



BPW height-adjustable drawbars

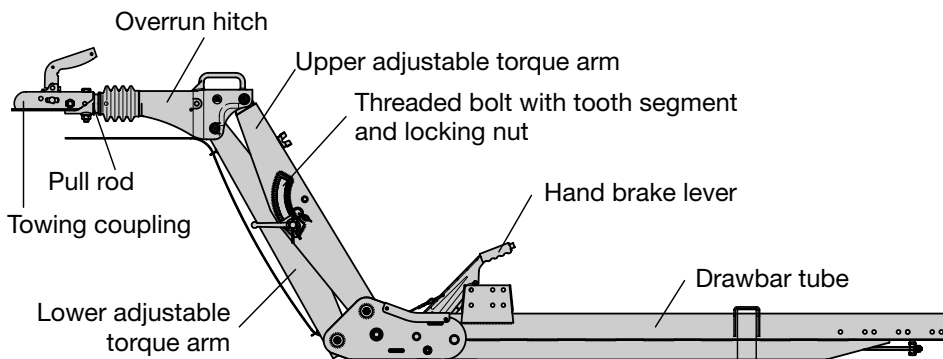
– Series ZAV

Maintenance and Operating Instructions ZAV

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Operating instructions



Operating the height adjustment assembly

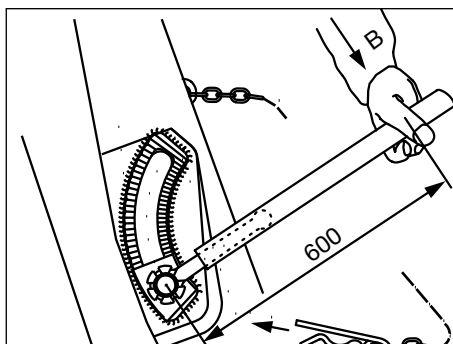
Remove the spring clip from the threaded bolt and loosen the locking nut by about 25 mm in order to position the drawbar installation to the required coupling height.

The gas-sprung connecting assembly can now be set to the appropriate coupling height. Tighten the locking nut and insert the spring plug.

Tightening torques:

ZAV 1.6-5 / ZAV 2.0-5 / ZAV 2.7-4:
B = 42 - 50 kg M = 250 - 300 Nm

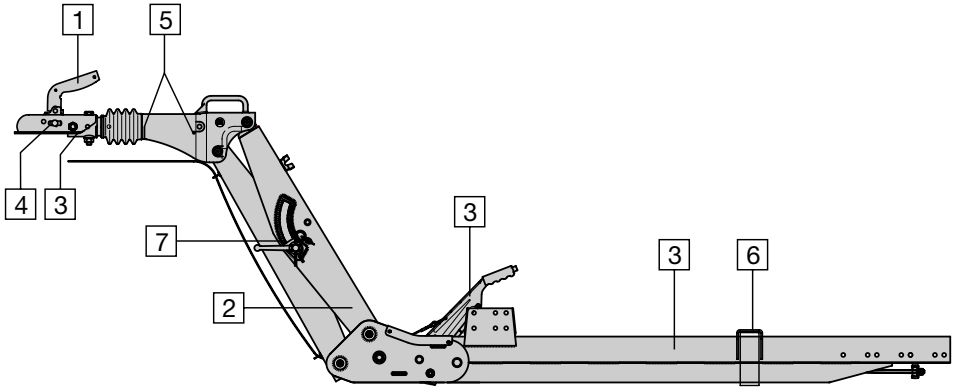
ZAV 3.5-1:
B = 58 - 66 kg M = 350 - 400 Nm



For all other operating instructions, such as actuating the towing ball or the parking brake, please refer to the BPW maintenance and operating instructions for axles with rubber and torsion bar suspension.

Maintenance and Operating Instructions ZAV

Lubrication and maintenance work



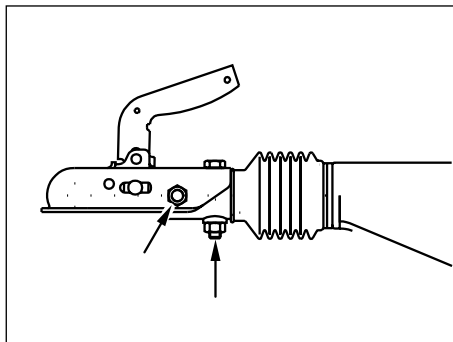
	Maintenance intervals	Pre-delivery check	After the first run under load conditions	After every adjustment	After driving approx. 50 km following adjustment	After driving approx. 500 km	Every 2,000 - 3,000 km or once every year
1	Check function of towing coupling.	x					x
2	Check function and freedom of movement of height adjustment assembly.	x				x	x
3	Check movement of pull rod, hand brake lever, linkage.	x				x	x
4	Oil the towing coupling.	x					x
5	Grease the pull rod bearings on the housing of the overrun hitch.						x
6	Retighten clips.		x				
7	Retighten locking nuts.	x		x	x		

Changing the towing coupling

Only to be performed by a specialist workshop

Disassembly:

When changing the towing coupling, unscrew the lock nuts and pull out the bolts (arrows). The hitch can now be removed and the pin (or tube), if fitted, can be pulled out of the pull rod.



