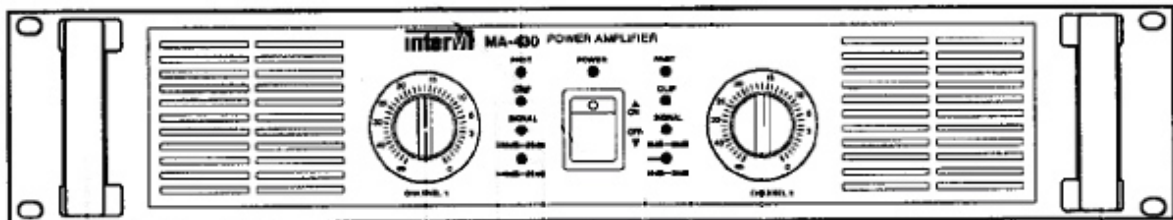


# Operating Manual

## MA-330/MA-430/MA-630/MA-930 Power Amplifier



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**interM**

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## Welcome

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### **A personal welcome to you from the management and employees of Inter-M**

Thank you for purchasing this fine Inter-M product. All of us here at Inter-M are dedicated to providing you with the highest quality products and the best value.

We sincerely trust this product will provide you with years of satisfactory service, but if anything is not to your complete satisfaction, we will endeavor to make things right.

Welcome to Inter-M, and thank you for becoming a part of our worldwide extended family!

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## Unpacking

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Although your MA-330/MA-430/MA-630/MA-930 Power Amplifier is neither complicated nor difficult to operate, we recommend you take a few minutes to read this brief manual and familiarize yourself with the important information regarding product features, setup and operation.

As with most electronic devices, we strongly recommend you retain the original packaging. In the unlikely event the product must be returned for servicing, the original packaging (or reasonable equivalent) is required.

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## Warnings

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### **Environment**

Never place this product in an environment that could alter its performance or reduce its service life. Such environments are usually characterized by high levels of heat, dust, moisture, or vibration.

### **Safety**

1. Read these instructions carefully.
2. Follow all instructions.
3. Keep all warnings.
4. Do not operate this apparatus near water.
5. Clean only with a damp cloth.
6. Do not block any of the ventilation openings.
7. Install only in accordance with the instructions in this manual.

8. Do not install near any heat sources such as radiators, heat registers, stoves, or other devices (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades, with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where it is attached to the apparatus.
11. Use only the attachments/accessories specified.
12. Use only with a cart, stand, tripod, bracket, or table specified, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid overturning.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

<div style="border: 2px solid black; padding: 10px; margin-bottom: 10px;"> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <b>CAUTION</b>  <small>RISK OF ELECTRIC SHOCK DO NOT OPEN</small> </div> </div> <p style="text-align: center; margin-top: 10px;">CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</p> </div> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p><b>WARNING</b></p> <p>To prevent fire or shock hazard, do not expose the unit to rain or moisture.</p> </div>	<div style="margin-bottom: 10px;"> <p>This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.</p> </div> <div style="margin-bottom: 10px;"> <p>This symbol is intended to alert the user to the presence of important operation and maintenance (servicing) instructions in the literature accompanying the appliance.</p> </div> <div style="margin-bottom: 10px;"> <p><b>Caution:</b> To prevent electric shock do not use this (polarized) plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.</p> </div> <div style="border: 1px solid black; padding: 10px;"> <p><b>Attention:</b> Pour prévenir les chocs électriques ne pas utiliser cette fiche polarisée avec un prolongateur, une prise de courant ou une autre sortie de courant, sauf si les lames peuvent être insérées à fond sans en laisser aucune partie à découvert.</p> </div>
<p><small>*Do not install this equipment in a confined space such as a book case or similar unit.          *The apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.          *Worded: "WARNING FOR YOUR PROTECTION PLEASE READ THE FOLLOWING-WATER AND MOISTURE: Unit should not be used near water(e.g. near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc). Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings."</small></p>	

## Operation

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Make certain that speakers and input sources are properly connected before switching on.

Keep volume levels at minimum gain before switching on.

**NOTE:** The system's operation is delayed by approximately three seconds after pressing the AC Mains power switch. This is due to the built-in protection circuitry, designed to protect speakers and other system components.

## **MA-330/MA-430/MA-630/MA-930 Power Amplifier**

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### **Features**

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#### **High Performance Power Amp**

- Performance quality power amp provides clean sound for concert halls, commercial installations, studio and conference room.

#### **Advanced Protection Circuitry**

- Thermal and current overload protection, short and open circuit protection for both component and loudspeaker protection.

#### **Bridged Mono Operation**

- Bridged mono mode for increased power and versatility.

#### **Versatile Connectivity**

- Balanced and unbalanced inputs on XLR and 1/4" phone connectors, as well as speaker connect and five-way binding post output connectors to accommodate a wide array of system options.

