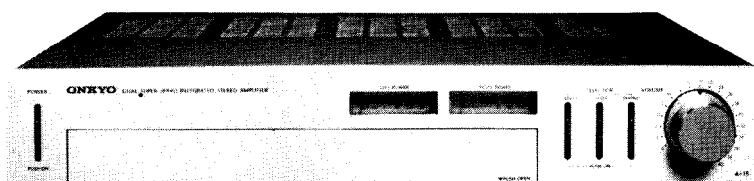


# ONKYO® SERVICE MANUAL

## INTEGRATED DUAL SUPER SERVO AMPLIFIER MODEL A-15



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**ONKYO®**  
**AUDIO COMPONENTS**

## SPECIFICATIONS

<b>Continuous Power Output:</b>	30 watts per channel min. RMS, at 8 ohms both channels driven, from 20Hz to 20kHz, with no more than 0.08% THD
<b>Total Harmonic Distortion:</b>	0.08% at rated power
<b>IM Distortion:</b>	0.08% at rated power
<b>Damping Factor:</b>	40 at 8 ohms.
<b>Frequency Response:</b>	15 – 30,000Hz $\pm$ 1 dB
<b>Sensitivity and Impedance:</b>	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)
<b>Phono Overload:</b>	150 mV RMS at 1kHz, 0.08% THD
<b>Bass Control:</b>	$\pm$ 8 dB at 100Hz
<b>Treble Control:</b>	$\pm$ 8 dB at 10,000 Hz

<b>Signal to Noise Ratio:</b>	Phono : 75 dB (IHF A-202, 5 mV input, 1 watt output) Tuner & Tape : 80 dB (IHF A-202, 0.5 V input, 1 watt output)
<b>Loudness:</b>	$\pm$ 6 dB at 70 Hz $\pm$ 5 dB at 10 kHz
<b>General Power Supply:</b>	AC 220V, 50Hz. AC 120V, 60Hz AC 120V/220V, 50Hz/60Hz
<b>Semiconductors:</b>	4 ICs, 2 transistors, 16 diodes,
<b>Dimensions:</b>	418(W) x 75(H) x 280(D) mm 16-1/2" x 3" x 11"
<b>Weight:</b>	6.4 kg, 14.1 lbs

Specifications and features are subject to change without notice.

## SERVICE GUIDE

### 1. Replacing the fuse

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

#### 1. AC fuse

Remove the top cover.

Circuit No.	Parts No.	Description
<b>U.S.A. model</b>		
F901	252049	4A(ST-6)
<b>120V model (except U.S.A. model)</b>		
F901	252014	4A-T
<b>220V model</b>		
F901	252074	2A-SE-EAK
F911, F912	252078	5A-SE-EAK
<b>120/220V model</b>		
F901	252014	4A-T
F902	252074	2A-SE-EAK

#### 2. Speaker protection fuse

Remove the top cover.

F501, F601	252094	4A-T-A
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#### 2. Protective circuit

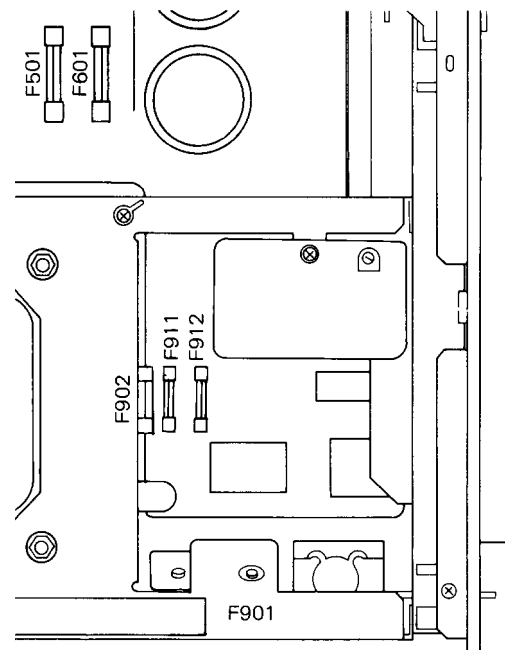
This model has a built-in thermal switch to protect the power IC. The thermal switch is not activated under normal operating conditions.

However, if there is an abnormal rise in the inside temperature, the thermal switch cuts off the outputs.

(The pilot lamp will not turn off.)

When this occurs, wait for a while until the temperature is cooled down after remove the abnormal conditions.

