China Mazda Immobilizer Programming Manual

(Created Date: 20220616)

Introduction to Immobilizer Programming

It can be used to perform immobilizer functions without passwords, such as adding keys, losing all keys, resetting/initializing parameters after replacing immobilizer modules such as the engine and body module, and online programming of the engine. The immobilizer module of Mazda is related to the model, and the immobilizer modules of different models are different, mainly including BCM (body), IC (instrument cluster), PCM (engine), and GEM (general electronics) module. Module programming: programmable module installation (support the acquisition of code data from the original car module, by manual input, or in online mode), module reprogramming, programmable parameters
During the use of the X-431 device, in most cases, immobilizer matching, programming, and other diagnostic functions can be performed without passwords simply by automatically identifying the model.

Immobilizer Operation Instructions

Immobilizer system functions (expert edition (recommended to use first))
Support adding, clearing, and rental mode key management of mechanical and smart

keys. If the module that stores key information such as the body is replaced, and the key is lost or damaged, this function needs to be performed.

After replacing the immobilizer module, reset/initialized the immobilizer parameters. When the immobilizer related module is replaced, the immobilizer indicator of the vehicle instrument flashes and the vehicle cannot be started, or when the immobilizer DTCs such as P161B "incorrect response of the secondary immobilizer system holder module", B10DA "PATS target identifier", P1260 "theft is detected, the vehicle is prohibited from starting", and U2047 "data obtained from VSM is invalid" appear in different immobilizer modules, it is necessary to reset the immobilizer module parameters.

Model Coverage

Make	Model	Year
Mazda	CX-3	2014-2019
	CX-5	2015-2020
	CX-7	2006-2014
	CX-9	2007-2019
	Mazda 2	2002-2019
	Mazda 3	2003-2019
	Mazda 5	2005-2016
	Mazda 6	2002-2020
	MPV	2006-2013
	MX-5	2005-2019
	RX-8	2003-2010
	Qiubite	2003-2006
	Biante	2008-2011

Requirements

Launch X-431 PRO immobilizer matching tool. Communication is normal, battery voltage is between 12 and 15 volts, and network connection is normal.

For key programming, it should be noted that generally at most 8 and at least 2 keys are stored. The key model and quality meet requirements, and the vehicle does not have related faults, such as the fault of the induction coil and the antenna module.

For immobilizer parameter reset/initialization, at least 2 programmed keys are required.
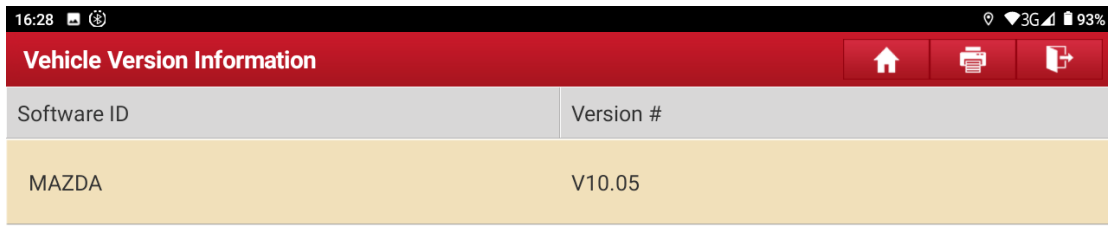
Failure to meet these requirements may result in failure of key programming or parameter reset.

Procedure

Take Mazda 2015 Mazda 6 Atenza as an example to perform [Parameter Reset] and [Advanced Key Erase].

1.   Choose [Anti-Theft System Detection] > [Automatically Search]. See Figure 1,

Figure 2, and Figure 3.
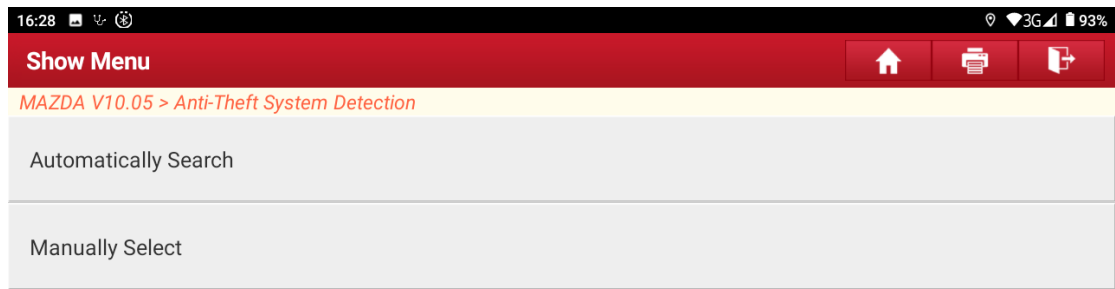

Figure 1

Figure 2

Figure 3

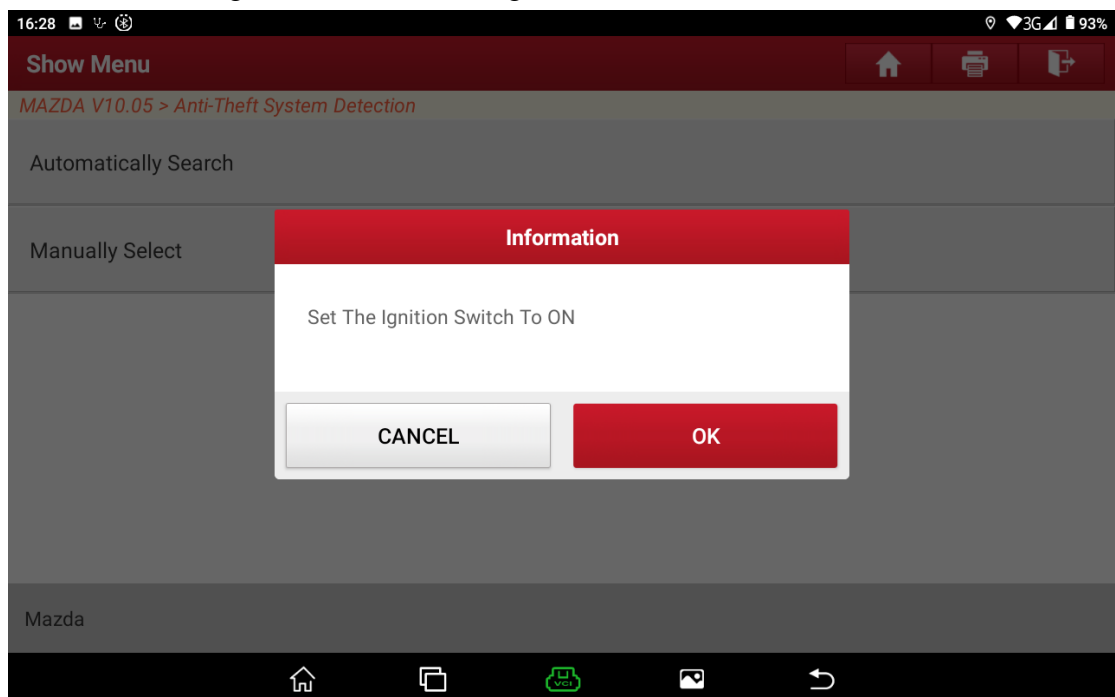2.   Turn on the ignition switch. See Figure 4.

Figure 4

3.   Confirm whether the VIN is correct. Choose [No] to manually input the correct VIN or choose [Yes] to access the next step. See Figure 5.
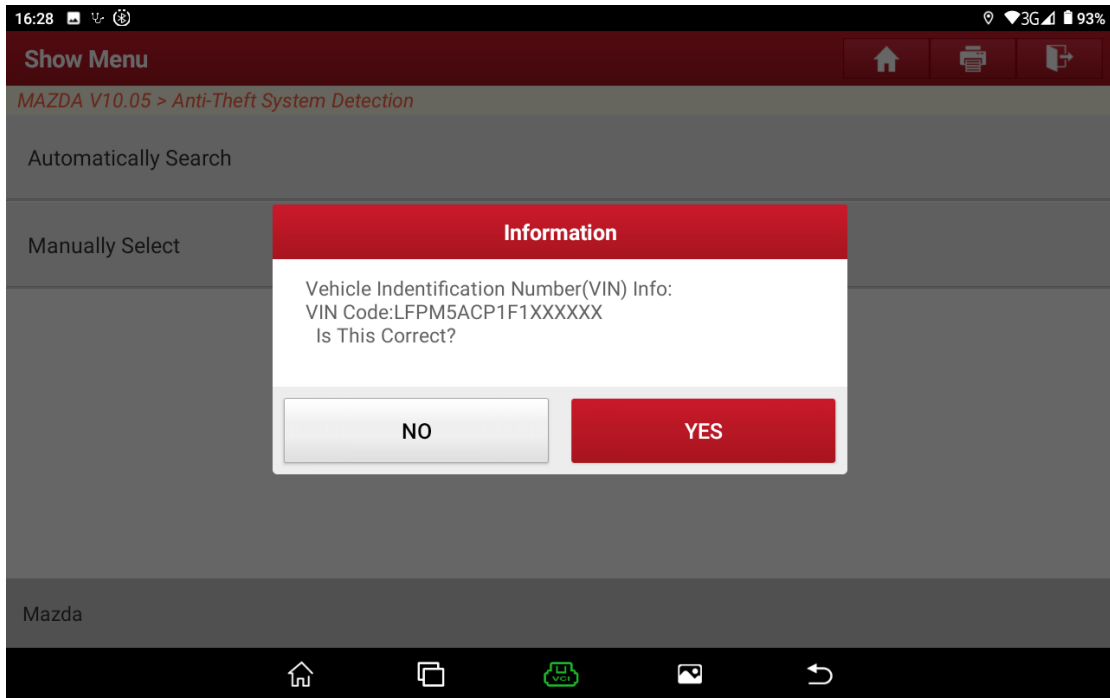
Figure 5

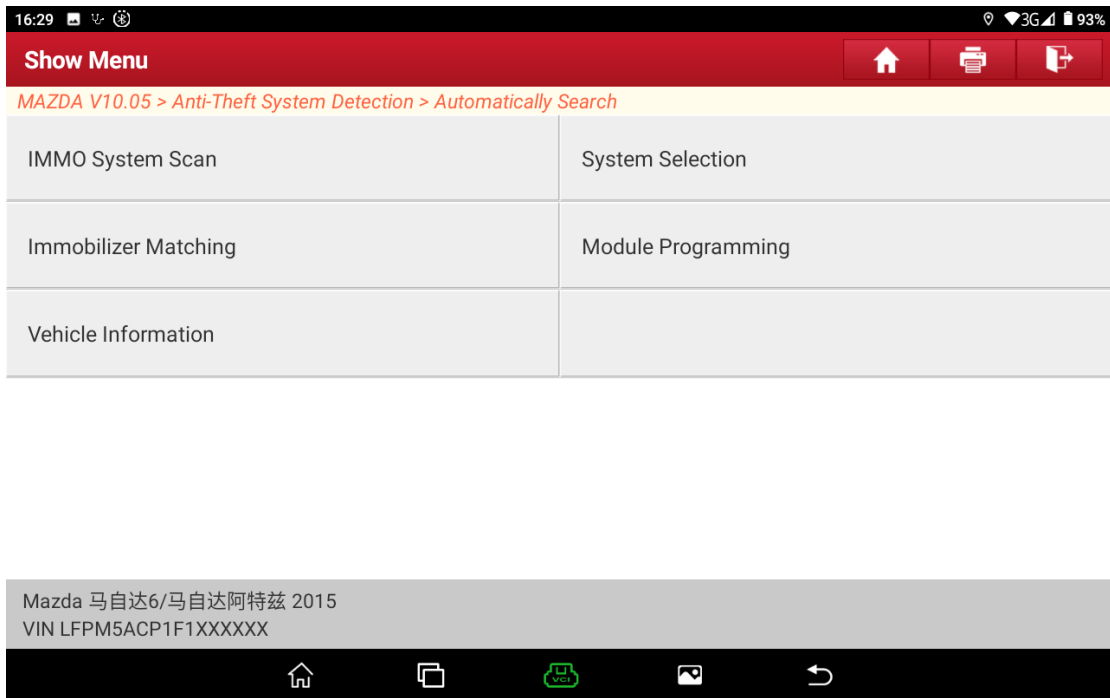4. Choose [Immobilizer Matching]. See Figure 6.

Figure 6

5. Choose [PATS (Passive Anti-theft System) Functions]. See Figure 7.
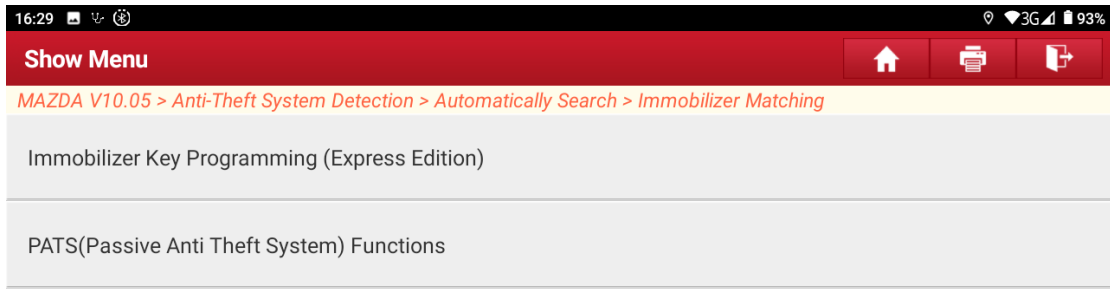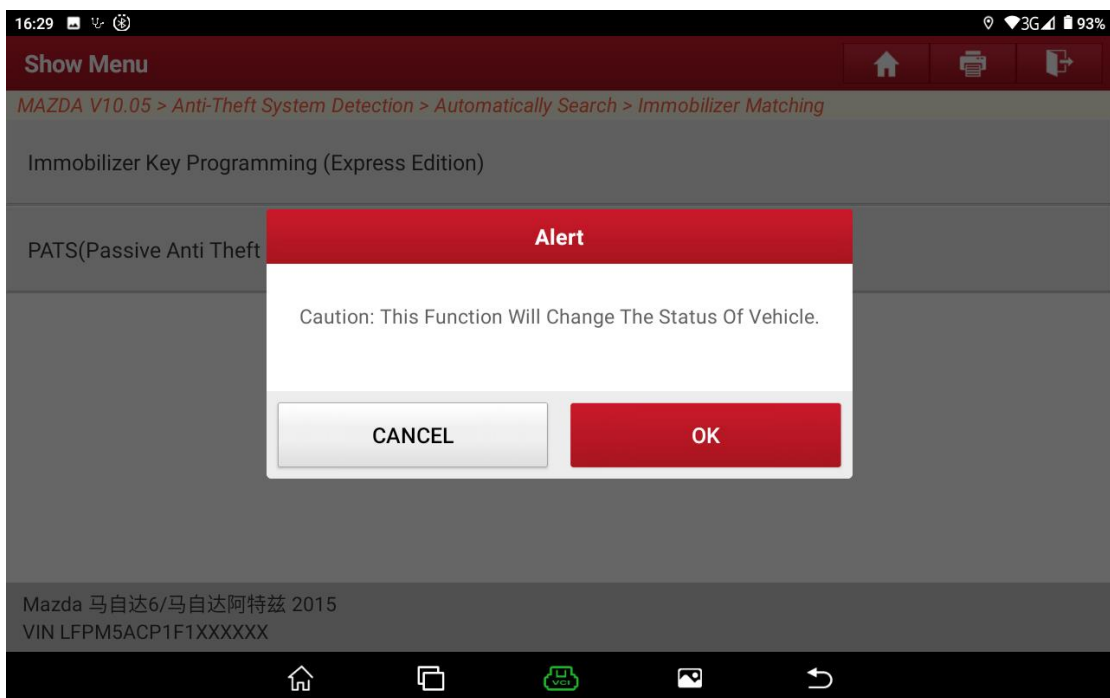
Figure 7

6.   A warning prompt is displayed. See Figure 8.
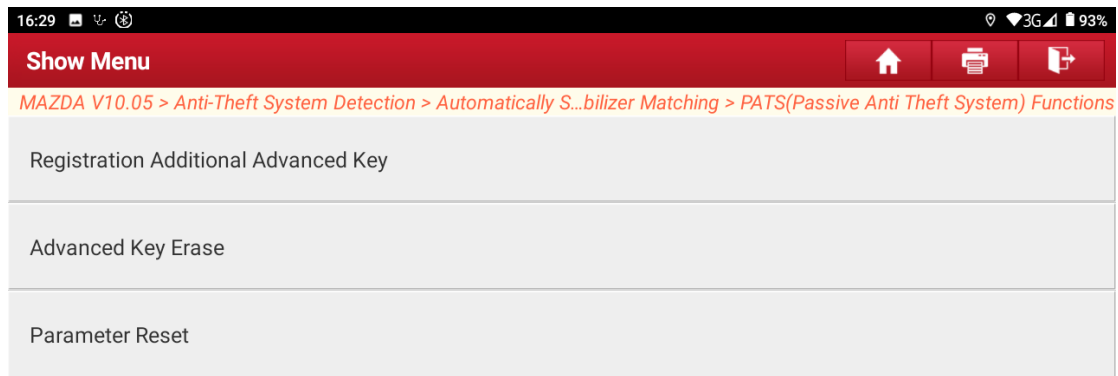

Figure 8

7.   Choose [Parameter Reset]. See Figure 9.

Figure 9

8. The function execution conditions are displayed. Choose [No] to exit the function, or choose [Yes] to access the next step. See Figure 10.
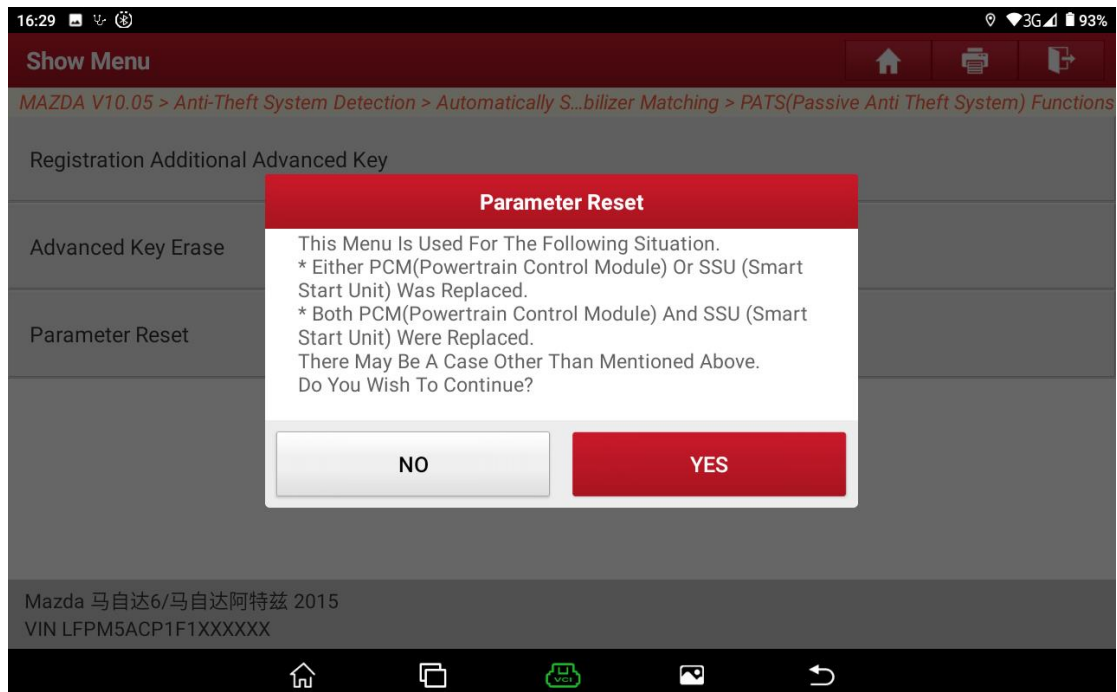

Figure 10

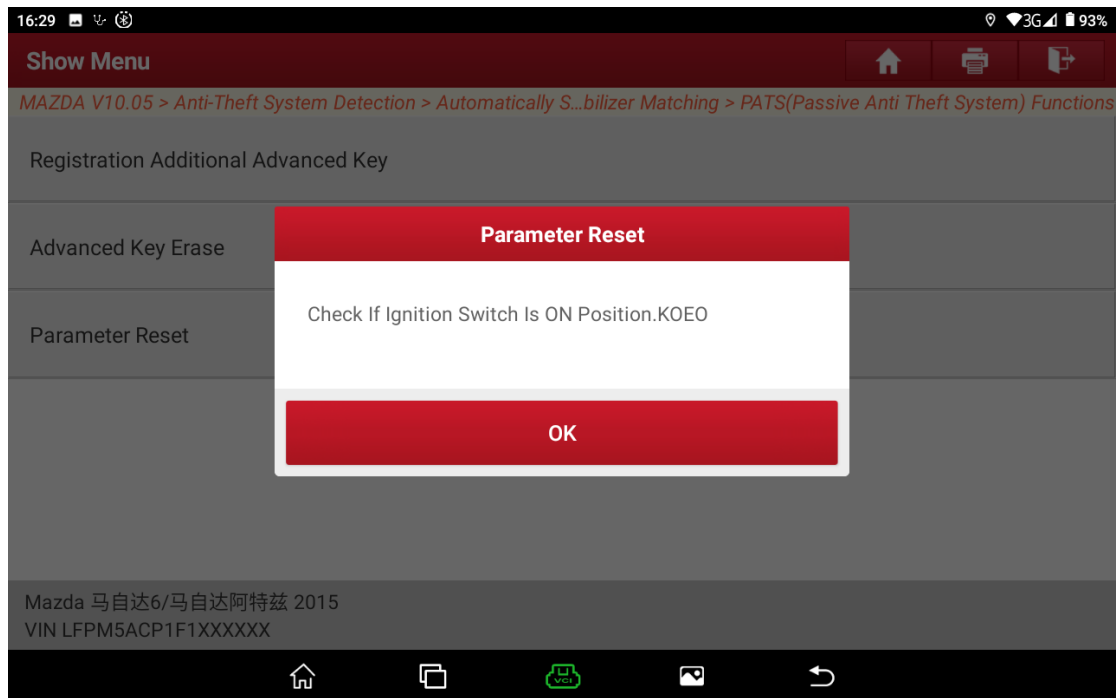9. Prompt to turn on the ignition switch. See Figure 11.

