VVDI - BMW User Manual

Table of Contents

1.Document Declaration

Please view the following declaration carefully:

- VVDI – BMW User Manual can help you maintenance vehicles with VVDI BMW device. **Please DON'T used for illegal purpose, Please follow the national law**
- VVDI – BMW User Manual is written by VVDI BMW, **Please DON'T used for commercial purposes without authorize**
- VVDI – BMW User Manual can help you how to use BMW software, please view carefully
- **Any illegal use VVDI – BMW User Manual, illegal use VVDI BMW device, The user should take all risks, the company does not assume any responsibility**

2.Overview

2.1. Noun explanation

- **BMW**: Bayerische Motoren Werke
- **EWS**: Immobox used in earlier BMW cars
- **CAS**: Car Access System(40 unit), mainly include CAS1(0K50E), CAS2(2K79X), CAS3(0L01Y), CAS3+(0L15Y, 0M23S), CAS4(1L15Y, 5M48H), this document will only use CAS1, 2, 3, 3+, 4, 4+ to express, don't write detail mask. If document have detail mask indicates the special explain to this type
- **FEM/BDC**: BMW after 2014 parts of new models with latest immobox
- **OBDII method**: connect VVDI2 to car with OBDII interface
- **CAS Plug:** It is not a standard device, need buy for extra. Communication with CAS through CANBUS 100Kbps
- **CAS3+ encrypt version:** Sometimes we call CAS3++. When the car (not encrypt version) start, CAS will verify key, engine will verify CAS. But for CAS3++ type, engine will verify key in addition. So add key for this type need working key or ISN support. For the above reason, the introduction for CAS3+ is also applicable for CAS3+ encrypt version. Expect write no applicable for CAS3+ encrypt version
- **ISTAP Version:** Strictly, ISTAP belong to CAS3+ encrypt version, the only different is that we cannot read CAS immodata by OBDII for ISTAP version. Fortunately, we can OBDII read ISTAP CAS immodata by update CAS flash. VVDI-BMW update ISTAP version flash only need 10 minutes. So the introduction for CAS3 encrypt version also applicable for ISTAP version, expect write not applicable for ISTAP
- **ISN:** Identification Serial Number, this value use to verify engine with key. 16 bytes
- **CAS3+ encrypt version(not ISTAP) SN**: 9226238, 9227053, 9237046, 9237047
- **ISTAP version SN**: 9262360, 9262361, 9278745, 9278746, 9287534, 9287535, 9267608, 9267609
- **CAS4+**: Parts of F series chassis immo system
- **FEM/BDC:** New model of F series chassis immo system
- **All Key Lost:** The car lost all working key, there is big different from add key with working key. Note: before OBDII communication, you need open dangerous light, press on the brakes for several times to active OBD communication

2.2. Options

Detail can be found in chapter 3 Options

- **Language**
- **About…**

2.3. EEPROM/KM/Synch Codes(OBD)/ISN

Detail can be found in chapter 4 EEPROM/KM/Synchronization Codes (OBD)

- **Read EEPROM / Write EEPROM**
- **Read KM / Write KM**
- **Synchronize DME-CAS, CAS-ELV**

2.4. Key Learn

Detail can be found in chapter 5 Key Learn

- **Get Key Info**
- **Write Key Info**
- **Load Key Info / Save Key Info**
- **Prepare dealer key with programmer**
- **Prepare dealer key with ignition switch**
- **Add key**
- **Program Key Info**
- **Repair Keyless Key**
- **Enable Key / Disable Key**
- **Clear DTC / Clear Shadow**

2.5. File Make Key

Detail can be found in chapter 6 File Make Key

- **EWS1/EWS2/EWS3/EWS4**
- **CAS1/CAS2/CAS3/CAS3+/CAS4/CAS4+**

2.6. Unlock Key

Detail can be found in chapter 7 Unlock Key

- **Unlock with key info file**
- **Unlock with CAS1/CAS2/CAS3/CAS3+ EEPROM**

2.7. File Change KM

Detail can be found in chapter 8 File Change KM

- **EWS3/EWS4**
- **CAS1/CAS2/CAS3/CAS3+ CAS4**
- **Cluster (E Series): M35080 EEPROM dump**
- **Cluster (F Series)**

2.8. CAS Repair

Detail can be found in chapter 9 CAS Repair

- **CAS1(0K50E) OBDII Repair**
- **ISTAP4* Version OBDII Repair**

2.9. CAS PLUG

Detail can be found in chapter 10 CAS PLUG

3. Options

3.1. Language

Support following languages:

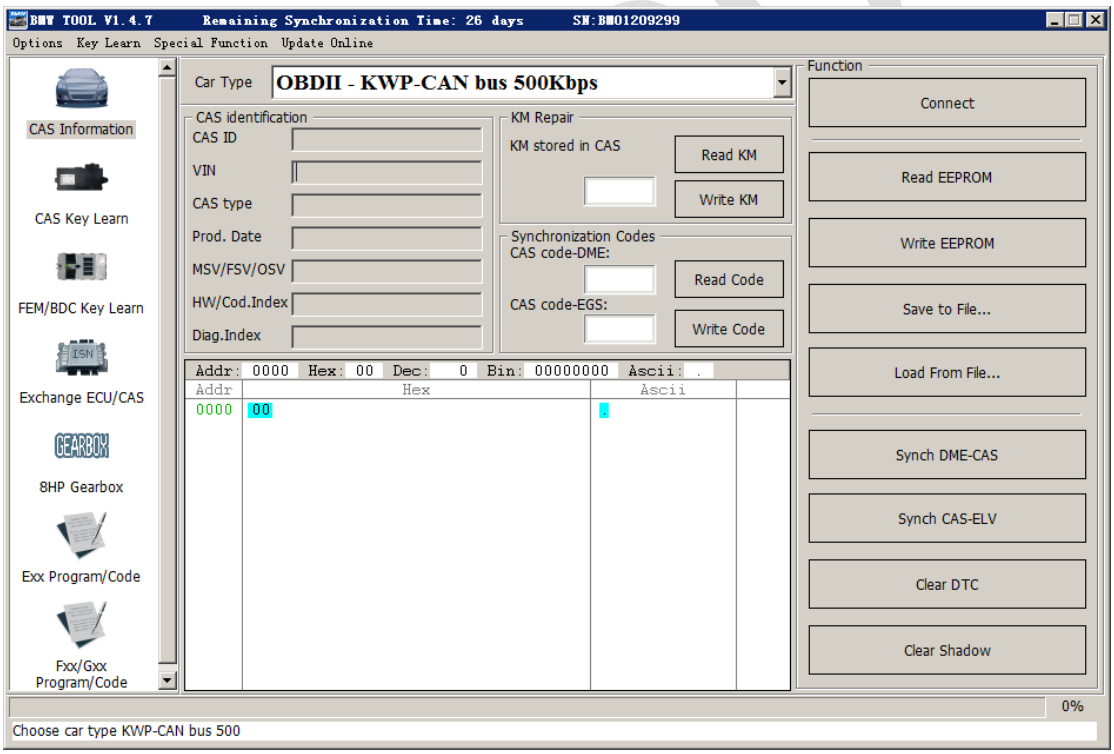
- **Chinese (Simplified)**
- **English**
- **Italian**
- **Spanish**
- **German**
- **Hungarian**

Please manual set user language after first run program

4. CAS/EWS Information

CAS/EWS Information main interface as picture(PICTURE 4.1) , support types as below:

- **OBDII - Auto Detect**: Auto detection communication protocol, support KWP-E6X…, CAN bus 100Kbps, CAN bus 500Kbps. Other functions need choose manually
- **OBDII - KWP – E6X, E7X, E9X, E81, E82, E87, E89**: Usually used in old cars with CAS1, CAS2 and some CAS3
- **OBDII - KWP – CAN bus 100Kbps**: This type will be use when your VVDI2 connect to CAS with CAS PLUG or without gateway
- **OBDII - KWP – CAN bus 500Kbps**: This type will be use when connect to car with CAS3, CAS3+
- **OBDII - KWP – CAN bus 500Kbps(F-Series)** : This type used CAS4 in BMW F series
- **KLINE – EWS3/EWS4**: When connect EWS with CAS PLUG, choose this type

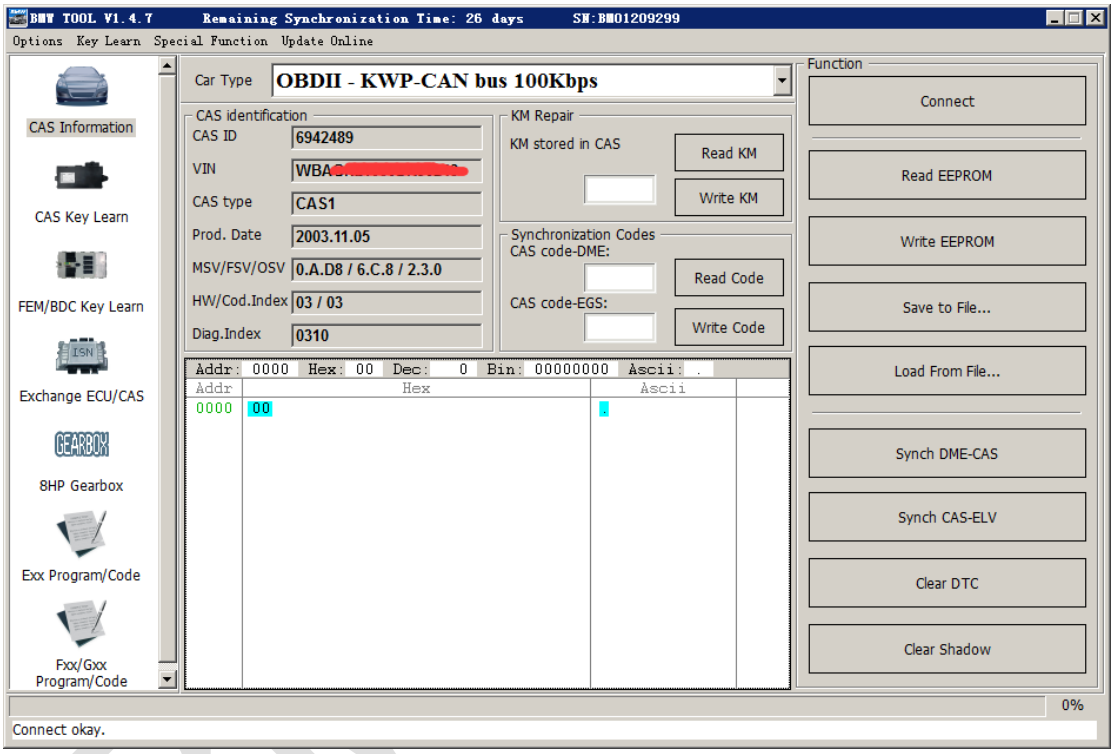


(PICTURE 4.1)

- **Connect**: Connect to CAS system. Attention: EWS don't support this (see special note 1). After connect to CAS, there will display detail information in CAS identification (PICTURE 4.2). When you choose Auto Detect, only connect support, it will detect the connection type: KWP, CANBUS 100, CANBUS500. You must choose another type before other operation
  - **CAS ID**: CAS identification number
  - **CAS type: CAS type is very important, this type is detected by VVDI2-BMW, he type detect incorrect, add new key may not work. Usually have the**

following types: CAS1, CAS2, CAS3/CAS3+, CAS3++, CAS3++ (ISTAP), CAS4 etc.
CAS3/CAS3+: This means CAS should be CAS3 (0L01Y) or CAS3+(0L15Y)(not encrypt version)
CAS3++: This means detected CAS3+ encrypt version
CAS3++ (ISTAP): find ISTAP version

- **VIN**: Vehicle identification number
- **Prod. Date**: CAS production date
- **HW/Cod.Index**: CAS hardware version and coding version
- **MSV/FSV/OSV**: MSV running in CAS, software version and system version



(PICTURE 4.2)

- **Read EEPROM**: Support Read CAS1/CAS2/CAS3/CAS3+ (ISTAP version not support) EEPROM. For CAS1/CAS2/CAS3 type require CAS PLUG; CAS3+ can use OBDII or CAS PLUG. **Attention: the read EEPROM for CAS3+ is not the whole EEPROM, You can't write it to CAS with BDM programmer, it can use to prepare dealer key with File Make Key**
- **Write EEPROM**: Support write CAS1/CAS2/CAS3 EEPROM dump by OBDII, requires CAS PLUG
- **Save to File… / Load From File…**: Save the reading data / load EEPROM dump to buffer
- **Read KM**: Read KM stored in CAS system, support CAS1/CAS2/CAS3/CAS3+ (ISTAP version not support). CAS1, CAS2, CAS3 require CAS PLUG; CAS3+ can access by OBDII and CAS PLUG
- **Write KM**: Write new KM to CAS, support CAS1/CAS2/CAS3/CAS3+ (ISTAP version not support). CAS1, CAS2, CAS3 require CAS PLUG; CAS3+ can access by OBDII

and CAS PLUG

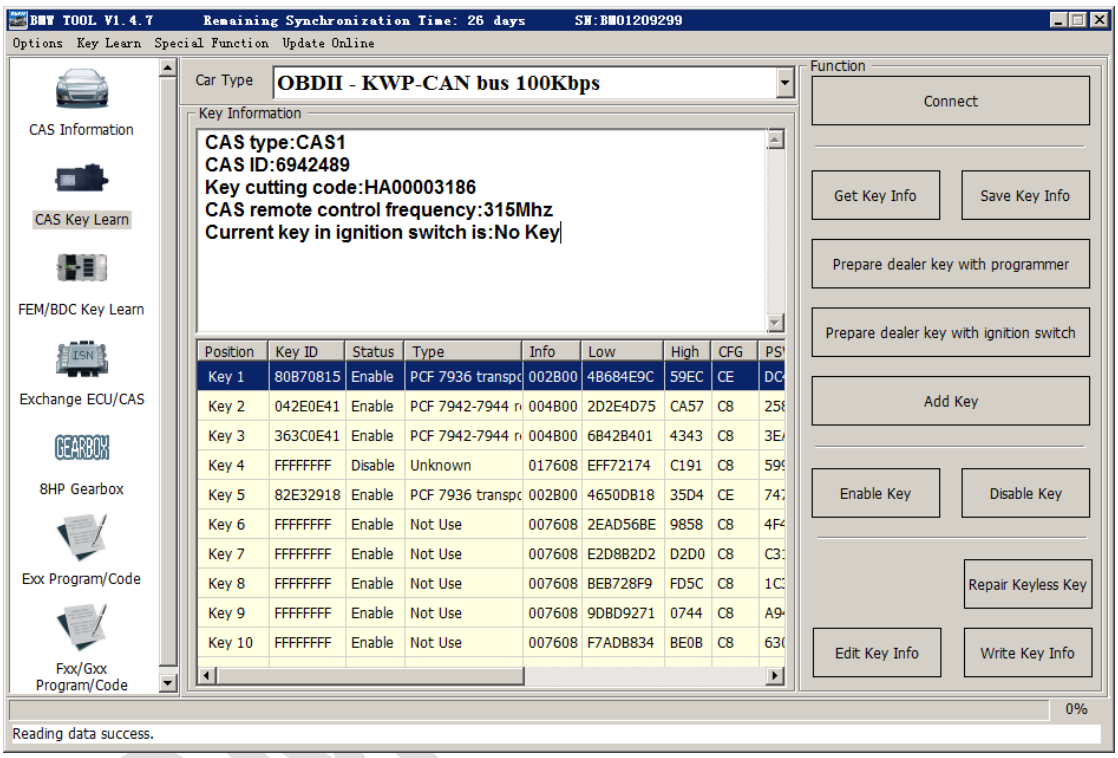
Attention: **KM shown on instrument stored not only in instrument, but also in CAS system, it can synchronize CAS with cluster for the bigger one. So, when you want change KM, you'd better take instrument away from car, Set CAS KM to 0, read EEPROM dump from instrument, change instrument EEPROM KM to new one with File Change KM function, write the new EEPROM dump to instrument and put your instrument in car**

- **Read Code**: Read DME and EGS code stored in CAS
- **Write Code**: Write DME and EGS code to CAS system. Attention: We don't recommend general user write this code, the car will stop working if write error code
- **Synch DME-CAS**: Synchronize DME and CAS. Don't do this operation if you lost all working key. Sometimes add new key for CAS1/CAS2/CAS3 will lost synchronization code, then you can run this operation, see Special Note 2
- **Synch CAS-ELV**: Synchronize CAS and ELV, This function can be run once ELV has error; Sometimes add new key for CAS1/CAS2/CAS3 will cause ELV error, then you can run this operation, see Special Note 2
- **Key Learn**: Detail can be found in chapter 5 Key Learn
- **Special Note 1**: Read/Write EWS now support 0D46J mask and 2D47J mask. EWS support read EEPROM, write EEPROM, File Make Key, File Change KM etc
- **Special Note 2**: Sometimes add new key for CAS1/CAS2/CAS3 will cause car not start, **you need synchronize DME and CAS, synchronize CAS and ELV, insert original key to ignition switch, run this 2 operation one by one, take key off, insert again and try to start**. **If not start, try this again until car start**. If you get error in synchronize progress, ignore and continue

5. CAS Key Learn

5.1. OBD - CAS1/CAS2/CAS3/CAS3+/CAS4/CAS4+ main functions

Key Learn interface like (PICTURE 5.1).