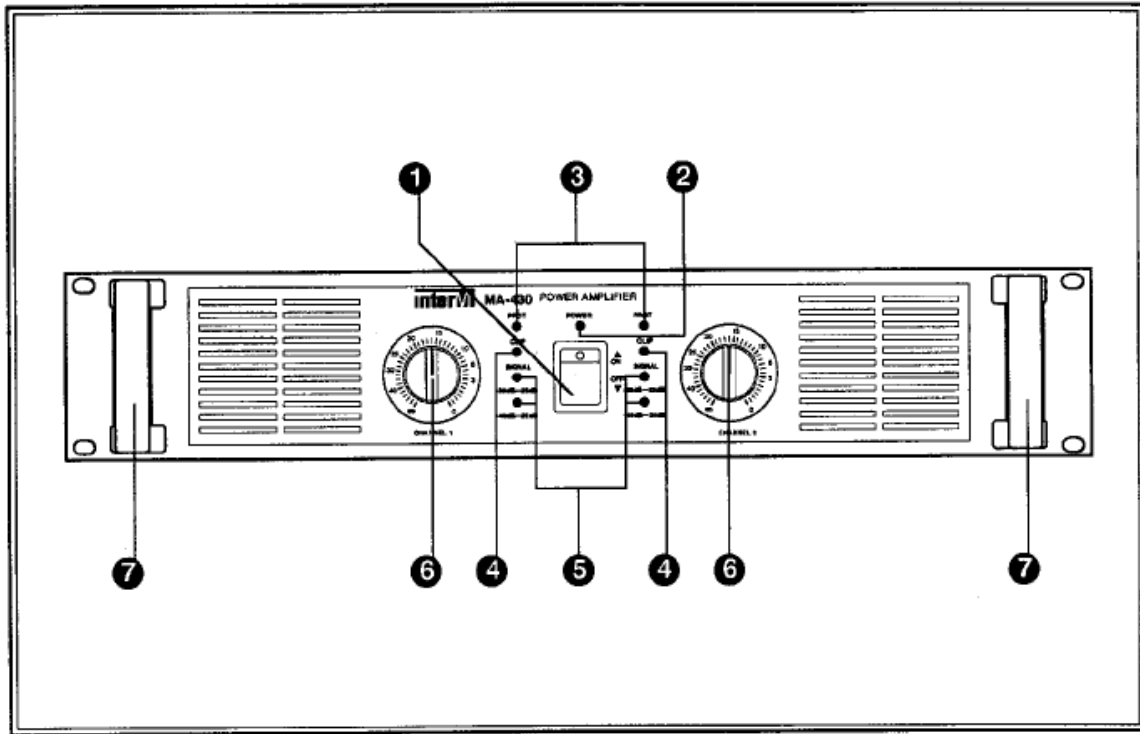
#### **LED Indicators**

- Front panel LED indicators show AC Mains power, clip, protection and level status.

#### **Slim Design, Compact Size**

- Streamlined design fits in a compact 2RU space.

## Front Panel Controls



### 1. Power Switch

Pushing this switch up switches the unit on. Pushing it down switches the unit off.

### 2. Power Indicator LED

When the unit is switched on, the Power LED will glow steadily.

### 3. Protection Indicators

There are two red protection indicator LEDs, one LED for the Channel 1 and one LED for Channel 2. These LEDs indicate the state of the amplifier's protection circuitry. When the Protection LED is on (illuminated), the protection circuitry is active, indicating that the unit is not operating normally. This is typically due to overheating or power limiting. Please check the Input and Output condition of the amplifier. (Note that the Protection Indicators light for approximately six seconds when the amplifier is first powered on.)

The amplifier offers the following modes of protection:

**Thermal protection:** Activates when internal operating temperature exceeds 100° Celsius/212° Fahrenheit.

**Compressor/Limiting:** When maximum output power is reached, output level will be reduced to avoid distortion.

**DC Fault protection:** DC detection circuitry shuts the speaker output when a DC fault voltage of  $\pm 3\text{dB}$  or greater is detected.

**Power On/Off Muting:** Audio to speakers is delayed for several seconds on AC Mains powering on and off to reduce potential speaker damage from transients.

#### **4. Clip Indicators**

The red CLIP LED indicates an excessive output level, lighting when distortion reaches approximately 0.5%. Do not operate the unit with the CLIP LED steadily illuminated.

#### **5. Signal Level Indicators**

The SIGNAL LEDs indicate the amplifier's output status, lighting when audio signal reaches a nominal level. There is a set of two LEDs per amplifier channel. The first LEDs will light when the outputs reach  $-40\text{dB}$ , and the second LEDs light at  $-20\text{dB}$  output level.

