

**MERITOR WABCO**

## Technical Bulletin

# Leak Check Procedure for Meritor WABCO Hydraulic ABS and Hydraulic Power Brake (HPB) System

## Hazard Alert Messages

At various locations in this publication you will see **WARNINGS** against procedures that could result in an accident or bodily injury. It also contains **CAUTIONS** against procedures that could result in vehicle damage.

Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, or both.

### **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 and damage to components can result.

Release all air from the air systems before you remove any components. Pressurized air can cause serious personal injury.

Exhaust gas contains poison. When testing a vehicle with the engine running, test in a well-ventilated area or route the exhaust hose outside.

To avoid serious personal injury, keep away, and keep test equipment away, from all moving or hot engine parts.

At various locations in this publication you will be instructed to bleed a circuit or system. Failure to bleed the system whenever any hydraulic system fitting is loosened or disconnected will allow air to remain in the system. This will prevent the hydraulic pressure in the brake system from rising enough to apply the brakes correctly. This will cause the stopping distance to increase and can result in serious personal injury.

Do not reuse brake fluid that has been removed from the system. Hydraulic brake fluid that is removed can be contaminated and can cause damage, loss of braking and serious personal injury. Follow the manufacturer's recommendation on disposal of the brake fluid.

Use only the type of hydraulic brake fluid specified by the equipment manufacturer. Do not use or mix different types of hydraulic brake fluid. The incorrect hydraulic brake fluid will damage the rubber parts of the brake caliper and can cause damage, loss of braking and serious personal injury.

### **CAUTION**

Hydraulic brake fluid is a caustic substance. Contact with hydraulic brake fluid can cause skin irritation. Do not let hydraulic brake fluid touch any painted surfaces, as it will remove the paint. Hydraulic brake fluid may also damage certain non-metal surfaces. Do not let fluid get on brake pads, shoes, rotors or disks.

**NOTE:** If the hydraulic circuit was open during a repair procedure, bleed the circuit after the repair is complete.

## Important Service Information

Many times a brake system component is removed and replaced when, in fact, the component is functioning correctly. The problem is actually a loose or faulty connection causing brake fluid leakage. The procedures in this publication will help you check for leakage and help eliminate unnecessary brake system component replacements.

To perform these checks, you will need to refer to the following maintenance manuals:

- Maintenance Manual 38, Hydraulic ABS for Medium-Duty Trucks, Buses and Motor Home Chassis (C Version); and Maintenance Manual 39, Hydraulic ABS for Medium-Duty Trucks, Buses and Motor Home Chassis (D Version)
- Maintenance Manual MM-0401, Meritor WABCO Hydraulic Power Brake (HPB) System

For additional assistance, or to obtain these publications, contact our Customer Service Center at 800-535-5560. These publications, as well as other technical literature for Meritor WABCO products are also available on our website:

[www.meritorwabco.com](http://www.meritorwabco.com).

A typical 4S/4M (D version) hydraulic ABS installation is illustrated in Figure 1.

