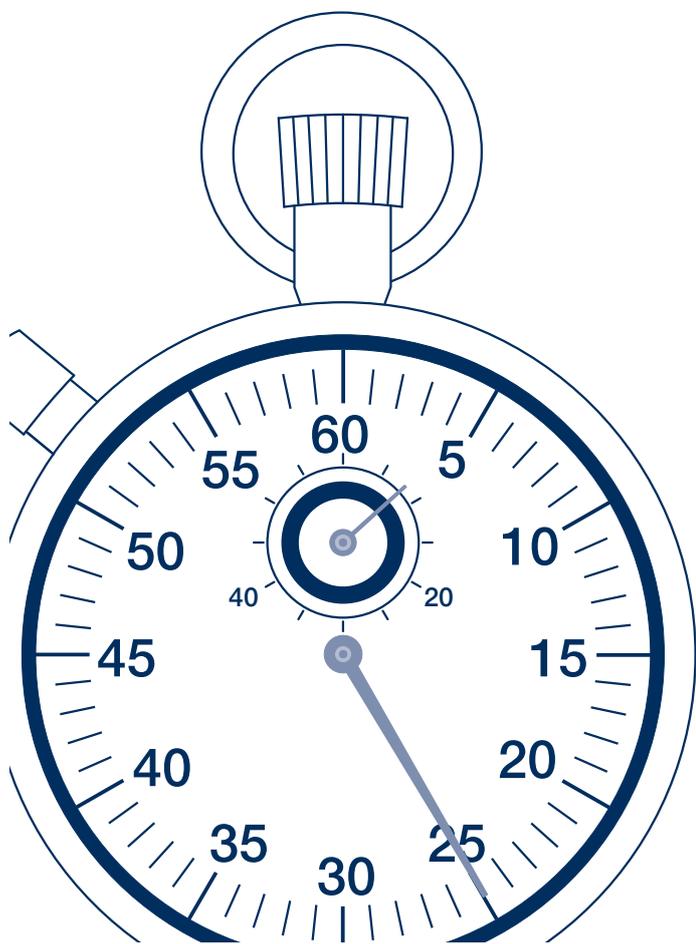


BPW BERGISCHE ACHSEN KG		Made in Germany
SHSF 9010 ECO-P		180578405
ID1-D116/ID2-TS2 4309/ID3-11380/ID4-36103516		
20.68.43.0152	zul. Achslast perm. axle capacity charge axles	stat. 9000 kg 105 km/h
		

BPW Reference Times for Warranty Work

to BPW Trailer Axles and Suspensions



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Valid: 01.08.2022

Subject to change without notice.

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

General information for warranty work 1

1. All work to be carried out under the warranty or guarantee must be clarified with BPW or one of its representatives in advance before the start of the repair.
2. To enable the procedure to be handled smoothly, it is essential for the notification of the complaint to be accompanied by a fully completed warranty application as well as a copy of the vehicle's registration certificate.
3. Remuneration for warranty or guarantee work is always calculated on the basis of the BPW reference times.
4. The reference times have been calculated in cooperation with BPW workshop partners on the basis of average values. These assume that repair companies are equipped with state-of-the-art equipment and include all objective and personal allowance times, with consideration for the corresponding safety regulations.
5. The removal and installation items that are important for the warranty work have been grouped together with the reference times in this overview.

The reference times are specified as standard time:

1 standard time (ST) = 5 minutes (min)

1 hour = 12 STs

6. The reference times stated always apply to one side of an axle, unless specified otherwise.
7. Additional justification must be provided if the time values are exceeded!
8. Work not listed in the reference time catalogue must be discussed and agreed with BPW before the work starts.
9. All work undertaken must be performed according to the recognised rules of technology and must be in accordance with the BPW specification (see workshop manual).
10. We prescribe the use of genuine BPW spare parts for all work undertaken under warranty. No remuneration will be provided if this requirement is not complied with.

The setup time (once per vehicle) includes:

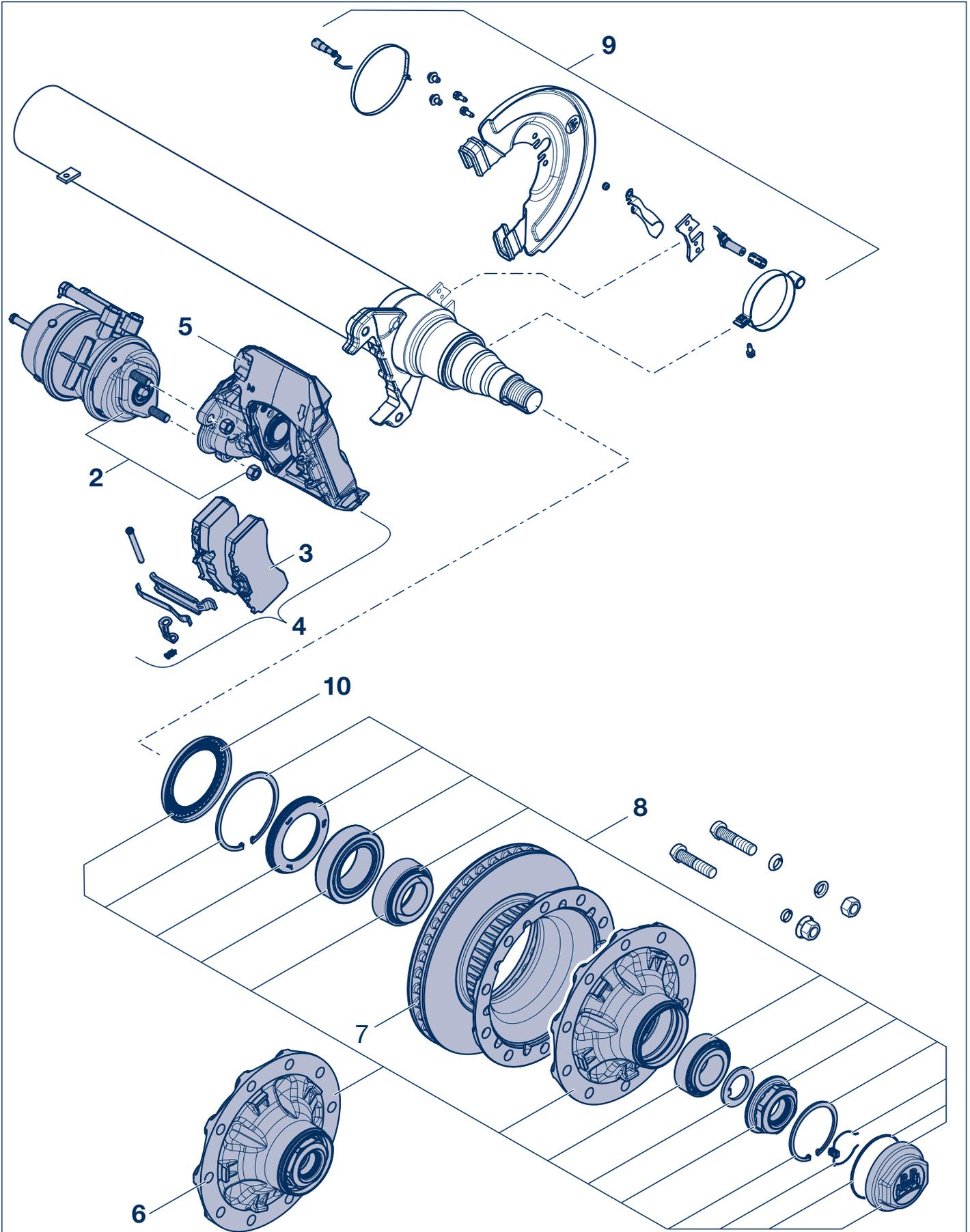
- provision of vehicle
- invoicing
- preparing the warranty application
- photographic documentation, if necessary
- despatch of damaged parts, if necessary

If you have any questions, please feel free to contact us by phone on +49 2262 78-0. If you require additional information, please refer to our website at www.bpw.de.

