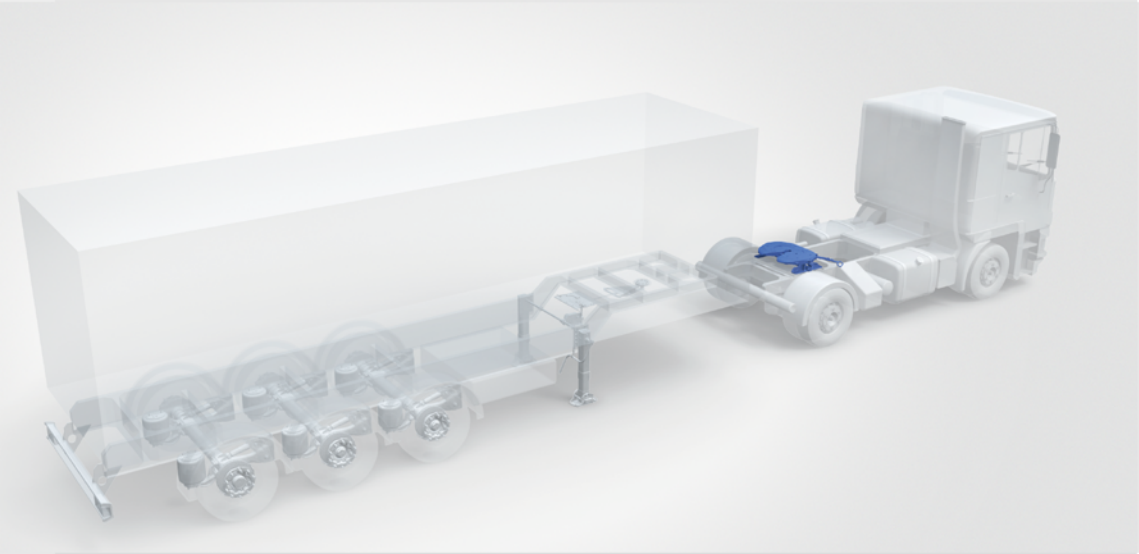


JSK 35/36/37 D Fifth Wheel Coupling
Installation and Operating Instructions

Table of Contents

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.

2 Safety information

ATTENTION!

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

The relevant safety regulations in your country (for example Health & Safety at Work) apply to 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 remains 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 authorized personnel.
- Only use the fifth wheel coupling and the 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 of the fifth wheel coupling before driving and ensure that it is properly locked. Only drive the vehicle with the locking mechanism locked and secured, even when driving without a semi-trailer.

2.2 Safety information for installation

- The installation area defined by the manufacturer of the tractor unit shall not be changed.
- The installation work shall only be conducted by authorized specialists.
- Refer to the instructions issued by the vehicle manufacturer, for example the method of fastening, fifth wheel couplingposition, fifth wheel coupling height, axle load, cavity, mountingplate, skid plate, etc.
- Follow the installation instructions supplied by the manufacturers of the mounting plate of the fifth wheel coupling and the skid plate of the semi-trailer.
- An earth connection must be provided for the fifth wheel coupling and the vehicle chassis in vehicles that are used for transporting hazardous substances.
- The connecting bolts of the fifth wheel coupling are tightened on the vehicle to the specified torque.

2.3 Safety information for servicing

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

3 Application

3.1 Proper use

JOST fifth wheel couplings are mechanical connection devices to 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 the warranty void and therefore also cancel the vehicle's license plate.

JOST fifth wheel couplings are designed to comply with ECER55 01 and GB/T 31879, and suitable in combination use with 50# king pins or similar licensed equipment.

JOST fifth wheel couplings are suitable for use with power steering systems of semi-trailers.

ADVICE!
The rights to technical modifications are reserved. The latest information can be found at www.jost-china.com.

3.2 Unintended use

The following will be deemed to be unintended use:

- Use of king pins which do not comply with the national standards
- Use of defective king pins. Defects may include, for example, damage to the king pin, incorrect dimensions and installation on uneven or defective sliders.
- Use with the D value above the maximum permitted values for the fifth wheel coupling.
- Off-road applications.
- Traffic in special venue.
- Incorrect towing procedures which adversely affect the smooth functioning of the fifth wheel coupling.
- Attachment of winching or lifting equipment.
- Other applications which do not comply with the manufacturer's recommendations.

