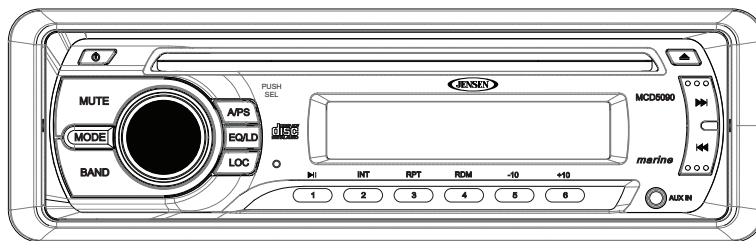# MCD5090

MARINE CD PLAYER / RECEIVER

Installation and Operation Manual

SAFETY INFORMATION

When Boating

Keep the volume level low enough to be aware of your surroundings.

Protect from Water

Do not expose the product directly to water, as this can cause electrical shorts, fire or other damage.

Protect from High Temperatures

Exposure to direct sunlight for an extended period of time can produce very high temperatures inside your vessel. Give the interior a chance to cool down before starting playback.

Do not mount radio within close proximity of engine compartment.

Use the Proper Power Supply

This product is designed to operate with a 12 volt DC negative ground battery system.

Protect the Disc Mechanism

Avoid inserting any foreign objects into the disc slot. Misuse may cause malfunction or permanent damage due to the precise mechanism of this unit.

CAUTION:

THIS MOBILE CD PLAYER IS A CLASS I LASER PRODUCT. THIS UNIT USES A VISIBLE/INVISIBLE LASER BEAM WHICH COULD CAUSE HAZARDOUS RADIATION IF EXPOSED DIRECTLY. BE SURE TO OPERATE THE MOBILE CD PLAYER AS INSTRUCTED.

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OR PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

DO NOT OPEN COVERS AND DO NOT REPAIR BY YOURSELF. PLEASE REFER SERVICING TO A QUALIFIED TECHNICIAN.

WARNING:

- TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.
- TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK AND ANNOYING INTERFERENCE, USE ONLY THE RECOMMENDED ACCESSORIES.
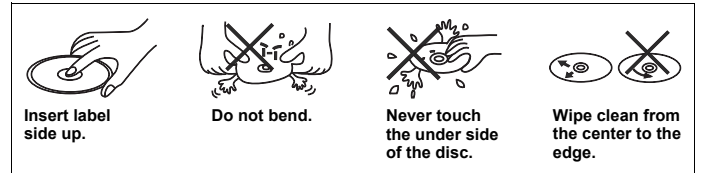
DISC NOTES

Compatible Disc Types

Table 1: General Disc Information

Disc Type	Logo	Diameter/ Playable Sides	Playback Time
Audio CD	COMPACT disc DIGITAL AUDIO COMPACT disc DIGITAL AUDIO RECORDABLE COMPACT disc DIGITAL AUDIO [REWRITABLE]	12 cm single side	74 minutes

NOTE: CD-R and CD-RW discs will not play unless the recording session is closed and the CD is finalized.

Disc Maintenance

- A dirty or defective disc may cause sound dropouts while playing. Before playing, wipe the disc using a clean cloth, working from the center hole towards the outside edge. Never use benzene, thinners, cleaning fluids, anti-static liquids or any other solvent.

Insert label side up.	Do not bend.	Never touch the under side of the disc.	Wipe clean from the center to the edge.

- Be sure to use only round CDs for this unit and do not use any special shape CDs. Use of special shape CDs may cause the unit to malfunction.
- Do not stick paper or tape on the disc. Do not use CDs with labels or stickers attached or that have sticky residue from removed stickers.
- Do not expose discs to direct sunlight or heat sources such as hot air-ducts, or leave them in a vessel parked in direct sunlight where there can be a considerable rise in temperature inside the vessel.

NOTE: A disc may become scratched (although not enough to make it unusable) depending on how you handle it and other conditions in the usage environment. These scratches are not an indication of a problem with the player.

