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PERROTTON

Audio

P1100
OWNER'S MANUAL

P1100

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



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

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.



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.

CAUTION/ATTENTION: *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

① Read Instructions- All the safety and operation instructions should be read before the unit is operated.

② Retain Instructions- The safety and operating instructions should be retained for future use.

③ Heed Warnings- All warnings on the unit 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 unit should not be used near water. For example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, near a swimming pool, etc.

⑥ Ventilation- The unit should be placed so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be placed on a bed, sofa, rug, or similar surface that may block the vents; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the vents.

⑦ Heat- The unit should be placed away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

⑧ Power Sources- The unit should be connected to a power supply only of the type described in the operating instructions or as marked on the unit.

⑨ Grounding or Polarization- Precautions should be taken so that the grounding or polarization means of this unit is not defeated.

⑩ Power- Cord Protection- Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they connect to the appliance.

⑪ Cleaning- The unit should be cleaned only as recommended by the manufacturer.

⑫ Power Lines- An outdoor antenna should be located away from power lines.

⑬ Nonuse Periods- The power cord of the unit should be unplugged from the outlet when left unused for a long period of time.

⑭ Object and Liquid Entry- Care should be taken so that objects do not fall and liquids are not spilled into the openings in the enclosure.

⑮ Damage Requiring Service- The unit 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 unit; or
- C) The unit has been exposed to rain; or
- D) Does not appear to operate normally or exhibits a marked change in performance; or
- E) Has been dropped, or the enclosure damaged.

⑯ Servicing- The user should not attempt to service the unit beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

P1100

TABLE OF CONTENTS

1	INTRODUCTION
1	PROTECTION FROM DAMAGE OR THEFT
1	YOUR AUDIO SYSTEM
2	REAR PANEL CONNECTIONS AND CONTROLS
8	FRONT PANEL CONTROLS
12	MAINTENANCE
13	PERFORMANCE SPECIFICATIONS

P1100

INTRODUCTION

The Proton P1100 is a preamplifier that has been carefully developed with complete emphasis on the quality of sound. Whether adding to an existing audio or video system or as part of an

all new system, you are certain to notice the clarity, detail and depth of performance which make Proton products among the best in the world -- regardless of price.

PROTECTION FROM DAMAGE OR THEFT

The best way to transport your Proton P1100 is in its original shipping carton. Once you have unpacked the unit, set aside and save the carton and packing materials in case the unit ever requires shipping.

The serial number of your Proton P1100 is located on the unit's rear panel. Record it below for your permanent records. This will aid in the unit's recovery if it is ever lost or stolen.

SERIAL NUMBER:

YOUR AUDIO SYSTEM

Every circuit in your Proton P1100 is devoted to the precise reproduction of sound. As a result, it can do a remarkable job of processing complex musical signals and delivering them to your loudspeakers without adding any noise or distortion of its own. However, it cannot improve upon the signal passed to it by external

program sources (tuner, turntable, tape deck, etc.); nor can it force strong bass and crisp highs from speakers of marginal quality.

While we recommend the inclusion of other Proton audio (and video) products in your system, your P1100 is designed to work well with any of the high performance equipment available today.

P1100

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REAR PANEL CONNECTIONS AND CONTROLS

