

MERITOR WABCO

Service Information

Meritor WABCO Air Manifold Distribution Module Assembly

WARNING

To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.

Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving. Support the vehicle with safety stands. Do not work under a vehicle supported only by jacks. Jacks can slip and fall over. Serious personal injury can result.

When you work on an electrical system, the possibility of electrical shock exists, and sparks can ignite flammable substances. You must always disconnect the battery ground cable before you work on an electrical system to prevent serious personal injury and damage to components.

Remove all pressure from the air system before you disconnect any component. Pressurized air can cause serious personal injury.

Overview

The air manifold distribution module (AMDM) consists of a mounting base that can hold up to five electrically operated air solenoid valves that can be used to operate air system accessories.

The mounting base provides a common air supply and a common electrical connector to operate the valves. With no electrical power applied, the individual solenoid valves are in a normally closed position (the air supply is isolated and the delivery is vented to atmosphere). When power is applied, the exhaust is closed and air pressure is delivered.

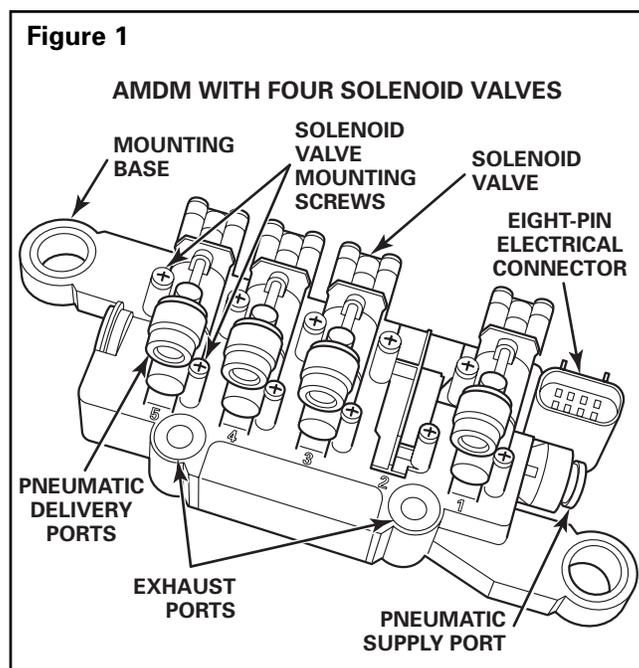
The air pressure may be delivered to a variety of accessories including the fan clutch, air horn, suspension dump, 5th wheel slide and inter-axle differential lock. For applications where more than five functions are controlled, additional AMDMs may be installed.

Maintenance

AMDMs require no regularly scheduled maintenance. However, they must be kept clean and free of debris or ice build-up.

Mounting Specifications

The mounting location will vary according to the vehicle manufacturer's requirements. In general, the AMDMs must be mounted with the electrical connector in the upper right-hand corner as illustrated in **Figure 1**. The AMDM must be mounted in a location that is not directly exposed to road splash, debris or direct spray from power washers.



For technical assistance, contact the ArvinMeritor Customer Service Center at 800-535-5560.

Air Lines

CAUTION

Identify the air lines before disassembly. If air lines are removed, they must be reinstalled in the same location to avoid accidental activation of devices or activation of the wrong device.

Never apply voltage to the assembly except by means of the proper connector in the vehicle wire harness.

All delivery ports are identified by number (refer to **Figure 1**) and delivery fittings may be identified with a color-coded ring. Refer to the manufacturer's service manual for color coding identification.

Air Supply

CAUTION

Air supply must be confirmed prior to attempting any repair or replacement of an AMDM. The air supply is provided through a pressure protection valve. Air will not be available to the AMDM if the supply pressure is less than the pressure protection valve setting.

Follow the standard shop procedures for your service area to confirm air supply.

