


General Information

VIN: 1MEFM50205A615662	Mileage Reported: 175,000
Vehicle: 2005 MERCURY SABLE	Report#: 113
Engine: V6, 3.0L; SOHC; 12V; SEFI; FFV	Date of Report: 09/18/2017 11:35 PM

Engine/Transmission Diagnostic Trouble Code Information

MIL DTC

P0171 Fuel System Too Lean (Cylinder Bank 1)

Severity Level: Moderate 

Quick Code Summary:

Code P0171 indicates that the Bank 1 System is too lean for a predetermined period of time. This condition will prevent the vehicle from running at its optimum efficiency and fuel economy may suffer. The engine must have a correct air/fuel ratio to optimize emissions, power and economy.

Conditions For Setting This Code:

Engine started, engine running at cruise speed for 3 to 4 minutes, and the PCM detected the Bank 1 Adaptive Fuel Control System reached its rich correction limit (a lean A/F condition).

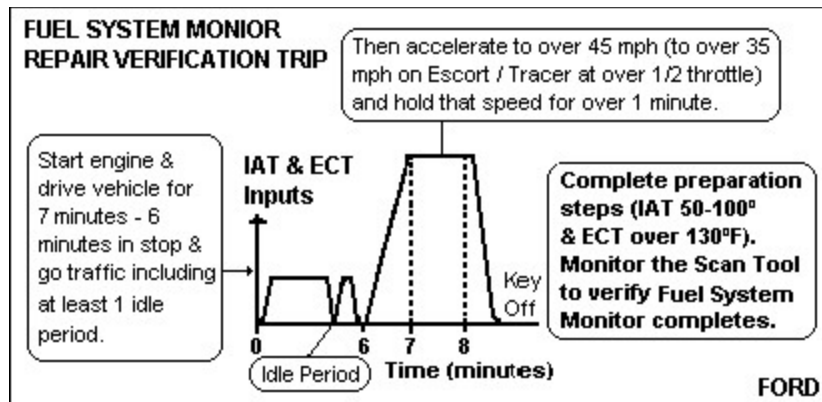
Possible Causes:

Air leaks after the MAF sensor, or leaks in the PCV system Exhaust leaks before or near where the HO2S is mounted Fuel injector(s) restricted or not supplying enough fuel Fuel pump not supplying enough fuel during high fuel demand conditions Leaking EGR gasket, or leaking EGR valve diaphragm MAF sensor dirty (causes PCM to underestimate airflow) Vehicle running out of fuel or engine oil dip stick not seated TSB 01-20-5 contains a repair procedure for this trouble code

Repair Verification Process:

This Monitor is a two-trip monitor that runs continuously whenever the engine is running in closed loop. The first time the PCM detects a Fuel Trim fault; the PCM sets a pending code and records the current vehicle conditions in Freeze Frame. If the same fault is detected on consecutive trips, the PCM turns on the MIL and sets a diagnostic trouble code. This OBD II Monitor uses a unique set of rules to turn off the MIL. The engine must be running with the engine speed and load in a similar range to when the trouble code first set before the PCM will retest the same fault. If this Monitor passes for (3) consecutive trips, the MIL is turned off. If it passes for 40 warmup cycles under "similar conditions", the PCM will clear the code. If the engine does not run under these similar conditions, the code will be cleared after 80 warmup cycles if the same fault does not reappear. Fuel System Monitor Repair Verification An example of how to drive a vehicle to verify the repair of a trouble code related to the Fuel System Monitor on this vehicle application is shown in the Graphic below.

Repair Verification Graphic



Technical Service Bulletins:

There are currently no TSBs for P0171.

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Stored Codes

P0171 Fuel System Too Lean (Cylinder Bank 1)

Conditions For Setting This Code:

Engine started, engine running at cruise speed for 3 to 4 minutes, and the PCM detected the Bank 1 Adaptive Fuel Control System reached its rich correction limit (a lean A/F condition).

