

# PYRAMID



## PA305

19" Rack Mount 300 Watt Power Amplifier/  
Mixer w/70V Output & Mic Talkover

USER MANUAL

Your new PYRAMID PA305 300 Watt P.A. Amplifier gives you the power and versatility you need in a professional sound system. The amplifier's wide frequency response makes it suitable for amplifying music or vocal program material. It can be used for live bands, office paging systems, public announcement systems, or a variety of other installations.

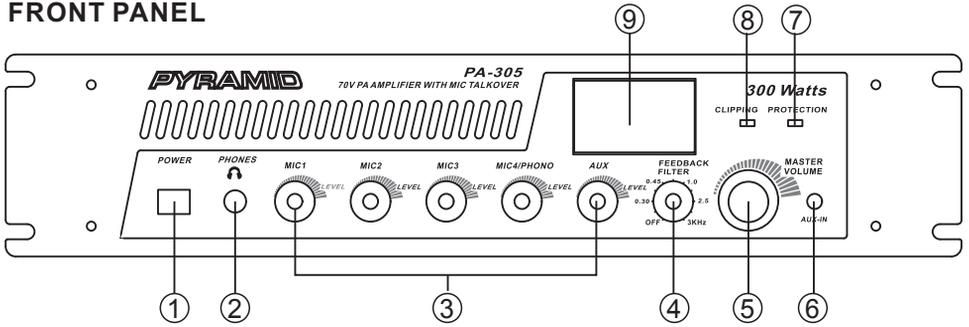
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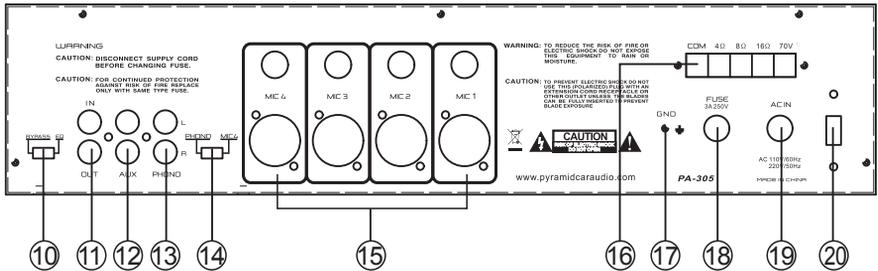
Please read this manual thoroughly before you attempt to set up and use the amplifier. It contains a range of installation suggestions as well as instructions to ensure safe usage. Installed properly, you can expect years of trouble-free service from this product.

# FEATURES AND CONTROLS

## FRONT PANEL



## REAR PANEL



### 1. Main Power On/Off Switch

The amplifier is switched ON or OFF by using the switch.

### 2. Phone Jack

Lets you connect a pair of stereo headphones for private listening or cueing (monitoring) sound prior to “airing” it.

### 3. Five Input Sources Mixing Controls

Control the sound level for each of the audio input sources.

### 4. Feedback Filter

Control the audio frequency.

### 5. Master Volume

Lets you adjust the overall sound level.

### 6. 3.5mm AUX Input Jack

Lets you easily connect the computerized MP3 devices (player) sources, such as PC, Laptop, Walkman, iPod and Cell Phone.

### 7. Protection Indicator

This LED is illuminated when a thermal overload condition is present.

## **8. Clip Circuit and Indicator**

This special circuitry protects the amplifier and speaker system from being damaged by overdriving power levels. Indicator lights remind the user to reduce the volume when amplifier output is excessive.

## **9. Power Meter**

Indicate the output signal level.

## **10. BYPASS/EQ Switch**

Sets the switch to the EQ position, you can connect an equalizer.

Sets the switch to the BYPASS position, the equalizer has no effect on your system's sound.

## **11. EQ IN/OUT RCA Jacks**

To connect an equalizer to these jacks, you can have the effect on your system's sound.

## **12. AUX/PHONO RCA Inputs**

To connect any high-level sound source, such as a CD player, tape deck, or tuner to the amplifier's AUX/PHONO jacks.

## **13. PHONO Input Jacks**

To connect a low level audio input source (such as a magnetic cartridge turntable) to the amplifier's L and R PHONO jacks.

To avoid a low frequency hum, connect your turntable's ground wire to the amplifier's GND screws.

## **14. PHONO/MIC4 Switch**

If you connect a low level audio input source to the PHONO jacks, set PHONO/MIC4 to the PHONO position.

