



ECO Plus - Warranty documents

Axle systems with air suspension



Valid for all complete ECO Plus air-suspended axle systems



Contents

© 1. Warranty	Page 3
1.1. Warranty statement	Page 3
1.2. Extent of warranty	Page 3
1.3. Conditions for obtaining and maintaining the ECO Plus warranty	Page 4
1.3.1. General Information	Page 4
1.3.2. Definition of On-Road / Off-Road	Page 4
1.3.3. Maintenance work, repairs, spare parts	Page 4
1.3.4. Current state of service and maintenance work	Page 5
1.4. Warranty exclusion	Page 5
1.5. Applicable law, place of jurisdiction	Page 5
© 2. Operational and road safety	Page 6
© 3. ECO Plus Service Instructions	Page 7
3.1. Retention of value through preventative service	Page 7
3.2. Checks after vehicle enters service	Page 8
3.3. Visual inspection	Page 10
3.4. Full service	Page 14
© 4. Required equipment features	Page 16

Valid: 01.05.2014

4. edition

Subject to change without notice.

Current versions and additional information can be found online at www.bpw.de

Warranty 1

1.1. Warranty statement

BPW Bergische Achsen Kommanditgesellschaft, D-51674 - Wiehl, hereinafter referred to as "BPW", warrants by an independent guarantee the manufacturing quality the entire ECO Plus air suspended axle system according to the conditions described below for the duration of the warranty (hereinafter referred to as the "ECO Plus Warranty").

The ECO Plus Warranty shall be valid

- from the day of vehicle registration or entry into service,
 - within Europe for the period of
 - **5 years** in On-Road use (see para. 1.3.2.) or
 - **3 years** in Off-Road use (see para. 1.3.2.)
 - outside Europe for the period of
 - **2 years** in On-Road use (see para. 1.3.2.) or
 - **1 year** in Off-Road use (see para. 1.3.2.)
- with unlimited mileage,
- for BPW running gear systems on drawbar and semi-trailers,
- only for complete ECO Plus air-suspended axle systems (ECO Air COMPACT, AIRLIGHT II or other BPW air-suspended versions), selected according to the appropriate use (see required equipment features under Point 4),
- only for vehicles with air-suspended axle systems equipped with a transverse throttle between the air bags on the left and right-hand sides starting from the first day of registration or on the day when the vehicle entered service,
- only when pressure ranges are maintained in the supply line between 6.5 - 8.5 bar (according to ECE-R13 Annex 10 and 98/12/EG Annex II; both are made available free of charge on request).

The ECO Plus Warranty of **5 years** is extended, subject to documented proof of all specified inspections regarding the hub, hub bearings, axle beam, air spring connection and hanger brackets, by a further **3 years**, if 60 months after the day of the first registration or entry into service of the vehicle, a full service is carried out by a BPW Direct Service Partner (hereinafter referred to as "Extended Warranty").

1.2. Extent of warranty

During the appropriate warranty period, BPW will, in the case of claim, accept the direct costs for the material to be replaced as well as for the actual removal and installation according to BPW reference times, **if agreed in advance with BPW or one of its representatives, and the work is carried out by an authorised workshop** (hereinafter referred to as "Warranty Service"). For this purpose, a copy of the completed "Retention of value through preventative service" sheet (see para. 3.1) has to be attached while filing the warranty claim. If the above requirements are not fulfilled, BPW will not accept any costs.

The removed damaged parts should be retained and, if previously agreed, returned to BPW at warranty holder's expense. Additional claims by the warranty holder, of whatever nature, in particular expenses in connection with the warranty service received, are excluded. All warranty claims arising during the warranty period will be considered if they have been immediately reported to the vehicle manufacturer, BPW, one of its representatives or a service workshop.

1 Warranty

1.3. Conditions for obtaining and maintaining the ECO Plus Warranty

1.3.1. General Information

The prerequisite for obtaining and maintaining the ECO Plus Warranty and, if appropriate, the Extended Warranty, is that all measures must be carried out or arranged to be carried out in accordance with the current BPW service and BPW maintenance instructions (see para. 1.3.4.). The service and maintenance instructions are up to date at the time of going to press. However, they are subject to modifications in response to ongoing developments (see para. 1.3.4.).

