

**Quicklub®**  
**Printed-Circuit Board**  
**236-13870-3 (Microprocessor M00-M15)**



10041327

This User Manual was compiled on behalf of the manufacturer

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### For further information refer to:

- Technical Description Progressive Metering Devices for Grease and Oil, model SSV, SSVM and SSVD
- Planning and Layout of Quicklub Progressive Systems with SSV and SSV D Metering Devices
- Technical Description for "Electronic Control Units" of pump 203:
  - Control p.c.b. 236-13857-1 - Model H
  - Control p.c.b. 236-10697-1 - Model V10-V13
  - Control p.c.b. 236-13870-3 - Model M16-M23
  - External Control Unit 236-13894-1
- Installation Instructions
- Parts Catalogue
- Parts Catalogue Pump 203
- Technical Description P203 DC
- Technical Description P203 AC
- Technical Description P203 with 15 L reservoir
- Technical Description P203 with Follower Plate
- Lubricants

Printed Circuit Board M00-M15 <sup>1)</sup>

2.6EN-28003-E12

<sup>1)</sup> This designation shows the version of the PCB installed in the pump. It forms part of the pump designation on the nameplate on each pump (see Tab. "Combination of the jumper positions").

Signal Output	Intermittent flashing signal
Industrial applications	<ul style="list-style-type: none"><li>Supply voltage ( + and – ) plus machine contact</li><li>only machine contact</li></ul>
Applications on commercial vehicles	<ul style="list-style-type: none"><li>Battery voltage (terminals 30 and 31) plus driving switch (terminal 15)</li><li>only driving switch (terminal 15)</li></ul>

Power supply

Control p.c.b. M00-M15

- Irrespective of jumper 15/30, the control p.c.b. must be connected to the supply voltage 12 / 24 VDC (+ terminal 30 and – terminal 31; see connection diagrams).

Control p.c.b. M00-M07

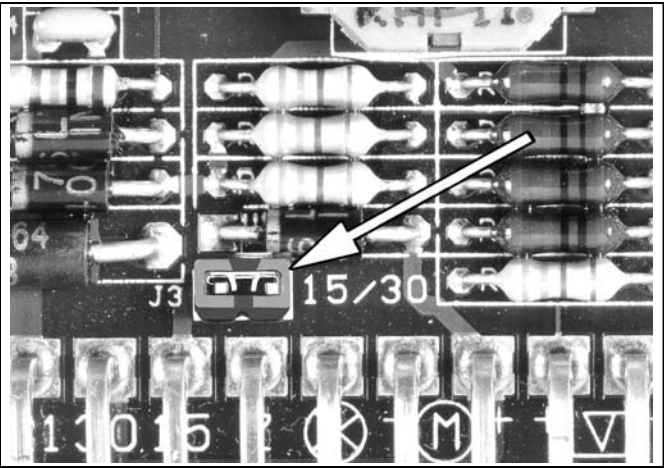
- When the jumper is plugged on 30/15 the connections 15 and 30 are connected within the control p.c.b. (see connection diagrams).



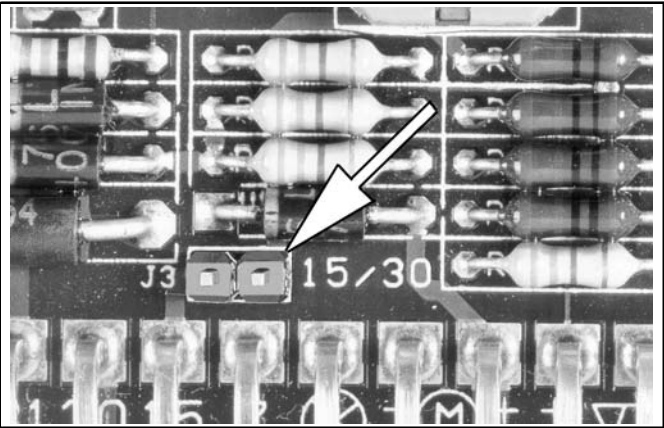
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IMPORTANT

*Jumper 15/30 is not part of the new control p.c.b. 236-13870-3. To bridge terminals 15/30, use the jumper of the replaced control p.c.b. or order it separately (part no. 236-13898-1).*



PCBs Control p.c.b. M00-M07 with Jumper 15/30 00002433a



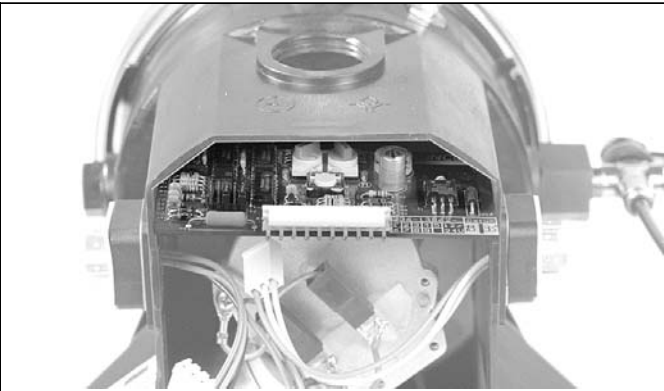
PCBs Control p.c.b. M08-M15 without Jumper 15/30 00002613a

Control p.c.b. M08-M15

- In dependency of the operating hours, the machine contact or driving switch (contact 15, see connection diagrams) can be used for additional activation of machines, vehicles, auxiliary units or drives, etc.

Installation position of the control p.c.b.

- The **printed circuit board** is integrated in the pump housing.



PCB 1 Control p.c.b. inside the housing 00002616

## Commissioning

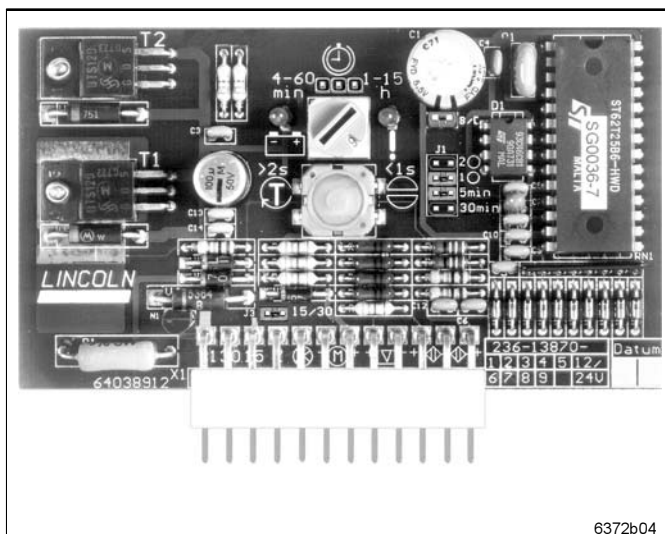
Depending on its application, the pump is ready to operate, either:

