



Simple Troubleshooting

Product: Proviso Plus™

Model: P200A

Scope

This document is to assist in the troubleshooting of a Proviso Plus P200A Control System. It will explain the solution to problems we have seen in the field.

Basic Principal

The Proviso Plus P200A, also called the P200A, is a control system for a self steering lift axle on a truck. The P200A controls the position of the lift axle, UP or DOWN. It does not control the pressure or weight the lift axle is using.

Troubleshooting procedure

When a truck with the P200A has been brought in for service, information from the operator will be important, including:

- What exactly is happening? (Axle is not lifting, Axle is not lowering)
- When is the issue happening? (Empty, Loaded, both?)
- Does it always happen or is it intermittent?
- How long has the issue been happening?
- Has the system worked correctly for some time before this issue?

Tools needed:

1. Multi-Meter and/or Test light

Basic Troubleshooting Procedure

The Proviso Plus P200A is equipped with a diagnostic LED. The LED is located on the bottom left corner of the control module.

Locate the P200A module and visually identify the colour and the pattern of the LED. The LED may be dim, shading the area around the LED may help.



The LED can be used to determine if the module is detecting any problems. The LED colour code is:

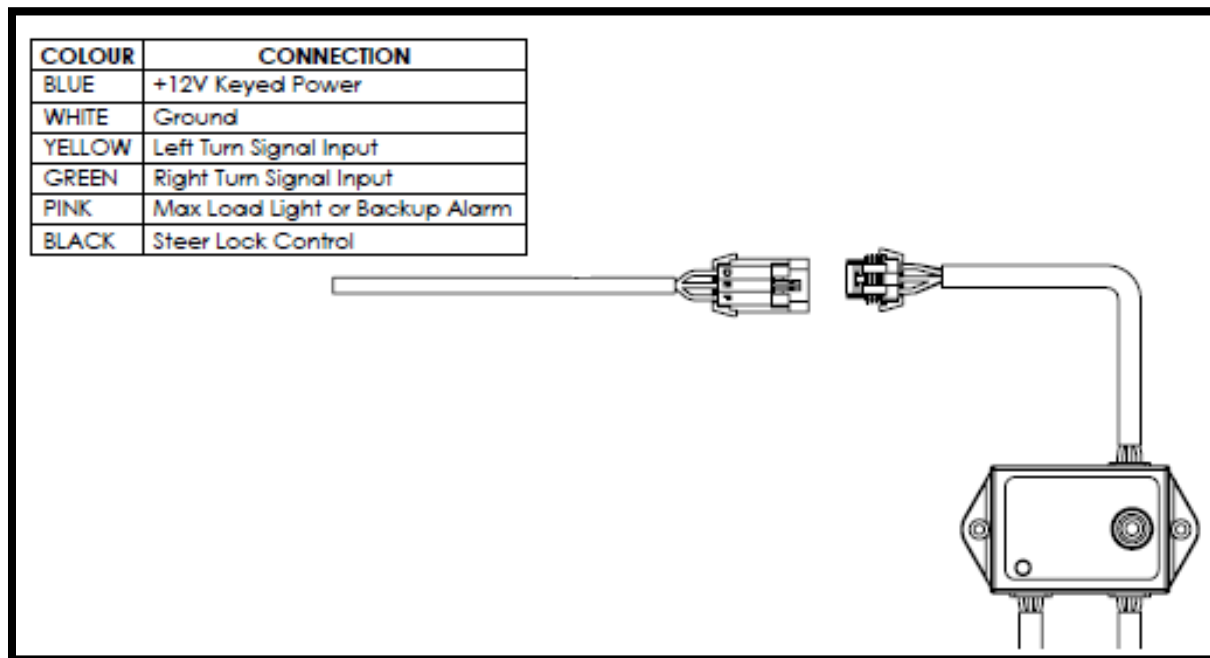
FLASHING GREEN – The module has power and is not detecting wheel movement.

SOLID GREEN – The module has power and is detecting wheel movement.

FAST FLASHING RED – The module has an internal fault and needs to be replaced.

FLASHING RED AND YELLOW(ORANGE) – The module has detected a fault external to the module.

