

BOSS[®]
AUDIO SYSTEMS

FULLY
MANAGED

 Bluetooth[®]

MGV500B

USER MANUAL

QUICK INSTALLATION GUIDE

BLUETOOTH[®] | (AUDIO STREAMING)

MARINE GAUGE DIGITAL MEDIA AM/FM RECEIVER



Thank you for purchasing this **BOSS**
AUDIO SYSTEMS marine gauge radio!

Please read the instructions carefully, so you will know how to operate your product properly. After you have finished reading the instructions, keep this document in a safe place for future reference.

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Important

Read and understand all instructions before you use your product. If you do not follow the instructions in this manual, we are not responsible for injury or damage resulting from improper handling. This will also void the warranty.

Important safety precautions

- **Be sure to observe the following guidelines:**
 - Do not increase speaker volume so high that you cannot hear what is around you.
 - Use caution or temporarily discontinue use in potentially hazardous situations.
- Do not operate mobile video equipment while driving a motorized vehicle – safe driving and safety consideration of others should always be your highest priority.
- Start volume at a low setting then gradually increase the volume until you can hear it comfortably, without sound distortion or ear discomfort.
- In the event of smoke, strange noise or odor emitted from the product or any other abnormal operational signs appearing on the product, disconnect the product from the power supply. Discontinue use and contact your dealer or our technical support. Using the product in this condition may result in permanent damage to the system.
- Servicing must only be carried out by a technician. Contact our technical support for any service question.

Installation precautions

- **WARNING: Always consult a professional installer.**
- Installation must be performed by a professional. Contact our technical support for any installation question.
- Use only installation parts provided with the product.
- Before installation, disconnect the negative terminal of the vehicle battery to prevent damage to the product, fire, and/or possible injury.
- If extending the power cable which connects to the vehicle battery, we recommend to run the extended cable to the battery through a fuse box (not included) with at least 15A.
- Ground cable should be as short as possible. Connect the ground cable to metal parts of your vehicle, or to the battery if your vehicle does not have a grounded chassis frame.
Make sure the metal surface to which the ground cable connects is scraped clean from rust and dirt. The ground cable must be firmly fastened with a screw or bolt. If extending the ground cable, make sure to use a high quality cable with proper gauge rating.
- Replace the old fuse with the new one of the same rating.

- Observe the safety and operating instructions of the devices which are connected to the product.

Care for your product

- Do not use abrasive cleaning materials on the display or bezel.
- This product is water resistant against splashing water. Do not submerge the product in water under any circumstances.

Care of the environment

Please inform yourself about the local separate collection system for electrical and electronic products. Do not throw away the product with the normal household waste at the end of its life, but hand it in at an official collection point for recycling. By doing this, you help to preserve the environment.

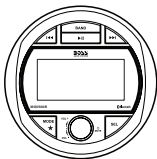
Introduction

The product is designed as a marine gauge radio with an integrated four-channel amplifier. You can stream audio from a mobile phone to this product via Bluetooth. You can also play music/movie/photo files stored in a USB flash drive, and music from an external device (e.g. a CD player) can be played via RCA inputs.

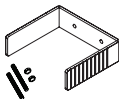
The product has NOAA weather band radio (WB) for emergency weather broadcast. Radio and sound presets are retained when the battery is disconnected or the power is lost.

Audio can be output to an external amplifier or powered speakers via RCA outputs.

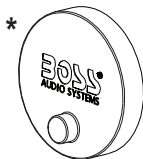
Package Contents



Marine gauge radio



Mounting kit



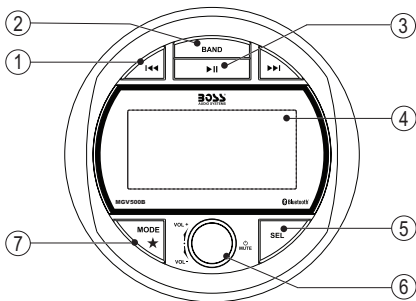
Rubber cover



User manual & warranty card

- * The rubber cover is designed to protect the unit's control panel against the harsh marine environment, and additionally against UV exposure, water ingress and abrasion.

