



ECO Plus - Warranty documents

Axle systems with air suspension



Valid for all complete ECO Plus air-suspended axle systems
from production date 01.03.2018



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Edition 9

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, at the latest by 6 months after production date of the BPW running gear system,
 - within Europe for the period of
 - **5 years** in On-Road use (see para. 1.3.2.) or
 - **5 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, ECO Air COMPACT HD, AIRLIGHT II or other BPW air-suspended versions), selected according to the appropriate use (see required equipment features under Point 4),
- 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).

Extended Warranty: 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** (hereinafter referred to as "Extended Warranty"), 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 or BPW service partner (hereinafter referred to as BPW service centre) (workshop invoice with detailed proof of work required.)

Additional warranty: In addition to the above named ECO Plus Warranty BPW offers within Europe in On-Road use and Off-Road use (only in accordance with lines 7 and 8 in the "Required Features" table) a warranty of 3 years for the parts brake cylinder, shock absorber and air bag (hereinafter referred to as "additional warranty").

ECO Plus warranty, extended warranty and additional warranty hereinafter referred to as "warranties" or "warranty".

1.2 Extent of warranty

During the appropriate warranty period, BPW will, in the case of a 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 warranty

1.3.1 General Information

The prerequisite for obtaining and maintaining the 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.).

		Period of warranty	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 conditions and Off-Road conditions (lines 7 and 8 in the "Required Features" table)	5 years	X ¹⁾	X	X
	Off-Road conditions (lines 9, 10 and 11 in the "Required Features" table)	3 years	X	X	
Outside Europe	On-Road conditions	2 years	X ¹⁾	X	
	Off-Road conditions	1 year	X		

¹⁾ not applicable for ECO Air COMPACT, ECO Air COMPACT HD and AIRLIGHT II in On-Road and Off-Road use.

The warranty covering On-Road use and Off-Road use (only in accordance with lines 7 and 8 in the "Required Features" table) in Europe can be extended by a further 3 years. As far as the recommendations 7 or 8 of the „Required Features" table are fulfilled, the ECO Plus warranty for the period of 5 + 3 years also applies to this use.

The extended warranty is applicable on condition of the documented completion (workshop invoice with detailed proof of work required) of the specified examinations and on submission in the event of damage.

Period of warranty	Work to be performed		
	Time	Measures	Service provider
5+3 years On-Road conditions and Off-Road conditions (only in accordance with lines 7 and 8 in the "Required Features" table)	60 months	Full service	BPW Service Centre
	72 months	Check/visual check	BPW Service Centre

1.3.2 Definition On-Road use / Off-Road use

On-Road use

On-Road is a road that has a sealed and fixed surface, eg with asphalt or concrete surface. As far as the recommendations 7 or 8 of the "Required Features" are complied with, this is considered on road use.

For this use, the ECO Plus warranty is valid for 5+3 years.

Off-Road use

Hard surface gravel roads can be called Off-Road. Off-Road use also exists when a sealed and fixed hard surface is left only for a short period of time. Off-Road use is normally undertaken by tippers and vehicles with comparable use (eg feed and milk transporters and floor trailers).

Hard off-road use (according to lines 9, 10 and 11 of the Required Features table) for example mine use or use on unsurfaced, heavy ground, which can only be used with all wheel drive machines.

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 warranties 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 camshaft bearings, brake discs, brake pads, brake cylinders, shock absorbers and air bags), maintenance-dependent parts within disc brake calipers, or environmental impairments resulting from noise and odour emission, insofar as the additional warranty does not apply.

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 warranties 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 carrying out the work

Visual check after 36 months

(As described on pages 10 and 11)

Date: _____

Stamp and signature of the BPW Service Centre carrying out the work

3 Full service after 60 months

(As described on pages 10 to 13)

Please keep the invoice for full service for possible warranties.

