

**AURO**<sup>TM</sup>

BMW-C001

# TUTORIAL

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For technical assistance in all other markets, please contact your local selling agent.

## Safety Information

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For your own safety and the safety of others, and to prevent damage to the device and vehicles upon which it is used, it is important that the safety instructions presented throughout the product user manual be read and understood by all persons operating or coming into contact with the device.

There are various procedures, techniques, tools, and parts for servicing vehicles, as well as in the skill of the person doing the work. Because of the vast number of test applications and variations in the products that can be tested with this equipment, we cannot possibly anticipate or provide advice or safety messages to cover every circumstance. It is the automotive technician's responsibility to be knowledgeable of the system being tested. It is crucial to use proper service methods and test procedures. It is essential to perform tests in an appropriate and acceptable manner that does not endanger your safety, the safety of others in the work area, the device being used, or the vehicle being tested.

Before using the device, always refer to and follow the safety messages and applicable test procedures provided by the manufacturer of the vehicle or equipment being tested. Use the device only as described in this manual. Read, understand, and follow all safety messages and instructions in this manual.

## Safety Messages

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Safety messages are provided to help prevent personal injury and equipment damage. All safety messages are introduced by a signal word indicating the hazard level.

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### **DANGER**

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury to the operator or to bystanders.

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### **WARNING**

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury to the operator or to bystanders.

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## Safety Instructions

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The safety messages herein cover situations Auro is aware of. Auro cannot know, evaluate or advise you as to all of the possible hazards. You must be certain that any condition or service procedure encountered does not jeopardize your personal safety.

## DANGER

When an engine is operating, keep the service area WELL VENTILATED or attach a building exhaust removal system to the engine exhaust system. Engines produce carbon monoxide, an odorless, poisonous gas that causes slower reaction time and can lead to serious personal injury or loss of life.

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## SAFETY WARNINGS

- Always perform automotive testing in a safe environment.
- Wear safety eye protection that meets ANSI standards.
- Keep clothing, hair, hands, tools, test equipment, etc. away from all moving or hot engine parts.
- Operate the vehicle in a well ventilated work area, for exhaust gases are poisonous.
- Put the transmission in PARK (for automatic transmission) or NEUTRAL (for manual transmission) and make sure the parking brake is engaged.
- Put blocks in front of the drive wheels and never leave the vehicle unattended while testing.
- Be extra cautious when working around the ignition coil, distributor cap, ignition wires and spark plugs. These components create hazardous voltages when the engine is running.
- Keep a fire extinguisher suitable for gasoline, chemical, and electrical fires nearby.
- Do not connect or disconnect any test equipment while the ignition is on or the engine is running.
- Keep the test equipment dry, clean, free from oil, water or grease. Use a mild detergent on a clean cloth to clean the outside of the equipment as necessary.
- Do not drive the vehicle and operate the test equipment at the same time. Any distraction may cause an accident.
- Refer to the service manual for the vehicle being serviced and adhere to all diagnostic procedures and precautions. Failure to do so may result in personal injury or damage to the test equipment.
- To avoid damaging the test equipment or generating false data, make sure the vehicle battery is fully charged and the connection to the vehicle DLC is clean and secure.
- Do not place the test equipment on the distributor of the vehicle. Strong electro-magnetic interference can damage the equipment.

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## Introduction

This manual introduces how to conduct BMW FEM/BDC Renew on Auro OtoSys IM100.

Two options are available when accessing FEM/BDC Renew:

- Copy Data Update: When the immobilizer information of the vehicle can be read from the original FEM/BDC module, perform this function to read the information and write it into the replacing FEM/BDC module.
- Calculate Data Update: When the immobilizer information of the vehicle cannot be read from the original FEM/BDC module, perform this function to generate the information via the input VIN code, vehicle frequency and engine ISN code and then write it into the replacing FEM/BDC module.

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### NOTE

Illustrations used in this manual are samples, and the actual testing screens may vary by vehicle. Observe the menu titles and on-screen instructions to make correct selections and operations.

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## FEM/BDC Renew via Copy Data Update

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### ● Preparation

1. Attention: If there's an ELV in the vehicle, the ELV may not be unlocked after performing FEM/BDC Renew. You'll need to solve the locked problem yourself, so please start the operation with careful consideration.
2. To perform the Copy Data Update function, a working key or the engine ISN code is needed.
3. The hardware version of the original and replacing modules can only vary slightly. Otherwise, the DTCs of the vehicle may not be cleared.
4. Remove the FEM/BDC module from the vehicle. (See [Appendix](#).)
5. Conduct ECU preprocessing on the replacing (used) module and the original module to make them able to learn keys. No ECU preprocessing is needed for the replacing module if it is a brand new one. (Please refer to [BMW-A001](#) for details on ECU preprocessing.)
6. Prepare a blank key.

## ● Procedures

1. Connect the OtoFlash to the original FEM/BDC module via the included main cable.
2. Connect the OtoFlash to the IM600 tablet via USB connection.
3. Turn on the IM600 tablet and tap **OtoSys** > **IMMO**. A vehicle menu displays and a disclaimer prompts up. Tap **Accept** to continue.



Figure 1 Sample Main Interface



Figure 2 Sample OtoSys Job Menu

4. Tap **BMW** on the vehicle menu.

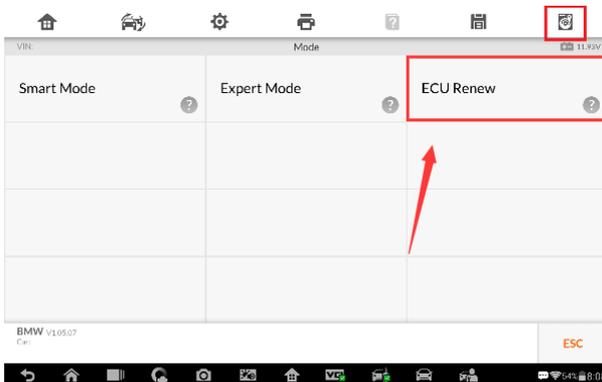


**Figure 3 Sample Vehicle Menu**

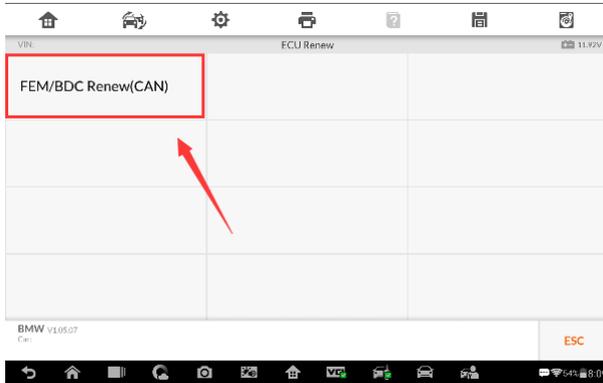
5. Tap **ECU Renew > FEM/BDC Renew (CAN)**.

### NOTE

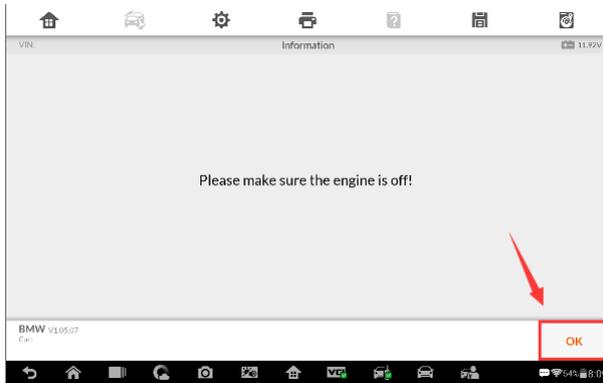
1. You can click the icon near the top-right corner to record the operation data. If you encounter any difficulties, click the icon again to send us the data and the problem, so that our engineers could help. The network should be connected when uploading the data.
2. Please make sure the engine is off before the operation gets started.



