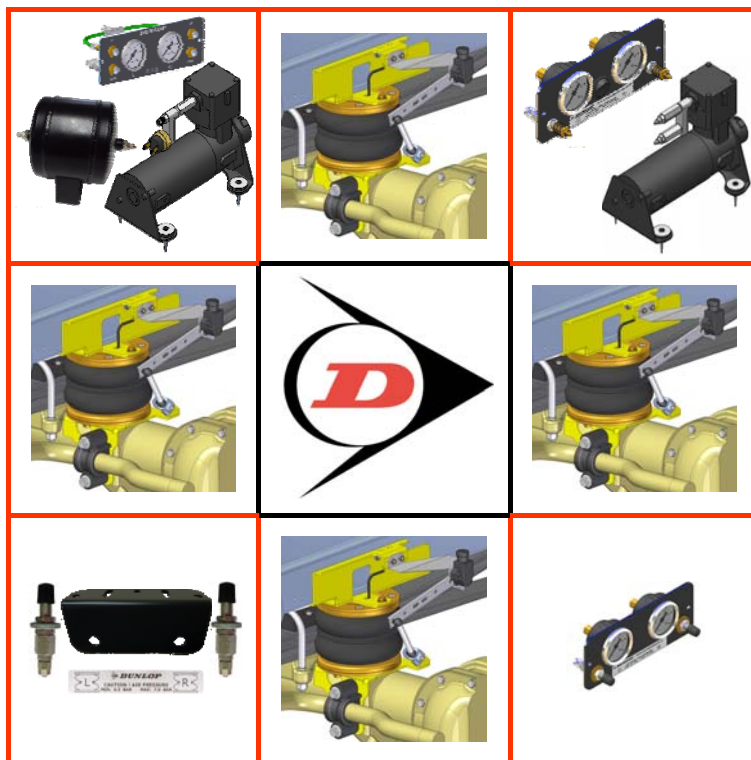


Installation Manual

L.SPR.18D.C.M (and 4x4)

Mercedes Benz Sprinter 500 (2018 Onwards)
WDB 907





Mercedes-Benz Sprinter 500

L.SPR.18D.C.M (and 4x4)

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DSC Nederland B.V.
Het Wegdam 22
7496 CA Hengevelde
Nederland
Tel. : +31 (0)547 333065
Fax. : +31 (0)547 333068
e-mail: info@dunlopsystems.nl
Website: www.dunlopsystems.nl

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1. FOREWORD

This manual provides instructions for the installation of an auxiliary air suspension kit, developed specifically for the Mercedes Benz Sprinter 400/500 and the Volkswagen Crafter 46/50. 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. DSC Nederland 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 DSC Nederland by post, fax or e-mail. Our e-mail address is: info@dunlopsystems.nl



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2. INTRODUCTION

Thank you for choosing an auxiliary air suspension kit from the range offered by *DSC Nederland*. 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.



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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

Vehicle Upgrading

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.

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Safety Guidance Note

The following very useful guidance note is available for free download from the *Health and Safety Executive (HSE)*...

PM85, July 2007 *Safe recovery (and repair) of buses and coaches fitted with air suspension*

The uniform resource locator (URL) for this document is...

