

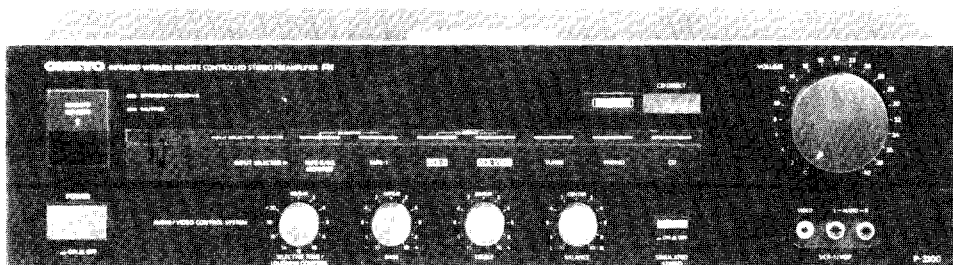


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# ONKYO® SERVICE MANUAL

## Infrared Wireless Remote Controlled Stereo Preamplifier

### MODEL P-3200



UD	120V AC, 60Hz
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#### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  $\Delta$  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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## 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  $\pm$ 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:  $\pm$ 10 dB at 100Hz  
 Treble Control:  $\pm$ 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)  
 Tape Play: 95dB (IHF-A, 1 V output)  
 Audio Muting: –20dB

### General

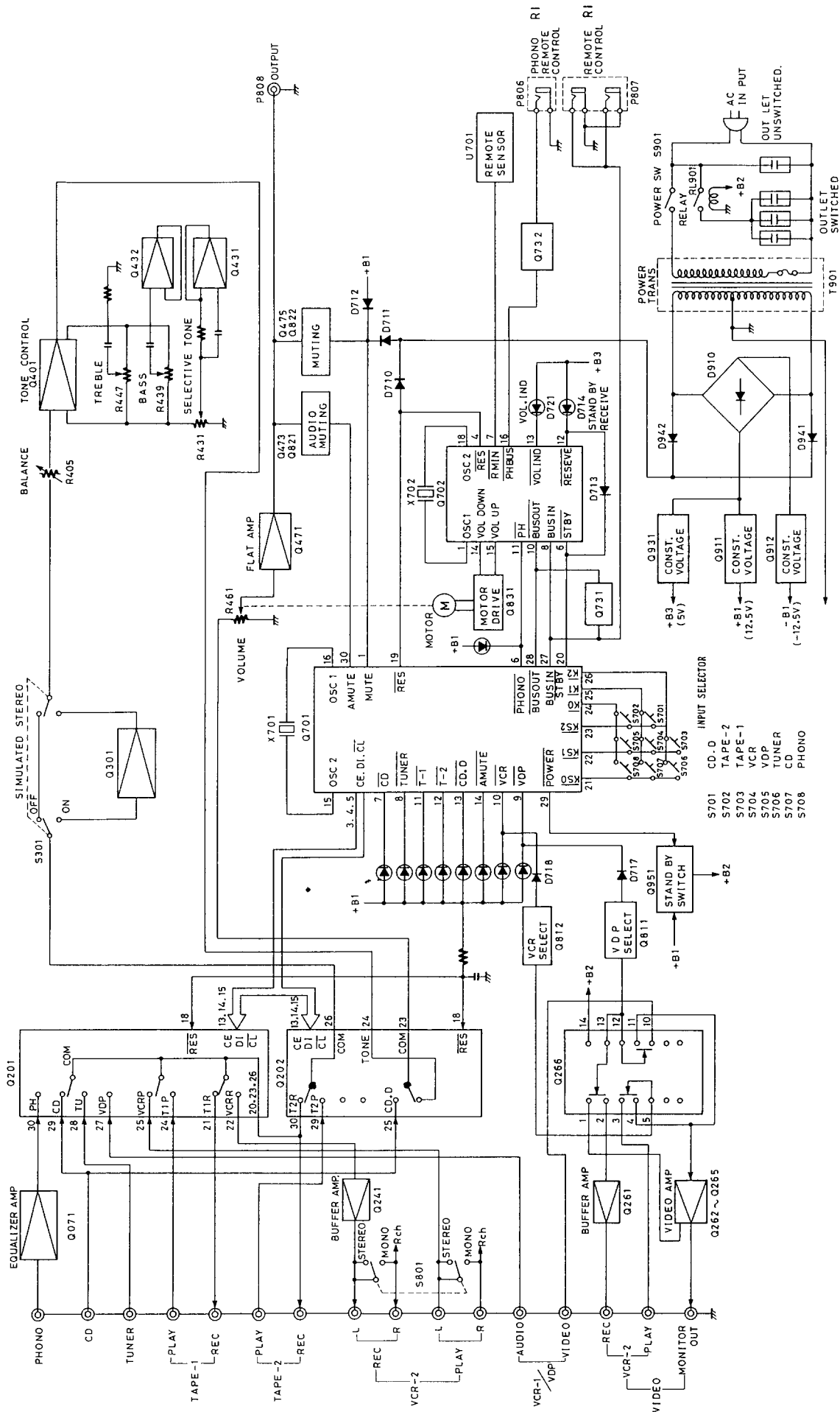
Power Supply: AC120V, 60Hz  
 Dimensions (W x H x D): 435 x 115 x 267mm  
 17–1/8" x 4–9/16" x 10–1/2"  
 Weight: 3.7kg, 8 lbs.

