LINCOLN INDUSTRIAL

NRTL /C

Model No. 85500 SYSTEM SENTRY™ II Series "A"

OWNER/OPERATOR MANUAL

Contents ..... **Page**

DESCRIPTION

Model 85500, System Sentry II™, can control operation of your lube system and verify delivery of lubricant to the bearing.

Listed below are several features of the System Sentry II™.

- Lube point monitoring may be added to Model 85500 by using plug - in sensor boards. Model 85500 has the capacity to allow up to 3 sensor boards to be installed. Each sensor board can monitor 16 lube points for a maximum total of 48 lube points.

- System Sentry II™ can be expanded beyond the 48 sensors by using Model 85510, System Sentry II™ Satellite Monitor. By using multiple Satellite Monitors, One System Sentry II™ can monitor up to 1,536 lube points.

- One System Sentry II™ can control one or two separate lubrication systems.

- One System Sentry II™ will allow up to 3 lubrication zones when controlling one pump.

- The System Sentry II™ can make use of a pressure transducer in the lube supply line for the following:

  - Read supply line pressure on LCD.
  - Monitor vent pressure in lube supply line.
  - Reset the controller.
  - Multiple lube cycles for Centro Matic Systems.

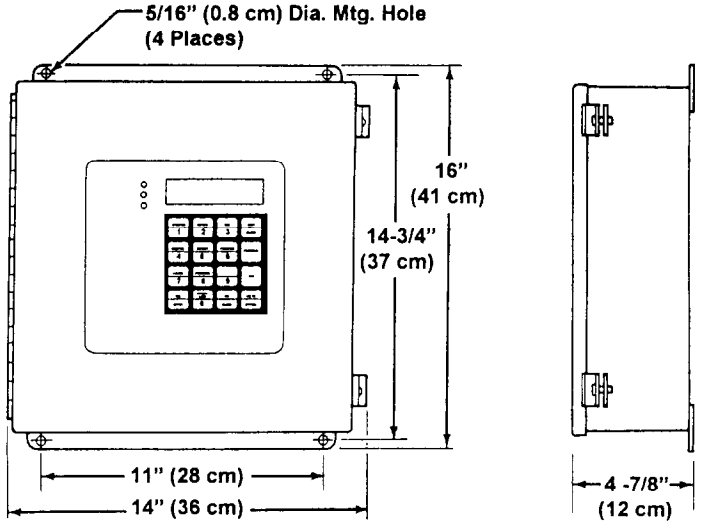
- The System Sentry II™ can control a separate air solenoid for spray heads to provide Post Spray Capability.

- The System Sentry II™ has an Auto-scan feature to recognize sensors.

- The Controller is truly user friendly. Programming the controller is simply a matter of inputting parameters thru a sixteen key membrane switch that appears on the LCD (Liquid Crystal Display).

⚠ WARNING

**ELECTRICAL SHOCK HAZARD.
TURN OFF AND LOCK OUT POWER
BEFORE OPENING ENCLOSURE.**



SPECIFICATIONS

Input Voltage ..... 120 VAC 50/60 HZ (set power selector to "AC")
230 VAC 50/60 HZ (set power selector to"AC")
24 VDC (set power selector switch to "DC")

Current Consumption ..... 250 MA at 120 VAC (less external load & no sensors)
400 MA at 120 VAC (less external load, w/48 sensors)
125 MA at 230 VAC (less external Load & no sensors)
200 MA at 230 VAC (less external load, w/48 sensors)
600 MA at 24 VDC (less external load & no sensors)
1.5 AMP at 24 VDC (less external load, w/48 sensors)

Relay Contact Rating ..... 2 amps Inductive Load at 30 VDC, 120 VAC & 250 VAC

Cannot exceed a total ampacity of 7 Amps for all relay contacts.

Ampacity for each Switch connected to Terminal Strip B ..... 2 MA at 5 VDC

Transducer Output ..... 0 to 5 VDC

Maximum Transducer Offset Voltage ..... 1 VDC

Controller Supplied Transducer Voltage ..... 15 VDC

Enclosure ..... Nema 12 Enclosure

Controller Ambient Temperature Range ..... 32° F (0° C) to 122° F (50° C) (LCD Limited)

Net Weight ..... 18 lbs.(8.2 Kg)

Off Time ..... 1 Second Minimum
30 Seconds Minimum (using Sensors)
9999 Hours Maximum

Secondary Off Time ..... 1 Second Minimum
30 Seconds Minimum (using Sensors)
9999 Minutes Maximum

Off Counts ..... 1 Count Minimum
99,999 Counts Maximum

Count Rate ..... 30 Counts/sec at 50% Duty Cycle

Alarm Time - Maximum Pumping Time Before Alarm ..... 1 Second Minimum
99 Minutes Maximum

Multiple Cycles ..... 1 to 99 Cycles

Timing Accuracy ..... Crystal Controlled

Count Rate ..... 30 Counts/sec at 50% Duty Cycle

Scan Time ..... 1 Second Minimum
9999 Hours Maximum

Maximum Length of 22 Gage Sensor Wire ..... 500 Ft (152 m)

Maximum Length of 4 Wire Flat Modular Cable ..... 4000 Ft (1219 m)

Maximum Sensor Current ..... 25 MA at 15 VDC

Lubricant Temperature Range for Sensors ..... 32° F (0° C) to 145° F (63° C)

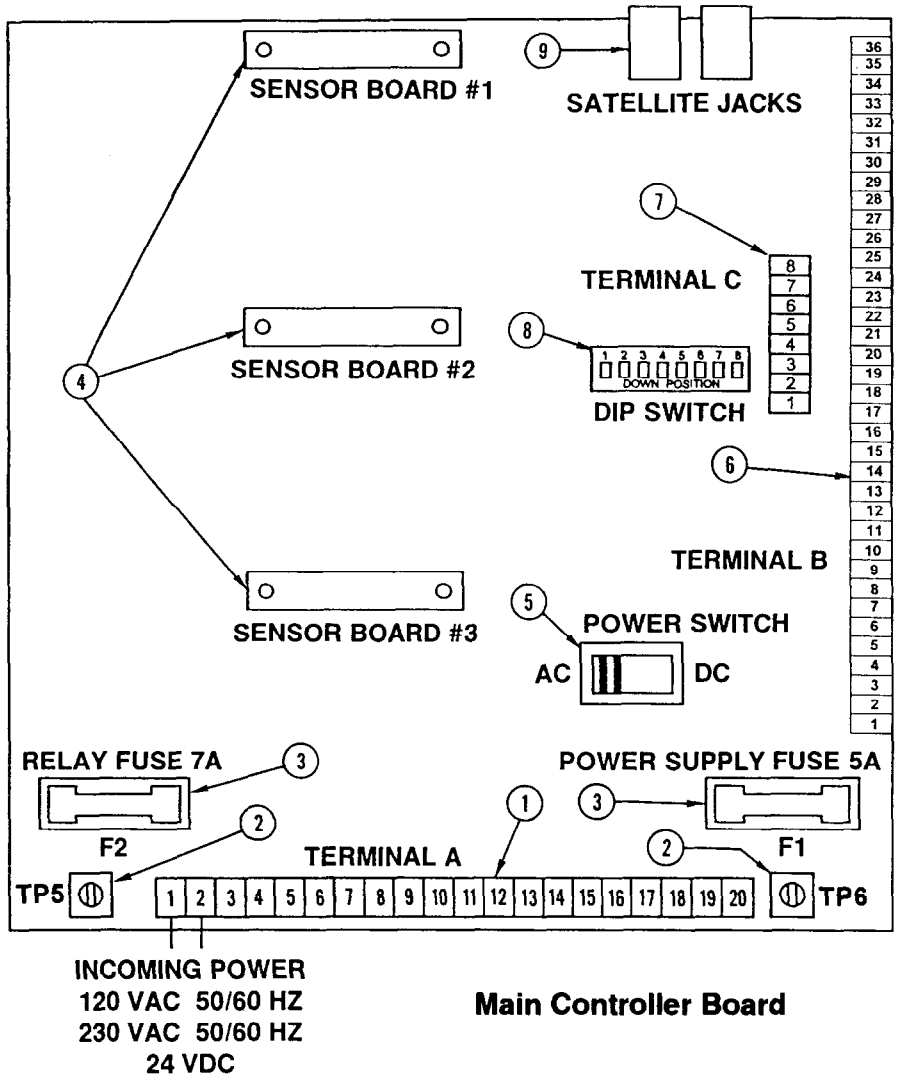
Minimum Amount of Lubricant Delivery to Sensor ..... .004 cu. in. (.066 cc) (32° F [0° C] to 125° F[52° C])
.008 cu. in. (.13 cc)(126° F [52° C] to 145° F[63° C])

Minimum Amount of Time Between Lube Events at Sensors ..... 30 Seconds

F1 Fuse - Power Supply Fuse ..... 5 Amp 250V Time Delay 1/4" (.63 cm)X 1-1/4" (3.2 cm)

F2 Fuse - Relay Contacts ..... 7 Amp 250V Time Delay 1/4" (.63 cm) X 1-1/4"(3.2 cm)

Modular Jack ..... 4 Contact Modular Phone Jack



Main Controller Board

MAIN BOARD COMPONENT LOCATION

Item 1: Terminal Strip A is for the following high voltage connections:

- Incoming Power Source
- Scan Input
- Relay Outputs

Item 2: Grounding Terminals. Used to connect the green grounding wire.

Item 3: There are two fuses:

Fuse F1: Provides short circuit protection for the power supply. If this fuse opens, the controller will terminate operation.

Fuse F2: Provides short circuit protection for the Relay Contacts. If this fuse opens, the display will indicate an open relay fuse alarm.

Item 4: There are three sockets where Sensor Boards may be plugged in.

- Sensor Board #1 is for sensors 1 thru 16.
- Sensor Board #2 is for sensors 17 thru 32.
- Sensor Board #3 is for sensors 33 thru 48.

Item 5: Power Switch is used to select either AC or DC incoming voltage. Set the Power Switch to the left for AC voltage and to the right for DC voltage.

Item 6: Terminal Strip B is for the following low voltage input switches:

Low Level Switch	High Pressure Switch
Count Switch	System Pressure Switch
Cycle Switch	Manual Lube Switch
Standby Switch	Scan Switch
Zone Sensor Switch	Secondary Timer Switch

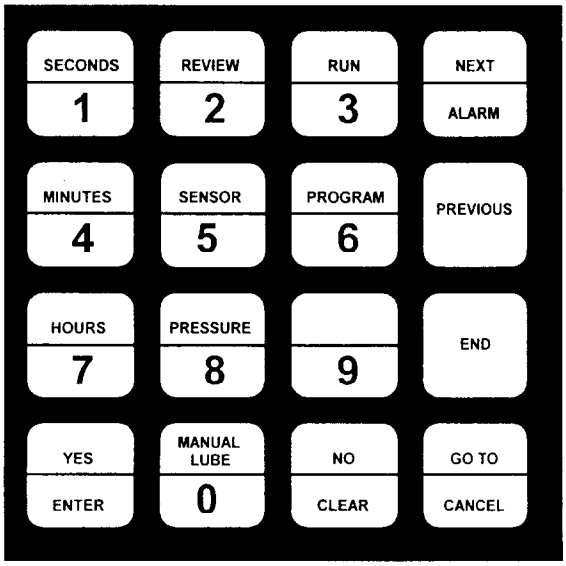
Item 7: Terminal Strip C is used to connect the Pressure Transducers.

Item 8: Dip Switches 1 thru 8. The first five Dip Switches identify a Main Controller or a Satellite Number. For a Main Controller, the first five Dip Switches are set in the up position. The sixth and seventh Dip Switches are for future use. Dip Switch 8 is used to set a new security code. Setting Dip Switch #8 in the *up* position will display the existing security code and allow it to be changed. If Dip Switch #8 is set in the *down* position, the security code must be entered each time the controller is programmed.

Item 9: Satellite Jacks are used to connect the Main Controller to the Satellite Controller. One Satellite Jack can be used or both may be used to daisy chain several Satellite Controllers together.

KEYPAD IDENTIFICATION

- **POWER (GREEN)**
- **PUMP (AMBER)**
- **FAULT (RED)**



Green LED: Power On.

Amber LED: Pump On or Scan Period (Internal or External Mode).

Red LED: Fault Condition.

Many keys have dual functions and their meaning will vary to coincide with the information needed.

Numeric Keys (0 thru 9): The Numeric Keys are used only for programming and are only active for screens needing numeric input.

SECONDS, MINUTES and HOURS Keys: These keys are used only during programming to input time.

RUN Key: If depressed while in the *Run Mode,* the *Run Screen* will appear. Example: If monitoring system pressure on the LCD, depressing the *Run Key* would identify when the next lube cycle will take place.

SENSOR Key: Depressing the *Sensor Key* will permit viewing the number of lube events at the lowest numbered sensor. Using the *Next Key* will permit scrolling through the sensors to observe the number of lube events at each sensor. Pressing the *NO/CLEAR* key will reset all sensors to zero (0) lube events.

PRESSURE Key: This key is used to read instantaneous supply line pressure. Pressing the *NEXT* key when supply line pressure is displayed will show the *maximum supply pressure* that was attained.

ALARM Key: This key is used to scroll thru the *alarm messages* when more than one fault occurs.

MANUAL LUBE Key: Depressing this key will initiate a manual lube cycle.

REVIEW Key: This key allows viewing of all system parameters. Depressing the *NEXT* key will advance the *review program screens* one at a time. Depressing the *PREVIOUS* key allows you to view the screens in reverse order.

NEXT Key: This key is used to step forward through related screens. Used during programming, review mode viewing sensors and during system pressure monitoring.

PREVIOUS Key: This key is used to backup through related screens. Used during programming, review mode and viewing sensors.

PROGRAM Key: This key is only used during the run mode to activate the program mode. If the *Internal Rocker Switch (#8),* located on the Main Baord, is in the *UP* position, a new security code can be entered. The Security Code must consist of four (4) digits. If the *Internal Rocker Switch (#8)* is *DOWN*, the previous set security code must be entered.

GO TO Key: Depressing the *GO TO* key after entering the security code, will allow only the more common programming parameters to be viewed and/or changed.

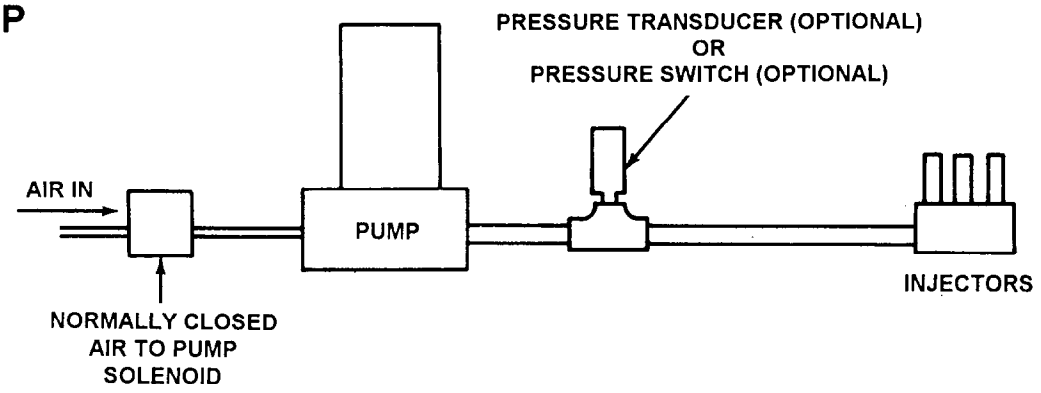
YES/ENTER Key: Depressing this key will activate the option displayed on the screen.

NO/CLEAR Key: Depressing this key will not implement the option on the screen. When viewing sensors, this key will reset all sensors to zero (0) lube events.

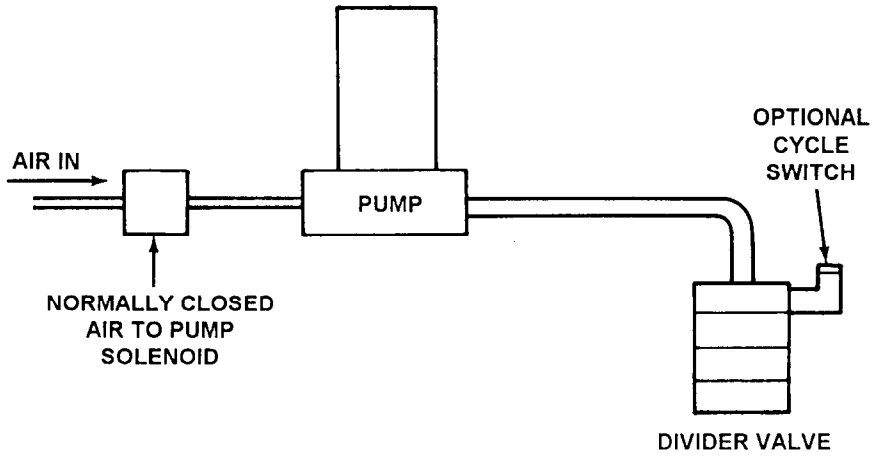
CANCEL KEY: Will disregard all new unsaved values and will end programming.

END KEY: Depressing the End Key will end programming. The exception to this is when a change has been made that will affect a sequential screen.

1 PUMP



CENTRO - MATIC 1 PUMP



MODULAR LUBE 1 PUMP

FIELD CONNECTIONS

TERMINAL STRIP A - HIGH VOLTAGE CONNECTIONS

(See Figure 1)

Incoming Power Source

	120/230 VAC	24 VDC
Terminal 1	Black Wire	Battery Plus
Terminal 2	White Wire - Neutral	Battery Minus
Power Switch	Push to Left - AC Position	Push to Right - DC Position

Terminals 1 and 7: Connected together internally.

Terminals 2, 4, 9, 12, 14, 16, 18 and 20: Connected together internally.

IMPORTANT: Connect *GREEN* grounding wire to either of the Grounding Terminals TP5 or TP6.

Post Spray Solenoid: Terminals 3 and 4: The post spray solenoid will turn on when the *air to pump solenoid* turns on (Terminal Strip A - Terminals 8 and 9). The post spray will remain on after the *air to pump* turns off . The amount of time it will stay on is adjustable in software.

Relay Contact Inductive Rating: 2 amps at 30VDC, 250 VAC.

Air to Pump Solenoid: Terminals 8 and 9.

Relay Contact Inductive Rating: 2 amps at 30VDC, 250 VAC.

External Alarm Load: Terminals 10, 11 and 12 can be used two ways.

1. Terminals 10 and 11: Normally Open Contact. **(See WARNING!)**

⚠ WARNING

When used in this manner, the RELAY FUSE does not protect this contact.

2. Using controller line voltage at Terminals 1 and 2. See Figure 2.

(a) Jumper wire between Terminals 7 and 10.
(b) Connect Alarm Load to Terminals 11 and 12.

Relay Contact Inductive Rating: 2 amps at 30 VDC, 250 VAC.

