

DENON

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STEREO POWER AMPLIFIER

POA-1500

OPERATING INSTRUCTIONS

MODE D'EMPLOI

BEDIENUNGSANLEITUNG

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FOR ENGLISH READERS
POUR LES LECTEURS FRANCAIS
FÜR DEUTSCHE LESER

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To obtain optimum performance from your DENON POA-1500 Stereo Power Amplifier, read these instructions thoroughly and carefully.
 Retain these instructions for future use.

MAKE SURE THAT THE FOLLOWING ARE INCLUDED IN YOUR POA-1500 PACKAGE.

- 1 Operation manual 1 pc
- 2 Written guarantee 1 copy

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**WARNING: TO PREVENT FIRE OR SHOCK HAZARD,
 DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

**CAUTION: SAVE THIS BOX AND PACKING MATERIALS FOR RESHIP-
 MENT IF NECESSARY, WHEN RETURNING THE UNIT,
 PLEASE PACK UNIT AS PACKING INSTRUCTIONS TO AVOID
 COSTLY SHIPPING DAMAGE. FOR YOUR OWN PROTECTION
 PLEASE PACK CAREFULLY AS SHIPPING DAMAGES ARE
 NOT COVERED BY WARRANTY.**

"SERIAL NO. _____"

**PLEASE RECORD UNIT SERIAL NUMBER ATTACHED TO THE REAR OF THE
 CABINET FOR FUTURE REFERENCE"**

FEATURES

DENON has applied its advanced real-time audio technology to the development of ultra high-fidelity component filters designed to meet the rigorous requirements of the digital audio age. DENON's success in pursuing quality sound reproduction of music is vividly presented in its outstanding achievements in real-time audio.

The POA-1500 is a high-class power amplifier and a result of DENON's advanced audio engineering technology. The POA-1500 features an improved non-feedback circuit for extra high-fidelity sound reproduction with no deviation from finest original music.

INCORPORATING A HIGH EFFICIENCY, NON-FEEDBACK CIRCUIT, THE POA-1500 DRIVES SPEAKERS TO OPTIMAL PERFORMANCE

Employing a direct distortion servomechanism that operates by detecting distortion of the input audio signal waves, logical waveform distortion is reduced to almost 0. Also, the non-feedback circuit prevents audio signals from being fed back to the input terminal. Thus, the speakers are ensured greatly improved dynamic characteristics. With such an improvement, your speakers will provide an outstanding performance.

THE POA-1500 INCORPORATES A HEAVY-DUTY POWER CIRCUIT, THE HEART OF ANY AMPLIFIER

For positive, accurate voltage control and a stable SN ratio, a large Troidal transformer has been employed in the power circuit, the heart of any audio amplifier.

To withstand heavy-duty operation, the power circuit has been reinforced with a large-capacity block capacitor.

CAPACITOR-FREE SIGNAL CIRCUIT

A direct DC servo-actuated control circuit has been introduced to eliminate the large-capacity coupling capacitor from the signal circuit; until now, this capacitor has been installed to block the flow of direct current while allowing alternating or signal currents to pass.

By eliminating this capacitor the power circuit is made simpler and direct distortion is reduced for accurate reproduction of audio signals.

EQUIPPED WITH AN OUTPUT LEVEL METER FOR PEAK LEVEL INDICATION

The meter is capable of accurately indicating the output level both in "dB" and "Watt" over a wide range from minimum output to rated value.

SELF-DIAGNOSTIC FUNCTION-PROVIDED DISPLAY SUITABLE FOR DIGITAL AUDIO SYSTEMS

Simply by observing this display, you can make sure that the protective circuit is working; the display is centered within the front panel. The protective circuit referred to above has a self-diagnostic function, by which you can ensure the proper operation of the power amplifier as soon as the power switch is turned on. When the amplifier is ready for operation, the pilot lamp within the meter area lights and at the same time, the diagnostic indicator goes out.

DENONS OWN HIGH TECHNOLOGY PC BOARDS BOASTING OUTSTANDINGLY HIGH INSULATION

The POA-1500 comes with a newly developed polyester-based PC board; this board because of its superior insulation and resistance to moisture eliminates many of the problems of sound reproduction.

DENON's improved PC board provides greatly improved heat resistance. Our PC material exhibit an insulation quality approximately 3×10^3 larger than conventional types such as the paper, phenolic resin PC boards. This has been proven time and again in tests conducted by DENON. Also, with this new PC board, the power amplifier shows a remarkably increased signal transmission speed. In addition, all parts used in the POA-1500 amplifier undergo strict testing for electrolytic characteristics.

Every power amplifier assembled with these quality-proven parts then goes through another cycle of audio performance testing.

HIGH OPERABILITY CASING DESIGN

The power amplifier comes in a beautifully finished casing carefully designed for good operability.

PRIOR TO USE

Note the following before use.

FOR SAFE MOVING OF THE POWER AMPLIFIER SET

Be sure to disconnect the power plug of the power amplifier, as well as the connection cords from other audio components before moving the amplifier. Otherwise, the power and connection cords may break or cause shorting.

BEFORE TURNING ON THE POWER SWITCH

Make sure that all connections have been made properly, and that there is no abnormality in the connecting cords. Be sure to turn off the power switch before connecting or disconnecting any connection cord.

STACK NOTHING ON TOP OF THE AMPLIFIER

The top plate of the amplifier casing is provided with air vents for thermal radiation. If a tuner or the pre-amplifier is stacked over the amplifier set, the internal temperature of the pre-amplifier casing will rise abnormally. This can damage the power amplifier. Keep the power amplifier more than 10 cm away from the pre-amplifier to assure normal operation with optimal SN ratio.

KEEP THE OPERATION MANUAL FOR FUTURE REFERENCE

Be sure to keep this operation manual for future reference and the written guarantee as well. Do not throw it away even when you are once through with it. For immediate reference, fill the entry space (in the back cover) with necessary items.

PRECAUTIONS FOR PROPER APPLICATION

For the convenience of description, some of the illustrations herein are sometimes different from those of this model.

BE CAREFUL WITH HEAT

Avoid installing your power amplifier in a location where it will be exposed to direct sunlight or near a stove or other heating equipment.

For normal heat radiation, keep the set more than 10 cm away from the wall.

In case the power amplifier is set inside the rack, the power amplifier temperature may sometimes go up abnormally.

If the set temperature rises excessive, take a proper step to keep a good ventilation for the amplifier.