INSTALLATION

Before You Begin

1. **Disconnect Battery**
   Before you begin, always disconnect the battery negative terminal.
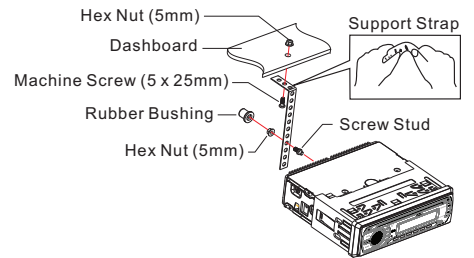2. **Remove Transport Screws**

Important Notes

- Before final installation, test the wiring connections to make sure the unit is connected properly and the system works.
- Use only the parts included with the unit to ensure proper installation. The use of unauthorized parts can cause malfunctions.
- Consult with your nearest dealer if installation requires the drilling of holes or other modifications to your vessel.
- Install the unit where it does not interfere with driving and cannot injure passengers if there is a sudden or emergency stop.
- If the installation angle exceeds 30º from horizontal, the unit might not give optimum performance.
- This unit is not waterproof and is intended for interior mounting applications only. Exterior mounting of the unit requires use of an ASA approved marine housing.
- Avoid installing the unit where it will be subject to high temperatures from direct sunlight, hot air, or from a heater, or where it would be subject to excessive dust, dirt or vibration.

DIN Front Mount

1. Slide the mounting sleeve off of the chassis if it has not already been removed. If it is locked into position, use the removal keys (supplied) to disengage it. The removal keys are depicted in "Removing the Unit" on page 3.
2. Check the dashboard opening size by sliding the mounting sleeve into it. If the opening is not large enough, carefully cut or file as necessary until the sleeve easily slides into the opening. Do not force the sleeve into the opening or cause it to bend or bow. Check that there will be sufficient space behind the dashboard for the radio chassis.
3. Locate the series of bend tabs along the top, bottom and sides of the mounting sleeve. With the sleeve fully inserted into the dashboard opening, bend as many of the tabs outward as necessary to firmly secure the sleeve to the dashboard.
4. Place the radio in front of the dashboard opening so the wiring can be brought through the mounting sleeve.
5. Follow the wiring diagram carefully and make certain all connections are secure and insulated with crimp connectors or electrical tape to ensure proper operation.
6. After completing the wiring connections, turn the unit on to confirm operation (vessel ignition switch must be on). If the unit does not operate, recheck all wiring until the problem is corrected. Once proper operation is achieved, turn the ignition switch off and proceed with final mounting of the chassis.


Dashboard

Bend Tabs
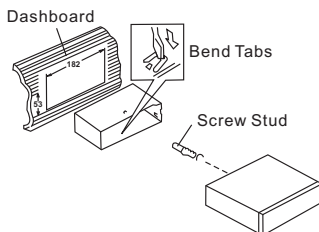
Screw Stud

7. Carefully slide the radio into the mounting sleeve making sure it is right-side-up until it is fully seated and the spring clips lock it into place.
8. Attach one end of the perforated support strap (supplied) to the screw stud on the rear of the chassis using the hex nut and spring washer provided. Fasten the other end of the perforated strap to a secure part of the dashboard either above or below the radio using the screw and plain washer provided. Bend the strap, as necessary, to position it.
   CAUTION: The rear of the radio must be supported with the strap to prevent damage to the dashboard from the weight of the radio or improper operation due to vibration.
9. Test radio operation by referring to the operating instructions for the unit.