If you set PHONO/MIC4 to the MIC4 position, you can use MIC4.

## **15. Four Microphone Inputs**

Allows you connect up to four Microphones by balanced XLR type sockets or unbalanced 6.35mm type sockets.

## **16. Speaker Terminals**

Connect your speaker system to these terminals. You can connect one or more 4ohm, 8ohm, 16ohm speakers to the amplifier, with or without transformers. To ensure equal volume from each speaker, all the connected speakers should have the same impedance rating.

## **17. GND Screw Terminal**

## 18. Power Fuse (3A, 250V)

It is the power supply fuse, it protects the amplifier from unwanted voltage surges and the other abnormal operating conditions.

## 19. AC IN

Connect to AC 110V/60Hz or 220V/50Hz power supply.

## 20. Voltage Switch

The unit has a selectable input voltage from 115V/60Hz which is the standard in the USA and Canada. You can also switch the input voltage to 230V/50Hz for European operation. Please make sure the switch is in the proper position before operating, otherwise severe damage will result not covered by the warranty.

## INSTALLATION GUIDELINES

### Input connections

The PT610 accepts a broad range of input sources, including:

Compact Disc (CD) Player

Cassette, Reel-to-Reel or other tape player

Radio Tuner

Microphones (up to 4 simultaneously)

Equalizer

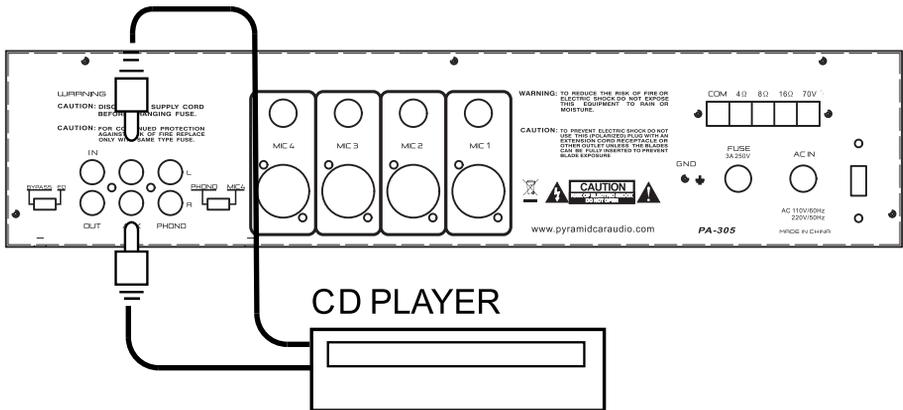
Signal Processor

Connecting front AUX jack

Permit you to connect one AUX MP3 devices with 3.5mm plug.

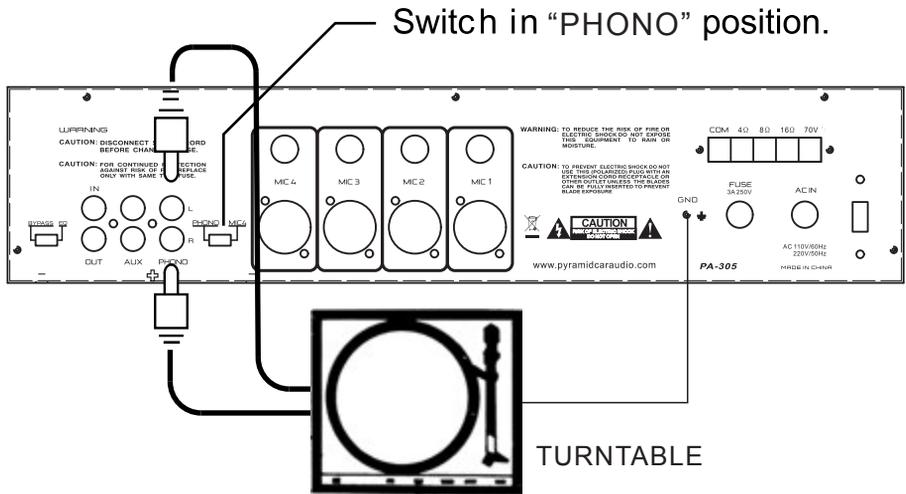
### Connecting a CD or tape player or tuner

In a normal installation, one would use the LINE JACK for connecting a CD player, tape player or tuner.



