

CONSONANCE PREAMPLIFIER

OWNER'S MANUAL

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Introduction

Congratulations on your purchase of what is unquestionably one of the finest analog preamplifiers available today. With its combination of features such as full function remote control, balanced outputs and state of the art circuitry, your Consonance Preamplifier will give you many years of trouble free, top quality performance and enjoyment.

Please take a few moments to read this owner's manual. The Consonance offers a large number of interconnect and user operational possibilities. A thorough understanding of these features will allow you to gain the maximum performance for which this preamplifier was designed.

The Consonance Preamplifier's serial number begins with the letter A and is followed by a four digit number. The serial number is located on the left side of the back panel. All correspondence with your dealer or Jeff Rowland Design Group concerning this preamplifier should include the serial number.

For any additional information or assistance, contact your dealer or the Jeff Rowland Design Group factory.

Initial Inspection

Inspect the shipping container for damage. If the shipping container or packing material is damaged, it should be kept until the contents of the container have been checked for completeness and the preamplifier has been inspected both mechanically and electrically. This preamplifier was fully tested and carefully inspected before shipment. It should be free of any exterior defects and in perfect operational order upon receipt.

If there is any damage or defect or if the preamplifier does not operate correctly, notify your dealer immediately. If the shipping container is damaged or the packing material shows signs of stress, notify the shipper and Jeff Rowland Design Group. Keep the shipping material for the shipper's inspection.

In the shipping box you will find:

- AC power cord
- replacement fuses
- infrared remote control transmitter
- infrared remote control receiver and interconnect cable
- warranty card (**This form must be completed and returned to JEFF ROWLAND DESIGN GROUP [or its authorized distributor if outside the U.S.A.] within 14 days of purchase. Not only will your preamplifier be registered, but you will, in the future, be notified of possible design updates, improvements and new products.**)

We strongly suggest that you save all packing materials

Features

- Six line inputs, the first of which can be used as an optional phono input
- Balanced outputs, in both RCA and XLR connector configurations
- Regulated power supply with toroidal transformer
- Microprocessor-controlled volume and switching
- A digitally-controlled resistor matrix volume control provides 200 precise, individual steps
- User-stored level settings for all six inputs allow immediate recall of a "normal" level for each source
- Dual-rate attenuator adjustment controls provide efficient volume control adjustments
- Fluorescent front panel display indicates operational status of the preamplifier under all ambient lighting conditions

- User controlled display shut-off
- Infrared remote control of all preamplifier operational functions
- Separate remote receiver permits remote operation of preamplifier from a distant location
- Image shift control (instead of channel balance trim) maintains overall volume level while shifting stereo image left or right
- Mono and left or right channel cut functions
- Main outputs are muted temporarily during initial A/C power up, power drop or power interruption
- All signal amplification utilizes high-current, Class A, solid-state technology
- All inputs and outputs are direct-coupled, thus eliminating the effects of capacitors in the signal path.
- Independent power supply regulators are located at each stage of each amplifier channel
- Mil-spec circuit board material, with oxygen-free copper traces and high-temperature mask, provides superior electrical characteristics and long term protection against adverse climatic conditions
- All signal switching is accomplished with hermetically sealed, gold-clad silver contact signal relays
- All critical circuitry is encapsulated in a thermally-conductive epoxy to ensure excellent thermal stability, mechanical integrity and ease of service
- Ability to drive any length of interconnect cable into a balanced 600 ohm load
- Adjustable input and output impedance minimizes source, load and cable interactions in any application

Installation

Place the preamplifier as close as possible to its final installation point. If possible, allow easy access to the back panel for making signal and power connections. The preamplifier should be placed at a sufficient distance from other audio components such that there will be no interference from stray electromagnetic fields.

The preamplifier is equipped with a power switch located and identified on the rear panel. The power switch should be turned on after plugging the A/C power cord into the A/C mains socket located on the back of the preamp. After turning on the preamplifier, there will be a two second delay, and then the words "THE CONSONANCE" will be displayed. Immediately thereafter, the display will indicate either "PHONO EQUIPPED" or "PHONO DELETED" depending upon whether or not a phono module has been installed within the preamplifier. The display will then switch to its normal status-indicator format. Your preamplifier is now fully stable and will accept commands.