ADVICE!
When a vehicle is used on a non-paved road or on a road where the road surface quality, flatness, slope or turning radius does not meet the relevant standards of the country where it is located, it shall be regarded as an off-road application.

3.3 Design calculation

Relevant parameters of the fifth wheel coupling are clearly specified by the vehicle manufacturer.

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

D value can be calculated using the following formula:

D = drawbar value [kN]

g = 9.81m/s²

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

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

U = Maximum vertical load borne by the fifth wheel coupling [t]

$$D = g \times \frac{0.6 \times T \times R}{T + R - U} \text{ [kN]}$$

Sample calculation:

T = 17 t

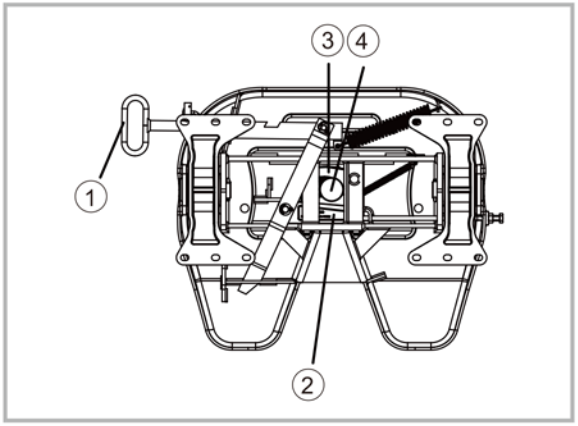
R = 33 t

U = 10.5 t

$$D = 9.81 \times \frac{0.6 \times 17 \times 33}{17 + 33 - 10.5} = 83.6 \text{ kN}$$

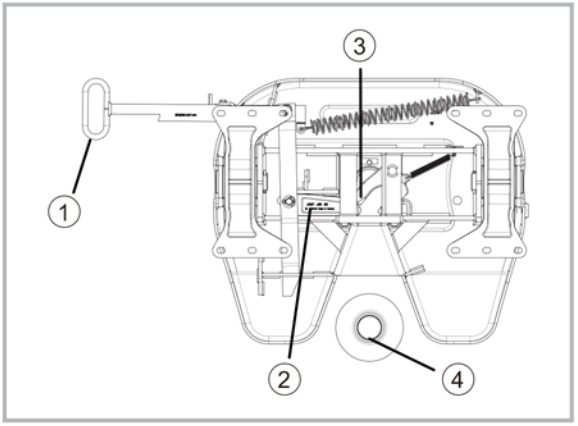
For related parameters such as the maximum load of the JOST fifth wheel coupling, refer to the nameplate or the relevant JOST catalog sheets. In case of harsh conditions, for example, uneven road surfaces or construction sites, use a fifth wheel coupling with higher strength rather than the maximum fifth wheel load and D value. Alternatively, consult JOST.

4.1 Fifth wheel coupling closed and locked



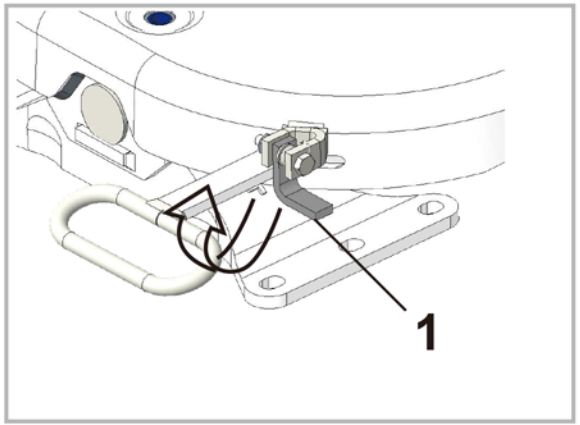
1 Handle
2 Locking bar
3 Lock jaw
4 King pin

