

JOST

-Montage- und Betriebsanleitung

SENSORKUPPLUNG

- Ⓒ Installation an operating instructions for sensor coupling
- Ⓕ Instructions de montage et d'utilisation pour attelage à capteurs
- Ⓘ Istruzioni per il montaggio e l'uso del aggancio con sensori
- Ⓔ Instrucciones de montaje y funcionamiento para el enganche con sensores



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1 Safety information



The safety information is compiled in one 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 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 applies to the installation and mounting work. Safety information directly linked to the activity is listed again individually.

1.1 Safety information for operation

- ▶ The sensor 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.
- ▶ Ensure that the material wear does not exceed the wear limits for the lock jaw and the king pin set out in the installation and operating instructions for class G50 JOST fifth wheel couplings. Otherwise this will result in the king pin sensor being damaged.
- ▶ Comply with the relevant safety regulations when connecting a semi-trailer, for example the Health and Safety at Work Regulations.
- ▶ 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.

1.2 Safety information for installation

- ▶ The installation work may only be completed by authorised specialists.
- ▶ Follow the safety instructions for working on the vehicle's electrical system as set out in the assembly and modification instructions issued by the vehicle's manufacturer.
- ▶ The battery must be disconnected before starting any work on the vehicle's electrical system.
- ▶ The earth return of the electrical consumers is not through the chassis but through the cabling via the earth post on the fuse holder.
- ▶ Install all the cables so that they cannot be crushed or chafed.
- ▶ Do not fasten cables to brake lines.
- ▶ Route cables at an adequate distance from heat sources, such as the exhaust system.
- ▶ When installing the cables ensure that there is a sufficient length of cable between the fifth wheel coupling and the vehicle body.
- ▶ Install the electronic display equipment within the view of the driver.
- ▶ Make the connection for the power supply to the sensor coupling at a point approved by the vehicle manufacturer.
- ▶ The sensor coupling must be protected by a conventional 1 A automotive fuse.
- ▶ Follow the ADR / GGVS regulations and national legislation and regulations relating to ADR / GGVS vehicles.
- ▶ The connection may only be made using an ADR extension cable on ADR / GGVS vehicles. This must be specified in the order.

2 Proper usage

The sensor coupling provides the driver with information relating to the locking status of the fifth wheel coupling.

Information on this subject is provided in the sales documentation supplied by JOST.

Modifications of any kind will render both the warranty and the design approval void and therefore also cancel the vehicle's operating licence.

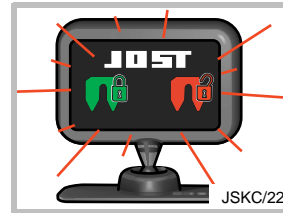
3 Operation

3.1 Self-diagnostics

The sensor coupling carries out a self-diagnostic test when the ignition is switched on. This process checks the system's sensors.



- ▶ Switch on the ignition.
- ▶ All the symbols will light up.



- ▶ After flashing several times, the current operating status will be displayed.

3.2 Operating indicator (fifth wheel coupling open/ready for coupling)



- ▶ The red LED will be lit. The fifth wheel coupling is open and ready to couple up.

Note

The display will switch off after 5 seconds.

3 Operation

3.3 Operating indicator (fifth wheel coupling closed/ready to drive)



- ▶ The green LED will be lit. The fifth wheel coupling is closed and ready to drive away.

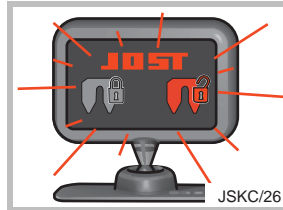
Note

The display will go dark after 5 seconds.

3.4 Operating indicator (errors)



- ▶ The red LED's will flash and an alarm will sound. The fifth wheel coupling appears to be closed, in other words the fifth wheel coupling is closed but the king pin is not engaged (false coupling).



- ▶ The red LED's will flash and an alarm will sound. The fifth wheel coupling is not correctly closed. The king pin is engaged.



- ▶ The red LED's are lit permanently.

