

IMMOBILIZER SYSTEM-RELATED PARTS PROGRAMMING

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Foreword

- When replacing immobilizer system-related parts or programming an additional remote transmitter, or clearing a remote transmitter, program the immobilizer system-related parts so that the system operates normally. For immobilizer system-related parts programming, select the programming procedures according to the service. (See Selection of Procedure for Immobilizer System-Related Parts Programming.)

Caution

- The engine cannot be started if any step or procedure for each service operation is skipped. Perform all procedures in the order of the steps.
- If any metallic or magnetic object is near the remote transmitter, communication between the remote transmitter and the vehicle may be obstructed, resulting in a failure to program the immobilizer system-related parts. Remove any metallic or magnetic objects, such as key holders, from the remote transmitter when programming immobilizer system-related parts.
- If any of the following devices are inside the vehicle, programming of immobilizer system-related parts may fail. Do not bring any of the following devices or similar products inside the vehicle when programming immobilizer system-related parts.
 - M-MDS
 - Personal computer
 - Devices that can send/receive radio waves
- If the engine is started during immobilizer system-related parts programming, the programming mode cancels. Therefore, do not start the engine unless indicated in the procedure. Repeat the procedure from the beginning if the engine is started during the immobilizer system-related parts programming.
- If a remote transmitter is near the vehicle during immobilizer system-related parts programming, it may be programmed mistakenly. Keep the remote transmitter 1 m away from the vehicle unless indicated in the procedure.
- The SSU in the procedure indicates the start stop unit. In addition, the advanced key indicates the remote transmitter.

Note

- Two or more remote transmitters must be programmed for the engine to start.
- A maximum of six remote transmitters can be programmed to one vehicle.
- The number of programmed key ID numbers can be verified using the M-MDS.
- Do not select any screen menu other than the ones indicated in the procedure during M-MDS operation.
- When programming the immobilizer system-related parts, the incode must be searched.

Selection of Procedure for Immobilizer System-Related Parts Programming

- Verify that the ROOM fuse, AT fuse, and SRS2/ESCL fuse are installed.
- Select the applicable programming procedure from the service content of the immobilizer system-related parts.

Immobilizer System-Related Parts Service and Programming Procedure Table

No.	Service		Programming procedure
1	Additional remote transmitter programming	Have remote transmitter that can start engine	(See No.1 Additional Remote Transmitter Programming Procedure (Using the M-MDS).)
2	Programming due to PCM replacement		(See No.2 Programming Procedure After PCM Replacement.)
3	Start stop unit replacement and programming due to simultaneous replacement of start stop unit/PCM		(See No.3 Start stop unit replacement and programming procedure due to simultaneous replacement of start stop unit/PCM.)
4	Remote transmitter replacement or clearing		(See No.4 Remote transmitter replacement or remote transmitter clearing.)

M-MDS Connecting Procedure

Note

- Do not place the M-MDS in the vehicle while programming the immobilizer system.

- Fully lower the door glass.
- Connect the M-MDS to the DLC-2.
- Place the M-MDS outside the vehicle.

Caution

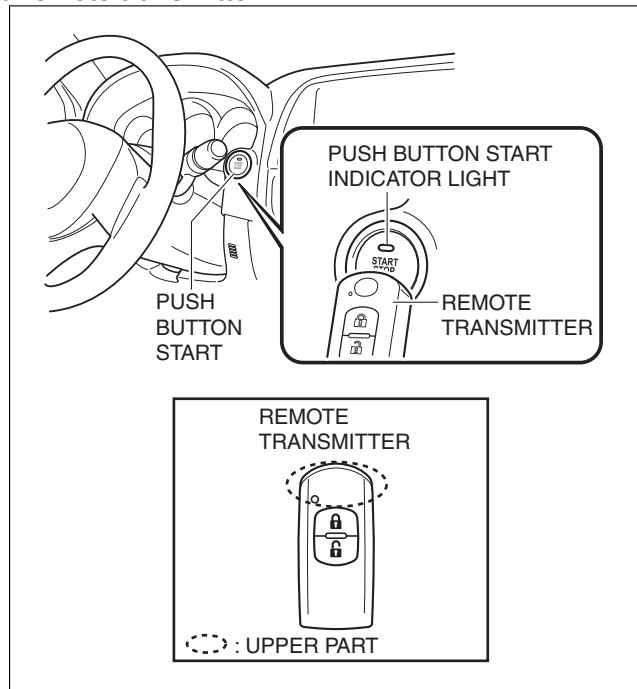
- Cover the vehicle body with a rag so as not to damage the vehicle body with the cable.

