

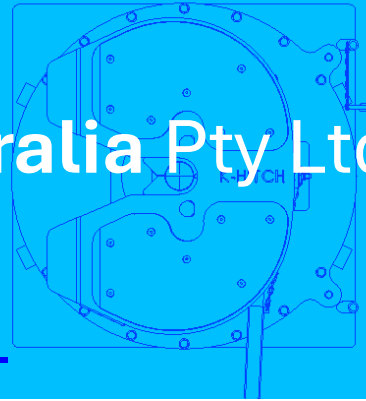


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INSTALLATION BULLETIN

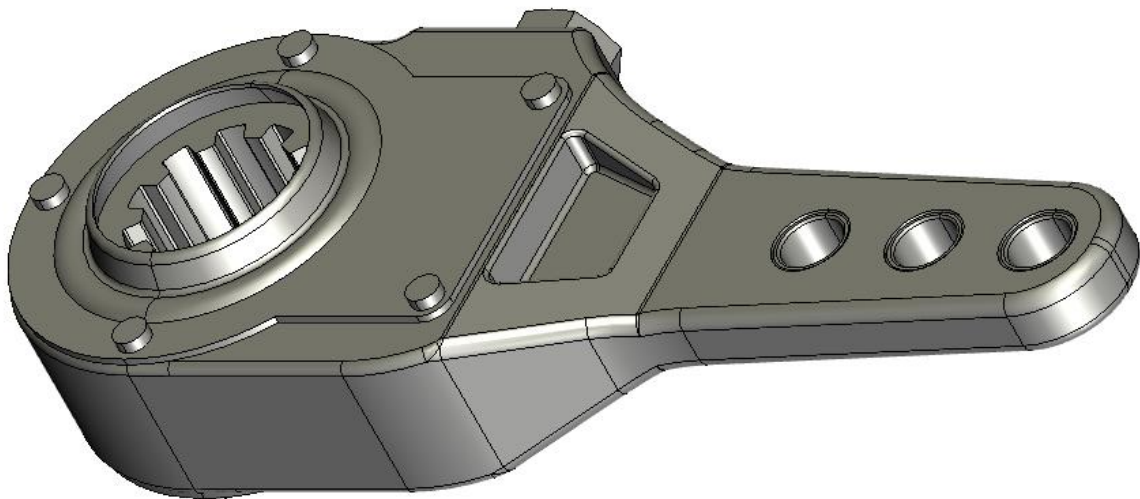
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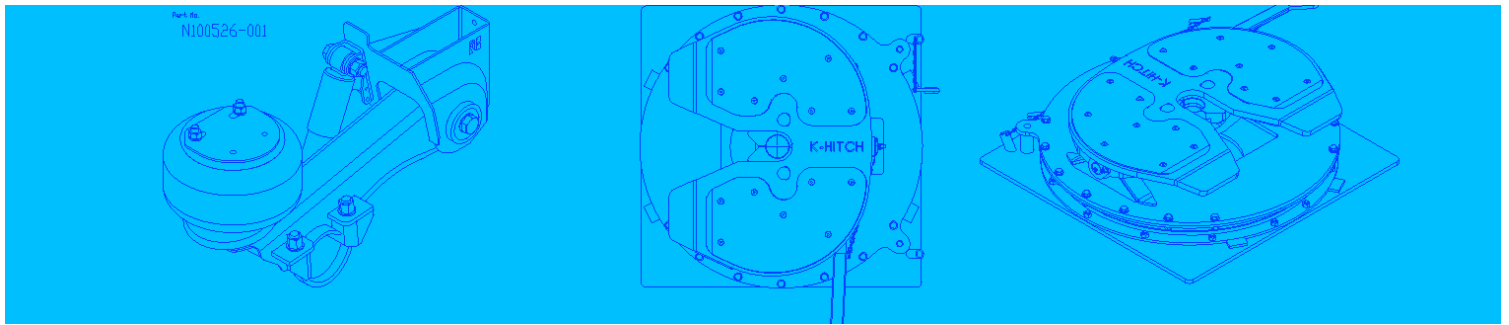
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Reference Documents : KPM-001-1016 Rev 8

INSTALLING MANUAL SLACK ADJUSTERS





SCOPE

This document covers the fitment of manual slack adjusters (MSA) on drum brake systems.

INSTALLATION RECOMMENDATIONS

Install the brake chamber onto the axle following the installation recommendations then follow the instructions in this document.

The brake system is a safety critical component of the vehicle combination and needs to be specified and installed according to the legal requirements and manufacturers recommendations.

Precautions

Below are a few safety points to consider when installing brake boosters, a company specific safe work practices and risk assessment study should be conducted and followed.

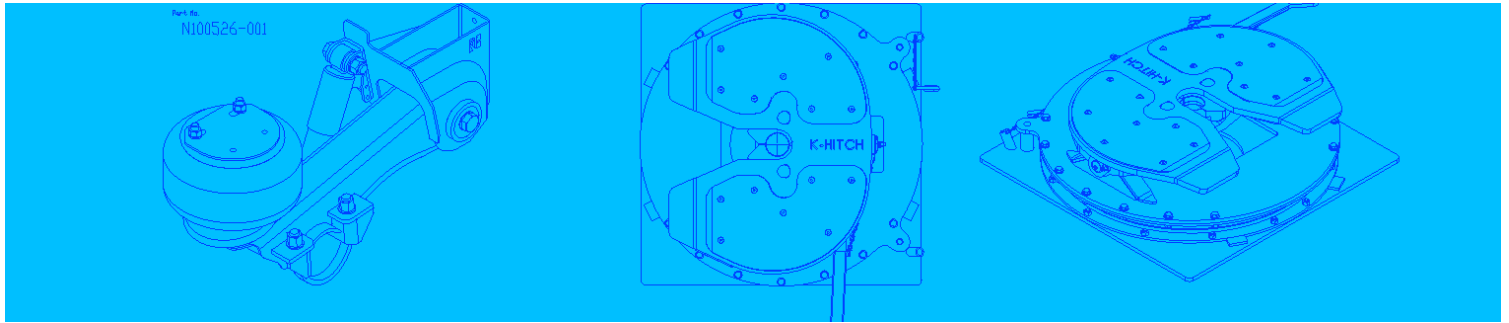
1. Follow company procedures.
2. Wear Personal Protective Equipment (PPE) as directed.
3. The brake chamber contains a spring under pressure do not disassemble.
4. Follow build documentation, ask for support if unsure.
5. Use the correct equipment for the job.
6. Always chock the wheels when working on the brakes.
7. Be careful of pinch points on your hands.