Note

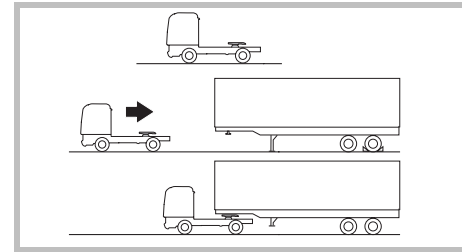
Other errors and how to rectify them are set out in the table (diagnostic table for faults) in section 5.1.

3 Operation

3.5 Sensor coupling process with two sensors



- ▶ The fifth wheel coupling is open and ready to couple up.
 - ▶ Drive the tractor unit under the semi-trailer.
 - ▶ Raise the semi-trailer height using its air suspension until the fifth wheel coupling plate is in contact with the skid plate.
 - ▶ Reverse the tractor unit as far as possible until the fifth wheel coupling closes.
 - ▶ The display panel "Fifth wheel coupling closed" is lit in green.
- The fifth wheel coupling is correctly closed.



Note

The display will go dark after 2 minutes.

The driver must check that the semi-trailer has been connected properly.

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

The fifth wheel coupling must be closed and locked, see installation and operating manual for the JSK 36, JSK 40 and JSK 42.

3 Operation

3.6 Sensor coupling process with three sensors

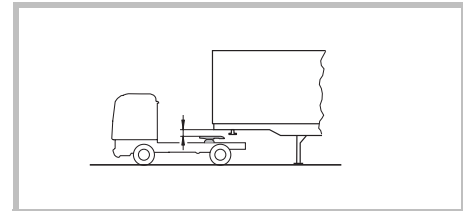
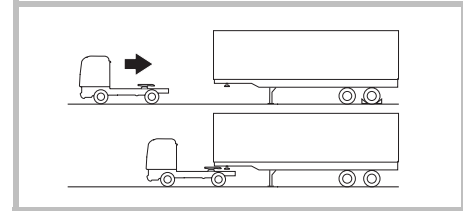
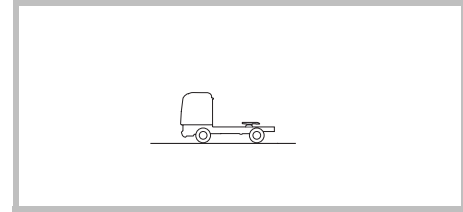


- ▶ The fifth wheel coupling is open and ready to couple up.

- ▶ Drive the tractor unit under the semi-trailer.
- ▶ Raise the tractor height using its air suspension until the fifth wheel coupling plate is in contact with the skid plate. The display switches on automatically.

Note

If the fifth wheel coupling plate loses contact with the skid plate during the coupling up process the red LED will start to flash and an alarm will sound. Re-establish contact within 10 seconds since otherwise the system will cut out.



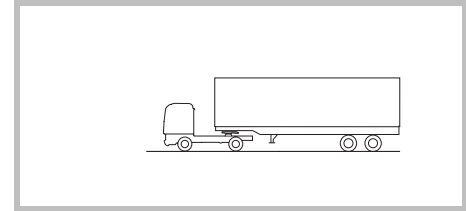
3 Operation



- ▶ Reverse the tractor unit as far as possible until the fifth wheel coupling closes.
- ▶ The display panel "Fifth wheel coupling closed" is lit in green. The fifth wheel coupling is correctly closed.

Note

The display will go dark after 2 minutes. The driver must check that the semi-trailer has been connected properly. The skid plate must rest on the fifth wheel coupling without a gap. The fifth wheel coupling must be closed and locked, see installation and operating manual for the JSK 36, JSK 40 and JSK 42.