(Abnormal condition means operation with a load below 4 ohms, or under poor conditions with high power such as a place with insufficient air circulation.)



#### 3. Voltage Selector (Rear Panel)

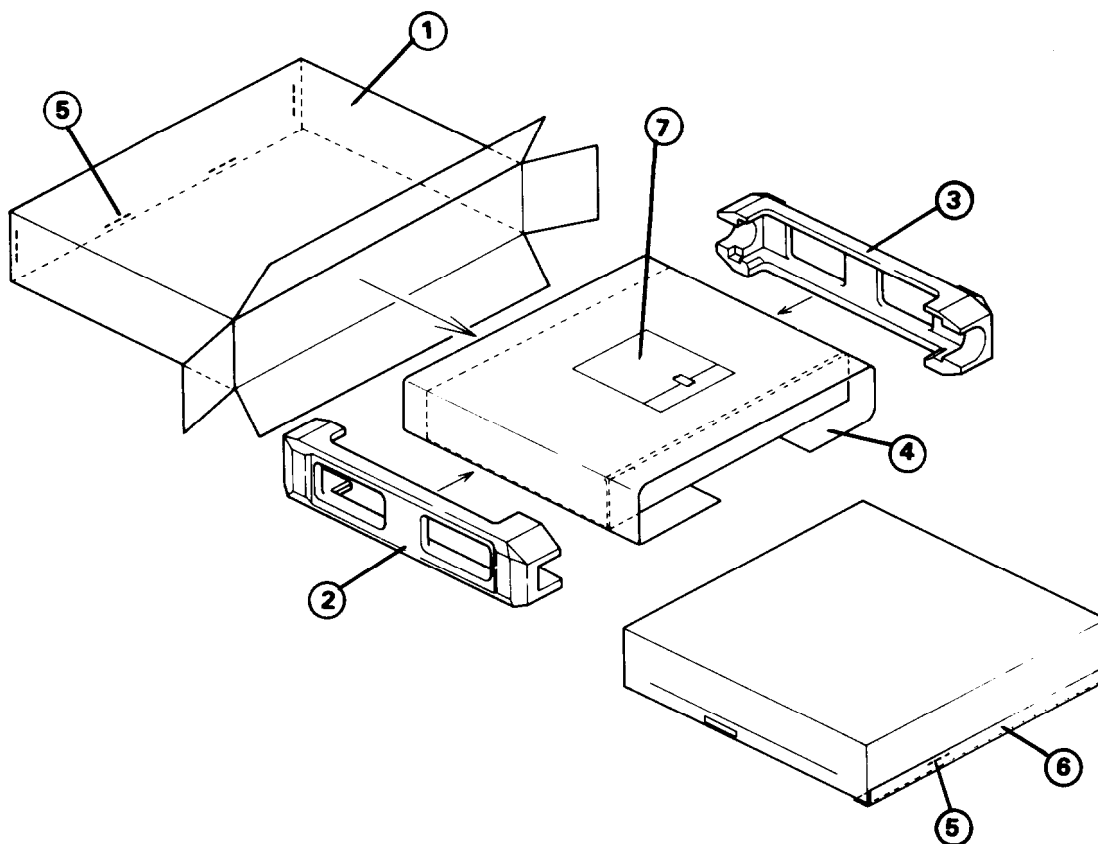
Some models are equipped with a voltage selector to conform with local power supplies.

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 to the right or left. Confirm that the switch has been moved all the way to the right or left 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.

**PACKING PROCEDURES**



**U.S.A. Model**

REF. NO.	PARTS NO.	DESCRIPTION
1	29050379	Master carton box
2	29090532	Pad (L)
3	29090533	Pad (R)
4	29100051	420x750mm, Poly bag
5	282301	Sealing hook
6	260012	W=50mm, Tape
7		Accessory bag ass'y
	29340437	Instruction manual
	29365006	Warranty card
	29358002	Service station list
	29100006	350x250mm, Poly bag
	29360363	Caution label (Bottom board)
	29360378	Label (Top cover)

**120/220V Model**

REF. NO.	PARTS NO.	DESCRIPTION
1	29050379	Master carton box
2	29090532	Pad (L)
3	29090533	Pad (R)
4	29100051	420x750mm Poly bag
5	282301	Sealing hook
6	260012	W=50mm, Tape
7		Accessory bag ass'y
	29340441	Instruction manual
	25055018	Conversion plug
	29100006	350x250mm, Poly bag