DUST AND DAMP ARE HARMFUL

Should the power amplifier be installed in a location subject to dampness or dust, the unit may develop problems. Do not place water or liquid containers on or near the unit. Accidental liquids or objects getting inside the amplifier casing will cause problems. If this should happen, contact your DENON dealer immediately.

HANDLE THE POWER CORD WITH CARE

Be sure to handle the power cord with care so that it will not be damaged. If the power cord is damaged, consult your DENON dealer immediately.

When disconnecting the power cord, do not pull it by holding the cord; hold the plug firmly and pull it out.

WHEN THE POWER AMPLIFIER IS NOT USED FOR A LONG TIME

When not using the PRA-1500 for an extended time be sure to disconnect the power cord from the outlet.

INSECTICIDES AND CHEMICAL CLEANERS WILL CAUSE CORROSION OF THE CASING

If the power amplifier casing is stained with insecticide, benzine or thinner, the paint coat will be discolored and the metal casing will corrode, and deform. To clean the casing exterior, use a piece of soft cloth but avoid using a chemical-soaked dustcloth.

DO NOT OPEN THE CASING

The casing contains no user serviceable parts. High voltage is present inside the casing. If your PRA-1500 has any problem, disconnect the power cord and contact your DENON dealer immediately.

KEEP THE AIR VENTS OF THE POWER AMPLIFIER CASING CLEAR

When a cassette case or the like is placed on the casing, the air vents fail to function, and the internal temperature will rise, sometimes causing problems in the power amplifier.

CONNECTIONS

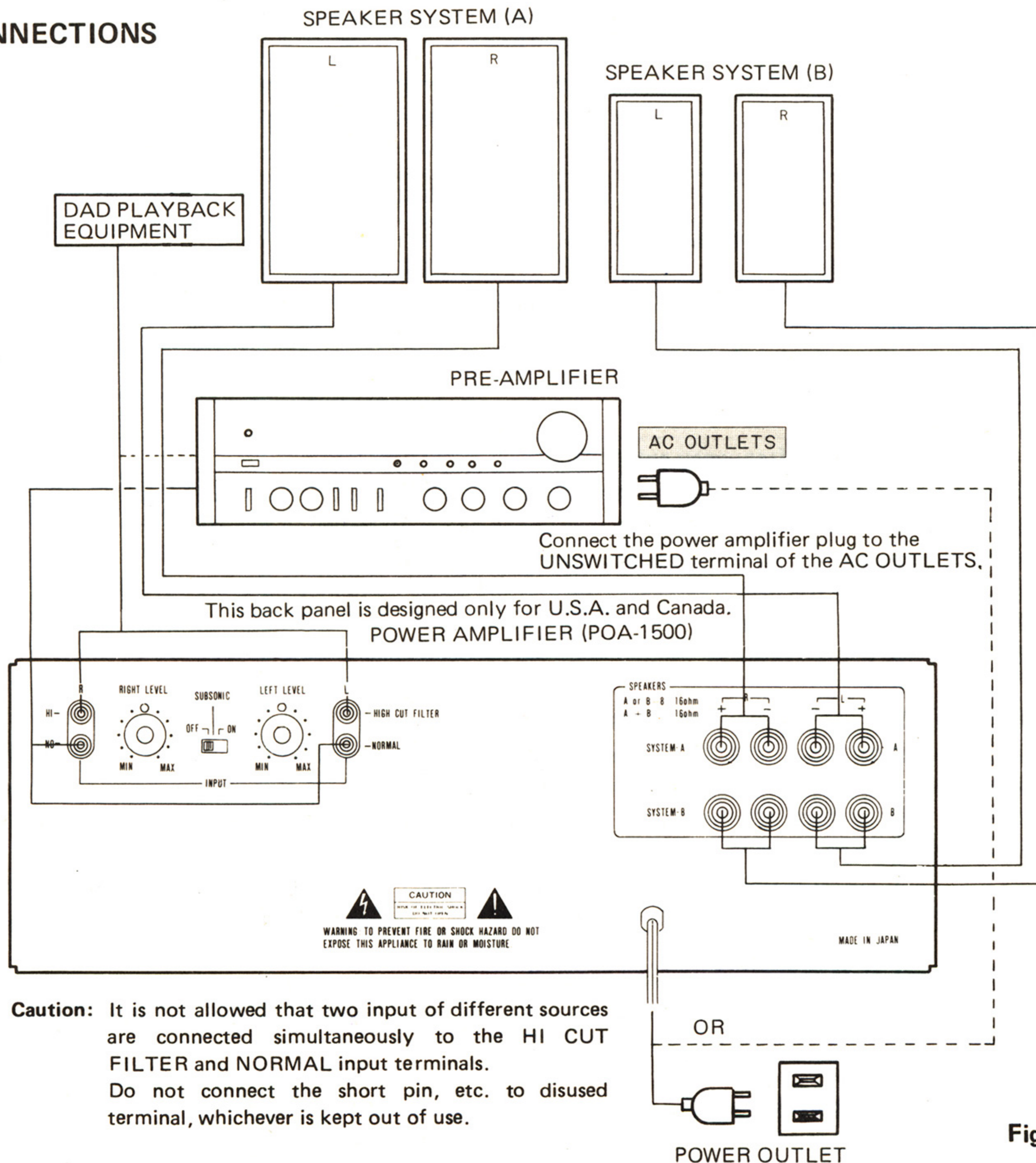


Fig. 1

PRECAUTIONS ON CONNECTION

- Do not insert the power cord into the socket before all the connections are completed.
- After confirming the right and left channels, connect L with L and R with R.
- Firmly insert the plug. An imperfect connection may cause noise.
- If a pin plug and power cord are bundled together or if a pin cord is placed near a power transformer, hum or noise may result.