If the LED is not coming on at all, make sure the module is receiving 12 Volt power (BLUE wire) and the ground (WHITE wire) is properly grounded on the truck side of the 6 pin connector.



If the LED is not **GREEN** when the truck's power is ON, the module has detected an issue. First try restarting the truck to see if the problem returns. If the problem returns, use the WMI communication software and cable to communicate with the P200A control module. The software will show the cause to the LED colour and helpful messages to resolve the issue.

If you do not have access to the software, locate a service center equipped with the Wheel Monitor Communication Software. Contact Wheel Monitor to help locate a service center near you.

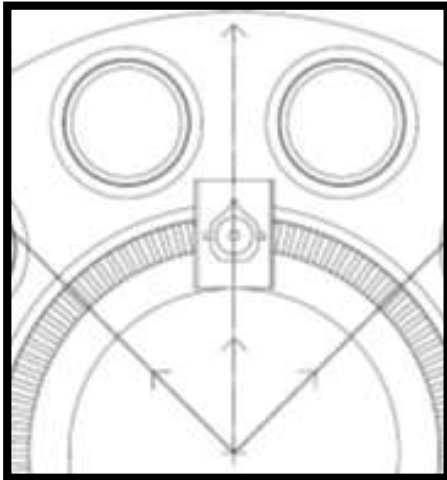
Scenarios

If the LED is **GREEN** and there is still an issue, the following scenarios will cover the most likely causes and solutions.

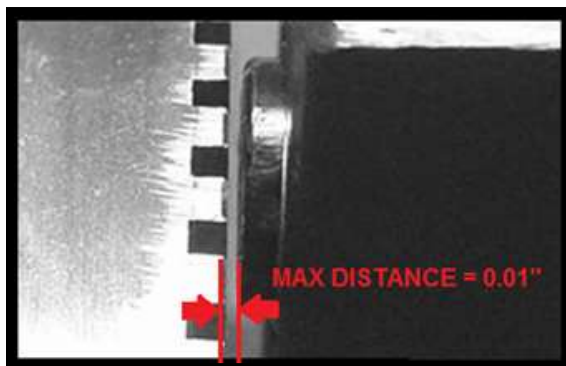
Scenario #1: The Lift Axle will not lift in reverse but lifts when going forward. (works backwards)

Step 1: Check the Wheel Sensor Installation.

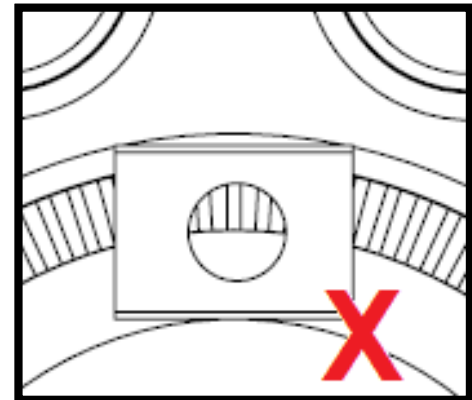
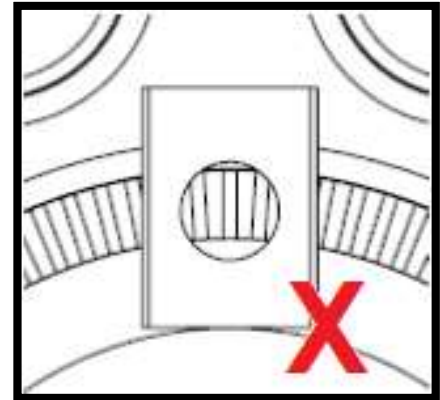
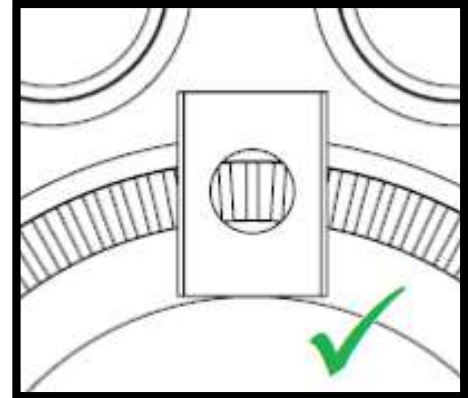
- Locate which wheel the sensor is installed on and inspect the sensor. In most cases, this involves pulling the wheel and brake assembly to get access to the Sensor.
- First, Check the Sensor Alignment. The molded point on the back of the Sensor should be pointing away from the center of the axle. If the sensor is mounted in the 12 o'clock position on the axle, the molded point should also be pointed in the 12 o'clock position.