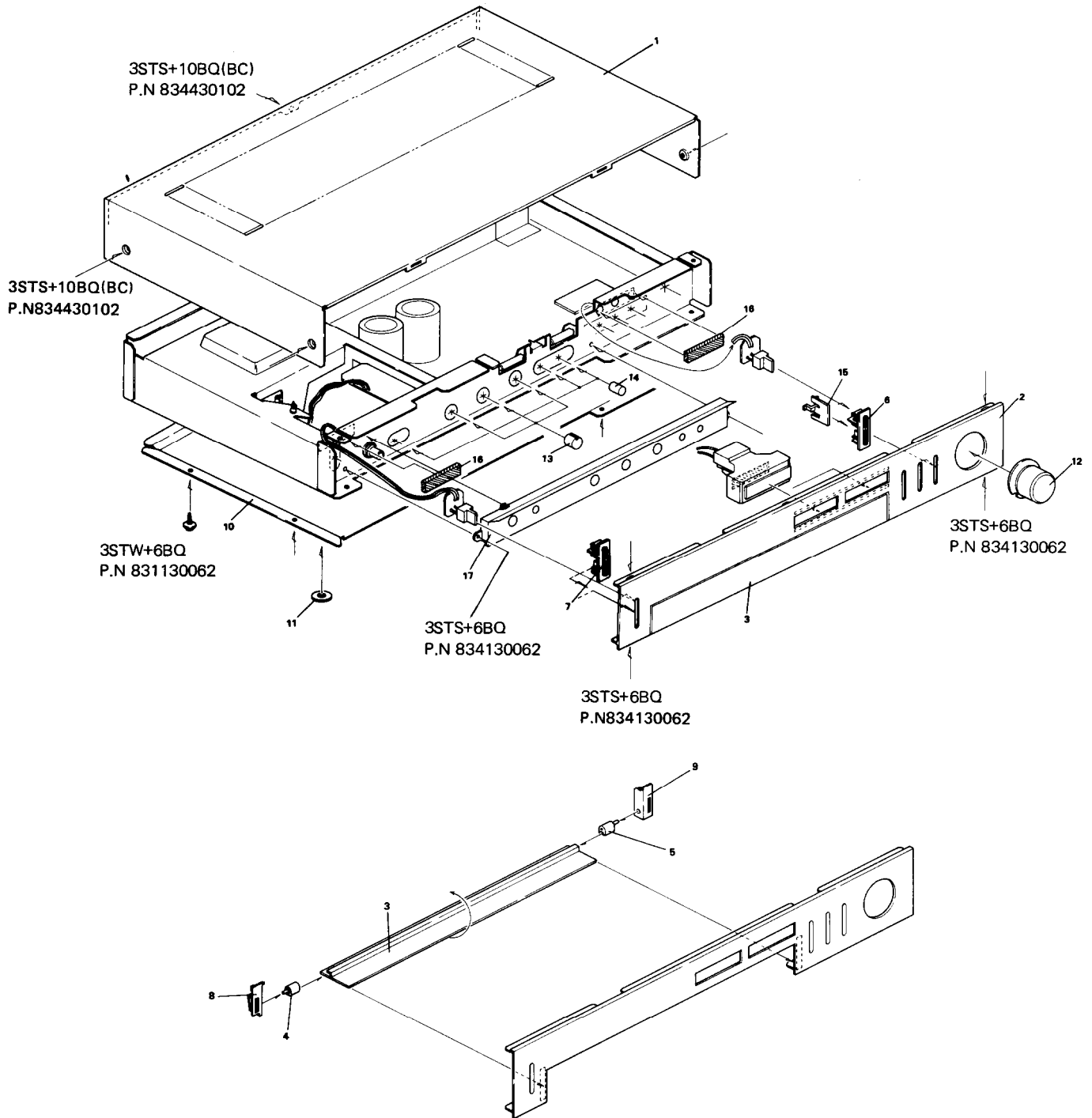
**120V Model**

REF. NO.	PARTS NO.	DESCRIPTION
1	29050379	Master carton box
2	29090532	Pad (L)
3	29090533	Pad (R)
4	29100051	420x750mm, Poly bag
5	282301	Sealing hook
6	260012	W=50mm, Tape
7		Accessory bag ass'y
	29340437	Instruction manual
	29100006	350x250mm, Poly bag