Figure 11

10. Two keys are required to perform this function. Choose [No] to exit the function, or choose [Yes] to access the next step. See Figure 12.
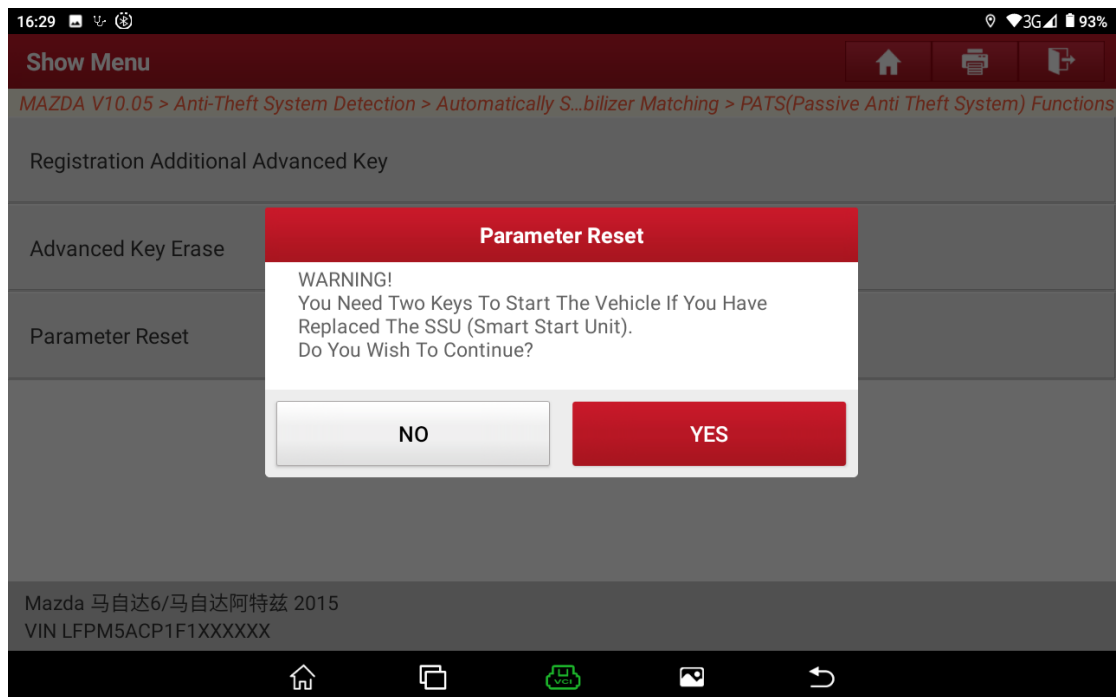

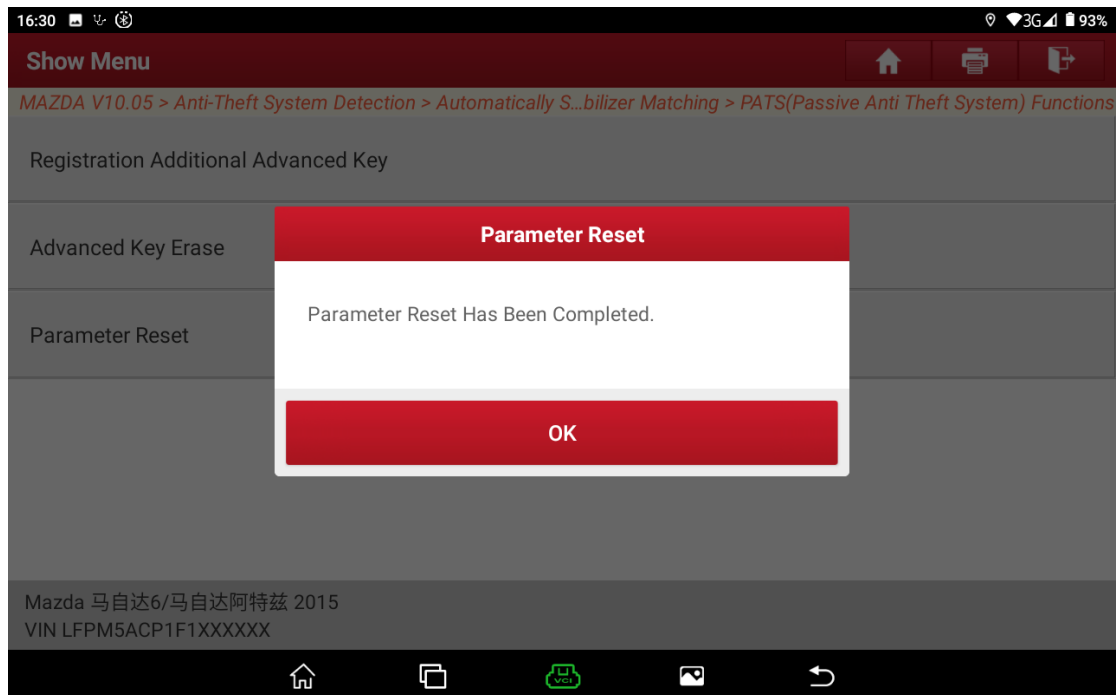
Figure 12

11. Execution is successful. See Figure 13.

Figure 13

12. Prompt whether to execute [Advanced Key Erase]. Choose [No] to exit the function, or choose [Yes] to start to perform [Advanced Key Erase]. See Figure 14.
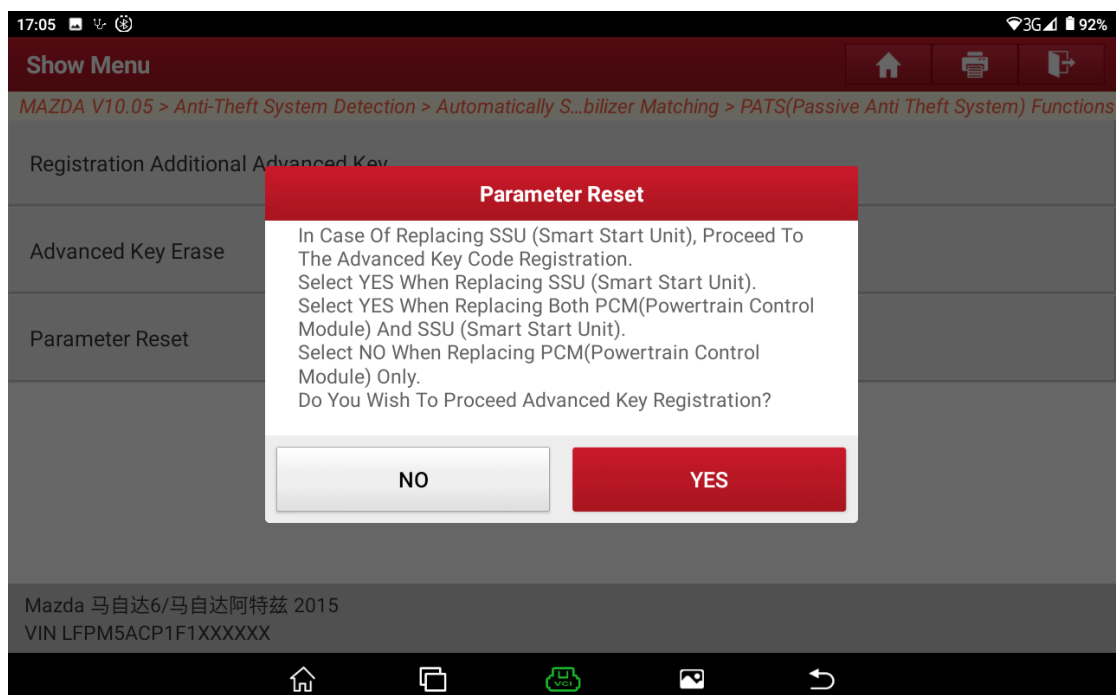

Figure 14

13. The function execution conditions are displayed. Choose [No] to exit the function, or choose [Yes] to access the next step. See Figure 15.
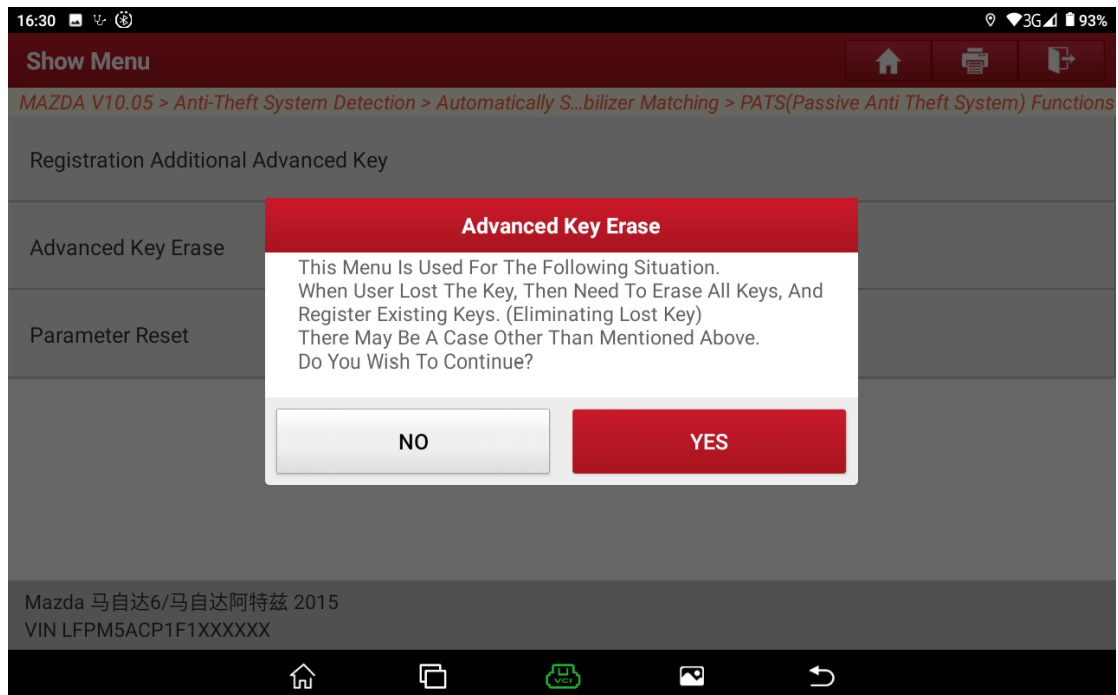
Figure 15

14. A warning prompt is displayed. Choose [No] to exit the function, or choose [Yes] to access the next step. See Figure 16.
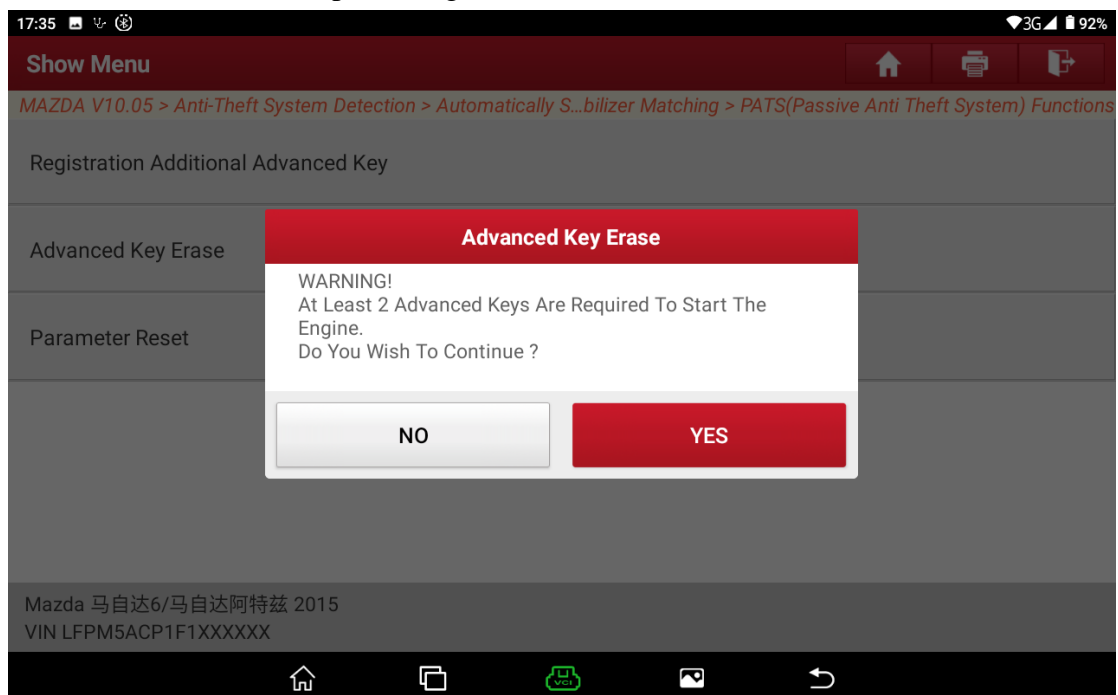

Figure 16

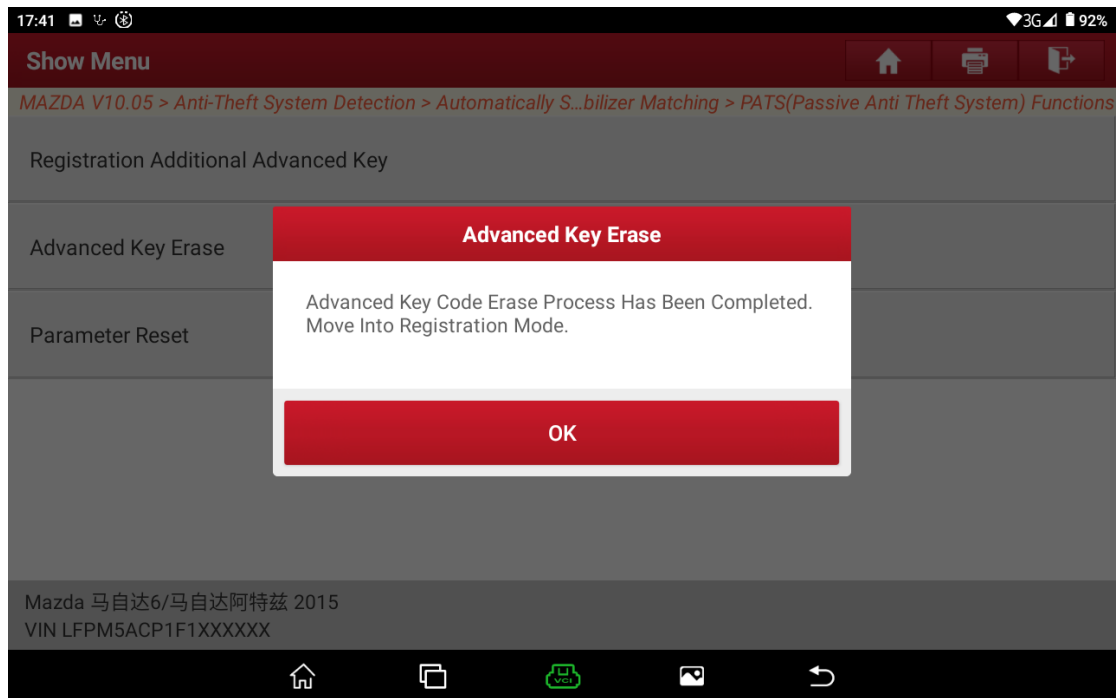15. After erasing is complete, perform key registration. See Figure 17.

Figure 17

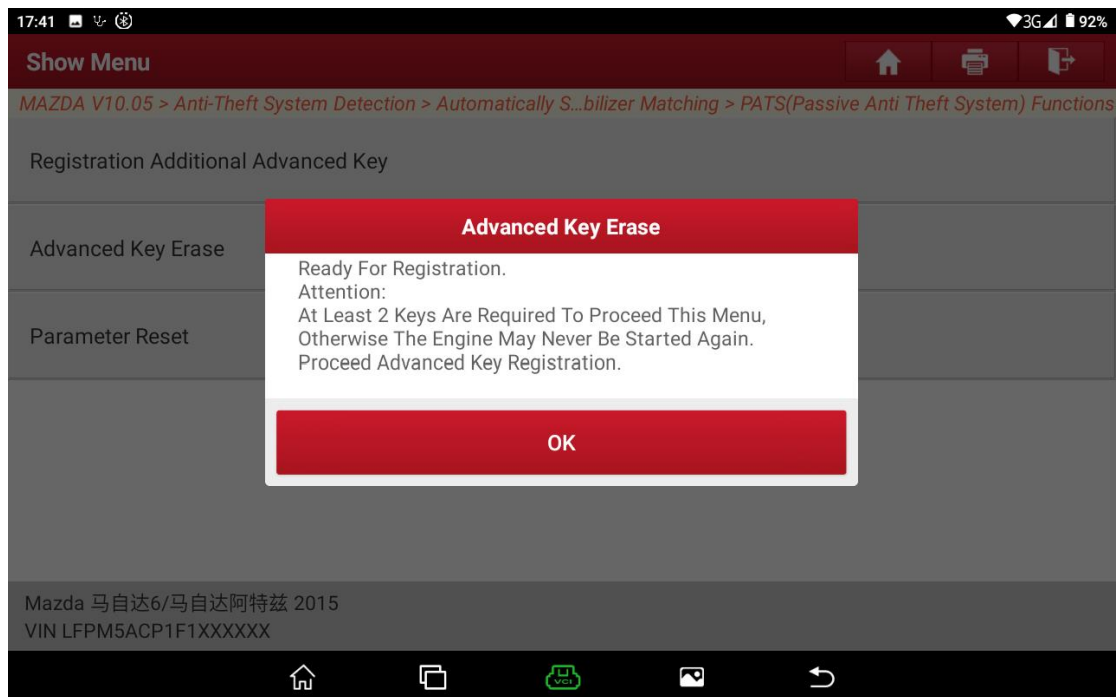16. The execution conditions are displayed. See Figure 18.

