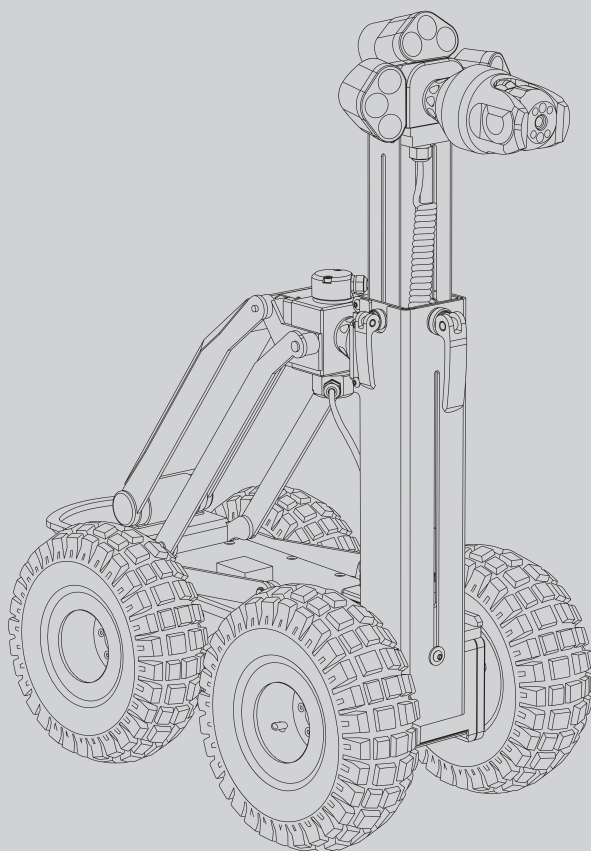


# CE2200 camera elevation and Proteus CRP300 Crawler

» Operating manual - Version A



# **CE2200 camera elevation** and Proteus CRP300 crawler



Read and observe the operating and safety instructions before using the camera.

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## 1. Definition

The following symbols are used in this operating manual:



### **Caution!**

Safety information: May lead to injuries or damage if not observed.



### **Warning!**

Safety information that indicates dangers caused by electrical currents or voltages: May lead to injuries or damage if not observed and can affect the operation of the device.



### **Note**

Additional information about the operation of the device.



## 2.2. Basic Safety Information

- The power supply of the carriage may generate dangerous, high voltages. Thus, the system can only be switched on if all components of the system are connected. For that reason, the power supply is not accessible and the system switches off immediately if connections are disconnected and /or the system gets damaged.
- There are no components inside the system which can be serviced by the user. Never open any component of the system.
- Ensure that all connection cables are in proper condition and cannot be pinched or damaged. If you spot a damaged cable, disconnect the power supply immediately.
- Only qualified persons are allowed to repair this device. Improper repairs may lead to serious hazards. If your device needs to be repaired, please contact Ehle-HD or an authorized service centre.

## 2. Safety instructions

### 2.1. General Information



#### **Caution!**

We assume no liability for damage caused by:

- Device damages caused by mechanical impact and overvoltage,
- Device modifications made without our expressed permission,
- Non-intended use of the device not specified in this manual.



#### **Warning!**

Observe the following basic safety rules. If you use electrical devices, observe the safety rules related to:

- Electrical shock
- Risk of fire
- Danger of explosion
- Risk of injuries



## 2.3. Safe Operation of the Devices

- **Warning – risk of fatal injury due to electric shock!** Never touch exposed wires with bare hands.
- **Warning – risk of explosion!**  
The system is not certified to operate in pipes containing explosive substances, e. g. gas or solvents.
- Before you use cable and plug, check that they are dry and free of grease.
- Always disconnect the power supply when servicing the device.
- Be careful when you prepare the system. Don't place the carriage too close to the sewer manhole. The carriage may drop into the manhole when you test the carriage operation. A person inside the manhole may be hurt severely this way.
- Always disconnect the mains supply before you start cleaning and maintenance operations.
- Always switch off the device after use.

### 3. Intended use

The CE2200 camera elevation extends the application of the CRP300 Proteus carriage produced by the MiniCam company. Combined with a pan/roto camera, it allows the inspection of large pipes with diameters between ND 1200 and ND 2200 mm.



