AIR-SUSPENSION

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Auxiliary Air Suspension

Art. nr.: L.AL.94.STA
L.AL.94.LOW

Designed for:
Alko Chassis

DUNLOP
SYSTEMS AND COMPONENTS

Model: 1994—2002

RDW

1. FOREWORD

This manual provides instructions for the installation of an auxiliary air suspension kit, developed specifically for Motorhomes with an ALKO torsion axle. To ensure correct installation of the kit, it is strongly recommend that these instructions are read thoroughly before commencing any installation work. Installation should only be carried out by a suitably qualified mechanic or specialist installation facility. Dunlop Systems and Components will not accept any responsibility for faults or defects arising from incorrect installation, which automatically renders the guarantee invalid.

IMPORTANT : Manufacturer's Declaration Form

A manufacturer's declaration form is provided with your kit. Following installation of the kit please ensure that this form is completed, signed by a qualified fitter and a copy is returned to Dunlop Systems and Components by post, fax or e-mail.

Artikel number:

L.AL.94.STA - Auxiliary air suspension for Alko chassis
L.AL.94.LOW - Auxiliary air suspension for Alko chassis

2. INTRODUCTION

Thank you for choosing an auxiliary air suspension kit from the range offered by *Dunlop Systems and Components*. Auxiliary air suspension is fitted in tandem with the standard steel springs of the vehicle suspension, and provides enhancements in terms of both the stability of the vehicle and the comfort of the passengers…

Vehicle Levelling

Simply by varying the air pressure in the springs, the vehicle can be levelled both front-to-rear and side-to-side. Keeping the vehicle level optimises stability, ensures correct headlamp beam distribution and reduces tyre wear arising from uneven distribution of weight.

Straight Line Stability

Straight line stability is greatly increased at higher speeds, and when subjected to buffeting from cross-winds or large overtaking vehicles

Reduced Body Roll

Body roll when cornering or negotiating roundabouts is significantly reduced.

Fatigue Reduction and Wear Compensation

Suspension fatigue is reduced, so helping to prevent leaf springs from sagging under repeated or constant loading.

Any sagging already present can be compensated-for. This is a particular benefit for motorhomes, which are always fully laden.

Ride Comfort

Air springs help to absorb shock loads from uneven road surfaces, therefore general ride quality is much improved.

3. VERY IMPORTANT NOTES

Gross Vehicle Weight (GVW)

Air assist kits are not in themselves designed to increase the gross vehicle weight (GVW) rating of a vehicle. They do not legally allow for carriage of a load greater than the carrying capacity stated on the data plate of the vehicle.

Do not exceed the maximum load specified by the vehicle manufacturer…

- to avoid compromising passenger safety
- to prevent possible damage to the vehicle
- for legal reasons

Check the condition of your torsion axle

- Be aware that the torsion axle(s) has to be in a good condition
- Alko advises a revision of the axle every 100,000 – 120,000 km
- Never install helper (air) springs if there are indication of a failure with the axle.
- Helper (air) springs are only to help the (tired) torsion (springs)
- Check if the vehicle is bending (a lot) to one side (indication of a broken torsion spring)
- Lift the rear till the lever arm is resting on the bump stop
- Watch the lever arm moving while you lift the rear, these have to move smoothly (indication of greasing)
- Turn off the radio so you can also listen to the movement, if you indicate a noise what raises a question mark above your head, this can be a broken torsion spring
- If you have doubts use a screwdriver (or a stethoscope with a needle if you have one) to listen on the housing while moving
- Be aware, torsion bars are fixed in the middle and in the lever arm, if all are broken your lever arm will come out of its housing (While driving!!!!!!)
- There are 2 types of torsion springs; blades 4 or 5 on top of each other to make a square and the other is; 3 torsion springs with splain teeth
- If one torsion spring is broken, Alko insist in changing them all
- Pull the hand brake and lift by hand a wheel and look at the lever arm in its housing for backlash, app. 0.5 mm is maximum.
- Try to find out if the bearings have been galling?
- Remove the grease nipples and check the quality of the grease
- Always grease the nipples if you have a vehicle where you have to work on.
- If everything is fine you can start installing our air suspension.

