

The timer board controls the lubrication frequency. A proximity switch, installed on one of the systems secondary divider valves, must be utilized to signal completion of a lubrication cycle. If a signal is not received within 30 minutes a fault signal will also occur. This feature is used to monitor the pump's operation and to detect any blocked or broken supply lines.

SPECIFICATIONS

Electrical Requirements	
Input	24 VDC @ 2 amps
Enclosure Rating	IP 6K9K - Protected from water sprayed in all directions.
Alarm Time	30 minutes
Interval between lube cycles	4 minutes minimum 60 minutes maximum
Pump Output	0.171 cu. in./min (2.8 cm ³ /min)
Outlet Connection	1/8" NPT (female)
Maximum Recommended Operating Pressure	3600 psi (248 bar)
Reservoir Capacity	488 cu. in. (8000 cc)
Lubricant	Greases up to NLGI grade 2 (depending on the operating temperature and type of lubricant)
Temperature Range	-13°F (-25°C) to + 158°F (+70°C)
Pressure Relief Valve	4000 psi +/- 250 psi (276 bars) +/- (17 bars)
Relay Contact Rating	1 Amp Inductive @ 24 VDC .1MA (minimum) @ 24 VDC

DESCRIPTION

The chassis lube pump is electrically operated and is used in a progressive type centralized lubrication system. The pump consists of a pump housing, electric gear motor, a microprocessor and a plastic reservoir with stirring paddle. The high operating pressure capability allows the pump to supply lubricant up to NLGI #2 grease.

REMOTE SIGNALING

If the grease level drops low enough in the reservoir it will activate an internal low level sensor. This will energize the internal #1 fault relay. This can be used to remotely signal that the reservoir needs to be replenished.

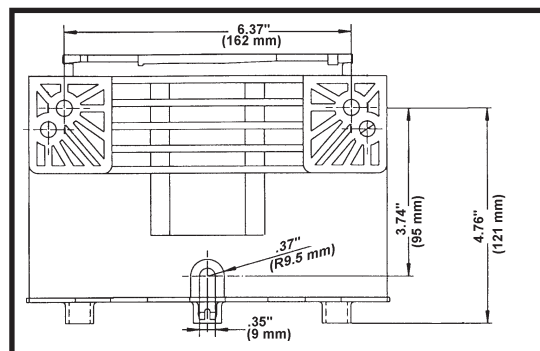
If the proximity switch fails to actuate within the 30 minute "On time" setting this will energize the internal #2 fault relay. This relay can be used to remotely signal that the divider valve failed to actuate the proximity switch within the 30 minute time setting.

Additionally if either of the above two faults occur the internal green led and an externally wired light, located in the cab, will signal what fault has occurred. There is a different blink rate for a low level fault and a proximity switch fault.

MOUNTING THE PUMP

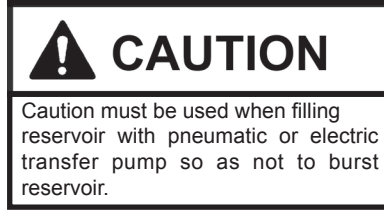
Select an easily accessible place of installation which allows access to the timer and lubricant reservoir filler fitting. The pump must be mounted vertically on an even surface by means of three bolts.

MOUNTING HOLE LOCATIONS



TO FILL RESERVOIR

Fill the reservoir through the grease fitting located at the base of the reservoir. Reservoir can be filled using a hand operated grease pump, a pneumatic pump or electronic transfer pump.



Refill reservoir when grease reaches "MIN" mark located on the reservoir. Fill the reservoir up to the "MAX" mark located on the reservoir.

TO PRIME SYSTEM

Pump & Supply Line: After reservoir has been filled with recommended lubricant, loosen the supply line fitting. Operate the pump until lubricant flows from outlet, then tighten fitting.

Feed Lines: Pre-fill each feed line with lubricant before connecting to outlet of divider valve and bearing.

