

ONKYO® SERVICE MANUAL

SUPER SERVO STEREO

PREAMPLIFIER

MODEL P-3060R



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ONKYO®
AUDIO COMPONENTS

SPECIFICATIONS

Input Sensitivity and Impedance :

PHONO MC : HIGH MC 2.5 mV/100 ohms 130 μ V/(100/330) ohms

PHONO MM : 2.5 mV/(47 k Ω /100 k Ω)

TUNER : 150 mV/47 k Ω

TAPE PLAY : 150 mV/47 k Ω

AUX : 150 mV/47 k Ω

Rated Output and Impedance :

TAPE REC : 150 mV/2.2 Ω (PHONO)

OUTPUT : 1.0 V/220 Ω Max. 20V

RIAA Deviation : \pm 0.2 dB, 20 — 20,000 Hz

Frequency Response (TUNER) : + 0, -3dB, 0.8 Hz — 170 kHz

Phono Overload :

PHONO MM : 300 mV RMS at 1 kHz, THD. 0.05% 1400 mV RMS at 10 kHz, THD. 0.05%

PHONO MC : 17 mV RMS at 1 kHz, THD. 0.05% 82 mV RMS at 10 kHz, THD. 0.05%

Total Harmonic Distortion :

0.003% at PHONO MM, 3 V output

0.005% at PHONO MC, 3 V output

0.002% at TUNER, AUX, TAPE, 3V output

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

Signal to Noise Ratio : PHONO MC : 76 dB (IHF A-202)

PHONO MM : 82 dB (IHF A-202)

TUNER : 93 dB (IHF A-202)

Tone Control :

BASS : \pm 8 dB at 70 Hz

TREBLE : \pm 8 dB at 20 kHz

Filters :

HIGH CUT : (Vol. min.) 6 dB/oct, 7 kHz

SUBSONIC : 6 dB/oct 15 Hz/20Hz

Audio Muting : -20 dB

Rated Output Voltage : 1.0 V

Inputs : PHONO 1 & 2 TUNER TAPE PLAY 1 & 2 AUX

Outputs : TAPE REC OUT 1 & 2 OUTPUT : -1 (for servo sensor cable used) -2 (for normal cable)

Semiconductors : 49 Transistors, 37 Diodes, 8 FETs, 4 ICs

Dimensions : 450(W) x 99(H) x 403(D) mm (17-3/4" x 3-15/16" x 15-3/4")

Weight : 9.5 kg. (21 lbs.)

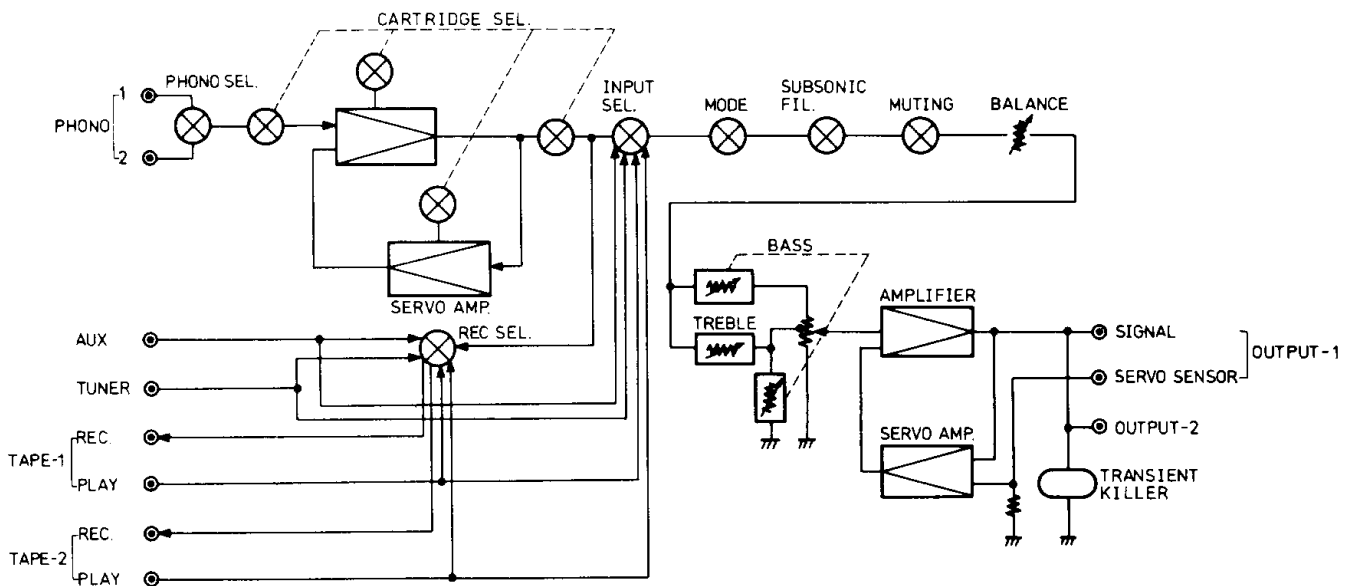
Power Supply Rating :