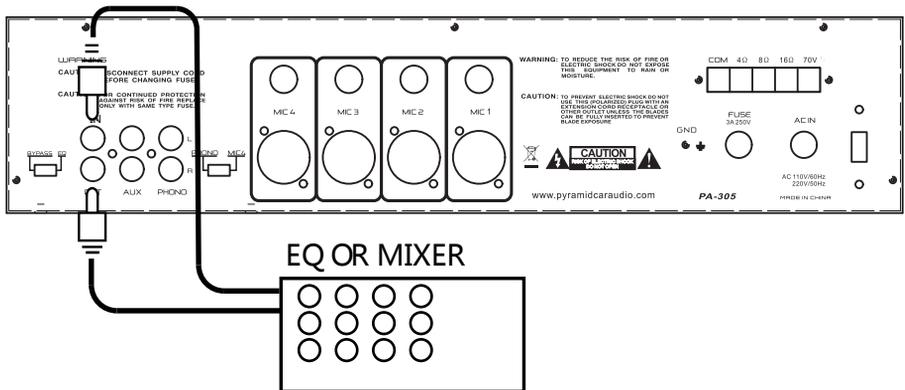
## Connecting a Turntable

In this situation, use the PHONO JACK, and set the PHONO/MIC4 SELECTOR switch to the PHONO position.



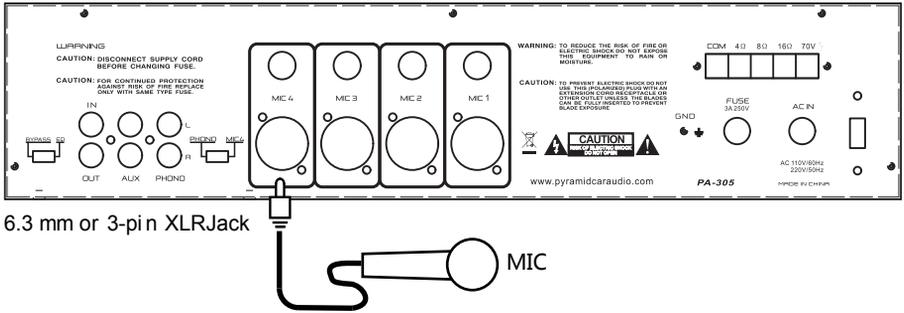
## Connecting and equalizer or external signal processor

Connect the processor's OUT to the amplifier's IN, and the processor's IN connector to the amplifier's OUT.



## Connecting microphone

The MIC IN jacks permit you to connect up to 4 low impedance microphones. The microphones can be used with either a 6.35mm plug, or a 3-pin XLR type plug.



## Speaker connections

One or more speakers (4, 8 or 16 Ohm) speakers can be connected to the amplifier with or without transformers. However, before you connect any speakers to the amplifier, the total speaker impedance must be calculated in order to avoid damage to the amplifier. A total speaker impedance greater than 16 Ohms or less than 4 Ohms can cause this damage to occur.

To begin with, in order to ensure equal volume from each speaker, all connected speaker should have the same impedance.

A proper total impedance within the 4 to 16 Ohm range can be achieved by combing series and parallel speaker connections. Please see the diagram which follow which explain how to accomplish this.

Finally always use the shortest length of speaker wire possible of proper gauge. Usually 18 gauge wire is adequate for lengths under 25 feet, while 16 gauge is used for greater lengths.

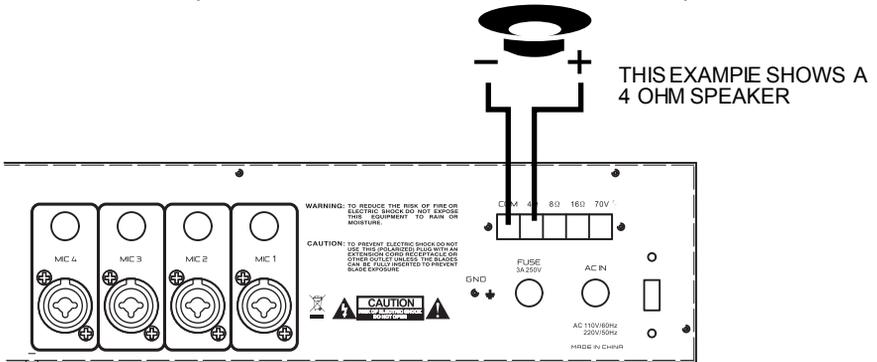
## Connector options

The PA305 offers several different connection points for speaker hookups. These include screw terminals, a 6.3mm jack, and a pair of banana plug connectors.

