

A. POWER SWITCH and INDICATOR

A pushbutton switch and an amber indicator light determine the power status of the Straight Line Two. When depressed the unit will mute its output signal to the power amplifier for approximately six seconds allowing time for the signal to stabilize. This prevents any annoying pops or thumps which could otherwise occur. The muting function is also activated after the power is removed for the same purpose; removing thumps, pops etc.

B. TAPE 1 and TAPE 2 MONITOR

Tape monitor pushbuttons permit stereo tape playback of the Tape 1 or Tape 2 input signal. When depressed, the tape input will replace whatever program source may have been chosen via the Input selector switch. In the case where both buttons are pushed, Tape 2 will override Tape 1 programming.

C. TAPE COPY

The Tape Copy feature enables tape duplicating or "dubbing" directly from one deck to another without bothersome re-wiring. For instance, suppose it is desired to record information from tape deck one (Tape 1) on to tape deck two (Tape 2). With the two decks connected as in Fig. 3.4, move the Copy switch from the Normal position to 1→2. To perform the same process but in the reverse (that is record information from tape deck two to tape deck one), move the Copy switch to the 2→1 position. If the Copy switch is moved to the Phono position, it is possible to record a phono disc on either tape deck while simultaneously listening to one of the alternate positions of the Main Input selector. When the Copy switch is in the Normal position, the position selected on the Main Input will be the signal received by the tape decks. With this feature the appropriate signal is fed to the recording tape decks allowing duplication without removing either deck from the system.

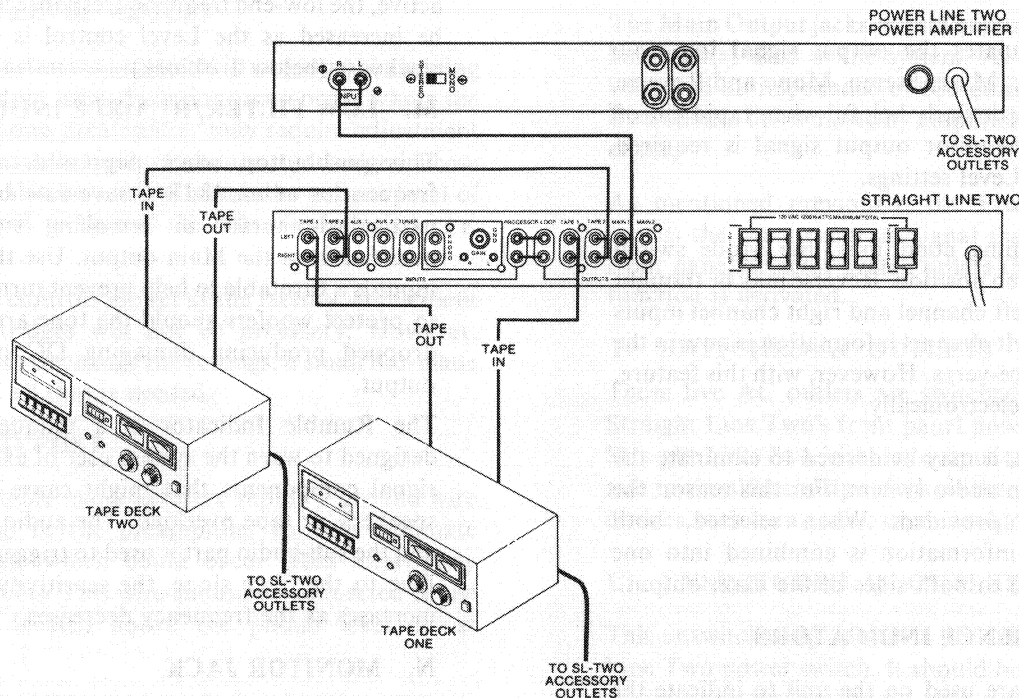


Fig. 3.4 Tape Copy Hookup

D. INPUT SELECTOR SWITCH

Four Input selection positions are available: Phono, Tuner, Aux 1 and Aux 2. Each correspond to the labels found near the rear panel input jacks.

