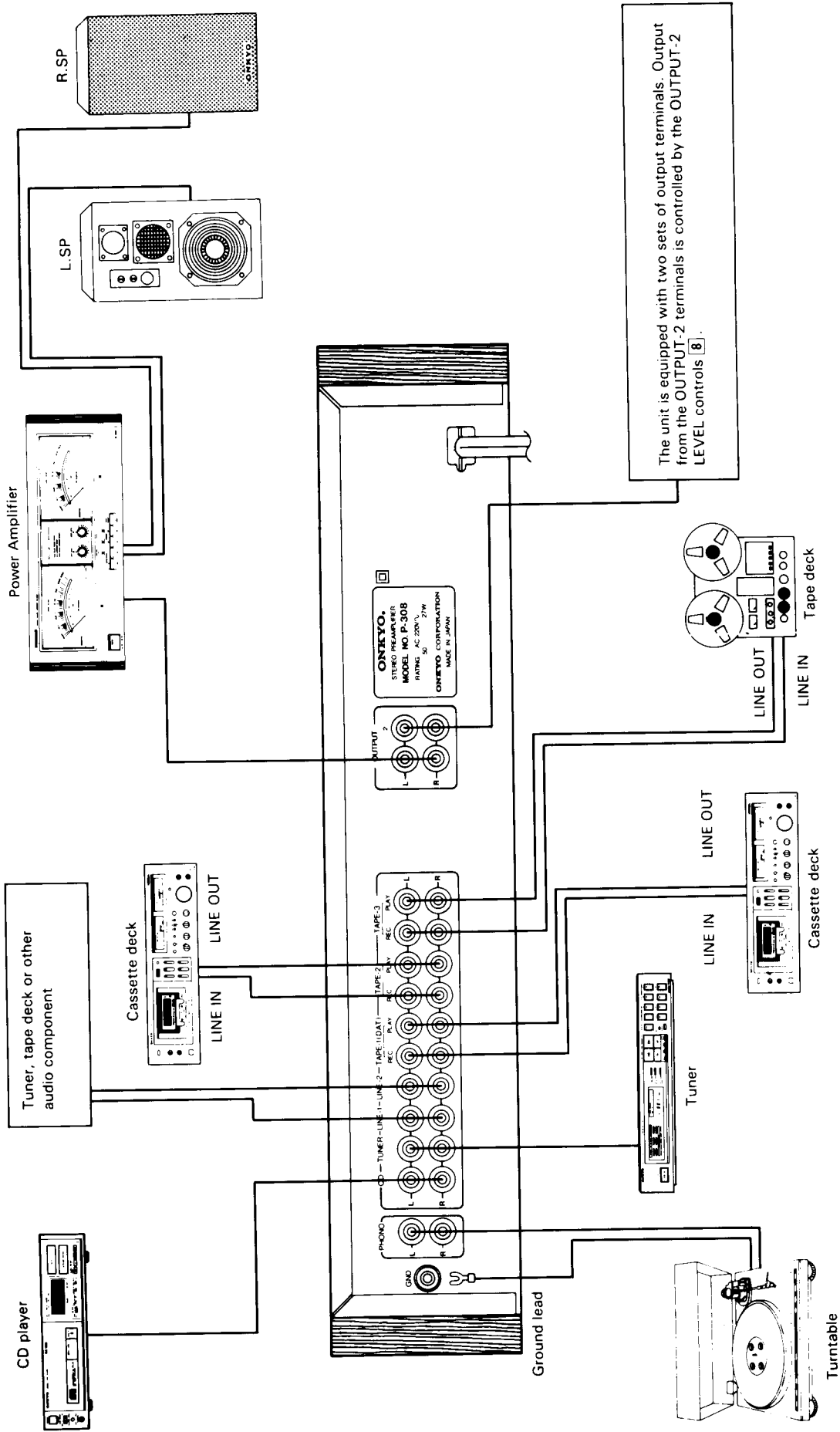
CIRCUIT NO.	PARTS NO.	DESCRIPTION
	Diodes	
D851,D852 D853,D854	225142 225142CG or 225142DG or 225142DY	SEL2413K SEL2913CG or SEL2913DG or SEL2913DY
D856	225142	SEL2413K
	Holder	
	27190455	Holder (LED)



