

Installation instructions



Replacing the light tube trailing arm on the air suspension ALII

Removing the light tube trailing arm

- [1] Prevent the vehicle from rolling away.
Release the service and parking brake.
- [2] Lift vehicle, inflate air bags to maximum height by operating the lever of the air suspension raise and lower valve / rotary disc valve to "Raise" and then to "Stop".

On suspension without a raise and lower valve / rotary disc valve, pull off the lower rubber connection of the air suspension valve link arm at the axle attachment (Figure 2/1) and manually actuate the air suspension valve link arm in an upwards direction, until the air bags have reached maximum height.



Note!
If air installation kit is defective, use forklift or winches.

- [3] Support frame in this position to prevent accidents.
- [4] Release air from air bags by setting rotary disc valve / change-over valve on air suspension to "Lower".

On air suspension without rotary disc valve / change-over valve, actuate lever on air suspension valve until air has escaped from air bags.

- [5] Lift the axle slightly using the vehicle lift so that it is aligned **horizontally** (at ride height) with the base.



Repair note!
In order to keep the effort involved in the track adjustment process as low as possible, the light tube trailing arm should always be replaced one axle at a time and then tracked immediately.

- [6] To adjust the track setting, the axle centre distances must be determined by means of a suitable axle centre distance device.

Measurement is carried out using the hub cap centre point.
The triangle is in the centre.

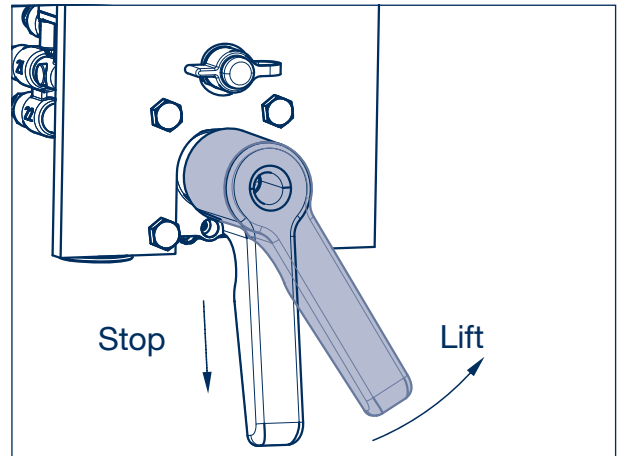
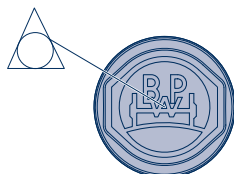


Figure 1

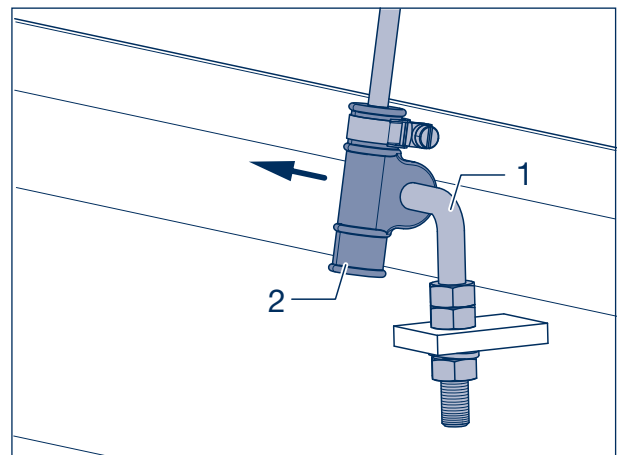


Figure 2

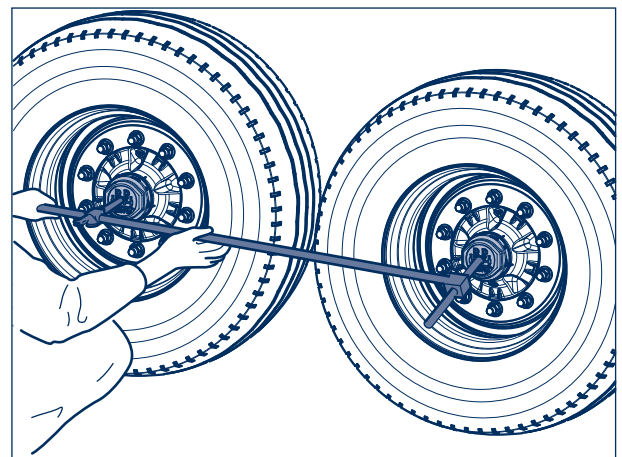


Figure 3

Installation instructions



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Repair note!