Vehicle Uprating

Despite the above words of caution, it is possible to upgrade the weight rating of your vehicle. This must be carried-out by a specialist supplier that will…

- carry out any necessary modifications in addition to fitting the air assist kit
- complete documentation as necessary to inform the Vehicle and Operator Services Agency (*VOSA*) – a mandatory requirement
- supply and fit a new weight plate to replace the original plate supplied with the vehicle

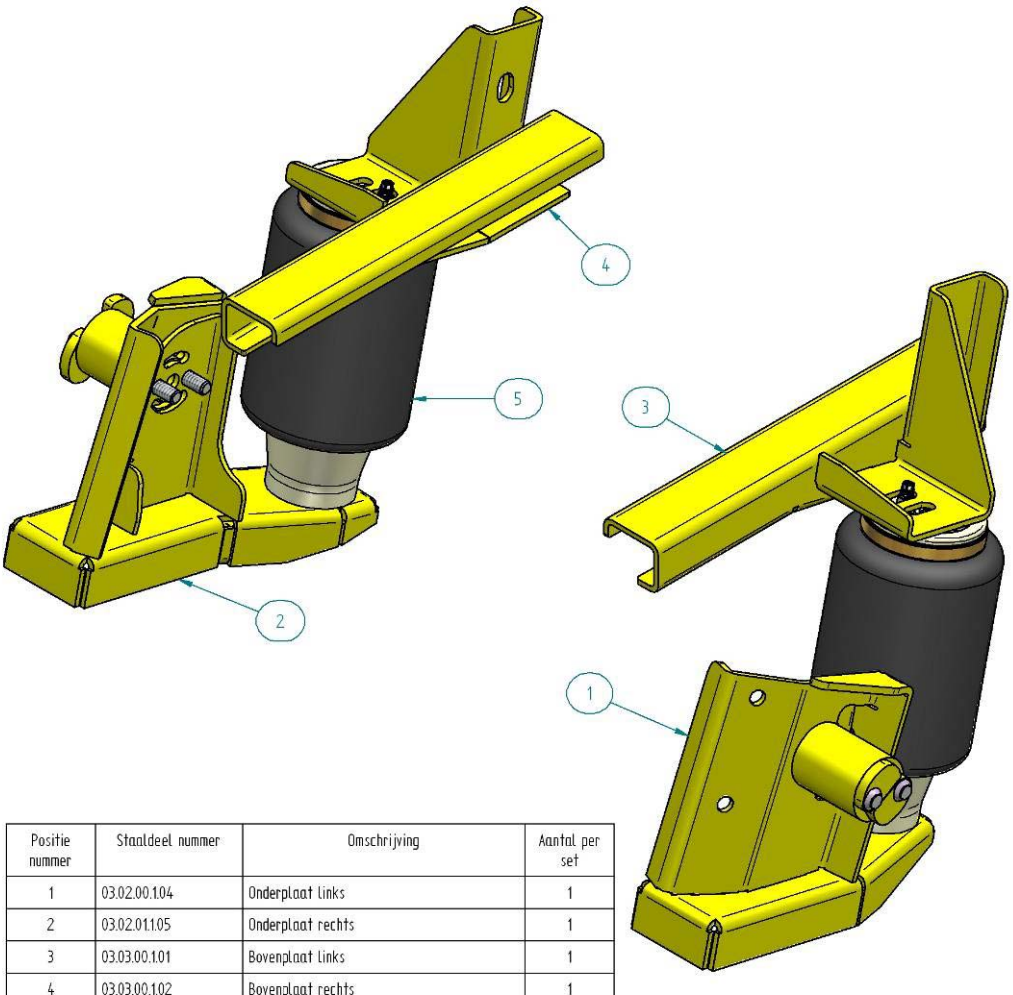
This process applies to United Kingdom registered vehicles. The process in other countries may be different.