## SWITCH PC BOARD (NASW-2663-1A)

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

# SYSTEM CONNECTIONS



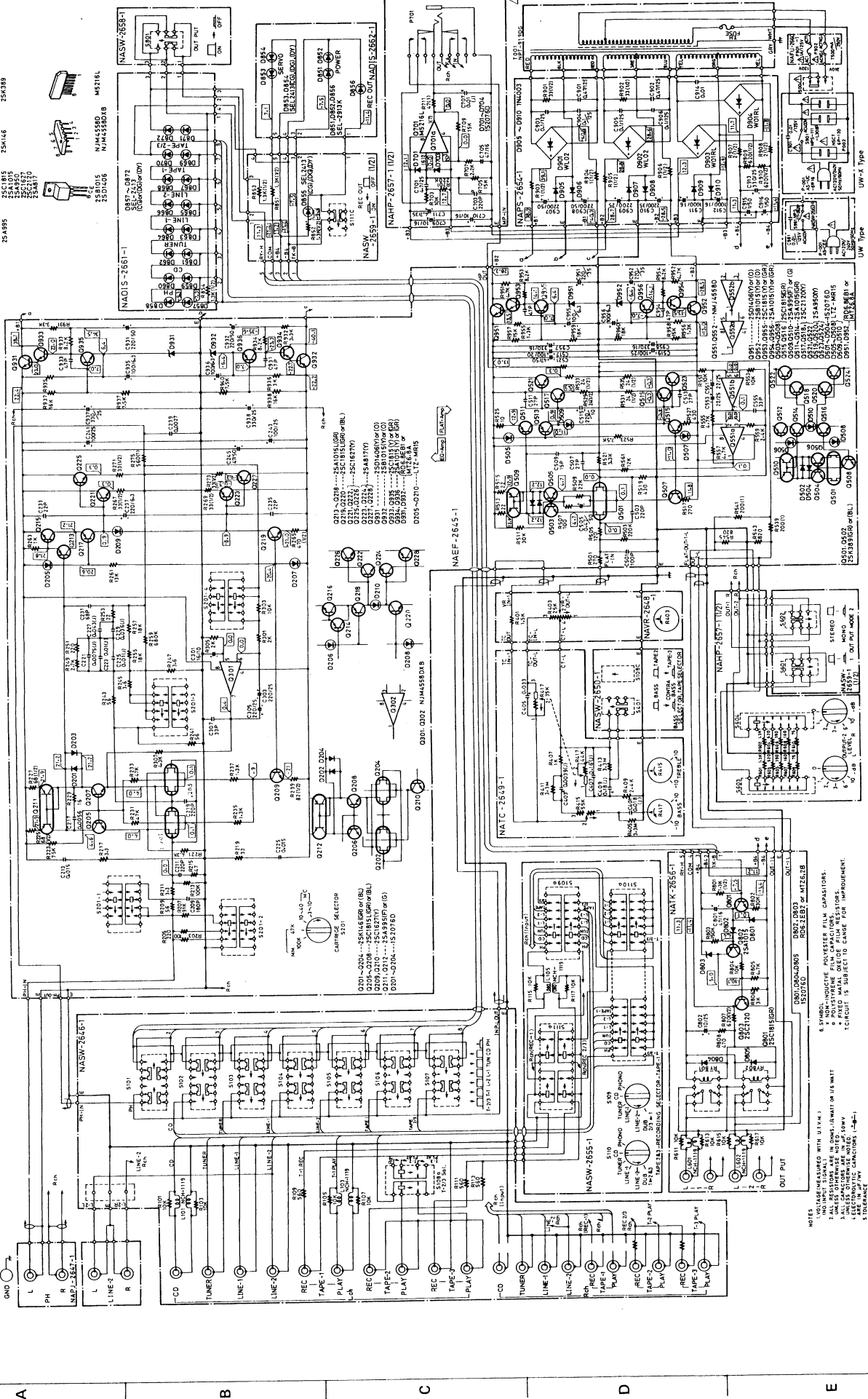
- DO NOT PLUG IN THE POWER CORD UNTILL ALL CONNECTIONS HAVE BEEN COMPLETED AND THOROUGHLY CHECKED.



1 2 3 4 5 6 7

# SCHEMATIC DIAGRAM (120V/220V Model)

# SCHEMATIC DIAGRAM



NOTES:  
 1. VACUUM TUBES SHOWN WITH U7A.  
 2. POLYESTER FILM CAPACITORS.  
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 100. POLYESTER FILM CAPACITORS.

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