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2003 FORD Focus 3 Doors OEM Service and Repair Workshop Manual

[Go to manual page](#)

Positive Lead	Measurement / Action	Negative Lead
C9026-6	Ω	C2280C-22

Is the resistance less than 3 ohms?

Yes	GO to I4
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No	REPAIR the circuit.
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I4 CHECK THE RTM (RADIO TRANSCEIVER MODULE) VOLTAGE INPUT CIRCUIT FOR A SHORT TO GROUND

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C9026-6	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to I5
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No	REPAIR the circuit.
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I5 CHECK THE RTM (RADIO TRANSCEIVER MODULE) GROUND CIRCUIT FOR AN OPEN

- Measure:

Positive Lead	Measurement / Action	Negative Lead
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Is the resistance less than 3 ohms?

Yes


GO to [I8](#)

No

REPAIR the circuit.

I8 CHECK THE LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C9026-2		Ground

Is a steady voltage greater than 3 volts present?

Yes

REPAIR the circuit.

No

GO to [I9](#)

I9 VERIFY ALL WIRING CONNECTIONS

- Ignition OFF.
- Disconnect all BCM (body control module) connectors and related in-line connectors.
- Using a good light source, inspect the BCM (body control module) connectors RTM (radio transceiver module) connector and related in-line connectors for the following:
 - corrosion - install new connector or terminal and clean the module pins
 - damaged or bent pins - install new terminals or pins
 - pushed-out pins - install new pins as necessary
 - spread terminals - install new terminals as necessary

Are the connectors free of corrosion, damaged pins, bent pins, pushed-out pins and spread terminals?

REFER to: [Tire Pressure Monitoring System \(TPMS\) - System Operation and Component Description](#)(204-04B Tire Pressure Monitoring System (TPMS), Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
RTM (radio transceiver module) U0401:00	Invalid Data Received from ECM/PCM A: No Sub Type Information	This DTC (diagnostic trouble code) sets in continuous memory if the vehicle speed message from the PCM (powertrain control module) is "invalid" or "faulted" instead of the actual vehicle speed data.
RTM (radio transceiver module) U0401:82	Invalid Data Received from ECM/PCM A: Alive/Sequence Counter Incorrect/Not Updated	This DTC (diagnostic trouble code) sets in continuous memory if the vehicle speed message from the PCM (powertrain control module) does not refresh.

Possible Sources

- Network communication concern
- GWM (gateway module A)
- PCM (powertrain control module)
- RTM (radio transceiver module)

J1 CHECK THE RTM (RADIO TRANSCEIVER MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, carry out the RTM (radio transceiver module) self-test.

Is DTC (diagnostic trouble code) U0146:00 also present?

Yes	DIAGNOSE DTC (diagnostic trouble code) U0146:00 before diagnosing DTC (diagnostic trouble code) U0401:00 or U0401:82, GO to Pinpoint Test H
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No	GO to J2
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J2 CHECK THE COMMUNICATION NETWORK

- Ignition ON.
- Using a diagnostic scan tool, carry out the Network Test.

No	GO to J5
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J5 RETRIEVE ANY DIAGNOSTIC TROUBLE CODES (DTCs) FROM THE PCM (POWERTRAIN CONTROL MODULE)

- Using a diagnostic scan tool, carry out the PCM (powertrain control module) KOEO (key on, engine off) self-test.

Are there any Diagnostic Trouble Codes (DTCs) present in the PCM (powertrain control module) ?

Yes	DIAGNOSE the PCM (powertrain control module) DTC (diagnostic trouble code) .
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No	GO to J6
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J6 CHECK FOR DTC (DIAGNOSTIC TROUBLE CODE) U0146:XX OR U0447:XX SET IN OTHER MODULES

- Using a diagnostic scan tool, carry out the self-test for all modules.
- Retrieve and record the Continuous Memory Diagnostic Trouble Codes (CMDTCs) from all modules.

Is DTC (diagnostic trouble code) U0146:xx or U0447:xx set in 2 or more modules?

Yes	<p>CHECK OASIS (Online Automotive Service Information System) for any applicable Technical Service Bulletins (TSBs), 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.</p> <p>If no service articles address this concern, INSTALL a new GWM (gateway module A) .</p> <p>REFER to: Gateway Module A (GWM)</p> <p>(418-00A Controller Area Network (CAN) Module Communications Network, Removal and Installation).</p>
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No	GO to J7
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J7 CHECK FOR DTC (DIAGNOSTIC TROUBLE CODE) U0401 OR U0401:XX SET IN OTHER MODULES

- Using a diagnostic scan tool, carry out the self-test for all modules.
- Retrieve the Continuous Memory Diagnostic Trouble Codes (CMDTCs) from all modules.

RTM (radio transceiver module) U3000:04	Control Module: System Internal Failures	This DTC (diagnostic trouble code) is present when a new RTM (radio transceiver module) is installed, or when the RTM (radio transceiver module) is incorrectly flashed or reconfigured.
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Possible Sources

- Network communication concern
- RTM (radio transceiver module)

K1 CHECK VEHICLE HISTORY

- Check vehicle history for recent service action with the RTM (radio transceiver module) .

Were there any recent RTM (radio transceiver module) service actions?

