

ONKYO SERVICE MANUAL

Stereo Preamplifier

MODEL P-304



UD	120V AC, 60Hz
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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SPECIFICATIONS

Input Sensitivity and Impedance:	PHONO MC: 160 μ V/220 ohms	Signal-to-Noise Ratio: PHONO MC: 81dB (IHF A-202, Shorted)
	PHONO MM: 2.5mV/47 kohms	
	CD, TUNER, LINE, TAPE PLAY: 150mV/20 kohms	PHONO MM: 92dB (IHF A-202, Shorted)
		CD: 100dB (IHF A-202, Shorted)
Rated Output and Impedance:	TAPE REC: 150mV/1.2 kohms (PHONO)	Tone Control (Vol. -20dB):
	OUTPUT: 1.0V/160 ohms Max. 6V	
RIAA Deviation:	± 0.2 dB, 20-20,000Hz	BASS: ± 10 dB at 20Hz
Frequency Response (CD, TUNER, LINE, TAPE):	+0, -3dB, 0.8MHz - 170kHz	TREBLE: ± 8 dB at 20kHz
		HIGH CUT: (TREBLE min.): 6dB/oct, 7 kHz
Phono Overload:	PHONO MM: 210mV RMS at 1 kHz, THD 0.05%	Inputs: PHONO, CD, TUNER, LINE 1 & 2, TAPE PLAY 1 & 2
	PHONO MC: 13mV RMS at 1 kHz, THD 0.05%	Outputs: OUTPUT, TAPE REC OUT 1 & 2, AC OUTLETS (SWITCHED x 2, UNSWITCHED x 1)
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	PHONES
		USA model: AC 120V, 60Hz
		Worldwide models: AC 120V and 220V Switchable, 50/60Hz
		Dimensions: 465 (W) x 102 (H) x 403 (D) mm 18-5/16" x 4" x 15-7/8"
Intermodulation Distortion (CD):	0.003% (70Hz : 7kHz = 4 : 1)	Weight: 7.8 kg, 17.2 lbs.
		Specifications and features are subject to change without notice.

PRECAUTIONS

1. Replacing the fuses

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

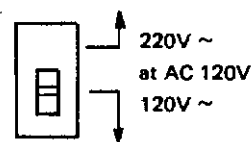
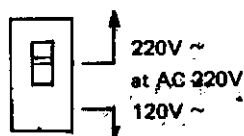
CIRCUIT NO.	PART NO.	DESCRIPTION
F901	252045	1A (ST-6), Primary fuse
F902	252063	0.5A-SE-EAWK, Primary fuse (Worldwide model)

