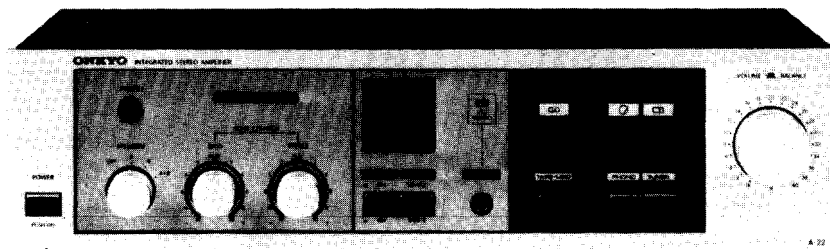


ONKYO SERVICE MANUAL

INTEGRATED STEREO AMPLIFIER

MODEL A-22



Silver model and black model

UDN, UD	120V AC, 60Hz
UGV, UG	220V AC, 50Hz
UW	120V or 220V AC, 50/60Hz
UQA, UQB	240V AC, 50Hz

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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.



SPECIFICATIONS

Music Power Output:	2 x 82 watts at 4 ohms, 1 kHz (DIN) 2 x 60 watts at 8 ohms, 1 kHz (DIN)
Continuous Power Output:	2 x 50 watts at 4 ohms, 1 kHz (DIN) 2 x 40 watts at 8 ohms, 1 kHz (DIN) 35 watts per channel min. RMS at 8 ohms, both channels driven, from 20 Hz to 20 kHz, with no more than 0.08% THD.
U.S. & Canadian models:	40 watts per channel min. RMS at 8 ohms, both channels driven, from 40 Hz to 20 kHz, with no more than 0.5% THD.
Total Harmonic Distortion:	0.08% at 35 watts
IM Distortion:	0.08% at 35 watts
Damping Factor:	40 at 8 ohms
Frequency Response:	15 – 30,000 Hz ± 1 dB
Sensitivity and Impedance:	Phono: 2.5 mV/50 kohms Tuner: 150 mV/50 kohms Tape Play: 150 mV/50 kohms Tape Rec: 150 mV/3.5 kohms (Phono)
Phono Overload:	150 mV RMS at 1kHz, 0.08% THD.
Bass Control:	± 7 dB at 100 Hz

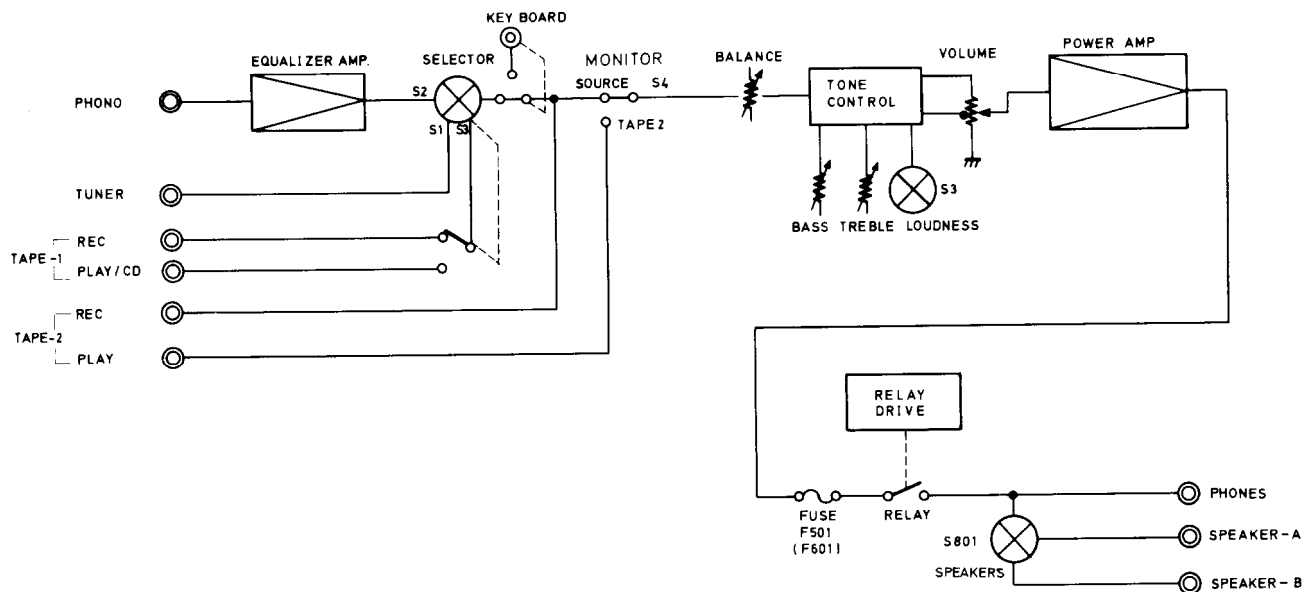
Treble Control:	± 8 dB at 10,000 Hz
Signal to Noise Ratio:	Phono: 75 dB (IHF A-202, 5 mV input, 1 watt output) Tuner & Tape: 80 dB (IHF A-202, 0.5V input, 1 watt output)
Loudness:	+6 dB at 70 Hz +5 dB at 10 kHz

