Your Ultimate Source for OEM Repair Manuals

FactoryManuals.net is a great resource for anyone who wants to save money on repairs by doing their own work. The manuals provide detailed instructions and diagrams that make it easy to understand how to fix a vehicle.

2009 FORD Fusion European OEM Service and Repair Workshop Manual

Go to manual page

NOTICE

Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector.

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

PINPOINT TEST B : SECM HIGH VOLTAGE CONCERN

Normal Operation and Fault Conditions

The SECM (steering effort control module) requires an operating voltage between 10 and 17 volts. This voltage is shared by and passes through the SASM (steering angle sensor module) and the clockspring. The SECM (steering effort control module) ground circuit also passes through the clockspring and the SASM (steering angle sensor module) . An overcharging condition in the charging system results in the SECM (steering effort control module) setting a DTC (diagnostic trouble code) . This DTC (diagnostic trouble code) may also set in the SECM (steering effort control module) due to battery charging or vehicle jump starting events.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SECM (steering effort control module) U3003:17	Battery Voltage: Circuit Voltage Above Threshold	Sets if the voltage supplied to the SECM (steering effort control module) is above 17 volts.

Possible Sources

- Charging system concern
- SECM (steering effort control module)

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

PINPOINT TEST C : LOST COMMUNICATION WITH PCM CONCERN

Normal Operation and Fault Conditions

With the ignition ON, the PCM (powertrain control module) sends messages to the SECM (steering effort control module) through the GWM (gateway module A) and the SASM (steering angle sensor module) over

- GWM (gateway module A)
- SASM (steering angle sensor module)
- PCM (powertrain control module)
- SECM (steering effort control module)

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

PINPOINT TEST D : LOST COMMUNICATION WITH ABS MODULE CONCERN

Normal Operation and Fault Conditions

With the ignition ON, the ABS (anti-lock brake system) module sends messages to the SECM (steering effort control module) over the HS-CAN2 (high-speed controller area network 2) and through the SASM (steering angle sensor module) . If the SECM (steering effort control module) does not receive these messages within a certain time frame, the SECM (steering effort control module) sets a DTC (diagnostic trouble code) . For information on the messages sent to the SECM (steering effort control module) by the ABS (anti-lock brake system) module, refer to the Network Message Chart in the Description and Operation in Section 211-02 of the Workshop Manual.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SECM (steering effort control module) U0121:00	Lost Communication With Anti-Lock Brake System (ABS) Control Module 'A': No Sub Type Information	Sets when the SECM (steering effort control module) detects any of the ABS (anti-lock brake system) module messages are missing. This can be due to a ABS (anti-lock brake system) module failure, a circuit failure on the HS-CAN (high-speed controller area network) or an excessive load on the network.
SECM (steering effort control module) U0415:00	Invalid Data Received from Anti-Lock Brake System (ABS) Control Module 'A': No Sub Type Information	This DTC (diagnostic trouble code) sets if the SECM (steering effort control module) receives invalid data in any of the ABS (anti-lock brake system) module steering wheel, yaw rate, or vehicle speed messages.
SECM (steering effort control module) U0415:81	Invalid Data Received from Anti-Lock Brake System (ABS) Control Module 'A': Invalid Serial Data Received	This DTC (diagnostic trouble code) sets if the SECM (steering effort control module) receives invalid data in the ABS (anti-lock brake system) module external angle request validity message.

SECM (steering effort control module) U0428:00	Invalid Data Received From Steering Angle Sensor Module: No Sub Type Information	This DTC (diagnostic trouble code) sets if the SECM (steering effort control module) receives invalid data in any of the SASM (steering angle sensor module) messages.

Possible Sources

- Network communication concern
- Charging system concern
- SASM (steering angle sensor module)
- SECM (steering effort control module)

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

PINPOINT TEST F : LOST COMMUNICATION WITH PSCM CONCERN

Normal Operation and Fault Conditions

With the ignition ON, the PSCM (power steering control module) sends messages to the SECM (steering effort control module) over the HS-CAN2 (high-speed controller area network 2) and through the SASM (steering angle sensor module) . If the SECM (steering effort control module) does not receive these messages within a certain time frame, the SECM (steering effort control module) sets a DTC (diagnostic trouble code) . For information on the messages sent to the SECM (steering effort control module) by the PSCM (power steering control module) , refer to the Network Message Chart in the Description and Operation in Section 211-02 of the Workshop Manual.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SECM (steering effort control module) U0131:00	Lost Communication With Power Steering Control Module 'A': No Sub Type Information	Sets when the SECM (steering effort control module) detects any of the PSCM (power steering control module) messages are missing. This can be due to a PSCM (power steering control module) failure, a circuit failure on the HS-CAN2 (high-speed controller area network 2) or an excessive load on the network.
SECM (steering effort control module) U0420:00	Invalid Data Received from Power Steering Control Module 'A': No Sub Type Information	This DTC (diagnostic trouble code) sets if the SECM (steering effort control module) receives invalid data in any of the PSCM (power steering control module) messages.