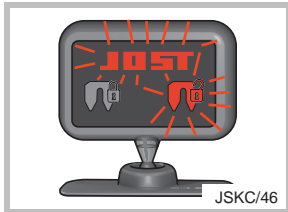
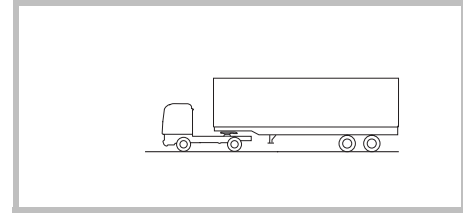


3 Operation

3.7 Sensor uncoupling process with two sensors



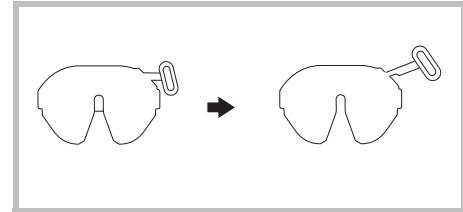
- ▶ The fifth wheel coupling is correctly closed and locked.



- ▶ Open the fifth wheel coupling locking mechanism.
- ▶ The red LED's will flash and an alarm will sound.

Note

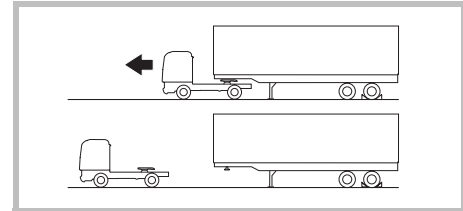
After a time limit of 2 minutes has elapsed the alarm will stop and the red LED's will be constantly lit, switch the ignition off and then on again to restart the process.



- ▶ Drive out the tractor unit as normal and lower the air suspension.
- ▶ The flashing red LED's will go out and the alarm will stop.

Note

The display will switch off completely after approx. 10 seconds.



3 Operation

3.8 Sensor uncoupling process with three sensors



- ▶ The fifth wheel coupling is correctly closed and locked.

- ▶ Open the fifth wheel coupling locking mechanism.
- ▶ The red LED's will flash and an alarm will sound.

Note

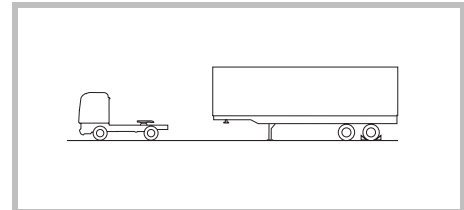
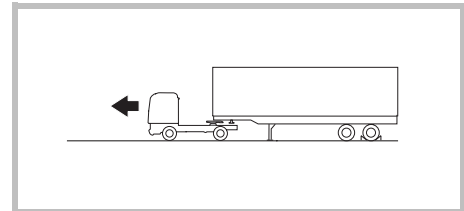
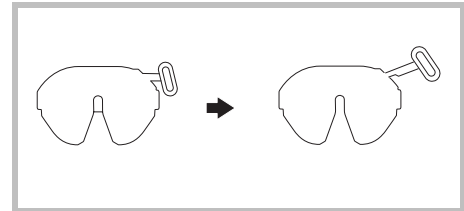
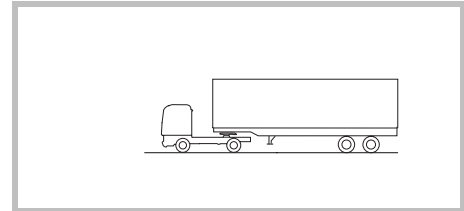
After a time limit of 2 minutes has elapsed the alarm will stop and the red LED's will be constantly lit until the tractor unit is driven out.

- ▶ Drive the tractor unit forwards.
- ▶ The fifth wheel coupling is still in contact with the skid plate.

- ▶ Drive out the tractor unit as normal and lower the air suspension.
- ▶ The red LED will go out.