**220V Model**

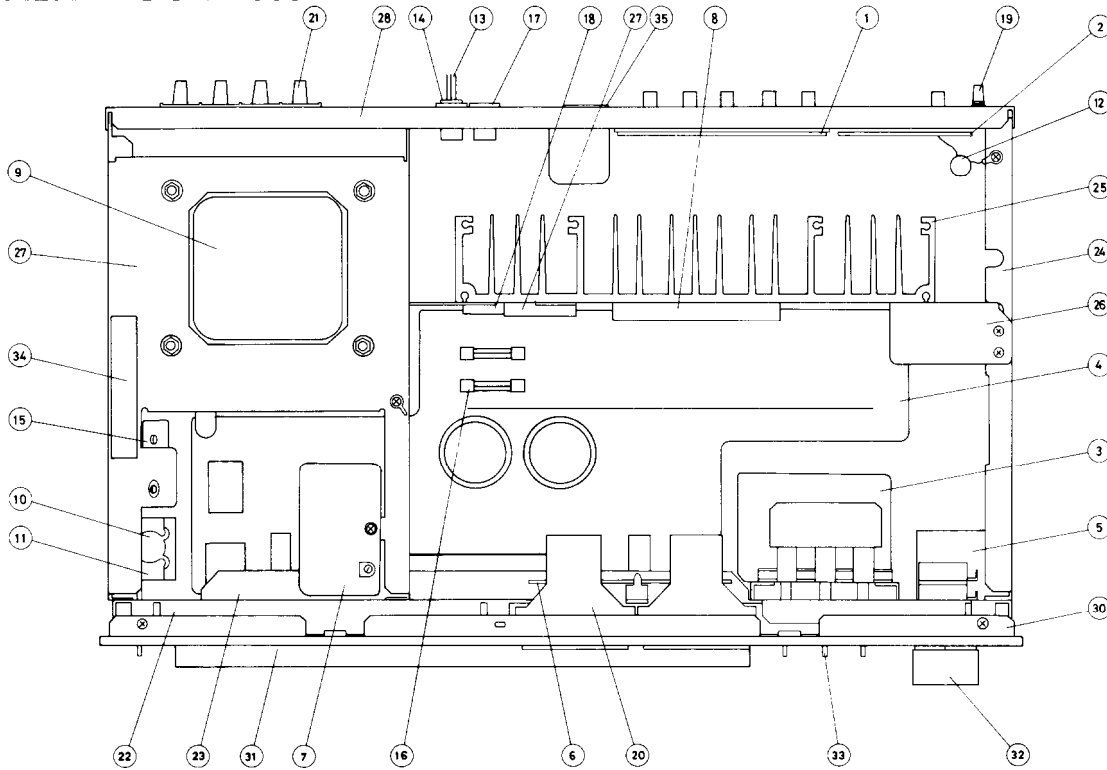
REF. NO.	PARTS NO.	DESCRIPTION
1	29050379	Master carton box
2	29090532	Pad (L)
3	29090533	Pad (R)
4	29100051	420x750mm, Poly bag
5	282301	Sealing hook
6	260012	W=50mm, Tape
7		Accessory bag ass'y
	29340441	Instruction manual
	29365005-3	Warranty card (only Germany Model)
	29100006	350x250mm, Poly bag

## EXPLODED VIEW



REF. NO.	PARTS NO.	DESCRIPTION	REF. NO.	PARTS NO.	DESCRIPTION
1	28184089	Top cover	10	27170083	Bottom board
	28140020	4x10x40mm, Cushion	11	27175011B	Leg
2	12589121	Front panel ass'y	12	28320442	Knob, volume
3	12589122	Front panel (S) ass'y	13	28320460	Knob, mode
4	27300316A	Bearing (L)	14	28320461	Knob, push
5	27300315A	Bearing (R)	15	28320341A	Knob, power
6	27267073	Guide for push knob	16	28140020	4x10x40mm,Cushion
7	27267078	Guide for power knob	17	28133030	Back plate
8	27300318A	Side plate (L)		27262061	Plate
9	27300317A	Side plate (R)			

