OWNERS MANUAL

MARK III™ SERIES

STEREO MIXING CONSOLE

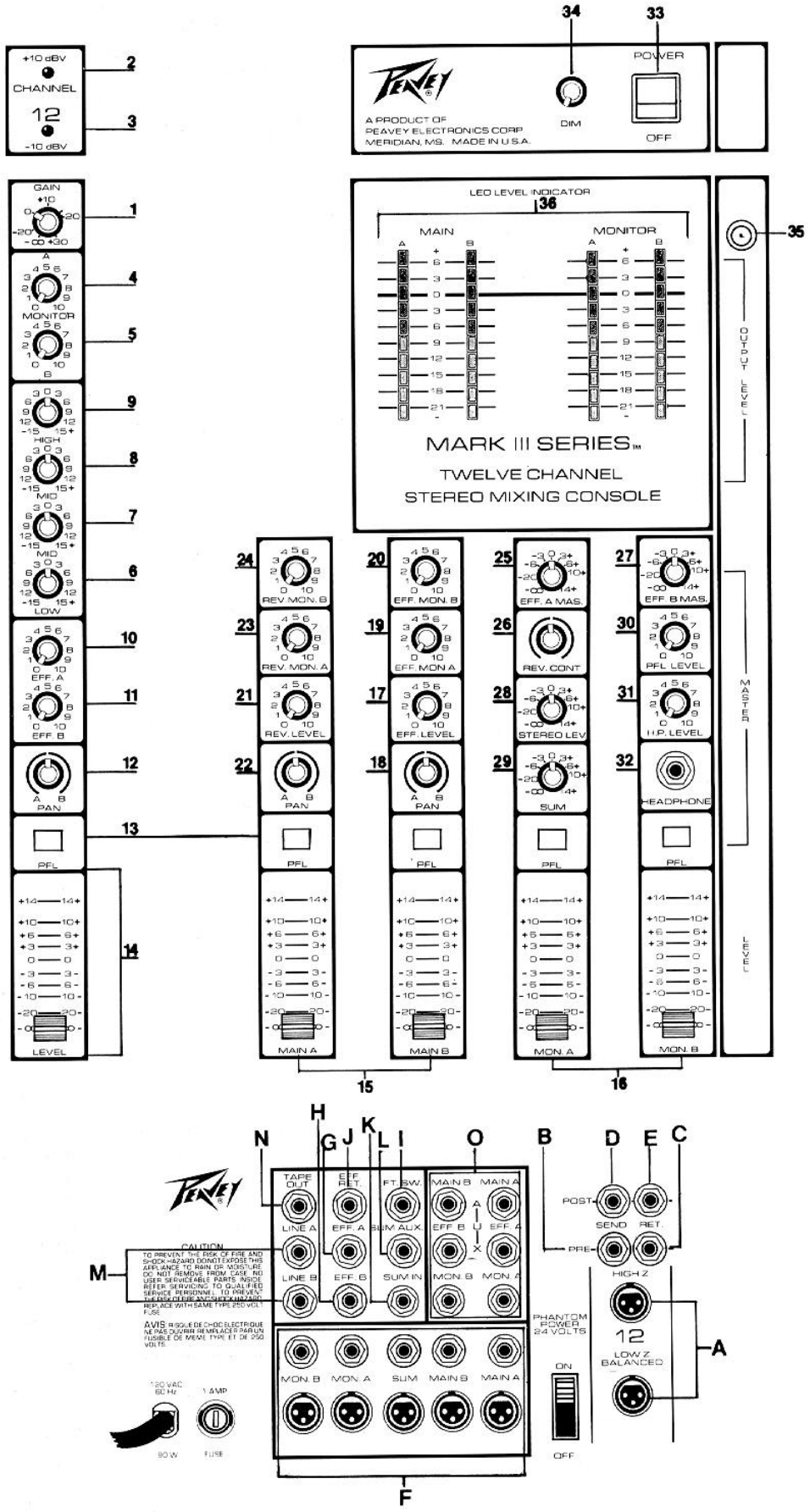
WARNING: TO PREVENT ELECTRICAL SHOCK OR FIRE HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. BEFORE USING THIS APPLIANCE, READ THE OPERATING GUIDE FOR FURTHER WARNINGS.

GENERAL DESCRIPTION

For over ten years, Peavey has manufactured mixers using almost every conceivable configuration except vacuum tubes. Many variations of packaging, years of experience, and a great deal of interface with respected professionals in the sound reinforcement field have culminated in this, our latest effort. We proudly announce our new Mark III Series sound reinforcement mixing consoles.

These versatile units embody our years of experience in electronic design, packaging and reliability studies, as well as the utilization of the very latest advances in semiconductor technology. The Mark III Series is all new from input to output and features many new and unique components developed specifically by Peavey to allow new advances in performance, circuitry sophistication and packaging density. Transformer-balanced input channel circuitry features almost infinite dynamic range to accommodate any known signal source and includes switchable 48 volt phantom power for capacitor microphones. Two independent pre monitor sends, four-band EQ, two post effects sends and a PFL/cue button complement each channel. Added flexibility is provided by send and return jacks both pre and post fader on each channel. LED status indicators show normal channel or overload operation to automatically give a visual reference of each channel's operational status.

The master section includes all the usual facilities as well as many features previously unavailable in sound reinforcement mixers. The Mark III Series features the capability to blend the signals from the effects and reverb returns to both monitor A and monitor B and also has a sum output with its own transformer balanced line amp that yields a composite of both A and B mains. These units have a complete patch panel with transformer balanced line outputs on **both mains, both monitors,** and **sum**. Total interface capability featuring ins and outs for each of the mixing busses and outputs have been included to allow use of the Mark III Series with any professional auxiliary equipment. A versatile headphone system has been built in with the ability to independently set the level of the normal mode as well as the PFL or cue mode with the PFL logic circuitry selecting which program material is heard through the headphones. Four ten-segment LED level indicators give an instantaneous reading of output level that cannot be duplicated by older and slower analog VU meters. The Mark III Series mixers are equipped with BNC type connectors (one on 12 channel version; two on 16 and 24 channel versions) for mating with optional 18-inch gooseneck lamps. These lamps have adjustable heads in order to position lighting on the controls exactly as required and enable the user to operate the mixer under even the most adverse lighting conditions. For additional operator convenience, a dimmer control is provided on the front panel of the mixer. The Mark III Series mixers are available in rugged flite cases or in our new polyester/fiberglass end panel construction.