## REMOTE CONTROL TRANSMITTER (RC-118S)

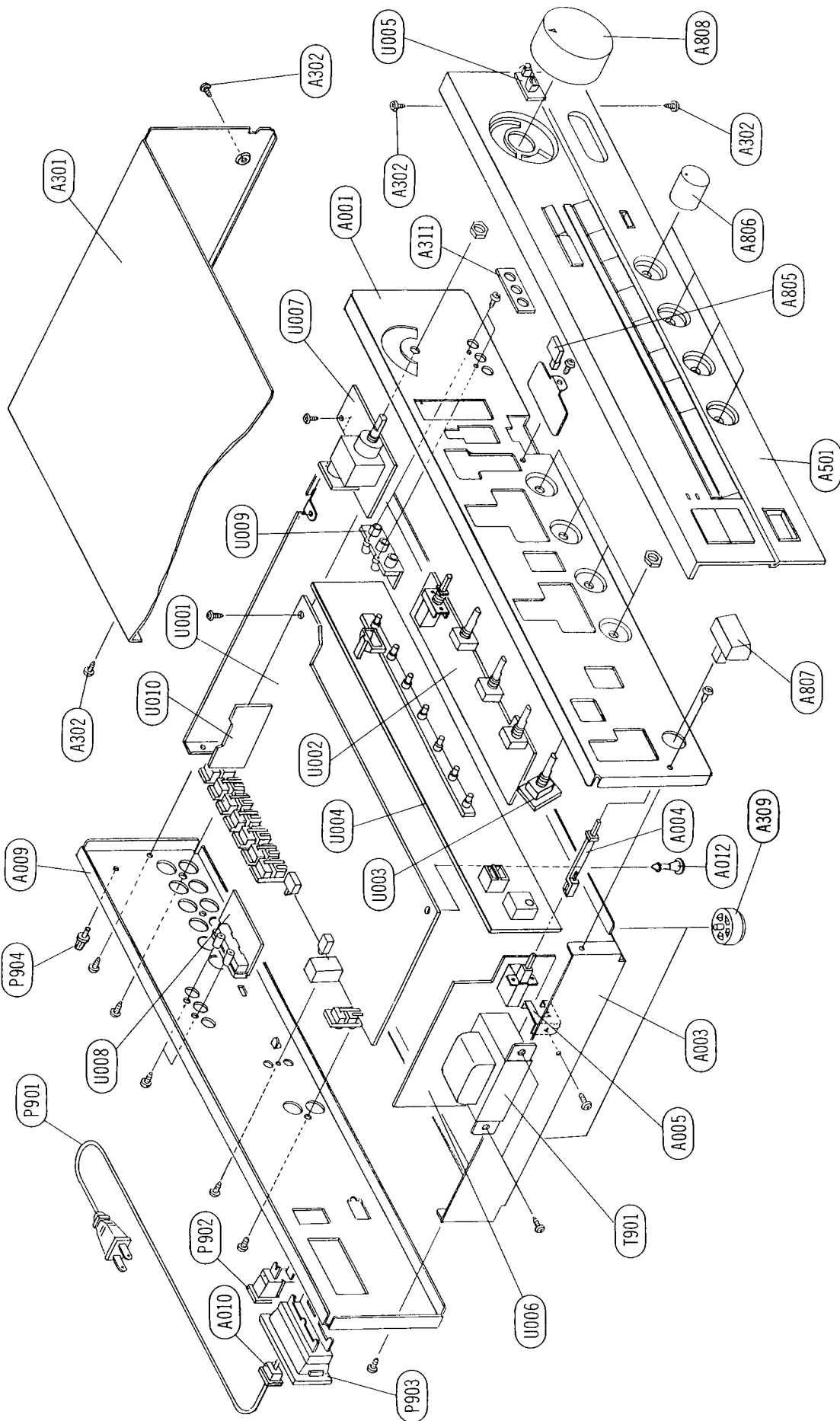
Transmitter: Infrared  
 Signal range: Approx. 5 meters, 16ft  
 Power supply: Two "AA" batteries (1.5V x 2)  
 Dimensions (W x H x D): 64 x 18 x 176mm  
 2-1/2" x 11/16" x 6-15/16"  
 Weight: 130 grams, 4.6 oz.  
 (including batteries)

Specifications and features are subject to change without notice.