U. S. A. Model

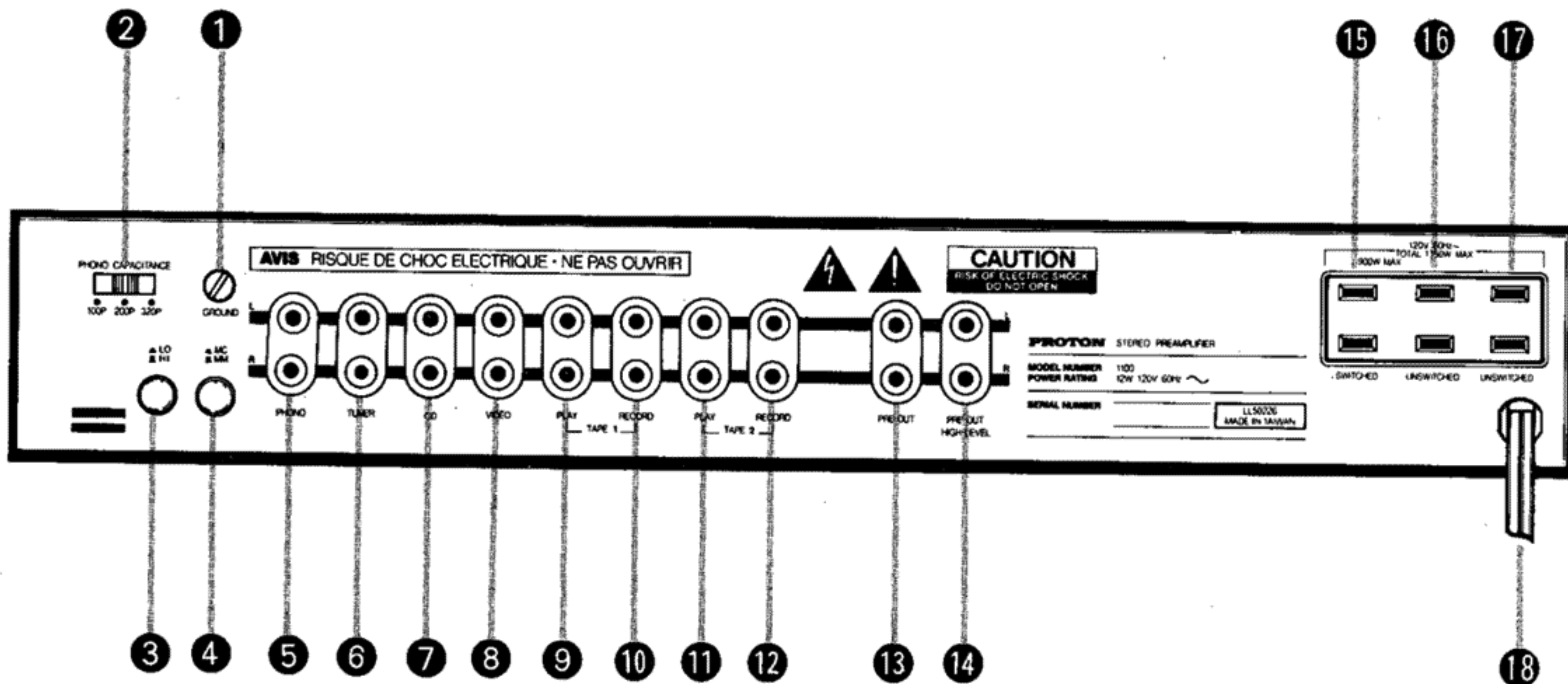
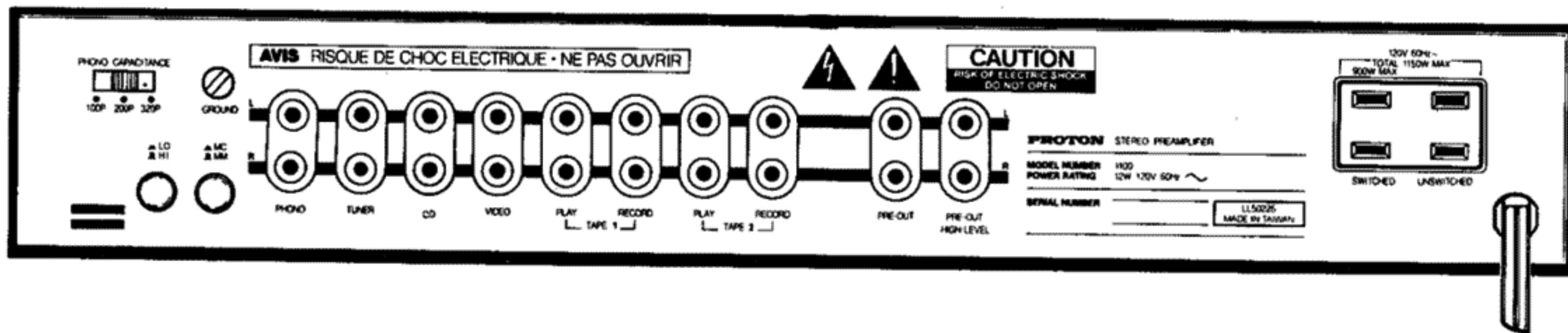


