Fire Research Corporation

Pressure Governor Diagnostics

This is intended to provide diagnostic assistance. Please have the product manual available prior to performing any diagnostics. Product manuals are available at fireresearch.com
• Does the display module come on?

  Yes

  No

  Go to page 3

• Is the voltage between the ignition wire and the display module ground wire above 12 VDC?

  Yes

  Contact FRC

  No

• Repair vehicle wiring!
Continued from Page 2

- Is the "Throttle Ready" LED on? (If Equipped)
  - Yes
  - No

  - Is the pump engaged?
    - No
    - Yes
      - Is there 12 VDC to the interlock wire at the governor?
        - No
        - Yes
          - Repair the vehicle interlock circuit
          - Contact FRC
        - Engage the pump and test operation

- Go to Page 4
Is the governor set for the correct engine type?

- Yes
  - Is the J1939/J1587 available on this engine?
    - Yes
      - Confirm the J1939/J1587 wiring is correct and that information is being broadcast with a data reader.
    - No
      - Check and repair all external sensor wiring!

- No
  - Is the engine information on the display accurate?
    - Yes
      - Set the engine type in the governor to match apparatus engine type.
    - No
      - Proceed to Page 5

Continued from Page 3

Or contact FRC

If it still does not work contact Fire Research
Increase the pressure setting to a point at least 50 psi higher than the current discharge pressure. Does the engine respond?

- Yes
- No

Is the selected pressure achieved?

- Yes
- No

Perform pressure sensor calibration and try again

If the governor has an intake sensor, confirm that the harness is connected to the correct sensor

Is the correct pressure sensor installed?

- Yes
- No

Check the output voltage of the pressure sensor and compare it to the chart in the manual. If your problem has not been resolved, contact FRC

It appears that the governor is working, if you have other questions contact FRC

Go to Page 6
Switch to RPM Mode and increase. Does the engine respond?

- Yes
- No

Is the discharge pressure above 15 psi?

- Yes
- No

Ensure that there is a water supply to the pump and the pump is primed.

From this point diagnostics is specific to the type of engine control used, for:

- J1939 control
  - Go to page 7

- Analog control
  - Go to page 9

- PWM control
  - Go to page 11

- Foot pedal adapter control
  - Go to page 12

Contact FRC
Turn off ignition, measure the resistance on the J1939 wiring. There should be 60 OHMS resistance. To high or low may indicate an incorrect number of terminating resistors.

Locate the engine type used on the apparatus:
- Detroit Diesel
- Cummins
- Navistar
- Caterpillar
- If engine ECM is properly programmed

Confirm that engine ECM has Fire Apparatus Software Package.

Contact FRC

J1939 is not currently available.
ECM software with a Personality Module release date of May08 for C7, C9, C13, C15 engines, will have the remote throttle with J1939 Speed Command setting available.

Caterpillar continued from page 7

Using a digital volt meter connect the black lead to pin 3 and the red lead to pin 68 of the engine ECM 70 pin connector. You should have .75 VDC which is 15% duty cycle.

Confirm that a ground signal is provided to pin 56 of the 70 pin connector.

If all of the above signals are present and the engine does not respond contact FRC.
Analog control systems consist of a 3 wire circuit. Red is 5VDC from the engine to the governor. Black is engine ECM ground to the governor. White is the analog signal from the governor to the engine.

Using a digital volt meter, confirm that there is 5 VDC between the bed and black wires.

Leave the black lead of your meter on the black and connect the red lead to the white wire.

This configuration is measuring the analog control signal to the engine ECM. Although this varies from one engine type to another, you should have about 0.5 VDC at idle.

Refer to the manual for pin location for the engine and governor on the apparatus.

Continued on page 10
Continued from page 9

Increase the RPM requested with the governor, does the voltage increase?

Yes

No

What engine?

Cummins

Navistar

MaxxForce

Mercedes

Detroit

Contact FRC

Contact engine manufacture representative

Confirm that ground is provided to pins 07 and 08 of ECM J2 60 pin connector

Confirm that +12V is provided to C-60 Of the 76 pin connector

Confirm that ground is provided to pins 7 and 10 of the VCU 18 pin connector
PWM control continued from page 6

Using a digital volt meter connect the black lead to pin 3 and the red lead to pin 68 of the engine ECM 70 pin connector. You should have .75 VDC which is 15% duty cycle at idle. The voltage will increase as a higher RPM is requested.

Confirm that ground is provided to pins 56 of the 70 pin vehicle harness connector.

If the engine still does not respond contact the local Caterpillar representative.
Foot pedal adaptors are used on engine types that do not have a remote throttle input option.

Continued from page 6 foot pedal adapter.

Disconnect the foot pedal adapter from the foot pedal wiring and reconnect the vehicle harness directly to the foot pedal. Does the engine RPM Increase when the foot pedal is pressed?

- Yes
- No

Reconnect the foot pedal adapter.

Measure the analog signal at the 6 pin connector on the foot pedal adapter. Does it increase as a higher RPM is requested?

- Yes
- No

Contact chassis manufacturers representative.

Pin 2 is 5vdc from foot pedal
Pin 3 is control signal to adapter
Pin 4 is ground from foot pedal

Confirm there is 12vdc on pin 1 of this 6 pin connector.

Contact FRC.