Lubrication Systems QLS 301 & 311 without Control Unit

B-Q3011-000a10

CE

6093b03

U.S. Patent-No. 6,244,387, German Registration Design No. 29923765.6

810-55250-1B

Subject to modifications

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Table of Contents

Keep this user information always at hand at the place of work of the pump!

Introduction

Explanation of Symbols Used

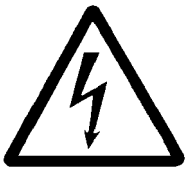
The following description standards are used in this manual:

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:

 1013A94	 4273a00	 6001a02
- ATTENTION **- CAUTION** **- WARNING**	**- ATTENTION** **- CAUTION** **- WARNING**	**- NOTE** **- IMPORTANT**

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

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

Example: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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

The lubrication systems QLS 301/311 has been designed for initial and retrofit installation. It has been designed for:

- the automatic lubrication of machines and systems
- the automatic lubrication of commercial vehicles and construction machines
- the automatic lubrication of hydraulically driven units and devices.

The lubrication systems QLS 301/311 is able to deliver greases up to NLGI - class 2 or fluid greases of NLGI - class 000 or 00.

- Use the QLS 301/311 exclusively to supply lubricants.
- The QLS 301/311 are adequate for intermittent operation only.
- The 301/311 are adequate for feeding max. 18 lube points per lubricating cycle.
- Do not use QLS 301/311 with SSV divider block in bottom mounting position for mobile applications. Do not install the system with machines exposed to shock.

Misuse

Any use of the QLS 301/311 that is <u>not</u> expressly mentioned in this User Manual will be regarded as misuse.
If the QLS 301/311 are used or operated in a different manner other than specified, any claim for warranty or liability will be null and void.


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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 QLS 301/311, no claims or legal actions may be taken against Lincoln GmbH.

Exclusion of Liability

The manufacturer of the centralized lubrication systems QLS 301/311 will not accept any liability for damage:

- Caused by insufficient lubricant
  - due to irregular filling of the reservoir
  - due to wrong programming of the internal or external controller
  - due to wrong planning and layout of the downstream lubricant distribution.
- caused by the use of contaminated lubricants.
- due to the use of lubricants which are not or are only conditionally pumpable in centralized lubrication systems.
- caused by connection to a wrong supply power.
- caused by an environmentally inadequate disposal of used or contaminated lubricants or parts that were in touch with lubricants.
- caused by unauthorized modification of system components.
- caused by the use of unapproved parts (voids the pump warranty).

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

- Lubrication systems QLS 301/311
  - are designed state-of-the-art.
  - can be assembled for safe operation.
  - must be filled regularly without air inclusions with clean lubricant recommended by the manufacturer (see “List of Lubricants” 2.0-40001).
- Incorrect use may result in bearing damage caused by poor or excessive lubrication.
- Do not overpressurize reservoir when filling the pump. Refill QLS 301/311 pumps with clean lubricant.
- Each outlet needed must be equipped with an appropriate check valve.


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IMPORTANT

Do not paint the pump!

Before painting a machine or commercial vehicle, remove or cover the pump completely.

- Any modifications must be subject to prior consultation with the manufacturer of the QLS 301/311.

Operation, Repair and Maintenance


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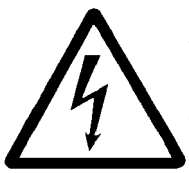
ATTENTION!

Malfunction because of dirt!

When executing any maintenance or repair works on the QLS 301/311, ensure absolute cleanliness.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WARNING!

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


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CAUTION!

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

Safety Instructions, continuation

Operation/Maintenance

Lincoln Quicklub centralized lubrication systems

- must be operated only with installed pressure relief valve.
- must be operated with attached or connected SSV metering device make Lincoln GmbH.
- must be refilled in regular intervals with clean and recommended [1)] lubricant without air entrapments.

1) see recommendation of the user or the manufacturer of the machine or the vehicle & List of Lubricants (2.0-40001)

- operate automatically. However, a regular check (approx. every 2 days) should be made to ensure that lubricant is emerging from all lubrication points.


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ATTENTION!

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

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.

Installation

- Any safety equipment already fitted to 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 (see Parts Catalog 2.0-20001) or parts approved by Lincoln.
- Adhere to:
  - the installation instructions of the 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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NOTE

In case of rear-mounted lubricant metering devices:
For transporting outlet 2 of the metering device was equipped with a check valve. Make sure to remove it before assembly, as it cannot be used when operating.

Installation Instructions

Pump

Mount pumps in such way that access is provided to refill and test the pump. Use drilling template to mark and drill mounting holes of the pump. Drilling template and mounting bolts are included in the package.

Pumps with mounted metering device

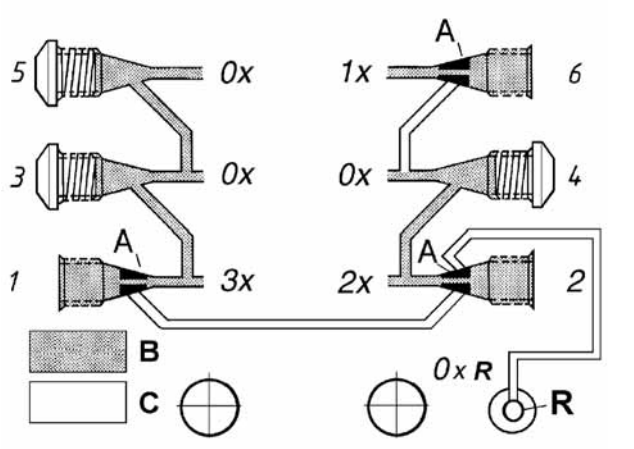

Fig. 1-1 Single double and triple lubricant output (on back side mounted divider block)

0x-3x Outlet quantity (single, double, etc.)
1-6 Outlet numbers
A Clamping ring of the check valve (see Fig. 3)
B Grease supply
C Enclosed grease
R Return to reservoir

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NOTE

Maximum internal combination of outlets:
SSV 6 = 3 / SSV 12 = 6 / SSV 18 = 9
Further combinations are possible outside the metering device by means of a tee-piece only.

Determination of the output by cross-porting of outlets

1) Single output

- A single output is the lubricant quantity fed to the lube point by a piston per stroke and outlet port. **It amounts to approx. 0.2 cm³,** see outlet 6 (fig. 1-1).

2) Double or multiple outputs

- Outputs can be increased by simply plugging the unused outlet ports with closure plugs (fig. 2, provided in the accessory kit).
- Lubricant from a plugged outlet is redirected to the next outlet on the same side of the SSV divider block in descending numerical order (see fig.1).
- Example, see fig. 1:
  By closing
  - of outlet 4, outlet 2 receives the double quantity
  - of outlets 5 and 3, outlet 1 receives the triple amount of lubricant. The connecting conduit from outlet line 1 to outlet line 2 and to the return line (R) is closed by clamping rings (A) of the check valve.
- Unused lubricant can be internally fed back to the reservoir, see paragraph "direct internal feed back feature".

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ATTENTION!

*If **outlet 2** (fig. 1-1) is connected to a lubrication point, **outlet 1 must not be closed,** see clamping ring (A) in outlet 2.*

Fig. 1-2 Closure plug (also provided in the accessory kits)

Closure plug

➲ Install a closure plug in each outlet port that is not required.

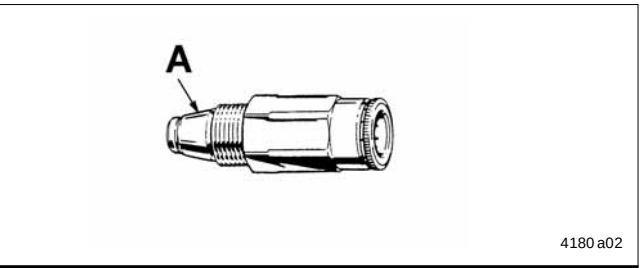

Fig. 1-3 Check valve, push-in type

A Clamping ring (brass)

Check valve

➲ For connection between pressure plastic tubes or high-pressure plastic hoses and SSV divider outlets.
➲ Install a check valve in each outlet port that is required.

Installation Instructions, continuation

Direct (internal) feedback feature

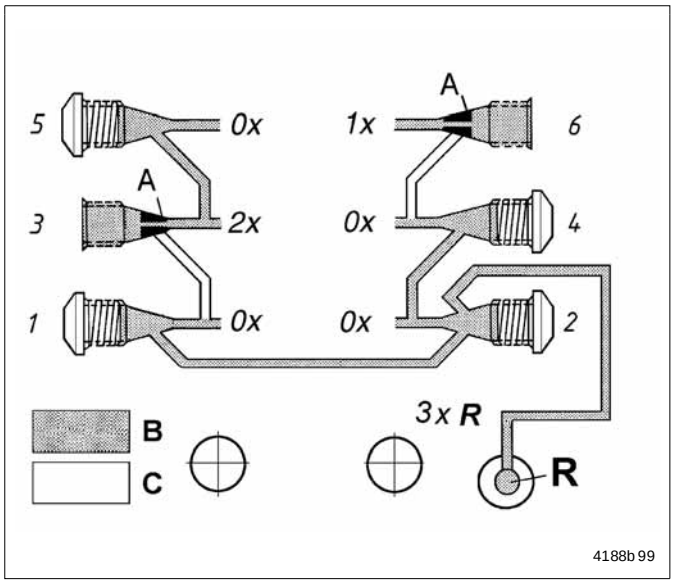

Fig. 1-4 Internal feedback of supplied lubricant, only on back-side mounted SSV divider blocks

0x-2x Outlet quantity (single, double, etc.)
1-6 Outlet numbers
A Clamping ring (brass) of the check valve
B Grease supply
C Enclosed grease
R Return line bore

- All pumps with **back-mounted SSV metering device** have the capability to feed unused lubricant back internally from closed outlets directly to the reservoir (see R, fig. 1-4).
- This procedure will start automatically, if **outlet port 2** is plugged with a closure plug.
- For lubricant return of crossported outlets always start with the **smallest outlet numbers**:
  - Outlets with even numbering: ..... e. g. 2, 4, 6
  - Outlets with odd numbering: ..... e. g. 1, 3, 5

  Lubricant quantities of **odd outlet numbers can only be returned through the internal combination of outlets 1 and 2**.

  As shown in Fig. --4, the quantities of outlets 1, 2 and 4 (3xR) are returned to the reservoir.
- The remaining outlets are to be used for the connection to the lube point or for increasing the lubricant quantity (double or triple), comp. fig. 1-1.


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ATTENTION!

Do not plug outlets number 1 or 2 *(horizontally positioned outlets) on bottom-mounted lubricant metering devices SSV 8, 12 or 18.*

In this case there exists the possibility to return unneeded lubricant quantities externally from the metering device. To do so, use relief line connection R.

Pumps with external metering device

- The pump can also be operated with an external metering device.
- To provide a directly connected lube point with lubricant or to distribute the lubricant via a downstream progressive system a connection block 1 (fig. 6-3) with P pressure and R return connection is provided.

Lubrication Points

Installing Quicklinc fittings into lube points

➲ Replace the existing lubrication fitting at the lubrication point by the corresponding Quicklinc push-in fitting.

Zerk-Lock Connection

Fig. 2-1 Place the Zerk-Lock body over the grease nipple

Fig. 2-2 Installation of Zerk-Locks with staking tool


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NOTE

If the lubrication fitting cannot be replaced, the Zerk-Lock connection is available as an alternative.

The Zerk-Lock fitting consists of the Zerk-Lock body, insert and a Quicklinc fitting.

➲ Place the Zerk-Lock body over the grease fitting and place the staking tool firmly against the Zerk-Lock insert.

