



Montage- und Betriebsanleitung

D

Installation and operating instructions

GB

Instructions de montage et d'utilisation

F

Istruzioni per il montaggio e il funzionamento

I

Member of JOST-World

RI-E

**Elektronische Fernanzeige und
Zugösen-Schwenkwinkelwarnung**

**Electronic remote indicator and
drawbar max. turnangel indicator**

**Affichage à distance électronique
et Voyant d'angle de rotation**

**L'indicatore a distanza elettronico
et indicatore di emergenza angolo
di rotazione**



RI-E

Remote indicator Electronic – cabin

for model series:

RO*400T1, RO*40CH/E, RO*50BNA, RO*50,
RO*50E, RO*567 (see page XX)



Installation must be carried out by an authorised workshop!

Before installation, please read these instructions carefully!

Official note

When installing the remote indicator, EC Directive 94/20, in particular Annex VII or EC Directive ECE 55-01, Annex 7 and the relevant national regulations must be observed.

The fitting and operating instructions must be kept in the vehicle.

Subject to technical changes without prior notice

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The safety instructions are summarised in a single chapter. In any situation where the user of the trailer coupling is at risk, the safety instructions are repeated in the individual sections and marked with the warning symbol shown here.

When handling trailer couplings, tractor vehicles and trailers the relevant safety regulations in the respective country must be observed (e.g. Berufsgenossenschaft in Germany). Any safety instructions in the operating manual of the tractor vehicle and the trailer remain valid and must be observed.

For operation, maintenance and assembly the safety instructions listed below must be observed. Further safety instructions are then given in the individual case which relate directly to the respective activity.

1.1 Safety instructions for operation

- The trailer coupling may only be operated by authorised persons.
- The installation and operating instructions of the respective trailer coupling retain their validity and must be observed.
- Only use the trailer coupling and the towing eye of the trailer if they are in perfect technical condition.
- Only carry out hitching / unhitching operations on firm, level ground.
- During hitching, nobody may stand between the tractor vehicle and the trailer.
- After every hitching operation the correct locked status of the trailer coupling must be checked by means of the control pin or the remote indicator. Only drive the rig in the correctly locked status.
- The remote indicator does not exempt the driver from the obligation to check before driving off subject to StVZO (Regulations Authorising the Use of Vehicles for Road Traffic). Before driving off, among other things, the coupling status of the mechanical connection device for the tractor vehicle and the trailer must be checked.

1.2 Safety instructions for maintenance

- For maintenance work, only use the prescribed lubricants.
- Maintenance work may only be carried out by qualified personnel.

1.3 Safety instructions for installation

- Installation may only be carried out by authorised workshops.
- Installation must be carried out in compliance with the relevant accident prevention regulations and the technical regulations for mechanical equipment.
- Only original components may be used.
- Instructions and installation guidelines of the vehicle manufacturer must be observed, e.g. type of fastening, clearances etc.
- All screwed connections must be tightened with the prescribed tightening torque.
- Work may only be carried out on the trailer coupling when it is closed.

Risk of accident!

The installation of the trailer coupling on the tractor vehicle must be carried out in accordance with Annex VII of EC Directive 94/20 and appendix 7 of the regulations EC R55-01 must be checked accordingly. As applicable, the relevant licensing regulations in the respective country must be observed.

§§ 19, 20 and 21 StVZO apply in Germany. The mechanical remote control and the mechanical remote indicator are equipment with safety components. This is why the installation must be documented.



The trailer coupling, the remote control and the remote indicator are connection devices which require model approval and are subject to the highest safety requirements.

Alterations of any kind shall cause the warranty to lapse and invalidate the model approval, which in turn invalidates the vehicle operation permit.

Upgrade Kits RI-E		ROE 71588 ²	ROE 71587 ¹	ROE 71547 ²	ROE 71546 ¹	ROE 71671 ¹	ROE 71547-W ²
Remote indication ¹ / turnangle warning ²							
Fits for hitches type as of technical release T...							
T3	RO*500G 65/G6/G5/G4/G3	X	X	-	-	-	-
T0	RO*50	-	-	X	X	-	X
T0	RO*50E	-	-	X	X	-	X
T0	RO*50BNA	-	-	-	X	-	-
T1	RO*400 und RO*430	-	-	-	X	-	-
T0	RO*40E und RO*40CH	-	-	-	X	-	-
T0	RO*56E und RO*561E	-	-	-	-	X	-

1.1 Before installation

The kit does not include the electric fuse!
Fuse type according to the truck manufacturer's instructions!