FRONT PANEL

INPUT GAIN (1)

The input gain control of the Mark III Series utilizes a unique dual configuration in which the values and resistance tapers of the two control elements have been arranged so that attenuation **and** gain reduction occur simultaneously. This novel arrangement allows the vital input circuitry to handle almost any input voltage from low level mics to speaker levels. The status of this input preamp is monitored by the normal/overload indicators located on the front panel (2) and (3).

This novel input circuit of the Mark III uses the latest low noise, high slew rate semiconductors and provides maximum dynamic range without compromising other important operating parameters. The large input transformer is metal shielded and has been specially designed for this series of mixers. Even though the components and circuitry of this input circuit are markedly superior to previously available designs, its function and operational requirements are conventional and should present no operational difficulty.

CHANNEL LED STATUS DISPLAY (2,3)

Each channel of the Mark III is equipped with a dual LED (light emitting diode) status display which instantaneously displays the operational state of the respective channels. The -10 dBV or normal indicator (3) is green and, when illuminated, indicates that the channel is active and that a signal level of at least 0.3V RMS is being fed to the channel fader. The input gain control should be adjusted so that the normal status indicator is illuminated anytime there is a signal applied to the channel. Absence of input signal for **any** reason will result in no illumination of the -10 dBV LED (3). This feature is useful should something come unplugged during a performance. The disconnected channel can easily be found by locating the channel on which the normal LED is **not** illuminated.

The +10 dBV (or overload) indicator (2) is red and, when illuminated, is used to alert the operator that the peak signal level is greater than 3V RMS. The +10 dBV LED indicator should flash only on extreme peaks of program material. Please understand that some peak flashing of the red LED is normal and **should not cause alarm** because this overload LED indicator has been designed to include a **10 dB headroom margin. Please note that this does not necessarily mean that clipping is occuring, only that 3V RMS is reached. Clipping takes place at 10V RMS or =20 dBV.**

To allow enhanced performance, we have included a memory circuit in both of these LED indicators to allow adequate on time for proper perception by the operator. To maximize the signal-to-noise ratio in any mixing console, it is desirable to operate the input circuitry at adequate gain levels and this normal/overload LED display has been designed and included to make initial setup as easy as possible: Simply adjust the input gain to the point where the -10 dBV (green) LED is constantly illuminated and the +10 dBV (red) flashes only on extreme peaks. The only major consideration to avoid is the **constant** illumination of the +10 dBV (red) LED which indicates the possibility of clipping (distortion) in the input or tone control stages. A few hours of operating experience will illustrate the effectiveness and simplicity of this unique system.

MONITOR SEND CONTROLS A (4) and B (5)

The Mark III Series mixers feature two entirely separate monitor busses that are fed from the monitor send controls on each channel. These send controls are the channel mixing element for determining the all-important monitor mixes. The signal for both monitor sends are obtained immediately **after** the input preamp and **before** the equalization circuitry. These type monitor send controls are called pre monitor sends because they are located in the circuit **before**, or pre, the channel EQ and output slider controls. This type of pre arrangement makes the monitor independent of any channel control **except** the input gain control which must be set up properly in order for the monitor sends and any of the other channel controls to function properly.

This pre arrangement of the monitor sends is necessary because various changes of channel fader levels and/or EQ which must always be made during a performance **must not** change the vital monitor mix. We have included two independent monitor sends which should be adequate for any situation where on stage (separate) monitor mxing is not done. Either or both of the monitor mix busses may be used for other purposes such as effects send, cue, etc. Operation of the monitor send controls is conventional and should present no operational difficulties.

NOTE

THE INPUT GAIN (1) MUST BE ADJUSTED CORRECTLY BEFORE THE PRE MONITOR SENDS (AND OTHER CHANNEL FUNCTIONS) WILL OPERATE PROPERLY.

EQUALIZATION

The Mark III Series mixers feature a new low noise four-band equalization circuitry having precisely matched combining characteristics, hinge points and filter slopes that produce optimized response characteristics. This four-band EQ is of the latest active type featuring shelving-type response for the low and high EQ while peak/notch characteristics are employed for the middle controls.

Because of the effective and pronounced action of these EQ controls, care must be taken to set each control properly. All setup should begin with a flat or vertical (12:00) setting. It should be remembered that active EQ circuits of this nature are forms of electronic crossovers in which the various EQ controls are similar to level controls for their respective bands.

Generally, it is poor operating practice to operate equalizer controls in **deep** cut positions (fully counterclockwise) since this can result in lower gain (cut) from the channel and could lead to some headroom problems. Extreme boost (fully clockwise) settings are also generally not advisable since this could cause chronic feedback and/or noise problems.

Keep in mind that the low, mid, and high frequency balance is **relative** and boosting or cutting of overall gain is **best** accomplished either with the input gain trim (1) or with the channel fader (14). There is **nothing** magic about flat EQ settings and you should not be hesitant to experiment with these EQ controls to achieve the desired frequency balance. The important thing to remember is that it is generally unwise to resort to **extremes** for proper equalization. The equalization function is one of the **most** important ingredients in a good sound mix and you should expect to spend a reasonable amount of time becoming familiar with the Mark III's EQ functions and how they interrelate with the other components of your system such as mics, speaker systems, power amps, etc. The Mark III mixer is a relatively complex device and a certain amount of knowledge and experience are necessary in order to fully realize its tremendous potential. Those who have had considerable operational experience with other mixers and sound systems should experience no difficulty whatever with the Mark III Series mixers.

LOW FREQUENCY EQ (6)

This control is capable of better than 15 dB boost or cut at 60 Hz (30 dB control range) with a sloping characteristic exhibited up to the crossover (hinge) point. The shelving action of this circuit has proven to yield much more satisfying and effective equalization characteristics than some of the wide open EQ circuits claiming 20 to 25 dB boost and cut. The operation of this active control is conventional and should present no problem in operation. Boost is obtained in the clockwise positions while cut is obtained in counterclockwise settings. The vertical (12:00) position yields flat (no boost or cut) response and is the position from which all EQ adjustment should begin.

MID FREQUENCY EQ 1 (7)

This control enables a 15 dB boost or cut centered at 400 Hz (30 dB control range). This EQ filter circuit is designed with peak/notch characteristics that interact in a favorable manner with the adjacent EQ control filters.

This control enables balancing the upper bass and low midrange frequency range and is centered at a very important point for controlling the timbre of the human voice.

