

P-304

Stereo Preamplifier

Instruction Manual

**“WARNING”
“TO REDUCE THE RISK OF FIRE OR
ELECTRIC SHOCK, DO NOT EXPOSE
THIS APPLIANCE TO RAIN OR
MOISTURE.”**

- The serial number is written on the rear panel of this unit. Copy the serial number and model number onto your warranty card and keep it in a safe place.
- On units equipped with decorative side panels, the side panel material is vinyl overlay particleboard.

ONKYO[®]

Important Safeguards

1. **Read Instructions** — All the safety and operating instructions should be read before the appliance is operated.
2. **Retain Instructions** — The safety and operating instructions should be retained for future reference.
3. **Heed Warnings** — All warnings on the appliance and in the operating instructions should be adhered to.
4. **Follow Instructions** — All operating and use instructions should be followed.
5. **Water and Moisture** — The appliance should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. **Carts and Stands** — The appliance should be used only with a cart or stand that is recommended by the manufacturer.
7. **Wall or Ceiling Mounting** — The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. **Ventilation** — The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. **Heat** — The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. **Power Sources** — The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. **Grounding or Polarization** — The precautions that should be taken so that the grounding or polarization means of an appliance is not defeated.
12. **Power-Cord Protection** — Power-supply cords should be routed so that they are not likely to be

against them, paying particular attention to the cords at plugs, convenience receptacles, and the point where they exit from the appliance.

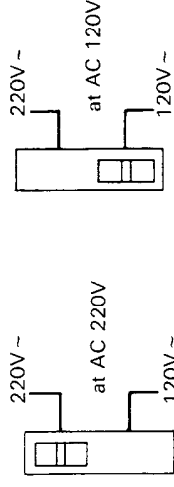
13. **Cleaning** — The appliance should be cleaned only as recommended by the manufacturer.

14. **Nonuse Periods** — The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
15. **Object and Liquid Entry** — Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
16. **Damage Requiring Service** — The appliance should be serviced by qualified service personnel when:
 - A. The power-supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the appliance; or
 - C. The appliance has been exposed to rain; or
 - D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
 - E. The appliance has been dropped or the enclosure damaged.
17. **Service** — The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

*****WARNING***
BEFORE TURNING ON POWER FOR
THE FIRST TIME, READ THE FOLLOWING SECTION CAREFULLY.**

Voltage Selector (rear panel)

Certain versions of the P-304 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 up or down before turning the power switch on. If there is no voltage selector on the unit you have purchased, it can be used only where the power supply voltage is the same as that of the unit.



Care

From time to time you should wipe off the front and rear panels and the cabinet with a silicon or other soft cloth. For heavier dirt, dampen a soft cloth in a weak solution of mild detergent and water, wring it out dry, and wipe away the dirt. Following this, dry immediately with a clean cloth. Do not use rough material, thinner, alcohol or other chemical solvents or cloths since these may damage the finish or remove the panel lettering.

Note:

AC Fuses

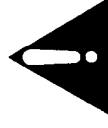
The fuses are located inside the chassis and are not user serviceable. If power does not come on, contact your Onkyo dealer.

“CAUTION”

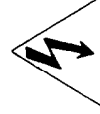
“TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.”



