

ONKYO® SERVICE MANUAL

Infrared Wireless Remote Controlled Stereo Preamplifier MODEL P-3300



UD	120V AC, 60Hz
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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.

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ONKYO
AUDIO COMPONENTS

SPECIFICATIONS

Rated Output and Impedance: 1V/3.3 Kohms MAX 5V
 Total Harmonic Distortion: 0.009%
 IM Distortion: 0.09%
 Frequency Response: 15 – 30,000 Hz ±1dB
 Sensitivity and Impedance: Phono: 2.5mV/50 kohms
 Tuner, CD, Tape Play
 VCR, VDP Sound: 150mV/50 kohms
 Tape Rec: 150mV/2.2 kohms (phono)
 Phono Overload: 120mV RMS at 1 kHz, 0.09% THD
 Bass Control: ±10 dB at 100Hz
 Treble Control: ±10 dB at 10,000 Hz
 Selective Tone Control: +15 dB at 50Hz
 +6 dB at 10,000Hz
 Signal to Noise Ratio: Phono: 83dB (IHF-A, 5mV input, 1 V output)
 Source Direct: 100dB (IHF-A, 1 V output)

General

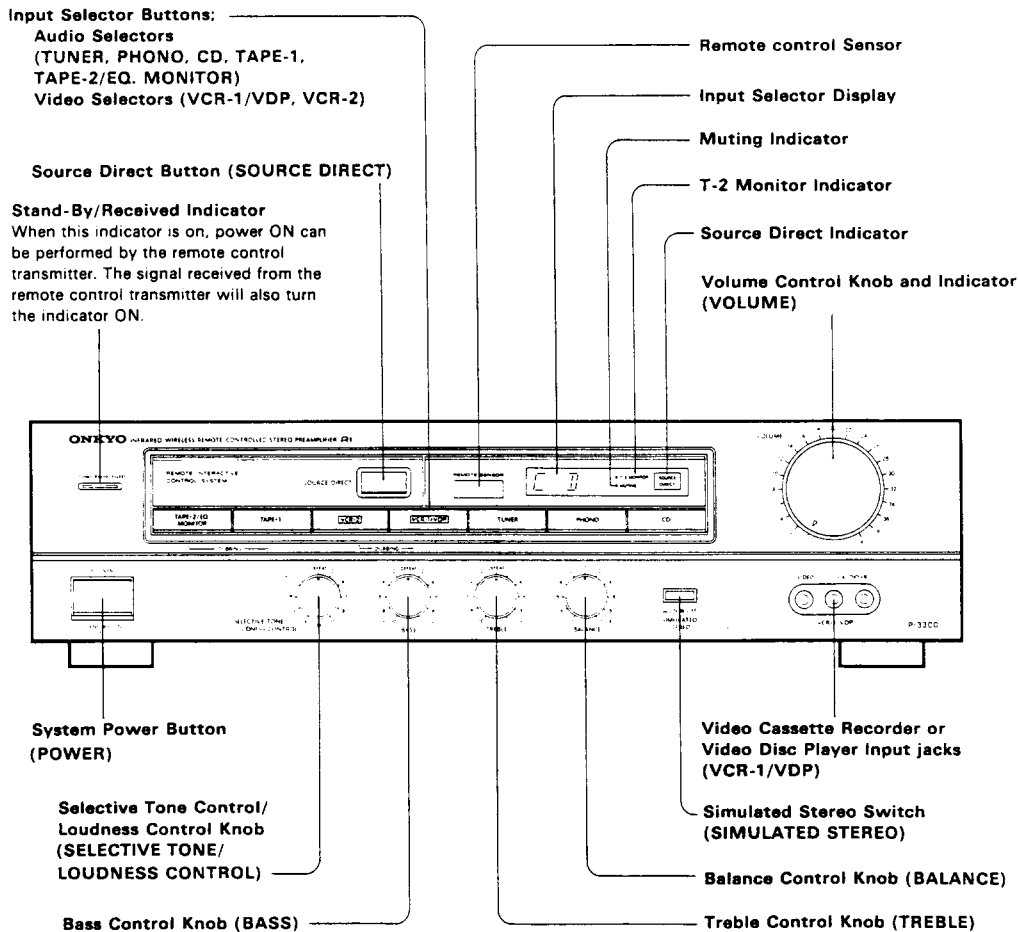
Power Supply: AC120V, 60Hz
 Dimensions (W x H x D): 435 x 110 x 267mm
 17-1/8" x 4-5/16" x 10-1/2"
 Weight: 3.6kg, 7.9 lbs.

