Electronic lubrication control unit
Model 85307; Single line system
Contents

Description ........................................... 3
  Specifications ................................. 3
Features .............................................. 3
Safety .................................................. 4
  Operational precautions ................. 4
Explanation of signal words
for safety ........................................ 4
  Keypad layout ................................. 5
Panel description ................................. 6
Single line system using
  pressure switch ............................... 10
  Run cycle mode ................................. 17
  Running system (pump run) ............. 17
  Running system (pump pause) ......... 18
  Running system (vent cycles) ........ 18
  Single line systems with
    pressure switch ............................. 19
  Fault indications .................. 20
Warranty ............................................ 24
Description

Controller 85307 is a universal electronic control unit compatible with dual line, single line parallel and progressive lubrication systems. It gives flexibility and control over traditional single line systems. Controller layout displays what is happening and quickly diagnoses problems. Programming controller requires only simple information so that operator can focus on particular system in use.

Features

- Runs progressive, single line and dual line lubrication systems.
- Timing intervals from 5 seconds to 24 hours.
- Cycle counting.
- 10 V to 30 V operation.
- Short circuit/open circuit detection with audible warning.
- External fault lamp drive (Flash or steady output).
- Low level reservoir monitoring.
- Two sensor switch inputs.
- Visual and audible fault indication.
- Non-volatile memory.
- Built in “blown fuse” indicator.
- 3 digit LED display indicates exact status of system.
- Simple setup procedure.
- Test mode allows testing of all circuits connected to controller.
- Practical housing with mounting bracket.

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>10 V to 30 V</td>
</tr>
<tr>
<td>Current drain</td>
<td>150 ma maximum (no load) 70 ma nominal</td>
</tr>
<tr>
<td>Pump output</td>
<td>7A rms. maximum</td>
</tr>
<tr>
<td>Lamp output</td>
<td>3A maximum</td>
</tr>
<tr>
<td>Switching</td>
<td>Solid state short circuit protected</td>
</tr>
<tr>
<td>Fuse</td>
<td>8 Amp fast blow 0.79 in (20 mm) glass</td>
</tr>
<tr>
<td>Connection</td>
<td>14 way MOLEX MINIFIT - JR</td>
</tr>
<tr>
<td>Communications</td>
<td>RS232 type</td>
</tr>
<tr>
<td>Dimensions</td>
<td>2.8 in X 5.7 in X 1.5 in (70 mm X 145 mm X 38 mm) (^1)</td>
</tr>
<tr>
<td>Weight</td>
<td>0.66 lbs (300 g)</td>
</tr>
<tr>
<td>Protection</td>
<td>IP54</td>
</tr>
<tr>
<td>Temperature range</td>
<td>5 °F to 122 °F (-15 °C to 50 °C)</td>
</tr>
</tbody>
</table>

\(^1\): Includes mounting bracket.
Safety

Read and carefully observe operating instructions before unpacking and operating equipment. Equipment must be operated, maintained and repaired exclusively by persons familiar with operating instructions. Local safety regulations regarding installation, operation and maintenance must be followed.

Operate equipment only after safety instructions and this service manual are fully understood.

Operational precautions

User must have total understanding of controller specifications. Never connect any other voltage supply other than specified in manuals contained within.

Operator/owner must ensure installation or inspections are executed by authorized personnel who have thoroughly read operating instruction manual.

Any setting up or work on controller must be done while machine is off. Machine must be in position that will not cause harm to any person should machine be switched on for setting up of controller. In the event that the machine needs to be on for setting up of controller, it must be under condition that operator or personnel working on machine are advised.

Never switch machine on without prior knowledge of operator/owner or somebody that has full knowledge of machines operation.

Explanation of signal words for safety

NOTE
Emphasizes useful hints and recommendations as well as information to prevent property damage and ensure efficient trouble-free operation.

CAUTION
Indicates a dangerous situation that can lead to light personal injury if precautionary measures are ignored.

WARNING
Indicates a dangerous situation that could lead to death or serious injury if precautionary measures are ignored.