General

Power Supply:	European model AC 220 V 50 Hz Canadian model AC 120 V 60 Hz British and Australian model AC 240 V 50 Hz Universal model AC 120/220 V 50/60 Hz
Semiconductors:	2 ICs, 2 transistors, 7 diodes, 5 LEDs
Dimension:	418(W) x 112(H) x 275(D) mm 16-1/2" x 4-2/5" x 10-4/5"
Weight:	6.1 kg, 13.4 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	252049	4A (ST-6), AC fuse (120V, model)
F901	252074	2A-SE-EAK, AC fuse (220V, 240V model)
F901	252014	4A-T, AC fuse (120V/220V model)
F902	252074	2A-SE-EAK, AC fuse (120V/220V model)
F911, F912	252078	5A-SE-EAK, AC fuse (220V, 240V model)
F913	252063	0.5A-SE-EAWK, AC fuse (220V, 240V model)
F501, F601	252059	4A (SS-2), Speaker fuse (120V model)
F501, F601	252077	4A-SE-EAK, Speaker fuse (220V, 240V model)
F501, F601	252014	4A-T, Speaker fuse (120V/220V model)

2. Replacing the lamp

This unit uses the lamp listed below.

CIRCUIT NO.	PARTS NO.	DESCRIPTION
PL901	210065B	PL 12V 150mA, Power indicator

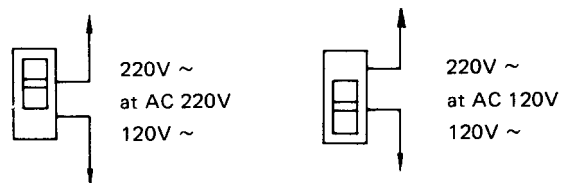
3. Insulation resistance measurement

Connect the insulating-resistance tester between the plug of power supply cable and the terminal GND on the back panel.

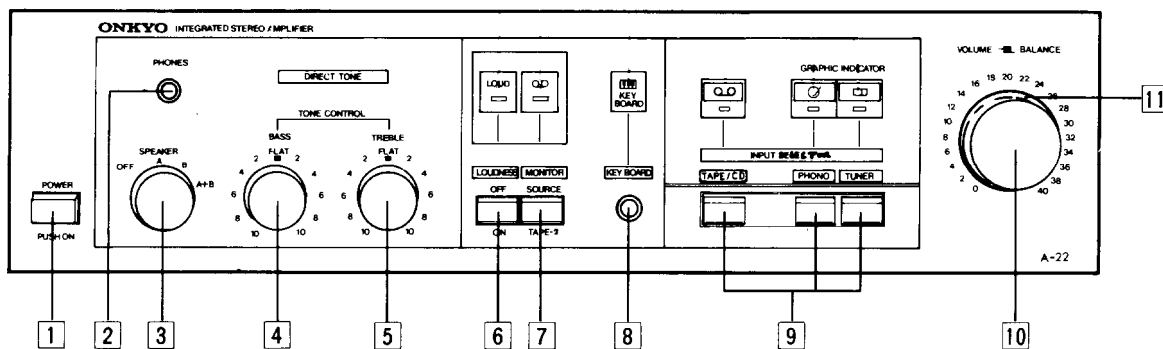
Specification; 500V more than 10M Ω

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.

