VVDI - BMW User Manual

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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

	Car Type OBDII - KWP-	CAN bus 500Kbps	Fun	
Information	CAS identification	KM Repair		Connect
	CAS ID VIN	KM stored in CAS	Read KM	Read EEPROM
Key Learn	CAS type		Write KM	Reau EEPROM
BI	Prod. Date	- Synchronization Codes CAS code-DME:		Write EEPROM
DC Key Learn	MSV/FSV/OSV HW/Cod.Index	CAS code-EGS:	Read Code	Save to File
HIRN S	Diag.Index		Write Code	
nge ECU/CAS	Addr: 0000 Hex: 00 Dec Addr He		ii:	Load From File
CARDIX Gearbox	0000 00			Synch DME-CAS
				Synch CAS-ELV
ogram/Code				Clear DTC
xx/Gxx -				Clear Shadow



- 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

	Car Type OBDII - KWP-CAN	bus 100Kbps	- Func	Lutra tala
S Information	CAS identification CAS ID 6942489	- KM Repair		Connect
-	VIN WBACKERS	KM stored in CAS	Read KM	Read EEPROM
AS Key Learn	CAS type CAS1		Write KM	
(51)	Prod. Date 2003.11.05 MSV/FSV/OSV 0.A.D8 / 6.C.8 / 2.3.0	Synchronization Codes – CAS code-DME:		Write EEPROM
BDC Key Learn	HW/Cod.Index 03 / 03 Diag.Index 0310	CAS code-EGS:	Read Code	Save to File
ange ECU/CAS	Addr: 0000 Hex: 00 Dec: 0 Addr Hex	Bin: 00000000 Asci: Asc		Load From File
GEARBOX	0000 00			Synch DME-CAS
IP Gearbox				Synch CAS-ELV
Program/Code				Clear DTC
Fxx/Gxx				Clear Shadow

(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

BHW TOOL V1.4.7 tions Key Learn Spe				n Time: 26 day:	s S	N:BN012092	299				
	Car Type			P-CAN bus 1	l00Kbj	ps			•	Function	nect
CAS Information		pe:CAS1							1		
CAS ID:6942489 Key cutting code:HA00003186 CAS key Learn Get Key Info Save Key Info											
	Current key in ignition switch is:No Key									Prepare dealer ke	ey with programmer
FEM/BDC Key Learn											
ISN	Position Key 1	Key ID 80870815	Status Enable	Type PCF 7936 transpo	Info 002B00	Low 4B684E9C	High 59EC	CFG	PS' DC		
kchange ECU/CAS	Key 2	042E0E41		PCF 7942-7944 r			CA57		258	Ad	d Key
GEARBOX	Key 3	363C0E41	Enable	PCF 7942-7944 r	004B00	6B42B401	4343	C 8	3E/		
8HP Gearbox	Key 4	FFFFFFF	Disable	Unknown		EFF72174	C191 35D4	C8	599 742	Enable Key	Disable Key
	Key 5 Key 6	82E32918 FFFFFFFF	Enable	PCF 7936 transpo Not Use		2EAD56BE	35D4 9858		74, 4F4		Disable Key
No.	Key 7	FFFFFFF	Enable	Not Use	007608	E2D8B2D2	D2D0	C8	C3:		
xx Program/Code	Key 8	FFFFFFF	Enable	Not Use	007608	BEB728F9	FD5C	C8	1C		Repair Keyless K
	Key 9	FFFFFFF	Enable	Not Use		9DBD9271	0744	C8	A94		
Fxx/Gxx Program/Code	Key 10	FFFFFFF	Enable	Not Use	00/608	F7ADB834	BEOB	08	63(Edit Key Info	Write Key Info
											04

(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

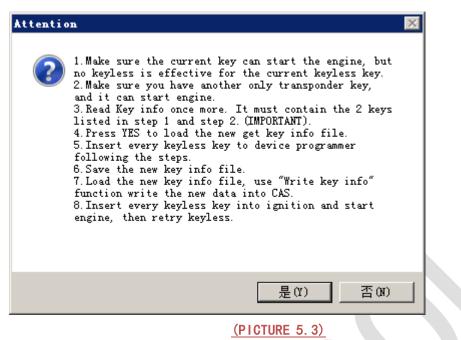
position, prepare dealer key with VVDI - BMW programmer

- 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

Program Key Inf	Eo							
Immobilizer		Remote control						
Immo ID	80B70815	Remote ID	1185					
Immo Low	4B684E9C	Remote Low	ED4CAD02					
Immo High	59EC	Remote High	BC24					
Immo config	CEDC47F8	Remote RND/FBD	84736562					
Immo status	002B00	Remote status	030001					
Current key is 1 key. Its type is service key.								
Program Key Info Exit								

(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



 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 !!!)