**COMPONENT LOCATION**



**COMPONENT LOCATION – PARTS LIST**

**120V Model**

REF. NO.	CIRCUIT NO.	PARTS NO.	DESCRIPTION
1	U01	12696587	NAPJ-887, Tuner/Tape terminal pc board ass'y
2	U02	12589586A	NAEQ-886a, Equalizer ampli. pc board ass'y
3	U03	12696588	NASW-888, Switch pc board ass'y
4	U07	12589585A	NAAF-885a, Tone ampli. pc board ass'y
5	U08	12696590	NAVR-890, Volume control pc board ass'y
6	U11	12696593	NAPL-893, Meter illumination pc board ass'y
7	U09	12696592	NAME-892, Meter drive circuit pc board ass'y
8	Q501, Q601	222020	STK-463, Power ampli. IC
9	T901	230424 or 230433	NPT-714D or NPT-716D, Power transformer
10	C901	3500060	0.01µF, 125V, CS capacitor
11	S901	25035047	NPS-111-L12P, Power switch
12	C001-C004	335624730	0.047µF, 50V, Ceramic capacitor
13	W901	253099A	AS-UC-3, Power supply cord
14	W901a	270025	SR-3P-4, Strainrelief
15	F901	252049	4A(ST-6), AC fuse (U.S.A. model)
	F901a	252014	4A-T, AC fuse (except U.S.A. model)
16	F501, F601	250143	FF-1S-4, Fuseholder
17	P901, P902	252094	4A-T-A, Speaker protection fuse
18	S701	25050032	S-16444-01, AC outlet
19	P001	25065127	1P-105A-100, Thermal switch
20	M501, M601	25060044	Ground terminal
21	P501, P502	243131	NIND-0500S131, Output meter
		25060038	NTM-4PR-MN09, Speaker terminal
22		27110112	Front bracket
23		27130220	Bracket, volume
24		27115045B	Side bracket
25		27160077	Radiator
26		27140398	Bracket, printed circuit board
27		270281	Bracket for 18
28		27120241	Back panel
29		27130221	Bracket for power transformer
30		12589121	Front panel ass'y
31		27210181A	Front panel (S)
32		28320442	Knob for volume
33		28320341A	Knob for power switch
34		29360243	Fuse label (only U.S.A. model)

**COMPONENT LOCATION – PARTS LIST**

**220V Model**

REF. NO.	CIRCUIT NO.	PARTS NO.	DESCRIPTION
1	U01	12696587	NAPJ-887, Tuner/Tape terminal pc board ass'y
2	U02	12589586A	NAEQ-886a, Equalizer ampli. pc board ass'y
3	U03	12696588	NASW-888, Switch pc board ass'y
4	U07	12592585B	NAAF-885b, Tone ampli. pc board ass'y
5	U08	12696590	NAVR-890, Volume control pc board ass'y
6	U11	12696593	NAPL-893, Meter illumination pc board ass'y
7	U09	12696592	NAME-892, Meter drive circuit pc board ass'y
8	Q501, Q601	222020	STK-463, Power ampli. IC
9	T901	230425 or 230434	NPT-714G or NPT-716G, Power transformer
10	C901	3500058	PME265MB510, IS capacitor
11	S901	25035176	NPS-111-L140, Power switch
12	C001-C004	335624730	0.047µF, 50V, Ceramic capacitor
13	W901	253083	AS-CEE, Power supply cord
14	W901a	270280	SR-4K-4, Strainrelief
15	F901	252074	2A-SE-EAK, AC fuse
	F901a	25065096	NPE-073, Fuseholder
16	F501, F601	252094	4A-T-A, Speaker protection fuse
18	S701	25065127	1P-105A-100, Thermal switch
19	P001	25060044	Ground terminal
20	M501, M601	243131	NIND-0500S131, Output meter
21	P501, P502	25060038	NTM-4PR-MN09, Speaker terminal
22		27110112	Front bracket
23		27130220	Bracket, volume
24		27115045B	Side bracket
25		27160077	Radiator
26		27140398	Bracket, printed circuit board
27		270281	Bracket for 18
28		27120246	Back panel
29		27130221	Bracket for power transformer
30		12589121	Front panel ass'y
31		27210181A	Front panel (S)
32		28320442	Knob for volume
33		28320341A	Knob for power switch
		12592599	NADIN-899, DIN terminal pc board ass'y
	F911, F912	252078	5A-SE-EAK, AC fuse