		Retightening of all bolted connections by BPW Service Centre or vehicle owner		Check or visual inspection by BPW Service Centre	
		Within 2 weeks of the first journey under load; at the latest after 2000 km		12 months	36 months
Inside Europe	On-Road 5 years	X ¹⁾		X	X
	Off-Road 3 years	X		X	
Outside Europe	On-Road 2 years	X ¹⁾		X	
	Off-Road 1 year	X			

¹⁾ not applicable for ECO Air COMPACT and AIRLIGHT II in On-Road-Applications

The warranty covering On-Road use in Europe can be extended by a further 3 years. The pre-condition for this is a full-service check after 60 months from the day of vehicle registration or entry into service to be carried out by a BPW Direct Service Partner.

The Extended Warranty only applies after receipt of the "Retention of value through preventative service" sheet (page 7), and written confirmation of this by BPW.

Period of warranty	Work to be performed		
	Time	Measures	Service provider
On-Road 5+3 years	60 months	Full service	BPW Direct Service Partner
	72 months	Check/visual check	BPW Service Centre

1.3.2. Definition of On-Road / Off-Road

The term "On-Road" refers to roads having a sealed and metallised surface, in other words with an asphalt or concrete surface. Gravel roads are regarded as being Off-Road. A vehicle is also regarded as being in Off-Road operation even if it departs from sealed surfaces under operating conditions for only short periods.

Off-Road operation is assumed in all cases in tippers and vehicles with comparable applications. The warranty for vehicles in Off-Road use is restricted to 3 years for operation within Europe and 1 year for operation outside Europe. For Off-Road use, no Extended Warranty is available.

1.3.3. Maintenance work, repairs, spare parts

Rectification of any discovered defects or replacement of worn parts should be carried out by a BPW Service Centre or BPW Direct Service Partner unless the vehicle owner has the appropriate specialists and the required facilities, equipment and workshop manuals available and possesses an official certificate to perform interim inspections or special brake inspections.

We strongly recommend that only genuine BPW parts, in particular brake linings, be used when fitting spare parts. Parts authorised by BPW for trailer axles and axle units are regularly subjected to special inspections. BPW accepts product responsibility for them.

BPW is unable to determine whether all third party products can be used with BPW trailer axles and axle units without any safety risk; this also applies even if an authorised testing organisation has accepted the product.

Use of spare parts other than original BPW Spare Parts renders the ECO Plus Warranty null and void (see para. 1.4.).

If, during the appropriate warranty period, Warranty Services or repair work are carried out, the warranty period will then not begin again for the affected component.

1.3.4. Current state of service and maintenance work

BPW is continually developing its products. Technical changes and/or new knowledge may cause the instructions and specifications published by BPW to change (in particular with regard to scopes of service and maintenance). The current state can be viewed at any time at www.bpw.de. On request, the latest printed edition of the required document can be made available by post free of charge.

1.4. Warranty exclusion

The ECO Plus Warranty does not cover normal wear and tear, the relevant wearing parts (in particular brake linings, brake drums, brake discs, brake cylinders, brake camshaft bearings, brake pads, shock absorbers and air bags), maintenance-dependent parts within disc brake calipers, or environmental impairments resulting from noise and odour emission.

In addition, the warranty shall not apply in the case of

- damage caused by external violence,
- operational errors,
- non-observance of the current BPW
 - installation instructions,
 - operating and assembly instructions,
 - equipment features / recommended uses (see para. 4.),
 - maintenance instructions (incl. safety instructions), (see para. 1.3.4.),
- use of spare parts other than BPW Original Parts during the warranty period.

1.5. Applicable law, place of jurisdiction

The basis for the ECO Plus Warranty as well as for the service and maintenance instructions will be the German-language version of documents where the purchase agreement is completed in Germany, Austria and Switzerland, and for all other countries the English-language version of documents. Translations into other languages are used solely for better comprehension of the original German or English-language version, for orientation and information. Should the original German or English-language version not be available, this can be made available free of charge using the address given on the back page of this warranty document or, on request, at info@bpw.de or www.bpw.de.

The laws of the Federal Republic of Germany shall apply, irrespective of where the purchase agreement was completed. The place of jurisdiction is Cologne. The United Nations Convention on Contracts for the International Sale of Goods shall not apply.

2 Operational and road safety

To maintain operational and road safety, maintenance work must be carried out at the prespecified intervals (see BPW Maintenance Instructions at www.bpw.de or, on request, from info@bpw.de).

The relevant operational and service instructions of the vehicle manufacturer, as well as the other vehicle parts manufacturers, shall also be complied with.

ECO Plus Service instructions 3

3.1. Retention of value through preventative service

The visual checks after 12, 36 and 72 months are to be performed within the framework of any statutory inspections that might be prescribed in respect of these intervals. Visual checks are to be performed annually on vehicles in use outside Europe.

