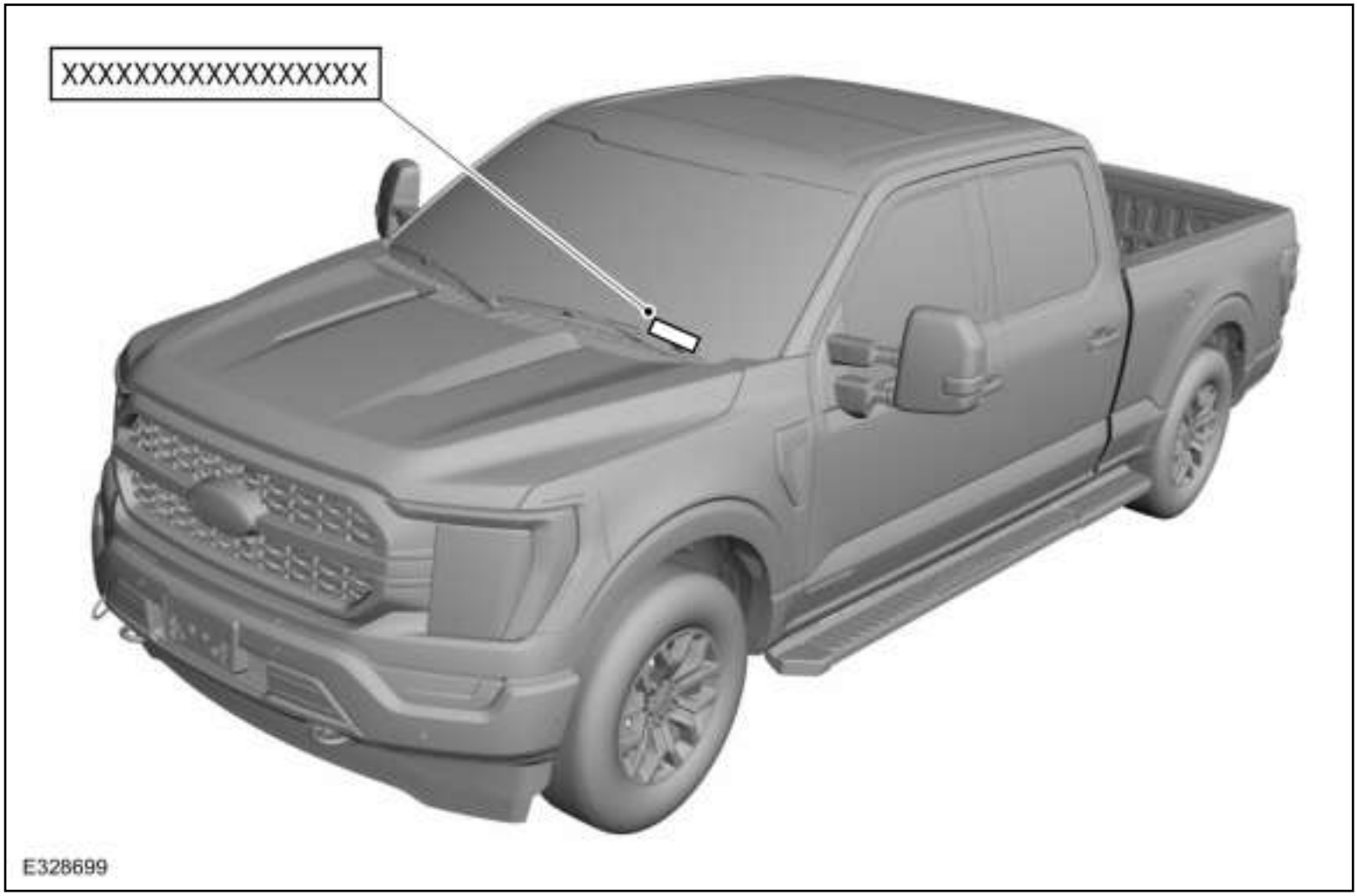
