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SERVICE BULLETIN

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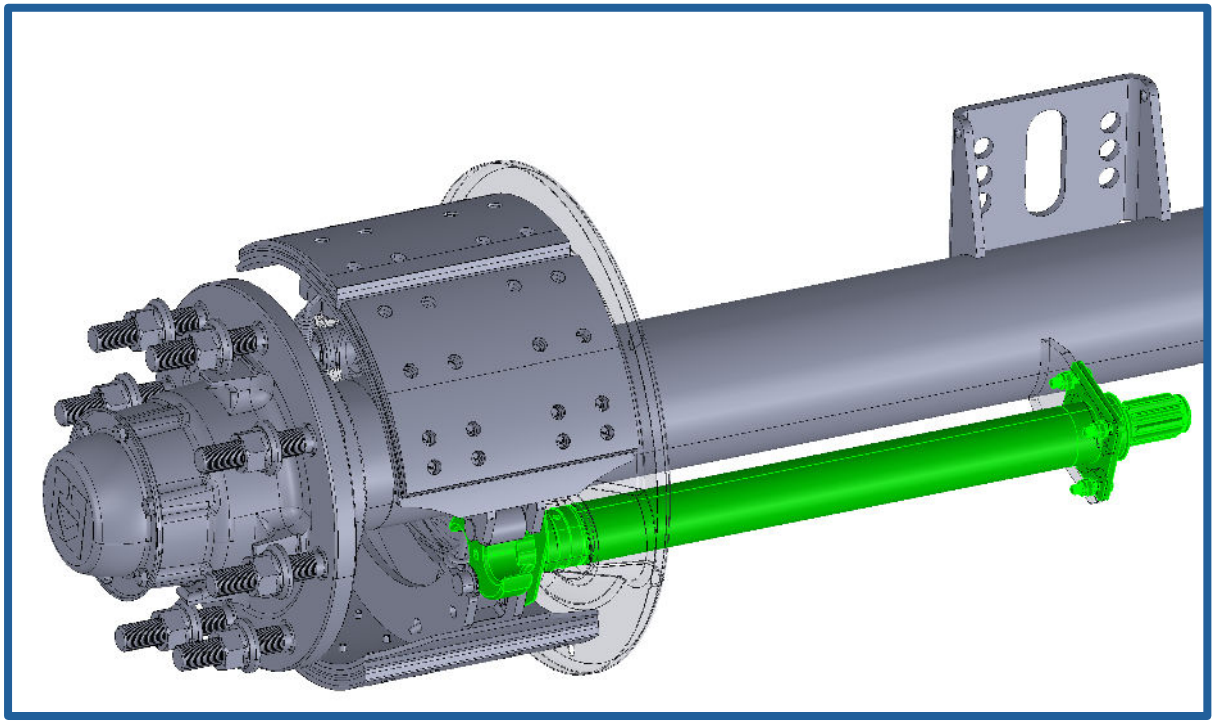
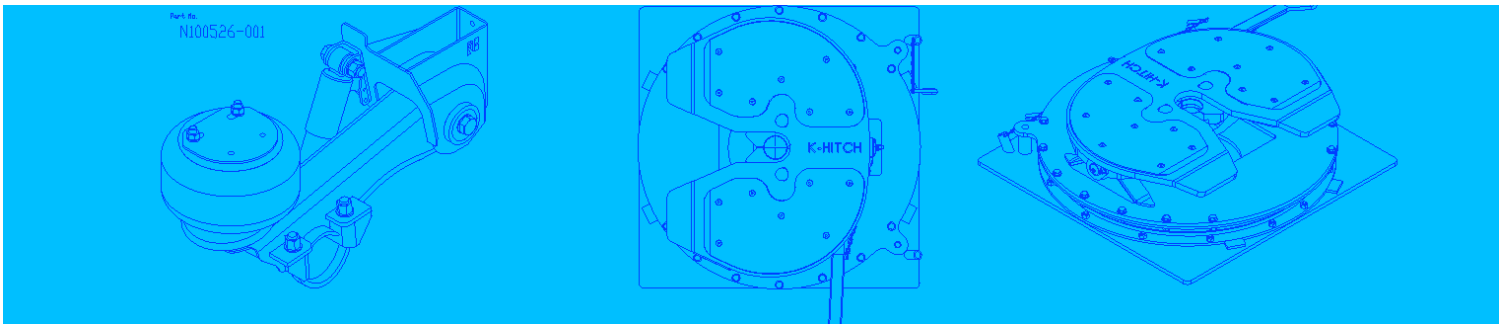
Revision : Rev A **Reference Documents :** SPB-020-085

D Washer Installation – S Cam Tube Replacement - KF22 Axles





SCOPE

This document lists the parts required to replace the S Cam tube on the KF22 enclosed S Cam axle with GP brakes and provides basic instructions on recommended procedures to perform this work.

KF22 axles assembled in 2026 will have the C12-0501 D Washer fitted at the factory. If rebuilding axles manufactured before this break point the D Washer are added to the S Cam kits C30-0201-627K and C30-0201-604K are recommended to be fitted.

SERVICE RECOMMENDATIONS

FUWA K-Hitch does not supply tools to perform this service work, so no detailed instructions are provided. The technician is expected to use industry best practice and the workshop tools supplied by their employer to perform these tasks.

Follow all Safe Work Practices, Health & Safety procedures and use appropriate PPE to perform this service work.

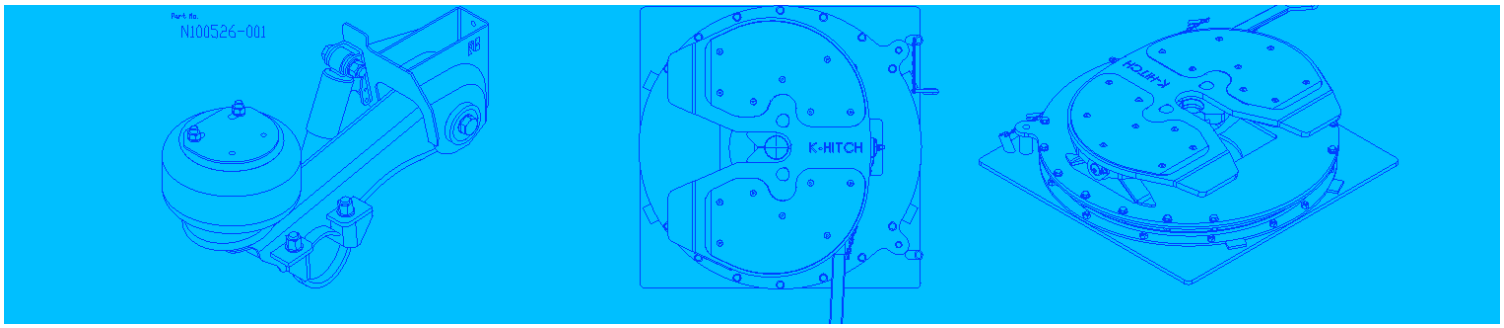
FUWA K-Hitch recommends using only genuine parts when performing service and repairs to FUWA K-Hitch axles. Please follow the recommendations available from the FUWA K-Hitch website https://www.khitch.com.au/ .

Parts

The S Cam kits contain all of the service parts to replace the S Cam tubes on the KF22 axle. We recommend replacing the S Cam along with the S Cam tube to ensure the foundation brake system functions as designed.

Figure 1 below shows the parts supplied in the S Cam tube kit along with the part numbers.

Inspect the parts to make sure all of the correct parts have been supplied and are not damaged from transit.



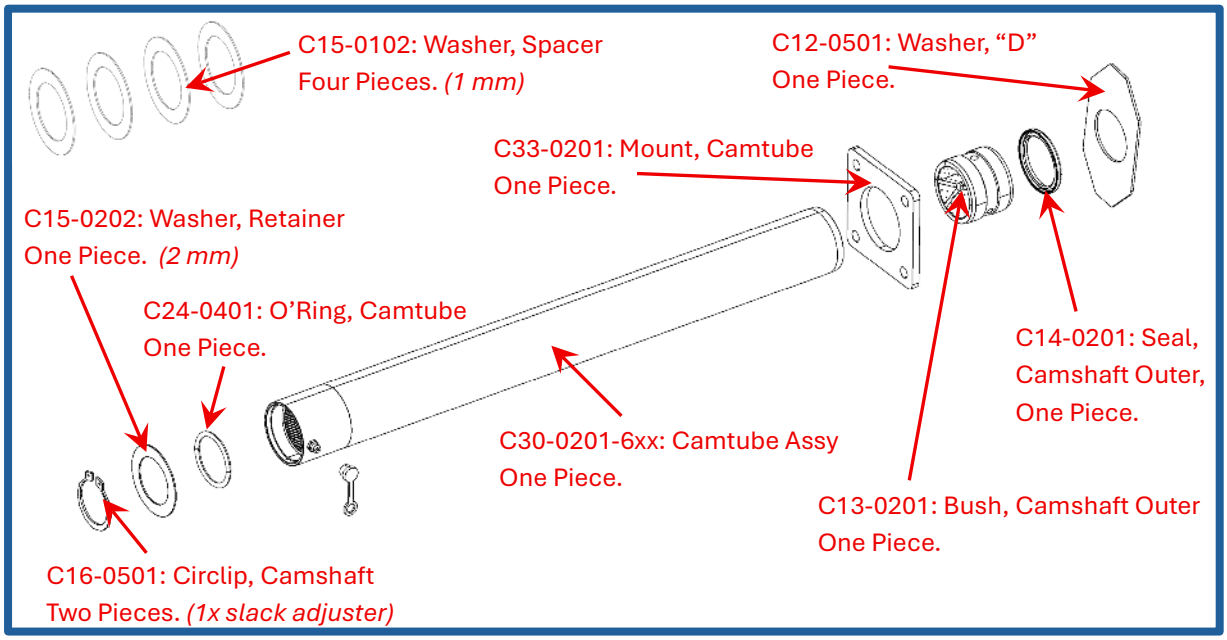


Figure 1: Cam Tube Kit Parts

Disassembly

Follow all company safety practices, chock the trailer and place axle stands under the axle.

Remove the wheels, un-tension the wheel nuts in a radial pattern as shown in figure 2 below.

