2018-04 – Air Disc Brake Inspection

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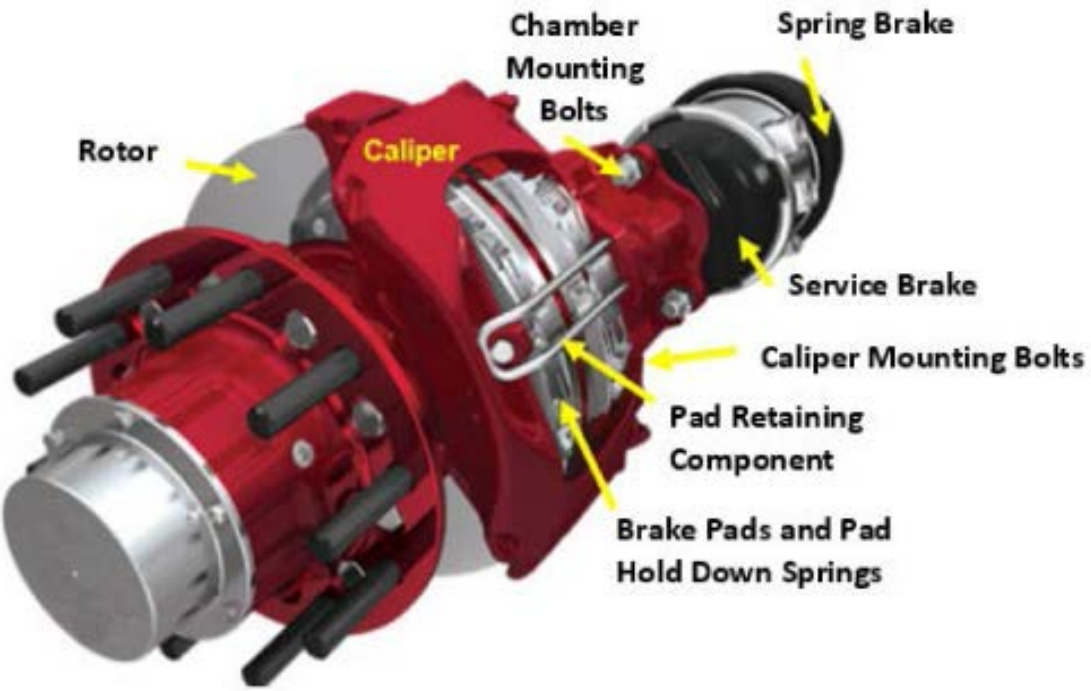
Summary

This Inspection Bulletin provides details for inspecting air disc brakes. The North American Standard Level I and Level V Inspection Procedures focus on the inspection of S-cam brakes; however, with the increase in use of air disc brakes, it has become more important to ensure that inspectors know how to modify the brake inspection when they encounter vehicles equipped with air disc brakes.

An accompanying training video is available at www.cvsa.org/videos, through the CVSA member portal at www.cvsa.org/memberportal and via the CVSA Out-of-Service Criteria app.

Air Disc Brake Components and Nomenclature



Types of Air Disc Brakes

There are two types of air disc brake systems: exposed pushrod and direct mounted. The exposed pushrod style is rare and an older style of brake; the most common is the direct-mounted brake chamber style.

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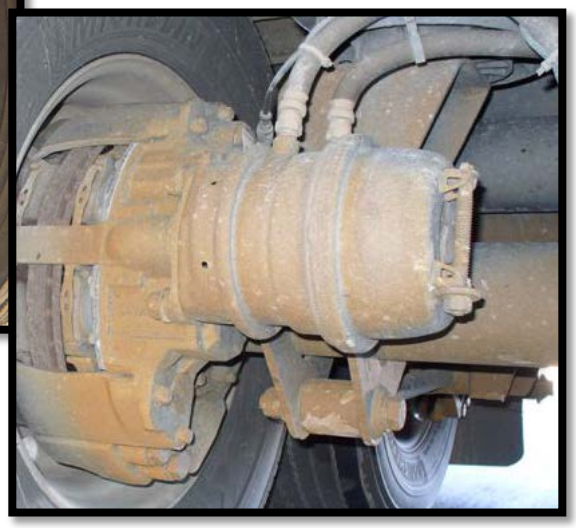
Inspection Points

When conducting a roadside inspection, the inspector will inspect the air disc brake system as follows:

Direct-Mounted Air Disc Brake System

On a direct-mounted air disc brake system, at each wheel-end, check the brake for the following:

- Loose parts (such as chamber and caliper mounting bolts, pad retaining components, etc.), broken or cracked air hoses, air system leaks, and damaged components. Check that brake hoses and cables are properly secured but allow the caliper full movement during normal operation.
- The presence of brake pads, if visible. Also, check the condition of the rotor for visual signs of extreme pad wear, a missing brake pad or a pad that is inserted backward with the backing plate against the rotor (metal-to-metal contact).
- Ensure that brake pad hold-down springs and pad retaining bars are present and in the correct position.
- Oil or grease contamination of brake rotor and/or pad.
- Presence and condition of the rotor, if visible, ensuring there are no cracks that pass completely through either side rotor to the center vent, excessive rust or signs of metal-to-metal contact.
  NOTE: Excessive rust on a rotor can be an indication of an inoperative air disc brake (have the driver apply and release the brake when this condition is present to see if there is any caliper movement upon application).
- Ensure the springs in the parking brake chambers are not caged in the released position.
- Ensure the brake chambers are not different sizes on the same axle.
  NOTE: Brake chambers on these brake systems are often sizes that cannot be measured with a standard chamber tech tool (chambermate). Inspectors will have to determine brake chamber size by the embossment on the chamber.



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Exposed Push Rod Air Disc Brake System

On air disc brakes with exposed pushrods, inspect all the brake components outlined on the previous page. Mark and measure the pushrod stroke and compare it to the Out-of-Service Criteria in the same manner as with the S-cam drum brake system.

Inspection Procedure

When inspecting air disc brakes, whether direct-mounted or exposed pushrod, it is necessary to conduct all the steps of the Level I or Level V Inspection Procedures with slight modification to Step 28 and Step 31 as follows:

Level I – Step 28 (Level V – Step 16): The inspection points above must be inspected applicable to the brake system present. If direct-mounted disc brakes are present, there is no requirement to mark pushrods. With the brakes released at this point during an inspection, there should be no leaks in the **spring brake** side of the brake chamber and there should be **slight movement** of the caliper at the wheel end.

Level I – Step 31 (Level V – Step 19): If direct-mounted disc brakes are present, there is no requirement to measure pushrods. With the service brakes applied at this point during an inspection, there should be no leaks in the **service brake** side of the brake chamber and there should be **no movement** of the caliper at the wheel end.

Refer to the Brake Systems Out-of-Service Brake Criteria if defective conditions are found.

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