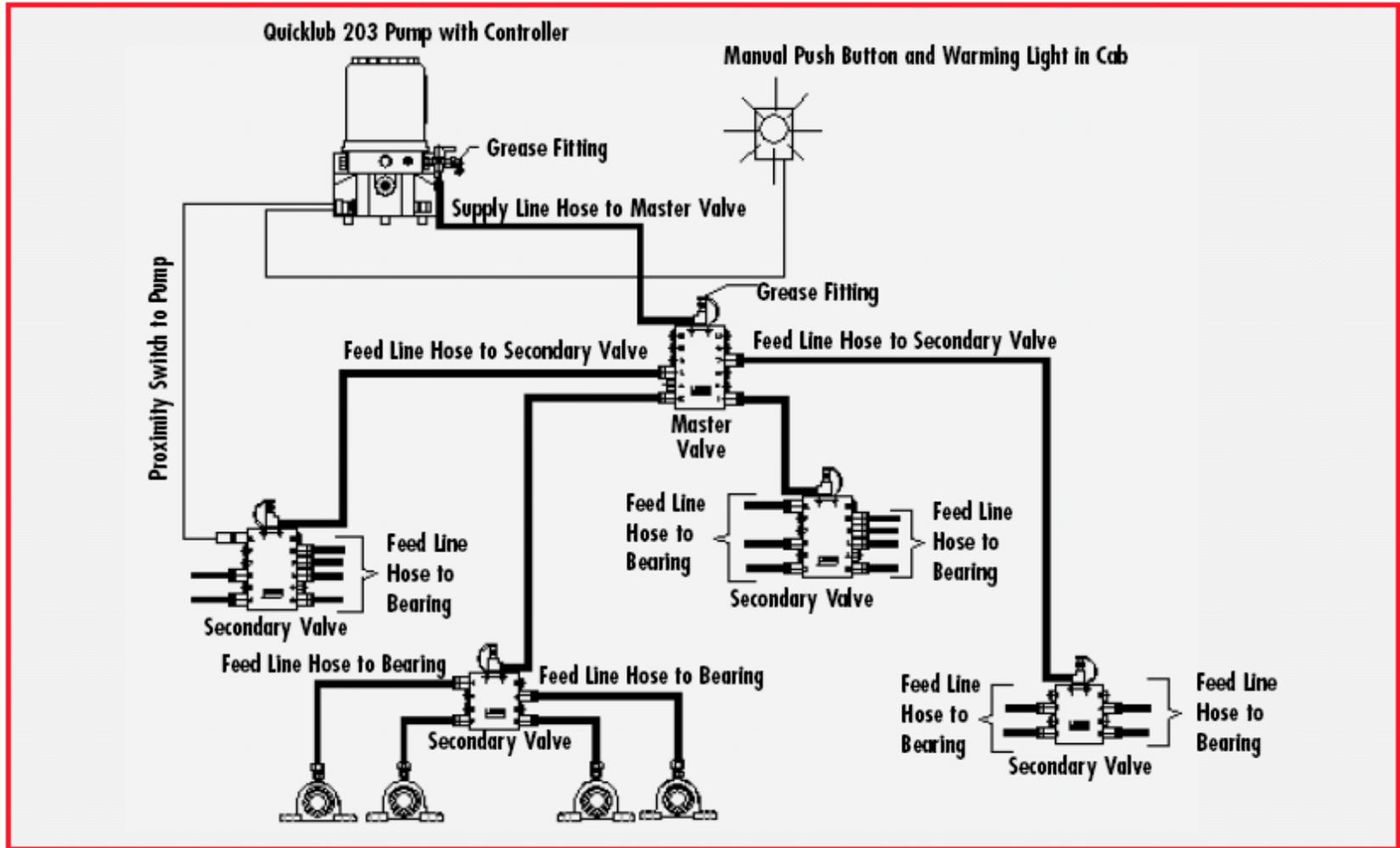




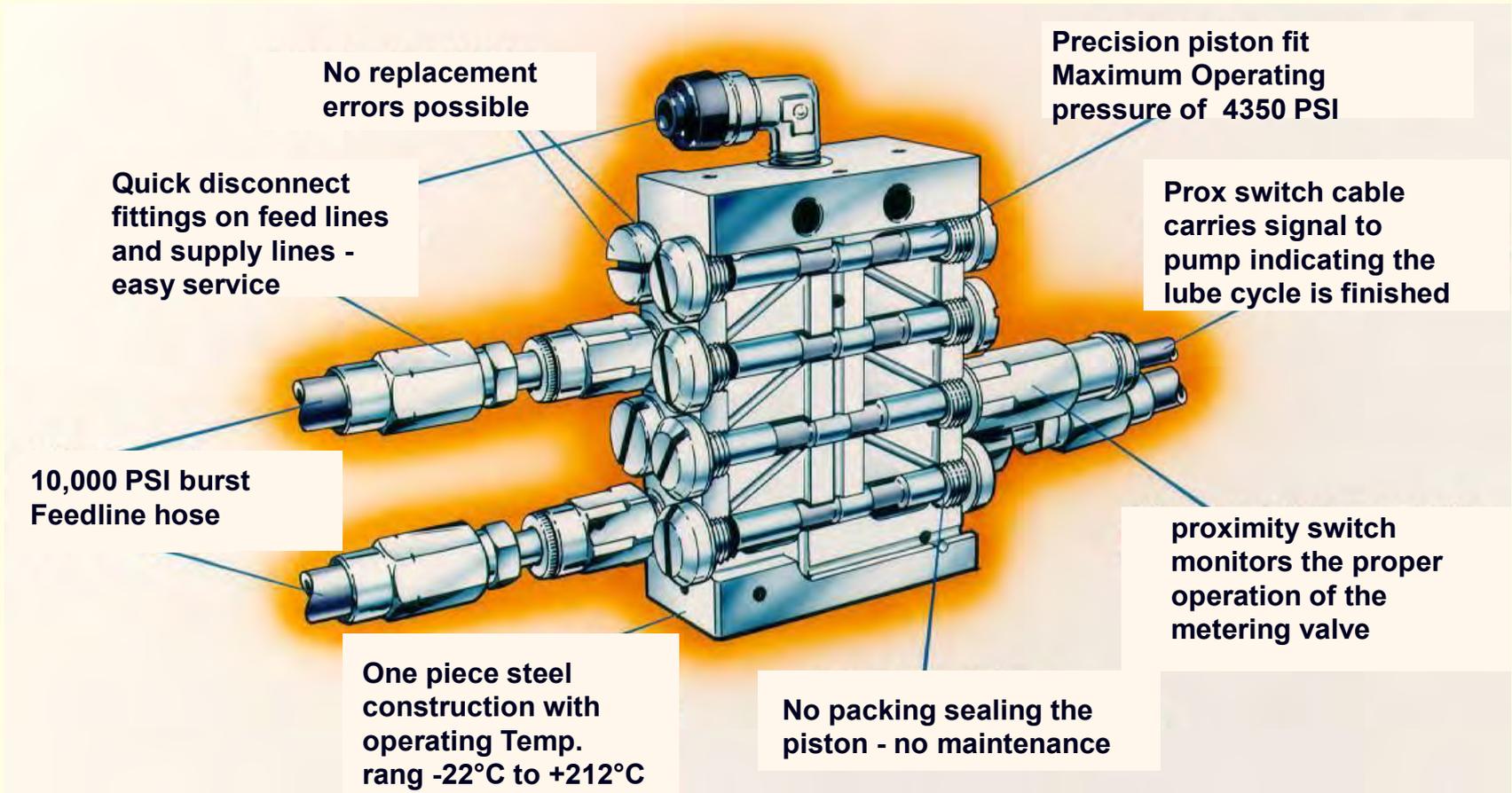
**Automated Lubrication Systems Service  
Manual for Lincoln Quicklub Systems**

