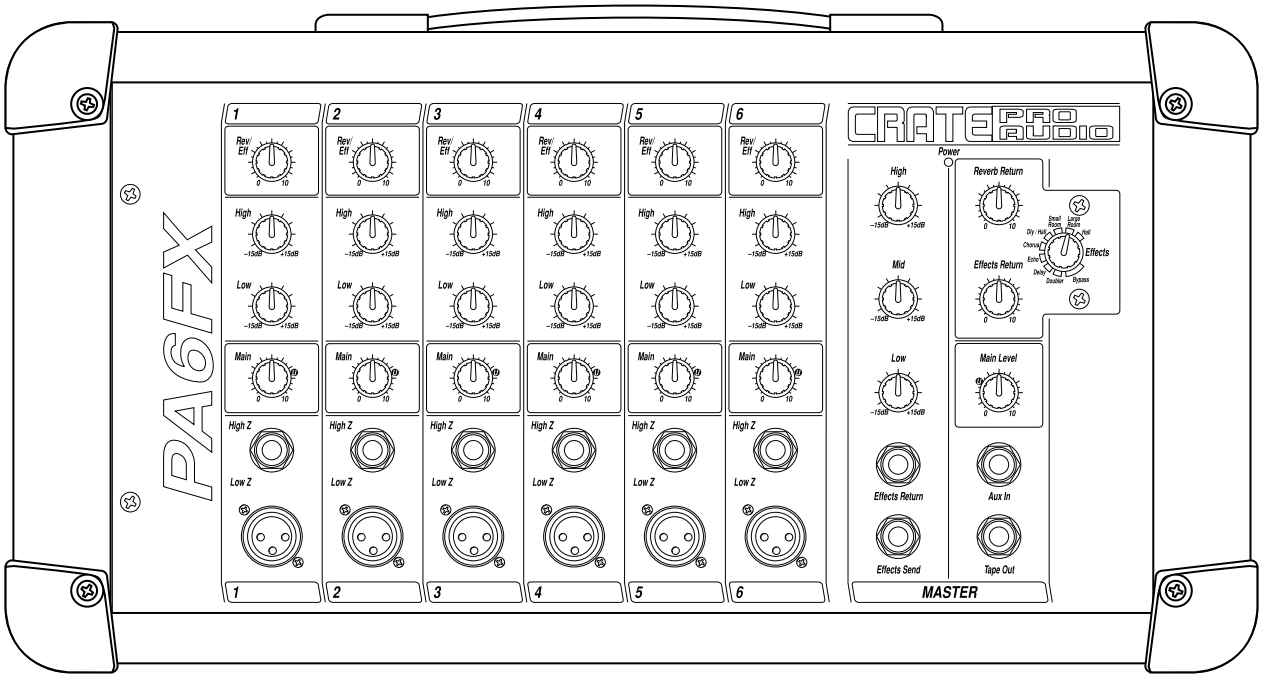
User's Guide
for the
CRATE PRO AUDIO
PA-6FX / PA-8FX



Box Mixer with Digital Effects

Congratulations!

You are now the proud owner of one of the most versatile and economical powered mixers available, the Crate Pro Audio PA6FX/PA-8FX Box Mixer with Digital Effects. These compact units feature Crate's legendary performance and high quality construction in rugged and easy to operate packages. Each mixer features both 1/4" and XLR-type balanced inputs on every channel. The Master control section features a three-band EQ, Reverb Return and Master Level control, plus an Effects Loop, Aux In and Tape Out jacks and a rotary Effects Selector. The internal power amplifier is capable of delivering 150 watts into 4 ohms and 220 watts into 2 ohms. Rear-panel Line In/Line Out jacks and dual 1/4" speaker outputs give you even greater flexibility and performance from these small but power-packed units!

Your PA-6FX/PA-8FX is proudly made in America, using only the best components. Extensive testing and Crate's Five-Year Warranty assure you that your new mixer is the absolute best it can be. In order to get the most out of it, we strongly urge you to read this manual before using the mixer.

