**MT05.3-Euro V Single cylinder**

**OBD communication protocol(s) supported:**

**ISO 15765-4:2011: ‘Road vehicles — Diagnostics on Controller Area Network (CAN) — Part 4: Requirements for emission-related systems’, dated 1 November 2001**

**Service 01**

|  |  |
| --- | --- |
| **PID** | **Description** |
| **01** | **Monitor status since DTCs cleared** **MIL, # of DTC’s**  **Number of Emission D.T.C.(s)**  **MIL Status** **Continuous Diagnostic Test Supported**  **Misfire Monitoring**  **Fuel System Monitoring**  **Comprehensive Component Monitoring**  **Reserved/J1979**  **Misfire Monitoring Tests Complete = 0** **Fuel System Monitoring Tests Complete = 0**  **Comprehensive Component Monitoring Tests Complete = 0**  **Reserved/J1979** **Non-Continuous Test Supported**  **Enhanced Evaporative Purge System**  **Oxygen Sensor**  **Oxygen Sensor Heater** **Non-Continuous Test Results**  **Enhanced Evaporative Purge System Test Complete**  **Oxygen Sensor Test Complete**  **Oxygen Sensor Heater Test Complete**  |
| **03** | **Current Fuel System Status (Fuel System. 1)** |
| **04** | **Current Calculated Load value** |
| **05** | **Current Undefaulted Coolant Temperature** |
| **06** | **Current Short Term Fuel Trim (Bank 1)** |
| **07** | **Current Long Term Fuel Trim (Bank 1)** |
| **0B** | **Current Undefaulted Manifold Absolute Pressure** |
| **0C** | **Current Undefaulted Engine RPM** |
| **0D** | **Current Undefaulted Vehicle Speed** |
| **0E** | **Current Commanded Ignition timing advance Cyl#1** |
| **0F** | **Current Undefaulted Intake Air Temperature** |
| **11** | **Current Undefaulted Absolute Throttle Position A** |
| **13** | **Location of Manufacturer equipped O2 sensors** |
| **14** | **(B1-S1) Undefaulted O2 Voltage** **(B1-S1) Short Term Fuel Trim** |
| **1C** | **On-board Diagnostic System type** |
| **1F** | **Time Since Engine Start** |
| **20** | **Supported Mode 1 PIDS $21- $40** |
| **21** | **MIL On Odometer** |
| **2F** | **Fuel Level Input** |
| **33** | **Barometric Pressure** |
| **40** | **Supported Mode 1 PIDS $41- $60** |
| **4D** | **Time run by the engine while MIL is activated** |
| **51** | **Type of fuel currently being** **utilized by the vehicle** |
| **60** | **Supported Mode 1 PIDS $61- $80** |
| **7F** | **Support of Engine Run Time** **Total Engine Run Time** **Total Idle Run Time** **Total Run Time With PTO Active** |

**Service 02**

|  |  |
| --- | --- |
| **Outputs** | **Description** |
| **02**  | **Failure ID** |
| **03**  | **Current Fuel System Status (Fuel System. 1)** |
| **04**  | **Current Calculated Load value** |
| **05** | **Current Undefaulted Coolant Temperature** |
| **07** | **Current Long Term Fuel Trim – (Bank 1)** |
| **0B** | **Current Undefaulted Manifold Absolute Pressure** |
| **0C** | **Current Undefaulted Engine RPM** |
| **0D** | **Current Undefaulted Vehicle Speed** |
| **11** | **Current Undefaulted Absolute Throttle Position A** |
| **7F** | **Support of Engine Run Time** **Total Engine Run Time** **Total Idle Run Time** **Total Run Time With PTO Active** |