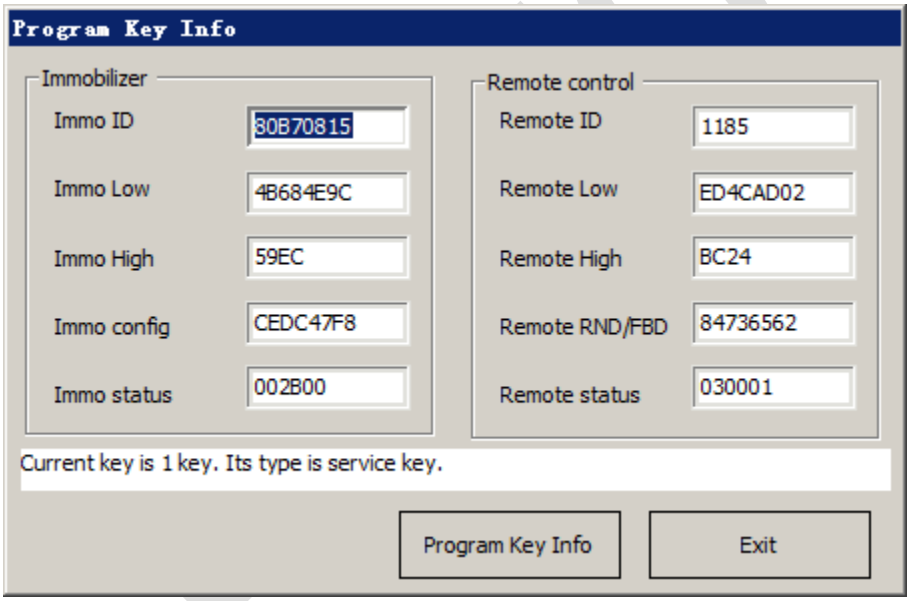
(PICTURE 5.1)

Mainly Function:

- **Key cutting code**: Key This code can help make the key stick, you can use CONDOR Automatic Key Cutting Machine make the key stick directly (Lost All Key is very convenient, no need change cylinder)
- **CAS remote control frequency**: You need select correct remote key accord this value, they must have same frequency. Of course you can test working key frequency with Remote Frequency Test(“F” button on VVDI – BMW device)
- **CAS key in ignition switch is**: The position at immobilizer for ignition key.
- **Get Key Info**: OBD read key cutting code, CAS remote control frequency, CAS key in ignition switch is, key info etc. You must read and backup original key info before OBD prepare key
- **Save Key Info**: Save the key info read by OBDII, the file is encrypted
- **Prepare dealer key with programmer**: After read key info success, select a key

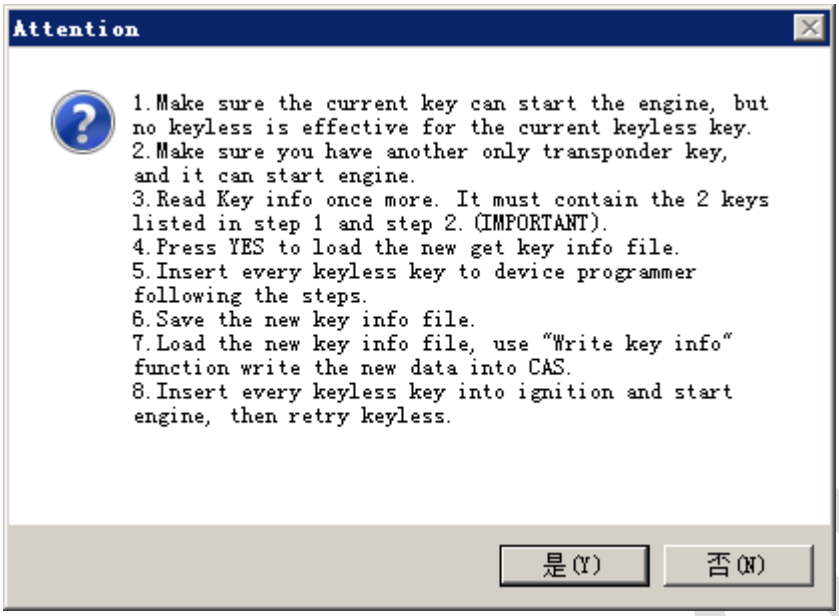
position, prepare dealer key with VVDI – BMW programmer

- **Prepare dealer key with ignition switch**: After read key info success, select a key position, prepare dealer key with ignition switch
- **Add Key**: Add the new prepared key to CAS system. Most of the car, the new prepared key can start engine directly without add key; there's still a few car can't identification new key, at this situation you need add key to CAS system, key should be placed in VVDI – BMW programmer
- **Enable Key**: Insert a working key to ignition switch, select key position which you want enable, press button Enable Key. If there's a key for this position, it will start work again. **Attention: Enable Key don't need to read key info**
- **Disable Key**: Insert a working key to ignition switch, select key position which you want disable, press button Disable Key. If there's a key for this position, it will stop work, add key new at this position is also not work. **Attention: Disable Key don't need to read key info**
- **Edit Key Info**: After you read key info or load key info, select a specify key item, run this operation to change detail item (PICTURE 5.2). **Attention: We don't recommend general user run this operation, the working key will stop work if write error data**



(PICTURE 5.2)

- **Repair Keyless Key**: If the keyless key doesn't have smart function after start engine. You can try this operation to fix it. Detail operation can follow (PICTURE 5.3). **Attention: you must have one un-keyless key and this key can start engine**

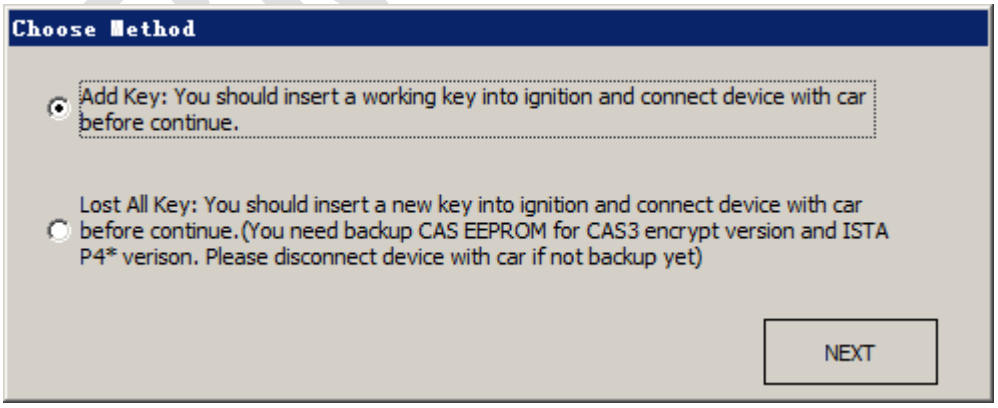


(PICTURE 5.3)

- **Write Key Info**: Write the loaded key info to CAS system, it can use for restore original key info

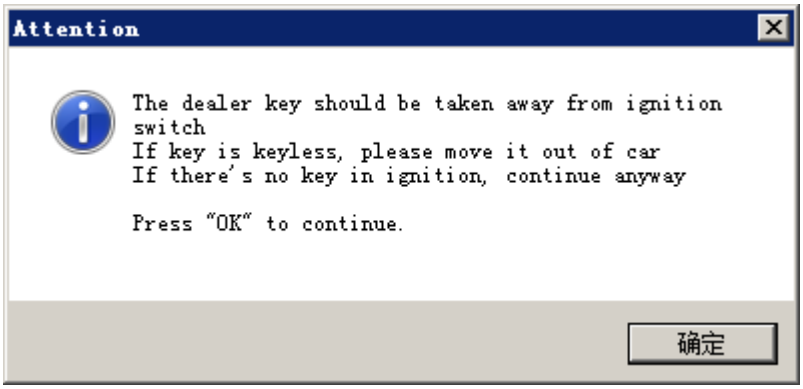
5.2. Special note in OBD operation(Important !!!)

- Under Get Key Info get window (PICTURE 5.5): For CAS3+ encrypt version, must select add key or lost all key. For other CAS version, this 2 method is same, they don't have lost all key mode, add key is always



(PICTURE 5.5)

- Under OBD operation get window (PICTURE 5.6): If there's key in ignition switch, take away. If the key is keyless key (smart key), move it out of car. If there's no key in ignition, just press OK to continue

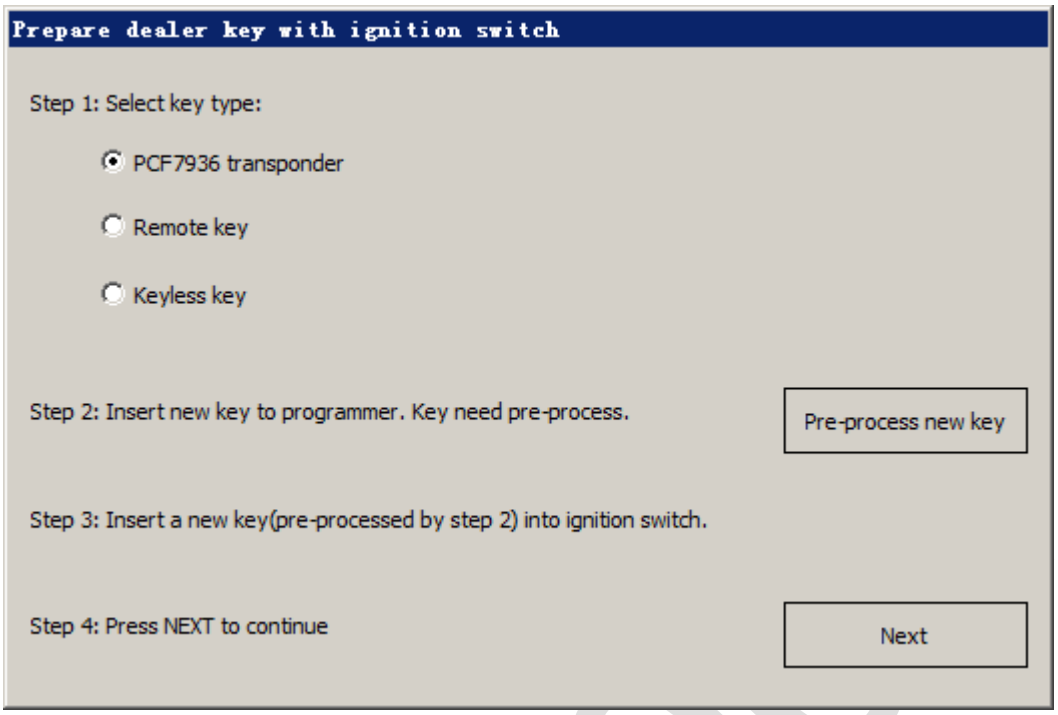


(PICTURE 5.6)

- Under prepare dealer key get window (PICTURE 5.7): Once you get this window, VVDI-BMW detect this CAS is CAS3+ encrypt version. If you are sure CAS is encrypt version, but there's no this window while prepare dealer key, the made key may not start engine. You'd better choose "File Make Key" for the error detection CAS

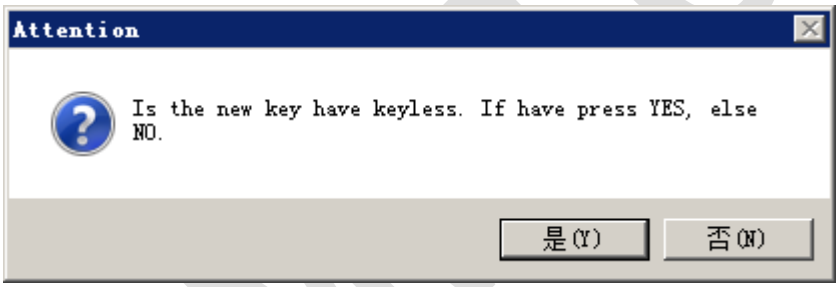
(PICTURE 5.7)

- Under prepare dealer key with ignition switch get window (PICTURE 5.8): Here we need pre-process new key. Just follow step1 to step4. **Attention: You must insert new key into ignition switch before NEXT**



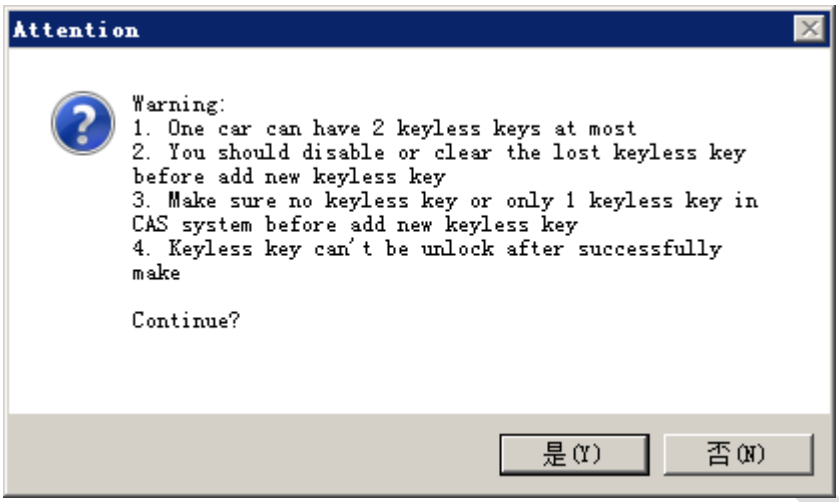
(PICTURE 5.8)

- Under prepare dealer key(**File Make Key also have this**) get window (PICTURE 5.9): Please select correct type, if smart key select NO, the keyless function will not work

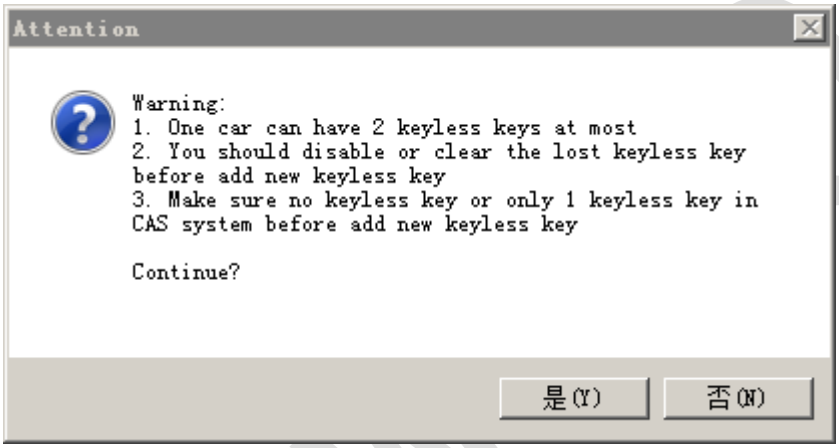


(PICTURE 5.9)

- Under prepare a keyless key (**File Make key also have this**) get window (PICTURE 5.10) or (PICTURE 5.11)： Make sure the car have 1 keyless key at most before add new keyless key. The lost keyless key should disabled or erased. **Attention: (PICTURE 5.10)will come with add key, this situation keyless key don't support unlock;** (PICTURE 5.11)will come with lost all key, here the keyless key can unlock by VVDI-BWM

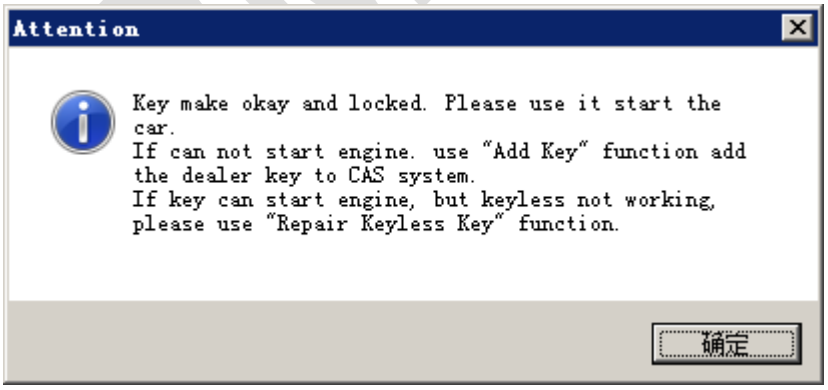


(PICTURE 5.10)



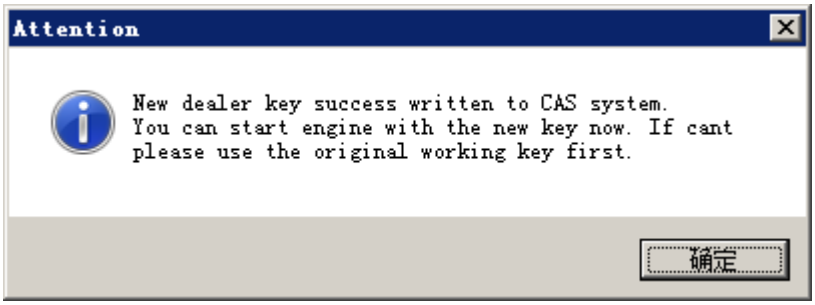
(PICTURE 5.11)

- After make dealer key get window (PICTURE 5.12): When you get this window, the key was made successfully. You can try to start engine directly. If not work, you need add this key to CAS system with Add Key. Keyless can fixed with Repair Keyless Key



(PICTURE 5.12)

- After add key to CAS get window (PICTURE 5.13): When you get this window, the key was add to CAS system successfully. Key can start engine now. Sometimes add new key for CAS1/CAS2/CAS3 will cause car not start, you can follow chapter 4 Special Note 2