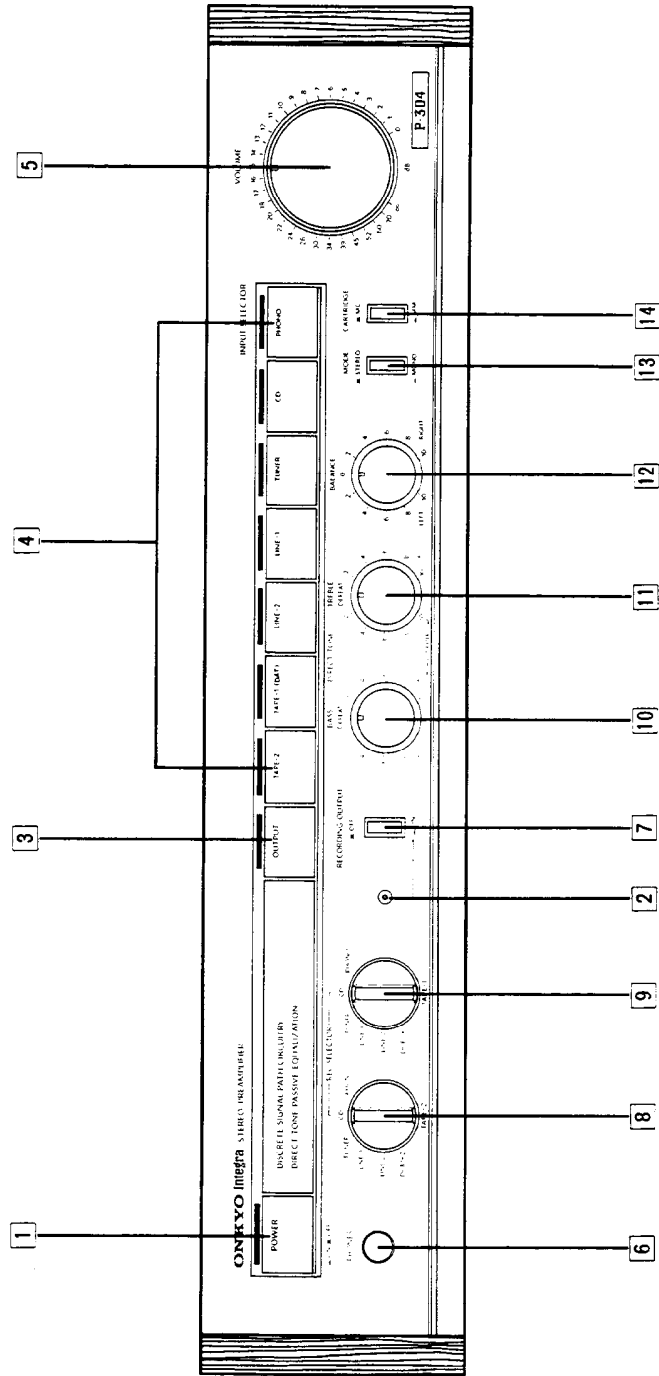
CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



- The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
- The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



Front Panel Facilities



1 Power Switch (POWER)

Press once to turn power on and once again to turn power off. When power is turned on, the orange band above the power switch lights.

2 Recording Indicator (RECORDING OUTPUT)

Lights when the recording output switch **7** has been pressed to indicate that the unit is in the record/dubbing mode.

3 Output Switch and Indicator (OUTPUT)

Depress this switch to the OFF position to turn off the output from the rear panel output terminals (OUTPUT). The green band above the switch lights when the switch is in the ON position. This switch should normally be left in the ON position. Use the OFF position when you want to listen using only the headphones, or to mute the speakers when you need to answer the telephone, for example.

4 Input Selector Switches and Indicators (INPUT SELECTOR)

Use these switches to select the desired program source. The switches are interconnected; depressing one causes the previously depressed one to come up. An indicator lights to show which source has been selected.

PHONO: Depress this switch to listen to the turntable connected to the PHONO input terminals.

CD: Depress this switch to listen to the compact disc player connected to the CD input terminals.

TUNER: Depress this switch to listen to the tuner connected to the TUNER input terminals.

LINE-1: Depress this switch to listen to the component connected to the LINE-1 input terminals.

LINE-2: Depress this switch to listen to the component connected to the LINE-2 input terminals.

TAPE-1 (DAT): Depress this switch to listen to the tape deck connected to the TAPE-1 input terminals. A digital audio tape recorder (DAT) should be connected to the TAPE-1 input terminals rather than the TAPE-2 terminals.

TAPE-2: Depress this switch to listen to the tape deck connected to the TAPE-2 input terminals.

5 Volume Control (VOLUME)

Turn clockwise to increase the volume level. The volume control is marked in decibels so output voltage and headphone volume can be read off directly in dB. The volume control is linked to the tone control circuitry. Refer to the "About the Variable Bass and Treble Boosting System" section on page 8 for details.

6 Headphone Jack (PHONES)

Insert a standard stereo headphone plug into this jack and adjust the volume using the volume control **5**.

7 Recording Output Switch (RECORDING OUTPUT)

Depress this switch to the ON position when you wish to perform recording or dubbing. The recording indicator **2** lights indicating that a signal is being routed to the REC output terminals.