Figure 18

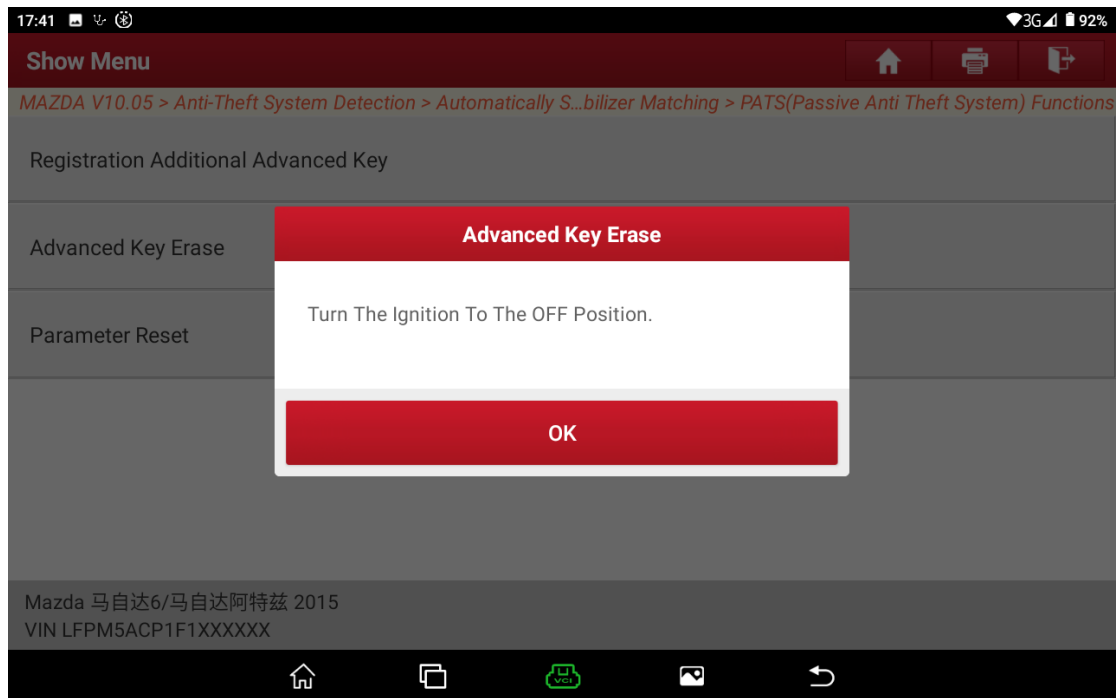17. Turn off the ignition switch. See Figure 19.

Figure 19

18. The operation prompt is displayed. See Figure 20.
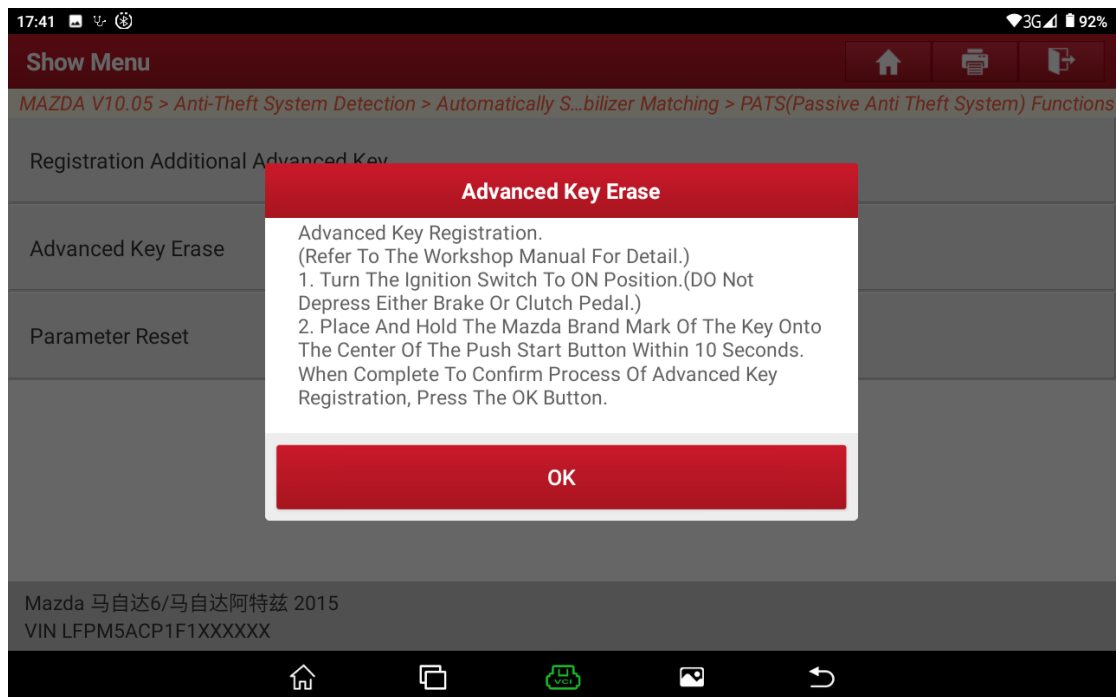

Figure 20

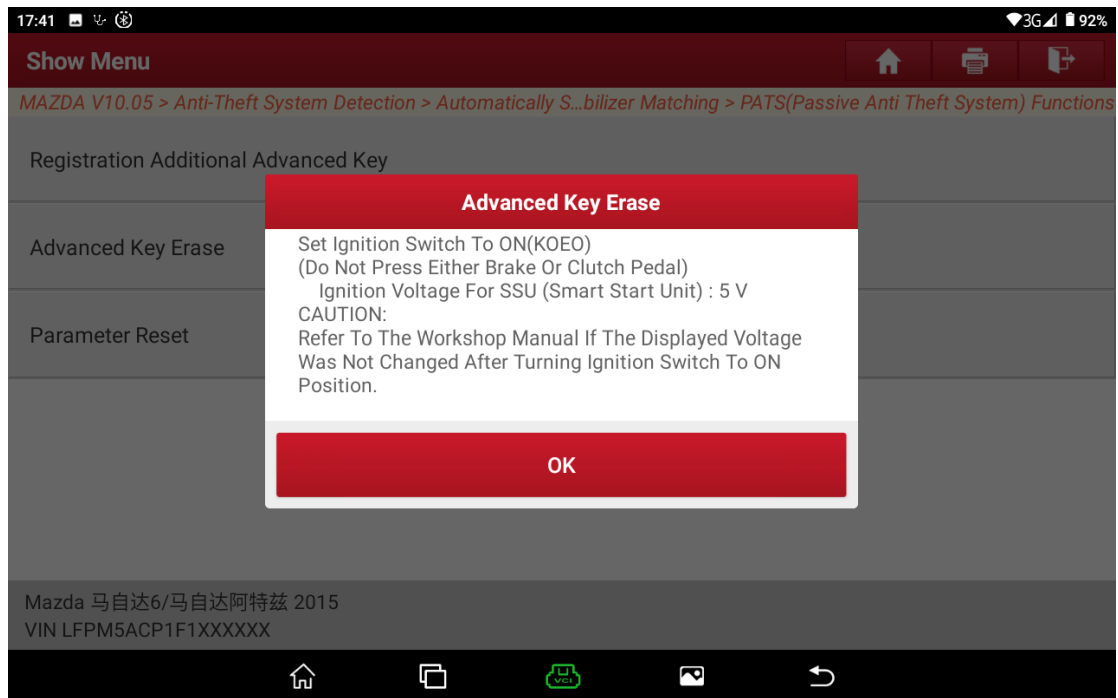19. The execution conditions are displayed. See Figure 21.

Figure 21

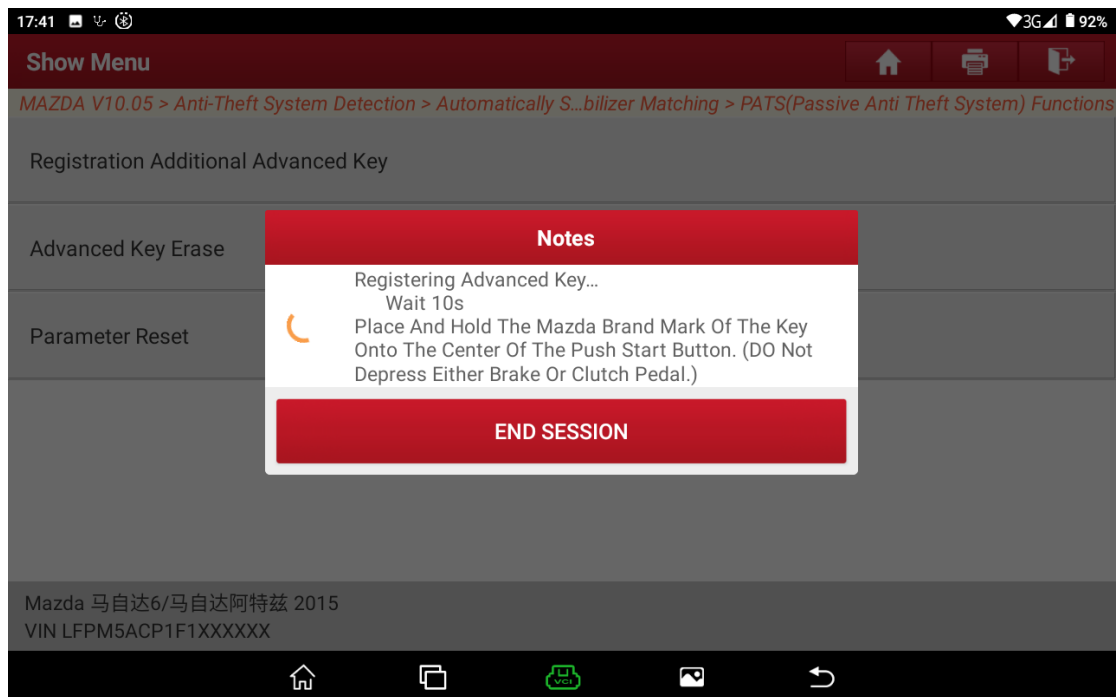20. Registering...Please wait for 10s. See Figure 22.

Figure 22

21. The number of registered keys is displayed. Choose [No] to go to the next step, or choose [Yes] to go back to step 17. See Figure 23.
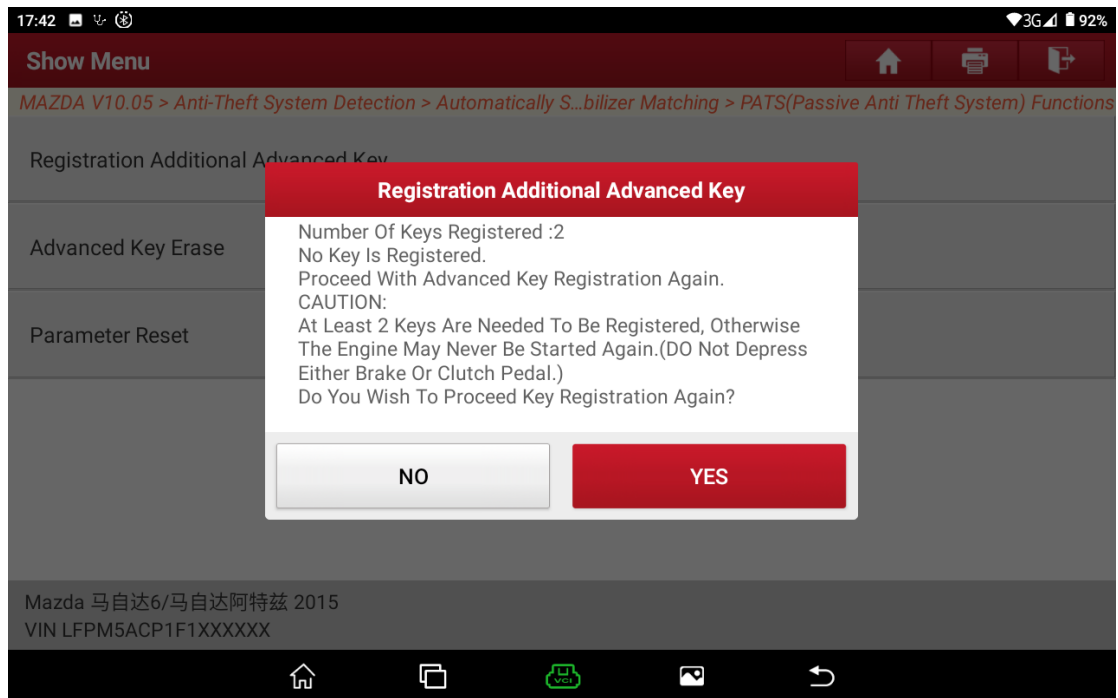
Figure 23

22. Turn off the ignition switch. See Figure 24.
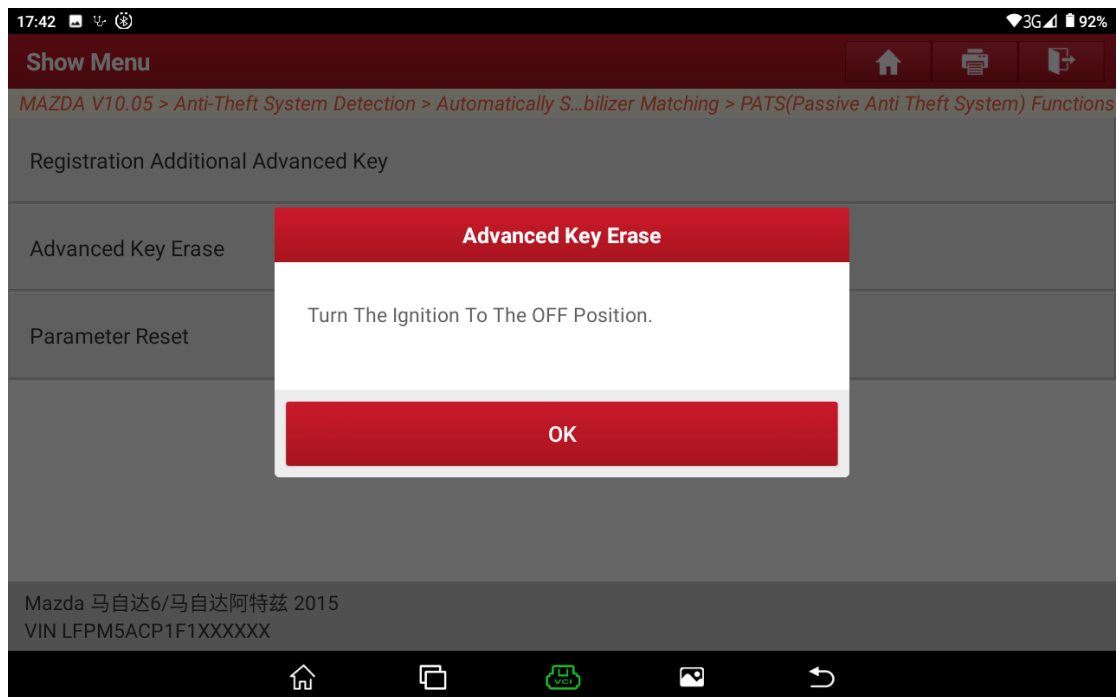

Figure 24

23. The operation prompt is displayed. See Figure 25.
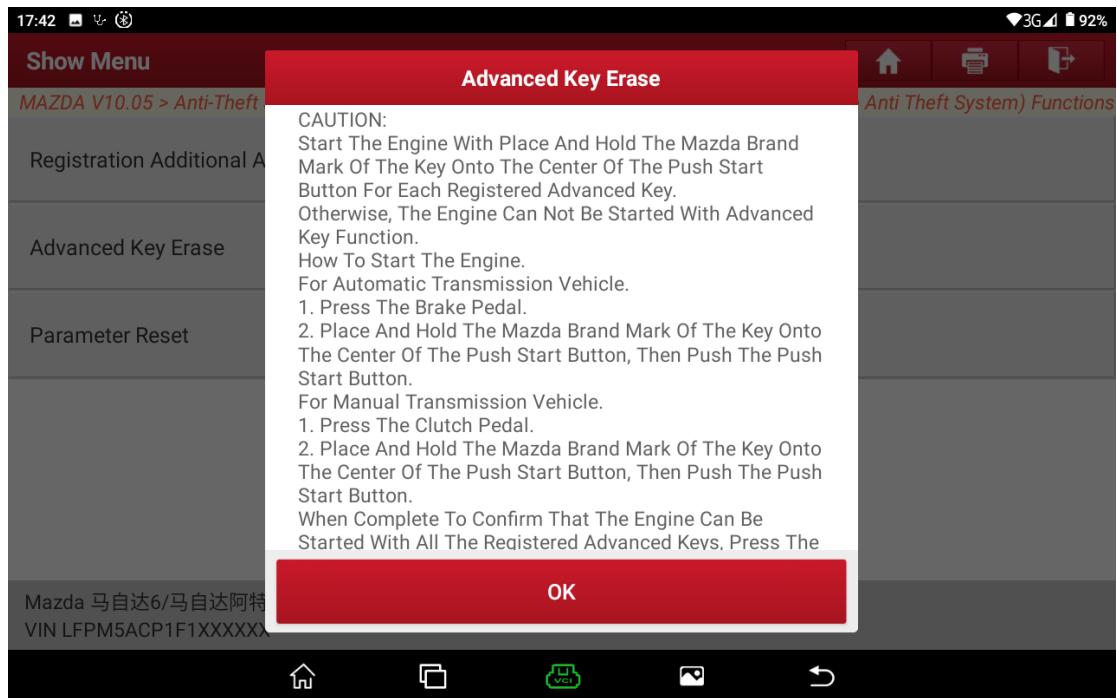
Figure 25

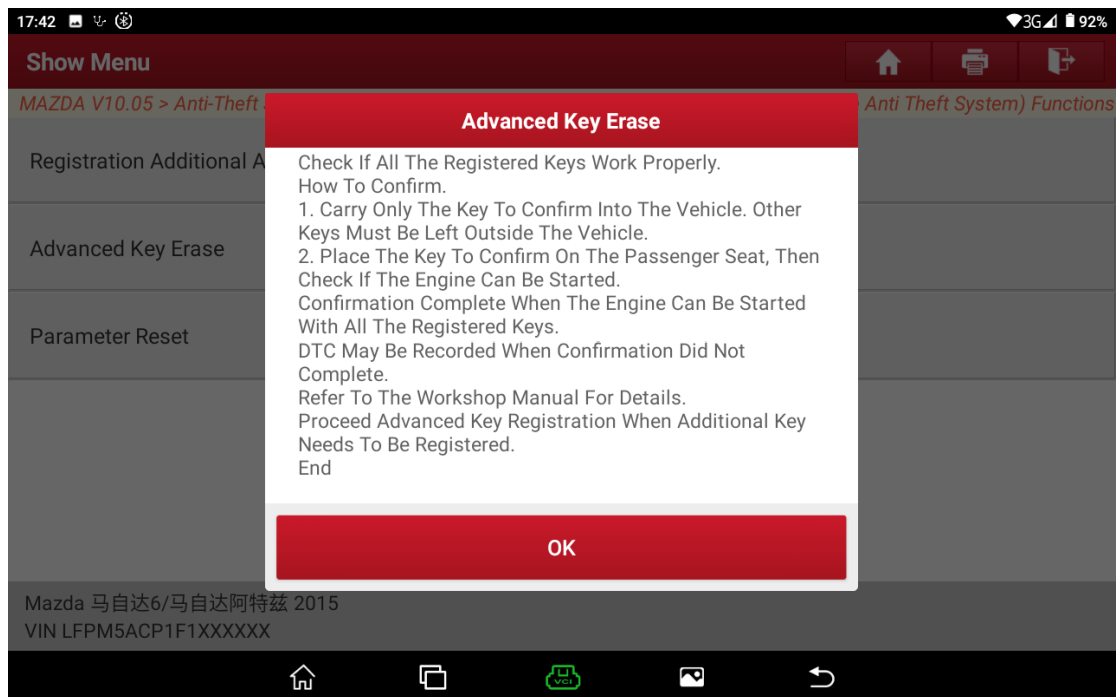24. Check the registered keys. Do not bring other keys into the car. See Figure 26.

