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2019 Ford Explorer Service and Repair Manual

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- Start the engine.
- Using the diagnostic scan tool, view PCM (powertrain control module) Parameter Identifications (PIDs).
- Monitor the EFCV_A_MON_STAT PID (parameter identification) .
- Using the PID (parameter identification) EFCV_A_CMD open the exhaust tailpipe actuator in 10% increments until it has reached 100% (fully open).
- Using the PID (parameter identification) EFCV_A_CMD close the exhaust tailpipe actuator in 10% increments until it has reached 0% (fully closed).

Does the EFCV_A_MON_STAT PID (parameter identification) display a mechanical fault?

| | |
|------------|---------------------------|
| Yes | GO to AA3 |
|------------|---------------------------|

| | |
|-----------|---|
| No | The system is operating correctly at this time. The DTC (diagnostic trouble code) may have been set as a result of a temporary restriction caused by debris in the exhaust tailpipe actuator. |
|-----------|---|

AA3 REMOVE AND INSPECT THE RH (RIGHT-HAND) EXHAUST TAILPIPE ACTUATOR

- Remove and inspect the RH (right-hand) exhaust tailpipe actuator.
REFER to: [Exhaust Tailpipe Actuator - Raptor](#) (309-00C Exhaust System - 3.5L EcoBoost (BM), Removal and Installation).

Were there any problems identified during the inspection?

| | |
|------------|--|
| Yes | REPAIR as necessary. INSTALL the exhaust actuator and CHECK the system for normal operation. |
|------------|--|

| | |
|-----------|--|
| No | INSTALL a new exhaust tailpipe actuator. |
|-----------|--|

AA4 CHECK THE EXHAUST TAILPIPE ACTUATOR POWER

- Disconnect RH (right-hand) EXHAUST TAILPIPE ACTUATOR C4473 .
- Ignition ON.
- Measure and record:

| | | |
|---------------|----------------------|---------------|
| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|

| | | |
|---------|---|--------|
| C4473-4 |  | Ground |
|---------|---|--------|

Is any voltage present?

| | |
|------------|---------------------|
| Yes | REPAIR the circuit. |
|------------|---------------------|

| | |
|-----------|---------------------------|
| No | GO to AA6 |
|-----------|---------------------------|

AA6 CHECK THE RH (RIGHT-HAND) EXHAUST TAILPIPE ACTUATOR PWM (PULSE WIDTH MODULATION) CIRCUITS FOR A SHORT TO GROUND

- Ignition OFF.
- Measure:

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C4473-2 | Ω | Ground |
| C4473-4 | Ω | Ground |

Is the resistance greater than 10,000 ohms?

| | |
|------------|---------------------------|
| Yes | GO to AA7 |
|------------|---------------------------|

| | |
|-----------|---------------------|
| No | REPAIR the circuit. |
|-----------|---------------------|

AA7 CHECK THE RH (RIGHT-HAND) EXHAUST TAILPIPE ACTUATOR PWM (PULSE WIDTH MODULATION) CIRCUITS FOR AN OPEN

- Measure:

AA9 CHECK THE EXHAUST TAILPIPE ACTUATOR POWER CIRCUIT FOR A SHORT TO GROUND

- Disconnect LH (left-hand) EXHAUST TAILPIPE ACTUATOR C4474 .
- Measure:

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C4473-3 | Ω | Ground |

Is the resistance greater than 10,000 ohms?

Yes GO to [AA10](#)

No REPAIR the circuit.

AA10 CHECK THE RH (RIGHT-HAND) EXHAUST TAILPIPE ACTUATOR FOR INTERNAL SHORT

- Connect LH (left-hand) EXHAUST TAILPIPE ACTUATOR C4474 .
- Measure:

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C4473-3 | Ω | Ground |

Is the resistance greater than 10,000 ohms?

Yes INSTALL a new RH (right-hand) exhaust tailpipe actuator.
REFER to: [Exhaust Tailpipe Actuator - Raptor](#)
(309-00C Exhaust System - 3.5L EcoBoost (BM), Removal and Installation).

