

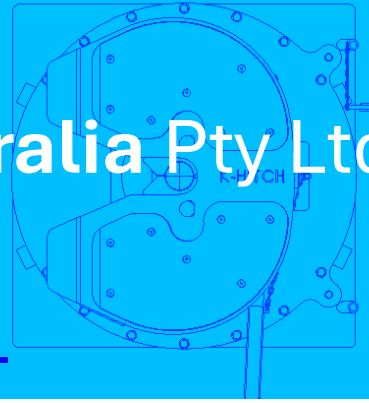


Part No.
N100526-001

FUWA K-Hitch Australia Pty Ltd

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INSTALLATION BULLETIN

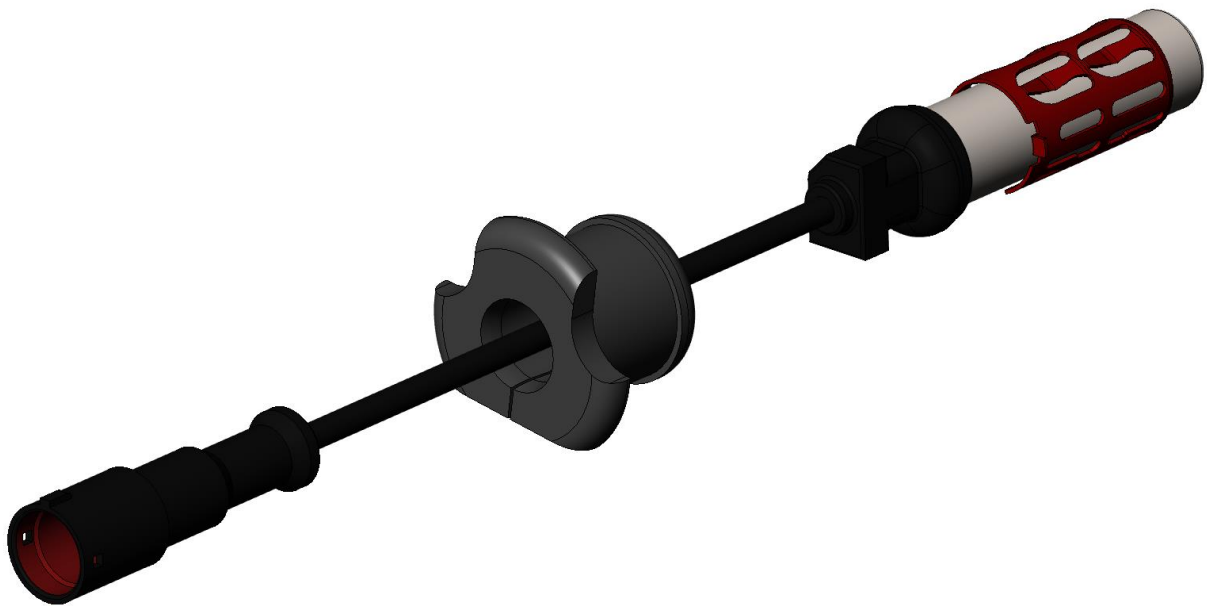
Bulletin ID : FKH-INSTL-0019

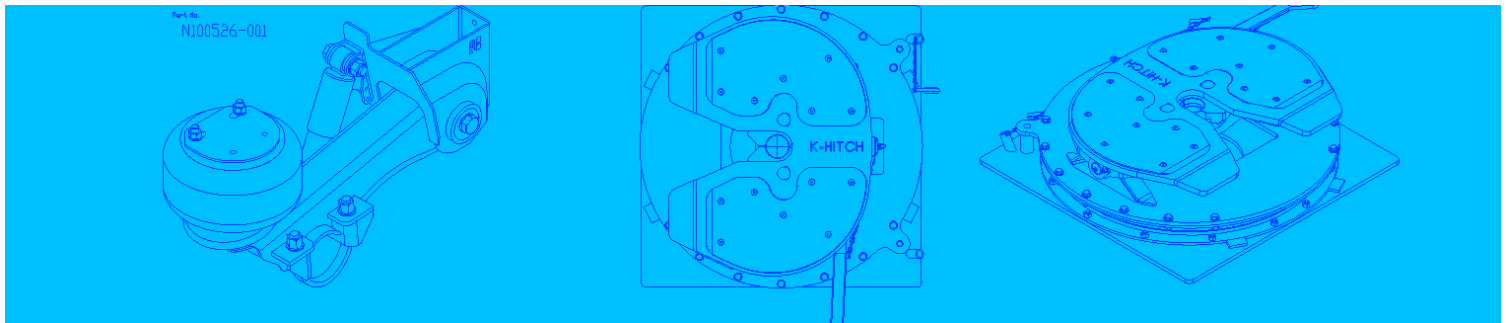
Issued Date : 20 November 2024

Revision : Rev A

Reference Documents : LVL-WI-003

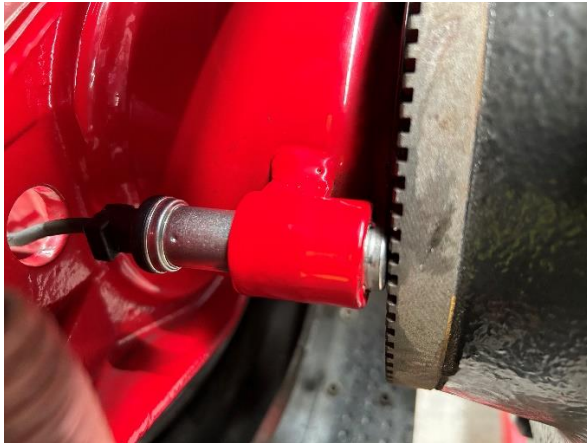
ABS SENSOR INSTALLATION





SCOPE

This document provides recommendations on the installation of the FUWA K-Hitch ABS Wheel Speed Sensors for both drum and disc brake ales.



ABS Sensor Drum Brakes

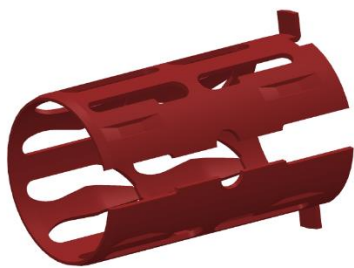


ABS Sensor Disc Brakes

INSTALLATION RECOMMENDATIONS

FUWA K-Hitch supply ABS wheel speed sensors as spare parts and installed on axle assemblies at first purchase. This document describes the recommended installation procedure for a new axle assemblies.

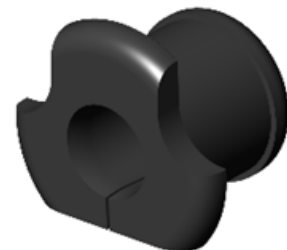
These guidelines can be applied to retrofitting an ABS wheel speed sensor during trailer maintenance, but the old ABS wheel speed sensor and clamping bush need to be removed. The mounting block and surrounded area cleaned and the pole wheel checked to ensure it is still meeting the serviceability requirements.



