lubecore™ NEXT GENERATION PROTECTION SOLUTIONS

Lubecore Automated Lubrication Pneumatic System Check

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Pneumatic System Check

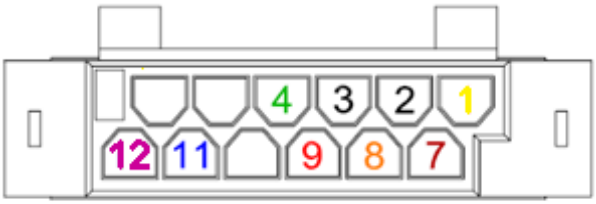
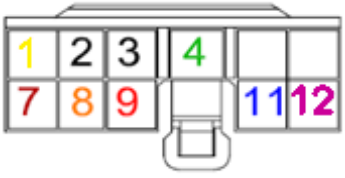
What to do when the system is not working

1. Remove the plug at the front of the pump and insert a pressure gauge with a minimum rating of 1500 psi (100 BAR).
2. Turn on equipment ignition and activate a test cycle on timer by depressing the test button for three seconds.
3. If no test cycle initiates, perform electrical diagnosis of Lubecore EP0. See the diagnosis chart on page 3.
4. If 12 volts is not found in the power check, trace the wiring back to the fuse and power source.
5. If there is not a good ground, a good ground must be located and used.
6. In the case of a solenoid error, proceed to page 4 for details.
7. In the case of a pressure switch error, proceed to page 4 for details.
8. In the case of a timer error, proceed to page 5 for details.
9. If the pump did a test cycle, and the timer alarms, it is not building enough pressure to close the pressure switch. Proceed to page X for details.

Electrical Diagnosis of Lubecore EP0 Pneumatic

Using a multi-meter to Check System at the Timer Plug

Function	Multi-meter Setting	Ignition Status	Operation	Normal Outcome
Solenoid	Ohms	Off	Check resistance on pins #4, and pin #9.	15- 16 Ohm Resistance
Ground	Ohms	Off	Check resistance from pin #3 to vehicle ground.	0 Ohm Resistance
Power	Volts	On	Check voltage from pin #1 (ign) to pin #3 (grd), check pin #12 (bat) to pin #3 (grd)	12 V at pin #1 (ign), and 12 V at pin #12 (bat)
Timer	Volts	On	The timer is always sending power to the solenoid if # 12 is connected to battery (+) There is 3 volts going across coil when not in a cycle. LED is on but dim.	3 V @ disconnected DIN Connector at Solenoid
			Push the button on the timer for 3 seconds. Check voltage from pin # 4 to pin #3. LED is on bright.	12 V @ disconnected DIN Connector at Solenoid
Pressure Switch	Continuity	On	Verifies that the normally open pressure switch is closing and that the wiring is intact. The pressure switch closes at 40 BAR. Push the test button on the timer for 3 seconds to activate a test cycle, for continuity at pin #2 and pin #3.	- Resistance when system pressure is less than 25 BAR - OPEN circuit - Resistance when system pressure is greater than 25 BAR - CLOSED Circuit

Timer Pin	Function	Mark I Timer Plug (used from 2008 - 2009)
#1	Ignition	
#2	Pressure Switch	
#3	Ground	
#4	+ Solenoid/Motor	
#5	N/A	
#6	N/A	
#7	Low Level	**Mark II Timer Plug (used from 2009 - onwards)**
#8	Cab Light	
#9	- Solenoid/Motor	
#10	N/A	
#11	Test Button	
#12	Battery	

Checking the Solenoid

If after consulting the Electrical Diagnosis of Lubecore EP0 Pneumatic (page 2), the solenoid is not operating normally, check both the solenoid and the wiring. To check the solenoid, remove the electrical plug from the solenoid and check for resistance between the two terminals.
Resistance should be 15 – 16 Ohms.
If the resistance is according to specifications, the solenoid should be replaced.
After any repair, check performance at the timer plug.

