

# **Quicklub<sup>®</sup>**

## **Centralized Lubrication Pump 203 VDC**



B-P203-000a10

Subject to modifications

This User Manual was compiled on behalf of

- the manufacturer	- by
Lincoln GmbH	EdiDoc GmbH
Heinrich-Hertz-Str. 2-8	Erzberger Str. 8
<b>D-69190 Walldorf</b>	<b>D-68753 Waghäusel</b>

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Phone: +49 (6227) 33-0  
Fax: +49 (6227) 33-259  
E-Mail: [Lincoln@lincolnindustrial.de](mailto:Lincoln@lincolnindustrial.de)

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### For further information refer to:

- User Manual Progressive Metering Devices for Grease and Oil, model SSV, SSVM and SSV D
- User Manual for "Electronic Control Units" of pump 203:
  - Printed Circuit Board 236-10697-1 - Model V10-V13<sup>1)</sup>
  - Printed Circuit Board 236-13857-1 - Model H<sup>1)</sup>
  - Printed Circuit Board 236-13870-3 - Model M 08-M 15<sup>1)</sup>
  - Printed Circuit Board 236-13870-3 - Model M 16-M 23<sup>1)</sup>
  - Control Unit PSA 02
  - External Control Unit 236-13894-1
- Installation Instructions
- Parts Catalogue
- Parts Catalogue Pump 203
- User Manual P203 AC
- User Manual P203 with 15 litre Reservoir
- User Manual P203 with Follower Plate
- Lubricants

<sup>1)</sup> The model designation of the printed circuit board is part of the pump model designation code mentioned on the pump nameplate.  
Example : P 203 - 2XN - 1K6 - 24 - 1A1.10 - M08, - V10, - H or ...

## Introduction

### Explanation of Symbols Used




The following description standards are used in this manual:

#### Safety Instructions

Structure of safety instructions:

- Pictogram
- Signal word
- Danger text
  - Danger note
  - How to avoid danger

The following pictograms are used in this manual and are combined with the corresponding signal words:

 1013 A94	 4273a00	 6001a02
<b>ATTENTION</b> <b>CAUTION</b> <b>WARNING</b>	<b>ATTENTION</b> <b>CAUTION</b> <b>WARNING</b>	<b>NOTE</b> <b>IMPORTANT</b>

The signal words give the seriousness of danger if the following text is not observed:

<b>ATTENTION</b>	refers to faults or damages on machines.
<b>CAUTION</b>	refers to bad damages and possible injuries.
<b>WARNING</b>	refers to possible dangerous injuries.
<b>NOTE</b>	indicates improved operation of the device.
<b>IMPORTANT</b>	indicates special operating features of the device.

#### Example:



#### ATTENTION!

*When making use of other than the tested spare parts, serious damage may affect your device.*

*Therefore, for the operation of your device always use original parts made by Lincoln GmbH.*

Furthermore, you will find the following text symbols in this manual:

- Listing of applicable statements
  - Subpoint of applicable statements
- 1. Determination of the number or sequence of contents
- ➡ Procedural instruction

### User's Responsibility

To ensure the safe operation of the unit, the user is responsible for the following:

1. The pump / system shall be operated only for the intended use (see next chapter "Safety Instructions") and its design shall neither be modified nor transformed.
2. The pump / system shall be operated only if it is in a proper functioning condition and if it is operated in accordance with the maintenance requirements.
3. The operating personnel must be familiar with this User Manual and the safety instructions mentioned within and observe these carefully.

The correct installation and connection of tubes and hoses, if not specified by Lincoln GmbH, is the user's responsibility. Lincoln GmbH will gladly assist you with any questions pertaining to the installation.

### Environmental Protection

Waste (e.g. used oil, detergents, lubricants) must be disposed of in accordance with relevant environmental regulations.

### Service

The personnel responsible for the handling of the pump / system must be suitably qualified. If required, Lincoln GmbH offers you full service in the form of advice, on-site installation assistance, training, etc. We will be pleased to inform you about our possibilities to support you purposefully. In the event of inquiries pertaining to maintenance, repairs and spare parts, we require model specific data to enable us to clearly identify the components of your pump / system. Therefore, always indicate the part, model and series number of your pump / system.

## Safety Instructions

### Appropriate Use

- Use the 203 pumps only for dispensing lubricants in centralized lubrication systems. The pump is designed for intermittent operation.

### Misuse

Any use of the 203 pumps that is not expressly mentioned in this User Manual will be regarded as misuse.

If the 203 pumps are used or operated in a different manner other than specified, any claim for warranty or liability will be null and void.



6001 a02

#### NOTE

*If personal injury or material damage occurs as a result of inappropriate operation, e.g. if the safety instructions are ignored or resulting from an incorrect installation of the 203 pumps, no claims or legal actions may be taken against Lincoln GmbH.*

### Exclusion of Liability

The manufacturer of the pumps 203 will not accept any liability for damages

- caused by a lack of lubricant due to an irregular refilling of the pump
- caused by the use of contaminated lubricants
- caused by the use of greases which are not or only conditionally pumpable in centralized lubrication systems (see User Manual „2.0-40001“)
- caused by chemical or biological modifications of the lubricant used
- caused by inadequate disposal of used or contaminated lubricants as well as of components that have been in touch with lubricant
- caused by unauthorized modification of the system components
- caused by the use of unapproved parts
- caused by incorrect installation, electrical connection or programming
- caused by inappropriate reaction (e. g. also ignoring) to malfunction indications
- ignoring this User Manual

### Regulations for Prevention of Accidents

- To prevent accidents, observe all city, state and federal safety regulations of the country in which the product will be used.
- Avoid the operation with
  - unapproved parts.
  - insufficient or contaminated lubricants.

### General Safety Instructions

- Lincoln Quickclub centralized lubrication systems
  - are designed state-of-the-art.
  - can be assembled for safe operation
- Incorrect use may result in bearing damage caused by poor or over-lubrication.
- Unauthorized modifications or changes to an installed system are not admissible. Any modification must be subject to prior consultation with the manufacturer of the lubrication system.

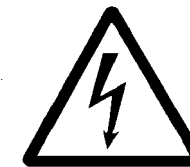
### Operation, Maintenance and Repair



1013A94

#### ATTENTION!

**Risk of bursting if the reservoir is over-filled! When filling the reservoir by means of pumps with a large delivery volume do not exceed the max. filling mark.**



427 3a00

#### WARNING!

**Before maintenance or repair of pumps switch off their power supply.**



1013A94

#### CAUTION!

**It is not allowed to use the pump in potentially explosive fields.**



6445 b05

#### CAUTION!

**Danger of squeezing in case of pumps to be filled from the reservoir top: Never put your hand into the open reservoir while pump is running!**

- Lincoln Quickclub centralized lubrication systems
  - must be operated only with installed pressure relief valve.
  - must be refilled in regular intervals with clean and recommended <sup>1)</sup> lubricant without air entrapments
- <sup>1)</sup> see recommendation of the user or the manufacturer of the machine
- operate automatically. However, a regular check (approx. every 2 days) should be made to ensure that lubricant is emerging from all lubrication points.

## Safety Instructions, continuation

### Repair

Repairs should only be performed by authorized personnel who are familiar with the repair instructions.

### Disposal

Dispose of used or contaminated lubricants as well as of parts that were in touch with lubricant according to the legal regulations pertaining to environmental protection. Make sure to observe the safety data sheets of the lubricants used.

### Operation with bayonet plug

Protective measures to be applied for appropriate operation with bayonet plugs:

"Functional extra-low voltage with safe isolation" /  
"Protective Extra-Low Voltage" (PELV)

Standards:

DIN EN 60204 Teil 1: 2007-07 / IEC 204-1 /

DIN VDE 0100 Teil 410: 2007-06 / IEC 364-4-41

### Dangers due to direct current VDC



4273a00

#### CAUTION!

The centralized lubrication system may be installed and started up by authorized personnel only.

Non-observance of the safety indications <sup>1)</sup> may result in injuries and destroy connected electrical components.

Pumps that are provided with power via a **bayonet plug** may be operated with safety extra-low voltage **SELV** only.

Pumps that are provided with power via a **square plug** including grounding (PE) can be operated as follows:

- **PELV** protective extra-low voltage: with protective separation  
- **FELV** functional extra-low voltage <sup>2)</sup>:

..... without protective separation

<sup>1)</sup> e. g. by touching live components while the centralized lubrication system is open or by handling the centralized lubrication inappropriately

<sup>2)</sup> In the case of FELV the protective conductor of the square plug must be connected to the protective conductor of the primary system in order to warrant protection by cutoff.