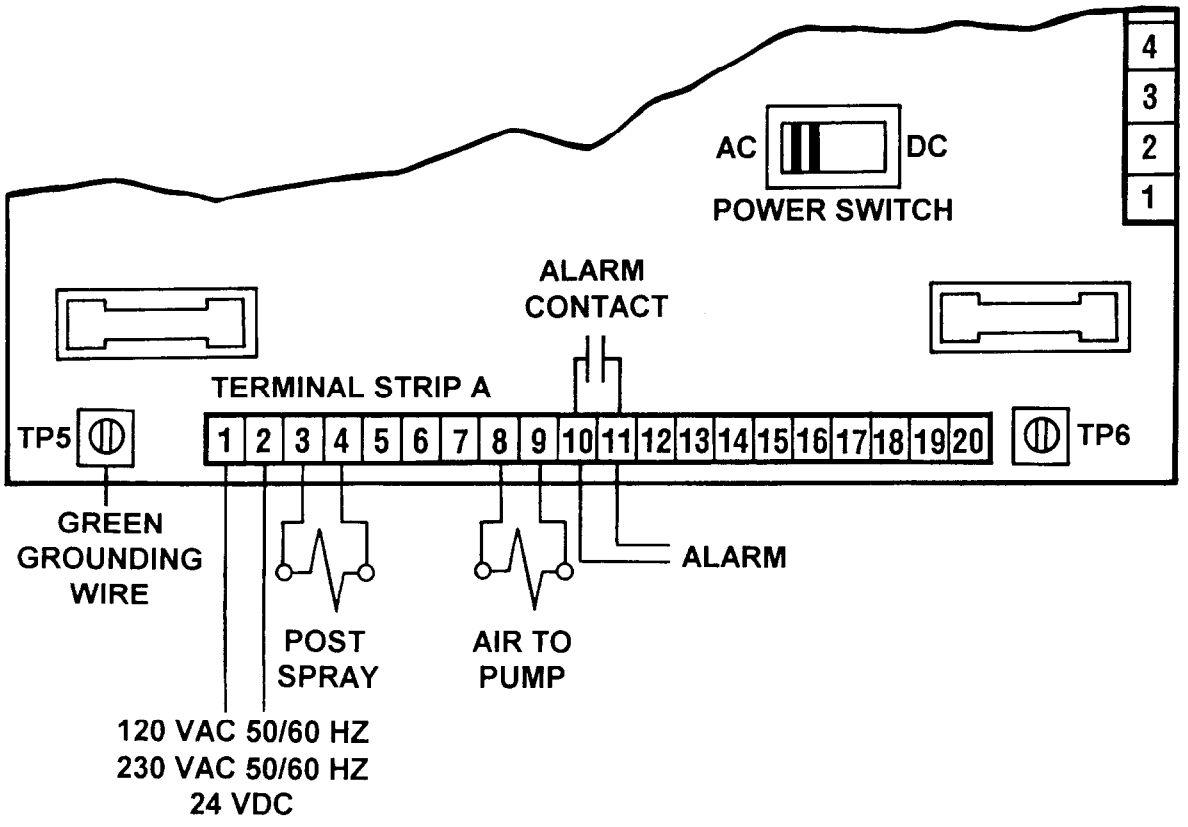
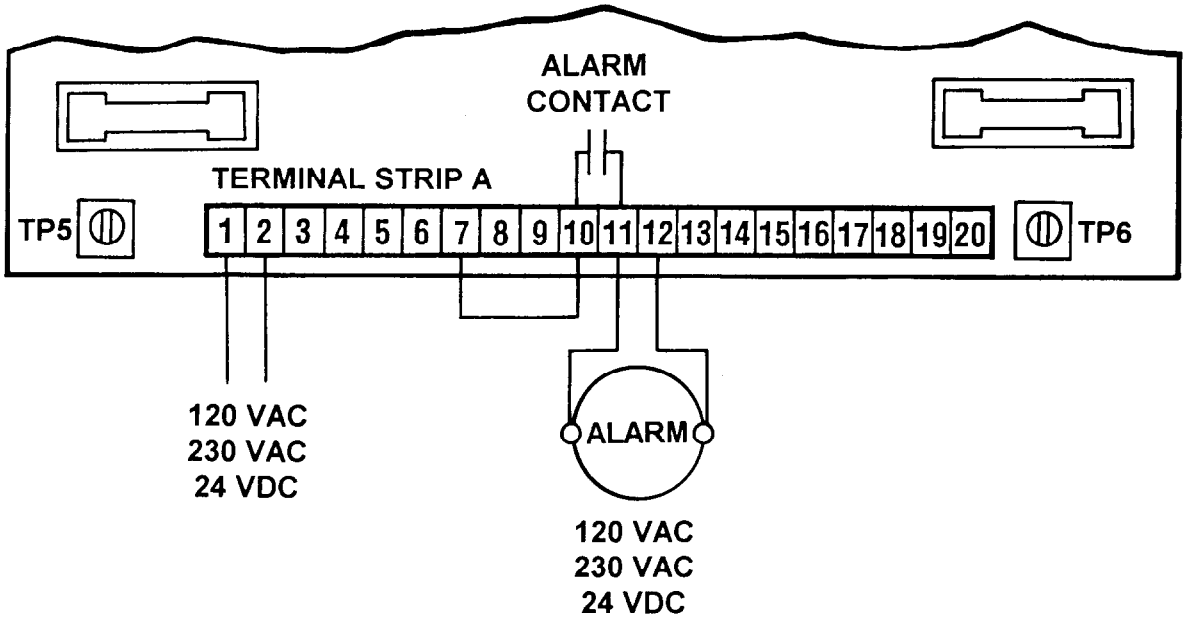


Figure 1



Controller Line Voltage for Alarm Load

Figure 2

TERMINAL STRIP B - LOW VOLTAGE INPUT SWITCHES

Reservoir Low Level Switch: Normally Open Switch, Terminals 2 and 3. Switch Ampacity: 2 MA at 5 VDC.

Modular Lube High Pressure Switch: Normally Open Switch, Terminals 4 and 5. Switch Ampacity: 2 MA at 5 VDC.

Count Switch: Normally Open or Normally Closed Switch, Terminals 6 and 7. Switch Ampacity: 2 MA at 5 VDC.

Pressure Switch / Cycle Switch: Normally Open Switch, Terminals 8 and 9. Switch Ampacity: 2 MA at 5 VDC.

Remote Manual Lube Switch: Normally Open Switch, Terminals 10 and 11. Switch Ampacity: 2 MA at 5 VDC.

Standby Switch: Normally Open Switch, Terminals 12 and 13. Switch Ampacity: 2 MA at 5 VDC.

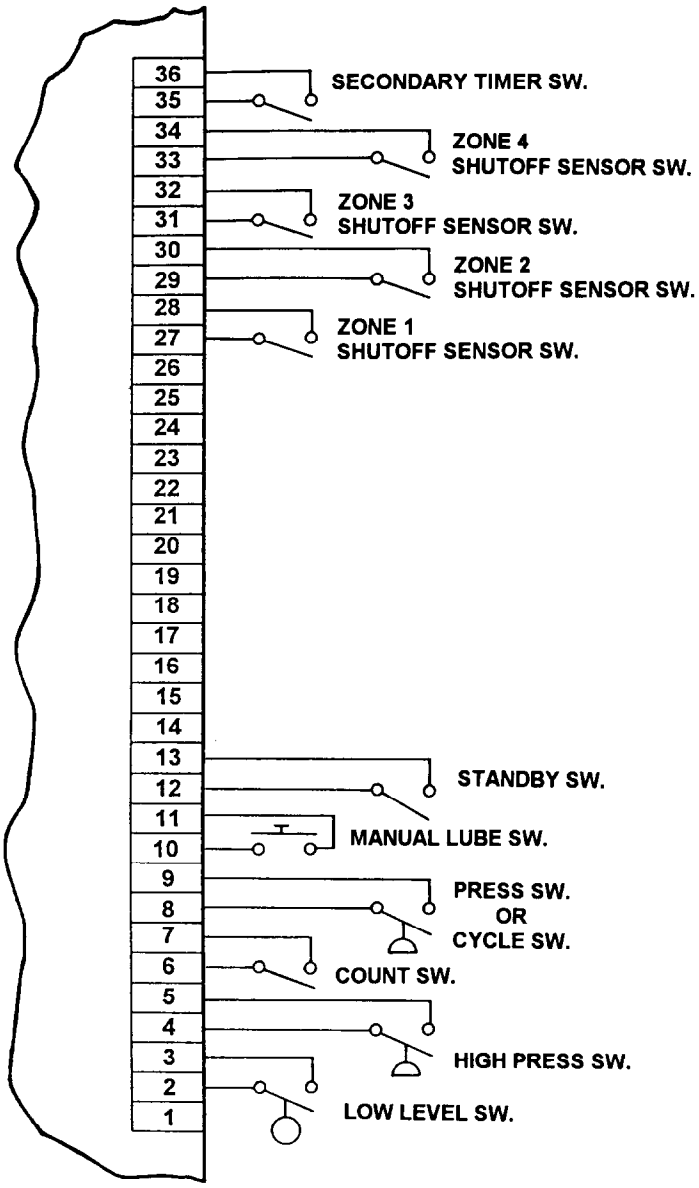
Zone 1 Sensor Shutoff Switch: Normally Open Switch, Terminals 27 and 28. Switch Ampacity: 2 MA at 5 VDC.

Zone 2 Sensor Shutoff Switch: Normally Open Switch, Terminals 29 and 30. Switch Ampacity: 2 MA at 5C.

Zone 3 Sensor Shutoff Switch: Normally Open Switch, Terminals 31 and 32. Switch Ampacity: 2 MA at 5 VDC.

Zone 4 Sensor Shutoff Switch: Normally Open Switch, Terminals 33 and 34. Switch Ampacity: 2 MA at 5 VDC.

Secondary Timer Switch: Normally Open Switch, Terminals 35 and 36. Switch Ampacity: 2 MA at 5 VDC.

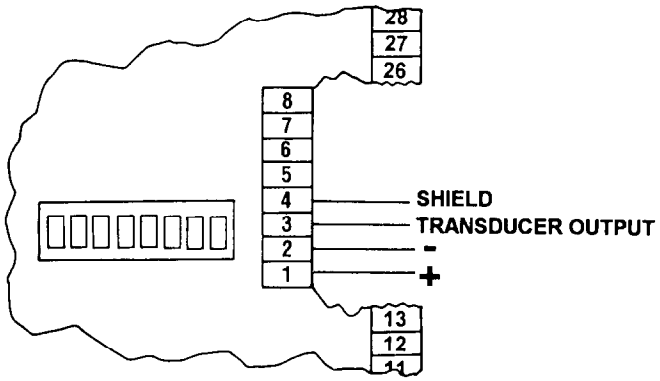


TERMINAL STRIP B

TRANSDUCER TERMINAL STRIP C

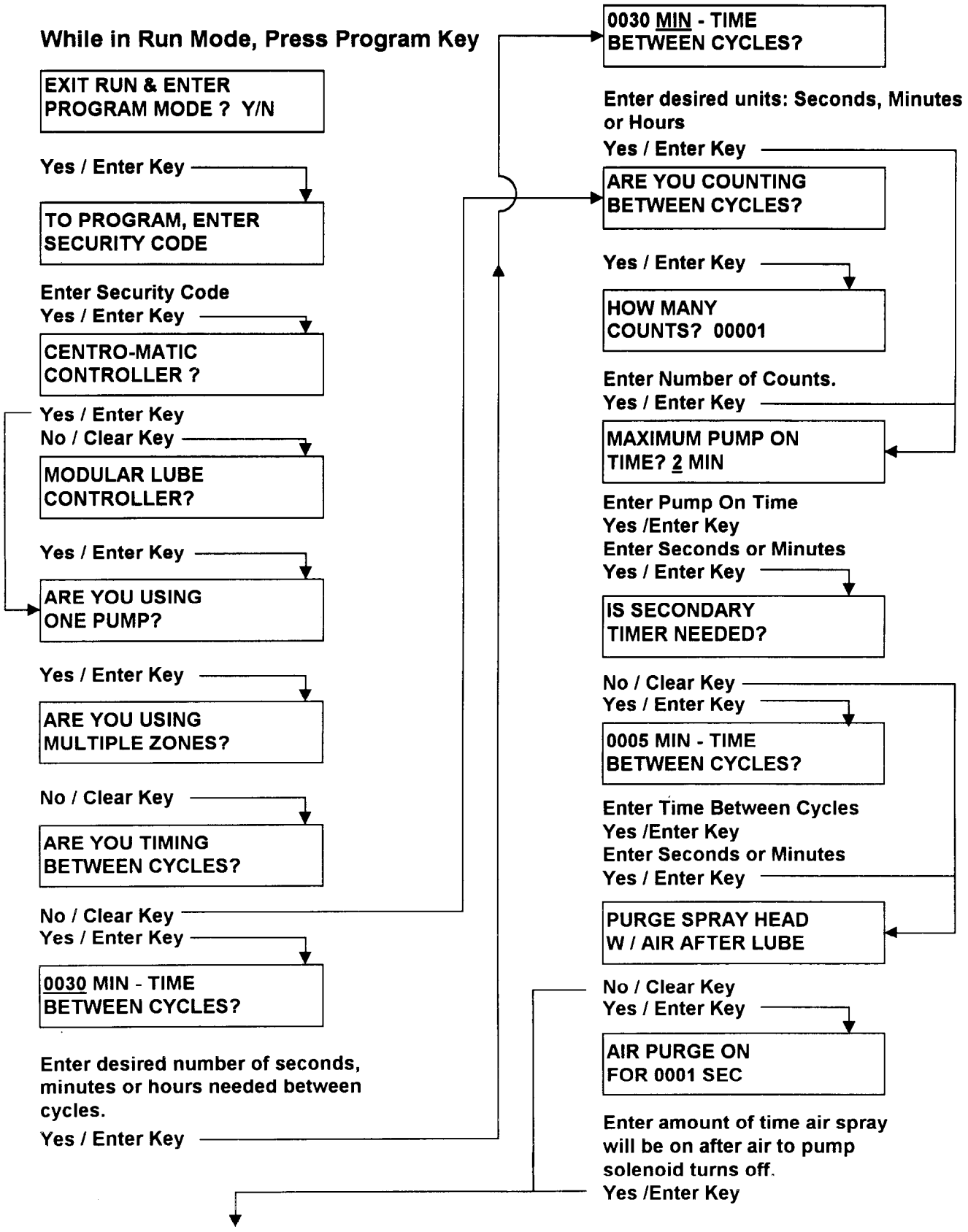
This Terminal Strip is only used for *Centro-Matic Applications*. The transducer excitation voltage, 15 VDC, is supplied by the controller at terminals 1 and 2.

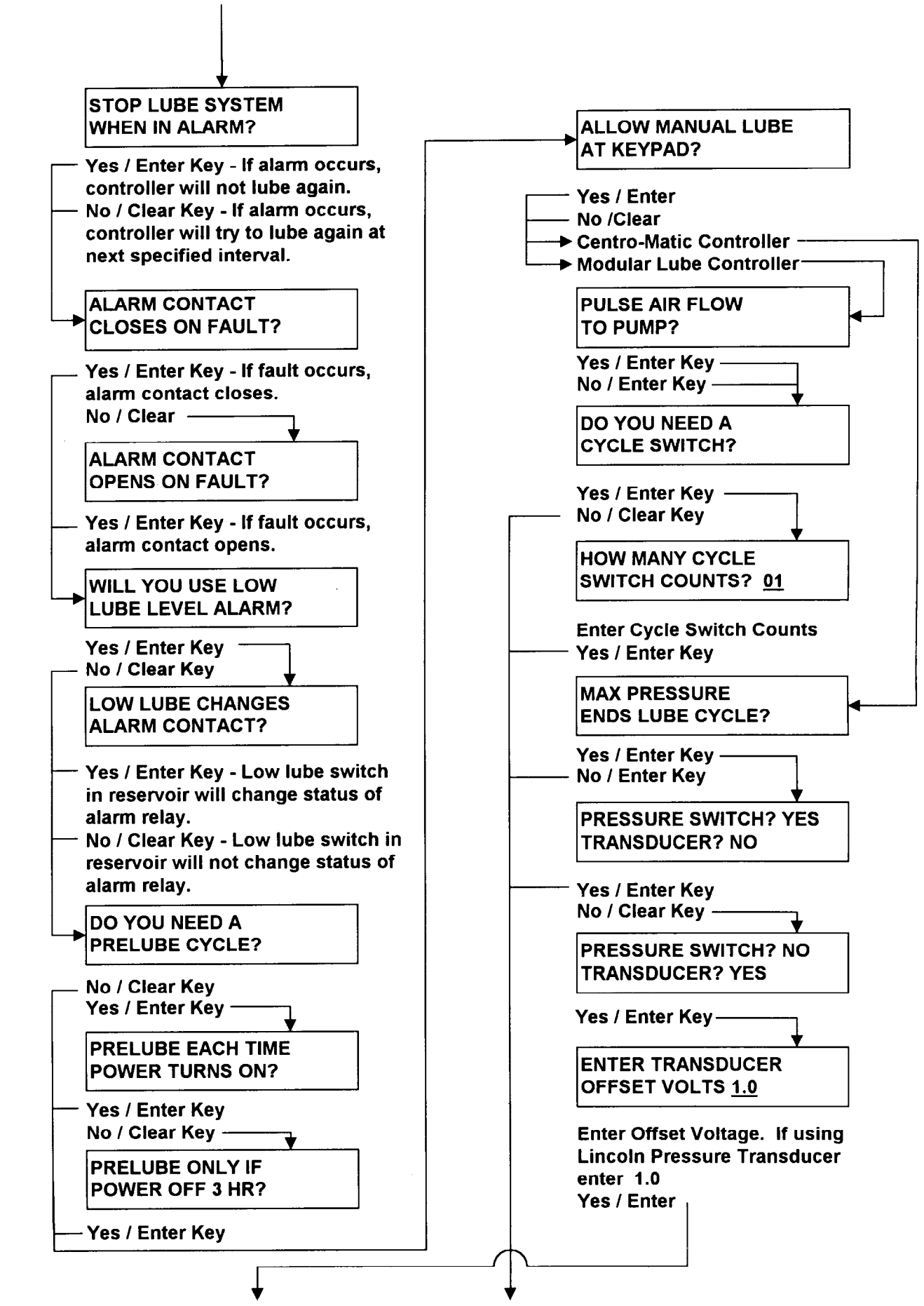
Terminal 1: Plus 15 VDC Supply Voltage for Transducer.
Terminal 2: Common Supply Voltage for Transducer.
Terminal 3: Transducer Output.
Terminal 4: Shielded Wire.