Pump Operation

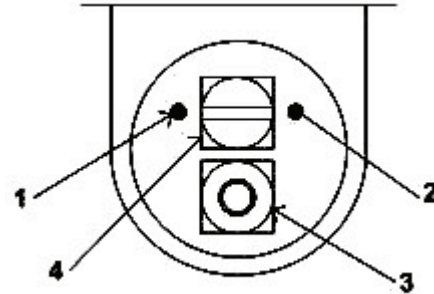
The "Off timer" begins accumulating time when the ignition switch closes. When the "Off timer" reaches the preset value the pump will turn on. The pump remains activated until the external proximity switch closes and opens. When this happens the pump turns off and begins accumulating time for the next lube cycle. If the proximity switch does not activate within 30 minutes the pump will go into an alarm condition.

When the ignition switch opens the "Off timer" will retain its accumulated time. When the ignition switch closes the "Off timer" will resume timing from the accumulated time it reached prior to the ignition switch opening.

If the ignition switch is turned off during a pumping period or "On time", when the ignition switch is turned back on will cause the lube cycle to start at the beginning of the 30 minute "On time" setting.

The "On time" is fixed at a maximum of 30 minutes. If the proximity switch fails to actuate within the 30 minute "On time" setting the system will go into an alarm condition. The 30 minute setting is the default setting. There is an internal jumper that can change this time to 5 minutes. See page 5 "Jumper Identification for the Circuit Board".

Remove the sealing plug, item 22, to give access to the manual lube switch, "Off time" settings and system LED's.



1. The green LED marked by a battery symbol lights when power is applied to the pc board.
2. The green LED marked by an exclamation point "!" indicates the pump motor is on or a fault condition has occurred.
3. Depressing the manual lube switch for 2 seconds will initiate a lube cycle. You can also acknowledge a fault condition by depressing this switch for less than 1 second.
4. Rotary switch for "Off time settings. See chart below.

Remote Manual Lube switch and Signal Lamp

Additional lube cycles can be initiated by mounting a remote Manual Lube switch and Signal lamp in the cab. Depressing the manual lube switch for 2 seconds will initiate a lube cycle. You can also acknowledge a fault condition by depressing this switch for less than 1 second.

The signal lamp will indicate that the pump is "On" or a fault condition has occurred. When the signal lamp is continuously "On" it is an indication that the pump is "On". A fault condition is indicated by a pulsing light, until it is acknowledged and then it is continuously "On" until a successful lube event occurs. There is a different pulse rate for each fault condition. This signal lamp emulates the internal green LED marked by an "!".

On page 6 see wiring diagram and terminal identification to use the Remote Manual Lube switch and Signal lamp.

OFF TIME SETTINGS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
MINUTES (DEFAULT)	4	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60
HOURS	1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Fault Condition

For each fault condition the internal green LED will pulse on and off at a different pulse rate for each fault condition. If an external signal lamp is used it will emulate the internal green LED. See chart below.

Additionally there are two fault relays for remote signaling. Fault relay #1 will indicate that the reservoir needs to be replenished. Fault relay #2 will indicate that the proximity switch did not actuate within the 30 minute time setting. See chart below.




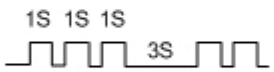


The fault relays are set (default position) to switch to ground for a fault condition. By using an internal jumper this can be changed to switch to +24 vdc. Also both fault relays contacts are set to close (default position is N.O.) for a fault condition. By using one internal jumper both contacts can be changed to open on a fault condition. See page 5 for jumper identification.

