

JOST

-Montage- und Betriebsanleitung

JOST SATTELKUPPLUNG JSK 40, JSK 42



- ⓐ Installation and operating instructions for
FIFTH WHEEL COUPLING JSK 40, JSK 42
- ⓑ Instructions de montage et d'utilisation pour
SELLETTE D'ATTELAGE JSK 40, JSK 42
- ⓒ Istruzioni per il montaggio e l'uso del
RALLA A PERNO JSK 40, JSK 42
- ⓓ Instrucciones de montaje y funcionamiento para el
QUINTA RUEDA JSK 40, JSK 42

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The safety information is compiled in one section. Where the user of the fifth wheel coupling may be in danger, the safety information is repeated in the various sections and marked with the danger symbol shown here on the left.

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 owner's handbook for the tractor unit and the semi-trailer are valid and must be followed. The following safety information apply to the installation, servicing and mounting work. Safety information directly linked to the activity is listed again individually.

1.1 Safety information for operation

- ▶ The fifth wheel coupling may only be used by authorised persons.
- ▶ 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 liner.
- ▶ Comply with the relevant safety regulations when coupling up a semi-trailer, for example the Health and Safety at Work Regulations. Only connect a semi-trailer on firm, flat ground.
- ▶ When coupling a trailer, the skid plate must be the same height or preferably up to 50 mm lower than the coupling plate of 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 must with the locking mechanism locked and secured, even on trips without the skid plate (solo operation).

1.2 Safety information for servicing

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

1.3 Safety information for installation

- ▶ Do not change the installation area defined by the manufacturer of the tractor unit.
- ▶ The installation work may only be completed by authorised specialists.
- ▶ Refer to the instructions issued by the vehicle manufacturer, with reference to the type 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.

The fifth wheel coupling must be mounted on the vehicle in compliance with the requirements of Appendix VII of Directive 94/20/EC (see Appendix No. I, No. 5.10 of this Directive). It may also be necessary to comply with the licensing regulations of the appropriate country. §§ 19, 20 and 21 of the Road Traffic Licensing Regulations (StVZO) apply in Germany. In addition, your attention is drawn to the requirements of § 27 of the Road Traffic Licensing Regulations relating to the data in the vehicle documents in terms of the maximum trailer load.

2.1 Application

Fifth wheel couplings provide the link between the tractor unit and the semi-trailer. They are designed for mounting on a tractor unit.

The fifth wheel coupling and mounting plate 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, e.g. type JSK 40, are specified to comply with Directive 94/20/EC Class G50 and are to be used together with king pins of class H50 and class J mounting plates or with comparable licensed equipment.

2.2 Design

The fifth wheel coupling is specified with the vehicle by the vehicle manufacturer (the design must comply with Directive 94/20/EC, Appendix VII). In addition to the fifth wheel 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 = Maximum gross weight of the semi-trailer [t]

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

U = Maximum imposed load [t]

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

Specimen calculation:

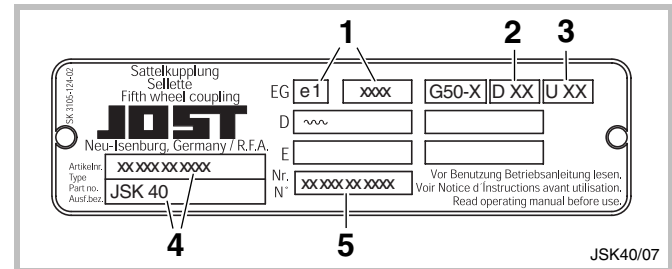
T = 17 t

R = 33 t

U = 10.5 t

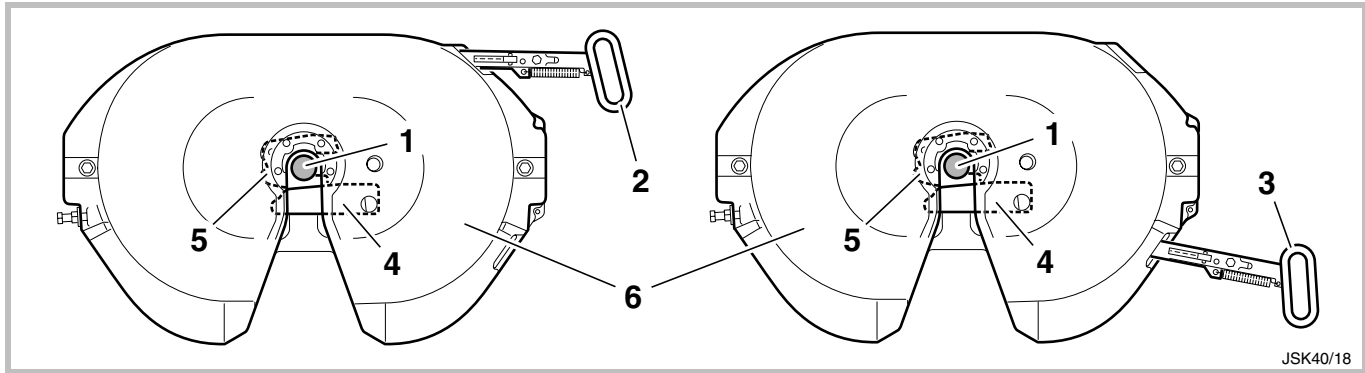
$$D = 9,81 \times \frac{0,6 \times 17 \times 33}{17 + 33 - 10,5} = 83,6 \text{ kN}$$

The maximum load data for JOST fifth wheel couplings are set out on the type plate and the appropriate JOST catalogue sheets. They are applicable for proper usage pursuant to Directive 94/20 EC. 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 imposed load and D value or use a stronger fifth wheel coupling or consult JOST.