Preparation

The **correctly sized brake chamber** should be installed onto the axle assembly in the **specified location**. If this brake chamber is a spring brake chamber the chamber should be caged until after the slack adjuster is correctly adjusted.

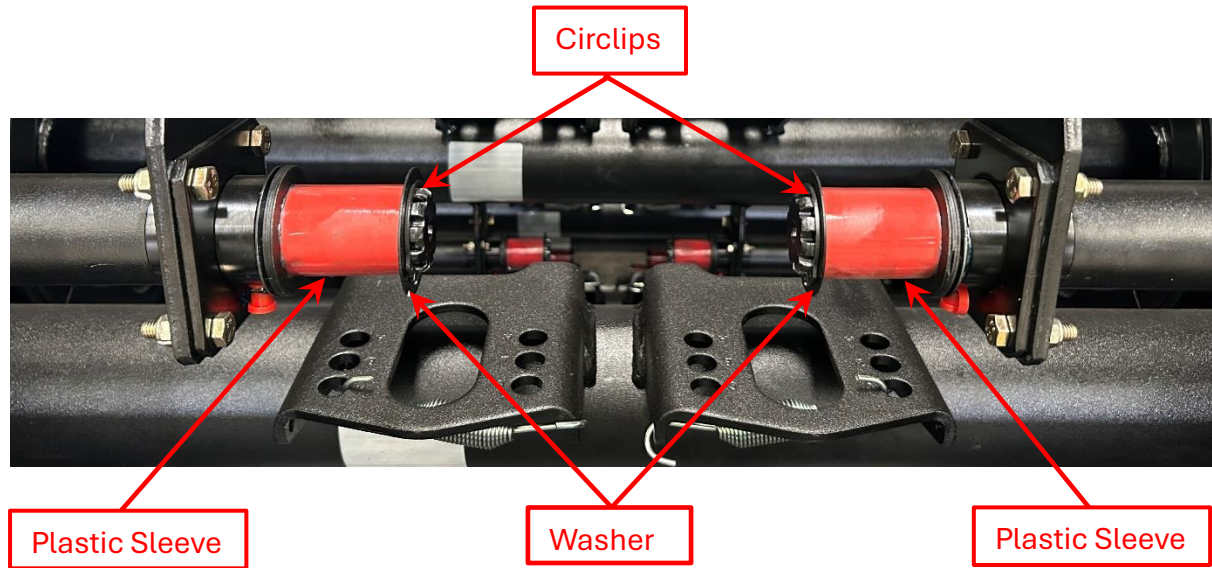
Ensure that all of the correct parts have been supplied and the brake chamber position on the slack adjuster specified as per the brake calculation.

Ensure that the brake chamber pushrod is cut to the correct length.