<http://www.hse.gov.uk/PUBNS/pm85.pdf>

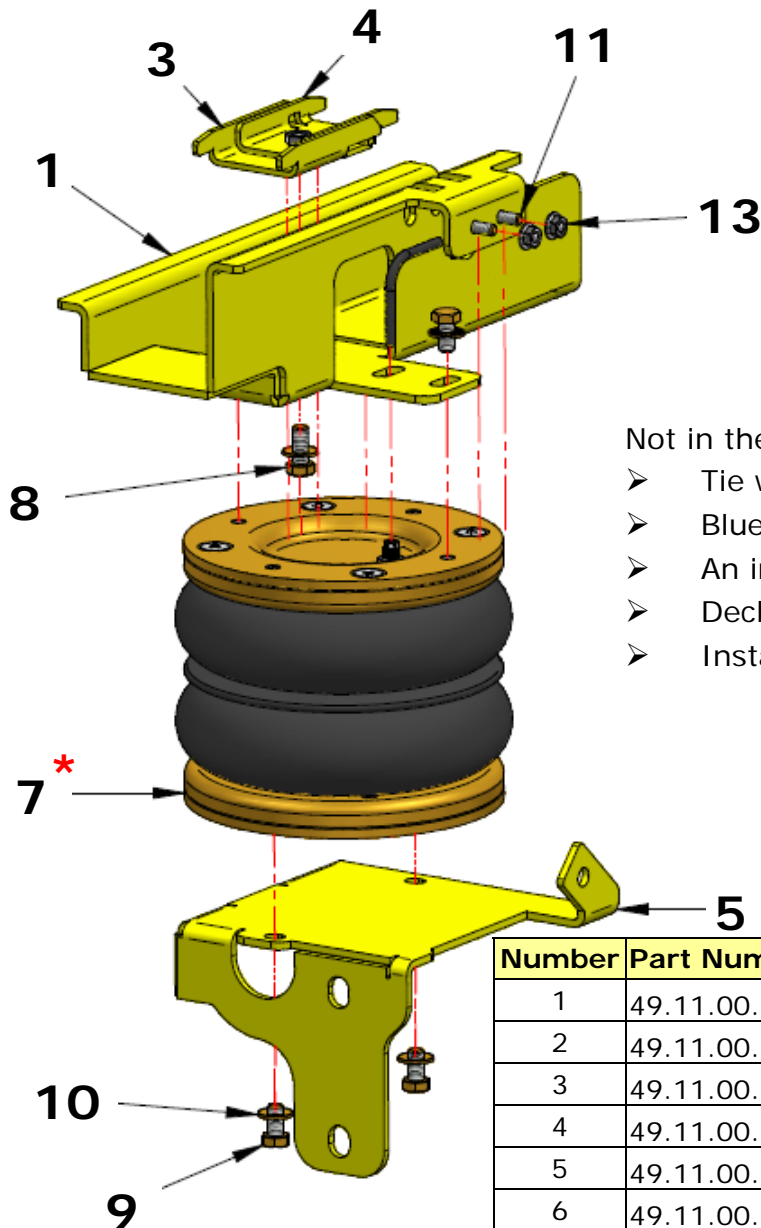


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4. COMPLETE ASSEMBLY

The complete bellow and bracket assembly is shown of the left side by the diagram below...



Not in the assembly drawing...

- Tie wraps
- Blue hose
- An inflate option
- Declaration of conformity
- Installation manual

* Right side not in the assembly drawing

Number	Part Number	Description	Quantity
1	49.11.00.1.01.01	Top plate Left	1
2	49.11.00.1.02.01 *	Top plate Right	1
3	49.11.00.1.01.02	Clamb Strap outside	2
4	49.11.00.1.01.03	Clamb Strap inside	2
5	49.11.00.1.04	Lower bracket Left	1
6	49.11.00.1.05 *	Lower bracket Right	1
7 **	OP.LB.170-2.CPL **	Air bellow 170/2 **	2
8	DIN 933-M8x20	Hexagon bolt M8 x 20	2
9	DIN 933-M8x16	Hexagon bolt M8 x 16	8
10	M8	Disc spring washer	10
11	DIN 933-M6x20	Hexagon bolt M6 x 20	2
12	DIN 125A-M6 *	Washer M6	2
13	DIN 9623-M6	Flange nut M6	2

** For 4x4 → OP.LB.170-3.CPL → Air bellow 170/3 → 2 pcs



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5. INSTRUCTIONS FOR INSTALLATION



Preparation and Precaution

Before beginning installation, ensure that you have sufficient clearance between the axle and the chassis. Use a jack if necessary. Install at one side of the vehicle at a time.



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



The position of the axle stands should be under the chassis NOT under the axle!

5.1 Recommended Tightening Torque

During fitting of the air suspension system, it is recommended that nuts and bolts are tightened in accordance with the following table...

METRIC TORQUE CHART IN N.m		
SIZE	CLASS 8.8	CLASS 10.9
M6 x 1	9.9	14.0
M8 x 1.25	24.0	34.0
M10 x 1.5	48.0	67.0
M12 x 1.5	61.0	89.0
M16 x 2	200.0	285.0

- When both the bolt and nut are made from steel use either class 8.8 or 10.9
- For all other materials, tightening torque is left to the discretion of a person skilled in the art

The following instructions make reference to the diagrams on pages 16 to 18 inclusive.

5.2 Preparation

- Secure the front wheels, use wheel chocks on both sides of both front wheels.
- Take the ground terminal from the battery when work to electricity is involved.
- Lift the rear of the vehicle till there is working space of approximately 15 cm between bump stop and rear axle.