8 Recording Source Selectors (REC. SELECTOR)

This unit is equipped with separate recording source selectors for tape decks 1 and 2. Two tape decks can be used to record different program sources simultaneously while you are listening to yet another program source.

PHONO: Use when recording from the turntable.

CD: For recording from the compact disc player.

TUNER: For recording from the tuner.

LINE-1: For recording from the component connected to the LINE-1 input terminals.

LINE-2:

For recording from the component connected to the LINE-2 input terminals.

2 ▲ 1; Use for tape dubbing. For details, refer to the "Operations" section.

1 ▲ 2;

10 Bass Control (BASS)

Turn to the right of the center (DEFEAT) mark to emphasize bass and turn to the left to attenuate bass. Adjust to the setting appropriate for the acoustics of your listening room and your own preference.

11 Treble Control (TREBLE)

Turn to the right of the center (DEFEAT) mark to emphasize treble and turn to the left to attenuate treble according to the listening room acoustics, etc. When the treble control is turned all the way to the left (-10), it operates as a high cut filter. Use this position when you want to suppress annoying high frequency noise such as static and tape hiss.

12 Balance Control (BALANCE)

Use this knob to adjust the relative volume levels of the left and right channels.

13 Mode Switches (MODE)

Depress these switches to change the output signal from the OUTPUT terminals from stereo to mono.

14 Cartridge Selector Switch (CARTRIDGE)

MC: When a turntable equipped with an MC cartridge is being used.

MM: When a turntable equipped with an MM cartridge is being used.

Because a sudden increase in volume level may occur when switching this selector, always turn the volume control **5** all the way down before switching to a different position.

System Connections and Rear Panel Facilities

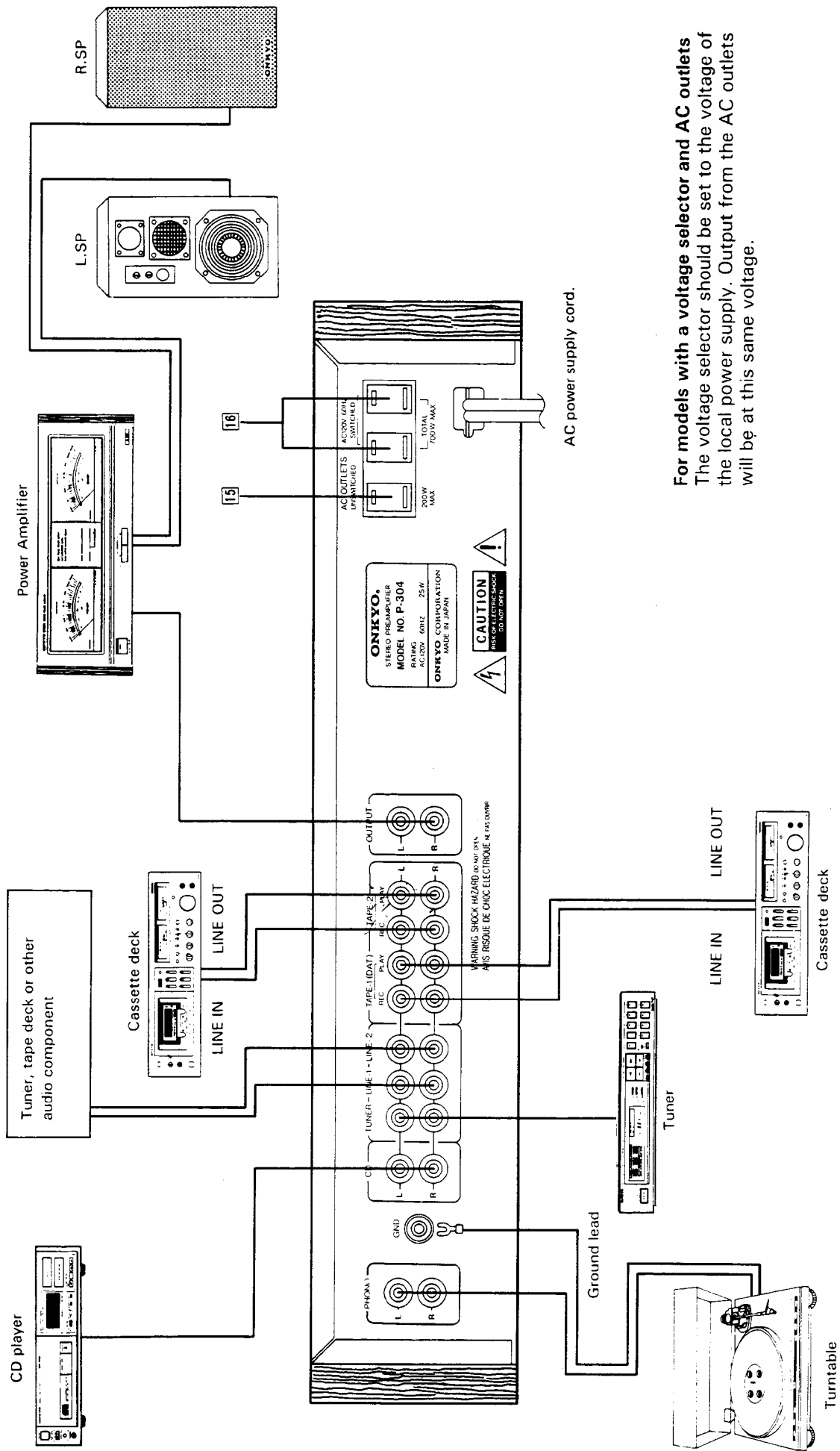
- Read the instruction manuals of any components to be connected to this unit carefully before making any connections.
- Confirm that the L and R pin-type cables are properly connected to the left and right terminals. If they are not, the left and right channels will be reversed.
- Also confirm that all pin-plugs are firmly secured. If a plug becomes loose and proper grounding is lost, an unpleasant booming noise is generated.
- Furthermore, always handle cables with adequate care, holding the plug at its base, not the cable itself, when connecting and disconnecting.
- Although the turntable ground lead is usually connected to the amplifier GND terminal, some turntables do not require a ground connection.
- Keep the pin-type cables as far away as possible from the power cord and power transformer area. Otherwise, hum and other unwanted noise may be generated.
- The rear panel AC OUTLETS are designed for use with other audio components. Do not use them as the power supply for hair driers or other heating appliances.