Your customer service team at **BPW Bergische Achsen**

2 Trailer axles with disc brake in series SR, SKR / SH, SKH with ECO Plus 3 Unit

2.1 Disc brake TS2 3709 / 4309

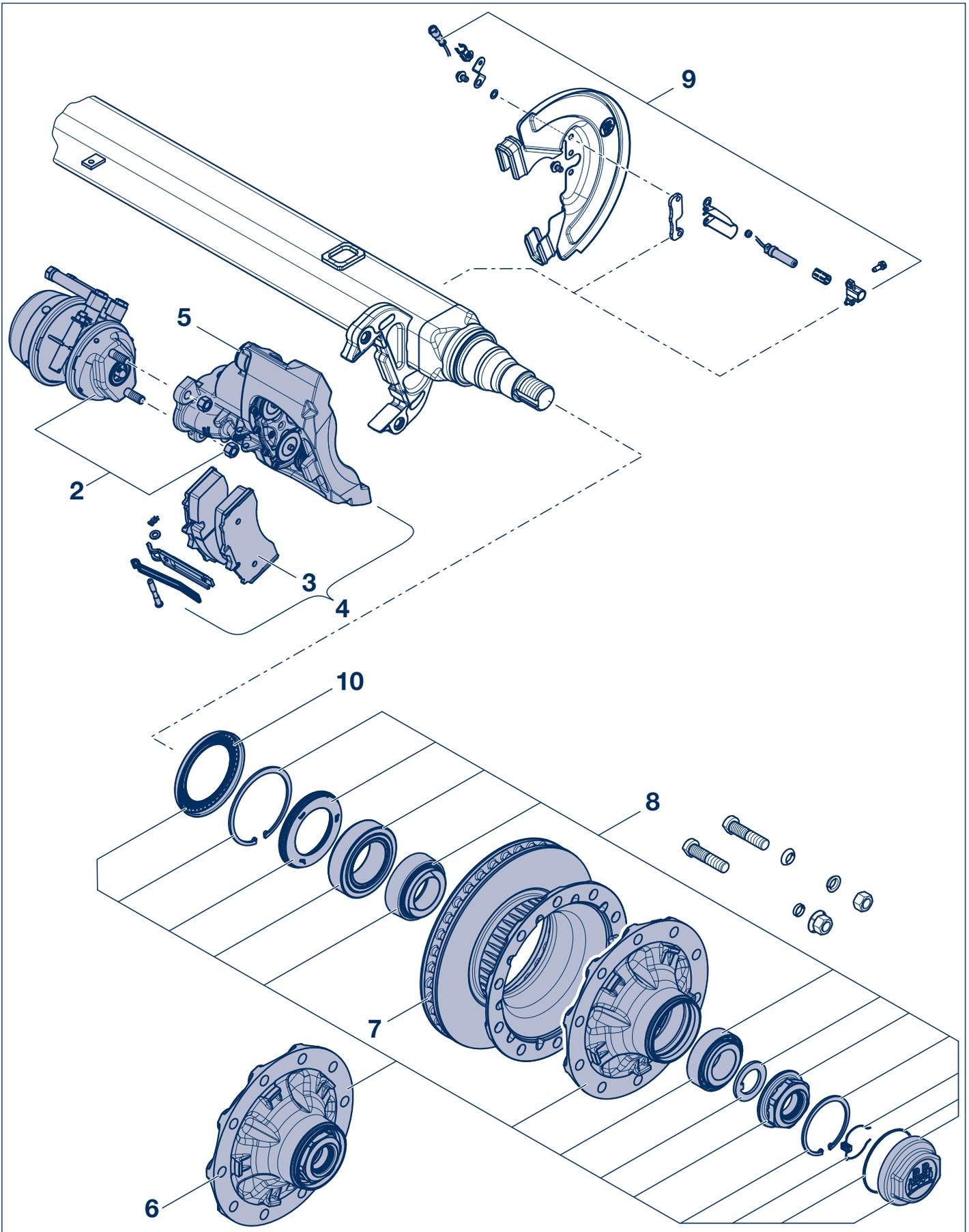


Item No.	Description of work	Reference Times	
		Mins.	ST
1	Set-up time for the vehicle	30.0	6.0
2	Renewing brake cylinder	15.0	3.0
3	Renewing brake pads - including guide cleaning	20.0	4.0
4	Renewing disc brake (brake calliper) - including function check	40.0	8.0
5	Renewing brake calliper bearing - floating bearing and fixed bearing	30.0	6.0
6	Renewing wheel hub (complete) - change wheel studs by disassembly	35.0	7.0
7	Renewing brake disc - without calliper removal - TS2 3709 with 120 offset - TS2 4309 with 0 / 120 offset - with calliper removal - TS2 3709 with 0 offset	40.0 60.0	8.0 12.0
8	Renewing wheel bearing set - wheel hub removed	20.0	4.0
9	Renewing wheel sensor - 0 offset - 120 offset	40.0 10.0	8.0 2.0
10	Renewing exciter ring	40.0	8.0