E. BASS

The Bass control provides 10dB of boost/cut at a fixed frequency range through thirty-one precision steps. Turn the control clockwise for increased low frequencies and counter-clockwise for decreased bass. Note that the Tone Activate switch must be depressed and its yellow indicator illuminated (E1, F1) in order for the Bass control to be effective.

F. TREBLE

The Treble control provides 10dB of boost/cut at a fixed frequency range through thirty-one precision steps. Turn the control clockwise for increased high frequencies, counter-clockwise for decreased treble. As with the Bass control, the Tone Activate switch should be depressed.

G. BALANCE

When the Balance control is centered, the gain is the same for the left and right channels. This center can be located by the detent located approximately half-way through the rotation circle. Should more or less gain be desired in the left or right channel because of stereo perspective correction, input source in-balances or for asymmetrical speaker location, the Balance control can be adjusted accordingly.

H. MODE

This switch manipulates the output signal into four modes of operation: Mute, Stereo, Mono and Reverse. Mute function is particularly helpful when rapid cut-off of the Main and Monitor output signal is required, without disturbing Level settings.

Under normal listening conditions, the Mode switch should be in the Stereo position. Reverse may be thought of as changing the left channel and right channel inputs around so that the left channel information is now in the right channel and vice-versa. However, with this feature, the process is done electronically.

In certain situations, it may be desired to eliminate the stereo effect from an audio system. For this reason the Mono position is provided. When selected, both channel's program information is combined into one mono signal and fed to both sides of the main output.

I. SIGNAL PRESENCE INDICATORS

Two, green LED's are used on the unit to indicate the presence of signal at the output (one for each channel). Under normal operating conditions, these lights should either be on continuously or occasionally flash,

depending on the level of the audio information at the moment. If these lights are not on, it means that signal is not reaching the output and should be investigated.

J. OVERLOAD INDICATORS

Directly above and to each side of the level control are two red Overload indicator lights. At any time the input signal exceeds safe operating levels, the lights will glow. Occasional flashing during use is normal. However, should the lights remain on for an extended period of time (four or more seconds), an effort should be made to decrease the level of the input signal. This can be achieved in several ways; decrease the output level of the device feeding the Straight Line Two or lower the main Level control. It is also possible to overload the unit by using the Bass or Treble control at their maximum positions when listening at high volume levels. Remember, Tone controls actually boost the output level in a specific frequency range. This condition should be avoided to eliminate the possibility of highly distorted output signals.

K. LEVEL

The output signal of the Straight Line Two is varied by the Level control. Its thirty-one position detents allow settings to be repeated for critical listening applications. Because the increments are very fine, volume changes are heard as smooth transitions.

L. LOUDNESS

The loudness button should be depressed when it is desired to have a slight increase in bass response due to low listening levels (low frequency hearing sensitivity decreases as sound level decreases). When this feature is active, the low-end frequency response will automatically be increased as the Level control is rotated counter-clockwise (below 1 o'clock).

M. LOW FILTER/RUMBLE INDICATOR

This pushbutton when depressed, will roll-off low frequencies at an 18dB/octave rate below 33Hz. It is particularly useful in removing subsonic program material from the Main output. Use the filter when the input is a turntable to help prevent turntable rumble and to protect woofers should the tone arm be accidentally dropped producing damaging DC or low frequency output.

The Rumble Indicator is a unique Crown display designed to warn the system user of excessive sub-audio signal components that might cause IM distortion in speakers, or tape overload. The audio signal is filtered, and the sub-audio part is used to trigger the yellow LED. Due to the filter slope, the sensitivity of the indicator increases as the frequency decreases.

