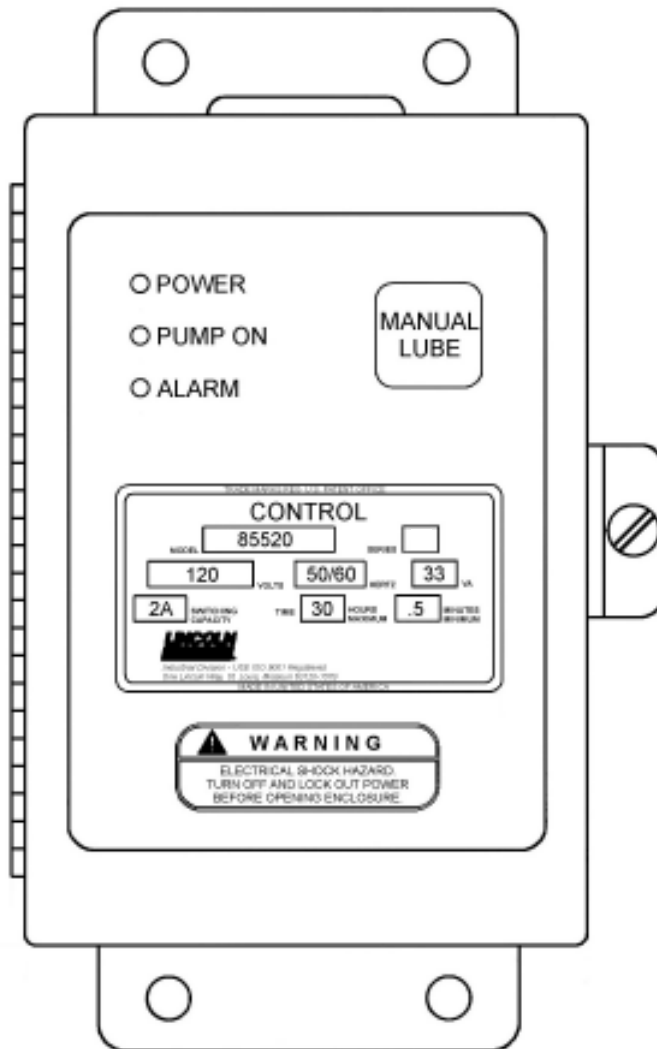


## Model 85520 Controller Series "A"



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### Safety

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

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



### Controller Operation

The time between lube events is determined by the setting of the rotary switch, which selects the numeral setting, and the dipswitch, which selects the units in either minutes or hours.

When used in the timer mode, the pump will remain on for the amount of time that was selected by the dipswitch. Time will be either 30 seconds or 5 minutes (see Timer Mode).

When used in the controller mode, the amount of time that the pump is on is determined by the closing of a pressure switch in the lube supply line (see Controller Mode). Failure of the pressure switch to close within the time setting of the dipswitch, either 30 seconds or 5 minutes, will result in an alarm condition. No further lube cycles will take place.

When the low-level switch closes, the alarm LED will turn on and the alarm contact will close. No further lube cycles will take place. Alarm condition will remain until low-level switch opens.

Pressing the manual lube button on the enclosure cover will always initiate a lube event.

Setting the dipswitch to “Memory Off” will result in a lube cycle each time power is turned on to the controller. By setting the dipswitch to “Memory On” and if power has been off less than 2 hours, and then is reapplied, the lube cycle will continue from the point of interruption.

### Timer Mode

When the dipswitch is set to the timer mode, amount of time that the pump is on will be determined by the setting of the dipswitch. Time will be either 30 seconds or 5 minutes.

### Controller Mode

When the dipswitch is set to the controller mode, a pressure switch must be installed in the lube supply line. This will provide pressure-monitoring capabilities. The pressure switch will reset the controller when the set pressure is detected. The controller will initiate an alarm when the pump fails to develop sufficient pressure to actuate the pressure switch within the dipswitch setting of 30 seconds or 5 minutes.

## Description

### General Description

Model 85520 controller is used to program the cycle frequency of a lubrication pump. Lube cycles are determined by the setting of internal switches. The cycles times are selected to meet system requirements. During the “ON” time, the air to the pump solenoid or motor starter will be energized. Both are external devices.