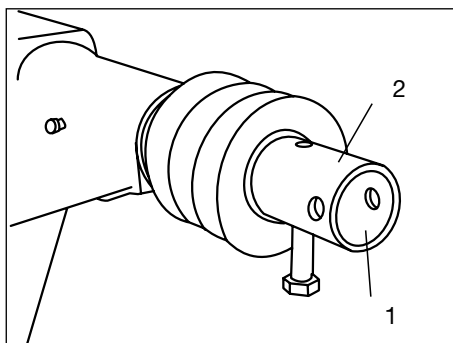
Assembly of the coupling:

Guide the tube (1) or bushes into the pull rod (2) and press in until the holes are lined up. Insert the rear bolt to lock (see drawing on right).

Fit the towing coupling, grease the threads of the front bolt and install.

Grease the rear bolt and install it from the top through the hitch and both tubes.

Screw on the lock nuts and tighten to the specified tightening torque of 80 - 90 Nm.



Assembly of the towing eye:

Guide the shank of the towing eye into the pull rod and press in until the holes are lined up. Grease and fit both bolts. Screw on the lock nuts and tighten to the specified tightening torque of 80 - 90 Nm.

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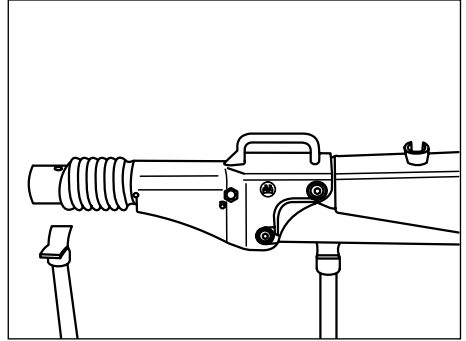
During all installation work, secure the trailer to prevent it from moving (use chocks if necessary).

Disassembly of the upper adjustable torque arm

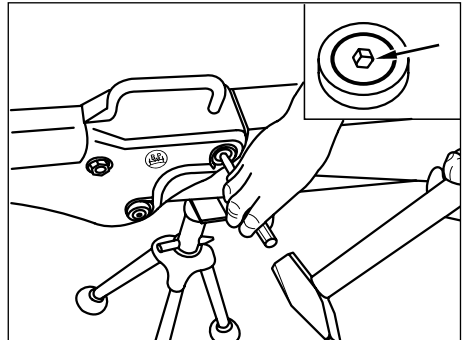
Move the adjustable torque arm to the horizontal position.

Important: Tighten the locking nut.

Secure the adjustable torque arm and overrun assembly to prevent them from falling down.

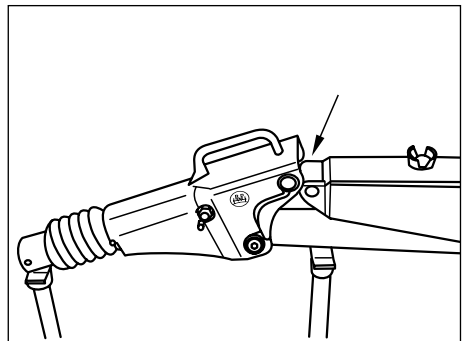


Clean the Allen screw (arrow) so the screw can be unfastened using an Allen key. Unscrew and remove the Allen screw from the top bolt of the overrun hitch. Remove the washer and drive out the bolt with a drift (do not damage the thread).



Now fold the overrun hitch downwards.

Important: Only fold the overrun hitch far enough downwards until the upper adjustable torque arm is exposed (arrow).

