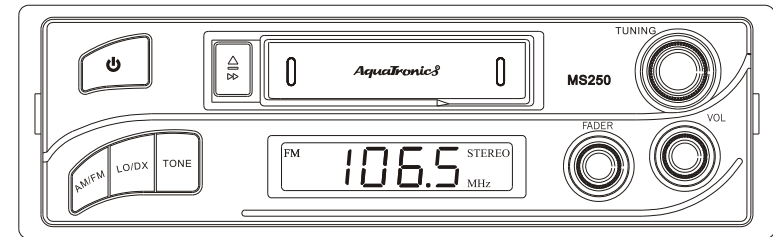


# Owner's Manual

**AquaTronics®**

**MS250**



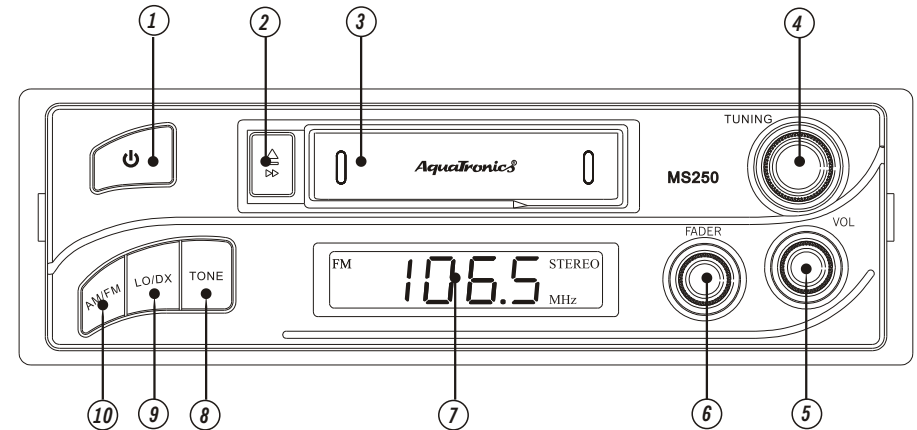
**AM/FM STEREO RADIO  
WITH AUTO STOP CASSETTE PLAYER**

**ASA**  
The Mobile Electronics Company  
**AUDIOVOX SPECIALIZED APPLICATIONS, LLC**  
[www.asaelectronics.com](http://www.asaelectronics.com)

**Designed Specifically for the  
Marine and RV Environment**

## FACEPLATE CONTROLS DIAGRAM

(Figure 1)



### 1 POWER BUTTON

Press it to turn the unit ON or OFF

### 2 EJECT BUTTON

Press this button in half way to fast-forward the tape, and fully in to eject the tape.

### 3 TAPE DOOR

### 4 TUNING KNOB

Rotate the knob to tune the desired broadcast frequency.

### 5 VOLUME KNOB

Rotate the knob to increase or decrease the volume level.

### 6 FADER KNOB

Rotate this knob to left or right for desired sound balance from front to rear speakers.

### 7 DISPLAY

### 8 TONE BUTTON

Press this button to adjust for high or low tone.