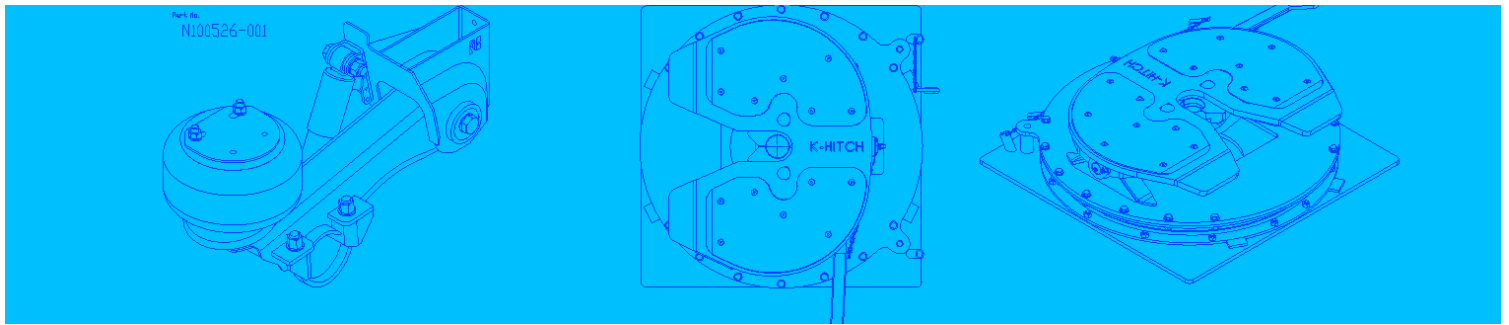
Clamping Bush



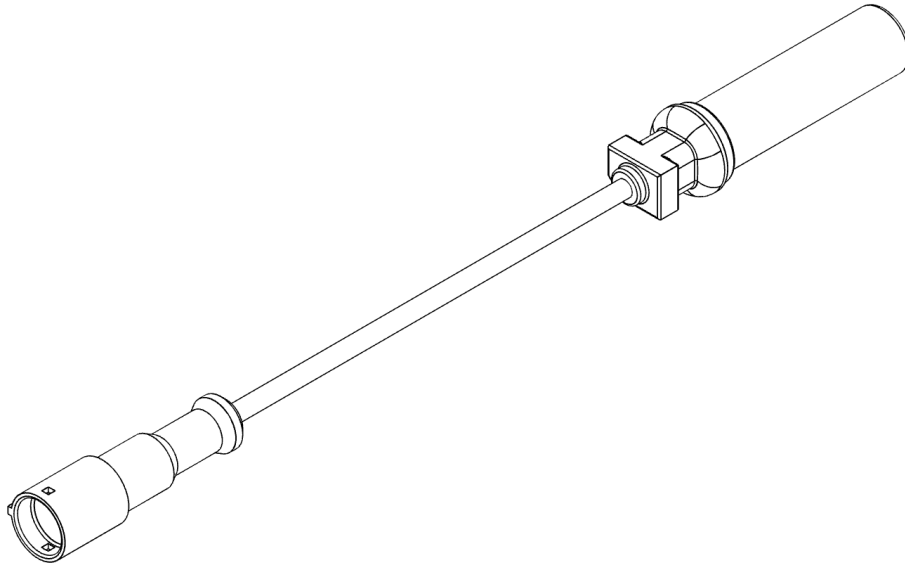
ABS Wheel Speed Sensor



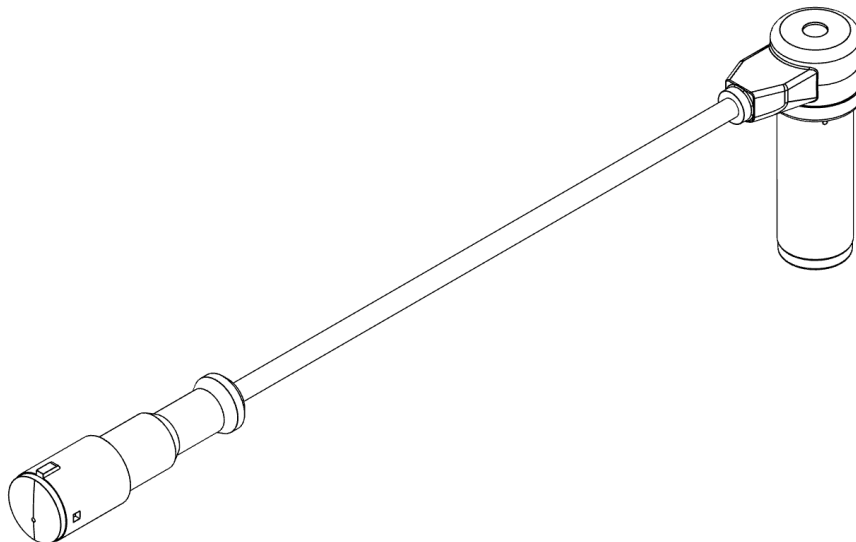
Grommet



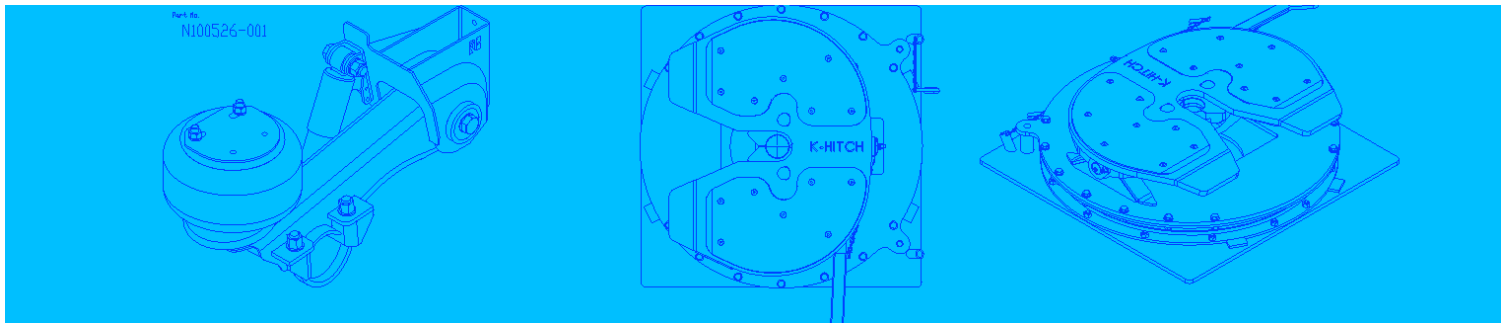
The wheel speed sensors are available in two options, the electrical wire is parallel with the ABS wheel speed sensor steel body as shown below. (Part Number A15-0202)



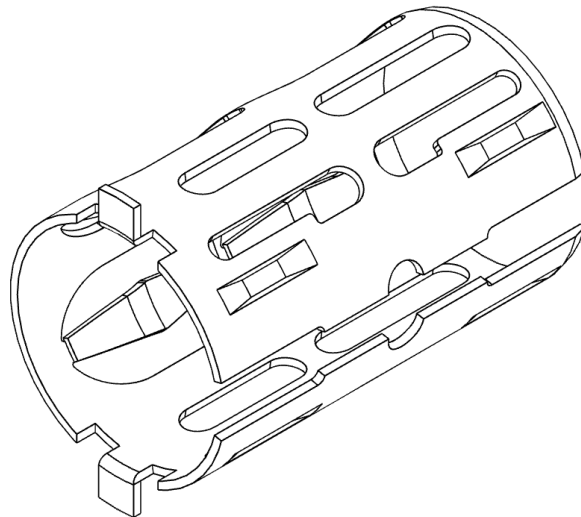
The second ABS wheel speed sensor option has the electrical wire exiting the sensor steel body at a right angle as shown below. (Part Number A15-0101)



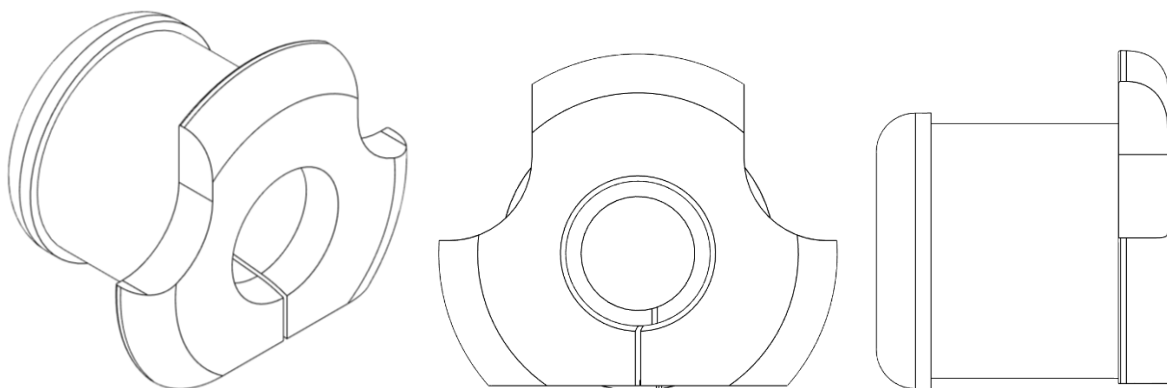
Both sensors have the same electrical connector and suit the same clamping bush which suits a nominal $\text{Ø}18$ mm bore Mounting Block (Part Number B15-0103, B15-0102). The straight electrical outlet ABS wheel speed sensor has an electrical wire length of 345 mm and a body length of 53.5 mm. The 90° electrical outlet ABS wheel speed sensor has an electrical wire length of 395 mm and a body length of 40 mm.