BACK PANEL VIEW

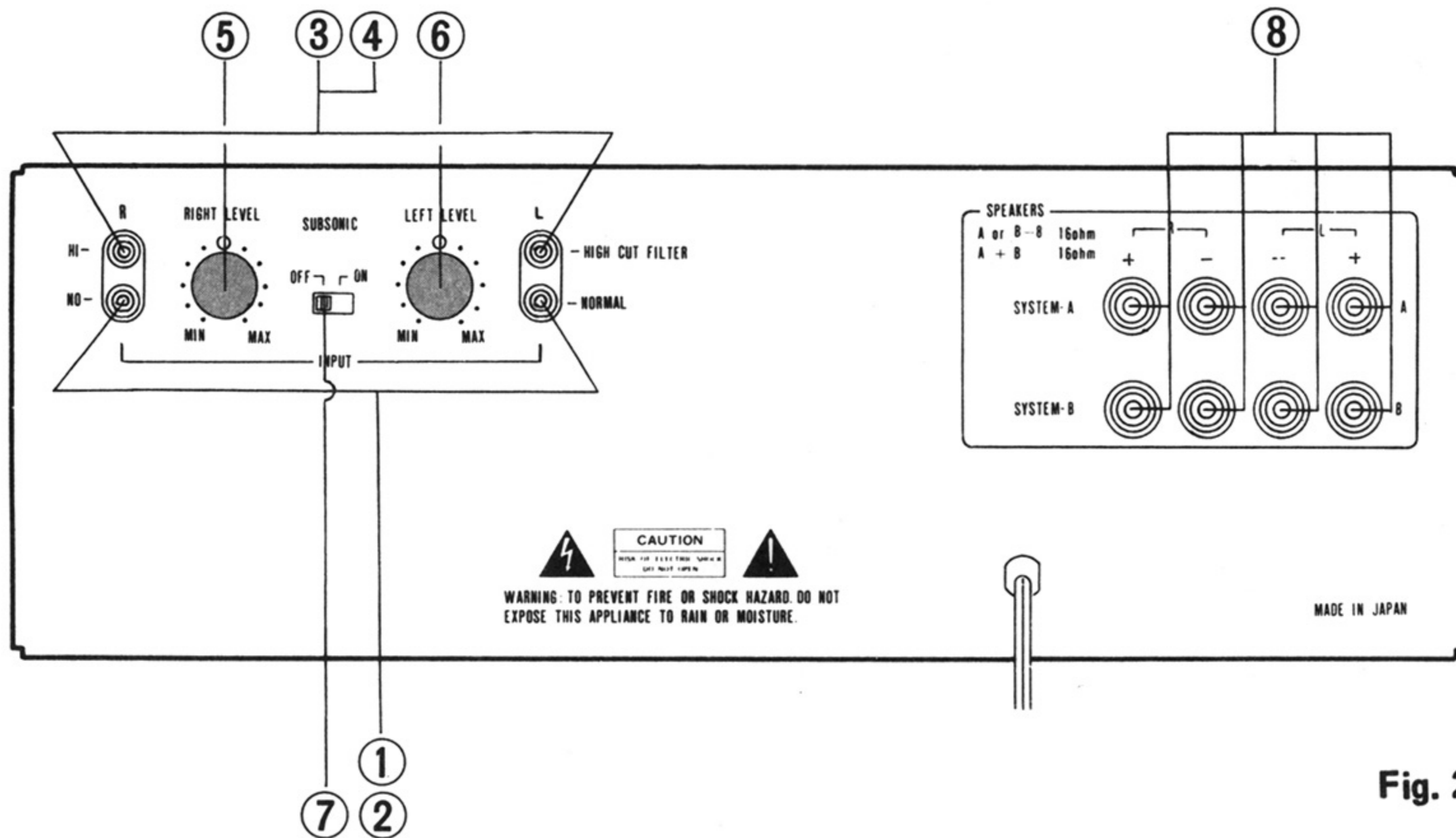


Fig. 2

(1) (2) INPUTS (Normal)

These terminals are used to connect the respective outputs of the pre-amplifier, channel divider, etc. The input rating for each is 1 V rms.

- (1) INPUT for the right-channel
- (2) INPUT for the left-channel

(3) (4) INPUT (for the high-frequency cutoff filters)

Connect the input of such a device as requires an audio equipment of a large output rating or the high-frequency filter to the INPUT terminals of the power amplifier.

This terminal has a $f_c = 40$ kHz 6 dB/oct. high frequency filter built in.

Therefore, noises of the high frequencies beyond the audio frequency band are cut off.

- (3) INPUT for the right-channel
- (4) INPUT for the left-channel

(5) RIGHT LEVEL (right-channel input level control)

The right-channel input level of the power amplifier is regulated by turning this knob. Normally, the knob is set to MAX in the clockwise direction. Be sure to turn this control knob fully counter-clockwise MIN or turn off the power switch before connecting the respective input cords to the terminals referred to above.

This knob also controls the level of multi-channel inputs. Featuring high performance by continuous input level regulation, precise level control is simplified. It is effective only for the right channel.

(6) LEFT LEVEL (left-channel input level control)

This knob is effective for the left channel only. By turning this knob, the left-channel input level can be regulated the same way as the RIGHT LEVEL.

(7) SUBSONIC (subsonic filter switch)

This is an on/off control switch for the subsonic filter. The subsonic filter used in this power amplifier is rated at 16 Hz, 6 dB/oct. Therefore, the filter eliminates ultra low-frequency distortion which cause speaker rumble. While the subsonic filter switch is on, the pilot lamp on the front panel is lit indicating that the subsonic filter is working.

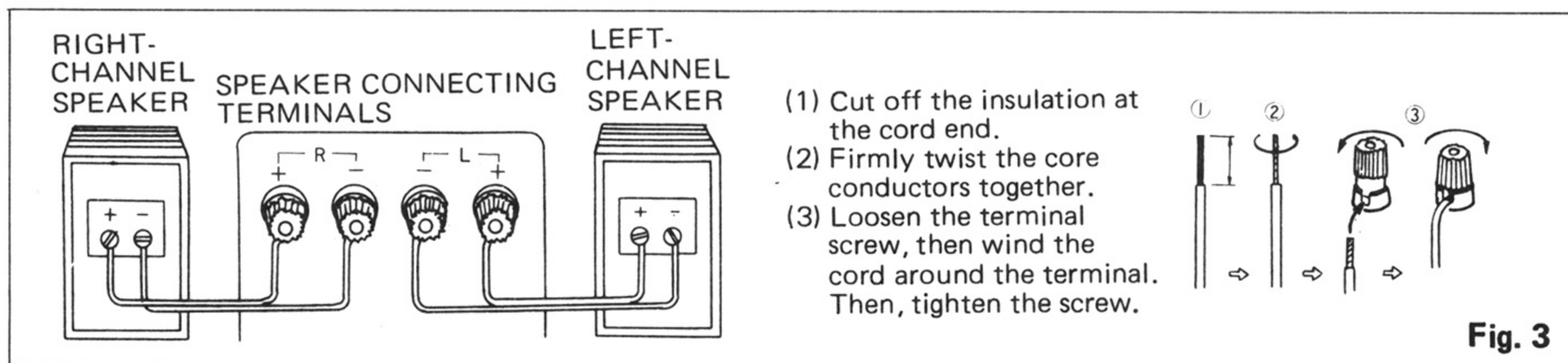
(8) SPEAKERS (speaker connecting terminals)

Two pair of speaker connecting terminals are provided; one set is for connecting the respective cords of the left-channel and right-channel speakers. Use the SYSTEM-A terminals for connecting one speakers system.