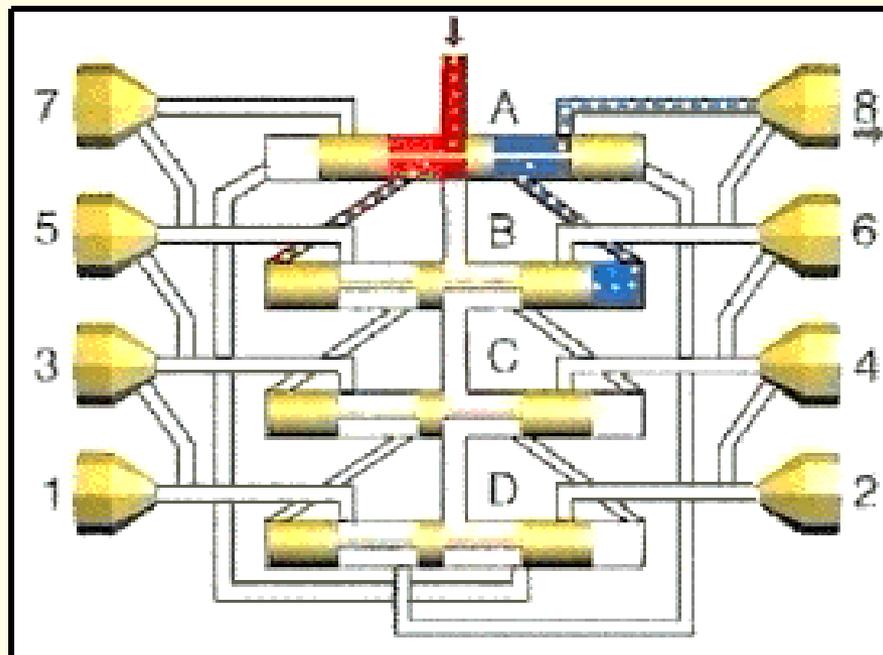
Revised: 11/19/2013

## Quicklub Automated Lubrication System Operation

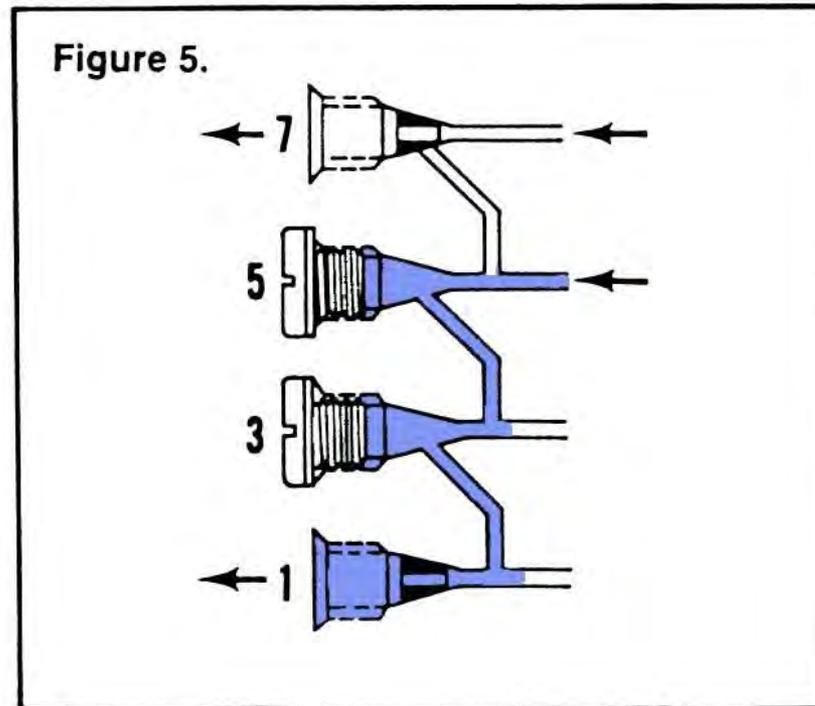


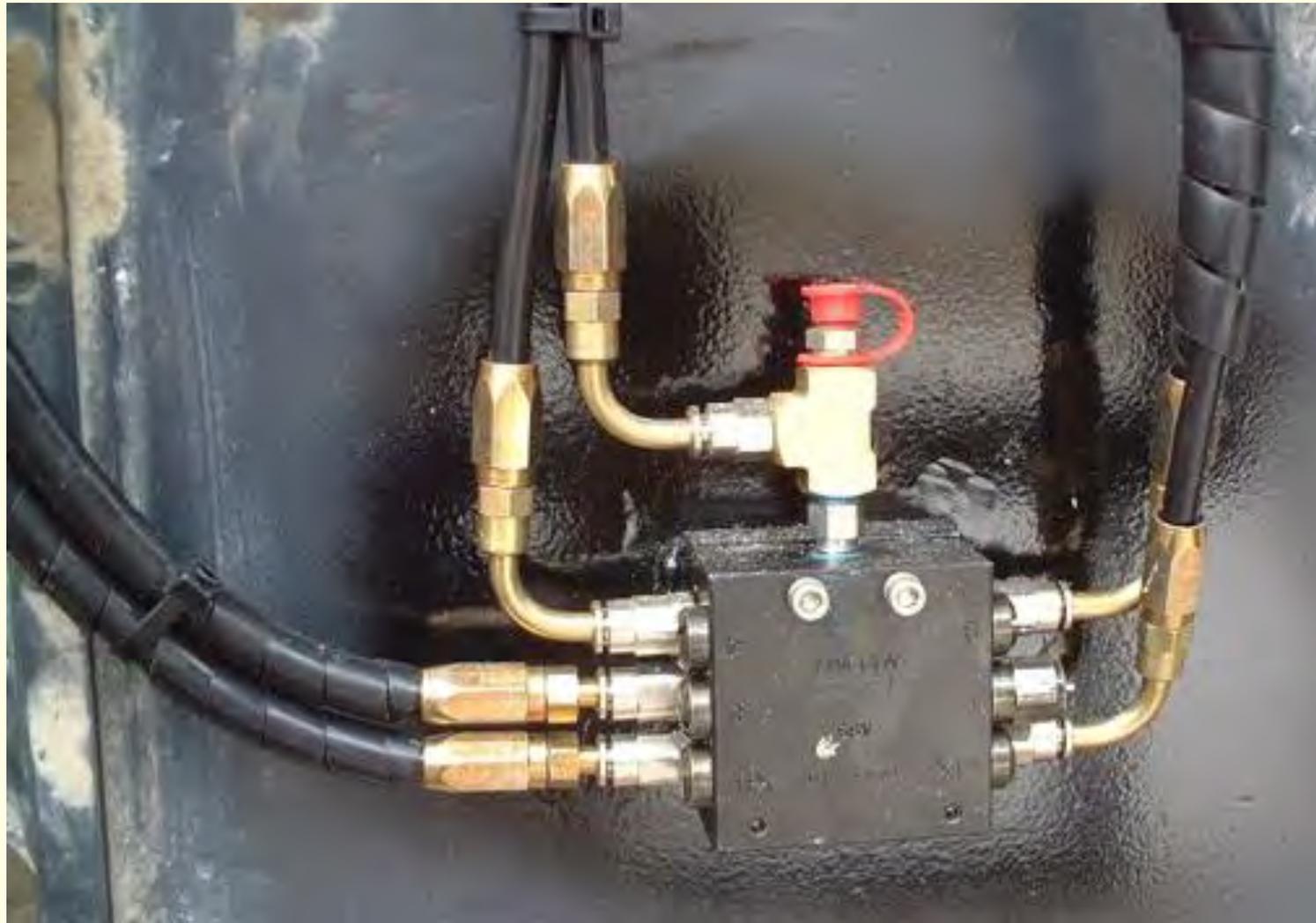
# SSV Metering Device

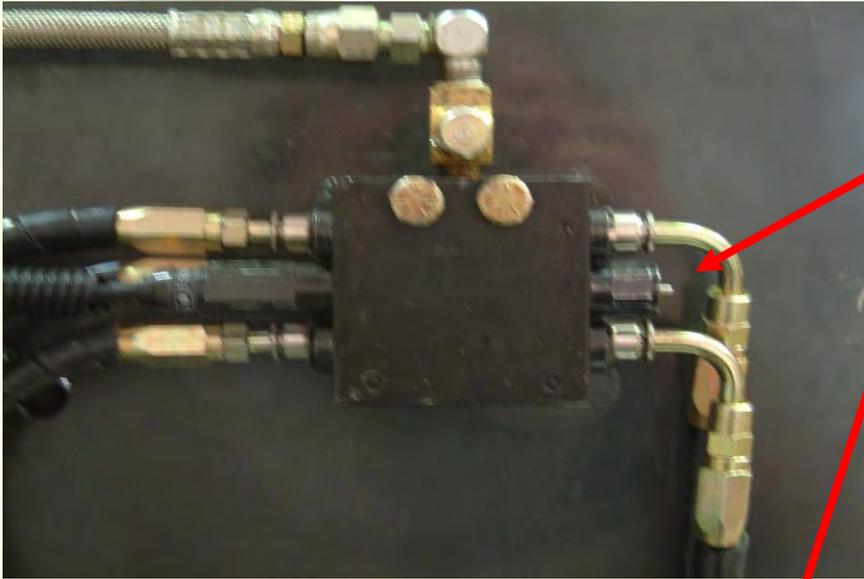




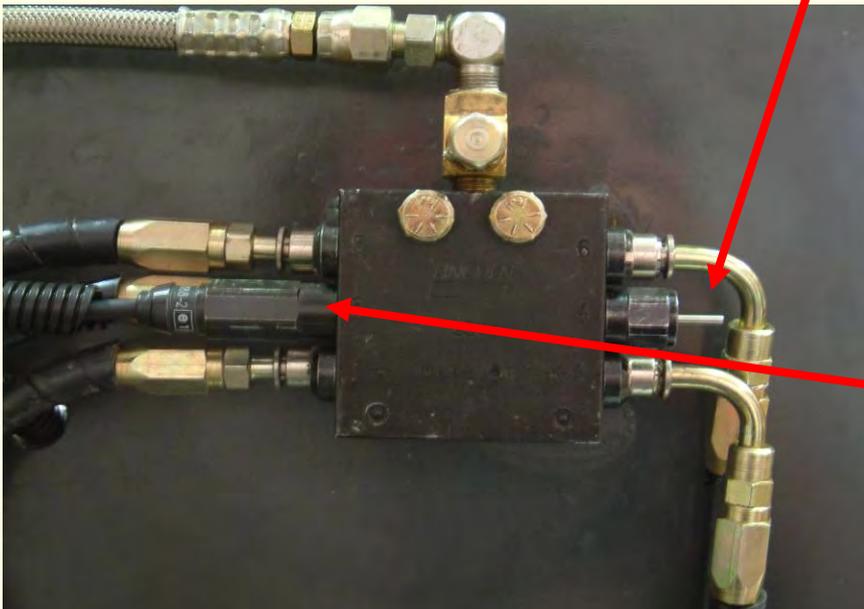
## Crossporting (Divider valve)







**Cycle indicator stems on each valve show proper operation of valve.**



**Proximity switch on secondary valve insures that all pins receive grease during each lube event.**



**Typical Ground Level Reservoir Fill**



## Lincoln Quicklub - 4 Liter (8 lbs.) Reservoir



**Owner Manual**  
Operating Instructions



2.1A-30004-A02

### Description of the QUICKDATA 233 Centralized Lubrication Pump

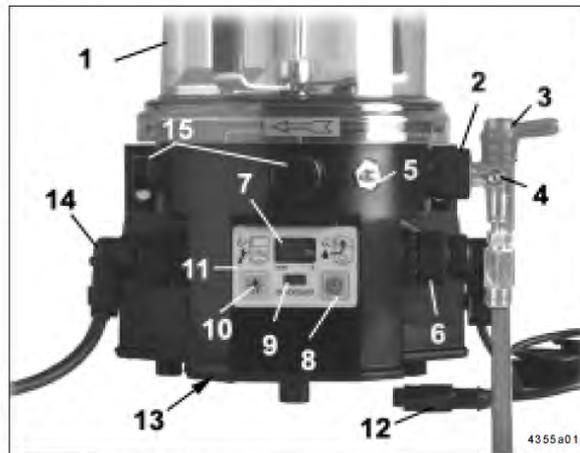


Fig. 2 - Components of pump 233

- |  |  |
|--|--|
| 1 - Reservoir  | 10 - Momentary-contact switch for additional lubrication         |
| 2 - Pump element   | 11 - Membrane key pad  |
| 3- Pressure relief valve   | 12 - Piston detector   |
| 4 - Filling nipple, system<br>Emergency lubrication possible         | 13 - Control p.c.b. with data logger                             |
| 5 - Filling nipple, pump   | 14 - Adaptor for power supply<br>External illuminated pushbutton |
| 6 - Adaptor for piston detector                                      | 15 - Closure plug for the use of a pump element                  |
| 7 - Display  |  |
| 8 - Momentary-contact switch for indication or setting of pause time |  |
| 9 - Reading window for data logger                                   |  |

- The QUICKDATA 233 centralized lubrication pump
- is a compact multiline pump consisting of the following components:

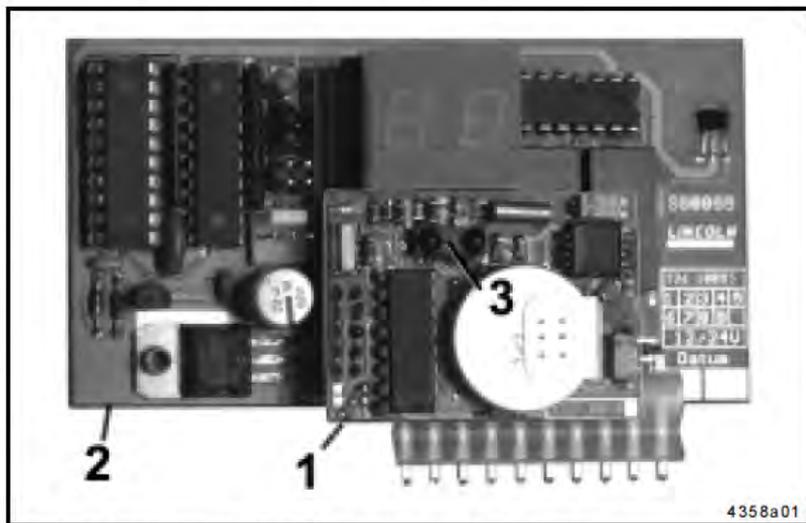
Housing with integrated motor  
Reservoir with stirring paddle and fixed paddle  
Data logger (control p.c.b. and readable data memory)  
Pump element  
Pressure relief valve  
Filling device  
Electrical connection parts

- can drive up to 3 pump elements with different outputs
- operates according to lubrication cycles (pause and operating times)
- is equipped with a low-level control
- can supply up to 300 lubrication points depending on the line lengths
- is designed for the automatic lubrication of the connected lubrication points