The rear panel power switch should be left on at all times, thereby maintaining stable operating parameters and thereby improving performance, reliability and longevity. Power consumption in stand-by mode is less than 30 watts, providing low-cost operation.

Your Consonance is equipped with an infrared remote control receiver box which can be attached to the back of the preamplifier via the provided 3 meter interconnect if remote operation is desired. The remote control receiver box may be placed anywhere within line of sight of the hand-held remote transmitter. A longer remote receiver cable may be ordered on a custom basis from the factory for special applications.

Inputs 1-6 are normally used as line level inputs. If the preamplifier is equipped with the phono option, then the input 1 RCA connectors become phono inputs. The phono inputs on a phono-equipped Consonance cannot be used as line level inputs without incurring possible damage to the preamplifier phono circuitry. A ground "thumbscrew" is located near the input 1 connectors for use as a ground connection for phono operation. Normally, this ground connection would not be used when the Consonance is used exclusively as a line level preamplifier.

Balanced Main output signals are always produced by the preamplifier circuitry and are available regardless of any input signal source chosen. Single ended Main output signals are available at the NORMAL output connectors. Signals inverted by 180 degrees relative to the NORMAL signal outputs are available at the INVERT output connectors.

The Consonance Preamplifier can be adjusted to facilitate different input and output impedances and gain structures. These adjustments are located internally and require the removal of the top cover. They can be performed easily, provided the instructions located in this manual under the heading "Impedance Matching" and/or "Adjustable Gain" are followed precisely. If you are in any doubt as to the proper adjustments to be made, contact your dealer or the factory for assistance.

Phono/Line Input Impedance Adjustments

The Consonance Preamplifier permits you to optimize the input impedance of all inputs. This will optimize interconnect performance by minimizing source and load interactions. Impedance for all inputs can be set internally. Some sources cannot be loaded at the lowest input impedance option available on this preamplifier (300 ohm). In these cases, the high input impedance option should be selected (50K).

The Consonance Preamplifier is shipped from the factory at a 50K ohm input impedance and a 300/600 ohm balanced output impedance. If you are unsure as to what input impedance settings to use, simply leave the switches in the positions set at the factory.

If you desire to adjust the impedances, the preamplifier's top cover must be removed. With a number 2 Phillip's screwdriver, remove the three flat head screws closest to the top on each side of the preamplifier. Also, remove the one screw located in the center back top of the top cover. The top cover can now be lifted directly up from the preamplifier. While facing the front of the preamplifier, locate a light blue switch housing nearest the TAPE OUT connectors. This is the Line Input Impedance switch. (Please refer to the diagram on page 7.) Gently slide each white switch to the desired location as outlined on page 8. Each switch, when moved to the "ON" position, terminates its respective input with a 300 ohm input impedance. If no switches are selected "ON", then each input will be terminated with a 50K ohm input impedance. Any or all inputs can be adjusted in any impedance option desired.

