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| Vehicle Information   | Customer Information                             |
|---|--|
| 2018 FORD EXPLORER V6, 3.5L; DOHC; 24V; DI; TURBO<br>VIN: 1FM5K8HT4JGA75690 Odometer: 29855 miles<br>Module No: N/A Battery Voltage: N/A<br>CallID: N/A<br>CVN: N/A | Customer: N/A<br>Phone Number: N/A<br>Email: N/A |

**Powertrain**

MIL ON | UT - DA - Emission Readiness Not Complete

| Confirmed/MIL DTC                 |
|-----------------------------------|
| P0302 Cylinder 2 Misfire Detected |

| Fix for DTC   |  |                                    |   |                      |
|---|--|------------------------------------|---|----------------------|
| <table border="0" style="width: 100%;"> <tr> <td style="width: 70%;">Most Likely Component/System Cause for DTC</td> <td>Ignition Coil(s) and Spark Plug(s)</td> </tr> <tr> <td>Second Most Likely Component/System Cause for DTC</td> <td>Ignition Coil Wiring</td> </tr> </table>   | Most Likely Component/System Cause for DTC | Ignition Coil(s) and Spark Plug(s) | Second Most Likely Component/System Cause for DTC | Ignition Coil Wiring |
| Most Likely Component/System Cause for DTC  | Ignition Coil(s) and Spark Plug(s)         |                                    |   |                      |
| Second Most Likely Component/System Cause for DTC   | Ignition Coil Wiring                       |                                    |   |                      |
| <p><b>Repair Tip</b></p> <p>Initial Inspection</p> <p style="text-align: center;">During your initial inspection, check for torn inlet boots, missing or broken vacuum tees, corrosion on connectors, frayed wiring, and damaged terminals. Ensure Ignition Coil wire(s) fit tightly on Spark Plugs and coil(s) fit properly into the valve cover, cylinder head, and Spark Plug(s). Look for a leaking head gasket, flat camshaft, low compression or defective oil piston rings. With the engine idling, spray a fine water mist across the wires and coil to check for arcing or RPM change. For additional information, refer to the Service Manual or applicable Technical Service Bulletin (TSB).</p> <p>Possible Cause</p> <ul style="list-style-type: none"> <li>- Faulty Ignition Coil and Spark Plug</li> <li>- Faulty Fuel Injector</li> </ul> |  |                                    |   |                      |

## Diagnostic Procedure

1. Inspect the Ignition Coil and Spark Plug (Cylinder 02)
  - a. Turn the ignition to the OFF position. Disconnect the ignition coil connectors and turn the ignition to the Key ON Engine OFF (KOEO) position. Using a Digital Multimeter (DMM), measure the voltage between Pin 3 (Violet) and the body ground. The voltage should be the Battery Voltage.
    - If the voltage is out of specification, repair the wiring between the ignition coils and fuse number 4. Perform Repair Validation.
      - If the voltage is within specification, go to Step 1b.
  - b. Remove the ignition coil(s) from the cylinder(s) identified by the Diagnostic Trouble Code (DTC). Move the ignition coil to another cylinder. Perform Repair Validation.
    - If a DTC is set for the cylinder where the ignition coil was moved, replace the ignition coil(s). Perform Repair Validation.
      - If the same DTC is set, go to Step 1c.
  - c. Remove the spark plug and inspect it. The spark gap should be 0.032–0.038 in (0.81–0.97 mm). Perform a quick compression check to determine if the compression is the root cause. Then, follow the appropriate diagnostic procedure and repair as specified. If compression, spark plug, and gap are good, move the spark plug to another cylinder. Perform Repair Validation.
    - If a DTC is set for the cylinder where the spark plug was moved, replace the spark plug. Perform Repair Validation.
      - If the same DTC is set, go to Step 2.
2. Inspect the Fuel Injector (Cylinder 02)
  - a. Turn the ignition to the OFF position and disconnect the fuel injector connector. Using a DMM, measure the fuel injector resistance. Resistance should be 1–3 Ohms at 68°F (20°C).
    - If resistance is out of specification, replace the fuel injector. Perform Repair Validation.
      - If resistance is within specification, go to Step 2b.
  - c. Turn the ignition to the Key ON Engine RUNNING (KOER). Using a mechanical ear (stethoscope), listen for the fuel injector clicking.
    - If the fuel injector is not clicking, replace the fuel injector. Perform Repair Validation.
- If the fuel injector is clicking, inspect for a vacuum leak. If none are found, go to Step 2c.
  - d. No fault is present, perform Repair Validation. If the DTC is set, go to Step 1.
    1. Clear DTC(s) and Freeze Frame (FF) information.
    2. Perform the KOEO and KOER tests or follow the On-Board Diagnostics (OBD2) drive cycle requirements for the fault area.
    3. An optional method to validate the repair would be to operate the vehicle within the conditions recorded in the FF data.
    4. Check for pending or confirmed DTC(s). If none is found, the repair is complete.

