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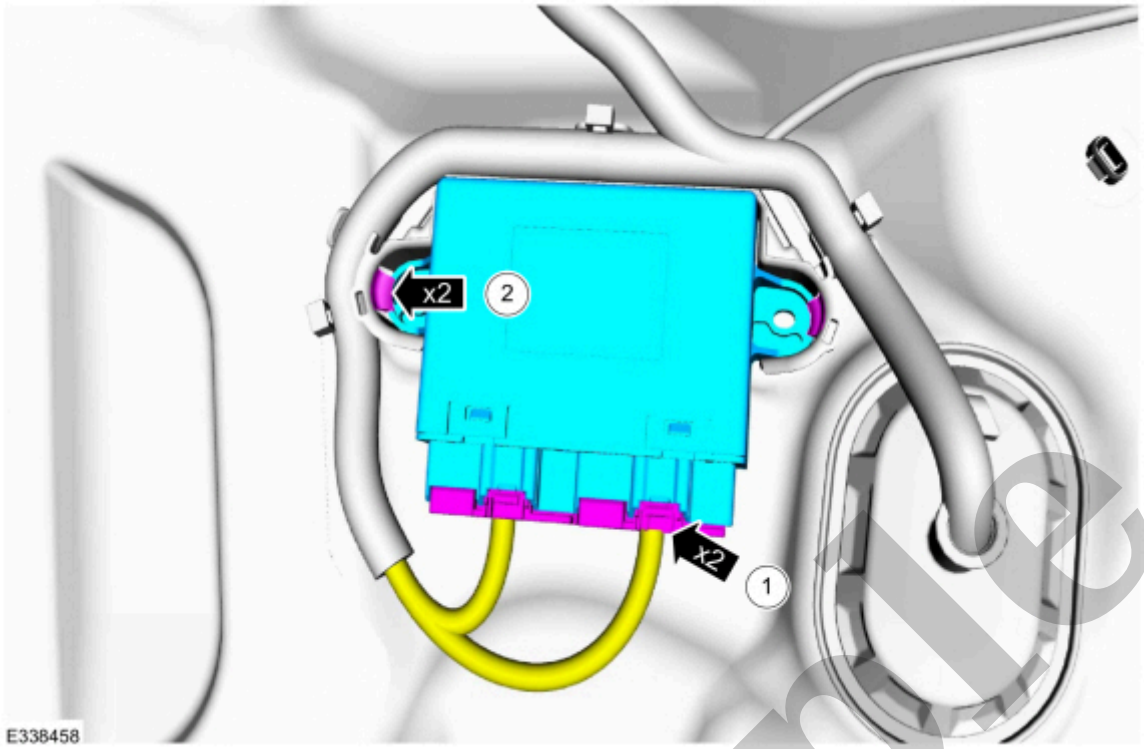
2015 FORD Explorer OEM Service and Repair Workshop Manual

Go to manual page

2. Release the tabs and remove the DDM (driver door module) .



Click here to learn about symbols, color coding, and icons used in this manual.

