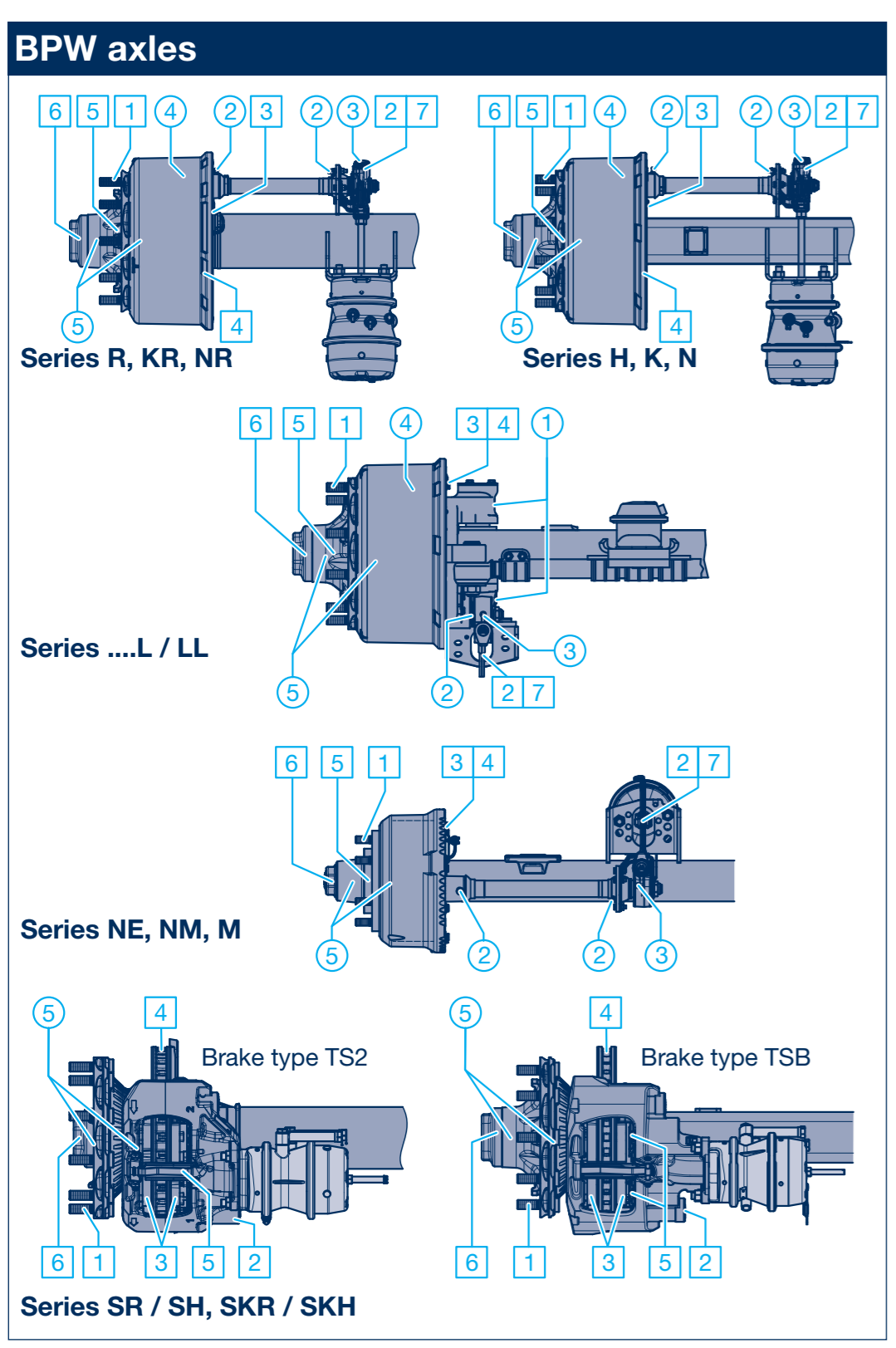




BPW axles and suspensions



| Lubrication | | initially after 2 weeks | every 6 weeks | every 12 weeks (quarterly) | every 26 weeks ^a (twice annually) | latest every year ¹ | latest every 2 years | annually | every 2 years | latest every 3 years or more, every 500,000 km ² | every 3 years | every 5 years, thereafter every 3 years |
|---|---|-------------------------|---------------|----------------------------|--|--------------------------------|----------------------|----------|---------------|---|---------------|---|
| ^a After a long idle period, prior to initial operation actuate the brake lever and lubricate the brake camshaft bearing. ^b With usage extreme conditions (e.g. extreme Off-Road use) more frequent lubrication with high pressure grease is necessary. ^c Within 2 weeks of first journey under load, latest after 2000 km ^d ECO Plus warranty, see warranty documents ECO Plus | | | | | | | | | | | | |
| Axles with drum brakes and disc brakes | | | | | | | | | | | | |
| 1 | Steering knuckle bearing, top and bottom (Series ...L/LL) | | | | | | | | | | | |
| 2 | Brake camshaft bearing, outer and inner On-Road-Conditions Off-Road conditions Outside Europa | | | | | | | | | | | |
| 3 | Slack adjusters manual Slack adjuster ECO-Master On-Road conditions Off-Road conditions Outside Europe | | | | | | | | | | | |
| 4 | Brake shoes with closed anchor eye (Bremse SN 3015-1 / 3020-1) | | | | | | | | | | | |
| 5 | ECO Plus 3, ECO Plus 2 and ECO ^{Plus} Unit for use inside Europe On-Road conditions Off-Road conditions | | | | | | | | | | | |
| | ECO Plus 3, ECO Plus 2 and ECO ^{Plus} Unit for use outside Europe On-Road conditions Off-Road conditions | | | | | | | | | | | |
| | ECO Unit for use Inside Europe Outside Europe | | | | | | | | | | | |
| | Conventional hub bearing | | | | | | | | | | | |

| BPW air suspensions SL / AL / EAC / EAC HD / EA | | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|--|--|
| 1 | Grease stabilizer bearing bushes and check for wear. | | | | | | | | | | | |

| BPW suspensions, series ECO Cargo VB / VB HD / VB 5.5 t | | | | | | | | | | | | |
|---|---|--|--|--|--|--|--|--|--|--|--|--|
| 1 | Grease bearings (suspension type E). (Not applicable in the case of rubber / steel bushes). | | | | | | | | | | | |
| 2 | Slightly grease the slide elements / slide ends of springs. | | | | | | | | | | | |

