



METSJÖ

Ivarssons i Metsjö AB



MetaMid

Instructions and maintenance

Foreword

The MetaMid trailer is built by “Ivarssons i Mestjö AB”

Before you begin to use the trailer, you should be familiar with its functions and operations. This you can achieve by carefully reading throughout this instructions book and at the same time practically see where on the trailer the future settings and adjustments will be made.

For you ease and to avoid future mistakes in connection with maintenance and spare parts questions, we advise you to write down the type of the trailer, its serial number and manufacturing year. This information you can find on the manufactures plate which is placed on the long left side of chassis frame.

Serial number, Trailer.....

Manufacturing year.....

“Ivarssons i Metsjö AB” keeps the right to make changes in the construction and specification of the trailer.

Standard trailer Metamid Art. number: 4300011

**Tires: 400/60x15,5R , tread 478, Diagonal, diameter 880 mm, width 400 mm
Load code: 145 A8 wheel = 2900 kg / 3,6 bars / 40 km/h**

Pendulum bogie distance 1 010mm. Maximum load 5,5 tons per axle (11 tons both axles)+3 tons on the drawbar

Flange width 1 850mm, Coated according KTL-method, black

Axle profile: 80 mm. Rim connection 161x205x6, open nuts

Technical load 14000 kg. Payload 12500 kg. Chassis weight 1 500 kg

Front drawbar: for tow eye, height 500 mm, support load 3 tons

Length of the chassis 5 150 mm, Height of the chassis frame 650 mm

Manual telescopic support leg

Hydraulic brakes 2 pieces per axle, 45% according to VVFS 2003:6

Manually adjusted brakes. Cover sheets stop dirt entering brake drum

Back tipping, tipping angle 55°, Oil volume 10L 210bar, Electrical system 12 Volts

Rear ball coupler for the containers dia.76mm, distance between them 1100mm

Prepared consoles for mounting an axle lifting system

Rear drawbar type clevis, rear electrical socket 7 pol.

Chassis weight 1 735 kg, Technical load 14 000 kg

Optional MetaMid containers fit on the chassis

Surface treatment: chemical degreasing, blasting SA 2,5

The body is puttied. The colour of the chassis is grey

Painting: C2 in BSK 99 two component, rust preventing pigmented

Glossy polyurethane with good weather and wear resistance

The surface is easy to maintain clean

Driving instructions

The tractor should be chosen according to the terrain. Minimum 50 HP

A loaded trailer should always be connected to the tractor.

Connect always:

- The brake hose
- The tipping hose
- The lightning system

Disconnecting from the tractor

1. The disconnection of the trailer should always take place on a flat and solid ground
2. Place the wheel wedges on the front and rear axle
3. Lower the support leg until it reaches the ground
4. Dismount the electrical connections and the hydraulic hoses, which should NOT be under pressure.
5. Release the hitch hook

Warning: The trailer is not equipped with a negative braking system

Tipping

1. Check if the hitch hook or drawbar is locked to avoid negative suspension
 2. Assure yourself that the weight of the load is evenly divided over the trailer
 3. Check if the tailgate is opened (hydraulic/mechanical tailgate)
 4. Tipping should take place on a flat and solid surface
 5. Secure area while tipping: 15 metres in radius
 6. The tractor must always be connected to the trailer during tipping
 7. Never drive with a container which is up-tipped
 8. S
 9. The system is NOT equipped with a chock valve (Attention!: Lowering a loaded container while tipping, can cause a hydraulic pressure that is over 230 bars)
 10. Check that the brakes are released while driving the trailer
- While working under a container, the ball valve that is on the tipping cylinder must always be closed
 - Hydraulic system for 230 bars
 - Maximum load on the rear coupler: Vertical 1 ton, Horizontal 23 000 kg

Standard tipping cylinder Art. 1018006 Cyl 121-60 LL 30 2300
Gasket kit for the standard tipping cylinder Art: 10187054
Optional Heavy Duty tipping cylinder Art: 10180009,1
Cyl KL 120/45-2830S. This option gives a higher tipping angle
Gasket kit for the Heavy duty tipping cylinder
Art: 10186054 gasket 120/45 RD

– Maintenance and care

Tighten the wheel bolts every 10-50 work-hours and also after 150 use-hours (320 NM)

Check the air pressure of the tires regularly

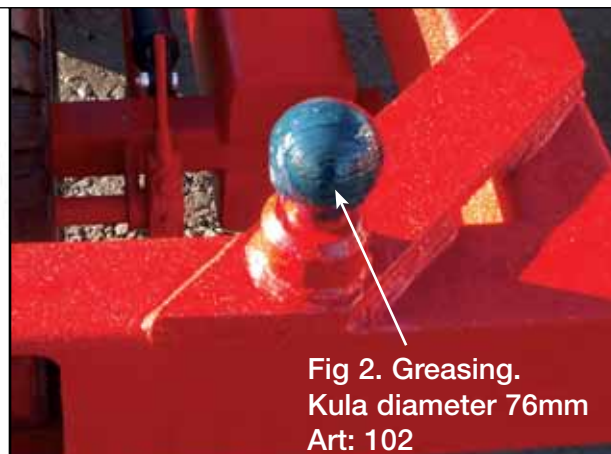
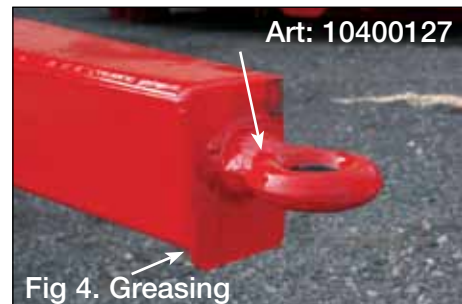
Air pressure: 5 bars

Tires 400x15,5R. Bore 161-20576-27/32 R18/S disk 6-12-15 (C)

Check the condition of the drawbar. Abrasion of the drawbar

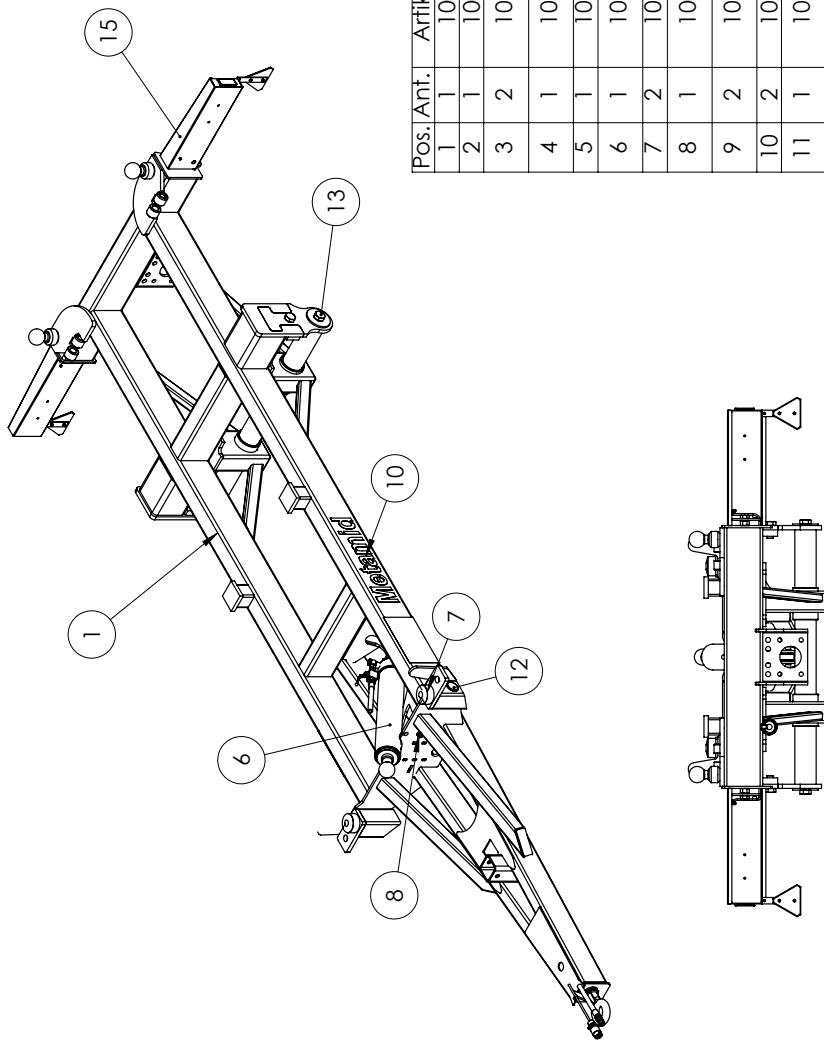
• Greasing points:

1. Pendulum bogie (in the centre) 1+1 (fig. 1)
2. Tipping rear ball-coupler 1+1 (fig.2)
3. Tipping cylinder 1+1 bearing (fig.3)
4. The axles according the manufactures maintenance document



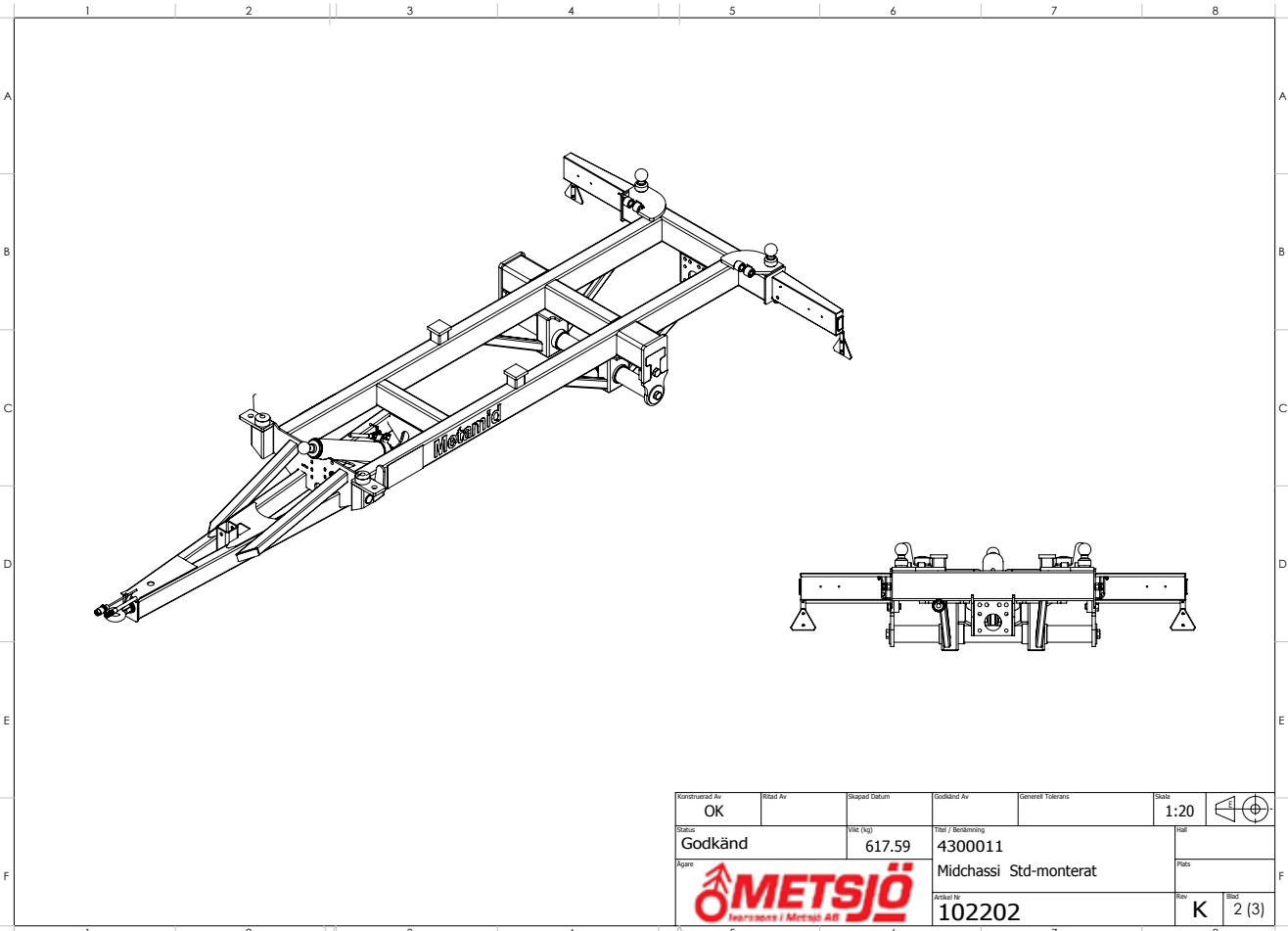
Attention: While working under a container, the ball valve that is on the tipping cylinder must always be closed