Normal Operation and Fault Conditions There is an exhaust tailpipe actuator in the muffler outlet pipe to control exhaust noise. The PCM (powertrain control module) uses a PWM (pulse width modulation) circuit to control the operation of the tailpipe actuator. A second PWM (pulse width modulation) circuit is used by the tailpipe actuator to relay actuator position and faults back to the PCM (powertrain control module). The PCM (powertrain control module) opens the actuators based on engine load, engine RPM (revolutions per minute) and vehicle speed. When the **exhaust mode** is in **Quiet** mode, the actuator is mostly closed (0 degrees). In **Normal and Sport** modes, the actuator partially opens (20-60 degrees) in partial throttle position. Putting the vehicle **exhaust mode** into **Baja, Track or Drag Strip** mode, forces the actuator to the full open position. Refer to the Owner's Literature for more information. **DTC Fault Trigger Conditions**

| DTC (diagnostic trouble code) | Description | Fault Trigger Condition |
|---|--|---|
| PCM (powertrain control module) P2BF8:00 | Exhaust Flow Control Valve 'B' Control Circuit/Open: No Sub Type Information | This DTC (diagnostic trouble code) sets when an open is detected on the LH (left-hand) exhaust tailpipe actuator control circuit. |
| PCM (powertrain control module) P2BF9:00 | Exhaust Flow Control Valve 'B' Control Circuit Low: No Sub Type Information | This DTC (diagnostic trouble code) sets when a short to ground is detected on the LH (left-hand) exhaust tailpipe actuator control circuit. |
| PCM (powertrain control module) P2BFA:00 | Exhaust Flow Control Valve 'B' Control Circuit High: No Sub Type Information | This DTC (diagnostic trouble code) sets when a short to voltage is detected on the LH (left-hand) exhaust tailpipe actuator control circuit. |
| PCM (powertrain control module) P2BFB:00 | Exhaust Flow Control Valve 'B' Control Performance: No Sub Type Information | This DTC (diagnostic trouble code) sets when the LH (left-hand) exhaust tailpipe actuator is stuck in the open, closed or in an unknown position. |
| PCM (powertrain control module) P2BFD:00 | Exhaust Flow Control Valve 'B' Position Circuit Range/Performance: No Sub Type Information | This DTC (diagnostic trouble code) sets when an circuit fault is detected on the LH (left-hand) exhaust actuator tailpipe feedback circuit. |

Possible Sources

- LH (left-hand) exhaust actuator

| | |
|-----------|---|
| No | The system is operating correctly at this time. The DTC (diagnostic trouble code) may have been set as a result of a temporary restriction caused by debris in the exhaust tailpipe actuator. |
|-----------|---|

AB3 REMOVE AND INSPECT THE LH (LEFT-HAND) EXHAUST TAILPIPE ACTUATOR

- Remove and inspect the LH (left-hand) exhaust tailpipe actuator.
REFER to: [Exhaust Tailpipe Actuator - Raptor](#)(309-00C Exhaust System - 3.5L EcoBoost (BM), Removal and Installation).

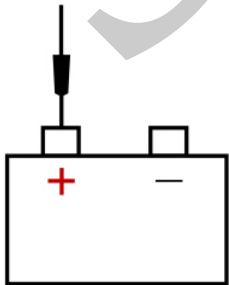

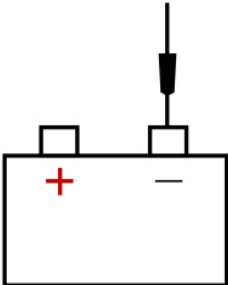
Were there any problems identified during the inspection?

| | |
|------------|---|
| Yes | REPAIR as necessary. INSTALL the exhaust tailpipe actuator and CHECK the system for normal operation. |
|------------|---|

| | |
|-----------|--|
| No | INSTALL a new exhaust tailpipe actuator. |
|-----------|--|

AB4 CHECK THE EXHAUST TAILPIPE ACTUATOR POWER

- Disconnect LH (left-hand) EXHAUST TAILPIPE ACTUATOR C4474 .
- Ignition ON.
- Measure and record:

| Positive Lead | Measurement / Action | Negative Lead |
|---|---|---|
|  |  |  |

- Measure:

AB6 CHECK THE LH (LEFT-HAND) EXHAUST TAILPIPE ACTUATOR PWM (PULSE WIDTH MODULATION) CIRCUITS FOR A SHORT TO GROUND

- Ignition OFF.
- Measure:

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C4474-2 | Ω | Ground |
| C4474-4 | Ω | Ground |

Is the resistance greater than 10,000 ohms?

