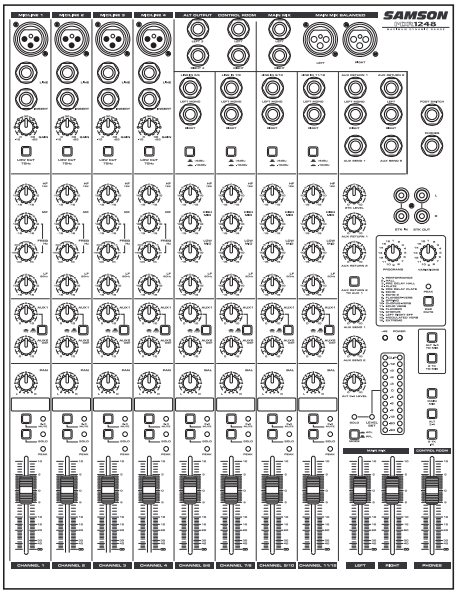
# MDR1688
# MDR1248

## *Maximum Dynamic Range*



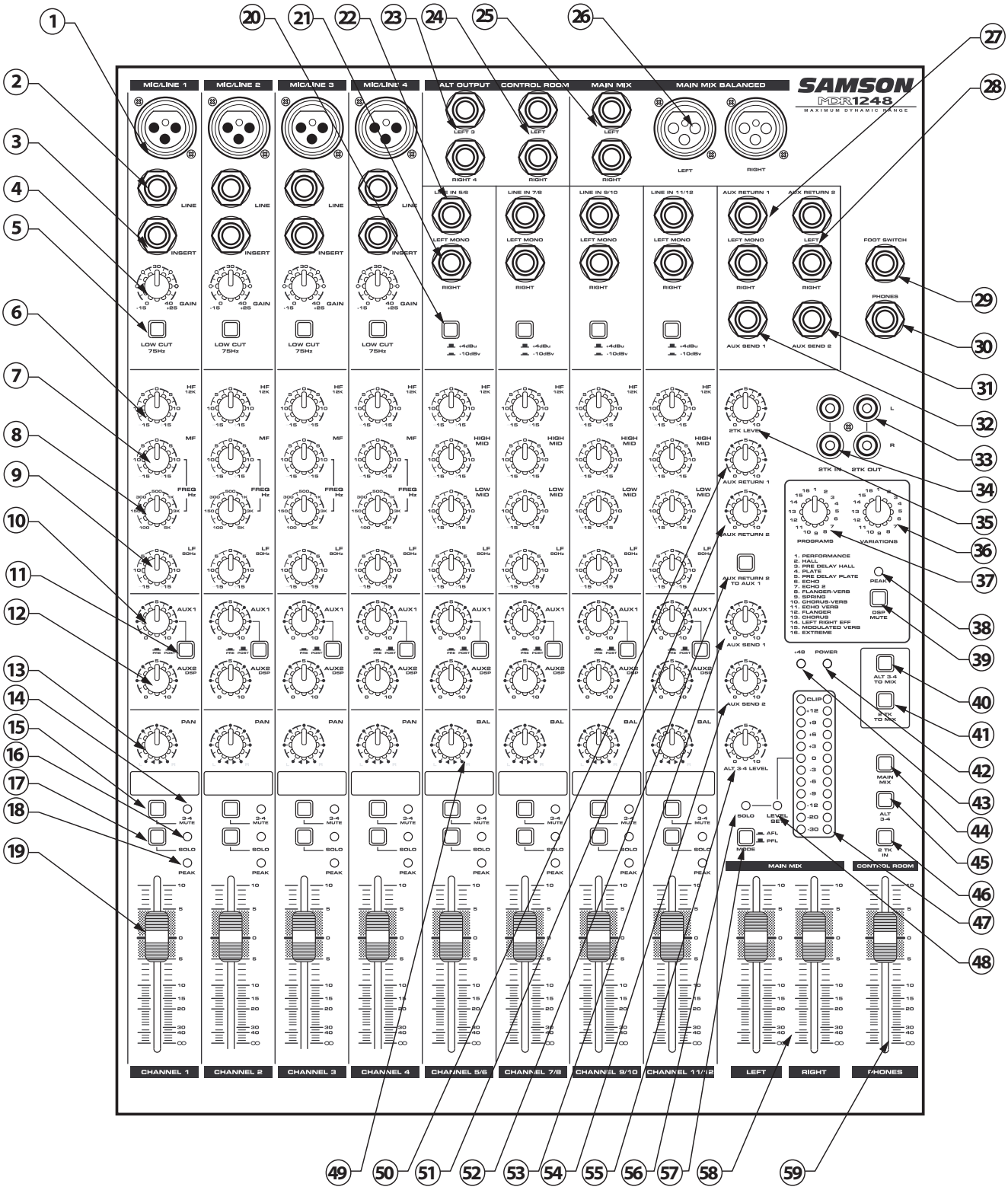
**TWELVE AND SIXTEEN CHANNEL MIXER**
**WITH 24-bit DSP EFFECTS**

# Owners Manual

SAMSON
AUDIO

MDR Series Mixers

# Front Panel Layout



# Front Panel Controls

**FRONT PANEL**

1 **MIC IN** – Input connector for Low-Noise Microphone pre-amp.

2 **LINE IN**–Input connector for Line level inputs.

3 **INSERT** – 1/4-inch TRS (TIP/RING/SLEEVE) connector providing send and receive channel patch point for outboard effects.

4 **GAIN** – Used to set the input level of the mic pre and line input.

5 **LOW CUT** – Bass roll off switch at 75Hz used to eliminate unwanted low end rumble and hum.

6 **HIGH FREQUENCY** – Controls the high band of the Channel Equalizer, +/- 15 dB at 12KHz.

7 **MID CUT/BOOST** – This control knob provides +/- 15 dB of boost or cut at the frequency set on the MID SWEEP control on the mono input channels.

8 **MID SWEEP** – Control knob used to set the center frequency of the mid band of the Channel Equalizer.

9 **LOW FREQUENCY** – Controls the low band of the Channel Equalizer, +/- 15 dB at 80Hz.

10 **AUX 1** – Auxiliary send that can be used with an external effects processor, or to create a cue or monitor mix.

11 **PRE / POST switch** – Used to configure Aux 1 signal routing from a Pre fader to a post fader send.

12 **AUX 2/DSP** – Post-fader auxiliary send that can be used with an external effects processor, or to create a cue or monitor mix, or to send a signal to the internal DSP.

13 **PAN** – Controls the channel's position between left and right in the stereo bus.

14 **3/4 MUTE LED** – When illuminated, the display indicates that the input channel is assigned to the ALT3/4 bus and is muted in the Left /Right Main Mix bus.

15 **3/4 / MUTE switch** – When engaged, the input channel is assigned to the ALT3/4 bus and is muted in the Left / Right MAIN MIX bus.

16 **SOLO LED** – When illuminated, the display indicates that the input channel is assigned to the SOLO bus.

17 **SOLO switch** – When engaged, the input channel is assigned to the SOLO bus.

18 **PEAK** – Red LED will illuminate indicating when the GAIN has been adjusted too high.

19 **LEVEL** – Audio taper fader provides smooth control of level changes.

20 **+4 / -10 switch** – Used to set the line input sensitivity from –10dB when the switch is pressed in to +4dB when this switch is out.

21 **RIGHT LINE** – 1/4-inch phone input connector for the right line input for the stereo channels.

22 **LEFT/MONO LINE** - 1/4-inch phone input connector for the Left Line input for the stereo channels or a mono input.

23 **ALT 3/4 OUTPUTS jacks** – Balanced, 1/4-inch phone connectors carrying the signal from the ALT 3/4 bus.

24 **CONTROL ROOM OUTPUT**– Left and Right Control Room output connectors for connecting a monitor system.

25 **MAIN MIX OUTPUT (1/4-inch)** – Left and Right Main Mix balanced output 1/4-inch TRS connectors.

26 **MAIN MIX OUTPUT (XLR)** – Left and Right Main Mix balanced output XLR connectors.

27 **AUX RETURN 1** – Left and right input jacks for connecting to the outputs of external line level sources like those from effects processors.

28 **AUX RETURN 2** – Left and right input jacks for connecting to the outputs of external line level sources like those from effects processors.

29 **FOOTSWITCH JACK** – 1/4-inch phone jack for connecting a standard footswitch used to turn the internal DSP effects on and off.

30 **PHONES JACK** – Connect stereo headphones here.

31 **AUX SEND 2** – Line level output from the Auxiliary 2 bus.

32 **AUX SEND 1** – Line level output from the Auxiliary 1 bus.

33 **2 TRACK OUTPUTS** – Connect to the input of a DAT, Cassette, Mini Disk or Hard Disk Recording system.

34 **2 TRACK INPUTS** – Connect the output from a DAT, Cassette, Mini Disk or Hard Disk Recording system.

35 **2 TRK LEVEL** – Control knob used to set the level of the source connected to the 2-track input.

36 **VARIATIONS** – Control knob used to select one of the sixteen variations for each of the sixteen DSP effect programs.

37 **PROGRAMS** – Control knob used to select one of the sixteen DSP effect programs.

38 **DSP PEAK** – LED indicator illuminates when the input signal to the internal DSP is reaching an overload level.

39 **DSP MUTE switch** – Used to turn the internal DSP effects on and off.

40 **ALT 3/4 TO MIX** – Routes the ALT 3/4 to the Left / Right MAIN MIX outputs. Use the ALT3/4 Level (55) to set the volume.

41 **2 TRK TO MIX** - Routes the Left / Right 2 track inputs to the Left / Right MAIN MIX outputs. Use the 2 TRK

# Front and Rear Panel Layout

**FRONT PANEL CONTROLS - continued**

LEVEL control (35) to set the volume.

**42 POWER LED** – Indicates the MDR1248 or MDR1688 is powered up.

**43 PHANTOM LED** – Indicates that the 48 Volt Phantom Power is on.

**44 MAIN MIX** – Routes the Left / Right MAIN MIX bus to the CONTROL ROOM / PHONES outputs. Use the Left / Right MAIN MIX Level faders (58) and PHONES level fader (59) to set the volume.

**45 ALT 3/4** – Routes the ALT 3/4 bus to the CONTROL ROOM / PHONES outputs. Use the ALT3/4 Level (55) and PHONES level fader (59) to set the volume.

**46 2 TRK IN** – Routes the Left / Right 2 track input to the CONTROL ROOM / PHONES outputs. Use the 2 TRK LEVEL control (35) and PHONES level fader (59) to set the volume.