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5.3 Bump Stop Removal and fitting of Upper and Lower Bracket

- i. Remove the two bump stops (Figure 1).
- ii. Remove the holder of the cable loom and the 2 nuts of the sensor (Figure 1). *Not all models will have this sensor.*
- iii. Remove the M10 Bolt of the Sensor arm of the connection to the rear axle (Figure 1).
- iv. Remove the small flange that protrudes from the top of the axle at both ends, (Figures 5 and 6) leaving a smooth flat surface
- v. Remove the two bolts from the bracket that attaches the torsion beam assembly to the axle (Figures 1 and 2).
- vi. Reattach the bracket that secures the torsion beam to the axle, thereby also securing the lower bracket to the axle (Figures 5 and 6). Take care the lower bracket rests flat.
- vii. The chassis bracket assembly has two parts (See Figures 7 and 8). Put the two parts together and offer them up to the frame left vacant of the bump stop. Now slide the upper of the two chassis brackets inside the lower of the two until the assembly is loosely attached to the bump stop frame with the holes in alignment.
- viii. Offer the upper bracket up to the chassis bracket assembly and attach it using a single M8 x 20mm bolt and a single serrated washer (Figures 9 and 10).
- ix. The cable loom can be attached with a ty-wrap trough a slot of the sensor connecting point at the top of the upper bracket.
- x. The sensor can be attached on the original position.



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5.4 Attachment of the Bellows

- i. See Section 5.7 - "*Tube Connection and Disconnection, Cutting and Routing*" : Use black tubing for the left-hand bellow and blue for the right-hand bellow.
- ii. Feed for the left side the black tube from the topside trough the biggest hole of the upper bracket.
- iii. Manually compress the bellow and connect the tube to the air bellow then bung the end of the tube to maintain the compressed state (Figure 11).
- iv. Shift the air bellow carefully between the brackets and guide the tube (Figure 11).
- v. Release the bung from the tube. This allows air into the bellow, which consequently expands upwards towards the upper bracket (Figure 12).
- vi. Attach the bellow to both brackets using two M8 x 16mm bolts and two serrated washers on both sides of the bellow Figure 12. Do not fully tighten at this stage because the bellow may require alignment once inflated (see Section 5.9, Figure 15).
- vii. The distance between the top face of upper plate of the bellow and the bottom face of the lower plate should now be brought to approximately 14cm. Manoeuvre the bellow such that it is in good vertical alignment between the upper and lower brackets and tighten the screws.

5.5 Attachment of the LED-lights Sensor

- i. The sensor can be attached on almost the same position but now to the upper bracket (Figures 13 and 14) with the M6 x 20, washer and flange nut (Pos. 11, 12 and 13 page 7).
- ii. The sensor arm can be attached to the protrusion of the lower bracket with it's original screw (Figures 13 and 14).
- iii. Check the height of the headlights, this can be corrected by releasing the M6 nuts and to manoeuvre the bracket till the height of the headlights is correct again.
- iv. Tighten the sensor bracket and check the height of the headlights again.



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5.6 Fitting of Inflator Console



Your kit is supplied with one of the inflator options shown above...

- **OPTION VALVES** : Two valves and a small bracket
- **OPTION MANO** : Two valves and two independent 10-bar pressure gauges
- **OPTION 1** : Two valves in a console with two independent 10-bar pressure gauges
- **OPTION 2** : Two valves in a console with two independent 10-bar pressure gauges and a rocker on/off switch to operate the electric motor driven air compressor
- **OPTION 3** : Four valves (two for raising the vehicle ('UP') and two for lowering the vehicle ('DOWN')) in a console with two independent 10-bar pressure gauges. A pressure switch operates the electric motor driven air compressor to keep the air reservoir of 2.2-litre at pressure.



A special dashboard DIN 1 panel is available for **OPTION 1, OPTION 2 and OPTION 3**



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Mount the console in a position of your choice whereby it is firmly fixed, has some protection from the environment (particularly important for the console with gauges) and is easily accessible. Suggested possible locations include...

'Standard' Console...

- on the rear bumper
- at the rear beside the license plate
- on the chassis next to a rear wheel
- in a service shutter (motorhomes)
- beside the fuel cap

'Option 1', 'Option 2' or 'Option 3' Console...

- in the vehicle cabin, within reach and sight of the driver
- Beside, under the driver seat
- in the wall of a cupboard (motorhomes)
- in a service shutter (motorhomes)

'Comfort' Packages

The 'Option 2' and 'Option 3' panels, as shown above, are each part of a *Comfort Package* that is supplied with a compressor (and also an air reservoir in the case of the 'Option 3' panel) for ease of spring inflation and ride height setting. For further information please ask your dealer.

The photograph below shows all of the parts of Comfort Package 'Option 2'...



