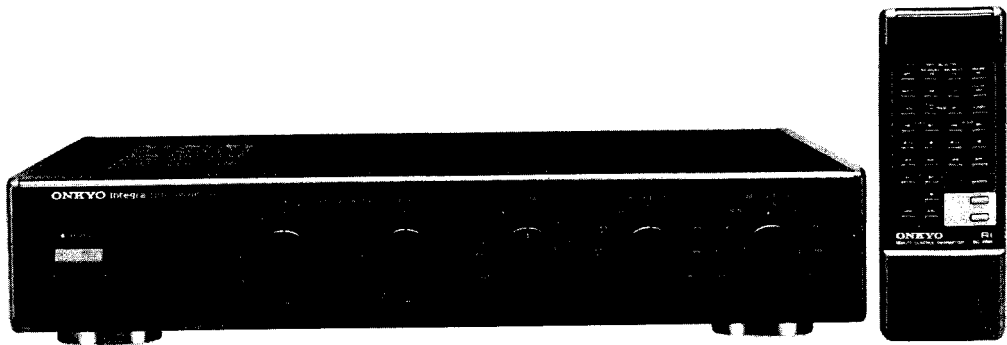


ONKYO® SERVICE MANUAL

Stereo Pre Amplifier MODEL P-3890



Silver and Black models

UP	230V AC, 50Hz
----	---------------

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.

TABLE OF CONTENTS

Specifications	2
Block diagram	3
Precautions	4
IC Block diagram	5
Chassis-exploded view	8
Front and rear panel	11
Printed board parts list	13
Printed circuit board view	17
Schematic diagram	23
System connections	25
Parts list of packing	17

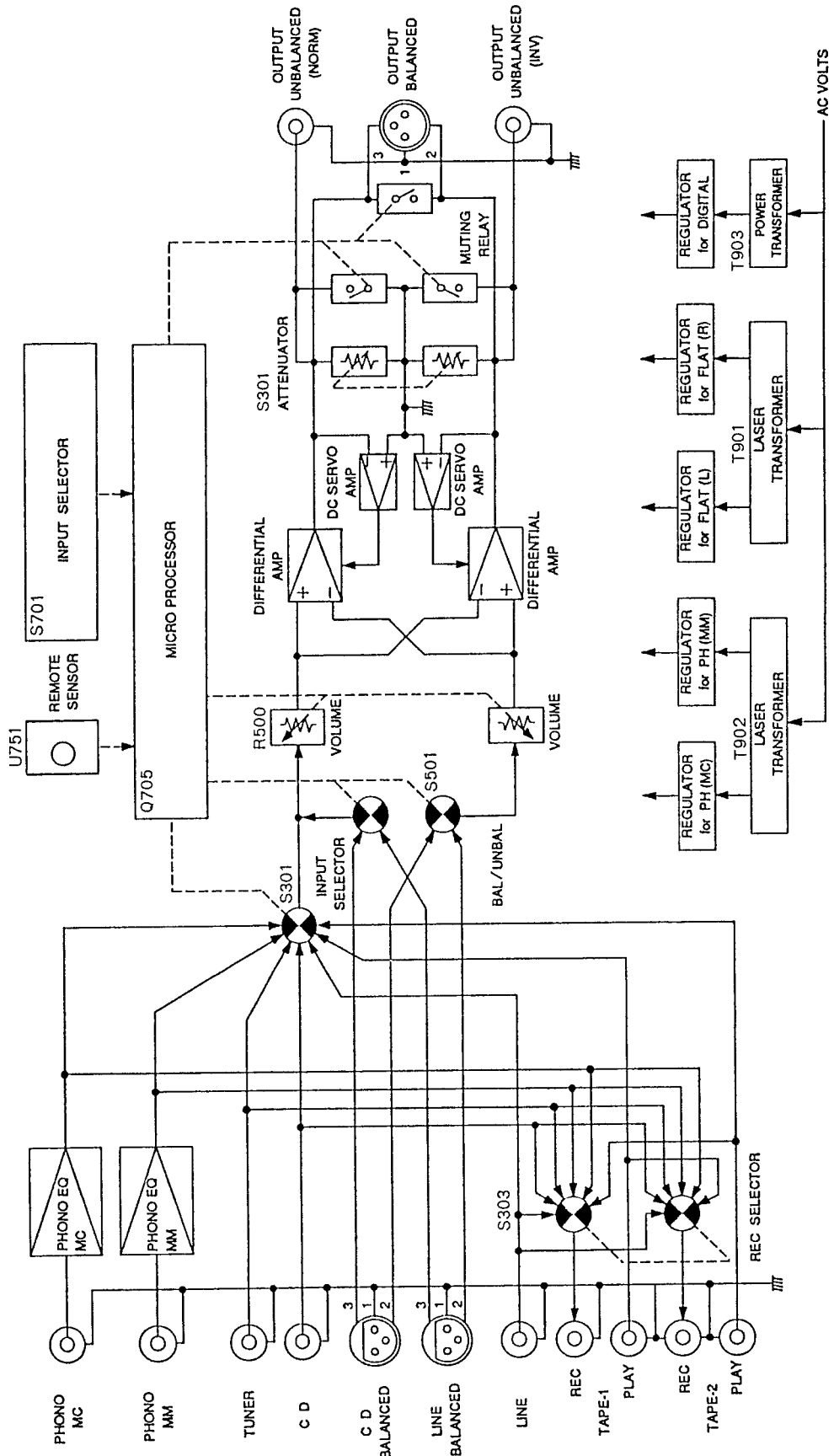


SPECIFICATIONS

Input Sensitivity and Impedance:		
PHONO MC:	160 μ V	100 ohms
PHONO MM:	2.5 mV	47 kohms
BALANCED:	150 mV	30 kohms (Hot-Cold)
UNBALANCED:	150 mV	15 kohms
Rated Output and Impedance:		
BALANCED:	1.0V	200 ohms
UNBALANCED:	0.5V	100 ohms
TAPE REC:	150mV	1.1 kohms
Maximum Output:		
BALANCED:	10.0V	
UNBALANCED:	5.0V	
TAPE REC:	12.0V at Phono Input	
RIAA Deviation:	$\pm$ 0.2dB at 20-20,000 Hz	
Phono Overload:		
PHONO MC:	13 mV RMS at 1kHz, THD 0.05%	
PHONO MM:	200 mV RMS at 1kHz, THD 0.05%	
Frequency Response (CD):		
Balanced/Unbalanced	+0, -3 dB at 0.8 Hz - 170 kHz	
Total Harmonic Distortion:		
PHONO MC:	0.005% at 3V OUTPUT	
PNONO MM:	0.0008% at 3V OUTPUT	
CD (BAL, UNBAL):	0.0005% at 3V OUTPUT	
Intermodulation Distortion:		
CD (BAL, UNBAL):	0.003% at 70 Hz ; 7kHz=4 : 1	
Signal-to-Noise Ratio:		
PHONO MC:	81 dB (0.5 mV Input A-Weighted)	
PHONO MM:	92 dB (5.0 mV Input A-Weighted)	
CD (BAL, UNBAL):	105 dB (150 mV Input A-Weighted)	
	at Balanced Output	
Power Supply:		
European models:	AC230V, 50 Hz	
Controls:		
POWER		
OUTPUT ATTENUATOR (L, R),	(0, -1, -2, -3, -6, -12dB)	
VOLUME		
REC. SELECTOR (MM, MC, TUNER, CD, LINE, TAPE1 ► 2,		
TAPE2 ► 1)		
INPUT SELECTOR (MM, MC, TUNER, CD, CD-BAL, LINE-BAL,		
LINE, TAPE-1, TAPE-2)		
OUTPUT MUTING (∞) (Remote Control only)		
Inputs:		
MC (PHONO), MM (PHONO), TUNER, CD, CD-BAL (BALANCED)		
LINE-BAL (BALANCED), LINE, TAPE-1, TAPE-2		
Outputs:		
TAPE REC OUT	TAPE-1 & 2	
OUTPUT	BALANCED	
	UNBALANCED NORMAL & INVERT	
Dimensions:		
	455 (W) $\times$ 90 (H) $\times$ 418 (D)	
	17-15/16" (W) $\times$ 3-9/16" (H) $\times$ 16-7/16" (D)	
(side panels included)	475 (W) $\times$ 90 (H) $\times$ 418 (D)	
	18-11/16" (W) $\times$ 3-9/16" (H) $\times$ 16-7/16" (D)	
Weight:		
	8.9 kg, (19.6 lbs.)	
(side panels included)	9.2 kg (20.3 lbs.)	

Specifications and features are subject to change without notice.

BLOCK DIAGRAM



PRECAUTIONS

1. Replacing the fuses

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

CIRCUIT NO.	PART NO.	DESCRIPTION
F902	252069 or 252069CC	0.8A-SE-EAK or 0.8A-SE-EAK, Primary fuse

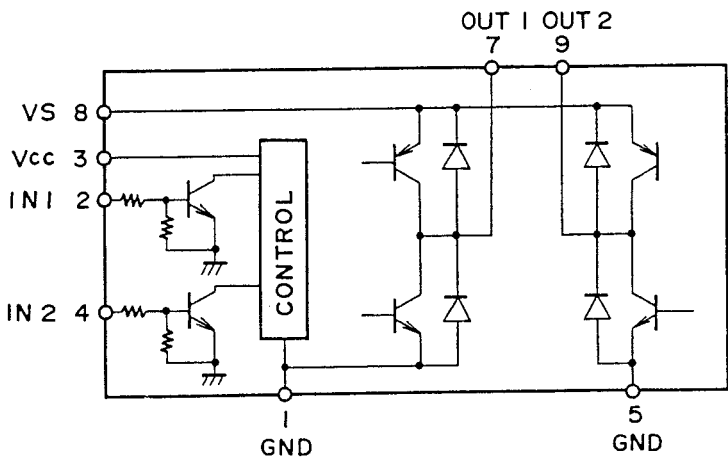
2. When replacing the power transformer (T903), make sure to affix a rating label to the transformer.

