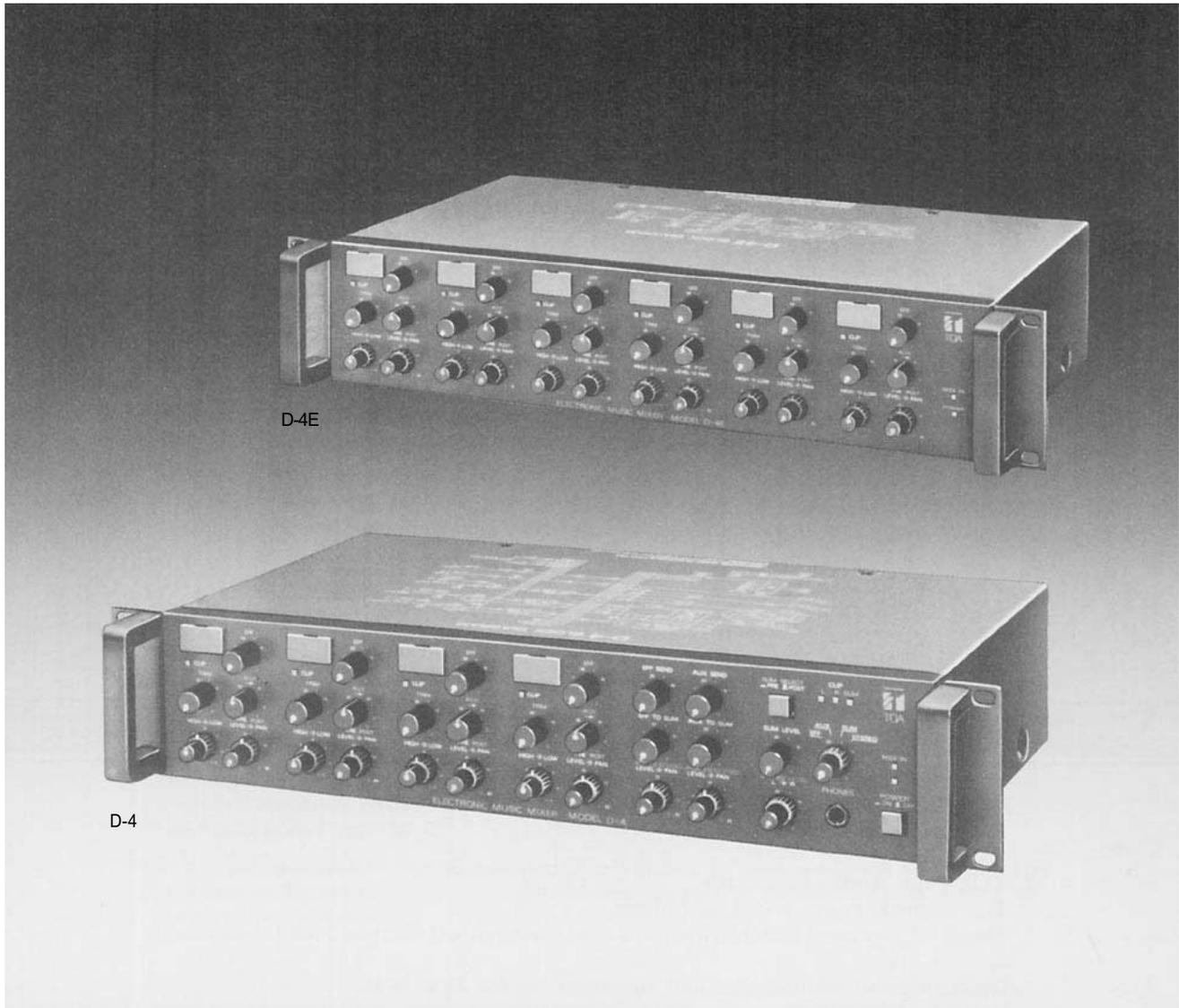




# ELECTRONIC MUSIC MIXER

Model D-4, D-4E



D-4E

D-4

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## Precautions

### **1. XLR Type Audio Connector**

The connectors are wired as follows.

The pin 1 is ground (shield), the pin 2 cold (low, minus), the pin 3 hot (high, plus).

### **2. Description of components and functions on the D-4, D-4E**

Various descriptions are applied, depending on each manufacturer. In our Operating and Instruction Manual explanation of components and functions is made according to our usage for them.

## General Description

The TOA D-4 is a 19" rack mountable, four input stereo mixer especially designed for electronic music. When combined with the D-4E, the matching six input expander, the D-4 becomes a ten input mixer with five balanced XLR inputs, stereo and mono outputs, and eight MIDI Thru jacks. The D-4 is ideal for live use, home recording, or broadcast work.

Each of the D-4's inputs features a writing block for identifying the input source, a trim control with a range of 34dB, an LED clip indicator, an Aux (auxiliary) send (internally switchable from post-EQ to pre-EQ, and selectable on the front panel between pre-fader and post-fader), an Effects send (post-fader/post-EQ), concentric bass and treble controls, and concentric stereo pan and volume controls. The D-4's output section features master level controls for both Effects and Aux sends, master level controls to return Effect and Aux to mono sum and to stereo L&R with pan, master volume controls for stereo L&R and mono sum, a switch to derive the mono sum from either pre-fader or post-fader stereo busses, and LED clip indicators for L, R, and Sum outputs. The head phone output jack is also located on the front panel, along with the head phone volume control and cue select switch.

The rear panel of the D-4 features RCA and 1/4" phone input jacks, accessory patch points (switchable internally from post-fader/post-EQ to pre-fader/pre-EQ), and direct outputs for each input channel. In addition, input channel 4 is equipped with a balanced XLR input and switchable 48 volt phantom power. The stereo L&R outputs are 1/4" phone jacks and RCA jacks, while the mono sum out features an XLR electronically balanced output with ground lift switch, and a 1/4" phone jack. Stereo L&R and Sum outputs all feature accessory patching, and there is a separate 1/4" phone input direct to the mono sum buss.