2 Visual check after 12 months

(As described on pages 10 and 11)

Date: _____

Stamp and signature of the BPW Service Centre performing the work

Visual check after 36 months

(As described on pages 10 and 11)

Date: _____

Stamp and signature of the BPW Service Centre performing the work

3 Full service after 60 months

(As described on pages 10 to 13)

Date: _____

Stamp of **BPW Direct Service Partner**

4 Check after 72 months

(As described on pages 10 and 11)

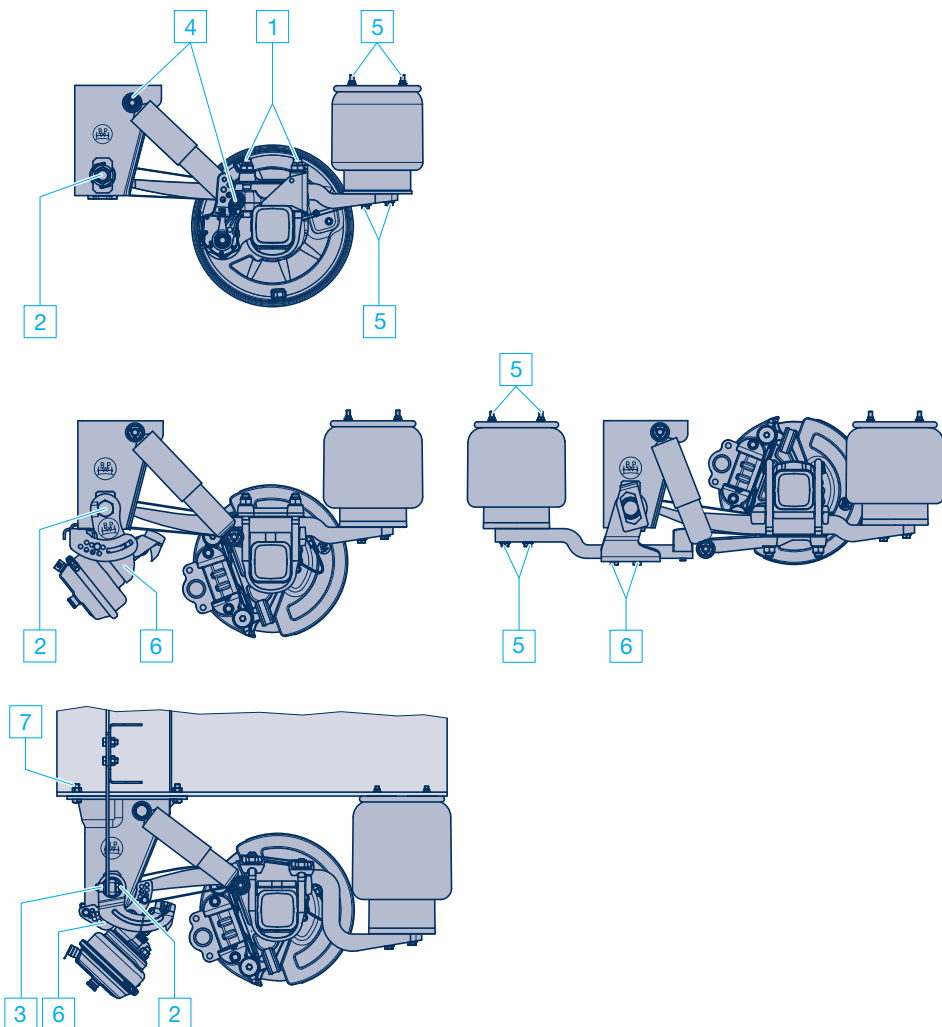
Date: _____

Stamp and signature of the BPW Service Centre performing the work

3 ECO Plus Service Instructions

3.2. Checks to be performed after entering into service

– (within 2 weeks of the first journey under load, latest after 2000 km) –



ECO Plus units with ECO Air COMPACT and AIRLIGHT II air suspension (70 mm wide trailing arms) do not have to be retightened for On-Road use.

It is essential for the specified bolted connections to be retightened on all other BPW air-suspended axle systems, as well as AIRLIGHT II when used Off-Road.