And ***thank you*** for choosing CRATE PRO AUDIO

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CAUTION
RISK OF ELECTRIC SHOCK DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER.
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

PRECAUCION
RIESGO DE CORRIENTAZO NO ABRA

PRECAUCION PARA DISMINUOIR EL RIESGO DE CORRIENTAZO NO ABRA LA CUBIERTA
NO HAY PIEZAS ADENTRO QUE EL USARIO PUEDO REPARAR
DEJE TODO MANTENIMIENTO A LOS TECHNICOS CALIFICADOS

ATTENTION
RISQUE D'ELECTROCUTION NE PAS OUVRIR

ATTENTION: POUR REDUIRE D'ELECTROCUTION NE PAS ENLEVER LE COUVERCLE. AUCUNE PIECE INTERNE N'EST REPRABLE PAR L'UTILISATEUR. POUR TOUTE REPARATION, S'ADRESSER A UN TECHNICIEN QUALIFIE.

VORSICHT
ELEKTRISCHE SCHLAGGEFAHR NICHT OFFENEN

VORSICHT: ZUR MINIMIERUNG ELEKTRISCHER SCHLAGGEFAHR NICHT DEN DECKEL ABENHMEN. INTERNE TEILE KONNEN NICHT VOM BENUTZER GEWARTET WERDEN. DIE WARTUNG IS QUALIFIZIERTEM WARTUNGSPERSONAL ZU UBERLASSEN.

THIS EQUIPMENT HAS BEEN DESIGNED AND ENGINEERED TO PROVIDE SAFE AND RELIABLE OPERATION. IN ORDER TO PROLONG THE LIFE OF THE UNIT AND PREVENT ACCIDENTAL DAMAGES OR INJURY, PLEASE FOLLOW THESE PRECAUTIONARY GUIDELINES:

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT OPEN CHASSIS; DO NOT DEFEAT OR REMOVE THE GROUND PIN OF THE POWER CORD; CONNECT ONLY TO A PROPERLY GROUNDED AC POWER OUTLET.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

CAUTION: NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

CAUTION: OUR AMPLIFIERS ARE CAPABLE OF PRODUCING HIGH SOUND PRESSURE LEVELS. CONTINUED EXPOSURE TO HIGH SOUND PRESSURE LEVELS CAN CAUSE PERMANENT HEARING IMPAIRMENT OR LOSS. USER CAUTION IS ADVISED AND EAR PROTECTION IS RECOMMENDED IF UNIT IS OPERATED AT HIGH VOLUME.

ESTE APARATO HA SIDO DISENADO Y CONSTRUIDO PARA PROVEER ANOS DE OPERACION SEGURA Y CONFIABLE. PARA PROLONGAR LA VIDA DE ESTA UNIDAD E IMPEDIR DANOS ACCIDENTALES POR FAVOR SIGA ESTAS INSTRUCCIONES PREVENTIVAS:

PRECAUCION: PARA DISMINUIR EL RIESGO DE DESCARGAS ELÉLECTRICAS: (1) NO ABRA LA CUBIERTA, (2) NO ES RECOMENDABLE REMOVER O DESACTIVAR LA PATA DEL POLO A TIERRA DEL CABLE DE CORRIENTE, CONECTE CORRECTAMENTE A UNA TOMA DE CORRIENTE A TIERRA.

ADVERTENCIA: PARA EVITAR DESCARGAS ELECTRICAS O PELIGRO DE INCENDIO, NO DEJE ESTE APARATO EXPUESTO A LA LLUVIA O HUMEDAD.

PRECAUCION: NO HAY PIEZAS ADENTRO QUE EL USUARIO PUEDE REPARAR. DEJE TODO MANTENIMIENTO A LOS TÉCNICOS CALIFICADOS.

PRECAUCION: NUESTROS AMPLIFICADORES PUEDEN PRODUCIR NIVELES DE PRESION DE SONIDO ALTO. EXPOSICION CONTINUADA A LOS NIVELES DE PRESION DE SONIDO ALTO PUEDE CAUSA DANO PERMANENTE A SU OIDO. ES ACONSEJADO QUE USE PRECAUCION AL USUARIO Y ES RECOMENDADO PROTECCION PARA LOS OIDOS SI LA UNIDAD ES OPERADA A VOLUMEN ALTO.