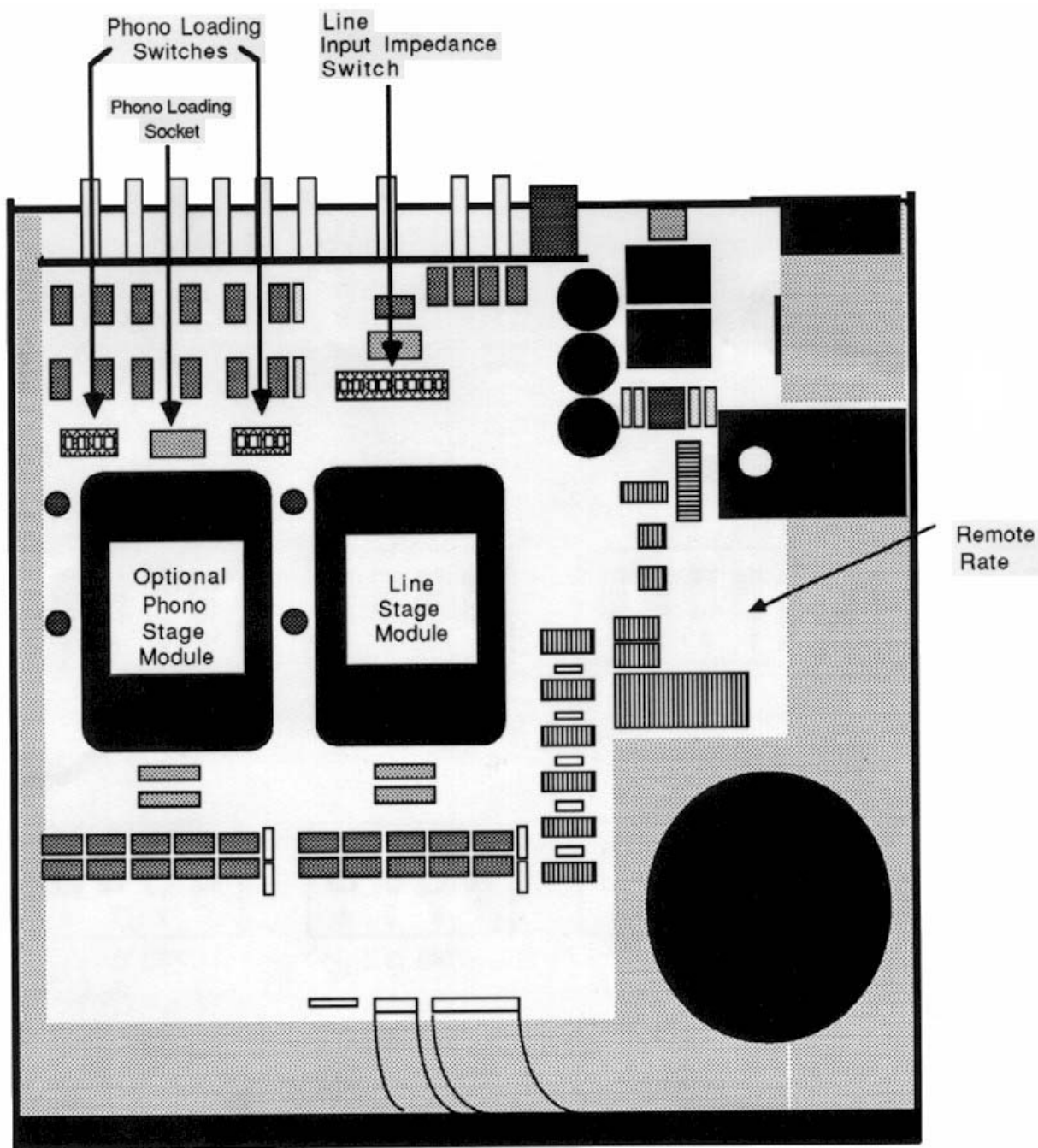
The Consonance Preamplifier also provides options for setting cartridge loading impedance when using the phono option. Two options are available: twelve switch-selectable load impedances or plug-in sockets which allow the installation of any fixed value resistor. The selectable load impedance switches are located adjacent to the phono module (please refer to the diagram on page 7 of this manual). To adjust, gently slide each white switch to the desired location for both switch housings as shown in the phono cartridge loading diagram on page 8.

If a cartridge loading value is required which is not offered by the twelve switches, then a resistor can be inserted into the appropriate sockets located between the two cartridge loading switches described above. This option requires that the loading switches be set in the 47K ohm position (all off). The phono loading socket consists of two parallel rows of seven sockets each. For best performance, a 1% metal film 0.25w resistor should be used. The selected resistor would be installed between these two rows of sockets (i.e. one end of the resistor in one row and the other end of the resistor in the adjacent socket in the other row). The three end sockets in each row are the active loading sockets for each channel and are electrically connected and in parallel. The middle socket in each row is connected directly to ground and is not used. If additional loading capacitance is needed, then a suitable capacitor can be installed in the same way. With no capacitor installed, the input capacitance of the Consonance Preamplifier is approximately 150pf.

If the preamplifier is not equipped with the phono option and input 1 is configured as a line input, then a jumper should be installed in the 10-pin phono module socket. If needed, this jumper is available from the factory at no charge. When the line level option is chosen, the cartridge loading switches must be set in the 47K ohm position. The input impedance of input 1 configured as a line input will then be solely defined by the position of the line input impedance switch as outlined above.