Hydraulic system for 230 bars hydraulic pressure

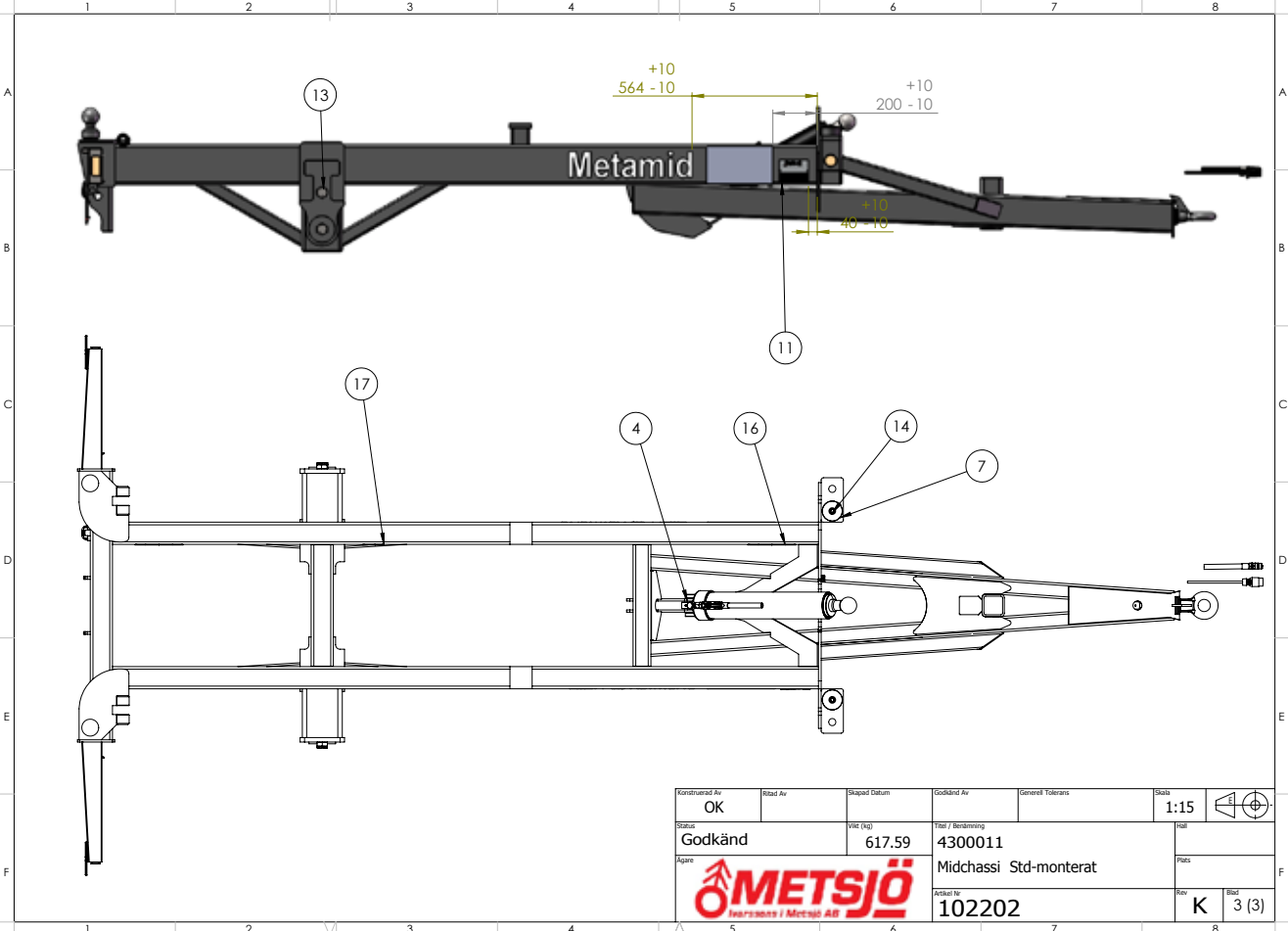


Pos./Ant.	Artikeinr 1	Artikeinr 2	Beskrivning	Vikt
1	100981	C0300011	Svefsat Midchassi	575.91
2	100962	B6FK FXB	Borrskruv 3,5x16	
3	101052	4720311M	SGH31 Mekanisk segersäkring inv. mont	
4	101108	30L80	Sprint till Mid+MX undre kol fäste MQ + MF kamm kärl	0.44
5	107383		komplett toppslang mid	1
6	101596	10180006.1	Metamid Cyl 121-60 KL 30 2300	
7	101079	10400021.1	Dämpblock 90x45 crom inv 1/2	0.54
8	100999		Fäste Snabbkopplingshona Brons	0.01
9	101081	10400469	Dekal varning tipp (gul) bredd 300mm höjd 170mm	0.01
10	102200	10400471	Ufskuren text Metamid	0.00
11	101011	10400468	Tillverkskylf i varsson i Metsjö 'NITBAR'	0.04
12	101971	10250052	Reflex orange själv häft 60 mm	0.01
13	ISO 8676 - M30x2,0 x 60-N			
14	ISO 4162 - M10 x 30 x 30-N			
15	106638		baklås konsoler	10.32
16	102742	416007	Kantskydd 15x12 6-8 PVC Svart	0.03
17	102743	416007	Kantskydd 15x12 6-8 PVC Svart	0.01
Konstruktör Av	Rikard Av	Skapad Datum	Godkänd Av	Skala
OK				1:23
Status	Godkänd	Titel / Beskrivning		Höjd
	617.59	4300011		
Agens	METSJÖ		Midchassi Std-monterat	Rev
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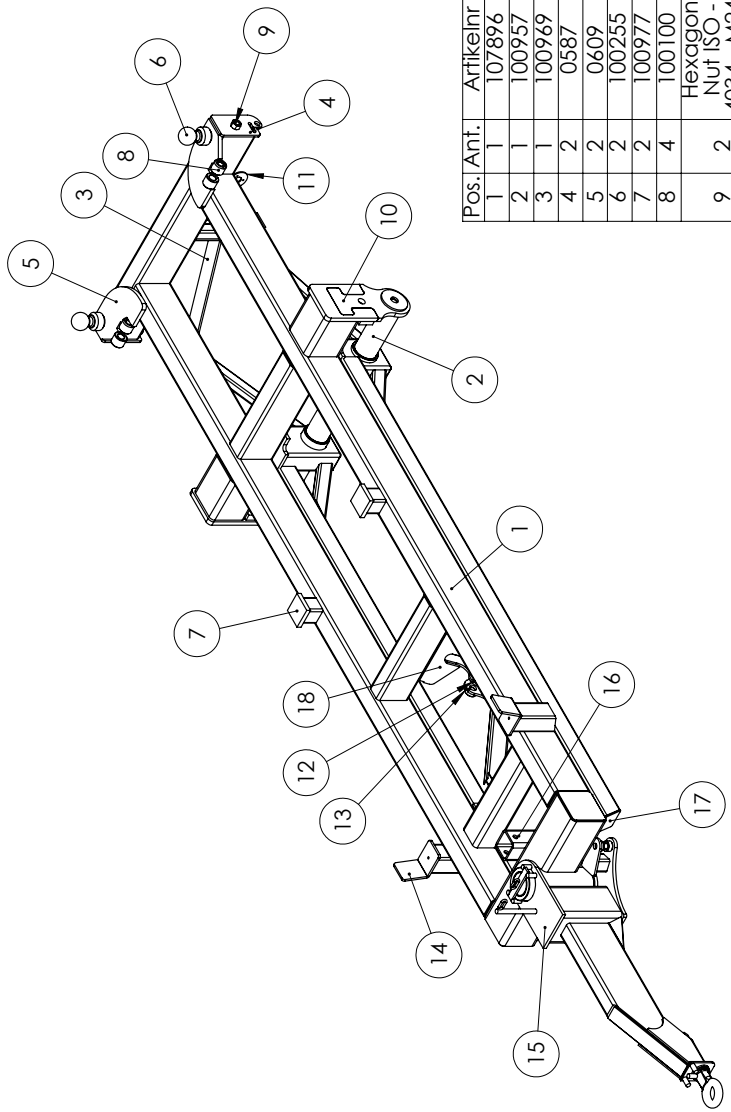


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Nr	Ändring	8
-		Datum
A		2011-02-04
		2011-09-21



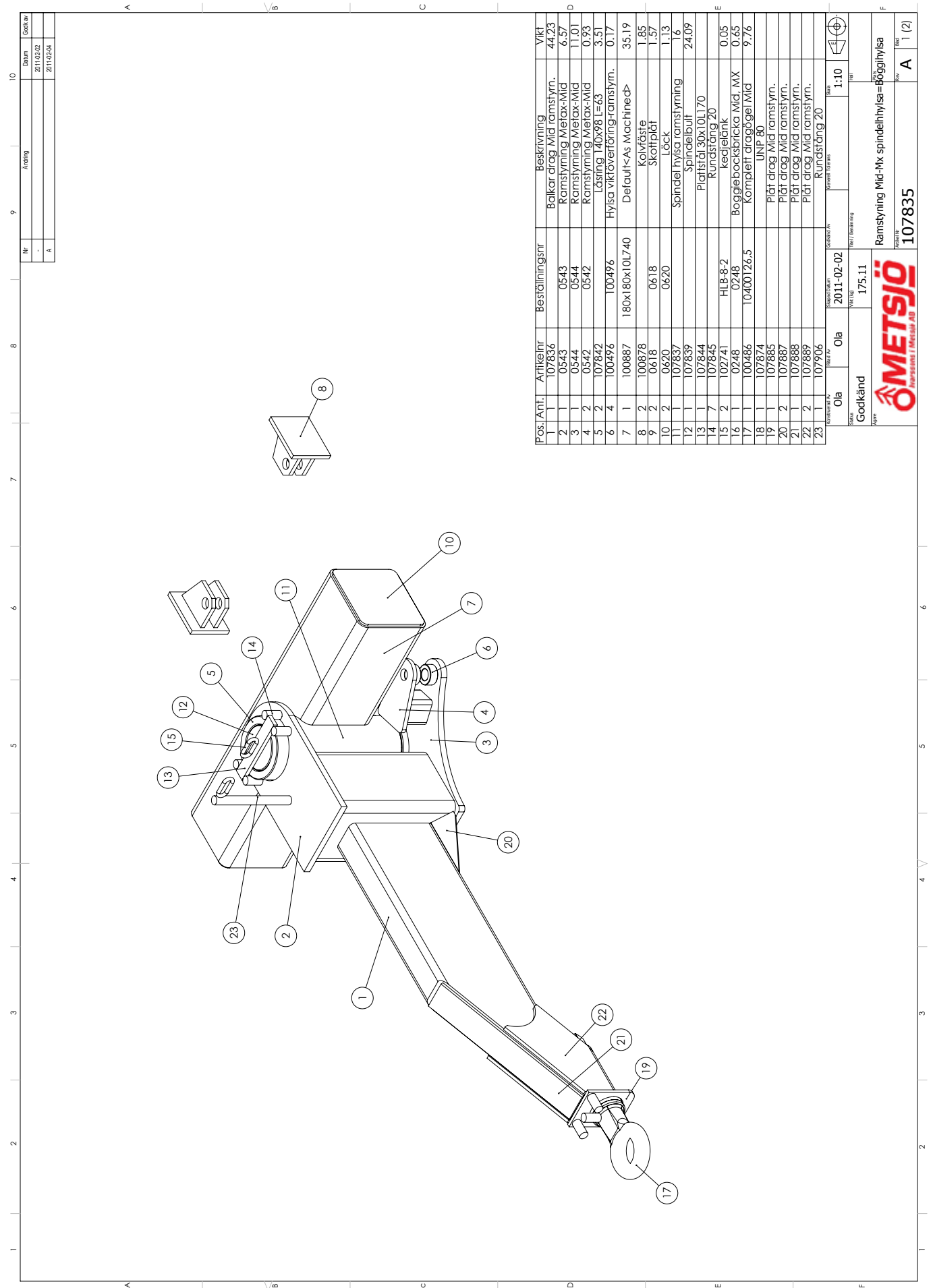
10180142 Cyl dubbelverk 1/4 40/70 80 slag Stödben/ramstyr. 300 LL25
 10250016 Hydraullås 1/4-1/4 (pilotbackventil) (VRDE-01F)
 10400120 Wb 800 fläns 100, 105X50