### Appropriate Use

- Model 85520 is exclusively designed for use in a Centralized Lubrication System.
- The maximum ratings given should not be exceeded.
- Any other use not in accordance with the instructions will result in loss of claim for warranty and liability.

### Product Specification:

Input Voltage:	<b>120 VAC 50/60 HZ</b>
Current Consumption:	<b>20 MA (less external load)</b>
Load Relay Contact:	<b>2 amps inductive load at 120 VAC</b>
Alarm Relay Contact:	<b>2 amps inductive load at 120 VAC</b>
Enclosure:	<b>NEMA 12</b>
Temperature Range	<b>-10° F to 150° F (-23° C to 66° C)</b>
Net Weight	<b>4 lbs.</b>
Off Time (adjustable) -	<b>30 seconds minimum</b> <b>30 hours maximum</b>
On Time -	<b>30 seconds minimum</b> <b>5 minutes maximum</b>
Memory Retention -	<b>2 hours</b>
Lubrication System	<b>Centro Matic</b>

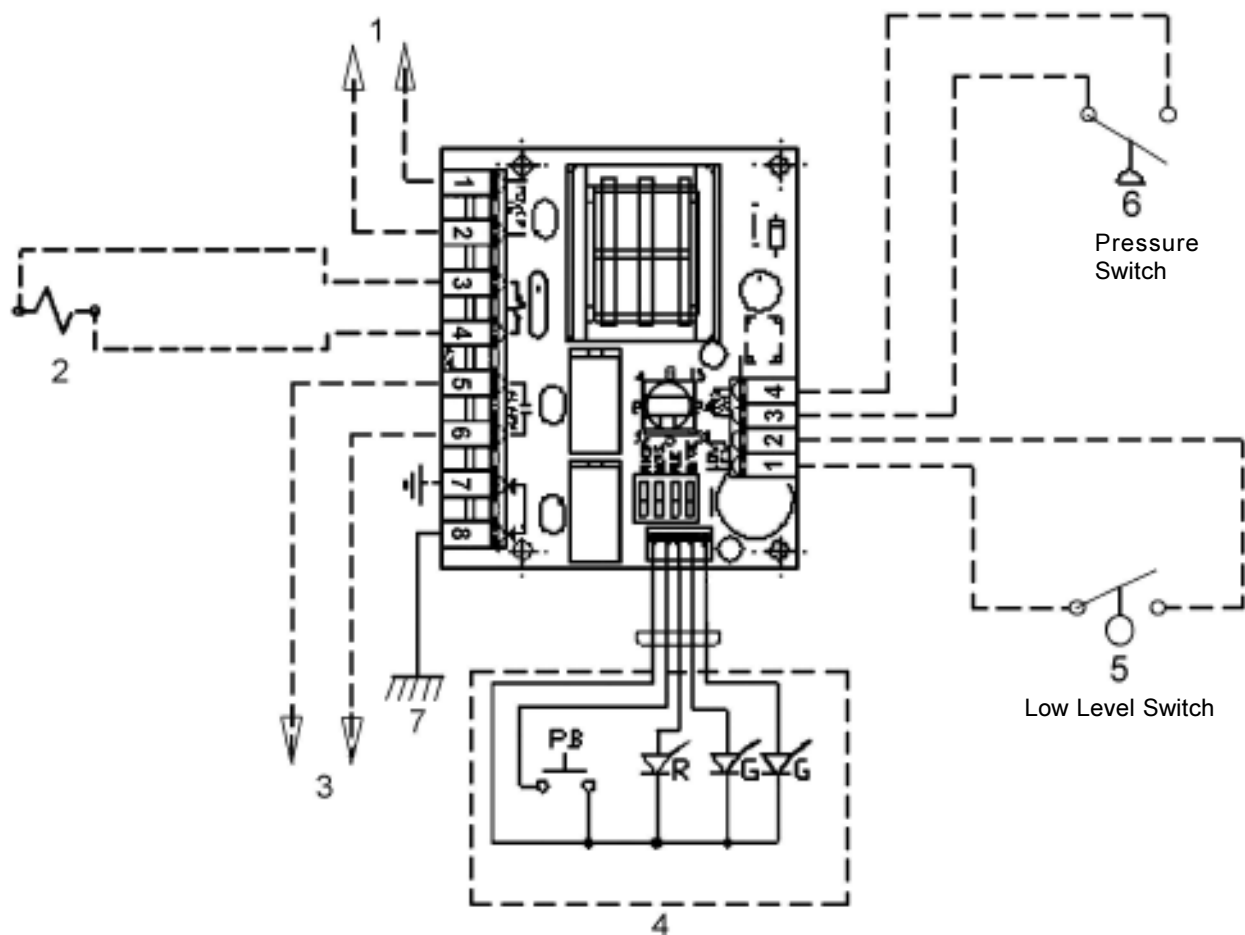
## Field Connections

### Terminal Strip 1 through 8 - See Illustration 1

Terminals 1 & 2 - Incoming power 120 VAC 50/60 HZ.  
 Terminals 3 & 4 - 120 VAC source for external air to pump solenoid or motor starter coil.  
 Terminals 5 & 6 - Alarm contact (contact closes on fault).  
 Terminals 7 & 8 - Connection for grounding conductor.

### Terminal Strip 1 through 4 - See Illustration 1

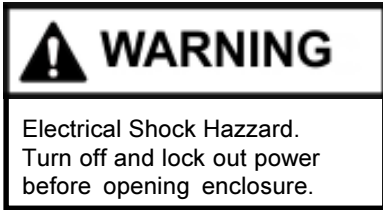
Terminals 1 & 2 - Connection for Low Level Switch (alarms on closure of switch).  