# BLOCK DIAGRAM



**CHASSIS-EXPLODED VIEW**



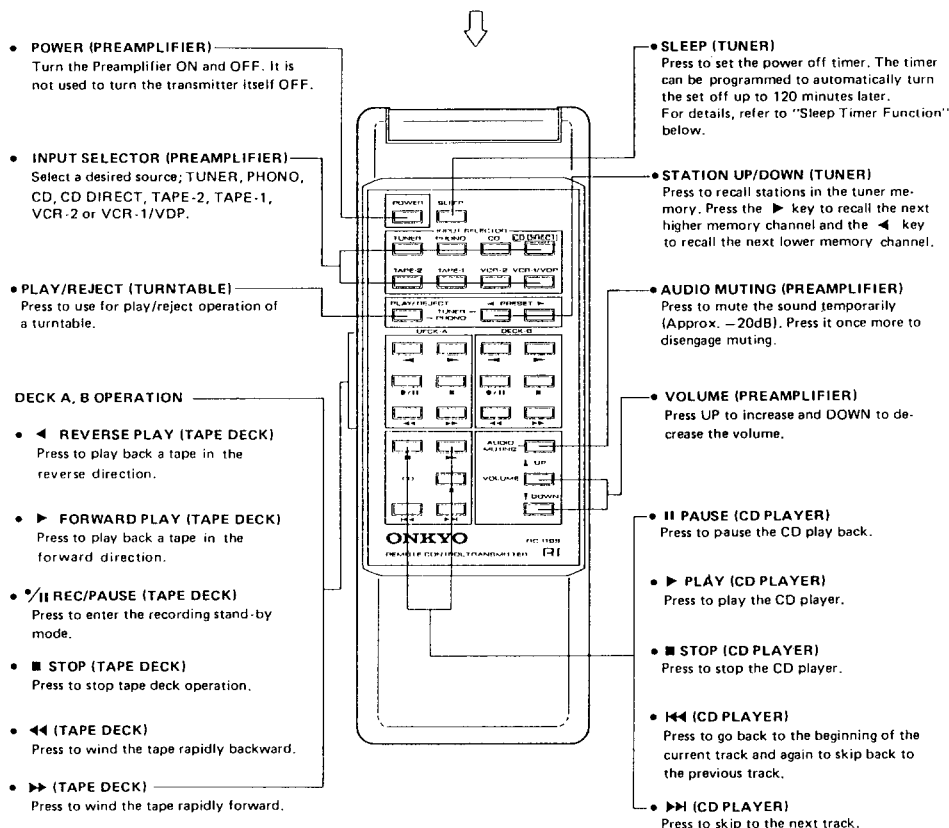
# CHASSIS-EXPLODED VIEW-PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
A001	27110395A	FRONT BRACKET	U005	1A080556-1	NADIS-3256-1, VOLUME INDICATOR CIRCUIT PC BOARD ASS'Y
A003	27100114-1	CHASSIS	U006	1A080557-1	NAPS-3257-1, POWER TRANSFORMER PC BOARD ASS'Y
A004	27260170A	SHAFT (SW)	U007	1A080558-1	NAETC-3258-1, MOTOR DRIVE CIRCUIT PC BOARD ASS'Y
A005	27141243	BRACKET (POW)	U008	1A080559-1	NAETC-3259-1, VIDEO CIRCUIT PC BOARD ASS'Y
A009	27120924-2	BACK PANEL	U009	1A080560-1	NAETC-3260-1, VCR TERMINAL PC BOARD ASS'Y
A010	27300750	BUSHING	U010	1A073554-2	NAAF-3054-2, EQUALIZER CIRCUIT PC BOARD ASS'Y
A012	27190266	HOLDER			
A301	28184383	TOP COVER			
A302	834430088	3TTS-8B(BC), TAP-TIGHT SCREW			
A501	1A131121	FRONT PANEL ASS'Y			
A311	27262415	PLATE (T)			
A309	27175219A	BOTTOM LEG			
A805	28323239A	KNOB (PUSH)			
A806	28323240	KNOB (TONE)			
A807	28323241-1	KNOB (POW)			
A808	28323242A	KNOB ASS'Y (VOL)			
▲ T901	2300286	NPT-989D, POWER TRANSFORMER			
▲ P901	253123 or 253136 or 253140 or 253146	AS-UC-6 #18, POWER SUPPLY CABLE			
▲ P902	25050290	NSCT-2P118T, AC OUTLET			
▲ P903	25050336	NSCT-6P163, AC OUTLET			
P904	25060044	GROUND TERMINAL			
U001	1A080552-1	NAAF-3252-1, MAIN PC BOARD ASS'Y			
U002	1A080553-1	NAAF-3253-1, TONE CONTROL CIRCUIT PC BOARD ASS'Y			
U003	1A080554-1	NAETC-3254-1, SELECTIVE TONE CONTROL PC BOARD ASS'Y			
U004	1A080555-1	NASW-3255-1, CONTROL CIRCUIT PC BOARD ASS'Y			