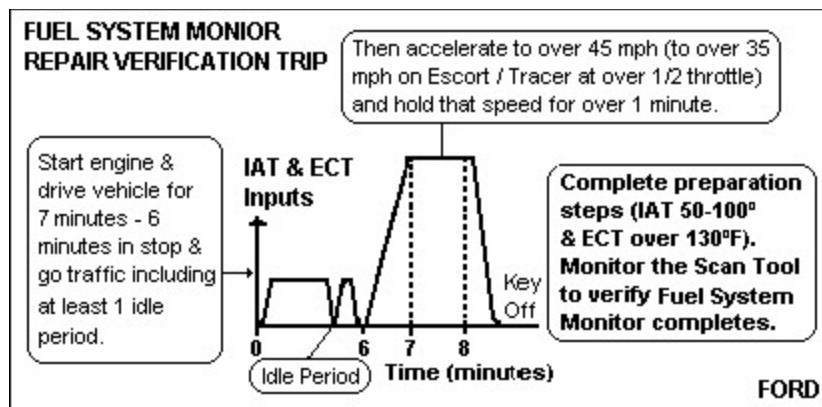
Possible Causes:

Air leaks after the MAF sensor, or leaks in the PCV system Exhaust leaks before or near where the HO2S is mounted Fuel injector(s) restricted or not supplying enough fuel Fuel pump not supplying enough fuel during high fuel demand conditions Leaking EGR gasket, or leaking EGR valve diaphragm MAF sensor dirty (causes PCM to underestimate airflow) Vehicle running out of fuel or engine oil dip stick not seated TSB 01-20-5 contains a repair procedure for this trouble code

Repair Verification Process:

This Monitor is a two-trip monitor that runs continuously whenever the engine is running in closed loop. The first time the PCM detects a Fuel Trim fault; the PCM sets a **pending** code and records the current vehicle conditions in Freeze Frame. If the same fault is detected on consecutive trips, the PCM turns on the MIL and sets a diagnostic trouble code. This OBD II Monitor uses a unique set of rules to turn off the MIL. The engine must be running with the engine speed and load in a similar range to when the trouble code first set before the PCM will retest the same fault. If this Monitor passes for (3) consecutive trips, the MIL is turned off. If it passes for 40 warmup cycles under "similar conditions", the PCM will clear the code. If the engine does not run under these **similar conditions**, the code will be cleared after 80 warmup cycles if the same fault does not reappear. Fuel System Monitor Repair Verification An example of how to drive a vehicle to verify the repair of a trouble code related to the Fuel System Monitor on this vehicle application is shown in the Graphic below.

Repair Verification Graphic



Technical Service Bulletins:

There are currently no TSBs for P0171.

<p>P0174 Fuel System Too Lean (Cylinder Bank 2)</p>
<p>Conditions For Setting This Code:</p> <p>Engine started, engine running at cruise speed for 3 to 4 minutes, and the PCM detected the Bank 2 Adaptive Fuel Control System reached its rich correction limit (a lean A/F condition).</p>
<p>Possible Causes:</p> <p>Air leaks after the MAF sensor, or leaks in the PCV system Exhaust leaks before or near where the HO2S is mounted Fuel injector(s) restricted or not supplying enough fuel Fuel system not supplying enough fuel during high fuel demand conditions (e.g., the fuel pump may not supply enough fuel) Leaking EGR gasket, or leaking EGR valve diaphragm MAF sensor dirty (causes PCM to underestimate airflow) Vehicle running out of fuel or engine oil dip stick not seated TSB 1-20-5 contains a repair procedure for this trouble code</p>
<p>Repair Verification Process:</p> <p>This Monitor is a two-trip monitor that runs continuously whenever the engine is running in closed loop. The first time the PCM detects a Fuel Trim fault; the PCM sets a pending code and records the current vehicle conditions in Freeze Frame. If the same fault is detected on consecutive trips, the PCM turns on the MIL and sets a diagnostic trouble code. This OBD II Monitor uses a unique set of rules to turn off the MIL. The engine must be running with the engine speed and load in a similar range to when the trouble code first set before the PCM will retest the same fault. If this Monitor passes for (3) consecutive trips, the MIL is turned off. If it passes for 40 warmup cycles under "similar conditions", the PCM will clear the code. If the engine does not run under these similar conditions, the code will be cleared after 80 warmup cycles if the same fault does not reappear. Fuel System Monitor Repair Verification An example of how to drive a vehicle to verify the repair of a trouble code related to the Fuel System Monitor on this vehicle application is shown in the Graphic below.</p> <p>Repair Verification Graphic</p> <div data-bbox="251 1375 1071 1774"> <p>FUEL SYSTEM MONIOR REPAIR VERIFICATION TRIP</p> <p>Start engine & drive vehicle for 7 minutes - 6 minutes in stop & go traffic including at least 1 idle period.</p> <p>Then accelerate to over 45 mph (to over 35 mph on Escort / Tracer at over 1/2 throttle) and hold that speed for over 1 minute.</p> <p>Complete preparation steps (IAT 50-100° & ECT over 130°F). Monitor the Scan Tool to verify Fuel System Monitor completes.</p> <p>IAT & ECT Inputs</p> <p>Time (minutes)</p> <p>Idle Period</p> <p>Key Off</p> <p>FORD</p> </div>

