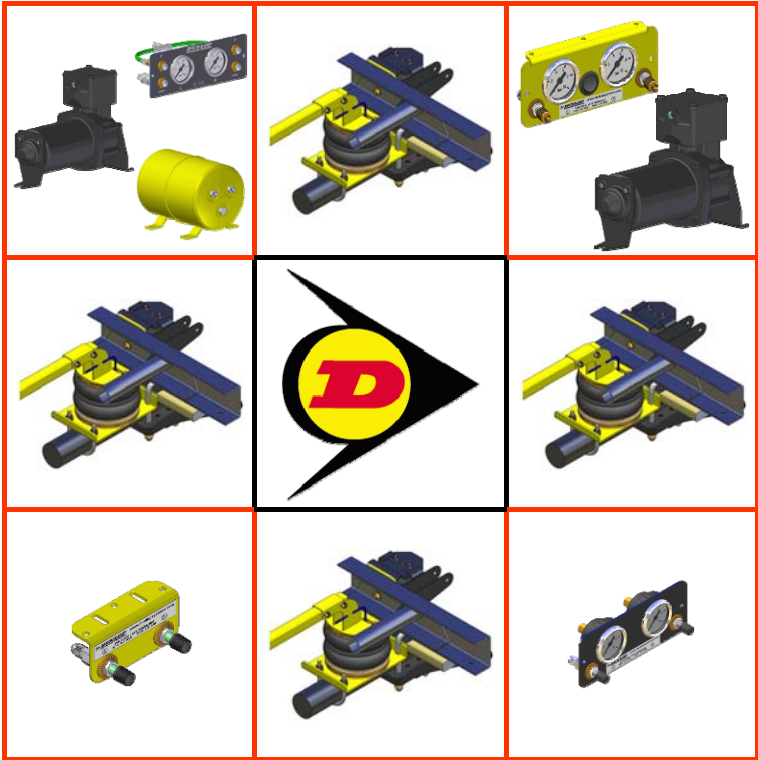


# Installation Manual

## L.IVE.LS.C.M

### Iveco Daily L and S



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### 1. FOREWORD

This manual provides instructions for the installation of an auxiliary air suspension kit, developed specifically for Iveco Daily L and S models. To ensure correct installation of the kit, it is strongly recommended 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 returned to Dunlop Systems and Components.**

### 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



#### Load Sensing Valve (LSV) Adjustment

If your vehicle is not fitted with an antilock braking system (ABS) then it will have a load sensing valve (LSV) to automatically adjust braking force under varying load conditions. This valve **must** be adjusted immediately after the fitting of an air assist kit and before the vehicle is driven again on public roads.

If the LSV is not adjusted following the fitting of an air assist kit, it may misjudge rear load conditions to the extent that the braking pressure applied to the rear brakes is not correct (e.g. the rear wheels may lock with no load on the rear axle). The consequences of this in terms of vehicle stability and safety are potentially serious.

#### 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>

### 4. 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!

#### Recommended Tightening Torque

During fitting of the air automatic 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 1.75	83.0	117.0
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 20 inclusive.

#### 4.1 Attachment of the Upper Brackets

- Unscrew and temporarily remove the bump stop housing bracket—Figures 1 and 2
- Offer the upper bracket up to the chassis rail at the site where the bump stop bracket is normally attached—Figure 3—then reattach the bump stop bracket thereby securing the upper bracket to the chassis—Figures 4 and 5
- Once both upper brackets are in place, attach the cross member between them—Figures 6 and 7

### 4.2 Attachment of the Left-side Lower Bracket

- i. Unscrew the axle vent tube from the axle and in its place fit the extension tube supplied—Figures 8 to 11
- ii. Attach the axle vent tube to the extension tube—Figures 12 and 13
- iii. Place the lower-left bracket onto the axle such that the two vertical slots mate with the large U-bolts that attach the leaf spring to the axle and the large slot in the bracket rests over the vent tube extension at the position at which it is attached to the axle—Figures 14 and 15

### 4.3 Attachment of the Right-side Lower Bracket

- i. Place the lower-right bracket onto the axle such that the two vertical slots mate with the large U-bolts that attach the leaf spring to the axle—Figure 17
- ii. Secure the lower bracket to the axle via a U-bolt—Figure 18

