

Master DTC Chart

ABS (anti-lock brake system)

DTC	Description	PINPOINT TEST
B10DA:51	PATS Target Identifier: Not Programmed	P: PATS TARGET IDENTIFIER (Anti-Lock Brake System (ABS) and Stability Control)
B1111:29	Electric Park Brake Enable: Signal Invalid	I: B1111:29 OR B1111:53 (Parking Brake - Vehicles With: Electric Brake Booster)
B1111:53	Electric Park Brake Enable: Deactivated	I: B1111:53 (Parking Brake - Vehicles With: Vacuum Brake Booster)
B1111:53	Electric Park Brake Enable: Deactivated	I: B1111:29 OR B1111:53 (Parking Brake - Vehicles With: Electric Brake Booster)
B1111:54	Electric Park Brake Enable: Missing Calibration	F: B1111:54 (Parking Brake - Vehicles With: Vacuum Brake Booster)
B1111:54	Electric Park Brake Enable: Missing Calibration	F: B1111:54 (Parking Brake - Vehicles With: Electric Brake Booster)
C0001:01	TCS Control Channel 'A' Valve 1: General Electrical Failure	Y: ABS MODULE INTERNAL FAULT CONCERN (Anti-Lock Brake System (ABS) and Stability Control)
C0002:01	TCS Control Channel 'A' Valve 2: General Electrical Failure	Y: ABS MODULE INTERNAL FAULT CONCERN (Anti-Lock Brake System (ABS) and Stability Control)
C0003:01	TCS Control Channel 'B' Valve 1: General Electrical Failure	Y: ABS MODULE INTERNAL FAULT CONCERN (Anti-Lock Brake System (ABS) and Stability Control)
C0004:01	TCS Control Channel 'B' Valve 2: General Electrical Failure	Y: ABS MODULE INTERNAL FAULT CONCERN (Anti-Lock Brake System (ABS) and Stability Control)
C0020:11	ABS Pump Motor Control: Circuit Short To Ground	H: HYDRAULIC PUMP FAULTS (Anti-Lock Brake System (ABS) and Stability Control)
C0020:12	ABS Pump Motor Control: Circuit Short To Battery	H: HYDRAULIC PUMP FAULTS (Anti-Lock Brake System (ABS) and Stability Control)
C0020:13	ABS Pump Motor Control: Circuit Open	H: HYDRAULIC PUMP FAULTS (Anti-Lock Brake System (ABS) and Stability Control)
C0020:49	ABS Pump Motor Control: Internal	H: HYDRAULIC PUMP FAULTS (Anti-Lock

Wheel and Tire Health and Safety Precautions



WARNING: Never inflate a tire that has been run flat without first removing the tire from the wheel to inspect for damage. A damaged tire can fail during inflation. Failure to follow this instruction may result in serious personal injury.

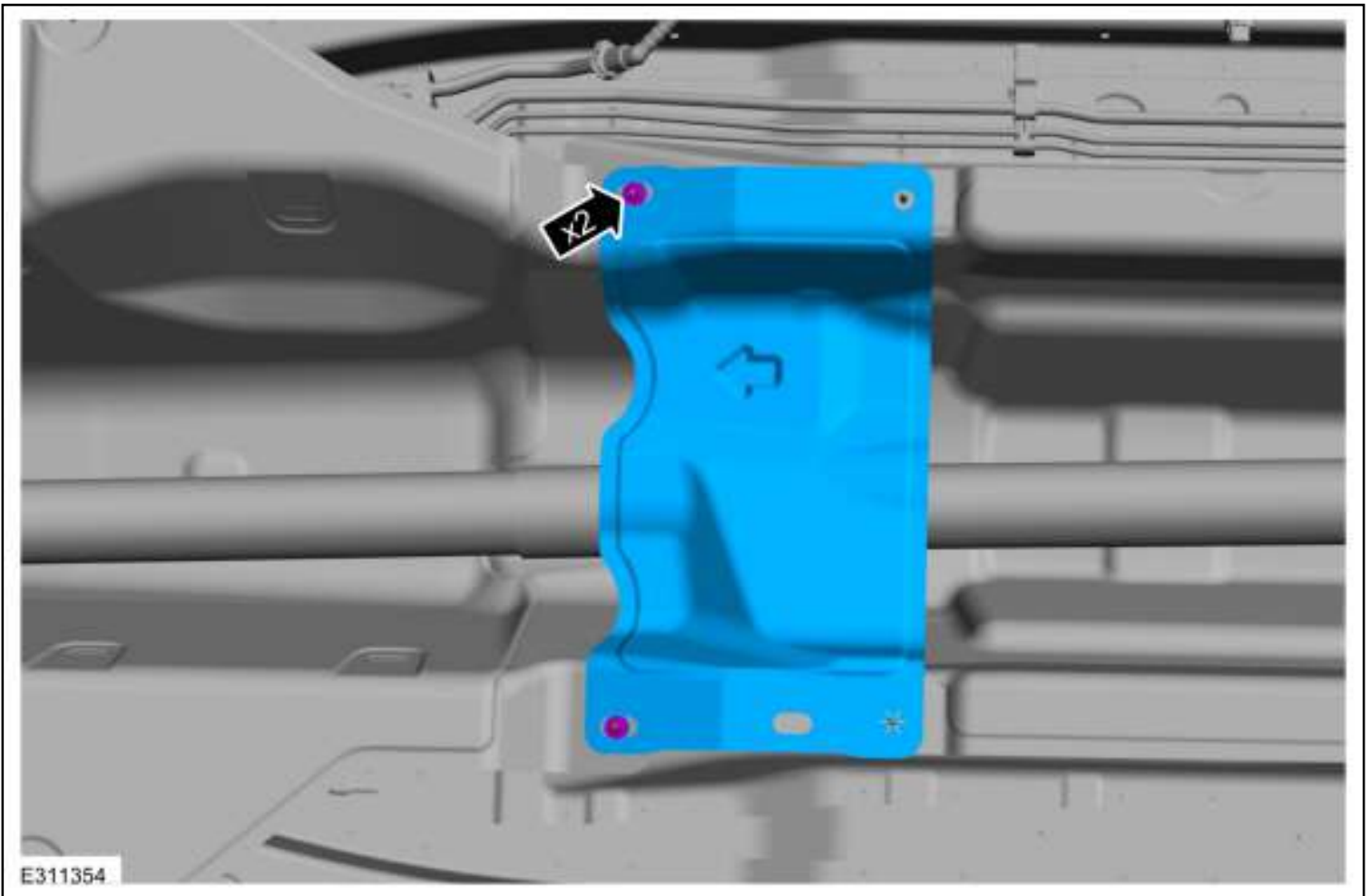
WARNING: Do not mount tube-type tires on tubeless wheels or tubeless tires on tube-type wheels. Incorrect combinations could result in tire separation from wheel and may result in serious injury to vehicle occupant(s).