4.2 Fifth wheel coupling ready for engagement

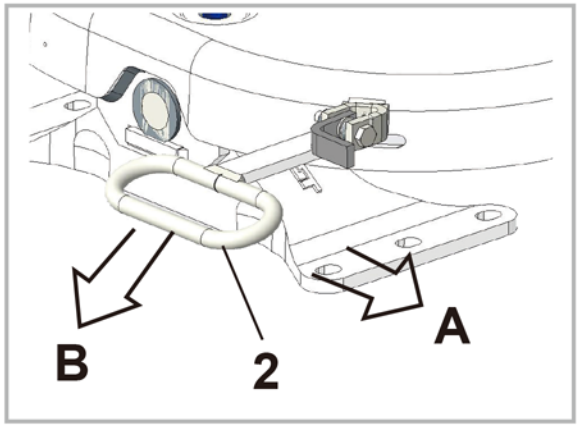


1 Handle
2 Locking bar
3 Lock jaw
4 King pin

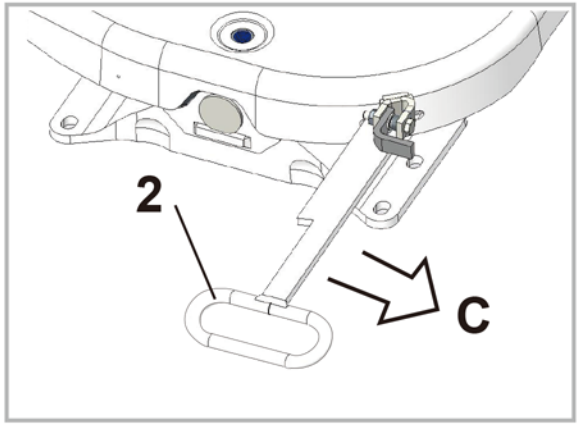
4.3 Opening the fifth wheel coupling



▶ Lift the catch (1).



▶ Swing the handle (2) along the direction A.
▶ Pull out the handle (2) along the direction B.



- With the handle (2) pulled out, swing it along the direction C and engage its lock jaw on the edge of the fifth wheel coupling.

For opening of the fifth wheel coupling without a semi-trailer engaged, the steps are the same as those described above! The fifth wheel coupling must be ready to engage before coupling up (see 4.2).

4.4 Uncoupling a semi-trailer

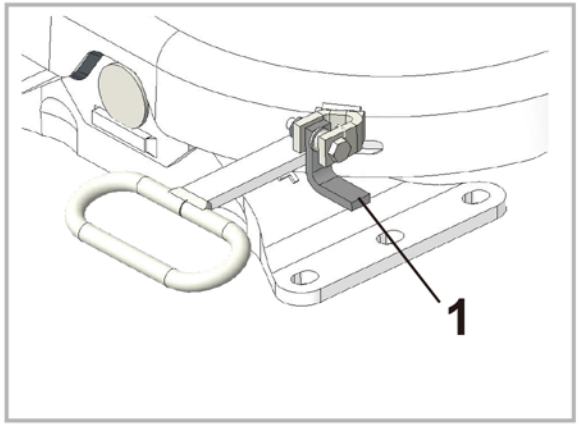
- Park the vehicle on flat, firm ground.
- Pull up the parking brake of the semi-trailer to prevent it from moving.
- Extend the landing gear as described in the operating manual until the fifth wheel coupling has almost no strain on it.
- Disconnect the lines of the semi-trailer.
- Open the fifth wheel coupling (see 4.3)
- Drive the tractor unit out from under the semi-trailer.
- The fifth wheel coupling is automatically ready for engagementagain.

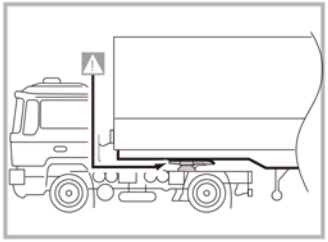
4.5 Coupling up a semi-trailer

- Pull up the parking brake of the semi-trailer to prevent it from moving.
- The fifth wheel coupling must be ready to engage (see 4.2). If it is not, open the fifth wheel coupling (see 4.3).
- Check the height of the semi-trailer skid plate. The skid plate must ideally be at the same height as or not more than 50 mm lower than the top surface of the fifth wheel coupling.
- Drive the tractor unit under the semi-trailer.
- The locking mechanism will close automatically.
- Check the locking mechanism.
- Connect the lines of the semi-trailer.
- Retract the landing gear as described in the operating manual.
- Release the parking brake and remove the chocks.

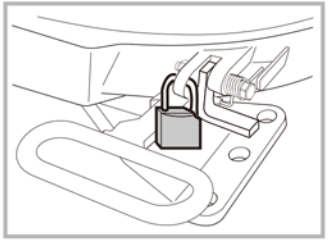
4.6 Checking the locking mechanism

WARNING!
Before each operation of the vehicle, the state of the locking mechanism of the fifth wheel coupling shall be checked whether the catch is in the locked position.





