

**MACKIE**<sup>®</sup>

# **C200 TWO-WAY LOUDSPEAKER USER'S MANUAL**



## SAFETY INSTRUCTIONS

1. **Read Instructions** — All the safety and operation instructions should be read before this Mackie product is operated.
2. **Retain Instructions** — The safety and operating instructions should be kept for future reference.
3. **Heed Warnings** — All warnings on this Mackie product and in these operating instructions should be followed.
4. **Follow Instructions** — All operating and other instructions should be followed.
5. **Water and Moisture** — This Mackie product should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, near a swimming pool, swamp or salivating St. Bernard dog, etc.
6. **Heat** — This Mackie product should be situated away from heat sources such as radiators, or other devices which produce heat.
7. **Object and Liquid Entry** — Care should be taken so that objects do not fall on and liquids are not spilled into this Mackie product.
8. **Damage Requiring Service** — This Mackie product should be serviced only by qualified service personnel when:

- A. Objects have fallen, or liquid has spilled into this Mackie product; or
- B. This Mackie product has been exposed to rain; or
- C. This Mackie product does not appear to operate normally or exhibits a marked change in performance; or
- D. This Mackie product has been dropped, or its chassis damaged.

9. **Servicing** — The user should not attempt to service this Mackie product beyond those means described in this operating manual. All other servicing should be referred to the Mackie Service Department.



10. Exposure to extremely high noise levels may cause 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 period of time. The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the permissible noise level exposures shown in the following chart.

According to OSHA, any exposure in excess of these permissible limits could result in some hearing loss. To ensure 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 use hearing protectors while the equipment is in operation. Ear plugs or protectors in the ear canals or over the ears must be worn when operating the equipment in order to prevent a permanent hearing loss if exposure is in excess of the limits set forth here.

<b>Duration Per Day In Hours</b>	<b>Sound Level dBA, Slow Response</b>	<b>Typical Example</b>
8	90	Duo in small club
6	92	
4	95	Subway Train
3	97	
2	100	Very loud classical music
1.5	102	
1	105	Tami screaming at Adrian about deadlines
0.5	110	
0.25 or less	115	Loudest parts at a rock concert

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Don't forget to visit our website at [www.mackie.com](http://www.mackie.com) for more information about this and other Mackie products.

# INTRODUCTION

Thank you for choosing the Mackie C200 sound reinforcement loudspeakers.

The C200 is a portable two-way loudspeaker system, specifically designed to complement our PPM Series line of professional powered mixers. They are capable of extremely high sound pressure levels, and designed to give you the best performance of any portable compact loudspeaker in its class and price range.

## The Transducers

The C200 features a 10-inch high-power low-frequency woofer and a 1.4-inch titanium diaphragm high-output compression driver. The woofer incorporates technology used in large-format touring systems and, with a precision 2-inch voice coil, is virtually indestructible.

The high-frequency compression driver is mounted on an acoustically non-resonant exponential waveguide, providing a wide, controlled dispersion pattern and precise reproduction of the critical upper mid-range and high-frequencies. The result is an unbelievably smooth off-axis response that allows everyone in the audience to experience the same high-resolution audio no matter where they are seated.

Each driver has been specifically designed by our engineers for optimum performance in a lightweight high-strength cabinet.

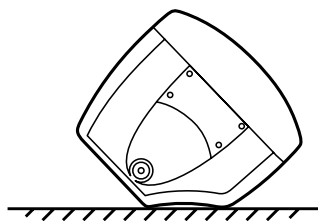
## The Crossover

This unique Low Impedance Compensated Crossover (LICC) design places inductors in series with the woofer whose values are markedly lower than conventional designs. This reduces the amount of energy that is typically wasted as heat and increases the amount of energy that is transformed into real acoustic power. It also incorporates dynamic protection for the compression driver from non-linear signals.