2 Trailer axles with disc brake in series SH, SKH

with ECO Plus 3 / ECO Plus 2 / ECO^{Plus} / ECO Unit

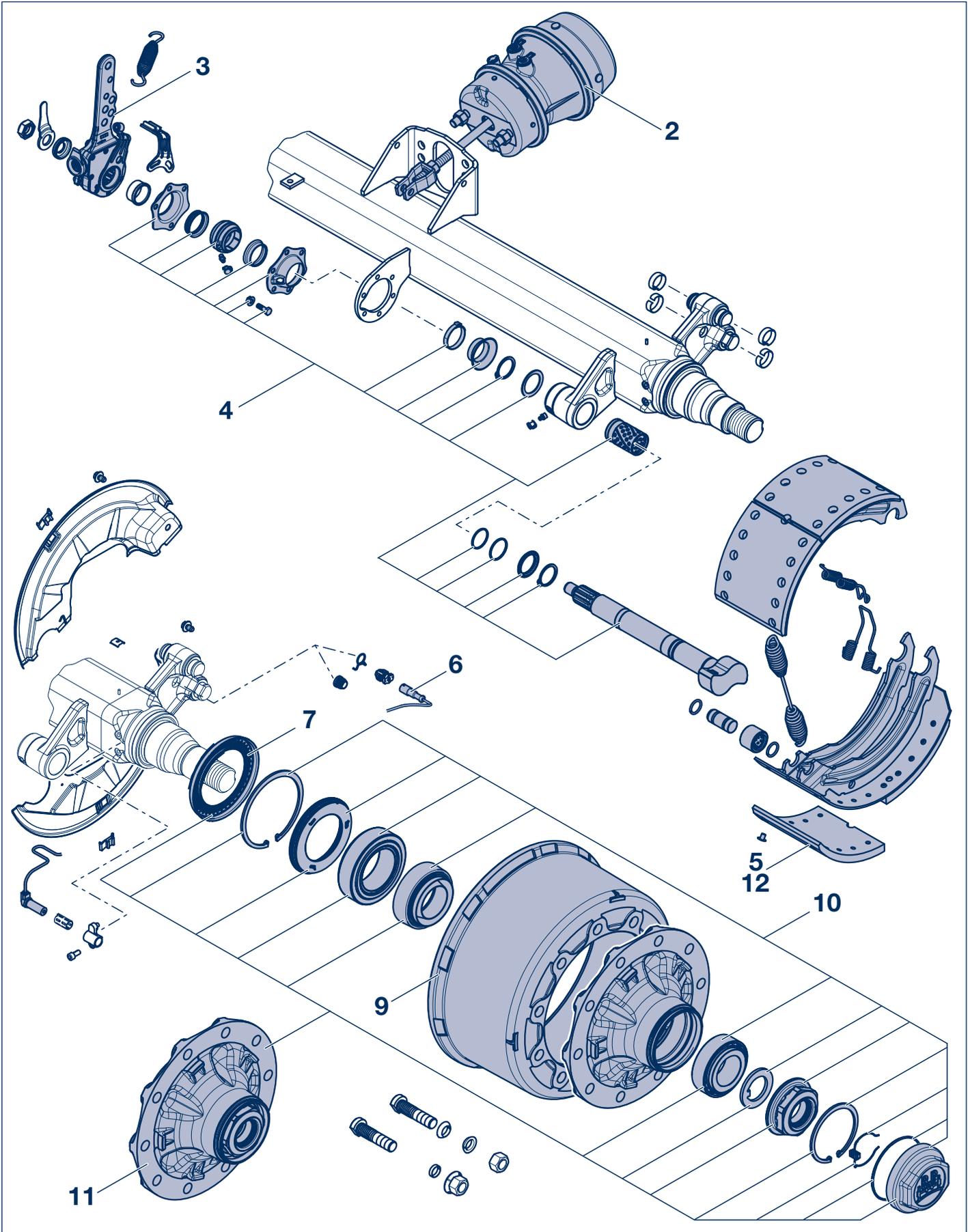
2.2 Disc brake TSB 3709 / 4309 / 4312



Item No.	Description of work	Reference Times	
		Mins.	ST
1	Set-up time for the vehicle	30.0	6.0
2	Renewing brake cylinder	15.0	3.0
3	Renewing brake pads - including guide cleaning	20.0	4.0
4	Renewing disc brake (brake calliper) - including function check	40.0	8.0
5	Renewing brake calliper bearing - floating bearing and fixed bearing	30.0	6.0
6	Renewing wheel hub (complete) - change wheel studs by disassembly	35.0	7.0
7	Renewing brake disc - without calliper removal - TSB 3709 with 120 offset - TSB 4309 with 0 / 120 offset	40.0	8.0
	- with calliper removal - TSB 3709 with 0 offset - TSB 4312 with 0 offset	60.0	12.0
8	Renewing wheel bearing set - wheel hub removed	20.0	4.0
9	Renewing wheel sensor - 0 offset - 120 offset	40.0 10.0	8.0 2.0
10	Renewing exciter ring	40.0	8.0

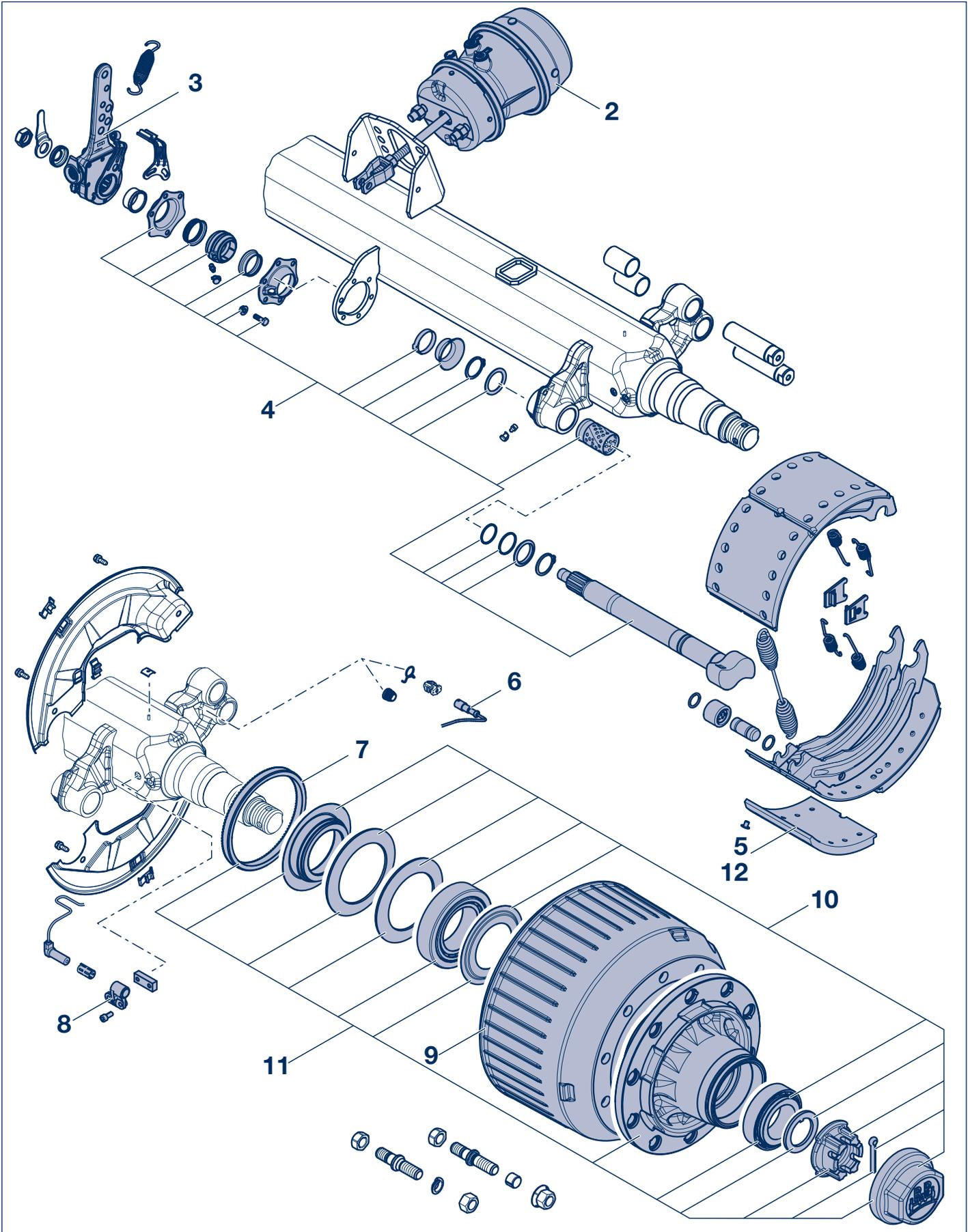
Item No.	Description of work	Reference Times	
		Mins.	ST
1	Set-up time for the vehicle	30.0	6.0
2	Renewing brake cylinder	15.0	3.0
3	Renewing brake pads - including guide cleaning	20.0	4.0
4	Renewing disc brake (brake calliper) - including function check	30.0	6.0
5	Renewing wheel hub (complete) - change wheel studs by disassembly	35.0	7.0
6	Renewing brake disc - with calliper removal	50.0	10.0
7	Renewing wheel bearing set	20.0	4.0
8	Renewing wheel sensor		
	- 0 offset	40.0	8.0
	- 120 offset	10.0	2.0
9	Renewing exciter ring	40.0	8.0