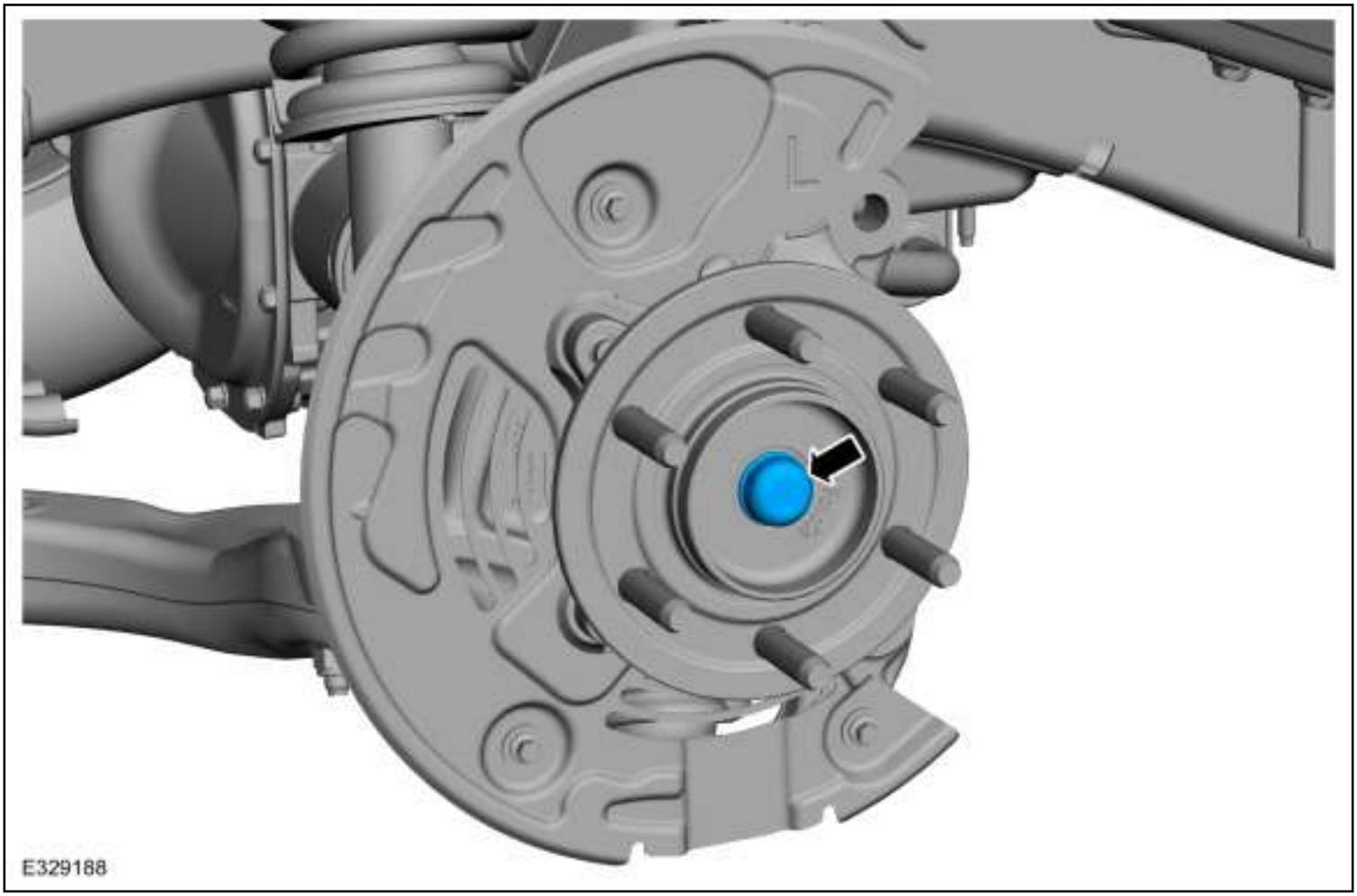
Identification Codes