## The Cabinet

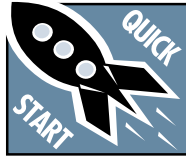
The C200 cabinet was designed to be the strongest molded composite cabinet on the planet. This material is as strong as concrete, and rigid enough to prevent unwanted vibrations and standing waves in the cabinet. It has built-in fly points for hanging, and a socket in the bottom for mounting on a tripod stand. Although it is an exceptional choice for installed sound situations, its light weight and durable finish also make it ideal for portable sound system use. The asymmetrical trapezoidal design of the cabinet also makes it easy to use as a floor wedge for stage monitor applications.

The C200 offers a portable, lightweight solution for a variety of high-powered sound reinforcement applications.



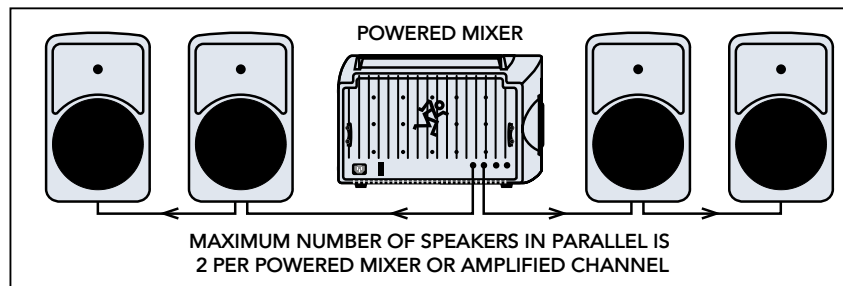
# HOOKUP DIAGRAMS

## Quick Start

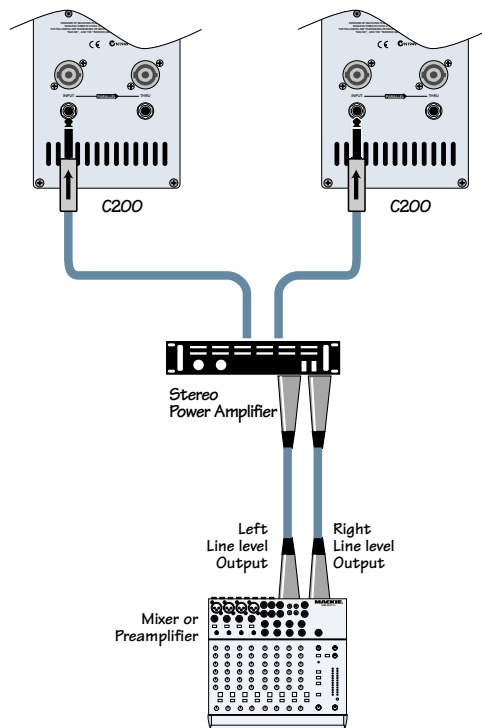


Make all initial connections with the power switches OFF on all equipment. Make sure all master volume, level, or gain controls are all the way down.