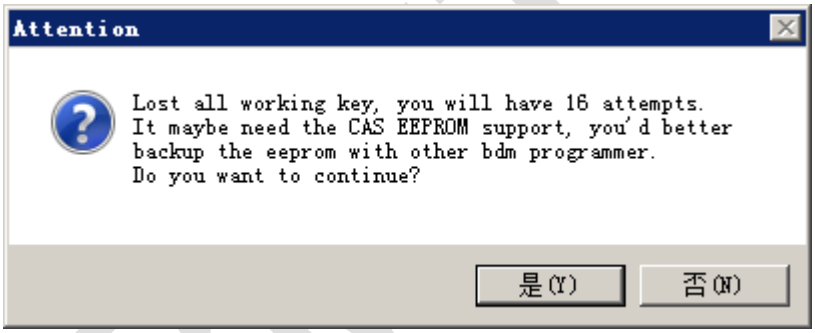


(PICTURE 5.13)

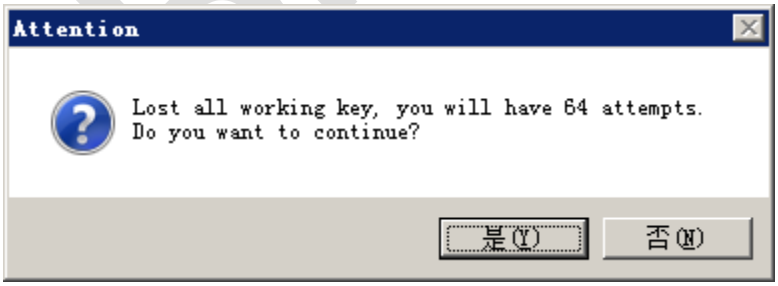
- Under lost all key for CAS3+ encrypt version (**File Make key also have this**) get window (PICTURE 5.14) or (PICTURE 5.15): For CAS3+ encrypt version, lost all key will have a special procedure to make working key (this procedure maybe need load EEPROM dump). By insert temp key to ignition and try start. (PICTURE 5.14) is CAS3+ encrypt version (not ISTAP) window, at most 16 times try start. (PICTURE 5.15) is ISTAP version window, at most 64 times try start

  Attention: **For ISTAP version, There is a few car can't find useful combine data after 64 times try start, because the CAS lost some verify data, you need select File Make Key->Known ISN to make working key**

  Attention: **If you press "Yes" and get something like "Cannot find useful combine data, please check the EEPROM file", means the CAS lost some verify data, you need select File Make Key->Known ISN to make working key**



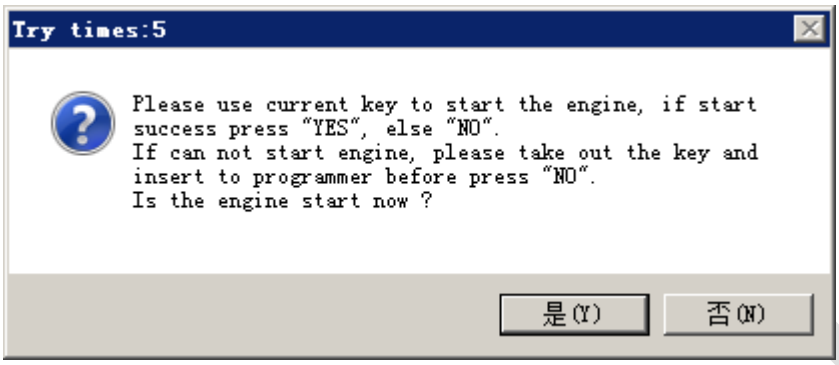
(PICTURE 5.14)



(PICTURE 5.15)

- Under lost all key for CAS3+ encrypt version (**File Make key also have this**) get window (PICTURE 5.16): In the title you can find "Try times 5" means this is the fifth try start. If can start, press "YES", key made successfully. If cannot start, press "NO", continue next try start For some reason cause not find start combine data after all try, the temp key is locked, you need unlock the key with EEPROM or key info before next time test.

Attention: when you get this window, you'd better try with this method: insert temp key to ignition switch, try start, if not start, take key off, then insert to ignition again, try start again, if still not start, take key off ignition and press "No" (In File Make Key you need place temp key in programmer)



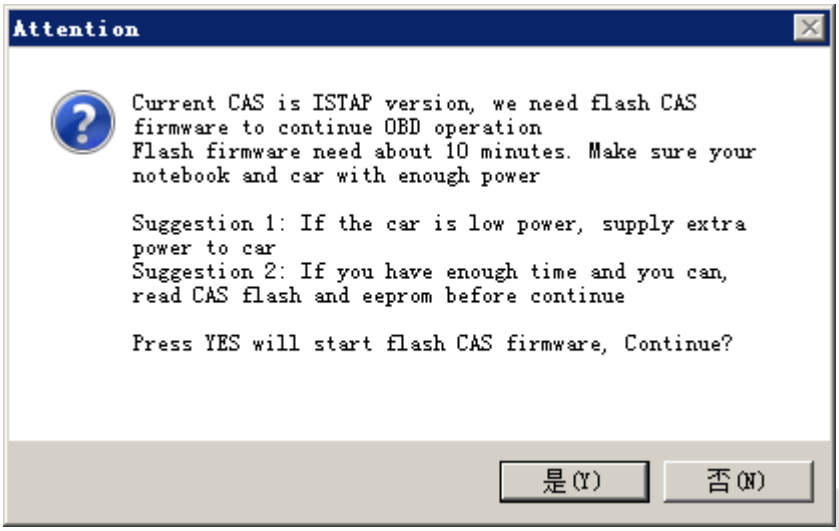
(PICTURE 5.16)

5.3. CAS3+ encrypt version (include ISTAP) make dealer key by OBDII

5.3.1. Add new key with working key

- **Attention: Under these steps, there will come some ASK or NOTE message,**
- **Method 1, operation**: This method support CAS3+ encrypt version (ISTAP not support). you can follow:
  1) Read EEPROM with Read EEPROM in (PICTURE 4.1) by OBDII
  2) Make dealer key with File Make Key function
- **Method 2, operation**:

1) **Insert a working key to car ignition and switch ON**
2) (PICTURE 5.1), use Get Key Info read CAS immo data, cutting code, remote frequency and etc. (Remember: when you get window (PICTURE 5.5), you need choose **Add Key**) Attention: The key info can read directly if CAS isn't ISTAP version. If CAS belongs to ISTAP version, there will be update CAS flash window (PICTURE 5.17) for the first time read key info. Upgrade CAS flash only need 10 minutes, after update flash turn to step 5). If the upgrade progress failed by some reason, you can fix it with Menu->CAS Repair->ISTAP4* version OBDII Repair. Repair with CAS ID (write in step2)). Detail can be found in chapter 9 CAS Repair



(PICTURE 5.17)

3) In (PICTURE 5.1), use **Save Key Info** save the read key info
4) There's 2 methods for make key:
   - Method 1: In (PICTURE 5.1), select **Prepare dealer key with programmer**
     a) Input a new blank key to VVDI2 programmer
     b) Select a key position for new key (If the selected position have key already, must use Add Key to add new key to CAS system)
     c) In (PICTURE 5.1), press button **Prepare dealer key with programmer** wait procedure complete
     d) After make dealer key successful, try start directly. If can start engine, turn to step 7). If not work, add the made key to CAS system with **Add Key** in (PICTURE 5.1)
     e) After new key can start engine turn to step 7). **Attention:** Sometimes add new key for CAS1/CAS2/CAS3 will cause car not start, you can follow chapter 4 Special Note 2
   - Method 2: In (PICTURE 5.1), select **Prepare dealer key with ignition switch**, select key type and pre-process the blank key, insert to ignition switch and wait complete. After finish, turn to step 7). If you get failure here, you need unlock the key with key info before next make dealer key
5) Complete.

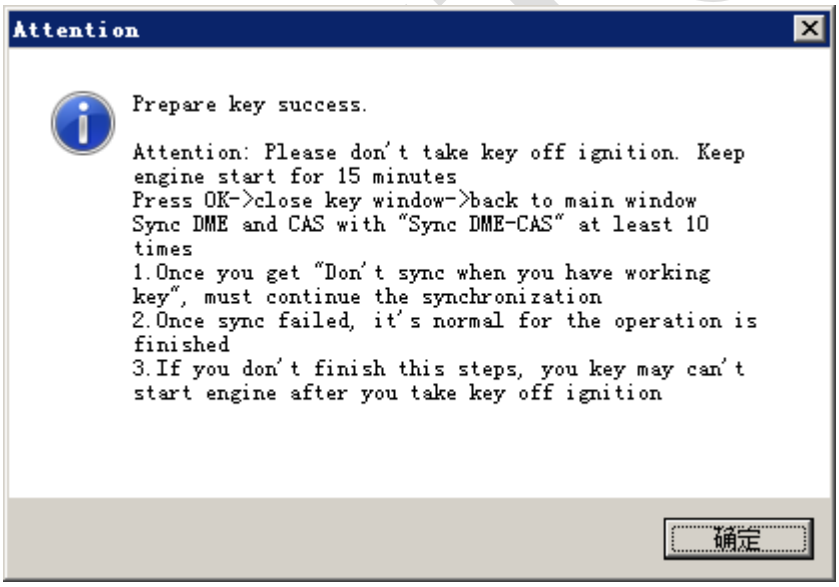
5.3.2. Lost All Key

- **Attention: Under these steps, there will come some ASK or NOTE message, they all can be found in chapter 5.2**
- **Operation steps:**

1) Active OBD communication with lost all key method
2) In (PICTURE 5.1), use **Connect** to detect CAS type and read CAS identification information (**Remember: Write down CAS ID**)
3) In use **Get Key Info** read CAS immo data, cutting code, remote frequency and etc.

(Remember: when you get window (PICTURE 5.5), you need choose **Lost All Key**)
Attention: The key info can read directly if CAS isn't ISTAP version. If CAS belongs to ISTAP version, there will be update CAS flash window (PICTURE 5.17) for the first time read key info. Upgrade CAS flash only need 10 minutes, after update flash turn to step 5). **If the upgrade progress failed by some reason, you can fix it with Menu->CAS Repair->ISTAP4* version OBDII Repair. Repair with CAS ID (write in step2)). Detail can be found in chapter 9 CAS Repair**

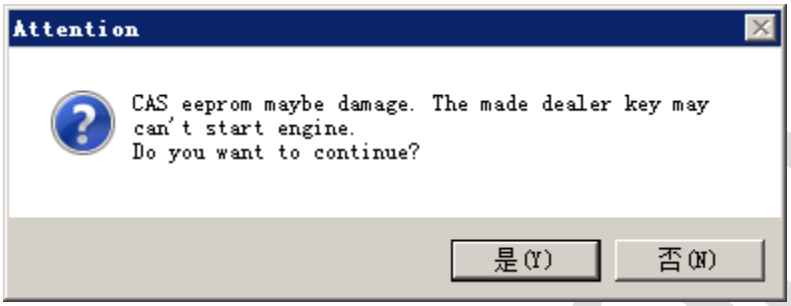
4) In (PICTURE 5.1) , use **Save Key Info** save the read key info
5) In (PICTURE 5.1), select **Prepare dealer key with ignition switch**, select key type and pre-process the blank key, insert to ignition switch and wait complete. The procedure will use try start method, if CAS belongs to ISTAP there will be at most 64 time try start, while the not ISTAP version have at most 16 times try start. Once the engine start, turn to step 7). If you get failure here, you need unlock the key with key info before next make dealer key.
6) After success start engine, you will get window (PICTURE 5.18). **Remember:** Don't take away the key from ignition switch. Synchronize DME-CAS (PICTURE 4.1) at least 10 times. Once you get "Don't synchronize when you have working key" continue. If you got sync failed, don't worry about this, the sync command is send. If you don't complete this procedure, your new key may not start engine for second time
7) Complete



(PICTURE 5.18)

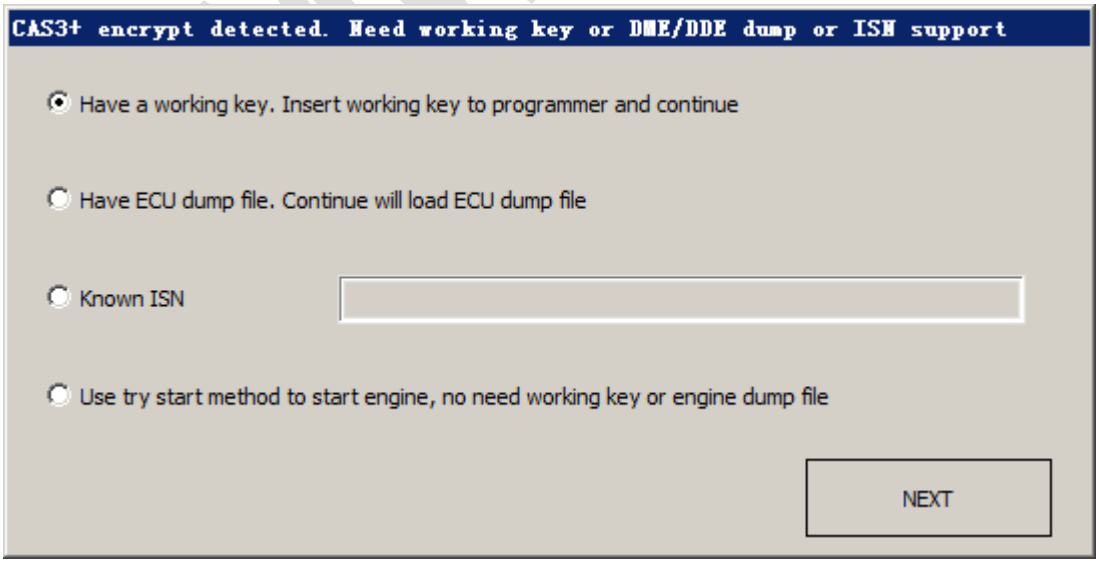
5.4. Special note in File Make Key (Important!!!)

- Prepare dealer key, keyless key, lost all key for CAS3+ encrypt version have some note in **chapter 5. 2 Special note in OBD operation (Important!!!)**
- Load CAS EEPROM dump get window (PICTURE 6.1): If the dump is read by BDM programmer, you can ignore this window. That means VVDI2 – BMW detected verify error in CAS system. Usually CAS3+ encrypt version have this window



(PICTURE 6.1)

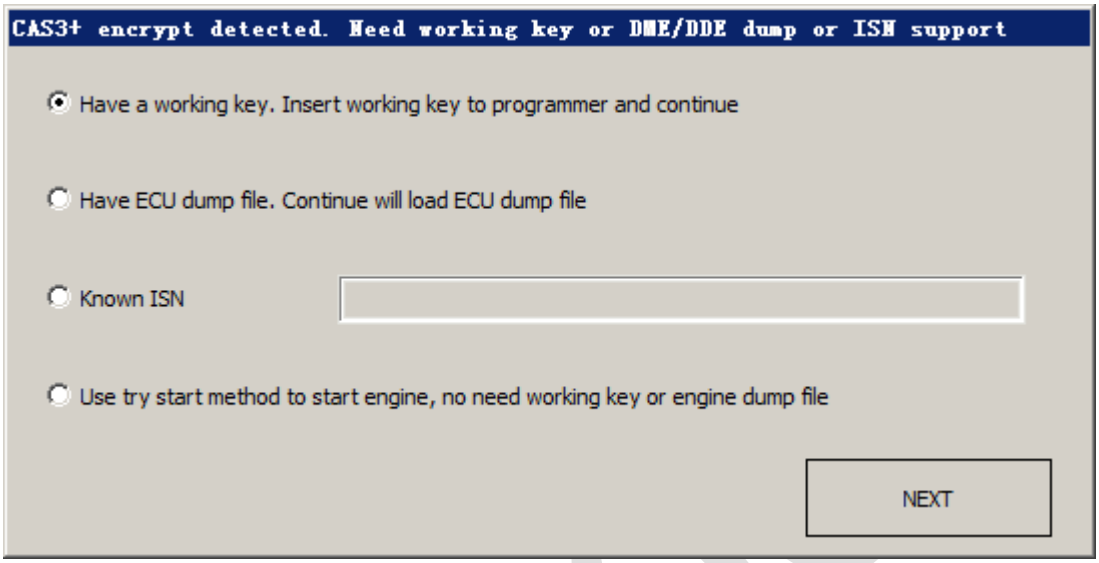
- Under make dealer key for CAS3+ encrypt version get (PICTURE 6.2):
  - Add key with working key select Have a working key.
  - Lost all working key, there are 3 methods:
    1) Have ECU dump file, load ECU dump file to continue
    2) Known ISN, input 16 bytes ISN to continue
    3) **Use try start method, try start method don't need OBD communication, only require the original CAS EEPROM dump**



(PICTURE 6.2)

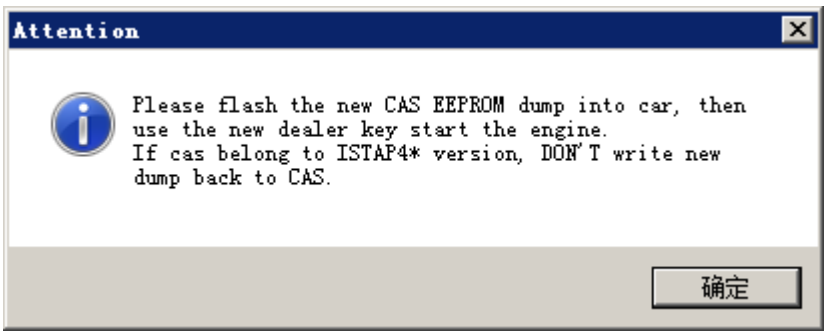
- Under make dealer key for CAS4 encrypt version get (PICTURE 6.3):