- 1 EU Approval
- 2 Maximum D value in kN
- 3 Maximum imposed load U in t
- 4 Article no. and type
- 5 Serial no.

Each fifth wheel coupling has a serial number, which is embossed on the type plate and also below the type plate in the edge of the plate. This is designed to give the coupling a unique identity.



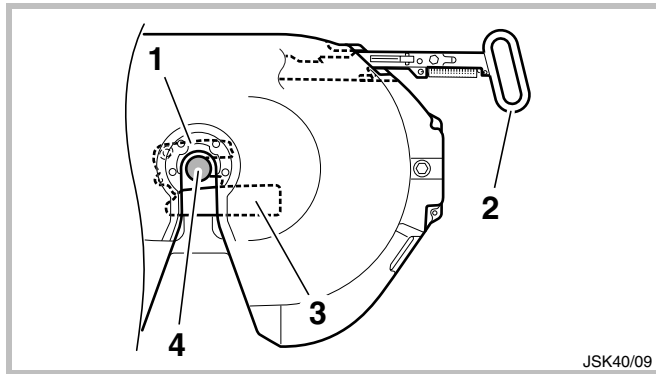
JSK40/18

- 1 King pin
- 2 Handle at front
- 3 Handle at rear
- 4 Locking bar
- 5 Lock jaw
- 6 Fifth wheel plate

Note

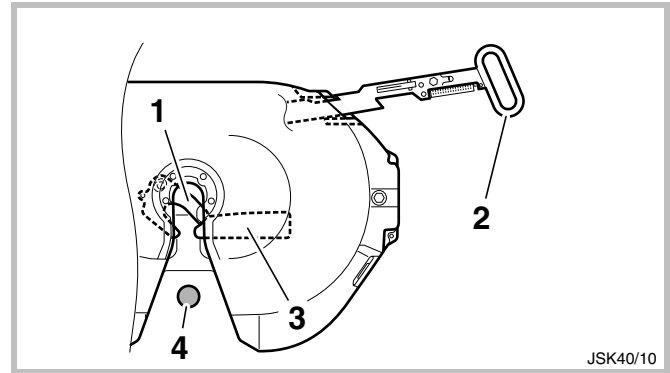
The following sections contain the description of how to operate the type JSF40 fifth wheel coupling with the handle at the front. The operating instructions also apply as and when appropriate for the type JSK 40 fifth wheel coupling with handle at the rear. Refer to the corresponding safety information.

3.1 Fifth wheel coupling closed and locked



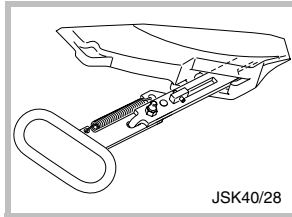
- 1 Lock jaw
- 2 Handle
- 3 Locking bar
- 4 King pin

3.2 Fifth wheel coupling ready for engagement

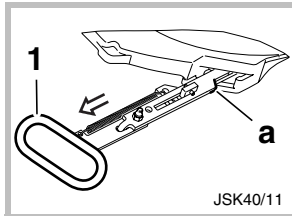


- 1 Lock jaw
- 2 Handle
- 3 Locking bar
- 4 King pin

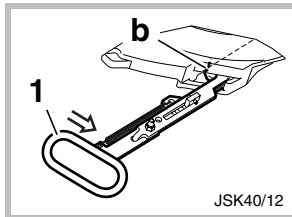
3.3 Opening the fifth wheel coupling



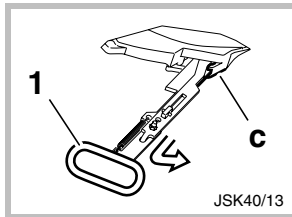
- ▶ Handle (1) closed and locked in position.



- ▶ Pull handle (1) until the locking edge **a** is free (2nd lock).



- ▶ Swing the handle (1) towards front to release the catch **b** (1st lock).



- ▶ Pull out the handle (1) as far as it will go and engage it on the edge of the plate **c**.

3.4 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 3.3).
- ▶ Drive the tractor unit out from under the semi-trailer.
- ▶ The fifth wheel coupling is automatically ready for engagement again.