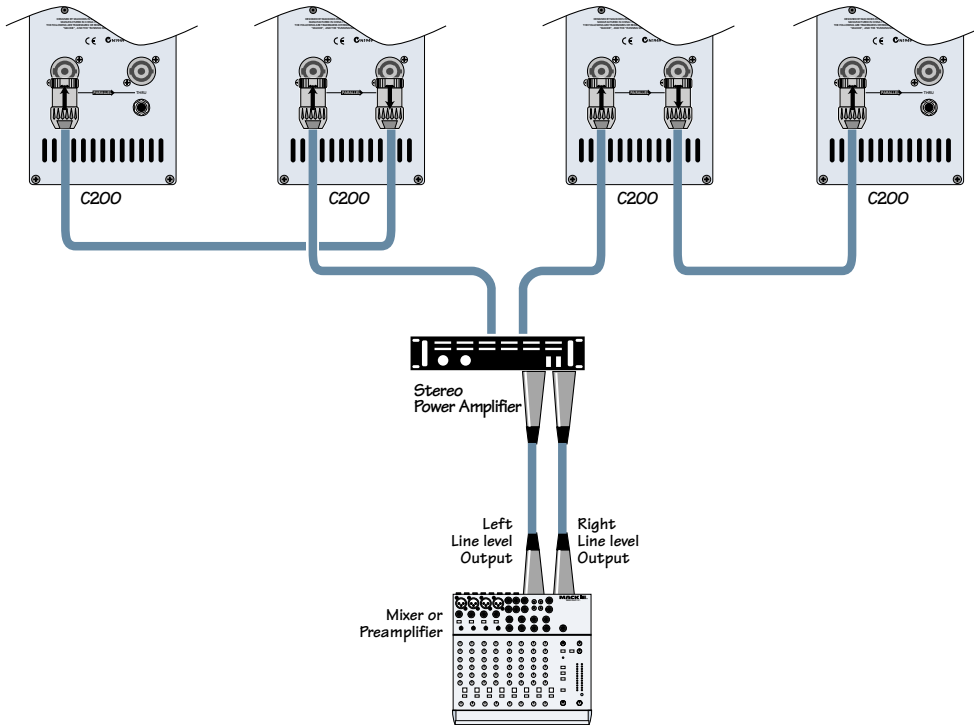
1. Connect the line-level outputs from your mixing console (or other signal source) to the inputs of your power amplifier.
2. Connect the “Speaker Output” from your power amplifier (or powered mixer) to the INPUT connector on the C200.
3. Turn on your mixing console (or other signal source).
4. Turn on the amplifier. Turn up its volume or gain control(s) as recommended by the manufacturer.
5. Start the signal source, whether it be speaking into a microphone or starting a CD player. Adjust the volume controls on the mixer (or other signal source) for normal operation.



## C200: WITH A MACKIE POWERED MIXER, AND USING THE THRU JACK



## C200: WITH A MIXER AND POWER AMPLIFIER

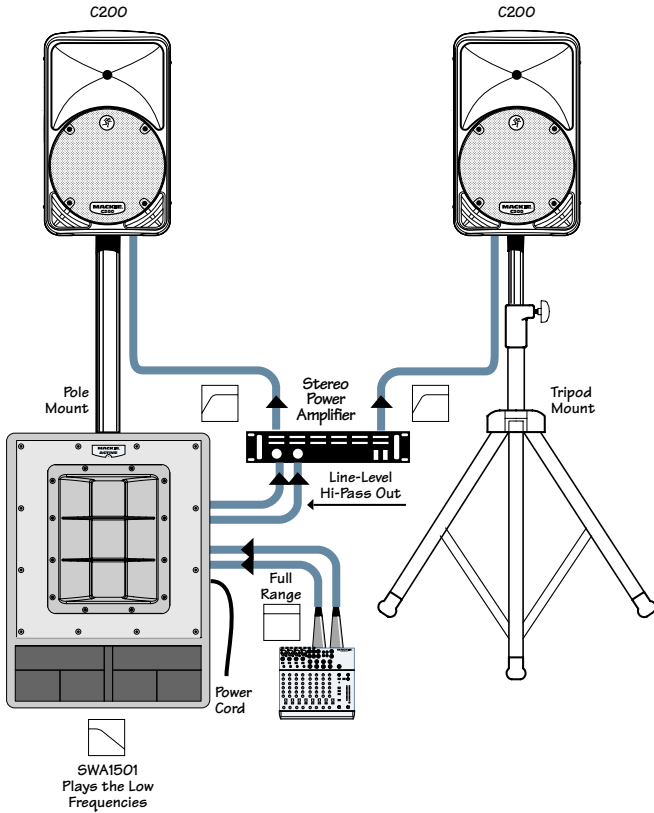


**C200: WITH A MIXER AND POWER AMPLIFIER, AND USING THE THRU JACK**

The C200 can be used with a Mackie SWA1501 (or SWA1801) subwoofer to create an incredibly powerful system.

The active crossover inside the subwoofer splits the full-range stereo input signal into two ranges. The SWA1501 sums the left and right low-frequency range and plays it through its built-in amplifier and 15-inch woofer. It sends the stereo high-pass range to the C200s, via an external power amplifier.