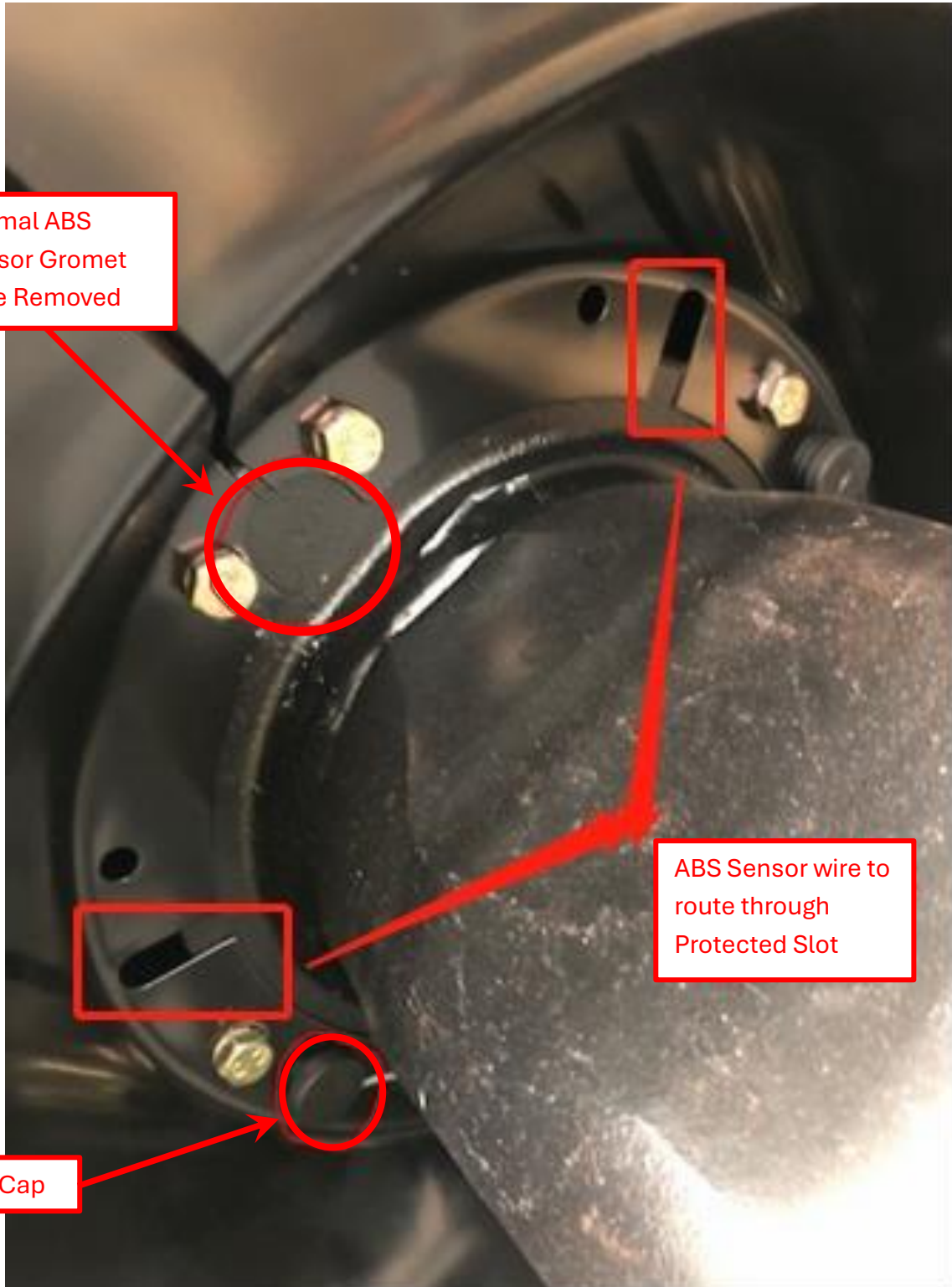
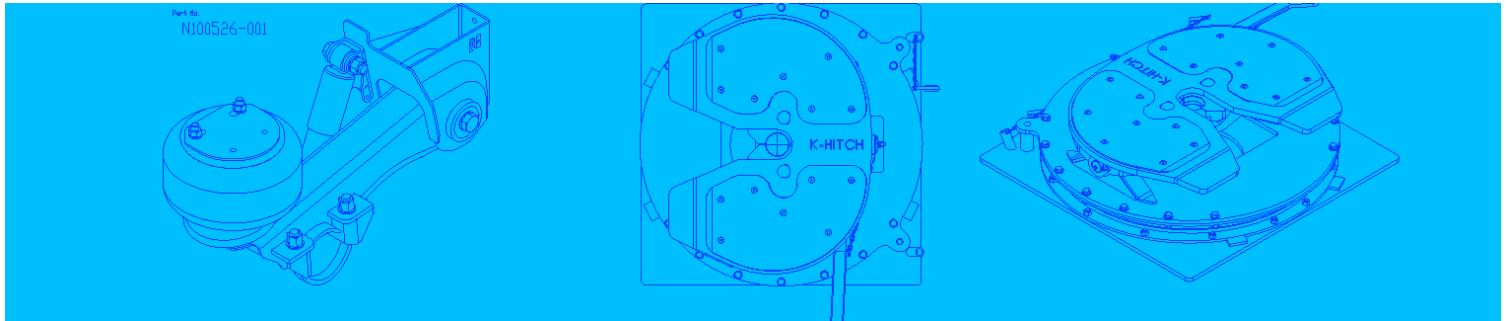
All the ABS wheel speed sensors and brake combinations use the same clamping bush to retain the ABS wheel speed sensor in the mounting block which is welded to the axle. (Part Number A16-0101)

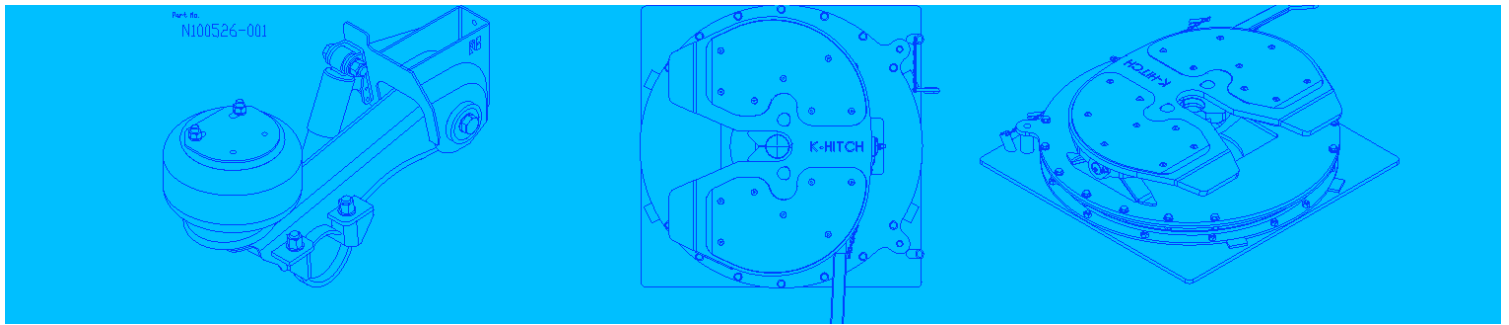


FUWA K-Hitch supplies only one ABS wheel speed sensor electrical grommet to hold the ABS wheel speed sensors electrical wire safely away from the spider to stop chafing and stop dirt from entering the brake drum, as shown below. (Part Number A14-0105)



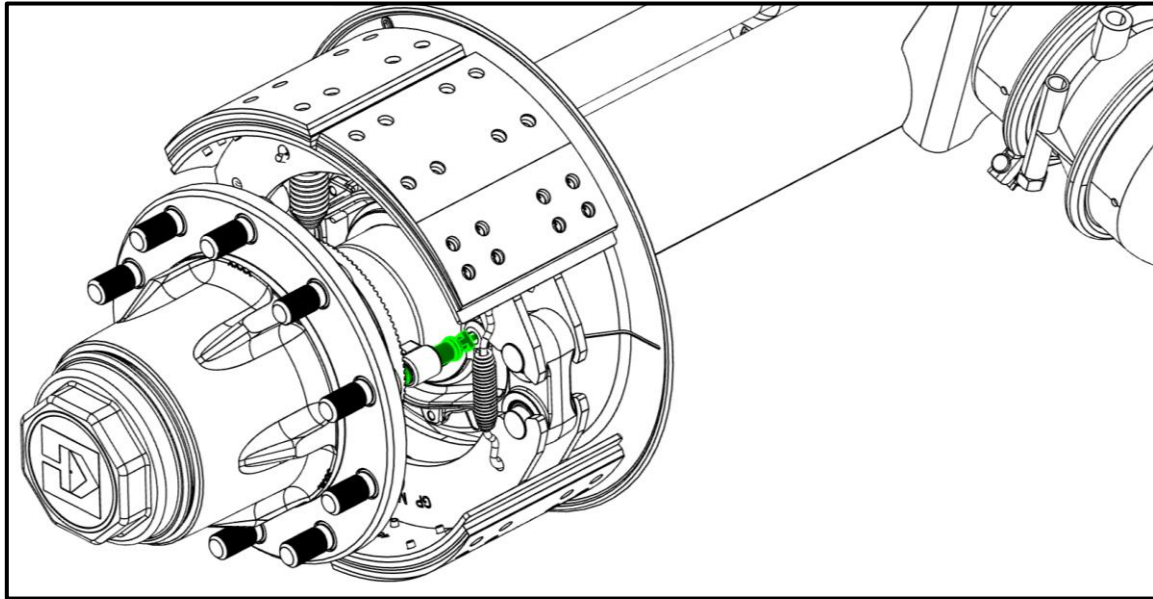
For some axles like the square sectioned KF75 axle, the ABS mounting block is offset 45 degrees on the spider, requiring the ABS wheel speed sensors electrical wire to be routed through the slot in the stamped steel dust cover as shown below, but with appropriate protection for the electrical wire against chafing on the dust cover.





Drum Brake Installation

Check the parts to ensure they are free from damage and match the required build sheet.