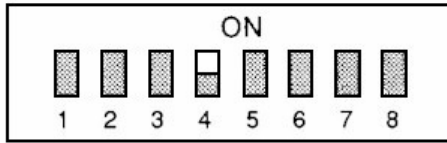
All input impedance switches may be switched during listening if desired.

Preamplifier Internal View

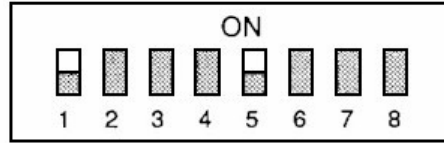


Impedance Adjustment Diagram

Line Input Impedance Examples



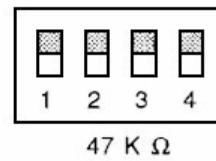
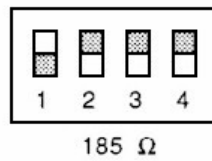
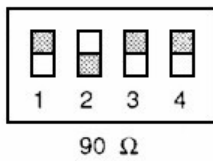
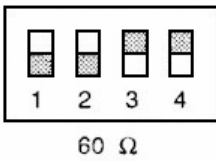
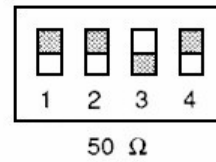
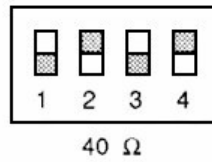
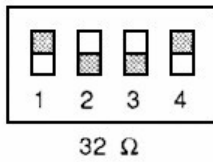
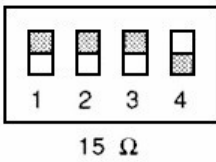
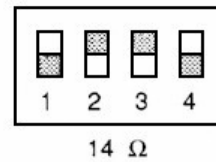
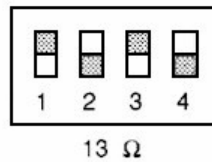
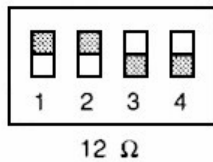
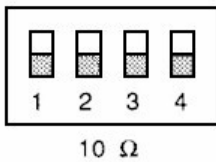
Input 4 is 300 Ω
 All other inputs are 50 K Ω



Inputs 1 and 5 are 600 Ω
 All other inputs are 50 K Ω

Note: Positions 7 & 8 are inactive

Phono Cartridge Loading



Overall Gain Adjustments

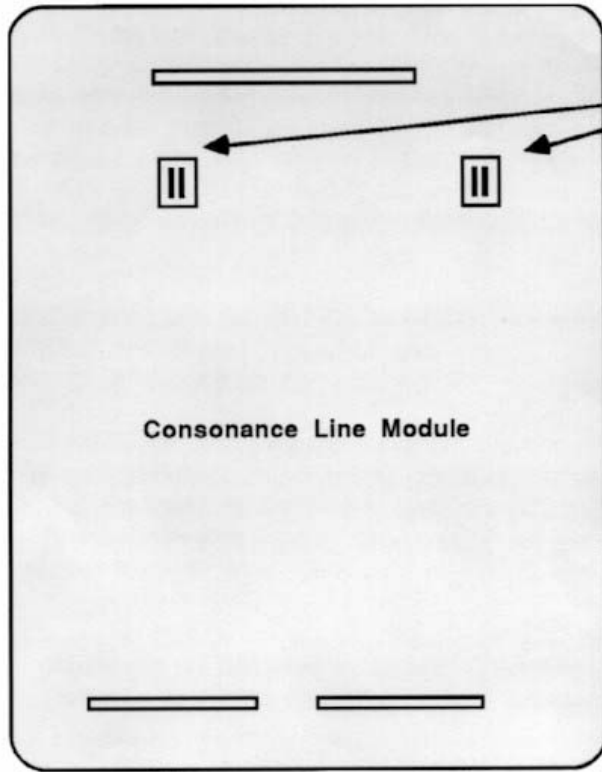
The overall gain structure of both the line stage and the phono stage (if phono equipped) of your Consonance Preamplifier can be configured to one of two different values. The Consonance can thus be used with a wide variety of analog and digital sources, since many digital sources such as compact disc players and digital-to-analog converters have high output voltages relative to tuners, tape decks, etc. In addition, a phono equipped Consonance can be used with both moving magnet (MM) or moving coil (MC) phono cartridges. This feature also allows you to tailor the gain structure for use with power amplifiers of non-standard gain parameters and/or loudspeakers with various efficiencies.