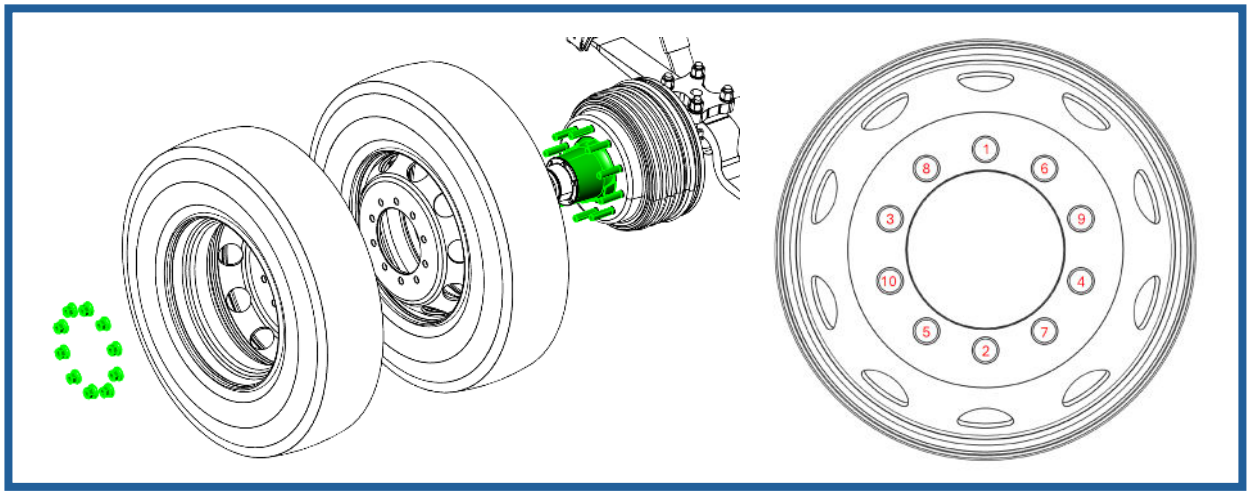


Figure 2: Removing Wheels

Remove the brake drum using the appropriate manual handling procedure, as shown in figure 3 below. *(Measure and inspect for serviceability)*

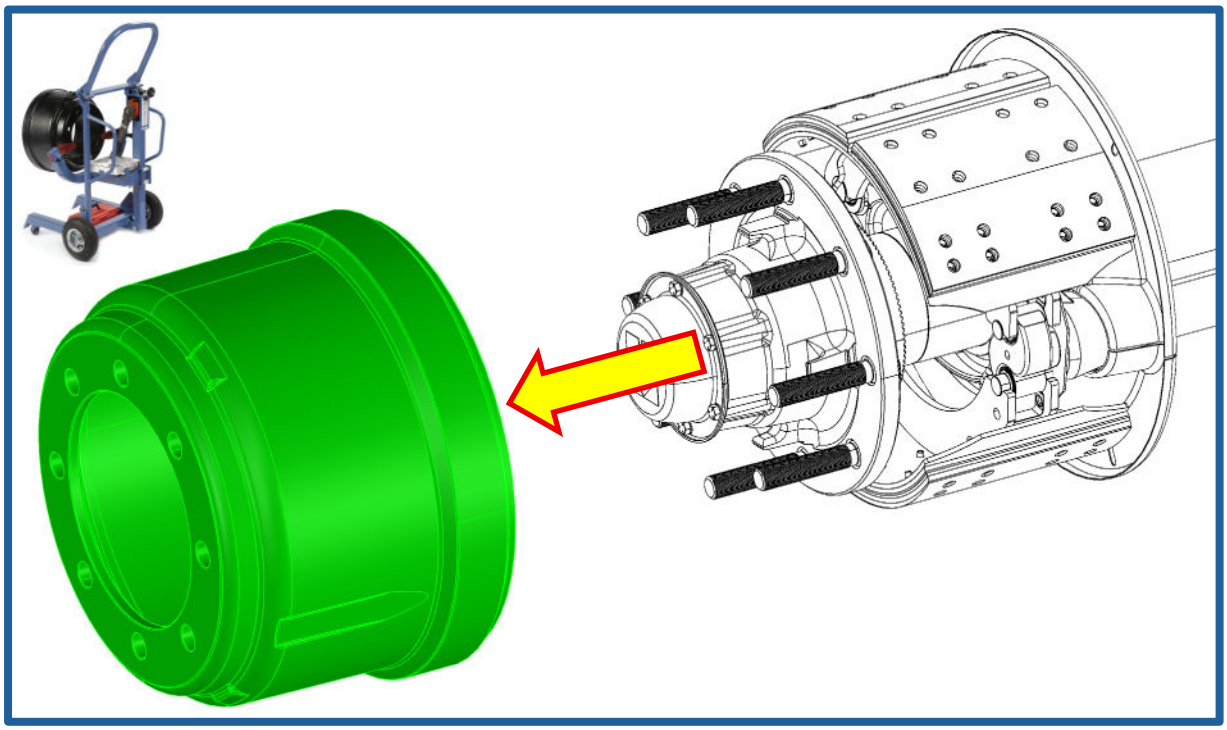


Figure 3: Remove Brake Drum

Remove the brake shoes following the industry best practice procedure, shown in figure 4 below. *(recommended replacing brake shoes with a FUWA K-Hitch repair kit)*

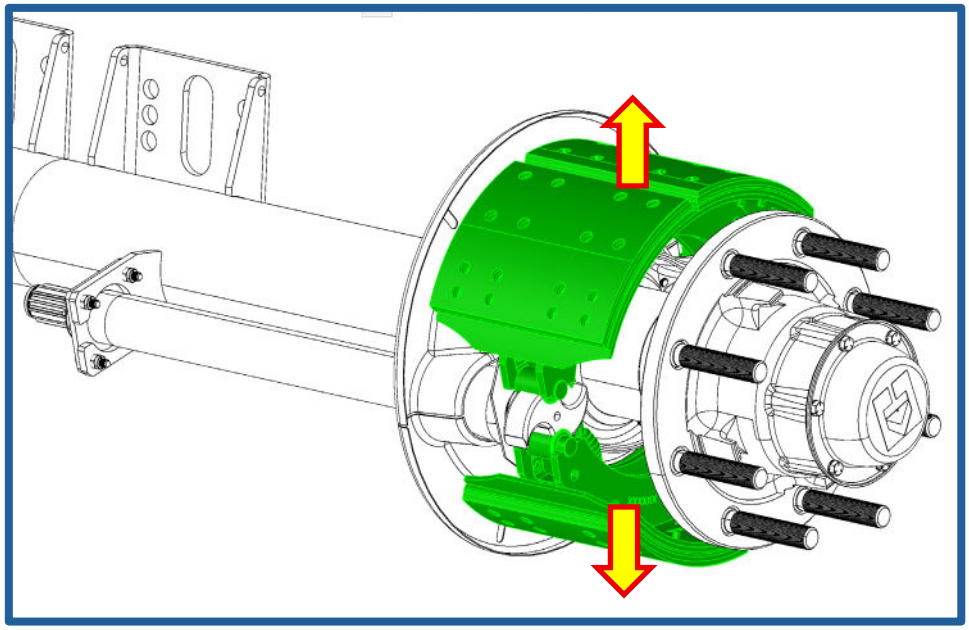
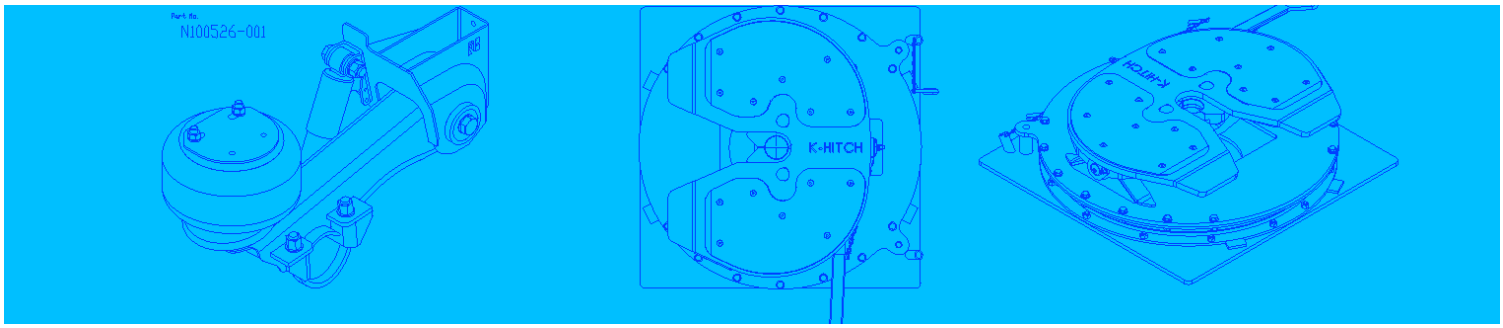


Figure 4: remove Brake shoes



Remove the hub, ensure the wheel bearing grease is not contaminated by dirt and the bearings are serviceable. Figure 5 below illustrates the hub removal.

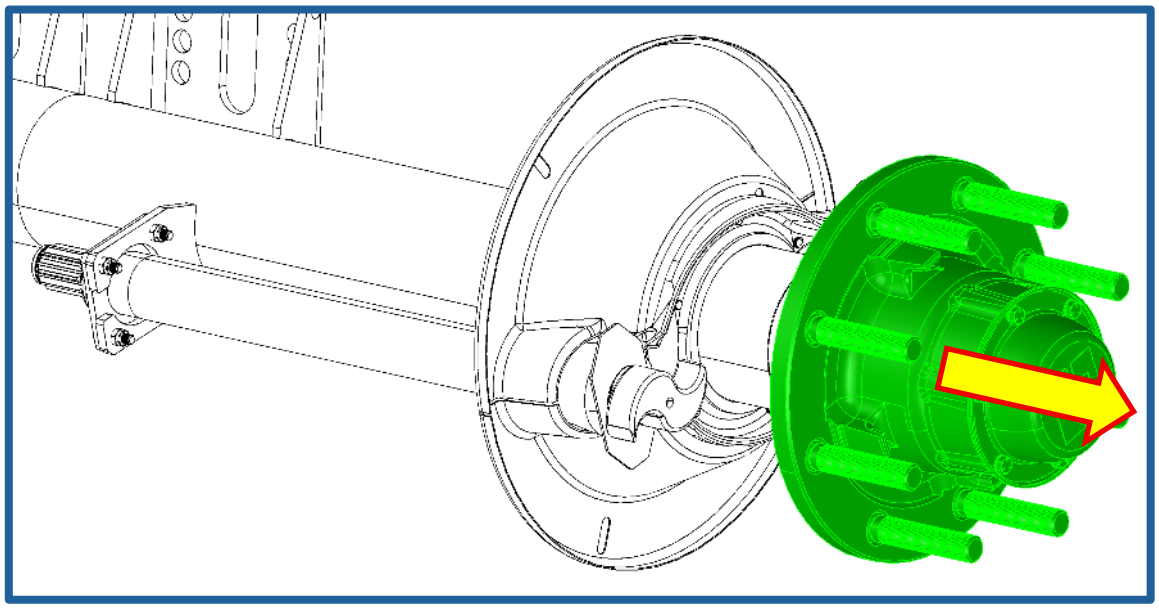


Figure 5: Remove the Hub Carefully

Remove the retaining circlips, clevis pins and remove the slack adjusters following industry best practice. Figure 6 below illustrates removing the slack adjusters.

