

# MA6004 MA6002

MARINE AUDIO  
POWER AMPLIFIER  
OWNER'S MANUAL



**JBL**

®

[www.jbl.com](http://www.jbl.com)

The Official Brand of Live Music.

# MARINE

# INSTALLATION

## THANK YOU

for purchasing a JBL marine amplifier. In order that we may better serve you should you require warranty service for your new amplifier, please retain your original purchase receipt and register your new JBL amplifier online at [www.jbl.com](http://www.jbl.com).

## WARNING

Playing loud music in a boat can hinder your ability to hear other boats, passengers and nearby swimmers and can permanently damage your hearing. We recommend listening at low or moderate levels while operating your boat. JBL accepts no liability for hearing loss, bodily injury or property damage resulting from the use or misuse of this product.

## IMPORTANT

To get the best performance from your JBL marine amplifiers, we strongly recommend that installation be entrusted to a qualified professional. Although these instructions explain how to install these amplifiers in a general sense, they do not show specific installation methods that may be required for your particular application. If you do not have the necessary tools or experience, do not attempt the installation yourself. Instead, ask your authorized JBL car audio or marine audio dealer about professional installation.

**NOTE:** This marine product is not intended for automotive applications.

## INSTALLATION WARNINGS AND TIPS

- Always wear protective eyewear when using tools.
- Turn off the audio system and other electrical devices before you start. Disconnect the (–) negative lead from your boat's battery.
- At the installation sites, locate and make a note of all fuel lines, hydraulic brake lines, vacuum lines and electrical wiring. Use extreme caution when cutting or drilling in and around these areas.
- Check clearances on both sides of a planned mounting surface before drilling any holes or installing any screws. Remember that the screws can extend behind the surface. Do not use screws long enough to penetrate the boat's hull.
- Before drilling or cutting holes, use a utility knife to remove unwanted fabric or vinyl to keep material from snagging in a drill bit.
- When routing cables, keep input-signal cables away from power cables and speaker wires.
- When making connections, make certain they are secure and properly insulated.
- If the amplifier's fuse must be replaced, use only the same type and rating as that of the original. Do not substitute another kind.

## CHOOSING A LOCATION AND MOUNTING THE AMPLIFIER

Choose a mounting location in the cargo area where the amplifier will not be damaged by shifting cargo or water. Although these JBL marine amps are designed for use on a boat, they will not withstand submersion. Amplifier cooling is essential for proper amplifier operation. If the amplifier is to be installed in an enclosed space, make sure there is sufficient air circulation for the amplifier to cool itself.

Make sure that the amplifier is mounted securely using nuts and bolts or the supplied mounting screws.

# INSTALLATION

## POWER CONNECTIONS

The amplifier requires a reliable connection to the boat's electrical system in order to perform optimally. See Figures 1 and 2 for terminal connection locations. Please adhere to the following instructions carefully:

### Ground Connection

Connect the amplifier's Ground (GND) terminal to the battery's negative terminal, using a ring terminal. Refer to the wire gauge chart to determine minimum wire gauge size.

### Power Connection

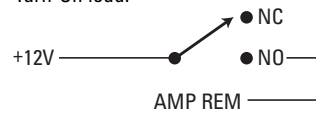
Connect a wire (see chart at right for appropriate gauge) directly to the positive battery terminal, and install an appropriate fuse holder within 18" of the battery terminal. *Do not install the fuse at this time.* Route the wire to the amplifier's location, and connect it to the amplifier's Positive (+12V) terminal. Be sure to use appropriate grommets whenever routing wires through a bulkhead or other obstruction. *Failure to adequately protect the positive wire from potential damage may result in a fire.* When you are done routing and connecting this wire, you may install the fuse at the battery.