Yes GO to [AB7](#)

No REPAIR the circuit.

AB7 CHECK THE LH (LEFT-HAND) EXHAUST TAILPIPE ACTUATOR PWM (PULSE WIDTH MODULATION) CIRCUITS FOR AN OPEN

- Measure:

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C4474-2 | Ω | C175T-82 |
| C4474-4 | Ω | C175T-84 |

Is the resistance less than 3 ohms?

Is the resistance greater than 10,000 ohms?

| | |
|------------|----------------------------|
| Yes | GO to AB10 |
|------------|----------------------------|

| | |
|-----------|---------------------|
| No | REPAIR the circuit. |
|-----------|---------------------|

AB10 CHECK THE LH (LEFT-HAND) EXHAUST TAILPIPE ACTUATOR FOR INTERNAL SHORT

- Connect RH (right-hand) EXHAUST TAILPIPE ACTUATOR C4473 .
- Measure:

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C4474-3 | Ω | Ground |

Is the resistance greater than 10,000 ohms?

| | |
|------------|---|
| Yes | INSTALL a new LH (left-hand) exhaust exhaust tailpipe actuator. REFER to: Exhaust Tailpipe Actuator - Raptor (309-00C Exhaust System - 3.5L EcoBoost (BM), Removal and Installation). |
|------------|---|

| | |
|-----------|----------------------------|
| No | GO to AB11 |
|-----------|----------------------------|

AB11 CHECK FOR CORRECT PCM (POWERTRAIN CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect the PCM (powertrain control module) connectors.
- Disconnect the LH (left-hand) exhaust tailpipe actuator connectors.
- Inspect all disconnected connectors for:
 - corrosion (install new connector or terminals – clean module pins)
 - damaged or bent pins – install new terminals/pins
 - pushed-out pins – install new pins as necessary
- Reconnect

Engine Starting Control System

| | |
|--|---|
| 303-14C Electronic Engine Controls - 3.5L EcoBoost (BM) | 2022 F-150 |
| Diagnosis and Testing | Procedure revision date: 10/7/2021 |

Engine Starting Control System

Diagnostic Trouble Code (DTC) Chart

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.

REFER to: [Diagnostic Methods](#)

(100-00 General Information, Description and Operation).

Diagnostic Trouble Code Chart

| Module | DTC (diagnostic trouble code) | Description | Action |
|---------------------------------|-------------------------------|---|--|
| PCM (powertrain control module) | P164C:00 | Internal Control Module Start-Stop Performance: No Sub Type Information | GO to Pinpoint Test AA |
| PCM (powertrain control module) | P168E:00 | Internal Control Module Monitoring of Engine Start Authorization: No Sub Type Information | GO to Pinpoint Test AA |

Global Customer Symptom Code (GCSC) Chart

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.

REFER to: [Diagnostic Methods](#)

(100-00 General Information, Description and Operation).

| | | |
|---|--|--|
| control module) P164C:00 | No Sub Type Information | Check for other Diagnostic Trouble Codes (DTCs) and diagnose those first. If no Diagnostic Trouble Codes (DTCs) are present, continue to follow diagnosis for this DTC (diagnostic trouble code) . |
| PCM (powertrain control module) P168E:00 | Internal Control Module Monitoring of Engine Start Authorization: No Sub Type Information | Sets when an error occurs in the PCM (powertrain control module) . This DTC (diagnostic trouble code) may be accompanied by other Diagnostic Trouble Codes (DTCs). Check for other DTCs and diagnose those first. If no other DTCs are present, continue to follow diagnosis for this DTC (diagnostic trouble code) . |

Possible Sources

- Aftermarket performance products
- Module programming error
- PCM (powertrain control module) configuration
- PCM (powertrain control module) (12A650)

Pinpoint Test Steps available in the on-line Workshop Manual.