THE CHART BELOW SHOWS THE U.S. GOVERNMENT'S OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS WHICH WERE IN EFFECT AT THE TIME OF THIS PUBLICATION FOR PERMISSIBLE NOISE EXPOSURE, PER 29CFR1910.95, TABLE G-16:

SOUND LEVEL DBA, SLOW RESPONSE	DURATION PER DAY IN HOURS	SOUND LEVEL DBA, SLOW RESPONSE	DURATION PER DAY IN HOURS	SOUND LEVEL DBA, SLOW RESPONSE	DURATION PER DAY IN HOURS
90	8	97	3	105	1
92	6	100	2	110	1/2
95	4	102	1 - 1 1/2	115	1/4 or less

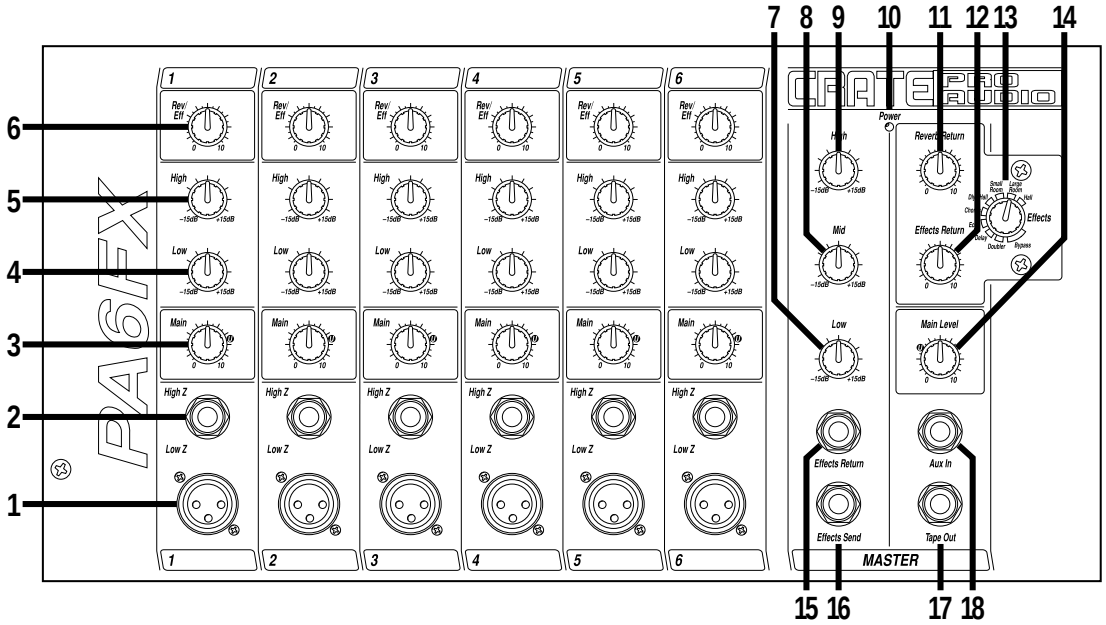
ACCORDING TO OSHA, ANY EXPOSURE IN EXCESS TO THESE AMOUNTS LISTED ABOVE COULD RESULT IN SOME HEARING LOSS.

EXPLANATION OF GRAPHICAL SYMBOLS:
EXPLICACION DE SIMBOLOS GRAFICOS:

= "DANGEROUS VOLTAGE" "VOLTAJE PELIGROSO" "DANGER HAUTE TENSION" "GEFAHLICHE SPANNUNG"

= "IT IS NECESSARY FOR THE USER TO REFER TO THE INSTRUCTION MANUAL" "ES NECESARIO QUE EL USUARIO SE REFIERA AL MANUAL DE INSTRUCCIONES." "REFERREZ-VOUS AU MANUAL D'UTILISATION" "UNBEDINGT IN DER BEDIENUNGSANLEITUNG NACHSCHLAGEN"

The Front Panel:



EACH CHANNEL:

1: LOW Z BALANCED INPUT: Connection of a microphone (or similar source) to the mixer is made here using a balanced XLR-type low-Z plug. The wiring for the connector is as follows: Pin 1 = Signal ground, Pin 2 = Signal +, Pin 3 = Signal –.