3 Trailer axles with drum brake in series R / H / K / N with ECO Plus 3 / ECO Plus 2 / ECO^{Plus} / ECO Unit



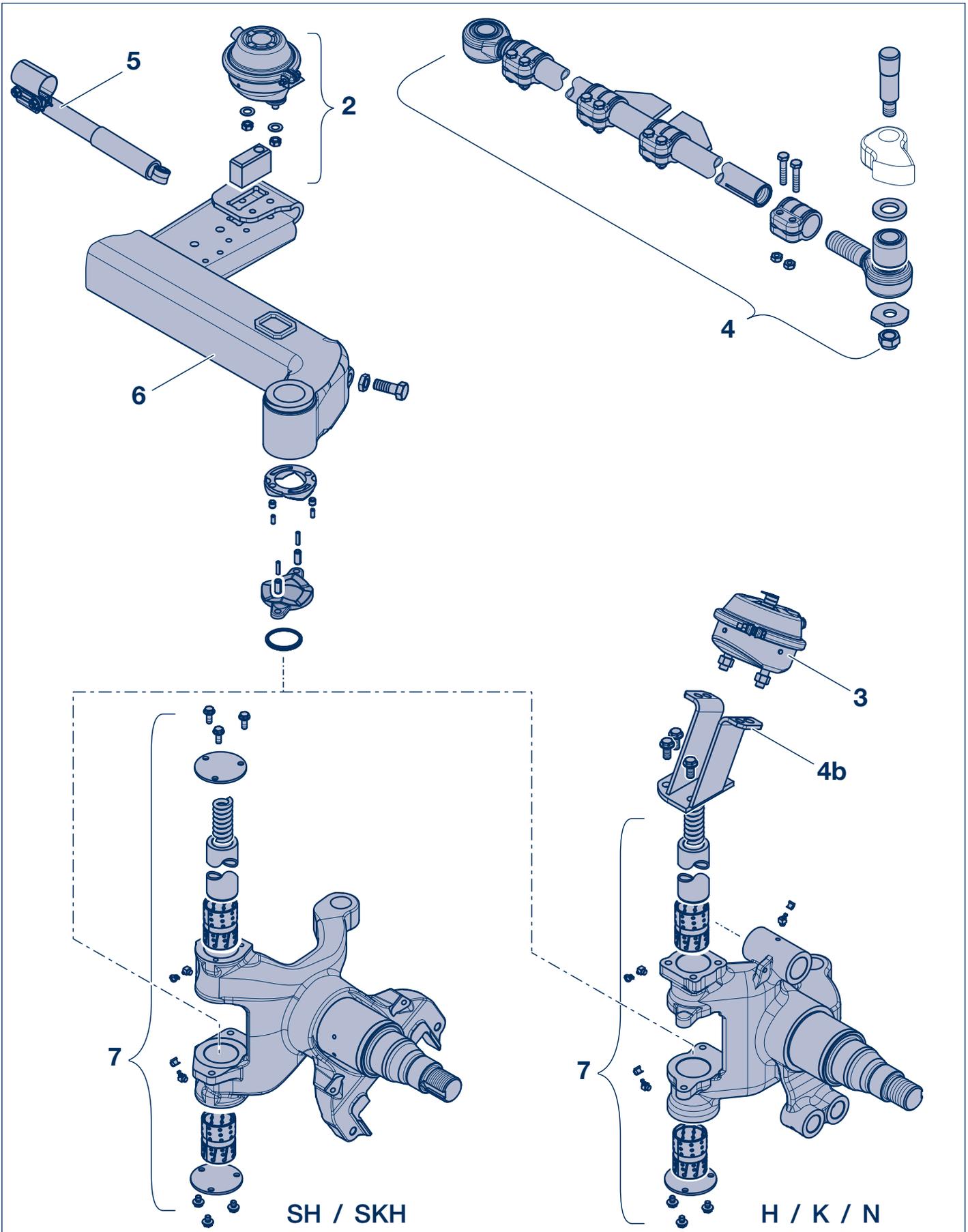
Item No.	Description of work	Reference Times	
		Mins.	ST
1	Set-up time for the vehicle	30.0	6.0
2	Renewing brake cylinder	20.0	4.0
3	Renewing slack adjuster	15.0	3.0
4	Renewing camshaft incl. renewing camshaft bearings	40.0	8.0
5	Renewing brake shoes	20.0	4.0
6	Renewing wheel sensor	25.0	5.0
7	Renewing exciter ring (sheet metal exciter ring)	15.0	3.0
8	Renewing sensor bracket	15.0	3.0
9	Renewing brake drum	25.0	5.0
10	Renewing wheel bearing set (wheel hub removed)	20.0	4.0
11	Renewing wheel hub (complete)	35.0	7.0
12	Machining brake linings on one wheel side incl. setup time for machine tool	40.0	8.0

4 Trailer axles in series H, KH / KR, NR with conventional hub bearings



Item No.	Description of work	Reference Times	
		Mins.	ST
1	Set-up time for the vehicle	30.0	6.0
2	Renewing brake cylinder	20.0	4.0
3	Renewing slack adjuster	15.0	3.0
4	Renewing camshaft incl. renewing camshaft	45.0	9.0
5	Renewing brake shoes	25.0	5.0
6	Renewing wheel sensor	30.0	6.0
7	Renewing exciter ring (sheet metal exciter ring)	20.0	4.0
8	Renewing sensor bracket	20.0	4.0
9	Renewing brake drums	30.0	6.0
10	Renewing wheel bearing set (wheel hub removed)	25.0	5.0
11	Renewing wheel hub (complete)	40.0	8.0
12	Machining brake linings on one wheel side incl. setup time for machine tool	45.0	9.0