NOTE:

CAUTION SHOULD BE OBSERVED IN ORDER TO AVOID OVERBOOSTING OR OVERCUTTING THE VITAL MIDRANGE FREQUENCIES. EXPERIENCE HAS GENERALLY PROVEN THAT, FOR MOST APPLICATIONS, A VERY SLIGHT MIDRANGE 1 CUT WILL PRODUCE A VERY TIGHT AND WELL-DEFINED VOCAL SOUND. LARGE AMOUNTS OF MIDRANGE BOOST ARE USUALLY UNPLEASANT AND WILL PROBABLY NEVER BE USED EXCEPT TO CORRECT FOR MARGINAL MICROPHONES OR UNUSUAL VOICE TIMBRES.

MID FREQUENCY EQ 2 (8)

This control is similar to the above described mid EQ 1 except that its center frequency is at 2 kHz (30 dB control range). This vital control operates over the upper midrange and low treble frequencies.

As with the low equalizer, tonal balancing should be started from the vertical (flat) position. The actions of the mid equalizers are conventional giving a boost in clockwise settings, a cut in counterclockwise settings, and flat response in the vertical (12:00) settings.

HIGH FREQUENCY EQ (9)

This control determines the relative boost or cut of the high frequencies and features a 15 dB boost or cut at 15 KHz (30 dB control range). This EQ filter operates with a shelving characteristic similar to the low control above. Control action is conventional and should present no operational difficulties. This control provides the capability to compensate for the inefficiencies in the high end of some types of loudspeakers. It is strictly a presence type control and provides a crisp high end necessary for intelligibility. Again, excessive use of this type of equalization may result in less than optimum signal-to-noise ratios.

Equalization is a very important part of any mixing system but, unfortunately, it is one of the least understood and, therefore, most often misused portions of the mixer. Some form of EQ is a must in any professional sound system, but it should and must be used wisely. Usually, extremes of either boost or cut are to be avoided. Extreme low boosting can absolutely destroy an otherwise good mix by emphasizing wind noise and stage rumble. It can also tend to force the power amp into headroom problems while yielding an overall muddy sound. Overboosting of the mids and highs will tend to cause undue feedback, emphasize residual noise from the console or other devices within the system as well as tending to cause a hollow or screechy tonality in the system. EQ is **not** always an exact science for most sound applications and, again, understanding and field experience in working with the system are necessary to achieve the desired result.

EFFECTS SENDS (10,11)

The Mark III mixers feature two totally independent post (located in the circuit **after** equalization and channel fader in accordance with professional practice) effects sends on each channel used to feed various effects units such as echo units, phasors, etc., requiring post signal mix. The effects send levels of the respective channels will rise and fall with any subsequent resetting of either the channel's input gain, EQ settings or channel fader setting. Operation of these controls is conventional and should provide no operational difficulty.

NOTE:

THE INTERNAL REVERB DRIVE RECEIVES ITS SIGNAL FROM THE EFFECTS A SYSTEM. AT LEAST ONE OF THESE CONTROLS MUST DELIVER SIGNAL TO THE EFFECTS A BUS IN ORDER FOR THE BUILT-IN REVERBERATION TO FUNCTION.

PAN CONTROL (12)

The pan control is used to place the channel output signal in any desired location in the output stereo image. For example: The lead singer can be panned or moved from the right side of the stereo image to the left side or may be positioned anywhere in between. In the vertical (12:00) position of the pan control, the singer or other program input will appear in the center with equal output from both A & B channels. Please note that we have provided a 3 dB reduction in each main level in the vertical position as required by standard recording studio practice.

For sound reinforcement or other applications where the stereo function may be unnecessary, the pan control may be used as a rotary channel assignment control. An example of this use is described under the heading Pre and Post Patching Configurations. The action of this pan control is conventional and should present no problem in operation.

PFL CONTROL (13)

The PFL button allows the operator to instantaneously derive a cue or pre fade listen/solo signal through the headphones for any of the channels or either Main A & B. The PFL button activates electronic logic circuitry which routes signal derived post EQ but pre channel fader to the headphone amplifier, thus the name pre fade listen. This unique arrangement allows the operator to monitor any changes of equalization, input gain setting, etc., that may be desired. Because this signal is derived **before** the channel output fader, the fader setting has no effect on the level of the PFL signal. This level is affected by the input gain setting and tone controls of the individual channels and the PFL level setting in the master area.

CHANNEL LEVEL SLIDER (14)

The channel level slider is the output control that determines the mix into the main summing busses. Its calibration is in decibels of attenuation to gain, and this is why the number sequence goes from off (infinity) through 0 (or no attenuation) to +14 (or a gain of 5). Remember that attenuation is the cutting or reduction of the signal level; gain is an increase in signal level. The output fader is calibrated in accordance with standard practice for professional audio equipment.

The input gain control should be adjusted in conjunction with the channel level slider to produce adequate channel output when the channel slider is at the nominal 0 dB setting. This 0 dB slider setting will produce the best compromise between headroom and noise. It is very poor operating practice to use low input gain control settings that will require a setting of the output sliders in close-to-maximum positions to obtain adequate channel output. This mode of operation results in less than optimum signal-to-noise ratios. Similarly, operation of the output sliders in the close-to-minimum position, although improving signal-to-noise ratios, will cause headroom problems. As with any system, common sense must be combined with operating knowledge to produce satisfactory results. Overall, the channel controls should be set to provide a reasonable amount of adjustment; i.e., none of the gain controlling elements should be operated near their extreme up or down positions. After several hours' usage, the operator will have acquired a good feel for the characteristics of the controls and should be able to handle any mixdown situation encountered in the field with satisfactory results.

NOTE:

YOU SHOULD ALWAYS REMEMBER THAT THE INPUT GAIN CONTROL DEFINITELY INFLUENCES PROPER OPERATION OF THE ENTIRE MIXER FOR ANY GIVEN INPUT SIGNAL.

MASTER SECTION

The master section of the Mark III Series mixers contains all of the controls for the respective mixing busses and supplementary controls to allow other special functions to be achieved. Please note that the master sliders, like the channel sliders, have a 0 (normal) range. This is the so-called unity gain setting for the overall mix which, when operating at this setting, will assure the best compromise between signal-to-noise ratio and headroom.

The master level controls should be set near the 0 dB gain setting (close to the center of their travel) to take advantage of maximum control action. It is poor practice to set the input channels at such a high level that the user is required to run the main levels near the low end to achieve the desired output. Operation in this manner will cause the operator to lose his range of control action with all the gain located in one element while the other is in the near-to-stop position. This manner of operation will definitely create headroom problems. Best practice calls for most controls to be operated near the middle of their operating range to allow maximum mixing control margins (travel).