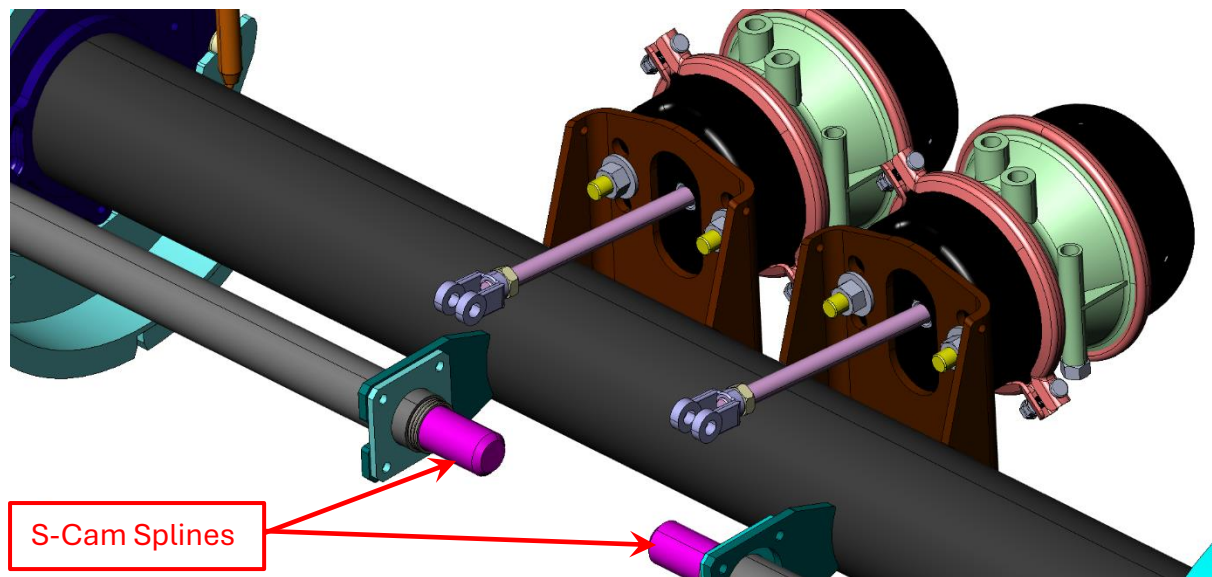


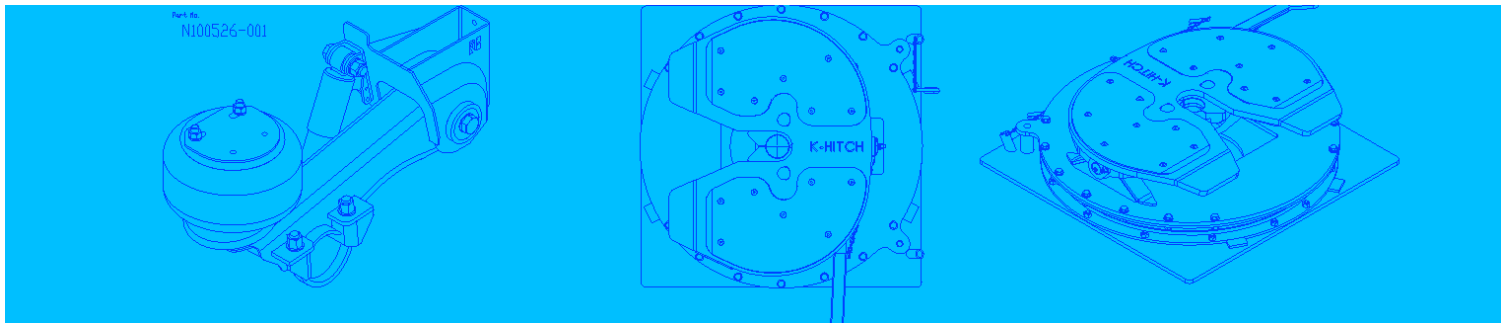
Assembly

Remove the circlips, outside slack adjuster washers and red plastic protection sleeves from the S-Cam shaft. Parts illustrated below.

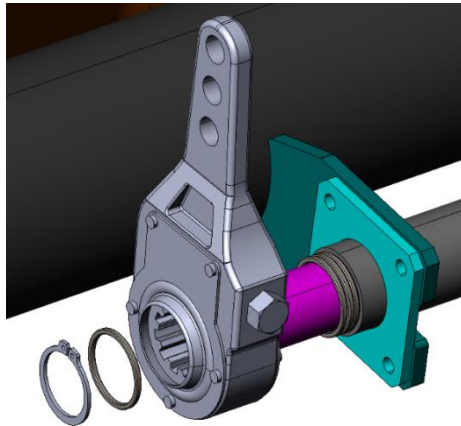


Ensure that the S-Cam spline is clean and has some lubrication on it, the anti-rust protection on a new axle assembly is acceptable. *(Castrol Ultratak (NLGI 2) or equivalent is recommended)*