**Figure 4 Sample Function Select Screen 1**



**Figure 5 Sample Function Select Screen 2**

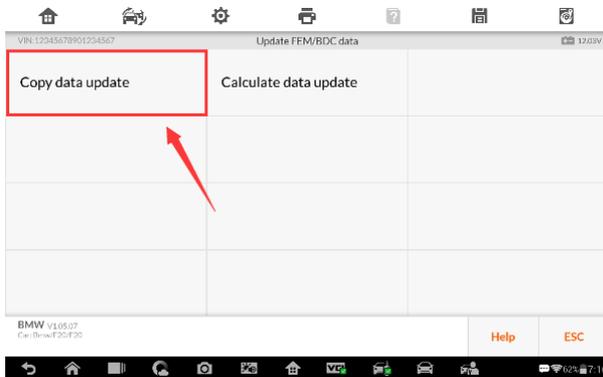


**Figure 6 Sample Information Screen**

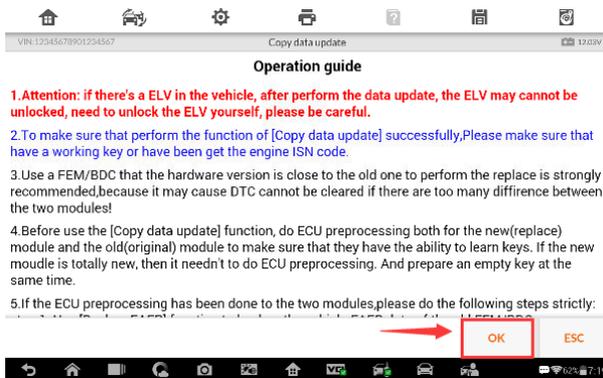
6. Tap **Copy Data Update**, read the notes and procedures listed in the operation guide carefully, and then tap **OK** to continue.

**NOTE**

If you don't strictly follow the steps, the data may be lost or the FEM/BDC Renew operation may fail.

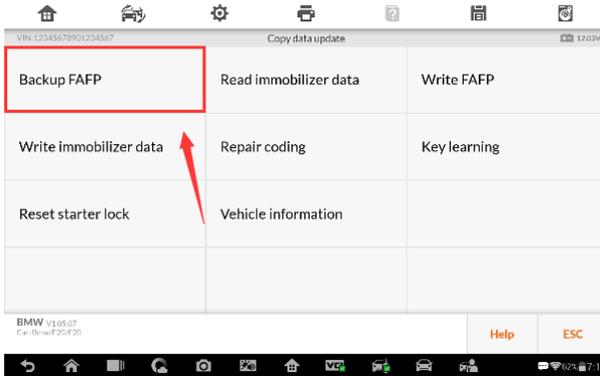


**Figure 7 Sample Function Select Screen 3**



**Figure 8 Sample Operation Guide Screen**

- Tap **Backup FAFP** on the function menu to backup the FAFP data of the original FEM/BDC module. Read the function information and tap **OK** to continue.



**Figure 9 Sample Backup FAFP Screen 1**



**Figure 10 Sample Backup FAFP Screen 2**

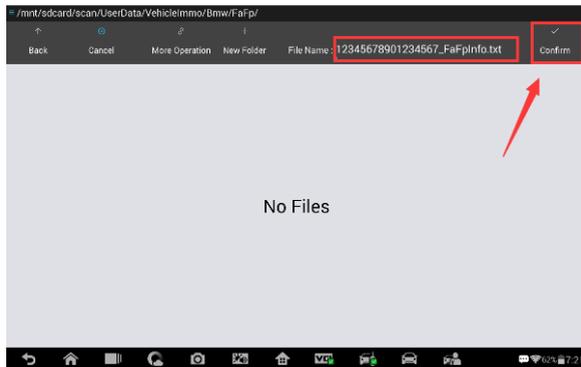
- Tap **OK > Confirm** to save the data. When a “File saved successfully!” message displays, tap **OK** and exit to the function menu.

**NOTE**

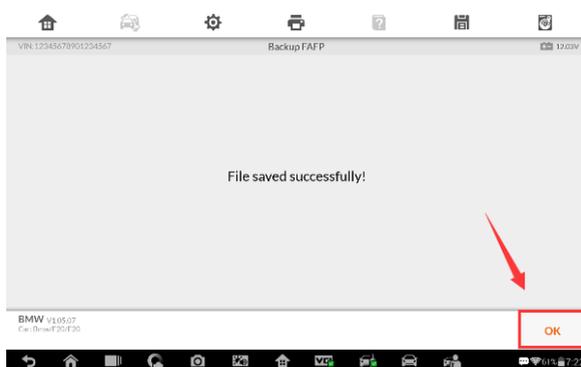
- The data file can be renamed.
- Memorize or note down the name and location of the file for later use.



**Figure 11 Sample Backup FAFP Screen 3**

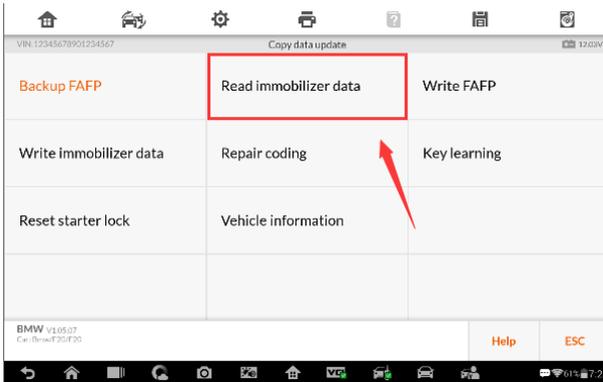


**Figure 12 Sample Backup FAFP Screen 4**



**Figure 13 Sample Backup FAFP Screen 5**

9. Tap **Read immobilizer data** to backup the immobilizer data of the original module. Read the function information and tap **OK** to continue.



**Figure 14 Sample Read Immobilizer Data Screen 1**

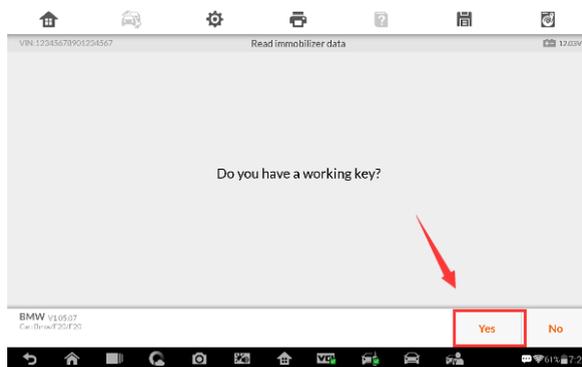


**Figure 15 Sample Read Immobilizer Data Screen 2**

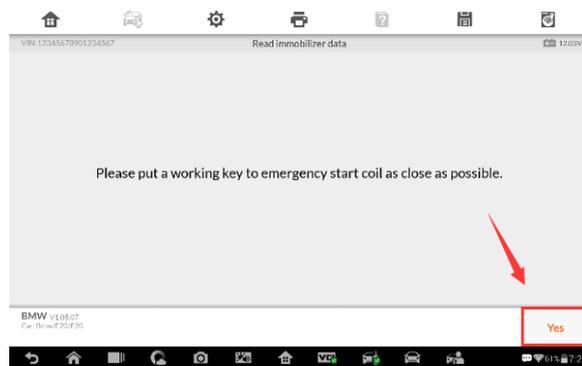
10. When a “Do you have a working key?” message displays, make selection accordingly. Tap **Yes** and then put the working key close to the emergency start coil to read the password information, or tap **No** and move on to read the immobilizer data.

**NOTE**

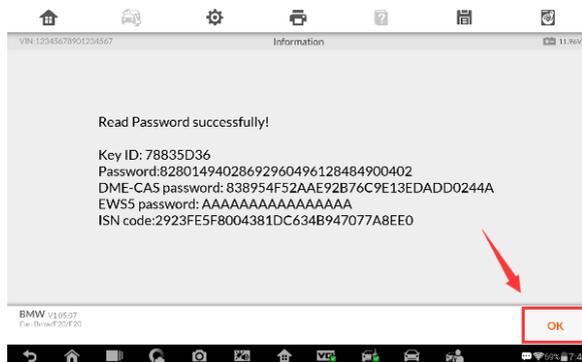
If the working key is verified in this step, it can be directly used to start the engine when the FEM/BDC Renew is completed.



**Figure 16 Sample Read Immobilizer Data Screen 3**



**Figure 17 Sample Read Immobilizer Data Screen 4**



**Figure 18 Sample Read Immobilizer Data Screen 5**

11. When the immobilizer data is read successfully, tap **Save > Confirm** to save the data. When a “File saved successfully!” message displays, tap **OK > Close** and exit to the function menu.