AC 120 V, 60 Hz, D model

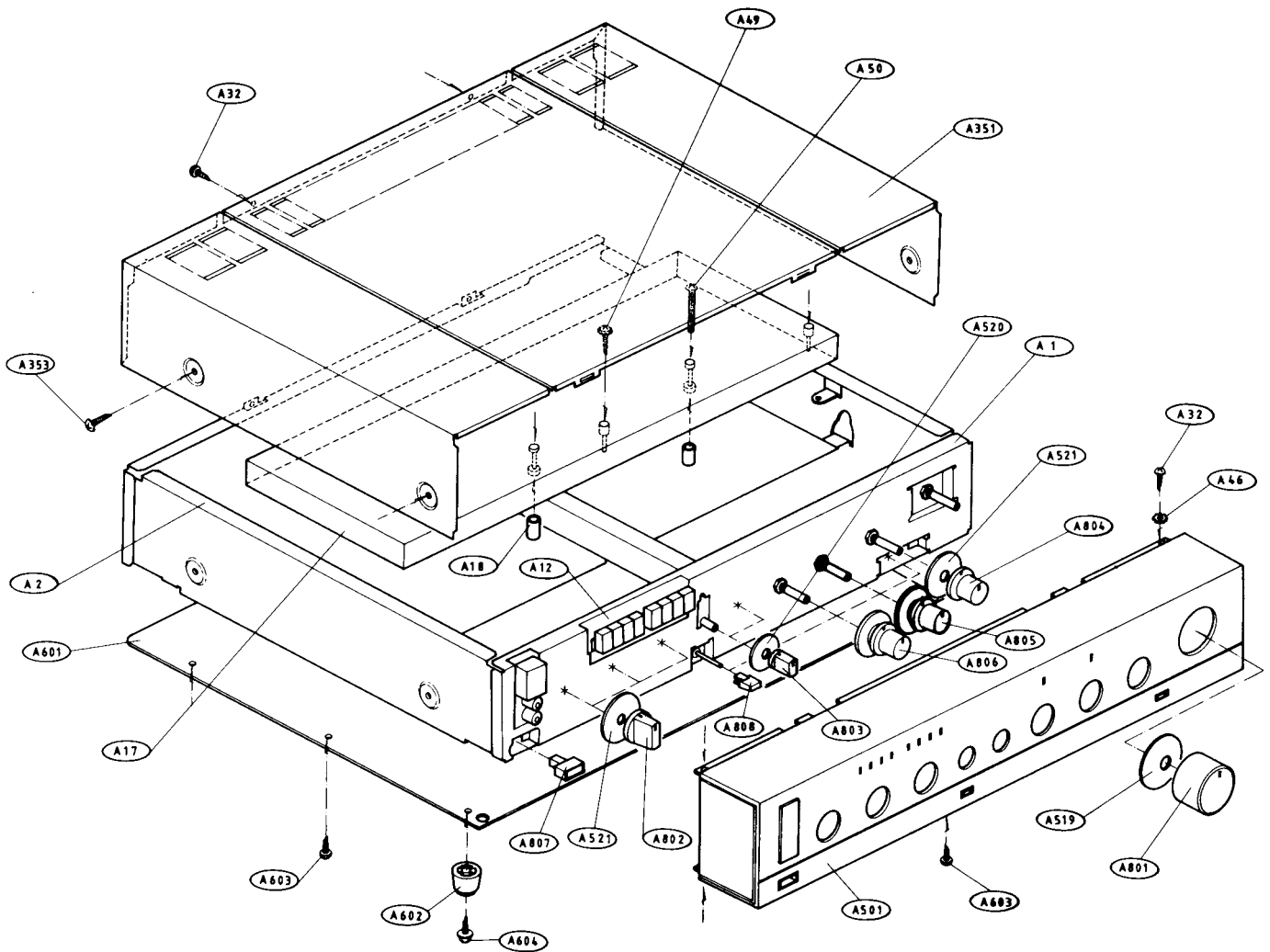
AC 220V, 50 Hz, G model

Specifications and features are subject to change without notice.

