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

<table>
<thead>
<tr>
<th>Disc Type</th>
<th>Logo</th>
<th>Diameter/Playable Sides</th>
<th>Playback Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio CD</td>
<td>![Logo]</td>
<td>12 cm single side</td>
<td>74 minutes</td>
</tr>
</tbody>
</table>

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.

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.

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.

Reconnect Battery
When wiring is complete, reconnect the battery negative terminal.
WIRING

<table>
<thead>
<tr>
<th>PIN NO.</th>
<th>WIRE COLOR</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RED</td>
<td>+12V DC SWITCHED (ACC)</td>
</tr>
<tr>
<td>2</td>
<td>GRAY</td>
<td>FRONT RIGHT SPEAKER (+)</td>
</tr>
<tr>
<td>3</td>
<td>GRAY/BLACK</td>
<td>FRONT RIGHT SPEAKER (-)</td>
</tr>
<tr>
<td>4</td>
<td>WHITE</td>
<td>FRONT LEFT SPEAKER (+)</td>
</tr>
<tr>
<td>5</td>
<td>WHITE/BLACK</td>
<td>FRONT LEFT SPEAKER (-)</td>
</tr>
<tr>
<td>6</td>
<td>ORANGE</td>
<td>DIMMER</td>
</tr>
<tr>
<td>7</td>
<td>EMPTY</td>
<td>NO CONNECTION</td>
</tr>
<tr>
<td>8</td>
<td>BLUE</td>
<td>AUTO ANTENNA OUTPUT</td>
</tr>
<tr>
<td>9</td>
<td>PURPLE/BLACK</td>
<td>REAR RIGHT SPEAKER (-)</td>
</tr>
<tr>
<td>10</td>
<td>PURPLE</td>
<td>REAR RIGHT SPEAKER (+)</td>
</tr>
<tr>
<td>11</td>
<td>GREEN/BLACK</td>
<td>REAR LEFT SPEAKER (-)</td>
</tr>
<tr>
<td>12</td>
<td>GREEN</td>
<td>REAR LEFT SPEAKER (+)</td>
</tr>
<tr>
<td>13</td>
<td>BLACK</td>
<td>GROUND</td>
</tr>
<tr>
<td>14</td>
<td>YELLOW</td>
<td>+12V DC BATTERY</td>
</tr>
</tbody>
</table>
**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 counterclockwise. 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). “O” 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). “O” 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 \( \gg \) or down \( \ll \) button (18) for less than one second to change the radio frequency number up or down one step.

Auto Seek Tuning
Press the up \( \gg \) or down \( \ll \) 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 “\( \bigcirc \)” 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 >>1 button (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 >>1 (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: ≤ 45dB

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

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# TROUBLESHOOTING

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