P0300 Random Misfire Detected

Conditions For Setting This Code:

DTC P0136, P0156, P0171, P0172, P0175, P1130 and P1150 not set, engine running under positive torque conditions, and the PCM detected a misfire in 1000 revolution (High Emissions) or the 200 revolution (Catalyst Damaging 1T) range in two or more cylinders. Note: If the misfire is severe, the MIL will flash on/off on the 1st trip!

Possible Causes:

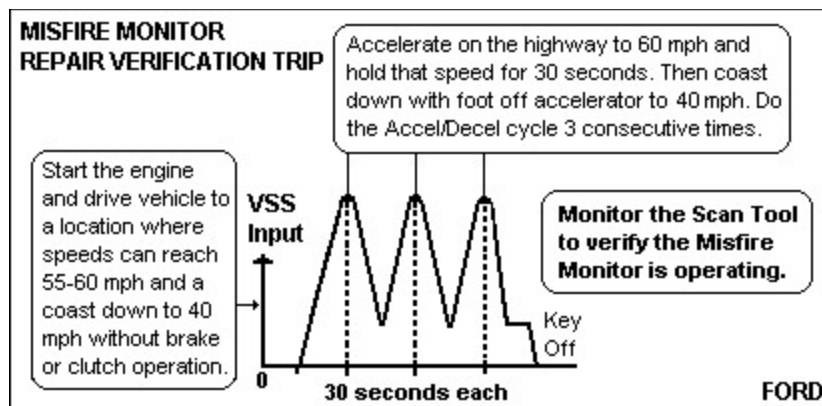
- Base engine mechanical fault that affects two or more cylinders
- Fuel metering fault that affects two or more cylinders
- Fuel pressure too low or too high, fuel supply contaminated
- EVAP system problem or the EVAP canister is fuel saturated
- EGR valve is stuck open or the PCV system has a vacuum leak
- Ignition system fault (coil, plug) affecting two or more cylinders
- MAF sensor contamination (it can cause a very lean condition)
- Vehicle driven while very low on fuel (less than 1/8 of a tank)

Repair Verification Process:

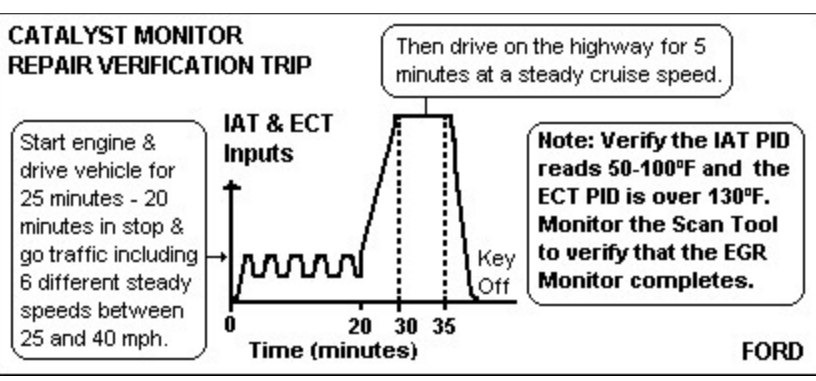
* Air Intake System is restricted, or there is a restriction in the Exhaust system * Base engine mechanical faults (valve train faults, excessive carbon buildup, low compression) * EGR system problems or component failures * Fuel pressure problems (fuel pressure too low or too high) * Fuel injector problems (fuel injectors contaminated, dirty, leaking, restricted or sticking) * Ignition System component faults (i.e., faulty coil, coil wire, spark plug or spark plug insulator) * Vehicle driven while low on fuel, or a vehicle run completely out of fuel

Misfire Detection Monitor Repair Verification An example of how to drive a vehicle to verify the repair of a trouble code related to the Misfire Detection Monitor on this vehicle application is shown in the Graphic below.