Note: When installing the remote indicator, please observe:

- applicable national regulations
- guidelines of the vehicle manufacturer
- the generally applicable regulations for the installation of electrical components in a truck
- possibility of axial rotation of the coupling head min. ± 25°

1.1.2 Interfaces

The trailer coupling must have the appropriately prepared interface for the later installation of a remote indicator or a sensor (**S1**). See Inspection.

1.1.3 Inspection of the components

- Does the retrofit kit match the trailer coupling?
 - compare the data on the type plates
 - the last digit of the article no. = techn. release (**T**), see table
- Check the supplied components for completeness

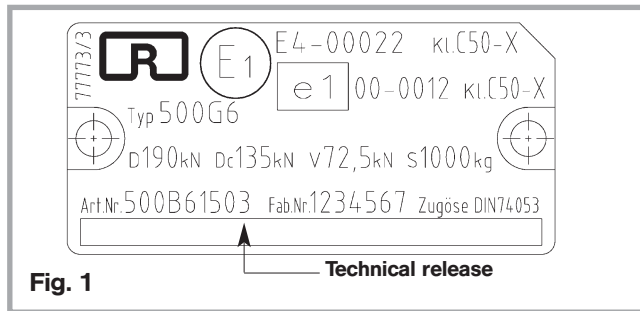


Fig. 1



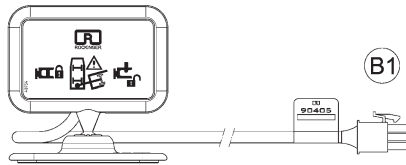


Fig. 2

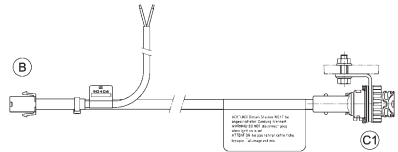


Fig. 3

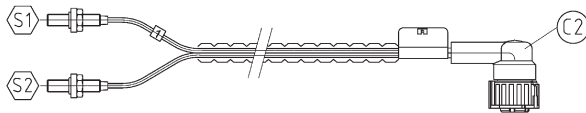


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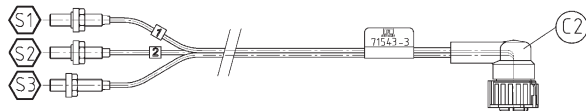


Fig. 5



Fig. 6

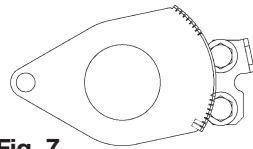


Fig. 7

2.1.1 Each Upgrade Kit contains:

- Display with connecting cable and plug (Fig. 2).
- Extension cable (15m) with mounting flange, screws and plug (Fig. 3).
- 1 x 2 sensor cable with plug (only remote indication) (Fig. 4).

or (depending on the version)

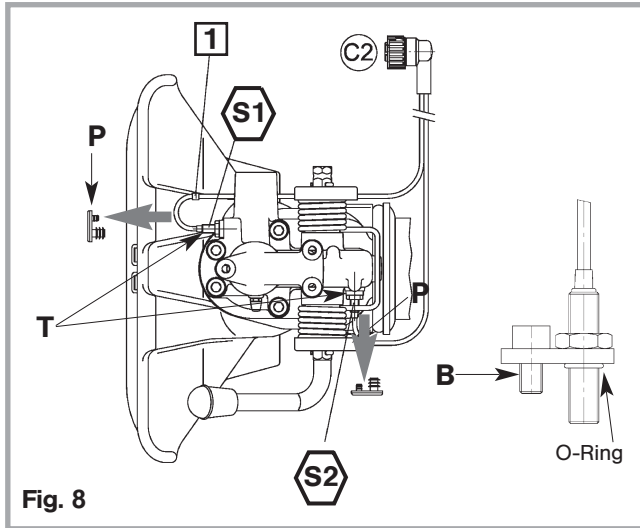
- 1 x 3 sensor cable with plug (remote indication **plus** turn angle warning) (Fig. 5).

