

Troubleshooting Guide



PLEASE NOTE:

Store this document in your vehicle glove box or with your important engine documents for future reference.

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IMPORTANT

Prior to proceeding:

- Ensure all wiring harness connections are securely connected and latched to their mates.
- Inspect all wiring for signs of damage or wear that could cause electrical shorts or discontinuities.
- Ensure any extended lengths of harness do not exceed a span of 6 meters [20 feet] from controller.



Use your discretion to restart the engine after an emergency shut-down. In most cases, it is recommended to wait until the cause is understood and shared with the necessary safety parties before restarting.

WARNING

- **Do NOT cycle power by removing connectors from controller. Cycle power by disconnecting at battery or removing main power fuse.**
- **Do NOT cycle power to the system until instructed to do so. In certain cases, cycling the power can cause the system to fail.**
- **Do NOT operate engine with any harness connections disconnected. This is dangerous and could cause system components to fail under extreme operation conditions.**
- **Unnecessary connection and disconnection of harness connectors wears out plating on electrical contacts and will affect continuity.**
- **Do NOT disassemble or tamper with any system components. Doing so will void the owner's warranty.**

General Troubleshooting Procedure

1. Confirm which mode the system is set to by checking the mode selection jumper connector. Refer to the PH+ Installation Manual for more information.
2. Identify Operating Mode of system by checking which pattern the switch light is flashing:
 - a. Solid Light – Valve Closed
 - b. No Flash – Normal Operating Mode
 - i. Enter Test Mode to confirm which Trip Speed is active (Short Flash vs Long Flash).
 - c. Short Flashing light with PTO disconnected – Programming Mode or Test Mode (Primary Trip Speed)
 - i. If mode selection jumper is disconnected, then Programming Mode is active.
 - d. Long Flashing light with PTO line connected – Programming Mode or Test Mode (Secondary Trip Speed)
 - i. If mode selection jumper is disconnected, then Programming Mode is active.
3. If issue is not related to harness connections / Mode Selection Box / Operating Mode, refer to the following detailed Troubleshooting Sections.

Manual Trip (Toggle Switch) fails to actuate the valve

Cause	Solution
Switch is damaged	<ul style="list-style-type: none"> • See Toggle Switch troubleshooting section
Actuator is damaged	<ul style="list-style-type: none"> • Perform manual trip and listen for movement to determine if actuator has seized. If seizure suspected, remove intake hose and inspect flap. • Disconnect wiring harness at actuator and confirm 12VDC is being measured across pink/brown wires when toggle switch is activated • Disconnect wiring harness at actuator and ensure coil resistance is equal to manufacturer specification and replace actuator if necessary
System is not receiving adequate power	<ul style="list-style-type: none"> • Ensure battery voltage is not less than 10V (12V system) and replace/charge battery if necessary • Check main power fuse at battery and replace if necessary

Automatic Shutdown Function fails to actuate valve at programmed Trip Speed

Cause	Solution
Controller is not programmed for the correct trip speed	<ul style="list-style-type: none"> • Use <u>TEST Mode</u> to ensure the controller was programmed correctly. <u>Refer to Programming Manual for more information.</u>
Controller is not correctly sensing engine speed	<ul style="list-style-type: none"> • Ensure crankshaft speed sensing jumper connectors are fully connected and latched • Use <u>TEST Mode</u> and perform test procedure to verify engine shut down occurs at 1500RPM. <u>Refer to Installation Manual for more information.</u>
Throttle Valve Actuator is damaged	<ul style="list-style-type: none"> • Perform manual trip and listen for movement to determine if actuator has seized. If seizure suspected, remove intake hose and inspect flap. • Disconnect wiring harness at actuator and confirm 12VDC is being measured across pink/brown wires when toggle switch is activated • Disconnect wiring harness at actuator and ensure coil resistance is equal to manufacturer specification and replace actuator if necessary
System is not receiving adequate power	<ul style="list-style-type: none"> • Ensure battery voltage is not less than 10V (12V system) and replace/charge battery if necessary • Check main power fuse at battery and replace if necessary
If Applicable: Secondary Trip Speed is unintentionally enabled (or disabled) and is causing system to trip unexpectedly	<ul style="list-style-type: none"> • System can be configured to force engine shutdown at 2 different engine speeds. Secondary Trip Speed is the additional trip speed and it is active when its input from the harness is supplied power. • Applicable if: Secondary Trip Speed input (Brown Wire, Pin 3 on grey connector of Common Power Harness) is connected to external device capable of supplying power • Depending on application, ensure that Secondary Trip Speed is correctly enabled/disabled
Wiring harness is loose	<ul style="list-style-type: none"> • Ensure all connectors are fully installed and latched
Wiring harness is damaged	<ul style="list-style-type: none"> • Inspect all wiring for signs of damage and replace if necessary.