- 1 Tighten the spring mounting kit (U-bolts) with a torque wrench.
Tightening torques:

M 22 (SW 32)	M = 550 Nm (510 - 605 Nm) ¹⁾
M 24 (SW 36)	M = 650 Nm (605 - 715 Nm)

- 2 Tighten the spring pivot bolt with a torque wrench.
Tightening torques:
Hanger brackets and channel crossmember AIRLIGHT II
from 09/2007: M 24 (SW 36) M = **650 Nm** (605 - 715 Nm)
Hanger brackets from 08/2001: M 30 (SW 46) M = **900 Nm** (840 - 990 Nm)
Hanger brackets up to 07/2001: M 30 (SW 46) M = **750 Nm** (700 - 825 Nm)
Channel crossmember: M 30 (SW 46) M = **900 Nm** (840 - 990 Nm)

- 3 Tighten the spring bolt to gusset plate connecting bolt with a torque wrench.
Tightening torques:: M 18 x 1.5 (SW 27) M = **420 Nm** (390 - 460 Nm)

- 4 Tighten the shock absorber fastening with a torque wrench.
Tightening torques: M 24 (SW 24) M = **420 Nm** (390 - 460 Nm)
For aluminium hanger brackets M = **320 Nm** (300 - 350 Nm)

- 5 Tighten the air bag fastenings with a torque wrench.
Tightening torques:

M 12 (SW 17)	M = 66 Nm
M 16 (SW 22)	M = 230 - 300 Nm
Central bolt M 16 (SW 22)	M = 300 Nm

- 6 Tighten the axle lift device with a torque wrench.
Tightening torques:

Diaphragm cylinder M 20 (SW 30)	M = 350 - 380 Nm
Diaphragm cylinder M 16 (SW 24)	M = 180 - 210 Nm
Supporting arm M 16 (SW 22)	M = 230 Nm
Hexagon screw M 12 (SW 17)	M = 75 Nm

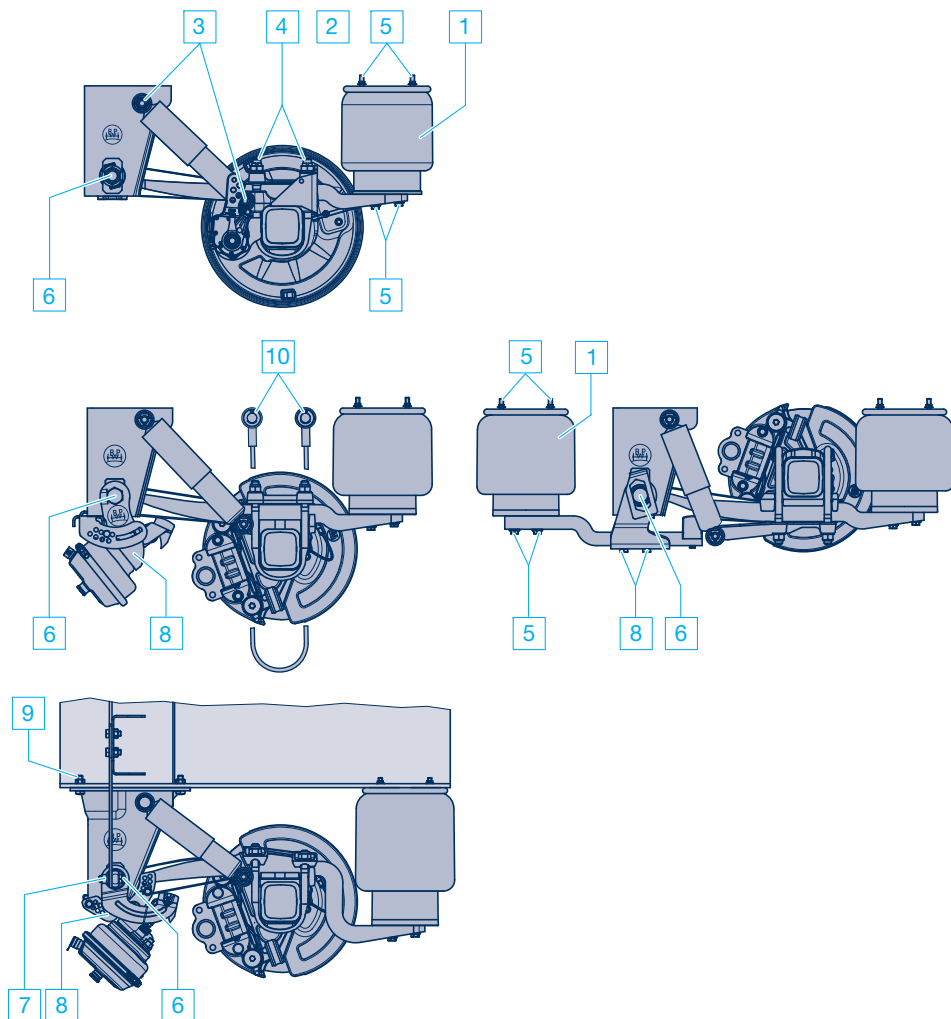
- 7 Tighten the bolt connection between the air suspension hanger bracket and the longitudinal member.
Tightening torques: M 16 M = **260 Nm** (240 - 285 Nm)