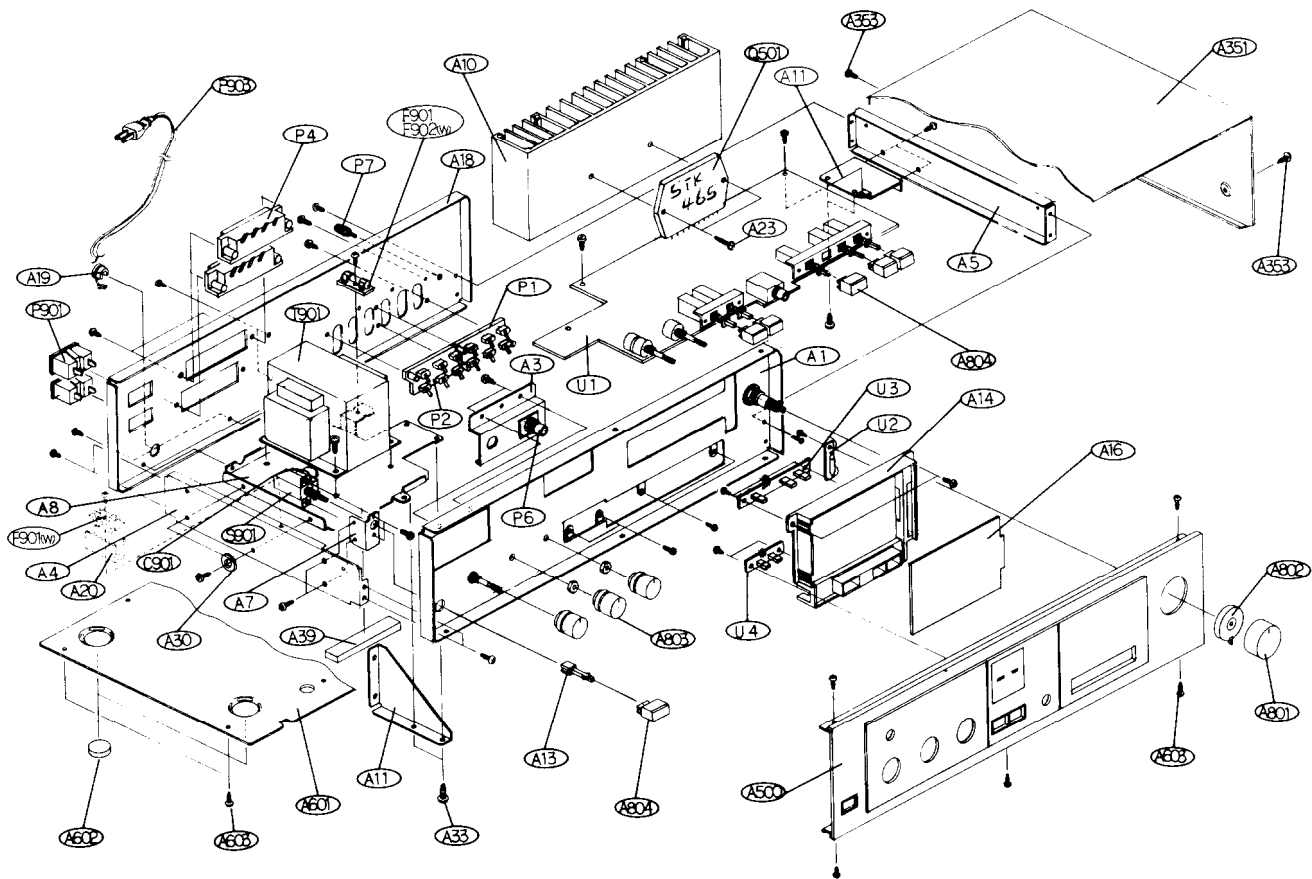


FRONT PANEL



1. Power switch
2. Headphone jack
3. Speaker selector
4. Bass control
5. Treble control
6. Loudness control and indicator
7. Tape monitor switch and indicator
8. Key board jack
9. Selector switches and indicators
10. Volume control
11. Balance control

EXPLODED VIEW



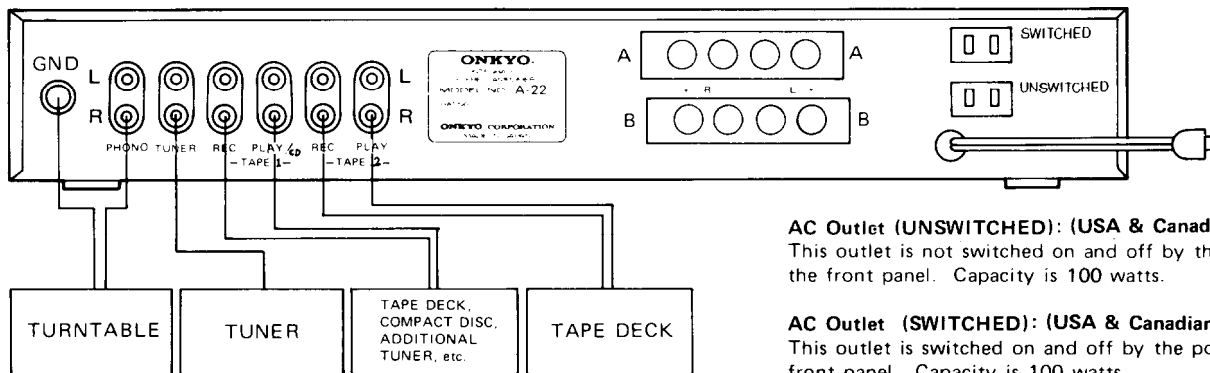
PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION	REF. NO.	PARTS NO.	DESCRIPTION
A1	27110197	Front bracket	A601	27170138B	Bottom board
A3	27140712	Bracket, Headphone	A602	27175039	Bottom leg
A4	27115129	Side bracket (L)	A603	834430068	3TTS+6B (BC), Tapping screw
A5	27115045H	Side bracket (R)	A801	28320570	Knob, Volume
A7	27140714A	Bracket, Switch		28321187	Knob, Volume (Black)
A8	27130326B	Bracket, Transformer	A802	28320798	Knob, Balance
A10	27160130	Radiator		28321188	Knob, Balance (Black)
A11	27140788	Bracket, Radiator	A803	28320544-1	Knob, Tone control
A13	27260062	Shaft, Switch		28320893	Knob, Tone control (Black)
A14	27190216	Holder	A804	28320852	Knob, Power
A16	28130189	Dial plate		28321160	Knob, Power (Black)
A18	27120503	Back panel (D)	Q501, (Q601)	222032	STK-465, IC
	27120505	Back panel (G) (B)	△ T901	230713	NPT-788D, Power transformer (D)
	27120504	Back panel (W)		230714	NPT-788G, Power transformer (G)
	27120537	Back panel (A)		230715	NPT-788DG, Power transformer (W)
A19	270280	Strainrelief		230731	NPT-788Q, Power transformer (A) (B)
A20	28175078	Insulator plate (W)	△ C901	3500065A	0.01µF, AC400V, Capacitor IS
A23	834430168	3TTS+16B (BC), Tapping screw	C901a	27300601	Cover, capacitor for C901
A30	27175011C	Cushion	△ S901	25035135 or	NPS-111-L100P or
A33	838440089	4TTB+8C (BC), Tapping screw		25035321	NPS-111-L285P, Power switch (D)
A39	28140450	8x100x20mm, Cushion		25035015A or	NPS-111-LA3 or
A351	28184198	Top cover		20035322	NPS-111-L286P, Power switch (G) (W) (A) (B)
	28184199	Top cover (Black)	P1	25045029	NPJ-6PRL07, Input terminal
A353	834430068	3TTS+6B (BC), Tapping screw	P2	25045136	NPJ-6PRBL51, Input terminal
A500	12148121	Front panel ass'y			
	12128121	Front panel ass'y (Black)			