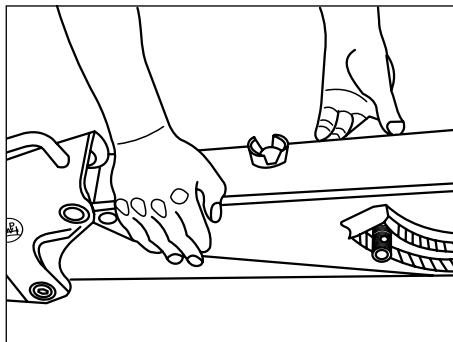




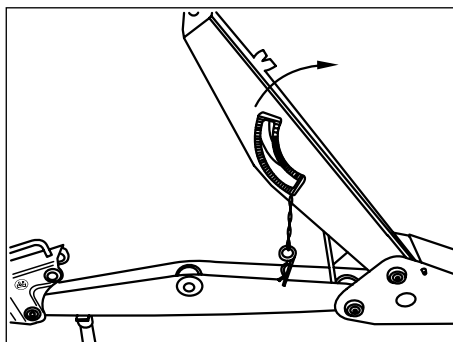
Remove the circlip from the locking nut. Unscrew the locking nut and pull the threaded bolt and tooth segment out of the hole.

Carefully move apart the adjustable torque arm until the gas spring is relieved.

Important: Let the tension off the adjustable torque arm slowly (brace with your hand if necessary).



Fold the upper adjustable torque arm all the way back and prevent it from falling down.

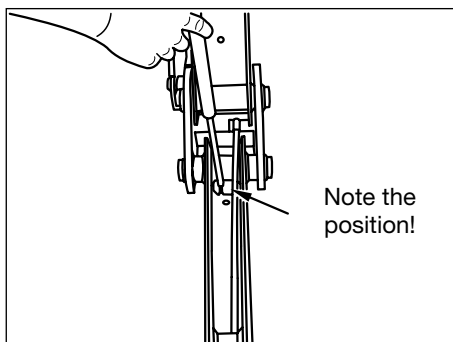


The gas spring can now be removed.

Important: Note the position of the gas spring for installation

Unscrew and remove the Allen screw from the bolt in the drawbar tube. Remove the washer and use a punch to drive out the bolt (without damaging the female thread).

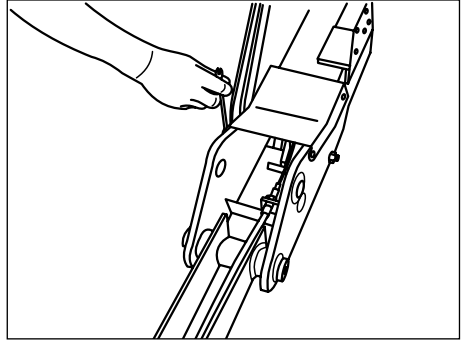
The upper adjustable torque arm can now be removed.



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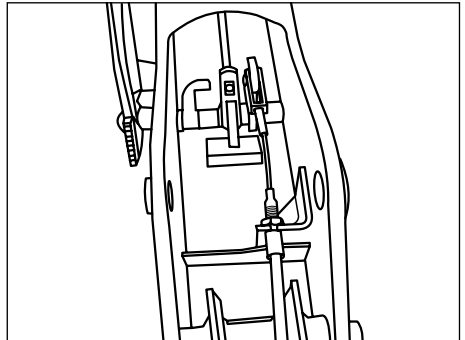
Removing the lower adjustable torque arm

Remove the dust cover from the drawbar tube.



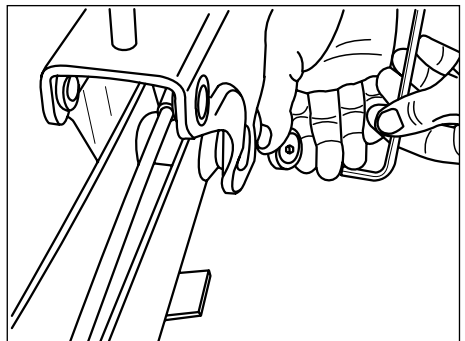
Loosen the Bowden cable at the support. Remove the bolt from the yoke and disconnect at the steering lever.

Important: Note the position of the Bowden cable on the steering lever for installation.

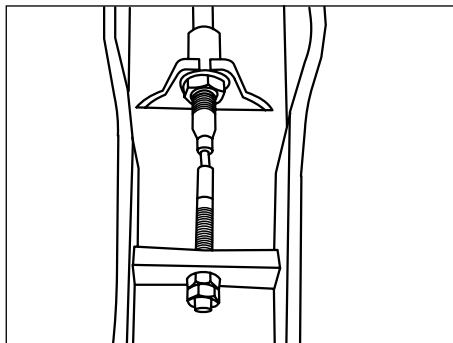


Unscrew and remove the Allen screw from the lower bolt in the overrun hitch, remove the washer and then drive out the bolt with a drift. (Do not damage the female thread.)

The overrun head can now be removed.



Unscrew the locknut from the overrun hitch housing and loosen the union nut of the Bowden cable. The Bowden cable can now be removed.



