

Methods of adaptation/matching for the second/third generation Volkswagen immobilizer

How to distinguish the second and third generation immobilizers of Volkswagen vehicle:

Connect X431 and enter engine system. Select “Read ECU memory” in the function menu and record the displayed information about ECU. Exit and then enter the function again. If same information is displayed in two times, it can be determined that the vehicle is equipped with second generation immobilizer. Otherwise it is the third generation immobilizer.

I. The third generation immobilizer

Passat B5 1.8T 2.8, new Bora, Polo and FAW VW Audi A6 made after the 23th week of year 2000 are equipped with the third generation immobilizer. In this system, immobilizer ECU and instrument are combined together. It is necessary to enter the instrument system when diagnosing immobilizer. Useless data will be obtained if you directly enter the immobilizer system.

Adaptation must be done to the third generation immobilizer if the combined instrument, engine ECU and/or key are replaced. The following is the methods of adaptation used in different situations.

1. Instrument is replaced, but engine ECU and key are not replaced.

Operation: (Connect X431 and turn ON the ignition)

- 1) Enter the instrument system
- 2) Select the function “Login procedure”
- 3) Enter the password of new instrument (usually 4 digits)
- 4) Successful login
- 5) Select the function “ Adaptation”
- 6) Enter channel “50”
- 7) Enter the original password and click [OK] button
- 8) When the screen prompts that the learnt data is saved successfully, click [OK] button.
- 9) It is ready to start the engine. It is not necessary to match the key.

2. Engine ECU is replaced. Combined instrument and key are not replaced.

Operation: (Connect X431 and turn ON the ignition switch)

- 1) Enter the engine system
- 2) Select the function “ Adaptation”
- 3) Enter channel “50”
- 4) Enter the original password and click [OK] button
- 5) When the screen prompts that learnt data is saved successfully, click [OK] button
- 6) It is ready to start the engine. It is not necessary to match the key.

3. Combined instrument and engine ECU are replaced

Operation: (Connect X431 and turn ON the ignition switch)

- 1) Enter the instrument system
- 2) Select the function “Login procedure”
- 3) Enter the password of new instrument (usually 4 digits)
- 4) Successful login
- 5) Select the function of transferring chassis No.
- 6) Enter the 17-digit chassis No. (VIN)

- 7) Click [OK] button
- 8) Match the key. Select instrument system
 - A) Select the function “Login procedure” and enter new password
 - B) Successful login
 - C) Select the function “ Adaptation”
 - D) Enter “21” for channel No. and click [OK]
 - E) Enter the number of keys that will be matched, including the one in ignition switch. The maximum number is 8. The time for matching all keys should not exceed 30 seconds (from login to completion of matching, the interval between removal and insertion of key is not counted). Otherwise the fault indicator will flicker with a frequency of 2Hz and the whole procedure for matching may have to be repeated (including login and matching).
 - F) Click [OK] button. The warning lamp on the instrument panel will go off. The matching of the key in ignition switch is completed.

4. Instrument is replaced with a used one. The engine ECU and key are not replaced.

Operation: (Connect X431 and turn ON the ignition switch):

- 1) Enter the instrument system
- 2) Select the function “Login procedure”
- 3) Enter the password of the used instrument (usually 4 digits)
- 4) Successful login
- 5) Select the function “ Adaptation”
- 6) Enter channel “50”
- 7) Enter the original password and click [OK] button
- 8) When the screen prompts that the learnt data is saved successfully, click [OK] button.
- 9) It is ready to start the engine. It is not necessary to match the key.

5. Engine ECU is replaced with a used one. The combined instrument and key are not replaced

Operation: (Connect X431 and turn ON the ignition switch)

- 1) Enter the engine system
- 2) Select the function [Login procedure]
- 3) Enter the password of the used engine ECU
- 4) Successful login
- 5) Select the function [Adaptation]
- 6) Enter channel “50”
- 7) Enter the original password and click [OK] button
- 8) When the screen prompts that the learnt data is saved successfully, click [OK] button
- 9) It is ready to start the engine. It is not necessary to match the key.

II. The second generation immobilizer

Note to those who use the car key and match the key:

- The engine can be started only with the key that is matched with the immobilizer ECU on vehicle.
- All keys have to be matched with the immobilizer ECU if one key is to be matched.
- All keys have to be matched if a key is to be re-matched or an additional key is to be matched.
- In case any effective key is lost, all remained effective keys should be re-matched with LAUNCH X431 for the reason of security. After doing so, the lost key will become ineffective and not able to start the engine.

The following is the methods of adaptation and/or matching used for the second generation immobilizer in different situations

1. Matching procedure after the ECU is replaced.

After the engine ECU is replaced, it is necessary to match it with the immobilizer ECU.

Necessary condition:

Use an effective key.

Operation:

- 1) Connect X431
- 2) Turn ON the ignition switch
- 3) Enter the immobilizer system. Then select the function [Adaptation] and click [OK] button.
- 4) Enter "00" for channel No. and click [OK] key.
- 5) Clear the learnt data.

Note: the ignition switch is ON at the moment, so the immobilizer ECU can read and store the code from engine ECU.

2. Matching procedure after the immobilizer ECU is replaced

- 1) Replace with a new immobilizer ECU:

The code of engine ECU is automatically read and stored by the immobilizer ECU, so all keys have to be re-matched.

- 2) Replace with an immobilizer ECU removed from other vehicle
Match the engine ECU and immobilizer ECU. Then match all keys.

3. Match the car key

- 1) Connect X431 to the diagnostic socket
- 2) Insert the key that is to be matched into the ignition switch and turn ON the ignition switch.
- 3) Enter the "engine electronics" system
- 4) Select the function [Read fault memory] and shoot trouble according to the fault description.
- 5) Select the function [Erase fault memory] and then read fault memory again to make sure that the problem is solved.
- 6) Enter the immobilizer system and repeat the steps (4) and (5) to read fault memory and erase fault memory.
- 7) Select the function [Login procedure] and enter a 5-digit password (add a "0" before the 4-digit password, e.g. 01234)
- 8) Select the function [Adaptation]. Enter the number "21". Then enter the number of keys to be matched. For example, when 3 keys are to be matched, enter the number "00003".
- 9) X431 will prompt if you want to store the number of keys. Click [OK] button. The screen will display the message that the number is stored. It indicates the successful matching of the key in the ignition switch.
- 10) Turn OFF the ignition switch. Remove the key and insert next key. Turn ON the ignition switch for at least 1 second. When the immobilizer indicator flickers, the matching is successful.

Repeat the above mentioned steps until all keys are matched successfully (The matching

process must be completed in 30 seconds)

4. How to get the password

Use the following procedure to get the password that is unknown or lost:

Connect X431 and turn ON the ignition switch. Select immobilizer system and click [OK] button twice. About 5 seconds later, the screen will display the information about ECU. A 14-digit number of the immobilizer ECU can be obtained by the service station using LAUNCH X431. The service station sends the number to Volkswagen after-sales service center via telecommunication. Then the Volkswagen after-sales service center sends the password to the service station for key matching.

When replacing the immobilizer ECU, the service station should also get the 14-digit number of the immobilizer ECU using LAUNCH X431 and send the number to Volkswagen after-sales service center via telecommunication. Then the Volkswagen after-sales service center sends the password to the workshop for key matching.

Note:

A 14-digit number and a 4-digit password are labeled on the immobilizer ECU. A blacked card is attached with the new key ring, or a blacked password bar is stuck at the left of tool box at the passenger side. Scratch the blacked area to find the 4-digit password.