The D-4's MIDI jacks are also located on the back panel. One MIDI input jack is split into four MIDI Thru jacks, allowing the use of multiple synthesizers without the problems of data corruption and delay that occur when connecting many synths in series through their internal MIDI Thru jacks.

A pushbutton circuit breaker and chassis ground post is located on the back of the D-4, as is a 6-foot AC power cord.

The D-4E is a six input expander designed to be used exclusively with the D-4. Each input channel has the same controls and jacks as the D-4, but the D-4E has four balanced XLR inputs, each with its own 48 volt phantom power when combined with the D-4 give a total of eight MIDI Thru jacks. The D-4E features a buss link jack located on the back panel to connect it to the D-4, with the included 2-foot buss-connect cord (a 6-foot connecting cord is optional — see your authorized TOA dealer). There is also a switched accessory outlet on the back of the D-4, allowing both units to power up with the same on/off switch.

Both the D-4 and D-4E can be mounted in a standard 19" rack, and each occupies two rack spaces. Removable rack ears are included. The mixers are finished in an attractive gray enamel finish.

## Features

1. Four input channels, total ten input channels when combined with D-4E
2. MIDI Thru circuitry with one MIDI In jack and four MIDI Thru jacks (total eight MIDI Thru jacks when combined with D-4E) for convenience and protection against data loss or delay
3. Stereo Left and Right outputs with both RCA and 1/4" jacks
4. Five busses (Stereo L, R, Eff, Aux, and Sum) for maximum flexibility
5. Independent Eff and Aux return to Stereo L&R and to Sum
6. Individual accessory patch points for Stereo L&R and Sum for best signal-to-noise ratio
7. Sum output features electronically balanced XLR connector and unbalanced 1/4" phone jack
8. Head phone monitoring for Stereo L&R, Sum, Eff, and Aux
9. Pushbutton circuit breaker for protection
10. 19" rack mounting bracket included is removable for use outside of rack

### Each Channel

1. Input trim control with LED clip indicator for best signal-to noise ratio
2. Two band EQ
3. Accessory patch point is factory preset to be post-fader/post-EQ, internally switchable to pre-fader/pre-EQ
4. Aux send is factory preset to be post-EQ, internally switchable to pre-EQ
5. Aux level control on the front panel derives signal from either pre-fader or post-fader with center detent position being "off"
6. Independent effect send is post-fader/post-EQ
7. Direct output on each channel, ideal for recording
8. Concentric stereo pan and channel volume control
9. Input Channel 4 on D-4 has electronically balanced XLR input connector with switchable 48 volt phantom power, as do Channels 5, 6, 7, and 8 on D-4E

## Front Panel (D-4)

**Writing Block**  
The name of the input equipment can be written in with an erasable felt pen or grease pencil.

**Clip LED Indicator (CLIP)**  
The LED indicator lights when the pre or post EQ signal level reaches 3dB below clipping, giving a visual reference for optimum setting of the trim control.

**Input Trim Control (TRIM)**  
The trim control adjusts the gain of the preamp stage of the associated channel, providing 34 dB of gain control. When the trim control is set to the "0" position, the nominal input level is -30 dB. At the "-34" position the level is +4dB. When the input channel four(4) for mic input is used, the nominal input level is -60dB at the "0" position of the trim control. At the "-34dB" position the level is -26dB. The trim control of each channel should be adjusted so that the clip LED just begins to light, or only flashes occasionally. This will ensure lowest distortion level and optimum signal to noise ratio.

**High Equalizer Control (HIGH EQ)**  
The high EQ control alters the high frequency response of the input channel, providing  $\pm 10$ dB at 4kHz, and  $\pm 15$ dB at 20kHz of continuously variable active shelving equalization. The "0" detented position provides flat audio response.

**Low Equalizer Control (LOWEQ)**  
The low EQ control provides  $\pm 10$ dB at 150Hz and  $\pm 15$ dB at 20Hz of continuously variable active shelving equalization. The "0" detented position provides flat audio response.

**Input Channel Level and Pan (LEVEL/PAN)**  
This control governs the amount of post-EQ signal assigned to the Stereo L&R busses and to the mono Sum buss. It includes both a level control and a concentric pan control, which determines the placement of the signal in the stereo image.

**Effects Control (EFF)**  
This control determines the amount of post-fader/post-EQ signal assigned to the effect buss from a given input channel, and thus the level of effects for that channel.

**Aux Control (AUX)**  
This control determines the level of the input signal to be fed to the aux buss. When in the center detent position the control is off, and no signal is assigned. Rotating the control counter-clockwise increases the amount of pre-fader/post-EQ signal assigned to the buss, while rotating the control clockwise increases the amount of post-fader signal assigned to the buss. The pre-fader/post-EQ signal can be changed to pre-EQ signal with an internal switch (see page 9).

**Effect to Sum Level Control (EFF TO SUM)**  
This control determines the amount of effect signal returned to the mono Sum buss through the Effect Return Jack on the rear panel (EFF RET).

**Aux to Sum Level Control (AUX TO SUM)**  
This control determines the amount of aux signal returned to the mono Sum buss through the Aux Return Jack on the rear panel (AUX RET).

**Master Effect Send Control (EFF SEND)**  
This control governs the overall level of signal sent to an outboard effect device through the Effect Send Jack on the rear panel (EFF SEND).

**Master Aux Send Control (AUX SEND)**  
This control governs the overall level of signal sent to on-stage monitor amplifiers, or an outboard effect device through the Aux Send Jack on the rear panel (AUX SEND).

**Effect Return to Stereo Level Control (EFF TO STEREO/PAN)**  
This control governs the amount of effect signal returned to Stereo L&R through the Effect Return Jack (EFF RET). It includes both a level control and a concentric stereo pan control, which determines the placement of the effect signal in the stereo image.