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

PINPOINT TEST H : LOST COMMUNICATION WITH RCM CONCERN

Normal Operation and Fault Conditions

With the ignition ON, the GWM (gateway module A) sends messages to the SECM (steering effort control module) over the HS-CAN2 (high-speed controller area network 2) and through the SASM (steering angle sensor module) . If the SECM (steering effort control module) does not receive these messages within a certain time frame, the SECM (steering effort control module) sets a DTC (diagnostic trouble code) . For information on the messages sent to the SECM (steering effort control module) by the GWM (gateway module A) , refer to the Network Message Chart in the Description and Operation in Section 211-02 of the Workshop Manual.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SECM (steering effort control module) U0151:00	Lost Communication With Restraints Control Module: No Sub Type Information	Sets when the SECM (steering effort control module) detects any of the RCM (restraints control module) messages are missing. This can be due to a RCM (restraints control module) failure, a circuit failure on the HS-CAN2 (high-speed controller area network 2) or an excessive load on the network.
SECM (steering effort control module) U0452:00	Invalid Data Received From Restraints Control Module: No Sub Type Information	This DTC (diagnostic trouble code) sets if the SECM (steering effort control module) receives invalid data in any of the RCM (restraints control module) messages.

Possible Sources

- Network communication concern
- Charging system concern
- SASM (steering angle sensor module)
- RCM (restraints control module)
- SECM (steering effort control module)

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

Normal Operation and Fault Conditions

With the ignition ON, the SECM (steering effort control module) monitors various inputs to detect if a fault is present.

The SECM (steering effort control module) is the controlling ECU (electronic control unit) for the heated steering wheel feature. The SECM (steering effort control module) monitors the heated steering wheel system for errors and reports a DTC (diagnostic trouble code) if an error is found.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SECM (steering effort control module) C100C:27	Steering Tracking: Signal Rate Of Change Above Threshold	Sets when the adaptive steering rotor speed is faster than the programmed threshold.
SECM (steering effort control module) C1039:75	Active Front Steering (AFS) Lock: Emergency Position Not Reachable	Sets when the SECM (steering effort control module) cannot activate the motor to reach the emergency lock position.
SECM (steering effort control module) U2001:53	Reduced System Function: Deactivated	This DTC (diagnostic trouble code) is informational only and is used in the factory for system check at the end of assembly. This DTC (diagnostic trouble code) sets when the adaptive steering system has been locked.
SECM (steering effort control module) U2016:47	Control Module Main Software: Watchdog/Safety µC Failure	Sets when the SECM (steering effort control module) experiences an internal error. This DTC setting multiple times is a trigger condition for DTC (diagnostic trouble code) U3000:96.
SECM (steering effort control module) U201A:53	Control Module Main Calibration Data: Deactivated	Sets when the SECM (steering effort control module) detects a failure or the heated steering wheel thermistor.
SECM (steering effort control module) U3000:18	Control Module: Circuit Current Below Threshold	Sets when the SECM (steering effort control module) detects the electrical current to the locking solenoid is below a specified level.

SECM (steering effort control module) C1039:92	Active Front Steering (AFS) Lock: Performance Or Incorrect Operation	Sets when the SECM (steering effort control module) detects the adaptive steering lock fails the unlocking test.
SECM (steering effort control module) C1039:94	Active Front Steering (AFS) Lock: Unexpected Operation	Sets when the SECM (steering effort control module) detects the adaptive steering lock fails the integrity test or the locking disc calibration test.
SECM (steering effort control module) C200D:28	Motor Rotation Angle Sensor: Signal Bias Level Out Of Range/Zero Adjustment Failure	Sets when the SECM (steering effort control module) detects the adaptive steering motor angle sensor signal is outside the normal operating range or if the sensor is incapable of learning the center position.
SECM (steering effort control module) C200D:62	Motor Rotation Angle Sensor: Signal Compare Failure	Sets when the SECM (steering effort control module) detects the adaptive steering motor angle sensor fails to learn the center position.
SECM (steering effort control module) U2001:92	Reduced System Function: Performance Or Incorrect Operation	Sets due to a restraint airbag impact event or a fuel cutoff event. Due to the fault setting conditions, the installation of a new steering wheel and SECM (steering effort control module) are not covered under the vehicle warranty. Subsequently, a RVC (repair validation code) is not provided for component replacement due to this DTC (diagnostic trouble code) .
SECM (steering effort control module) U3000:46	Control Module: Calibration/Parameter Memory Failure	Sets when the SECM (steering effort control module) detects an internal fault.
SECM (steering effort control module) U3000:49	Control Module: Internal Electronic Failure	Sets when the SECM (steering effort control module) detects an internal fault.
SECM (steering effort control	Control Module: Signal Calculation Failure	This DTC (diagnostic trouble code) sets due to an incomplete or an improperly performed trim routine.