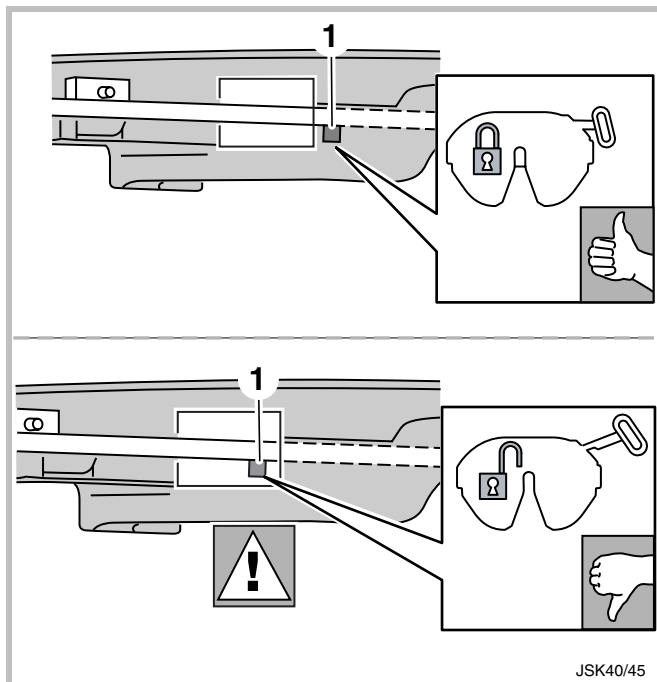
3.5 Coupling up a semi-trailer

- ▶ Secure the semi-trailer to prevent it rolling away.
- ▶ The fifth wheel coupling must be ready to engage (see section 3.2).
- ▶ Otherwise open the fifth wheel coupling (see section 3.3).
- ▶ Check the height of the skid plate. When coupling a trailer, the skid plate must be the same height or preferably up to 50 mm lower than the fifth wheel coupling plate.
- ▶ Drive the tractor unit under the semi-trailer.
- ▶ The locking mechanism will close automatically.
- ▶ Conduct an initial driving test in low gear.
- ▶ Check the locking mechanism (see section 3.6).
- ▶ Connect the supply lines.
- ▶ Retract the landing gear as described in the operating manual.
- ▶ Release the parking brake and remove the chocks.

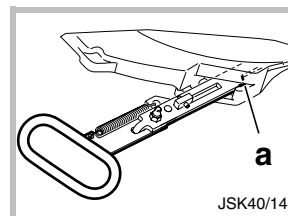


Check the locking mechanism status before starting any journey (see section 3.6).

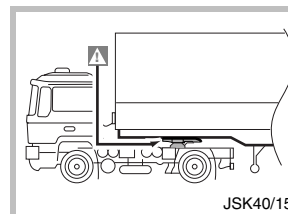
3.6 Checking the locking mechanism



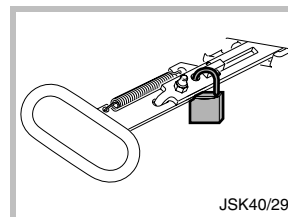
- ▶ The indicator pin (1) on the locking edge must no longer be visible.



- ▶ The locking edge **a** must be engaged in the fifth wheel coupling plate as shown.



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



Note

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

4.1 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.
- ▶ 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 using a reinforcement suitable for the application.



Effective lubrication of the top of the fifth wheel coupling plate (apart from JSK with top plate liners), the lock jaw, the handle and the king pin – before putting into service and every time after cleaning – is essential for ensuring a long service life. In the W version, we recommend applying a thin coat of grease to the skid plate.

Note

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

4.1.1 Fifth wheel coupling with manual greasing

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 and the skid plate (see section 4.2).
- ▶ Grease specification: High pressure grease (EP) with MoS₂ or graphite additive, for example: Turmo gear grease B2 from Lubcon (www.lubcon.com).

The pivot bearings on the bearing case are maintenance free.

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.

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

Depending on the conditions in which it is used, the grease specification and metering used, 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.
- ▶ Carry out basic lubrication of fifth wheel king pin and coupling (see Section 4.2).
- ▶ Grease specification: High pressure grease (EP) with MoS₂ or graphite additive (e.g. Turmo gear grease B2 from Lubcon (www.lubcon.com)).