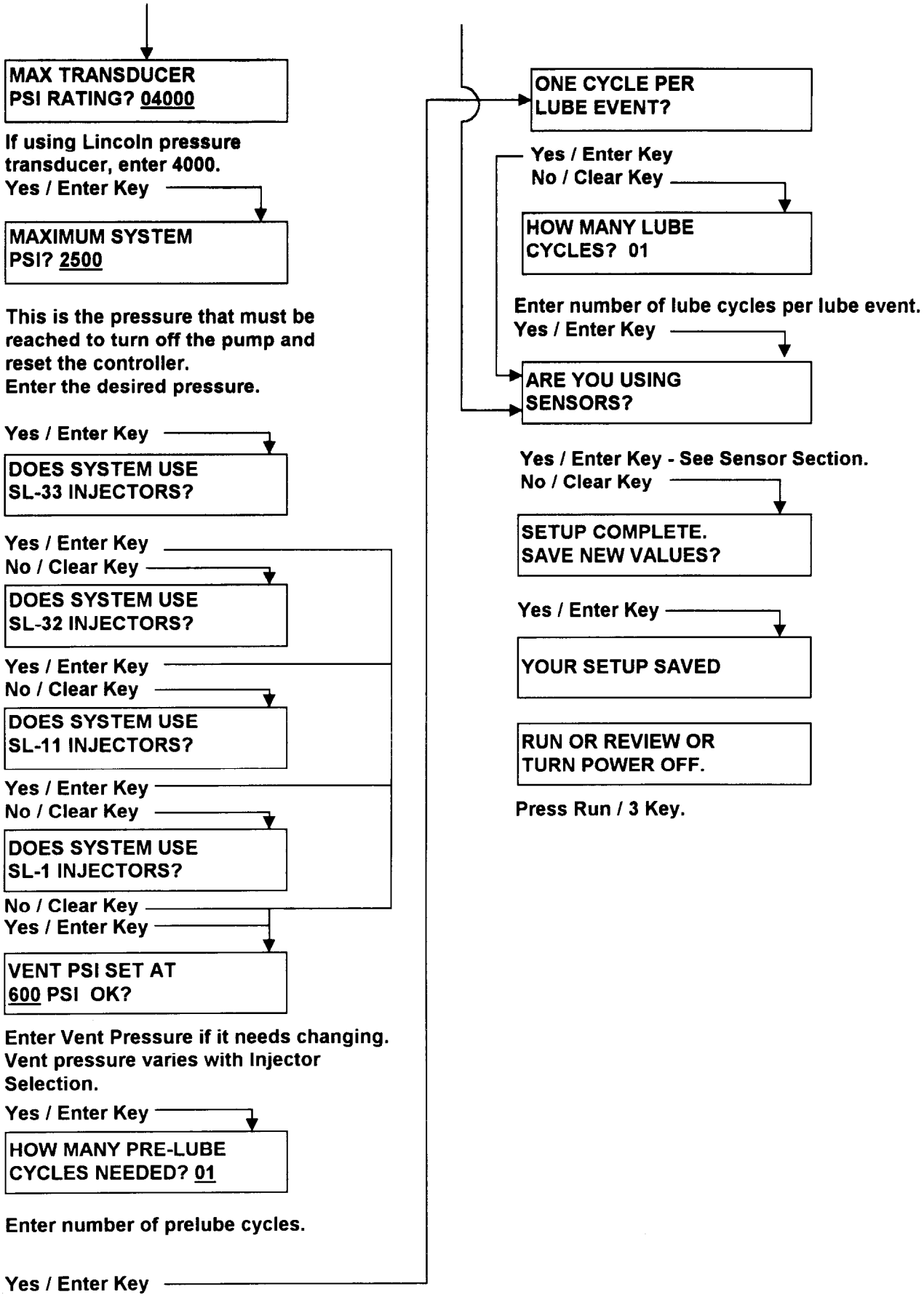


TERMINAL STRIP C

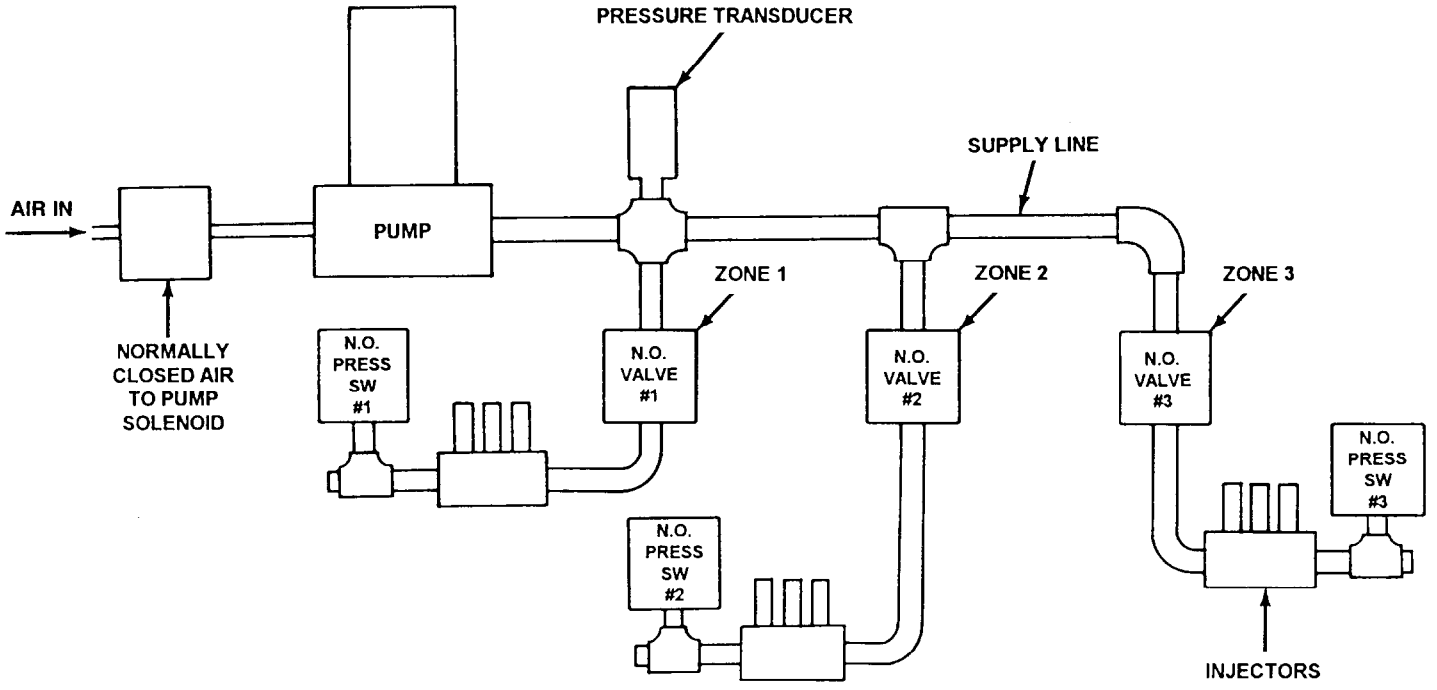
PROGRAMMING A 1 PUMP SYSTEM



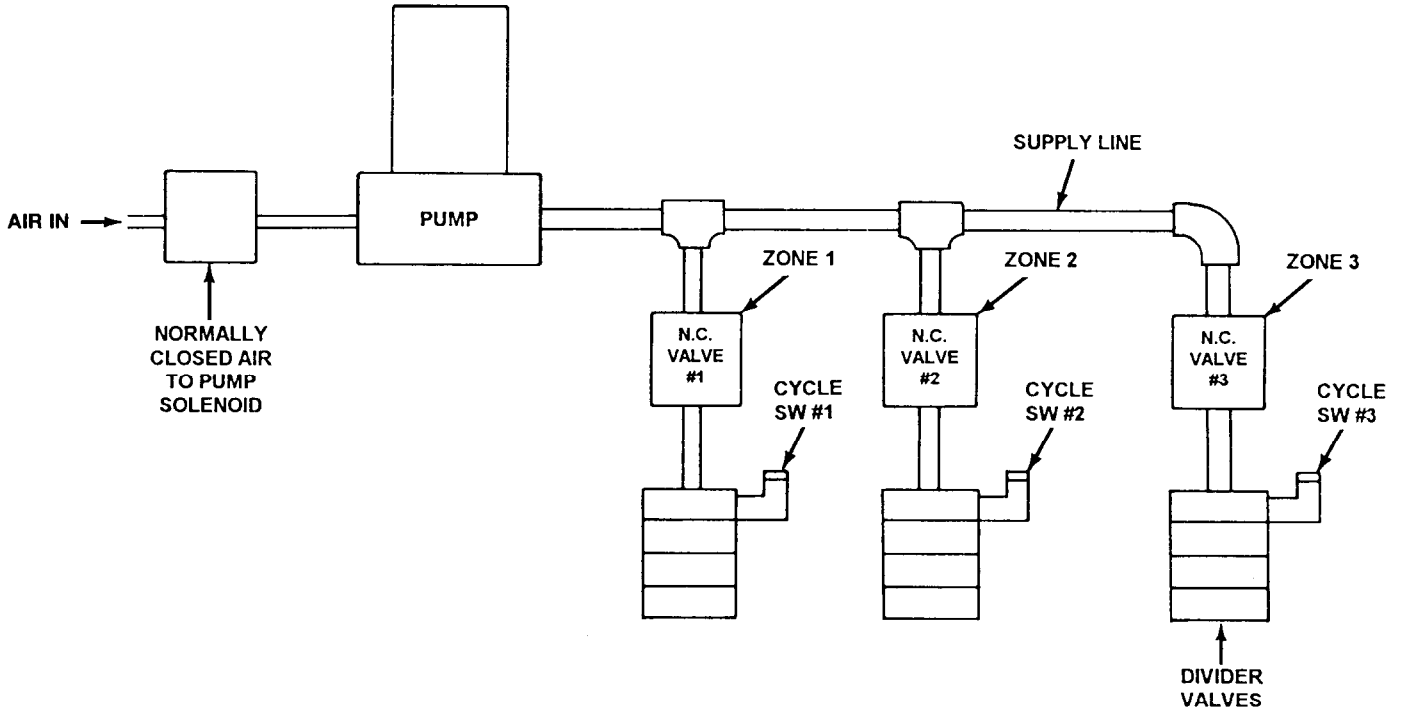

STOP LUBE SYSTEM WHEN IN ALARM?
Yes / Enter Key - If alarm occurs, controller will not lube again.
No / Clear Key - If alarm occurs, controller will try to lube again at next specified interval.
ALARM CONTACT CLOSES ON FAULT?
Yes / Enter Key - If fault occurs, alarm contact closes.
No / Clear
ALARM CONTACT OPENS ON FAULT?
Yes / Enter Key - If fault occurs, alarm contact opens.
WILL YOU USE LOW LUBE LEVEL ALARM?
Yes / Enter Key
No / Clear Key
LOW LUBE CHANGES ALARM CONTACT?
Yes / Enter Key - Low lube switch in reservoir will change status of alarm relay.
No / Clear Key - Low lube switch in reservoir will not change status of alarm relay.
DO YOU NEED A PRELUBE CYCLE?
No / Clear Key
Yes / Enter Key
PRELUBE EACH TIME POWER TURNS ON?
Yes / Enter Key
No / Clear Key
PRELUBE ONLY IF POWER OFF 3 HR?
Yes / Enter Key
ALLOW MANUAL LUBE AT KEYPAD?
Yes / Enter
No /Clear
Centro-Matic Controller
Modular Lube Controller
PULSE AIR FLOW TO PUMP?
Yes / Enter Key
No / Enter Key
DO YOU NEED A CYCLE SWITCH?
Yes / Enter Key
No / Clear Key
HOW MANY CYCLE SWITCH COUNTS? 01
Enter Cycle Switch Counts
Yes / Enter Key
MAX PRESSURE ENDS LUBE CYCLE?
Yes / Enter Key
No / Enter Key
PRESSURE SWITCH? YES TRANSDUCER? NO
Yes / Enter Key
No / Clear Key
PRESSURE SWITCH? NO TRANSDUCER? YES
Yes / Enter Key
ENTER TRANSDUCER OFFSET VOLTS 1.0
Enter Offset Voltage. If using Lincoln Pressure Transducer enter 1.0
Yes / Enter


MAX TRANSDUCER PSI RATING? 04000
If using Lincoln pressure transducer, enter 4000.
Yes / Enter Key
MAXIMUM SYSTEM PSI? 2500
This is the pressure that must be reached to turn off the pump and reset the controller.
Enter the desired pressure.
Yes / Enter Key
DOES SYSTEM USE SL-33 INJECTORS?
Yes / Enter Key
No / Clear Key
DOES SYSTEM USE SL-32 INJECTORS?
Yes / Enter Key
No / Clear Key
DOES SYSTEM USE SL-11 INJECTORS?
Yes / Enter Key
No / Clear Key
DOES SYSTEM USE SL-1 INJECTORS?
No / Clear Key
Yes / Enter Key
VENT PSI SET AT 600 PSI OK?
Enter Vent Pressure if it needs changing.
Vent pressure varies with Injector Selection.
Yes / Enter Key
HOW MANY PRE-LUBE CYCLES NEEDED? 01
Enter number of prelube cycles.
Yes / Enter Key
ONE CYCLE PER LUBE EVENT?
Yes / Enter Key
No / Clear Key
HOW MANY LUBE CYCLES? 01
Enter number of lube cycles per lube event.
Yes / Enter Key
ARE YOU USING SENSORS?
Yes / Enter Key - See Sensor Section.
No / Clear Key
SETUP COMPLETE. SAVE NEW VALUES?
Yes / Enter Key
YOUR SETUP SAVED
RUN OR REVIEW OR TURN POWER OFF.
Press Run / 3 Key.

1 PUMP WITH UP TO 3 LUBE ZONES



CENTRO - MATIC 1 PUMP W/ZONES



MODULAR LUBE 1 PUMP W/ZONES

ONE (1) PUMP WITH UP TO THREE (3) LUBE ZONES

Centro-Matic: The system must have an air-to-pump solenoid. A pressure transducer must be in the lube supply line. Each zone must have a N.O. shutoff valve and a N.O. pressure switch.

Modular Lube: The system must have an air-to-pump solenoid. Each zone must have a N.O. cycle switch and a N.C. shutoff solenoid.

Alarm: Each Zone will have it's own alarm relay.

FIELD CONNECTIONS

TERMINAL STRIP A - HIGH VOLTAGE CONNECTIONS

(See Figure 3.)

Incoming Power Source

	120/230 VAC	24 VDC
Terminal 1	Black Wire	Battery Plus
Terminal 2	White Wire - Neutral	Battery Minus
Power Switch	Push to Left - AC Position	Push to Right - DC Position

Terminals 1 and 7: Connected together internally on Terminal Strip A.

Terminals 2, 4, 9, 12, 14, 16, 18 and 20: Connected together internally.

IMPORTANT: Connect *GREEN* grounding wire to either of the Grounding Terminals TP5 or TP6.

External Alarm For Zone 1 - Terminals 3 & 4: Relay Contact Inductive rating - 2 amps at 30VDC, 250 VAC.

Air-To-Pump Solenoid - Terminals 8 & 9: Relay Contact Inductive Rating - 2 amps at 30VDC, 250VAC.

External Alarm for Zone 2 - Terminals 10, 11, and 12: Can be used two ways:

1. Terminals 10 and 11: N.O. Contact. **(See WARNING!)**

⚠ WARNING

When used in this manner, the RELAY FUSE does not protect this contact.

2. Using controller line voltage at Terminals 1 and 2. See Figure 4.

   (a) Jumper wire between Terminals 7 and 10.
   (b) Connect Alarm Load to Terminals 11 and 12.

Relay Contact Inductive Rating: 2 amps at 30 VDC, 250 VAC.

External Alarm for Zone 3 - Terminals 13 & 14: Relay Contact Inductive Rating - 2 amps at 30VDC, 250VAC.

Shutoff Lube Valve for Zone 1 - Terminals 15 & 16: Relay Contact Inductive Rating - 2 amps at 30VDC, 250VAC.

Shutoff Lube Valve for Zone 2 - Terminals 17 & 18: Relay Contact Inductive Rating - 2 amps at 30VDC, 250VAC.

Shutoff Lube Valve for Zone 3 - Terminals 19 & 20: Relay Contact Inductive Rating - 2 amps at 30VDC, 250VAC.

TERMINAL STRIP B - LOW VOLTAGE INPUT SWITCHES

Reservoir Low Level Switch: Normally Open Switch, Terminals 2 and 3. Switch Ampacity: 2 MA at 5 VDC.

Modular Lube High Pressure Switch: Normally Open Switch, Terminals 4 and 5. Switch Ampacity: 2 MA at 5 VDC.

Remote Manual Lube Switch: Normally Open Switch, Terminals 10 and 11. Switch Ampacity: 2 MA at 5 VDC.

Zone 1 Pressure Switch / Cycle Switch: Normally Open Switch, Terminals 19 and 20. Switch Ampacity: 2 MA at 5 VDC.

Zone 2 Pressure Switch / Cycle Switch: Normally Open Switch, Terminals 21 and 22. Switch Ampacity: 2 MA at 5 VDC.

Zone 3 Pressure Switch / Cycle Switch: Normally Open Switch, Terminals 23 and 24 Switch Ampacity: 2 MA at 5 VDC.

Zone 1 Shutoff Switch: Normally Open Switch, Terminals 27 and 28. Switch Ampacity: 2 MA at 5 VDC.

Zone 2 Shutoff Switch: Normally Open Switch, Terminals 29 and 30. Switch Ampacity: 2 MA at 5 VDC.

Zone 3 Shutoff Switch: Normally Open Switch, Terminals 31 and 32. Switch Ampacity: 2 MA at 5 VDC.

Secondary Timer Switch: Normally Open Switch, Terminals 35 and 36. Switch Ampacity: 2 MA at 5 VDC.

TRANSDUCER TERMINAL STRIP C

This Terminal Strip is only used for *Centro-Matic Applications*. The transducer excitation voltage, 15 VDC, is supplied by the controller at terminals 1 and 2.

Terminal 1: Plus 15 VDC Supply Voltage for Transducer.
Terminal 2: Common Supply Voltage for Transducer.
Terminal 3: Transducer Output.
Terminal 4: Shielded Wire.

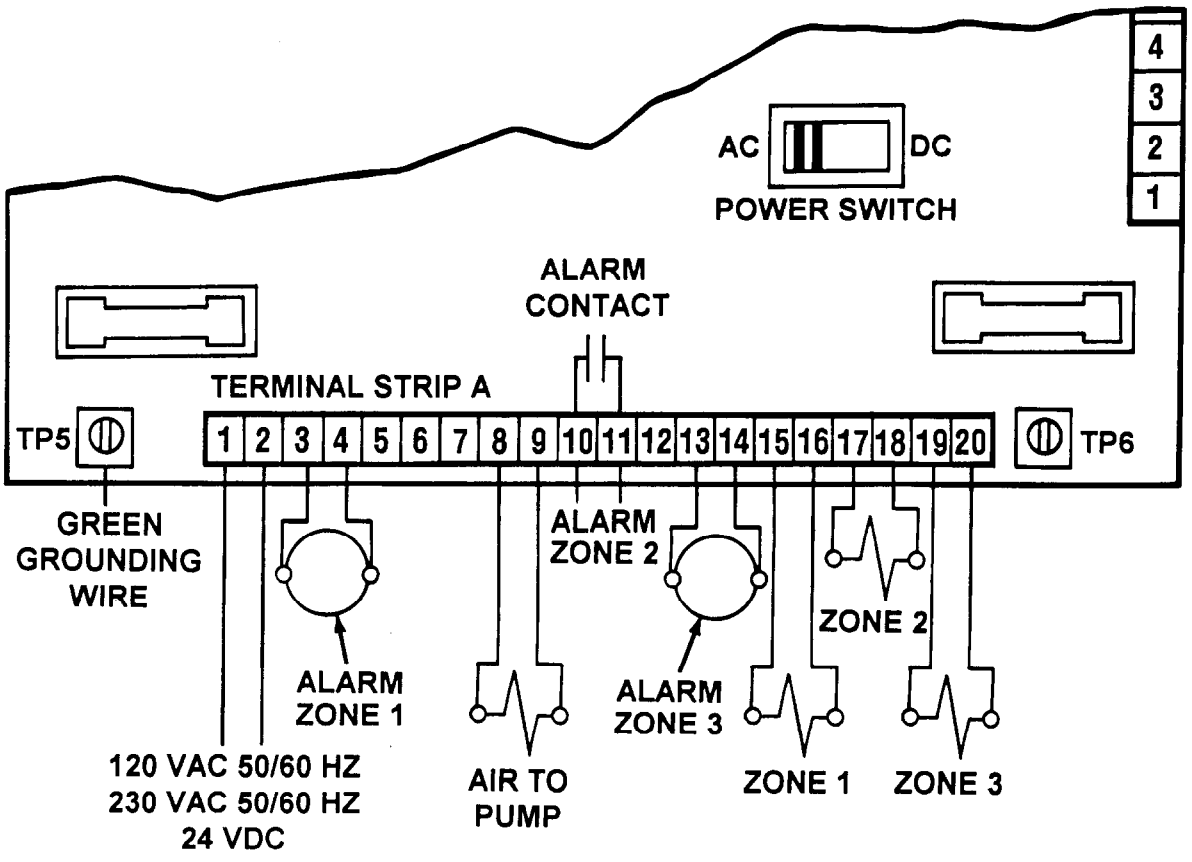
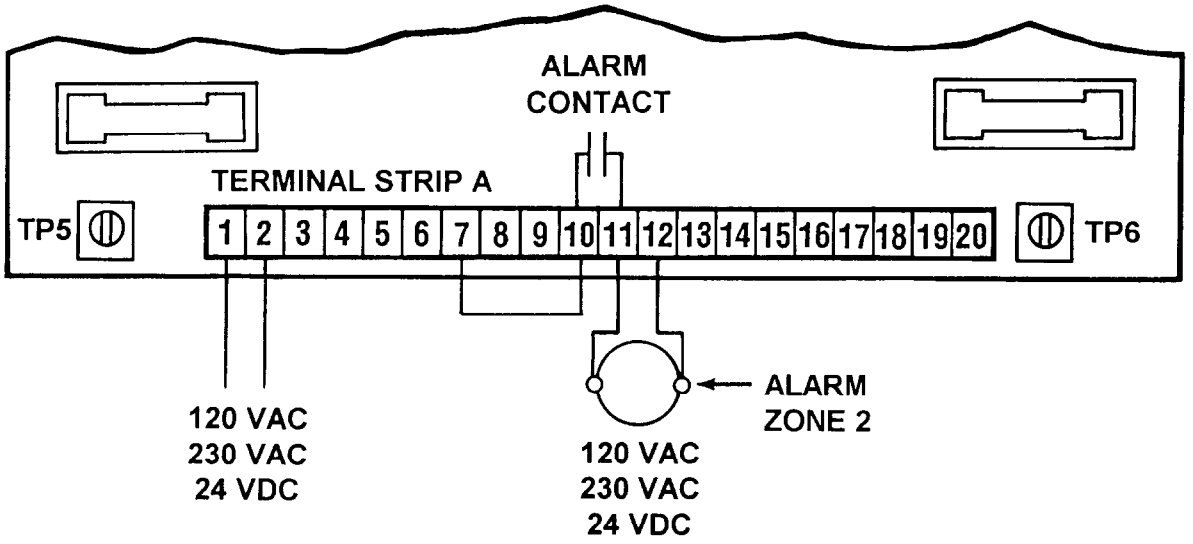
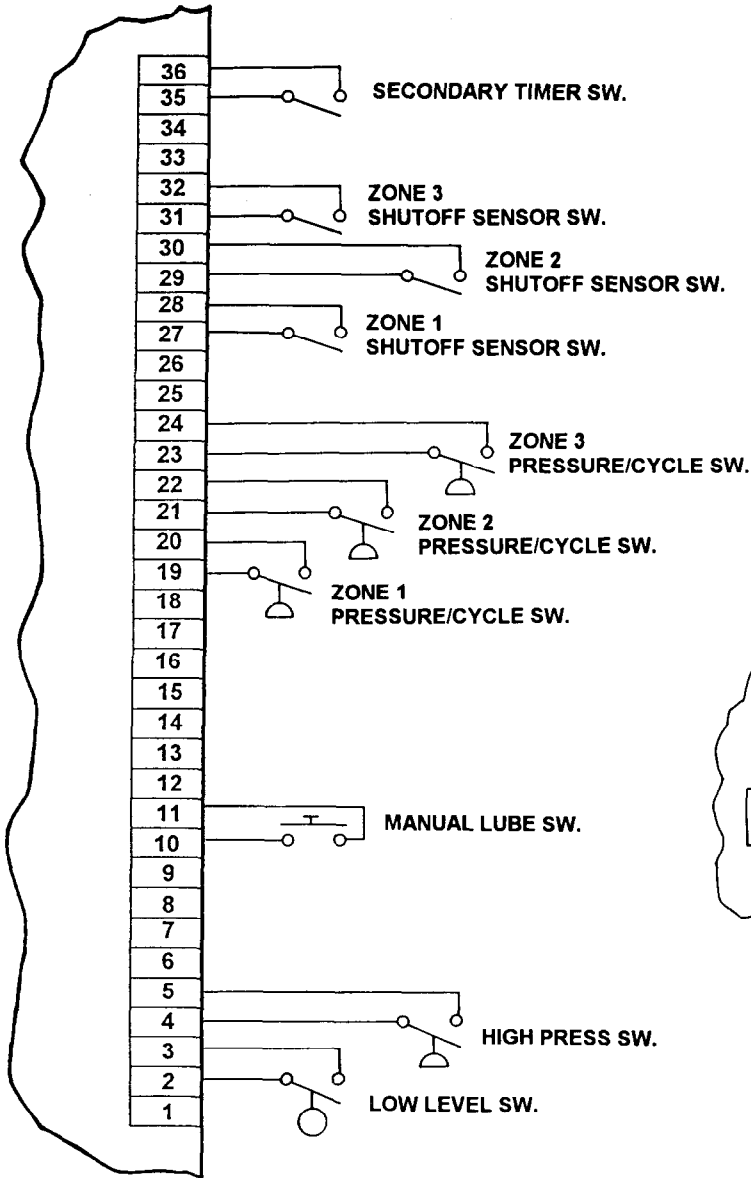


