LINCOLN

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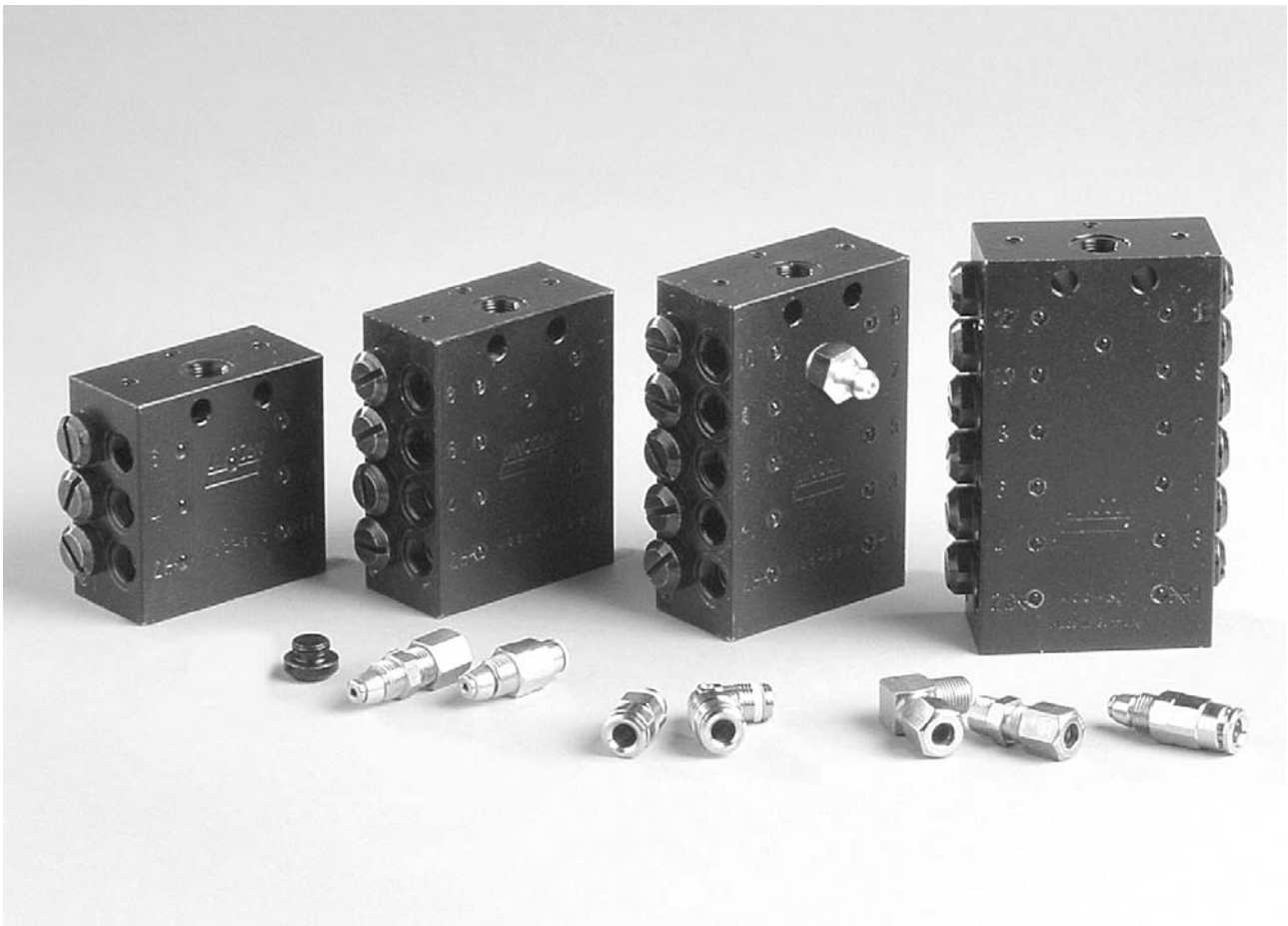
Quicklub - Progressive Metering Devices for Grease and Oil

Model SSV, SSV-E and SSV M



B-SSV-000a11

Subject to modifications

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This User Manual was compiled on behalf of the manufacturer

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Further Information can be found in the following manuals:

Technical Description Quicklub - Pump 203

Technical Description for "Electronic Control Units" of pump 203:
Printed-Circuit Board 236-13857-1 - Model H [1)]
Printed-Circuit Board 236-10697-1 - Model V10 - V13 [1)]
Printed-Circuit Board 236-13870-3 - Model M 00 - M 15 [1)]
Printed-Circuit Board 236-13870-3 - Model M 16 - M 23 [1)]

Installation Instructions
Parts Catalogue
List of Lubricants
Planning and Layout of Quicklub Progressive Systems

Subject to modifications

[1)] The model designation of the printed-circuit board is part of the pump model designation indicated on the pump nameplate, e. g. : P 203 - 2XN - 1K6 - 24 - 1A1.10 - **V10**

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Introduction

Explanation of Symbols Used

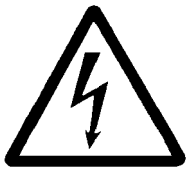
The following description standards are used in this manual:

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.

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Safety Instructions

Appropriate Use

Use the SSV, SSV-E and SSV M lubricant metering devices only for dispensing lubricants in centralized lubrication systems.

Suitable Lubricants

- The progressive metering devices model SSV can be used for dispensing
  - mineral oils of at least 40 mm^2/s (cST) or
  - greases up to the penetration class NLGI 2

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IMPORTANT

It must nevertheless be ensured that the oils or greases used do not alter their consistency significantly in the course of time or under the influence of temperature or pressure.

General Safety Instructions

- The progressive centralized lubrication system connected to the Quicklub pump model 203 must always be secured with a pressure relief valve.
- Lincoln SSV, SSV-E and SSV M lubricant metering devices are state of the art.
- Incorrect use may result in bearing damage caused by poor or over-lubrication.
- Each outlet which will be used must be equipped with a check valve.
- In the case of the metering devices model SSV 6 to 12 or SSV6-E to 12-E and SSVM 6 to 12 the outlets 1 and/or 2 must never be closed.
- 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.
- Use only original Lincoln spare parts (see Parts Catalogue) or the parts approved by Lincoln.

Operation, Repair and Maintenance

Authorized and instructed personnel who are familiar with the centralized lubrication systems should only perform repair.

Installation

- Install the metering devices at a suitable location in accordance with the lubrication diagram.
- It is recommended that the metering devices be installed in such a way that the outlets are not close to the chassis or the attaching plate. This will facilitate troubleshooting in the case the system is blocked.
- The main metering devices with indicator pin must be installed in such a way that the indicator pin is easily visible.

When the push-in type fittings are used, note the following:

- For the metering **device inlet** use only **push-in type fittings** (R 1/8) with **reinforced collar** and sealing ring.
- For the **outlet tube fittings** of the **SSV divider valve** (M 10x1) depending on the design of the lubricant line, for example
  - high-pressure plastic hose (Ø 4.1 x 2.3) use valve bodies with reinforced collar only, or,
  - pressure plastic tube (Ø 6 x 1.5) use valve bodies with knurled collar only
- For the **outlet fittings** of the **SSV M divider** divider valve (M 8x1) pressure plastic tube (Ø 4 x 1) use valve bodies with knurled collar only.

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NOTE

In the case of construction machines or agricultural machines use high pressure plastic hoses for the lubricant feet lines. In such cases the outlet fittings of the secondary metering devices and the connection fittings to the lubricant points must have a reinforced collet.

- Use only the main and feed lines specified by Lincoln and adhere to the specified system pressures.

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.

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CAUTION!

Danger of injury in the case of serious corrosion of metering device surfaces:
An increasing corrosion of the surfaces will cause the balls pressed in to lose their hold. Under pressure, they may suddenly burst out and cause injuries.
For applications in corrosive environments, use metering devices in stainless steel version only.

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Installation

Tube Fittings, Screw type

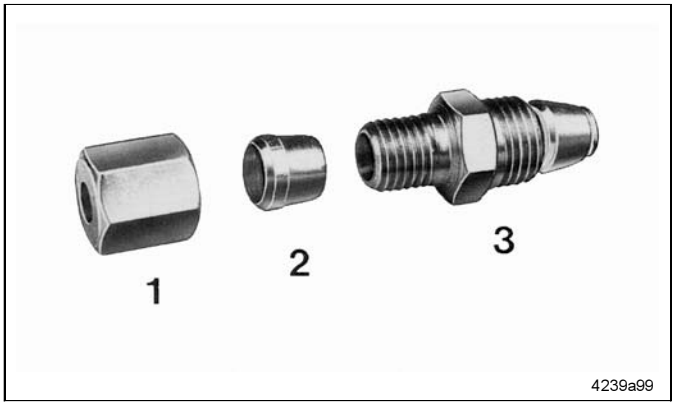

Fig. 1 Single parts of the check valve

Main- and secondary metering devices

Inlet tube fittings, straight and 90°

As inlet fitting use only tube fittings R1/8" thread.

Check valves

Install one complete check valve in each outlet bore that will be used, see fig. 1.

Install one closure plug in each outlet borehole that will not be used. Exception: outlet bore 1 & 2 on sizes…6 to…22. Check valves must be installed in both bores.

1 - coupling nut
2 - ferrule
3 - valve body with seal and clamp ring

Tube Fittings, Push-in type

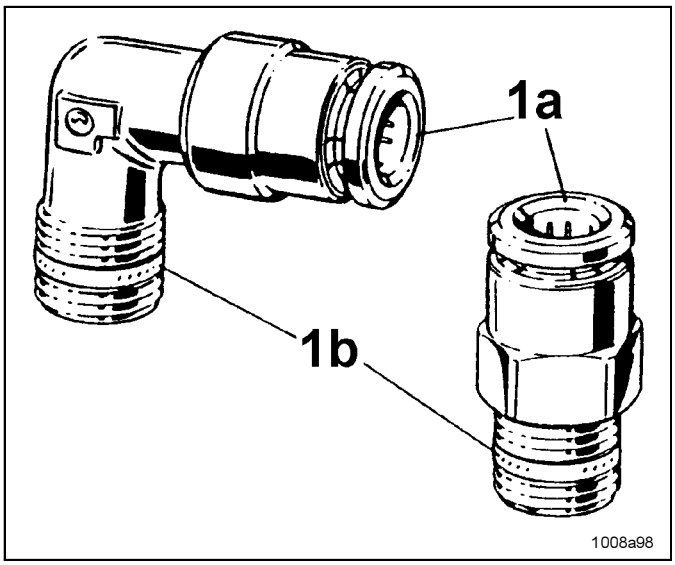

Fig. 2 Inlet fittings

Metering devices

Inlet tube fittings, straight and 90 °


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IMPORTANT

*For the inlet fittings **use only tube fittings with reinforced collet** 1a (fig. 2) and sealing ring 1b at the thread**.***

1a - Collet
1b - Sealing ring

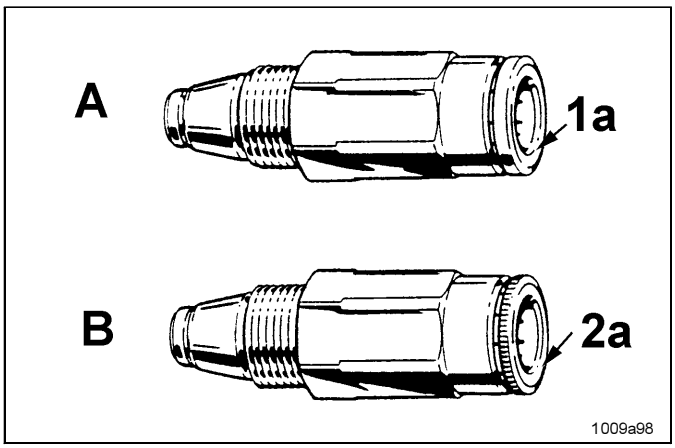

Fig. 3 The different types of check valve

Check valves

- A check valve must be mounted to the corresponding metering device outlet of each feed line in order to be able to precisely meter the predefined amount of lubricant.
- Main metering device
  Use check valves type A, Fig.3 with reinforced collet 1a and smooth flange (Part no. 226-14091-4).
- Secondary metering device
  Use check valves type B, Fig. 3 with standard collet 2a and knurled flange (Part no. 226-14091-2).