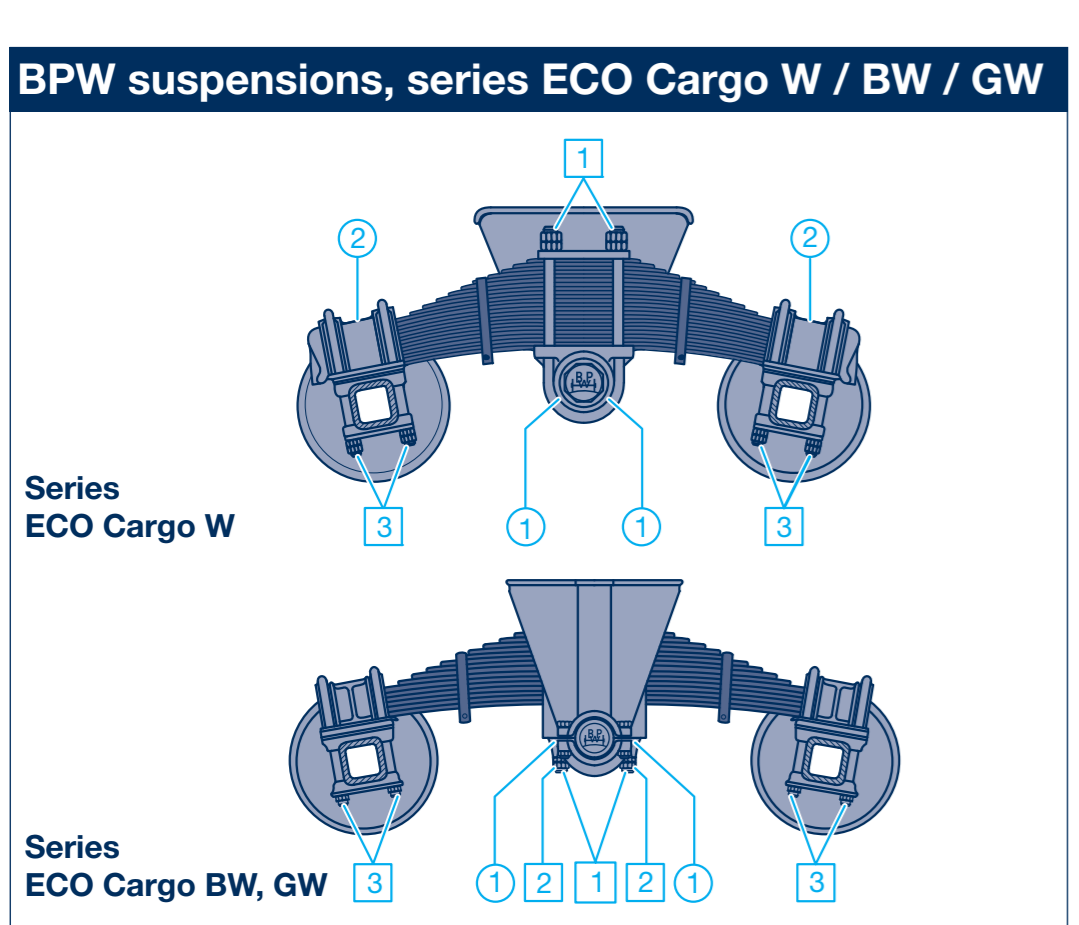
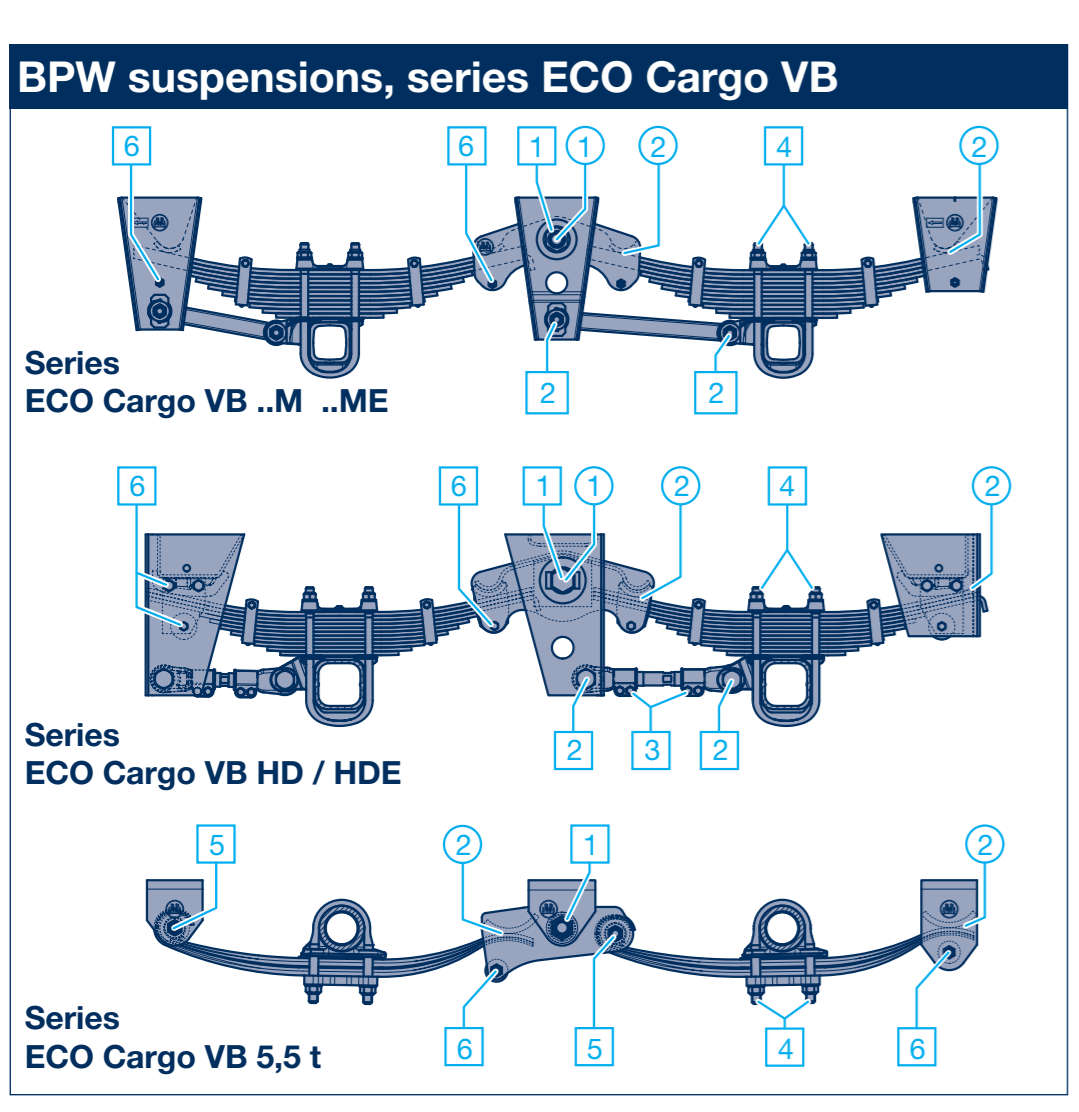
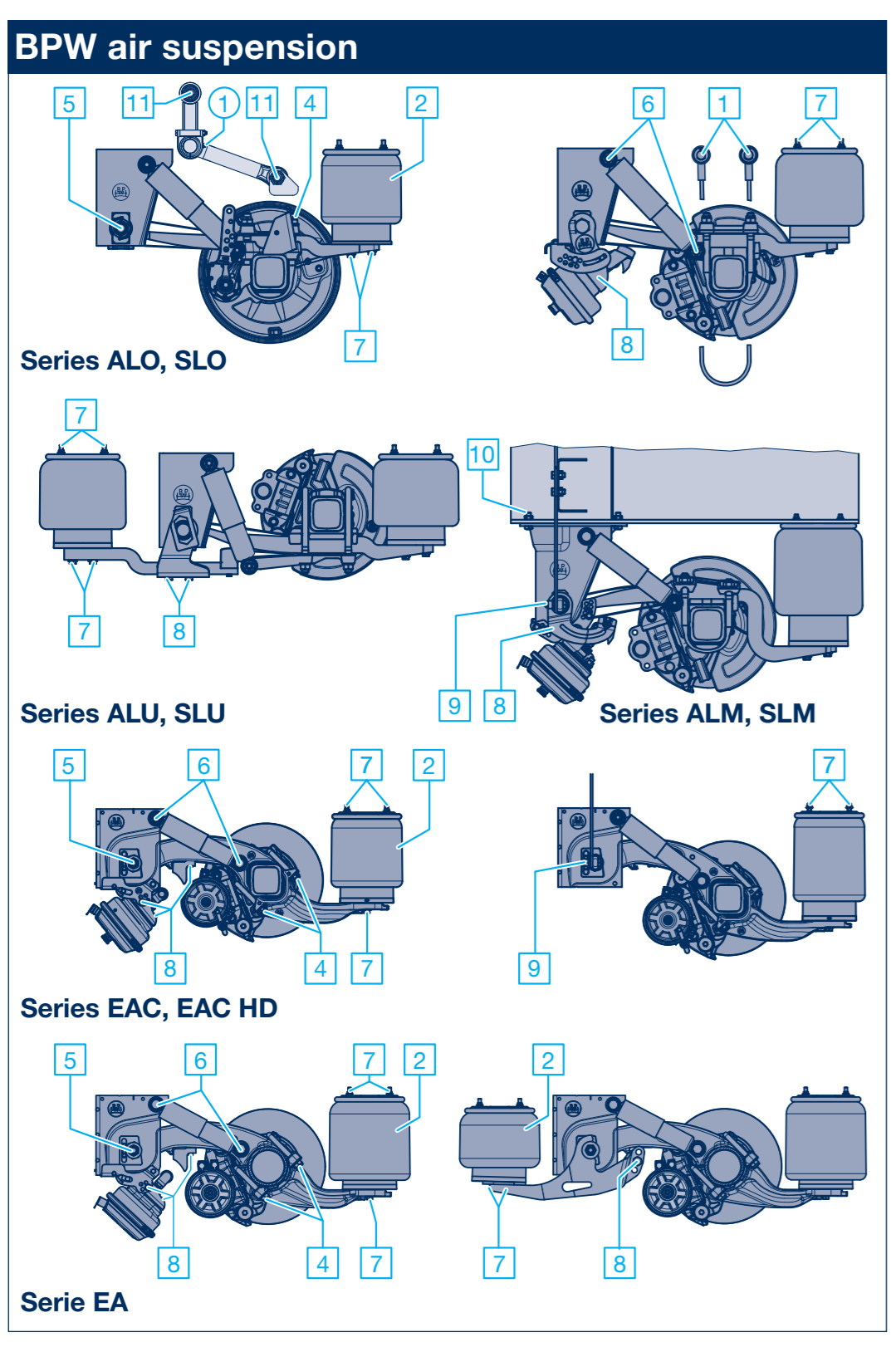
| BPW suspensions, series ECO Cargo W / BW / GW | | | | | | | | | | | | |
|---|---|--|--|--|--|--|--|--|--|--|--|--|
| 1 | Grease axle support bearing series W, BW. | | | | | | | | | | | |
| 2 | Grease spring tension casing series W. | | | | | | | | | | | |