N. MONITOR JACK

A standard 1/4" stereo Monitor phone jack is used to provide connection as an additional output source. It can be used to drive additional equipment or as a headphone



jack. For best results use high impedance, efficient headsets.

O. INPUT JACKS

Six pair of pin jack inputs (not including Processor In) are supplied on the Straight Line Two: Tape 1, Tape 2, Aux 1, Aux 2, Tuner and Phono. All but the Tape 1 and Tape 2 inputs are controlled by the front panel Input selector, which are controlled by the Tape Monitor pushbuttons mentioned previously.

Because the Phono Inputs are fed directly to an internal phono preamplifier which has special equalization and amplification, only a turntable cartridge output should be connected to the Straight Line Two Phono input jacks. Many of today's moving coil cartridges may be used with the Straight Line Two, but only if their output is high enough to drive the input stage of the internal phono preamplifier. If by experimentation the output of a selected cartridge is found to be too low, it may be necessary to make a minor circuit modification to the Straight Line Two phono section, or to use a separate moving coil phono preamp. Should this become certain, contact your Crown dealer for further information.

P. PHONO LEVEL ADJUST

These two adjustments are useful in varying or balancing the phono output level. Situations may occur where the gain of the phono preamplifier may require adjustment because of unusually high or low output cartridges. These controls may also be used to match the volume level of the phono input to that of the other input signals, i.e. tape, tuner, etc.

Because these controls are set at the factory, adjustment for most cartridges will not be necessary. However, should you wish to change the settings, a small flat-blade screwdriver is all that is needed.

Q. GROUND POST

Most all turntable manufacturers supply a ground wire for connection to the preamplifier to help eliminate annoying hums which could occur from improperly grounded systems. This wire should be connected to the ground post located above the phono level adjust controls.

R. PROCESSOR LOOP JACKS

It should be noted here that it is possible to connect an external processing unit (equalizer, noise reduction unit,

etc.) to the Straight Line Two. There are two sets of pin jacks located on the rear panel labeled Processor Loop in which one pair is inputs and the other pair outputs. The unit is shipped from the factory with jumpers across these jacks in order for the unit to function normally when not using an external processor. Should you wish to connect such a device, remove the jumpers and connect the external unit as shown in Fig. 3.5. Be sure to store these jumpers in a convenient place should you later decide to remove the external processor or sell the unit.

S. OUTPUT JACKS

The Straight Line Two has four pair (not including Processor Out) of output jacks: Tape 1 Out, Tape 2 Out, Main 1 Out and Main 2 Out.

Tape 1 and Tape 2 Out jacks carry the program material selected by the Input selector switch unless either the Tape Copy switch is positioned to other than the Normal setting or one of the Tape Monitor buttons are depressed. Their purpose is for connection to the input of external tape decks. Because of their placement in the circuitry, only the Input selector switch, the Tape Copy and Tape monitor features affect their output.

The Main Output jacks should be connected to the power amplifier(s) used in the system. At a rated level of 2.5 volts and an impedance of 600 ohms, the Straight Line Two should drive most any amplifier with relatively little effort.

As mentioned previously, the Processor output jack carries the same program signal that is selected by the front panel Selector switch unless the Tape Monitor function is activated.

T. SWITCHED AC OUTLETS

These five AC outlets are switched on and off by the Straight Line Two's front panel power switch. Since the Straight Line Two includes output muting circuitry, it is safe to simultaneously switch on the unit and other input devices such as a tuner, tape machine, equalizer, etc.

U. UNSWITCHED AC OUTLET

This unswitched AC outlet is not subject to the Straight Line Two power switch. It should be used to power any auxiliary audio equipment that must be turned on at times when the Straight Line Two is off (for example, a turntable). The maximum current drain from this outlet plus the other five should be limited to 10 amps.