### Remote Connection

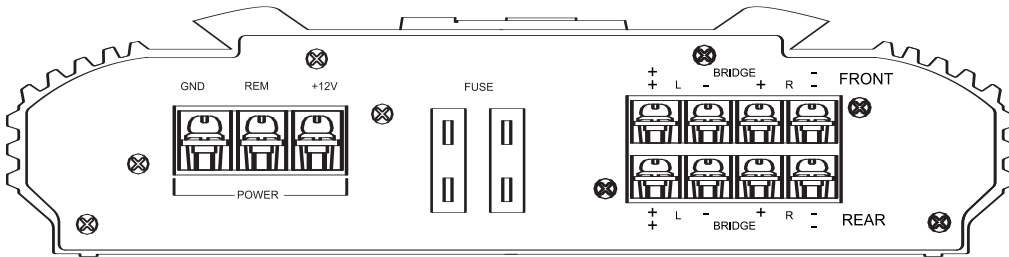
Connect the amplifier's Remote (REM) terminal to the source unit's Remote Turn-On lead using a minimum of 18-gauge wire.

**NOTE:** If your source unit does not have a remote turn-on connection, connect the amplifier's (REM) terminal to a wire that provides +12V when the boat's accessories are on or when the key is switched on. If no such circuit exists, install a switch. See Figure 3.

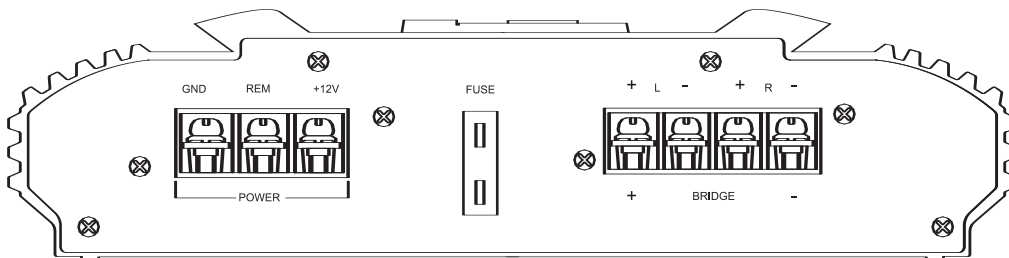
**Figure 3.** Install a switch for the Remote Turn-On lead.



**Figure 1.** Terminal connection end plate for MA6004.



**Figure 2.** Terminal connection end plate for MA6002.



## Speaker Connections

Refer to the application guides on the pages that follow. Speaker connections should be made using a minimum of 16-gauge wire.

### Wire Gauge Chart

Amplifier Model	Maximum Current Draw	Minimum Wire Gauge
MA6002	22A	#8 AWG
MA6004	40A	#8 AWG

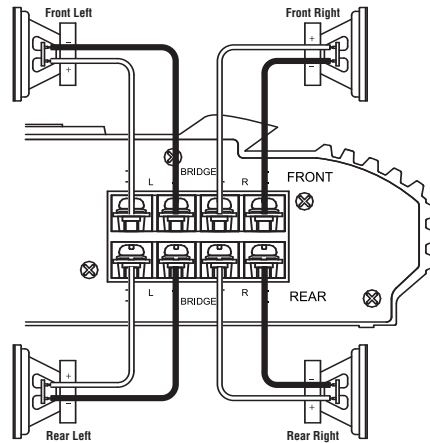
These recommendations assume 10' – 12' wire runs. If your amplifier will be mounted farther than 12' from the boat's battery, use a larger gauge.

# APPLICATIONS - MA6004

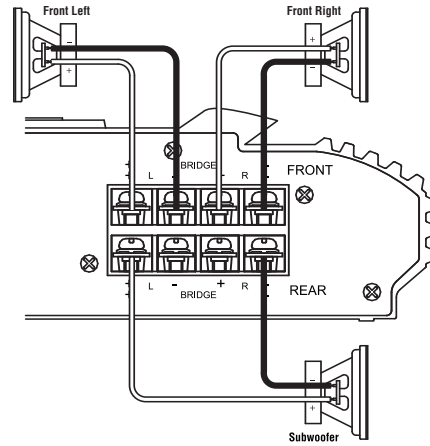
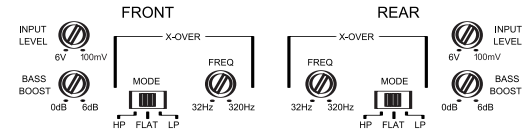
The MA6004 can be set up for stereo 4-channel, 3-channel or bridged 2-channel operation, as shown in Figures 4 through 6.