Only for set with turn angle warning

- 1 x Turnangle warning adjustment plate with screws M6 for Type RO*50 und RO*50E (Fig. 6).

or (depending on hitch type)

- 1 x Turnangle warning adjustment plate with screws M10 for Type RO*500 (Fig. 7).



2.2 Installation of the sensor S1 and S2

2.2.1 Installation of the indicator

- Remove the plastic cover (P) at the interfaces (T).
- Slide the sensor (S1 + S2) with the fastening flange and fitted O-ring onto the interface and tighten the fastening screw with **5 Nm**.
- The sensor is already pre-set.
- Ensure axial play ($\pm 25^\circ$) of the trailer coupling.



Lay the sensor cable and the indicator with plastic clips in such a way, that the cable harness is **not** scraping or kinked. **(do not lay too tightly, take account of axial movement of hitch)**

The plug C2 should be led to the cross bar and connected there with the plug C11 of the extension cable.

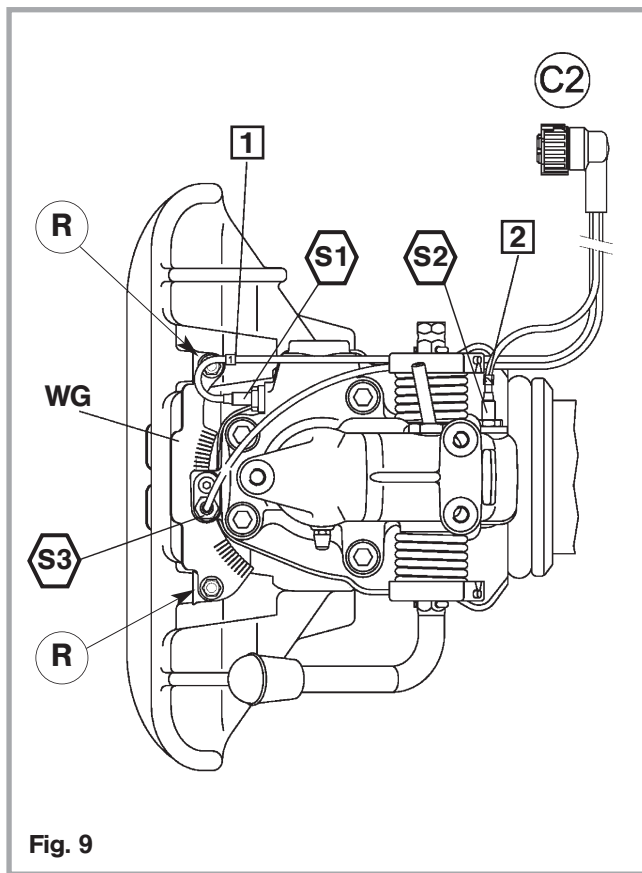


Fig. 9

2.2.2 Installation of turn-angle warning system for hitch types RO*50 and RO*50E

- Mount adjustment plate **WG** with 2 flange screws (**R**) M6 to the funnel (torque **18 Nm**)
- Not marked Sensor (**S3**) is pre mounted on holder (**F**) and must normally not be adjusted after mounting (Fig.10).
- Slide Sensor (**S3**) with fastening flange and fitted O-Ring onto the interface and tighten the fastening screw with **5 Nm**. Adjusting the adjustment plate see 1.6. Adjusting S3 if necessary
- Unscrew the fastening screw and draw the sensor (**S3**) out; redraw counter nut **KM**; adjust the Sensor (**S3**) according Fig. 10 to distance (**S**) = 1 to 1,5 mm;
- Fasten the counter nut **KM** again and tighten the fastening screw with **5 Nm**.