DANGER
Indicates a dangerous situation that will lead to death or serious injury if precautionary measures are ignored.
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Enter button</td>
</tr>
<tr>
<td>2</td>
<td>Run/Pause</td>
</tr>
<tr>
<td>3</td>
<td>Setup indicator</td>
</tr>
<tr>
<td>4</td>
<td>Mounting bracket</td>
</tr>
<tr>
<td>5</td>
<td>LED display</td>
</tr>
<tr>
<td>6</td>
<td>Cycle indicator</td>
</tr>
<tr>
<td>7</td>
<td>Second indicator</td>
</tr>
<tr>
<td>8</td>
<td>Minute indicator</td>
</tr>
<tr>
<td>9</td>
<td>Hour indicator</td>
</tr>
<tr>
<td>10</td>
<td>Select value down or silent buzzer</td>
</tr>
<tr>
<td>11</td>
<td>Blown fuse indicator</td>
</tr>
<tr>
<td>12</td>
<td>Fuse holder 8A</td>
</tr>
<tr>
<td>13</td>
<td>Power positive/negative</td>
</tr>
<tr>
<td>14</td>
<td>Ignition input/Aux power output positive</td>
</tr>
<tr>
<td>15</td>
<td>Sensor 1 positive/negative</td>
</tr>
<tr>
<td>16</td>
<td>Sensor 2 positive/negative</td>
</tr>
<tr>
<td>17</td>
<td>External lamp</td>
</tr>
<tr>
<td>18</td>
<td>Reservoir sensor connection</td>
</tr>
<tr>
<td>19</td>
<td>Pump motor positive/negative</td>
</tr>
<tr>
<td>20</td>
<td>RS 232 connection</td>
</tr>
<tr>
<td>21</td>
<td>Reservoir low level status indicator</td>
</tr>
<tr>
<td>22</td>
<td>Sensor 2 status indicator</td>
</tr>
<tr>
<td>23</td>
<td>Sensor 1 status indicator</td>
</tr>
<tr>
<td>24</td>
<td>Pump status indicator</td>
</tr>
</tbody>
</table>
Panel description

**SLS** = single line systems

**PLS** = Progressive line systems

**dls** = dual line systems

**n-O** = normally open (sensors)

**n-C** = normally closed (sensors)
**Fig. 7**

L - S = External lamp steady (continues supply)

**Fig. 8**

L - F = External lamp flashing (pulsed supply)

**Fig. 9**

nFE = non fatal error (pump continues on Low Level Fault)

**Fig. 10**

r = Run time in cycles

**Fig. 11**

P = Pause time in seconds, minutes or hours
**Fig. 12**

F = Fault time in seconds, minutes or hours

**Fig. 13**

U = Vent time in seconds, minutes or hours

**Fig. 14**

rCC = Run cycle counter

**Fig. 15**

YES = Confirms program changes

**Fig. 16**

tSt = Test mode for checking installed devices
t = Time out or dwell time for sensors

FE = fatal errors (pump stops on Low Level Fault)

n0 = Do not select selection

r = Run time in seconds, minutes or hours

. = Standby mode
Single line system using pressure switch

1. To enter setup mode press and hold ENTER while switching on power source to controller.
2. Release ENTER and red LED next to SETUP illuminates. Green LED next to PUMP flashes. PLS (progressive line systems) appears in display (Fig. 22 A).

3. Press Δ to select type of system required. Continue to press until SLS displays (Fig. 22 B).
4. Press ENTER to confirm use of single line systems (Fig. 22 C).
5  P (pause) appears in display. Press Δ to change time (Fig. 23 A). LED changes from seconds to minutes to hours. Amount displayed indicates what pause time functions at when applied.

6  Press ENTER to confirm pause time. In example, pause time of 4 hours is confirmed (Fig. 23 B).
7 Run time will default to that of cycles. Display shows either 99 cycles or amount of cycles setup before. In this example, 1 cycle is setup. Unit looks for 1 signal from pressure switch before going into VENT time. Press ENTER to accept.

8 Pressure switch time out displays. Press Δ to increase duration of time out required. Larger systems may take longer to pressurize complete system. It is important that system is tested to establish time out. Add around 50% more to actual time out for system to operate effectively without timing out before it has reached its pressure status.

9 Press ENTER to accept settings.
10 n-O (normally open) displays indicating whether pressure switch is normally open or normally closed. n-O switches are used for dual line systems.

Press Δ to choose between n-O or n-C.

11 Press ENTER to accept choice (Fig. 25 A).

12 nO displays. Green LED on PROXY 2 illuminates. For 2nd proxy, proceed by pushing Δ.

13 Press ENTER to accept and proceed setup as you would for proxy1.

14 Normally only 1 pressure switch is used. Press Δ until nO appears in display.

15 Press ENTER to accept.
16 U (vent) displays indicating time in seconds, minutes or hours of that it takes for system to vent before proceeding into next cycle or pause time.

It is possible to setup SLS with multiple cycles. For example, if 2 cycles are setup, unit operates for 1 cycle and then goes into vent time of 1 minute as indicated in display. After that minute has elapsed, pump turns back on and proceeds with next cycle. As soon as second cycle is reached, U displays and times itself out for time that it had been setup for. After completing 2 cycles and vent time, unit proceeds into pause time.

For this example, 1 cycle is setup and therefore only requires a short vent time as no further cycles are required before reaching pause sequence.

Press ENTER to accept vent time (Fig. 26 A).

17 n0 displays. Green LED on reservoir illuminates. Option of low level detection displays.

If low level detection is not required, push Δ and select n0.