Control Panel



1 |◀◀▶▶|

- During media playback, select the previous/next media file; hold down to fast search.
- In radio mode, tune to a radio station; hold down to enter manual tuning mode.

2 BAND

- During media playback, press to access or exit media files/folders; hold down to activate setting of repeat or shuffle play mode.
- In radio mode, select a radio band (FM1/FM2/FM3/AM1/AM2/WB); hold down to auto search and store radio stations in FM, AM or WB band.

3 ▶||

- During media playback, start, pause or resume play.
- In radio mode, select a preset radio station; hold down to activate program mode.

4 LCD display

5 SEL

- Press to access audio setup options; hold down to access preference setup options; navigation setup options, or confirm a selection.

6 Function knob

- Press to turn the unit on; hold down to turn the unit off.
- In power on mode, press to mute or restore volume.
- Rotate to adjust volume, or to select menu options/setting values.

7 MODE / ★

- Access mode options bars. Hold down to turn on or off external accessory power.

Mounting On Dashboard

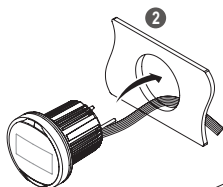
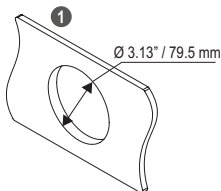


See the section "Installation precautions" on page 2.

Use only installation parts provided with the product. Using other mounting methods may void the warranty.

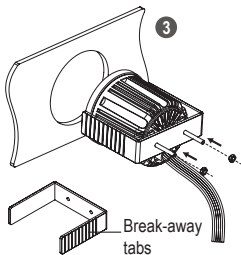
Before you drill or cut any holes, investigate your vessel's layout very carefully. Take special care when you work near the gas tank, fuel lines, hydraulic lines and electrical wiring.

1. Cut a mounting hole (Φ 3.13" / 79.5 mm) in the dashboard.
2. Slip the unit through the mounting hole in the dashboard.



3. Fasten the unit to the dashboard with the supplied U-bracket and two bolts and nuts.

If needed, remove one or more break-away tabs on the U-bracket to shorten the bracket for firm fastening to the dashboard.



Wiring



See the section "Installation precautions" on page 2.

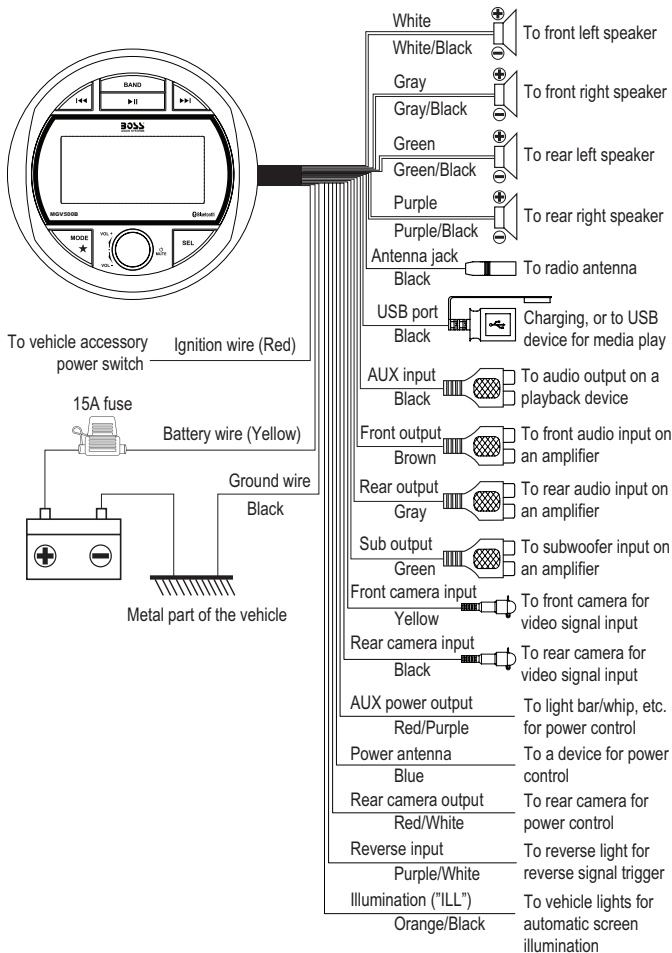
Disconnect the negative terminal of the vehicle battery prior to wiring.