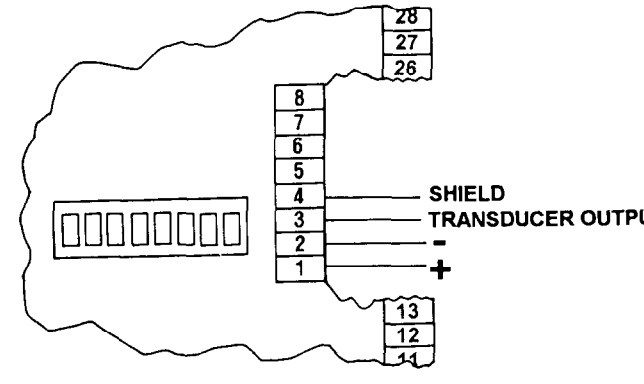
Figure 3



Controller Line Voltage for Alarm Load
Figure 4



TERMINAL STRIP B



TERMINAL STRIP C

PROGRAMMING A 1 PUMP SYSTEM WITH LUBE ZONES

While in Run Mode, Press Program Key

EXIT RUN & ENTER PROGRAM MODE ? Y/N

Yes / Enter Key

TO PROGRAM, ENTER SECURITY CODE

Enter Security Code
Yes / Enter Key

CENTRO-MATIC CONTROLLER ?

Yes / Enter Key
No / Clear Key

MODULAR LUBE CONTROLLER ?

Yes / Enter Key

ARE YOU USING ONE PUMP?

Yes / Enter Key

ARE YOU USING MULTIPLE ZONES?

Yes / Enter Key

HOW MANY ZONES? SELECT 2 OR 3: __

Enter Number of Zones
Yes / Enter Key

ZONE 1: 0030 MIN BETWEEN CYCLES?

Enter desired number of seconds, minutes or hours needed between cycles.
Yes / Enter Key

ZONE 1: 0030 MIN BETWEEN CYCLES?

Enter desired units: Seconds, Minutes or Hours

Yes / Enter Key

Repeats questions for all zones. After last zone will go to next screen.

MAXIMUM PUMP ON TIME? 01 MINUTES

Enter Number of Seconds or Minutes
Yes /Enter Key
Enter Seconds or Minutes
Yes / Enter Key

IS A SECONDARY TIMER NEEDED?

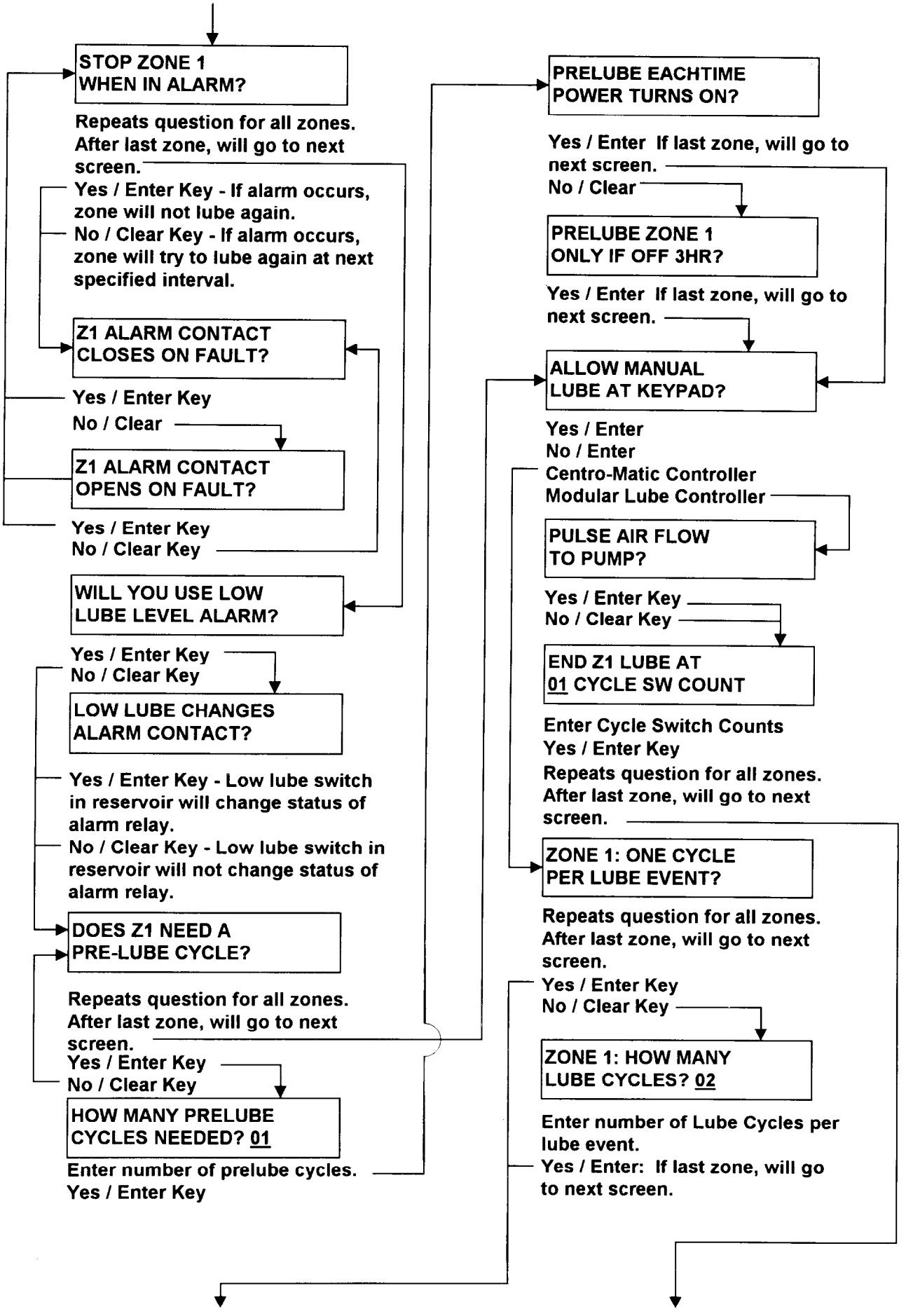
No / Clear Key
Yes / Enter Key

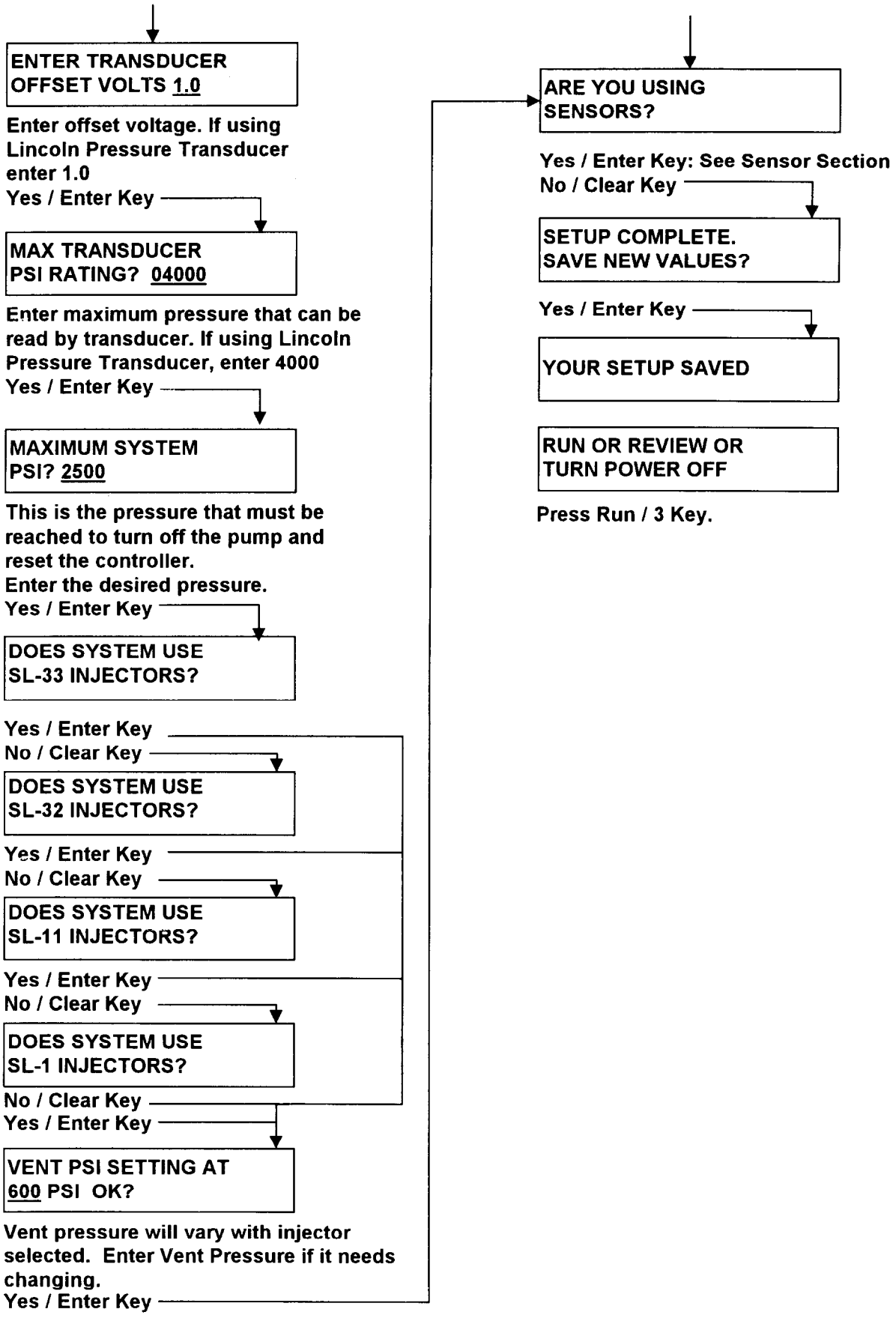
DOES ZONE 1 USE SECONDARY TIMER?

No / Clear Key
Repeats questions for all zones.
After last zone will go to next screen.
Yes / Enter Key

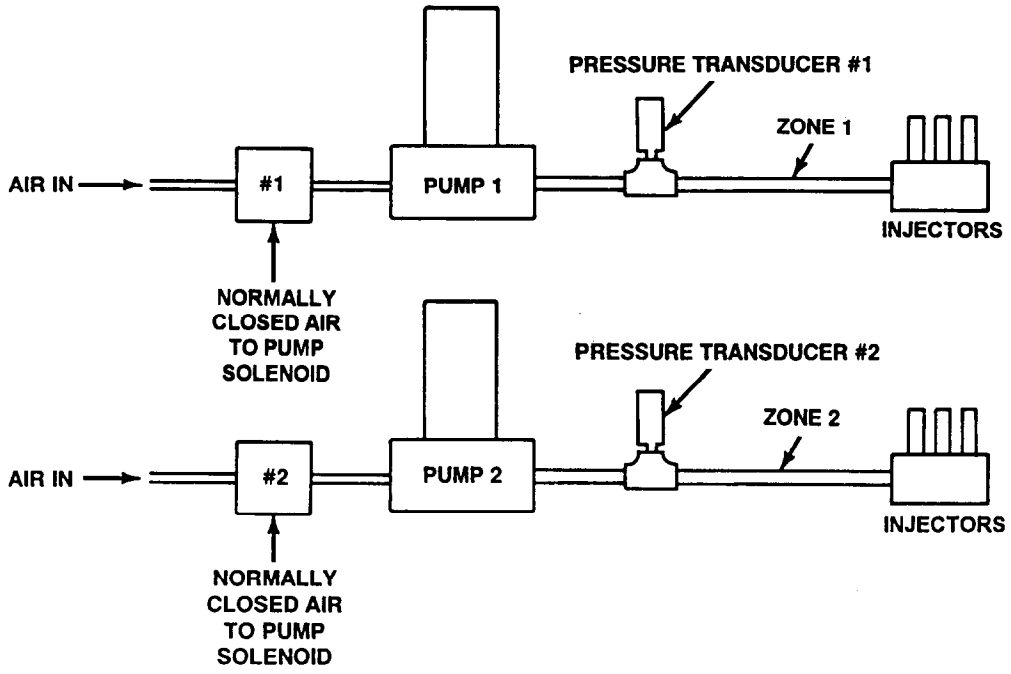
ZONE 1 SECONDARY CYCLE: 0005 MIN

Enter Number of Seconds or Minutes
Yes /Enter Key
Enter Seconds or Minutes
Yes / Enter Key

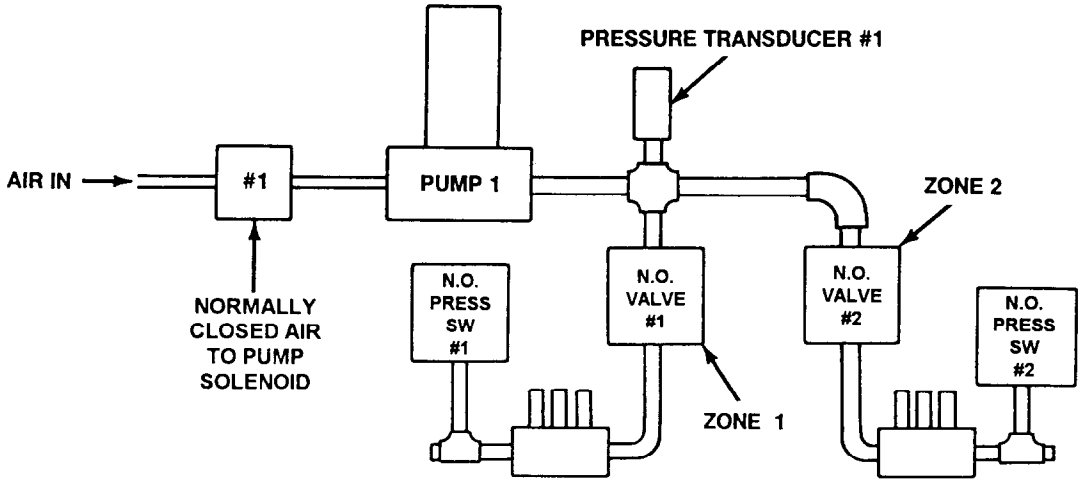

STOP ZONE 1 WHEN IN ALARM?
Repeats question for all zones. After last zone, will go to next screen.
Yes / Enter Key - If alarm occurs, zone will not lube again.
No / Clear Key - If alarm occurs, zone will try to lube again at next specified interval.
Z1 ALARM CONTACT CLOSES ON FAULT?
Yes / Enter Key
No / Clear
Z1 ALARM CONTACT OPENS ON FAULT?
Yes / Enter Key
No / Clear Key
WILL YOU USE LOW LUBE LEVEL ALARM?
Yes / Enter Key
No / Clear Key
LOW LUBE CHANGES ALARM CONTACT?
Yes / Enter Key - Low lube switch in reservoir will change status of alarm relay.
No / Clear Key - Low lube switch in reservoir will not change status of alarm relay.
DOES Z1 NEED A PRE-LUBE CYCLE?
Repeats question for all zones. After last zone, will go to next screen.
Yes / Enter Key
No / Clear Key
HOW MANY PRELUBE CYCLES NEEDED? 01
Enter number of prelube cycles.
Yes / Enter Key
PRELUBE EACHTIME POWER TURNS ON?
Yes / Enter If last zone, will go to next screen.
No / Clear
PRELUBE ZONE 1 ONLY IF OFF 3HR?
Yes / Enter If last zone, will go to next screen.
ALLOW MANUAL LUBE AT KEYPAD?
Yes / Enter
No / Enter
Centro-Matic Controller
Modular Lube Controller
PULSE AIR FLOW TO PUMP?
Yes / Enter Key
No / Clear Key
END Z1 LUBE AT 01 CYCLE SW COUNT
Enter Cycle Switch Counts
Yes / Enter Key
Repeats question for all zones. After last zone, will go to next screen.
ZONE 1: ONE CYCLE PER LUBE EVENT?
Repeats question for all zones. After last zone, will go to next screen.
Yes / Enter Key
No / Clear Key
ZONE 1: HOW MANY LUBE CYCLES? 02
Enter number of Lube Cycles per lube event.
Yes / Enter: If last zone, will go to next screen.

