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2013 FORD Fusion Hybrid OEM Service and Repair Workshop Manual

Go to manual page

ABS (anti-lock brake system) C0041:01	Brake Pedal Switch 'B': General Electrical Failure	When the ABS (anti-lock brake system) module detects the brakelamp output signal is shorted to ground, this DTC (diagnostic trouble code) is set.
ABS (anti-lock brake system) C0041:04	Brake Pedal Switch 'B': System Internal Failures	When the brake pedal is not being pressed, the ABS (anti-lock brake system) module detects greater than 1.95 volts on the BPS circuit.
ABS (anti-lock brake system) C0041:14	Brake Pedal Switch 'B': Circuit Short To Ground Or Open	When the ABS (anti-lock brake system) module detects the brakelamp output signal is shorted to voltage, this DTC (diagnostic trouble code) is set.
ABS (anti-lock brake system) C0040:64	Brake Pedal Switch 'A': Signal Plausibility Failure	There are 2 conditions which can cause this DTC (diagnostic trouble code) to set in the ABS (anti-lock brake system) module. The first condition is if the brake hydraulic pressure is more than 1,000 KPA (10 bar) on light duty vehicles or 3,000 kpa (30 bar) on heavy duty vehicles, the driver is NOT pressing the brake pedal, there are no active hydraulic control functions. The second condition is if the brake hydraulic fluid pressure is greater than 8,000 kpa (80 bar), the driver is NOT pressing the brake pedal and there are no hydraulic system Diagnostic Trouble Codes present.
ABS (anti-lock brake system) C0040:01	Brake Pedal Switch 'A': General Electrical Failure	When the ABS (anti-lock brake system) module detects the brakelamp output signal is shorted to ground, this DTC (diagnostic trouble code) is set.
ABS (anti-lock brake system) C0041:4B	Brake Pedal Switch 'B': Over Temperature	Sets when the ABS (anti-lock brake system) module has calculated a possible over-termperature condition in the EBB (electric brake booster) unit.

Possible Sources

- Wiring, terminals or connectors
- EBB (electric brake booster) unit
- Pressing both pedals (brake and accelerator) at the same time

No	The condition causing the concern is not present at this time. DRIVE the vehicle to verify the repair.

PINPOINT TEST Y : ABS (ANTI-LOCK BRAKE SYSTEM) MODULE INTERNAL FAULT CONCERN

Refer to Wiring Diagrams Cell 42for schematic and connector information.

Normal Operation and Fault Conditions The ABS (anti-lock brake system) module carries out self tests during operation, the module also monitors various inputs and compares the values to what should be expected. If the values received are out of range, are not what is expected, or if any of the self tests fail, the ABS (anti-lock brake system) module sets a DTC (diagnostic trouble code) . The U3000:XX Diagnostic Trouble Codes (DTCs) may set along with other ABS (anti-lock brake system) Diagnostic Trouble Codes (DTCs). Diagnose all other ABS (anti-lock brake system) module Diagnostic Trouble Codes (DTCs) before diagnosing any ABS (anti-lock brake system) module U3000:XX Diagnostic Trouble Codes (DTCs). REFER to: Anti-Lock Brake System (ABS) and Stability Control - System Operation and Component Description (206-09 Anti-Lock Brake System (ABS) and Stability Control, Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
ABS (anti-lock brake system) C101F:49	Generic Valve Failure: Internal Electronic Failure	Sets when the ABS (anti-lock brake system) module detects an internal fault.
ABS (anti-lock brake system) C1A08:1C	Pressure Sensor Supply: Circuit Voltage Out Of Range	Sets when the ABS (anti-lock brake system) module detects an internal fault.
ABS (anti-lock brake system) C1A99:01	Pressure Sensor: General Electrical Failure	This DTC (diagnostic trouble code) indicates the brake fluid line hydraulic pressure sensor signal circuit located inside the ABS (anti-lock brake system) module has failed.
ABS (anti-lock brake system) C1A99:28	Pressure Sensor: Signal Bias Level Out Of Range/Zero Adjustment Failure	This DTC (diagnostic trouble code) indicates the brake fluid line hydraulic pressure sensor located inside the HCU (hydraulic control unit) has failed.