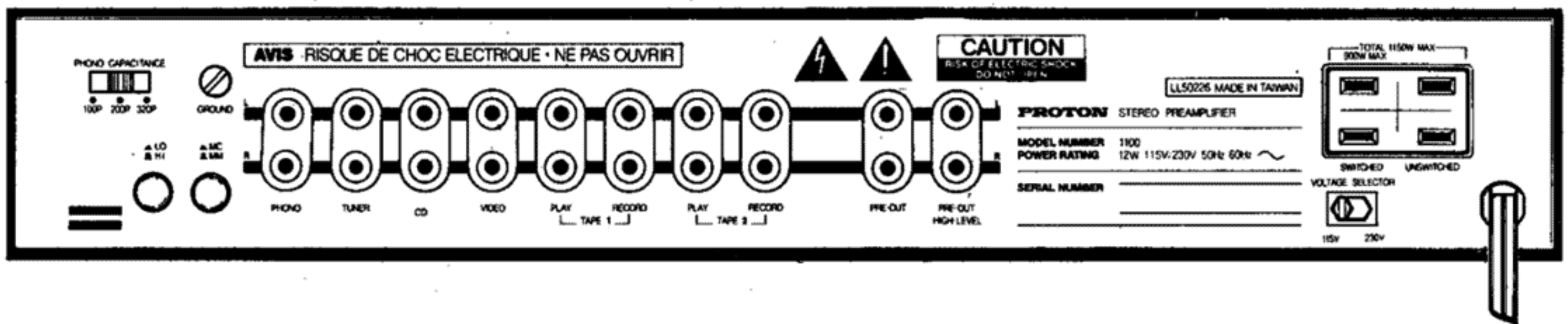
FIG. 1

Canadian Model

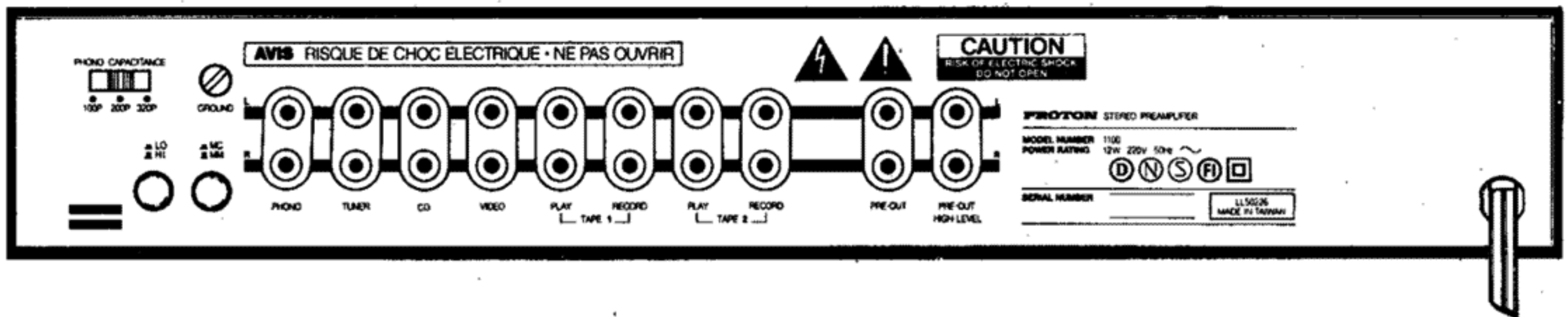


P1100

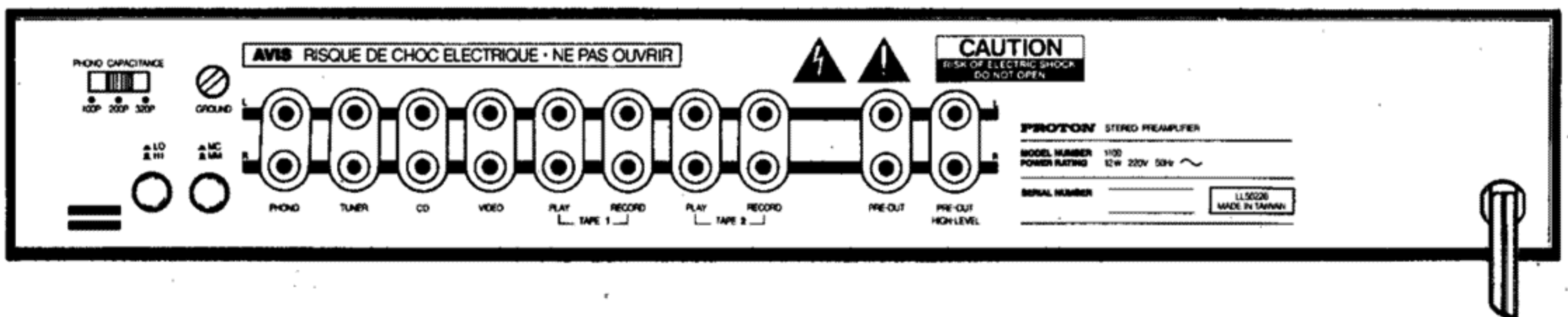
General Model



European Model



British and Australian Models



P1100

PHONO PREAMP CONTROLS ②③④

Your Proton P1100 can accept and process signals from almost any type of high quality phono cartridge. There are three rear panel controls which are used to program the P1100 for optimum performance with your particular cartridge. These are the PHONO CAPACITANCE switch (2), the MC LO/HI button (3) and the MC/MM button (4).

The MC/MM button (4) changes the input sensitivity as well as the gain of the internal MC/MM preamplifier to match the output of a moving coil (MC) or moving magnet (MM) cartridge. The MC button (3) further adjusts the phono preamplifier to meet the requirements of specific types of moving coil cartridges.

Whenever you are using a moving coil cartridge, the MC/MM button should be pushed to its "in" position. Push the button until it clicks in. Then set the MC button (3) according to the output specification of your cartridge. If yours is a low output moving coil cartridge (1.0mV or lower), the button belongs in its LO position. Push the button until it clicks in. If you are using a high output moving coil cartridge (above 1.0mV), the button should be in its HI position. Push the button so that it is in the out position. (Always refer to the specification sheet for your particular cartridge).

For other types of cartridges -- moving magnet, moving flux, moving iron (variable reluctance), or induced magnet -- the MC/MM button (4) should be in its "out" position.

The PHONO CAPACITANCE switch (2) adjusts the high frequency equalization of the phono preamplifier.

The best way to select the proper setting for this switch is to check your cartridge's specification sheet for its "recommended loading". Then put the PHONO CAPACITANCE switch on the closest number (100P, 200P, or 320P). If you are unable to locate the capacitance of your particular cartridge, simply try all of the settings until you determine which sounds best to you.

Typically, when the capacitance is too low the upper-midrange will be softened and the response at the highest frequencies will be peaky, leading to edgy violin tone and increased surface noise. Too high a value of capacitance will bring the upper-midrange forward while rolling off the extreme highs.

If you are using a low-inductance pickup or a moving-coil cartridge, then the setting of the Capacitance Selector is unimportant. But with many high-inductance magnetic pickups the capacitance setting will audibly alter the sound from the pickup.