Remote control transmitter RC-142S

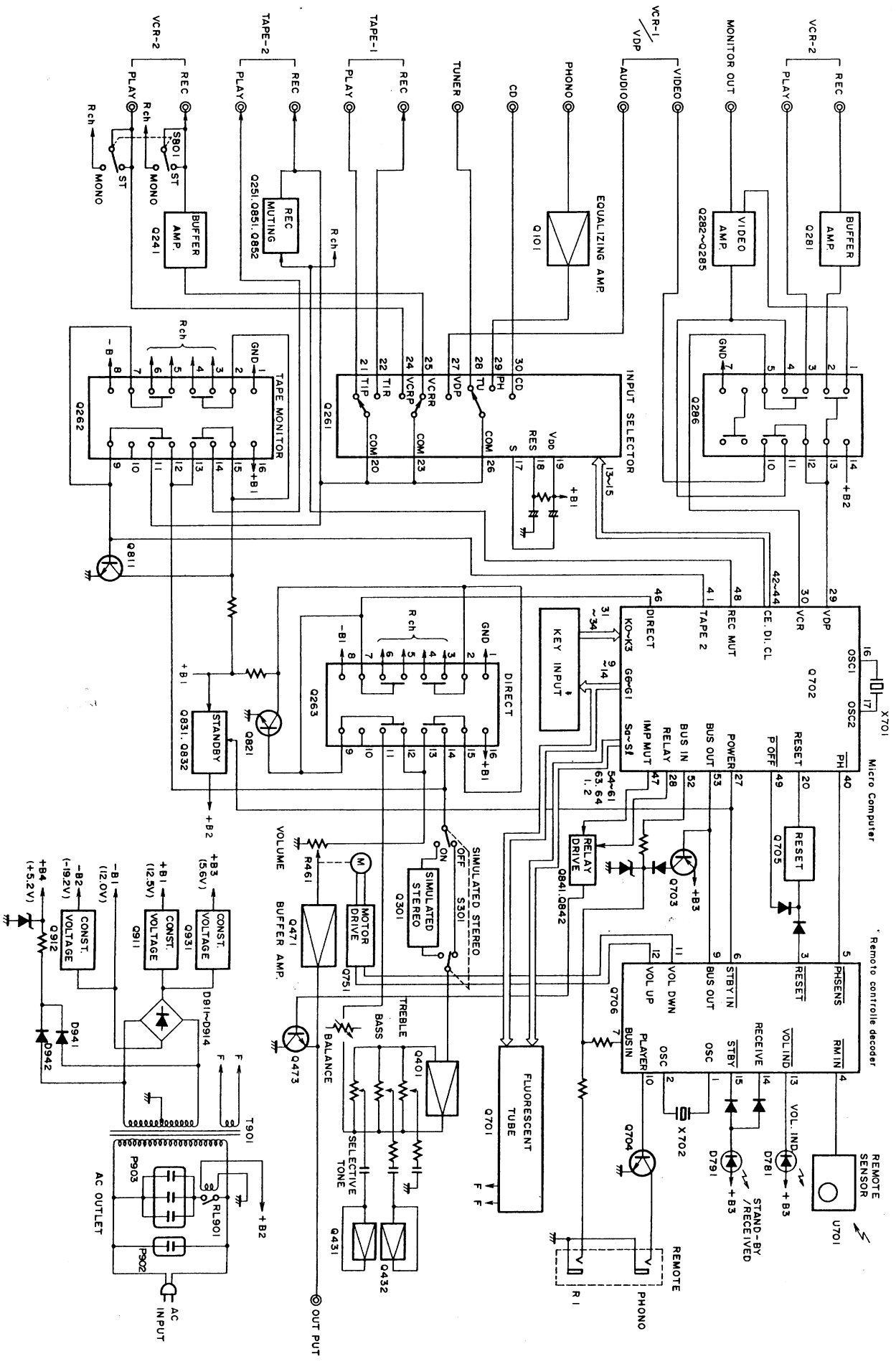
Transmitter: Infrared
 Signal range: Approx. 5meters (16ft.4")
 Power supply: Two "AA" batteries (1.5V x 2)

Specifications and features are subject to change without notice.