2. HIGH Z LINE INPUT: Connection of an instrument (or similar line level source) to the mixer is made here using either a balanced or unbalanced 1/4" high-Z plug. The wiring for the connector is as follows: Tip = Signal +, Ring = Signal –, Sleeve = Ground.

3. MAIN: This serves as the input level adjustment control for each channel and allows you to properly mix the channels for a well balanced master output signal.

4. LOW EQ: Adjust each channel's low frequency output with this control: the center position is "flat," that is, no boost or cut. By turning the control to the left you reduce the low frequency output; turning it to the right increases the low frequency output. The Low control allows ±15dB of boost or cut at 80Hz and primarily affects the notes you "feel" such as those from a bass guitar or kick drum.

5. HIGH EQ: Adjust each channel's high frequency output with this control: the center position is "flat," that is, no boost or cut. Turning the control to the left reduces the high frequency output; turning it to the right increases the high frequency output. The High control allows ±15dB of boost or cut at 10kHz and primarily affects the "crispness" of the sound.

6. REVERB/EFFECTS: Adjust the amount of internal effect (see #13) and/or external effects (see #15 & 16) for each channel with this control: in its full left position the signal will be "dry" (without any reverb). As you turn the control to the right the amount of reverb/effect increases. This control is post-EQ and post-Gain.

MASTER SECTION:

The Master tone controls serve as a three-band EQ to adjust the output of the mixer to compensate for room acoustics or to fine tune the overall sound. The Low control is useful to reduce boominess and low end rumble. The mid control can greatly enhance vocals and help control feedback. The High control can help compensate for heavily draped, acoustically absorbent rooms, or bare walled, acoustically reflective rooms, and can be used to help control feedback.

7. LOW: Adjust the overall low frequency output with this control: the center position is "flat" (no boost or cut). Turning the control to the left reduces the low frequency output; turning it to the right increases the low frequency output. The Master Low control allows ±15dB of boost or cut at 50Hz.

8. MID: Adjust the overall midrange level with this control: the center position is "flat" (no boost or cut). Turning the control to the left reduces the midrange output; turning it to the right increases the midrange output. The Master Mid control allows ±15dB of boost or cut at 600Hz.

9. HIGH: Adjust the overall high frequency level with this control: the center position is "flat" (no boost or cut). Turning the control to the left reduces the high frequency output; turning it to the right increases the high frequency output. The Master High control allows ±15dB of boost or cut at 10kHz.

10. ON LED: This LED glows red when the unit is plugged in and turned on. (If the LED won't light when you turn on the power switch – #19 – check for a good connection to the power outlet and make sure the outlet is "live.")

11. REVERB RETURN: Adjust the overall amount of reverb effect with this control: in its full left position the output signal will be "dry" (no reverb at all); as you bring the control to the right you increase the amount of reverb in relation to the settings of each channel's Reverb/Effects controls. This control is pre-Master EQ and pre-Master Level.

The Front Panel - continued:

12. EFFECTS RETURN: Adjust the overall amount of external effects, if used, with this control: in its full left position the output signal will be "dry" (no effect); as you bring the control to the right you increase the amount of external effect in relation to the settings of each channel's Reverb/Effects controls. This control is pre-Master EQ and pre-Main Level.

13. DIGITAL EFFECTS SELECTOR: Choose which of Crate's on board digital effects you want added to the signal with this control. For more information, see "The Digital Effects" section below.

14. MAIN LEVEL: This is the mixer's master volume control, which adjusts the overall level going to the unit's internal power amplifier. In order to reduce the risks of overdriving the amp, this control should be run at about 6 or 7 (1 or 2 o'clock). This will insure maximum headroom availability to handle any large peaks (and therefore extreme power demands) in the program material.

15. EFFECTS RETURN: When using an external effects device with the mixer, connect a shielded cable between the OUTPUT of the effects unit and this jack. This "returns" the processed signal to the mixer's internal amplifier.