Pos. Ant.	Artikelnr	Beställningsnr	Beskrivning	Vikt
1	107896		Balk Mid ramstyrning	330.29
2	100957	C030011-2	Boggibock Mid	159.23
3	100969	C0300011-3	Bakdrag Mid	11.88
4	0587	0587	Lykthällare No, Mid, MX	1.93
5	0609	0609	Kulfräste Metamid	7.86
6	100255	102	Tippletskula lilla	3.66
7	100977	C0200300-4	Svamp NO, Mid, Metax chassi	2.26
8	100100	L56x28L48	Komkärnshylsa	0.59
9	Hexagon Nut ISO - 4034 - M24 - N		Hexagon Nut ISO - 4034 - M24 - N	
10	100271	C0300011-23	Boggilås mid metax	6.93
11	0501	0501	Uttag bak el/hydraulik	0.54
12	0113	0113	Kolvfäste drag No, Mid, MX	3.86
13	100273	51x27L23	Nedre tippkolvshylsa No, Mid, MX	0.16
14	0160	0160Bock	Tippsfödsplåt	1.89
15	107835		Ramstyrning Mid-Mx spindelshylsa=Boggihylsa	175.11
16	100109	100x100x8L230 Borråd	Stödbenshylsa	4.97
17	107904		Lock 100x100 22* t=5	
18	0585	0585	Förstärkning drag MX	2.19
Konstruerad Av	Ola	Skapad Datum	2011-02-04	
Godkänd Av	Ola	Godkänd Av	AI	Skala
				1:50
Skalas				Häll
Godkänd				15
Agens				Fäns
				Ute
				Rev
				A
				1 (2)



MetaMid ramstyrning
 Artikel Nr 107895

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Pos. Ant.	Artikelnr	Beställingsnr	Beskrivning	Vikt
1	107836		Balkar drag Mid ramstyn.	44.23
2	0543		Ramstyming Metax-Mid	6.57
3	0544		Ramstyming Metax-Mid	11.01
4	0542		Ramstyming Metax-Mid	0.93
5	107842		Läsing 140x98 L=63	3.51
6	100496		Hylsa viktöverföring-ramstym.	0.17
7	100887	180x180x10L740	Default<As Machine>	35.19
8	100878		Kolvfäste	1.85
9	0618		Skottplåt	1.57
10	0620		Löck	1.13
11	107837		Spindel hylsa ramstymning	1.6
12	107839		Spindelbult	24.09
13	107844		Plåtstål 30x10L170	
14	107845		Rundstång 20	
15	102741		kedjelenk	0.05
16	0248		Boggebocksbicka Mid. MX	0.65
17	100486	10400126.5	Komplet dragögel Mid	9.76
18	107874		UNP 80	
19	107885		Plåt drag Mid ramstym.	
20	107887		Plåt drag Mid ramstym.	
21	107888		Plåt drag Mid ramstym.	
22	107889		Plåt drag Mid ramstym.	
23	107906		Rundstång 20	

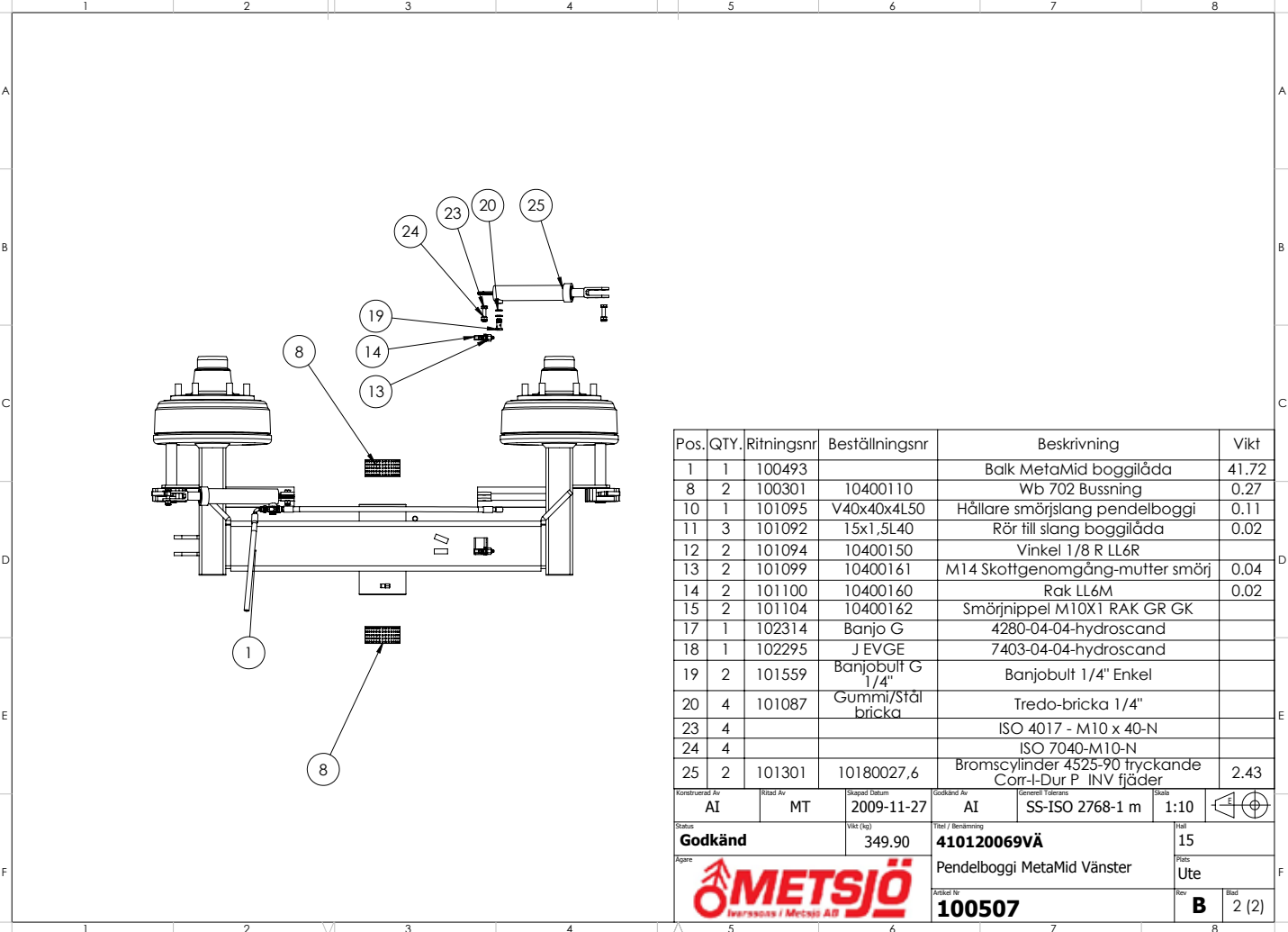
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 Skapad datum: **2011-02-02**
 Skapad av: **MET**
 Godkänd: **175.11**
 Namn: **MET**

Skala: **1:10**
 Form: **A** | (2)

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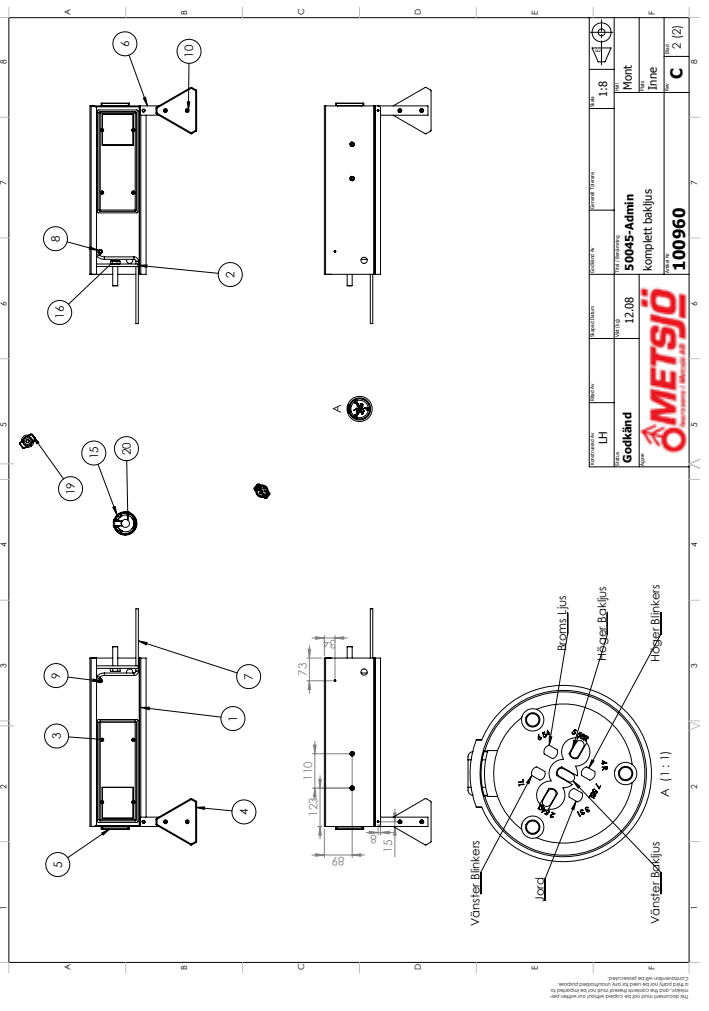
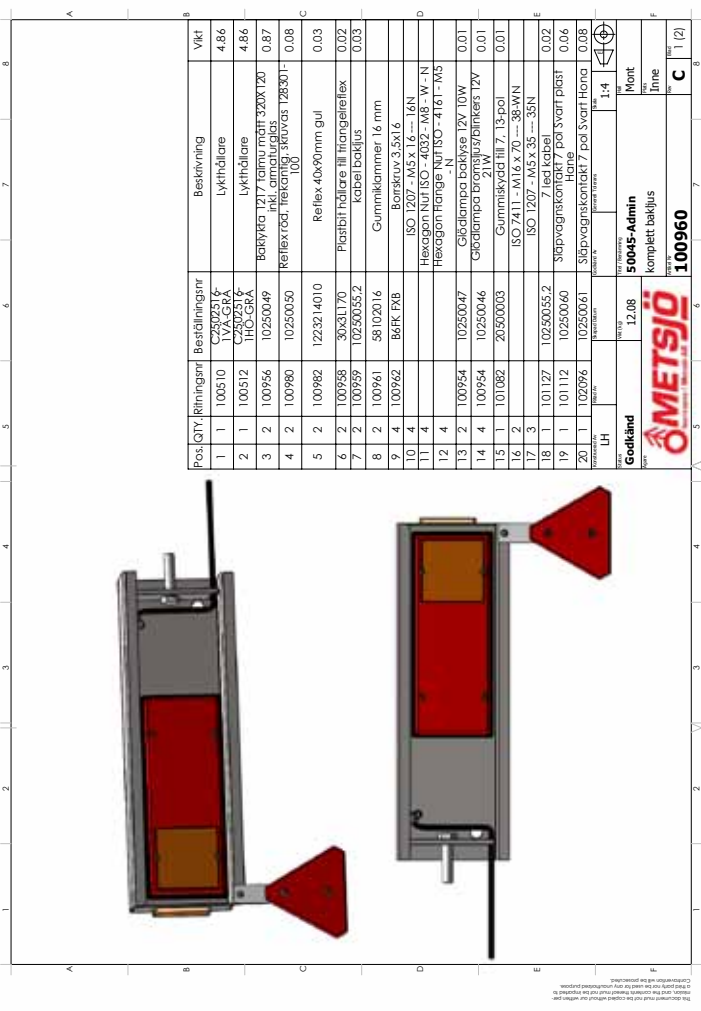
Ramstyming Mid-Mx spindelhylsa=Böggihylsa
 107835

Nr	Ändring	Datum	Godk. av
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A		20110202	