Installation

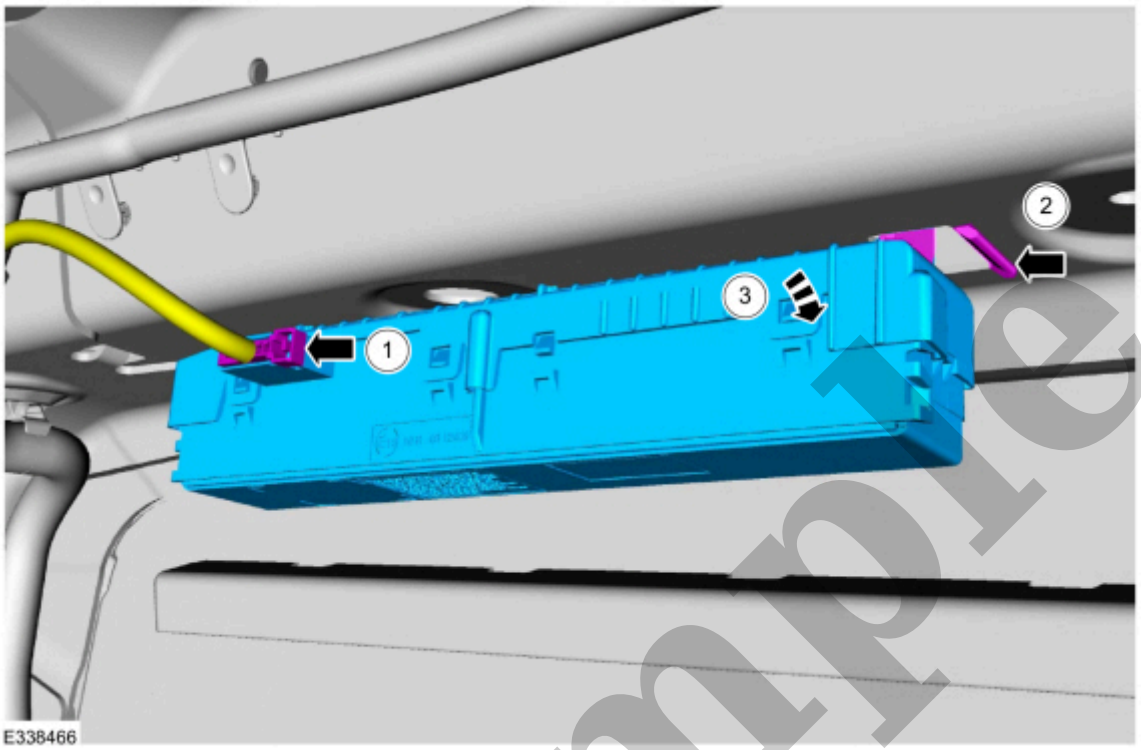
1. To install, reverse the removal procedure.
2. Using a diagnostic scan tool, complete the PMI (programmable module installation) process for the DDM (driver door module) following the on-screen instructions.
3. If installing a new module, carry out the power door window initialization.

   Refer to: Power Door Window Initialization(501-11 Glass, Frames and Mechanisms, General Procedures).

3. 1. Disconnect the electrical connector.

   2. Release the tab.

   3. Rotate the RTM (radio transceiver module) downward and remove.



Click here to learn about symbols, color coding, and icons used in this manual.

Installation

1. To install, reverse the removal procedure.
2. Using a diagnostic scan tool, complete the PMI (programmable module installation) process for the RTM (radio transceiver module) following the on-screen instructions.

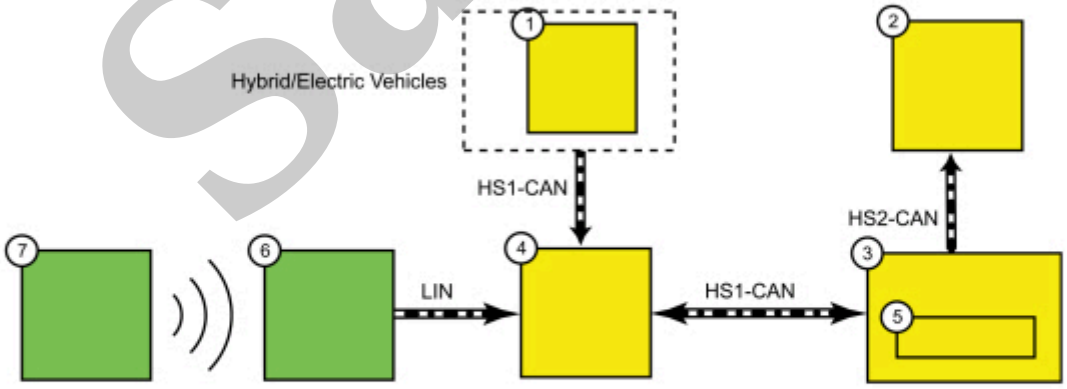
Passive Anti-Theft System (PATS) - System Operation and Component Description

419-01B Passive Anti-Theft System (PATS) - Vehicles With: Keyed Ignition	***2022 F-150***
Description and Operation	***Procedure revision date: 02/3/2022***

Passive Anti-Theft System (PATS) - System Operation and Component Description

System Operation

System Diagram



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Broadcast Message	Originating Module	Message Purpose
Immobilizer target 1 function	PCM (powertrain control module)	The immobilizer subtarget function sends a responce message to challenge message from the PCM (powertrain control module) .

PATS

The PATS (passive anti-theft system) function is controlled by the BCM (body control module) , ABS (anti-lock brake system) module the PCM (powertrain control module) and the SOBDMC (secondary on-board diagnostic control module C) (if equipped). There are 2 main checks the PATS (passive anti-theft system) performs before allowing the vehicle to start.

If either of these checks fail, the PATS (passive anti-theft system) does not allow the vehicle to start.