- is designed for the delivery of greases up to NLGI 2 at temperatures from -25°C to +70°C
- can be used with low-temperature greases down to temperatures of -40°C
- During the operating time the pump dispenses lubricant to the connected lube points via one divider valve model SSV...-N and several divider valves model SSV... .

Control and monitoring system „QuickData“

- The control and monitoring system consists of:
  - control p.c.b. MDF00 with
  - built-on data logger module with IR interface
  - membrane key pad with display
  - IR interface module RS 232 (COM) for laptops without IR interface
  - Software “QuickData“
  - monitored divider valve model SSV...-N with integrated piston detector, see fig. 20.

Control p.c.b. MDF 00 with data logger



- The control is installed in the housing of the pump behind the membrane key pad as an integrated printed circuit board MDF 00 (2, fig. 3).
- The data logger (1) is fixed onto the printed circuit board.

- 1 - Data logger
- 2 - Control p.c.b.
- 3 - Infrared interface

Fig. 3 - Control p.c.b. MDF 00 with built-on data logger

Subject to change without notice

## Low-Level Control

### Low-level control for grease

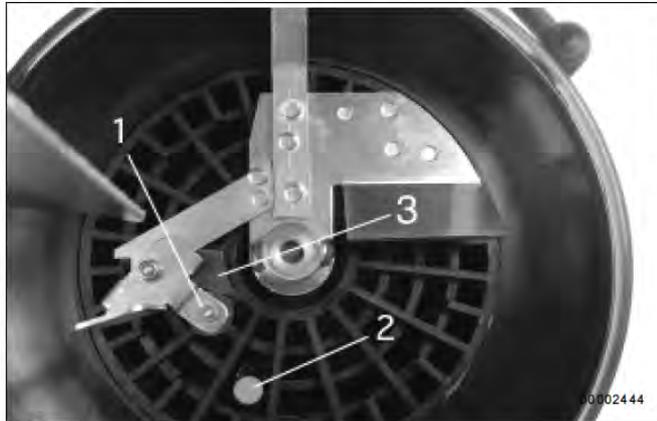


Fig. 33 - Switching parts of the low-level control

- 1 - Guiding plate with round solenoid
- 2 - Electromagnetic switch (at stirring paddle)
- 3 - Control cam

*Note: The switching parts listed above are not suitable for liquid grease. In such a case a float magnetic switch must be used (see Low-level control for oil).*

#### Full reservoir

- The stirring paddle rotates **clockwise** during the operating time.
- Due to the rotating motion of the stirring paddle in the lubricant the pivoting guiding plate with the round solenoid, item 1 fig. 33, is pressed backwards. The solenoid moves towards the center of rotation of the stirring paddle. The electromagnetic switch, item 2, **cannot** be activated.
- Control cam, item 3, guides the round solenoid with the pivoting guiding plate automatically outwards, in the direction of the reservoir wall. After the lubricant has left the control cam, it flows against the guiding plate, thus displacing the solenoid again onto the center of rotation of the stirring paddle.