- Second, check the spacing between the sensor and the tone ring.



- Third, check that the Sensor Block is centered on the Tone Ring.



Scenario #2: The Lift Axle will not lift in reverse or forward.

Step 1: Use the LED to determine if the wheel sensor is detecting any speed or direction.

- a) Locate which wheel the sensor is installed on and rotate the wheel.
- b) Watch the LED while the wheel is rotating.
 - i. If the LED becomes **SOLID GREEN** while rotating and **FLASHES GREEN** while stopped, the sensor is detecting a partial signal. Refer to scenario #1 to check the sensor installation.
 - ii. If the LED continues to **FLASH GREEN** which the wheel rotates, continue to step 2.

Step 2: Test the P200A Module.

- a) Verify the P200A module is supplying power to the sensor correctly. Disconnect the wheel sensor connector from the sensor and

measure the pins/sockets on the P200A side of the connection.

- Red = Battery voltage
- Black = Ground
- White = 10V approx.
- Green = 10V approx.

Step 3: Check for bent pins on the Wheel Sensor Connector, both the P200A and Sensor side of the connection.

Step 4: Trace the Wheel Sensor cable from the P200A to the sensor, checking for damage along the cable.

Step 5: Refer to scenario #1 to check the sensor installation.

Step 6: If all of the previous steps do not solve the issue, replace the wheel sensor. In extreme cases, the P200A module may need to be replaced.

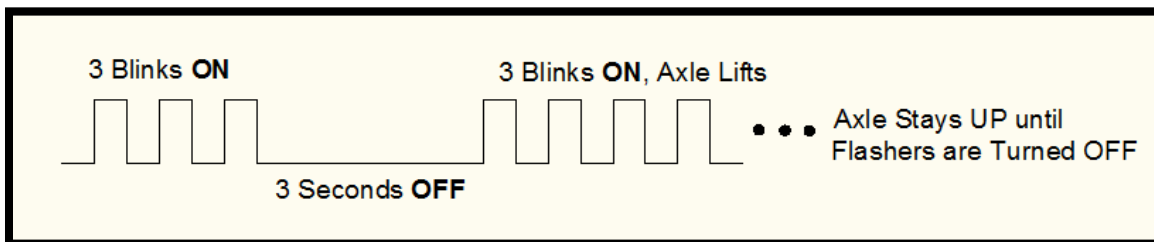
Scenario #3: The Lift Axle will not lift with the 4-way Flashers.

This scenario is most likely caused by a Wiring Issue or Misunderstanding of how the 4-way feature works.

Step 1: Test the 4-way Signal inputs from the truck. Turn the 4-way signals in the truck ON. Measure the signals on the Yellow and Green Wire of the 6 pin connector, on the truck side. Verify that both wires are turning ON and OFF at the same rate as the 4-way signals.

Step 2: Inspect the 6 pin connector for any signs of corrosion or damage to either side.

Step 3: Ask the User to explain how the 4-way feature works. The correct sequence is:



If the User describes a different sequence, clear up the misunderstanding using the above diagram.

Step 4: Verify that the P200A is connected to the lift axle control valve. The Brown Wire on the P200A should be connected to a solenoid for controlling the lift axle position.

Step 5: If all of the previous steps show no sign of issues, advanced troubleshooting is recommended using the Wheel Monitor Communication Software.

***NOTE:** The 4-way feature may be configured to use an enable switch in the cab. Look for a switch in the cab or use the communication software to determine which setting the system is using.

Scenario #4: The Lift Axle will not lift when the truck is Empty.

This scenario is most likely caused by a Calibration issue or a Pneumatic Issue.

Step 1: While the truck is empty, measure the voltage on the BROWN wire connected to the lift solenoid.