VIN

VIN Locator

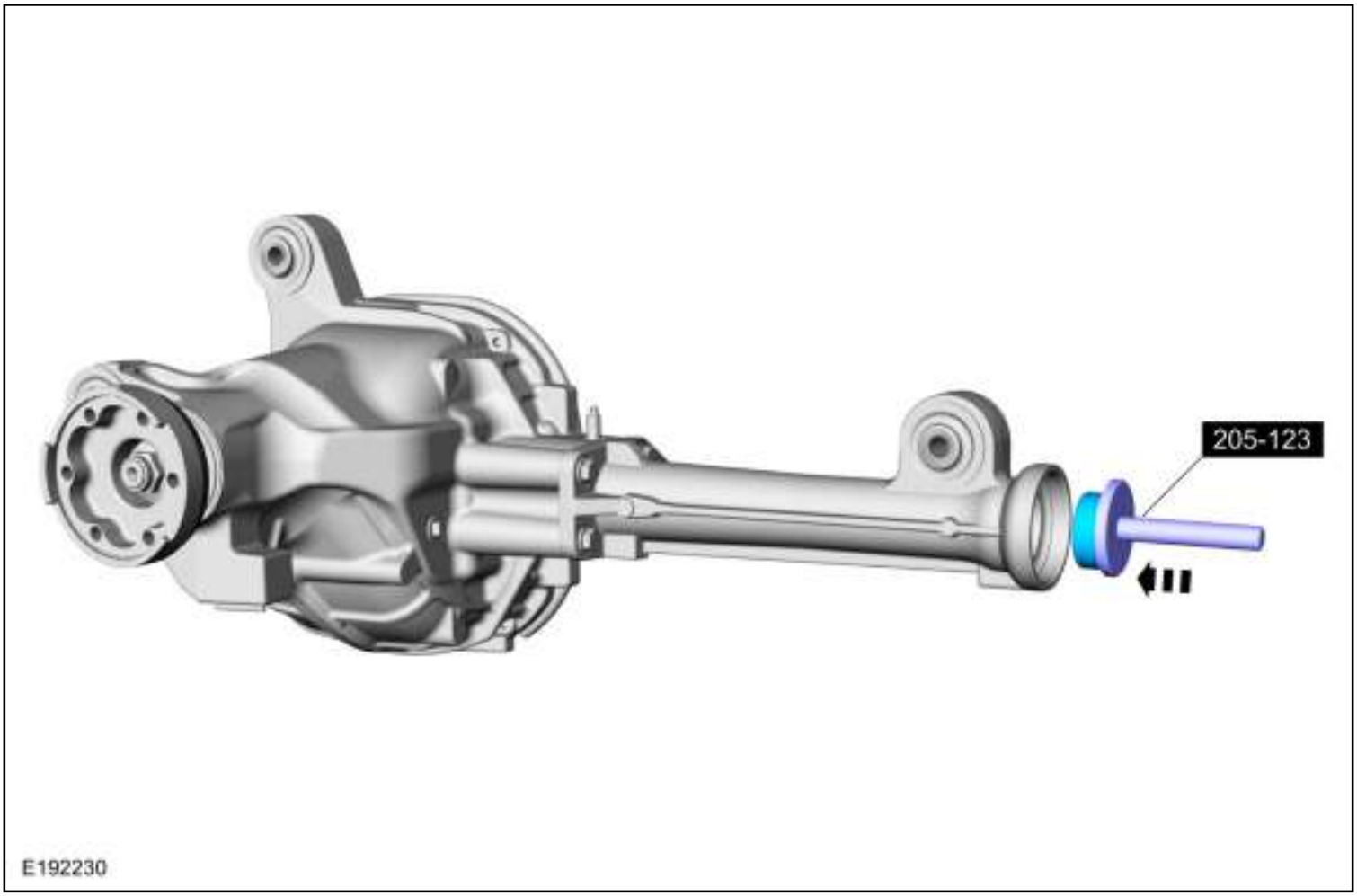


The VIN is a 17-digit combination of letters and numbers. The VIN is stamped on a metal tab riveted to the instrument panel, top upper left of the dash. The VIN is also found on the VC label. If the VIN plate requires replacement, authorized dealers must contact their respective regional office.



6. **NOTICE: When installing the halfshafts measure the depth of the CV shaft threaded end to the inner bearing race. The minimum depth is 15.5 mm (0.61 in). If the depth is less than 15.5 mm (0.61 in) rotate the CV shaft to clear a binding condition between the IWE and CV splines. Installing the axle nut and tightening without the proper depth of protrusion will result in damage to the IWE .**

   Remove and discard the wheel hub nut.



2. Install the axle shaft seal.
   Refer to: Axle Shaft Seal (205-03 Front Drive Axle/Differential, Removal and Installation) .