¹⁾ **When mounting new spring mounting kit components for AIRLIGHT II:**
Tightening torque: M 22 M = **550 Nm + 90° angle tightening**

3 ECO Plus Service Instructions

3.3. Visual inspection to be carried out within the framework of the statutory annual inspection (series O, SL, AL)

- Description of inspection after 12, 36 and, if appropriate, 60 months -
- Description of inspection after 72 months -



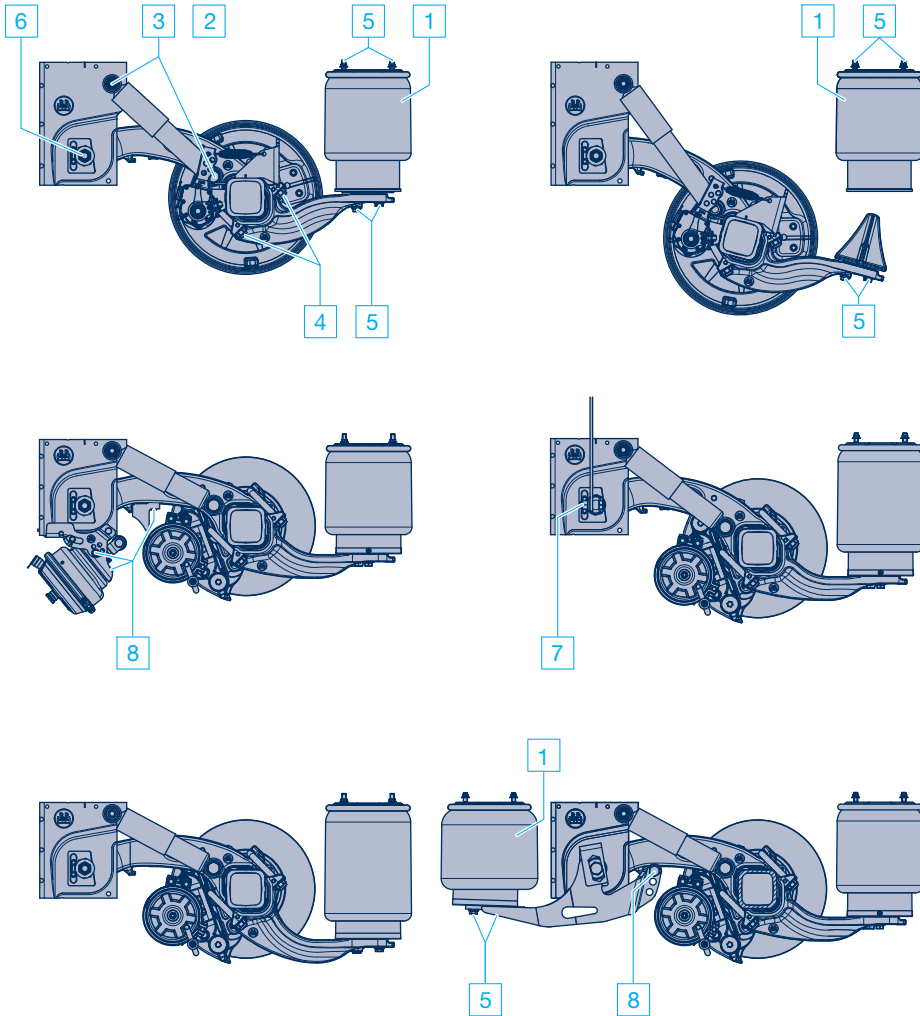
Visual inspections to be performed	after 12 months, 36 months, 60 months, 72 months
° Visual inspection - Check all component parts for damage and wear.	<input type="checkbox"/>
1 Check condition of air bags.	<input type="checkbox"/>
2 Check air suspension levelling valve for condition, seal integrity and tightness.	<input type="checkbox"/>
3 Visual inspection - Check shock absorber fastening for tightness. M 24 (SW 36) M = 420 Nm (390 - 460 Nm) For alloy hanger brackets M 24 (SW 36) M = 320 Nm (300 - 350 Nm)	<input type="checkbox"/>
4 Visual inspection - Check spring mounting kit for tightness. M 22 (SW 32) M = 550 Nm (510 - 605 Nm) M 24 (SW 36) M = 650 Nm (605 - 715 Nm)	<input type="checkbox"/>
5 Visual inspection - Check air bag fastening for tightness. M 12 (SW 17) M = 66 Nm M 16 (SW 22) M = 230 - 300 Nm Central bolt M 16 (SW 22) M = 300 Nm	<input type="checkbox"/>
6 Visual inspection - Check spring pivot bolts for tightness. Hanger brackets and channel crossmember AIRLIGHT II from 09/2007: M 24 (SW 36) M = 650 Nm (605 - 715 Nm) Hanger brackets from 08/2001: M 30 (SW 46) M = 900 Nm (840 - 990 Nm) up to 07/2001: M 30 (SW 46) M = 750 Nm (700 - 825 Nm) Channel crossmember: M 30 (SW 46) M = 900 Nm (840 - 990 Nm)	<input type="checkbox"/>
7 Visual inspection - Check spring bolt to gusset plate connection. M 18 x 1.5 (SW 27) M = 420 Nm (390 - 460 Nm)	<input type="checkbox"/>
8 Visual inspection - Check axle lift for tightness. Diaphragm cylinder M 20 (SW 30) M = 350 - 380 Nm Diaphragm cylinder M 16 (SW 24) M = 180 - 210 Nm Supporting arm M 16 (SW 22) M = 230 Nm Hexagon screw M 12 (SW 17) M = 75 Nm	<input type="checkbox"/>
9 Visual inspection - Check bolted connection between the air suspension hanger bracket and the longitudinal member. M 16 M = 260 Nm (240 - 285 Nm)	<input type="checkbox"/>
10 Check strap. Check condition and fastening.	<input type="checkbox"/>