PHONO INPUT ⑤

Plug the signal jacks (RCA-type) of your turntable into the gold-plated PHONO input terminals. CAUTION: WHENEVER REAR PANEL CONNECTIONS (ESPECIALLY TO TURNTABLE) ARE BEING MADE, YOUR P1100 AND ASSOCIATED EQUIPMENT MUST BE POWERED OFF. Be careful to connect the left channel phono output to the top (L) input terminal and the right channel phono output to the lower (R) input terminal.

Next, connect your turntable's

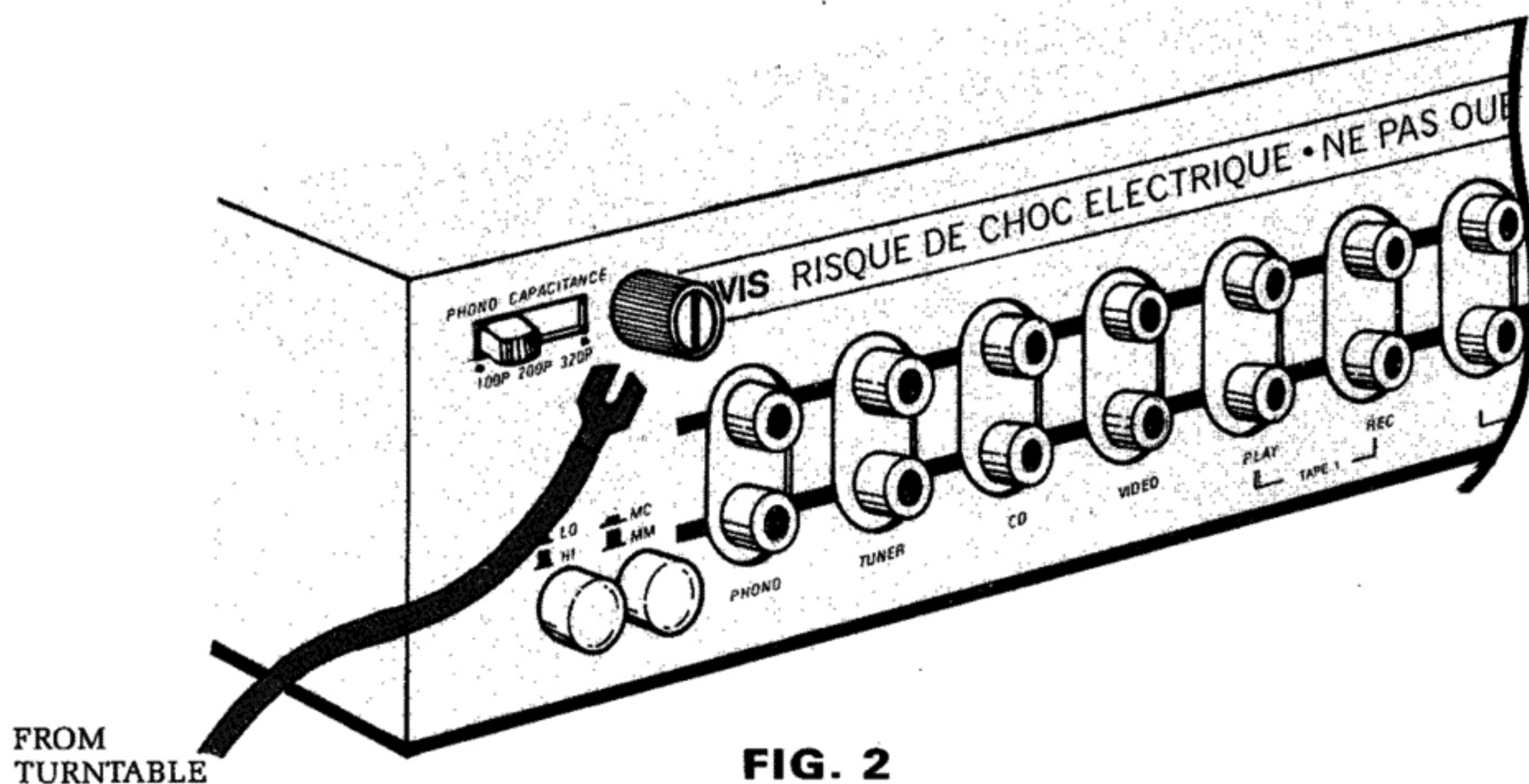


FIG. 2

ground cable to the P1100 GROUND terminal (1) in the following manner:

Loosen the outer ring on the GROUND terminal by turning the ring counter-clockwise (left) far enough to expose the hole in the inside metal shaft. Insert the end of your turntable's ground wire through this hole and tighten the outer ring (turn clockwise) to hold the ground wire in place. (Figure 2).

If your ground wire has a U-shaped lug on its end, simply loosen the outer ring on the P1100 terminal, position the lug around the shaft between the outer ring and the P1100 rear panel, and tighten the ring.

TUNER INPUT ⑥

Use high quality audio cables with

RCA-type connectors to connect your tuner (eg: Proton 420, 440, 450) to these terminals. Be careful to connect the left channel output of your tuner to the top (L) TUNER input terminal and the right channel output to the lower (R) TUNER input terminal.

