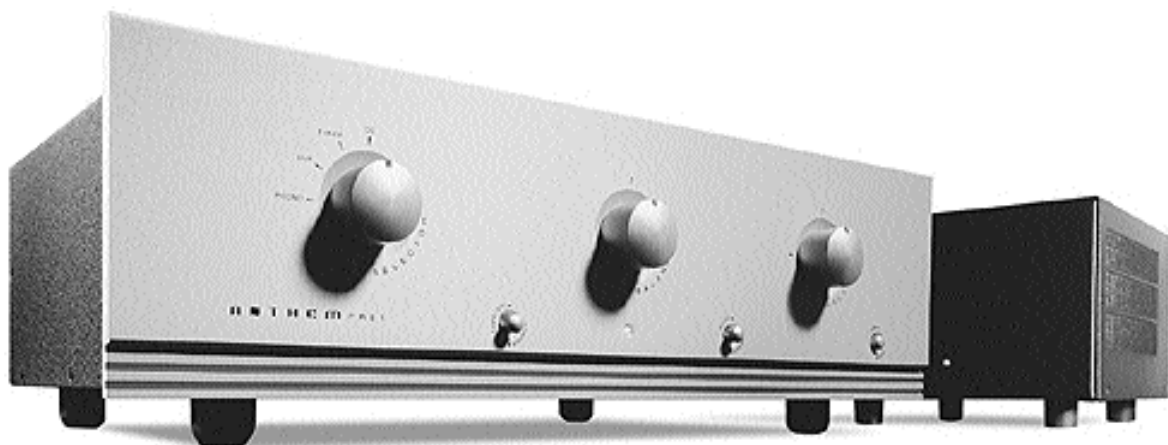


ANTHEM

DESIGNED AND MANUFACTURED BY SONIC FRONTIERS INCORPORATED
2790 BRIGHTON ROAD, OAKVILLE, ONTARIO, CANADA L6H 5T4 TEL: (905) 829-3838 FAX: (905) 829-3033
Sonic Frontiers can be reached 9:00 am to 6:00 pm (E.S.T.) or 24 hours a day by facsimile.

ANTHEM PRE 1 OPERATING MANUAL



TECHNICAL SPECIFICATIONS

(AC line set at 117V 60Hz)

FREQUENCY RESPONSE: Line input: ± 0.5 dB 10Hz to 85kHz, -3dB below 5Hz and above 200kHz
Phono Input: ± 0.5 dB of RIAA 20Hz to 20kHz

HARMONIC DISTORTION: (THD+N): Less than 0.1% at 2V RMS (Line input to Main output), 10Hz to 60kHz; Less than 0.35% at 1V RMS at main output (Phono input to line output), 20Hz to 20kHz (typically less than 0.15% at midband, phono input)

INTERMODULATION DISTORTION (SMPTE): Line input to Main output < 0.1% at 1V RMS, Phono input to Main output

GAIN: at 1kHz (Internally Selectable) Phono input to tape output: 48dB, Phono input to main output: 61dB or 78dB (switchable), High level input to main output: 29dB

INPUTS (5): CD, Tuner, Aux, Phono, Tape

OUTPUTS (3): Tape, Main 1, Main 2,

CONTROLS (3): Input Select, Balance, Volume

SWITCHES (3): Tape/EPL (External Processor Loop), Mute/Operate, On/Off

INPUT IMPEDANCE: Phono: 47K, Phono Input Capacitance: 100pF (provision on PCB for addition of additional phono loading components) High Level: 50K ohms or higher depending on balance control setting.

OUTPUT IMPEDANCE: 390 ohms main outputs, Phono 520 ohms to tape outputs, Recommended load 50K-100K ohms and 100pF (20K ohms minimum, 1000pF maximum)

RATED OUTPUT: 1V RMS 10Hz to 85kHz main outputs (Maximum 44V RMS output at 0.5% THD at 1kHz into 100K ohm load with 1.7V RMS high level input)

CHANNEL SEPARATION: (Line Stage): < -75 dB Below 1V @ 1kHz, < -65dB Below 1V @ 20kHz, (Phono Input to Line Stage Output): < -55dB @ 1kHz, < -55dB Below 1V 10Hz to 20kHz

PHASE: Phono to Tape outputs: Non-inverting, Line in to Main output: Inverting

NOISE: (Unweighted, shorted input): Line Stage: -95dB below 1V Output 10Hz to 20kHz, Phono In to Line Stage Output: -75 dB below 1V Output 20Hz to 20kHz

