

 **TOA ELECTRONIC MUSIC AMPLIFICATION SYSTEM**

Model KD-1



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● Precautions

1. Power Supply

The KD-1 is designed to operate on local AC (50/60Hz) Mains, $\pm 10\%$.

2. 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).

3. Phantom Power Supply

The phantom power switch on channel 1 input permits the user to supply 48V DC through the input connector to a condenser microphone. If phantom power is not required, the switch must be in the "off" position.

4. Description of components and functions of the KD-1

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

● General Description

The TOA KD-1 is a complete electronic music amplification system in a single portable package, consisting of a mixer, spring reverberation unit, power amplifier, and full range speaker system.

The mixer section provides four input channels, and an effects patching loop with crossfade and level controls. Each input features 2-band active EQ, and level control. Input channels 1 and 2 feature Effects on/off switches, while channels 3 and 4 feature input sensitivity switches. Channel 1 also features an electronically balanced XLR mic input connector with switchable 48 volt phantom power, for use with condenser-type microphones.

The 50 watt RMS internal power amplifier features Auto Comp compression circuitry, with an LED indicator, to ensure distortion-free performance and protection for the internal 12-inch heavy duty speaker system.

The KD-1 is covered in a durable and attractive high tech gray vinyl fabric.

● Features

System Features

- Four input channels
- 50 watts power amplifier output
- Auto Comp compression circuitry w/indicator
- Power amplifier protection circuitry w/indicator
- Built-in heavy-duty 12"(30cm) two-way loudspeaker
- Built-in spring reverberation unit
- Effects patching loop, returnable to system mixing buss with crossfade and level controls

Each Input Channel

- Two band EQ
- Input channel 1 has electronically balanced XLR mic input connector with switchable 48 volt phantom power
- Input channel 1 and 2 has Effects ON/OFF switches
- Input channel 3 and 4 has Input Level Selector switches

● Front Panel

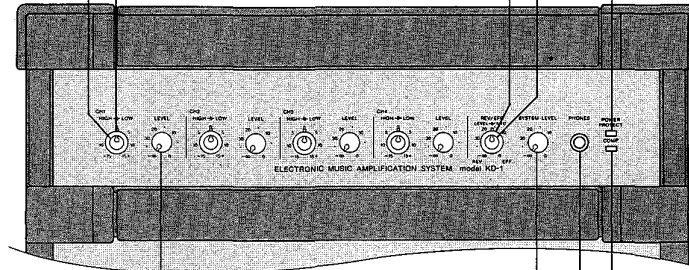
Low Equalizer Control [LOW]
The low EQ control alters the low frequency response of the input channel, providing $\pm 15\text{dB}$ at 20Hz of continuously variable active shelving equalization. The "0" detented position provides flat audio response.

High Equalizer Control [HIGH]
The high EQ control alters the high frequency response of the input channel, providing $\pm 15\text{dB}$ at 20kHz of continuously variable active shelving equalization. The "0" detented position provides flat audio response.

Cross-fade Control for Reverb and Effect [REV/EFF X-FD]
When this control is in the center position, the Reverb signal (thus the internal reverberation unit) and EFF RET signals are equally assigned to the System mixing buss. Rotating the control counter-clockwise decreases the EFF RET signal level, keeping the original level of the Reverb Signal. Rotating the control clockwise decreases the Reverb signal level, keeping the original level of the EFF RET signal.

Reverb/Effect Level Control [REV/EFF LEVEL]
This control governs the amount of reverb signal through the reverberation unit (built in), and effect signal returned through the effect return jack (EFF RET) to the system mixing buss. The signal of Reverb signal and EFF RET is controlled simultaneously.

Power/Protect LED Indicator [POWER/PROTECT]
The LED indicator lights green when the power switch is "on". The LED turns red when the thermal protection circuit is activated, or the internal fuse (for overload protection) is opened.



Input Channel Level [LEVEL]
The level control provides continuously variable adjustment of the channel output to the mixing busses, thus determining the level of the channel in the main sound system mix. The nominal level of the input level control is at the "0" dB position.

System Level Control [SYSTEM LEVEL]
This control determines the overall volume level of the KD-1 system.

Power Amp Compression Indicator [COMP]
The Comp LED lights when the internal compressor is activated. The compressor is provided to protect the speaker system by compressing the input signal level of the power amplifier when clipping occurs in the output stage. Frequent flashing of the LED is not reason for alarm. However, a constant or steady light indicates that the KD-1 is being overdriven and that the internal power amplifier is possibly "under powered" for that application. The output level of the KD-1 should be decreased until the LED only flashes intermittently.

Headphone Jack [PHONES]
The headphone jack will accept any stereo headphone with 8 ohms impedance, or higher. This jack provides the same signal as the speaker output. When a plug is inserted into the jack, the speaker output is automatically switched off.

Rear Panel

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 KD-1. 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 Input Jack [AUX IN]

The unbalanced 1/4" phone jack have a nominal input level of -20dB and an impedance of 10k ohms.