Checking the Pressure Switch

Ensure that the equipment has sufficient air pressure – 100 - 120 psi. Remove the brass plug from the front of the pump and insert a pressure gauge with a minimum rating of 1500 psi (100 BAR). Initiate a test cycle at the timer by depressing the test button for three seconds. Check for a pressure of 870 psi (60 BAR). The pressure switch is normally open, and will close at 40 BAR.
With the system pressurized, carefully remove the electrical connector to the pressure switch, and check continuity at the electrical pins with a multi-meter. If there is no continuity, while the system is pressurized above 40 BAR, the pressure switch is faulty and will need to be replaced. If there is no fault with the pressure switch, check the wiring and timer.

Mark II Truck Timer – Used since 2009.

Turn on the equipment ignition and check that there is 120 psi of air pressure in the equipment's air system. Depress the test button for three seconds to initiate a test cycle. The timer will undergo a cycle as it has been programmed (standard programming for on-road equipment is 3 minute run time). After 2/3 of the cycle is complete, the timer will conduct a self-check, and will alarm if it detects malfunction. The cycle will proceed for the length of the programmed time. The test can be repeated by depressing the test button again for 3 seconds.

To reprogram timer settings, the computer interface dongle must be used. Please consult Lubecore's timer documentation for instructions.

Contact a Lubecore dealer if you require in-depth timer testing.

Pneumatic Pump Check

Remove the brass plug located at the front of the pump and below the serial number plate. Install a pressure gauge rated for 100Bar (1450 psi) hydraulic pressure. Ensure that the vehicle air tanks are at 120 psi. Remove main line and fitting from the right side of the pump and install a 1/4" NPT pipe plug in that hole. Turn on the ignition and start an ALS cycle by pressing in the test button. Observe the pressure gauge and note what it does.

For system to function correctly the gauge needs to read 60Bar (870 psi) or more and the gauge needle needs to stay at this reading for the entire cycle (3 minute is the default setting for tractors)

If the pressure gauge stays steady the pump is working correctly. If the pump does not hold pressure, then there are four possibilities that are listed below. The schematic drawing included in this manual will assist you in identifying the part locations involved.

Air seal is leading:

- If you can hear or feel any air leaking from the check valve located on the right side of the pump. Remove the line that runs from the check valve to the solenoid to determine whether the check valve or the solenoid is the issue. If the air is coming from the solenoid then it needs to be removed and cleaned or replaced.

  If the air is leaking from the check valve then the issue is the air side of the piston inside the pump. The pump base plate should be removed and the piston, seal and cylinder sleeve inside the pump housing need to be inspected and cleaned or replaced as necessary. Reassemble the pump and check the pressure again.

  1. ***Inspect for worn or torn air piston seals***
  2. ***Loose, cracked or worn cylinder sleeve***

Return valve leaking:

- If the pump pressure moves up toward 60Bar, then drops back almost immediately, then the return valve is suspect. Remove the return valve end cap, located on the left had side of the pump housing and behind the serial number plate, pull the valve body out with a set of needle nose pliers. Remove the spring and then the ball. Inspect the ball for corrosion and pitting replace as needed. Ensure that the spring is not broken. Reinsert the ball back into the pump and using a 5/16” or 8mm brass needle punch in the valve bore to hold the ball in place, strike the end of the punch firmly with a small hammer to “seat” the ball in the housing. Clean and re-install the other components, activate the system and check the pressure again.

Grease seal leaking:

- If the pump pressure goes up and slowly bleeds off, then the grease side of the piston in the pump requires inspection. You may also observe grease spraying out the check valve on the right hand side of the pump. Clean reassemble and test system again.

  1. ***Inspect for worn or torn grease piston “O” rings***
  2. ***Worn or damaged grease piston***
  3. ***Piston cylinder bore***