15 AC Outlet (Unswitched)

This outlet has a maximum capacity of 200 watts and is not switched on and off by the power switch on the front panel.

16 AC Outlets (Switched)

These outlets have a combined maximum capacity of 700 watts and are switched on and off by the power switch on the front panel.



For models with a voltage selector and AC outlets
 The voltage selector should be set to the voltage of the local power supply. Output from the AC outlets will be at this same voltage.

- DO NOT PLUG IN THE POWER CORD UNTILL ALL CONNECTIONS HAVE BEEN COMPLETED AND THOROUGHLY CHECKED.

Operations

Connect all components to the rear panel terminals as shown in the "System Connections" section and set the front panel controls to the appropriate settings for the desired program source.

Normal Standby Mode

The standby positions of the front panel controls are as follows. The standby mode serves as a starting point for all operating modes

- 3 Output Switch:** ON
- 4 Input Selector:** as desired
- 5 Volume Control:** minimum (all the way to the left)
- 7 Recording Output Switch:** OFF
- 8 9 Recording Source Selectors:** as desired
- 10 Bass Control:** as desired
- 11 Treble Control:** as desired
- 12 Balance Control:** center

13 Mode Switch: STEREO

14 Cartridge Selector Switch: as desired

1 Power Switch: ON

When the power is turned on, the orange band over the power switch lights. A few seconds later, power output begins. Note that no sound is heard from the speakers for the first few seconds.

Using Tape Decks

Playback:

Two tape decks can be connected to this unit at once. Depress the TAPE-1 selector switch **4** to listen to the deck connected to the TAPE-1 terminals. To listen to the deck connected to the TAPE-2 terminals, depress the TAPE-2 selector switch **4**.

Recording:

Set the recording source selectors **8**, **9** to the PHONO, CD, TUNER or LINE position depending on which one is to be used as the program source, depress the RECORDING OUTPUT switch **7** to the ON position and begin recording operations. If you are recording on a 3-head tape deck, depress the input selector switch **4** corresponding to the tape deck in use to monitor the just-recorded signal. If the input selector is in any other position, another audio source can be heard while recording is in progress.

