

- Using the diagnostic scan tool, view the BCM PIDs.
- Using the diagnostic scan tool, monitor the following BCM PIDs:
 - TIC_01_BCM (Programmed Transmitter ID Code (TIC) Value 1)
 - TIC_02_BCM (Programmed Transmitter ID Code (TIC) Value 2)
 - TIC_03_BCM (Programmed Transmitter ID Code (TIC) Value 3)
 - TIC_04_BCM (Programmed Transmitter ID Code (TIC) Value 4)
- Document each programmed TIC ID.
- Using the diagnostic scan tool, view the RTM PIDs.
- Using the diagnostic scan tool, monitor the RTM Lst_Xm_ID_Cd (Last Received Transmitter ID Code (TIC)) PID while pressing the lock and unlock buttons on the suspect key.
- Document the RTM Lst_Xm_ID_Cd TIC ID displayed when pressing the lock and unlock buttons on the suspect key.
- Compare the RTM TIC ID to the recorded BCM TIC IDs.

Does the RTM TIC ID match any of the recorded BCM TIC IDs?

Yes	GO to A4
No	No fault found. The key in question is not the original key that came with the vehicle.

A4 VERIFY THE KEY OPERATION

- Check the operation of the suspect key.

Is the concern still present?

Yes	REPLACE the suspect key. PROGRAM the new key. Refer to the appropriate key programming procedure. REFER to: Anti-Theft Key Programming - Scan Tool (419-01C Passive Anti-Theft System (PATs) - Vehicles With: Keyless Vehicle System, General Procedures).
No	The system is OK. The concern was caused by an uncompleted programmed key.

A5 CHECK THE RKE (REMOTE KEYLESS ENTRY) TRANSMITTER OPERATION

- Press the lock and unlock RKE transmitter buttons on the suspect passive key.

Do the doors lock and unlock?

Yes	GO to A6
No	REFER to: Locks, Latches and Entry Systems (501-14 Handles, Locks, Latches and Entry Systems, Diagnosis and Testing).

A6 CHECK THE PASSIVE KEY LOCATION

- Check the location of the passive key. If it is placed in the far corners of the interior of the vehicle, move the passive key out of these areas and attempt to start the vehicle.

Does the vehicle start?

Yes	The system is OK. INFORM the customer of the normal vehicle operation.
No	GO to A7

A7 CHECK FOR ENVIRONMENTAL INTERFERENCE

- Check for the use of consumer electronic devices that may cause interference with the passive key such as:
 - other passive keys.
 - a charger that is plugged in.
 - a USB device plugged into the media center.
 - a cell phone, speed pass or other electronic device next to the passive key.
- Remove any devices found and attempt to start the vehicle.

Does the vehicle start?

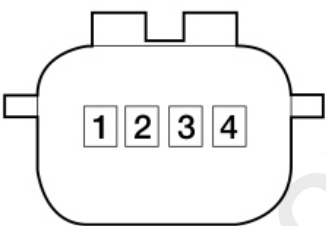
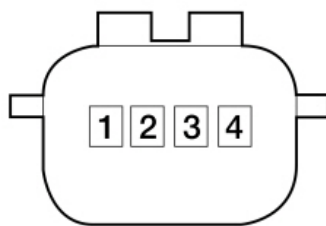
Yes	INFORM the customer of the cause of the concern and the normal operation of the vehicle.
No	GO to A8

A8 CHECK THE SUSPECT ANTENNA

NOTE: For a concern with key programming or if unable to start the vehicle with the passive key in the backup starting location, follow the diagnostics for the PATS front/center antenna, and keyless entry rear antenna.