Pos.	QTY.	Ritningsnr	Beställningsnr	Beskrivning	Vikt
1	1	100493		Balk MetaMid boggilåda	41.72
8	2	100301	10400110	Wb 702 Busstring	0.27
10	1	101095	V40x40x4L50	Hållare smörjslang pendelboggi	0.11
11	3	101092	15x1,5L40	Rör till slang boggilåda	0.02
12	2	101094	10400150	Vinkel 1/8 R LL6R	
13	2	101099	10400161	M14 Skottgenomgång-mutter smörj	0.04
14	2	101100	10400160	Rak LL6M	0.02
15	2	101104	10400162	Smörjrnippe M10X1 RAK GR GK	
17	1	102314	Banjo G	4280-04-04-hydroscand	
18	1	102295	J EVGE	7403-04-04-hydroscand	
19	2	101559	Banjobult G 1/4"	Banjobult 1/4" Enkel	
20	4	101087	Gummi/Stål bricka	Tredo-bricka 1/4"	
23	4			ISO 4017 - M10 x 40-N	
24	4			ISO 7040-M10-N	
25	2	101301	10180027.6	Bromscylinder 4525-90 tryckande Cor-I-Dur P INV fjäder	2.43

Konstruktör Av	AI	Skiss Av	MT	Skiss Datum	2009-11-27	Godkänd Av	AI	Skiss Datum	SS-ISO 2768-1 m	Skala	1:10	
Status	Godkänd		Vikt (kg)	349.90		Färd / Benämning	410120069VÄ			Färd	15	
Agens	METSJÖ				Pendelboggi MetaMid Vänster			Plats	Ute			
Artikel Nr	100507							Plats	B			
								Blad	2 (2)			



BPW Bergische Achsen Kommanditgesellschaft
 D-51656 Wiehl, Postfach 1280

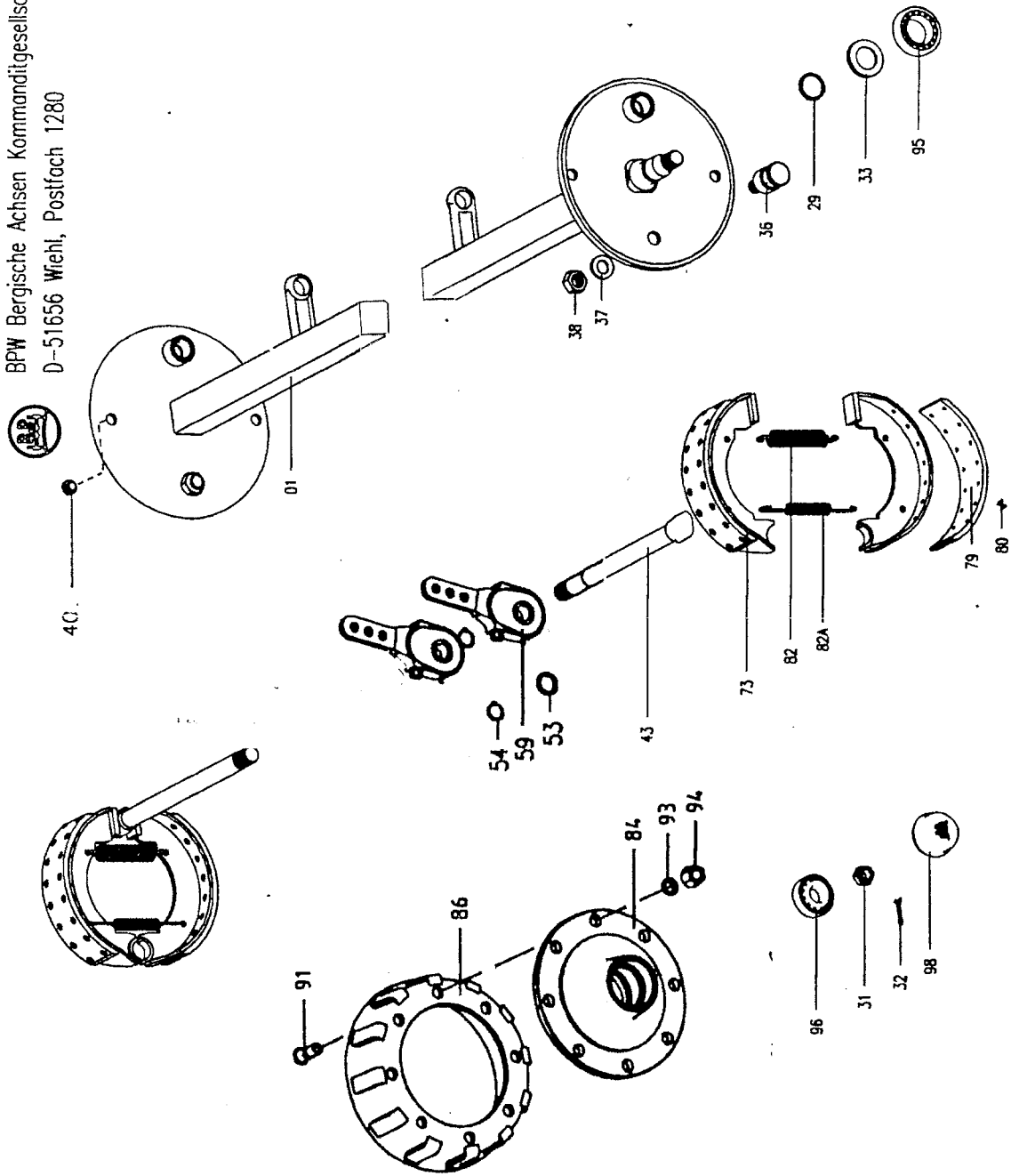


Bild Nr.: 20.056

Anhängerachse, Baureihe: GS

Bremse: N 3108-3

För Leveranser f.r.o.m 10 2005

Broms N 3108-3 (310x80) med manuell justerbar bromshävarm GSK

Hjulbult M 18x1,5 med plan-mutter och fjäderbricka

Bildnummer 20.056

Pos	Benämning	Mått	Antal/tapp	Artikelnummer
1	Axeltapp m bromssköld		1	-
29	Störring 10.03.370.05.14.0		1	410120215
31	Kronmutter 10.03.262.16.11.0	M 36x1,5	1	410120216
32	Saxpinne 10.02.6201.63.01	6,3x63	1	410120217
33	Tätningring 10.05.120.26.08.0	73/110x14,5	1	410120218
34	Ring 10.03.310.23.09.0	66/37x5	1	410120219
36	Ankarbult 10.03.177.14.35.0	M24x1,5x36	1	410120220
37	Bricka 10.02.5403.24.90	B24	1	410120221
38	Låsmutter 10.02.5220.75.82	VM 24x1,5	1	410120222
40B	Plugg 10.02.3704.56.00	D20,7	2	410120223
43	Bromssock 10.05.097.36.95.5	L=253	1	410120224
53	Bricka 10.03.311.50.13.0	42/34x4	1	410120225
54	Låsring 10.02.5603.29.90	29x1,5	1	410120226
59	Bromshävarm GSK 10.05.174.40.16.0		1	410120227
73	Bromsback kpl m belägg 10.05.091.15.21.0		2	410120228
79	Bromsbelägg 10.03.092.19.50.0		2	410120229
80	Nit 10.02.5805.61.01	B 6x13	32	410120230
82	Returfjäder 10.03.397.32.14.0	D17/3,8x144	1	410120231
82a	Returfjäder 10.03.397.44.08.0	D20/4x174	1	410120232
84	Nav 10.03.272.09.56.0		1	410120233
86	Bromstrumma 10.03.105.14.26.0	310x80	1	410120234
91	Hjulbult 10.03.296.01.20.1	M 18x1,5	6	410120235
93	Fjäderbricka 10.02.5615.18.94	C18,5	6	410120236
94	Hjulmutter 10.02.5213.12.83	M18x1,5	6	410120237
95	Rullager 09.02.6404.70.00	32014	1	410120238
96	Rullager 09.02.6401.50.00	30210	1	410120239
98	Navkapsel 10.03.211.07.03.0	D 90,1	1	410120240

För Leveranser f.r.o.m 10 2005

Broms N 3108-3 (310x80) med manuell justerbar bromshävarm GSK

Hjulbult M 18x1,5 med plan-mutter och fjäderbricka

Bildnummer 20.056

Pos	Benämning	Mått	Antal/tapp	Artikelnummer
1	Axeltapp m bromssköld		1	-
29	Störring 10.03.370.05.14.0		1	410120215
31	Kronmutter 10.03.262.16.11.0	M 36x1,5	1	410120216
32	Saxpinne 10.02.6201.63.01	6,3x63	1	410120217
33	Tätningring 10.05.120.26.08.0	73/110x14,5	1	410120218
34	Ring 10.03.310.23.09.0	66/37x5	1	410120219
36	Ankarbult 10.03.177.14.35.0	M24x1,5x36	1	410120220
37	Bricka 10.02.5403.24.90	B24	1	410120221
38	Låsmutter 10.02.5220.75.82	VM 24x1,5	1	410120222
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53	Bricka 10.03.311.50.13.0	42/34x4	1	410120225
54	Låsring 10.02.5603.29.90	29x1,5	1	410120226
59	Bromshävarm GSK 10.05.174.40.16.0		1	410120227
73	Bromsback kpl m belägg 10.05.091.15.21.0		2	410120228
79	Bromsbelägg 10.03.092.19.50.0		2	410120229
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86	Bromstrumma 10.03.105.14.26.0	310x80	1	410120234
91	Hjulbult 10.03.296.01.20.1	M 18x1,5	6	410120235
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94	Hjulmutter 10.02.5213.12.83	M18x1,5	6	410120237
95	Rullager 09.02.6404.70.00	32014	1	410120238
96	Rullager 09.02.6401.50.00	30210	1	410120239
98	Navkapsel 10.03.211.07.03.0	D 90,1	1	410120240

**Technical data:
Axles and
brakes:**

Obtaining spare parts:

When spare parts are needed, the model numbers and codes for the axles and chassis parts will greatly assist your BPW parts dealer or BPW service facility in quickly and accurately determining the appropriate spare part.

You are therefore recommended to fill in the following technical data from the details on the manufacturer's name plates, so that they will be available should you need them.

The manufacturer's name plate can be found on the axle beam, the drawbar or the overrun mechanism.

Enter the details below

Trailer Manufacturer	_____	
Type of trailer	_____	
Works number / chassis number	_____ / _____	
Maximum laden weight	_____	kg
Maximum speed	_____	km/h
Nose weight	_____	kg

Maximum axle load (for tandem axles, axle load front/rear)	front	_____	kg
	rear	_____	kg
Axle model numbers (for tandem axles, front/rear)	front	_____	
	rear	_____	
Axle codes (for tandem axles, front/rear)	front	_____	
	rear	_____	

Wheel brake type		
Internal diameter of brake drum	_____	mm
Brake shoe width	_____	mm
<input type="checkbox"/> Wedge-type brake	<input type="checkbox"/> Wedge-type brake with RAZG / RASK reverser	
<input type="checkbox"/> Butterfly cam brake	<input type="checkbox"/> Backmat cam brake	

Type or make of the drawbar / overrun hitch	_____	
Model number / model code	_____	
Maximum load (the difference between unladen weight and maximum laden weight)	_____	kg

Fundamental rules

Never overload axles, brakes or chassis!

Consequently:

- Do not overload the vehicle in contravention of regulations, by exceeding the maximum laden weight.
- Do not exceed the maximum permitted braking loads.
- Avoid one-sided overload resulting from incorrect loading or driving over kerbs etc.
- Do not fit unauthorised wheels or tyres. The maximum distance between the track and the spring centre must be adhered to.
- Avoid excessive strain resulting from the use of offset wheels or unauthorised wheel offsets.
- Do not exceed the maximum top speed.
- Each time before using the vehicle, check to ensure that the brakes and brake systems are correctly adjusted and in good working order.
- Wear and tear and any unauthorised alterations are not covered by guarantee.

Maintenance work should be carried out at the prescribed intervals in order to maintain the safe operation of the vehicle. The relevant operating and servicing instructions of the vehicle manufacturer and of the manufacturers of the other vehicle components must be observed.

All repair and maintenance work should only be carried out by a BPW approved Service Station unless the vehicle owner has staff fully trained to BPW standards and a workshop suitably equipped to undertake such work.

