STAR ONLINE PUBLICATION

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Symptom/Vehicle Issue: On Board Diagnosis (OBD) Monitor Readiness Information

Discussion: Vehicles that do not pass state mandated emissions inspection may have certain OBD readiness monitors that have NOT completely run. The following information describes the necessary steps required to run each monitor. Vehicles may be required to driven for an extended period in a variety of driving styles to allow all the OBD Monitors to run and pass.

NOTE: Anytime an ECM/PCM has been replaced or flashed, or if the codes were cleared, the OBD readiness monitors may need to run again to complete the monitoring process.

NOTE: The WiTECH software must be at the latest available software level to perform this procedure.

Repair Procedure:

1. Using wiTECH, navigate to the “Guided Diagnostics” menu and select “Carb Readiness Status – Diesel. Record which monitors are “Incomplete.” Please see (Figures 1&2)

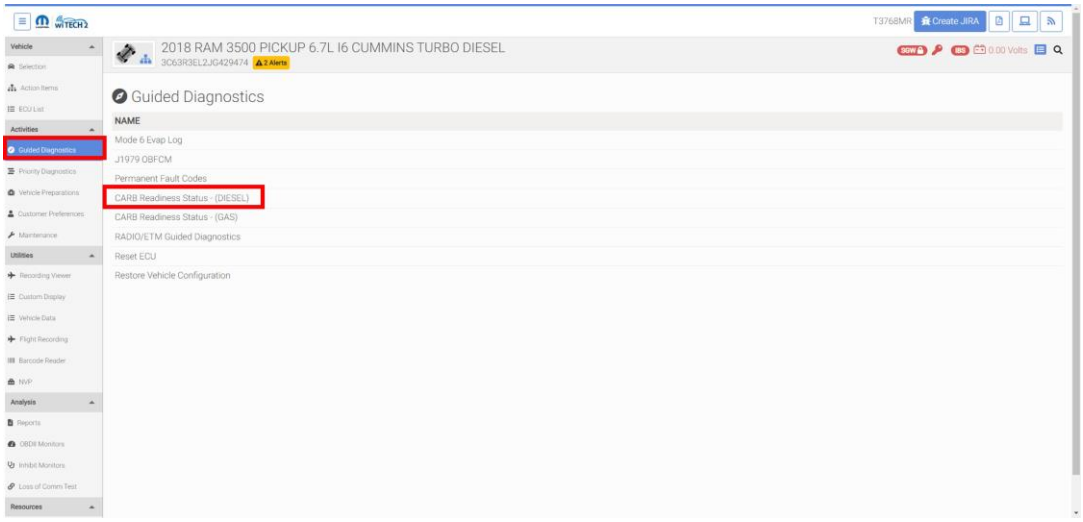

Figure 1

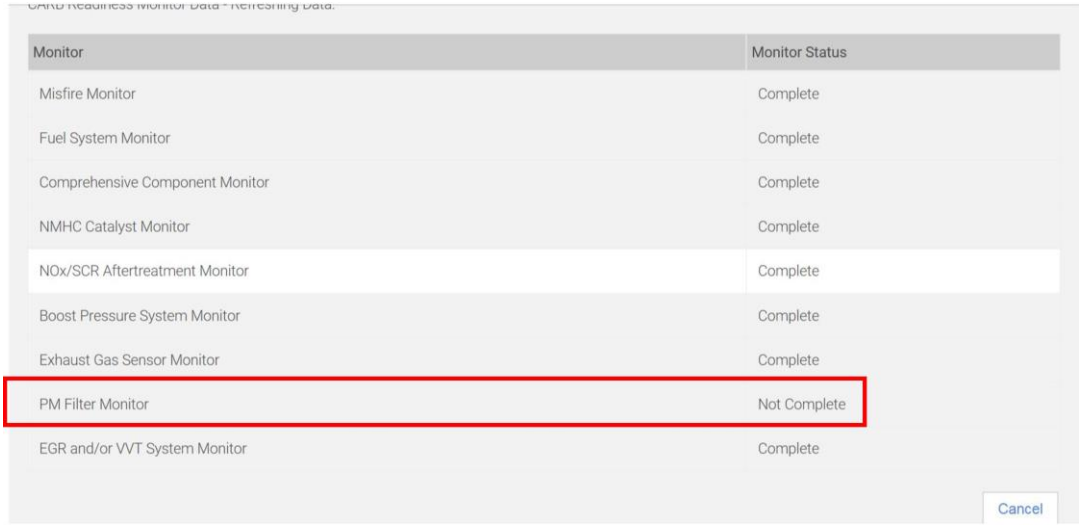

Figure 2

2. Refer to the corresponding monitor below and review all the operating criteria needed to get the monitor to pass and operate the vehicle within these parameters.

This document does not authorize warranty repairs. This communication documents a record of past experiences. STAR Online does not provide any conclusions about what is wrong with the vehicle. Rather, it captures all previous cases known that appear to be similar or related to the vehicle symptom / condition. You are the expert, and you are responsible for deciding on the appropriate course of action.

Contact STAR Center, or your Technical Assistance Center Via TechConnect, eCONTACT or Service Library entry if no solution is found.

NOTE: The names in brackets are the monitor names as seen on a generic scan tool. All data parameters listed are available in WiTECH PCM data.

1. **Misfire Monitor [Misfire Monitoring].**
   The following conditions must be met:

   a. Fuel level greater than quarter tank.
   b. Battery voltage must be between 11 and 16 volts.
   c. PTO or idle-up not engaged.
   d. Final Aftertreatment Operating Mode is Normal.
   e. Coolant temperature must be over 140 °F (60 °C).

