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2020 Ford Edge Service and Repair Manual

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found:

- verify correct replacement module was installed
  - HVBOM may be used to verify correct part fitment
- verify the configuration of replacement module was correct
  - re-configure module using as-built data if prior configuration is suspect
- verify the module was not obtained from a like vehicle and installed into customer vehicle
  - return the swapped module to source vehicle and obtain new replacement module

- Operate the system and determine if the observable symptom is still present.

Is the observable symptom still present?

Yes	GO to Q8

No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

Q8 CHECK FOR CORRECT DC/DC CONVERTER CONTROL MODULE OPERATION

- Ignition OFF.
- Disconnect and inspect the DC/DC converter control module connector(s).
- Repair:
  - 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 the DC/DC converter control module connector(s). Make sure it seats and latches correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS (Online Automotive Service Information System) for any applicable service articles: TSB (Technical Service Bulletin) , GSB (General Service Bulletin) , SSM (special service message) or FSA (Field Service Action) . If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new DCACA (Direct Current/Alternating Current Converter Module A) . REFER to: Direct Current/Alternating Current (DC/AC) Inverter - Vehicles With: 110-120V 400W Pickup Bed Power Outlet (414-05 Voltage Converter/Inverter, Removal and Installation). REFER to: Direct Current/Alternating Current (DC/AC) Inverter - Vehicles With: 110-120V 2kW Pickup Bed Power Outlet

		network data from the BCM (body control module) .
PCM (powertrain control module) U0423:00	Invalid Data Received from Instrument Panel Cluster Control Module: No Sub Type Information	The PCM (powertrain control module) sets this DTC (diagnostic trouble code) when the PCM (powertrain control module) receives invalid network data from the IPC (instrument panel cluster) control module.
PCM (powertrain control module) U0554:00	Invalid Data Received From Accessory Protocol Interface Module: No Sub Type Information	The PCM (powertrain control module) sets this DTC (diagnostic trouble code) when the PCM (powertrain control module) receives invalid network data from the APIM (SYNC module) control module.
PCM (powertrain control module) U1011:00	Invalid Internal Control Module Monitoring Data Received from ECM/PCM: No Sub Type Information	The PCM (powertrain control module) sets this DTC (diagnostic trouble code) when the PCM (powertrain control module) receives invalid network data from the PCM (powertrain control module) .
PCM (powertrain control module) U1012:00	Invalid Internal Control Module Monitoring Data Received from Anti-Lock Brake System (ABS) Control Module: No Sub Type Information	The PCM (powertrain control module) sets this DTC (diagnostic trouble code) when the PCM (powertrain control module) receives invalid network data from the ABS (anti-lock brake system) module.
PCM (powertrain control module) U1022:00	Invalid Internal Control Module Monitoring Data Received from Body Control Module: No Sub Type Information	The PCM (powertrain control module) sets this DTC (diagnostic trouble code) when the PCM (powertrain control module) receives invalid network data from the BCM (body control module) .

Possible Sources

- Suspect Module

R1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE MODULE SENDING INVALID DATA

- Using a diagnostic scan tool, carry out the self-test for the module in question sending the invalid data.

Are any Diagnostic Trouble Codes (DTCs) present from the module sending the invalid data?

No	The system is operating correctly at this time. The DTC (diagnostic trouble code) may have been set due to a previous low battery voltage condition. CLEAR the DTC (diagnostic trouble code) .

S2 CHECK FOR CHARGING SYSTEM DIAGNOSTIC TROUBLE CODES (DTCS) SET IN OTHER MODULES

- Using a diagnostic scan tool, retrieve all Diagnostic Trouble Codes (DTCs).

Are any charging system Diagnostic Trouble Codes (DTCs) recorded?

Yes	DIAGNOSE the charging system concern. REFER to: Charging System - 3.3L Duratec-V6/5.0L 32V Ti-VCT (414-00 Charging System - General Information, Diagnosis and Testing).

No	GO to S3

S3 CHECK THE BATTERY CONDITION AND STATE OF CHARGE

- Check the battery condition and verify the battery is fully charged.
  REFER to: Battery(414-01 Battery, Mounting and Cables, Diagnosis and Testing).