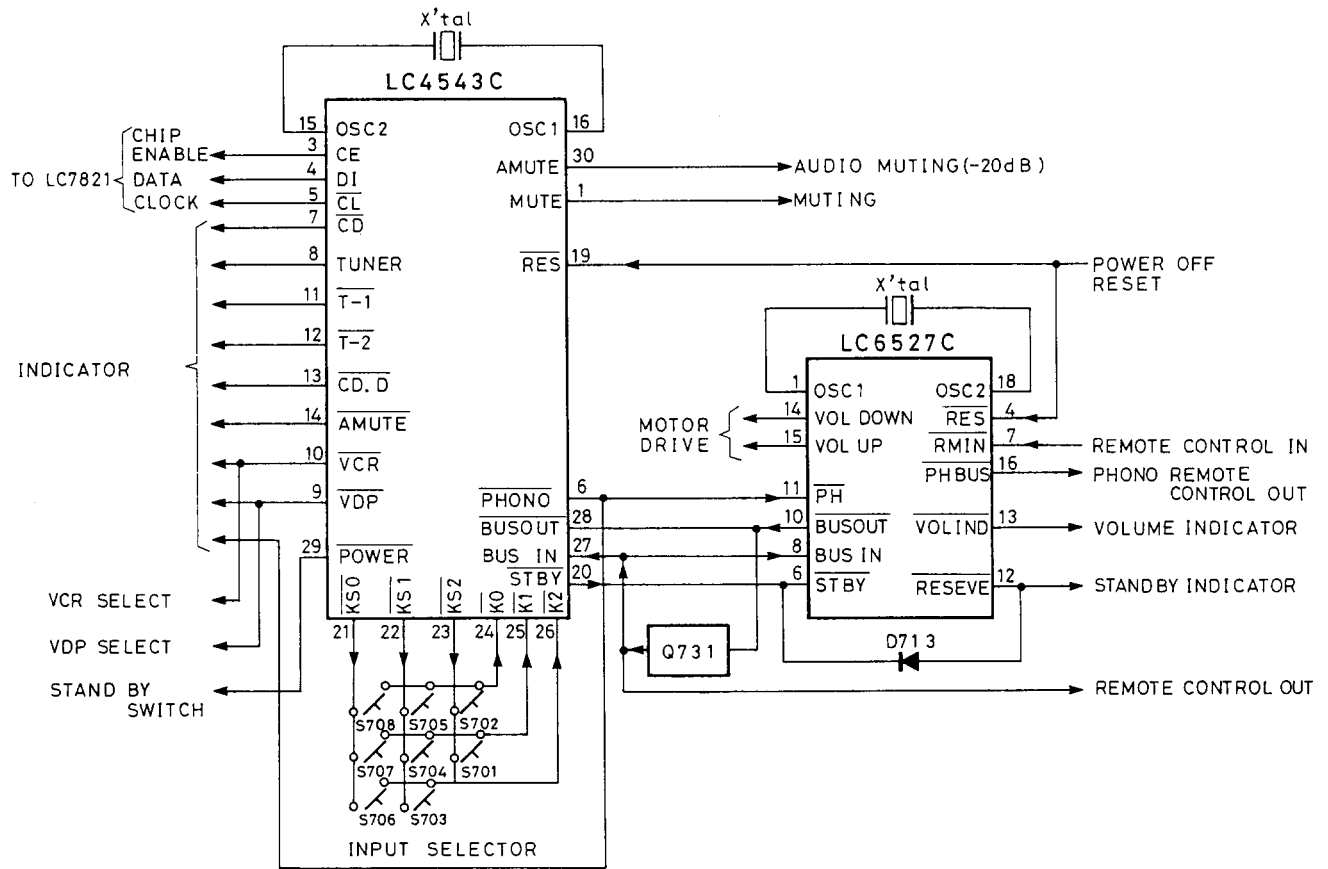
NOTE: THE COMPONENTS IDENTIFIED BY MARK ▲ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PARTS NUMBER SPECIFIED.

# REMOTE CONTROL TRANSMITTER (RC-118S)

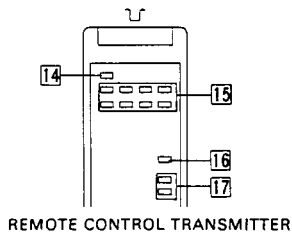
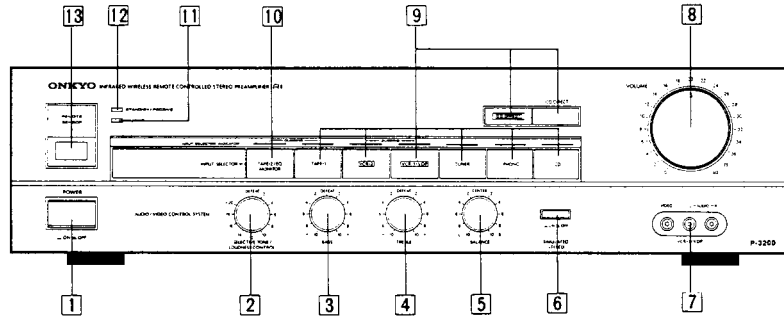
Remote Control Signal Transmission Window



# LC6543C, LC6527C (Micro Computer)



## FRONT PANEL FACILITIES



1. Power Switch (POWER)
2. Selective Tone Control/Loudness Control Knob (SELECTIVE TONE/LOUDNESS CONTROL)
3. Bass Control Knob (BASS)
4. Treble Control Knob (TREBLE)
5. Balance Control Knob (BALANCE)
6. Simulated Stereo Switch (SIMULATED STEREO)
7. Video Cassette Recorder or Video Disc Player Input Jack (VCR-1/VDP)
8. Volume Control Knob and Indicator (VOLUME)
9. Input Selector Buttons and Indicators (INPUT SELECTOR)  
 Audio Selectors CD DIRECT, CD, PHONO, TUNER, TAPE-1  
 Video Selectors (Control audio and video signals) VCR-1/VDP, VCR-2
10. Tape Monitor Button and Indicator (TAPE-2/EQ MONITOR)
11. Muting Indicator
12. Stand-By/Receive Indicator
13. Remote Control Sensor
14. Power Key (POWER)
15. Tape Monitor Key and Input Selector Keys (INPUT SELECTOR)
16. Audio Muting Key (AUDIO MUTING)
17. Volume UP-DOWN Keys (VOLUME)



## PRECAUTIONS

### 1. Insulation resistance measurement

Connect the insulating-resistance tester between the plug of power supply cable and the terminal GND on the back panel. Specifications; More than 10M $\Omega$  at 500V.

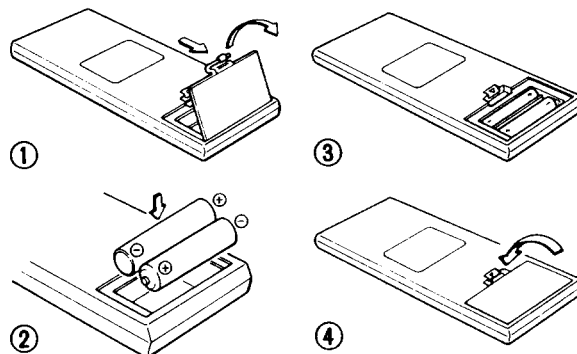
### 2. Remote Control Transmitter Batteries

The remote control transmitter is powered by two batteries. Before using this unit for the first time, insert the two batteries (included) as shown in the diagram. The remote control transmitter has no on/off switch for its own. Average battery life is one year. This period may be shorter depending on the frequency of use and environment (temperature and humidity) in which the remote control transmitter is used. If the remote control transmitter does not operate even though front panel controls function normally, the batteries should be replaced. Use only batteries listed in the following chart.