BLOCK DIAGRAM



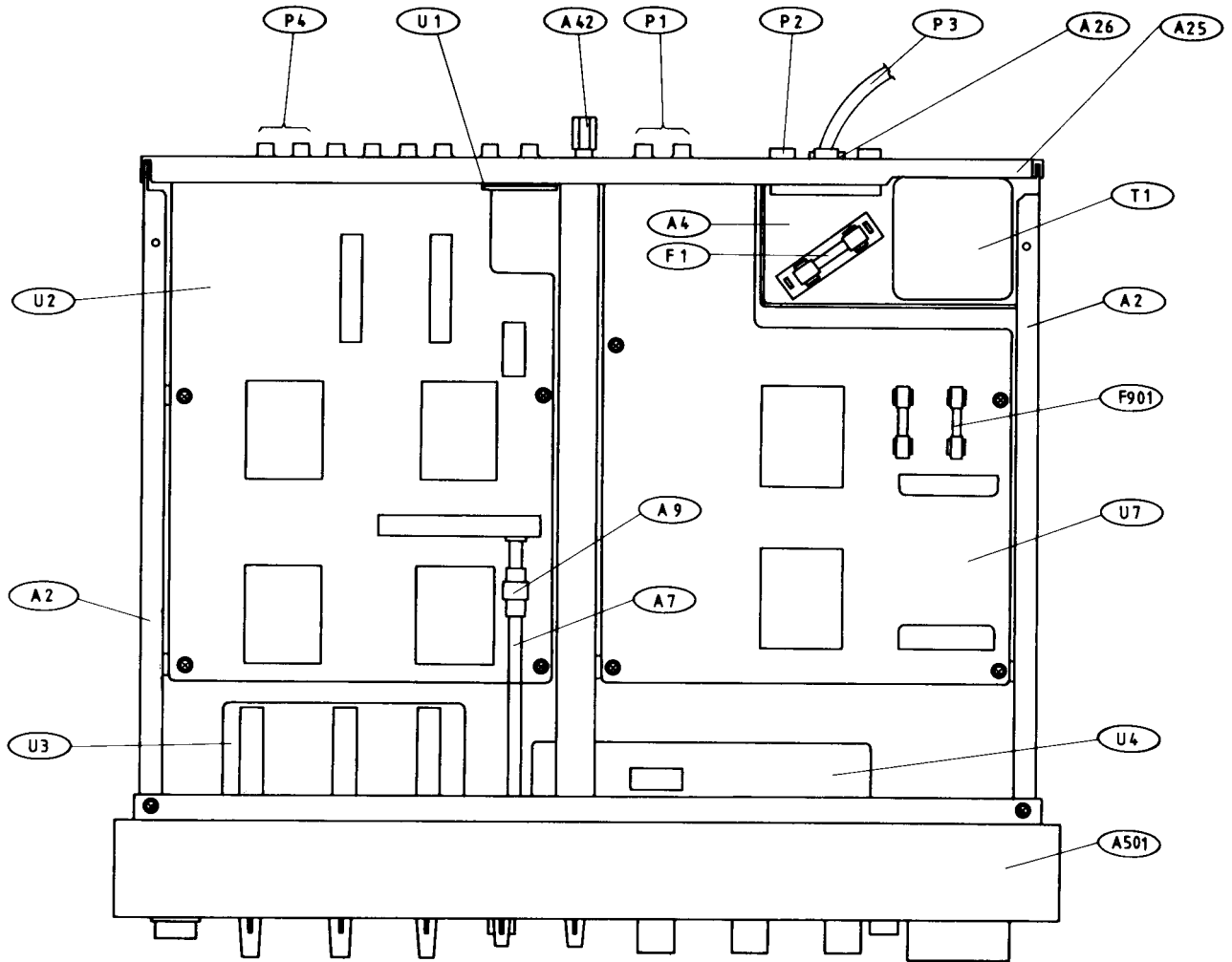
EXPLODED VIEW



PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION	REF. NO.	PARTS NO.	DESCRIPTION
A1	27110151	Front bracket	A519	28140126	53mm, Cushion
A2	27115050C	Side bracket	A520	28140127	32mm, Cushion
A4	27130163A	Bracket, Power transformer (D)	A521	28140185	40mm, Cushion
	27130323	Bracket, Power transformer (G)	A601	27170065A	Bottom board
A7	27260066	Shaft, Speaker	A602	27175009A	T-C, Leg
A9	27273008	Joint, Speaker shaft	A603	831430088	3TTW + 8B(BC), Tapping screw
A17	27150135B	Shielded plate	A604	831130128	3TTW + 12B, Tapping screw
A18	27300228	Bearing	A801	28320649	Knob, Volume
A25	27120451	Back panel (D)	A802	28320647A	Knob, Selector
	27120452	Back panel (G)	A803	28320648B	Knob, Cartridge
A26	270280	SR-4K-4, Strainrelief	A804	28320652	Knob, Balance
A32	834430068	3TTS + 6B(BC), Tapping screw	A805	28320653A	Knob ass'y, Treble control
A42	TP160B	Ground terminal	A806	28320654A	Knob ass'y, Bass control
A46	87243006	3mm, Toothed washer	A807	28320646	Knob, Power switch
A49	834430168	3TTS + 16B(BC), Tapping screw	A808	28320645	Knob
A50	82543035	3B + 35FN(BC), Tapping screw	C1	3500065A	0.01 μ F, 400V, Capacitor IS
A351	28184124-1	Top cover	C2-C9	379124737	0.047 μ F, 50V, Capacitor DEW
A353	838440089	4TTB + 8C(BC), Tapping screw	C231, C233	3800003	0.1 μ F, 100V, Capacitor DTG
A501	12368121	Front panel ass'y	Cl a	27300080	Cover, capacitor

COMPONENT LOCATION



REF. NO.	PARTS NO.	DESCRIPTION	REF. NO.	PARTS NO.	DESCRIPTION
T001	230662	NPT-754D, Power transformer (D)	U2	12368521C	NAEQ-721C, Equalizer amplifier pc board ass'y
	230663	NPT-754G, Power transformer (G)	U3	12790522B	NASW-722B, Switch circuit pc board ass'y
S1	25035345	NPS-111-L308P, Power switch (D)	U4	12790523B	NATC-723B, Tone control pc board ass'y
