

JSK 36 & JSK 37

EN Installation and operating instructions

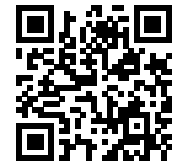


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1 Explanation of symbols



WARNING!

Means that death, serious physical injury or significant material damage can occur if the relevant safety instructions are not followed.



ATTENTION!

Means that slight physical injury or material damage can occur if the relevant safety instructions are not followed.



ADVICE!

Contains additional important information.



ATTENTION!

The safety instructions are summarised in a single section. Where the user of the fifth wheel coupling is in danger, the safety information is repeated in the various sections and marked with the danger symbol shown here to the side.

The relevant safety regulations in your country (for example Health & Safety at Work) apply for working with fifth wheel couplings, tractor units and semi-trailers. The appropriate safety information in the operating manual for the tractor unit and the semi-trailer continues to remain valid and must be followed. The following safety information applies to the installation, servicing and mounting work. Items of safety information directly linked to the activity are listed again individually.

2.1 Safety information for operation

- ▶ The fifth wheel coupling may only be operated by authorised personnel.
- ▶ Only use the fifth wheel coupling and skid plate on the semi-trailer if they are in perfect technical condition.
- ▶ The front edge of the skid plate must not be sharp, otherwise it may damage the fifth wheel coupling or the top plate liners.
- ▶ Comply with the relevant safety regulations when connecting a semi-trailer, for example the Health and Safety at Work Regulations. Only couple up a semi-trailer on firm, flat ground.
- ▶ When coupling up a semi-trailer, the skid plate must be at the same height as or ideally max. 50 mm lower than the coupling plate on the fifth wheel coupling. Pressure losses in the air suspension may change the height of the semi-trailer.
- ▶ Check the locking mechanism before starting your journey to ensure that it is properly locked. Only drive the vehicle with the locking mechanism locked and secured, even when driving without a semi-trailer (solo driving).

2.2 Safety information for servicing

- ▶ Only use the specified lubricants for servicing work.
- ▶ The servicing work should only be conducted by skilled personnel.

2 Safety information

2.3 Safety information for installation

- ▶ The installation area defined by the manufacturer of the tractor unit may not be changed.
- ▶ The installation work may only be conducted by authorised specialists.
- ▶ Refer to the instructions issued by the vehicle manufacturer, for example the method of fastening, fifth wheel position, fifth wheel height, axle load, cavity, mounting plate, slider, etc.
- ▶ Follow the installation instructions supplied by the mounting plate and slider manufacturers.
- ▶ An earth connection must be provided between the fifth wheel coupling and the vehicle chassis in vehicles that are used for transporting hazardous substances.

In general, bolt connections are to be tightened to the tightening torque specified as a setpoint for torque wrenches as per DIN ISO 6789 in classes A or B.

The fifth wheel coupling must be installed on the vehicle in accordance with the requirements of Annex 7 of Regulation ECE R55-01. It may also be necessary to comply with the licensing regulations of the appropriate country.

All welding on fifth wheel couplings and their parts is strictly prohibited and will render the type approval void.

3.1 Application

JOST fifth wheel couplings are mechanical connection devices and establish the connection between the tractor unit and semi-trailer. They are designed for mounting on a tractor unit.

Fifth wheel couplings, mounting plates and king pins are connecting parts that must comply with very high safety requirements and must also undergo design approval tests. Modifications of any kind will render both the warranty and the design approval void and therefore also cancel the vehicle's operating licence.

JOST fifth wheel couplings are specified to comply with Regulation ECE R55-01 Class 50 and are exclusively to be used in combination with king pins of Class H50 and Class J steering wedges and mounting plates or with comparable licensed equipment.

JOST fifth wheel couplings are suitable for use with power steering systems.



ADVICE!

Technical modifications reserved. The latest information can be found at www.jost-world.com

3.2 Unintended use

The following will be deemed to be unintended use:

- ▶ Use of king pins which do not comply with the ISO 337 or DIN 74080 standards
- ▶ Use of defective king pins. Defects may include, for example, damage to the king pin, incorrect dimensions and installation on uneven or damaged skid plates
- ▶ Use with plastic discs mounted on the semi-trailer
- ▶ Use with an imposed load or D value above the maximum permitted values
- ▶ Incorrect towing procedures which adversely affect the smooth functioning of the fifth wheel coupling
- ▶ Attachment or fastening of lifting equipment
- ▶ Other applications which do not comply with the manufacturer's recommendations

3 Proper usage

3.3 Design

The fifth wheel coupling is designed in combination with the vehicle by the vehicle manufacturer (the design must comply with Regulation ECE R55-01, Annex 7).