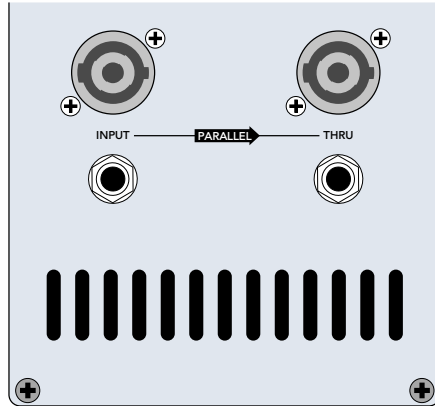
The C200 can be pole mounted on top of the SWA1501 or 1801 as shown.



**C200: BIAMPING WITH A POWERED SUBWOOFER**

## CONNECTIONS

The C200 has 1/4" TS and Speakon™-style INPUT and THRU connectors. The connectors are wired in parallel, *so use only one of the input connectors* (either 1/4" TS or Speakon-style).



C200 Connector Panel

Normally, you would use only one THRU connector, but it is possible to use both THRU connectors. Keep in mind that all the speakers are connected in parallel, so you want to be sure not to go below the minimum impedance requirements for your amplifier.



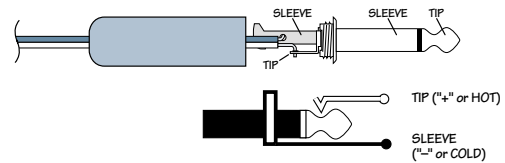
The C200 has a nominal impedance of 8 ohms.  
Two C200s in parallel equals 4 ohms.  
Three C200s in parallel equals 2.7 ohms.  
Four C200s in parallel equals 2 ohms.

Use high-quality speaker cable as recommended by the manufacturer.



**DO NOT** use coaxial shielded cable like a guitar cord to make speaker connections. They are not designed to handle the high currents required to drive a loudspeaker.

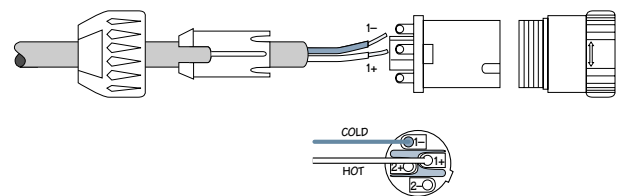
The 1/4" TS jack is wired as follows:  
Tip = Signal (“+” or hot)  
Sleeve = Ground (“-” or cold)



1/4" TS Connector

The Speakon-style connector is wired as follows:

Pin 1+ = Signal (“+” or hot)  
Pin 1- = Ground (“-” or cold)

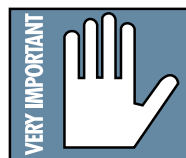


Speakon-style Connector

## PLACEMENT

The C200 loudspeakers are designed to sit on the floor, a tabletop, or to fit on a standard tripod speaker stand. They can also be suspended by the rigging points, which requires installing the optional accessory plates on the top and bottom of the cabinet.

You can lay the cabinet down on its side and use the C200 as a floor monitor. The asymmetrical trapezoidal shape of the cabinet provides a perfect angle for aiming up toward performers from the front of the stage.



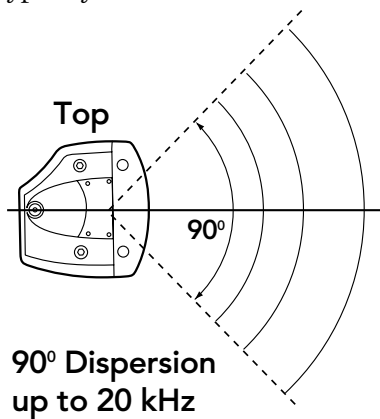
**Warning:** Do not stack speakers in a column. This is to avoid the danger of toppling speakers.

As with any loudspeakers, protect them from moisture. If you are setting them up outdoors, make sure they are under cover if you expect rain.

## Room Acoustics

The C200 loudspeakers are designed to sound as neutral as possible; that is, to reproduce the input signal as accurately as possible, *monitoring* the audio signal rather than changing it.