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NOTE

On construction machines or agricultural machines use high-pressure plastic hoses. In such cases the check valves of the secondary metering devices must have a reinforced collet and smooth flange.

A - Check valve with reinforced collet
B - Check valve with knurled collet

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Installation, continuation

Tube Fittings, Push-in Type, continuation

Connection of High-pressure Hose and Pressure Plastic Tube

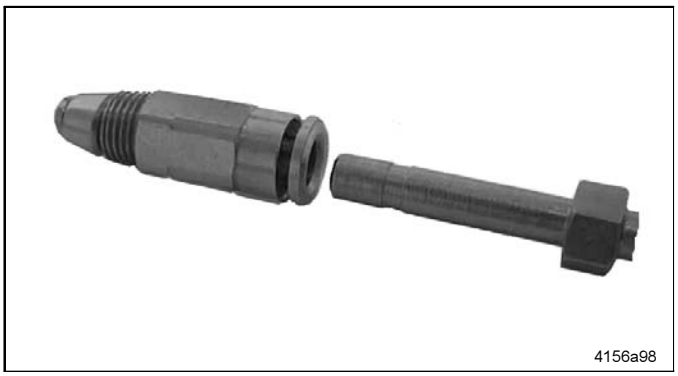

Fig. 4 Check valve with reinforced collet and hose stud

High-pressure range (main metering device)

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IMPORTANT

Only main lines (NW 4.1 x 2.3 mm) with threaded sleeve and hose stud may be connected to the inlet fitting and the check valves with reinforced collar.

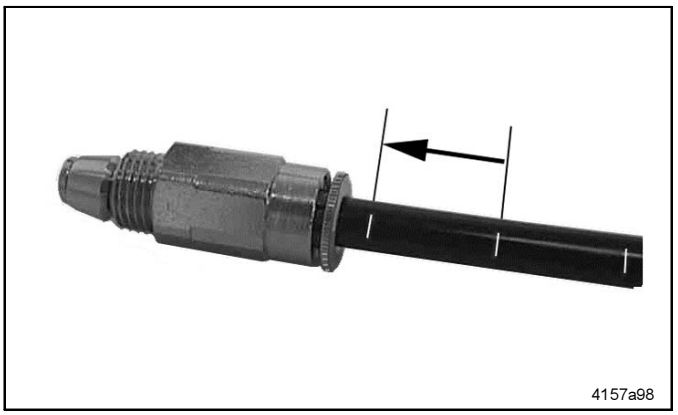

Fig. 5 Check valve with knurled collet and pressure plastic tube

Low-pressure range (secondary metering device)

Connect the pressure plastic tube (Ø6x1.5 mm) to the check valve with standard collet (knurled collet) and to the inlet fittings towards the lubrication point (knurled collet).

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NOTE

Special cases, such as applications for construction machines or agricultural machines, require the use of check valves and inlet fittings (towards the lube point) with reinforced collet also for the low-pressure range. Refer to Parts Catalog.

- The pressure plastic tubes are marked with white lines (Fig. 5) as an installation aid.

➲ Cut the pressure plastic tube off at one of the white lines before it is mounted. Then insert the pressure plastic tube into the fitting up to the next white mark.

This will ensure a correct installation of the pressure plastic tube in the tube fitting.

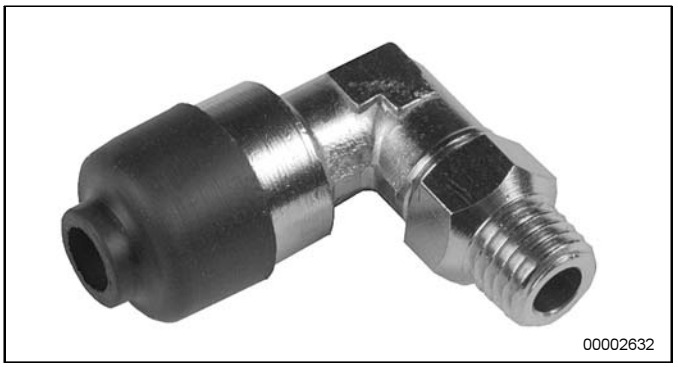

Fig. 6 Push-in type fitting with protective cap

Protective cap for push-in type fittings

Push-in type fittings, check valves and pressure relief valves can be closed with a protective cap in order to avoid contamination.

Designation	**Part No.**
Protective cap	432-24313-1

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Installation, continuation

Pressure Plastic Tubes and High-pressure Hoses

Pressure plastic tubes Ø6 x 1.5 mm

- Use the pressure plastic tubes only in the low-pressure area, i.e. between secondary metering device and lubrication point.


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NOTE

Adhere to the pressures and bending radiuses mentioned in the chapter "Technical Data" when installing the parts and operating the device.

High-pressure hose NW 4.1 x 2.3 mm

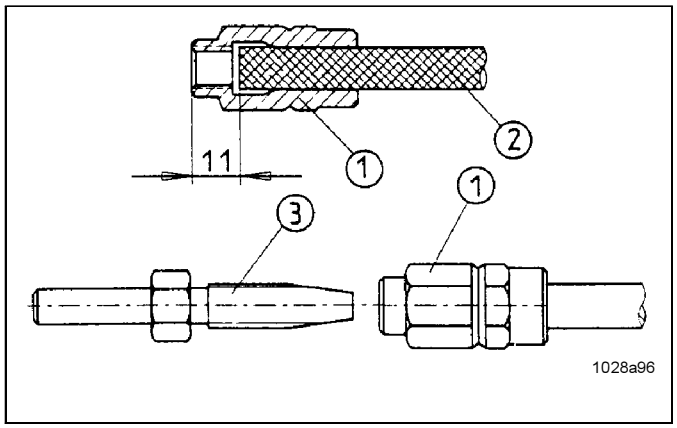

Fig. 7 Preassembly of threaded sleeves and hose studs on the high-pressure hose

1 - Threaded sleeve
2 - High-pressure hose NW 4.1 x 2.3 mm
3 - Hose stud

- Use the high-pressure hose in the high-pressure area, i.e. between the pump, main metering device and secondary metering devices.
- Adhere to the pressures and bending radiuses mentioned in the chapter "Technical Data" when installing the parts and operating the device.

Installing the threaded sleeves and hose studs on the high-pressure hose

➲ Screw threaded sleeve, item 1 Fig. 7, counterclockwise onto high-pressure plastic hose 2 until illustrated dimension of 11 mm is reached. Then screw hose stud 3 into threaded sleeve 1.


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IMPORTANT

Before screwing the parts 1, 2 (inside and outside) and 3, rub them with oil.

NOTE

The outside diameter of the high-pressure hose may show variations in dimension. In such a case, press the threaded sleeve 1 at the end where it will be screwed onto the high-pressure hose so that it becomes oval in shape (1 to 2 mm). This will prevent the high-pressure plastic hose from being pushed out of the sleeve when the hose stud is screwed.

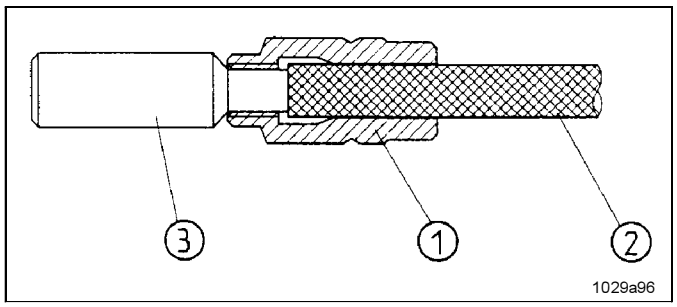

Fig. 8 Preassembly of threaded sleeve by means of adjusting gauge

1 - Threaded sleeve
2 - High-pressure hose NW 4.1 x 2.3 mm
3 - Adjusting gauge 432-23077-1


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NOTE

When using the special adjusting gauge 432-23007-1 (see Parts Catalog) screw threaded sleeve counterclockwise onto high-pressure plastic hose until the gauge inserted in the sleeve begins to rise.

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Description

Progressive Metering Devices Model SSV, SSV-E and SSV M

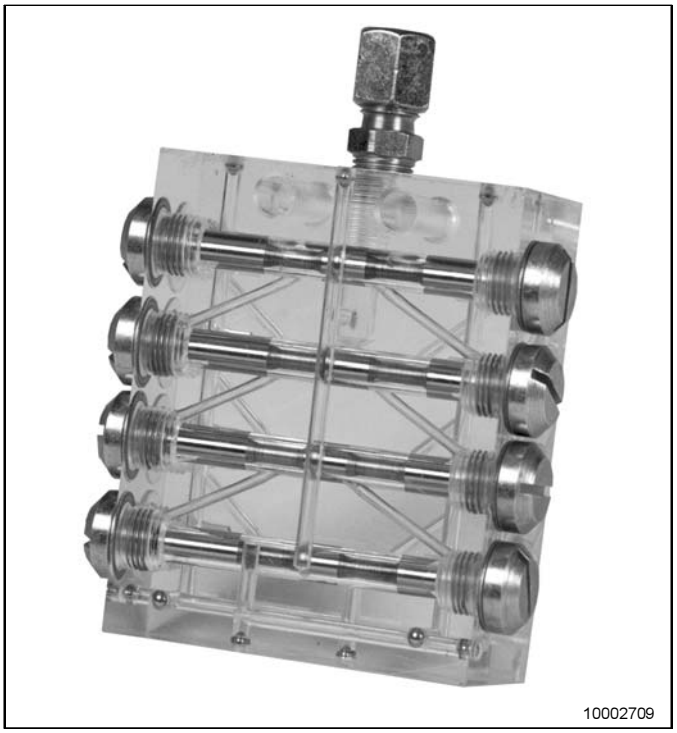

Fig. 9 Metering device type SSV 8

Progressive plunger metering devices - general

- The progressive metering devices
  - are piston-operated metering devices;
  - automatically (progressively) dispense the lubricant fed by the pump to the connected lubrication points;
  - **model SSV or SSV-E** have a **lubricant output of 0.2 ccm** per outlet and piston stroke;
  - **model SSV M** have a **lubricant output of 0.07 ccm** per outlet and piston stroke;
  - when one or more outlets are closed (see "Combining outlets") they can dispense a double or multiple lubricant quantity**;**
  - are available with 6 to 12 outlets or up to 22 outlets;
  - offer the option of combining several lubrication points into one centralized lubrication point.
  - meter the supplied lubricant into predetermined single quantities.
  - can be monitored visually (SSV, SSV-E and SSV M) or electronically (SSV and SSV-E).
  - in the SSV-E version include an emergency lubrication fitting.
- Any blockage in a lubrication circuit is indicated by grease leaking from the respective pressure relief valve.