**Aux Return to Stereo Level Control (AUX TO STEREO)**  
This control governs the amount of aux signal returned to Stereo L&R through the Aux Return Jack (AUX RET). It includes both a level control and a concentric stereo pan control, which determines the placement of the aux signal in the stereo image.

**Sum Pre/Post Select Switch (SUM SELECT)**  
The mono Sum signal is derived by summing the Stereo L&R signals. The Sum Select switch determines whether this summing occurs before or after the Master Stereo Faders. When using the switch in the Pre-position, the Sum output level is independent of the Master Stereo L&R level controls. In the Post-position, adjusting the Master Stereo L&R level controls will affect the volume of the Sum output.

**Master Sum Level Control (SUM LEVEL)**  
This control determines the overall level of the Sum output (SUM OUT).

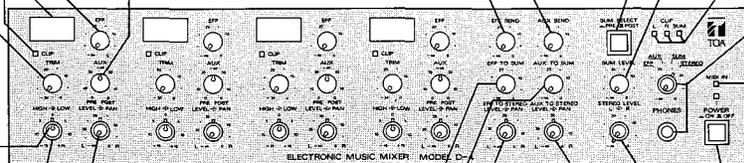
**LED Clip Indicators (CLIP)**  
The L, R, and Sum clip indicators light when their respective signals reach 3dB below clipping, giving a visual indication before the onset of distortion.

**Head phone Selector, Level Control, and Jack (PHONES)**  
An output jack, volume control, and four-position rotary switch is provided for the use of head phones. Any one of four busses can be monitored through head phones using the selector switch: EFF, AUX, SUM, or STEREO. All monitored signals are in mono with the exception of Stereo L&R which are monitored, of course, in stereo. The level control adjusts the volume of the head phones, and the head phone jack will accept any stereo head phones with and impedance of eight ohms or more.

**MIDI LED Indicator (MIDI IN)**  
This LED indicates the presence of MIDI data at the MIDI input jack on the rear panel (MIDI IN).

**Power LED Indicator and Switch (POWER)**  
The power switch alternately turns AC power to the D-4 and to the accessory AC outlet "on" and "off". The LED indicator lights when the switch is "on".

**Master Stereo L&R Level Controls (STEREO LEVEL)**  
These concentric controls determine the overall level of the Stereo L&R outputs (ST L and ST R).



## Rear Panel (D-4)

### MIDI Thru Connectors (MIDI THRU)

The MIDI signal from the MIDI Input connector (MIDI IN) is split and sent unaltered to the four MIDI Thru connectors on the D-4, and to four more MIDI Thru connectors on the D-4E, if used. Each of the MIDI Thru jacks can be connected to a different synthesizer's MIDI Input jack, allowing one MIDI keyboard or sequencer to control up to four other MIDI synths (eight when using the D-4E.)

### Earth Terminal (PUT EARTH SYMBOL HERE)

This terminal can be used to ground other devices to the D-4 to reduce hum and shock hazard.

### AC Power Cord

The power cord is of the three-wire type with proper grounding facilities built-in.

### Accessory Switched AC outlet

This is an accessory AC outlet that is turned on and off via the D-4's Power Switch. Ideally it will be used for the D-4E, allowing both units to be powered up on the same switch, but it will in fact handle any AC equipment that consumes less than 400 watts.

### Pushbutton Circuit Breaker (PUSH RESET)

This breaker is designed to protect the D-4 and D-4E in the event of internal or external fault. Wait about two minutes after correcting the fault and push the button to reset the system and restore proper operation.

### Buss Link Connector (BUSS LINK)

This connector is used to link the D-4 with the D-4E Expander. A two-foot connecting cord is included with the D-4E, and a six-foot cord is optional (see your authorized TOA dealer).

**CAUTION** - The ground pin on the AC plug should not be removed under any circumstances. If the D-4 must be used on an AC circuit with no ground or and open ground, then a suitable grounding adapter should be used and its ground terminal should be securely attached to a good earth connection. Failure to do so will result in increased noise and shock hazard.

### Sum Output Ground Lift Switch (SUM OUT GND)

This switch is assigned to the XLR Sum Output connector, and is used to avoid ground loops and induced hum that sometimes occur when connecting the D-4's XLR Sum Output with other equipment. Sliding the Ground Lift Switch from the NORMAL position to the LIFT position breaks the ground connection and may reduce hum and noise. For most applications the which should be left in the NORMAL position.

### Stereo L&R Accessory Input and Output Jacks (ST L and ST R, ACC IN and OUT)

These RCA pin jacks are unbalanced, with a nominal level of -10dB. Input jack impedance is 10k ohms, and output jack impedance is 1k ohms. The Accessory jacks allow signal processing and effect devices to be inserted into the signal path, the regular signal path is interrupted when a plug is inserted into the Accessory In jack (ACC IN).

### MIDI Input DIN Connector (MIDI IN)

This connector will accept the MIDI output of any synthesizer, sequencer, or other MIDI device. Use of non-MIDI-standard DIN cables, or of cables longer than 5m (16'5") may result in improper operation and data loss.

### Sum Output Jacks (SUM OUT, OUTPUT)

The electronically balanced XLR and unbalanced 1/4" phone are wired in parallel. The XLR jack has a nominal output level of +4dB and an impedance of 150 ohms, while the 1/4" jack has a nominal output level of +4dB and an impedance of 1k ohms. These jacks may be used simultaneously.

### Stereo L&R Output Jacks (ST L and ST R OUTPUT)

The unbalanced RCA pin jacks and 1/4" phone jacks are wired in parallel. The RCA jack has a nominal output level of -10dB and an impedance of 1k ohms, while the 1/4" jack has a nominal output level of +4dB and an impedance of 1k ohms. The jacks may be used simultaneously.

### Direct Output (DIRECT OUT)

The Direct Output on each channel utilizes an unbalanced RCA pin jack with an impedance of 1k ohms and a level of -10dB. The Direct Output is post-EQ/post-fader, and is useful for recording and for sending individual instruments to a main PA mixer through direct boxes.