A visual check is sufficient for these checks. Tighten any bolted connections as required to the specified tightening torques. Tightening may be charged to the vehicle owner.

3 ECO Plus Service Instructions

3.3. Visual inspection to be carried out within the framework of the statutory inspection (series ECO Air COMPACT)

- Description of inspection after 12, 36 and, if appropriate, 60 months -
- Description of inspection after 72 months -



Visual inspections to be performed

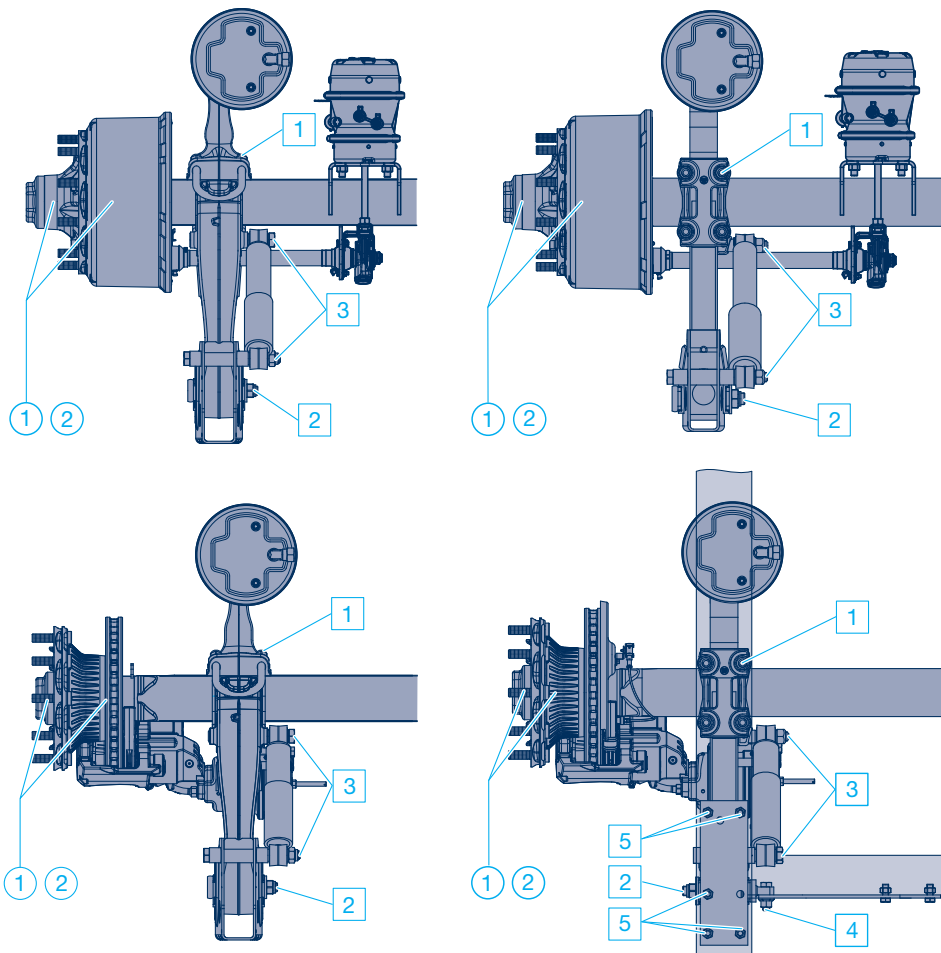
		after 12 months, 36 months, 60 months, 72 months
<input type="checkbox"/>	Visual inspection - Check all component parts for damage and wear.	<input type="checkbox"/>
1	Check condition of air bags.	<input type="checkbox"/>
2	Check air suspension levelling valve for condition, seal integrity and tightness.	<input type="checkbox"/>
3	Visual inspection - Check shock absorber fastening for tightness. M 24 (SW 36) M = 420 Nm (390 - 460 Nm)	<input type="checkbox"/>
4	Visual inspection - Check axle clamping kit for tightness. M 20 (SW 30) M = 420 Nm	<input type="checkbox"/>
5	Visual inspection - Check air bag fastening for tightness. M 12 (SW 17) M = 66 Nm M 16 (SW 22) M = 230 - 300 Nm Central bolt M 16 (SW 22) M = 300 Nm	<input type="checkbox"/>
6	Visual inspection - Check spring pivot bolts for tightness. M 24 (SW 36) M = 650 Nm (605 - 715 Nm)	<input type="checkbox"/>
7	Visual inspection - Check spring bolt to gusset plate connection. M 18 x 1.5 (SW 27) M = 420 Nm (390 - 460 Nm)	<input type="checkbox"/>
8	Visual inspection - Check axle lift for tightness. Supporting arm M 20 (SW 30) M = 350 Nm (325 - 385 Nm) Diaphragm cylinder M 16 (SW 24) M = 180 - 210 Nm Hexagon screw M 12 (SW 17) M = 75 Nm Cylinder cap screw M 10 (SW 8) M = 50 Nm	<input type="checkbox"/>