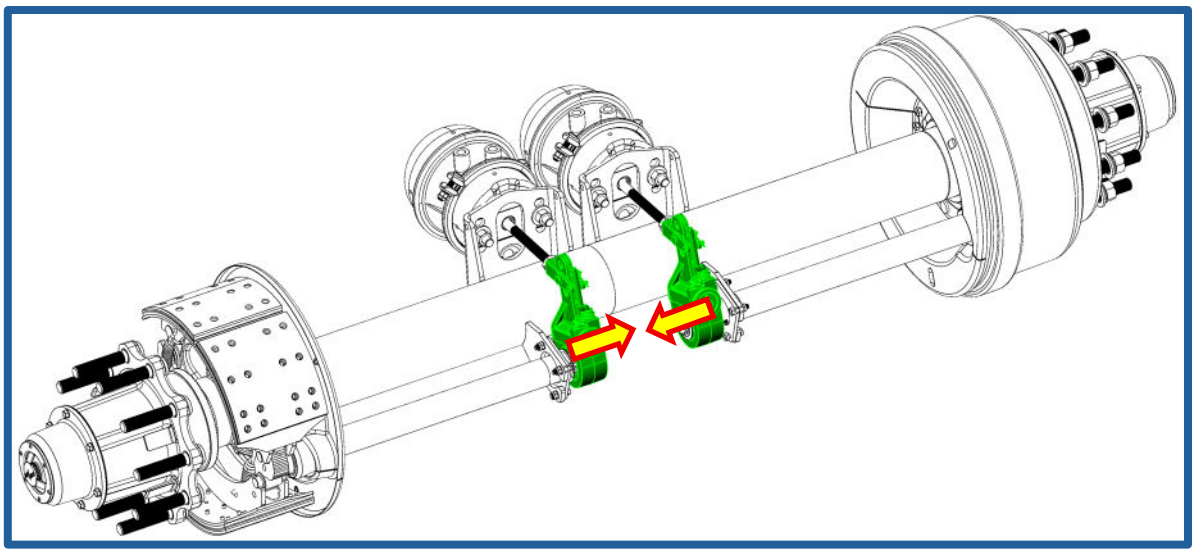
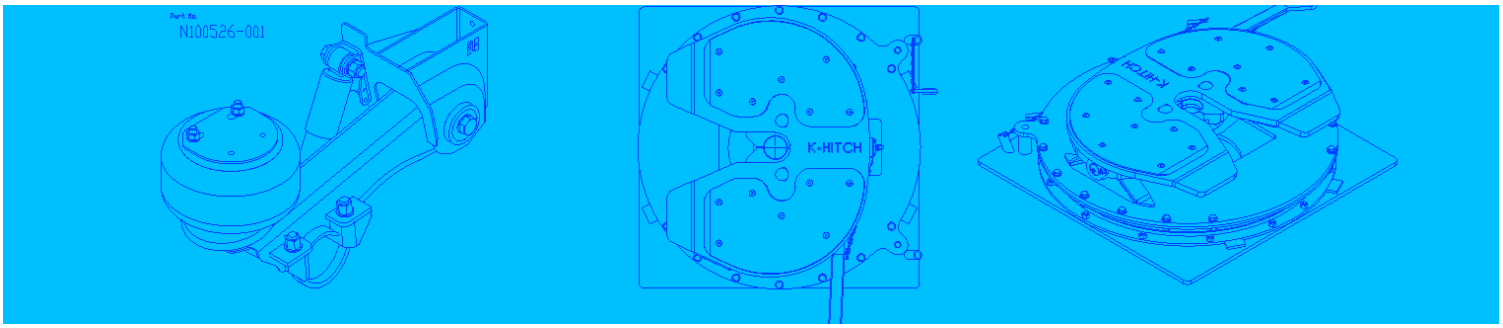


Figure 6: Remove the Slack Adjusters



Remove the inner S Cam retaining circlip and retaining washer, as shown in Figure 7 below, discard these parts, do not reuse. Extract the S Cam out of the S Cam tube, inspect for serviceability. *(It is recommended to replace the S Cam)*

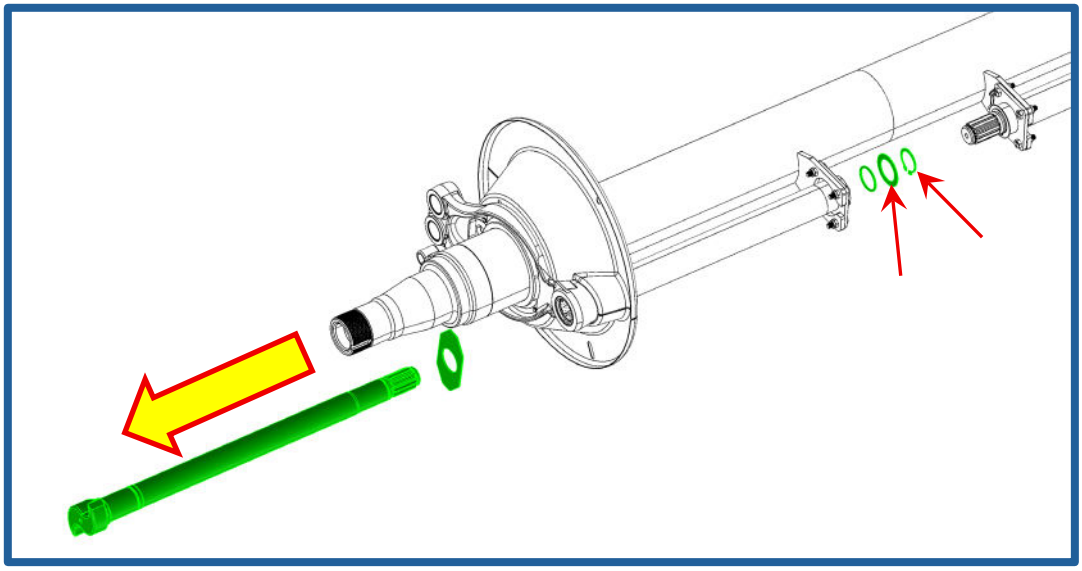


Figure 7: Remove the Retaining circlip and retaining Washer, Remove S Cam

Remove the S Cam retaining fasteners. As the nuts are Nylock fasteners it is recommended to replace these fasteners and not reuse them. Figure 8 below illustrates removing the S Cam tube. *(Old fasteners can be used when welding S Cam Tube)*

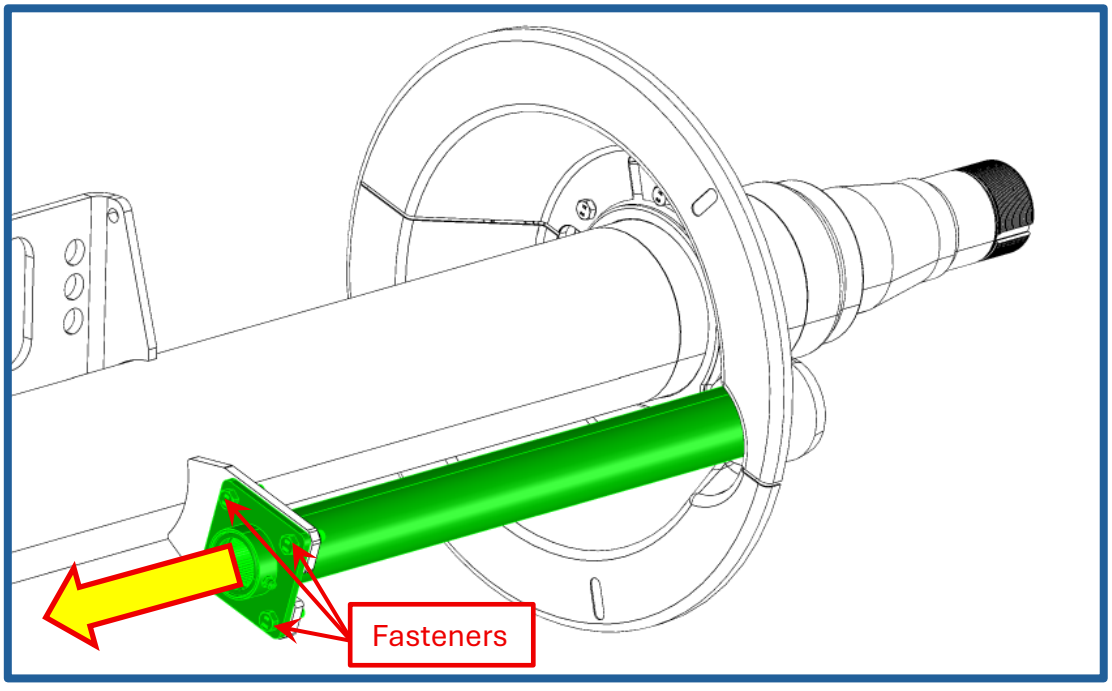
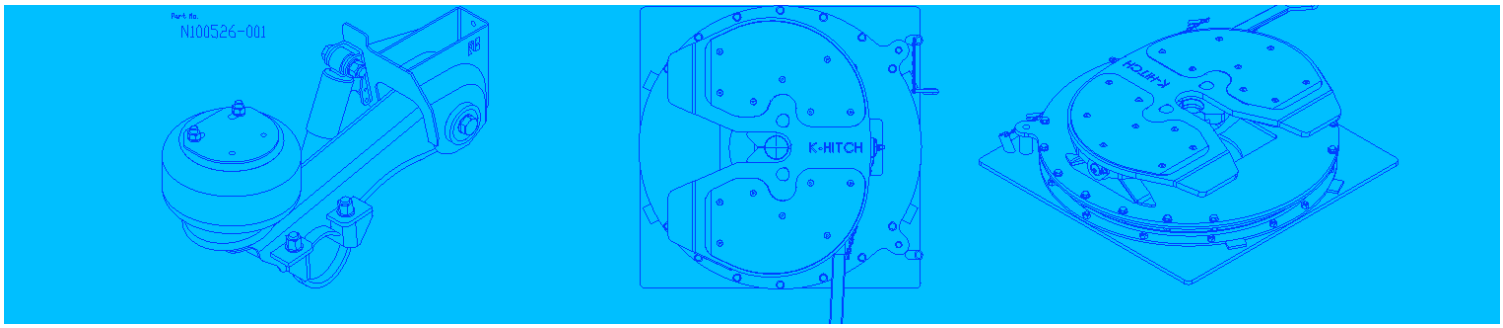


Figure 8: Remove the Old S Cam Tube



Carefully remove the outer S Cam seal using an appropriate tool. Do not damage the S Cam bore! Figure 9 below illustrates removing the seal.