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

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

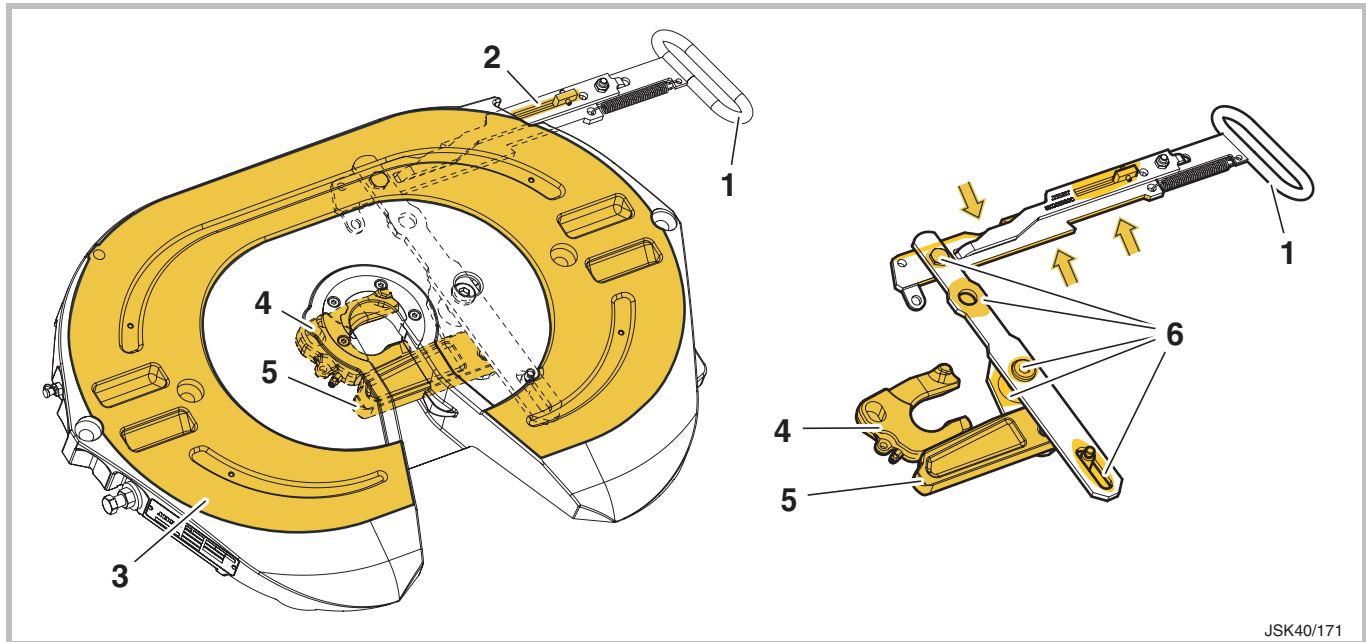
- ▶ Uncouple the semi-trailer.
- ▶ Clean the skid plate and the king pin.
- ▶ Grease the fifth wheel coupling and the skid plate (see section 4.2).
- ▶ Check the top plate liners and their fixing bolts for firm seating and signs of wear and damage (see Section 4.6).
- ▶ Grease specification: High pressure grease (EP) with MoS₂ or graphite additive (e.g. Turmogeargrease B2 from Lubcon (www.lubcon.com)).

In addition, every 10,000 km grease the locking mechanism – **with a trailer attached** – using the grease nipple on the edge of the coupling plate.

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.

4.2 Lubrication instructions



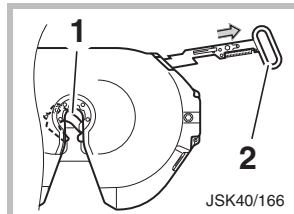
JSK40/171

- | | | |
|-----------------|----------------------------|---------------------------------------|
| 1 Handle | 3 Fifth wheel plate | 5 Locking bar |
| 2 Guide | 4 Lock jaw | 6 Pivot joints and lever guide |

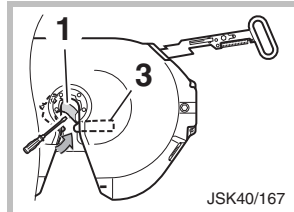
- ▶ Lubricate handle (1) on the side (see arrow) as well as the guide (2).
- ▶ Generously grease the area marked in yellow (except guide W – top plate liners must not be greased).
- ▶ Lubricate the lock jaw (4) and locking bar (5). The fifth wheel coupling must be closed while this is done (see instructions on next page for closing the fifth wheel coupling).



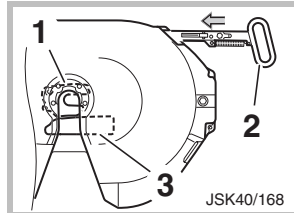
A second person is required for closing the lock.
An implement such as a large slotted screwdriver can be used to swivel the lock jaw (1).
Never use your hand to swivel the lock jaw (1). There is a danger of being crushed.



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



- ▶ Using a large slotted screwdriver or similar, swivel lock jaw (1) forwards until the locking bar (3) is free.



- ▶ Slowly return the handle (2) to the closed position.
- ▶ Grease the lock jaw (1) and locking bar on all sides.



Before coupling a trailer, the fifth wheel coupling must be opened (see section 3.3).

4.3 Test instructions

Depending on the conditions in which it is used, but no later than every 50,000 km or six months, whichever is earlier, the fifth wheel coupling, the mounting plate or slider and the king pin must be checked for:

- ▶ Function
- ▶ Wear
- ▶ Firm seating of the fixing bolts (note prescribed torque settings)
- ▶ Damage and distortion
- ▶ Cracks
- ▶ Corrosion
- ▶ Sufficient greasing
- ▶ Mechanical operation

And if necessary repaired (see corresponding JOST Repair Instructions at www.jost-world.com).