**47 OUTPUT METER** - Twelve segment LED display with VU ballistics indicates main Mix level.

**48 LEVEL SET LED** – When an input channel is in SOLO, this indicator will illuminate to show that the channel's input gain level is displayed on the Main Level Meter.

**49 BALANCE** – Controls the channel's position between left and right of the stereo inputs.

**50 AUX RETURN 1** – Used to mix in the level of AUX Return 1.

**51 AUX RETURN 2** – Used to mix in the level of AUX Return 2.

**52 AUX RETURN 2 TO AUX 1** - Switch used to route AUX RETURN 2 into the AUX 1 output so that effects can be heard in the monitor mix.

**53 AUX SEND 1** – Control knob used to set the master level of the AUX1 SEND.

**54 AUX SEND 2** – Control knob used to set the master level of the AUX2 SEND.

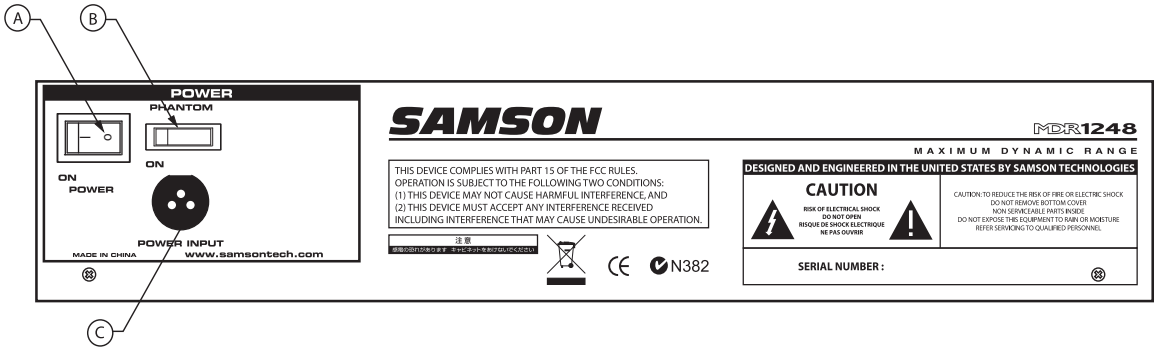
**55 ALT 3/4 LEVEL** – Control knob used to set the level of the ALT 3/4 bus.

**56 SOLO LED** – Indicates that one or more channels are assigned to the SOLO bus.

**57 SOLO MODE** – Selects the SOLO mode from AFL (After Fader Level) when the switch is pressed in, and PFL (Pre Fader Level) when the switch is pressed out.

**58 MAIN LEVEL** faders – Used to control the overall volume of the Left and Right main Mix output

**59 CONTROL ROOM / PHONES fader** – Adjusts the volume of the control room speakers and/or headphones.




**REAR PANEL**

**A POWER** – Switches on the MDR1248 and MDR1688's main power.

**B PHANTOM** – Engages the 48-Volt Phantom power supply to microphone pre-amps.

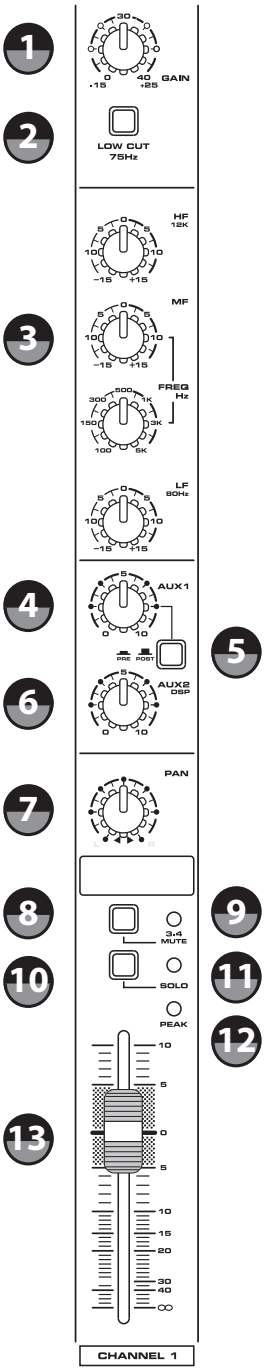
**C AC ADAPTOR INLET** – Connect External AC power supply here.

**MONO INPUT CHANNEL SECTION**

The following section details each part of the MDR1248 and MDR1688's MONO INPUT CHANNELS including the GAIN control, LOW CUT switch, 3-BAND EQ, AUX sends, PEAK LED, PAN, SOLO, ALT 3/4 bus and LEVEL controls. The input channels one through four on the MDR1248 and on through eight on the MDR1688 feature high quality, discrete transistor pre-amps providing transparency and extended dynamic range.

**1 - GAIN - control knob**

The MDR1248 and MDR1688's pre-amp stage has a variable GAIN control with a range of 0 to 40dB on the MIC input and –15 to +25dB on the LINE input.




**2 - LOW CUT FILTER - switch**

Each of the MDR1248 and MDR1688's mono input channels include a LOW CUT (or high pass) filter which rolls off the low frequencies from 75Hz and below at the rate of 18dB per octave. The LOW CUT filter allows you to remove the lower frequencies that you sometime just don't want to pick up. For example, when you are miking a high-hat you only want to capture the frequencies that the hi-hat is producing. Therefore, by using the LOW CUT filter, you can reduce the amount of pick-up from the low toms and bass drum that may leak into the hi-hat mic. You can use the same technique on other instruments like acoustic guitar, violin, piano and even on vocals. In live sound applications, the LOW CUT filter is especially useful for removing stage rumble.

**3 - Channel Equalizer**

The MDR1248 and MDR1688 mic/line input channels incorporate a 3-band equalizer, with sweepable Mid-range, allowing you to adjust the high, mid-range, and low frequencies independently on each channel. The frequency centers, range of boost or cut, and equalizer type for each band are described in the following section.

**HF (HIGH FREQUENCY) 12kHz +/- 15dB Shelving type**

The channel's HIGH frequency response is flat when the knob is in the "12:00" position. Rotating the knob towards the right will boost the channel's high frequency response at 12 kHz by 15dB, and rotating it towards the left will cut the high frequency by 15dB.

**MF (MID FREQUENCY) CUT & BOOST**

The MID CUT & BOOST knob is used in conjunction with the MID FREQUENCY knob to create the tonal shape in the mid-range frequency when using the mono channel's equalizers. You can adjust the frequency on the mid-range control with the FREQ knob, and use the MF CUT & BOOST to either boost or cut that frequency by plus or minus 15dB. The channel's MID frequency response is flat when the MF knob is in the "12:00" position.

**FREQ (MID FREQUENCY) Variable 100Hz – 5K**

The MID FREQUENCY is a control enabling you enhanced capabilities in the tonal shaping of the input channel signal. Thanks to the MID FREQUENCY control, you have a variable mid-range equalizer, allowing you to pin point the exact frequency you want to boost or cut. The MID SWEEP has a "fixed Q" of two octaves (the amount, or width, of frequencies around the center point that are effected by the MID CUT & BOOST control) and can be set in a range from 100Hz to 5Khz.

**LF (LOW FREQUENCY) 80Hz +/- 15dB shelving type**

The channel's LOW frequency response is flat when the knob is in the "12:00" position. Rotating the knob towards the right will boost the channel's low frequency response at 80 Hertz by 15dB, and rotating it towards the left will cut the frequency by 15dB.

# Controls and Functions

**MONO INPUT CHANNEL SECTION - continued**

**Auxiliary Busses ( 4 - 6 )**

The MDR series include two auxiliary signal paths, or buses, that can be used to create independent mixes for sending to the internal or external effects processors, or to an external monitor system. The flow of these buses start by sending the signal from each individual channel, which is set with one of the auxiliary control knobs. Then, the mix of all the channels auxiliary level is ultimately sent to either an internal effects processors, or to an output jack to connect to an external effect or monitor system. To help you control your effects and monitor mixes, the MDR mixers have two auxiliary buses. Plus, for added flexability, AUX1 can be configured as a Pre or Post fader send.

**PRE….? POST….? What's That?**

In order to operate your mixer correctly, it is important to understand the concept of PRE and POST Fader Aux sends. An auxiliary bus that is set up as PRE Fader routes, or sends, the signal to its output from a point in the channels' circuit that is electronically before the channel Fader. That means the channel Fader has no effect on the PRE aux level. A Pre Fader send is what you want to use for a monitor mix, so when the level is changed for the mix in the main PA speakers using the channel Fader, the level in the monitor set by the aux control knob remains the same. An auxiliary bus that is set up as POST Fader routes, or sends, the signal to its output from a point in the channels' circuit that is electronically after the channel Fader. That means that the channel Fader also affects the level of a POST aux send. A POST Aux bus is what you want to use (almost always) for sending to an effects processor, either internal or external. When using the POST aux sends, (while turning the channel Fader up or down) the level of effects will track the channel level correctly.

**4 - AUX 1**

The MDR1248 and MDR1688 have two auxiliary sends which can be used for sending signals to external effects devices or for creating a monitor mix. The AUX1 section is often used for a monitor mix in a live sound mixing, or for a headphone mix in a recording application. AUX 1 can also be used as a Pre Fader effect send by setting the Pre/Post switch to the Post postion. Each input channel includes an AUX 1 send which controls the amount of that channel's signal that is sent to the AUX bus.

**NOTE:** If the AUX1Pre/Post switch is set to Pre, the Aux controls are "PRE-FADER SENDS" which means they are not affected by the FADER level settings of each channel. This allows you to create a mix for the monitors that is independent of the main LEFT and RIGHT MIX.

**5 - PRE/POST - switch**

The PRE/POST switch is used to select the point that the AUX 1 bus uses to send the signal. When the PRE/POST switch is set to PRE, the signal feeding AUX 1 is sent before the fader, so the channel Fader has no effect on that level. This is the normal setting when using AUX 1 as a monitor send. When the PRE/POST switch is set to POST, the signal feeding AUX 1 is sent after the fader, so the channel Fader has an effect on that level, meaning the Aux level tracks up and down with the channel Fader. This is the normal setting for using AUX 1 as an effects send, since when you set the channel louder, you normally want the effect to get louder.

NOTE: The channel's effects signal is sent to the AUX 1 bus from a location in the signal path after the VOLUME control.

**6 - AUX 2/DSP**

The channel's AUX 2/DSP knob controls the amount of signal that is sent to the AUX 2 bus. The AUX 2 signal can be sent to an external effects device connected to the AUX 2 OUT jack located in the MASTER SECTION jack field. NOTE: The channel's AUX 2 signal is sent to the AUX 2 bus from a location in the signal path after the channel's LEVEL control. This is commonly referred to as a POST FADER send. This means that the amount of signal that is sent to the AUX 2 bus will be affected not only by the setting of the AUX 2 knob control, but it will also be affected by the setting of the LEVEL control.