TUBE COMPLEMENT: Tube Audio Circuit: 4-Sovtek 6922/6DJ8, 2-12AT7/ECC81, Tube Rectifier In Power Supply: 1-5AR4/GZ34

POWER REQUIREMENTS: 100-130VAC 60Hz (Export 200-240VAC 50/60Hz) 70 VA maximum

DIMENSIONS: Pre 1 Chassis: 19" (48 cm) W x 5 1/4" (13.4 cm) H x 11" (28 cm) D, Knobs extend 3/4" (1.9 cm) forward of panel. Detachable Interconnect cable extends 4" behind rear of chassis. Detachable Power Supply: 7 1/8" (18.4 cm) W x 5 1/8" (13.4 cm) H x 9" (22.9 cm) D

WEIGHT: Pre 1 Chassis: Net 17.5 lbs, (7.9 kg); Power Supply: Net 10 lbs. (4.54 kg); Shipping 30 lbs (13.6 kg)



We at Sonic Frontiers hope you will derive many years of listening pleasure with your new Anthem Pre 1. This Operating Manual contains important information regarding the operation and care of the Pre 1. Be sure to read this manual carefully and follow these instructions in order to keep it performing and sounding its best. Please contact Sonic Frontiers if you have any questions, a Customer Service Representative will be pleased to assist you.

WHAT'S IN THE BOX?

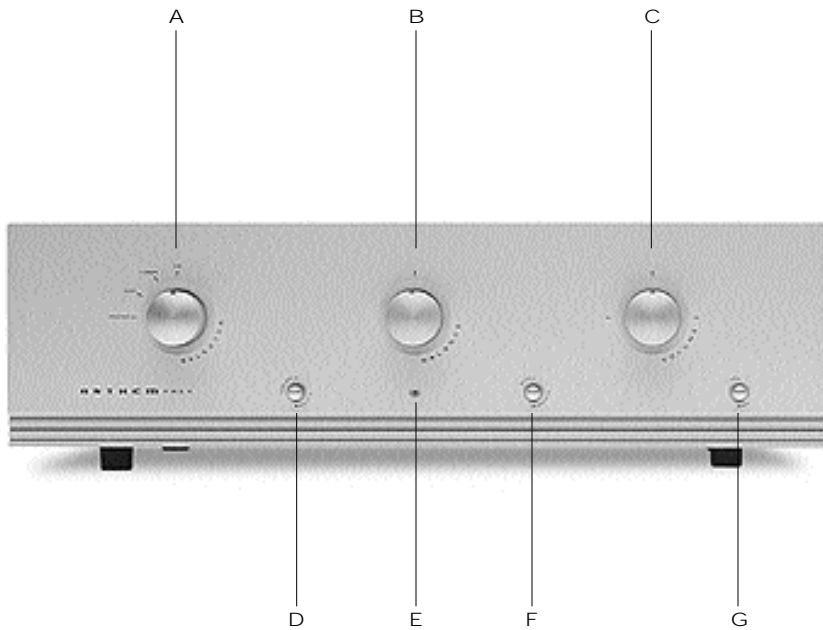
In addition to the Pre 1, the Power Supply (their appropriate covers), and the operating manual you are presently reading (with associated inserts and warranty card), there are a few more items to take inventory of before steps are taken to make the Anthem Pre 1 operational.

These items are:

- one matched pair of 12AT7 tubes, totaling 2
- two matched pairs of 6922 tubes, totaling 4*
- one 5AR4 rectifying tube
- a glove for handling the tubes
- a detachable AC power cord
- a handful of screws
- a screwdriver

After completing an inventory of these items, proceed to the next steps.

*The 6922 tubes are carefully measured and matched in pairs. Take extra care to keep the pairs from being mixed and mismatched which would degrade performance.



CONTROL FUNCTIONS

A SELECTOR SWITCH

This knob is rotated to select a Line Level Input (N) or the Phono Input (P). The Selector Switch is bypassed when the Tape/EPL(External Processor Loop) mode is selected by depressing the Tape/EPL-Source button (D).

B BALANCE CONTROL

This knob controls the relative balance of the left and right channels to compensate for any discrepancies caused by speaker placement, source imbalance, etc. Full rotation to the left or right of the center detent will have a ± 6 dB trim on levels between left and right channels.