REF. NO.	PARTS NO.	DESCRIPTION	REF. NO.	PARTS NO.	DESCRIPTION
P4	25060057	NTM-4PRML24, Speaker terminal	U1	12148597	NAAF-1697, Main pc board ass'y (D)
P6	25045092	HLJ0607-01-020, Stereo headphone jack		12154597A	NAAF-1697a, Main pc board ass'y (G) (A) (B)
P7	25060044	Ground terminal		12150597B	NAAF-1697b, Main pc board ass'y (W)
△ P901	25050046	NSCT-2P15, AC outlet (D)	U2	12148598	NAPL-1698, Illumination lamp pc board ass'y
△ P903	253112	AS-UC-4 #18, Power supply cable (D)	U3	12148599	NALED-1699, Selector indicator pc board ass'y
	253083	AS-CEE, Power supply cable (G) (W)	U4	12148500	NALED-1700, Loudness/Monitor indicator pc board ass'y
	253114	AS-SAA, Power supply cable (A)			
	728320 or 728328	2-0.75BS16 BLK or 2-0.75BS16 GRY, Power supply cable (B)			
△ F901	252049	4A (ST-6), AC fuse (D)	NOTE: (D) : Only 120V model (G) : Only 220V model (W) : Only 120V/220V model (A) : Only Australian model (B) : Only British model (Black) : Black model		
	252074	2A-SE-EAK, AC fuse (G)			
	252014	4A-T, AC fuse (W)			
F901a	25050082	S-N1152, Fuse holder (D)			
	25065096	NPF-073, Fuse holder (G) (A) (B)			
	25050050	H0438A, Fuse holder (W)			
△ F902	252074	2A-SE-EAK, AC fuse (W)			
F902a	25065096	NPF-073, Fuse holder (W)			
△ F911, F912	252078	5A-SE-EAK, AC fuse (G) (A) (B)			
△ F913	252063	0.5A-SE-EAWK, AC fuse (G) (A) (B)			
△ F501, F601	252059	4A-(SS-2), Speaker fuse (D)			
	252077	4A-SE-EAK, Speaker fuse (G) (A) (B)			
	252014	4A-T, Speaker fuse (W)			

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

SYSTEM CONNECTIONS



AC Outlet (UNSWITCHED): (USA & Canadian models only)
 This outlet is not switched on and off by the power switch on the front panel. Capacity is 100 watts.

AC Outlet (SWITCHED): (USA & Canadian models only)
 This outlet is switched on and off by the power switch on the front panel. Capacity is 100 watts.