- Add key with working key select Have a working key.
- Lost all working key, there are 3 methods:
  1) Have ECU dump file, load ECU dump file to continue
  2) Known ISN, input 16 bytes ISN to continue



(PICTURE 6.3)

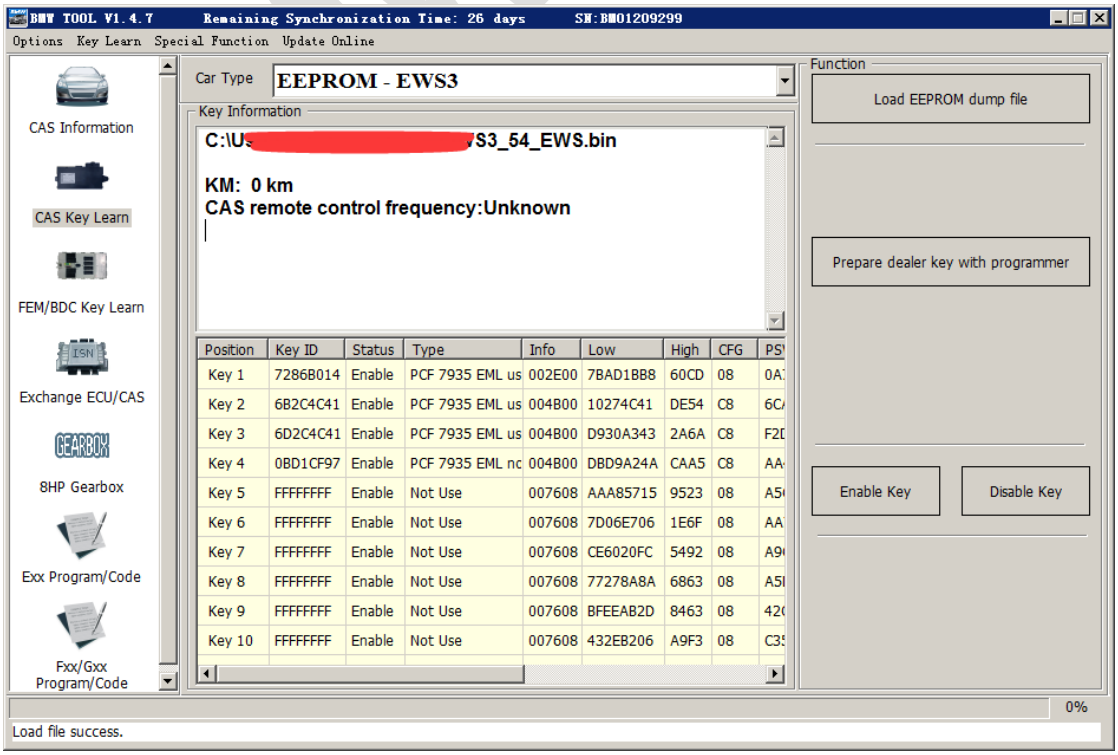
- About remote function not work in CAS1/CAS2/CAS3/CAS3+: Remote not work caused by synchronization codes not same between key and CAS, just need do the synchronize operation: **Press any button on new key, now remote function not work, start engine with this key for several seconds, switch off ignition, try remote again, works**
- About write back new dump after make key for CAS1/CAS2/CAS3/CAS3+:
  - File make key not detected the key is disabled or not. If your key not work, you'd better enable the new key position with working key(Direct enable key without get key info)
  - If select a blank position for new key, usually don't require write back new dump. If not work, test write back method
  - If select a used position for new key, you must write new dump back to CAS
- Please don't choose 10th key for CAS3+ encrypt version
- Under lost all key for CAS3+ encrypt version get window (PICTURE 6.4): This window will come after first time write key. When you get this window, first try data was written to temp key. Here will save a new dump contain temp key ID. Insert temp key can switch on ignition (you can try for twice, only for cluster show), don't write new dump back (CAS3+ encrypt version with new key in blank position don't need write back). **If you try several times still can't switch on, need write back new dump. Note: make sure the new key position is not disabled**



(PICTURE 6.4)

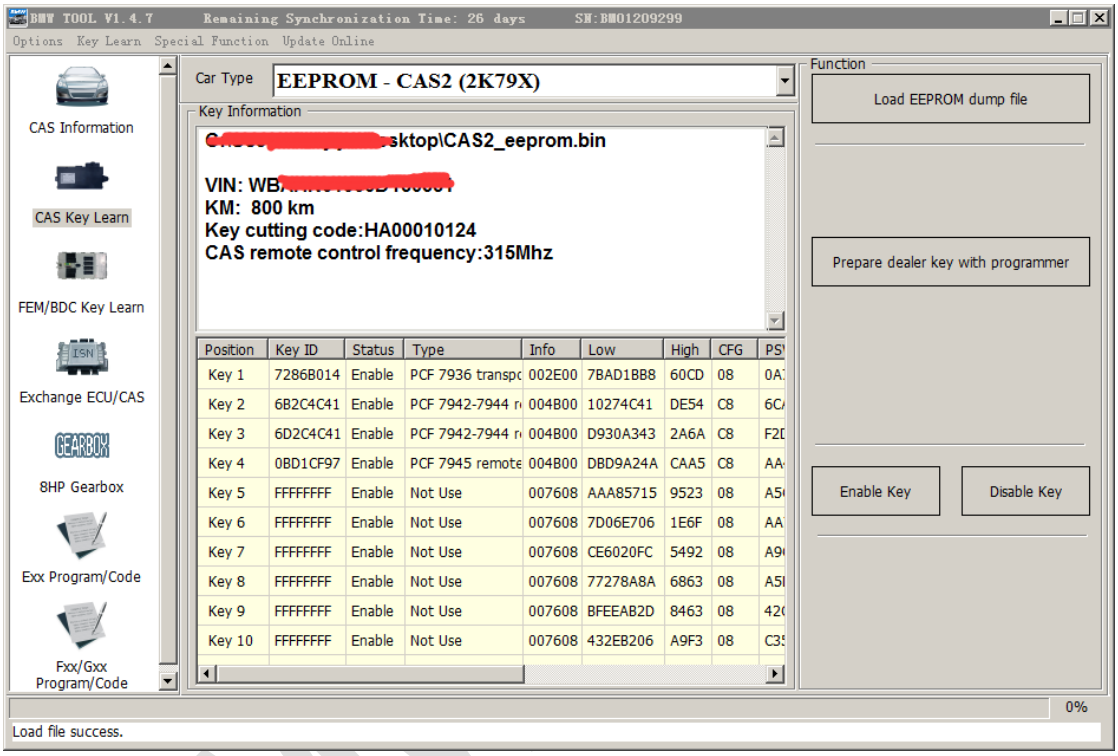
5.5. EEPROM-EWS1/EWS2/EWS3/EWS4/CAS1/CAS2/CAS3 (include lost all key)

- **Attention: Under these steps, there will come some ASK or NOTE message, they all can be found in chapter 6.1**
- **Lost all key have same method with add key with working key**
- Menu->File Make Key ->select right EWS/CAS type, load EEPROM dump file(BIN file)
- (PICTURE 6.5) is File Make Key window after load EWS3 EEPROM dump. **Key Type** show with “PCF 7935 EML used” means there already have a key; show with “PCF 7935 EML not use” mean this position doesn’t have key. Select a key position, input blank PCF7935 transponder, press button “Make Dealer Key” and wait complete. The key can start engine without write new dump back, so we don’t have new dump for save



(PICTURE 6.5)

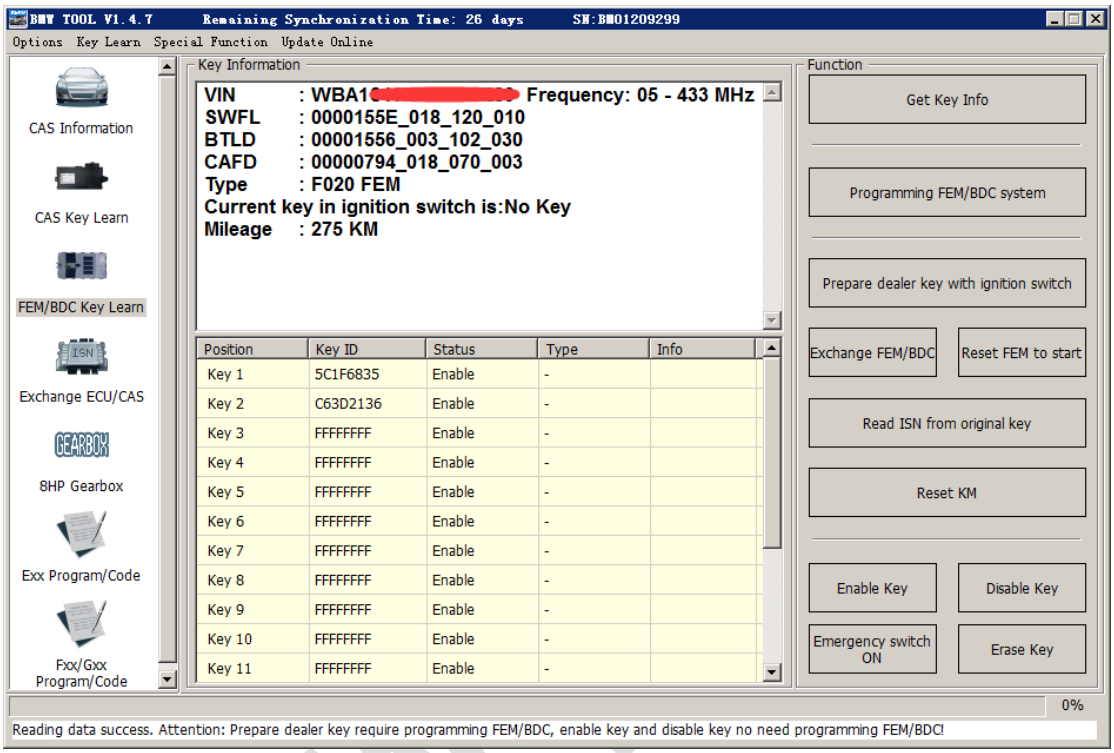
- (PICTURE 6.6) is File Make Key window after load CAS2 EEPROM dump (CAS1, CAS3 is same). Key ID show “FFFFFFFF” means this position not use; show with other values mean there already have a key. Select a key position, input a blank transponder (HITAG2), press button “Make Dealer Key” and wait complete. After finish will save a new dump file. **About the write new dump file back you can find in chapter 6.1 About write back new dump after make key for CAS1/CAS2/CAS3/CAS3+**



(PICTURE 6.6)

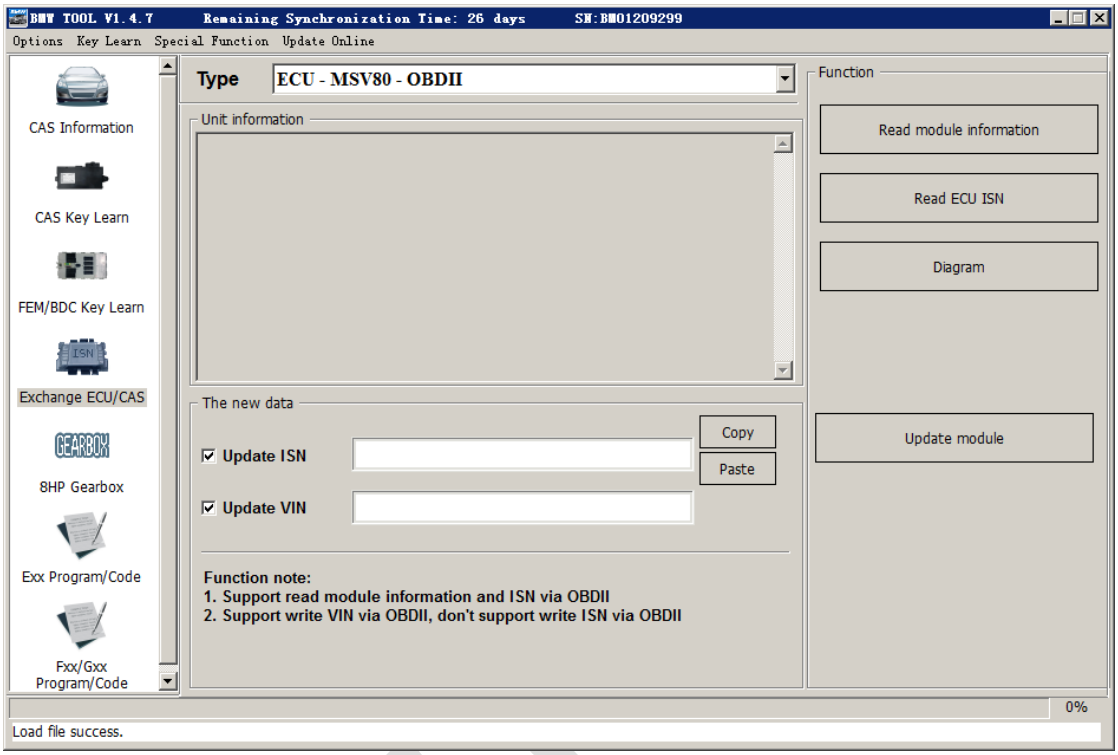
6. FEM/BDC Key Learn

FEM/BDC using in BMW F series system after 2014. Support key info by OBDII, prepare dealer key by OBDII, exchange modules,.etc functions.



- **Get Key Info**: Read FEM/BDC system key information.
- **Programming FEM/BDC system**: Program FEM/BDC system, Let it support reading key info by OBDII
- **Prepare dealer key with ignition switch**: Make working key with ignition switch
- **Exchange FEM/BDC**: Replace vehicle module
- **Reset FEM to start**: Reset the module start lock
- **Read ISN from original key**: Read vehicle ISN from original key
- **Reset KM**: Reset the module KM, in general after replace the module for restore original KM
- **Enable Key**: Insert one working key, then select key position that need to enable. click enable key, After enable successful, this position key will work again. **Note: If only for enable key no need to get key info**
- **Disable Key**: Insert one working key, then select key position that need to disable. the disabled key and insert working key can't be same one. After disable successful, this position key will be not work any more, even add a new key at this position will be not work. **Note: If only for disable key no need to get key info**
- **Emergncy switch ON**: When all key lost, turn on ignition, let it can communicate
- **Erase Key**: Delete the key from select key position.

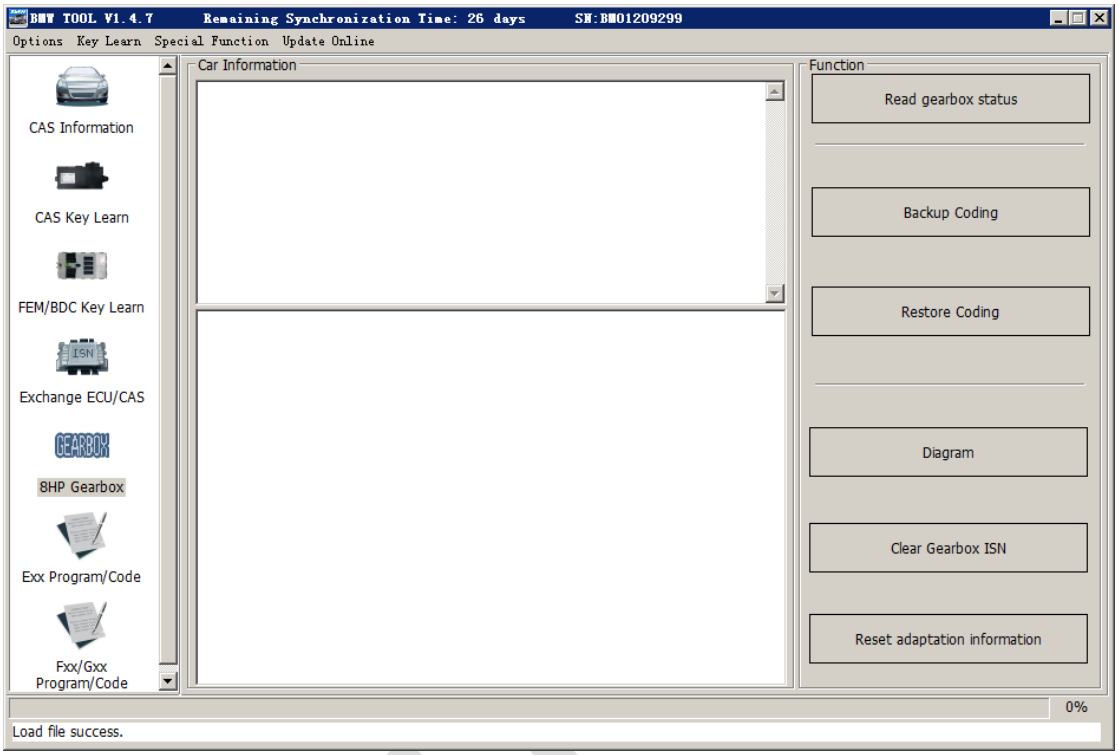
7. Exchange ECU/CAS



Function description:

1. **Support read ISN from ECU/CAS by OBDII** : MSV80, MSV801, MSD80, MSD81, MSD802, MSD812, MSD851, MED17xx, MVD17xx, MEVD17xx, MV1722, MED172, MEV17N46, MEV17N45, MEVD172Y, MEVD172, MEVD1725, X63TU, CAS3/CAS3+ ., etc types
2. **Support load EEPROM/FALSH display ISN**: MSV80, MSV801, MSD80, MSD81, MSD802, MSD812, MSD851, MED17xx, MVD17xx, MEVD17xx, MV1722, MED172, MEV17N46, MEV17N45, MEVD172Y, MEVD172, MEVD1725, X63TU, CAS3/CAS3+, CAS4/CAS4+ ., etc types
3. **Update module**: Read original module info, enter the new ISN and VIN, wirte data to module by OBDII, or save to the new EEPROM

8. Gearbox



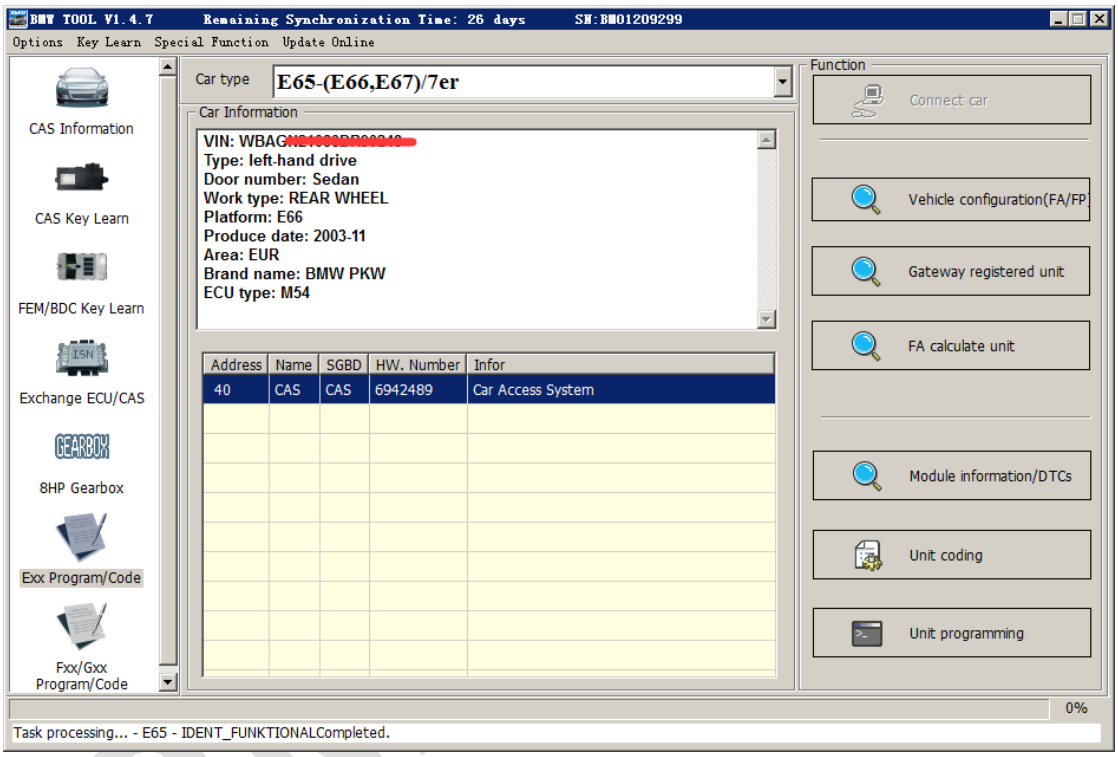
Function description:

1. **Read gearbox status**: Support read 8HP gearbox status, module is brand new or not,.etc
2. **Backup Coding**: Backup gearbox coding
3. **Restore Coding**: Restore gearbox coding
4. **Clear Gearboxs ISN**: Support clear 2nd-hand used gearbox all inside information, let this module become as brand new
5. **Reset adaption information**: Reset gearbox inside adaption information, let it back to original status

9. Exx Program/Code

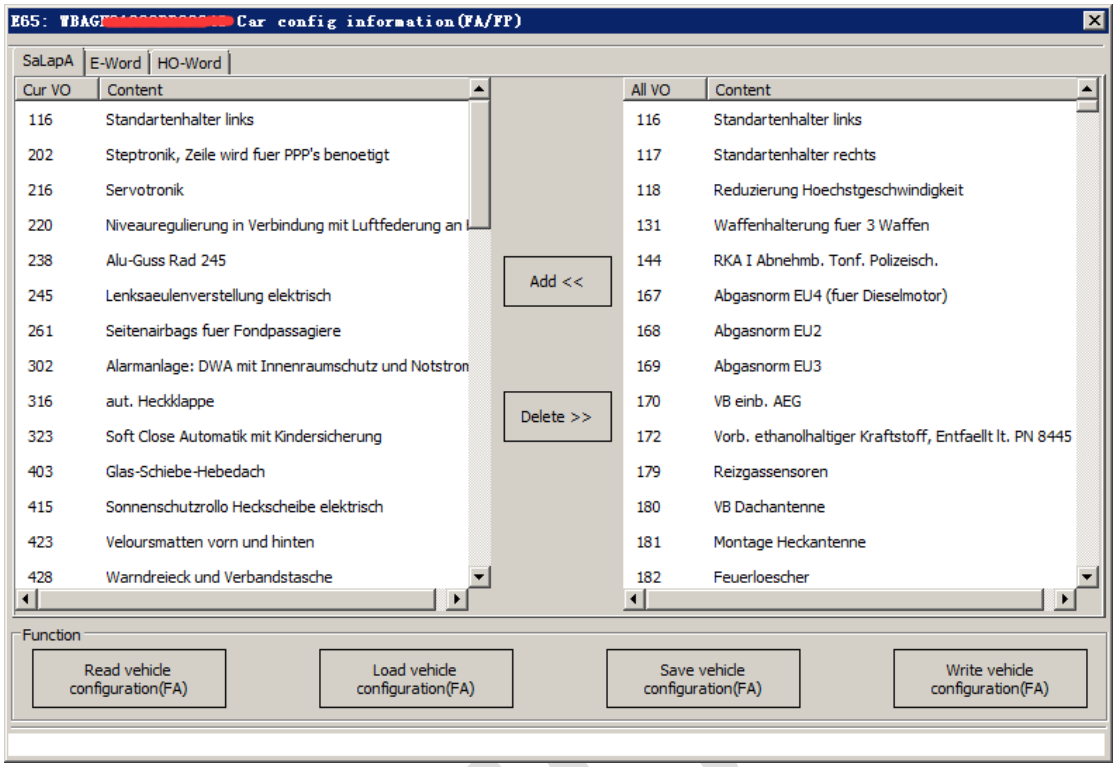
9.1. Connect Car

Support auto detect vehicle type, read module inside information, support chassis: E36, E38, E39, E46, E52, E53, E60, E63, E64, E65, E66, E67, E70, E71, E72, E83, E85, E86, E89, E90, E91, E92, E93, K1X, K24, KH2, R50, R52, R53, R55, R56, R57, RR1,.etc chassis



9.2. Vehicle configuration(FA/FP)

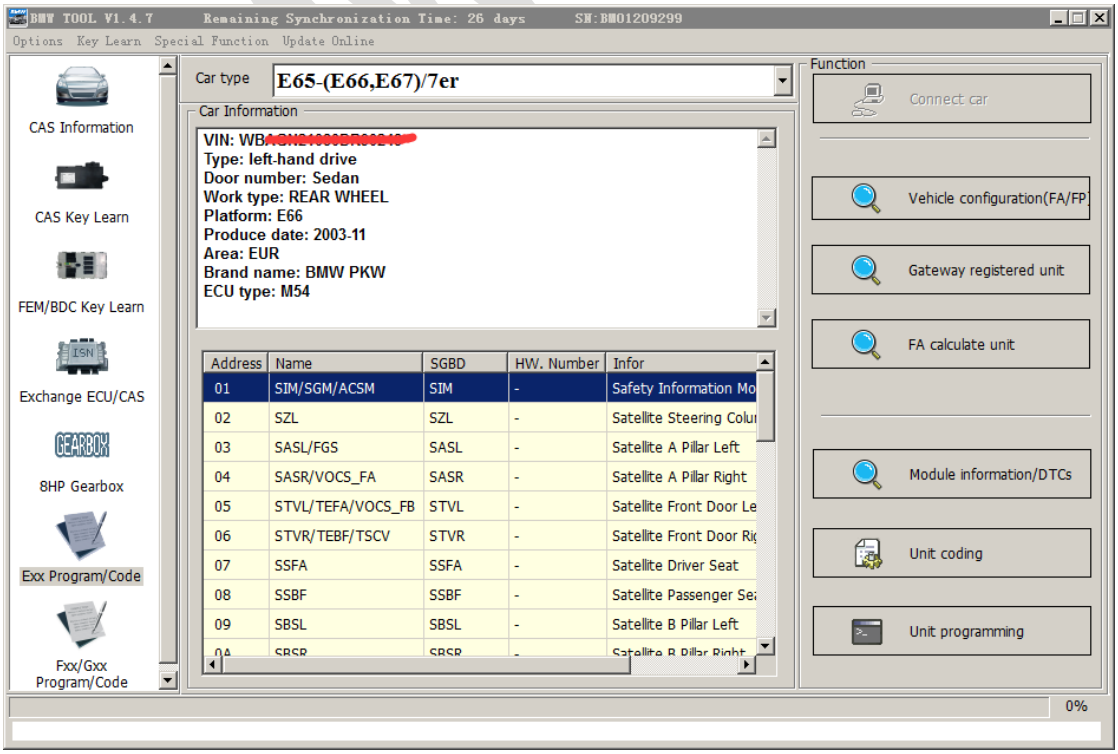
Support read module inside vehicle configuration information, and change vehicle configuration information for 2nd-hand module replacement.



9.3. Gateway registered unit/FA calculate unit

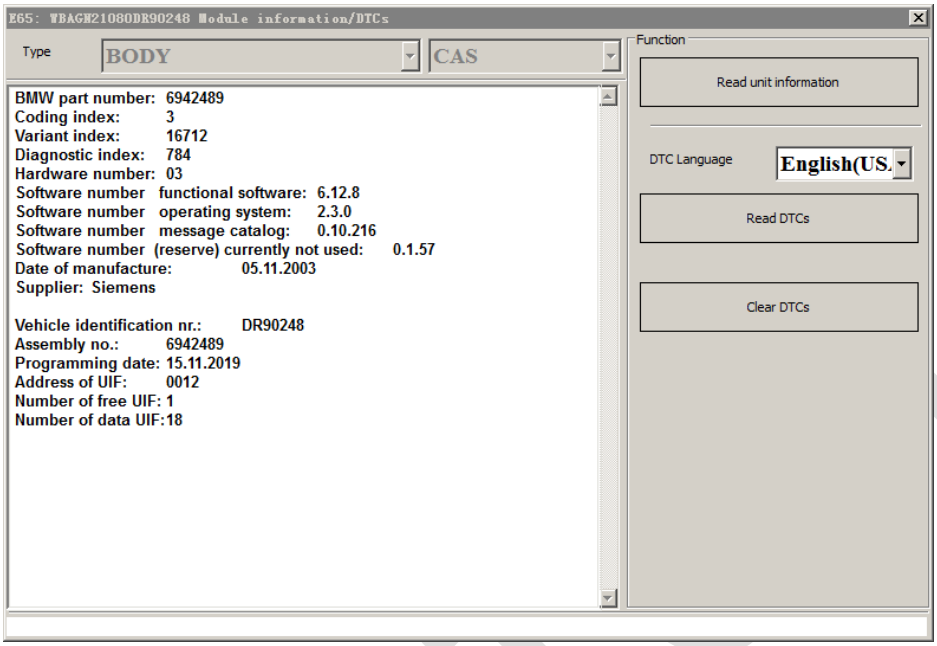
Read registered unit information from gateway

FA calculate unit – From configuration information to calculate current vehicle all control units



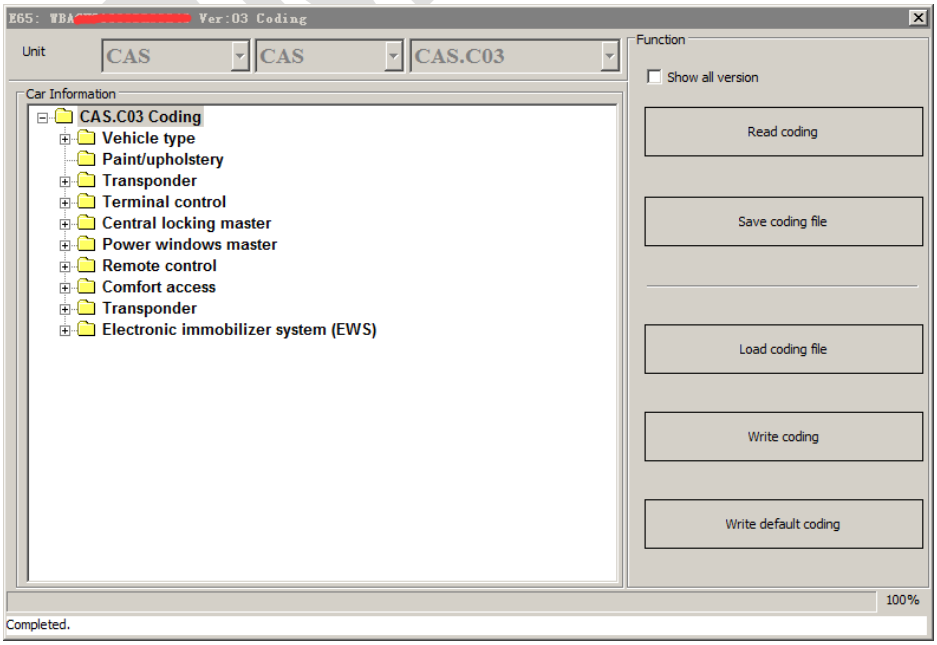
9.4. Module information/DTCs

Read selected module specific information, Read and clear DTCs .,etc



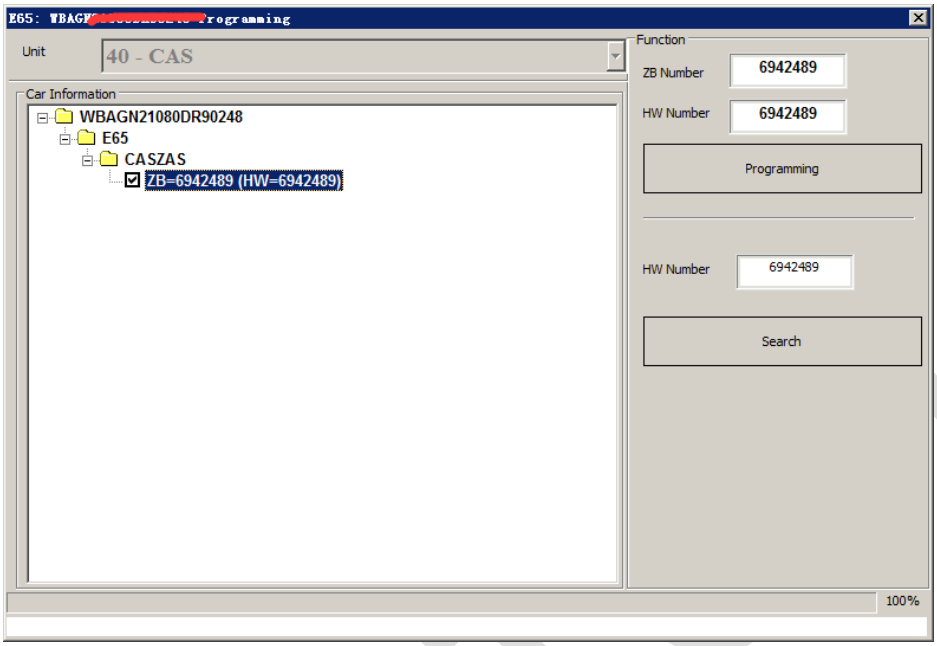
9.5. Unit coding

Read selected unit coding information, save coding, load coding, write coding and from vehicle configuration information to calculate default coding.,etc functions.



9.6. Unit programming

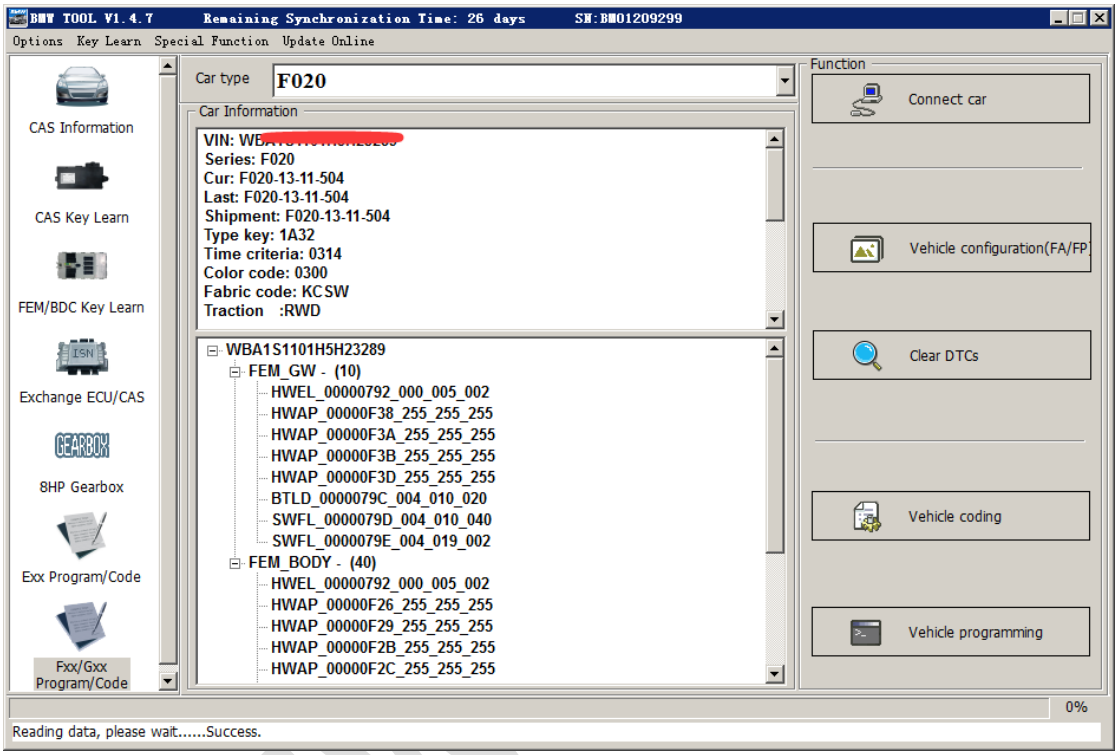
From current unit inside HW number and ZB number, query the support programming file and performance programming function.