**NOTE:** For simplicity, Figures 4 through 6 do not show power, remote and input connections.

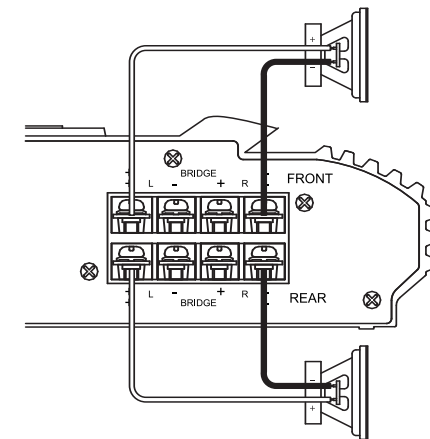
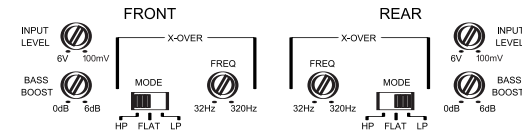
**NOTE:** Minimum speaker impedance for stereo operation is 2 ohms. Minimum speaker impedance for bridged operation is 4 ohms.



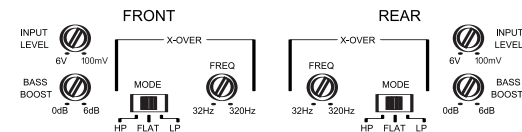
**Figure 4.** MA6004 amplifier in 4-channel (stereo) operation to drive front and rear full-range speakers.



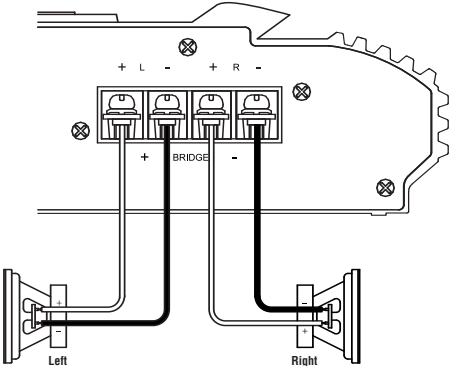
**Figure 5.** MA6004 is set up for 3-channel operation to drive a set of full-range speakers and a subwoofer.



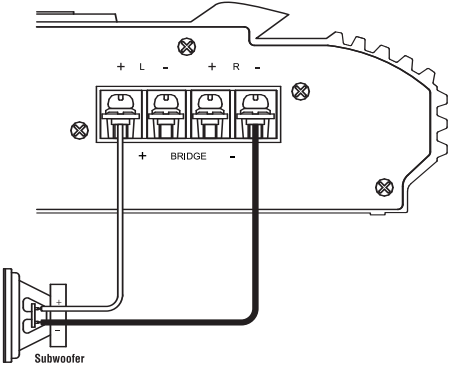
**Figure 6.** MA6004 used in bridged 2-channel mode to drive a set of components or subwoofers. Set crossovers according to application.



# APPLICATIONS - MA6002



**Figure 7.** MA6002 used in 2-channel (stereo) operation to drive a set of full-range speakers.



**Figure 8.** MA6002 used in bridge mode to drive a subwoofer.



## CONTROLS AND SETUP

### SETTING THE CROSSOVER(S)

Determine your system plans and set the crossover mode switch accordingly. If your system design does not include a subwoofer with the MA6004, set the crossover mode to FLAT; if you are using speakers that are 5 inches in diameter or larger, skip to "Setting Input Sensitivity."

Initially set the crossover frequency control midway. While listening to music, adjust the crossover for the least perceived distortion from the speakers, allowing them to reproduce as much bass as possible.

For systems using a separate subwoofer, set the crossover mode to HP (high pass) for your full-range speakers. Adjust the crossover frequency to limit bass and provide increased system volume with less distortion.