When replacing the light tube trailing arms on a round axle, one axle side must always remain fully mounted.

- [7] If there is a shock absorber attachment between the plates, remove the bottom nut (1330) of the attachment screw (1324). Pull out the screw.

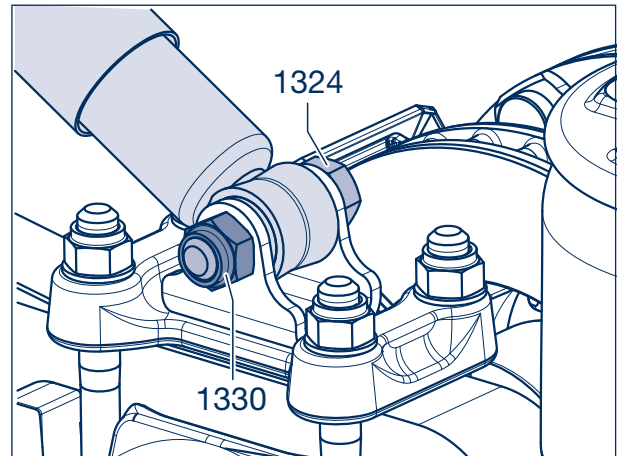


Figure 4

- [8] Remove lower locking screw(s) (1224, SW 22), depending on the air bag version (1200).

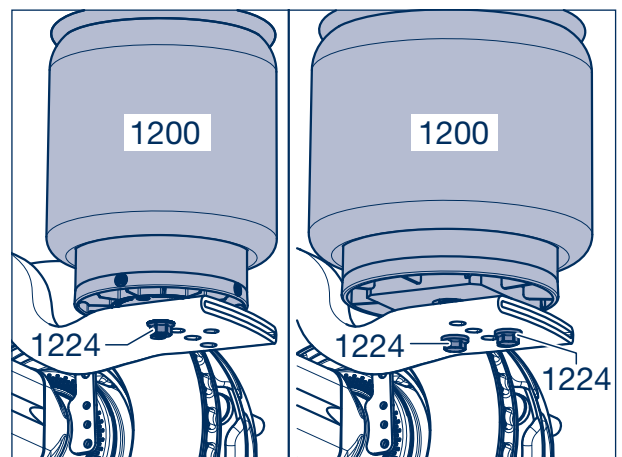


Figure 5

- [9] Remove lock nut (1168, SW 36 / SW 46) from the spring bolt (1154).
- [10] Remove washers (1165) and adjusting plate (1161).

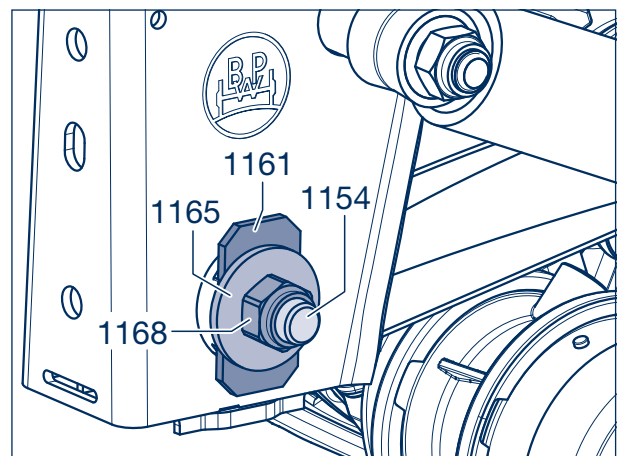


Figure 6

Installation instructions



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- [11] Push out the spring bolt (1154) from the air suspension hanger bracket and the light tube trailing arm (1000). For versions with an adjustable hanger bracket, detach the wearing plate (1525).