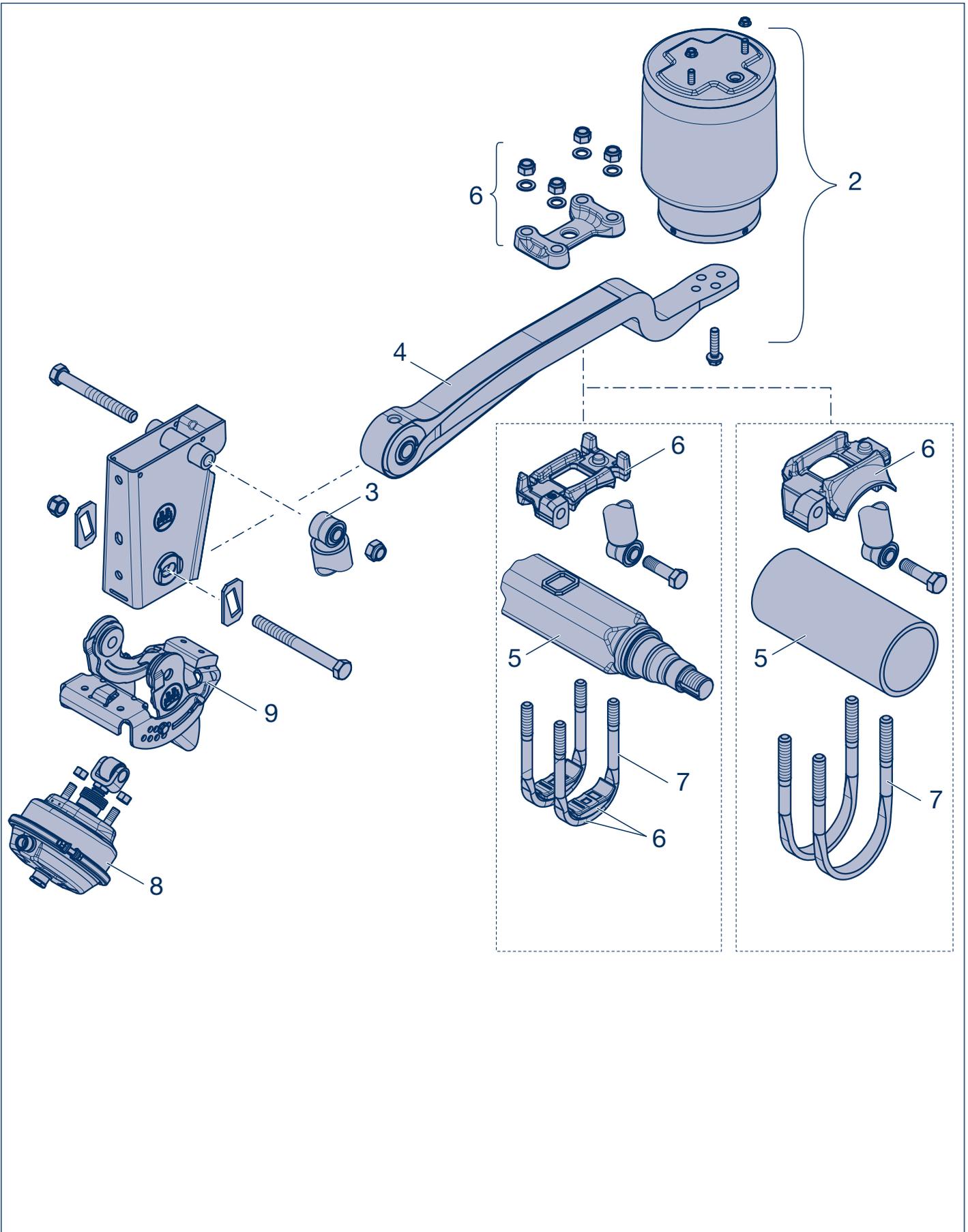
5 Self-steering axles in series LL



Item No.	Description of work	Reference Times	
		Mins.	ST
1	Set-up time for the vehicle	30.0	6.0
2	Steering lock / Locking cylinder - remove / refit	15.0	3.0
3	Renewing brake cylinder	20,0	4,0
4	Steering rod - without removing booster bracket	60.0	12.0
	- with removing booster bracket (4b)	80.0	16.0
5	Renewing steering damper	10.0	2.0
6	Remove and refit self-steering axle	150.0	30.0
7	Steering pivot on one side - renew bearing	170.0	34.0
8	Measuring and adjusting axle	60.0	12.0

Reference times for removing / refitting brake and hub items see pages 5, 7, 9 and 11.