- as soon as the machine contact is switched on (after the voltage supply is applied)  
The machine contact (MC) is to control the further functioning and its adaptation to the requirements of the lubrication points. If no machine contact is available, the black and the red line must be connected externally (see broken line "Connection Diagrams VAC & VDC"). The functional sequence is then controlled by the power supply.

or

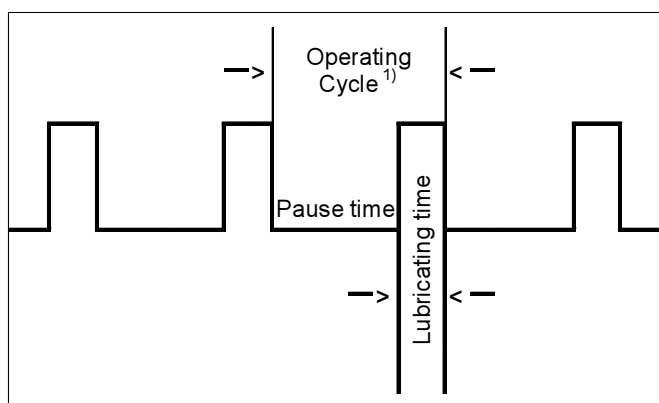
- as soon as the driving switch is switched on (after the voltage supply is applied) and as soon as the trailer/semitrailer begins to move

## Mode of Operation



PCB 2 Printed circuit board 236-13870-3

- The printed circuit board automatically controls the sequence of the pause and lubricating times of the central lubrication pump.
- The sequence of the pause and lubricating times is activated when the power supply is switched on:
  - via machine contact ..... industrial application
  - via driving switch ..... mobile application

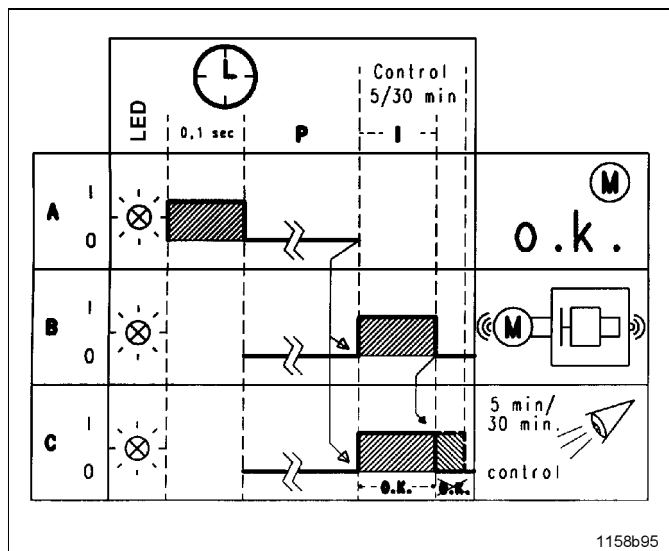


PCB 3 Time sequence diagram

<sup>1)</sup> Operating cycle = Pause time + Lubricating time

- A operating cycle consists of one pause time and one lubricating time. Once the pause time has elapsed, the lubricating time starts to run. This operating cycle is repeated permanently after the machine or the vehicle has been put into operation.
- During the lubricating time, the pump element dispenses the lubricant to the lubrication points via downstream progressive metering devices.

## Pause time

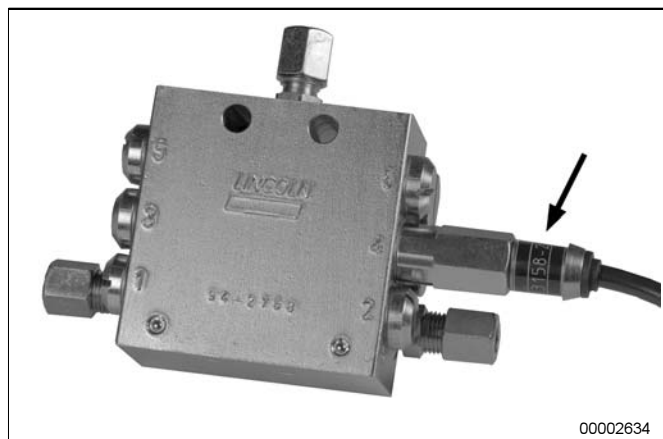


PCB 4 Sequence of a operating cycle

- A - Monitoring of the motor and signal lamp
- B - Sequence of the lubricating time
- C - Sequence of the monitoring time
- I - Lubricating time
- P - Pause time

- The pause time
  - determines the frequency of the operating cycles within a working cycle
  - is started and stopped via the machine contact or driving switch
  - is adjustable
- All operating modes are added up and saved in an electronic memory (EEPROM) to avoid the loss of data after disconnection or power failure.
- Pause times are added up until the preset value on the blue rotary switch is reached.
- When disconnecting the machine contact or switching off the ignition switch the lapsing pause time stops. After reconnection the pause time will continue to lapse from where it had been interrupted.
- If the setting is modified within the pause time, the printed circuit board takes over the new value only at the end of the lubricating time.
- The pause time setting may be different for each application. It must be adjusted in accordance with the respective operating cycles. Also refer to "To set the pause time".

## Lubricating time



PCB 5 Piston detector mounted at the metering device

- A piston detector (initiator) which has been installed on a metering device instead of a piston closure plug monitors and brings the pump lubricating time to a close after all the pistons of this metering device have dispensed their lubricant quantity.
- The lubricating time depends on the system's lubricant requirement and the location of the piston detector (installed either on the main metering device or on the secondary metering device).