Figure 26

25. Registration is completed. See Figure 27.
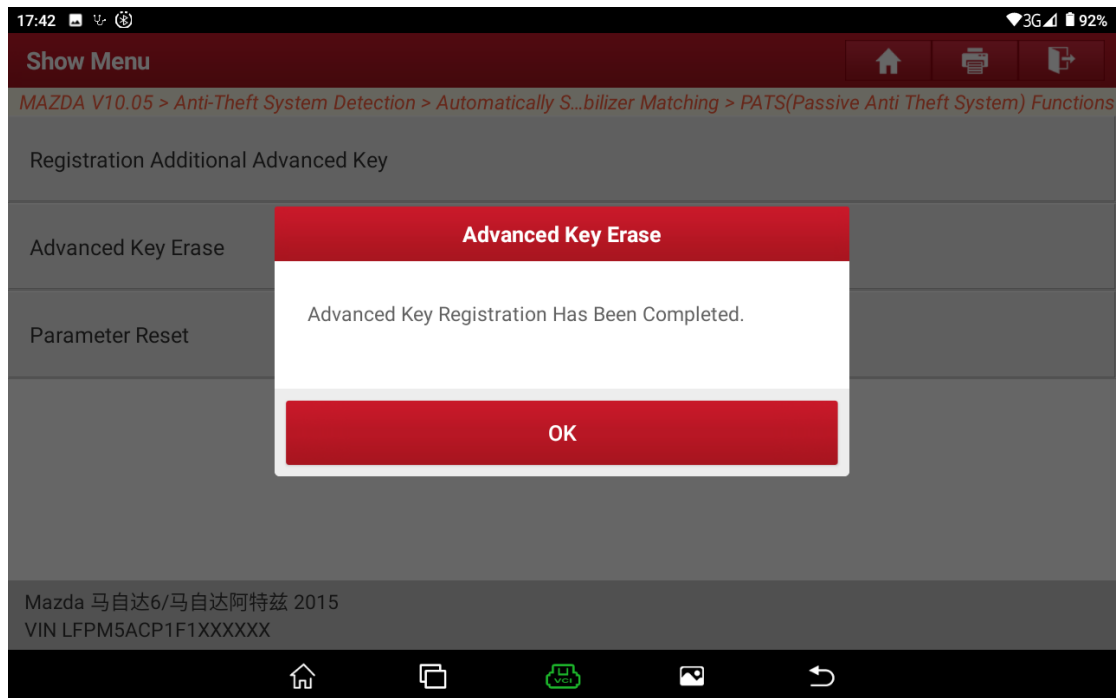
Figure 27

Take Mazda 2015 Atenza as an example to perform [Register Additional Advanced Keys].

1. Choose [Anti-Theft System Detection] > [Automatically Search]. See Figure A1, Figure A2, and Figure A3.
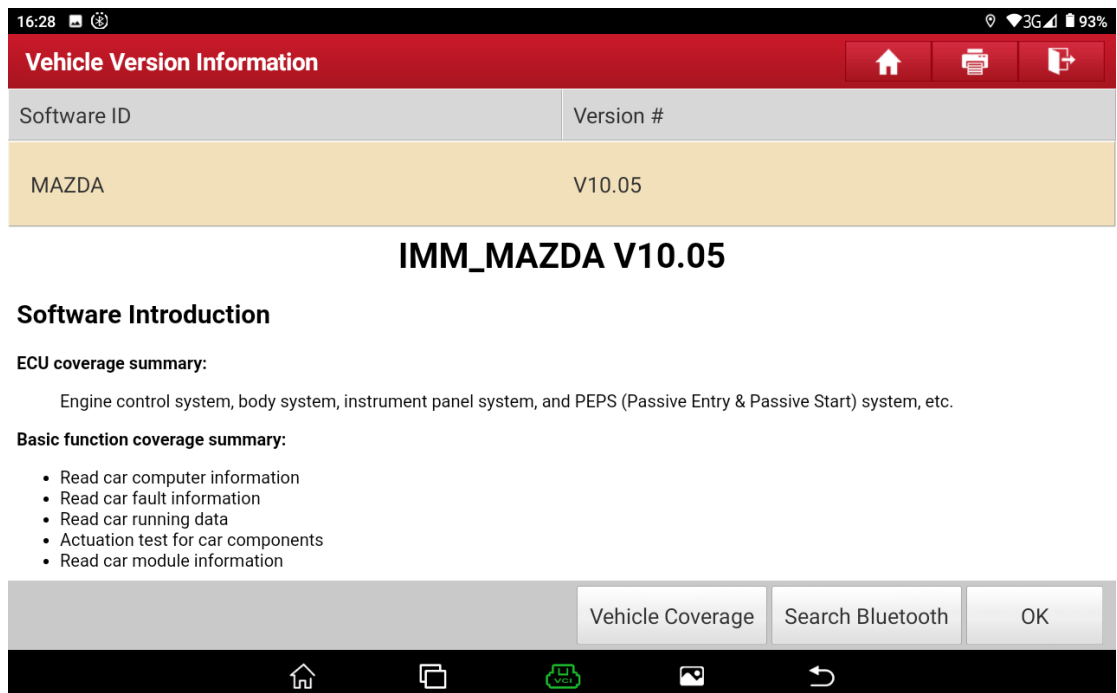
Figure A1

Figure A2
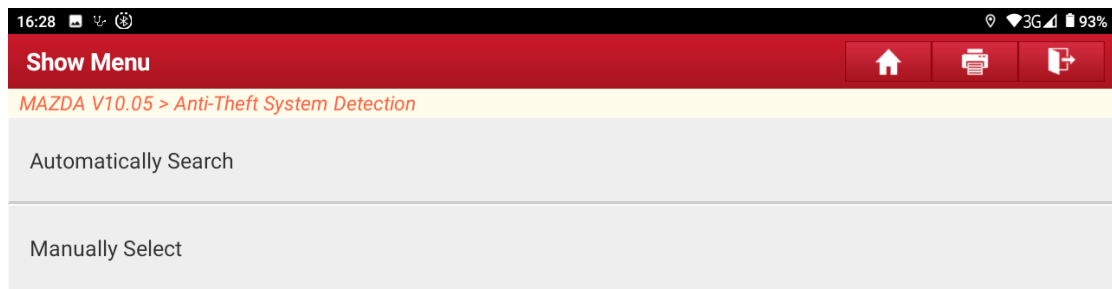
Figure A3

2.   Turn on the ignition switch. See Figure A4.
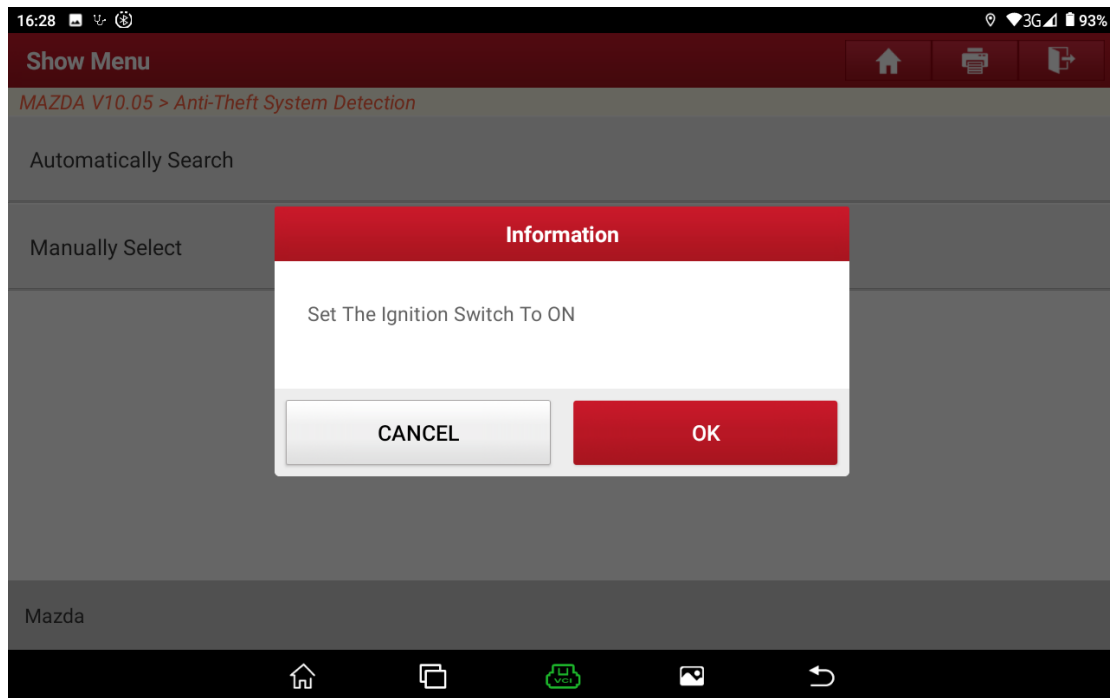
Figure A4

3. Confirm whether the VIN is correct. Choose [No] to manually input the correct VIN or choose [Yes] to access the next step. See Figure A5.
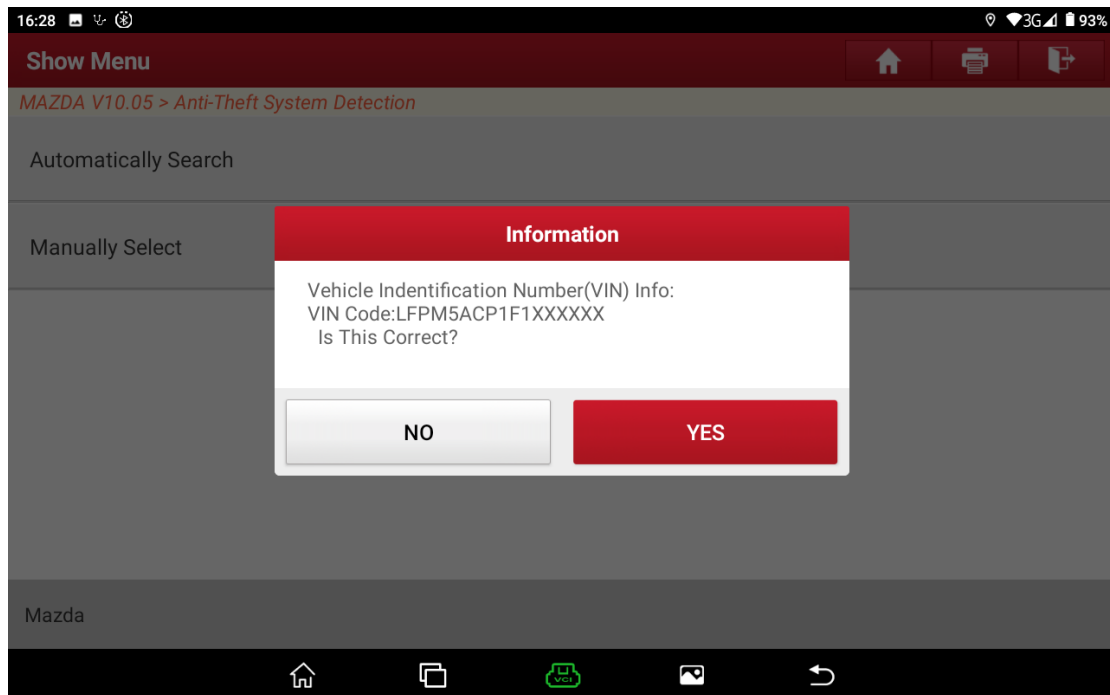
Figure A5

4. Choose [Immobilizer Matching]. See Figure A6.
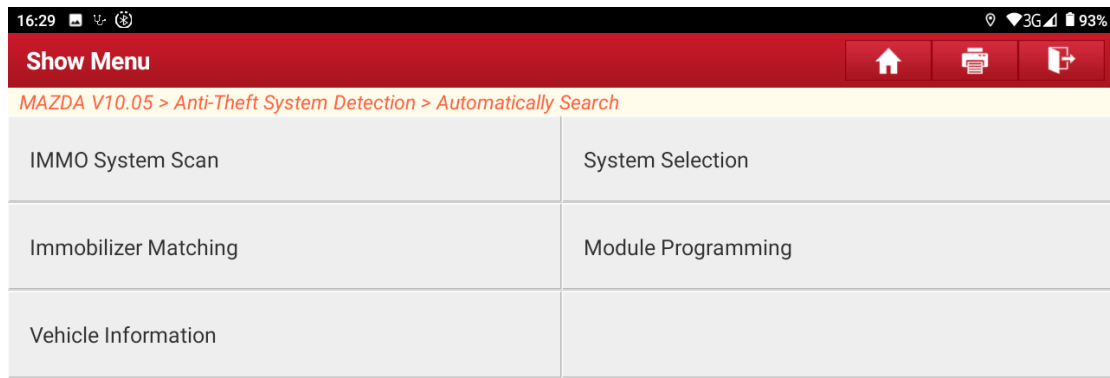
Figure A6

5.   Choose [PATS (Passive Anti-theft System) Functions]. See Figure A7.
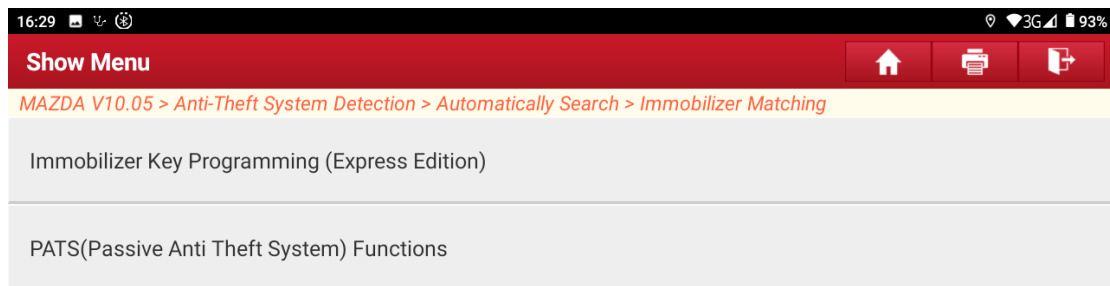
Figure A7

6.   A warning prompt is displayed. See Figure A8.
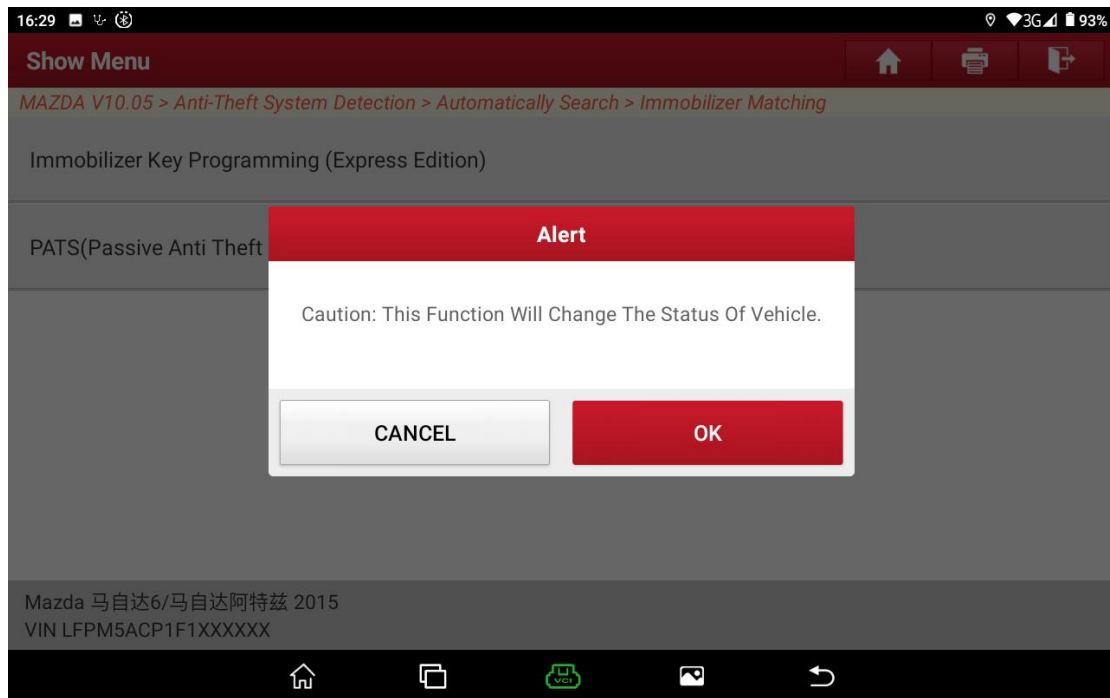
Figure A8

7. Choose [Registration Additional Advanced Key]. See Figure A9.
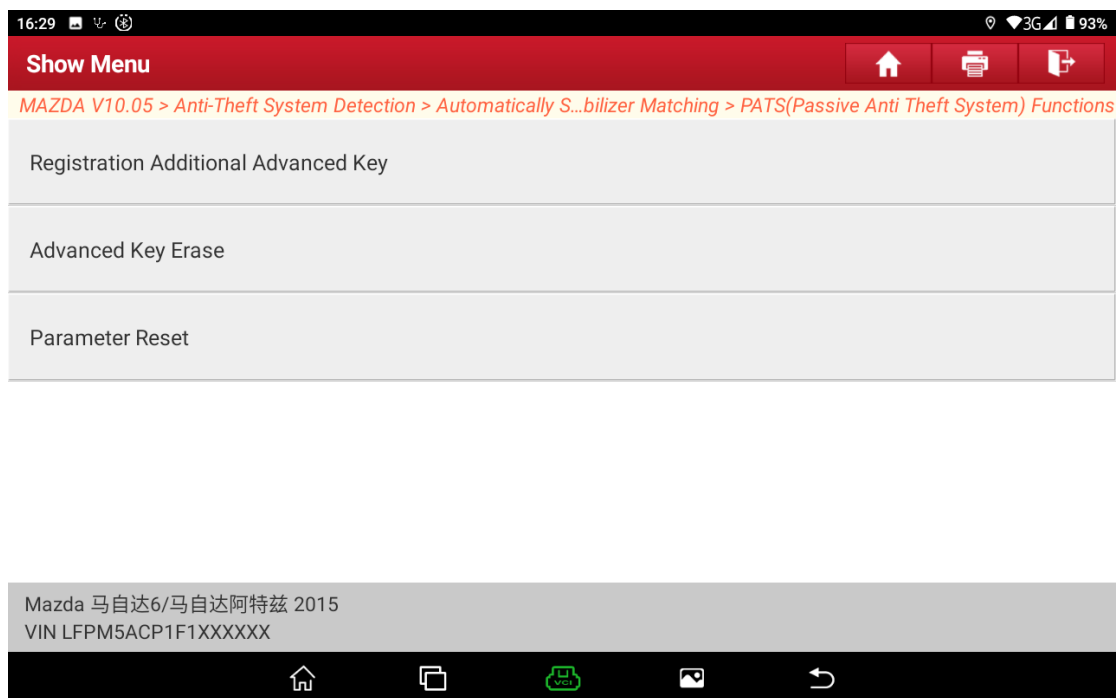
Figure A9

8. Choose [No] to exit the function, or choose [Yes] to access the next step. See Figure A10.
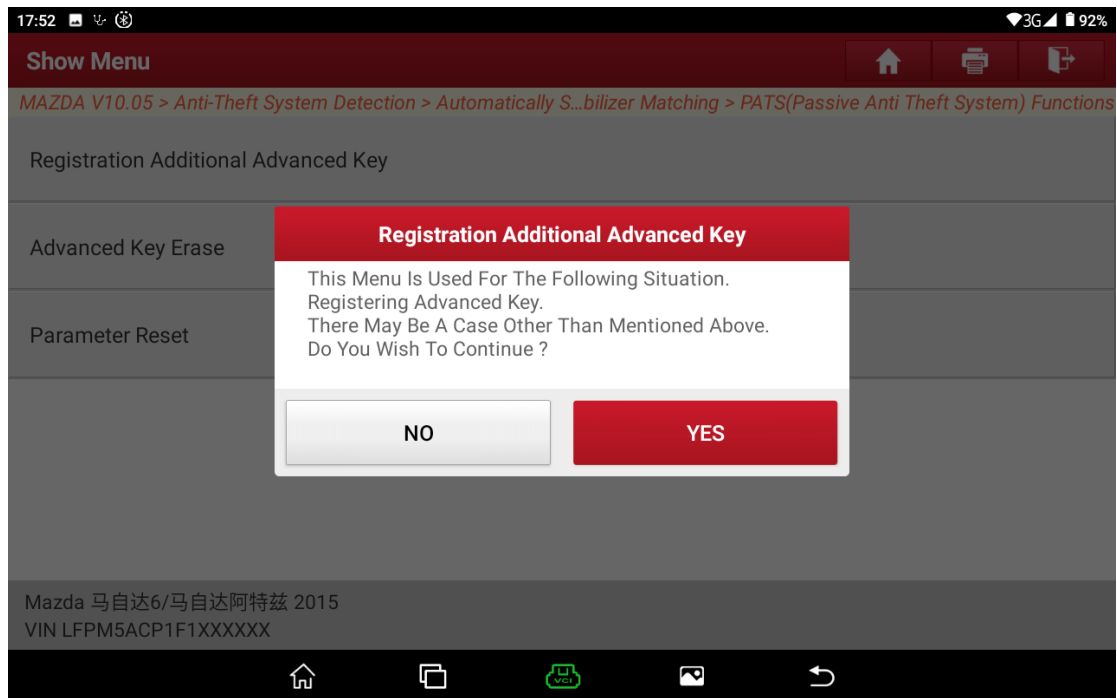
Figure A10