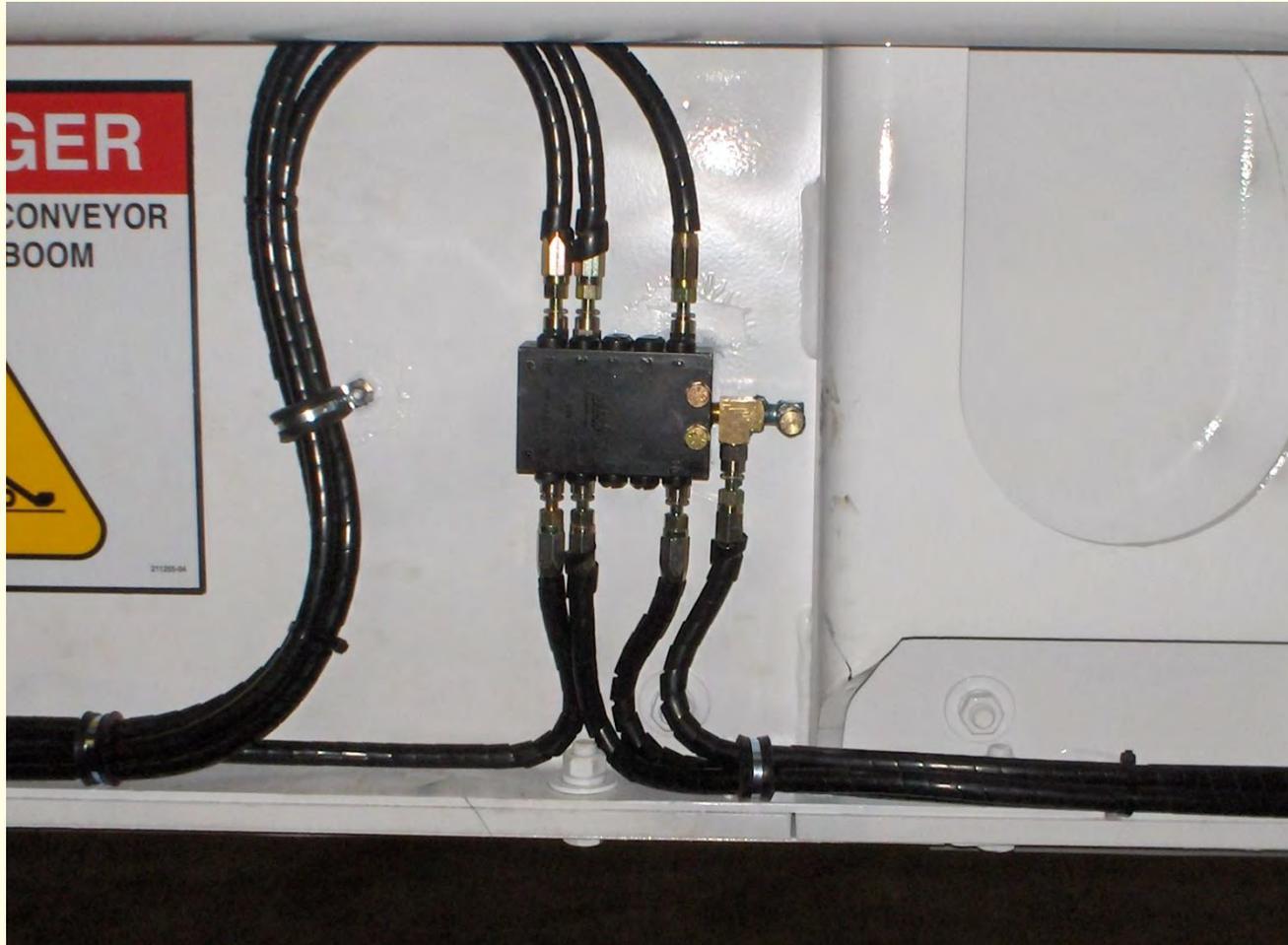
#### Reservoir empty

- During the rotating motion of the stirring paddle there is no backpressure from the lubricant. The guiding plate with the round solenoid no longer moves towards the center of rotation of the stirring paddle. After control cam, item 3, has been overtravelled, the solenoid remains in the outer position and overruns the electromagnetic switch 2. The solenoid activates the electromagnetic switch contact-free thus triggering a low-level signal. The operating time is stopped by the piston detector.

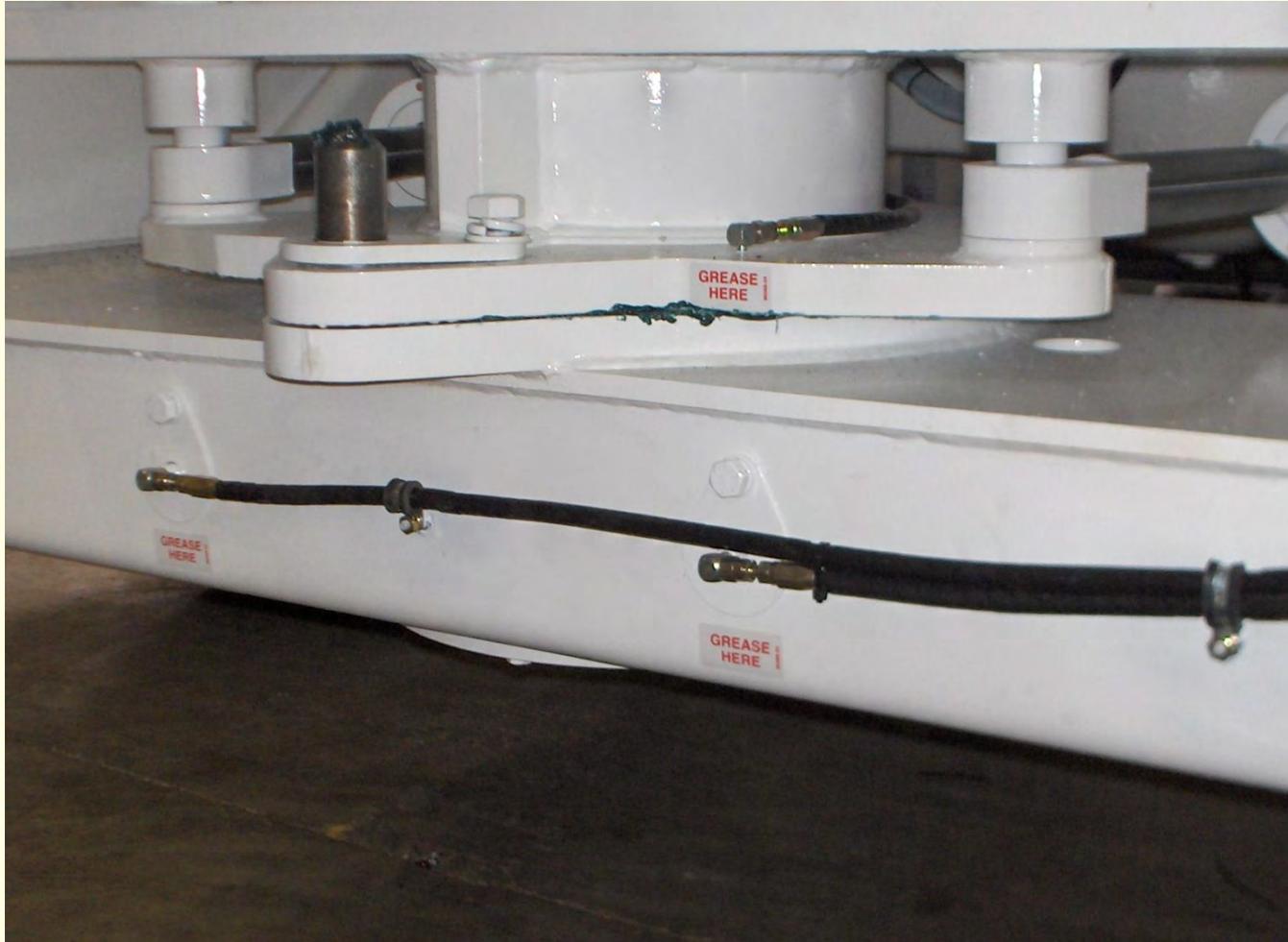
*Note: The flashing signal „LL“ appears only after the solenoid has activated the electromagnetic switch 6 times contact-free.*

#### Magnetic switch

- The electromagnetic switch is activated contact-free and without wear by the magnetic field of the solenoid fitted to the stirring paddle.

