Sensor JSK

EN  Installation and operating instructions
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1 Explanation of symbols

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

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

**ADVICE!**
Contains additional important information.
ATTENTION!
The safety information is compiled in this section. Where the user or others are in danger, the safety instructions are repeated in the individual sections and highlighted with the danger warning sign shown here.

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 instructions in the operating manual for the tractor unit and the semitrailer are applicable and must be followed.

The following safety information applies to the installation and mounting work. Safety instructions directly linked to the activity are listed again individually.

2.1 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.
- Before starting any journey and each time couple a trailer, check that the locking mechanism is in good condition and that it is properly secure. Only drive the vehicle with the locking mechanism locked and secured.

WARNING!
If the fifth wheel coupling is not correctly closed and secured, the semi-trailer can work loose. This can cause an accident and injure you and other people. Always check that the fifth wheel coupling is in good condition and locked after connecting a semi-trailer. A pre-departure inspection is always to be performed, even if the display indicates "Fifth wheel coupling closed (green)". The sensor coupling is only an assistance function which helps you to couple and uncouple trailers.
2 Safety information

2.2 Safety information for installation

- The assembly 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.
ATTENTION!
The JOST sensor coupling is only an assistance function which helps you to couple and uncouple trailers. The pre-departure inspection mentioned in section 2.1 must therefore be conducted in full and is not replaced or rendered unnecessary by the sensor coupling.

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

The individual components must be used only in combination with the specially intended JOST 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.

The sensor coupling display can be shown on the JOST display or on a display integrated in the instrument panel of the vehicle.

Sensor coupling with 3 sensors.

Sensor coupling with 2 sensors.

The operational status of the fifth wheel coupling is shown with the following symbols (under ISO 2575).

- Open (red)
- Closed (green)
- Closed (red)
- Malfunction (red)
- Level reached (only for variant with 3 sensors)

The JOST display is described below. The descriptions apply accordingly to the display on the instrument panel.
4.1 List of components

1 Display
2 Plug (display)
3 Connection cable
4 Plug (fifth wheel coupling)
5* Semi-trailer sensor, only with sensor coupling model with 3 sensors
6 Locking sensor, switch magnet
7 King pin sensor
8 Power supply connection
ADVICE!
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 Connecting connection cable

2 Plug (display)
3 Connection cable
4 Plug (fifth wheel coupling)
8 Power supply connection
   - Black cable
     Terminal 31 (negative) connection
   - White cable
     Terminal 15 connection (positive when ignition ON)

ATTENTION!
The safety information set out in section 2.2 must be observed to prevent damaging the vehicle's electrical system.

- Connect the plug (2) to the display.
- Route the power supply connection (8) to the point approved by the vehicle manufacturer and connected there (see connection diagram in section 4.1).

ATTENTION!
In order to avoid damage to the vehicle’s electrical and sensor systems in the case of a short circuit, a commercially available 1 A blade-type fuse must be installed in the connection supply line (8). When making the connection ensure that the display is suitable for the voltage of the vehicle (12 V or 24 V). Further information is provided in the sales documentation.

- Route the connection cable (3) to the fifth wheel coupling and connect the plug (4) to the existing mating plug. The plug must be locked with the yellow slide.
5.1 Self-diagnostic

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.
- The entire display will light up.

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

**ADVICE!**
Each time you start the system, check for lit-up indicators to detect any defect in the display system in good time.

5.2 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.

**ADVICE!**
The display will switch off after 5 seconds.

5.3 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.

**ADVICE!**
The display will go dark after 5 seconds.
5.4 Operating indicator (faults)

- The red "Fifth wheel coupling closed" indicator will flash and an alarm will sound.
- The JOST fifth wheel coupling is not correctly locked, i.e. the fifth-wheel coupling is closed, but the king pin is not engaged or not detected by the system.
- The red LEDs will flash and an alarm will sound. The fifth wheel coupling is not correctly closed. The king pin is engaged.

ADVICE!
Other errors and how to rectify them are set out in the table (diagnostic table for faults) in section 6.