REF. NO.	PART NO.	DESCRIPTION
A859	29361441	Rating label

3. When installing the power transformer (T903) on the chassis, make sure to use the specified screws. (Safety)
Tap-tight screw → 4TTC+8C(BC), [830440089]

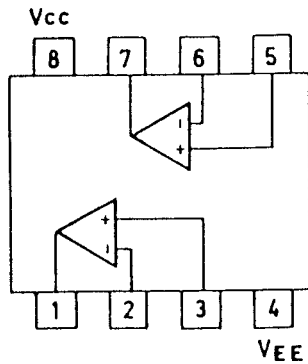
IC BLOCK DIAGRAM

LB1638 (Motor drive)

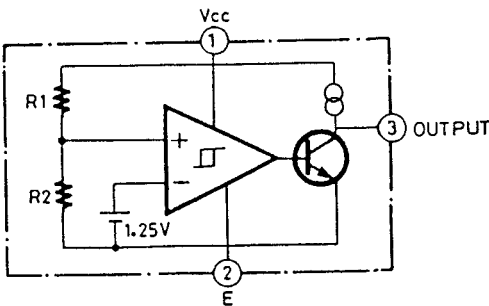


IN 1	IN 2	OUT 1	OUT 2	MODE
H	L	H	L	NORMAL
L	H	L	H	REVERSE
H	H	L	L	BRAKE
L	L	OFF	OFF	WAIT

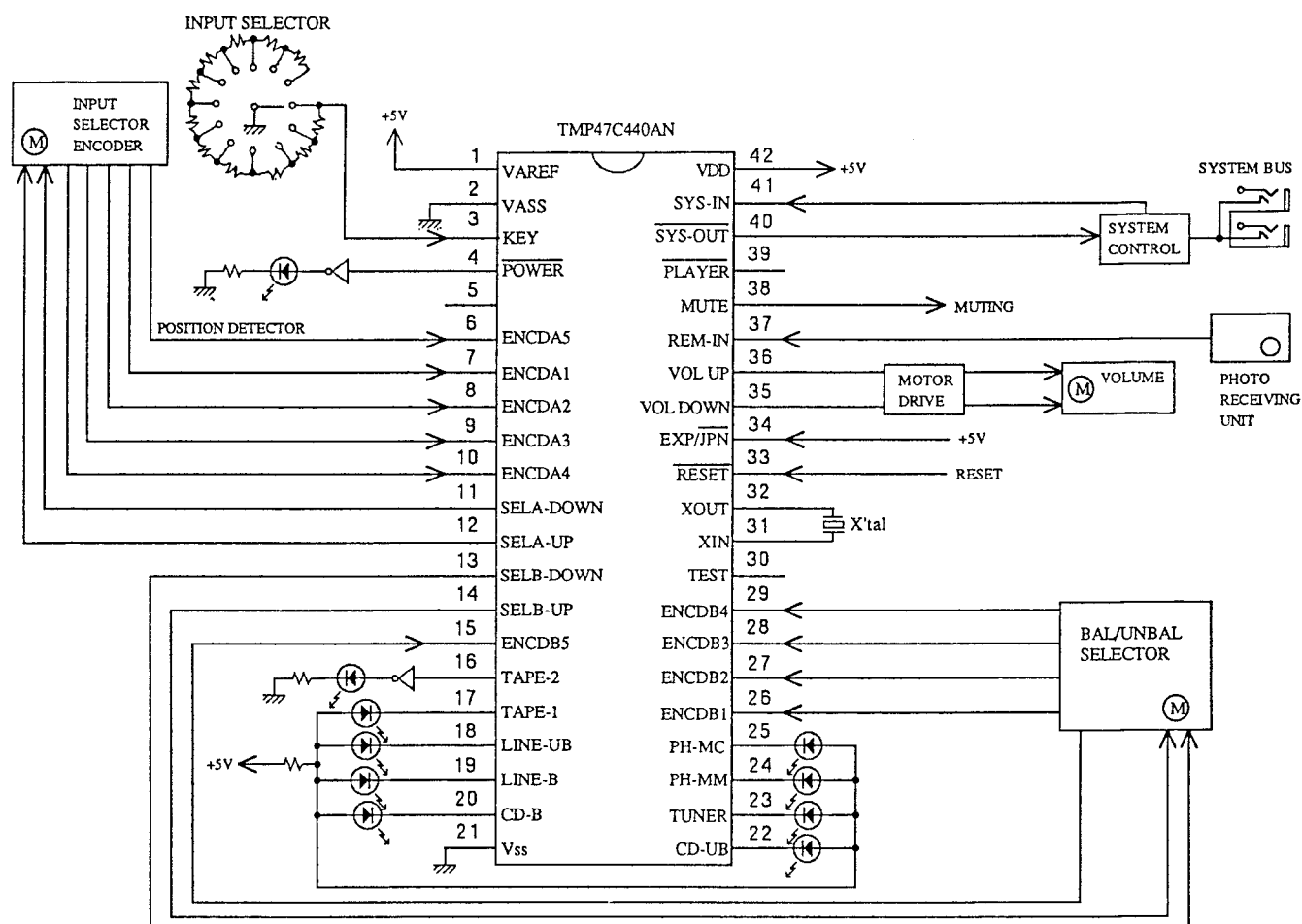
NJM5532DD (OP Amp)
NJM4558D



M51943BSL (System reset)



TMP47C440AN-G701 (Microprocessor)



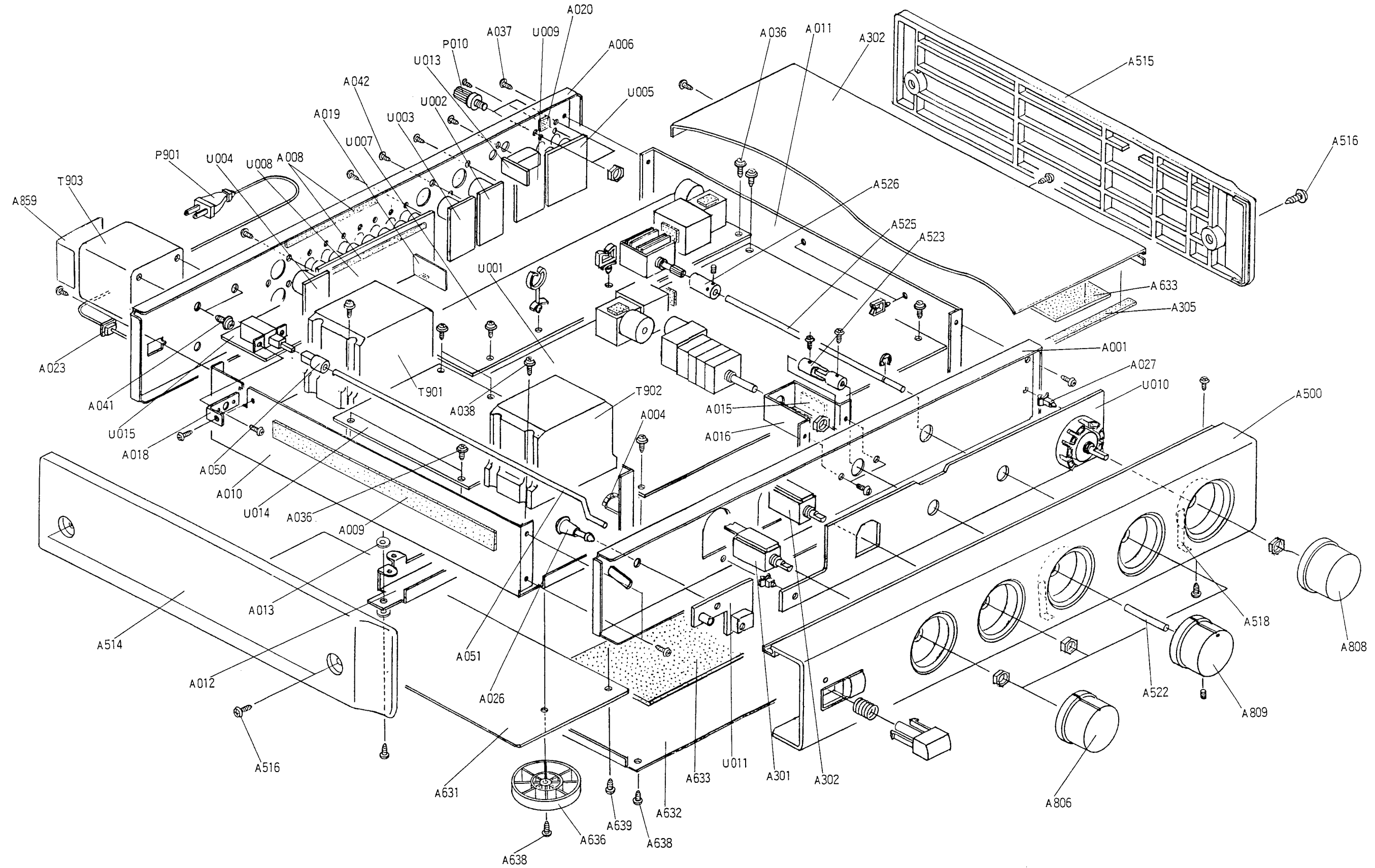
Pin No.	Symbol	Description												
1	VAREF	Analog reference voltage for A/D conversion.												
2	VASS	Analog reference GND for A/D conversion.												
3	KEY	Input terminal for Input selector key. Through A/D conversion, Input selector key will be fetched.												
4	POWER	Output terminal for power display. Lighted in case of "L". "L" will be output at any time.												
5	VOL	Output terminal for volume display. Lighted in case of "L". Winks in 1 Hz muting ON.												
6	ENCDA5	Selector-A position detector input terminal.												
7	ENCDA1													
8	ENCDA2													
9	ENCDA3													
10	ENCDA4													
11	SELA DOWN	UP/DOWN Output terminal for Input selector-A. Active "H".												
12	SELA UP													
		<table border="1"> <thead> <tr> <th>OPERATION</th><th>SEL-A UP</th><th>SEL-A DOWN</th></tr> </thead> <tbody> <tr> <td>STOP</td><td>H</td><td>H</td></tr> <tr> <td>UP</td><td>H</td><td>L</td></tr> <tr> <td>DOWN</td><td>L</td><td>H</td></tr> </tbody> </table>	OPERATION	SEL-A UP	SEL-A DOWN	STOP	H	H	UP	H	L	DOWN	L	H
OPERATION	SEL-A UP	SEL-A DOWN												
STOP	H	H												
UP	H	L												
DOWN	L	H												