Connect the unit to a 12V DC battery and negative ground only.

Connect speaker wires to speakers with 4 - 8 Ω .

Never ground or short the speaker wires.

Insulate all bare wires and unconnected wires with electrical tape.



Power On/Standby

- To switch the unit on, press briefly the function knob.
 - When switched on, the unit switches to the last selected source and the button backlights are illuminated.
- To switch the unit to standby, press and hold the function knob.
 - When switched to standby, clock is displayed and the button backlights are off.

Set Clock

1. In power on mode, press and hold **SEL** to display the preference setup options.
2. When the setup option is displayed, press briefly and repeatedly **SEL** until the "Time" option is displayed. Set the hour and minutes as follows.
 - a. When hour digits are highlighted, rotate the function knob to set the hour.
 - b. Press **SEL** to confirm. Minute digits are highlighted.
 - c. When minute digits are highlighted, rotate the function knob to set the minute.
 - d. Press **SEL** to confirm.
3. When 12/24 hour format option is displayed, rotate the function knob to select 12 or 24 hour format. After three seconds of button inactivity, the setup automatically exits and the clock is set.

Adjust/Mute Volume

- To increase or decrease volume, rotate the function knob.
- To mute or restore volume, press briefly the function knob.

Reset The Unit

If the unit fails to operate properly, reset the unit. After resetting, all the settings will restore to the default.

1. In power on mode, press and hold **SEL** to display the preference setup options.
2. When the setup option is displayed, press briefly and repeatedly **SEL** until the "RESET" option is displayed.
3. Press the function knob to confirm the reset option. After resetting, the unit will automatically switch to standby.


Listen To Radio

You can listen to FM, WB (Weather Band radio) and AM radio, and store the radio stations. The stored radio stations will be retained if the unit is disconnected from the vehicle's battery.

Select A Radio Band

1. Press **MODE** to access the mode options. The mode options bar is displayed.
2. When the options bar is displayed, rotate the function knob to select "FM", "WB" or "AM".
3. Press the function knob or **SEL** to confirm selection.
 - The radio broadcast interface is displayed. The options bar will exit after three seconds of button inactivity.
- In radio mode, press **BAND** repeatedly to select FM1, FM2, FM3, WB, AM1 or AM2.

Tune To A Radio Station

1. Select a radio band.
2. Press **I◀◀/▶▶I** briefly. The unit will find a station with strong reception.
 - While searching a radio station, "SEEK" is displayed. If an FM radio station with stereo signal is reached, the  icon will be displayed.
3. Repeat the steps above until you find your desired station.

To tune to a weak station

1. Press and hold **I◀◀/▶▶I** to enter manual tuning mode. "MANUAL SEEK" is displayed.
2. Press **I◀◀/▶▶I** repeatedly to search by frequency step until you find a desired station with acceptable reception.
 - NOTE: Manual tuning mode will automatically exit after three seconds of button inactivity, and "MANUAL SEEK" disappears from the display.

Store Radio Stations Automatically

Each radio band (FM1/FM2/FM3/AM1/AM2/WB) can store six radio stations.

1. In radio mode, press **BAND** to select an FM, AM or WB band.
2. Press and hold **BAND** for two seconds to start searching radio stations.
 - All FM, AM or WB stations will be searched and stored in FM, AM or WB bands.
 - The stored radio stations will be displayed in the radio list on the display.
 - After all the radio stations are stored, each stored station will automatically broadcast for three seconds and "INTRO" will be displayed.


Store Radio Stations Manually

Each radio band (FM1/FM2/FM3/AM1/AM2/WB) can store six radio stations.