WARNING: Cracked wheels can be dangerous. Deflate tires on cracked wheels prior to removal of wheels from the vehicle. Failure to follow this instruction may result in serious personal injury.

WARNING: Retighten wheel nuts within 160 km (100 mi) after a wheel is reinstalled. For dual rear wheel (DRW) only, a second retightening is required within 800 km (500 mi). Wheels can loosen after initial tightening. Failure to follow this instruction may result in serious injury to vehicle occupant(s).

WARNING: Always match the tire size to the wheel size during assembly. Incorrect matching can result in tire bead damage or tire separation from the wheel. Failure to follow this instruction may result in serious personal injury to technician or vehicle occupant(s).

WARNING: Do not weld or peen wheels. A wheel needing such repairs must have a new wheel installed. Failure to follow these instructions may result in wheel failure and serious personal injury.



6. **NOTE:** *The installation step requires the aid of another technician.*

Remove and discard the driveshaft to PTU bolts and the retaining straps.

- Ignition OFF.
- Using a good light source, inspect TRM [C4397B](#) and the 7 way trailer tow connector 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?

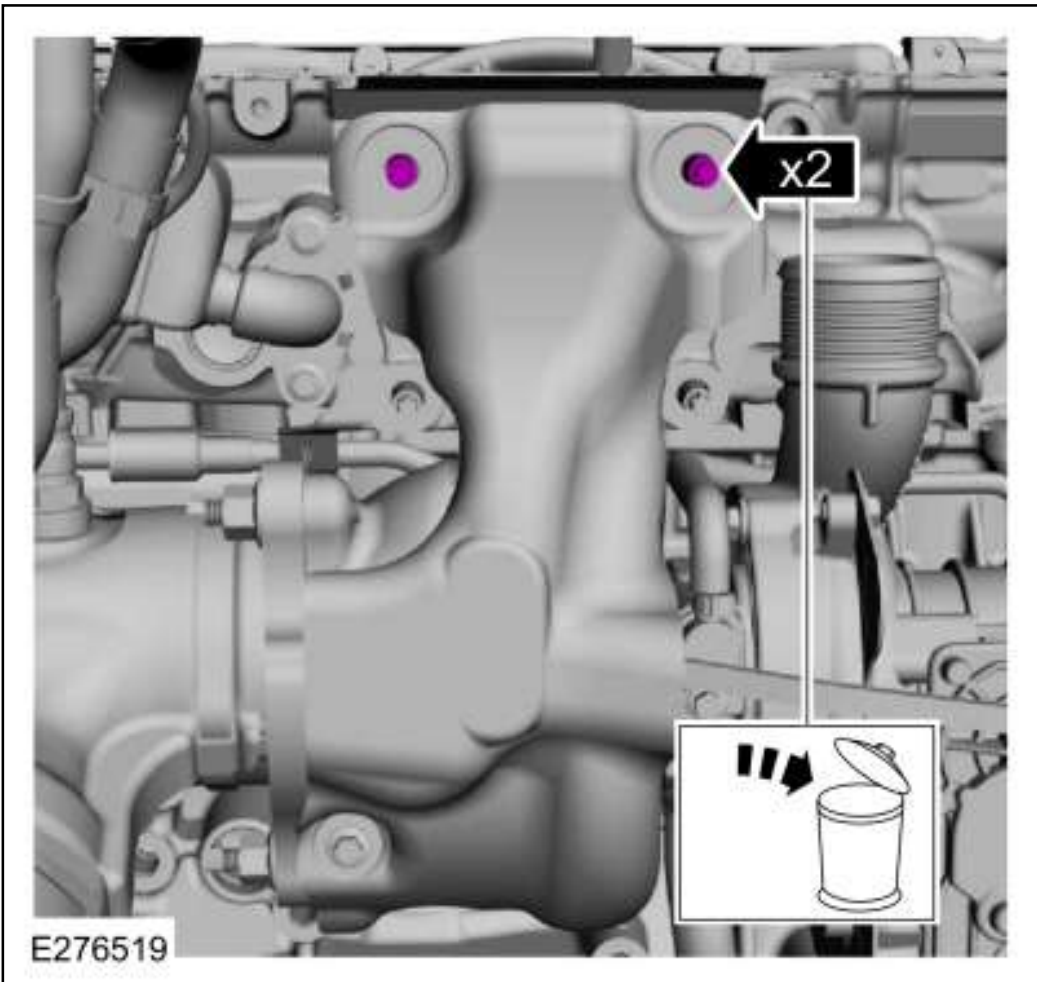
Yes	GO to B9
No	REPAIR the affected connectors or terminals. Refer to Wiring Diagrams Cell 5 for schematic and connector information.

B9 CHECK FOR CORRECT TRM (TRAILER MODULE) OPERATION

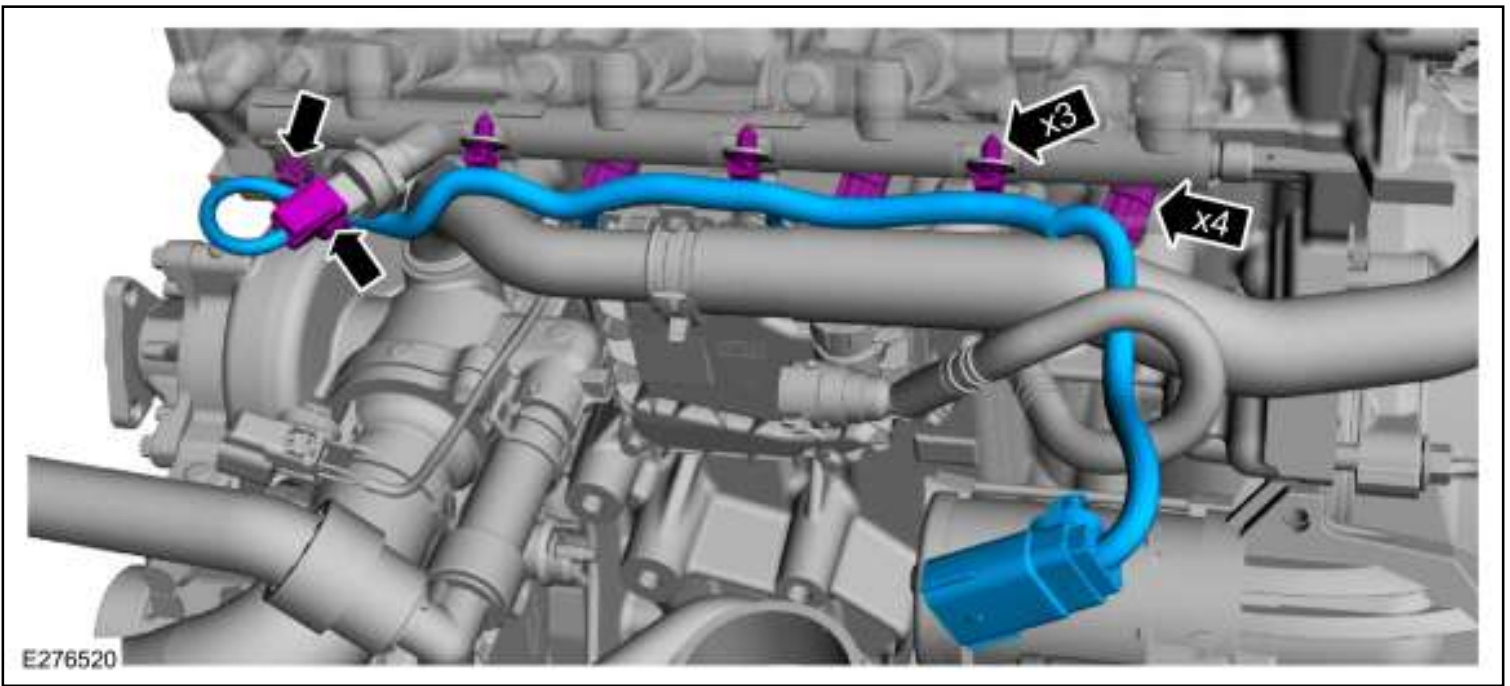
- Connect TRM [C4397B](#) and [C4099](#) , make sure it seats and latches correctly.
- Operate the system and verify the concern is still present.