## NOTE

1. The data file can be renamed.
2. Memorize or note down the name and location of the file for later use.

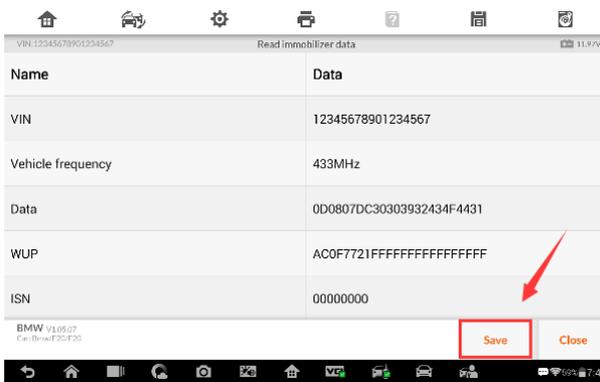


Figure 19 Sample Read Immobilizer Data Screen 6

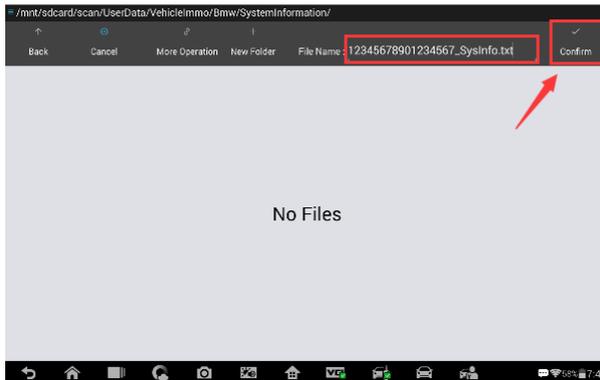
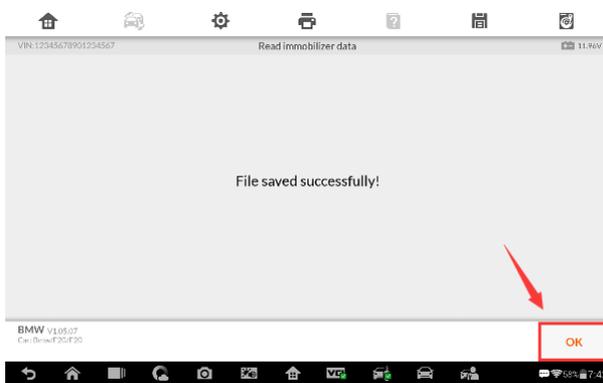
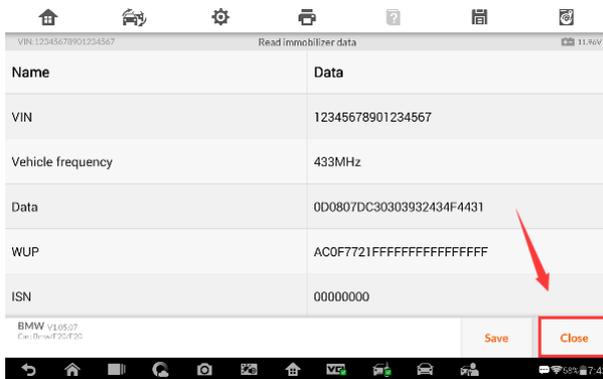


Figure 20 Sample Read Immobilizer Data Screen 7

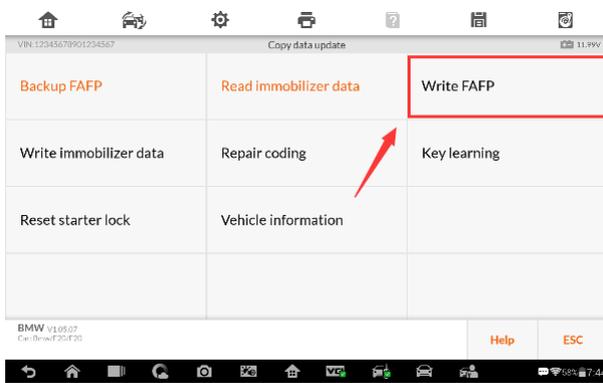


**Figure 21 Sample Read Immobilizer Data Screen 8**



**Figure 22 Sample Read Immobilizer Data Screen 9**

12. When Read Immobilizer Data is completed, connect the OtoFlash with the replacing module via the included main cable.
13. Then tap **Write FAFP** to write the saved FAFP data into the replacing FEM/BDC module. Read the function information and tap **OK** to continue.

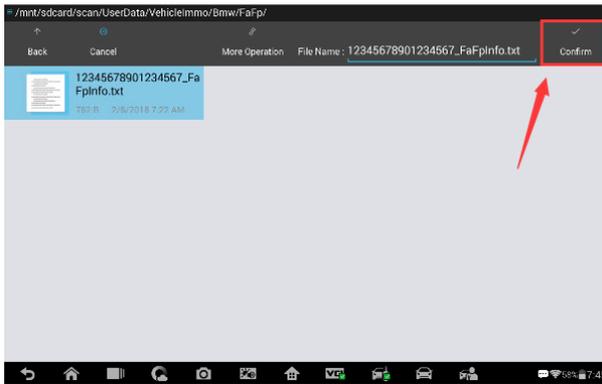


**Figure 23 Sample Write FAFP Screen 1**

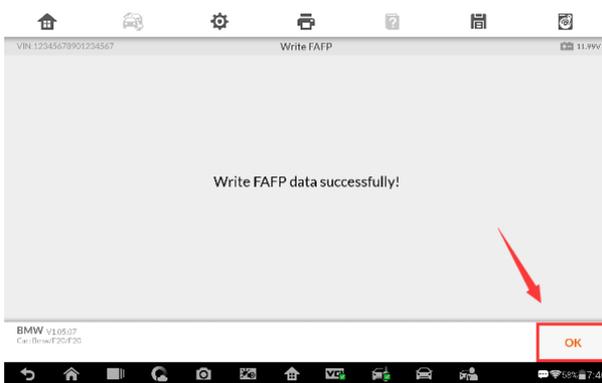


**Figure 24 Sample Write FAFP Screen 2**

14. Select the saved FAFP data file and tap **Confirm** to complete Write FAFP. Then tap **OK** and exit to the function menu.

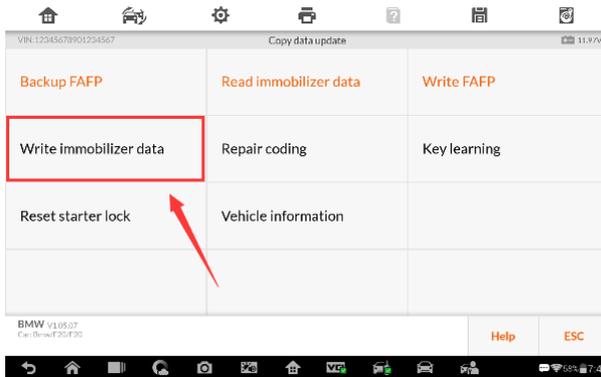


**Figure 25 Sample Write FAFP Screen 3**

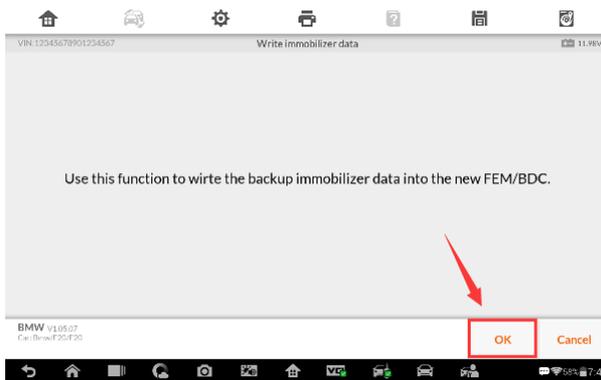


**Figure 26 Sample Write FAFP Screen 4**

15. Tap **Write immobilizer data** to write the saved immobilizer data into the replacing module.



**Figure 27 Sample Write Immobilizer Data Screen 1**



**Figure 28 Sample Write Immobilizer Data Screen 2**

16. When a module menu displays, make selection accordingly.

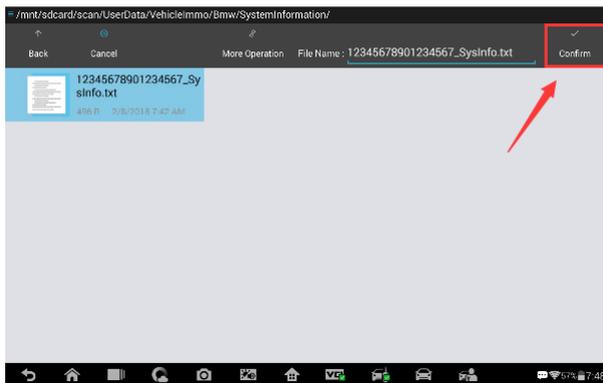
**NOTE**

- New Module: Perform this function if the replacing module is a brand new one.
- Used Module: Perform this function if the replacing module is a used one.