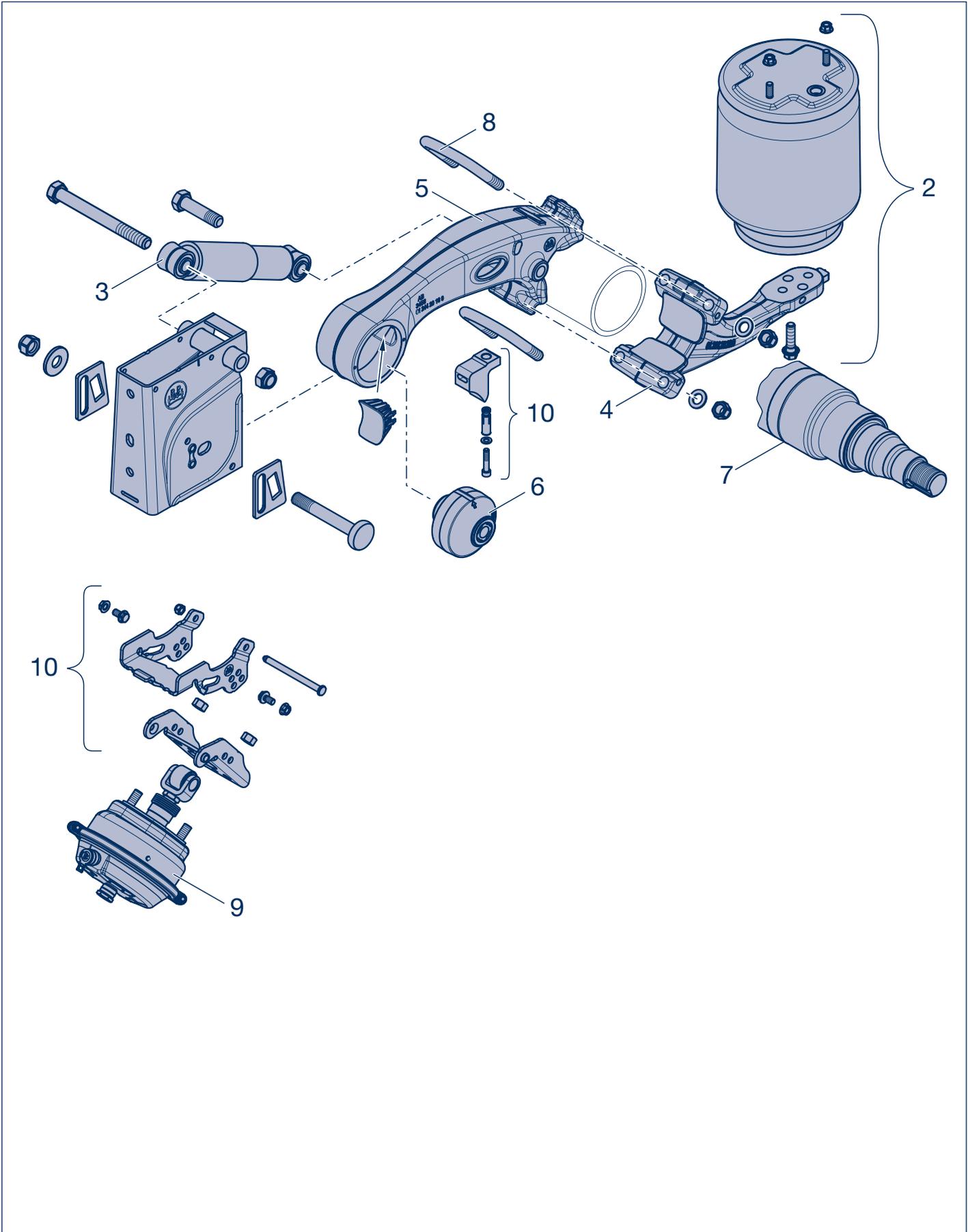
6 Air suspensions in series O / SL / AL



Item No.	Description of work	Reference Times	
		Mins.	ST
1	Set-up time for the vehicle	30.0	6.0
2	Renewing air bag	30.0	6.0
3	Renewing shock absorber	15.0	3.0
4	Renewing trailing arm ¹⁾	90.0	18.0
5	Renewing axle ¹⁾	150.0	30.0
6	Renewing axle connection ¹⁾	75.0	15.0
7	Renewing spring U-bolt ¹⁾	30.0	6.0
8	Renewing lift cylinder	15.0	3.0
9	Renewing lift	60.0	12.0
10	Measuring and aligning axle	60.0	12.0
	- each additional axle	30.0	6.0

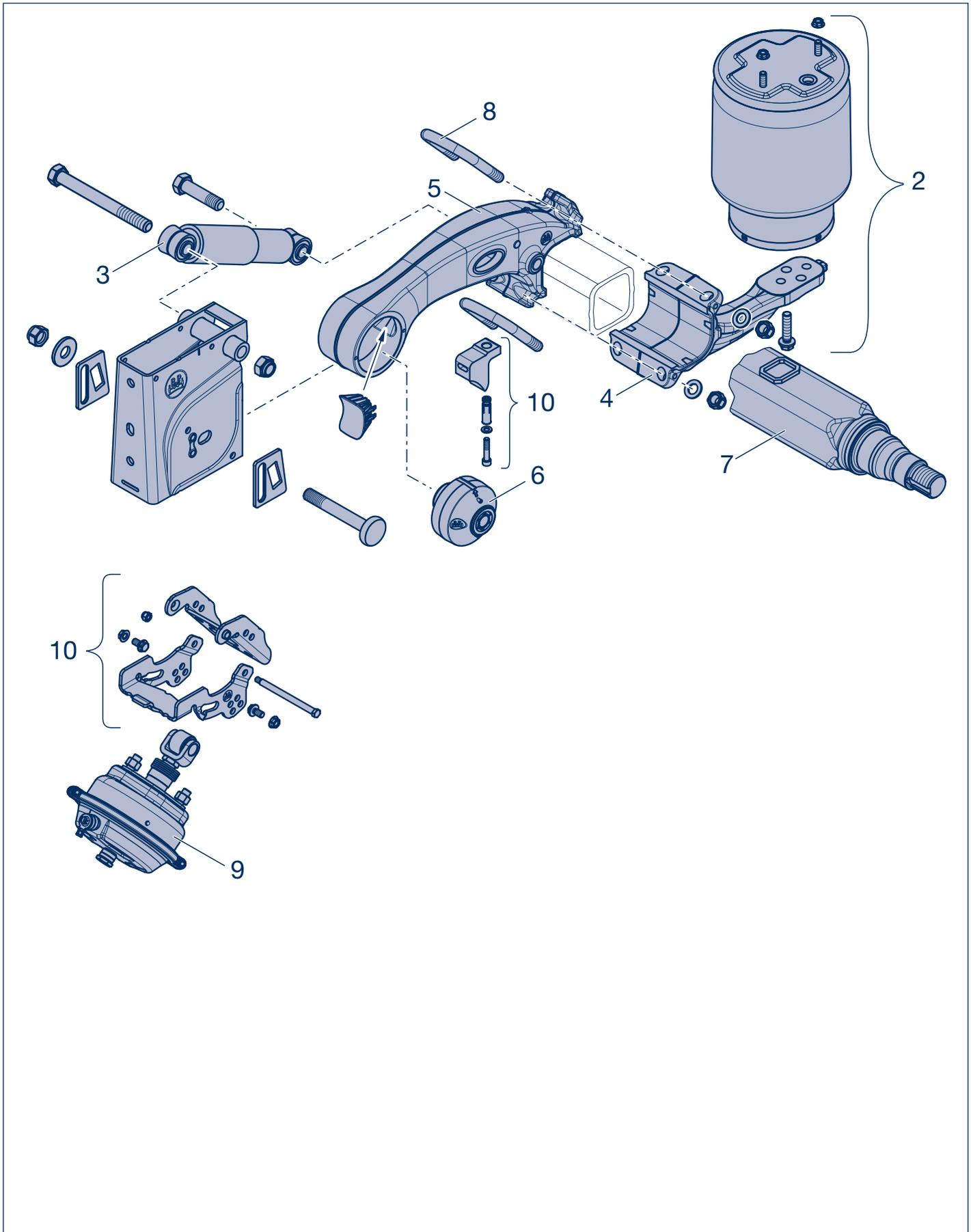
¹⁾ Times vary according to suspension type