#### **Caution!**

Do not connect nor use damaged equipment or devices.

### 4. Scope of delivery

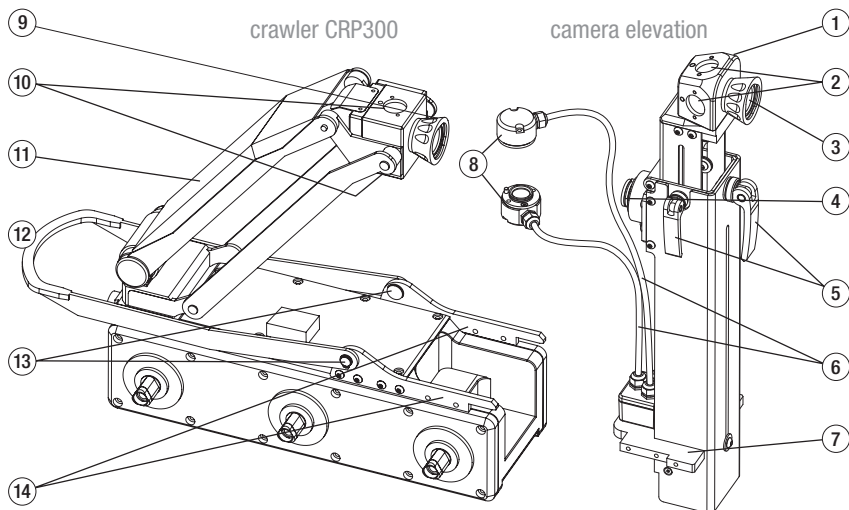
#### **Complete set including:**

- CE2200 camera elevation
- Fixing plates 2x
- Fastener sets
- Case with holder

### 5. Technical description

The CE2200 camera elevation is connected to the carriage with the lifter holder and the additional lamps connections. All features of the camera and the additional lamps are now available at a raised position but remain unchanged. In addition, we recommend to use a third additional lamp without retraction camera to ensure sufficient illumination. Please keep in mind that the retraction camera operation is only available at the top connection of the three additional lamp connections. The mechanical attachment is made by the additional fixing plates to be installed at the carriage. On top of these, the camera elevation is bolted to the carriage for the time of use. If you use the camera elevation, you cannot and should not use the lifter installed. Adjust the correct camera height with the eccentric spanners at the sides and at the front.

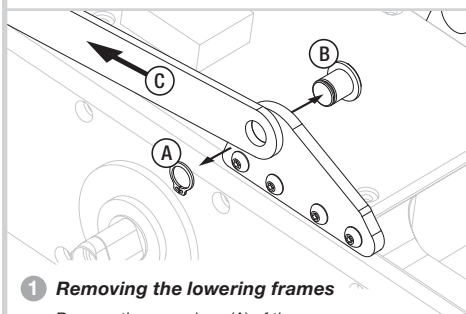
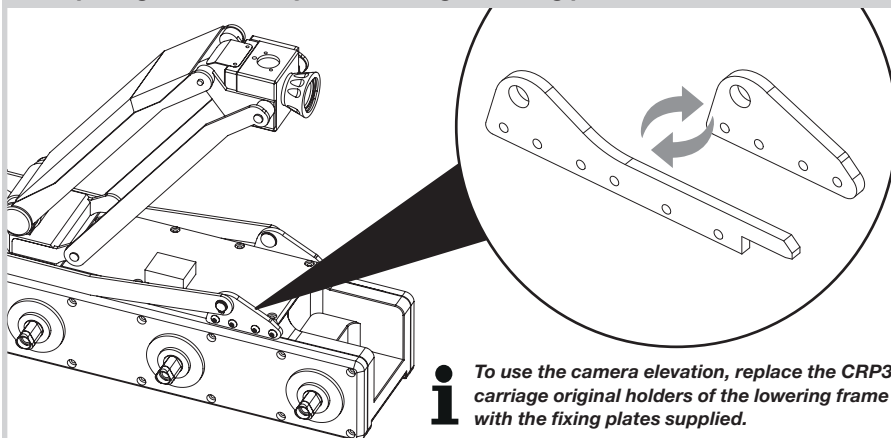
### 6. Device view and components