1. Select a radio band and tune to a radio station.
2. Press and hold **▶||** for two seconds to activate program mode.
3. When "SAVE P1" is displayed, rotate the function knob to allocate a number (1-6) to this radio station. Then press **SEL** to confirm selection.
 - The preset radio station will be displayed in the allocated position of the radio list on the display.
 - If there are three seconds of button inactivity, program mode will automatically exit without programming the radio station.
4. Repeat the steps above to store more radio stations.

Select A Stored Radio Station

Each radio band (FM1/FM2/FM3/AM1/AM2/WB) can store six radio stations.


1. Select a radio band.
2. Press **▶||** briefly to select a stored radio station from the radio list on the display.
 - If an FM radio station is broadcast with stereo, the  icon is displayed.

Bluetooth Streaming

Pair With A Mobile Phone

Before you can stream music from your mobile device to the unit, you must pair the unit with your mobile device through Bluetooth.

1. Switch the unit to Bluetooth mode.
 - a. Press **MODE** to access the mode options.
 - b. When the options bar is displayed, rotate the function knob to select "Bluetooth" and press the function knob or **SEL** to confirm selection.
2. On your mobile device, enable Bluetooth then select "BOSS AUDIO MGV500B" to pair the unit with your mobile device. If prompted for password, input "0000" on your mobile device.

- When the unit connects to your mobile device, the  icon is displayed.
- The unit automatically connects the last paired device each time the two are powered on. To connect a second Bluetooth device, you have to disconnect the currently connected device then repeat the steps above to pair with a second device.

Playback Control Through Bluetooth

1. When the unit connects to your mobile device, you can then play audio files from your mobile device. Music will be streamed to the unit.
 - For best sound performance, set the volume of your mobile device to maximum, then adjust the volume through volume control on the unit.
 - NOTE: If there is distortion heard, you may need to turn the volume of the mobile device down a level or two.
2. Control playback as follows.
 - To pause or resume playback, press **▶||**.
 - To select the previous or next music file, press **◀◀/▶▶**.
 - During playback, the display shows the music title and artist.
 - If there is an incoming call during playback, the music will automatically pause and resume after the call ends.

Music/Movie/Photo From USB

This unit can play music, movie and photo files stored in a USB flash drive.

Select Music/Video/Picture Mode

1. Insert a USB storage device to the USB port on the unit.
2. The unit will automatically switch to USB mode. The first music file from the USB device will play automatically.

To switch to Movie or Photo mode, press **MODE** to display the mode options bar. Rotate the function knob to select "Movie" or "Photo" then press the function knob or **SEL** to confirm selection.

- If Movie mode is selected, a movie file will automatically play. If Photo mode is selected, photo slideshow will automatically play.
- If a USB flash drive is not inserted or has no playable media, Music/Movie/Photo mode can not be selected.

Access Music/Video/Photo Folders

1. During music/video/photo playback, press briefly **BAND**.
 - Playback stops and the files/folders are displayed.
2. Rotate the function knob to select a file or folder.
 - To access the selected folder, press **SEL**.
 - To play the selected file, press **SEL**.
 - To return to the previous folder level, press briefly **BAND**.

Music Playback

- To pause or resume playback, press **▶II**.
- To select the previous/next music file, press **I◀◀/▶▶I**.
- To search fast backward or forward, press and hold **I◀◀/▶▶I**.

To select a play mode

1. Press and hold **BAND** to display play mode options.
2. Rotate the function knob to select a play mode, and press **SEL** to confirm selection.
 - RPT ALL: Plays all the tracks repeatedly. **⇒** is displayed.
 - RPT ONE: Plays the current track repeatedly. **1** is displayed.
 - RDM ON: Plays all the tracks randomly. **∞** is displayed.

Movie Playback

- To pause or resume playback, press **▶II**.
- To select the previous/next movie file, press **I◀◀/▶▶I**.
- To search fast backward or forward, press and hold **I◀◀/▶▶I**.

Photo Slideshow

- To pause or resume slideshow, press **▶II**.
- To select a photo, press **▶II** to pause slideshow then press **I◀◀/▶▶I**.