A visual check is sufficient for these checks. Tighten any bolted connections as required to the specified tightening torques. Tightening may be charged to the vehicle owner.

3 ECO Plus Service Instructions

3.4. Full-Service after 60 months at the BPW Direct Service Partner

(For Extended Warranty)



- The Extended Warranty applies to the ECO hub unit, axle beam, trailing arm connection and hanger brackets. It is essential for the prescribed inspections to have been performed - with full documentation - starting from when the vehicle was first taken into service (payment required).

In all cases, replacement of components as part of the warranty provision shall be agreed with BPW or the relevant BPW representative prior to the start of work.

Fully functioning shock absorbers are essential for the suspension function, and therefore, represent the basis of the warranty agreement. A preventative exchange of shock absorbers (payment required) is necessary as part of the full service after 60 months.

Work to be performed

Lubrication work:

- 1 **Mounting for the ECO Unit:** completely re-grease, renew bearings
- 2 **Seals for the ECO Unit:** replace all seals

Maintenance:

- 1 **Axle clampings:**
Use a torque wrench to check the axle clamping is firmly seated.
Tightening torques:

M 20 (SW 30)	M = 420 Nm
M 22 (SW 32)	M = 550 Nm (510 - 600 Nm)
M 24 (SW 36)	M = 650 Nm (605 - 715 Nm)
- 2 **Spring pivot bolts:**
Use a torque wrench to check the spring pivot bolts are firmly seated and check them for wear.
Tightening torques:
AIRLIGHT II, ECO Air COMPACT hanger brackets and channel crossmember
from 09/2007: M 24 (SW 36) M = **650 Nm** (605 - 715 Nm)
Hanger brackets from 08/2001: M 30 (SW 46) M = **900 Nm** (840 - 990 Nm)
Hanger brackets up to 07/2001: M 30 (SW 46) M = **750 Nm** (700 - 825 Nm)
Channel crossmembers: M 30 (SW 46) M = **900 Nm** (840 - 990 Nm)
- 3 **Shock absorber:**
Fit new shock absorbers. Tightening torques:
ECO Air COMPACT M 24 (SW 36) M = **420 Nm** (390 - 460 Nm)
AIRLIGHT II M 24 (SW 36) M = **420 Nm** (390 - 460 Nm)
For alloy hanger brackets M 24 (SW 36) M = **320 Nm** (300 - 350 Nm)
- 4 **Gusset plate:**
Check the spring bolt to gusset plate connection is firmly attached and check for wear.
Tightening torques: M 18 x 1.5 (SW 27) M = **420 Nm** (390 - 460 Nm)
- 5 **Bolted-on air suspension hanger bracket:**
Check that the mounting bolts of the air suspension hanger bracket on the longitudinal member are firmly tightened. Tightening torques: M 16 M = **260 Nm** (240 - 285 Nm)

The necessary maintenance and lubrication requirements should be performed as part of the full Service in accordance with information provided by BPW. Parts subject to wear which the BPW Direct Service Partner assesses as defective should be replaced subject to a charge.

