



# TKO

## OPERATING GUIDE

**WARNING:** To prevent electrical shock or fire hazard, do not expose this appliance to rain or moisture.



## GENERAL DESCRIPTION

Over the past months, we have experienced an increasing demand for top quality musical instrument amplifiers in a small size and medium power rating. This requirement for a first-rate practice amp seems to be coming from the professional musician as well as the student. We designed the TKO to fill the requirement for a first-rate medium powered studio/practice amp.

This new unit features entirely new circuitry from the transient protected front end to the rugged quasi-complementary output stage. The TKO features a full brace of equalization controls, including the all important middle control. As with any studio/practice amp, a master control is an absolute requirement and has been included in this new and versatile package. A specially designed 12" speaker has been fitted into the compact enclosure which is constructed using sturdy  $\frac{3}{4}$ " cabinet walls. The rugged power stage of the TKO is protected from damage by short circuits and also features a thermal sensing circuit to automatically adjust operating parameters for any playing requirement.

In addition to the above features, the TKO utilizes a unique preamp output that consists of a stereo switching jack, enabling the user to obtain signal output from the preamp, both with *and* without operation of the internal power amp/speaker. This unique option enables the TKO to be used as a preamp to drive auxiliary equipment or to be used in the studio to feed a direct signal; and at the same time, enables the unit to operate normally through its own internal power amp and speaker.

For power, versatility and range of equalization, the TKO is unmatched in its price/power category and is in every way suitable for use by professionals as well as students.

## FRONT PANEL

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### INPUTS (1, 2)

The TKO features both a high gain (A) as well as low gain (B) (6 dB) to enable the TKO to accept signals of varying levels and also to facilitate using two instruments into the amp's signal channel. The high gain (A) input is the one normally used. If the output signal from your instrument or its associated electronics is overloading the high gain (A) input, then the low gain (B) input should be used. Because of the unique switching circuitry, A and B inputs automatically are gain balanced when two instruments are inserted into both A and B.

### PRE GAIN (3)

The pre gain control determines the amount of gain generated in the input preamp. Please understand that this control determines the *sensitivity* and not the power output of the amplifier. The control settings in no way can be related to the power the amp is delivering to the speakers because of a number of other factors such as input signal amplitude, input signal strength, post gain control, etc.

### EQUALIZATION

The equalization circuit features three discrete bands, each variable by the use of its respective control.

### LOW EQUALIZATION CONTROL (4)

The low equalization control sets the low end response and may be used to boost or cut the low end to achieve a wide tonal range. Care should be used to avoid overboosting the low end since this tends to prematurely overdrive the power amp/speaker combination.

### MIDDLE EQUALIZATION CONTROL (5)

The middle equalization control determines the level of the vital mid range frequencies. You will find the action of our middle control extremely effective.

### HIGH EQUALIZATION CONTROL (6)

The high equalization control sets the amount of high end boost available and its effect is dramatic. Overboosting of the highs is generally not desirable since it tends to cause a strident sound, as well as tending to emphasize residual preamp noise.

Our equalization circuit is very effective and experimentation will allow the user to achieve most any tonal coloring desired and will prove the versatility of this circuitry.

### POST GAIN CONTROL (7)

The post gain control is the "master gain" control for the TKO and is used to set the sensitivity of the internal power amplifier. Its action is conventional and experimentation will illustrate its function. Please be aware that extremely low settings of the post gain control will require extremely high settings of the pre gain

control with subsequent loss of dynamic range in the input preamp. This may be desirable in some situations to create distortion effects in the input preamp. However, with bass instruments, it's generally desirable to maximize dynamic range in the input preamp because of the strong output signals generated by most bass instruments.

### PREAMP OUTPUT (8)

The preamp output features a unique stereo switching jack that allows the signal from the preamp to be fed out to auxiliary units with the further ability to switch out the internal power amp/speaker. This stereo switching jack features two distinct positions or "clicks". With a normal (mono) plug, the first position (click) allows signal to be taken from the preamp while allowing simultaneous operation of the internal power amp/speaker. By pushing the plug further into the jack to the second position (click), the signal path between the preamp and power amp/speaker is broken, thereby eliminating the operation of the internal amp and speaker system. This flexibility has been designed into the TKO to allow much greater flexibility in use in the studio or other applications.

### PILOT LIGHT (9)

The pilot light indicates when the electrical supply is switched on and is actually delivering power to the amplifier.