In addition to the imposed load, the D value is a criterion for the load capacity of fifth wheel couplings and mounting plates.

It can be calculated using the following formula:

D = Drawbar value [kN]

g = 9.81 m/s²

R = Permissible gross weight of the semi-trailer [t]

T = Permissible gross weight of the tractor unit including U [t]

U = Maximum imposed load [t]

$$D = g \times \frac{0,6 \times T \times R}{T + R - U} \text{ [kN]}$$

Sample calculation:

R = 33 t

T = 17 t

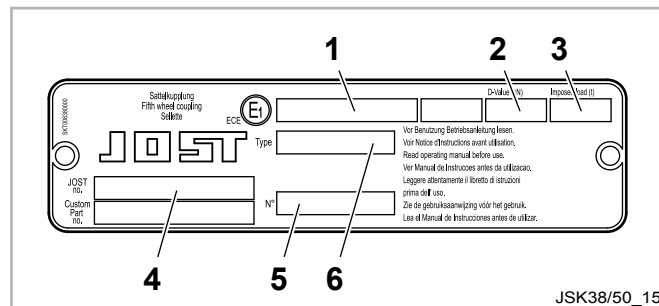
U = 10.5 t

$$D = 9,81 \times \frac{0,6 \times 17 \times 33}{17 + 33 - 10,5} = 83,6 \text{ kN}$$

Please see the adjacent table for the permitted load data for JOST fifth wheel couplings. This information is also listed in the relevant JOST catalogue sheets and stamped on the type plate. This load data is applicable for proper usage pursuant to regulation ECE R55-01.

If they are subject to additional dynamic forces, for example if they are used on uneven road surfaces or on construction sites, do not use the complete fifth wheel load and D value, or use a heavier fifth wheel coupling. Alternatively, consult JOST.

Every fifth wheel coupling has a serial number, which is embossed on the type plate. This gives the coupling a unique identity.



Example of a type plate

- 1 ECE approval
- 2 Maximum D value in kN
- 3 Maximum imposed load U in t
- 4 Article no.
- 5 Factory number
- 6 Type

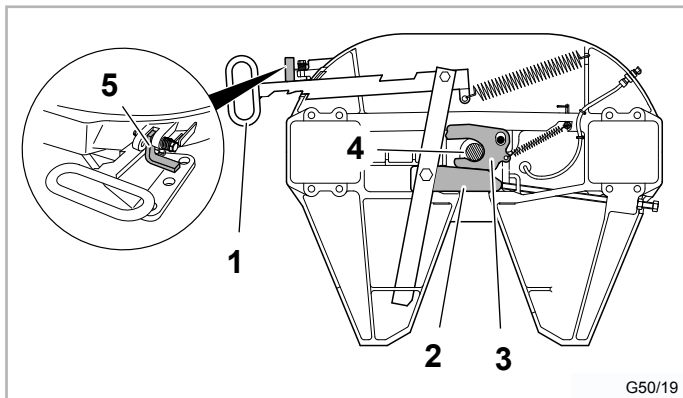
3 Proper usage

Permissible load data

ECE Test symbol and approval number	Type	Fifth wheel coupling	Imposed load U [t]	D value [kN]
(E1) 55R-01 0116	JSK37C	JSK37C, JSK37CW	20	152
(E1) 55R-01 0294	JSK37E	JSK37E, JSK37EW, JSK37ER, JSK37ERW	20	152
		JSK37EA, JSK37EAW	18	135
		JSK37ME140, JSK37ME140W	15	126
(E1) 55R-01 1929	JSK37CX	JSK37CX	24	170
(E1) 55R-01 1927	JSK37CX-1	JSK37CX-1	20	152
(E1) 55R-01 0301	JSK36D	JSK36D	20	152