Is the battery OK and fully charged?

Yes	GO to S4

No	If the battery is discharged, DIAGNOSE the cause of the low battery condition. REFER to: Charging System - 3.3L Duratec-V6/5.0L 32V Ti-VCT (414-00 Charging System - General Information, Diagnosis and Testing). If the battery condition fails, INSTALL a new battery. REFER to: Battery (414-01 Battery, Mounting and Cables, Removal and Installation).

S4 COMPARE THE PCM (POWERTRAIN CONTROL MODULE) BATT_V_INF (V) PID (PARAMETER IDENTIFICATION) WITH THE ACTUAL BATTERY VOLTAGE

- Start the engine.
- Turn on accessories (climate control blower on high speed, exterior lights).

Positive Lead	Measurement / Action	Negative Lead
C1381B-2	V	Ground
C1381B-16	V	Ground
C1381B-17	V	Ground

Are the voltages within 0.2 volt of the recorded battery voltage?

Yes	GO to S6

No	REPAIR the circuit in question for high resistance.

S6 CHECK THE PCM (POWERTRAIN CONTROL MODULE) GROUNDS

- Ignition OFF.
- Removed the fused jumper.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1381B-46	Ω	Ground
C1381B-47	Ω	Ground
C1381B-61	Ω	Ground

	Guided Routine available in the on-line Workshop Manual.

No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

PINPOINT TEST T : P0521, P0524, P06DD, P06DE

Normal Operation and Fault Conditions

Refer to the DTC (diagnostic trouble code) Fault Trigger Conditions.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
PCM (powertrain control module) P0521:00	Engine Oil Pressure Sensor/Switch 'A' Circuit Range/Performance: No Sub Type Information	This DTC (diagnostic trouble code) sets when the PCM (powertrain control module) detects signal variation outside of the module parameters on the hardwired input from the engine oil pressure sensor.
PCM (powertrain control module) P0524:00	Engine Oil Pressure Too Low: No Sub Type Information	This DTC (diagnostic trouble code) sets when the PCM (powertrain control module) detects low engine oil pressure.
PCM (powertrain control module) P06DD:00	Engine Oil Pressure Control Circuit Performance/Stuck Off: No Sub Type Information	This DTC (diagnostic trouble code) sets when the PCM (powertrain control module) detects the engine oil pressure control solenoid valve is stuck off.
PCM (powertrain control module) P06DE:00	Engine Oil Pressure Control Circuit Stuck On: No Sub Type Information	This DTC (diagnostic trouble code) sets when the PCM (powertrain control module) detects the engine oil pressure control solenoid valve is stuck on.

Possible Sources

- Communications network concern
- Wiring, terminals or connectors

T3 MONITOR THE ENGINE OIL PRESSURE PID (PARAMETER IDENTIFICATION) WITH THE ENGINE OFF

- Ignition OFF.
  - Wait at least 60 seconds.
- KOEO (key on, engine off)
- Using the diagnostic scan tool, view PCM (powertrain control module) Parameter Identifications (PIDs).
- Access the PCM (powertrain control module) and monitor the EOP_PRESS (Engine Oil Pressure) (kPa) PID (parameter identification)
- Wait approximately 30 seconds.

Does the engine oil pressure read approximately 0.0 psi (kPa) - 3.6 psi (25 kPa)?

Yes	GO to T4

No	VISUALLY CHECK the wiring harness and electrical connector for signs of damage. REPAIR as necessary. If there on no signs of damage, INSTALL a new engine oil pressure sensor. REFER to: Engine Oil Pressure (EOP) Sensor (303-14D Electronic Engine Controls - 5.0L 32V Ti-VCT, Removal and Installation).