Pin No.	Symbol	Description												
13	SELB DOWN	UP/DOWN Output terminal for Bal/Unbal selector. Active "H". <table><tr><th>OPERATION</th><th>SEL-B UP</th><th>SEL-B DOWN</th></tr><tr><td>STOP</td><td>H</td><td>H</td></tr><tr><td>UP</td><td>H</td><td>L</td></tr><tr><td>DOWN</td><td>L</td><td>H</td></tr></table>	OPERATION	SEL-B UP	SEL-B DOWN	STOP	H	H	UP	H	L	DOWN	L	H
OPERATION	SEL-B UP		SEL-B DOWN											
STOP	H		H											
UP	H		L											
DOWN	L	H												
14	SELB UP													
15	ENCDB5	Selector-B position detector input terminal.												
16	TAPE-2	Output terminal for Input selector display. Output of the position currently selected will be "L" (Light). * UB UNBALANCE, B BALANCE												
17	TAPE-1													
18	LINE-UB													
19	LINE-B													
20	CD-B													
21	VSS	GND terminal.												
22	CD-UB	Output terminal for Input selector display. Output of the position currently selected will be "L" (Light).												
23	TUNER													
24	PH-MM													
25	PH-MC													
26	ENCDB1	Selector-B position detector input terminal.												
27	ENCDB2													
28	ENCDB3													
29	ENCDB4													
30	TEST	Shipment Test. To be connected with GND.												
31	XIN	Terminal for connecting with Ceramic oscillator (4 MHz).												
32	XOUT													
33	RESET	Input terminal for System reset.												
34	EXP/JPN	Input terminal for Remote control code Initialization when power switch ON.												
35	VOL DOWN	Volume UP/DOWN Output terminal. Active "H". <table><tr><th>OPERATION</th><th>VOL UP</th><th>VOL DOWN</th></tr><tr><td>STOP</td><td>H</td><td>H</td></tr><tr><td>UP</td><td>H</td><td>L</td></tr><tr><td>DOWN</td><td>L</td><td>H</td></tr></table>	OPERATION	VOL UP	VOL DOWN	STOP	H	H	UP	H	L	DOWN	L	H
OPERATION	VOL UP		VOL DOWN											
STOP	H		H											
UP	H		L											
DOWN	L	H												
36	VOL UP													
37	REM IN	Remote control signal input terminal. Active "L".												
38	MUTE	Muting output terminal. Active "H".												
39	PLAYER	Output terminal for Player control.												
40	SYS OUT/SYS EN	Output terminal for System code. Active "L".												
41	SYS IN	Input terminal for System code. Active "H".												
42	VDD	Power (+5V) Connecting terminal.												

CHASSIS-EXPLODED VIEW PARTS LIST

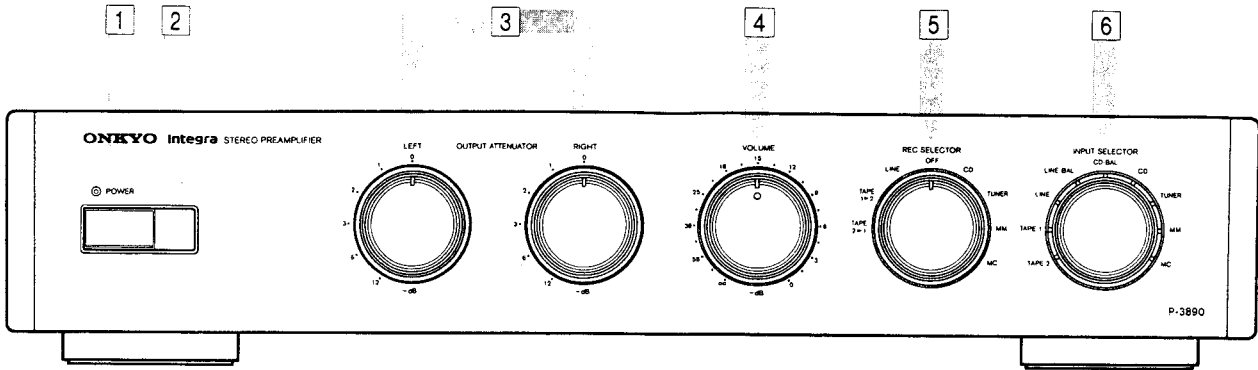
REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
A001	27110709	Front bracket ass'y	A806	28324631	Knob (AT) [BLK]
A004	28170031	Bushing	A806	28324665	Knob (AT) [SIL]
A006	27121594A	Rear panel	A808	28324632	Knob (SEL) [BLK]
A007	28140972	t1.5x25x140, Cushion	A808	28324666	Knob (SEL) [SIL]
A008	28141220	t5x125 x12, Cushion	A809	28324635	Knob (VOL) [BLK]
A009	28140782	t1.5x25x170, Cushion	A809	28324664	Knob (VOL) [SIL]
A010	27130696	Bracket (L)	A859	29361440	Rating label
A011	27130697	Bracket (R)	▲ T901	2300822C	NPT-1148P, Power transformer
A012	27130698	Bracket (PC)	▲ T902	2300826C	NPT-1149P, Power transformer
A013	27270147	Spacer	▲ T903	2300830B	NPT-1150P, Power transformer
A015	28141221	t1.5x20x45, Cushion	S301,S302	25030358	NRSF-106-20BU, Rotary switch
A016	27141547A	Bracket (VOL)	P010,P110	25060180	NTM-1SC106, Ground terminal
A018	27141549	Bracket (POW)	▲ P901	253131A	AS-CEE-3, Power supply cable
A019	27141584	Bracket (SI)	▲ F902	252069	0.8A-SE-EAK, Primary fuse or
A020	28141226	t5x10x20, Cushion		252069CC	0.8A-SE-EAK, Primary fuse
A023	28190009	Bushing (CORD)	U001	1A371500-1A	NAAF-4500-1A, Equalizer and Flat
A026	27190657	KGLS-18RF, Holder			amplifier pc board ass'y
A027	27190897	KGLS-3S, Holder	U002	1A370501-1	NAETC-4501-1, Balanced CD input
A036	831130088	3TTW+8B, Tap-tight screw			terminal pc board ass'y
A037	801230	3STS+8BQ(BC), Tap-tight screw	U003	1A370502-1	NAETC-4502-1, Balanced LINE input
A038	830440109	4TTC+10C(BC), Tap-tight screw			terminal pc board ass'y
A041	830440089	4TTC+8C(BC), Tap-tight screw	U004	1A370503-1	NAETC-4503-1, Balanced output
A042	82142604	2.6P+4F(BC), Tap-tight screw			terminal pc board ass'y
A050	27273152	Joint (POW)	U005	1A371504-1A	NAETC-4504-1A, PHONO input
A051	27260323	Shaft (POW)			terminal pc board ass'y
A061	250153	Shorted pin	U007	1A371506-1A	NASW-4506-1A, Input selector switch
A063	79087	Glass tube			circuit pc board ass'y
A302	28184526	Top cover	U008	1A370507-1	NAETC-4507-1, Output terminal pc
A303	28140695	t1.5x25x240, Cushion (Cover)			board ass'y
A305	28141222	t0.5x15x425, Cushion	U009	1A370508-1	NAETC-4508-1, Input terminal pc
A500	1A371701K	Front panel ass'y [BLK]			board ass'y
(A504)	27267785	Guide (AT) [BLK]	U010	1A370509-1	NADG-4509-1, Microprocessor
(A505)	27267786	Guide (REC) [BLK]			circuit pc board ass'y
(A507)	27267787	Guide ass'y (SEL) [BLK]	U011	1A370510-1	NADIS-4510-1, Photo receiving
(A509)	27267789	Guide ass'y (VOL) [BLK]			circuit pc board ass'y
(A511)	28135199	Name plate	U013	1A370512-1	NAETC-4512-1, RI terminal pc board
(A801)	28191593-1	Clear plate (RE)			ass'y
(A803)	28198721	Facet	U014	1A370513-1	NAPS-4513-1, Power supply circuit
(A811)	27267790A	Guide ass'y (POW) [BLK]			pc board ass'y
(A811b)	28324626	Knob ass'y (POW) [BLK]	U015	1A370514-1A	NASW-4514-1A, Power switch circuit
(A811c)	27180398A	Splng			pc board ass'y
A500	1A386701K	Front panel ass'y [SIL]	NOTE [BLK]: Only Black models [SIL]: Only Silver models		
(A504)	27267803	Guide (AT) [SIL]			
(A505)	27267804	Guide (REC) [SIL]	NOTE: THE COMPONENTS IDENTIFIED BY MARK ▲ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.		
(A507)	27267806	Guide ass'y (SEL) [SIL]			
(A509)	27267809	Guide ass'y (VOL) [SIL]			
(A811)	27267808A	Guide ass'y (POW) [SIL]			
(A811b)	283224667	Knob ass'y (POW) [SIL]			
A514	28185369	Side board (L)			
A515	28185370	Side board (R)			
A516	837440169	4TTT+16C(BC), Tap-tight screw			
A518	29110066	W=5, Aluminum tape			
A522	27260319	Shaft ass'y (VOL)			
A523	27273133-1B	Joint ass'y			
A525	27260321	Shaft ass'y (SEL)			
A526	27273092A	Joint			
A631	27170290	Bottom board (L)			
A632	27170291	Bottom board (R)			
A633	28141009	t1.5x195 x125, Cushion			
A636	27175254	Bottom leg ass'y			
A638	834430088	3TTS+8B(BC), Tap-tight screw			
A639	801230	3STS+8BQ(BC), Tap-tight screw			