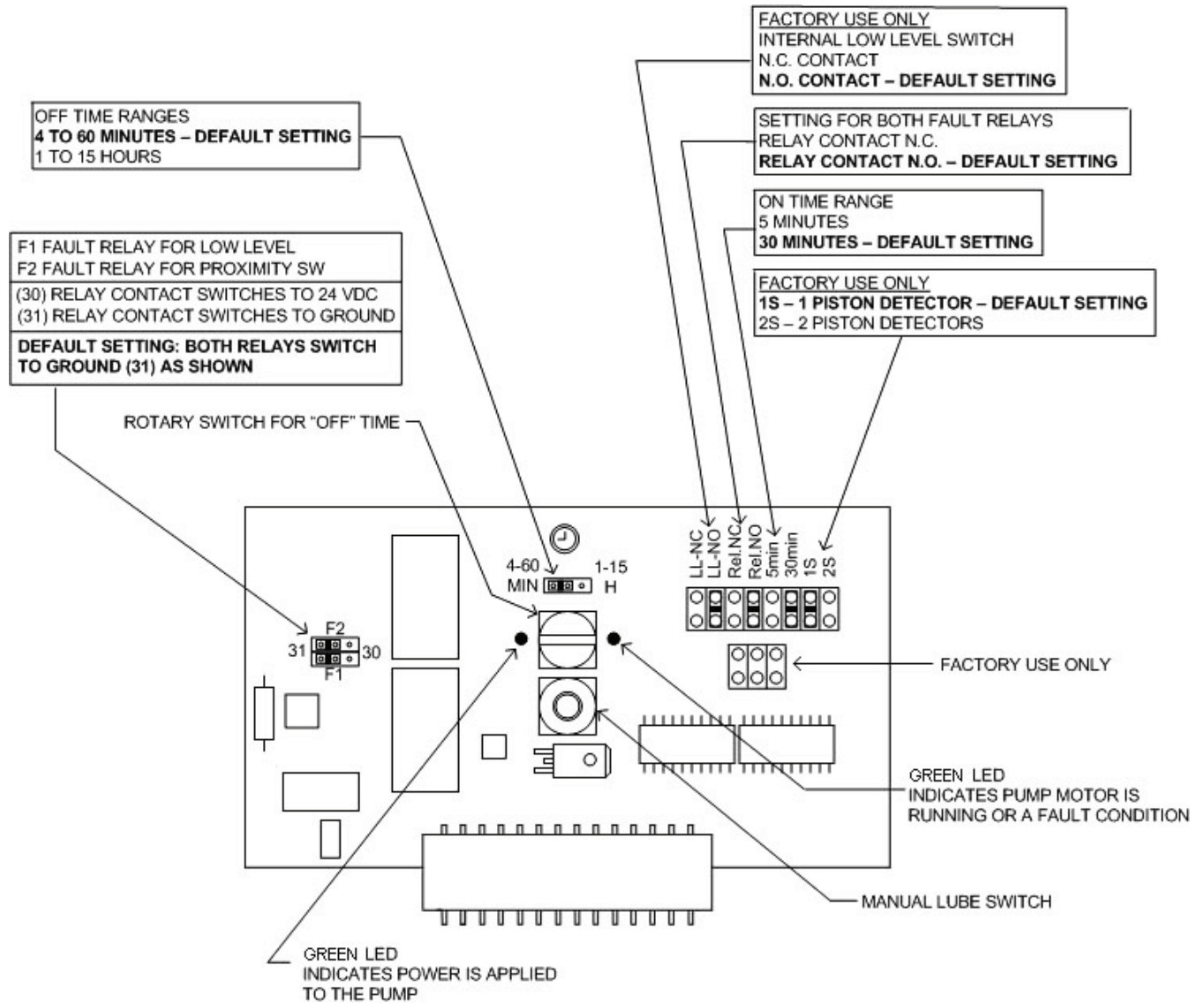
Correcting a Fault Condition

If a fault condition occurs it first must be acknowledged. Acknowledging a fault is accomplished by depressing either the internal manual lube switch or external manual lube switch for less than 1 second. Once the fault is acknowledged the flashing signal light will be on continuously. The fault relay will remain on until a manual lube cycle is initiated. Correct the fault and initiate a lube cycle. If at the end of the lube cycle the fault has not been corrected the system will go back into fault. Only a successful lube cycle will clear a fault.