### Installation

- Any safety equipment already fitted to the vehicle or the machine:
  - should not be modified or made ineffective;
  - should only be removed for the purpose of fitting the system;
  - must be reinstalled after fitting the system.
- Keep Quicklub centralized lubrication systems away from sources of heat. Adhere to the operating temperature.
- Use only original Lincoln spare parts or parts approved by Lincoln.
- Adhere to:
  - the installation instructions of the vehicle or machine manufacturer as regards all drilling and welding procedures.
  - the specified minimum distances between the boreholes and the upper/lower rim of the frame or between two boreholes.



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#### IMPORTANT

- Route supply lines professionally.
- Firmly bolt together pressurized components.
- Consider the torsion torques.



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#### ATTENTION!

Consider residual ripple of max.  $\pm 5\%$  to connect pumps with direct current version (in relation to the operating voltage acc. to DIN 41755).

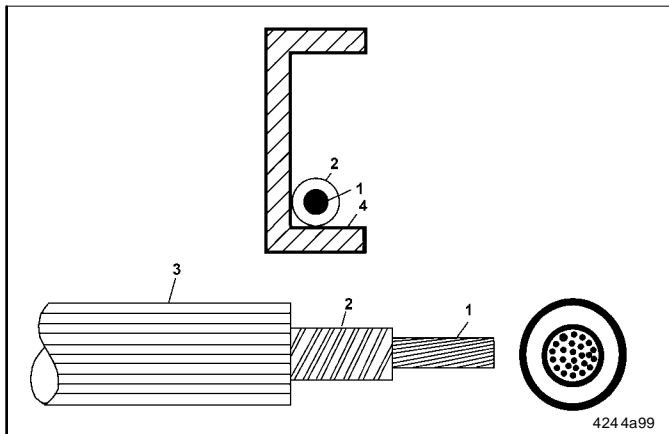
### ADR

- The ADR Quicklub central lubrication pump complies with the design regulations of annex B of the ADR <sup>1)</sup> and with the GGVS <sup>2)</sup>.  
<sup>1)</sup> ADR = act governing the road haulage of hazardous materials valid for Europe.  
<sup>2)</sup> GGVS - Regulation on carriage of dangerous goods by road (valid for the Federal Republic of Germany)
- Moreover, the pump and its electrical equipment comply with the regulations of annex B.2 (ADR / GGVS regulations for electrical equipment) according to Rn 220000 in conjunction with the transport units mentioned in Rn 10251.
- The ADR central lubrication pump is in conformity with the protection class IP6K9K.

- Install the ADR Quicklub centralized lubrication pump, the metering devices, lines and tube fittings as well as the electrical connection parts in accordance with the Installation Instructions. Use only original Lincoln parts.
- After completion of the proper installation and commissioning, **the installation of the system must be certified by means of a stamp and signature of the specialized workshop or expert.** For this purpose, use the following form.
- If the pump and the installation do not comply with the construction regulations of ADR and GGVS, the type approval is no longer valid.
- The Operating Instructions along with the certificate duly filled in must be added to the vehicle papers. It is to be submitted at the inspection in accordance with § 6, clause 4 GGVS.

## ADR Installation

### Specifications for the installation of electric equipment in ADR vehicles



ADR-1 Measures of protection for electric lines

- |                          |             |
|--------------------------|-------------|
| 1 - Conductor insulation | 3 - Frame   |
| 2 - Conductor            | 4 - Coating |

#### Lines

- must be fixed by means of clamps or strips to prevent them from rubbing, sagging or getting loose,
  - must be protected from shocks, stone impact and heat,
  - other than in a fixed installation, must be sufficiently flexible in spite of their covering.
- The electric circuits can optionally be interrupted by single- or double-pole disconnecting switches.
  - In case of single-pole disconnecting switches, the negative conductor must be able to be interrupted.

#### To avoid short-circuits, please note the following:

- current return lines must be insulated
- they must be connected to the vehicle frame (MASS 31) below the driver's cab (up to the back wall).
- housings and connectors must be of protection class IP 54 according to DIN 40050
- coating (pos. 3) of tube lines must be of polyurethane according to DIN VDE 0250 (only use original Lincoln ADR tubes).

### Certificate for Pump 203-.....-ADR

Essen, January 17<sup>th</sup>, 2002

Report: 054-01

Component designation: TÜ.EGG.054-01

For presentation at the inspection performed according to ADR chapters 9.2.2, 9.3.7 and 9.7.8 (status 15<sup>th</sup> modification); VdTÜV-explanatory leaflet 5205; ISO 6722-4; ISO/DIS 14572; EN 40050 and EN 60079-14 by an officially authorized expert of automotive traffic.

This is to certify that the **P 203-ADR Centralized Lubrication Pump** has been properly installed by us in the following vehicle:

Type .....

Manufacturer .....

Model .....

Vehicle Ident. No. ....

in accordance with the works installation instructions using original parts of the manufacturer.

The original parts of

**Lincoln GmbH**  
**Heinrich-Hertz-Str. 2-8**  
**D-69190 Walldorf**

include:

- Centralized lubrication pump with integrated control unit, model P 203-.....-ADR  
Component designation: TÜ.EGG.054-01
- Add-on lubricant metering device and lubricant lines
- Electric lines for the centralized lubrication pump in accordance with the regulations of chapter 9.2.2 of the ADR

**Furthermore, this is to certify that the system has been properly installed in consideration of the construction regulations of ADR.**

....., date .....  
(Signature and stamp of workshop that has installed the system)

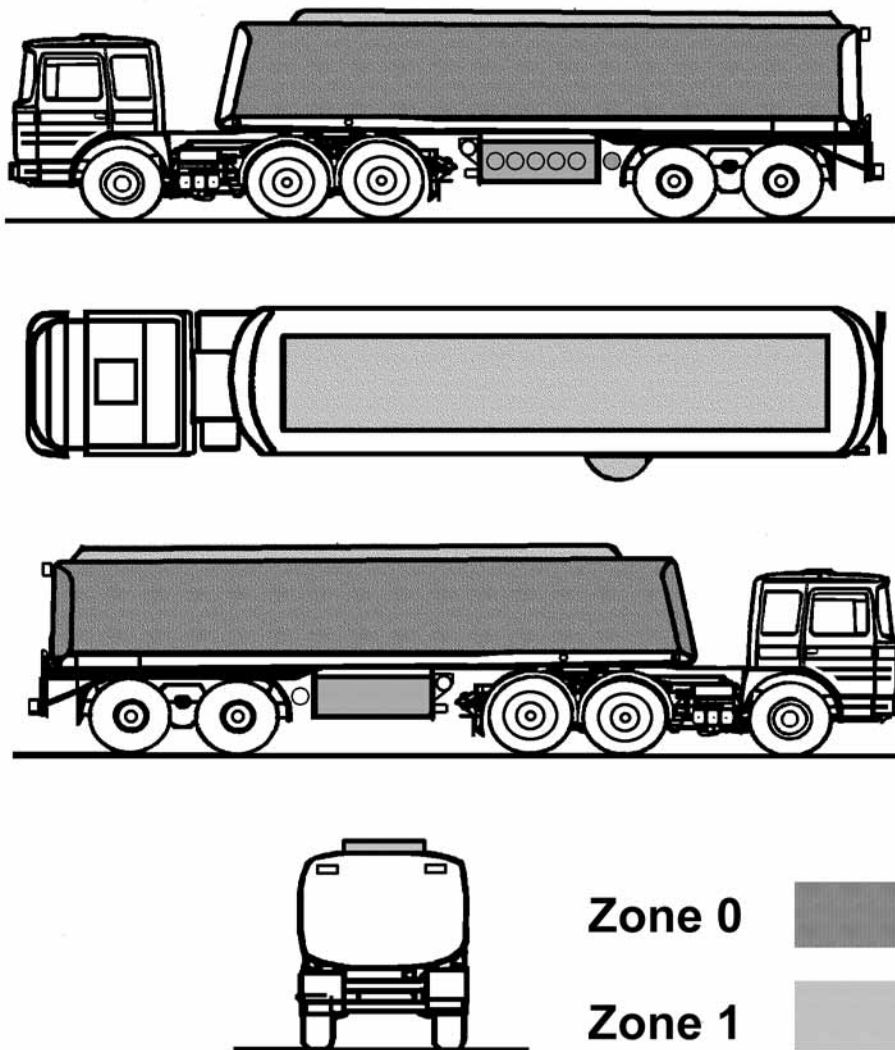
Subject to modifications



## ADR Installation, continuation

### Mounting of the Pump – Areas of Risk

- According to paragraph 9.7.8 of the ADR directive, vehicles with hazardous goods type FL are divided into zones, according to the EX prescriptions.
- These are the correspondences:
  - tank inside **zone 0**,
  - fitting cabinet **zone 1**
  - shut-off devices **zone 1**
  - venting devices **zone 1**
- Zone 2 is located around zones 0 and 1.
- The installation of the centralized lubrication system **is allowed outside of zones 0, 1 and 2, only**, whereby the extension is not determined in the ADR directive.
- ➔ Regarding this use the form to confirm the ADR-concurring installation.