### 4.4 Installation of the Air Springs

- i. Connect a tube to each bellow - refer to section 4.7
- ii. Compress each bellow and then bung the attached tube to maintain the state of compression
- iii. Feed the tube through the slot in the upper bracket and place the air spring between the upper and the lower brackets—Figure 19
- iv. Remove the bung and the spring will inflate until its upper and lower plates are in contact with the upper and lower mounting brackets respectively
- v. Attach the air spring to the upper and lower mounting brackets using 4-off M8 x 16mm bolts and spring washers—Figures 20 and 21. Do not fully tighten the bolts as yet.



### 4.5 Load Sensing Valve Adjustment (Models without ABS Only)



Vehicles not fitted with an antilock braking system will have a load sensing valve (LSV). **This valve must be adjusted prior to operating a vehicle fitted with an air assist kit.**

- i. Unscrew and remove the load sensing valve lever and connecting rod, indicated by the arrows in Figure 22
- ii. See Figure 23. Attach the 'boomerang'-shaped bracket supplied, via its through-bolt, to the bracket hanging from the chassis as vacated by removal of the lever in the previous step. Attach the hook at the end of the coil spring linkage through the hole in one arm of the 'boomerang'.
- iii. Tension the coil spring linkage as follows...  
See Figure 24. Loosen the nut indicated by the arrow on the left and then hang a weight from the hole indicated by the arrow on the right...
 

Daily L	8.75kg
Daily S	12.25kg

Whilst this weight is hanging re-tighten the nut and finally remove the weight.

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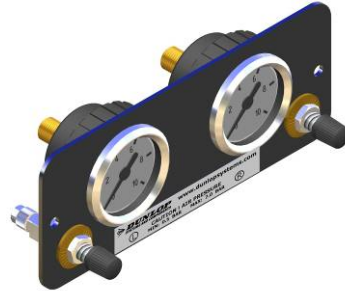
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### 4.6 Fitting of Inflator Console

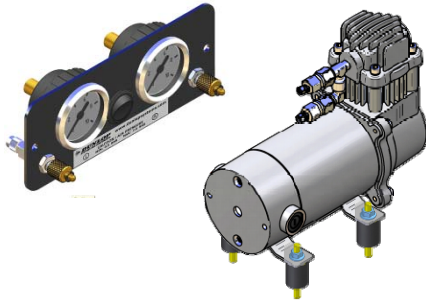
**Standard**



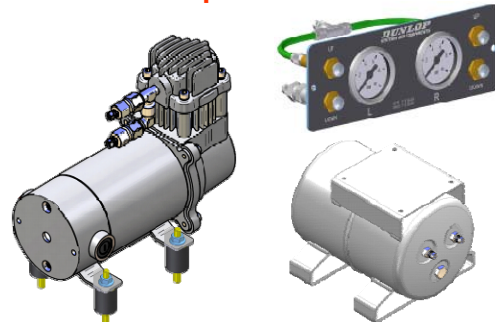
**Option 1**



**Option 2**



**Option 3**



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

- 'Standard', having two valves only (above, top-left)
- 'Option 1', 'Option 2' or 'Option 3', having both valves and pressure gauges
- having both valves and pressure gauges and specially designed to fit into the fascia panel of the vehicle ('Vehicle Fascia Console')

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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
- beside the fuel cap

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

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

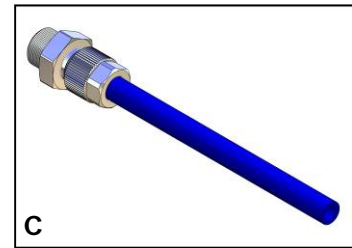
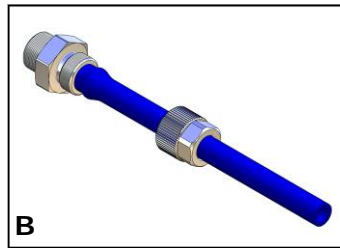
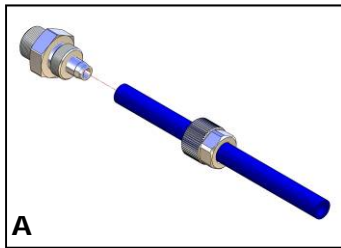
### 'Comfort' Packages

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.