It is not proper or recommended to connect all the speaker outputs simultaneously. In addition, please note that when the 6.3mm jack is used, all the screw terminal and RCA signal outputs are disconnected.

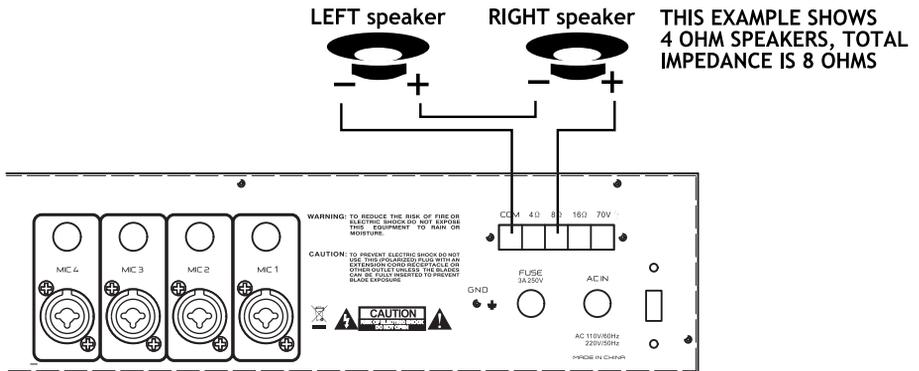
## System 1: Single speaker system

1. Connect the speaker (-) terminal to the amplifier COMMON terminal.
2. Depending on the speaker being used, connect the speaker (+) terminal to the amplifier 4 Ohm, 8 Ohm or 16 Ohm amplifier terminal.



## System 2: Two (or more) speakers in series

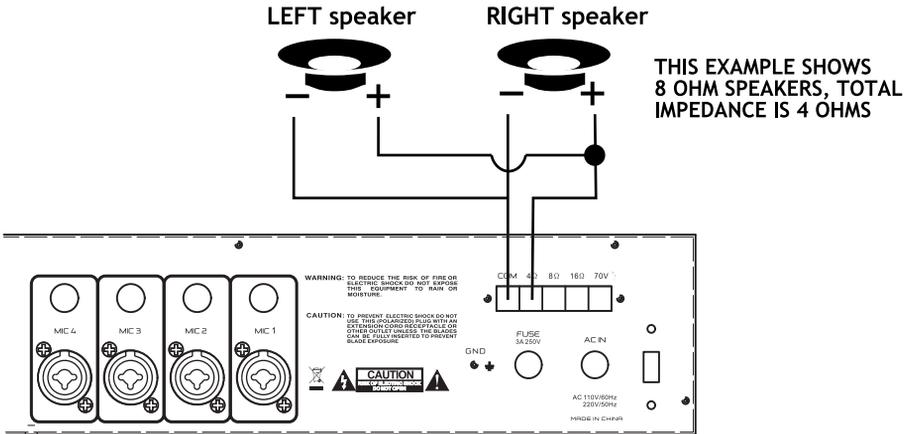
1. Connect the LEFT SPEAKER (-) to the amplifier COMMON terminal.
2. Connect the LEFT SPEAKER (+) to the RIGHT SPEAKER (-).
3. Connect the RIGHT SPEAKER (+) to the amplifier's 4 Ohm, 8 Ohm or 16 Ohm terminal, depending on the TOTAL IMPEDANCE of the two speakers. If each speaker has an impedance of 8 Ohms, the total speaker impedance in this series configuration is 16 Ohms.



NOTE: Additional speakers may be included in series, but it is necessary to calculate total impedance, and connect the speaker circuit to a terminal of appropriate impedance. For example, if three speakers of 4 Ohms are used, total impedance is 12 Ohms–You should connect to the 16 Ohm terminal.