18 Press ENTER to accept.

19 In this example low level option is selected. Press Δ until YES displays.

20 Press ENTER to accept (Fig. 26 B).

NOTE

10 second delay takes place on startup when using low level sensor to ensure paddle assembly is positioned correctly with sensor.

Sensor activates on low level after 10 seconds. Low level warning displays when unit reaches pause status.
21 n-O displays indicating whether sensor is normally open or normally closed. Press △ to choose between n-O or n-C.
22 Press ENTER to accept choice (Fig. 27 A).

23 FE (fatal error) or nFE (non fatal error) appears in display. Option FE (fatal error) is used for pump to stop on low level warning. This is mostly used on pumps with reservoir capacities of 0.26 gal to 2.6 gal (1 to 10 l). It is preferred to stop pump at low level in order to maintain layer of grease above pump element area. This helps by not allowing air pockets to form around pump element when filling up reservoir.
   In case of nFE (non fatal error), it is mostly used on larger pump reservoirs where distance of pump tube to bottom of reservoir is substantial.
   Select choice and press ENTER (Fig. 27 B).
24 L - F (lamp flashing) displays. This option is for an external warning lamp to be installed. Typically this function is used if monitoring is installed.

Press Δ and change status from L - F (lamp flashing) to L - S (lamp static).

L - F is a pulsed output supply and L - S is a constant output supply.

25 Press ENTER with either choice selected to move to next part of programming (Fig. 28 A).

26 tSt appears in display indicating test mode of setup procedure. Press Δ to start turning pump (Fig. 28 B). Correct pump from turning in wrong direction by changing polarity of wiring. It is possible to check other sensors by energizing them manually and watching if green LED illuminates. If LED does not illuminate, there is a problem with wiring or setup procedure.

If all is correct, turn off power to controller and then back on for unit to proceed into normal mode.

NOTE

tSt must appear in display before switching off power to unit. System does not save changes if power to unit is turned off during any part of programming. tSt must appear in display for changes to be confirmed.
Run cycle mode

After power is terminated on unit and then switched on again, unit proceeds in run mode. All devices teen selected display (Fig. 29).

**NOTE**

After each cycle received, amount decreases by 1 until all cycles have been reached and unit proceeds to pause time.

Running system (pump run)

Run time displays when controller is switched on. Time appears from actual time set and counts down to zero. Green LED indicates minutes (Fig. 30). Green LED next to PUMP flashes to indicate pump is turning or pumping.
Running system (pump pause)

Controller goes into pause time when required run time is reached. Pause time counts down from what it was setup for to zero and then resumes run time (Fig. 31). Green LED is steady next to PUMP indicating pump is there by not turning while in pause mode.

Running system (vent cycles)

In dual line system when U displays, pump stops pumping until line A or B pressure switch opens or that line is totally vented. As cycles complete, cycle count in U display counts down (Fig. 32).
Diagram 1

Single line systems with pressure switch

1) Top row represents back of controller.
2) Bottom row represents front of controller.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>External warning</td>
</tr>
<tr>
<td>2</td>
<td>Low level sensor</td>
</tr>
<tr>
<td>3</td>
<td>Motor</td>
</tr>
<tr>
<td>4</td>
<td>Power switch</td>
</tr>
<tr>
<td>5</td>
<td>Power supply</td>
</tr>
<tr>
<td>6</td>
<td>Pressure switch 1</td>
</tr>
</tbody>
</table>
Fault indications

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Press <strong>RUN/PAUSE</strong> to reset faults.</td>
</tr>
<tr>
<td>2</td>
<td>Fault indication – counts up from seconds to minutes to hours indicating how long fault has been active.</td>
</tr>
<tr>
<td>3</td>
<td>Press down button to silence buzzer.</td>
</tr>
<tr>
<td>4</td>
<td>Blown fuse indication. Replace with 8A fuse.</td>
</tr>
<tr>
<td>5</td>
<td>Change fuse here. Replace with 8A fuse.</td>
</tr>
<tr>
<td>6</td>
<td>Low level fault – possible cause, reservoir empty.</td>
</tr>
<tr>
<td>7</td>
<td>Proxy 1 fault – either faulty pressure switch or no lube in reservoir, or broken main line.</td>
</tr>
<tr>
<td>8</td>
<td>Pump faulty – either short circuit or wires have come off.</td>
</tr>
</tbody>
</table>

**NOTE**

Unit must perform one complete cycle of run and pause to cancel existing fault out of memory in order for fault to be reset. Unit is designed to memorize total time of any specific fault. Unit must run one complete cycle in order to function correctly without same fault occurring.
This page left intentionally blank.
This page left intentionally blank.
This page left intentionally blank.
Warranty

The instructions do not contain any information on the warranty. This can be found in the General Conditions of Sales, available at: www.lincolnindustrial.com/technicalservice or www.skf.com/lubrication.