### 4.7 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**

### 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.

### 4.8 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**

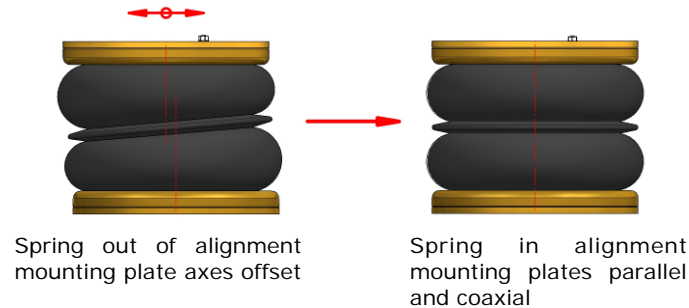
Do not exceed 7.0bar (101psi), which is the recommended maximum charge pressure for the air springs.

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.

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### 4.9 Spring Alignment



#### 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 22cm) and ensure that the springs are correctly aligned.

### 4.10 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.

### 4.11 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 springs set in alignment (Section 4.9)?

...all metal parts wax coated (Section 4.10)?

...manufacturer's declaration form completed and returned?

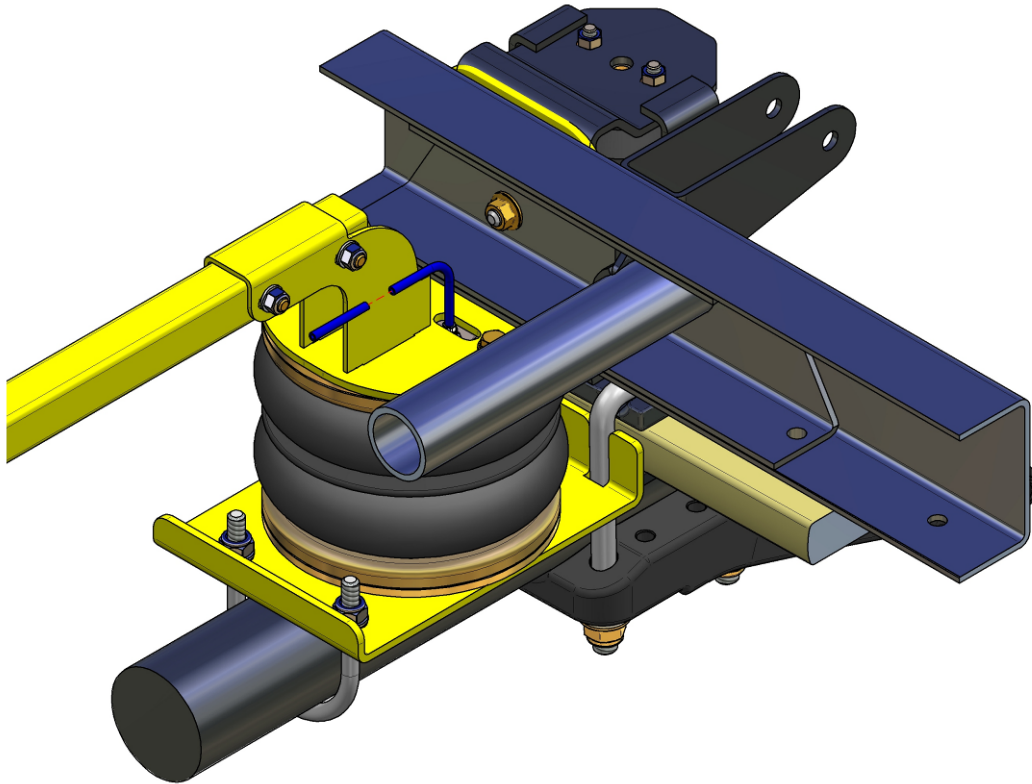


A wait of 24 hours is recommended in order to ensure that the vehicle has maintained its stance and that there are no air leaks present.