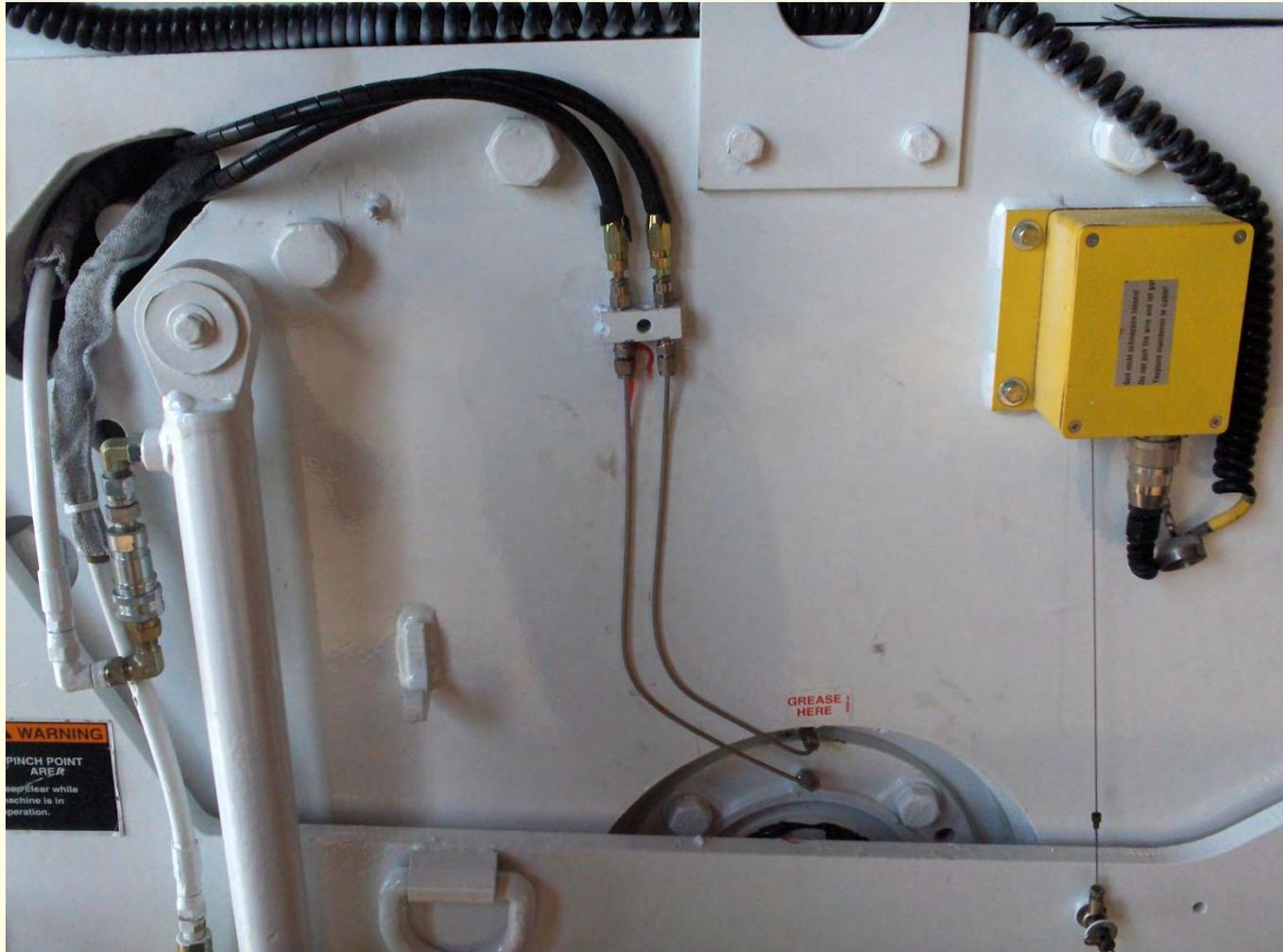


**Typical SB2500D Valve Configuration**



**Typical Lube Line Layout – SB2500D**





**Typical Cutter Drum Bearing  
Lube Line Layout**



**Typical Lube Line Layout – Mill**



**Dash mounted  
lighted manual cycle  
button indicates:**

- “Red” light is on when fault exists
- Low grease level in reservoir
- Blocked line or pump failure

### Data logger (data memory)

- Malfunctions (start, end, duration) in the centralized lubrication system, faults in the elapse of the operating time, low-level indications (start, end, duration), number of connections and disconnections of the power supply, automatically triggered lube cycles, manually triggered lube cycles, operating data and customer-related data can be read and analyzed via laptop, see below diagnostic software „QuickData“.
- Functions, processes, settings, faults or malfunctions of the pump and the system are indicated on the membrane key pad as follows, also see below: Adjustment and Operation of the Control:

Pump 233:	Membrane key pad:	System:	Membrane key pad:
Failure in the power supply	No indication	Lubrication point or divider valve blocked	Er
Power supply ON	Right segment illuminated	Leakage in the main line from the pump to the monitored divider valve	
Failure in the membrane key pad	EP		Air entrapments in the grease
Operating time elapses	Circulating segment	Failure in one lube cycle (depending on the installation of the monitored divider valve).	Er
Pump element does not dispense	Er		
Reservoir empty <i>Note: The fault indication „LL“ appears whenever the solenoid fixed to the stirring paddle has passed the proximity switch six times . Appearing „LL“ on the display, the lubrication cycle is being completed fully. Afterwards, the control does not switch the pump on automatically any longer.</i>	LL		
Pause time Residual pause time	PP rP		



“LL” flashing in display indicates low level in grease reservoir.

**Corrective Action:** Refill reservoir, push and hold green button on pump or manual lube button in cab for 4-6 seconds.



**E R flashes in display when:**

- . plugged line is detected**
- . motor is defective**
- . Proximity switch fails to detect a completed lube cycle**



## **Corrective Action:**

- Cycle each valve at grease fitting to find blocked line and repair blockage.
- If all valves cycle properly, check output of pump element, if insufficient replace element.
- Check proximity switch wire and proximity switch operation.



## Pressure Relief Valve



Fig. 14 - Pressure relief valve

### Pressure relief valve without grease return

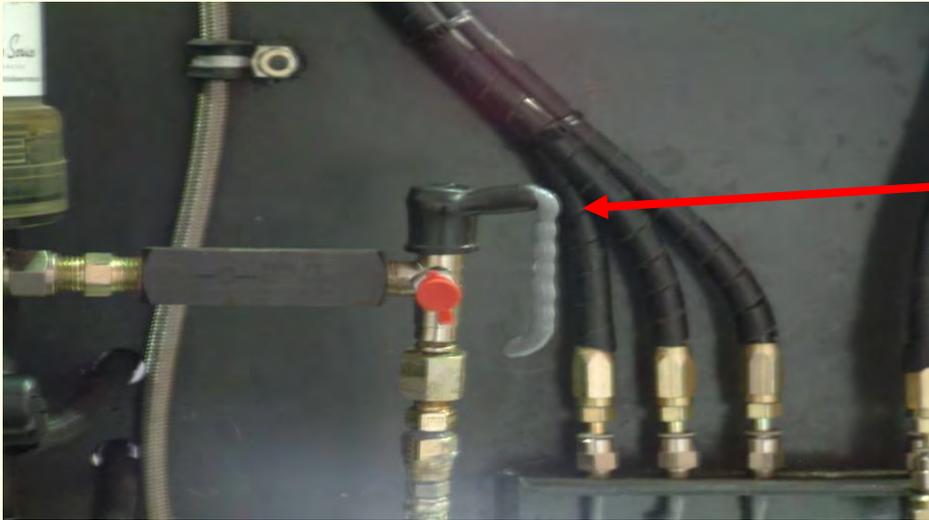
**Important!** Each pump element must be secured with a pressure relief valve.

- The pressure relief valve
  - limits the pressure build-up in the system
  - opens when the respective overpressure is reached.
  - must be selected according to the requirements of the lubrication system (see different opening pressures: 200, 270, 350 bar).
- If lubricant is leaking at the pressure relief valve, this indicates a malfunction in the centralized lubrication system or the lubrication point.

*Note: There may arise a longer time delay between a malfunction (blockage) and the consequential fault indication (lubricant leakage; monitor: flashing display of „Er“ on the membrane key pad).*

*The duration of the delay depends on the type of line, the line lengths, the type of lubricant, the ambient temperature and other influences.*

- Despite the existing failure monitor, carry out a visual control as well as a function control in regular intervals.