- The BCM (body control module) verifying a programmed key when it is inserted into the ignition lock cylinder.
- The PCM (powertrain control module) verifying the BCM (body control module) identification to make sure it matches the identification stored in memory when the ignition state changes to RUN or START.

When the BCM (body control module) determines a key is inserted into the ignition lock cylinder, it generates a challenge message. It sends the challenge message to the PATS (passive anti-theft system) transceiver over a LIN (local interconnect network) -based circuit. The transceiver reads the key and generates a response message to the BCM (body control module) . If the message received from the PATS (passive anti-theft system) transceiver does not match a key stored in the BCM (body control module) memory, the BCM (body control module) does not respond to the PCM (powertrain control module) challenge request when the ignition transitions from OFF to ON.

The BCM (body control module) activates the wake-up control circuit when a key is inserted into the ignition lock cylinder or a remote start request is received (if equipped with factory remote start).

The BCM (body control module) wakes up the PCM (powertrain control module) by supplying voltage on the wake-up control circuit.

Once the PCM (powertrain control module) is awake the PCM (powertrain control module) sends the BCM (body control module) a challenge message over the HS-CAN (high-speed controller area network) . When the BCM (body control module) receives the challenge message, it generates a response and sends it back to the PCM (powertrain control module) . If the response from the BCM (body control module) does not match the data in the PCM (powertrain control module) memory, this check fails and the vehicle does not start.

When the ignition transitions from OFF to ON and the modules initialize, the PCM (powertrain control module) sends a target 1 challenge request, the SOBDMC (secondary on-board diagnostic control module C) sends a

PATSENABL	Vehicle enable status	Indicates if PATS (passive anti-theft system) allows the vehicle to be driven. Must read enabled for the vehicle to be driven.

Component Description

BCM (body control module)

When the BCM (body control module) is replaced, program at least 2 keys and perform the parameter reset procedure.

The BCM (body control module) requires PMI (programmable module installation) when replaced.

IKT (integrated keyhead transmitter)

The IKT (integrated keyhead transmitter) incorporates both the PATS (passive anti-theft system) functions and the RKE (remote keyless entry) transmitter functions in a single device.

During key programming procedures, the PATS (passive anti-theft system) and the RKE (remote keyless entry) transmitter of an IKT (integrated keyhead transmitter) are programmed into the BCM (body control module) . Conventional PATS (passive anti-theft system) keys can also be programmed to the vehicle if requested by the customer.

A minimum of 2 and a maximum of 6 keys can be programmed (unless in unlimited key mode).

PATS (passive anti-theft system) Transceiver

The PATS (passive anti-theft system) transceiver reads any key placed in the ignition lock cylinder. When the ignition changes to RUN or START, the BCM (body control module) activates the PATS (passive anti-theft system) transceiver. Once the PATS (passive anti-theft system) transceiver activates, it activates the key in the ignition lock cylinder and receives the key data. Once the PATS (passive anti-theft system) transceiver receives the key data, it sends the data to the BCM (body control module) .

PCM (powertrain control module)

When the PCM (powertrain control module) is replaced, perform the parameter reset procedure. There is no need to program keys if the PCM (powertrain control module) is replaced.

The PCM (powertrain control module) requires PMI (programmable module installation) when replaced.

SOBDMC (secondary on-board diagnostic control module C) (hybrid/electric vehicles)

When the SOBDMC (secondary on-board diagnostic control module C) is replaced, perform the parameter reset procedure. There is no need to program keys if the SOBDMC (secondary on-board diagnostic control module C) is replaced.

The SOBDMC (secondary on-board diagnostic control module C) requires PMI (programmable module installation) when replaced.

Passive Anti-Theft System (PATS)

419-01B Passive Anti-Theft System (PATS) - Vehicles With: Keyed Ignition	***2022 F-150***
Diagnosis and Testing	***Procedure revision date: 10/29/2021***

Passive Anti-Theft System (PATS)

Diagnostic Trouble Code (DTC) Chart

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.

REFER to: Diagnostic Methods

(100-00 General Information, Description and Operation).