Procedure for communication between coil antenna and remote transmitter

- While the push button start indicator light (green) is flashing, press the top part of the remote transmitter against the center of the push button start.

Note

- The coil antenna is integrated with the push button start.



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No.1 Additional Remote Transmitter Programming Procedure (Using the M-MDS)

Caution

- The engine cannot be started if any step or procedure is skipped. Perform all procedures in the order of the steps.

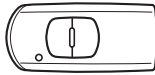
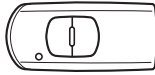
Vehicle condition

- There is a remote transmitter that can start the engine.

Note

- If a remote transmitter cannot be programmed, verify the number of programmed remote transmitter using the M-MDS.
- Perform the DTC inspection for the start stop unit using the M-MDS.

Procedure

VALID REMOTE TRANSMITTER	 REMOTE TRANSMITTER 1
REMOTE TRANSMITTER TO BE PROGRAMMED	 REMOTE TRANSMITTER 2

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Step	Procedure	Action after procedure	
1	VERIFY THAT REMOTE TRANSMITTER WHICH CAN START ENGINE IS REMOTE TRANSMITTER 1 <ol style="list-style-type: none"> Switch the ignition ON (engine off) using remote transmitter 1. Verify that the security light illuminates for approx. 3 s, and then turns off. Switch the ignition off (LOCK). 	Go to the next step.	
2	PERFORM ADDITIONAL PROGRAMMING OF REMOTE TRANSMITTER 2 <ol style="list-style-type: none"> Connect the M-MDS to the DLC-2. (See M-MDS Connecting Procedure.) Switch the ignition ON (engine off) using remote transmitter 1. After vehicle identification, select the following from the M-MDS initial screen. <ol style="list-style-type: none"> "Body" "Security" "PATS (immobilizer) function" Then, select the following from the screen menu. <ul style="list-style-type: none"> Additional advanced key programming Input the start stop unit incode and cancel the security access according to the directions on the M-MDS screen. <p>Note</p> <ul style="list-style-type: none"> "Security access permitted" is displayed on the M-MDS screen. <ol style="list-style-type: none"> Depress the clutch (MTX) or the brakes (ATX) according to the instructions on the M-MDS, and press remote transmitter 2 against the push button start while the push button start indicator light (green) is flashing. (See Procedure for communication between coil antenna and remote transmitter.) Verify that the remote transmitter 2 programming is completed on the M-MDS screen, and release the clutch (MTX) or brake (ATX) pedal. Are there other remote transmitters to be programmed? 	Yes	Change the remote transmitter and repeat Step 2.
		No	Switch the ignition off (LOCK), then go to the next step.
3	PERFORM IMMOBILIZER SYSTEM FUNCTION VERIFICATION <p>Note</p> <ul style="list-style-type: none"> Each remote transmitter is brought inside the vehicle one at a time to start the engine. <ol style="list-style-type: none"> Depress the clutch (MTX)/brake (ATX) pedal. After pressing remote transmitter 2 against the push button start, press the push button start to start the engine. (See Procedure for communication between coil antenna and remote transmitter.) Are there other remote transmitters to be programmed? 	Yes	Change the key and repeat Step 3.
		No	Go to the next step.
4	VERIFY THAT REMOTE TRANSMITTER IS PROGRAMMED <p>Place only the programmed remote transmitter on the passenger seat and verify that the engine can be started with the programmed key.</p>	Go to the next step.	

Step	Procedure	Action after procedure
5	M-MDS COMPLETION 1. Wait for 5 s or more after the M-MDS is completed and switch the ignition off (LOCK).	Procedure is completed.