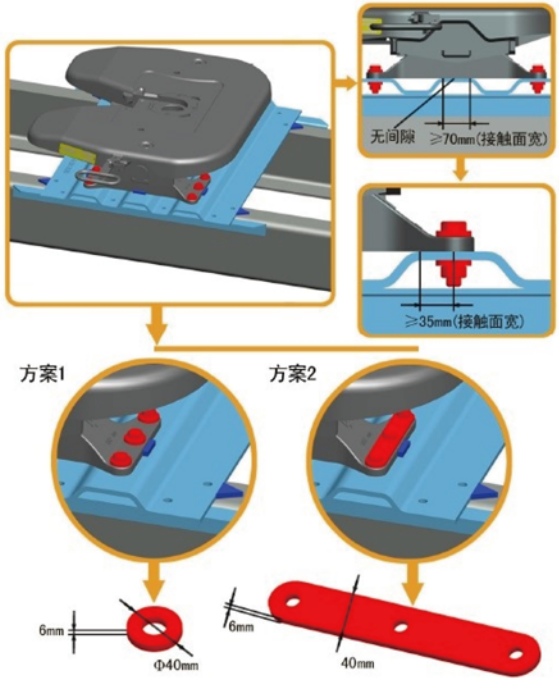
ATTENTION!
The skid plate of the semi-trailer must rest on the coupling plate of the fifth whee coupling without a gap.



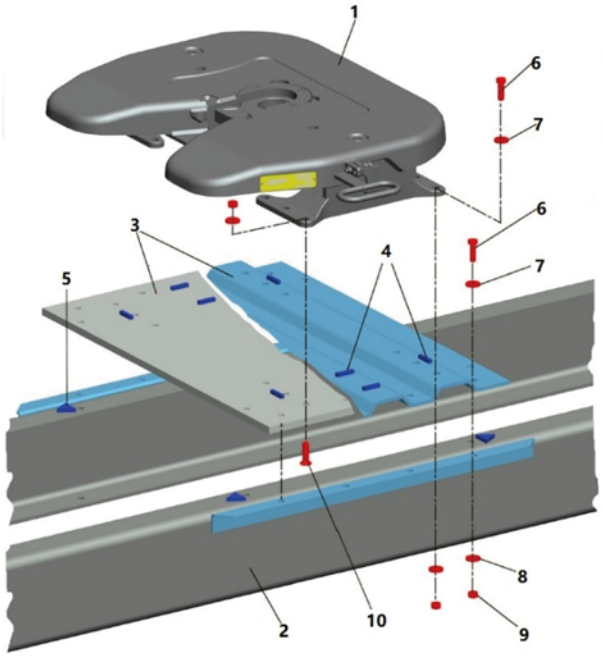
ADVICE!
To prevent the fifthwheel coupling being opened without authorization, a padlock can be used as shown (only for some products).

5.1 General installation instructions

- To fasten the fifth wheel coupling (pursuant to QC/T 446-1999) on the mounting plate, 12 M16 bolts of strength class not less than 8.8, ideally M16 x 1.5 of strength class 10.9, must be used.
- These bolts must be positioned in a symmetrical pattern to the fifth wheel coupling.
- The landing gear shall make contact with the mounting plate over the same width as the landing gear. With undulating mounting plates, there must be contact and support in the middle area of the landing gear.
- We recommend securing the fifth wheel coupling in the longitudinal and lateral directions by welding a thrust plate, with zero play between the thrust plate and the landing gear of the fifth wheel coupling. 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 fifth wheel coupling and mounting plate are secured firmly and be maintained at all times.
- The bolt connections are therefore to be designed so that the prescribed tightening torque values or pre-stressing force can be applied permanently. The general rule is that the coating thickness of the paintwork around the securing area of the bolts must be not more than 120 µm.
- The bolt connections are to be secured firmly to prevent them getting loose.
- The fifth wheel coupling must be able to move freely and must not be in contact with any parts of the chassis during driving.