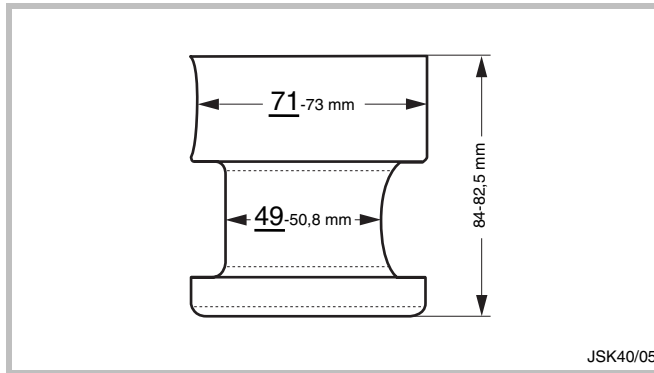
4.4 Wear test

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

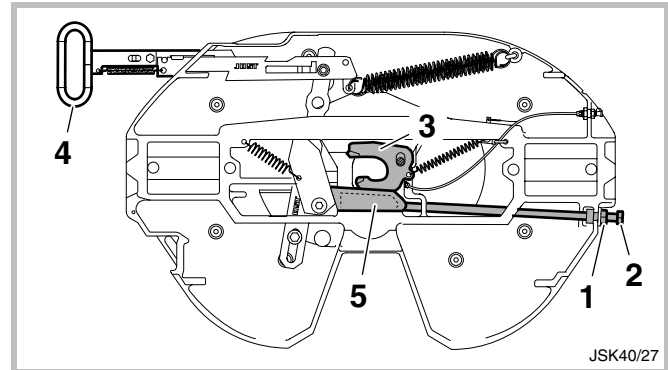


The wear on the king pin must not be compensated by the adjustment facility.



When the wear limit on the king pin has been reached, it must be replaced. After replacing the king pin, 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 illustration JSK 40/05) or should be rectified by fitting a new king pin.

4.5 Adjusting the locking mechanism



- 1 Lock nut
- 2 Adjusting screw
- 3 Lock jaw
- 4 Handle
- 5 Locking bar

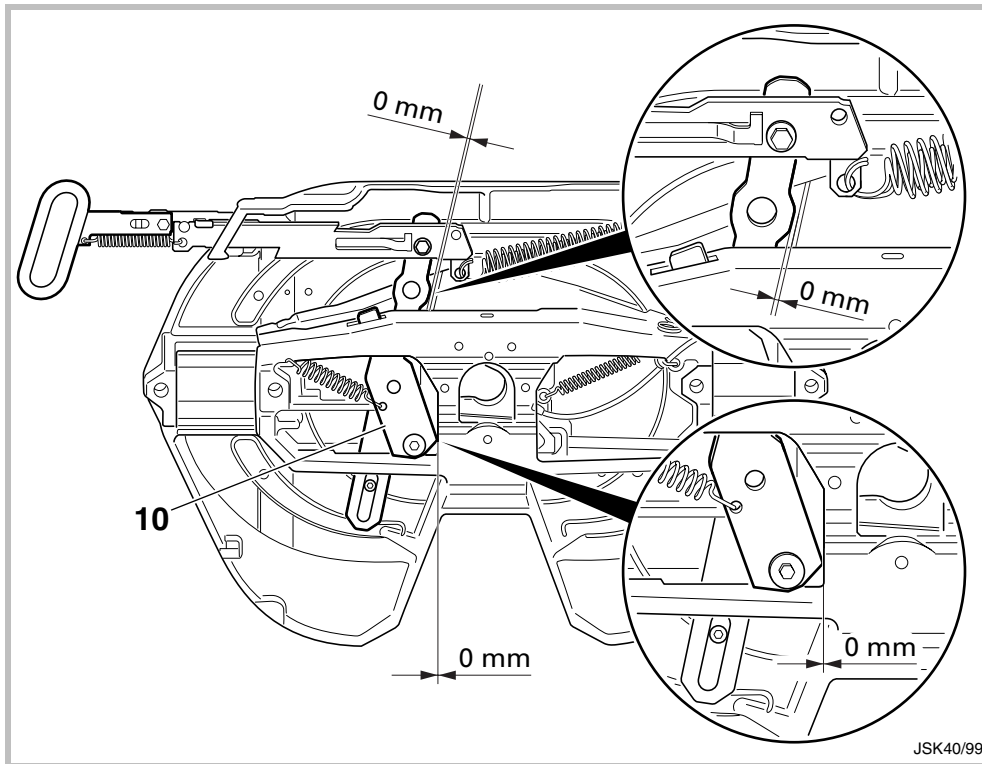
The locking mechanism must be adjusted as follows using a semi-trailer without forced steering with a new king pin:

- ▶ Uncouple the tractor unit on a flat, firm piece of ground.
- ▶ Undo the lock nut (1).
- ▶ Unscrew the adjusting screw (2) by approximately 15 turns.
- ▶ Couple the tractor unit up again.
- ▶ Swing handle (4) towards front of vehicle and get assistant to hold it.
- ▶ Tighten the adjusting screw (2) again until the handle (4) starts to move (have your assistant check this).
- ▶ To adjust the recommended basic play of 0.3 mm, tighten the adjusting screw (2) by a further 1 ½ turns and secure it with the lock nut (1).