These master controls provide the operator complete flexibility for functions and should allow almost any mixing situation to be handled. As with any reasonably complex system, experience and operator knowledge of the equipment are essential for satisfactory performance. The mixer, like the musician's instrument, should be practiced on and learned. To properly operate a mixer during a performance requires thorough knowledge and trained reflexes to allow proper responses under the stress of demanding and sometimes sudden situations.

MAIN FADERS A & B (15)

The main faders A and B are the main output faders and control the signal levels being supplied to the main output jacks on the rear panel. Again, under normal usage, these controls should be operated near the center of their range (0 dB setting) to allow optimum performance.

MONITOR FADERS A & B (16)

The monitor faders A & B are the masters that control the signals being supplied to the monitor output jacks on the rear panel. These are the master output level controls for both monitor buses, with Monitor A being totally independent of Monitor B. Operation of these controls is similar to that of the Main A & B and should be set in conjunction with the respective individual channel monitor send controls to achieve operation somewhere near the center of their range (0 dB setting).

EFFECTS RETURN LEVEL CONTROL (17)

The Effects Return Level control determines the gain of the effects return preamplifier. This high impedance auxiliary input preamp feeds the Main A & B mixing buses through the Effects Pan control. This unequalized auxiliary input channel is primarily intended for receiving signals from external effects units but also works extremely well with tape recorders, phono preamps, etc.

EFFECTS PAN CONTROL (18)

The Effects Pan control determines the relative balance from the effects level control blended into the main mixing buses.

EFFECTS TO MONITOR A CONTROL (19)

The Effects to Monitor A control enables signals from the effects return input to be mixed back into the Monitor A mixing bus. This unique feature enables external effects such as echo units, flangers, etc., to be blended back into Monitor A output signal, if desired.

EFFECTS TO MONITOR B CONTROL (20)

This control works exactly like the Effects to Monitor A control except that it blends effects signals into the Monitor B mixing bus.

REVERB LEVEL CONTROL (21)

The Reverb Level control determines the amount of delayed (reverb) signal blended back into the mains.

REVERB PAN CONTROL (22)

The Reverb Pan control determines the relative balance from the Reverb Level control blended back into the main mixing buses.

REVERB TO MONITOR A CONTROL (23)

The Mark III Series Mixers' unique circuitry allows mixing of reverberation signal back into the Monitor A mixing bus for those who do not prefer a dry monitor sound.

REVERB TO MONITOR B CONTROL (24)

This control works exactly like the Reverb to Monitor A control except that it blends reverberation signal into Monitor B.

EFFECTS A MASTER CONTROL (25)

The Effects A Master control is the final control element determining the output level at the Effects A Send jack on the rear panel, as well as the amount of reverb drive delivered to the internal reverberation system. Please note that no reverberation effect may be achieved unless the individual channel effects send controls and the Effects A Master control are adjusted properly.

REVERB CONTOUR CONTROL (26)

This control is a type of tone adjustment for the internal reverberation system. It allows the user to adjust the sound of the reverb system to suit his personal taste. Its operation is relatively straightforward and should offer no complications.

EFFECTS B MASTER CONTROL (27)

The Effects B Master control is the final control element determining the output level at the Effects B Send jack on the rear panel. This control works in conjunction with the individual channel Effects B Sends and provides the overall master level adjustment for this function. It should be noted that the Effects B system is completely independent from the Effects A system. The Effects B system is generally used for echo/flanger units, etc., while the Effects A system is associated with the internal reverberation system.

STEREO LEVEL CONTROL (28)

This control determines the level at the Line A and Line B output jacks on the rear panel. The signal derived is pre Main A and Main B slider signals, which then makes the Stereo Level control completely independent of the Main A and Main B slider settings. This stereo output signal is useful for making live recordings and can be used as separate (independent) outputs for additional power amp/speaker systems as required. This same stereo signal also appears at the Tape Output jack on the rear panel which is simply a stereo jack configuration (ring-tip-sleeve) consisting of the Line A and Line B output signals.

SUM (29)

The unique circuitry of the Mark III Series Mixers derives a sum signal from the Main A & B outputs in order to make possible operation of the Main A & B outputs as submasters to the Sum. The Sum mixing bus features its own output line amplifier whose input is derived from the Main Outs through the Sum Input switching jack located on the rear panel. This Sum Input jack enables external signals to be patched into the Sum to allow even greater flexibility for the Sum circuitry. In addition, a Sum Auxiliary jack is provided which allows external signals to be patched into the Sum function without defeating the internal Sum mix.

PFL LEVEL CONTROL (30)

The PFL Level control determines the overall PFL mix level delivered to the internal headphone amplifier. This level control enables a totally different volume setting when monitoring the PFL bus than that used in the normal headphone mode wherein the headphone is connected to the Main A & B output signals.

HEADPHONE LEVEL CONTROL (31)

This stereo control determines the headphone level when in the normal (Main) mode and is completely independent from the PFL level control. The headphone's power amplifiers utilize electronic logic to switch from the normal Main position to the PFL function whenever any of the channel PFL or master PFL buttons are depressed.

HEADPHONE JACK (32)

The Headphone jack is a stereo type (ring-tip-sleeve) which is standard on most stereo headphones. The internal stereo headphone amplifiers are intended to drive normal dynamic low to medium impedance headphones and will work with most ceramic or crystal units as well.

ON/OFF SWITCH/PILOT LAMP (33)

The Mark III Series Mixer has a conventional two-position switch with a built-in pilot lamp which indicates when the electrical supply is switched on and functioning.

DIMMER CONTROL (34)

The dimmer control is a conventional rotary type that allows setting of the intensity of the accessory lamps (optional). Full clockwise setting is the maximum brightness position, while full counterclockwise settings produce minimum light output.

BNC LAMP CONNECTOR (35)

The Mark III Series Mixers are equipped with BNC type connectors for mating with optional 18-inch gooseneck lamps. The 12 channel version has one connector, while the 16 and 24 channel versions each have two connectors.

LAMPS (OPTIONAL)

For added operator convenience, optional 18-inch gooseneck lamps are available which insert easily into the built-in BNC connectors located on the front panel. These lamps have adjustable heads in order to position lighting on the mixer exactly as required and enable the user to operate the mixer under even the most adverse lighting conditions.