- Ignition OFF.
- Disconnect HVAC control module C228A .
- Disconnect GWM module C2431A .
- Disconnect ABS module C135 .
- Using a good light source, inspect all disconnected electrical 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
- Connect ABS module C135 . Make sure it seats and latches correctly.
- Connect GWM module C2431A . Make sure it seats and latches correctly.
- Connect HVAC control module C228A . 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 for any 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 HVAC control module. REFER to: Heating, Ventilation and Air Conditioning (HVAC) Control Module (412-00 Climate Control System - General Information, Removal and Installation) . REFER to: Heating, Ventilation and Air Conditioning (HVAC) Control Module - Vehicles With: 15.5 Inch Center Display Screen (412-00 Climate Control System - General Information, Removal and Installation) .
No	Click for details

Steering Wheel and Column Electrical Components - System Operation and Component Description

System Operation

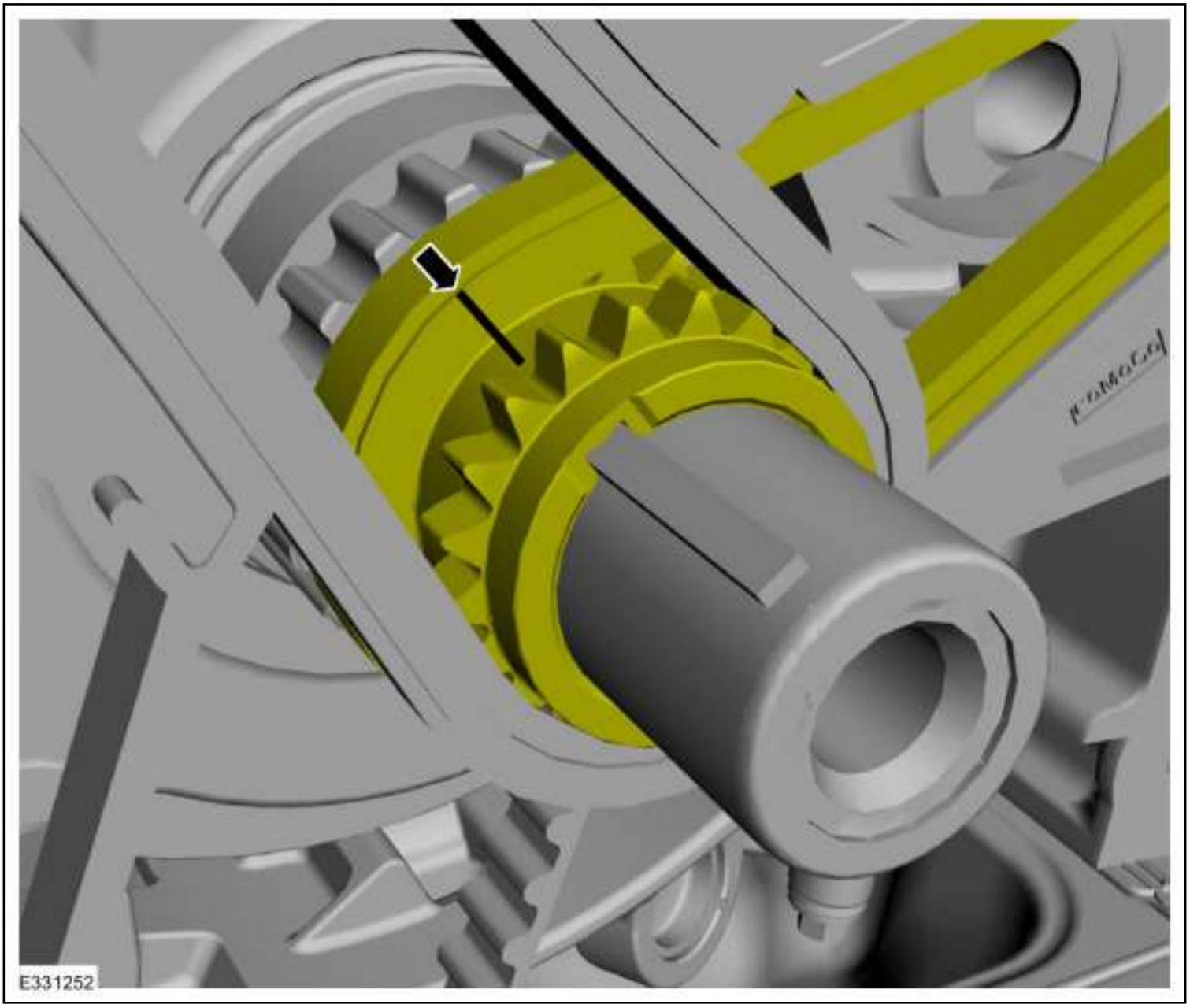
System Diagram - Conventional Ignition Switch