➲ Strike the tool sharply with a hammer until the Zerk-Lock insert partially crimps onto the grease fitting (necessary only for US version).

Installation Instructions, continuation

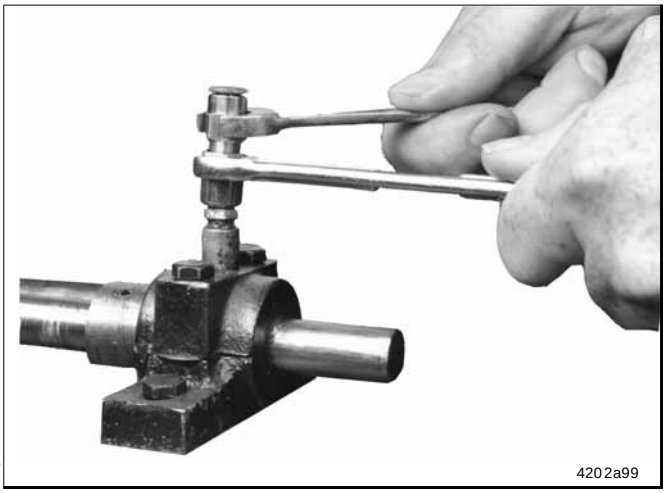

Fig. 2-3 Screwing Quicklinc fitting into the Zerk-Lock body

➲ Screw the Quicklinc fitting into the Zerk-Lock body and tighten until part resists further tightening (about 1-1/2 turns).

NOTE

Quicklinc hex. is 12 mm.

Zerk-Lock body hex is 1/2 ''.

➲ Move the Zerk-Lock and tube fitting from side to side on the grease fitting to insure the Zerk-Lock is firmly seated.

Connection of Feed Lines

Fig. 3-1 Feed line installed in the Quicklinc fitting

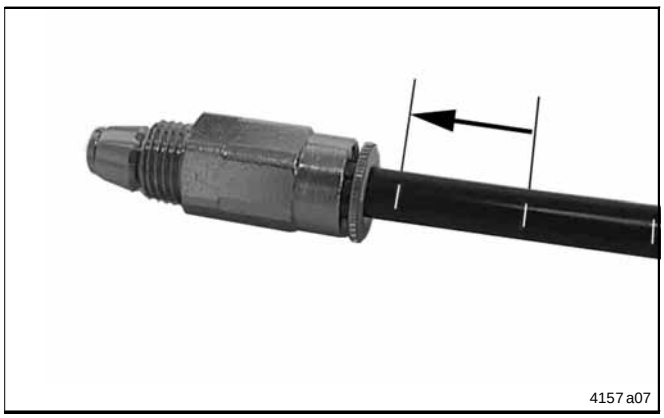

Fig. 3-2 Feed line insert into the check valve up to the next white mark

➲ Lay feed lines to each lubrication point with the shortest possible route. Make sure to observe the minimum bending radius.

➲ Measure, cut and route the feed lines (included in the kit).

NOTE

Avoid sharp bends of the plastic tubing and the moving parts of the machine that could damage the lubrication lines. Minimum bending radius is 50 mm (2 in.).

➲ Secure the lubrication lines to the machine using nylon ties, clamps or straps provided in the accessory kit.

➲ If the feed lines are not primed, prime all lubrication feed lines before connecting them to the lube point (see paragraph “First Filling of a lubrication system”).

➲ Connect the feed lines directly to the check valves of the divider block and to the Quicklinc fittings of the lube point.

NOTE

Push the ends of the feed lines firmly into the Quicklinc fittings until they are fully seated in the body of the fitting. The primed feed lines are marked with white lines (fig. 3-2) to facilitate installation.

➲ Cut off the pressure plastic tube uprightly at one of the white lines before it is mounted.

➲ Then insert the feed line into the fitting up to the next white mark.
This will ensure a correct installation of the feed line in the threaded tube fitting.

Installation Instructions, continuation

First filling of a lubrication system [1)]

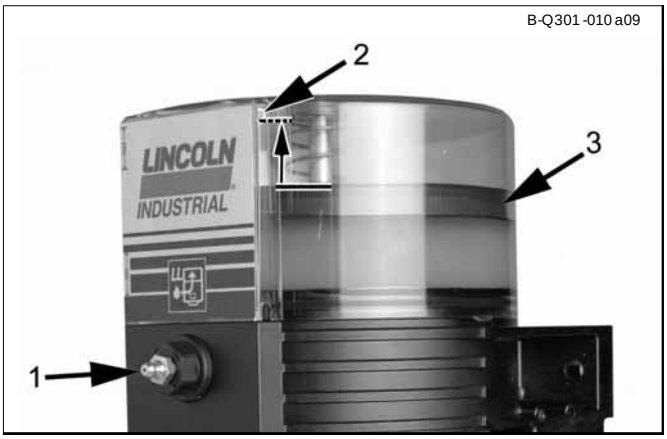

Fig. 4-1 Filling QLS301 reservoir to the "Max." filling mark

1 Filling nipple
2 Vent bore
3 Follower plate

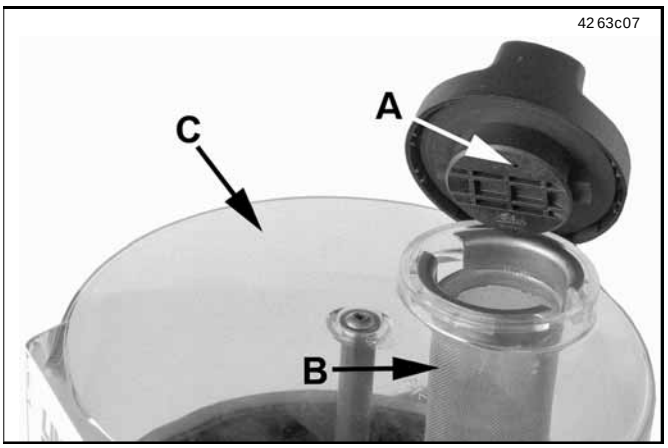

Fig. 4-2 Filling of the QLS311 reservoir

A - Reservoir cover
B - Filter
C - Reservoir

➲ Remove reservoir cover A from reservoir C.

➲ Fill reservoir up to maximum marking with filter B inserted.

➲ Close reservoir C again with reservoir cover A.


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NOTE

In case of rear-mounted lubricant metering devices:
For transporting outlet 2 of the metering device was equipped with a check valve. Make sure to remove it before assembly, as it cannot be used when operating.


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CAUTION!

Avoid inclusions of air in the lubricant below the follower plate. When filling the reservoir, the follower plate sealing lip overlaps the vent hole 2 (fig. 4-1) to ensure that all air pockets can be vented.

➲ Fill the empty reservoir up to the "Max." marking via the filling nipple 1.
Let the QLS run until lubricant leaks from the metering device outlets.

➲ Fill the feed lines if necessary via the lubricating nipple 4 (Fig. 6-1 or 6-2) of the metering device with an external pump.


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IMPORTANT

Remove the lubricating nipple 4 temporarily to be able to check the delivery of lubricant.


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ATTENTION!

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


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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


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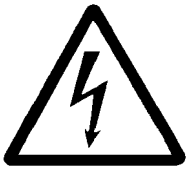
[1)] **IMPORTANT**

Also observe the temperature ranges of all components of your lubrication system, including the temperature range of the lubricant applied (see User Manual 2.0-40001, chapter „Proven lubricants").

Electrical Connection

➲ Connect cables acc. to connection diagram (see chapter „Technical Data").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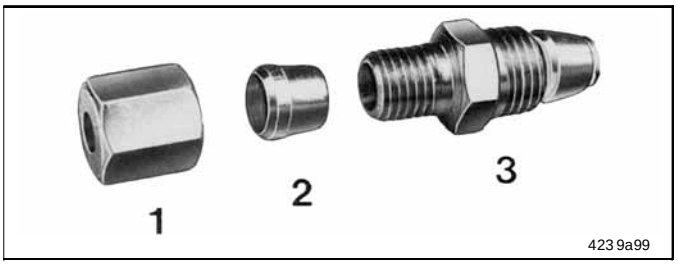
CAUTION!

Observe safety instructions in chapter „Maintenance ...", paragraph „Electrical Connection"!

Installation Instructions, continuation

Option for metric fittings (not included in the accessory kits)

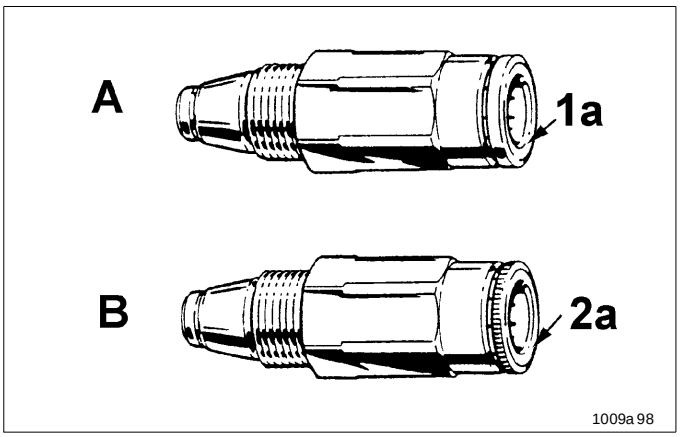
SSV Connecting tube fitting, screw-type and push-in type



1 - Ferrule nut
2 Cutting ring
3 Valve body with sealing and ferrule

Fig. 5-1 Screw-type check valve

Connection of the pressure plastic tube or the high-pressure hose



- For high-pressure hose (Ø 4.1 x 2.3 mm) use check valve A (fig. 5-2) with reinforced collets 1a and smooth flange (part no. 226-14091-4)
- For pressure plastic tube (Ø 6 x 1.5 mm) use check valve B (fig. 5-2) with standard collets 2a and knurled flange (part no. 226-14091-2)

A Check valve with reinforced collets
B Check valve with standard collets
1a Smooth flange
2a Knurled flange

Fig. 5-2 Different types of check valves

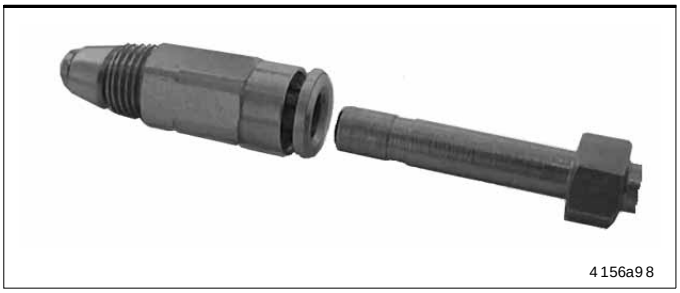


Fig. 5-3 Check valve with reinforced collets and high-pressure hose

NOTE

On construction machines or agricultural machines use high-pressure hoses as feed lines. In such cases, the check valves of the sub-metering devices must have a reinforced collets and a smooth flange.

IMPORTANT

Connect only high-pressure hoses (Ø 4.1 x 2.3 mm) with threaded sleeve and hose stud to the check valves with reinforced collets.