4 Operation

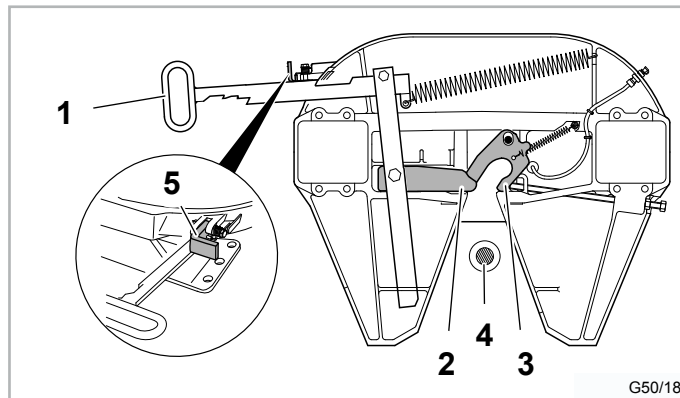
4.1 Fifth wheel coupling closed and locked



G50/19

- 1 Handle
- 2 Locking bar
- 3 Lock jaw
- 4 King pin
- 5 Safety catch

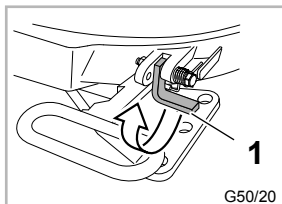
4.2 Fifth wheel coupling ready for engagement



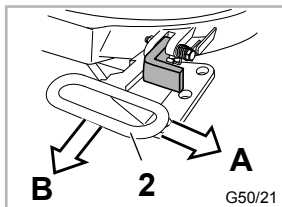
G50/18

- 1 Handle
- 2 Locking bar
- 3 Lock jaw
- 4 King pin
- 5 Safety catch

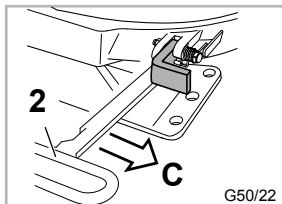
4.3 Opening the fifth wheel coupling



- ▶ Lift the catch (1).



- ▶ Swing the handle (2) towards the front into position **A** (to release the lock).
- ▶ Pull out the handle (2) as far as possible into position **B**.



- ▶ With the handle (2) pulled out, swing it forwards into position **C** and engage it on the edge of the plate.

- ▶ When opening the fifth wheel coupling without a semi-trailer engaged, the fifth wheel coupling is to be opened as per Figures G50/20 and G50/21.

- ▶ The fifth wheel coupling must be ready to engage before coupling up (see section 4.2).
- ▶ When opening the fifth wheel coupling with a semi-trailer engaged, the fifth wheel coupling is to be opened as per Figures G50/20, G50/21 and G50/22.

4.4 Coupling up a semi-trailer

- ▶ Secure the semi-trailer to prevent it rolling away.
- ▶ The fifth wheel coupling must be ready to engage (see section 4.2). If it is not, open the fifth wheel coupling (see section 4.3).
- ▶ Check the height of the semi-trailer. The skid plate must ideally be at the same height as or no more than 50 mm lower than the fifth wheel coupling plate.
- ▶ Drive the tractor unit under the semi-trailer.
- ▶ The locking mechanism will close automatically.
- ▶ Perform a moving-off test in a low gear.
- ▶ Check the locking mechanism (see section 4.6).
- ▶ Connect the supply lines.
- ▶ Retract the landing gear as described in the operating manual.
- ▶ Release the parking brake and remove the chocks.



ATTENTION!

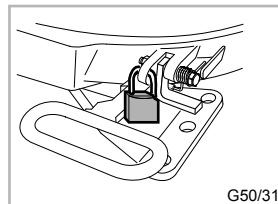
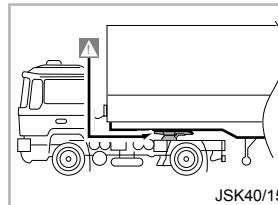
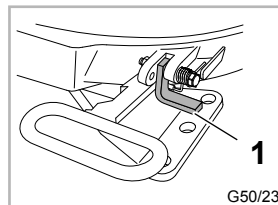
Check that the locking mechanism is closed before starting any journey (see section 4.6).

4 Operation

4.5 Uncoupling a semi-trailer

- ▶ Park the vehicle on flat, firm ground.
- ▶ Secure the semi-trailer to prevent it rolling away.
- ▶ Extend the landing gear as described in the operating manual until the fifth wheel coupling has almost no strain on it.
- ▶ Disconnect the supply lines.
- ▶ Open the fifth wheel coupling (see section 4.3).
- ▶ Drive the tractor unit out from under the semi-trailer.
- ▶ The fifth wheel coupling is automatically ready for engagement again (see section 4.2).