**Grease coming from pressure relief indicates a plugged line.**

**Corrective Action:**

**Manually cycle valves at grease fitting to find blocked line.**

**Repair or remove blockage and manually cycle again to check.**

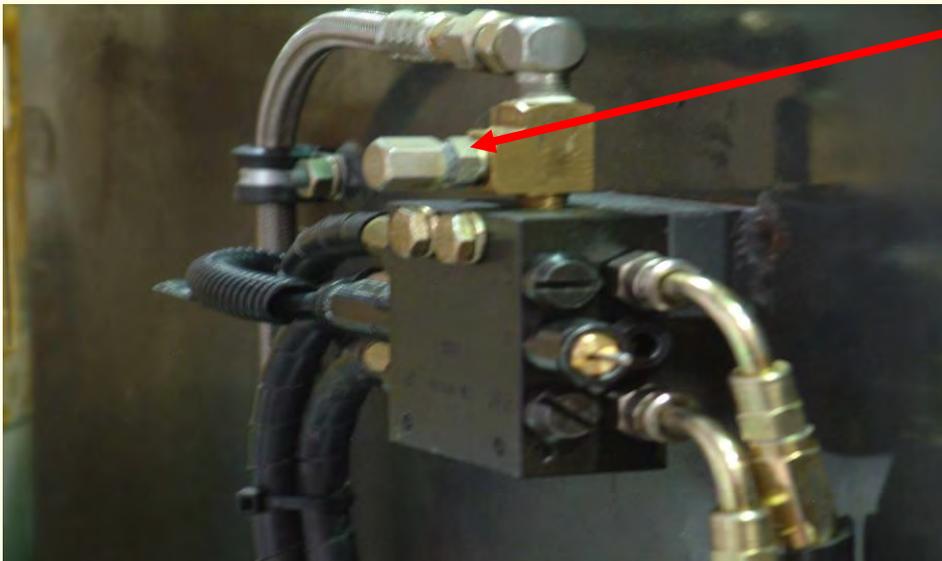




Fig. 20 - Piston detector

### Operating time

- A **piston detector** (initiator) which has been installed on a metering device instead of a piston closure plug, monitors and brings the pump **operating time** to a close after all the pistons of this metering device have dispensed their lubricant quantity once.
- The operating time depends on the system's lubricant requirement and on the location of the piston detector (either on the main metering device or on the secondary metering device).
- During the pump operating time a circulating segment appears in the display of the membrane key pad (see Display of the membrane key pad).
- After an interruption of the operating time, e.g. by switching off the power supply, the operating time continues from the point where it had been interrupted.
- When the machine contact or the driving switch is switched off, the pause times which have already elapsed are stored and added up by an **electronic data memory** (EEPROM) until the piston detector stops the operating time.



## ***Monitoring time***

*Note: Only one lubrication cycle can be monitored.*

- A fixed **monitoring time** of a maximum of 30 minutes runs in parallel to the operating time.

*Note: Normally, the monitoring time ends at the same time as the operating time.*

- If there is **no switching off signal** from the piston detector (fig. 20) to the printed circuit board within 30 minutes a **fault signal** will occur (see Display of the membrane key pad).
- An external **signal lamp** flashes **continuously** in case of a fault.

## Membrane key pad

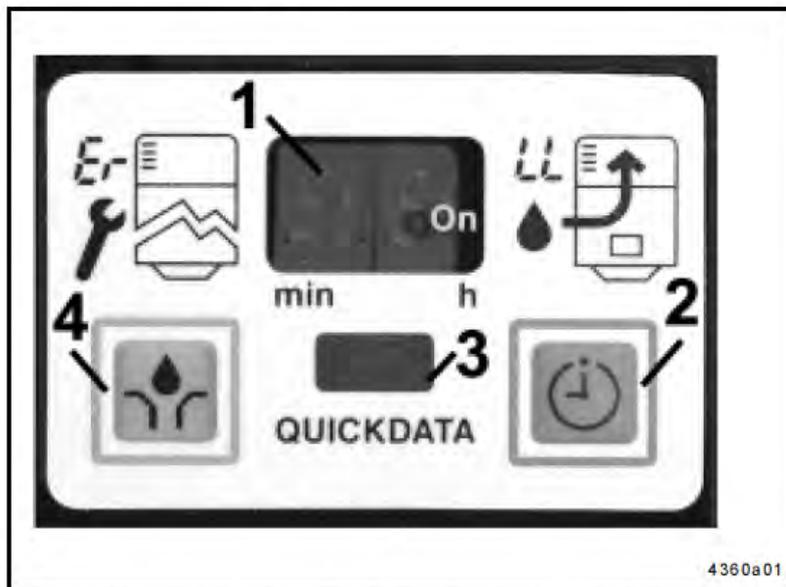


Fig. 22 - Membrane key pad with display and reading window

- The membrane key pad serves for:
  - displaying functions, faults, low-level indications and time settings in the display window 1, fig. 22 (display mode)
  - setting the pause time (programming mode)
  - triggering one or several additional lubrications (operating mode)
  - reading of data and events

- 1 - Display window
- 2 - Key for acknowledgment of fault indications and setting of time (shift key)
- 3 - Reading window for „QuickData“ data
- 4 - Key for triggering an additional lubrication and for setting the time values

## Display window of the membrane key pad



Fig. 23 - Green segment, pause time, voltage applied

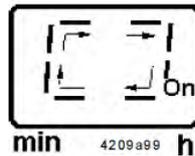


Fig. 24 - Green circulating illuminated segment, operating time



Fig. 25 - Key for triggering an additional lubrication



Fig. 26 - Display of a fault signal

- As soon as voltage is applied (On), the lower right-hand segment in the display window flashes (pause time runs).
- If the power supply is interrupted during the pause time, after switching it on again, the pause time continues at the point of interruption.
- During the operating time of the pump, a circulating illuminated segment appears in the display window of the membrane key pad.
- If the power supply is interrupted during the operating time, after switching it on again, the operating time continues at the point of interruption.

### • **Additional lubrication**

- is triggered via the key of fig. 25. Press key for more than 2 seconds.
- can be triggered at any time provided that voltage is applied.

*Note: If a malfunction is present (flashing display), first acknowledge the malfunction, then trigger an additional lubrication (see fig. 28).*

- If a fault signal (malfunction) is present, it will be cancelled whenever the system is operating properly.

### **Monitoring time/ malfunction**

- If there is no feedback from the piston detector (initiator) within **30 minutes** (monitoring time) from completion of the pause time or from triggering an additional lubrication, the pump switches off immediately. The fault signal \* Er \* (error) is displayed as a flashing light in the display of the membrane key pad.

- If a malfunction is present, the pump does not switch on automatically any longer.

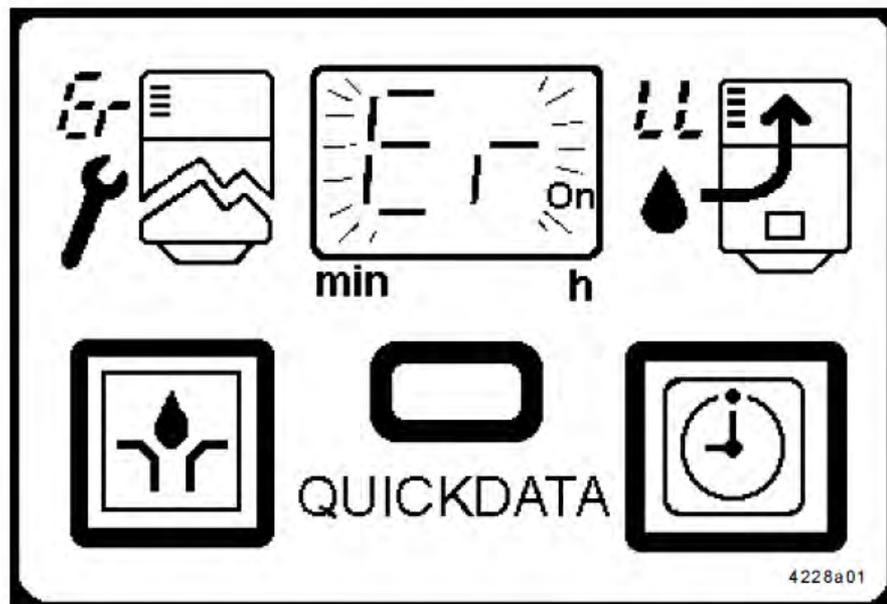
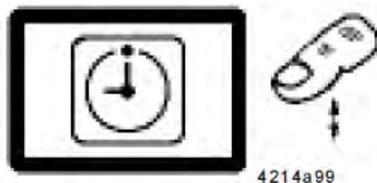


Fig. 27 - Membrane key pad with fault signal

- In this case, switch on the pump by pressing the key for additional lubrication (fig. 25). Acknowledge the malfunction before doing so.
- When a malfunction is present, it can only be cancelled by triggering an additional lubrication and after a proper lubrication cycle has been executed.
- If the fault is still present after an additional lube cycle has been triggered, the fault signal \* ER \* is again displayed in the display of the membrane key pad.
- The monitoring time starts at the same time as the operating time. It is a fixed time of 30 minutes.
- If the voltage supply is interrupted during the monitoring phase (operating time), the monitoring time starts from the beginning after the pump has been switched on again.



#### ***Acknowledging the malfunction***

- On pressing the key (fig. 28), the flashing display \* Er \* changes into a continuous light.
- An external signal lamp switches off.