Repair Verification Graphic



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P0420 Catalyst System Efficiency Bank 1 Below Threshold
Conditions For Setting This Code:
Vehicle driven at steady cruise speed for 5 minutes, and the PCM detected the switch rate of the rear HO2S-12 was close to the switch rate of front HO2S (it should be much slower).
Possible Causes:
<p>Air leaks at the exhaust manifold or in the exhaust pipes</p> <p>Catalytic converter is damaged, contaminated or it has failed</p> <p>ECT/CHT sensor has lost its calibration (the signal is incorrect)</p> <p>Engine cylinders misfiring, or the ignition timing is over retarded</p> <p>Engine oil is contaminated</p> <p>Front HO2S or rear HO2S is contaminated with fuel or moisture</p> <p>Front HO2S and/or the rear HO2S is loose in the mounting hole</p> <p>Front HO2S much older than the rear HO2S (HO2S-11 is lazy)</p> <p>Fuel system pressure is too high (check the pressure regulator)</p> <p>Rear HO2S wires improperly connected or the HO2S has failed</p>
Repair Verification Process:
<p>To verify a repair related to the Catalyst Efficiency Monitor has been completed, follow these instructions. Start the engine with the ambient air temperature over 50°F prior to startup. Then drive the vehicle in stop and go traffic for over 20 minutes. Continue to drive at a speed of 25-40 mph, followed by a period where the vehicle is driven at cruise speed for at least five minutes.</p>
Repair Verification Graphic
<div style="border: 1px solid black; padding: 10px;"> <p>CATALYST MONITOR REPAIR VERIFICATION TRIP</p>  <p>Start engine & drive vehicle for 25 minutes - 20 minutes in stop & go traffic including 6 different steady speeds between 25 and 40 mph.</p> <p>Then drive on the highway for 5 minutes at a steady cruise speed.</p> <p>Note: Verify the IAT PID reads 50-100°F and the ECT PID is over 130°F. Monitor the Scan Tool to verify that the EGR Monitor completes.</p> <p style="text-align: right;">FORD</p> </div>

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P2196 Lack of HO2S-21 Switching, Sensor Indicates Rich

Conditions For Setting This Code:

DTC P0300-P0310 not set, engine running in closed loop, and the PCM detected the HO2S indicated a rich signal, or it could no longer control Fuel Trim because it was at its rich limit.

Possible Causes:

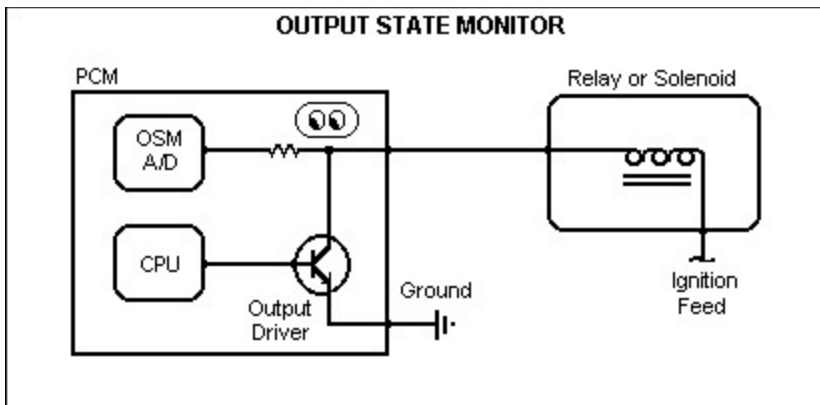
Base engine problems: engine oil level high, camshaft timing error, cylinder compression low, exhaust leaks in front of HO2S

Fuel System problem: excessive fuel pressure, leaking fuel injectors, fuel pressure regulator leaking