CHASSIS-EXPLODED VIEW



FRONT AND REAR PANEL

Front panel



1 Power Switch (POWER) and Indicator

Press the power switch to turn the power on, and the indicator will light. Press it again, and the power will be turned off. For 5 seconds after the power is turned on, muting will prevent the signal from being output, until the internal circuit works properly.

2 Remote Control Sensor

This receives signals sent from RC-235S remote control transmitter.

3 Output Attenuator Switch (OUTPUT ATTENUATOR LEFT/RIGHT)

This switch adjusts the output level of the output terminal. Also use it for L and R level adjustment, since left and right are independent of each other. Set the attenuate amount to one of these 6 values: 0, -1, -2, -3, -6 and -12 (dB). Normal setting is 0.

4 Volume Control Knob (VOLUME)

This controls volume. Turning it clockwise increases volume. When controlling with the remote control transmitter, pressing "UP" or "DOWN" increases or decreases volume respectively.

5 Rec Selector Switch (REC SELECTOR)

This switch selects the recording source. Output signal of TAPE-1 and TAPE-2 REC terminal are switched.

MC Select this to record the record player connected to the PHONO MC terminal.

MM Select this to record the record player connected to the PHONO MM terminal.

TUNER ... Select this to record the source connected to the TUNER terminal.

CD Select this to record the source connected to the CD terminal.

OFF Select this to not record or dub.

LINE Select this to record the source connected to the LINE terminal.

TAPE 1 ▶ 2 .. Select this to dub from TAPE-1 to TAPE-2.

TAPE 2 ▶ 1 .. Select this to dub from TAPE-2 to TAPE-1.

* Recording or dubbing can be performed regardless of the input selector's setting.

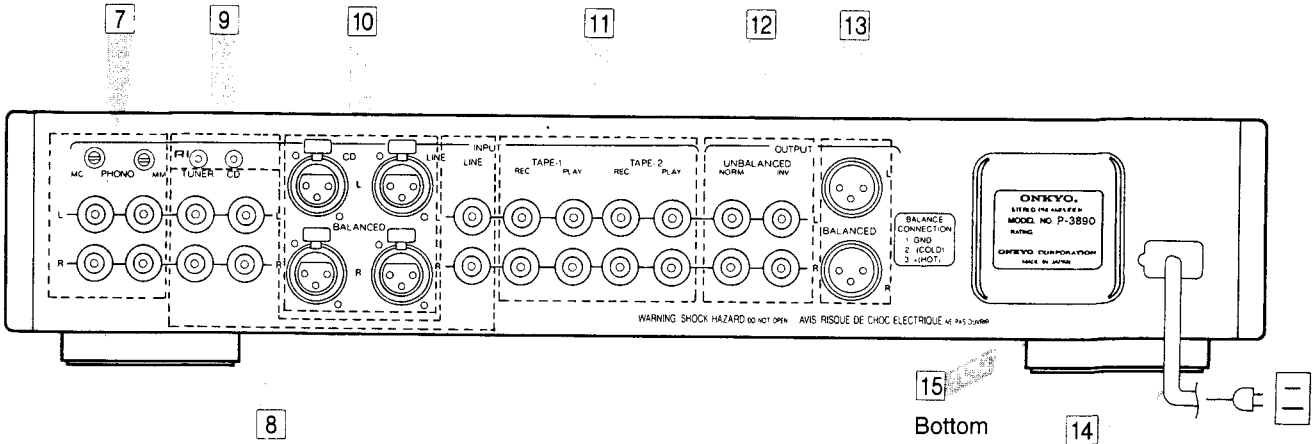
* A source connected to the BALANCED terminal cannot be recorded.

6 Input Selector Switch and Indicators (INPUT SELECTOR)

This switch is used to select the desired program source. The switch can be turned in either direction without end stops. An indicator lights to show which program has been selected. The switch is also able to be switched directly using the Input Selector buttons on the remote control transmitter.

● Make sure that the device of the selected source is connected to the appropriate terminal.

Rear panel



7 Record Player Input Terminal (PHONO MM • MC)

This terminal connects the record player. Make a selection in accordance with the cartridge to be used.

MM Connect to this terminal when using a MM type cartridge.

MC Connect to this terminal when using a MC type cartridge.

When using a step-up transformer or head amplifier, connect to the MM terminal, even when using a MC type cartridge.

* A short pin is inserted to this terminal before shipment from the factory. To use this terminal, remove the short pin and store it, or insert it to another input terminal. Do not insert it into the output terminal or TAPE REC terminal. Doing so may terminate sound production or cause abnormal operation.

8 TUNER, CD and LINE Input Terminals

This terminal connects the CD player, tuner, etc.

9 Remote Control Jacks

The remote control jacks are used to connect ONKYO products bearing the "RI" mark via the accessory remote control cable. When this unit is connected with ONKYO CD players or cassette decks bearing the "RI" mark, it can also be controlled by the remote control transmitter RC-235S. (Refer to page 7.)

10 Balance Input Terminal (BALANCED CD/LINE)

This terminal connects devices with balance output, such as the CD player. This terminal is equivalent to XLR-3-31.

Pin polarity 1 : GND
2 : - (COLD)
3 : + (HOT)

11 Tape Deck Connecting Terminal (TAPE-1 PLAY/REC, TAPE-2 PLAY/REC)

The unit can connect two tape decks.

12 Unbalance Output Terminal (OUTPUT UNBALANCED NORM/INV)

NORM Outputs the same phase signal in response to the input signal

INV Outputs the reverse phase signal in response to the input signal.

* The output impedance is 100Ω. Normally, it is connected to the amplifier by using the NORM side.

13 Balance Output Terminal (OUTPUT BALANCED NORM/INV)

The output impedance is 200Ω. This terminal is equivalent to XLR-3-32. Suitable connectors are XLR-3-11C equivalent products.

Pin polarity 1 : GND
2 : - (COLD)
3 : + (HOT)

14 Power Supply Cord.

15 Voltage Selector (Bottom)

This is provided only for worldwide models. For details, see page 3.

PRINTED CIRCUIT BOARD PARTS LIST

EQUALIZER AND FLAT AMPLIFIER PC BOARD (NAAF-4500-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q051,Q151	222902	NJM5532DD
Q621,Q622		
Q813,Q814	222465	NJM4558D
	Transistors	
Q001-Q008	2214739	2SK369(ONK)
Q009,Q010	2213666 or	2SA1240-F
	2213667	2SA1240-G
Q011,Q012	2211414	2SC1627-Y
Q017-Q022	2211975	2SA1015L-GR
Q023,Q024	2211895	2SC1815L-GR
Q025,Q026	2211414	2SC1627-Y
Q027,Q028	2211424	2SA817-Y
Q101-Q104	2214739	2SK369(ONK)
Q109,Q110	2213666 or	2SA1240-F or
	2213667	2SA1240-G
Q111,Q112	2211414	2SC1627-Y
Q113-Q116	2211895	2SC1815L-GR
Q117-Q122	2211975	2SA1015L-GR
Q123,Q124	2211895	2SC1815L-GR
Q125,Q126	2211414	2SC1627-Y
Q127,Q128	2211424	2SA817-Y
Q501-Q508	2212186 or	2SK170-BL or
	2212187	2SK170-V
Q509-Q512	2211255	2SC1815-GR
Q513,Q514	2214725 or	2SC3708-S or
	2214726	2SC3708-T
Q515,Q516	2214715 or	2SA1450-S or
	2214716	2SA1450-T
Q519,Q520	2214725 or	2SC3708-S or
	2214726	2SC3708-T
Q517,Q518	2214715 or	2SA1450-S or
	2214716	2SA1450-T
Q521-Q524	2211895	2SC1815L-GR
Q525-Q528	2211975	2SA1015L-GR
Q529,Q530	2211255	2SC1815-GR
Q531-Q540	2211455	2SA1015-GR
Q541-Q554	2211255	2SC1815-GR
Q555-Q560	2211455	2SA1015-GR
Q601,Q602	2212864	2SC3419-Y
Q603,Q604	2202584	2SA1356-Y
Q605,Q606	2212864	2SC3419-Y
Q607,Q608	2202584	2SA1356-Y
Q801-Q804	2211945	2SK246-GR
Q805,Q806	2211455	2SA1015-GR
Q807,Q808	2211255	2SC1815-GR