Comfort Package 'Option 2'



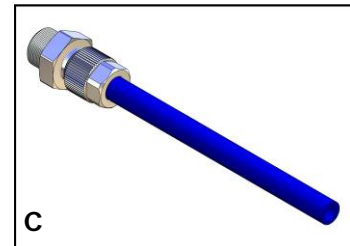
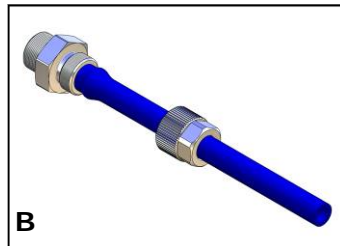
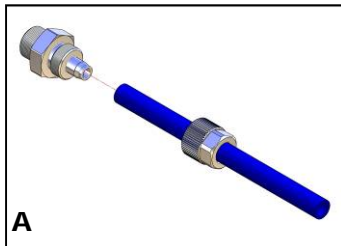
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5.7 Tube Connection and Disconnection, Cutting and Routing

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



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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.



Use cable ties ('tie wraps') to secure tubing to the chassis, taking care not to over-tighten them.

5.8 Bellow 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.

With the vehicle standing at the desired ride height, it is recommended that the height of the bellow itself should be between 11cm and 15 cm.

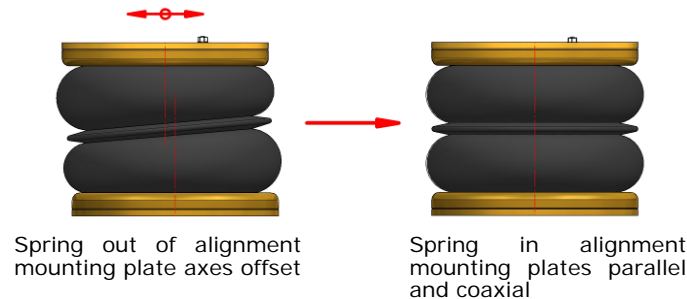
For 4x4 vehicles with a 170/3 air bellow should it be 16 cm to 19cm.



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L.SPR.18D.C.M (and 4x4)

5.9 Bellow Alignment



- i. With the vehicle standing at the desired ride height, ensure that the springs are correctly aligned as illustrated above and then tighten the bolts to secure the bellow to both the upper and the lower mounting brackets.
- ii. Always check if the air bellow won't touch any obstacle

5.10 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.
- ◆ Check before and after the winter period the wax coating. Re-wax when necessarily



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5.11 Check List

Before driving the vehicle following completion of installation of the auxiliary air suspension system, please check...

- ...all bolts tightened to the recommended torque (Page 7)?
- ...air bellow set in alignment (Section 5.9)?
- ...enough free space around the air springs to avoid wearing?
- ...all metal parts wax coated (Section 5.10)?
- ...manufacturer's declaration form completed and a copy returned?



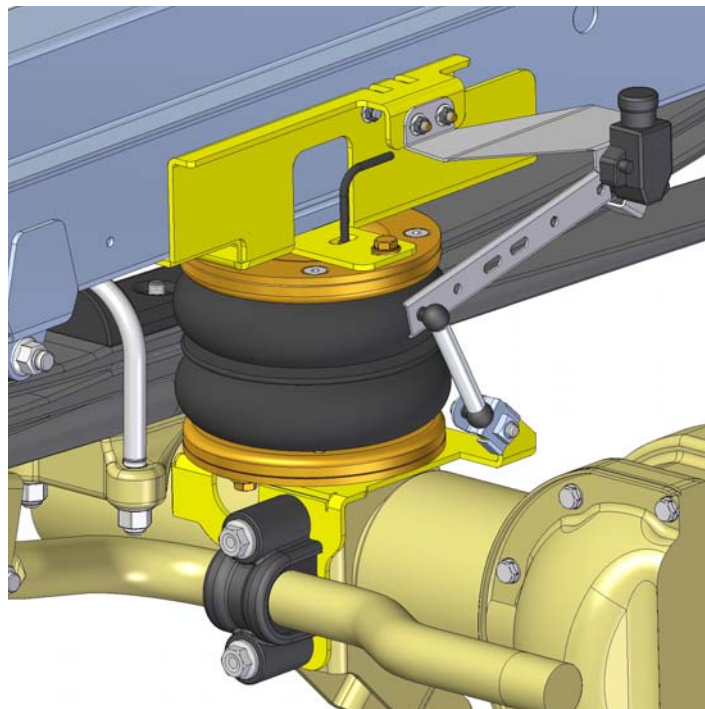
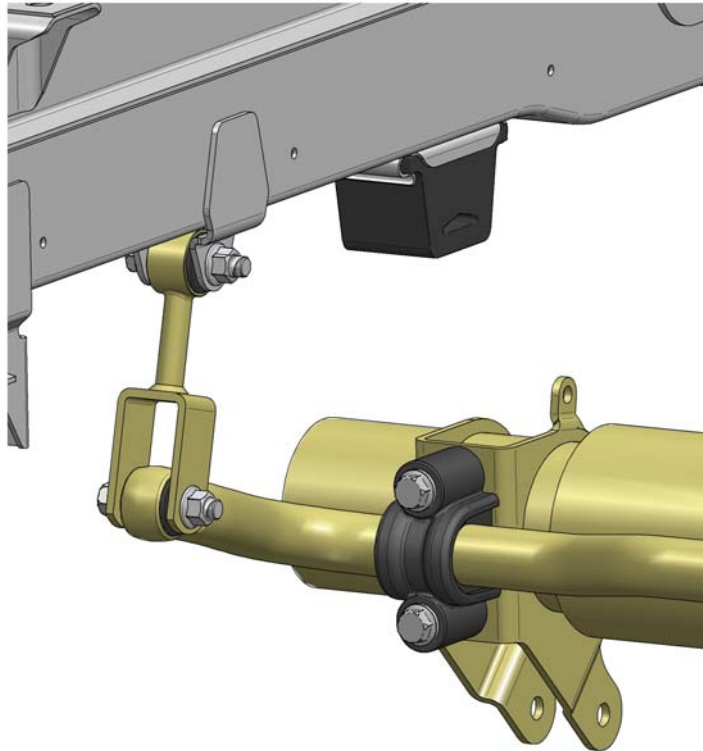
A wait of 24 hours is recommended in order to ensure that the vehicle has maintained its stance and that there are no air leaks present.