E421535 1 PCM 2 BCM 3 GWM HS2-CAN 4 GSM 5 BCMC 6 Run/Start Relay 7 Ignition Switch 8 Key Release Interlock Actuator

Item	Description
1	PCM
2	BCM
3	GWM
4	GSM
5	BCMC
6	Run/Start Relay
7	Ignition Switch
8	Key Release Interlock Actuator

Network Message Chart - Conventional Ignition Switch

GWM Module Network Input Messages



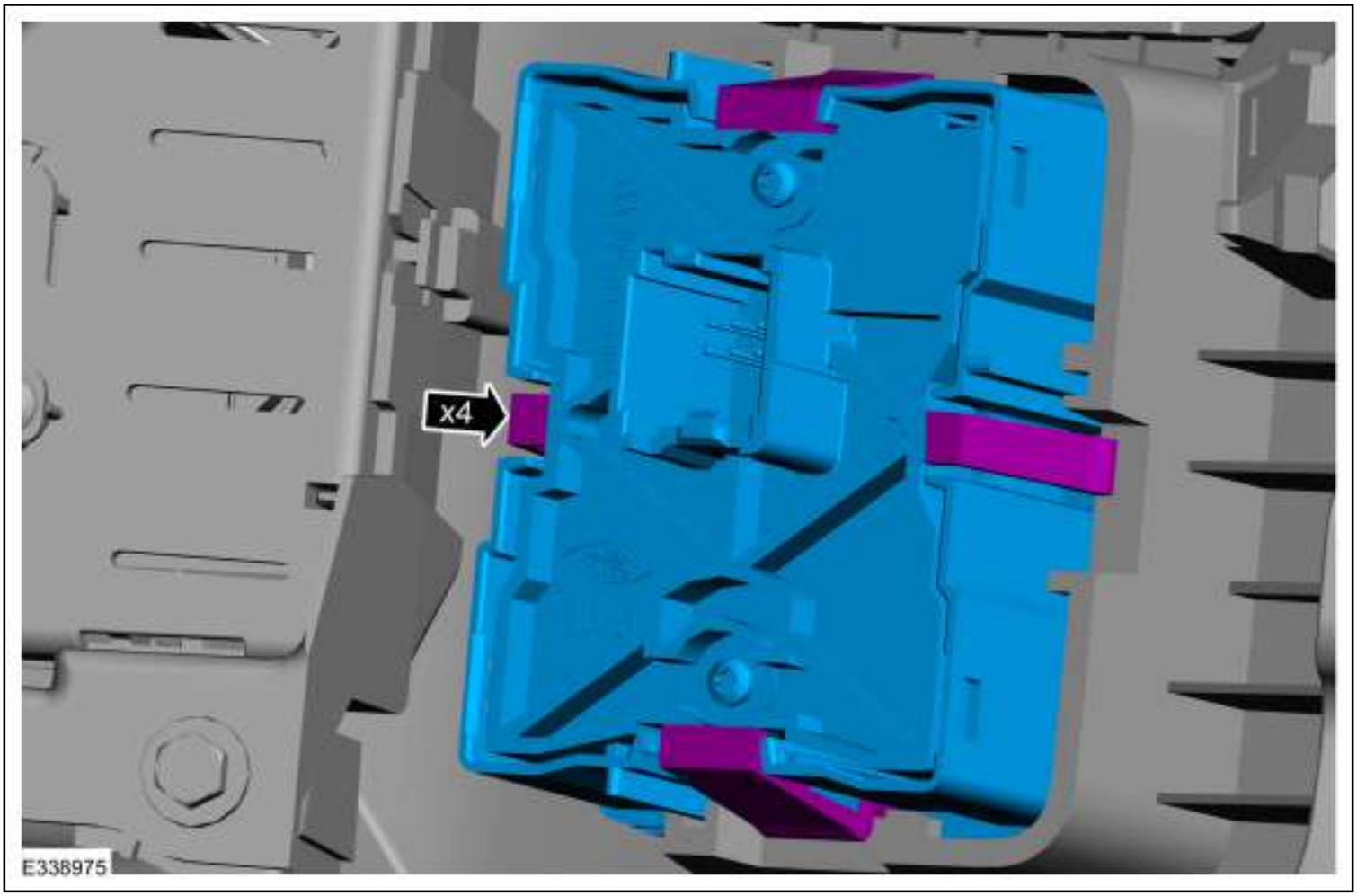
3. **NOTICE: The timing chain must remain in its original position on the VCT unit using the scribed marks, or damage to valves and pistons will result.**

   Verify the VCT unit and LH timing chain scribe marks are still in alignment.