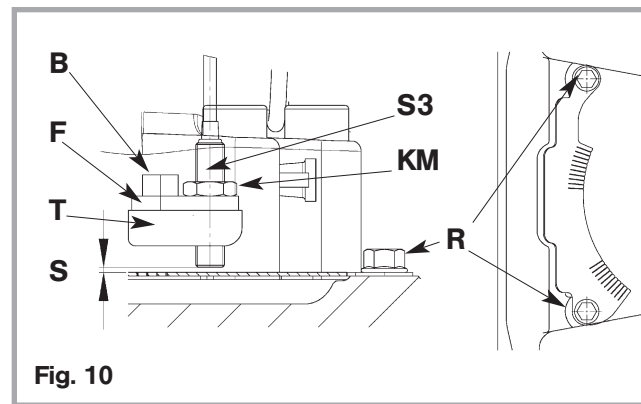


Fig. 10

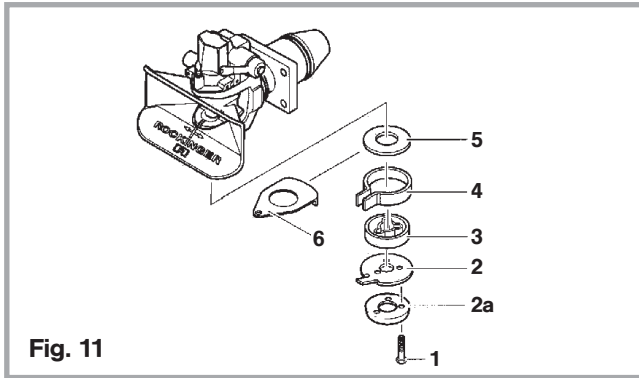


Fig. 11

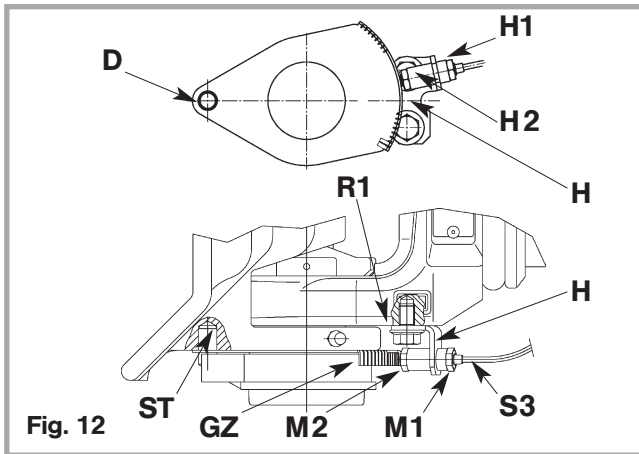


Fig. 12

2.2.3 Mounting of drawbar turn angle warning system Typ RO*500

- Close coupling:
Hit hand lever in opening direction with heel of hand **or** raise coupling pin with suitable tool
- Loosen 3 screws (1) on lower holder (2)
- Screw protection (2a, only by series 500) remove lower holder (2) with guide bush (3), spring (4) and washer (5)
- Fit sensor washer (6, in original condition) in place of washer (5), with angle section facing downwards (see Fig. 1)
- Mount spring (4), guide bush (3) and lower holder (2) and screw protection (2a)
- Fit screws (1)
- Jaw in central position with closed coupling
- Tighten screws (1), tightening torque **30 Nm**
- Pre-fit limit switch (7) to bracket (8) with 2 hexagon nuts (9) (see Fig. 2)
- Attach bracket to coupling unit with two screws (10), tightening torque **25 Nm** (see Fig. 2)
- Lock hexagon nuts
- Fit bulb in telltale (see Fig. 4)
- Mount telltale in cab (in field of view)
- Connect according to wiring diagram as follows (see Fig. 5)
 - Use supplied three-core cable (3 x 0.34 mm²)
 - Lay cable carefully, avoiding places where chafing can occur
 - Connect telltale in cab