In most cases the ABS wheel speed sensor can be installed without removing the brake drum or wheel hub, but caution is needed not to drop anything in the brake cavity. Axle assemblies like the KK44 will require the brake drums to be removed and the brake shoes expended to allow access to install the ABS wheel speed sensor.

Removing the brake drum allows better visibility for this task and eliminates the risk of dropping something into the brake cavity. The images in this section show the brake drum removed. Other axle assemblies that do not have the grommet hole in the axle spider and the ABS wheel speed sensor mounting block misalignment will also require the brake drum and possibly the wheel hub to be removed to allow installation.

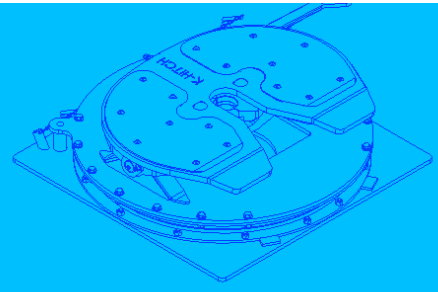
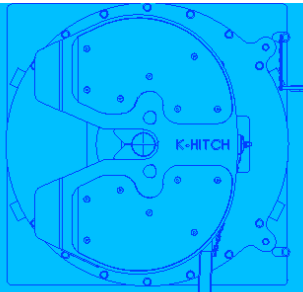
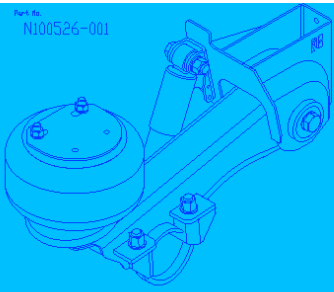
Lightly applying a film of approved lubricant from the list below to the inside of the mounting block bore and the surfaces of the clamping bush.

Name

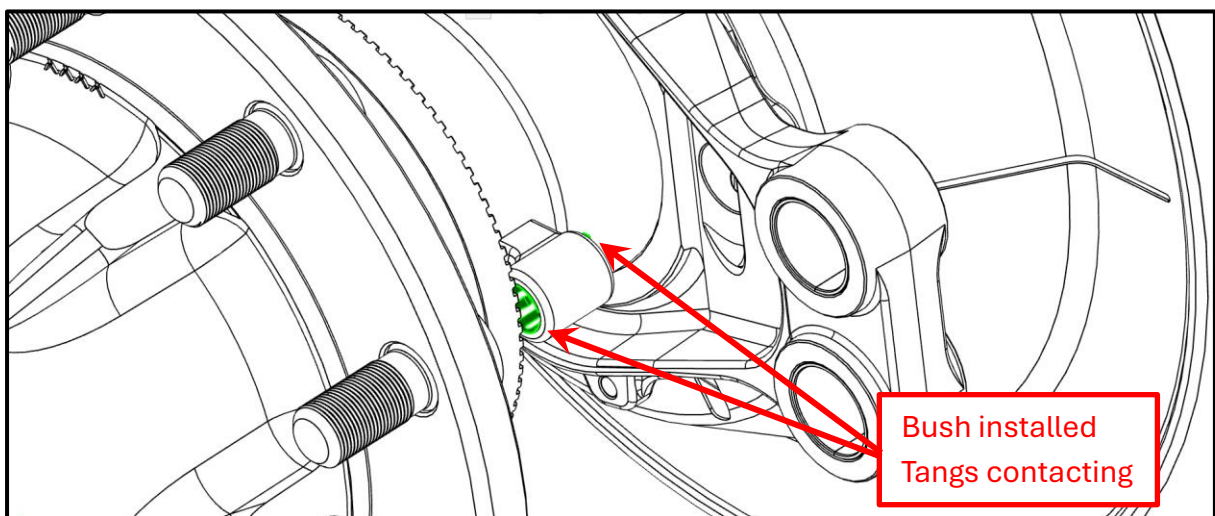
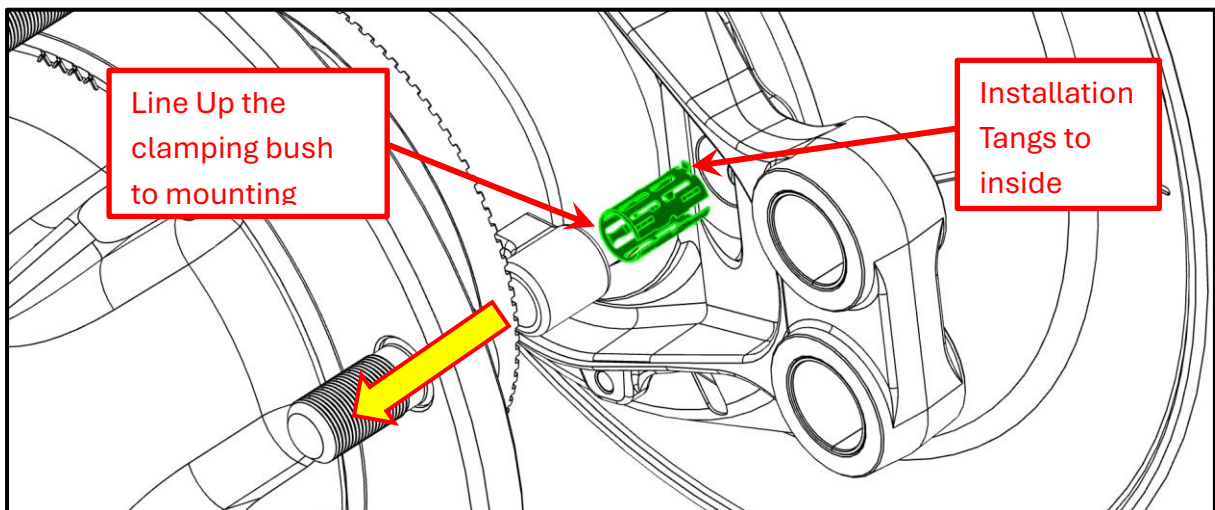
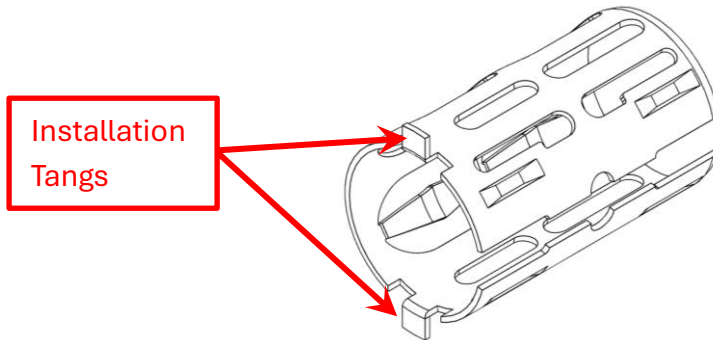
Klüberplex BE 31-512
 URETHYN-E2
 Mobilith SHC-220
 Unirex N3
 ECO-Li-Plus
 MOLYKOTE P40
 TEK-662 (former: EXP-135)
 Moly-Fortified Multi-Purpose Grease/FORD
 STABURAGS NBU 30 PTM

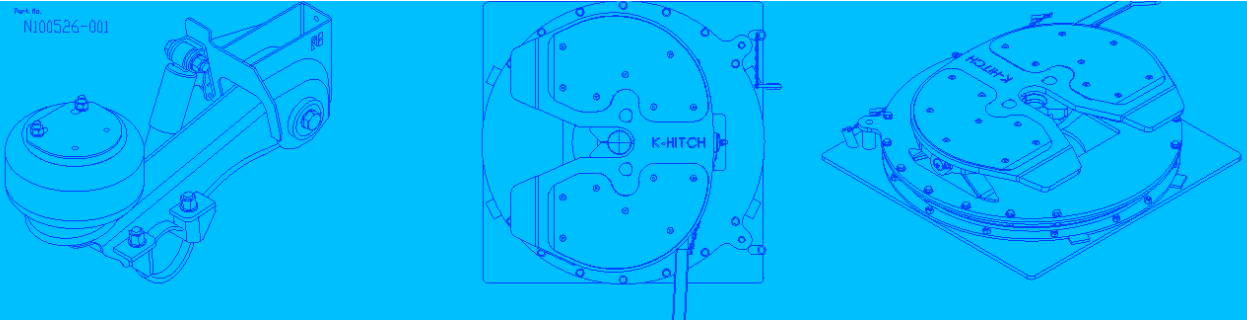
Supplier

Klüber Lubrication
 Fuchs Lubritech
 MOBIL OIL
 ESSO
 Special type provided by BPW Company
 Dow Corning
 Roy Dean Products Company / USA
 Valvoline / USA
 Klüber Lubrication