Mounting of the threaded sleeves and hose studs onto the high-pressure hose

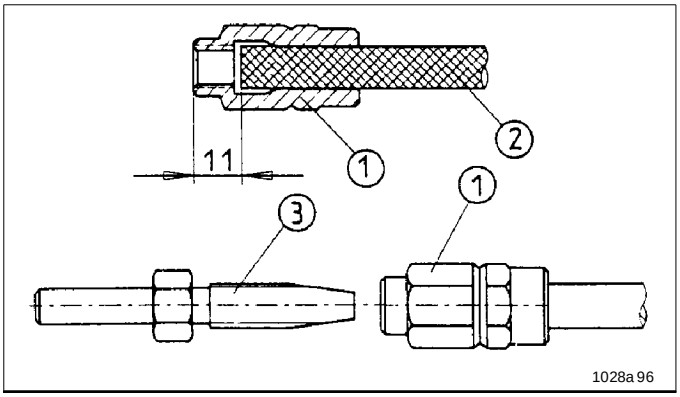


Fig. 5-4 Pre-assembly of the threaded sleeves and hose studs onto the main line

- Screw threaded sleeve 1 (fig.5-4) counterclockwise onto the high-pressure hose 2 until the illustrated dimension of 11 mm is reached.

IMPORTANT

Oil parts 1, 2 (inner surface of hose) and 3 well before screwing them together.

- Then screw the hose stud 3 into the threaded sleeve 1.

1 Threaded sleeve
2 Main line
3 Hose stud

Subject to modifications

Description

Lubrication Systems QLS 301/311

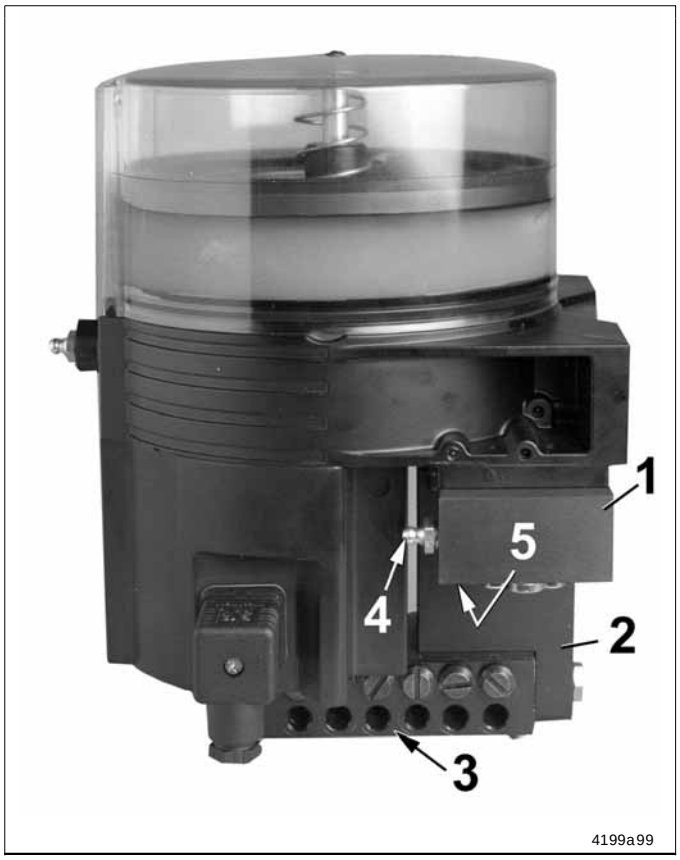


Fig. 6-1 QLS 301 with bottom mounted SSV devider block

- The QLS 301/311 are complete compact lubrication systems for a **maximum of 18 lubrication points per operating cycle**.
- The pumps have three basic configurations:
  - SSV metering device mounted on the bottom (Fig. 6-1)
  - SSV metering device mounted on the rear (Fig. 6-2)
  - Pump without the SSV metering device attached respectively with external metering device SSV KNQLS (Fig. 6-3)
- Standard lubrication lines are high-pressure hoses (Ø 6x1,5 mm; 1/4 in.) for pumps with the SSV metering device attached.
- The QLS 301/311 with the SSV metering device mounted on the bottom have the capability of using also steel tubing as lubrication lines if necessary.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NOTE

The function of the QLS 301/311 is independent of the SSV metering device's mounting position.

1 - Connecting block
2 - Manifold
3 - SSV metering device
4 - Nipple for emergency lubrication
5 - Closure plug, R 1/8“

Fig. 6-2 QLS 311 with rear mounted SSV devider block

- A external power supply starts the electric motor and the pumping element starts pumping the lubricant to the SSV divider block.
- When all lubrication points have received lubricant, one operating cycle has been completed. Then an internal proximity switch 1 (initiator, see Fig. 6-2) turns the external power supply and the motor off.
- An operating cycle can be monitored with an external control unit (PLC) to avoid that the QLS restarts automatically.

1 - Proximity switch
2 - Control pin
3 SSV metering device
4 Nipple for emergency lubrication

Description, continuation

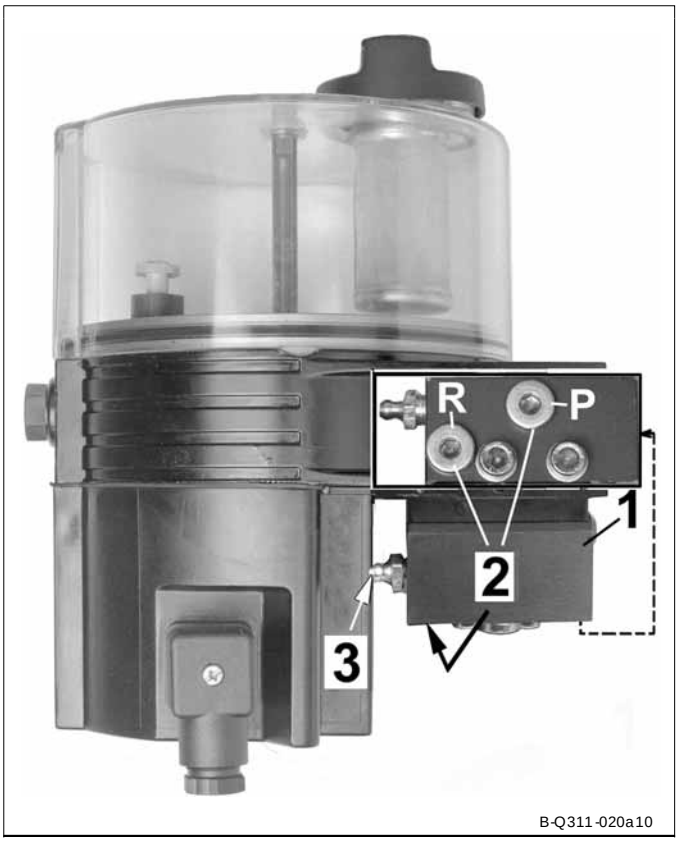

Fig. 6-3 QLS 311 without mounted SSV metering device with connection for external SSV metering device KN QLS

1 Connecting block
2 Closure plug
3 Nipple for emergency lubrication, R 1/8''
P For feedline to external SSV KN QLS
R Return line connection

- An externally connected lubricant divider SSV KN QLS is equipped with the same proximity switch as a QLS with mounted SSV metering device.
- The proximity switch is provided with a connecting cable of 2 m lengths and a connecting plug which must be connected with an external control unit.

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NOTE

The function of the QLS 301/311 is independent of the SSV metering device's mounting position.

There are available the following externally connectable divider valves SSV KN QLS: Part no.:

- SSV 6 KN QLS 619-28945-1
- SSV 8 KN QLS 619-28946-1
- SSV 10 KN QLS 619-28949-1
- SSV 12 KN QLS 619-28950-1
- SSV 14 KN QLS 619-28951-1
- SSV 16 KN QLS 619-28952-1
- SSV 18 KN QLS 619-28953-1

Identification Code VDC

Pump models **P30100811110**

Code examples **P31162411150**

		P301	6	2	4	1	1	1	5	0
Pump 301 for grease	P301									
Pump 301 for oil	P311									
SSV metering device										
External, SSV 6, SSV 8 [1) & 4)] (or „1“ without control p.c.b.)	0									
External, SSV 12, SSV 18 [1) & 4)]	1									
SSV 6 (back mounted)	3									
SSV 8 (bottom mounted)	4									
SSV 12	6									
SSV 18	9									
SSV metering device position, arrangement of the outlets										
Without / External metering device [4)]	0									
Back mounted (vertical order of lines)	1									
Bottom mounted [2)] (horizontal order of lines)	2									
Operating Voltage										
12 VDC [3)]	2									
24 VDC [3)]	4									
Reservoir										
1 L reservoir with low-level control	1									
External connections										
- for external fault indication	1									
Type of Plug Connector										
* Square-type plug, DIN 43650 design A (industrial applicaiton)	1									
Electrical Connectors										
Without socket, without cable	0									
With socket without cable *	1									
With socket and 10 m cable *	5									
P.C.B.										
Terminal board without time control	0									

1) Hinweis: Für externe Verteileranwendung nur die dafür vorgesehenen SSV...KNQLS Verteiler verwenden.

2) Note: Do not use QLS 301/311 with bottom mounted SSV metering device for mobile appli cations or machines which are exposed to shock (see also chapter „Safety Instructions“).

3) Note: Pumps for mobile application (12/24 VDC) can be equipped with 10 m cable.

4) Note: Regarding pump models without divider block, it is only possible to control or close the lubrication system with external control or PLC. They are listed in a separate selection guide and are assigned with special part numbers (650-...).

(Accessory kits see ”Technical Data”)

Mode of Operation

Lubrication system

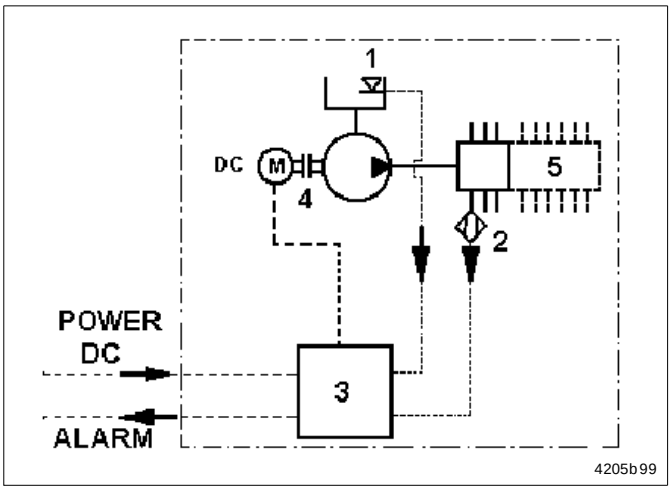


Fig. 7-1 QLS schematic

1 Low-level control
2 Proximity switch
3 Terminal board
4 Pump
5 SSV 6, 8, 12, 18

- The QLS operates according to operating cycles (pause and lubricating times).
  Depending on the setting of the external control unit the pause time begins the cycle or the lubricating time.
- A division of the lube points **(option)** via sub-metering devices and one main metering device (SSV 6, SSV 8) is possible only up to **max. 18 points per operating cycle**. In this case, set the number of cycles of the main metering device according to the number of lube points or the lubricant need via the external control unit.

Pressure Relief Valve

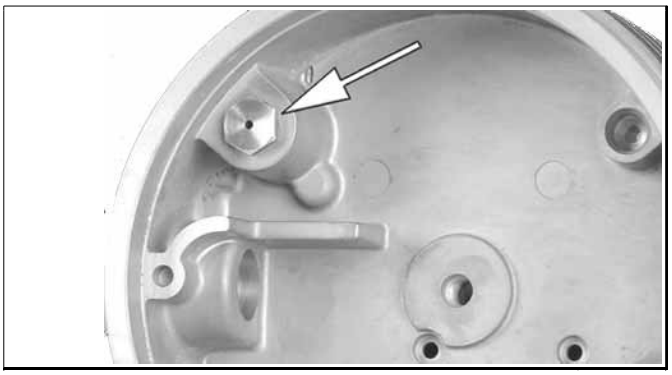


Fig. 7-2 Pressure relief valve (cartridge) in housing 4304a00

- The QLS is protected with a pressure relief valve (cartridge).
- The pressure relief valve limits the pressure build-up in the QLS. It opens at an overpressure of ~ 205 bar (QLS301) or ~ 80 bar (QLS311).
- If the pressure relief valve is actuated, this indicates that the system is malfunctioning. The lubricant flows back into the reservoir (hardly visible from outside).

Low-level control

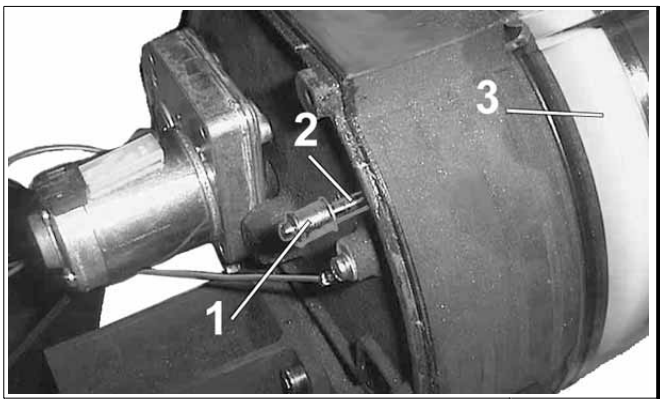


Fig. 8-1 Parts of the low-level control (QLS301)

1 Solenoid
2 Pin
3 Follower plate

- The external low level indication and the conditions for connection and disconnection of the low level control as well as the starting and stopping conditions of the motor during low level have to be adjusted according to the customer´s requirements.

QLS301

- The follower plate 3 (Fig. 8-1) of the reservoir moves the pin 2 with the solenoid 1 ahead of the sensor on the printed circuit board and initiates an external low-level signal.

QLS311

- In case of low level a swimming solenoid inside the reservoir initiates an external low level signal.

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.

Filling of the reservoir [1)]

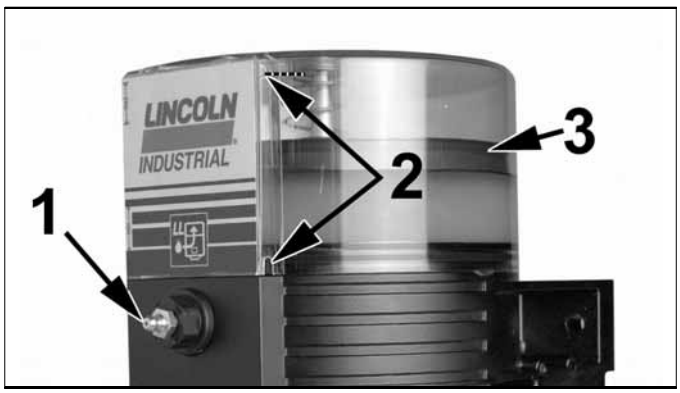


Fig. 14-1 Fill pump reservoir up to the “Max.“ mark 4231a99

1 Filling nipple
2 Vent hole
3 Follower plate

Filling of the empty reservoir [1)]

- Make sure that all air has been expelled from under the follower plate 3 (Fig. 14-1) after refilling the empty reservoir.
- The follower plate seal should contact the vent hole 2 located on the top of the reservoir. Small amount of grease should be refilled to ensure expelling of air from under the follower plate.

6001a02

HINWEIS

If necessary, please observe the chapter " First filling of a lubrication system".

6001a02

[1)] **IMPORTANT**

Also observe the temperature ranges of all components of your lubrication system, including the temperature range of the lubricant applied (see User Manual 2.0-40001, chapter „Proven lubricants“).

1013A94

ATTENTION!

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

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, methylacohol, acetone or similar.

➲ Fill the empty reservoir up to the ”Max.” marking via the filling nipple 1 (Fig. 14-1).

6001a02

IMPORTANT

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

NOTE

If the reservoir has been completely emptied, the pump may require priming and a longer runtime to reach the full lubricant output. Therefore, if the occasion arises trigger additional lubrications manually (fig. 13-2).

6001a02

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

4263c07

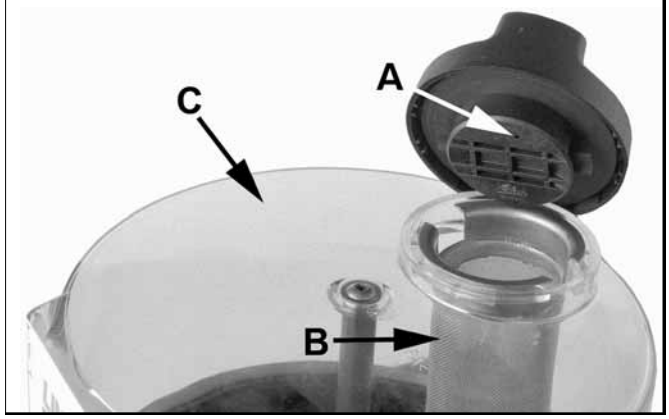


Fig. 14-2 Filling of the QLS311 reservoir

A - Reservoir cover
B - Filter
C - Reservoir

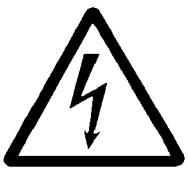
➲ Remove reservoir cover A from reservoir C.
➲ Fill reservoir up to maximum marking with filter B inserted.
➲ Close reservoir C again with reservoir cover A.

Maintenance, Repair and Tests, continuation

Repair

- For repair work on the QLS use only original **Lincoln** spare parts.
- Using non-**Lincoln** parts voids the pump warranty.

Electrical Connection


4273a00

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

Consider the safety instructions (page 5 and 6)!

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.


4273a00

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

➲ 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
- monitoring of metering device via external or internal cycle switch

➲ Connect the electrical wires according to the following electrical connecting diagrams (see chapter „Technical Data“).

Tests

Test Run / Triggering an Additional Lubrication

- To check the pump operation it is possible to perform an additional test (see external control unit).
- During the lubricating time
  - the control pin is moving to the left or to the right side (Fig. 6-2)
  - lubricant comes out of the lubrication points

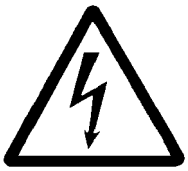
Troubleshooting


6001a02

NOTE

The pump operation can be stated from the outside by:
- if any, via the external control unit (see corresponding User Manual)

Fault: Pump motor doesn't run

Cause:	**Remedy ...** **by service personnel**
	 4273a00 **WARNING!** *Disconnect the power supply before starting any maintenance or repair works.*
· Power supply interrupted. Green decimal point On/h on display is not lit.	➲ Check the voltage supply to the pump/fuses. If necessary, eliminate the fault or replace the fuses. ➲ Check the feedline from the fuses to the plug of the pump and then to the control p.c.b.
· Power supply from external control p.c.b. / PLC to motor interrupted. Electric motor defective.	➲ Trigger an additional lubricating cycle (with external control p.c.b. / PLC or manually). Check voltage supply from the control p.c.b. / PLC to the motor. If necessary, replace the motor.

Fault: Pump does not deliver lubricant

Cause:	**Remedy ...** **by operator personnel**
· Reservoir is almost empty. If so, display will flash on the external control unit / PLC.	➲ Fill up the reservoir with clean lubricant. Let the pump run (with external control p.c.b. / PLC or manually) until lubricant shows at all lube points.
	 6001a02 **NOTE** *Dependent on the ambient temperature and/or sort of lubricant output. Therefore, trigger several additional operating cycles.*

Cause:	**Remedy ...** **by service personnel**
· Air pockets in lubrication system	➲ Trigger an additional lubrication several times (with external control p.c.b. / SPS or manually). Lubricant must dispense at lubrication points without air bubbles.
· 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.

Fault: Pump either does not switch off

Cause:	**Remedy ...** **by service personnel**
· Proximity switch is not dampened, i.e. - the control pin does not move within the switching range of the initiator, - the distance between the control pin and the initiator surface is more than 0.5 mm (0.02 in.).	➲ Trigger additional lubrication (fig. 13-2). Check whether the control pin moves centrically (± 1.2 mm difference) over the switching surface of the initiator. ➲ Check the distance and adjust if necessary. - Between the control pin and the switching surface of the initiator (max. 0.5 mm; 0.02 in.). - Distances between the switching surface of the initiator and the upper edge of the fixing nut: 16 –0.2 mm (0.62+/-0.08 in.) when the metering device is mounted at the back 12,7 ±0,1 mm (0.5 +/-0.004 in.) when the metering device is mounted at the bottom ➲ Tightening torque of the nut 1,5 Nm (1.10 ft-lb.) and fix with Loctite 274 or similar.

Troubleshooting, continuation

Fault: Blockage in the downstream progressive system

Cause:

- Bearings, lines or metering device clogged
- Mounting position of metering device: bottom
  - In the case of metering devices SSV 8,12 and 18, the outlets 1 and/or 2 are closed.
- Mounting position of metering device: back
  - In the case of metering devices SSV 6, 12 and SSV 18, outlet 1 is closed and outlet 2 is connected to a lube point.
    The fault can be identified as follows:
    a) via external control unit or PLC
    b) functional control & visual check of lube points

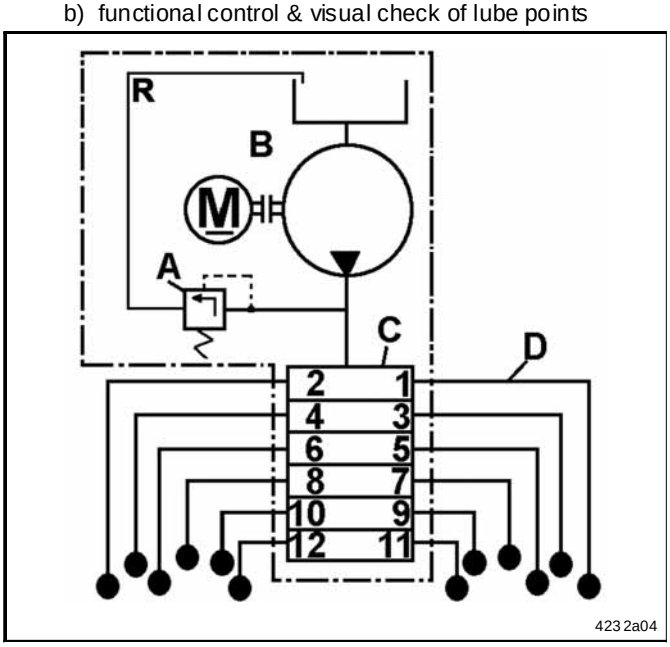


Fig. 15-1 Example of a QLS

Remedy ... **by service personnel**

- Determine the cause of the blockage as described in the following example and eliminate it.
- ➲ Let pump run (with external control p.c.b. / PLC or manually).
- ➲ Disconnect all feed lines D (fig. 15-1) of the metering device one after the other. If oil shows under pressure the blockage is located in the line of outlet 3 or in the connected bearing point.
- ➲ Pump through the blocked line or bearing point using a hand pump.

6001a02

NOTE

To check the individual outlets, leave all outlets disconnected for a while, since only one piston stroke is executed with each motor revolution. Several strokes are required for a full cycle of all metering devices.

- ➲ Check pressure relief valve (see chapter „Operation“) Replace it, if necessary.

A pressure relief valve
B pump
C SSV 12 metering device
D feed lines
R return line

- Metering device is blocked

- ➲ Replace the metering device or clean it as follows:
  - Remove all threaded tube fittings.
  - Unscrew the piston closure plugs.
  - Remove the piston, if possible, with a soft mandrel (smaller than Ø 6 mm, 0.24 in).

6001a02

IMPORTANT

The pistons are individually fit into the bores of the metering device. After removing the pistons, mark them in order to reinstall them in the right direction and position. They must not be interchanged.

  - Thoroughly clean the metering device body in a grease-dissolving detergent and dry it with compressed air.
  - Clean through the material passages (Ø 1.5 mm, 0.59 in) at the thread ends of the piston bores using a pin.
  - Clean the metering device once more and dry it thoroughly.
  - Reassemble the metering device.

Fault: Differing lubricant amounts at the lubrication point

Cause:

- Lubricant metering not correct
- Time setting incorrect

Remedy ... **by service personnel**

- ➲ Check the lubricant metering acc. to the lubrication chart.
- ➲ Adjust / optimize time setting.
- ➲ Check the lubricant metering acc. to the lubrication chart.
- ➲ Adjust / optimize time setting.

Technical Data

Rating [1)]

Adm. operating temperature [2)] ..... –25 °C ... +70 °C
Maximum operating pressure (pump without metering device)
- QLS301 ..... ~ 205 bar
- QLS311 ..... ~ 80 bar

Number of outlets 6, 8, 12, 18
Output per outlet and cycle ..... ~ 0,2 ccm
Output of the pump (wihtout SSV) ..... ~ 1,0 ccm/min
Reservoir capacity 1l
Lubricant [3)]
- QLS301 ..... greases up to NLGI grade 2
- QLS311 ..... oils with min. 40 mm²/sec (cST)

Protection ..... DIN 40050 T9: IP6K 9K
Weight ..... 5.7 kg
Reverse polarity protection of the operating voltage inlets yes

Lines

Plastic tube ..... Ø 6x1,5 mm (1/4 in.)
- Min. bending radius ..... 50 mm
- Bursting pressure at 20 °C ..... ~ 210 bar

Tightening Torques

Electric motor on housing ..... 3 Nm
Pump element in housing ..... 25 Nm
Closure plug (piston) in metering device ..... 18 Nm
Closure plug (outlets) in metering device ..... 15 Nm
Outlet fitting in metering device
- screw-type ..... 17 Nm
- push-in type ..... 12 Nm

Compression nut onto outlet fitting, screw-type
- plastic tube ..... 10 Nm
- steel tube ..... 11 Nm

Indicator pin in metering device ..... 18 Nm
Mounting of the metering device (M6, 8.8) ..... 10 Nm

Accessory Kits

Inch-Size Kits: ..... Part no:
- SSV 6 / 8 550-36971-1
- SSV 12 550-36971-2
- SSV 18 550-36971-3

Metric Size Kits: ..... Part no:
- SSV 6 / 8 ..... 550-36970-1 ***
- SSV 12 ..... 550-36970-2 ***
- SSV 18 ..... 550-36970-3 ***

*** Lube fittings must be ordered separately


6001 a02

[1)] **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.


6001 a02

[2)] **IMPORTANT**
Also observe the temperature ranges of all components of your lubrication system, including the temperature range of the lubricant applied (see User Manual 2.0-40001, chapter „Proven lubricants").


6001 a02

[3)] **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.

External Interfaces

Input

- Power supply
  - see "Connection diagrams": X1
- External cycle switch (if any)
  - for external metering device (see Fig. 6-3)
- Filling reservoir
  - see Fig. 4-1 & Fig. 14-1, pos. 1
- Emergency lubrication
  - see Fig. 4-1 & Fig. 14-1, pos. 5

Output

- Feed lines
  - see „Installation Instructions" (Fig. 1-1 ff)
- Monitoring (optional)
  - see connecting diagrams

Technical Data, continuation

Electrical Data

Motor [4]

Electric data DC (direct current)

Operating voltage ..... 12 V, - 20%/+ 30 %
Operating current, max. ..... 2,0 A
Operating voltage ..... 24 V, - 20%/+ 30 %
Operating current, max. ..... 1,0 A

Relay for malfunction DC [5]
Malfunction / Low-level indication
- Switching voltage ..... max. 48 VAC/ VDC
- Switching current ..... max. (resistive) 2A
- Switching capacity ..... max. 100 VA/80 W

Residual ripple in relation to the operating voltage .....
..... DIN41755: ± 5%

EMC [6]

EMC 2009/19/EC (vehicles)
- Emitted interference acc. to ..... DIN EN 61000-6-4
- Noise immunity acc. to ..... DIN EN 61000-6-2

EMC 2004/108/EC (industry)
- Emitted interference acc. to ..... DIN EN 61000-6-3
- Noise immunity acc. to ..... DIN EN 61000-6-1

Time Setting

Min. pause time ..... 4 minutes
Max. lubricating time ..... 4 minutes


6001 a02

[4] **IMPORTANT**
The pump motor is suitable for intermittent operation only.


6001 a02

[5] **NOTE**
All data depends on operating voltage, ambient temperature and max. operating pressure.

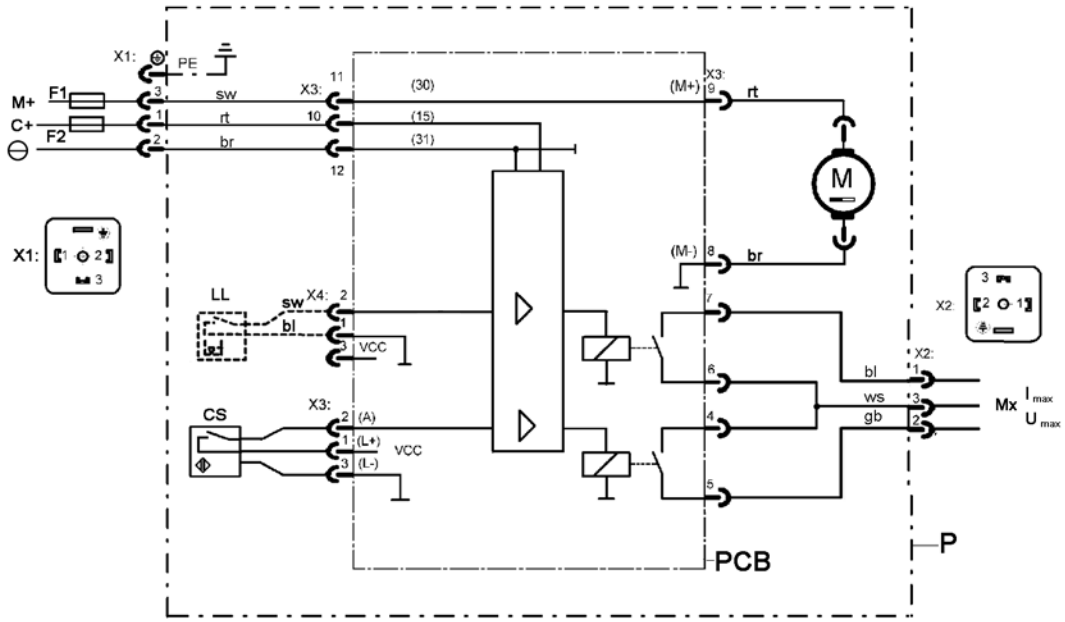

6001 a02

[6] **NOTE**
The pumps correspond to the following EMC directives:
- for vehicles [A] ..... EMC 2009/19/EC
- for industry ..... EMC 2004/108/EC

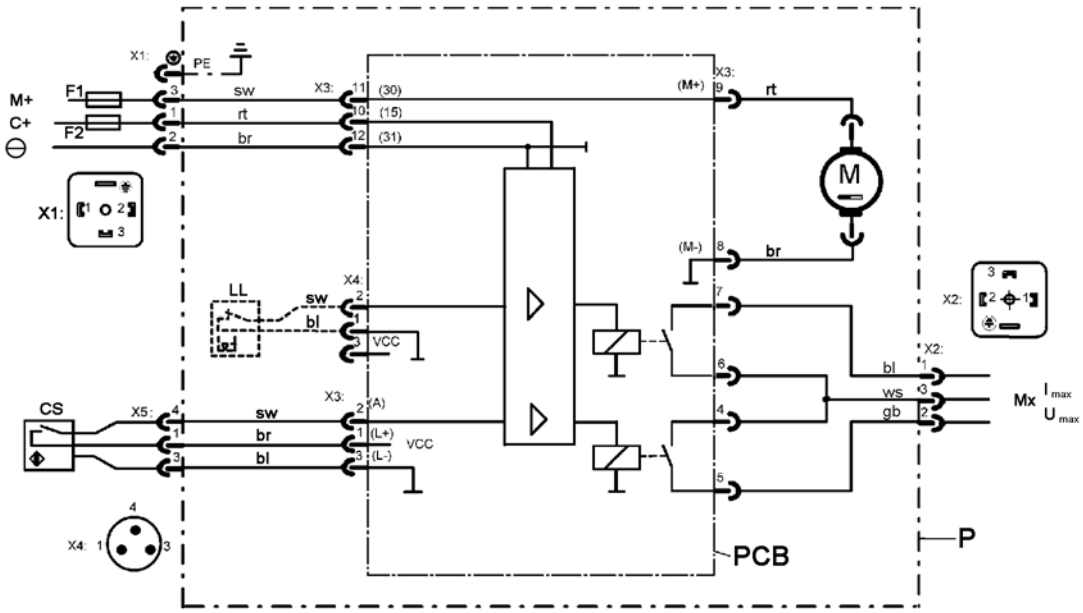
[A] *marked with the EC approval symbol (e-icon) on the type identification plate.*

Technical Data, continuation

Power supply: Direct current 12 VDC or 24 VDC with square-type plug
- without integrated control p.c.b., with terminal p.c.b. and **mounted** metering device:



- without integrated control p.c.b., with terminal p.c.b. and **external** metering device:



M +	Motor	C +	Control voltage	⊖ -	Minus	LL -	Low-level control
F1 -	Fuse - 12 VDC: 6 A or - 24 VDC: 3 A	F2 -	Fuse - 12/24 VDC: 0,5 A	Internal / External: - CS	Cycle switch	M -	Motor - 12 VDC or - 24 VDC
Mx -	Monitoring - I_{max} : Max. current 2 A - U_{max} :Max. voltage 48 V	Option: - X2 - X5	Monitoring external cycle switch	P -	Pump housing	X1 -	Square-type plug, left
				PCB -	Terminal p.c.b. without time control	X2 -	Square-type plug, right