PCM P3428:00	Cylinder 4 Deactivation/Intake Valve Control Circuit High: No Sub Type Information	Sets when the PCM detects a higher than expected voltage from the cylinder deactivation control cylinder 4 circuit is detected.
PCM P3441:00	Cylinder 6 Deactivation/Intake Valve Control Circuit/Open: No Sub Type Information	Sets when the PCM detects a low or high voltage from the cylinder deactivation control cylinder 6 circuit is detected.
PCM P3442:00	Cylinder 6 Deactivation/Intake Valve Control Circuit Performance: No Sub Type Information	Sets when the PCM detects that the cylinder deactivation solenoid is not in the correct commanded state.
PCM P3443:00	Cylinder 6 Deactivation/Intake Valve Control Circuit Low: No Sub Type Information	Sets when the PCM detects a lower than expected voltage from the cylinder deactivation control cylinder 6 circuit is detected.
PCM P3444:00	Cylinder 6 Deactivation/Intake Valve Control Circuit High: No Sub Type Information	Sets when the PCM detects a higher than expected voltage from the cylinder deactivation control cylinder 6 circuit is detected.
PCM P3449:00	Cylinder 7 Deactivation/Intake Valve Control Circuit/Open: No Sub Type Information	Sets when the PCM detects a low or high voltage from the cylinder deactivation control cylinder 7circuit is detected.
PCM P3450:00	Cylinder 7 Deactivation/Intake Valve Control Circuit Performance: No Sub Type Information	Sets when the PCM detects that the cylinder deactivation solenoid is not in the correct commanded state.
PCM P3451:00	Cylinder 7 Deactivation/Intake Valve Control Circuit Low: No Sub Type Information	Sets when the PCM detects a lower than expected voltage from the cylinder deactivation control cylinder 7 circuit is detected.
PCM P3452:00	Cylinder 7 Deactivation/Intake Valve Control Circuit High: No Sub Type Information	Sets when the PCM detects a higher than expected voltage from the cylinder deactivation control cylinder 7 circuit is detected.

Possible Causes

- Cylinder deactivation solenoid circuitry concern
- Cylinder deactivation solenoid



Installation

1. To install, reverse the removal procedure.

BCM B1315:15	Backlighting (Non Reflective Controls) Illumination Output: Circuit Short To Battery Or Open	A continuous and on-demand DTC that sets when the BCM detects lower than expected current draw from the backlighting illumination output circuit.

Possible Causes

- Wiring, terminals or connectors
- BCM

C1 CHECK THE EXTERIOR LIGHTING

- Ignition ON.
- Place the headlamp switch in the OFF position.
- Observe the parking lamps.

Are the parking lamps operating correctly?

Yes	If the illumination is inoperative, GO to C3 If the illumination is always on, GO to C2
No	DIAGNOSE a concern with the headlamp switch. REFER to: Headlamps - Electric (417-01 Exterior Lighting, Diagnosis and Testing) . REFER to: Headlamps - Vehicles With: LED Headlamps (417-01 Exterior Lighting, Diagnosis and Testing) . REFER to: Headlamps - Vehicles With: Adaptive LED Headlamps (417-01 Exterior Lighting, Diagnosis and Testing) .

2. Connect the positive (red) charger clamp to the positive battery post.

3. Connect the negative (black) charger clamp to an engine or chassis ground.

4. Charge the battery following the battery charger manufacturer's instructions.

Charger Connected to Battery Posts

NOTICE: The battery monitoring sensor must relearn the battery's state of charge after charging, refer to Battery State of Charge in section 414-00.