Date: _____

Stamp and signature of the BPW Service Centre carrying out the work

4 Check after 72 months

(As described on pages 10 and 11)

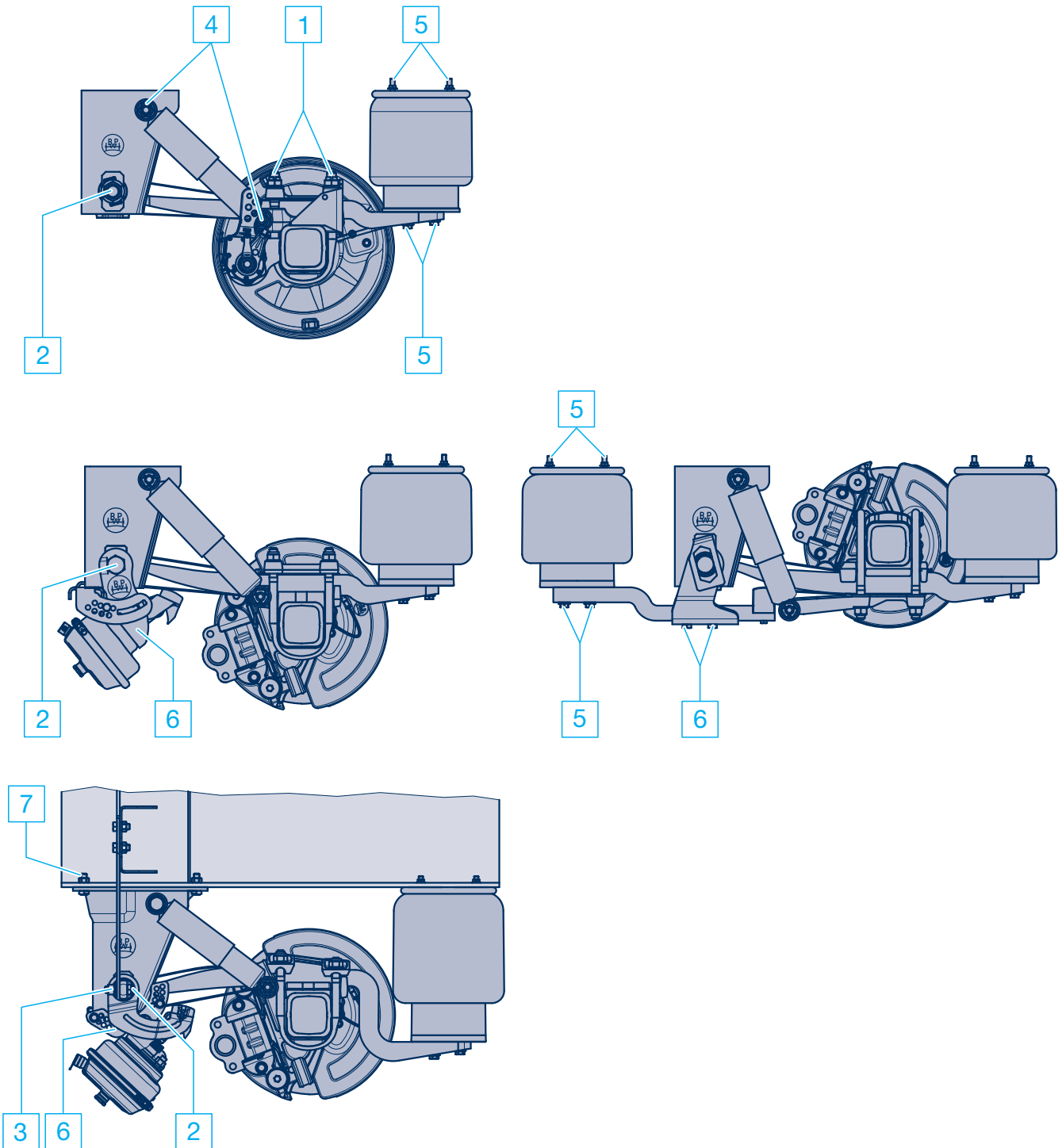
Date: _____

Stamp and signature of the BPW Service Centre carrying out 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) –



For BPW ECO Plus Aggregate in On-Road use and Off-Road use (only in accordance with lines 7 and 8 in the "Required Features" table), the screw connection, specified in the table on pages 16 - 17, must not be re-tightened for the required air suspension.

For BPW ECO Plus Aggregate in Off-Road use (in accordance with lines 9, 10 and 11 in the "Required Features" table), the screw connection specified in the table on pages 16 - 17, must be re-tightened for the required air suspension.