	25035176	NPS-111-L140, Power switch (G)	U5	12790524A	NAAB-724A, Muting switch pc board ass'y
S102, S103	25065175	Switch wire of remote	U6	12792525	NAVR-725, Volume control pc board ass'y
P1	25045052	NPJ4PRBL26, Terminal	U7	12368526C	NAOP-726C, Output amplifier pc board ass'y (D)
P2	25050046	NSCT-2P15, AC outlet (D)		12374526D	NAOP-726d, Output amplifier pc board ass'y (G)
P3	253100	AS-UC-4, Power supply cable (D)			
	253083	AS-CEE, Power supply cable (G)			
P4	25045043	NPJ4PDBL20, Input terminal			
F1	252045	1A(ST-6), AC fuse(D)			
	252087	0.2A-SE-EAWK, AC fuse (G)			
Fla	252050050	H0438A, Fuseholder (D)			
F901, F902	252095	0.5A(ST-6), AC fuse (D)			
F901-F904	252063	0.5A-SE-EAWK, AC fuse (G)			
Fla,	25065096	NPF-073, Fuseholder (G)			
F901a-F904a					
U1	12792548	NAPJ-748, Phono input terminal pc board ass'y	Note		
			(D) : Only 120V model		
			(G) : Only 220V model		

PRINTED CIRCUIT BOARD PARTS LIST

PHONO INPUT TERMINAL PC BOARD (NAPJ-748)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	25045066	NPJ-4PDBL33, Terminal

EQUALIZER AMPLIFIER PC BOARD (NAEQ-721C)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
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	IC	
Q301, Q302	222502	NJM4558DX

	Transistors	
Q201-Q204	2211530	2SK146
Q205, Q206, Q213, Q214	2211445 or 2211446	2SC2291(F) or 2SC2291(G)
Q207, Q208, Q215, Q216	2211653 or 2211654	2SC2235(O) or 2SC2235(Y)
Q209, Q210 Q211, Q212	2210700 2211585 or 2211586	2SC1583(O-001) 2SA979(F) or 2SA979(G)
Q217, Q218	2211643 or 2211644	2SA965(O) or 2SA965(Y)
Q303-Q306	2211254 or 2211255	2SC1815(Y) or 2SC1815(GR)
Q307, Q308	2211515 or 2211516	2SA995(F) or 2SA995(G)
Q907	2211163 or 2211164	2SC2120(O) or 2SC2120(Y)
Q908	2211503 or 2211504	2SA950(O) or 2SA950(Y)