- Each speaker-terminal connection must be made with correct polarity. Do this by connecting the speaker cord marked either L or R to the L- or R-marked terminal. Incorrect connections will cause a decrease in separation between the left and right speakers, thus not allowing the directional identification of individual music instruments. The result is that you can no longer enjoy a sharp sense of changing phonic directions.
- Careful connections must be made. Make sure that no strands are accidentally touching the other terminal. Also be careful that each connection is not shorted out with the others.

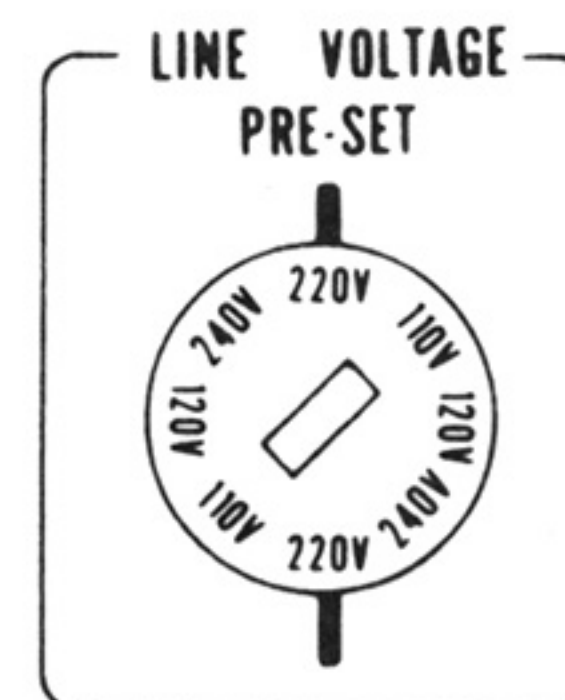
Allowable impedance of speaker

- When using SYSTEM-A or SYSTEM-B terminals separately, speakers with an impedance of 8 to 16 ohm can be connected.
- When both terminals are used at one time, the allowable impedance for speakers is 16 ohm. Do not use any speakers having an impedance below 16 ohm.



LINE VOLTAGE (Voltage select switch) (NOT INCLUDED IN SYSTEMS FOR EUROPE OR CANADA, U.S.A. USE)

- * It is possible to change the voltage by turning the VOLTAGE SELECTOR on the back panel using a screw driver.
- * Do not twist the VOLTAGE SELECTOR with abnormal force.
- * If the voltage switch is not easy, contact your local DENON dealer.