9. Before performing this function, perform the [Parameter Reset] Function first. Choose [No] to exit the function, or choose [Yes] to access the next step. See Figure A11.
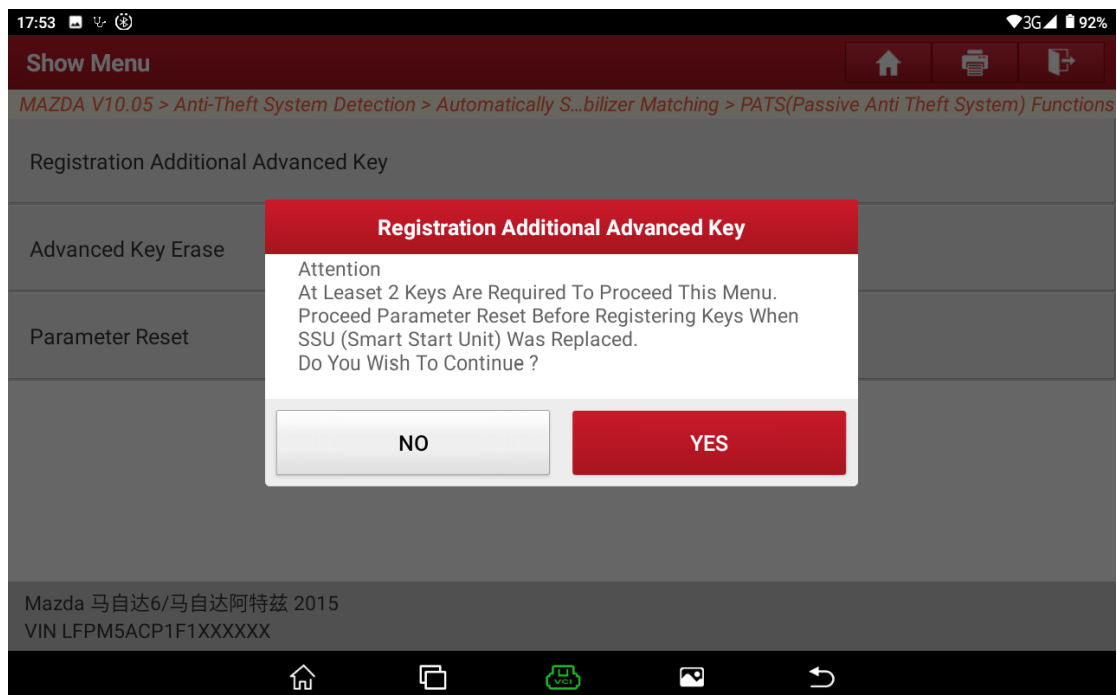
Figure A11

10. Prompt to turn on the ignition switch. See Figure A12.
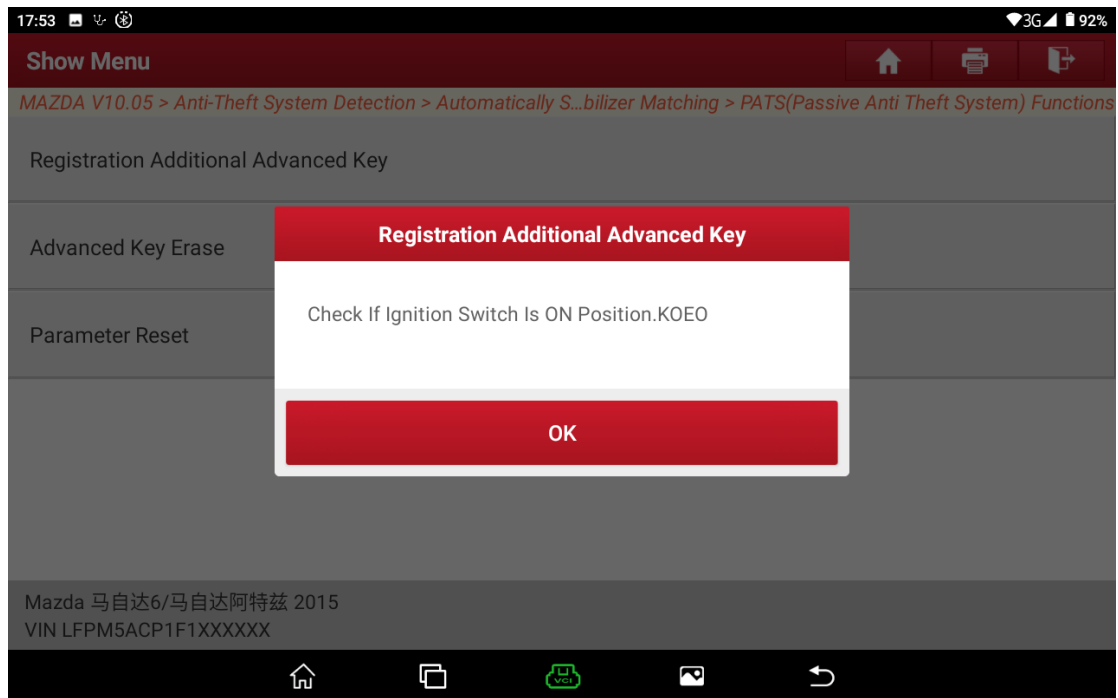
Figure A12

11. The operation conditions are displayed. Choose [No] to exit the function, or choose [Yes] to access the next step. See Figure 13.
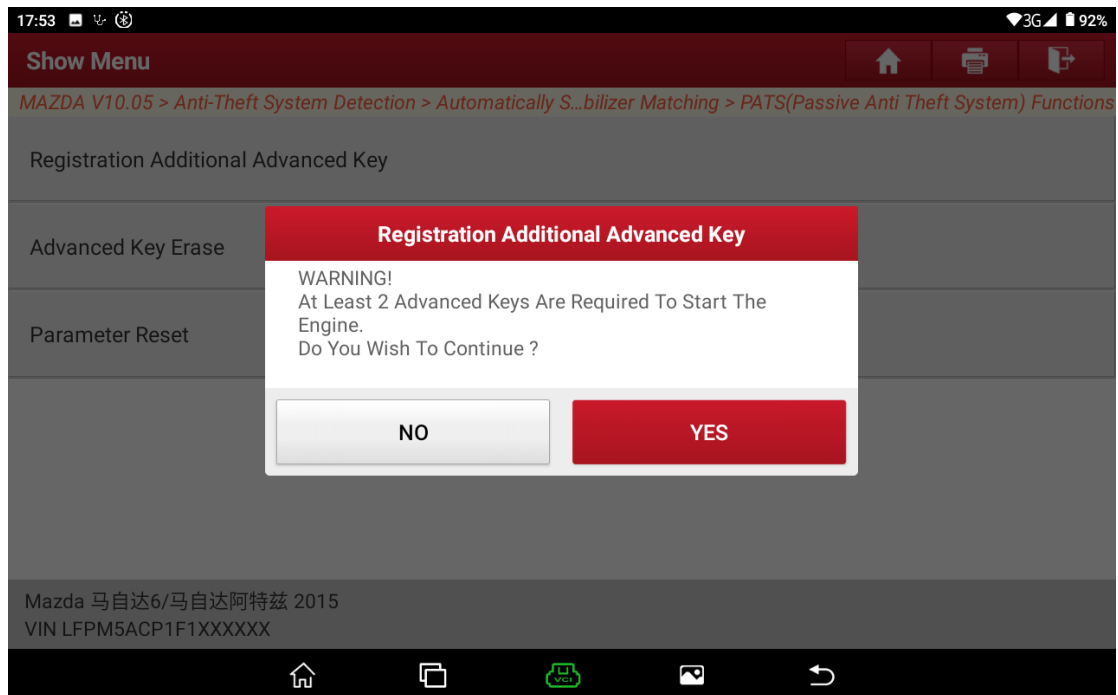
Figure A13

12. The operation details are displayed. See Figure A14.
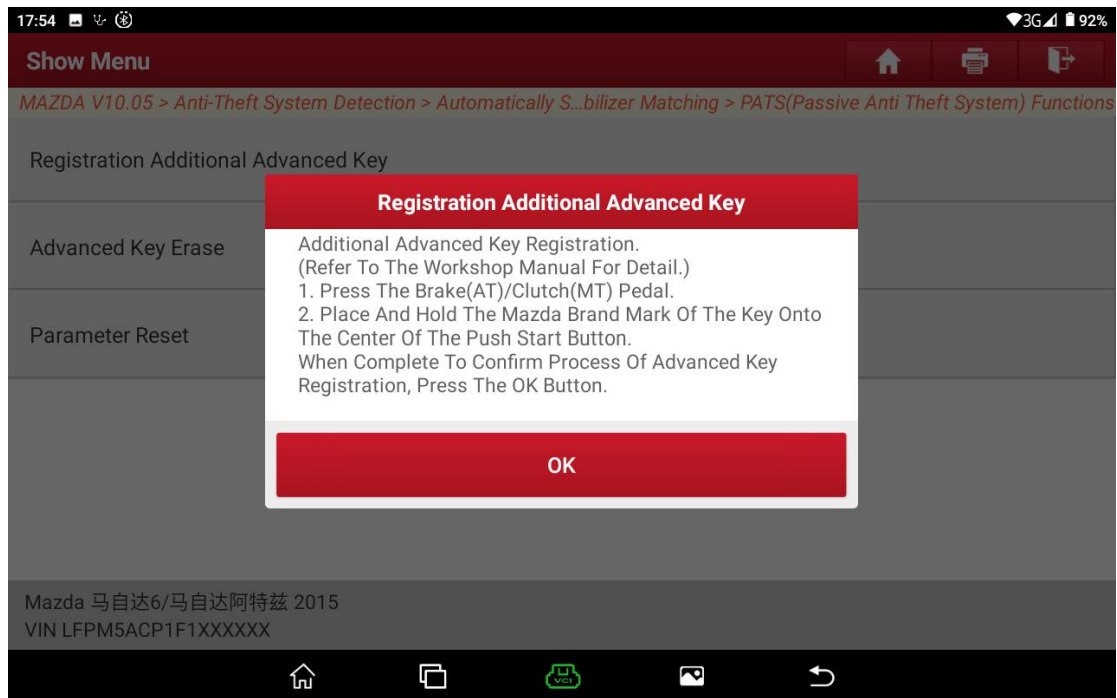
Figure A14

13. Prompt that the waiting time is 0-120s. See Figure A15.
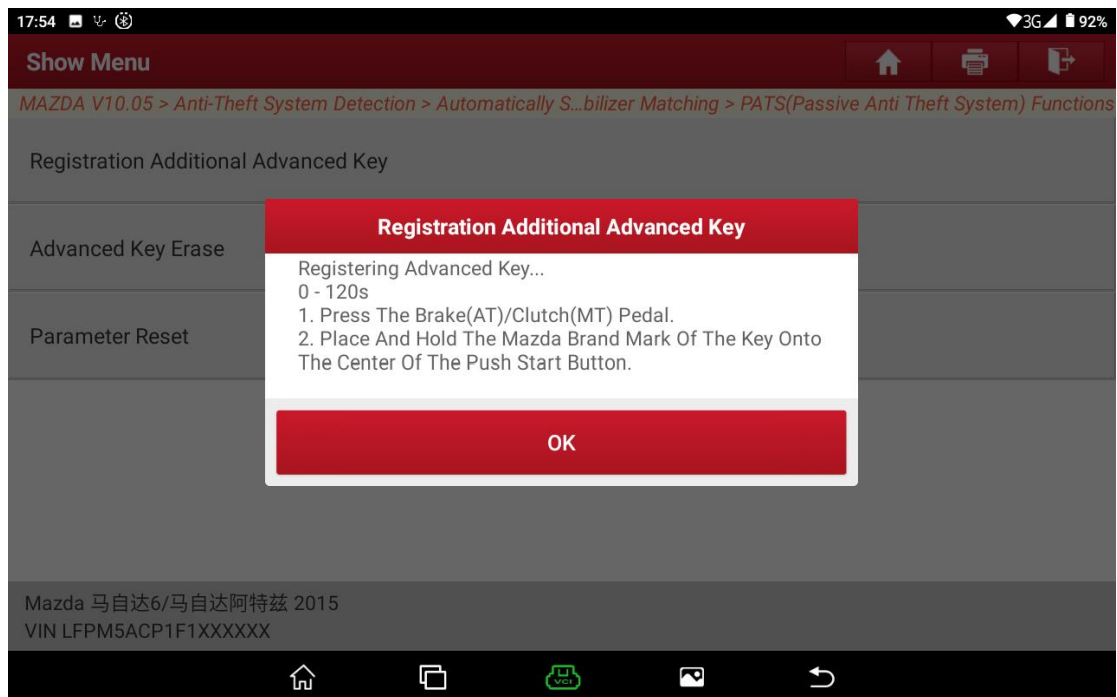
Figure A15

14. Registration is completed. See Figure A16.
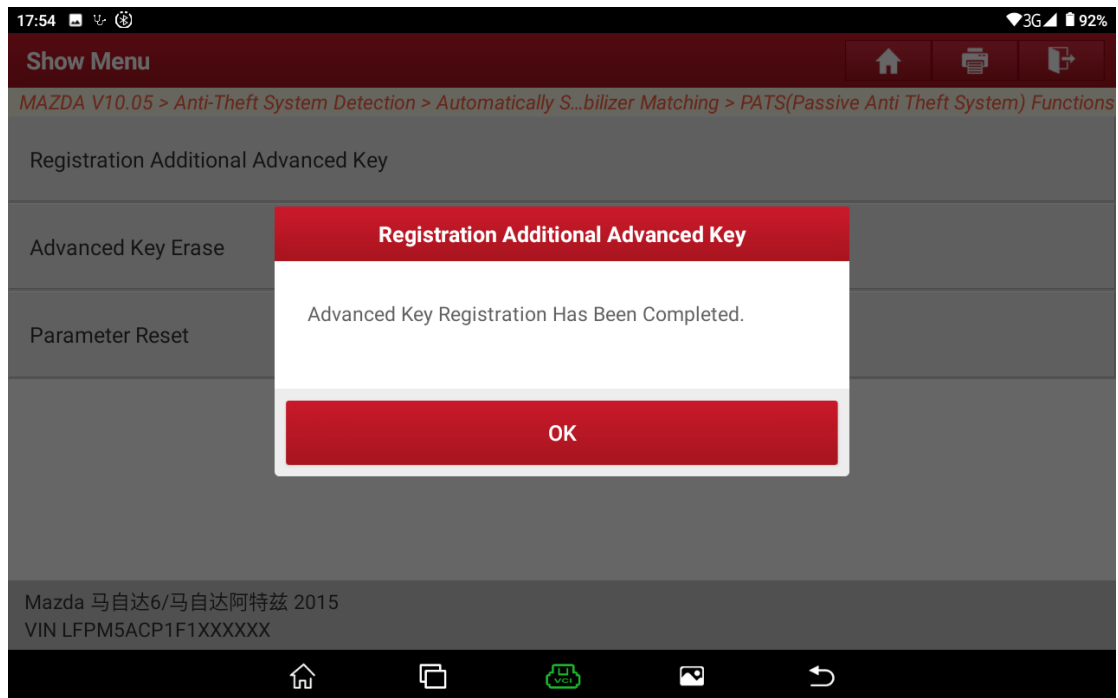
Figure A16

15. Wait for 5s. See Figure 17.
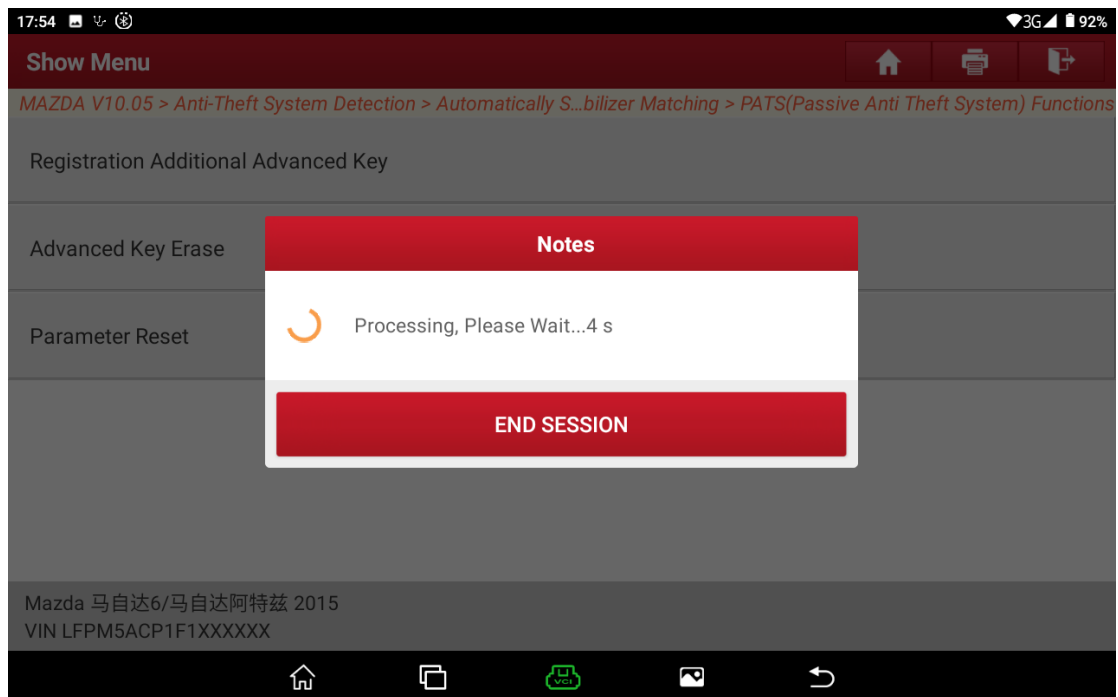
Figure A17

26. The number of registered keys is displayed. Choose [No] to go to the next step, or choose [Yes] to go back to step 12. See Figure A18.
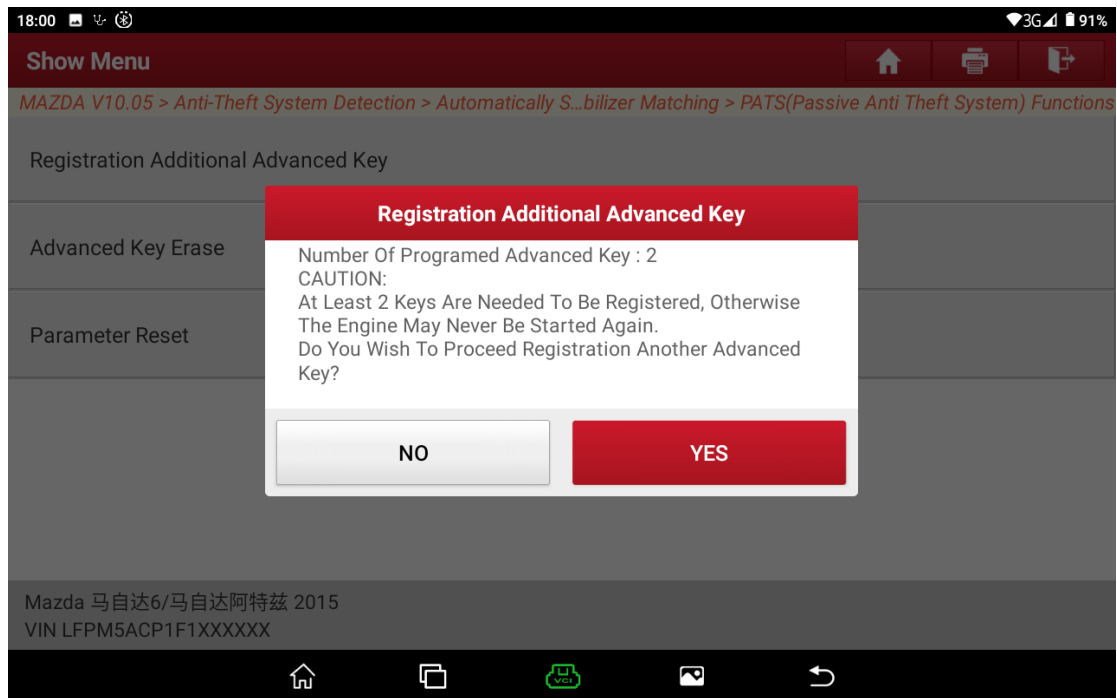
Figure A18