C VOLUME CONTROL

This knob allows variable control over the Pre 1 output level. Turn it clockwise and the music gets louder!

D TAPE/EPL(EXTERNAL PROCESSOR LOOP)-SOURCE BUTTON

When this button is in the SOURCE position (button is not depressed) the signal is routed through the Selector Switch (A) to the Tape/EPL Output (M) connected with a tape deck or external processor such as a surround sound decoder. Listening and taping is done in this mode. When the button is depressed the source signal is taken from a tape or processor source through the Tape/EPL Inputs (O) bypassing the selector switch.

E PREAMPLIFIER LED

This Light Emitting Diode has three status conditions identified by different displays. They are:

- DIM (Sleep)- indicates the Power Supply is plugged in and connected to the Pre 1; the On-Off (G) is in the OFF position (not depressed) and tube filaments are turned on. When the Pre 1 is put in the ON mode, the light will remain DIM for 45 seconds during a start-up/mute cycle.
- ON (Normal Intensity)- indicates the On-Off button (G) is depressed in the ON position and the Pre 1 will allow normal function.
- FLASH (Normal Intensity)- indicates the Pre 1 is muted; the Mute-Operate button (F) is depressed in the Mute position.

F MUTE-OPERATE BUTTON

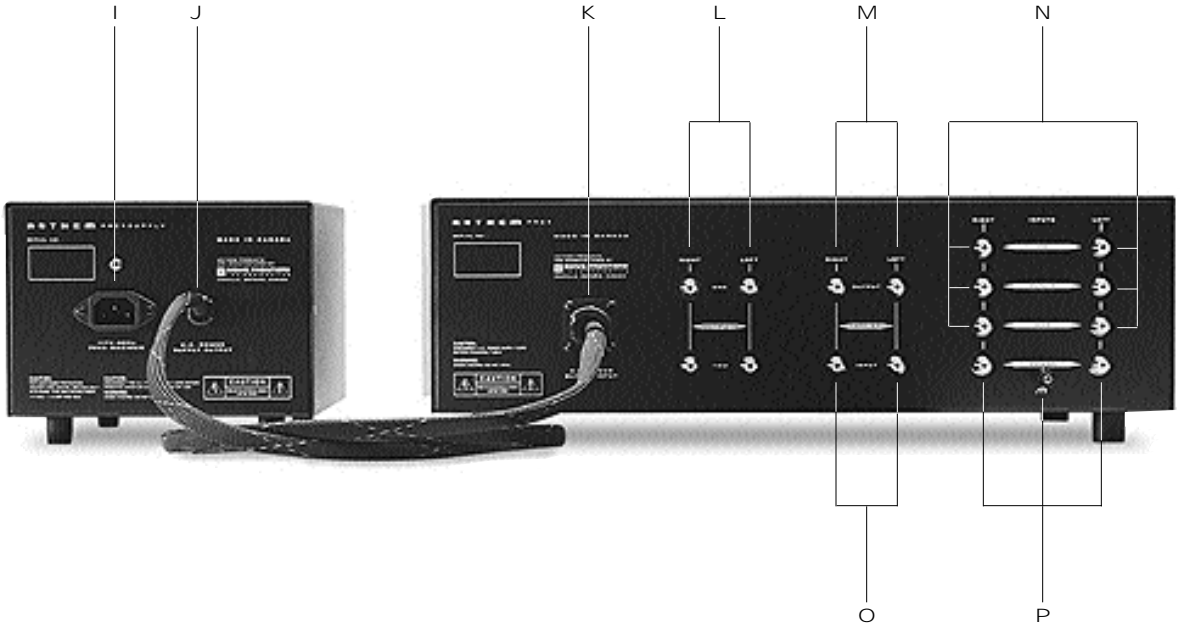
When in the OPERATE position (not depressed), this button will allow normal function. When in the MUTE position (button depressed), the music signal is cut off from reaching the Outputs (L). The LED (E) will flash as a reminder.

G ON-OFF BUTTON

When in the ON position (button depressed), high voltage power is received by the Pre 1 circuitry from the Power Supply. A delay of approximately 45 seconds is required for turn-on due to the soft-start nature of the rectifying tube in the Power Supply. When in the OFF position (not depressed), the Pre 1 is in standby mode; power is received by the tube filaments only.

