Tech Topics

Product Category: Brake Actuators Brought to you by Haldex Technical Services

Frequently Asked Questions - Service and Maintenance

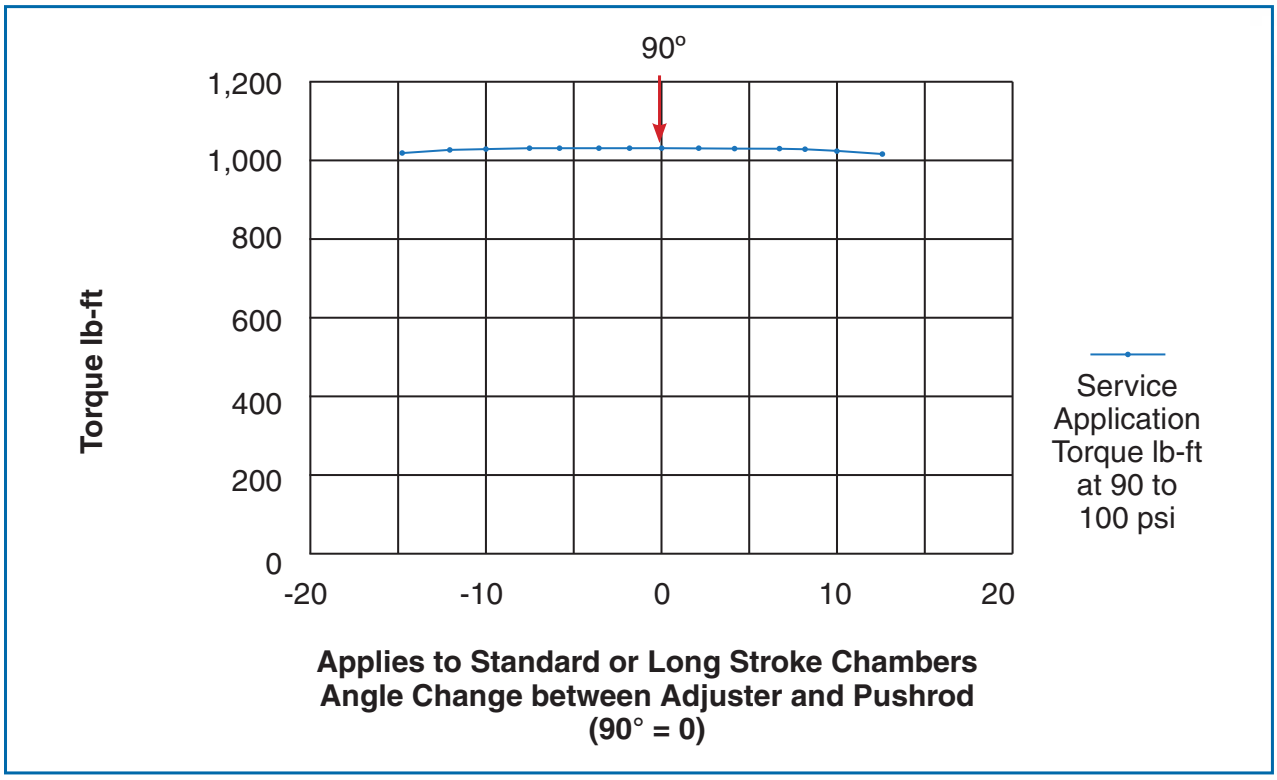
Pushrod to ABA Angle - Haldex Automatic Brake Adjusters

One topic that has received a lot of attention is the "90 degree angle" measurement between the ABA and the actuator pushrod. There are many differing opinions on the subject. With this document, we will attempt to separate the Facts from the Myths.

Why 90 Degrees?

This nomenclature has been around for at least 40 years and was first used with manual adjusters to insure the ABA's were properly adjusted. It is still considered a requirement for automatic adjusters by many fleets since there are a number of publications in the industry today that imply a requirement for a 90 degree angle, but this isn't necessarily correct in all cases.

A lot of variation is possible with this measurement and this can impact the results significantly. One variable is the pressure used. Some documents refer to spring brake pressure and others refer to 100 psi. Compare a new brake to one that has been "worn in" or become burnished after use in the field. Many people feel that 90 degrees is required for peak mechanical force, and in theory that is true. However, there is very little difference in braking force beyond 90 degrees (+ or -10 degrees from 90) as shown in the graph below.



Since there is no way to tell how a brake was designed to work, drivers, mechanics and DOT inspectors can't rely on the angle between the pushrod and brake adjuster to indicate that brakes are properly adjusted.

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Frequently Asked Questions - Service and Maintenance - *CONTINUED*

What TMC RP 604B States:

The text in the TMC recommended practice says that the pushrod should not be in a bind and should be 90 degrees from the face of the actuator mounting surface. It goes on to say that this check is to insure that the actuator is in the proper holes for the proper adjuster length being used. There is nothing written about checking the pushrod to adjuster angle! Don't let anyone tell you that TMC requires 90 degrees, it simply isn't true.

The Haldex Advantage

The pushrod to adjuster angle is critical for some automatic brake adjusters on the market, and this is the reason they require a template for installation. This is not the case for the Haldex S-ABA or AA1 models. No template is required and the angle is NOT critical for proper installation or operation.

Is 90 Degrees a Federal Requirement?

There is no Federal law nor is there a CVSA inspection requiring 90 degrees with the brakes applied. Although some fleets would rather not take a chance and prefer to prevent the possibility of being ticketed or targeted. That's their prerogative and they need to work directly with truck and trailer manufacturers to insure their expectations are being met as new equipment is built.

When Does 90 Degrees Apply?

When cutting a pushrod on a replacement actuator, a 90 degree angle is referred to (using a square). This is simply a reference and provides measurement consistency. Refer to Haldex Service Bulletin L58002.

During installation the pushrod should be threaded 1 full turn through the clevis yoke (no more than 3/16"). The Haldex ABA should be adjusted to shoe to drum contact and then backed off ½ turn for the initial setup. If done correctly, this method will provide approximately 90 degrees with the brakes applied. If the angle is something other than 90 degrees there is no need to make adjustments as long as no interference exists. The Haldex brake adjuster will operate correctly regardless.

Follow your company's policy:

Follow your company's procedures if they are more stringent than industry standards.

Where to Find More Information:

CVSA website: http://www.cvsa.org/home.aspx

Federal Regulations website: http://www.fmcsa.dot.gov/rules-regulations/administration/fmcsr/fmcsrguide.aspx