PRINTED CIRCUIT BOARD PARTS LIST

MAIN PC BOARD (NAAF-1697) PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	IC	
Q101, Q201	222534	NJM-4559DX
	Transistors	
Q701	2211255	2SC1815 (GR)
Q702	2211254	2SC1815 (Y)
	Diodes	
D701, 702	223133 or 223145	DS-442X or 1S2076TD
D911-D914	223845F	GP-20D
D915	223862	WL-01
D917, D918	224119	GZA-18L
	Capacitors	
C101, C107, C201, C207, C501, C601	352780109	1 μ F, 50V, Elect.
C104, C204	352721019	100 μ F, 6.3V, Elect.
C105, C205	371126224	6200pF, 50V, MY
C106, C206	371121824	1800pF, 50V, MY
C108, C109	352751019	100 μ F, 25V, Elect.
C151, C251	371121235	0.012 μ F, 50V, MY
C153, C253	371123935	0.039 μ F, 50V, MY
C154, C254	371121025	1000pF, 50V, MY
C155, C255	371126825	6800pF, 50V, MY
C503, C603	352731019	100 μ F, 10V, Elect.
C505, C605	352764709	47 μ F, 35V, Elect.
C914, C915		
C506, C606	371124735	0.047 μ F, 50V, MY
C507, C510, C607	352781009	10 μ F, 50V, Elect.
C509	352781519	150 μ F, 50V, Elect.
C701	352744709	47 μ F, 16V, Elect.
C703	352780339	3.3 μ F, 50V, Elect.
C912, C913	3504177	6800 μ F, 42V, Elect.
C961, C917	352754709	47 μ F, 25V, Elect.
C921	352741029	1000 μ F, 16V, Elect.
	Resistors	
R155 (R159, R255, R259)	5148073	N16RQMC110K180K30, BASS
R161 (R261)	5148074	N16RGMC219K30, TREBLE
R505, R605	441523324	3.3k Ω , 1/2W, Metal oxide film
R506, R606	441521024	1k Ω , 1/2W, Metal oxide film
R507, R607	441724794	0.47 Ω , 2W, Metal oxide film
R508, R608	44152047	4.7 Ω , 1/2W, Metal oxide film
R510	441521014	100 Ω , 1/2W, Metal oxide film
R911, R912, R913, R914	441528214	820 Ω , 1/2W, Metal oxide film
R915, R917	441527514	750 Ω , 1/2W, Metal oxide film
R918	441521804	18 Ω , 1/2W, Metal oxide film
	Relay	
RL701	25065140	NRL-2P5 ADC12-06
	Switches	
S1-S3	25035346	NPS-342-L309, Selector switch
S4, S5	25035347	NPS-242-L310, Monitor/Loudness
	Key board terminal	
P6	25045135	HLJ4307-01-010
	Fuseholder	
	250113	SN5051
	Plate	
	27300236	
	Fuse label	
	29360607	4A/250V

MAIN PC BOARD (NAAF-1697a) PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	IC	
Q101, Q201	222534	NJM-4559DX
	Transistors	
Q701	2211255	2SC1815 (GR)
Q702	2211254	2SC1815 (Y)
	Diodes	
D701, 702	223133 or 223145	DS-442X or 1S2076TD
D911-D914	223845F	GP-20D
D915	223862	WL-01
D917, D918	224119	GZA-18L
	Capacitors	
C101, C107, C201, C207, C501, C601	352780109	1 μ F, 50V, Elect.
C104, C204	352721019	100 μ F, 6.3V, Elect.
C105, C205	371126224	6200pF, 50V, MY
C106, C206	371121824	1800pF, 50V, MY
C108, C109	352751019	100 μ F, 25V, Elect.
C151, C251	371121235	0.012 μ F, 50V, MY
C153, C253	371123935	0.039 μ F, 50V, MY
C154, C254	371121025	1000pF, 50V, MY
C155, C255	371126825	6800pF, 50V, MY
C503, C603	352731019	100 μ F, 10V, Elect.
C505, C605, C914, C915	352764709	47 μ F, 35V, Elect.
C506, C606	371124735	0.047 μ F, 50V, MY
C507, C510, C607	352781009	10 μ F, 50V, Elect.
C509	352781519	150 μ F, 50V, Elect.
C701	352744709	47 μ F, 16V, Elect.
C703	352780339	3.3 μ F, 50V, Elect.
C912, C913	3504177	6800 μ F, 42V, Elect.
C916, C917	352754709	47 μ F, 25V, Elect.
C921	352741029	1000 μ F, 16V, Elect.
	Resistors	
R155 (R159, R255, R259)	5148073	N16RQMC110K180K30, BASS
R161 (R261)	5148074	N16RGMC219K30, TREBLE
R505, R605	441523324	3.3k Ω , 1/2W, Metal oxide film
R506, R606	441521024	1k Ω , 1/2W, Metal oxide film
R507, R607	441724794	0.47 Ω , 2W, Metal oxide film
R508, R608	44152047	4.7 Ω , 1/2W, metal oxide film
R509, R609	441520474	4.7 Ω , 1/2W, Metal oxide film
R510	441521014	100 Ω , 1/2W, Metal oxide film
R911, R912, R913, R914	441528214	820 Ω , 1/2W, Metal oxide film
R915, R917	441527514	750 Ω , 1/2W, Metal oxide film
R918	441521804	18 Ω , 1/2W, Metal oxide film
	Relay	
RL701	25065140	NRL-2P5 ADC12-06
	Switches	
S1-S3	25035346	NPS-342-L309, Selector switch
S4, S5	25035347	NPS-242-L310, Monitor/Loudness
	Key board terminal	
P6	25045135	HLJ4307-01-010
	Fuseholder	
	25050065	YSH403T
	Plate	
	27300236	
	Coils	
L501, L601	231001	S-1.3B

