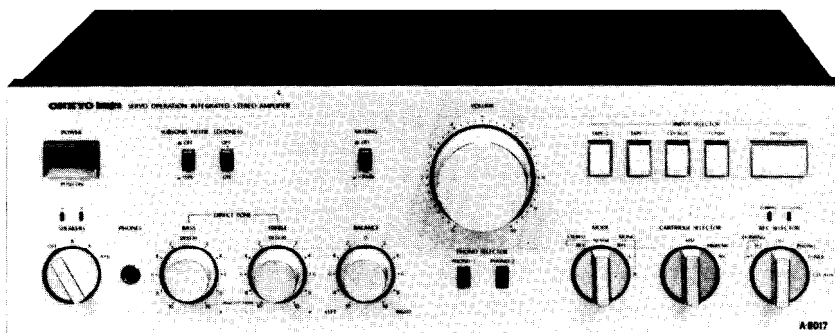


ONKYO SERVICE MANUAL

SUPER SERVO INTEGRATED STEREO AMPLIFIER MODEL A-8017



UDN, UD	120V AC, 60Hz
UGV, UG	220V AC, 50Hz
UW	120V or 220V AC, 50/60Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK \triangle 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

Music Power Output:	2 x 180 watts at 4 ohms, 1kHz (DIN) 2 x 110 watts at 8 ohms, 1kHz (DIN)
Continuous Power Output:	2 x 115 watts at 4 ohms, 1kHz (DIN) 2 x 85 watts at 8 ohms, 1kHz (DIN) 80 watts per channel min. RMS at 8 ohms both channels driven, from 20Hz to 20kHz, with no move than 0.015% THD.
Total Harmonic Distortion:	0.015% at rated power
IM Distortion:	0.005% at rated power
Damping Factor:	50 at 8 ohms
Frequency Response:	2 – 50,000 Hz \pm 1 dB
RIAA Deviation (MM):	20 – 20,000 Hz \pm 0.3 dB
Sensitivity and Impedance:	Phono (MM): 2.5mV/50 kohms Phono (MC): 280 μ V/330 ohms Tuner: 150 mV/50 kohms Tape Play: 150 mV/50 kohms Tape Rec: 150 mV/3.3 kohms (phono)
Phono Overload:	210 mV RMS at 1 kHz, 0.015% THD
Bass Control:	\pm 8 dB at 70 Hz
Treble Control:	\pm 8 dB at 20,000 Hz

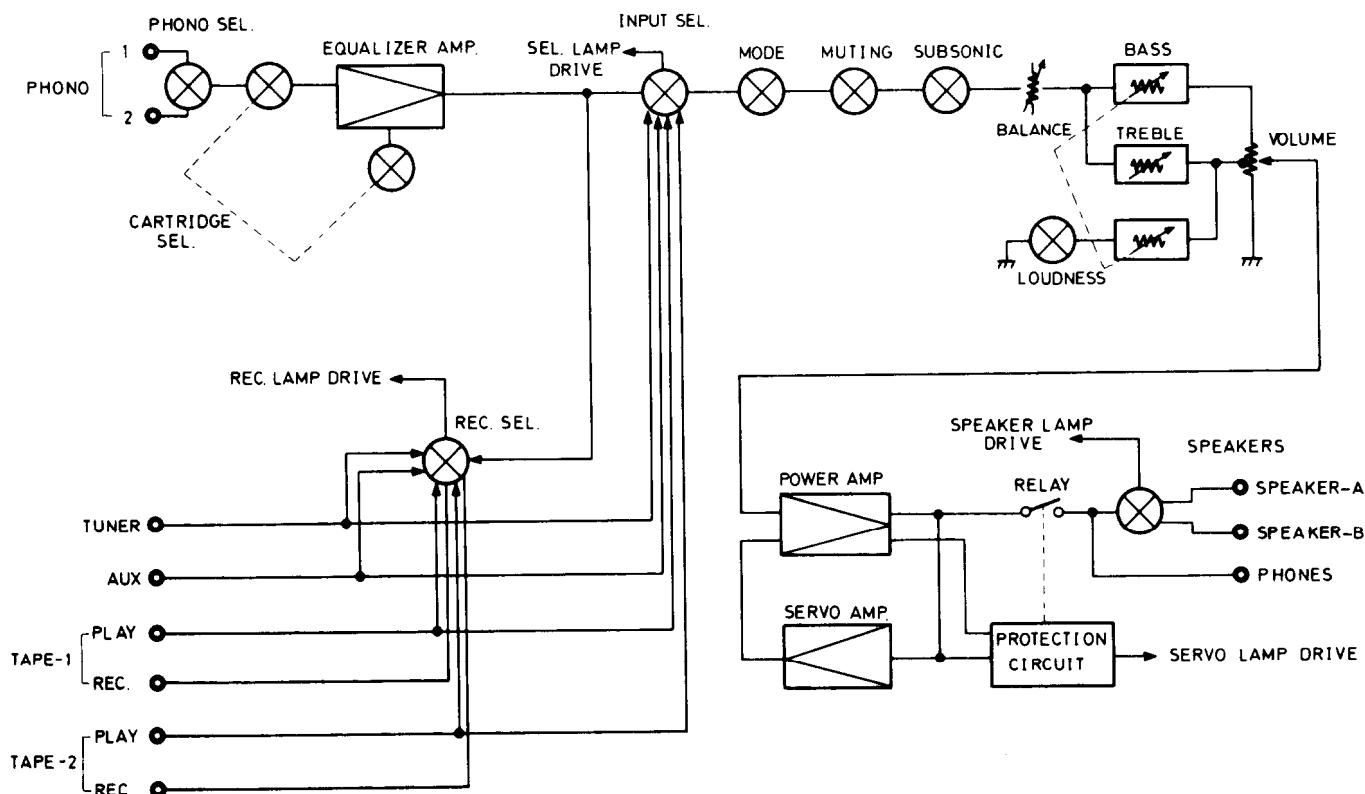
Signal to Noise Ratio:	Phono (MM): 80 dB (IHF A-202, 5 mV input, 1 watt output) Phono (MC): 68 dB (IHF A-202, 0.5 mV input, 1 watt output) Tuner & Tape: 84 dB (IHF A-202, 0.5V input, 1 watt output)
Muting:	-20 dB
Loudness Control:	+6 dB at 70 Hz, +5 dB at 20 kHz
Subsonic Filter:	15 Hz (6 dB/Oct.)
High Cut (TREBLE MIN):	6 kHz (6 dB/Oct.)

General

Semiconductors:	IC: 3 TR: 51 Diode: 26
Dimensions:	435(W) x 142(H) x 392(D)mm 17-1/8" x 5-9/16" x 15-7/16"
Weight:	11.5 kg (25.4 lbs.)

Specifications and features are subject to change without notice.