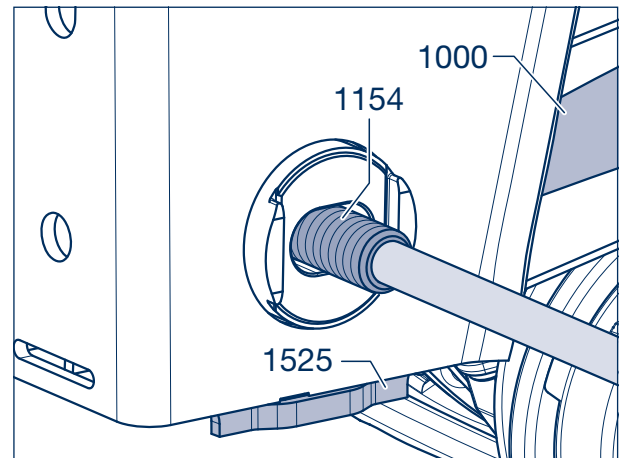


Figure 7



Caution! RISK OF INJURY
Secure the light tube trailing arm to prevent it from falling out. Use a hoist or second person for assistance.



Repair note!
By loosening the spring U-bolts on the positive-fit spring seat arrangements, all components are slackened and can be easily detached and exchanged.

- [12] Unscrew the lock nuts (1057, SW 32) from the spring U-bolts (1050) and, if necessary, take off the washers (1055).
- [13] Remove spring plate (1032), spring U-bolt and any segments (1035).
- [14] In the case of a light tube trailing arm (1000) with catch plate (1012), detach the light tube trailing arm from the axle.

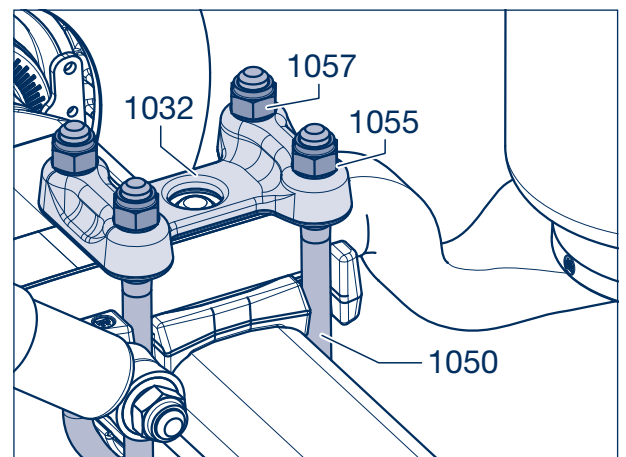


Figure 8

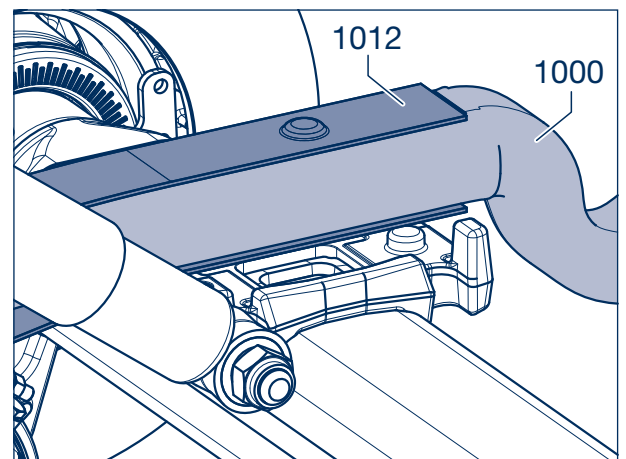


Figure 9

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Installing the ALII trailing arm

- [15] Free the contact areas on the axle beam and spring pads (1026, 1027) from dirt, and check condition.

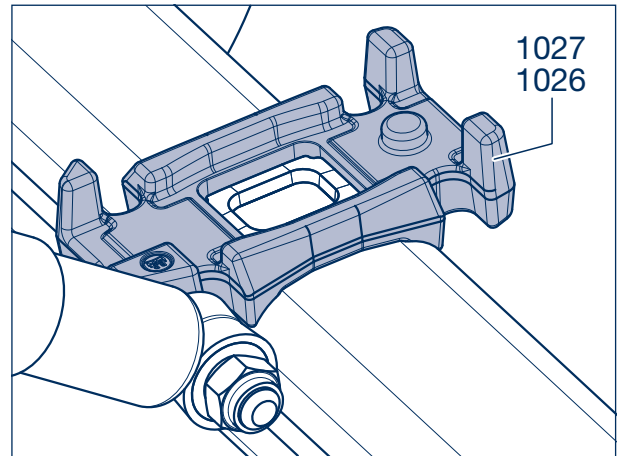


Figure 10

- [16] Insert trailing arm (1000) with catch plate (1012) and two plugs (1015) into the centering bolt (1040) of the spring pad (1026, 1027 - arrow) and insert the end of the spring into the air suspension hanger bracket.