## Repair Validation

Third Most Likely Component/System Cause for DTC

Fuel Pump

## Repair Tip

Initial Inspection

During your initial inspection, check for torn inlet boots, missing or broken vacuum tees, corrosion on connectors, frayed wiring, and damaged terminals. Ensure Ignition Coil wire(s) fit tightly on Spark Plugs and coil(s) fit properly into the valve cover, cylinder head, and Spark Plug(s). Look for a leaking head gasket, flat camshaft, low compression or defective oil piston rings. With the engine idling, spray a fine water mist across the wires and coil to check for arcing or RPM change. For additional information, refer to the Service Manual or applicable Technical Service Bulletin (TSB).

Possible Cause

- Faulty Ignition Coil and Spark Plug
- Faulty Fuel Injector

1. Inspect the Ignition Coil and Spark Plug (Cylinder 02)
  - a. Turn the ignition to the OFF position. Disconnect the ignition coil connectors and turn the ignition to the Key ON Engine OFF (KOEO) position. Using a Digital Multimeter (DMM), measure the voltage between Pin 3 (Violet) and the body ground. The voltage should be the Battery Voltage .
    - If the voltage is out of specification, repair the wiring between the ignition coils and fuse number 4. Perform Repair Validation.
      - If the voltage is within specification, go to Step 1b.
  - b. Remove the ignition coil(s) from the cylinder(s) identified by the Diagnostic Trouble Code (DTC). Move the ignition coil to another cylinder. Perform Repair Validation.
    - If a DTC is set for the cylinder where the ignition coil was moved, replace the ignition coil(s). Perform Repair Validation.
      - If the same DTC is set, go to Step 1c.
  - c. Remove the spark plug and inspect it. The spark gap should be 0.049–0.053 in (1.25–1.35 mm). Perform a quick compression check to determine if the compression is the root cause. Then, follow the appropriate diagnostic procedure and repair as specified. If compression, spark plug, and gap are good, move the spark plug to another cylinder. Perform Repair Validation.
    - If a DTC is set for the cylinder where the spark plug was moved, replace the spark plug. Perform Repair Validation.
      - If the same DTC is set, go to Step 2.
2. Inspect the Fuel Injector (Cylinder 02)
  - a. Remove each fuel injector harness connector. Install a noid light. Start and idle the engine. The light should flash as the Electronic Control Unit (ECU) pulses the injector.
    - If the noid light flashes, go to Step 2b.
    - If the noid light does not flash, inspect for a shorted or open circuit or a defective ECU.
  - b. Turn the ignition to the OFF position and disconnect the fuel injector connector. Using a DMM, measure the fuel injector resistance. Resistance should be 11–18 Ohms at 68°F (20°C).
    - If resistance is out of specification, replace the fuel injector. Perform Repair Validation.
      - If resistance is within specification, go to Step 2c.
  - c. Turn the ignition to the Key ON Engine RUNNING (KOER). Using a mechanical ear (stethoscope), listen for the fuel injector clicking.
    - If the fuel injector is not clicking, replace the fuel injector. Perform Repair Validation.
- If the fuel injector is clicking, inspect for a vacuum leak. If none are found, go to Step 2d.
  - d. No fault is present, perform Repair Validation. If the DTC is set, go to Step 1.
    1. Clear DTC(s) and Freeze Frame (FF) information.
    2. Perform the KOEO and KOER tests or follow the On-Board Diagnostics (OBD2) drive cycle requirements for the fault area.
    3. An optional method to validate the repair would be to operate the vehicle within the conditions recorded in the FF data.
    4. Check for pending or confirmed DTC(s). If none is found, the repair is complete.