BLOCK DIAGRAM



PRECAUTIONS

1. Replacing the fuse

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

CIRCUIT NO.	PARTS NO.	DESCRIPTION
F901	252051	6A(ST-6), AC fuse (120V model)
F901	252055	6A-T, AC fuse (120V/220V model)
F902	252076	3.15A-SE-EAK, AC fuse (220V, 120V/220V model)
F701	252070	1A-SE-EAK, AC fuse (220V model)
F1, F2	252079	6.3A-SE-EAK, DC fuse (220V model)

2. Replacing the lamps

This unit uses the lamps listed below.

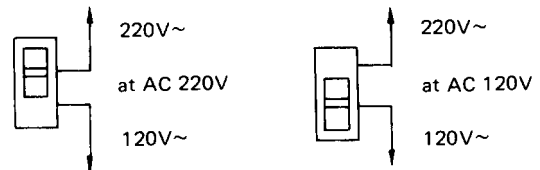
CIRCUIT NO.	PARTS NO.	DESCRIPTION
PL001, PL002	210153	PL14V, 0.06AW-1.0, Speaker switch indicator
PL301, PL302	210155	PL14V, 0.06AW-1.0, Rec. selector indicator
PL303	210150	PL14V, 0.08AW-1.0, Input selector indicator, Phono
PL304, PL305	210146	PL14V, 0.06AW-1.0, Input selector indicator, DAD/AUX
PL306, PL307	210147	PL14V, 0.06AW-1.0, Input selector indicator, TAPE
PL701	210148	PL14V, 0.06AW-1.5, Power indicator
PL702	210151	PL14V, 0.08AW-1.5, Servo indicator

3. Insulation resistance measurement

Connect the insulating-resistance tester between the plug of power supply cable and the terminal GND specifications; D model, G/W model

4. 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.



MAIN AMPLIFIER ADJUSTMENT

MAIN AMPLIFIER ADJUSTMENT

Set the all control knobs to standard position

Standard knob position	
INPUT SELECTOR	TUNER
CARTRIDGE SELECTOR	MM
PHONO SELECTOR	PHONO
REC SELECTOR	OFF
MODE	NORM
MUTING	OFF
SUBSONIC FILTER	OFF
BALANCE	Center
VOLUME	Minimum
LOUDNESS	OFF
BASS	DEFEAT
TREBLE	DEFEAT
SPEAKERS	A

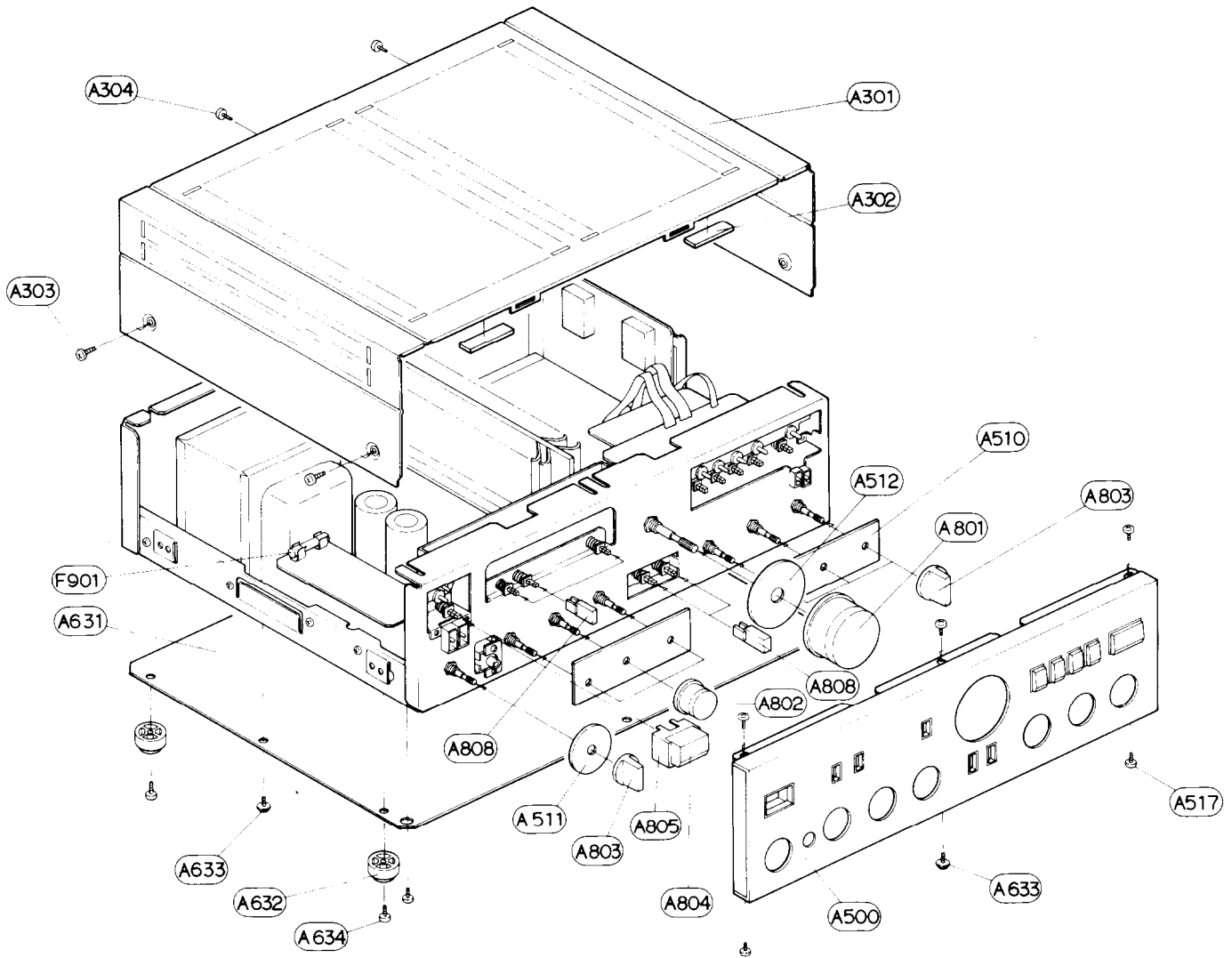
IDLING CURRENT ADJUSTMENT

1. Connect the DC voltmeter between I_{ID} and V_{CT} terminals.
2. Adjust the voltage to $12V \pm 5mV$ with semi-fixed resistor of R538 and R638.

NOTES: Adjust after switching on for 5 minutes.