DESCRIPTION OF PARTS AND THEIR FUNCTION

FRONT PANEL VIEW

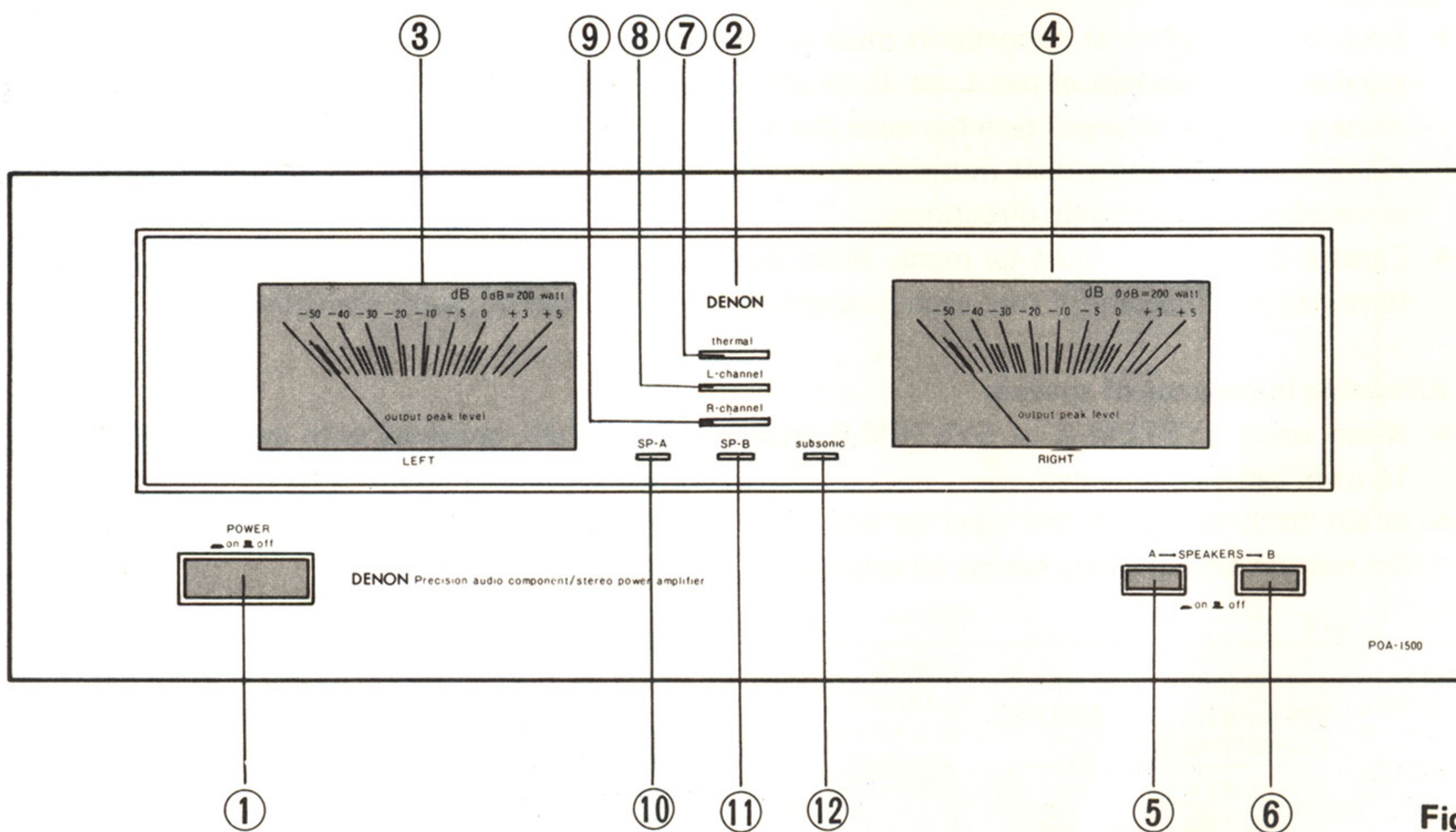


Fig. 4

- ① **POWER (power switch)**
When pressing the power switch pushbutton, the DENON mark at the display center lights. It goes out when the power is turned off.
- ② **POWER SOURCE INDICATOR (power supply pilot lamp)**
When the power supply is on, the DENON mark is lighted.
- ③ ④ **OUT PEAK LEVEL (peak output meter)**
These meters accurately indicate the peak levels of the left and right channels. They give a reading of 0 dB when the power amplifier is used with speakers having a total output of 200 W and with an impedance of 8 ohm. The meters have two different scales; one for dB reading and the other for wattage.
- ⑤ ⑥ **SPEAKERS (speaker selector switches)**
 - SPEAKERS-A: When the selector switch is set to this position, the speaker system connected to the "A" terminals goes into operation.
 - SPEAKERS-B: When the switch is set to this position, the speakers connected to the "B" terminal operate.
 - SPEAKERS-A/B: When set to this position, both sets of speakers operate simultaneously. Speaker ON indicator (10) and (11) show whether or not the speakers of each set are operating.

7 8 9 SELF-DIAGNOSIS (self-diagnostic result indicator lamps)

- (7): Thermal protector lamp
- (8): Left-channel output level indicator lamp
- (9): Right-channel output level indicator lamp

You can make sure if the thermal protector is working properly and whether or not the left-channel and right-channel output levels are correct, by simply observing these lamps after turning on the power switch. These lamps also help you to troubleshoot any problem during audio system operation. Normally, they light in a sequence of (7), (8), and (9) 2 to 3 seconds apart.

When your audio set is working normally, the meter lamp is on while (7), (8), and (9) are off.

The following is a list of possible problems that these lamps can detect.

- When the temperature inside the power amplifier casing goes up abnormally, (8) and (9) light with (7) off.
- If the DC offset voltage of the left channel is above the specified value, (7) and (9) are on while (8) is off.
- (7) and (8) are on with (9) off when the DC offset voltage of the right channel is more than the specified value.

When one of the problems listed above arises, turn off the power to the amplifier at once and troubleshoot the cause referring to the troubleshooting chart on page 9.

If you cannot find the reason with the chart, then there is a serious problem. In this case, please contact your local DENON dealer.

10 11 SPEAKERS-A/-B INDICATOR LAMPS

When SPEAKER-A switch is turned on (10) lights. (11) lights when SPEAKERS-B is switched on. Turning on A and B coincides with turning on (10) and (11).

12 SUBSONIC ON INDICATOR LAMP

This indicator lights when the SUBSONIC switch on the back panel is turned on.