The gain switches are on the underside of the plug-in modules located in the preamplifier. The top cover should be removed according to the instructions outlined in the "Impedance Matching" section of this manual. Once the top cover is removed, the modules can be lifted directly upward from their sockets. Underneath each module is a switch similar to those used to set input and output impedance. Adjust these switches according to the module diagram shown on page 10. After the gain switches have been set to the desired positions, reinstall the modules, paying careful attention to the exact alignment of the pins and sockets. If you are in doubt as to this procedure, then contact your dealer or the factory for assistance. Incorrect installation of these modules may result in damage to the preamplifier circuitry which cannot be covered under warranty.

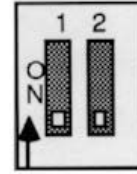
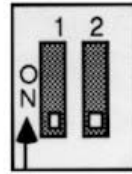
With a phono-equipped preamplifier, the 42dB gain option should be selected on the phono module for use with MM or high output MC cartridges. The 60.2dB gain option should be selected for use with most MC phono cartridges.

The electrical and sonic performance of the preamplifier will not be compromised by any gain structure chosen although the higher gain structures are preferred on the line module as they allow the input circuits to operate at lower levels.

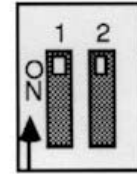
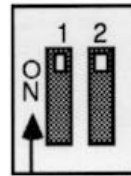
Gain Adjustment Diagram



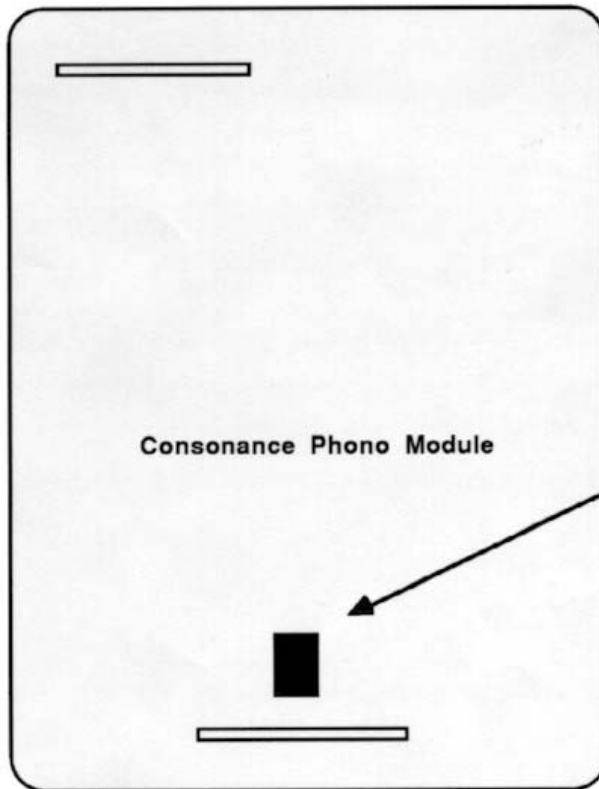
Gain Adjustment Switches



6 dB



18 dB



Gain Adjustment Jumper



47 dB



62 dB

Control Instructions

The Consonance Preamplifier utilizes a microprocessor to control all functions including volume level. All control commands can be initiated with both the front panel push button switches and the remote control keypad. The front panel push button switches utilize 18 push buttons to implement 21 commands. Certain selected functions are initiated by pressing two push buttons simultaneously. The hand-held remote transmitter implements these same selected functions, in addition to all other functions, with single keypad buttons.

A fluorescent front panel display indicates the status of each function. Each available function is discussed in detail in this section.

Command Types

Toggle Commands

Toggle functions have two states, active and inactive. Pressing the same push button or push button sequence will cause the state of the selected function to alternate. Toggle commands will have "(TOGGLE)" after the command heading.