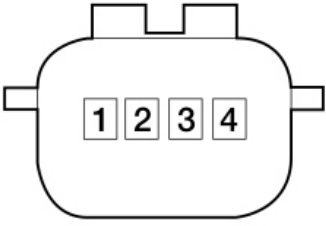
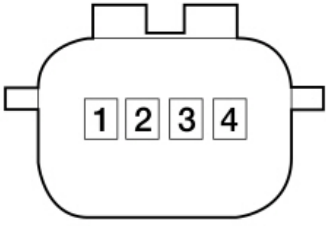
- Ignition OFF.
- Disconnect the suspect antenna.
- Measure:

PATS Center Antenna

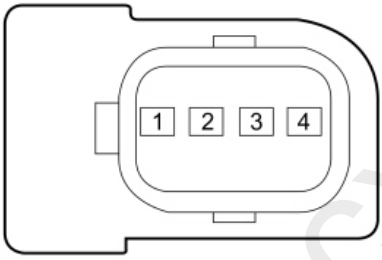
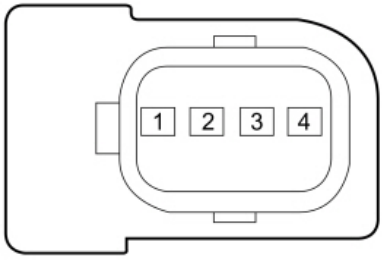
Positive Lead	Measurement / Action	Negative Lead
 E157911 C325, pin 1, component side	Ω	 E157911 C325, pin 2, component side

Keyless Entry Rear Antenna

Positive Lead	Measurement / Action	Negative Lead

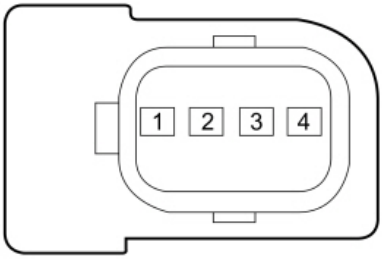
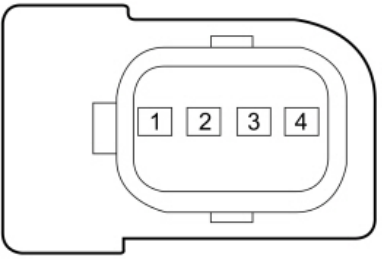
Positive Lead	Measurement / Action	Negative Lead
 E157911 C4332, pin 1, component side	Ω	 E157911 C4332, pin 2, component side

PATS Left Front Door External Antenna

Positive Lead	Measurement / Action	Negative Lead
 E158730 C543, pin 2, component side	Ω	 E158730 C543, pin 3, component side

PATS Right Front Door External Antenna

Positive Lead	Measurement / Action	Negative Lead

Positive Lead	Measurement / Action	Negative Lead
 E158730 C634, pin 2, component side	Ω	 E158730 C634, pin 3, component side

A9 CHECK THE SUSPECT ANTENNA CIRCUITS FOR A SHORT TO VOLTAGE

- Disconnect BCM [C2280D](#) .
- Measure:

Is the resistance between 1 and 3 ohms?
 PASSIVE ANTI-THEFT SYSTEM (PATS) CENTER ANTENNA

Yes GO to [A9](#)

No INSTALL a new antenna in question.



PATS Center Antenna

Positive Lead	Measurement / Action	Negative Lead
C325-1		Ground
C325-2		Ground

KEYLESS ENTRY REAR ANTENNA



Keyless Entry Rear Antenna

Positive Lead	Measurement / Action	Negative Lead
C4332-1		Ground
C4332-2		Ground

EXTERIOR FRONT DOOR HANDLE LH	
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PATS Left Front Door External Antenna

Positive Lead	Measurement / Action	Negative Lead
C543-2		Ground
C543-3		Ground

EXTERIOR FRONT DOOR HANDLE RH	
-------------------------------	--

PATS Right Front Door External Antenna

Positive Lead	Measurement / Action	Negative Lead
C634-2		Ground
C634-3		Ground

Is any voltage present?