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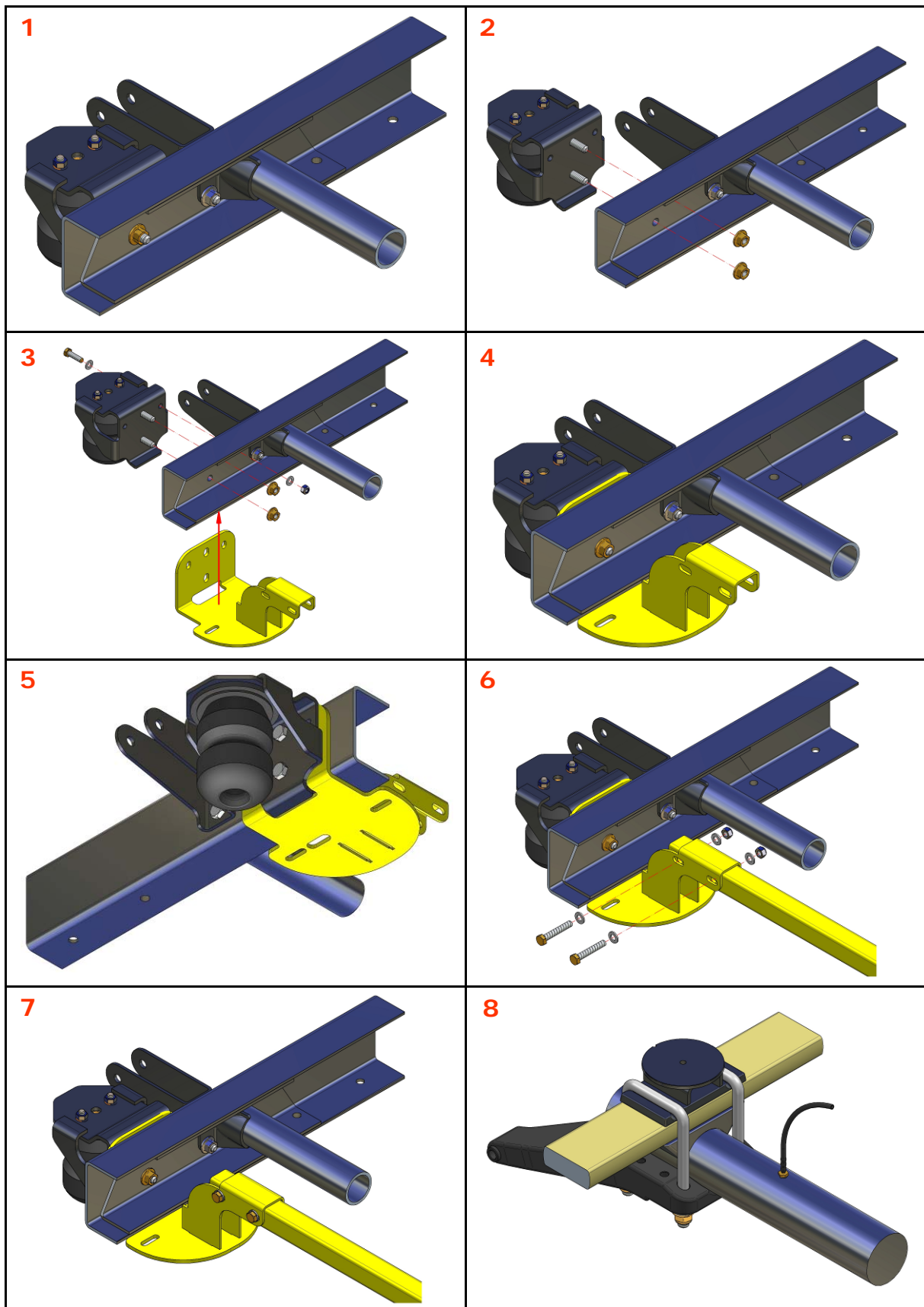
## 4.12 Installation Drawings