CD ⑦ and VIDEO ⑧ INPUTS

The VIDEO and CD input terminals both accept line level audio signals from any auxiliary source. You can use the VIDEO input to receive the direct audio program from a video component (tuner, monitor/receiver, stereo TV sound decoder, VCR, or video disc player). This allows you to enjoy high fidelity sound from your TV system, video tapes, or discs.

The CD input is commonly used to

P1100

receive signals from a digital audio (CD) disc player.

Use high quality audio cables with RCA-type connectors to connect left and right audio outputs from your source. Be sure to maintain accurate left and right channel connections.

If yours is a mono audio source (such as a mono VCR), you can connect the single audio output to either left or right channel input. When you select that input on your P1100 front panel, you will have to remember to also put your P1100 in its mono mode so that signals will be sent to both speakers. A more convenient method of hook-up is to use a Y-adaptor to split the mono signal into two signals (one for each input).

TAPE LOOPS (9 and 10) (11 and 12)

RECORD TERMINALS. The terminals marked REC are output terminals. The signal appearing at these terminals is always from the program source which you have selected with the front panel RECORD selector buttons. This signal is not affected by bass, treble, volume or balance controls.

TAPE 1 REC/PLAY The tape connections (9,10) may be used with recorders of all types: cassette, micro-cassette, open-reel, digital etc. To make recordings, connect a stereo patch cord from the P1100 RECord jacks to the recorder's LINE IN jacks (not to its microphone inputs). To play back tapes, connect a stereo patch cord from the recorder's LINE OUT jacks to the P1100 PLAY input

jacks.

TAPE 2 REC/PLAY These jacks (11,12) allow you to connect a second tape recorder of any type and the P1100 is wired to permit dubbing tapes from either recorder to the other. Connect a cable from the RECord jacks to the tape deck's LINE IN jacks, and another cable from the deck's LINE OUT jacks to the PLAY input jacks on the amplifier.

The TAPE 2 jacks may be used for a signal-processing accessory instead of a second tape recorder. Examples of such accessories include a dynamic range processor, a dynamic noise filter, a CX or DBX disc decoder, or any other device whose operation depends on the setting of a signal threshold. Connect a patch cord from the REC jacks to the processor's inputs, and another patch cord from the PLAY jacks to the processor's outputs.

Other signal processing accessories, such as a graphic equalizer or the special equalizer supplied with some loudspeakers (e.g. Bose, Electro-Voice, KLH) may be connected either to the Tape jacks or at the Preamp Out jacks. The choice is a matter of convenience.

PRE-OUT/HI-LEVEL PRE-OUT 13 14

Your Proton P1100 allows you to get in between the preamplifier and your power amplifier to connect a variety of signal processing equipment such as an equalizer, noise reduction system, etc. Unlike the "REC" outputs, the PRE-OUT terminals are affected by BASS, TREBLE, VOLUME, BALANCE,

MONO, BASS EQ and INFRASONIC controls. Please note this when you are determining where to connect your signal processor.

To make such a connection, first turn off the power. Use high quality audio cables with RCA-type connectors to connect the PRE-OUT terminals (13) to the line level input terminals on your signal processor. Be careful to connect left channel to left channel and right channel to right channel.

Now use the same type of cable to connect the output terminals of your signal processor to the MAIN-IN terminals of your (Power Amplifier). Again, be sure to maintain accurate left and right channel connections.

NOTE: The Hi-Level PRE-OUT (14) terminals can be connected to a lower sensitivity power amplifier. This flexibility allows you to match your power amplifier sensitivity when it is higher than 2 volts.

AC OUTLETS ⑮ ⑯ and ⑰

Certain versions of the Proton P1100 provide 3 AC power outlets into which you can plug other audio/video equipment. The SWITCHED outlet (15) receives power only when the P1100 itself is on. Any piece of equipment connected to this outlet can be turned on and off by the

by the power control of the P1100. (It is not recommended for amplifiers or equipment which draw in excess of 900 watts. The P1100's power switch could be damaged. It's better to plug an outboard high-power amp directly into a wall outlet and use its own power switch, being sure to shut the amp off before switching off the P1100.)

The UNSWITCHED outlets (16, 17) are not affected by the power control on the P1100 front panel. The outlets receive power at all times that the P1100 is connected to a live AC wall outlet. Use these UNSWITCHED outlets for any piece of equipment which should be turned on and off by its own power control (ie, turntable, tape deck, etc.). The outlets can also be used for equipment which contains a clock or timer. (eg: VCR). These outlets should not be used to supply more than 250 watts.