ABS (anti-lock brake system) U3000:96	Control Module: Component Internal Failure	Sets when the ABS (anti-lock brake system) module detects an internal fault.

Possible Sources

- Incorrect sensor input
- Stuck valve
- ABS (anti-lock brake system) module and HCU (hydraulic control unit) assembly
- ABS (anti-lock brake system) module

Visual Inspection and Pre-checks

- Diagnose all other ABS (anti-lock brake system) module Diagnostic Trouble Codes (DTCs) before diagnosing any U3000:XX Diagnostic Trouble Codes (DTCs).

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

PINPOINT TEST Z : ABS (ANTI-LOCK BRAKE SYSTEM) MODULE CONFIGURATION CONCERN

Refer to Wiring Diagrams Cell 42for schematic and connector information.

Normal Operation and Fault Conditions During new module installation, configuration files are loaded into the new module being replaced. If a discrepancy is detected between the modules or an incomplete programming procedure is carried out, a DTC (diagnostic trouble code) sets. REFER to: Anti-Lock Brake System (ABS) and Stability Control - System Operation and Component Description (206-09 Anti-Lock Brake System (ABS) and Stability Control, Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
ABS (anti-lock brake system) C052B:93	ABS Pump Motor Control Range/Performance: No Operation	Sets due to incomplete or improper module programming procedures.
ABS (anti-lock brake system) C102E:48	Stability Control System: Supervision Software Failure	Sets due to incomplete or improper module programming procedures.
ABS (anti-lock brake system) P0604:8F	Internal Control Module Random Access Memory (RAM) Error: Erratic	Sets due to incomplete or improper module programming procedures.

module) U2016:47	Failure	
SASM (steering angle sensor module) U2100:00	Initial Configuration Not Complete: No Sub Type Information	Sets due to incomplete or improper module programming procedures.
SASM (steering angle sensor module) U2101:00	Control Module Configuration Incompatible: No Sub Type Information	Sets when the SASM (steering angle sensor module) receives invalid vehicle configuration data from the BCM (body control module) .
SASM (steering angle sensor module) U2200:00	Control Module Configuration Memory Corrupt: No Sub Type Information	Sets when the checksum sent with the vehicle configuration message from the BCM (body control module) does not match the checksum stored in the SASM (steering angle sensor module) memory.

Possible Sources

- Incomplete programming procedure
- Improper programming procedure
- SASM (steering angle sensor module)
- ABS (anti-lock brake system) module

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

PINPOINT TEST AA : SASM DTC U3000:96

Normal Operation and Fault Conditions

The SASM (steering angle sensor module) is self-monitoring and capable of setting Diagnostic Trouble Codes (DTCs) to alert of potential internal errors. The SASM uses a FET (Field Effect Transistor) for circuit protection, when the FET (Field Effect Transistor) creates an open circuit, the SASM (steering angle sensor module) sets a DTC (diagnostic trouble code) .

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SASM (steering angle sensor module)	Control Module: Component Internal	This DTC (diagnostic trouble code) sets due to an internal failure of the SASM (steering angle sensor

PCM (powertrain control module) U034B:00	Software Incompatibility with Brake Booster Control: No Sub Type Information	This DTC (diagnostic trouble code) sets due to incomplete or improper programming of the PCM (powertrain control module) .

Possible Sources

- Incorrect PCM (powertrain control module) installed
- PCM (powertrain control module) configured incorrectly

AB1 CONFIGURE THE PCM

- Ignition ON.
- Using a diagnostic scan tool, carry out the PCM (powertrain control module) programming procedure. REFER to: Module Programming(418-01A Module Configuration, General Procedures).
- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, clear the PCM (powertrain control module) Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait at least 1 minute.
- Using a diagnostic scan tool, carry out the PCM (powertrain control module) KOEO (key on, engine off) self-test.

Does the DTC (diagnostic trouble code) return?

Yes	CHECK OASIS for any 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 PCM (powertrain control module) . REFER to the appropriate 303-14 section in the Workshop Manual.

No	The condition causing the DTC (diagnostic trouble code) was most likely due to an incomplete PMI (programmable module installation) . The concern has been repaired.