#### **6. Input Attenuators**

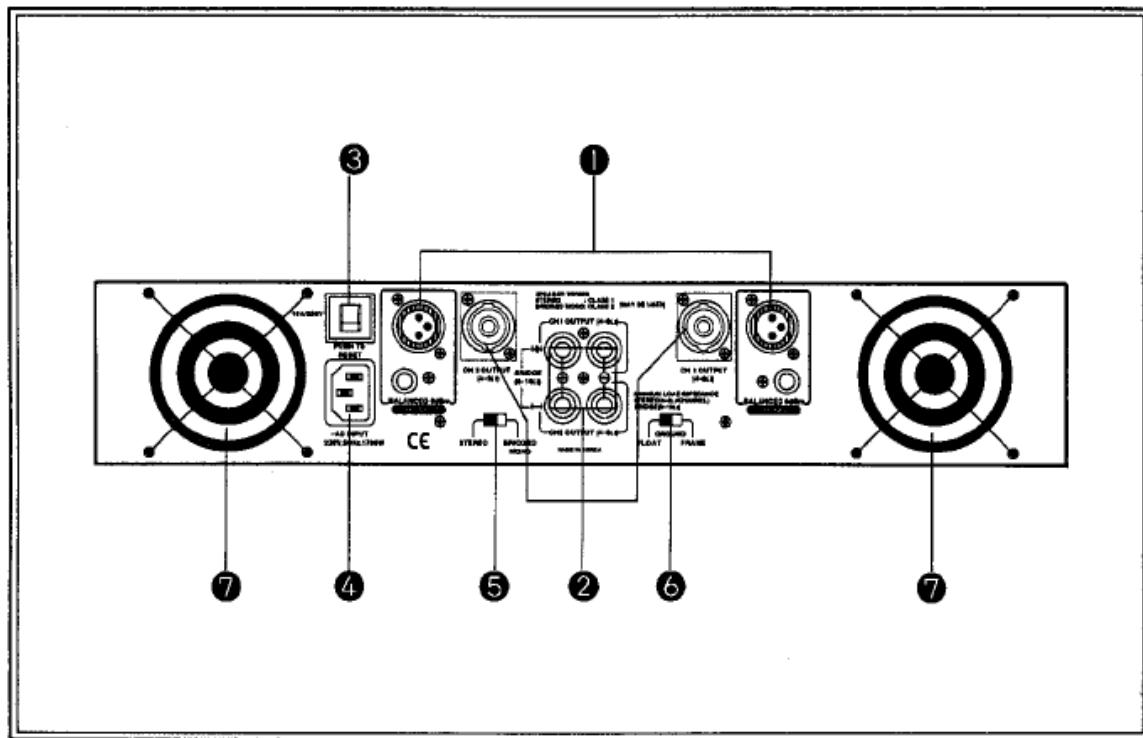
These are detented controls for regulating each channel's input level. The fully clockwise position indicates zero attenuation. Counter-clockwise rotation decreases the input level.

#### **7. Handles**

Using these handles allows you to easily move the amplifier.



## Rear Panel Controls



### 1. Input Connectors

Balanced input connectors are provided for both Channel 1 and Channel 2 on XLR jacks, while unbalanced connections can be made using the 1/4" phone jacks. (When operating in Bridged Mono mode, only Channel 1 input is active.)

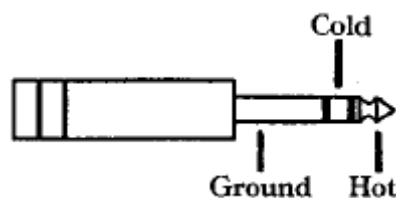
XLR Connector:

Each XLR type connector is wired pin 1 = ground, pin 2 = hot (+), pin 3 = cold (-).



Phone Jack:

Each 1/4" TRS connector is wired tip = hot (+), ring = cold (-), sleeve = ground.

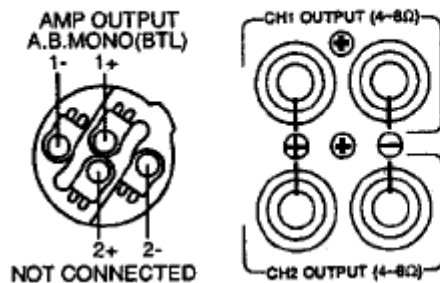


## 2. Speaker Output Terminals

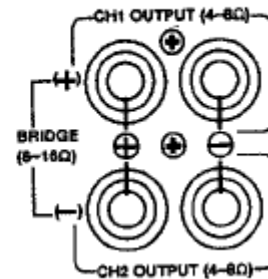
These dual five-way binding posts and speaker connect jacks are for connecting speakers to the unit. Do not parallel the two outputs of each channel by connecting them, together or parallel, with any other amplifier output.

Speakers may be connected in Stereo or Bridged Mono mode. Please refer to the illustrations below.

### • STEREO MODE



### • BRIDGE MODE



## 3. Circuit Breaker

When the circuit breaker is tripped (most likely due to overload or other circuit trouble), push to reset.

If the circuit breaker continues to trip, refer servicing to qualified repair personnel.

## 4. AC Connector

Connect the supplied standard AC input cable here.

## 5. Mode Selector

Use this slide switch to select either Stereo or Bridged Mono operation. When Bridged Mono mode is selected, only Channel 1 is active. Use the Channel 1 Input Attenuator to set input level, and refer to the Channel 1 indicator LEDs for operating status.

## 6. Ground Switch

This switch is used to prevent hum loops by separating the frame from the output ground. Set to Float when you want to separate the frame from the ground and eliminate ground hum. Set to Frame to restore the grounding circuitry.

## 7. Fans

It is important that the fans be kept free of all obstructions in a dust-free environment, and be accessible to cool fresh air whenever possible.

## Operational Modes

### Stereo Mode

In Stereo mode, Channels 1 and 2 operate independently, with each channel feeding its respective amplifier circuit. In this mode, minimum speaker impedance per channel is 4Ω.