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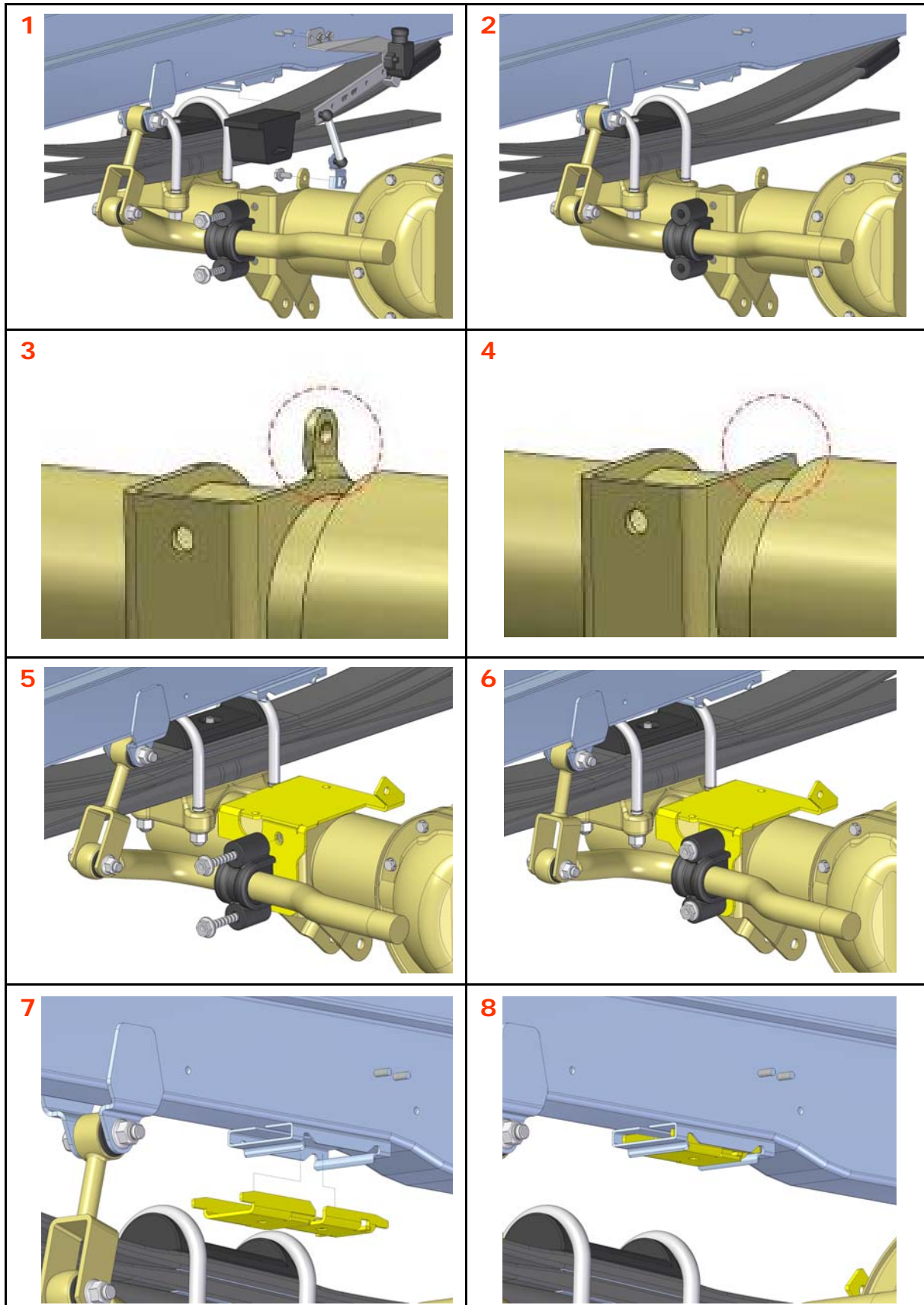
6. INSTALLATION PICTURES