4. CONTENTS OF THE AIR SUSPENSION KIT

Nr.	*Description*	*Quantity*
1.	Lower bracket – left hand	1
2.	Lower bracket – right hand	1
3.	Upper bracket – left hand	1
4.	Upperbracket – right hand	1
5.	Air spring SZ 55-20	2

Not in the assembly drawing

- All bolt and nuts needed
- Bleu and black air lines
- Tie wraps
- Schrader valves
- Declaration of conformity
- Installation manual



Positie nummer	Staaldeel nummer	Omschrijving	Aantal per set
1	03.02.00.1.04	Onderplaat links	1
2	03.02.01.1.05	Onderplaat rechts	1
3	03.03.00.1.01	Bovenplaat links	1
4	03.03.00.1.02	Bovenplaat rechts	1
5	OP.LB.CO.SZ5520	Rolbalg SZ-55-20	2

5. INSTRUCTIONS FOR INSTALLATION

Preparation and Precaution

Before beginning installation, ensure that you have sufficient clearance, the wheels need to be free from the floor. Use a jack if necessary.

Pay attention to your safety at all times during installation - always use axle stands to support the vehicle!

Check if you have the correct kit picture 26 is L.AL.94.LOW and picture 28 is L.AL.94.STA (the difference is in the chassis plate)

The following instructions make reference to the diagrams on pages 12 to 16 inclusive.

5.1 Installing of the left side

1. Install the lower bracket to the suspension arm, according to the drawings, if necessarily lift the vehicle a bit out of the springs.
2. Push the swing-bolts as far as possible into the centre hole.
3. If necessarily insert a big screwdriver into the centre hole so if you tighten slightly the M10 self securing nuts. Convince yourself the swing-bolts are grap-ping behind the centre hole.
4. Secure the M10 nuts not totally, it should be still possible to turn the lower bracket in to the final position after the u-bolt is installed.
5. Install the u-bolt around the suspension arm into the lower bracket.
6. Tighten now the swing-bolt definitely.
7. Attach the air spring to the upper bracket with the M10 x 25 bolt, washer and spring washer. Do not tighten totally. Attach also the air hose (Blue is right and black is left)..

High entrance

8. Remove the front bolts from the axle.
9. Install the upper bracket and air spring and use the M12 x 35 mm bolt.

Standard entrance

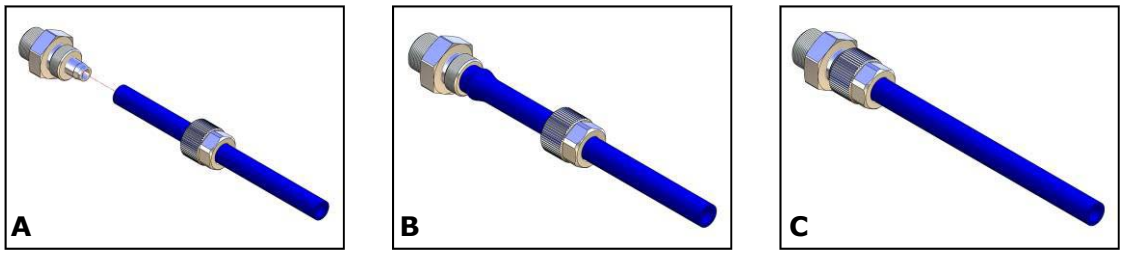
8. Attach the upper bracket on the bottom side around the chassis and push the plate against the sketch plate of the axle.
9. To avoid shifting, drill a hole in the middle of the plate trough the and secure the plate with the M6 bolt and nut.

10. Align the air spring so it is straight positioned, secure the air spring to the under bracket by using the M12 x 25 imbus bolt and washers. Aligning is much more easy when you can enter a little air into the air springs.
11. Tighten now all the bolts.

5.4 Tube Connection and Disconnection, Cutting and Routing

Connection and Disconnection

Tubes are connected as shown by the diagrams below...



A. Slide a nut over the end of the tube
B. Push the tube onto the connector as far as possible
C. Feed the nut up to the connector, fully tighten by hand and finally tighten one additional turn using spanners

Cutting

To achieve good sealing and air-tight fitting of tube ends to their connecting parts, it is very important to cut tubing cleanly and squarely. A dedicated guillotine action tubing cutter is recommended, or a craft knife if such a tool is not available. Do not use electrician's side cutters.