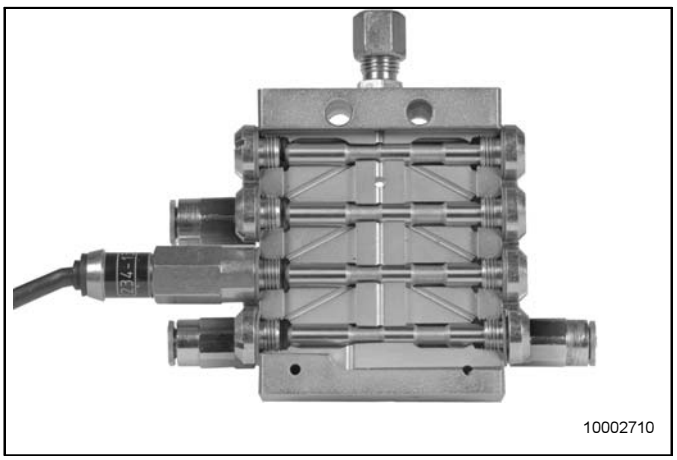

Fig. 10 SSV 8 with piston detector

Features of a Progressive Metering Device

- The term "progressive**" refers to the special features of the lubricant distribution within the metering devices, e.g.**
  - the successive movements of the individual pistons within the metering device due to the supplied lubricant being under pressure;
  - the pistons move in a predetermined order and the cycles are repeated constantly;
  - each piston must have completed its movement fully before the next piston can be moved, no matter whether the lubricant is dispensed continuously or intermittently;
  - the pistons operate interdependently of one another;
  - no lubrication point, which is connected to the system, is omitted.

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Description, continuation

Progressive Metering Devices Model SSV, SSV-E and SSV M, continuation

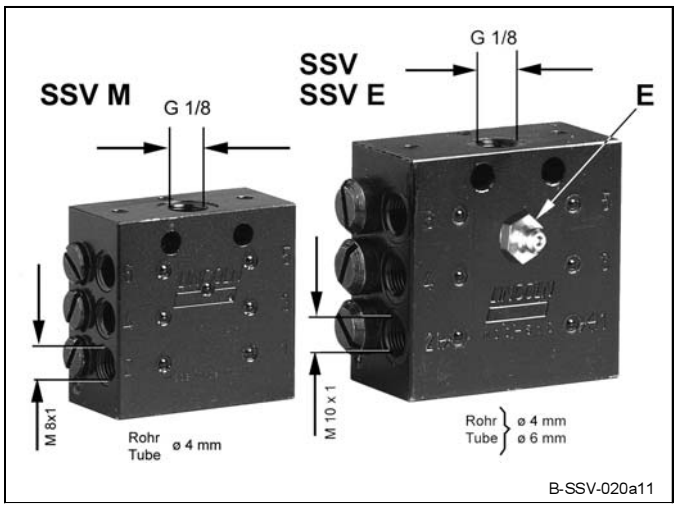

Fig. 11 Differences between SSV M and SSV/SSV-E
E - Emergency lubrication fitting

Different features of SSV, SSV-E and SSV M

- The SSV-E progressive metering device consists of an SSV progressive metering device and an emergency lubrication fitting E (fig. 11). Time for troubleshooting can be reduced significantly by using e. g. a hand-lever gun in combination with the emergency lubrication fitting.
- The SSV, SSV-E and SSV M progressive metering devices operate similarly. Apart from their outer dimensions they also differ in the following data:

SSV and SSV-E

Lubricant output per outlet and stroke 0.2ccm
Maximum operating pressure..... 350 bar
Minimum operating pressure..... 20 bar
Maximum differential pressure between 2 outlets ..... 100 bar
Outlet connection for tube ..... Ø 4 and 6 mm

SSV M

Lubricant output per outlet and stroke 0.07ccm
Maximum operating pressure..... 200 bar
Minimum operating pressure..... 20 bar
Maximum differential pressure between 2 outlets ..... 40 bar
Outlet connection for tube .....Ø 4 mm

Mode of Operation

Applications

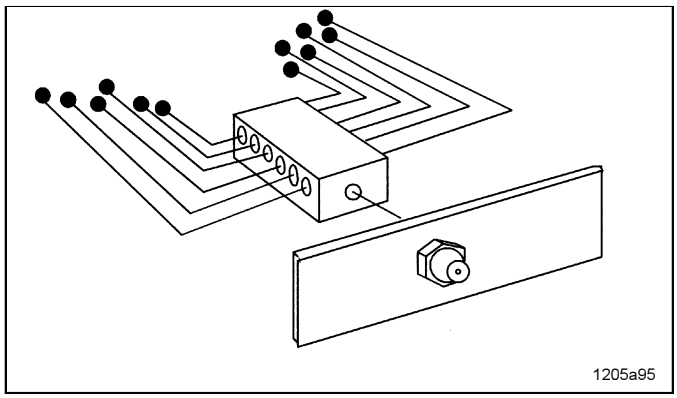

Fig. 12 Central lubrication point

- Quicklub progressive metering devices offer the option of combining several lubrication points on a machine to one or more central lubrication points, as shown in Fig. 12, which illustrates this basic feature.

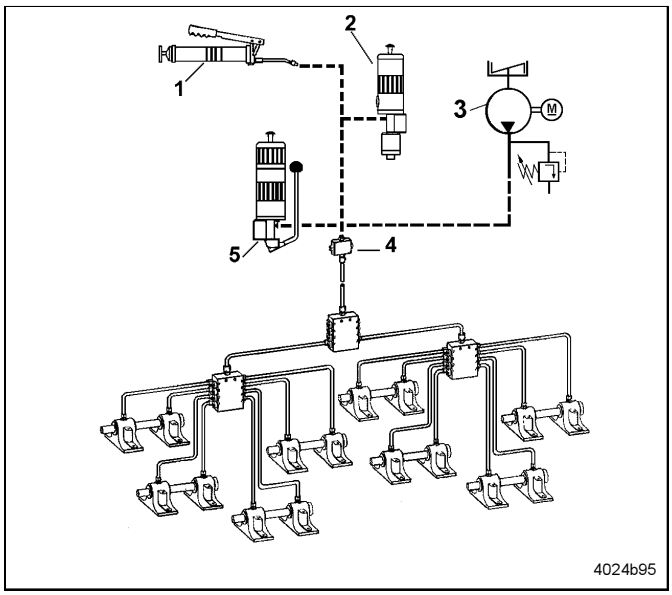

Fig. 13 Possible pump connections
1 - Hand-operated pump
2 - Pneumatically operated pump
3 - Electrically operated pump
4 - Lubrication fitting block
5 - Hand-operated filling pump

- When they are used in connection with hand-operated pumps, pneumatic or electric pumps the progressive metering devices are a simple and low-cost centralized lubrication system (see Fig. 13).

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Mode of Operation, continuation

Applications, continuation

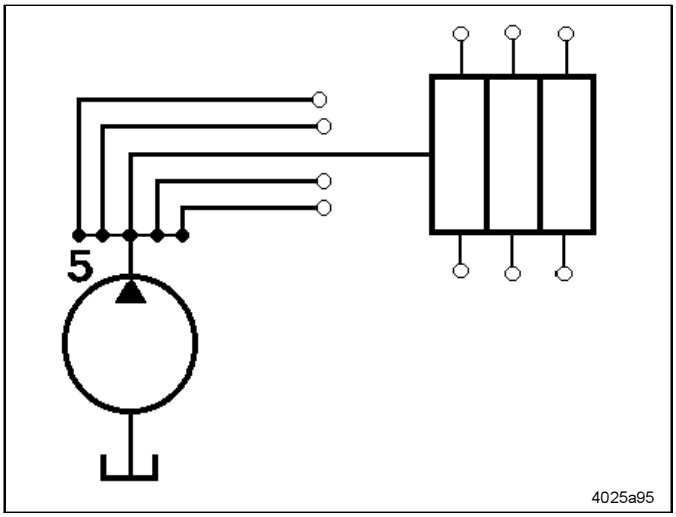

Fig. 14 Multiline pump expanded by a progressive metering device

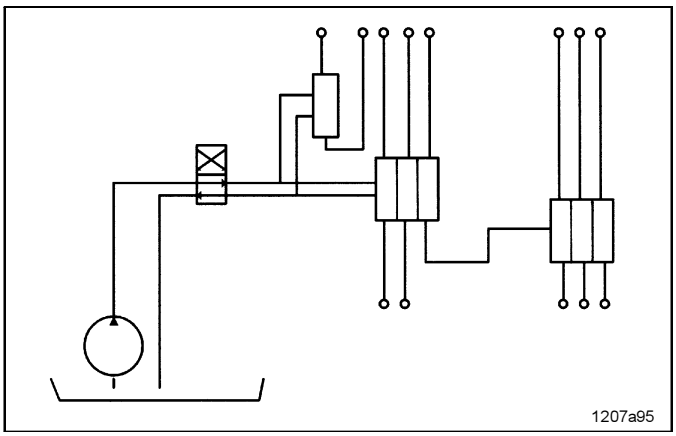

Fig. 15 Two-line system expanded by a progressive metering device

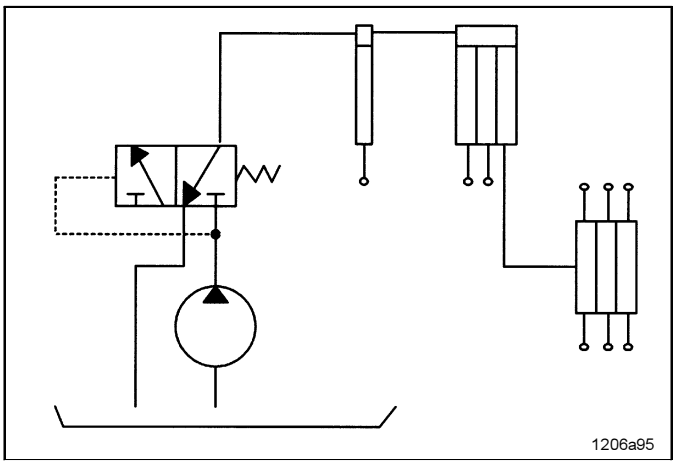

Fig. 16 Single-line system expanded by a progressive metering device

- Progressive metering devices can be used in two-line or single-line centralized lubrication systems in order to increase the number of outlets of multiline pumps or to subdivide the single metering devices and measuring valves (Fig. 12 to 16) also as secondary metering devices in large and small oil circulating systems.