PINPOINT TEST CO : ELECTRIC BRAKE BOOSTER (EBB) UNIT INTERNAL FAILURE

ABS (anti-lock brake system) C1013:09	Brake System Pressure: Component Failures	This DTC (diagnostic trouble code) sets when an internal component failure is detected within the EBB (electric brake booster) unit.
ABS (anti-lock brake system) C1013:7A	Brake System Pressure: Fluid Leak Or Seal Failure	This DTC (diagnostic trouble code) sets when a loss of brake fluid pressure is detected within the brake system.
ABS (anti-lock brake system) C1013:92	Brake System Pressure: Performance Or Incorrect Operation	This DTC (diagnostic trouble code) sets when a loss of brake pressure or excessive brake pressure is detected within the brake system.

Possible Sources

- Air trapped in the hydraulic system
- External brake system leak
- Internal EBB (electric brake booster) unit leak
- EBB (electric brake booster) unit internal failure

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

PINPOINT TEST AD : STABILITY SYSTEM ACTIVE TOO LONG CONCERN

Refer to Wiring Diagrams Cell 42for schematic and connector information.
Normal Operation and Fault Conditions On chassis cab vehicles, the ABS (anti-lock brake system) module uses information from the wheel speed sensors, the RCM (restraints control module) , the steering wheel rotation sensor and brake pedal input to determine if anti-lock control intervention is necessary to help stop the vehicle. The ABS (anti-lock brake system) module uses the HCU (hydraulic control unit) to modulate the brake fluid pressure to the brake calipers and continues to monitor the sensor and module input until the wheel lock up has been corrected. Once the sensors and modules indicate the wheel lock up event has been corrected, the ABS (anti-lock brake system) module deactivates the HCU (hydraulic control unit) . On stripped chassis vehicles, the ABS (anti-lock brake system) module uses information from the wheel speed sensors, the yaw rate sensor, the steering wheel rotation sensor (sent from the SCCM (steering column control module) and brake pedal input to determine if stability control intervention is necessary to help stabilize the vehicle. The ABS (anti-lock brake system) module uses the HCU (hydraulic control unit) to modulate the brake fluid pressure to the brake calipers and continues to monitor the sensor and module input until the instability event has been corrected. Once corrected, the ABS (anti-lock brake system) module deactivates the HCU (hydraulic control unit) . Under inflated tires, wheels and tires that do not match VC (vehicle certification) label specifications, suspension and steering damage, and one or more sensor failures contribute to the ABS (anti-lock brake system) module setting this DTC (diagnostic trouble

trouble code)		
ABS (anti-lock brake system) U0131:00	Lost Communication With Power Steering Control Module 'A': No Sub Type Information	Sets if the PSCM (power steering control module) messages are missing.
ABS (anti-lock brake system) U0420:00	Invalid Data Received from Power Steering Control Module 'A': No Sub Type Information	Sets when the ABS (anti-lock brake system) module receives invalid steering information from the PSCM (power steering control module) .

Possible Sources

- Wiring, terminals or connectors
- Network communication concern
- PSCM (power steering control module)

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

PINPOINT TEST CP : EBB (ELECTRIC BRAKE BOOSTER) MOTOR FAULTS

Refer to Wiring Diagrams Cell 42for schematic and connector information.
Normal Operation and Fault Conditions The EBB (electric brake booster) unit uses a motor to pressurize the brake system and to operate the ABS (anti-lock brake system) , ESC (electronic stability control) , RSC (roll stability control) and other stability control features. The ABS (anti-lock brake system) module monitors the motor performance and sets a DTC (diagnostic trouble code) when a motor fault is detected. **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
ABS (anti-lock brake system) C0594:78	Brake Booster Motor 'A' Performance: Alignment Or Adjustment Incorrect	Sets when the ABS (anti-lock brake system) module detects a booster motor adjustment or alignment failure condition within the EBB (electric brake booster) .
ABS (anti-lock brake system) C0594:92	Brake Booster Motor 'A' Performance: Performance Or Incorrect Operation	Sets when the ABS (anti-lock brake system) module detects when the brake booster motor 'A' is not performing correctly or is inoperative.