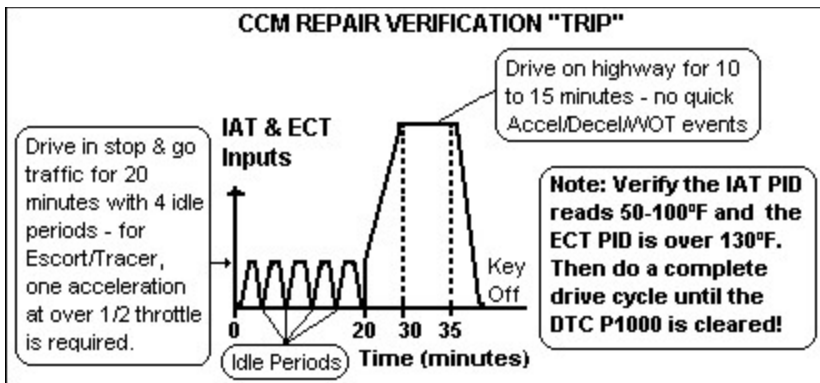
HO2S problems: HO2S circuit is open or shorted in the wiring harness, the HO2S signal circuit is contacting moisture in harness connector, or the HO2S is damaged or it has failed

Repair Verification Process:

During testing the control voltage of the device should be low with the device enabled, and high with it disabled. The output devices monitored by the CCM include the EPC, SS1, SS2, SS3, TCC, HFC, VMV, WOT A/C Cutout relay and the HO2S heater circuits. Freeze Frame Data The PCM stores the current operating conditions at the time a trouble code is set in a special portion of memory called Freeze Frame. This important information can be retrieved with an OBD II compatible Scan Tool, and can be used to help diagnose the cause of a trouble code related to this OBD II Monitor. Component Monitor Repair Verification An example of how to drive the vehicle to verify a trouble code related to the Component Monitor has been repaired properly is shown in the graphic below.



Repair Verification Graphic



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Pending Codes

P0171 Fuel System Too Lean (Cylinder Bank 1)

<p>Conditions For Setting This Code:</p> <p>Engine started, engine running at cruise speed for 3 to 4 minutes, and the PCM detected the Bank 1 Adaptive Fuel Control System reached its rich correction limit (a lean A/F condition).</p>
<p>Possible Causes:</p> <p>Air leaks after the MAF sensor, or leaks in the PCV system Exhaust leaks before or near where the HO2S is mounted Fuel injector(s) restricted or not supplying enough fuel Fuel pump not supplying enough fuel during high fuel demand conditions Leaking EGR gasket, or leaking EGR valve diaphragm MAF sensor dirty (causes PCM to underestimate airflow) Vehicle running out of fuel or engine oil dip stick not seated TSB 01-20-5 contains a repair procedure for this trouble code</p>
<p>Repair Verification Process:</p> <p>This Monitor is a two-trip monitor that runs continuously whenever the engine is running in closed loop. The first time the PCM detects a Fuel Trim fault; the PCM sets a pending code and records the current vehicle conditions in Freeze Frame. If the same fault is detected on consecutive trips, the PCM turns on the MIL and sets a diagnostic trouble code. This OBD II Monitor uses a unique set of rules to turn off the MIL. The engine must be running with the engine speed and load in a similar range to when the trouble code first set before the PCM will retest the same fault. If this Monitor passes for (3) consecutive trips, the MIL is turned off. If it passes for 40 warmup cycles under "similar conditions", the PCM will clear the code. If the engine does not run under these similar conditions, the code will be cleared after 80 warmup cycles if the same fault does not reappear. Fuel System Monitor Repair Verification An example of how to drive a vehicle to verify the repair of a trouble code related to the Fuel System Monitor on this vehicle application is shown in the Graphic below.</p> <p>Repair Verification Graphic</p>
<p>Technical Service Bulletins:</p> <p>There are currently no TSBs for P0171.</p>