Yes	REPAIR the circuit in question.
No	GO to A10

A10 CHECK THE SUSPECT ANTENNA CIRCUITS FOR A SHORT TO GROUND

- Measure:

PASSIVE ANTI-THEFT SYSTEM (PATS) CENTER ANTENNA



PATS Center Antenna

Positive Lead	Measurement / Action	Negative Lead
C325-1	Ω	Ground
C325-2	Ω	Ground

KEYLESS ENTRY REAR ANTENNA



Keyless Entry Rear Antenna

Positive Lead	Measurement / Action	Negative Lead
C4332-1	Ω	Ground
C4332-2	Ω	Ground

EXTERIOR FRONT DOOR HANDLE LH



PATS Left Front Door External Antenna

Positive Lead	Measurement / Action	Negative Lead
C543-2	Ω	Ground
C543-3	Ω	Ground

EXTERIOR FRONT DOOR HANDLE RH	
-------------------------------	---

PATS Right Front Door External Antenna

Positive Lead	Measurement / Action	Negative Lead
C634-2	Ω	Ground
C634-3	Ω	Ground

Are the resistances greater than 10,000 ohms?

Yes	GO to A11
No	REPAIR the circuit in question.

A11 CHECK THE SUSPECT ANTENNA CIRCUITS FOR AN OPEN

- Measure:

PASSIVE ANTI-THEFT SYSTEM (PATS) CENTER ANTENNA	BODY CONTROL MODULE (BCM)
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PATS Center Antenna

Positive Lead	Measurement / Action	Negative Lead
C325-1	Ω	C2280D-31
C325-2	Ω	C2280D-14

KEYLESS ENTRY REAR ANTENNA	BODY CONTROL MODULE (BCM)
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Keyless Entry Rear Antenna

Positive Lead	Measurement / Action	Negative Lead
C4332-1	Ω	C2280D-16
C4332-2	Ω	C2280D-15

EXTERIOR FRONT DOOR HANDLE LH	BODY CONTROL MODULE (BCM)
-------------------------------	---------------------------

PATS Left Front Door External Antenna

Positive Lead	Measurement / Action	Negative Lead
C543-2	Ω	C2280D-13
C543-3	Ω	C2280D-28

EXTERIOR FRONT DOOR HANDLE RH	BODY CONTROL MODULE (BCM)
-------------------------------	---------------------------

PATS Right Front Door External Antenna

Positive Lead	Measurement / Action	Negative Lead
C634-2	Ω	C2280D-12
C634-3	Ω	C2280D-29

Are the resistances less than 3 ohms?

Yes	INSTALL a new antenna in question. REFER to: Passive Anti-Theft System (PATS) Center Antenna (419-01C Passive Anti-Theft System (PATS) - Vehicles With: Keyless Vehicle System, Removal and Installation). REFER to: Front Door Latch (501-14 Handles, Locks, Latches and Entry Systems, Removal and Installation). REFER to: Keyless Entry Rear Antenna (501-14 Handles, Locks, Latches and Entry Systems, Removal and Installation). TEST the system for normal operation. If the concern is still present, GO to A12
No	REPAIR the circuit in question.

A12 CHECK FOR CORRECT BCM (BODY CONTROL MODULE) OPERATION

- Disconnect and inspect all of the BCM connectors.
- Repair:
 - corrosion (install new connectors or terminals, clean module pins)
 - damaged or bent pins - install new terminals/pins
 - pushed-out pins - install new pins as necessary
- Reconnect all the BCM connectors and make sure they seat and latch correctly.
- Operate the system and determine if 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 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.

PINPOINT TEST B : UNABLE TO TURN THE IGNITION ON

Normal Operation and Fault Conditions

REFER to: Passive Anti-Theft System (PATS) - System Operation and Component Description (419-01C Passive Anti-Theft System (PATS) - Vehicles With: Keyless Vehicle System, Description and Operation).

Possible Sources

- Battery voltage concern
- PCM concern
- SOBDMC (if equipped) concern
- PATS concern
- ABS module concern

B1 CHECK VEHICLE BATTERY

- Perform the Battery Condition Test.
REFER to: Battery (414-01 Battery, Mounting and Cables, Diagnosis and Testing).

Is the battery OK?