16. EFFECTS SEND: When using an external effects device with the mixer, connect a shielded cable between this jack and the INPUT of the effects unit.
The front panel effects loop is pre-main level and pre-eq.

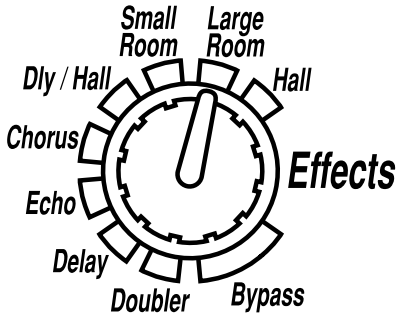
17. TAPE OUT: Connecting the mixer to a tape recorder or mixing console can be done through this jack. The line level signal at the jack is pre-Master EQ and post-Main Level. The TAPE OUT level is controlled by the Main Level control (#14).

18. AUX IN: Adding an external signal source, such as a CD player or tape deck can be done simply by plugging the OUTPUT of the source into this jack. The jack is a mono 1/4" unbalanced type which means that a stereo signal will have to be mixed down to a mono signal by using an appropriate summing device or cable.

The Digital Effects

The PA-6FX/PA-8FX have many different digital effects built in, including chorus, reverbs, delays, echo and a doubler. Turn the Effects knob (#13) towards the name of the desired effect. The Effects control is a non-detented, fully-rotational potentiometer, and the changes from one effect setting to the next will occur in the areas indicated around the knob.

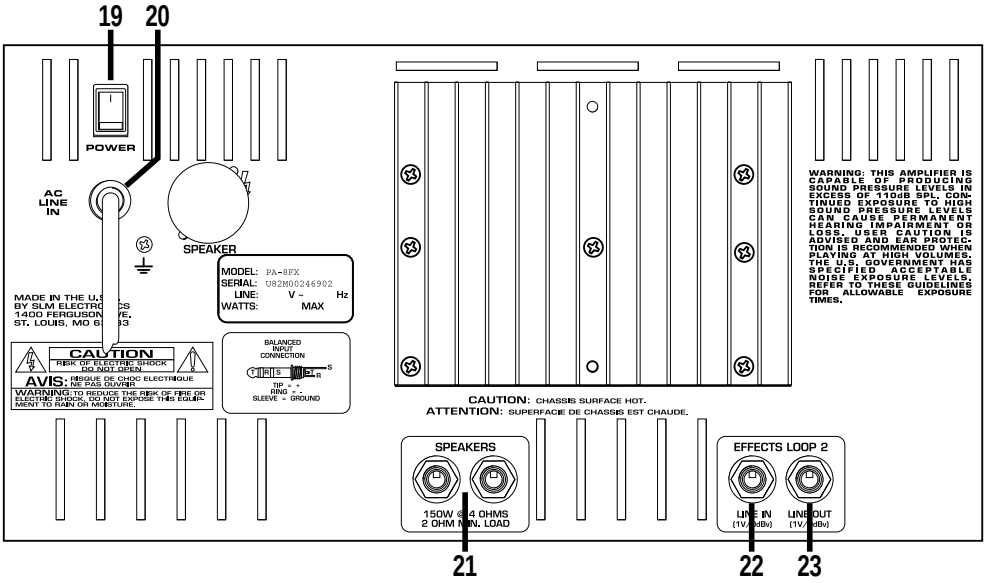
Each channel's Rev/Eff control (#6) sets the amount of effect applied to its channel. The setting of the master Reverb Return control (#11) determines the overall amount of internal effects applied to the output signal.



Starting with the Bypass position, working clockwise, the effects are as follows:

Bypass	No effect
Doubler	Adds second signal over original w/slight delay
Delay	Slapback effect, slight delay between signals
Echo	Delayed reverberations of original signal
Chorus	Pitch modulation, moderate rate and depth
Dly/Hall	Slapback effect, long delay between signals
Small Room	Slight amount of reverberation
Large Room	Moderate amount of reverberation
Hall	Large amount of reverberation

The Rear Panel:



19. POWER: This heavy duty rocker type switch is used to turn the mixer ON in the up position, OFF in the down position. The front-panel "ON" LED (#10) will glow red when the power is on.