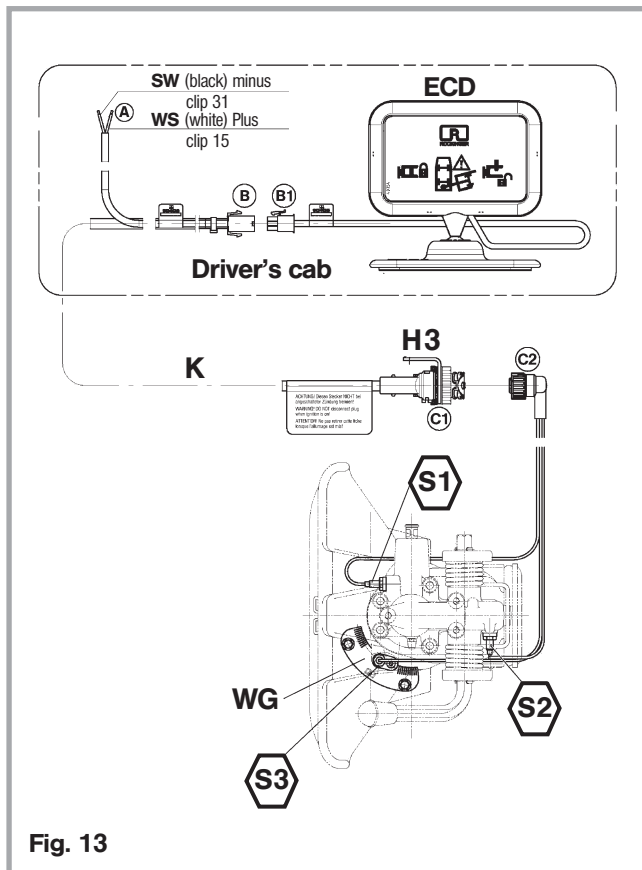


Fig. 13

2.3 Laying the extension cable to the driver's cab

- Fix the bracket **H3** at the cross member.
- Connect the sensor plug **C1** with the plug **C2** of the extension cable and fix to the cross bar using cable binders.
- Lay the cable along the frame in accordance with the vehicle manufacturer's guidelines into the driver's cab.



- Lay and fix the cable in such a way that it cannot scrape or kink.

2.4 Display

- Mount the display at a suitable position in the field of vision of the driver.
- Lay the extension cable with the plug **B1** under the instrument panel and secure it.

2.5 Connection to the vehicle electrical system

- Connect the black cable (earth) with terminal 31
 - Connect the white cable (+24 Volt) with terminal 15
- The connection must be protected by a 2A fuse.



- Connect plug **B** and **B1** only if the ignition is off.

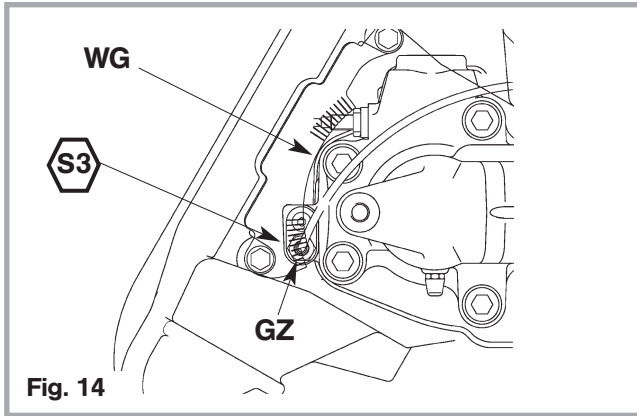


Fig. 14

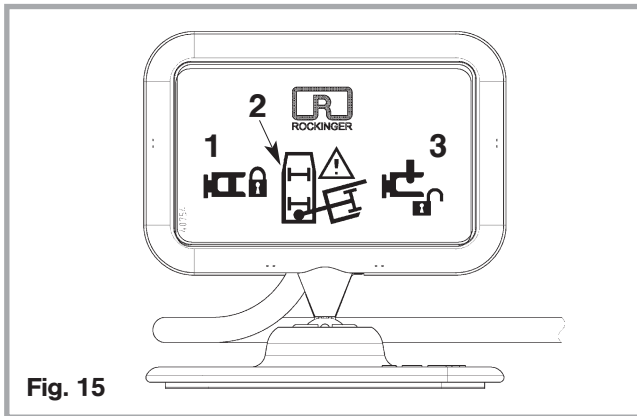


Fig. 15

2.6 Adjustment of the Turnangle Warning RO*50 und RO*50E (optional)

The adjustment plate **WG** is mounted at the funnel and swings together with the funnel under Sensor **S3**.