P0174 Fuel System Too Lean (Cylinder Bank 2)
Conditions For Setting This Code:
Engine started, engine running at cruise speed for 3 to 4 minutes, and the PCM detected the Bank 2 Adaptive Fuel Control System reached its rich correction limit (a lean A/F condition).
Possible Causes:
Air leaks after the MAF sensor, or leaks in the PCV system Exhaust leaks before or near where the HO2S is mounted Fuel injector(s) restricted or not supplying enough fuel Fuel system not supplying enough fuel during high fuel demand conditions (e.g., the fuel pump may not supply enough fuel) Leaking EGR gasket, or leaking EGR valve diaphragm MAF sensor dirty (causes PCM to underestimate airflow) Vehicle running out of fuel or engine oil dip stick not seated TSB 1-20-5 contains a repair procedure for this trouble code
Repair Verification Process:
<p>This Monitor is a two-trip monitor that runs continuously whenever the engine is running in closed loop. The first time the PCM detects a Fuel Trim fault; the PCM sets a pending code and records the current vehicle conditions in Freeze Frame. If the same fault is detected on consecutive trips, the PCM turns on the MIL and sets a diagnostic trouble code. This OBD II Monitor uses a unique set of rules to turn off the MIL. The engine must be running with the engine speed and load in a similar range to when the trouble code first set before the PCM will retest the same fault. If this Monitor passes for (3) consecutive trips, the MIL is turned off. If it passes for 40 warmup cycles under "similar conditions", the PCM will clear the code. If the engine does not run under these similar conditions, the code will be cleared after 80 warmup cycles if the same fault does not reappear. Fuel System Monitor Repair Verification An example of how to drive a vehicle to verify the repair of a trouble code related to the Fuel System Monitor on this vehicle application is shown in the Graphic below.</p>
Repair Verification Graphic
<p>FUEL SYSTEM MONIOR REPAIR VERIFICATION TRIP</p> <p>Start engine & drive vehicle for 7 minutes - 6 minutes in stop & go traffic including at least 1 idle period.</p> <p>Then accelerate to over 45 mph (to over 35 mph on Escort / Tracer at over 1/2 throttle) and hold that speed for over 1 minute.</p> <p>Complete preparation steps (IAT 50-100° & ECT over 130°F). Monitor the Scan Tool to verify Fuel System Monitor completes.</p> <p>Key Off</p> <p>Time (minutes)</p> <p>FORD</p>

Freeze Frame Information

Parameter Description	Results
DTC for which Freeze Frame was Stored	P0171
Fuel System 1 Status	Closed Loop
Fuel System 2 Status	Not Supported
Calculated LOAD Value	94.51 %
Engine Coolant Temp	176.00 °F
Short Term Fuel Trim - Bank 1	2.34 %
Long Term Fuel Trim - Bank 1	-0.78 %
Short Term Fuel Trim - Bank 2	0.00 %
Long Term Fuel Trim - Bank 2	0.00 %
Engine RPM	2,062.25 rpm
Vehicle Speed Sensor	29.83 mph
Ignition Timing Advance #1 Cylinder	13.50 °
Intake Air Temperature	122.00 °F
Air Flow Rate Mass Air Flow Sensor	4.89 lb/min
Absolute Throttle Position	38.04 %
Oxygen Sensor Output Voltage (B1-S1)	0.12 V
Short Term Fuel Trim (B1-S1)	1.56 %
Oxygen Sensor Output Voltage (B1-S2)	0.06 V
Short Term Fuel Trim (B1-S2)	99.22 %
Oxygen Sensor Output Voltage (B2-S1)	0.57 V
Short Term Fuel Trim (B2-S1)	2.34 %
Oxygen Sensor Output Voltage (B2-S2)	0.11 V
Short Term Fuel Trim (B2-S2)	99.22 %
Time Since Engine Start	107 sec

Monitor Status

Monitor Name	Monitor Icon	Status
MIL (Check Engine Light)		ON
Misfire Monitoring		Complete
Fuel System Monitoring		Complete
Comprehensive Component Monitoring		Complete
Catalyst Monitoring		Complete
Heated Catalyst Monitoring		Not Supported
Evaporative System Monitoring		Complete
NMHC Monitoring		Not Supported
NOxAdsorber Monitoring		Not Supported
Secondary Air System Monitoring		Not Supported
Oxygen Sensor Monitoring		Complete
Oxygen Sensor Heater Monitoring		Complete
EGR System Monitoring		Complete
Boost Pressure System Monitoring		Not Supported
Exhaust Gas Sensor Monitoring		Not Supported
PM Filter Monitoring		Not Supported