### System 3: Two (or more) speakers in parallel

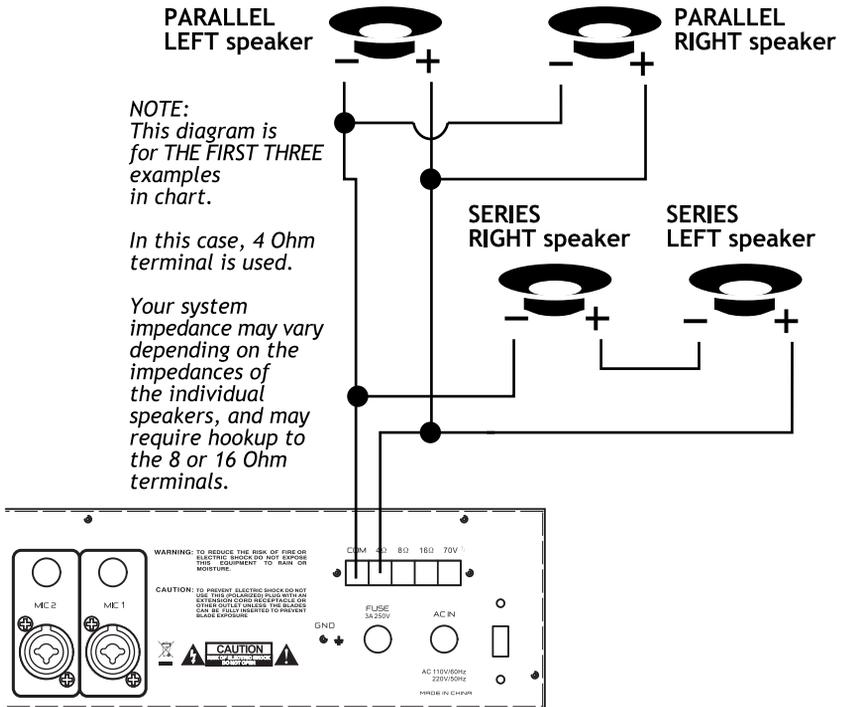
1. Connect the LEFT SPEAKER (-) to the RIGHT SPEAKER (-).
2. Connect both the LEFT SPEAKERS (-) and RIGHT SPEAKER (-) to the amplifier COMMON terminal.
3. Connect the LEFT SPEAKER (+) to the RIGHT SPEAKER (+).
4. Connect both the LEFT SPEAKER (-) to the RIGHT SPEAKER (+) to the amplifier 4 Ohm, 8 Ohm or 16 Ohm terminal, depending on the TOTAL IMPEDANCE of the two speakers. If each speaker has an impedance of 8 Ohms, the total speaker impedance in this parallel configuration is 4 Ohms.



### System 4: Four speakers in series/parallel combination

1. Group the four speakers in two pairs.
2. Connect one pair of speakers in series (see system 2, above). Note total impedance in chart below.
3. Connect one pair of speakers in parallel (see system 3, above). Note total impedance in chart below.
4. Connect the speakers' (-) terminals to the amplifier COMMON terminal.
5. Connect the speakers' (+) terminals to amplifier's 4 Ohm, 8 Ohm or 16 Ohm terminal, depending on the TOTAL IMPEDANCE of the four speakers. See the chart below for some sample system suggestions:

PARALLEL speaker pair (net impedance for pair)	SERIES speaker pair (net impedance for pair)	TOTAL IMPEDANCE in this type system	Use this amp terminal
$8\Omega * 8\Omega$ *4 $\Omega$ *	$8\Omega * 8\Omega$ *16 $\Omega$ *	*3 $\Omega$	4 $\Omega$
$8\Omega * 8\Omega$ *4 $\Omega$ *	$16\Omega * 16\Omega$ *32 $\Omega$ *	*3 $\Omega$	4 $\Omega$
$16\Omega * 16\Omega$ *8 $\Omega$ *	$4\Omega * 4\Omega$ *8 $\Omega$ *	* $\Omega$	4 $\Omega$
$16\Omega * 16\Omega$ *8 $\Omega$ *	$8\Omega * 8\Omega$ *16 $\Omega$ *	* $\Omega$	8 $\Omega$



## Series/parallel variations

Although the description above is for combining a series pair and a parallel pair in a parallel hookup, you may also elect to combine two series pairs in parallel hookup. Simply be sure you have properly calculated the total impedance, and attach the (+) speaker circuit wire to the proper amp terminal. For example, if you use two pairs of 8 ohm speakers in series each pair, the impedance for each pair is 16 Ohms. Connected in parallel to the amp terminals, the TOTAL impedance is 8 Ohms, so you should connect these to the 8 Ohm terminal.