VOLUME Minimum
LOAD Open

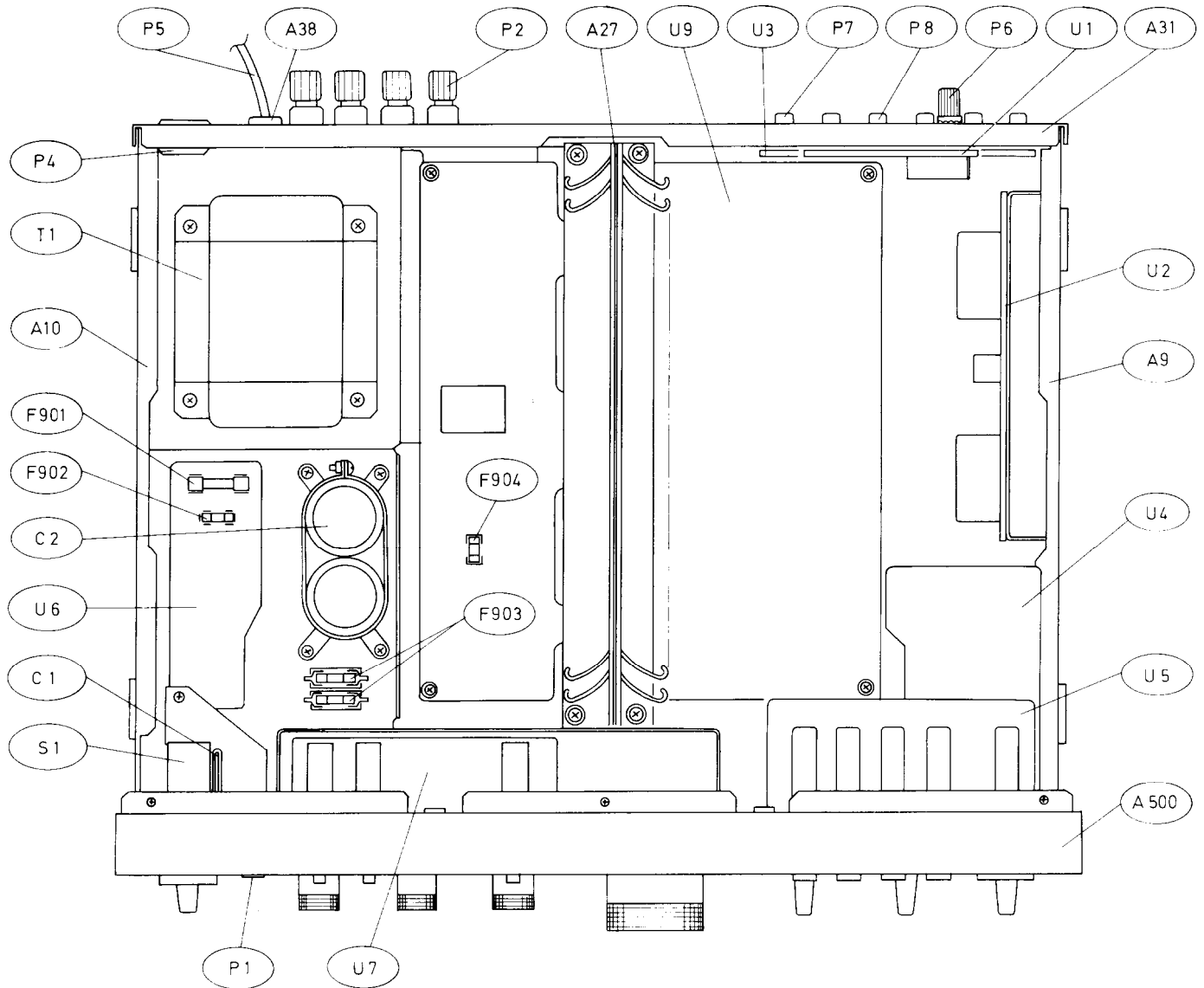
EXPLODED VIEW



PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION	REF. NO.	PARTS NO.	DESCRIPTION
A9	27115132A	Side bracket, Right	A802	28320832B	Knob, Balance
A10	27115089C	Side bracket, Left		28321013	Knob, Balance (B)
A27	27160111	Heatsink	A803	28320833	Knob, Speaker
A31	27120483A	Back panel (D)		28321014	Knob, Speaker (B)
	27120484	Back panel (G)	A804	28321100	Knob ass'y, Power
	27120485	Back panel (W)		28321101	Knob ass'y, Power (B)
A38	270280	SR-4K-4, Strainrelief	A805	28320828C	Knob, Base
A301	28184187	Top cover	A808	28320836	Knob, Push
	28184185	Top cover (B)		28321018	Knob, Push (B)
A302	28140020	Cushion, Top cover	△ T1	230695	NPT-789D, Power transformer (D)
A303	838440089	4TTB+8C(BC), Tapping screw		230696	NPT-789G, Power transformer (G)
A304	834430068	3TTS+6B(BC), Tapping screw		230697	NPT-789DG, Power transformer(W)
A500	12298121	Front panel ass'y	△ S1	<u>25035015A</u>	NPS-111LA3, Power switch
	12284121	Front panel ass'y (B)	△ S2	25065123	NSS-1258P, Slide switch (W)
A510	28140205	Cushion, Tone	△ C1	3500065A	0.01μF, AC 400V, Capacitor IS
A511	28140185	Cushion	C2	3504172	15000μF, 59V, Capacitor Elect.
A512	28140206	Cushion	△ F901	252051	6A (ST-6), AC fuse (D)
A517	834430068	3TTS+6B(BC), Tapping screw		252055	6A-T, AC fuse (W)
A631	27170108C	Bottom board	△ F902	252076	3.15A-SE-EAK, AC fuse (G)(W)
A632	27175009A	Bottom leg	△ F1, F2	252079	6.3A-SE-EAK, DC fuse (G)
A633	831430088	3TTW+8B(BC), Tapping screw	△ F701	252070	1A-SE-EAK, AC fuse (G)
A634	834430108	3TTS+10B(BC), Tapping screw	P1	25045018	LJ-100-H, Stereo headphone terminal
A801	28320831A	Knob, Volume	P2	25060051	NTM-4PRMN20, Speaker terminal
	28321012	Knob, Volume (B)			

COMPONENT LOCATION



REF. NO.	PARTS NO.	DESCRIPTION	REF. NO.	PARTS NO.	DESCRIPTION
△ P4	25050139	NSCT-6P38, AC outlet (D)	U6	12941571	NAPS-1471, Rectifier circuit pc board ass'y (D)
	25108010	LG-2C, Terminal (G)(W)		12304571D	NAPS-1471d, Rectifier circuit pc board ass'y (G)
△ P5	253112	AS-UC-4#18, Power supply cable (D)		12330571C	NAPS-1471c, Rectifier circuit pc board ass'y (W)
	253092-1	AS-CEE-2, Power supply cable (W)	U7	12941572	NASW-1472, Switch circuit pc board ass'y
	253083-1	AS-CEE, Power supply cable (G)	U8	12328574B	NATC-1474b, Tone control pc board ass'y
P6	25060044	Ground terminal	U9	12298576E	NAMA-1476e, Power amplifier pc board ass'y (D) (W)
P7	25045072	NPJ-6PDBL36, Input terminal		12304576F	NAMA-1476f, Power amplifier pc board ass'y (G)
P8	25045069	NPJ-4PDBL34, Phono input terminal			
U1	12298547B	NAPJ-847b, Phono input terminal pc board ass'y (D)(W)			
	12304547A	NAPJ-847a, Phono input terminal pc board ass'y (G)			
U2	12298548C	NAEQ-848C, Equalizer amplifier pc board ass'y (D)(W)			
	12304555	NAEQ-1655, Equalizer amplifier pc board ass'y (G)			
U3	12941568	NAPJ-1468, Input terminal pc board ass'y			
U4	12941569	NASW-1469, Rec. Selector switch pc board ass'y			
U5	12941570	NASW-1470, Input selector switch pc board ass'y			