4 Required equipment features

Advice	Conditions	Axle load	Air suspension series	Tyre	Spring centre	Trailing arm 70 mm 100 mm		Hanger brackets	Shock absorber	Air bag	Axle beam	Axle connection	Comments	
On-Road use	Standard use	9 t	EAC	S	≥ 1200	Guide link		Standard	Standard	Ø 300 / Ø 360	120 x 10	Clamped	With container and coil vehicles with stroke limiter	
			AL II			Z	< 1200							1 x 56
				S	≥ 1100	1 x 62								
		10 t	SL	Z	< 1100		1 x 57 / 2 x 43 ²⁾	Standard / HD ¹⁾	Standard / HD ¹⁾	Ø 360 with reinforced disc	120 x 15			
		12 t		Z							150 x 16			
		7	Mega trailers	9 t	SL	S / Z			1 x 58	Standard	Standard			Ø 360 long-stroke air bag 36-1
	Off-Road use	Standard Application e.g. light tipper use	9 t	AL II	S	≥ 1200	1 x 62		Standard	Standard / HD ¹⁾	Ø 300 / Ø 360 with reinforced disc	120 x 15	Clamped	With tippers with lowering device or stroke limiter
SL				S / Z				HD	Standard / HD ¹⁾					
			10 t	S / Z										
11		Heavy duty Application - e.g. tippers and timber transporters.	9 t	SL	S	≥ 1200		1 x 57 / 2 x 43 ²⁾	HD	Standard / HD ¹⁾	Ø 360 with reinforced disc	120 x 15	Clamped	With tippers with lowering device or stroke limiter
					Z	< 1200						150 x 16	Welded	
13		10 t		Z										

Observations:

- Deviations from these specifications in Europe or axle and suspension combinations for the use outside of Europe (e.g. Syria, Iraq, Armenia, Georgia) require the approval of BPW.
- Disc cover plate for disc brakes
On-road: Generally, no cover plate is necessary for on-road use.
Rugged conditions: Cover plates are recommended for use in rugged conditions. Rugged conditions are the off-road use as well as difficult on-road conditions (e.g. high amounts of dirt, ice or snow).
- Country-specific recommendations deviating from the above-mentioned table:
 - Ireland:
 - On-road: corresponds to Recommendation 8
 - Off-road standard: corresponds to Recommendation 9
 - Off-road HD: corresponds to Recommendation 11 with welded components
 - SWE/ NOR/ FIN for the following types of vehicles:
 - Fodder and milk transporters, light duty tippers and timber transporters: corresponds to Recommendation 8 (also 10 t), 9, 10, all recommendations with welded components
 - HD use of tippers and timber transporters: corresponds to Recommendation 11, 12, 13, all recommendations with welded components

S = Single tyres
Z = Twin tyres

¹⁾ With higher vehicle speeds and poor road conditions use the HD version of the component concerned.

²⁾ For single-axle semi-trailer with high centre of gravity

Notice



BPW-GD-ECO Plus 3509/150 1e

BPW is a globally leading manufacturer of intelligent running gear systems for trailers and semi-trailers. As an international mobility and system partner, we offer a wide range of solutions for the transport industry from a single source, from axle to suspension and brake to user-friendly telematics applications.

We thereby ensure outstanding transparency in loading and transport processes and facilitate efficient fleet management. Today, the well-established brand represents an international corporation with a wide product and service portfolio for the commercial vehicle industry. Offering running gear systems, telematics, lighting systems, composite solutions and trailer superstructures, BPW is the right system partner for automotive manufacturers.

BPW, the owner-operated company, consistently pursues one target: To always give you exactly the solution which will pay off. To this end, we focus our attention on uncompromising quality for high reliability and service life, weight and time-saving concepts for low operating and maintenance costs as well as personal customer service and a close-knit service network for quick and direct support. You can be sure that with your international mobility partner BPW, you always use the most efficient method.

Your partner on the path to economic viability



BPW Bergische Achsen Kommanditgesellschaft

Postbox 12 80 · 51656 Wiehl, Germany · Phone +49 (0) 2262 78-0
info@bpw.de · www.bpw.de