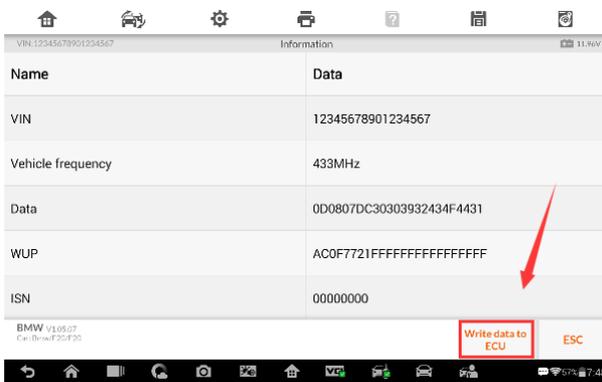
**Figure 29 Sample Write Immobilizer Data Screen 3**

17. Select the saved immobilizer data file and tap **Confirm** to continue.

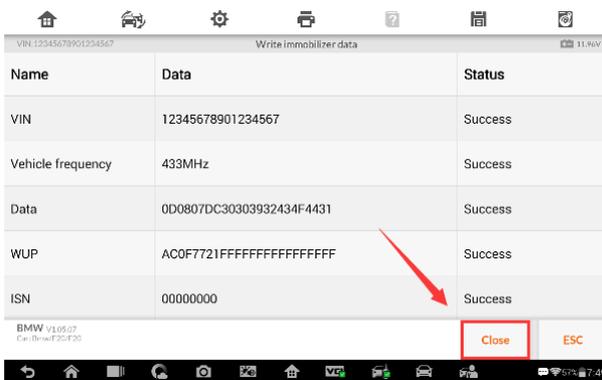


**Figure 30 Sample Write Immobilizer Data Screen 4**

18. Tap **Write data to ECU**. When Write Data to ECU is completed successfully, tap **Close** and exit to the function menu.

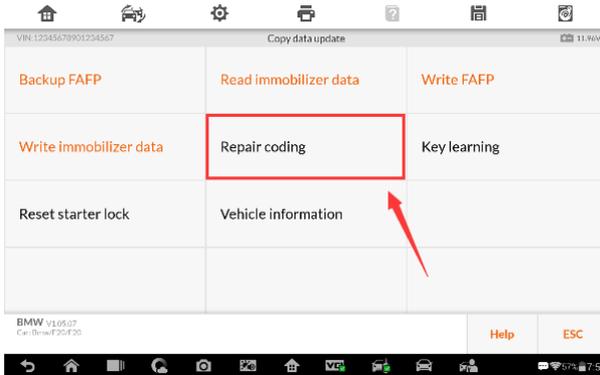


**Figure 31 Sample Write Immobilizer Data Screen 5**



**Figure 32 Sample Write Immobilizer Data Screen 6**

19. Tap **Repair coding** to repair the coding of the new FEM/BDC module. Read the function information and tap **OK** to continue.

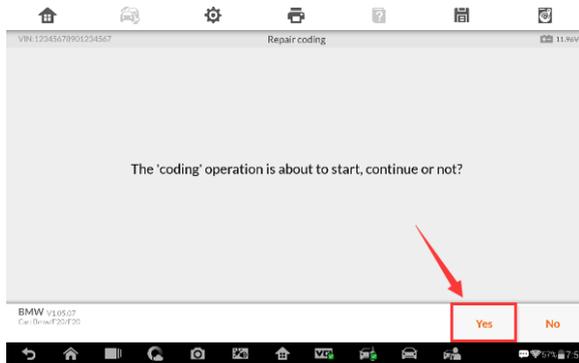


**Figure 33 Sample Repair Coding Screen 1**

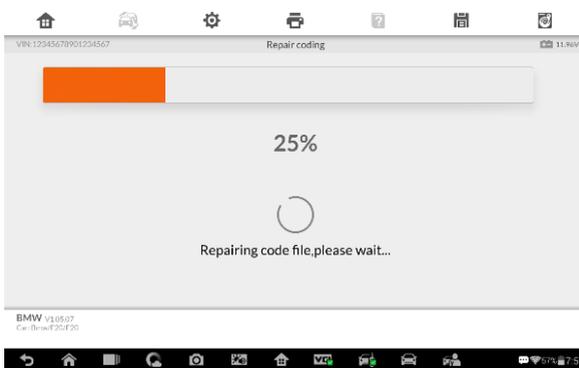


**Figure 34 Sample Repair Coding Screen 2**

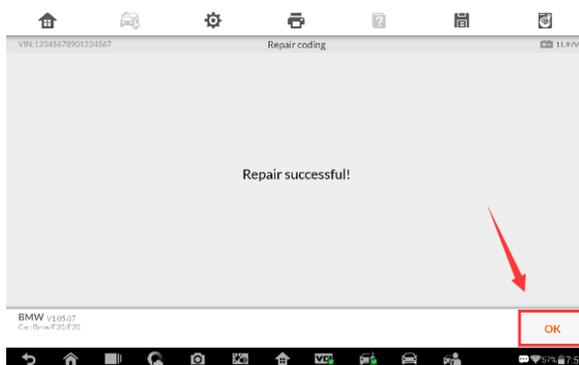
20. Tap **Yes** to continue the coding operation. When Repair Coding is completed successfully, tap **OK** and exit to the function menu.



**Figure 35 Sample Repair Coding Screen 3**



**Figure 36 Sample Repair Coding Screen 4**

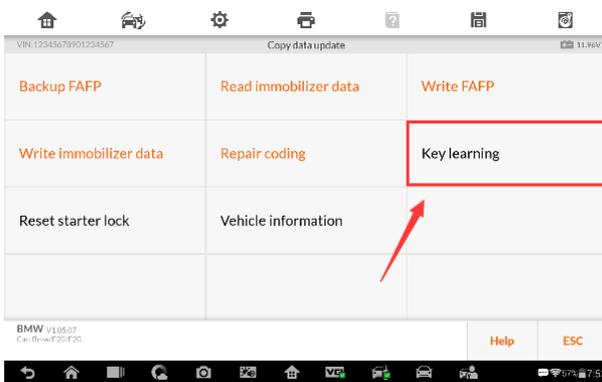


**Figure 37 Sample Repair Coding Screen 5**

21. Tap **Key learning** to add a key to the new FEM/BDC module. Read the function information and tap **OK** to continue.

**NOTE**

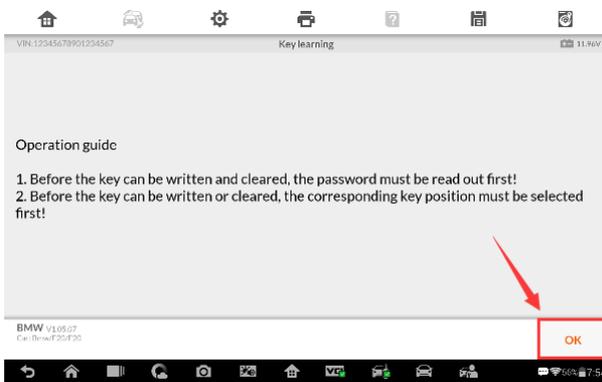
1. The password must be read out before the key can be written or cleared.
2. A key position must be selected before the key can be written or cleared.



**Figure 38 Sample Key Learning Screen 6**

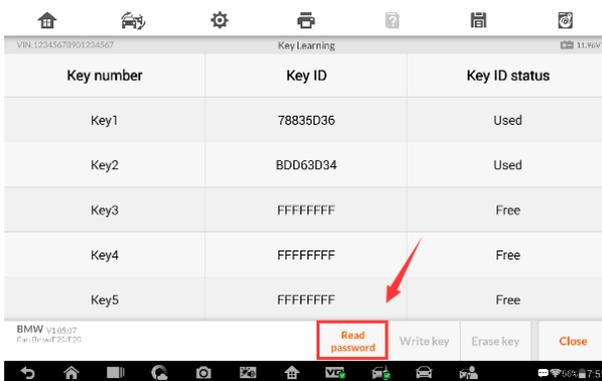


**Figure 39 Sample Key Learning Screen 7**



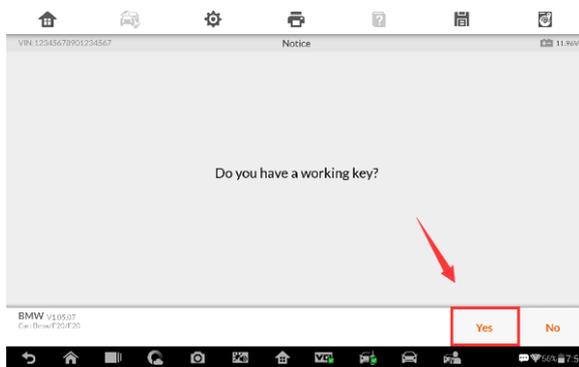
**Figure 40 Sample Key Learning Screen 8**