16. The precautions are displayed. See Figure A19.
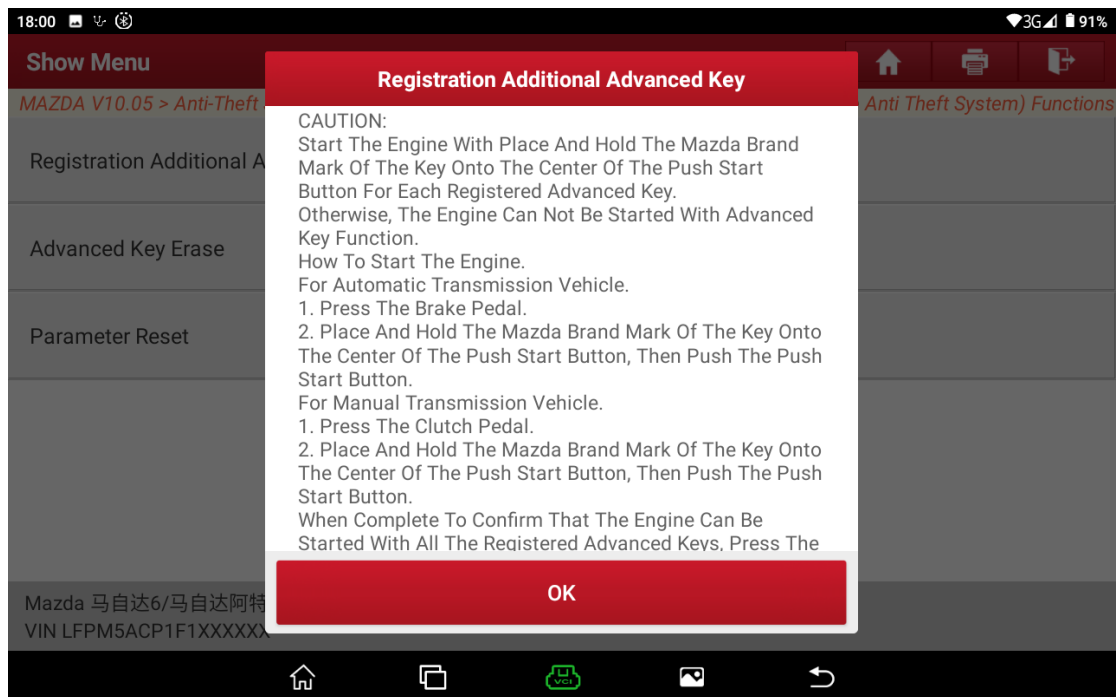
Figure A19

17. Prompt how to confirm whether the registered keys work properly. See Figure A20.
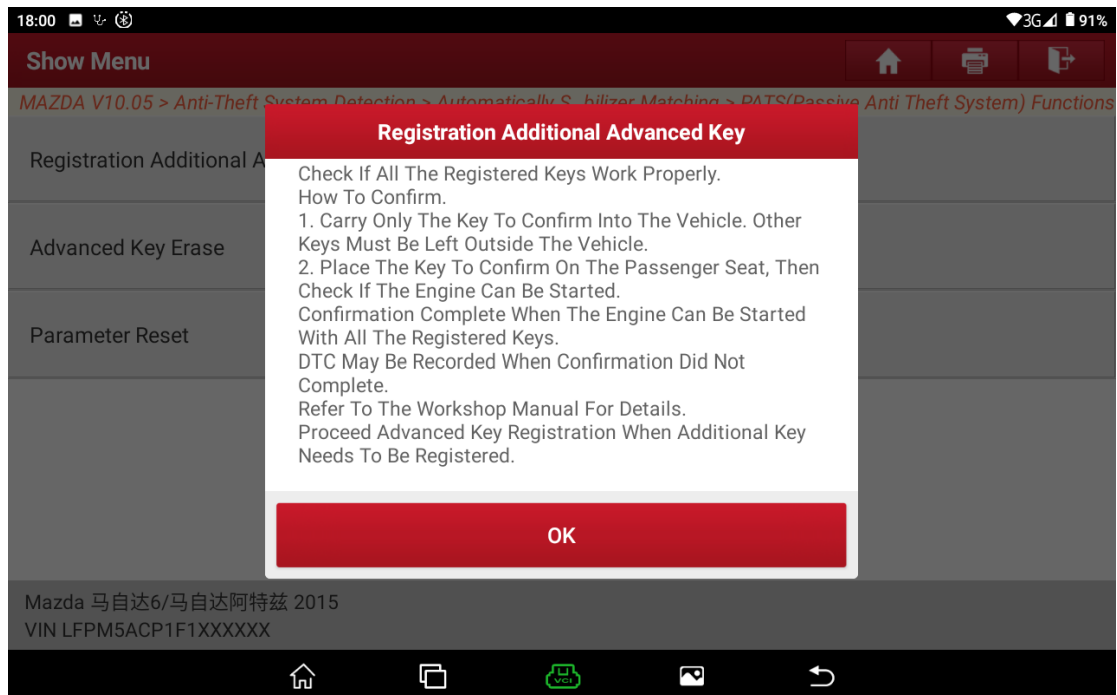
Figure A20

18. Function execution is successful. See Figure A21.
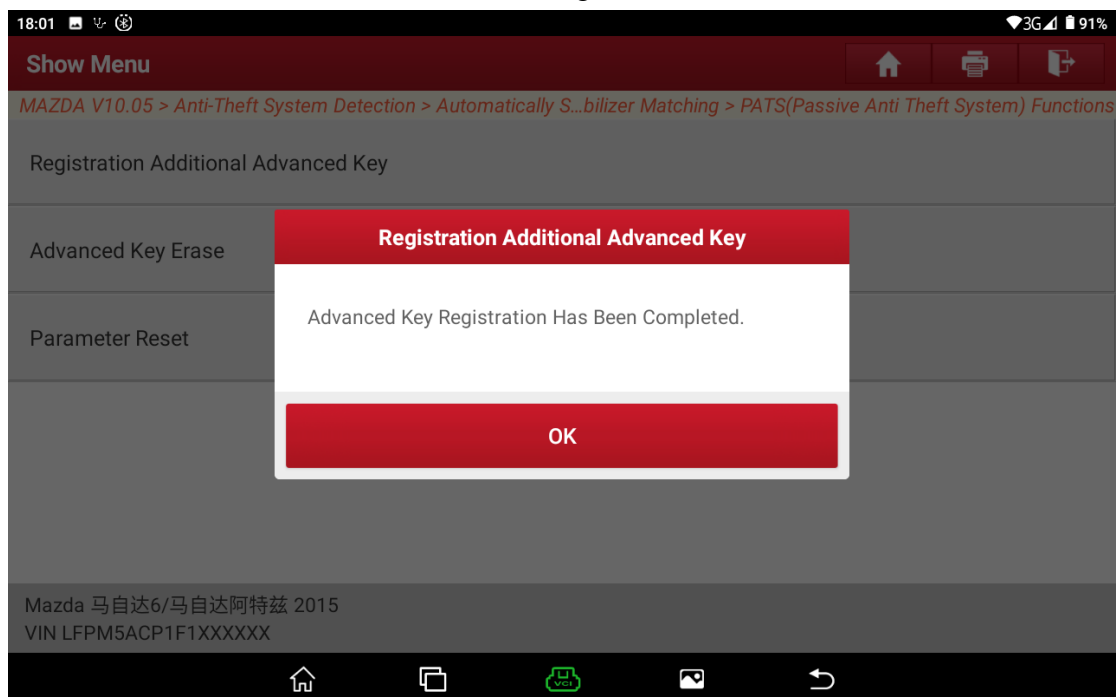
Figure A21

Immobilizer key programming (express edition)

The functions of adding and losing all mechanical keys and smart keys can be performed.

Manually select to access detection

Select and display the corresponding function menu according to the vehicle brand,

model, displacement, engine type, model year and other information. There is no module reprogramming (online) function menu in this menu.

Programming Operation Instructions

Model Coverage

Make	Model	Year
Mazda	CX-3	2014-2019
	CX-5	2015-2020
	CX-7	2006-2014
	CX-9	2007-2019
	Mazda 2	2002-2019
	Mazda 3	2003-2019
	Mazda 5	2005-2016
	Mazda 6	2002-2020
	MPV	2006-2013
	MX-5	2005-2019
	RX-8	2003-2010
	Qiubite	2003-2006
	Biante	2008-2011

Requirements

Module programming will not resolve known issues unless a new module is installed or it is required for DTCs and repairs.

Use Launch PAD series comprehensive diagnostic equipment, Launch X-431 PRO immobilizer matching tool. Make sure that the device network connection is normal, and the vehicle battery voltage is between 12 and 15 volts. During programming, it is not allowed to disconnect the diagnostic device connector or turn off the ignition key unless prompted by the software.

The replacement of immobilizer modules is recommended in the following order: programmable installation (module reprogramming), PATS (key programming, parameter reset), related special functions. It is operated in combination with the actual DTCs. When there is no DTC that needs to be programmed (such as U2100, U2101, U3000, U3002), the programming can be skipped to see if there is an immobilizer DTC to perform the immobilizer function. Finally, it is determined whether the corresponding special function needs to be executed according to the module DTC.

For example, after the ABS is replaced, it is necessary to perform the IVD or longitudinal, lateral or acceleration sensor calibration. After the BCM is replaced, it is necessary to perform the immobilizer key programming, LIN bus, and CEI (Configurable Engine Immobilizer). After the PCM engine is replaced, it is necessary to perform the vehicle data learning function. The special functions that need to be

performed by different models are slightly different. Refer to the relevant tips in the software.

Procedure

Programmable Module Installation

When replacing a new module, execute the programmable module installation function to correctly configure the system parameters.

For example, when the PCM engine module has P1639:00 "Vehicle ID module is not programmed", or when there are B2477 "Module configuration failure", U2100, U2101, U2200, U3000, U3002 and other DTCs, the programmable module installation should also be performed. After the programmable installation function is performed, if the above DTCs still exist, the module reprogramming (online) should be performed.

It can be performed in the following 3 methods.

Read from old module

The original car module needs to be able to communicate normally. If the original car module is damaged and cannot communicate, you can choose the other two methods. The engines and body modules of some models only support this method, and do not support manual and online methods.

The new module needs to be installed after the software prompts. If the new module is installed first, it is recommended to install the original car module back and then perform this function.

Manual input

Through the manually inputted parameters, you can query the factory parameters of the vehicle based on the VIN on Mazda's official website.
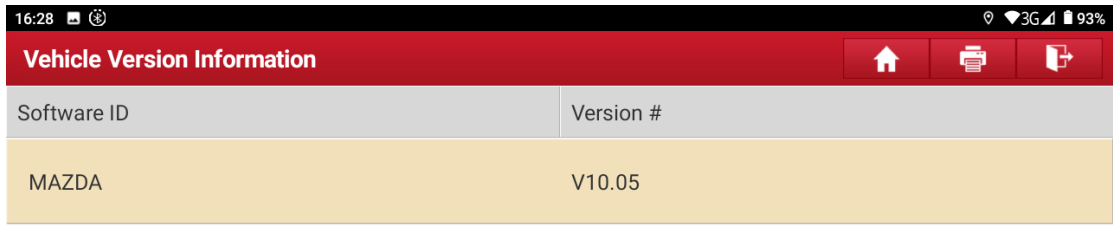
Enter the corresponding query parameters according to the pages in the software, and then the programmable module installation can be completed.

Get it online

To obtain the corresponding configuration parameters of the system online, you need to connect to the Internet.

Take Mazda 2015 Atenza F_BCM [Programmable Module Installation] as an example.

1. Choose [Anti-Theft System Detection] > [Automatically Search]. See Figure B1, Figure B2, and Figure B3.

Figure B1

Figure B2

Figure B3

2. Turn on the ignition switch. See Figure B4.

Figure B4

3. Confirm whether the VIN is correct. Choose [No] to manually input the correct VIN or choose [Yes] to access the next step. See Figure B5.
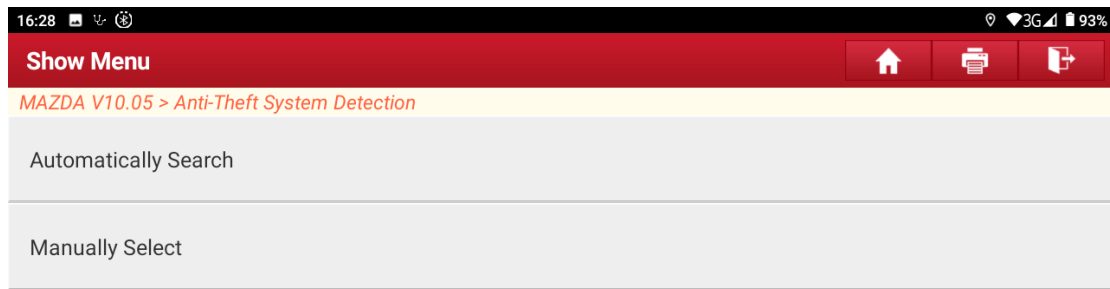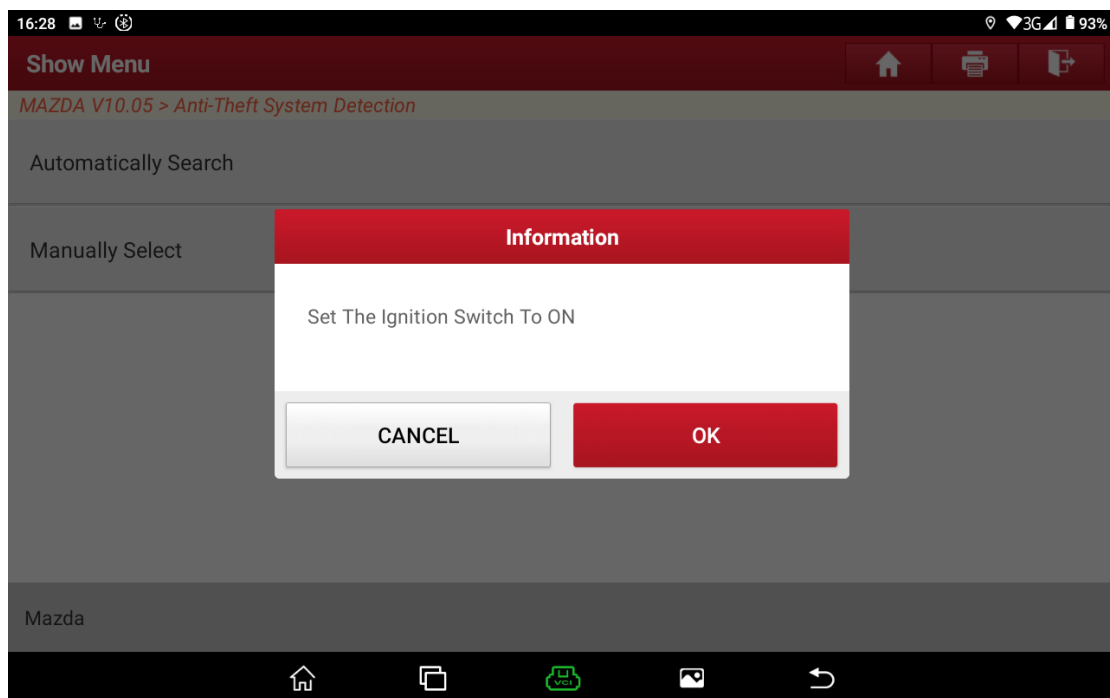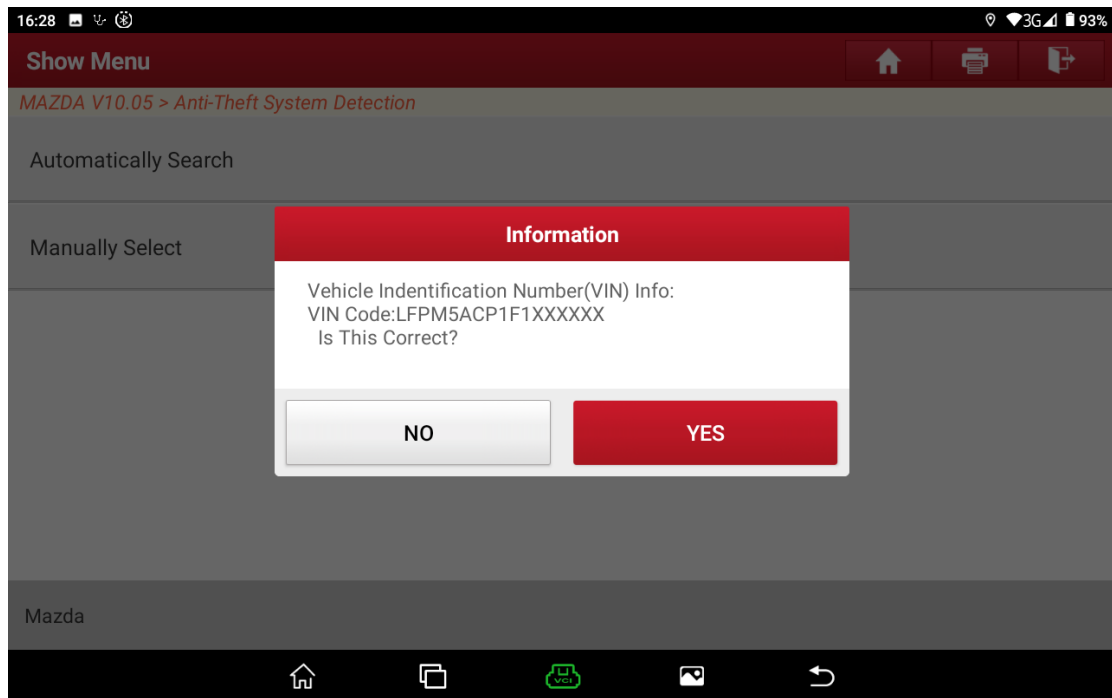
Figure B5
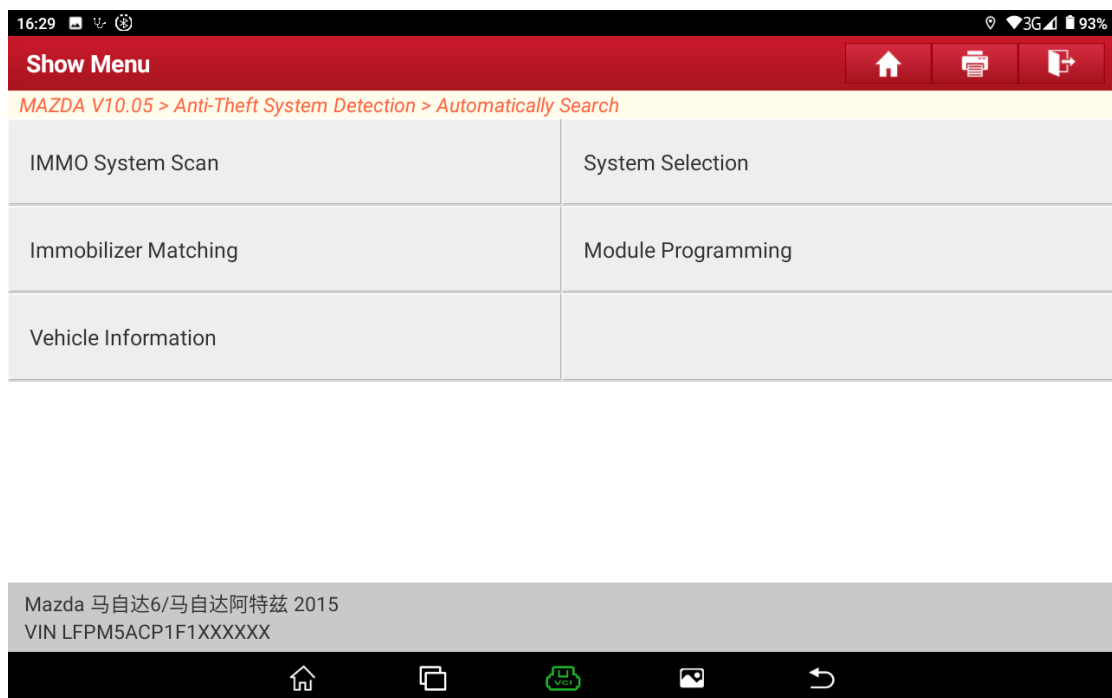
4. Choose [Module Programming]. See Figure B6.