FRONT PANEL FACILITIES

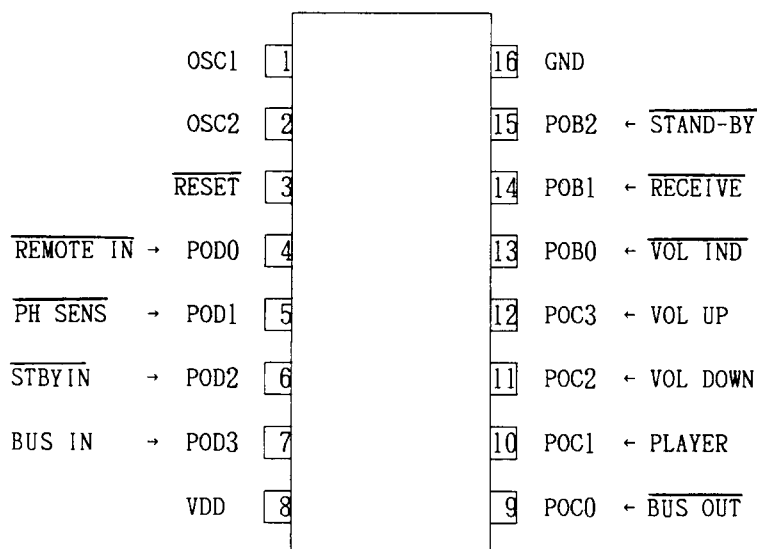


BLOCK DIAGRAM



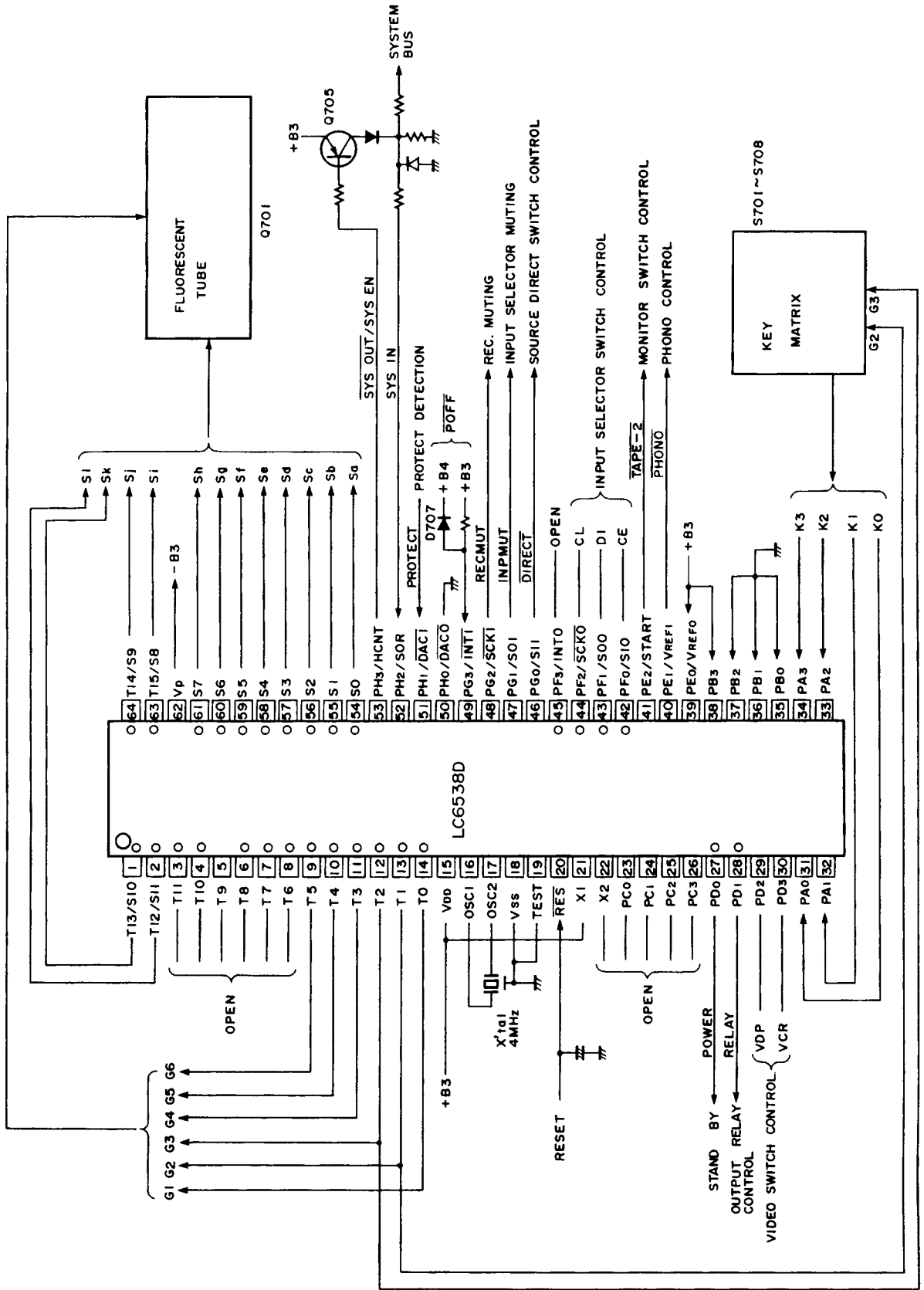
IC BLOCK DIAGRAM

μ PD17103 CX-511 (Remote control transmitter decoder)



Pin No.	Symbol	Terminal	Description
1	OSC1	OSC	Connect to the 8.00MHz ceramic oscillator.
2	OSC2		
3	RES	$\overline{\text{RESET}}$	System reset terminal. Active low.
4	POD0	$\overline{\text{REMOTE IN}}$	Signal input terminal from preamp. for remote control. Active low.
5	POD1	$\overline{\text{PHONO SENS}}$	Phono detection input terminal. Active low.
6	POD2	$\overline{\text{STBY IN}}$	Stand-by detection input terminal. During low input, only the POWER code is decoded.
7	POD3	BUS IN	System code input terminal.
8	V _{DD}	+B	Power supply terminal.
9	POC0	$\overline{\text{BUS OUT}}$	Output at this terminal are the custom code (16bits) remote control code input to REMOTE IN, data code (8bits), and the serial code (12bits) that has been converted corresponding to the decoded data code (8bits)
10	POC1	PLAYER	When the player PLAY/REEJECT is input, a high pulse of 200ms is output.
11	POC2	VOL DOWN	When the volume DOWN code is input, a high pulse of 120ms is output.
12	POC3	VOL UP	When the volume UP code is input, a high pulse of 120ms is output.
13	POB0	$\overline{\text{VOL IND}}$	During the output of VOLUME UP/DOWN, a pulse ($\overline{\text{T}}\text{T}\text{T}\text{T}$)= 250ms) is output. (Not used.)
14	POB1	$\overline{\text{RECEIVE}}$	This is the display output for remote control reception. Output is low when decoded code is being recieved.
15	POB2	$\overline{\text{STAND-BY}}$	STAND-BY indication terminal.
16	V _{SS}	GND	Ground terminal.

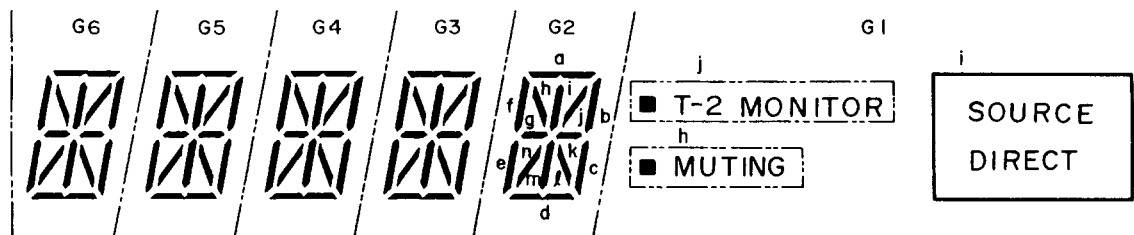
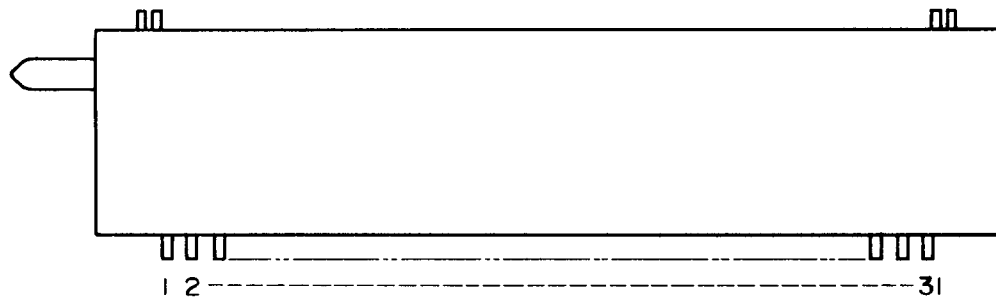
LC6538D-4297 (Microcomputer)



