

## **COLD START EMISSION REDUCTION MONITOR > COLD START EMISSION REDUCTION COMPONENT MONITOR > ENGINE SPEED AND SPARK TIMING MONITOR**

The system monitor and component monitor share the same entry conditions and monitor flow. During the first 15 seconds of a cold start, the monitor checks the entry conditions, counts time in idle, observes catalyst temperature, calculates the average difference between desired and actual engine speed, and calculates the average difference between desired and commanded spark.

If the expected change in catalyst temperature is large enough, the monitor then begins a waiting period of 300 seconds after engine start. This waiting period allows time to diagnose other components and systems that affect the validity of the test. During this waiting period, there are no constraints on drive cycle and the monitor cannot be disabled without turning OFF the ignition.

If the system monitor result falls below its threshold and all of the component monitor results are below their respective thresholds, the monitor determines if the idle time was sufficient. If the idle time was sufficient the test is considered to be a pass and the monitor is complete. If idle time was not sufficient, the monitor will not make a pass call and does not complete. This prevents tip-ins from resulting in false passes.

## **COLD START EMISSION REDUCTION MONITOR > COLD START EMISSION REDUCTION COMPONENT MONITOR > COLD START ENGINE SPEED MONITOR OPERATION**

Once the waiting period is complete, the monitor compares the average difference between desired and commanded spark to a calibrated threshold that is a function of the engine coolant temperature at start. If the difference exceeds the calibrated threshold, a DTC sets.

- DTC: P050A Cold start idle air control system performance
- Monitor execution: Once per driving cycle, during the first 15 seconds of a cold start
- Monitor sequence: None
- Monitoring duration: Data gathering occurs during the first 15 seconds of a cold start. The decision to set P050A is made 300 seconds after start. This delay gives time for other diagnostics (for example, misfire monitor) to determine if another DTC should set instead of P050A.

## **COLD START EMISSION REDUCTION MONITOR > COLD START EMISSION REDUCTION COMPONENT MONITOR > ENGINE SPEED MONITOR ENTRY CONDITIONS**

- Barometric pressure of 76.2 kPa (22.5 in-Hg) or greater
- Engine coolant temperature at start is between -17.8°C (35°F) and 37.8°C (100°F)
- Catalyst temperature at start is between -17.8°C (35°F) and 51.7°C (125°F)