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

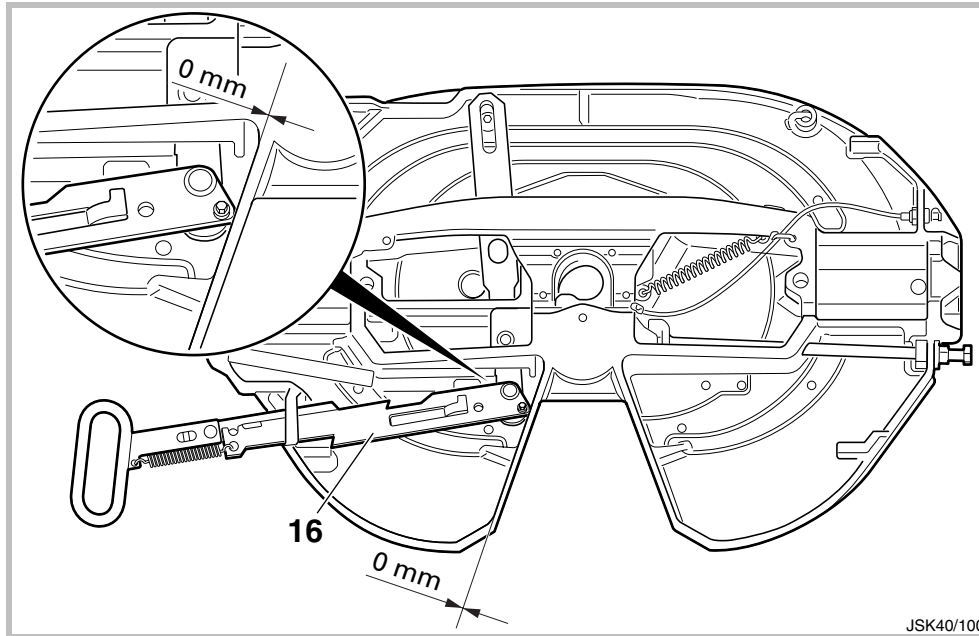
4.6 Wear limit – locking mechanism

Locking mechanism (handle at the front)



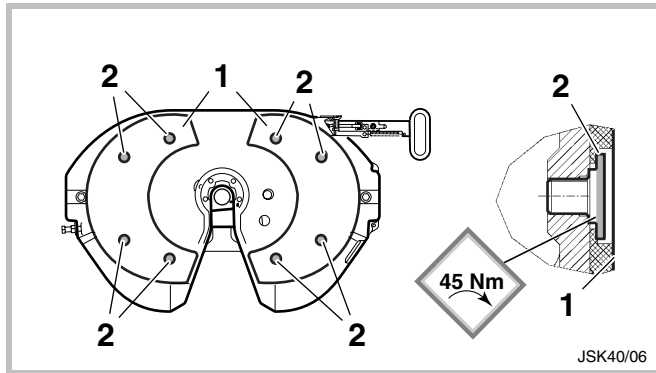
The lock wear limit is reached when there is no longer any gap between the lever (10) and the coupling plate. The locking mechanism cannot be adjusted any further at this point. In this case, replace the wearing ring and lock jaw as described in the repair manual.

Locking mechanism (handle at the rear)



The lock wear limit is reached when there is no longer any gap between the lever (16) and the coupling plate. The locking mechanism cannot be adjusted any further at this point. In this case, replace the wearing ring and lock jaw as described in the repair manual.

4.7 Wear limit – top plate liners



The top plate liners (1) and their fixing bolts (2) must be checked for firm seating, 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 securing bolts (2).

5.1 General installation instructions

To secure the JOST fifth wheel coupling (pursuant to Directive 94/20/EC and ISO 3842 / DIN 74081) on the mounting plate or on the flitch, **at least** eight 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.

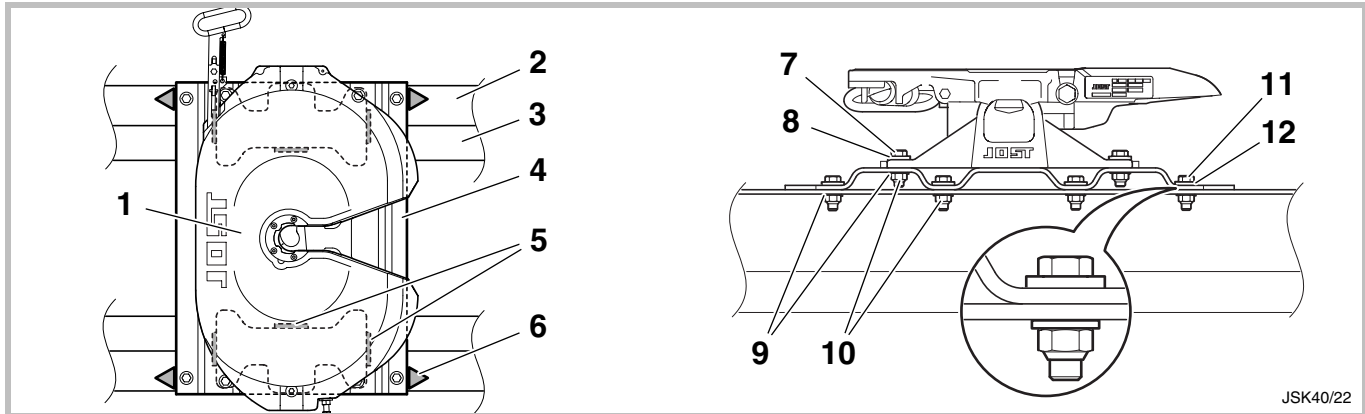
If the coupling is used in harsh conditions (for example on construction sites), with trailers with forced steering or with trailers that use the full D value and/or imposed load, we recommend that you use all 12 bolts. Fifth wheel couplings with a design height of over 250 mm and a D value of over 133 kN must be secured with 12 bolts.