Power Switch [POWER]

The power switch is a three-position type with the middle position being the "off" position. The KD-1 should be operated in the switch position which produces the lowest amount of system hum.

AC Power Cord

The power cord is of the three-wire type with proper grounding facilities built-in. (6ft.)

Caution — The ground pin should not be removed under any circumstances. If the KD-1 must be used without proper grounding facilities, a suitable grounding adapter should be utilized. Operation of the KD-1 with proper grounding techniques will result in less system noise and greatly reduced shock hazard.

AC Fuse

Warning: To avoid possible equipment damage and/or personnel injury, the fuse should always be replaced with same type and rating. Using improper fuses will also void the warranty. The KD-1 should always be disconnected from AC outlet prior to changing fuses. If fuse repeatedly fails, the unit should be referred to qualified service personnel for repair.

Effect Send Jack [EFF SEND]

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

1/4" Phone Channel Input [INPUT]

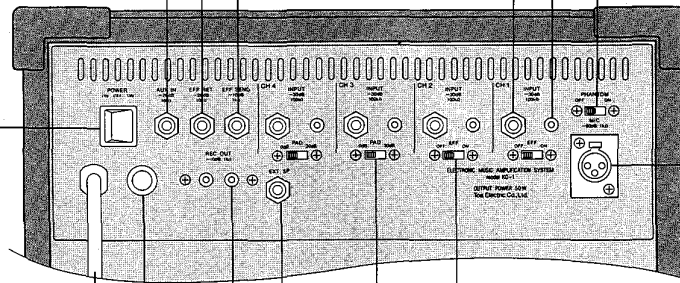
This jack is a standard, unbalanced 1/4" phone jack, with a nominal level of -30dB and an impedance of 100k ohms. When a plug is inserted into the 1/4" input jack, the corresponding RCA pin jack is automatically switched out of the input circuitry.

RCA Channel Input [INPUT]

The RCA pin input jack is unbalanced, with a nominal level of -30dB and an impedance of 100k ohms.

Phantom Power On/Off switch [PHANTOM]

This switch alternately turns "on" and "off" the phantom power (48V DC) for the XLR connector assigned to Channel 1. The switch should remain in the off position when a condenser type mic is not in use.



Recording Out Jacks [RECOU]
The unbalanced RCA pin jacks have a nominal output level of -10dB and an impedance of 1k ohms. The Recording Outputs are pre-fader signals for connection to tape recorders. Any change in the level of the System Level control will not alter the level of the recording outputs.

Input Level Selector [PAD]

The slide switch provides 30dB attenuation for the 1/4" Input Jack, and RCA pin Input Jack at the "30dB" position. The correct setting should be made according to the output level of the equipment connected. For example, an instrument with a "HOT" output may overload the input circuitry, resulting in a distorted or "FUZZY" sound.

Balanced XLR Microphone Input [MIC]

The XLR-type microphone input connector (channel 1 only) is electronically balanced with a nominal level of -60dB and an input impedance of 1k ohms. Phantom powering is provided for use with condenser-type microphones (see PHANTOM). The microphone input is automatically disconnected when either the corresponding RCA Pin jack or the 1/4" phone jack is used.

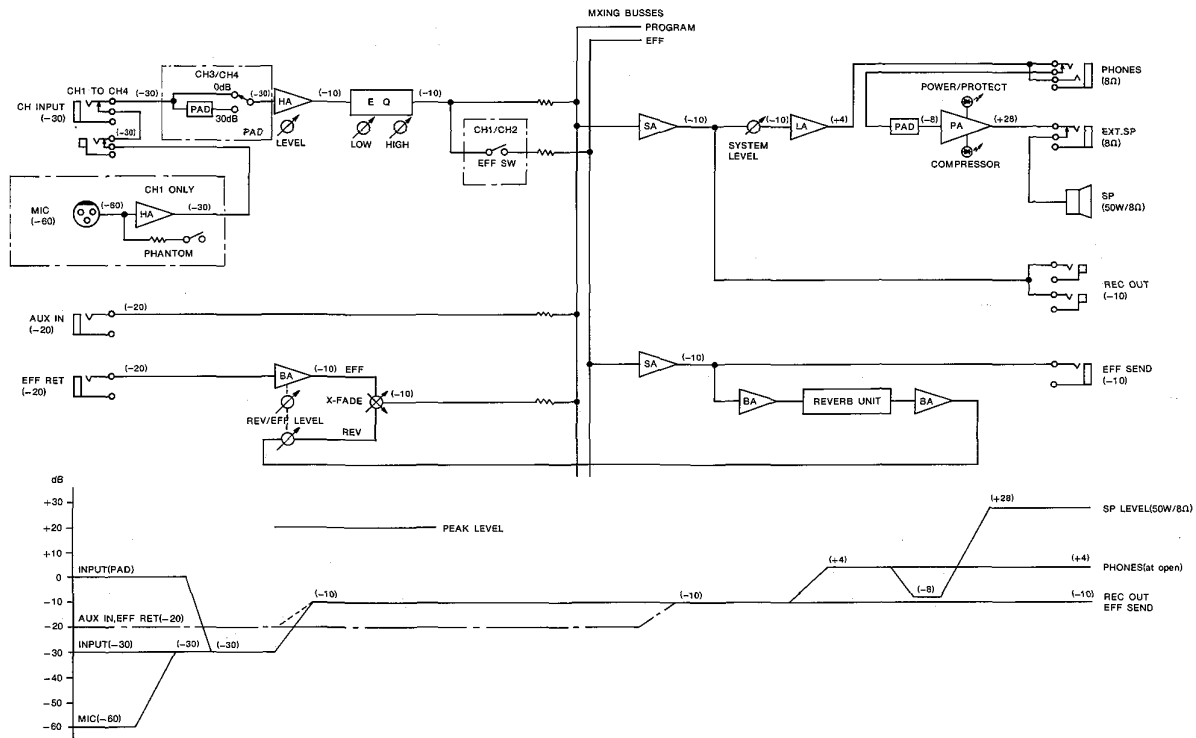
Speaker Jack [EXT. SP]