Is the concern still present?

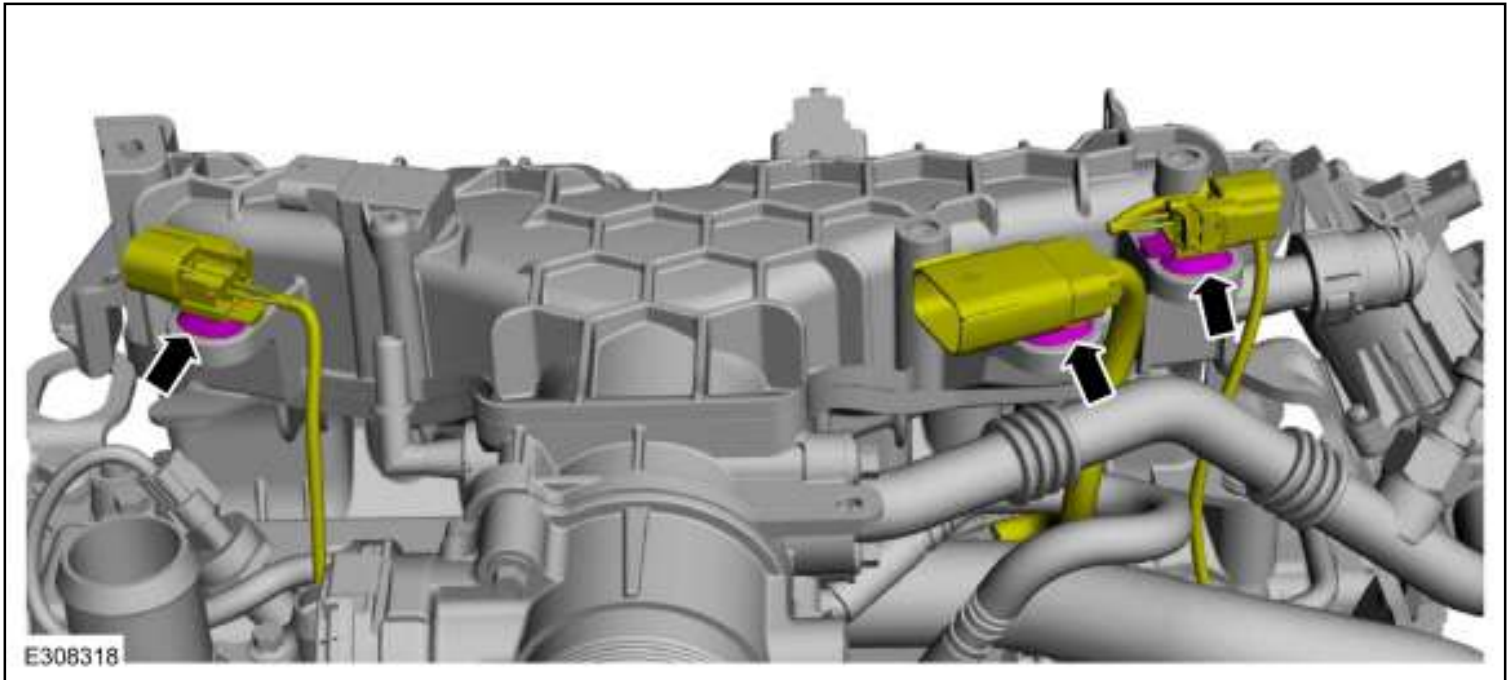
Yes	CHECK OASIS for any applicable service articles: TSB , GSB , SSM or FSA . If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new TRM module. REFER to: Trailer Module (TRM) (417-01 Exterior Lighting, Removal and Installation) .
No	The condition that caused the concern is not present at this time. The concern is intermittent and may have been caused by a loose or corroded connector, low battery voltage or an excessive load on the HS-CAN3 .



- Disconnect the fuel rail wiring harness electrical connectors.
- Detach the wiring harness retainers and remove harness.



168. Attach the wiring connector retainers to the intake manifold.



169. Install the ground cable and the bolt.

Torque : 133 lb.in (15 Nm)

NOTE: The Inverter System Controller (ISC) is referred to as the SOBDMC (Secondary On-Board Diagnostic Control Module C) in the scan tool.