Set the proper recording level using the controls on the tape deck.

Tape-to-Tape Duplicating:

When two tape decks are connected at once to this unit, it is possible to dub tapes from one deck to another. To copy a pre-recorded tape perform the following procedure.

Tape decks connected to the TAPE input terminals of this unit are represented in the chart below as TAPE-1 and TAPE-2.

	TAPE-1 → TAPE-2	TAPE-2 → TAPE-1
REC SELECTOR 8	1 ▶ 2 as desired	as desired
REC SELECTOR 9	ON	2 ▶ 1
RECORDING OUTPUT 7	PLAY	ON
TAPE-1 set to:	RECORD	RECORD
TAPE-2 set to:	RECORD	PLAY

If the tape deck used for copying is a three-head deck, it is possible to monitor the just-recorded signal in the same way as when recording tapes from non-tape sources by setting the input selector **4** to the appropriate setting for the deck being used for recording. To listen to a different source while the tape is being dubbed, switch the input selector to the desired setting.

Note: When the TAPE-1 recording source selector is set to 2 ▶ 1 and the TAPE-2 recording source selector is set to 1 ▶ 2, dubbing is possible only from tape deck 1 to tape deck 2.

Equalizer and Mixing Console Connections

Equalizers and mixing consoles should be connected to the TAPE terminals on the rear panel of the unit. Connect the equalizer or mixer input terminals to the REC terminals and the output terminals to the PLAY terminals.

- Refer to the following chart for the correct settings to use when listening to a program source routed through an equalizer or mixer connected to the TAPE terminals.

When using:	TAPE-1	TAPE-2
INPUT SELECTOR 4	TAPE 1	TAPE 2
REC SELECTOR 8	***	desired source
REC SELECTOR 9	desired source	***
RECORDING OUTPUT 7	ON	ON

- **Routing playback from a tape deck through an equalizer (or a mixing console)**

First connect either the tape deck or the equalizer to the TAPE-1 terminals on the rear panel and connect the other to the TAPE-2 terminals. Next, set the REC SELECTOR (**8** or **9**) for the terminals to which the equalizer (or mixer) is attached to the dubbing mode (1 ▶ 2 or 2 ▶ 1).

- To record from another component through an equalizer

Either the tape deck or the equalizer (or mixer) to be used must be connected to the TAPE-1 terminals and the other to the TAPE-2 terminals. Next, set the REC SELECTOR ([8] or [9]) for the terminals to which the tape deck is attached to the dubbing mode (1 ▶ 2 or 2 ▶ 1). The REC SELECTOR [8], [9] switches should be set according to the chart below.

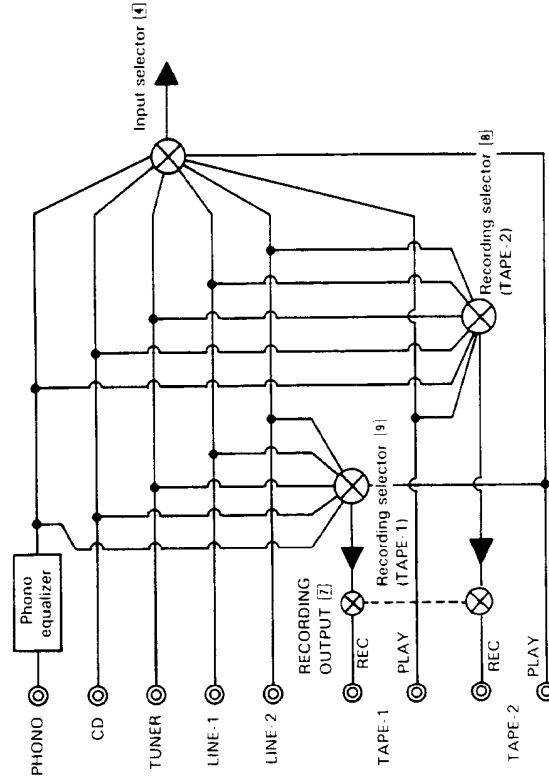
	Equalizer (mixer) connected to TAPE-1 Tape deck connected to TAPE-2	Tape deck connected to TAPE-1 Equalizer (mixer) connected to TAPE-2
REC SELECTOR [8]	1 ▶ 2	desired source (except 1 ▶ 2)
REC SELECTOR [9]	desired source (except 2 ▶ 1)	2 ▶ 1
RECORDING OUTPUT [7]	ON	ON

It is not possible to dub tapes from one deck to another through an equalizer using the two sets of TAPE terminals. To dub tapes from one deck to another through an equalizer, connect the deck to be used as the source to the LINE terminals and set the REC SELECTOR to the appropriate setting.