### 9 LO/DX BUTTON

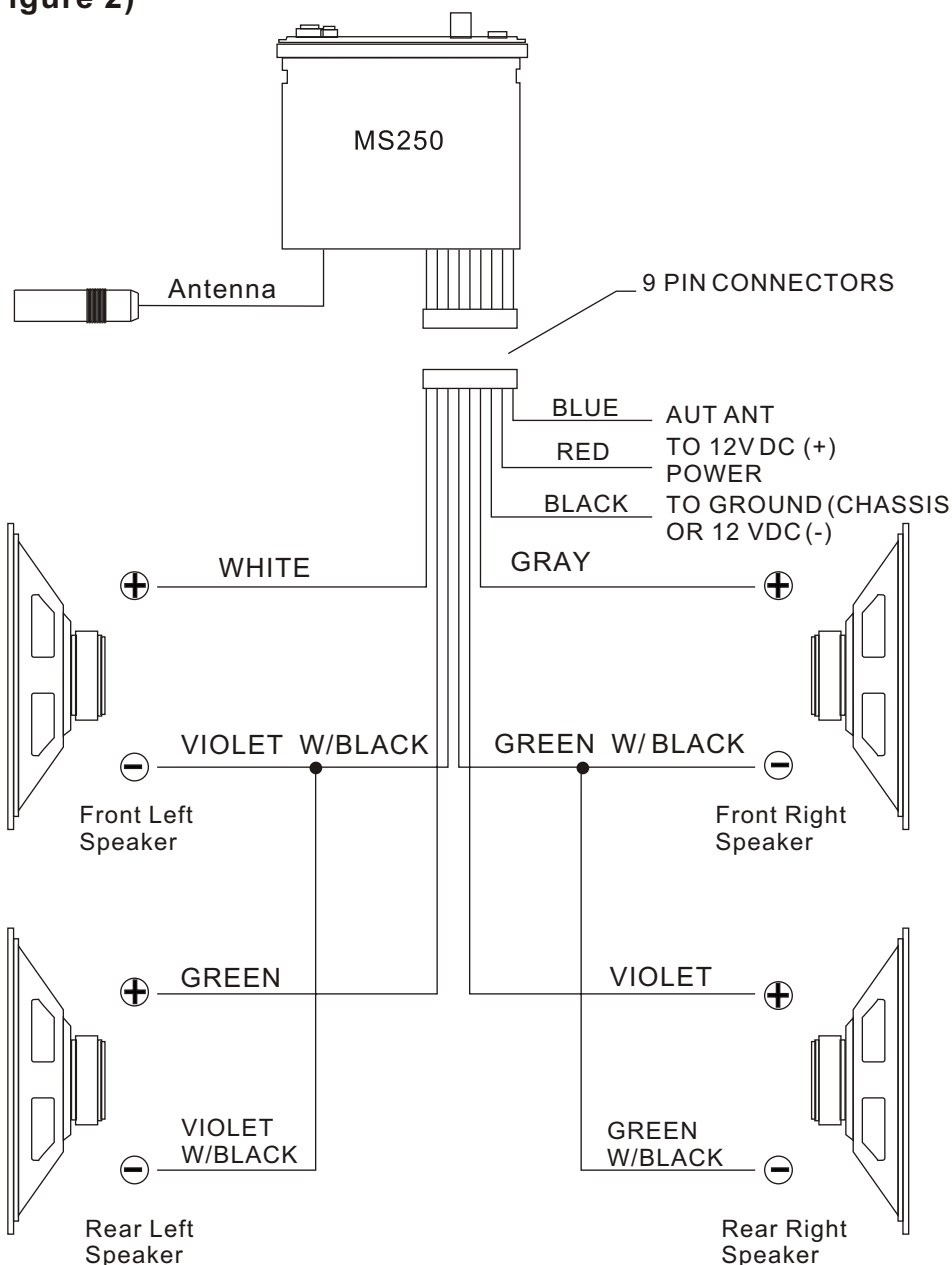
Press this button to change between local(LO) and distant(DX) reception. In some cases, changing the LO/DX setting will allow clearer reception of a desired station.

### 10 AM/FM BUTTON

Press this button to change AM or FM band.

## WIRING DIAGRAM

(Figure 2)



AUDIOVOX SPECIALIZED APPLICATIONS, L.L.C.

### 90 DAY/12 MONTH LIMITED WARRANTY

AUDIOVOX SPECIALIZED APPLICATION, LLC (the company) warrants to the original retail purchaser of this product that should this product or any part thereof, under normal use and conditions, be proven defective in material or workmanship within 90 days from the date of original purchase, such defect(s) will be repaired or replaced (at the company's option) without charge for parts and repair labor. After the initial 90 day period and for a period of 12 months from the date of original purchase, the Company will supply at no charge a replacement for any defective part(s), but will charge for the labor to repair the product.

To obtain repair or replacement within the terms of this warranty, the product is to be delivered with proof of warranty coverage (e.g.:dated bill of sale), specification of defect(s), transportation prepaid, to an approved warranty station, or the Company at the address shown below.