10. Fxx/Gxx Program/Code

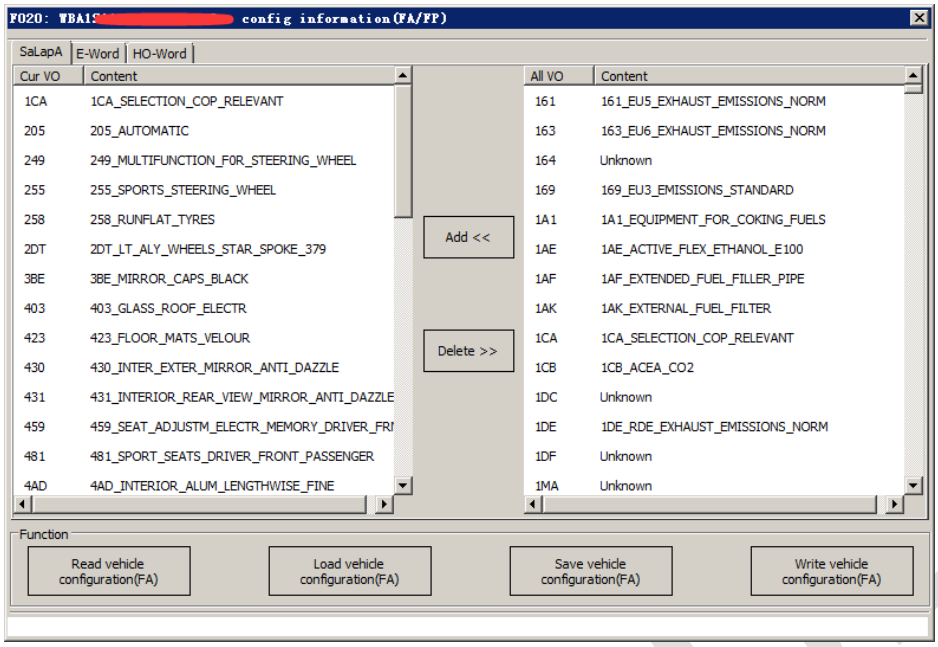
10.1. Connect to car

Support auto detect vehicle type, and read module inside information



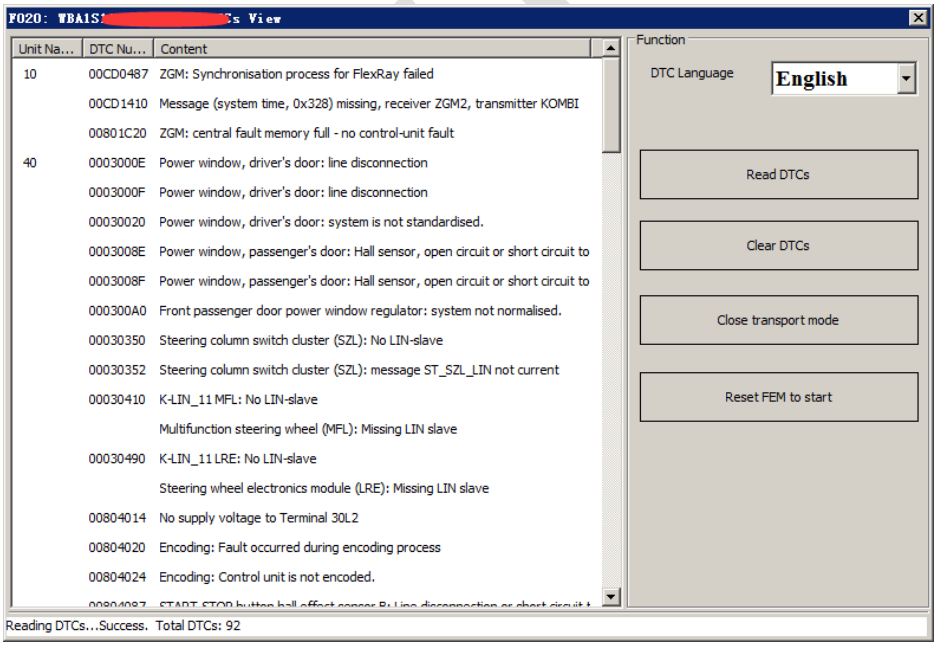
10.2. Vehicle configuration(FA/FP)

Support read module inside vehicle configuration information, and change vehicle configuration information for 2nd-hand module replacement.



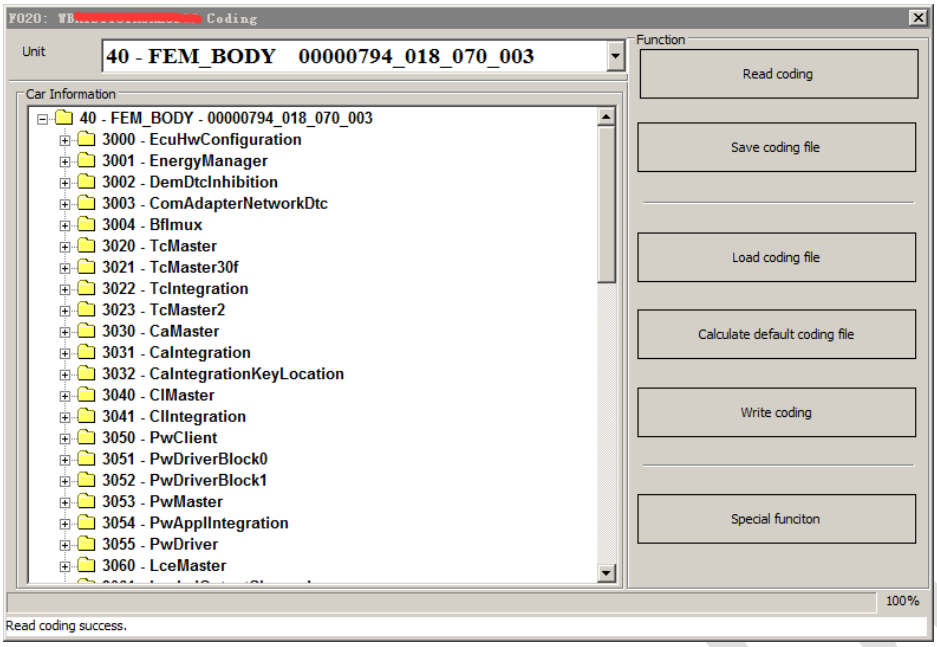
10.3. Read/Clear DTCs

Support read and clear DTCs, for vehicle maintenance



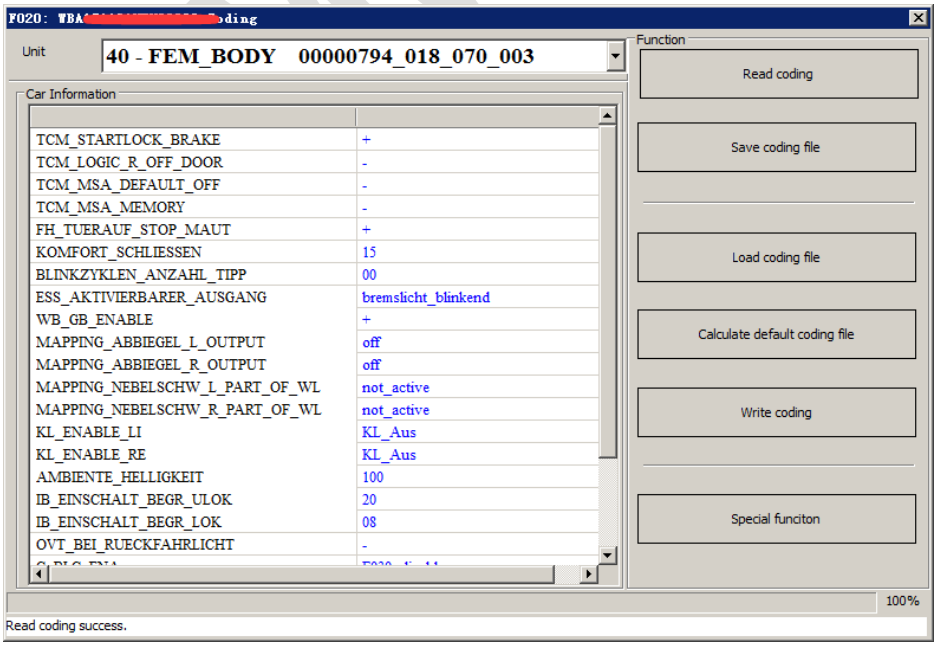
10.4. Vehicle coding

Support read module inside coding information, According to the requirements, User can setting the related value to access to parts of configuration functions



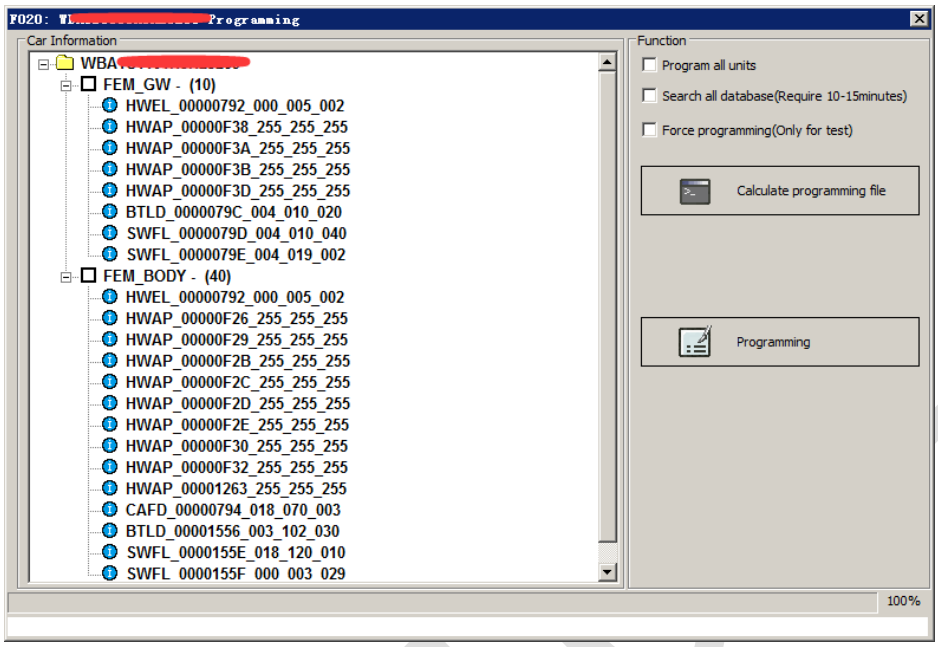
Function description:

1. **Read coding**: Read module inside coding information
2. **Save coding file**: Save the coding information as file
3. **Load coding file**: Load the saved coding file
4. **Calculate default coding file**: If the default coding file get lost, support from vehicle configuration information to calculate the default coding file
5. **Write coding**: Write the coding to module
6. **Special function**: We re-listed parts of common change configuration functions, software display just common change options, as below picture



10.5. Vehicle programming

From vehicle configuration information to calculate the related module flash information, and write to module



Function description:

1. **Program all units**: From module configuration information to calculate vehicle all control units programming information
2. **Search all database**: Search all database, will not compare module inheritance hierarchy information
3. **Calculate programming file**: From configuration information to calculate module programming file, it takes time arrange around 10 seconds to tens of minutes.
4. **Programming**: Select related programming file and programming module

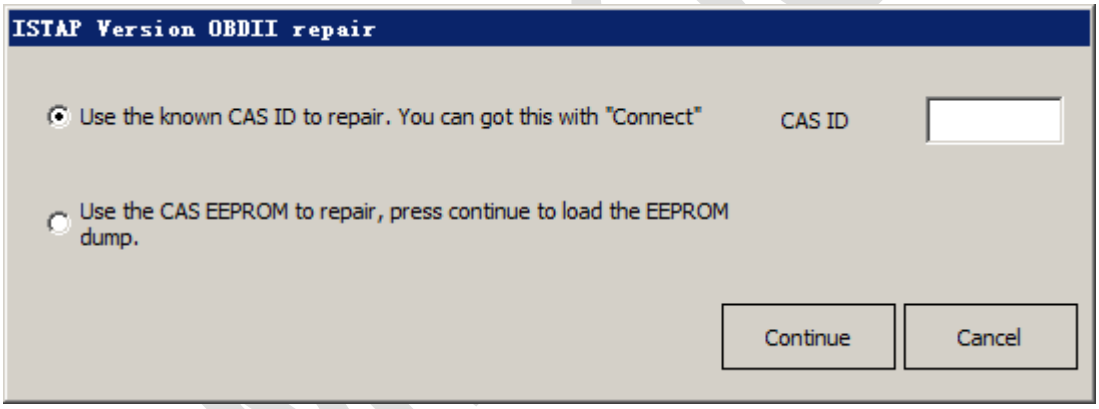
11. CAS Repair (EEPROM OBDII)

11.1. OBDII - CAS1 (0K50E) repair

For suddenly condition cause CAS1 enter service mode while read CAS1 EEPROM via OBDII or CAS PLUG (such as power failure), you can select this type to fix

11.2. OBDII – CAS3+ (ISTA-P4*) repair

- For suddenly condition cause CAS enter service mode while update ISTAP flash, select this type to fix (PICTURE 11.1)
- You need know CAS ID before continue. You can input the known CAS ID or load EEPROM for automatic search CAS ID
- Use the known CAS ID to repair: Before update CAS flash, we ask you to write down the CAS ID. Type CAS ID here and continue.
- Use the CAS EEPROM to repair: If can't read CAS ID, you need have the CAS EEPROM dump file



(PICTURE 11.1)

11.3. EEPROM Repair (CAS1, CAS2, CAS3, CAS3+)

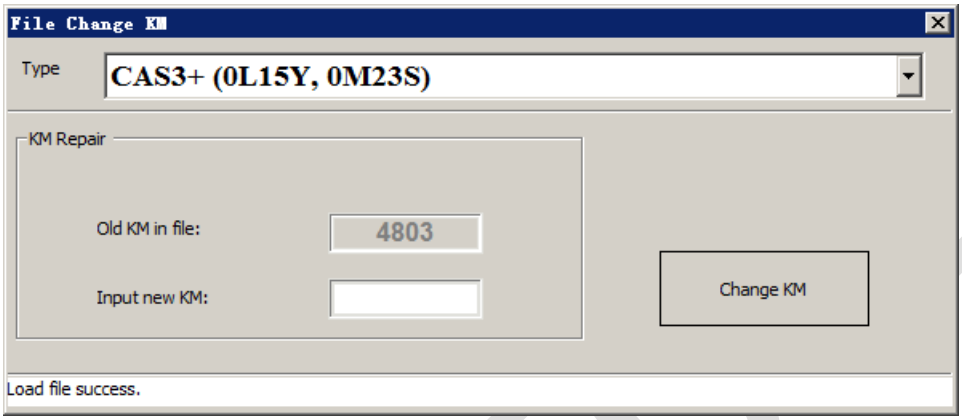
Support load the EEPROM from service mode, automatically repair service mode status, and save new EEPROM

12. Unlock Key

- Unlock function support unlock key prepared for CAS1/CAS2/CAS3/CAS3+
- Support load key info to unlock key
- Support load CAS1, CAS2, CAS3, CAS3+, CAS3+ EEPROM to unlock key
- **Attention: After CAS4 key made successfully, don't support unlock**
- **Attention：About unlock keyless key**
  - File Make Key: Keyless key made by add key with working key don't support unlock
  - OBD Key Learn->Prepare dealer key with programmer: Keyless key made by add key with working key don't support unlock

13. File Change KM

- **Support type**：EWS3, EWS4, CAS1, CAS2, CAS3, CAS3+, CAS4 (0L15Y), CAS4 (5M48H). CAS3+ encrypt version select CAS3+ type, EWS1/EWS2 don't support change KM
- Change KM for EWS/CAS: It's very easy. Load EEPROM dump accord the type, inut new KM, press button Change KM and save new EEPROM dump (PICTURE 13.1)



(PICTURE 13.1)

- **CAS1/CAS2/CAS3/CAS3+ change KM steps:**

1) Write down the KM shown in instrument, take instrument away from car, avoid synchronize KM with CAS
2) Set CAS KM to 0km (you can do this via OBD or EEPROM dump)
3) Read instrument EEPROM dump with BDM programmer, usually it use M35080 chip
4) Select File Change KM ->M35080 (Instrument) and load EEPROM dump
   Note: this type have 2 algorithm for KM, Algo 1 and Algo 2，you need try different algorithm to check the **Old KM in file** value, which one is nearby the KM (write in step 1)), which is the right type. Change new KM with the right type
5) Input new KM
6) Press button "Change KM" and save new EEPROM dump
7) Write new EEPROM dump to M35080 chip
8) Put your instrument in car
9) Finished