Yes	GO to B2
No	CORRECT the battery condition and VERIFY correct charging operation. REFER to: Battery (414-01 Battery, Mounting and Cables, Diagnosis and Testing).

B2 CHECK FOR THE NO KEY DETECTED MESSAGE

- Press and release the START/STOP button while monitoring the IPC message center.

Is the No Key Detected message displayed in the IPC message center?

Yes	GO to Pinpoint Test A
No	GO to B3

B3 CHECK FOR IGNITION ON MODE

- Press and release the START/STOP button while monitoring the ignition mode indicator at the top of the button.

Does the ignition mode indicator flash on and off continuously?

Yes	The condition is not PATS-related. DIAGNOSE no power in ON. REFER to: Steering Wheel and Column Electrical Components (211-05 Steering Wheel and Column Electrical Components, Diagnosis and Testing).
No	GO to B4

B4 CHECK FOR BCM (BODY CONTROL MODULE) , PCM (POWERTRAIN CONTROL MODULE) AND SOBDMC (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE C) (IF EQUIPPED) DIAGNOSTIC TROUBLE CODES (DTCs)

- Using a diagnostic scan tool, perform the BCM self-test.
- Using a diagnostic scan tool, perform the PCM and SOBDMC (if equipped) self-test.

Are any BCM or PCM Diagnostic Trouble Codes (DTCs) present?

Yes	REFER to the DTC Chart in this section.
No	The condition is not PATS-related. DIAGNOSE no power in ON. REFER to: Steering Wheel and Column Electrical Components (211-05 Steering Wheel and Column Electrical Components, Diagnosis and Testing).

[PINPOINT TEST C : DTC \(DIAGNOSTIC TROUBLE CODE\) B10D7:05](#)

Normal Operation and Fault Conditions

REFER to: Passive Anti-Theft System (PATS) - System Operation and Component Description (419-01C Passive Anti-Theft System (PATS) - Vehicles With: Keyless Vehicle System, Description and Operation).

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
BCM B10D7:05	PATS Key: System Programming Failures	Sets when a failure occurs during the key programming procedure.

Possible Sources

- Keys not programmed
- Passive key

C1 CHECK BCM (BODY CONTROL MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, carry out the BCM self-test.

Are there any other Diagnostic Trouble Codes (DTCs) Present ?

Yes	DIAGNOSE all other Diagnostic Trouble codes (DTCs) first. Refer to DTC Chart in this section.
No	GO to C2

C2 PROGRAM SUSPECT PASSIVE KEY

- Program the suspect passive key again.
REFER to: Anti-Theft Key Programming - Scan Tool (419-01C Passive Anti-Theft System (PATS) - Vehicles With: Keyless Vehicle System, General Procedures).

Is the passive key programmed successfully?

Yes	The system is operating correctly at this time. The passive key was not programmed correctly.
No	If key programming fails, REPLACE the suspect passive key. PROGRAM the new passive key. REFER to: Anti-Theft Key Programming - Scan Tool (419-01C Passive Anti-Theft System (PATS) - Vehicles With: Keyless Vehicle System, General Procedures).

[PINPOINT TEST D : DTC \(DIAGNOSTIC TROUBLE CODE\) B10D7:55](#)

Normal Operation and Fault Conditions

REFER to: Passive Anti-Theft System (PATS) - System Operation and Component Description (419-01C Passive Anti-Theft System (PATS) - Vehicles With: Keyless Vehicle System, Description and Operation).

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
BCM B10D7:55	PATS Key: Not Configured	Sets when the CEI was not completed during the PMI procedure.

Possible Sources

- CEI was not completed during the PMI procedure.

D1 CHECK BCM (BODY CONTROL MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, carry out the BCM self-test.

Are there any other Diagnostic Trouble Codes (DTCs) Present?

Yes	DIAGNOSE all other Diagnostic Trouble codes (DTCs) first. Refer to DTC Chart in this section.
No	The Configurable Engine Immobilizer (CEI) was not completed during the PMI. CARRY OUT the Configurable Engine Immobilizer (CEI) as part of the PMI.