4.6 Checking the locking mechanism



- ▶ The catch (1) must be down as shown.



ATTENTION!

The skid plate must rest on the fifth wheel coupling without a gap.



ADVICE!

To prevent the fifth wheel coupling being opened without authorisation, a security device (for example a padlock) can be inserted into the hole of the catch holder in the handle as shown.

5.1 General installation instructions

To fasten the JOST fifth wheel coupling (pursuant to Regulation ECE R55-01) on the mounting plate or on the auxiliary frame, **at least** 8 M16 bolts, ideally M16 x 1.5 of strength class 8.8, must be used.

These must be positioned in a symmetrical pattern to the longitudinal and lateral axes of the fifth wheel coupling.

If the coupling is used in harsh conditions (for example on construction sites), with trailers with forced steering or with trailers that use the full D value and/or imposed load, we recommend that you use all 12 bolts.

Fifth wheel couplings with a design height of over 250 mm and a D value of over 133 kN must be secured with 12 bolts with strength class 10.9. This also applies to fifth wheel couplings with a D value of more than 152 kN or an imposed load of more than 20 t.

We recommend that you use JOST fastening kits (see JOST catalogue for order numbers).

The pedestals should make contact with the mounting plate over as wide an area as possible. With undulating mounting plates, it is necessary to have a support in the middle area as well as the contact in the screw connection area. We recommend securing the pedestals in the longitudinal and lateral directions and the mounting plates in the longitudinal direction using pre-welded thrust plates with zero play. Use the welding methods set out by the manufacturers of the vehicle and mounting plate for this purpose (see section 5.2).

There is no need to use thrust plates, however, if it can be ensured that the correct tightening torque for the bolts and therefore the perfect friction contact can be generated and maintained at all times. The bolt connections are therefore to be designed so that

the prescribed tightening torque values or pre-stressing forces can be applied permanently.

The general rule is that the coating thickness of the paintwork around the securing area of the bolts must be no more than 120 µm per component.

The bolt connections are to be secured using state-of-the-art methods to prevent them coming loose.

Appropriate reinforcement must be made in accordance with the application. The fifth wheel coupling must be able to move freely and must not be in contact with either the mounting plate or parts of the chassis or auxiliary frame when the vehicle is being driven. If you use a different installation method (for example chassis installation), follow the instructions supplied by the vehicle manufacturer.

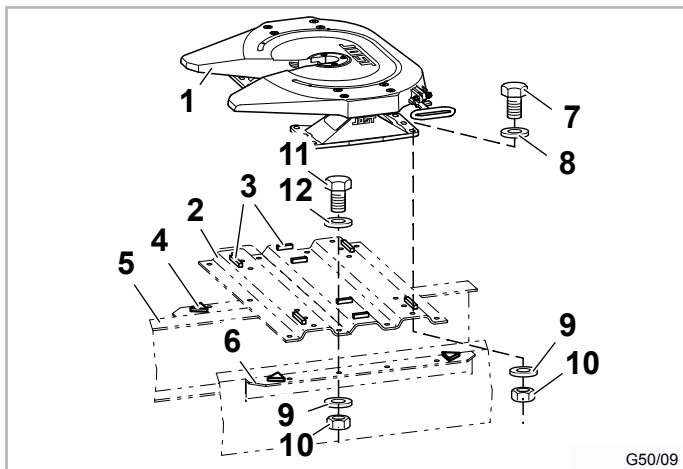


ATTENTION!

The fifth wheel coupling must be able to move freely and must not be in contact with any parts of the frame or flitch when the vehicle is being driven.

5 Installation

5.2 Assembling the fifth wheel coupling on the mounting plate



- 1 Fifth wheel coupling
- 2 Mounting plate
- 3 Thrust plate to secure the pedestals
- 4 Thrust plate to secure the mounting plate
- 5 Vehicle chassis
- 6 Vehicle auxiliary frame
- 7 Hexagonal bolt DIN EN 28765/28676 (DIN 960/961) M16 x 1.5-8.8
- 8 Washer 17 DIN7349 6 thick (min. HV295)
- 9 Optional washer (min. HV295) or disc spring
- 10 Hexagonal nut DIN980 M16 x 1.5-8.8 or M20 x 1.5-8.8
- 11 Hexagonal bolt DIN EN 28765/28676 (DIN 960/961) M16 x 1.5-8.8 or M20 x 1.5-8.8
- 12 Optional washer/disc spring



ADVICE!