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Mode of Operation, continuation

Lubricant distribution inside the metering device

The 5 following illustrations show the piston movements and the depending lubricant distribution to the individual outlets.

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NOTE

Illustrations fig. 17 to 21 show the sequence of delivery only of outlets 2, 7, 5, 3 and 1. Delivery of the residual outlets 8, 6 and 4 is derived from the logical pumping until the complete metering device cycle has finished. The functional principle of SSV is identical with SSV M metering devices.

When the lubricant supply is interrupted

- The pistons come to a halt;
- Lubricant is no longer dispensed to the lubrication point.

When the lubricant is supplied to the metering device again, the cycle begins from the point where it had been interrupted.

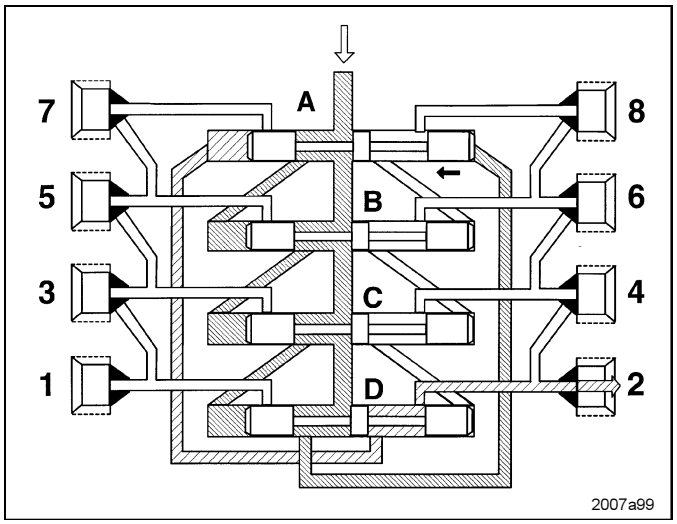
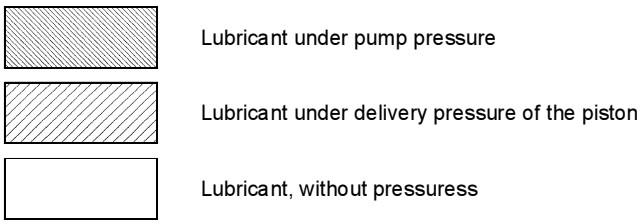


Fig. 17 Phase 1

Phase 1

- The lubricant enters the metering device from above (white arrow) and flows to the right-hand end of piston A.
- Piston A (black arrow) moves to the left under the pressure of the lubricant, causing the lubricant ahead of the left-hand end of piston A to be dispensed to outlet 2 (dashed arrow).



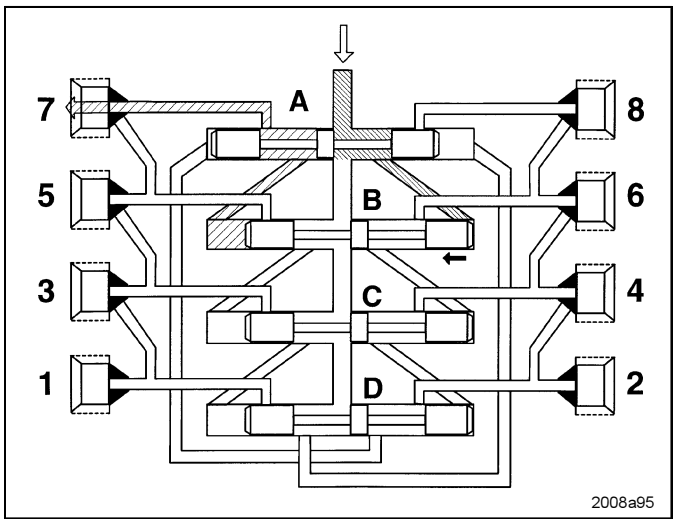
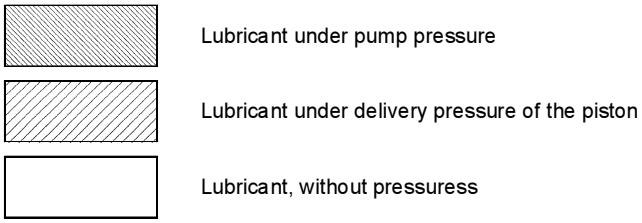


Fig. 18 Phase 2

Phase 2

- Once piston A has reached its left-hand final position, the junction channel to the right-hand end of piston B is opened.
- The lubricant, which arrives from above (white arrow), also moves piston B (black arrow) to the left and causes the lubricant quantity ahead of the left-hand end of piston B to be dispensed to outlet 7 (dashed arrow).



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Mode of Operation, continuation

Lubricant Distribution within the Metering Device, continuation

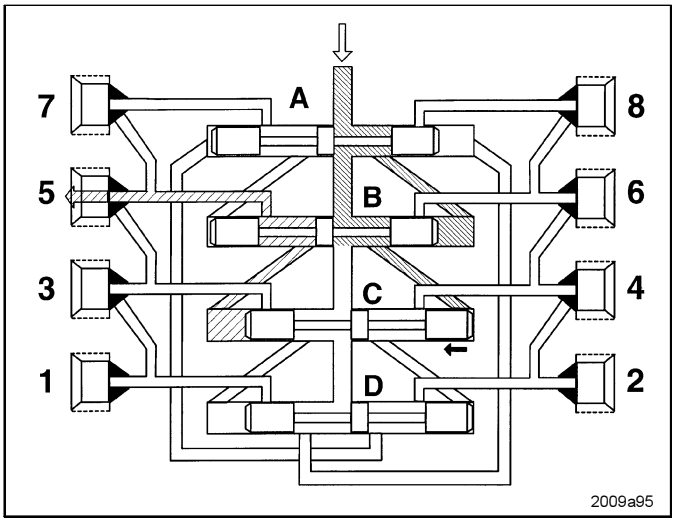
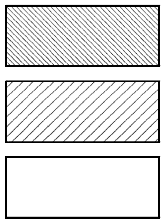


Fig. 19 Phase 3

Phase 3

- Once piston B has reached its left-hand final position, the junction channel to the right-hand end of piston C is opened.
- The lubricant, which flows from above (white arrow) moves piston C (black arrow) to the left, causing the lubricant quantity ahead of the left-hand end of piston C to be dispensed to outlet 5 (dashed arrow).



Lubricant under pump pressure

Lubricant under delivery pressure of the piston

Lubricant, pressureless

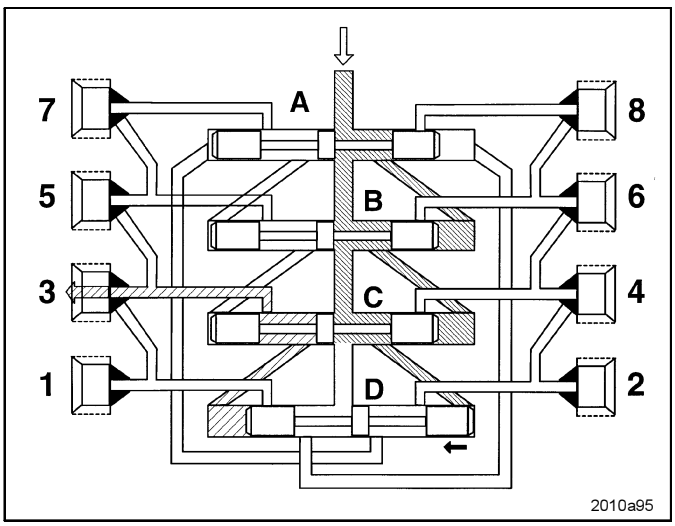
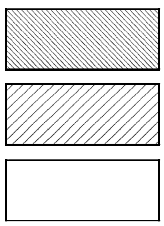


Fig. 20 Phase 4

Phase 4

- The channel of piston C to the right-hand end of piston D is now open (black arrow).
- The lubricant which is fed from above (white arrow) moves piston D to the left, causing the lubricant quantity ahead of the left-hand end of piston D to be dispensed out of the metering device via outlet 3 (dashed arrow).



Lubricant under pump pressure

Lubricant under delivery pressure of the piston

Lubricant, pressureless

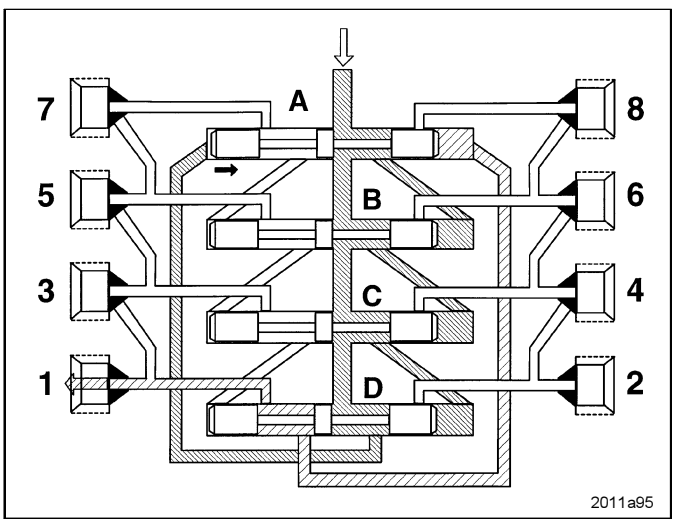
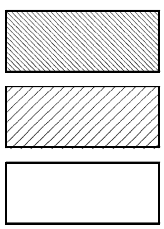


Fig. 21 Phase 5

Phase 5

- In phase 4, piston D had opened the junction channel to the left-hand end of piston A.
- The lubricant flowing in (white arrow) moves piston A to the right (black arrow), causing the lubricant quantity to be dispensed to outlet 1(dashed arrow).
- In the subsequent distribution sequence, pistons B - D are moved from the left to the right one after the other.
- A complete distribution sequence is finished and a new cycle can begin.



