FORTE

model 2

class A preamplifier

OPERATING INSTRUCTIONS

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INTRODUCTION

Thank you for the confidence you have expressed in FORTE products through purchase of the FORTE model 2 preamplifier for your music system.

The FORTE model 2 is a product in which we have invested considerable engineering expertise and manufacturing pride. Intensive technical research and subjective performance scrutiny was devoted to the development of its hybrid integrated/discrete circuitry. The first priority in these efforts was the flawless reproduction of music.

Enhancing the state-of-the-art in low noise matched integrated gain circuits with discrete Class A biasing, active constant current sourcing, and impedance buffering has allowed a preamplifier characterized by vanishingly low noise and distortion and extraordinary musical purity. The FORTE model 2 stands as a singular achievement in the extreme simplicity of its signal path topology and exhibits extraordinary neutrality in its processing of audio information.

Supporting the technical aspects of the FORTE model 2 are high quality component parts and assembly craftsmanship, assuring that its state-of-the-art capabilities will remain virtually unchanged over years of rigorous usage. Machined connectors insure a positive, unimpeded signal connection from program sources through to the power amplifier. These connectors are similar to those used in the most expensive products and are gold plated to eliminate surface oxidation. All capacitors, resistors, and switches were selected for their musical accuracy.

Your selection of a FORTE model 2 indicates probable experience in the operation of audio components and you should not encounter trouble in integrating the model 2 into your system. Nevertheless, we recommend you read this manual prior to operating the model 2 to avoid problems and allow immediate use of the model 2's performance.

WARRANTY RECORDS

For future reference please enter the serial number and other information regarding its purchase below:

FORTE model: model 2 preamplifier

Serial number: _____

Date purchased: _____

FORTE dealer: _____

OPERATING INSTRUCTIONS

This manual is designed to allow you to get your FORTE model 2 installed and operating as quickly and with as little trouble as possible. If you experience difficulties in the set up or operation of your model 2 please review the appropriate section of this manual. In the event you encounter an unresolvable problem you should contact your FORTE dealer who should be able to provide technical assistance.

SELECTING A LOCATION

The FORTE model 2 is a preamplifier designed with a separate power supply attached to it by a fixed interconnect cord. These two units making up the model 2 have specific characteristics that must be considered in their placement.

The first and obvious consideration in placement of the preamplifier is accessibility for connection to other components of the system and convenience in operation. A more subtle but important consideration is proximity to the magnetic fields which are typical of component power supplies, including the preamplifier's own external supply.

The extremely high gain and very low signal levels associated with a preamplifier phono stage make it particularly susceptible to noise pickup from external sources. In order to achieve a vanishingly low noise level it should not be placed adjacent to the power sections of other equipment or even its own power supply. A space of at least a foot should be allowed between the phono input side of the model 2 and the 120 volt power side of other equipment. Power amplifiers are noted for the magnetic fields surrounding their power transformers and the model 2 should never be placed closer than a foot to an amplifier. Keeping the model 2's own noise level at an absolute minimum is the reason it is provided with an external supply. The length of the interconnecting power cable allows the supply and its power transformer to be kept some distance from the preamplifier's circuitry.

POWER CONNECTION

IMPORTANT - MAKE CERTAIN THE POWER AMPLIFIER IS TURNED OFF BEFORE MAKING ANY POWER OR SIGNAL CONNECTIONS!

TO AVOID DANGEROUS ELECTRICAL POTENTIALS DO NOT ATTEMPT TO OPEN THE SUPPLY MODULE OR OPERATE THE SYSTEM UNDER CONDITIONS OF RAIN OR STANDING MOISTURE.

The AC power cord attached to the supply module should be connected to an electrical power outlet of the correct voltage. Every model 2 accepts the power supplied in the country of its original sale. These requirements are specified on the bottom of the supply module.

If you remove your model 2 from the country of its original sale be certain that the power supplied at any subsequent location is the correct voltage before attempting operation. Impaired performance or severe damage may occur if operation is attempted from an incorrect AC power source.