 Terminals 3 & 4 - Connection for Pressure Switch (only used in the controller mode).



**Illustration 1**

### Wiring Diagram

1. Incoming Power: 120 VAC 50/60 hz
2. 120 VAC Air Solenoid Valve or Motor Starter.
3. Optional Alarm wired by customer.
4. Keypad with indicator lights and manual lube push button.
5. Optional Low Level Switch wired by customer.
6. Pressure Switch wired by customer. Not needed if used in the timer mode.
7. Grounding Connection.



## Controller Components and Setting the Controller

### Dipswitch Identification - See Illustration 2

- 30 seconds or 5 minutes - Select the maximum amount of "On Time".
- Timer or Controller - Select Timer Mode or Controller Mode.
- Hours or Minutes - Select the unit for the "Off Time" Rotary Switch.
- Memory Off or Memory On - Select memory feature.

### Off Time Switch - See Illustration 2

Using the Rotary Switch you can select .5, 1, 2, 4, 8, 15, 24 or 30. The units are either minutes or hours as determined by the dipswitch setting.

### Enclosure Cover - See Illustration 2

- Green LED - Indicates that power is applied to the controller.
- Green LED - Indicates that the pump is on.
- Red LED - Indicates an alarm condition.
- Manual Lube - Pressing will initiate a lube cycle.

## Repair Parts List

Item	Quan.	Description	Part Number
1	1	Timer Board	249694
2	1	Keypad Ass'y	249695

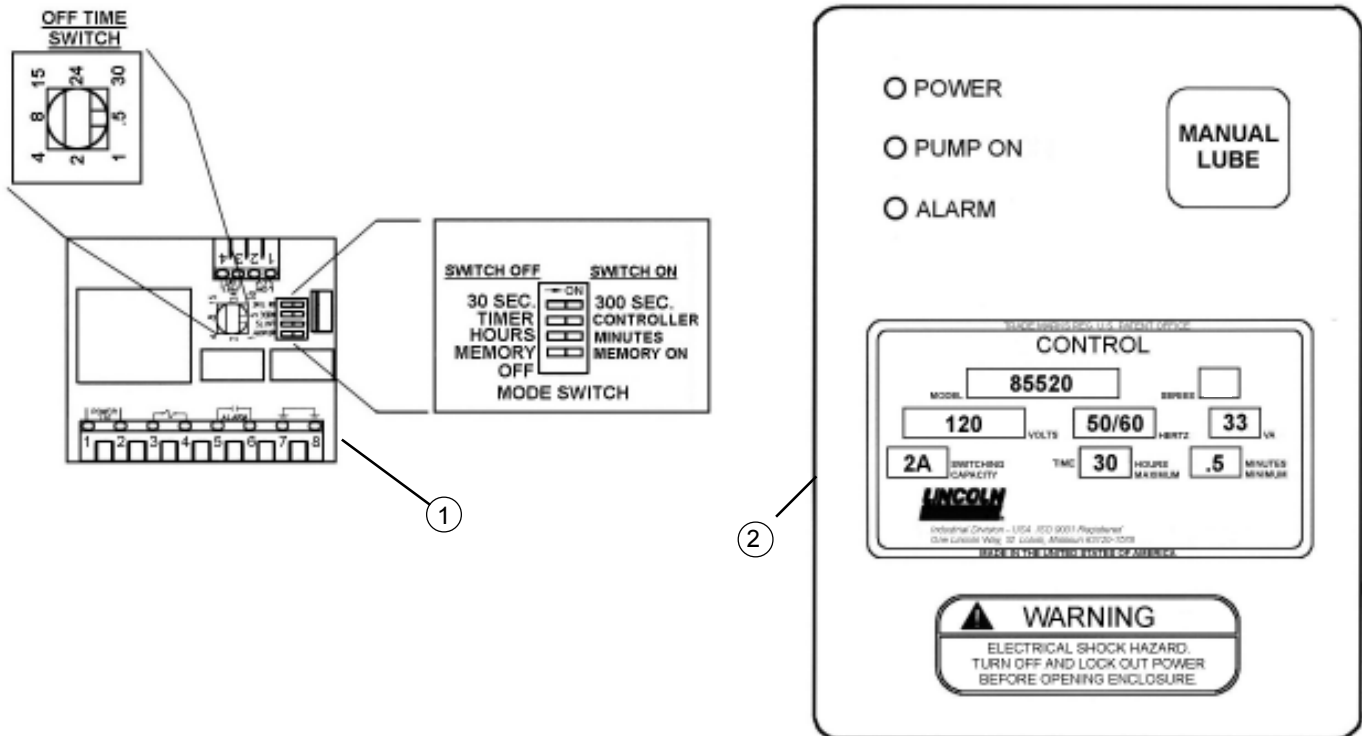
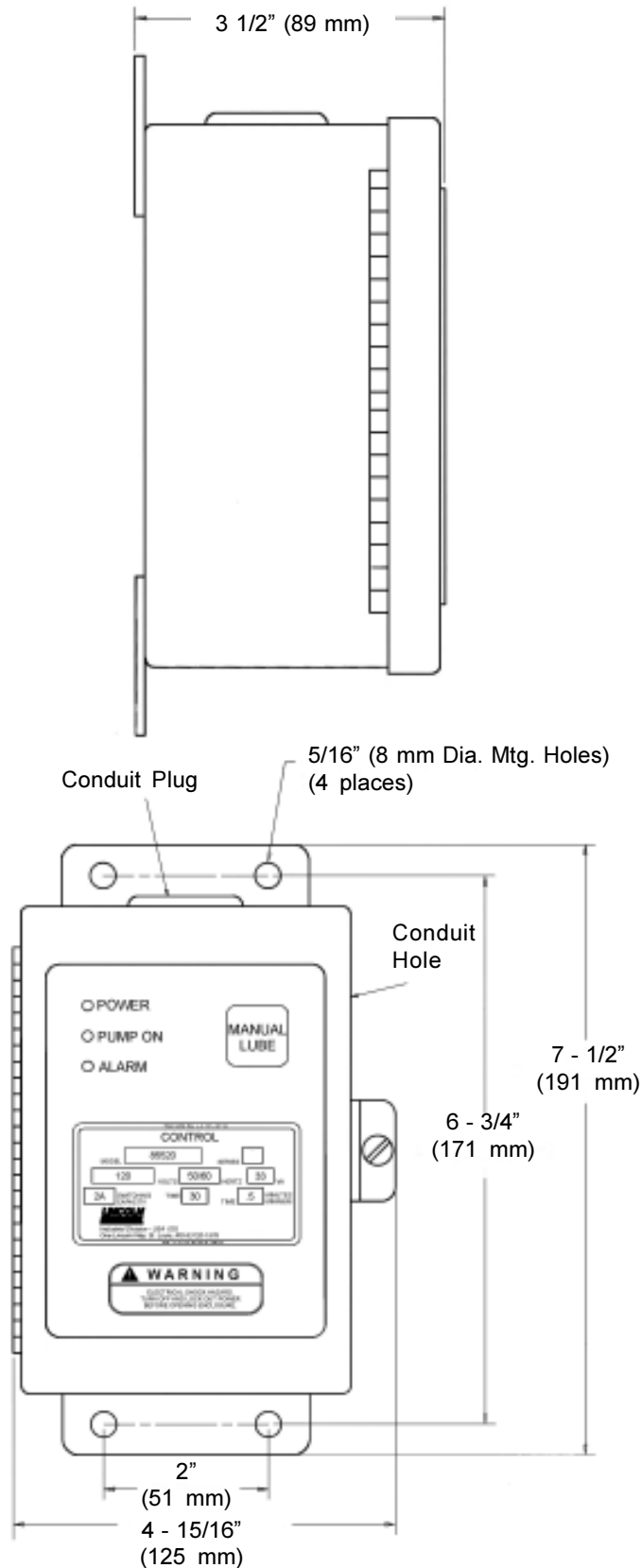


Illustration 2



## Dimensions

## Lube System without Alarm Monitoring

Condition	Possible Cause	Corrective Action
Controller does not operate.	No electric power to controller.	Turn on electric power to pump. "Power" L.E.D. should light, "PUMP ON" L.E.D. should light when "MANUAL LUBE" is pressed.
"PUMP ON" L.E.D. lights, but load connected to terminals 3 & 4. DO NOT ENERGIZE.	Printed circuit board failure.	Remove and replace.
Load connected to terminals 3 & 4 energized, but "PUMP ON" L.E.D. does not light.	Printed circuit board failure or keypad failure.	Remove and replace.
Bearing points are over lubricated.	Timer/Controller memory mode is set to off.	Turn on memory mode of timer/controller.
	Injector output adjustment setting too high.	Readjust to lower setting.
Bearing points are under lubricated.	Timer/Controller cycle time setting too low.	Set to longer cycle time or reevaluate lube requirements.
	Injector output adjustment setting too low.	Readjust to right setting.
	Timer/Controller cycle timer setting does not deliver lubricant often enough.	Set to shorter cycle time or reevaluate lube requirements.
	System too large for pump output.	Calculate system requirements per planning manual.
"Lube Alarm" L.E.D. turns on with each lube cycle, and pump will not initiate another lube cycle automatically.	Timer/Controller set to "Controller Mode" without a pressure switch in the supply line.	Connect a pressure switch into the supply line and connect to timer/controller or place mode switch in "Timer" mode.
	Low level switch wired incorrectly.	Check low level switch wiring and correct if necessary. Contact closure must be on low level condition.

## Additional Troubleshooting when Alarm Monitoring is used

Some, but not all, of the injectors are delivering lubricant. There is no alarm condition.	Timer/Controller is set to "Timer"	Set Timer/Controller to "Controller Mode."
	Pressure switch setting is too low.	Adjust pressure setting to setting high enough for all injectors to cycle.
"Lube Alarm" L.E.D. turns on with each lube cycle, and pump will not initiate another lube cycle automatically	Bad electrical connection between Pressure Switch and Timer/Controller.	Check all wiring between Pressure Switch and Timer/Controller.
	Pressure switch setting is too high.	Adjust pressure switch to setting high enough for all injectors to cycle.
	Pressure Switch is defective.	Repair or replace.
	Printed circuit board is defective.	Replace printed circuit board.
	Low level switch wired incorrectly.	Check low level switch wiring and correct if necessary. Contact closure must be on low level condition.

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## NOTES

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