Lubricant under pump pressure

Lubricant under delivery pressure of the piston

Lubricant, pressureless

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Mode of Operation, continuation

Monitoring of the Operation

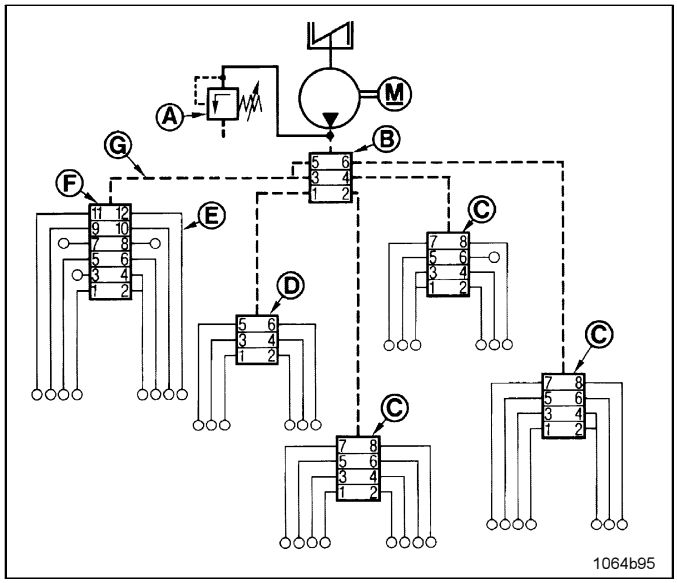

Fig. 22 Example of a lubrication system

System-dependent monitoring

- The main metering device B (fig. 22) and the secondary metering devices are connected by a high-pressure hose G. This feature automatically causes the linkage of the progressive system connected downstream of the pump.
- If only one piston does not move in any metering device or if the metering device can no longer dispense any lubricant via its outlets, this metering device will block itself.
- If one of the secondary metering devices is blocked, the main metering device is also blocked. The whole progressive system installed downstream of the pump stops operating.
- The fundamental internal structure of the progressive metering device guarantees the self-monitoring of the sequence within the metering device.
- The linkage makes it possible to monitor the operation of the whole system.

A - pressure relief valve
B - Main metering device SSV 6
C - Secondary metering device SSV 8
D - Secondary metering device SSV 6
E - Pressure plastic tube
F - Secondary metering device SSV 12
G - High pressure plastic hose

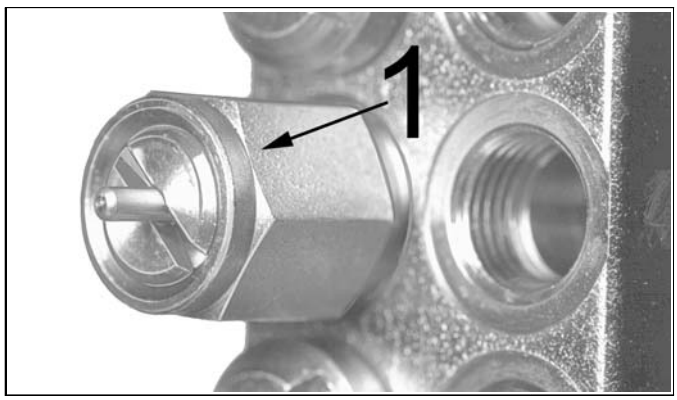

Fig. 23 Indicator pin installed on metering device 1011b96

Visual monitoring

- The metering devices can be equipped with an indicator pin which is connected to the piston and moves back and forth during lubricant distribution.
- If there is a blockage in the system, the indicator pin stops moving.

6001a02

NOTE

It is also possible to electrically check the movements of the indicator pin or any blockage in the system by means of a control switch (KS) or a proximity switch (KN).

Components of the control pin tube fitting

Closure plug M 11x1x5 MS, assy. (pos. 1) 519-32123-1

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Mode of Operation, continuation

Monitoring of the Operation, continuation

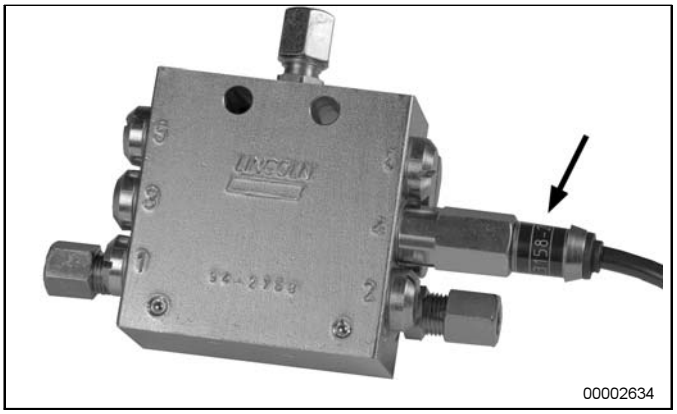

Fig. 24 Piston detector installed on the metering device

Electrical monitoring (microprocessor control)

- **A piston detector** (initiator), which has been installed on a metering device instead of a piston closure plug (M 11 x 1), monitors the pump **operating time** and brings it to a close after all the pistons of this metering device have dispensed their lubricant quantity.
- If there is a blockage in the system or if the pump reservoir is empty, the piston detector can no longer record the piston movements. The switching off signal is not transmitted to the control unit. A fault signal occurs.

6001a02

NOTE

*For the system monitoring it is recommended that **one SSV-N metering device with pre-assembled piston detector** be used per lubrication circuit. These special metering devices must be ordered separately for each lubrication system. Refer to the Parts Catalogue.*

- The pre-assembled metering devices have the designation **SSV ... - N** (they are available for SSV 6, 8, 10 and 12). They must be installed in the system instead of a normal metering device.
- Applications:

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Metering device ...- piston detector	Control unit / pump
SSV …-NE	M08-23 / P203 MF01,02 / P223 MDF01,02,03 / P233
SSV …-N SSV …-NP	**PLC external control unit**

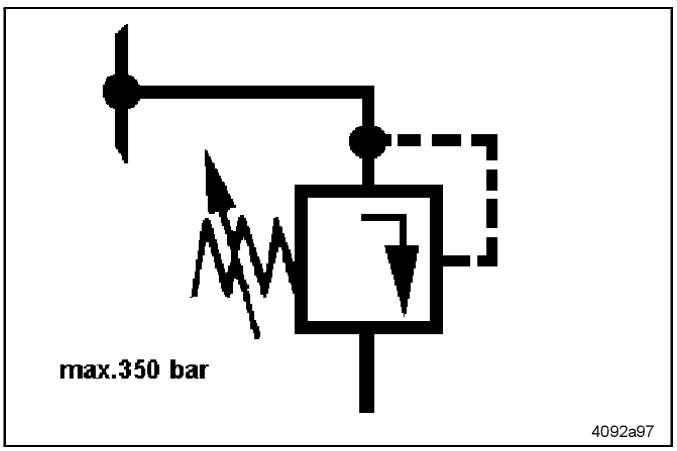

Fig. 25 Pressure relief valve

Pressure relief valve

- The whole system can be monitored visually via the pressure relief valve. If lubricant is leaking at the pressure relief valve during the distribution sequence, this indicates that there is a blockage in the system.

6001a02

IMPORTANT

*In the case of the progressive metering devices models SSV6 to 22 and SSV6-E to 22-E **outlets 1 and/or 2 must never be closed**, otherwise the system will block owing to the structure of the metering device.*

NOTE

Pressure relief valves to be ordered separately (see parts catalogue).

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Operation, continuation

Determining the Lubricant Output by Combining Outlets

Tube Fittings, Screw-Type

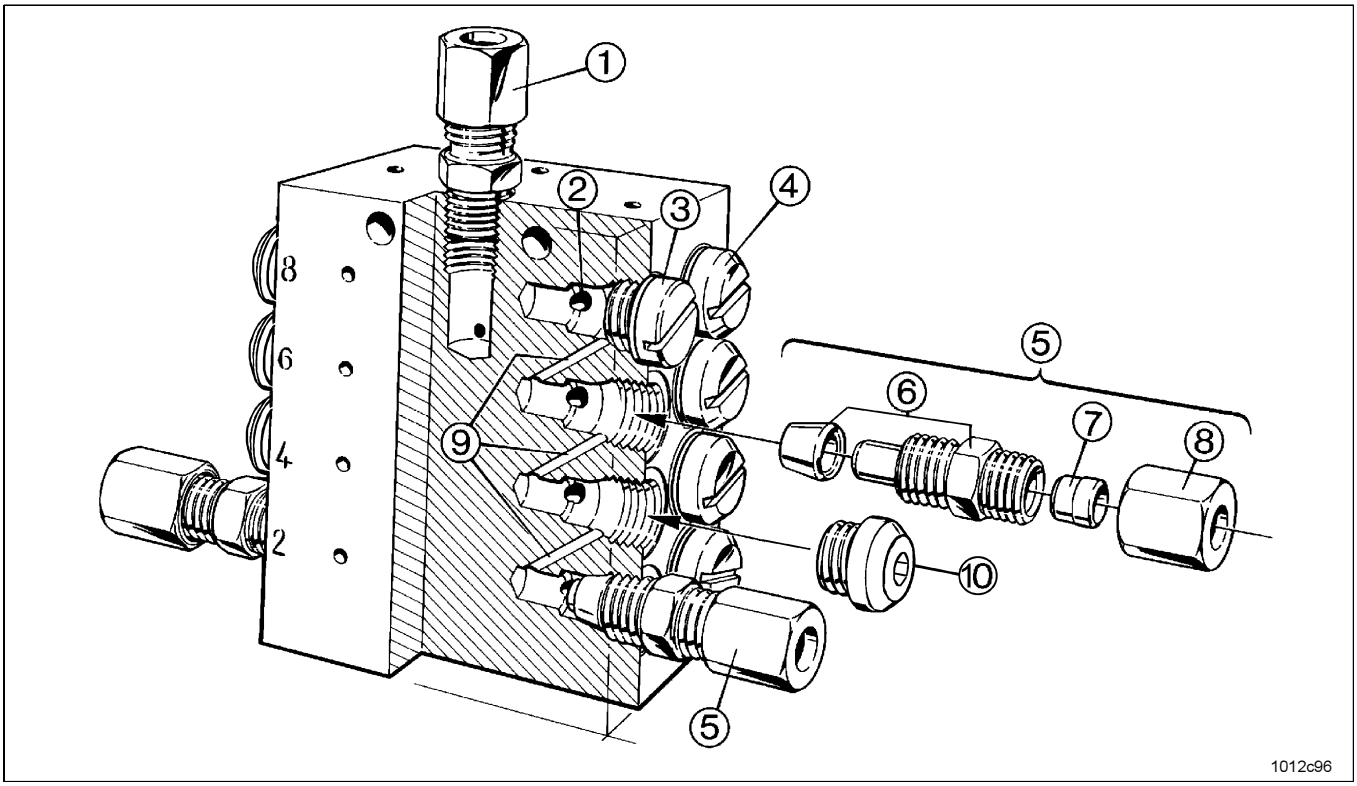

Fig. 26 Install the outlet fittings and closure plugs in accordance with the dosage

1 -	Inlet fitting	4 -	Closure plug (M 11 x 1), piston (with chamfered)	7 -	Cutting ring
2 -	Delivery hole of the piston	5 -	Outlet fitting assembly	8 -	Coupling nut
3 -	Closure plug (M 10x1) with with hex. socket head, installed	6 -	Valve body with clamping ring (brass)	9 -	Junction channel

- The output quantities can be raised by closing outlet boreholes.

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IMPORTANT

The structure of the progressive metering devices would be blocked if outlet 1 and/or 2 is closed (with SSV 6-22).

Never close outlet 1 and/or 2 !