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)
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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)
For stainless steel 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)
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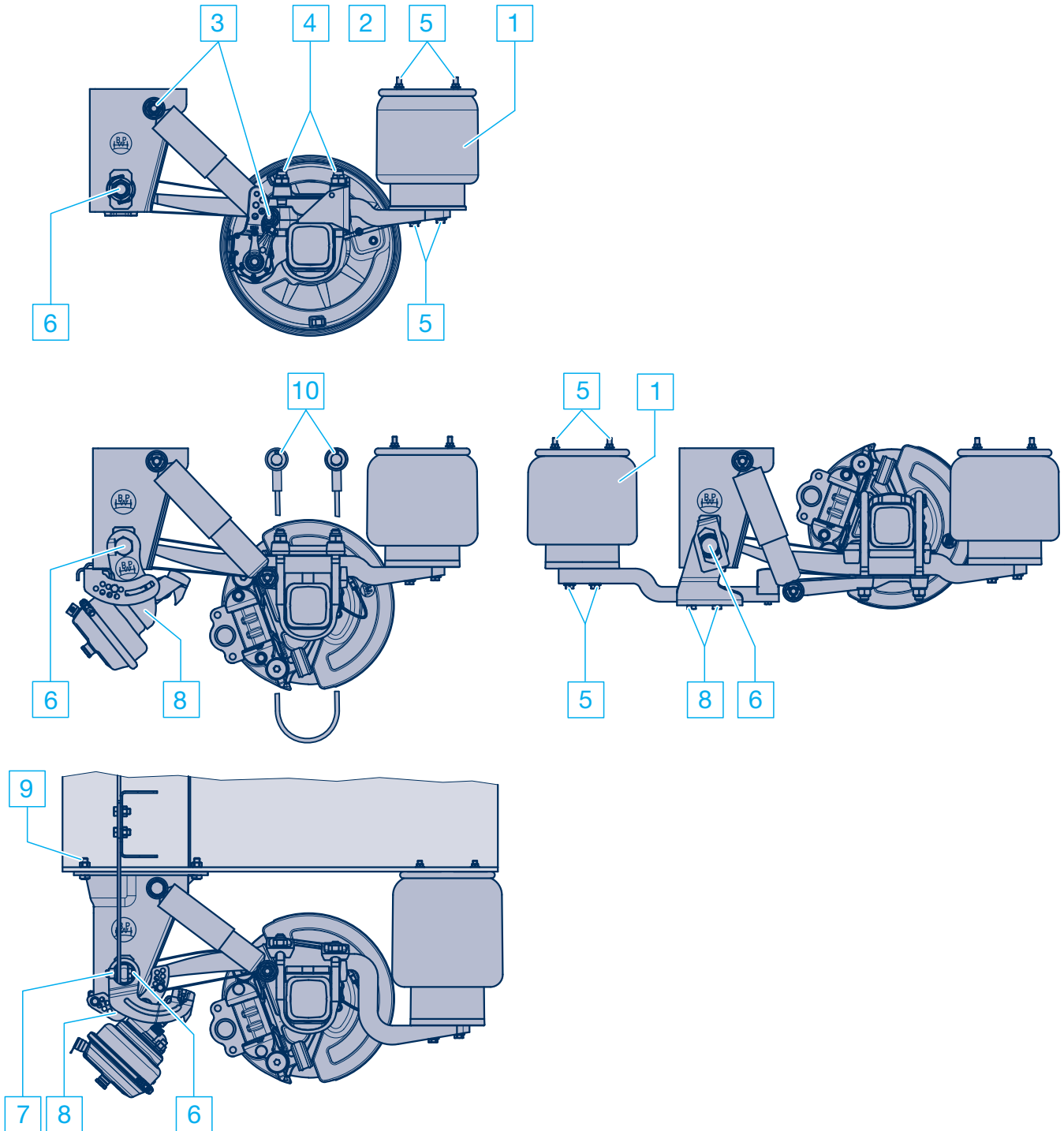
¹⁾ **When mounting new spring mounting kit components for AIRLIGHT II:**

