JSK 34

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.
2  Safety information

ATTENTION!
The safety information is compiled in one section. Where
the user of the fifth wheel coupling is in danger, the safety
instructions are repeated in the individual sections and
highlighted with the danger warning sign shown adjacent.

The relevant safety regulations of the country in question (for exam-
ple Health & Safety at Work) apply for working with lifting equipment,
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 applies to operation. Safety infor-
mation directly linked to the activity is listed again individually.

2.1 Safety information for operation

- The fifth wheel coupling may only be used by authorised per-
  sons.
- Only use the fifth wheel coupling and skid plate on the se-
  mi-trailer if they are in perfect technical condition.
- The front of the skid plate must not be sharp, otherwise it may
damage the fifth wheel coupling or the top plate liner.
- Comply with the relevant safety regulations when connecting a
  semi-trailer, for example the Health and Safety at Work Regu-
lations.
- Only connect a semi-trailer on firm, flat ground.
- The skid plate must be at the same height or preferably lower
  – no more than 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 Safety information

2.2 Safety information for installation

- Do not change the assembly area defined by the tractor unit’s manufacturer.
- The assembly work may only be completed by authorised specialists.
- Refer to the instructions issued by the vehicle manufacturer, for example the type of fastening, fifth wheel position, fifth wheel height, axle load, cavity, mounting plate, slider, etc.
- Follow the assembly instructions supplied by the mounting plate and slider manufacturers.
- On vehicles that are used to transport hazardous goods, a ground connection must be put in place between the fifth wheel coupling and the vehicle chassis.

It is a basic principle that bolt connections must be tightened to the specified tightening torque as the setting for the torque wrench acc. to DIN ISO 6789 in classes A or B.

2.3 Safety information for maintenance

- Only use the specified lubricants for maintenance work.
- The maintenance and cleaning work should only be completed by trained personnel.
3 Proper usage

3.1 Application

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

Fifth wheel couplings, mounting plates and kingpins are vehicle-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 in class 50 and are to be used only in conjunction with kingpins of class H50, steering wedges and class J mounting plates or comparable licensed equipment.

JOST fifth wheel couplings are suitable for use in 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 values
- Use off-road
- Use in site traffic
- Incorrect towing procedures which adversely affect the perfect function of the fifth wheel coupling
- Attachment or fastening of lifting equipment
- Other applications which do not comply with the manufacturer's recommendations

ADVICE!

Unmetalled roads and any surfaces which do not comply with the standards for the public road network in Central Europe in terms of evenness, gradients and corner radii, shall be regarded as off-road in the sense of this manual.
3 Proper usage

3.3 Design

The definition of the permitted types and classes for connecting equipment and the maximum values for the imposed load "U" and drawbar value "D" are provided by the manufacturer of the tractor unit (designed on the basis of Regulation ECE-R55 Annex 7).

The D value is calculated as follows:

\[ D = \text{Drawbar value [kN]} \times \frac{0.6 \times T \times R}{T + R - U} \quad [\text{kN}] \]

Sample calculation:

\[ T = 17 \text{ t} \]
\[ R = 33 \text{ t} \]
\[ U = 10.5 \text{ t} \]

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

The maximum load data for the JOST fifth wheel couplings can be found on the factory plate or on the relevant pages of the JOST catalogue. They apply to intended use pursuant to Regulation ECE R55-01.

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

<table>
<thead>
<tr>
<th>Test mark</th>
<th>Type</th>
<th>Fifth wheel coupling</th>
<th>Imposed load [t]</th>
<th>D-value [kN]</th>
</tr>
</thead>
<tbody>
<tr>
<td>55R-01 2482</td>
<td>JSK 34</td>
<td>JSK 34 H0, JSK 34 H2-H6, JSK 34 H8</td>
<td>16</td>
<td>120</td>
</tr>
</tbody>
</table>
4 Operation

4.1 Fifth wheel coupling closed and locked

1 Lock jaw
2 Handle
3 Locking bar
4 King pin

4.2 Fifth wheel coupling ready for engagement

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

4.3 Open the fifth wheel coupling

- Handle (1) and safety catch (2) locked in position.

- Pull the handle (1).
- The safety catch (2) is opened automatically by the contour of the handle (1).
4 Operation

Pull the handle (1) out to the end position and hook onto the edge of the plate a.

4.4 Uncoupling

- Park the vehicle on flat, firm ground.
- Secure the semi-trailer to prevent it from 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.