Normal Operation and Fault Conditions

REFER to: [Electric Powertrain Control - System Operation and Component Description](#) (303-14C Electric Powertrain Control, Description and Operation) .

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
SOBDMC P0C2F:92	Internal Control Module Drive Motor/Generator-Engine Speed Sensor Performance: Performance Or Incorrect Operation	This DTC sets when an internal error occurs or a speed sensor DTC is present.
SOBDMC P0C2F:93	Internal Control Module Drive Motor/Generator-Engine Speed Sensor Performance: No Operation	This DTC sets when an internal error occurs or a speed sensor DTC is present.

Possible Sources

- Other related diagnostic trouble codes (DTCs) within the Inverter System Controller (ISC)
- Wiring, terminals or connectors

AA1 CHECK FOR INVERTER SYSTEM CONTROLLER (ISC) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, carry out the Inverter System Controller (ISC) self-test.

Are any diagnostic trouble codes (DTCs) other than P0C2F:92 or P0C2F:93 present?

Yes	DIAGNOSE all other Inverter System Controller (ISC) diagnostic trouble codes (DTCs), REFER to the DTC chart in this section.
No	GO to AA2

AA2 CHECK THE INVERTER SYSTEM CONTROLLER (ISC) CALIBRATION LEVEL

- Verify the Inverter System Controller (ISC) is at the latest calibration level.

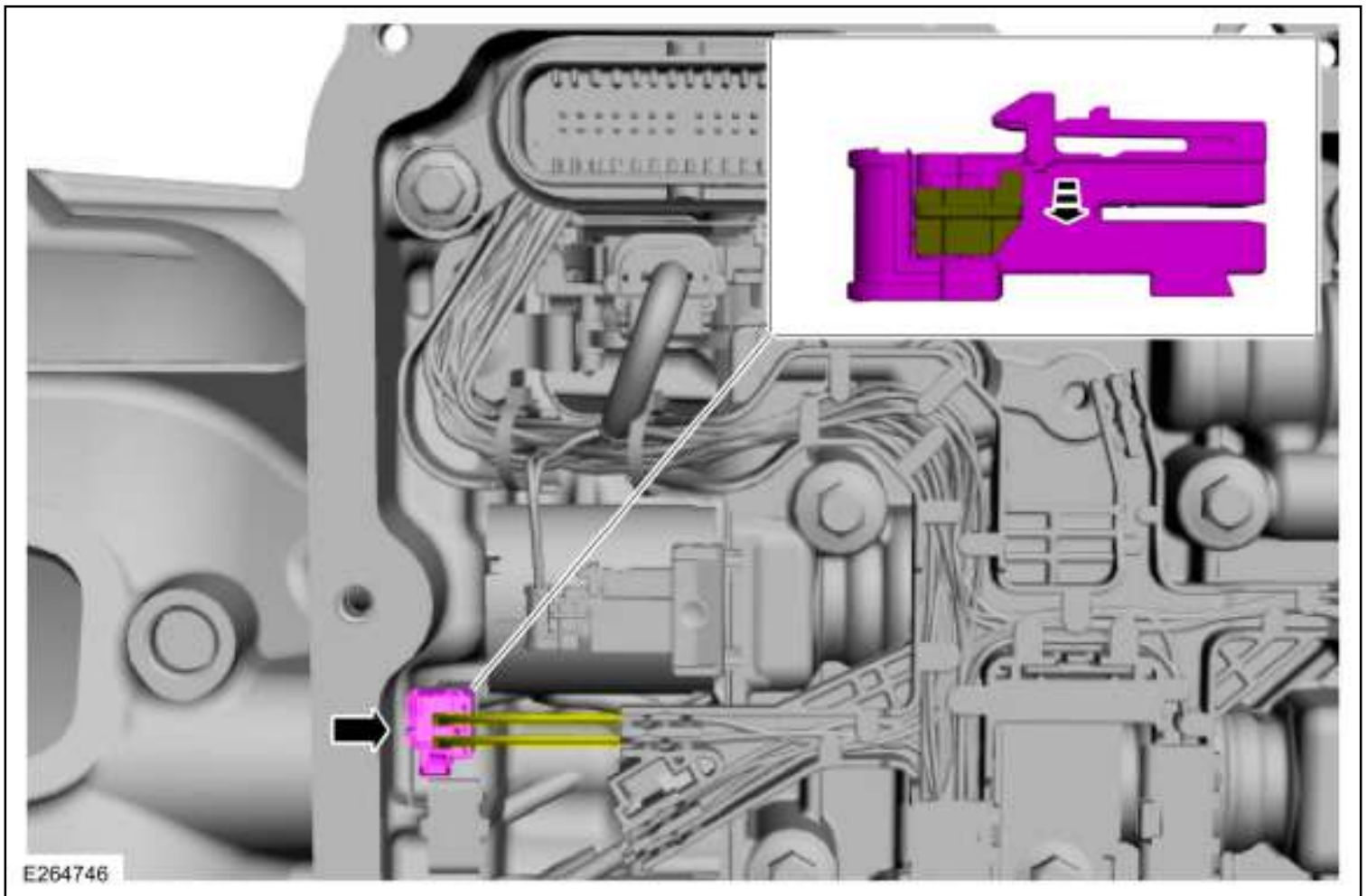
Is the Inverter System Controller (ISC) at the latest calibration level?