Continuous Commands

These commands may be entered in one of two ways. The specified function may require a single push button press which causes a single step response. Or the same button may be held down (1) to allow the function to continue stepping until the button is released or (2) until the function's full range is reached. Continuous commands will have "(CONTINUOUS)" after the command heading.

Single Commands

Single commands have an effect only the first time they are entered (unless other commands have been entered since that time). Single commands will have "(SINGLE)" after the command heading.

Functions

INPUT/RECORD (TOGGLE)

Pressing this push button will display a "<" or ">" symbol on the left end of the display. This symbol pointing to the left will indicate which input is routed to the preamplifier Main Outputs for listening. This symbol pointing to the right will indicate which input is routed to the preamplifier Record Outputs for recording.

Note: If your system utilizes a signal processor or tape recorder, you should use input 6 on the rear panel as the processor or tape input (return). Selecting input 6 when the INPUT/RECORD button is in record will display a "0" in the front panel display. This

prevents the possibility of causing a feedback situation when a signal processor or tape deck is connected.

1, 2, 3, 4, 5, 6 (SINGLE)

Pressing any of the numerical push buttons will route the selected input (indicated on the front panel display) to either the Main Outputs or Record Outputs depending upon the last command of the INPUT/RECORD button. Any input can be used simultaneously as an input and record source.

STORE (SINGLE)

Pressing this push button stores the existing volume level of the selected input within the internal preamplifier memory. Up to six independent levels, one for each input, may be stored. When activated, the word "Store" is shown on the display for two (2) seconds. Pressing this button also overrides any previously stored level for the selected input.

RECALL (TOGGLE)

Pressing this push button will recall the stored volume level (referenced above) in each selected input. This function will indicate an "R" on the front panel display when activated. If this function is not activated, then the volume will be controlled by the VOLUME buttons.

MUTE (TOGGLE)

Pressing this push button removes the signal from the Main Outputs. The last selected volume levels displayed on the front panel will be bracketed by "< >". Note: When the volume levels of both channels are displayed as "00" the preamplifier Main Outputs are also muted.

BALANCE (CONTINUOUS)

Pressing the second or fourth push button in the right group of push buttons initiates a channel balance or stereo "image shift" function. Pressing the second push button will shift the stereo image to the left while pressing the fourth push button will shift the stereo image to the right. Continuous pressure on either button will gradually shift the stereo image until a maximum differential of 40 steps (approximately 8dB) has been achieved. Note that as the level of one channel is increased by one volume increment, the level of the other channel will also be decreased by the same amount, thereby maintaining the overall stereo volume level.

Either right or left channels can be muted independent of one another by simultaneously pressing the second and third buttons or the third and fourth buttons respectively. When a particular channel is cut or muted, the respective volume level indicated on the front panel display will be replaced by "--". Repeating the same sequence will restore the channel to its original level.

MONO (TOGGLE) Pressing this push button electrically sums the selected stereo input signal into a mono signal available at both Left and Right Main Outputs. This function is active when the character "M" is indicated on the front panel display.

PHASE (TOGGLE)

Pressing the PHASE push button reverses the absolute phase of the preamplifier Main Outputs relative to the preamplifier Line Inputs.

VOLUME (CONTINUOUS) Pressing the seventh or ninth push button in the right group of push buttons initiates an incremental volume change of both right and left channels simultaneously. A total of 200 discrete volume levels are available. Pressing the seventh button will increment the volume level down in single steps while pressing the ninth button will increment the volume level up in single steps. Pressing both seventh and eighth buttons simultaneously will decrease the volume level 10 steps at a time. Similarly, pressing both the eighth and ninth buttons simultaneously will increase the volume level 10 steps at a time. Each increment of volume will be indicated by a specific number on the front panel display. Each increment corresponds to approximately 0.25 to 0.35 dB of volume change above an indicated value of 25. Below the indicated level of 25, the increment amount gradually increases to a maximum of 6dB. The total range of the volume control is 60dB. The sonic performance or channel tracking accuracy is not affected by any volume level selected from 1 to 200.

DISPLAY OFF (TOGGLE)

Simultaneously pressing the first and third push buttons in the right group of push buttons will shut off the front panel display with the exception of four small lighted dots which will appear in the center. Repeating the same sequence will restore the preamplifier operational status on the front panel display. Pressing any other push button when the display is shut off will temporarily restore the display information, including the four small lighted dots, for five seconds. After five seconds, the display will return to the off condition.