### Sum Accessory Input and Output (SUM OUT, ACC IN and ACC OUT)

These RCA pin jacks are unbalanced, with a nominal level of -10dB. Input jack impedance is 10k ohms, and output jack impedance is 1k ohms. The Accessory jacks allow signal processing and effect devices to be inserted into the signal path. The regular signal path is interrupted when a plug is inserted into the Accessory In jack (ACC IN).

### Aux Send Jack (AUX SEND)

This 1/4" phone jack can be used either as a monitor send, or in conjunction with the Aux Return jack to connect an outboard effects device (i.e., delay or reverb) to the D-4. The Effect Send jack should be connected to the input of the effect. Nominal output level is -10dB with an impedance of 1k ohms.

### Effect Return Jack (EFF RET)

This 1/4" phone jack is used in conjunction with the Effect Send jack to connect an outboard effects device (i.e., delay or reverb) to the D-4. The Effect Return jack should be connected to the output of the effect. Nominal input level is -20dB with an impedance of 10k ohms.

### Aux Return Jack (AUX RET)

This 1/4" phone jack can be used in conjunction with the Aux Send jack to connect an outboard effects device (i.e., delay or reverb) to the D-4. The Aux Return jack should be connected to the output of the effect. Nominal input level is -20dB with an impedance of 10k ohms.

### Sum Input Jack (SUM IN)

This 1/4" phone jack is directly connected to the mono Sum buss. Its nominal input level is -10dB, with an input impedance of 10k ohms.

### Input Channel Accessory Input and Output (ACC IN and ACC OUT)

These RCA pin jacks are unbalanced, with a nominal level of -10dB. Input jack impedance is 10k ohms, and output jack impedance is 1k ohms. The Accessory jacks allow signal processing and effect devices to be inserted into the signal path. The regular signal path is interrupted when a plug is inserted into the Accessory In jack (ACC IN).

### RCA Channel Input (INPUT)

The RCA pin input jack is unbalanced, with an impedance of 50k ohms, and accepts input sources from -30dB to +4dB. Proper adjustment of both Trim control (TRIM) and Input Channel Level (LEVEL/PAN) control will insure optimum signal-to-noise ratio and minimum distortion.

### 1/4" Phone Channel Input (INPUT)

This jack is a standard, unbalanced 1/4" phone jack, with an input impedance of 50k ohms, and accepts input sources from -30dB to +4dB. Proper adjustment of both Trim control (TRIM) and Input Channels Level (LEVEL/PAN) control will insure optimum signal-to-noise ratio and minimum distortion. When a plug is inserted into the 1/4" input jack, the corresponding RCA pin jack is automatically switched out of the input circuitry.

### Phantom Power On/Off Switch (PHANTOM)

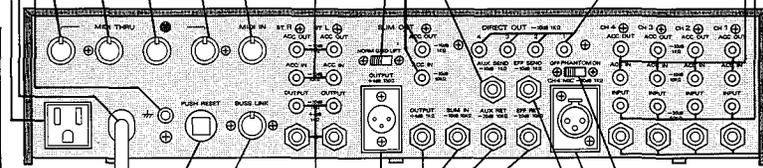
This switch alternately turns "on" and "off" the phantom power (48VDC) for the XLR jack assigned to Channel 4.

### Balanced XLR Microphone Input (CH4 MIC)

The XLR-type microphone input connectors are assigned to Channels 4 on the D-4, and to Channels 5, 6, 7, and 8 on the D-4E. They are electronically balanced with an input impedance of 1k ohms, and will accept signals from -60dB to -26dB. Phantom powering is provided for use with condenser-type microphones (see PHANTOM), and once again the proper adjustment to both Trim control (TRIM) and Input Channel Level (LEVEL/PAN) control will insure optimum signal-to-noise ratio and minimum distortion. The mic input is automatically disconnected when either the corresponding RCA or the 1/4" phone jack is used.

### Effect Send Jack (EFF SEND)

This 1/4" phone jack is used in conjunction with the Effect Return jack to connect an outboard effects device (i.e., delay or reverb) to the D-4. The Effect Send jack should be connected to the input of the Effect. Nominal output level is -10dB with an impedance of 1k ohms.

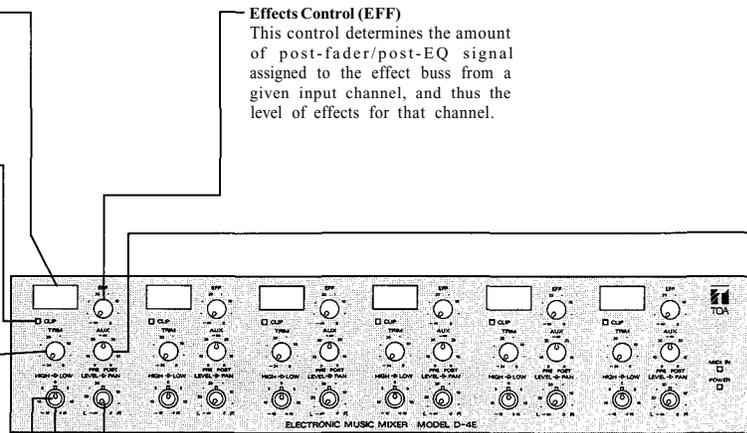


## Front Panel (D-4E)

**Writing Block**  
The name of the input equipment can be written in with an erasable felt pen or grease pencil.

**Clip LED Indicator (CLIP)**  
The LED indicator lights when the pre or post EQ signal level reaches 3dB below clipping, giving a visual reference for optimum setting of the trim control.

**Input Trim Control (TRIM)**  
The trim control adjusts the gain of the preamp stage of the associated channel, providing 34 dB of gain control. When the trim control is set to the "0" position, the nominal input level is -30 dB. At the "-34" position the level is +4dB. When the input channels five (5) thru eight (8) for mic input are used, the nominal input level is -60dB at the "0" position of the trim control. At the "-34dB" position the level is -26dB. The trim control of each channel should be adjusted so that the clip LED just begins to light, or only flashes occasionally. This will ensure lowest distortion level and optimum signal to noise ratio.