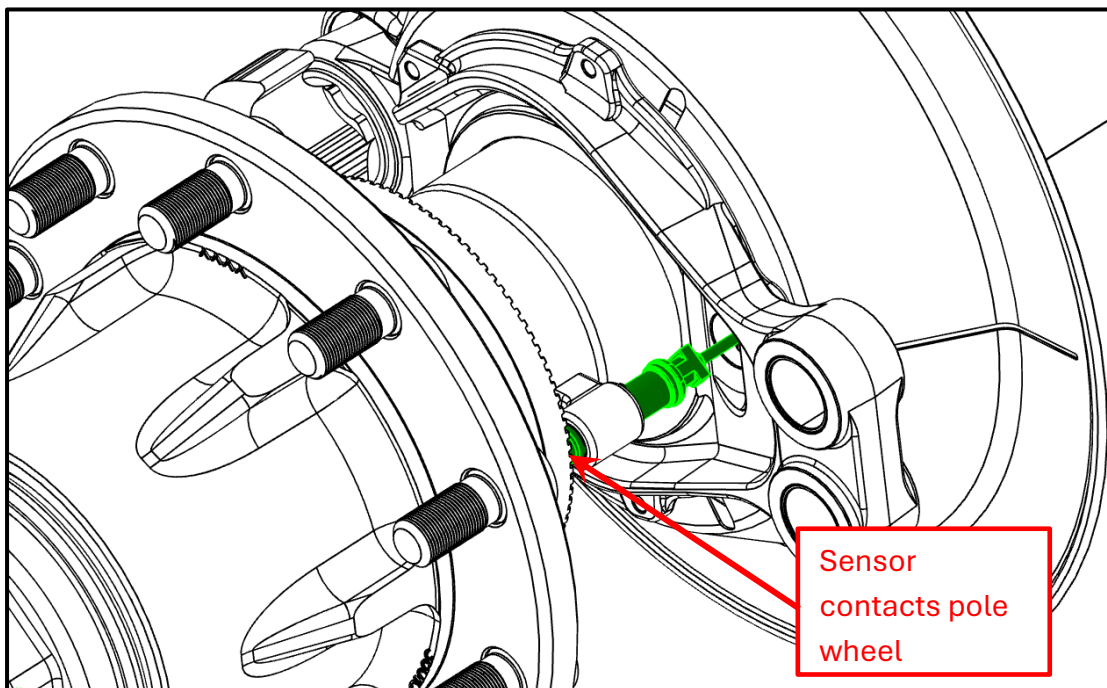
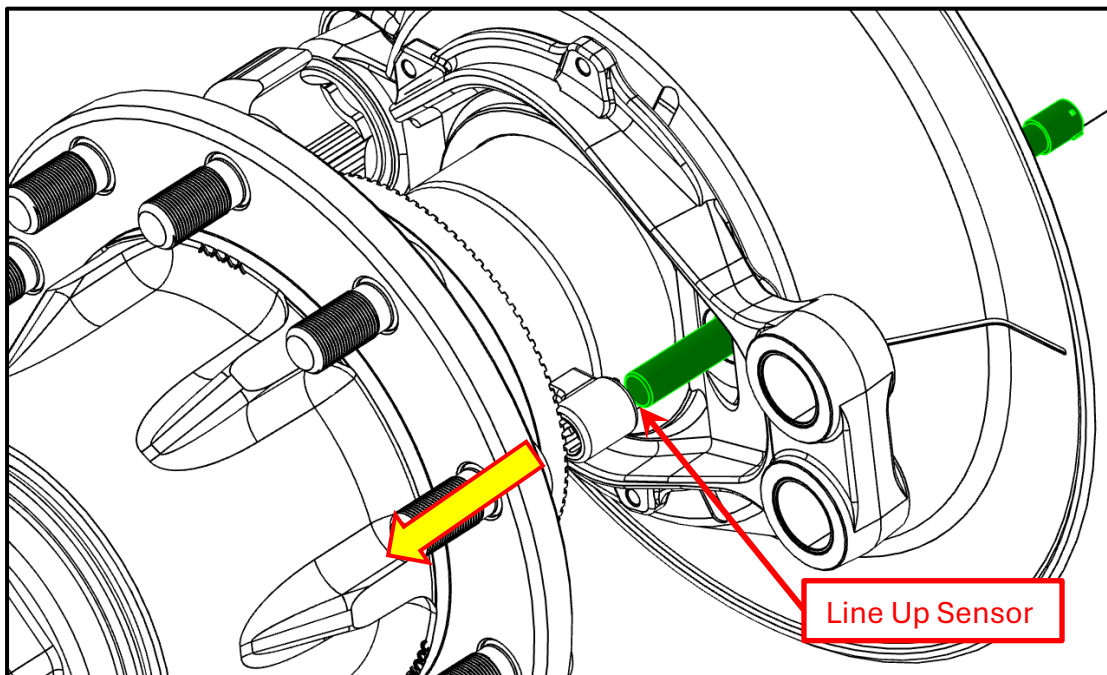
To install the clamping bush hold it with the installation tangs away from the mounting block. Line up the clamping bush with the mounting block and use a suitable tool to push the clamping bush firmly until the installation tangs contact the surface of the mounting block as shown below. *(Caution: do not hit with heavy hammer blow)*

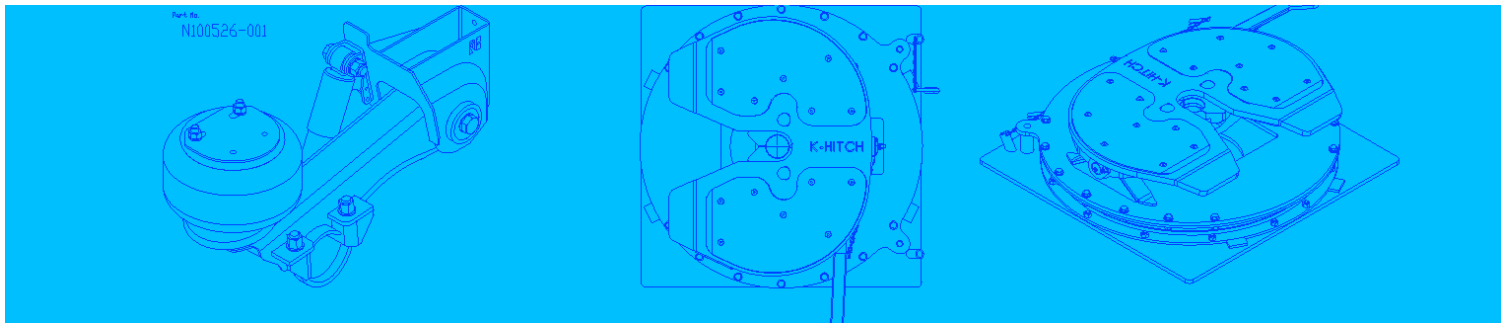




The ABS wheel speed sensor is adversely affected by impact, caution should be used not to drop or hit the sensor.

Line up the ABS wheel speed sensor with the clamping bush and use a suitable installation tool to push the ABS wheel sensor through the clamping bush until it contacts the pole wheel as shown below.





Generally, there is no minimum air gap requirement. During the first revolutions of the wheel, this air gap will be adjusted automatically due to the frictional connection between sensor and clamping bush. (*displacement force = 120 +80/-20N*)

Sometimes, especially in the case of stamped sheet-metal pole wheels, the force may not be sufficient to push back the sensor due to the insufficient rigidity of the pole wheel.

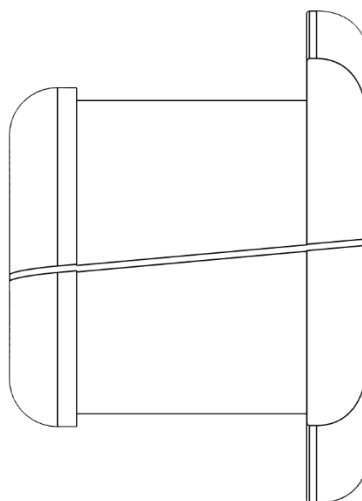
This can be recognized by a permanent grinding noise. If this noise does not disappear after a few revolutions of the wheel, the sensor must be adjusted away from the pole wheel, otherwise the wheel sensor will be damaged.