This warranty does not extend to the elimination of externally generated static or noise, to the correction of antenna problems, to costs incurred for removal or reinstallation of the product, or to damage to any tapes, speakers, accessories,

This warranty does not apply to any product or part thereof which, in the opinion of the company, has been damaged through alteration, improper installation, mishandling, misuse, neglect, or accident, THE EXTENT OF THE COMPANY'S LIABILITY UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT PROVIDED ABOVE, AND, IN NO EVENT, SHALL THE COMPANY'S LIABILITY EXCEED THE PURCHASE PRICE PAID BY THE PURCHASER FOR THE PRODUCT.

This warranty is in lieu of all other express warranties or liabilities. ANY IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, SHALL BE LIMITED TO THE DURATION OF THIS WARRANTY. ANY ACTION FOR BREACH OF ANY WARRANTY HEREUNDER INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY MUST BE BROUGHT WITHIN A PERIOD OF 30 DAYS FROM THE DATE OF ORIGINAL PURCHASE. IN NO CASE SHALL THE COMPANY BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES FOR BREACH OF THIS OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, WHATSOEVER. No person or representative is authorized to assume for the company any liability other than expressed herein in connection with the sale of this product.

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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## APPLICATION NOTES

This note will discuss DC Power sources and how they relate to 12 volt products.

### General Specifications

Our general specification for the voltage range of operation is 10 to 16 volts DC .

### Voltage

The voltage of a fully charged battery (engine not running) is approximately 12.5 VDC. Once a load (items being powered represent the "load" ) is applied , the voltage will drop. How much the voltage is reduced will depend on the following:

1. Current draw (amount of amperage) The higher the draw the greater the voltage will drop.
2. The size and length of the conductor (wire) supplying power.

### Converters

Many boats incorporate converters as a source for 12VDC when connected to shore power (110-120 VAC).Some converters put out a very clean DC supply where others may have a considerable amount of AC ripple noise under maximum load.

This AC ripple noise is filtered by the boat battery when connected into the circuit , but when the battery is disconnected the amount of AC ripple noise can create major problems for audio products. Noise may result and the line fuse may fail

### Ignition systems

Unwanted noise generated from ignition systems used to be a big problem. However, with more sophisticated filtering circuits designed into audio/video products, these problems are not as wide spread

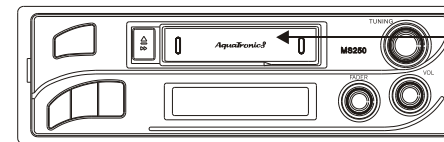
Changes in wire harnessing also has contributed to the decline of application problems. Use the same ground point for all related products. This will greatly reduce the potential for unwanted noise.

*"We have a complete line of audio and video products specifically designed for the Marine and RV market. Please contact ASA at [www.asaelectronics.com](http://www.asaelectronics.com) for a view of our on-line catalog."*

## AM ANTENNA TRIMMER ADJUSTMENT

The antenna trimmer can be accessed through the small hole behind the cassette door (see diagram below). Tune radio to a weak station between 1200 and 1400 KHz AM (If you cannot find a weak station in this range, tune to any other strong station, and adjust tuning slightly off station). Adjust trimmer for maximum volume.

### FRONT VIEW OF RADIO



ANTENNA TRIMMER (NOTE: OPEN CASSETTE DOOR TO SEE THE ADJUSTMENT SCREW)

## SPECIFICATIONS

Size:	7"(W) x 2"(H) x 6-5/8"(D) 178mm x 50mm x 150mm
Operating Voltage:	12VDC, Negative Ground
Output Power:	50Watts Max .Stereo Power
Output Wiring:	Floating Ground type designed for 4 speakers use. May also be used with 2 speakers.
Output Impedance:	Compatible with 4 or 8 ohm speakers.
Tuning Range:	(AM)530-1710KHz (FM)88-108MHz
Sensitivity:	(AM) less than 25uV (FM) less than 5uV
FM Stereo Separation:	More than 23 dB
Frequency Response:	50-10000Hz
Wow & Flutter:	Less than 0.3%

## CARE & MAINTENANCE

### Cassette

Always check that the tape is tightly wound inside the take-up spool on the cassette. If the tape is loose, wind it with a six - sided pencil. Never use C-120 (120 minute) cassettes in this player. Never use cassette player when vehicle temperature is near or below freezing.