Figure B6

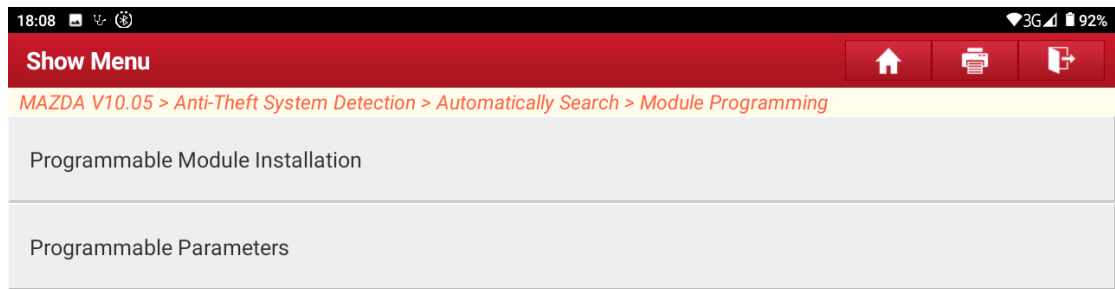5. Choose [Programmable Module Installation]. See Figure B7.

18:08 🖻 ⱴ ⓧ   ♥3G◢ ▮92%

Show Menu   🏠   🖨   🕩

MAZDA V10.05 > Anti-Theft System Detection > Automatically Search > Module Programming

Programmable Module Installation

Programmable Parameters

Mazda 马自达6/马自达阿特兹 2015
VIN LFPM5ACP1F1XXXXXX

🏠   🗗   🎮   🖼   ↩

Figure B7

6. Choose [F_BCM (Front Body Control Module)]. See Figure B8.

18:08 🖻 ⱴ ⓧ   ♥3G◢ ▮92%

Show Menu   🏠   🖨   🕩

MAZDA V10.05 > Anti-Theft System Detection > Automatically…h > Module Programming > Programmable Module Installation

F_BCM (Front Body Control Module)	IC (Instrument Cluster)
PCM (Powertrain Control Module)	R_BCM (Rear Body Control Module)

Mazda 马自达6/马自达阿特兹 2015
VIN LFPM5ACP1F1XXXXXX

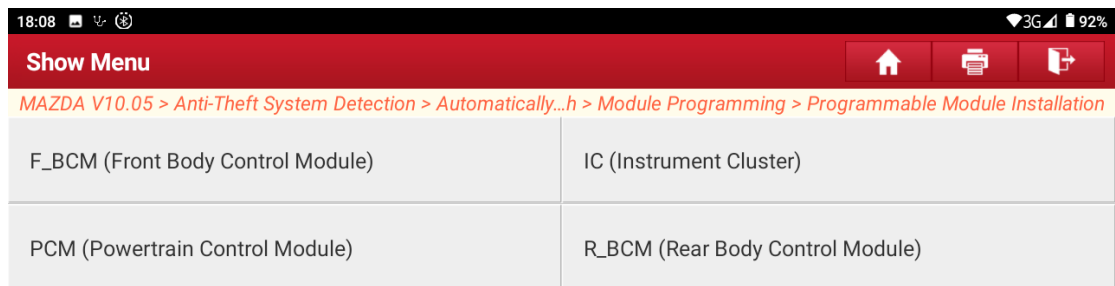🏠   🗗   🎮   🖼   ↩

Figure B8

7. The operation conditions are displayed. Choose [No] to exit the function, or choose [Yes] to access the next step. See Figure B9.
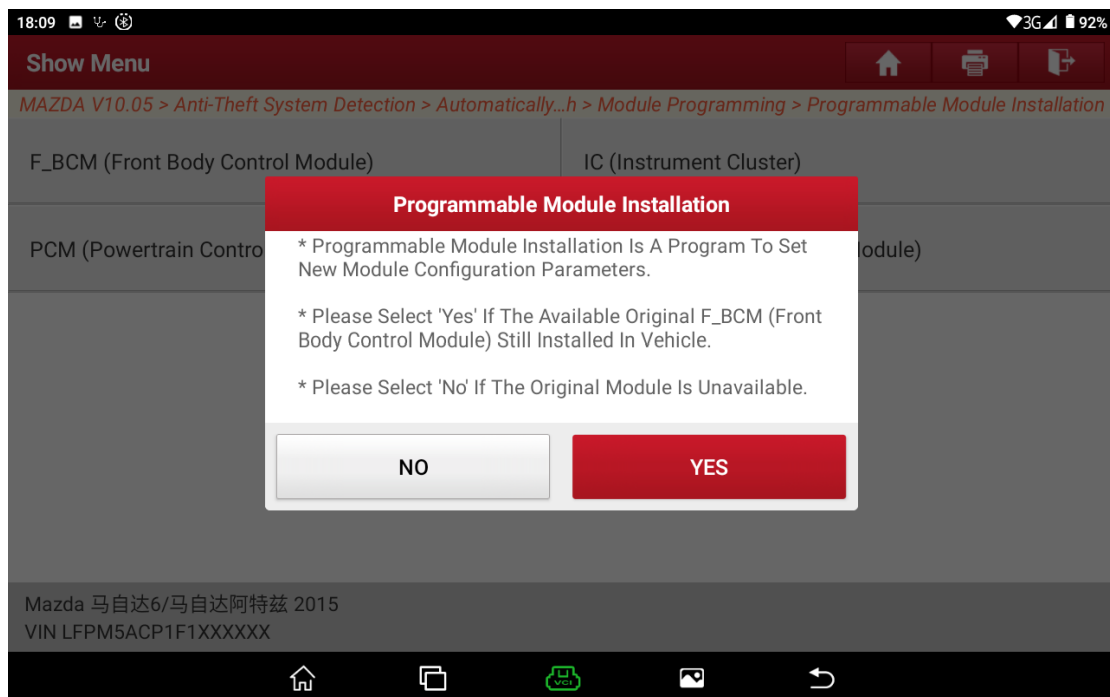
Figure B9

8. Confirm that the module in the car is the old module that needs to be replaced. Choose [No] to exit the function, or choose [Yes] to access the next step. See Figure B10.
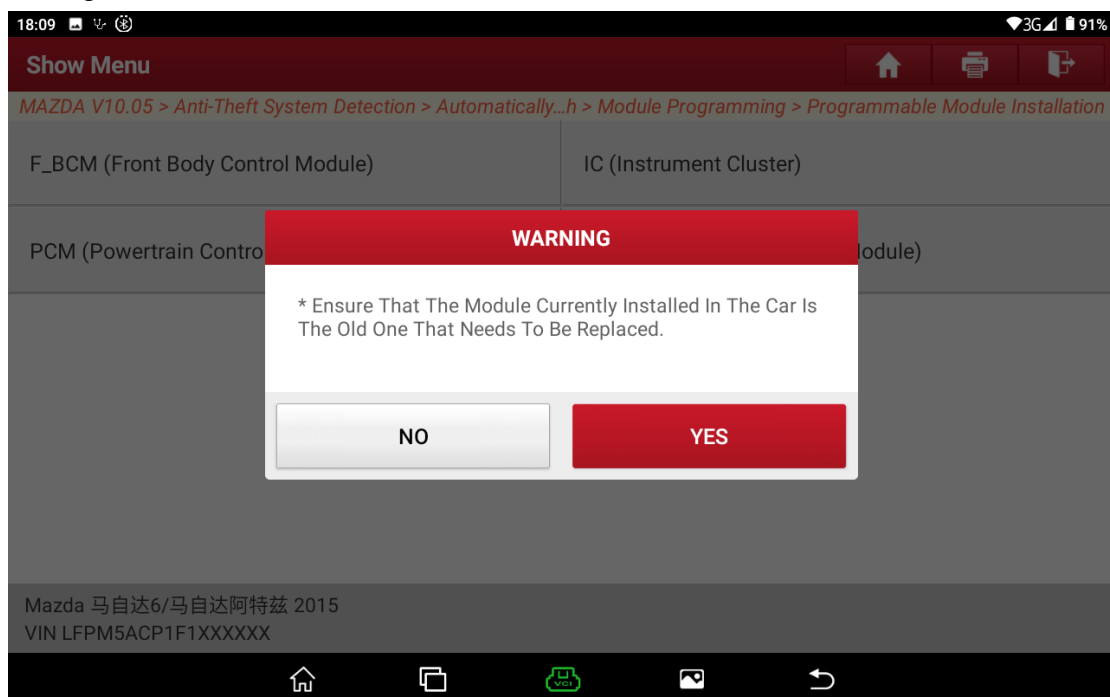

Figure B10

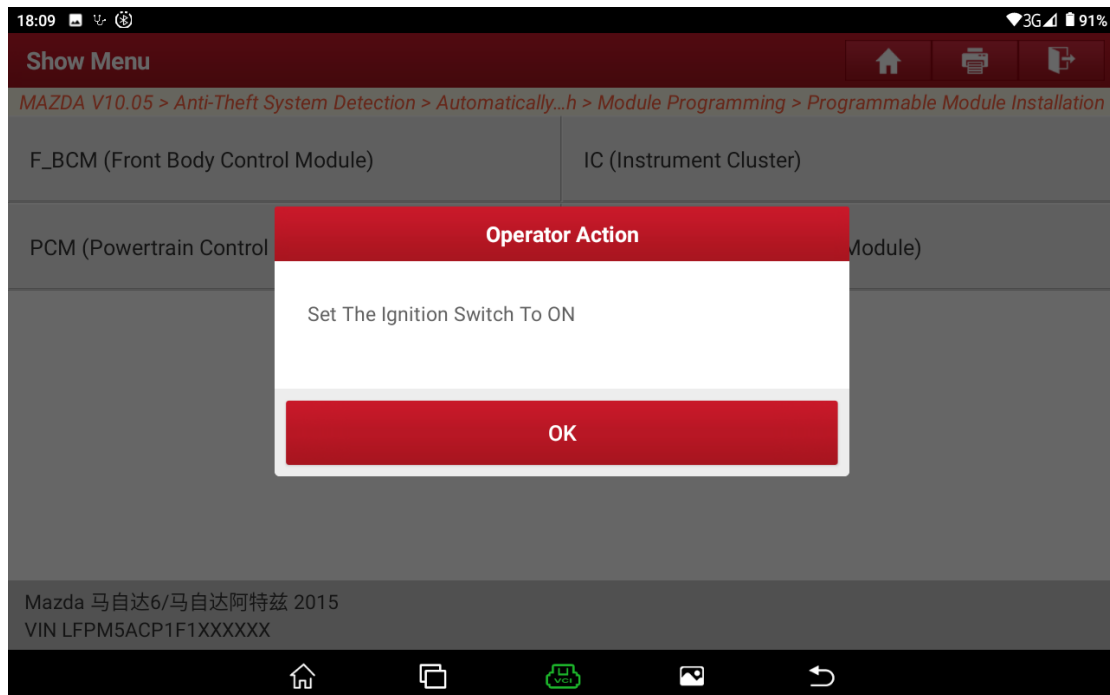9. Turn on the ignition switch. See Figure B11.

Figure B11

10. Manual input is required when parameters cannot be obtained from the module. See Figure B12.
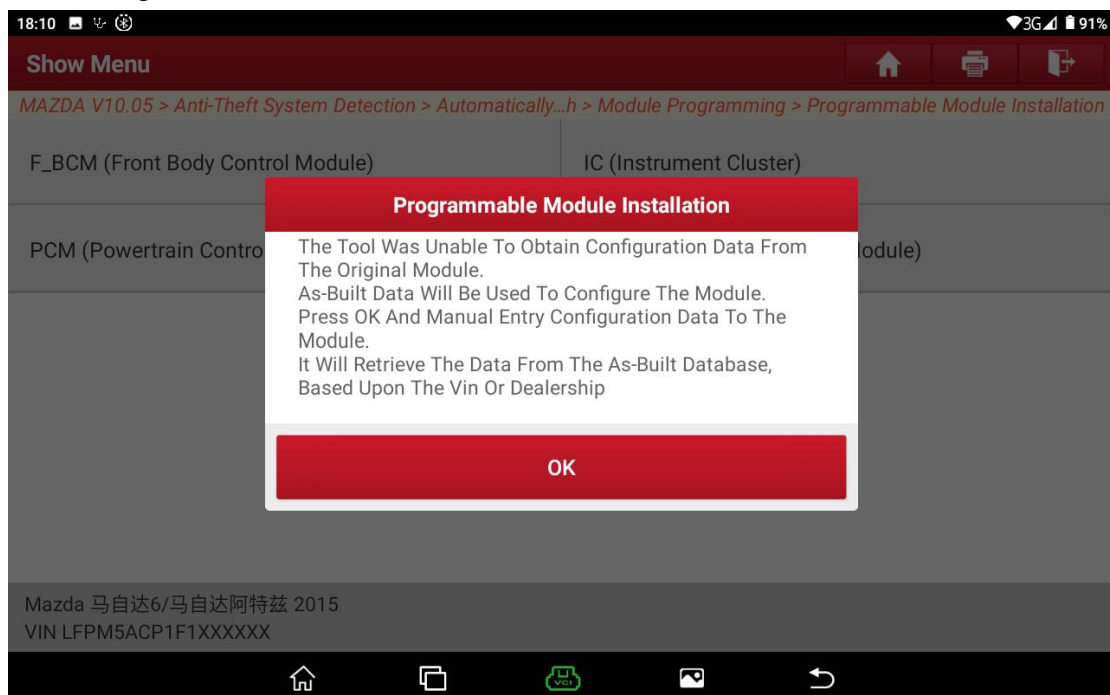
Figure B12

11. Enter the VIN (frame number) through the Mazda OEM website to query the factory original data (Figure B13), find the corresponding segment of '726-01-01' and manually enter the data in sequence (Figure B14-1, Figure B14-2, Figure B14-3). Click OK to go to step 12.

726-01-01	F567 C128 D84C
726-01-02	65AA D354 56BC
726-01-03	52AA AAA6 7D
731-01-01	0005 D494 20C7
731-01-02	0809 0648 A03A
731-01-03	1424 0074
737-01-01	FFF3 7C75 C1E4
737-01-02	B849 DD1F
7B7-01-01	A8D0 0006 7FBD
7B7-01-02	E501 C300 208A
7B7-01-03	0028 9210 8C

Figure B13

18:10 ▥ ꝳ ⊛   ▼3G⊿ 🔋91%

Manually Input AsBulit Data   🏠   🖨   🔛

MAZDA V10.05 > Anti-Theft System Detection > Automatically…h > Module Programming > Programmable Module Installation

Module	Address	Instructions Data	Status
001|726-01-01	0000	0000	0000
002|726-01-02	0000	0000	0000
003|726-01-03	0000	0000	00
004|726-02-01	0000		
005|726-03-01	0000		

Help	OK

Mazda 马自达6/马自达阿特兹 2015
VIN LFPM5ACP1F1XXXXXX
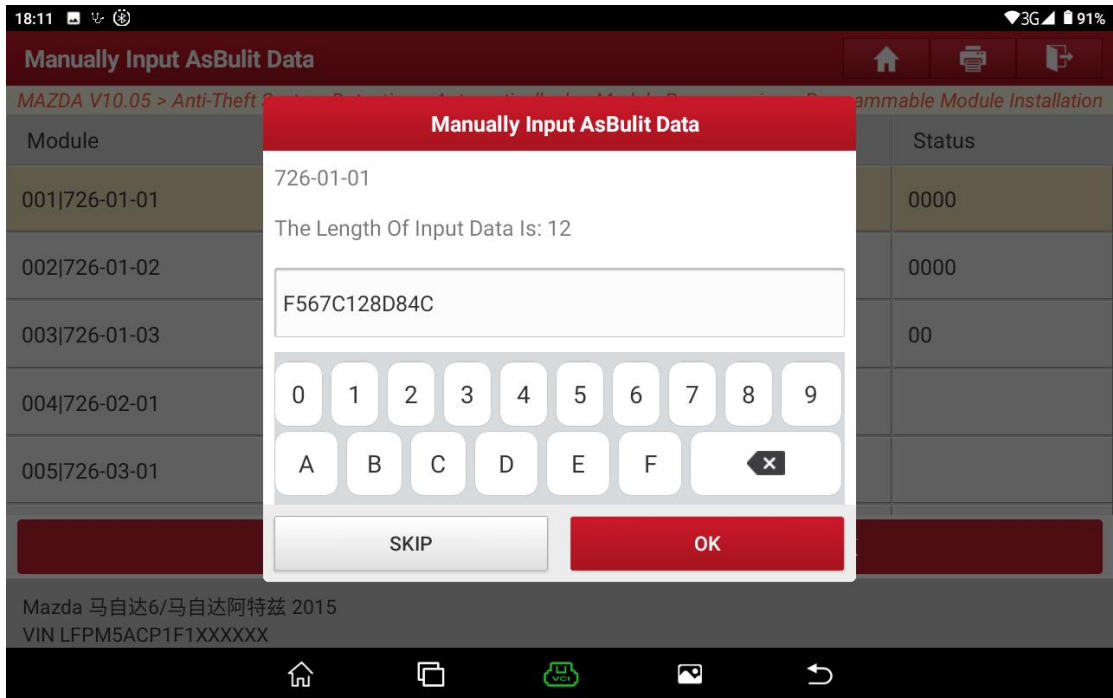
🏠   🗗   🔛   🖼   ↩