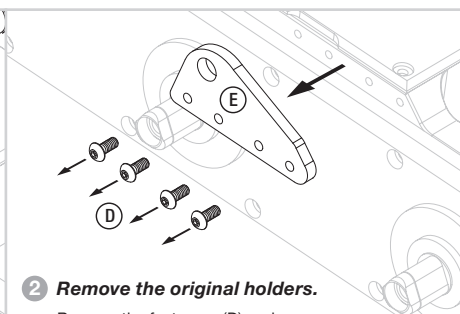
#### **Controls:**

- |   |  |  |
|---|--|--|
| 1. Holder for camera probe and additional lamps | 5. Eccentric spanners                              | 10. Additional lamp holders - carriage |
| 2. Holders of additional lamps - elevation      | 6. Lamp connection cable                           | 11. Lifter                             |
| 3. Camera holder - elevation                    | 7. Base plate to be installed at the carriage      | 12. Lowering frame                     |
| 4. Connection to the carriage                   | 8. Additional lamp flanges of the camera elevation | 13. Holder axes of the lowering frame  |
|   | 9. Camera holder - carriage                        | 14. Fixing plates                      |

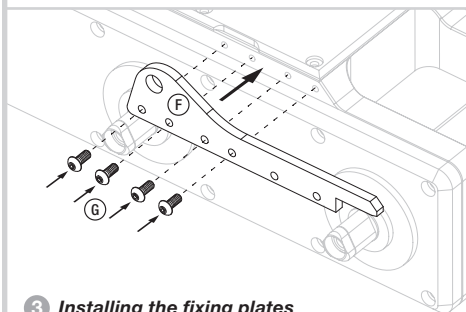
## 7. Preparing the assembly - retrofitting the fixing plates



- Remove the snap rings (A) of the holder axes (B) by means of a pair of snap ring pliers.
- Press the holder axes (B) out and remove the lowering frame (C).

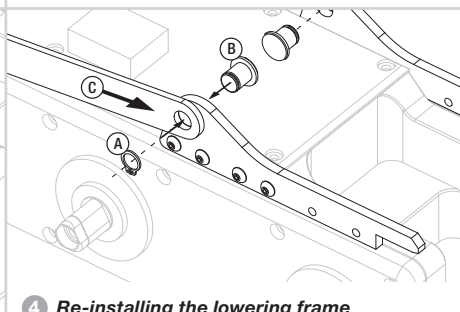


- Remove the fasteners (D) and
- Remove the original holders (E).



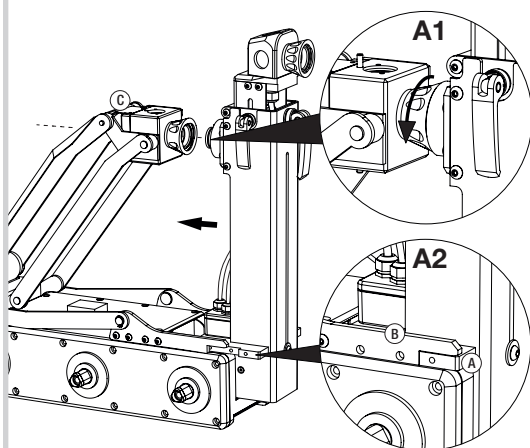
- Use the fasteners (G) supplied to install the fixing plates (F) included in the delivery.

**i** Ensure to use the holes pattern as specified in the figure.



- Put the lowering frame (C) into to hole and press in the holder axes (B).
- Fix the holder axes using the snap rings (A) and a pair of snap ring pliers.

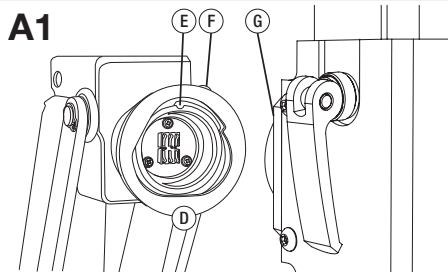
## 8. Installing the CE2200 camera elevation



### 1 Installing the camera elevation

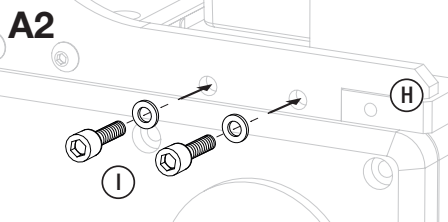
- First, deinstall the camera head and the additional lamps, if not yet done. CRP300 Carriage
- Push the base plate (A) of the camera elevation into the recess of the fixing plates (B) (see Fig. A2)
- Further, adjust the lifter of the carriage (C) to the connector height of the camera elevation.
- Push the camera elevation to the camera holder of the carriage to connect and lock them together (see Fig. A1 - check the correct position of the cover ring.)