## System 5: Connecting speakers with transformers

1. Locate the input taps on your transformer. These taps are on one side of the transformer and are rated in watts: 10, 5, 2.3, 1.25 or 0.62. Usually, each speaker in a system uses the same wattage tap.

Connect the selected tap to the amplifier 70V RMS terminal.

If you wish a particular speaker to have a higher volume level, connect the wire from 70V RMS to a higher wattage tap on the transformer.

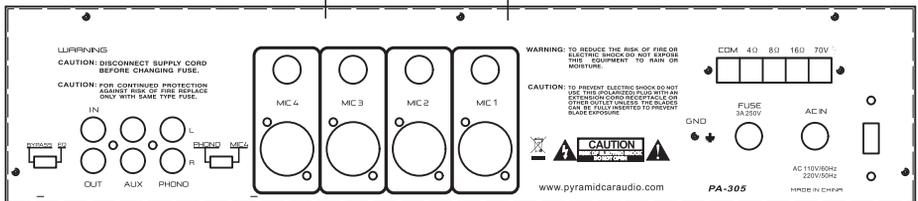
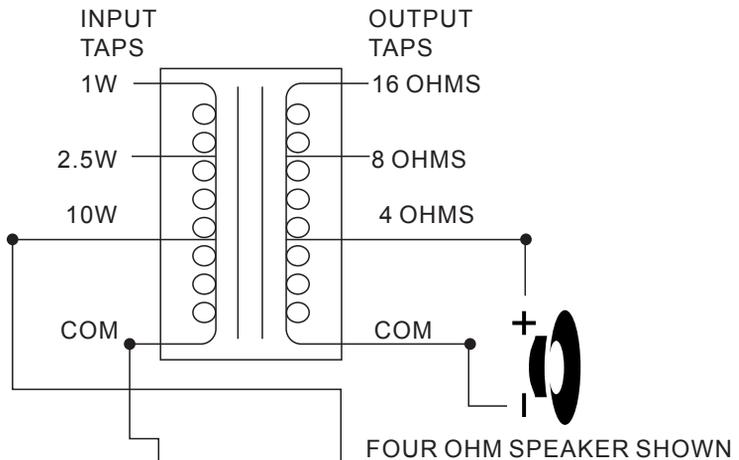
2. Connect the transformer's COMMON tap to on the primary side to the amplifier COMMON terminal.

3. Connect the speaker's (+) terminal to the transformer's secondary tap that matches the speakers' total impedance. Located on the opposite side of the transformer, these secondary taps are outputs, and are rated in Ohms: 4, 8, or 16.

4. Connect the speakers' (-) terminals to the transformer's COMMON tap on the secondary side.

Note: Before connecting the speakers, please be sure the total wattage of the primary tap you use does not exceed the amplifier's maximum 100 WATT power rating.

Also: Avoid, where possible, multiple connections to the 70V RMS and COMMON terminals.



## **Using headphones**

To listen privately, or to monitor sound sources, connect a pair of low impedance stereo headphones (not supplied) with a 6.35 mm plug into the PHONES jack on the amplifier front panel.

Please listen safely. Follow these recommendations:

Do not listen at extremely high volume levels. Extended, high-volume listening can lead to permanent hearing loss.

Always start with the volume control set to LOW level BEFORE you put the headphones on. Then gradually increase the volume as necessary.

Once you set the volume, do not increase it. Over a period of time, your ears adapt to the volume level, so a volume level which does not cause immediate discomfort may still be actually damaging your hearing.

## **Connecting to standard AC power**

After making all other connections, set the POWER switch to OFF position. Then connect the power cord to a standard AC outlet.

## **Mounting the amplifier**

The PA 305 is designed to accept standard rack mounting installations. Two slots on each end of the front panel make it suitable for such an installation.

Tightly secure four mounting screws (not supplied) through these four slots and into your standard electronics equipment rack.

## **Turning the amplifier on**

1. Turn on the audio input source equipment which is connected to the amplifier INPUT jacks.
2. Set all volume levels (Master, Mic 1-3, Mic 4/AUX and Line) to their minimum level settings.
3. Push in the power switch to turn the amplifier on.
4. Adjust the controls of MIC 1-3, Mic4/AUX and LINE to the desired volume and balance.

### **Using the power meter**

The meter pointer position indicates the amplifier output power. For ease of reading in dark environments, the meter is illuminated.