A dedicated tubing cutter - **Recommended**

Electrician's Side Cutters **NOT Recommended**

Routing

Study the underside of the vehicle and decide how to route each branch of the air circuit…

- To minimise the risk of chafing, avoid running tubing over metal edges as much as possible
- Avoid close proximity to heat sources such as the exhaust assembly
- Choose a route that provides as much protection as possible from dirt, debris and any solid objects that may impact the underside of the vehicle

It is recommended that tubes are guided alongside brake lines as much as possible.

5.5 Brake modification

Your vehicle has ABS so there is no modification needed for your brakes.

5.6 Spring Inflation

Once installation of the air assist kit is complete, inflate the springs via the inflator console taking careful note of the following...

Maximum and Minimum Pressure

Maximum Pressure 7.0bar **Minimum Pressure 0.5bar**

Do not exceed 7.0bar (101psi), which is the recommended maximum charge pressure for the air springs.

The springs may be deflated if the vehicle is to be stored for a lengthy period without use, but a pressure of at least 0.5bar (7.25psi) should be maintained at all times in order to avoid possible compression damage to the springs.

5.7 Maintenance

Following installation, it is recommended that all metal parts are coated with a protective substance such as body wax.

The system does not require very much maintenance other than…

- to maintain air pressure in the springs. Much like a tyre, the system may lose a little air over time.
- to keep the air bellows clean. It is suggested that, when washing the vehicle, the bellows are inspected and cleaned as necessary (preferable by spraying). Look in particular for stones or grit trapped between convolutes, as this may damage the bellow.

6. EPILOGUE

Dunlop Systems and Components hopes that you enjoy the benefits that your air suspension system will provide for you. To ensure optimal performance, we advise that you have your system checked frequently by qualified personnel. As recommended in the fitting instructions, it is important to coat all the steel parts with a protective substance such as body wax.

IMPORTANT : Manufacturer's Declaration Form

A manufacturer's declaration form is provided with your kit. Following installation of the kit please ensure that this form is completed, signed by a qualified fitter and a copy is returned to Dunlop Systems and Components by fax, post or e-mail.

As a condition of your warranty, modifications to the system may only be carried out by personnel of Dunlop Systems and Components.

Enquiries

For general enquiries please either telephone…

Dunlop Systems and Components Nederland : +31 (0)547 33 30 65

Dunlop Systems and Components UK : +44 (0)24 7629 3300

...or e-mail info@dunlopsystems.com.

9. Installation drawings

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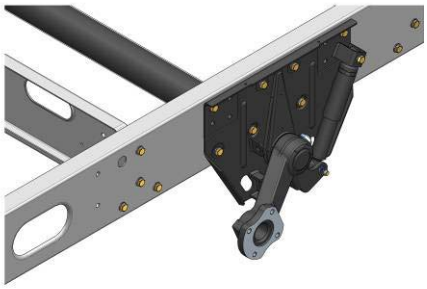

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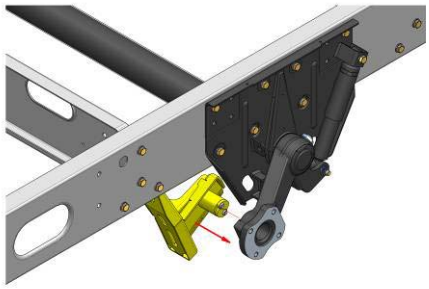

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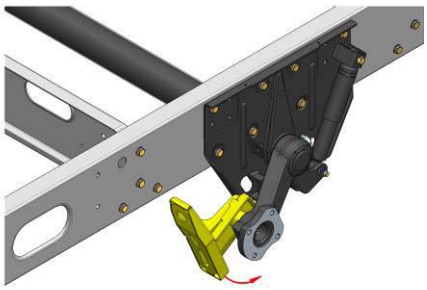

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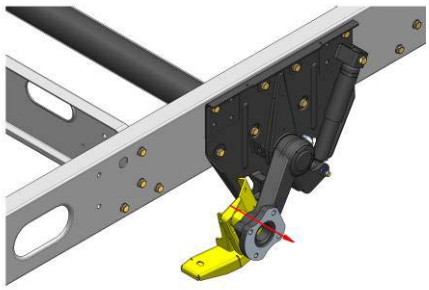