BLOCK DIAGRAM

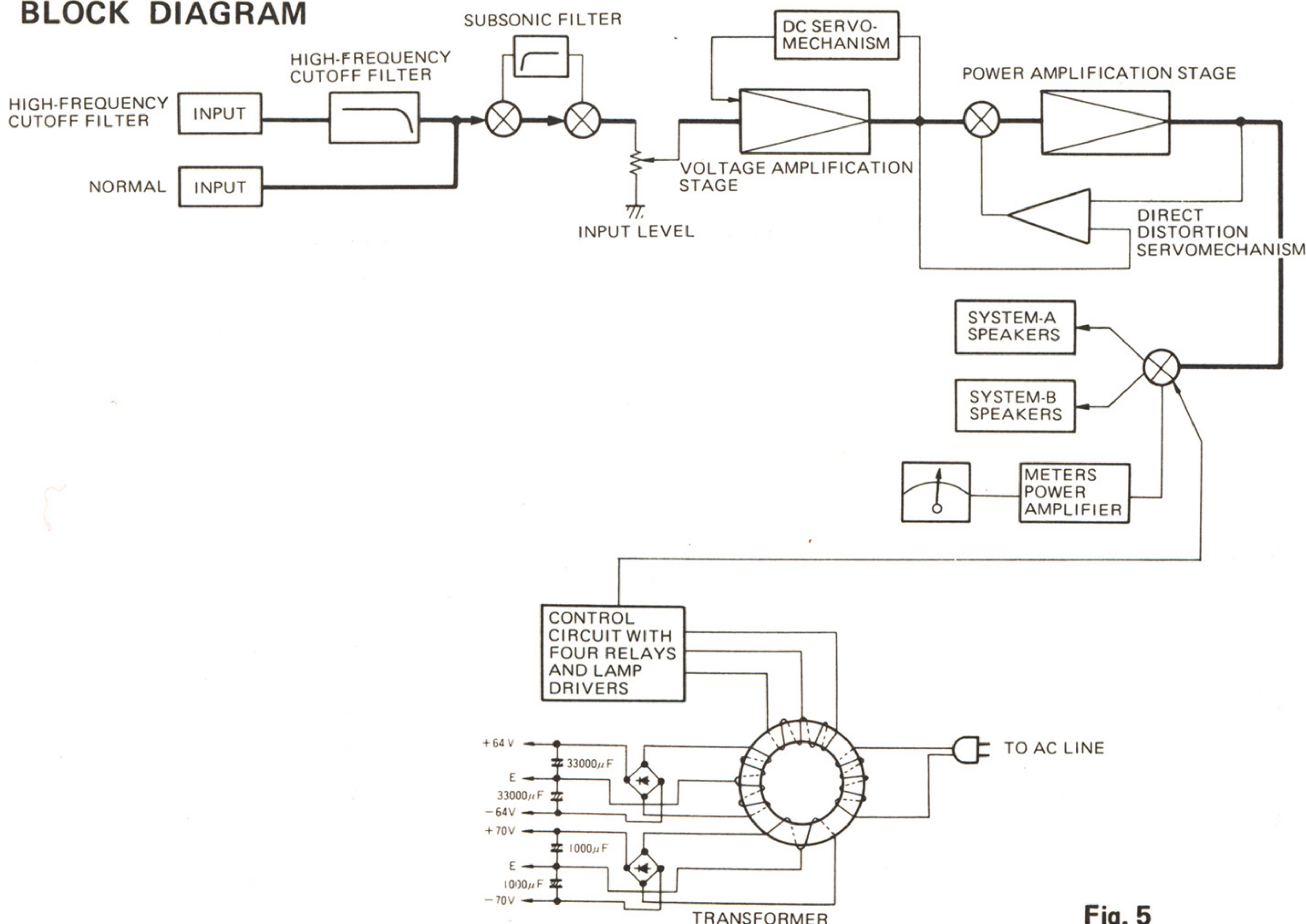


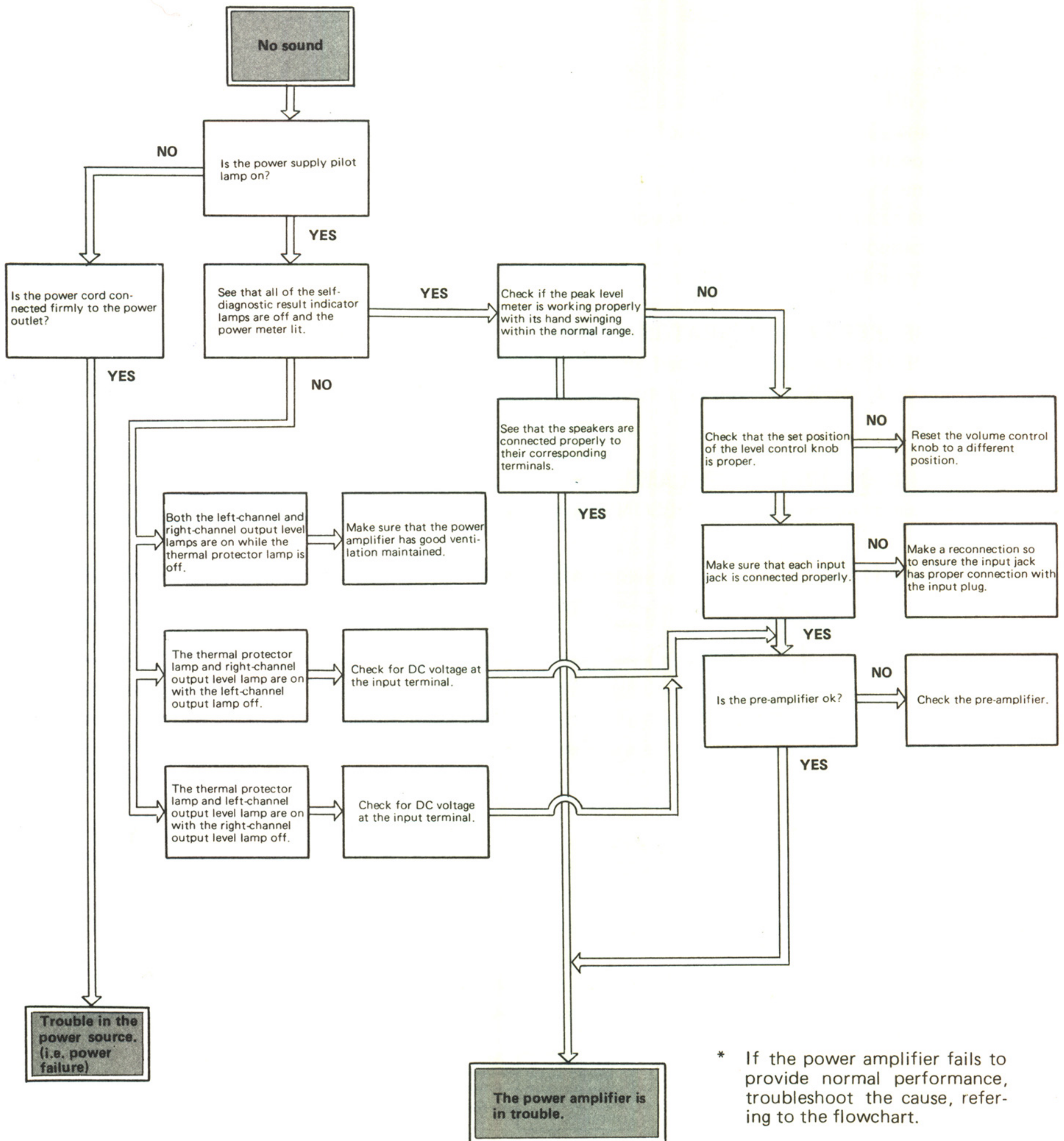
Fig. 5

TROUBLESHOOTING

Before troubleshooting, be sure your audio system is really in trouble or not.

1. Check all connections for correctness.
2. See that your audio system is being operated according to the instruction manual.
3. Check that the speakers and pre-amplifier are working properly.

In case the POA-1500 fails to provide normal performance, check it referring to the following troubleshooting chart. If the problem cannot be found using this chart, then contact your local DENON dealer.



* If the power amplifier fails to provide normal performance, troubleshoot the cause, referring to the flowchart.

Fig. 6

SPECIFICATIONS

POWER AMPLIFIER

Rated Output Power: (when both channel are used)

20 Hz to 20 kHz 150 W + 150 W
(Speaker impedance 8 ohm)
20 Hz to 20 kHz
(Speaker impedance 4 ohm) U.S.A. and MULTI
1 kHz 150 W + 150 W (IEC)
(Subject to change by temperature test)

Total Higher Harmonic Distortion:

150 Watts per channel minimum RMS,
both channel driven at 8 ohm from
20 Hz ~ 20 kHz no more than
0.005% total harmonic distortion. (U.S.A.)
0.002% (at the rated output provided/-3 dB)
speaker impedance assumed to be 8 ohm

Cross Modulation Distortion:

7 kHz/60 Hz: 1/4, less than 0.0015% (at the time of operation
with the power amplification equivalent to the rated output)
speaker impedance assumed to be 8 ohm

Output Frequency Bandwidth:

5 Hz ~ 80 kHz (IHF)
(IHF, T.H.D 0.015%), speaker impedance assumed to be 8 ohm

Transmission Characteristic:

1 Hz ~ 300 kHz $\begin{matrix} +0 \\ -3 \end{matrix}$ dB (at an output of 1 W)

Input Level:

1 V (NORMAL)
1.41 V (HIGH-FREQUENCY CUTOFF FILTER IN)

Input Impedance:

18 k ohm (NORMAL IN)
25 k ohm (HIGH CUT FILTER IN)

Output Impedance:

0.1 ohm (1 kHz)

SN Ratio (IHF "A"):

123 dB

Hi Cut Filter:

40 kHz 6 dB/oct (FILTER IN)

Subsonic Filter:

16 Hz 6 dB/oct

Slew Rate:

± 400 V/ μ sec

PEAK LEVEL METER OPERATION CHARACTERISTIC

Type of Indication:

