INDUSTRY TALK

with MGM

The Benefits of an Integral Caging Bolts

There are several benefits of using parking brake actuators with integral caging bolts. The first benefit is the caging bolt is always installed and eliminates the chance of it getting lost. Removable caging bolts are typically supplied with actuators either mounted in a side pocket or actively caging the parking spring for shipment. Second, when in service – the threads are inside the chamber and protected from the outside environment. Lastly, the integral caging bolt acts as a seal on top of the parking chamber eliminating the need for a weather seal to plug the hole. This extends the life of the actuator by keeping the majority of the contaminants away from the power spring in the parking chamber.

The caging bolt is used to manually compress or cage the power spring in the parking chamber. This procedure releases the brake actuator parking spring force allowing the vehicles wheels to roll for towing. This is necessary to move a vehicle which has lost air pressure within the pneumatic braking system. Loss of vehicle air pressure will engage the parking spring force within the actuator and automatically apply the vehicles brake in an emergency situation. A technician will also use the manual caging method to temporarily disable the power spring allowing for safe removal of the actuator from the vehicle. This occurs when replacement is needed either in the shop or on the road side.

Corrosive agents such as traditional rock salt and magnesium or calcium chlorides pose a big problem for the commercial vehicle industry. These containments can enter the brake actuator during operation and cause premature wear or even parking spring breakage with extreme or prolonged exposure. Weather seals can become damaged or fall out due to poor installation allowing contaminants to enter the parking spring chamber. This has led manufacturers to find ways to shield the power spring of the actuator from these contaminants. Integral caging bolts are one of the advancements quality manufactures have turned to on their higher end products. So why don't all brake chambers have integral caging bolts? Likely due to the added complexity and precision required for this feature.

MGM Brakes developed and patented the integral caging bolt dual thread design to address space constraint issues of today's air brake vehicles. This novel design was originally deployed with the "J" series piston type actuators and more recently with the new LTS double diaphragm actuators. This integral dual thread bolt design makes caging and uncaging parking springs easier, especially when towing is needed. The design is only 40% of the length of a removable caging bolt which is a significant time saver when manually releasing a parking brake. People who have had to manually perform this procedure on the road side will understand the benefit. So when you are comparing brake actuator models with integral caging bolts make sure you think of all aspects of the features and benefits.

MGM Brakes Disclaimer: This paper is an expressed observation from our MGM Brakes outside sales team.