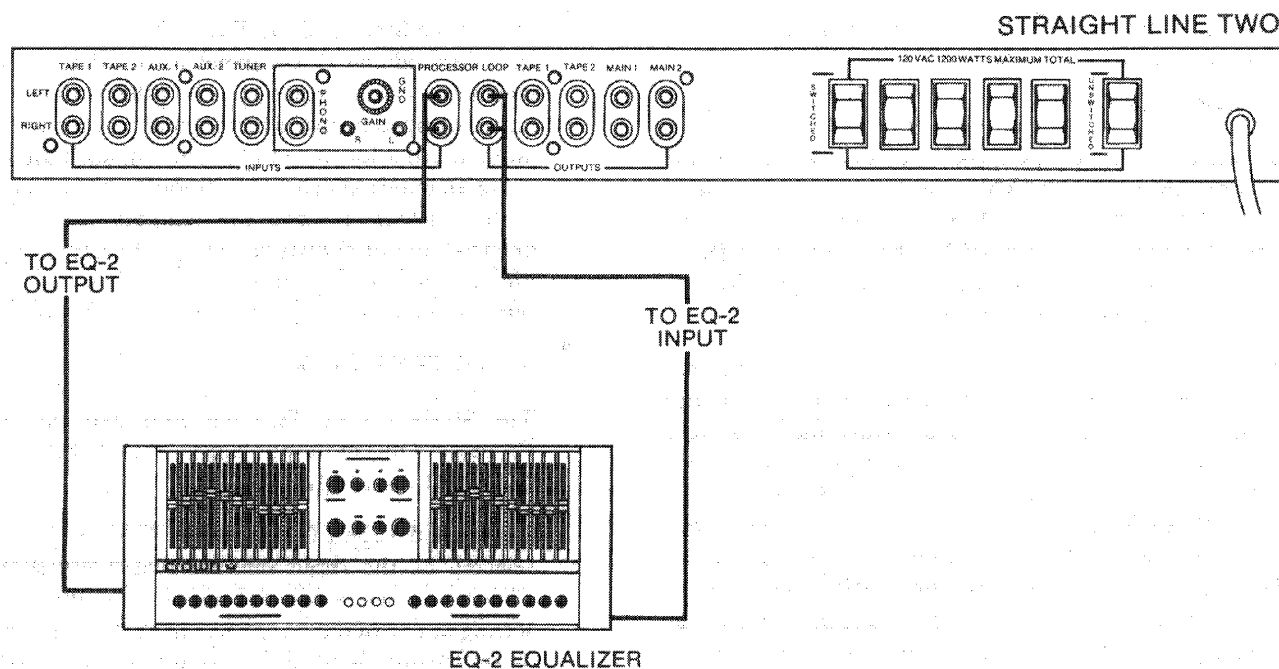


Fig. 3.5 Typical External Processor Hookup

3.6 Connecting Input/Output Lines

Fig. 3.6 is an example hook-up configuration for the Straight Line Two. As mentioned earlier, all input/output jacks are located on the rear panel (except for the monitor jack) and are standard pin jacks.

It is important to match the compatibility between the input and output characteristics of the various equipment. Check the specifications if you are unsure whether the levels and impedances of interconnected equipment are compatible. As a general rule, a low impedance output (1000 ohms or lower) will drive a low and/or a high impedance input, but a high impedance

(10,000 ohms or higher) output will not drive a low impedance unit. The inputs of the Straight Line Two are all high impedance (25K ohms; phono 47K ohms) and will accept most conventional gear with little or no hassle.

The following are several hints that may be helpful when considering hook-up:

1. Only shielded cable should be used. The higher the density of the shield (the outer conductor), the better.
2. Use cables that are only as long as necessary. Avoid cables that are longer than 10 feet. Because the Straight Line Two preamplifier uses an unbalanced input/output



signal line (two conductor, high impedance) cables longer than 10 feet may cause noticeable loss of high frequency information and/or audible interference pick-up from external sources.

3. Do not tie input signal cables together in the same bundle as speaker wires or AC cords. This greatly lessens the chance of hum and noise being picked up due to asymmetrical ground loops.