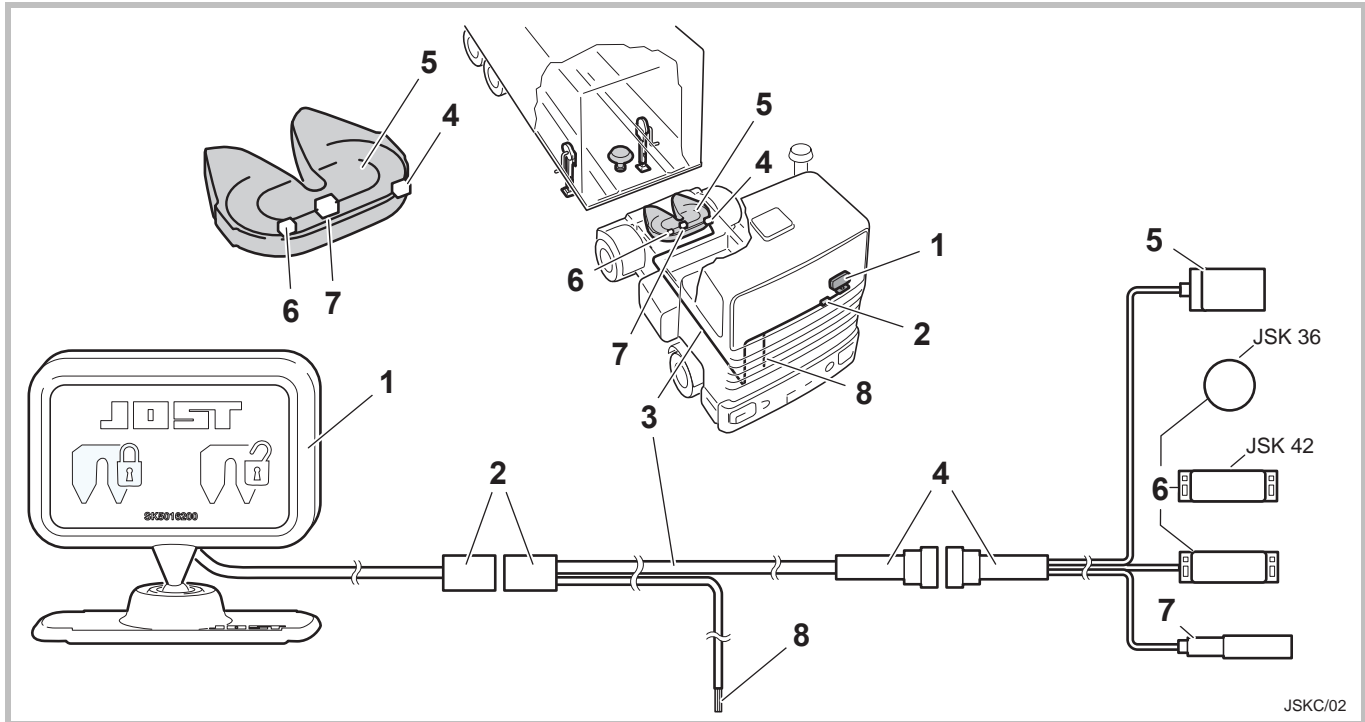
Note

The display will switch off completely after approx. 10 seconds.



4 Installation

4.1 List of components



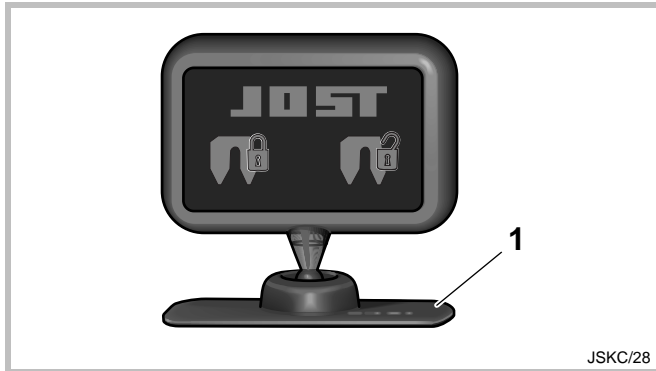
- | | | | |
|---|-----------------------------|---|--------------------------------|
| 1 | Display | 5 | Semi-trailer sensor |
| 2 | Plug (display) | 6 | Lock jaw sensor, switch magnet |
| 3 | Connection cable | 7 | King pin sensor |
| 4 | Plug (fifth wheel coupling) | 8 | Power supply connection |

Note

The display (1) and the connection cable (3) are available in a range of designs. Further information is provided in the sales documentation.