**7 - PAN**

The MDR1248 and MDR1688's PAN control is used to place or position the mono signal into the stereo main Left and Right MIX bus. You can create a stereo image by panning some input signals to the left and others to the right. The MDR1248 and MDR1688's PAN control is a Power-Pan circuit, which includes a 3dB dip in the center position. This is desirable since there's a 3dB increase in gain when the mono input signal is heard in both the Left and Right MIX bus.

**8 - 3/4 MUTE switch**

The Mono Input channels feature a 3/4 MUTE switch allowing you to easily turn that channel on or off. When 3/4 MUTE LED is illuminated, the channel is off, conversely, when the backlight is off, the channel is on. The switch also has a second purpose. When the switch is pressed down, signal from the selected channels is sent to the 3/4 Outputs. This lets you use 3/4 as a second stereo bus which can be mixed in with the main left and right mix bus or sent out the 3/4 outputs without being heard in the main Left and Right mix.

**9 – 3/4 MUTE LED**

The MDR1248 and MDR1688's has a 3/4 Mute LED indicator allowing you to easily see if the channel is muted or assigned to the 3/4 mix bus. When 3/4 MUTE LED is illuminated, the channel is off and assigned to the 3/4 bus, conversely, when the backlight is off, the channel is on and not assigned to the 3/4 mix bus.

**10 - Solo switch**

The Mono Input channel's Solo switch allows you to listen, or "solo" a channel or group of channels in the headphones. When the SOLO switch is pressed down, the channel is assigned to the solo bus and can be heard

in any optional headphones plugged in to the PHONES connector located in the front panel jack field. If the AFL/PFL MODE switch, located in the master section, is switched out, the signal is sent pre fader, so you can hear the signal regardless of the position of the channel volume Fader. This allows you to listen to a channel by itself: (let's say) to see if an artist is out of tune, or to cue up a channel without having to play it through the main PA speakers. If the AFL/PFL MODE switch is switched in, the signal is sent post fader, the signal you hear is dependant on the position of the channel volume Fader. This allows you to hear if there is any distortion on a channel added by the level of the channel fader.

**11- SOLO LED**

The MDR1248 and MDR1688's Mono Input channels include a SOLO LED which, when illuminated, indicates that the signal is assigned to the SOLO bus.

**12 - PEAK LED**

The MDR1248 and MDR1688's MIC/LINE pre-amp also includes a PEAK LED which, when illuminated, indicates that the signal is peaking or overloading. To reduce distortion, lower the GAIN control to keep this LED from staying on.

**13 - CHANNEL LEVEL**

The MDR1248 and MDR1688's LEVEL control knobs are used to adjust the overall channel volume.

**STEREO INPUT CHANNEL SECTION**

The MDR1248 and MDR1688 feature stereo input channels for connected stereo line level devices like keyboards and drum machines, as well as the outputs from effects processors and digital guitar modelers. The MDR1248 has four sets of stereo inputs which make up channels 5/6, 7/8, 9/10 and 11/12, while the MDR1688 has four sets of stereo inputs which make up channels 9/10, 11/12, 13/14 and 15/16. The Stereo input channels have a four-band fixed equalizer and AUX 1 and 2 sends and are laid out the same as the mono inputs. The following section details the stereo input controls:

**14- GAIN switch**

The MDR1248 and MDR1688's pre-amp stage has a variable GAIN switch with a range of -10 to +4dB on the stereo LINE input.

**15 - LOW/LOW MID/HIGH MID/HIGH - Channel Equalizer**

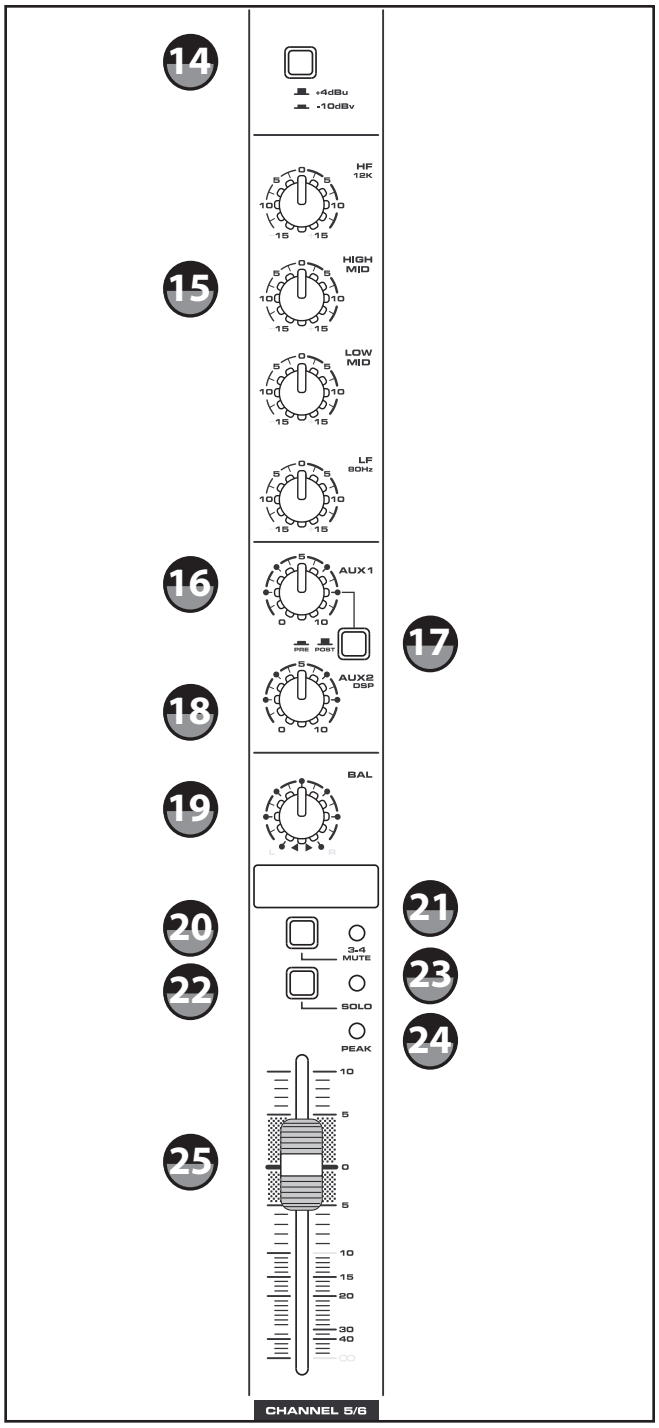
The MDR1248 and MDR1688 Stereo input channels feature a 4-band equalizer allowing you to adjust the high, mid, and low frequencies independently on each channel. The stereo channel equalizer is laid out like a mono input on the control panel input strip, but internally, the equalizer is effecting a stereo signal path. The channel's frequency response is flat when the knobs are in the "12:00" position. Rotating the knob towards the right will boost the corresponding frequency band by 15dB, and rotating it towards the left will cut the frequency by 15dB. The frequency centers, range of boost or cut, and equalizer type for each band are as follows:

High: 12kHz +/- 15dB shelving type

High Mid: 3kHz +/- 15dB peaking type

Low Mid: 500Hz +/- 15dB peaking type

Low: 80Hz +/- 15dB shelving type



# Controls and Functions

**Auxiliary Busses ( 16 - 18 )**

The MDR series include two auxiliary signal paths, or buses, that can be used to create independent mixes for sending to the internal or external effects processors, or to an external monitor system. The signal flow from these buses start by sending the signal from each individual channel, which is set with one of the auxiliary control knobs. Then, the mix of all the channels auxiliary level is ultimately sent to either an internal effects processors or to an output jack to connect to an external effect or monitor system. To help you control your effects and monitor mixes, the MDR's have two auxiliary buses.

In order to operate your mixer correctly it is important to understand the concept of PRE and POST fader sends. For more information on Pre and Post aux sends, see the previous section "Pre…?, Post?… What's that?" Located on page 8 of this manual.

**16 – AUX 1**
Each of the MDR1248 and MDR1688's stereo input channels include an AUX 1 send, which controls the amount of that channel's signal that is sent to the AUX 1 Output. The AUX1 section is often used for a monitor mix in live sound mixing, or for a headphone mix in a recording application. AUX 1 can also be used as a Post Fader effect send by setting the Pre/Post switch to the Post postion. Each input channel includes an AUX 1 send which controls the amount of that channel's signal that is sent to the AUX bus.

**17 - PRE/POST - switch**
The PRE/POST switch is used to select the point that the AUX 1 bus uses to send the signal. When the PRE/POST switch is set to PRE, the signal feeding AUX 1 is sent before the fader, so the channel Fader has no effect on that level. This is the normal setting when using AUX 1 as a monitor send. When the PRE/POST switch is set to POST, the signal feeding AUX 1 is sent after the channel fader, meaning the Aux level tracks up and down with the channel Fader. This is the normal setting for using Aux1 as an effects send, since when you set the channel louder, you normally want the effect to get louder.

**18 – AUX 2 /DSP**
Each of the MDR1248 and MDR1688's stereo input channels include an AUX 2/DSP send, which controls the amount of that channel's signal that is sent to the internal DSP and/or AUX 2 Output. The signal that feeds Aux 2 is sent after, or post, the channel Fader, so the channel Fader has an effect on the Aux 2 level. This is the normal setting for an effects send, since when you set the channel louder, you normally want the effect to get louder.

**19 - BALANCE - Control**
The MDR1248 and MDR1688's BALANCE control is used to place, or position, the stereo signal into the main Left and Right stereo mix field. You can create a stereo image by panning some input signals to the left and others to the right.

**20 - 3/4 MUTE switch**
The Stereo Input channels feature a 3/4 MUTE switch allowing you to easily turn that channel on or off. When 3/4 MUTE LED is illuminated, the channel is off, conversely, when the LED is off, the channel is on. The switch also has a second purpose. When the switch is pressed down, signal from the selected channels is sent to the 3/4 Outputs. This lets you use 3/4 as a second stereo bus which can be mixed in with the main left and right mix bus or sent out the 3/4 outputs without being heard in the main Left and Right mix.

**21 – 3/4 MUTE LED**
The MDR1248 and MDR1688's has a 3/4 Mute LED indicator allowing you to easily see if the channel is muted or assigned to the 3/4 mix bus. When 3/4 MUTE LED is illuminated, the channel is off and assigned to the 3/4 bus, conversely, when the LED is off, the channel is on and not assigned to the 3/4 mix bus.