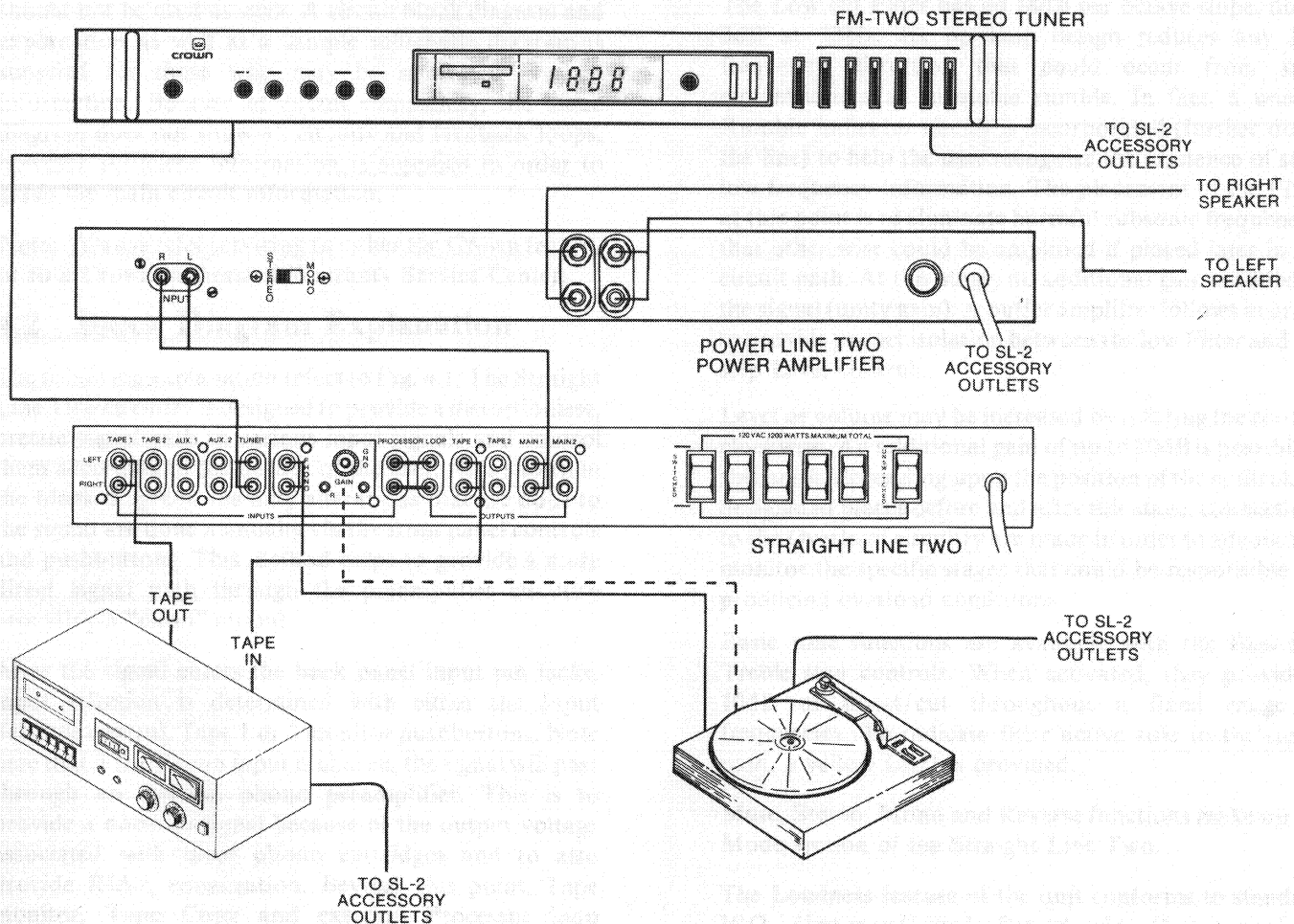


Fig. 3.6 Typical Stereo System Hookup



SECTION 4

TECHNICAL INFORMATION

4.1 General Information

This section is provided in order to briefly explain the electronic operation of the Straight Line Two preamplifier. It is not intended as service information and should not be used as such. A circuit block diagram and explanation as well as a sample schematic diagram is supplied for those who may be interested in such information. Because of circuit complexity, the block diagram does not show all circuits and feedback loops, however sufficient information is supplied in order to grasp the main circuit information.