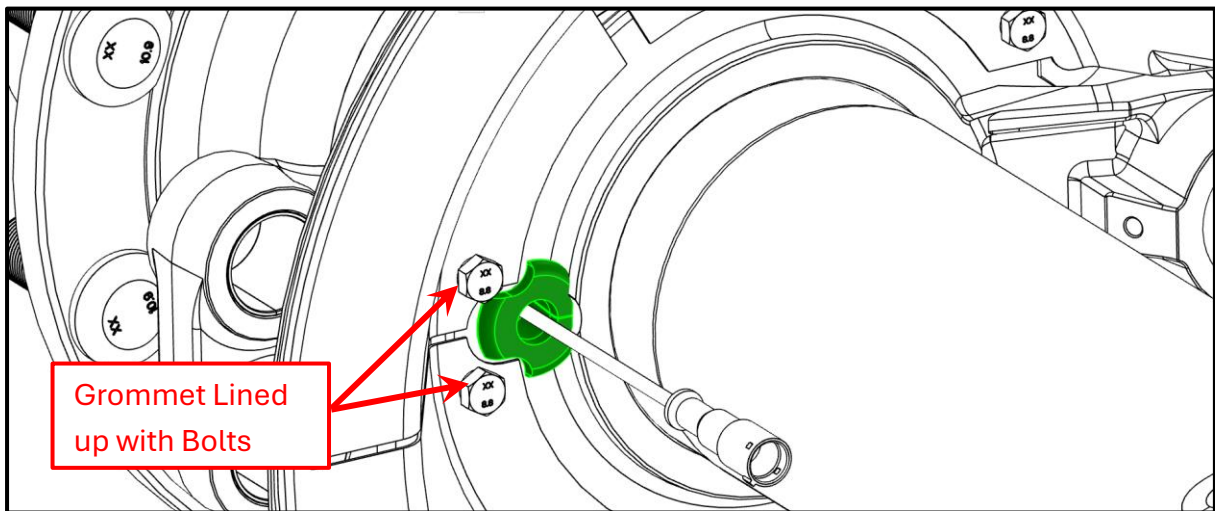
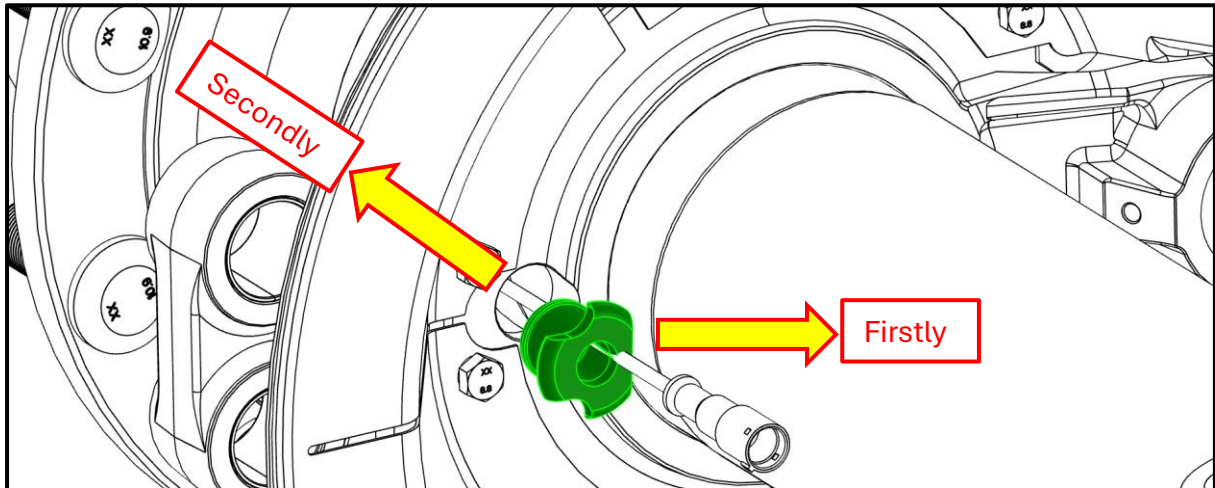
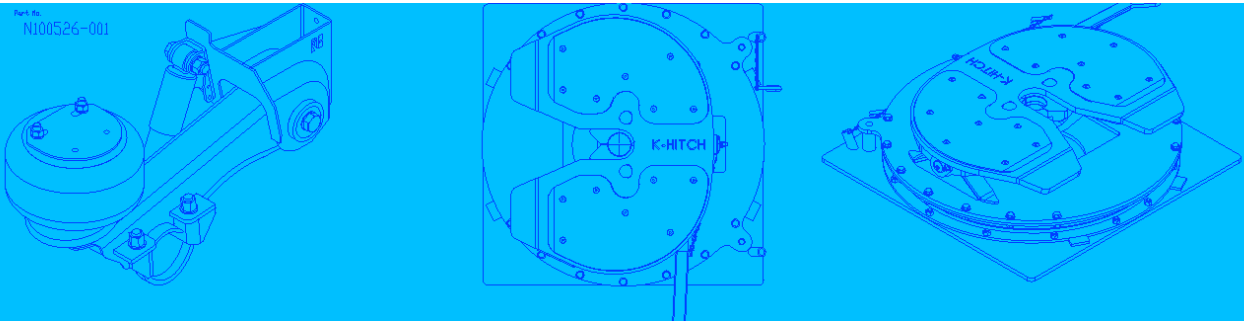
In the first installation, this step may be simplified by using a spacer, for example a feeler gauge, for the insertion of the sensor. WABCO specify for the installation an air gap between sensor and pole wheel of 0.0 to 0.2 mm.

The maximum permissible air gap between sensor and pole wheel having 100 teeth on a diameter of 130 mm, is 0.7mm (including lateral run-out) in during operation.

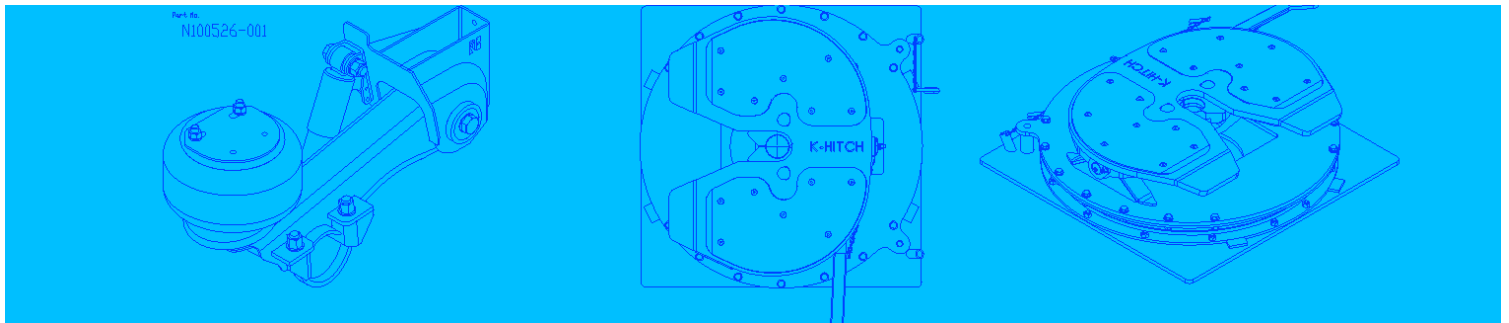
FUWA K-Hitch have several pole wheels with different diameters and teeth (*80, 90 and 100 teeth*), the number of teeth is required to be set in the ABS/EBS control unit for correct operation.

The grommet can now be fitted to the ABS wheel speed sensor cable, there is a slot in the bottom of the grommet that allows the grommet to be opened and easily fitted over the electrical cable. The larger diameter face of the grommet faces away from the wheel hub as shown in the images below.





The ABS wheel speed sensor cable must be routed without being stretched. If cable ties are used, the maximum pull force must be limited. If the pull forces are too high, the sensor cable might be damaged!