CIRCUIT NO.	PART NO.	DESCRIPTION
Q809,Q810	2202175 or	2SB1370-E or
	2202176	2SB1370-F
Q811,Q812	2202115 or	2SD2061-E or
	2202116	2SD2061-F
Q851,Q852	2211945	2SK246-GR
Q853	2211455	2SA1015-GR
Q854	2211255	2SC1815-GR
Q855	2202175 or	2SB1370-E or
	2202176	2SB1370-F
Q856	2202115 or	2SD2061-E or
	2202116	2SD2061-F
Q871,Q872	2211945	2SK246-GR
Q873	2211455	2SA1015-GR
Q874	2211255	2SC1815-GR
Q875	2202175 or	2SB1370-E or
	2202176	2SB1370-F
Q876	2202115 or	2SD2061-E or
	2202116	2SD2061-F
	Diodes	
D001-D006	225251	TLR112, LED
D101-D106		
D501-D516		
D791	223163 or	1S133 or
	223205	1SS270A
D801-D804	224450512	MTZ5.1B, Zener
D851,D852		
D871,D872		
	Coils	
L101, L102	231133	NCH-1188
	Capacitors	
C005,C006	373632224	2200 pF, 100V, Film (KP)
C007,C008	372122214	220 pF, 50V, Styrene
C009,C010	373632214	220 pF, 100V, Film (KP)
C011-C014	373552434	0.024 μ F, 250V, Film (MKP)
C015,C016	373554334	0.043 μ F, 250V, Film (MKP)
C017,C018	372126804	68 pF, 50V, Styrene
C019-C022	372122204	22 pF, 50V, Styrene
C023,C024	391622217	220 μ F, 6.3V, Elect.(FS)
C025,C026	373631024	1000 pF, 100V, Film (KP)
C027-C030	391651017	100 μ F, 25V, Elect.(FS)
C031,C032	391622217	220 μ F, 6.3V, Elect.(FS)
C051-C058	391652217	220 μ F, 25V, Elect.(FS)
C059,C060	372123304	33 pF, 50V, Styrene
C103,C104	373631014	100 pF, 100V, Film (KP)
C107,C108	373632224	2200 pF, 100V, Film (KP)
C111-C114	373552434	0.024 μ F, 250V, Film (MKP)
C115,C116	373554334	0.043 μ F, 250V, Film (MKP)
C117,C118	372126804	68 pF, 50V, Styrene
C119-C122	372122204	22 pF, 50V, Styrene
C123,C124	391622217	220 μ F, 6.3V, Elect.(FS)
C125,C126	373632224	2200 pF, 100V, Film (KP)

Caution: Specification of transistors 2SK369(ONK) used in this unit have been precisely selected so that DC voltage does not appear at the speaker terminals.

Transistors belonging to one of the following groups must be matched type.

- Group 1: Q001, Q003, Q005, Q007
 2: Q002, Q004, Q006, Q008
 3: Q101, Q103
 4: Q102, Q104

When you replace some of these transistors, do not forget to replace all the transistors in each group with matched type which have been delivered from ONKYO parts Center at the same time on the same day.

CIRCUIT NO.	PART NO.	DESCRIPTION
C127-C130	391651017	100 μ F, 25V, Elect.(FS)
C131,C132	391622217	220 μ F, 6.3V, Elect.(FS)
C151-C158	391652217	220 μ F, 25V, Elect.(FS)
C159,C160	372123304	33 pF, 50V, Styrene
C501,C502	373631014	100 pF, 100V, Film (KP)
C505-C508	391654707	47 μ F, 25V, Elect.(FS)
C509-C512	391661017	100 μ F, 35V, Elect.(FS)
C521-C524	372122704	27 pF, 50V, Styrene
C525-C528	372124704	47 pF, 50V, Styrene
C529-C532	391654707	47 μ F, 25V, Elect.(FS)
C533-C540	391622217	220 μ F, 6.3V, Elect.(FS)
C601,C602	373631024	1000 pF, 100V, Film (KP)
C621-C626	373722254	2.2 μ F, 50V, Film (MKT)
C791	374721034	0.01 μ F, 50V, Film (TF)
C801-C804	391621017	100 μ F, 6.3V, Elect.(FS)
C805-C808	374721034	0.01 μ F, 50V, Film (TF)
C809-C812	393361007	10 μ F, 35V, Elect.(VX)
C813-C816	391642227	2200 μ F, 16V, Elect.(FS)
C817-C820	374722234	0.022 μ F, 50V, Film (TF)
C851,C852	391621017	100 μ F, 6.3V, Elect.(FS)
C853,C854	374721034	0.01 μ F, 50V, Film (TF)
C855,C856	391680107	1 μ F, 50V, Elect.(FS)
C857,C858	391651027	1000 μ F, 25V, Elect.(FS)
C871,C872	391621017	100 μ F, 6.3V, Elect.(FS)
C873,C874	374721034	0.01 μ F, 50V, Film (TF)
C875,C876	391680107	1 μ F, 50V, Elect.(FS)
C877,C878	391651027	1000 μ F, 25V, Elect.(FS)
Resistors		
R011-R014	442526804	68 Ω , 1/2W, Metal oxide film
R019,R020	442528204	82 Ω , 1/2W, Metal oxide film
R037,R038	442524714	470 Ω , 1/2W, Metal oxide film
R039-R042	442521804	18 Ω , 1/2W, Metal oxide film
R111-R114	442521314	130 Ω , 1/2W, Metal oxide film
R119,R120	442521614	160 Ω , 1/2W, Metal oxide film
R137,R138	442524714	470 Ω , 1/2W, Metal oxide film
R139-R142	442521804	18 Ω , 1/2W, Metal oxide film
R500	5104311	N27RQL20KA20F, Variable
R515-R522	442522204	22 Ω , 1/2W, Metal oxide film
R613-R620	442521004	10 Ω , 1/2W, Metal oxide film
Relay		
RL311	25065335	NRL-2P1.25A-DC5-045
Switch		
S501	25030356	NRS-283-BA, Rotary
Socket ass'y		
P001,P101	2009990222A	NSAS-8P0323
P353	2009990224	NSAS-12P0325
P451,P452	2009990200	NSAS-6P0282
P455,P457	2009990223	NSAS-12P0324
P711	2009990249	NSAS-6P0362
P803,P804	2009990225	NSAS-4P0326
P852,P872	2009990250	NASA-6P0363
P873		
Plugs		
P355a	25055136	NPLG-6P120
P462a,P704a	25055133	NPLG-3P117
P702a	25055139	NPLG-9P123
Radiator		
	27160220	RAD-51(B)
Plates		
	27160313	Bus
	27160215-2	Bus
Ground plate		
	27141059	

BALANCED CD INPUT TERMINAL PC BOARD (NAETC-4501-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
		Sockets
P409,P410	25050777	NSCT-3P572

BALANCED LINE INPUT TERMINAL PC BOARD (NAETC-4502-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
		Sockets
P411,P412	25050777	NSCT-3P572

BALANCED OUTPUT TERMINAL PC BOARD (NAETC-4503-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
		Sockets
P305,P306	25050776	NSCT-3P571

PHONO INPUT TERMINAL PC BOARD (NAETC-4504-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
		Capacitors
C401,C402	373631524	1500 pF, 100V, Film (KP)
C403,C404	373631014	100 pF, 100V, Film (KP)
		Terminals
P401,P403	25045161	NPJ-2PDBL58

INPUT SELECTOR SWITCH CIRCUIT PC BOARD (NASW-4506-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
		Diode
D782	223163 or 223205	1SS133 or 1SS270A
		Capacitor
C301~C304	373632224	2200 pF, 100V, Film (KP)
C782-C784	374721034	0.01 μ F, 50V, Film (TF)
		Relaies
RL301,RL302	25065335	NRL-2P1.25A-DC5-045
		Switches
S301a,S302a	25065457	NSS-26162, Slide
S401	25030330	NRS-2211-BA, Rotary
S403	25030357	NRS-448-20RJ, Rotary
		Sockets
P351	2009990219	NSAS-14P0320
P355	2009990221	NSAS-12P0322
P453,P454	2009990230	NSAS-6P0333
P459		
P460,P461	2009990219	NSAS-14P0320
P462	2009990231A	NSAS-6P0334
		Plugs
P451a,P452a	25055133	NPLG-3P117
P705a,P711a		
P701a	25055139	NPLG-9P123

OUTPUT TERMINAL PC BOARD (NAETC-4507-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
		Terminals
P301,P303	25045161	NPJ-2PDBL58
P413,P415		
P417,P419		
P421		