5.2 Assembling the fifth wheel coupling on the mounting plate



1. Fifth wheel coupling
2. Vehicle chassis
3. Mounting plate (flat type, undulating type)
4. Welded thrust plate to secure the fifth wheel coupling
5. Welded thrust plate to secure the mounting plate
6. Hexagon bolt M16 x 1.5
7. Washer, thickness 6 mm (min. HB150)
8. Optional washer (min. HB150) or spring washer
9. Hexagonal nut

   M16 x 1.5 or M20 x 1.5
10. Countersunk bolt

    M16 x 1.5 or M20 x 1.5

ATTENTION!
JOST recommends the fasteners of strength class 10.9.

5.3 Tightening torque of bolts

Fastener		Strength class 8.8	Strength class 10.9
Standard bolt	M16	210 Nm	260 Nm
Fine threaded bolt	M16 x 1.5	225 Nm	280 Nm
Countersunk bolt	M16 or M16 x 1.5	170 Nm 330 Nm	250 Nm 400 Nm

ADVICE!
The values shown above are guide values for a coefficient of friction μ tot. = 0.14.

6.1 Servicing instructions

To ensure that the fifth wheel coupling has sufficient service life and trouble-free function, the skid plate on the semi-trailer must meet the following conditions:

- Max. 2 mm unevenness
- Adequate reinforcement must be assured
- Smooth and groove-free surface if possible, without weld bumps
- Rounded or chamfered front and side edges
- The slide date should be large enough to completely cover the support area of the fifth wheel

ATTENTION!
Effective lubrication of the top of the skid plate, the lock jaw and the king pin (before using for the first time and after cleaning) is essential to extending their service life.

ADVICE!
Before installation, the skid plate shall be checked to ensure its flatness meets the requirements, and its thickness shall be measurable.

6.1.1 Fifth wheel coupling with manual lubrication

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

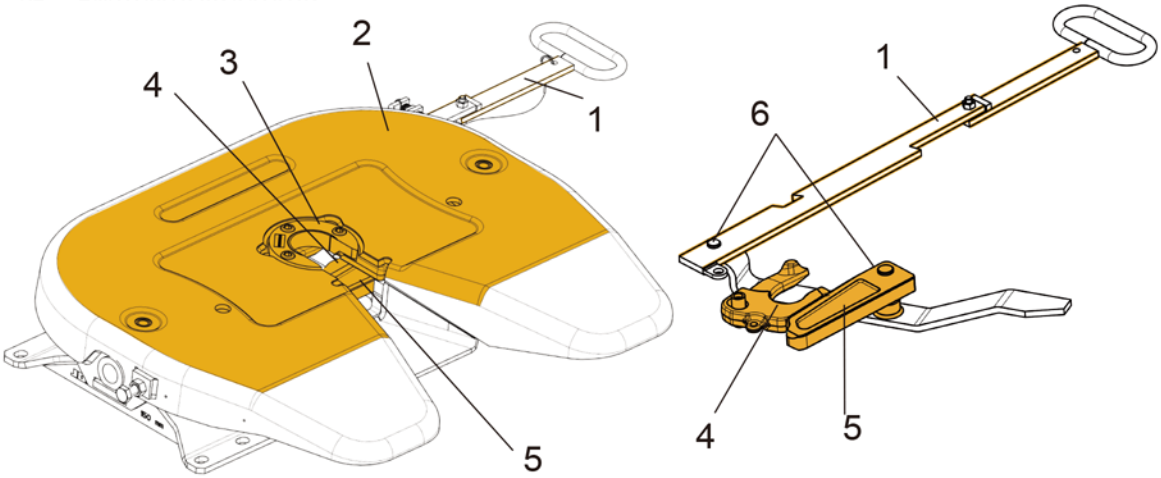
- Disengage the semi-trailer from the fifth wheel coupling.
- Clean the fifth wheel coupling and the skid plate.
- Grease the king pin, coupling plate on the fifth wheel coupling, and locking mechanism of fifth wheel coupling.

6.1.2 Grease specification

We recommend using high-pressure grease (EP), such as JOST special high-performance grease.

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.