H POWER SUPPLY LED

This LED will light at normal intensity to indicate the power supply is plugged in and the tube filaments are receiving low voltage power. For regular use, it is safe to leave the Power Supply plugged in and receiving power. If the unit is to sit idle for one week or more, the operator may wish to unplug the AC power cord.



CONNECTION FUNCTIONS

I DETACHABLE AC POWER CORD SOCKET

Plug the Detachable Power Cord into this socket (see Figure 4). The Pre 1 is factory set for the correct operating voltage for the area in which it is sold (see shipping box for voltage setting). If a different operating voltage is required, please contact an authorized Sonic Frontiers or Anthem dealer, distributor or the factory directly.

J DC POWER SUPPLY UMBILICAL CORD

This cord supplies power to the Pre 1 through connection to the DC Power Supply Input (K) (see Figure 3). THIS CORD IS NOT DETACHABLE FROM THE POWER SUPPLY.

K DC POWER SUPPLY INPUT SOCKET

This connector accepts a connection from the DC Power Supply Cord (J).

L MAIN OUTPUTS ONE AND TWO

These outputs connect to the single-ended inputs of other units such as power amplifiers or a crossover unit; connect left channel to left channel and right channel to right channel. The set of two allows for easier biamping and greater flexibility when dealing with components such as electronic crossovers, powered subwoofer, etc.

M TAPE/EPL(EXTERNAL PROCESSOR LOOP) OUTPUT

This output connects to the single-ended inputs of a tape deck or external processor; connect left channel to left channel right channel to right channel. This output always follows the input selection of the Selector Switch (A).

N LINE LEVEL INPUTS FOR CD, TUNER AND AUXILIARY SOURCE

Line level single-ended source connection may be made to these 3 sets of RCA connectors; connect left channel to left channel right channel to right channel.

O TAPE/EPL INPUT

This input accepts a single-ended RCA input connection from a tape deck or external processor; connect left channel to left channel right channel to right channel. These inputs are activated when the Tape/EPL-Source button (D) is depressed.

P PHONO INPUT AND GROUND CONNECTION

This input provides additional gain when dealing with sensitive signals from phono cartridges. Connections are made from a turntable: left channel to left channel right channel to right channel. The turntable's ground wire should connect to the ground post at the centre of the RCA inputs to prevent any "hum" from interfering with the signal. See the "Setting up" section for further clarification regarding MM and MC cartridges. DO NOT CONNECT A LINE LEVEL SOURCE TO THE PHONO INPUT. DOING SO WILL OVERLOAD AND DESTROY THE SENSITIVE CIRCUITRY.

SPECIAL NOTE: The Main (Line Level) Outputs 1 and 2 (L) of the Pre 1 are a reversed polarity of the Phono (P) or Line Level Inputs (N). Therefore, you may want to reverse your speaker wiring polarity to ensure signal polarity alignment.



WARNING- DISCONNECT THE AC DETACHABLE POWER CORD FROM THE PRE 1 AND WAIT 5 MINUTES BEFORE REMOVING COVER, TUBES OR FUSE.

SETTING UP

The Pre 1 comes with seven tubes, as follows:

5AR4 RECTIFIER TUBE

The tube socket for this tube is located in the power supply. This tube functions as a full wave rectifier, converting the AC supply to DC. A tube was chosen for this function because a semiconductor tends to sound harsh in this application. As well, when switching to high voltage, the tube has a slow turn-on, providing a gradual "soft" start which is easier on the circuitry and the other tubes. This tube may be replaced with the 5Y3 rectifier tube; but note a difference in performance may be heard, the 5AR4 performs better than the 5Y3 when the operating voltage is low.

6922 (LV1 & V1) FIRST INPUT STAGE TUBES

These Russian Sovtek tubes were chosen for their reliability and extremely low noise performance. When dealing with the low voltage, sensitive signals of phono cartridges, this is imperative that a tube is quiet. The 6922 tubes may be replaced with a matched set of ECC88/6DJ8s or E188CC/7308s with no circuit modification.

12AT7 (LV2 & V2) SECOND INPUT STAGE TUBES

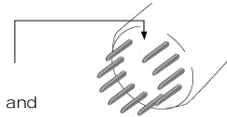
These tubes provide the drive as the output stage of the phono section. The signal levels are padded by the High/Low gain slide switches preceding the linestage (typically set to "high" for MC-moving coil and "low" for MM-moving magnet). The 12AT7 tubes may be replaced with a matched set of ECC81s or 6201s with no circuit modification.