- **F -Series(CAS4 system) change KM steps:**

1) Write down the KM shown in instrument, take instrument away from car, avoid synchronize KM with CAS
2) Set CAS KM to 0km (Change KM with File Change KM, select type with mask, support 1L15Ymask and 5M48H mask)
3) Read instrument EEPROM dump with BDM programmer
4) Select File Change KM ->F-Series Instrument and load EEPROM dump
5) Input new KM

6) Press button “Change KM” and save new EEPROM dump
7) Write new EEPROM dump to instrument
8) Put your instrument in car
9) Finished

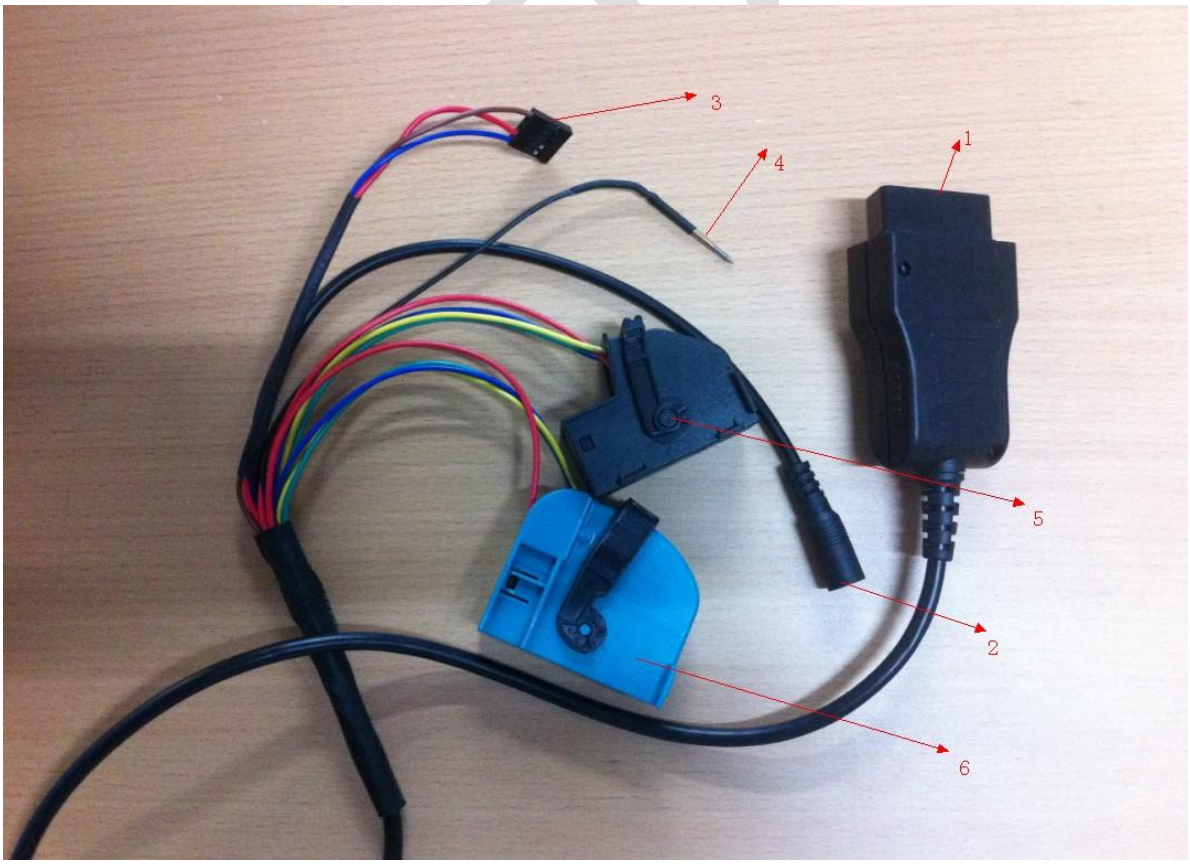
14. CAS PLUG

14.1. CAS PLUG Overview

CAS PLUS (PICTURE 14.1) is not a standard device, need buy for extra. You can connect your dealer for help. Also you can connect line manually to realize CAS PLUG, see chapter 14.3

CAS PLUG introduction:

- (PICTURE 14.1) line 1: connect to VVDI2 OBDII
- (PICTURE 14.1) line 2: supply 12V power
- (PICTURE 14.1) line 3: EWS line 3
- (PICTURE 14.1) line 4: EWS line 4
- (PICTURE 14.1) line 5: CAS1/CAS2 interface
- (PICTURE 14.1) line 6: CAS3/CAS3+ interface

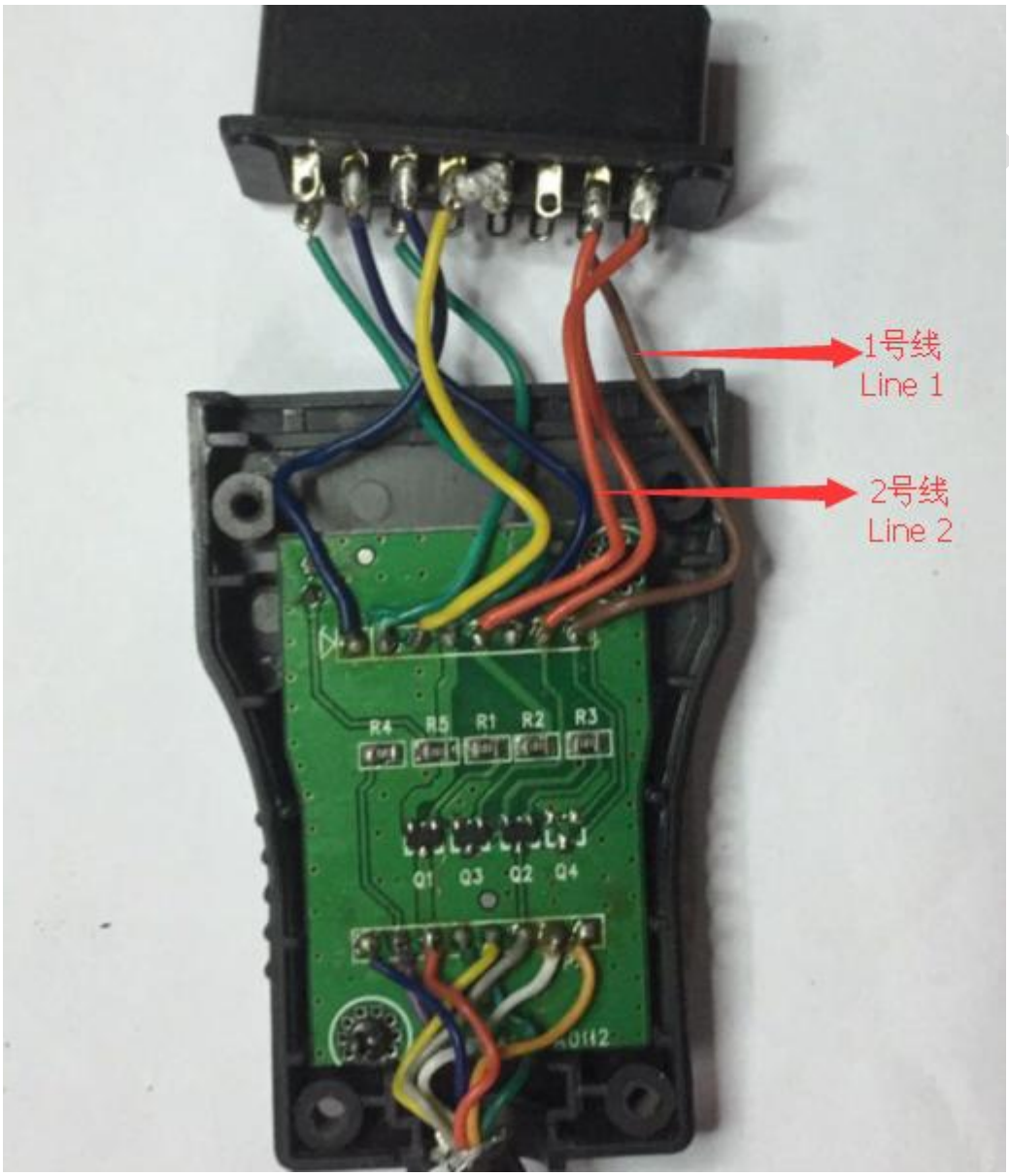


(PICTURE 14.1)

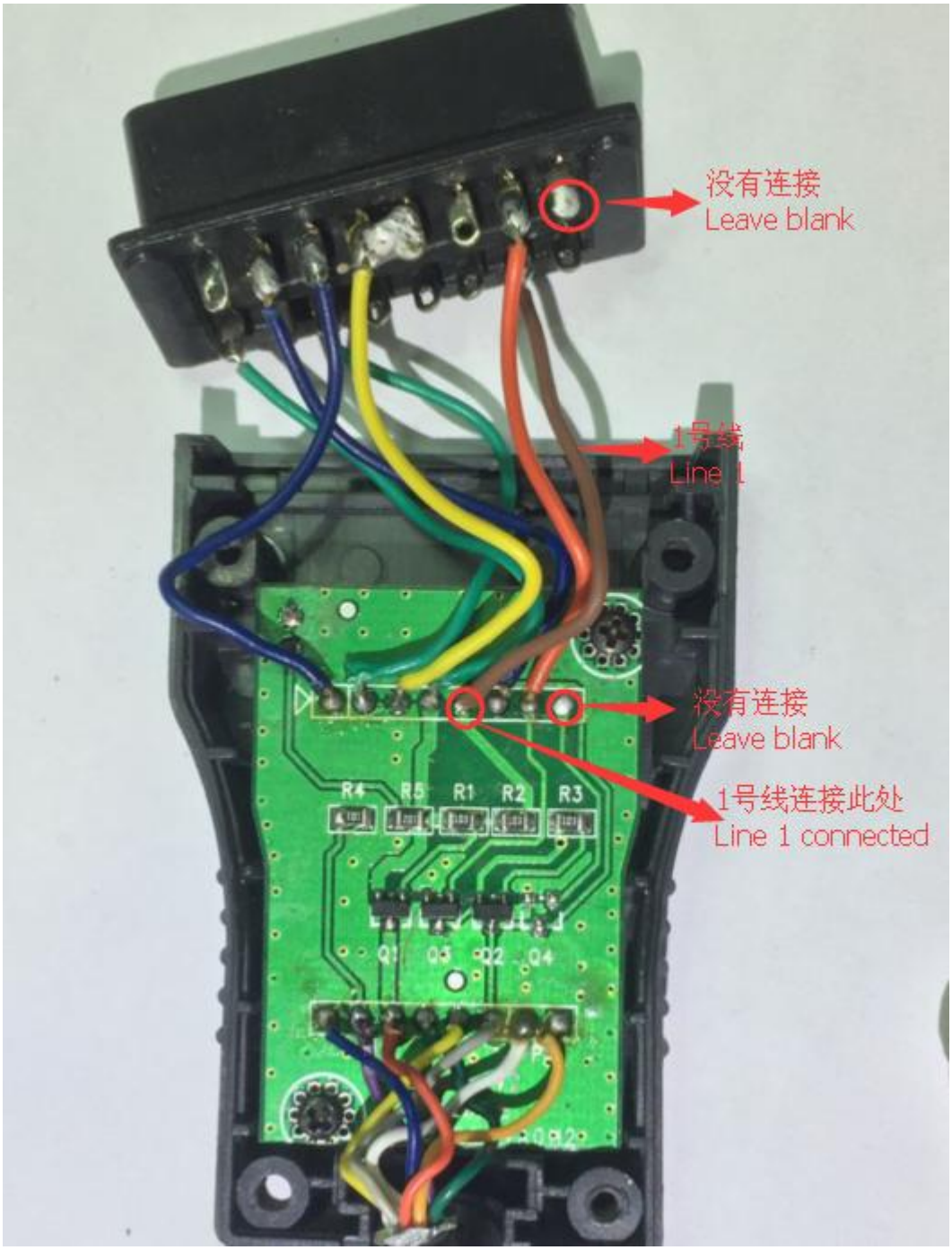
14.2. Make old CAS PLUG work on VVDI2

Old CAS PLUG can't use directly in VVDI2. You need open OBD head in CAS PLUG (Unscrew four screws), follow (PICTURE 14.2) (PICTURE 14.3)

In (PICTURE 14.2), take line 2 off CAS PLUG, Line 1 PCB head connect to Line 2 PCB head, After that, you can see (PICTURE 14.3)



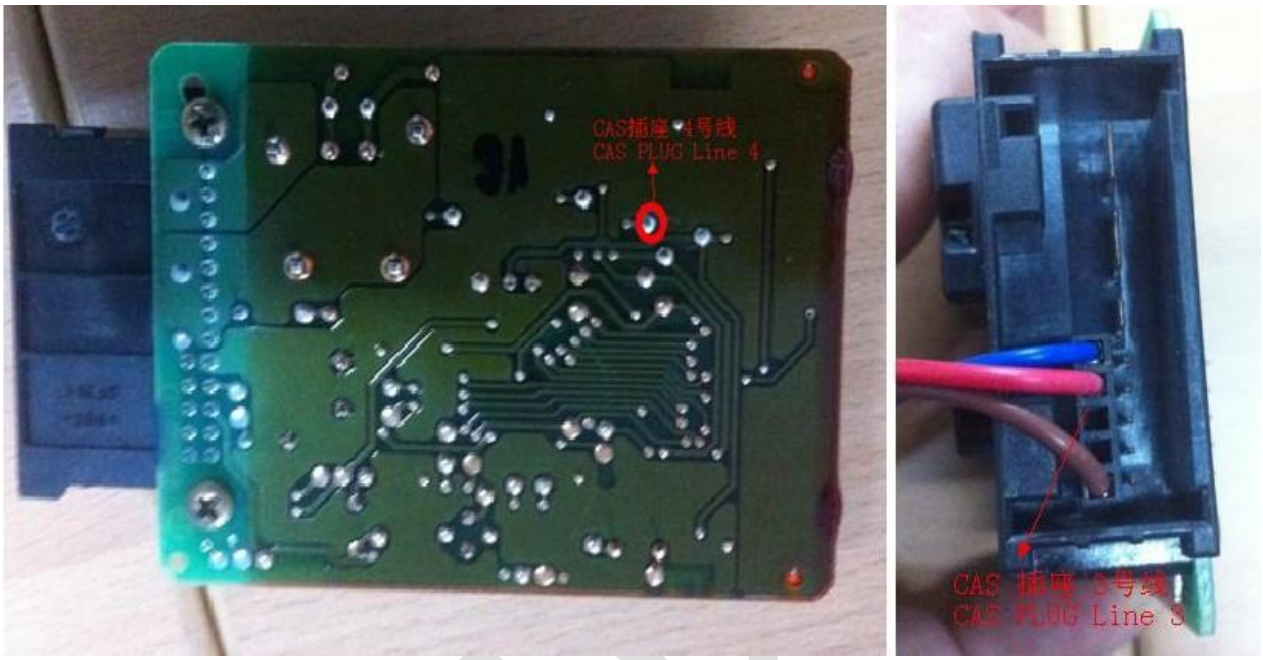
(PICTURE 14.2) old CAS PLUG



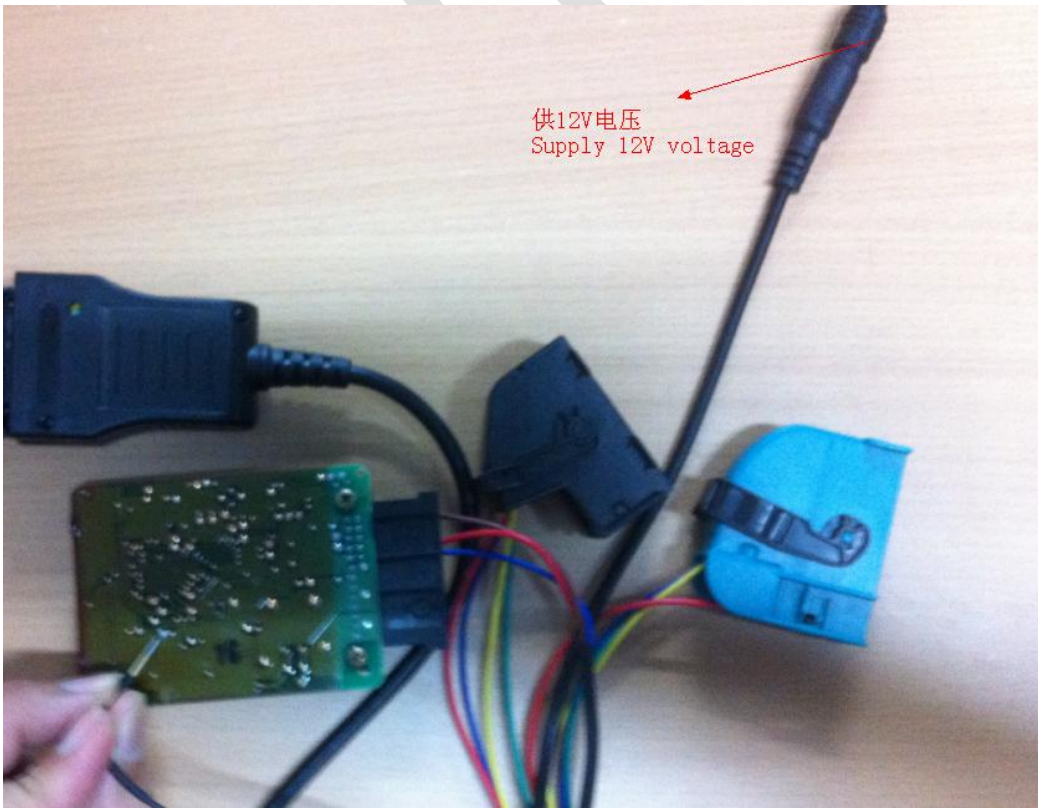
(PICTURE 14.3) CAS PLUG works on VVDI2（modified）