6.2 Lubrication instructions



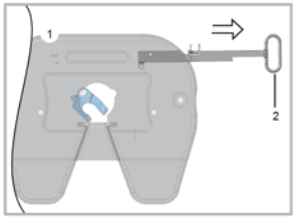
1 Handle assembly 2 Coupling plate 3 Wearing ring 4 Lock jaw 5 Locking bar 6 Hinge joint

Lubricate areas marked in yellow:

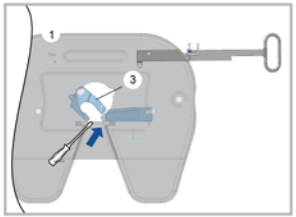
- Two sides of handle (1), and hinge points (6) between the handle and the lever, and
- between the lever and the locking bar.Generously lubricate the coupling plate (2) and completely fill the lubricating groove.
- Lubricate lock jaw (4) and locking bar (5).
- Lubricate the wearing ring (3) and the area of fifth wheel coupling around the wearing ring.

ATTENTION!
We recommend using high-pressure grease (EP), such as JOST special high-performance grease!

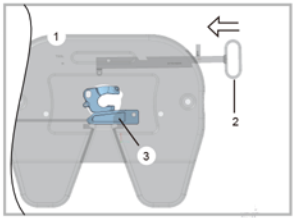
ATTENTION!
A second person is needed to close the locking mechanism. A large slotted screwdriver can be used to swivel the lock jaw.
The lock jaw must never be swiveled by hand. There is a risk of personal injury.



- Have a second person pull the handle until the lock jaw is free.
- Hold the handle in this position.



- Lock the lock jaw with a large slotted screwdriver, until the locking bar is free.



- Gently move the handle into closed position.
- Lubricate the lock jaw and locking bar.

ATTENTION!
The locking mechanism of the fifth wheel coupling shall be unlocked before it is next coupled up!

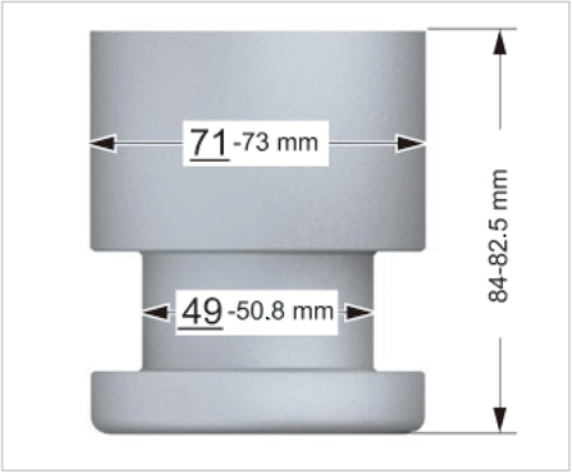
6.3 Test instructions

Depending on the conditions of use, but no later than every 5,000 km, the fifth wheel coupling, the mounting plate, the skid plate and the king pins should be checked for:

- Function
- Wear
- Locking torque of fasteners
- Damage or distortion
- Cracks
- Corrosion
- To ensure adequate lubrication
- To ensure the smooth running of the mechanisms

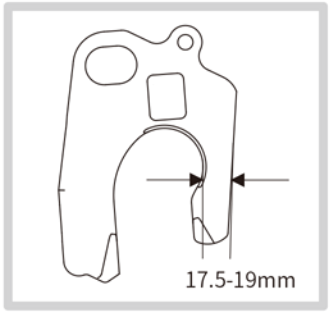
6.4 Wear test - king pin

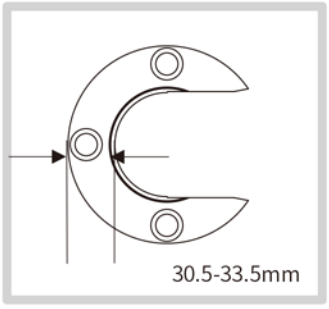
Fifth wheel couplings and king pins are subject to more or less wear depending on the conditions in which they are used, and this wear is noticeable by play towards the front of the vehicle. Excessive play causes shocks and may lead to instability on the road and damage to the fifth wheel coupling, mounting plate, skid plates and vehicle chassis.
JOST fifth wheel couplings have a manual infinite adjustment facility for the locking mechanism to extend their service lives. After the wear limit on the king pin is exceeded, it must be replaced with a new one (the wear limit is shown in the right figure). After the king pin has been replaced, the locking mechanism must be adjusted again.