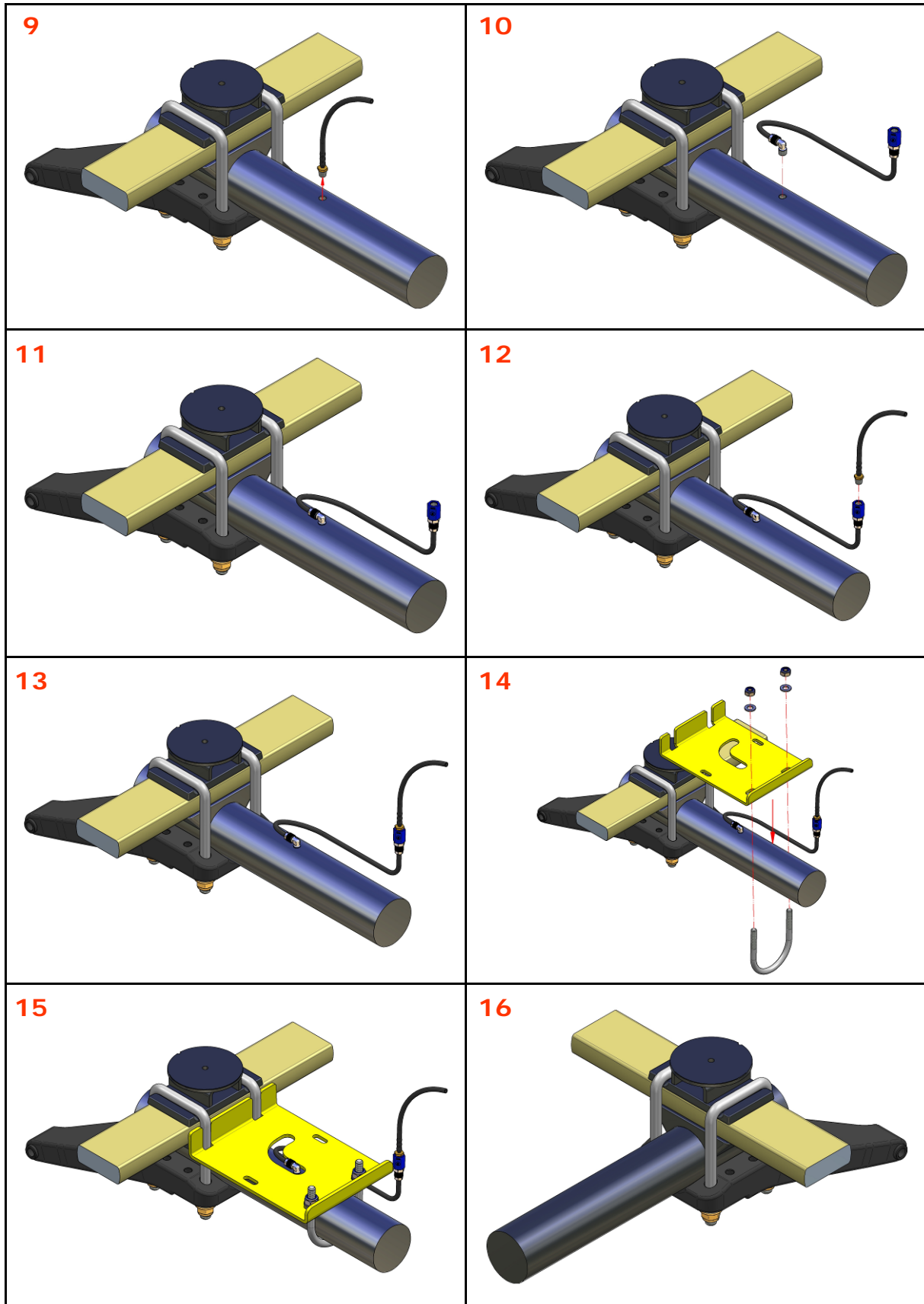
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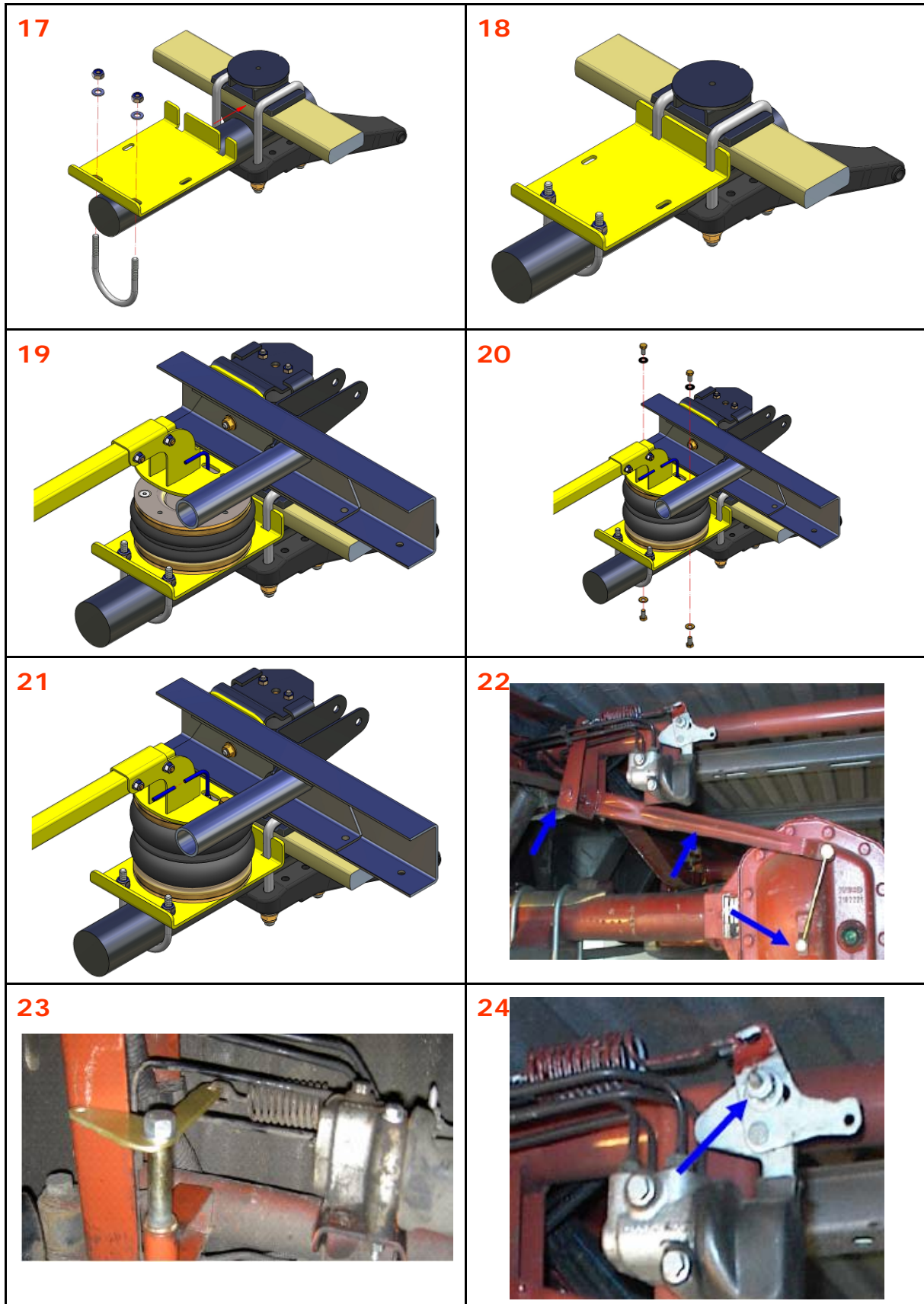
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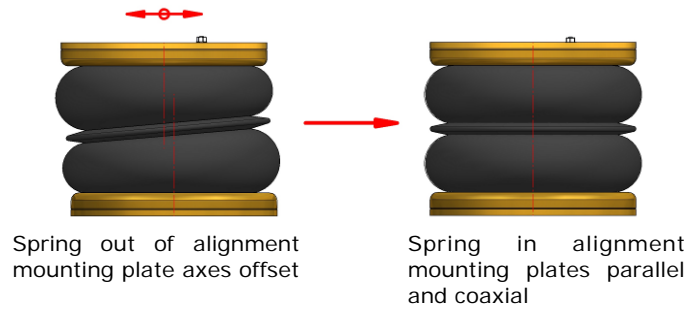
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### CAUTION!