22. Tap **Read password** to read the password information of the key.

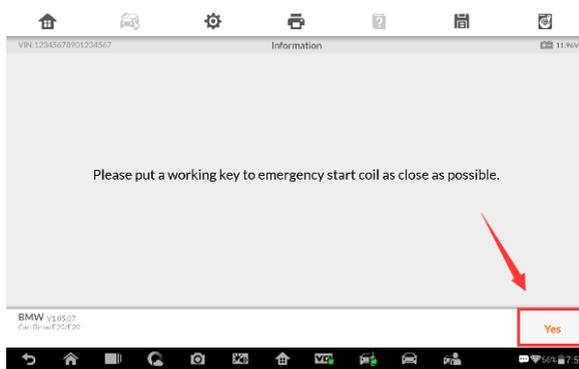


**Figure 41 Sample Key Learning Screen 9**

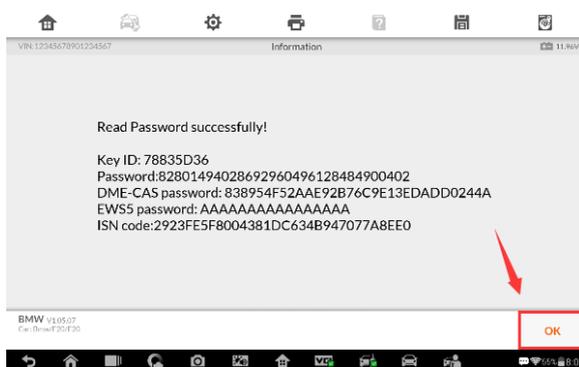
23. When a “Do you have a working key?” message displays, make selection accordingly. Tap **Yes** and then put the original key close to the emergency start coil to read the password information, or tap **No** to input the engine ISN code.



**Figure 42 Sample Key Learning Screen 10**

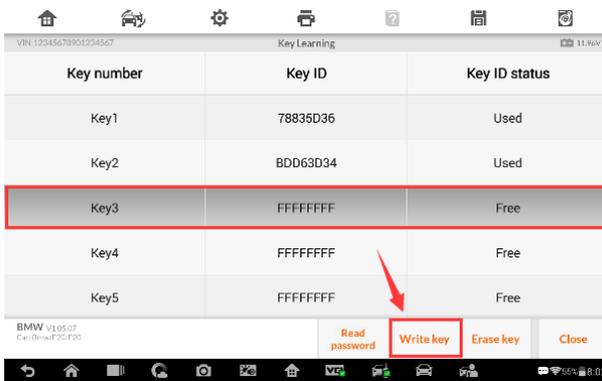


**Figure 43 Sample Key Learning Screen 11**



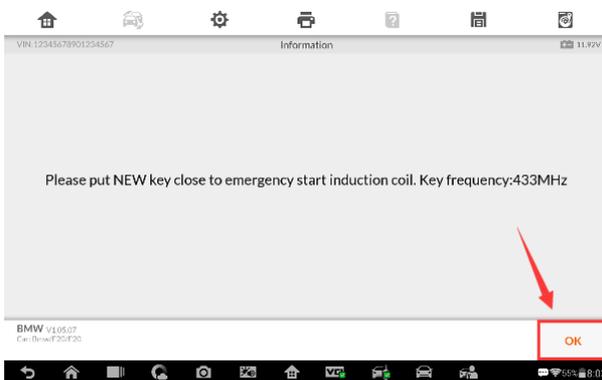
**Figure 44 Sample Key Learning Screen 12**

24. Select a FREE key position and then tap **Write key**.

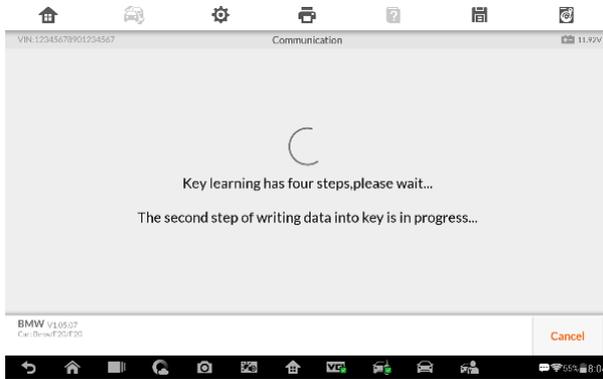


**Figure 45 Sample Key Learning Screen 13**

25. Follow the instruction to put the NEW key close to the emergency start coil and tap **OK** to start Key Learning.

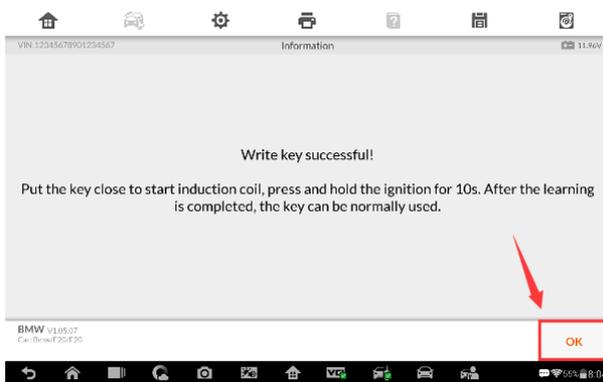


**Figure 46 Sample Key Learning Screen 14**

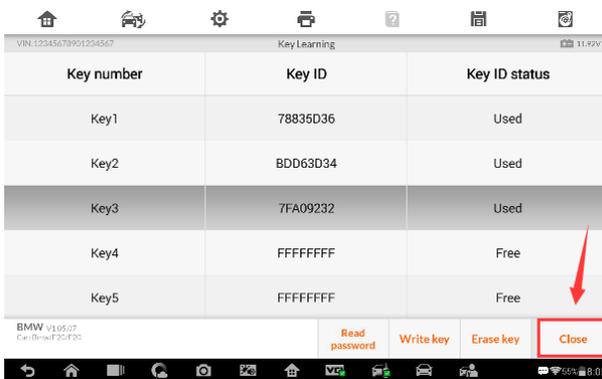


**Figure 47 Sample Key Learning Screen 15**

26. When a “Write Key successful!” message displays, tap **OK** to check the key ID status. Then tap **Close** to exit to the function menu.

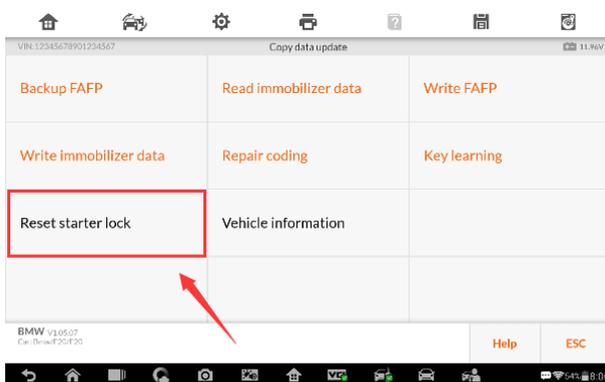


**Figure 48 Sample Key Learning Screen 16**

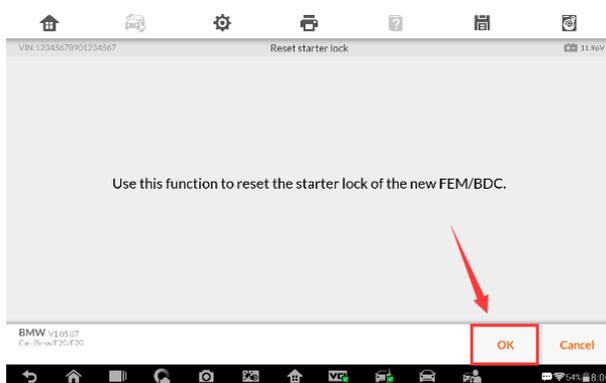


**Figure 49 Sample Key Learning Screen 17**

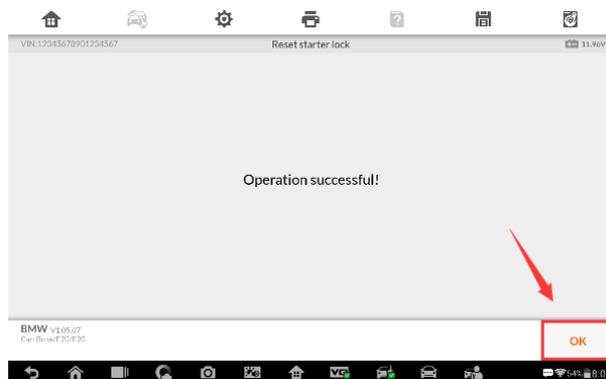
- Tap **Reset starter lock** to reset the starter lock of the new FEM/BDC module. Read the function information and tap **OK** to continue. When this function is done successfully, Copy Data Update is completed.



**Figure 50 Sample Reset Starter Lock Screen 1**



**Figure 51 Sample Reset Starter Lock Screen 2**



**Figure 52 Sample Reset Starter Lock Screen 3**

28. Install the replacing FEM/BDC module into the vehicle and check if the engine can be started.

**NOTE**

1. DTCs may be detected and specific machines are needed for programming, coding and clear DTC.
2. If the remote function of the original working key doesn't work after the operation, please disable the key first and then enable it via **Expert Mode > FEM/BDC > Key enabled/disabled**.
3. The newly added keys can be erased if you don't need them.