NOTE

(D): Only 120V model

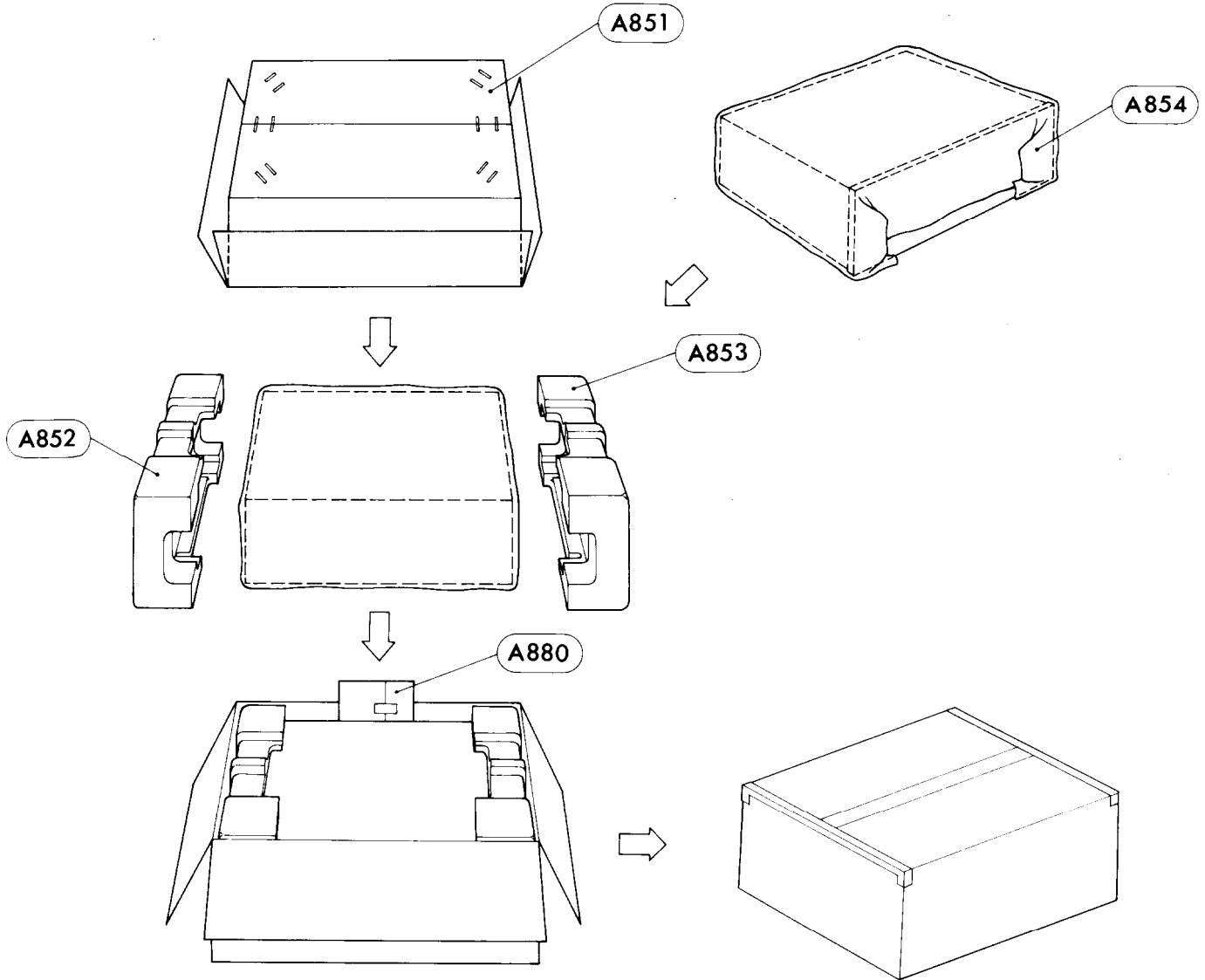
(G): Only 220V model

(W): Only 120V/220V model

(B): Black type

The components identified by mark △ are critical for risk of fire and electric shock. Replace only with parts number specified.

PACKING PROCEDURES



REF. NO.	PARTS NO.	DESCRIPTION
A851	29050654	Master carton box
	29050655	Master carton box (B)
A852	29090488	Pad (L)
A853	29090489	Pad (R)
A854	29095012-1	500x800, Protection sheet
	29100038A	720x950, Poly bag
A880		Accessory bag ass'y
	29340673	Instruction manual (D)(U)
	29340674	Instruction manual (G)(V)(W)
	29365006-5	Warranty card (U)
	29365005-3A	Warranty card (V)
	29358002	Service station list (U)
	29358004	Service station list (V)
	29365010	Caution label (U)
	29365011	Label (U)
	29100006A	350x250, Poly bag
	25055018	CV-K-1, Conversion plug (W)
29100002A	80x150, Poly bag (W)	

NOTE

- (U): Only U.S.A. model
- (V): Only West Germany model
- (D): Only 120V model
- (G): Only 220V model
- (W): Only 120V/220V model
- (B): Black type

PRINTED CIRCUIT BOARD PARTS LIST

PHONO TERMINAL PC BOARD (NAPJ-847a, NAPJ-847b) PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION
S101a	25065111	NSS-4257, Remote control switch, switch section
	25045069	NPJ-4PDBL34, Terminal

EQUALIZER AMPLIFIER PC BOARD (NAEQ-848c) PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION
Transistors		
Q101-Q104	2211783	2SA991 (E)
Q105, Q106	2211445 or	2SC2291 (F) or
	2211446	2SC2291 (G)
Q107, Q108	2211895 or	2SC1815L (GR) or
	2211896	2SC1815L (BL)
Q109, Q110	2211732 or	2SC1845 (F) or
	2211733	2SC1845 (E)
Q111, Q112	2211792 or	2SA992 (F) or
	2211793	2SA992 (E)
Diodes		
D101, D102	223145	1S2076TD
Capacitors		
C101, C102	391041007	10 μ F, 16V, LL
C103, C104	372122214	220pF, 50V, ST
C105, C106	372124705	470pF, 50V, ST
C109, C110, C135, C136	379121225	0.0012 μ F, 50V, DEW
C111, C112, C125, C126	379122234	0.022 μ F, 50V, DEW
C113, C114	391021027	1000 μ F, 6.3V, LL
C115, C116	379121834	0.018 μ F, 50V, DEW
C117, C118, C141, C142	379124734	0.047 μ F, 50V, DEW
C121, C122	391051017	100 μ F, 25V, LL
C131, C132	391080227	2.2 μ F, 50V, LL
Resistors		
R143-R146	441521004	10 Ω , 1/2W, Metal oxide film
Switches		
S102a	25065110	NSS-6456, Remote control switch, switch section
Covers		
	27300152	Wind protector