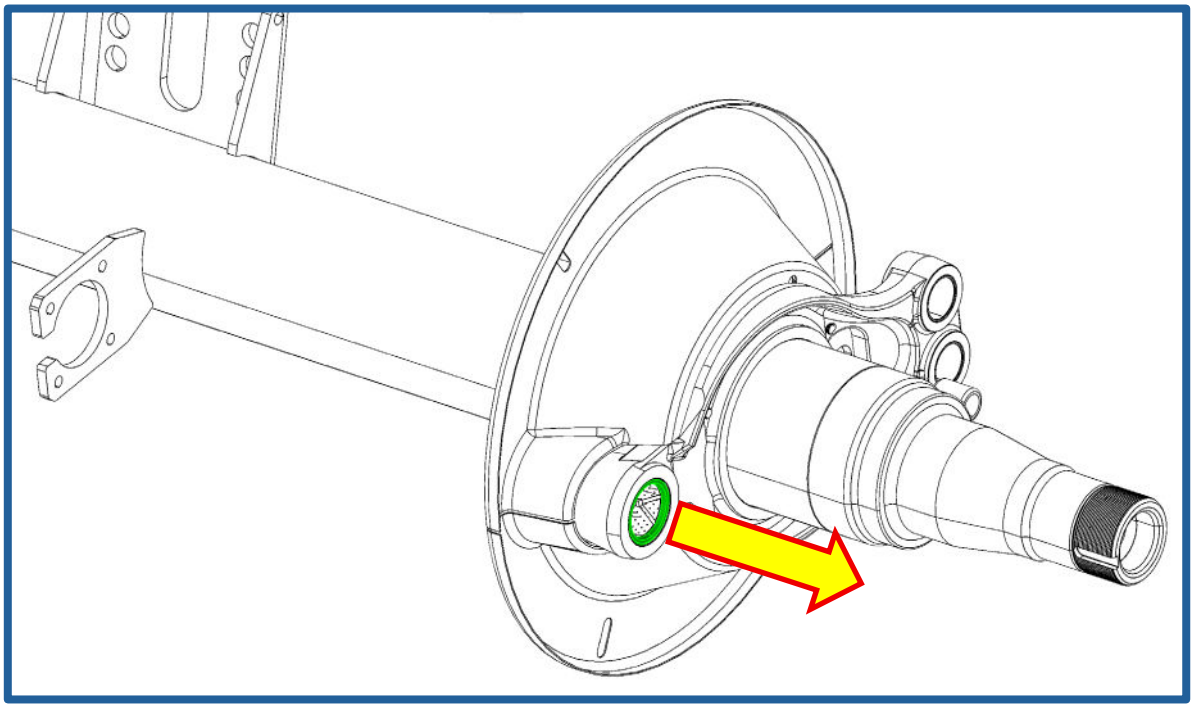


Figure 9: Remove the outer S Cam Seal

Using appropriate tools extract the outer S Cam bush. Do not damage the spider bore! Figure 10 below illustrates removing the outer bush.

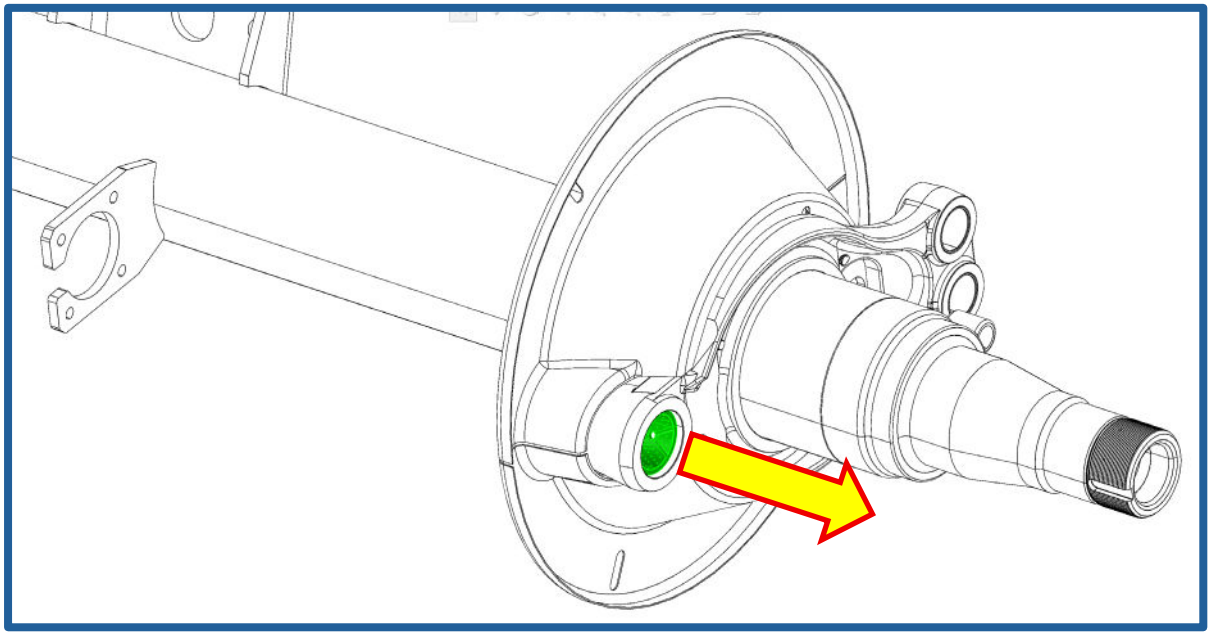
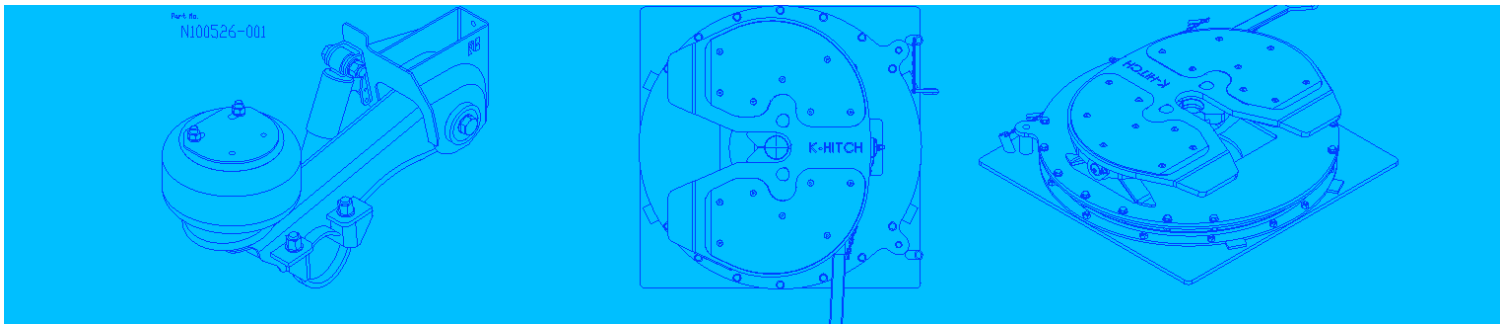


Figure 10: Remove the outer S Cam Bush



Assembly

Clean the spider bore and S Cam inner mounting bracket. Inspect for damage and serviceability. The S Cam mounting bracket needs to be flat and clean of paint and rust where the S Cam mount will attach to the S Cam bracket. Figure 11 below shows the sectioned view of the axle.

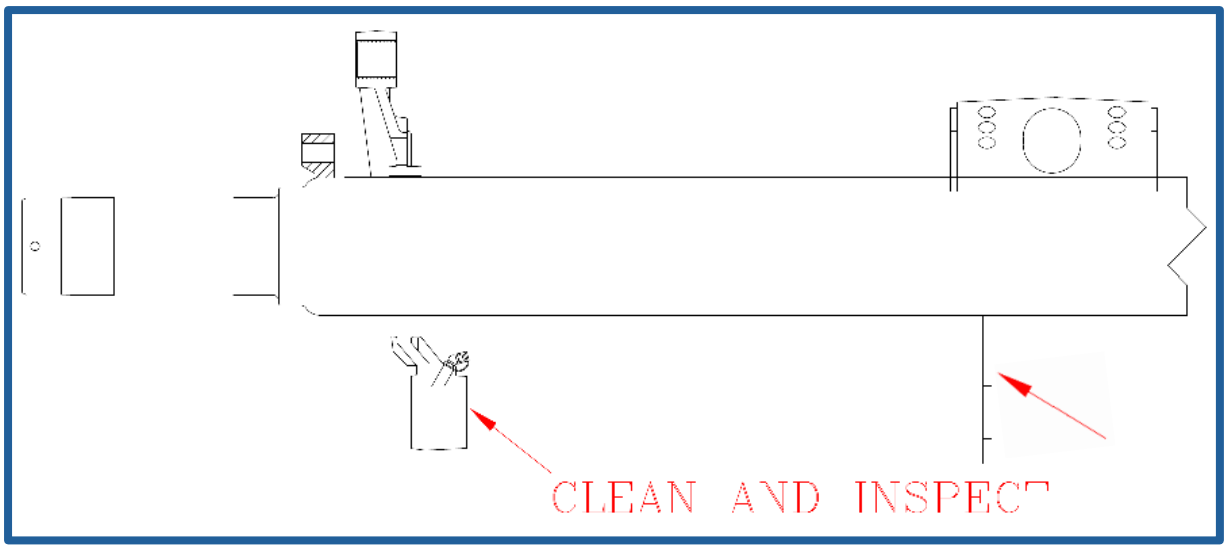


Figure 11: Clean and Inspect S Cam Bore and S Cam Mounting Bracket

Align the new outer S Cam bush so that one grease hole is orientated with the grease channel in the spider, as shown on figure 12 below. Also, with the split line in the bush facing away from the axle.