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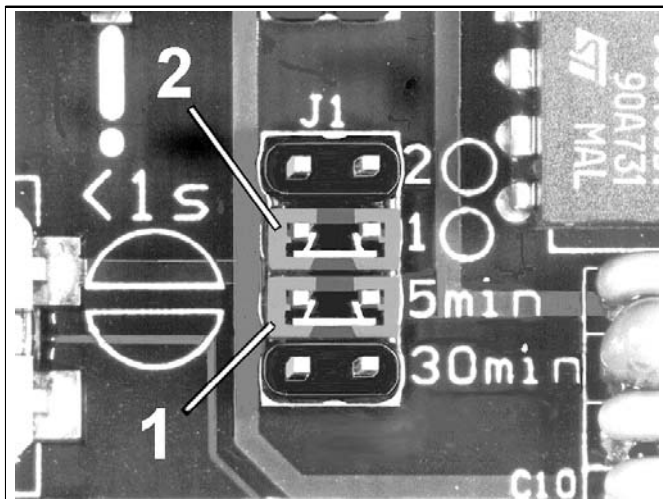
### NOTE

*If two operating cycles are monitored, the lubricating time ends after the two piston detectors have transmitted their signal to the printed circuit board.*

- During the lubricating time, the signal lamp is **permanently** lit.
- M00-M07:
- When disconnecting the machine contact or switching off the ignition switch the lapsing lubricating time stops. After reconnection the lubricating time will continue to lapse from where it had been interrupted.
- M08-M15:
- When switching the machine contact or the ignition switch off, the preset lubricating time will still be completed. After reconnection the pause time will start to lapse.



## Monitoring time



PCB 6 Monitoring ranges, jumper positions

20002459a

- 1 - Jumper for monitoring time  
5 min (5 minutes) or 30 min (30 minutes)
- 2 - Jumper for monitored lubrication circuits  
1O (1 circuit) or 2O (2 circuits)

- A fixed monitoring time of max. 5 or 30 minutes (depending on the jumper position) runs in parallel to the lubricating time.



### NOTE

*Normally, the monitoring time ends at the same time as the lubricating time.*

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- If the **lubricating time exceeds 5 minutes**, the **monitoring time** can be changed from 5 to 30 minutes by **replugging the jumper**.
- If there are **two monitored lubricating circuits**, the **jumper must be plugged to (2 "O")**.
- If there is **no switching off signal** from the piston detector to the printed circuit board within 5 or 30 minutes, a **fault signal** will occur.

### M00-M15:

- In the case of a fault, the signal lamp **flashes** with the corresponding flashing frequency and the pump stops (see "Fault indication").

## Time storage

### Data backup:

Even if the operating voltage is switched off, the times lapsed will be stored indefinitely (in the EEPROM).

### Reconnection:

When the power supply is switched on again the control unit continues to operate from the point where it had been interrupted.

## Time Setting



PCB 7 Cover lid to the control PCB

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- ➔ To set the pause or lubricating time, remove the cover on the pump housing.



### IMPORTANT

*Upon completion of the time setting, make sure to firmly close the cover lid again.*

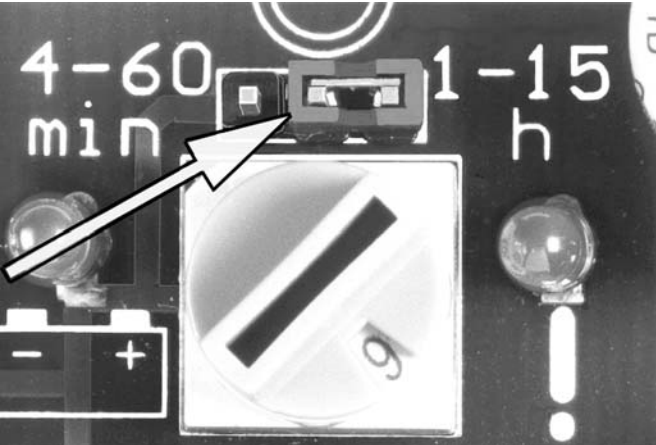
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### NOTE

*To reset a jumper (see fig. PCB 6) remove the printed circuit board.*

*Whenever the pump housing has been opened (e. g. for replacing of the p.c.b.), the housing cover (including the foamed seal) must be replaced.*

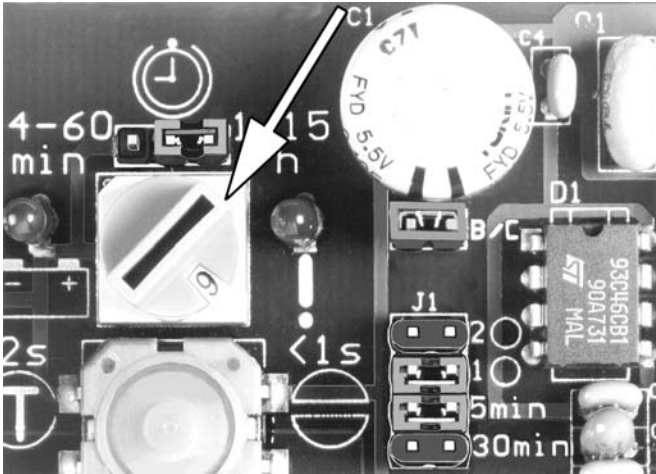
Factory Setting



PCB 8 Jumper position:  
Preselect ion of the time ranges 20002448a

- The time ranges “hours” or “minutes” can be modified by replugging the jumper of the printed circuit board.
- Pause time ..... 6 hours
- Rotary switch position ..... 6  
& Jumper position (see Fig. PCB 8) ..... 1-15 h
- Monitoring time ..... 5 minutes
- Jumper position (see Fig. PCB 6) ..... 5 min
- Monitored lubricatioin circuits ..... 1 circuit
- Jumper position (see Fig. PCB 6) ..... 10

To set the pause time



PCB 9 Pause time rotary switch 20002454a

- The pause time can be set with the **blue rotary switch** to 15 stages.



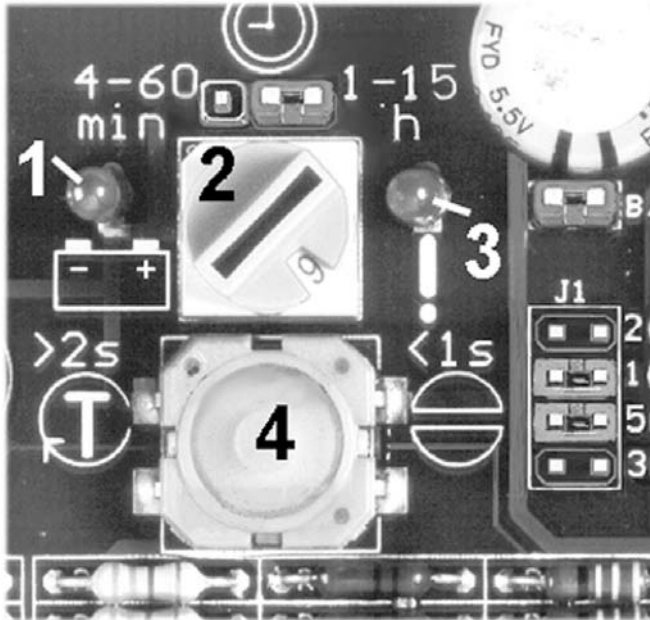
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**IMPORTANT**  
*Switch positions 0 are identical and correspond to the shortest adjustable time.*