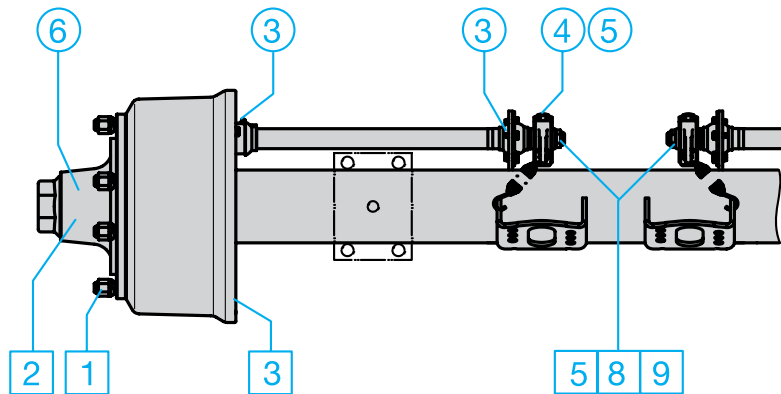
When fitting replacement parts you are strongly recommended to use only genuine BPW parts. BPW subjects all its components to regular testing to ensure they comply with safety and quality standards and in so doing guarantees their performance.

BPW cannot offer any guarantee regarding products produced by other companies. This applies even if an official testing organisation has approved the product.

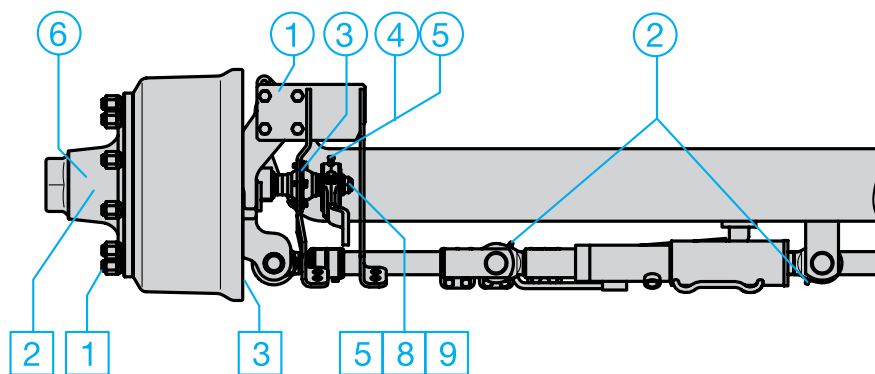
Our guarantee becomes invalid if spare parts other than genuine BPW parts are used.

<p>Lubrication and maintenance works</p> <p>Summary</p> <p>Detailed description on pages 8 - 18</p> <p><input type="radio"/> Lubrication</p> <p><input type="checkbox"/> Maintenance works</p>	After the first laden journey	Every 40 hours in operation	Every 200 hours in operation	Every 500 hours in operation (annually)	Every 1000 hours in operation (annually)
<p>Lubrication</p> <p>with BPW special longlife grease (ECO-Li 91)</p> <p><input type="radio"/> ① Steering pivot bearings, top and bottom</p> <p><input type="radio"/> ② Locking cylinder ends on steering axles</p> <p><input type="radio"/> ③ Outer and inner brake camshaft bearings</p> <p><input type="radio"/> ④ Slack adjuster</p> <p><input type="radio"/> ⑤ ECO-Master automatic slack adjuster</p> <p><input type="radio"/> ⑥ Change grease in wheel hub bearings, check taper roller bearings for wear</p> <p>Maintenance work</p> <p><input type="checkbox"/> 1 Check that wheel nuts are tight, retighten if necessary.</p> <p><input type="checkbox"/> 2 Check hubs for bearing play, adjust if necessary.</p> <p><input type="checkbox"/> 3 Check brake linings.</p> <p><input type="checkbox"/> 4 Check the brake adjustment on the brake lever, adjust if necessary.</p> <p><input type="checkbox"/> 5 Check the brake adjustment on the slack adjuster, adjust if necessary.</p> <p><input type="checkbox"/> 6 Check brake adjustment on wedge-type brakes, adjust if necessary.</p> <p><input type="checkbox"/> 7 Check brake adjustment on Backmat cam brakes, adjust if necessary.</p> <p><input type="checkbox"/> 8 Check brake adjustment on the automatic slack adjuster, adjust if necessary.</p> <p><input type="checkbox"/> 9 Check the operation of the automatic slack adjuster.</p>		<p><input type="radio"/></p>	<p><input type="radio"/></p> <p><input type="radio"/></p> <p><input type="radio"/></p>	<p><input type="radio"/></p> <p><input type="radio"/></p> <p><input type="radio"/></p>	<p><input type="radio"/></p>

BPW trailer axle
with butterfly cam brakes



BPW trailing steering axle

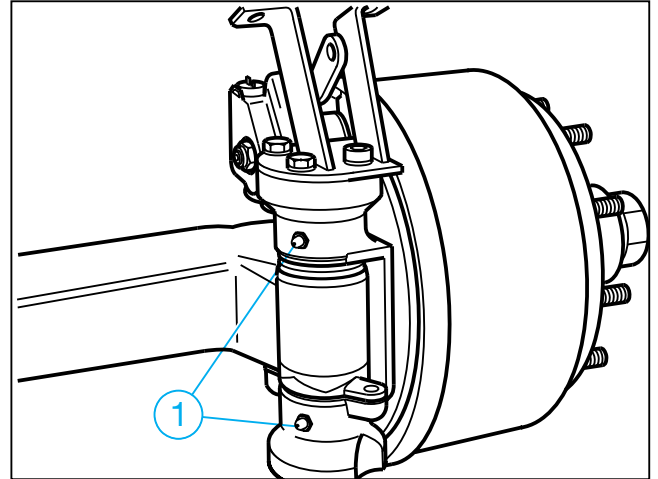


Note: All the lubrication points should be re-lubricated with grease after the vehicle has been cleaned with a high-pressure washer.

① Top and bottom steering pivot bearings

– every 40 hours in operation –

Lubricate via the grease nipples with BPW special longlife grease (ECO-Li 91), until clean grease emerges from the bearing/cam plate.

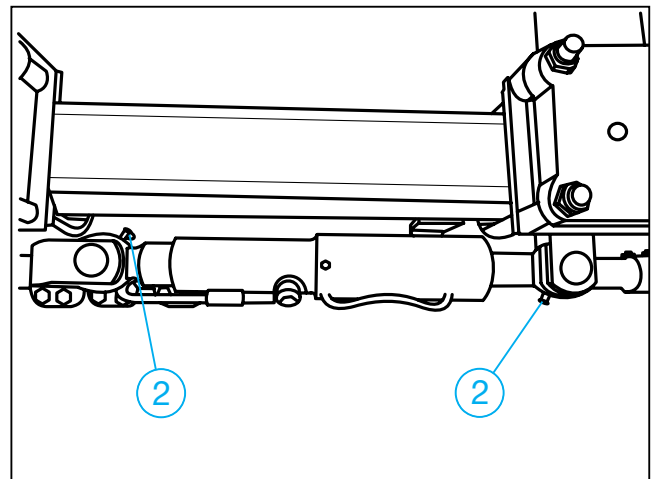


② Locking cylinder ends on steering axles

– every 200 hours in operation –

Lubricate via the grease nipples with BPW special longlife grease (ECO-Li 91), until clean grease emerges from the bearings.

While carrying out this lubrication, ensure that the locking cylinder and the pipe contain no air at any time.



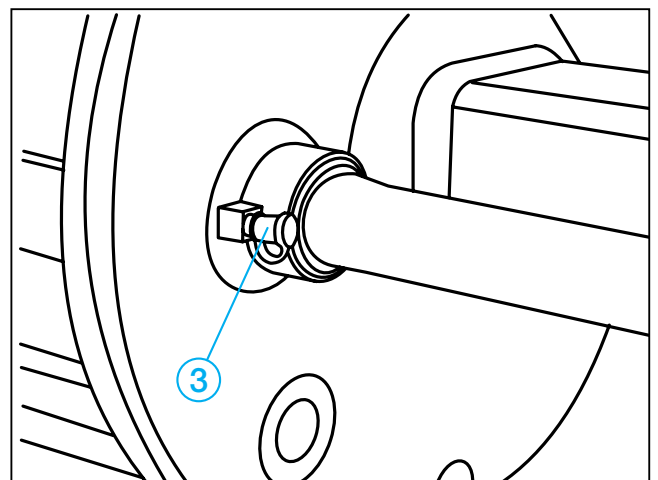
③ Outer and inner brake camshaft bearings

– every 200 hours in operation –
(and before use after a long period of inactivity)

Lubricate via the grease nipples with BPW special longlife grease (BPW ECO-Li 91), until clean grease emerges from the bearings.

Caution. Do not allow grease or oil to get into the brake. Depending on the series, the cam bearings to the brake may not be sealed.

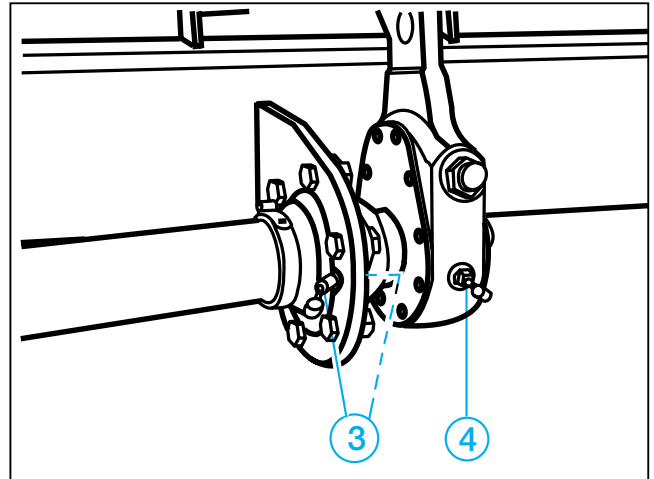
Use only lithium-based grease with a drop point above 190 °C.



④ Slack adjusters

- every 500 hours in operation, at least once a year –

Lubricate the grease nipples with BPW special longlife grease (ECO-Li 91), until fresh grease emerges.



⑤ Automatic slack adjuster ECO-Master

- each time the brake shoes are replaced –
- every 500 hours in operation, at least once a year –

Remove the rubber cap.

Lubricate with BPW special longlife grease (ECO-Li 91) (80 g) until sufficient clean grease emerges from the adjusting bolt.

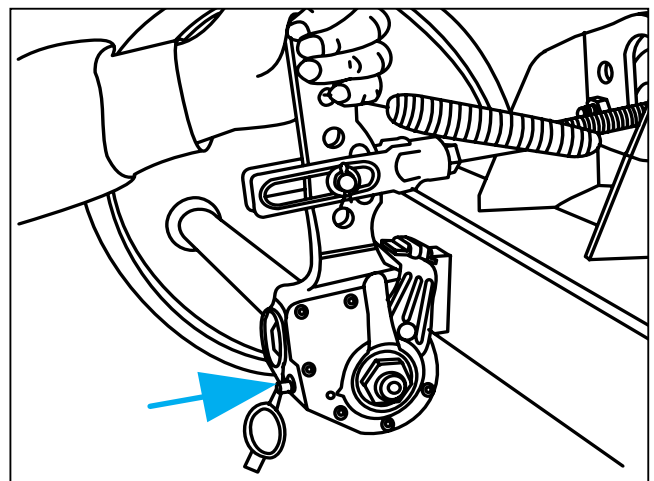
Undo the adjusting bolt by approximately one turn with a ring spanner. Operate the brake lever by hand several times.

In doing so, the automatic adjustment must operate smoothly.

Repeat several times, if necessary.

Refit the cap.

Regrease with BPW special longlife grease (ECO-Li 91).



⑥ Changing the grease in the wheel hub bearings

– every 1,000 hours in operation (latest annually) –

Jack up and secure the vehicle, and release the brakes.

Remove the wheels and bearing caps.

Remove the split pin and unscrew the axle nut.

Using a suitable retractor, withdraw the wheel hub with the brake drum, the roller bearings and the sealing elements from the axle stub.

Label or mark the wheel hubs and bearing cages so that they do not become mixed up during re-assembly.

Clean the brake, check for wear, make sure that it is intact and operates correctly, and replace any worn parts.

The inside of the brake must be kept free of grease and dirt.

Clean the wheel hubs thoroughly on the inside and the outside, removing every trace of old grease.

Clean the bearings and seals thoroughly (diesel oil) and check to ensure that they are suitable for re-use.