MAIN PC BOARD (NAAF-1697b) PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	IC	
Q101, Q201	222534	NJM-4559DX
	Transistors	
Q701	2211255	2SC1815 (GR)
Q702	2211254	2SC1815 (Y)
	Diodes	
D701, 702	223133 or 223145	DS-442X or 1S2076TD
D911-D914	223845F	GP-20D
D915	223862	WL-01
D917, D918	224119	GZA-18L
	Capacitors	
C101, C107, C201, C207, C501, C601	352780109	1 μ F, 50V, Elect.
C104, C204	352721019	100 μ F, 6.3V, Elect.
C105, C205	371126224	6200pF, 50V, MY
C106, C206	371121824	1800pF, 50V, MY
C108, C109	352751019	100 μ F, 25V, Elect.
C151, C251	371121235	0.012 μ F, 50V, MY
C153, C253	371123935	0.039 μ F, 50V, MY
C154, C254	371121025	1000pF, 50V, MY
C155, C255	371126825	6800pF, 50V, MY
C503, C603	352731019	100 μ F, 10V, Elect.
C505, C605	352764709	47 μ F, 35V, Elect.
C914, C915		
C506, C606	371124735	0.047 μ F, 50V, MY
C507, C510, C607	352781009	10 μ F, 50V, Elect.
C509	352781519	150 μ F, 50V, Elect.
C701	352744709	47 μ F, 16V, Elect.
C703	352780339	3.3 μ F, 50V, Elect.
C912, C913	3504177	6800 μ F, 42V, Elect.
C916, C917	352754709	47 μ F, 25V, Elect.
C921	352741029	1000 μ F, 16V, Elect.
	Resistors	
R155 (R159, R255, R259)	5148073	N16RQMC110K180K30, BASS
R161 (R261)	5148074	N16RGMC219K30, TREBLE
R505, R605	441523324	3.3k Ω , 1/2W, Metal oxide film
R506, R606	441521024	1k Ω , 1/2W, Metal oxide film
R507, R607	441724794	0.47 Ω , 2W, Metal oxide film
R508, R608	44152047	4.7 Ω , 1/2W, Metal oxide film
R510	441521014	100 Ω , 1/2W, Metal oxide film
R911, R912, R913, R914	441528214	820 Ω , Metal oxide film
R915, R917	441527514	750 Ω , 1/2W, Metal oxide film
R918	441521804	18 Ω , 1/2W, Metal oxide film
	Relay	
RL701	25065140	NRL-2P5ADC12-06
	Switches	
S1-S3	25035346	NPS-342-L309, Selector switch
S4, S5	25035347	NPS-242-L310, Monitor/Loudness
	Key board terminal	
P6	25045135	HLJ4307-01-010
	Fuseholder	
	250113	SN5051
	Plate	
	27300236	
	Fuse label	
	29360607	4A/250V

ILLUMINATION LAMP PC BOARD (NAPL-1698) PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION
PL901	210065B	PL12V150mA

SELECTOR INDICATOR PC BOARD (NALED-1699) PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION
D921-D923	225047	SLP251B, LED
	27190121	Holder LED

LOUDNESS/MONITOR INDICATOR PC BOARD (NALED-1700) PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION
D924	225047	SLP251B, LED
D925	225046	SLP151B, LED
	27190121	Holder LED

MODEL A-22

SUBSTITUTIVE PARTS LIST

NOTE:USE THE REGULAR PARTS WHEN REPLACEMENT

TYPE	CIRCUIT NO.	DESCRIPTION	REGULAR PARTS	SUBSTITUTIVE PARTS	APPLICATION
UD	D917,D918	DIODE	GZA-18X	EQAD2-17B	3311-3610
UG	D917,D918	DIODE	GZA-18X	EQAD2-17B	12841-13440
UD	Q101	IC	NJM4559DX	NJM4559DD	2611-2710
UG	Q101	IC	NJM4559DX	NJM4559DD	11041-11340
UG	D917,D918	DIODE	GZA18X	EQAD2-17B	13441-14340
UG	D917,D918	DIODE	GZA18X	EQAD2-17B	14341-16140