Switch position	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Minutes	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60
hours	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15



### Test / To Trigger an Additional Lubrication



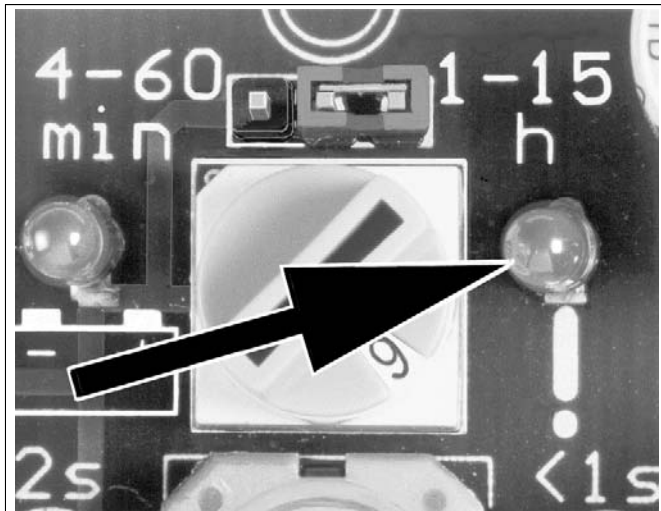
PCB 10 Components of the control p.c.b.

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- ➔ Switch on the machine contact / driving switch.
- To check whether power is applied to the printed circuit board, observe whether the LED 1 (see Fig. PCB 10) is lit.
- ➔ To check the pump operation it is possible to perform an operational test.  
Press illuminated pushbutton 5 on p.c.b. **> 2 sec.** until the right-side LED 3 is lit.
- Then the pause time lapses shorter and is followed by a normal lubrication cycle.
- Additional lubrication cycles are possible at any time by triggering the illuminated pushbutton, however, maximum 3 times consecutively.

- 1 - LED, left (power supply)
- 2 - Rotary switch to set pause time
- 3 - LED, right (indication of operation)
- 4 - Pushbutton to trigger an additional lubrication

### Functional check



PCB 11 LED for monitoring time and failure display

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- Each time the machine contact / driving switch (external contact) is switched on, a functional check takes place automatically
  - of the drive motor
  - of the signal lamp
- During the functional check
  - the motor is switched on for **0.1 seconds** (the stirring paddle slightly rotates)
  - the signal lamp lights up for **2 seconds**
- If there is a fault, the signal lamp **flashes** (see "Fault Indication").

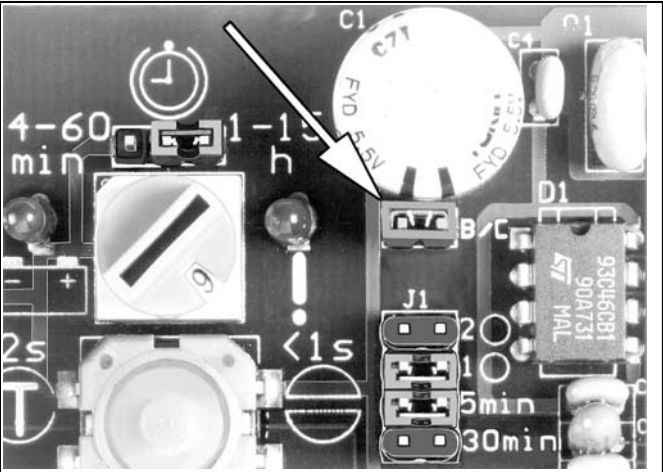


#### NOTE

LED display (Fig. PCB 11) indicates the same operating state as the external signal lamp.

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Signal Output M00-M15



PCB 12 Control p.c.b. with mounted jumper B/D 00002429a

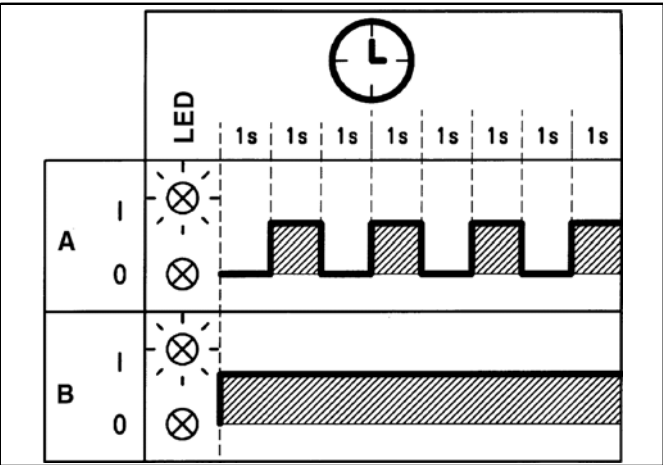
Intermittent flashing signal (B)

The signal output takes place with the right LED and is implemented as follows:

- Jumper B/D mounted (Fig. PCB 12)

System	LED 3 (Fig. PCB 10)
Motor check	is lit for approx. 2 seconds
Lubricating time	LED is lit
Fault	Flashes according to the present fault indication with different frequency (see paragraph „Fault indication“)

Operating states



PCB 13 Indicated operating states 1052b95

- A - Fault indication M00-M15  
B - Indication of operation or acknowledged fault

The following functions can be performed with the pushbutton 4 (Fig. PCB 10):

- triggering of an additional lubrication:  
Press pushbutton for over 2 seconds ( > 2 s)
- fault acknowledgement ( < 1 s)
- after a fault:  
switch on pump again by pressing pushbutton (> 2 s)

Signal lamp (M00-M15)

- The signal lamp or the LED 3 indicates the operating state of the centralized lubrication system.
- The faults are indicated by different flashing frequencies of the signal lamp or the LED 3 (see "Fault Indication").

## Fault Acknowledgement



PCB 14 To acknowledge a fault

- When the pushbutton is pressed briefly (< 1 second) the fault is acknowledged (e. g. the lamp stops flashing and is permanently lit).



