

PROTON

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AP-2000 STEREO PREAMPLIFIER
OWNER'S MANUAL

PROTON

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PROTON CORPORATION

5630 Cerritos Avenue
Cypress, CA 90630
(714) 952 6900

PROTON LIMITED WARRANTY

LENGTH OF WARRANTY

This warranty begins on the date of original purchase.

PROTON audio products carry a one year parts and labor warranty.

WHO MAY ENFORCE THE WARRANTY

This warranty may be enforced only by the original purchaser.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as specified below, this warranty covers all defects in material and workmanship in this product. The following are not covered by the warranty:

1. Damage resulting from accident, misuse, abuse, neglect, electrical surges, lightning or other acts of God.
2. Damage resulting from failure to follow instructions supplied with the product.
3. Damage occurring during shipment of the product (claims must be presented to the carrier).
4. Damage resulting from repair or attempted repair by anyone other than Proton or an authorized Proton service center.
5. Replacement of batteries.
6. Installation or removal charges, or damage caused by improper installation or removal.
7. Damage due to any unit which has been altered or on which the serial number has been defaced, modified or removed.

WHAT WE WILL PAY FOR

We will pay all labor and material expenses for items covered by the warranty. Payment of shipping charges is discussed in the next section of this warranty.

HOW YOU CAN GET WARRANTY SERVICE

Your unit must be serviced by an authorized Proton service center in the United States. If you are unable to locate an authorized Proton service center in your area, please contact us. If you would like to know whether an authorized

Proton service center in your area offers such service, you also should contact us.

You must pay any shipping charges if it is necessary to ship the product for service. However, if the necessary repairs are covered by the warranty, we will pay the return shipping charges to any destination within the United States.

Whenever warranty service is required, you must present the original dated sales slip and this warranty card as proof of warranty coverage.

LIMITATION OF IMPLIED WARRANTIES

Any implied warranties, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

Proton's liability for any defective product is limited to repair or replacement of the product, at Proton's option. PROTON SHALL NOT BE LIABLE FOR:

1. DAMAGES BASED UPON INCONVENIENCE, LOSS OF USE OF THE PRODUCT, OR COMMERCIAL LOSS; OR
2. ANY OTHER DAMAGES, WHETHER INCIDENTAL, CONSEQUENTIAL OR OTHERWISE.

SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS AND/OR DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS AND EXCLUSIONS MAY NOT APPLY TO YOU.

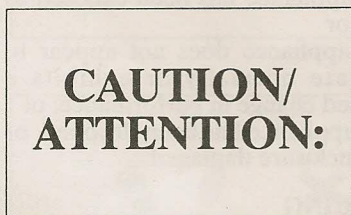
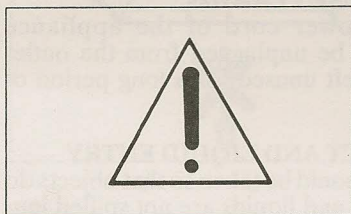
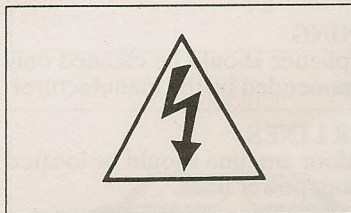
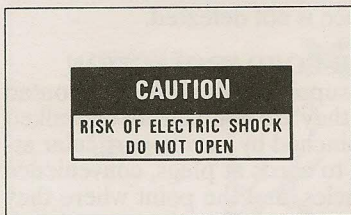
HOW STATE LAW RELATES TO THIS WARRANTY

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

MODEL: AP-2000

SERIAL NO:

WARNING



WARNING: to reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.

CAUTION: To prevent the risk of electric shock, do not remove cover (or back); no user serviceable parts inside. Refer servicing to qualified service personnel.

The lightning flash with arrow-head 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.

An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn. Carts and stands—The appliance should be used only with a cart or stand that is recommended by the manufacture.

***TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.**

***POUR PRÉVENIR LES CHOCS ÉLECTRIQUES NE PAS UTILISER CETTE FICHE POLARISÉE AVEC UN PROLONGATEUR, UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ÊTRE INSÉRÉES À FOND SANS EN LAISSER AUCUNE PARTIE À DÉCOUVERT.**

SAFETY INSTRUCTIONS

READ INSTRUCTIONS

All the safety and operating instructions should be read before the appliance is operated.

RETAIN INSTRUCTIONS

The safety and operating instructions should be retained for future use.

HEED WARNINGS

All warnings on the appliance and in the operating instructions should be adhered to.

FOLLOW INSTRUCTIONS

All operating and use instructions should be followed.

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, etc.

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.

HEAT

The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliance (including amplifiers) that produce heat.

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.

GROUNDING OR POLARIZATION

Precautions should be taken so that the

grounding or polarization means of an appliance is not defeated.

POWER-CORD PROTECTION

Power-supply cords should be routed so that they are not likely to be walked on or pinched by paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

CLEANING

The appliance should be cleaned only as recommended by the manufacturer.

POWER LINES

An outdoor antenna should be located away from power lines.

NON-USE PERIODS

The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

OBJECT AND LIQUID ENTRY

Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

DAMAGE REQUIRING SERVICE

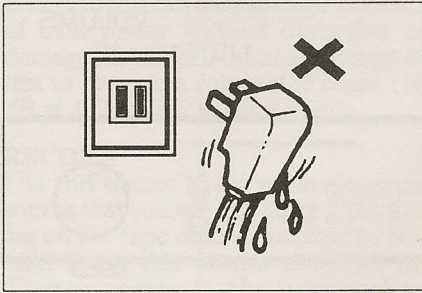
The appliance should be serviced by qualified service personnel when:

- The power-supply cord or the plug has been damaged; or
- Objects have fallen, or liquids have spilled into the appliance; or
- The appliance has been exposed to rain; or
- The appliance does not appear to operate normally or exhibits a marked change in performance; or
- The appliance has been dropped, or the enclosure damaged.

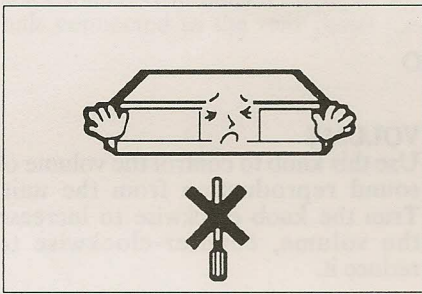
SERVICING

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.

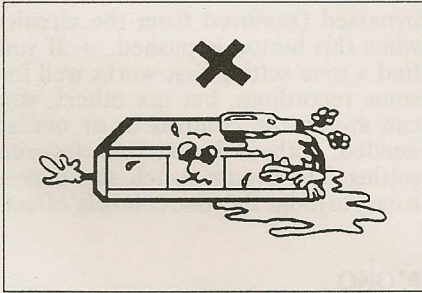
SUGGESTIONS FOR SAFETY



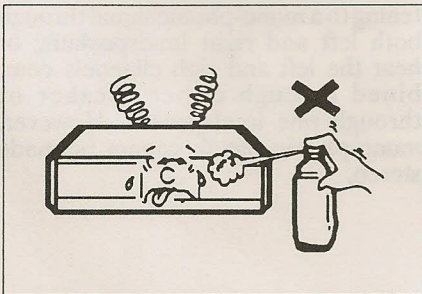
Do not connect or remove power cord with wet hands. This will avoid possibility of electric shock.



Do not open the cover. There is possibility of serious electric shock.