Type	Voltage	Size
Manganese	1.5V	AA, R6, UM-3

- Note**
1. The battery life is influenced by the way it is used, temperature, humidity and many other factors. On the average, they should last for one year.
  2. Do not leave an expired battery in the case as it may leak or damage the battery case.
  3. When inserting the batteries, be sure the (+) and (-) ends are properly aligned.
  4. Do not use nickel-cadmium (rechargeable) batteries.
  5. Do not use one specified (manganese) battery and one alkaline battery at the same time.
  6. Replace both batteries at once, do not use one old and one new battery together.

#### Transmitter Battery replacement (RC-118S)



# PRINTED CIRCUIT BOARD PARTS LIST

## EQUALIZER CIRCUIT PC BOARD (NAAF-3054-2) PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
Q071	222570 or	NJM4560DX or NJM4565 DD
	22240191	
<b>Capacitors</b>		
C071, C072	354780229	2.2 $\mu$ F, 50V, Elect.
C077, C078	354721019	100 $\mu$ F, 6.3V, Elect.
C079, C080	371126224	6200 pF, 50V, Mylar
C081, C082	371121824	1800 pF, 50V, Mylar
C083, C084	354780229	2.2 $\mu$ F, 50V, Elect.
C085, C086	354742219	220 $\mu$ F, 16V, Elect.
<b>Plug</b>		
P071	25055334	NPLG-9P317

## MAIN PC BOARD (NAAF-3252-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
Q201,(Q202) Q241 Q471	22240079	LC7821
	222502	NJM4558DX
	22240050 or	MPC4570C or
	22240191	NJM4565DD
<b>Transistors</b>		
Q473~Q476	2212285 or 2212286	2SC2878A or 2SC2878B
Q811,Q812	2211455 or	2SA1015GR or
Q821,Q822	2212495	JA101Q
Q911,Q931	2201754 or 2201755	2SD1913R or 2SD1913Y
Q912	2201764 or 2201765	2SB1274R or 2SB1274Y
Q951	2211504	2SA950Y
<b>Diodes</b>		
D251,D712	223150 or 223124 or 223145	US1040 or 1S2473 or 1S2076TD
D710,D711	223163	ISS133
D910	223862 or 223890	W101 or W01RL
D911,D912	224151302 or 220451302 or 224651302	05AZ13Y or MTZ13B or HZ13EB2
D931	224150562 or 224450562 or 224650562	05AZ5.6Y or MTZ5.6B or HZ5.6EB2
D941,D942	223896F or 223880F	1N4003F or GP101N4003
D943	224151202 or 224451202 or 224651202	05AZ12Y or MTZ12B or HZ12EB2
<b>Capacitors</b>		
C241~C244 C251,C471 C472,C477 C478 C252,C253 C479,C480 C473,C474 C811,C812 C821 C911	354780229    354780339  354721019 354780109  354763329	2.2 $\mu$ F, 50V, Elect.   3.3 $\mu$ F, 50V, Elect.  100 $\mu$ F, 6.3V, Elect. 1 $\mu$ F, 50V, Elect.  3300 $\mu$ F, 35V, Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION
C912	354761029	1000 $\mu$ F, 35V, Elect.
C913,C914	354762219	220 $\mu$ F, 35V, Elect.
C931,C932		
C915,C916	354741019	100 $\mu$ F, 16V, Elect.
C919,C920	354744719	470 $\mu$ F, 16V, Elect.
C934	354722219	220 $\mu$ F, 6.3V, Elect.
C941	354741009	10 $\mu$ F, 16V, Elect.
<b>Resistors</b>		
R911	441622204F	22 $\Omega$ , 1W, Metal oxide film
R912	441521514F	150 $\Omega$ , 1/2W, Metal oxide film
R931	441625604F	56 $\Omega$ , 1W, Metal oxide film
R941	442525614F	560 $\Omega$ , 1/2W, Metal oxide film
<b>Switch</b>		
S801	25065286	NSS-22112 Slide
<b>Terminals</b>		
P801~P803 P808	25045213 25045182	NPJ-6PDBL92 NPJ-2PDBL72
<b>Jacks</b>		
P806 P807	25045114 25045172	HSJ1011-01-530 HSJ1003-01-020
<b>Radiator</b>		
	27160211	RAD-68
<b>Bracket</b>		
	27141059	

## TONE CONTROLE PC BORAD (NAAF-3253-1) -PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>ICs</b>		
Q301	222502	NJM4558DX
Q401,Q431	22240050 or	MPC4570C or
Q432	22240191	NJM4565DD
<b>Capacitors</b>		
C301,C304	354780229	2.2 $\mu$ F, 50V, Elect.
C401,C402		
C405,C406		
C435,C436		
C302	371121124	1100 pF, 50V, Mylar
C303	371121234	0.012 $\mu$ F, 50V, Mylar
C431,C432	371128224	8200 pF, 50V, Mylar
C437,C438	371125134	0.051 $\mu$ F, 50V, Mylar
C441,C442	354780339	3.3 $\mu$ F, 50V, Elect.
C449,C450		
C443,C444	371122234	0.022 $\mu$ F, 50V, Mylar
C447,C448		
<b>Resistors</b>		
R405	5104225	N11RGLC250KWT22Z, Variable
R439(R440) R447(R448)	5104230	N14RLC100KWT22Z, Variable
<b>Switches</b>		
S301	25035372	NPS-122-L336