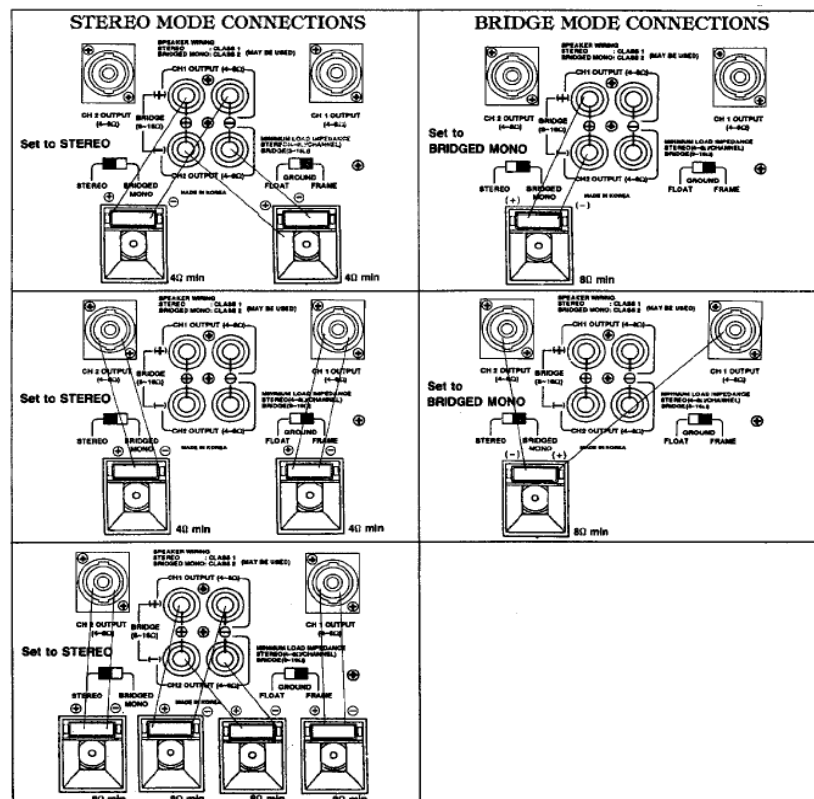
### Bridged Mono Mode

In Bridged Mono mode, both amplifier channels are bridged together and function as a single-channel amplifier. Only the Channel 1 input is active, and only the Channel 1 Input Attenuator controls the amp's output. In this mode, minimum speaker impedance per channel is 8Ω.

## Speaker Impedance and Connections

The minimum speaker impedance is wholly dependent on the operational mode of the amplifier, either Stereo or Bridged Mono. It is critical that the minimum impedance not equal less than the recommended impedance.

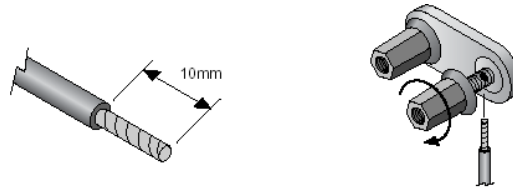
The illustrations below show examples of speaker connections both in Stereo or Bridged Mono. Stereo mode illustrations include examples of parallel speaker connections, and the respective minimum impedance.



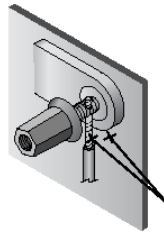
## Speaker Connection Procedures

Always switch the AC Mains power off before connecting speakers.

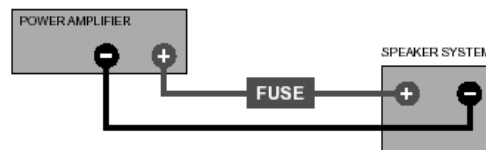
After removing approximately 10mm (1/4 inch) of insulation from the ends of the speaker cables, twist the strands tightly and pass the bare ends through the holes in the terminals, tightening the terminals to secure the wires.



Make certain the wires do not protrude from the terminals and touch the amplifier's chassis, or an adjacent terminal.



The MA-330/MA-430/MA-630/MA-930 is capable of very high output levels. (Refer to the "Specifications" section at the end of this manual.) Be certain to use a speaker system that can accept high input levels. If the input capacity of your speaker system is less than the amplifier's rated output, you may protect your speakers by connecting a fuse between amplifier and speaker, as shown below:



Use the following formula to determine the needed fuse rating:

$$P_o = I^2 R \rightarrow I = \sqrt{\frac{P_o}{R}}$$

$P_o$  (W) = Speaker's continuous input capacity (RMS)

$R$  ( $\Omega$ ) = Speaker's nominal impedance

$I$  (A) = Required fuse rating.

For example: if the speaker's input capacity is 100W, with 8 $\Omega$  impedance:

$$I = \sqrt{\frac{100}{8}} = 3.5$$

The required fuse rating in this example is 3.5A.

## Speaker Cable

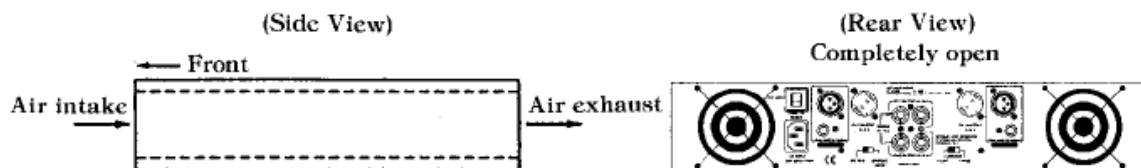
Always use the heaviest-duty (lowest gauge) speaker cable available to prevent deterioration of the damping factor or power loss. The terminals can accommodate very thick speaker cable.