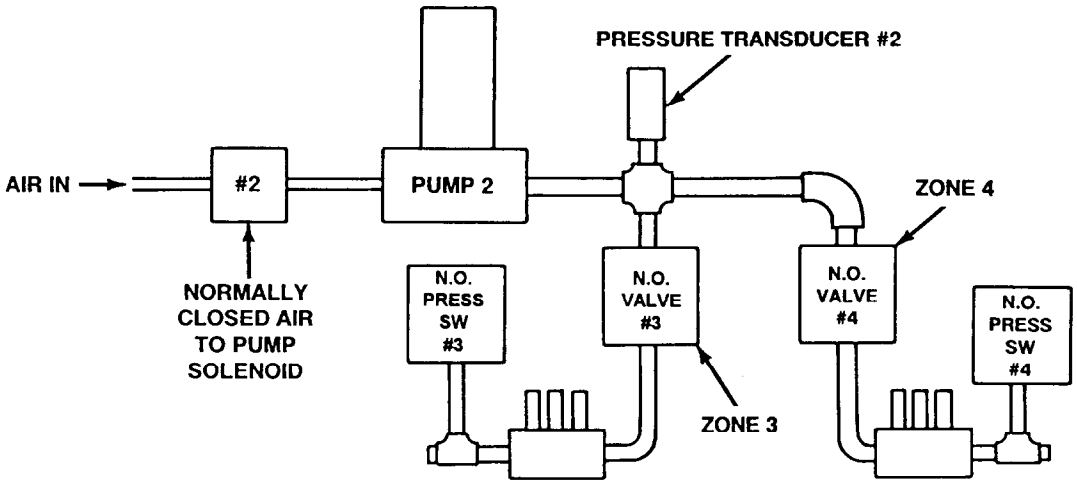

ENTER TRANSDUCER OFFSET VOLTS 1.0
Enter offset voltage. If using Lincoln Pressure Transducer enter 1.0
Yes / Enter Key
MAX TRANSDUCER PSI RATING? 04000
Enter maximum pressure that can be read by transducer. If using Lincoln Pressure Transducer, enter 4000
Yes / Enter Key
MAXIMUM SYSTEM PSI? 2500
This is the pressure that must be reached to turn off the pump and reset the controller.
Enter the desired pressure.
Yes / Enter Key
DOES SYSTEM USE SL-33 INJECTORS?
Yes / Enter Key
No / Clear Key
DOES SYSTEM USE SL-32 INJECTORS?
Yes / Enter Key
No / Clear Key
DOES SYSTEM USE SL-11 INJECTORS?
Yes / Enter Key
No / Clear Key
DOES SYSTEM USE SL-1 INJECTORS?
No / Clear Key
Yes / Enter Key
VENT PSI SETTING AT 600 PSI OK?
Vent pressure will vary with injector selected. Enter Vent Pressure if it needs changing.
Yes / Enter Key
ARE YOU USING SENSORS?
Yes / Enter Key: See Sensor Section
No / Clear Key
SETUP COMPLETE. SAVE NEW VALUES?
Yes / Enter Key
YOUR SETUP SAVED
RUN OR REVIEW OR TURN POWER OFF
Press Run / 3 Key.

2 PUMPS WITH UP TO 2 LUBE ZONES EACH

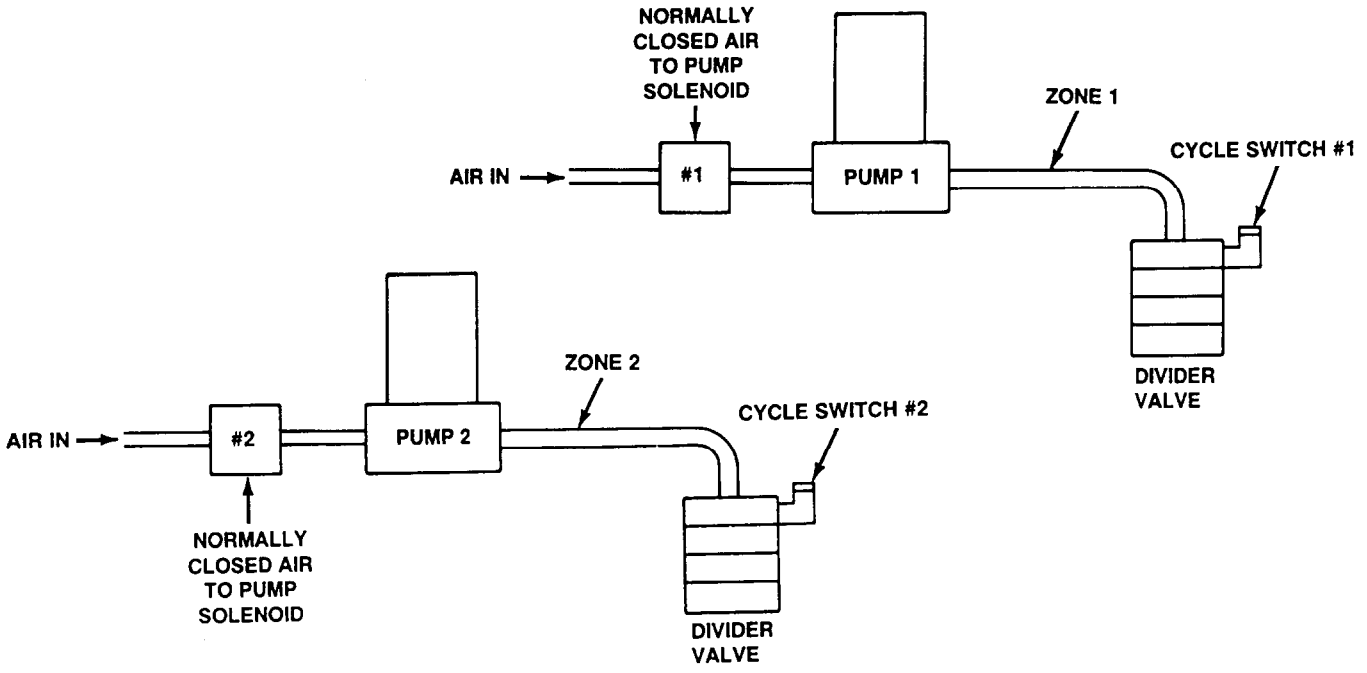


Centro - Matic 2 Pumps and 2 Zones

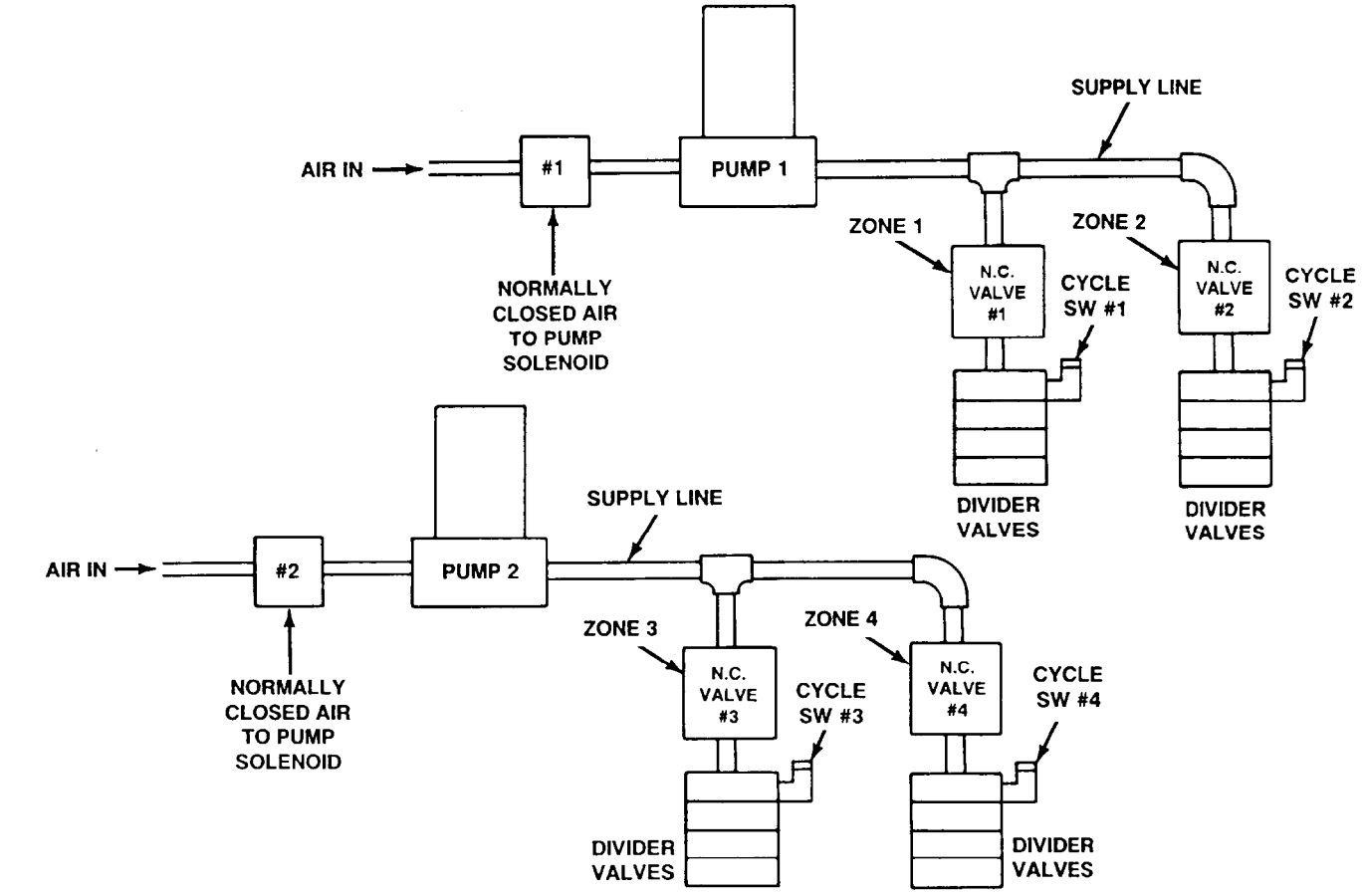




Centro - Matic 2 Pumps and 4 Zones



Modular Lube 2 Pumps and 2 Zones



Modular Lube 2 Pumps and 4 Zones

TWO (2) PUMPS WITH UP TO TWO (2) LUBE ZONES EACH

Centro-Matic: Each pump must have an air-to-pump solenoid. A pressure transducer must be used in the lube supply line.

If a pump has two lube zones, each zone must be equipped with a Normally Open shutoff solenoid and a Normally Open pressure switch is in addition to the air-to-pump solenoid and pressure transducer in the supply line.

Modular Lube: Each pump must have an air-to-pump solenoid and a Normally Open cycle switch located on a divider block.

If a pump has two lube zones, each zone must be equipped with a Normally Open cycle switch and a Normally Closed Lube shutoff solenoid in addition to the air-to-pump solenoid.

Numbering Zones: For a two-pump system, a pump will always have one (1) zone, but not more than two (2) zones. The numbering of the zones in relation to the pump **must** be as follows:

Pump 1 - Zone 1
Pump 2 - Zone 2

Pump 1 - Zone 1, Zone 2
Pump 2 - Zone 3

Pump 1 - Zone 1
Pump 2 - Zone 2, Zone 3

Pump 1 - Zone 1, Zone 2
Pump 2 - Zone 3, Zone 4

Alarm: Both pumps will share a common alarm relay.

TERMINAL STRIP A - HIGH VOLTAGE CONNECTIONS

(See Figure 5.)

Incoming Power Source

	120/230 VAC	24 VDC
Terminal 1	Black Wire	Battery Plus
Terminal 2	White Wire - Neutral	Battery Minus
Power Switch	Push to Left - AC Position	Push to Right - DC Position

Terminals 1 and 7: Connected together internally.

Terminals 2, 4, 9, 12, 14, 16, 18 and 20: Connected together internally.

IMPORTANT: Connect *GREEN* grounding wire to either of the Grounding Terminals TP5 or TP6.

Air-To-#1 Pump Solenoid - Terminals 8 & 9: Relay Contact Inductive Rating - 2 amps at 30VDC, 250VAC.

Air-To-#2 Pump Solenoid - Terminals 13 & 14: Relay Contact Inductive Rating - 2 amps at 30VDC, 250VAC.

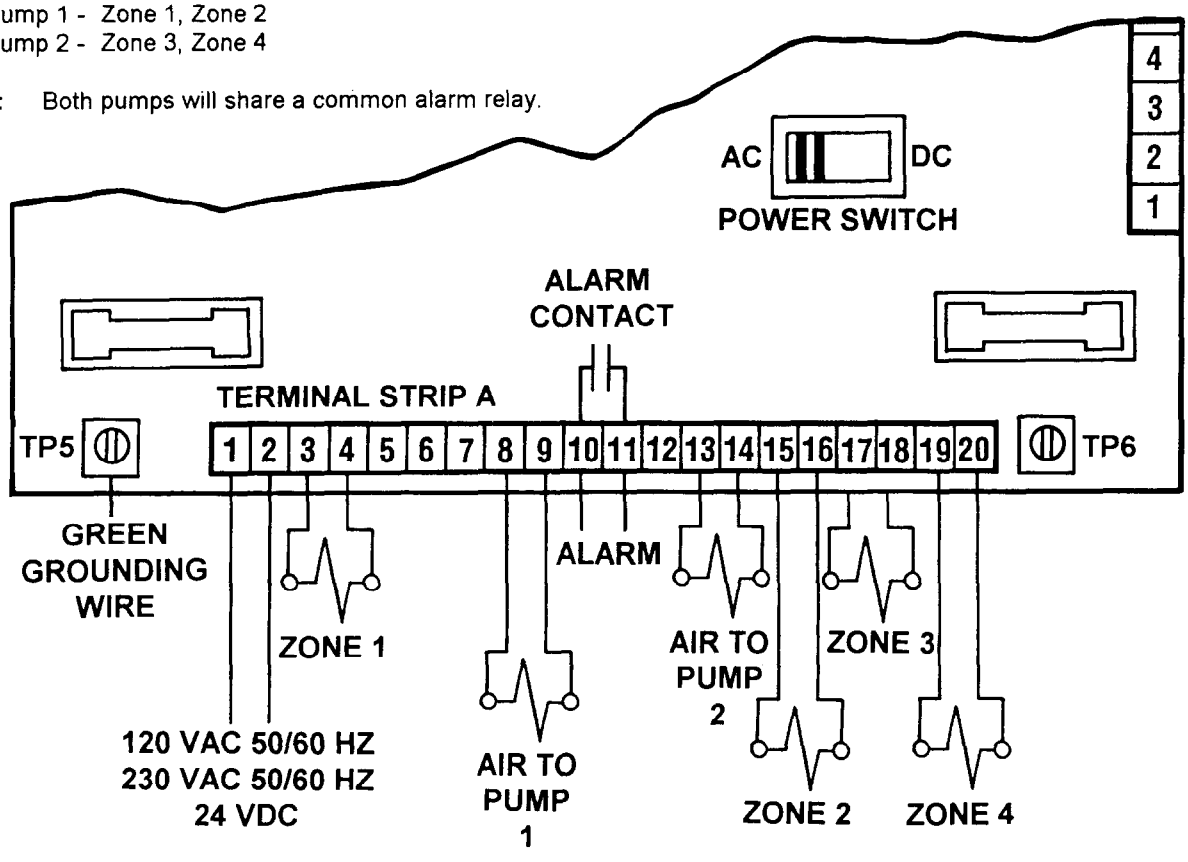
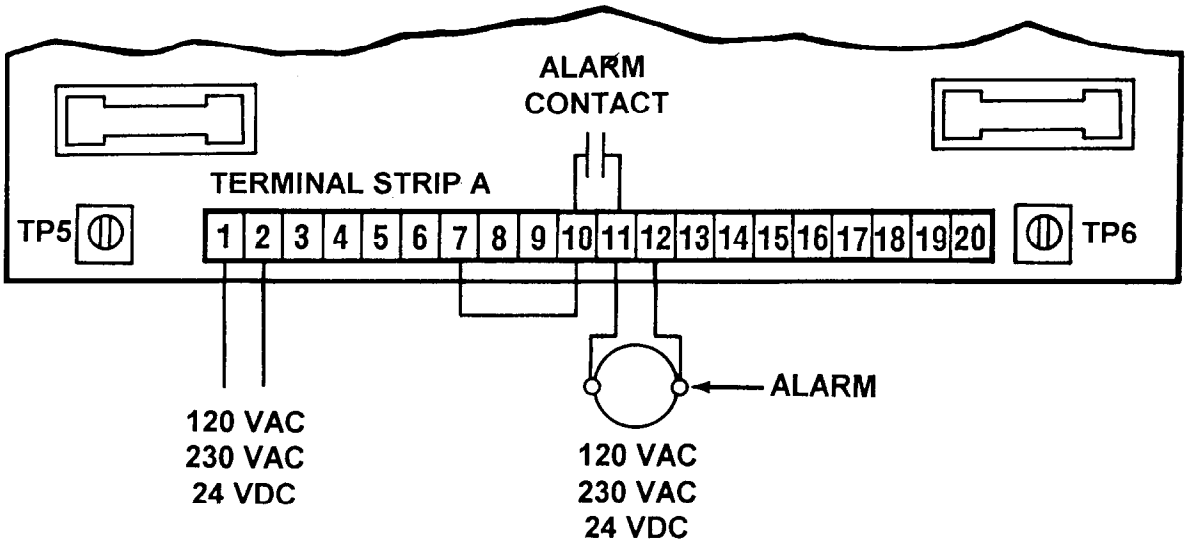


Figure 5



Controller Line Voltage for Alarm Load
Figure 6

Common Alarm for #1 Pump and #2 Pump: - Terminals 10, 11 and 12 can be wired in either of the two ways that follow:

1. Terminals 10 and 11: N.O. Contact. **(See WARNING!)**

> **WARNING**
>
> **When used in this manner, the RELAY FUSE does not protect this contact.**

2. Using controller line voltage at Terminals 1 and 2. See Figure 6.

   (a) Jumper wire between Terminals 7 and 10.
   (b) Connect Alarm Load to Terminals 11 and 12.

Relay Contact Inductive Rating: 2 amps at 30 VDC, 250 VAC.

Zone 1 Lube Shutoff Valve - Terminals 3 & 4: Relay Contact Inductive rating - 2 amps at 30VDC, 250 VAC.

Zone 2 - Lube Shutoff Valve - Terminals 15 & 16: Relay Contact Inductive Rating - 2 amps at 30VDC, 250VAC.

Zone 3 - Lube Shutoff Valve - Terminals 17 & 18: Relay Contact Inductive Rating - 2 amps at 30VDC, 250VAC.

Zone 4 - Lube Shutoff Valve - Terminals 19 & 20: Relay Contact Inductive Rating - 2 amps at 30VDC, 250VAC.

TERMINAL STRIP B - LOW VOLTAGE INPUT SWITCHES

Reservoir Low Level Switch for Pump #1: Normally Open Switch, Terminals 2 and 3. Switch Ampacity: 2 MA at 5 VDC.

Modular Lube High Pressure Switch for Pump #1: Normally Open Switch, Terminals 4 and 5. Switch Ampacity: 2 MA at 5 VDC.

Reservoir Low Level Switch for Pump #2: Normally Open Switch, Terminals 6 and 7. Switch Ampacity: 2 MA at 5 VDC.

Modular Lube High Pressure Switch for Pump #2: Normally Open Switch, Terminals 8 and 9. Switch Ampacity: 2 MA at 5 VDC.

Remote Manual Lube Switch for Pump #1: Normally Open Switch, Terminals 10 and 11. Switch Ampacity: 2 MA at 5 VDC.

Remote Manual Lube Switch for Pump #2: Normally Open Switch, Terminals 12 and 13. Switch Ampacity: 2 MA at 5 VDC.

Secondary Timer Switch for Pump #2: Normally Open Switch, Terminals 14 and 15. Switch Ampacity: 2 MA at 5 VDC.

Zone 1 Pressure/Cycle Switch: Normally Open Switch, Terminals 19 and 20. Switch Ampacity: 2 MA at 5 VDC.

Zone 2 Pressure/Cycle Switch: Normally Open Switch, Terminals 21 and 22. Switch Ampacity: 2 MA at 5 VDC.

Zone 3 Pressure/Cycle Switch: Normally Open Switch, Terminals 23 and 24. Switch Ampacity: 2 MA at 5 VDC.

Zone 4 Pressure/Cycle Switch: Normally Open Switch, Terminals 25 and 26. Switch Ampacity: 2 MA at 5 VDC.