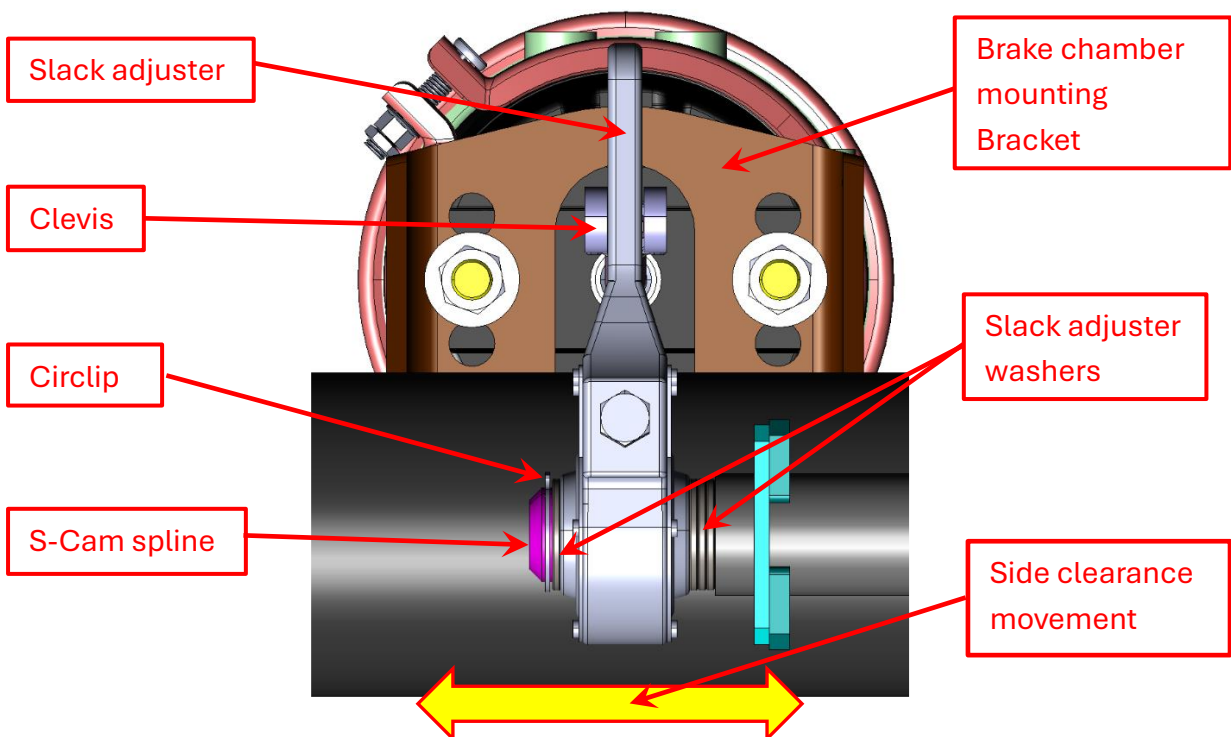


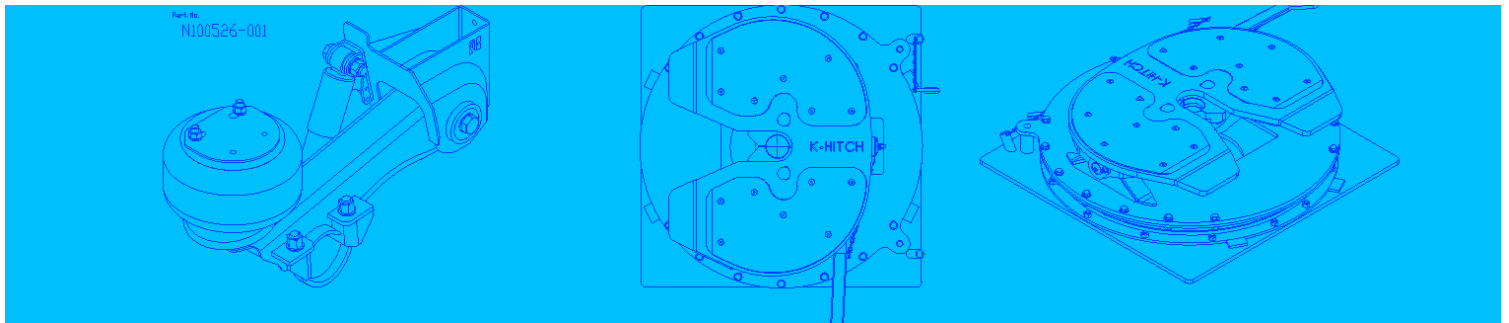


Select a spline that will allow the manual slack adjuster to slide onto the S-Cam spline but also pass the brake chamber push rod a clevis already mounted onto the axle. Ensure that the slack adjuster washer is installed and the retaining circlip is fitted correctly in the circlip groove in the S-Cam shaft as shown below.

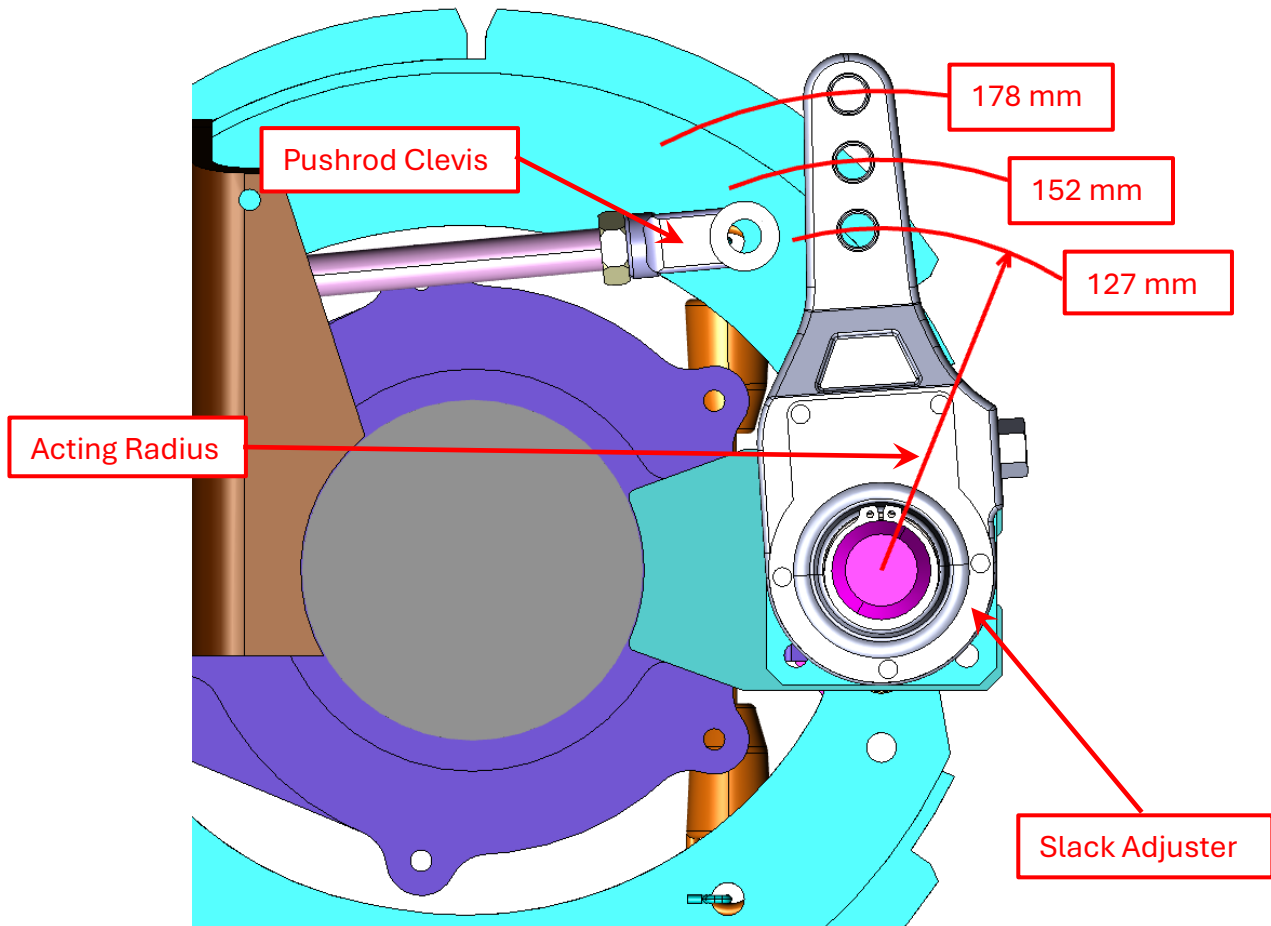


Once the slack adjuster has been installed onto the S-Cam spline the side clearance needs to be checked. The allowable tolerance for the slack adjuster side clearance along the S-Cam spline is 0.5 mm to 2.0 mm and the slack adjuster must also be in the center of the brake chamber mounting bracket, the slack adjuster washers can be used to adjust both of these parameters.