## Maintaining Proper Polarity

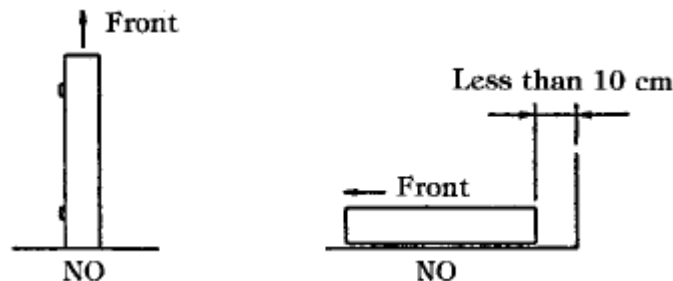
It is very important to wire your speaker connectors consistently at each end of each cable, in order to maintain proper polarity. All quality cables are manufactured with clear markings to identify the different conductors – normally by color-coding, printed markings, or textured ribbing on the cable's jacket material. Always make certain to correctly wire your connections so that tip is connected to tip, and sleeve to sleeve. Failing to do so will cause your speakers to operate out of phase, resulting in significantly reduced low-frequency output from your system.

## Rack Mounting Your Amplifier

The amplifier intakes cool air through the front panel, and expels heat through the rear panel fans. When mounting in a portable equipment rack, maintain adequate ventilation by making certain the front and rear panels are not obstructed.

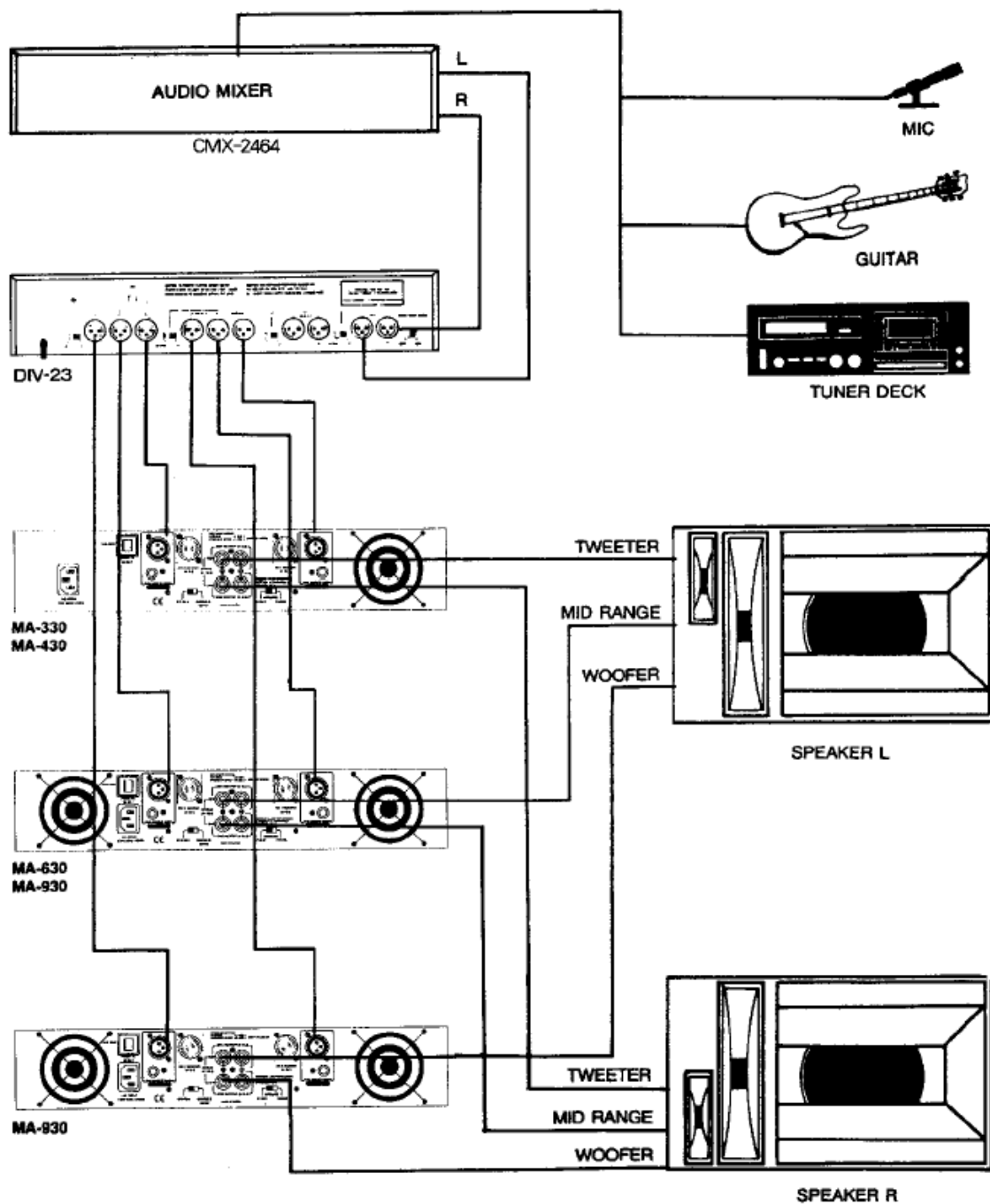


Place the case so that the ventilation airflow paths are not blocked.