Troubleshooting and Testing

CAUTION

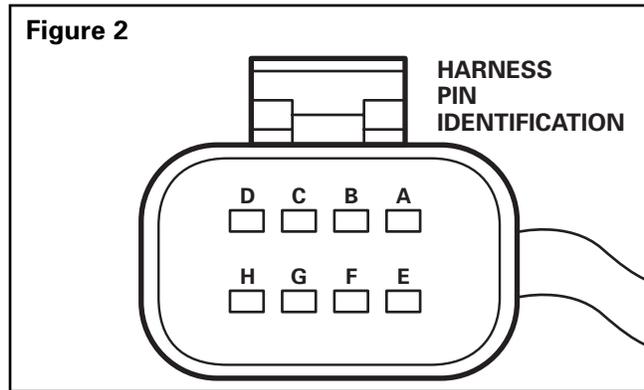
When troubleshooting and testing the AMDM, do not damage the connector pins.

The mounting base contains diodes that are polarity sensitive and can be damaged if power is incorrectly applied. To avoid damaging the diodes, apply power using the vehicle manufacturer's wire harness connector.

Voltage Check

If one of the solenoid valves on the AMDM does not operate, test the vehicle to ensure proper voltage. Measure the voltage on the vehicle harness connector at the vehicle connector pins, as illustrated in **Figure 2**:

- Voltage must be between 9.5 and 15.0 volts.
- The ignition must be turned ON for this test.



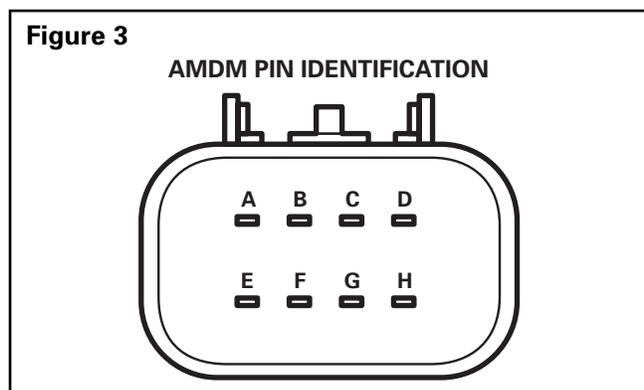
Resistance Test

If the voltage is within the acceptable range of 9.5 to 15 volts but the valve still does not operate, test the solenoid. Use a volt-ohm meter to check the resistance of both the valve and the module base as follows:

1. Remove the electrical connector from the module base. Select the appropriate pin numbers from **Table A** and **Figure 3**.

Table A: Electrical Connector Pins

Station Number	Positive Connector Pin	Negative Connector Pin	Resistance
1	E	B	35-60 ohms
2	F	G	
3	D	H	
4	C	H	
5	A	H	



2. Connect the volt-ohm meter to the appropriate pins and measure the resistance. Coil resistance must be between 35 and 60 ohms.

- If the resistance is less than 35 ohms, the circuit may be shorted. Identify which station is causing the short and remove the solenoid from that station. If that connector circuit remains shorted, the base must be replaced.

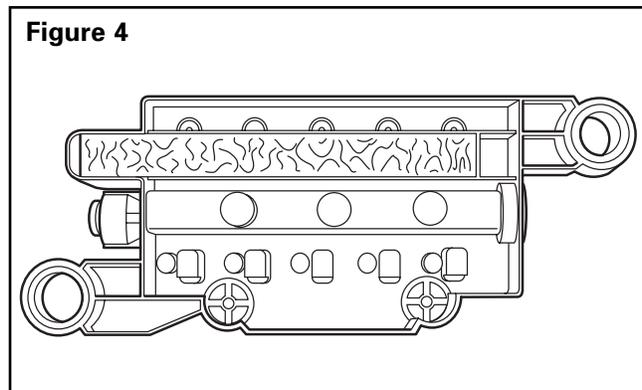
If the base connector pins are no longer shorted, the solenoid valve is likely causing the short. Check the resistance across its pins. If that check results in a resistance less than 35 ohms, the solenoid valve must be replaced.