Yes	GO to AA3
No	UPDATE the Inverter System Controller (ISC) to the latest calibration level.

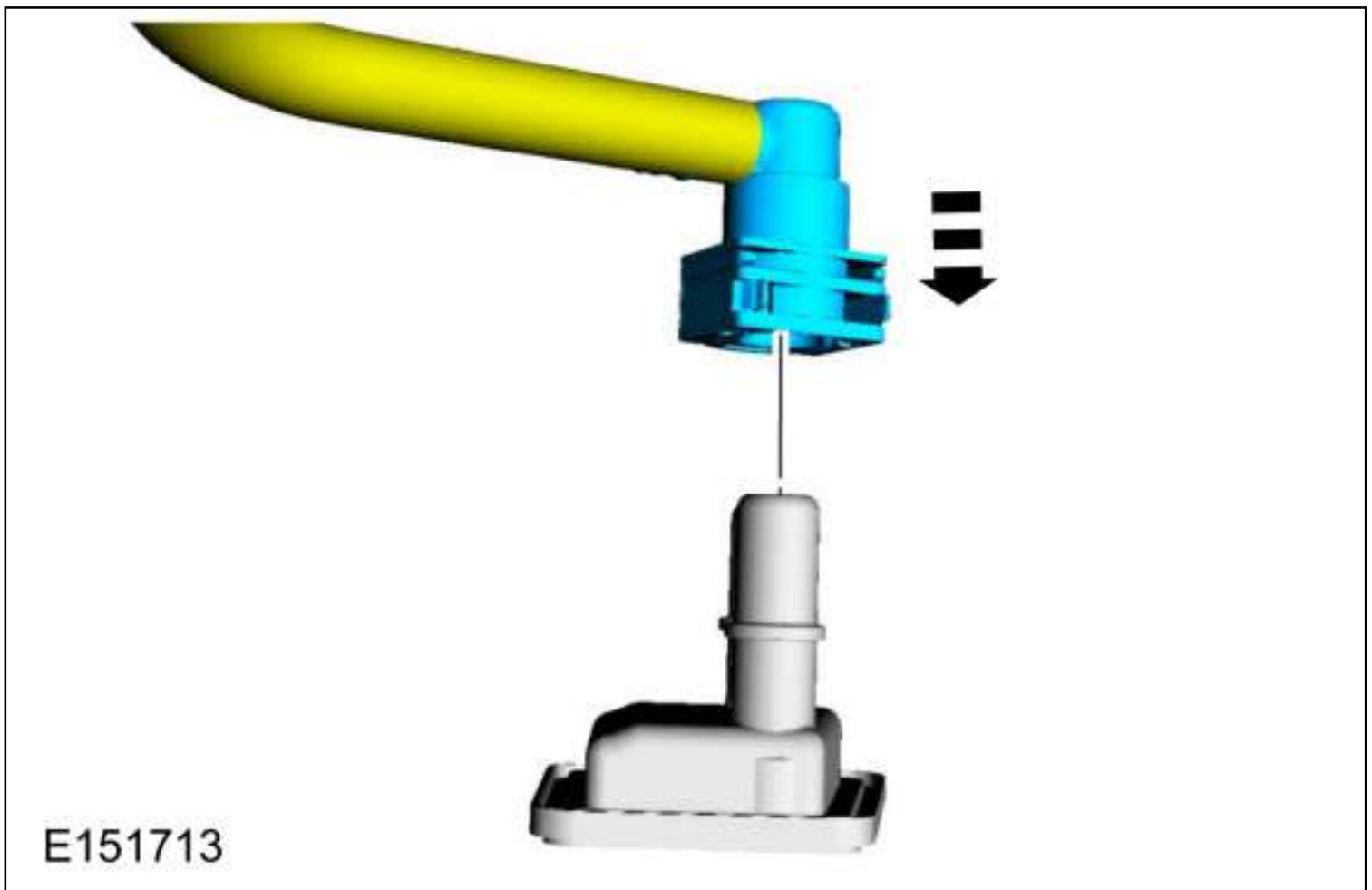
AA3 CLEAR AND CHECK FOR INVERTER SYSTEM CONTROLLER (ISC) DIAGNOSTIC TROUBLE CODES (DTCS)

DOUBLE CHECK FOR INVERTER SYSTEM CONTROLLER (ISC) DIAGNOSTIC TROUBLE CODES (DTCS)