Room acoustics play a crucial role in the overall performance of a sound system. However, the wide high-frequency dispersion of the C200 helps to minimize the problems that typically arise.



Here are some other placement tips:

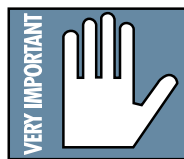
- Avoid placing loudspeakers in the corners of a room. This increases the low frequency output and can cause the sound to be muddy and indistinct.
- Avoid placing loudspeakers against a wall. This, too, increases the low frequency output, though not as much as corner placement. However, if you do need to reinforce the low frequencies, this is a good way to do it.
- Avoid placing the speakers directly on a hollow stage floor. A hollow stage can resonate at certain frequencies, causing peaks and dips in the frequency response of the room. It's better to place the loudspeakers on a sturdy table or tripod stands.
- Position the loudspeakers so the high-frequency drivers are 2 to 4 feet above ear level for the audience (make allowances for a standing/dancing in the aisles audience). High frequencies are highly directional and tend to be absorbed much easier than lower frequencies. By providing direct line-of-sight from the loudspeakers to the audience, you increase the overall brightness and intelligibility of the sound system.
- Highly reverberant rooms, like many gymnasiums and auditoriums, are a nightmare for sound system intelligibil-

ity. Multiple reflections off the hard walls, ceiling, and floor play havoc with the sound. Depending on the situation, you may be able to take some steps to minimize the reflections, such as putting carpeting on the floors, closing draperies to cover large glass windows, or hanging tapestries or other materials on the walls to absorb some of the sound. However, in most cases, these remedies are not possible or practical. So what do you do? Making the sound system louder generally doesn't work because the reflections become louder, too. The best approach is to provide as much direct sound coverage to the audience as possible. The farther away you are from the speaker, the more prominent will be the reflected sound.

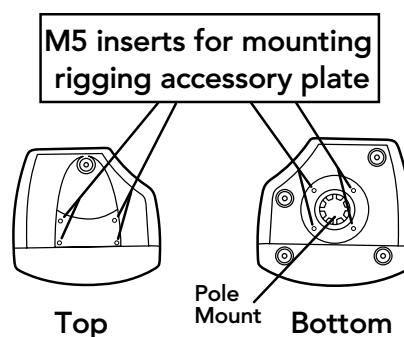
Use more speakers strategically placed so they are closer to the back of the audience. If the distance between the front and back speakers is more than about 100 feet, you should use a delay processor to time-align the sound. (Since sound travels about 1 foot per millisecond, it takes about 1/10 of a second to travel 100 feet.)

## RIGGING

The C200 cabinets are fitted with four M5 insert points on the top and bottom for installing an optional accessory plate that allows the speaker to be flown.



**WARNING:** Never attempt to suspend the C200 loudspeakers by their handles. If you want to suspend them, use the accessory plate only. Consult a professional rigger or structural engineer prior to suspending loudspeakers from a structure not intended for that use. Always know the working load limit of the structure supporting the loudspeaker array. Always make sure that the rigging hardware minimum rating is at least five times the actual load.





# SERVICE INFO

## Warranty Service

Details concerning Warranty Service are spelled out on page 11 of this manual.

If you think your loudspeaker has a problem, please do everything you can to confirm it before calling for service, including reading through the following Troubleshooting section. Doing so might save you from being deprived of your Mackie loudspeaker.

Of all Mackie products returned for service (which is hardly any at all), many are coded “CND” — Could Not Duplicate, which usually means the problem lay somewhere else in the system. These may sound obvious to you, but here are some things you can check:

## Troubleshooting

### No sound!

- Are the level controls on the mixer or amplifier turned all the way down? Follow the procedures in the “Quick Start” section on page 4 to verify that all the volume controls in the system are properly adjusted.
- Is the signal source working (and making union scale)? Make sure all the connecting cables are in good repair and securely connected at both ends.