Note: Always refer servicing to either the Crown factory or to a Crown authorized Warranty Service Center.

4.2 Block Diagram Explanation

The following explanation refers to Fig. 4.1. The Straight Line Two circuitry is designed to provide a distortionless, precise signal path to various input signals and control them according to the desires of the user. As is shown in the block diagram, the only alterations that are done to the signal are done manually via the front panel controls and pushbuttons. This method helps to provide a more direct signal path through the preamplifier circuitry providing a "clean" output.

After the signal enters the back panel input pin jacks, input selection is determined with either the Input Selector control, Tape 1 or 2 monitor pushbuttons. Note here that if the Phono input is chosen, the signal will pass through an internal phono preamplifier. This is to provide a boost in signal because of the output voltage associated with most phono cartridges and to also provide RIAA equalization. Beyond this point, Tape monitor, Tape Copy and external Processor loop functions are available. The Tape 1 and 2 outputs are not altered by any of the "coloration" controls (Tone, Filter, etc.) but provide the same signal supplied to their inputs. Also note here that the Processor jumpers are connected in such a way that if they are removed from the unit, the preamplifier will not pass a signal beyond that point.

The signal next encounters the Balance control stage. At different positions, the signal may be fed more predominantly to one side or the other by rotating this control.

The Low cut Filter has an 18dB per octave slope, down 3dB at 33Hz. Its op amp design reduces any low frequency distortion that could occur from such circumstances as turntable rumble. In fact, a unique Rumble indicator circuit is incorporated (further down the line) to help the user recognize the existence of such low frequency information. The placement of the Filter at this point is to eliminate harmful subsonic frequencies that other wise could be amplified if placed later in the circuit path. At this stage, no additional gain is added to the signal (unity gain). A buffer amplifier follows in order to provide proper isolation between the low Filter and the step Level control.

Level or volume may be increased by rotating the control clockwise. An additional gain of up to 20dB is possible at this point, depending upon the position of the control. At designated places before and after this stage, connections to the Overload circuitry are made in order to adequately monitor the specific stages that could be responsible for producing overload conditions.

Basic tone functions are available with the Bass and Treble step controls. When activated, they provide a 10dB of boost/cut throughout a fixed range of frequencies. To indicate their active role in the signal path, a yellow LED is provided.

Mute, Stereo, Mono and Reverse functions make up the Mode section of the Straight Line Two.

The Loudness feature of the unit conforms to standard ISO (International Standards Organization) specifications. When operative, the Level control will automatically increase the low frequency emphasis as it is rotated counterclockwise.

Directly before the Mute section, the Monitor output, Rumble indicator and Signal Presence indicator circuitry