4 Installation

4.2 Display



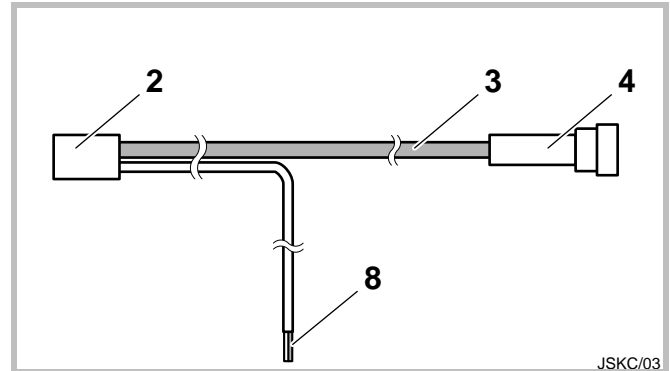
Note

Install the display (1) in the driver's field of vision.

The display's installation foot has an adhesive surface and can be affixed into position. The affixing area in the vehicle must be dry and free of dust and grease.

Alternatively the installation foot may be screwed into position. There are markings on the underside of the foot to make it easier to install it.

4.3 To connect the connection cable



2 Plug (display)

3 Connection cable

Note

The connection cable is supplied in a range of designs. Further information is provided in the sales documentation.

4 Plug (fifth wheel coupling)

8 Power supply connection



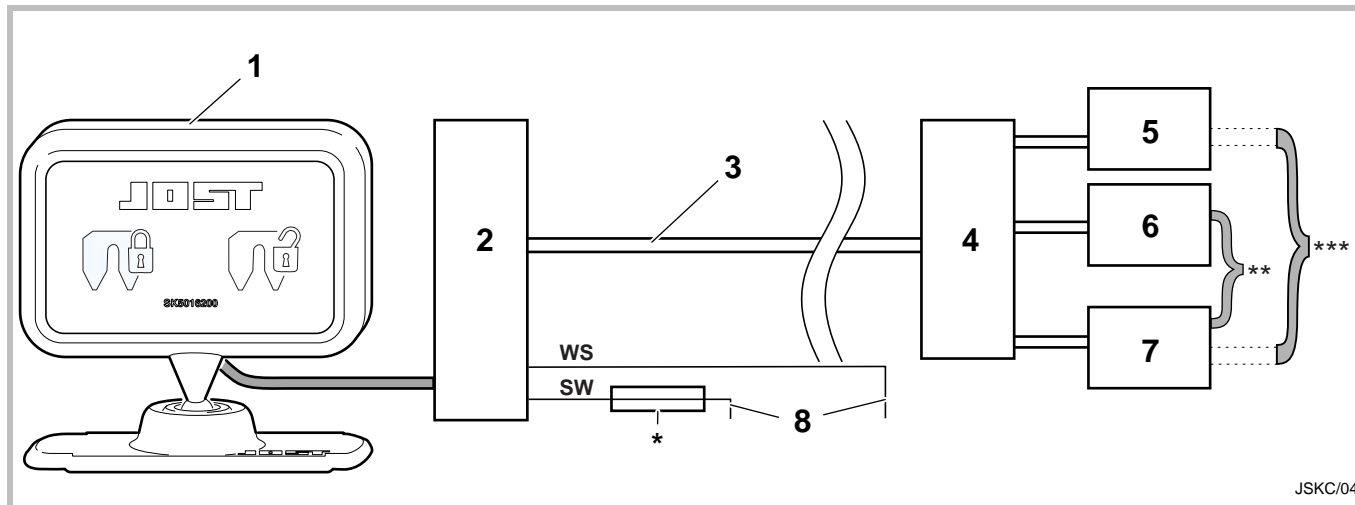
To avoid damage to the vehicle's electrical system it is essential that you follow the safety instructions set out in section 1.2.

- ▶ Connect the plug (2) to the display.
- ▶ Route the power supply connection (8) to the position approved by the vehicle manufacturer and connect it there (see connection diagram in section 4.4).