Zone 1 Shutoff Switch: Normally Open Switch, Terminals 27 and 28. Switch Ampacity: 2 MA at 5 VDC.

Zone 2 Shutoff Switch: Normally Open Switch, Terminals 29 and 30. Switch Ampacity: 2 MA at 5 VDC.

Zone 3 Shutoff Switch: Normally Open Switch, Terminals 31 and 32. Switch Ampacity: 2 MA at 5 VDC.

Zone 4 Shutoff Switch: Normally Open Switch, Terminals 33 and 34 Switch Ampacity: 2 MA at 5 VDC.

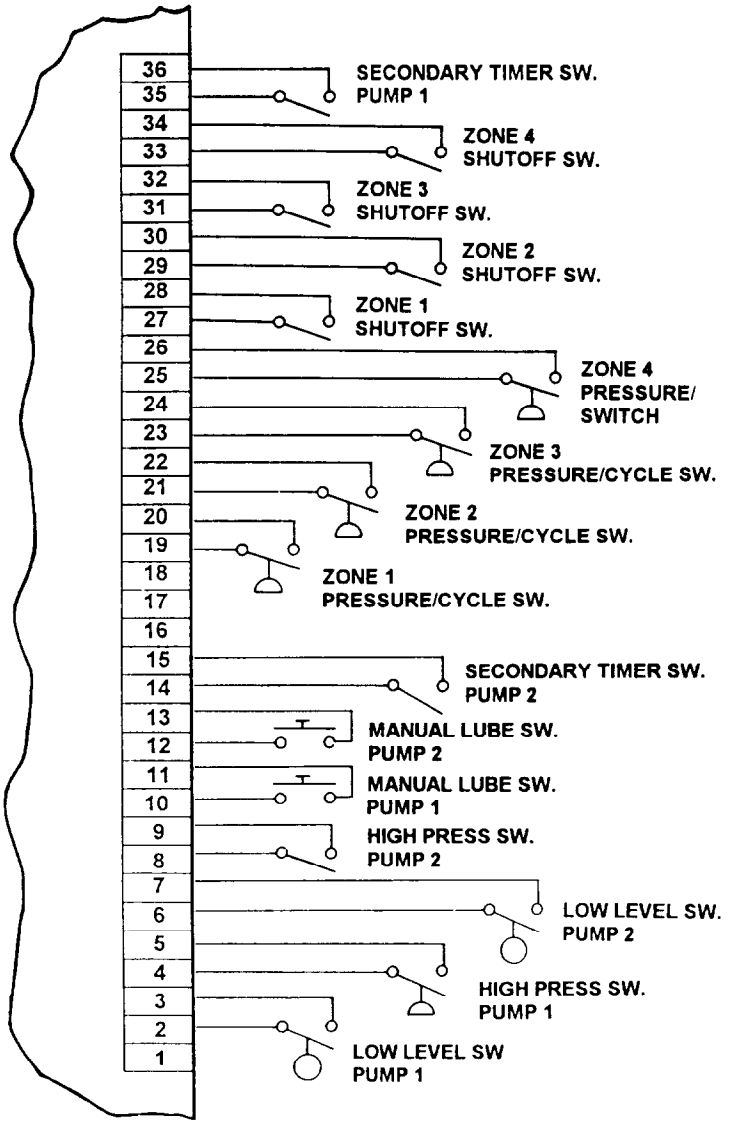
Secondary Timer Activation Switch for Pump #1: Normally Open Switch, Terminals 35 and 36. Switch Ampacity: 2 MA at 5 VDC.

TRANSDUCER TERMINAL STRIP C

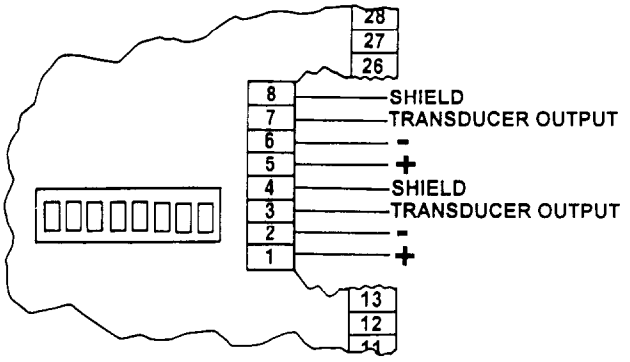
This Terminal Strip is only used for *Centro-Matic Applications*. The transducer excitation voltage, 15 VDC, is supplied by the controller at terminals 1 and 2 for Pump #1 and at terminals 5 and 6 for Pump #2.

Pump #1
Terminal 1: Positive Excitation Voltage
Terminal 2: Common Excitation Voltage.
Terminal 3: Transducer Output.
Terminal 4: Shielded Wire.

Pump #2
Terminal 5: Positive Excitation Voltage
Terminal 6: Common Excitation Voltage.
Terminal 7: Transducer Output.
Terminal 8: Shielded Wire.



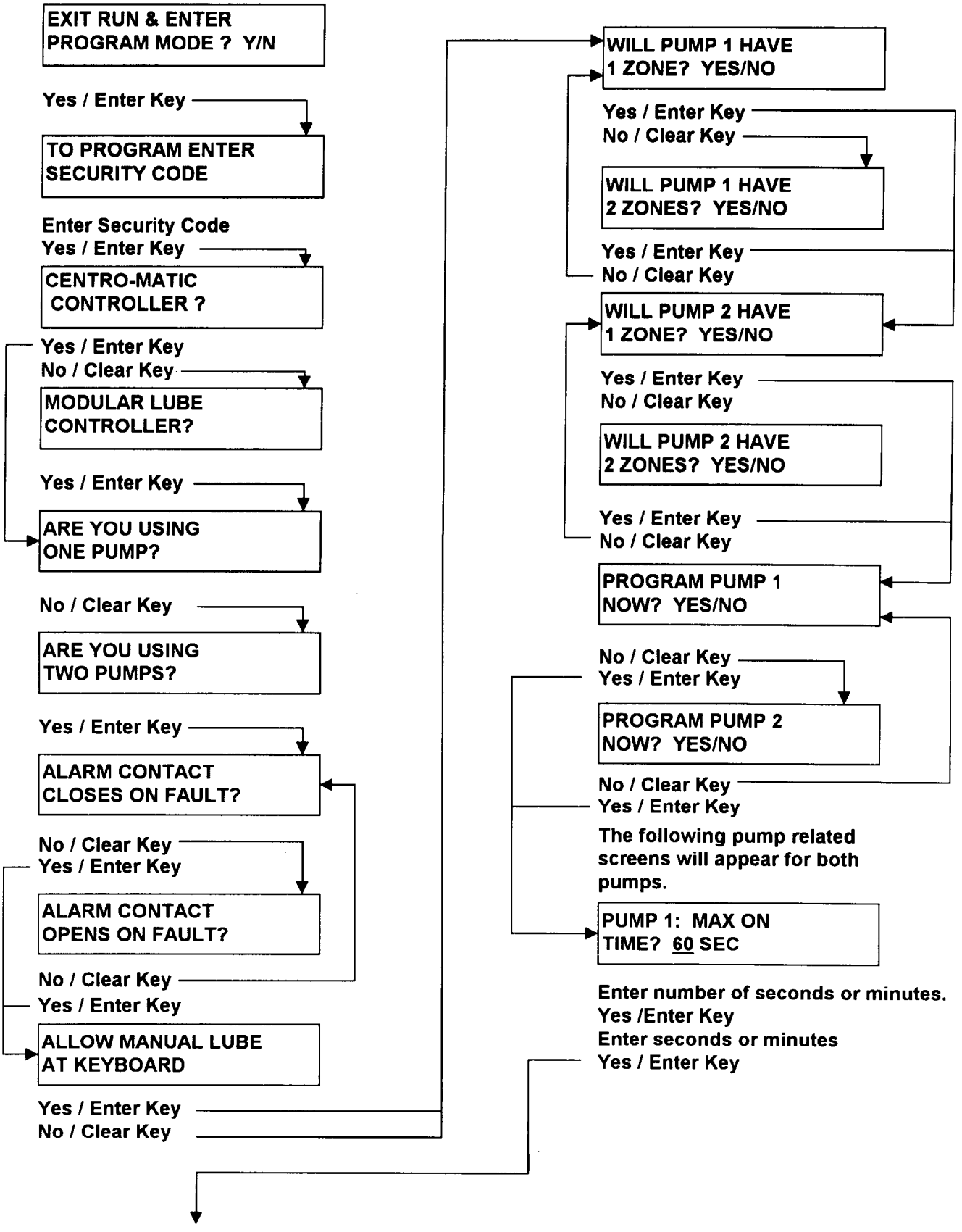
TERMINAL STRIP B

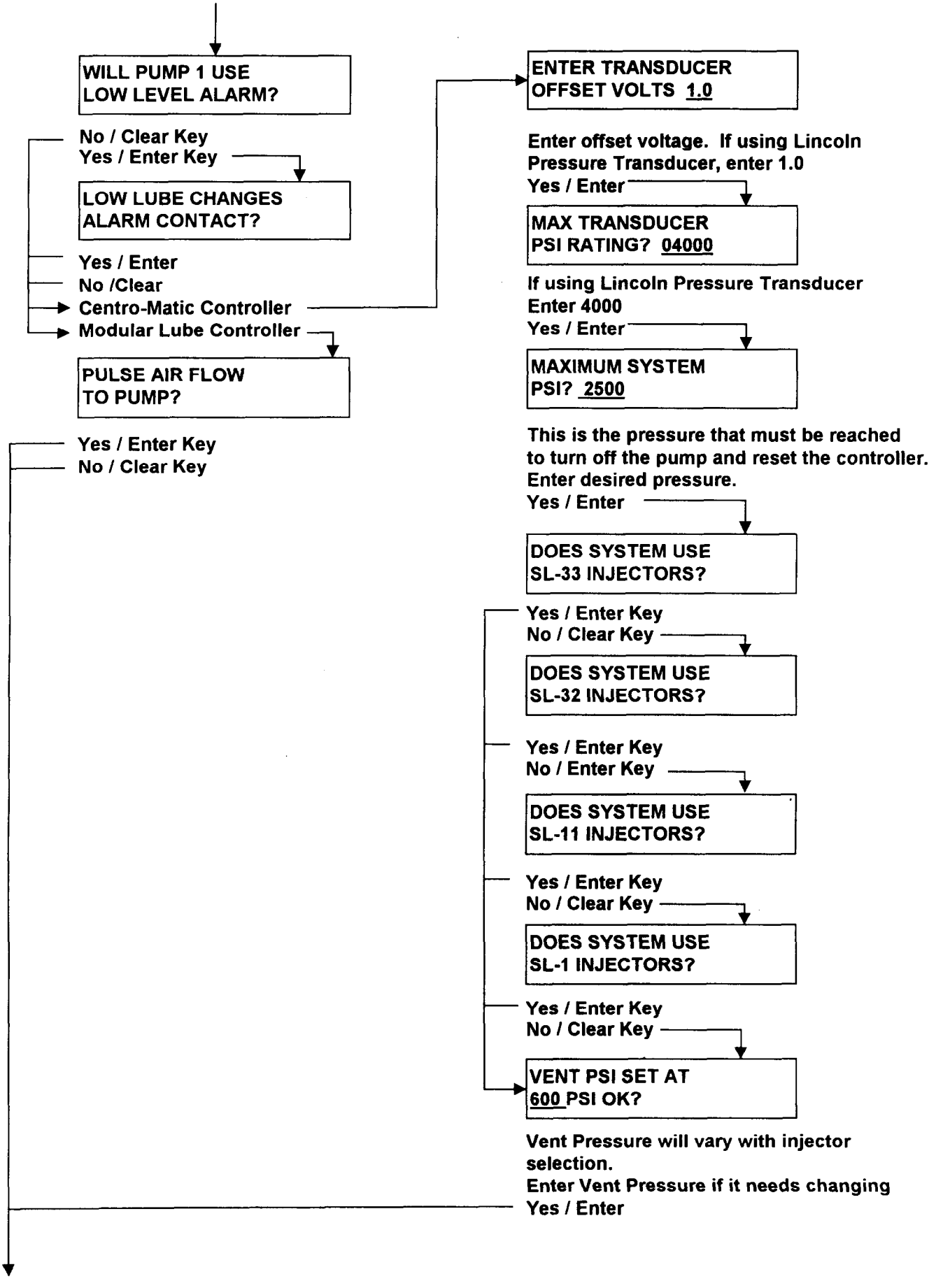


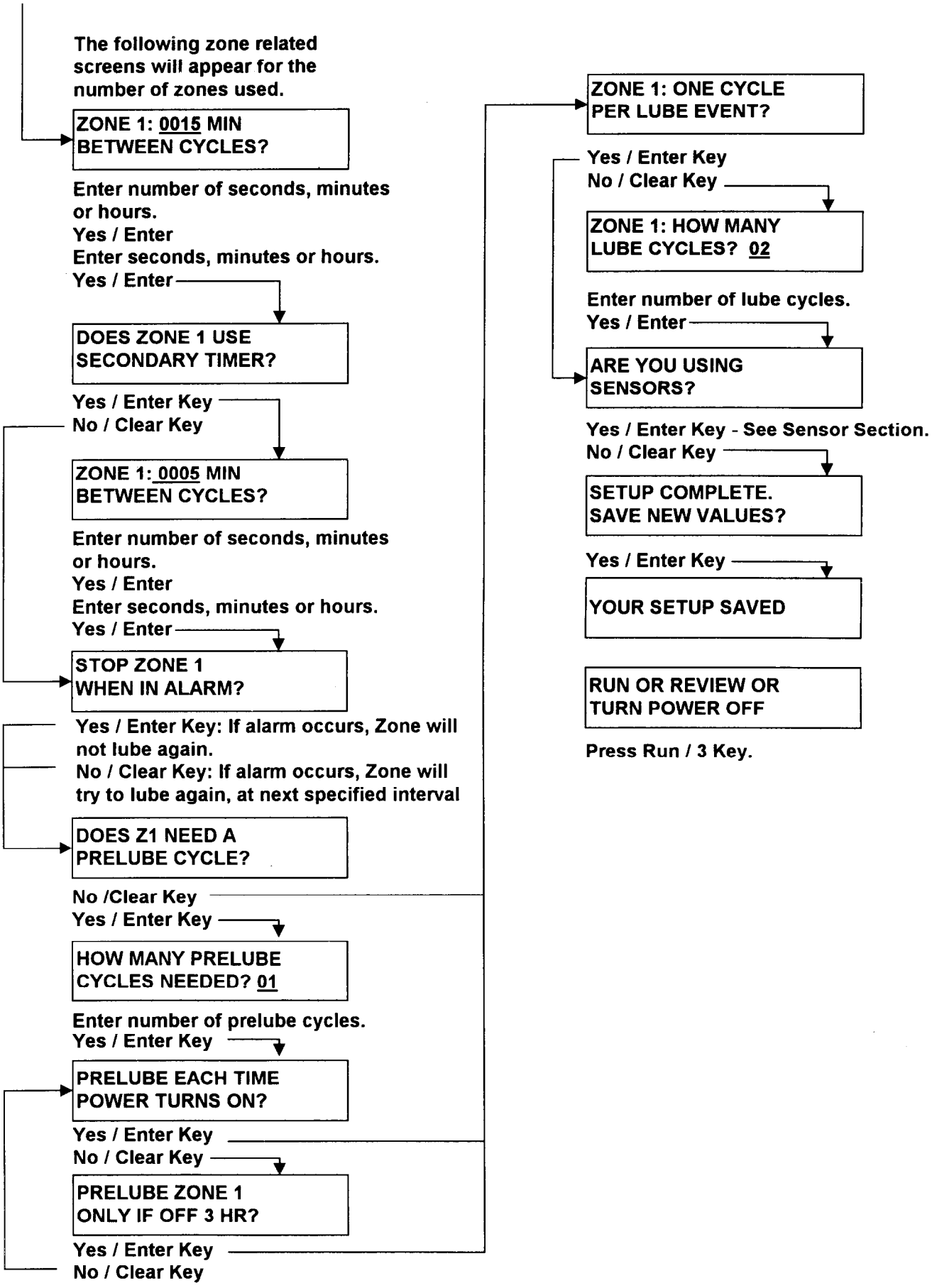
TERMINAL STRIP C

PROGRAMMING A 2 PUMP SYSTEM

While in Run Mode, Press Program Key




WILL PUMP 1 USE LOW LEVEL ALARM?
No / Clear Key
Yes / Enter Key
LOW LUBE CHANGES ALARM CONTACT?
Yes / Enter
No /Clear
Centro-Matic Controller
Modular Lube Controller
PULSE AIR FLOW TO PUMP?
Yes / Enter Key
No / Clear Key
ENTER TRANSDUCER OFFSET VOLTS 1.0
Enter offset voltage. If using Lincoln Pressure Transducer, enter 1.0
Yes / Enter
MAX TRANSDUCER PSI RATING? 04000
If using Lincoln Pressure Transducer Enter 4000
Yes / Enter
MAXIMUM SYSTEM PSI? 2500
This is the pressure that must be reached to turn off the pump and reset the controller. Enter desired pressure.
Yes / Enter
DOES SYSTEM USE SL-33 INJECTORS?
Yes / Enter Key
No / Clear Key
DOES SYSTEM USE SL-32 INJECTORS?
Yes / Enter Key
No / Enter Key
DOES SYSTEM USE SL-11 INJECTORS?
Yes / Enter Key
No / Clear Key
DOES SYSTEM USE SL-1 INJECTORS?
Yes / Enter Key
No / Clear Key
VENT PSI SET AT 600 PSI OK?
Vent Pressure will vary with injector selection.
Enter Vent Pressure if it needs changing
Yes / Enter


The following zone related screens will appear for the number of zones used.
ZONE 1: 0015 MIN BETWEEN CYCLES?
Enter number of seconds, minutes or hours.
Yes / Enter
Enter seconds, minutes or hours.
Yes / Enter
DOES ZONE 1 USE SECONDARY TIMER?
Yes / Enter Key
No / Clear Key
ZONE 1: 0005 MIN BETWEEN CYCLES?
Enter number of seconds, minutes or hours.
Yes / Enter
Enter seconds, minutes or hours.
Yes / Enter
STOP ZONE 1 WHEN IN ALARM?
Yes / Enter Key: If alarm occurs, Zone will not lube again.
No / Clear Key: If alarm occurs, Zone will try to lube again, at next specified interval
DOES Z1 NEED A PRELUBE CYCLE?
No /Clear Key
Yes / Enter Key
HOW MANY PRELUBE CYCLES NEEDED? 01
Enter number of prelube cycles.
Yes / Enter Key
PRELUBE EACH TIME POWER TURNS ON?
Yes / Enter Key
No / Clear Key
PRELUBE ZONE 1 ONLY IF OFF 3 HR?
Yes / Enter Key
No / Clear Key
ZONE 1: ONE CYCLE PER LUBE EVENT?
Yes / Enter Key
No / Clear Key
ZONE 1: HOW MANY LUBE CYCLES? 02
Enter number of lube cycles.
Yes / Enter
ARE YOU USING SENSORS?
Yes / Enter Key - See Sensor Section.
No / Clear Key
SETUP COMPLETE. SAVE NEW VALUES?
Yes / Enter Key
YOUR SETUP SAVED
RUN OR REVIEW OR TURN POWER OFF
Press Run / 3 Key.

LUBE SENSOR ONLY - EXTERNAL EVENT STARTS MONITORING

Can only use one of the scan inputs. Either terminals 5 and 6 on Terminal Strip "A" or terminals 14 and 15 on Terminal Strip "B".

FIELD CONNECTIONS

TERMINAL STRIP A - HIGH VOLTAGE CONNECTIONS (See Figure 7)

Incoming Power Source

	120/230 VAC	24 VDC
Terminal 1	Black Wire	Battery Plus
Terminal 2	White Wire - Neutral	Battery Minus
Power Switch	Push to Left - AC Position	Push to Right - DC Position

Terminals 1 and 7: Connected together internally on Terminal Strip A.

Terminals 2, 4, 9, 12, 14, 16, 18 and 20: Connected together internally.

IMPORTANT: Connect *GREEN* grounding wire to either of the Grounding Terminals TP5 or TP6.