T4 CHECK THE ENGINE OIL PRESSURE AT IDLE

T6 COMMAND THE ENGINE OIL PRESSURE DUTY CYCLE PID (PARAMETER IDENTIFICATION)

- Access the PCM (powertrain control module) and control the RPM_DSD (Desired Idle Speed (RPM)) (Rpm) PID (parameter identification)
- Set the desired engine speed to 1800 RPM (revolutions per minute) .
- Access the PCM (powertrain control module) and control the EOPDC_CMD (Engine Oil Pressure Control Duty Cycle - Commanded) (% Duty Cycle) PID (parameter identification)
- Set the PID (parameter identification) to 20% and wait 10 seconds.
- Access the PCM (powertrain control module) and monitor the EOP_PRESS (Engine Oil Pressure) (kPa) PID (parameter identification)

Is the EOP (engine oil pressure) greater than 34.1 psi (235 kPa)?

Yes	GO to T8

No	GO to T7

T7 CARRY OUT THE VARIABLE OIL PRESSURE ACTUATOR UNBLOCK SEQUENCE AND RECHECK THE OIL PRESSURE

- Access the PCM (powertrain control module) and control the RPM_DSD (Desired Idle Speed (RPM)) (Rpm) PID (parameter identification)
- Set the desired engine speed to 1800 RPM (revolutions per minute) .
- Access the PCM (powertrain control module) and control the EOPDC_CMD (Engine Oil Pressure Control Duty Cycle - Commanded) (% Duty Cycle) PID (parameter identification)
- Command the PID (parameter identification) from MIN to MAX. Wait 15 seconds. Repeat this step 3 times waiting 15 seconds between steps.
- Access the PCM (powertrain control module) and control the EOPDC_CMD (Engine Oil Pressure Control Duty Cycle - Commanded) (% Duty Cycle) PID (parameter identification)
- Set the PID (parameter identification) to 20% and wait 10 seconds.
- Access the PCM (powertrain control module) and monitor the EOP_PRESS (Engine Oil Pressure) (kPa) PID (parameter identification)

Is the EOP_PRESS PID (parameter identification) display equal or greater than 34.1 psi (235 kPa)?

Yes	GO to T8

No	CHECK the oil pressure using a mechanical gauge. REFER to: Engine - Flex Fuel – Ethanol/Full Hybrid Electric Vehicle (FHEV)/Gasoline

PCM (powertrain control module) P06DB:00	Engine Oil Pressure Control Circuit Low: No Sub Type Information	This DTC (diagnostic trouble code) sets when the PCM (powertrain control module) detects a short to ground on the engine oil pressure control solenoid valve circuit.
PCM (powertrain control module) P06DC:00	Engine Oil Pressure Control Circuit High: No Sub Type Information	This DTC (diagnostic trouble code) sets when the PCM (powertrain control module) detects a short to voltage on the engine oil pressure control solenoid valve circuit.

Possible Sources

- Communications network concern
- Wiring, terminals or connectors
- Engine oil pressure control solenoid valve
- PCM (powertrain control module)

U1 CHECK THE PCM (POWERTRAIN CONTROL MODULE) FOR DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, retrieve all PCM (powertrain control module) diagnostic trouble codes (DTCs)

Are any PCM (powertrain control module) diagnostic trouble codes (DTCs) present?

Yes	GO to U2

No	The system is operating correctly at this time. The DTC (diagnostic trouble code) may have been set due to high network traffic or an intermittent fault condition.

U2 CLEAR AND CHECK THE PCM (POWERTRAIN CONTROL MODULE) FOR DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear all PCM (powertrain control module) diagnostic trouble codes (DTCs)
- Using a diagnostic scan tool, retrieve all PCM (powertrain control module) diagnostic trouble codes (DTCs)

Are any PCM (powertrain control module) diagnostic trouble codes (DTCs) present?

Yes	GO to U3

No	VERIFY BJB (battery junction box) fuse F8 (10A) is OK. If OK, REPAIR the open circuit. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.

U5 CHECK THE OIL PRESSURE CONTROL SOLENOID CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect PCM (powertrain control module) C1381E .
- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1924-2	V⎓	Ground

Is any voltage present?

Yes	REPAIR the circuit.

No	GO to U6

U6 CHECK THE OIL PRESSURE CONTROL SOLENOID CIRCUIT FOR AN OPEN

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1381E-60	Ω	C1924-2

Is the resistance less than 3 ohms?

Yes	GO to U7