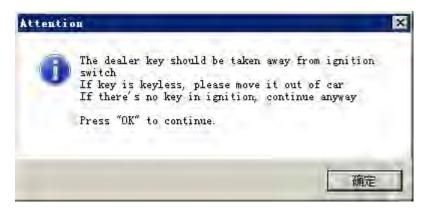
Under Get Key Info get window (PICTURE 5.5): For CAS3+ encrypt version, must select add key or lost all key. For other CAS version, this 2 method is same, they don't have lost all key mode, add key is always

Choose Method
Add Key: You should insert a working key into ignition and connect device with car before continue.
Lost All Key: You should insert a new key into ignition and connect device with car © before continue.(You need backup CAS EEPROM for CAS3 encrypt version and ISTA P4* verison. Please disconnect device with car if not backup yet)
NEXT

(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

tentio)n							~
0	CAS key for it.	data Once	is encr failed.	ypted, Pleas	suppor e conta	t make ct the	dealer k dealer!	ey
							-	
							确	定
					(PICTL	<u>IRE 5.</u>	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

Prepare dealer key with ignition switch	
Step 1: Select key type: PCF7936 transponder Remote key	
C Keyless key	
Step 2: Insert new key to programmer. Key need pre-process.	Pre-process new key
Step 3: Insert a new key(pre-processed by step 2) into ignition switch.	
Step 4: Press NEXT to continue	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

Attentio	n								8
?	Is the NO.	new k	ey have	keyless.	If have	press	YES,	else	
					是	(I)		否(N)	

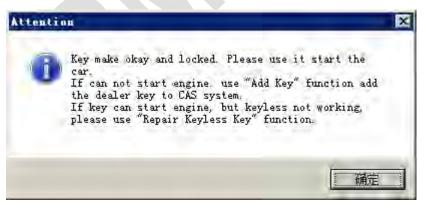
(PICTURE 5.9)

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



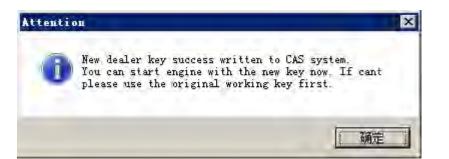
(PICTURE 5.11)

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

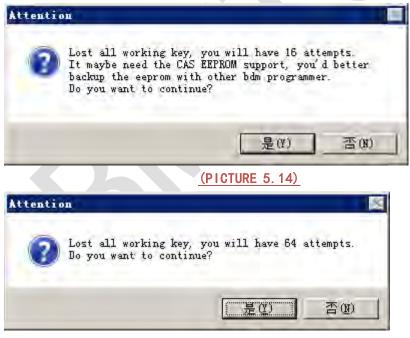


(PICTURE 5.13)

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

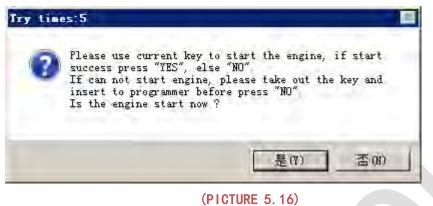
Attention: If you press "Yes" and get something like "Cannot find useful combine data, please check the EEPROM file", means the CAS lost some verify data, you need select File Make Key->Known ISN to make working key



(PICTURE 5.15)

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)

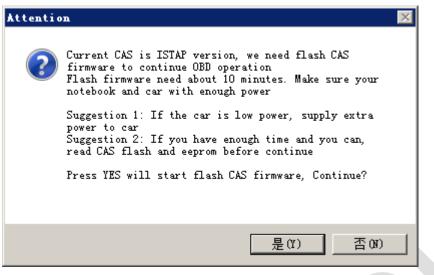


5.3. CAS3+ encrypt version (include ISTAP) make dealer key by OBDII

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

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(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 step7). 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
- 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 <u>(PICTURE 5. 1)</u>, 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

Attentio	n	×
	Prepare key success. Attention: Please don't take key off ignition. Keep engine start for 15 minutes Press OK->close key window->back to main window Sync DME and CAS with "Sync DME-CAS" at least 10 times 1. Once you get "Don't sync when you have working key", must continue the synchronization 2. Once sync failed, it's normal for the operation is finished 3. If you don't finish this steps, you key may can't start engine after you take key off ignition	
	(确定	

(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

ittentio	CAS eeprom maybe damage.	The made dealer key may	
0	can't start engine. Do you want to continue?		
		是(11) 否(01)	

(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

CAS3+ encrypt detected. Weed working key or DWE/DDE dump or ISW support						
Have a working key. Insert working key to programmer and continue						
O Have ECU dump file. Continue will load ECU dump file						
O Known ISN						
$igodoldsymbol{ imes}$ Use try start method to start engine, no need working key or engine dump file						
NEXT						

- (PICTURE 6.2)
- Under make dealer key for CAS4 encrypt version get (PICTURE 6.3):

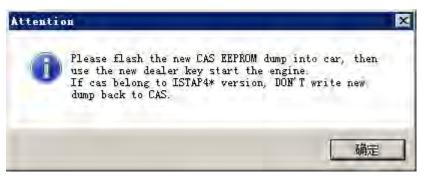


- Add key with working key select Have a working key.
- Lost all working key, there are 3 methods:
 - 1) Have ECU dump file, load ECU dump file to continue
 - 2) Known ISN, input 16 bytes ISN to continue

CAS3+ encrypt detected.	Need working key or DME/D)DE dump or ISH support
Have a working key. Inser	t working key to programmer and cont	tinue
C Have ECU dump file. Conti	inue will load ECU dump file	
C Known ISN		
C Use try start method to st	art engine, no need working key or en	igine dump file
		NEXT

(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/C AS2/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