LC6538D

Pin No.	Pin name	Symbol	Function
1	T13/S10	SK	Segment output terminals. Active: "H".
2	T12/S11	S1	
3	T11	DISPLAY	Display control output terminal. "H" when display is illuminated.
4	T10	DIRECT	Direct display output terminal. "H" when direct is on.
5	T9	FM	FM control output terminal (receiver only). "H" when set to FM. Controls the automatic reception mode display.
6	T8	D9	Digit output terminals. Active: "H". Key scan output terminals.
7	T7	D8	
8	T6	D7	
9	T5	D6	
10	T4	D5	
11	T3	D4	
12	T2	D3	
13	T1	D2	
14	T0	D1	
15	V _{DD}	V _{DD}	Power supply terminal (+5V)
16	OSC1	OSC1	Main system clock terminals. Connected to 4 MHz ceramic oscillator. The system clock mode is equivalent to the main clock 1/2 mode (cycle time: 21s).
17	OSC2	OSC2	
18	V _{SS}	V _{SS}	Ground terminal.
19	TEST	TEST	LSI test terminal. Connected to V _{SS} .
20	RES	RES	Reset input terminal. Active: "L".
21	X1	X1	Sub-clock terminals. Not used. X1 terminal is connected V _{DD} .
22	X2	X2	
23	PC0	LOCAL	Automatic reception mode display output terminals. Active: "L". "L" when in automatic reception mode (receiver only). (The settings for DX and LOCAL as well as AUTO and MONO are always the reverse of one another.) All are always "L" for amplifier.
24	PC1	DX	
25	PC2	AUTO	
26	PC3	MONO	
27	PD0	POWER	POWER signal output terminal. "H" when ON.
28	PD1	RELAY	Speaker relay control output terminal. Active "H".
29	PD2	VDP	Video signal control output terminals. Active: "H".
30	PD3	VCR	
31	PA0	K0	Key input terminals. Active: "H".
32	PA1	K1	
33	PA2	K2	
34	PA3	K3	
35	PB0	SD	Station detect input terminal (receiver only). Active: "L". Turns off auto tuning.
36	PB1	STEREO	Stereo broadcast detect terminal. Active: "L". Controls "STEREO" indication (receiver only).
37	PB2	RF IN	RF input terminal (receiver only). DX when "H".
38	PB3	REC/AMP	Initial setting input terminals.
39	PE0/VREF0	BACK	
40	PE1/VREF1	PHONO	PHONO control output terminal. "L" when selector is set to PHONO.
41	PE2/START	AUTO/MONO/ TAPE-2	(1) Receiver: AUTO/MONO switching output terminal. "L" when AUTO (receiver only). (2) Amplifier: TAPE-2 control output terminal. "L" when TAPE-2 is on.
42	PF0/S10	SEL	Output terminal connected to analog switch LC7821 CE terminal.
43	PF1/SO0	DATA	Output terminal connected to DATA terminal of PLL LM7001 and D1 terminal of switch LC7821.
44	PF2/SCK0	CL	Output terminal connected to CL terminals of PLL LM7001 and switch LC7821.
45	PF3/INT0	PLL	Receiver: output terminal connected to CE terminal of PLL LM7001.
46	PG0/S11	DIRECT	DIRECT control output terminal. Active: "L".
47	PG1/SO1	INPMUT	INPUT selector muting output terminal. Active: "H".
48	PG2/SCK1	REC MUT	Record output muting output terminal. Active: "H".
49	PG3/INT1	POFF	Power off sensor input terminal. Active: "L". "L" shorter than 100μs is ignored.
50	PH0/DAC0	TU MUT	Tuner muting output terminal (receiver only). Active: "H".
51	PH1/DAC1	PROTECT	Protect operation sensor input terminal. "H" during protect operation. "H" shorter than 100μs is ignored. Controls RELAY output.
52	PH2/SQR	SYS IN	System code input terminal. Active: "H".
53	PH3/HCNT	SYS OUT/ SYS EN	System code output terminal. Active: "L". Becomes initial setting input terminal SYS EN when power is turned on.
54	S0	Sa	Segment output terminals. Active: "H".
55	S1	Sb	
56	S2	Sc	
57	S3	Sd	
58	S4	Se	
59	S5	Sf	
60	S6	Sg	
61	S7	Sh	
62	VP	VP	Power supply terminal for pull down resistance.
63	T15/S8	Si	Segment output terminals. Active: "H".
64	T14/S9	Sj	

CPF3027GR (Fluorescent indicator tube)



