

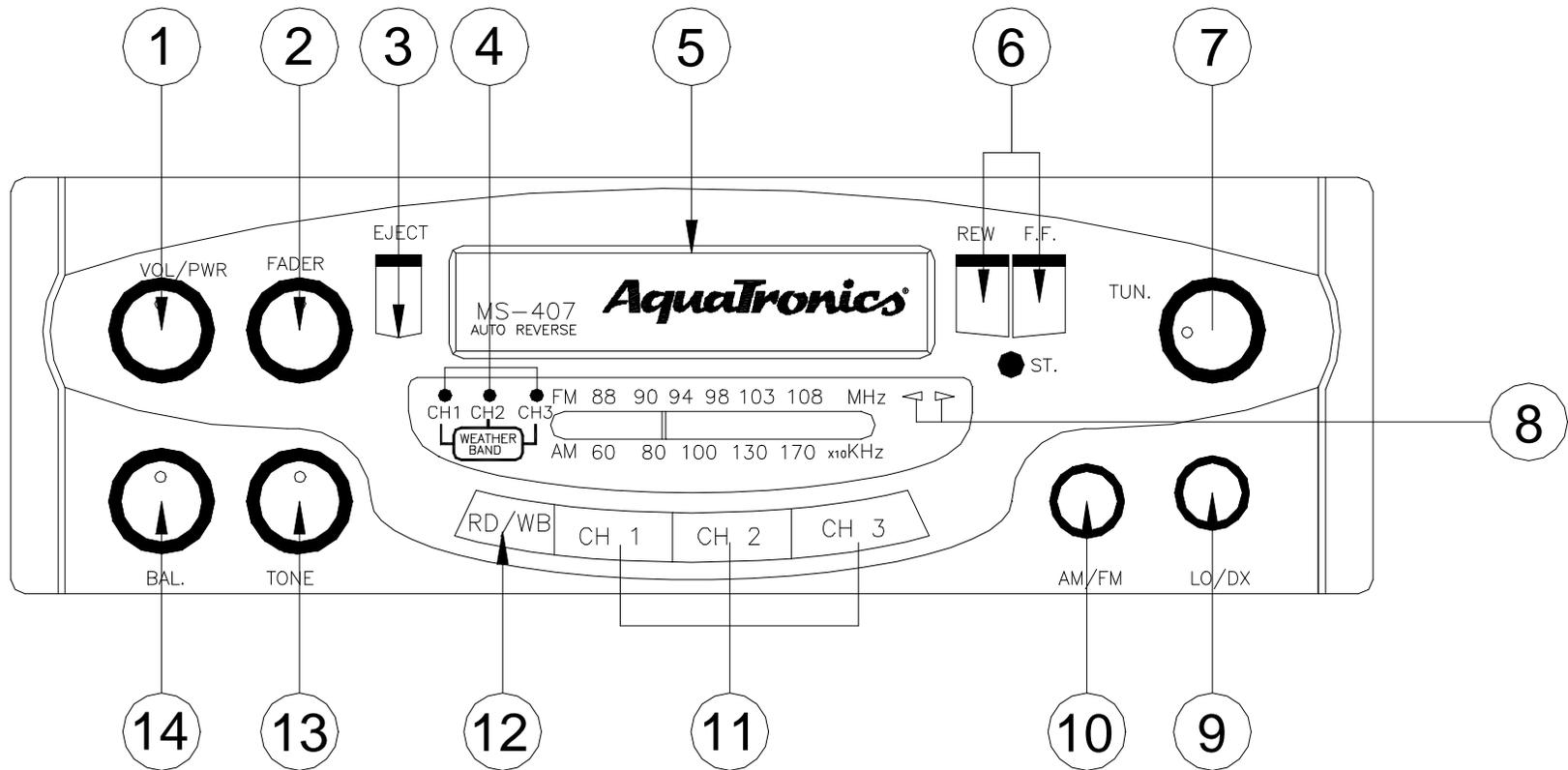
Owner's Manual

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

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

MS-407

FACEPLATE CONTROLS DIAGRAM (Figure 1)



Control Description- See Figure 1

1. POWER ON/OFF VOLUME

Rotate the VOL/PWR knob to turn the power and increase the sound level.

2. FADER CONTROL

Rotate the Fader Control clockwise to shift the sound output towards the rear and counter-clockwise to shift the sound output towards the front speakers. The center indent position is for balancing the front and rear speaker output.

3. EJECT BUTTON

Press this button to stop the tape playback and resume radio operation; at the same time cassette tape will be ejected from the cassette slot.

4. WEATHER BAND CHANNEL INDICATORS

These indicators show which channel is selected. Whichever channel is selected the corresponding light will illuminate. The last channel selected will be kept in memory unless loss of power occurs.

5. CASSETTE COMPARTMENT

Insert a tape into the cassette compartment. The unit will automatically switch from radio to tape operation.

Note: When the tape is being played, the weather band function will not operate.