Fig. 28 - Acknowledging a flashing fault signal „Er“

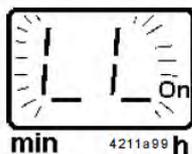


Fig. 29 - Display of a low-level indication

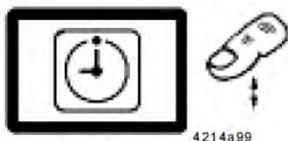


Fig. 30 - Acknowledging a flashing fault signal „LL“

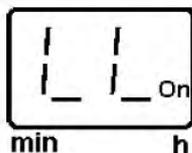


Fig. 31 - Acknowledged fault signal „LL“

### Low-level indication

- When the reservoir is empty the display on the membrane key pad shows the flashing fault signal \*LL\*.
- The function of the low-level control is described on page 17.
- In the case of a low-level indication the pump does not switch off immediately. The current lube cycle is completed. Upon expiration of the pause time, the pump cannot be started automatically again. The flashing indication \*LL\* appears on the display of the membrane key pad (fig. 29).
- \* Before filling the reservoir, press the key, fig. 30, to acknowledge the low-level indication.
- \* Fill pump and trigger additional lubrication. As soon as the additional lube cycle has been triggered, the „ LL “ display is cancelled. The automatic lube cycle resumes.

### Acknowledging the low-level indication

- By pressing the key (fig. 30) the flashing light \* LL \* is changed into a continuous light (fig. 31).
- An external signal lamp switches off.

### Malfunction/ low-level indication

- If both indications occur at the same time, then both displays \* Er \* and \* LL\* will flash alternately.

### Monitoring relay (on the control p.c.b.)

- The monitoring relay signalizes a low-level indication or a malfunction. In both cases, the monitoring relay will pick up. Via a minus potential contact, a signal lamp can be used as external fault indication which has to be switched against plus. Whenever the fault indication is acknowledged, the flashing indication switches to a continuous indication.

*Note: If the fault has not been put in order properly, after switching the pump off and on, an acknowledged fault/ low-level indication will appear as a flashing indication in the display window again.*

## Display mode

	<ul style="list-style-type: none"> <li>As soon as voltage is applied to pump P 233, the control is automatically in the <b>display mode</b>. The <b>right segment</b> on the display is illuminated (On).</li> <li>Normally, the display is dark. Only the functions (segment, circulating segment display) or malfunctions (* Er *, or * LL *) appear illuminated in the display.</li> </ul>
	<ul style="list-style-type: none"> <li><b>Display mode</b> <ul style="list-style-type: none"> <li>Here the user receives information on functions and malfunctions of pump P 233.</li> </ul> </li> <li>A test display is made when the voltage is applied, all segments are illuminated for 2 seconds. <i>Note: If * EP * is displayed after the display test, this indicates that keys of the membrane key pad are defective.</i></li> </ul>
	<ul style="list-style-type: none"> <li>The right-hand segment (On/h) indicates the available voltage supply during the pause time. As soon as another message is displayed, the segment turns off.</li> </ul>
	<ul style="list-style-type: none"> <li>The operating time is displayed as a circulating segment.</li> </ul>
	<ul style="list-style-type: none"> <li>* Er * is displayed as a flashing indication for a malfunction.</li> <li>* LL* is displayed as a flashing indication for a low level.</li> </ul>
	<ul style="list-style-type: none"> <li>The flashing display is changed into a continuous light by pressing this key (<b>acknowledging</b>). To <b>acknowledge</b>, press the key only briefly (less than 2 seconds).</li> </ul>
	<ul style="list-style-type: none"> <li>Signals which have been acknowledged but have not yet been remedied, flash again after the pump has been switched off and on again.</li> </ul>

Fig. 34 - Membrane key pad in display mode

## Operating mode

Display	Press	Important: The operating mode is accesible only during the pause time and cannot be operated during the running time (pump operating time).
 		<ul style="list-style-type: none"> <li>Precondition: When the voltage supply is applied, the segment (On/h) is lit.</li> </ul> <p><b>Operating option: Trigger an additional lube cycle</b></p> <ul style="list-style-type: none"> <li>* Press this key. The pause time already elapsed is reset. The operating time starts. A circulating segment is visible on the display during the whole operating time.</li> </ul>
       	 <p>after 2 sec.</p> <p>after 60 sec.</p>	<p><b>Operating option: Read information on how to set the pause time and remaining pause time.</b></p> <ul style="list-style-type: none"> <li>* Press this key.</li> </ul> <p><i>Note: The following display sequence is shown twice and is cancelled after 60 seconds. The change of display occurs every two seconds. Example:</i></p> <p>PP = 12h 30min  rP = 5 h 10 min  .. PP " (set pause time)  12 . (hours)</p> <p>. 30 (minutes)</p> <p>.. rP " (remaining pause time)</p> <p>5 . (hours)</p> <p>. 10 (minutes)</p> <p>occurs after second sequence</p>

Fig. 35 - Membrane key pad in operating mode

## Programming mode

Display	Press	Press									
			<p>* To access the programming mode, <b>press both keys at the same time &gt; 4 seconds.</b></p> <p><b>Programming options - Pause time:</b></p> <table border="0"> <tr> <td>P1</td> <td>0 - 59 hours</td> </tr> <tr> <td>P2</td> <td>0 - 59 minutes</td> </tr> <tr> <td>Min. pause time</td> <td>4 minutes</td> </tr> <tr> <td>Max. pause time</td> <td>59 hours 59 minutes</td> </tr> </table>	P1	0 - 59 hours	P2	0 - 59 minutes	Min. pause time	4 minutes	Max. pause time	59 hours 59 minutes
P1	0 - 59 hours										
P2	0 - 59 minutes										
Min. pause time	4 minutes										
Max. pause time	59 hours 59 minutes										
			<p><b>Set hours P1</b>  (set key)</p> <p>* Settings are made in one direction: 0, 1, 2, 3, ... 59 h            Key pressed once.....increases by 1 hour            Key pressed continuously.....quick sequence</p> <p>• The fields „hour“ and „minutes“ are indicated by a decimal point on the right hand for hours and on the left hand for minutes.</p>								
			<p><b>Set minutes P2</b>  (shift key)</p> <p>* Settings are made in one direction: 0, 1, 2, 3, ...59 min            Key pressed once.....increases by 1 minute            Key pressed continuously.....quick sequence</p> <p><i>Note: The minimum pause time begins with 4 minutes. When pause times &lt; 4 minutes (no indication of hour) the display automatically indicates . 04. Precondition: The programming sequence must have been carried out completely.</i></p>								
			<p><b>Complete programming mode</b></p> <p>* Press key „ P -“ indicates the programming end.  <b>Important:</b> In order to avoid a wrong programming, make sure to always carry out the programming sequence completely, i.e. setting of P1 (hours), P2 (minutes) and P-(programming end).</p> <p>• Complete the programming by pressing this key (additional lubrication).</p> <p><i>Note: If the displayed key „additional lubrication“ is not pressed within 30 seconds, the programming mode remains in the previously set time.</i></p>								
			<p><b>Important:</b> After completion of the programming sequence, also check the setting of the pause time in the operating mode (see page 13).</p>								

Fig. 36 - Membrane key pad in programming mode

## Troubleshooting

### Pump 233



- The circulating segment in the display of the membrane key pad indicates that the pump operates properly.

<ul style="list-style-type: none"> <li>• <b>Fault:</b> Pump motor does not run; stirring paddle does not turn</li> </ul>	
<ul style="list-style-type: none"> <li>• <b>Cause:</b></li> <li>• Power supply interrupted. Segment display for On/h is not lit.</li> <li>• Power supply from printed circuit board to motor interrupted. Electric motor defective.</li> <li>• Printed circuit board defective.</li> <li>• Key on membrane key pad defective.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Remedy:</b></li> <li>* Check the voltage supply to the pump/ fuses. If necessary, eliminate the fault or replace the fuses.</li> <li>* Check the feed line from the fuses to the plug of the pump and then to the printed circuit board.</li> <li>* Trigger an additional lube cycle. Check voltage supply from the p.c.b. to the motor, if necessary replace motor.</li> <li>* Replace p.c.b.</li> <li>* <b>*EP*</b> display is lit. Replace housing and membrane key pad.</li> </ul>