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

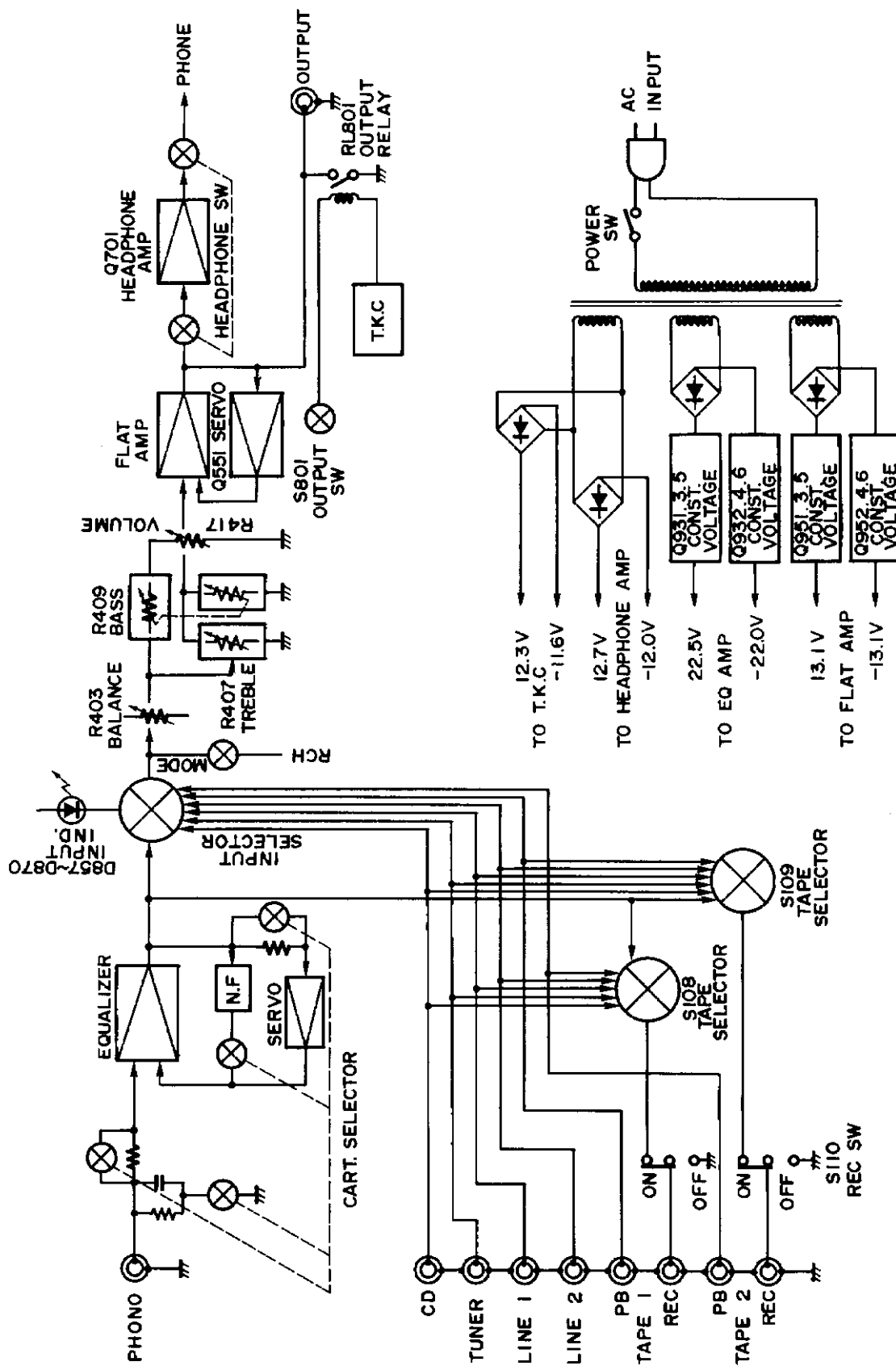
Connect the insulating-resistance tester between the plug of power supply cable and the terminal GND on the back panel. Specifications; More than 10 M Ω at 500V.

3. Voltage selector (rear panel)

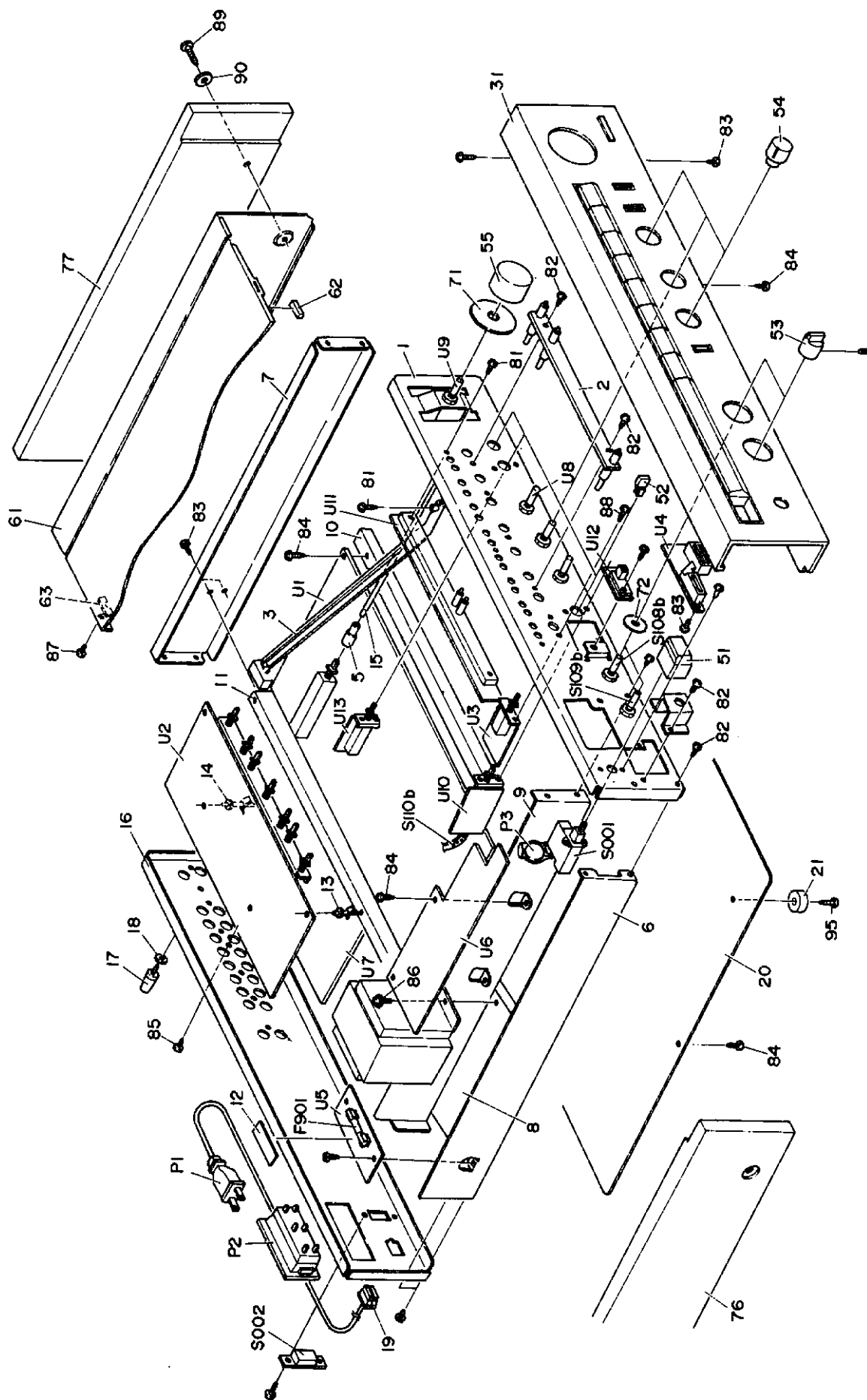
Worldwide models are equipped with a voltage selector to conform with local power supplies. Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on. Voltage is changed by sliding the groove in the switch with a screwdriver or similar instrument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



EXPLODED VIEW



PARTS LIST

REF NO.	PART NO.	DESCRIPTION	REF NO.	PART NO.	DESCRIPTION
1	27110306A	Front bracket	C001	3500065A	△0.01μF, AC400V, Capacitor IS
2	27267469B	Guide joint ass'y	F901	252045	△1A ST-6, Primary fuse
3	27273051B	Joint M	F902	252063	△0.5A SE-EAWK, Primary fuse <PX>
5	28320135	Connector	P001	253122	△AS-UC-6#16, Power supply cable
6	27115217A	Side bracket L	P002	25050293	△NSCT-6P120, AC outlet
7	27115202A	Side bracket R	P003	27300601	△SB-1925, Cover for C001
8	27130451	Bracket,power transformer	S001	25035345A	△NPS-111-L308P, Power switch
9	27130452B	Bracket SUB	S108b	25030287	NRSM-106-30BU, Wire section, remote switch
10	27130453	Bracket FR	S109b	25030288	NRSM-106-30BU, Wire section, remote switch
11	27130425	Bracket RE	S110b	25065309A	Wire section, remote switch
12	29360626-1	Label,Fuse	T001	2300158	△NPT 941D, Power transformer <D>
13	27190480	KGLS-8S,Holder		2300160	△NPT-941DC, Power transformer <PX>
14	27190470	KGLS-18S,Holder	U1	177985528-1	NAEF-2828 1, Equalizer amplifier pc board ass'y
15	27260224	Shaft,push	U2	177985529-1	NASW-2829-1, Input selector switch pc board
16	27120899A	Back panel <D>			ass'y
17	27120903A	Back panel <PX>	U3	177985530-1	NASW 2830 1, Output switch pc board ass'y
18	25060041	Ground terminal	U4	177985531-1	NADIS-2831-1, Power indicator pc board ass'y
19	87644010	W4 × 10P(BC), Washer	U5	177985532 1	NAFU-2832-1, Fuse terminal pc board ass'y <D>
20	27300750	△ Strainrelief	U6	17793532-1C	NAFU-2832-1C, Fuse terminal pc board ass'y <PX>
21	27170233	Bottom board		177985533-1	NAPS-2833-1, Power supply and headphone terminal
22	27175009A	Leg			pc board ass'y
23	27141085A	Bracket,headphone	U7	177985534-1	NASW-2834-1, Rec. selector switch pc board ass'y
31	27225075	Shielded plate	U8	177985535-1	NATC-2835-1, Rec.Selector switch pc board ass'y
51	17798121	Front panel ass'y	U9	177985536-1	NAVR-2836-1, Volume control pc board ass'y
52	28322522A	Knob,power	U10	177985537 1	NASW-2837-1, Recording output switch pc board
53	28322703	Knob,push			ass'y
54	28322705A	Knob,recording	U11	177985538-1	NADIS-2838-1, Input display pc board ass'y
55	28322704	Knob,tone	U12	177985539-1	NADIS-2839-1, Recording indicator pc board ass'y
61	28322529A	Knob,volume	U13	177985540-1	NASW-2840-1, Mode switch pc board ass'y
62	28184318A	Top cover			
63	28140020	Cushion			
71	27270209	Spacer,cover			
72	28140126	Φ53mm,Cushion			
76	28140127	Φ32mm,Cushion			
77	28185255	Side panel L			
81	28185256	Side panel R			
82	833430080	3TTP+8P(BC),Tapping screw			
83	838430068	3TTB+6B(BC),Tapping screw			
84	838430088	3TTB+8B(BC),Tapping screw			
85	831430088	3TTW + 8B(BC), Tapping screw			
86	831430100	3TTW - 10P(BC),Tapping screw			
87	830440089	4TTC+8C(BC),Tapping screw			
88	801230	3TTS+8B(BC),Tapping screw			
89	82143006	3P-6FN(BC),Pan head screw			
90	836440303	4STV - 30CQ(BC), Screw			
91	870086	4 × 12BC(BC), Special washer			
	87313006	M-3B,Toothed washer			

NOTE: <D>:Only 120V model
<PX>:Only PX Model

NOTE: THE COMPONENTS IDENTIFIED BY MARK △ ARE
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SHOCK. REPLACE ONLY WITH PARTS NUMBER
SPECIFIED.

EQUALIZER AMPLIFIER PC BOARD (NAEF-2828-1)

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INPUT SELECTOR SWITCH PC BOARD (NASW-2829-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
L101 ~ L104 L601, L602	Coils	
	231069A	NCH-1119
	231069A	NCH-1119
S101 ~ S107	Switches	
	25035524	NPS-742-L486
P101, P102 P103 P104 P105 P601	Terminals	
	25045190	NPJ-2PDBL74
	25045191	NPJ-6PDBL75
	25045208	NPJ-4PDBL88
	25045165	NPJ-4PDBL59
	25045180	NPJ-2PDBL70
P151 ~ P154 P201 P202 P203 P204 P205	Sockets	
	25050273	NSCT-9P101
	2000631	NSAS-4P587
	2000632	NSAS-4P588
	2000556	NSAS-6P512
	2000557	NSAS-6P513
	2000552	NSAS-6P508

VOLUME CONTROL PC BOARD (NAVR-2836-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
R417	5104194	N27DGL50KT30M, Variable resistor
P551, P552	2000630	NSAS-6P586, Socket ass'y

tone CONTROL CIRCUIT PC BOARD (NATC-2835-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
Q801 Q802 Q803	Transistors	
	2211255	2SC1815(GR)
	2211455	2SA1015(GR)
D801 D802, D803	Diodes	
	223145	1S2076TD
	2239492 or 2243162	RD6.2E-B2 or MTZ6.2-B
C401 ~ C404 C405, C406 C407, C408 C801 C802	Capacitors	
	379121634	0.016 μ F, 50V, Film (DEW)
	379121824	1,800pF, 50V, Film (DEW)
	379128234	0.082 μ F, 50V, Film (DEW)
	354744709	47 μ F, 16V, Elect.
	354761009	10 μ F, 35V, Elect.
R403 R407 R409 R801 R807 R809 R810	Resistors	
	5148114A	N16RGM C50KMN30, Variable, Balance
	5148115A	N16RGM11C99.8K30, Variable, Treble
	5144005	N16RQM11C69.6K88K30, Variable, Bass
	442521324	1.3k Ω , 1/2W, Metal oxide film
	442526214	620 Ω , 1/2W, Metal oxide film
	442521324	1.3k Ω , 1/2W, Metal oxide film
	442521524	1.5k Ω , 1/2W, Metal oxide film
P451, P452	Sockets	
	25050267	NSCT-3P95

POWER SUPPLY AND HEADPHONE TERMINAL PC BOARD (NAPS-2833-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
Q701	IC	
	222957	M-5216L
D701-D704 D901, D902 D903, D904 D905 ~ D910	Diodes	
	223145	1S2076TD
	223867	WL02
	223890	W01RL
	223896	1N4003F
C701, C702 C703, C704 C705, C706 C707, C708 C901, C902 C903 ~ C906 C907, C908 C909, C910 C911, C912 C913 C914 C915, C916	Capacitors	
	354780479	4.7 μ F, 50V, Elect.
	372122214	220pF, 50V, Styrene
	352744709	47 μ F, 16V, Elect.
	379121035	0.01 μ F, 50V, Film (DEW)
	375104745	0.47 μ F, 125V, Film (ME)
	375101045	0.1 μ F, 125V, Film (ME)
	354782229	2200 μ F, 50V, Elect.
	354762229	2200 μ F, 35V, Elect.
	354741029	1000 μ F, 16V, Elect.
	354753319	330 μ F, 25V, Elect.
	379121035	0.01 μ F, 50V, Film (DEW)
	354780109	1 μ F, 50V, Elect.
R711, R712 R901, R902 R903 ~ R906 R907, R908 R909, R910 R911	Resistors	
	441624704	47 Ω , 1W, Metal oxide film
	442523304	33 Ω , 1/2W, Metal oxide film
	442520104	1 Ω , 1/2W, Metal oxide film
	442520204	2 Ω , 1/2W, Metal oxide film
	442523304	33 Ω , 1/2W, Metal oxide film
	441621224	1.2k Ω , 1W, Metal oxide film
P751	Socket	
	2000551	NSAS-6P507
P701	Terminals	
	25045203	HLJ 4318-01-3010, Headphone

REC. SELECTOR SWITCH PC BOARD (NASW-2834-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
S108a, S109a S110a	Switches	
	25065079	NSS-4643, Remote switch
	25065190	NSS-4285, Remote switch
P155	Socket	
	25050267	NSCT-3P95

OUTPUT SWITCH PC BOARD (NASW-2830-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
S801	25035372	NPS-122-L336, Output ON/OFF switch
P853	25050267	NSCT-3P95, Socket

RECORDING OUTPUT SWITCH PC BOARD (NASW-2837-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
S110C	25035227	NPS-122 L191, Switch

FUSE TERMINAL PC BOARD (NAFU-2832-1/1C)

CIRCUIT NO.	PART NO.	DESCRIPTION
F901a	250113	△ S N5051, Fuse holder
F901	252045	△ 1A-ST6, Fuse
F902a	25050065	△ YSH-403T Fuse holder <W>
F902	252063	△ 0.5A-SE-EAWK, Fuse <W>

INPUT DISPLAY PC BOARD (NADIS-2838-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
	L.E.Ds	
D857~D872	225137CG or 225137DG or 225137DY	SEL2413CG or SEL2413DG or SEL2413DY
	Resistor	
R854	442521324	1.3kΩ, 1/2W, Metal oxide film
	Holder	
	27190456	Holder (LED)

POWER INDICATOR PC BOARD (NADIS-2831-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
D851, D852	225142	SEL2413K, LED
	27190455	Holder (LED)

RECORDING INDICATOR PC BOARD (NADIS-2839-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
D856	225233RB or 225233RC 27190319A	GL5HY40-PB or GL5HY40-RC Holder (LED)

MODE SWITCH PC BOARD (NASW-2840-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
S401	25035372	NPS-122-L336, Push

NOTE: <W>:Only Worldwide model

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