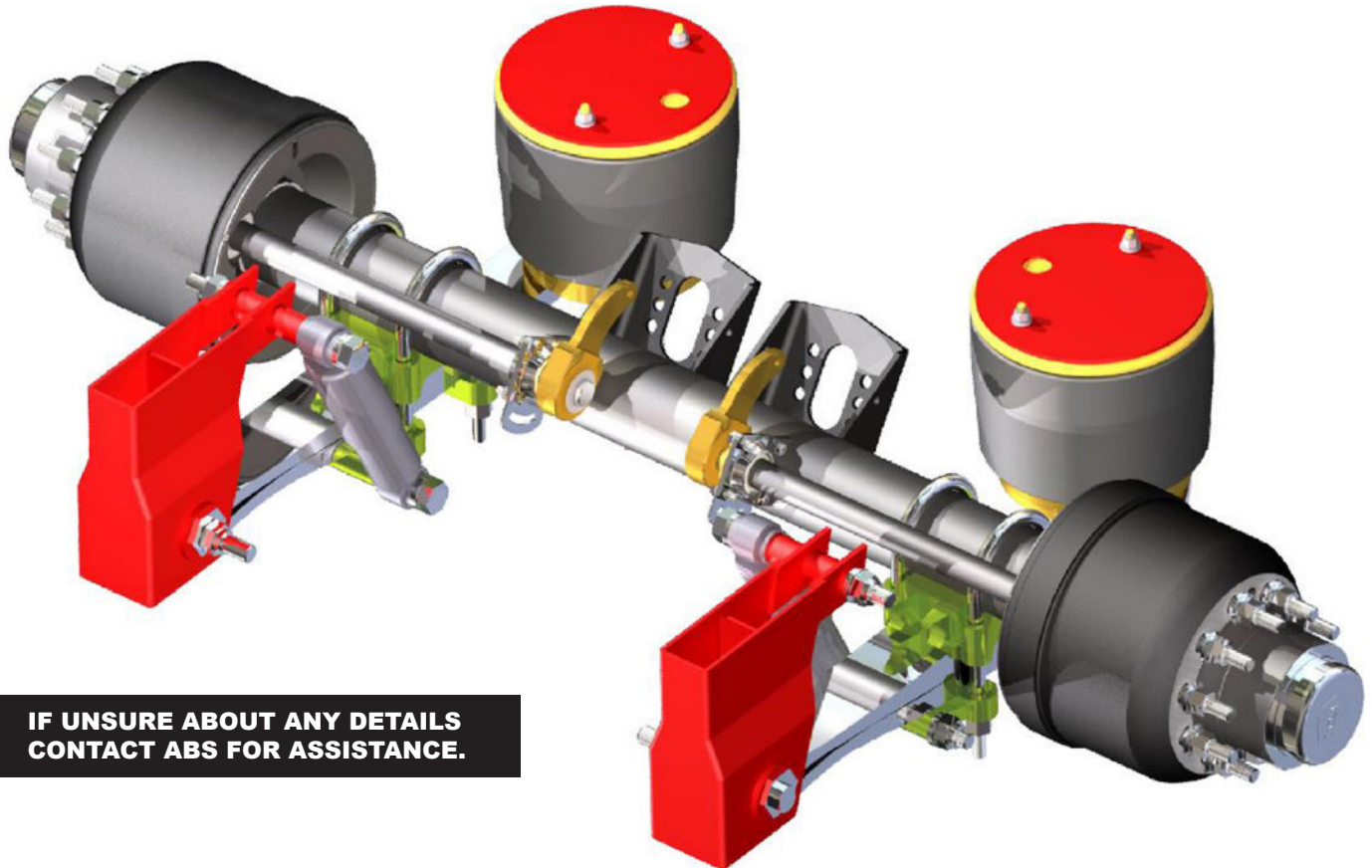


### ► ROBUST AIR SUSPENSION



**IF UNSURE ABOUT ANY DETAILS  
CONTACT ABS FOR ASSISTANCE.**

#### **Please read before use**

The maintenance instructions in this manual cover Trailquip Robust air suspension systems. It is essential to observe the maintenance intervals specified by the manufacturer, this will ensure continuous operational safety and roadworthiness.

If the operator of the trailer does not have the required technical equipment and/or expertise is not officially authorised to carry out intermediate inspections, contact ABS Trailquip. (see <http://www.abstrailquip.com>)

We can supply detailed technical information and the correct procedure for replacing worn parts. Ensure that when fitting replacement components, only fit Trailquip genuine parts. This will avoid invalidating warranties, type approvals, local and international regulations.