- Install an outlet fitting assembly 5 (M 10x1) in each outlet borehole which will be used. Refer to Fig. 26, 27, 28.

- **Never remove closure plug 4** (M 11x1 chamfered) on the piston side or remove it only for installing a piston detector.

6001a02

NOTE

Never use closure plug 3 (M 10 x 1, Fig. 20, 21) as a piston closure plug 4 (G 1/8) on older models of metering devices.

- Clamping ring 6 closes the junction channels 9 to the other outlet channels.

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IMPORTANT

Always use valve body 6 in conjunction with clamping ring.

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Operation, continuation

Determining the Lubricant Output by Combining Outlets, continuation

Tube Fittings, Push-in-Type (main metering device)

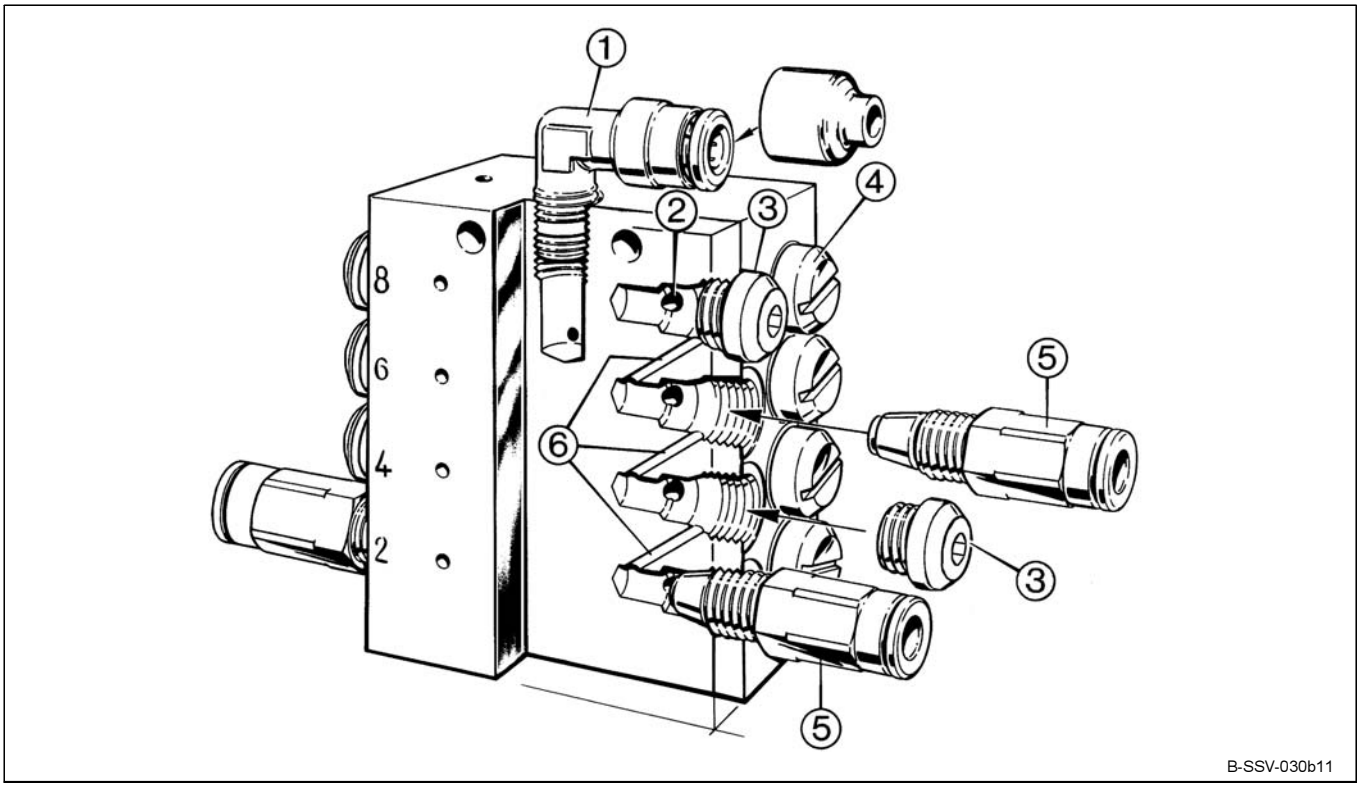

Fig. 27 Install the push-in type outlet fittings and the closure plugs in accordance with the dosage

1 -	Inlet fitting (optionally with protective cap [1)])	3 -	Closure plug (M 10x1) with with hex. socket head, installed	5 -	Valve body assembly (with reinforced collar)
2 -	Delivery borehole of the piston	4 -	Closure plug (M11x1), piston, (chamfered)	6 -	Junction channels

[1)] on demand


6001a02

NOTE

In the case of construction machines or agricultural machines use high-pressure hoses for the lubricant feed lines. In this case, secondary metering devices (see fig. 26) must also be equipped with check valves with reinforced collet (standard flange, see fig. 3).


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NOTE

In the case of push-in type fittings the clamping ring is always a firm component of the valve body 5.

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Operation, continuation

Determining the Lubricant Output by Combining Outlets, continuation

Tube Fittings, Push-in Type (secondary metering devices)

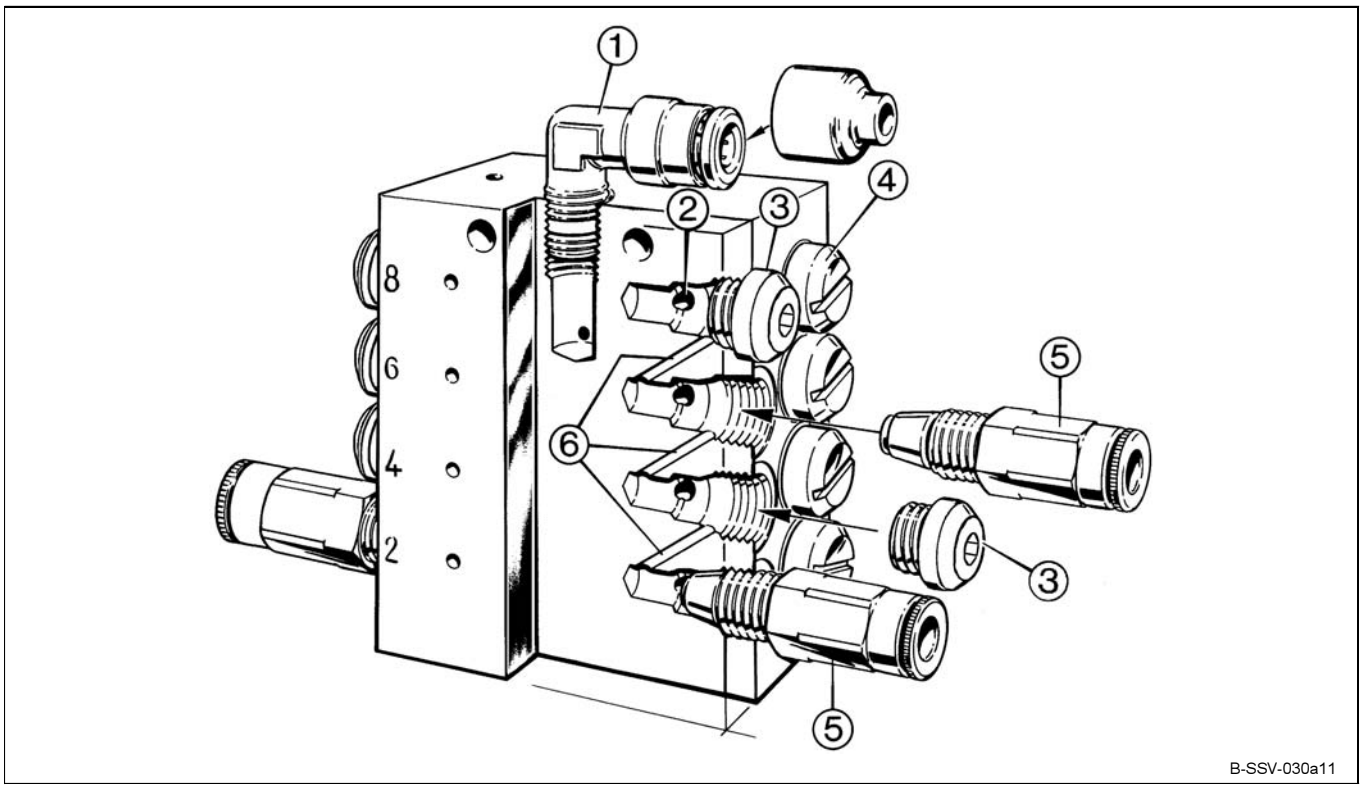

Fig. 28 Install the push-in type outlets fittings and closure plugs in accordance with the dosage

1 -	Inlet fitting	3 -	Closure plug (M 10x1) with hex. socket head, installed	5 -	Valve body assembly (with knurled collar)
2 -	Delivery borehole of the piston	4 -	Closure plug (M11x1), piston (chamfered)	6 -	Junction channels

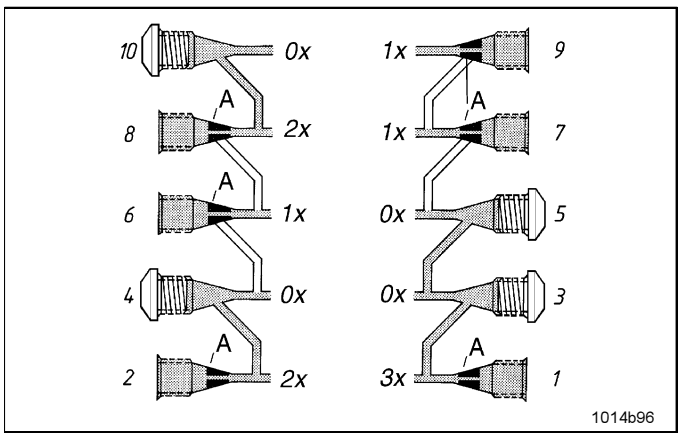

Fig. 29 Single, double and triple lubricant output

... x - Outlet quantity (1x: single, 2x: double, etc.)
1 .. 10 - Outlet numbers
A - Clamping ring (brass)

Single lubricant output

- The simple lubricant output is the lubricant quantity dispensed by a piston per stroke and per outlet borehole to one lubrication point. **It amounts to 0.2 cm³ on SSV and 0.07 cm³ on SSV M.**

Double or multiple lubricant output

- If one or more lubrication points require a double or a multiple lubricant amount, this can be performed by closing one or more outlets.
- As shown in fig. 29, outlet borehole 10 has been closed. The lubricant quantity supplied by this outlet flows out of the metering device via outlet 8.
- Total quantity at outlet 8:
  - is the quantity of outlet 8
  - plus the lubricant quantity of outlet 10.
- If a triple quantity is needed (at outlet 1), close the outlet borehole located above the discharge borehole. Refer to outlets 3 and 5 on fig. 29.