### One side is way louder than the other!

- Are the level controls set the same for both channels on the mixer and amplifier?
- Check the PAN control on the signal source. It may be turned too far to one side. If you’re using a stereo signal source, it may be delivering an out-of-balance stereo signal.
- Try swapping sides: Switch the speaker cables coming from the amplifier at the amplifier end. If the other side is louder now, the problem is with the amplifier, the mixer, or the signal source.

## Poor bass performance

- Check the polarity of the connections between the amplifier and the loudspeakers. You may have your positive and negative connections reversed at one end of one cable.

### It hurts when I touch my arm, or my leg, or even my head!

- You have a broken finger.

### Bad sound!

- Is it loud and distorted? Follow the procedures described in the “Quick Start” section to verify that the levels are set properly.
- Are all the connections secure? It’s a good idea to periodically clean all electrical connections with a non-lubricating electrical contact cleaner.
- Keep practicing.

## Repair

Service for the C200 is available only from one of our authorized domestic service stations or at the factory, located in sunny Woodinville, Washington. Service for loudspeakers living outside the United States can be obtained through local dealers or distributors.

If your Mackie loudspeaker needs service, follow these instructions:

1. Review the preceding troubleshooting suggestions. Please.
2. Call Tech Support at 1-800-898-3211, 7 AM to 5 PM PST, to explain the problem and request an RA (Return Authorization) number. Have your speaker’s serial number ready. **You must have an RA number before you can obtain service at the factory or an authorized service center.**
3. Keep this owner’s manual. We don’t need it to repair the loudspeaker.



4. Pack the loudspeaker in its original package, including protective wrap, endcaps and box. *This is very important. Do not use styrofoam peanuts!* When you call for the RA number, please let Tech Support know if you need new packaging. *Mackie is not responsible for any damage that occurs due to non-factory packaging.*
5. Include a legible note stating your name, shipping address (no P.O. boxes), daytime phone number, RA number, and a detailed description of the problem, including how we can duplicate it.
6. Write the RA number in **BIG PRINT** on top of the box.
7. Ship the loudspeaker to us. We suggest insurance for all forms of cartage. Ship to this address:

MACKIE  
SERVICE DEPARTMENT  
16220 Wood-Red Rd. NE  
Woodinville, WA 98072

8. We'll try to fix the loudspeaker within five business days. Ask Tech Support for the latest turnaround times when you call for your RA number. We normally send everything back prepaid by ground shipping. However, if you rush your loudspeaker to us by next-day air, we'll treat it in kind by shipping it back to you the same way it was received. This paragraph does not necessarily apply to non-warranty service.

## CARE AND MAINTENANCE

Your Mackie loudspeakers will provide many years of reliable service if you follow these simple guidelines:

- Avoid exposing the loudspeakers to moisture. If they are set up outdoors, be sure they are under cover if you expect rain.
- Avoid exposure to extreme cold (below freezing temperatures). If you must operate the loudspeakers in a cold environment, warm up the voice coils slowly by sending a low-level signal through them for about 15 minutes prior to high-power operation.
- Use a slightly damp cloth with a mild soap solution to clean the cabinets. Avoid getting moisture into any of the openings of the cabinet, particularly where the drivers are located.

### Need Help?

You can reach a technical support representative

Monday through Friday

from 7 AM to 5 PM PST at:

**1-800-898-3211**

After hours, visit [www.mackie.com](http://www.mackie.com) and click Support,  
or email us at: [techmail@mackie.com](mailto:techmail@mackie.com)

# C200 SPECIFICATIONS

## System Specifications

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<i>Frequency Response (-3 dB)</i>	89 Hz – 20 kHz
<i>Frequency Range (-10 dB)</i>	59 Hz – 22 kHz
<i>Maximum SPL Long-term @ 1m</i>	118 dB
<i>Low-Frequency Crossover Type</i>	6 dB/octave, time offset corrected
<i>High-Frequency Crossover Type</i>	12 dB/octave
<i>Crossover Frequency</i>	1800Hz