Important: Secure the lower adjustable torque arm to prevent it from falling down

Unscrew and remove the Allen screw from the lower bolt in the drawbar tube. Remove the washer and use a drift to drive out the bolt (without damaging the female thread).

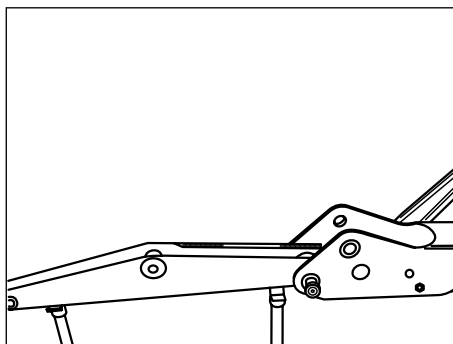
Check for wear on the bearing bushes on the adjustable torque arms. Both adjustable torque arms must be removed in order to change the bushes. Carefully knock out the bearing bushes, taking care not to damage the seat of the sleeves since this is an interference fit. Use a suitable tool to drive in new bushes and the distance tube.

Guide the lower adjustable torque arm into the holder on the drawbar tube and attach it with the bolt.

Secure the bolt using the Allen screw (apply liquid locking compound to the screw) and washer. Tightening torque of the Allen screw:
 $M = 40 \text{ Nm}$

Proceed in the reverse order when installing the parts:

Note the position of the gas spring (page 7) and the Bowden cable (page 8) when installing.



Disassembly of the shock absorber

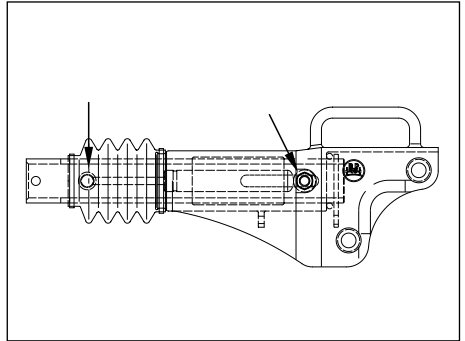
Prevent the trailer from moving.

The towing ball or towing eye must be removed in order to disassemble the shock absorbers (see page 5).

Unscrew shock absorber fixing nuts (arrows).

Pull the bolts out of the overrun hitch.

Pull the shock absorber out of the drawbar.



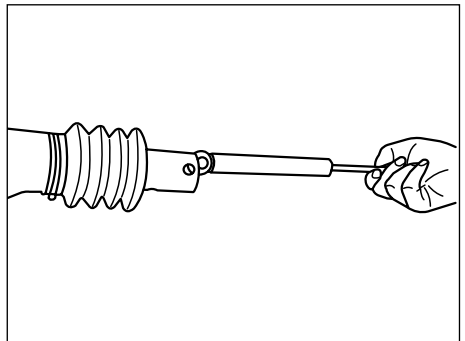
Assembly of the shock absorber

Guide shock absorber into the pull rod housing end first. Make sure the bush for fixing the shock absorber in place is horizontal.

Fit the bolts through the bearing eyes and the bushes of the shock absorber.

Tightening torque: $M = 40 \text{ Nm}$

Fit the towing eye or ball coupling, see page 5.



Removing and installing the pull rod

Prevent the trailer from moving.

The towing coupling or towing eye must be removed in order to disassemble the pull rod (see page 5).

Remove the shock absorber (see page 10).

Remove the cable tie from the bellows on the pull rod.

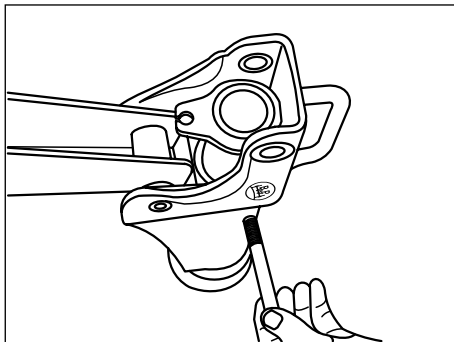
Unscrew and remove the top allen screw.

Remove the washer and drive out the bolt with a drift (do not damage the thread).

Fold the overrun hitch downwards.

Remove the lower thread bolt from the housing.

Important: Remove the Bowden cable (see pages 8 - 9) before folding down the overrun hitch.



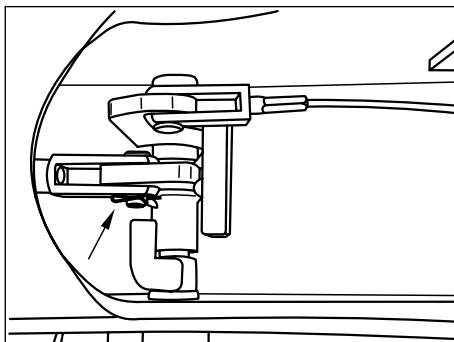
Proceed in the reverse order when re-installing the components.