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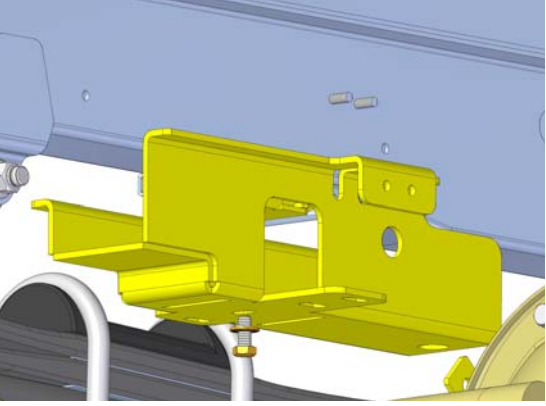
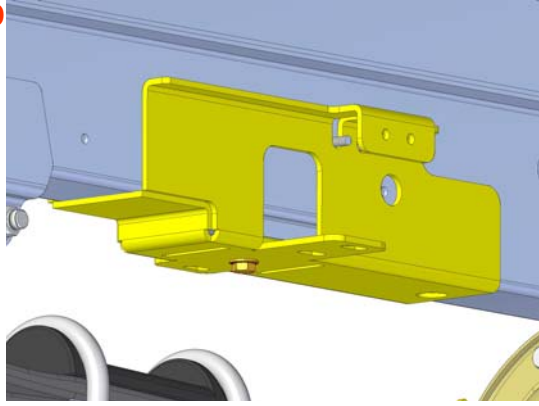
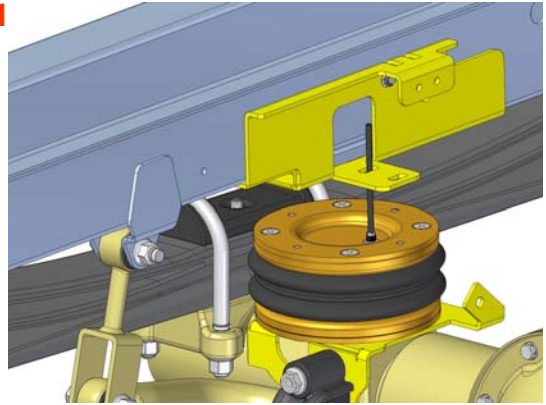
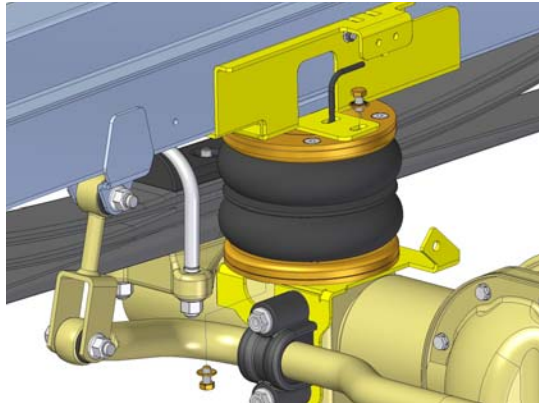
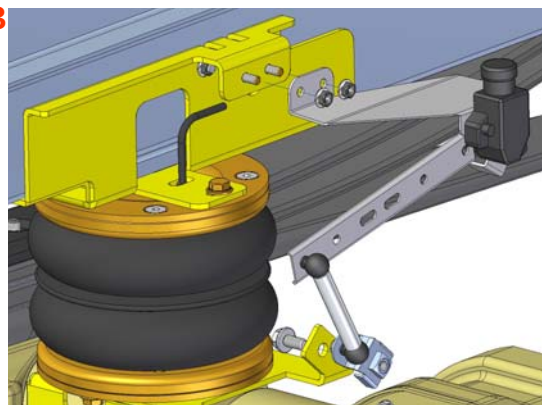
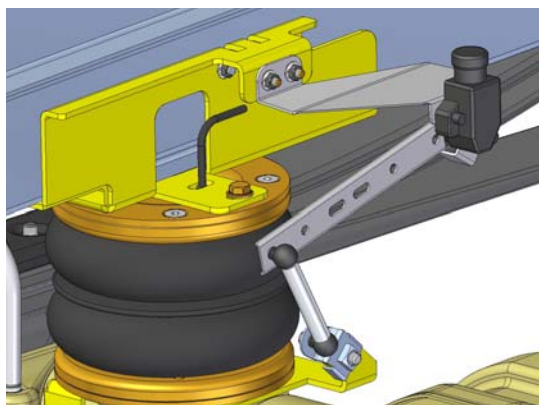
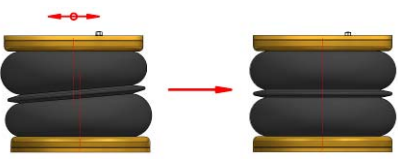
L.SPR.18D.C.M