**High Equalizer Control (HIGH EQ)**  
The high EQ control alters the input frequency response of the input channel, providing  $\pm 10$ dB at 4kHz, and  $\pm 15$ dB at 20kHz of continuously variable active shelving equalization. The "0" detented position provides flat audio response.

**Low Equalizer Control (LOWEQ)**  
The low EQ control provides  $\pm 10$ dB at 150Hz and  $\pm 15$ dB at 20Hz of continuously variable active shelving equalization. The "0" detented position provides flat audio response.

**Aux Control (AUX)**  
This control determines the level of the input signal to be fed to the aux buss. When in the center detent position the control is off, and no signal is assigned. Rotating the control counter-clockwise increases the amount of pre-fader/post-EQ signal assigned to the buss, while rotating the control clockwise increases the amount of post-fader/post-EQ signal assigned to the buss. The pre-fader/post-EQ signal can be changed to pre-EQ signal with an internal switch (see page 9).

**Input Channel Level and Pan (LEVEL/PAN)**  
This control governs the amount of post-EQ signal assigned to the Stereo L&R busses and to the mono Sum buss. It includes both a level control and a concentric pan control, which determines the placement of the signal in the stereo image.

## Rear Panel (D-4E)

**Direct Output (DIRECT OUT)**  
The Direct Output on each channel utilizes an unbalanced RCA pin jack with an impedance of 1k ohms and a level of -10dB. The Direct Output is post-EQ/post-fader, and is useful for recording and for sending individual instruments to a main PA mixer through direct boxes.

**MIDI Thru Connectors (MIDI THRU)**  
The MIDI signal from the MIDI input connector (MIDI IN) is split and sent unaltered to the four MIDI Thru connectors on the D-4, and to four more MIDI Thru connectors on the D-4E, if used. Each of the MIDI Thru jacks can be connected to a different synthesizer's MIDI input jack, allowing one MIDI keyboard or sequencer to control up to four other MIDI synths (eight when using the D-4E).

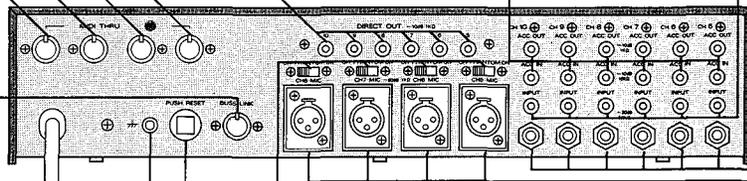
**Buss Link Connector (BUSS LINK)**  
This connector is used to link the D-4 with the D-4E Expander. A two-foot connecting cord is included with the D-4E, and a six-foot cord is optional (see your authorized TOA dealer).

**Earth Terminal (PUT EARTH SYMBOL HERE)**  
This terminal can be used to ground other devices to the D-4 to reduce hum and shock hazard.

**Input Channel Accessory Input and Output (ACC IN and ACC OUT)**  
These RCA pin Jacks are unbalanced, with a nominal level of -10dB. Input jack impedance is 10k ohms, and output jack impedance is 1k ohms. The Accessory jacks allow signal processing and effect devices to be inserted into the signal path. The regular signal path is interrupted when a plug is inserted into the Accessory In jack (ACC IN).

**RCA Channel Input (INPUT)**  
The RCA pin input jack is unbalanced, with an impedance of 50k ohms, and accepts input sources from -30dB to +4dB. Proper adjustment of both Trim control (TRIM) and Input Channel Level (LEVEL/PAN) control will insure optimum signal-to-noise ratio and minimum distortion.

**1/4" Phone Channel Input (INPUT)**  
This jack is a standard, unbalanced 1/4" phone jack, with an input impedance of 50k ohms, and accepts input sources from -30dB to +4dB. Proper adjustment of both Trim control (TRIM) and Input Channels Level (LEVEL/PAN) control will insure optimum signal-to-noise ratio and minimum distortion. When a plug is inserted into the 1/4" input jack, the corresponding RCA pin jack is automatically switched out of the input circuitry.



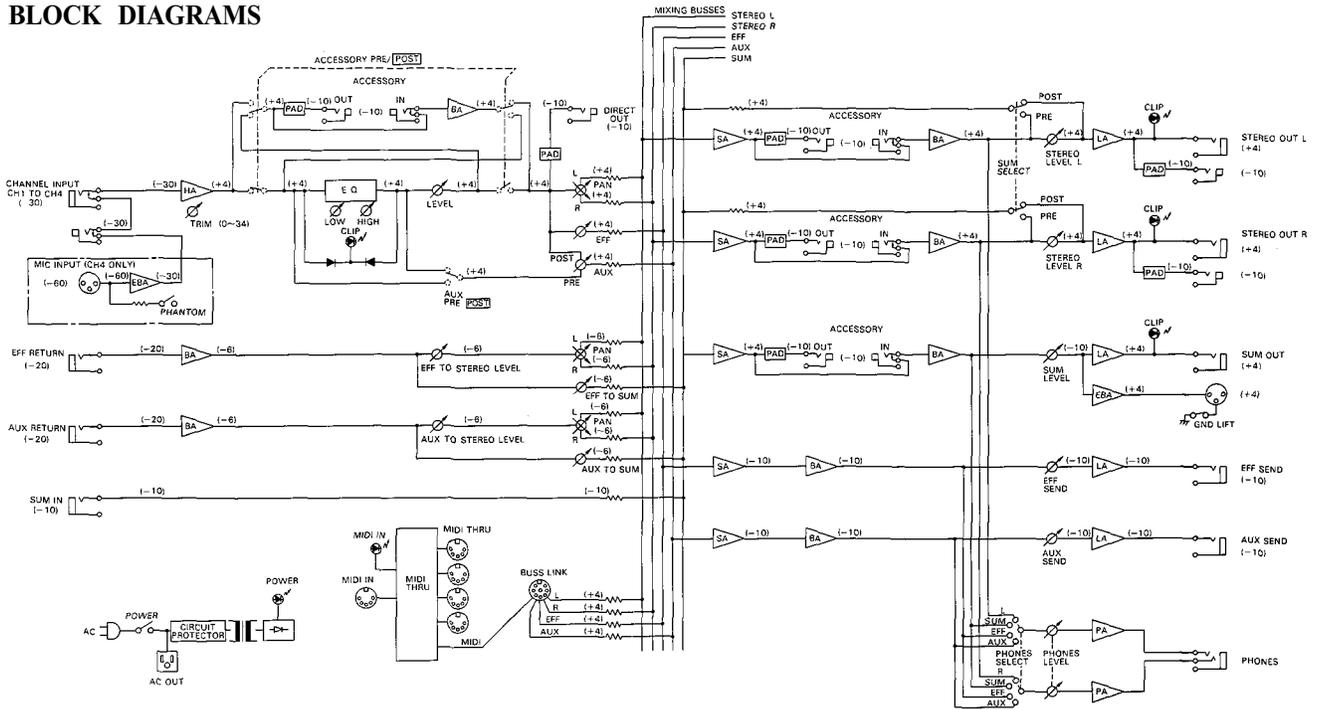
**Pushbutton Circuit Breaker (PUSH RESET)**  
This breaker is designed to protect the D-4 and D-4E in the event of internal or external fault. Wait about two minutes after correcting the fault and push the button to reset the system and restore proper operation.