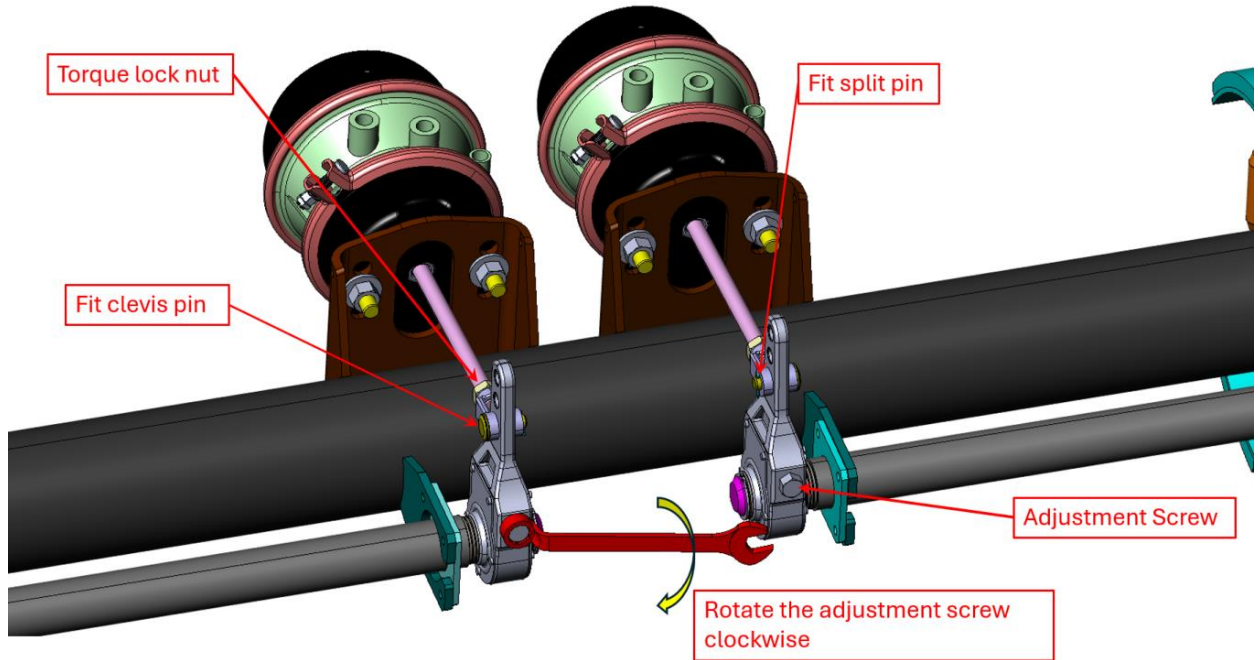
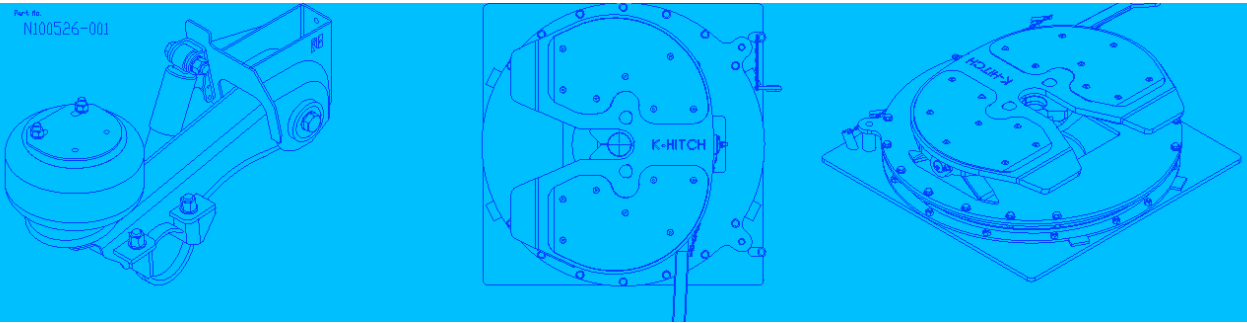
The brake booster needs to be installed at the correct position on the mounting bracket (127 mm {A-A} 5", 152 mm {B-B} 6", 178 mm {C-C} 7") and the pushrod clevis needs to be installed in the corresponding slack adjuster hole locations as shown below.



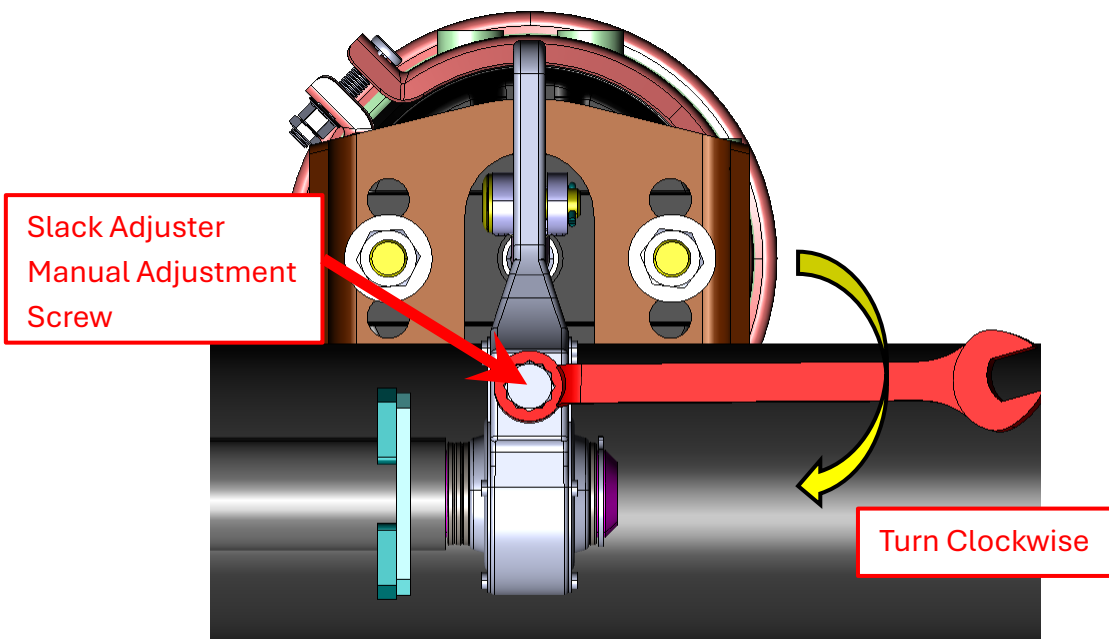
Using a 19 mm ring spanner, turn the MSA adjustment screw clockwise until the clevis pin pushes in easily by hand see the illustration below. *Note: do not pull the MSA backwards to fit in the clevis pin, if you have gone too far forward, back off the MSA by turning the adjuster screw anti-clockwise and start again.*