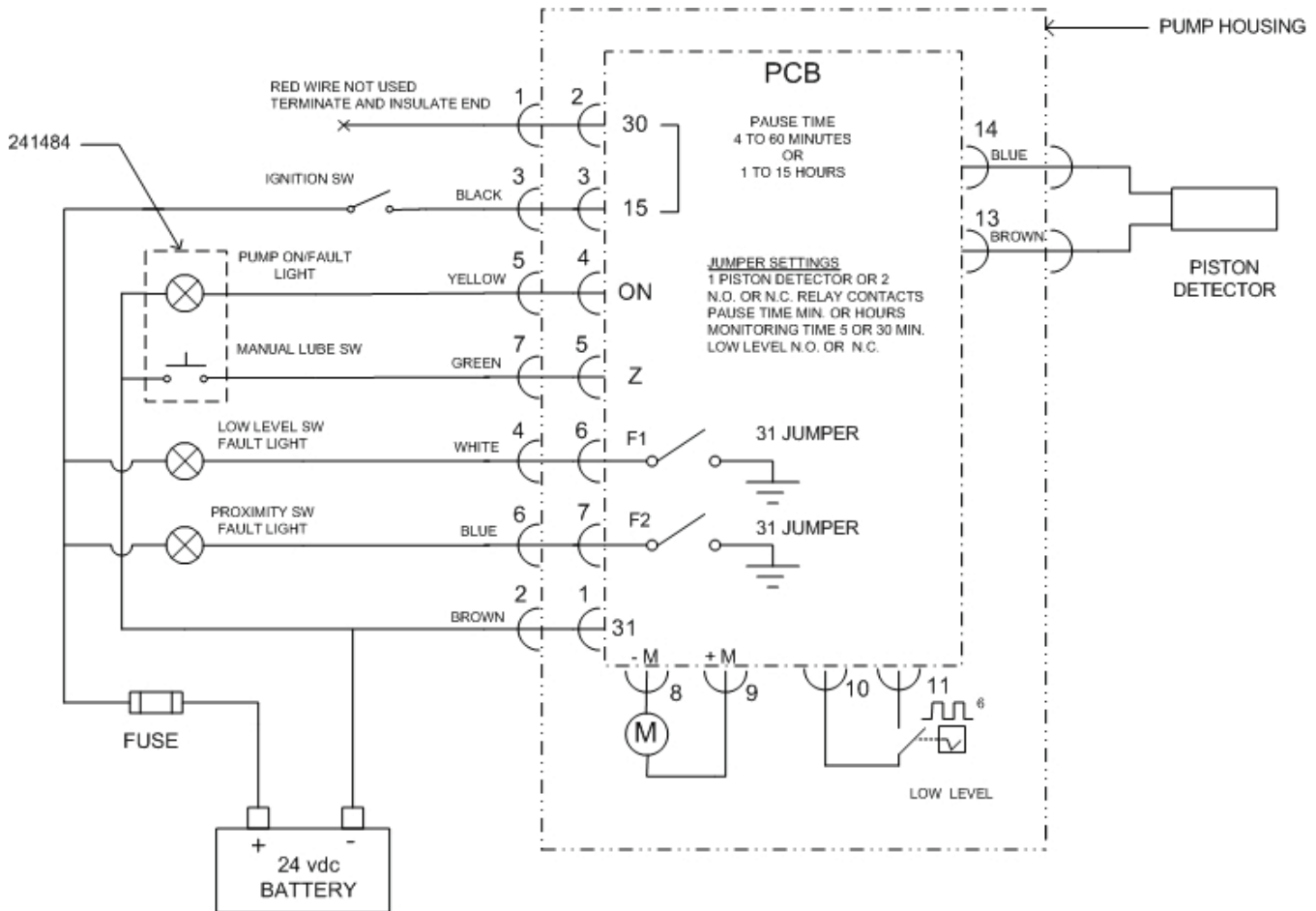
If the power to the pump is turned off when in fault or in the fault acknowledged state, upon turning power back on the signal light will be flashing again.

No more automatic lubrication events will take place until a successful lube event has occurred by initiating a manual lube.