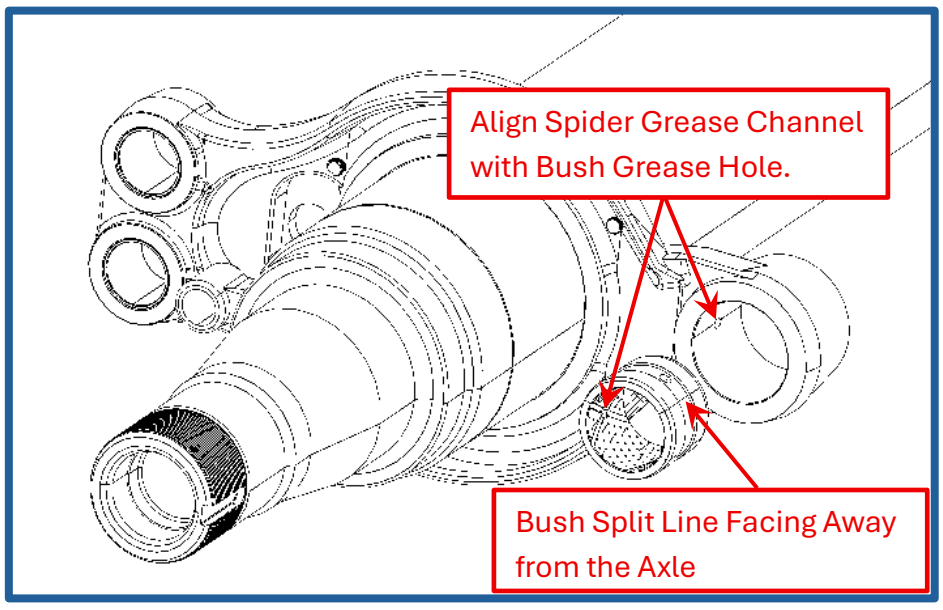
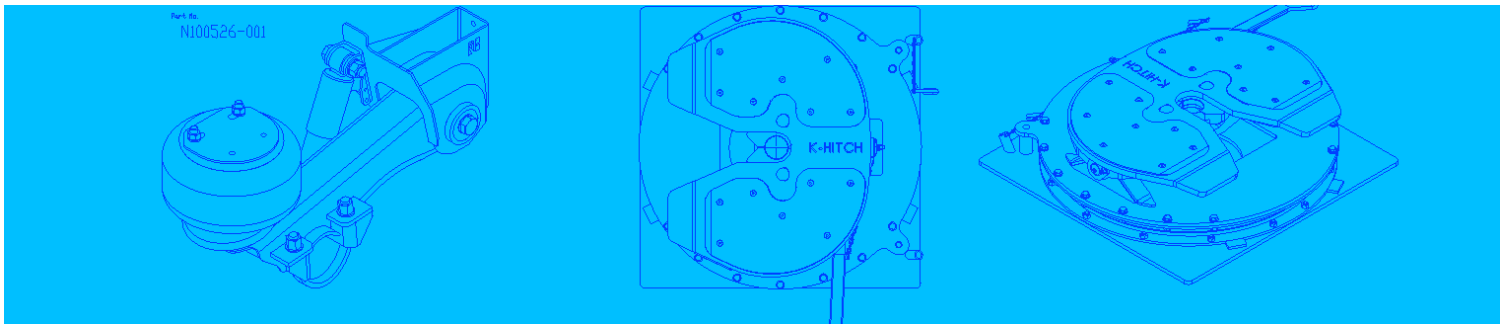


Figure 12: Align Outer S Cam Bush



Using industry best practice tooling, fit the outer S Cam bush into the spider. Ensure that the bush is fitted so that there is a 5.5 mm step on the outside of the spider as shown in Figure 13 below.

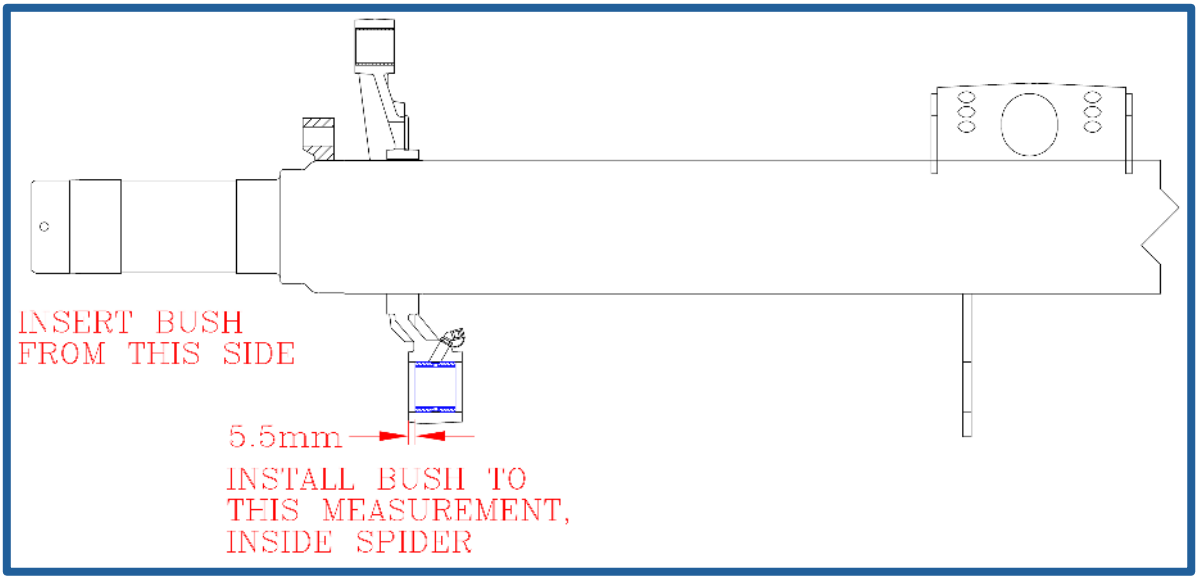


Figure 13: S Cam Bush Installed Into the Spider

The outer S Cam seal now needs to be installed into the spider. Ensure that industry best practice tooling is used, as a damaged seal can allow grease to contaminate the brake shoes and brake drum. The seal must be installed the correct way around with the steel face, orientated to the outside of the axle. The seal's steel face must be below the spiders outer face to ensure that the S Cam D washer does not contact it. As shown in Figure 14 below. *(Inspect seal for damage after installation, change if needed, can be installed after S Cam tube is welded)*

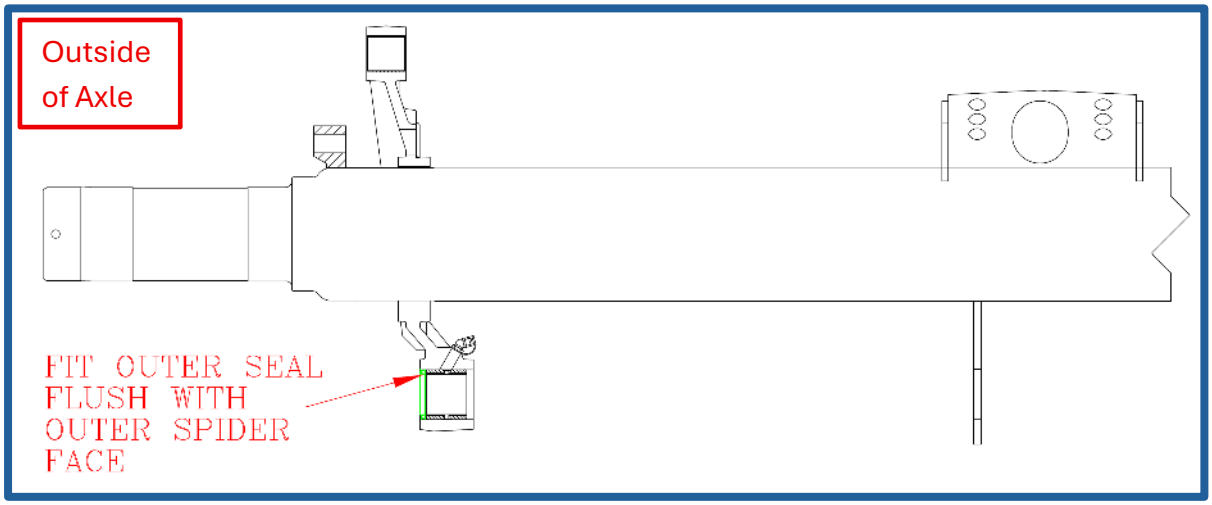
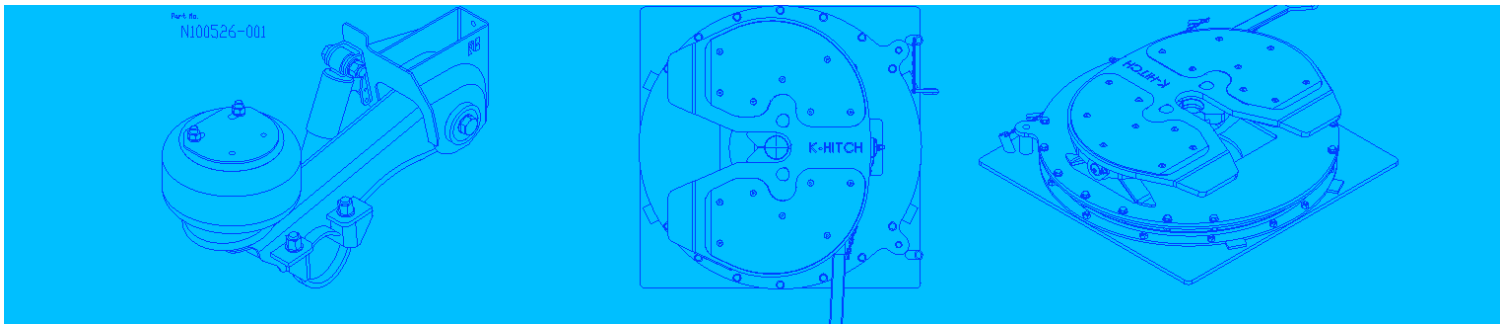


Figure 14: Installing the Outer S Cam Seal Into the Spider



Fit the S Cam inner mounting plate loosely to the inside of the S Cam bracket, welded to the axle, as shown in Figure 15 Below. *(Use old fasteners before welding)*

Then fit up the S Cam tube, through the S Cam mounting plate and into the spider bore. The S Cam tube must be pushed firmly into the spider bore, approximately 6 mm. Also align the grease nipple to face away from the axle.