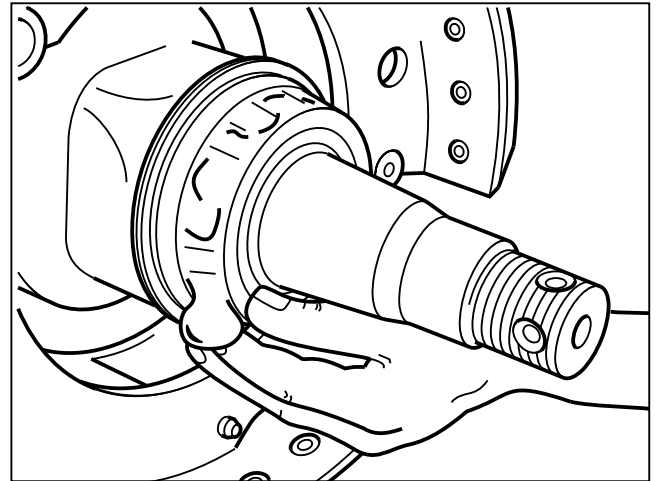
Lightly grease the bearing seats before fitting the bearings, and then assemble all the parts in the reverse order.

Carefully drive the parts into place on the bearing shells, without tilting or damaging them.

Coat the bearings, the wheel hub cavity between the bearings and the bearing cap with grease before re-assembly.

The quantity of grease should fill approximately a quarter to a third of the space in the assembled hub.

Fit the axle nut, and adjust the bearings

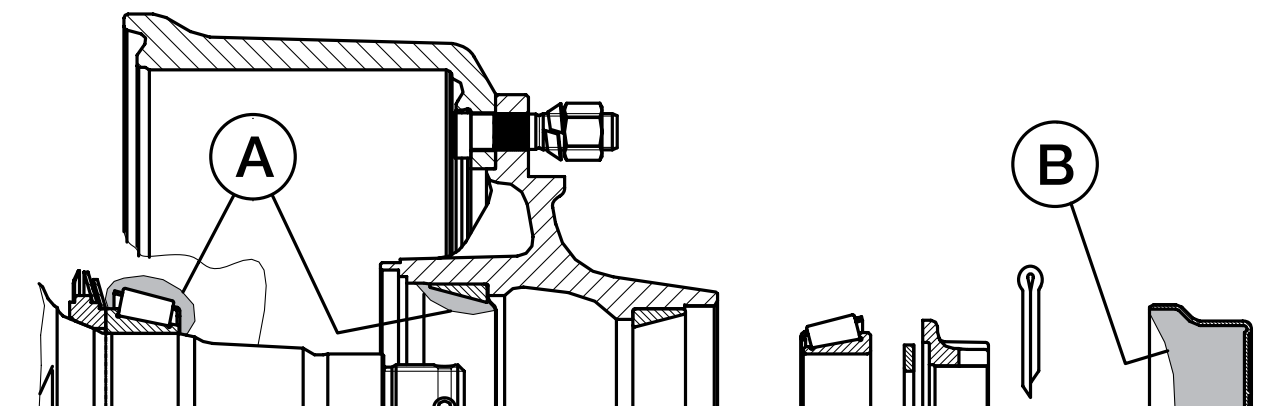


and the brake.

Finally, check that everything is in working order and carry out a suitable test drive, correcting any faults that you may discover.

The wheel hubs must only be lubricated with BPW special longlife grease (ECO Li 91) with a drop point above 190 °C.

Using the wrong grease or excessive quantities may lead to damage. Damage can be caused by the mixing of lithium-based grease with sodium-based grease, because of incompatibility.

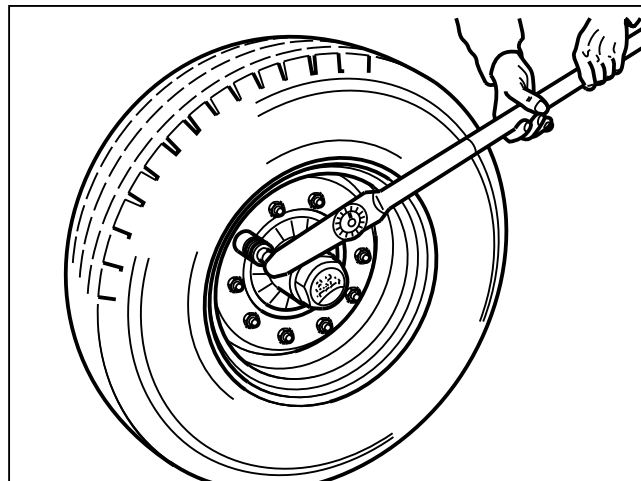


Wheel hub	BPW special longlife grease (ECO-Li 91), quantity per tapered roller bearing	
	Inner A	Outer B
GS 5506	40 g	80 g
GS 7006 GS 7008	50 g	210 g
GS 8008-1 GS 8010-1	90 g	230 g
GS 11008-1 GS 11010-1	170 g	290 g
GS 12008 GS 12010	180 g	320 g
	Work grease into the space between the tapered rollers and the races. Apply remainder to outer race of the hub.	The grease for the outer tapered roller bearing is pressed into the bearing as the hub cap filled with grease is screwed on.

1 Check that the wheel nuts are tight

– after the first laden journey, likewise after each wheel change and every 500 hours in operation or annually –

Use a torque wrench to tighten the wheel nuts to the correct torque setting, as shown in the table.



Torque settings for wheel nuts

Thread	Spanner size mm	Number of bolts per hub piece	Maximum torque setting		
			black	Dacromet	galvanised
M 12 x 1.5	19	4/5	95 Nm (90 - 100 Nm)	--	95 Nm (90 - 100 Nm)
M 14 x 1.5	22	5	125 Nm (120 - 130 Nm)	--	125 Nm (120 - 130 Nm)
M 18 x 1.5	24	6	290 Nm (275 - 305 Nm)	270 Nm (250 - 290 Nm)	320 Nm (300 - 340 Nm)
M 20 x 1.5	27	8	380 Nm (360 - 400 Nm)	380 Nm (360 - 400 Nm)	420 Nm (400 - 440 Nm)
M 22 x 1.5	32	8/10	510 Nm (485 - 535 Nm)	510 Nm (485 - 535 Nm)	560 Nm (535 - 585 Nm)
M 22 x 2	32	10	460 Nm (435 - 485 Nm)	--	505 Nm (480 - 530 Nm)

2 Check the bearing play in the wheel hub

– every 200 hours in operation –

To check the bearing play in the wheel hub, raise the axle until the tyres are clear of the ground.

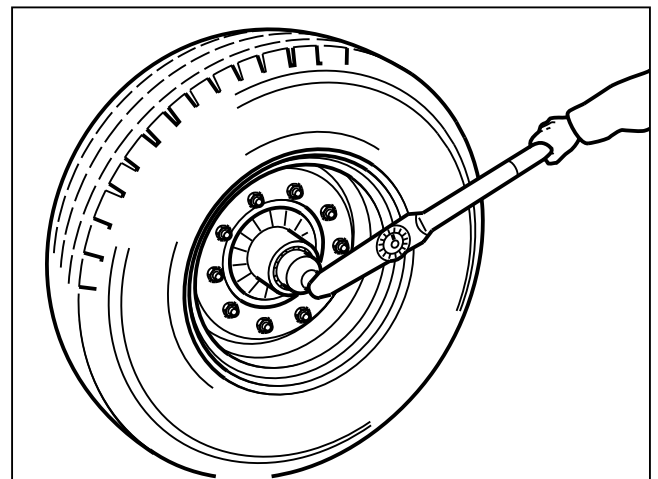
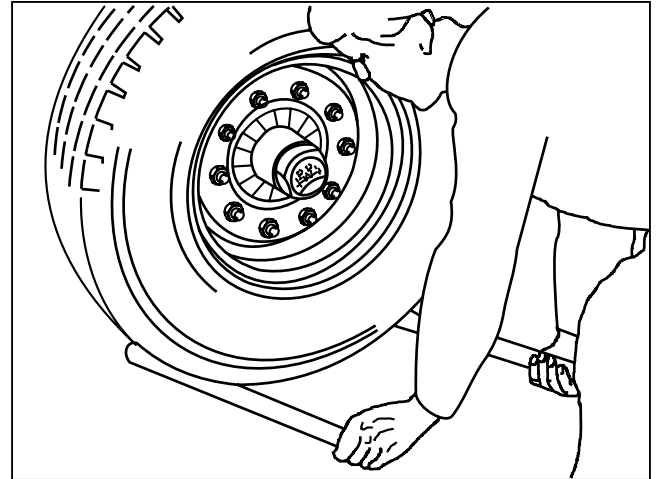
Release the brake, place a lever between the tyre and the ground, and check for play.

If you can feel play in the bearing:

Adjusting the bearing play

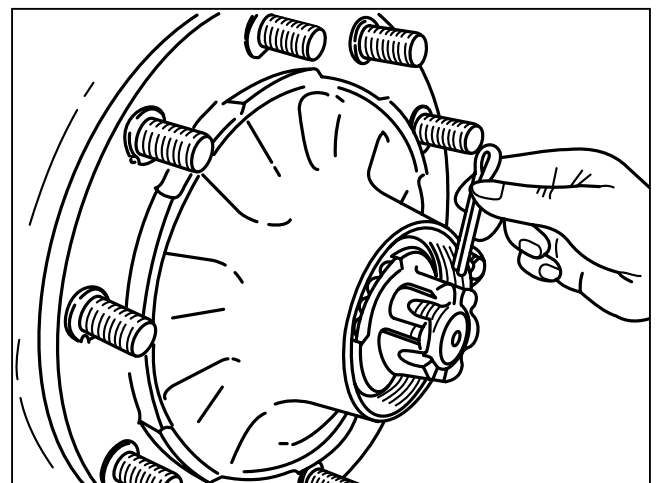
Standard hub bearing

1. Remove the bearing cap, or hub end-cap.
2. Remove the split pin from the wheel nut.
3. Tighten the wheel nut while turning the wheel, until the turning of the hub is slightly impeded.
4. Turn back the axle nut to the nearest possible split pin hole. If already in line, turn back to the next hole (maximum of 30°).
5. Insert the split pin and gently bend it over.
6. Refill the bearing cap with a little BPW special longlife grease (ECO-Li 91) and tap or screw it back into the wheel hub.



Whel hub bearing on BPW axles type GS 11008-1, GS 11010-1, GS 12008, GS 12010

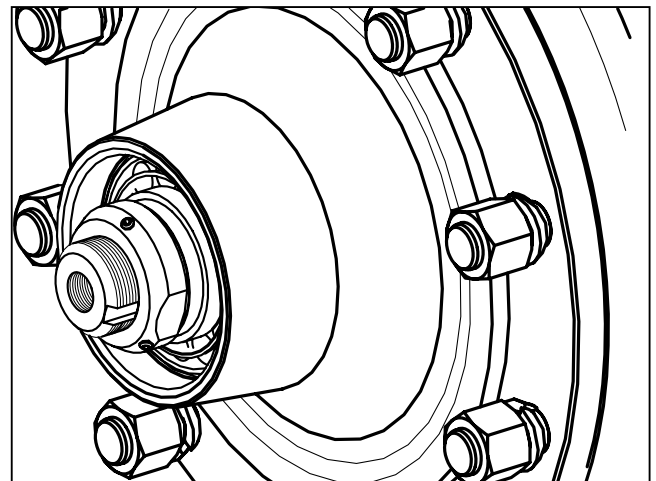
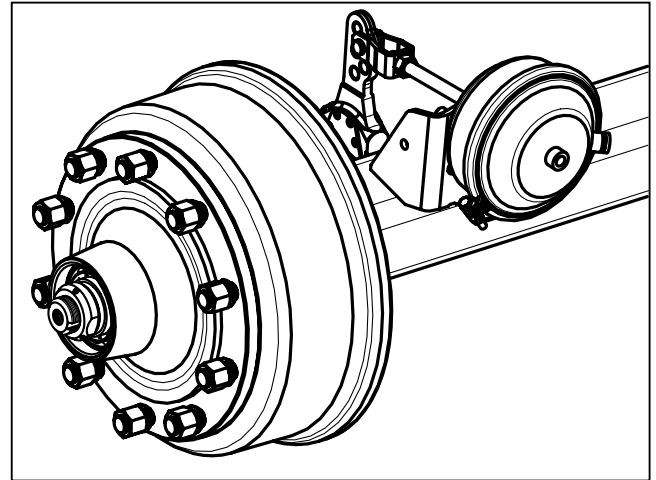
1. Unscrew the hub cap.
2. Remove the split pin from the castle nut.
3. Tighten the axle nut using a torque wrench to 150 Nm while simultaneously turning the wheel hub.
 - Using a normal castle nut spanner (vehicle tool kit), tighten the castle nut until the wheel hub race is slightly braked.
4. Turn back the castle nut to the next possible split pin hole. Should they be in line turn back to the next hole (30° at the maximum).
5. Insert the split pin and bend upwards slightly.
6. Refill the hub cap with BPW special longlife grease (ECO-Li 91).
7. Greased thread of hub cap all round with BPW special longlife grease (ECO-Li 91) and tighten to the specified torque of 500 Nm.