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### NOTE

*Any acknowledged low-level or fault signal remains stored even after the machine contact / driving switch has been switched off. Upon switching on again, the signal lamp flashes again in accordance with the fault. A pending low-level signal can be bridged three times by triggering an additional lubrication cycle.*



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### NOTE

*It is also possible to acknowledge or reset a low-level or fault signal by means of the pushbutton on the printed circuit board (Fig. PCB 10).*

*Condition: The machine contact or driving switch must be switched on.*

## To remedy a fault



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### IMPORTANT

*The pump must be switched on by triggering an additional lubrication.*

### NOTE

*With control p.c.b.s M00-15 additional lubrications may be triggered up to 3 more times even when the voltage supply is switched off.*

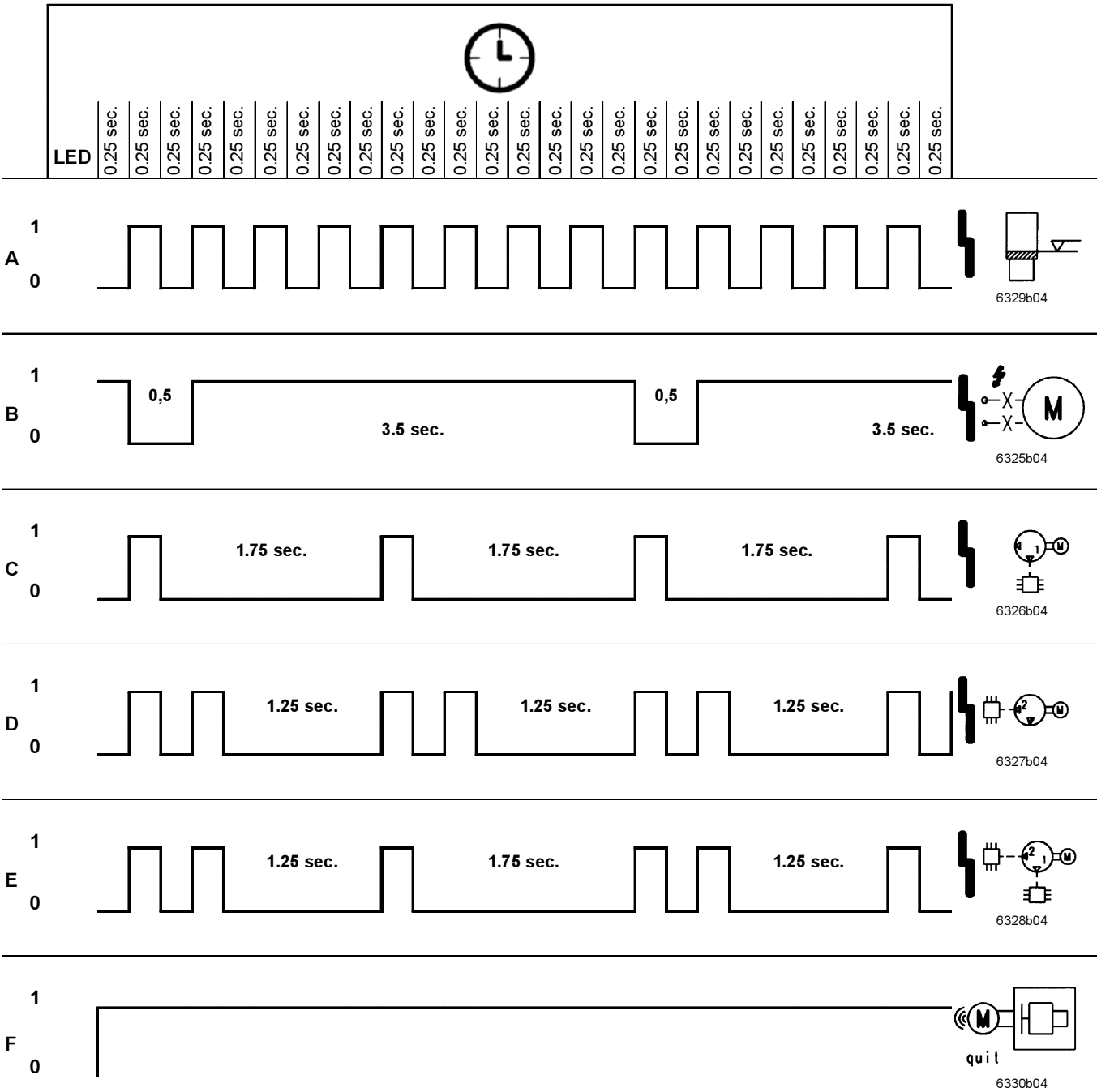
- ➔ If there has been any fault, the pump will not start automatically after the elimination of that fault.
- ➔ In the case of a fault, check whether the central lubrication pump and the connected system are malfunctioning.
- ➔ Eliminate the cause of the fault (see chapter „Troubleshooting“).
- ➔ Switch the pump on again by triggering an additional lubrication. Therefore press pushbutton 4 (fig. PCB 10) > 2 seconds.

### M00-M15:

- When the fault is eliminated, the control lamp will extinguish at the end of the lubrication.

Fault indication

Jumper B/D mounted (Fig. PCB 12) M00-M15



PCB 15 Flashing sequences in case of malfunctions

- A - Low-level indication
- B - Fault: motor
- C - Fault: lubrication cycle 1 (single pulse)
- D - Fault: lubrication cycle 2 (double pulse)
- E - Fault: lubrication cycles 1 and 2 (alternating single/ double pulse)
- F - Acknowledged malfunction



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NOTE

Legend for A to E see following page.

## Faults M00-M15

### A Low-level signal

Symptoms:

- This fault will only be displayed via the signal lamp if the low-level signal has been installed.

Signal:	" ON "	" OFF "
Flashing frequency	0,25 sec.	0,25 sec.



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#### NOTE

*Only after 6 motor revolutions the low-level signal will be transformed into an ON signal with the above mentioned flashing frequency.*

*Only the third low-level signal in series interrupts the automatic operating cycle.*

### B Fault: Motor

Symptom:

- When switching the machine contact or the ignition switch on, the motor does not start or the feed line to the motor is defective. In this case, after 2 seconds the signal lamp flashes as follows:

Signal:	" ON "	" OFF "
Flashing frequency:	3,5 sec.	0,5 sec.

### C - E Functional faults

Symptoms I:

- Blocked lubrication point(s)
- Blocked metering device(s)
- Main line to the metering device (with piston detector) interrupted
- Air in the system
- Reservoir empty (only in case of optional low-level signal)

The indicated faults impede the movement of the pistons in the monitored metering device.

Symptoms II:

- Defective piston detector
- Electric line from the piston detector to the pump or to the control p.c.b. interrupted

The indicated faults prevent the switch-off signal of the piston detector from reaching the control p.c.b.