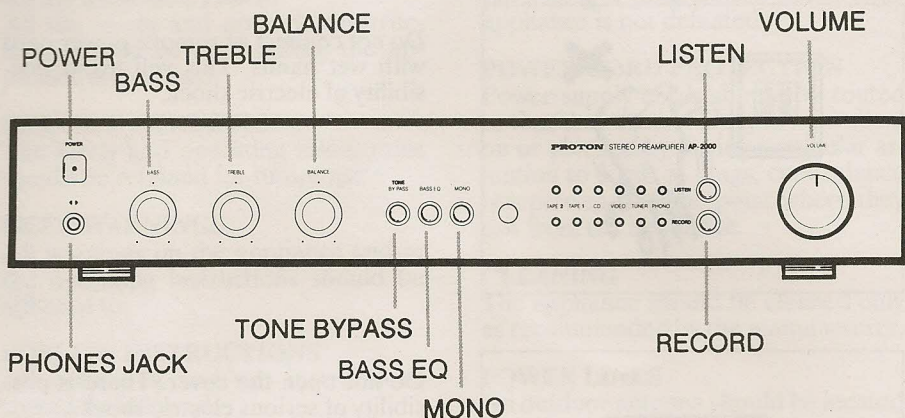


Do not switch on the unit when liquid is spilled on it. Do not attempt to service it yourself. Consult your nearest dealer or service station immediately.



Do not use alcohol, paint thinner or any other chemicals to clean the unit. Accidental damage to the finish may result.

OPERATING INSTRUCTIONS



POWER ON/OFF

Press the power switch to turn on the unit. When the power is on, the power stand-by indicator in the center of the switch will turn OFF.

BASS

It is recommended to leave the bass control at the normal, 12 o'clock position. Turn the knob clockwise to increase the low frequencies, or turn it counter-clockwise to reduce the low frequencies.

TREBLE

It is recommended to leave the treble control at the normal, 12 o'clock position. Turn the knob clockwise to increase the high frequencies, or turn it counter-clockwise to reduce the high frequencies.

BALANCE

Normally the balance control should be kept at its center, 12 o'clock position. Most recordings do not require the use of balance control. If the sound from the left loudspeaker or headphone is louder, turn the knob clockwise and the right loudspeaker or headphone will sound louder to compensate for the uneven level, or vice versa.

VOLUME

Use this knob to control the volume of sound reproduction from the unit. Turn the knob clockwise to increase the volume, counter-clockwise to reduce it.

TONE BYPASS

The tone controls are electrically bypassed (removed from the circuit) when this button is pushed. + If you find a tone setting that works well for some recordings, but not others, you can switch the controls in or out as needed, without losing your favorite setting. The bypass switch also makes it easy to judge the tone controls' effect.

MONO

Normally this switch should be set to stereo. Set this switch to mono for listening to a mono-phonetic signal through both left and right loudspeakers, or hear the left and right channels combined through either speaker or through one loudspeaker. However, mono-phonetic signals cannot be made stereo.

BASS EQ

Although compact speakers do not generally produce a lot of low bass, many models can handle large amounts of bass power without distortion or damage. BASS EQ takes advantage of this to provide a substantial boost (10 dB at 40 Hz) at low frequencies.

RECORD

Use this button to select the program source that you want to make a recording on the tape deck connected to this unit. Press this button until the indicator points to the appropriate source of your choice. Each source selection corresponds to the input signals connected to the rear panel ter-

minals of the same name. Recordings can be made from one source while you listen to another program source.

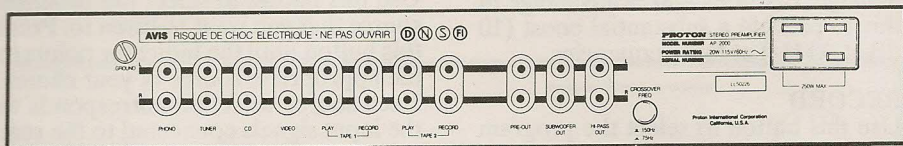
LISTEN

Use this button to select the program source that you want to listen to. Press this button until the indicator points to the appropriate source of your choice. Each source selection corresponds to the input signals connected to the rear panel terminals of the same name.