To run the monitor:
- Allow the engine to idle for a minimum of 2 minutes.
- Vehicle must be stationary and/or not moving (Vehicle Speed = 0 MPH).
- Do not depress accelerator pedal (Accelerator Pedal Position = 0 %).

2. **Fuel System Monitor [Fuel System Monitoring].**
   The following conditions must be met:

   a. Fuel level greater than quarter tank.
   b. Battery voltage must be between 11 and 16 volts.
   c. PTO or idle-up not engaged.
   d. Final Aftertreatment Operating Mode is Normal.
   e. Coolant temperature must be over 140 °F (60 °C).
   f. Grid heater is off.

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To run the monitor:
- Let the vehicle idle for a minimum of 2 minutes with the above conditions met.
- Drive the vehicle at highway speeds. Perform 10-15, 10 second zero fueling decelerations (accelerator pedal fully released).

3. **Boost System Monitor [Secondary Air System Monitoring].**
   The following conditions must be met:

   a. Engine must be running for 10 minutes.
   b. VGT Compressor Inlet Air Temp must be below 122 °F (50 °C).
   c. Charge Airflow command should be less than 25 kg/min.
   d. Ambient Air Temperature must be above 20 °F (-7 °C).
   e. Final Aftertreatment Operating Mode is Normal.
   f. Coolant temperature must be over 140 °F (60 °C).
   g. Engine Speed should between 1900 and 3000 RPM
   h. Coolant temperature must be over 140 °F (60 °C).

To run the monitor:
- Drive the vehicle on the highway at steady speeds for at least 10 min.
- Perform, at least, one hard acceleration (passing type maneuver) to engage the turbo
- Repeat if necessary.

4. **EGR System Monitor [EGR System Monitoring].**
   The following conditions must be met:

   a. Coolant temperature must be over 140 °F (60 °C)
   b. Exhaust temperatures up to full operating temp
   c. Final Aftertreatment Operating Mode is Normal.

To run the monitor:
- Drive the vehicle on the highway for 20-25 minutes.

5. Exhaust Gas Sensor Monitor [EGS].

The following conditions must be met:

a. Engine must be running for 2 minutes.
b. Coolant temperature must be over 180 °F (80 °C) for more than 1 minute.
c. Final Aftertreatment Operating Mode is Normal.

To run the monitor:

- Drive the vehicle on the highway with the Final Aftertreatment Operating Mode in Normal Mode.
- At highway speeds, perform a 10 second 0 throttle deceleration (accelerator pedal fully released) then a light throttle acceleration back up to highway speed. Repeat this 15-20 times.
- At the end of the drive cycle, verify that the Exhaust Gas Temperature Sensor (EGT) 2 is above 338 °F (170 °C) for Pick Up and 392 °F (200 °C) for Cab Chassis.
- With the vehicle in park and parking brake engaged, raise the engine RPM to 1200-1300 RPM and hold it for 2-3 minutes. Bring back to an idle state and repeat 2-4 times.

NOTE: If the Exhaust Gas Sensor Monitor does not go to ready, key off the vehicle and allow for a 10-minute power down of the PCM before repeating the above directions.

6. NMHC System Monitor [Catalyst Monitoring].

Note: This step takes up to 24 hours of engine run time to complete a time-based regeneration event. Aftertreatment exhaust operating mode can be monitored in WiTECH.

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The following conditions must be met:
a. Coolant temperature must be over 140 °F (60 °C).
b. A new active Regeneration event is initiated.

To run the monitor:
- This monitor runs after a Regeneration event.
- Drive the vehicle on the highway for 12-15 minutes at a steady state. After 12-15 minutes of highway driving, exit the highway and proceed to a parking lot and come to a complete stop for 5 minutes.
- Monitor the exhaust operating mode to see if it is still in regeneration mode or returned to normal. If still in regeneration, drive back on the highway for an additional 12-15 minutes to complete the regeneration process.

7. Particulate Matter (PM) Filter System Monitor [Heated Catalyst Monitoring].

Note: This step takes up to 72 hours of engine run time to complete three-time based regeneration cycles. This can be a combination of idle and drive time. Regeneration operation mode can be monitored in WiTECH.

The following conditions must:
a. EGT Sensor 3 temperature is above 302 °F (150 °C)
b. Inlet Air Pressure reading at idle is above 11 psi (75 kpa)
c. Soot Filter Delta Pressure reading is below 29 psi (200 kpa)
d. Coolant temperature must be over 140 °F (60 °C)

To run the monitor:
- This monitor requires a minimum of **Three** complete time-based Regeneration events to run.
- Timer based regeneration will trigger after 24 hours of engine operation.

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Note: City driving or a stop and go driving style generally produces more soot and will enable the truck to achieve soot levels in the DPF that require a Regeneration the quickest.

8. NOx Aftertreatment System Monitor.

The following conditions must be met:

a. Exhaust Gas Temperature Sensor Reading between 392 °F (200 °C) and 752 °F (400 °C) for the Pickup between 464 °F (240 °C) and 896 °F (480 °C) for the Cab Chassis.
b. Ambient Pressure reading above 11 psi (75 kpa).
c. Ambient Air temperature reading should be above 20 °F (-6 °C)
d. Coolant temperature must be over 140 °F (60 °C)

To run the monitor:

- While driving the vehicle at highway speeds and perform a passing maneuver type acceleration and then decelerate back to steady highway speed.
- Drive at the steady highway speed for 5 minutes.
- Repeat cycle 6-10 times.

Contact STAR Center, or your Technical Assistance Center Via TechConnect, eCONTACT or Service Library entry if no solution is found.