6922 (LV3 & V3) LINE STAGE TUBES

These tubes were again chosen for their reliability and extremely low noise. This single tube configuration delivers good drive and output current to the power amplifier. The tubes' quietness heightens dynamics and they are tonally natural. The 6922 tubes may be replaced with a matched set of 6DJ8s with no circuit modification.

INSERTION OF THE TUBES

1. Using the screwdriver supplied, remove the cover of the Pre 1. For your convenience, only two of the screws are installed at the factory.
2. When handling the tubes, it is recommended that the cotton gloves provided be worn to prevent skin oils from depositing on the glass surface and possibly causing the tube to become prematurely "gassy", thereby shortening the tube's useful operating life.
3. Noting the location of the tube sockets in the top view photo/or directly on the PC Board, inspect the tubes for corresponding labels and markings. Once locations are mapped, take a tube and inspect the pins, noting the larger space between two of the pins or the key peg on the 5AR4 (see Figures 1 & 2). This space or key will match with the socket. Insert each tube into the appropriate tube socket, making sure all pins and pin holes are aligned. Do not force the tubes into the sockets. "Rock" the tubes gently while pushing slowly until each tube is firmly seated.



Note the larger space between two of the pins and holes for proper alignment of tube and socket.

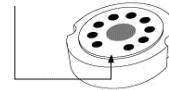
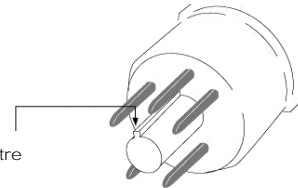


Figure 1



Note the key on the centre peg and hole for proper alignment of tube and socket.

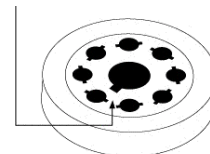
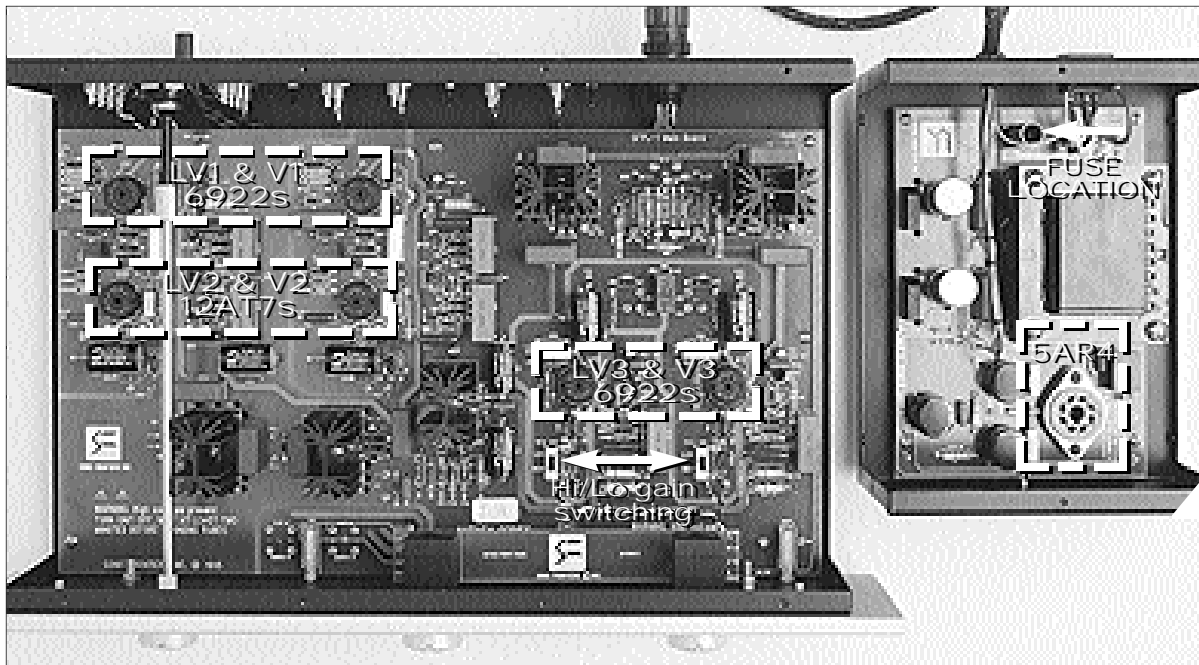