**22 - Solo switch**
The Stereo Input channel's Solo switch allows you to listen, or "solo" a channel or group of channels in the headphones. When the SOLO switch is pressed down, the channel is assigned to the solo bus and can be heard in any optional headphones plugged in to the PHONES connector located in the front panel jack field. If the AFL/PFL MODE switch, located in the master section, is switched out, the signal is sent pre fader, so you can hear the signal regardless of the position of the channel volume Fader. This allows you to listen to a channel by itself: (let's say) to see if an artist is out of tune, or to cue up a channel without having to play it through the main PA speakers. If the AFL/PFL MODE switch is switched in, the signal is sent post fader, the signal you hear is dependant on the position of the channel volume Fader. This allows you to hear if there is any distortion on a channel added by the level of the channel fader.

**23- SOLO LED**
The MDR1248 and MDR1688's Stereo Input channels include a SOLO LED which, when illuminated, indicates that the signal is assigned to the SOLO bus.

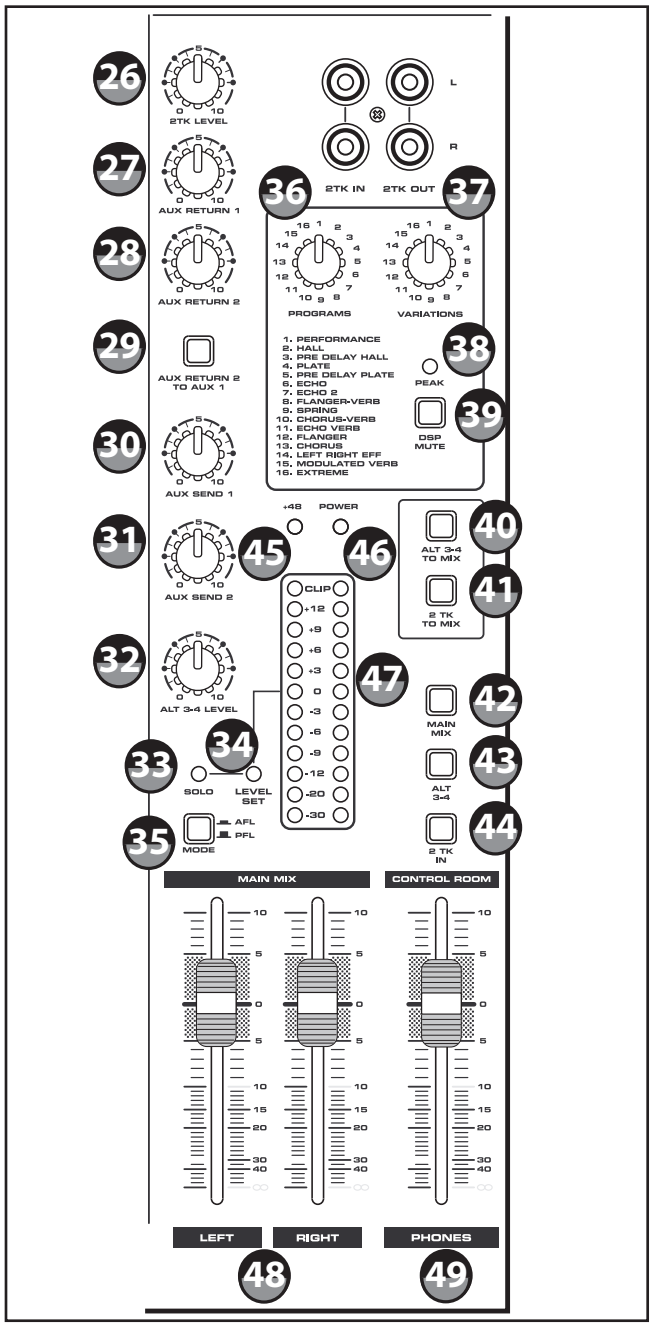
**24 – PEAK LED**
The MDR1248 and MDR1688's MIC/LINE pre-amp also includes a PEAK LED which, when illuminated, indicates that the signal is peaking or overloading. To reduce distortion, lower the GAIN control to keep this LED from staying on.

**25- VOLUME - Fader Level Control**
The VOLUME Fader control adjusts the level of the stereo channel.

## MASTER SECTION

### 26 - 2 TRK LEVEL

The 2TK LEVEL control knob is used to set the volume level of the source connected to the 2-track input. If you want to mix in a CD, tape or MP3 player with your input channels connected to the 2TK inputs, use the 2TK LEVEL to adjust the level.




## Auxiliary Returns

The MDR1248 and MDR1688 have two stereo auxiliary returns, which can be accessed via the two pairs of 1/4-inch phone jacks located on the master section jack field. The auxiliary returns can be used to connect any stereo line level signal, but they are primarily used to connect the output of external effects processors.

### 27 - AUX RET 1 control knob

This adjusts the amount of signal that is sent from the AUX 1 RET jacks to the MAIN bus.

### 28 - AUX RET 2 control knob

The AUX RETURN 2 adjusts the level of the signal present at the AUX 2 RET jacks. This signal is summed, or mixed in to the main L/R MIX bus.

### 29 - AUX 2 RETURN TO AUX 1 switch

This routes the signal that is present on the AUX 2 RETURN jacks to AUX 1 so that the effects can be heard in the monitor mix.

### 30 - AUX 1 SEND control knob

The master AUX SEND control is used to send the effect mix bus to an external effect device connected to the AUX SEND 2 jack.

### 31 - AUX 2 SEND control knob

The master EFX SEND control is used to send the effect mix bus to an external effect device connected to the AUX SEND 2 jack.

### 32 - ALT 3/4 Level control knob

Use this control knob to set the level of the mix created from the channels assigned to the 3/4 bus. The ALT 3/4 level control will control the level of the signal being sent to the 3/4 Output jacks. When the Master ALT 3/4 switch(43) is switched in, the ALT 3/4 level control will control the level of the ALT 3/4 mix that is heard in the Main Left and Right mix. Remember, the ALT 3/4 TO MIX switch must be set to the on or down position in order to hear the 3/4 mix in the main Left and Right mix.

### 33 - SOLO LED

The LED will illuminate when any one or more channel's SOLO switch is engaged, indicating that there is a channel in solo.

### 34 - LEVEL SET LED

When a channel's SOLO switch is pressed, the LEVEL SET LED will illuminate and flash indicting that the channels input level is now being measured by the main VU meter.

### 35 - MODE (AFL/PFL) switch

You can change the mode of the SOLO bus from Pre fader listen to After, or Post fader listen using the MODE switch. When the switch is pressed in, the SOLO mode is set to AFL (After Fader Listen), so the channels signal is sent after or post fader. When the switch is pressed out, the SOLO mode is set to PFL (Pre Fader Listen), so the channels signal is sent before or pre fader.

### 36 - PROGRAM control knob

The MDR1248 and MDR1688 feature an internal 24-bit DSP with 256 presets. The presets are organized in sixteen Program banks, each with sixteen variations. The Program control knob used to select one of the sixteen DSP effect programs.

### 37 - VARIATION control knob

The MDR1248 and MDR1688 feature an internal 24-bit

# Controls and Functions

## MASTER SECTION (continued)

DSP with 256 presets. The presets are organized in sixteen Program banks, each with sixteen variations. The Variation control knob is used to select one of the sixteen variations for each of the sixteen DSP effect Programs.

**38 - PEAK (DSP INPUT) LED**
LED indicator illuminates when the input signal to the internal DSP is reaching a clipping level.

**39 - DSP MUTE switch**

This switch is used to turn the internal DSP effects on and off. When the DSP MUTE switch is pressed in, the internal DSP effects are turned off and when the switch is pressed out, the DSP effects are on.

**2 TRACK INPUT AND OUTPUT**
The MDR1248 and MDR1688's 2 Track section provides the connections for playback and recording for an external device such as a DAT, cassette recorder, CD or Mini Disk.

**Main Mix Assign Switches**
The next two switch functions are used to select additional sources that can be combined with the Main Left and Right mix and sent to the main Left and Right Outputs.

**40 - ALT 4/3 TO MIX switch**
The ALT 3/4 TO MIX switch is used to assign the ALT 3/4 mix bus to the MAIN mix bus. If you push the ALT 3/4 TO MIX button, all the channels with their ALT 3/4 switch pressed in will be routed to the left and right MAIN outputs and the level will be controlled by the 3/4 LEVEL control knob and MAIN LEVEL fader**.**

**41 - 2TK TO MIX switch**
The 2TR TO MIX switch is used to assign the 2TR input to the MAIN mix bus. If you push the 2TR TO MIX button, the signal present at the 2 TRACK IN will be routed to the left and right MAIN output and the level will be controlled by the 2TK LEVEL control knob and MAIN LEVEL fader**.**

**Control Room and Headphone Assign Switches**
The next three switch functions are used to select additional sources that can be heard in the headphones and sent to the Left and Right Control Room Outputs.

**42 - MAIN MIX switch**
The MAIN MIX switch routes the Left / Right MAIN mix bus to the CONTROL ROOM / PHONES outputs. Use the Left / Right MAIN MIX Level faders (48) and PHONES level fader (49) to set the volume.

**43 - ALT 3/4 switch**

The ALT 3/4 switch routes the 3/4 mix bus to the CONTROL ROOM / PHONES outputs. Use the ALT 3/4 LEVEL control knob (32) and PHONES level fader (49) to set the volume.

**44 - 2 TK IN switch**
The 2TR IN switch is used to assign the 2TR input to the Control Room output. If you push down the 2TK IN button, signal will be routed into the left and right Control Room output and will be adjusted by the CR / PHONES control fader.

**45 - Phantom Power LED**
This LED illuminates indicating that the 48 volt phantom power is applied to the microphone pre-amps enabling use with condenser microphones. The +48V LED will light up when the Phantom Power switch (located on the rear panel) is switched to the ON position.

**46 - POWER LED**
The Power LED lights up to indicate that the main POWER switch (located on the rear panel) is on.

**47 - Output Level Meters**
The OUTPUT LEVEL METERS allows you to monitor the level of the signal which is being sent to the MAIN MIX jacks.

**48 - MAIN MIX - Fader Control**
The master MAIN controls are the overall volume controls for the left and right mix bus. These line level signals are output from the MAIN MIX jacks.