### SELECTIVE TONE PC BOARD (NAETC-3254-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
R431(R432)	<b>Resistors</b>	
	5104231	N14RH50KRD22Z

### CONTROLE PC BOARD (NASW-3255-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
U701	<b>Photo receiving unit</b>	
	24130001	GP1U501S
Q701 Q702	<b>ICs</b>	
	22240151 22240150	LC6543C-3630 LC6527C-3608
Q731	<b>Transistors</b>	
	2211455 or 2212495	2SA1015GR or JA101Q
Q732		
	2211255 or 2212485	2SC1815GR or JC501Q
D701~D703 D706~D708	<b>Diodes</b>	
	225137CG or 225137DG or 225137DY	SEL2413CG, LED or SEL2413DG, LED or SEL2413DY, LED
D704,D705 D709,D714 D713		
	225141	SEL2213C, LED
D717,D718 D731 D732		
	223150 or 223124 or 223145 223163	US1040 or 1S2473 or 1S2076TD ISS133
D732		
	224150562 or 224450562 or 224650562	05AZ5.6Y or MTZ5.6B or HZ5.6EB2
X701 X702	<b>Transducer</b>	
	3010099 3010119	CSA4.00MG CSB-1000D
C701 C705 C709	<b>Capacitors</b>	
	354721019 354780229 354741009	100 $\mu$ F, 6.3V, Elect. 2.2 $\mu$ F, 50V, Elect. 10 $\mu$ F, 16V, Elect.
S701~S708	<b>Switch</b>	
	25035548	NPS-111-5510
P701	<b>Socket</b>	
	2000635	NSAS-4P591
	<b>Holders</b>	
	27190610 27190611	(LED-8) (LED-2)

### VOLUME LED PC BOARD (NADIS-3256-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
D721	225141	SEL2213C, LED
	27190545	Holder (LED)

### POWER TRANSFORMER PC BOARD (NAPS-3257-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
D901	<b>Diodes</b>	
	223163	ISS133
T901	<b>Transformer</b>	
	2300286	NPT-989D
C901,C902	<b>Capacitors</b>	
	3500065A	0.01 $\mu$ F, AC400V/125V IS
S901	<b>Switch</b>	
	25035550	NPS-111-L512P
RL901	<b>Relay</b>	
	25065269	NRL-1P5A-DC12-36
	<b>Insulating plat</b>	
	28175137	

### MOTOR DRIVE PC BOARD (NAETC-3258-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
Q831	222963	LB1630, IC
C831	354741009	10 $\mu$ F, 16V, Elect. capacitor
R461(R462)	5104232	N16RGM50KA20F, Variable resistor
	27141059	Plate

### VIDEO CIRCUIT PC BOARD (NAETC-3259-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
Q266	<b>IC</b>	
	222840661	4066B
Q261~Q264	<b>Transistors</b>	
	2211255 or 2210746	2SC1815GR or 2SC945AP
Q265	2211454	2SA1015Y
C261,C264 C262,C263 C265,C266	<b>Capacitor</b>	
	354724719 354741009	470 $\mu$ F, 6.3V, Elect. 10 $\mu$ F, 16V, Elect.
P805	<b>Terminal</b>	
	25045205	NPJ-3PDYE085