Trailquip Robust air suspension systems are low maintenance systems. For this reason, all moving parts are rubber/steel Bushing; this avoids the need for lubrication during regular service intervals. The specified torque settings and high clamping forces ensure that the steel inner bushes cannot turn.

The rubber part of the component accommodates the turning movement, when required.

### ► 1. AIR BAGS

Check air bags, every 6 months, for external damage like surface cracking, abrasion, trapped debris etc.

**Note:** No welding should be carried out on the steel parts of the air springs and pressure vessel! The air suspension should only be filled with compressed air when mounted on the vehicle.

### ► 2. SHOCK ABSORBERS

Check shock absorber fastening after the first 1000 km or initially after 2 weeks, 10,000 km or 3 months and every 100,000 km or annually. Check lower and upper shock absorber fastening for tightness. Check torque settings with a calibrated torque wrench:

- M24x3Px250 Torque - 400 Nm

During vehicle maintenance, “sweating” shock absorbers are often criticised and replaced because the phenomenon “sweating” shock absorber is often confounded with leakage. This “sweating” is actually a normal and necessary process, by which the piston rod pulls up a light oil film with each stroke. This oil film is necessary to protect the shaft seal against fast abrasion which could lead to the leaking of the shock absorber. On bad roads shock absorbers can reach an operating temperature of over 180°C, causing the oil film, pulled up by the piston rod, to evaporate on the piston rod and depending on environmental condition condensate on the dust cover. This evaporation sets itself as an oil film on the outside of the shock absorber.

**Note:** When installing/tightening periodically a shock absorber or pivot bolt, make sure that the suspension is at Ride Height.

#### PLEASE NOTE THE FOLLOWING:

- Only ever check the shock absorber in dry conditions. Not in rainy weather conditions.
- Light “sweating” is allowed.
- With a failure “leakage” the shock absorber will lose all of the oil.
- If in doubt, clean the shock absorber and check again after two days.

In case of failed shock absorber bushes, the shock absorber should be replaced. Trying to move the shock absorber when it is fastened, enables you to simply detect excessive wear of rubber bushes. Observing the specified torque setting ensures that the steel inner bush will not get twisted and that the torsional motion is accommodated by the rubber part alone.

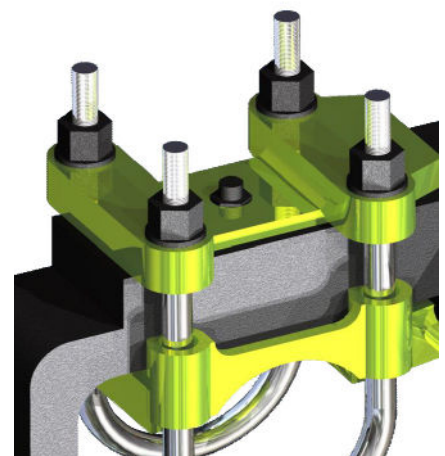
### ► 3. U-BOLTS

Check U-bolts fastening after the first 1000 km or initially after 2 weeks, 10,000 km or 3 months and every 100,000 km or annually. Check nuts of the U-bolts for tightness. If loose, tighten nuts alternately a little at a time in a criss-cross pattern.

Check torque settings with a calibrated torque wrench:

- M22x1.5P (10.9) Torque - 600 - 650 Nm
- 7/8UNF Gr8 Torque - 650 Nm

**Note:** No welding should be performed on the trailing arm.



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### ► 4. PIVOT BOLTS

Check pivot bolts fastening after the first 1000 km or initially after 2 weeks, 10,000 km or 3 months and every 100,000 km or annually. Using the specified torque settings ensures that the steel inner bush(5) will not get twisted and the torsional motion is accommodated by the rubber part (4) alone.

Check the bushes, move the vehicle back and forth slightly with the brakes on, or lever rolled spring ends with the aid of a bar. No play should be present in the rolled spring eye(6) when doing so. If the fastening is loose the pivot bolt(2) may be worn or damaged. Replace the damaged parts immediately.

Check the wear plates(10) that are welded to the hanger bracket(1) and the spacer washers(3). If these are deteriorated to the point that perfect clamping of the steel inner bush(5) is no longer possible, replace the complete rubber bush (4) & (5) and the wear plates(10). Check the M27 lock nut(8) on the pivot bolt for tightness.

Check torque settings with a calibrated torque wrench:

- M27x1.5P Torque - 550-600 Nm

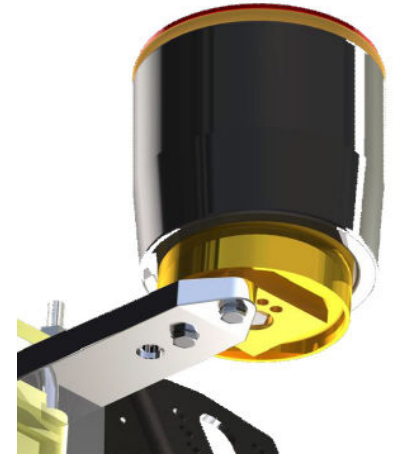
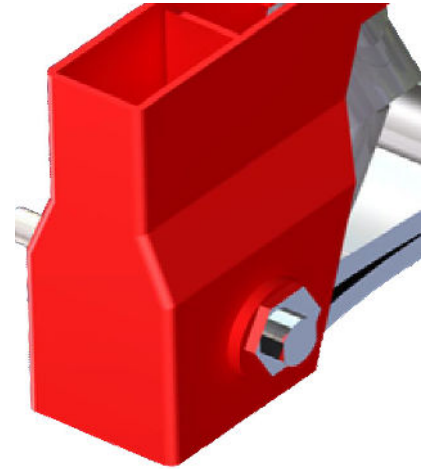
**Note:** Never reuse the M27 Lock Nut, Always replace it with a new lock nut from ABS Trailquip. Never over tighten the lock nut.

### ► 5. AIR SPRING & SUPPORT

Check air spring (& support) after the first 1000 km or initially after 2 weeks, 10,000 km or 3 months and every 100,000 km or annually.

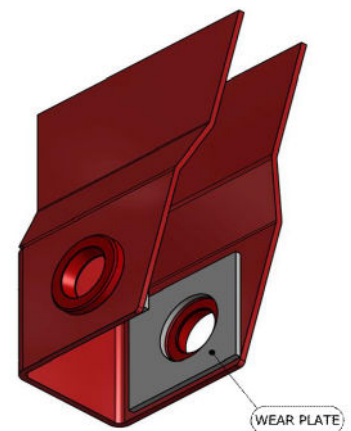
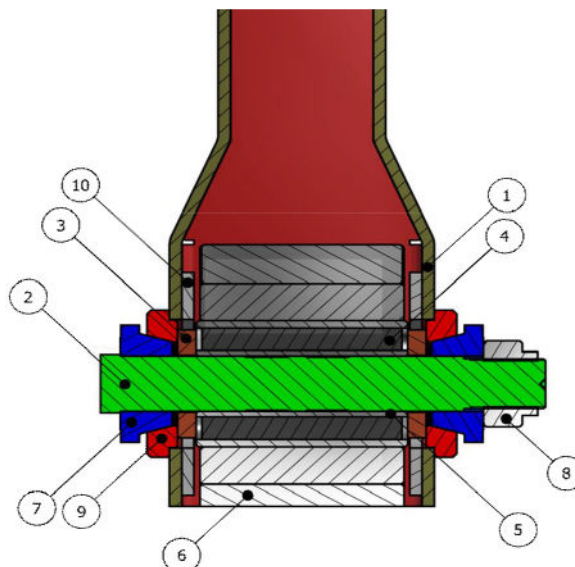
The different types of air springs can be mounted directly on the trailing arm or with a separate bellow support. This depends on the type of air suspension system used and the desired air spring offset. Check air spring & support fixing bolts or nuts for tightness. Check torque settings with a calibrated torque wrench:

- Top M12x1.75P (8.8) Torque - 60-70 Nm
- Bottom Offset plate M16x2P (10.9) Torque - 230-250 Nm



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1. Hanger Bracket
2. Pivot Bolt
3. Spacer Washer
4. Rubber Insert
5. Steel Bushing
6. Rolled Spring Eye
7. Eccentric Brush
8. Lock Nut
9. Weld-On Collar
10. Wear Plate



### ► SUSPENSION STOP

The air suspension systems have been engineered so that the shock absorber acts as the suspension stop. The shock absorbers can withstand heavy-duty service, which alleviates the need for catch straps or other suspension stops.

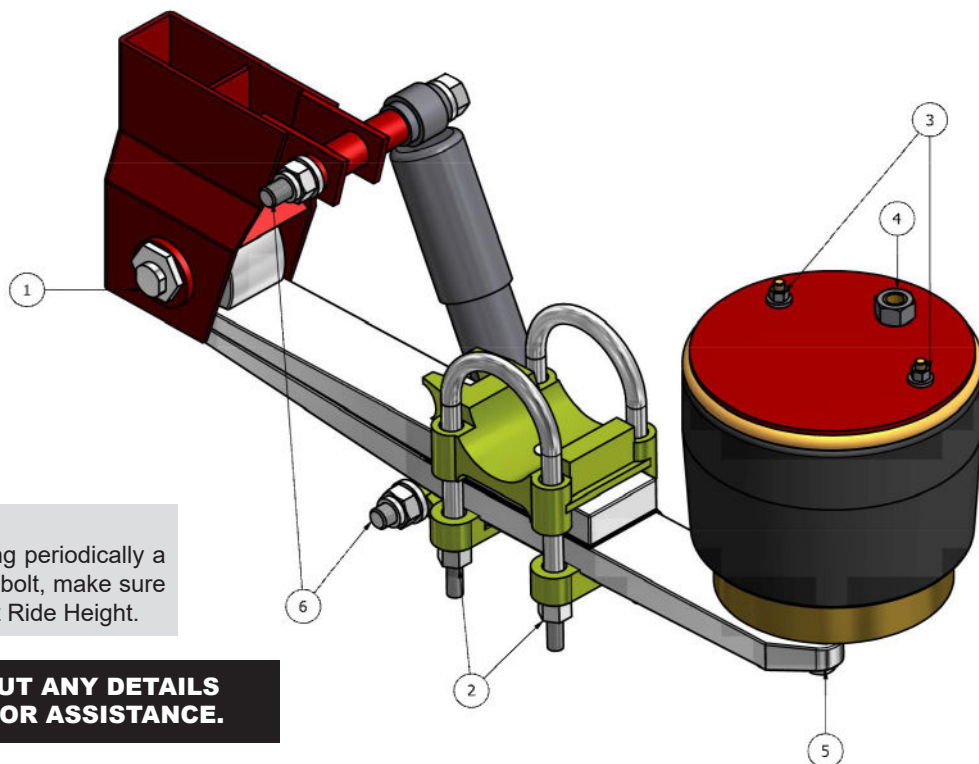
In order to cope with the situation where the air suspension system has lowered without air, a rubber buffer in the air bag exists. If an air bag failure develops, the rubber buffer inside enables you move and park in safer parking area. To prevent further damage, always make sure that there is enough clearance for all moving parts.

### ► LIFTING AND LOWERING VALVE

Use the raise-lower valve **ONLY** for loading and unloading. When driving the vehicle, be sure that you have selected “driving position” on the valve. Driving with the air suspension valve set to “RAISE” may cause damage to the load, the semi-trailer, the brakes and the

### ► PERIODIC MAINTENANCE SCHEDULE

Serial No.	Fastener	Dimension	Torque Settings		Periodic Maintenance Intervals		
			Ft-lbs	N-m	First 1000km 2 Weeks	First 10,000km 3 Months	Every 100,000km Annually
1	Pivot Bolt	M27x1.5	406-443	550-600	●	●	●
2	U-Bolts	M22x1.5 (10.9)	443-480	600-650	●	●	●
		7/8 UNF Gr8					
3	Air Bag Top Mount Nuts	M12x1.75 (8.8)	44-52	60-70	●	●	●
4	Air Bag Port Nuts	M22x1.5 (8.8)	11-15	15-20	●	●	●
5	Air Bag Bottom Mount Bolts	M16x2x60 (10.9)	170-184	230-250	●	●	●
6	Shock Absorber Bolts	M24x3x250 (8.8)	295-310	400-420	●	●	●



**Note:**

When installing/tightening periodically a shock absorber or pivot bolt, make sure that the suspension is at Ride Height.

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### ► HANGER PLACEMENT & ALIGNMENT PROCEDURE