EQUALIZER AMPLIFIER PC BOARD (NAEQ-1655) PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION
Transistors		
Q101-Q104	2211783	2SA991 (E)
Q105, Q106	2211445 or	2SC2291 (F) or
	2211446	2SC2291 (G)
Q107, Q108	2211895 or	2SC1815L (GR) or
	2211896	2SC1815L (BL)
Q109, Q110	2211732 or	2SA992 (F) or
	2211733	2SA992 (E)
Diodes		
D101, D102	223145	1S2076TD
Coils		
L101, L102	231030	NCH-1070
Capacitors		
C101, C102	391041007	10 μ F, 16V, LL
C103, C104	372122214	220 μ F, 50V, ST
C105, C106	372123314	330pF, 50V, ST
C109, C110, C135, C136	39121225	0.0012 μ F, 50V, DEW

REF. NO.	PARTS NO.	DESCRIPTION
C111, C112, C125, C126	379122234	0.022 μ F, 50V, DEW
C113, C114	391021027	1000 μ F, 6.3V, LL
C115, C116	379121834	0.018 μ F, 50V, DEW
C117, C118, C141, C142	379124734	0.047 μ F, 50V, DEW
C121, C122	391051017	100 μ F, 25V, LL
C131, C132	391080227	2.2 μ F, 50V, LL
C143, C144	372125614	560pF, 50V, ST
Resistors		
R143-R146	441521004	10 Ω , 1/2W, Metal oxide film
Switches		
S102a	25065110	NSS-6456, Remote control switch, switch section
Covers		
	27300152	Wind protector

INPUT TERMINAL PC BOARD (NAPS-1468) PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	25045072	NPJ-6PDBL36, Terminal

REC. SELECTOR SWITCH PC BOARD (NASW-1469) PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION
PL301, PL302	210155	14V, 60mA, Lamp
C271	352741019	100 μ F, 16V, Capacitor Elect.
R721	441521214	120 Ω , 1/2W, Metal oxide film resistor
R722	441523904	39 Ω , 1/2W, Metal oxide film resistor
S301	25030160	NPSM-166-30ZV, Remote control switch, control section

INPUT SELECTOR SWITCH PC BOARD (NASW-1470) PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION
PL303	210150	14V, 80mA, Lamp
PL304, PL305	210146	14V, 60mA, Lamp
PL306, PL307	210147	14V, 60mA, Lamp
R725	441522204	22 Ω , 1/2W, Metal oxide film resistor
S302	25035340	NPS-542-L304, Input selector switch

RECTIFIER CIRCUIT PC BOARD (NAPS-1471) PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION
D911, D912, D915, D916, D919, D920	223841	GP-30G, Diodes
C911	384171037	0.01 μ F, 630V, Capacitor DT
	250113	S-N5051, Fuse holder

RECTIFIER CIRCUIT PC BOARD (NAPS-1471c) PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION
D911, D912, D915, D916, D919, D920, C911	223841	GP-30G, Diodes
	384171037	0.01 μ F, 630V, Capacitor DT
	250113	S-N5051, Fuse holder
	25050065	YSH403T, Fuse holder

**RECTIFIER CIRCUIT PC BOARD (NAPS-1471d)
PARTS LIST**

CIRCUIT NO.	PARTS NO.	DESCRIPTION
D911, D912, D915, D916, D919, D920 C911	223841 384171037 25050065	GP-30G, Diodes 0.01 μ F, 630V, Capacitor DT YSH403T, Fuse holder

SWITCH PC BOARD (NASW-1472) PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION
PL701 PL702	210148 210151	14V, 60mA, Lamp 14V, 80mA, Lamp
C311, C312 R724	352781599 441527504	0.15 μ F, 50V, Capacitors Elect. 75 Ω , 1/2W, Metal oxide film resistor
S303 S304	25035266 25035265	NPS-122-L230, Muting switch NPS-222-L229, Subsonic/ Loudness switch

**TONE CONTROL PC BOARD (NATC-1474b)
PARTS LIST**

CIRCUIT NO.	PARTS NO.	DESCRIPTION
C315, C316 C317, C318	379121235 379125625	0.012 μ F, 50V, Capacitors DEW 0.0056 μ F, 50V, Capacitors DEW
C319, C320 C321, C322 R317	379121025 379123335 5148044	0.001 μ F, 50V, Capacitors DEW 0.033 μ F, 50V, Capacitors DEW N16RGMC250KMN30, Variable resistor
R321	5148046A	N16RGMC11C219K30, Variable resistor
R323	5148045A	N16RQMC11C110K180K30, Variable resistor

**POWER AMPLIFIER PC BOARD (NAMA-1476e)
PARTS LIST**

CIRCUIT NO.	PARTS NO.	DESCRIPTION
Transistors		
Q501, Q601	2211915 or 2211916	2SK240 (GR) or 2SK240 (BL)
Q502, Q503, Q507, Q514, Q602, Q603, Q607, Q614 Q504, Q604	2211255 2211515 or 2211516	2SC1815 (GR) 2SA995 (F) or 2SA995 (G)
Q505, Q605, Q506, Q606 Q508, Q608	2211455 2211732 or 2211733	2SA1015 (GR) 2SC1845 (F) or 2SC1845 (E)
Q509, Q609	2211792 or 2211793	2SA992 (F) or 2SA992 (E)
Q512, Q612	2211743 or 2211742	2SA915 (M) or 2SA915 (L)
Q513, Q613	2211763 or 2211762	2SC1940 (M) or 2SC1940 (L)
Q515, Q615	2211923 or 2211924	2SC2824 (O) or 2SC2824 (Y)
Q516, Q616	2211933 or 2211934	2SA1184 (O) or 2SA1184 (Y)
Q519, Q619	2211395 or 2211396	2SA970 (GR) or 2SA970 (BL)
Q703	2211504	2SA950 (Y)
Q901	2201073 or 2201074	2SD880 (O) or 2SD880 (Y)
Q902	2201243 or 2201244	2SB834 (O) or 2SB834 (Y)