For subwoofers, choose the highest frequency that removes vocal information from the sound of the subwoofer.

If using the MA6004 or MA6002 to drive a subwoofer(s), set the crossover mode to LP (low pass).

### SETTING INPUT SENSITIVITY

1. Initially turn the INPUT LEVEL control(s) to minimum (counter clockwise).
2. Reconnect the (-) negative lead to the boat's battery. Apply power to the audio system and play a dynamic music track.
3. On the source unit, increase the volume control to 3/4 volume. Slowly increase the INPUT LEVEL control(s) toward "three o'clock" until you hear slight distortion in the music. Then reduce the INPUT LEVEL slightly until distortion is no longer heard.

**NOTE:** After the source unit is on, blue LEDs (on the top panel) will light, indicating the amplifier is on. If not, check the wiring, especially the remote connection from the source unit. Also refer to the "Troubleshooting" guide.

## TROUBLESHOOTING

SYMPTOM	LIKELY CAUSE	SOLUTION
No audio (POWER LEDs are off)	No voltage at BATT+ or REM terminals, or bad or no ground connection	Check voltages at amplifier terminals with VOM
No audio (POWER LEDs are on)	Amplifier is overheated	Make sure amplifier cooling is not blocked at mounting location; verify speaker-system impedance is within specified limits
	Voltage more than 16V or less than 8.5V on BATT+ connection	Check boat's battery charging system
No audio (POWER LEDs flash)	Voltage less than 9V on BATT+ connection	Check boat's charging system
	DC voltage on amplifier output	Amplifier may need service; see enclosed warranty card for service information
Distorted audio	Input sensitivity is not set properly, or amplifier or source unit is defective	Check INPUT LEVEL setting; or check speaker wires for shorts or grounds
Distorted audio and POWER LEDs flash	Short circuit in speaker or wire	Remove speaker leads one at a time to locate shorted speaker or wire, then repair
Music lacks "punch"	Speakers are not connected properly	Check speaker connections for proper polarity

## SPECIFICATIONS

### MA6004

- 60W RMS x 4 channels at 4 ohms and  $\leq 1\%$  THD + N
- Signal-to-noise ratio: 80dBA (reference 1W into 4 ohms)
- 80W RMS x 4 channels at 2 ohms, 14.4V supply and  $\leq 1\%$  THD + N
- 160W RMS x 2 channels at 4 ohms, 14.4V supply and  $\leq 1\%$  THD + N
- Dynamic power: 145W at 2 ohms
- Effective damping factor: 6.395 at 4 ohms
- Frequency response: 10Hz – 27kHz (–3dB)
- Maximum input signal: 6V
- Maximum sensitivity: 100mV
- Output regulation: –0.03dB at 4 ohms
- Dimensions (L x W x H): 13-1/4" x 10-1/4" x 2-3/16"  
(337mm x 261mm x 56mm)
- Fuses: 25A x 2

### MA6002

- 60W RMS x 2 channels at 4 ohms and  $\leq 1\%$  THD + N
- Signal-to-noise ratio: 84dBA (reference 1W into 4 ohms)
- 80W RMS x 2 channels at 2 ohms, 14.4V supply and  $\leq 1\%$  THD + N
- 160W RMS x 1 channel at 4 ohms, 14.4V supply and  $\leq 1\%$  THD + N
- Dynamic power: 160W at 2 ohms
- Effective damping factor: 6.395 at 4 ohms
- Frequency response: 10Hz – 27kHz (–3dB)
- Maximum input signal: 6V
- Maximum sensitivity: 100mV
- Output regulation: –0.03dB at 4 ohms
- Dimensions (L x W x H): 9" x 10-1/4" x 2-3/16"  
(229mm x 261mm x 56mm)
- Fuses: 25A x 1



A valid serial number is required for warranty coverage.

Features, specifications and appearance are subject to change without notice.

**JBL**

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declare in own responsibility that the products  
described in this owner's manual are in compliance  
with technical standards:

EN 55013:2001 + A1:2003  
EN 55020:2002 + A1:2003

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