Tightening torques must absolutely be adhered to; see section 5.3

5.3 Fastening material and tightening torques

Fastening material		Strength class 8.8	Strength class 10.9
Hexagonal bolt DIN EN 24014/24017 (DIN 931/933) standard thread	M16	210 Nm	260 Nm
	M20	410 Nm	500 Nm
Hexagonal bolt DIN EN 28765/28676 (DIN 960/961) fine thread	M16 x 1.5	225 Nm	280 Nm
	M20 x 1.5	460 Nm	500 Nm
Hexagonal bolt DIN 7991	M16 or M16 x 1.5	170 Nm	250 Nm
	M20 or M20 x 1.5	330 Nm	400 Nm

**ADVICE!**

The values shown above are guide values for a coefficient of friction $\mu_{tot.} = 0.14$. Further information is available in VDI 2230.

6 Servicing and testing

6.1 Servicing instructions

The skid plate on the semi-trailer that engages with the fifth wheel coupling must meet the following conditions to provide a long service life and trouble-free function:

- ▶ Max. 2 mm unevenness
- ▶ Adequate reinforcement must be assured
- ▶ Smooth and groove-free surface if possible, without weld bumps (smooth existing groove burr)
- ▶ Rounded or chamfered front and side edges
- ▶ Complete coverage of the fifth wheel coupling support area.



ATTENTION!

Effective lubrication of the top of the fifth wheel coupling plate (apart from on the W version), the locking mechanism, the pivot bearings (only for the D version) and the king pin (before using for the first time and after cleaning) is essential to ensure their long service life. In the W version, we recommend applying a thin coat of grease to the skid plate.



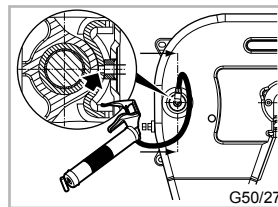
ADVICE!

Before installation, the skid plate must be checked to ensure it is even, and the skid plate thickness must also be checked. The unevenness of the skid plate must be no more than 2 mm in the load-bearing section of the fifth wheel coupling. The skid plate must cover the fifth wheel coupling's set-down surface in every position.

6.1.1 Fifth wheel coupling with manual lubrication

At short intervals, at the latest every 5,000 km:

- ▶ Uncouple the semi-trailer
- ▶ Clean the fifth wheel coupling and the skid plate.
- ▶ Grease the fifth wheel coupling plate, locking mechanism parts and king pin with high-pressure grease (EP), JOST high-performance lubricant (article no. SKE 013 440 000).
- ▶ Grease the pivot bearing of version D via the hole on the top part of the plate (see Figure G50/27) with **paste-like** high-pressure grease (EP), JOST high-performance lubricant (article no. SKE 013 440 000).



- ▶ Grease the pivot bearing of version D on both sides (lubrication adapter SKE 005 740 000).



ADVICE!

The pivot bearings on the C and E versions require no servicing. The grease nipples on the edge of the fifth wheel coupling plate are only designed for additional greasing of the locking mechanism between service intervals.

6.1.2 Fifth wheel coupling with central lubrication connection (version Z)

Depending on the conditions in which it is used, the grease specification and metering, at the latest every 50,000 km or every six months:

- ▶ Uncouple the semi-trailer
- ▶ Clean the fifth wheel coupling and the skid plate.
- ▶ Check the function of the central lubrication system as described in the manufacturer's instructions.
- ▶ Lightly grease the fifth wheel coupling plate, locking mechanism parts and king pin with high-pressure grease (EP), JOST high-performance lubricant (article no. SKE 013 440 000).
- ▶ Grease the pivot bearing of version D via the holes on the top part of the plate (see Figure G50/27) with paste-like high-pressure grease (EP), JOST high-performance lubricant (article no. SKE 013 440 000).



ADVICE!

The pivot bearings on the C and E versions require no servicing.

6.1.3 Low-maintenance fifth wheel coupling with top plate liners (version W)

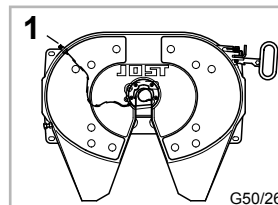
At the latest every 50,000 km or every six months, in harsh conditions every 25,000 km:

- ▶ Uncouple the semi-trailer
- ▶ Clean the skid plate and the king pin.
- ▶ Lightly grease the king pin and the locking mechanism parts with high-pressure grease (EP), JOST high-performance lubricant (article no. SKE 013 440 000).
- ▶ Check the top plate liners for signs of wear and damage (see section 6.6).