### C - E Functional faults, continued

The signal lamp can send the following flashing frequencies for symptoms I and II:

#### C Lubrication circuit 1 faulty

Signal:	" ON "	" OFF "
Flashing frequency:	0,25 sec.	1,75 sec.

#### D Lubrication circuit 2 faulty

Signal:	" ON "	" OFF "	" ON "	" OFF "
Flashing frequency:	0,25 sec.	0,25 sec.	0,25 sec.	1,25 sec.

#### E Lubrication circuit 1 and 2 faulty

Signal:	" ON "	" OFF "	" ON "	" OFF "
Flashing frequency:	Alternating between C and D			

- In the case of functional faults with symptom I the piston detector cannot detect any further piston movements nor switch the pump off.
- In the case of functional faults with symptom II the control unit cannot receive any signal and cannot switch the pump off.
- By means of the monitoring time elapsing in parallel, in both cases (symptoms I & II) the control unit switches the pump off at the end of the monitoring time.
- A fault signal is activated and displayed.
- The pump cannot start operating automatically any more and has to be started by hand (see chapter "Remedy a fault").



## Troubleshooting



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### NOTE

The pump operation can be stated from the outside by:  
- the rotating stirring paddle (e.g. by triggering an additional lubrication cycle)  
- the LEDs of the control p.c.b. (see chapter "Fault indication")  
- the signal lamp of the illuminated pushbutton (option)

#### Fault: The pump motor does not run

M00-M15

Cause:	Remedy ...	by service personnel
<ul style="list-style-type: none"> <li>Power supply to the pump interrupted</li> </ul>	 4273a00	<ul style="list-style-type: none"> <li>Check the power supply and fuses.</li> <li>If necessary rectify the fault and/or replace the fuses.</li> <li>Check the line leading from the fuses to the pump plug.</li> </ul>
<ul style="list-style-type: none"> <li>Power supply to the control p.c.b. interrupted</li> </ul>		<ul style="list-style-type: none"> <li>Check the line leading from the pump plug and the control p.c.b.</li> <li>If the power supply is connected, the left-side LED is lit (see fig. "PCB 8").</li> </ul>
<ul style="list-style-type: none"> <li>Control p.c.b. defective</li> </ul>		<ul style="list-style-type: none"> <li>Check the function of the p.c.b. (see paragraph "Test / To Trigger an Additional Lubrication"). If necessary replace the p.c.b.</li> </ul>

#### Fault: Signal lamp OFF, pump does not run

M00-M15

Cause:	Remedy ...	by operating personnel
<ul style="list-style-type: none"> <li>Fault analysis as below fault 1</li> <li>Functional fault caused by „low-level signal“</li> <li>Blockade in lubrication system</li> </ul>	<ul style="list-style-type: none"> <li>Fault analysis &amp; remedying</li> <li>Trigger test run (see chapter "Test run / trigger additional lubrication cycle").</li> </ul>	

#### Fault: Right LED 3 flashes

M00-M15

Cause:	Remedy ...	by operating personnel
<ul style="list-style-type: none"> <li>Fault analysis according to flashing frequency (see chapter "Fault indication")</li> </ul>	<ul style="list-style-type: none"> <li>Determine fault.</li> <li>Eliminate fault.</li> <li>Start up pump again by triggering an additional lubrication cycle (see chapter „Test run / Trigger additional lubrication cycle“).</li> </ul>	

#### Fault: The pump motor runs permanently during the monitoring time

M00-M15

Cause:	Remedy ...	by service personnel
<ul style="list-style-type: none"> <li>Piston detector (initiator) defective</li> </ul>	<ul style="list-style-type: none"> <li>Disconnect the main line leading to the monitored metering device.</li> <li>Unscrew the piston detector.</li> <li>Check the piston detector. For this, insert a metallic pin into the borehole of the detector. Let it there over 2 seconds and then remove it. If the pump is not switched off afterwards, check the cable connections to the pump. If necessary, replace the piston detector along with the connector.</li> </ul>	
<ul style="list-style-type: none"> <li>Cable connection of the piston detector to the pump interrupted</li> </ul>	<ul style="list-style-type: none"> <li>Check the cable connections to the pump.</li> <li>If necessary, replace the piston detector with the connector.</li> </ul>	
<ul style="list-style-type: none"> <li>Control p.c.b. defective</li> </ul>	<ul style="list-style-type: none"> <li>Check the function of the control p.c.b. (see paragraph "Test / To Trigger an Additional Lubrication"). If necessary, replace the control p.c.b..</li> </ul>	

## Maintenance and Repair

### Electrical Connection



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#### 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.*



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#### NOTE

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

#### NOTE

*Consider the contact protection measures for connecting the high- or low-level control (see chapter "Mode of Operation" / paragraph „Low- or High-level Control“).*

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

### Operation with bayonet plug



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#### CAUTION!

*If the protective-conductor terminal is not connected or interrupted, dangerous touch voltages may occur on the equipment!*

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

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

Standards:

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

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



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#### ATTENTION!

*Control p.c.b. and motor always work with 24 VDC even if the pump is connected to alternating current.*

*Consider residual ripple of max.  $\pm 5\%$  when connecting motor and control p.c.b. (in relation to the operating voltage acc. to DIN 41755).*

### Printed Circuit Boards



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#### IMPORTANT

*Whenever the pump housing has been opened (e. g. for replacing of the p.c.b.), the housing cover (including the foamed seal) must be replaced.*

- Disassemble defective control p.c.b.
- Note down the jumper positions of the defective control p.c.b. To do so, follow instructions given in paragraph „Jumper Configuration“.
- Pack the defective control p.c.b. properly so that it will reach the factory without any further damages.
  - In the case of a replacement of the control p.c.b., there will always be supplied a standard version (M08) of the p.c.b.
- Set the jumper configuration on the new control p.c.b. according to the one noted down from the old control p.c.b.
- Connect the new control p.c.b. and install it properly.