	Car Type EEPROM - EWS3							•	Function		
	- Key Info	ormation		1						Load EEPRO	M dump file
CAS Information	C:\U			S3 54	4 EWS	.bin			_		
CAS Key Learn		KM: 0 km CAS remote control frequency:Unknown									
										Prepare dealer key	with programmer
M/BDC Key Learn									-		
ISN	Positio	n Key ID	Status	Туре	Info	Low	High	CFG	PS		
	Key 1	7286B014	Enable	PCF 7935 EML us	002E00	7BAD1BB8	60CD	08	0A:		
change ECU/CAS	Key 2	6B2C4C41	Enable	PCF 7935 EML us	004B00	10274C41	DE54	C8	6C/		
GEARBOX	Key 3	6D2C4C41	Enable	PCF 7935 EML us	004B00	D930A343	2A6A	C8	F2[
CERTIN	Key 4	0BD1CF97	Enable	PCF 7935 EML no	004B00	DBD9A24A	CAA5	C8	AA		
8HP Gearbox	Key 5	FFFFFFF	Enable	Not Use	007608	AAA85715	9523	08	A5(Enable Key	Disable Key
	Key 6	FFFFFFF	Enable	Not Use	007608	7D06E706	1E6F	08	AA'		
	Key 7	FFFFFFF	Enable	Not Use	007608	CE6020FC	5492	08	A9(
x Program/Code	Key 8	FFFFFFF	Enable	Not Use	007608	77278A8A	6863	08	A5I		
	Key 9	FFFFFFF	Enable	Not Use	007608	BFEEAB2D	8463	08	42(
	Key 1) FFFFFFFF	Enable	Not Use	007608	432EB206	A9F3	08	C3:		
Fxx/Gxx Program/Code									▶		

(PICTURE 6.5)

(PICTURE 6.6) is File Make Key window after load CAS2 EEPROM dump (CAS1, CAS3 is same). Key ID show "FFFFFFF" 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+

CAS Information	Car Type EEPROM - CAS2 (2K79X)									Load EEPRO	1 dump file	
CAS Key Learn	K		0 km tting cod	e:HA0		-					Prepare dealer key	with programmer
ISN	P	osition	Key ID	Status	Туре	Info	Low	High	CFG	PS		
	К	(ey 1	7286B014	Enable	PCF 7936 transpo	002E00	7BAD1BB8	60CD	08	0A:		
change ECU/CAS	к	(ey 2	6B2C4C41	Enable	PCF 7942-7944 r	004B00	10274C41	DE54	C8	6C/		
(CENDOLU	к	(ey 3	6D2C4C41	Enable	PCF 7942-7944 r	004B00	D930A343	2A6A	C8	F2[
GEARBOX	к	(ey 4	0BD1CF97	Enable	PCF 7945 remote	004B00	DBD9A24A	CAA5	C8	AA		
8HP Gearbox	к	(ey 5	FFFFFFF	Enable	Not Use	007608	AAA85715	9523	08	A5(Enable Key	Disable Key
	к	(ey 6	FFFFFFF	Enable	Not Use	007608	7D06E706	1E6F	08	AA'		L
	к	(ey 7	FFFFFFF	Enable	Not Use	007608	CE6020FC	5492	08	A9(
xx Program/Code	к	(ey 8	FFFFFFF	Enable	Not Use	007608	77278A8A	6863	08	A5I		
	к	(ey 9	FFFFFFF	Enable	Not Use	007608	BFEEAB2D	8463	08	42(
X	к	(ey 10	FFFFFFF	Enable	Not Use	007608	432EB206	A9F3	08	C3:		
Fxx/Gxx Program/Code										Þ		

(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.

🚟 BHW TOOL V1.4.7	Remaining S	Synchronization	Time: 26 day	s SN:BNO	1209299		
Options Key Learn Speci	al Function U	pdate Online					
CAS Information	- Key Information		018_120_01	0	r: 05 - 433 MHz 🔎	Get Ke	y Info
CAS Key Learn	CAFD Type	: 00000794_ : F020 FEM key in ignition : 275 KM	018_070_00	3		Programming FE	EM/BDC system
FEM/BDC Key Learn						Prepare dealer key	with ignition switch
ELSN B	Position	Key ID	Status	Туре	Info 🔺	Exchange FEM/BDC	Reset FEM to start
	Key 1	5C1F6835	Enable	-			
Exchange ECU/CAS	Key 2	C63D2136	Enable	-			
0770000	Key 3	FFFFFFF	Enable	-		Read ISN from	n original key
GEARBOX	Key 4	FFFFFFF	Enable	-			
8HP Gearbox	Key 5	FFFFFFF	Enable	-		Reset	t к м
	Key 6	FFFFFFF	Enable	-			
	Key 7	FFFFFFF	Enable	-			
Exx Program/Code	Key 8	FFFFFFF	Enable	-		Faabla Kay	Disphle Key
	Key 9	FFFFFFF	Enable	-		Enable Key	Disable Key
THE REAL PROPERTY AND A DECEMBER OF A DECEMBER OF A DECEMBER OF A DECEMBER OF	Key 10	FFFFFFF	Enable	-		Emergency switch	
Fxx/Gxx Program/Code	Key 11	FFFFFFF	Enable	-	•	ON	Erase Key
Reading data success. Atte	ntion: Prepare o	lealer key require p	programming FEN	1/BDC, enable ke	y and disable key no need	d programming FEM/BDC!	0%