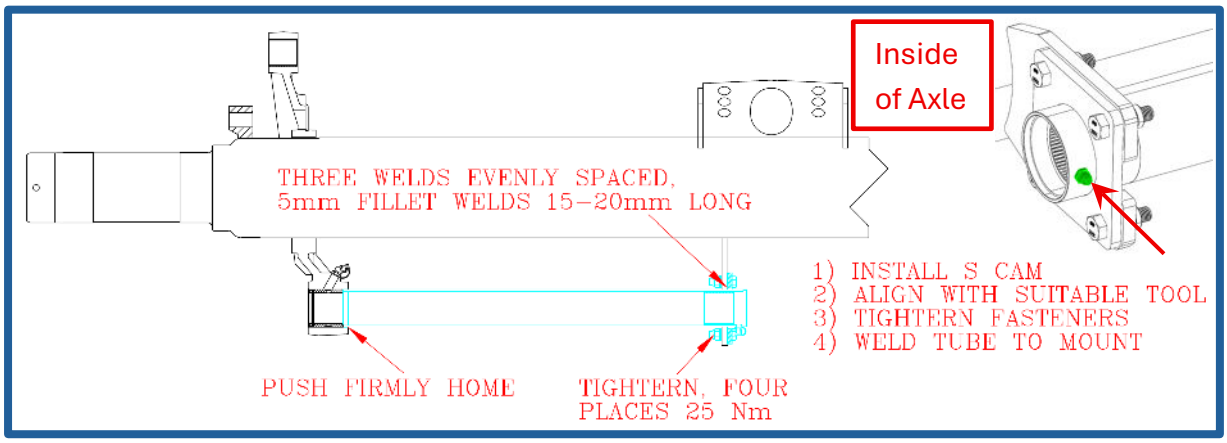


Figure 15: Assembling the S Cam Tube

Use a suitable tool to align the S Cam tubes with the spiders across the axle. This is important to ensure the correct operation of the foundation brake system and provide long service life. Figure 16 shows an example of an alignment tool. Torque up the old S Cam mounting fasteners to hold the mounting plate in position for welding.

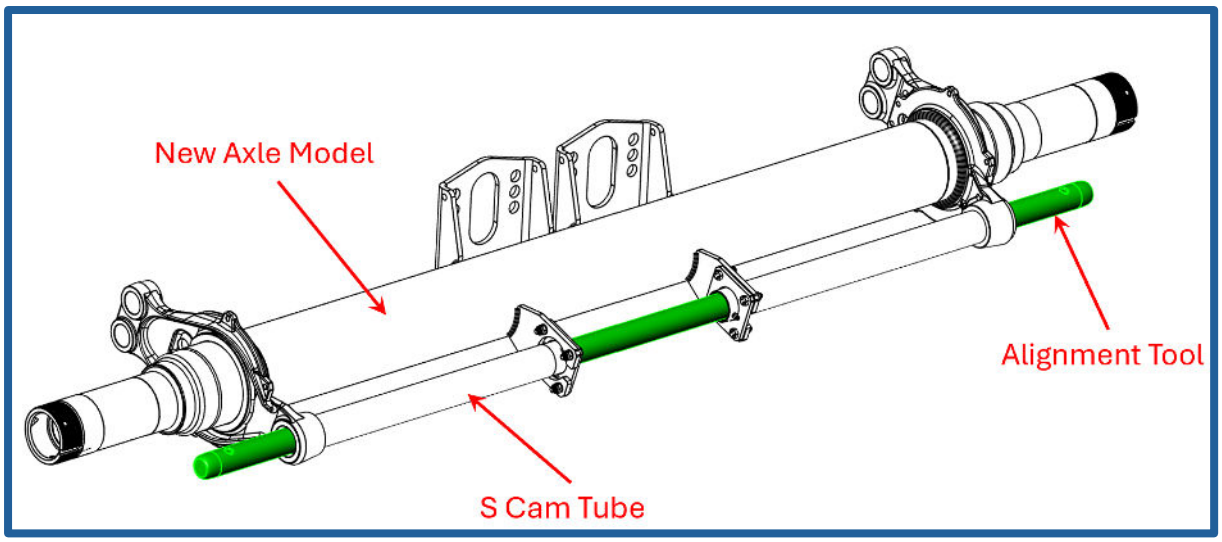
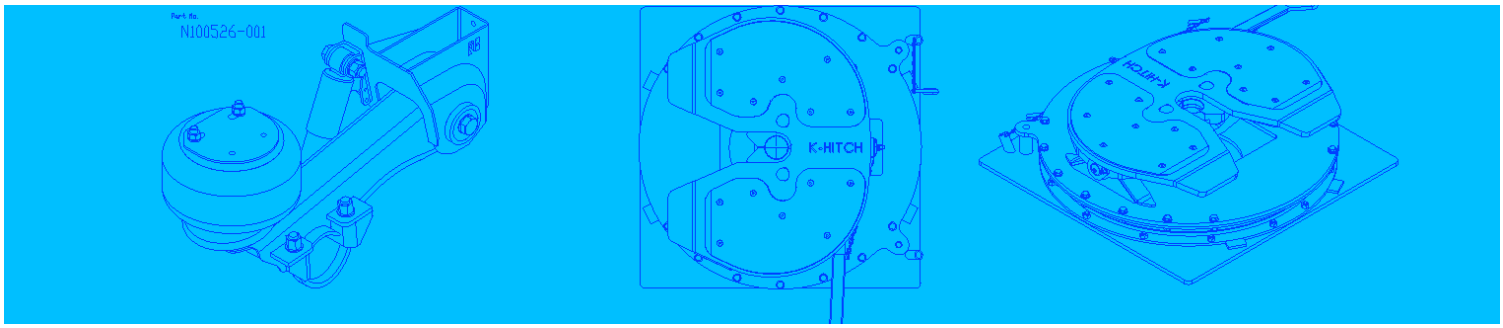


Figure 16: Align New S Cam Tubes For Welding



Following all safe work practices and using appropriate PPE, apply three 5 mm fillet welds, 15 – 20 mm long and evenly spaced, as shown in Figure 17 Below. Be careful to ensure that the weld does not capture the S Cam mounting bracket welded to the axle and penetrates both the mounting plate and S Can tube.

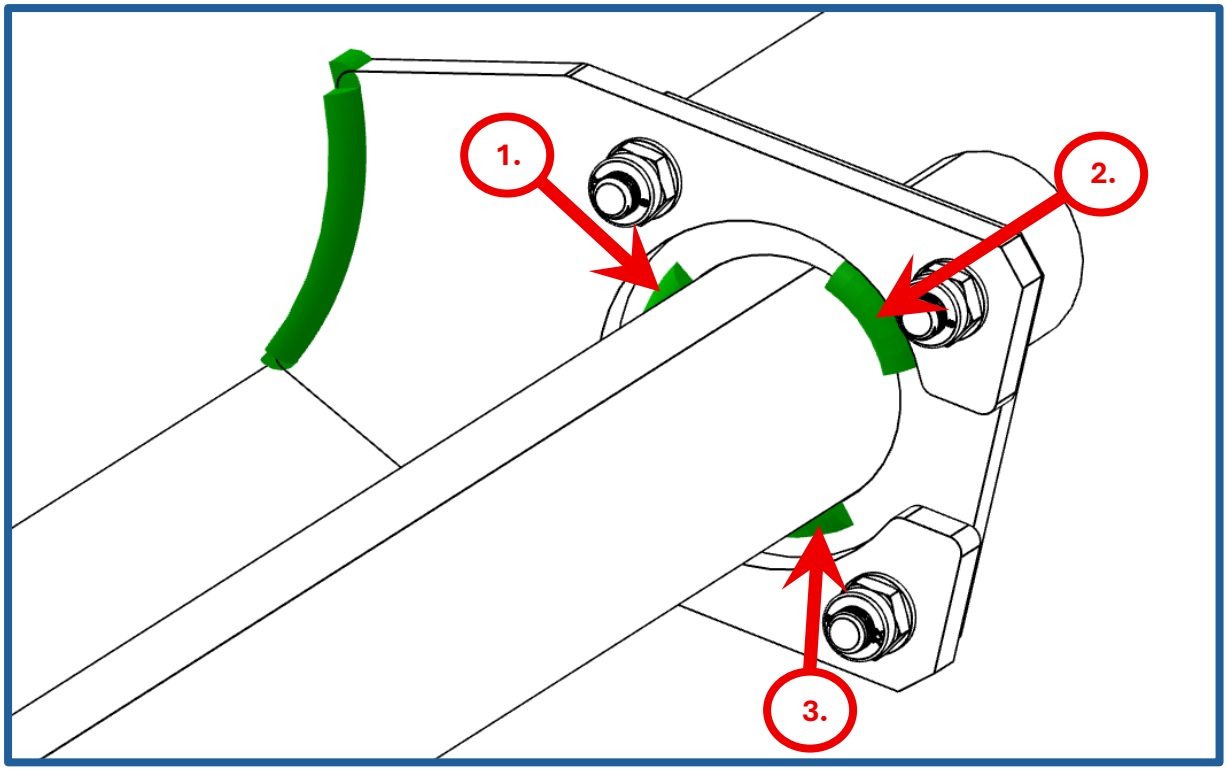
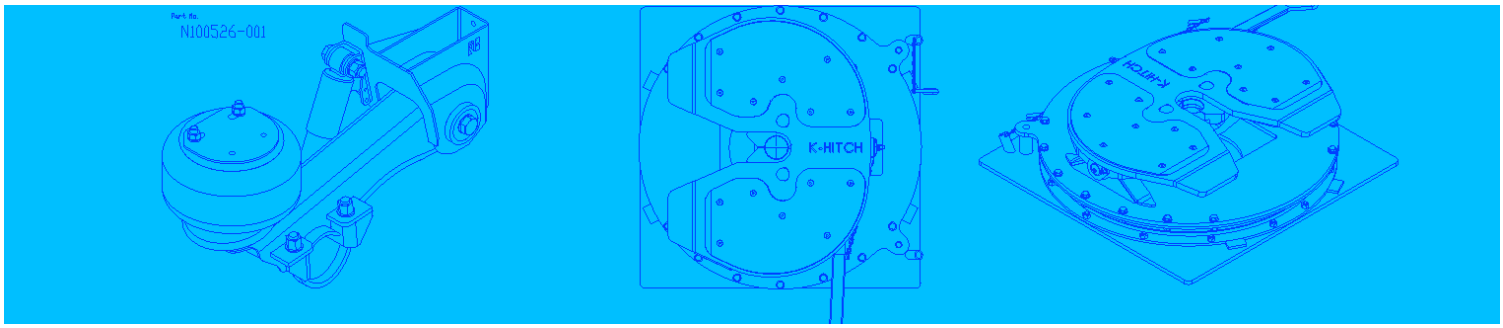


Figure 17: Welding S Cam Mounting Bracket to S Cam Tube

Once the S Cam inner mount has cooled and before the alignment tool is removed, replace the fasteners with new nuts, bolts and washers. Torque to the recommended tension from the table on the last page of this document.