Repair note!

For single-leaf spring, position the catch plate in such a way that there is a clearance of 8 mm after installation (see detailed view, Figure 11).

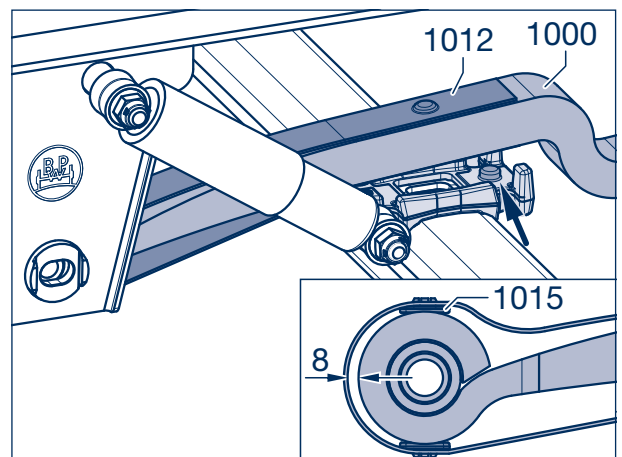


Figure 11

- [17] Insert the trailing arm (1000) with the steel-rubber-steel bush into the hanger bracket (1511) until the bore holes of the trailing arm and hanger bracket are aligned.
- [18] Mount the wearing plates (1525) from below between support (1511) and trailing arm (1000) (pay close attention to the alignment of the bore holes of trailing arm, hanger bracket and shaped plate).

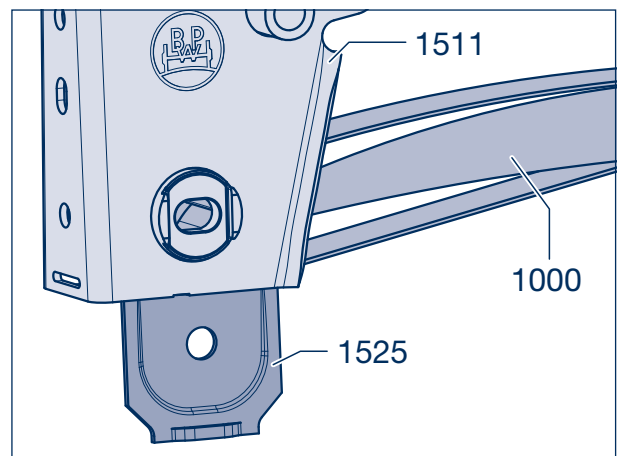


Figure 12

Installation instructions



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- [19] Slide the adjusting plate (1161) onto the square of the spring bolt. Make sure that the adjusting plate is correctly positioned.
- [20] Smear spring bolt (1154) with grease and with the adjusting plate pushed on, fit into the spring eye from the outside. The adjusting plate must engage in the jaws of the hanger bracket.

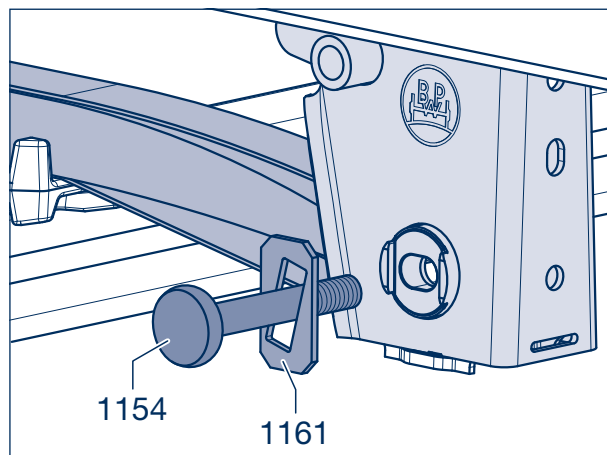


Figure 13

- [21] Fit adjusting plate (1161), washer (1165) and new lock nut (1168). The slopes of the adjusting plates must be aligned with each other and engage on both sides in the jaws of the hanger bracket.