PINPOINT TEST E : DTC (DIAGNOSTIC TROUBLE CODE) B10D8:00

Normal Operation and Fault Conditions

REFER to: Passive Anti-Theft System (PATS) - System Operation and Component Description (419-01C Passive Anti-Theft System (PATS) - Vehicles With: Keyless Vehicle System, Description and Operation).

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
BCM B10D8:00	PATS Key Less Than Minimum Programmed: No Sub Type Information	Sets when the when less than two keys are programmed.

Possible Sources

- Minimum 2 keys not programmed

E1 CHECK BCM (BODY CONTROL MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, carry out the BCM self-test.

Are there any other Diagnostic Trouble Codes (DTCs) Present?

Yes	DIAGNOSE all other Diagnostic Trouble codes (DTCs) first. Refer to DTC Chart in this section.
No	PROGRAM the second PATS key. REFER to: Anti-Theft Key Programming - Scan Tool (419-01C Passive Anti-Theft System (PATS) - Vehicles With: Keyless Vehicle System, General Procedures).

PINPOINT TEST F : DTC (DIAGNOSTIC TROUBLE CODE) B10DA:51

Normal Operation and Fault Conditions

REFER to: Passive Anti-Theft System (PATS) - System Operation and Component Description (419-01C Passive Anti-Theft System (PATS) - Vehicles With: Keyless Vehicle System, Description and Operation).

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
BCM B10DA:51	PATS Target Identifier: Not Programmed	Sets when there is no PCM, SOBDMC (if equipped), ID stored in the BCM memory.

Possible Sources

- There is no PCM and the SOBDMC (if equipped), ID stored in the BCM memory

F1 CHECK BCM (BODY CONTROL MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, carry out the BCM self-test.

Are there any other Diagnostic Trouble Codes (DTCs) Present?

Yes	DIAGNOSE all other Diagnostic Trouble codes (DTCs) first. Refer to DTC Chart in this section.
No	CARRY OUT a parameter reset. REFER to: Anti-Theft Key Programming - Scan Tool (419-01C Passive Anti-Theft System (PATS) - Vehicles With: Keyless Vehicle System, General Procedures).

PINPOINT TEST G : DTC (DIAGNOSTIC TROUBLE CODE) P161A:00, P161B:00, SOBDMC (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE C) (IF EQUIPPED) P161A:00

Normal Operation and Fault Conditions

REFER to: Passive Anti-Theft System (PATS) - System Operation and Component Description (419-01C Passive Anti-Theft System (PATS) - Vehicles With: Keyless Vehicle System, Description and Operation).

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P161A:00	Incorrect Response from Immobilizer Control Module: No Sub Type Information	Sets when the BCM ID received by the PCM does not match the ID stored in the PCM memory.
SOBDMC P161A:00	Incorrect Response from Immobilizer Control Module: No Sub Type Information	Sets when the BCM ID received by the SOBDMC (if equipped) does not match the ID stored in the SOBDMC (if equipped) memory.
PCM P161B:00	Incorrect Response from Secondary Immobilizer Module: No Sub Type Information	Sets when the ABSID received by the PCM does not match the ID stored in the PCM memory.

Possible Sources

- The BCM ID received by the PCM and the SOBDMC (if equipped) does not match the ID stored in PCM and SOBDMC (if equipped) memory.
- The ABS ID received by the PCM does not match the ID stored in PCM memory.

G1 CHECK PCM (POWERTRAIN CONTROL MODULE) AND SOBDMC (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE C) (IF EQUIPPED) DIAGNOSTIC TROUBLE CODES (DTCs)

- Using a diagnostic scan tool, carry out the PCM and SOBDMC self-test.

Are there any other Diagnostic Trouble Codes (DTCs) Present?