6. FAST FORWARD/REWIND BUTTON

Push >> or << to Fast Forward or Rewind and push down both buttons << and >> together to play the other side of the tape.

7. TUNING KNOB

Rotate the tuning knob clockwise or counter-clockwise to select the desired broadcasting station.

8. PROGRAM INDICATOR

This indicator shows which direction the tape is being played, or direction of tape movement (Fast Forward or Rewind).

9. LOCAL/DISTANT SELECTOR

This switch allows maximum reception in both weak and strong AM/FM signal areas. Press this button to the “In” position for distant (or weak) signals reception. Press switch to the “Out” position for local (or strong) signal reception.

10. AM/FM BAND SELECTOR

Press to the “In” position for the FM band, and press switch to the “Out” position for the AM band.

11. WEATHER BAND CHANNEL SELECTOR

There are three weather band channels to choose from. Press one of them to select desired weather band channel.

12. WEATHER BAND SELECTOR

Push in to activate weather band reception and switch should be out for normal radio reception.

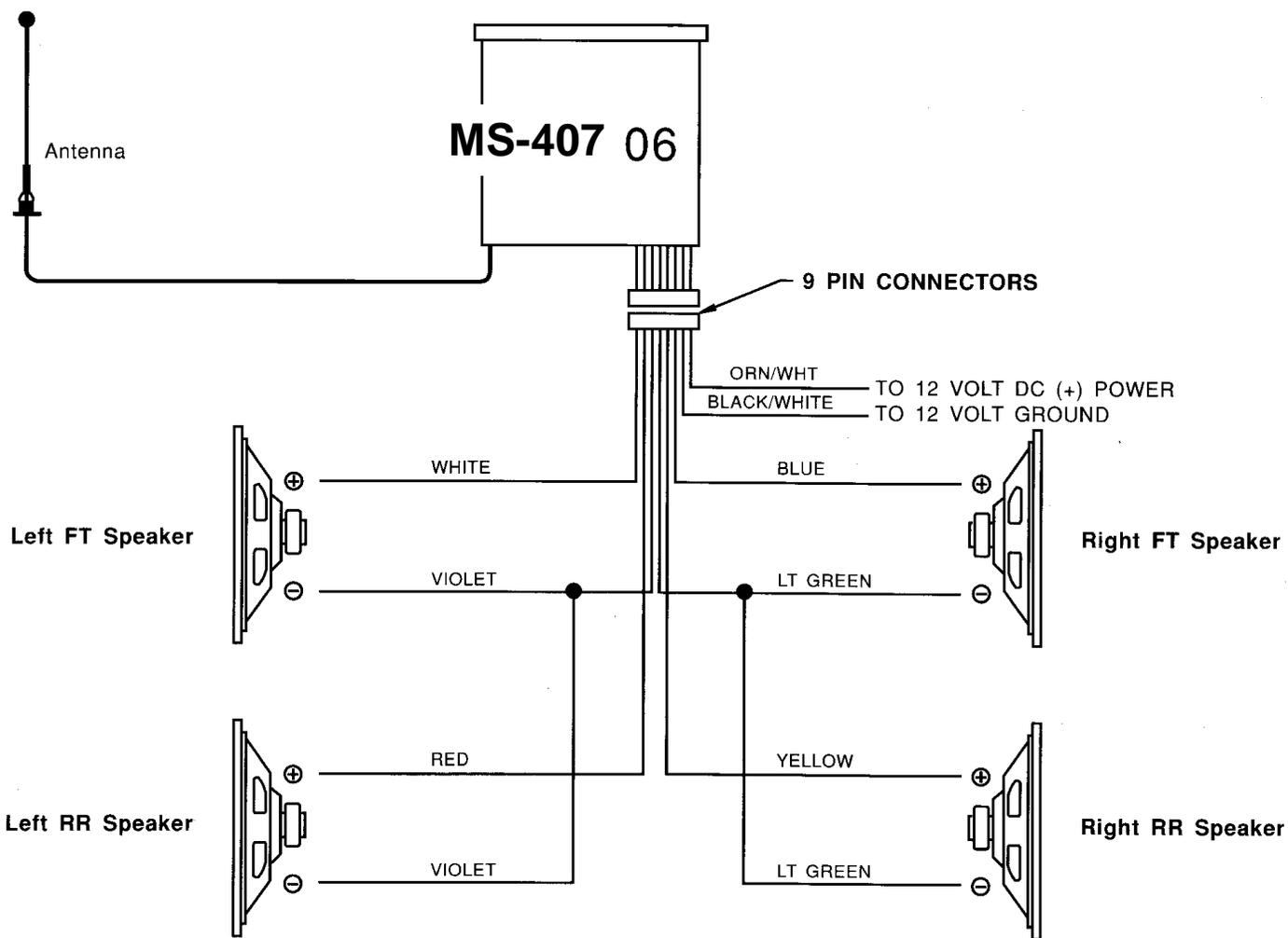
13. TONE SWITCH

Rotate the control clockwise to emphasize high tones. Turn in counter-clockwise direction to emphasize low tones.