Hex Nut (5mm)
Dashboard
Machine Screw (5 x 25mm)
Rubber Bushing
Hex Nut (5mm)
Support Strap
Screw Stud

Removing the Unit

To remove the radio after installation:

1. Insert fingers into the groove in the front of frame and pull out to remove the frame. (When re-attaching the frame, point the side with a groove downwards and re-attach.)
2. Insert the removal keys straight back until they click, and then pull the radio out. If removal keys are inserted at an angle, they will not lock properly to release the unit.
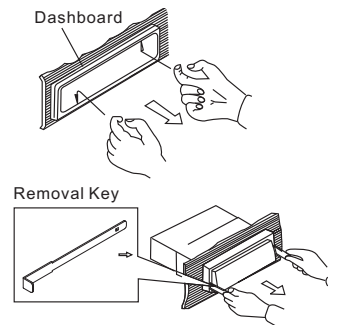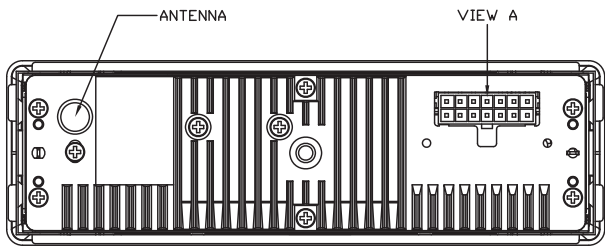
Trim Plate Installation

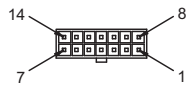Push the trim plate against the chassis until it is fitted.

Dashboard

Removal Key

Reconnect Battery

When wiring is complete, reconnect the battery negative terminal.

WIRING

ANTENNA

VIEW A

VIEW A-A
WIRE INSERTION VIEW

14 — 8

7 — 1

PIN NO.	WIRE COLOR	FUNCTION
1	RED	+12V DC SWITCHED (ACC)
2	GRAY	FRONT RIGHT SPEAKER (+)
3	GRAY/BLACK	FRONT RIGHT SPEAKER (-)
4	WHITE	FRONT LEFT SPEAKER (+)
5	WHITE/BLACK	FRONT LEFT SPEAKER (-)
6	ORANGE	DIMMER
7	EMPTY	NO CONNECTION
8	BLUE	AUTO ANTENNA OUTPUT
9	PURPLE/BLACK	REAR RIGHT SPEAKER (-)
10	PURPLE	REAR RIGHT SPEAKER (+)
11	GREEN/BLACK	REAR LEFT SPEAKER (-)
12	GREEN	REAR LEFT SPEAKER (+)
13	BLACK	GROUND
14	YELLOW	+12V DC BATTERY

+12V DC SWITCHED

FRONT-R SPEAKER(+)

FRONT-R SPEAKER(-)

FRONT-L SPEAKER(+)

FRONT-L SPEAKER(-)

DIMMER

AUTO ANTENNA OUTPUT

REAR-R SPEAKER(-)

REAR-R SPEAKER(+)

REAR-L SPEAKER(-)

REAR-L SPEAKER(+)