- 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

	Type ECU - MSV80 - OBDII	E	Function
Information	Unit information	×	Read module information
Key Learn			Read ECU ISN
80			Diagram
DC Key Learn	The new data	Ľ	
EARBOX	I⊽ Update ISN	Copy Paste	Update module
Gearbox	I Update VIN		
ogram/Code	Function note: 1. Support read module information and ISN via OBDI 2. Support write VIN via OBDII, don't support write ISN via	a OBDII	

Function description:

- 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
- 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

AS Information	Car Information	Function				
AS Key Learn BBC Key Learn Re		Read gearbox status				
DC Key Learn Re Re Re CARDIN P Gearbox CREATOR CRE						
DC Key Learn Re Re Re Comparison Comp	eam	Backup Coding				
P Gearbox						
P Gearbox	Learn	Restore Coding				
P Gearbox	U/CAS					
		Diagram				
	/Code	Clear Gearbox ISN				
Reset add		Reset adaptation information				

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

	Car type E65-(E66.E67)/7er	Function
		Connect car
CAS Information	Car Information	
CAS Key Learn	VIN: WBAGMENSSER Decenter Type: left-hand drive Door number: Sedan Work type: REAR WHEEL Platform: E66 Produce date: 2003-11	Vehicle configuration(FA/Ff
EM/BDC Key Learn	Area: EUR Brand name: BMW PKW ECU type: M54	Gateway registered unit
	Address Name SGBD HW. Number Infor	R calculate unit
xchange ECU/CAS	40 CAS CAS 6942489 Car Access System	
CEARDOX 8HP Gearbox		Module information/DTCs
xx Program/Code		Unit coding
V		Unit programming
Fxx/Gxx Program/Code		

9.2. Vehicle configuration(FA/FP)

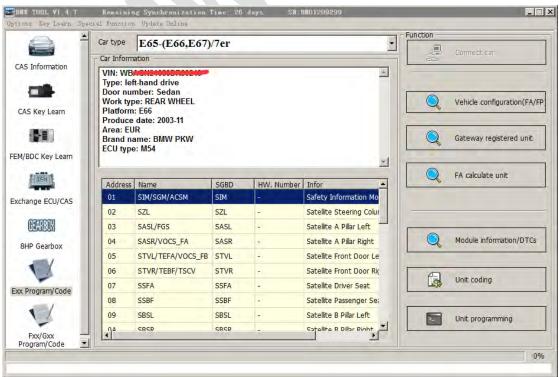
Support read module inside vehicle configuration information, and change vehicle configuration information for 2nd-hand module replacement.