COMPONENT LOCATION – PARTS LIST

120/220V Model

REF. NO.	CIRCUIT NO.	PARTS NO.	DESCRIPTION	REF. NO.	CIRCUIT NO.	PARTS NO.	DESCRIPTION
1	U01	12696587	NAPJ-887, Tuner/Tape terminal pc board ass'y	16	F501, F601	252094	4A-T-A, Speaker protection fuse
2	U02	12589586A	NAEQ-886a, Equalizer ampli. pc board ass'y	18	S701	25065127	1P-105A-100, Thermal switch
3	U03	12696588	NASW-888, Switch pc board ass'y	19	P001	25060044	Ground terminal
4	U07	12589585A	NAAF-885a, Tone ampli. pc board ass'y	20	M501, M601	243131	NIND-0500S131, Output meter
5	U08	12696590	NAVR-890, Volume control pc board ass'y	21	P501, P502	25060038	NTM-4PR-MN09, Speaker terminal
6	U11	12696593	NAPL-893, Meter illumination pc board ass'y	22		27110112	Front bracket
7	U09	12696592	NAME-892, Meter drive circuit pc board ass'y	23		27130220	Bracket, volume
8	Q501, Q601	222020	STK-463, Power ampli. IC	24		27115045B	Side bracket
9	T901	230426 or 230435	NPT-714DG or NPT-716DG, Power transformer	25		27160077	Radiator
10	C901	3500058	0.01µF, 125V, IS capacitor	26		27140398	Bracket, printed circuit board
11	S901	25035176	NPS-111-L140, Power switch	27		270281	Bracket for 18
12	C001-C004	335624730	0.047µF, 50V, Ceramic capacitor	28		27120247	Back panel
13	W901	253092	AS-CEE-2, Power supply cord	29		27130221	Bracket for power transformer
14	W901a	270280	SR-4K-4, Strainrelief	30		12589121	Front panel ass'y
15	F901	252014	4A-T, AC fuse	31		27210181A	Front panel (S)
	F901a	250143	FF-1S-4, Fuseholder	32		28320442	Knob for volume
				33	F902	252074	Knob for power switch
					F902a	25065096	2A-SE-EAK, AC fuse
					S902a	25065123	NPE-073, Fuseholder
							NSS-1258P, Voltage selector switch

PRINTED CIRCUIT BOARD-PARTS LIST

Tuner/Tape terminal pc board (NAPJ-887)

Circuit No.	Parts No.	Description
P102	25045072	NPJ-6PDBL36, Tuner/Tape 1terminal
P103	25045074	NPJ-4PDBL37, Tape 2 terminal

Equalizer amplifier pc board (NAEQ-886a)

Circuit No.	Parts No.	Description
Q101, Q201	222534	NJM-4559DX, Equalizer ampli. IC

Circuit No.	Parts No.	Description
C101, C201	352780109	1µF, 50V, Elect.
C104, C204	352721019	100µF, 6.3V, Elect.
C107, C207	392880107	1µF, 50V, LL
C108, C109	352780339	3.3µF, 50V, Elect.

Circuit No.	Parts No.	Description
P101	25045071	NPJ-2PDBL35, Phono Terminal

Tone and power amplifier pc board (NAAF-885a/b)

Circuit No.	Parts No.	Description
Q151, Q251	222534	NJM-4559DX, Tone ampli. ICs
Q501, Q601	222020	STK-463, Power ampli.
Q502, Q602	222502	NJM-4558DX, Super servo

Circuit No.	Parts No.	Description
Q701	2211255	2SC1815(GR)
Q702	2211254	2SC1815(Y)

Circuit No.	Parts No.	Description
D701, D702	223133	DS-442X
D911-D914	223845	GP-20D
D915, D916	223804	SR-1K-2
D917, D918	224119	GZA-18L

Circuit No.	Parts No.	Description
C153, C253	392884797	0.47µF, 50V, LL
C155, C255	352742209	22µF, 16V, Elect.
C160, C260	352780109	1µF, 50V, Elect.
C501, C601	352780109	1µF, 50V, Elect.
C503, C603	352780109	1µF, 50V, Elect.
C504, C604	352781019	100µF, 50V, Elect.
C506, C606	352764709	47µF, 35V, Elect.
C511	352781009	10µF, 50V, Elect.
C513, C613	352781009	10µF, 50V, Elect.
C521-C524	352751009	10µF, 25V, Elect.
C621-C624	352751009	10µF, 25V, Elect.
C525, C526	352780109	1µF, 50V, Elect.
C701	352782209	22µF, 50V, Elect.
C703	352780339	3.3µF, 50V, Elect.
C912, C913	3504124	6,800µF, 40V, Elect.
C914, C915	352764709	47µF, 35V, Elect.
C916, C917	352752219	220µF, 25V, Elect.
C918	352782219	220µF, 50V, Elect.