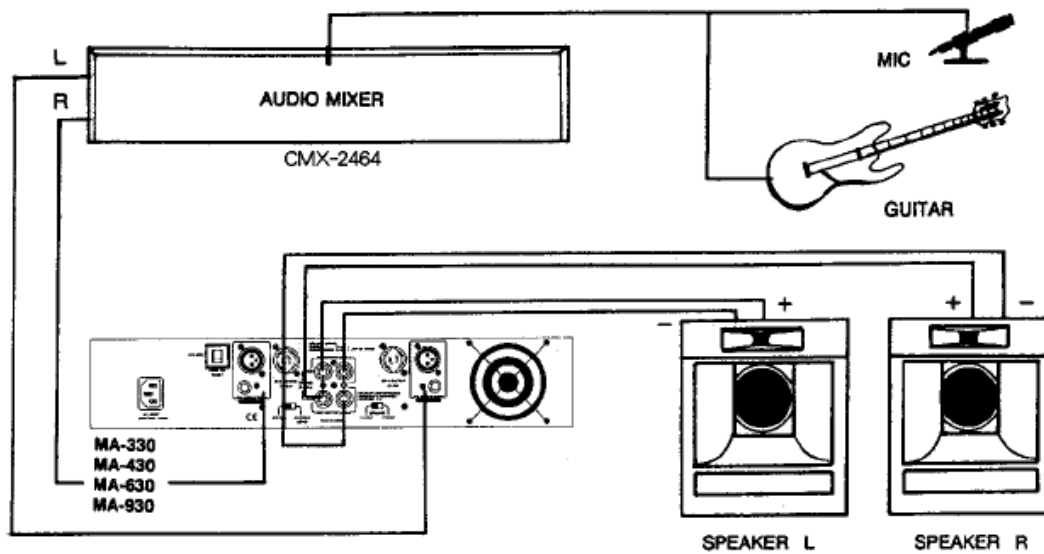


## Connections

### ■ MULTI AMP SYSTEM

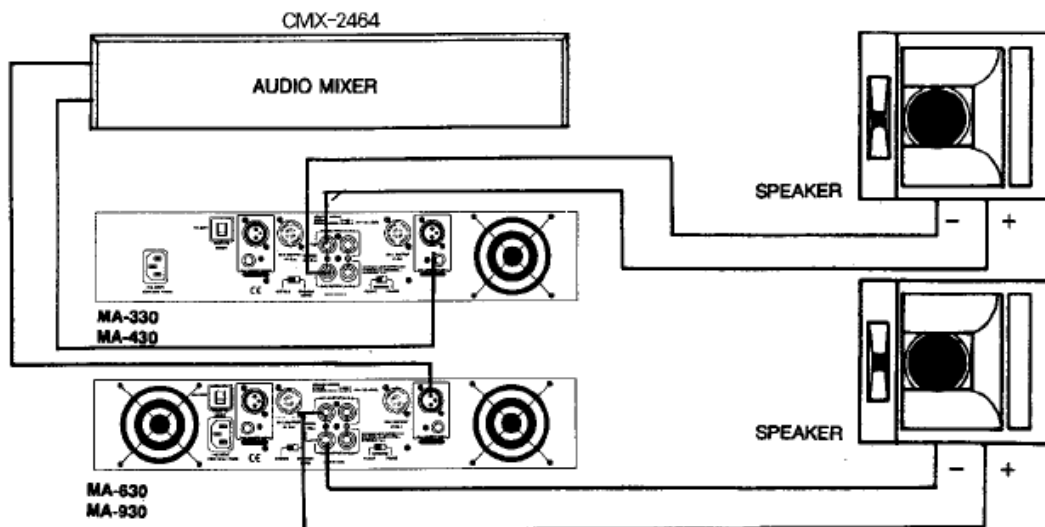


### ■SINGLE AMP SYSTEM

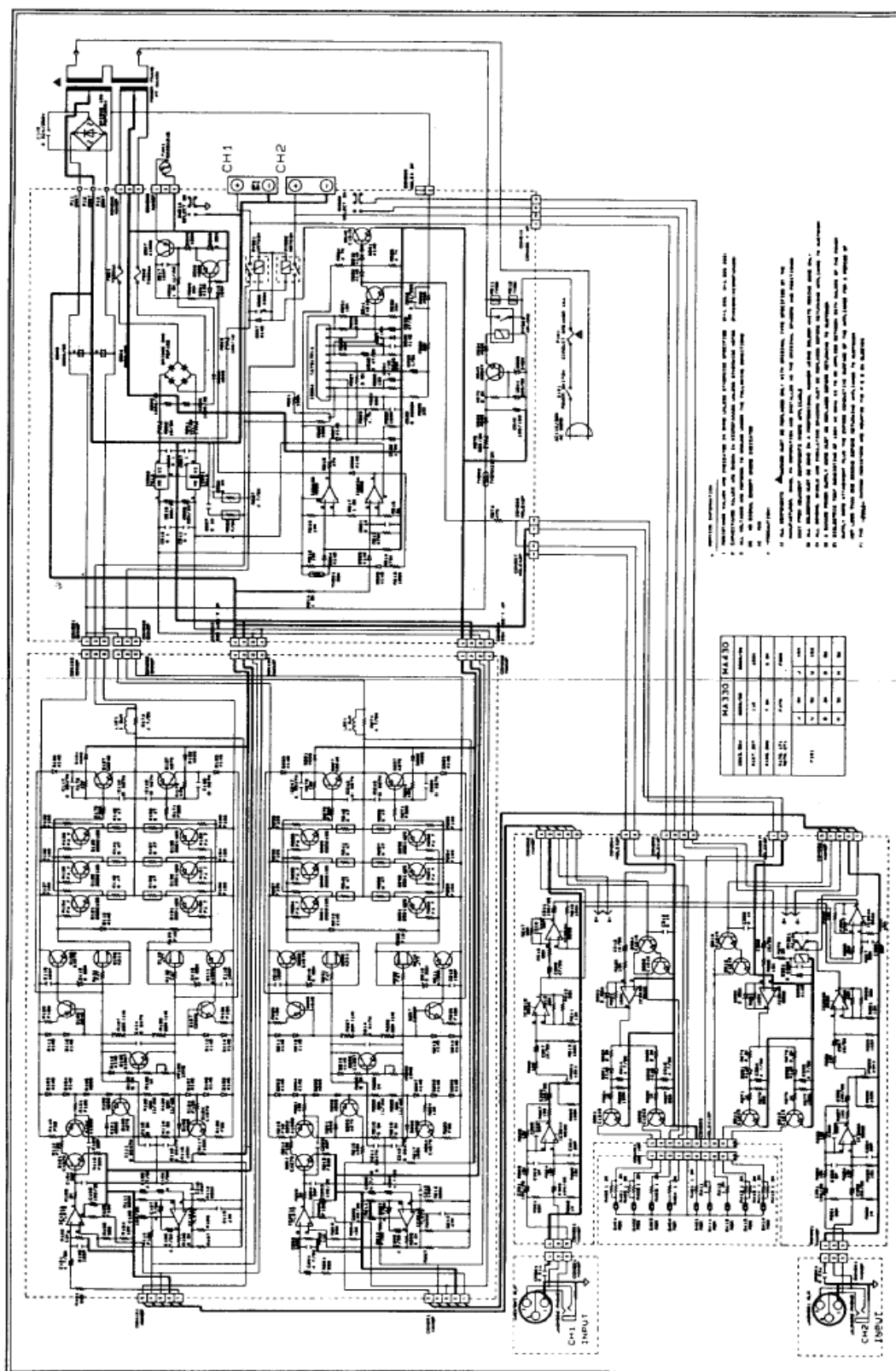


### ■Bridged Mono Operation

1. Set mode selector to bridged mono.
2. Connect a mono input signal to channel one input jack.
3. Connect the speaker load to the two red terminals of each channel, please confirm the (+) terminal of speaker to channel one and the (-) terminal to channel two.
4. Do not use the black terminals of each channel.
5. Please notice to connect the speaker impedance 8ohm or above.