## FEM/BDC Renew via Calculate Data Update

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### ● Preparation

1. Attention: If there's an ELV in the vehicle, the ELV may not be unlocked after performing FEM/BDC Renew. You'll need to solve the locked problem yourself, so please start the operation with careful consideration.
2. Attention: All original keys won't be accepted when performing the Calculate Data Update function.
3. To perform the Calculate Data Update function, the VIN code, vehicle frequency and engine ISN code are needed. This information can be obtained via **Expert mode**.
4. The hardware version of the replacing module can only vary slightly from that of the original module. If two versions vary considerably, the DTCs of the vehicle may not be cleared.
5. Remove the FEM/BDC module from the vehicle. (See [Appendix](#).)
6. Conduct ECU preprocessing on the replacing (used) module and the original module to make them able to learn keys. No ECU preprocessing is needed for the replacing module if it is a brand new one. (Please refer to [BMW-A001](#) for details on ECU preprocessing.)
7. Prepare two blank keys.

### ● Procedures

1. Connect the OtoFlash to the replacing FEM/BDC module via the included main cable.
2. Connect the OtoFlash to the IM600 tablet via USB connection.
3. Turn on the IM600 tablet and tap **OtoSys > IMMO**. A vehicle menu displays and a disclaimer prompts up. Tap **Accept** to continue.



Figure 53 Sample Main Interface



Figure 54 Sample OtoSys Job Menu

4. Tap **BMW** on the vehicle menu.

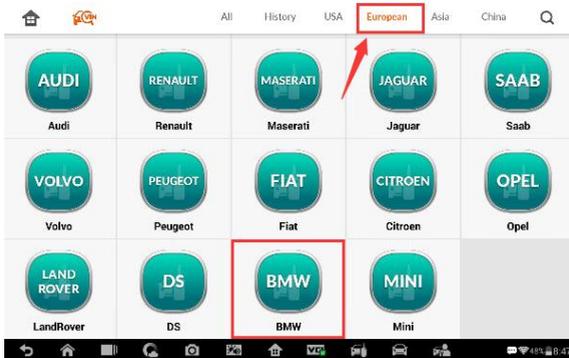
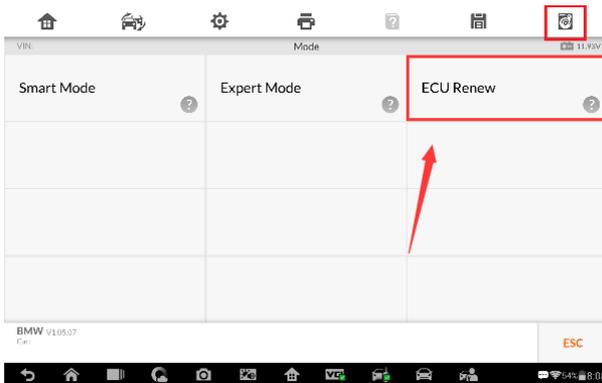


Figure 55 Sample Vehicle Menu

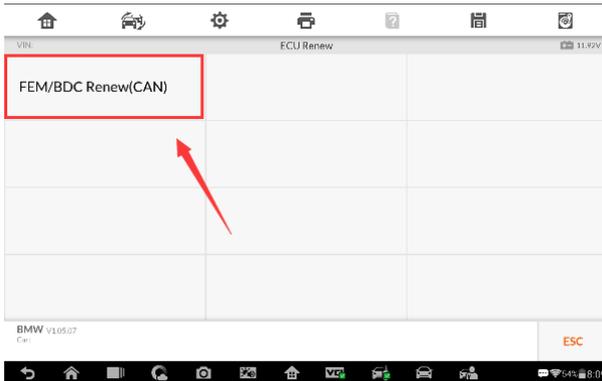
5. Tap **ECU Renew > FEM/BDC Renew (CAN)**.

**NOTE**

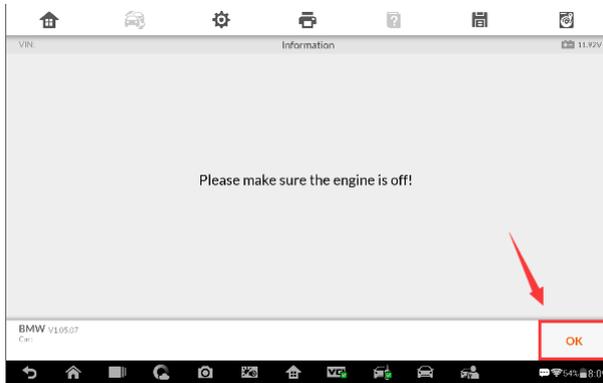
1. You can click the icon near the top-right corner to record the operation data. If you encounter any difficulties, click the icon again to send us the data and the problem, so that our engineers could help. The network should be connected when uploading the data.
2. Please make sure the engine is off before the operation gets started.



**Figure 56 Sample Function Select Screen 1**



**Figure 57 Sample Function Select Screen 2**

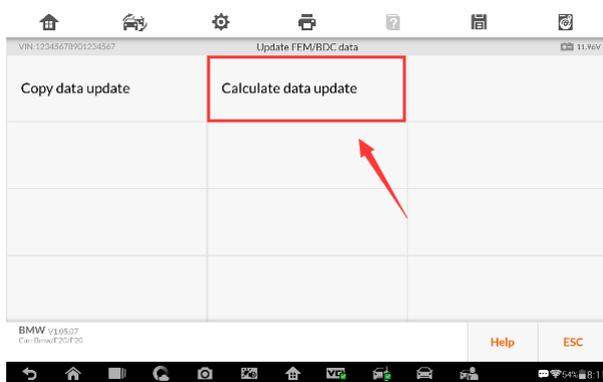


**Figure 58 Sample Information Screen**

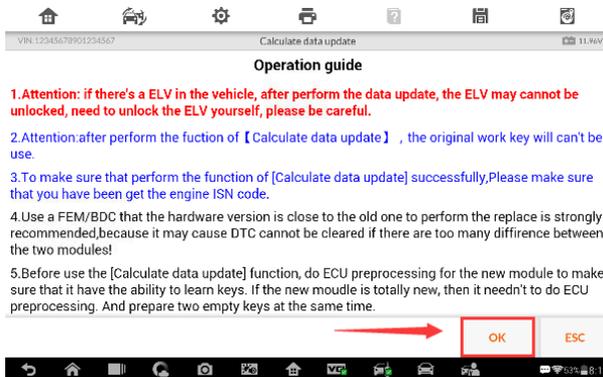
6. Tap **Calculate Data Update**, read the notes and procedures listed in the operation guide carefully, and then tap **OK** to continue.

**NOTE**

If you don't strictly follow the steps, the data may be lost or the FEM/BDC Renew operation may fail.

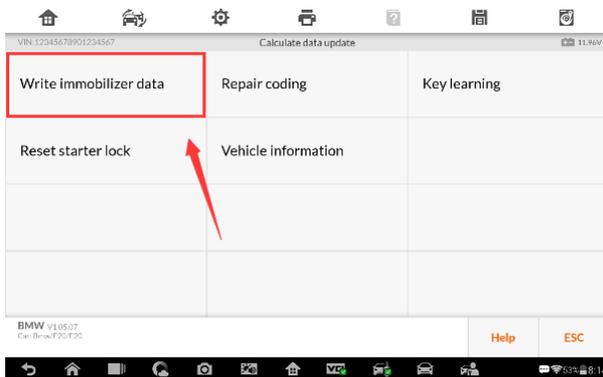


**Figure 59 Sample Function Select Screen 2**



**Figure 60 Sample Operation Guide Screen**

7. Tap **Write Immobilizer data** on the function menu to generate the immobilizer information and write it into the replacing FEM/BDC module. Read the function information and tap **OK** to continue.