Circuit No.	Parts No.	Description
R150	5104084	N16RL250KWTP15, Balance control
R163, R263	5148036	N16RGL250KC15, Bass control
R167, R267	5148036	N16RGL250KC15, Treble control
R504	441521014	100Ω, 1/2W, Metal oxide film
R506, R606	441521024	1kΩ, 1/2W, Metal oxide film
R507, R607	441523324	3.3kΩ, 1/2W, Metal oxide film
R508, R608	441623394	0.33Ω, 1W, Metal oxide film
R510, R610	441520474	4.7Ω, 1/2W, Metal oxide film
R531, R631	441622714	270Ω, 1W, Metal oxide film
R706	441523614	360Ω, 1/2W, Metal oxide film

Circuit No.	Parts No.	Description
R802, R803	441622024	2kΩ, 1W, Metal oxide film
R811	441622004	20Ω, 1W, Metal oxide film
R911-R914	441524314	430Ω, 1/2W, Metal oxide film
R915	441521524	1.5kΩ, 1W, Metal oxide film

Circuit No.	Parts No.	Description
RL701	25065108	NRL-2P3A-DC24-05 Relay

Circuit No.	Parts No.	Description
S4, S5	25035210	NPS-222-L174, Tape, Loudness
S6	25035211	NPS-122-L175, Speaker selector

Circuit No.	Parts No.	Description
P503	25045073	HLJ0317-01-040, Stereo headphone Jack

Circuit No.	Parts No.	Description
	250113	SN5051 Fuseholder

Circuit No.	Parts No.	Description
F501, F601	252094	4A-T-A, Speaker protection Fuse

Circuit No.	Parts No.	Description
	27300130	Ground plate
	27300236	

Switch circuit (NASW-888)

Circuit No.	Parts No.	Description
S1-S3	25035209	NPS-342-L173, Selector switch

Volume control pc board (NAVR-390)

Circuit No.	Parts No.	Description
R156, R256	5172045	N24RGL41C250KBTP35, Variable resistor

Meter drive circuit pc board (NAME-892)

Circuit No.	Parts No.	Description
D551, D651	223119	1S1588 Diodes
D552, D553	2231031	1N60(N)FM
D652, D653	2231031	1N60(N)FM

Circuit No.	Parts No.	Description
C551, C651	352780229	2.2µF, 50V, Elect. Capacitors
C552, C652	352750479	4.7µF, 25V, Elect.

Circuit No.	Parts No.	Description
R551, R651	441521224	1.2kΩ, 1/2W, Metal oxide film Resistors
R553	5215019	N08HR2KBC, Semi-fixed

Meter illumination lamp pc board (NAPL-893)