### **Using the Master Volume control**

The Master Volume control increases or decreases output level gain. To obtain best performance with the least distortion, be sure to adjust the output level so that the meter's pointer does not continually exceed the right extreme of the meter's range.

**CAUTION!** Setting output level too high can overdrive the amplifier, causing permanent damage.

### **About the internal clip circuitry**

Special clip circuitry incorporated into the PT610' design protects the amplifier and speaker system from being damaged from overdriving power.

Under normal conditions, the amplifier's clip indicator will flicker as the output power momentarily exceeds the level as set by the output level gain selector.

However, under excessive output conditions, the clip indicator lights remain on continuously, alerting you that the special clip circuitry has become active. When this occurs, you should simply reduce the output power level by rotating the Master Volume control counterclockwise.

### **About the internal protection circuitry**

In the event that the amplifier becomes excessively hot due to power overload, the built-in circuitry will temporarily interrupt the amplifier's power.

Should this occur, please turn off the power and let the amplifier cool down for about 15 minutes. Correct whatever situation caused the overload, and then turn the power back on.

## **About the feedback filter**

The PA305 features an anti-feedback filter, which can help to reduce or eliminate squealing or other noise caused by acoustic feedback.

To engage this feature, after you turn on the amplifier, turn the front panel-mounted FEEDBACK control counterclockwise. This control decreases the feedback frequencies by up to 12DB.

## **Caring for your PA305 Amplifier**

Your PYRAMID Amplifier is an example of superior design and craftsmanship. The following suggestions will help you care for your amplifier so you can enjoy years of use.

Keep the amplifier dry. If it gets wet, wipe immediately. Use the amplifier only in well-ventilated installation. Handle the amplifier gently and carefully- do not drop! Keep the amplifier away from dust and dirt. Wipe occasionally with a damp cloth to keep it looking new. Do not use harsh chemicals, solvents or detergents!

## **Replacing a fuse**

This amplifier uses a 250V, 3A fuse for protection from power surges and short circuits. If the amplifier suddenly shuts down and will not turn on, it is likely that this fuse has blown.

To replace the fuse:

1. Locate the fuse holder on the rear of the cabinet and unscrew the fuse compartment cap.
2. Remove the old fuse and replace it with an identical, serviceable fuse.  
CAUTION: Never use a fuse with a higher rating!
3. Replace the fuse compartment cap.

## PA 305 Specifications

Output Power at THD 2%, 8 Ohm Load 1 kHz .....	100W
Total Harmonic Distortion (at 70 Watts, 8 Ohms 1 kHz, with Band Pass Filter)	
MIC (PHONE Jack) .....	0.25%
MIC (XLR Jack) .....	0.35%
AUX .....	0.20%
PHONO .....	0.250%
Input Sensitivity (at 2% THD 1 kHz)	
MIC (PHONE Jack) .....	1.35 mV
MIC (XLR Jack) .....	1 mV
AUX .....	150 mV
PHONO .....	2.8 mV
Signal to Noise Ratio (Input Shorted) with WTD	
MIC (PHONE Jack) .....	60dB
MIC (XLR Jack) .....	54dB
AUX .....	73dB
PHONO .....	60dB
Frequency Responses (at watt, ±3 dB)	
MIC (PHONE Jack) .....	60 Hz-20KHz
MIC (XLR Jack) .....	75 Hz-20KHz
AUX .....	60 Hz-20KHz
PHONO (RIAA 100 Hz/10 kHz) .....	+12 dB/-12.5dB
Notch filter Effect	
RANGE .....	300 Hz-3KHz
DEPTH .....	-12dB
Hum and Noise with 30 kHz Low Pass Filter at 8 Ohms	
MASTER VOLUME MIN .....	0.75mV
MASTER VOLUME MAX. Other MIN .....	6mV
Power Requirements .....	AC 115V/230V Switchable
Dimensions .....	4 <sup>3</sup> / <sub>16</sub> × 18 <sup>15</sup> / <sub>16</sub> × 11 <sup>15</sup> / <sub>16</sub> Inches (HWD) (10.0 × 48.0 × 27.3 CM)

### Cautions:

- Before you connect the speakers, be sure the total wattage of the primary tap you intend to use does not exceed the amplifier's maximum 100-watt output power rating.
- Avoid multiple connections to the amplifier's 70v and COM terminals.