MODEL A-22

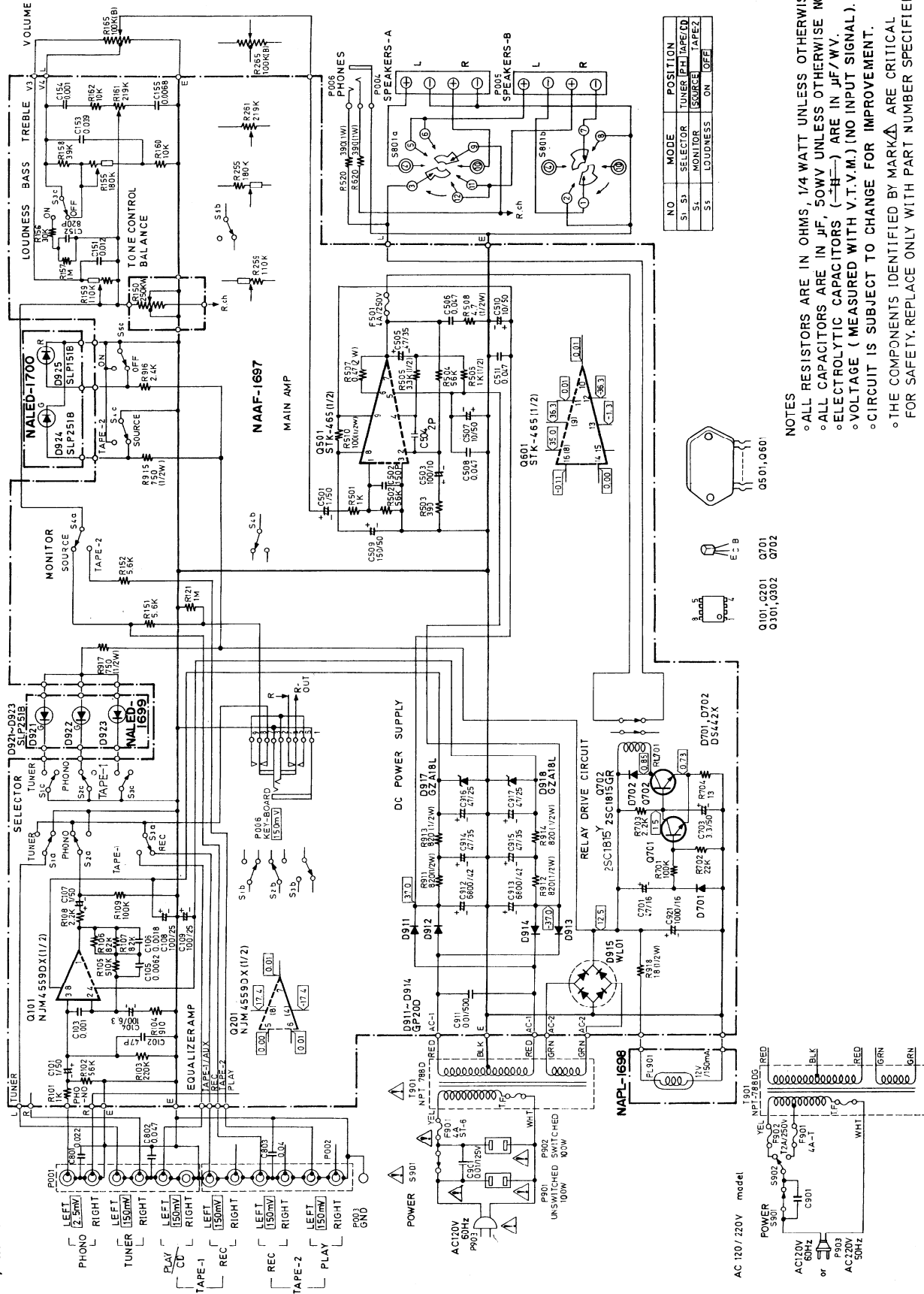
SUBSTITUTIVE PARTS LIST

NOTE:USE THE REGULAR PARTS WHEN REPLACEMENT

TYPE	CIRCUIT NO.	DESCRIPTION	REGULAR PARTS	SUBSTITUTIVE PARTS	APPLICATION
UD	D917,D918	DIODE	GZA-18X	EQAD2-17B	3311-3610
UG	D917,D918	DIODE	GZA-18X	EQAD2-17B	12841-13440
UD	Q101	IC	NJM4559DX	NJM4559DD	2611-2710
UG	Q101	IC	NJM4559DX	NJM4559DD	11041-11340
UG	D917,D918	DIODE	GZA18X	EQAD2-17B	13441-14340
UG	D917,D918	DIODE	GZA18X	EQAD2-17B	14341-16140
UG		IC	STK465	STK466	17141-17640