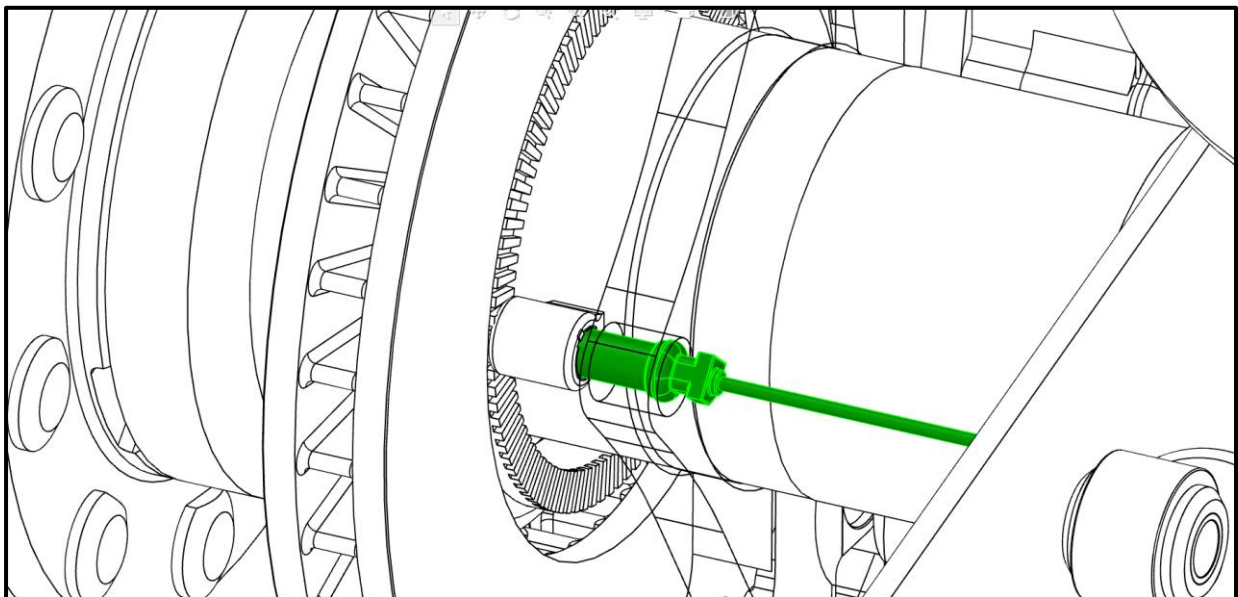


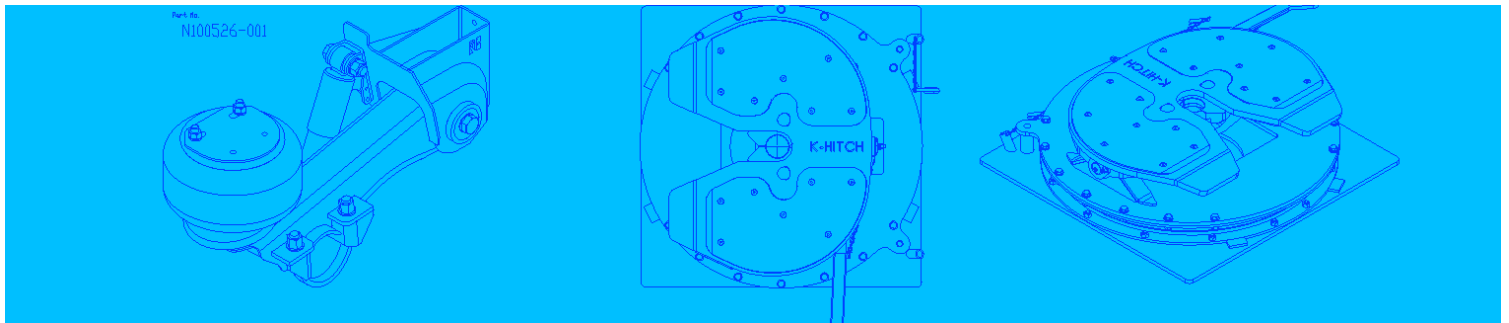
Further considerations for the ABS wheel speed sensor electric cable are given below.

- The sensor cable must be fastened at a distance of 100 ± 50 mm from the sensor.
- The cable should be secured with cable ties or clamps at distances not exceeding 300 mm.
- Minimum bend radius 15 mm, 90°.
- In case of alternating bending stress caused by relative movement of the clamping points, the minimum permissible bend radius is 60 mm.
- The electrical cable must be protected from abrasion and potential impact damage.
- Before assembly into the vehicle the electrical connector should be sealed to stop debris and moisture from entering.
- Secure the electrical connector to ensure no damage occurs before installation.

Disc Brake Installation

Check the parts to ensure they are free from damage and match the required build sheet.





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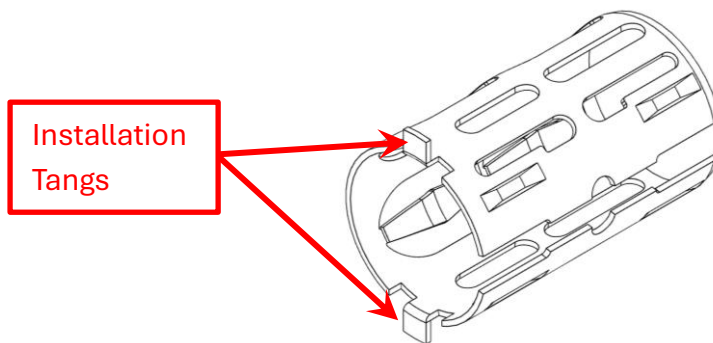
Name

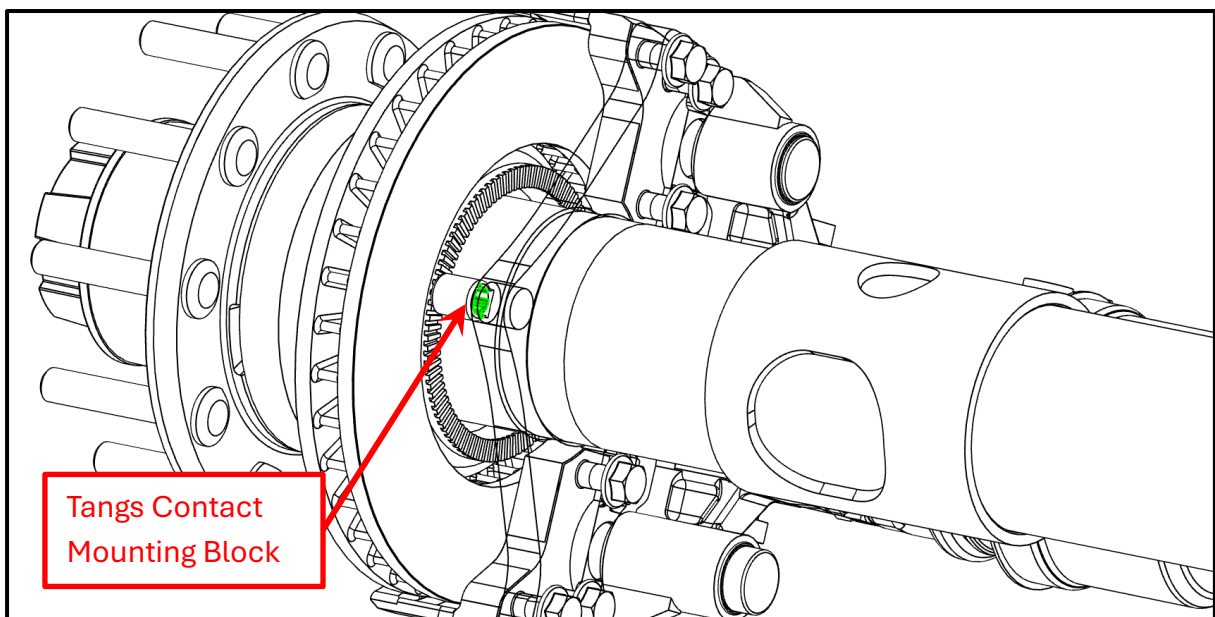
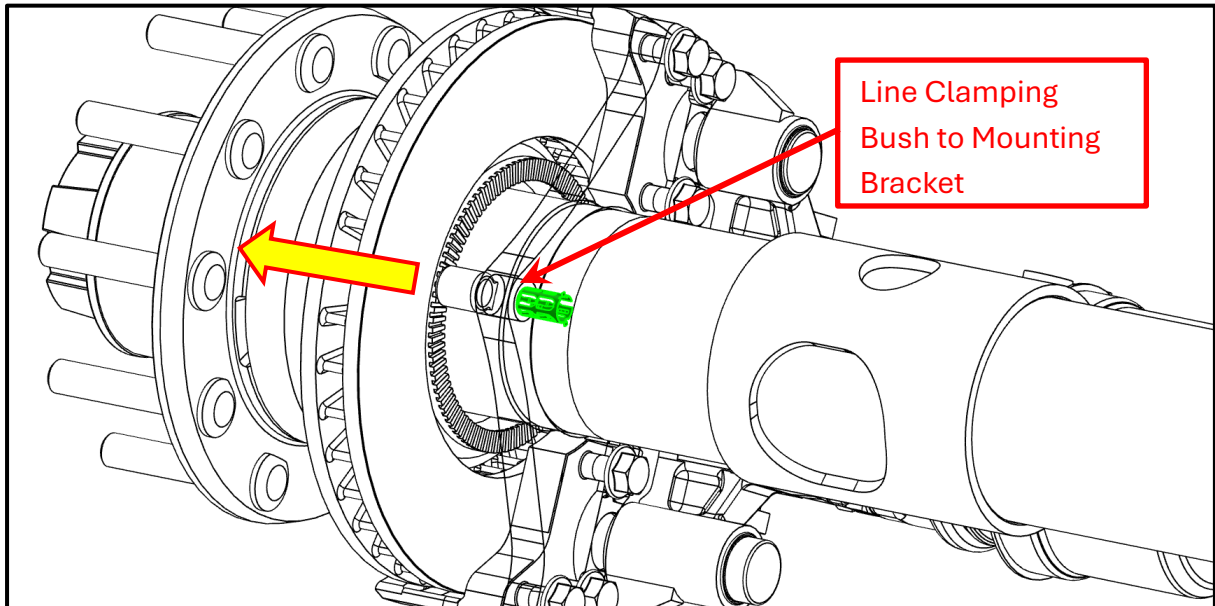
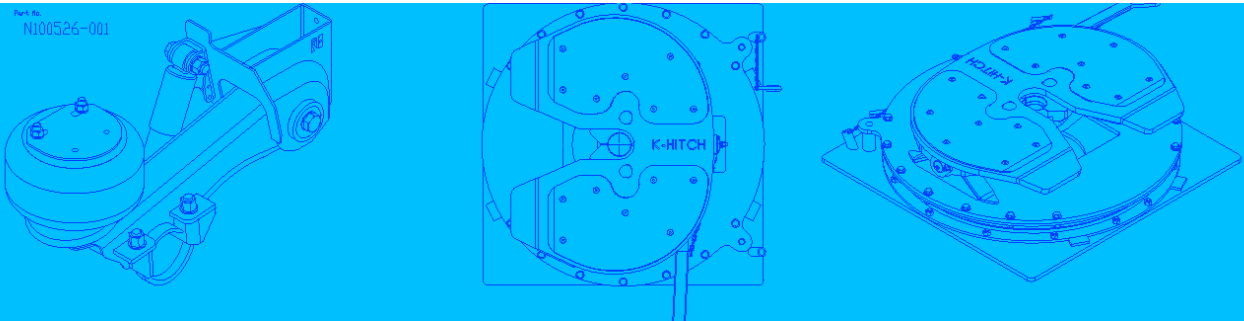
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Supplier