**Service 03**

|  |  |  |  |
| --- | --- | --- | --- |
| **Fault****Code** | **Description of DTC** | **Class** | **Active MIL** |
| P 0118 | Engine Coolant Temperature Sensor Circuit High / Open Circuit | 2 | √ |
| P 0117 | Engine Coolant Temperature Sensor Circuit Low | 2 | √ |
| P 0116 | Engine Coolant Temperature Sensor signal performance | 2 | √ |
| P 1116 | Engine Coolant Temperature Sensor signal out of range | 2 | √ |
| P 0335 | Crankshaft Position Sensor "A" Circuit | 1 | √ |
| P 2301 | Ignition Coil "A" Primary Control Circuit High | 1 | √ |
| P 2300 | Ignition Coil "A" Primary Control Circuit Low / Open Circuit | 1 | √ |
| P 0123 | Throttle Position Sensor/Switch "A" Circuit High | 1 | √ |
| P 0122 | Throttle Position Sensor/Switch "A" Circuit Low / Open Circuit | 1 | √ |
| P 0232 | Fuel Pump circuit short High | 1 | √ |
| P 0231 | Fuel Pump circuit short Low / Open Circuit | 1 | √ |
| P 0601 | Internal Control Module Memory Checksum Error | 1 | √ |
| P 0262 | Cylinder 1 Fuel Injector "A" Circuit High | 1 | √ |
| P 0261 | Cylinder 1 Fuel Injector "A" Circuit Low / Open Circuit | 1 | √ |
| P 0108 | Manifold Absolute Pressure Sensor Circuit High | 1 | √ |
| P 0107 | Manifold Absolute Pressure Sensor Circuit Low/Open Circuit | 1 | √ |
| P 3106 | Manifold Absolute Pressure Sensor rationality at low TPS | 2 | √ |
| P 0105 | Manifold Absolute Pressure Sensor signal stuck | 2 | √ |
| P 0113 | Intake Air Temperature Sensor Circuit High / Open Circuit | 1 | √ |
| P 0112 | Intake Air Temperature Sensor Circuit Low | 1 | √ |
| P 0111 | Intake Air Temperature Sensor signal stuck | 2 | √ |
| P 0114 | Intake Air Temperature Sensor Circuit Intermittent | 2 | √ |
| P 0132 | O2 Sensor Circuit High Voltage Bank 1 Sensor 1 | 2 | √ |
| P 0131 | O2 Sensor Circuit Low Voltage Bank 1 Sensor 1 / Open Circuit | 2 | √ |
| P 2195 | O2 Sensor Signal Lean at PE Bank 1 Sensor 1 | 2 | √ |
| P 014D | O2 Sensor Slow Response - Lean to Rich Bank 1 Sensor 1 | 3 | √ |
| P 014C | O2 Sensor Slow Response - Rich to Lean Bank 1 Sensor 1 | 3 | √ |
| P 0031 | O2 Sensor Heater Control Circuit Low Bank 1 Sensor 1 / Open Circuit | 1 | √ |
| P 0032 | O2 Sensor Heater Control Circuit High Bank 1 Sensor 1 | 1 | √ |
| P 00D1 | O2 Sensor Heater current low Bank 1 Sensor 1 | 2 | √ |
| P 0301 | Cylinder 1 Misfire Detected | 3 | √ |
| P 0500 | Vehicle Speed Sensor "A" Circuit | 2 | √ |
| P 0505 | Idle air control system error | 2 | √ |

**Service 06**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **MID**  | **TID** | **Component**  | **Parameter**  | **Min/Max Test** **limit** | **Description**  |
| **$01** | **$05** | **O2 Bank-1 Sensor-1** | **Rich to Lean sensor** **Switch Time (calculated)** | **Min: 0** **Max: calibrated** | **average switch-time from** **Rich to Lean** |
| **$01** | **$06** | **O2 Bank-1 Sensor-1** | **Lean to Rich sensor** **Switch Time (calculated)** | **Min: 0** **Max: calibrated** | **average switch-time from** **Lean to Rich** |
| **$41** | **$B1** | **O2 Bank-1 Sensor-1** | **O2 Under Heate** | **Min: calculated** **Max: 65535**  | **Under Heat** |
| **$A2** | **$0B** | **Misfire** **Cylinder-1** | **EWMA Exponential** **Weighted Moving** **Average Misfire Counts** **(calculated)** | **Min: 0** **Max: FFFF** | **EWMA Exponential** **Weighted Moving Average** **Misfire Counts for last 10** **driving cycles** |
| **$A2** | **$0C** | **Misfire** **Cylinder-1** | **Misfire Counts** **(calculated)** | **Min: 0** **Max: FFFF** | **Misfire Counts for** **last/current driving cycle** |

|  |  |  |
| --- | --- | --- |
| **Info Type** | **Description** | **Size in Byte** |
| **04** | **Calibration ID’s** **Calibration characters are ASCII** | **16** |
| **06** | **Calibration Verification Number**  **of calibration area** | **4** |
| **08** | **In-use Performance Tracking：** | **8** |
| **OBD Monitoring Conditions Encountered Counts**  | **2** |
| **Ignition Counter 2 counts**  | **2** |
| **Front O2 Sensor Monitor Completion Counts Bank 1** | **2** |
| **Front O2 Sensor Monitor Conditions Encountered Counts Bank 1** | **2** |

**Service 09**