14. BALANCE CONTROL

Rotate the Balance Control clockwise or counter-clockwise to balance the sound output level between the left and right speakers.

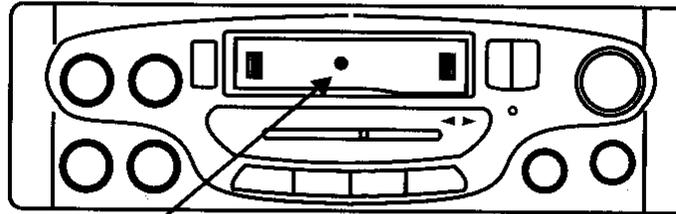
Wiring Diagram Figure 2



AM ANTENNA TRIMMER ADJUSTMENT

The antenna trimmer can be reached through the small hole inside 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 strong station, and adjust tuning slightly off station). Adjust antenna trimmer for maximum output.

FRONT VIEW OF RADIO



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

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 the 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 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 wherever stereos are sold.

DE-MAGNITIZING

The movement of the magnetic tape across the tape head and metal parts causes 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.

SPECIFICATIONS

Size:	7" (W) x 2" (H) x 6 5/8" (D) 178mm x 50mm x 168mm
Operating Voltage:	12V DC, Negative ground
Output Power:	50 Watts max. Stereo power
Output Wiring:	Floating ground type designed for 4 speaker use. May also be used with 2 speakers.
Output Impedance:	Compatible with 4 or 8 Ω speakers
Tuning range:	(AM) 530 – 1710 KHz (FM) 88 – 108 MHz (Weather band) Ch 1- 162.550 MHz Ch 2- 162.400 MHz Ch 3- 162.475 KHz
Sensitivity:	(AM) less than 25uV (FM) less than 5uV
FM Stereo Separation:	More than 23 dB
Frequency Response:	50 – 10000 Hz
Wow & Flutter:	Less than 0.3%

TROUBLESHOOTING AM/FM RADIOS

Symptom	Cause	Possible Solution
No Power	No 12VDC	<p>Check circuit fuse at source</p> <p>Check in-line fuse on power lead (wall mount units are located in rear cabinet)</p> <p>Power lead disconnected</p> <p>Ground connection</p>
Power indicated; No audio output	No 12VDC to memory lead (electronically tuned units only)	<p>Circuit fuse at source</p> <p>In-line memory lead fuse</p>
	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	Leads from speaker cone to terminal touching metal basket
	Speaker terminals grounded or shorted	

APPLICATION NOTES

AM/FM RECEPTION

Many vans and RV's 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” ADAPTERS

The “Y” adapters used to connect one antenna to two radios will only provide AM reception to one of the radios and 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 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".

It appears that consumers or end users are becoming much more critical when it comes to acceptable antenna performance. It may be necessary for manufacturers to re-evaluate what was once considered acceptable.

APPLICATION NOTES

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

DC (Direct Current) Power

A large number of our products are designed for 12 volt DC applications. The power is supplied by a variety of sources i.e., the battery, converters, ignition systems and solar power.

General Specifications

Our general specification for the voltage range of operation is 10 to 16 volts DC. TV's and VCP's (video cassette players) require slightly more than 10 volts to function properly. Normally this 10.5 to 11 voltage requirement does not create a problem, but keep in mind the following points:

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. This size and length of the conductor (wire) supplying power.

In conclusion, operating these audio/video products without the engine running will drain the battery to the point where these products will perform unacceptably in a short period of time.

Converters

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

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

Ignition Systems

Unwanted noise generated from the 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 alternator whine.

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ACCESSORY LIST

Description	Part Number
AVT-988 9" Color Television with Remote (12V)	AVT988
AVT-597 5" Color Television with Remote (12V)	AVT597
AVT-1498 13" Color Television with Remote (12V)	AVT1498
AVP-7000 Video Cassette Player (12V)	AVP7000
AVP-7285 Video Cassette Player (12V)	AVP7285
Wireless Headphone Kit: Includes 2 sets Wireless Headphones and Transmitter	WRFKIT1
BPA-501-12 4 Amp Adapter for use with AVT-988 9" and AVT-1498 13" Televisions	0891412
AC2A- 2 Amp Adapter for use with AVT-597 5" TV and AVP-7000 Video Cassette Player	0891436
Unified Remote Control	0892325
VAC-21- 12 Volt Corded Vacuum	VAC21
AVF-1 12 Volt Rechargeable Flashlight	AVF1
HP-175 Headphones with Pivoting Ear Cup	HP175
HP-275 Headphones with Volume Control on Cord	HP275
HP-375 Studio Quality Headphones	HP375

Unlike household electronics, all of our products have been specifically designed and tested for the mobile environment and are only available through ASA. To order any of these products, please contact Audiovox Specialized Applications at www.asaelectronics.com or 800-688-3135.