SCHEMATIC DIAGRAM

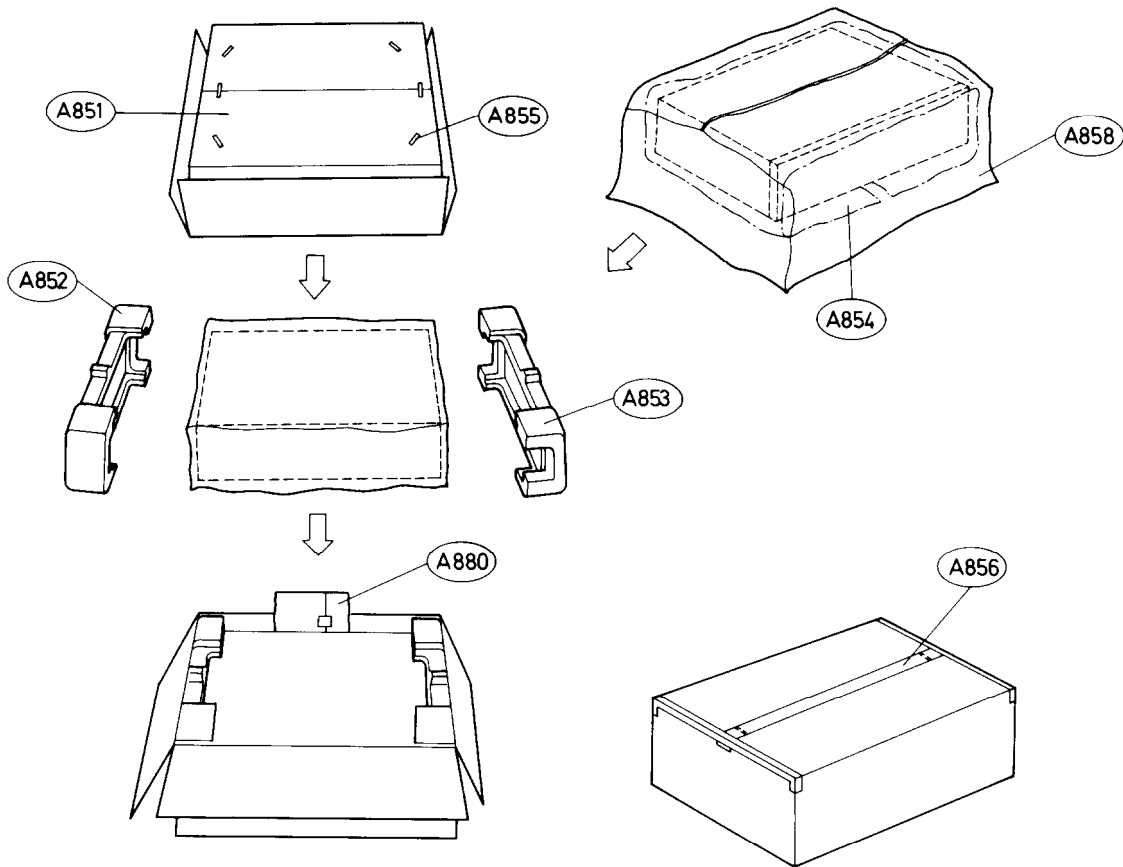
120V Model, 120V/220V Model



NOTES

- ALL RESISTORS ARE IN OHMS, 1/4 WATT UNLESS OTHERWISE NOTED.
- ALL CAPACITORS ARE IN JF, 50V UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS (—H—) ARE IN JF/WV.
- VOLTAGE (MEASURED WITH V.T.V.M.) (NO INPUT SIGNAL).
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.
- THE COMPONENTS IDENTIFIED BY MARK Δ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.

PACKING PROCEDURES



REF. NO.	PARTS NO.	DESCRIPTION
A851	29050769	Master carton box
	29050773	Master carton box (Black)
A852	29090746	Pad L
A853	29090747	Pad R
A854	29095012-1	500x800mm, Protection sheet
A855	282301	Sealing hook
A856	260012	Damplon tape
A858	29100063	Poly bag
A880	Accessory bag ass'y	
	29340697	Instruction manual (D) (U)
	29340701	Instruction manual (G) (V) (W) (Q)
	29365006-5	Warranty card (U)
	29365005-3A	Warranty card (V)
	29358002	Service station list (U)
	29358004	Service station list (V)
	29100006	350x250mm, Poly bag
	29365010	Caution label (U)
	29365011	Label (U)
	25055018	CV-K-1, Conversion plug (W)

NOTE: (U) : U.S.A. model
 (V) : West Germany model
 (D) : 120V model
 (G) : 220V model
 (W) : 120V/220V model
 (Q) : 240V model
 (Black) : Only black model

SERVICE INFORMATION

DATE Apr. 9, 1984

SUBJECT	ADDITION OF SPEAKER SWITCH IN SERVICE MANUAL
MODELS	A-22, A-44, A-8015, A-8017

Speaker switches for the following models are not included in the service manual.
Please add them.

Model	Circuit No.	Part No.	Description
A-22	S801	25030226	NRS-144-30F
A-44	S801	25030234	NRS-144-20F
A-8015	S003	25030200	NRSM-102-30BU
A-8017	S003	25030228	NRSM-254-30Y

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