False Trip: System has automatically shut down the engine at incorrect engine speed

Cause	Solution
Controller is not programmed for the correct trip speed	<ul style="list-style-type: none"> Use <u>TEST Mode</u> to ensure the controller was programmed correctly. Refer to <u>Programming Manual</u> for more information.
If Applicable: Secondary Trip Speed is unintentionally enabled (or disabled) and is causing system to trip unexpectedly	<ul style="list-style-type: none"> System can be configured to force engine shutdown at 2 different engine speeds. Secondary Trip Speed is the additional trip speed and it is active when its input from the harness is supplied power. Applicable if: Secondary Trip Speed input (Brown Wire, Pin 3 on grey connector of Common Power Harness) is connected to external device capable of supplying power Depending on application, ensure that Secondary Trip Speed is correctly enabled/disabled
Controller cannot correctly sense the engine speed	<ul style="list-style-type: none"> Ensure crankshaft speed sensing jumper connectors are fully connected and latched Use <u>TEST Mode</u> and perform test procedure to verify engine shut down occurs at 1500RPM. Refer to <u>Installation Manual</u> for more information.
Wiring harness is loose	<ul style="list-style-type: none"> Ensure all connectors are fully installed and latched
Wiring harness is damaged	<ul style="list-style-type: none"> Inspect all wiring for signs of damage and replace if necessary

Controller is unresponsive and toggle switch indicator does not flash

Cause	Solution
Wiring harness is loose	<ul style="list-style-type: none"> Ensure all connectors are fully installed and latched
Wiring harness is damaged	<ul style="list-style-type: none"> Inspect all wiring for signs of damage and replace if necessary
System is not receiving adequate power.	<ul style="list-style-type: none"> Ensure battery voltage is not less than 10V (12V system) and replace/charge battery if necessary Check fuse and replace if necessary

Engine will not start

Cause	Solution
Valve is in activated state	<ul style="list-style-type: none"> Confirm the red indicator light is not illuminated.
Actuator is Damaged	<ul style="list-style-type: none"> Perform manual trip and listen for movement to determine if actuator has seized. If seizure suspected, remove intake hose and inspect flap. Disconnect wiring harness at actuator and confirm 12VDC is being measured across pink/brown wires when toggle switch is activated Disconnect wiring harness at actuator and ensure coil resistance is equal to manufacturer specification and replace actuator if necessary
Wiring harness is loose.	<ul style="list-style-type: none"> Ensure all connectors are fully installed and latched
Wiring harness is damaged.	<ul style="list-style-type: none"> Inspect all wiring for signs of damage and replace if necessary

Engine fails to shut down when valve actuates

Cause	Solution
Actuator is Damaged	<ul style="list-style-type: none"> • Perform manual trip and listen for movement to determine if actuator has seized. If seizure suspected, remove intake hose and inspect flap. • Disconnect wiring harness at actuator and confirm 12VDC is being measured across pink/brown wires when toggle switch is activated • Disconnect wiring harness at actuator and ensure coil resistance is equal to manufacturer specification and replace actuator if necessary
Valve is obstructed	<ul style="list-style-type: none"> • Remove air intake hose and inspect valve for dirt and debris. • Activate toggle switch and visually inspect valve for binding or unexpected resistance
There is a leak in the system allowing air to continue entering the engine.	<ul style="list-style-type: none"> • Inspect all piping/hosing for leaks and repair/patch • In rare circumstances due to wear, some throttle bodies may not seal completely when fully closed. If complete shut-down does not occur, the factory throttle body may need to be replaced.

Toggle Switch and/or light are unresponsive

Cause	Solution
Switch/light are improperly wired	<ul style="list-style-type: none"> • Re-confirm switch/harness pin-outs are connected correctly. <u>Refer to Installation Manual for Details.</u>
Switch is damaged	<ul style="list-style-type: none"> • Check for continuity across toggle switch contacts when closed. <u>Refer to Installation Manual for Details.</u> • <u>Contact PowerHalt support for replacement switch if necessary.</u>
Light is damaged	<ul style="list-style-type: none"> • Check for continuity across switch light contacts or apply power and ground to test. <u>Refer to Installation Manual for Details.</u> • <u>Contact PowerHalt support for replacement switch if necessary.</u>
System is not receiving adequate power	<ul style="list-style-type: none"> • Ensure battery voltage is not less than 10V (12V system) and replace/charge battery if necessary • Check fuse and replace if necessary

Check Engine Light or Fault Codes are triggered

Cause	Solution
Engine Light/Fault code triggered during installation	<ul style="list-style-type: none"> • Disconnecting factory throttle valve or crankshaft speed sensor connector with vehicle ignition power active will trigger alarm. • Clear fault codes and check if warnings return.
Wiring harness is loose.	<ul style="list-style-type: none"> • Ensure all connectors are fully installed and latched
Wiring harness is damaged.	<ul style="list-style-type: none"> • Inspect all wiring for signs of damage and replace if necessary

* 2017-2021 GM Duramax 6.6L applications will trigger a check engine light and P0106 fault code on every PH+ shutdown. This is normal and may put the truck in a reduced power state. The code can be cleared with a code reading device or will extinguish on its own after several normal start-up and shutdown cycles.

* 2011-2019 Ford Power Stroke 6.7L applications will display a check engine light and P0069 fault code after two consecutive forced shutdowns with PH+. Two consecutive normal start-up and shutdown cycles should clear the check engine light. Alternatively, a code reading device can be used to clear the code.