**Figure 61 Sample Write Immobilizer Data Screen 1**

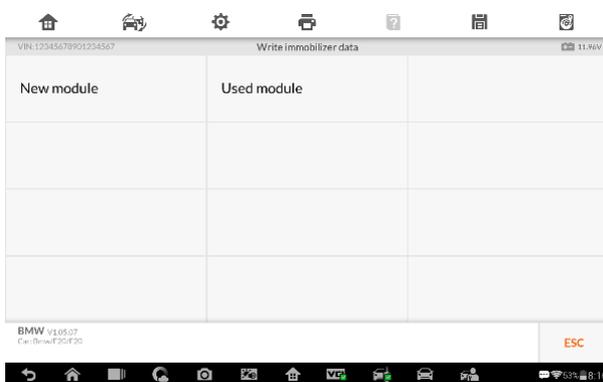


**Figure 62 Sample Write Immobilizer Data Screen 2**

8. When a module menu displays, make selections accordingly.

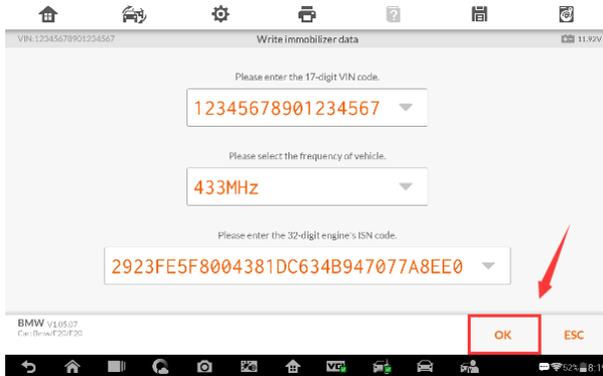
**NOTE**

- New Module: Perform this function if the replacing module is a brand new one.
- Used Module: Perform this function if the replacing module is a used one.



**Figure 63 Sample Write Immobilizer Data Screen 3**

9. Input the VIN code, vehicle frequency and engine ISN code. Then tap **OK** to continue.



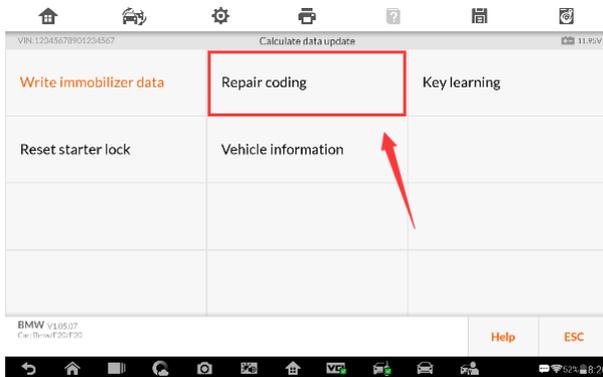
**Figure 64 Sample Write Immobilizer Data Screen 4**

10. When a “Write data to ECU success!” message displays, tap **OK** and exit to the function menu.



**Figure 65 Sample Write Immobilizer Data Screen 5**

11. Tap **Repair coding** on the function menu to repair coding of the replacing FEM/BDC module. Read the function information and tap **OK** to continue.

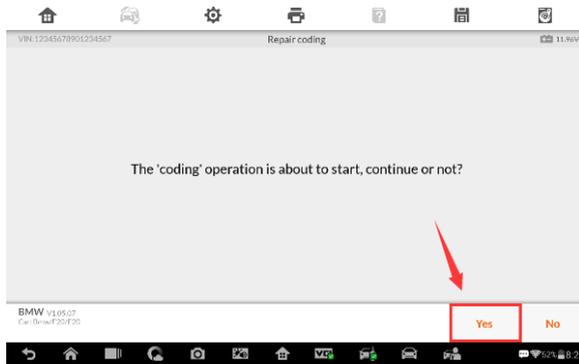


**Figure 66 Sample Repair Coding Screen 1**

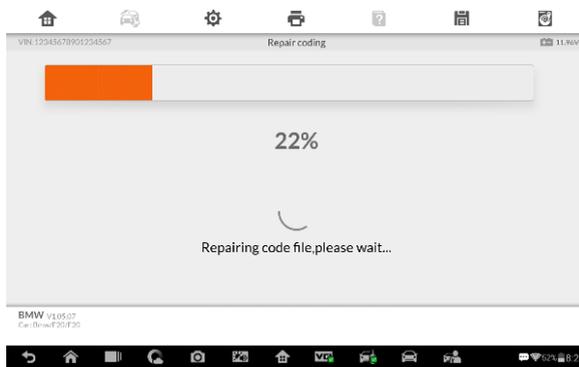


**Figure 67 Sample Repair Coding Screen 2**

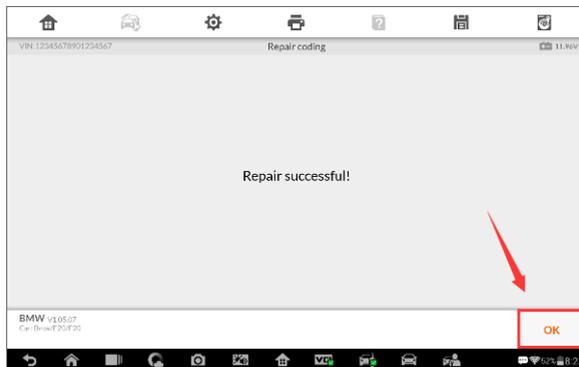
12. Tap **Yes** to continue the coding operation. When Repair Coding is completed successfully, tap **OK** and exit to the function menu.



**Figure 68 Sample Repair Coding Screen 3**



**Figure 69 Sample Repair Coding Screen 4**

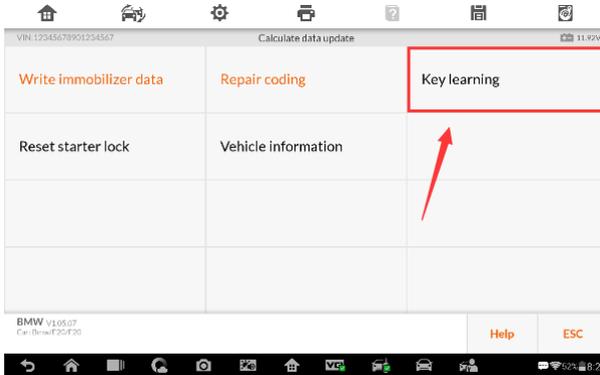


**Figure 70 Sample Repair Coding Screen 5**

13. Tap **Key Learning** to add keys to the replacing FEM/BDC module. Read the function information and tap **OK** to continue.

**NOTE**

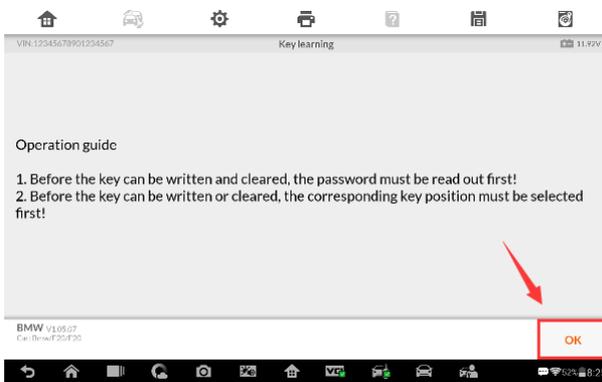
1. The password must be read out before the key can be written or cleared.
2. A key position must be selected before the key can be written or cleared.



**Figure 71 Sample Key Learning Screen 1**

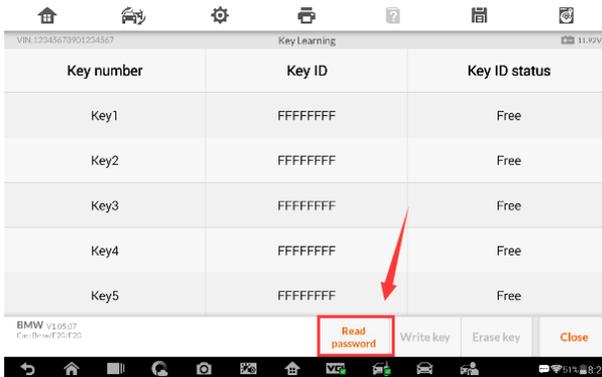


**Figure 72 Sample Key Learning Screen 2**



**Figure 73 Sample Key Learning Screen 3**

14. Tap **Read password** to read the password information of the key.

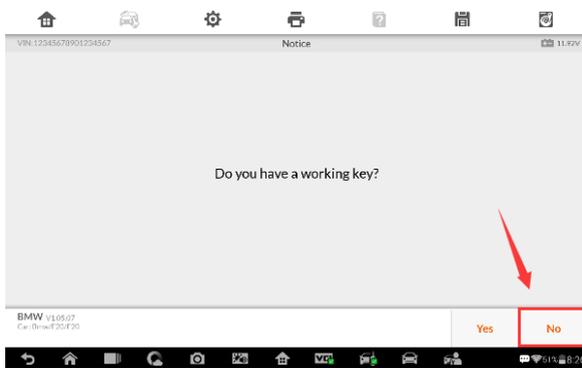


**Figure 74 Sample Key Learning Screen 4**

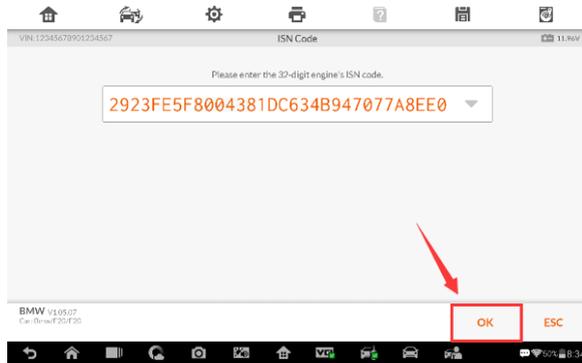
15. When a “Do you have a working key?” message displays, tap **No** and then input the engine ISN code to read the password information.