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Troubleshooting

Fault: Blockage in the downstream progressive system

Cause:

- Bearing, lines or metering device clogged.
- In the case of the metering devices SSV 6 to 22 and SSV6-E to 22-E the outlet boreholes 1 and/or 2 are closed.

The fault can be identified by:

a) grease leaking at the pressure relief valve;
b) the fact that the indicator pins installed on the metering devices (if any) no longer move;
c) the fault signal of the signal lamp (if any) or LED display

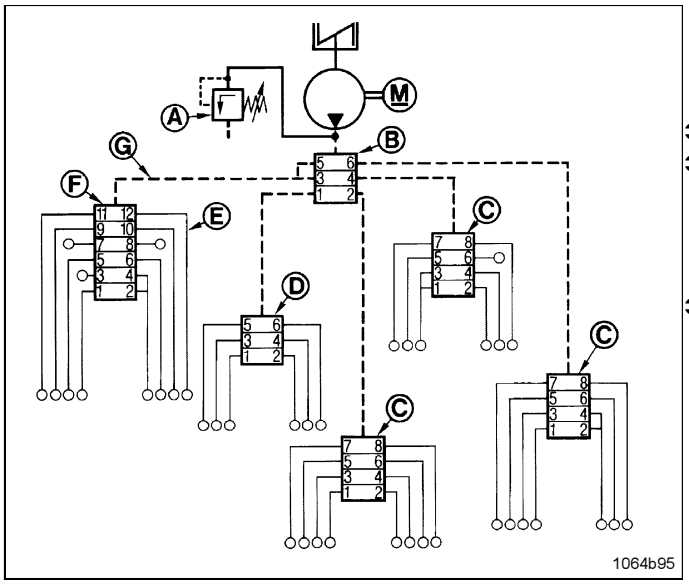

Fig. 30 Example of a lubrication system

A - pressure relief valve
B - Main metering device
C - Secondary metering device SSV 8
D - Secondary metering device SSV 6
E - Pressure plastic tubes
F - Secondary metering device SSV 12
G - High-pressure plastic hose

Correction:

➲ Find out which is the cause of the blockage and rectify it in accordance with he following example:

➲ Allow pump to run (see ”To trigger an additional lubrication cycle”).

➲ Loosen all high pressure hose connections G one after the other from the main metering device B (fig. 30) leading to the secondary metering devices. If f. ex. grease or oil emerges under pressure from outlet 1 of main metering device B, the blockage will be found in the lubrication circuit of the secondary metering device D.


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NOTE

If there is a blockage in the downstream system, the main lines are under pressure. In such a case, it is difficult to detach the push-in type connecting parts of the main line. Relieve the system by removing the closure plug on the push-in type pressure relief valve or, if any, by removing the filling nipple.

➲ Let the pump run.

➲ Disconnect all lubricant feed lines E from secondary metering device D one after the other. If f. ex. grease or oil emerges under pressure from outlet 3 of metering device D, the blockage will be found in the line of outlet 3 or in the connected bearing.

➲ Pump the blocked bearing or line through by means of a manual pump.


6001a02

NOTE

When checking the individual outlets, keep each outlet loosened for quite a while because per each motor revolution there is only one piston stroke. A complete cycle of all metering devices requires several strokes.

➲ Check pressure relief valve A. Replace it, if necessary.

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Troubleshooting, continuation

Fault: Blockage in the downstream progressive system, continuation	
Cause:	**Correction:**
· Metering device blocked	➲ Replace the metering device or clean it in accordance with the following procedure: ➲ Remove all tube fittings. ➲ Unscrew the piston closure plugs. ➲ If possible, try to eject the piston using a smooth drift (Ø smaller than 6 mm).  6001a02 **IMPORTANT** *The pistons are precision-fitted into the holes. Mark the pistons with regard to their installation position and direction after they have been removed. They must not be exchanged.* ➲ Thoroughly clean the metering device bodies in fat-dissolving washing agent, blow them through with compressed air. ➲ Press free the slant ducts (Ø 1.5 mm) at the thread ends of the piston holes using a pin. ➲ Clean the metering devices again and blow them through. ➲ Reassemble the metering devices. ➲ Replace the copper washers. ➲ Before the tube fittings are reassembled, the metering devices should be pumped with oil several cycles by means of a manual pump. Check that the pressure in the metering device does not exceed 25 bar (362.8 psi). ➲ If the pressure is higher, replace the metering device.
Fault: Differing lubricant amounts at the lubrication points	
Cause:	**Correction:**
· Lubricant metering not correct	➲ Check the lubricant metering acc. to the lubrication chart
· Respective valve body has been assembled without clamping ring	➲ Remove the valve body and install a clamping ring.
· Setting of the pause time or lubricating time incorrect	➲ Check the time setting. Refer to the corresponding setting in the respective “Operating Instructions”.
Fault: Over- or underlubrication of the lubrication points	
Cause:	**Correction:**
· Setting of the lubricating time or pause time incorrect	➲ Check the time setting at the printed circuit boards. Refer to the corresponding setting in the respective “Operating Instructions”.

Tab. 1 Troubleshooting, continuation

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Technical Data

Metering Devices

Metering Device Model SSV and SSV-E

Lubricant output per outlet and per stroke	0.2 ccm
Max. operating pressure	350 bar
Min. operating pressure	20 bar
Max.differential pressure between two outlets	100 bar
Outlet connection for tube	Ø 4 and 6mm
Inlet connection	G 1/8
Outlet connection	M 10x1
Operating temperature	– 40 °C to +200 °C

Metering Device Model SSV M

Lubricant output per outlet and per stroke	0.07 ccm
Max. operating pressure	200 bar
Min. operating pressure	20 bar
Max.differential pressure between two outlets	40 bar
Outlet connection for tube	Ø 4mm
Inlet connection	G 1/8
Outlet connection	M 8x1
Operating temperature	– 25 °C to +70 °C

Lines

High-pressure hose (∅ 4.1 x 2.3 mm)

Min. bursting pressure (in connection with hose clamp, screwed)	600 bar
Min. bending radius	35 mm
Min. temperature	– 40 °C
Max. temperature	+ 60 °C

Pressure plastic hose (∅ 6 x 1.5 mm)

Min. bending radius	50 mm
Bursting pressure at 20° C	approx. 210 bar
Min. temperature	– 40 °C
Max. temperature	+ 60 °C

Screw-Type and Push-in Type Tube Fittings

High pressure range, p max.	350 bar
Inlet tube fittings of the metering devices	
Outlet fittings, main metering device	
Low-pressure range, p max.	250 bar
Outlet fittings, secondary metering devices	
Inlet fittings to the lubrication point	

Tightening torques

Metering Device Model SSV and SSV-E

Closure plug (piston) in metering device	18 Nm
Closure plug (outlets) in metering device	15 Nm
Inlet fitting in metering device	
- screw-type	17 Nm
- plug-type	10 Nm
Outlet fitting in metering device	
- screw-type	11 Nm
- plug-type	11 Nm
Compression nut onto outlet fitting, screw-type	
- plastic tube	10 Nm
- steel tube	11 Nm
Control pin tube fitting in metering device	18 Nm
Piston detecteur (N) in metering device	15 Nm
Proximity switch (KN) on metering device	18 Nm
Install metering device	
- dry	10 Nm
- oiled	7,5 Nm

Metering Device Model SSV M

Closure plug (piston) in metering device	6 Nm
Closure plug (outlets) in metering device	6 Nm
Inlet fitting in metering device	
- screw-type	17 Nm
- plug-type	10 Nm
Outlet fitting in metering device	
- screw-type	10 Nm
- plug-type	8 Nm
Compression nut onto outlet fitting, screw-type	
- plastic tube	5 Nm
- steel tube	10 Nm
Control pin in metering device	10 Nm
Install metering device	
- dry	6 Nm
- oiled	4,5 Nm

Metering device type SSV M flange

Install metering device	6 Nm

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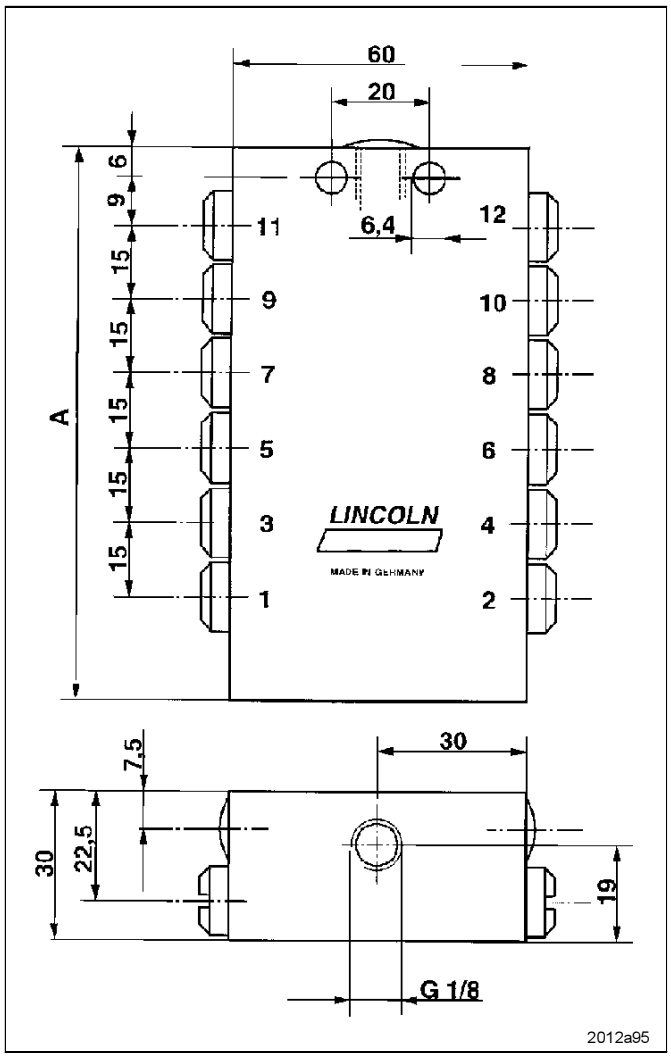
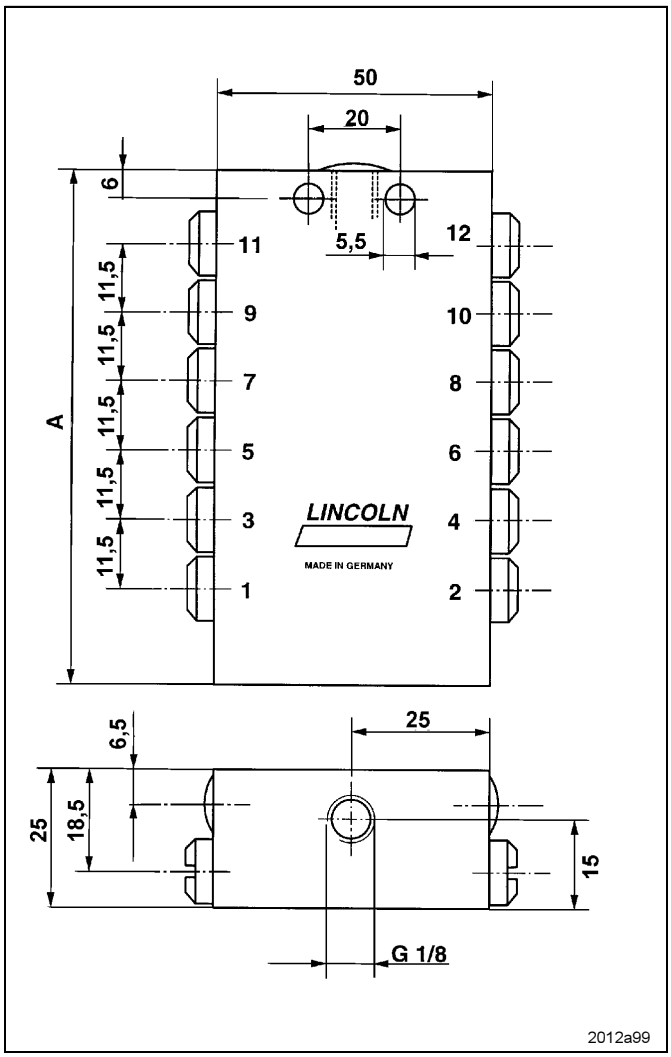
Technical Data, continuation