Repair note!
Do not tighten lock nuts!

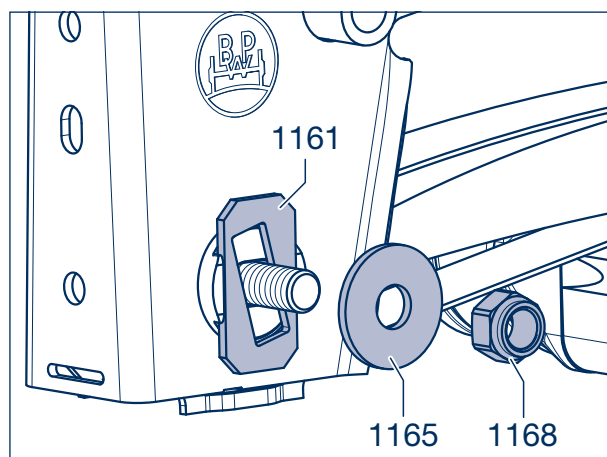


Figure 14

- [22] Mount new spring U-bolts (1050) and segments (1035).
- [23] Fit the spring plate (1032) onto the spring U-bolt.

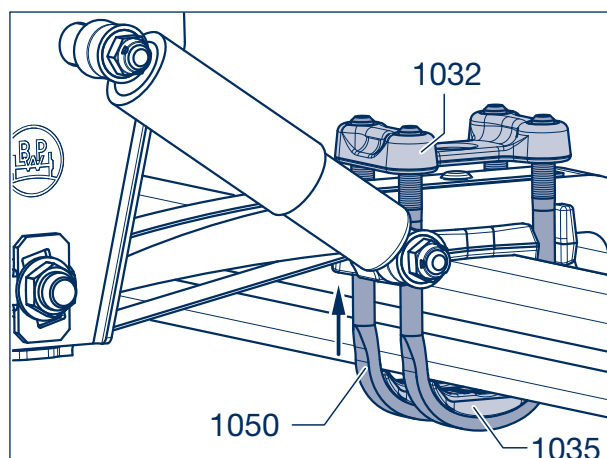


Figure 15

Installation instructions



Replacing the light tube trailing arm on the air suspension ALII

- [24] Attach new washers (1055).
- [25] Lightly grease the threads of the spring U-bolts (1050) and the nut contact surface.
- [26] Screw the new lock nuts (1057, SW 32) onto the spring U-bolts by hand.



Repair note!

A rounded washer must be fitted for spring plates with spherical counter-sink.

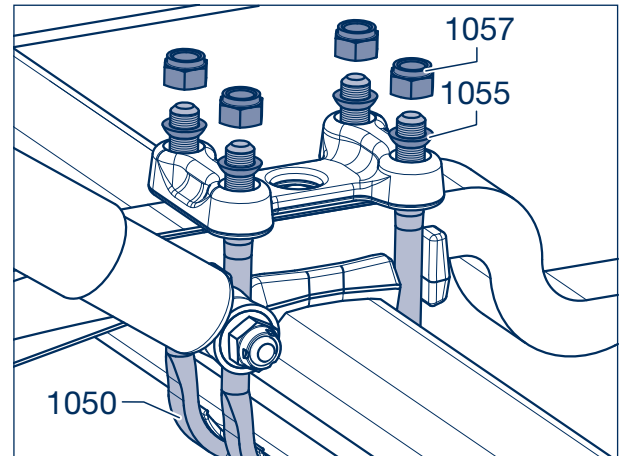


Figure 16

- ! [27] Gently tighten lock nuts (1057, SW 32) - on each spring U-bolt (1050) - until all components make uniform contact. (The spring pads (1026) and segments (1035) of square axle beams should rest just within the radii of the axle beam (Figure 17, arrows)). !



Repair note!

Do not introduce uneven tension by tightening the lock nuts on one side only.

- ! [28] Using a torque wrench, tighten the lock nuts (1057, SW 32) (1330, SW 36) diagonally in the sequence 1-2-3-4 (see Figure 18). !