Mercedes-Benz Sprinter 500

L.SPR.18D.C.M

<p>9</p> 	<p>10</p> 
<p>11</p> 	<p>12</p> 
<p>13</p> 	<p>14</p> 
<p>15</p>  <p>Spring out of alignment—mounting plate axes offset Spring in alignment—mounting plates parallel and coaxial</p> <p>CAUTION! Before fully tightening the bolts that secure the air spring to the upper and lower brackets, set the vehicle at ride height (spring height approximately 13.5cm) and ensure that the springs are correctly aligned.</p>	



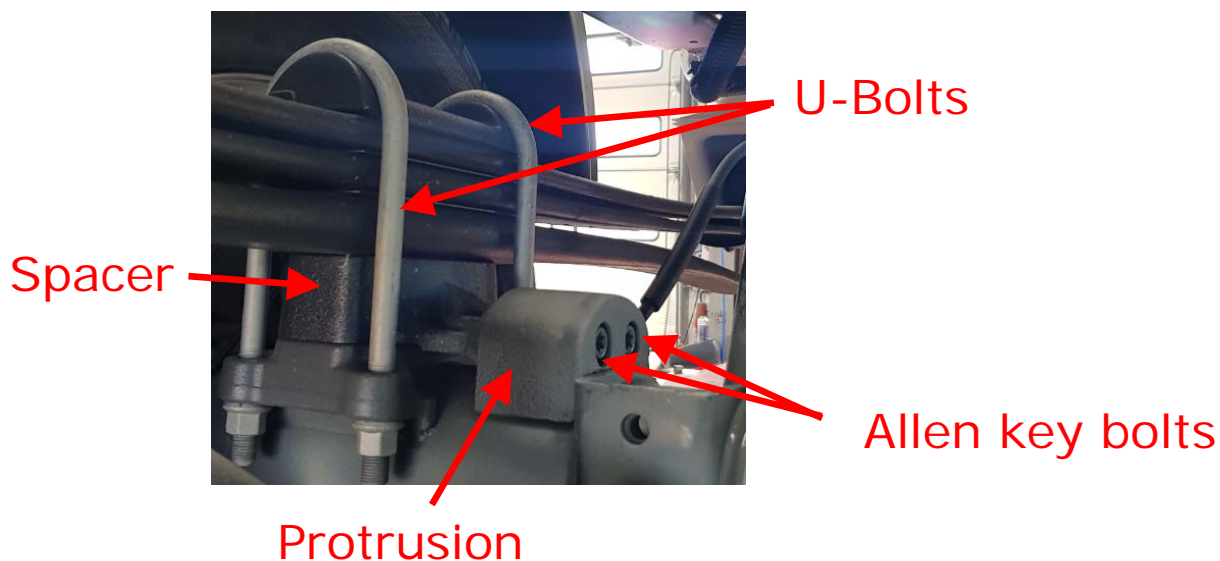
Mercedes-Benz Sprinter 500

L.SPR.18D.C.M (and 4x4)

6.1 Special Model and 4x4

Not very often is an extra 'Spacer' installed under the leaf spring. This means you have to rotate it 180 degrees and detach the extra connected protrusion. Don't cut it. To do this you need to:

- Unscrew the U-Bolts
- Lift the chassis approximately 2.. 3 cm
- Take care the rear axle is not lifted, in this way there is space to remove the 'Spacer'
- Remove the protrusion by loosening the two Allen key bolts
- Rotate the 'spacer' 180 degrees, to create space for the air suspension kit.
- Tighten the U-bolts according the recommended torque (Garage manual of Mercedes).
- Now you can start at page 7 of this manual
- Be aware 4x4 uses 170/3, this are 3 steps air bellows