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.

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## 5. 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 returned to Dunlop Systems and Components.**

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

### **Enquiries**

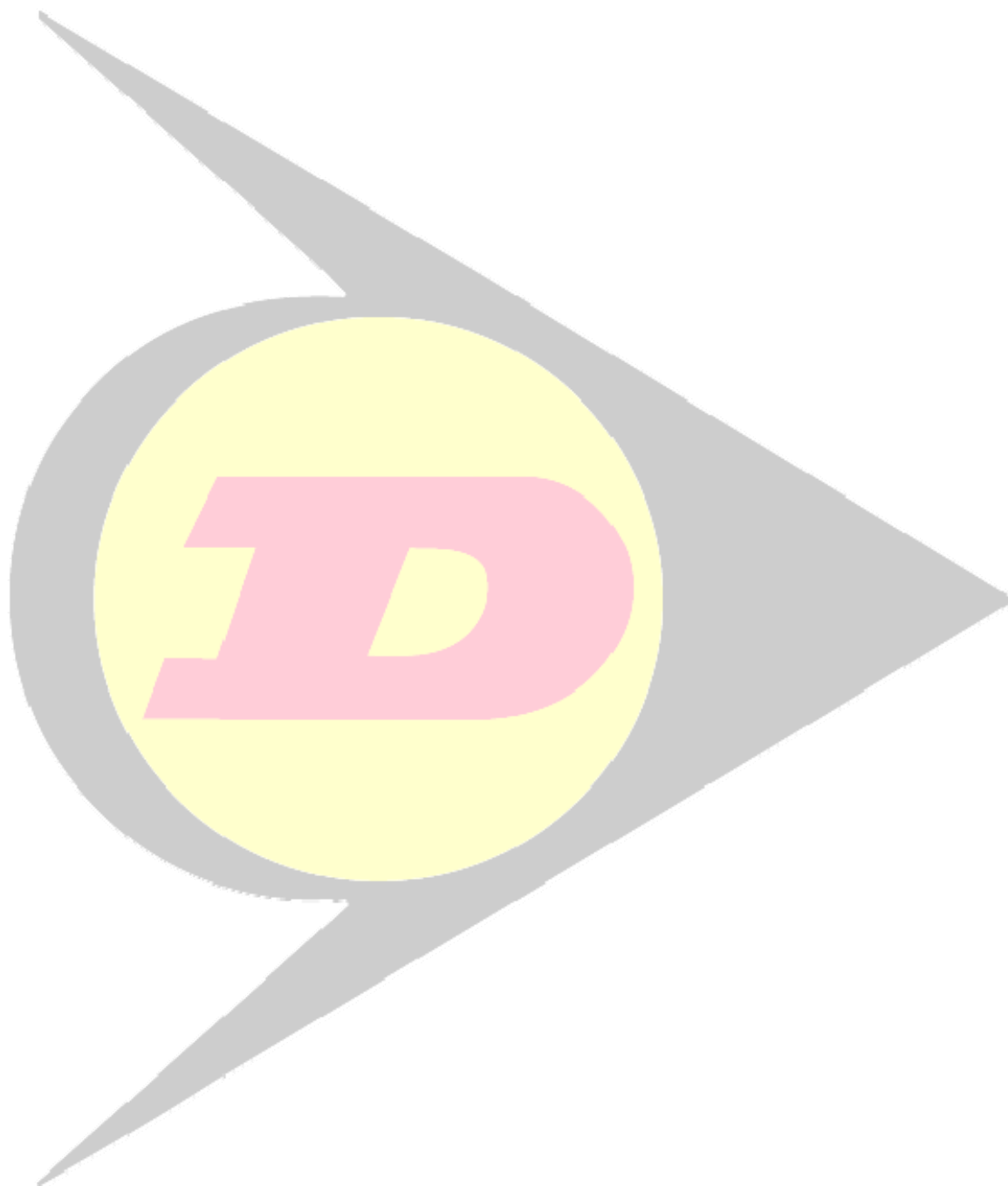
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