REF. NO.	PARTS NO.	DESCRIPTION
Q903, Q904	2211945 or 2211315	2SK246 (GR) or 2SK117 (GR)
ICs		
Q561, Q661 Q702	222502 222584	NJM-4558DX TA7317P
Diodes		
D502-D504, D602-D604, D561, D562, D661, D662, D703, D705 D706 D704	223145 223864 2240972 or 2240973 2241233 or 2241232	1S2076TD WL-01 GZA-6.2Y or GZA-6.2Z GZA-22Z or GZA-22Y
Coils		
L501, L601	231015	S-0.8C
Capacitors		
C501, C601 C502, C520, C602, C620 C504, C604 C509, C510, C524, C609, C610, C624 C515, C516, C615, C616, C703 C519, C619 C523, C623 C561, C562, C661, C662 C704 C705 C707 C708 C709 C901, C902 C905, C906 C907, C908	372126805 379121035 379122735 379124735 352722219 379121025 379121047 352752209 352732209 352784799 352743319 352741529 379122237 352752219 352754709 352782219	68pF, 50V, ST 0.01 μ F, 50V, DEW 0.027 μ F, 50V, DEW 0.047 μ F, 50V, DEW 220 μ F, 6.3V, Elect. 0.001 μ F, 50V, DEW 0.1 μ F, 50V, DEW 22 μ F, 25V, Elect. 22 μ F, 10V, Elect. 0.47 μ F, 50V, Elect. 330 μ F, 16V, Elect. 1500 μ F, 16V, Elect. 0.022 μ F, 50V, DEW 220 μ F, 25V, Elect. 47 μ F, 25V, Elect. 220 μ F, 50V, Elect.
Resistors		
R511, R611 R526, R529, R626, R629 R527, R528, R627, R628 R536, R537, R636, R637 R538, R638 R540, R640 R541, R542, R641, R642 R543, R544 R643, R644 R545, R645 R546, R547, R646, R647 R549, R649 R550, R650 R715 R901, R902	442522714 442524314 442526204F 442521814 5225015 442521014 442520274 4000063 441720104 4000080 441620564 441721004 442522704 441525604	270 Ω , 1/2W, Metal oxide film 430 Ω , 1/2W, Metal oxide film 62 Ω , 1/2W, Metal oxide film 180 Ω , 1/2W, Metal oxide film N10HR10KBD, Semi-fixed 100 Ω , 1/2W, Metal oxide film 2.7 Ω , 1/2W, Metal oxide film 0.47 Ω , 2W, Metal plate 1 Ω , 2W, Metal oxide film 0.47 Ω , 5W, Metal plate 5.6 Ω , 1W, Metal oxide film 10 Ω , 2W, Metal oxide film 27 Ω , 1/2W, Metal oxide film 56 Ω , 1/2W, Metal oxide film
Relay		
	25065036	NRL-4P3A-DC12-01
Radiator		
	27160029	RAD-07

**POWER AMPLIFIER PC BOARD (NAMA-1476e)
PARTS LIST**

CIRCUIT NO.	PARTS NO.	DESCRIPTION	REF. NO.	PARTS NO.	DESCRIPTION
Q501, Q601	2211915 or 2211916	3SK240 (GR) or 2SK240 (BL)	C901, C902	352752219	220 μ F, 25V, Elect.
Q502, Q503, Q507, Q514, Q602, Q603, Q607, Q614 Q504, Q604	2211255	2SC1815 (GR)	C905, C906	352754709	47 μ F, 25V, Elect.
Q505, Q605, Q506, Q606	2211515 or 2211516	2SA995 (F) or 2SA995 (G)	C907, C908	352782219	220 μ F, 50V, Elect.
Q508, Q608	2211455	2SA1015 (GR)		Resistors	
Q509, Q609	2211732 or 2211733	2SC1845 (F) or 2SC1845 (E)	R511, R611	442522714	270 Ω , 1/2W, Metal oxide film
Q512, Q612	2211743 or 2211742	2SA915 (M) or 2SA915 (L)	R526, R529, R626, R629	442524314	430 Ω , 1/2W, Metal oxide film
Q513, Q613	2211763 or 2211762	2SA1940 (M) or 2SC1940 (L)	R527, R528, R627, R628	442526204F	62 Ω , 1/2W, Metal oxide film
Q515, Q615	2211923 or 2211924	2SC2824 (O) or 2SC2824 (Y)	R536, R537, R636, R637	442521814	180 Ω , 1/2W, Metal oxide film
Q516, Q616	2211933 or 2211934	2SA1184 (O) or 2SA1184 (Y)	R538, R638	5225015	N10HR10KBD, Semi-fixed
Q519, Q619	2211395 or 2211396	2SA970 (GR) or 2SA970 (BL)	R540, R640	442521014	100 Ω , 1/2W, Metal oxide film
Q703	2211504	2SA950 (Y)	R541, R542, R641, R642	442520274	2.7 Ω , 1/2W, Metal oxide film
Q901	2201073 or 2201074	2SD880 (O) or 2SD880 (Y)	R543, R544, R643, R644	4000063	0.47 Ω , 2W, Metal plate
Q902	2201243 or 2201244	2SB834 (O) or 2SB834 (Y)	R545, R645	441720104	1 Ω , 2W, Metal oxide film
Q903, Q904	2211945 or 2211315	2SK246 (GR) or 2SK117 (GR)	R546, R547, R646, R647	4000080	0.47 Ω , 5W, Metal plate
Q561, Q661 Q702	222502 222584	NJM-4558DX TA7317P	R549, R649	441620564	5.6 Ω , 1W, Metal oxide film
D502-D504, D602-D604, D561, D562, D661, D662, D703, D705 D706	223145	1S2076TD	R550, R650	441721004	10 Ω , 2W, Metal oxide film
D704	223864	WL-01	R715	442522704	27 Ω , 1/2W, Metal oxide film
D901, D902	2240972 or 2240973	GZA-6.2Y or GZA-6.2Z	R901, R902	441525604	56 Ω , 1/2W, Metal oxide film
	2241233 or 2241232	GZA-22Z or GZA-22Y		Relay	
L501, L601	231015	S-0.8C		25065036	NRL-4P3A-DC12-01
C501, C601	372126805	68pF, 50V, ST		Radiator	
C502, C520, C602, C620	379121035	0.01 μ F, 50V, DEW		27160029	RAD-07
C504, C604	379122735	0.027 μ F, 50V, DEW		Fuse holder	
C509, C510, C524, C609, C610, C624	379124735	0.047 μ F, 50V, DEW		25050065	YSH403T
C515, C516, C615, C616 C703	352722219	220 μ F, 6.3V, Elect.			
C519, C619	379121025	0.001 μ F, 50V, DEW			
C523, C623	379121047	0.1 μ F, 50V, DEW			
C561, C562, C661, C662 C704	352752209	22 μ F, 25V, Elect.			
C705	352732209	22 μ F, 10V, Elect.			
C707	352784799	0.47 μ F, 50V, Elect.			
C708	352743319	330 μ F, 16V, Elect.			
C709	352741529	1500 μ F, 16V, Elect.			
	379122237	0.022 μ F, 50V, DEW			