**Phantom Power On/Off Switch (PHANTOM)**  
This switch alternately turns "on" and "off" the phantom power (48VDC) for the XLR jack.

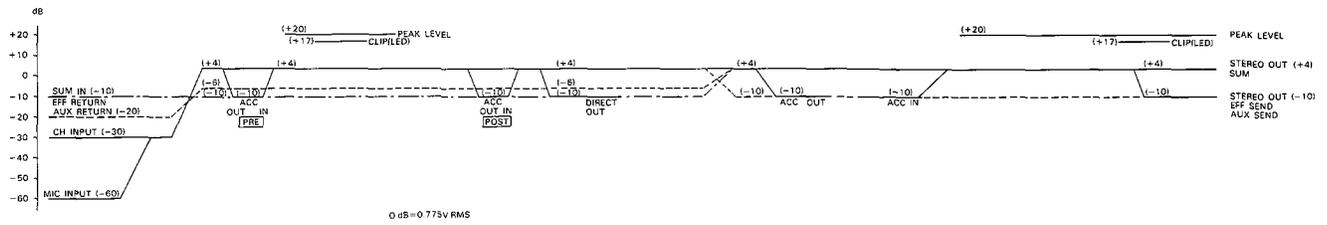
**Balanced XLR Microphone Input (CH5 MIC, CH6 MIC, CH7 MIC, CH8 MIC)**  
The XLR-type microphone input connectors are assigned to Channels 4 on the D-4, and to Channels 5, 6, 7, and 8 on the D-4E. They are electronically balanced with an input impedance of 1k ohms, and will accept signals from -60dB to -26dB. Phantom powering is provided for use with condenser-type microphones (see PHANTOM), and once again the proper adjustment to both Trim control (TRIM) and Input Channel Level (LEVEL/PAN) control will insure optimum signal-to-noise ratio and minimum distortion. The mic input is automatically disconnected when either the corresponding RCA or the 1/4" phone jack is used.

# Block and Level Diagrams

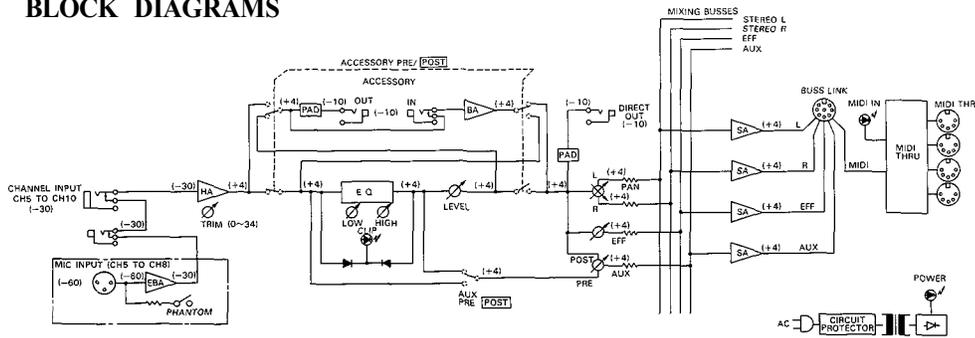
## D-4 BLOCK DIAGRAMS



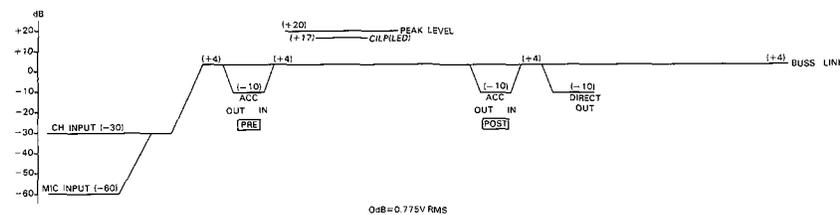
## LEVEL DIAGRAM



## D-4E BLOCK DIAGRAMS



## LEVEL DIAGRAM



# Specifications (D-4, D-4E)

## GENERAL SPECIFICATIONS

### Frequency Response

+0dB, -0.5dB 50Hz to 15kHz  
 +0dB, -3dB 20Hz to 25kHz

### Total Harmonic Distortion

0.05% +4dB\* at 1kHz

### Hum and Noise [INPUT : SHORT CIRCUIT, OUTPUT : OPEN, 20Hz to 20kHz]

- All Level Controls minimum -100dB\*
- Stereo Level Control at max, and all Input Level Controls minimum -85dB\* (D-4 ONLY)  
-82dB\* (D-4E CONNECTION)
- Stereo Level Control and one Input Level Control at max -78dB\* (S/N 82dB)