- i. If the BROWN wire has 12V, check that the WHITE wire connected to the solenoid is grounded. If both connections are good, the valve or solenoid is likely stuck.
- ii. If the BROWN wire does not have 12V, continue on to step 2.

Step 2: Test the P200A Module. Disconnect the air line connected to the P200A module. When pressure is removed from the module, the axle should lift (power on the BROWN wire).

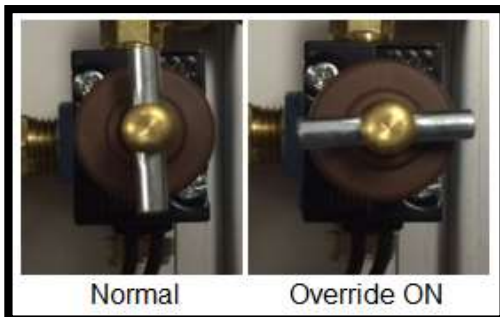
Step 3: Use shop air pressure and a regulator to test different pressures on the module. Increase the pressure until the axle lowers again. Decrease the pressure until the axle lifts. Record the pressures that the axle lifted and lowered at for future steps.

- i. If the module does not change the axle position during this test, verify the LED is still GREEN. If the module has an internal issue, this test can trigger the LED to turn RED.
- ii. If the module does change the axle position during this test, continue to step 4.

Step 4: With a manual gauge, measure the pressure in the line normally connected to the P200A. If the pressure in the line is higher than the pressure the axle lifted at in step 3, then the module calibration may need to be adjusted or the pressure may be higher than it should be. Adjusting the calibration requires the Wheel Monitor Communication Software and communication cable.

Scenario #5: The Lift Axle will not lower when the truck is Loaded.

Step 1: Verify that the manual override on the control valve is not ON.



Step 2: Disconnect the airline from the P200A module and use shop air pressure and a regulator to test different pressures on the module. Increase the pressure until the axle lowers. Decrease the pressure until the axle lifts. Record the pressures that the axle lifted and lowered at for future steps.

- a) If the axle does not lower even at higher pressures (80-90PSI), the P200A control pressure may not be calibrated. To check the calibration, the Wheel Monitor Communication Software and communication cable are required.

Step 3: With the Truck loaded, measure the pressure in the line normally connected to the P200A. If the pressure is below the pressure found in step 2 to lower the axle, then the module calibration may need to be adjusted.

Step 4: Check the Wheel Sensor Installation. Refer to scenario #1.

Step 5: If all of the previous steps show no sign of issues, advanced troubleshooting is recommended using the Wheel Monitor Communication Software.

Scenario #6: The Lift Axle lowers randomly when the truck is Empty.

This scenario is most likely caused by intermittent power loss or a Wiring Issue.

Step 1: Test the Power and Ground connection. Using a multi-meter measure the BLUE and WHITE wires on the truck side of the 6 pin connector. Look for signs of voltage drops or fluctuating readings. Trace the wires back to the source looking for signs of corrosion or loose connections.

Step 2: Verify that the P200A is connected to the lift axle control valve. The BROWN wire on the P200A should be connected to a solenoid for controlling the lift axle position.

Step 3: Test the lift axle solenoid using a battery the verify the valve is functioning correctly.

Step 4: If all of the previous steps show no sign of issues, advanced troubleshooting is recommended using the Wheel Monitor Communication Software.

Scenario #7: The Lift Axle lifts randomly when the truck is Loaded.

This scenario is most likely caused by the Wheel Sensor detecting reverse. In some cases this can be caused by the user rolling back enough to trigger the reverse detection. In other cases it can be a sign of wheel sensor alignment issues or a malfunction.

Step 1: Trace the Wheel Sensor cable, checking for damage along the cable.

Step 2: Check the Wheel Sensor Installation. Refer to scenario #1.

Step 3: If all of the previous steps show no sign of issues, advanced troubleshooting is recommended using the Wheel Monitor Communication Software.

Contact Us

If you have any questions or concerns at any time please do not hesitate to email us at tech@wheelmonitor.com or call 905-641-0024.

If it is after hours you can call 905-359-8319 or 905-359-5613.