20. POWER CORD: This heavy duty, grounded, three wire power cord is to be plugged into ONLY a safely-wired, grounded 120 volt, 60 cycle AC power outlet. DO NOT attempt to defeat the ground connection of this cable! If your mixer was purchased outside of the United States, see the unit's rear panel for its power rating and follow the above guidelines.

21. SPEAKER OUTS: Using a 1/4" mono phone plug, connect the output of the mixer to your speaker cabinets with these jacks. Be sure to use heavy gauge speaker cable – NOT instrument patch cords – for these connections. The jacks are wired together in parallel.

The internal amplifier of the PA-6FX/PA-8FX can deliver its full output into as low as 2 ohms. The chart in the column to the right can help you determine the total impedance load when connecting various combinations of speakers in parallel. **NEVER CONNECT THE MIXER TO ANY COMBINATION OF SPEAKERS THAT HAVE A TOTAL IMPEDANCE BELOW 2 OHMS!**

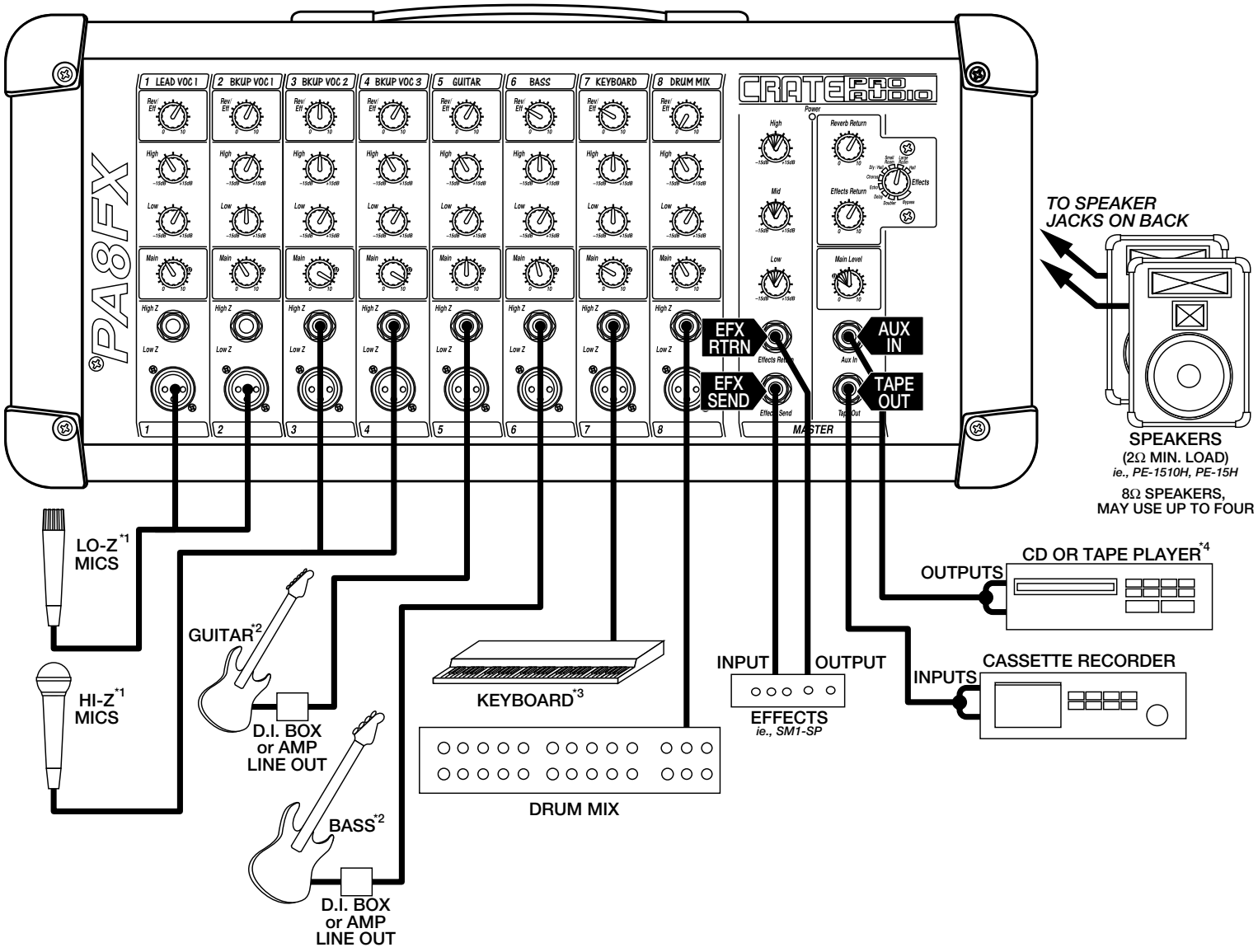
SPKR IMP.	# OF SPKRS	TOTAL IMP.	SPKR IMP.	# OF SPKRS	TOTAL IMP.
4 ohms	2	2 ohms	16 ohms	2	8 ohms
8 ohms	2	4 ohms	16 ohms	4	4 ohms
8 ohms	4	2 ohms	16 ohms	8	2 ohms