Peak output level indication

Range of Indication:

-50 dB ~ +5 dB
0 dB = 200 W/8 ohm

Frequency Response:

10 Hz ~ 100 kHz ± 3 dB impedance assumed

OUTPUT TERMINALS

SPEAKERS: A or B Load 8 - 16 ohm (IEC)
A + B Load 16 ohm (IEC)

SPEAKERS: A or B Load 4 ohm to 16 ohm, U.S.A. and MULTI
A + B Load 8 - 16 ohm

SELF-DIAGNOSTIC FUNCTION

Abnormal temperature detection and problem indication
Left-channel and right-channel abnormal output level check
and indication

OTHERS

Power Source:

AC 120 V, 60 Hz
or AC 110/120/220/240 V, 50 Hz
or AC 220 V, 50 Hz
or AC 240 V, 50 Hz

Power Consumption:

300 W (IEC)
380 W (U.S.A. and MULTI)

Dimensions:

470 x 168 x 418
(including control knobs, and stand)

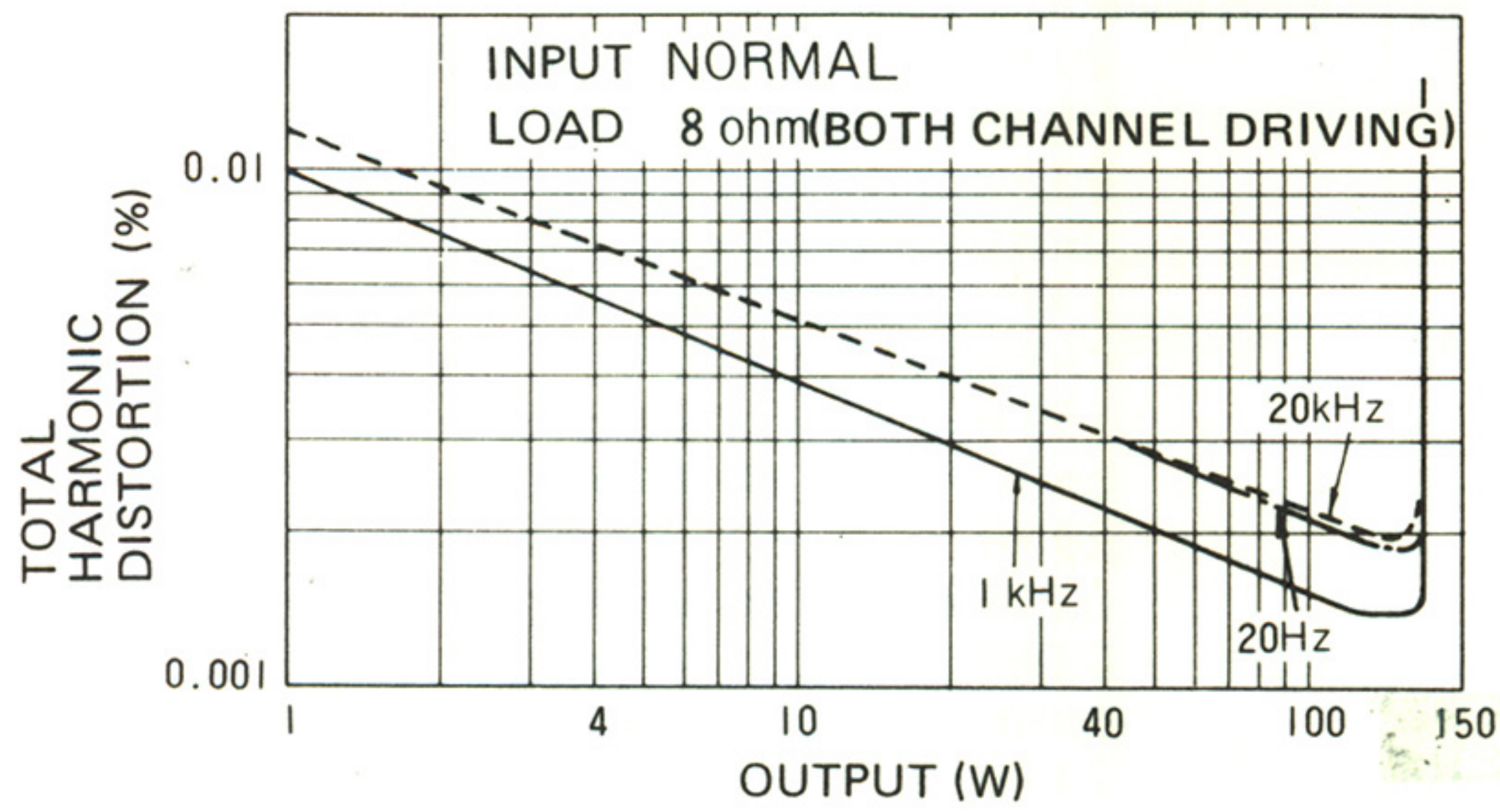
Weight:

20 kg

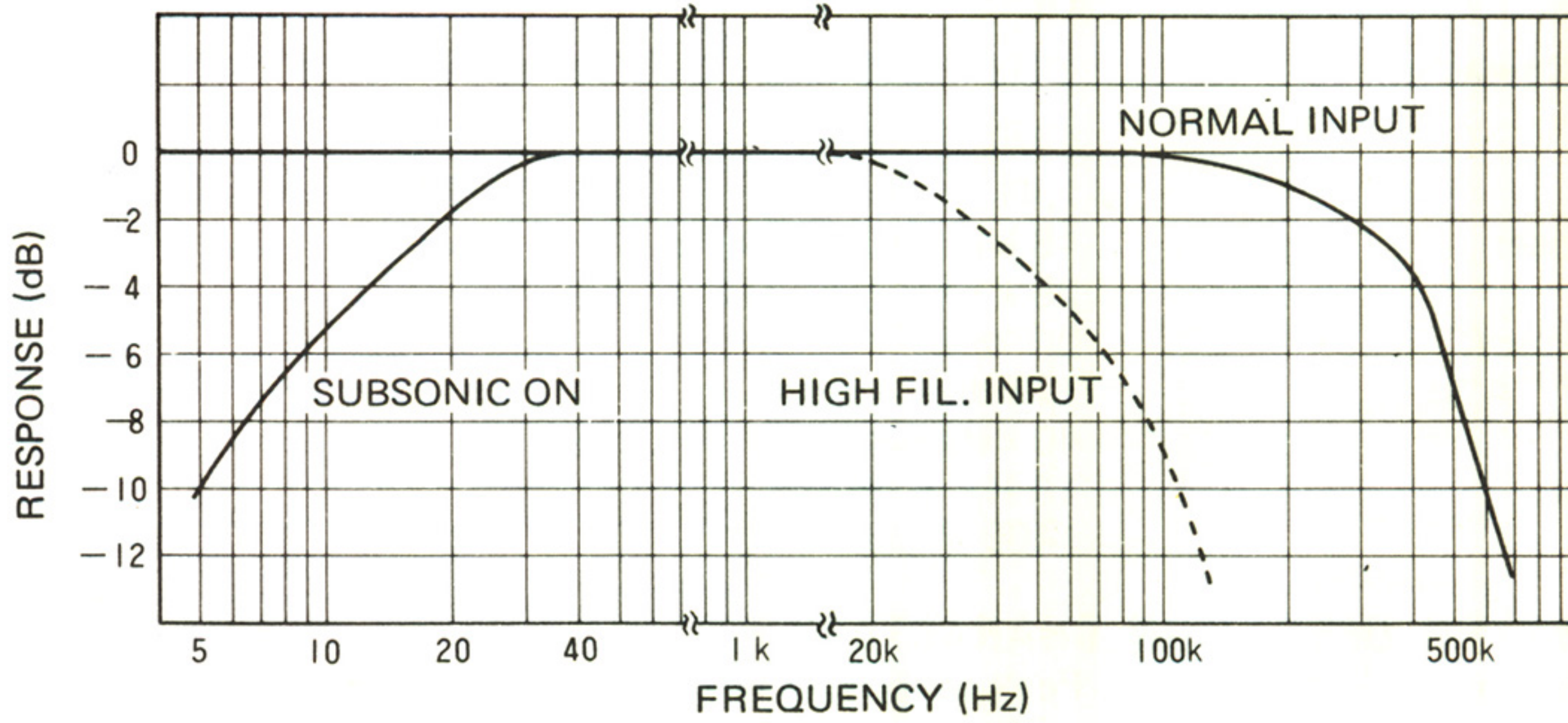
* POA-1500 design and specifications are subject to change without notice.

OPERATIONAL CHARACTERISTIC CURVES

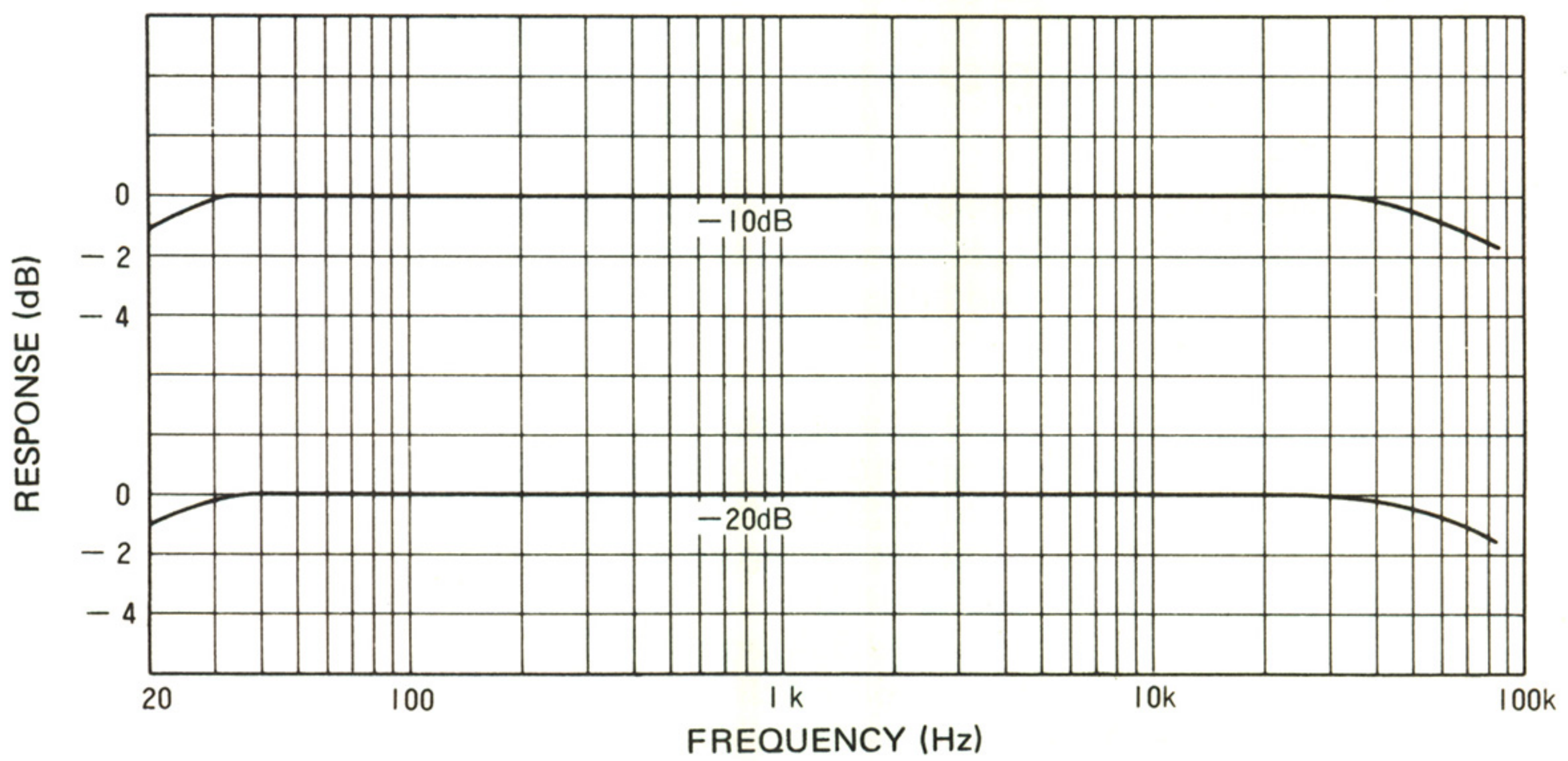
Total harmonic distortion factor



Transmission characteristic (subsonic filter operational characteristic)



Frequency response of peak level meter



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NIPPON COLUMBIA COMPANY, LTD.

No. 14-14, AKASAKA 4-CHOME, MINATO-KU, TOKYO, JAPAN
Telephone: Tokyo (584) 8111
Cable: NIPPONCOLUMBIA TOKYO Telex: JAPANOLA J22591