Tighten all lock nuts SW 32 to a tightening torque of 200 Nm, then to 300 Nm, 450 Nm and finally 550 Nm. Finally, tighten all the lock nuts in sequence by a further 90° angle.



Repair note!

Ensure the amount of thread below the U-bolt lock nuts is the same! It must be possible to move the spring bolt (1154) in the spring eye of the hanger bracket (1511).

Otherwise, the mounting must be corrected by loosening and retightening the spring U-bolts (1050).

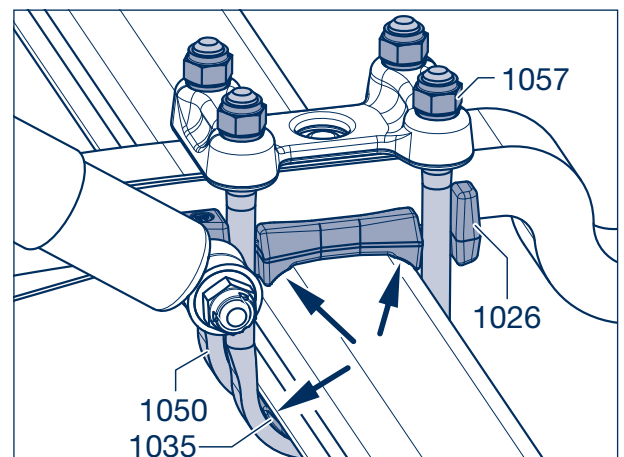


Figure 17

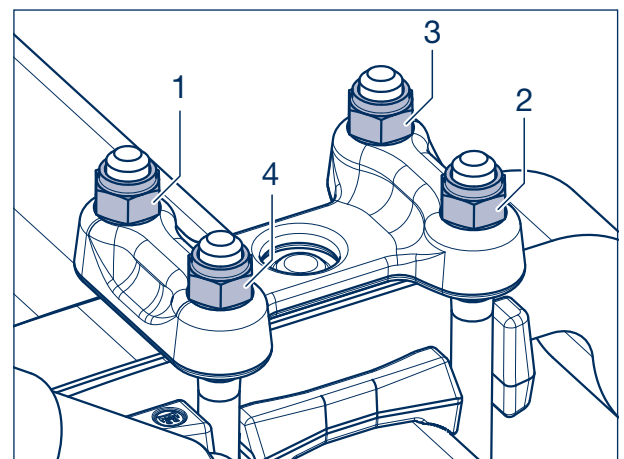


Figure 18

Installation instructions



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- [29] In the case of a shock absorber attachment between plates on the spring plate, insert the attachment screw (1324), screw on the new lock nut (1330, SW 36) and tighten to the prescribed tightening torque of $M = 420 \text{ Nm}$ (390–460 Nm).

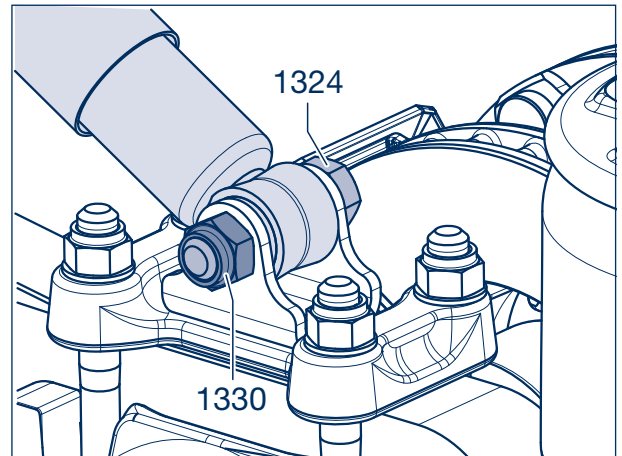


Figure 19

- [30] Clean the contact area of the air bag (1200) and the trailing arm (1000).
- [31] Position the air bag on the trailing arm.
- [32] Install lower air bag beam attachment. Install locking screw(s) (1224, SW 22) (depending on version of air bags) and tighten to the specified tightening torque.