14.3. CAS PLUG connect to EWS/CAS

◆ **CAS PLUG connect to EWS** (PICTURE 14.4) and (PICTURE 14.5)

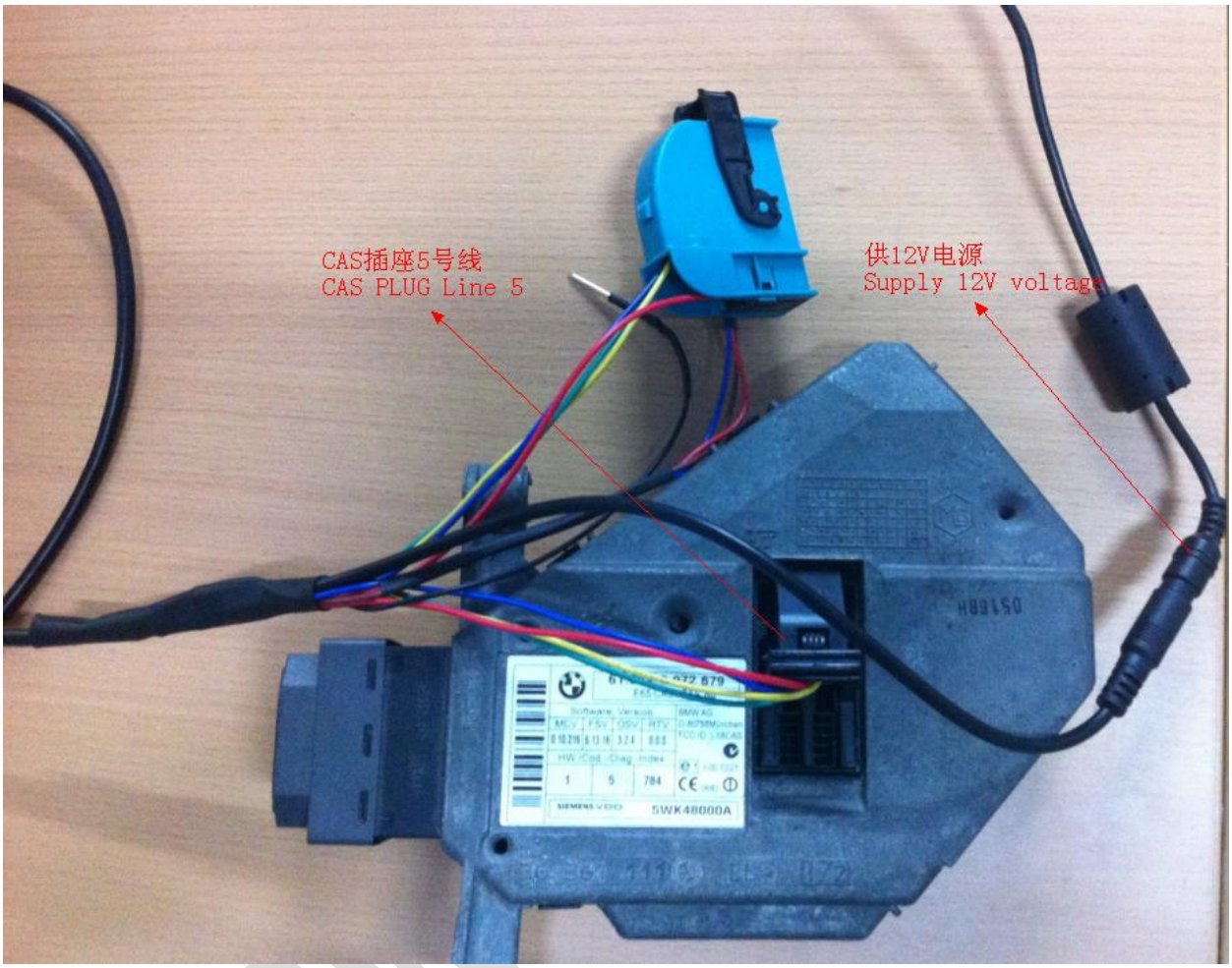


(PICTURE 14.4)



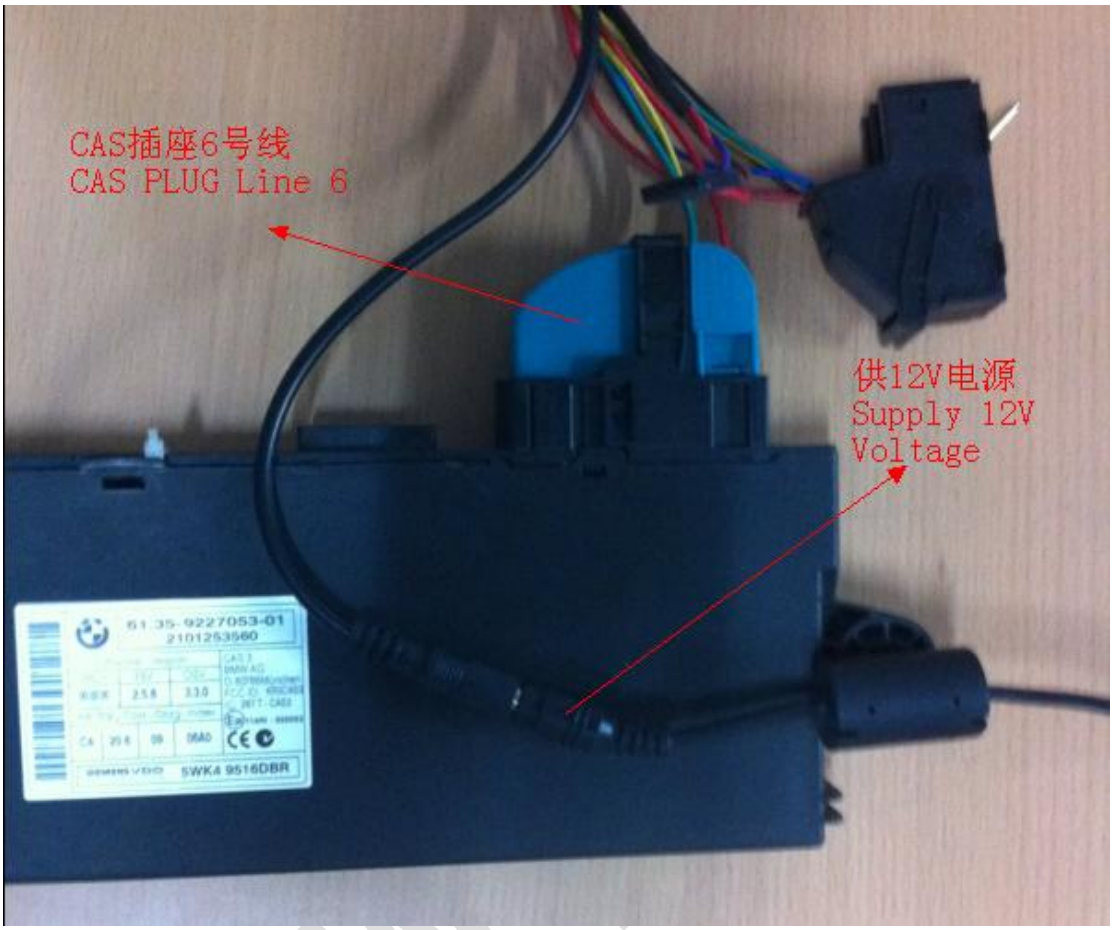
(PICTURE 14.5)

◆ **CAS PLUG connect to CAS1/CAS2** (PICTURE 14.6)



(PICTURE 14.6)

◆ **CAS PLUG connect to CAS3/CAS3+** (PICTURE 14.7)

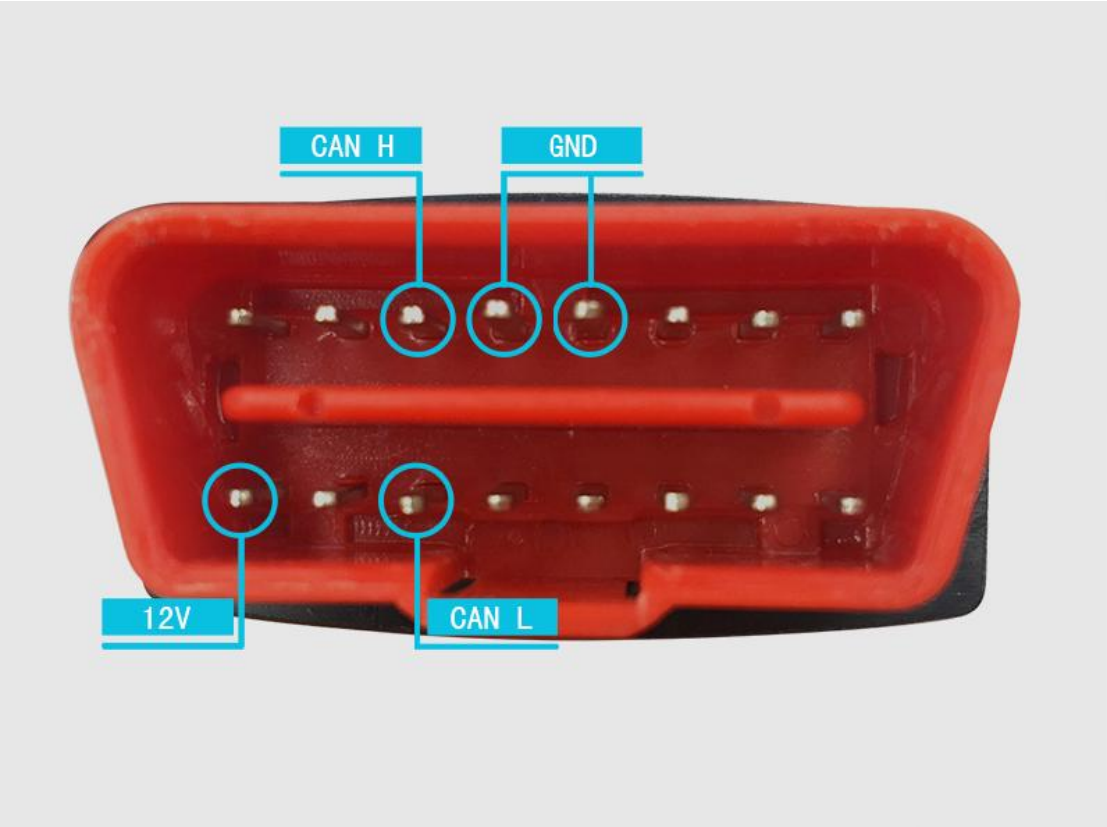


(PICTURE 14.7)

14.4. Manual line to achieve CAS PLUG

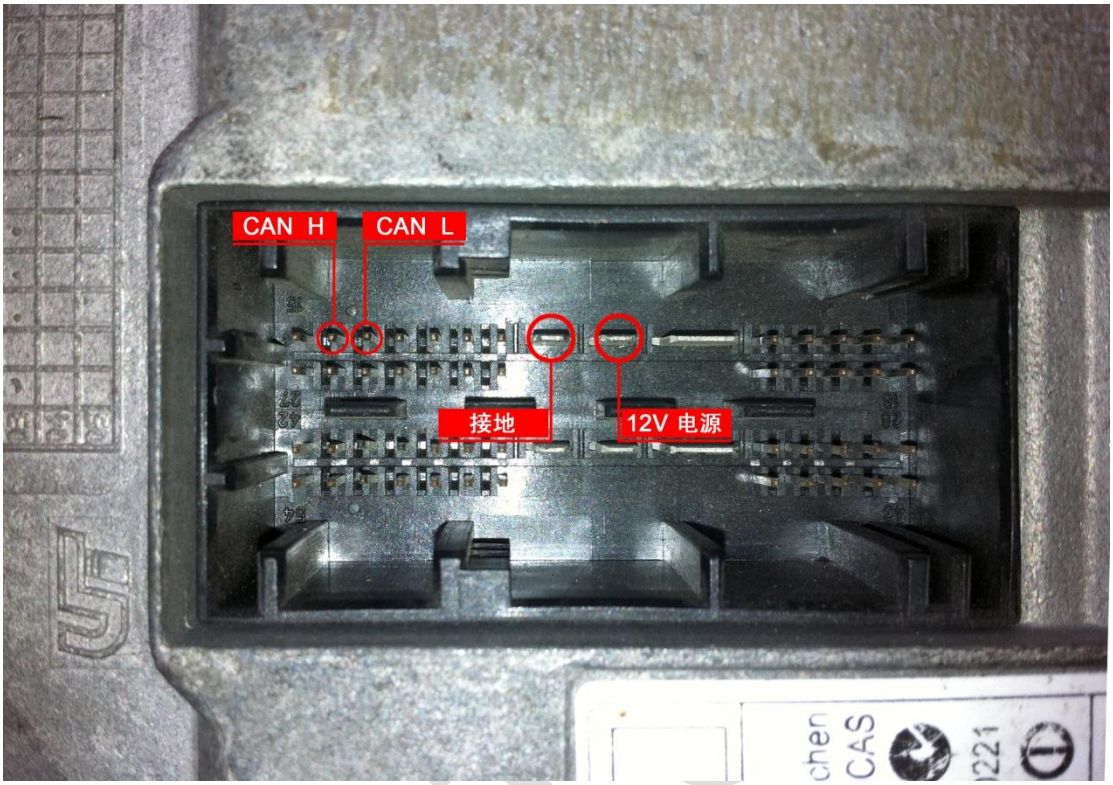
- **Connect marking definition in CAS to VVDI2 OBDII marking definition，provide 12V power**

- **VVDI2 OBD marking definition** (PICTURE 14.8)



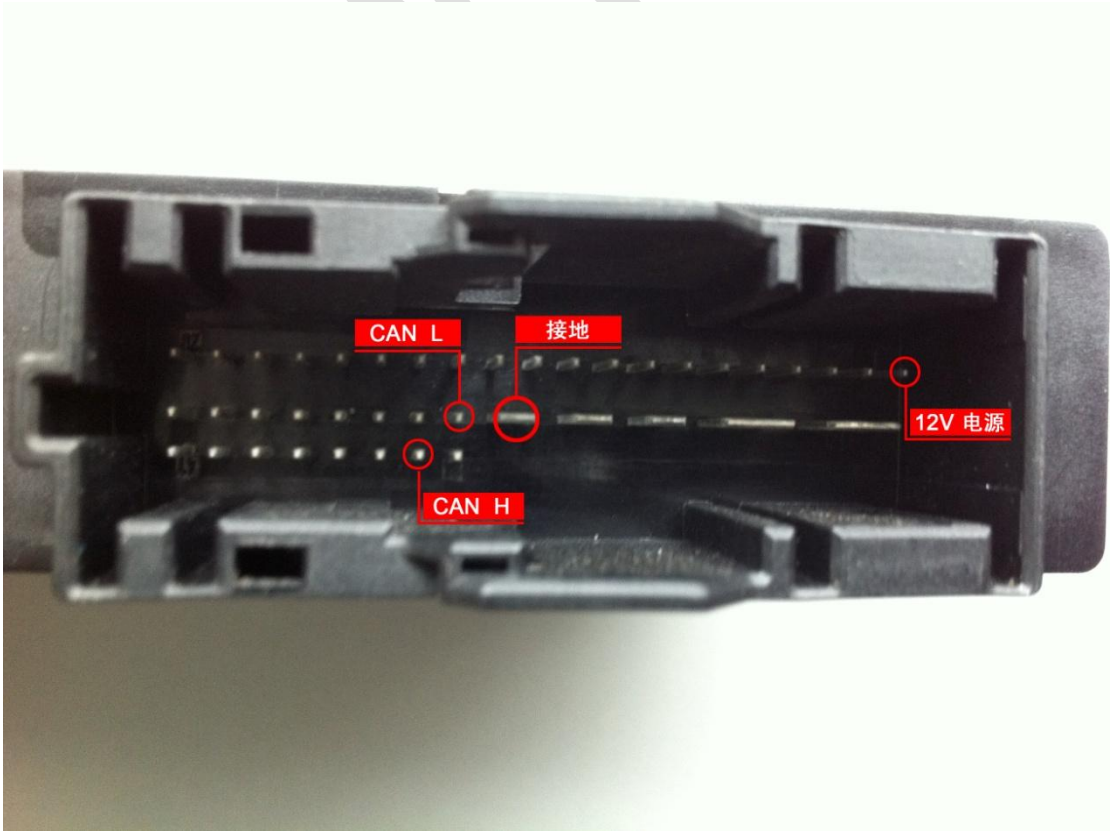
(PICTURE 14.8)

◆ CAS1/CAS2 **marking definition** (PICTURE 14.9)



(PICTURE 14.9)

◆ **White CAS2, CAS3, CAS3+ marking definition** (PICTURE 14.10)



(PICTURE 14.10)