<ul style="list-style-type: none"> <li>• <b>Fault: Pump does not deliver lubricant</b></li> </ul>	
<ul style="list-style-type: none"> <li>• <b>Cause:</b></li> <li>• Reservoir empty. * LL * display on the membrane key pad is flashing.</li> <li>• Pump does not deliver lubricant and *Er * display on the membrane key pad is flashing.</li>   <li>• Air pockets in the lubricant.</li>   <li>• Improper lubricant has been used.</li> <li>• Suction hole of pump element clogged.</li>   <li>• Pump piston is worn.</li>   <li>• Check valve in pump element defective or clogged.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Remedy:</b></li> <li>* Fill up the reservoir with clean grease. Let the pump run (trigger additional lube cycle) until the lubricant shows at all lube points. <i>NOTE: Dependent on the ambient temperature and/ or type of lubricant, the pump element needs a longer run time to reach the full output capacity. Therefore, trigger several additional lube cycles.</i></li> <li>* Trigger several additional lube cycles. Lubricant must be dispensed without air bubbles (towards the lube point).</li> <li>* Change lubricant. Consider table of lubricants.</li> <li>* Remove pump element. Check suction hole for foreign particles. If there are any, remove them.</li> <li>* Replace pump element.</li> <li>* Replace pump element.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Pump motor does not stop dispensing (30 minutes monitoring time)</b></li> </ul>	
<ul style="list-style-type: none"> <li>• <b>Cause:</b></li> <li>• Piston detector (initiator) defective.</li>   <li>• Blockage in the system</li>   <li>• Cable connections from the piston detector towards the pump interrupted.</li> <li>• Printed circuit board defective.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Remedy:</b></li> <li>* Remove main line towards the monitored divider valve.</li>   <li>* Unscrew and check piston detector by introducing a <b>iron pin</b> into the borehole of the detector, <b>maintain it there for more than 2 seconds and pull out again</b>. If then the pump switches off, a blockage may exist; if the pump does not switch off, check cable connections towards the pump. If necessary, replace piston detector with connecting plug.</li> <li>* Check cable connections towards pump. If necessary, replace piston detector with connecting plug.</li> <li>* Exchange printed circuit board.</li> </ul>

## Replace the pump element

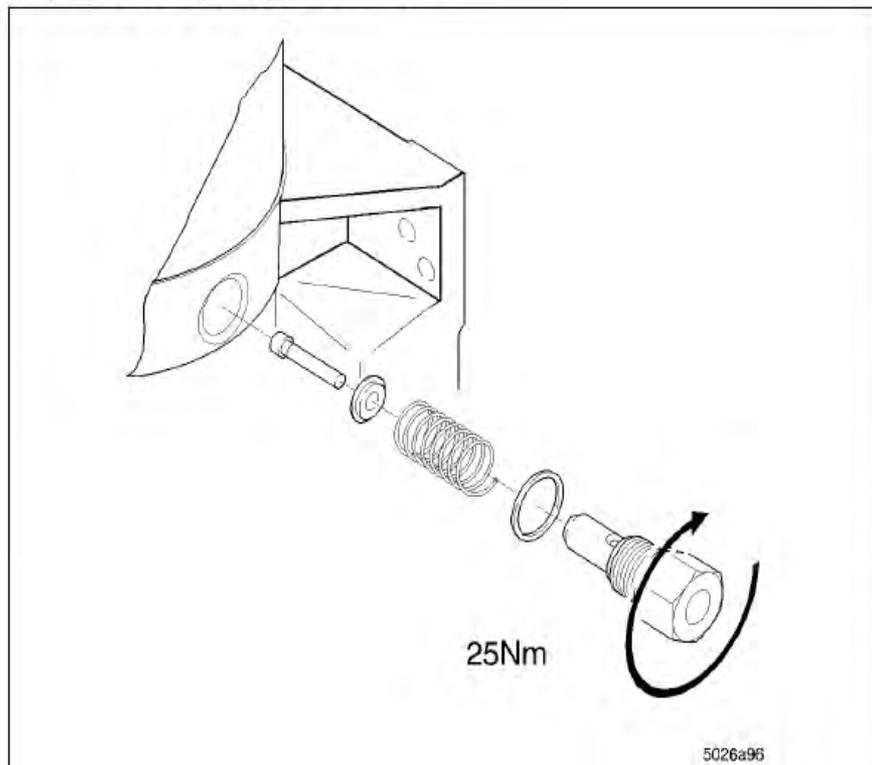


Fig. 38 - Replacing the pump element

- \* Remove the pressure relief valve from the pump element.
- \* Unscrew the pump element. Take care that the piston, the pull-back spring and the washer are not left lying in the grease, otherwise the reservoir must be disassembled in order to remove these pieces.

**Important:** Do not leave the piston, spring and washer in the housing because they may block the motor.

- \* Install a new pump element and a new sealing ring. Make sure that only one sealing ring is installed below the pump element.

*Note: Pump element with adjustable lubricant output must be set to the corresponding output.*

Electric Connection Diagram

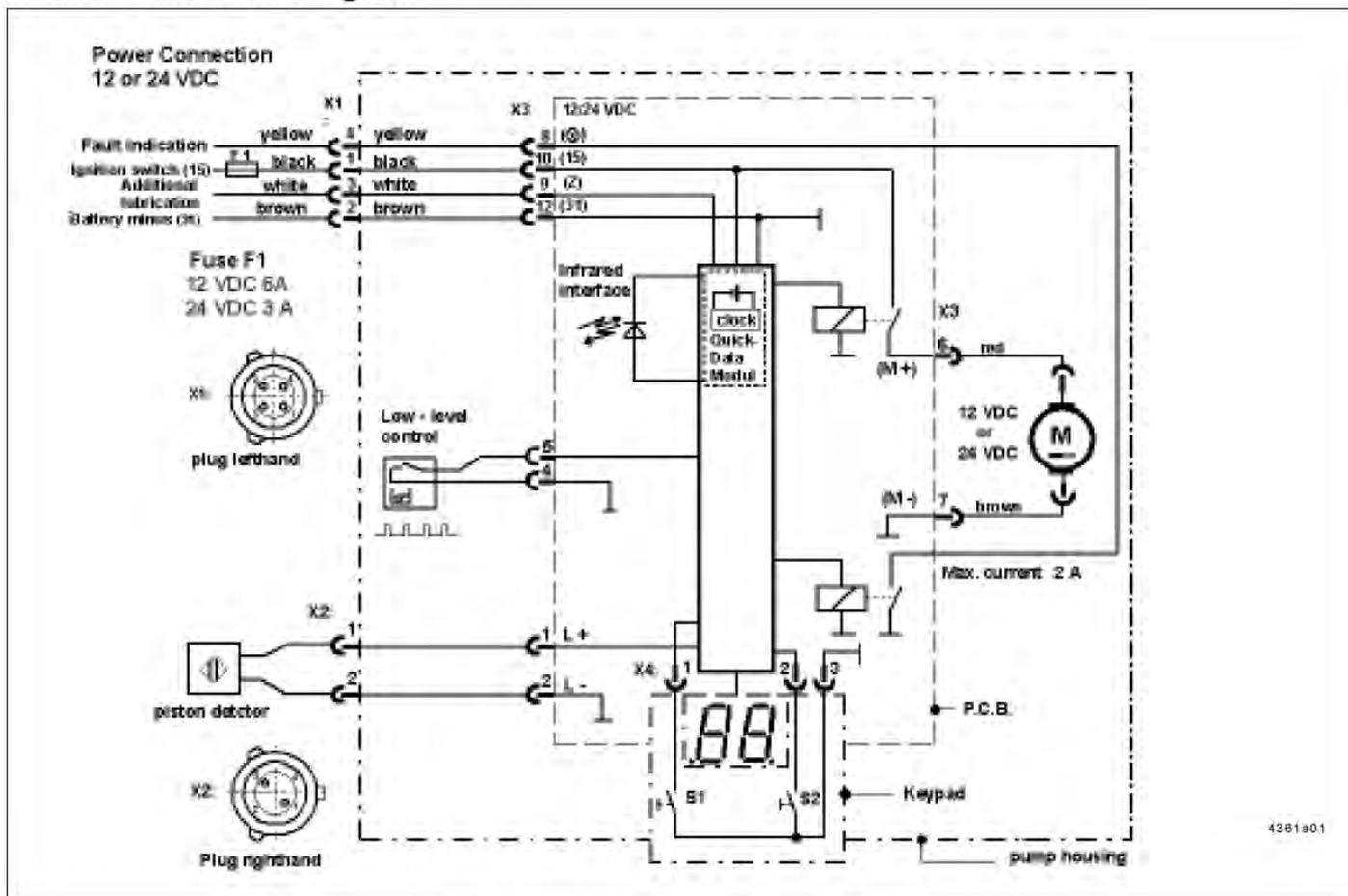


Fig. 39 - Connection diagram pump 233 with data logger



## Programming Cheat Sheet

1. Press and Hold red & green buttons until “P1” appears
2. “P1” is “hours” of Off-time (should be at “0”)
3. Press green button to change value, or red button to move to next page
4. “P2” is “minutes” of off-time (Eg: “20” or 20 minutes)
5. “P3” is the # of cycles per lube event (should be “1”)
6. “P4” is the switching of the alarm contact (should be “NO” for normally open)
7. At the “P-” symbol, press green button to save program and enter “run” mode.
8. Press and hold green button for 4 seconds to initiate a manual lube cycle and diagnostic



## **Contacts:**

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**Ask for: Technical Support**