External Scan Activation Signal - Terminals 5 & 6: 120/230 VAC Signal. When 120/230 VAC is present at terminals 5 and 6, the controller will scan sensors for lube flow.

External Alarm Load - Terminals 10, 11 and 12 - Can be used in two ways:

1. Terminals 10 and 11: N.O. Contact. **(See WARNING!)**

⚠ WARNING

When used in this manner, the RELAY FUSE does not protect this contact.

2. Using controller line voltage at Terminals 1 and 2. See Figure 8.

   (a) Jumper wire between Terminals 7 and 10.
   (b) Connect Alarm Load to Terminals 11 and 12.

Relay Contact Inductive Rating: 2 amps at 30 VDC, 250 VAC.

TERMINAL STRIP B - LOW VOLTAGE INPUT SWITCHES

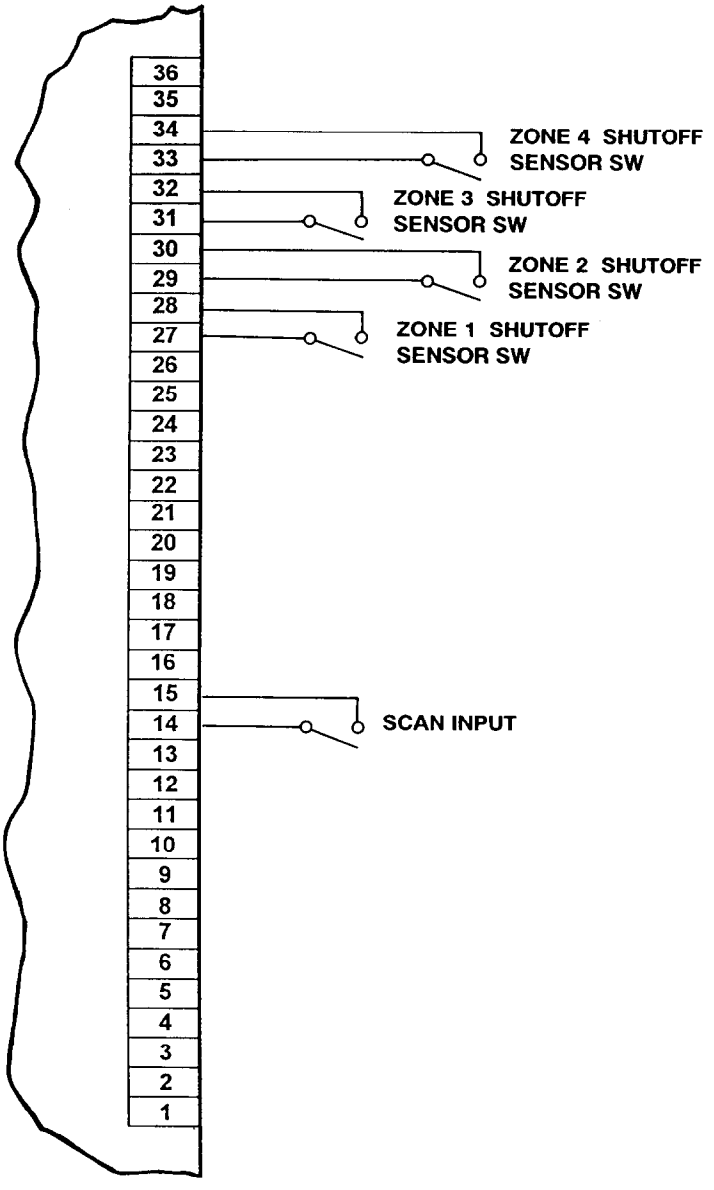
Scan Switch: Normally Open Switch, Terminals 14 and 15. When the Scan Switch closes, the controller will scan sensors for lube flow.

Zone 1 Sensor Shutoff Switch: Normally Open Switch, Terminals 27 and 28. Switch Ampacity: 2 MA at 5 VDC.

Zone 2 Sensor Shutoff Switch: Normally Open Switch, Terminals 29 and 30. Switch Ampacity: 2 MA at 5 VDC.

Zone 3 Sensor Shutoff Switch: Normally Open Switch, Terminals 31 and 32. Switch Ampacity: 2 MA at 5 VDC.

Zone 4 Sensor Shutoff Switch: Normally Open Switch, Terminals 33 and 34. Switch Ampacity: 2 MA at 5 VDC.



TERMINAL STRIP B

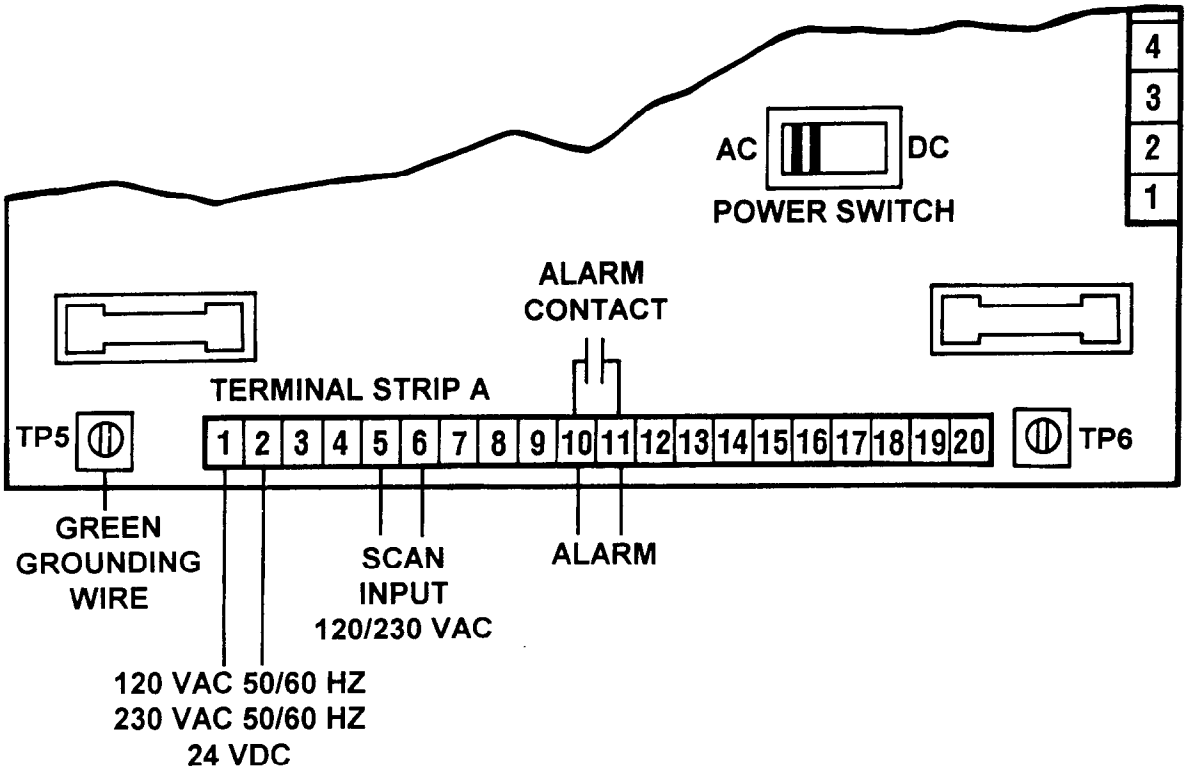
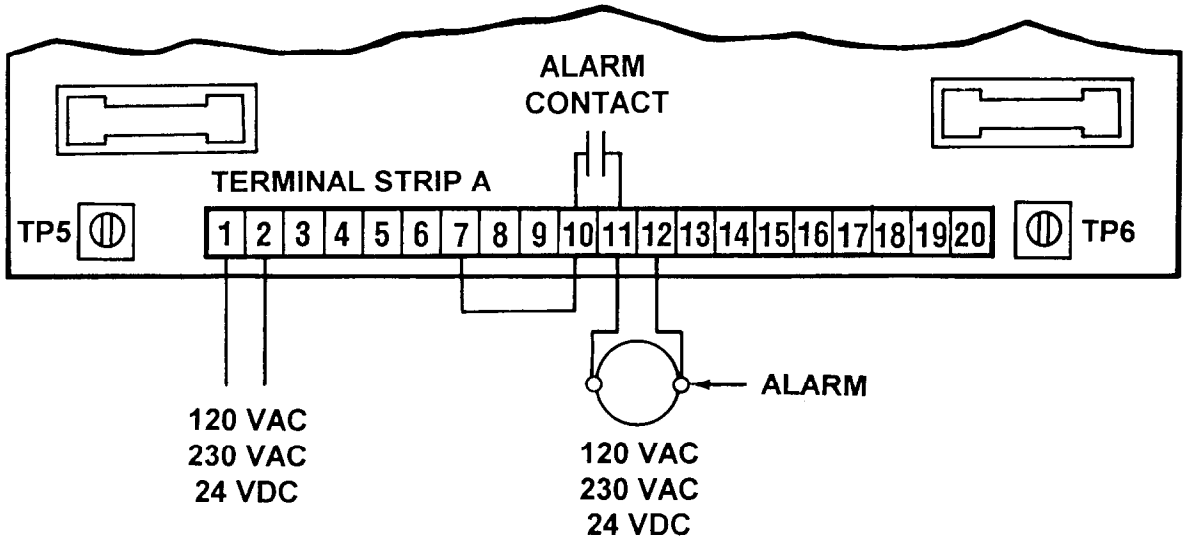


Figure 7



Controller Line Voltage for Alarm Load
Figure 8

PROGRAMMING Lube Sensor Only - External Event Starts Monitoring

While in Run Mode, Press Program Key

EXIT RUN & ENTER PROGRAM MODE ? Y/N

Yes / Enter Key →

TO PROGRAM, ENTER SECURITY CODE

Enter Security Code
Yes / Enter Key →

CENTRO-MATIC CONTROLLER ?

No / Clear Key →

MODULAR LUBE CONTROLLER ?

No / Clear Key →

LUBE SENSOR MONITOR ONLY?

Yes / Enter Key →

EXTERNAL EVENT STARTS MONITOR?

Yes / Enter Key →

See Sensors Section

LUBE SENSOR ONLY - INTERNAL TIMER STARTS MONITORING

FIELD CONNECTIONS

TERMINAL STRIP A - HIGH VOLTAGE CONNECTIONS (See Figure 9)

Incoming Power Source

	120/230 VAC	24 VDC
Terminal 1	Black Wire	Battery Plus
Terminal 2	White Wire - Neutral	Battery Minus
Power Switch	Push to Left - AC Position	Push to Right - DC Position

Terminals 1 and 7: Connected together internally.

Terminals 2, 4, 9, 12, 14, 16, 18 and 20: Connected together internally.

IMPORTANT: Connect *GREEN* grounding wire to either of the Grounding Terminals TP5 or TP6.

External Alarm Load: - Terminals 10, 11, and 12 can be used two ways:

1. Terminals 10 and 11: N.O. Contact.**(See WARNING!)**

⚠ WARNING

When used in this manner, the RELAY FUSE does not protect this contact.

2. Using controller line voltage at Terminals 1 and 2. See Figure 10.

   (a) Jumper wire between Terminals 7 and 10.
   (b) Connect Alarm Load to Terminals 11 and 12.

Relay Contact Inductive Rating: 2 amps at 30 VDC, 250 VAC.

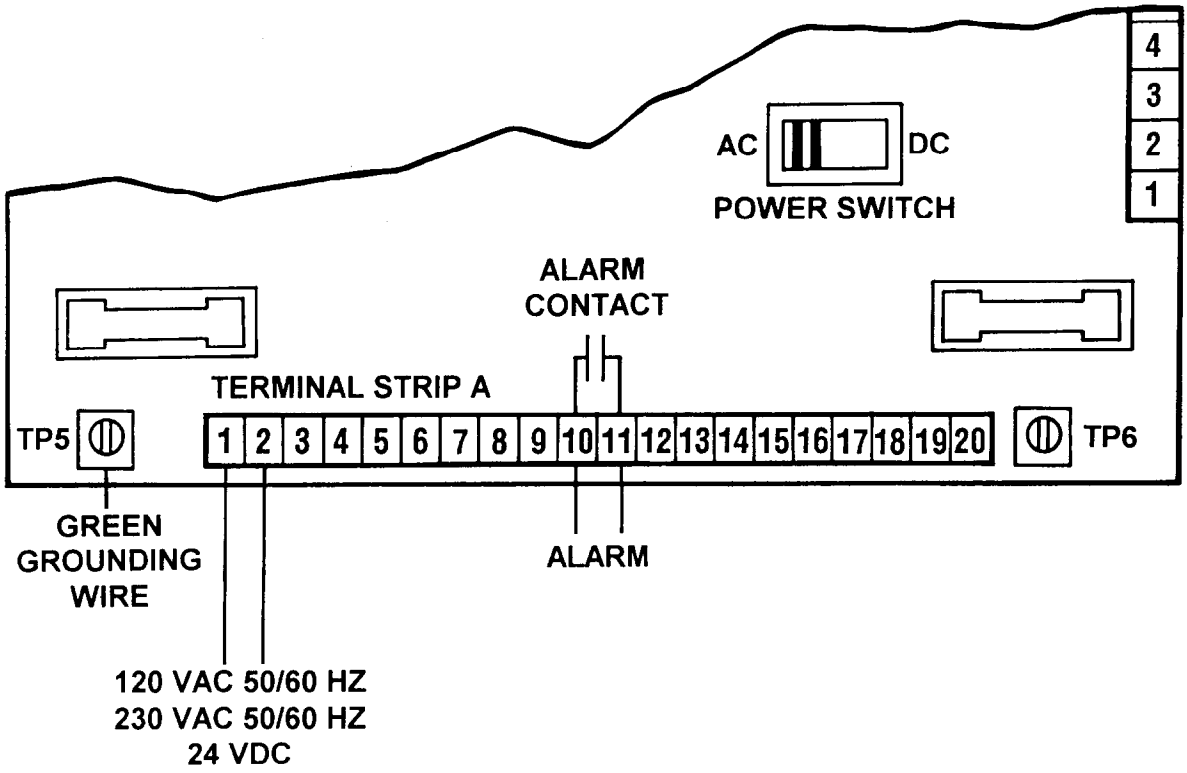
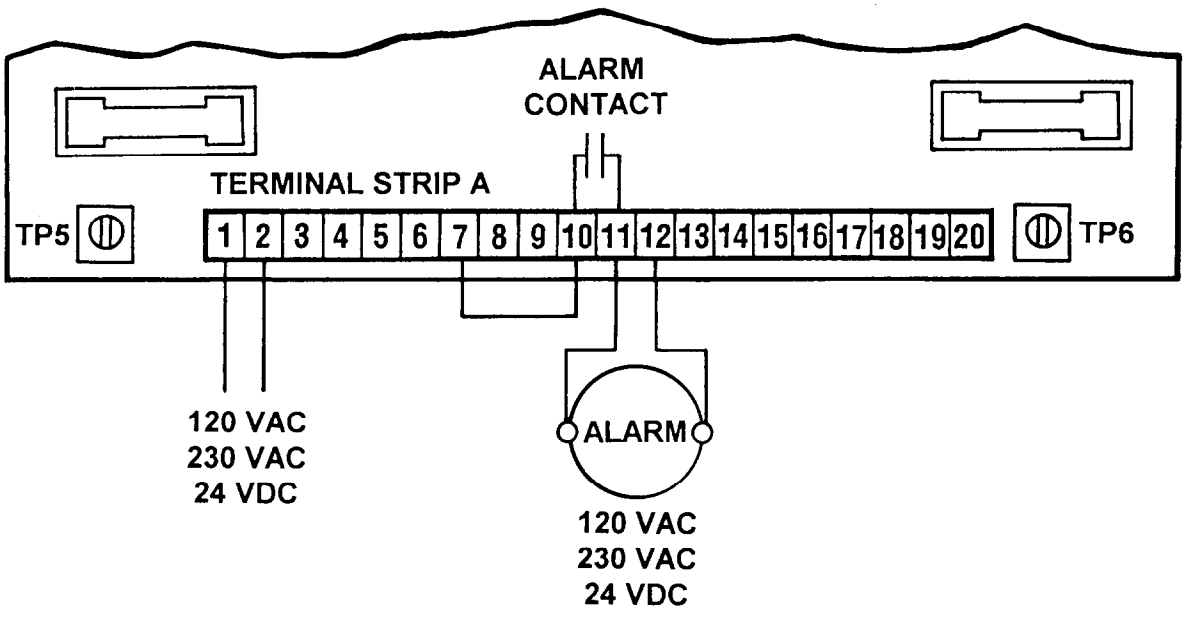


Figure 9



Controller Line Voltage for Alarm Load
Figure 10

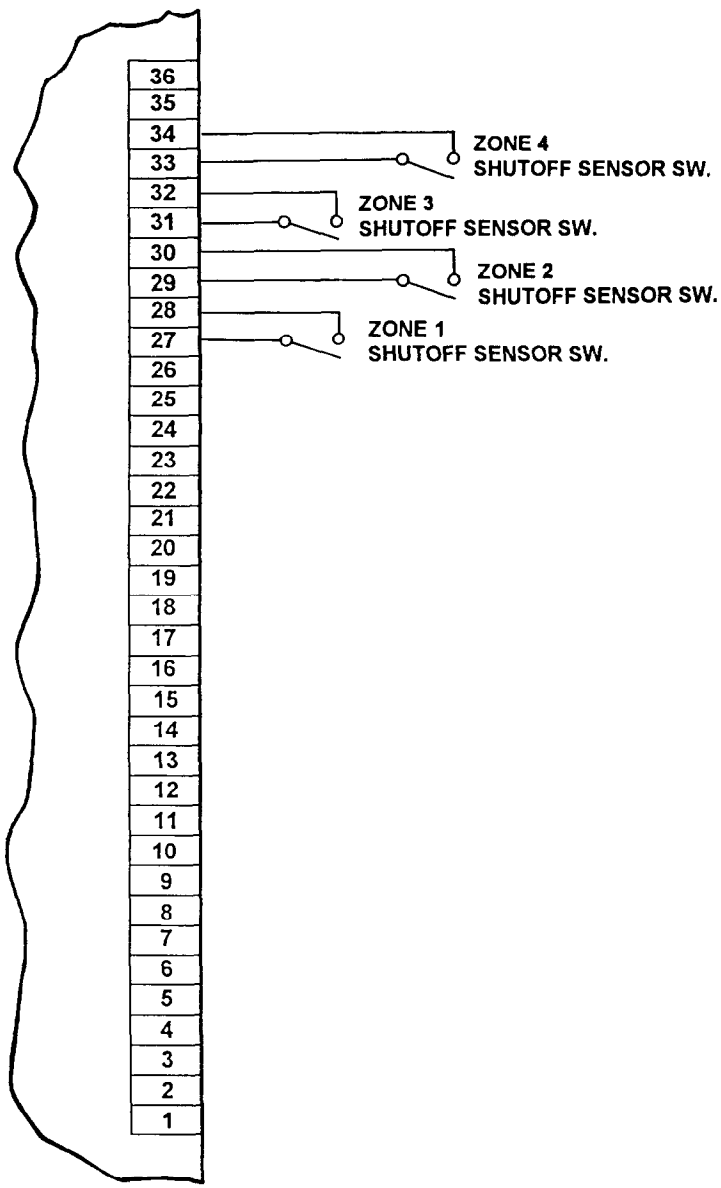
TERMINAL STRIP B - LOW VOLTAGE INPUT SWITCHES

Zone 1 Sensor Shutoff Switch: Normally Open Switch, Terminals 27 and 28. Switch Ampacity: 2 MA at 5 VDC.

Zone 2 Sensor Shutoff Switch: Normally Open Switch, Terminals 29 and 30. Switch Ampacity: 2 MA at 5 VDC.

Zone 3 Sensor Shutoff Switch: Normally Open Switch, Terminals 31 and 32. Switch Ampacity: 2 MA at 5 VDC.

Zone 4 Sensor Shutoff Switch: Normally Open Switch, Terminals 33 and 34. Switch Ampacity: 2 MA at 5 VDC.