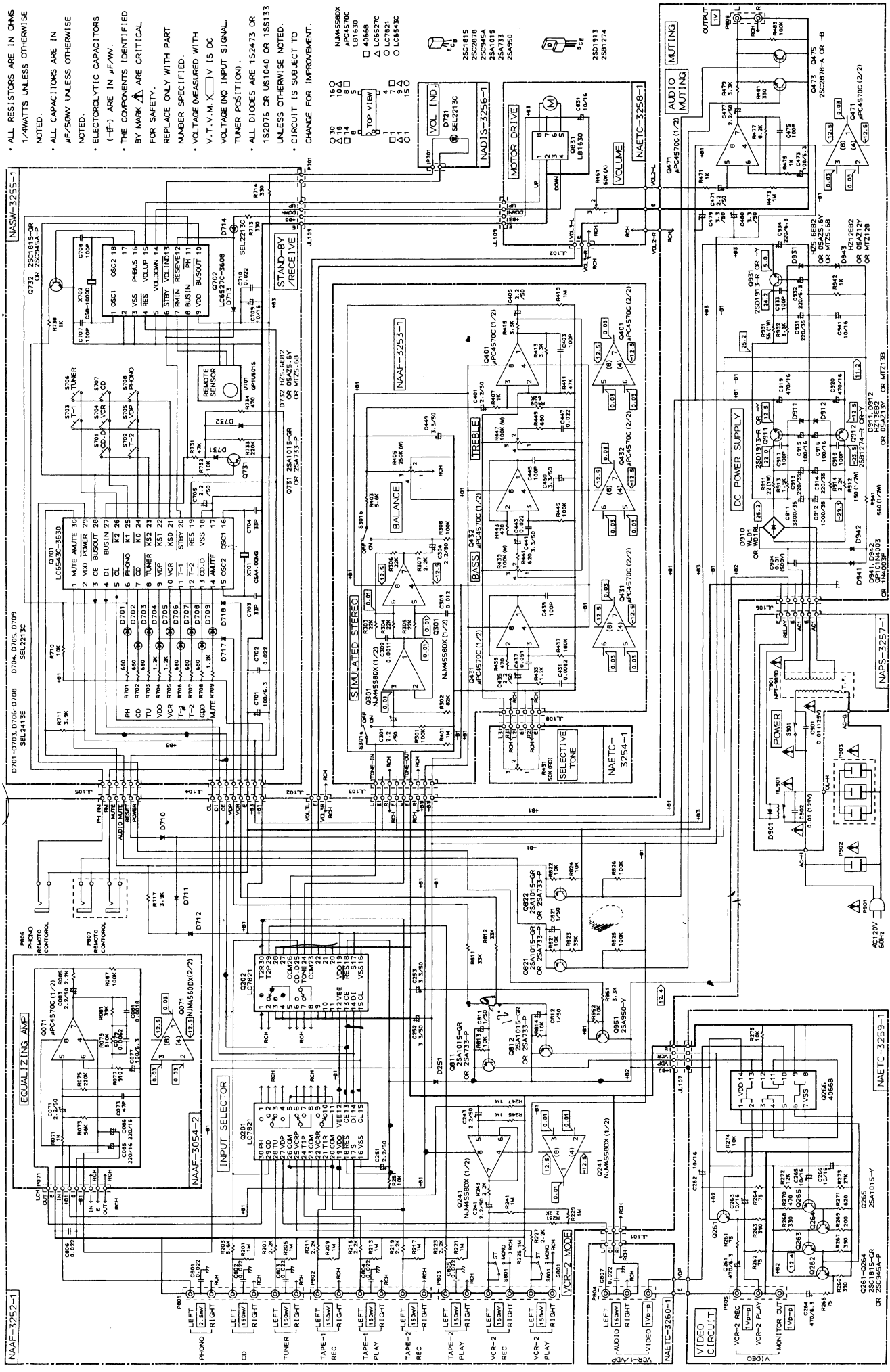
### VCR INPUT TERMINAL PC BOARD (NAETC-3260-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
P804	25045206	NPJ-3PDYE086, Terminal

CHEMATIC DIAGRAM

NOTES

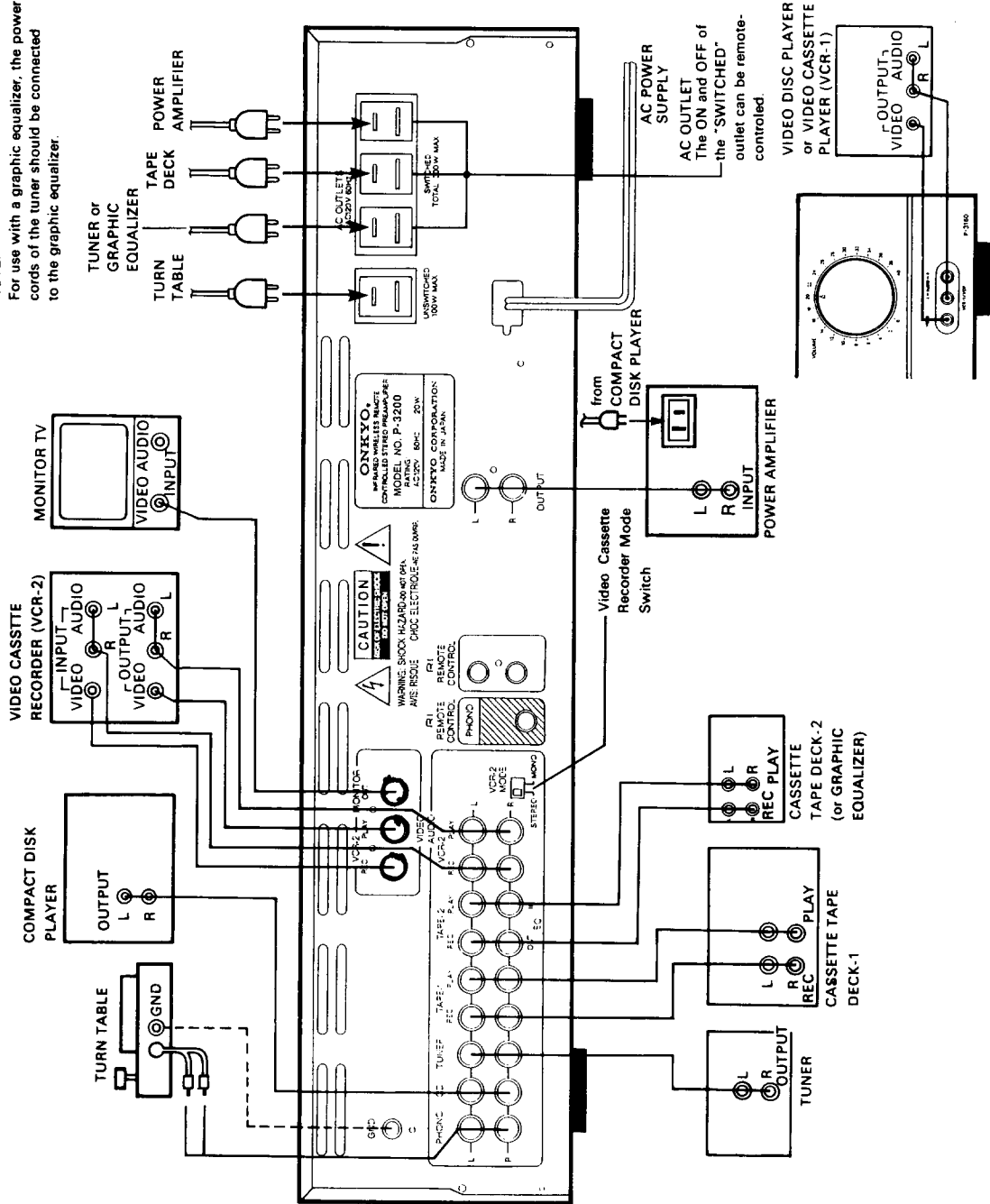
- ALL RESISTORS ARE IN OHMS UNLESS OTHERWISE NOTED.
- ALL CAPACITORS ARE IN μF/50M UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS (-E) ARE IN μF/W.
- THE COMPONENTS IDENTIFIED BY MARK Δ ARE CRITICAL FOR SAFETY.
- REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE MEASURED WITH V.T.V.M. X V IS DC VOLTAGE (NO INPUT SIGNAL TUNER POSITION).
- ALL DIODES ARE 1S2473 OR 1S2076 OR 1S1040 OR 1S5133 UNLESS OTHERWISE NOTED.
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.