Mercedes-Benz Sprinter 500

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7. EPILOGUE

DSC Nederland hopes that you enjoy the benefits that your *DUNLOP* 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 DSC Nederland by post, fax or e-mail. Our e-mail address is: info@dunlopsystems.nl

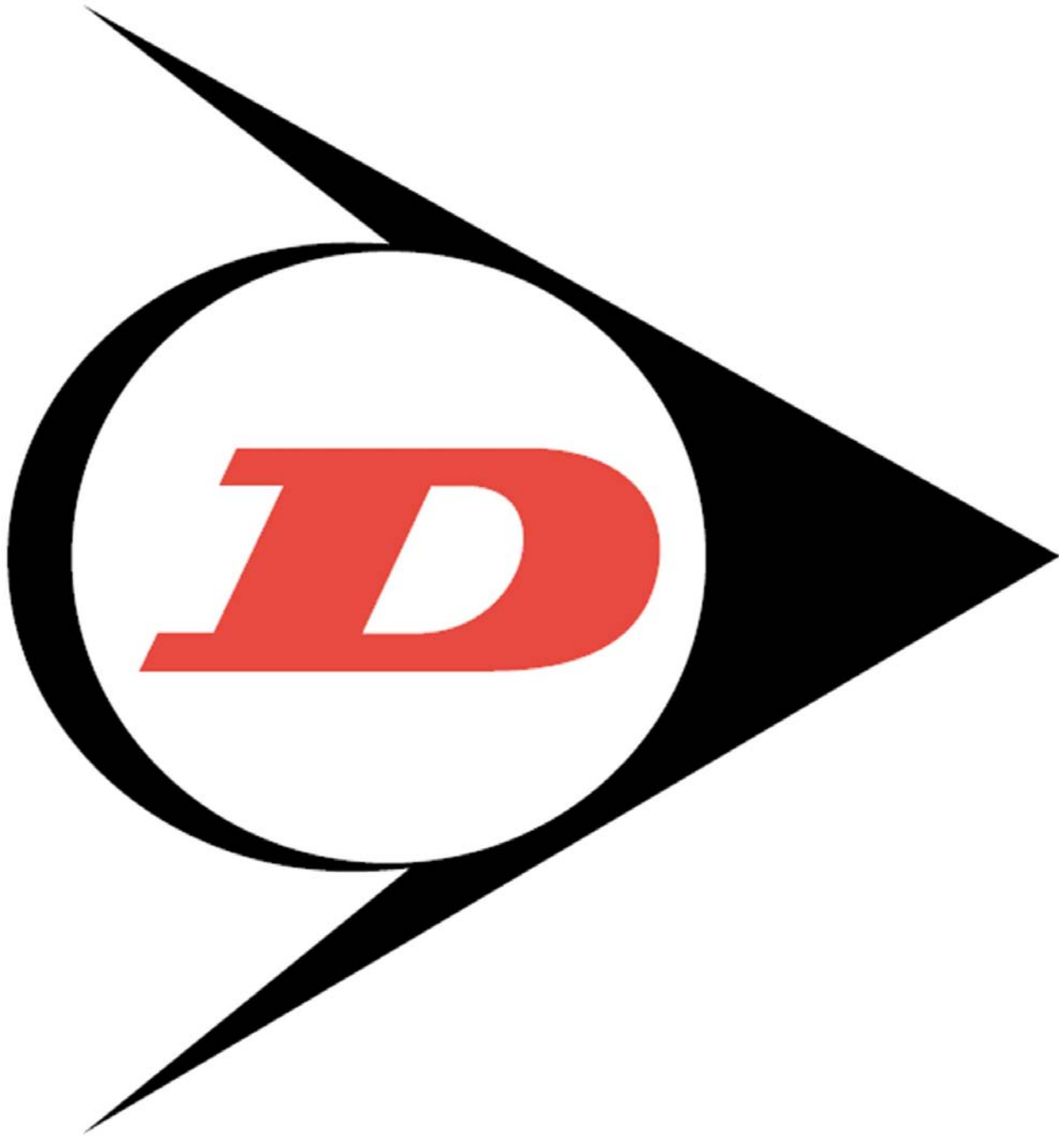
As a condition of your warranty, modifications to the system may only be carried out by personnel of DSC Nederland.

Enquiries

For general enquiries please contact one of our dealers. You can find them on our website.

www.dunlopsystems.nl

Installation Manual



DSC Nederland B.V.
Het Wegdam 22
7496 CA Hengevelde
Nederland
Tel. : +31 (0)547 333065
Fax. : +31 (0)547 333068
e-mail: info@dunlopsystems.nl

www.dunlopsystems.nl