AC CORD ⑱

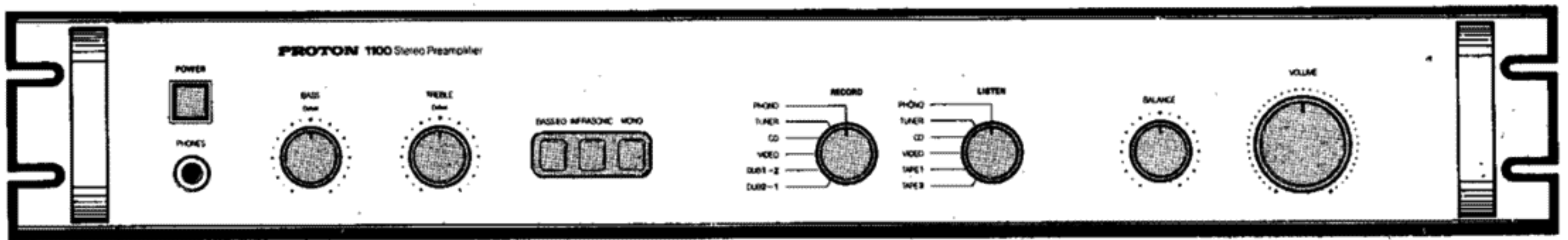
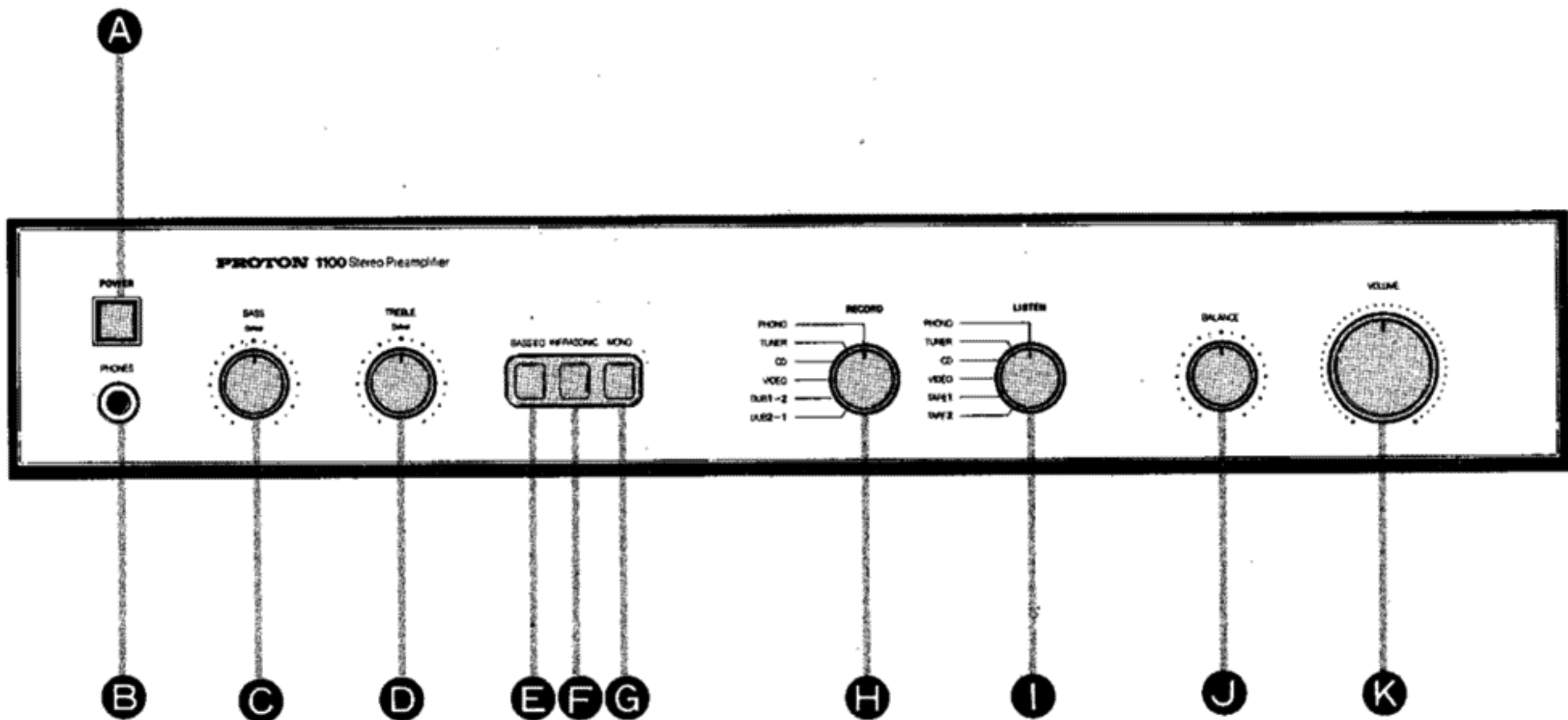
Once you have made all of the connections as described above, plug the AC CORD (18) into a live 120 volt, 60 cycle wall outlet.

NOTE:

(Only for the United Kingdom)
AC CORD should be wired to 13 amp. plug as per instructions attached to cord. Once connections have been made, plug into a live 240V/50 cycle outlet.

P1100

FRONT PANEL CONTROLS



POWER (A)

Push the green POWER button (A) "in" to turn on your Proton P1100. The green POWER LAMP will light to indicate that your P1100 is ON. Any equipment plugged into the rear "switched" AC outlet will also be powered.

PHONES (B)

The headphone terminal (B) provides a stereo audio signal sufficient for driving all conventional stereo headphones except electrostatic headphones which generally require signal from the HI-LEVEL PRE OUT terminals.

Plug your standard headphone jack into this terminal for listening. If your headphones have a mini-sized jack, you will need a mini-to-RCA adaptor. Your Proton Audio dealer can help you with this.

BASS ©

The BASS control (C) affects the relative volume level of the lower audio frequencies. At its center (detent) position it has no effect on the signal; the tone control circuits are defeated.