SHFT_TIME	Shift Time Elapsed From Commanded to 10% Complete	Shift time 0% to 10% complete
SHFT_TYP	Shift Type	Shift Type
SS_ABS_TC_IN	(Stop-Start) Antilock Brake And Traction Control Summary	(Stop-Start) Antilock Brake And Traction Control Summary
SS_CTRL_CRANK_CMD	(Stop-Start) Main Control Crank Command And Hardware Feedback	(Stop-Start) Main Control Crank Command And Hardware Feedback
SS_CTRL_STATE	(Stop-Start) Main Control State Machine	(Stop-Start) Main Control State Machine
SS_DISABL_00-20	Stop-Start Feature Disabled	20 PIDS identifying different reasons Stop-start might be disabled
SS_DRVR_INPUTS	(Stop-Start) Monitor Human Input Summary Including Accelerator, Brake, Clutch, Shift Input, Or Cruise Control	(Stop-Start) Monitor Human Input Summary Including Accelerator, Brake, Clutch, Shift Input, Or Cruise Control
SS_MON_STATE	(Stop-Start) Monitor State Machine	(Stop-Start) Monitor State Machine
SS_MON_TIMER	(Stop-Start) Monitor State Machine Transition Timer	(Stop-Start) Monitor State Machine Transition Timer
SS_OUTOP	Start-Stop Coordination	Out of Operation
SS_SHIFTER_IN	(Stop-Start) Shift Lever Position Input	(Stop-Start) Vehicle Speed and Powertrain Shaft Speeds Summary
SS_SPEED_INPUT	(Stop-Start) Vehicle Speed and Powertrain Shaft Speeds Summary	(Stop-Start) Vehicle Speed and Powertrain Shaft Speeds Summary
SS_STRTR_HEAT	(Start-Stop) Starter Motor Heat State	(Start-Stop) Starter Motor Heat State
SSPCA	Shift Solenoid Pressure Control A	Commanded pressure for the Shift Solenoid Pressure Control A (SSPCA)/CB12345
SSA_AMP #	Shift Solenoid Pressure Control A	Commanded current for the Shift Solenoid Pressure Control A (SSPCA)/CB12345
SSPCA_F	(SSPCA) Status	Fault status for the Shift Solenoid Pressure Control A (SSPCA)/CB12345



26. Unlock and disconnect the TR sensor electrical connector.



2. Connect the battery ground cable.

Refer to: [Battery Cables - 2.0L EcoBoost \(177kW/240PS\) – MI4](#) (414-01 Battery, Mounting and Cables, Removal and Installation) .

Disconnect

NOTICE: When reusing liquid tube connectors, make sure to use compressed air to remove any foreign material from the connector retaining clip area before separating from the tube or damage to the tube or connector retaining clip may occur.

NOTICE: Fuel injection equipment is manufactured to very precise tolerances and fine clearances. It is essential that absolute cleanliness is observed when working with these components or component damage may occur. Always install blanking plugs to any open orifices or tubes.

NOTICE: Do not use any tools. The use of tools may cause a deformity in the clip components which may cause fuel leaks.

NOTE: *Type 5*

1. If servicing a liquid fuel tube quick release coupling, release the fuel system pressure.

Low engine oil pressure	Both	<ul style="list-style-type: none"> • Engine oil pressure warning indicator request • Engine rpm data 	PCM	HS-CAN1	IPC
MIL (check engine)	T	MIL request	PCM	HS-CAN1	IPC
Powertrain malfunction (wrench) warning	Both	Engine service required	PCM	HS-CAN1	IPC
		Transmission service required	PCM (Gas) / SOBDMC (HEV)	HS-CAN1	
		HEV service required	SOBDMC (HEV)	HS-CAN1	
		AWD service required	AWD module	HS-CAN1	
		Body service required	BCM	HS-CAN1	
		GSM service required	GSM	HS-CAN2	
Ready to drive (HEV)	T	Ready to drive indication request	SOBDMC	HS-CAN1	IPC
Rear seatbelt	RTT	<ul style="list-style-type: none"> • Driver rear seatbelt buckle status • Passenger rear seatbelt buckle status • Rear center seatbelt buckle status 	RCM	HS-CAN2	IPC
Seatbelt	T	<ul style="list-style-type: none"> • Driver seatbelt buckle status • Passenger seatbelt buckle status 	RCM	HS-CAN2	IPC

WARNING: To prevent the risk of high-voltage shock, always follow precisely all warnings and service instructions, including instructions to depower the system. The high-voltage system utilizes approximately 300 volts DC, provided through high-voltage cables to its components and modules. The high-voltage cables and wiring are identified by orange harness tape or orange wire covering. All high-voltage components are marked with high-voltage warning labels with a high-voltage symbol. Failure to follow these instructions may result in serious personal injury or death.

NOTICE: Use the correct probe adapter(s) from the Flex Probe Kit when taking measurements. Failure to use the correct probe adapter(s) may damage the connector.