## Repair Validation

**Confirmed DTC**

|       |  |
|-------|--|
| P0010 | A Camshaft Position Actuator "A" Control Circuit/Open Bank 1 |
| P1140 | Water In Fuel Condition                                      |

**Pending DTC**

|       |  |
|-------|--|
| P0110 | Intake Air Temperature Sensor 1 Circuit (Bank 1)                       |
| P0120 | Throttle/Pedal Position Sensor/Switch "A" Circuit                      |
| P0302 | Cylinder 2 Misfire Detected  |
| P1233 | Fuel Pump Driver Module Disabled Or Off Line (Fuel Pump Driver Module) |

**Permanent DTC**

|       |   |
|-------|---|
| P100A | Alternative Fuel Rail Pressure Sensor B Circuit |
|-------|---|

**Monitor Status - Since DTCs Cleared**

|                                       |                            |                              |                            |
|---------------------------------------|----------------------------|------------------------------|----------------------------|
| Misfire Monitor                       | <b>Complete</b>            | Fuel System Monitor          | <b>Complete</b>            |
| Comprehensive Component Monitor (CCM) | <b>Complete</b>            | EGR System Monitor           | <b><u>Not Complete</u></b> |
| Catalyst Monitor                      | <b>Complete</b>            | Heated Catalyst Monitor      | <b><u>Not Complete</u></b> |
| EVAP System Monitor                   | <b><u>Not Complete</u></b> | Secondary Air System Monitor | <b><u>Not Complete</u></b> |
| Oxygen Sensor Monitor                 | <b><u>Not Complete</u></b> | Oxygen Sensor Heater Monitor | <b><u>Not Complete</u></b> |

\* **RED** = Status Bad, \* **GREEN** = Status Good, \* **Underlined** items indicate service required.

## Freeze Frame

|   |            |  |               |
|---|------------|--|---------------|
| Fuel Sys 1<br>Fuel System 1 Status                          | OL         | Fuel Sys 2<br>Fuel System 2 Status   | N/A           |
| Calc Load<br>Calculated Load Value                          | 0.0 (%)    | ECT<br>Engine Coolant Temp   | 0 (°F)        |
| STFT B1<br>Short Term Fuel Trim - Bank 1                    | 0.0 (%)    | LTFT B1<br>Long Term Fuel Trim - Bank 1                                      | 0.0 (%)       |
| MAP<br>Intake Manifold Absolute Pressure                    | 36 (inHg)  | Eng RPM<br>Engine RPM  | 0             |
| Veh Speed<br>Vehicle Speed Sensor                           | 0 (mph)    | Spark Adv<br>Ignition Timing Advance #1 Cylinder                             | 10.0 (°)      |
| IAT<br>Intake Air Temperature                               | -40 (°F)   | MAF<br>Air Flow Rate From Mass Air Flow Sensor                               | 0.00 (lb/min) |
| TPS<br>Absolute Throttle Position                           | 98.4 (%)   | O2S B1 S2<br>Oxygen Sensor Output Voltage Bank 1 - Sensor 2                  | 1.275 (V)     |
| STFT B1 S2<br>Short Term Fuel Trim Bank 1 - Sensor 2        | 99.2 (%)   | Run Time<br>Time Since Engine Start  | 0 (sec)       |
| Command EGR<br>Commanded EGR                                | 0.0 (%)    | Command EVAP<br>Commanded Evaporative Purge                                  | 0.0 (%)       |
| Fuel Level<br>Fuel Level Input                              | 0.0 (%)    | Warm-up DTC Clr<br>Number Of Warm-Ups Since Diagnostic Trouble Codes Cleared | 0             |
| Clr Dist<br>Distance Since Diagnostic Trouble Codes Cleared | 0 (miles)  | EVAP_VP<br>EVAP System Vapor Pressure  | 0.0 (InH2O)   |
| BARO<br>Barometric Pressure                                 | 27 (inHg)  | LAMBDA B1 S1<br>Equivalence Ratio (Lambda) Bank 1 - Sensor 1                 | 0.000         |
| O2S B1 S1<br>Oxygen Sensor Output Voltage Bank 1 - Sensor 1 | 0.00 (mA)  | CAT Te 11<br>Catalyst Temperature Bank 1 Sensor 1                            | 0 (°F)        |
| ECU Volts<br>Control Module Voltage                         | 11.143 (V) | LOAD Value<br>Absolute Load Value  | 0.0 (%)       |
| EQ Ratio<br>Commanded Equivalence Ratio                     | 1.049      | Rel TPS<br>Relative Throttle Position  | 86.3 (%)      |
| Ambient<br>Ambient Air Temperature                          | 0 (°F)     | TPS B<br>Absolute Throttle Position B  | 99.2 (%)      |
| ACC Pedal D<br>Accelerator Pedal Position D                 | 0.0 (%)    | ACC Pedal E<br>Accelerator Pedal Position E                                  | 0.4 (%)       |
| Command TAC<br>Commanded Throttle Actuator Control          | 9.4 (%)    |  |               |