ADVICE!

The pivot bearings on the C and E versions require no servicing.



- ▶ In addition, grease the locking mechanism – **with a trailer attached** – every 10,000 km using the grease nipple (1) on the edge of the fifth wheel coupling plate.

6 Servicing and testing

You can also install automatic lubricant dispensers. To prevent corrosion on the skid plate, we recommend that the skid plate is greased lightly during the above service intervals.



ADVICE!

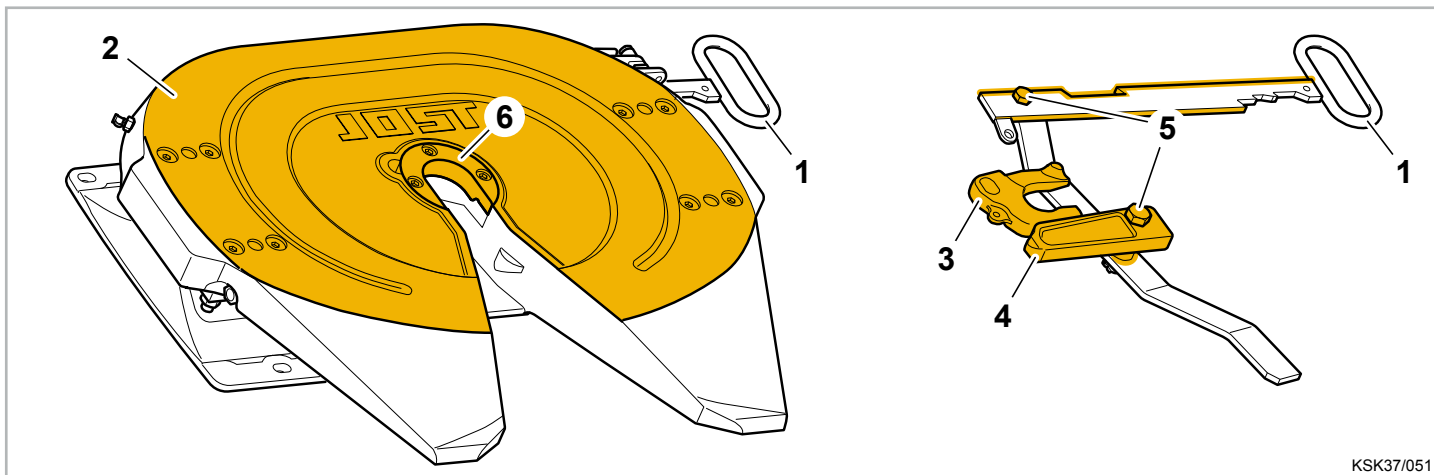
When you clean the fifth wheel coupling, you may produce waste products that contain polluting substances. We would like to point out that you must comply with the various national waste regulations for the disposal of this waste.

6.1.4 Grease specification

We recommend high-pressure grease (EP), e.g. JOST high-performance lubricant (article no. SKE 013 440 000).

6 Servicing and testing

6.2 Lubrication instructions



- | | | | | | |
|---|-------------|---|------------------------------|---|--------------|
| 1 | Handle | 2 | Fifth wheel coupling plate | 3 | Lock jaw |
| 4 | Locking bar | 5 | Hinge joints and lever guide | 6 | Wearing ring |

Lubricate areas marked in yellow:

- ▶ Side of handle (1), hinge joints and lever guides (5).
- ▶ Generously lubricate the top side (2) and completely fill the lubricating groove (except W version – the top plate liners do not have to be greased; JOST top plate liners are resistant to lubricating greases).
- ▶ Lubricate lock jaw (3) and locking bar (4) with the fifth wheel coupling closed.
- ▶ With the standard version (not the low-maintenance version), the centre area around the wearing ring (6) must be completely filled with grease (see marked area).

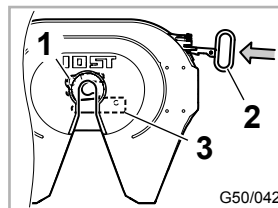
Grease specification: We recommend JOST high-performance lubricant (article no. SKE 013 440 000).