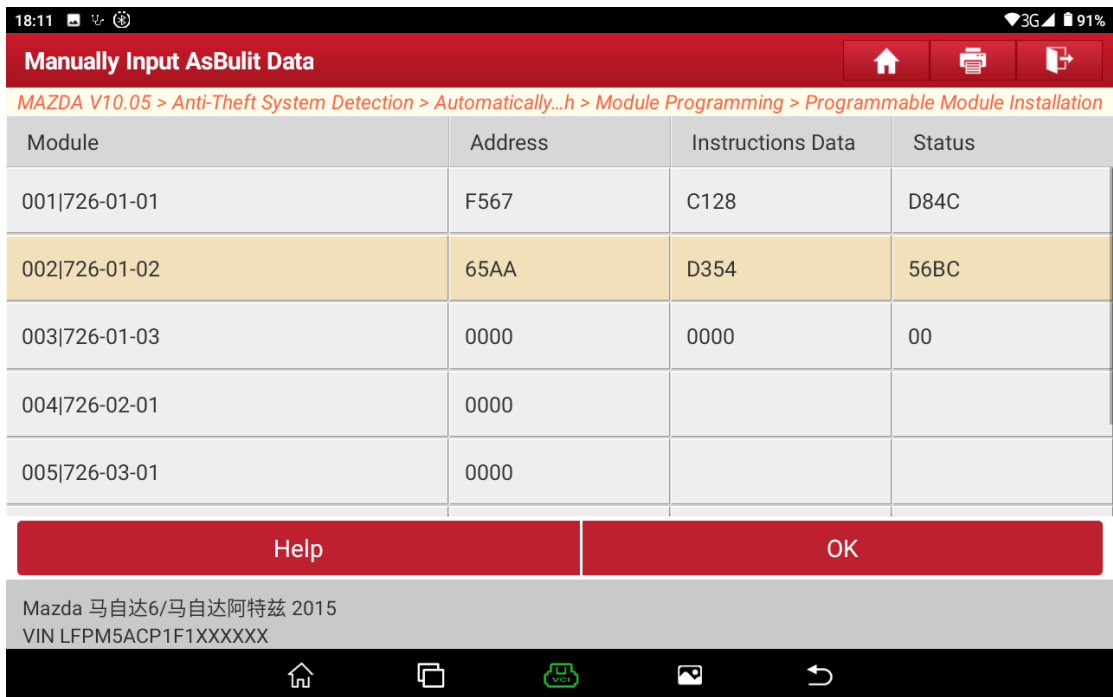Figure B14-1

Figure B14-2

Figure B14-3

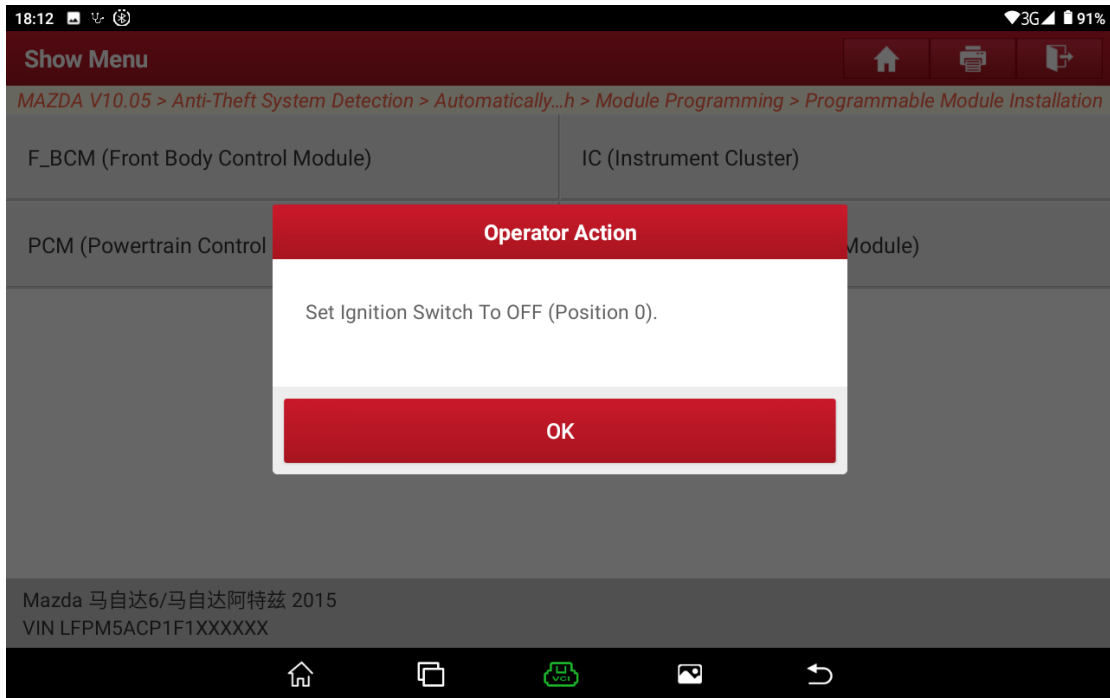12. Turn off the ignition switch. See Figure B15.

Figure B15

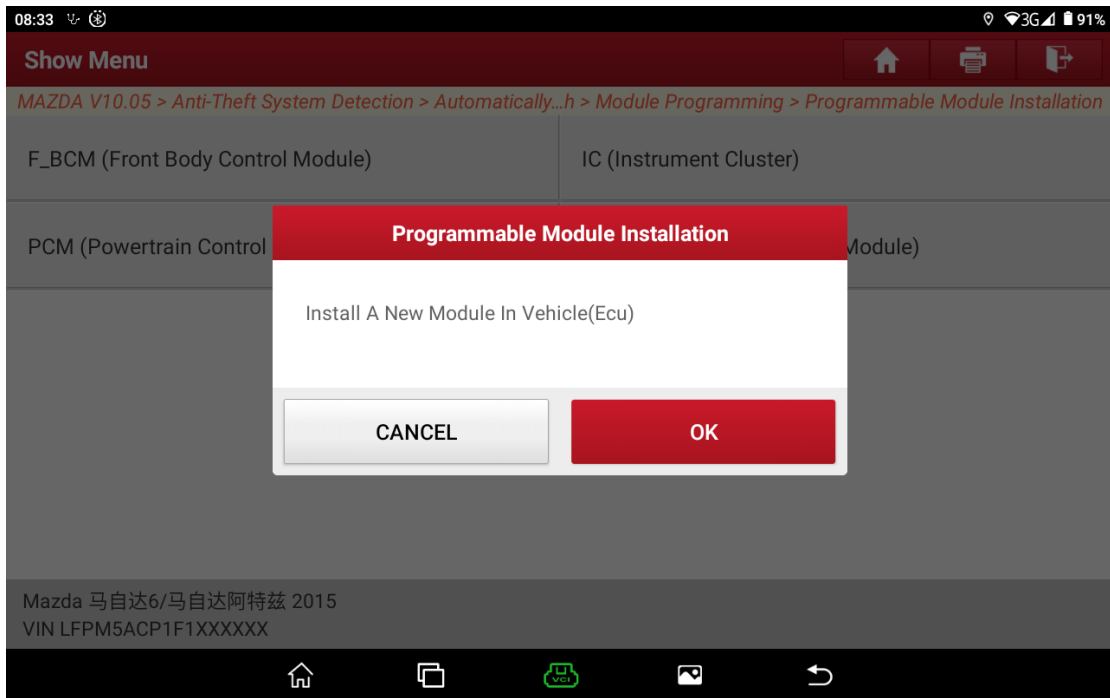13. Install a new F_BCM module. See Figure B16.

Figure B16

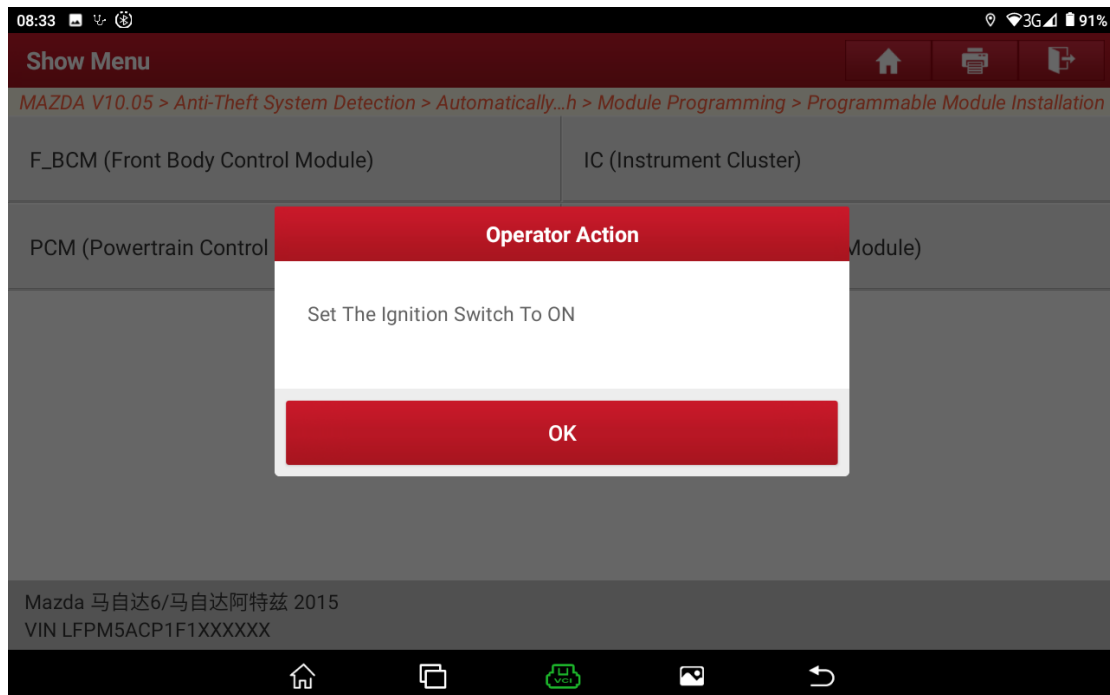14. Turn on the ignition switch. See Figure B17.

Figure B17

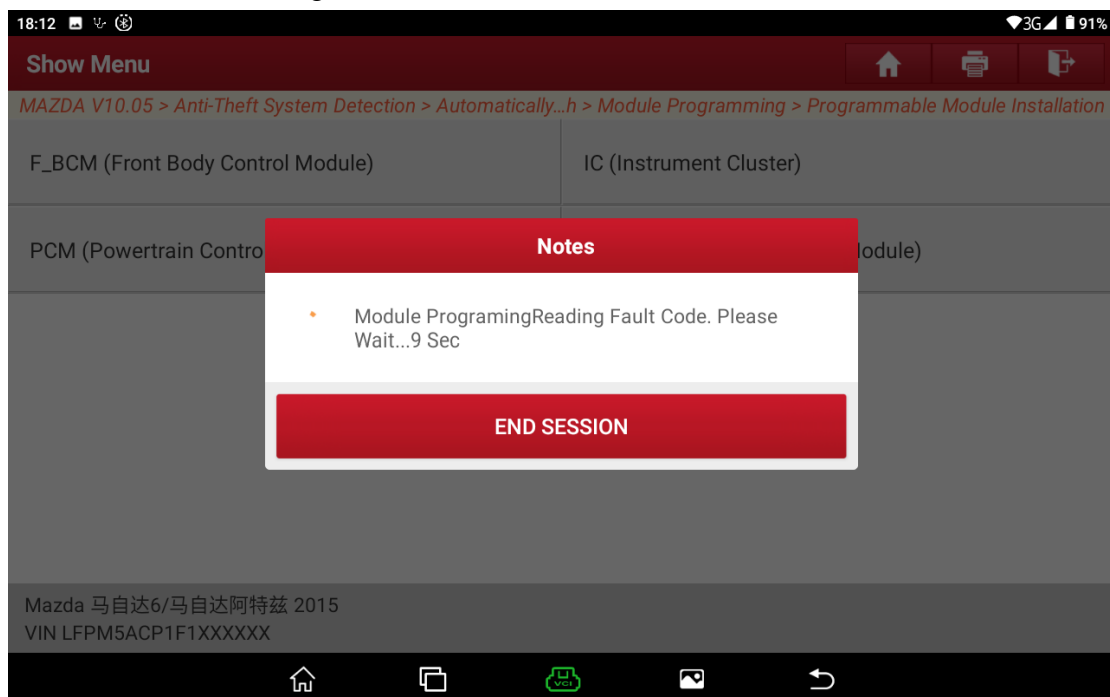15. Wait for 10s. See Figure B18.

Figure B18

16. Turn the ignition switch to ON and write data. Function execution is successful. See Figure B19.
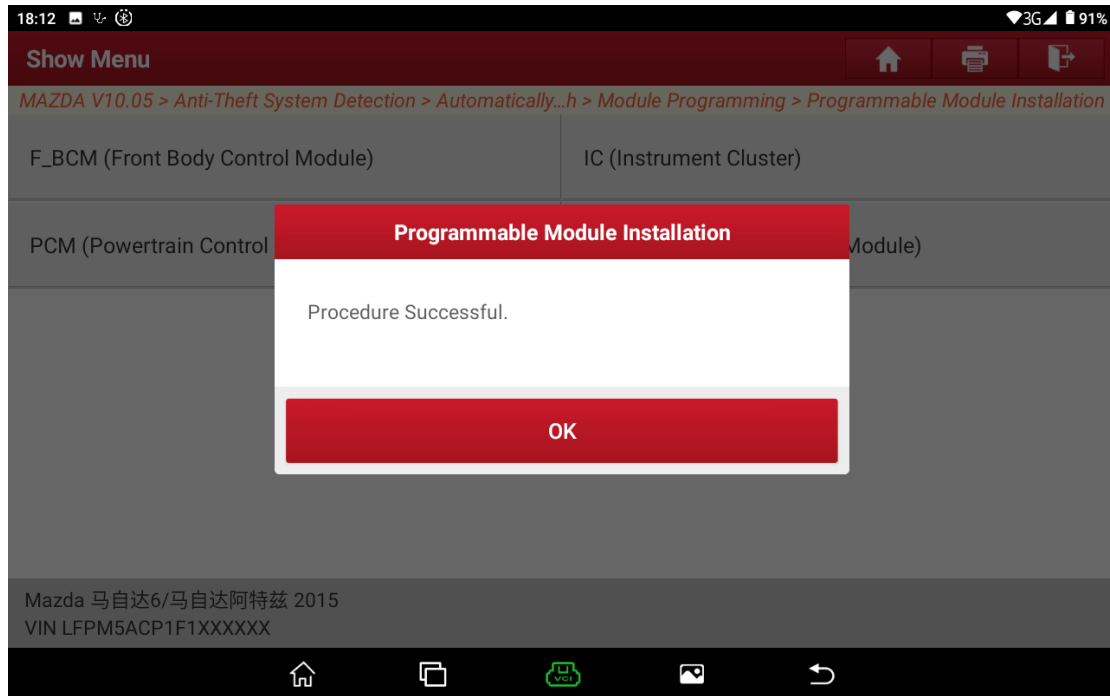
Figure B19

17. Turn off the ignition switch. Then, a warning prompt is displayed. Click OK to exit the function and return to the main menu. See Figure B20 and Figure B21.
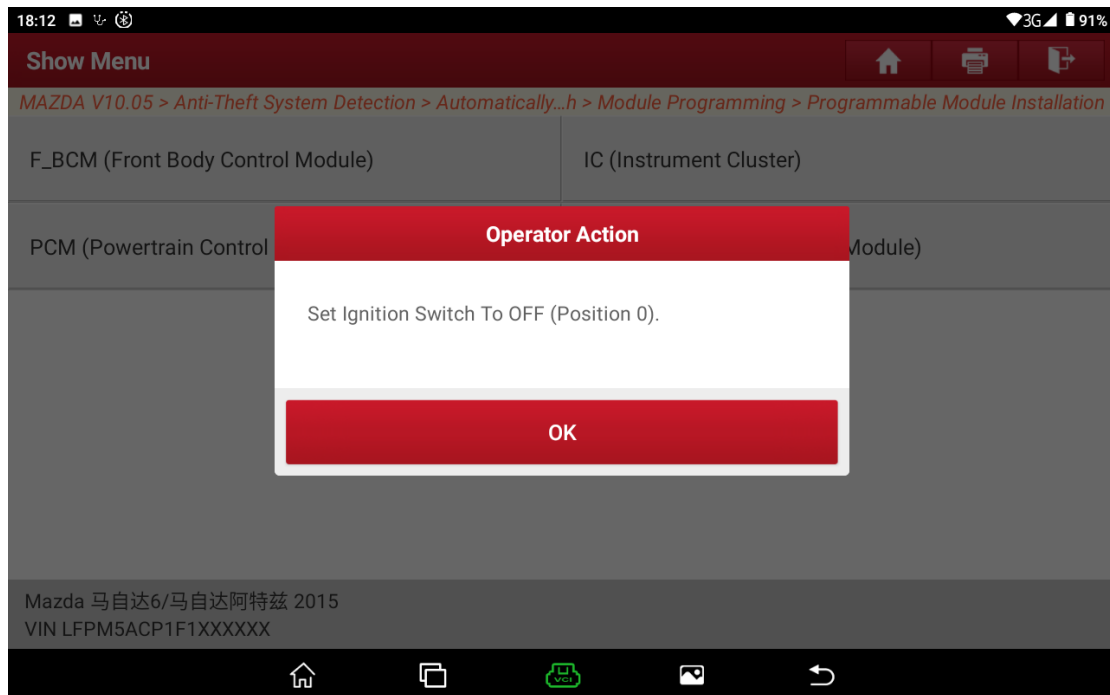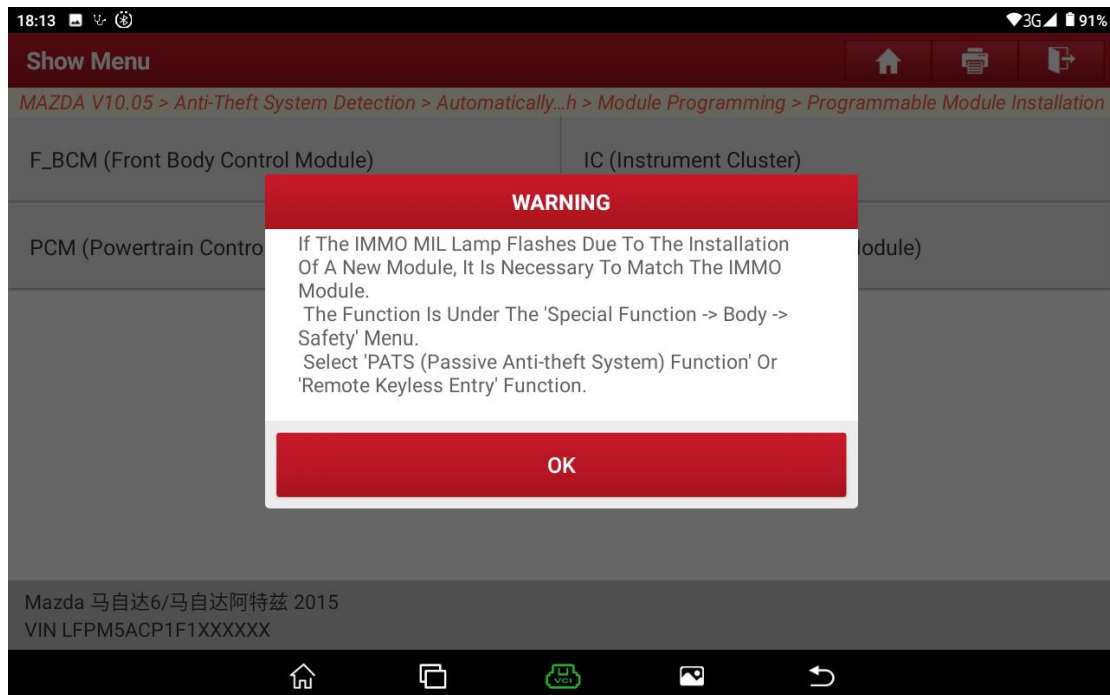

Figure B20

Figure B21

Appendix:

■ If there are still U2100, U2101, U3000, U3002 DTCs, try to program again (online).

■ When the modules storing key information such as the car body are replaced, or the key is damaged and lost, it is necessary to perform key programming.

■ The PATS function supports immobilizer module parameter matching/initialization/reset/synchronization. When the immobilizer related module is replaced, the immobilizer indicator of the vehicle instrument flashes and the vehicle cannot be started, or when the immobilizer DTCs such as P161B "incorrect response of the secondary immobilizer system holder module", B10DA "PATS target identifier", P1260 "theft is detected, the vehicle is prohibited from starting", and U0427 "data obtained from VSM is invalid" appear in the modules, it is necessary to perform the immobilizer module parameter matching.

■ At most 8 and at least 2 Mazda keys can be stored.

■ To successfully perform the immobilizer module parameter matching, at least 2 keys need to be stored.

■ The possibility of key programming failure:

■ 1. Failure to detect the key (close to the sensing area, remove the case, model

mismatch, damage, etc.);
- 2. The key is programmed (stored into the current body module);
- 3. Exceed the maximum number of keys (8);
- 4. There is a fault (the induction coil or the antenna module is faulty, etc.)
- The possibility of key deletion failure: there is a fault
- The possibility of immobilizer matching failure: the number of stored keys is less than 2

Statement: