

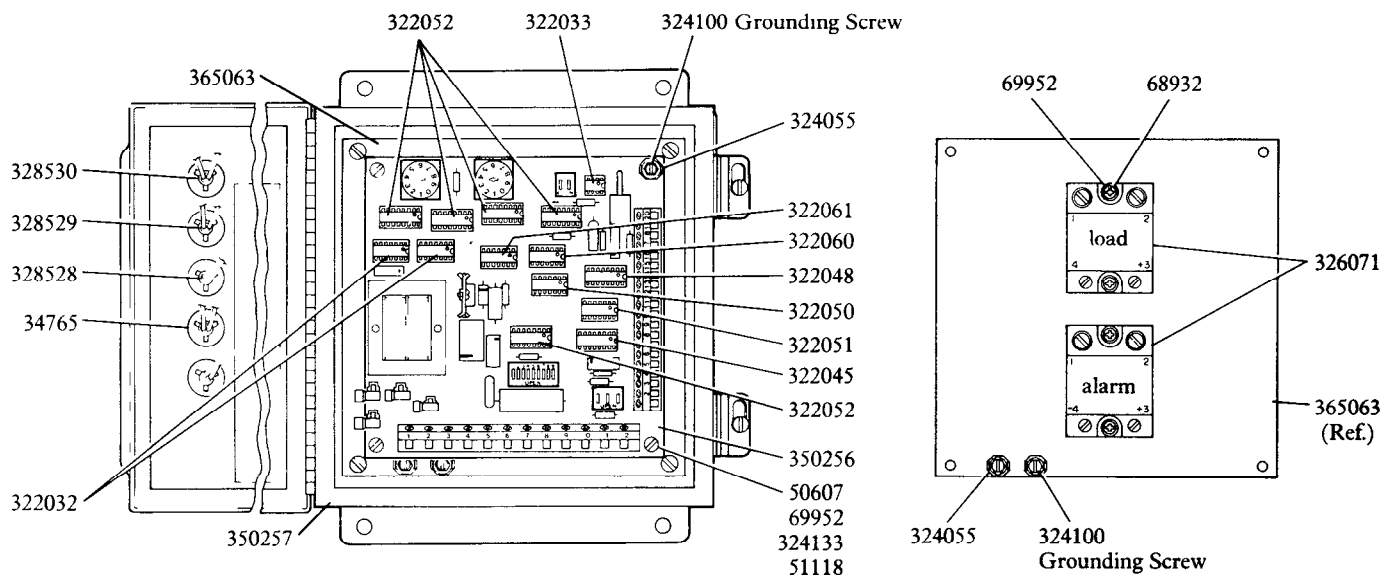
SOLID-STATE CONTROL

FOR CENTRO-MATIC OR
MODULAR LUBE APPLICATION

Model 84510

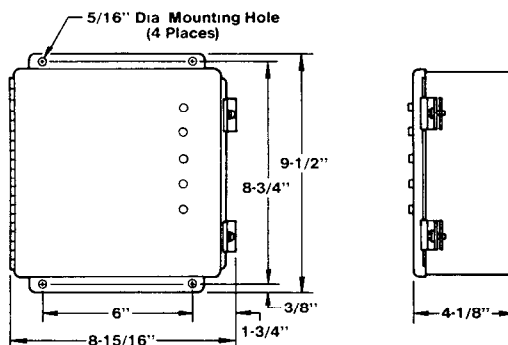
U.L. AND C.S.A. LISTED

Series "A"



LOWER PANEL

DIMENSIONS



SERVICE PARTS

PART	QUAN.	DESCRIPTION	PART	QUAN.	DESCRIPTION
34765	5	Gasket	*322060	1	Integrated circuit
50607	3	Screw	*322061	1	Integrated circuit
51118	4	Locknut	324055	3	Washer
68932	4	Screw	324100	3	Grounding Screw
69952	7	Lockwasher	324133	4	Spacer
*322032	2	Integrated circuit	326071	2	Relay
*322033	1	Integrated circuit	328528	3	Red L.E.D. w/fastener
*322045	1	Integrated circuit	328529	1	Amber L.E.D. w/fastener
*322048	1	Integrated circuit	328530	1	Green L.E.D. w/fastener
*322050	1	Integrated circuit	350256	1	Circuit board assembly
*322051	1	Integrated circuit	350257	1	Enclosure
*322052	5	Integrated circuit	365063	1	Mounting plate

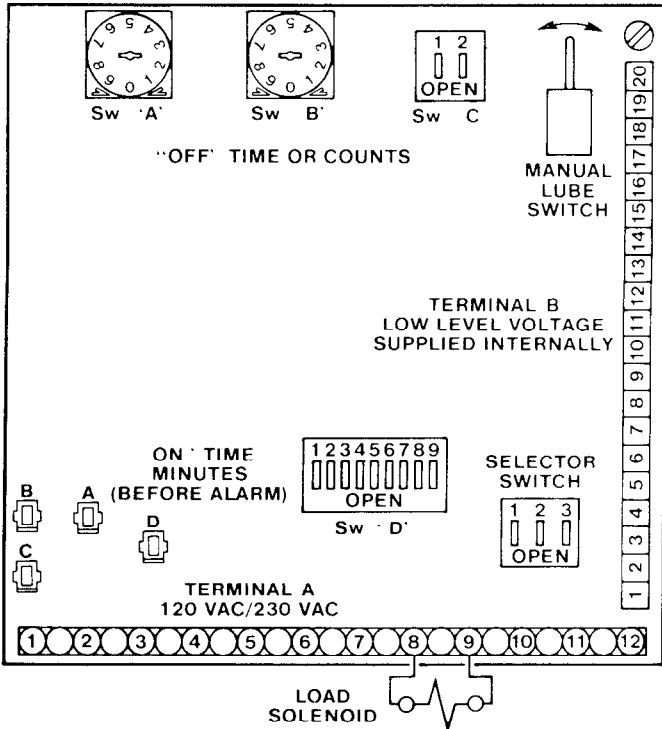
*Included in 237062 Repair Kit.
Repair kit also includes 237001 IC Insertion Tool and 237067 Extractor Tool for use when replacing integrated circuits.



A PENTAIR COMPANY

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(314) 679-4200

SECTION - **C8**
PAGE - **226**



GREEN GROUNDING SCREW

- G** POWER ON
- A** PUMP ON
- R** LUBE FAILURE
- R** LOW LEVEL
- R** HIGH PRESSURE

CONTROL PANEL SETTINGS

The following control panel internal settings must be made to fit customer's needs

SELECTOR SWITCH SETTINGS

SWITCH #	OPEN	CLOSED
1	TIMER	COUNTER
2	CONTINUOUS ON LOAD	PULSATING LOAD 4 SEC ON 4 SEC OFF
3	N C ALARM	N O ALARM

Centro-Matic Applications - "Continuous on" load for Auto-Reciprocating Pumps or Single Acting Pumps, open Selector Switch #2

After initiating a lube cycle, the time clock or counter will not start toward next cycle until sufficient pressure has built up in system to activate pressure switch. Failure to vent pressure, releasing pressure switch, will be detected in the following lube cycle

Modular Lube Applications - "Continuous on" load for Auto-Reciprocating Pumps, open Selector Switch #2

"Pulsating on" load (4 sec on and 4 sec off) for Single Acting Pumps, close Selector Switch #2

After initiating a lube cycle, the time clock or counter will not start toward next cycle until lubricant is dispensed and cycle reset switch has actuated

"Off" Time or Machine Strokes Between Lube Cycles - The interval between lube cycles is determined by the settings of Sw "A", Sw "B", Sw "C" and Selector Switch #1

SWITCH C SETTINGS		MINUTES OR COUNTS	
1	2	SWITCH "A"	SWITCH B
CLOSED	CLOSED	TENS	UNITS
OPEN	CLOSED	HUNDREDS	TENS
OPEN	OPEN	THOUSANDS	HUNDREDS

EXAMPLE: Sw. "C" number 1 open
 Sw. "C" number 2 closed
 Sw. "A" set to 1 (Hundreds)
 Sw "B" set to 2 (Tens)

With Selector Switch #1 open (timer mode), the interval between lube cycles will be 120 minutes. With Selector Switch #1 closed (counter mode), the interval between lube cycles will be 120 counts or machine strokes.

"On" Time Before Alarm (in Minutes) - "On" time setting should be approximately 2 minutes longer than required pumping time. Switch "D" **must** have **one** switch closed between 1 and 9 (representing minutes). **IMPORTANT: Control will not operate properly if none of the rocker switches are closed or more than one rocker switch is closed.** If lube cycle is not completed within this alarm setting, system will go into alarm causing red lube failure L.E.D. to light and pump to stop. **NOTE:** Power must be disconnected or manual lube switch actuated to reset control during an alarm condition

PRE-LUBE

With power "turn on", the first lube cycle is initiated. Subsequent lube cycles occur per settings of Sw. "A", Sw "B" and Sw "C"

LIGHTS - L.E.D.

- Green light indicates power is on.
 - Amber light indicates pump is on.
 - Red lube failure light indicates lube fault.
 - Red low level light indicates low level condition.
 - Red high pressure light indicates high pressure condition.
- (Used for Modular Lube applications.)

NET WEIGHT

Approx. 11 lbs.

ENCLOSURE

Oil tight JIC (NEMA 12) enclosure

AMBIENT TEMPERATURE RATING

0° F to 130° F
 - 18° C to 55° C

MANUAL LUBE

Pushing the Manual Lube Switch (inside enclosure) will initiate a lube cycle.

TRANSIENT PROTECTION

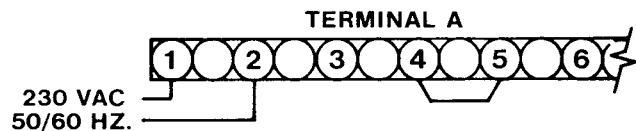
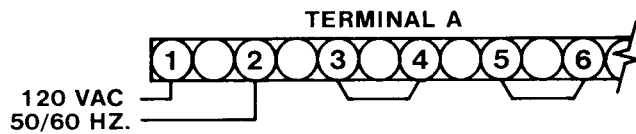
2500V Max. @ 1000 A (8/20 micro sec.)