Dimensions

Metering Devices Model SSV6 to 22 & SSV6-E to 22-E



Metering Devices Model SSV M 6 to SSV M 12



Model SSV & SSV-E	Dimensions A in mm
6	60
8	75
10	90
12	105
14	120
16	135
18	150
20	165
22	180

Model SSV M	Dimensions A in mm
6	48,5
8	60
10	71,5
12	83

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Original Language

D	GB	F	E	I
EG- Einbauerklärung	**EC Declaration of incorporation**	**Déclaration CE d'incorporation**	**Declaración CE de incorporación**	**Dichiarazione CE di incorporazione**
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*

Metering Devices SSV / SSV-E / SSV M

in der von uns gelieferten Ausführung zum Einbau in eine Maschine bestimmt ist und dass ihre Inbetriebnahme solange untersagt ist, bis festgestellt wurde, dass die Maschine, in die das o. g. Produkt eingebaut werden soll, den Bestimmungen aller einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen entspricht, einschließlich deren zum Zeitpunkt der Erklärung geltenden Änderungen. Der Hersteller verpflichtet sich, technische Dokumente (gem. Anhang VII Teil B) bei begründeter Anfrage zum o. g. Produkt einzelstaatlichen Stellen in gedruckter Form zur Verfügung zu stellen.	*in the supplied version is intended to be incorporated into machinery and must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the relevant fundamental requirements on health and safety, including all modifications of this directive valid at the time of the declaration. The manufacturer undertakes to make available any technical documents in printed version (following Annex VII Part B) to subnational authorities in the case of reasonable request regarding the above mentioned product.*	*dans la version dans laquelle nous le livrons, est destiné à être installé sur une machine et que sa mise en service est interdite tant qu'il n'aura pas été constaté que la machine sur laquelle le produit mentionné ci-dessus doit être installé 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. Le fabricant s'engage, en cas de demande justifiée, à fournir sous forme écrite aux organismes nationaux respectifs les documents techniques (suivant Annexe VII, Partie B) relatifs au produit ci-dessus.*	*en la versión suministrada es destinada a ser incorporada en una máquina y que su puesta en servicio está prohibida antes de que la máquina en la que vaya a ser incorporada haya sido declarada conforme a las disposiciones de los requisitos pertinentes y fundamentales de salud y seguridad en su redacción vigente en el momento de instalación. El fabricante se obliga a hacer disponible documentos técnicos (según anexo VII parte B) en versión imprimida a entes uniestatales a petición fundada referente al producto arriba mencionado.*	*nella versione da noi fornita è destinato all'installazione in una macchina e che la relativa messa in esercizio resta vietata fino all'avvenuto accertamento della conformità della macchina nella quale il suddetto prodotto deve essere installato con tutti i requisiti basilari prescritti in termini di sicurezza e di salute, incluse le relative modifiche vigenti al momento della dichiarazione. Il costruttore si impegna a mettere a disposizione la documentazione tecnica (ai sensi dell'Allegato VII partel B) in forma scritta relativa al summenzionato prodotto dietro richiesta motivata presso le singole sedi nazionali.*
Angewendete harmonisierte Normen, insbesondere:	*Applied harmonized standards in particular:*	*Normes harmonisées, notamment :*	*Normas armonizadas utilizadas, particularmente:*	*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*
Pumpen und Pumpengeräte für Flüssigkeiten	**Pumps and pump units for liquids**	**DIN EN 809 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*
EMV-Richtlinien 2009/19/EG	**EMC directives 2009/19/EC**	**Réglementations CEM 2009/19/CE**	**Directivas CEM 2009/19/CE**	**Direttive EMC 2009/19/CE**
Kraftfahrzeug	*Automotive*	*véhicules automobile*	*vehículo*	*autoveicolo*
2004/108/EG	**2004/108/EC**	**2004/108/CE**	**2004/108/CE**	**2004/108/CE**
		DIN EN 61000-…		
Fachgrundnormen: - Störaussendung	*Generic emission standards: - Emitted interference*	*Normes fondamentales : - Emission de parasites*	*Normas especiales fundam.: - Emisión de interferencias*	*Norme specifiche fondam.: - Emissione di interferenze*
… Teil 6-4 [a]	**… Part 6-4** [a]	**… Partie 6-4** [a]	**… Parte 6-4** [a]	**… Parte 6-4** [a]
… Teil 6-3 [b]	**… Part 6-3** [b]	**… Partie 6-3** [b]	**… Parte 6-3** [b]	**… Parte 6-3** [b]
- Störfestigkeit	*- Noise immunity*	*- Résistance aux brouillages*	*- Resistencia a interferencias*	*- Resistenza alle interferenze*
… Teil 6-2 [a]	**… Part 6-2** [a]	**… Partie 6-2** [a]	**… Parte 6-2** [a]	**… Parte 6-2** [a]
… Teil 6-1 [b]	**… Part 6-1** [b]	**… Partie 6-1** [b]	**… Parte 6-1** [b]	**… Parte 6-1** [b]
[a] für Industriebereiche	[a] for industrial environment	[a] pour domaine industriel	[a] para áreas industriales	[a] per settore industriale
[b] für Wohnbereich, Geschäfts- und Gewerbebereiche sowie Kleinbetriebe	[b] for residential, commercial and light industry	[b] pour domaines de l'habitation, des magasins et de l'artisanat ainsi que des petites entreprises	[b] para áreas resi denciales, comerciales e industriales tanto como pequeñas empresas	[b] per il settore residenziale, commerciale, industriale e per le piccole imprese
Dokumentations-bevollmächtigter	**Documentation agent**	**Responsable du Service de documentation**	**Encargado/a de la documentación**	**Responsabile della documentazione**

Wolfgang Studer • Heinrich-Hertz-Str. 2-8 • 69190 Walldorf

Walldorf, Nov 30, 2009, ppa. Dr.-Ing. Z. Paluncic
Director Research & Development

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Subject to modifications

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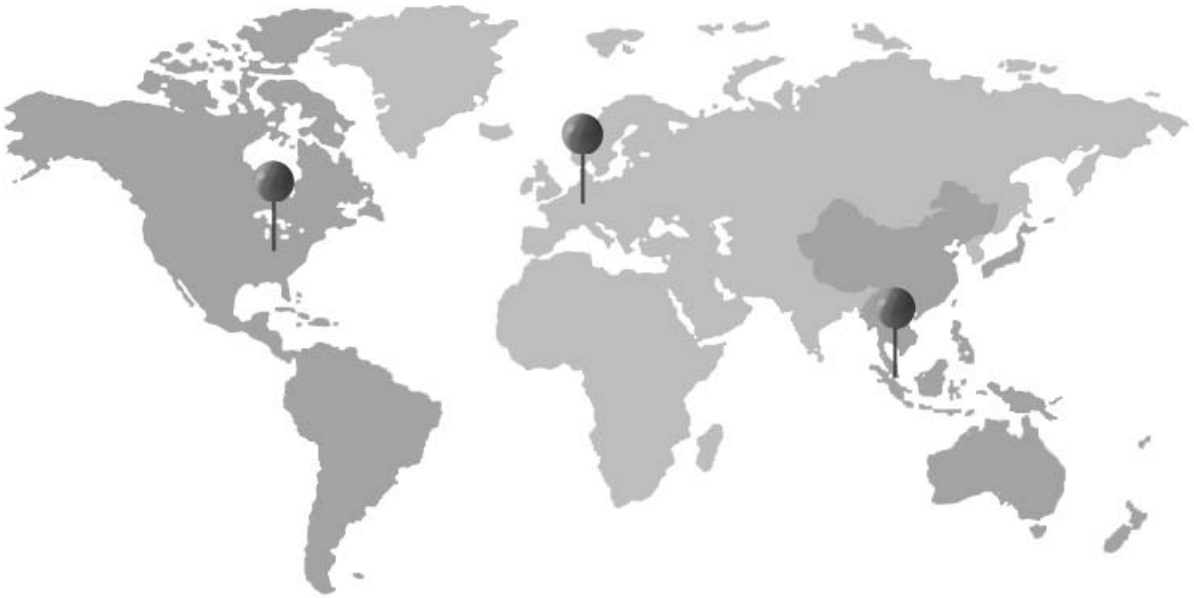

Whatever service is required – selecting a lubricating system, customised system installation or the supply of top quality products – you will always be best advised by the staff of the Lincoln offices, representatives and contract dealers.

Systems dealers

Our systems dealers have the most extensive specialised knowledge in our industry. They plan your installations to suit your specifications with exactly the combination of Lincoln components that you need. They then build the installations at your operation with experienced technicians or work closely with your personnel to ensure that everything goes smoothly.
All dealers have the complete range of pumps, distributers, monitoring devices and accessories in stock and meet our exacting demands with their specialised knowledge about products, installations and service. Whenever and wherever you need our experts, from St. Louis to Singapore, Walldorf and worldwide, Lincoln's first-class systems dealers are at your service.

Find out where the nearest Lincoln distribution and service office to you is located:

Americas	**Lincoln Industrial**	One Lincoln Way St. Louis, MO 63120-1578 USA	Phone: (+1) 314 679 4200 Fax: (+1) 800 424 5359 Home: www.lincolnindustrial.com
Europe Middle East Africa India	**Lincoln GmbH**	Heinrich-Hertz Straße 2-8 69190 Walldorf Germany	Phone: (+49) 6227 33-0 Fax: (+49) 6227 33-259 E-Mail: lincoln@lincolnindustrial.de Home: www.lincolnindustrial.de
Asia Pacific	**Lincoln Industrial Corporation**	3 Tampines Central 1 # 04-05 Abacus Plaza Singapore 529540	Phone: (+65) 6588-0188 Fax: (+65) 6588-3438 E-Mail: sales@lincolnindustrial.com.sg

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