- Hitch trailer
- Reverse primemover into position in which signal should be actuated
- It is essential to allow a certain swing arc for braking prime mover
- Segments **GZ** of adjustmentplate **WG** that are not required can be bent outwards from sensor **S3** inner edge using suitable tool (Fig. 14) until the signal in the Display lights up
- Repeat same process on other side.

Indicator colours in display:

- 1 = GREEN
- 2 = YELLOW
- 3 = RED

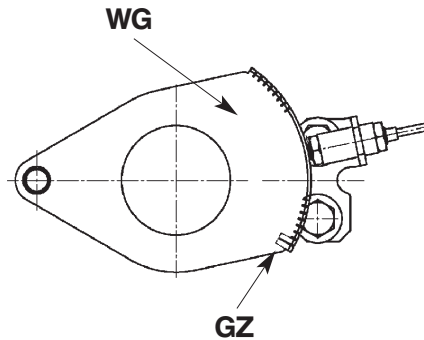


Fig. 16

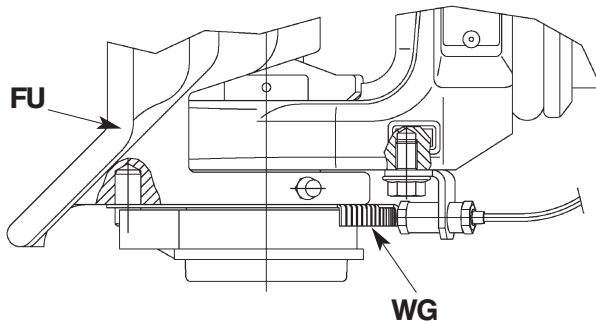


Fig. 17

2.7 Adjustment of the Turnangle Warning for type RO*500

- Hitch trailer
- Reverse prime mover into position in which signal should be actuated
- It is essential to allow a certain swing arc for braking prime mover
- Segments **GZ** of adjustmentplate **WG** that are not required can be bent outwards from sensor inner edge using suitable tool (Fig. 16) until the signal in the Display lights up (Fig. 15)
- Repeat same process on other side

2.8 Function Check

Sensors and cables are mounted according the instruction.

- Display is mounted in the drivers cabin in the area of the drivers view
- Plugs **C2** and **C1** are connected
- Ignition is on (24 V/DC)
- Function according 3.1 Fig 19 and 19a
- Additional with the 3 sensor solution the display warns the tilt angle in case the critical angle is reached.



- | | | |
|---|------------------------------|-------------------------|
| 1 | hitch closed and secured | Display = GREEN |
| 2 | hitch opened – not secured | Display = RED |
| 3 | Turnangle warning (optional) | Display = YELLOW |
| 4 | ROCKINGER-Logo | Display = WHITE |

Fig. 18

2.9 Fault finding (optional)

2.9.1 Possible indications at the display (fig.18)

2.9.2 Function – trekking

- The system carries out a self-diagnostic test when the ignition is switched on. All LEDs flashing shortly.
- Verifying the signal of the sensors
- Flashing and buzzing by not correct signals
- Reset due ignition switch off and on again
- The LED dims down after 2 min. and lights up again if any changes at the system

2.9.3 Diagnostic table for faults

1	Display 1 + 2 + 4 permanent red + 2 sec. continues tone	broken cable at sensor S1 and S2
2	Display 3 flashing yellow + 2 sec. continues tone	broken cable at sensor S3
3	Display 2 + 4 Red + intermittent tone	breakdown of Sensor S1
4	Display 1 + 4 Red + intermittent tone	breakdown of Sensor S2
5	Display 3 yellow + intermittent tone	breakdown of Sensor S3
6	Display 1 + 2 + 4 permanent red	Voltage is to low (<16V)

ATTENTION: hitch open!



Fig. 19

Locked + secured

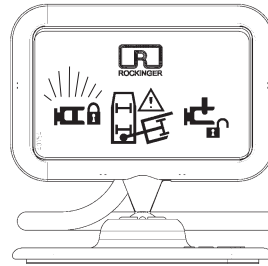


Fig. 19a

ATTENTION:
hitch open!