T-ADR-010a08

ADR-2 Areas of risk



## Description

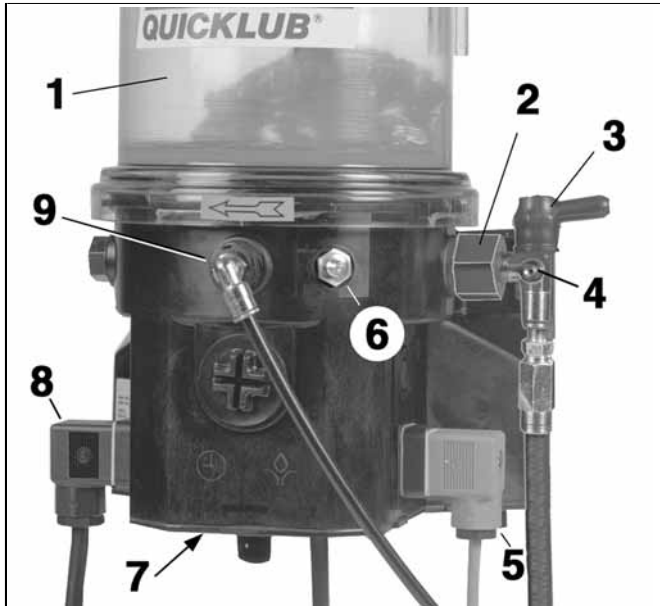


Fig. 1-1 Komponenten der Pumpe (Bsp. mit 2-Liter-Behälter)

000 02618b

- 1 - Reservoir
- 2 - Pump element
- 3 - Pressure relief valve
- 4 - Filling nipple, system emergency lubrication possible
- 5 - Plug 2A, piston detector
- 6 - Filling nipple, pump
- 7 - Control p.c.b., integrated
- 8 - Plug 1A, power supply
- 9 - Return line connection

### The Quicklub 203 central lubrication pump

- is a compact multiline pump consisting of the following components:
  - Housing with integrated motor
  - Reservoir with stirring paddle
  - Control p.c.b. (optional)
  - Pump element with pressure relief valve
  - Filling nipple
  - Electrical connection parts
- can be mounted right from the beginning or as a retrofit kit.
- can drive up to 3 pump elements.
- operates according to operating cycles (pause and lubricating times).
- can be equipped with a low-level control.
- can supply up to 100 lubrication points depending on the line lengths.
- is designed for the automatic lubrication of the connected lubrication points.
- is designed for the delivery of greases up to NLGI 2 at temperatures from  $-40^{\circ}\text{C}$  ...  $+70^{\circ}\text{C}$  or of mineral oils of at least  $40\text{ mm}^2/\text{s}$  (cST).
- can be used at low temperatures down to  $-40^{\circ}\text{C}$  (depending on the used grease).

During the lubricating time the pump dispenses lubricant to the connected lubrication points via one or several metering devices.

### Low-Level Control (optional)

- **Pump 203** can be equipped with a low-level control for the supply of oil or grease.
- The following versions are available:
  - Low-level control in conjunction with printed circuit board M08-M23<sup>2)</sup>, V10-V13<sup>2)</sup> or H<sup>2)</sup>
  - Low-level control for pumps **without printed circuit board**
- When the reservoir is empty, the signal lamp flashes, thus indicating the low level (see User Manual of the corresponding control p.c.b.).

<sup>2)</sup> The designation indicates the version of the printed circuit board. It is part of the pump type designation code mentioned on the nameplate of each pump, e. g. P203-2XN-1K6-24-1A1.10-M08, V12, H or ...



Fig. 1-2 P203 with 8 litre reservoir

T-P20 38L-011a08

## Mode of Operation

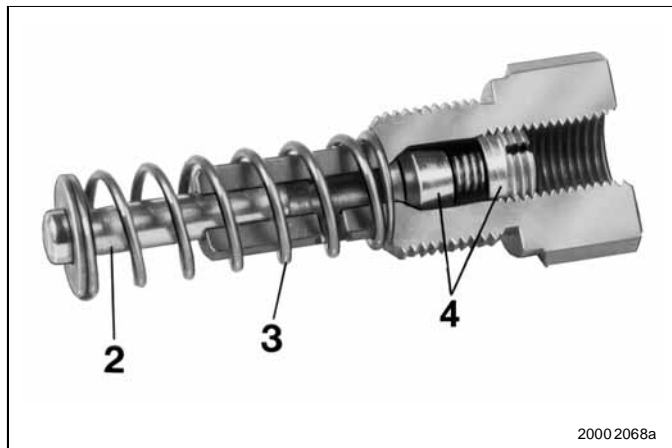


Fig. 2-1 Pump element

2 - Piston  
4 - Check valve

3 - Return spring



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### <sup>1)</sup> NOTE

Pump elements with piston diameter C 7 must be used for supplying of chisel paste. The design and the mode of operation are the same as those of the pump elements with piston diameter K 7.

### Pump elements with fixed lubricant output

- The electric motor drives the eccentric 1 (fig. 2-2 and 2-3).
- During the lubricating time:
  - piston 2 sucks in lubricant from the reservoir (fig. 2-2).
  - piston 2 dispenses the lubricant to the connected lubrication points via the metering device (fig. 2-3).
- The following designs are available:
  - Piston diameter, K5 ..... 5 mm  
Lubricant output ..... approx. 2 cm<sup>3</sup>/min
  - Piston diameter K6 (standard) ..... 6 mm  
Lubricant output ..... approx. 2.8 cm<sup>3</sup>/min
  - Piston diameter, C7 <sup>1)</sup>, S7 <sup>2)</sup>, K7 ..... 7 mm  
Lubricant output ..... approx. 4 cm<sup>3</sup>/min
  - Piston diameter, B7 ..... 7 mm  
Lubricant output ..... approx. 2 cm<sup>3</sup>/min