Removing and installing the towing linkage

Remove the dust cover. Remove the circlip from the bolt (arrow). Press the bolt out of the yoke.

The entire towing linkage can now be pulled backwards out of the drawbar tube.

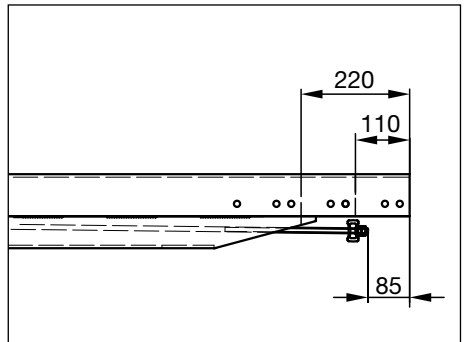
Proceed in the reverse order when re-installing the towing linkage.



Shortening the drawbar tube (only possible with ZAV 2.7-4)

You can shorten the drawbar tube if required, provided the requirements in the supplied approval documents are observed. Shorten the drawbar by the same amount as the drawbar tube so that the tandem diagonal compensator can be used if necessary.

The drawbar tube can be shortened by either 100 or 220 mm at the end of the tube.





Re-adjustment of the brake system

Wheel brake

- every 2,000 - 3,000 kilometers of travel -

Jack up the trailer. Release the towing equipment and handbrake lever and brake linkage (free from tension).

Lock the reversing cam of the wheel brake from the outside by means of a locking pin (item A, pin \varnothing 4 mm) through the backplate.

Using a screwdriver (item B) rotate adjuster wheel (item C) or with an 8 mm spanner (item D) turn hex adjuster until the wheel locks in the forward direction of travel.

Activate the parking brake several times to centralise the brake shoes.

Version 1: Turn hex adjuster anti-clockwise until wheel is running free in forward direction of travel (approx. 1 full turn).

Version 2: Rotate adjuster wheel approx. 3-5 teeth until wheel is running free in forward direction of travel.

With parking brake activated check equaliser bar is at right angles to brake rod. It may be necessary to readjust the brakes or adjust length of brake cables (screw clevis in/out as required).

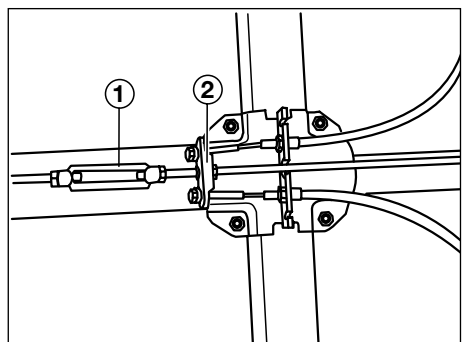
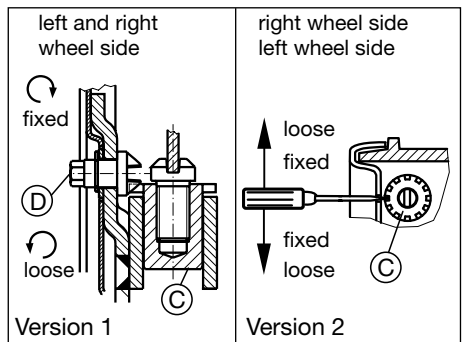
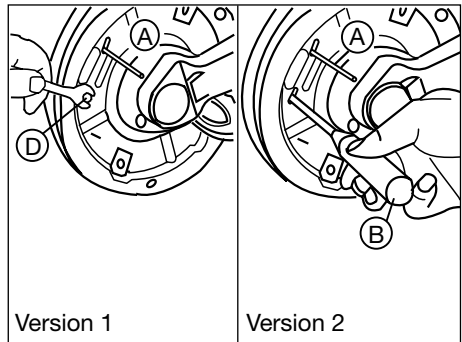
To test, partially apply parking brake and check for similar brake torque on all wheels (in forward direction of travel).

Remove 4 mm locking pin from reversing cam.

Brake Linkage

With the parking brake off and all brakes correctly set, readjust brake rod length with turnbuckle (1) or equaliser (2) until there is neither free play or tension.

Tighten all locknuts of the brake linkage.



Please refer to the extracts from approval documents or to the mounting instructions for accessories (supplied with the drawbar) regarding information about how to fit accessories.



Notice



BPW-W-ZAV - 03/1e



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