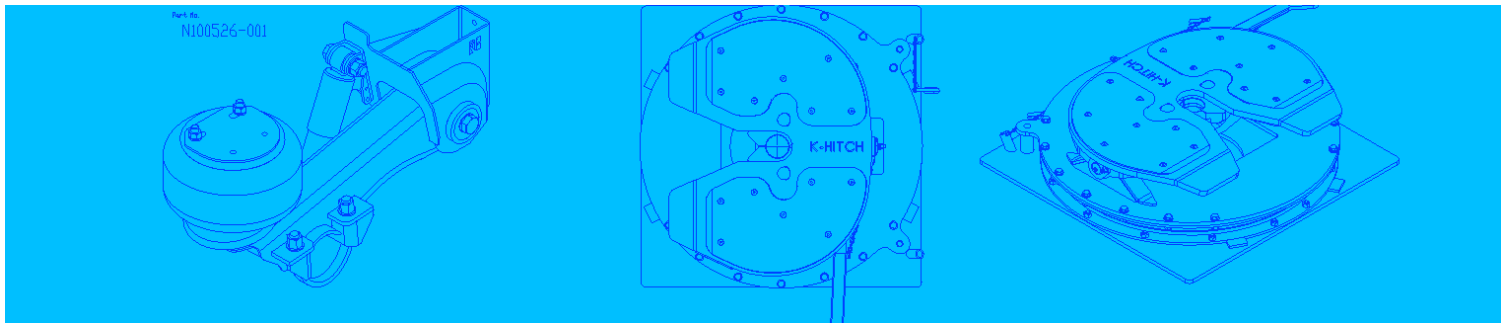
Use new split pins and make sure that they are deformed correctly to ensure secure connection of the clevis pin in the clevis and slack adjuster.

The clevis lock nut can now be torqued to 61 - 68 Nm (45 – 50 fl-lbs). It is good practice to hold the clevis with a spanner as the clevis lock nut is torqued up to ensure no torsional load is put into the brake chamber or slack adjuster.

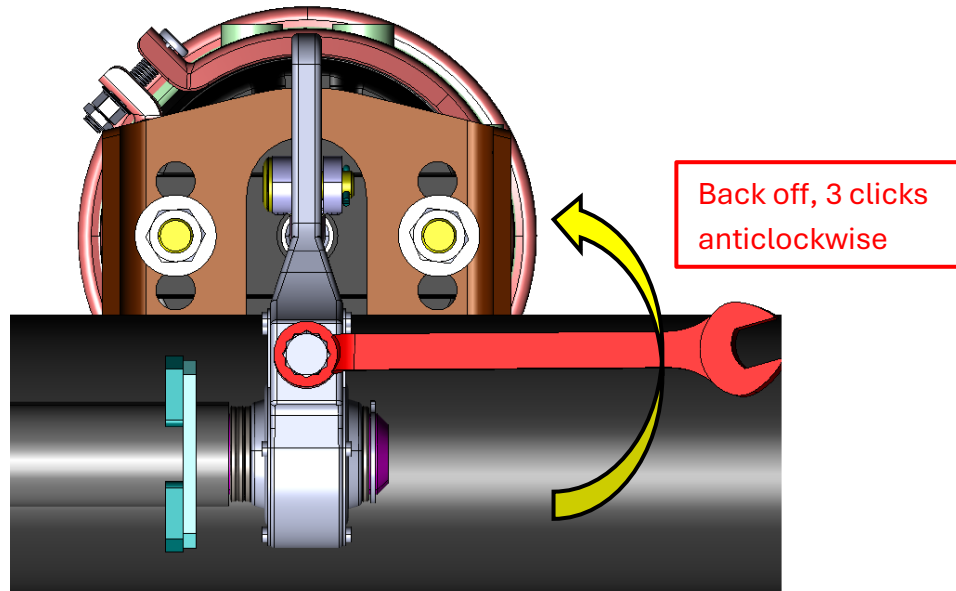


Now the slack adjuster free play needs to be set by turning the slack adjuster manual adjuster screw, clockwise until there is resistance and apply approximately 20-25 Nm (15-18ft-lb).