<sup>2)</sup> suitable for lubricants containing silicone

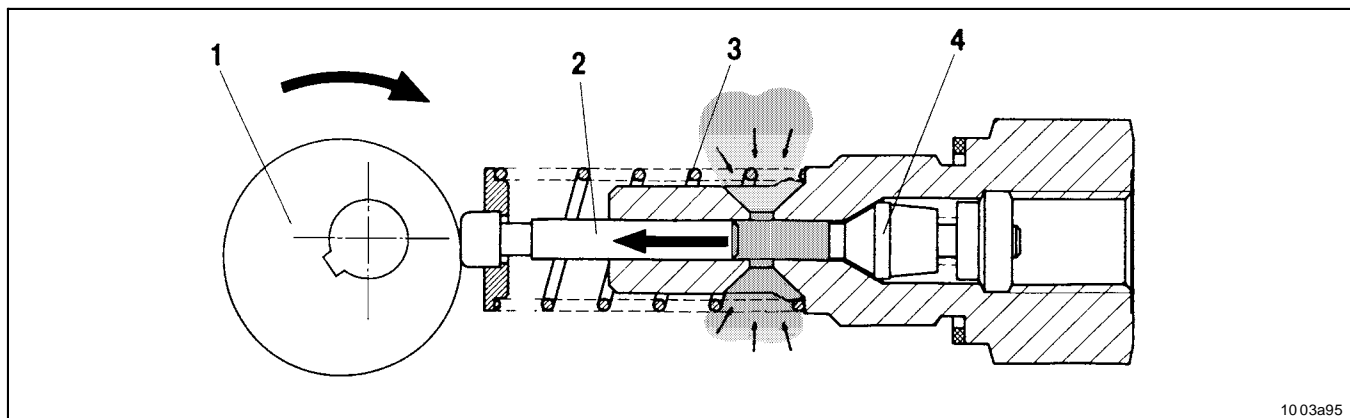


Fig. 2-2 The pump element sucks in lubricant

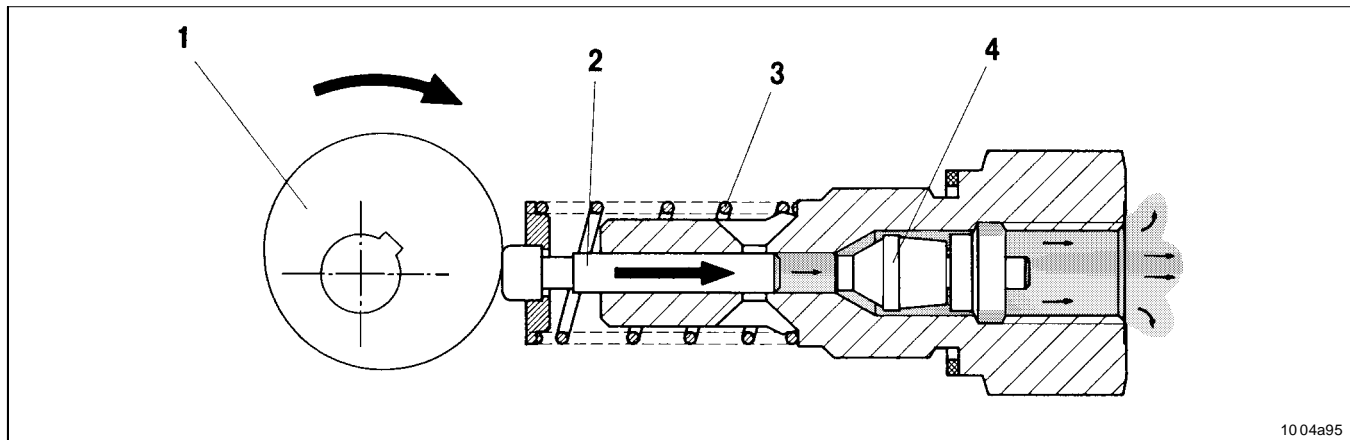


Fig. 2-3 The pump element dispenses lubricant

1 - Eccentric

2 - Piston

3 - Spring

4 - Check valve

## Mode of Operation, continuation

### Pump elements with fixed lubricant output, continuation

#### Pump element B7 with bypass check valve



Fig. 2-4 Pump element B7

- Pump element B7 suits especially applications in contaminated environments as the supplied lubricant is passing through a bypass bore 2 (fig. 2-5) on the check valve 1.
- The output is 2 cm<sup>3</sup>/min.

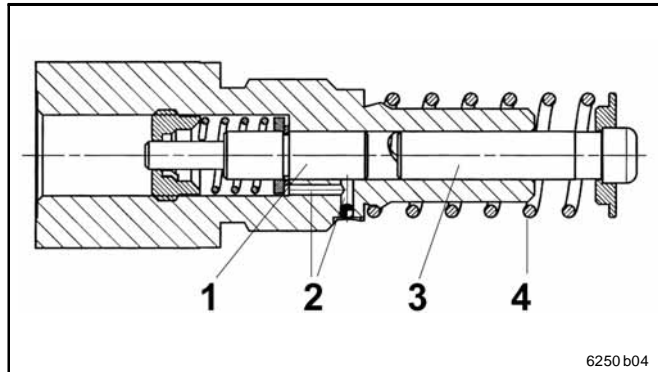


Fig. 2-5 Sectional diagram - pump element B7

- 1 - Check valve
- 2 - Bypass
- 3 - Pump piston
- 4 - Return spring

### Pump element with adjustable lubricant output

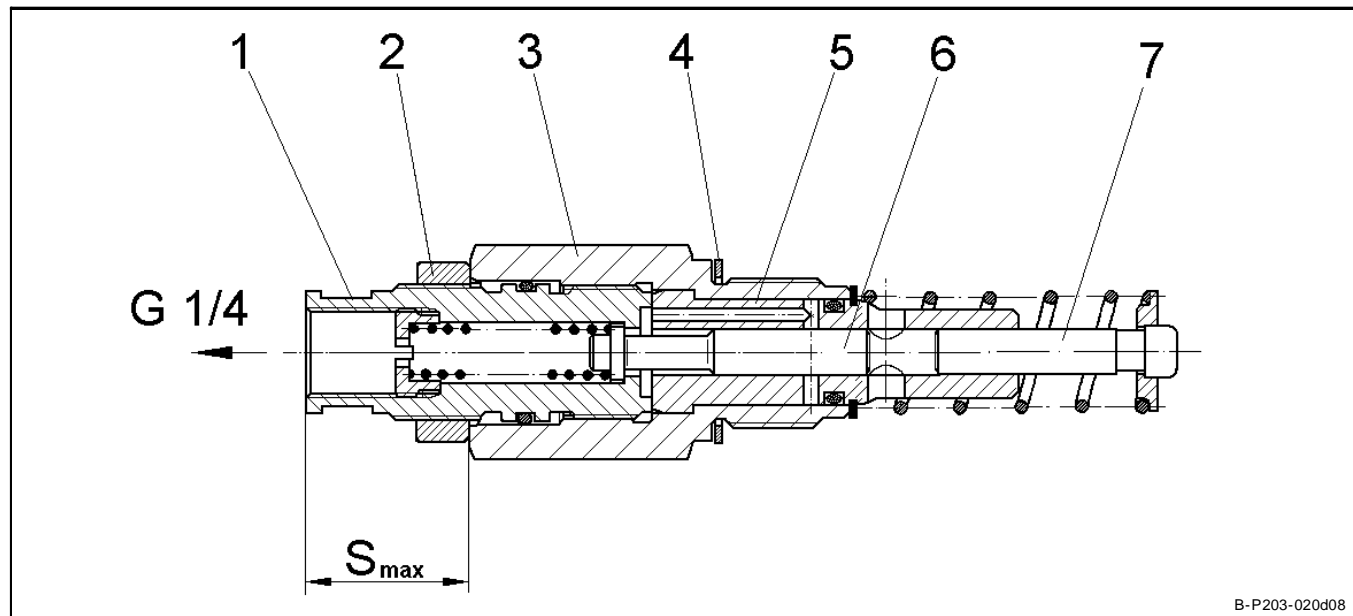


Fig. 4-1 Adjustable pump element

- The mode of operation (suction and supply phase) is the same as that of the pump elements with an invariable lubricant output.
- The lubricant outputs are adjustable from 0.04 to 0.18 cm<sup>3</sup>/stroke, or 0.7 to 3 cm<sup>3</sup>/min.
- The pump elements are factory-adjusted to the maximum lubricant output; the adjusting dimensions "S" should be 29 ± 0.1 mm (see fig. 4-2).

## Mode of Operation, continuation

### Adjustment of the lubricant output



B-P203-020d08

Fig. 4-2 Sectional view: adjustable element

- 1 - Adjusting spindle SW 16 (width over flats)
- 2 - counternut SW 24
- 3 - pump element body SW 27
- 4 - gasket
- 5 - pump cylinder
- 6 - control piston
- 7 - delivery piston
- $S_{max}$  - max. adjusting measure of the adjusting spindle



#### IMPORTANT

Before adjusting the output volume exactly, determine the maximum adjusting measure " $S_{max}$ ".

6001a 02

Determine deviation for maximum adjusting measure " $S_{max}$ ":

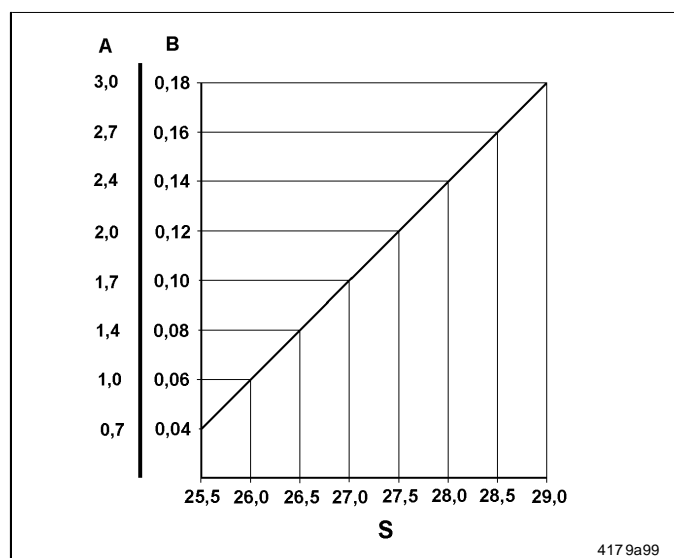
- Loosen counternut 2 (fig. 4-2).
- Unscrew adjusting spindle 1 out of pump element body 3.
- Screw counternut 2 completely onto the adjusting spindle 1.
- Determine and note down maximum adjusting measure " $S_{max}$ ".  
Deviation =  $S_{max} - 29$  mm



6001a 02

#### IMPORTANT

The determined deviation must be considered for each adjusting measure:  
max. adj. measure " $S_{max}$ ", e.g. .... 29.5 mm  
- deviation ..... + 0.5 mm  
required output volume, e.g. 0.14 ccm/stroke  
- adjusting measure " $S$ " (fig. 4-3) ..... 28 mm  
 $S_{0,14} = S + \text{deviation}$   
Adj. measure " $S_{0,14}$ " .... 28 + 0,5 = 28,5 mm



417 9a99

Fig. 4-3 Lubrication output diagram

- A - Lubrication output cm³/min
- B - Lubrication output cm³/stroke
- S - Adjusting measure in mm (without deviation)

Adjustment of the lubrication output:

- Remove pressure relief valve from pump element KR.
- Determine adjusting measure S (including deviation) for the required output volume by means of the output diagram (fig. 4-3).
- Loosen counter nut 3 (fig. 4-2) while holding in position pump element body 2.
- Adapt adjusting measure S at the adjusting spindle 1.
  - Increase " $S$ " ..... increase output
  - Reduce " $S$ " ..... reduce output
- Fix pump element body 3 and secure position of adjusting spindle with counternut 2.