LED LEVEL INDICATORS (36)

The Mark III Series Mixers contain four ten-segment LED level indicators. These indicators are connected to the Main A & B and the Monitor A & B output signals which are available at the rear panel. As such, an LED level indicator is a direct reading volt meter calibrated in dBV. (0 dBV equals 1V RMS; +6 dBV equals 2V RMS; and -21 dBV equals 90 mV RMS.) The distinct advantage of an LED indicator system is that it yields an instantaneous display of effective RMS levels and as such provides a more positive indication over that of a conventional meter which tends to ignore peaks due to its slow ballistic characteristics. The LED indicators provide a positive indication of relative level and have built-in memory to allow the operator to see even a short duration burst type signal. By knowing the associated power amplifier's sensitivity rating, a particular LED level can be calibrated to indicate amplifier clipping.

REAR PANEL:

The rear panel of the Mark III Series Mixers contains all the interface connections to and from the electronic circuitry. All Peavey consoles feature inputs and outputs on the **rear** of the console chassis. From the manufacturing standpoint, it is far easier and considerably less expensive to position mic inputs on the front of the chassis as many of our competitors have chosen to do. By having inputs on the **front** of a console type mixer, the operator (when seated) must contend with a lap full of cables and wires, etc., which does not lend itself to professionalism nor operator convenience.

The versatility offered by the Mark III Series Mixers is unmatched by **any** competing unit. A thorough understanding of the various features is essential in order to fully utilize the performance and versatility of this unit.

INPUT SECTION (A)

Each channel of the Mark III Series Mixer features both balanced low impedance (600 ohms) as well as high impedance (50K ohms) unbalanced inputs. Each of these inputs features extremely wide dynamic range and is fully transient protected to insure durability under road conditions. While these inputs are intended primarily for microphones, they will also work nicely for many other types of program sources.

NOTE:

DO NOT ATTEMPT TO CONNECT THE OUTPUT OF MAGNETIC PHONO CARTRIDGES DIRECTLY TO ANY INPUT SINCE THESE CARTRIDGES REQUIRE RIAA EQUALIZATION PRIOR TO INSERTION INTO UNITS SUCH AS THIS. THE PREAMP CIRCUITRY OF THIS UNIT FEATURES SUFFICIENT GAIN TO OPERATE WITH MAGNETIC PHONO CARTRIDGES BUT DOES NOT HAVE THE SPECIAL RIAA EQUALIZATION SO NECESSARY TO REALIZE MAXIMUM PERFORMANCE. SMALL PREAMP/EQUALIZERS ARE AVAILABLE FROM MOST ELECTRONIC SUPPLY HOUSES THAT PERFORM THIS RIAA EQUALIZATION FUNCTION VERY INEXPENSIVELY. WE SUGGEST SHURE MODEL M-64, RADIO SHACK PHONO PREAMP MODEL NO. 422101, OR EQUIVALENT.

EFFECTS LOOPS

The Mark III Series Mixers feature both a Pre Send and Return and a Post Send and Return on each channel to facilitate taking direct outputs from each preamp or patching various auxiliary devices such as effects units, phasors, etc., in line with each preamp.

PRE SEND JACK (B)

The Pre Send jack is used to patch out of the system and presents the signal output from the input preamp. It is important to note that this signal is before (pre) the EQ and main channel level control. Patching this signal does not disturb normal channel operation. The voltage available at this point is a nominal 1V RMS at an output impedance of approximately 600 ohms.

PRE RETURN JACK (C)

This jack is the means by which the signal from any external device may be patched back into the equalization circuitry of each channel. This input presents a relatively high impedance (50K ohms) to minimize loading on external devices and should work with any device capable of delivering signal levels of at least 1 volt to this impedance. It should be noted that this Pre Return jack is of the switching type and normally is connected to the Pre Send jack, completing the normal signal flow through the channel. When a plug is inserted into the Pre Return jack, the signal path is broken and must now be completed through the external device; i.e., in-line patching.

POST SEND JACK (D)

The Post Send jack is used to patch out of the system and presents the signal output from the total preamp. This signal is taken after the channel slider and before the channel pan controls. Patching this signal does not disturb normal channel operation. The voltage available at this point is a nominal 1V RMS at an output impedance of approximately 600 ohms.

POST RETURN JACK (E)

This jack is the means by which the signal from any external device may be patched back into the pan control of each channel. This input presents a medium impedance (20K ohms) and should work with any device capable of delivering 1V into this impedance. It should be noted that this Post Return jack is of the switching type and is normally connected to the Post Send jack completing the normal signal flow through the channel. When a plug is inserted into the post return jack, the signal path is broken and must be completed through the external device; i.e., in-line patching.

PRE AND POST PATCHING CONFIGURATIONS

Normally, the Pre Send and Return jacks are used for patching devices in line which are to affect both main and monitor output signals. The Post Send and Return jacks are normally used for patching devices in line which are to affect the main outputs only. The Pre Send outputs can be used to develop additional monitor sends when necessary. The post output sends are useful for direct tape recorder operation and other applications where independent channel operation is required. One unique application of the patching capability of the Mark III Series Mixer involves using the Post Send as a direct patch to the Sum master. In this example, the A & B Masters are used as submasters where input drum channels are assigned by the channel pan controls to A Master and other instrument/-backup vocal channels are assigned to B Master. The Sum becomes an overall master level control and the Sum Out feeds the PA system. The problem then becomes where the lead vocal channel should be assigned. It would be desirable to have the lead vocal level independent of both the drums (in A Master) and instruments/backup vocals (B Master). This problem is solved by (1) Disconnecting the lead vocal channel from the A & B Master busses by inserting a blank f phone plug into the Post Return jack; and (2) Patching the Post Send jack to the Sum Aux. jack using a shielded cable. The lead vocal channel now feeds the Sum master directly and the lead vocal level is independent of the settings of the A & B Masters. It should be obvious from this example that many patching configurations are possible using the Pre or Post Sends and Returns.

MASTER SECTION PATCH PANEL

The master section patch panel of the Mark III Series Mixers provides access to all internal mixing busses as well as to the various line amplifiers and effects units. Additionally, all system outputs are provided.

MAIN (A & B), MONITOR (A & B) AND SUM OUTPUTS (F)

Each of these outputs features an unbalanced phone jack and a transformer balanced XLR connector to enable maximum patching flexibility. These line amplifiers are capable of providing more than 8V RMS output and are fully transient and short circuit protected for maximum field reliability. The output level presented by these jacks is controlled by the settings of the master level controls on the front panel.

EFFECTS A OUTPUT (G)

The Effects A Output presents the signal from the Effects A mixing bus. This jack is of a unique two-position type with the first position being the low level output and the second position being the high level output. This unique arrangement enables use of the mixer with either line level or instrument level effects devices depending on which click of the jack is used. The overall output level from the Effects A Output jack is determined by the setting of the Effects A Master control on the front panel.