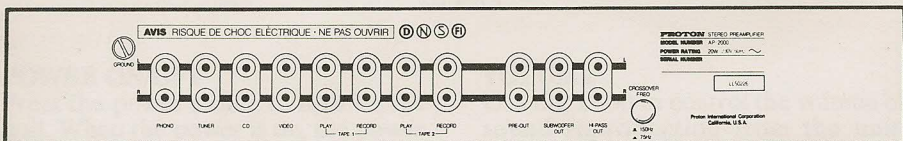
PHONES JACK

For listening through Stereo headphones, insert the headphone plug into the headphone jack.

REAR PANEL CONTROLS



U.S.A. and Canadian Models



European and Asian Models

⚠ NOTE:

When connecting your system components make sure that all power is off.

GROUND (Screw terminal)

Connect the ground wire from your turntable here. This connection can be important in minimizing AC hum.

PHONO (L,R)

Connect the cables marked L and R from your phonograph turntable here. Don't forget to connect the GROUND wire (as mentioned above) if one is provided.

TUNER (L,R)

Connect the L and R outputs from your tuner here.

VIDEO (L,R)

Connect the L and R audio outputs from your VCR or video disc player here.

CD (L,R)

Connect the L and R outputs from your CD player here.

TAPE 1 PLAY

Connect the L and R outputs from your tape deck here.

TAPE 1 RECORD

Connect the L and R inputs of your tape recorder here.

TAPE 2 PLAY (L,R)

Connect the L and R outputs from your second tape deck here.

TAPE 2 RECORD (L,R)

Connect the L and R inputs of your second tape recorder here.

PRE-OUT

These connections allow you to add signal processors such as equalizers or surround sound to your system, or connect the L and R inputs from your power amplifier here.

SUBWOOFER OUT

Connect this outputs to the subwoofer power amplifier to drive your sub-

woofer speaker, or connect to the subwoofer speaker with a built-in amplifier.

HIGH PASS OUT

Connect this R outputs to the main power amplifier to drive your main speakers when you use the subwoofer out. The volume control changes the level of both (subwoofer and high pass out) signal; there is no independent control of subwoofer level or high pass level.

CROSSOVER FREQ. 150Hz/75Hz

Press this button to set the crossover frequency of subwoofer at 150Hz or 75Hz. Broadly speaking, the 150Hz setting is for smaller subwoofer speakers that don't have much output below 100Hz. The 75Hz setting is for conventional full range subwoofer speakers.

TECHNICAL SPECIFICATIONS

Output Level 20Hz~20KHz @ THD = 0.1%

- a. Pre-Out9Vrms
- b. Hi-Pass/subwoofer9Vrms

THD 20Hz~20KHz @ Output = 1Vrms.....0.02%

Frequency Response 20Hz~20KHz + -0.5dB

Input Sensitivity

- a. Phono (MM)2.5mV
- b. Tuner/CD/Tape/Video150mV

Phono

- a. Input Resistance (MM)47K
- b. Overload @ 1KHz, THD = 0.1%148mV
- c. THD @ 4.5V Output @ 1KHz0.02%
- d. RIAA Accuracy..... + -0.5dB

Residual Noise (Flat).....0.03mV

Signal to Noise Ratio (A - Weighted)

- a. Phono (MM)75dB
- b. Tuner/CD/Tape/Video95dB

Channel Crosstalk (10KHz).....60dB

Function Crosstalk (10KHz).....75dB

Bass Boost/Cut (100Hz)..... + -9dB

Treble Boost/Cut (10KHz)..... + -9dB

Bass EQ (75Hz).....+3dB

Power Consumption

115V,60Hz20W

230V,50Hz20W

Dimensions

WxHxD in inches161/2x31/8x141/8

WxHxD in mm420x80x360

Weight

Net Weight.....4.4Kg/9.7Lbs

Shipping Weight.....5.8Kg/12.8Lbs

PROTON CORPORATION

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Parts No.: 21-4306