4.5 Coupling up

- Secure the semi-trailer to prevent it from rolling away.
- The fifth wheel coupling must be ready to engage (see section 4.2). Otherwise open the fifth wheel coupling (see section 4.3).
- Check the height of the semi-trailer. When coupling up, the skid plate must be at the same height, ideally lower (maximum 50 mm) 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.
4.6 Checking the locking mechanism

**WARNING!**
Check the locking mechanism status before starting any journey.

The safety catch (2) must point downwards as shown.

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

**ADVICE!**
An accessory kit is available to secure (3) against unauthorised opening of the fifth wheel coupling.
5 Assembly

5.1 General assembly instructions

To secure the JOST fifth wheel coupling (pursuant to Regulation ECE R55-01 or ISO 3482/DIN 74081) onto the mounting plate, at least 8 M16 bolts, ideally M16 x 1.5 of strength class 10.9 must be used. To secure the JOST fifth wheel coupling on the flitch (direct bearing), at least 8 bolts must be used – it is imperative that these are M16 x 1.5 of strength class 10.9!

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, with forced steering or with trailers that use the full D value and/or imposed load, we recommend that you use all 12 bolts.

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

The bearing blocks should ideally lie fully over the entire surface of the mounting plate or on the flitch. 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 (see also section 5.2, 5.3 and 5.4).

We recommend securing the pedestals in the longitudinal and lateral directions, and the mounting plates in the longitudinal direction, by pre-welded thrust plates without play. 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 120 µm per component.

The screw connections must 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 Assembly

5.2 Assembly of the fifth wheel coupling 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 Hexagon bolt DIN EN ISO 8765/8676 (DIN 960/961) M16 or M16 x 1.5-10.9
8 Washer 17 DIN 7349, 6 mm thick (min. HB 295)
9 Optional washer (min. HB 295) or disc spring
10 Hexagon nut DIN 980 M16
11 Hexagon bolt DIN EN ISO 8765/8676 (DIN 960/961) at least M16 x 1.5-8.8 or M20 x 1.5-8.8
12 Optional washer/disc spring
5.3 Setup of the fifth wheel coupling on the flitch

5.3.1 H2-H6 (lightweight bearing)

ADVICE!
The flitch is connected to the vehicle frame in accordance with the vehicle manufacturer's specifications.

1. Fifth wheel coupling
2. Flitch
3. Vehicle chassis
4. Thrust plates to secure the pedestals
5. Hexagon bolt DIN EN ISO 8765/8676 (DIN 960/961) M16 x 1.5-10.9
6. Washer 17 DIN 7349, 6 mm thick (min. HB 295)
7. Hexagon nut DIN 980 M16 x 1.5-10

5.3.2 H8 (lightweight bearing)

The setup of the fifth wheel coupling with Angle Mounts H8 (Volvo) must be carried out in accordance with the vehicle manufacturer's specifications.
5.4 Fastening material and tightening torques

<table>
<thead>
<tr>
<th>Fastening material</th>
<th>Strength class 8.8</th>
<th>Strength class 10.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexagon bolt DIN EN24014/24017 (DIN 931/933) normal thread M16</td>
<td>210 Nm</td>
<td>260 Nm</td>
</tr>
<tr>
<td>Hexagonal bolt DIN EN ISO 8765/8676 (DIN 960/961) fine thread M16 x 1.5</td>
<td>225 Nm</td>
<td>280 Nm</td>
</tr>
<tr>
<td>Countersunk screw DIN 7991 M16 or M16 x 1.5</td>
<td>170 Nm 330 Nm</td>
<td>250 Nm 400 Nm</td>
</tr>
</tbody>
</table>

**ADVICE!**
The values shown above are guide values for a coefficient of friction $\mu$ tot. = 0.14. Further information is available in VDI 2230.
5.5 Move the handle to the ready position (only in the case of long handles)

- Completely undo the screw connection (1).
- Remove the handle and move to the position depicted as the "operating position". First slide the bolt through, then pull the handle approx. 1 cm outwards, hold here and move the stopper block (3) into position.
- Tighten the screw connection (1) again, tightening torque **46 Nm**.
6.1 Maintenance 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 burrs)
- Rounded or chamfered front and side edges
- Complete coverage of the fifth wheel coupling support area with adequate reinforcement appropriate to the situation

**ATTENTION!**
Effective lubrication of the top of the fifth wheel coupling (except JSK with top plate liners), the lock jaw and the kingpin - before commissioning and after every clean - is crucial for ensuring a long service life. In the W version, we recommend applying a thin coat of grease to the skid plate as protection against corrosion.