- The entire display will light up permanently in red.
- A system error has occurred.
5.5 Sensor coupling process

- The fifth wheel coupling is open and ready to couple.
- Drive the tractor unit under the semi-trailer.
- Raise the fifth wheel using the air suspension until the fifth wheel coupling plate contacts the skid plate.
- For a sensor coupling with skid plate detection (3 sensors), the display now switches on automatically.

**ADVICE!**

For a sensor coupling with skid plate detection (3 sensors), the “Open (red)” display starts flashing and a signal tone sounds if the fifth wheel plate loses contact with the skid plate during the coupling process. Restore contact to the skid plate within 10 seconds, otherwise the system will switch off and you should restart the coupling process.
Reverse the tractor unit until the fifth wheel coupling closes.
- The green "Fifth wheel coupling closed" display will be lit. The fifth wheel coupling is correctly closed.

**ADVICE!**
The display will go dark after 2 minutes.

**WARNING!**
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 37C, JSK 40 and JSK 42.
5.6 Sensor uncoupling process

- The fifth wheel coupling is correctly closed and locked.

- Open the fifth wheel coupling locking mechanism.
- “JOST lettering” and “Open” are flashing red.

**ADVICE!**

After a time limit of 2 minutes has elapsed the alarm will stop and the red LEDs will be constantly lit until the tractor unit has been driven out. Ignition Off/On required to restart.

- Drive the tractor unit forwards.
- For a sensor coupling with skid plate detection (3 sensors), the display continues to show an open fifth wheel coupling as long as there is contact between the fifth wheel plate and the skid plate.
Drive out the tractor unit as usual, lowering the air suspension.

- The red indicators go out.

**ADVICE!**

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

ADVICE!
In order to remedy malfunctions, see also the repair instructions for the sensor set.

### 6.1 General malfunctions

<table>
<thead>
<tr>
<th>Fault</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display non-functional after starting (ignition “ON”).</td>
<td>Plug connections loose or not connected correctly.</td>
<td>Check the plug connections for the cabling between the fifth wheel coupling and the electronic display.</td>
</tr>
<tr>
<td>1 A automotive fuse defective.</td>
<td></td>
<td>Replace 1 A automotive fuse.</td>
</tr>
<tr>
<td>Connection cable not connected correctly.</td>
<td>Check voltage supply:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• white cable = terminal 15 (+12 V or +24 V ignition ON)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Black cable = Terminal 31 (earth)</td>
<td></td>
</tr>
<tr>
<td>Vehicle battery too weak.</td>
<td>Charge/Replace the battery.</td>
<td></td>
</tr>
</tbody>
</table>
## Troubleshooting

<table>
<thead>
<tr>
<th>Fault</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Plug connections loose or not connected correctly.</td>
<td>Check the plug connections for the cabling between the fifth wheel coupling and the electronic display.</td>
</tr>
<tr>
<td></td>
<td><strong>ADVICE!</strong> All the contacts must be engaged uniformly in the plugs. Ensure that the plug connections are engaged correctly.</td>
<td></td>
</tr>
<tr>
<td>JSK37</td>
<td>latch defective: Shrink-fit hose no longer present and the magnet beneath it no longer adheres to the intended position in the latch.</td>
<td>Replace the latch if the shrink-fit hose is missing. If the magnet is no longer present in the latch, also remove magnet from detection field of the locking sensor.</td>
</tr>
<tr>
<td>JSK42</td>
<td>handle defective: Magnet in handle no longer present or broken.</td>
<td>Replace the safety latch with magnet. If the magnet is no longer present in the lever, also remove magnet from detection field of the locking sensor.</td>
</tr>
<tr>
<td></td>
<td>Sensor set defective (Cable break on the sensor set or defective sensor).</td>
<td>Check the sensor set according to the repair instructions “Replacing the sensor set” and replace the sensor set if necessary.</td>
</tr>
</tbody>
</table>
## Troubleshooting