The external speaker output is a standard 1/4" phone jack. Speaker cables (recommend at least #18 gauge wire) should be connected between the KD-1 and the speaker systems prior to applying AC power to the unit. When a plug is inserted into the external speaker jack, the internal speaker is automatically switched off. Caution — The KD-1 should never be operated into less than an 8-ohm speaker load.

Effects ON/OFF Switch [EFF]

The slide switches provide quick connects or disconnects of individual channel input signals (post-fader) to the effect buss, and will thus turn the reverb/effect on or off on that channel.

Block and Level Diagrams



Specifications

MIXER SECTION

Frequency Response

+0, -3dB 20Hz to 20kHz (INPUT to REC OUT)

Total Harmonic Distortion

Less than 0.05% -10dB* 1kHz (REC OUT)

Hum and Noise (REC OUT: Open 20Hz to 20kHz)

All Level Control Minimum -85dB
One INPUT Level Control Maximum -80dB

Equalization

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

POWER AMPLIFIER SECTION

Power Output

50 watts minimum sine wave continuous average power output monaural driving 8-ohm over a power band from 20Hz to 50kHz. The maximum Total Harmonic Distortion (THD) at any power level from 250 milliwatts to 50 watts shall be no more than 0.5%. 50 watts continuous average sine wave power into 8-ohm will less than 0.05% THD at 1kHz.

Frequency Response

+0dB, -2dB 20Hz to 20kHz

Total Harmonic Distortion

Less than 0.05% at 50 watts into 8-ohm at 1kHz

Hum and Noise

-80dB below rated output (IHF-A weighted)

SPEAKER SECTION

Speaker

12" (30cm) two-way speaker

Sensitivity

96dB (1 watt/1 meter)

Frequency Response

70Hz to 14kHz

GENERAL SPECIFICATIONS

Power Consumption

105 watts maximum

Dimensions (W×H×D)

390mm×523mm×281mm
15 3/8"×20 5/8"×11"

Weight

16kg (35 lbs)

Specifications

INPUT SPECIFICATIONS

Input	Actual Load Impedance	For Use With Nominal	Input Level		Connector
			Nominal	MAX. Before Clip	
CHANNEL INPUT CH1~CH4	100k Ω	100k Ω OR LOWER IMP LINES	-30dB (24mV)	0dB (0.775V)	PHONE JACK RCA PIN JACK
MIC CH1	1k Ω	50 Ω TO 250 Ω MICROPHONES	-60dB (0.78mV)	-30dB (24mV)	XLR-3-31 TYPE
AUX IN	10k Ω	10k Ω OR LOWER IMP LINES	-20dB (78mV)	+10dB (2.45V)	PHONE JACK
EFF RET	10k Ω	10k Ω OR LOWER IMP LINES	-20dB (78mV)	+10dB (2.45V)	PHONE JACK

0dB is referenced to 0.775V RMS.

OUTPUT SPECIFICATIONS

Output	Actual Source Impedance	For Use With Nominal	Output Level		Connector
			Nominal	MAX. Before Clip	
REG OUT	1k Ω	1k Ω OR HIGHER IMP LINES	-10dB (245mV)	+20dB (7.75V)	RCA PIN JACK
EFF SEND	1k Ω	1k Ω OR HIGHER IMP LINES	-10dB (245mV)	+20dB (7.75V)	PHONE JACK
HEAD PHONE	100 Ω	8 Ω OR HIGHER	+4dB (1.23V)	+20dB (7.75V)	STEREO PHONE JACK
EXT. SP	—	8 Ω	50W/8 Ω	—	PHONE JACK

Stereo phone jack is wired:

Tip=Left, Ring=Right, Sleeve=Common.

The XLR type connector is electronically balanced.

The XLR type connector is wired as follows

- Pin No.1-Ground
- Pin No.2-Cold (Low)
- Pin No.3-Hot (High)

Specifications are subject to change without notice.

0dB is referenced to 0.775V RMS

Appearance