EFFECTS B OUTPUT (H)

The Effects B Output presents the signal from the Effects B mixing bus. This jack is similar to the Effects A Output in its unique two-position type and in its operation. The overall output level from the Effects B Output jack is determined by the setting of the Effects B Master control on the front panel.

REVERB FOOTSWITCH JACK (I)

To facilitate remote control of the reverberation function, we have included a remote control footswitch jack. Any standard single pole footswitch may be used to remotely defeat the reverb function. Please note that this switch disables the reverb system **only** and has no effect whatsoever on the effects system.

EFFECTS RETURN INPUT (J)

The Effects Return Input on the rear panel is the input to the effects return preamp which has its own level and panning controls located on the front panel. This Effects Return is capable of handling a wide range of input signals and is a very high impedance type (220K ohms). The Effects Return system feeds into both main mixing buses and both monitor mixing buses and is intended for use when returning signals from external devices to be mixed into the various buses.

SUM INPUT (K)

The Sum Input jack is the input to the sum line amplifier and is of the switching type which normally connects to a sum mix of the two main channels. This Sum Input is a line level input to the Sum mixing bus and allows patching of graphic equalizers or other in line systems into this useful sum feature. Please note that inserting a plug into the Sum Input disconnects Main A & B Outputs from the Sum mixing bus.

SUM AUXILIARY INPUT (L)

The Sum Auxiliary Input jack is an additional input to the sum line amplifier but it does not disturb the normal internally connected sum mix of the two main channels. This input is a line level input to the Sum mixing bus. This unique feature allows the creation of a third sub system either through the use of an individual channel on the Mark III Series Mixer itself or by using an external mixer.

LINE A AND LINE B OUTPUTS (M)

These jacks provide a stereo output signal from the stereo level control on the front panel. They provide a pre main A & B slider function making them independent of the Main A and Main B slider settings. The Line A output jack provides the signal from the Main A mix and Line B output jack provides the signal from the Main B mix. These jacks are useful for making live recordings and can be used for additional Main A and Main B outputs.

TAPE OUTPUT (N)

This jack is a stereo type jack (ring-tip-sleeve) connected in the normal stereo configuration and contains the same signals that are available from the Line A and Line B outputs except in this convenient stereo configuration. This jack can be used with stereo **powered** headsets and other devices which utilize a standard stereo plug.

AUXILIARY INPUTS (O)

The Auxiliary Inputs are line level access points to the six internal mixing buses. They are medium impedance type (33K ohms) and are provided to allow paralleling mixers or for any other purpose that requires direct signal injection into the internal mixing buses.

PHANTOM POWER SWITCH (P)

The Mark III Series Mixer contains an internal 24V phantom power supply which can be switched on to all the individual input connectors allowing phantom powered microphone operation. This 24V system is conventional and will work with most readily available microphones. It is applied to the center tap of the balanced input transformer on each channel through a 4.7K resistor. Although this on/off switch controls all the channels, a convenient internal patching situation can be arranged in blocks of four channels so that only the necessary channels requiring phantom powered operation are activated. It is a well-known fact that although phantom powering does not affect normal operation of a non-phantom powered microphone system, it can create excessive noise situations in certain types of microphone cables.

FUSE (Q)

The fuse is located within the cap of the fuseholder. It is necessary that the fuse be replaced with the proper type and value if it should fail in order to avoid damage to the equipment and to prevent voiding the warranty. If your unit repeatedly blows fuses, it should be taken to a qualified service center for repair.

LINE CORD (R)

For your safety, we have incorporated a three-wire line (mains) cable with proper grounding facilities. It is not advisable to remove the ground pin under any circumstances. If it is necessary to use the amp in a two-pin plug system without proper grounding facilities, suitable grounding adaptors should be used. Much less noise and greatly reduced shock hazard exists when the unit is operated with the proper grounded receptacles.

SPECIFICATIONS

SUMMARY OF FUNCTIONS:
12/16/24 channels in, stereo main out, sum, stereo monitor out, stereo effects high/low level out, 4-band EQ and PFL each channel, stereo headphone out, stereo line out, internal reverb

INPUTS, EACH CHANNEL:
1 low Z transformer balanced microphone, 1 high Z unbalanced line, 1 high Z unbalanced pre return, and 1 high Z unbalanced post return

INPUTS, MASTER:
1 unbalanced auxiliary for main A, main B, monitor A, monitor B, effects A, effects B, and sum; 1 unbalanced high Z effects return; 1 unbalanced high Z sum bypass

OUTPUTS, EACH CHANNEL:
1 low Z unbalanced pre send line, 1 low Z unbalanced post send line

OUTPUTS, MASTER:
1 low Z balanced line and 1 low Z unbalanced line each for main A, main B, monitor A, monitor B, and sum; 2 low Z high/low level effects; 2 low Z unbalanced stereo lines; stereo headphone; reverb footswitch

CHANNEL MICROPHONE INPUTS:
Mic Impedance: Low Z (600 ohms) transformer balanced
Nominal Input Level: -22 dBM, 60 mV RMS
Minimum Input Level: -38 dBM, 10 mV RMS
Maximum Input Level: +22 dBM, 10V RMS

CHANNEL LINE (HIGH Z MIC) INPUTS:
Line Impedance: High Z (100K ohms) unbalanced
Nominal Input Level: -14 dBV, 200 mV RMS
Minimum Input Level: -30 dBV, 30 mV RMS
Maximum Input Level: +30 dBV, 30V RMS

CHANNEL RETURNS (PRE & POST) AND AUXILIARY INPUTS:
Line Impedance: High Z (50K ohms) unbalanced
Nominal Input Level: 0 dBV, 1V RMS

EFFECTS RETURN INPUTS:
Line Impedance: High Z (220K ohms) unbalanced
Nominal Input Level: 0 dBV, 1V RMS
Minimum Input Level: -14 dBV, 0.2V RMS
Maximum Input Level: +6 dBV, 2V RMS

MAIN A, MAIN B, MONITOR A, MONITOR B, AND SUM BALANCED OUTPUTS:
Load Impedance: 600 ohms or greater
Nominal Output: 0 dBV, 1 V RMS
Maximum Output: +18 dBV, 8 V RMS into 50K ohms load
+16 dBM, 5V RMS into 600 ohms load