No.2 Programming Procedure After PCM Replacement

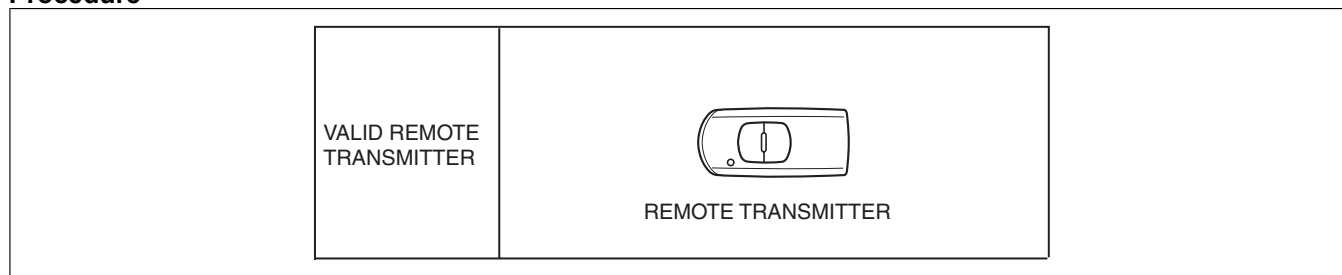
Caution

- The engine cannot be started if any step or procedure is skipped. Perform all procedures in the order of the steps.

Vehicle condition

- There is a remote transmitter that can start the engine.

Procedure



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Step	Procedure	Action after procedure
1	REPLACE PCM Refer to PCM REMOVAL/INSTALLATION to perform PCM replacement. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See PCM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)	Go to the next step.
2	PERFORM PARAMETER RESET 1. Connect the M-MDS to the DLC-2. (See M-MDS Connecting Procedure.) 2. Switch the ignition ON (engine off). Note <ul style="list-style-type: none"> Although the security indicator light illuminates for approx. 3 s and then turns off or flashes, continue to perform the procedure as indicated. 3. After vehicle identification, select the following from the M-MDS initial screen. <ol style="list-style-type: none"> "Body" "Security" "PATS (immobilizer) function" 4. Then, select the following from the screen menu. <ul style="list-style-type: none"> "Parameter reset" 5. Input the start stop unit and PCM incode and cancel the security access according to the directions on the M-MDS screen. Note <ul style="list-style-type: none"> "Security access permitted" is displayed on the M-MDS screen. 6. Perform the operation according to the directions on the M-MDS screen. Note <ul style="list-style-type: none"> "Parameter reset completed" is displayed on the M-MDS screen. 7. Select "No" according to the directions on the M-MDS. Caution <ul style="list-style-type: none"> Because the procedure switches to the procedure for key ID number clearing, if "Yes" is selected on the M-MDS screen, select "No". 	Go to the next step.
3	M-MDS COMPLETION 1. Wait for 5 s or more after the M-MDS is completed and switch the ignition off (LOCK).	Go to the next step.

Step	Procedure	Action after procedure	
4	PERFORM IMMOBILIZER SYSTEM FUNCTION VERIFICATION 1. Bring each remote transmitter into the vehicle one at a time and switch the ignition ON (engine off). 2. Verify that the security indicator light illuminates, and switch the ignition off. 3. Are there other remote transmitters to be programmed?	Yes	Change the key and repeat Step 4.
		No	Go to the next step.
5	VERIFY PARAMETER RESET IS COMPLETED Note • Each remote transmitter is brought inside the vehicle one at a time to start the engine. 1. Place only the programmed remote transmitter on the passenger seat and verify that the engine starts. 2. Does engine start?	Yes	Procedure is completed.
		No	Perform the related DTC inspection to repair the malfunctioning part.

No.3 Start stop unit replacement and programming procedure due to simultaneous replacement of start stop unit/PCM

Caution

- The engine cannot be started if any step or procedure is skipped. Perform all procedures in the order of the steps.
- Because it is necessary to program two or more remote transmitters to the immobilizer system-related parts to start the engine, perform the remote transmitter programming after clearing the remote transmitter.