**49 - PHONES / CR**

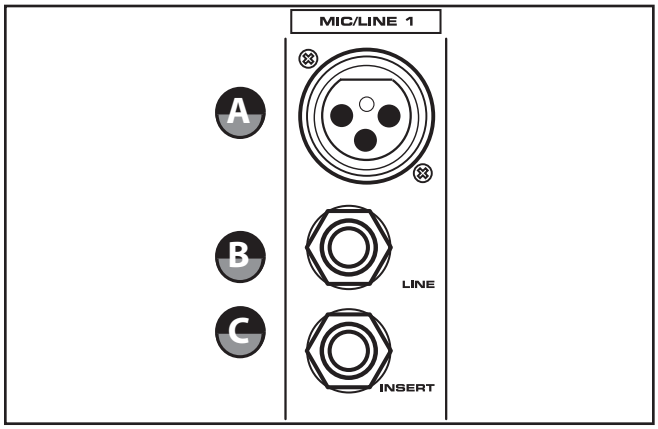
The PHONES / CR control is used to set the level sent to the control room outputs, and also to the headphone jack.

**NOTE:** To avoid distortion, adjust the Main Level control so that the 0 indicator LED lights occasionally.

# MDR1248 and MDR1688 Input and Output Connections

## MONO INPUT CHANNELS - MIC and LINE INPUTS

Channels 1 through 4 on the MDR1248 and channels 1 through 8 on the MDR1688 are mono inputs, each providing a 1/4-inch connector for line level signals and an XLR connector for the MIC signals. Channels 5/6 through 11/12 on the MDR1248 and channels 9/10 through 15/16 on the MDR1688 are stereo inputs, providing a pair of 1/4-inch connectors for line level inputs. By using the GAIN control on the mono channels, you can connect a variety of signal sources from microphones to line level devices such as synthesizers, and drum machines. All the LINE and MIC inputs are balanced. The MIC inputs are compatible with microphones with output impedances of 50-600 Ohms and the LINE inputs are compatible with line level devices of 600 Ohms. Following below is a detailed description of the MDR1248 and MDR1688's input and output connectors.




**NOTE:** It is not possible to simultaneously use both the LINE and MIC inputs on the same channel. Use only one of the inputs for the appropriate source on each channel.

**A - Microphone Input - Mono Input Channels**

Use these inputs to connect Low Impedance microphones and low level signals from direct boxes. The MIC inputs have a nominal operating level of –50dBu through -20dBu. The MIC inputs also feature +48V phantom power, allowing you to use condenser microphones. The Phantom Power switch (located on the MDR1248 and MDR1688's rear panel) enables phantom power on all the microphone inputs when set to the ON position. XLR Connector pin-out - Pin 1: Ground, Pin 2: Hot (+), Pin 3: Cold (-)

**B - Line Level Input - Mono Input Channels**

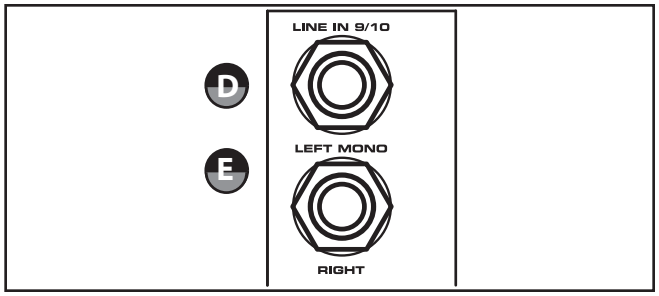
Use these inputs to connect synthesizers, drum machines, effects processors or any line-level signal. The LINE inputs have a nominal operating level of -40dBV through - 10dBV. TRS phone jacks Connector pin-out - Sleeve: Ground, Tip: Hot (+), Ring: Cold (-)

**C - Insert Point Jack - Mono Input Channels**

The MDR1248 and MDR1688's mono input channels feature a 1/4-inch, TRS INSERT jack providing a patch point to connect an external processor. You can use these connections to interface an external signal processor like an equalizer, compressor, noise gate, reverb and other audio devices. For more information on the channel INSERT points, see the section, "Using the Channel Insert Jacks" on page 17 of this manual.

## Stereo Input Channels - Line Inputs

You can connect the outputs from stereo devices such as synthesizers, drum machines, effects processors or any stereo line-level signal. The LINE inputs have a nominal operating level of -40dBV through - 10dBV. The 1/4-inch TRS phone jacks Connector pin-out are as follows; Sleeve: Ground, Tip: Hot (+), Ring: Cold (-)




**D- LEFT MONO**

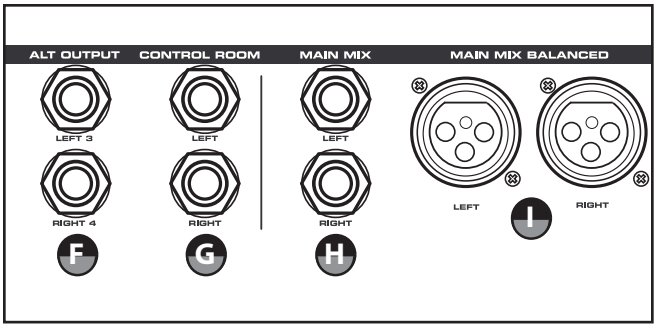
The LEFT MONO jack is used to connect the left output of a stereo device to the Left input of the MDR's stereo input channels or use the LEFT input when connecting a mono input signal to the Stereo Input channels.

**E - RIGHT**

The RIGHT jack is used to connect the Right output of a stereo device to the Right input of the MDR's stereo input channels.

**MASTER SECTION INPUT AND OUTPUT JACKS**

The MDR1248 and MDR1688 features several input and output connectors allowing you to interface a variety of external devices. A stereo recording device, such as a cassette recorder, can be connected to the 2 Track jacks, and power amplifiers or powered monitors can be connected to the CONTROL ROOM and MAIN output jacks.




**F - ALT 3/4 LEFT/RIGHT OUTPUT**

The ALT 3/4 outputs are 1/4-inch balanced jacks carrying the signal from the 3/4 bus. You can assign a channel or a group of channels to the 3/4 bus using the MUTE 3/4 switch on the stereo and mono input channels. The 3/4 output connectors are labeled Left and Right since the 3/4 bus follows the channels' PAN control allowing it to be used for a second stereo

# MDR1248 and MDR1688 Input and Output Connections

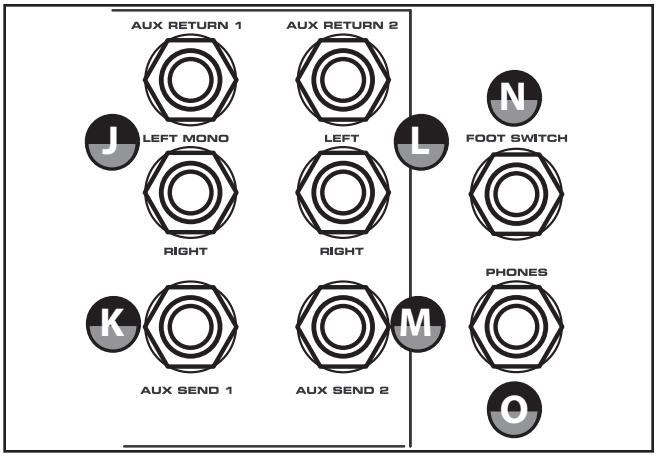
mix. You can also pan the channels hard left and right to create two mono buses. Keep in mind that using the 3/4 switch mutes the channel from the main mix, so use the ALT 3/4 bus for a separate stereo, or two mono, zone mixes.

**G - CONTROL ROOM LEFT/RIGHT OUTPUT**
The Control Room outputs are 1/4-inch balanced jacks used to connect a studio monitor system. The Control Room outputs have the same output as the L/R MIX, however, the level can be adjusted independently from the main mix using the C ROOM/HEADPHONES control.

**H - MAIN MIX LEFT/RIGHT 1/4-INCH OUTPUTS**
In a live sound application, the LEFT/ RIGHT MIX outputs are 1/4-inch balanced jacks used to connect a power amplifier or powered speakers. In a recording application, the LEFT/ RIGHT MIX outputs are used to connect to the inputs of a stereo device such as computer sound card, DAT, or cassette recorder.

**I - MAIN MIX LEFT/RIGHT XLR OUTPUTS**
In a live sound application, the LEFT/ RIGHT MIX outputs are connected to a power amplifier or powered speakers. In a recording application, the LEFT/ RIGHT MIX outputs are used to connect to the inputs of a stereo device such as computer sound card, DAT, or cassette recorder.

**J - AUX RETURN 1 LEFT/RIGHT**
The AUX RETURN 1 LEFT/RIGHT are stereo inputs that are generally used to connect the outputs of an effects processor, but can also accept the signal from any line level source like a keyboard, recorder and even another mixer. The signal connected to the AUX RETURN 1 LEFT/RIGHT will feed the main




LEFT/RIGHT MIX bus. The overall level is controlled by the AUX RET 1 knob located in the master section on the front panel. Use the LEFT/MONO input when connecting a mono input signal to the AUX RETURN.

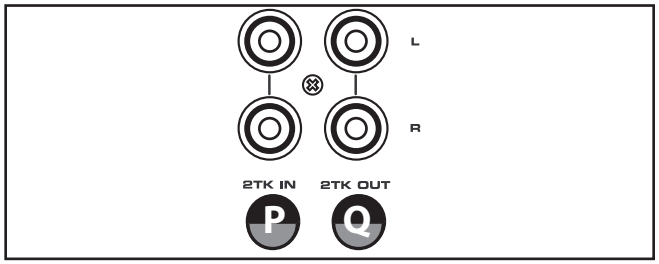
**K - AUX Send 1**
The signal present at the AUX1 output is sent from the AUX1 bus, which is fed from all the AUX 1 sends on the input channels. The AUX 1 output can be used as the EFFECTS SEND bus in a live sound situation by connecting the output to an external effects device.

**L - AUX RETURN 2 LEFT/RIGHT**
The AUX RETURN 2 LEFT/RIGHT are stereo inputs that are generally used to connect the outputs of an effects processor, but can also accept the signal from any line level source like a keyboard, recorder and even another mixer. The signal connected to the AUX RETURN 2 LEFT/RIGHT will feed the main LEFT/RIGHT MIX bus. The overall level is controlled by the AUX RET 2 knob located in the master section on the front panel. Use the LEFT/MONO input when connecting a mono input signal to the AUX RETURN.

**M - AUX Send 2**
The signal present at the AUX 2 output is sent from the AUX 2 bus, which is fed from all the AUX 2 sends on the input channels. The AUX 2 output can be used as the MONITOR MIX bus in a live sound situation by connecting the output to a power amp and monitor speaker.