Adjusting the bearing play

Hub bearing on BPW axles with tyre pressure control system and KMT shaft nut:

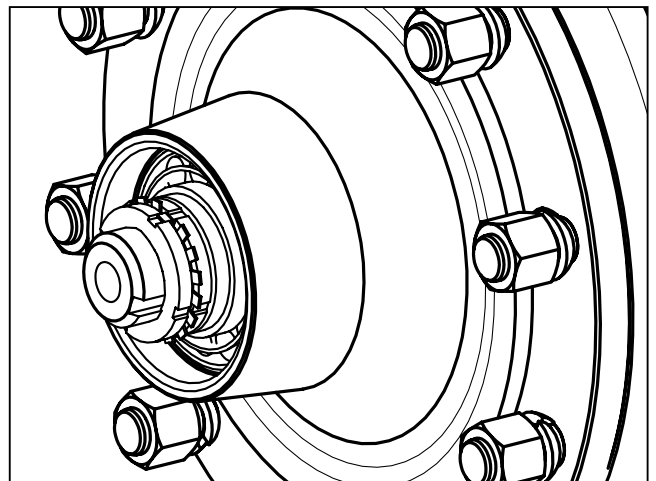
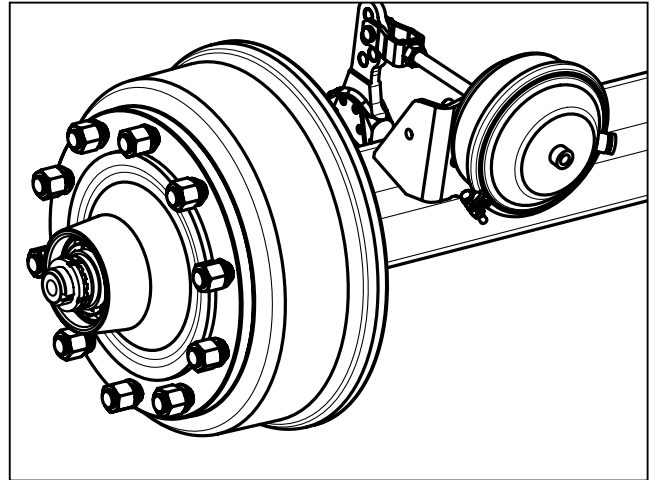
1. Unscrew the air pressure connection from the hub cap or axle beam (refer to the operating instructions provided by the control system manufacturer).
2. Unscrew the hub cap.
3. Undo the grub screws in the KMT shaft nut.
4. Tighten the KMT shaft nut with a torque wrench at the same time as turning the wheel hub, tightening torque 150 Nm.
 - If using a normal hook spanner 80 - 90 (vehicle tool kit), tighten the shaft nut until the running of the wheel hub is slightly braked.
5. Turn the KMT shaft nut back by 15 - 30°.
6. Tighten 3 grub screws to a tightening torque of 18 Nm.
7. Fill the hub neck with BPW special longlife grease (ECO-Li 91).
The air connection must be free from grease.
8. Greased thread of hub cap all round with BPW special longlife grease (ECO-Li 91) and tighten to the specified torque of 500 Nm.
9. Fit the tyre pressure control system.



Adjusting the bearing play

Hub bearing on BPW axles with tyre pressure control systems with KM shaft nut

1. Unscrew the air pressure connection from the hub cap or the axle beam (refer to the operating instructions provided by the control system manufacturer).
2. Unscrew the outer KM shaft nut and remove the locking plate.
3. Tighten the inner KMT shaft nut with a torque wrench at the same time as turning the wheel hub, tightening torque 150 Nm.
Put on the locking plate.
 - If using a normal hook spanner 80 - 90 (vehicle tool kit), tighten the shaft nut until the running of the wheel hub is slightly braked.
4. Screw on the outer KM shaft nut by hand.
5. Turn back the inner shaft nut 15 - 30°, bend the locking plate projection into the groove in the shaft nut.
6. Tighten the outer KM shaft nut to a tightening torque of 150 Nm. Bend the locking plate projection into the groove in the shaft nut.
7. Fill the hub neck with BPW special longlife grease (ECO-Li 91).
The air connection must be free from grease.
8. Grease the thread of the hub cap all round with BPW special longlife grease (ECO-Li 91) and tighten to the specified torque of 500 Nm.
9. Fit the tyre pressure control system.



3 Brake lining check

– every 200 hours in operation –

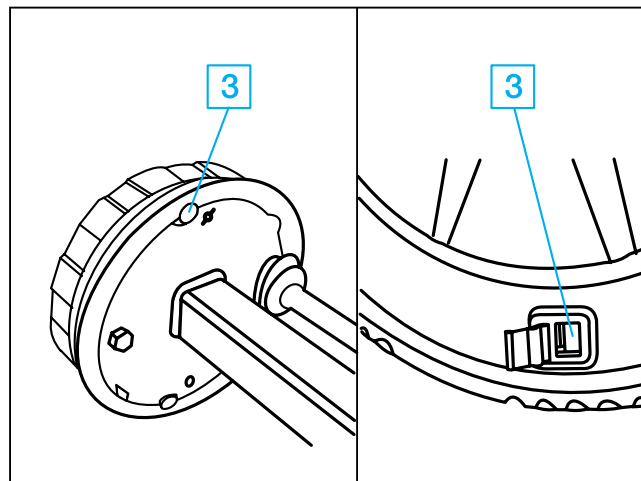
Open the inspection hole by removing the rubber bung (if present).

If the remaining thickness of the brake lining is

a: for riveted linings, 5 mm
 (N 2504) 3 mm

b: for bonded linings 2 mm
the brake lining must be replaced.

Re-insert the rubber bung.



Brake adjustment

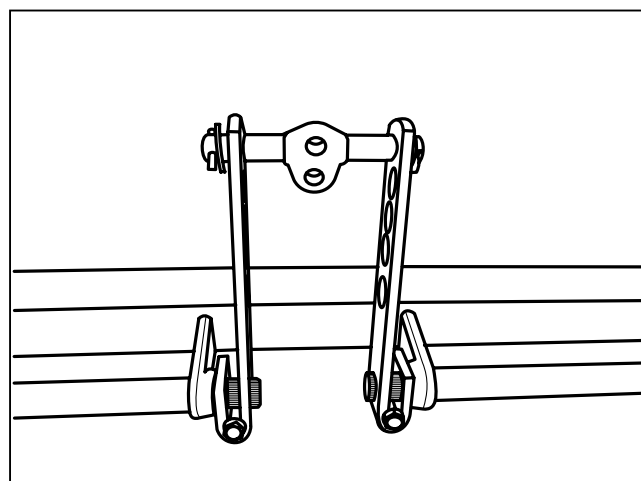
Depending on the nature and extent of operation, the brakes should be checked regularly and adjusted, if necessary. Adjustment is necessary when approx. 2/3 of the maximum cylinder stroke is used under heavy braking. For this purpose, jack up the axle and secure the vehicle against accidental movement.

4 Adjustment of the brake lever

– every 200 hours in operation –

Undo the hexagonal nuts, remove the bolts. Bend open the slot in the brake levers a little. The brake levers can now be withdrawn.

Turn the brake camshafts until the linings start to rub against the brake drums. Push the brake levers onto the brake camshafts in the correct position until they are fully home. Insert the bolts and fit the nuts.



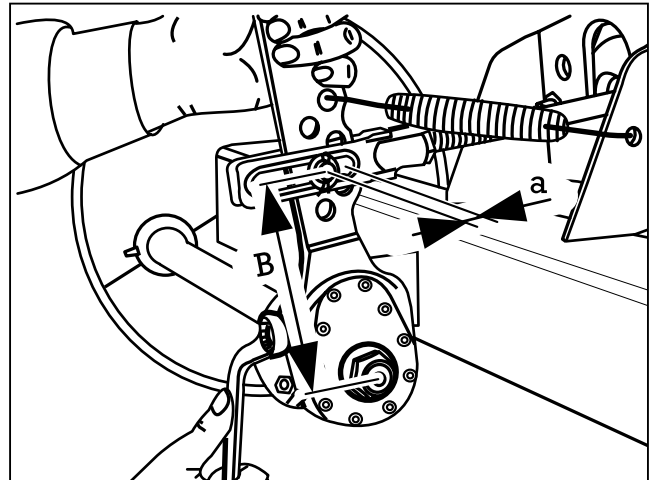
5 Adjustment of the slack adjuster

– every 200 hours in operation –

Move the slack adjuster by hand in the direction of brake application. If there is a maximum free play on the long-stroke diaphragm cylinder of 35 mm, the wheel brake must be adjusted.

Adjust the free play "a" to 10-12 % of the length (B) of the brake lever connected to it.

E.g. for a lever length of 150 mm, the free play is 15-18 mm.



6 Adjustment of wedge-type brakes

– every 200 hours in operation –

S 3006-7 RAZG:

Secure the trailer to prevent it moving and jack it up. Disconnect the pull rods from the overrun hitch and the handbrake lever.

Lock the swivel cam on the wheel brake with the help of special tool A (< 4 mm diameter pin) by inserting it through the positioning hole (at least 50 mm into the hole). Tighten the adjusting nuts (item C) on the wheel brakes with a spanner, with the help of the adjusting bolt (item B), until the wheel will not turn in the direction of travel. Turn back the adjusting bolt until no braking effect can be felt when the wheel is turned in a forward direction.

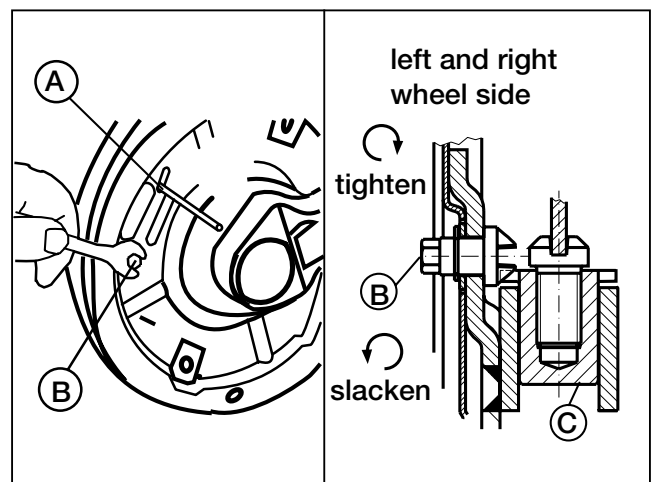
Caution:

The wheel brake must only be adjusted by means of the adjusting bolt.

Reconnect the pull rods to the overrun hitch and adjust so that there is no free play.

For this purpose, the drawbar of the overrun mechanism must be completely extended and the reversing must lever rest on the drawbar.