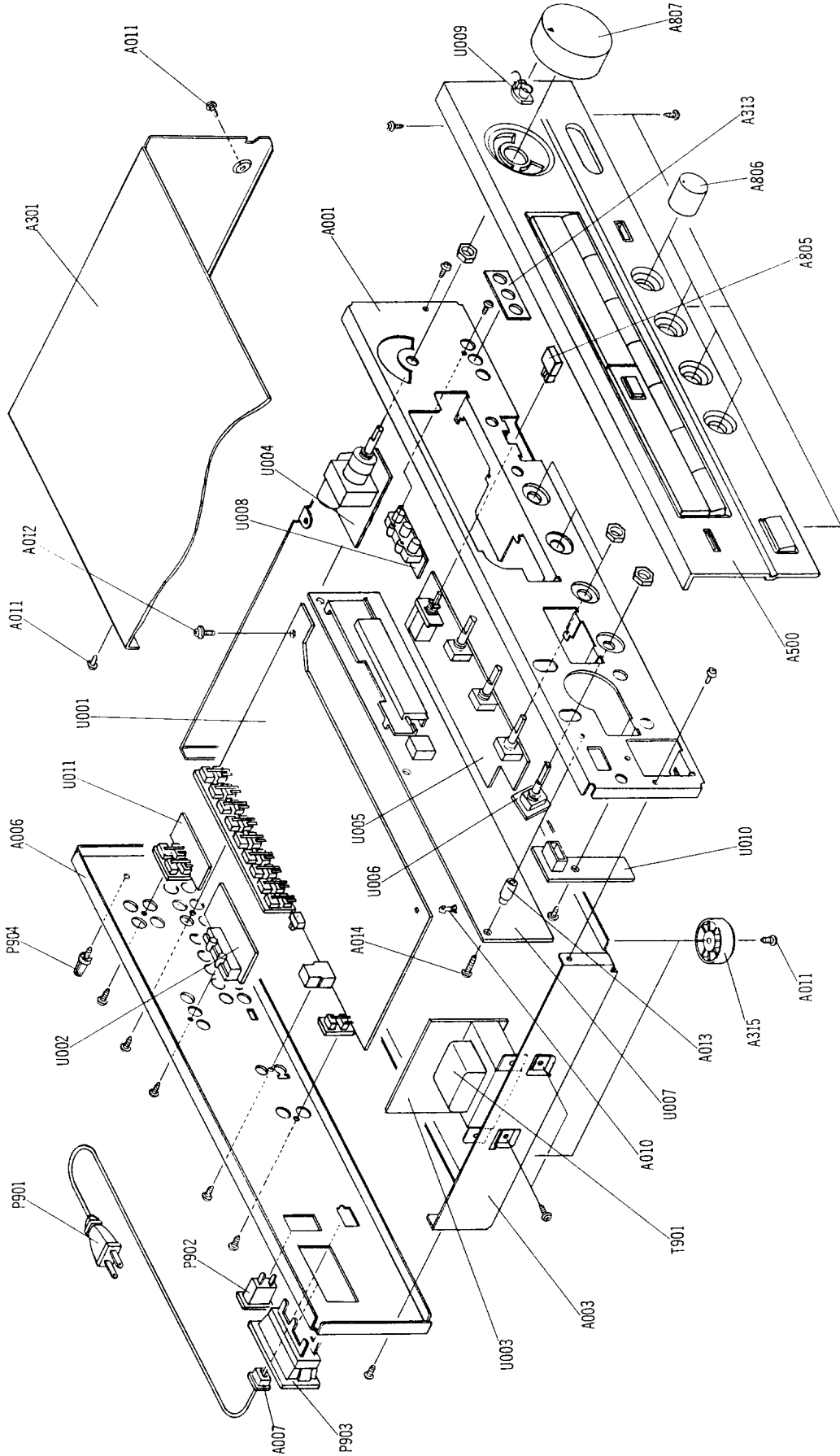
Pin No.	1	2	3	4	5	6	7	8	9	10	11
Connection	F	F	NP	G6	NC	f	G5	a	b	G4	l