<table>
<thead>
<tr>
<th>Fault</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>The fifth wheel coupling is not adjusted correctly or is worn.</td>
<td>Check fifth wheel coupling and adjust according to installation and operating instructions of fifth wheel coupling.</td>
<td></td>
</tr>
<tr>
<td>The king pin is worn to below the maximum wear limit.</td>
<td>Replace the king pin and check the locking mechanism setting on the fifth wheel coupling.</td>
<td></td>
</tr>
<tr>
<td>The king pin sensor is not installed correctly.</td>
<td>The king pin sensor must be readjusted according to the sensor system repair instructions.</td>
<td></td>
</tr>
<tr>
<td>Plug connections loose or not connected correctly.</td>
<td>Check the plug connections for the cabling between the fifth wheel coupling and the electronic display.</td>
<td></td>
</tr>
</tbody>
</table>

**ADVICE!**

All the contacts must be engaged uniformly in the plugs. Ensure that the plug connections are engaged correctly.
### 6.2 Malfunctions during coupling up

<table>
<thead>
<tr>
<th>Fault</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>The fifth wheel coupling is not closed correctly or the king pin is not in the correct position.</td>
<td>Check the status of the locking mechanism, adjust the locking mechanism if necessary and reconnect the semi-trailer.</td>
<td></td>
</tr>
<tr>
<td>JSK42: Handle not secured/ not in end position</td>
<td>Check the functionality of the handle. If necessary, clean and re-lubricate it (handle must move automatically and fully into the secured position – see MuB fifth wheel coupling JSK40/42).</td>
<td></td>
</tr>
<tr>
<td>JSK37 – latch defective: Shrink-fit hose no longer present and the magnet beneath it no longer adheres to the intended position in the latch.</td>
<td>Replace the latch if the shrink-fit hose is missing. If the magnet is no longer present in the latch, also remove magnet from detection field of the locking sensor.</td>
<td></td>
</tr>
<tr>
<td>JSK42 – handle defective: Magnet in handle no longer present or broken.</td>
<td>Replace the safety latch with magnet. If the magnet is no longer present in the lever, also remove magnet from detection field of the locking sensor.</td>
<td></td>
</tr>
<tr>
<td>Locking sensor defective</td>
<td>Check the functionality of the locking sensor according to the repair instructions “Replacing the sensor set” and replace the sensor set if necessary.</td>
<td></td>
</tr>
</tbody>
</table>
## 6 Troubleshooting

<table>
<thead>
<tr>
<th>Fault</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
</table>
| ![Image of Fault Indicator](JavaScript:window.open('image1.png')) | The fifth wheel coupling has been locked manually without the king pin. | Open the fifth wheel coupling and reconnect the semi-trailer if necessary.  

**ADVICE!**  
The skid plate must rest on the fifth wheel coupling without a gap. |
| King pin sensor defective. | Check the functionality of the king pin sensor according to the repair instructions “Replacing the sensor set” and replace the sensor set if necessary. |
## 6.3 Malfunctions during uncoupling

<table>
<thead>
<tr>
<th>Fault</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>King pin sensor badly soiled by grease or other dirt.</td>
<td>Clean king pin sensor.</td>
<td></td>
</tr>
<tr>
<td>Semi-trailer sensor or king pin sensor defective.</td>
<td>Check the functionality of the king pin sensor and semi-trailer sensor according to the repair instructions “Replacing the sensor set” and replace the sensor set if necessary.</td>
<td></td>
</tr>
<tr>
<td>The display does not switch off after uncoupling.</td>
<td>King pin sensor and/or semi-trailer sensor badly soiled by grease or other dirt.</td>
<td>Clean the king pin sensor and semi-trailer sensor.</td>
</tr>
<tr>
<td></td>
<td>Sensor set defective (cable break on the sensor set or defective sensor).</td>
<td>Check the sensor set according to the repair instructions “Replacing the sensor set” and replace the sensor set if necessary.</td>
</tr>
</tbody>
</table>
7 Maintenance

ADVICE!
In order to ensure the functionality of the sensor, check and, if necessary, adjust the wear parts in accordance with the JSK 37 or JSK 42 installation and operating manual.

7.1 Cleaning the sensor fifth wheel coupling

- Clean all grease and dirt deposits off the function surfaces of the sensors (king pin sensors and semi-trailer sensor). This cleaning can be done when you clean the vehicle.