## Mode of Operation, continuation

### Pressure relief valve ...

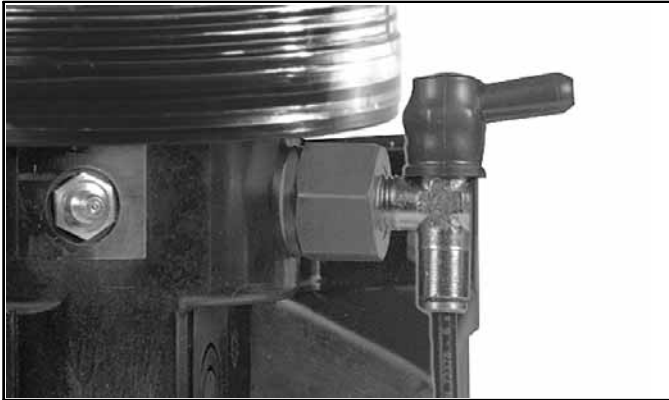


Fig. 5-1 Pressure relief valve

B-P203M-020a08

#### ... without grease return



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#### WICHTIGER HINWEIS

*Each pump element must be secured with a pressure relief valve.*

*The pressure relief valve is not contained in the scope of supply of the pump.*

- The pressure relief valve
  - limits the pressure build-up in the system.
  - opens, if the specific overpressure is reached.
  - is to be selected according to the requirements to the lubrication plant (see "Parts Catalogue", different opening pressures: 200, 270, 350 bar).
- If lubricant is leaking at the pressure relief valve, this indicates that the system or a lubricating point is malfunctioning.
- Despite existing fault monitoring devices a regular visual and function control must be carried out on the lubrication system.

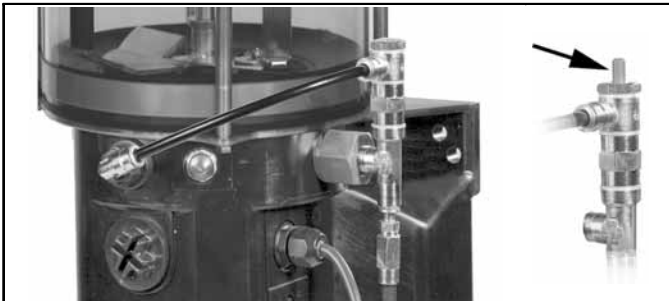


Fig. 5-2 Pressure relief valve with grease return

T-P203-020a11  
B-P6 03M-030e08

#### ... with grease return (optional)

- If the system is blocked, grease will leak from the pressure relief valve. This grease quantity is returned to the reservoir.
- In the case of a blockage in the system, the grease pushes out the red pin at the pressure relief valve, thus indicating that there is a fault.
- ➡ Afterwards the fault has been removed the pin has to be pressed back to its starting position.

## Mode of Operation, continuation

### Return Line Connection

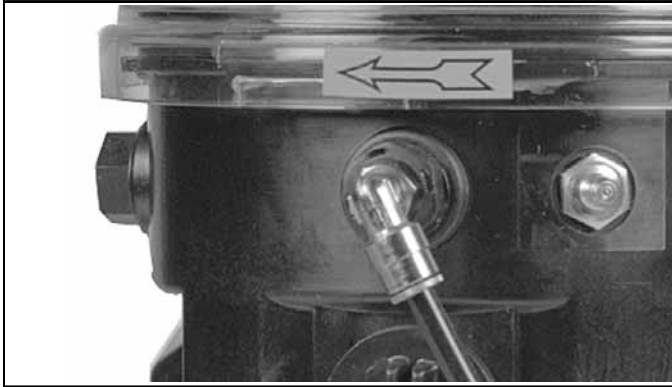


Fig. 6-1 Return Line Connection

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- The lubricant quantities which cannot be dispensed by the metering device must be returned to the pump via the return line connection.

### Control Units

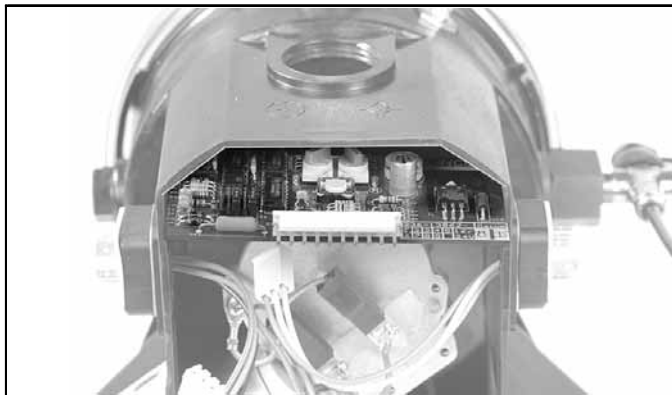


Fig. 7-1 Printed circuit board integrated in the housing

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#### NOTE

*The present User Manual describes the "Pump 203 without control unit Information concerning the design and operation of the individual control units (V10-V13, M08-M23, H) can be found in the respective User Manual.*

- If the pump is to be equipped with a control unit, it is possible to use an integrated printed circuit board or an external control unit.

### Commissioning

Depending on its application, the pump is ready to operate, either:

- as soon as the machine contact is switched on (after the voltage supply is applied) or
- as soon as the driving switch is switched on (after the voltage supply is applied) and as soon as the trailer/semitrailer begins to move



## Maintenance, Repair and Tests

### Maintenance

- The maintenance is essentially limited to refilling the reservoir with clean lubricant in good time. However, check regularly whether the lubricant is really dispensed to all the lubrication points.
- Also check the main lines and lubricant feed lines for damage and replace them, if necessary.



6001a02

#### NOTE

*Whenever work is done on the centralized lubrication system, particular attention should be paid to absolute cleanliness. Dirt in the system will cause problems.*

- For cleaning the system use benzine or petroleum. Do not use tri-, perchloroethylene or similar solvents. Also do not use polar organic solvents such as alcohol, methylalcohol, acetone or similar.

### Pump Filling



Fig. 9-1 Fill pump reservoir

B-P203-030a09

A - Vent bore



Fig. 9-2 Manual bottom filling of pump reservoir

T-P203 4L-0 40b08



6001 a02

#### IMPORTANT

*When filling the reservoir, vent bore A must not be closed:*

- in order to enable the escape of air
- in order not to impede the proper suction behaviour of the pump during operation



6001a02

#### NOTE

*If the reservoir has been completely emptied, the pump may require up to 10 minutes before it operates at full output.*



6001 a02

#### IMPORTANT

*The grease or oil must be free from impurities and must not be liable to change its consistency in the course of time.*



1013A94

#### ATTENTION!

**Risk of bursting if the reservoir is over-filled! When filling the reservoir by means of pumps with a large delivery volume do not exceed the max. filling mark.**



6445 b05

#### CAUTION!

**Danger of squeezing in case of pumps to be filled from the reservoir top: Never put your hand into the open reservoir while pump is running!**

## Maintenance, Repair and Tests, continuation

### Electrical Connection



4273a00

#### WARNING!

*Before maintenance or repair of pumps switch off their power supply.*

*Consider the safety instructions (page 5 and 6)!*



4273a00

#### ATTENTION!

*Consider residual ripple of max.  $\pm 5\%$  to connect pumps with direct current version (in relation to the operating voltage acc. to DIN 41755).*

#### CAUTION!

*Before starting, make sure that the general power supply is off. The device must never be connected or disconnected when the power is on. The protective conductor must always be connected. Take care that this line section is undamaged and conforms to standards and the contacts are safe.*



6001a02

#### NOTE

*The protection IP6K9K is guaranteed when the socket (X1:, X2: & X3:) is tightened on the housing cover with flat packing.*

- Make sure of the connection and the type of construction of your QLS 401.
  - type of connection (VDC / VAC)
  - low-level indication
  - type of connection plug
- Connect the electrical wires according to the following electrical connecting diagrams (see chapter „Technical Data“).