Figure 2



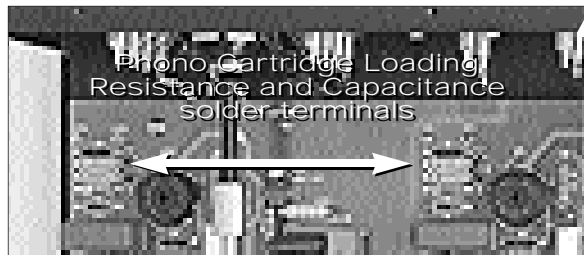
SETTING UP THE PHONO STAGE

Slide the high/low switches (labeled in the top view photo) to the desired gain setting. The High gain setting is typically for MC-Moving Coil or low to medium output cartridges of 0.2mV to 1.0mV; the Low setting for MM-Moving Magnet cartridges of 1.0mV or greater. Both switches must be set to the same setting. One controls the padding on the right channel, the other the left.

Note: If insufficient gain is realized from the phono stage of the Pre 1 when a MM-Moving Magnet cartridge is used in the low gain setting, an extra 18dB of gain may be utilized by switching to High gain. The Pre 1 phono stage has sufficient overload reserve to handle the higher input levels if this mode is chosen.

CARTRIDGE LOADING - RESISTANCE

In either MM or MC cartridge operating modes, the input load resistance that the cartridge sees is factory set at 47K ohms. This may be altered by your dealer (or competent technician) by soldering a new parallel resistance value to the solder terminals (both channels) labeled "R-Load" (pictured below).



CARTRIDGE LOADING - CAPACITANCE

With some phono cartridges (both MM and MC), the addition of some capacitance loading to the cartridge may prove beneficial in "taming" any high frequency resonance or response peaks inherent in the design of the cartridges. Typical capacitance values for MM cartridges are in the range of 100 to 250pf. We suggest that you discuss the possible loading requirements of your cartridge with the dealer where you purchased the cartridge or with the cartridge manufacturer. The additional capacitance may be soldered to the "C-Load" solder terminals (both channels).

After the insertion of the tubes and the phono stage set-up, replace the cover and fasten it with the screws provided. The Pre 1 is now ready for operation. For further information on tube replacement, NOS (New Old Stock) tubes, loading, resistance or capacitance parts contact a Sonic Frontiers Customer Service Representative or The Parts Connection, a division of Sonic Frontiers.

OPERATION

Before plugging in the Pre 1, check to see that the unit is configured for the correct AC line voltage for country of use. The operating AC line voltage is indicated on the side of the shipping box. If the Pre 1 is set incorrectly for the country in which it is to be operated, contact the dealer or distributor in your area. If the unit is configured properly, continue with operation.

Connect the DC Power Supply Cord (J) to the Pre 1 DC Input (K) (see Figure 3) before connecting the Detachable Power Cord to the Pre 1 Power Supply chassis (I) (see Figure 4). Plug your Pre 1 into the AC power source. Note: Never operate the Pre 1 Power Supply when not connected to the DC input on the main chassis.

All remaining connections are made with co-axial cable and RCA connectors to or from other single-ended units.

Connect source units to the Inputs of the Pre 1 (N and P): left channel to left channel and right channel to right channel.

If a tape or other line level recording or processing device is being implemented, connect the left and right audio output of the unit to the corresponding left and right Tape/EPL Input (O) of the Pre 1. Also connect the left and right Tape/EPL Outputs (M) on the Pre 1 to the corresponding left and right audio inputs of the external device.

Connect Set 1 of the Main Outputs (L) on the Pre 1 to a stereo amplifier or two mono amplifiers; left channel to left channel and right channel to right channel. Set 2 of the Main Outputs (L) may be used under different situations and in combination with Set 1. These situations include biamping, the use of active crossovers, powered subwoofers and other equipment; all situations being unique and system dependent. Refer to the instruction manuals provided with the other equipment before using the second set of Outputs.

The Pre 1 is now ready for operation. Power the Pre 1 by placing the On-Off button (G) in the ON position. The Power Indicator LED (E) will stay DIM for approximately 45 seconds. During this time, the signal outputs are muted while the tubes are warming up and stabilizing. As soon as the Power Indicator LED is at steady, normal intensity, the Pre 1 is ready to play.

Select a ready source through the Selector Switch (A).