As soon as the supply module has been connected to an AC power source the model 2 will be energized. The FORTE model 2 has been designed to remain on continuously and should remain connected to a continuing power source. Power consumption of the model 2 is small and the life expectancy of its components will not be reduced by continuous operation.

SIGNAL CONNECTIONS

Audio signal connections to the FORTE model 2 are made through the highest quality, gold plated RCA type connectors.

With the exception of the ANALOG DISC connectors all inputs to the model 2 are designed to accept high level (approx 1 volt) signals from the associated equipment. This is the signal characteristic from am-fm tuners, cassette recorders, compact disc players and the like.

The ANALOG DISC connectors will accept input from either moving coil or moving magnet cartridges. The appropriate loading required for each of these two cartridge types is user set inside the model 2. The CARTRIDGE LOADING section of this manual describes the method for achieving the loading characteristics required for the particular cartridge you are using. BE SURE THESE SETTINGS ARE CORRECT FOR YOUR CARTRIDGE BEFORE USING THE MODEL 2. If you subsequently change cartridges make certain the model 2's associated amplifier is TURNED OFF before changing the cartridge loading.

The titles identifying each set of connectors are clear and straightforward. These titles correspond with the indicated positions of the LISTENING and RECORDING selector knobs on the model 2 front panel. It is only necessary to note that in the TAPE RECORDER group the monitor connectors are to receive the recorder's output, the record connectors are to be connected to the recorder's input.

The left and right preamplifier outputs are to be connected to the input connectors on the power amplifier. The output impedance of the FORTE model 2 has been designed to interface correctly with all known high end amplifier models.

CARTRIDGE LOADING

The FORTE model 2 will accept and correctly load both moving coil and moving magnet cartridges. The appropriate loading is selected by you by means of miniature switch assemblies inside the preamplifier. The appropriate loading for a particular cartridge is generally specified in the instruction sheet accompanying it. If it is not, it will not hurt to try different settings in search of the optimum load impedance. Your dealer will also be a likely source of good advice on loading any particular cartridge.

As shipped from the factory the model 2 is set for low gain, 47,000 Ohms impedance, and 100 picoFarads of capacitance. These values are suitable for most moving magnet type cartridges.

CARTRIDGE LOADING INSTRUCTIONS

Make certain the power amplifier to which the FORTE model 2 is connected is turned off. Remove the cover of the model 2 and locate the two miniature switch assemblies located on the preamplifier's circuit board. Each switch assembly will set one of the preamplifier's two channels. IMPORTANT: When you are through double check that the two assemblies are identically set or a channel imbalance will be heard.

Observe the switch assemblies and note that each of the miniature switches on the assembly has been assigned a number from 1 to 8 and that one side of the assembly carries the heading ON. The switches on the assembly in your model 2 will be either of the rocker or lever type. When the switch is depressed or its lever moved to the ON side of the assembly the switch is on. A toothpick or fine-tip ballpoint pen is an adequate tool to actuate these switches.

There are three different parameters you will select to properly load your cartridge. These are: 1) gain, 2) impedance, 3)capacitance. Switches 1, 2, and 3 of the assembly will effect gain. Switches 4, 5, and 6 select impedance values. Switches 7 and 8 select capacitance. In the following instructions it is assumed that when one of the switches controlling a parameter is on the other switches concerned with that parameter are off.

SELECTING GAIN (switches 1, 2, and 3)

switch 1 ON: low gain - 40 dB @ 1 Khtz - suitable for the majority of moving magnet cartridges.

switch 2 ON: medium gain - 50 dB @ 1 Khtz - suitable for many high output moving coil cartridges and special low impedance moving magnet cartridges.

switch 3 ON: high gain - 60 dB @ 1 Khtz - suitable for the majority of low output moving coil cartridges.

SELECTING IMPEDANCE LOAD (switches 4, 5, and 6)

switches OFF:	47,000 Ohms.
switch 4 ON:	100 Ohms.
switch 5 ON:	47 Ohms.
switch 6 ON:	22 Ohms.