The alignment tool can now be carefully removed.

NOTE: the outer S Cam seal installation can be delayed to this step to ensure that the seal is not damaged.



Apply suitable chassis grease to the S Cam and both the inner and outer S Cam bushes. Fit the D Washer onto the S Cam and then install the S Cam into the S Cam tube, knock gently to ensure that the S Cam is firmly seated as shown in Figure 18 below.

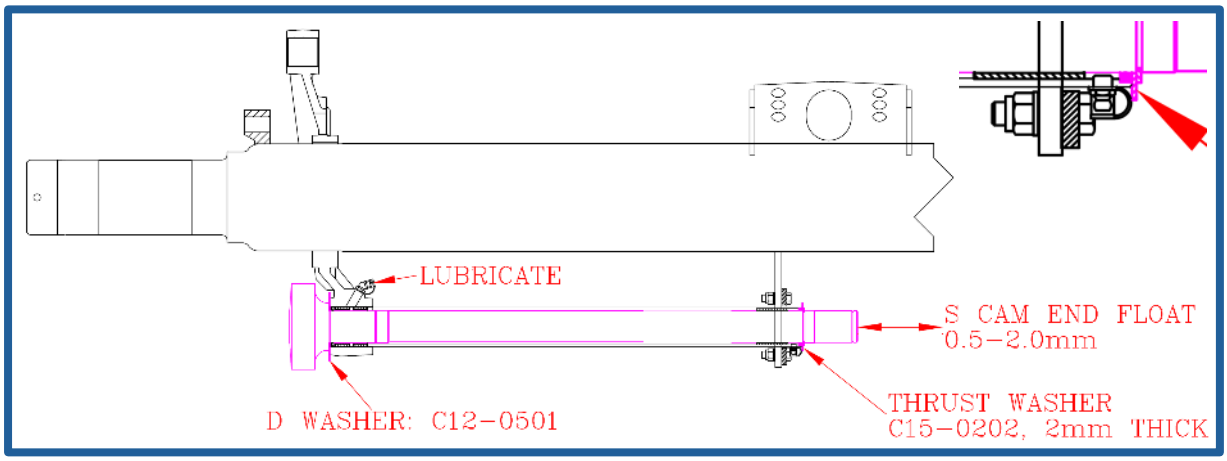


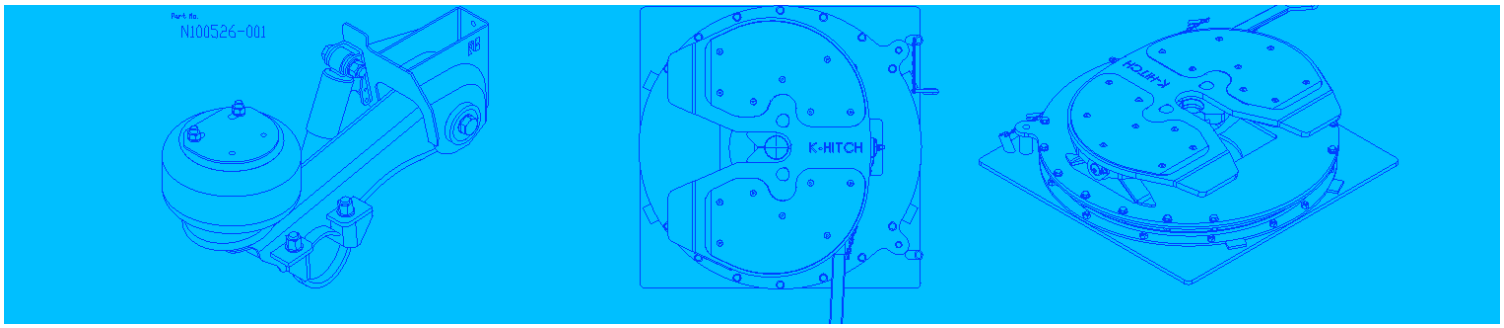
Figure 18: Assemble the S Cam

Lubricate the "O" Ring with the same grease and carefully insert it into the inside end of the S Cam tube. Place the S Cam retaining washer over the S Cam and then fit the S Cam retaining Circlip. Gently tap the S Cam in both directions to seat the new components and measure the S Cam end float. The end float needs to be between 0.5 to 2.0 mm. If the S Cam end float is above this measurement, the S Cam spacer washers (1 mm thick) are used to pack between the S Cam retaining washer and the S Cam retaining Circlip to achieve the specified S Cam end float.

Apply grease to both the inner grease nipple on the spider and the S Cam tube. Note that the spider grease nipple will absorb quit a bit of grease, as it will fill up the space between the S Cam and S Cam tube, when it is full it will push grease out from the S Cam retaining washer. *(You do not need to fill this cavity, 5 pumps each service)*

Follow the reverse procedure to assemble the hub and brake shoes. Ensure that the hubs inner oil seal is replaced along with the hubcap seal, split pins and tab washers. *(Set wheel bearing end float to specification)*

The new D Washer design for the KF22 axles will help support the brake shoes and eliminate the potential brake shoe walking outside the brake drum. Figure 19 below shows the fitment of the S Cam D washer in an assembled axle.



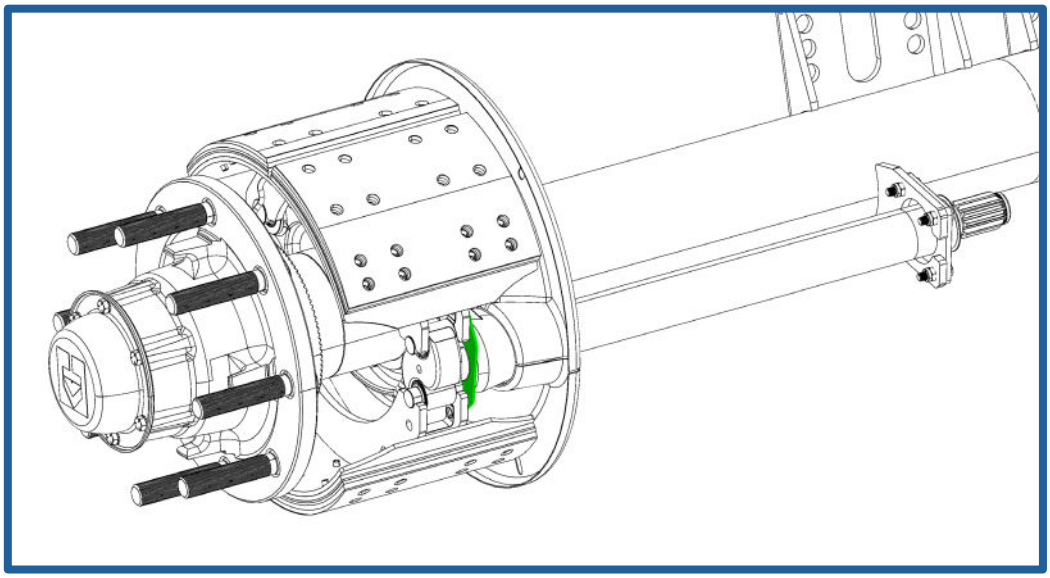


Figure 19: New D Washer Fitment

Checks

After installing the slack adjusters, follow the recommended procedure for setting the free play and ensure that the operating angles are between 105° degrees retracted as shown in Figure 20a below and 90° degrees applied shown in Figure 20b on the next page.

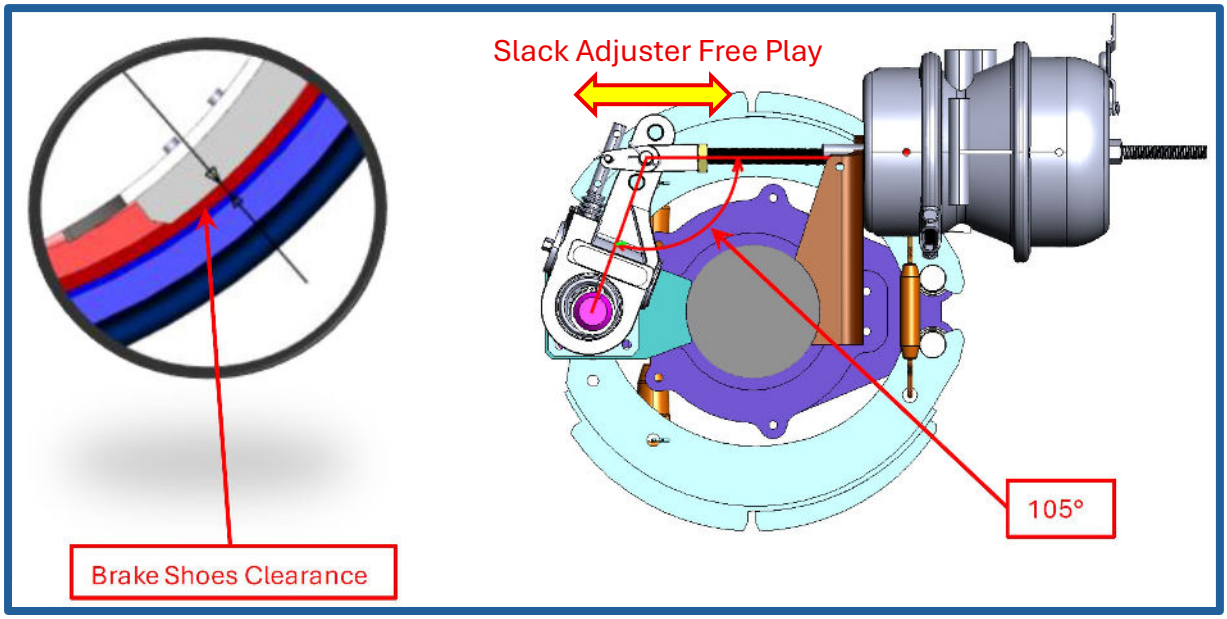
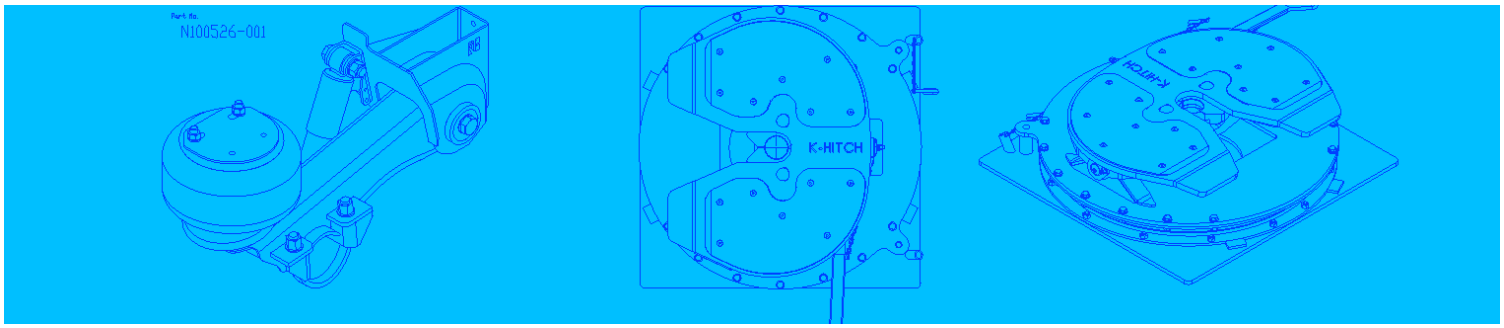