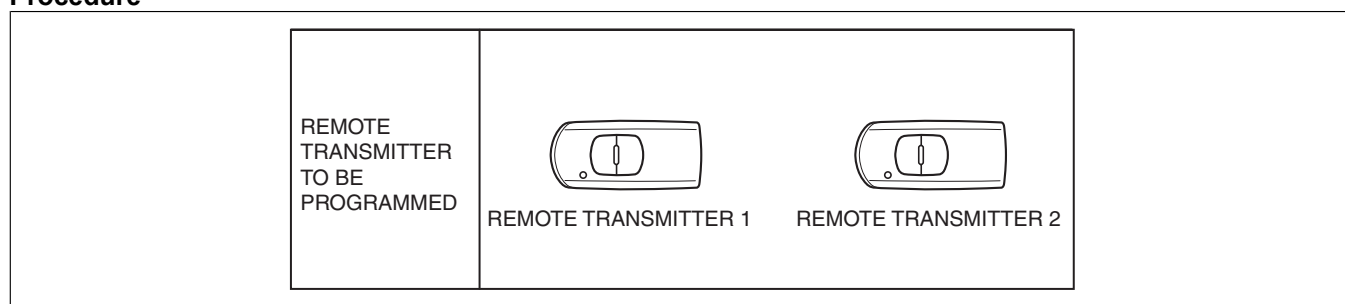
Note

- Before beginning the procedure, verify that the customer has provided all of the remote transmitters for the vehicle.
- The engine cannot be started unless two or more remote transmitters are programmed after the replacement.

Vehicle condition

- Have two or more remote transmitters to be programmed after the replacement.

Procedure



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Step	Procedure	Action after procedure
1	REPLACE START STOP UNIT AND REPLACE START STOP UNIT/PCM SIMULTANEOUSLY Refer to START STOP UNIT REMOVAL/INSTALLATION to perform start stop unit replacement. (See START STOP UNIT REMOVAL/INSTALLATION.) Refer to PCM REMOVAL/INSTALLATION to perform PCM replacement. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See PCM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)	Go to the next step.

Step	Procedure	Action after procedure	
2	<p>PERFORM PARAMETER RESET</p> <ol style="list-style-type: none"> 1. Connect the M-MDS to the DLC-2. (See M-MDS Connecting Procedure.) 2. Remove the remote transmitter from the vehicle (keep them 1 m or more from the vehicle) and switch the ignition ON (engine off) according to the directions on the M-MDS screen. 3. Select the following from the M-MDS initial screen. <ol style="list-style-type: none"> 1. "Body" 2. "Forced ignition ON" 4. Press the push button start and switch the ignition ON (engine off) according to the instructions on the M-MDS. 5. Select the following from the M-MDS initial screen. <ol style="list-style-type: none"> 1. "Body" 2. "Security" 3. "PATS (immobilizer) function" 6. Then, select the following from the screen menu. <ul style="list-style-type: none"> • "Parameter reset" 7. Input the start stop unit and PCM incode and cancel the security access according to the directions on the M-MDS screen. <p>Note</p> <ul style="list-style-type: none"> • "Security access permitted" is displayed on the M-MDS screen. <ol style="list-style-type: none"> 8. Perform the operation according to the directions on the M-MDS screen. <p>Note</p> <ul style="list-style-type: none"> • "Parameter reset completed" is displayed on the M-MDS screen. <ol style="list-style-type: none"> 9. Select "Yes" according to the directions on the M-MDS. <p>Caution</p> <ul style="list-style-type: none"> • Because the procedure will not switch to the procedure for key ID number clearing, if "No" is selected on the M-MDS screen, select "Yes". 	Go to the next step.	
3	<p>PERFORM KEY ID NUMBER CLEARING</p> <ol style="list-style-type: none"> 1. Perform the key ID number clearing and switch the ignition off (LOCK) according to the directions on the M-MDS screen. 	Go to the next step.	
4	<p>PERFORM REMOTE TRANSMITTER 1 PROGRAMMING</p> <ol style="list-style-type: none"> 1. Switch the ignition ON (engine off). <p>Note</p> <ul style="list-style-type: none"> • Although the security indicator light illuminates for approx. 10 s and then turns off or flashes, continue to perform the procedure as indicated. <ol style="list-style-type: none"> 2. While the push button start indicator light (green) is flashing, press the top part of the remote transmitter 1 against the center of the push button start. (See Procedure for communication between coil antenna and remote transmitter.) 3. Verify that remote transmitter 1 programming is completed on the M-MDS screen. <p>Note</p> <ul style="list-style-type: none"> • When the programming is completed, the security indicator light turns off and DTC 21 is displayed after approx. 1 min. • If the programming fails, the security indicator light flashes and DTC 13 is displayed after approx. 1 min. 	Switch the ignition off (LOCK), then go to the next step.	
5	<p>PERFORM REMOTE TRANSMITTER 2 PROGRAMMING</p> <ol style="list-style-type: none"> 1. Switch the ignition ON (engine off). 2. While the push button start indicator light (green) is flashing, press the top part of the remote transmitter 2 against the center of the push button start. (See Procedure for communication between coil antenna and remote transmitter.) 3. Verify that the remote transmitter 2 programming is completed on the M-MDS screen. <p>Note</p> <ul style="list-style-type: none"> • If the programming fails, the security indicator light flashes and DTC 13 is displayed after approx. 1 min. <ol style="list-style-type: none"> 4. Are there other remote transmitters to be programmed? 	Yes	If other remote transmitters are programmed, repeat Step 5.
		No	Go to the next step.
6	<p>M-MDS COMPLETION</p> <ol style="list-style-type: none"> 1. Wait for 5 s or more after the M-MDS is completed and switch the ignition off (LOCK) 	Go to the next step.	

Step	Procedure	Action after procedure	
7	PERFORM IMMOBILIZER SYSTEM FUNCTION VERIFICATION (REMOTE TRANSMITTER 1) Note • Each remote transmitter is brought inside the vehicle one at a time to start the engine. 1. Depress the clutch (MTX)/brake (ATX) pedal. 2. While the push button start indicator light (green) is flashing, press the top part of the remote transmitter 1 against the center of the push button start. (See Procedure for communication between coil antenna and remote transmitter.) 3. After the push button start indicator light (green) goes from flashing to illumination, press the push button start to start the engine.	Switch the ignition off (LOCK), then go to the next step.	
8	PERFORM IMMOBILIZER SYSTEM FUNCTION VERIFICATION (REMOTE TRANSMITTER 2) Note • Each remote transmitter is brought inside the vehicle one at a time to start the engine. 1. Depress the clutch (MTX)/brake (ATX) pedal. 2. While the push button start indicator light (green) is flashing, press the top part of the remote transmitter 2 against the center of the push button start. (See Procedure for communication between coil antenna and remote transmitter.) 3. After the push button start indicator light (green) goes from flashing to illumination, press the push button start to start the engine.	Yes	If there are other remote transmitters to be programmed, repeat Step 7.
		No	Go to the next step.
9	VERIFY THAT REMOTE TRANSMITTER IS PROGRAMMED Note • Each remote transmitter is brought inside the vehicle one at a time to start the engine. 1. Place only the programmed remote transmitter on the passenger seat and verify that the engine starts. 2. Does engine start?	Yes	Procedure is completed.
		No	Perform the related DTC inspection to repair the malfunctioning part.

No.4 Remote transmitter replacement or remote transmitter clearing

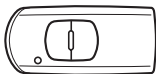
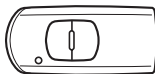
Caution

- The engine cannot be started if any step or procedure is skipped. Perform all procedures in the order of the steps.
- Because it is necessary to program two or more remote transmitters to the immobilizer system-related parts to start the engine, perform the remote transmitter programming after clearing the remote transmitter.

Vehicle condition

- Have two remote transmitters to be programmed.

Procedure

<div> <div>VALID REMOTE TRANSMITTER</div> <div>   </div> <div>REMOTE TRANSMITTER 1 REMOTE TRANSMITTER 2</div> </div>		
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Step	Procedure	Action after procedure	
1	PERFORM KEY ID NUMBER CLEARING <ol style="list-style-type: none"> 1. Connect the M-MDS to the DLC-2. (See M-MDS Connecting Procedure.) 2. Switch the ignition ON (engine off). 3. After vehicle identification, select the following from the M-MDS initial screen. <ol style="list-style-type: none"> 1. "Body" 2. "Security" 3. "PATS (immobilizer) function" 4. Then, select the following from the screen menu. <ul style="list-style-type: none"> • "Advanced key clearing" 5. Input the start stop unit incode and cancel the security access according to the directions on the M-MDS screen. <p>Note</p> <ul style="list-style-type: none"> • "Security access permitted" is displayed on the M-MDS screen. <ol style="list-style-type: none"> 6. Perform the remote transmitter clearing according to the directions on the M-MDS. <p>Note</p> <ul style="list-style-type: none"> • "Advanced key clearing completed" is displayed on the M-MDS screen. 	Switch the ignition off (LOCK), then go to the next step.	
2	PERFORM REMOTE TRANSMITTER 1 PROGRAMMING <ol style="list-style-type: none"> 1. Switch the ignition ON (engine off). <p>Note</p> <ul style="list-style-type: none"> • Although the security indicator light illuminates for approx. 10 s and then turns off or flashes, continue to perform the procedure as indicated. <ol style="list-style-type: none"> 2. While the push button start indicator light (green) is flashing, press the top part of the remote transmitter 1 against the center of the push button start. (See Procedure for communication between coil antenna and remote transmitter.) 3. Verify that the remote transmitter 1 programming is completed on the M-MDS screen. <p>Note</p> <ul style="list-style-type: none"> • When the programming is completed, the security indicator light turns off and DTC 21 is displayed after approx. 1 min. • If the programming fails, the security indicator light flashes and DTC 13 is displayed after approx. 1 min. 	Switch the ignition off (LOCK), then go to the next step.	
3	PERFORM REMOTE TRANSMITTER 2 PROGRAMMING <ol style="list-style-type: none"> 1. Switch the ignition ON (engine off). <p>Note</p> <ul style="list-style-type: none"> • Although the security indicator light illuminates for approx. 10 s and then turns off or flashes, continue to perform the procedure as indicated. <ol style="list-style-type: none"> 2. While the push button start indicator light (green) is flashing, press the top part of the remote transmitter 2 against the center of the push button start. (See Procedure for communication between coil antenna and remote transmitter.) 3. Verify that the remote transmitter 2 programming is completed on the M-MDS screen. <p>Note</p> <ul style="list-style-type: none"> • If the programming fails, the security indicator light flashes and DTC 13 is displayed after approx. 1 min. <ol style="list-style-type: none"> 4. Are there other remote transmitters to be programmed? 	Yes	Change the key and repeat Step 3.
		No	Go to the next step.
4	M-MDS COMPLETION <ol style="list-style-type: none"> 1. Wait for 5 s or more after the M-MDS is completed and switch the ignition off (LOCK). 	Go to the next step.	

Step	Procedure	Action after procedure	
5	PERFORM IMMOBILIZER SYSTEM FUNCTION VERIFICATION (REMOTE TRANSMITTER 1) Note • Each remote transmitter is brought inside the vehicle one at a time to start the engine. 1. Depress the clutch (MTX)/brake (ATX) pedal. 2. While the push button start indicator light (green) is flashing, press the top part of the remote transmitter 1 against the center of the push button start. (See Procedure for communication between coil antenna and remote transmitter.) 3. After the push button start indicator light (green) goes from flashing to illumination, press the push button start to start the engine.	Switch the ignition off (LOCK), then go to the next step.	
6	PERFORM IMMOBILIZER SYSTEM FUNCTION VERIFICATION (REMOTE TRANSMITTER 2) Note • Each remote transmitter is brought inside the vehicle one at a time to start the engine. 1. Depress the clutch (MTX)/brake (ATX) pedal. 2. While the push button start indicator light (green) is flashing, press the top part of the remote transmitter 2 against the center of the push button start. (See Procedure for communication between coil antenna and remote transmitter.) 3. After the push button start indicator light (green) goes from flashing to illumination, press the push button start to start the engine.	Yes	If there are other remote transmitters to be programmed, repeat Step 5.
		No	Go to the next step.
7	VERIFY THAT REMOTE TRANSMITTER IS PROGRAMMED Note • Each remote transmitter is brought inside the vehicle one at a time to start the engine. 1. Place only the programmed remote transmitter on the passenger seat and verify that the engine starts. 2. Does engine start?	Yes	Procedure is completed.
		No	Perform the related DTC inspection to repair the malfunctioning part.