AUX

You can play audio from a playback device (e.g. CD/DVD player or VCR).

1. Using an audio cable with RCA plugs (not included), connect a playback device with RCA audio outputs to the RCA audio inputs marked "AUX INPUT" on the unit.
2. Switch the unit to AUX IN mode.
 - a. Press **MODE** to access the mode options.
 - b. When the options bar is displayed, rotate the function knob to select "AUX IN" and press the function knob or **SEL** to confirm.
3. Start playback on the connected device and audio will play through the unit.
 - For best sound performance, set the volume of the connected device to maximum.
 - NOTE: If there is distortion heard, you may need to turn the volume of the connected device down a level or two.



Output Audio

You can output audio from the unit to an external amplifier or powered speakers.

1. Using audio cables with RCA plugs (not included), connect the RCA audio outputs marked "FRONT OUTPUT", "REAR OUTPUT" and "SUB OUTPUT" on the unit to the corresponding RCA audio inputs on an amplifier or powered speakers.
2. Start playback on the unit and audio will be output to the connected device.

Accessory Power Control

The unit comes with an accessory power switch which can turn on or off a connected accessory (not included, e.g. a light bar or LED whip).

1. Connect the red/purple wire (marked "AUX POWER") from the unit to an accessory.
2. When the unit is powered on, press and hold  on the control panel to turn on or off the connected accessory.
 - When accessory power is on, the  icon is displayed in the top right corner of the screen.

Screen Illumination Control

The unit comes with an illumination wire which is used for screen illumination control.

1. Connect the orange/black wire (marked "ILL") from the unit to your vehicle lights. When the vehicle lights are on, the unit's screen will be automatically illuminated.

Use Front/Rear Camera

WARNING: Never rely solely on the rear view camera when reversing your vehicle. Always check your surroundings before reversing your vehicle.

1. Connect a front/rear camera (not included) to the unit. See the installation manual of your camera for more details.
 - **Video signal input**
 - Display live view from the front camera using the "FRONT CAMERA INPUT" wire.
 - Display live view from the rear camera using the "REAR CAMERA INPUT" wire.
 - **Power supply to the camera**
 - Power the front camera using the "POWER ANTENNA" wire.
 - Power the rear camera using the "REAR CAMERA" wire.
 - **Reverse trigger signal**
 - Switch on the camera only when the vehicle is put in reverse gear, when using the "REVERSE INPUT" wire.
2. Switch the unit to front or rear camera mode.
 - a. Press **MODE** to access the mode options.
 - b. When the options bar is displayed, rotate the function knob to select "F-CAM" (front camera) or "R-CAM" (rear camera) and press the function knob or **SEL** to confirm.

Audio Settings

This section helps you change the sound settings of this unit.

1. In power on mode, press briefly **SEL** to access the audio setup options.
2. When a menu option is displayed, rotate the function knob to adjust values or settings. The settings will be made after three seconds of button inactivity, then the menu option will automatically exit.

- **BAS**: Change output level for bass sound.
- **TRE**: Change output level for treble sound.
- **BAL**: Adjust left-to-right speaker output balance.
- **FAD**: Adjust front-to-rear speaker output balance.
- **EQ**: Select a preset sound mode (a preset equalizer setting): FLAT, JAZZ, POP, ROCK, CLASS, or EQ OFF.
- **LOUD ON/OFF**: Enable or disable loudness function. Enabling will boost output level of low and high frequencies.
- **BEEP ON/OFF**: Enable or disable beep tone every time you press a button.
- **Radio Area**: Select the region (America or Europe) you are in to receive radio signal.

Preference Settings

This section helps you change the preference settings of this unit.