MODEL A8D17

SUBSTITUTIVE PARTS LIST

NOTE:USE THE REGULAR PARTS WHEN REPLACEMENT

TYPE	CIRCUIT NO.	DESCRIPTION	REGULAR PARTS	SUBSTITUTIVE PARTS	APPLICATION
	Q505,506,605	TRANSISTORS	2SA1015(GR)	2SA1015(Y)	4646-4745
	Q501,Q601	F.E.T.	2SK240(GR)	2SK170(V)	2061-2460
	D704	DIODE	GZA6.2Y	RD6.2EB-3	2061-2460
	Q561,Q661	IC	NJM4558DX	NJM4558DD	4746-5240
	Q501,Q601	F.E.T.	2SK240(GR)	2SK170(GR)	5246-5745

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MODEL M-5060R

SUBSTITUTIVE PARTS LIST

NOTE:USE THE REGULAR PARTS WHEN REPLACEMENT

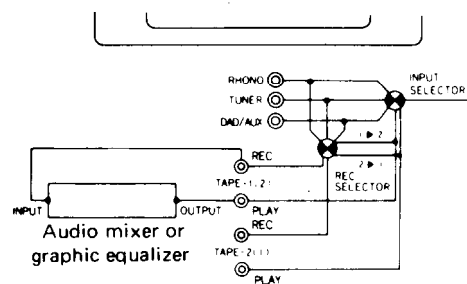
TYPE	CIRCUIT NO.	DESCRIPTION	REGULAR PARTS	SUBSTITUTIVE PARTS	APPLICATION
IG	D407-D410	DIODES	GZA18X	EQAD2-17A	1801-1900
IG	D507-D510	DIODES	GZA18X	EQAD2-17A	1801-1900
IG	Q421,Q521	IC	NJM4558DX	NJM4558DD	1801-1900

MODEL A8D17

SUBSTITUTIVE PARTS LIST

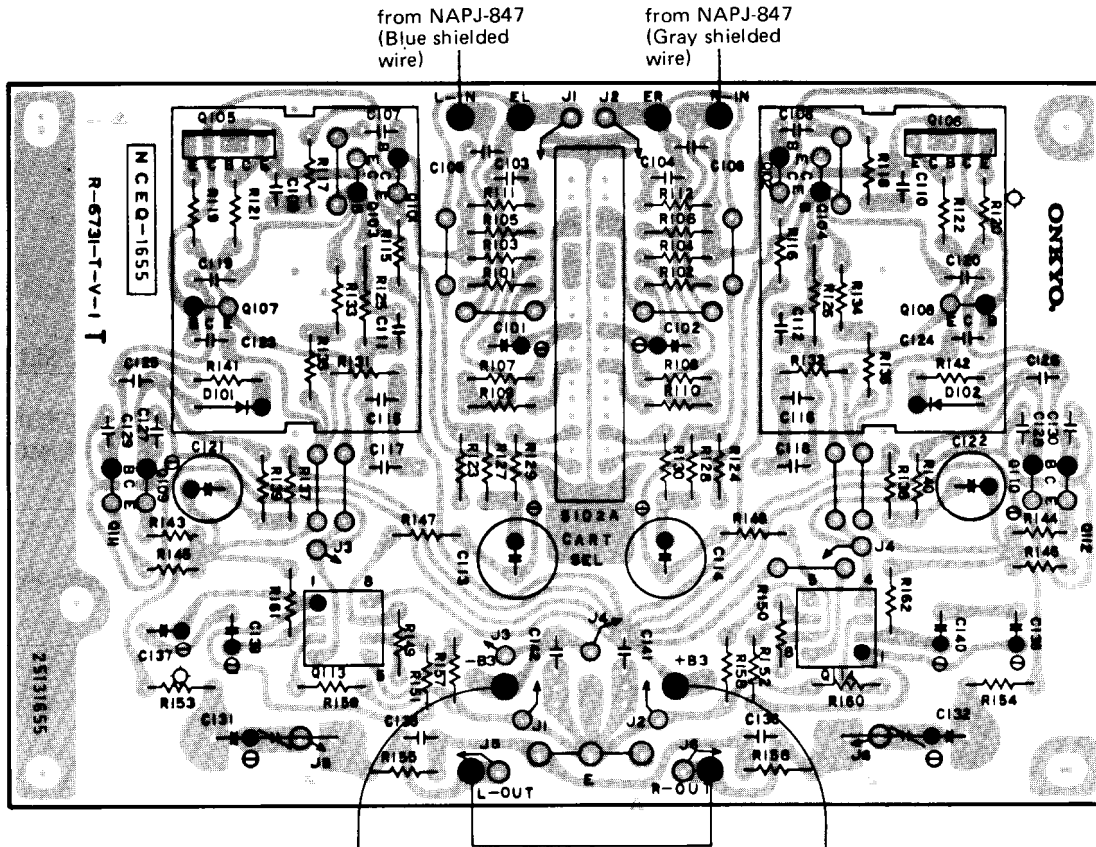
NOTE:USE THE REGULAR PARTS WHEN REPLACEMENT

TYPE	CIRCUIT NO.	DESCRIPTION	REGULAR PARTS	SUBSTITUTIVE PARTS	APPLICATION
UG	Q505,506,605	TRANSISTORS	2SA1015(GR)	2SA1015(Y)	4646-4745
UD	Q501,Q601	F.E.T.	2SK240(GR)	2SK170(V)	2061-2460
UD	D704	DIODE	GZA6.2Y	RD6.2EB-3	2061-2460
UG	Q561,Q661	IC	NJM4558DX	NJM4558DD	4746-5240
UG	Q501,Q601	F.E.T.	2SK240(GR)	2SK170(GR)	5246-5745
UG	Q512,Q612	TRANSISTOR	2SA915(L)	2SA915(K)	6621-7120
UG	Q513,Q613	TRANSISTOR	2SC1940(L)	2SC1940(K)	6621-7120
UG	Q561,661	IC	NJM4558DX	NJM4558DD	6246-6545