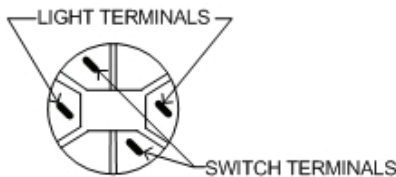
FAULT	REMOTE LIGHT & INTERNAL GREEN LED	FAULT RELAY	
LOW LEVEL FAULT		THE REMOTE LIGHT AND INTERNAL GREEN LED WILL PULSE ONCE, THEN TURN OFF FOR 3S. THIS CONTINUES UNTIL FAULT IS ACKNOWLEDGED.	RELAY #1 WILL ACTIVATE
PROXIMITY SWITCH & LOW LEVEL SWITCH FAULT TOGETHER		THE REMOTE LIGHT AND INTERNAL GREEN LED WILL PULSE ONCE, THEN TURN OFF FOR 3S. THIS CONTINUES UNTIL FAULTS ARE ACKNOWLEDGED.	RELAY #1 RELAY #2 WILL ACTIVATE
#1 PROXIMITY SWITCH FAULT		THE REMOTE LIGHT AND INTERNAL GREEN LED WILL PULSE TWICE, THEN TURN OFF FOR 3S. THIS CONTINUES UNTIL FAULT IS ACKNOWLEDGED.	RELAY #2 WILL ACTIVATE
#2 PROXIMITY SWITCH FAULT		THE REMOTE LIGHT AND INTERNAL GREEN LED WILL PULSE THREE TIMES, THEN TURN OFF FOR 3S. THIS CONTINUES UNTIL FAULT IS ACKNOWLEDGED.	RELAY #2 WILL ACTIVATE
BOTH PROXIMITY SWITCHES FAULT		THE REMOTE LIGHT AND INTERNAL GREEN LED WILL PULSE FOUR TIMES, THEN TURN OFF FOR 3S. THIS CONTINUES UNTIL FAULT IS ACKNOWLEDGED.	RELAY #2 WILL ACTIVATE
SHORTED MANUAL LUBE SWITCH		THE REMOTE LIGHT AND INTERNAL GREEN LED WILL PULSE CONTINUOUSLY, .5S ON AND .5S OFF. THIS FAULT WILL OCCUR IF THE MANUAL SWITCH IS CLOSED LONGER THAN 5S. ONCE SHORT IS REMOVED FAULT WILL CLEAR.	RELAY #2 WILL ACTIVATE