SELECTING CAPACITANCE (switches 7, and 8)

switches OFF:	100 pF.
switch 7 ON:	200 pF.
switch 8 ON:	300 pF.
switch 7 & 8 ON:	400 pF.

When the cartridge gain is appropriately set you should find that most of your listening to analog recordings takes place between a position of 10 O'clock and 12 O'clock on the model 2's LISTENING LEVEL control. Select the LOWEST gain setting that will achieve this result. Remember, the lower the gain setting the lower will be the distortion and the higher the input dynamic headroom.

An exact match in impedance and capacitance loading values specified by the cartridge manufacturer and set by the FORTE model 2 is not generally critical, and is often a matter of personal taste. Initially select those values which most closely correspond to the ones specified by the cartridge manufacturer. Response deviations experienced by altered loading will generally be subtle over a range of values.

FRONT PANEL CONTROLS

The front panel controls of the FORTE model 2 allow you to individually select the program material you will hear and record, the channel balance, and your listening level.

LISTENING SELECTOR

This control selects the program source that will appear at the preamplifier output and be heard through your loudspeakers. Its titles correspond with those appearing on the rear panel signal connectors. In the TAPE RECORDER position the signals appearing at the rear panel tape recorder MONITOR inputs will be played back. This allows you to play taped material or monitor a recording in progress. This control has does not effect signals appearing at the RECORDING outputs.

RECORDING SELECTOR

This control selects the program source that will appear at the preamplifier's rear panel tape recorder RECORD connectors. They do not affect material appearing at OUTPUT connectors. Used in conjunction with the LISTENING SELECTOR, this control will allow you to record a program source while listening to the same or another source.

In the RECORDER OUT position the tape recorder and the load impedance of the tape recorder inputs are removed from the circuit. In this position of the control no recording can be made. The position is used to avoid any interaction with the tape recorder when not taping.

IMPORTANT - DO NOT MOVE THE RECORDING SELECTOR CONTROL WHILE A RECORDING IS IN PROGRESS AS THIS WILL INTERRUPT THE RECORDING.

CHANNEL BALANCE

This control will balance the sound panorama between the left and right loudspeakers. Rotated fully counterclockwise only the left loudspeaker will be heard. Rotated fully clockwise only the right loudspeaker will be heard. In the balanced mid position the stereo panorama will be equally left and right. Variations in source material or listening room characteristics may require a slight adjustment of this control favoring the left or right channel.

This control has no effect on signals appearing at the preamplifier's RECORD outputs.

LISTENING LEVEL

The LISTENING LEVEL control simultaneously adjusts the level of signal sent to the left and right channels of the associated amplifier and loudspeakers.

This control has no effect on signals appearing at the preamplifier's RECORD outputs.

CARE

All signal connectors of the FORTE model 2 are hold plated and their surfaces will exhibit no oxidation. Airborne pollutants may coat mating surfaces with a thin film over a period of time. For this reason it is a good idea to clean the connectors occasionally with a cotton swab and 99% isopropyl alcohol or a recognized contact cleaner and treatment such as Cramolin or Tweek. Do not use rubbing alcohol as a cleaning agent since it may contain an undesirable additive such as lanolin.

All rotating switch contacts are also gold plated and the switch bodies are sealed to eliminate pollutant entry. The only other maintenance required is an occasional cleaning of the metal chassis parts. Windex or Easy Off window cleaner used with a low lint paper towel have proven an effective cleaner for the anodized aluminum surfaces of FORTE products.

Abrasive cleaners, polishes, or "dusting" sprays should not be used. Because the formulas for household cleaners vary and/or change without notice, FORTE cannot assume responsibility for the results obtained with any particular product.

Remember, the aluminum alloy of which the FORTE model 2 faceplate is made is a fairly soft metal. It will not withstand the careless use of tools during the course of installation in a rack or cabinet.