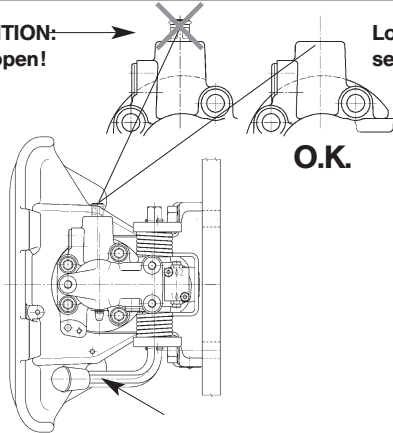


Fig. 20

Locked +
secured

O.K.

3.1 Hitching and Unhitching



Note: The relevant national regulations (f.e. safety-at-work) must be observed when hitching and unhitching.

No one must stand between the vehicles!

- The indication at the Display shows the status of the hitch
- The remote indication does not show whether the drawbar eye is hitched (this is only shown if you have a release lever system hitch, like the RO★50E)
- The remote indication does check the status of the hitch due to 2 sensors at different places.
- If the sensors indicate different signals – they signal a fault (see 2.9.3)
- **If there are any doubts about the indication, signal or the status of the hitching procedure, is the driver obliged to check the status directly at the hitch.**

3.2 Turnangle warning (optional)

- The possible swivel range depends on the design of the frame or the trailer. The range may be smaller than the hitch's pivoting angle. Expensive hitch, vehicle and drawbar damage can be easily avoided with the upgrade kit for turnangle display.
- The turnangle warning can be optically as well as acoustically signaled via the electronic remote display in the driver's cabin

3.3 Control



Check: After each hitching procedure, it is essential to check that the hitch is correctly closed and locked. The lock-control pin must not protrude out of its guide after hitching (see fig. 20)

If the lock-control pin protrudes from its guide (in the dark detectable by touching it), the hitching procedure has been carried out incorrectly and there is the **risk of an accident!** (see hitch manual)

Driving a trailer in that condition is not allowed.

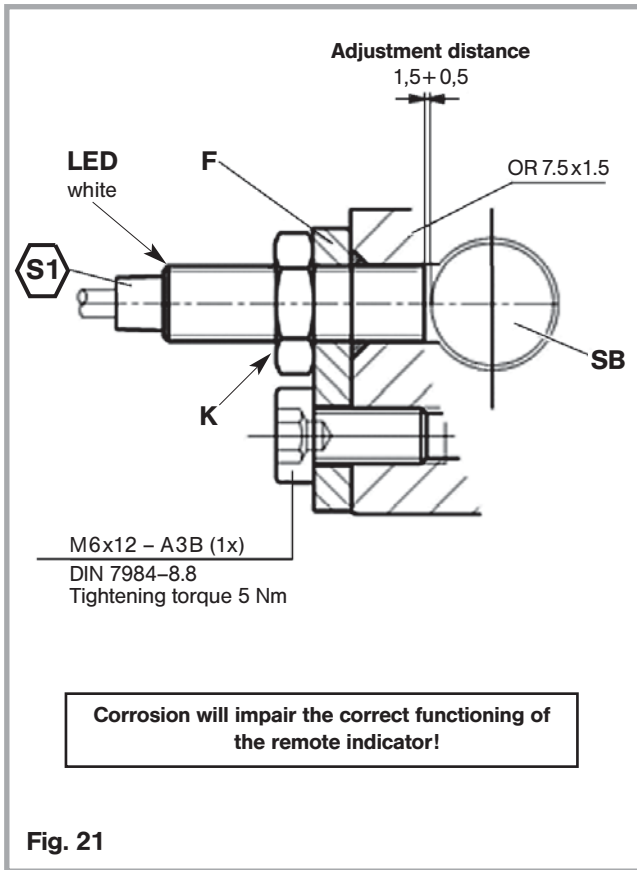


Fig. 21

4.1 Care

- The sensor and the connection cable are maintenance-free.
- However, the cables should be checked at regular intervals for cracks, abrasion and water-tightness of the connections in order to avoid moisture penetrating the cable harness.