## Audio

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<i>Input Type</i>	Speakon®-style 1/4-inch TS phone jack
<i>Input Impedance</i>	8 ohms
<i>Power Handling</i>	RMS: 200 watts Music: 350 watts Peak: 500 watts
<i>Operating Temperature Range</i>	-10°C to 45°C (14°F to 113°F)

## Transducer Specifications

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### Low-Frequency Transducer

<i>Diameter</i>	10 in/250 mm
<i>Voice Coil Diameter</i>	2.0 in/51 mm
<i>Sensitivity (1W@1m)</i>	96 dB
<i>Frequency Range</i>	59 Hz – 3000 Hz

### High-Frequency Driver and Horn

<i>Diaphragm Diameter</i>	1.4 in/36 mm
<i>Horn Exit Diameter</i>	1 in/24.5 mm
<i>Diaphragm Material</i>	Titanium
<i>Sensitivity (1W@1m)</i>	104 dB
<i>Frequency Range</i>	1000 Hz – 20,000 Hz
<i>Horn Type</i>	Composite: Exponential and Conical
<i>Mouth Size</i>	12 in/305 mm W x 7 in/178 mm H
<i>Horizontal Coverage</i>	90° (1 kHz – 20 kHz)
<i>Vertical Coverage</i>	80° (1 kHz – 20 kHz)

## Safety Features

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<i>Driver Protection</i>	Dynamic protection for compression driver
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## Construction Features

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<i>Basic Design</i>	Asymmetrical Trapezoidal
<i>Material</i>	Polypropylene
<i>Finish</i>	Grey, textured finish
<i>Handles</i>	One on left side, one on top
<i>Grille</i>	Perforated metal with weather-resistant coating

## Physical Properties

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<i>Height</i>	20.75 in/527 mm
<i>Width</i>	13.10 in/333 mm
<i>Depth</i>	12.25 in/311 mm
<i>Weight</i>	26.0 lb/11.8 kg
<i>Mounting Methods</i>	Optional accessory plates for top and bottom of enclosure

## Disclaimer

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Since we are always striving to make our products better by incorporating new and improved materials, components, and manufacturing methods, we reserve the right to change these specifications at any time without notice.

“Mackie” and the “Running Man” figure are registered trademarks of LOUD Technologies Inc.

All other brand names mentioned are trademarks or registered trademarks of their respective holders, and are hereby acknowledged.

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# MACKIE®

## C200 LIMITED WARRANTY

**Please keep your sales receipt in a safe place.**

**A.** LOUD Technologies warrants all materials, workmanship and proper operation of this C200 for a period of **two years** from the original date of purchase. If any defects are found in the materials or workmanship or if the product fails to function properly during the applicable warranty period, LOUD Technologies, at its option, will repair or replace the product. **This warranty applies only to equipment sold and delivered within the U.S. by LOUD Technologies or its authorized dealers.**

**B.** Failure to register online or return the product registration card will not void the two-year warranty.

**C.** Service and repairs of Mackie products are to be performed **only** at the factory (see D below) OR at an Authorized Mackie Service Center (see E below). Unauthorized service, repairs, or modification will void this warranty.

**D.** To obtain factory service:

1. Call LOUD Technologies at 800/898-3211, 7 AM to 5 PM Monday through Friday (Pacific Time) to get a Return Authorization (RA). Products returned without an RA number will be refused.

2. Pack the C200 in its original shipping carton. If you do not have the carton, just ask for one when you get your RA number, and we'll send a shipping carton out promptly. More information on packing can be found in the *Service* section of this manual. Do not use "packing peanuts," shredded newspapers, or other material with small particles to pack the product. Please seal the Mackie product in a plastic bag.

3. Also include a note explaining exactly how to duplicate the problem, a copy of the sales receipt with price and date showing, and your return street address (no P.O. boxes or route numbers, please!). If we cannot duplicate the problem or establish the starting date of your Limited Warranty, we may, at our option, charge for service time.

4. Ship the product in its original shipping carton, *freight prepaid* to:

**MACKIE  
SERVICE DEPARTMENT  
16220 Wood-Red Road NE  
Woodinville, WA, 98072, USA**

**IMPORTANT: Make sure that the RA number is plainly written on the shipping carton.**

**E.** To obtain service from an Authorized Mackie Service Center:

1. Call LOUD Technologies at 800/898-3211, 7 AM to 5 PM Monday through Friday (Pacific Time) to get: 1) The name and address of your nearest Authorized Mackie Service Center and 2) A return authorization (RA). You must have an RA number before taking your unit to a service center.

2. Make sure that you have a copy of your loudspeaker's sales receipt from the store where you bought the product. It is necessary to establish purchase date and thus determine whether or not your loudspeaker is still under warranty. If you can't find it, the Authorized Service Center may charge you for repairs even if your loudspeaker is still covered by the Two-Year Limited Warranty.

3. Make sure that the problem can be duplicated. If you bring your loudspeaker to an Authorized Service Center and they can't find anything wrong with it, you may be charged a service fee.

4. If the Authorized Mackie Service Center is located in another city, pack the loudspeaker in

its original shipping carton. More information on packing can be found in the *Service* section of this manual.

5. Contact the Authorized Mackie Service Center to arrange service or bring the active monitor to them.

**F.** LOUD Technologies and Authorized Mackie Service Centers reserve the right to inspect any products that may be the subject of any warranty claims before repair or replacement is carried out. LOUD Technologies and Authorized Mackie Service Centers may, at their option, require proof of the original date of purchase in the form of a dated copy of the original dealer's invoice or sales receipt. Final determination of warranty coverage lies solely with LOUD Technologies or its Authorized Service Centers.

**G.** Mackie loudspeakers returned to LOUD Technologies and deemed eligible for repair or replacement under the terms of this warranty will be repaired or replaced within thirty days of receipt by LOUD Technologies. LOUD Technologies may use refurbished parts for repair or replacement of any product. Products returned to LOUD Technologies that do not meet the terms of this Warranty will be repaired and returned C.O.D. with billing for labor, materials, return freight, and insurance. Products repaired under warranty at the factory will be returned freight prepaid by LOUD Technologies to any location within the boundaries of the USA.

**H.** LOUD Technologies warrants all repairs performed for 90 days or for the remainder of the warranty period. This warranty does not extend to damage resulting from improper installation, misuse, neglect or abuse, or to exterior appearance. This warranty is recognized only if the inspection seals and serial number on the unit have not been defaced or removed.

**I.** LOUD Technologies assumes no responsibility for the quality or timeliness of repairs performed by Authorized Mackie Service Centers.

**J.** This warranty is extended to the original purchaser and to anyone who may subsequently purchase this product within the applicable warranty period.

**K.** This is your sole warranty. LOUD Technologies does not authorize any third party, including any dealer or sales representative, to assume any liability on behalf of LOUD Technologies or to make any warranty for LOUD Technologies Inc.

**L.** THE WARRANTY GIVEN ON THIS PAGE IS THE SOLE WARRANTY GIVEN BY LOUD TECHNOLOGIES INC. AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE WARRANTY GIVEN ON THIS PAGE SHALL BE STRICTLY LIMITED IN DURATION TO TWO YEARS FROM THE DATE OF ORIGINAL PURCHASE FROM AN AUTHORIZED MACKIE DEALER. UPON EXPIRATION OF THE APPLICABLE WARRANTY PERIOD, LOUD TECHNOLOGIES INC. SHALL HAVE NO FURTHER WARRANTY OBLIGATION OF ANY KIND. LOUD TECHNOLOGIES INC. SHALL NOT BE LIABLE FOR ANY INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES THAT MAY RESULT FROM ANY DEFECT IN THE MACKIE PRODUCT OR ANY WARRANTY CLAIM. Some states do not allow exclusion or limitation of incidental, special, or consequential damages or a limitation on how long warranties last, so some of the above limitations and exclusions may not apply to you. This warranty provides specific legal rights and you may have other rights which vary from state to state.



**MACKIE.®**

**LOUD Technologies Inc.**

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Middle East and Africa: 31.20.654.4000

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