Remote Operation

The Consonance Preamplifier can be operated from a remote location by connecting the remote receiver box to the back panel of the preamplifier via the supplied three meter remote cable. The remote cable can be plugged into either of the two outputs on the back of the remote receiver box. The spare output connector on the back of this box can be used to connect another cable to a different remote box in a separate remote location. You can "daisy-chain" any number of remote receivers at several locations. The front panel of the remote receiver box should be in "line-of-sight" of the hand-held remote transmitter signals. A small red lamp located behind the front panel will light during the presence of the infrared signal. Occasionally, certain ambient lighting conditions or signals from other hand-held remotes will also light this lamp. Since the Consonance Preamplifier is only sensitive to the infrared code of the hand-held transmitter, occasional lighting of this lamp under such circumstances will not normally interfere with the operation of the Consonance.

If the infrared transmission of other hand-held remotes does interfere with the operation of the Consonance, two other data rates of infrared transmission can be selected inside the preamplifier and hand-held remote transmitter. Please refer to the drawing on page 8 for location and position of the switch necessary to select a different data rate. The

switch positions on the back side of the hand-held remote transmitter must match the switch positions inside the preamplifier.

The hand-held remote transmitter has been designed for a higher infrared output than average transmitters. Under some conditions, direct "aiming" of the transmitter may not be necessary since the reflected infrared energy off of the boundaries of a room may be sufficient for proper remote operation. The remote transmitter can be turned off or disabled by moving both data- rate switches down on the rear of the transmitter. Normal use of the transmitter should offer around two years of service on the factory-supplied batteries. If the batteries need to be replaced, remove the back panel of the transmitter by taking out the two lower screws on each side of the transmitter case. The transmitter uses four AAA alkaline dry cell batteries. Please pay careful attention to the proper polarity of these batteries during installation.

All control commands can be initiated with a single keypad press on the hand-held transmitter for all 21 available functions. Each command identified on the hand-held remote is similar to the commands outlined in the Control Instructions section of this manual with the exception of the following:

Balance commands are one button commands identified by the "L" and "R" on the transmitter. Pressing the "L" push button will shift the stereo image to the left while pressing the "R" push button will shift the stereo image to the right.

Pressing either the "L Cut" or "R Cut" push buttons will mute either the left or right channel respectively.

Volume Pressing the "Vol Down" or the "Vol Up" push buttons changes right and left channels either down or up respectively.

Pressing the "Vol Dwn Fast" or the "Vol Up Fast" push buttons will change the volume level down or up by 10 steps at a time.

Display Pressing the "Display" button will shut off the front panel display with the exception of four small lighted dots which will appear in the center. Pressing the push button again will restore the preamplifier operational status on the front panel display. Note: The Roman numeral "II" on your remote control keypad controls the brilliance of the preamp's fluorescent display. You can choose between four levels of brilliance by pressing the "II" button four times.

I & III These push buttons will have no effect upon the operational status of the preamplifier. These push buttons can be programmed for additional functions at a future date.

Technical Specifications

Consonance Preamplifier

Line Stage Gain	Selectable 6/16.4 dB
Phono Stage Gain	Selectable 42/60.2 dB
IHF Input Sensitivity For 500 MV Output	Phono: tape out 0.5 mV or 4.0 mV Line: main out 75 mV or 210 mV
RIAA Accuracy	20 Hz to 50 kHz \pm 0.20 dB
Frequency Response: Phono Line	0.15 Hz to 220 kHz, -3 dB 0.08 Hz to 200 kHz, -3 dB
IHF Signal to Noise (S/N) Ratio, A Wtd., Ref. 500 MV Phono/Line	77 dB/87 dB
THD Distortion, Ref. 2.5 V RMS Phono/Line	<0.04%/<0.012%
Max Output Level Phono/Line	7.5 V RMS/7.5 V RMS
Dimensions	15 0 in. W x 13.75 in. D x 2.65 in H (38 cm W x 35 cm D x 6.7 cm H)
Weight	14 lbs., 6.4 kg