6 Servicing and testing

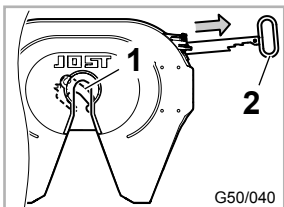


ATTENTION!

A second person is needed to close the lock. A tool such as a large slotted screwdriver can be used to swivel the lock jaw (1). The lock jaw (1) must never be swivelled by hand. There is a risk of crushing.



- ▶ Slowly move handle (2) into closed position.
- ▶ Grease all sides of lock jaw (1) and locking bar (3).

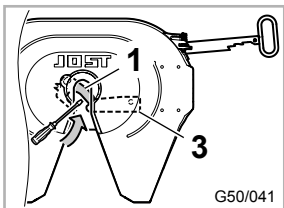


- ▶ Have a second person pull handle (2) until the lock jaw (1) is free.
- ▶ Hold handle (2) in this position.



ATTENTION!

Open the fifth wheel coupling before it is next coupled up (see section 4.3).



- ▶ Swivel lock jaw (1) forward, e.g. with a large slotted screwdriver, until the locking bar (3) is free.

6.3 Test instructions

Depending on the conditions of use, but no later than every 50,000 km or every six months, the fifth wheel coupling, the mounting plate, the slider and the king pins should be checked for:

- ▶ Function
- ▶ Wear
- ▶ Correct position of the fastening elements (check prescribed torque values)
- ▶ Damage or distortion
- ▶ Cracks
- ▶ Corrosion
- ▶ To ensure adequate lubrication
- ▶ To ensure the smooth running of the mechanisms

and repaired where necessary (see the appropriate JOST repair instructions at www.jost-world.com).

6.4 Wear test

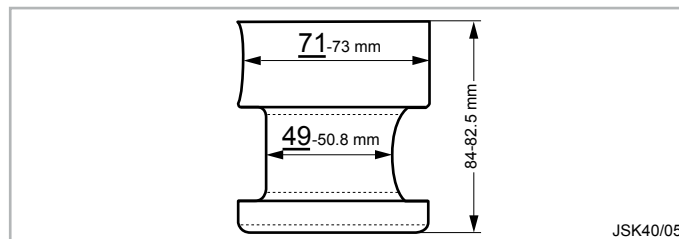
Fifth wheel couplings and king pins are subject to more or less wear depending on the conditions in which they are used, and this wear is noticeable by play towards the front of the vehicle. Excessive play causes shocks and may lead to instability on the road and damage to the fifth wheel coupling, mounting plate, sliders and vehicle chassis.

JOST fifth wheel couplings have a manual infinite adjustment facility for the locking mechanism to extend their service lives.



ATTENTION!

The wear on the king pin must not be compensated for through adjustment.



When the wear limit on the king pin has been reached, it must be replaced. After the king pin has been replaced, the locking mechanism must be adjusted again.

Play caused by wear on the king pin should either be accepted if within the permitted wear limit for the king pin (see Figure JSK 40/05) or should be rectified by fitting a new king pin.

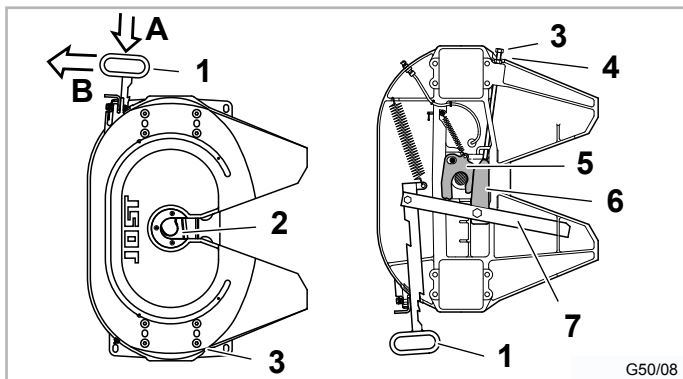


ADVICE!

After work on the locking mechanism or after replacement of the lock jaw, wearing ring or locking bar, the locking mechanism must always be readjusted in order to ensure the base clearance of 0.3 mm.