Tightening torque:	M 22	M = 550 Nm + 90° angle tightening
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3 ECO Plus Service Instructions

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

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



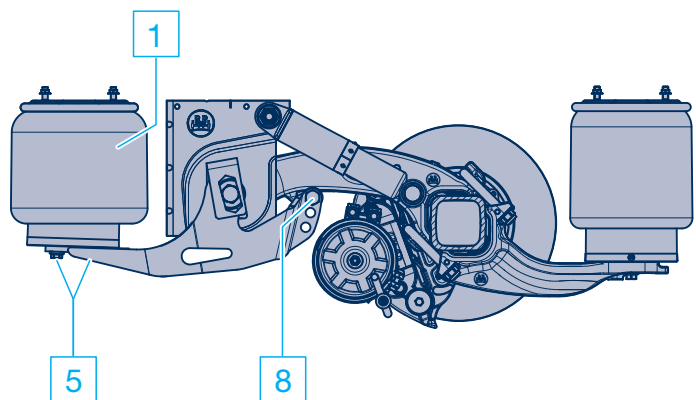
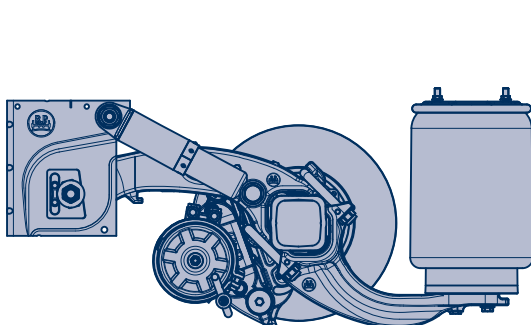
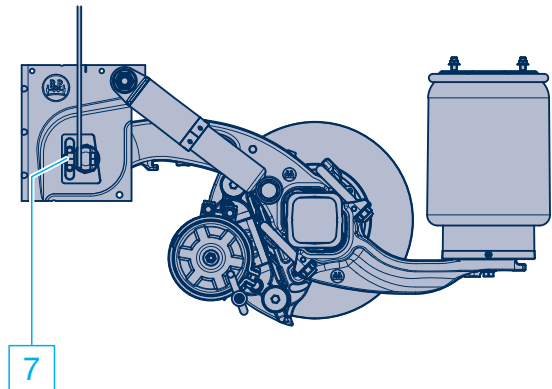
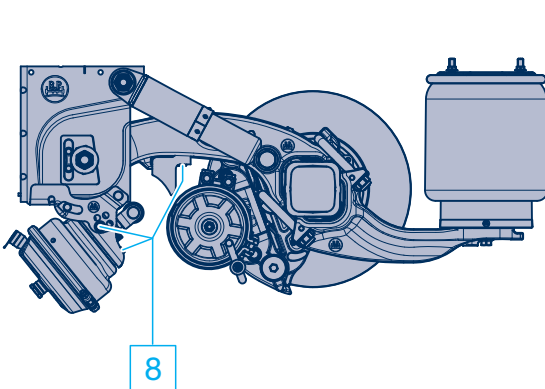
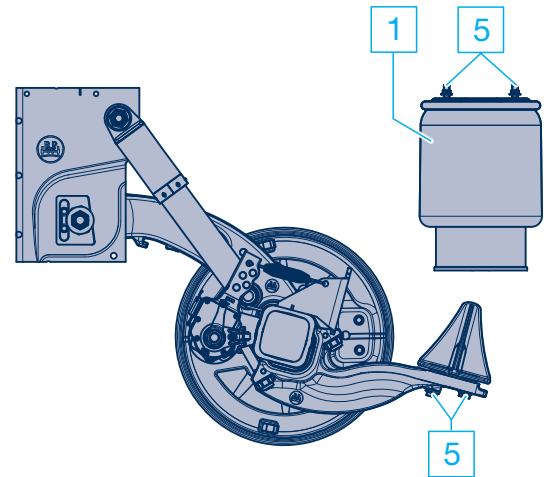
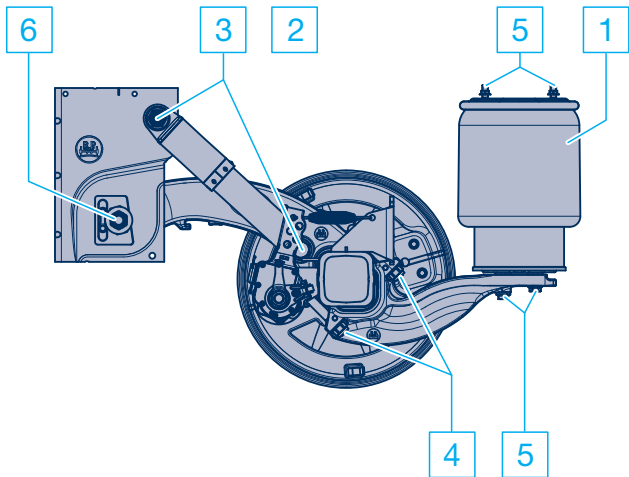
Visual inspections to be performed	after 12 months, 36 months, 60 months, 72 months
° Visual inspection - Check all component parts for damage and wear.	<input type="checkbox"/>
1 Check condition of air bags.	<input type="checkbox"/>
2 Check air suspension levelling valve for condition, seal integrity 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) For stainless steel 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 and ECO Air COMPACT HD)