### Maximum Voltage Gain

Input to STEREO OUT 34dB  
 Mic Input to STEREO OUT 64dB  
 Input to SUM OUT 34dB  
 Input to EFF/AUX SEND 20dB  
 EFF/AUX RET to STEREO OUT 24dB

### Equalization

LOW ±15dB 20Hz Shelving  
 HIGH ±15dB 20kHz Shelving

### CLIP Indicator

Each input channel LED, and Master section (L,R, SUM) LED's turn on at 3dB below clipping

### Power Consumption

D-4 13W  
 D-4E 10W

### Dimensions (W×D×H)

D-4, D-4E  
 420×230×88.5mm  
 (16½×9×3½inch)

### Weight

D-4 5kg (11lbs)  
 D-4E 5kg (11lbs)

### Accessory (D-4E ONLY)

BUSS LINK CABLE 2ft. 1  
 BUSS LINK CABLE 6ft. (C6-D4) Option

\* 0dB is referenced to 0.775V RMS.  
 Specifications are subject to change without notice.

## INPUT SPECIFICATIONS

0dB is referenced to 0.775V RMS.

Input	Actual Load Impedance	For Use With Nominal	Input Level (Trim "0" to Trim "-34")		Connector
			Nominal	MAX Before Clip	
CHANNEL INPUT CH1 ~ CH4 <CH5 ~ CH10>	50kΩ	50kΩ OR LOWER IMP LINES	-30dB [25mV] to +4dB [1.23V]	-14dB [155mV] to +20dB [7.8V]	PHONE JACK RCA PIN JACK
MIC INPUT CH4 <CH5 ~ CH8>	1kΩ	50Ω TO 250Ω MICROPHONES	-60dB [0.78mV] to -26dB [39mV]	-44dB [4.9mV] to -10dB [250mV]	XLR-3-31 TYPE
ACCESSORY IN (INPUT STEREO SUM)	10kΩ	10kΩ OR LOWER IMP LINES	-10dB [250mV]	+6dB [1.6V]	RCA PIN JACK
EFF RETURN	10kΩ	10kΩ OR LOWER IMP LINES	-20dB [78mV]	+6dB [1.6V]	PHONE JACK
AUX RETURN	10kΩ	10kΩ OR LOWER IMP LINES	-20dB [78mV]	+6dB [1.6V]	PHONE JACK
SUM IN	10kΩ	10kΩ OR LOWER IMP LINES	-10dB [250mV]	+6dB [1.6V]	PHONE JACK

## OUTPUT SPECIFICATIONS

0dB is referenced to 0.775V RMS.

Output	Actual Source Impedance	For Use With Nominal	Output Level		Connector
			Nominal	MAX Before Clip	
STEREO OUT (L,R)	1kΩ	10kΩ	+4dB [1.23V]	+20dB [7.8V]	PHONE JACK
STEREO OUT (L, R)	1kΩ	10kΩ	-10dB [250mV]	+6dB [1.6V]	RCA PIN JACK
SUM OUT UNBAL/BAL	1kΩ/150Ω	10kΩ/600Ω	+4dB [1.23V]	+20dB [7.8V]	PHONE / XLR JACK / 3-32 TYPE
EFF SEND	1kΩ	10kΩ	-10dB [250mV]	+6dB [1.6V]	PHONE JACK
AUX SEND	1kΩ	10kΩ	-10dB [250mV]	+6dB [1.6V]	PHONE JACK
DIRECT OUT CH1 ~ CH4 <CH5 ~ CH10>	1kΩ	10kΩ	-10dB [250mV]	+6dB [1.6V]	RCA PIN JACK
ACCESSORY OUT (INPUT STEREO SUM)	1kΩ	10kΩ	-10dB [250mV]	+6dB [1.6V]	RCA PIN JACK
PHONES	150Ω	8Ω or higher	-15dB [138mV]	-6dB [388mV]	STEREO PHONE JACK

< > : D-4E ONLY

All XLR type connectors are electronically balanced.  
 Stereo phone jack is wired: Tip=Left, Ring=Right and Sleeve=Common

### Note:

The XLR type connectors are wired as follows.  
 Pin No. 1 — Ground  
 Pin No. 2 — Cold (Low)  
 Pin No. 3 — Hot (High)

## Procedure for changing internal switch setting

### NOTE:

The internal switches have been provided for added versatility when using the D-4 and D-4E in a variety of applications.

1. **ACCESSORY PATCH SELECT SWITCH:** Each input features an internal accessory "loop" (in/out) for in-line patching of various outboard signal processing and effects devices such as digital delays, equalizers, compressors, limiters, etc. Depending on the particular device employed and/or effect desired, you may choose to "patch" the external unit either before (pre), or after (post) the input's EQ circuitry and level control. Typically, effects devices such as delays and reverb units are patched "post" the EQ and level controls. In this configuration, the level of the effect will be increased as the level of the input channel is increased. The signal sent to the external device will also be affected by the input channel's EQ controls. On the other hand, you may desire to patch such devices as limiters and compressors "pre" so that their operation remains the same, regardless of any changes in the input's EQ or level controls.
2. **AUX SEND PRE/POST EQ SELECTION SWITCH:** Each input features an auxiliary send control for use as either an additional effects send, or as an on-stage monitor send. You should note that the Aux control is a "split" pot with the "Ø" detent position (12 o'clock) being the off position. Typically, the control would be rotated

clockwise ("post") when used as an effects send. This enables the effects level to be automatically increased as the input channel level increases. Obviously, since this signal is also derived "post" EQ, and changes made in the input channel's EQ settings will be reflected in the effects signal. When the AUX control is to be used as an on-stage monitoring send, the control would typically be rotated counter clockwise ("pre"). This allows the on-stage monitor mix to operate independently of the input channel's level control. In other words, any change in the input channel's level control will not affect the level of the monitor mix. The Aux Send Pre/Post EQ Selection Switch is active only when the Aux Control is used in the "pre" (counter clockwise) position. When the switch is set to the "pre" EQ position, the input channel's EQ controls will not affect the on-stage monitor mix. This is particularly desirable when the input source is a microphone. Since an on-stage monitor system is normally operated near acoustic feedback, a change in EQ (especially an increase in high frequencies) may cause ringing or squealing (feedback) through the on-stage monitor speaker system. However, when the input source is a synthesizer, musical instrument, etc., that is not so susceptible to feedback, you may desire to place the switch, in the "post" EQ position so that the input channel EQ will affect that instrument in the monitor mix.