**N – FOOTSWITCH - 1/4-inch jack**
With a footswitch connected to this jack, you can turn on and off the on-board digital effects by simply stepping on the footswitch.

**0 - HEADPHONE OUTPUT**
You can connect a standard pair of stereo headphones to the PHONES jack and depending on the position of the 2T TO CR switch, you will hear either the 2-Track input or the MAIN mix.




**P - 2TR INPUT**
The MDR1248 and MDR1688 features dual RCA connectors for the left and right 2-track input. You can use these inputs to connect a CD, Cassette, Mini Disk, DAT or the output from a computer sound card. To listen to the input connected to the 2T IN, be sure to check the position of the 2T To Mix and 2T TO CR switches. *For more information on using the 2 Track inputs, see the section "PLAYING BACK A CD USING 2T TO MIX " on page 18 of this manual.*

**Q - 2TR OUTPUT**
If you want to record the mix from your MDR1248 and MDR1688, you can use the 2-track OUT connectors. The dual RCA connectors can be connected to a CD, Cassette, Mini Disk, DAT or even the input of a computer sound card for hard disk recording. *For more information on using the 2 Track outputs, see the section "RECORDING A MIX FROM THE MDR1248 and MDR1688 " on page 18 of this manual.*

# Operating the MDR1248 and MDR1688

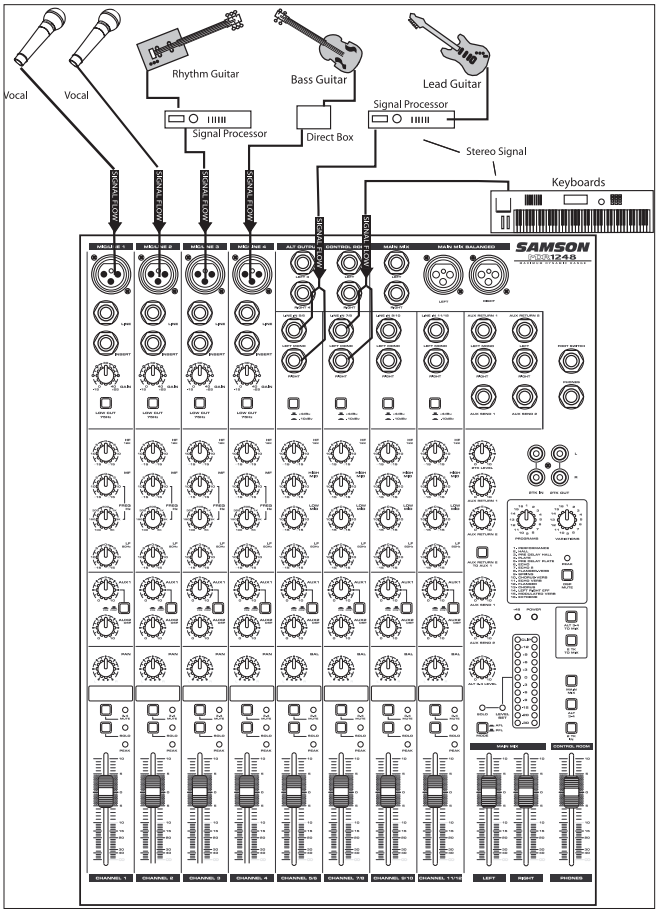
## BASIC OPERATION

The following section explains the basic operation of the MDR1248 and MDR1688:

### CONNECTING MICROPHONES AND INSTRUMENTS

1. Before connecting mics or instruments, make sure that the power of all your system's components including the MDR1248 and MDR1688 is turned off. Also, make sure that the MAIN LEVEL and PHONES / CR controls are turned all the way down.

2. Connect the cables to your microphones and instruments, and insert the other end of the cable firmly into the appropriate input on the MDR1248 and MDR1688.




**NOTE: SETTING THE INPUT GAIN** - When connecting a microphone to channels 1 through 4 on the MDR1244 or 1 through 8 on the MDR1688, it's a good idea to start with the Gain Control turned all the way down. Set the input fader to the "0" position and slowly raise the GAIN control until you see the PEAK LED turn on. Now, back the GAIN control down so that the PEAK LED only lights for a short time during the loudest input the channel will see.

**Note**. You can also press the channel's PFL switch and use the LEVEL SET function. When the PFL is switched on, you'll see the LEVEL SET LED is illuminated and the channel's input level will now be displayed on the Main VU meter.

3. Switch on the power of any peripheral devices, and then power up the MDR1248 and MDR1688.

**NOTE:** It is important to remember the Golden Rule of audio … " **LAST ON, FIRST OFF**". Translated, this means that when turning on your system, you should always turn your power amplifiers or powered monitors on LAST, and when turning your system off, turn your power amps off FIRST. This helps avoid any loud pops caused by rush current at power up, or down, which can sometimes damage loudspeakers.

4. Turn on your power amp or powered monitors and raise the level control to the manufacturers recommended operating level.

5. Set the MAIN LEVEL control in the MDR1248 and MDR1688's master section to the "0" position.

6. While speaking into the mic (or playing the instrument), adjust the channel LEVEL control so that the "0" LED of the MAIN section VU level meter lights occasionally.

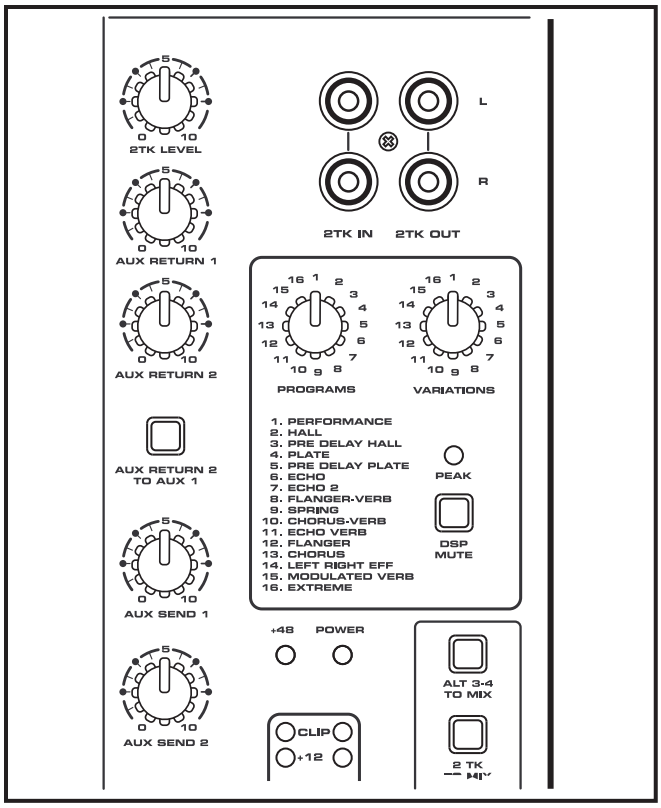
7. You can shape the tone of each channel by adjusting the channel equalizer controls as desired.

**NOTE:** You may need to adjust the channel LEVEL control to compensate for the slight changes in level after using the channel equalizer.

# Operating the MDR1248 and MDR1688

## USING THE DIGITAL EFFECTS

The MDR1248 and MDR1688 mixers feature a built-in, high quality, 24-bit Multi Effect Processor, offering studio grade digital effects. The MDR's Effect section features clean Delay, lush Reverbs and multi-effects like Chorus + Delay, Chorus Flange or Chorus + Reverb. You can add a broad range of studio quality effects by simply dialing through the 256 presets.




The following details the operation of the internal DSP effects in the MRD1248 and MDR1688 Effects section:

1. Connect a mic or instrument to the desired channel, adjust the level and equalizer to your liking and make sure the MAIN fader level is set so you can hear it in your speakers.
2. Now select the desired effects program using the PROGRAM control knob located in the Effects section in the middle of the mixer's Master section. Set the PROGRAM control knob to one of the 16 effects. You can check the effects Program List below the PROGRAM knob to find the effect type perfect for your performance. The first PROGRAM and VARIATION banks have been preset with common effects for live performance, and the following banks are set up in groups by the types of effects.
3. Once you have selected the desired effects preset, raise the AUX 2 DSP control on the channels you wish to apply the digital effect to.
4. Next, locate the AUX SEND 2 knob and turn it about to a little past "5" or half way.
5. Now, use the AUX RETURN 2 control knob to adjust the effects return level. The AUX RETURN 2 control knob sets the overall level control for the DSP effects processor in the main Left and Right Mix.
6. Now, you can check out different versions of the PROGRAM presets by using the VARIATIONS control knob. Each of the 16 effects PROGRAM banks has sixteen variations providing a total of 256 effects presets.
7. If you want to hear the effects in the monitors, press the AUX RETURN 2 TO AUX1 switch and you will have the output of the internal effects routed to the AUX1 output. For more information on setting up a monitor mix, see the following section.

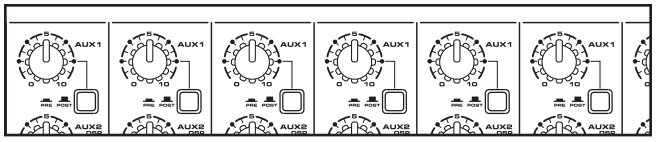
**NOTE:** If the DSP PEAK LED lights up and effect sound is distorted, even though the AUX RETURN 2 is turned down low, lower the AUX SEND 2 control knob and the AUX2/DSP controls of each channel.

8. If you want to bypass the effects, you can turn off the effects processors output by using the DSP MUTE switch, or an optional footswitch connected to the FOOTSWITCH jack.

## SENDING AN INDEPENDENT MIX TO THE MONITOR SPEAKERS

The MDR1248 and MDR1688's AUX1 auxiliary send can be used to feed a separate set of amplifiers and loudspeakers for stage monitors. This lets you build one mono mix for the amplifiers and monitor speakers facing the musicians, and the other stereo mix for the amplifiers and speakers facing the audience.

1. Connect the AUX1 output to your monitor's power amplifier or powered monitor.
2. Press the input channels' AUX 1 PRE/POST switches in, to set AUX 1 up as a pre-fader bus.
3. Raise the AUX SEND 1 control knob, located in the Master section, up to a little past "5" or halfway.
4. Raise the AUX 1 controls for the channels that you wish to hear from the monitor speakers.




**NOTE:** When the AUX1 PRE/POST switch is pressed in and set to "PRE", the AUX 1 controls are "PRE-FADER SENDS" which means they are not affected by the level settings of each channel. This allows you to create a mix for the monitor system that is independent of the main LEFT and RIGHT MIX.

5. If feedback occurs, turn down the AUX SEND 1 knob to lower the overall level sending to the monitor. Then check the AUX1 levels of the individual channels to see if you need to turn one or more channels down. Then try to raise the AUX 1 SEND level again.

**NOTE:** Adjusting the balance between the channel AUX1 control knobs and the AUX SEND 1 is a tricky but necessary part of getting good levels in the monitor system. In general, try to keep the master AUX SEND 1 higher than the channel AUX1 levels to achieve a cleaner mix. In order to get the most gain from your monitor mix, use an external graphic equalizer (like a Samson S curve 131or D2500 digital EQ with feedback control) to cut out any frequencies that cause feedback.

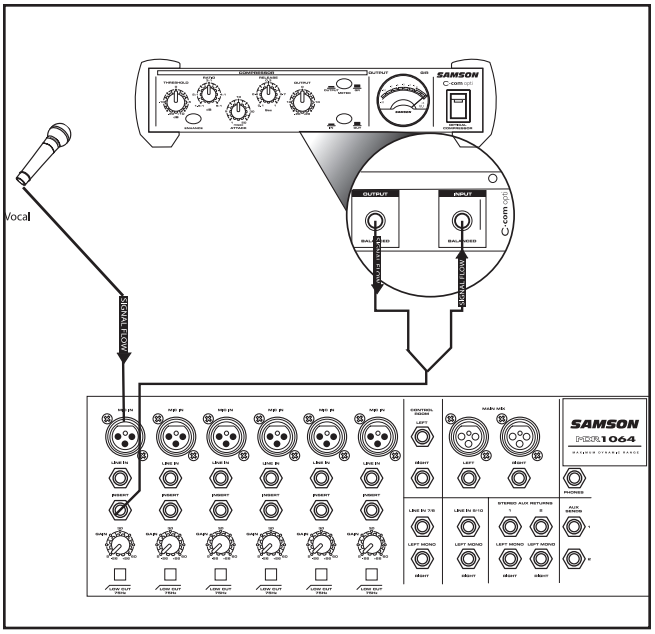
6. If you want to add effects from the internal effect processor, or the effects from an external processor connected to the AUX RETURN 2 inputs, engage the AUX RETURN 2 TO AUX 1 switch, located in the Master section, by pressing it in.

## USING THE CHANNEL INSERT JACKS

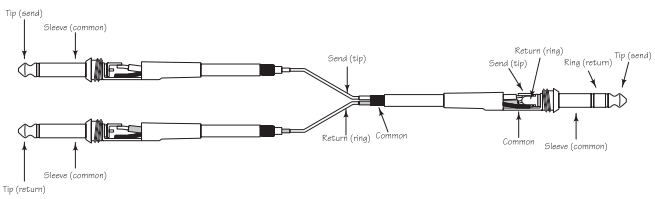
To further control your signal, channels 1-4 on the MDR1248 and 1-8 on the MDR1688 feature an insertion point, or "effects loop", on one 1/4-inch phone jack, INSERT SEND and RETURN. An insertion point is a patch-point that interrupts the signal, allowing you to bring that signal outside to be processed by another device. You can use these connections to interface an external signal processor like an equalizer, compressor, noise gate, reverb and other audio devices. A common application for the MDR1248 and MDR1688's insert point is using a compressor.

To send a signal to an external processor, use a standard 1/4-inch "Y" insert cable to connect the MDR1248 and MDR1688 channel insert point. Connect the TRS (TIP / RING / SLEEVE) plug to the channel INSERT point, and then, connect the 1/4-inch (TIP / SLEEVE), INSERT SEND plug to the input of the external processor. The signal is sent back to the MDR1248 or MDR1688, using the 1/4-inch (TIP / SLEEVE), INSERT RETURN plug connected to the output of the external processor.

The diagram below shows a typical application for using a compressor (in this example a Samson C com opti) in the MDR1248 or MDR1688's insertion point.




Below, is a diagram showing the wire for the TRS 'Y" Insert cable.



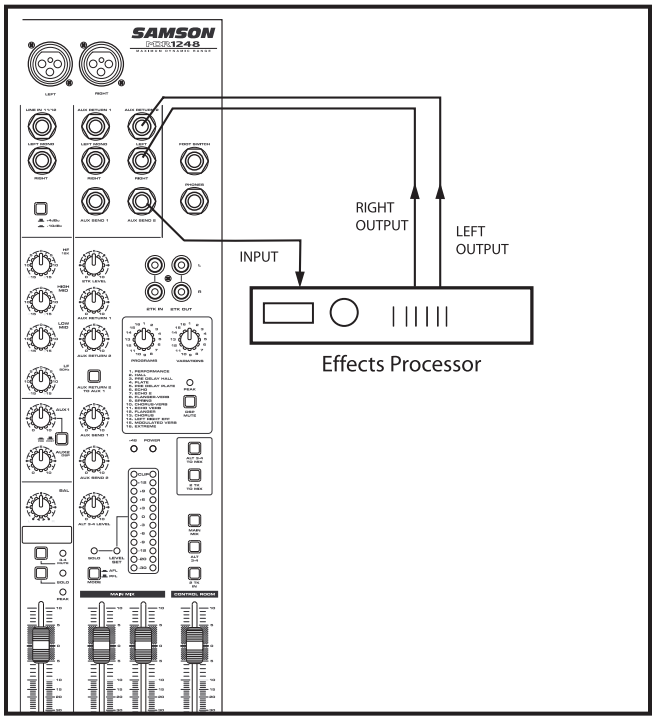
# Operating the MDR1248 and MDR1688

## USING AN EXTERNAL EFFECT

If you prefer to use an external device for effects processing, you can easily connect the unit using the MDR1248 and MDR1688 AUX 2 bus. Follow the simple steps below to interface your processor:

1. Connect the AUX 2 OUTPUT to the input of the external effect processor.

2. Connect the outputs of the effect processor to the AUX 2 RETURN located on the MDR1248 and MDR1688's master section.




3. Set the MAIN LEVEL control to the "0" position.

4. Raise the AUX 2 knobs for the channels to which you want the external effect to be applied.

5. Set the input level of the external effect so that the sound is not distorted and so that the effect's input meter does not indicate a clipped signal.

6. Use the AUX RETURN 2 control to adjust the level of the effects processed by the external effects device.

## PLAYING BACK A CD USING 2T TO MIX

The MDR1248 and MDR1688 has a dedicated input for playing back a stereo device such as a CD, Tape or Mini Disk. Below is a description of how you can play back a CD, Tape or MD using the MDR1248 and MDR1688's 2 TRACK INPUT.

1. Turn the MAIN level control all the way down.

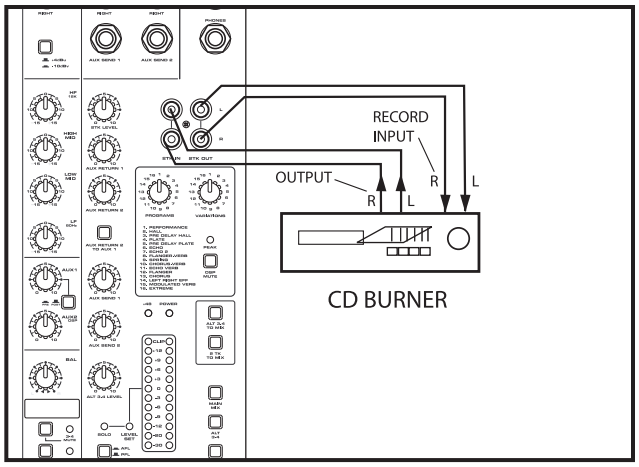
2. Press the 2TK TO MIX button down.

3. Adjust the MAIN LEVEL control in the master section to the "0" position.

4. Start playback on the CD, Tape or MD player, and use the 2 TK LEVEL control to set the desired level.

## RECORDING A MIX FROM THE MDR1248 and MDR1688

You can record the audio from the MDR1248 and MDR1688's mixer section including the MIC, LINE, 2T IN and AUX inputs to a Cassette deck, MD, DAT or any other type of recorder using the 2T OUT outputs. Simply connect the MDR1248 and MDR1688's 2 TRACK OUT to the input jacks of the recorder as shown in the diagram on the right and follow the steps below.

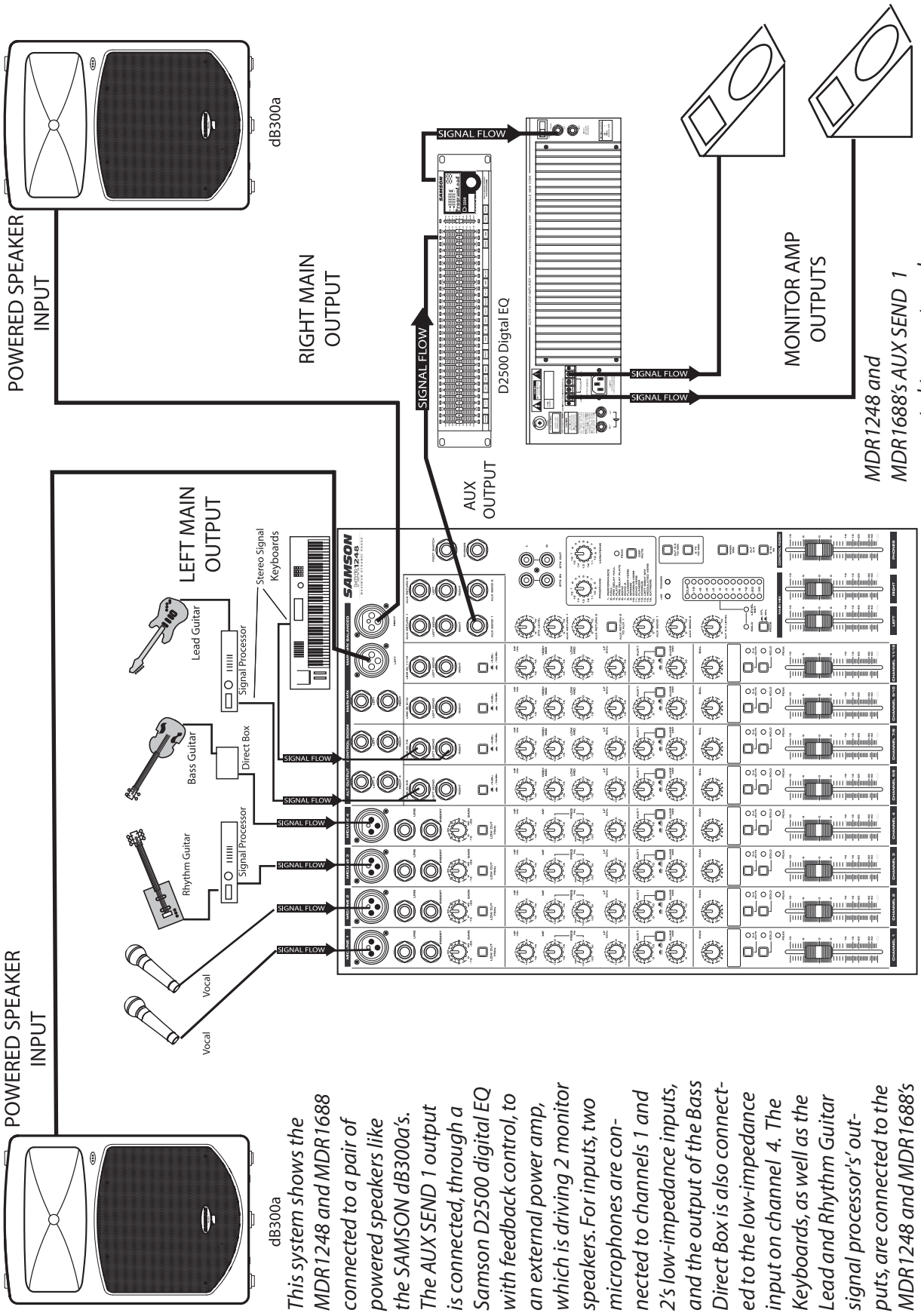



1. Adjust the MAIN LEVEL control in the master section to the "0" position.
2. Set a clean signal using the recorder's input level controls and meters.
3. Press RECORD.
4. Play back using as described in the previous section "PLAYING BACK A CD USING 2T TO MIX".

**NOTE:** To avoid feedback, be sure to keep the 2TK LEVEL control knob all the way down while recording with the 2TK outputs.

# MDR1248 and MDR1688 System Set-Ups

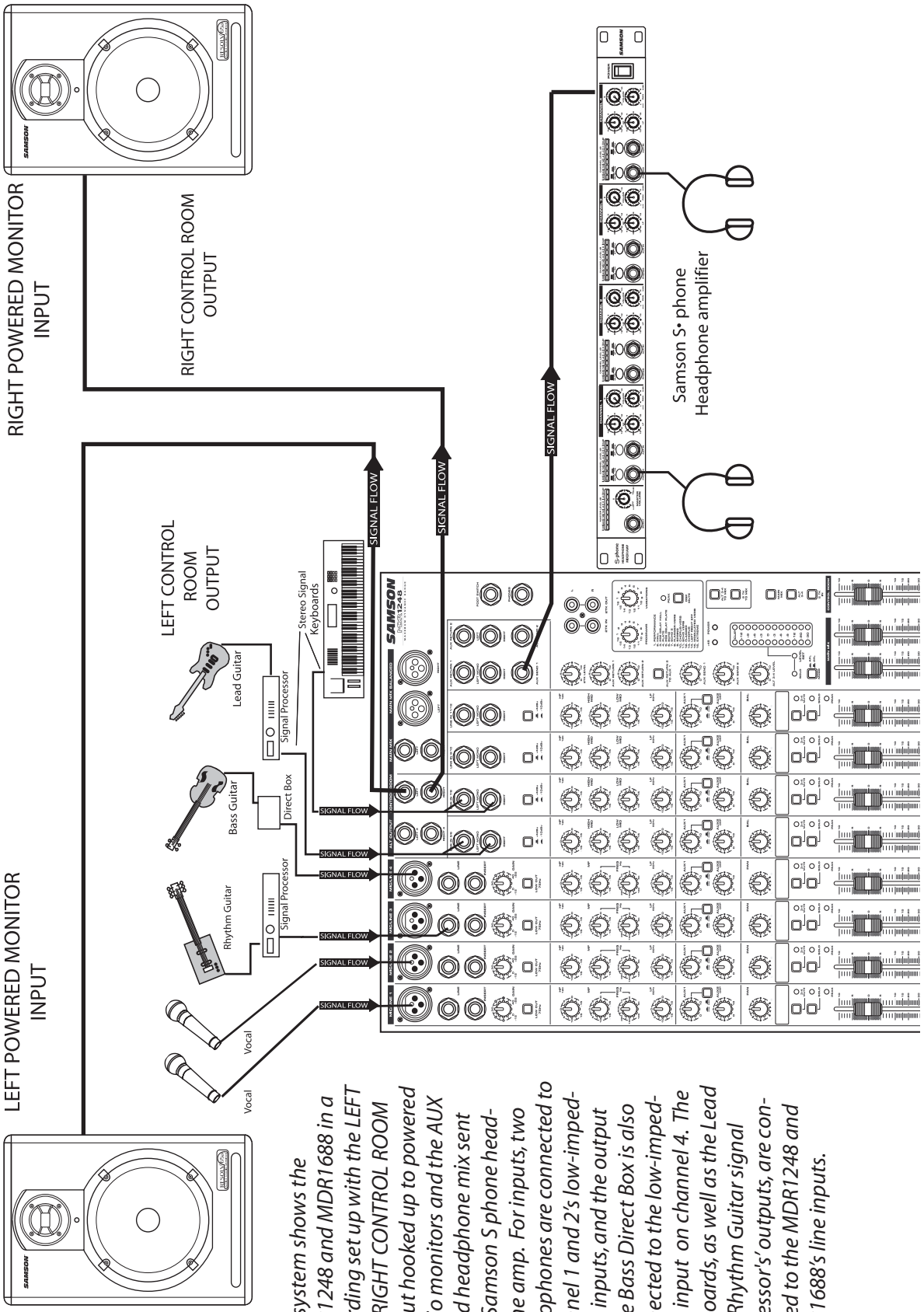
## MDR1248 and MDR1688 LIVE SOUND SET-UP




*This system shows the MDR1248 and MDR1688 connected to a pair of powered speakers like the SAMSON dB300a's. The AUX SEND 1 output is connected, through a Samson D2500 digital EQ with feedback control, to an external power amp, which is driving 2 monitor speakers. For inputs, two microphones are connected to channels 1 and 2's low-impedance inputs, and the output of the Bass Direct Box is also connected to the low-impedance input on channel 4. The Keyboards, as well as the Lead and Rhythm Guitar signal processor's' outputs, are connected to the MDR1248 and MDR1688's line inputs.*

# MDR1248 and MDR1688 System Set-Ups

## MDR1248 and MDR1688 RECORDING SET-UP




*This system shows the MDR1248 and MDR1688 in a recording set up with the LEFT and RIGHT CONTROL ROOM output hooked up to powered studio monitors and the AUX 1 feed headphone mix sent to a Samson S phone headphone amp. For inputs, two microphones are connected to channel 1 and 2's low-impedance inputs, and the output of the Bass Direct Box is also connected to the low-impedance input on channel 4. The Keyboards, as well as the Lead and Rhythm Guitar signal processor's' outputs, are connected to the MDR1248 and MDR1688's line inputs.*

# MDR1248 and MDR1688 Specifications

**Mono input channels**

| | |
|---|---|
| Microphone input | electronically balanced, discrete input configuration |
| Frequency response | 10Hz to 45kHz |
| Distortion | (THD & N) 0.005% at 4dBu, 1kHz |
| Gain range | 0dB to +40dB (MIC) |
| SNR (Signal to Noise Ratio) | 105dB |
| Line input | electronically balanced |
| Frequency response | 10Hz to 45kHz |
| Distortion (THD & N) | 0.005% at 4dBu, 1kHz |
| Sensitivity range | -10dBu to +30dBu |

**Stereo input Channels**

| | |
|---|---|
| Line input | Balanced |
| Frequency response | 10Hz to 45kHz |
| Distortion (THD & N) | 0.005% at +4dBu, 1kHz |

**Impedances**

| | |
|---|---|
| Microphone input | 3k Ohm |
| Channel Insert return | 2.5k Ohm |
| All other inputs | 14.8k Ohm or greater |
| Tape out | 1k Ohm |
| All other output | 120 Ohm |

**Equalization**

| | |
|---|---|
| Mono Channels | |
| Hi shelving | +/- 15dB @ 12kHz |
| Swept Mid bell | +/- 15dB @ 100 to 5kHz |
| Low shelving | +/- 15dB @ 80Hz |
| Low Cut filter | 75Hz, 18dB/oct. |
| Stereo Channels | |
| Hi shelving | +/- 15dB @12kHz |
| High Mid bell | +/- 15dB @ 3kHz |
| Low Mid bell | +/- 15dB @ 500Hz |
| Low shelving | +/- 15dB @80Hz |

**Main Mix Section**

| | |
|---|---|
| Noise (Bus noise) | Levels full down: -100dBr (ref.:+4dBu)<br>Level set to 0 dB: -90dBr (ref.:+4dBu) |
| Max output | +28dBu balanced XLR,<br>+22dBu impedance balanced, 1/4" jacks |

**3/4 Output Section**

| | |
|---|---|
| Noise (Bus noise) | Levels full down: -100dBr (ref.:+4dBu)<br>Level set to 0 dB - 90dBr (ref.:+4dBu) |
| Max output | +22dBu impedance balanced, 1/4" jacks |

**Control Room Output Section**

| | |
|---|---|
| Noise (Bus noise) | Levels full down: -100dBr (ref.:+4dBu)<br>Level set to 0 dB - 90dBr (ref.:+4dBu) |
| Max output | +22dBu impedance balanced, 1/4" jacks |

**Aux Section**

| | |
|---|---|
| AUX Return gain range | -∞ to +15dB |
| AUX Sends max out | +22dBu |

**Power supply (AC/AC Adaptor)**

| | |
|---|---|
| Power Consumption | 15W |
| MDR1248 | 32W |
| MDR1688 | 39W |
| Main voltage | USA/Canada 108 - 132V, 60Hz<br>Europe 210 - 230V, 50Hz<br>U.K./Australia 240V, 50Hz |

**Physical**

| | | |
|---|---|---|
| Net weight | | |
| | MDR1248 | 9.79 lb. (4.45kg) |
| | MDR1688 | 12.87 lb. (5.85kg) |
| Shipping weight | | |
| | MDR1248 | 13.86 lb. (6.30kg) |
| | MDR1688 | 18.92 lb. (8.60kg) |
| Dimension (W D H) | | |
| | MDR1248 | 16″ x 12.3″ x 2.6″ (405mm x 313mm x 65mm) |
| | MDR1688 | 16″ x 16.7″ x 2.6″ (405mm x 425mm x 65mm) |

*Specifications are subject to change without notice.*