202 Steptronik, Zeile wird fuer PPP's benoetigt 117 Standartenhalter rechts 216 Servotronik 118 Reduzierung Hoechstgeschwindigkeit 220 Niveauregulierung in Verbindung mit Luftfederung an I 131 Waffenhalterung fuer 3 Waffen 238 Alu-Guss Rad 245 144 RKA I Abnehmb. Tonf. Polizeisch. 245 Lenksaeulenverstellung elektrisch 167 Abgasnorm EU4 (fuer Dieselmotor) 261 Seitenairbags fuer Fondpassagiere 168 Abgasnorm EU2 302 Alarmanlage: DWA mit Innenraumschutz und Notstron 169 Abgasnorm EU3 316 aut. Heckklappe 170 VB einb. AEG 323 Soft Close Automatik mit Kindersicherung 172 Vorb. ethanolhaltiger Kraftstoff, Entfaellt It. PN 8445 403 Glas-Schiebe-Hebedach 179 Reizgassensoren 415 Sonnenschutzrollo Heckscheibe elektrisch 180 VB Dachantenne 423 Veloursmatten vorn und hinten 181 Montage Heckantenne 428 Warndreieck und Verbandstasche 182 Feuerloescher	Cur VO	Content		All VO	Content		
216 Servotronik 118 Reduzierung Hoechstgeschwindigkeit 220 Niveauregulierung in Verbindung mit Luftfederung an 131 Waffenhalterung fuer 3 Waffen 238 Alu-Guss Rad 245 144 RKA I Abnehmb. Tonf. Polizeisch. 245 Lenksaeulenverstellung elektrisch 167 Abgasnorm EU4 (fuer Dieselmotor) 261 Seitenairbags fuer Fondpassagiere 168 Abgasnorm EU2 302 Alarmanlage: DWA mit Innenraumschutz und Notstron 169 Abgasnorm EU3 316 aut. Heckklappe 170 VB einb. AEG 323 Soft Close Automatik mit Kindersicherung 172 Vorb. ethanolhaltiger Kraftstoff, Entfaellt It. PN 8445 403 Glas-Schiebe-Hebedach 179 Reizgassensoren 415 Sonnenschutzrollo Heckscheibe elektrisch 180 VB Dachantenne 428 Warndreieck und Verbandstasche 182 Feuerloescher 428 Warndreieck und Verbandstasche 182 Feuerloescher	116	Standartenhalter links		116	Standartenhalter links		
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238 Alu-Guss Rad 245 144 RKA I Abnehmb. Tonf. Polizeisch. 245 Lenksaeulenverstellung elektrisch 167 Abgasnorm EU4 (fuer Dieselmotor) 261 Seitenairbags fuer Fondpassagiere 168 Abgasnorm EU2 302 Alarmanlage: DWA mit Innenraumschutz und Notstron 169 Abgasnorm EU3 316 aut. Heckklappe 170 VB einb. AEG 323 Soft Close Automatik mit Kindersicherung 172 Vorb. ethanolhaltiger Kraftstoff, Entfaellt It. PN 8445 403 Glas-Schiebe-Hebedach 179 Reizgassensoren 415 Sonnenschutzrollo Heckscheibe elektrisch 180 VB Dachantenne 428 Warndreieck und Verbandstasche 181 Montage Heckantenne 428 Warndreieck und Verbandstasche 182 Feuerloescher	216	Servotronik		118	Reduzierung Hoechstgeschwindigkeit		
245 Lenksaeulenverstellung elektrisch Add <	220	Niveauregulierung in Verbindung mit Luftfederung an 📖		131	Waffenhalterung fuer 3 Waffen		
245 Lenksaeulenverstellung elektrisch 167 Abgasnorm EU4 (fuer Dieselmotor) 261 Seitenairbags fuer Fondpassagiere 168 Abgasnorm EU2 302 Alarmanlage: DWA mit Innenraumschutz und Notstron 169 Abgasnorm EU3 316 aut. Heckklappe 170 VB einb. AEG 323 Soft Close Automatik mit Kindersicherung 172 Vorb. ethanolhaltiger Kraftstoff, Entfaellt It. PN 8445 403 Glas-Schiebe-Hebedach 179 Reizgassensoren 415 Sonnenschutzrollo Heckscheibe elektrisch 180 VB Dachantenne 428 Warndreieck und Verbandstasche 181 Montage Heckantenne 428 Warndreieck und Verbandstasche 182 Feuerloescher	238			144	RKA I Abnehmb. Tonf. Polizeisch.		
302 Alarmanlage: DWA mit Innenraumschutz und Notstron 169 Abgasnorm EU3 316 aut. Heckklappe 170 VB einb. AEG 323 Soft Close Automatik mit Kindersicherung 172 Vorb. ethanolhaltiger Kraftstoff, Entfaellt lt. PN 8445 403 Glas-Schiebe-Hebedach 179 Reizgassensoren 415 Sonnenschutzrollo Heckscheibe elektrisch 180 VB Dachantenne 423 Veloursmatten vorn und hinten 181 Montage Heckantenne 428 Warndreieck und Verbandstasche 182 Feuerloescher	245	Lenksaeulenverstellung elektrisch	Add <<	167	Abgasnorm EU4 (fuer Dieselmotor)		
316 aut. Heckklappe 323 Soft Close Automatik mit Kindersicherung 403 Glas-Schiebe-Hebedach 415 Sonnenschutzrollo Heckscheibe elektrisch 423 Veloursmatten vorn und hinten 428 Warndreieck und Verbandstasche	261	Seitenairbags fuer Fondpassagiere		168	Abgasnorm EU2		
323 Soft Close Automatik mit Kindersicherung Delete >> 172 Vorb. ethanolhaltiger Kraftstoff, Entfaellt It. PN 8445 403 Glas-Schiebe-Hebedach 179 Reizgassensoren 415 Sonnenschutzrollo Heckscheibe elektrisch 180 VB Dachantenne 423 Veloursmatten vorn und hinten 181 Montage Heckantenne 428 Warndreieck und Verbandstasche Image: Heuerloescher Image: Heuerloescher	302	Alarmanlage: DWA mit Innenraumschutz und Notstron		169	Abgasnorm EU3		
323 Soft Close Automatik mit Kindersicherung 172 Vorb. ethanolhaltiger Kraftstoff, Entfaellt It. PN 8445 403 Glas-Schiebe-Hebedach 179 Reizgassensoren 415 Sonnenschutzrollo Heckscheibe elektrisch 180 VB Dachantenne 423 Veloursmatten vorn und hinten 181 Montage Heckantenne 428 Warndreieck und Verbandstasche 182 Feuerloescher	316	aut. Heckklappe		170	VB einb. AEG		
415 Sonnenschutzrollo Heckscheibe elektrisch 180 VB Dachantenne 423 Veloursmatten vorn und hinten 181 Montage Heckantenne 428 Warndreieck und Verbandstasche Image: Sonnenschutzen vorn und hinten 182 Feuerloescher Image: Sonnenschutzen vorn und hinten Image: Sonnenschutzen vorn und hinten	323		elete >>	172	Vorb. ethanolhaltiger Kraftstoff, Entfaellt lt. PN 8445		
423 Veloursmatten vorn und hinten 428 Warndreieck und Verbandstasche	403	Glas-Schiebe-Hebedach		179	Reizgassensoren		
428 Warndreieck und Verbandstasche 182 Feuerloescher	415	Sonnenschutzrollo Heckscheibe elektrisch		180	VB Dachantenne		
	423	Veloursmatten vorn und hinten		181	Montage Heckantenne		
	428	Warndreieck und Verbandstasche			Feuerloescher		
Function							
	Function -						

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

E65: WBAGN21080DR90248 Module informatio	n/DTCs	×	
TOPS: TRACHIZIOBODBB90248 Bodule informatic Type BODY BMW part number: 6942489 Coding index: 3 Variant index: 16712 Diagnostic index: 784 Hardware number 03 Software number operating system: 2.3 Software number operating system: Software number (reserve) currently not us Date of manufacture: 05.11.2003 Supplier: Siemens Vehicle identification nr.: DR90248 Assembly no.: 6942489 Programming date: 15.11.2019 Address of UIF: 0012 Number of free UIF: 1 Number of data UIF:18	2.8 :0 0.216	Function Read unit information DTC Language Read DTCs Clear DTCs	
	<u>v</u>		

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.