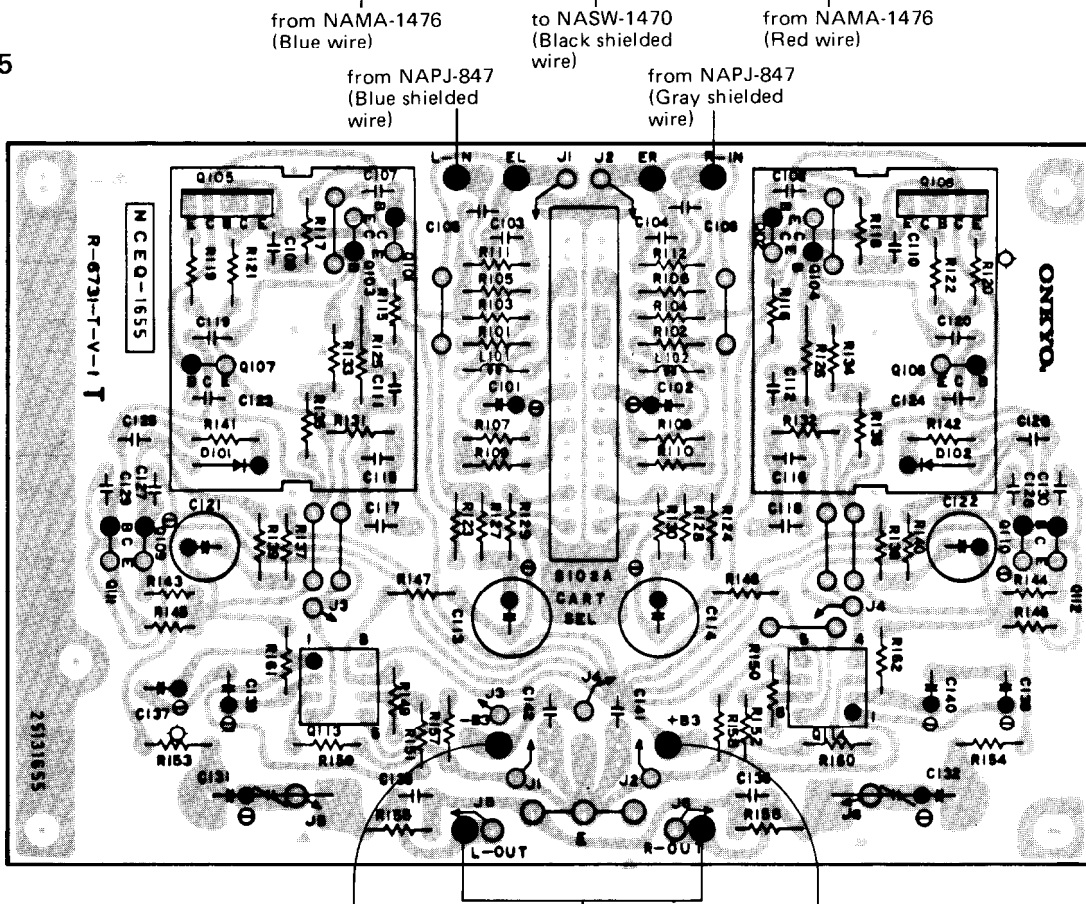


PRINTED CIRCUIT BOARD VIEW FROM COMPONENT SIDE

NAEQ-848



NAEQ-1655



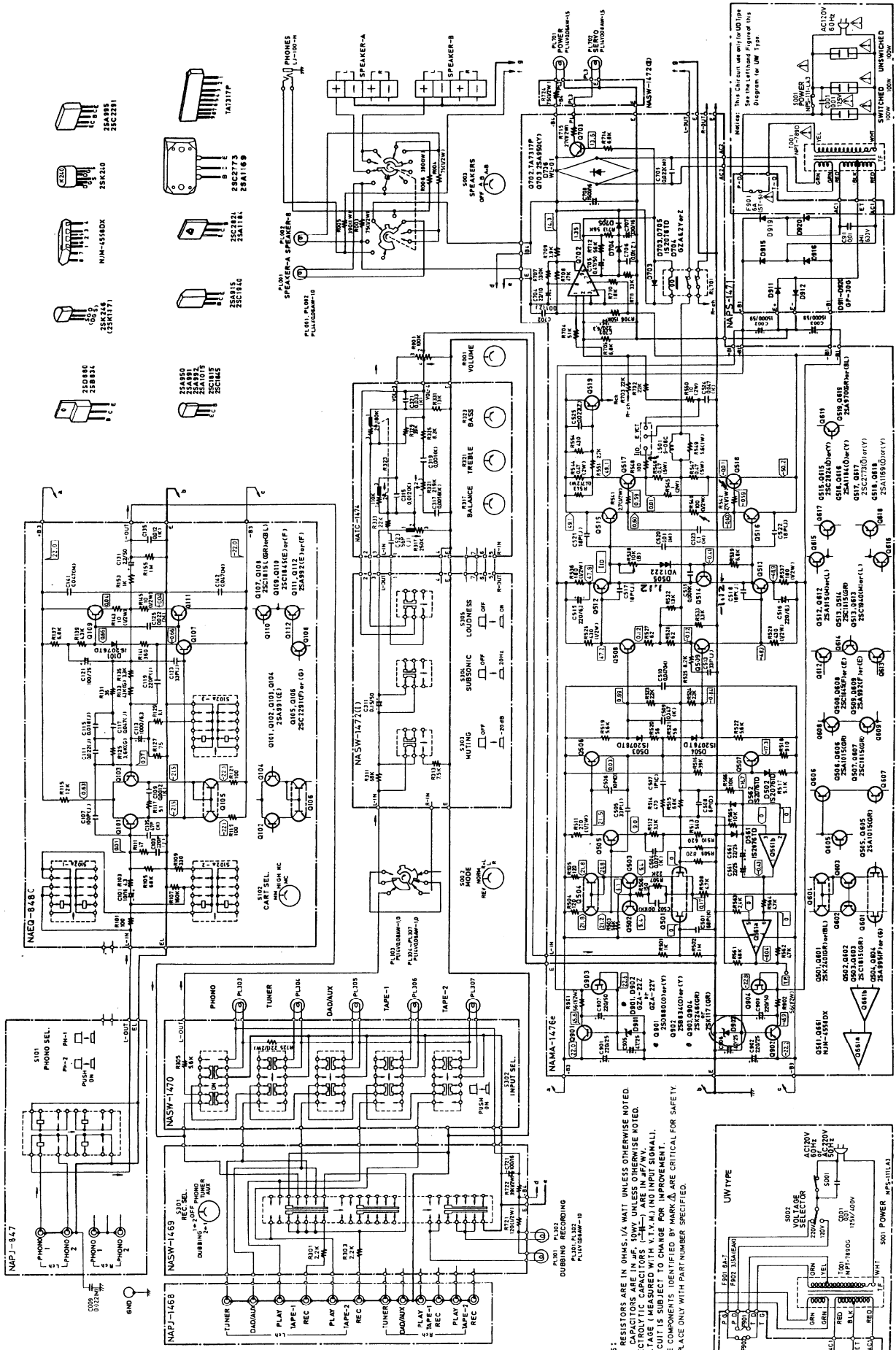
from NAMA-1476 (Blue wire)

to NASW-1470 (Black shielded wire)

from NAMA-1476 (Red wire)

SCHEMATIC DIAGRAM

120V Model, 120V/220V Model



NOTES:
 *REGISTERS ARE IN OHMS, 1/2 WATT, UNLESS OTHERWISE NOTED.
 *ALL CAPACITORS ARE IN μF, UNLESS OTHERWISE NOTED.
 *ELECTROLYTIC CAPACITORS (E) ARE IN μF/WV.
 *VOLTAGE IS MEASURED WITH V.T.V.M. IN INPUT SIGNAL.
 *CIRCUITS IS SUBJECT TO CHANGE FOR IMPROVEMENT.
 *CIRCUITS IDENTIFIED BY MARK (Δ) ARE CRITICAL FOR SAFETY.
 *REPLACE ONLY WITH PART NUMBER SPECIFIED.