Turn the control clockwise (to the right) to boost (increase) bass output.

Turn the control counterclockwise (to the left) to cut (decrease) bass output.

As with any tone control, the bass knob should be adjusted to the point where it sounds best to you.

TREBLE ©

The TREBLE control (D) functions just like the BASS control except that it affects the relative volume level of the higher frequencies. Turn the control clockwise (right) from center to boost (increase) treble output. Turn the knob counter-clockwise (left) from center to cut (decrease) treble output.

BASS EQ ©

Whenever speaker components are enclosed in a sealed box (as in the case

of all acoustic suspension and infinite baffle speakers), the resonant frequency (F_s) of the woofer increases to approximately 60 to 80 Hz. A roll-off in the bass response of 12dB per octave below the resonant frequency is inherent in the design of such speakers.

To compensate for this reduced bass response, your Proton P1100 will provide a 10dB boost at 42Hz. Activate this special bass equalization circuit by pushing the BASS EQ button (E) in. Push again and release the button to defeat the boost.

NOTE: while the BASS EQ can be used with "vented" speakers (bass-reflex, tuned port, auxiliary bass radiator, et al.), these designs usually exhibit a much more rapid rolloff (typically either 18 or 24 dB/octave) below the system's planned cutoff. Consequently, in most cases the BASS EQ will not produce the same dramatic benefit with these designs as it does with acoustic-suspension systems.

If your loudspeakers already have extended deepbass response, the BASS EQ will still be useful to compensate for the bass rolloffs in many recordings. The equalization also provides psychoacoustically effective "loudness" compensation when you listen to music at low volume levels.

Two CAUTIONS should be observed when using the BASS EQ:

- 1) This circuit is intended for use with loudspeakers having woofers eight inches (20cm) or larger in diameter, preferably those with "long-throw" voice-coils and acoustic-suspension enclosures. It is not recommended for use with small "mini" speakers having

P1100

woofers smaller than six inches; in most cases they are not designed to accept high power input at low frequencies and may only distort or suffer damage as a result.

2) Be prepared to switch off the equalization when playing recordings (especially digitally mastered discs) or CDS that contain unusually potent recorded bass. The BASS EQ boosts deep bass levels by 12dB (i.e. by a factor of 16 in power). With this boost a bass-heavy input signal may overdrive the amplifier into clipping and more important-overdrive your woofers beyond their safe excursion limits, causing the voice-coils to clatter against the magnet back plates. As long as the speaker sounds good it probably is OK; but distorted or unmusical sounds, such as clattering noises, are a sign of distress in a woofer.

INFRASONIC FILTER **F**

The signal from a record player usually contains strong infrasonic energy (due to disc warps, stylus/tonearm resonance, and vibrations reaching the turntable) which, if amplified at full strength, will waste power and produce excessive woofer cone excursions, muddying the sound. Depress the INFRASONIC filter button to attenuate these unwanted signals below 20 Hz, especially when using the BASS control or BASS EQ to boost the musical bass.

MONO **G**

When the MONO button (G) is out, your P1100 is operating in its STEREO mode (as long as a stereo signal is being processed). When you push this button in the two channels will be combined to form a mono signal.

Push this button in when you are listening to a mono source (such as a monaural VCR) which you have connected to a single channel input on your P1100. This causes the audio signal to be sent to both channel outputs. Be sure to release the MONO button when you return to a stereo source.

RECORD SELECTOR **H**

This rotary switch selects which input signal will be fed out to the rear-panel RECOrd jacks for tape recording. The selected signal is fed to both TAPE 1 and TAPE 2 and may be recorded simultaneously on two tape machines. The RECOrding selector operates independently of the LISTENing selector' thus you can record from one program source while listening to a completely separate signal source. You can record from the TUNER input while listening to PHONO, or copy recordings from TAPE 1 or TAPE 2 while listening to PHONO or TUNER.

In order to dub (copy) tapes from TAPE 1 onto TAPE 2, simply set the RECOrding selector to TAPE 1. The play back signal from the TAPE 1 recorder will be fed to the TAPE 2 REC jacks for recording. Then you can set the LISTENing selector to TAPE 1 (to hear

the source tape), or to TAPE 2 (in order to monitor the output of the copying recorder). or to PHONO, TUNER, OR VIDEO if you want to listen to something else while the copying proceeds. Changing the setting of the LISTENing selector has no effect on the signal fed to the tape recorder by the RECORDing selector switch.

Similarly tapes can be copied from TAPE 2 back to TAPE 1 simply by setting the RECORDing selector to TAPE 2. i.e., as always, you set the RECORDing selector to the program source that you want to record from. If you have a signal processor such as an equalizer or a DBX processor connected to the TAPE 2 jacks, you can use it to process the playback signal from the TAPE 1 recorder by setting the RECORD selector to TAPE 1. Then set the LISTENing selector to TAPE 1 to hear the unprocessed signal, or to TAPE 2 to hear the processed signal.

If you have a DBX or CX decoder connected to the TAPE 2 jacks, you can use it to decode DBX or CX encoded records by setting the RECORDing selector to PHONO.

This will feed the preamplified phono signal to the decoder via the RECOrd jacks. Then set the LISTENing selector to TAPE 2 to hear the decoded signal.