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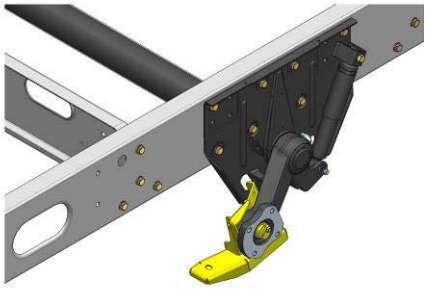

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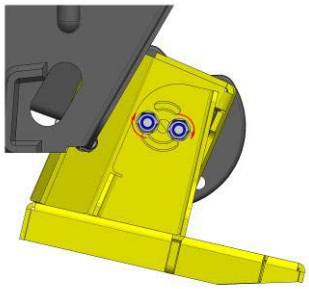

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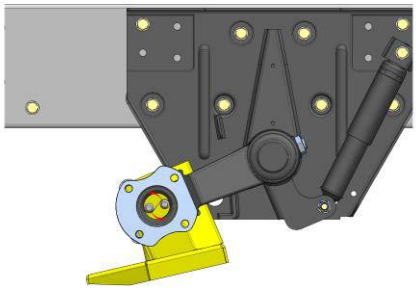

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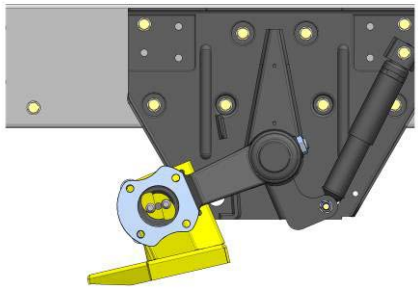

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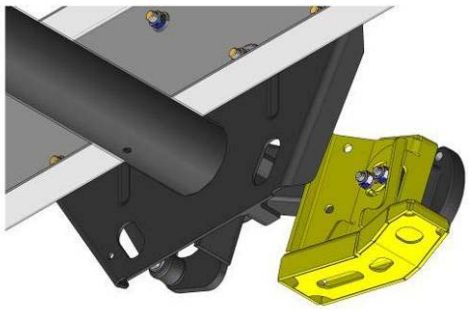

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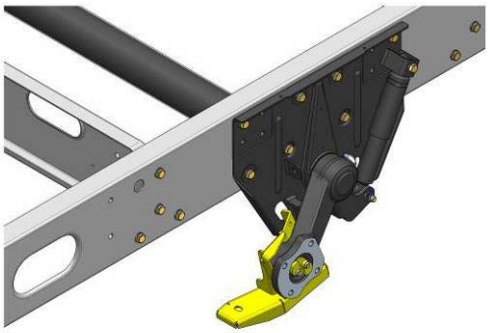

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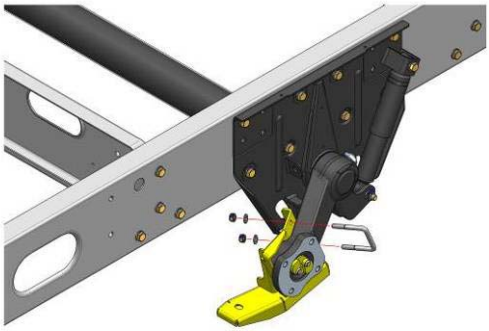

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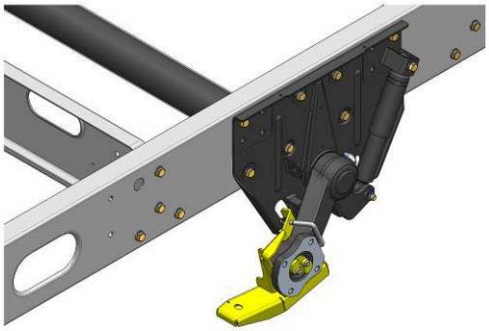