As a test, apply the parking brake slightly



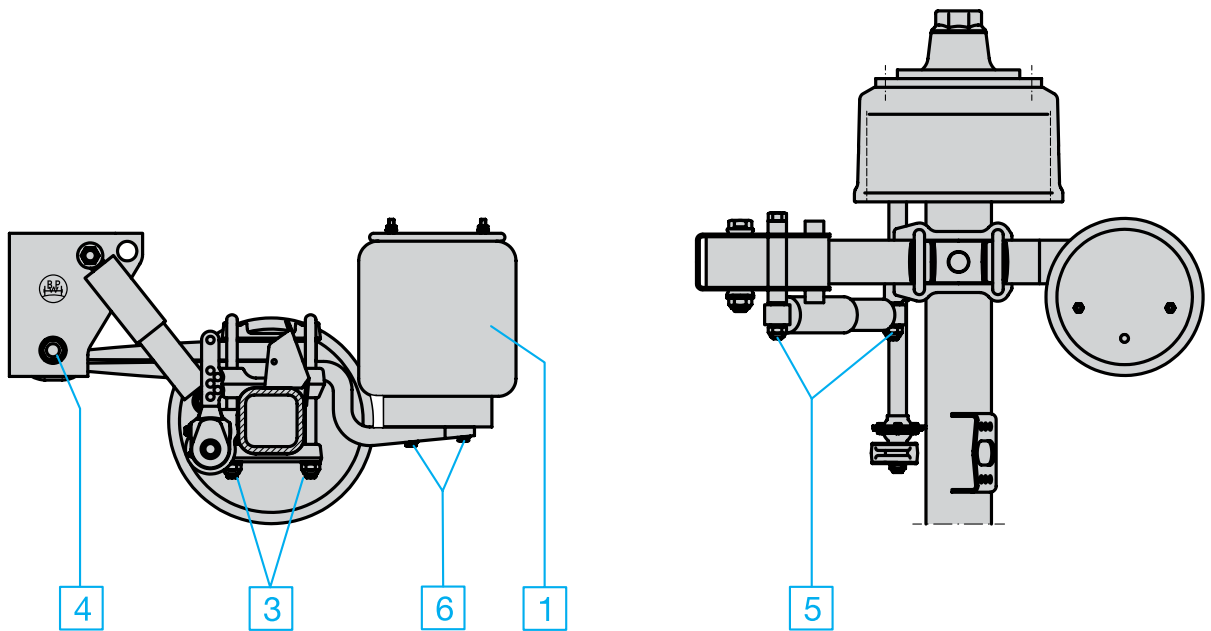
and check that the braking effect (in the direction of travel) on the wheels is the same on both sides. Check that the individual brakes take effect at the same time.

Caution:

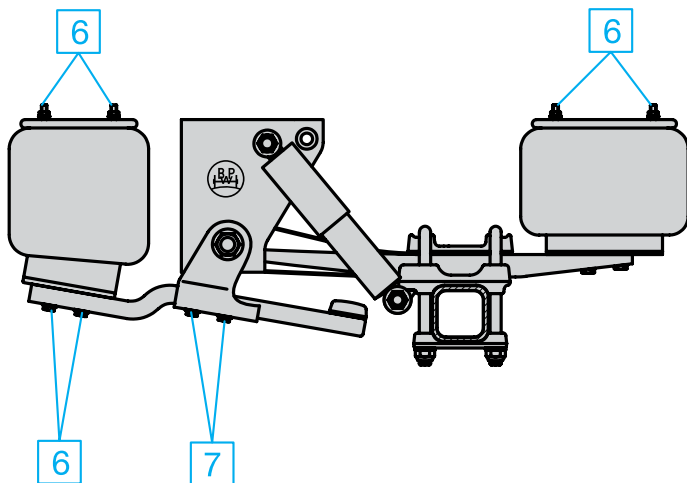
Remove the locking device (< 4 mm diameter pin) from the swivel cams.

<p>Maintenance works</p> <p>Summary</p> <p>Detailed description on pages 22 - 25</p> <p><input type="checkbox"/> Maintenance works</p>	after the first laden journey	every 200 hours in operation	every 500 hours in operation at least once a year ¹⁾
<p>Maintenance works</p> <p><input type="checkbox"/> Visual check Check all components for damage and wear.</p> <p><input type="checkbox"/> 1 Check the condition of the air bags.</p> <p><input type="checkbox"/> 2 Check the condition of the air suspension valves, ensure that they are not leaking and are firmly seated.</p> <p><input type="checkbox"/> 3 Check that the spring mountings are firmly attached. Torque settings with a torque wrench: M 24 M = 650 Nm (605 - 715 Nm)</p> <p><input type="checkbox"/> 4 Check that the spring bolts are tight. Torque settings with a torque wrench: Air suspension hanger bracket: M 30 M = 900 Nm (840 - 990 Nm) Channel crossmember: M 30 M = 900 Nm (840 - 990 Nm)</p> <p><input type="checkbox"/> 5 Check that shock absorber mountings are firmly attached and undamaged. Torque settings with a torque wrench: M 24 M = 420 Nm (390 - 460 Nm)</p> <p><input type="checkbox"/> 6 Check that the air bags are firmly attached. Torque settings with a torque wrench: M 12 M = 66 Nm (62 - 73 Nm) M 16 M = 230 Nm (214 - 253 Nm)</p> <p><input type="checkbox"/> 7 Check axle lift device for wear and firm attachment. M 16 M = 230 Nm (214 - 253 Nm)</p>		<p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p>	<p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p>

¹⁾ more frequently under heavy usage



BPW air suspension assembly



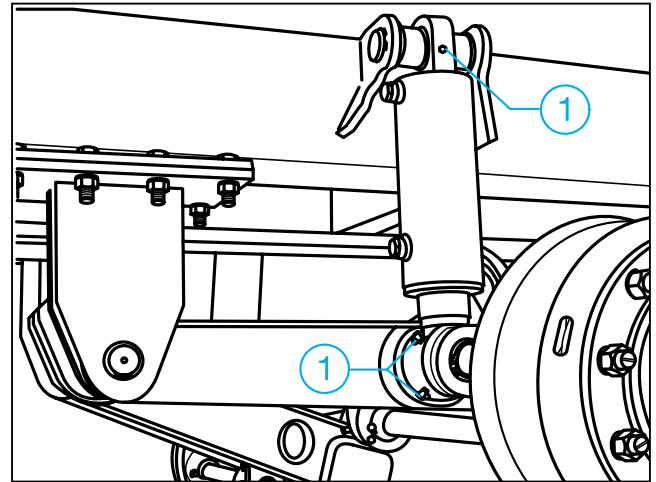
BPW air suspension assembly with axle lift device

1 Damping cylinders, top and bottom

– every 200 hours in operation –

Lubricate via the grease nipples with BPW special longlife grease (ECO-Li 91) until fresh grease emerges from the bearing points.

As well as performing these lubrication jobs, make sure that the cylinder and the supply line are always vented.



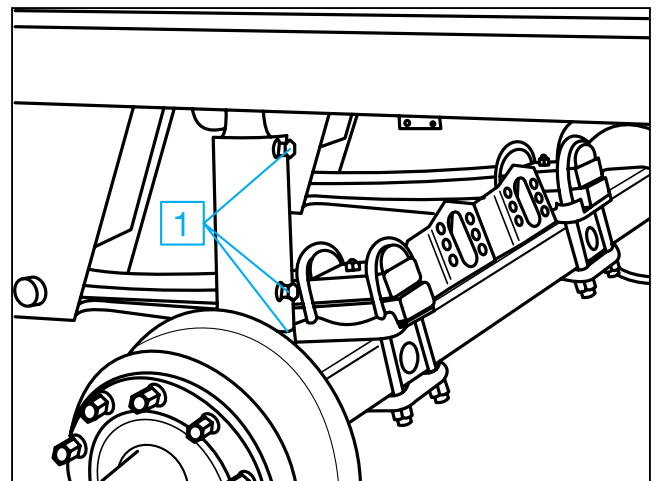
- Visual inspection

– every 200 hours in operation –

Check all components for damage and wear.

1 Check the condition of the damping cylinders and check them for leaks

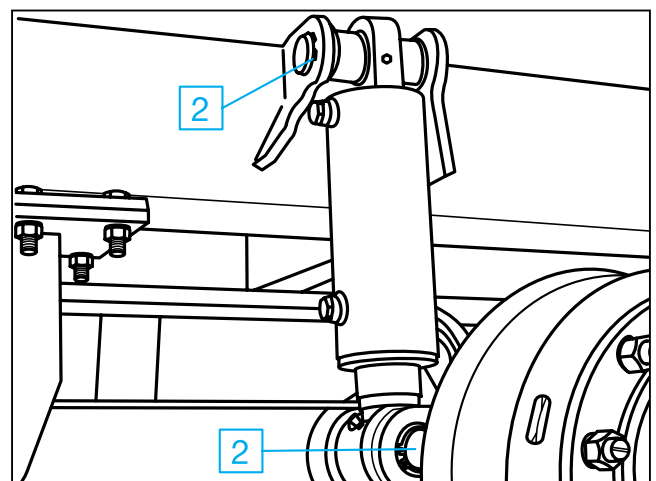
– every 500 hours in operation, latest annually –



2 Check damping cylinders attachment

– every 500 hours in operation, at least once a year –

Check the damping cylinders are firmly attached and check for wear.

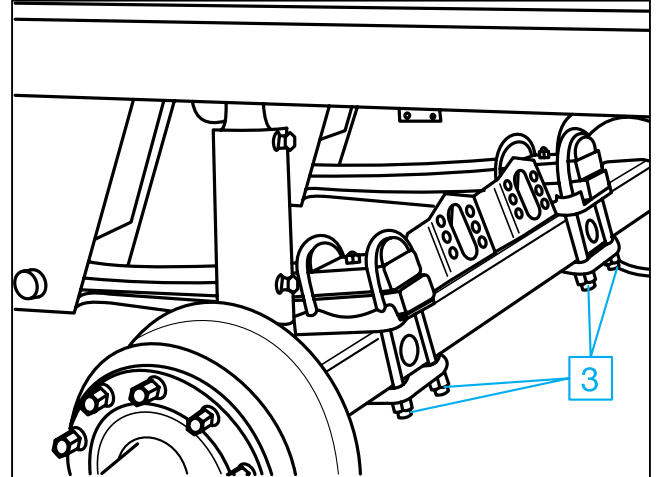


3 Spring mounting kit

- every 200 hours in operation, initially after the **first** laden journey -

Check that the lock nuts are tight on the U-bolts. If they are loose, tighten the nuts alternately in stages. Do not weld the trailing arm! Torque setting with a torque wrench:

M 24 M = **650 Nm** (605 - 715 Nm)



4 Spring bolts

- every 500 hours in operation, latest annually, initially after the **first** laden journey -

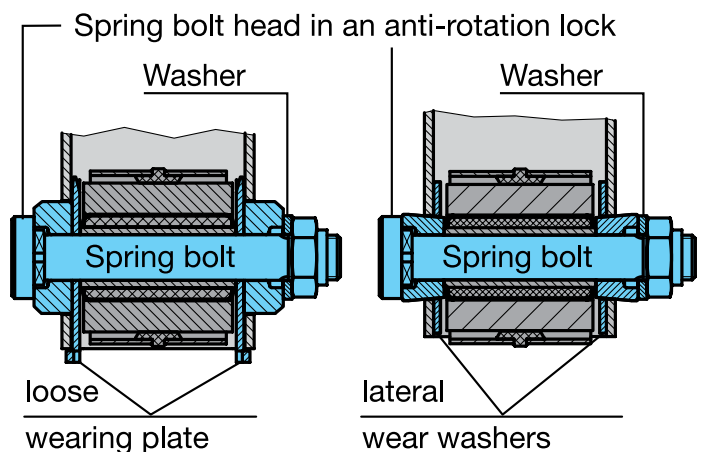
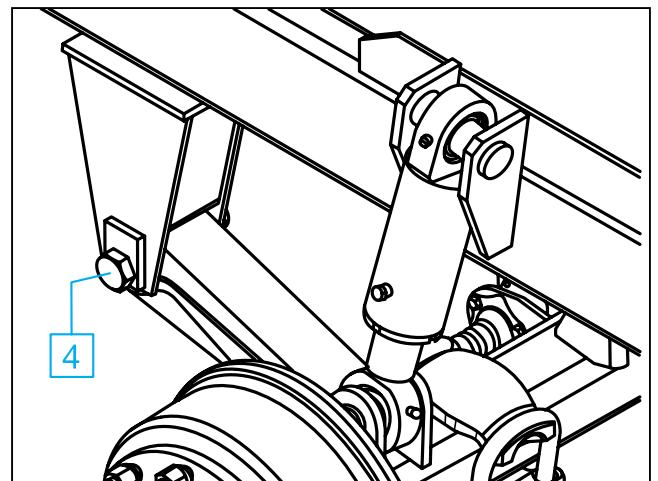
Check the bushes, moving the vehicle slightly backwards and forwards with the brake applied, or moving the spring eyes with a lever. There must be no play in the spring eye. If not attached properly the spring bolt may be damaged.

- Check the lateral wear washers in the support.
- Check that the M 30 lock nut on the spring bolts is tight.

Torque settings with a torque wrench:

Air suspension hanger bracket
M 30: M = **900 Nm** (840-990 Nm)

The service life of the rubber/steel mounting bushes depends on the firm attachment of the inner steel bush.





METSJÖ *Ivarssons i Metsjö AB*

**Production takes place at Metsjö Norrgård which is located outside Linköping Sweden.
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 Data and illustrations are to be considered approximate and also include special
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