Pin No.	12	13	14	15	16	17	18	19	20	21	22
Connection	G3	d	n	G2	m	c	G1	e	h	k	g

Pin No	23	24	25	26	27	28	29	30	31
Connection	G1	j	i	NC	NC	G1	NP	F	F

F: Filament G: Gride P: Anode
 NP: No pin NC: Non connection

CHASSIS-EXPLODED VIEW

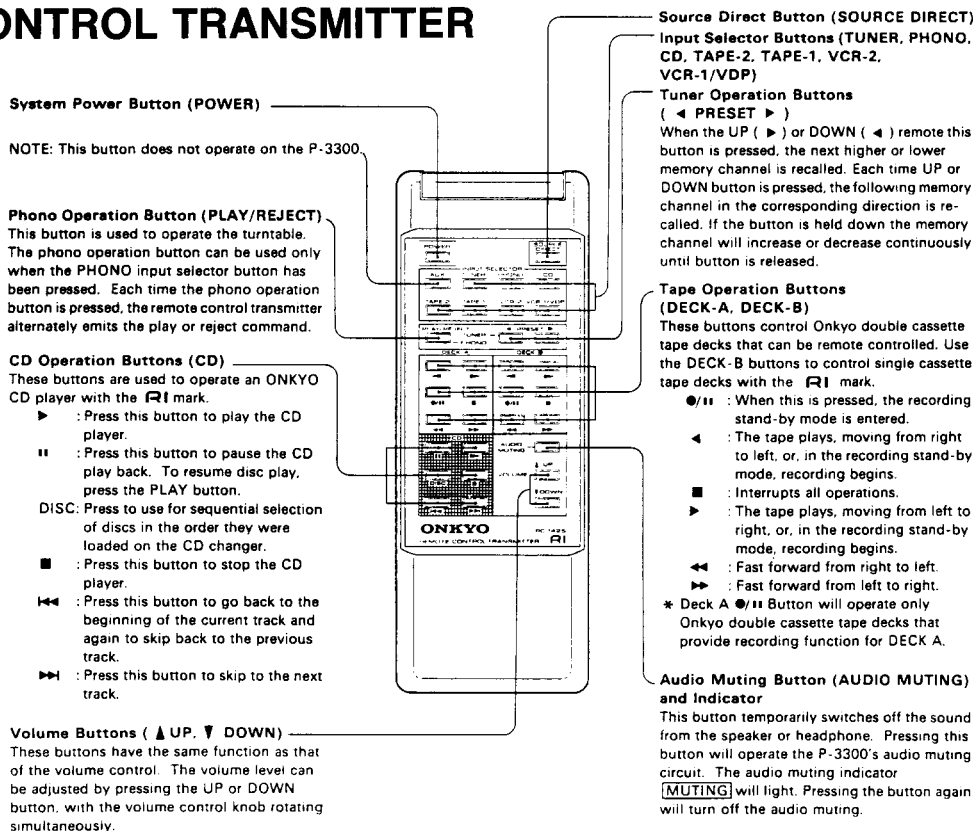


CHASSIS-EXPLODED VIEW - PARTS LIST

REF NO.	PART NO.	DESCRIPTION			
A001	27110543B	FRONT BRACKET	U001	1A211524-1	NAAF-3824-1, INPUT CIRCUIT PC BOARD ASS'Y
A003	27100114-2A	CHASSIS			
A006	27120924-3A	BACK PANEL	U002	1A211525-1	NAETC-3825-1, VIDEO CIRCUIT PC BOARD ASS'Y
A007	27300750	BUSHING (STRAINRELIEF)			
A010	27190266	KGLS-12R, HOLDER	U003	1A211526-1	NAPS-3826-1, AC PRIMARY CIRCUIT PC BOARD ASS'Y
A011	834430088	3TTS+8BBC, TAP-TIGHT SCREW	U004	1A211527-1	NAETC-3827-1, MOTOR DRIVE CIRCUIT PC BOARD ASS'Y
A012	831130088	3TTW+8B, TAP-TIGHT SCREW			
A013	27190750	SRS4-8-01, HOLDER	U005	1A211528-1	NAAF-3828-1, TONE CONTROL CIRCUIT PC BOARD ASS'Y
A014	834430208	3TTS+20BBC, TAP-TIGHT SCREW			
A301	28184455A	TOP COVER	U006	1A211529-1	NAETC-3829-1, SELECTIVE TONE CONTROL PC BOARD ASS'Y
A313	27262415	PLATE (T)			
A315	27175219C	BOTTOM LEG			
A500	1A211121	FRONT PANEL ASS'Y	U007	1A211530-1	NASW-3830-1, INDICATOR CIRCUIT PC BOARD ASS'Y
(A801)	28323917C	KNOB ASS'Y			
(A310)	28191548A	CLEAR PLATE	U008	1A211531-1	NAETC-3831-1, VIDEO TERMINAL PC BOARD ASS'Y
(A311)	28198723A	FACET			
(A312)	28199181	FILM			
A805	28323239A	KNOB (PUSH)	U009	1A211532-1	NADIS-3832-1, VOLUME LED CIRCUIT PC BOARD ASS'Y
A806	28323240	KNOB (TONE)			
A807	28323242C	KNOB ASS'Y (VOL)	U010	1A211533-1	NAETC-3833-1, STAND-BY INDICATOR PC BOARD ASS'Y
▲ T901	2300522	NPT-1062D, POWER TRANSFORMER			
▲ P901	253123 or 253136 or 253140 or 253146	AS-UC-6 #18, POWER SUPPLY CABLE	U011	1A211559-1	NAETC-3859-1, SURROUND VOLUME CIRCUIT PC BOARD ASS'Y
▲ P902	25050290	NSCT-2P118T, AC OUTLET			
▲ P903	25050336	NSCT-6P163, AC OUTLET			
P904	25060044	GROUND TERMINAL			

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

REMOTE CONTROL TRANSMITTER



PRINTED CIRCUIT BOARD PARTS LIST

INPUT CIRCUIT PC BOARD (NAAF-3824-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
ICs		
Q101, Q241, Q471	22240273	NJM4565SD
Q261	22240280	LC7821N
Q262, Q263	22240309	TC9214P
Transistors		
Q251, Q252	2212285 or 2212286	2SC2878A or 2SC2878B
Q473, Q474	2212285 or 2212286	2SC2878A or 2SC2878B
Q811, Q821	221282	DTC144ES
Q831	2211504	2SA950Y
Q832, Q842, Q852	2211183 or 2211255	2SC1740R or 2SC1815GR
Q841, Q851	2213074 or 2211455	2SA933R or 2SA1015GR
Q911, Q931	2201754 or 2201755	2SD1913R or 2SD1913S
Q912	2201764 or 2201765	2SB1274R or 2SB1274S
Diodes		
D911~D914	22380035	GP104003E
D915	224151301 or 224451301	05AZ13X or MTZ13A, Zener
D916	224152003 or 224452003	05AZ20Z or MTZ20C, Zener
D917	224451203	MTZ12C, Zener
D931	224450623	MTZ6.2C, Zener
D932	223163	1SS133
D941, D942	22380035	GP104003E
D943	224450562	MTZ5.6B, Zener
Capacitors		
C101, C102 C111, C112 C471, C472 C477, C478 C105, C106 C473, C474 C107, C108 C109, C110 C113, C114 C241~C244 C261, C841 C262, C263 C479, C480 C851 C264 C911 C912 C913, C914 C915, C932 C916 C919, C921 C920, C931 C934 C941	391780229 354721019 371126224 371121824 354742219 354780229 354780339 374722244 354763329 354761029 354762219 354741019 354761019 354742219 354762219 354722219 354741009	2.2 μ F, 50V, Elect.(HWQ) 100 μ F, 6.3V, Elect. 6200 pF, 50V, Mylar 1800 pF, 50V, Mylar 220 μ F, 16V, Elect. 2.2 μ F, 50V, Elect. 3.3 μ F, 50V, Elect. 0.22 μ F, 50V, Film (TF) 3300 μ F, 35V, Elect. 1000 μ F, 35V, Elect. 220 μ F, 35V, Elect. 100 μ F, 16V, Elect. 100 μ F, 35V, Elect. 220 μ F, 16V, Elect. 220 μ F, 35V, Elect. 220 μ F, 6.3V, Elect. 10 μ F, 16V, Elect.
R911 R912 R913, R914 R915 R931 R932 R941	441623904 441528204 442521324 441521814 441627504 442522724 442521524	39 Ω , 1W, Metal oxide film 82 Ω , 1/2W, Metal oxide film 1.3 k Ω , 1/2W, Metal oxide film 180 Ω , 1/2W, Metal oxide film 75 Ω , 1W, Metal oxide film 2.7 k Ω , 1/2W, Metal oxide film 1.5 k Ω , 1/2W, Metal oxide film

CIRCUIT NO.	PART NO.	DESCRIPTION
S801	25065286	NSS-22112 Slide
Switch		
Terminals		
P801~P803 P807	25045213 25045182	NPJ-6PDBL92 NPJ-2PDBL72
Jacks		
P806	25045172	HSJ1003-01-020
Jumper socket		
JL203a	25050273	NSCT-9P101
Radiator		
Q911a, Q931a	27160211	RAD-68
Bracket		
	27141059	

VIDEO CIRCUIT PC BOARD (NAETC-3825-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
ICs		
Q286	222840661	4066B
Transistors		
Q281~Q284 Q285	2211183 or 2211255 2213074 or 2211455	2SC1740R or 2SC1815GR 2SA933R or 2SA1015GR
Capacitors		
C281, C283 C282, C284 C285	354724719 354741009	470 μ F, 6.3V, Elect. 10 μ F, 16V, Elect.
Socket ass'y		
P281	2000912A	NSAS-4P868
Terminal		
P805	25045205	NPJ-3PDYE085

AC PRIMARY CIRCUIT PC BOARD (NAPS-3826-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
Diode		
△ D901	223163	1SS133
Transformer		
△ T901	2300522	NPT-1062D
Capacitors		
△ C901, C905	3500065A	0.01 μ F, AC400V/125V, Film(1S)
Relay		
RL901	25065269	NRL-1P5A-DC12-36ZA
Insulating plate		
	28175137	

**MOTOR DRIVE CIRCUIT PC BOARD
(NAETC-3827-1)-PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	IC	
Q751	22240239	TA7291S
	Capacitors	
C751	354741009	10 μ F, 16V, Elect.
C753	374722234	0.022 μ F, 50V, Film(TF)
	Resistor	
R359, (R360) (R461, R462)	5144012	N16RGL50KA50KA20F, Variable
	Socket	
P701	2000635A	NSAS-4P591
	Jumper socket	
JL704a	25050270	NSCT-6P98

**TONE CONTROL CIRCUIT PC BOARD
(NAAF-3828-1)-PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q301~Q432	22240273	NJM4565SD
	Capacitors	
C301, C304 C435, C436	354780229	2.2 μ F, 50V, Elect.
C302	371121124	1100 pF, 50V, Mylar
C303	371121234	0.012 μ F, 50V, Mylar
C401, C402 C405, C406	391780229	2.2 μ F, 50V, Elect.(HWQ)
C431, C432	371128224	8200 pF, 50V, Mylar
C437, C438	371125134	0.051 μ F, 50V, Mylar
C441, C442 C449, C450	354780339	3.3 μ F, 50V, Elect.
C443, C444 C447, C448	371122234	0.022 μ F, 50V, Mylar
	Resistors	
R405	5104225	N11RGLC250KWT22Z
R439, (R440) R447, (R448)	5104230	N14RLC100KWT22Z
	Switch	
S301	25035372	NPS-122-L336

**SELECTIVE TONE CONTROL PC BOARD
(NAETC-3829-1)-PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	Resistor	
R431, (R432)	5104231	N14RH50KRD22Z

**INDICATOR CIRCUIT PC BOARD
(NASW-3830-1)-PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	Photo receiving unit	
U701	24130003	GP1U50XS
	FL tube	
Q701	212074	CPF3027GR
	ICs	
Q702	22240319	LC6538D-4297
Q706	22240283	MPD17103CX-511
	Transistors	
Q703	2213074 or 2211455	2SA933R or 2SA1015GR
Q704, Q705	2211183 or 2211255	2SC1740R or 2SC1815GR
	Diodes	
D701	224150563 or 224450563	05AZ5.6Z or MTZ5.6C, Zener
D702~D705 D707~D715	223163	ISS133
D706	224450562	MTZ5.6B, Zener
	Ceramic osc	
X701	3010150	CST4.00MGW
X702	3010154	CST8.00MT
	Capacitors	
C701~C703 C705	354780339 3000051	3.3 μ F, 50V, Elect. 0.047 F, 5.5V, Super
C706, C711 C714	354741009	10 μ F, 16V, Elect.
C709, C712	354780109	1 μ F, 50V, Elect.
	Switch	
S701~S708	25035548	NPS-111-S510
	Holder	
	27190659B	Holder (FL)

**VIDEO TERMINAL PC BOARD
(NAETC-3831-1)-PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	Terminals	
P804	25045206	NPJ-3PDYE086

**VOLUME LED CIRCUIT PC BOARD
(NADIS-3832-1)–PARTS LIST**


CIRCUIT NO.	PART NO.	DESCRIPTION
	Diode	
D781	225141	SEL-2213C, LED
	Holder	
	27190545	Holder (LED)

**STAND-BY INDICATOR PC BOARD
(NAETC-3833-1)–PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	Diode	
D791	225141	SEL-2213C, LED
	Switch	
S791	25035548	NPS-111-S510
	Holder	
	27190498	Holder (LED)

**SURROUND VOLUME CIRCUIT PC BOARD
(NAETC-3859-1)–PARTS LIST**

CIRCUIT NO.	PART NO.	DESCRIPTION
	Terminal	
P808	25045171	NPJ-4PDBL-65

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

PACKING PARTS LIST

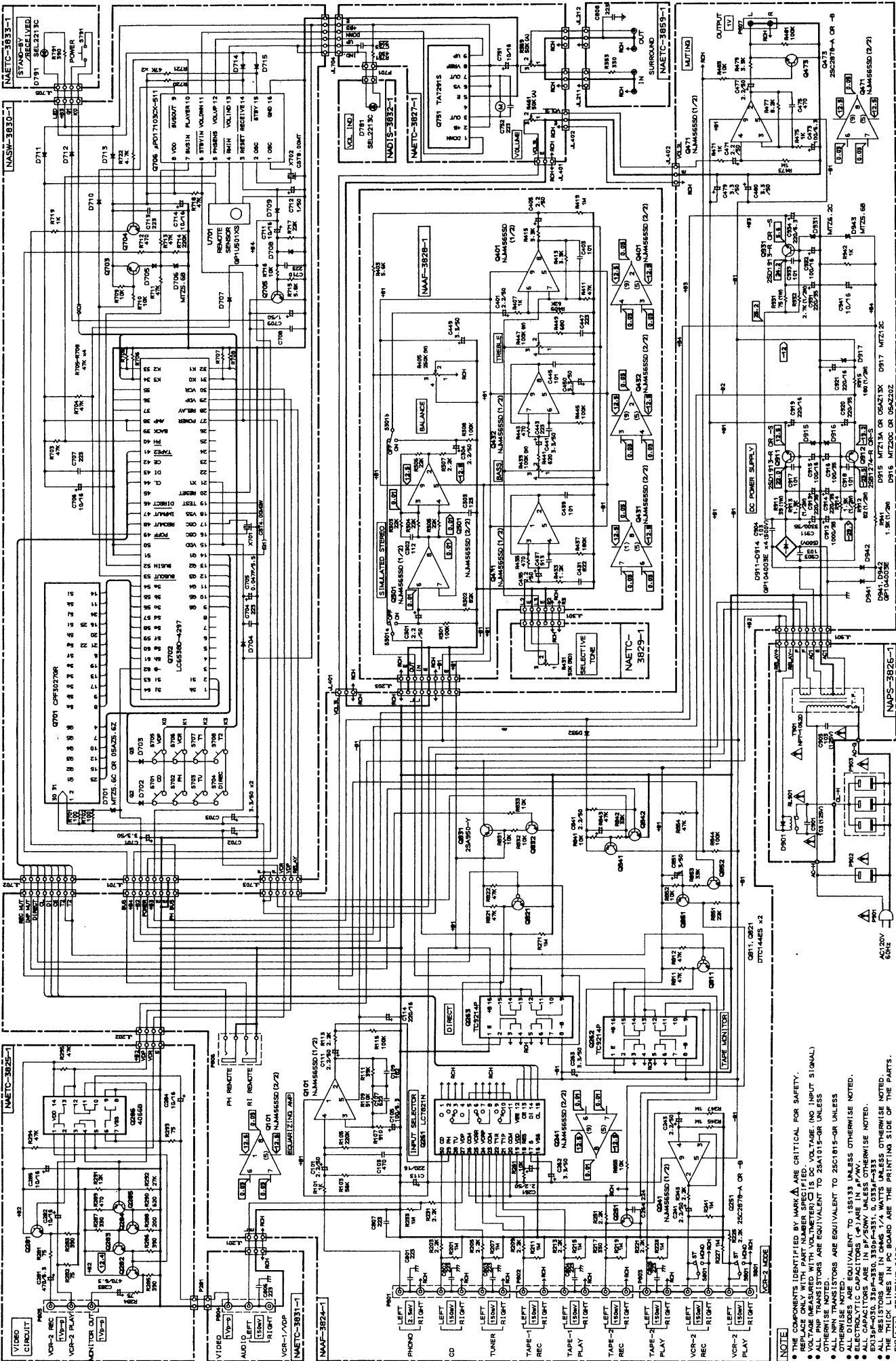
REF NO.	PART NO.	DESCRIPTION
A851	29052034	MASTER CARTON BOX
A852	29090987CZ	PAD, LEFT
A853	29090988CZ	PAD, RIGHT
A854	29100063	750 × 580mm, POLY-VINYL BAG
A855	282301	SEALING HOOK
A856	29110071-1	DAMPLON TAPE
A871	261504	PAPER TAPE
	ACCESSORY BAG ASS'Y	
A901	29341496	INSTRUCTION MANUAL
A903	2010200	CONNECTION CABLE (MINI PLUG)
A867	29100097	350 × 250mm, POLY-VINYL BAG FOR ACCESSORY
	29365019	WARRANTY CARD[N]
	29358002G	SERVICE STATION LIST [N]
	24140142A	RC-142S, REMOTE CONTROL UNIT
	3010054	UM-3, TOW BATTERIES

NOTE

[N]: ONLY U.S.A. MODELS

SCHEMATIC DIAGRAM MODEL P-3300

A B C D E F G



- NOTE**
- COMPONENTS IDENTIFIED BY MARK ARE CRITICAL FOR SAFETY.
 - REPLACE ONLY WITH PART NUMBER SPECIFIED.
 - VOLTAGE MEASURED WITH VOLTMETER IS DC VOLTAGE (NO INPUT SIGNAL).
 - ALL RESISTORS ARE EQUIVALENT TO 25A1015-OR UNLESS OTHERWISE NOTED.
 - ALL CAPACITORS ARE IN PF/50V UNLESS OTHERWISE NOTED.
 - ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-OR UNLESS OTHERWISE NOTED.
 - ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SC1815-OR UNLESS OTHERWISE NOTED.
 - ALL CAPACITORS ARE IN PF/50V UNLESS OTHERWISE NOTED.
 - RESISTORS ARE IN OHM/K/M UNLESS OTHERWISE NOTED.
 - RESISTORS ARE IN OHM/K/M UNLESS OTHERWISE NOTED.
 - THE THICK LINES IN PG BOARD ARE THE PRINTING SIDE OF THE PARTS.
 - EXCEPT AS NOTED, PRINTING SIDE OF THE PARTS.
 - CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

SYSTEM CONNECTIONS

NOTE:
For use with a graphic equalizer The power cords of the tuner should be connected to the graphic equalizer.