## REAR PANEL

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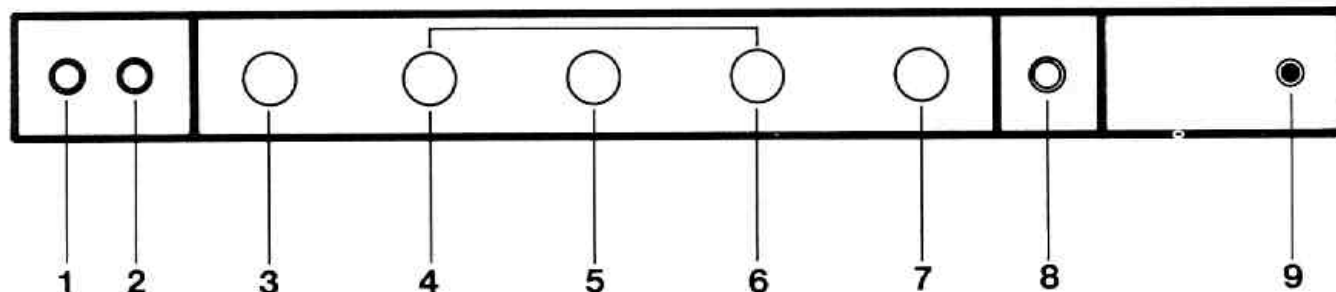
### POWER SWITCH

On domestic units, the power switch is of the three-position type with the center position being "OFF". This switch has two "ON" positions, one of which is used to ground the amplifier properly. One of the "ON" positions will yield the lowest amount of residual hum or "popping" when the instrument is touched and this is the position that should be used.

On export models, we utilize a simple on/off switch that does not have multiple "ON" positions since the grounding (earthing) conditions vary with the different electrical systems of North America versus other nations.

### LINE CORD

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



## TKO SPECS

<b>OUTPUT POWER:</b> 45 Watts RMS @ 1% THD into 8.0 Ohms 60 Watts RMS @ 5% THD into 8.0 Ohms
<b>TOTAL AVAILABLE GAIN:</b> 55 dB (EQ Flat)
<b>MINIMUM INPUT VOLTAGE FOR RATED OUTPUT:</b> 40 MV
<b>PREAMP OUTPUT:</b> 2.0 Volts RMS into 600 Ohms
<b>DISTORTION (PREAMP OUTPUT):</b> Less than .05% THD at 2.0 Volts RMS output

### AMP CAUTIONS

#### DANGER

EXPOSURE TO EXTREMELY HIGH NOISE LEVELS MAY CAUSE A PERMANENT HEARING LOSS. INDIVIDUALS VARY CONSIDERABLY IN SUSCEPTIBILITY TO NOISE INDUCED HEARING LOSS, BUT NEARLY EVERYONE WILL LOSE SOME HEARING IF EXPOSED TO SUFFICIENTLY INTENSE NOISE FOR A SUFFICIENT TIME.

THE U.S. GOVERNMENT'S OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) HAS SPECIFIED THE FOLLOWING PERMISSIBLE NOISE LEVEL EXPOSURES:

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

ACCORDING TO OSHA, ANY EXPOSURE IN EXCESS OF THE ABOVE PERMISSIBLE LIMITS COULD RESULT IN SOME HEARING LOSS.

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

#### CAUTION

THIS AMPLIFIER HAS BEEN DESIGNED AND CONSTRUCTED TO PROVIDE ADEQUATE POWER RESERVE FOR PLAYING MODERN MUSIC WHICH MAY REQUIRE OCCASIONAL PEAK POWER. TO HANDLE OCCASIONAL PEAK POWER, ADEQUATE POWER "HEADROOM" HAS BEEN DESIGNED INTO THIS SYSTEM. EXTENDED OPERATION AT ABSOLUTE MAXIMUM POWER LEVELS IS NOT RECOMMENDED SINCE THIS COULD DAMAGE THE ASSOCIATED LOUDSPEAKER SYSTEM. PLEASE BE AWARE THAT **MAXIMUM POWER** CAN BE OBTAINED WITH VERY LOW SETTINGS OF THE **GAIN** CONTROLS IF THE INPUT SIGNAL IS VERY STRONG.



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Due to our efforts for constant improvement, features and specifications are subject to change without notice.

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