**i** The carriage lifter may be adjusted by hand to the correct connector height.



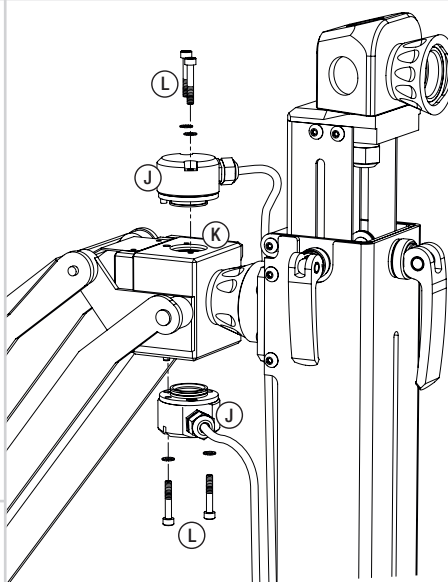
### 2 Locking the camera cover

- Turn the cover ring (D) clockwise to the stop, to reach position (E) in the figure and to open the cover completely.
- Insert the connector (G) of the camera elevation into the socket.
- Turn the cover ring (D) counter-clockwise to the stop.
- Tighten the fastener (F) with a 3 mm Allen wrench.



### 3 Installing the camera elevation on the carriage

- Bolt the base plate (H) with the fasteners (I) supplied on the carriage.



### 4 Installing additional lamp flanges

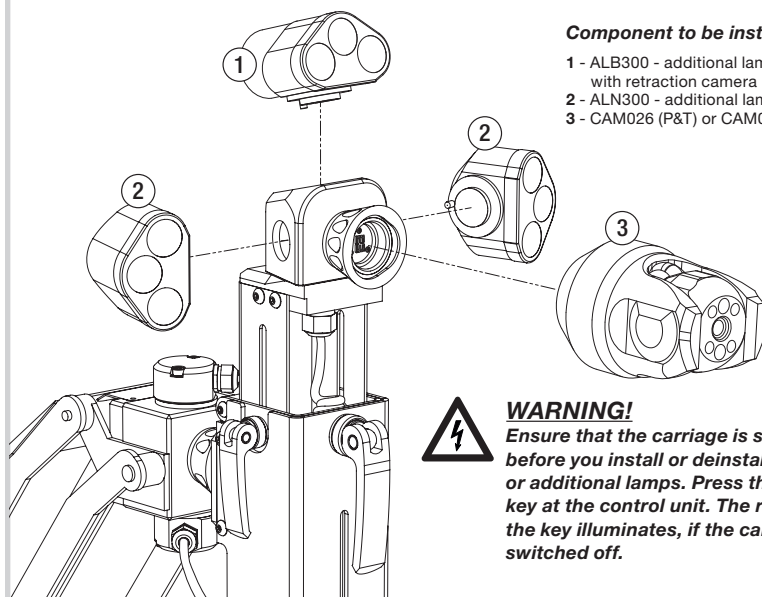
- Put the additional lamp flanges (J) in the additional lamp holders (K) of the carriage.
- Bolt them with the fasteners and the spring washers (L) supplied.