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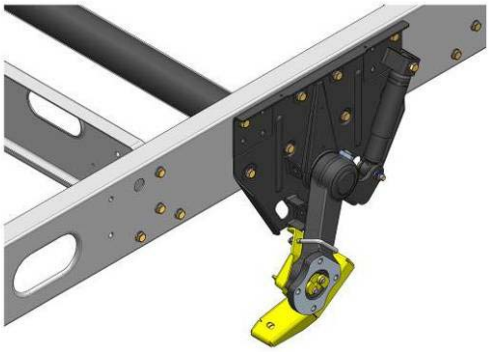

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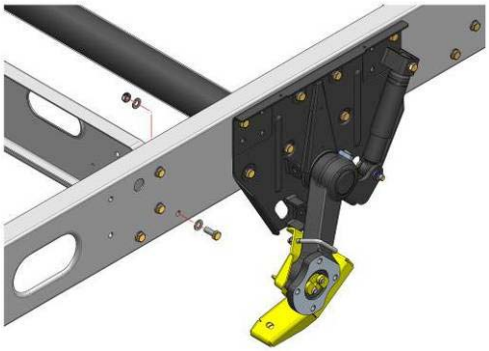

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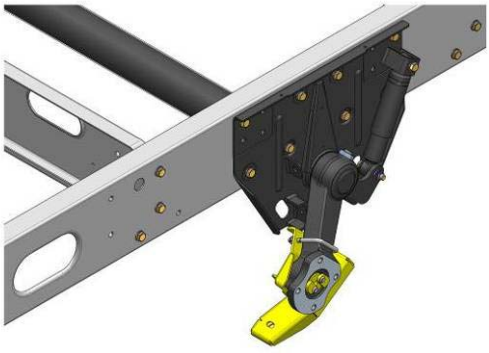

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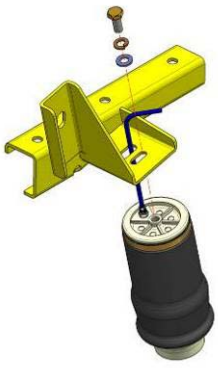

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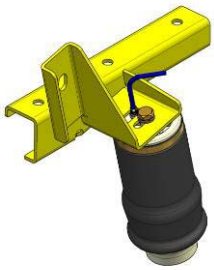

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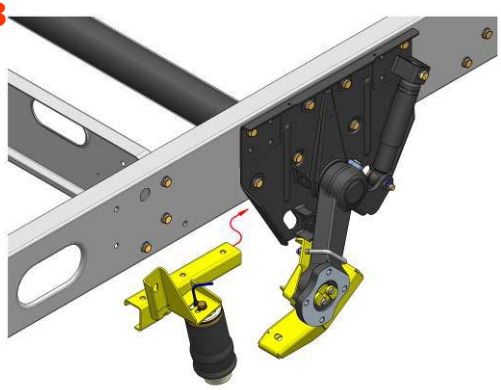

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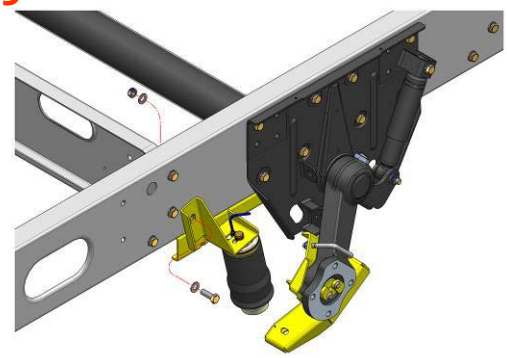

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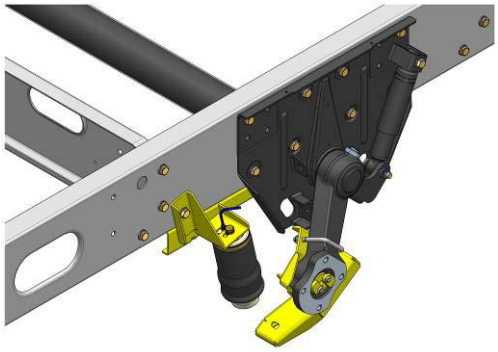