INPUT TERMINAL PC BOARD (NAETC-4508-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
Terminals		
P405,P407	25045161	NPJ-2PDBL58
MICROPROCESSOR CIRCUIT PC BOARD (NADG-4509-1)		
CIRCUIT NO.	PART NO.	DESCRIPTION
ICs		
Q701,Q702 Q707	22240358	LB1638
Q705 Q706 Q730,Q731	22240616 222951 222780058MAT	TMP47C440AN-G701 M51943BSL AN7705F
Transistors		
Q703,Q704 Q708 Q709	2213090 2213650	DTA114YS DTD113ZS
Diodes		
D701 D702 D703-D711 D712,D713	223163 or 223205 224450562 225142DX2 22380046 or 22380035 22380039	1SS133 or 1SS270A MTZ5.6B, Zener SEL2913K-DX2, LED AM01Z or GP104003E 1D4B42
D730		
Cores		
L701-L704 L706-L708	230906	BL02RN2-R62
Coils		
L705 L730	233409K220 231069A	NCH-1284 NCH-1119
Capacitors		
C701,C703 C713,C714 C702,C704 C709,C712 C734 C706 C707 C711 C718,C719 C720,C721 C730 C731 C736 C738,C739	374721035 354744709 354741009 375524744 354784799 3020033 374721034 3500151 354722219 354724719 374722235	0.01 μ F, 50V, Film (TF) 47 μ F, 16V, Elect. 10 μ F, 16V, Elect. 0.47 μ F, 50V, Film (MMT) 0.47 μ F, 50V, Elect. B8XC0113-33N, C-Block 0.01 μ F, 50V, Film (TF) 2200 μ F, 16V, Elect. 220 μ F, 6.3V, Elect. 470 μ F, 6.3V, Elect. 0.022 μ F, 50V, Film (TF)
Osc,element		
X701	3010150	CST4.00MGW
Resistors		
R725,R726 R730 R731	49163103405 441628204 452530104	10K*5, Resistor network 82 Ω , 1W, Metal oxide film 1 Ω , 1/2W, Metal
Sockets		
P701 P702 P703 P704 P705	2009990110 2009990226A 2009990227 2009990233 2009990232	NSAS-18P0167 NSAS-18P0327 NSAS-4P0328 NSAS-6P0336 NSAS-6P0335
Plug		
P730	25055174	NPLG-2P158

CIRCUIT NO.	PART NO.	DESCRIPTION
S701	Switch	
	25030359	NRSF-112-20RM
	Holder	
	27190894	(LED9)

PHOTO RECEIVING CIRCUIT PC BOARD (NADIS-4510-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
Photo Receiving unit		
U751	24130007	GP1U571X
Transistor		
Q751	2213090	DTA114YS
Diodes		
D751 D752,D753	225142DX2 223163 or 223205	SEL2913K-DX2, LED 1SS133 or 1SS270A
Capacitor		
C751	354744709	47 μ F, 16V, Elect.
Holder		
	27190787	(LED1)

RI-TERMINAL PC BOARD (NAETC-4512-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
Stereo jack		
P700	25045330	NPJ-2PDBL184, ST-Jack
Plug		
P703a	25055132	NPLG-2P116

POWER SUPPLY CIRCUIT PC BOARD (NAPS-4513-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
Transistors		
Q921-Q924 Q951.Q952 Q961.Q962 Q925.Q926 Q953.Q963 Q927.Q928 Q954.Q964 Q929.Q930 Q955.Q965 Q931.Q932 Q956.Q966	2211945 2211455 2211255 2202115 or 2202116 2202175 or 2202176	2SK246-GR 2SA1015-GR 2SC1815-GR 2SD2061-E or 2SD2061-F 2SB1370-E or 2SB1370-F
Diodes		
D921 D923.D925 D952.D953 D962.D963 D927-D930 D954.D955 D964.D965 D951,D961	22380057 223194 225251 22380057	RBA-402L EL1Z TLR112, LED RBA-402L
Capacitors		
C921.C923 C951.C952 C961.C962 C925.C927 C929-C932 C955.C956 C965.C966 C953.C954 C963.C964	373554334 3500152 391621017 3500153	0.043 μ F, 250V, Film (MKP) 4700 μ F, 25V, Elect. 100 μ F, 6.3V, Elect.(FS) 2200 μ F, 35V, Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION
Resistors		
R621-R924 R925.R926 R951.R952 R961.R962 R953.R963	452530624 442524724 442521204 442528224	6.2 Ω , 1/2W, Metal 4.7 K Ω , 1/2W, Metal oxide film 12 Ω , 1/2W, Metal oxide film 8.2 K Ω , 1/2W, Metal oxide film
Radiator		
	27160315 27160316	RAD-95(B) RAD-96(B)
Ground plate		
	27141059	

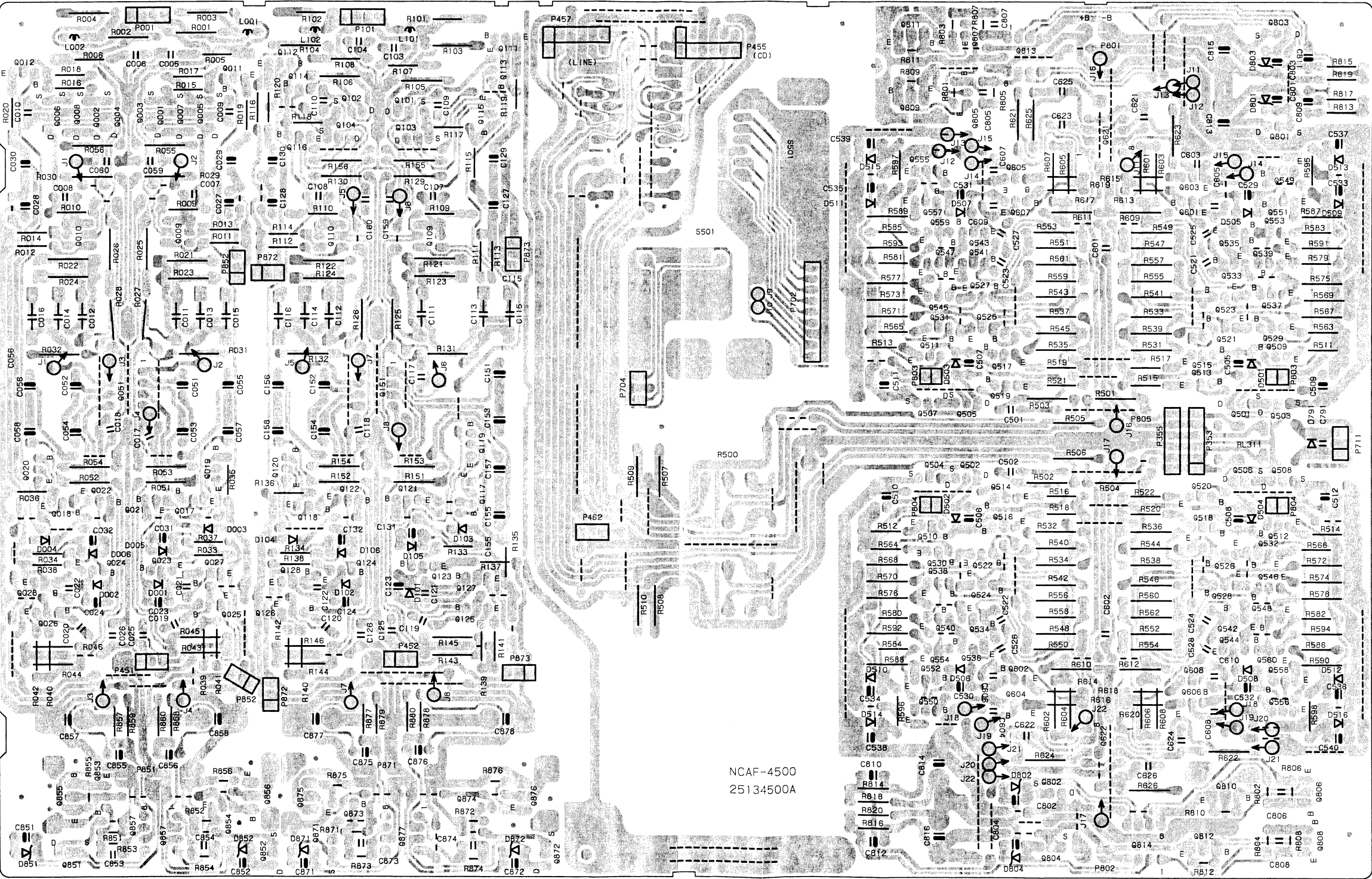
POWER SWITCH CIRCUIT PC BOARD (NASW-4514-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
Capacitors		
 C901  C903	3500065A 3500077	0.01 μ F, AC400V/125V, Film (IS) 4700 pF, Film (IS)
Switches		
 S901	25035550	NPS-111-L512P
Covers (Capacitor)		
 C901a  C903a	27301216 27301216	SB1925A SB1925A
Fuse holder		
 F902a	25050065	YSH-403T

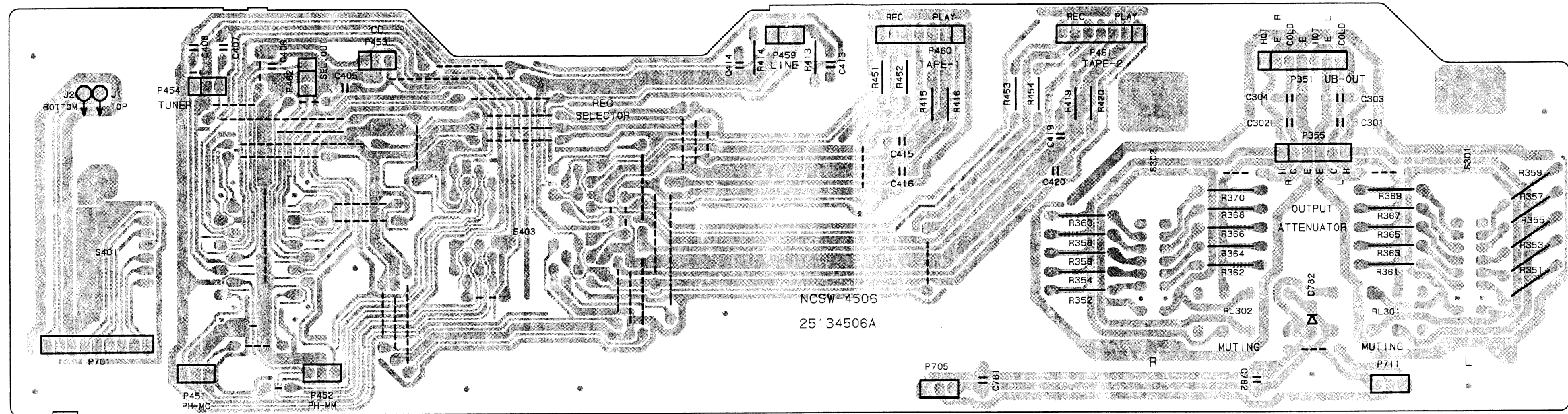
NOTE:
THE COMPONENTS IDENTIFIED BY MARK  ARE CRITICAL
FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY
WITH PART NUMBER SPECIFIED.

PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

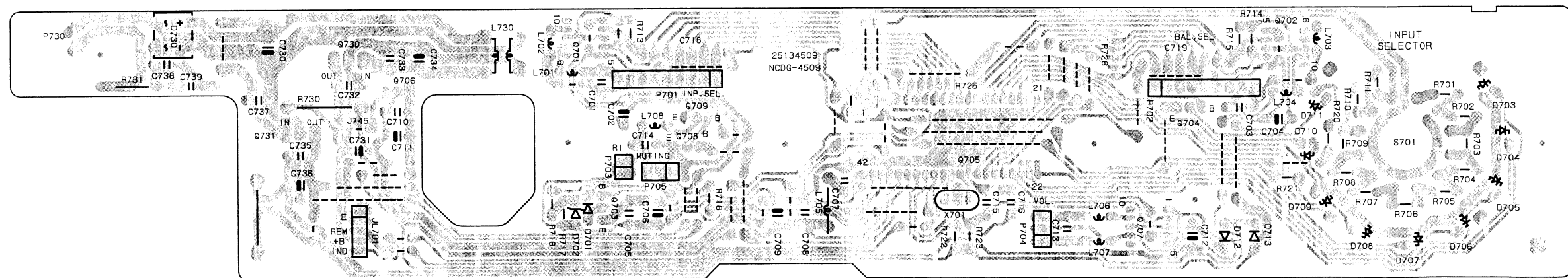
NAAF-4500



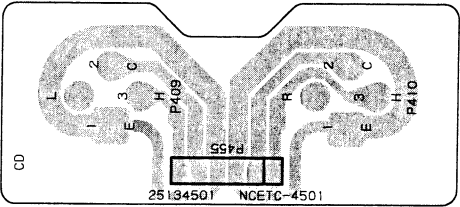
NASW-4506



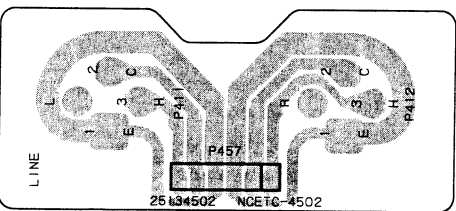
NADG-4509



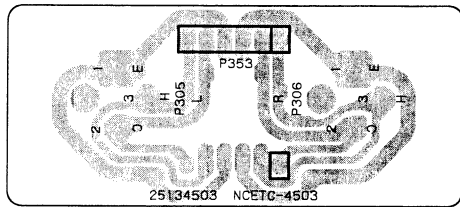
NAETC-4501



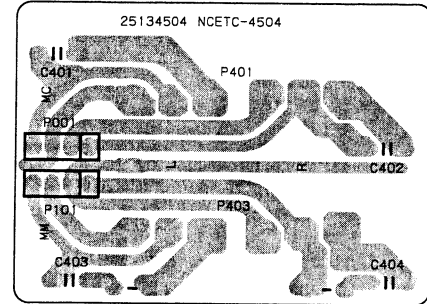
NAETC-4502



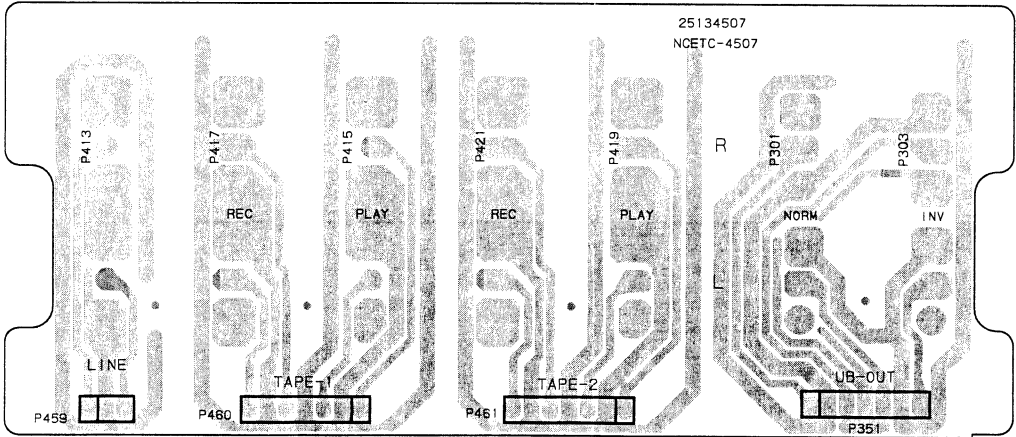
NAETC-4503



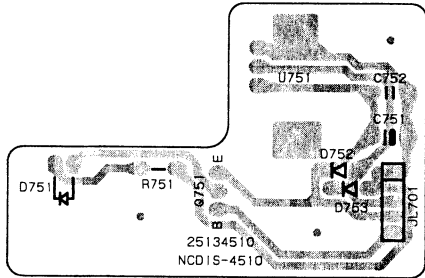
NAETC-4504



NAETC-4507



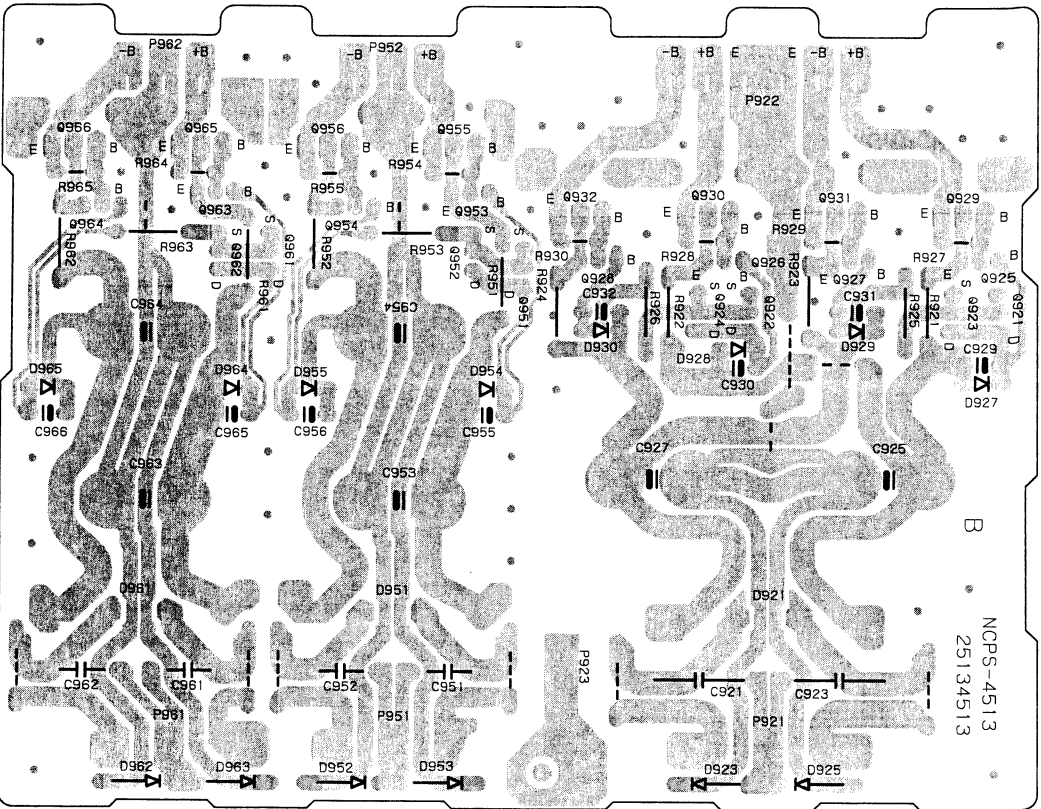
NADIS-4510



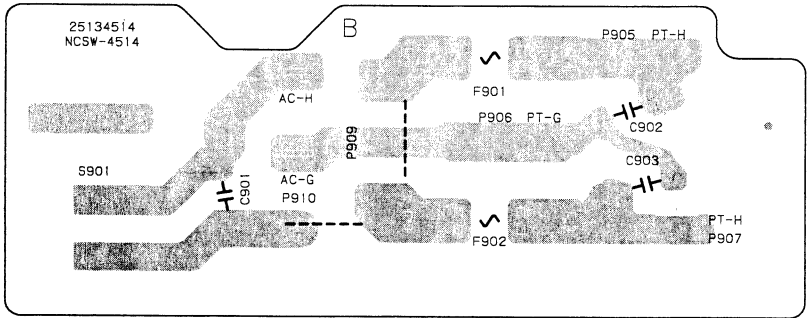
NAETC-4512



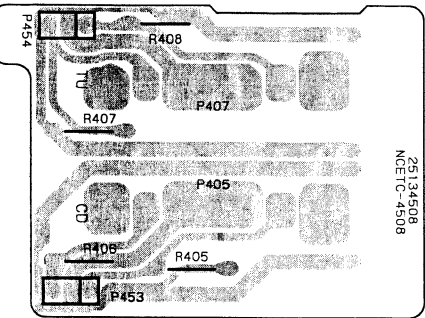
NAPS-4513



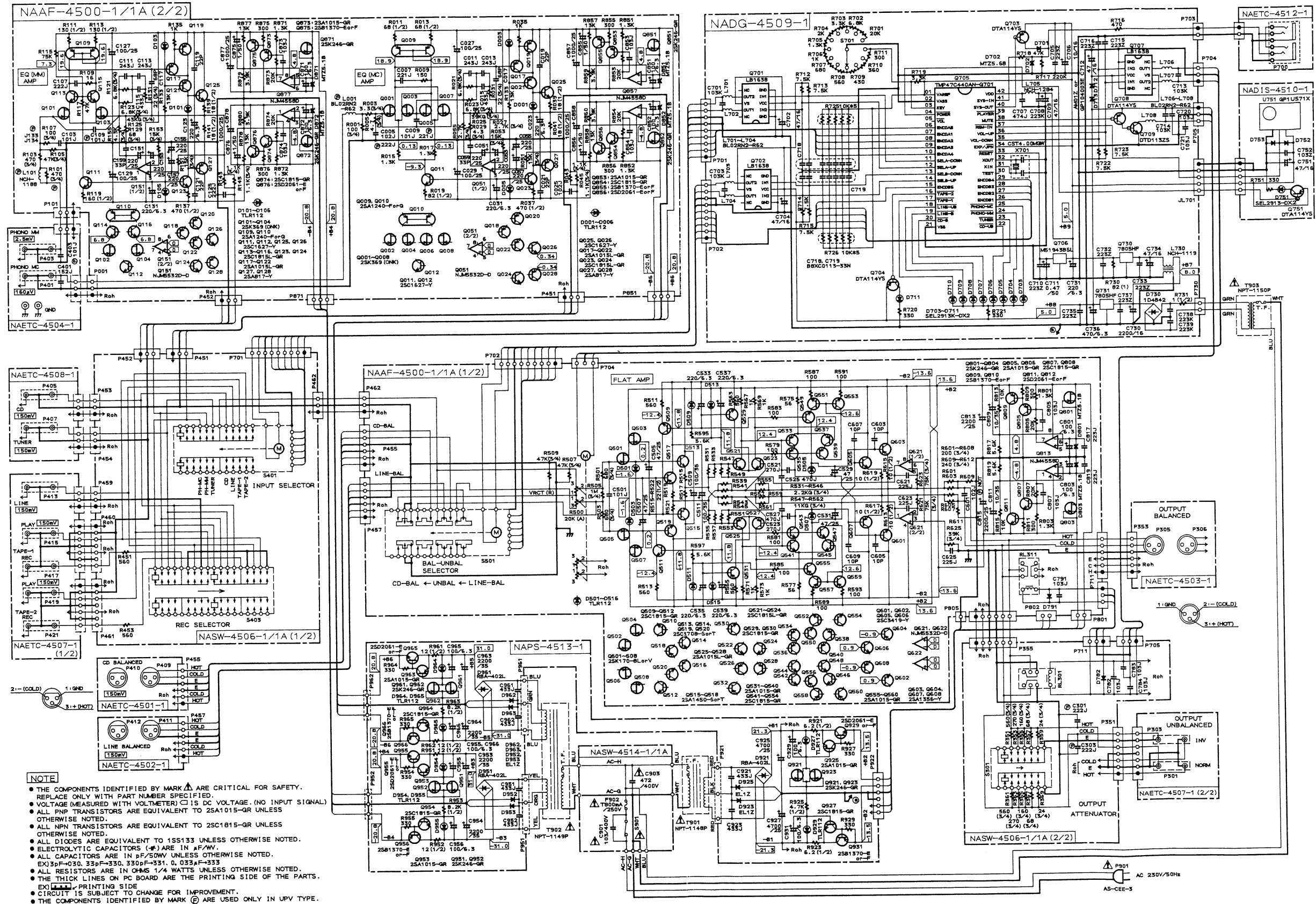
NASW-4514



NAETC-4508

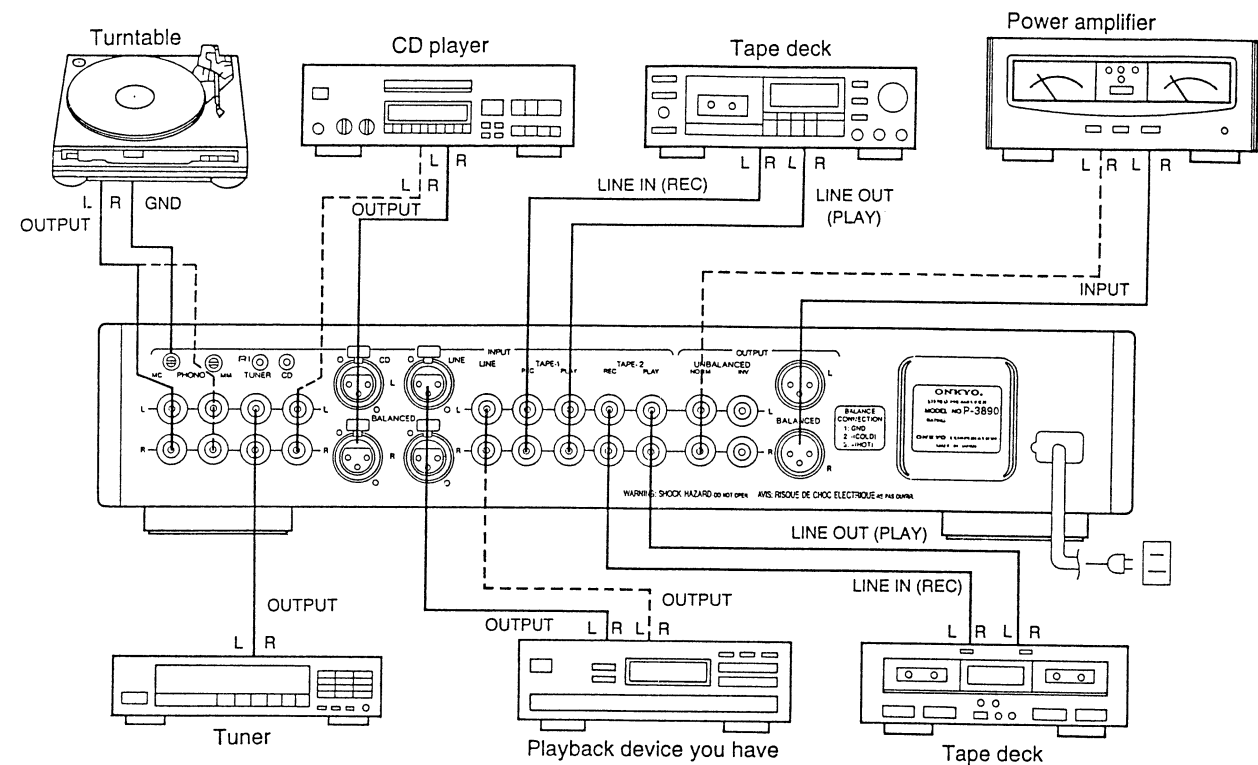


SCHEMATIC DIAGRAM MODEL P-3890



ONKYO CORPORATION

SYSTEM CONNECTIONS



PACKING PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
A851	29052411	Carton box [BLK]
A851	29052461	Carton box [SIL]
A852	29091574	Pad, Left
A853	29091575	Pad, Right
A854	261504	Paper tape
A855	29100037A	650x500 mm, Poly-vinyl bag
A857	282301 or 282311	Sealing hook or Sealing hook
A858	29110071	Damplon tape
Accessory bag ass'y		
A902	29341741	Instruction manual
A904	24140235A	RC-235S, Remote control unit
A905	3010054	UM-3, Battery
A906	29100097	Poly-vinyl bag for accessory
A907	2010200	3.5 mm Mini plug ass'y
	29365020 F	Warranty card
	29100094 A	Poly-vinyl bag (Warranty)
	29355133 A	DPB Caution

NOTE [BLK]: Only Black models
[SIL]: Only Silver models

REMOTE CONTROL TRANSMITTER

Explanations in *italic* explain which buttons to use when operating the unit. Explanations in standard type explain which buttons to use when operating ONKYO devices connected to the unit.