MAIN A, MAIN B, MONITOR A, MONITOR B, SUM, CHANNEL SENDS (Pre & Post), EFFECTS HIGH LEVEL, AND STEREO LINE UNBALANCED OUTPUTS:
Load Impedance: 600 ohms or greater
Nominal Output: 0 dBV, 1V RMS
Maximum Output: +18 dBV, 8V RMS into 50K ohms load
+14 dBM, 4V RMS into 600 ohms load

EFFECTS (LOW LEVEL) UNBALANCED OUTPUT:
Load Impedance: 10K ohms or greater
Nominal Output: -12 dBV, 0.25V RMS
Maximum Output: +6 dBV, 2V RMS

HEADPHONES: (Stereo amp with stereo jack)
Load Impedance: 4 ohms to 50 ohms each channel
Maximum Output Power: 100 mW each channel

THE FOLLOWING SPECS MEASURED WITH A NOMINAL INPUT GAIN SETTING OF +14 dB ALL CHANNELS; ALL SLIDERS SET AT NORMAL; ALL EQ SET FLAT; LOW Z INPUTS TERMINATED @ 600 OHMS; HIGH Z INPUTS AND ALL OUTPUTS TERMINATED @ 47K OHMS.

FREQUENCY RESPONSE:
(Any in/out combination with 1V RMS output)
+0, -2 dB, 20 Hz to 30 KHz

PREAMP HUM & NOISE: (All channels on)
-84 dBV High Z line inputs
-80 dBV Low Z mic inputs

EQUIVALENT INPUT NOISE:
-127 dBV, 20 Hz — 20 KHz, 150 ohms

OVERALL DISTORTION:
(Any in/out combination, 20 Hz — 20 KHz @ 1V RMS)
Less than 0.5% THD, Typically below .01%

EQUALIZATION:
+-15 dB @ 60 Hz & 15 KHz, Shelving
+-15 dB @ 500 Hz & 3 KHz, Peak/Notch

CROSSTALK:
Greater than 70 dB @ 1 KHz

MAXIMUM AVAILABLE GAIN:
+14 dB Master Slider
+14 dB Channel Slider
+30 dB Input Control
+10 dB Balanced Input Transformer
+68 dB Total

LED READOUT RANGE:
-21 to +6 dBV, main A & B, monitor A & B

CHANNEL LED LEVELS:
-10 dBV, Normal; and +10 dBV, Clip

POWER REQUIREMENTS: (Domestic)
40W, 120 VAC, 50/60 Hz

In order to obtain service under these warranties, you must:

a. Bring the defective item to any AUTHORIZED PEAVEY DEALER or AUTHORIZED PEAVEY SERVICE CENTER and present therewith the ORIGINAL PROOF OF PURCHASE supplied to you by the AUTHORIZED PEAVEY DEALER in connection with your purchase from him of this product.
If the DEALER or SERVICE CENTER is unable to provide the necessary warranty service you will be directed to the nearest other PEAVEY AUTHORIZED DEALER or AUTHORIZED PEAVEY SERVICE CENTER which can provide such service.

OR

b. Ship the defective item, prepaid, to:

PEAVEY ELECTRONICS CORPORATION
International Service Center
Highway 80 East
MERIDIAN, MS 39301

including therewith a complete, detailed description of the problem, together with a legible copy of the original PROOF OF PURCHASE and a complete return address. Upon Peavey's receipt of these items:
If the defect is remedial under these limited warranties and the other terms and conditions expressed herein have been complied with, Peavey will provide the necessary warranty service to repair or replace the product and will return it, FREIGHT COLLECT, to you, the purchaser.

Peavey's liability to the purchaser for damages from any cause whatsoever and regardless of the form of action, including negligence, is limited to the actual damages up to the greater of $500.00 or an amount equal to the purchase price of the product that caused the damage or that is the subject of or is directly related to the cause of action. Such purchase price will be that in effect for the specific product when the cause of action arose. This limitation of liability will not apply to claims for personal injury or damage to real property or tangible personal property allegedly caused by Peavey's negligence. Peavey does not assume liability for personal injury or property damage arising out of or caused by a non-Peavey alteration or attachment, nor does Peavey assume any responsibility for damage to interconnected non-Peavey equipment that may result from the normal functioning and maintenance of the Peavey equipment.

UNDER NO CIRCUMSTANCES WILL PEAVEY BE LIABLE FOR ANY LOST PROFITS, LOST SAVINGS, ANY INCIDENTAL DAMAGES OR ANY CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PRODUCT, EVEN IF PEAVEY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

THESE LIMITED WARRANTIES ARE IN LIEU OF ANY AND ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR USE; PROVIDED, HOWEVER, THAT IF THE OTHER TERMS AND CONDITIONS NECESSARY TO THE EXISTENCE OF THE EXPRESS, LIMITED WARRANTIES, AS HEREINABOVE STATED, HAVE BEEN COMPLIED WITH, IMPLIED WARRANTIES ARE NOT DISCLAIMED DURING THE APPLICABLE ONE-YEAR OR NINETY-DAY PERIOD FROM DATE OF PURCHASE OF THIS PRODUCT.

SOME STATES DO NOT ALLOW LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS, OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU. THESE LIMITED WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY FROM STATE TO STATE.

THESE LIMITED WARRANTIES ARE THE ONLY EXPRESS WARRANTIES ON THIS PRODUCT, AND NO OTHER STATEMENT, REPRESENTATION, WARRANTY OR AGREEMENT BY ANY PERSON SHALL BE VALID OR BINDING UPON PEAVEY.

In the event of any modification or disclaimer of express or implied warranties, or any limitation of remedies, contained herein conflicts with applicable law, then such modification, disclaimer or limitation, as the case may be, shall be deemed to be modified to the extent necessary to comply with such law.

Your remedies for breach of these warranties are limited to those remedies provided herein and Peavey Electronics Corporation gives this limited warranty only with respect to equipment purchased in the United States of America.

INSTRUCTIONS — WARRANTY REGISTRATION CARD

1. Mail the completed WARRANTY REGISTRATION CARD to:

PEAVEY ELECTRONICS CORPORATION
POST OFFICE BOX 2898
MERIDIAN, MISSISSIPPI 39302-2898

   a. Keep the PROOF OF PURCHASE. In the event warranty service is required during the warranty period, you will need this document. **There will be no identification card issued by Peavey Electronics Corporation.**
2. IMPORTANCE OF WARRANTY REGISTRATION CARDS AND NOTIFICATION OF CHANGES OF ADDRESS:
   a. Completion and mailing of WARRANTY REGISTRATION CARDS — Should notification become necessary for any condition that may require correction, the REGISTRATION CARD will help ensure that you are contacted and properly notified.
   b. Notice of address changes — If you move from the address shown on the WARRANTY REGISTRATION CARD, you should notify Peavey of the change of address so as to facilitate your receipt of any bulletins or other forms of notification which may become necessary in connection with any condition that may require dissemination of information or correction.
3. You may contact Peavey directly by telephoning (601) 483-5365.
4. Please have the Peavey product name and serial number available when communicating with Peavey Customer Service.