#### **WARNING:**

**Ensure that the carriage is switched off before you install the flanges.**

## 9. Installing the camera probe and additional lamps



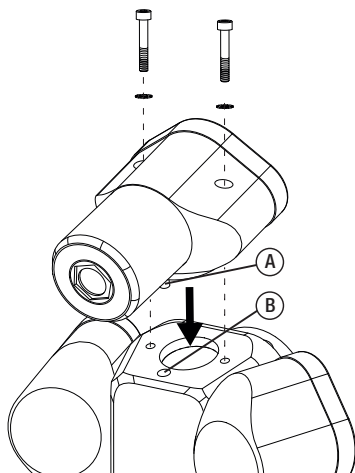
### Component to be installed

- 1 - ALB300 - additional lamp with retraction camera
- 2 - ALN300 - additional lamps 2x
- 3 - CAM026 (P&T) or CAM028 (zoom)



### **WARNING!**

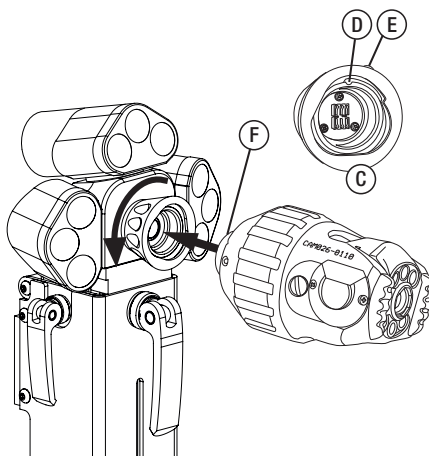
Ensure that the carriage is switched off before you install or deinstall the camera or additional lamps. Press the ALL-STOP key at the control unit. The red LED next to the key illuminates, if the carriage is really switched off.



### 1 Installing the additional lamps

- Insert the additional module in the provided hole (B) of the connector PIN (A).
- Tighten the additional module using the fasteners and washers supplied.

**i** As for the top holder of the additional lamp holders, we recommend the additional ALB300 lamp with retraction camera.



### 2 Locking the camera cover

- Turn the cover ring (C) clockwise to the stop, to reach position (D) as in Fig. and the cover is opened completely.
- Insert the connector (F) of the camera probe into the socket.
- Turn the cover ring (C) counter-clockwise to the stop.
- Tighten the fastener (E) with a 3 mm Allen wrench.

## 10. Operating the CE2200 camera elevation



### **Hazards:**

*The telescopic mechanism is a hazard.*

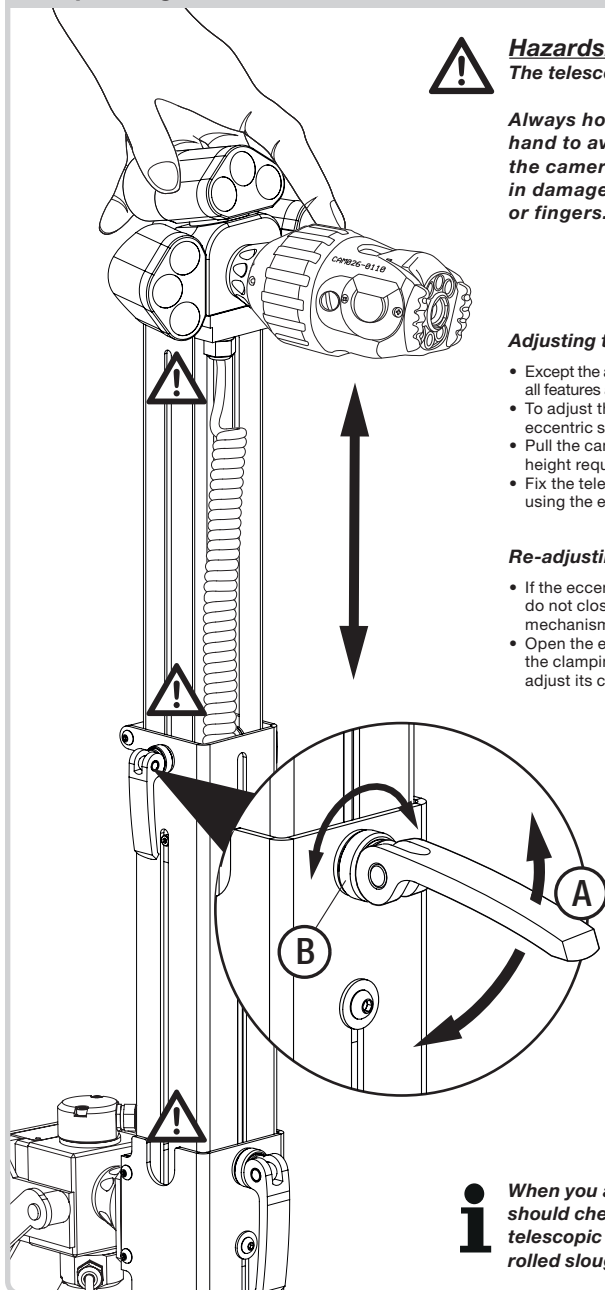
*Always hold the camera holder with one hand to avoid any uncontrolled slough of the camera elevation which may result in damages and severe injuries of hand or fingers.*