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

The bearing cases should be laid if possible completely over the entire surface of the mounting plate or on the flitch. If the mounting plate is curved, a support in the central area is required in addition to the support plate in the bolting area (see also sections 5.2 and 5.3).

We recommend securing the pedestals in the longitudinal and lateral directions and the mounting plates in the longitudinal direction by pre-welded thrust plates. Use the welding methods set out by the manufacturers of the vehicle and mounting plate for this purpose. 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 prestressing 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 170 µm per component. The bolt connections are to be secured using state of the art methods to prevent them coming loose. 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 flitch when the vehicle is being driven.

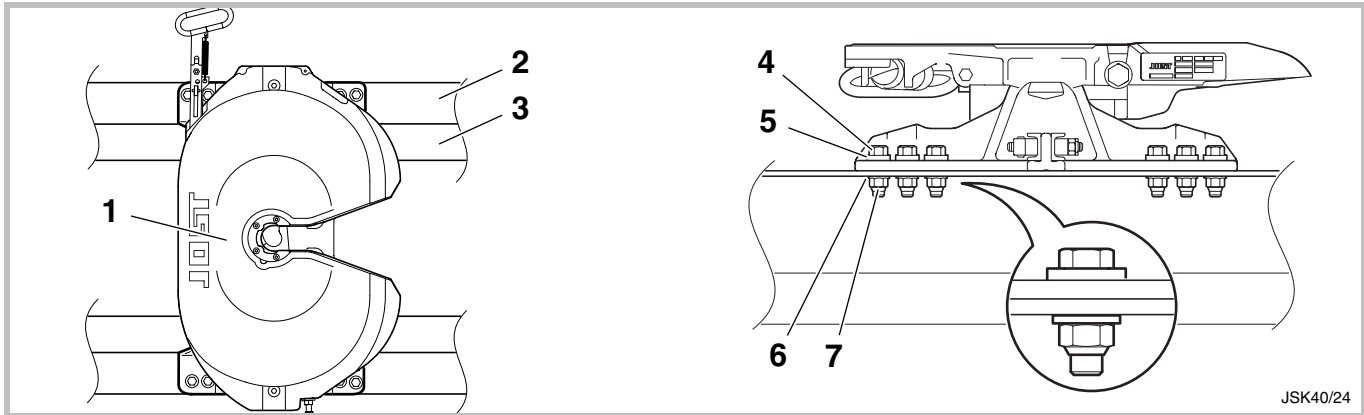
5.2 Mounting the fifth wheel on the mounting plate



- 1 Fifth wheel coupling
- 2 Flitch
- 3 Vehicle chassis
- 4 Mounting plate
- 5 Thrust plates to secure the pedestals
- 6 Thrust plates to secure the mounting plate
- 7 Hexagonal bolt DIN EN ISO 8765/8676 (DIN 960/961) M16 x 1.5-8.8
- 8 Washer 17 DIN 7349 6 thick (min. HB150)
- 9 Optional washer (min. HB150) or disc spring
- 10 Hexagonal nut DIN 980 M16 x 1.5-8.8 or M20 x 1.5-8.8
- 11 Hexagonal bolt DIN EN ISO 8765/8676 (DIN 960/961) M16 x 1.5-8.8 or M20 x 1.5-8.8
- 12 Optional washer/disc spring

Tightening torque, see section 5.4

5.3 Mounting the fifth wheel on the flitch



- 1 Fifth wheel coupling
- 2 Flitch
- 3 Vehicle chassis
- 4 Hexagonal bolt DIN EN ISO 8765/8676 (DIN960/961)
M16 x 1.5 x ...-10.9 (oval hole 18 x ...) at least 12 bolts
M20 x 1.5 x ...-10.9 (oval hole 22 x ...) at least 8 bolts
- 5 Washer 17 DIN 7349-St (min. HB250, for oval hole 18 x ...) at least 12 washers
Washer 21 DIN 7349-St (min. HB250, for oval hole 22 x ...) at least 8 washers
- 6 Disc spring DIN 2093
A31.5 (for oval hole 18 x ...) optionally without
B40 (for oval hole 22 x ...) optionally without
- 7 Hexagonal nut DIN EN ISO 10513 (DIN 980-V)
M16 x 1.5 x ...10 (oval hole 18 x ...) at least 12 bolts
M20 x 1.5 x ...10 (oval hole 22 x ...) at least 8 bolts