**NOTE**

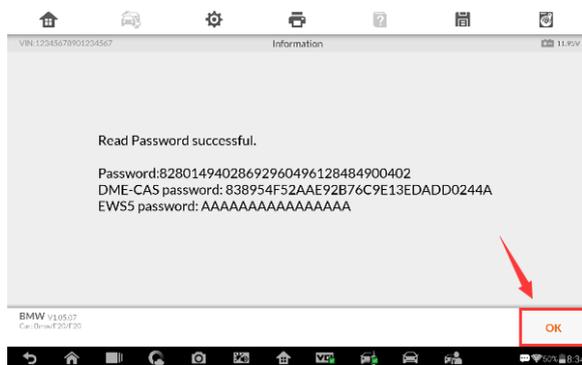
All original keys can no longer be accepted.



**Figure 75 Sample Key Learning Screen 5**

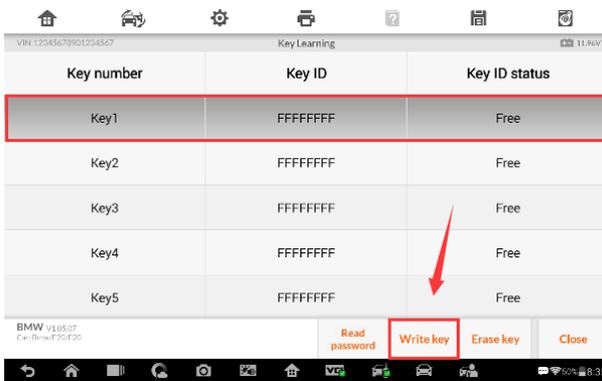


**Figure 76 Sample Key Learning Screen 6**



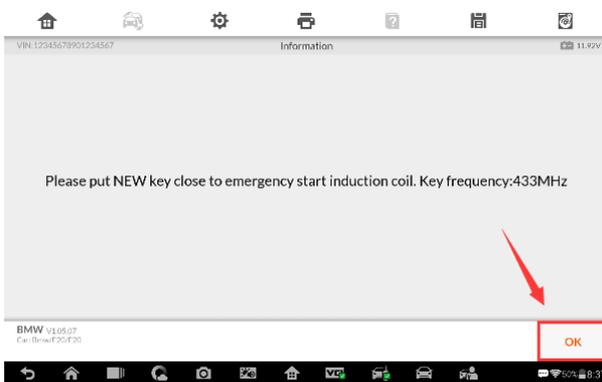
**Figure 77 Sample Key Learning Screen 7**

16. Select a FREE key position and then tap **Write key**.



**Figure 78 Sample Key Learning Screen 8**

17. Follow the instruction to put the NEW key close to the emergency start coil and tap **OK** to start Key Learning.

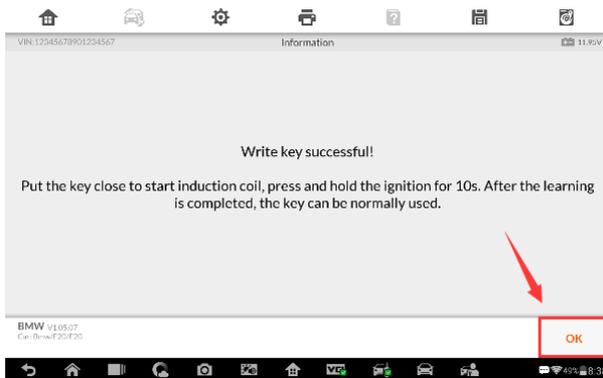


**Figure 79 Sample Key Learning Screen 9**



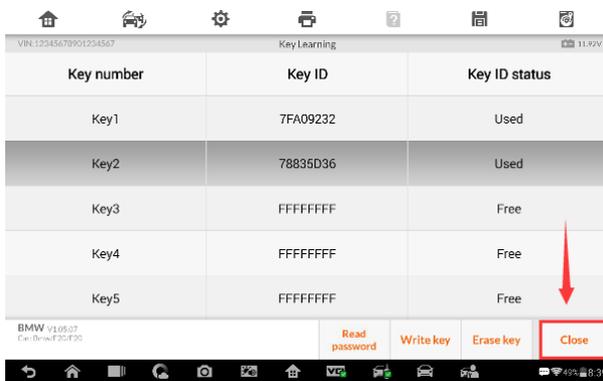
**Figure 80 Sample Key Learning Screen 10**

18. When a “Write Key successful!” message displays, tap **OK** to continue.



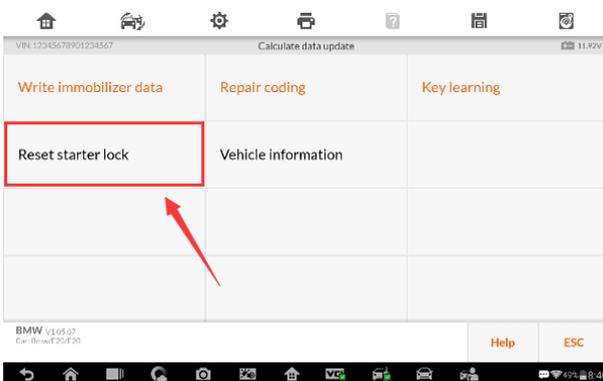
**Figure 81 Sample Key Learning Screen 11**

19. Repeat step 16-18 to learn the next key.
20. Check if two keys are successfully learned. Then tap **Close** to exit to the function menu.

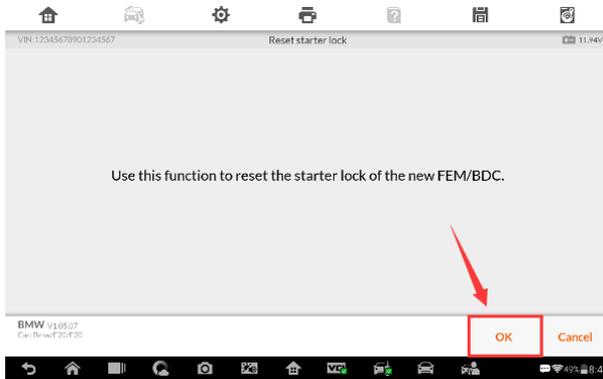


**Figure 82 Sample Key Learning Screen 12**

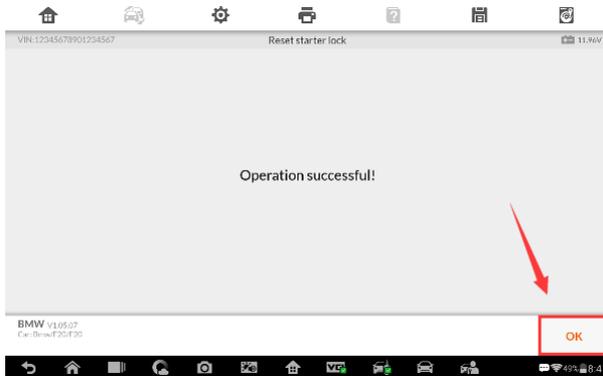
21. Tap **Reset starter lock** to reset the starter lock of the replacing FEM/BDC module. Read the function information and tap **OK** to continue. When this function is done successfully, Copy Data Update is completed.



**Figure 83 Sample Reset Starter Lock Screen 1**



**Figure 84 Sample Reset Starter Lock Screen 2**



**Figure 85 Sample Reset Starter Lock Screen 3**

22. Install the replacing FEM/BDC module into the vehicle and check if the engine can be started.

**NOTE**

DTCs may be detected and specific machines are needed to modify vehicle information, such as FAFP and integration level, and then to perform programming, coding and clear DTC.

## Appendix

### Removing the FEM/BDC Module

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The FEM/BDC module is located at the A-pillar of the front passenger side.

➤ **Procedures to remove the FEM/BDC module from the vehicle:**

1. Unclip the front door sill cover strip at the passenger side.
2. Remove the bottom right instrument trim panel and disconnect plug connections behind it.
3. Remove the side trim panel at the passenger side.
4. Remove the cover at the lower part of the module.
5. Unlock the positive battery cable connector.
6. Disconnect the plug connections to the module.
7. Release the bolt from the module.
8. Remove the module from the vehicle.