| Maintenance | | initially | every 1 to 3 weeks | Within 2 weeks of first journey under load, latest after 2000 km | every 12 weeks ^a (quarterly) | every 26 weeks ^a (twice annually) | annually and at every brake lining replacement ^a | Visual checks during the warranty period for chassis fitted with ECO Plus air suspension after 12, 36, 60 and 72 month, subsequently yearly ^a |
|------------------------|---|-----------|--------------------|--|---|--|---|--|
| Axles with drum brake | | | | | | | | |
| 1 | Check wheel nuts for tightness. | | | | | | | |
| 2 | With manual slack adjusters, check brake play, adjust if necessary to 10 - 12% of the connected brake lever length and activate by hand or with 0.5 - 0.8 bar. (Not applicable in the case of automatic slack adjusters.) | | | | | | | |
| 3 | Check brake lining thickness. | | | | | | | |
| 4 | Check the brake drum for cracks and check the internal diameter. | | | | | | | |
| 5 | Visual check, check all components and welding seams for damage, wear and corrosion. | | | | | | | |
| 6 | Check wheel hub bearing play, adjust if necessary. ECO Plus 3, ECO Plus 2 and ECO ^{Plus} Unit ECO Unit / conventional bearing | | | | | | | |
| 7 | Check caps for firm seating (not necessary with ECO Plus axles). | | | | | | | |
| 8 | Check operation of automatic slack adjusters. | | | | | | | |
| Axles with disc brakes | | | | | | | | |
| 1 | Check wheel nuts for tightness. | | | | | | | |
| 2 | Check brake caliper guide system (check play and adjustment). | | | | | | | |
| 3 | Check brake pad thickness. | | | | | | | |
| 4 | Check brake disc thickness and visually check for cracks. | | | | | | | |
| 5 | Visual check, check all components and welding seams for damage, wear and corrosion. TS2: Check bellows with pressure plate. TSB: Check coarse dirt seals and the pressure plates. | | | | | | | |
| 6 | Check wheel hub bearing play, adjust if necessary. ECO Plus 3, ECO Plus 2 and ECO ^{Plus} Unit | | | | | | | |

| BPW air suspension, series SLO / AL / AL II / EAC / EAC HD | | | | | | | | |
|--|--|--|--|--|--|--|--|--|
| 1 | Visual inspection, check all component parts and welding seams for damage and wear. | | | | | | | |
| 2 | Check strap: Check condition and fastening. | | | | | | | |
| 3 | Check condition of air bags | | | | | | | |
| 4 | Check air suspension level valves for condition, seal-tightness and tightness. | | | | | | | |
| 5 | Check spring mounting kit for tightness. | | | | | | | |
| 6 | Check spring pivot bolts for tightness with a torque wrench. | | | | | | | |
| 7 | Check shock absorber fastening for tightness with a torque wrench. | | | | | | | |
| 8 | Check air bag fastening for tightness. | | | | | | | |
| 9 | Check axle lift for tightness. | | | | | | | |
| 10 | Tighten the spring bolt to gusset plate connection bolt. | | | | | | | |
| 11 | Check the bolt connection between the air suspension hanger bracket and the longitudinal member for tightness. | | | | | | | |
| 12 | Check stabilizer fastenings. | | | | | | | |

| BPW suspensions, series ECO Cargo VB / VB HD / VB 5.5 t | | | | | | | | |
|---|---|--|--|--|--|--|--|--|
| 1 | Visual inspection, check all component parts for wear and damage. | | | | | | | |
| 2 | Check threaded bolts on equaliser arm bearings for tightness. | | | | | | | |
| 3 | Check axle connecting rod bolts for tightness. | | | | | | | |
| 4 | Check connecting rod clamping screws for tightness. | | | | | | | |
| 5 | Check spring U-bolts for tightness using a torque wrench. | | | | | | | |
| 6 | Check spring pivot bolts for tightness. (Serie up to 5.5 t) | | | | | | | |
| 7 | Check slide elements for tightness. | | | | | | | |

| BPW suspensions, series ECO Cargo W / BW / GW | | | | | | | | |
|---|---|--|--|--|--|--|--|--|
| 1 | Visual inspection, check all component parts for wear and damage. | | | | | | | |
| 2 | Check spring U-bolt of support axle for tightness. | | | | | | | |
| 3 | Check fastening screws on the bearing covers for tightness. | | | | | | | |
| 4 | Check spring U-bolts on the spring housing for tightness. | | | | | | | |



Lubricants

| Grease quantity - ECO Plus 3 and ECO ^{Plus} Unit | | | |
|---|--|----------------|--|
| Axle load | Grease quantity per taper roller bearing | | |
| | A inner | B outer | |
| 8000 - 12000 kg | 170 g 130 g* | 120 g 90 g* | |

* Greasing with a grease applicator

| Grease quantity - ECO Plus 2 Unit | | | |
|-----------------------------------|--|----------------|--|
| Axle load | Grease quantity per taper roller bearing | | |
| | A inner | B outer | |
| 8000 - 9000 kg | 170 g 130 g* | 120 g 90 g* | |

* Greasing with a grease applicator. Apply a ring-shaped bead of grease to the running surfaces of the bearing outer races (arrows).

| Grease quantity - ECO Unit | | | |
|----------------------------|--|---------|--|
| Axle load | Grease quantity per taper roller bearing | | |
| | A inner | B outer | |
| 8000 - 9000 kg | 120 g | 120 g | |
| 10000 - 12000 kg | 170 g | 120 g | |
| 13000 - 14000 kg | 230 g | 150 g | |

| Grease quantity - Conventional wheel hub bearing | | | |
|--|--|---------|--|
| Axle load | Grease quantity per taper roller bearing | | |
| | A inner | B outer | |
| 4000 - 5500 kg | 80 g | 130 g | |
| 6000 - 9000 kg | 170 g | 290 g | |
| 10000 - 12000 kg | 180 g | 320 g | |
| 13000 - 14000 kg | 240 g | 500 g | |
| 16000 - 18000 kg | 400 g | 800 g | |
| 20000 kg | 440 g | 900 g | |

| BPW special longlife grease - BPW code number | | |
|---|------------------|---------------|
| BPW special longlife grease ECO-L ^{Plus} | Cartridge 0.4 kg | Bucket 5 kg |
| | 02.1040.45.00 | 02.1040.47.00 |

Further container sizes (versions) available on request.

Tightening torques

| Axles | | | | |
|---|-----------------|------------|----------------|--|
| Wheel nuts | | | | |
| Wheel stud arrangement | M 14 x 1.5 | SW 19 | 125 Nm | |
| | M 18 x 1.5 | SW 24 / 27 | 290 Nm | |
| | M 20 x 1.5 | SW 27 | 380 Nm | |
| | M 22 x 1.5 | SW 32 | 510 Nm | |
| | M 22 x 2 | SW 32 / 33 | 460 Nm | |
| | M 22 x 2 | SW 32 / 33 | 460 Nm | |
| Spigot arrangement | M 18 x 1.5 | SW 27 | 350 Nm | |
| | M 20 x 1.5 | SW 30 | 480 Nm | |
| | M 22 x 1.5 | SW 32 / 33 | 630 Nm | |
| | M 24 x 1.5 | SW 36 | 860 Nm | |
| Alloy wheels | M 24 x 1.5 | SW 32 / 33 | 630 Nm | |
| | M 18 x 2 | SW 27 | 285 Nm | |
| Trilex-wheels | M 20 x 2 | SW 27 | 335 Nm | |
| Hub caps | | | | |
| with BPW oval shape | ECO Plus 3 Unit | SW 110 | 350 Nm | |
| | ECO Plus 2 Unit | SW 120 | Bajonet lock | |
| ECO Unit | 8 - 12 tonnes | SW 110 | 800 Nm | |
| | 6 - 12 tonnes | SW 110 | 800 Nm | |
| | 13 - 14 tonnes | SW 120 | 800 Nm | |
| | 5.5 tonnes | SW 70 | 500 Nm | |
| | 6.5 - 9 tonnes | SW 95 | 500 Nm | |
| | 10 - 12 tonnes | SW 110 | 500 Nm | |
| for conventional bearing hub | 13 - 14 tonnes | SW 120 | 800 Nm | |
| | 16 - 18 tonnes | SW 140 | 350 Nm | |
| | 18 - 20 tonnes | SW 110 | 350 Nm | |
| Alloy cap | 6 - 12 tonnes | SW 110 | 350 Nm | |
| with octagonal shape | 13 - 20 tonnes | SW 120 | 700 Nm | |
| | Axle nut | | | |
| (Hub cap with BPW oval shape) | ≤ 5.5 tonnes | | 70 Nm / 100 Nm | |
| | 6 - 18 tonnes | | 150 Nm | |
| | 16 - 30 tonnes | | 350 Nm | |
| ECO Plus 3, ECO Plus 2 and ECO ^{Plus} Unit: | | | | |
| Axle bolt or axle nut with torque limiter - do not use an impact driver - | | | | |