1. In power on mode, press and hold **SEL** to access the preference setup options.
2. When a menu option is displayed, rotate the function knob to adjust values or settings. The settings will be made after three seconds of button inactivity, then the menu option will automatically exit.
 - **Sub vol**: Change output level of the subwoofer (available only when the subwoofer cutoff frequency is not set "OFF").
 - **Sub freq**: Select a cutoff frequency for the subwoofer (80Hz, 120Hz, 160Hz, OFF).
 - **Time**: Set minutes and hours.
 - **Time mode**: Select 12 or 24 time format.
 - **Brightness**: Adjust screen brightness.
 - **Contrast**: Adjust screen contrast in lights and darks.
 - **Hue**: Adjust color saturation
 - **Language**: Select a menu language (English or Spanish).
 - **RESET**: Reset to the factory settings. All the settings will restore to the default.
 - **VERSION**: Display the current hardware and software version of the unit.

Specifications

Audio

Max output power.....	60 W x 4
Speaker impedance.....	4 - 8 Ω
Frequency response.....	20 Hz-20 kHz
Signal-to-noise ratio.....	>65 dB
RCA input sensitivity.....	500 mV
Pre-amp outputs.....	Full range for front, rear, and subwoofer (mono)

FM Tuner

Frequency range	87.5 – 107.9 MHz (USA) 87.5 – 108 MHz (Europe)
Frequency step.....	200 kHz (USA) 50 kHz (Europe)
Usable sensitivity.....	4 μ V (S/N=30dB)
Stereo separation	>25 dB

AM Tuner

Frequency range	530 – 1710 kHz (USA) 522 – 1620 kHz (Europe)
Frequency step.....	10 kHz (USA) 9 kHz (Europe)
Usable sensitivity.....	36 dB μ V (S/N=20dB)

WB Tuner

Frequency range	162.400 – 162.550 MHz (NOAA)
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Bluetooth

Bluetooth version.....	4.2
Bluetooth profiles.....	A2DP, AVRCP
Bluetooth frequency.....	2402 - 2480 MHz
Transmission power.....	<4 dBm
Transmission distance.....	Up to 33 ft /10 m (line of sight)

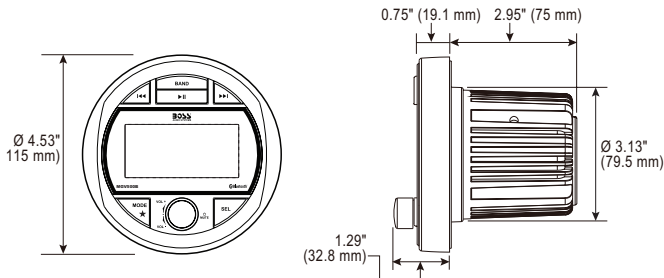
USB

Compatibility	Type A, USB 2.0 (High-Speed)
File system	FAT32
USB charging	5V DC, 1A (not for mobile device playback)
Audio playback	MP3, WMA

General

Power supply	12V DC
Current consumption	max 10A
Fuse	ATO type, 15A
Screen	3" TFT LCD color display
Ingress protection	IPX5 (water resistant / dustproof)
Operating temperature	-4 to 140°F / -20 to 60°C
Storage temperature	-4 to 158°F / -20 to 70°C
Unit weight	0.61 kg / 1.34 lbs

Dimension Drawings



Specifications are subject to change without notice.

Troubleshooting

If you have problems using this product, check the following points before you request service. If you still have a problem, contact our technical support.

Problem	Solution
No power	The fuse is blown. Replace with a new fuse with the same type and rating.
	The accessory switch of the vehicle is not engaged. Turn the accessory switch on.
No sound	Volume is muted or playback is paused. Adjust volume or check playback status.
	Incorrect source input. Press MODE to select the correct source.
Poor radio reception	Make sure an antenna is connected to the unit.
	Fine tune the radio station (see "Tune to a radio station" on page 8).
USB not playable	Files are not playable, or the USB device is not compatible with the unit.
Cannot connect through Bluetooth	Bluetooth function on the device is disabled. Enable the device's Bluetooth.
	Make sure the device is within Bluetooth range.
	The unit is already connected with another Bluetooth device. Disconnect the current Bluetooth connection.
Audio quality from Bluetooth connection is poor.	Move the device closer to the unit, or remove obstacles or sources of interference that are affecting Bluetooth reception
No response	Reset the unit (see "Reset The Unit" on page 7).

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AUDIO SYSTEMS



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