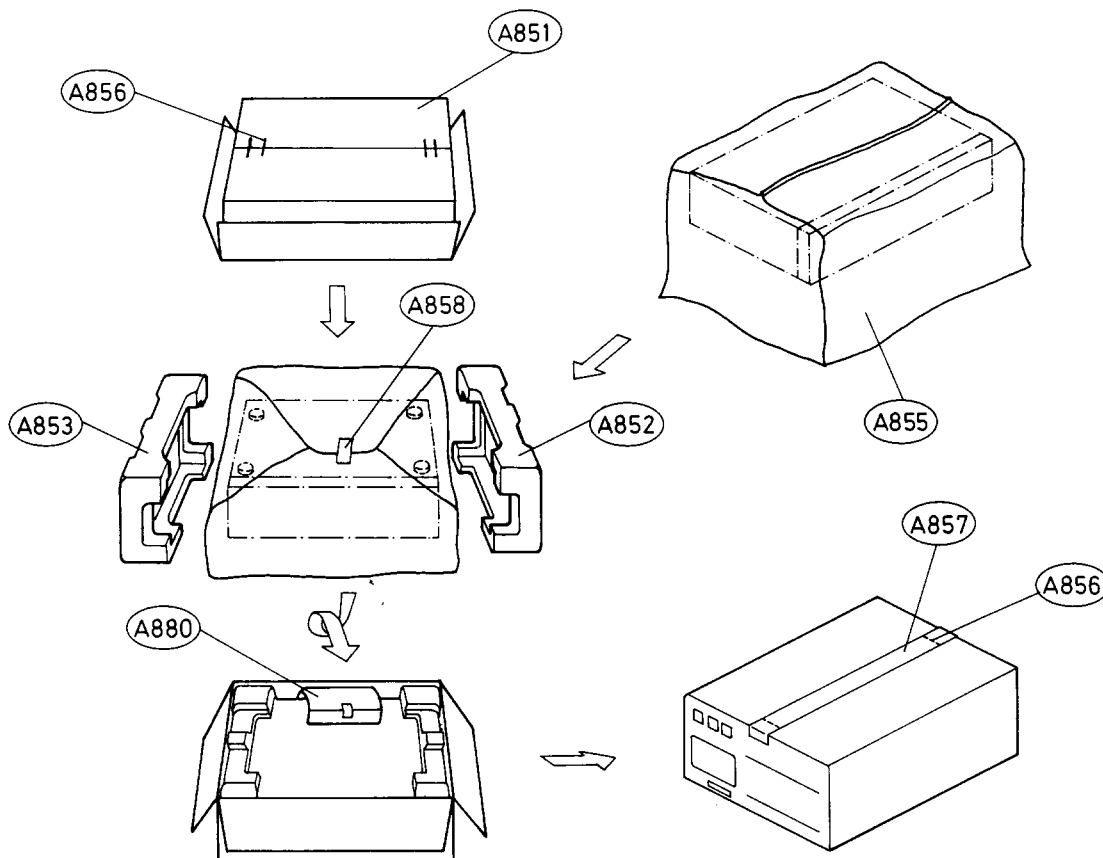
# SYSTEM CONNECTIONS



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



# PACKING PROCEDURES



REF. NO.	PART NO.	DESCRIPTION
A851	29051869	MASTER CARTON BOX (D)
A852	29090987BZ	PAD, L
A853	29090988BZ	PAD, R
A855	29100063	750 × 580mm, POLY-VINYL BAG
A856	282301	SEALING HOOK
A857	260012	DAMPLON TAPE
A858	261504	PAPER TAPE

REF. NO.	PART NO.	DESCRIPTION
A880	<b>ACCESSORY BAG ASS'Y</b>	
	29341375	INSTRUCTION MANUAL
	29365019	WARRANTY CARD [N]
	29358002G	SERVICE STATION LIST [N]
	24140021	REMOTE CONTROL UNIT, RC-118S
	3010054	TOW BATTERIES, UM-3
	29100097	350 × 250mm, POLY-VINYL BAG FOR ACCESSARY
	2010169	3.5mm.MINI PLUG

**NOTE** [N]:Only U.S.A. MODELS

## ONKYO CORPORATION

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