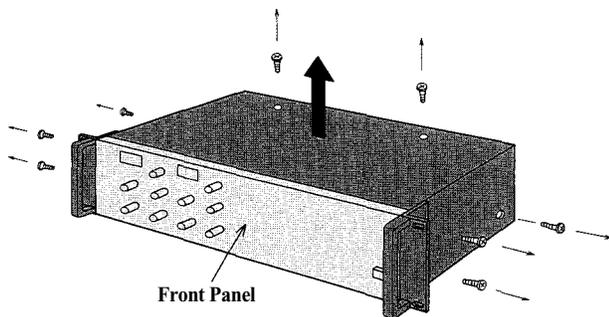


Fig.1

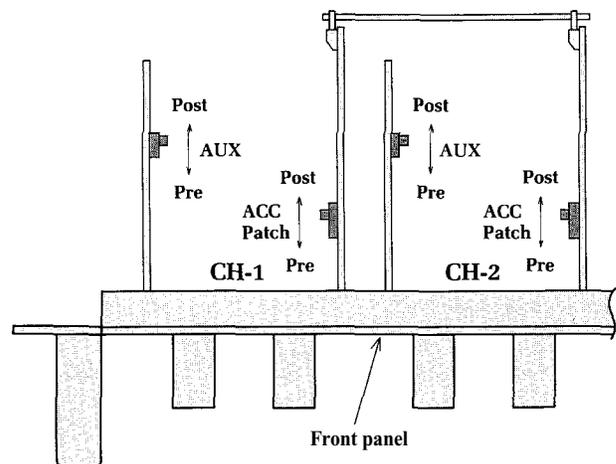


Fig.2

### WARNING

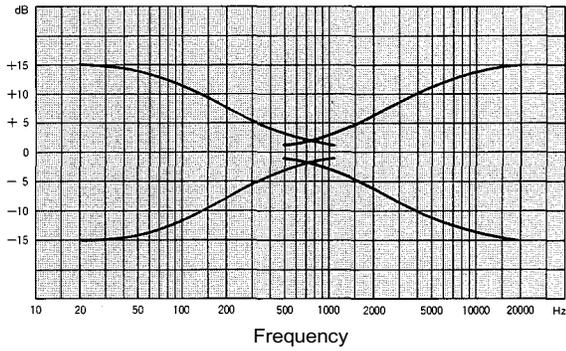
The D-4 and D-4E contain voltage levels that may be hazardous to human life. Always disconnect the power cord from wall outlet prior to removing either unit's outer case.

1. Disconnect the power cord from the wall outlet.
2. Remove the eight screws that secure the D-4/D-4E outer case to the main chassis, and carefully remove the case. (See Fig 1)
3. Refer to block diagrams and Figure 2 for location and orientation of switches.

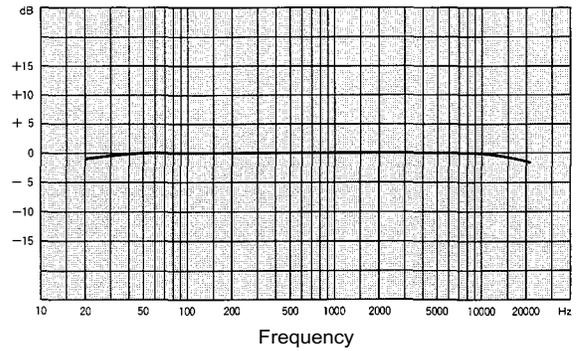
4. Set switches to desired positions.
5. Carefully replace the outer case and secure with eight screws.
6. The Accessory patch switch is factory preset at "POST" position (post-EQ/post-fader).
7. The Aux send pre/post EQ switch is factory preset at "POST" position (post-EQ).

# Characteristics Diagrams

**INPUT EQ CHARACTERISTICS**

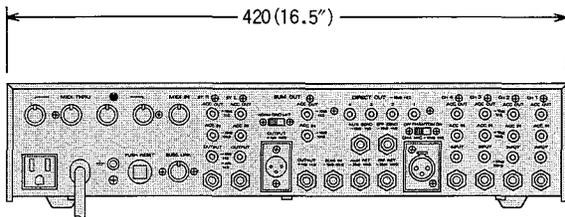
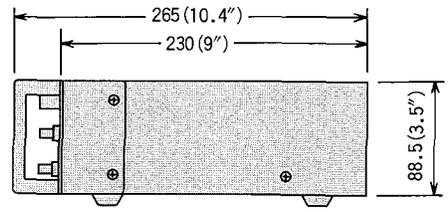
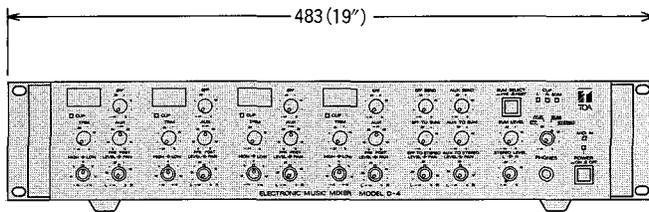


**FREQUENCY RESPONSE**



# Appearance

**D-4**



**D-4E**