Technical Data

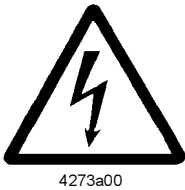
Electrical Data

Rated voltage ..... 12/24 VDC  
Operating voltage at 12/24 VDC ..... 9 ... 30 V  
Output motor ..... Trasistor 7A / short-circuit proof  
Reverse polarity protection of the operating voltage inlets yes  
Residual ripple in relation to the operating voltage <sup>1)</sup>  
..... DIN41755:  $\pm 5\%$   
Adm. operating temperature .....  $-25\text{ }^{\circ}\text{C}$  ...  $+70\text{ }^{\circ}\text{C}$   
Output signal ..... Trasistor 3A / short-circuit proof  
Protection ..... IP6K 9K (p.c.b. installed in housing) <sup>2)</sup>  
Lamp electricity (design 2A1) ..... max. 2A

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

Time Setting

Factory setting  
- Pause Time ..... 6 hours  
- Monitoring time ..... 5 minutes  
- Monitored circuits ..... 1 circuit  
  
Pause time (min) ..... 4, 8, 12 ... 60 minutes  
Pause time (h) ..... 1, 2, 3 ... 15 hours  
Monitoring time ..... 5 or 30 minutes  
Monitored circuits ..... 1 or 2 circuits  
Lubricating time ..... is switched off via the piston detector



4273a00

**ATTENTION!**  
*Control p.c.b. and motor always work with 24 VDC even if the pump is connected to alternating current.*  
*Consider residual ripple of max.  $\pm 5\%$  when connecting motor and control p.c.b. (in relation to the operating voltage acc. to DIN 41755).*



6001a02

**NOTE**  
*In order to protect the printed circuit board against condensation, it has been covered with a protective varnish.*



6001a02

<sup>3)</sup> **NOTE**  
*The pumps correspond to the following EMC directives:*  
- for vehicles <sup>A)</sup> ..... EMC 2009/19/EC  
- for industry ..... EMC 2004/108/EC

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

Terminals of the p.c.b.

+	1
-	lubrication
-	circuit
+	2
-	Low-level control
+	Motor
-	external signal lamp
+	additional lubrication
-	machine contact / driving switch
+	VDC: battery
-	VAC: int. power supply

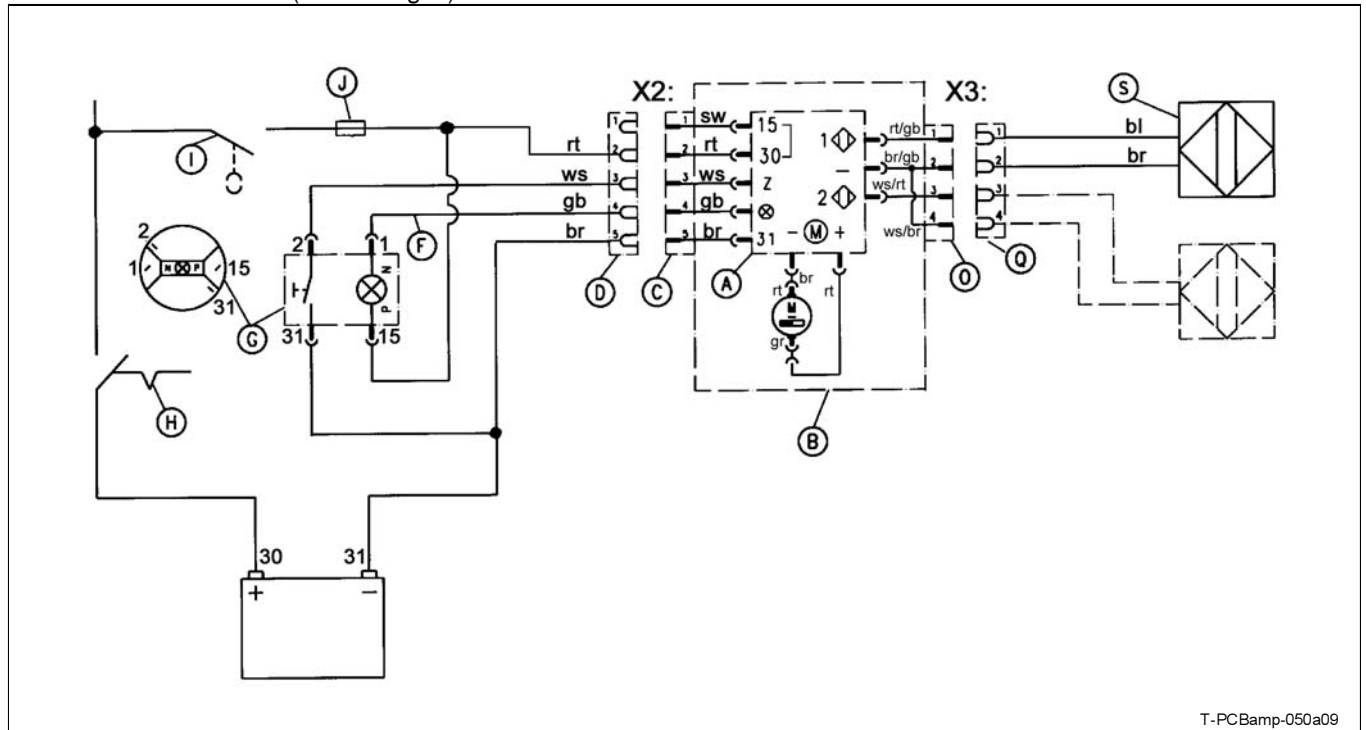
20002460

## Technical Data, continuation

### VDC Connection diagram for mobile application:

Type of connection 2A4: AMP plug (5/4-pole) with 10 m cable (X2)  
AMP plug (4-pole) with 10 m cable (X3)

**Control unit M00-07** (15/30 bridged)



T-PCBamp-050a09

Connection diagram Quicklub with monitoring of the metering device(s) (mobile), connection via AMP plug model Superseal

**X2** - Socket for AMP plug with 10 m cable, 4-core (12/24 VDC, driving switch, signal lamp, low-level control)  
**X3** - Socket for AMP plug with 1 or 2 cables (length 10 m), each 2-core (1 or 2 piston detectors)

<b>A</b> - Control p.c.b.	<b>G</b> - Illuminated pushbutton (pushbutton for additional lubrication & signal lamp)
<b>B</b> - Pump housing	<b>H</b> - Battery cut-off
<b>C</b> - Connection plug X2	<b>I</b> - Driving switch
<b>D</b> - Socket X2	<b>J</b> - Fuse 10 A
	<b>O</b> - Connection plug X3
	<b>Q</b> - Socket X3
	<b>S</b> - Piston detector(s)