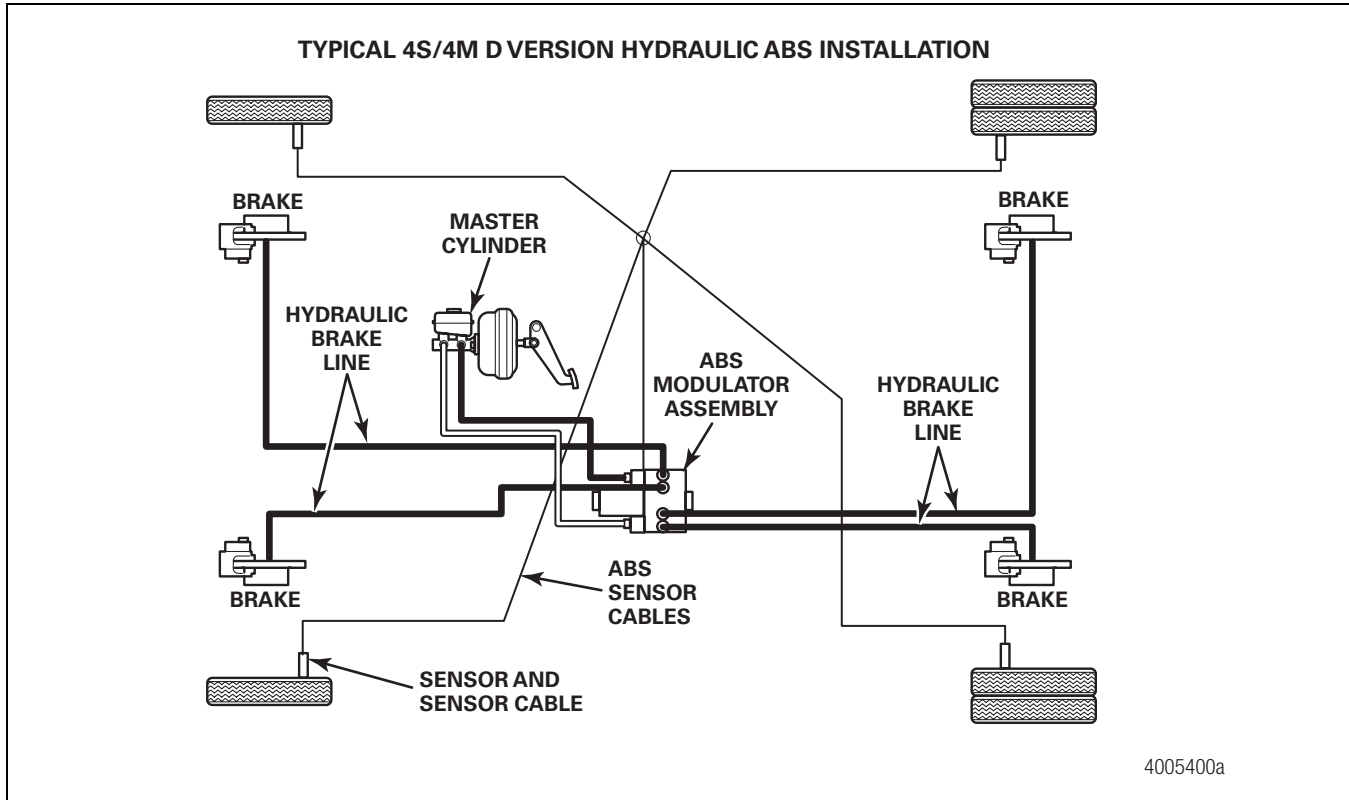


Figure 1

## Check the HABS or HPB System for Brake Fluid Leaks

### With Pressure Removed:

1. Park the vehicle on a level surface. For vehicles with manual parking brakes, apply the parking brake. Block the wheels to keep the vehicle from moving.
2. Relieve system pressure. Refer to the appropriate maintenance manual for complete instructions.
3. Inspect all brake lines and line fitting connections for the presence of brake fluid or other evidence of a leak.

- **If there is brake fluid near a connection point:** Perform the following.
  - A. Clean and dry the entire area.
  - B. Determine the source of the leak.
  - C. Make the necessary repairs.

- **If there is brake fluid at a fitting:** Inspect the fitting for damage.
  - If the fitting has not been damaged, tighten the fitting. Refer to the appropriate maintenance manual for torque specifications.
  - If the fitting has been damaged, replace the fitting. Refer to the appropriate maintenance manual for torque specifications.
- **If a brake line is damaged and is leaking:** Replace the damaged brake line and tighten the connections. Refer to the appropriate maintenance manual for line fitting torque specifications.
- 4. If any hydraulic system fitting was loose or disconnected (brake circuit open), bleed the closed circuit. Refer to the appropriate maintenance manual for brake bleed instructions.

## With Pressure Applied:

If there was no evidence of a leak when the system was checked with the pressure removed, apply pressure to the system and recheck for leaks. Two people are required to perform this check.

1. With the vehicle parked on a level surface, depress the brake pedal and hold to deliver brake pressure to the calipers. Use a gauge to verify the correct pressure. Refer to the appropriate maintenance manual for pressure values.
2. Inspect all brake lines and line fitting connections in the hydraulic brake system for evidence of a leak or brake fluid.
  - **If there is brake fluid near a connection point:** Perform the following.
    - A. Clean and dry the entire area.
    - B. Determine the source of the leak.
    - C. Relieve system pressure. Refer to the appropriate maintenance manual for complete instructions.
    - D. Make the necessary repairs.
  - **If there is brake fluid near a fitting:** Inspect the fitting for damage.
    - If the fitting has not been damaged, tighten the fitting. Refer to the appropriate maintenance manual for torque specifications.
    - If the fitting has been damaged, replace the fitting. Refer to the appropriate maintenance manual for torque specifications.
3. If any hydraulic system fittings were loose or disconnected (brake circuit open), bleed the closed circuit. Refer to the brake bleed instructions given in the appropriate maintenance manual.

## System Test

After all necessary repairs have been made and the system has been bled, verify the hydraulic circuits are connected correctly. Two people are required to perform this test.

1. Park the vehicle on a level surface.
2. Block the front tires to keep the vehicle from moving.
3. Raise the rear wheels. Place supports under the rear axle.
4. Depress the brake pedal. Attempt to turn the rear wheels one at a time. They should not move with the brakes applied.

## 5. HABS, Version D, and HPB

Connect the vehicle to a PC with TOOLBOX™ Software installed. Use TOOLBOX™ Software to activate the solenoid valves for the left rear wheel. You should be able to turn this wheel by hand when the solenoids activate. Repeat this check for the right rear wheel. Go to Step 6.

## HABS, Version C

For version C, use the Pro-Link Plus™ with the hydraulic card. Refer to the Pro-Link User's Manual for test instructions. Go to Step 6.

6. Remove the axle stands from under the rear axle to lower the vehicle.
7. Remove the blocks from the front tires and place them in front of the rear tires.
8. Raise the front tires. Place supports under the front axle.
9. Repeat Steps 4 and 5.
10. Remove the axle stands from under the front axle to lower the vehicle.
11. Make any necessary repairs. If any plumbing changes were made, bleed the system again.

## Valve Check

After inspecting the hydraulic system for leaks, verify valve operation.

Use TOOLBOX™ Software to check the valves on D version HABS and HPB systems. Refer to the appropriate maintenance manual for instructions. For C version HABS, refer to Maintenance Manual 38, Hydraulic ABS for Medium-Duty Trucks, Buses and Motor Home Chassis (C Version), for testing information. If a system component is faulty, contact the ArvinMeritor Customer Service Center at 800-535-5560 for assistance.

## Sensor and Sensor Spring Clips

The sensor and spring clip must be greased with Meritor WABCO-recommended lubricant whenever wheel-end maintenance is performed. Refer to the appropriate maintenance manual for lubricant specifications. Lubricants approved for use on Meritor WABCO sensors and spring clips are as follows.

- Mobilith SHC-220 (Mobil)
- TEK 662 (Roy Dean Products)
- Staburags NBU 30 PTM (Kluber Lubrication)
- Valvoline EP 633

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