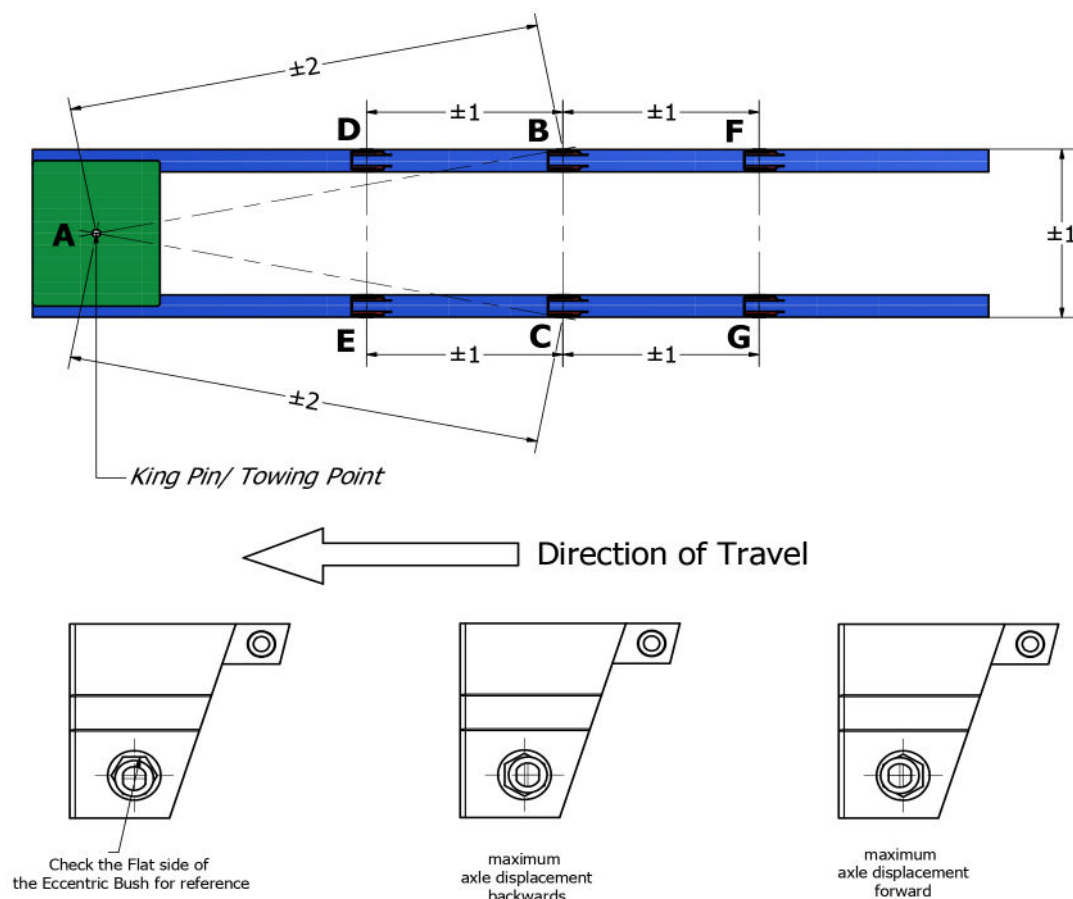
#### Positional tolerances

The bracket position must conform to certain tolerances to ensure subsequent assembly of the axle with mounted spring.

**Position of brackets longitudinally to the direction of travel:** A line through the four hole centre points (BC) in the air suspension brackets should form the base of an isosceles triangle. The intersecting point of the two sides should be at the towing point of the vehicle (A). These sides (AB, AC) should not exceed a deviation of  $\pm 2$  mm in length. If this tolerance is greater, then only a reduced tracking quality can be achieved at subsequent tracking adjustment of the vehicle. For parallelism, the centre line of the holes through the hanger brackets (BC, DE & FG) in one module to the other module, is guaranteed by adherence to the tolerance by  $\pm 1$  mm.

**Position of the brackets crosswise to the direction of travel:** The distance of the brackets should not exceed an accuracy of  $\pm 1$  mm. Otherwise the subsequent mounting of the axle with the mounted spring would be at risk.

The axes through the centre point of the long holes of the respective bracket (centre point of BC, DE & FG) are to have concentricity to the second bracket of an axle assembly of 1 mm.



The spring bolt is to be tightened with 200Nm in this position. Using an open – ended spanner AF60, the axle with eccentric bush can now be moved lengthwise and track adjusted.

**Attention:** Ensure both eccentric bushes of one air suspension bracket are in the same angle position and the marking points are exactly opposite each other.

Once the track has been adjusted, the security nut is tightened with the tightening procedure stated and it has to be taken for, that the eccentric bushes do not twist.