Diagnostic Trouble Code Chart

Module	DTC (diagnostic trouble code)	Description	Action
BCM (body control module)	B10D5:13	PATS Antenna: Circuit Open	GO to Pinpoint Test G
BCM (body control module)	B10D7:05	Key: System Programming Failure	GO to Pinpoint Test B
BCM (body control module)	B10D7:51	PATS Key: Not Programmed	GO to Pinpoint Test H
BCM (body control module)	B10D7:55	PATS Key: Not Configured	GO to Pinpoint Test

PCM (powertrain control module)	P161B:00	Incorrect Response from Secondary Immobilizer Control Module: No Sub Type Information	GO to Pinpoint Test K
SOBDMC (secondary on-board diagnostic control module C)	P161A:00	Incorrect Response from Immobilizer Control Module: No Sub Type Information	GO to Pinpoint Test K

Global Customer Symptom Code (GCSC) Chart

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.

REFER to: Diagnostic Methods

(100-00 General Information, Description and Operation).

Global Customer Symptom Code Chart

Customer Symptom	Action
Start/Run/Move > Starting > No Crank > Always	GO to Pinpoint Test A
Start/Run/Move > Starting > Ignition Switch/Key > Reprogramming	GO to Pinpoint Test B
Start/Run/Move > Starting > Ignition Switch/Key > Reprogramming	GO to Pinpoint Test C
Safe & Secure > Anti-Theft > Control > Inoperative	GO to Pinpoint Test A
Safe & Secure > Remote Entry > Control > Reprogramming	GO to Pinpoint Test B
Safe & Secure > Remote Entry > Control > Reprogramming	GO to Pinpoint Test C

Symptom Chart

Symptom Chart: PATS (passive anti-theft system)

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.

REFER to: Diagnostic Methods

(100-00 General Information, Description and Operation).

Condition	Actions

	(419-01B Passive Anti-Theft System (PATS) - Vehicles With: Keyed Ignition, General Procedures).

No	GO to A2

A2 CHECK FOR COMMUNICATION WITH THE PCM (POWERTRAIN CONTROL MODULE) AND THE BCM (BODY CONTROL MODULE)

- Ignition ON.
- Using a diagnostic scan tool, perform the network test.

Does the PCM (powertrain control module) and the BCM (body control module) pass the network test?

Yes	GO to A3

No	REFER to: Controller Area Network (CAN) Module Communications Network(418-00A Controller Area Network (CAN) Module Communications Network, Diagnosis and Testing).

A3 CHECK IF THE ENGINE CRANKS

- Attempt to start the engine.

Does the engine crank?

Yes	The no-start condition is not PATS (passive anti-theft system) -related.

No	GO to A4

A4 CHECK FOR PCM (POWERTRAIN CONTROL MODULE) AND BCM (BODY CONTROL MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, perform the PCM (powertrain control module) and the BCM (body control module) self-tests.

Are any PCM (powertrain control module) or BCM (body control module) Diagnostic Trouble Codes (DTCs) present?

B1 CHECK THE BCM (BODY CONTROL MODULE) DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE SELF-TEST

- Review the Diagnostic Trouble Codes (DTCs) from the BCM (body control module) self-test.

Is DTC (diagnostic trouble code) B10D5:13, B10D7:87, B10D9:87, C113A:11 or C113A:15 present?

Yes	For DTC (diagnostic trouble code) B10D5:13, GO to Pinpoint Test G For DTC (diagnostic trouble code) B10D7:87, GO to Pinpoint Test C For DTC (diagnostic trouble code) B10D9:87, GO to Pinpoint Test E For DTC (diagnostic trouble code) C113A:11 or C113A:15, GO to Pinpoint Test F
No	GO to B2

B2 CHECK THE PATS (PASSIVE ANTI-THEFT SYSTEM) KEY

- Verify the correct PATS (passive anti-theft system) keys are used with the vehicle. Refer to the parts catalog.

Are the correct PATS (passive anti-theft system) keys used?

Yes	PROGRAM the key again. If key programming fails, DISCARD the suspect key and PROGRAM a new key. REFER to: Anti-Theft Key Programming - Scan Tool (419-01B Passive Anti-Theft System (PATS) - Vehicles With: Keyed Ignition, General Procedures).
No	OBTAIN the correct key for the vehicle. PROGRAM the new key. REFER to: Anti-Theft Key Programming - Scan Tool (419-01B Passive Anti-Theft System (PATS) - Vehicles With: Keyed Ignition, General Procedures).

PINPOINT TEST C : UNABLE TO PROGRAM KEYS USING A DIAGNOSTIC SCAN TOOL

Normal Operation and Fault Conditions

REFER to: Passive Anti-Theft System (PATS) - System Operation and Component Description(419-01B Passive Anti-Theft System (PATS) - Vehicles With: Keyed Ignition, Description and Operation).

DTC Fault Trigger Conditions