JUMPER IDENTIFICATION FOR CIRCUIT BOARD

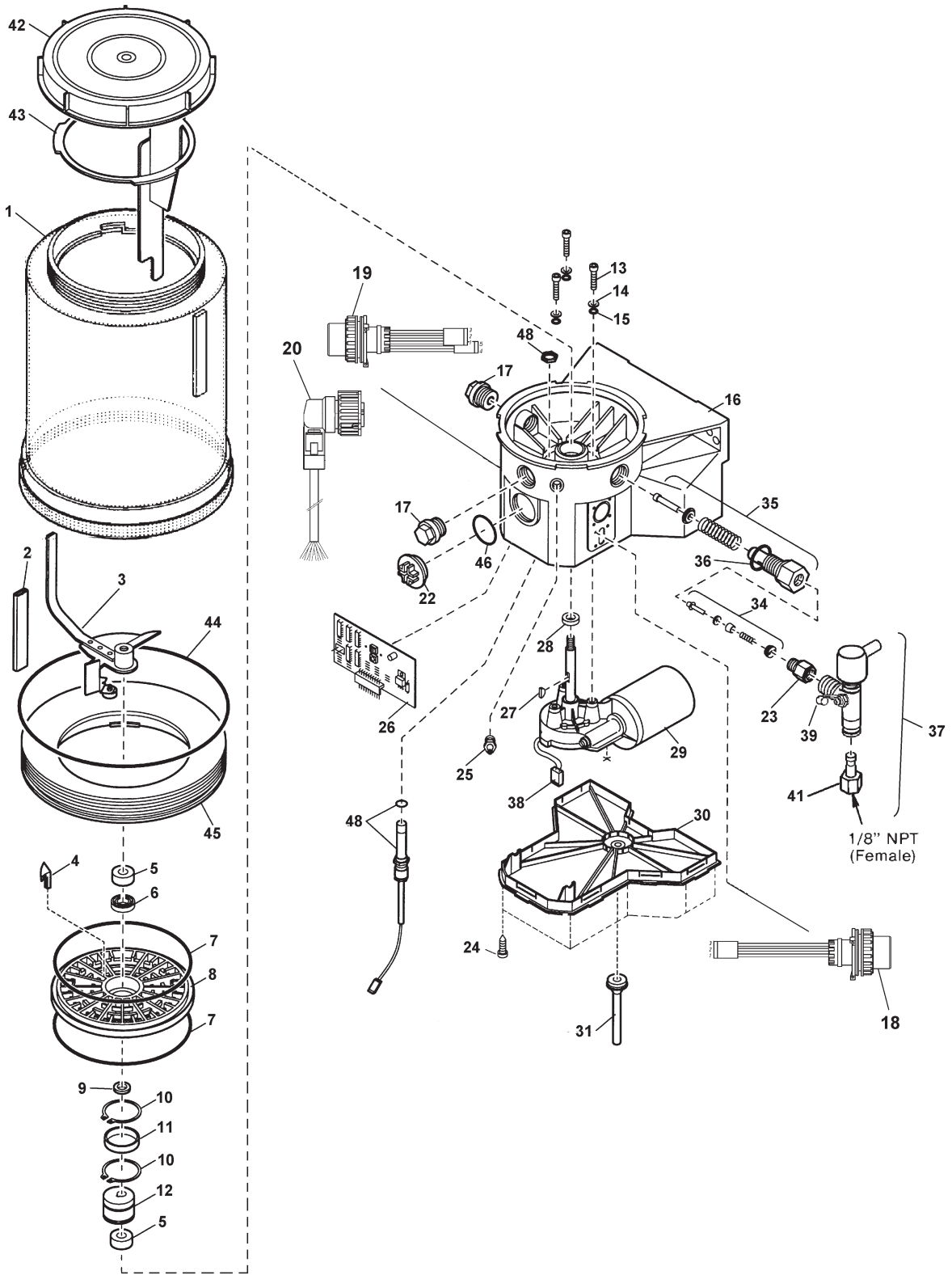


WIRING DIAGRAM



TERMINAL IDENTIFICATION
FOR 241484

SYSTEM ACCESSORIES	
DESCRIPTION	PART NO
PUSHBUTTON & GREEN LIGHT (24 VDC)	241484
7.5 AMP FUSE	241052
FUSE HOLDER	241053



PARTS LIST

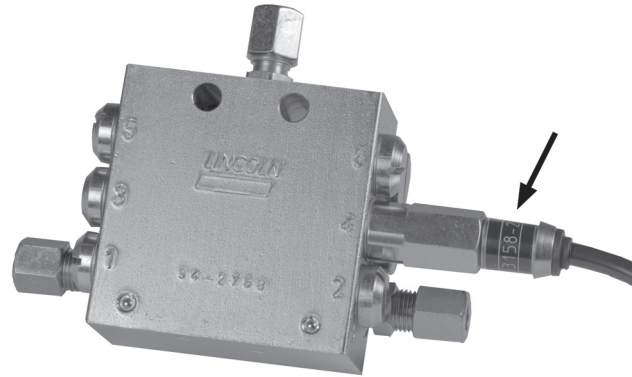
ITEM NO.	DESCRIPTION	QTY.	PART NUMBER /KIT NUMBER
1	Reservoir	1	247674
2	Hose	1	247676
3	Stirring paddle	1	544-31948-1
4	Control Cam	1	249903
5	Bearing ring	2	part of Kit 246434
6	Bearing	1	part of Kit 246434
7	O-ring	2	246424
8	Intermediate plate	1	246425
9	Shim	1	part of Kit 246434
10	Snap ring	2	part of Kit 246434
11	Inner ring	1	part of Kit 246434
12	Eccentric cam	1	246427
13	Screw	3	part of Kit 246436
14	Washer	3	part of Kit 246436
15	O-ring	3	part of Kit 246436 & 246437
16	Pump housing	1	246426
17	Closure plug	2	246422
18	3 wire internal plug	1	273483
19	7 wire internal plug	1	664-34303-7
20	7 wire power cord/plug	4	664-34428-3
22	Sealing plug	1	246423
23	Nipple	1	226-14105-5
24	Screw	10	206-13796-7
25	Grease fitting	1	5050
26	Microprocessor	1	236-10734-1
27	Woodruff key	1	part of Kit 246436
28	Radial seal	1	part of Kit 246436 & 246437
29	24 VDC motor	1	part of Kit 246436
30	Housing cover	1	246421
31	Hose	1	not sold
33	Piston Detector	1	See above
34	Check valve	1	part of Kit 600-26876-2
35	Pump element	1	part of Kit 600-26876-2
36	Gasket	1	part of Kit 600-26876-2
37	Pressure relief assy.	1	270864
38	Plug for motor	1	part of Kit 246436
39	Grease cap	1	242125
41	Adapter for relief assy.	1	304-19614-1
42	Lid	1	247671
43	Fixed paddle	1	247664
44	O-ring	1	247677
45	Adapter	1	247678
46	O-ring	1	219-14138-2
48	Magnetic Switch	1	249904