SURGE SUPPRESSORS / SHIELDED WIRE

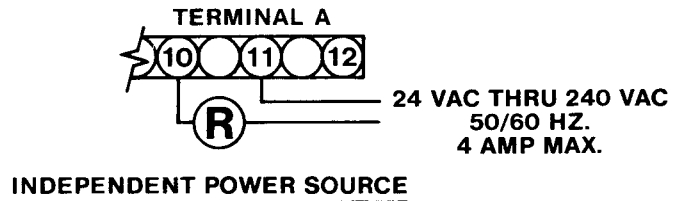
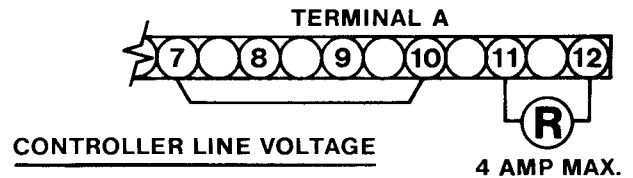
In some cases it may be necessary to use Surge Suppressors when inductive devices are controlled by the Load Triac or Alarm Triac. It is recommended that the Surge Suppressors be located as close to the inductive device as possible.

It is also recommended that shielded wire be used on all input / output lines to reduce problems with electrical noise.

POWER CONNECTIONS



ALARM POWER SOURCE



WIRE CONNECTIONS - Terminal Strip A

Power Source -

120 VAC, 50/60 Hz. - Terminals 1 & 2, jumper wire between Terminals 3 & 4, jumper wire between Terminals 5 & 6.

230 VAC, 50/60 HZ. - Terminals 1 & 2, jumper wire between Terminals 4 & 5.

Solenoid or Load Device - Terminals 8 & 9. Rated 120/230 VAC at 4 Amps with power factor .5 or above. For power factor .29 to .5, derate 120/230 VAC at .75 Amps.

External Alarm Signaling Device - Non-committed lube fault circuit for machine interlock or alarm signal. Max. alarm load rated to 240 VAC at 4 Amps with power factor .5 or above. For power factor .29 to .5, derate 240 VAC at .75 Amps.

Independent Power Source: Terminals 10 & 11. Independent line voltage is connected to terminal 11. The other side of independent line voltage is connected to alarm signaling device. The other side of alarm signaling device is connected to terminal 10.

Internal Power Source: Alarm signaling device between terminals 11 & 12 with a jumper wire connected between terminals 7 & 10. The voltage that appears at terminals 11 & 12 will be the same voltage that appears at terminals 1 & 2 (line voltage).

Selector Switch #3 determines Normally Closed or Normally Open alarm circuit. Close switch for N. O. circuit, open switch for N. C. circuit.

Normally Open circuit closes on lube fault. When power is turned on, alarm signaling device will remain de-energized unless control goes into alarm. Alarm device will then turn on and remain on. Red lube failure L.E.D. will turn on only when control goes into alarm.

Normally Closed circuit opens on lube fault or power interruption to controller. When power is turned on, alarm signaling device will remain energized unless control goes into alarm. Alarm device will then turn off and remain off. Red lube failure L.E.D. will turn on only when control goes into alarm.

WIRE CONNECTIONS - Terminal Strip B

Low Level Switch - Terminals 2 & 3. When Low Level Switch closes, the red low level L.E.D. will turn on indicating low lubricant level. Low level switch must be capable of switching 12 VDC at 10 mA.

Count Switch - Terminals 6 & 7. When Selector Switch #1 is closed, controller serves as a counter with count switch providing counts to controller. Count switch must be capable of switching 12 VDC at 12 mA. Count Rate: 500 counts/minute at 50% duty cycle.

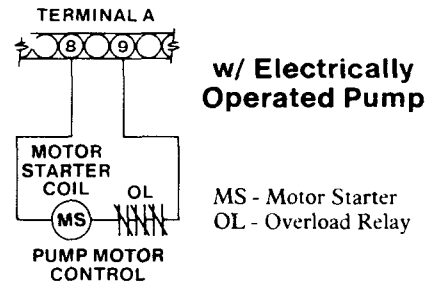
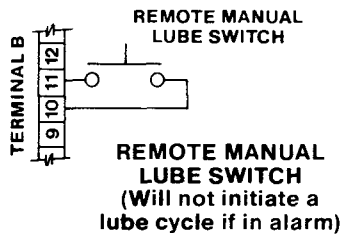
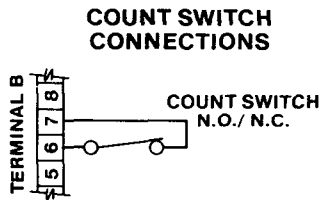
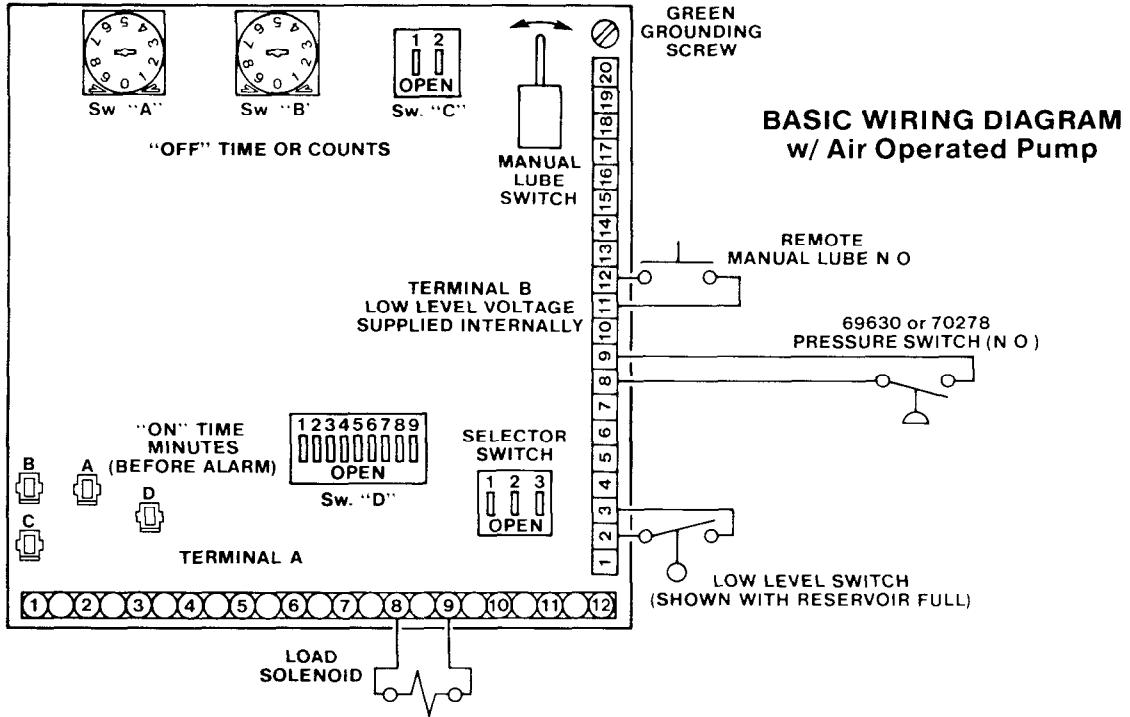
Pressure Switch (Centro-Matic) - Terminals 8 & 9. Connect a N.O. pressure switch to reset system. Pressure switch must be capable of switching 12 VDC at 10 mA.

Cycle Reset Switch (Modular Lube) - Terminals 8 & 9. Connect a N.C. cycle switch to reset system. Cycle switch must be capable of switching 12 VDC at 10 mA.

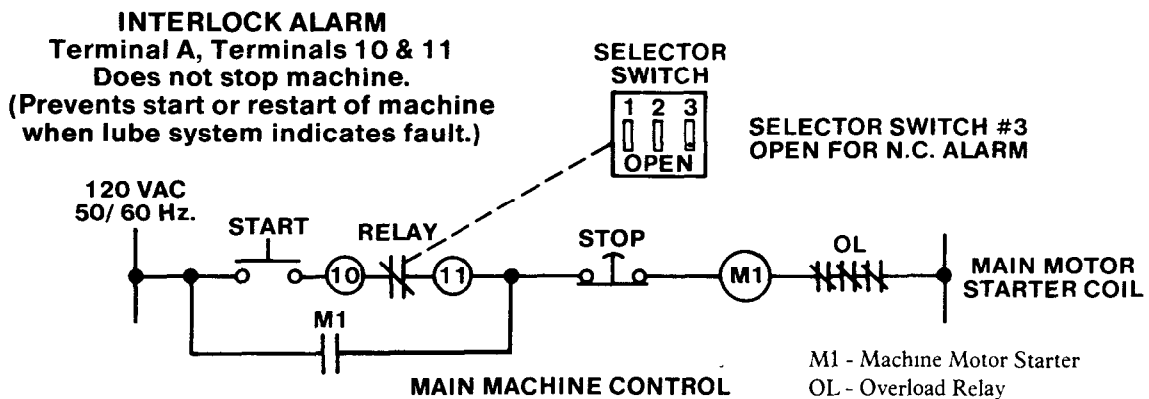
High Pressure Switch (Modular Lube) - Terminals 4 & 5. When high pressure switch closes, the red high pressure L.E.D. will light indicating high pressure condition. High pressure switch must be capable of switching 12 VDC at 10 mA.

Remote Manual Lube (N.O.) - Terminals 11 & 12. Depressing remote N.O. manual lube switch will initiate a lube cycle. Remote manual lube switch must be capable of switching 12 VDC at .5 Amps.

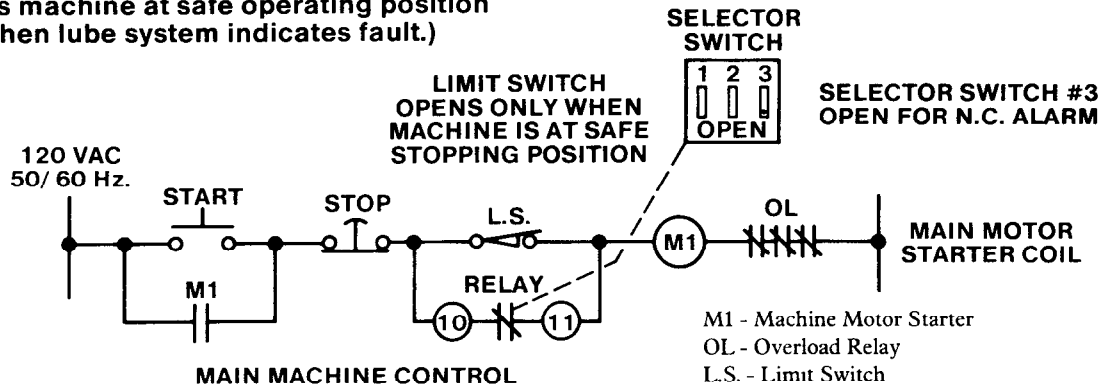
WIRING DIAGRAMS FOR CENTRO-MATIC LUBE SYSTEMS



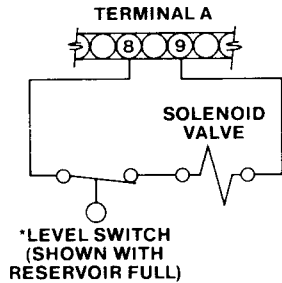
VARIATIONS FROM BASIC WIRING DIAGRAMS



INTERLOCK INTO MAIN CONTROL
 Terminal A, Terminals 10 & 11
 (Stops machine at safe operating position
 when lube system indicates fault.)

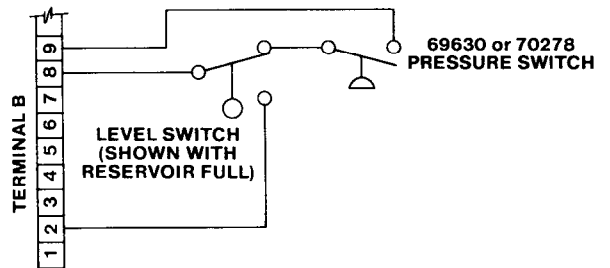


**LEVEL SWITCH TO INDICATE
 LUBE FAULT FOR ELECTRIC MOTORS,
 HYDRAULIC OR AIR OPERATED PUMPS**
 (Stops all subsequent lube events)

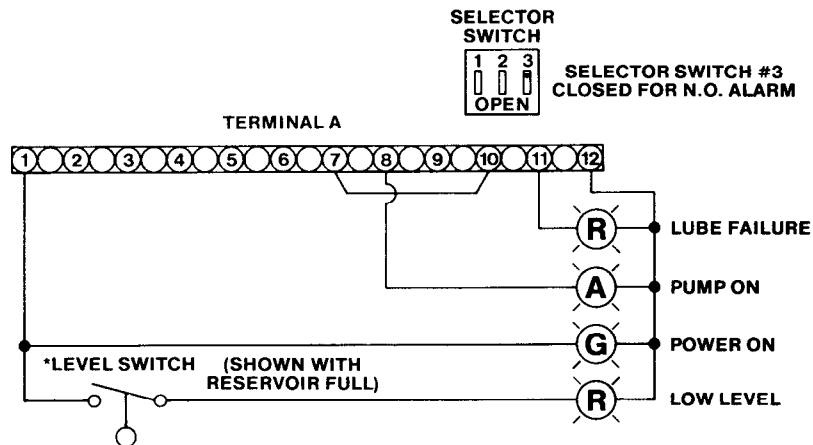


*Level Switch must
 have the ampacity
 to control operation
 of the solenoid valve.

**LEVEL SWITCH TO INDICATE
 LUBE FAULT AND LOW LEVEL FOR
 REGULATED AIR OPERATED PUMP**
 (Stops all subsequent lube events)

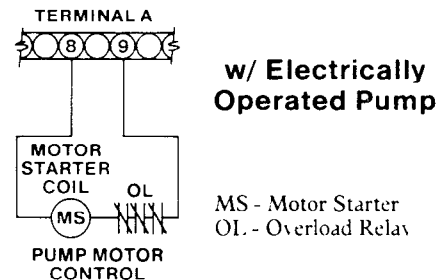
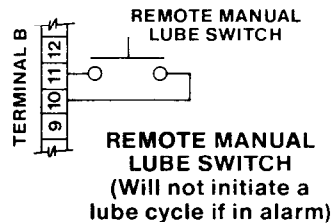
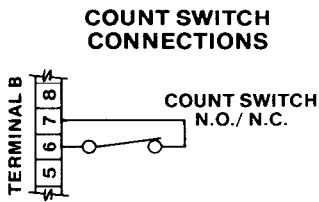
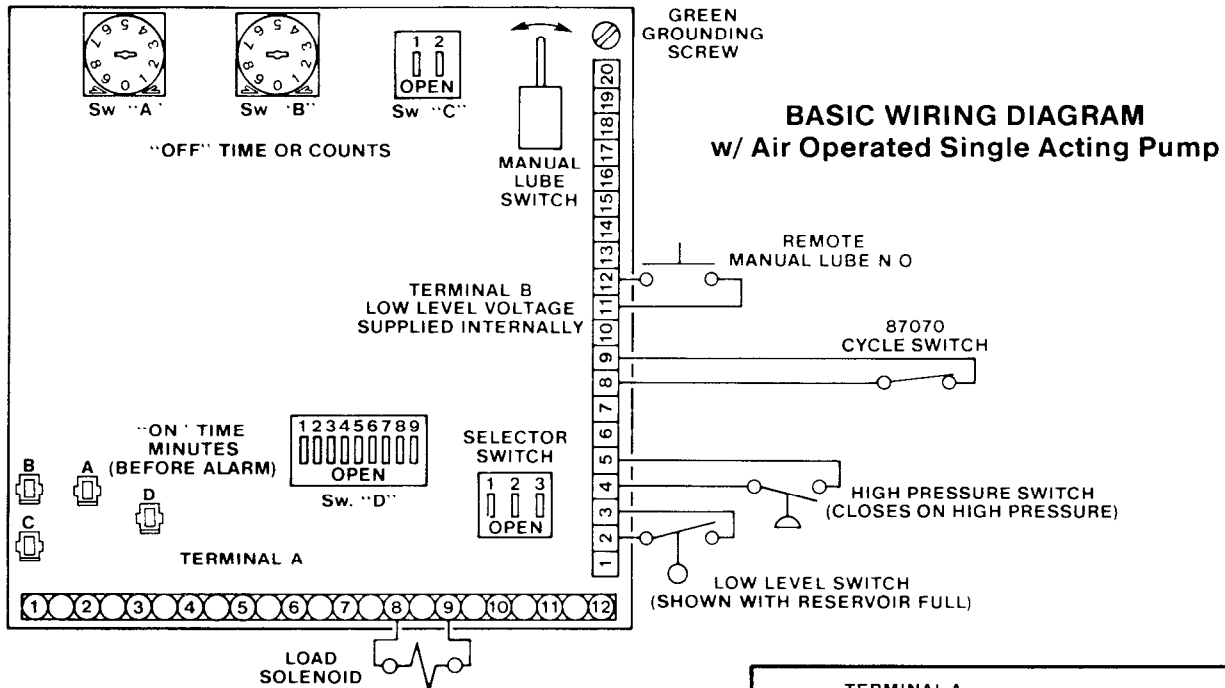


REMOTE SYSTEM STATUS INDICATING LAMP CONNECTIONS
 (Total current must not exceed 4 amps)

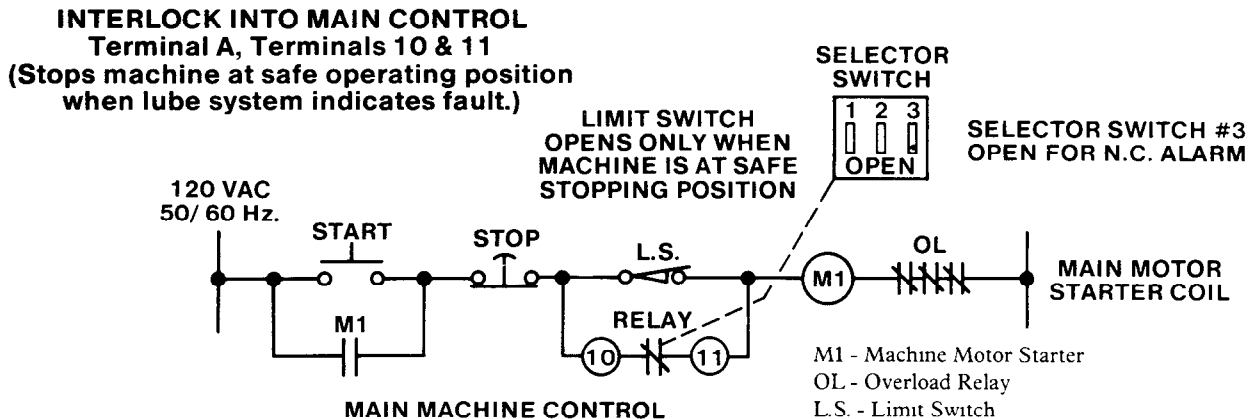
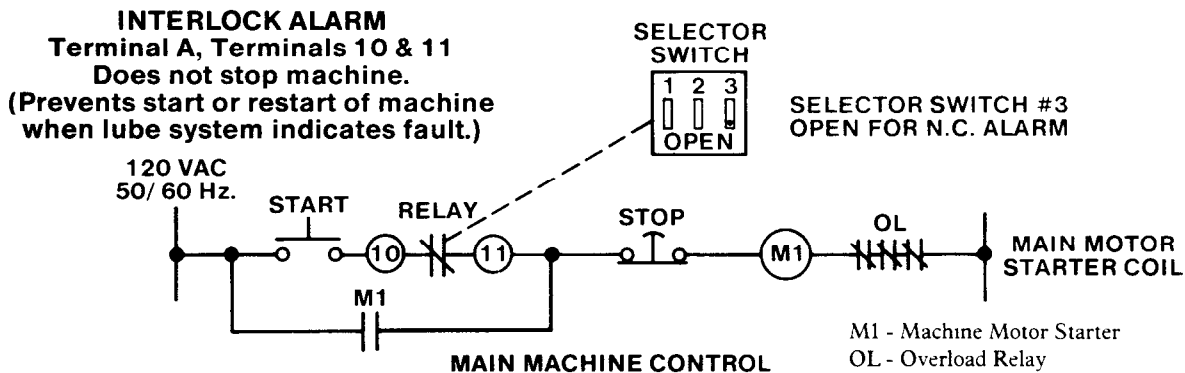


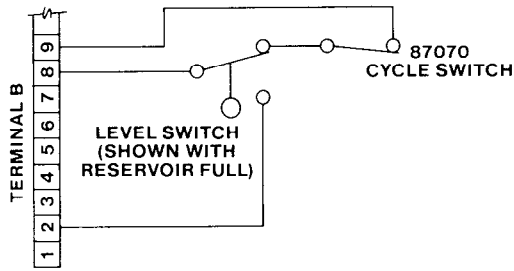
*Level Switch must
 have the ampacity
 to operate lamp.

WIRING DIAGRAMS FOR MODULAR LUBE SYSTEMS



VARIATIONS FROM BASIC WIRING DIAGRAMS

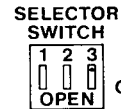




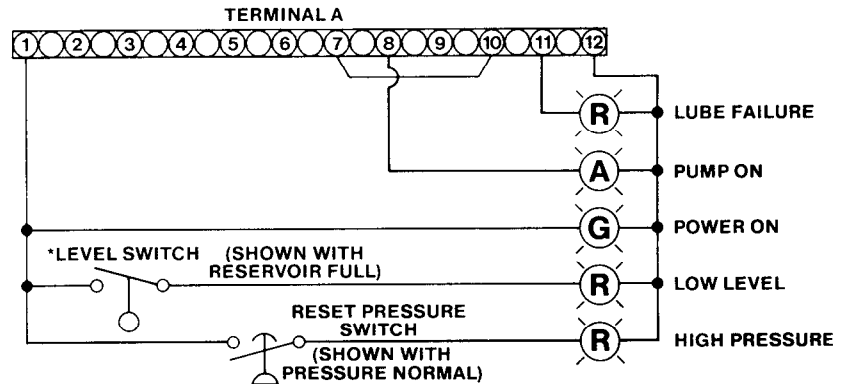
LEVEL SWITCH TO INDICATE LUBE FAULT AND LOW LEVEL FOR REGULATED HYDRAULIC OR REGULATED AIR OPERATED PUMP (Stops all subsequent lube events)

REMOTE SYSTEM STATUS INDICATING LAMP CONNECTIONS
(Total current must not exceed 4 amps)

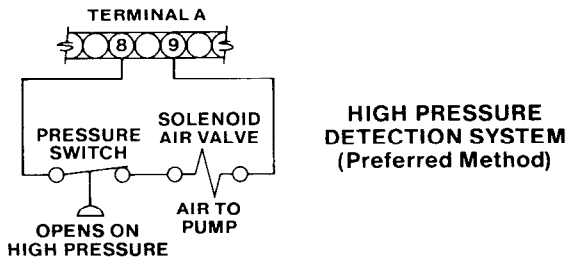
NOTE: USE LINCOLN MODEL 880089-1, 880089-2 OR 880089-3 FOR RESET PRESSURE SWITCH OR MODEL 87851 HIGH PRESSURE RETURN TO RESERVOIR SWITCH



SELECTOR SWITCH #3 CLOSED FOR N.O. ALARM



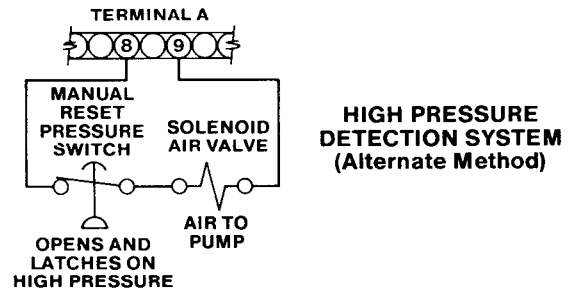
*Level Switch must have the ampacity to operate lamp.



HIGH PRESSURE DETECTION SYSTEM (Preferred Method)

Install Model 69630 or 70278 Pressure Switch in line between terminal 8 and solenoid air valve to detect high pressure and prevent system damage (including blowout of rupture disc). When high pressure activates pressure switch, pump stops and control goes into alarm. If high pressure is not maintained, switch will reset and system will perform normally. If high pressure is maintained long enough for control timer to time out, control will remain in alarm.

IMPORTANT: Pressure switch setting must be less than pressure rating of system performance indicators.



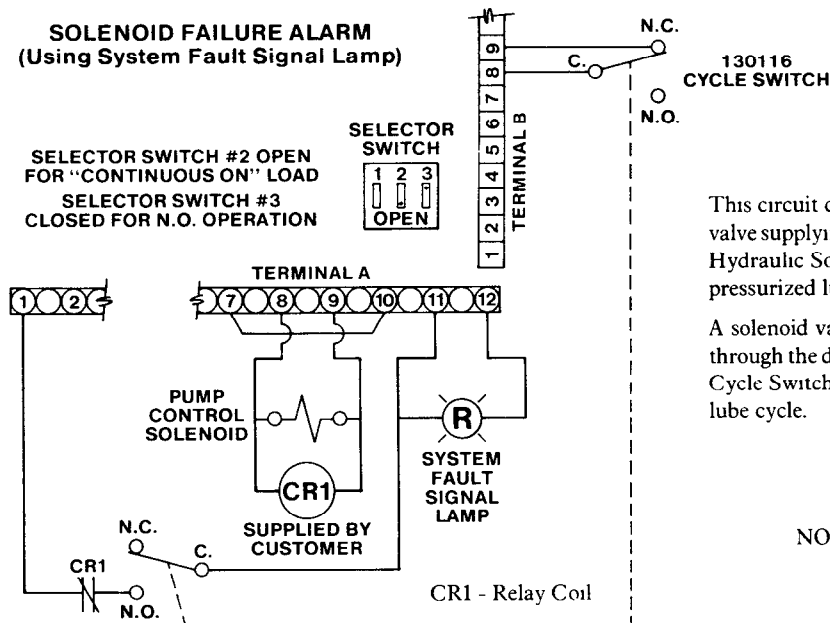
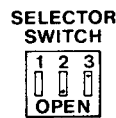
HIGH PRESSURE DETECTION SYSTEM (Alternate Method)

Install Model 880089-1, -2, or -3 Pressure Switch or 87851 High Pressure Return to Reservoir in line between terminal 8 and solenoid air valve to detect high pressure and prevent system damage (including blowout of rupture disc). When high pressure activates pressure switch, pump stops and control goes into alarm. Pressure switch must be manually reset before resetting control to resume normal operation.

IMPORTANT: Pressure switch setting must be less than pressure rating of system performance indicators.

SOLENOID FAILURE ALARM (Using System Fault Signal Lamp)

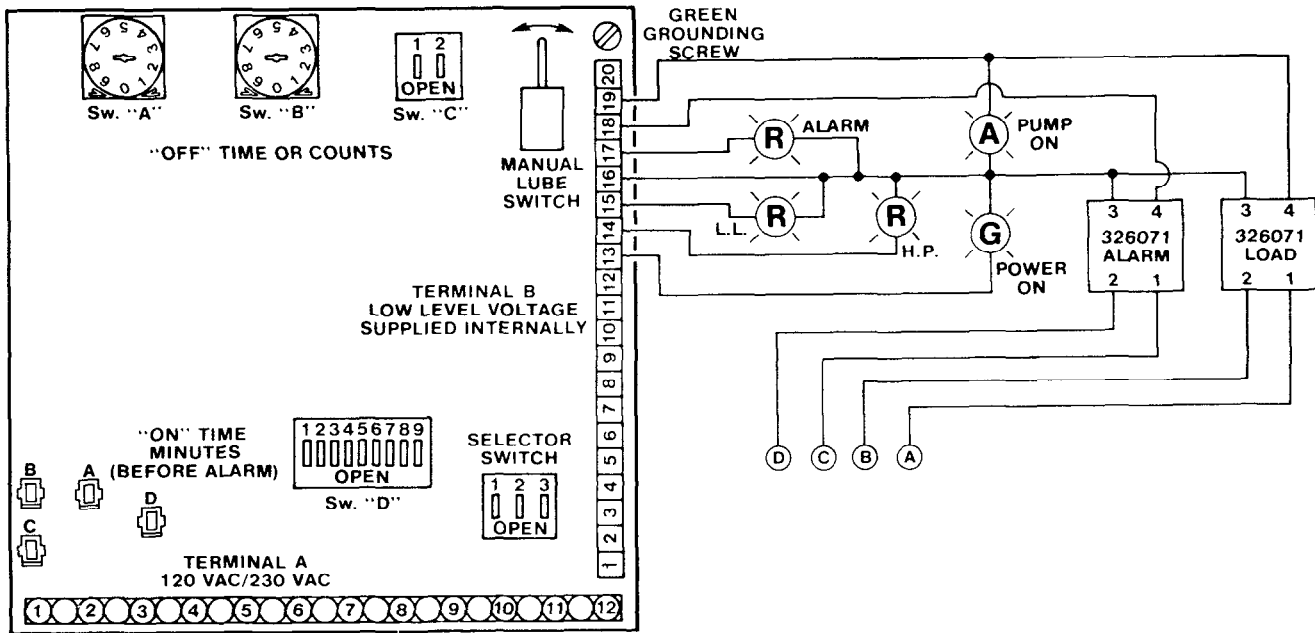
SELECTOR SWITCH #2 OPEN FOR "CONTINUOUS ON" LOAD
SELECTOR SWITCH #3 CLOSED FOR N.O. OPERATION



This circuit can be used to monitor either an air solenoid valve supplying an auto-reciprocating pump, or an 82237-1 Hydraulic Solenoid Valve serving a zoned system from a pressurized lube source.

A solenoid valve failure is indicated by lubricant flowing through the divider valve system and operating the 130116 Cycle Switch while the control is timing toward the next lube cycle.

NOTE: Not applicable on systems requiring pulsing of pump control solenoid.



TROUBLESHOOTING GUIDE

PROBLEM	SOLUTION
No green light. Lube event normal.	Green L.E.D. defective - Replace green L.E.D. Wire to green L.E.D. broken - Repair wire.
No green light, no lube event.	Power to control off - Turn power on (check line fuse). Power jumper wires missing or connected to wrong terminals - Correct wiring. 350256 Printed Circuit Board defective - Replace 350256 Printed Circuit Board.
No pre-lube, timed or count lube event normal.	350256 Printed Circuit Board defective - Replace 350256 Printed Circuit Board.
No pre-lube, no timed or count lube event.	No amber L.E.D. - Replace 350256 Printed Circuit Board. Amber L.E.D. operates. Check for broken wires. Replace 326071 Load Module.
Pre-lube normal, no subsequent timed lube event.	350256 Printed Circuit Board defective - Replace 350256 Printed Circuit Board.
Pre-lube normal, no subsequent count lube event.	Timed lube events normal - Check count switch. No timed lube events - Replace 350256 Printed Circuit Board.

PROBLEM	SOLUTION
No amber lamp during pump operation, lube event normal.	Amber L.E.D. defective - Replace amber L.E.D. Wire to amber L.E.D. broken - Repair wire.
Pump turns on but does not stop when cycle or pressure switch is actuated.	Alarm circuits are activated - Replace 326071 Load Module. Alarm circuits are not activated, no red L.E.D. - Replace 350256 Printed Circuit Board. Alarm circuits are not activated, Red L.E.D. turns on - Replace 326071 Alarm Module.
Alarm circuits are activated immediately on power turn on.	Check Selector Switch #3 for proper position. N.O. or N.C. per system requirement. Red L.E.D. on - Replace 350256 Printed Circuit Board. No red L.E.D. - Replace 326071 Alarm Module.
No low level L.E.D.	Wire to low level L.E.D. broken - Repair wire. Low level L.E.D. defective - Replace L.E.D.
No high pressure L.E.D.	Wire to high pressure L.E.D. broken - Repair wire. High pressure L.E.D. defective - Replace L.E.D.

Servicing of this unit should be done only by a qualified electronics technician or engineer trained in handling solid state equipment.
WARNING: Use proper tools when removing or replacing integrated circuits on the 350256 Circuit Board. When soldering or removing components on the 350256 Circuit Board, always use a heat sink to prevent damage to other components.