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### ► WELDING PROCEDURE

#### General

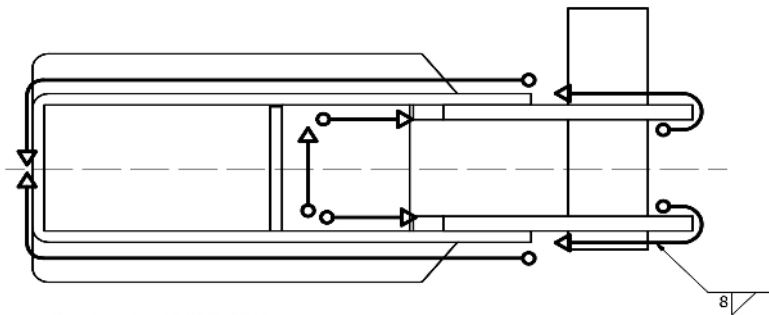
The Trailquip Robust air suspension hanger brackets are suitable for being welded on to the narrow chassis rails.

#### Important information:

- In order to avoid damage when welding the earth connection must not be fitted to any rotary components of the axle.
- It is not permitted to weld on fit the earth connection to the suspension spring.
- Suspension springs are to be protected against contact with weld splatter, electrodes & welding clamps (notch effect).

#### Welding sequence

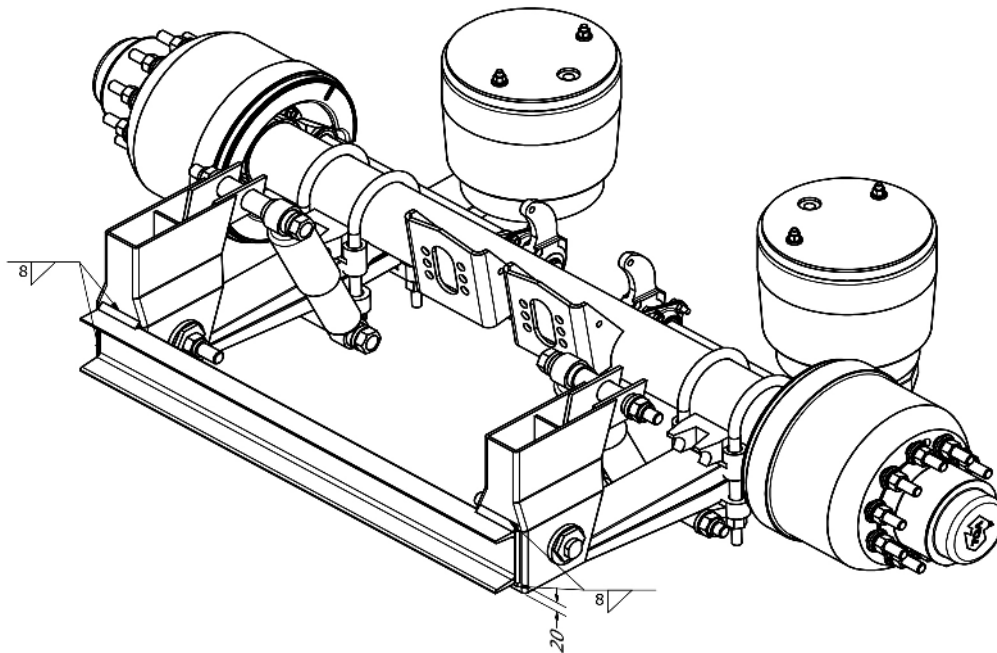
The stipulation for welding sequence is that no tack seams or welding seam starts are permitted within 50mm of the corner edges of the air suspension brackets. Welded seams (proposal Trailquip Za8 according to AS/NZS 1554.1:2011) are to be produced according to quality AS/NZS 1554.1:2011.



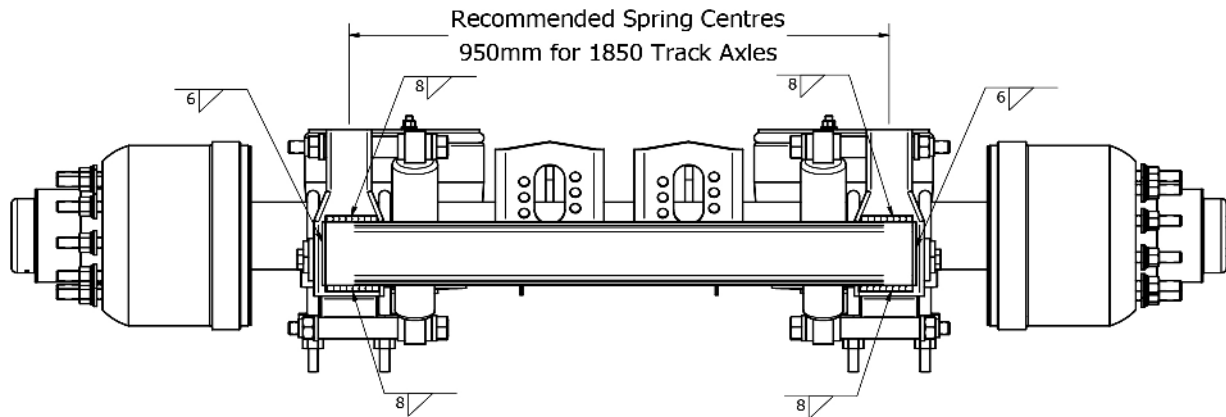
Complies with AS 1554.1:2011  
All 8mm Weld