Yes	DIAGNOSE all other Diagnostic Trouble codes (DTCs) first. Refer to DTC Chart in this section.
No	CARRY OUT a parameter reset. REFER to: Anti-Theft Key Programming - Scan Tool (419-01C Passive Anti-Theft System (PATS) - Vehicles With: Keyless Vehicle System, General Procedures).

General Procedures

Anti-Theft Key Programming - Scan Tool

Programming

NOTE: A passive key with a depleted battery(ies) only starts the vehicle when in the backup starting location. The RKE functionality remains inoperative until the key battery(ies) is replaced.

NOTE: The diagnostic scan tool **must** have an active Internet connection. A hardwired connection is strongly recommended.

NOTE: When programming keys, the RKE transmitter and the PATS portion of the key are programmed at the same time.

NOTE: Common anti-theft security access choices are:

- Count keys
- Erase Keys
- Program Keys
- Module Initialization

1. Using a diagnostic scan tool, establish a session with the vehicle.

Refer to: Diagnostic Methods (100-00 General Information, Description and Operation).

2. **NOTE:** If the perimeter alarm activates when a diagnostic scan tool is connected and no valid programmed keys are available, carry out the following steps:

- If equipped with a keyless entry keypad, enter the keyless entry keypad code to allow a diagnostic scan tool session to be established. Proceed to Step 3 further below.
 - If not equipped, allow the alarm to activate for 10 minutes, which will then be followed by a 1 minute access window where a diagnostic scan tool session can be established. Proceed to the following steps:
- To avoid nuisance from the horn, remove the horn fuse.
- Using a diagnostic scan tool, establish a session with the vehicle.
- Select TOOLBOX>PCM, or SOBDMC (if equipped) or BCM (some vehicles) under HS1 module list> PATS Programming, or ABS (if equipped) under HS2 module list> PATS Programming, but do **not** select the check mark box to proceed further.
- If equipped with a hood latch switch, and the hood is open for battery charging purposes, place the hood latch in the closed position.
- Latch the striker in the driver's door to prevent a door ajar condition from being reported to the BCM and leave the driver's door open to allow access to the DLC and ignition switch or push to start button. Ensure that all other doors, liftgate, luggage compartment lid, and or tailgate are closed.
- If the exterior lights are not flashing to indicate an alarm event, disconnect and reconnect the battery.
- Select PATS Programming and then select the appropriate function to erase keys. Select the corresponding check marks until the screen is displayed which indicates that 2 keys will need to be programmed to start the vehicle. Select the check mark on this screen to continue. An error may be reported on the next screen. Ignore this error. Exit from this diagnostic scan tool function and select PATS Programming a second time. Proceed until either a screen is displayed which advises to turn the ignition on or the main PATS Programming menu is displayed. Do not select the check mark on this screen or proceed any further.
- The process of requesting to erase keys with the diagnostic scan tool initiates a 10 minute timer in the BCM which must conclude before the 1 minute DLC access window will occur.
- Reinsert the horn fuse after the exterior and interior lights stop flashing. This will occur within 4-5 minutes of when a command to erase keys was sent from the diagnostic scan tool. After another 5-6 minutes (9-11 minutes from the initial point of diagnostic scan tool DLC access), the horn will chirp 1 time to indicate that the 1 minute data link access time period has begun. **Immediately proceed to step 5.** If the single horn chirp is not heard, perform the procedure again starting at step 1.
- **NOTE:** Depending on the diagnostic scan tool power settings, it may be required to provide an occasional mouse/keypad input to prevent power saver mode from being entered and the diagnostic scan tool session being interrupted during the 10 minute period before the 1 minute access window. Also, ensure that a technician service publication website session is active and has not timed out on the laptop or PC being used for this procedure.

3. Using a diagnostic scan tool, select TOOLBOX>PCM or SOBDMC (if equipped) or BCM (some vehicles) under HS1 module list> PATS Programming or ABS (if equipped) under HS2 module list> PATS Programming.

4. Select the appropriate procedure and follow the on-screen instructions.

5. When the "Gaining Security Access" screen appears, ensure the diagnostic scan tool is connected to the Internet and select "Yes" to