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

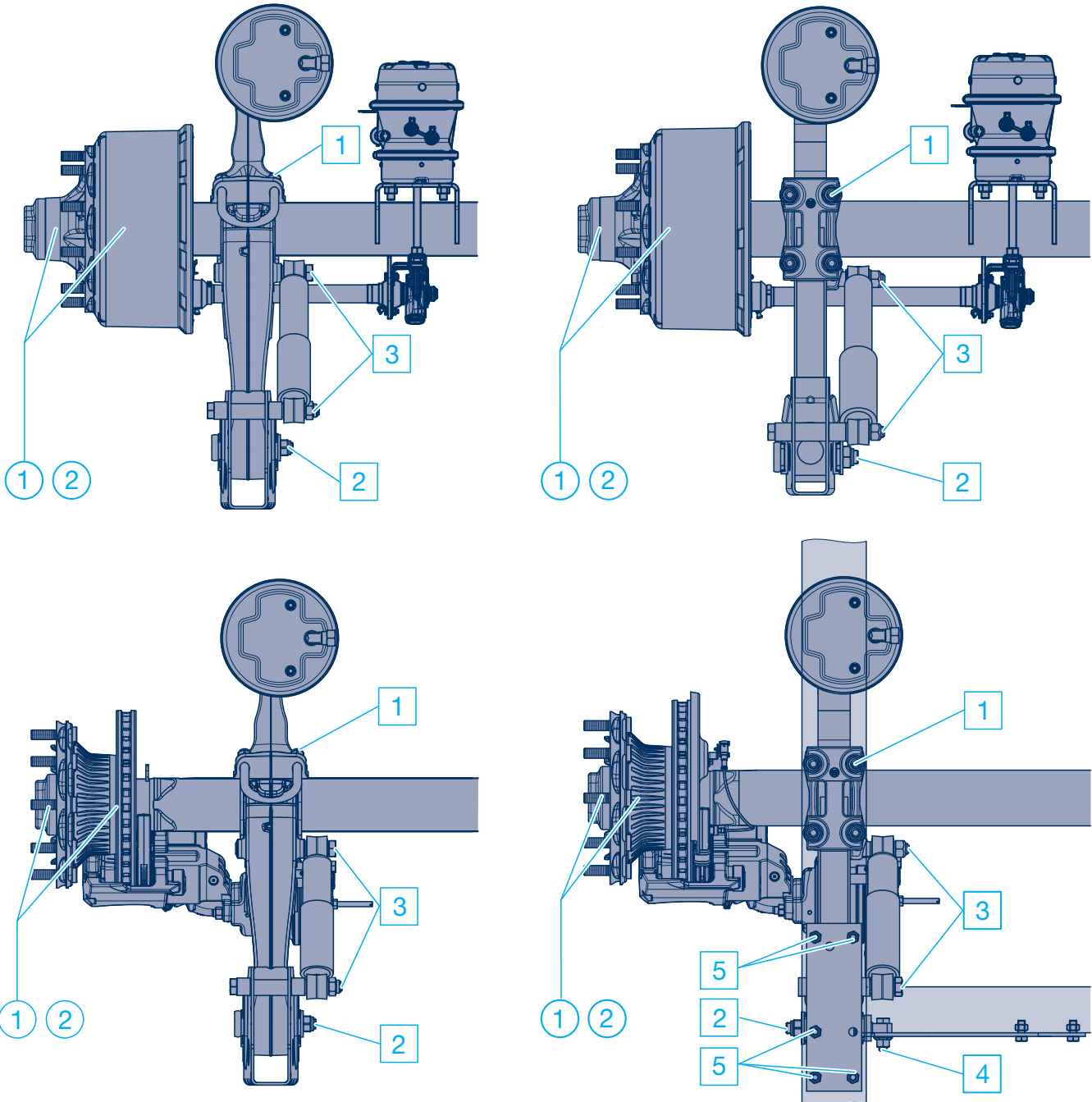


Visual inspections to be performed	after 12 months, 36 months, 60 months, 72 months
<input type="checkbox"/> Visual inspection - Check all component parts for damage and wear.	<input type="checkbox"/>
<input type="checkbox"/> 1 Check condition of air bags.	<input type="checkbox"/>
<input type="checkbox"/> 2 Check air suspension levelling valve for condition, seal integrity and tightness.	<input type="checkbox"/>
<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"/>
<input type="checkbox"/> 4 Visual inspection - Check axle clamping kit for tightness. M 20 (SW 30) M = 420 Nm	<input type="checkbox"/>
<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"/>
<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"/>
<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"/>
<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 a BPW service centre (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.

Work to be performed

Lubrication work:

- 1 **Mounting for the ECO Unit:** completely re-grease, renew bearings if necessary
- 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, ECO Air COMPACT HD 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:**
Shock absorbers should be replaced if necessary. Tightening torques:

ECO Air COMPACT / ECO Air COMPACT HD	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)
For stainless steel 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)
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- 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)
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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 Service Centre assesses as defective should be replaced subject to a charge.

4 Required equipment features - Europe

Advice	Conditions	Axle load	Air suspension series	Tyre S = Single tyres Z = Twin tyres	Spring centre	Trailing arm	