#### Support air suspension bracket

It is necessary to brace the air suspension brackets with a cross member in order to provide an appropriate abutment for the shear forces. This cross member will introduce the forces into the vehicle chassis equally.



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## ► WELDING PROCEDURE

### Attention:

The data and instructions stated here may only be regarded as proposals since the bracing and dimensioning depend on the type of vehicle and its conditions of use. This data is only known to the vehicle producer and is to be taken into consideration by producer in the construction.

### Bellows mounting

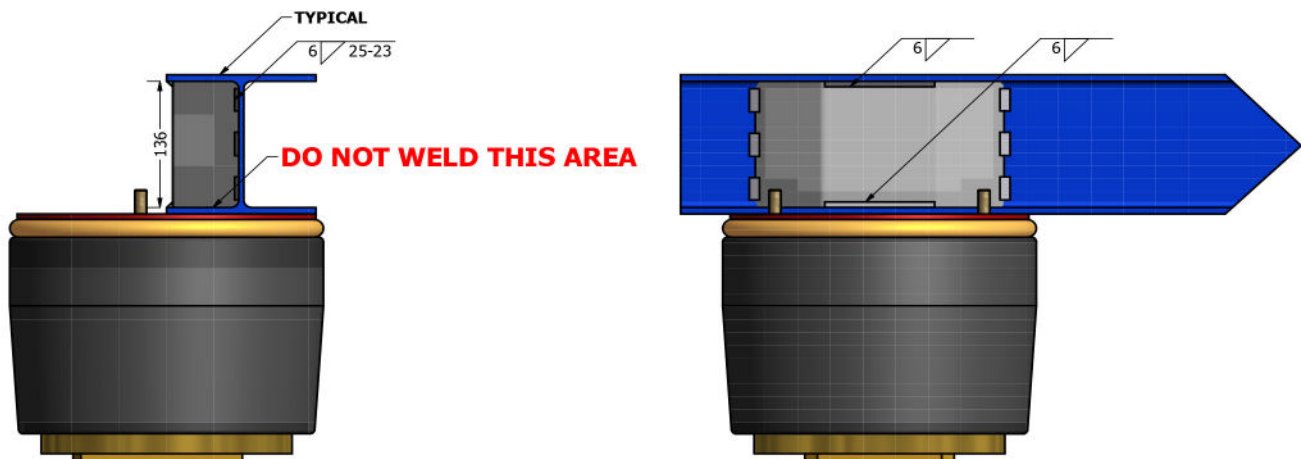
#### General handling

Always pay attention during mounting air bags that they are protected from welding spatters and excessive heat.