Similarly, if you have an equalizer or any other signal processor connected to the TAPE 2 jacks, you can use it to process any input signal by setting the RECORDing selector to the program source that you want to listen to, so that the desired signal will be fed to the processor via the RECORD jacks. Then set the LISTENing selector

to TAPE 2 to hear the processed signal.

If you want to use an equalizer, DBX encoder, or other signal processor to process a signal before recoding it, you must disconnect the tape recorder from the P1100 RECOrd and PLAY jacks. Connect the processor to the P1100 REC PLAY jacks, and then connect the tape recorder to the processor's own TAPE record/play jacks.

LISTEN SELECTOR ①

This rotary switch selects the signal that you will hear.

If you have a three-head tape recorder and wish to monitor its playback output while a recording is being made, use the RECORDing selector to select the desired input signal and feed it to the recorder. Then set the LISTEN selector to TAPE 1 or TAPE 2 (as appropriate) to hear the monitor output from the recorder.

Similarly, if you have a signal processor connected to the TAPE 2 jacks and want to hear the processed signal, first use the RECORDing selector to choose the desired input signal and feed it to the processor. then set the LISTEN selector to TAPE 2 to hear the processed signal.

BALANCE ②

Use the BALANCE knob (J) to adjust the relative level of left and right channel speakers. The knob has a detent

P1100

at its center (neutral) position. Turn the knob clockwise (right) past center to increase the apparent volume level of the right channel. Turn it counterclockwise (left) to increase the apparent volume level of the left channel.

Adjust this balance control so that a central sound such as a single voice seems to be coming from a position midway between the speakers. You may use it to compensate for one speaker being located closer than the other to your listening position, one speaker being located further from your receiver (longer speaker wire), or one channel of your program material having a lower output level.

VOLUME **K**

The VOLUME knob (K) affects the output level of your P1100. Rotating the knob clockwise (to the right) increases the level of the sound.

Rotating it counterclockwise (to the left) reduces the level of the sound.

Your P1100 employs an active volume control. The average amplifier makes use of a simple "pot" at the preamp output. This variable resistance means that signal transfer to the power amp is never truly optimized until the control is "up" all the way (out of the circuit). At realistic levels, you never listen with the full benefit of the "spec". With the P1100 as you rotate the level control, the dual-point feedback engineering used actually changes the way the preamp works. Lower the volume, and a true reduction in "gain" improves the signal-to-noise ratio by 10dB, and transient response and I.M. measurements don't vary as you set different listening levels.

MAINTENANCE

Your Proton P1100 has been carefully designed to look as good as it performs. A soft cloth is usually all that is necessary to keep the unit dust-free. Should the cabinet become soiled or fingerprinted use a soft cloth, mild soap, and water to clean it. Never use

an abrasive cleaner on any part of this product.

To insure that proper connections are maintained, rotate each cable within its rear panel terminal periodically (about once a month). This practice keeps corrosion (caused by oxidation) from

building up on terminals or cables and weakening the connection. For the same reason, it is a good idea to similarly

rotate every connection on all of your audio and video equipment at the same time.

PERFORMANCE SPECIFICATIONS

Maximum Output Level (20Hz-20kHz) at THD 0.1% :

PRE Out:	18V
Hi-Level PRE-Out:	18V
T.H.D. 20Hz-20kHz 2 Volt Output:	0.003%
I.M.D. 2 Volt Output:	0.003%
Frequency Response 20-20kHz:	±0.2dB
High level Input Resistance/Capactance:	30K OHM/150pF
Line Input Sensitivity (Video):	150mV
(Tape Play):	150mV
(Phono MM):	2.5mV
(Phono MC High/Low):	0.2mV/0.1mV
Residual Noise (Flat):	0.02mV
Channel Crosstalk (1kHz):	90dB
Function Crosstalk (1kHz):	84dB
S/N Ratio (A-Weighted) (Video):	105dB
(Tape Play):	105dB
(Phono MM):	94dB
Phono MC):	79dB
Bass Control @ 100Hz (Boost/cut):	+10dB/-10dB
Treble Control @ 10kHz (Boost/cut):	+10dB/-10dB
Bass EQ @ 75Hz:	+3dB
Infrasonic Filter (20Hz):	-3dB
(Slope):	-12dB/oct
Phono Input Resistance (MM/MC):	47K OHM/100 OHM
Phono Input Capacitance (Selectable):	100pF/200pF/320pF
Phono Overload @ 1kHz T.H.D. 0.1% (MM):	290mV
Phono T.H.D. at 4.5V Output (MM):	0.006%
(MC):	0.01%
RIAA Response Accuracy MM/MC:	±0.2dB/±0.3dB
Dimensions W x H x D (inch):	16-1/2" x 2-1/2" x 13"
(cm):	42.0 x 6.5 x 33.0 cm
Net Weight:	4.4kg/9.65 Lbs

P1100

POWER SUPPLY

U.S.A. and Canadian Models
European Model
British and Australian Models
Other Area Model (General Model)

120V / 60Hz
220V / 50Hz
240V / 50Hz
115V , 230V / 50Hz , 60Hz

P1100

FOR TON

PROTON

PROTON CORPORATION

737 West Artesia Blvd

Compton, CA. 90220

U.S.A.

Tel: (213) 638-5151