	Diodes	
D201-D304	223133 or 223105	DS442X or 1S1555
D904, D905	224124	GZA22U

	Capacitors	
C201, C202	372322214	220pF, 50V, stylon
C203, C204	379128224	8200pF, 50V, DEW
C205, C206	379121234	0.01 μ F, 50V, DEW
C207, C208	379121134	0.11 μ F, 50V, DEW
C209-C212	379123334	0.033 μ F, 50V, DEW
C219, C220	379121035	0.01 μ F, 50V, DEW
C223, C224	379221057	1 μ F, 50V, DEW
C225, C226	379121524	1500pF, 50V, DEW
C227, C228	379123324	3300pF, 50V, DEW
C301-C304	390884707	47 μ F, 50V, SLD
C311, C312	379121047	0.1 μ F, 50V, DEW
C931, C932	352780109	1 μ F, 50V, Elect.

	Resistors	
R217, R218	5225066	N10HR330BDM, Semi fixed
R229, R230	441525614	560 Ω , 1/2W, Metal oxide film
R265-R268	441523304	33 Ω , 1/2W, Metal oxide film
R301, R302	5225070	N10HR2.2KBDM, Semi fixed

	Switches	
S101	25035159A	NPS-122-L123
S102a, S103a	25065079	NSS-4643
S201	25030138	NPS-185-20ZR

CIRCUIT NO.	PARTS NO.	DESCRIPTION
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	Terminal	
P4	25045043	NPJ-4PDBL20

Case
27300425

SWITCH CIRCUIT PC BOARD (NASW-722B)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
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	Transistor	
Q806, Q807	2211503 or 2211504	2SA950(O) or 2SA950(Y)

	Resistors	
R807	441521114	110 Ω , 1/2W, Metal oxide film
R808	441522204	22 Ω , 1/2W, Metal oxide film
R809, R810	441529104	91 Ω , 1/2W, Metal oxide film
R817	441523014	300 Ω , 1/2W, Metal oxide film
R824, R826	441526804	68 Ω , 1/2W, Metal oxide film

	Switches	
S102b	25030210	NRSM-146-15ZV
<u>S103b</u>	<u>25030209</u>	<u>NRSM-145-15ZV-CAD05</u>
S401	25030208	NRSM-165-15ZK

TONE CONTROL PC BOARD (NATC-723B)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
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	Capacitors	
C401, C402	379121545	0.15 μ F, 50V, DEW
C403, C404	379126835	0.068 μ F, 50V, DEW
C405, C406	379121235	0.012 μ F, 50V, DEW
C407, C408	379126224	6200pF, 50V, DEW
C409, C410	372329114	91pF, 50V, Stylor
C411, C412	379123335	0.033 μ F, 50V, DEW

	Resistors	
R409	5104126	N27DGLC250KMN25M, Balance control variable
R411	5104125	N27DTLS11219K25M, Treble control variable
R413	5104124	N27DFLS11110K180K25M, Bass control variable

	Switch	
S402	25030207	NRSM-143-15ZV

MUTING SWITCH PC BOARD (NAAB-724A)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
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	Switch	
S403	25035160A	NPS-122-L124

VOLUME CONTROL PC BOARD (NAVR-725)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	Resistor	
R423	5104077	N40DGL100KT30M

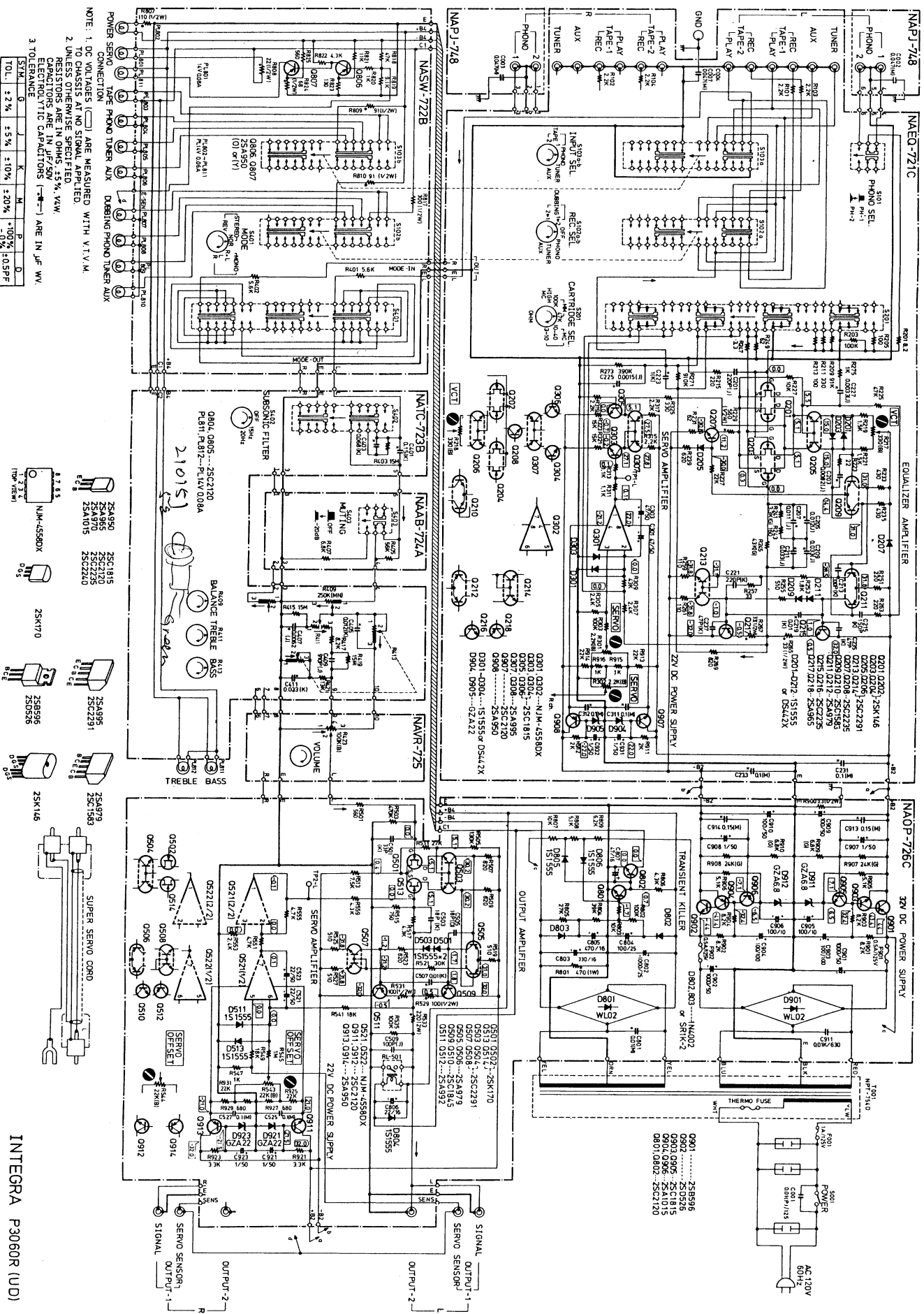
OUTPUT AMPLIFIER PC BOARD (NAOP-726C)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	IC2	
Q521, Q522	222502	NJM-4558DX

Transistors

Q501, Q502	2212185	2SK170(GR) or
Q513, Q514	2212186	2SK170(BL)
Q503, Q504	2211445 or	2SC2291(F) or
Q507, Q508	2211446	2SC2291(G)
Q505, Q506	2211585 or	2SA979(F) or
	2211586	2SA979(G)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
Q509, Q510	2211732 or 2211733	2SC1845(F) or 2SC1845(E)
Q511, Q512	2211792 or 2211793	2SA992(F) or 2SA992(E)
Q801, Q802	2211163 or	2SC2120(O) or
Q911, Q912	2211164	2SC2120(Y)
Q901	2200413	2SB596(Y)
Q902	2200744	2SD526(Y)
Q903, Q905	2211254 or 2211255	2SC1815(Y) or 2SC1815(GR)
Q904, Q906	2211454 or 2211455	2SA1015(Y) or 2SA1015(GR)
Q913, Q914	2211503 or 2211504	2SA950(O) or 2SA950(Y)
	Diodes	
D501-D504, D804-D806, D511-D514	223133 or 223105	DS442X or 1S1555
D801, D901	223867	WL02