Yes	Perform the PMI (programmable module installation) procedure as directed by the scan tool. REFER to: Module Programming (418-01A Module Configuration, General Procedures).
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No	GO to K2
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K2 CHECK FOR CORRECT RTM OPERATION

- Disconnect and inspect the RTM (radio transceiver module) connector.
- Repair:
 - corrosion (install new connector or terminal - clean module pins)
 - damaged or bent pins - install new terminals or pins
 - pushed-out pins - install new pins as necessary
- Reconnect the RTM (radio transceiver module) connector. 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 Technical Service Bulletins (TSBs), 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 RTM (radio transceiver module) REFER to: Radio Transceiver Module (RTM)
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BCM (body control module) C1A56:51	Left Front Tire Pressure Sensor and Transmitter Assembly: Not Programmed	This DTC (diagnostic trouble code) is only present when a new BCM (body control module) is installed, or the BCM (body control module) is flashed or reconfigured. This DTC (diagnostic trouble code) is cleared after the TPMS (tire pressure monitoring system) sensors locations are trained to the BCM (body control module) .
BCM (body control module) C1A58:51	Right Front Tire Pressure Sensor and Transmitter Assembly: Not Programmed	This DTC (diagnostic trouble code) is only present when a new BCM (body control module) is installed, or the BCM (body control module) is flashed or reconfigured. This DTC (diagnostic trouble code) is cleared after the TPMS (tire pressure monitoring system) sensors locations are trained to the BCM (body control module) .

Possible Sources

- TPMS (tire pressure monitoring system) sensor locations not trained
- BCM (body control module) not configured correctly

L1 CHECK VEHICLE HISTORY

- Check vehicle history for recent service action with the BCM (body control module) .

Were there any recent BCM (body control module) service actions?

Yes	GO to L2
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No	GO to L3
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L2 CARRY OUT THE TPMS SENSOR TRAINING PROCEDURE

- Train all 4 TPMS (tire pressure monitoring system) sensors.
REFER to: [Tire Pressure Monitoring System \(TPMS\) Sensor Location Calibration](#)(204-04B Tire Pressure Monitoring System (TPMS), General Procedures).
- Using a diagnostic scan tool, clear the BCM (body control module) DTC (diagnostic trouble code) .
- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, carry out the BCM (body control module) self-test.



Tire Pressure Monitoring System (TPMS) Sensor Activation

204-04B Tire Pressure Monitoring System (TPMS)	2022 F-150
General Procedures	Procedure revision date: 11/8/2017

Tire Pressure Monitoring System (TPMS) Sensor Activation

Activation

1. NOTE

The tire pressure sensors will go into a "sleep mode" when a vehicle is stationary to conserve battery power. The sensors do not transmit information while in sleep mode. It will be necessary to wake them up so they will transmit the latest tire pressure information.

NOTE

The tire pressure data in the BCM (body control module) can be cleared when the module performs a reset. When this occurs the air pressure DIDs will be reset to the factory default of 1033 kPa (149.96 psi) and the cluster will display dashes.

Turn the ignition switch to the ON position.

2. Position the special tool against the Left Front (LF) tire sidewall at the tire valve stem.

Use Special Service Tool : 204-D081A (204-D081) Tire Pressure Monitor (TPMS)

3. NOTE

The special tool should provide feedback in the form of a flashing green light and a beep sound for each successful response from a tire pressure sensor. This feedback may not always be present, do



Tire Pressure Monitoring System (TPMS) Sensor Location Calibration

<i>204-04B Tire Pressure Monitoring System (TPMS)</i>	<i>2022 F-150</i>
<i>General Procedures</i>	<i>Procedure revision date: 04/19/2018</i>

Tire Pressure Monitoring System (TPMS) Sensor Location Calibration

Programming

NOTE

The TPMS (tire pressure monitoring system) can be placed into learn mode using a diagnostic scan tool or manually where a diagnostic scan tool is not available.

NOTE

The horn will sound once and the TPMS (tire pressure monitoring system) indicator will flash if the training mode has been entered successfully. If equipped, the message center will display TRAIN Left Front (LF) TIRE.

1. NOTE

Enter Training Mode With IDS (Integrated Diagnostic System) **Scan Tool**

1. Select Chassis.
2. Select TPMS (tire pressure monitoring system) .
3. Select Training Mode.

Use the General Equipment: Ford Diagnostic Equipment

It may take up to 6 seconds to activate a tire pressure sensor. During this time, the special tool must remain in place at the valve stem.

Place the special tool on the Left Front (LF) tire sidewall at the valve stem. Press and release the test button on the special tool. The horn will sound briefly to indicate that the tire pressure sensor has been recognized by the BCM (body control module) .

Use Special Service Tool : 204-D081A (204-D081) Tire Pressure Monitor (TPMS)

2. Within 2 minutes of the horn sounding, place the special tool on the Right Front (RF) tire sidewall at the valve stem and press and release the test button to train the Right Front (RF) tire pressure sensor.

Use Special Service Tool : 204-D081A (204-D081) Tire Pressure Monitor (TPMS)

3. Repeat Step 1 for the Right Rear (RR) and Left Rear (LR) tires. The procedure is completed after the last tire has been trained. When the training procedure is complete, the message center (if equipped) will display TIRE TRAINING COMPLETE. For vehicles not equipped with a message center, successful completion of the training procedure will be verified by positioning the ignition to OFF without the horn sounding. If the horn sounds twice when the ignition is positioned to OFF, the training procedure was not successful.

4. Using the scan tool, locate the updated TPMS (tire pressure monitoring system) sensor identifiers trained to the BCM (body control module) and document them on the applicable warranty claim.

Use Special Service Tool : 204-D081A (204-D081) Tire Pressure Monitor (TPMS)

5. NOTE

This step is required to clear DTC (diagnostic trouble code) B1182:55, cause the BCM (body control module) to exit the manufacturing mode and to make sure there are no other concerns with a newly programmed BCM (body control module) .

If the sensors are being trained due to the installation of a new BCM (body control module) , clear any DTC (diagnostic trouble code) and carry out the BCM (body control module) On-Demand Self Test.