## Scheduled Maintenance

### Recommended Maintenance

|  |          |
|--|----------|
| Inspect Horn, Lights, A/C & Heater For Proper Operation                | \$75.16  |
| Change Engine Oil and Filter   | \$165.65 |
| Inspect Driveshaft & Related Components                                | \$13.56  |
| Inspect Seat Belts & Related Components                                | \$84.12  |
| Inspect Wiper & Washer System  | \$7.20   |
| Inspect Cooling System, Hoses and Clamps.                              | \$37.00  |
| Lube Lock Cylinders, Latches, Hinges & Pivots                          | \$68.52  |
| Inspect Exhaust System   | \$0.00   |
| Inspect Wheels For End Play & Noise                                    | \$408.00 |
| Inspect Tire Wear and Adjust Tire Pressure                             | \$0.00   |
| Rotate Tires, Inspect Tire Wear, and Adjust Tire Pressure.             | \$0.00   |
| Inspect Battery Performance  | \$0.00   |
| Inspect Windshield   | \$0.00   |
| Inspect Front and Rear Axle Play, Seals, Ball Joints, and Tie Rod Ends | \$120.74 |
| Inspect Weatherstripping   | \$0.00   |
| Inspect Drive/Accessory Belt(s) and Tension.                           | \$49.60  |
| Perform a multi-point inspection                                       | \$0.00   |
| Inspect Interior/Exterior Lights & Electrical Components               | \$31.71  |
| Reset Engine Oil Life Indicator  | \$0.00   |
| Inspect Body Drains for Debris or Obstruction                          | \$0.00   |
| Inspect For Fluid Leaks  | \$37.00  |
| Inspect Parking Brake Operation & Tension                              | \$133.65 |
| Inspect Driving Hazard Alert System Operation                          | \$0.00   |
| Inspect Fluid Levels   | \$37.00  |
| Inspect Brake System, Friction Material and Hydraulic System.          | \$123.20 |
| Inspect Operation of Horn, Lights & Turn Signals                       | \$0.00   |
| Inspect Steering & Suspension Components                               | \$27.00  |
| Inspect Automatic Transmission Fluid Level & Condition                 | \$0.00   |
| Inspect Intake System & Engine Air Filter                              | \$31.88  |
| Inspect Warning System Operation                                       | \$0.00   |
| Inspect Battery Condition & Charge                                     | \$230.94 |
| Replace Engine Air Filter  | \$100.85 |

## Predicted Failures

| Predicted Failure(s) within 12 months                             | Probability of Failure |
|---|------------------------|
| Replace Oxygen Sensor(s) (O2S)                                    | 40%                    |
| Replace Ignition Coil(s) and Spark Plug(s)                        | 11%                    |
| Replace Crankshaft Position Sensor (CKP)                          | 11%                    |
| Replace Evaporative Emissions (EVAP) Canister Purge Control Valve | 5%                     |

## Warranty Status

### May Be Covered

|  |                                 |
|--|---------------------------------|
| Roadside Assistance Warranty                           | Up to 60 months or 60000 miles  |
| Powertrain Warranty                                    | Up to 60 months or 60000 miles  |
| Anti Perforation Limited Warranty Covered              | Lifetime Warranty               |
| Supplemental Restraint System Limited Warranty Covered | Lifetime Warranty               |
| Original Equipment Tire Limited Warranty Covered       | Lifetime Warranty               |
| Seat Belt Limited Warranty Covered                     | Lifetime Warranty               |
| Air Conditioner Refrigerant Charge Warranty Covered    | Lifetime Warranty               |
| Tire Warranty Covered                                  | Lifetime Warranty               |
| Emission Warranty Covered                              | Up to 96 months or 80000 miles  |
| Corrosion Coverage Warranty                            | Up to 60 months or 0 miles      |
| Electric/Hybrid Warranty Covered                       | Up to 96 months or 100000 miles |
| Rust Perforation Limited Warranty Covered              | Lifetime Warranty               |
| Two Year Unlimited Milesage Limited Warranty Covered   | Lifetime Warranty               |
| Basic Warranty   | Up to 36 months or 36000 miles  |
| Parts Limited Warranty Covered                         | Lifetime Warranty               |
| Paint Surface Warranty Covered                         | Lifetime Warranty               |
| Replacement Battery Limited Warranty Covered           | Lifetime Warranty               |
| Replacement 12-Volt Battery Limited Warranty Covered   | Lifetime Warranty               |
| Accessory Limited Warranty Covered                     | Lifetime Warranty               |
| Hybrid System Warranty Covered                         | Up to 96 months or 100000 miles |