| BPW air suspension Series SL / AL / AL II / EAC / EAC HD / EA | | | | |
|---|------------|-------|-----------------------------------|--|
| Tightening torques with a torque wrench | | | | |
| Axle clampings / U-bolt | | | | |
| ECO Air when servicing | M 20 | SW 30 | 450 Nm | |
| ECO Air when replacing | M 20 | SW 30 | 450 Nm + 90° + 90° rotation angle | |
| ECO Air COMPACT when servicing | M 20 | SW 30 | 420 Nm | |
| ECO Air COMPACT when replacing | M 20 | SW 30 | 420 Nm + 90° rotation angle | |
| Airlight II when servicing | M 22 | SW 32 | 550 Nm | |
| Airlight II when replacing | M 22 | SW 32 | 550 Nm + 90° rotation angle | |
| SL / AL | M 24 | SW 36 | 650 Nm | |
| Air suspension 3.5 - 5.5 tonnes, hexagon screws | M 20 | SW 30 | 340 Nm | |
| Spring pivot bolts | | | | |
| Hanger brackets and channel crossmember | M 24 | SW 36 | 650 Nm | |
| Airlight II from 09/2007 | M 30 | SW 46 | 900 Nm | |
| Hanger brackets from 08/2001 | M 30 | SW 46 | 900 Nm | |
| Channel cross member | M 30 | SW 46 | 900 Nm | |
| Check absorber fastening | | | | |
| ECO Air COMPACT / ECO Air | M 24 | SW 36 | 420 Nm | |
| Steel hanger brackets | M 20 | SW 30 | 320 Nm | |
| Steel hanger brackets | M 24 | SW 36 | 420 Nm | |
| Aluminium and stainless steel hanger brackets | M 24 | SW 36 | 320 Nm | |
| Air bag fastenings | | | | |
| Central screw | M 12 | SW 17 | 66 Nm | |
| | M 16 | SW 22 | 260 Nm | |
| | M 16 | SW 22 | 300 Nm | |
| Axle lift | | | | |
| Supporting arm (EAC / EA) | M 20 | SW 30 | 350 Nm | |
| Supporting arm (SL / AL) | M 16 | SW 22 | 230 Nm | |
| Cylinder | M 20 | SW 30 | 360 Nm | |
| Cylinder | M 16 | SW 24 | 190 Nm | |
| Hexagon screw | M 12 | SW 17 | 75 Nm | |
| Lock nut | M 10 | SW 16 | 38 Nm | |
| Cylinder cap screw | M 10 | SW 8 | 50 Nm | |
| Stabilizer fastenings | | | | |
| | M 10-10.9 | SW 17 | 53 Nm | |
| | M 30 | SW 46 | 750 Nm | |
| Sundries | | | | |
| Spring bolt screw connection on the gusset plate | M 18 x 1.5 | SW 27 | 420 Nm | |
| Bolt connection between the air suspension hanger bracket and the longitudinal chassis beam | M 16 | | 260 Nm | |

| BPW suspensions Series ECO Cargo VB / VB HD / VB 5.5 t | | | | |
|--|----------|-------|---------|--|
| Equalizer arm bearings | | | | |
| up to an axle load of 5.5 tonnes (from 03/2016) | M 30 | SW 46 | 725 Nm | |
| up to an axle load of 12 tonnes (from 08/2013) | M 42 x 3 | SW 65 | 1300 Nm | |
| up to an axle load of 12 tonnes (up to 07/2013) | M 42 x 3 | SW 65 | 1100 Nm | |
| Series HD / HDE | M 48 x 3 | SW 65 | 1240 Nm | |
| Axle guide linkages / Connecting rods | | | | |
| | M 24 x 2 | SW 36 | 650 Nm | |
| | M 30 | SW 46 | 725 Nm | |
| | M 36 | SW 55 | 1425 Nm | |
| Connecting rod clamping screws | | | | |
| | M 12 | SW 19 | 66 Nm | |
| | M 14 | SW 22 | 140 Nm | |
| U-bolts | | | | |
| | M 20 | SW 30 | 340 Nm | |
| | M 24 | SW 36 | 620 Nm | |
| Spring pivot bolt / Screw | | | | |
| | M 20 | SW 30 | 340 Nm | |
| Fixing screws of slide elements | | | | |
| | M 14 | SW 22 | 140 Nm | |
| | M 16 | SW 24 | 163 Nm | |
| | M 20 | SW 30 | 320 Nm | |
| BPW suspensions Series ECO Cargo W / BW / GW | | | | |
| Spring U-bolt of support axle | | | | |
| | M 30 x 2 | SW 46 | 980 Nm | |
| | M 36 | SW 55 | 1555 Nm | |
| Fastening screws on the bearing covers | | | | |
| | M 20 | SW 30 | 320 Nm | |
| | M 24 | SW 36 | 570 Nm | |
| Spring U-bolts on the spring housing | | | | |
| | M 20 | SW 30 | 450 Nm | |
| | M 24 | SW 36 | 700 Nm | |