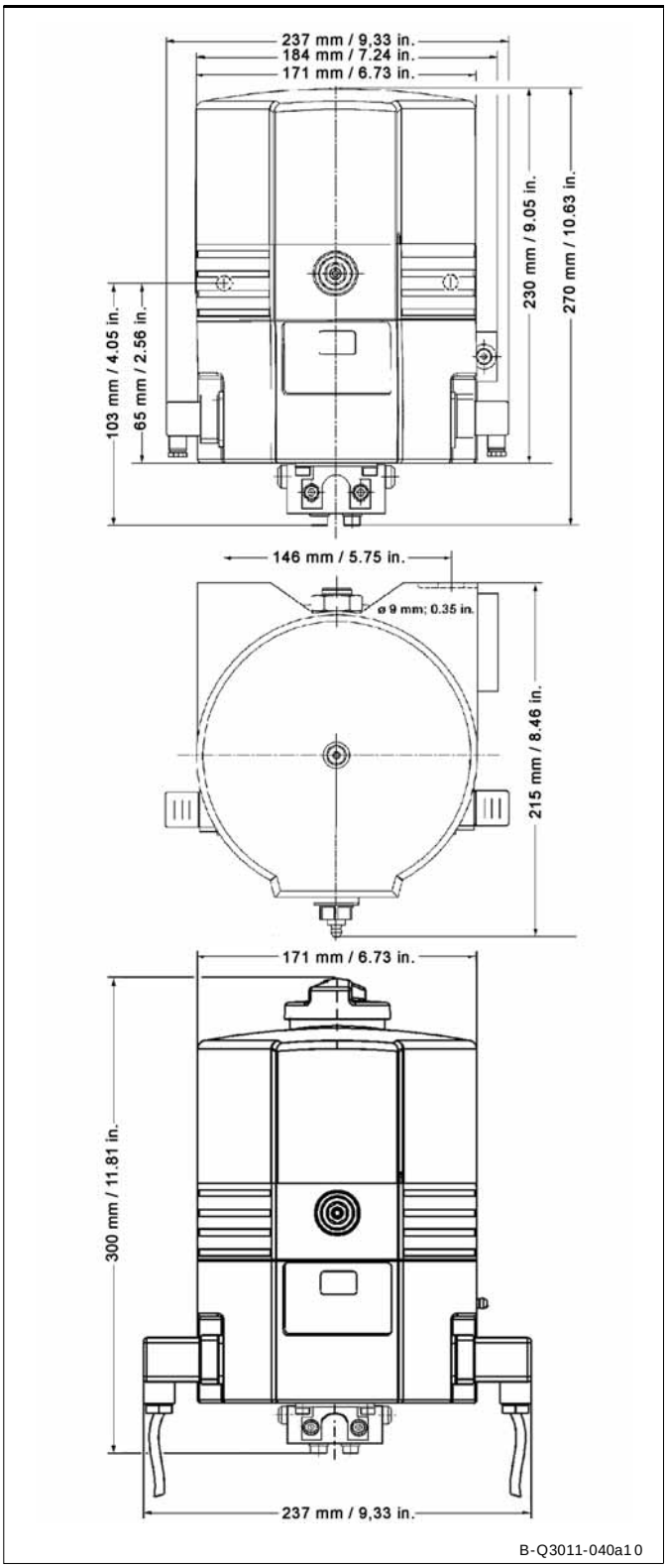
rt -	red	sw -	black	br -	brown		
bl -	blue	gb -	yellow	ws -	white		

Subject to modifications

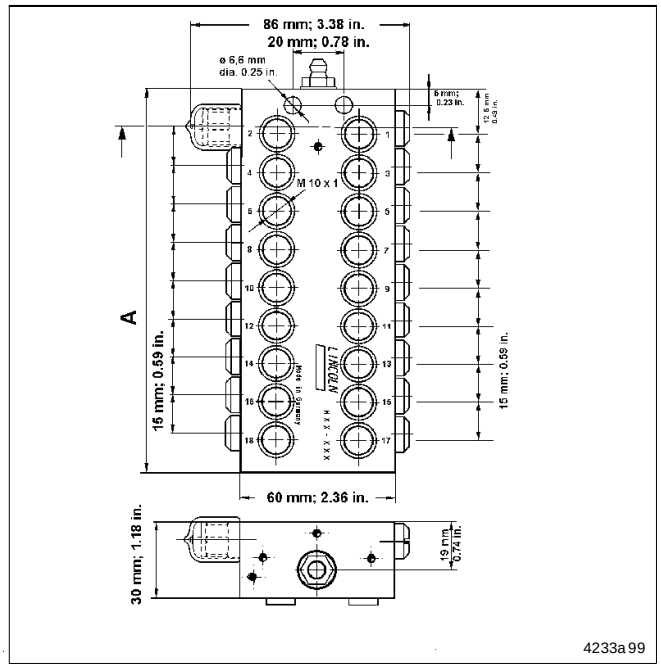
Technical Data, continuation

Dimensions

Pumps with 1 litre reservoir

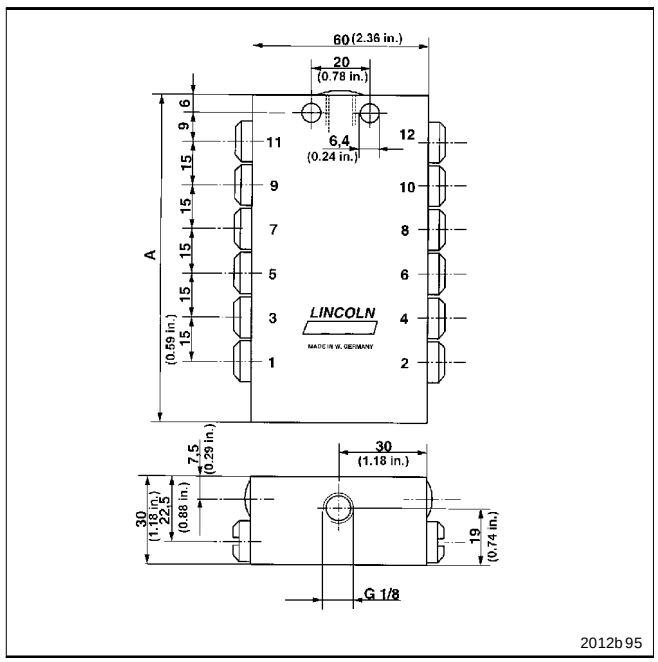


Rear-mounted SSV metering device



Number of outlets	Dimensions A in mm
6	60
12	105
18	150

Bottom-mounted SSV metering device

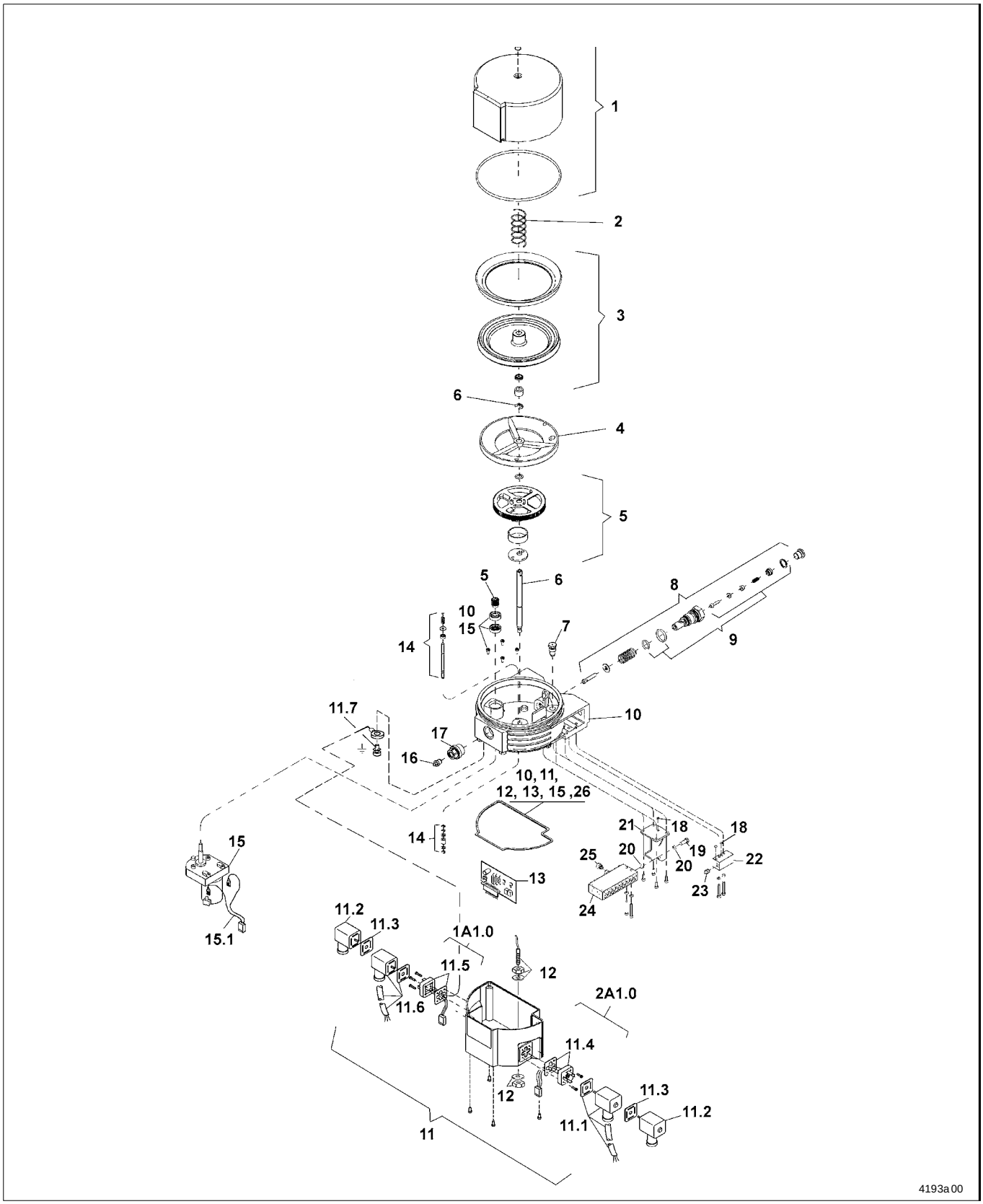


Number of outlets	Dimensions A in mm
8	90
12	105
18	150

Subject to modifications

Service Parts and Assembly Kits

QLS 301 with bottom mounted SSV metering device and square-type plugs



Subject to modifications

Service Parts and Assembly Kits, continuation

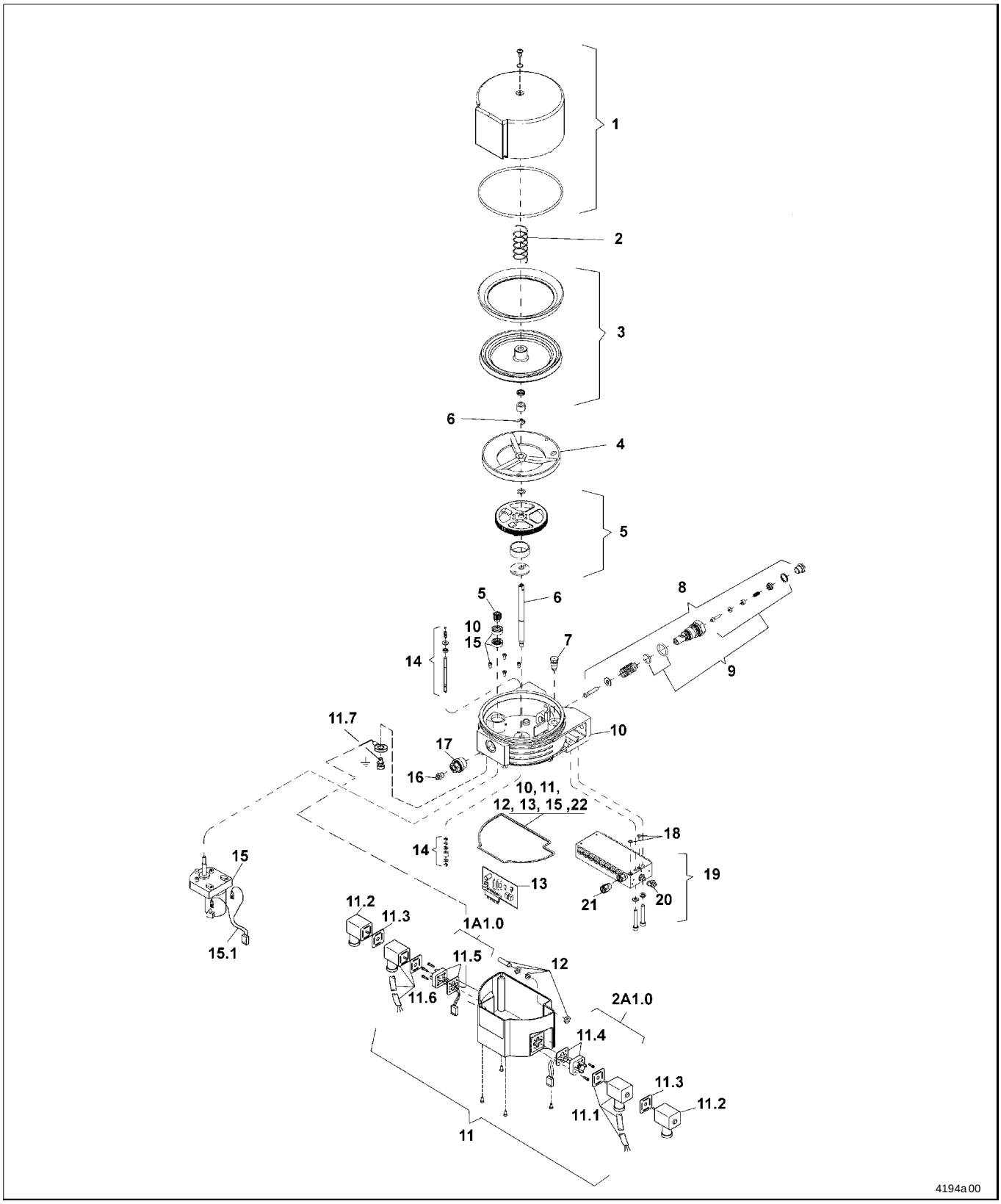
QLS 301 Parts List with bottom (horizontally) mounted SSV divider block