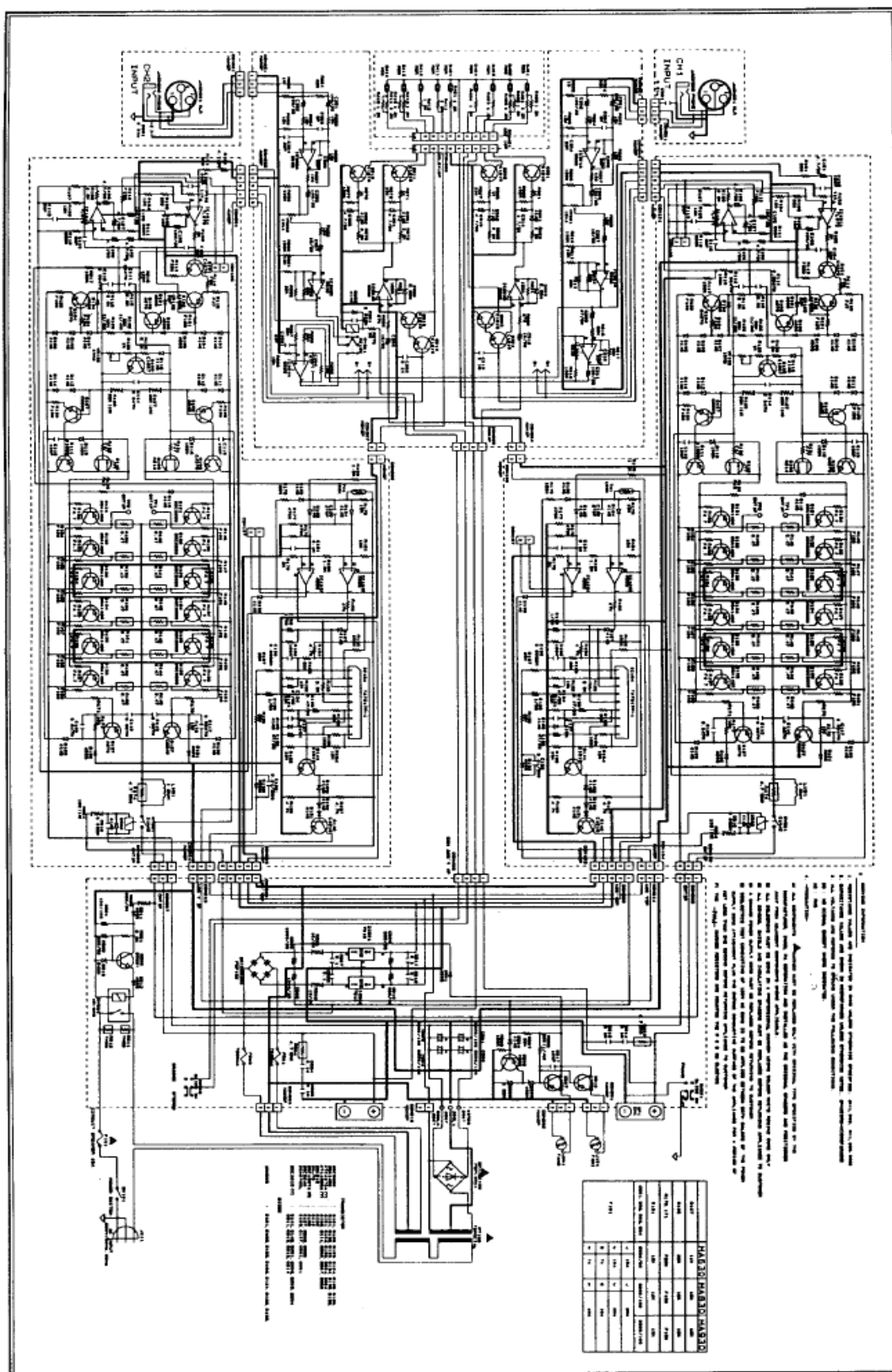


### Schematic Diagram – MA-330/MA-430





### Schematic Diagram – MA-630/MA-930



## Specifications

**Rated Output (RMS)****20Hz –20kHz, THD+N ≤0.05%**

	<b>MA-330</b>	<b>MA-430</b>	<b>MA-630</b>	<b>MA-930</b>
<b>Stereo 8Ω (per channel)</b>	75W	125W	200W	300W
<b>Stereo 4Ω (per channel)</b>	100W	200W	300W	450W
<b>Bridged Mono 8Ω</b>	200W	400W	600W	900W

**1kHz, THD+N ≤0.05%**

	<b>MA-330</b>	<b>MA-430</b>	<b>MA-630</b>	<b>MA-930</b>
<b>Stereo 8Ω (per channel)</b>	75W	125W	200W	300W
<b>Stereo 4Ω (per channel)</b>	100W	200W	300W	450W
<b>Bridged Mono 8Ω</b>	200W	400W	600W	900W

**1kHz, THD+N ≤0.05%**

	<b>MA-330</b>	<b>MA-430</b>	<b>MA-630</b>	<b>MA-930</b>
<b>One Channel Driven, 4Ω</b>	93W	125W	250W	375W

**Frequency Response (± 0.5dB)**

10Hz-75kHz, 0dB + 0.5, -1.5dB

**Power Bandwidth Half Power, Stereo 8Ω**

10Hz-70kHz, THD+N = ≤0.1%

**Channel Separation Half Power, Stereo 8Ω**  
1kHz, ATT @ max, Input 600Ω shunt

≥85dB

**Input Sensitivity (ATT @ max)**

0dBm (4Ω, 1kHz)

**Input Impedance (ATT @ max)**

≥ 20kΩ (balanced, unbal)

**T.H.D****Stereo 8Ω**

≤ 0.03%

**Stereo 4Ω**

≤ 0.05%

**Bridged Mono 8Ω**

≤ 0.05%

**S/N (Input 600Ω shunt)**

≥100dB

**Residual Noise (DIN audio filter)**

≤ -75dB, ATT @ min

**Damping Factor**

≥ 150 (8Ω, 1kHz)

**Slew Rate****8Ω full swing, stereo/bridge**

± 40V/μ sec.

**Protection**Switch On Delay, Thermal,  
DC Fault, PC Limiter**GENERAL**

**Power Source****US and Canadian Models**

AC 120V, 60Hz

**General Model**

AC 230V, 50Hz

**British Model**

AC 240V, 50Hz

	<b>MA-330</b>	<b>MA-430</b>	<b>MA-630</b>	<b>MA-930</b>
<b>Power Consumption</b>	550W	750W	1150W	1700W

	<b>MA-330</b>	<b>MA-430</b>	<b>MA-630</b>	<b>MA-930</b>
<b>Weight, kg</b>	11	12	15	17
<b>Weight, lbs</b>	24.2	26.4	33	37.4

**Dimensions**

482(W) x 88(H) x 369(D) mm