**bl** - blue  
**rt** - red

**br** - brown  
**sw** - black

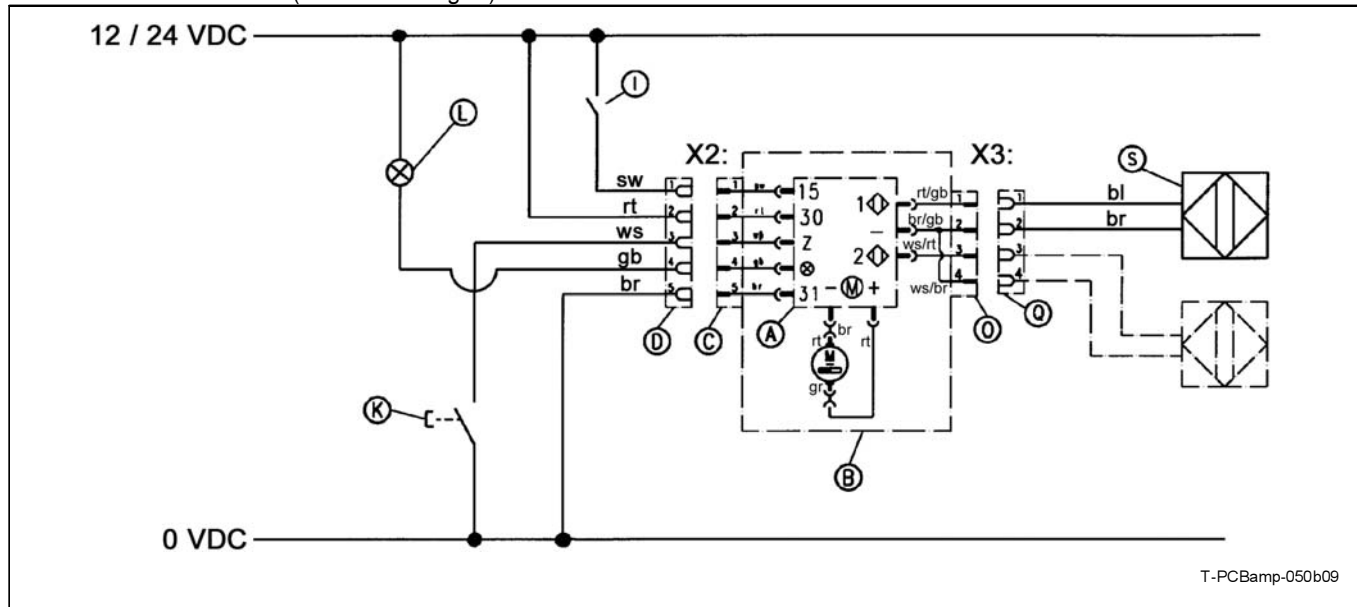
**gb** - yellow  
**ws** - white

## Technical Data, continuation

### VDC Connection diagram for industrial application:

Type of connection 2A4.: AMP plug (5/5-pole) with 10 m cable (X2)  
AMP plug (4-pole) with 10 m cable (X3)

### Control unit M08-15 (15/30 not bridged)



Connection diagram Quicklub with monitoring of the metering device(s) (industry), connection via AMP plug model Superseal

**X2** - Socket for AMP plug with 10 m cable, 5-core (12/24 VDC, machine contact, signal lamp, low-level control)  
**X3** - Socket for AMP plug with 1 or 2 cables (length 10 m), each 2-core (1 or 2 piston detectors)











<b>A</b> - Control p.c.b.	<b>I</b> - Machine contact	<b>O</b> - Connection plug X3
<b>B</b> - Pump housing	<b>L</b> - Signal lamp	<b>Q</b> - Socket X3
<b>C</b> - Connection plug X2	<b>K</b> - Pushbutton for additional lubrication	<b>S</b> - Piston detector(s)
<b>D</b> - Socket X2		

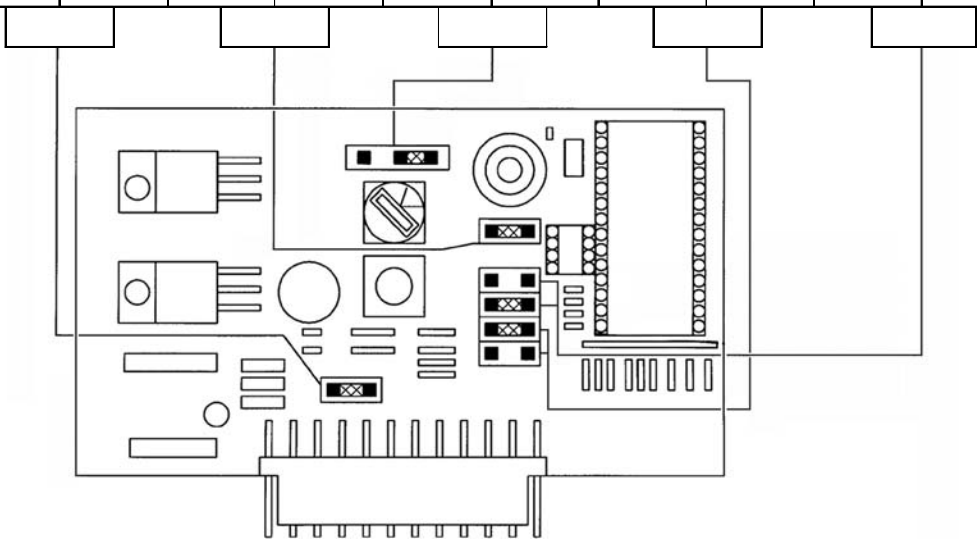
<b>bl</b> - blue	<b>br</b> - brown	<b>gb</b> - yellow
<b>rt</b> - red	<b>sw</b> - black	<b>ws</b> - white



## Technical Data, continuation

### Jumper configuration

Possibilities of preselection		Connection of the supply voltage		Signal indication in the case of faults Signal output		Pause time ranges		Monitoring time ranges (min)		Number of the monitored lubrication circuits	
Setting		only terminal 15	terminal 15 + 30	intermittent	permanent	h	min	5	30	1	2
Jumper position		 30 / 15 1175a95	 30 / 15 1174a95	 B / D 1177a95	 B / D 1176a95	 1 - 15 h 1186a95	 4 - 60 min 1187a95	 5 min 1190a95	 30 min 1189a95	 1182a95	 2 1183a95
Combination number	M00	X		X		X		X		X	
	M01	X		X		X			X	X	
	M02	X		X		X		X			X
	M03	X		X		X			X		X
	M04	X		X			X	X		X	
	M05	X		X			X		X	X	
	M06	X		X			X	X			X
	M07	X		X			X		X		X
	M08		X	X		X		X		X	
	M09		X	X		X			X	X	
	M10		X	X		X		X			X
	M11		X	X		X			X		X
	M12		X	X			X	X		X	
	M13		X	X			X		X	X	
	M14		X	X			X	X			X
	M15		X	X			X		X		X



1188a95

Schematic view of the p.c.b. 236-13870-3 M00-M15

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