4.2 Inspection (with the coupling closed)

- The green indicator LED is lit in the instrument panel.
- A control LED (white) is lit on the sensor in the area of the cable connection (when the ignition is switched on)
- If the control LED is not lighting, there are two possibilities:
- **the pre-setting is not correct**
 - 1) Release the locknut **K** on the sensor
 - 2) Turn the sensor carefully to the right until the stop, then turn the sensor back by about 1.5 rotations. Secure the setting with the locknut **K**. **Maximum tightening torque 1.3 Nm.** The LED must be lit (when the ignition is switched on)
 - 3) If not, reduce the setting until the sensor LED is lit.

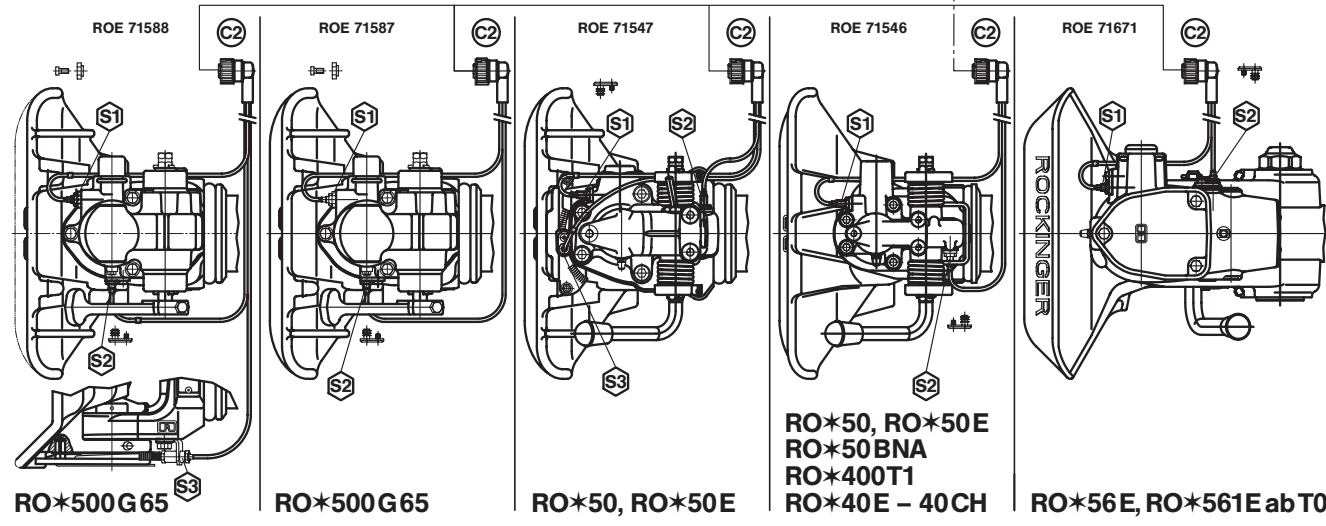
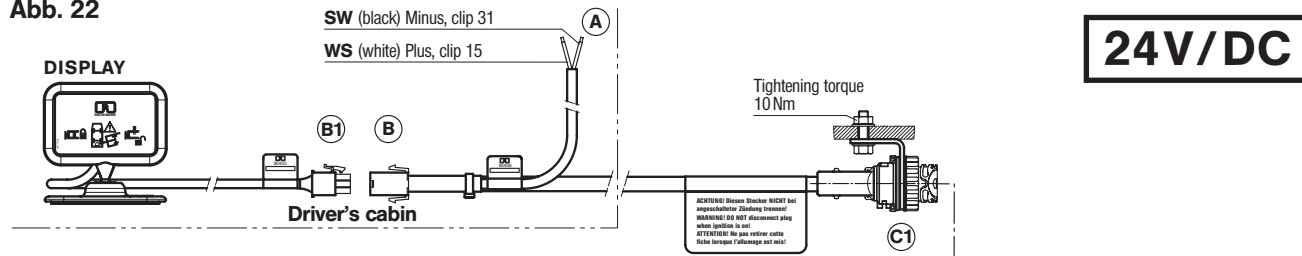
- **Sensor is defective**

Attention!

The sensor must not be in contact with the component. Minimum distance: approx. 0.5 of a rotation.

- Countercheck by alteration of the mechanical switch position, e.g. opening the trailer coupling with the hand lever → the LED must go out after approx. 15 degrees handle lever angle.
- **Defective cables plugs or sensors must be replaced!**

Abb. 22





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