5. Disconnect the battery.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures) .

6. Connect the positive (red) charger clamp to the positive battery post.

7. Connect the negative (black) charger clamp to the negative battery post.

8. Charge the battery following the battery charger manufacturer's instructions.

Auxiliary Battery(s)

NOTE: *Vehicles equipped with two auxiliary batteries, the batteries are connected in series and need to be separated prior to testing the battery(s).*

9. Disconnect the auxiliary battery(s).
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures) .

10. Connect the positive (red) charger clamp to the positive battery post.

11. Connect the negative (black) charger clamp to the negative battery post.

12. Using an Absorbed Glass Mat (AGM) battery charger, charge the battery for one hour at 2 amps.

L6 CHECK THE HCM (HEADLAMP CONTROL MODULE) PROGRAMMING

- Using a diagnostic scan tool, complete the PMI process for the HCM following the on-screen instructions.
- REPEAT the HCM self-test.

Does any Diagnostic Trouble Codes (DTCs) return?

Yes	GO to L7
No	Click for details

L7 CHECK FOR CORRECT HCM (HEADLAMP CONTROL MODULE) OPERATION

- Disconnect and inspect the HCM and related in-line connectors.
- 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 HCM and related in-line connectors. Make sure it seats and latches correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	Click for details
No	Click for details

Possible Causes

- Communication network concern
- GSM
- IPMA concern
- GWM

H1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify there is an observable symptom present.

Is an observable symptom present?