GROUND

+12V DC Battery

A

A

14-PIN CONNECTOR

10 AMP FUSE
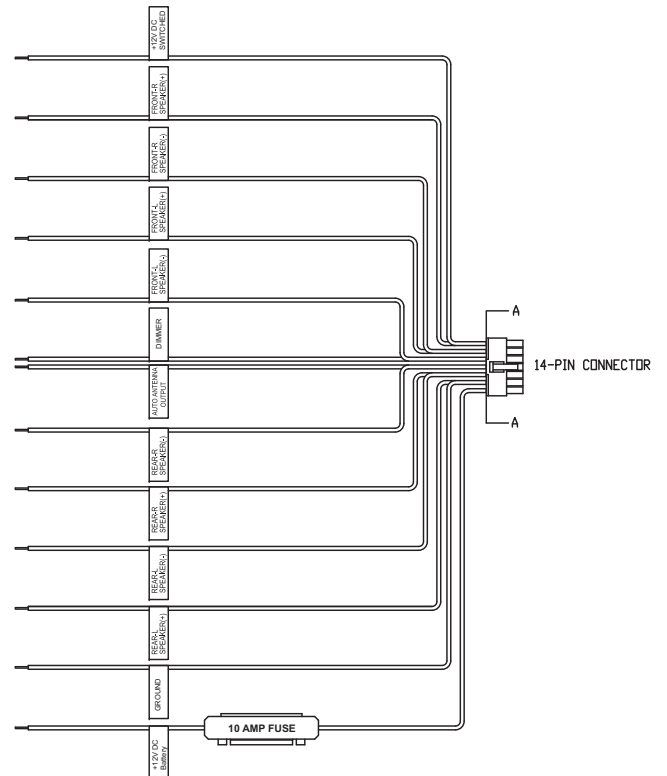
BASIC OPERATION
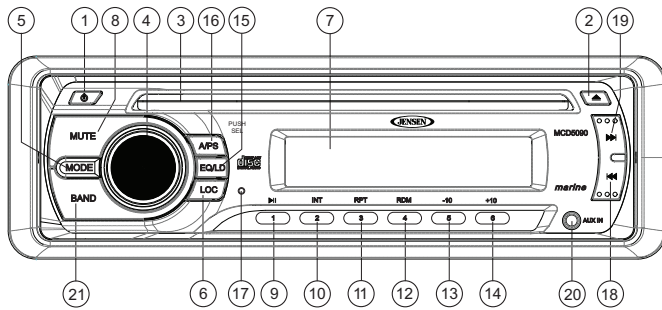
Power On/Off (⏻)

Press the ⏻ button (1) to turn the unit on or off.

Volume Control

To increase the volume, turn the audio control knob (4) clockwise.

To decrease the volume, turn the audio control knob counter clockwise. When the volume is adjusted, the volume level is shown on the display panel as a number ranging from "0" (lowest) to "63" (highest).

Mute

Press the **MUTE** button (8) to mute the audio output. "⊠ " will appear on the LCD panel (7). Press **MUTE** again to restore the audio output to the previous level.

Mode

Press the **MODE** button (5) to select a different mode of operation, as indicated on the LCD panel (7). Available modes include Tuner, CD, and AUX IN.

Equalizer (EQ)

The preset equalizer applies preset sound effects to the unit's audio output signal. To adjust the preset equalizer, press the **EQ/LD** button (15). Press repeatedly to choose between the following modes: OFF, POP, ROCK, CLAS.

Loudness (LD)

When listening to music at low volume levels, this feature will boost the bass and treble ranges to compensate for the characteristics of human hearing. *Press and hold* the **EQ/LD** button (15) to activate this feature. "LOUD" appears on the display panel. *Press and hold* the **EQ/LD** button again to turn the LOUD function off.

Auxiliary Input Operation

You can connect another audio/video system to the unit using the **AUX IN** input (20) on the front panel of the unit. Once the device is connected, press the **MODE** button (5) on the front panel to select "AUX" mode.

Audio Menu

Press the audio control **(PUSH SEL)** knob (4) to access the Audio Menu. You can navigate through the Audio Menu items by pressing the audio control knob repeatedly. Once the desired menu item appears on the display, adjust that option by turning the audio control knob within 10 seconds. The unit will automatically exit the Audio Menu after six seconds of inactivity. The following menu items can be adjusted.

Bass Level (BA)

Use the audio control knob to adjust the Bass level range from "-7" to "+7".

Treble Level (TR)

Use the audio control knob to adjust the Treble level range from "-7" to "+7".

Balance (BL)

Use the audio control knob to adjust the Balance between the right and left speakers from "R 9" (full right) to "L 9" (full left). "0" represents an equal balance between the right and left speakers.

Fader (FD)

Use the audio control knob to adjust the Fader between the front and rear speakers from "R 9" (full rear) to "F 9" (full front). "0" represents an equal balance between the front and rear speakers.