Pos.	Description	Kit	Part	Qty.	Part N°.
1	Reservoir	x		1	550-36979-2
2	Spring DA 28 x 1,6 x 106		x	1	218-14172-6
3	Follower piston	x		1	550-36979-3
4	Intermediate plate	x		1	450-24749-1
5	Eccentric gear	x		1	550-36979-4
6	Shaft	x		1	550-36979-1
7	Pressure relief valve		x	1	235-14343-1
8	Pump element, compl. ø 6 mm		x	1	650-28856-1
9	Sealing kit für pump element	x		1	550-36979-5
10	Housing for low level control	x		1	550-36981-3
11	Housing cover for low level control				
	and VDC, plug 1A1.0	x		1	550-36984-1
	or VDC, plug 2A1.0	x		1	550-36984-2
11.1	Appliance socket 2 with 10 m cable for external display	x		1	664-36078-9
11.2	Stecker, schwarz GMD-3011		x	2	236-13277-9
11.3	Flachdichtung		x	2	236-13294-3
11.4	Appliance plug 2 with 10 m cable for external display		x	1	664-36968-6
11.5	Appliance plug 1 for power supply, VDC		x	1	664-36968-4
11.6	Appliance socket 1 with 10 m cable for power supply		x	1	664-36078-7
11.7	Combination screw		x	1	201-14434-1

Pos.	Description	Kit	Part	Qty.	Part N°.
12	Proximity switch	x		1	550-36980-1
13	Connecting p.c.b.		x	1	236-14490-1
14	Low level control	x		1	550-36979-9
15	Motor, 12 VDC	x		1	550-36982-1
	Motor, 24 VDC	x		1	550-36982-2
15.1	Motor connection VDC		x	1	664-36968-2
16	Hydr. lube fitting, ST AR 1/8		x	1	251-14040-1
17	Adapter M 22 x 1,5 (a) x G 1/8 in.(i)		x	1	304-19619-1
18	O-ring ø 5 x 1,5 mm		x	3	219-12222-2
19	Hollow screw		x	1	226-13777-2
20	Sealing ring, alu		x	2	226-13780-1
21	Manifold	x		1	550-36979-6
22	Connecting block	x		1	550-36979-7
23	Hydr. lube fitting, ST AR 1/8		x	1	251-14040-1
24	SSV divider block				
	SSV 8 – K	x		1	619-37586-1
	SSV 12 – K	x		1	619-37587-1
	SSV 18 – K	x		1	619-37588-1
25	Closure plug for indicator pin		x	1	519-32123-1
	Sealing kit for QLS 301			1	550-36979-8

Service Parts and Assembly Kits, continuation

QLS 301 with rear mounted SSV metering device and square-type plugs



Service Parts and Assembly Kits, continuation

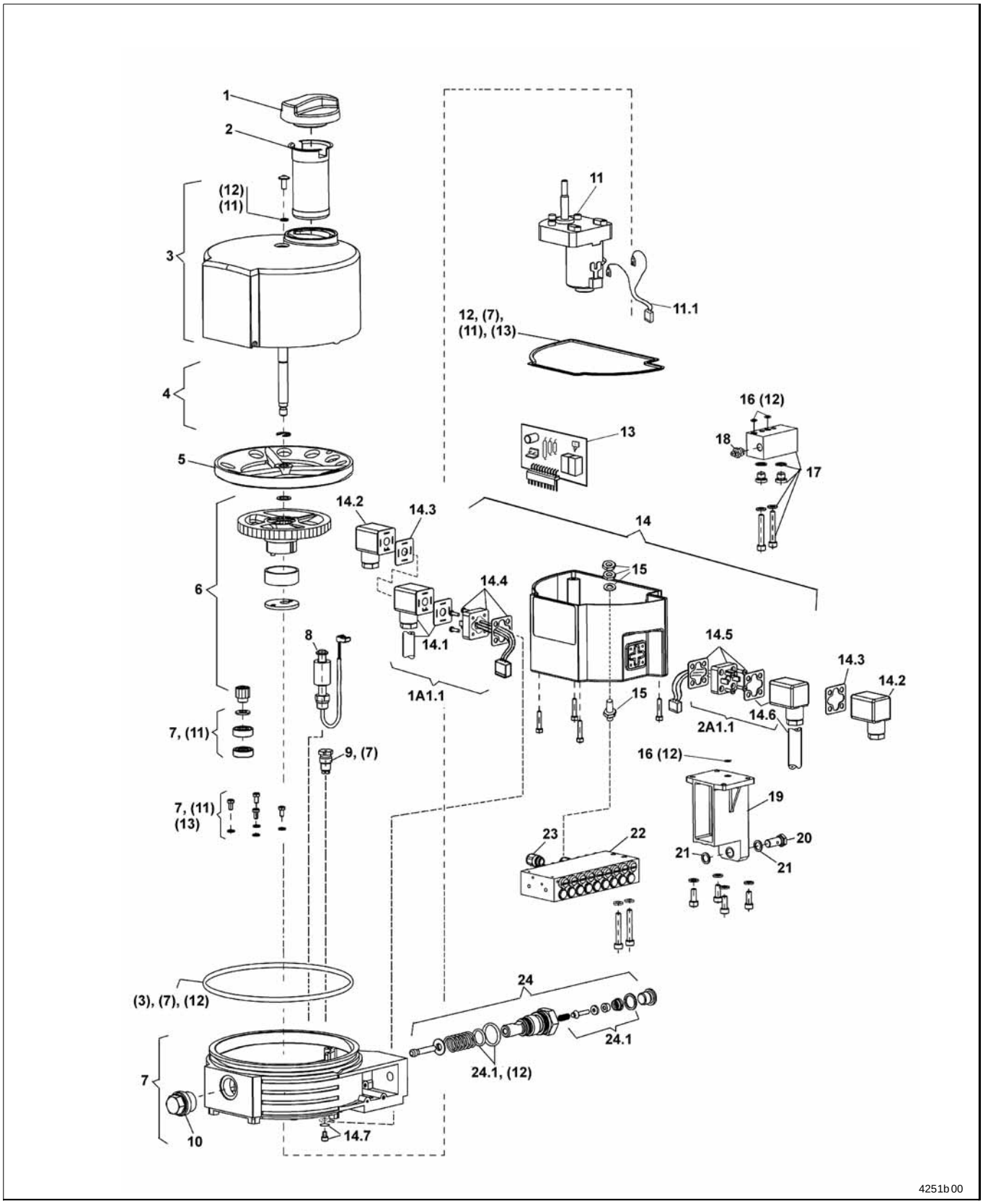
QLS 301 Parts List with rear (vertically) mounted SSV divider block

Pos.	Description	Kit	Part	Qty.	Part N°.
1	Reservoir	x		1	550-36979-2
2	Spring DA 28 x 1,6 x 106		x	1	218-14172-6
3	Follower piston	x		1	550-36979-3
4	Intermediate plate	x		1	450-24749-1
5	Eccentric gear	x		1	550-36979-4
6	Shaft	x		1	550-36979-1
7	Pressure relief valve		x	1	235-14343-1
8	Pump element, compl. ø 6 mm		x	1	650-28856-1
9	Sealing kit for pump element	x		1	550-36979-5
10	Housing for low level control	x		1	550-36981-3
11	Housing cover for low level control				
	and VDC, plug 1A1.0	x		1	550-36984-1
	or VDC, plug 2A1.0	x		1	550-36984-2
11.1	Appliance socket 2 with 10 m cable, for external display	x		1	664-36078-9
11.2	Socket, black GMD-3011		x	2	236-13277-9
11.3	Flat packing		x	2	236-13294-3
11.4	Appliance plug 2 for external display, VDC		x	1	664-36968-6
11.5	Appliance plug 1 für power supply, VDC		x	1	664-36968-4
11.6	Appliance socket 1 with 10 m cable for power supply		x	1	664-36078-7
11.7	Combination screw		x	1	201-14434-1

Pos.	Description	Kit	Part	Qty.	Part N°.
12	Proximity switch	x		1	550-36980-1
13	Connecting p.c.b.		x	1	236-14490-1
14	Low level control	x		1	550-36979-9
15	Motor, 12 VDC	x		1	550-36982-1
	Motor, 24 VDC	x		1	550-36982-2
15.1	Motor connection VDC		x	1	664-36968-2
16	Hydr. lube fitting, ST AR 1/8		x	1	251-14040-1
17	Adapter M 22 x 1,5 (a) x G 1/8 in.(i)		x	1	304-19619-1
18	O-ring ø 5 x 1,5 mm		x	3	219-12222-2
19	SSV divider block				
	SSV 6 – K	x		1	619-37589-1
	SSV 12 – K	x		1	619-37590-1
	SSV 18 – K	x		1	619-37591-1
20	Hydr. lube fitting, ST AR 1/8		x	1	251-14040-1
21	Closure plug for indicator pin		x	1	519-32123-1
	Sealing kit for QLS 301			1	550-36979-8