22. EFFECTS LOOP 2 LINE IN: Connecting an external signal processor, such as a digital delay or echo, can be accomplished through the Line In and Line Out jacks. Connect the OUTPUT of the external device to the Line In jack using a shielded cable with mono 1/4" plugs. This sends the line level signal into the mixer's internal power amplifier.

23. EFFECTS LOOP 2 LINE OUT: This carries a pre-amplified, post-EQ signal to an external effects device. Connect the Line Out jack to the INPUT of the device using a shielded cable with mono 1/4" phone plugs. This sends a line level signal out from the mixer.
The rear panel effects loop is post-Master EQ and post-Main Level, therefore its tone and output level are governed by the setting of the Master controls.

Basic Connections and Settings:

The illustration below offers some basics for using the box mixer. Actual connections and settings will vary depending on the application. These are merely guidelines.



*1: There are two basic types of mics: Hi-Z (Z = impedance) and Low-Z. Hi-Z connectors plug into the "Hi-Z Line" inputs, Low-Z connectors plug into the "Lo-Z Balanced" inputs. For Hi-Z mics, set the Main control around "9." For Lo-Z mics, set the Gain control around "4."

Typical Hi-Z (1/4") mic connector:

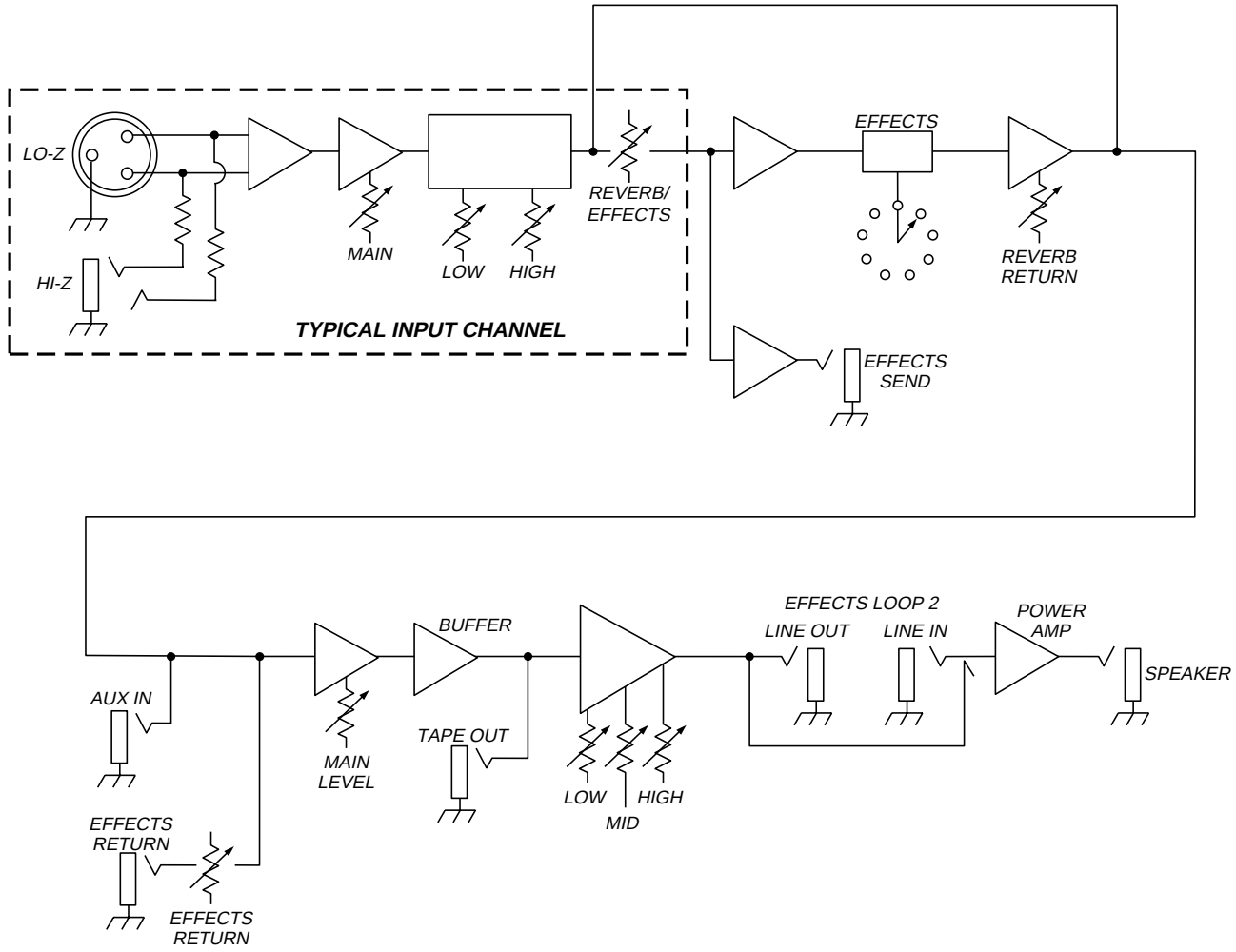
Typical Lo-Z (XLR) mic connector:

*2: Most guitars have an "instrument level" signal and work best with the Main control no higher than "5."