Circuit No.	Parts No.	Description
PL801, PL802	210065B	PL12V150mA, Lamp

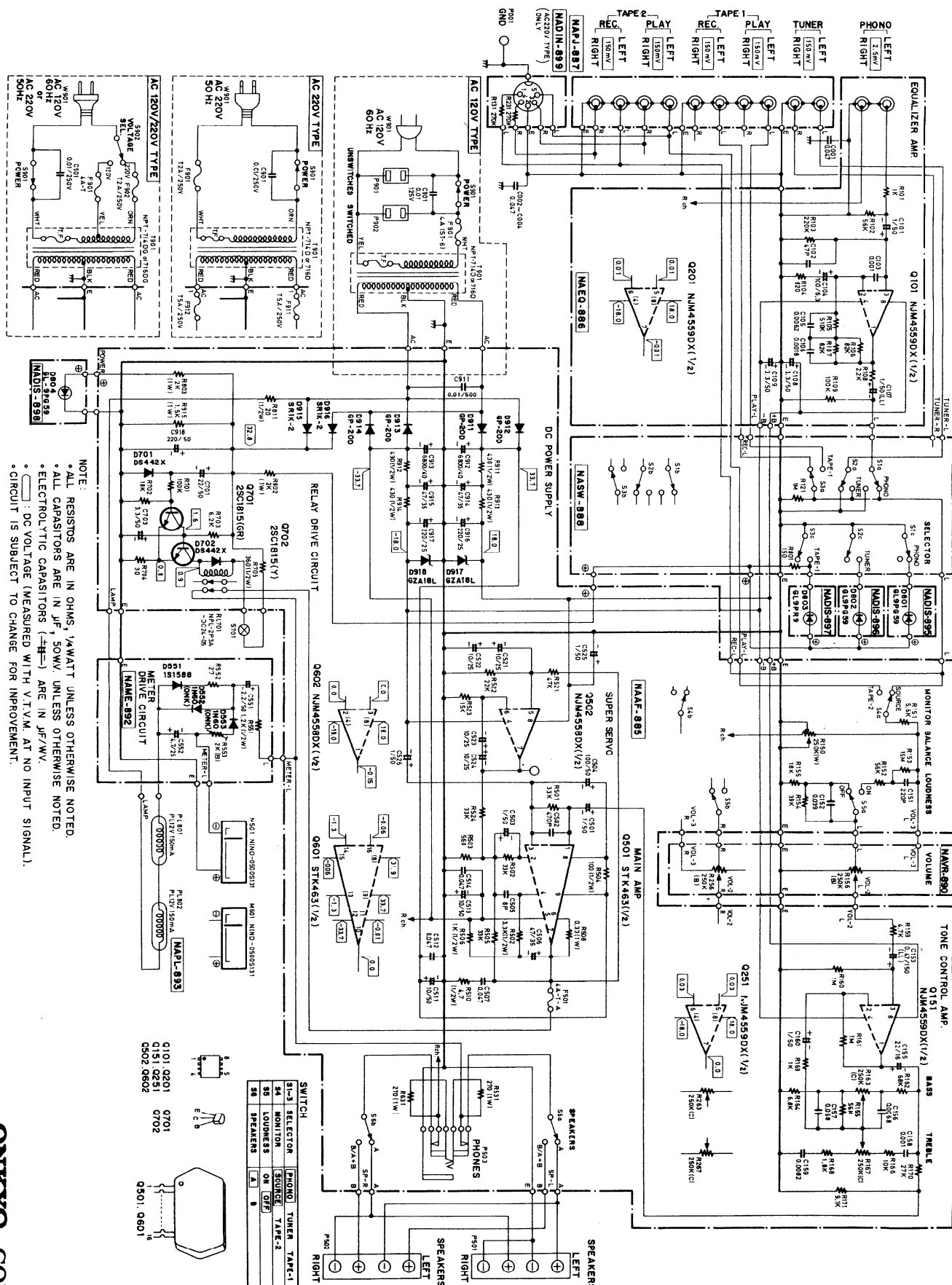
Display L.E.D pc board (NADIS-895/896/897/898)

Circuit No.	Parts No.	Description
D801	225028	GL-9PG59, Phono indicator L.E.Ds
D802	225028	GL-9PG59, Tuner indicator
D803	225029	GL-9PR9, Tape indicator
D804	225028	GL-9PG59, Power indicator

DIN terminal pc board (NADIN-889) (Only 220V model)

Circuit No.	Parts No.	Description
P104	250199	S-13316, DIN terminal

**SCHEMATIC DIAGRAM**



**NOTE:**

- ALL RESISTORS ARE IN OHMS, 1/4WATT UNLESS OTHERWISE NOTED.
- ALL CAPACITORS ARE IN J/F, 50WV UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS (E) ARE IN J/F/WV.
- DC VOLTAGE (MEASURED WITH V.T.V.M. AT NO INPUT SIGNAL).
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

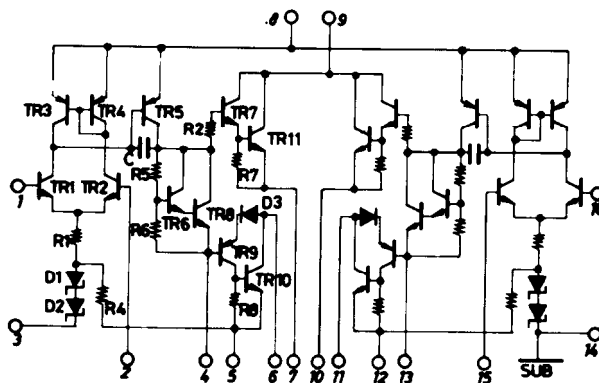
SWITCH	POSITION	TUNER	TAPE-1
S1-3	SELECTOR	ON	OFF
S4	MONITOR	ON	OFF
S5	LOUDNESS	ON	OFF
S6	SPEAKERS	A	B

**Meter calibration adjustment**

Connect the AC V.T.V.M and 8 ohms hollow resistoer across the LEFT speaker terminal.

Apply a 1kHz test signal to the TAPE terminal of the left channel. Adjust input to the point the voltage reading at the speaker output is 2.8V, and adjust R553 on meter drive pc board until the reads 1W.

**STK-463 EQUIVALENT CIRCUIT**





# POWER TRANSFORMER-CONNECTION DIAGRAM