E65: WBA	x
Unit CAS CAS CAS.C03	Function
Car Information	Show all version
CAS.C03 Coding	Read coding
 B → Transponder B → Terminal control B → Central locking master B → Power windows master 	Save coding file
 ⊕ C Remote control ⊕ C Comfort access ⊕ C Transponder 	
⊕-	Load coding file
	Write coding
	Write default coding
Completed.	100%

9.6. Unit programming

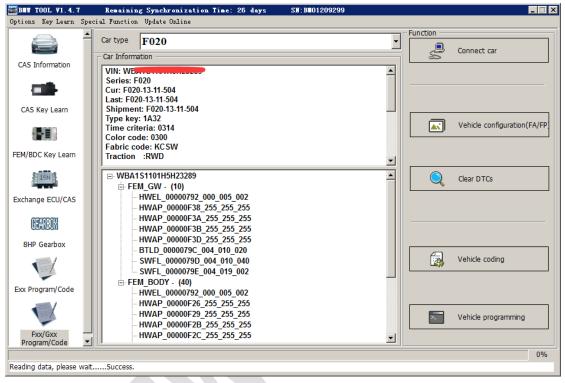
From current unit inside HW number and ZB number, query the support programming file and performance programming function.

E65: TBAGF :: Country to Yrogramming	×	
Unit 40 - CAS	ZB Number 6942489	
Car Information □- WBAGN21080DR90248 □- E65 □- CASZAS □- ZB=6942489 (HW=6942489)	HW Number 6942489 Programming	
	HW Number 6942489 Search	
	100%	

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.

	1. config information (FA	/IP)		×
SaLapA E	-Word HO-Word			
Cur VO	Content		All VO	Content 🔺
1CA	1CA_SELECTION_COP_RELEVANT		161	161_EU5_EXHAUST_EMISSIONS_NORM
205	205_AUTOMATIC		163	163_EU6_EXHAUST_EMISSIONS_NORM
249	249_MULTIFUNCTION_FOR_STEERING_WHEEL		164	Unknown
255	255_SPORTS_STEERING_WHEEL		169	169_EU3_EMISSIONS_STANDARD
258	258_RUNFLAT_TYRES		1A1	1A1_EQUIPMENT_FOR_COKING_FUELS
2DT	2DT_LT_ALY_WHEELS_STAR_SPOKE_379	Add <<	1AE	1AE_ACTIVE_FLEX_ETHANOL_E100
3BE	3BE_MIRROR_CAPS_BLACK		1AF	1AF_EXTENDED_FUEL_FILLER_PIPE
403	403_GLASS_ROOF_ELECTR		1AK	1AK_EXTERNAL_FUEL_FILTER
423	423_FLOOR_MATS_VELOUR	Delete >>	1CA	1CA_SELECTION_COP_RELEVANT
430	430_INTER_EXTER_MIRROR_ANTI_DAZZLE	Delete	1CB	1CB_ACEA_CO2
431	431_INTERIOR_REAR_VIEW_MIRROR_ANTI_DAZZLE		1DC	Unknown
459	459_SEAT_ADJUSTM_ELECTR_MEMORY_DRIVER_FR/		1DE	1DE_RDE_EXHAUST_EMISSIONS_NORM
481	481_SPORT_SEATS_DRIVER_FRONT_PASSENGER		1DF	Unknown
4AD	4AD_INTERIOR_ALUM_LENGTHWISE_FINE		1MA	Unknown
•			•	▶
Function				
	ead vehicle Load vehicle			vehicle Write vehicle
confi	iguration(FA) configuration(FA)		configu	ration(FA) configuration(FA)

10.3. Read/Clear DTCs

Support read and clear DTCs, for vehicle maintenance

F020: TB	M151	Cs View			×
Unit Na	DTC Nu	Content	Fun	ction	
10	00CD0487	ZGM: Synchronisation process for FlexRay failed	D	TC Language	English -
	00CD1410	Message (system time, 0x328) missing, receiver ZGM2, transmitter KOMBI			
	00801C20	ZGM: central fault memory full - no control-unit fault			
40	0003000E	Power window, driver's door: line disconnection	1		Read DTCs
	0003000F	Power window, driver's door: line disconnection			Read Dires
	00030020	Power window, driver's door: system is not standardised.			
	0003008E	Power window, passenger's door: Hall sensor, open circuit or short circuit to			Clear DTCs
	0003008F	Power window, passenger's door: Hall sensor, open circuit or short circuit to			
	000300A0	Front passenger door power window regulator: system not normalised.		Clo	se transport mode
	00030350	Steering column switch cluster (SZL): No LIN-slave	ΙL		
	00030352	Steering column switch cluster (SZL): message ST_SZL_LIN not current			
	00030410	K-LIN_11 MFL: No LIN-slave		Re	eset FEM to start
		Multifunction steering wheel (MFL): Missing LIN slave			
	00030490	K-LIN_11 LRE: No LIN-slave			
		Steering wheel electronics module (LRE): Missing LIN slave			
	00804014	No supply voltage to Terminal 30L2			
	00804020	Encoding: Fault occurred during encoding process			
	00804024	Encoding: Control unit is not encoded.			
	00004007	START STOR button hall offect concer Billing disconnection or chart circuit t			
Reading DTC	sSuccess.	Total DTCs: 92			