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

6.1.1 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
- Lubricate the king pin, top of the coupling plate (3), lock jaw (4) and locking bar (5) (see section 6.2)

Every 50,000 km or every six months:

- Also lubricate the handle (1) on the side (see arrows) and (2) and the articulated connections and lever guides (6) (see section 6.2)

The grease nipple on the edge of the coupling plate is only designed for additional greasing of the locking mechanism between service intervals. The pivot bearings of the pedestals must not be lubricated.
6 Servicing and testing

6.1.2 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
- Lubricate the king pin, handle (1) on the side and underneath (see arrows), guide (2), top of the coupling plate (3), lock jaw (4), locking bar (5) and articulated connections and lever guides (6) (see section 6.2)

6.1.3 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 fifth wheel coupling and the skid plate
- Check the function of the central lubrication system as described in the manufacturer’s instructions
- Lubricate the king pin, handle (1) on the side (see arrows) and (2), lock jaw (4), locking bar (5) and articulated connections and lever guides (6) (see section 6.2)
- Check the top plate liners for signs of wear and damage (see section 6.7)

Also, every 10,000 km, use the greasing nipple on the edge of the coupling plate to lubricate the lock - with the semi-trailer coupled up.
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.

6.1.4 Grease specification
We recommend high-pressure grease (EP), e.g. JOST high-performance lubricant (Art. No. SKE 013 440 000).
6 Servicing and testing

6.2 Lubrication instructions

Lubricate the areas marked in yellow:

- Moving handle parts (1) at the side and bottom (see arrows) and the lever guide (2).
- Articulated joints and lever guides (6).
- Generously lubricate the coupling plate (3) including the entire lubricating groove (except in the W version - top plate liners must not be greased).
- Lubricate the locking hook (4) and locking bar (5) with the fifth wheel coupling closed (to close the fifth wheel coupling, see the instructions on the following page).

Grease specification: We recommend JOST high-performance lubricant (Art. No. SKE 013 440 000).
ATTENTION!
A second person is required to help close the lock. A large screwdriver can be used, for example, to pivot the lock jaw (1). Under no circumstances should the lock jaw (1) be pivoted by hand. There is a risk of crushing.

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

- Using a large Philips screwdriver, pivot the lock jaw (1) forwards until the locking bar (3) is free.
- Slowly move the handle (2) to the locked position.
- Lubricate the lock jaw (1) and locking bar (3) on all sides.

ATTENTION!
Before the next coupling up, the fifth wheel coupling must be opened (see section 4.3).
6 Servicing and testing

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 To check for wear

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.

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 34/015) or should be rectified by fitting a new king pin.

**ATTENTION!**
The wear on the king pin must not be compensated by the adjustment facility.
The locking mechanism must be adjusted with a semi-trailer that does not have forced steering and which has un-worn king pins, as follows (the SKE 008 630 000 fifth wheel test unit can optionally be used):

- Uncouple the trailer on flat, firm ground.
- Undo the lock nut (1).
- Unscrew the adjusting screw (2) by approx. 15 turns.
- Couple up or introduce the JOST setting master.
- Release the handle (4), pivot it in the direction of travel and (have an assistant) hold it, see section 6.2.
- Tighten the adjusting screw (2) again until the handle (4) starts to move (have an assistant check this).
- To set the recommended basic play of 0.3 mm, tighten the adjusting screw (2) by a further 1½ 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.
6.6 Wear limit – locking mechanism

The locking mechanism wear limit is reached when the contour of the tip of the locking bar reaches the cast edge of the coupling plate. The locking mechanism cannot be adjusted any further at this point. In this case, the wearing ring and lock jaw must be replaced as described in the repair instructions.
6 Servicing and testing

6.7 Wear limit - top plate liner

The top plate liners (1) and their fastening screws (2) must be checked to ensure they are secure and 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 securing bolts (2).
ATTENTION!
Any welding on the bearing blocks is forbidden.

The bearing blocks are supported in the fifth wheel coupling within a base by rubber cushions. These rubber articulated bearings are subject to continuous wear during operation.

To check the wear of the bearing, the coupling plate must be aligned horizontally by tilting it.

If the distance in the coupled-up and laden state between the lower edge of the coupling plate and the upper edge of the cut-out is 25 mm or less, the bearing is worn and must be replaced.