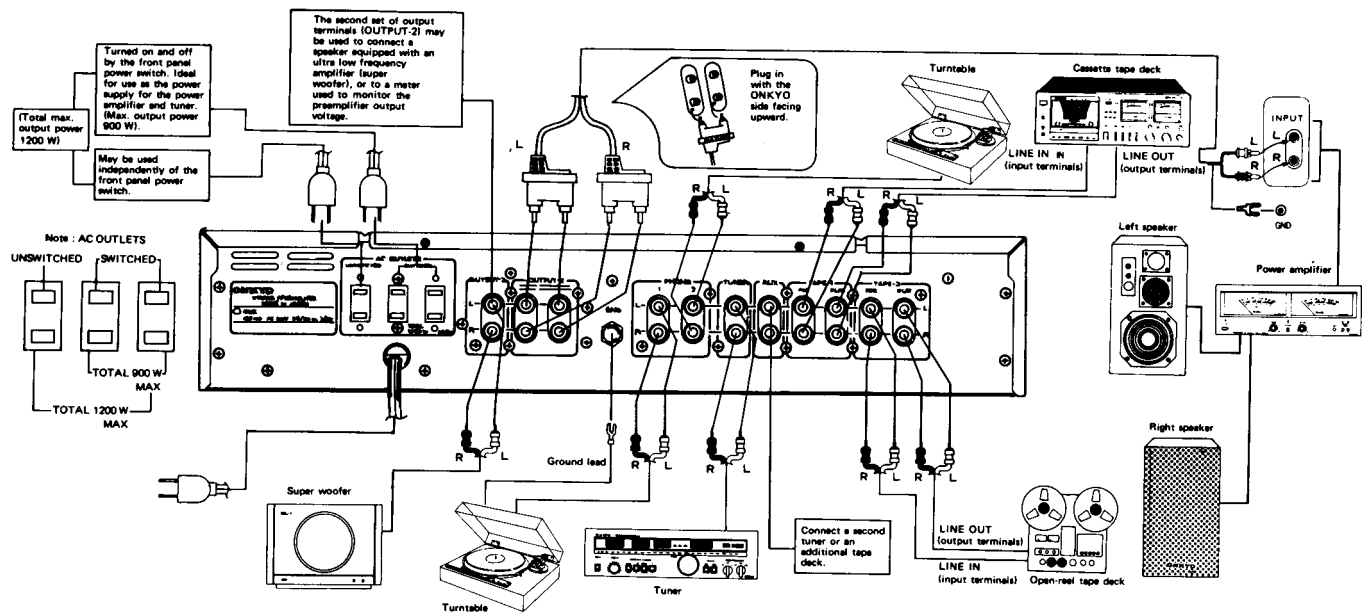


NOTE: 1. DC VOLTAGES () ARE MEASURED WITH V.T.V.M. TO CLASSIFY AT NO SIGNAL APPLIED.
 2. UNLESS OTHERWISE SPECIFIED, RESISTORS ARE IN OHMS, 5% 1/4W.
 CAPACITORS ARE IN P.F./50V.
 ELECTROLYTIC CAPACITORS () ARE IN μF 5V.
 3. TOLERANCE
 4. SYMBOL
 * NON-INDUCTIVE POLYESTER FILM CAPACITOR.
 • NON-INFLAMMABLE RESISTOR.

- 25A980
- 25A985
- 25A990
- 25A995
- 25A1015
- 25C1815
- 25C1820
- 25C2235
- 25C2240
- 25K170
- 25R996
- 25S026
- 25K146
- 25K1583

INTEGRA P3060R (UD)

SYSTEM CONNECTIONS



- Confirm that all pin-plugs are firmly secured.

If a plug becomes loose and proper grounding is lost, an unpleasant booming noise is generated. Furthermore, always handle cables with adequate care, holding the plug at its base - not the cable itself - when connecting and disconnecting.

- Keep the pin-type cables as far away as possible from the power cord and power transformer area. Otherwise, hum and other unwanted noise may be generated.
- Do not plug in the power cord until all connections have been completed and thoroughly checked.
- Make sure that the L and R pin-type cables are properly connected to the left and right terminals. Otherwise, the left and right sound will be reversed.