Balance is adjusted through use of the Balance Control (B); turning it left and right will adjust the left and right levels respectively in a -6dB adjustment range. The center detent is an indicator for equal, or balanced, left and right levels.

Volume is adjusted through use of the Volume Control (C). Turning this control clockwise increases the volume level of both channels. Be sure the level is sufficiently low when turning the unit ON or returning to the OPERATE mode after MUTING, to prevent damage to speakers, amplifiers or the Pre 1 itself.

To record from a source, place the Tape/EPL-Source button (D) in the SOURCE position, select the source material you wish to record via the Selector Switch (A), and commence recording. To play back a tape recording, place the Tape EPL/ Source button in the TAPE position.

Muting the Pre 1 is achieved by placing the Mute/Operate button (G) in the MUTE position (button depressed); the output signal is then cut off. To resume listening, place the button in the OPERATE position (not depressed).

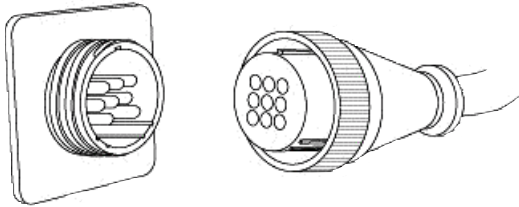


Figure 3 - Alignment of the DC power connector and cable.

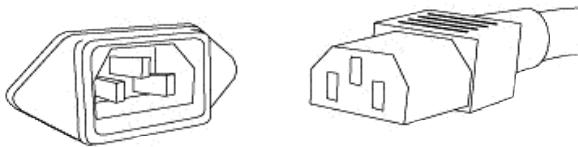


Figure 4 - Alignment of the AC power connector and detachable cord.

TROUBLESHOOTING

If at any time the Pre 1 fails to work properly, consult this checklist:

1. Check that the DC Power Cord is connected.
2. Check that the AC Detachable Power Cord is plugged into the Pre 1 Detachable Power Cord Socket (I) and is connected to a live source of AC power. For instance, if using a power bar, check that the bar is turned on.
3. Ensure that all Input and Output connections are secure for a proper electrical contact.
4. DISCONNECT THE AC POWER CORD, wait 5 minutes, remove the chassis covers from the Pre 1 and Power Supply and check that:
 - A "fast-blo" fuse, with a rating of 1.5 Amp/250 V (.75 Amp/250 V for European and Asian versions), is installed in the cylindrical tube next to the AC power socket.

- The AC power fuse is intact and has not blown. If the fuse has blown, the thin metal conductor will have melted and the glass may appear "smoked". If the fuse has blown, replace with a fuse of the same rating (1.5 Amp/250V fast-blo for 100 to 120 volt countries and .75 Amp/250V fast-blo for 200 to 240 volt countries). (See Figure 5.)

NOTE: Under no circumstances should you replace the AC power fuse with one of a higher current rating! Doing so may cause further damage to the Pre 1 and will also void the warranty. In addition, your continued protection from risk of fire or shock would be seriously compromised.

- Ensure the tubes are plugged firmly into their sockets as described in "INSERTION OF THE TUBES".

5. Be sure the rest of the system is functioning properly (i.e. source unit, power amplifiers, cables and connections, etc.).

6. With tubes, fuses, covers and power cords in place, check that the LEDs (E&H) are lighted (glowing light green). If all of the above troubleshooting steps have been followed and the LED is not lighted (remains dark green), contact your dealer or distributor for assistance.

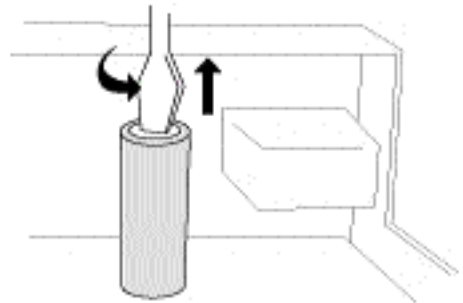


Figure 5 - Fuse location in the Power Supply and removal.



WARNING-DISCONNECT THE AC DETACHABLE POWER CORD FROM THE Pre 1 AND WAIT 5 MINUTES BEFORE REMOVING COVER, TUBES OR FUSE.

PLACEMENT FOR PROPER VENTILATION

Allow at least 4" (15 cm) of clear space above the Pre 1 chassis for proper ventilation, making sure the air vent slots in the chassis cover remain unobstructed. Also, be sure that the Pre 1 is placed on a secure, hard and level surface.