						70 mm	100 mm
1	On-Road use	9 t	EAC	S	≥ 1200	Guide link	
2			AL II			1 x 56	
3						Z	< 1200
4		S / Z		≥ 1100			
5		10 t	Z	< 1100	1 x 65		
6			S / Z				
		11.8 t (only with SN 4220)					
7	Off-Road use	9 t	EAC HD	S	≥ 1200	Guide link	
8			AL II			1 x 62	
9		10 t		S / Z		1 x 65	
10							
11		10 t - 12 t	SL				1 x 57 / 2 x 43

Observations:

- The required equipment features in the above advice are the minimum requirements for the ECO Plus warranty. An upgrade of the equipment features is possible.
Your BPW contact person can provide you with further information and personal advice.
- 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.
Country-specific recommendations deviating from the above-mentioned table:
- Ireland On-Road use: corresponds to Advice Nos 7 and 8
- The data sheets of the BPW air suspension must be observed for the exact specification of the air spring modules according to the application areas and the possible combinatorial function of the components mentioned (incl. TE-3075.0).
- Disc cover plate for disc brakes
On-road: Generall, 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).

Shock absorber	Air bag	Axle beam	Axle connection	Comments
Standard	Ø 300 / Ø 360	120 x 10	Clamped	For container and coil carrier trailers, the use of air bag stroke limitation is necessary.
		120 x 15		
	Ø 360	120 x 17	Welded	
HD	Ø 300 / Ø 360 with reinforced airbag plate	120 x 10	Clamped	Tipper trailers require the use of a lowering device or stroke limitation.
Standard / HD	Ø 360 with reinforced airbag plate	120 x 15		
		120 x 17	Welded	
		150 x 16		
				Heavy off-road use: such as mining or logging operations on unpaved ground, which can only be used with all-wheel drive machines. For higher speed the use of the HD shock absorbers are necessary.

Notice

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



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