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

nit 40 - FEM_BODY 00000794_018_070_003 Car Information	Function Read coding
	includ county
□	
3000 - EcuHwConfiguration	Save coding file
🗄 🧰 3001 - EnergyManager	Save coding file
🕀 🫅 3002 - DemDtcInhibition	
🗄 🗀 3003 - ComAdapterNetworkDtc	
⊕ 🕒 3004 - Bflmux	
⊕ 💼 3020 - TcMaster	Load coding file
⊕ 🛅 3021 - TcMaster30f	Load coding file
🗄 🦳 3022 - TcIntegration	
⊕ 🛅 3023 - TcMaster2	
🗄 🧰 3030 - CaMaster	Calculate default coding file
🗄 🦲 3031 - Calntegration	
3032 - CaIntegrationKeyLocation	
⊕ 🗀 3040 - CIMaster	uu ta sa ka s
3041 - Clintegration	Write coding
3050 - PwClient	
⊕ 3052 - PwDriverBlock1	
	Special funciton
3054 - PwAppIIntegration	special function
	100%
d coding success.	

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

^{tt} 40 - FEM_BODY 00	000794_018_070_003	Read coding
r Information		
ICM_STARTLOCK_BRAKE	+	Save coding file
ICM_LOGIC_R_OFF_DOOR	-	Save coung nic
ICM_MSA_DEFAULT_OFF	• ·	
ICM_MSA_MEMORY	-	
FH_TUERAUF_STOP_MAUT	+	
KOMFORT_SCHLIESSEN	15	Load coding file
BLINKZYKLEN_ANZAHL_TIPP	00	
ESS_AKTIVIERBARER_AUSGANG	bremslicht_blinkend	
WB_GB_ENABLE	+	
MAPPING_ABBIEGEL_L_OUTPUT	off	Calculate default coding file
MAPPING_ABBIEGEL_R_OUTPUT	off	
MAPPING_NEBELSCHW_L_PART_OF_WL	not_active	
MAPPING_NEBELSCHW_R_PART_OF_WL	not_active	Write coding
KL_ENABLE_LI	KL_Aus	
KL_ENABLE_RE	KL_Aus	
AMBIENTE_HELLIGKEIT	100	
B_EINSCHALT_BEGR_ULOK	20	
B_EINSCHALT_BEGR_LOK	08	Special funciton
OVT_BEI_RUECKFAHRLICHT	-	
	F000 F 11	

10.5. Vehicle programming

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

: Willing Programming	
Information	Function
	Program all units
□ □ FEM_GW - (10)	Search all database(Require 10-15minutes)
	j bear an autobase (require 16 Ishimates)
HWAP_00000F38_255_255_255	Force programming(Only for test)
HWAP_00000F3B_255_255_255	
	Calculate programming file
BTLD_0000079C_004_010_020	
SWFL_0000079D_004_010_040	
SWFL_0000079E_004_019_002	
HWEL_00000792_000_005_002	
HWAP_00000F26_255_255_255	
HWAP_00000F29_255_255_255	Programming
HWAP_00000F2B_255_255_255	
HWAP_00000F2C_255_255_255	
HWAP_00000F2D_255_255_255	
HWAP_00000F2E_255_255_255	
HWAP_00000F30_255_255_255	
HWAP_00000F32_255_255_255	
HWAP_00001263_255_255_255	
CAFD_00000794_018_070_003	
BTLD_00001556_003_102_030	
SWFL_0000155E_018_120_010	
SWFL 0000155F 000 003 029	
	1009

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

ISTAP Version OBDII repair		
• Use the known CAS ID to repair. You can got this with "Connect"	CAS ID	
$\rm C$ Use the CAS EEPROM to repair, press continue to load the EEPROM dump.		
[Continue	Cancel

(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

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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)

vpe CAS3+(0L1	5Y, 0M23S)		×
M Repair Old KM in file:	4803	Change KM	
Input new KM:			

(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
- 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
- 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

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14. CAS PLUG

14.1. CAS PLUG Overview

CAS PLUS (<u>PICTURE 14.1</u>) 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



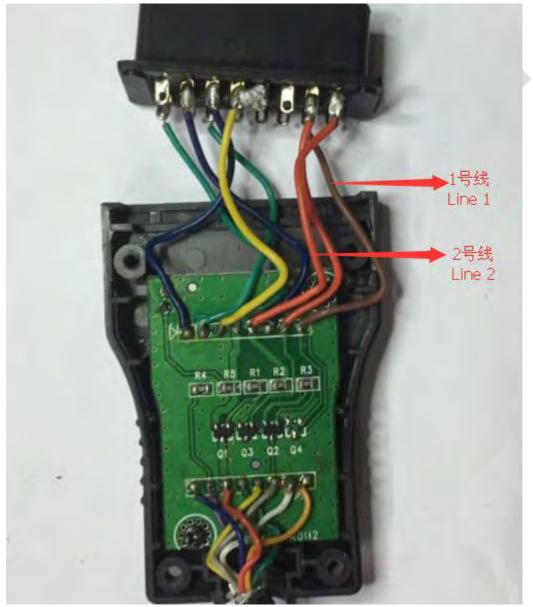
(PICTURE 14.1)