#### Operation with bayonet plug

Protective measures to be applied for appropriate operation with bayonet plugs:

"Functional extra-low voltage with safe isolation" /

"Protective Extra-Low Voltage" (PELV)

Standards:

DIN EN 60204 Teil1: 2007-07 / IEC 204-1 /

DIN VDE 0100 Teil 410: 2007-06 / IEC 364-4-41

### Repair

#### Pump

- Use only original Lincoln spare parts for repair on the pumps.
- The pump should be returned to the factory for warranty work or major repairs.

## Maintenance, Repair and Tests, continuation

### Replace pump element

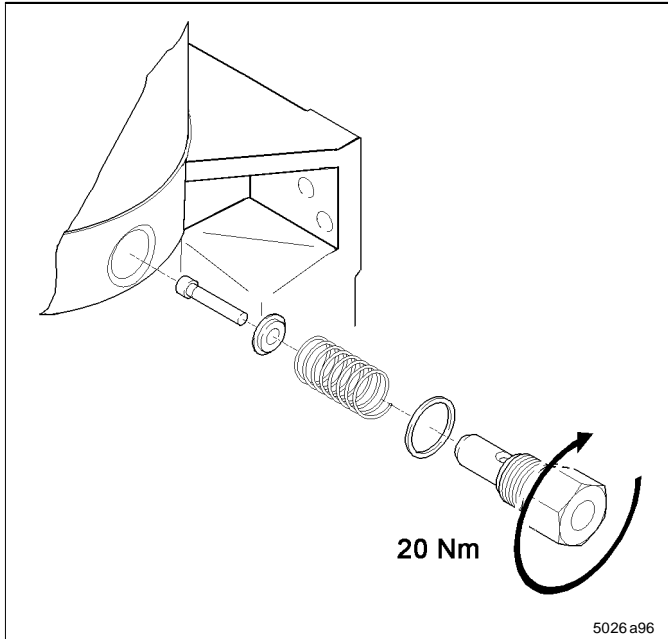


Fig. 9-3 Replace pump element

- Remove the the connection parts from the pump element.
- Unscrew the pump element.



600 1a02

#### IMPORTANT

Take care that the piston, the pull-back spring and the washer are not left lying in the grease. If these parts remain in the lubricant, the motor may seize. In the case of a later removal of the parts, the reservoir will have to be disassembled.

#### NOTE

Pump elements with adjustable lubricant output are to be set to the required output before installation.

- Install a new pump element with a new sealing ring.

## Tests

### Operational Test / Triggering an Additional Lubrication

- To check the pump operation it is possible to perform an additional test (see User Manual of the external or internal control unit).

### Check the Pressure Relief Valve

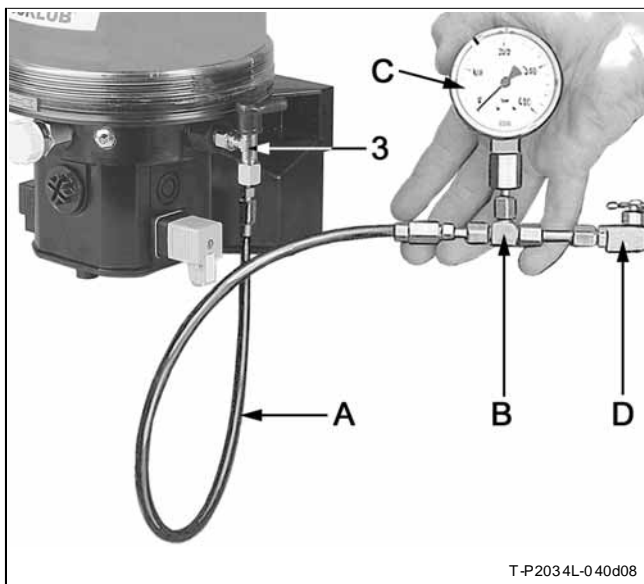


Fig. 9-4 Check the pressure relief valve

- 3 - Pressure relief valve
- A - Hose line, min. length 1m
- B - T-piece
- C - Pressure gauge (0-600 bar / 0-8708 psi)
- D - Relief cock

Subject to modifications

#### 1st option

- Connect the pressure gauge C (0-600 bar; 0-8708 psi) to the pressure relief valve 3 (see Fig. 9-4).



600 1a02

#### IMPORTANT

Do not connect the pressure gauge directly to the pump element 3. Use a hose line A of min. 1 m length. High pressure may exceed the above-mentioned range, causing the motor to stall. The motor is designed in such a way that it can stall for about 30 minutes without being damaged.

- Trigger an additional lubrication.

#### 2nd option

- Connect the manual pump of the pressure and checking set 604-36879-1 to the pressure relief valve and check the opening pressure by means of the manual pump.
- The pressure relief valve should open at a pressure of 200, 270 or 350 bar depending on its design.

## Troubleshooting



6 001a02

### NOTE

The pump operation can be checked from the outside by  
- the stirring paddle is rotating (e.g. by triggering an additional lubrication)  
- an internal or external control unit (see corresponding User Manual)  
- the signal lamp (operator's responsibility)

### Fault: The pump motor does not run

#### Cause:

- Power supply to the pump interrupted

#### Remedy ...

**by service personnel**



4273 a00

- Check the power supply and fuses to the pump.
- If necessary rectify the fault and/or replace the fuses.
- Check the line leading from the fuses to the pump plug.

- Electric motor defective

- Check the power supply to the motor. If necessary, replace the motor.

### Fault: The pump does not deliver lubricant

#### Cause:

- Reservoir empty

#### Remedy ...

**by operator personnel**



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### NOTE

If a lubricant low-level is available, the low level is indicated by the flashing light of the signal lamp in the case of pumps with printed circuit board.

- Fill up the reservoir with clean grease. Let the pump run (via internal or external control unit) until lubricant shows at all lube points.



60 01a02

### NOTE

Depending on the ambient temperature and/or sort of lubricant it may take 10 minutes of operation before the pump elements reach their full lubricant output. Therefore, trigger several additional lubrications.

#### Cause:

- Air bubbles in the lubricant

#### Remedy ...

**by service personnel**

- Trigger an additional lubrication (via internal or external control unit). Loosen the outlet fitting or the main line on the pressure relief valve. The lubricant must penetrate without air bubbles.



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### NOTE

When push-in type fittings are used, the high-pressure hose, which is under pressure, cannot be easily disconnected from the pressure relief valve. For this purpose, loosen the pressure relief valve or, if exists, the filling nipple on the pressure relief valve in order to relieve the high-pressure hose.

- Unsuitable lubricant has been used ➤ Renew the lubricant (see User Manual „Lubricants“, 2.0-40001-).
- Suction hole of the pump element clogged ➤ Remove pump element. Check suction hole for foreign particles. If there are any, remove them.
- Pump piston worn ➤ Replace pump element.
- Check valve in the pump element defective or clogged ➤ Replace pump element.
- Other damages ➤ For repair return the pump to the factory.

## Technical Data

### Rating <sup>1)</sup>

Adm. operating temperature <sup>2)</sup>	−40 °C ... +70 °C
Number of outlets	1, 2, 3
Reservoir capacity	2 l, 4 l, 8 l, 15 l
Filling	via hydraulic lubrication fitting or from top
Lubricant <sup>3)</sup>	greases up to NLGI grade 2
- and	oils with min. 40 mm <sup>2</sup> /sec (cST)
Protection	DIN 40050 T9: IP6K 9K
-	UL type 4X only for indoors, 12 and 13

### Proximity switches

SVETVT-350-G 1/4A-D6	624-28894-1
SVETVT-350-G 1/4A-D8	624-28774-1

### Tightening Torques

Install pump	18 Nm
Electric motor on housing	12 Nm
Pump element in housing	20 Nm
Closure plug in housing	12 Nm
Return line connector in housing	10-12 Nm
Tie rods for 15-l reservoir	10 Nm

### Pump element with fixed lubricant output

Piston diameter K5	5 mm
- Output, approx.	2 ccm/min
Piston diameter K6	6 mm
- Output, approx.	2,8 ccm/min
Piston diameter K7, S7 <sup>A)</sup> , C7 <sup>B)</sup>	7 mm
- Output, approx.	4 ccm/min
Piston diameter B7	7 mm
- Output, approx.	2 ccm/min
max. admissible operating pressure	350 bar
Connection thread	G 1/4"
- suitable for tube diameter	6 mm

- A) suitable for lubricants containing silicone  
B) suitable for chisel paste  
(contact the manufacturer of the lubrication system)

### Pump element with adjustable lubricant output

Output	0.04 ... 0.18 ccm/stroke
- or	0.7 ... 3 ccm/stroke
max. admissible operating pressure	350 bar
Connection thread	G 1/4"
- suitable for tube diameter	6 mm
- and	8 mm



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#### <sup>2)</sup> IMPORTANT

The specified "admissible operating temperature" refers to the pump and the components of the entire lubrication system, but not to the lubricant to be supplied.