*3: Most keyboards, drum machines, etc. have a "line level" signal and work best with the Main control set around "2" or "3."

*4: The Aux In jack goes just before the mixer's Master Level and Tone controls. This is a "mono" jack so a stereo signal will need to be "summed" as shown. If the source has an output level control, use it to control the loudness of the signal.

System Block Diagram:



PA-6FX/PA-8FX Box Mixer with Digital Effects

Technical Specifications

Output Power Rating		150 watts RMS @ 5% THD, 4 ohm load, 120VAC 220 watts RMS @ 5% THD, 2 ohm load, 120VAC
Channel EQs	Low	±15dB @ 80Hz
	High	±15dB @ 10kHz
Master EQs	Low	±15dB @ 50Hz
	Mid	±15dB @ 600Hz
	High	±15dB @ 10kHz
Input Impedance	High Z	10k ohm
	Low Z	1k ohm
Input Sensitivity	High Z	20mV RMS
	Low Z	2mV RMS
	Aux In/Effects Return	.25V RMS
Max. Input Signal	High Z	4V RMS (11.25V peak-to-peak)
	Low Z	40mV RMS (1.25V peak-to-peak)
	Aux In/Effects Return	10V RMS (30V peak-to-peak)
Line Out/Line In Levels		1V RMS
Aux In/Tape Out Levels		1V RMS
Effects Return/Effects Send Levels		1V RMS
Size and Weight	PA-6FX	PA-8FX
	10″H x 18″W x 9.5″D	10″H x 20.25″W x 9.5″D
	29 lbs.	34 lbs.

The PA Series Box Mixers are covered with a durable, high quality carpet-like material. Brush clean as needed. Never spray cleaning agents onto the cabinet. Avoid abrasive cleansers which would damage the finish.

Due to ongoing product development and improvement, the specifications contained herein are subject to change without notice.

www.crateamps.com

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