### Assembly

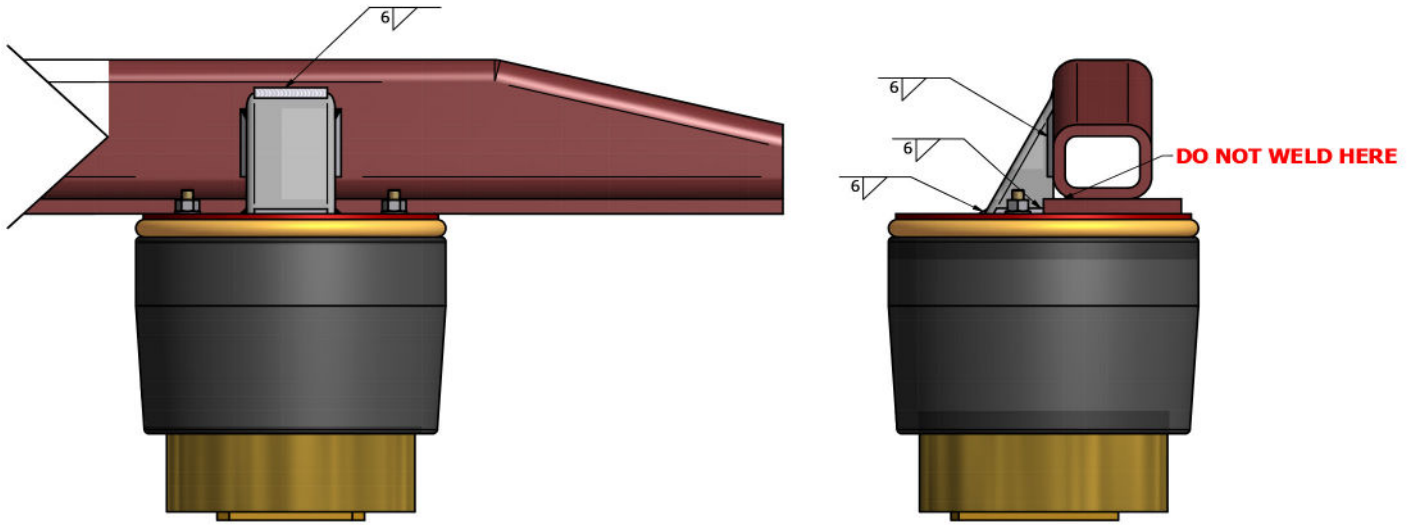
The dimensions for the attachment of the air bags can be seen in the installation drawing. The bending forces resulting from the offset have to be compensated via the appropriate gusset plates or cross members. The air bag is preferably mounted with the studs M12 and air supply in board. Please see installation drawings for offset.

## For I-Beam Chassis



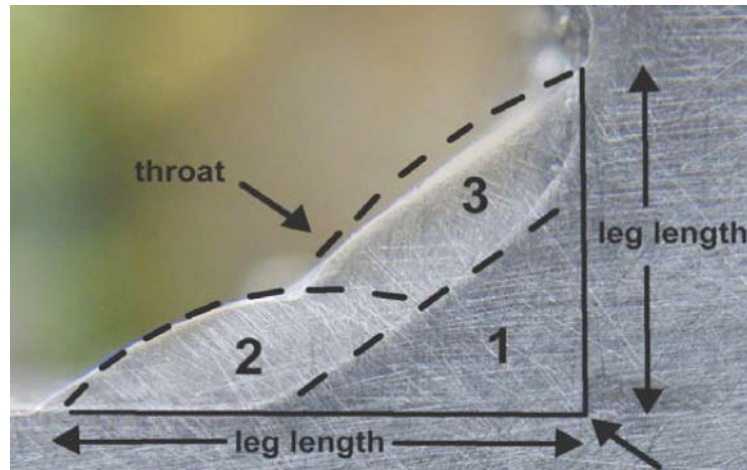
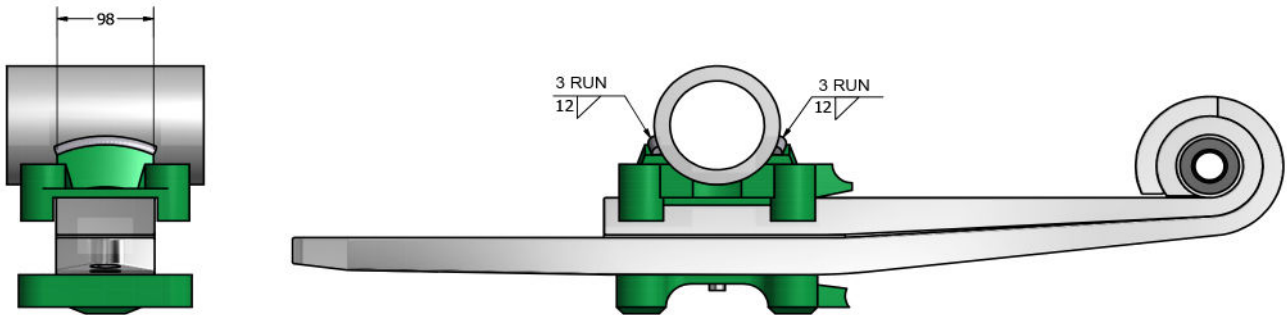
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### For Box Section Chassis



### ► AXLE WELDING PROCEDURE

Paint should be removed from the welding surface and cleaned. Axle saddle should be pre-heated to approx. 80oC. Once the axle saddle positioned properly, tack weld them on each corner of the weld face to the axle and weld 12mm three run on both ends as shown. When finished welding, allow it to cool by itself. **DO NOT QUENCH WITH WATER OR ANY LIQUID!**



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