M 16 (SW 22) M = 230–300 Nm

Lower attachment with central screw:
M 16 (SW 22) M = 300 Nm

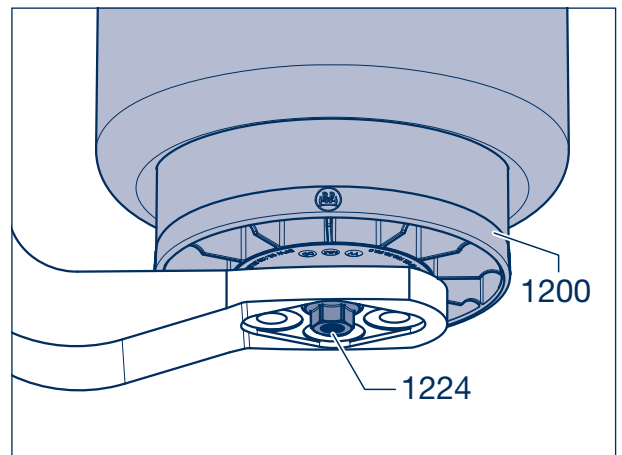


Figure 20

- [33] Check the distance dimensions from work step [6].

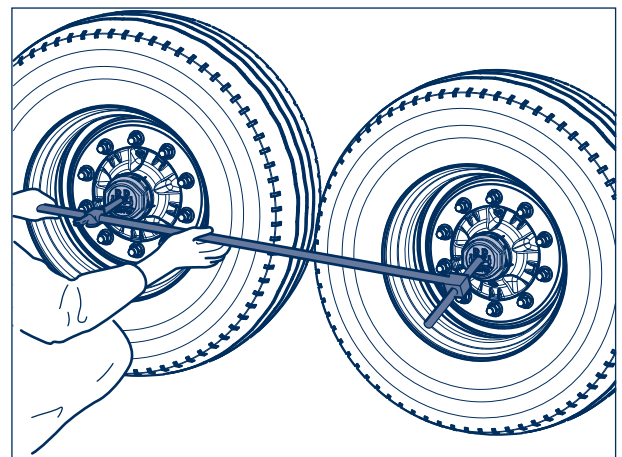


Figure 21

Installation instructions



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- [34] If a track correction is necessary, move the adjusting plates (1161) upwards or downwards evenly by tapping lightly with a hammer on both sides, depending on required adjustment direction (Fig. 22 and 23).



Repair note:

Make sure that the inner and outer adjusting plates on each hanger bracket are adjusted symmetrically!

Pay particular attention to the correct position of the adjusting plates (1161) on the anti-rotation lock of the air suspension hanger bracket!

The square on the spring bolt head (anti-rotation lock) must sit in the groove of the adjusting plate.

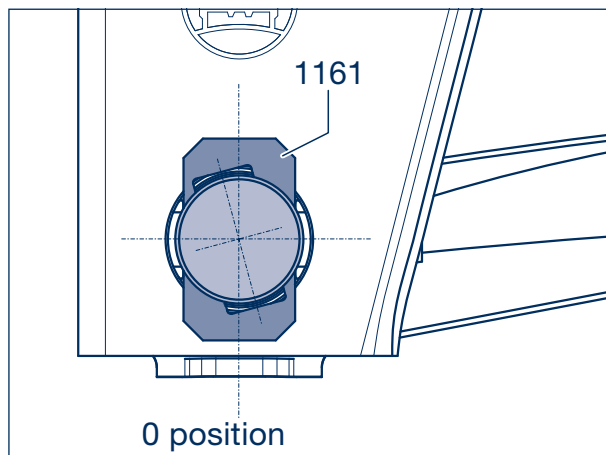


Figure 22

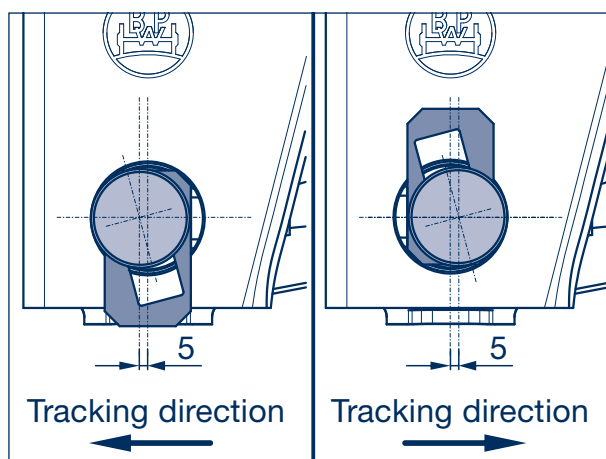


Figure 23

- [35] After correction, screw in lock nut (1168) on spring bolt (1154) and tighten to specified tightening torque of
M 24 (SW 36) M = **650 Nm** (605–715 Nm).