TERMINAL STRIP B

PROGRAMMING Lube Sensor Only - Internal Event Starts Monitoring

While in Run Mode, Press Program Key

EXIT RUN & ENTER PROGRAM MODE ? Y/N

Yes / Enter Key →

TO PROGRAM ENTER SECURITY CODE

Enter Security Code
Yes / Enter Key →

CENTRO-MATIC CONTROLLER ?

No / Clear Key →

MODULAR LUBE CONTROLLER?

No / Clear Key →

LUBE SENSOR MONITOR ONLY?

Yes / Enter Key →

EXTERNAL EVENT STARTS MONITOR?

No / Clear Key →

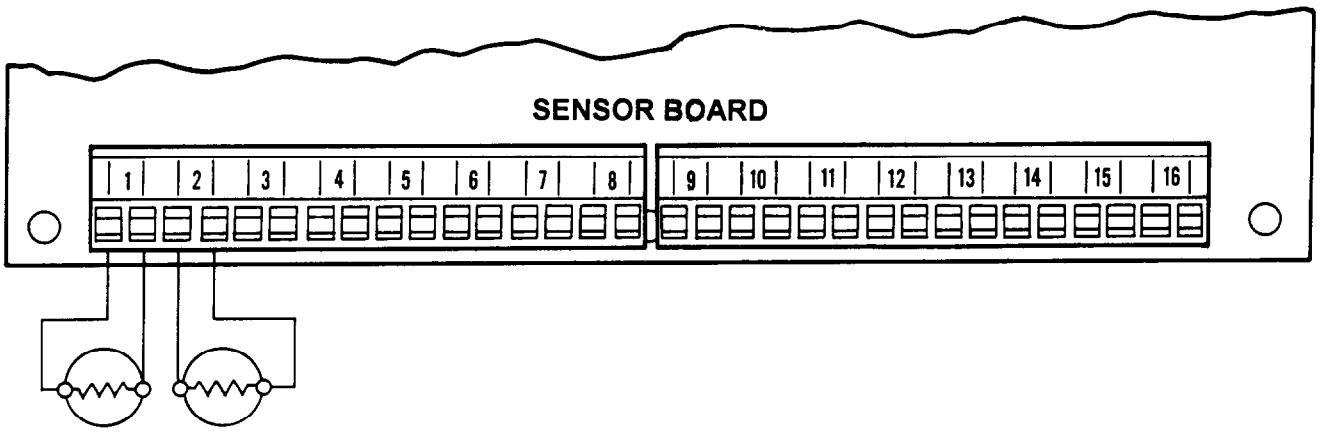
INTERNAL TIMER STARTS MONITOR?

Yes / Enter Key →

MAX TIME BEFORE FAULT? 0001 MIN

Within this time period, all sensors should indicate lube flow.
Enter number of seconds, minutes or hours.
Yes / Enter
Enter seconds, minutes or hours.
Yes / Enter Key →

See Sensors Section



⚠ WARNING

Do not subject Sensor Bodies to pressure greater than 6000 PSIG.

SENSOR BOARD

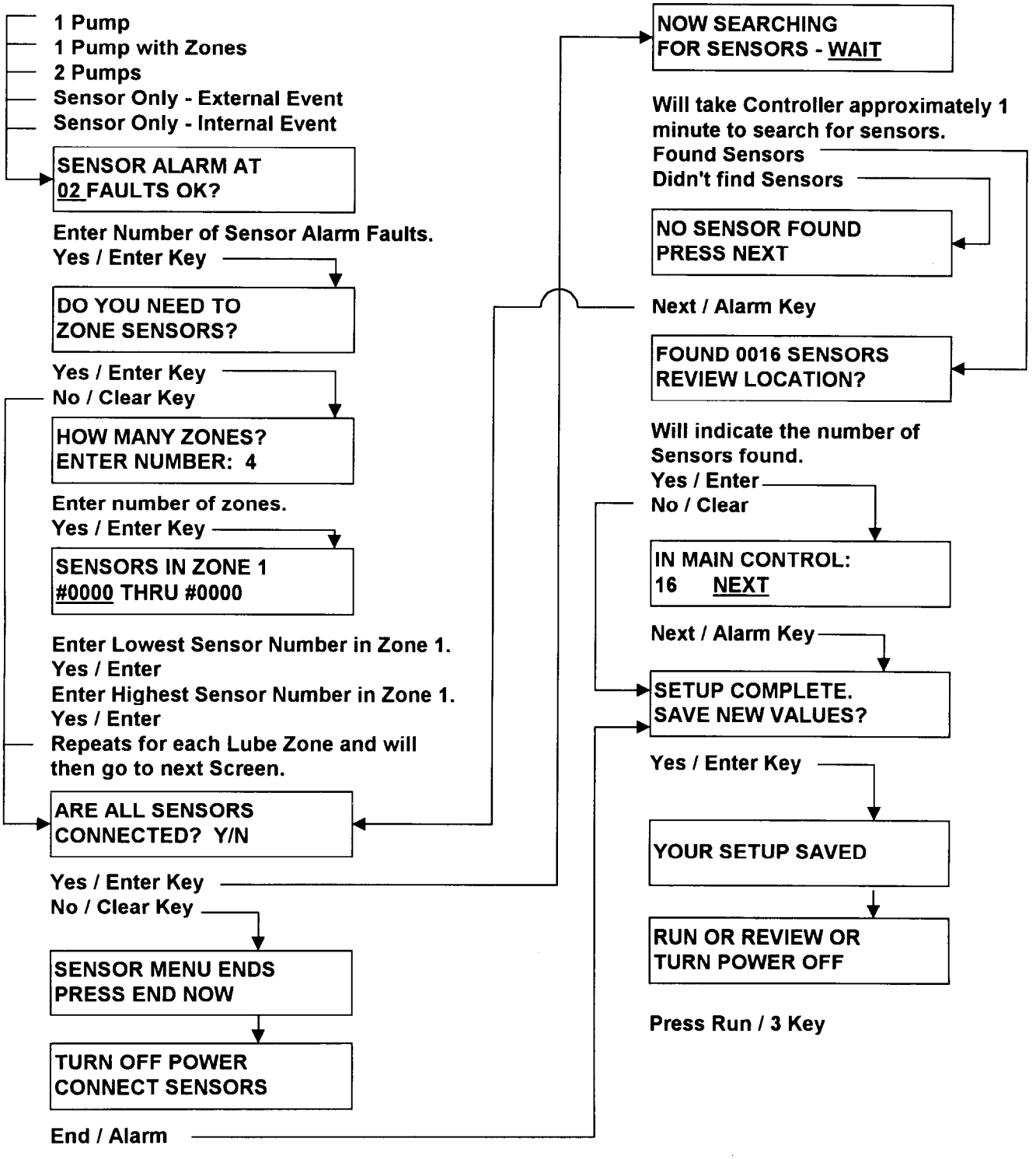
Three Sensor Boards can be plugged in at the Main Controller for a total of 48 Sensors. The Sensor Board is held and fastened in place by using standoffs with hold-down nuts. Wiring sensors sequentially is not required.

Sensor Board #1 is for sensors 1 thru 16.
Sensor Board #2 is for sensors 17 thru 32.
Sensor Board #3 is for sensors 33 thru 48.

Guideline for zoning sensors:

1. Each zone **must** contain a numerical range of sensors.
   Example: Zone 1 would range from sensors locations 10 thru 20. Zone 2 would contain a range of sensors from 21 thru 42.
2. You may **define** a range of sensor numbers within a zone without using each sequential number. A defined zone does not have to be completely filled with sensors.
   Example: Zone 1 is defined as sensor locations 1 thru 10. The current installation only uses 6 sensors, which are connected to sensor locations 2, 3, 5, 6 and 8.
3. All sensors used must be in one of the selected zones.

PROGRAMMING SENSORS



ENTER PROGRAMMING

Entering Programming Mode

The correct security code must be entered before the SYSTEM SENTRY II will accept new programming.

When Dip Switch #8, located on the printed circuit board, is in the down position, the current security code must be used. The factory set security code is 1, 2, 3 & 4.

1. Press the ***Program Key*** while in the run mode and the following message will be displayed.

EXIT RUN & ENTER PROGRAM MODE? Y/N

2. Press the ***YES/ENTER*** key and the following message will be displayed.

TO PROGRAM ENTER SECURITY CODE

3. Enter the ***Security Code***. Presss the **YES/ENTER** key. If the correct security code is entered, the first programming screen will appear. See Below.

If an incorrect code is entered, the word **CODE** will be underscored and will flash twice. Enter the correct security code and press the **YES/ENTER** key.

CENTRO-MATIC LUBE CONTROLLER?

CHANGING SECURITY CODE

Set Dip Switch #8, located on the printed circuit board, to the up position. Refer to Page 3, Item 8.

1. Press the Program Key while in the run mode and the following message will be displayed.

EXIT RUN & ENTER PROGRAM MODE? Y/N

2. Press the YES/ENTER key and the following message will be displayed. This screen will also appear if powering up with Dip Switch #8 set in the up position.

1 2 3 4 ENTER NEW SECURITY CODE

3. 1,2,3,4 is the factory-set security code. To change this code, enter a new four digit number (number cannot begin with zero). Press the **YES/ENTER** key. The new security code will then be accepted and the first programming screen will appear. See Below. After entering a new security code, reset Dip Switch #8 to the ***DOWN POSITION.***

CENTRO-MATIC LUBE CONTROLLER?

RUN / ALARM SCREENS

Run Screens

NEXT LUBE IN 0030 MIN

Indicates the amount of time or counts remaining before the next lube cycle.

WAITING TO VENT

The supply line has not vented below the vent pressure setting. Detected by the pressure transducer.

SHUTOFF SWITCH CLOSED

Indicates that a controller or a zone is in a standby mode.

LUBE ALL ZONES? YES / NO

Pressing the **YES/ENTER** key will lubricate all the zones.

Pressing the **NO/CLEAR** key allows the operator to select which zones are to be lubricated.

NOW PUMPING FOR 01 MIN

Indicates the amount of time the system has been lubricating.

LUBE EVENTS AT SENSOR 0001:0005

This screen is displayed after pressing **SENSOR/5** key. Indicates that at sensor number 1, five lube events have taken place. Pressing the **NEXT/ALARM** key will allow the next active sensor to be viewed. To reset all the sensor counters back to zero, press the **NO/CLEAR** key.

SENSORS WARMING UP. WAIT

After power has been applied, the sensors require 20 seconds to warm up.

SUPPLY LINE PRESSURE: 1800 PSI

This screen is displayed after pressing the **PRESSURE/8** key. Indicates supply line pressure. Pressing the **NEXT/ALARM** key will indicate the maximum supply line pressure reached. Pressing the **NO/CLEAR** key will reset this value to zero.

0030 MIN LEFT TO DETECT LUBE FLOW

Internal Scan Monitor Only: Indicates the amount of time remaining in the scan period.

SENSORS READY TO DETECT LUBE FLOW

External Scan Monitor Only: This screen will appear until the first closure of the external scan switch or scan signal is received.

LOOKING FOR LUBE FLOW NOW: 0030 SEC

External Scan Monitor Only: Indicates the following:
1. Amount of time external scan switch has been closed.

2. Not all sensors have received lubrication.

ALL SENSORS SHOW FLOW AT: 0055 SEC.

External Scan Monitor Only: Indicates the following:
1. External scan switch closed.

2. Amount of time it took all sensors to receive lubrication.

0002 MIN SINCE LAST LUBE EVENT

External Scan Monitor Only: Indicates the following:
1. External Scan Switch is open.

2. Amount of time since all sensors have received lube.

Alarm Screens

MULTIPLE ALARMS! PRESS ALARM KEY

This screen will appear when there is more than one alarm.
Press the **NEXT/ALARM** key.

FAILED TO REACH MAX LUBE PSI

The Pressure Transducer failed to reach system pressure within alarm time setting.

NO SIGNAL FROM PRESS TRANSDUCER

Pressure Transducer is not connected to the system.

VENT PRESSURE TOO HIGH

Supply line has not vented to allow next lube cycle.

NO SIGNAL FROM PRESSURE SWITCH

Pressure switch has failed to activate within the alarm time setting.

NO SIGNAL FROM CYCLE SWITCH

Cycle Switch has failed to activate within the alarm time setting.

SYSTEM PRESSURE TOO HIGH

Indicates excessive system pressure has developed in Modular Lube System.

LOW LUBE LEVEL IN RESERVOIR

Indicates the System Reservoir needs replenishing.

ZONE 1 LUBE VALVE HAS FAILED

Centro-Matic: Indicates that Zone 1's pressure switch has activated when Zone 1 is not lubricating.
Modular Lube: Indicates that Zone 1's cycle switch has activated when Zone 1 is not lubricating.

NO RELAY POWER! CHECK RELAY FUSE

Check Fuse located on main printed circuit board in lower left corner.

NO LUBE FLOW AT SENSOR NUMBER 001

Indicates that indicated sensor did not receive lubricant.

BROKEN WIRE TO SENSOR NUMBER 001

Indicates that the wire to the indicated sensor has opened.

SHORT AT WIRE OR SENSOR 001

Indicates that the wire running to the indicated sensor has shorted.

NO SIGNAL FROM SATELLITE 1

Indicates that the wire between the main controller and the indicated satellite is no longer connected.

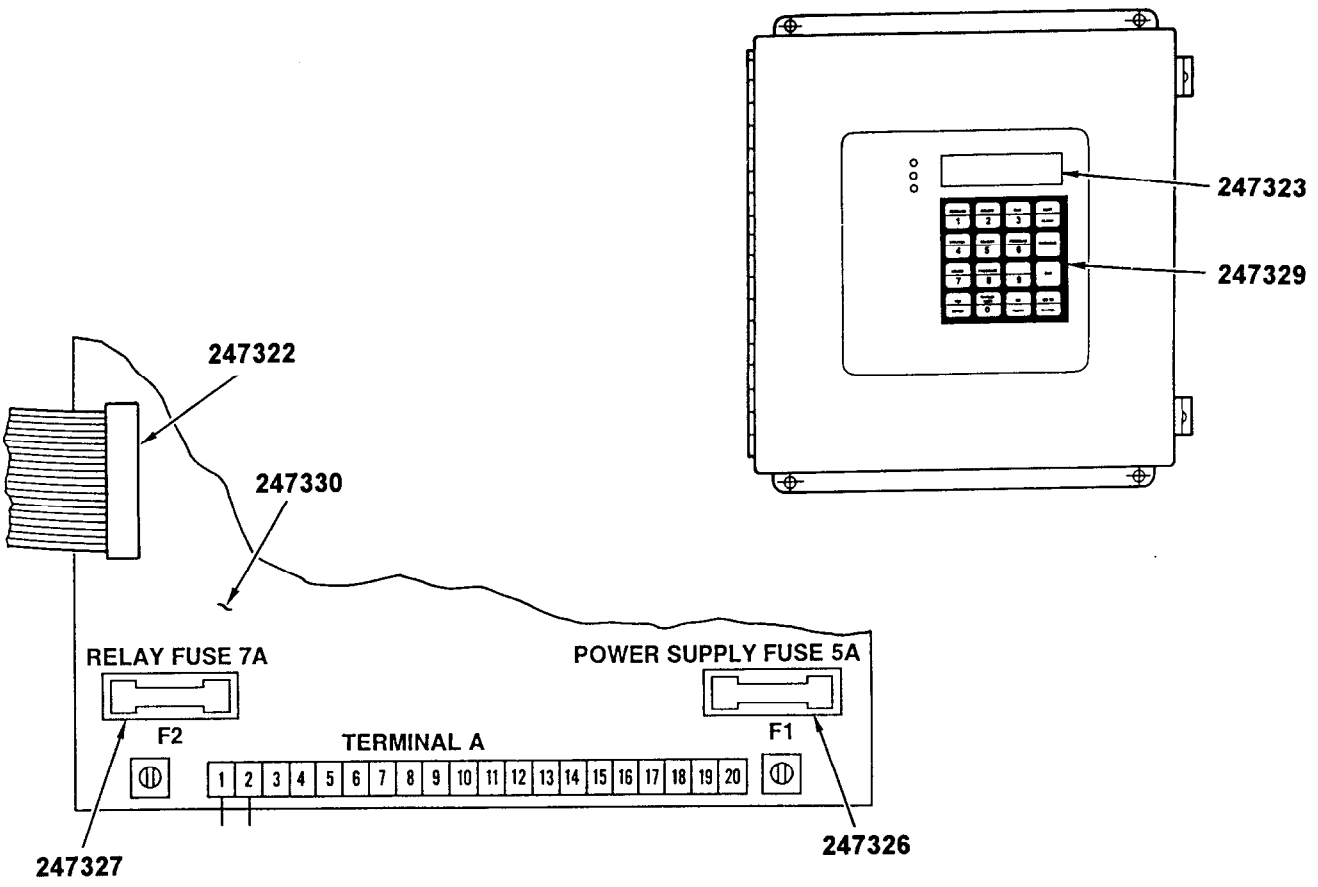
SYSTEM ACCESSORIES

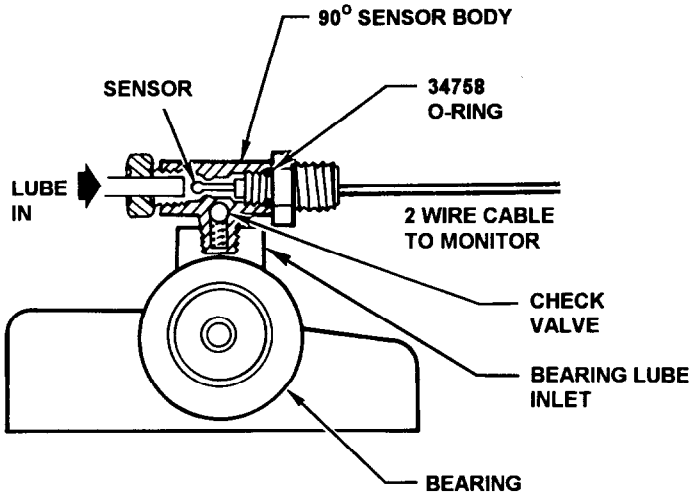
Part Number	Quantity	Description
85510	1	Satellite Monitor
243100	100 ft.	2 conductor Sensor Wire
247333	1	Pressure Transducer
250365	1	Sensor Board
250400	1	Straight Sensor Assembly (body, sensor & 30 ft. cable)
250490	1	90° Sensor Assembly (body, sensor & 30 ft. cable)
250500	1	Stainless Steel Straight Sensor Assembly (body, sensor & 30 ft. cable)
250590	1	Stainless Steel 90° Sensor Assembly (body, sensor and 30 ft. cable)

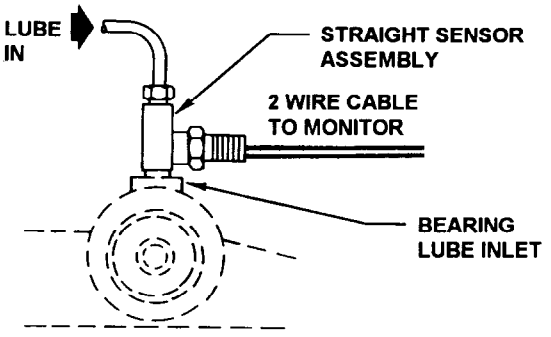
SERVICE PARTS

Part Number	Quantity	Description
34758	1	O-ring
237747	1	90 Stainless Steel Sensor Body
237748	1	Straight Stainless Steel Sensor Body
247322	1	Ribbon Cable Assembly
247323	1	Liquid Crystal Display
247326	1	Fuse 5 amp (5 per Package)
247327	1	Fuse 7 amp (5 Per Package)
247329	1	Keypad (Includes LED Status Lights)
247330	1	Main P.C. Board
250352	1	Brass Sensor, O-ring & 30 ft. cable
250362	1	Stainless Steel Sensor, O-ring and 30 ft. cable
350264	1	Straight Steel Sensor Body
350265	1	90 Steel Sensor Body

NOTE: Stainless Steel Sensors and Bodies are made from 316 material.







----- RETAIN THIS INFORMATION FOR FUTURE REFERENCE ----

When ordering replacement parts, list: Part Number, Description, Model Number and Series Letter.
LINCOLN provides a Distributor Network that stocks equipment and replacement parts.

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