About the Variable Bass and Treble Boosting System

This unit is designed to gradually reduce the effect of the tone controls (bass and treble) as the volume exceeds a certain level. The variable boosting system gradually reduces the boosting effect of the bass [10] and treble [11] controls when one or both of these controls is turned beyond (to the right of) the center defeat position and the volume control [5] is turned beyond the 15 graduation (the 12:00 position). When the volume is turned all the way up, the frequency response will be flat again. Volume settings below the 15 graduation have no effect on the tone controls. Also, bass and treble control settings below (to the left of) the center defeat position are not altered by the volume level.

Diagram showing connections for the input, tape and recording selectors



Trouble-Shooting Guide

If the P-304 fails to function normally, first check the following points before calling for professional servicing. If the problem still persists or is of a different nature than the problems listed below, disconnect the power cord and contact your Onkyo dealer.

- 1. No power**
Has the power cord been properly plugged into the wall socket?
- 2. No sound when power is switched on**
Check the power amplifier or speaker systems to be sure the problem is not located there. Also check for possible incorrect connection of input and output cables including disconnection and short circuits.
- 3. Generation of hum, howling or other unwanted noise**
Check for loose connections of the ground line, and the input and output cable connections. Also check the ground connections to the power amplifier and turntable.
Howling can be generated when the speaker systems are too close to the turntable. Noise can also be picked up if a power transmitter is used nearby. Hum can be induced if connecting cables pass too close to the power cord or power transformer.
- 4. Very low level output sound when playing records**
The output level will be too low if the cartridge selector [A] is set to the MM position when using an MC cartridge. Check the type of cartridge being used.

Specifications

Input Sensitivity and Impedance:

PHONO MC: 160 μ V/220 ohms
 PHONO MM: 2.5mV/47 kohms
 CD, TUNER, LINE, TAPE PLAY:
 150mV/20 kohms

Rated Output and Impedance:

TAPE REC: 150mV/1.2 kohms
 (PHONO)

RIAA Deviation:
 Frequency Response
 (CD, TUNER, LINE,
 TAPE):

OUTPUT: 1.0V/160 ohms Max. 6V
 \pm 0.2dB, 20—20,000Hz

Phono Overload:

+0, -3dB, 0.8Hz — 170kHz
 PHONO MM: 210mV RMS at 1 kHz,
 THD 0.05%
 PHONO MC: 13mV RMS at 1 kHz,
 THD 0.05%

Total Harmonic Distortion:

0.0008% at PHONO MM, 3V output
 0.003% at PHONO MC, 3V output
 0.0005% at CD, TUNER, LINE and TAPE,
 3V output

Intermodulation

Distortion (CD):

0.003% (70Hz: 7kHz = 4:1)
 PHONO MC: 81dB (IHF A-202, Shorted)
 PHONO MM: 92dB (IHF A-202, Shorted)
 CD: 100dB (IHF A-202, Shorted)

Signal-to-Noise Ratio:

Tone Control
 (Vol. - 20dB):

BASS: \pm 10dB at 20Hz

TREBLE: \pm 8dB at 20kHz

HIGH CUT: (TREBLE min.): 6dB/oct,
 7 kHz

Inputs:

PHONO, CD, TUNER, LINE 1 & 2, TAPE
 PLAY 1 & 2

Outputs:

OUTPUT, TAPE REC OUT 1 & 2
 AC OUTLETS (SWITCHED x 2,
 UNSWITCHED x 1)
 PHONES

Power Supply
 (Two types)

USA model: AC 120V, 60Hz
 Worldwide models: AC 120V and 220V
 Switchable, 50/60Hz

Dimensions:

465 (W) x 102 (H) x 403 (D) mm
 18-5/16" x 4" x 15-7/8"

Weight:

7.8 kg, 17.2 lbs.

Specifications and features are subject to change without notice.