AG1 RETRIEVE ALL BECM (BATTERY ENERGY CONTROL MODULE) DTCS

- Ignition ON.
- Using a diagnostic scan tool, clear the BECM Diagnostic Trouble Codes (DTCs).
- Using a diagnostic scan tool, perform BECM self-test.

Are any Diagnostic Trouble Codes (DTCs) other than P262B:00 present?

Yes	REFER to the BECM DTC Chart and diagnose all other Diagnostic Trouble Codes (DTCs) first.
No	GO to AG2 .

AG2 CHECK FOR AFTERMARKET ACCESSORIES

- Inspect vehicle for installed aftermarket accessories.

Are any aftermarket accessories installed?

Yes	Consult with customer that the aftermarket accessories could be causing the concern.
No	GO to AG3 .

AG3 CHECK THE 12V BATTERY CABLE CONNECTIONS

- Inspect the 12-volt battery cable connections.

Are the connections clean and tight?

Yes	CHECK OASIS for any applicable service articles: TSB , GSB , SSM or FSA . 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 BECM . REFER to: Battery Energy Control Module (BECM) - Hybrid Electric Vehicle (HEV) (414-03 High Voltage Battery, Mounting and Cables, Removal and Installation) .
No	Repair the connections.

PINPOINT TEST AH: HIGH VOLTAGE BATTERY PACK CELL BALANCING FAULTS

Normal Operation and Fault Conditions

The high voltage battery pack is consisted of multiple series-connected cells. To preserve battery life and insure the battery pack good performance, it is essential to minimize the deviations between individual cell state-of-charge (SOC). Cell balancing circuit, located inside BECM , is used to achieve the objective by closing the electric circuit to discharge the cells with high SOC. Cell Balancing occurs when the high voltage battery state-of-charge (SOC) is equal or greater than 15% and the ignition has been turned off for greater than 24 hours. When cell balancing circuit is stuck open or closed, the corresponding cells SOC's are higher or lower than the other cell SOC's, and the wrench indicator will illuminate. After BECM replacement, the cell balancing circuit stuck open or closed DTC might be returned because of the unbalanced cell SOC's, and cell re-balancing is necessary to resolve the fault symptom. The stop safely hazard (red triangle) warning indicator and MIL illuminates. For DTC's P0B24:00 electric motor propulsion will be limited reducing vehicle power.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
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SYNC Module [APIM] to Universal Serial Bus (USB) Port Cable



Removal

NOTE: *Removal steps in this procedure may contain installation details.*

1. Remove the APIM .
Refer to: [SYNC Module \[APIM\]](#) (415-00 Information and Entertainment System - General Information, Removal and Installation) .
2. Remove the media hub.
Refer to: [Media Hub](#) (415-00 Information and Entertainment System - General Information, Removal and Installation) .
3. Separate the cable guide and remove the APIM to media hub cable.

Yes	CHECK OASIS for any applicable service articles: TSB , GSB , SSM or FSA . 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 BCM . REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules, Removal and Installation) .
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. CLEAR the Diagnostic Trouble Codes (DTCs).

[PINPOINT TEST C: ALL THE COURTESY LAMPS STAY ON CONTINUOUSLY](#)

Refer to Wiring Diagrams Cell [117](#) for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: [Interior Lighting - System Operation and Component Description](#) (417-02 Interior Lighting, Description and Operation) .

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
BCM B1175:01	Drivers Door Ajar Switch: General Electrical Failure	An on-demand DTC that sets when the BCM detects a fault on the LH front door ajar circuit.
BCM B1176:01	Passenger Door Ajar Switch: General Electrical Failure	An on-demand DTC that sets when the BCM detects a fault on the RH front door ajar circuit.
BCM B11C0:01	Driver Side Rear Door Ajar Switch: General Electrical Failure	An on-demand DTC that sets when the BCM detects a fault on the LH rear door ajar circuit.
BCM B11C1:01	Passenger Side Rear Door Ajar Switch: General Electrical Failure	An on-demand DTC that sets when the BCM detects a fault on the RH rear door ajar circuit.

Body Control Module (BCM)



Removal

NOTE: Removal steps in this procedure may contain installation details.

1. If installing a new BCM , connect a battery charger to the battery to make sure it is charged to maintain proper battery voltage.
Refer to: [Battery Charging](#) (414-01 Battery, Mounting and Cables, General Procedures) .
2. **NOTE:** *If the BCM (body control module) did not respond to the diagnostic scan tool, As-Built Data may need to be entered as part of the repair. This step is only necessary if the BCM (body control module) is being replaced.*

Using a diagnostic scan tool, begin the PMI process for the BCM following the on-screen instructions.

Refer to: [Module Configuration - System Operation and Component Description](#) (418-01 Module Configuration, Description and Operation) .

3. Release the clips and remove the BCM cover.