SAFETY INSTRUCTIONS

1. Ventilation - Although your Pre 1 generates only nominal heat in use, be sure that the ventilation slots in the top cover have at least 4" of unobstructed air space above them.
2. Water and Moisture - This product should not be used near water. To prevent fire or shock hazard, do not expose this product to rain or moisture.
3. Heat - This product should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances which produce heat.
4. Power Sources - This product should be connected to an AC power source of the proper rated voltage. The original shipping container will stipulate the AC voltage this unit can operate with correctly.
5. Cleaning - A regular dusting with a soft, non-abrasive cloth will generally keep the finish of the faceplate and chassis looking like new. At no time should you allow any liquid to come in contact with the Pre 1; it may run into the electronic circuitry and cause damage which will not be covered under your warranty.
6. Servicing - Do not open this product. No user serviceable parts inside. Refer servicing to an authorized service technician.
7. Non-Use Periods - The power cord of this product should be unplugged from the outlet when left unused for an extended period of time.
8. Do not remove the Pre 1 covers while the unit is "on", or connected to an AC power source. Cover screws could fall through the ventilation slots and cause electrical damage to the Pre 1.

PACKING MATERIALS

Please retain all of the packing material and shipping boxes for your Pre 1. They are custom designed to prevent shipping damage from occurring. Sonic Frontiers, Inc. will accept no responsibility for any damage occurring to a Pre 1 that is shipped in packing material other than the original Sonic Frontiers packing material.

DISCLAIMER OF LIABILITY

Under no circumstances does Sonic Frontiers, Inc. assume liability or responsibility for injury or damages sustained in the use or operation of this equipment or for damages to any other equipment connected to it. Sonic Frontiers, Inc. reserves the right to make design changes or improvements without the obligation to revise prior versions. All specifications are subject to change without notice.

LIMITED FIVE YEAR WARRANTY

Sonic Frontiers, Inc. warrants to the purchaser that each Pre 1 is free of manufacturing defects for a period of five (5) years from the date of purchase. This five (5) year limited non-transferable warranty excludes all vacuum tubes, which we warrant for a period of twelve (12) months. To receive this warranty, the original purchaser must complete and mail to Sonic Frontiers, within thirty (30) days from the date of purchase, the enclosed Warranty Registration Card. Sonic Frontiers, Inc. will then validate the warranty to the original purchaser. This warranty is subject to the following conditions and limitations:

1. Warranty applies only to the original purchaser.
2. This warranty is void and inapplicable if the product has been handled other than in accordance with the instructions in this Owner's Manual, abused or misused, damaged by accident or neglect or in being transported, or the defect is due to the product being tampered with, modified or repaired by anyone other than Sonic Frontiers, Inc. or an authorized Sonic Frontiers repair depot.
3. Warranty does not cover normal maintenance.
4. Sonic Frontiers, Inc. shall not be responsible in any way for consequential or indirect damages or liabilities resulting from the use and operation of the product covered herein or resulting from any breach of this warranty or any implied warranty relating to said product.

During this period, Sonic Frontiers, Inc. will repair or replace any defective components free of charge. A Return Authorization Number (RA Number) is required

before any product is returned to our factory for any reason. This number must be visible on the exterior of the shipping container(s) for Sonic Frontiers to accept the return.

Units shipped to us without a Return Authorization Number or without a visible RA Number on the exterior of the shipping container(s) will be returned to the sender, freight collect.

Units to be repaired by Sonic Frontiers, Inc. must be sent shipping and insurance prepaid by the original purchaser in the original packing material. A returned product should be accompanied by a written description of the defect. Repaired units will be returned by Sonic Frontiers, Inc. shipping and insurance prepaid.

All other warranties or conditions either written or implied are void.

Note: In foreign markets (anywhere outside of Canada and the USA), the warranty is supplied by the authorized International Distributor. Exact terms and conditions may vary.



This symbol 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.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

UPDATE TO THE ANTHEM PRE 1 MANUAL

Changes to the location of the high and low gain switches - refer to "SETTING UP THE PHONO STAGE" in this manual.

The high and low gain switches have been removed from the main board and moved to the sub circuit board which contain the Balance and Volume controls. Refer to this diagram to locate the switches when setting up the Anthem pre 1 phono stage.