7 Air suspensions in serie ECO Air



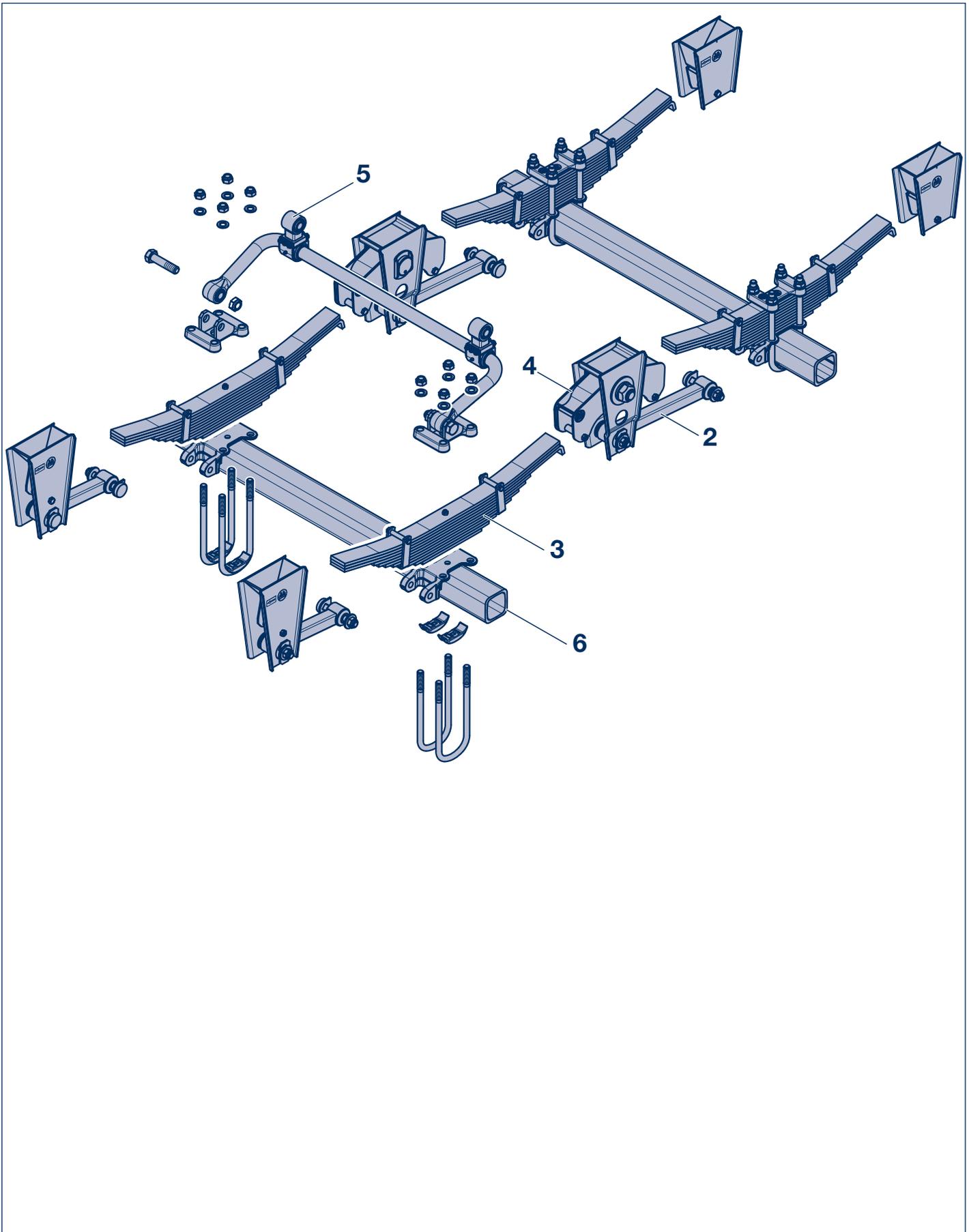
Item No.	Description of work	Reference Times	
		Mins.	ST
1	Set-up time for the vehicle	30.0	6.0
2	Renewing air bag	30.0	6.0
3	Renewing shock absorber	15.0	3.0
4	Renewing air bag beam	60.0	12.0
5	Renewing guide link	90.0	18.0
6	Renewing bush in guide link	90.0	18.0
7	Renewing axle	150.0	30.0
8	Renewing spring U-bolt	30.0	6.0
9	Renewing lift cylinder	15.0	3.0
10	Renewing lift	60.0	12.0
11	Measuring and aligning axle	60.0	12.0
	- each additional axle	30.0	6.0

8 Air suspensions in serie ECO Air COMPACT



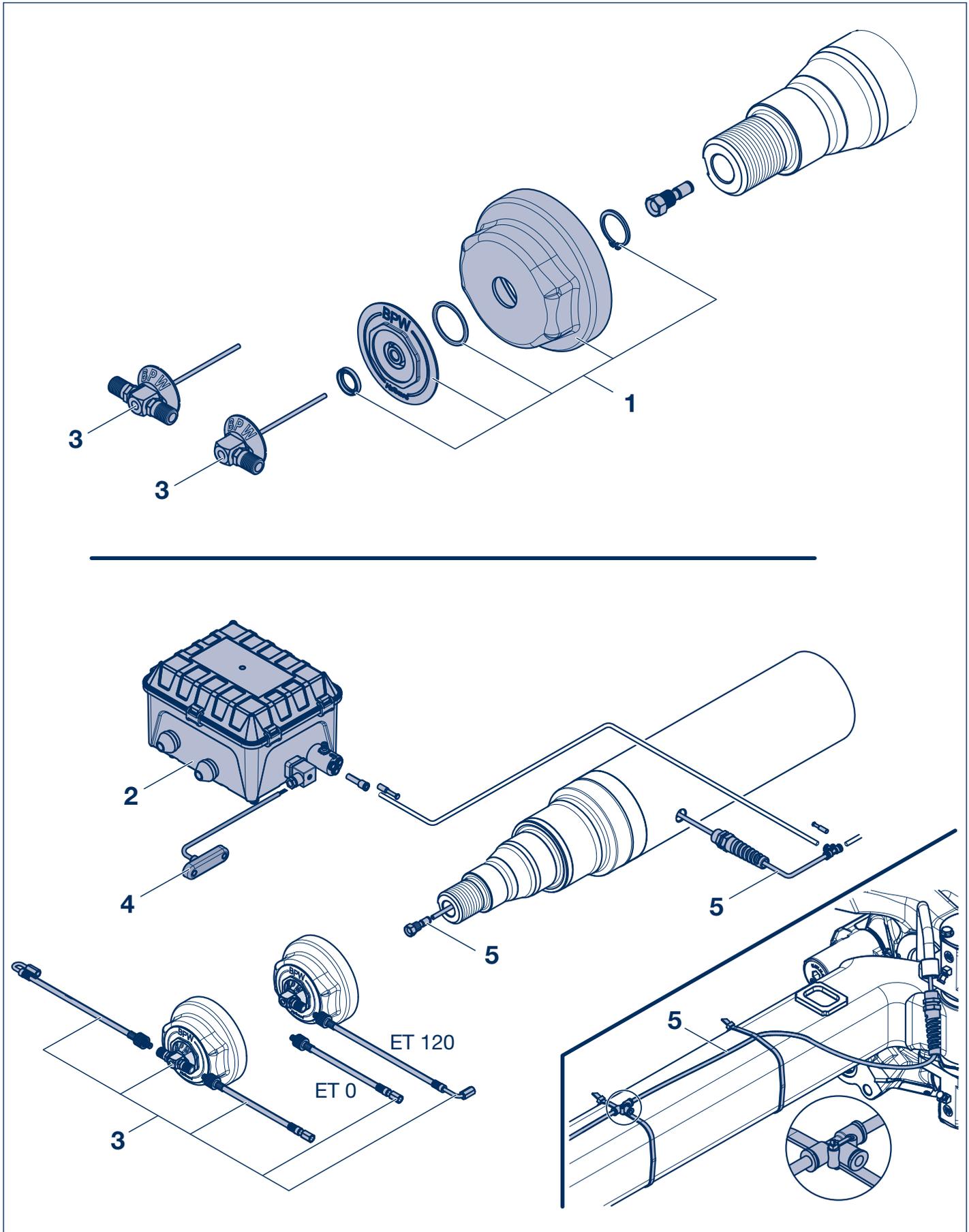
Item No.	Description of work	Reference Times	
		Mins.	ST
1	Set-up time for the vehicle	30.0	6.0
2	Renewing air bag	30.0	6.0
3	Renewing shock absorber	15.0	3.0
4	Renewing air bag beam	60.0	12.0
5	Renewing guide link	90.0	18.0
6	Renewing bush in guide link	90.0	18.0
7	Renewing axle	150.0	30.0
8	Renewing spring U-bolt	30.0	6.0
9	Renewing lift cylinder	15.0	3.0
10	Renewing lift	60.0	12.0
11	Measuring and aligning axle	60.0	12.0
	- each additional axle	30.0	6.0