Input Selector Buttons (TAPE-1, TAPE-2, BALANCED LINE, LINE, BALANCED CD, CD, PHONO MC, PHONO MM, TUNER)

Tuner Operation Buttons (TUNER)
CLASS: Class selector button
◀PRESET▶: Preset memory DOWN/UP buttons

CD Operation Buttons (CD)
These buttons are used to operate an ONKYO CD player with the **RI** mark.
■ : Press this button to pause the CD play back.
To resume disc play, press the PLAY (▶) button.
▶ : Press this button to play the CD player.
■ : Press this button to stop the CD player.
◀◀ : Press this button to go back to the beginning of the current track and again to skip back to the previous track.
▶▶ : Press this button to skip to the next track.

Tape Operation Buttons (DECK-A, DECK-B)
These buttons control ONKYO double cassette tape decks that can be remote controlled. Use the DECK-B buttons to control single cassette tape decks with the **RI** mark.
◀ : The tape plays, moving from right to left, or, in the recording stand-by mode, recording begins.
▶ : The tape plays, moving from left to right, or, in the recording stand-by mode, recording begins.
●/|| : When this is pressed, the recording stand-by mode is entered.
■ : Interrupts all operations.
◀◀ : Fast forward from right to left.
▶▶ : Fast forward from left to right.

Audio Muting Button (MUTING - ∞)
This button temporarily switches off the sound from the speaker or headphone. Pressing the button again or using the POWER button to turn the power on will turn off the audio muting. This function can only be controlled by the remote control transmitter.

Volume Buttons (UP, DOWN)