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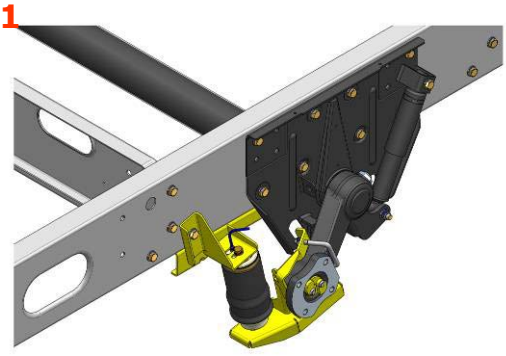

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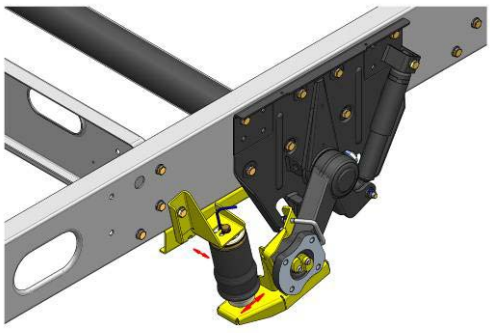

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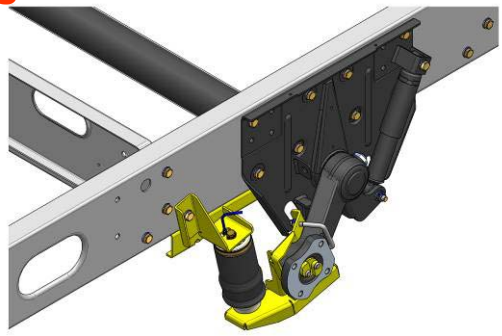

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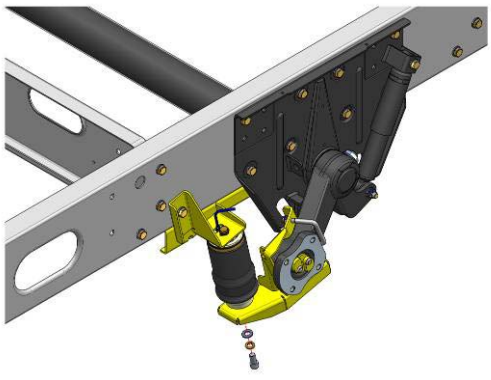

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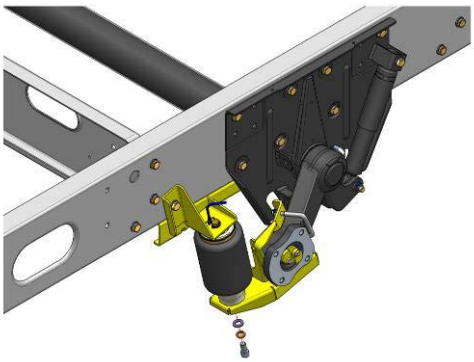

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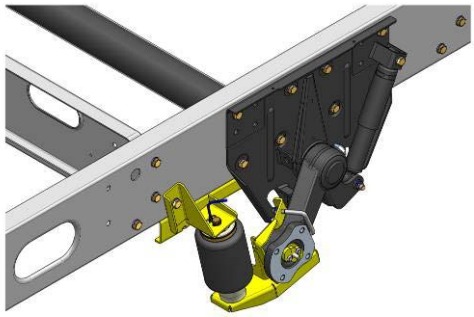

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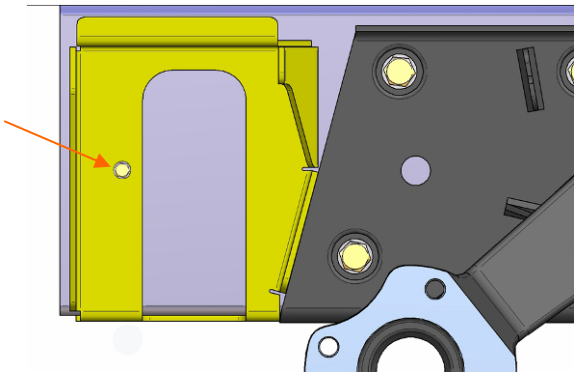

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