Therefore, please observe that the transportation of the lubricant in a system depends on the lubricant's flow properties. The "admissible operating temperature of the lubricant" may differ from the system operating temperature and has to be verified separately! For applicable lubricants also see User Manual 2.0-4000 1, chapter "Approved lubricants".

### Weight

The weights below include the following "individual weights":

- Pump kit with one pump element,	
pressure relief valve, grease filling (0.75 kg, 1.5 kg)	
- Packing (cardboard box)	
- Attaching parts	
- Operating Instructions	
<b>- 2 l reservoir, standard (0.75 kg)</b>	
P203 without connection cable	5.4 kg
P203 version 1A1.10	6.5 kg
P203 version 2A1.10	7.1 kg
<b>- 4 l reservoir, standard (1.5 kg)</b>	
P203 without connection cable	8.3 kg
P203 version 1A1.10	9.3 kg
P203 version 2A1.10	9.9 kg
<b>- 8 l reservoir, standard (1.5 kg)</b>	
P203 without connection cable	8.6 kg
P203 version 1A1.10	9.6 kg
P203 version 2A1.10	10.2 kg
<b>- 15 l reservoir, standard (1.5 kg)</b>	
P203 without connection cable	9.2 kg
P203 version 1A1.10	10.2 kg
P203 version 2A1.10	10.8 kg

In the case of pump versions deviating from those mentioned, add the weights of the following components to the mentioned weights:

- per pump element	+ 0.2 kg
- per pressure relief valve	+ 0.1 kg
- 10 m monitoring cable, 5-core (2A4.13)	+ 1.1 kg
- 10 m monitoring cable, 4-core (2A4.12)	+ 0.4 kg
- Connection cable with piston detector	+ 0.1 kg
- Reservoir version with cover	+ 0.15 kg
- 2 l flat-type reservoir	+ 0.5 kg



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#### <sup>1)</sup> IMPORTANT

The rating listed refers to grease of NLGI grade 2 measured at 20°C, backpressure 100 bar and nominal voltage 12/24 V (motor). Any differing pressures or temperatures result in different lubricant outputs. Any system design must be based on the above values compete.



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#### <sup>3)</sup> IMPORTANT

The pump reservoirs are factory-primed with lubrication grease Renocal FN745 (down to −25 °C) and EP additives make Fuchs. This composition is compatible to most of the commercial greases and helps to prevent faults. If requested by the customer, the pumps can either be primed with another type of lubrication grease or be supplied without priming.

## Technical Data, continuation

### Electrical Data

#### Motor<sup>1)</sup>

DC gear motor (interference-suppressed)  
Operating voltage ..... 24 VDC  
Max. current input at 12 VDC ..... 6,5 A  
Max. current input at 24 VDC ..... 3 A  
Speed, dependent on the backpressure ..... 21 ±3 rpm  
Noise emission ..... < 70 dB(A)



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#### <sup>1)</sup> IMPORTANT

*The pump motor is suitable for intermittent operation only.*

#### EMC

Radio interference suppression  
..... VDE 0875 T11, EN 55011 class A  
EMC 2009/19/EC (vehicles)  
EMC 2004/108/EC  
a) for industrial environment:  
- Emitted interference acc. to .....<sup>3)</sup> DIN EN 61000-6-4  
- Noise immunity acc. to ..... DIN EN 61000-6-2  
b) for residential, commercial and light industry:  
- Emitted interference acc. to .....<sup>3)</sup> DIN EN 61000-6-3  
- Noise immunity acc. to ..... DIN EN 61000-6-1



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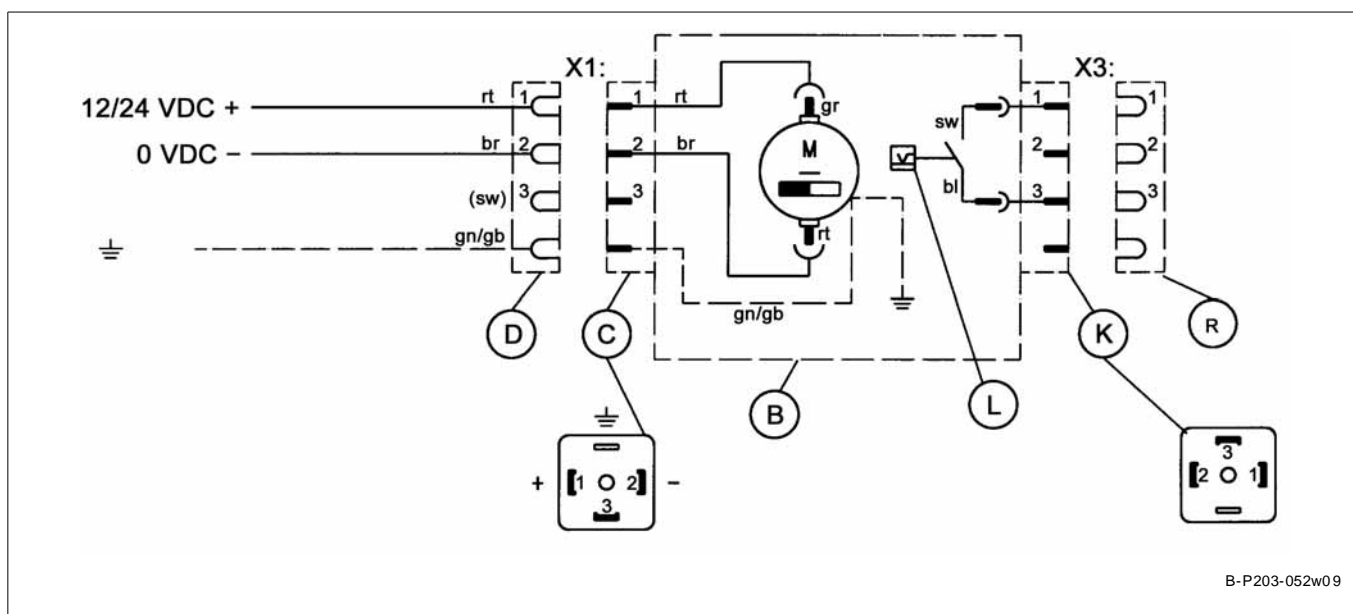
#### <sup>2)</sup> NOTE

*The pumps correspond to the following EMC directives:  
- for vehicles<sup>A)</sup> ..... EMC 2009/19/EC  
- for industry ..... EMC 2004/108/EC*

<sup>A)</sup> marked with the EC approval symbol (e-icon) on the type identification plate.

#### VDC connection diagram for industrial or mobile application

- without integrated control unit
- with low-level control
- Supply voltage ..... 12/24 VDC
- Type of connection **2A1** ..... Square-type plug (X1 & X3)



B-P203-052w09

Connection diagram ..... Quickclub P203 XLBO VDC without integrated control unit

Connection X1: ..... Square-type plug, left 1A1  
socket, 4/3-pole for power supply 12/24 VDC

Connection X3: ..... Square-type plug, right 2A1  
socket, 4/2-pole for low-level control

Subject to modifications

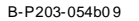
- B - Pump housing
- C - Connection plug X1
- D - Socket X1 with cable, 4/3-core (alternatively: connecting cable from the user)
- K - Connection plug X3, 4/2-pole
- R - Socket X3, 4/2-core (alternatively: connecting cable from the user)

- M - Electric motor
- L - Low-level control
- Switching capacity max. 60 W/VA
- Switching voltage max. 230 VAC
- Switched current max

rt - red                      gr - grey                      br - brown  
bl - blue                    ws - white                      sw - black                      gn/gb - green/yellow



- without integrated control unit
- without low-level control
- Supply voltage 12/24 VDC
- Type of connection **1A5** Bayonet plug, 4/2-pole (X1)