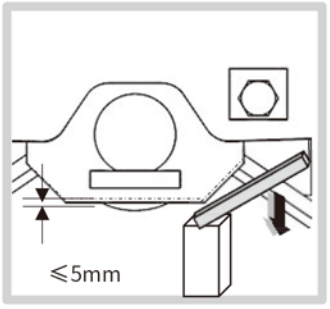


ATTENTION!
The wear on the king pin must not be compensated by the adjustment facility of the fifth wheel coupling,which is only used for play compensation and adjustment of the fifth wheel coupling itself!
After replacement of the wearing ring, lock jaw, locking bar or king pin, the locking mechanism must always be readjusted in order to ensure the base play of 0.3 mm; otherwise, abnormal wear may occur!

6.5 Wear test - lock jaw, wearing ring and bushing







- Check the wear state of lock jaw
- Check the wear state of wearing ring
- Check the wear state of landing gear bushing

ATTENTION!

Parts with dimensions exceeding the limit must be replaced at an authorized service place!

During replacement of the wearing ring, its mounting bolts must be replaced simultaneously! Genuine kits of JOST must be used!

Before installation of the wearing ring bolts, grease and other foreign objects must be removed from threaded holes of the base plate with special detergent!

Because the bolts are coated with special locking adhesive, they must be tightened in one step. It is not allowed to tighten them after loosening!

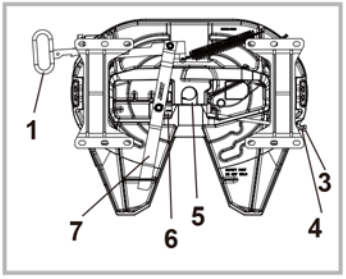
6.6 Wear test - bearing pin and pin hole

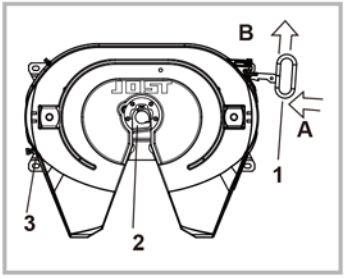
Bearing pin	≥49.6mm
Pin hole	≤50.5mm

6.7 Wear test - coupling plate

Coupling panel thickness T
T≥5mm,normal use
T< 5mm,replacement

6.8 Adjusting the locking mechanism





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

During replacement of the semi-trailer or king pin, the play of the locking mechanism must be adjusted as follows:

- Uncouple the semi-trailer on flat, firm ground.
- Undo the lock nut (4).
- Unscrew the adjusting screw (3) by approx. 15 turns.
- Couple the semi-trailer up, and lightly tap the handle (1) in the illustrated direction A until the handle can no longer move.
- 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 the tractor unit and check the maximum play in the locking mechanism.

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

6.9 Inspection and servicing cycle

Inspection and servicing cycle		5,000km	10,000km	15,000km	20,000km
Cleaning	Clean grease stains, etc. to facilitate visual inspection	★	★	★	★
Damage and crack inspection	Check for damage, distortion and cracks	★	★	★	★
Function inspection	See 4	★	★	★	★
Wear test	See 6.3, 6.4 and 6.5		★		★
Fastener looseness inspection	Check the looseness of the wearing ring and landing gear fastening bolts	★	★	★	★
Play inspection	See 6.7		★		★
Lubrication	See 6.1	★	★	★	★

ATTENTION!
The service life of the fifth wheel coupling depends largely on whether grease is applied correctly during use.
During use under harsh environmental conditions, such as mining areas, construction sites and muddy roads, it is necessary to shorten the servicing cycle based on actual conditions.
In off-road (even partially off-road) applications or harsh operating environments, it is necessary to check the wear and adjust the play more frequently.
For other issues, contact JOST.