WARRANTY COVERAGE

The FORTE model 2 is built to very high standards of engineering and craftsmanship. Each model 2 is thoroughly tested and adjusted for accurate performance prior to leaving the factory. FORTE stands behind the product with the following warranty:

LIMITED ONE YEAR WARRANTY

Any failure of a FORTE product covered by this warranty to operate in accordance with its specifications of the time of manufacture as a result of a manufacturing defect will be corrected by FORTE without charge for parts or labor for a period of one year from date of purchase and not more than eighteen months from date of manufacture.

This warranty is extended to the original consumer, and is contingent upon purchase of the product from an authorized FORTE dealer.

The following situations are specifically excluded from warranty coverage:

1) Any FORTE product under performance testing by a facility or personnel not authorized by FORTE.

2) Any FORTE product not operated in accordance with the instructions set forth in its operating manual.

3) Any FORTE product which, in the sole opinion of FORTE, has been subject to accident, abuse, tampering, modification, neglect, or has had its serial number removed or defaced.

4) Any consequential damage of any nature.

This warranty gives you specific legal rights. You may also have additional rights and some of the exclusions and requirements may not be allowed in your particular state.

FORTE products whose original consumer sale was made outside the United States will be covered by those warranty terms extended by the importing distributor which may differ from those given above. Warranty service outside the United States is the responsibility of the importing distributor.

If a FORTE product is removed from the country in which the original consumer sale was made, FORTE distributors in any subsequent country are not obligated by the warranty terms operative in the sale country. Any repairs made by them under the original warranty terms are at their discretion.

As FORTE is continuously researching new technology and materials the option is reserved to incorporate design refinements and modifications into production without notice or obligation.

OBTAINING SERVICE

Any FORTE product requiring service may be taken, together with packing materials, (and with proof of purchase for warranty service) to an Authorized FORTE Dealer. He will make the necessary arrangements for return of the component to the FORTE service facility if return is required.

Direct shipments to the service facility will not be accepted without a RETURN AUTHORIZATION NUMBER which must be obtained from the service facility and clearly displayed on the outside of the return shipping carton. A return authorization and number may be obtained by calling (916) 888 0600.

TECHNICAL SPECIFICATIONS

Phono Stage

The FORTE model 2 phono stage is a two channel, non-inverting integrated/discrete hybrid circuit dedicated to amplifying audio signals from moving coil and moving magnet phonograph cartridges. It uses a proprietary external discrete Class A biasing technique to maximize the linearity of a state-of-the-art integrated gain stage and additional discrete current sourcing and buffering stages. It features variable gain of 40, 50, or 60 dB at 1 KHtz, and loading from 100 picofarads to 400 picofarads and 22 ohms to 47,000 ohms.

RIAA EQUALIZATION: Precision components used in construction hold production tolerance to .5 dB.

DISTORTION: No greater than 0.02% @ 3 volts output.

NOISE: No greater than -80 dBA referenced to 1 millivolt input @ 1 KHtz.

OVERLOAD: 10 volts output

CROSSTALK: No greater than -70 dB @ 20,000 Hz with 1,000 Ohm source.

High Level Stage

The FORTE model 2 high level stage is a two channel, non-inverting field effect transistor circuit dedicated to the gain and control of high level audio signals and provides inputs for five line level sources. It uses the same external discrete Class A biasing techniques and discrete current sourcing and buffering as the phono stage circuits. Two tape recorders may be connected with full flexibility in routing of record and playback signals. Front panel controls consist of program selection, record signal routing, monitor signal selection, channel balance, and audio level.

BANDWIDTH: -3 dB points; 1 Hz and 100,000 Hz.

CROSSTALK: No greater than -70 dB @ 20,000 Hz with 1,000 Ohm source.

DISTORTION: No greater than 0.02% @ 3 volts output, 20 Hz to 20,000 Hz into 10,000 Ohm load.

NOISE: No greater than -100 dBA referenced to 1 volt input.

GAIN: + 20 dB.

INPUT IMPEDANCE: 25,000 Ohms.

MAXIMUM OUTPUT: 10 volts.