### **Adjusting the camera elevation**

- Except the automatic carriage lifter operation, all features are available.
- To adjust the camera elevation, open the eccentric spanners (A).
- Pull the camera holder to the height required.
- Fix the telescopic mechanism using the eccentric spanners (A).

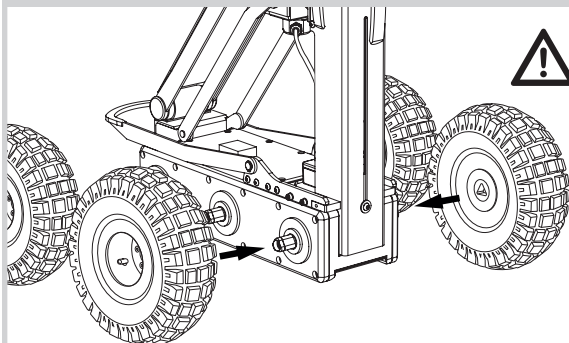
### **Re-adjusting the eccentric spanners**

- If the eccentric spanners stuck, do not close or do not fix the telescopic mechanism properly, you have to re-adjust them.
- Open the eccentric spanner (A) and turn the clamping nut (B) of the eccentric spanner to adjust its contact pressure.



*When you adjusted the correct height, you should check again the tight contact of the telescopic mechanism to avoid any uncontrolled slough.*

## 11. Selecting the correct wheelset size



### **Caution!**

**Always use the balloon wheels when you use the camera elevation.**

**This prevents the carriage from tilting to the side inside pipes of large diameter.**

## 12. Maintenance and cleaning

The planned maintenance is to remove contamination from the CE2200 camera elevation, to check proper operation of the device and to prepare it for storage and later use.

- Clean the gaps between the plates of the device with water and a mild detergent, if required. Do **not** use aggressive cleaners like industrial or floor cleaners because they may damage the device.
- Check the connection cable for damages.
- Check and clean the contacts of the connectors, they should be dry and free of grease.
- Check the telescopic plates' tight fit with locked eccentric spanners. If there is a backlash, re-adjust the eccentric spanners (see page 9).

Perform maintenance, dry and store the camera elevation at a safe place, best in the original transport box.

## 13. Repair workshop

For information about repair shops in your area, please contact our service hotline:

**Tel.: +49 (0) 34 292 / 654 20 or**  
**Email us: [service@ehle-hd.com](mailto:service@ehle-hd.com)**

## 14. Specifications

Connections	<ul style="list-style-type: none"> <li>- Camera connection (front)</li> <li>- Lifter connection (rear)</li> <li>- 2x additional lamp connections (at the side)</li> <li>- 1x additional lamp connection with retraction camera (top connector)</li> </ul>
Top camera position (pipe centre) in case of pneumatic wheels	1090 mm
Camera position (pipe centre) with extended plate	about 830 mm
Lowest camera position (pipe centre) with pneumatic wheels	565 mm
Pack size L x W x H mm	142 x 130 x 476 mm
Weight	5.70 kg

## 15. Troubleshooting

Failure	Troubleshooting
The device does not operate or does not operate properly.	<ul style="list-style-type: none"> <li>- Check the contacts in the connectors, clean if necessary.</li> <li>- Check the locks.</li> <li>- Check connection and spiral cables for damage.</li> </ul>
Telescopic mechanism stuck.	<ul style="list-style-type: none"> <li>- Check if eccentric spanners are fully openend.</li> <li>- Clean the spaces between the telescopic plates.</li> <li>- Check the telescopic plates for damage and/or distorsion.</li> </ul>
Telescopic mechanism cannot be fixed.	<ul style="list-style-type: none"> <li>- Check and re-adjust the fine adjustment of the eccentric spanners, if necessary.</li> <li>- Check the locking screws of the eccentric spanners.</li> </ul>

ENGLISH

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