Service Parts and Assembly Kits, continuation

QLS 311 with bottom mounted SSV metering device and square-type plugs



Subject to modifications

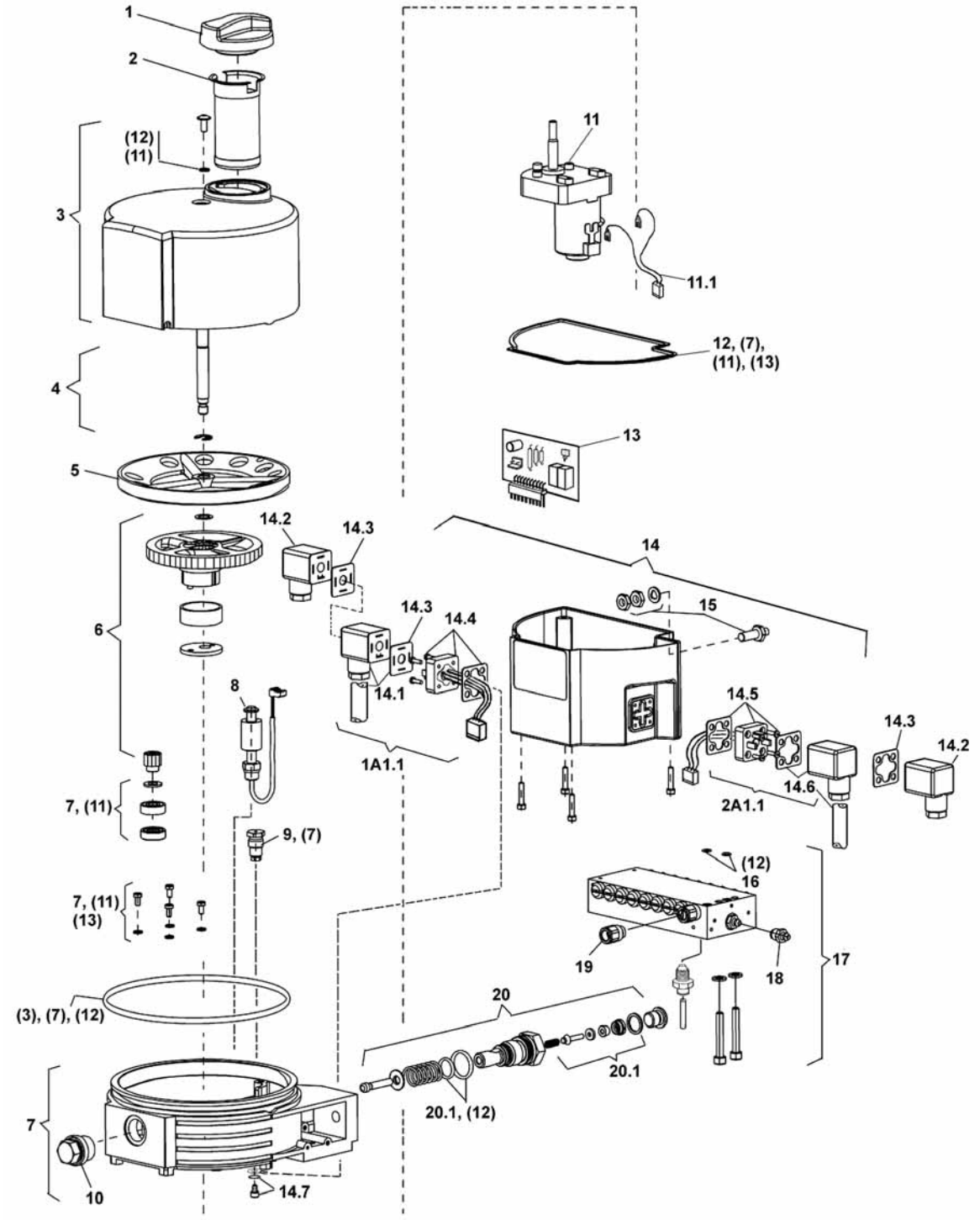
Service Parts and Assembly Kits, continuation

QLS 311 Parts List with bottom (horizontally) mounted SSV divider block

Pos.	Description	Kit	Part	Qty.	Part N°.
1	Cover		x	1	221-12488-4
2	Filter		x	1	235-13128-2
3	Reservoir	x		1	550-34004-1
4	Shaft	x		1	550-36979-1
5	Intermediate plate	x		1	450-24857-1
6	Eccentric gear	x		1	550-36979-4
7	Housing	x		1	550-34003-1
8	Floating switch		x	1	450-24856-1
9	Pressure relief valve		x	1	235-14343-1
10	Closure plug M 22 x 1,5 x 12		x	1	303-19285-1
11	Motor, 12 VDC	x		1	550-36982-1
	Motor, 24 VDC	x		1	550-36982-2
11.1	Motor connection VDC		x	1	664-36968-2
12	Sealing kit for QLS 311			1	550-36979-8
13	Connecting p.c.b.		x	1	236-14490-1
14	Housing for low level control				
	and VDC, plug 1A1.0	x		1	550-36984-1
	or VDC, plug 2A1.0	x		1	550-36984-2
14.1	Appliance socket 1 with 10 m cable, for power supply		x	1	664-36078-7
14.2	Socket, black GMD-3011		x	2	236-13277-9
14.3	Flat packing		x	2	236-13294-3
14.4	Appliance plug 1 for power supply, VDC		x	1	664-36968-4
14.5	Appliance plug 2 for external display, VDC		x	1	664-36968-6
14.6	Appliance socket 2 with 10 m cable for external display	x		1	664-36078-9
14.7	Combination screw		x	1	201-14434-1
15	Proximity switch	x		1	550-36980-1
16	O-ring 5 x 1,5		x	3	219-12222-2
17	Connecting block	x		1	550-36979-7
18	Hydr. lube fitting, ST R 1/8 A3 F		x	1	251-14109-6
19	Manifold	x		1	550-36979-6
20	Banjo bold		x	1	226-13777-2
21	Sealing ring, alu		x	2	226-13780-1
22	SSV divider block				
	SSV V8 – K	x		1	619-37586-1
	SSV V12 – K	x		1	619-37587-1
	SSV V18 – K	x		1	619-37588-1
23	Closure plug for indicator pin		x	1	519-32123-1
24	Pump element, compl. ∅ 6 mm		x	1	650-28856-1
24.1	Sealing kit for pump element	x		1	550-36979-5

Service Parts and Assembly Kits, continuation

QLS 311 with rear mounted SSV metering device and square-type plugs



Service Parts and Assembly Kits, continuation

QLS 311 Parts List with rear (vertically) mounted SSV divider block

Pos.	Description	Kit	Part	Qty.	Part N°.
1	Cover		x	1	221-12488-4
2	Filter		x	1	235-13128-2
3	Reservoir	x		1	550-34004-1
4	Shaft	x		1	550-36979-1
5	Intermediate plate	x		1	450-24857-1
6	Eccentric gear	x		1	550-36979-4
7	Housing	x		1	550-34003-1
8	Floating switch		x	1	450-24856-1
9	Pressure relief valve		x	1	235-14343-1
10	Closure plug M 22 x 1,5 x 12		x	1	303-19285-1
11	Motor, 12 VDC	x		1	550-36982-1
	Motor, 24 VDC	x		1	550-36982-2
11.1	Motor connecting VDC		x	1	664-36968-2
12	Sealing kit for QLS 311			1	550-36979-8
13	Connecting p.c.b.		x	1	236-14490-1
14	Housing cover for low level control				
	and VDC, plug 1A1.0	x		1	550-36984-1
	or VDC, plug 2A1.0	x		1	550-36984-2
14.1	Appliance socket 1 with 10 m cable, for power supply		x	1	664-36078-7
14.2	Plug, black GMD-3011		x	2	236-13277-9
14.3	Flat packing		x	2	236-13294-3
14.4	Appliance plug 1 for power supply, VDC		x	1	664-36968-4
14.5	Appliance plug 2 for external display, VDC		x	1	664-36968-6
14.6	Appliance socket 2 with 10 m cable for external display	x		1	664-36078-9
14.7	Comination screw		x	1	201-14434-1
15	Proximity switch	x		1	550-36980-1
16	O-ring 5 x 1,5		x	2	219-12222-2
17	SSV divider block				
	SSV V6 - K	x		1	619-37589-1
	SSV V12 - K	x		1	619-37590-1
	SSV V18 - K	x		1	619-37591-1
18	Hydr. lube fitting, ST R 1/8 A3 F		x	1	251-14109-6
19	Closure plug for indicator pin		x	1	519-32123-1
20	Pump element, compl. ∅ 6 mm		x	1	650-28856-1
20.1	Sealing kit for pump element	x		1	550-36979-5

Notes:

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*

QLS301 / QLS311 without control unit

in der von uns gelieferten Ausführung den Bestimmungen allen einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen entspricht, einschließlich deren 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 disposiciónes 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:*
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	**– Part 1 & 2**	**– Parties 1 & 2**	**– Parte 1 & 2**	**– Parte 1 e 2**
Sicherheit von Maschinen	**Safety of machinery**	**Sécurité de machines**	**Seguridad de máquinas**	**Sicurezza delle macchine**
Grundbegriffe, allgemeine Gestaltungsleitsätze	*Basic terms, general design guidelines*	*Notions fondamentales, directives générales d'élaboration*	*Términos básicos, axiomas generales de diseño*	*Concetti basilari, principi guida generali*
		DIN EN 908		
Pumpen und Pumpengeräte für Flüssigkeiten	**Pumps and pump units for liquids**	**Pompes et groupes de pompes pour liquides**	**Bombas y equipos de bombas para líquidos**	**Pompe e dispositivi di pompaggio per liquidi**
Allgemeine sicherungstechnische Anforderungen	*General safety requirements*	*Exigences en matière de sécurité technique*	*Prescripciones generales referente a la seguridad*	*Requisiti generali di sicurezza tecnica*
Niederspannungsrichtlinie 2006/95/EG	**2006/95/EC Low voltage directive**	**Directive relative à la basse tension 2006/95/CE**	**Directiva de baja tensión 2006/95/CE**	**Direttiva sulle basse tensioni 2006/95/CE**
DIN EN 60204 – Teil 1	**– Part 1**	**– Partie 1**	**– Parte 1**	**– Parte 1**
Sicherheit von Maschinen	**Safety of machinery**	**Sécurité de machines**	**Seguridad de máquinas**	**Sicurezza delle macchine**
Elektrische Ausführung von Maschinen	*Electrical equipment of machines*	*Equipement électrique de machines*	*Equipo eléctrico de máquinas*	*Equipaggiamento elettrico delle macchine*
EMV-Richtlinien 2009/19/EG (Kfz)	**EMC directives 2009/19/EC** (vehicles)	**Réglementations CEM 2009/19/CE** (véhicules)	**Directivas CEM 2009/19/CE** (vehículos)	**Direttive EMC 2009/19/CE** (veicoli)
für Industriebereiche	*for industrial environment*	*pour domaine industriel*	*para áreas industriales*	*per settore industriale*
2004/108/EG (Industrie)	**2004/108/EC** (industry)	**2004/108/CE** (industrie)	**2004/108/CE** (industria)	**2004/108/CE** (industria)
für Wohnbereich, Geschäfts- und Gewerbebereiche sowie Kleinbetriebe	*for residential, commercial and light industry*	*pour domaines de l'habitation, des magasins et de l'artisanat ainsi que des petites entreprises*	*para áreas residenciales, comerciales e industriales tanto como pequeñas empresas*	*per il settore residenziale, commerciale, industriale e per le piccole imprese*
		DIN EN 61000-...		
Fachgrundnormen: - Störaussendung	*Generic emission standards: - Emitted interference*	*Normes fondamentales : - Emission de parasites*	*Normas especiales fundamentales:- Emisión de interferencias*	*Norme specifiche fondam.: - Emissione di interferenze*
... Teil 6-4 (Kfz)	**... Part 6-4** (vehicles)	**... Partie 6-4** (véhicules)	**... Parte 6-4** (vehículos)	**... Parte 6-4** (veicoli)
... Teil 6-3 (Industrie)	**... Part 6-3** (industry)	**... Partie 6-3** (industrie)	**... Parte 6-3** (industria)	**... Parte 6-3** (industria)
- Störfestigkeit	*- Noise immunity*	*- Résistance aux brouillages*	*- Resistencia a interferencias*	*- Resistenza alle interferenze*
... Teil 6-2 (Kfz)	**... Part 6-2** (vehicles)	**... Partie 6-2** (véhicules)	**... Parte 6-2** (vehículos)	**... Parte 6-2** (veicoli)
... Teil 6-1 (Industrie)	**... Part 6-1** (industry)	**... Partie 6-1** (industrie)	**... Parte 6-1** (industria)	**... Parte 6-1** (industria)
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