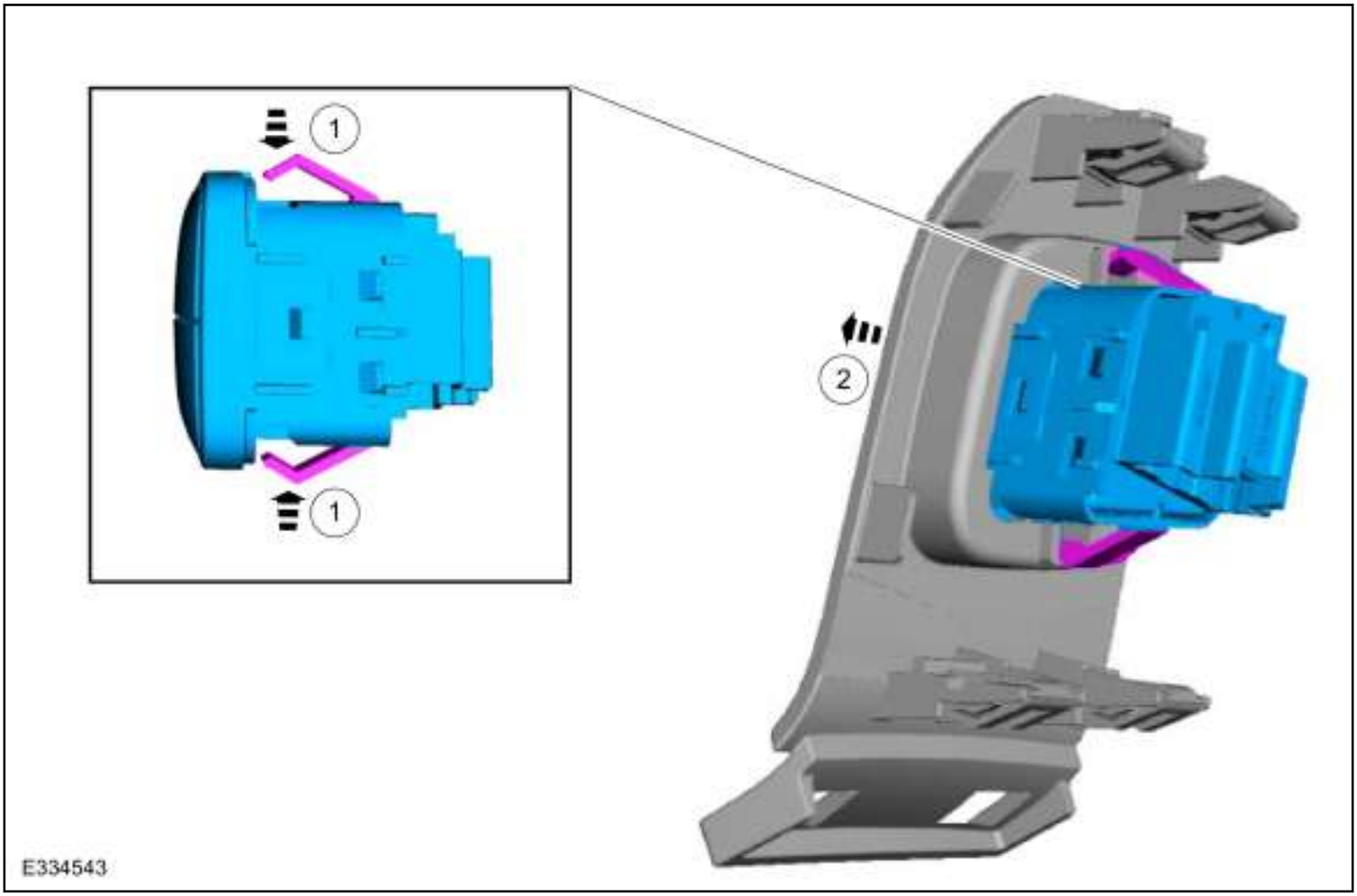
Yes	GO to H2
No	Click for details

H2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test

Does the GSM pass the network test?

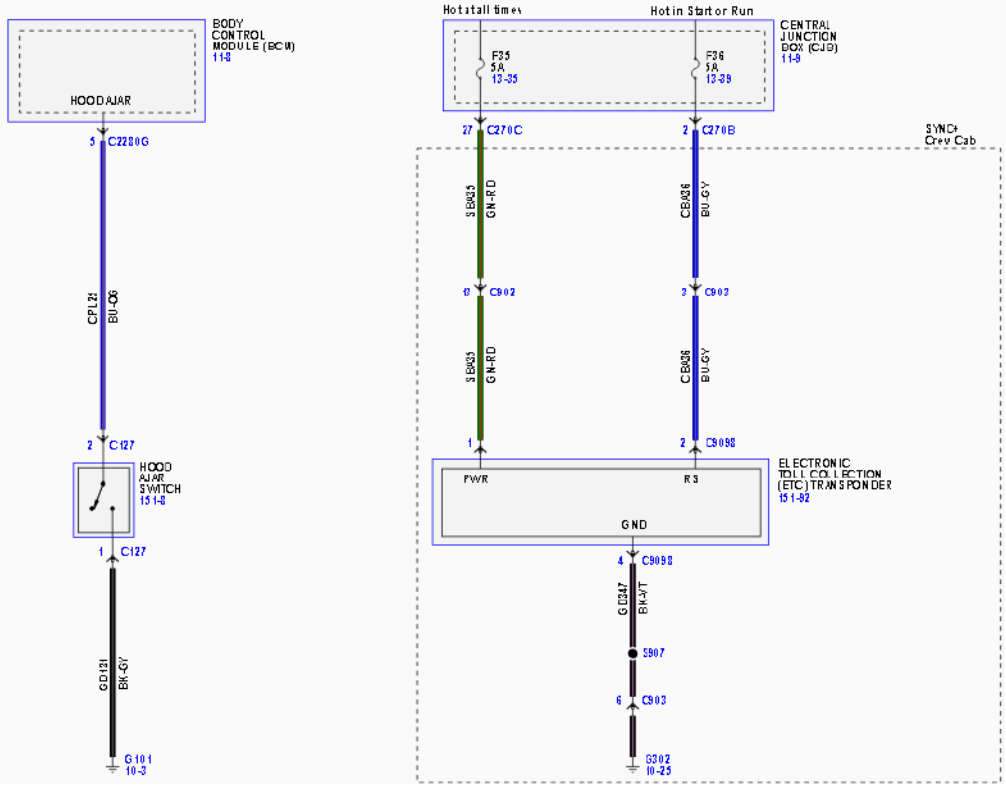
Yes	GO to H3
No	Click for details



Installation

1. To install, reverse the removal procedure.

23. Drill for fasteners.
    Use the General Equipment: 6.5 mm Drill Bit


BODY CONTROL MODULE (BCM) 11-2
HOOD AJAR
5 C2280G
CPL21 BU-OG
2 C127
HOOD AJAR SWITCH 151-8
1 C127
GD131 BK-GY
G101 10-3
Hot at all times
Hot in Start or Run
CENTRAL JUNCTION BOX (CJB) 11-9
F35 5A 13-35
F36 5A 13-39
27 C270C
2 C270B
SYNC Crew Cab
SBA35 GN-RD
CBA36 BU-GY
12 C902
2 C902
SBA35 GN-RD
CBA36 BU-GY
1
2 C909B
ELECTRONIC TOLL COLLECTION (ETC) TRANSPONDER 151-82
PWR
RS
GND
4 C909B
GD347 BK-VT
S907
6 C903
G302 10-25