

WHAT...

effect does poor calibration have on tractor / trailer air brake systems?

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Over the years, commercial tractor / trailer air brake systems have become much more sophisticated with the development of anti-lock braking systems and disc brakes. However, calibration and maintenance is still as critical as ever for efficient and safe braking.

Before we discuss the effects of poor calibration and maintenance it is important to have an understanding of how an air brake system works.

Overview

Air brake systems are made up of a number of components. The source of energy for an air brake system comes from the air compressor, which compresses air into the air reservoirs. The governor regulates the air compressor and ensures that the air reservoir has adequate air pressure for braking.

The air hoses for the trailer are fed from the air compressor on the tractor. Glad hands are used to make this connection for the service line and the emergency line.

The brake chamber is an enclosed chamber containing a spring that converts the energy of compressed air into the mechanical energy used for braking.

The brake chamber is connected to the foundation brakes, which can be in the form of drum brakes, wedge brakes, or disc brakes.

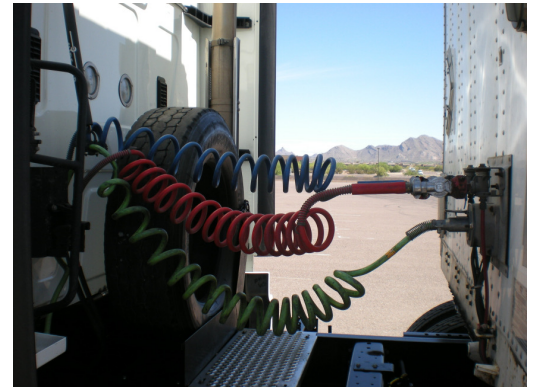


Figure 1: Air hoses with glad hands

The foundation brakes convert the mechanical energy into heat energy through friction, which slows the vehicle down.

Calibration and Maintenance

There are a number of parts not mentioned in this article that require calibration and maintenance such as: slack adjustors, push rods, s-cams, relay valves, quick release valves, tractor protection valves, governors, brake pads/shoes, hoses, rubber gaskets inside the glad hands, etc.

If not adjusted or maintained properly, these parts could result in a loss of air pressure or even prevent the brake pads/shoes from being fully pressed against the disc or drum.

Situations such as these can reduce the braking efficiency and therefore result in longer braking distances.