PINPOINT TEST BV : ABS (ANTI-LOCK BRAKE SYSTEM) MODULE COMMUNICATION CONCERN WITH SCCM (STEERING COLUMN CONTROL MODULE)

Refer to Wiring Diagrams Cell 14for schematic and connector information.

Normal Operation and Fault Conditions With the ignition ON, the SCCM (steering column control module) sends messages to the GWM (gateway module A) over the HS-CAN2 (high-speed controller area network 2) , the GWM (gateway module A) relays these messages to the ABS (anti-lock brake system) module over the FD-CAN (Flexible Data Rate Controller Area Network) . If the ABS (anti-lock brake system) module does not receive these messages within the specified time frame, the ABS (anti-lock brake system) module sets Diagnostic Trouble Codes (DTCs). This can be due to a SCCM (steering column control module) failure, a circuit failure on the CAN (controller area network) or an excessive load on the network. For information on the messages sent to the ABS (anti-lock brake system) module by the SCCM (steering column control module) , REFER to: Anti-Lock Brake System (ABS) and Stability Control - System Operation and Component Description
(206-09 Anti-Lock Brake System (ABS) and Stability Control, Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
ABS (anti-lock brake system) U0212:00	Lost Communication With Steering Column Control Module: No Sub Type Information	Sets if the SCCM (steering column control module) messages are missing.

Possible Sources

- Wiring, terminals or connectors
- Network communication concern
- SCCM (steering column control module)
- ABS (anti-lock brake system)

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

PINPOINT TEST AI : ABS (ANTI-LOCK BRAKE SYSTEM) MODULE COMMUNICATION CONCERN WITH PCM (POWERTRAIN CONTROL MODULE)

Refer to Wiring Diagrams Cell 14for schematic and connector information.

Normal Operation and Fault Conditions With the ignition ON, the PCM (powertrain control module) sends messages to the ABS (anti-lock brake system) module over the FD-CAN (Flexible Data Rate Controller Area Network) . If the ABS (anti-lock brake system) module does not receive these messages within the

Normal Operation and Fault Conditions REFER to: Anti-Lock Brake System (ABS) and Stability Control - System Operation and Component Description (206-09 Anti-Lock Brake System (ABS) and Stability Control, Description and Operation).

The IPMA (image processing module A) is part of the Advanced Driver Assistance System (ADAS). With the ignition ON, the IPMA (image processing module A) sends messages to the ABS (anti-lock brake system) module the over the FD-CAN (Flexible Data Rate Controller Area Network) . If the ABS (anti-lock brake system) module does not receive these messages within a certain time frame, the module sets Diagnostic Trouble Codes (DTCs). This can be due to an IPMA (image processing module A) failure, a circuit failure on the network or an excessive load on the network. **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
ABS (anti-lock brake system) U023A:00	Lost Communication With Image Processing Module A: No Sub Type Information	Sets when the ABS (anti-lock brake system) module does not receive messages from the IPMA (image processing module A) .
ABS (anti-lock brake system) U053B:00	Invalid Data Received From Image Processing Module A: No Sub Type Information	Sets when the counter signal value in the adaptive cruise control data message from the IPMA (image processing module A) does not increase.

Possible Sources

- Wiring, terminals or connectors
- Network communication concern
- IPMA (image processing module A)
- ABS (anti-lock brake system) module

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

PINPOINT TEST BM : ABS (ANTI-LOCK BRAKE SYSTEM) MODULE COMMUNICATION CONCERN WITH ATCM (ALL TERRAIN CONTROL MODULE)

Refer to Wiring Diagrams Cell 14for schematic and connector information.

Normal Operation and Fault Conditions With the ignition ON, the ATCM (all terrain control module) sends messages to the GWM (gateway module A) over the HS-CAN2 (high-speed controller area network 2) , the GWM (gateway module A) relays these messages to the ABS (anti-lock brake system) module over the FD-CAN (Flexible Data Rate Controller Area Network) . If the ABS (anti-lock brake system) module does not receive these messages within the specified time frame, the ABS (anti-lock brake system) module sets Diagnostic Trouble Codes (DTCs). This can be due to a ATCM (all terrain control module) failure, a circuit