Air Leakage Test

If the voltage and resistance are within the acceptable ranges (9.5-15 volts/35-60 ohms resistance) but the valve does not deliver air, inspect the air supply. A pressure-protected air circuit provides air to the valve and the valve will not function unless the reservoir pressure exceeds the pressure protection setting, typically 85 psi (585 kPa).

Excessive leakage may also be a reason for replacing the solenoid valve module. The source of a supply line leak may not be readily apparent because all valves are vented through two common exhaust ports. Check for air leakage from the assembly as follows:

- Apply a soap and water leakage detection fluid to all the potential leakage sites on the front and sides of the valve.
- If no leakage is found on the front and sides of the valve, loosen the two mounting screws that attach the assembly to the vehicle and inspect for leaks from the back side of the assembly. **Figure 4.**



- Replace the leaking solenoid valve (refer to Replacement Procedures).

Valve Check



The mounting base contains diodes that are polarity sensitive and can be damaged if power is incorrectly applied. To avoid damaging the diodes, apply power using the vehicle manufacturer's wire harness connector.

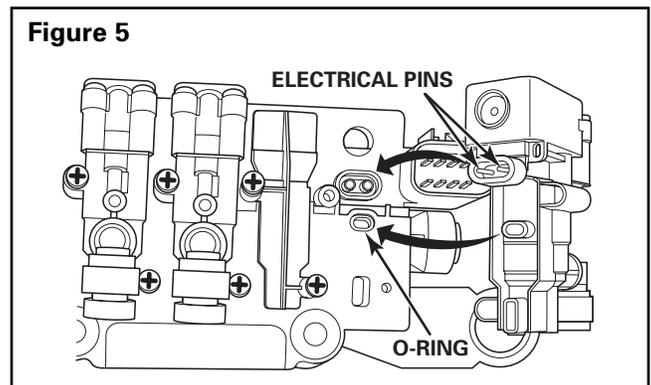
Solenoid valves mounted on the module base may be inspected individually as follows:

- Drain the air from the system.
- Disconnect the air supply and electrical connector.
- Remove the two screws that hold the solenoid valve to the mounting base. Pull the solenoid valve directly off the base. Be careful to locate the air supply and electrical connector O-rings.
- Test the solenoid function by applying voltage to the two electrical pins on the valve. With voltage (9.5-15 vdc) applied, listen for the solenoid actuation. Do not disassemble further.
- If the solenoid valve does not function, replace the entire solenoid valve. Refer to Replacement Procedures.

Replacement Procedures

Solenoid Valve

- Follow the removal procedure above to remove the valve from the module.
- Position the air supply and electrical connector O-rings in the proper location on the base of the module. **Figure 5.**



3. Install the new solenoid valve by engaging the electrical pins first. Press the solenoid valve assembly onto the mounting base.
4. Use a Phillips head screwdriver to install the two self-tapping screws. Tighten 8-11 lb-in (0.9-1.2 N•m). 

Mounting Base/Assembly

Replace the mounting base if it is broken or cracked.

1. Drain the reservoirs to eliminate air pressure.
2. Disconnect the battery.
3. Remove and carefully identify each air line.
4. Remove the electrical connector.
5. Remove the two bolts that mount the base plate to the vehicle.
6. Remove any solenoid valves that are to be reused. Take care to collect the two O-rings between the individual solenoid valves and the mounting base for reuse when assembling solenoid valves to the mounting base.
7. Reinstall the solenoid valves (if they are to be reused) or attach replacement valves as required.
8. Position the module on the vehicle with the eight-pin electrical connector in the upper right-hand corner. **Figure 1.**
9. Replace the two mounting bolts that attach the module to the vehicle. Tighten the screws 103.2 ±18 lb-ft (140 ± 25 N•m). 
10. Reconnect the pneumatic lines and electrical connector. Air lines must be reinstalled in the same location they were in before they were removed. Refer to the vehicle manufacturer's service manual for complete instructions.
11. Connect the battery and pressurize the air system to 100 psi (689 kPa) minimum. Test each device controlled by the assembly to verify that the air lines have been installed in the correct position.

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Printed in the USA

TP-0223
Issued 04-02
16579/Meritor