Clamped and welded spring seat assemblies- Screw in Shock Bolt for ALO/ALM

Introduction

With the introduction of the clamped seat arrangement in 2017, there are now two types spring arrangements available, namely the welded and clamped spring seat arrangement. The clamped suspension is solely used for vehicles such as tankers, reefers, box trailers and curtain siders with single wheel application and a maximum axle load of 8 tonnes.

While vehicles, such as milk tankers, animal food silos, walking-floor trailers and side tippers, which are generally have high axle loads in heavy duty applications, use the welded axle seat arrangement. This also applies to every vehicle which is operating under Off-road conditions.

Assembly and maintenance instructions for <u>clamped</u> spring seat arrangement

This axle connection, as shown in Figure 1, with U-bolt diameter M22 (wrench size 32mm) is tightened with a torque / angle process controlled by the tensile yield strength.

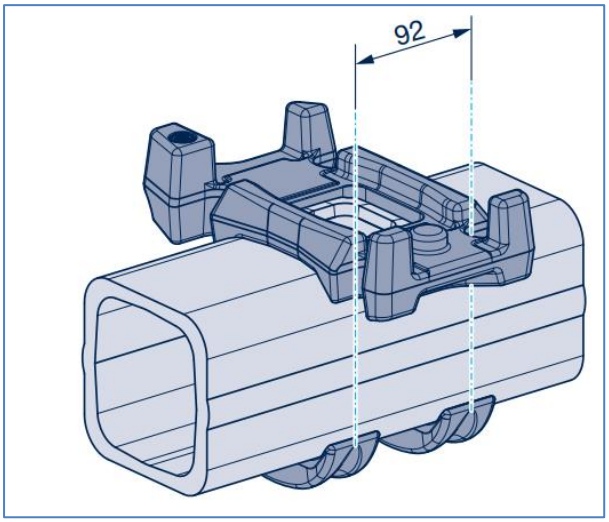

Figure 1

When assembling the following must be adhered to:

1. Spring seats and trailing arms are to be aligned parallel to the axle beam and the self-locking nuts are to be tightened down diagonally and equally until they contact the spring plate.
2. Control parallel position of spring seats and trailing arm towards axle beam and hereafter tighten self-locking nuts diagonally in a.m. sequence 1-2-3-4 (see Figure 2) Using a calibrated torque wrench tighten self-locking nuts diagonally in following steps to the tightening torque of 550 Nm:
    a) 200 Nm
    b) 300 Nm
    c) 450 Nm
    d) 550 Nm

    Thereafter tighten the nuts by another 90° turning angle. **M = 550 Nm + 90° (SW 32)**

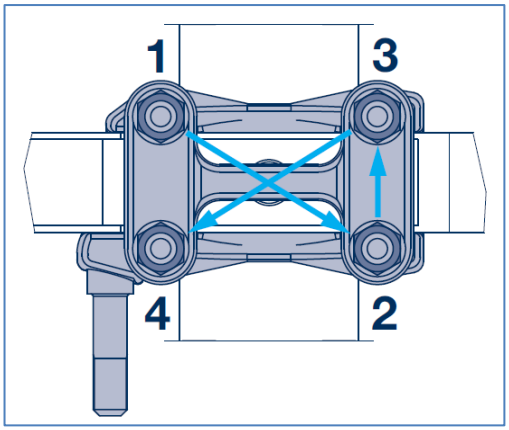

Figure 2

3. If the entire connection has been loosened, new U-bolts, washers and locknuts need to be used when re-assembling. Make sure to lightly grease the threads of the U-bolts when tightening the connection.

This has the advantage that this type of connection is maintenance-free in on-road applications. The axle connection therefore must not be uninstalled so as not to invalidate the guarantee. **The screwed joint, however, needs to inspected every 6 months, with a calibrated torque wrench to 550 Nm**. The parts that make up the spring seat arrangement are shown Figure 3 and Figure 4.

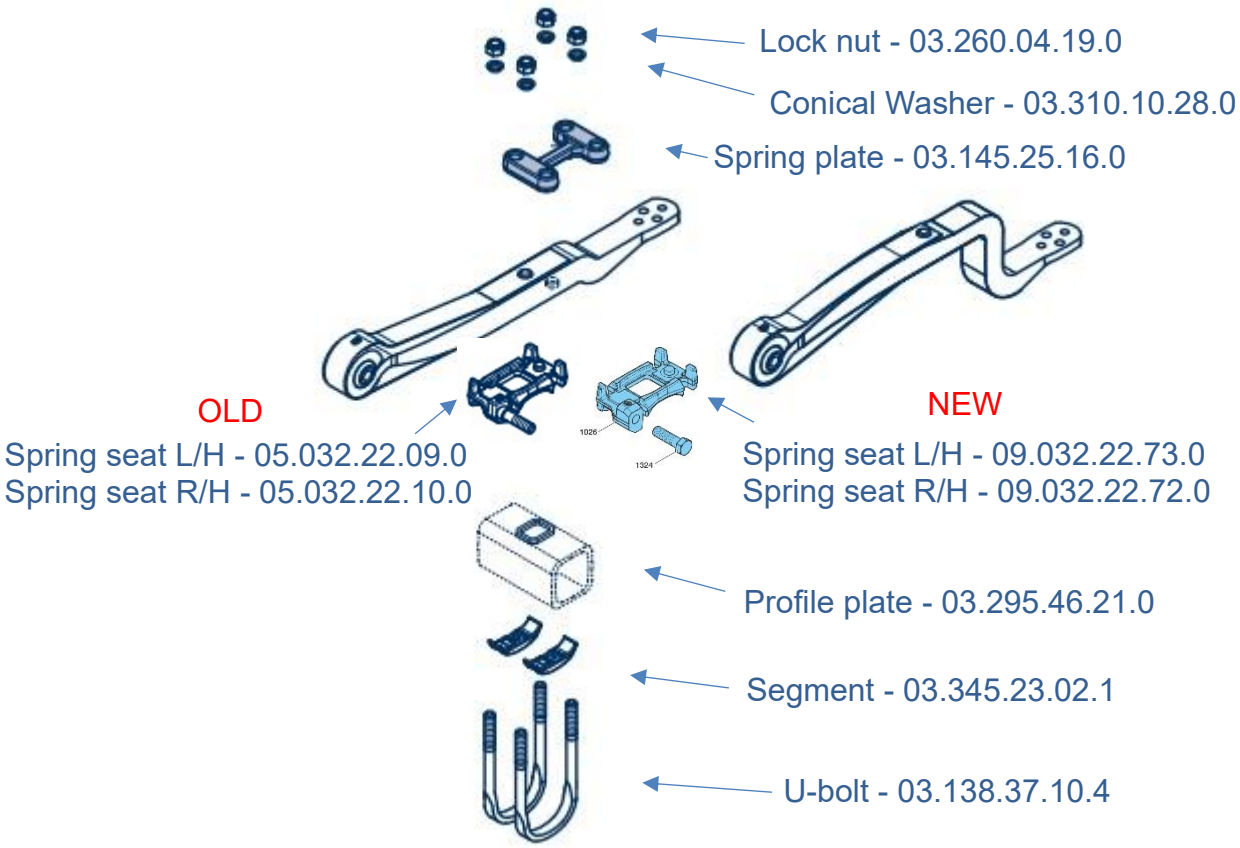

Figure 3 – ALO and ALM suspension- Now with a screw in shock bolt

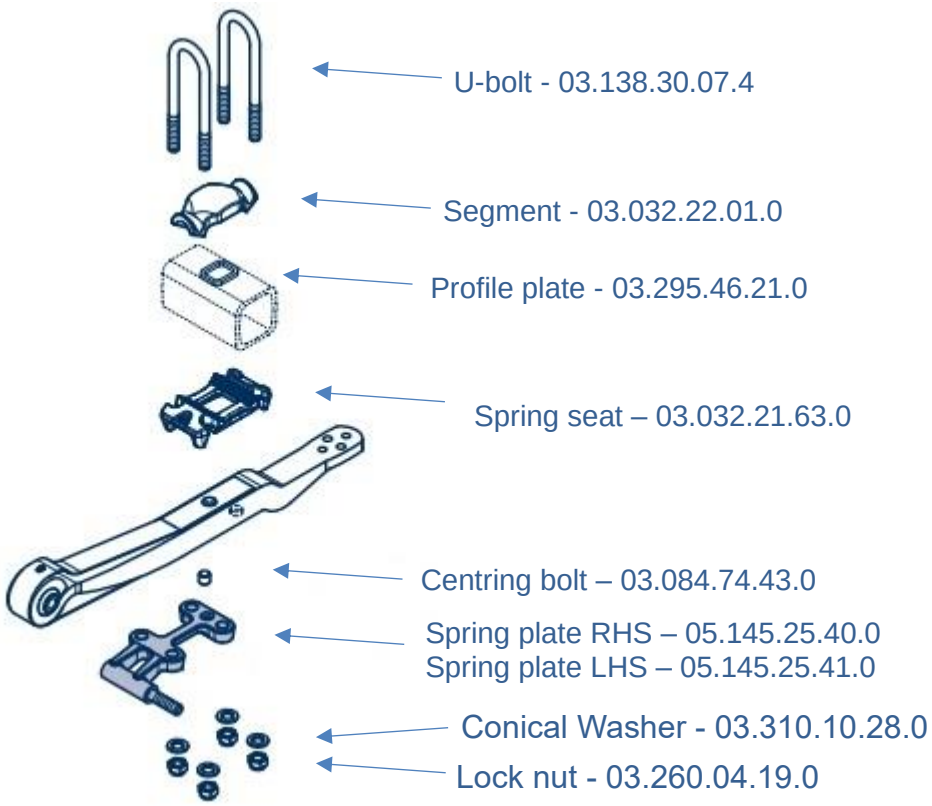

Figure 4 - ALU suspension

It should be noted that the spring pad for the ALO and ALM axles has changed to now use a screw in shock bolt. The lefthand spring pad is 03.032.22.73.0 and the righthand spring pad is 03.032.22.73.0 and they both use a hex bolt (03.340.14.37.0) to combine into the kits listed in Figure 3.

Assembly and maintenance instructions for welded spring seat arrangement

This axle connection, as shown in Figure 5, with U-bolt diameter M24 (wrench size 36mm) is tightened with a torque-controlled process. In this case the joint has to be regularly checked and tightened, if necessary. This connection is used with the 70mm, AL II and 100mm, SL trailing arm.

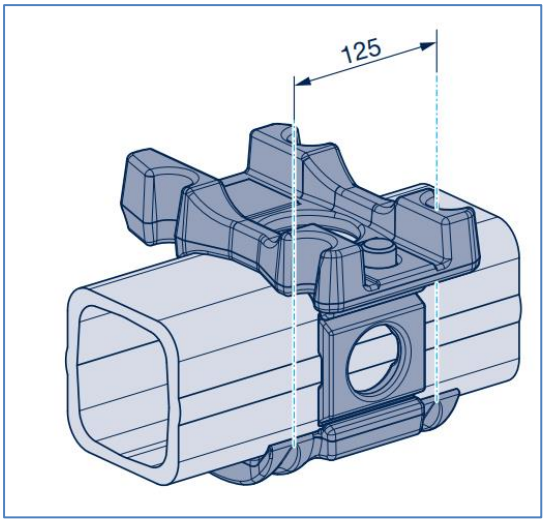

Figure 5

When assembling the following must be adhered to:

1. Spring seats and trailing arms are to be aligned parallel to the axle beam and the self-locking nuts are to be tightened down diagonally (see Figure 6) and equally until all components are in uniform contact. (The spring seats are only in contact with the radii of the axle beam.). No uneven tightening is allowed due to single-sided tightening of the lock nuts.
2. Using a calibrated torque wrench, tighten the lock nuts in several stages diagonally until the specified tightening torque of **M = 650 Nm (605-715 Nm)**, wrench size SW 36mm, has been reached.
3. If replacing U-bolts make sure to lightly grease the threads.

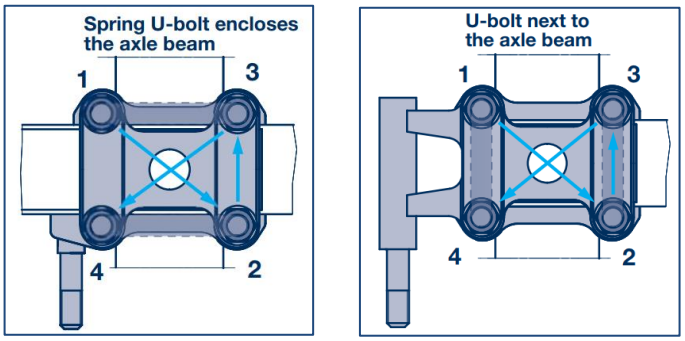

Figure 6

The screwed joint is not maintenance free and needs to inspected every 6 months under normal operating conditions and 3 months under heavy operating conditions (such as side tipper applications). **The U-bolts need to be retightened (if necessary), with a calibrated torque wrench to 650 Nm (605 – 715 Nm)**. The parts that make up the spring seat arrangement are shown Figure 7.

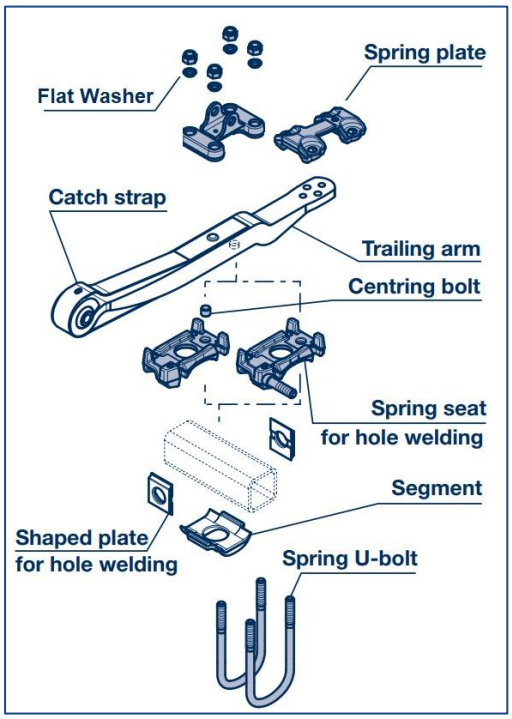

Figure 7

t should be noted that the welded suspension can only be used on the 120x15 beam and not the 120x10 beam.