Clock Set

* In clock display mode, press the audio control **(PUSH SEL)** knob (4) for 2 seconds to enter clock adjustment mode.
* While the hour is flashing, turn the audio control knob (4) to adjust the value as follows:
  * USA Tuning Mode: 1-12
  * EURO Tuning Mode: 00 - 23
* Press the audio control **(PUSH SEL)** knob to confirm the hours.
* While the minutes are flashing, rotate the audio control knob to change the value (from 00 to 59).
* *Press and hold* the audio control **(PUSH SEL)** knob for 2 seconds to confirm the time and exit clock adjustment mode.

Reset

Use a pencil or any non-metallic object to *press and hold* the reset button (17) for five seconds to reset the main unit. The unit will return to the factory default settings.

TUNER OPERATION
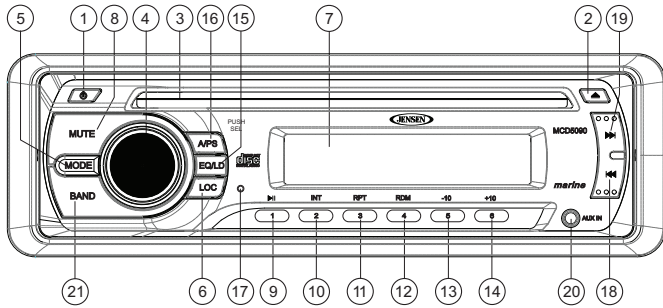
Select a Band

Press the **BAND** button (21) on the control panel to change between three FM bands and two AM bands. Each band stores up to six preset stations.

Tuning

Manual Tuning

Press the up **>>|** (19) or down **|<<** button (18) for less than one second to change the radio frequency number up or down one step.

Auto Seek Tuning

Press the up **>>|** (19) or down **|<<** button (18) for more than three seconds to move to the next station automatically.

Preset Stations

Six numbered preset buttons store and recall stations for each band.

Store a Station

Select a band (if needed), then select a station. *Press and hold* a preset button (9-14) for three seconds. The preset number will appear in the display.

Recall a Station

Select a band (if needed). Press a preset button (9-14) to select the corresponding stored station.

Automatically Store / Preset Scan

Automatically Store

Select a band (if needed). Press the **A/PS** button (16) for more than three seconds to automatically select six strong stations and store them in the current band. The new stations replace any stations already stored in that band.

Preset Scan

Select a band (if needed). Press the **A/PS** button (16) to scan stations stored in the current band. The unit will pause for eight seconds at each preset station. Press **A/PS** again to stop scanning when the desired station is reached.

Stereo

The unit will automatically pick up a stereo signal, when available. When in stereo mode, the "⦿" icon appears in the display. When no stereo signal is available, the unit will automatically revert to mono operation, and no icon will be displayed.

Local/Distant (LOC)

Press the **LOC** button (6) to choose between Local (LOC) or Distance (DX) mode. This feature is used to designate the strength of the signals at which the radio will stop during automatic tuning. "Distance" is the default setting, allowing the radio to stop at a broader range of signals. To set the unit to select only strong local stations during automatic tuning, press the **LOC** button until "LOC" appears in the display.
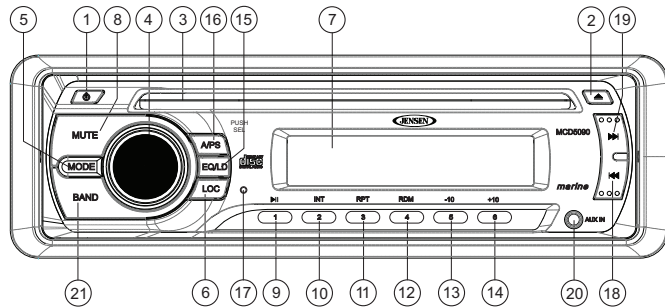
USA/EURO Tuning

Use the **BAND** button (21) switch between USA and European broadcast tuning.

1. Turn the vessel ACC on and the radio off.
2. *Press and hold* the **BAND** button for 5 seconds.

The LCD will display either "USA" or "EUR" as the new tuning region.

CD OPERATION

Insert and Eject Disc

Insert a disc, label-side up, with the unit turned on. "Cd" will display on the LCD (7) and then unit will play the first track on the disc. Press the eject ⏏ button (2) to stop disc play and eject the disc. The unit does not have to be turned on to eject the disc.

NOTE: If powered off, the unit will automatically power on when a CD is inserted.

Controlling Disc Playback

Track Select
•   Press the **>>|** (19) or **|<<** button (18) for less than one second to advance to the next track on the CD. CD play begins when the button is released.
•   Press the **-10** button (13) to skip ten tracks backward.
•   Press the **+10** button (14) to skip ten tracks forward.
•   *Press and hold* the **>|| 1** button (9) to begin playback from the first track on the disc.
•   *Press and hold* the **>>|** (19) or **|<<** button (18) for >2 seconds to fast forward or fast reverse through the disc.

Play/Pause Disc Playback (>|| 1)

Press the **>|| 1** button (9) to suspend disc play. Press the **>|| 1** button again to resume disc Play.

Intro Scan (INT 2)

Press the **INT 2** button (10) on the control panel to play the first 10 seconds of each track sequentially. Press **INT 2** again to stop Intro Scan and resume normal play at the current track.

Repeat Play (RPT 3)

Press the **RPT 3** button (11) during disc play to repeat play the current track. Press **RPT 3** again to stop repeat play.

Random Play (RDM 4)

Press the **RDM 4** button (12) on the control panel during disc play to play all tracks on a CD in random, shuffled order. Press **RDM 4** again to stop random play.

SPECIFICATIONS

CD
Signal to Noise Ratio. . . . . ≥ 70dB
Sampling Frequency 44.1Khz
Quantization Bits . . . . .1 bit
Frequency 5-20,000Hz
Channels . . . . 2 Channel (Stereo)

FM Radio
USA Frequency Range 87.5-107.9MHz
EURO Frequency Range 87.50-108.00MHz
Usable Sensitivity . . . . ≤ 15dB at S/N 30dB
Stereo Separation . . . .   25dB at 1KHz
S/N Ratio. 50dB

AM/MW
USA Frequency Range 530-1710KHz
EURO Frequency Range 522-1620KHz
Usable Sensitivity . . . . ≤ 45dB
S/N Ratio. 40dB

General
Operating Voltage . . . . DC 11 -14.4
Grounding System . . . . Negative Ground
Speaker Impedance . . . . 4 ohms
Power Output . . . . 40W x 4

TROUBLESHOOTING

Symptom	Cause	Solution
No power	The vessel's ignition is not on	If the power supply is properly connected to the vessel accessory terminal, switch the ignition key to "ACC".
	The fuse is blown	Replace the fuse.
Disc cannot be loaded or ejected	Presence of CD disc inside the player	Remove the disc in the player and insert the new one.
	Inserting the disc in reverse direction	Insert the compact disc with the label facing upward.
	Compact disc is extremely dirty or disc is defective	Clean the disc or try to play a new one.
	Temperature inside the vessel is too high	Wait until the ambient temperature returns to normal.
	Condensation	Leave the player off for an hour or so, then try again.
No sound	Volume is too low	Adjust volume to audible level.
	Wiring is not properly connected.	Check wiring connections.
The operation keys do not work	The built-in microcomputer is not operating properly due to noise	Press the reset button (17).
Sound skips	The installation angle is more than 30 degrees.	Adjust the installation angle to less than 30 degrees.
	The disc is dirty or defective.	Clean the disc and try to play again or use new disc.
Cannot tune to radio station, auto-seek does not work	The antenna cable is not connected.	Insert the antenna cable firmly.
	The signals are too weak.	Select a station manually.
ERROR 1	Mechanism Error	Press the eject button to correct the problem. If the error code does not disappear, consult your nearest service dealer.
ERROR 2	Servo Error	Press the eject button to correct the problem. If the error code does not disappear, consult your nearest service dealer.