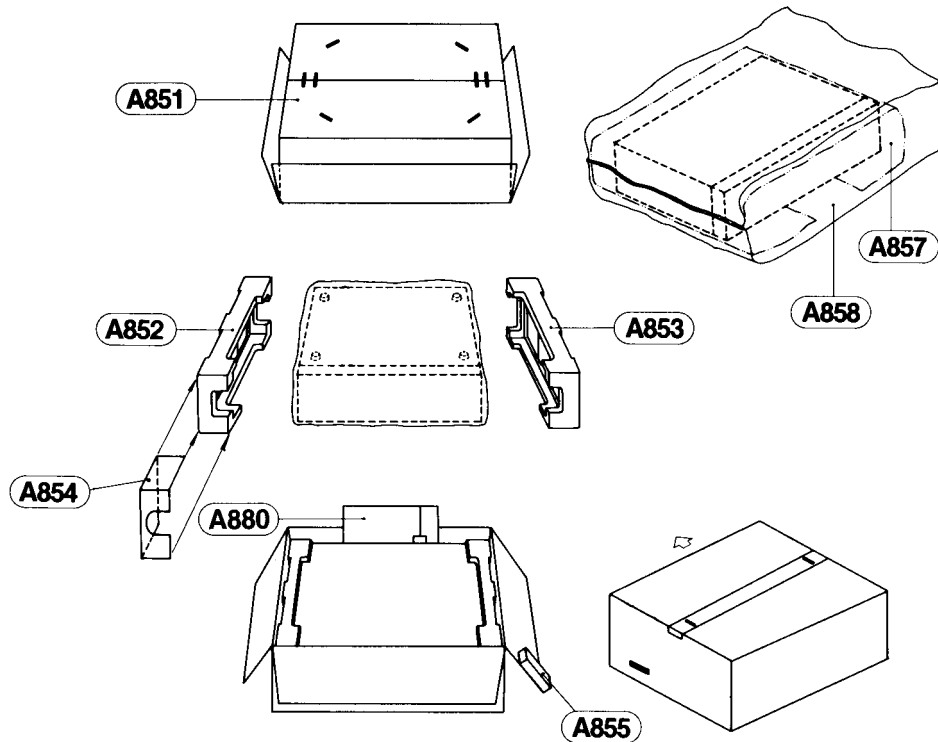
- Although the turntable ground lead is usually connected to the amplifier GND terminal, there are turntables which do not require a ground connection.

- The rear panel AC OUTLETS are designed for use with other audio components. Do not use as the power supply for hair driers or other heating appliances.

Although the P-3060R may be connected to the power amplifier with normal pin-type cables for normal audio amplifier performance, it will not be possible to take advantage of the Dual Super Servo circuit.

If the use of ordinary cables is unavoidable, connect to the power amplifier input terminals via the OUTPUT-1 SIGNAL terminals or the OUTPUT-2 terminals. Connect the ground lead where necessary.

PACKING PROCEDURES



SYMBOL NO.	PARTS NO.	DESCRIPTION
A851	29050596	Master carton box
A852	29090452	Pad, left
A853	29090453	Pad, right
A854	29090663	Pad
A855	29090659	Pad
A857	29095012-1	500 x 800mm, Protection sheet
A858	28100037A	720 x 950mm, Poly bag
A880		Accessory bag complete
	29340647	Instruction manual (D/U)
	29340648	Instruction manual (G/V)
	29365006-4	Warranty card (U)
	29365005-3	Warranty card (V)
	29358002	Service station list (U)
	29100006	350 x 250mm, Poly bag
	2010068	Super servo cable
	250153	P0107, Shorted pin (phono 2)

Note

- (U) : Only U.S.A. model
- (V) : Only West Germany model
- (D) : Only 120V model
- (G) : Only 220V model

ONKYO CORPORATION

International Division : No. 24 Mori Bldg., 23-5, 3-chome, Nishi-Shinbashi, Minato-ku, Tokyo, Japan
 Telex : 2423551 ONKYO J. Phone : 03-432-6981

ONKYO U.S.A. CORPORATION

Eastern Office : 200 Williams Drive, Ramsey, N.J. 07446 Tel. 201-825-7950
 Midwest Office : 2406 Martin Lane Rolling Meadows, Ill 60008 Tel. 312-577-4300
 Western Office : 8607 Canoga Ave., Canoga Park, CA, 91304 Tel. 213-341-8114

ONKYO DEUTSCHLAND GMBH, ELECTRONICS

8034 München-Germering. Industriestrasse 18, West Germany. Telex: 521726 Telefon: (089)-84-3071