Normal Operation and Fault Conditions

With the ignition ON, the SECM (steering effort control module) monitors various inputs to detect if an internal fault is present.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SECM (steering effort control module) U2000:68	Motor Temperature: Event Information	Sets when the SECM (steering effort control module) detects the adaptive steering system operating temperature has reached a predetermined limit.
SECM (steering effort control module) U2000:9B	Motor Temperature: High/Excessive Flow	Sets when the SECM (steering effort control module) detects the adaptive steering system operating temperature has reached a predetermined limit.

Possible Sources

- Temporary overheat concern
- SECM (steering effort control module)

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

PINPOINT TEST N : SECM CONFIGURATION CONCERN

Normal Operation and Fault Conditions

With the ignition ON, the SECM (steering effort control module) monitors various inputs to detect if an internal fault is present.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SECM (steering effort control module) U2100:00	Initial Configuration Not Complete: No Sub Type Information	This DTC (diagnostic trouble code) is pre-set in a new SECM (steering effort control module) and clears automatically when the SECM (steering effort control module) is configured correctly. This DTC (diagnostic trouble code) also sets due to incomplete or improper PMI (programmable module installation) procedures.

- SECM (steering effort control module)

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

PINPOINT TEST P : LOST COMMUNICATION WITH IMAGE PROCESSING MODULE A CONCERN

Normal Operation and Fault Conditions

With the ignition ON, the IPMA (image processing module A) sends messages to the SECM (steering effort control module) , through the SASM (steering angle sensor module) and over the HS-CAN2 (high-speed controller area network 2) . If the SECM (steering effort control module) does not receive these messages within a certain time frame, the SECM (steering effort control module) sets a DTC (diagnostic trouble code) . For information on the messages sent to the SECM (steering effort control module) by the IPMA (image processing module A) , refer to the Network Message Chart in Description and Operation of Workshop Manual Section 211-02.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SECM (steering effort control module) U023A:00	Lost Communication With Image Processing Module A: No Sub Type Information	Sets when the SECM (steering effort control module) detects any of the IPMA (image processing module A) messages are missing. This can be due to an IPMA (image processing module A) failure, a circuit failure on the HS-CAN2 (high-speed controller area network 2) or an excessive load on the network.

Possible Sources

- Network communication concern
- Charging system concern
- SASM (steering angle sensor module)
- IPMA (image processing module A)
- SECM (steering effort control module)

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

PINPOINT TEST Q : A MODULE DOES NOT RESPOND TO THE DIAGNOSTIC SCAN TOOL

Normal Operation and Fault Conditions

Possible Sources

- Front toe out of adjustment

S1 CHECK AND ADJUST THE FRONT TOE

- Check and adjust the front toe.
  REFER to: Front Toe Adjustment - Vehicles With: Adaptive Steering(204-00 Suspension System - General Information, General Procedures).
- Test drive the vehicle and check for wheel to suspension contact.

Is the front wheel still contacting the suspension control arm?

Yes	REFER to Section 204-00 to continue diagnosis of the suspension system.

No	The repair is complete.

PINPOINT TEST T : HIGH STEERING EFFORT

Normal Operation and Fault Conditions

The SECM (steering effort control module) does not typically affect steering effort. Investigate the steering gear and steering column bellows boot before evaluating the SECM (steering effort control module) .
REFER to Poor Returnability, Sticky Steering or Binding in the Power Steering System Symptom Chart in Section 211-02 of the Workshop Manual.

Possible Sources

- Steering gear
- Steering column bellows boot (steering gear-to-steering column connection)

Diagnostic steps are not provided for this symptom or DTC. REFER to: Diagnostic Methods (100-00 General Information, Description and Operation).

PINPOINT TEST U : THE RED ADAPTIVE STEERING SYSTEM WARNING INDICATOR IS ALWAYS ON OR MESSAGE CENTER DISPLAYS ADAPTIVE STEERING LOSS DO NOT DRIVE

Normal Operation and Fault Conditions

The SECM (steering effort control module) is self-monitoring and performs several self-tests during vehicle start up, shutdown and while operating. If an error occurs which affects the safety of the vehicle occupants, the system engages the adaptive steering lock and sends a message to the instrument cluster to illuminate