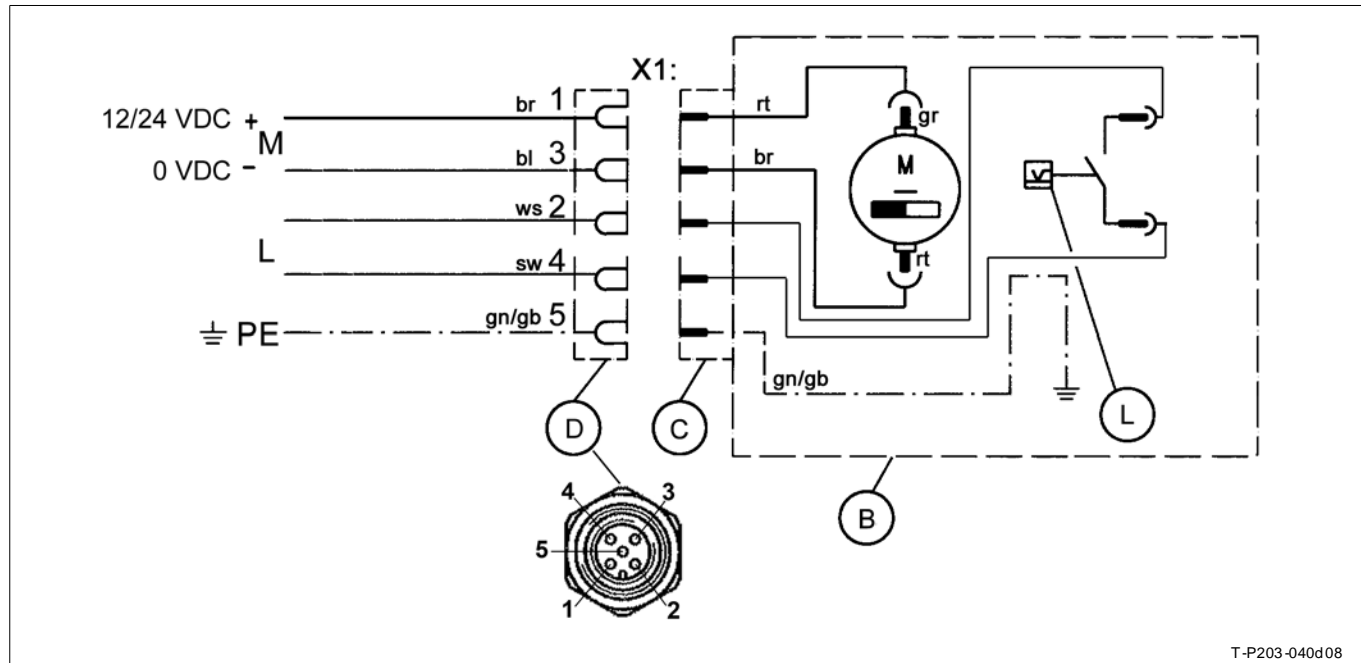
### Quicklub P203 XNBO without integrated control unit

B -	Pump housing	M -	Electric motor
C -	Connection plug		
D -	socket with connecting cable, 4/2-pole		
	- alternatively: connecting cable from the user		
rt -	red	br -	brown
		gr -	grey

## Technical Data, continuation

### VDC connection diagram only for industrial application

- without integrated control unit
- with low-level control
- Supply voltage 12/24 VDC
- Type of connection **1 A2** M12 plug, 5/5-pole (X1)



Connection diagram Quickclub P 203 VDC without integrated control unit

Connection X1: M12 plug, left 1A2  
Socket, 5/5-pole for power supply 12/24 VDC and low-level control

- B - Pump housing  
C - Connection plug  
D - Line socket 1 with connecting cable, 5 pole (1-5)  
- alternatively: connecting cable from the user

- M - Electric motor  
L - Low-level control  
Switching capacity max. 60 W/A  
Switching voltage max. 230 VAC  
Switched current max. 1 A

- rt - red  
bl - blue  
gr - grey  
ws - white  
br - brown  
sw - black  
gn/gb - green/yellow

Original Language

D	GB	F	E	I
EG-Konformitätserklärung	EC Declaration of conformity	Déclaration CE de conformité	Declaración CE de conformidad	Dichiarazione CE di conformità
Hiermit erklären wir, dass die Bauart von	Herewith we declare that the model of	Par la présente, nous déclarons que le produit ci-dessous	Por la presente, declaramos que el modelo suministrado	Si dichiara che il prodotto da noi fornito

## P203

in der von uns gelieferten Ausführung den Bestimmungen allen einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen entspricht, einschließlich denen zum Zeitpunkt der Erklärung geltenden Änderungen. Angewendete harmonisierte Normen, insbesondere:	in the version supplied by us corresponds to the provisions of all pertinent fundamental health and safety requirements, including all modifications of this directive valid at the time of the declaration. Applied harmonized standards in particular:	dans la version dans laquelle nous le livrons est conforme aux réglementations régissant toutes les exigences fondamentales de sécurité et celles relatives à la santé, y compris les amendements en vigueur au moment de la présente déclaration. Normes harmonisées, notamment :	en la versión suministrada corresponde a las disposiciones de los requisitos pertinentes y fundamentales de salud y seguridad en su redacción vigente en el momento de instalación. Normas armonizadas utilizadas, particularmente:	nella versione da noi fornita è conforme a tutti i requisiti basilari prescritti in termini di sicurezza e di salute, incluse le modifiche vigenti al momento della dichiarazione. Norme armonizzate applicate in particolare:
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Maschinenrichtlinie 2006/42/EG	Machinery Directive 2006/42/EC	Directive machines 2006/42/CE	Directiva de máquinas 2006/42/CE	Direttiva Macchine 2006/42/CE
DIN EN ISO 12100 – Teil 1 & 2 Sicherheit von Maschinen Grundbegriffe, allgemeine Gestaltungsgrundsätze	– Part 1 & 2 Safety of machinery Basic terms, general design guidelines	– Parties 1 & 2 Sécurité de machines Notions fondamentales, directives générales d'élaboration	– Parte 1 & 2 Seguridad de máquinas Términos básicos, axiomas generales de diseño	– Parte 1 e 2 Sicurezza delle macchine Concetti basilari, principi guida generali
Pumpen und Pumpengeräte für Flüssigkeiten Allgemeine sicherungstechnische Anforderungen	Pumps and pump units for liquids General safety requirements	DIN EN 908 Pompes et groupes de pompes pour liquides Exigences en matière de sécurité technique	Bombas y equipos de bombas para líquidos Prescripciones generales referente a la seguridad	Pompe e dispositivi di pompaggio per liquidi Requisiti generali di sicurezza tecnica
EMV-Richtlinien 2009/19/EG Kraftfahrzeug 2004/108/EG	EMC directives 2009/19/EC Automotive 2004/108/EC	Règlementations CEM 2009/19/CE véhicules automobile 2004/108/CE DIN EN 61000-...	Directivas CEM 2009/19/CE vehículo 2004/108/CE	Direttive EMC 2009/19/CE autoveicolo 2004/108/CE
Fachgrundnormen: - Störaussendung ... Teil 6-4 <sup>a)</sup> ... Teil 6-3 <sup>b)</sup>	Generic emission standards: - Emitted interference ... Part 6-4 <sup>a)</sup> ... Part 6-3 <sup>b)</sup>	Normes fondamentales: - Emission de parasites ... Partie 6-4 <sup>a)</sup> ... Partie 6-3 <sup>b)</sup>	Normas especiales fundam.: - Emisión de interferencias ... Parte 6-4 <sup>a)</sup> ... Parte 6-3 <sup>b)</sup>	Norme specifiche fondam.: - Emissione di interferenze ... Parte 6-4 <sup>a)</sup> ... Parte 6-3 <sup>b)</sup>
- Störfestigkeit ... Teil 6-2 <sup>a)</sup> ... Teil 6-1 <sup>b)</sup> <sup>a)</sup> für Industriebereiche <sup>b)</sup> für Wohnbereich, Geschäfts- und Gewerbebereiche sowie Kleinbetriebe	- Noise immunity ... Part 6-2 <sup>a)</sup> ... Part 6-1 <sup>b)</sup> <sup>a)</sup> for industrial environment <sup>b)</sup> for residential, commercial and light industry	- Résistance aux brouillages ... Partie 6-2 <sup>a)</sup> ... Partie 6-1 <sup>b)</sup> <sup>a)</sup> pour domaine industriel <sup>b)</sup> pour domaines de l'habitation, des magasins et de l'artisanat ainsi que des petites entreprises	- Resistencia a interferencias ... Parte 6-2 <sup>a)</sup> ... Parte 6-1 <sup>b)</sup> <sup>a)</sup> para áreas industriales <sup>b)</sup> para áreas residenciales, comerciales e industriales tanto como pequeñas empresas	- Resistenza alle interferenze ... Parte 6-2 <sup>a)</sup> ... Parte 6-1 <sup>b)</sup> <sup>a)</sup> per settore industriale <sup>b)</sup> per il settore residenziale, commerciale, industriale e per le piccole imprese
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Walldorf, Nov 30, 2009, Dr.-Ing. Z. Paluncic  
Director Research & Development

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