### Cleaning of Tape Head & Capstan

Since tapes contain oxides, you will find a black residue builds up on the tape head and drive capstan (inside cassette door). These residues should be cleaned after 50-100 hours of accumulated tape operation .You can use a cassette cleaning cartridge available where ever stereos are sold.

### De-Magnetizing

The movement of the magnetic tape head and metal parts cause a magnetic field to develop. We recommend you have the tape player demagnetized at least twice annually. You can purchase an inexpensive tape head demagnetizing tool to do this yourself.

## TROUBLESHOOTING CHART AM/FM RADIOS

Symptom	Cause	Possible Solution
No Power	No 12VDC	Check circuit fuse at source Check in-line fuse on power lead Power lead disconnected Ground connection disconnected
Power indicated; no audio output or very distorted sound	No 12VDC to memory lead (electronically tuned units only)	Circuit fuse at source In-line memory lead fuse
	Speaker Output shorted	Check continuity of speaker leads to ground
	Speaker out cross channeled	Check for proper speaker wiring Note: Radios have a sticker on them explaining wiring color code.
Only one channel (right or left side)	Radio Balance	Check radio function
	Speaker Disconnected	Check speaker connection at radio and/or speaker
	Speaker lead shorted or grounded	Check speaker wiring continuity to ground w/tester or meter
Popping in one or both channels	Speaker wiring shorted or positive lead grounded Speaker terminals grounded or shorted	Leads from speaker cone to terminal touching metal basket or speaker
No AM Reception	Antenna disconnected	Connect Antenna
	Antenna mast grounded or shorted	Check antenna or substitute with antenna known to be good
	Antenna center lead broken	Check antenna or substitute with antenna known to be good
	<b>NOTE:</b> Antenna leads can be tested with continuity or multi-tester. Some may have electronic component (capacitor) built in which not allow it to be tested.	

## APPLICATION NOTES

### AM/FM RECEPTION

Some boats have more than one AM/FM radio. The best way to insure good reception is to supply a separate antenna for each radio. Other options available to supply adequate AM/FM reception to these radios are listed below, along with some general information in regards to radio reception.

### "Y" ADAPTORS

The "Y" adaptors used to connect one antenna to two radios will compromise both AM and FM reception.

### AMPLIFIED AM/FM ANTENNA

A popular second antenna that can be used is our AB-100 amplified AM/FM antenna. It is small and has a retractable mast that can be mounted vertically or horizontally. This antenna provides good FM reception, but the AM reception will be compromised to some degree because of the length of the mast.

### MAST LENGTH

AM/FM antennas compromise AM reception by design. The optimum mast length for FM is approximately 30 inches which is the standard for most automotive antennas. The optimum mast length for AM reception is over 100 inches which is not practical for mobile applications.

Special circuitry in electronic tuned radios or AM trimmers in mechanically tuned radios, make up for some of this difference in optimum mast length for AM reception.

### ANTENNA CABLE

Increasing the antenna lead cable (adding extensions) will reduce sensitivity of AM with electronic tuned radios.

### GROUND PLANES

Ground planes are also important when considering antenna performance. Most automotive antennas are designed to be mounted on the metal body of the vehicle.

The metal body reflects the signal interference generated by the vehicle's electrical system while it also provides the ground for the antenna lead shield. All this is necessary in order to maintain a good signal, especially AM.

### FM RECEPTION

FM reception can be received with a very limited antenna and strong local FM stations can be received without an antenna, depending on the circumstances.

### CONCLUSION:

AM/FM reception is subject to the choice of an antenna and its application. There can also be a variety of methods used to supply signal to both primary and secondary radios, but AM performance is the ultimate "test"

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