Piston Detector

The following piston detectors are for black colored blocks only:

519-34339-3 3-meter (9.8 ft) cable length

519-34339-4 7-meter (23.0 ft) cable length



Piston Detector (Proximity Switch)

SERVICE PARTS/KITS

Part No.	Qty.	Description	Item No.
5050	1	Grease fitting	25
242125	1	Grease cap	39
246421	1	Housing cover	30
246422	1	Closure plug	17
246423	1	Sealing plug	22
246424	2	O-ring	7
246425	1	Intermediate plate	8
246426	1	Pump housing	16
246427	1	Eccentric cam	12
246434		Bearing & Seal Kit contains:	
	2	Bearing ring	5
	1	Bearing	6
	1	Shim	9
	2	Snap ring	10
246436		24 VDC Motor Kit contains:	
	3	Screw	13
	3	Washer	14
	3	O-ring	15
	1	Woodruff key	27
	1	Radial seal	28
	1	24 VDC motor	29
1	Plug for motor	38	
246437		Housing Seal Kit contains:	
	3	O-ring	15
	1	Radial seal	28
247664	1	Fixed paddle	43
247671	1	Lid	42
247674	1	Reservoir	1
247676	1	Hose	2
247677	1	O-ring	44
247678	1	Adapter	45
249903	1	Control Cam	4
249904	1	Magnetic Switch	48
270864	1	Pressure relief assembly	37
273483	1	3 wire internal plug	18
206-13796-7	10	Screw	24
219-14138-2	1	O-ring	46
226-14105-5	1	Nipple	23
236-10734-1	1	Microprocessor	26
304-19614-1	1	Adapter for relief assembly	41
544-31928-1	1	Stirring paddle	3
600-26876-2		Pump Element Assembly contains:	
	1	Check valve	34
	1	Pump element	35
	1	Gasket	36
664-34303-7	1	7 wire internal plug	19
664-34428-3	1	7 wire power cord/plug	20

Troubleshooting

Note: The pump operation can be checked from the outside by observing whether the stirring paddle is rotating (e.g. by triggering an additional lubrication), whether the LED on the printed

circuit board are lit or the signal lamp of the illuminated pushbutton/switch cabinet is lit.

• Fault: The pump motor does not run	
• Cause:	• Remedy:
<ul style="list-style-type: none"> • Voltage supply interrupted • Voltage supply to the printed-circuit board is interrupted • Printed circuit board defective 	<ul style="list-style-type: none"> • Check the voltage supply to the pump. If necessary, eliminate the cause of the fault. • Check the line leading from the pump plug to the printed circuit board. • If the voltage is applied, the left-hand LED is lit. • Replace the printed circuit board.
• Fault: The pump motor runs permanently (30 minutes)- Duration of the monitoring time	
• Cause:	• Remedy:
<ul style="list-style-type: none"> • Proximity switch (initiator) defective. • Cable connection of the proximity switch to the pump interrupted. • Printed circuit board defective 	<ul style="list-style-type: none"> • Disconnect the main line leading to the monitored metering device. • Unscrew the proximity switch and check it. For this, insert a metallic pin into the borehole of the detector. Let it there over 2 seconds and then remove it. If the pump is not switched off afterwards, check the cable connections to the pump. If necessary, replace the proximity switch along with the connector. • Check the cable connections to the pump. If necessary, replace the proximity switch with the connector. • Replace the printed circuit board.

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