Route the connection cable (3) to the fifth wheel coupling and connect the plug (4) there to the existing mating plug.

4 Installation


4.4 Connection diagram



JSKC/04

- 1 Display (shows sensor coupling with two sensors as an example)
- 2 Plug (display)
- 3 Connection cable
- 4 Plug (fifth wheel coupling)
- 5 Semi-trailer sensor
- 6 Locking mechanism sensor

- 7 King pin sensor
 - 8 Power supply connection
- SW** Black cable, terminal 31 (negative) connection
WS White cable, terminal 15 (positive when ignition ON) connection
* Conventional 1 A automotive blade-type fuse (not supplied)
** Sensor coupling version with two sensors
*** Sensor coupling version with three sensors

-  **To prevent damage being suffered by the vehicle's electrical system and the sensor's electronic systems in the event of a short circuit,**
- a conventional 1 A automotive blade terminal fuse must be fitted in the connection supply cable (8)
 - during the connection process ensure that the display is suitable for the relevant vehicle voltage (12 V or 24 V).
- Further information is available in the sales documentation.

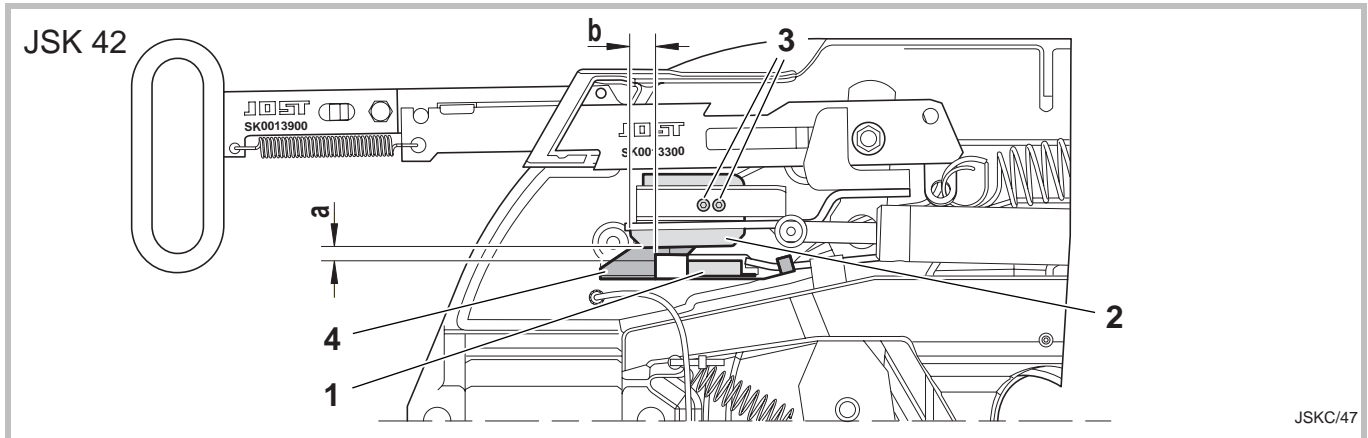
5.1 Diagnostic table for faults

Fault	Cause	Remedy
<p>Display non-functional after starting (ignition "ON").</p>	<ol style="list-style-type: none"> 1. 1 A automotive fuse defective. 2. Plug connections loose or not connected correctly. 3. Connection cable not connected correctly. 4. Vehicle battery too weak. 	<ol style="list-style-type: none"> to 1. Replace 1 A automotive fuse. to 2. Check the plug connections for the cabling between the fifth wheel coupling and the electronic display. Note All the contacts must be engaged uniformly in the plugs. Ensure that the plug connections are engaged correctly. to 3. Check the voltage supply: White cable = Terminal 15 (+ 12 V or + 24 V ignition ON) Black cable = Terminal 31 (earth) to 4. Charge/replace the battery.
<p>The following appears in the display after connecting the semi-trailer: JOST logo and locking mechanism open pictogram flash red in the display.</p> <p>JOST logo and locking mechanism closed pictogram flash red in the display.</p>	<ol style="list-style-type: none"> 1. The fifth wheel coupling is not closed correctly or the king pin is not in the correct position. 2. The fifth wheel coupling has been locked manually without the king pin. 	<ol style="list-style-type: none"> to 1. Check the status of the locking mechanism, adjust the locking mechanism if necessary and reconnect the semi-trailer. to 2. Open the fifth wheel coupling and reconnect the semi-trailer if necessary. Note The skid plate must rest on the fifth wheel coupling without a gap.
<p>During the journey the display will change between the closed/ready to drive pictogram to the JOST logo and the locking mechanism pictogram.</p>	<ol style="list-style-type: none"> 1. The fifth wheel coupling is not adjusted correctly. 2. The king pin is worn to below the maximum wear limit. 3. The king pin sensor is not installed correctly. 4. The plug connections have not been connected correctly. 	<ol style="list-style-type: none"> to 1. Check and adjust the fifth wheel coupling. to 2. Replace the king pin and check the locking mechanism setting on the fifth wheel coupling. to 3. The king pin sensor must finish flush with the fifth wheel coupling. to 4. Check the plug connections for the cabling between the fifth wheel coupling and the electronic display. Note All the contacts must be engaged uniformly in the plugs. Ensure that the plug connections are engaged correctly.