9 Verbundaggregat ECO Cargo VB



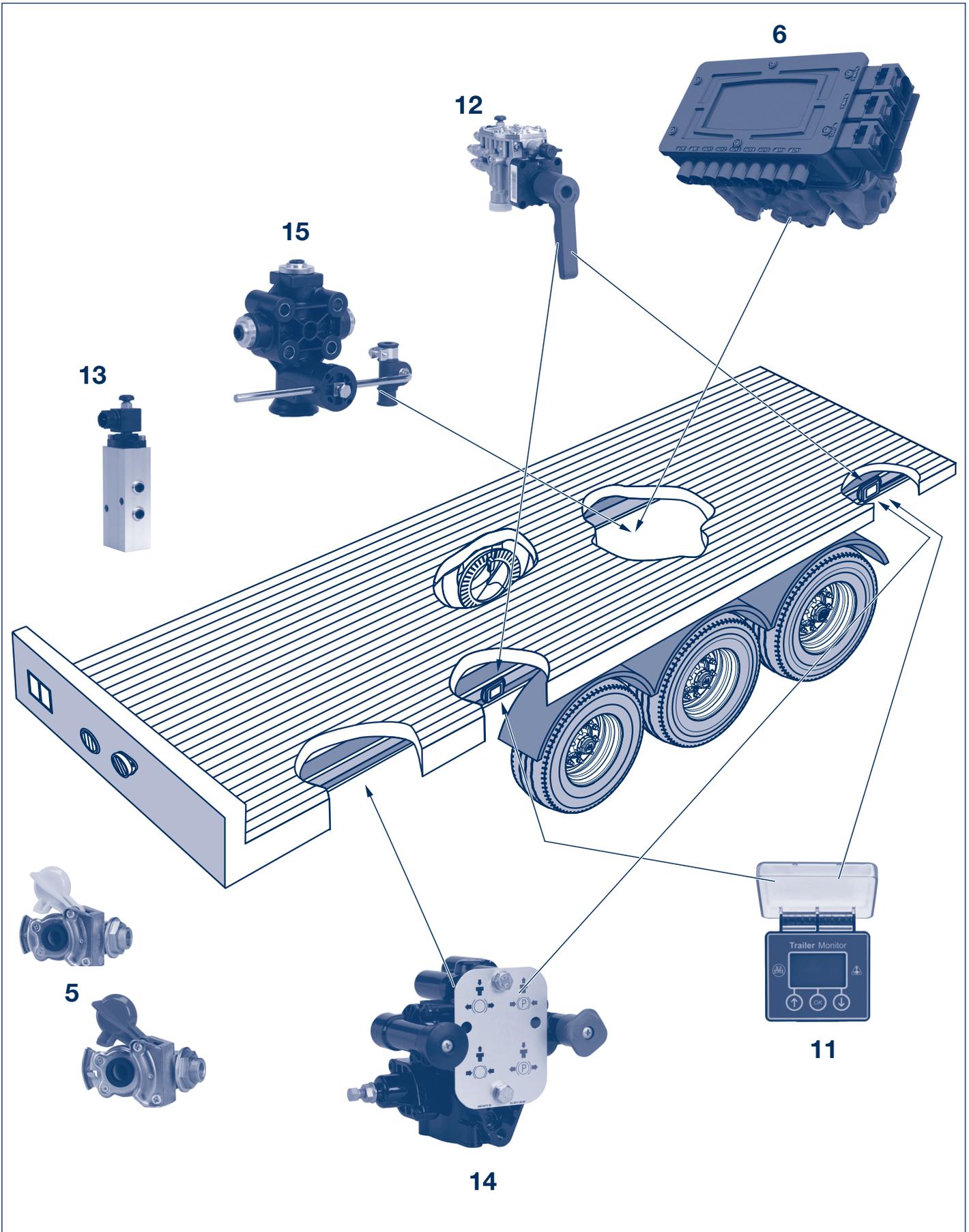
Item No.	Description of work	Reference Times	
		Mins.	ST
1	Set-up time for the vehicle	30.0	6.0
2	Renewing connecting rod - with change of bush	60.0	12.0
3	Renewing leaf spring	60.0	12.0
4	Renewing equalizing beam - with support and change of bush	180.0	36.0
5	Renewing U-stabilizer bar - with support and change of bush	80.0	16.0
6	Renewing axle	150.0	30.0
7	Measuring and adjusting axle - alignment check under vehicle	50.0	10.0

10 AirSave tyre pressure monitoring



Item No.	Description of work	Reference Times	
		Mins.	ST
1	Renewing AirSave hub cap adapter	15,0	3,0
2	Renewing AirSave Control Box	60,0	12,0
3	Renewing AirSave rotor and AirSave valve hose	15,0	3,0
4	Renewing AirSave LED display	30,0	6,0
5	Renewing the air pipe	30,0	6,0

11 EBS brake system



Item No.	Description of work	Reference Times	
		Mins.	ST
1	Set-up time for the vehicle	30.0	6.0
2	Fault diagnostics	15.0	3.0
3	Start-up of EBS brake system	20.0	4.0
4	Electronic control unit update	15.0	3.0
5	Renewing coupling head	10.0	2.0
6	Renewing Modulator	60.0	12.0
7	Renewing sensor cable	15.0	3.0
8	Renewing AUX cable	20.0	4.0
9	Renewing electrical power supply cable ISO 7638	45.0	9.0
10	Renewing electrical power supply cable ISO 1185	20.0	4.0
11	Renewing Trailer Monitor	20.0	4.0
12	Renewing COLAS+	40.0	8.0
13	Renewing ILAS-E (lifting axle valve)	30.0	6.0
14	Renewing TrCM (Trailer Control Modul)	40.0	8.0
15	Renewing air suspension	20.0	4.0
16	Brake test on dynamometer test rig, per vehicle	20.0	4.0

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

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