- [36] Lower axle and remove vehicle jack.

- [37] Replace the light tube trailing arm on the other axles (work steps [5] - [36]).

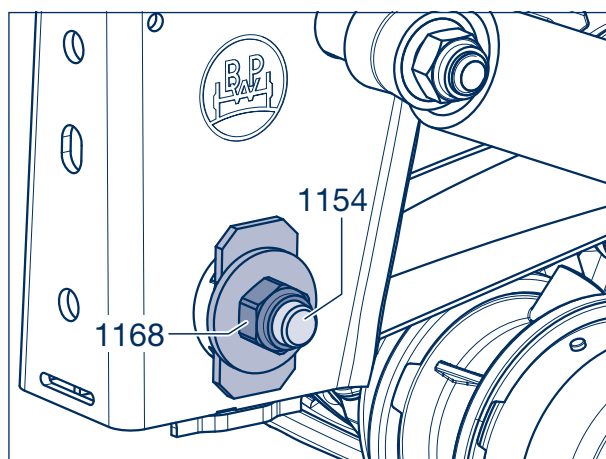


Figure 24

Installation instructions



Replacing the light tube trailing arm on the air suspension ALII

[38] Inflate air bags by setting rotary disc valve / change-over valve for air suspension to "Lift".

On air suspensions without rotary disc valve / change-over valve, actuate the lever on the air suspension valve until air bags are filled with air.

[39] Remove vehicle supports.

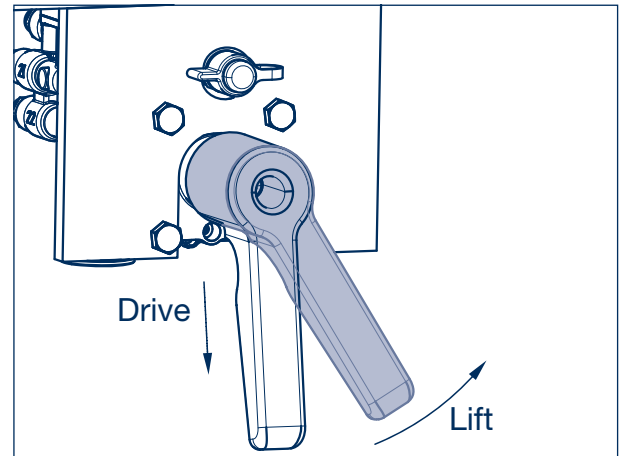


Figure 25

[40] Lower vehicle, deflate air bags to driving position by setting rotary disc valve / change-over valve lever on air suspension to "Drive".

[41] On air suspension systems without a rotary disc valve/change-over valve, fit the rubber connection onto the steering device (1) on the axle. The vehicle is automatically reset to the ride height.

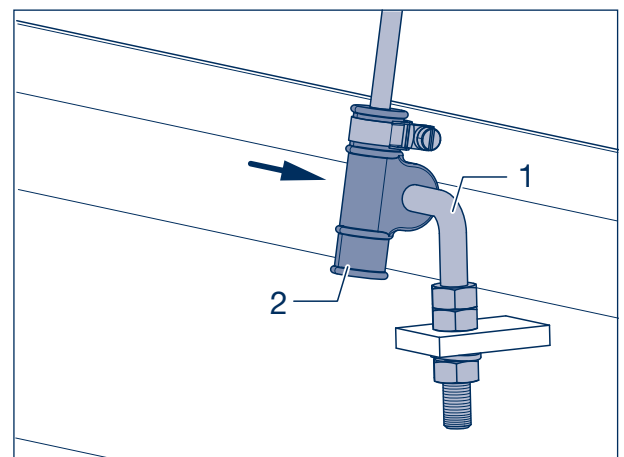


Figure 26

Set-up time for the vehicle: 30 min / conversion time per trailing arm 90 min / axle tracking per axle: 30 min

You will find more detailed descriptions in the ALII / SL workshop manual in the download area at www.bpw.de