Figure 20a: Foundation Brakes Retracted



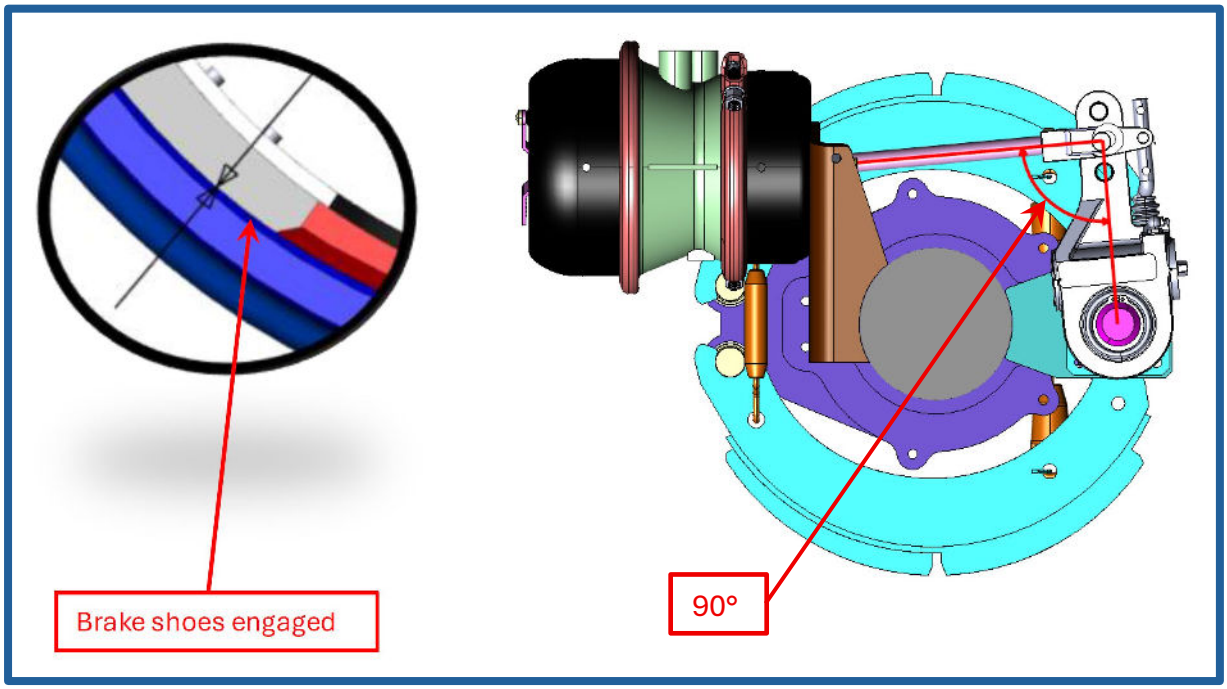
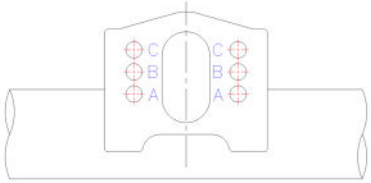


Figure 21b: Foundation Brakes Applied

Make sure that the brake chamber and slack adjuster clevis are set to the same position as shown in Figure 22 below and following the brake certificate placard on the chassis.

HOLE CODE	SLACK ADJUSTER
A - A	5" (127 mm)
B - B	6" (152 mm)
C - C	7" (178 mm)
B - A	5.5" (140 mm)
B - C	6.5" (165 mm)

Brake chamber location sticker located near center of the axle



Brake chamber locations stamped into brake chamber, mounting Bracket

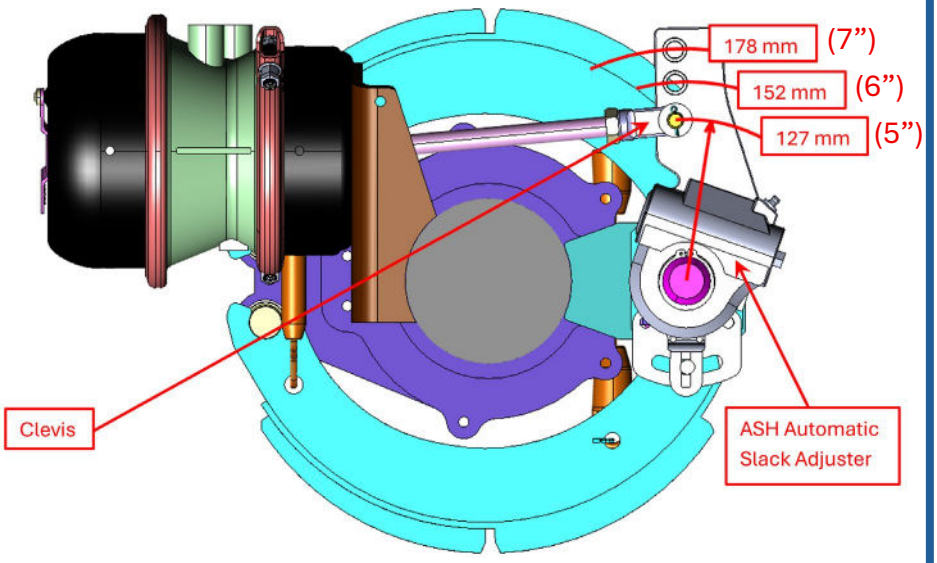
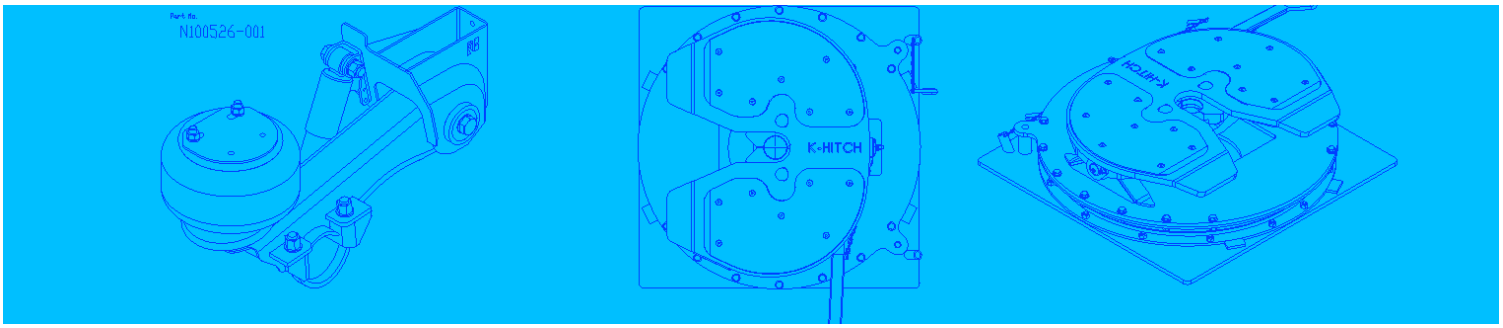


Figure 22: Brake Chamber and Slack Adjuster Positions



TORQUE SETTINGS

Axle Torque Settings

Description	Nm	ft-lbs
Spindle Nut, ConMET (M88x2) *{Whilst turning the hub}*	678	500
Hub Cap Retaining Bolts (5/16" UNC)	16 to 24	12 to 18
Wheel Stud Nuts, (M22x1.5)	610 to 680	450 to 500
Maximum spindle nut unwinding torque, ConMET	68	50
Fill Plug (ConMET)	27 to 34	20 to 25
Dust Cover Bolts (M8x1.25)	20 to 25	12 to 16
S Cam Inner Mount, Bolt/Nut (M8x1.25)	20 to 25	14 to 18
Brake Chamber Mounting Nuts (5/8" UNC)	180 to 210	132 to 155
Anchor Stud Nut (M10.1.5)	25	19
Inboard, Brake drum Nuts (M22x1.5)	610 to 680	410 to 500
Brake Chamber, Clevis Jam Nut (5/8 UNF)	68	50
Wheel Stud nut, (M24x1.5)	820 to 900	605 to 665
Screw on Hubcap (6.25" - 8 UN Thread)	70 to 100	52 to 74
Tapered Spindle, Jam Nut	405 to 540	300 to 400

Wheel End Torque Settings

Description	Metric Torque Setting (Nm)	Imperial Torque Setting (ft-lbs)
Wheel Stud M22x1.5	610 - 680	450 - 500
Wheel Stud M24x1.5	820 - 900	605 - 665
Wheel Stud, Rear Drum Nuts (M22x1.5)	610 -680	450 - 500
Demountable Wheel Spoke, Retaining Nuts (¾")	270 - 340	200 - 250
Demountable Wheel Spoke, Retaining Studs	80 - 90	60 - 66
Demountable Wheel Spoke, Brake Drum to Hub (¾")	380 - 425	280 - 315