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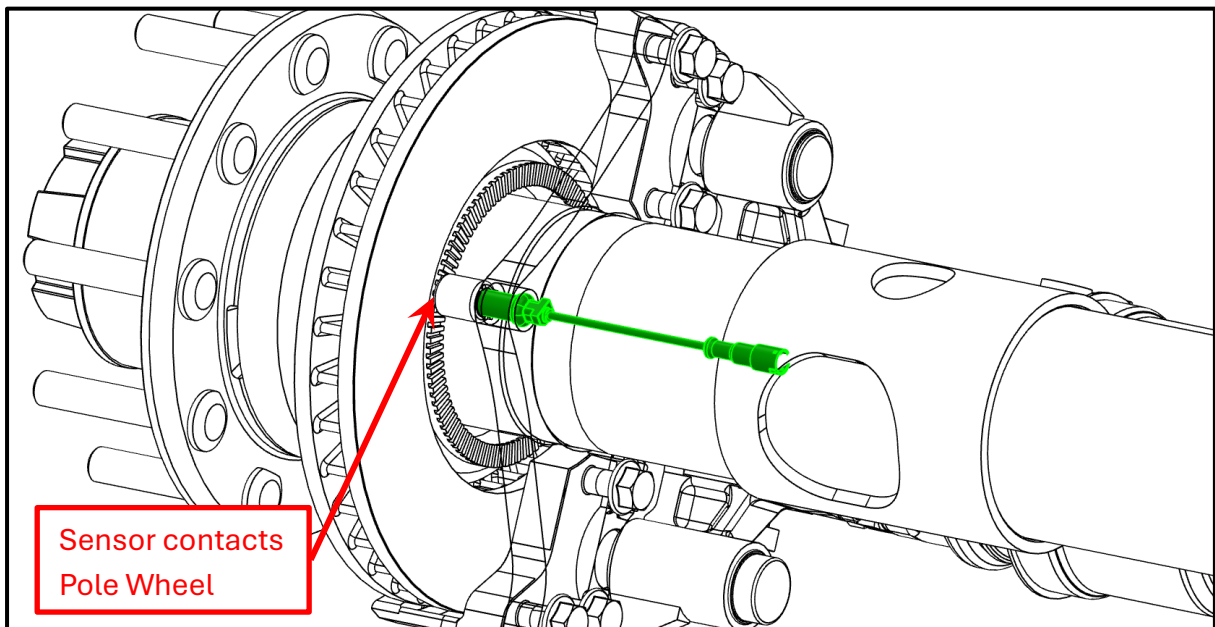
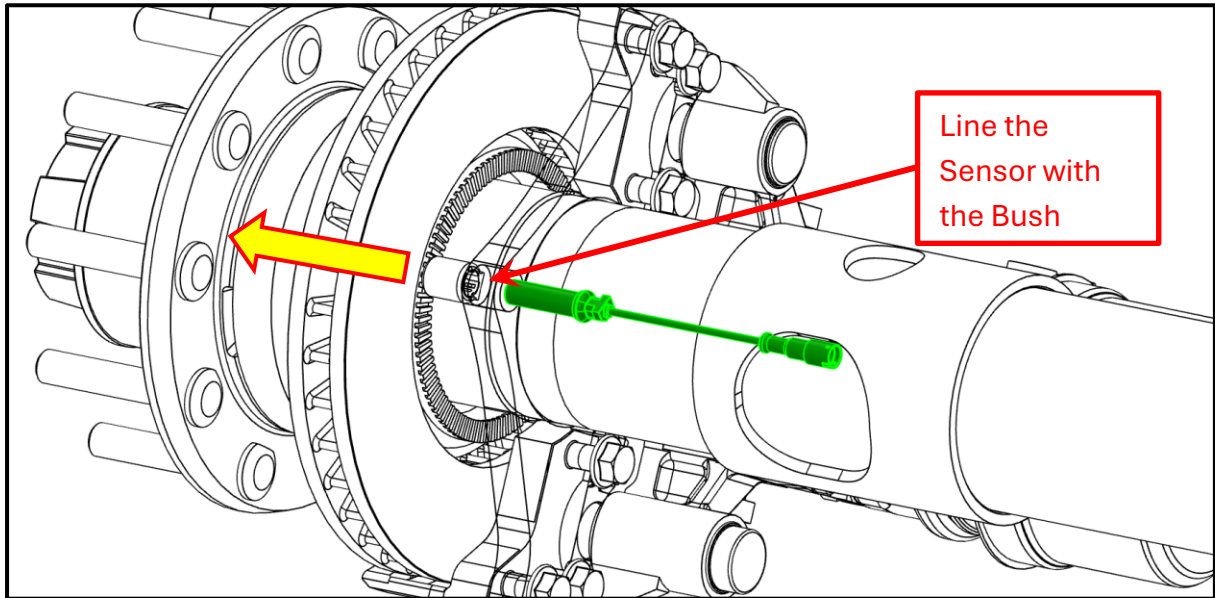
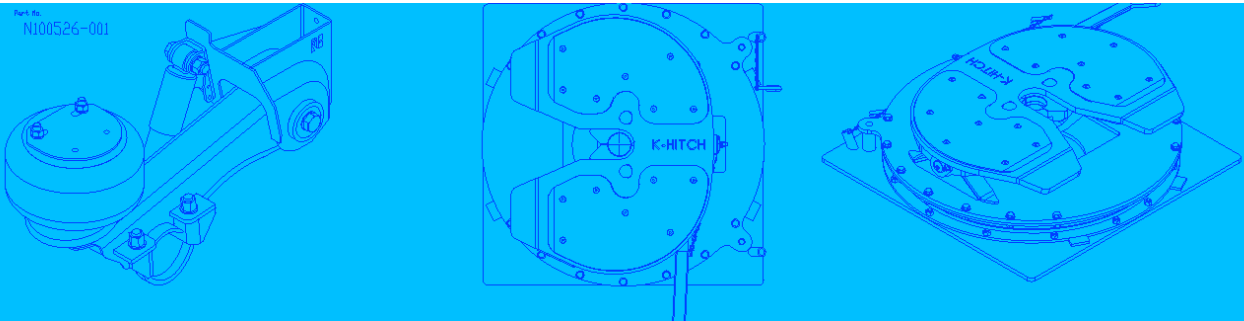
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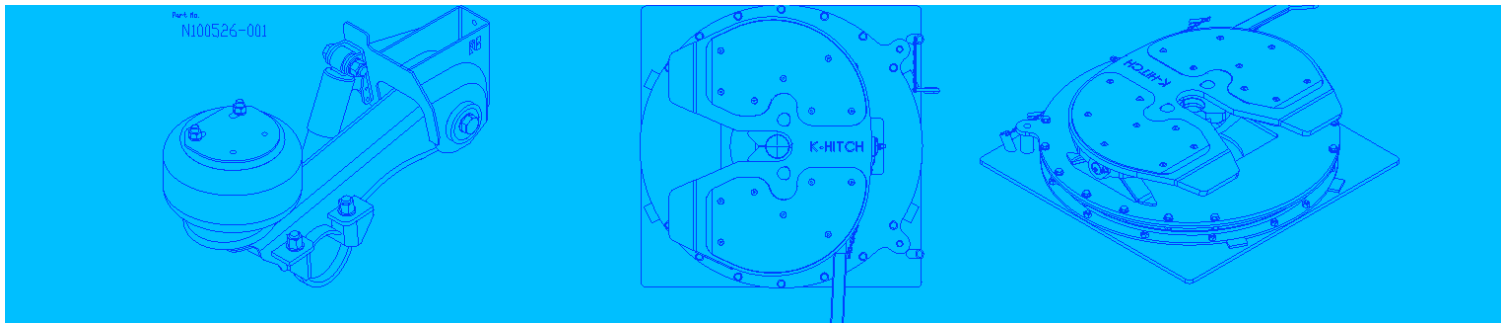


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Verification that ABS Sensor is functioning properly by using a voltmeter, rotate the hub 2 rotations within 3 seconds, using a multi-meter test output voltage: 400mV-800mV.