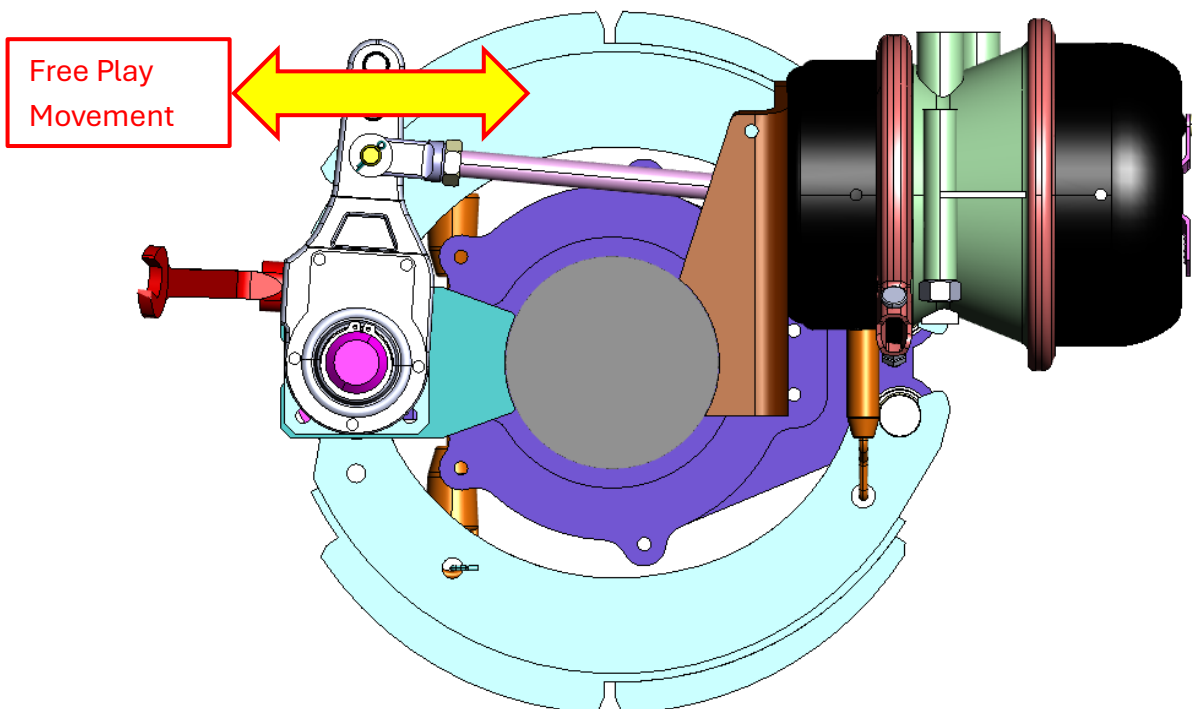


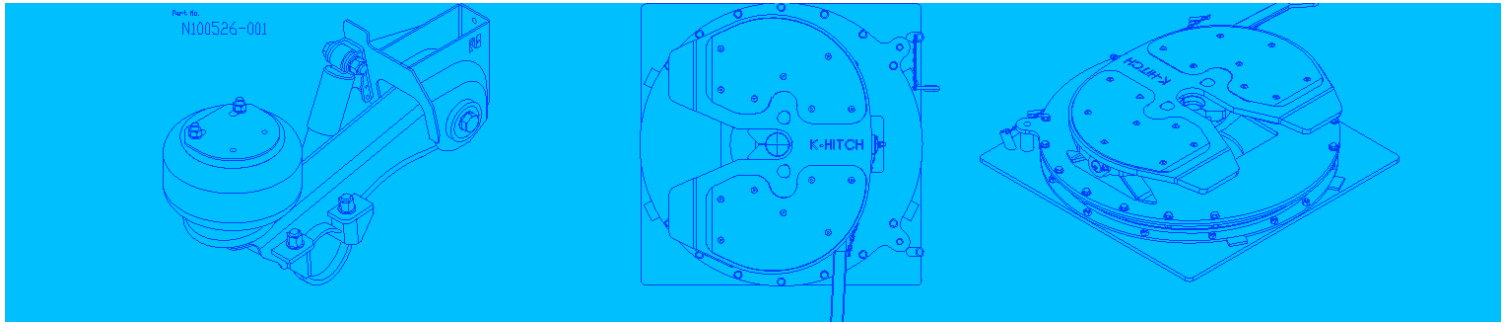


Then back off the manual adjustment screw, 3 notches, anticlockwise (or approximately 1/4 turn).

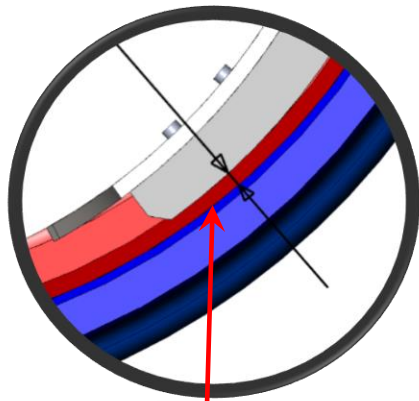


The slack adjuster should have between 6 and 10mm free play, this is usually sufficient to provide proper brake shoe to drum clearance. Allowing sufficient clearance to stop brake shoe drag and also allow correct operation of the pneumatic brake system.

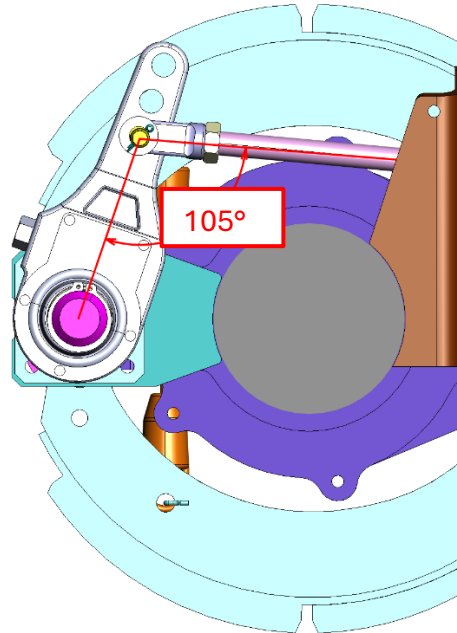




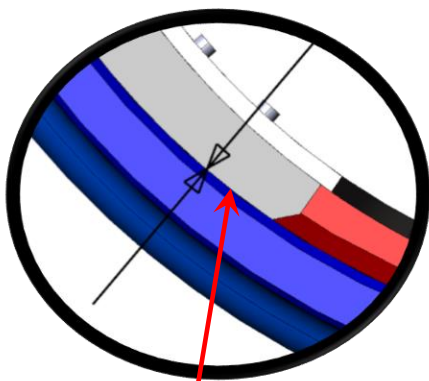
There should be an approximate angle of 105 degrees between the brake chamber pushrod longitudinal axis and the line of action of the slack adjuster with the brakes not activated as shown below.