5 Troubleshooting

Fault	Cause	Remedy
The JOST logo, locking mechanism open pictogram and locking mechanism closed pictogram are lit in red.	<ol style="list-style-type: none"> 1. The plug connections have not been connected correctly. 2. Cable break on the sensor set or defective sensor. 3. Semi-trailer sensor detects no trailer. 	<ol style="list-style-type: none"> to 1. Check the plug connections for the cabling between the fifth wheel coupling and the electronic display. Note All the contacts must be engaged uniformly in the plugs. Ensure that the plug connections are engaged correctly. to 2. Replace the sensor set. to 3. Use a steel skid plate without holes.
The following appears in the display after disconnecting the semi-trailer: JOST logo and locking mechanism open pictogram flash red in the display.	<ol style="list-style-type: none"> 1. King pin sensor badly soiled by grease or other dirt. 	<ol style="list-style-type: none"> to 1. Clean king pin sensor.
After the system start and the connecting or disconnecting process, all the pictograms in the display are red.	<ol style="list-style-type: none"> 1. Sensor set defective. 	<ol style="list-style-type: none"> to 1. Replace the sensor set.
The display does not switch off after uncoupling.	<ol style="list-style-type: none"> 1. Semi-trailer sensor or king pin sensor soiled. 2. Sensors defective. 	<ol style="list-style-type: none"> to 1. Clean the sensors. to 2. Replace the sensor set.

6.1 To adjust the locking mechanism sensor



- 1 Locking mechanism sensor 2 Switch magnet 3 Sensor holding plate fastening screws 4 Sensor holding plate

To ensure that the sensors function correctly, the locking mechanism sensor (1) may have to be realigned to the switch magnet (2) if the fifth wheel coupling is badly worn.

A correctly set locking mechanism sensor (1) must satisfy the following conditions when the fifth wheel coupling is closed:

- ▶ The distance (a) between the locking mechanism sensor (1) and the switch magnet (2) must be parallel.
- ▶ The distance (a) should be 7 – 10 mm.
- ▶ The side offset (b) between the locking mechanism sensor (1) and the switch magnet (2) must be less than 7 mm.

If necessary adjust the locking mechanism sensor (1) as follows:

- ▶ Undo the fastening screws (3).
- ▶ Align the locking mechanism sensor (1) and switch magnet (2) as described above.
- ▶ Tighten the fastening screws (3).
- ▶ Check the function of the sensors and the display.

Note

Subsequent adjustment of the locking sensor is not necessary for the JSK 36.

6.2 Cleaning the sensors

The functional surfaces of the sensors (king pin sensors; semi-trailer sensor) are to be cleaned from grease and dirt. They can be cleaned while the vehicle is being cleaned.

JUST

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