7 Common faults, cause analysis and countermeasures

	Fault symptom	Fault cause	Countermeasures
Base plate assembly	Abnormal wear of base plate (accelerated wear, uneven wear, eccentric wear, etc.)	Insufficient application of grease and no regular addition of grease	Apply grease as required and add it regularly
		Iron filings and foreign objects on the contact surface	Remove iron filings and foreign objects in time
		Failure to use the correct grease	Use the genuine grease recommended in the instructions
		Overload or uneven load	Replace the matching fifth wheel coupling
		Poor road conditions for vehicle	Replace the matching fifth wheel coupling
		Out-of-tolerance unevenness of semi-trailer skid plate	Check and repair or replace the semi-trailer skid plate
		Sharp burrs or welding slag on the semi-trailer skid plate	Sand and clean
	Base plate distortion (unevenness≤2 mm)	Overload or uneven load	Replace the matching fifth wheel coupling
		Poor road conditions for vehicle	Replace the matching fifth wheel coupling
		Out-of-tolerance unevenness of semi-trailer skid plate	Check and repair or replace the semi-trailer skid plate
		Excessive wear of base plate	Check or replace the damaged parts
		Unequal height of left and right portions of fifth wheel coupling due to excessive wear of landing gear and bushing	Check or replace the damaged parts
		Engagement via misoperation or rough operation, distortion due to impact	Check or replace the damaged parts
	Base plate cracking (coupling plate cracking, bearing shell cracking, center bracket cracking, etc.)	Overload or uneven load	Replace the matching fifth wheel coupling
		Poor road conditions for vehicle	Replace the matching fifth wheel coupling
		Out-of-tolerance unevenness of semi-trailer skid plate	Check and repair or replace the semi-trailer skid plate
		Excessive wear of base plate	Replace the coupling plate assembly
Locking mechanism	Abnormal noise from locking mechanism	Too large or too small play	Readjust the play of the locking mechanism
		King pin out of wear limit	Check or replace the king pin
		Wearing ring out of wear limit	Check or replace the wearing ring
		Lock jaw out of wear limit	Check or replace the lock jaw
	Failure of fifth wheel coupling to be engaged and disengaged normally	Too small set play of locking mechanism	Readjust the play of the locking mechanism
		Locking bar distortion or damage	Check or replace the locking bar
		Lock jaw distortion or damage	Check or replace the lock jaw
		Distortion of lock jaw bottom plate	Correct or replace the coupling plate assembly
		Distortion of lock jaw pressure plate	Correct or replace the coupling plate assembly
		Bending deformation of handle	Check or replace the handle
		Failure to place the handle in the correct operating position	Pull out the handle until the coupling plate is stuck by the slot

7 Common faults, cause analysis and countermeasures

	Fault symptom	Fault cause	Countermeasures
		Failure to place the semi-trailer and tractor unit in the correct operating positions	Operate the landing gear to adjust the height of the semi-trailer until its skid plate is 0-50 mm higher than the surface of fifth wheel coupling
		Locking mechanism stuck due to insufficient lubrication	Lubricate according to the instructions
		Locking mechanism stuck due to dirt or foreign objects	Remove the dirt or foreign objects
		Matching semi-trailer king pin non-conforming	Replace it with a conforming king pin
		Locking mechanism distortion due to misoperation	Replace the deformed parts
	Abnormal wear of wearing ring and lock jaw	Insufficient lubrication and delayed servicing	Perform lubrication and servicing according to the instructions
		Failure to use the correct grease	Use the genuine grease recommended in the instructions
		Overload or uneven load	Replace the matching fifth wheel coupling
		Poor road conditions for vehicle	Replace the matching fifth wheel coupling
		Failure to use the conforming king pin (high hardness)	Replace the king pin
		Poor surface quality or damage of king pin	Replace the king pin
		Too large or too small play with the king pin	Adjust the play according to the instructions
	Looseness, falling off or thread damage of wearing ring bolts	Delayed inspection and servicing	Perform inspection and servicing according to the instructions
	Failure of catch to return normally	Improper engagement	Re-engage according to the instructions
		Catch spring damage or falling off	Check or replace the spring
Landing gear & supporting bearing pin	Landing gear cracking	Abnormal wear due to insufficient lubrication	Perform servicing according to the instructions
		Excessive wear of landing gear and bearing shell	Check or replace the landing gear and rubber bearing
		Uneven mounting surface of mounting plate	Check or replace the mounting plate
		Over load or uneven load	Replace the matching fifth wheel coupling
		Poor road conditions for vehicle	Replace the matching fifth wheel coupling
	Rubber bearing damage	Over load or uneven load	Replace the matching fifth wheel coupling
		Poor road conditions for vehicle	Replace the matching fifth wheel coupling
	Supporting bearing pin falling off	Bearing pin damage or falling off	Check or replace the bearing pin
	Supporting bearing pin rotation	Broken or worn rubber bearing	Check or replace the bearing pin and rubber bearing
	Supporting bearing pin and hole wear	Rubber bearing damage	Check or replace the bearing pin and rubber bearing
	Abnormal noise	Rubber bearing damage	Check or replace the rubber bearing
		Worn or damaged landing gear	Check or replace the landing gear and rubber bearing

Member of JOST World

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