Tightening torque, see section 5.4

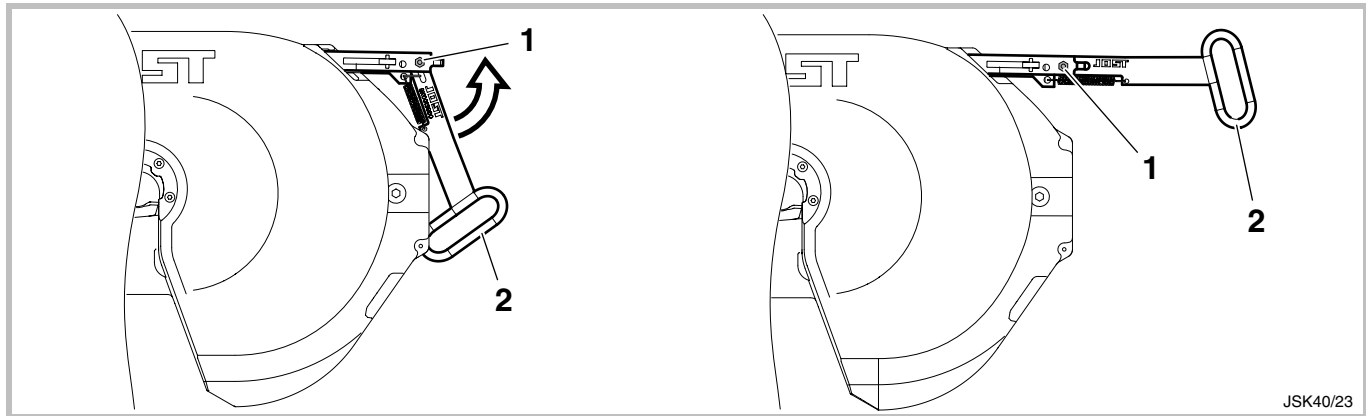
5.4 Fastening material and tightening torque values

Fastening materials		Strength class 8.8	Strength class 10.9
Hexagonal bolt DIN EN 24014/24017 (DIN 931/933) standard thread	M16 M20	210 Nm 410 Nm	260 Nm 500 Nm
Hexagonal bolt DIN EN 8765/28676 (DIN 960/961) fine thread	M16 x 1.5 M20 x 1.5	225 Nm 460 Nm	280 Nm 500 Nm
Countersunk bolt DIN 7991	M16 or M16 x 1.5 M20 or M20 x 1.5	170 Nm 330 Nm	250 Nm 400 Nm

Note

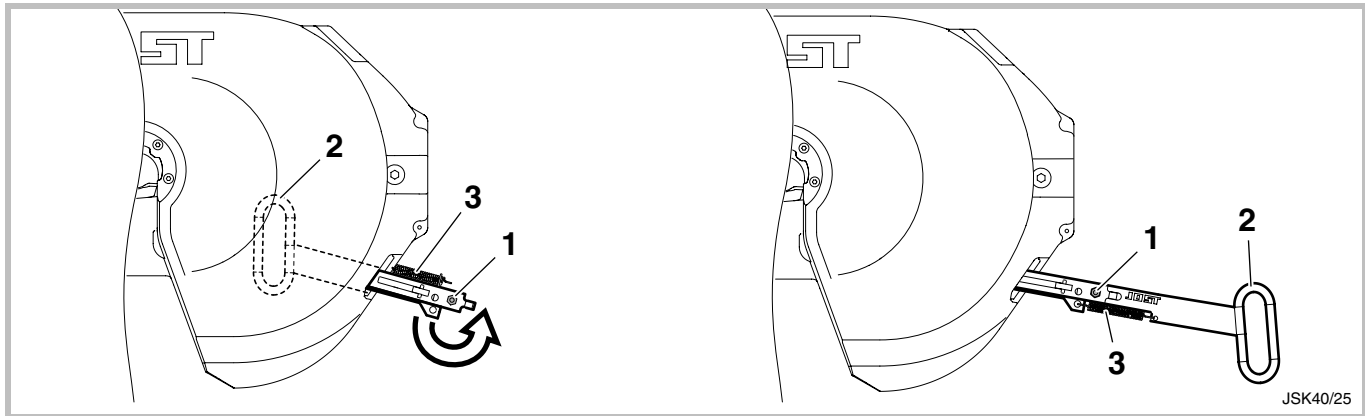
The values shown above are guide values for a coefficient of friction $\mu_{\text{tot.}} = 0.14$. Further information is available in VDI 2230.

5.5 Moving the handle to operating position (front handle location)



- ▶ Undo the bolt (1).
- ▶ Swing out the handle (2).
- ▶ Tighten the bolt again (1), with a torque of 46 Nm.

5.6 Moving the handle to operating position (rear handle location)



- ▶ Undo the bolt (1).
- ▶ Swing out the handle (2).
- ▶ Engage the spring (3).
- ▶ Tighten the bolt again (1), with a torque of 46 Nm.



Siemensstraße 2, D-63263 Neu Isenburg, Telefon +49 (0) 61 02-2 95-0 Fax +49 (0) 61 02-2 95-98 www.jost-world.com

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