19(W) x 3.5(H) x 14.5(D) in.

*Specifications and design subject to change without notice for improvements.*

## Troubleshooting

The following table lists possible problems, their main causes, and corrective measures that might be taken, as well as the protective circuitry operation.

Indicator	Probable Cause	Remedy	Protection Circuit
CLIP Indicator lights.	There is a short at a speaker terminal, amp terminal or wire.	Locate and correct the cause of the short.	The PC limiter circuit operates to protect the power transistors.
	The amplifier load is excessive.	Use a speaker system with impedance of not less than 4Ω (stereo) or 8Ω (bridged).	Same as above.
PROTECTION Indicator lights	The internal heat sink temperature has exceeded 100° C.	Check the amplifier ventilation conditions; take appropriate measure to improve airflow.	The thermal PC operates to protect the power transistors.
	A DC voltage of +/- 2V or greater was generated in the power amplifier output circuit.	Consult your dealer or nearest service center.	The relay operates to protect the speaker system.



Inter-M, Ltd. (Korea) began operations in 1983.

Since then, Inter-M has grown to become one of the largest manufacturers of professional audio and commercial sound electronics equipment in the world.

Inter-M has gained worldwide recognition for its own branded products, as well as private label manufacturing of electronics sold under other names (OEM).

The company is no longer just a Korean company, but rather a global company that is truly international in scope, with factories and offices in Korea and China, and sales and marketing operations located in Japan, Europe, and the U.S.A.

With more than 850 employees around the globe, Inter-M is well-poised for further growth and expansion.

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