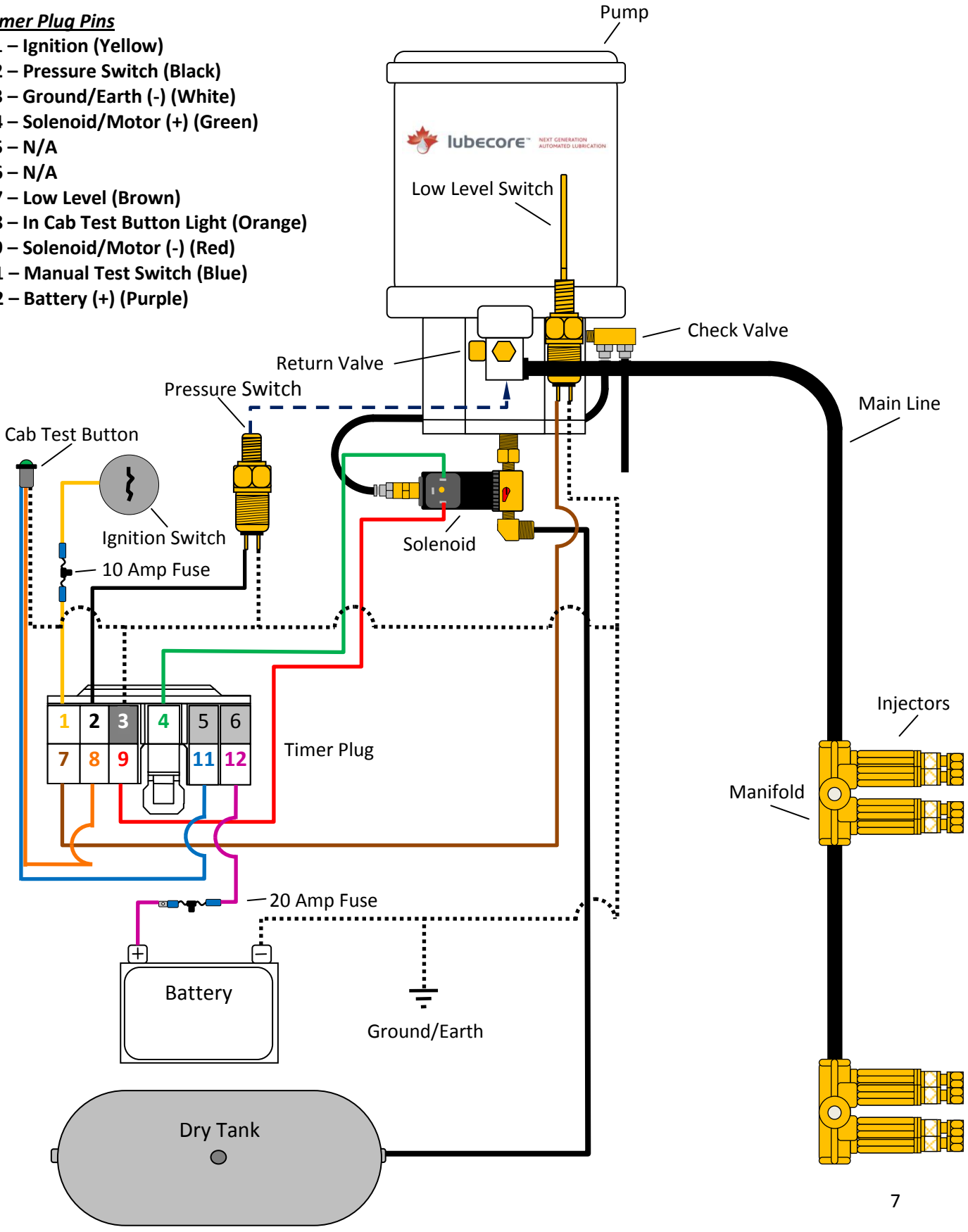
Flapper valve leaking:

- If you didn’t get any pressure at all but observe the follower plate jump up about 3/16” (5mm) when you activated the system, the flapper valve needs to be inspected. Remove the piston and grease cylinder from the pump housing and inspect the flapper valve seat for damage, clean or replace the flapper and reassemble the pump. Activate the system and check for pressure.

Schematic for Tractor AGS

Timer Plug Pins

1 – Ignition (Yellow)
2 – Pressure Switch (Black)
3 – Ground/Earth (-) (White)
4 – Solenoid/Motor (+) (Green)
5 – N/A
6 – N/A
7 – Low Level (Brown)
8 – In Cab Test Button Light (Orange)
9 – Solenoid/Motor (-) (Red)
11 – Manual Test Switch (Blue)
12 – Battery (+) (Purple)



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