6 Servicing and testing

6.5 Adjusting the locking mechanism



- | | | | |
|---|-------------------|---|-------------|
| 1 | Handle | 5 | Lock jaw |
| 2 | Locking mechanism | 6 | Locking bar |
| 3 | Adjusting screw | 7 | Lever |
| 4 | Lock nut | | |

The locking mechanism must be adjusted using a semi-trailer without forced steering with an unworn king pin as described below:

- ▶ Park the vehicle on flat, firm ground and uncouple the trailer
- ▶ Undo the lock nut (4)
- ▶ Unscrew the adjusting screw (3) by approx. 15 turns
- ▶ Couple the semi-trailer up, if necessary lightly tapping the handle (1) in the closing direction **A** to bring the locking bar into its limit position
- ▶ Release the handle (1) (lift the safety latch - see figure G50/20 in section 4.3) swing into position **B** and hold (get someone to assist).
- ▶ Tighten the adjusting screw (3) again until the handle (1) starts to move (have an assistant check this)
- ▶ To set the recommended basic play of 0.3 mm, tighten the adjusting screw (3) by a further 1½ turns and secure it with the lock nut (4)
- ▶ Apply the semi-trailer brake
- ▶ Move off with the tractor and check the maximum play in the locking mechanism.

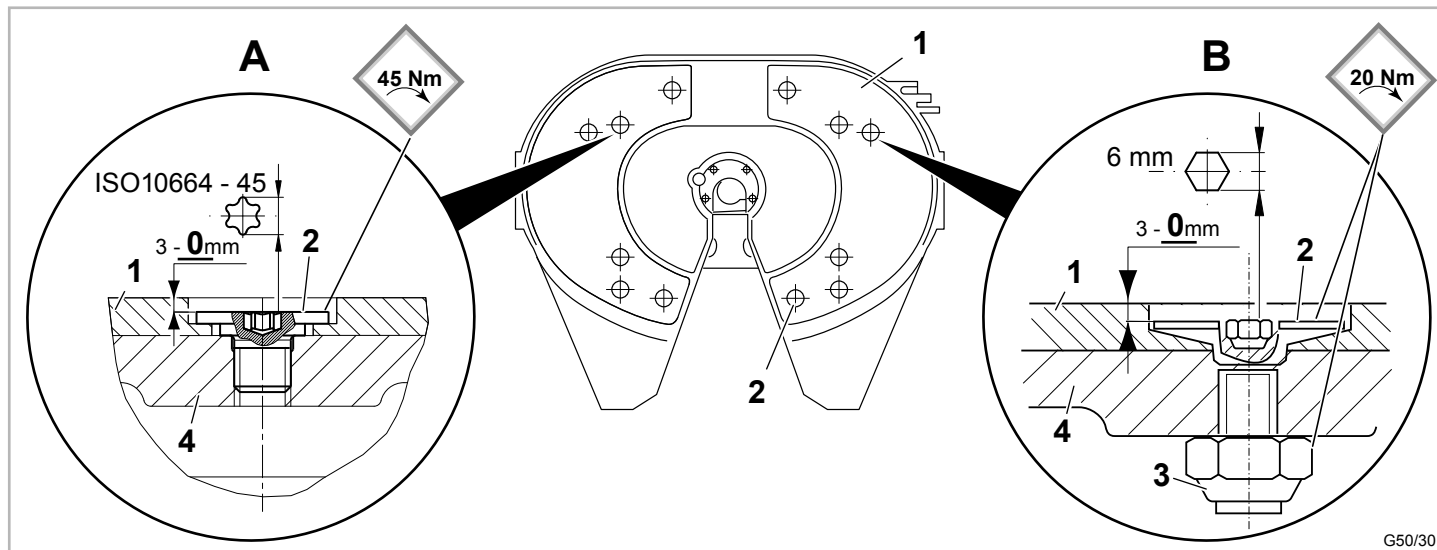


ADVICE!

If there is still excessive play, the wearing ring and the lock jaw must be replaced as described in the repair instructions.

6 Servicing and testing

6.6 Wear limit – top plate liners



1 Top plate liner
2 Fastening bolt

3 Lock nut
4 Fifth wheel coupling plate

A New version
B Old version

The top plate liners (1) must be checked for signs of wear and damage at regular intervals that depend on usage, but at least every 50,000 km or every six months.

The top plate liners (1) must be replaced when they have worn to the top of the fastening bolts (2).



ATTENTION!

When removing the top plate liners (1), the lock nuts (3) must be removed first on version **B**.

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MUB 002 004 M01 (REV-E) 03-2021 • 4.4

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