DANGER

EXPOSURE TO EXTREMELY HIGH NOISE LEVELS MAY CAUSE A PERMANENT HEARING LOSS. INDIVIDUALS VARY CONSIDERABLY IN SUSCEPTIBILITY TO NOISE INDUCED HEARING LOSS, BUT NEARLY EVERYONE WILL LOSE SOME HEARING IF EXPOSED TO SUFFICIENTLY INTENSE NOISE FOR A SUFFICIENT TIME.
THE U.S. GOVERNMENT'S OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) HAS SPECIFIED THE FOLLOWING PERMISSIBLE NOISE LEVEL EXPOSURES:

DURATION PER DAY IN HOURS	SOUND LEVEL dBA, SLOW RESPONSE
8	90
6	92
4	95
3	97
2	100
1½	102
1	105
½	110
¼ or less	115

ACCORDING TO OSHA, ANY EXPOSURE IN EXCESS OF THE ABOVE PERMISSIBLE LIMITS COULD RESULT IN SOME HEARING LOSS.
EAR PLUGS OR PROTECTORS IN THE EAR CANALS OR OVER THE EARS MUST BE WORN WHEN OPERATING THIS AMPLIFICATION SYSTEM IN ORDER TO PREVENT A PERMANENT HEARING LOSS IF EXPOSURE IS IN EXCESS OF THE LIMITS AS SET FORTH ABOVE. TO INSURE AGAINST POTENTIALLY DANGEROUS EXPOSURE TO HIGH SOUND PRESSURE LEVELS, IT IS RECOMMENDED THAT ALL PERSONS EXPOSED TO EQUIPMENT CAPABLE OF PRODUCING HIGH SOUND PRESSURE LEVELS SUCH AS THIS AMPLIFICATION SYSTEM BE PROTECTED BY HEARING PROTECTORS WHILE THIS UNIT IS IN OPERATION.

CAUTION

THIS MIXING CONSOLE/EFFECTS DEVICE/PREAMP HAS BEEN DESIGNED AND CONSTRUCTED TO PROVIDE ADEQUATE SIGNAL (VOLTAGE) FOR PLAYING MODERN MUSIC. IMPROPER USE OF THE GAIN/EQUALIZER CONTROLS AND/OR IMPROPER USE OF INTERNAL/EXTERNAL BUSSES **MAY** CREATE CLIPPING (SQUARE WAVES) AND POSSIBLY CAUSE SUBSEQUENT DAMAGE TO THE LOUDSPEAKER SYSTEMS. EXTENDED OPERATION OF THE GAIN/EQUALIZATION CONTROLS IN THEIR MAXIMUM POSITIONS IS THEREFORE **NOT** RECOMMENDED. PLEASE BE AWARE THAT **MAXIMUM POWER** CAN BE OBTAINED WITH VERY LOW SETTINGS OF THE **GAIN/EQUALIZATION** CONTROLS IF THE INPUT SIGNAL IS VERY STRONG.

IT IS COMMON PRACTICE AMONG USERS OF SOUND REINFORCEMENT EQUIPMENT TO IDENTIFY THE INDIVIDUAL CHANNELS WITH A STRIP OF TAPE PLACED ABOVE OR BELOW THE ROW OF VOLUME FADERS. MANY TYPES OR BRANDS OF TAPE HAVE A VERY STRONG ADHESIVE WHICH CAN INHIBIT THE PAINT ON THE FACES AT AND ACTUALLY REMOVE THE PAINT WHEN THE TAPE IS REMOVED. WE STRONGLY RECOMMEND THAT SCOTCH TAPE NOT BE USED ON PAINTED SURFACES NOR ANY OTHER TAPE THAT IS NOT ESPECIALLY DESIGNED FOR SUCH APPLICATIONS. MEDIUM OR LIGHT ADHESIVE MASKING OR PAPER LABEL TAPE IS RECOMMENDED IF TAPE IS USED. ANY TAPE LEFT ON PAINTED SURFACE FOR EXTENDED PERIODS WILL BE DIFFICULT TO REMOVE. NEVER USE CLEAR OR SCOTCH TAPE FOR THESE APPLICATIONS.

1. Read all safety and operating instructions before using this product.
2. All safety and operating instructions should be retained for future reference.
3. Obey all cautions in the operating instructions and on the back of the unit.
4. All operating instructions should be followed.
5. This product should not be used near water, i.e. a bathtub, sink, swimming pool, wet basement, etc.
6. This product should be located so that its position does not interfere with its proper ventilation. It should not be placed flat against a wall or placed in a built-in enclosure that will impede the flow of cooling air.
7. This product should not be placed near a source of heat such as a stove, radiator or another heat producing amplifier.
8. Connect only to a power supply of the type marked on the unit adjacent to the power supply cord.
9. Never break off the ground pin on the power supply cord. For more information on grounding write for our free booklet "Shock Hazard and Grounding."
10. Power supply cords should always be handled carefully. Never walk or place equipment on power supply cords. Periodically check cords for cuts or signs of stress, especially at the plug and the point where the cord exits the unit.
11. The power supply cord should be unplugged when the unit is to be unused for long periods of time.
12. If this product is to be mounted in an equipment rack, rear support should be provided.
13. Metal parts can be cleaned with a damp rag. The vinyl covering used on some units can be cleaned with a damp rag or an ammonia based household cleaner if necessary.
14. Care should be taken so that objects do not fall and liquids are not spilled into the unit through the ventilation holes or any other openings.
15. This unit should be checked by a qualified service technician if:
    A. The power supply cord or plug has been damaged.
    B. Anything has fallen or been spilled into the unit.
    C. The unit does not operate correctly.
    D. The unit has been dropped or the enclosure damaged.
16. The user should not to attempt to service this equipment. All service work should be done by a qualified service technician.

Features and specifications subject to change without notice.

Peavey Electronics Corporation / 711 A Street / Meridian, MS 39302-2898 / U.S.A. / (601) 483-5365 Telex: 504115 / Fax: 484-4278

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