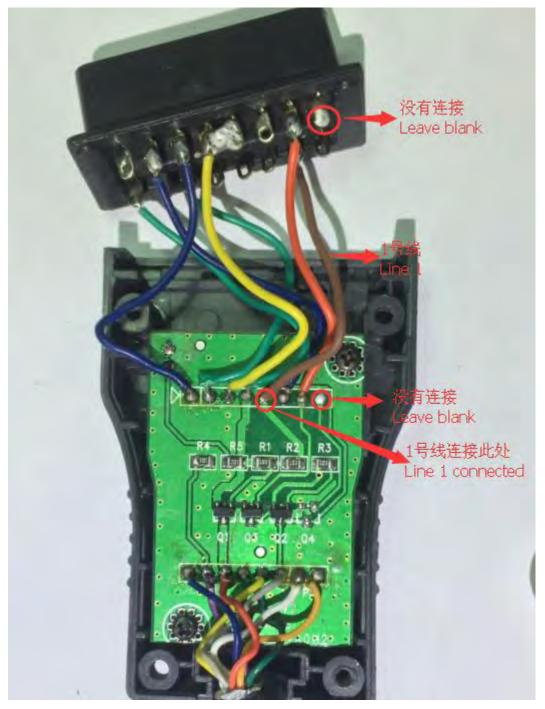
14.2. Make old CAS PLUG work on VVDI2

Old CAS PLUG can't use directly in VVDI2. You need open OBD head in CAS PLUG (Unscrew four screws), follow (<u>PICTURE 14. 2</u>) (<u>PICTURE 14. 3</u>)

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



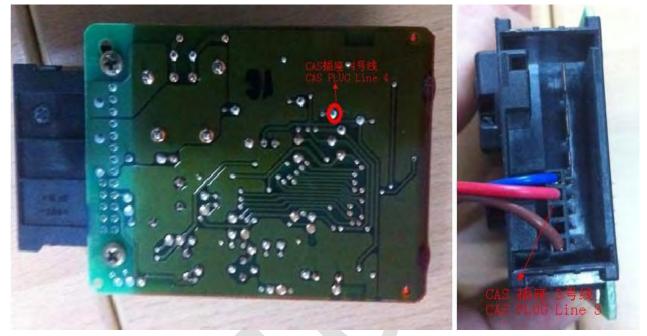
(PICTURE 14. 2) old CAS PLUG



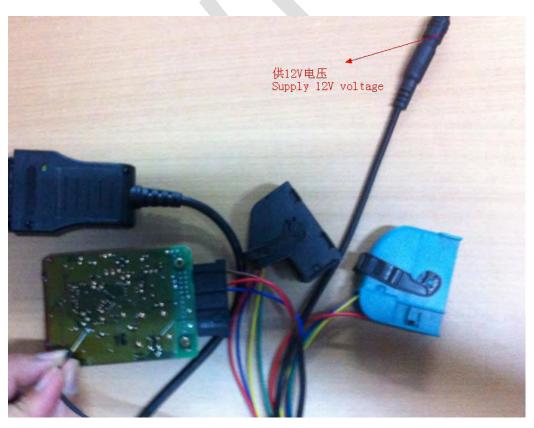
(PICTURE 14. 3) CAS PLUG works on VVDI2 (modified)

14.3. CAS PLUG connect to EWS/CAS

• CAS PLUG connect to EWS (<u>PICTURE 14. 4</u>) and (<u>PICTURE 14. 5</u>)

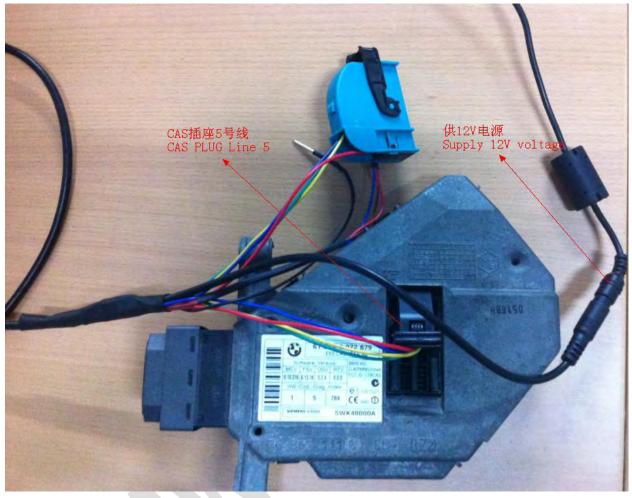


(PICTURE 14.4)



(PICTURE 14.5)

• CAS PLUG connect to CAS1/CAS2 (PICTURE 14. 6)



(PICTURE 14. 6)

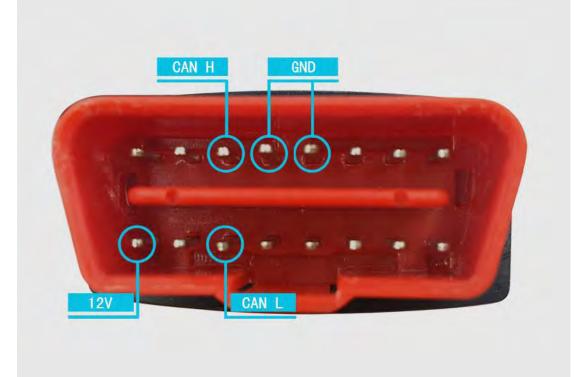


• CAS PLUG connect to CAS3/CAS3+ (PICTURE 14.7)

(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)