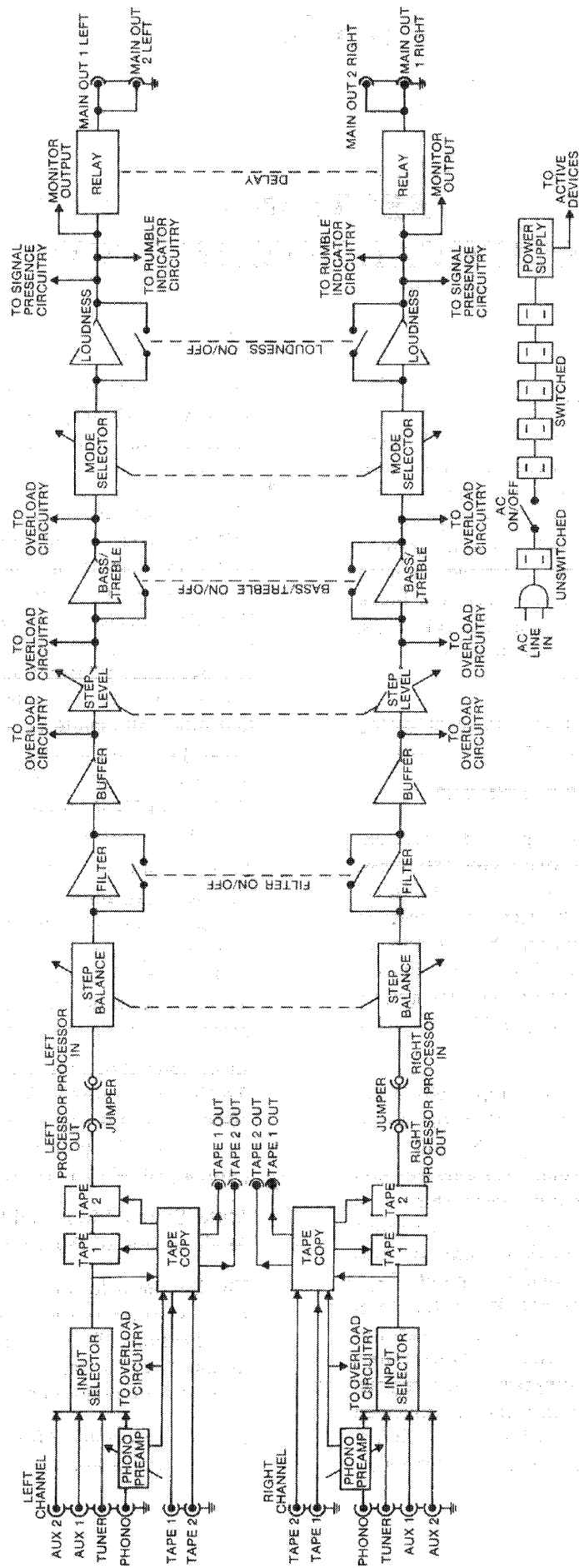


Fig. 4.1 Block Diagram

4. It is always wise to remove power to activate the Mute function, and turn the Level control counter-clockwise while making connections. In particular, make sure the power amplifier is turned off. Crown is not liable for damage incurred of any transducer due to its being overdriven by a loud blast. The use of speaker fuses is highly recommended.

3.7 Connecting AC Power

The Straight Line Two is furnished with a basic two-wire AC plug as standard equipment. Rear panel accessory outlets are also intended for two-prong AC plugs. This means accessory equipment designed with three wire plugs, will require the use of three-to-two adapters (available commercially, if required).

Sound systems tend to function audibly better when the individual components are tied together only through their input and output cable ground rather than with both the AC ground and signal cable ground. The reason for this is because the chances of multiple ground paths or "loops" is greatly reduced.

Note: Crown assumes no liability whatsoever for operation of ungrounded auxiliary equipment, nor for the violation of UL or local electrical codes.

The Straight Line Two may be connected for any of five AC operating voltages: 100, 120, 200, 220 and 240 VAC. Converting from one to another should be attempted by a competent technician only. See your Crown dealer should alteration become necessary.



is connected. An output signal containing low frequency (excessive sub-audio) information will cause the Rumble Indicator to glow. For the Signal Presence indicators to illuminate, an output signal of at least .6V RMS is necessary.

The Mute relay automatically removes the signal to the main output jacks upon turn-on and turn-off.

Six AC receptacles located at the rear of the unit, are available for accessory connection. One is active constantly regardless of the power status of the Straight Line Two, while the others are activated only through turning on the main on/off power switch.