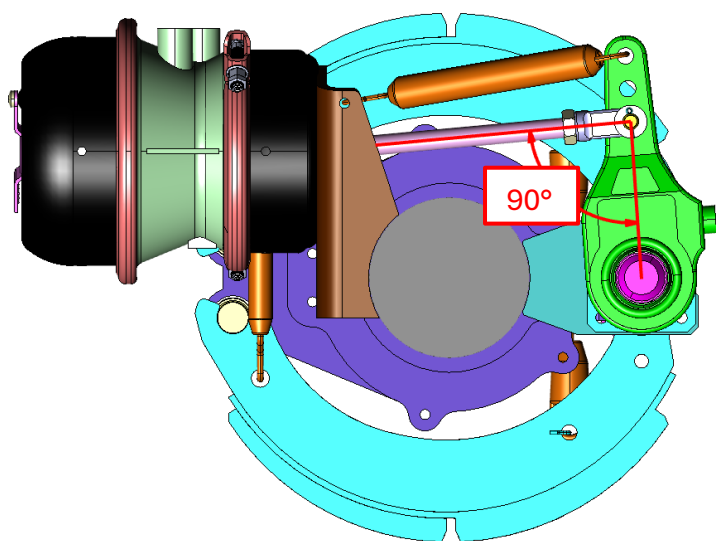
Brake Shoes Clearance

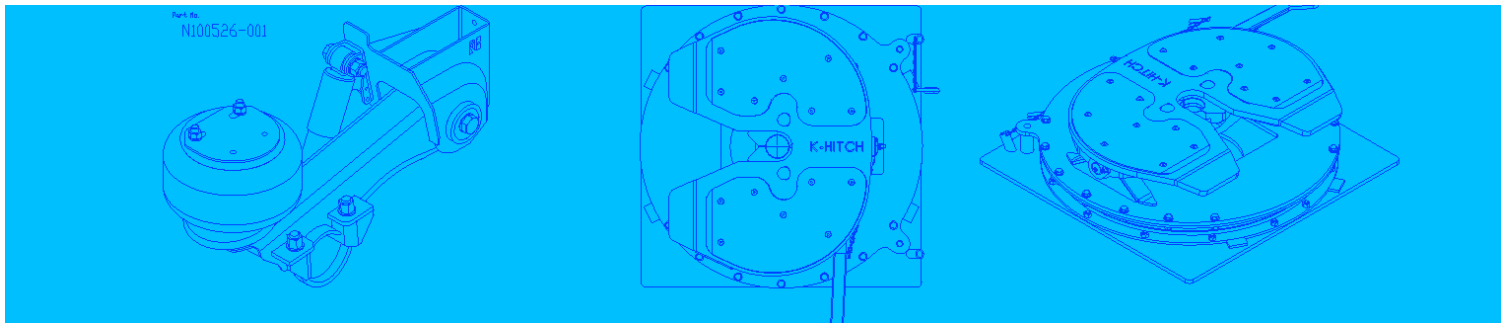


At the full applied operating brake pressure (*more than 650 kPa*) the angle between the pushrod longitudinal axis and the slack adjuster line of action should be approximately 90° as shown below. *Caution: the pushrod and slack adjuster will move stay clear.*

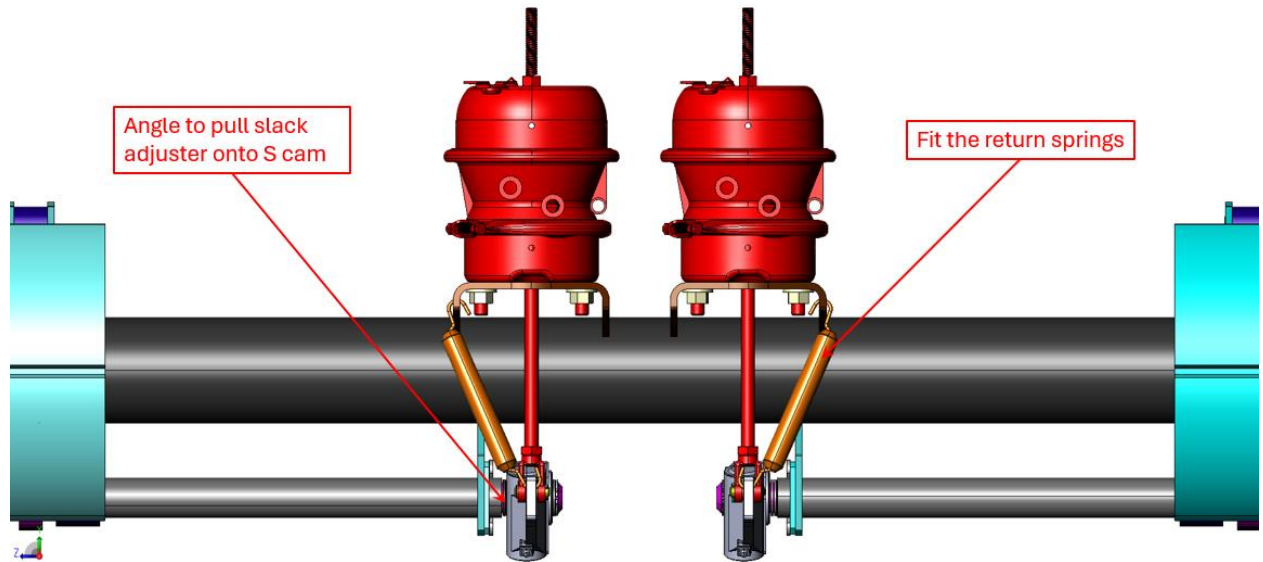


Brake Shoes engaged



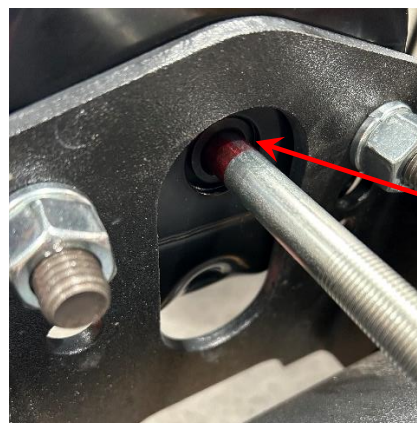


The slack adjuster return springs can now be fitted, in the direction to pull the slack adjuster onto the S-Cam shaft as shown below. *Caution: the spring can pinch your skin.*



The spring brake chamber can now be uncaged by applying more than 650 kPa air pressure into the park brake air port, undoing the T-Bar release tool nut enough to rotate the T-Bolt release tool 90° anticlockwise and extract it. The T-Bolt release tool (*Caging Bolt*) should then be fitted to the T-Bolt receptacle on the side of the spring brake chamber central aluminum section. Then release the air from the park brake system. *Caution: the pushrod and slack adjuster will move applying the brakes, expelling high pressure air as the air pressure is removed.*

Now check the brake systems operation with compressed air, also check that the red stroke indicator on the brake chamber pushrod is not visible when the brakes are applied, as shown below. (*If Visible - may require a 75 mm {3"} stroke brake chamber*)



Red Stroke Indicator Band