

ABRITES DIAGNOSTICS FOR FORD/MAZDA





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The Abrites software and hardware products are developed, designed and manufactured by Abrites Ltd. During the production process we comply to all safety and quality regulations and standards, aiming at highest production quality. The Abrites hardware and software products are designed to build a coherent ecosystem, which effectively solves a wide range of vehicle-related tasks, such as:

- Diagnostic scanning;
- Key programming;
- Module replacement,
- ECU programming;
- Configuration and coding.

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The Abrites products are to be used by trained and experienced users in diagnostics and reprogramming of vehicles and equipment. The user is assumed to have a good understanding of vehicle electronic systems, as well as potential hazards while working around vehicles. There are numerous safety situations that cannot be foreseen, thus we recommend that the user read and follow all safety messages in the available manual, on all equipment they use, including vehicle manuals, as well as internal shop documents and operating procedures.

Some important points:

Block all wheels of the vehicle when testing. Be cautious when working around electricity.

- Do not ignore the risk of shock from vehicle and building-level voltages.
- Do not smoke, or allow sparks/flame near any part of the vehicle fuel system or batteries.
- Always work in an adequately ventilated area, vehicle exhaust fumes should be directed towards the exit of the shop.
- Do not use this product where fuel, fuel vapours, or other combustibles could ignite.

In case any technical difficulties occur, please contact the **Abrites Support Team by email at <u>support@abrites.com</u>.**

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List of revisions

Date	Chapter	Description	Revision
24.06.2009		Initial version of the document	1.0
01.10.2015	ALL	Revised, updated, renewed	3.2
19.06.2017	ALL	Revised, updated, renewed	3.3
16.08.2017	ALL	Revised, updated, renewed	3.4
29.09.2017	ALL	Revised, updated, renewed	3.5
13.05.2020	13	Best Practices section added	3.6
13.05.2020	8.4.1	Key learning for Mazda CX- 30/Mazda 3 2019+	3.7

Overview

ABRITES diagnostics for Ford/Mazda is a professional software for diagnostic of Ford/Mazda vehicles.

Standard diagnostic functions:

- Read Vehicle Identification
- Read Fault Codes (DTC)
- Clear Fault Codes
- Device Scan
- Data Display / Measured values
- Diesel Engine Injectors Programming
- Programmable Module Installation
- Service Functions

Special functions:

- Read/Write EEPROM
- Mileage Recalibration
- Key Learning
- Advanced functions:
- Custom Request
- Dump Tool

Supported protocols:

- High Speed CAN 500kb, 6-14
- Mid Speed CAN 125kb, 3-11
- K line 7
- J1850 PWM 2-10 (requires additional adapter)

Note: Depending on the purchased version some of these functions may not be available in your software

1. Getting Started

When you run ABRITES diagnostics for Ford/Mazda it will try to automatically detect the appropriate hardware interface and will connect with it. If the connection failed a message box with the explanation of the problem will appear.

AB	RITES Co	ommander fo	r Ford / Mazd	a 4.9		www.abrit	us/2.com				
ŧ	All Un	its				Proto	col VII	1	DTC	<u>-</u>	
0	(BTCM)	Battery	Control M	odule		CAN					
0	(ESOF)	4WD Elec	ctronic Sh	ift on th	e Fly	CAN					
0	(DSP)	(Audio) I	Digital Si	gnal Proc	essing Mo.	CAN					
0	(FACP)	Front Au	udio Contr	ol Pannel		CAN					Previou
0	(CM) C	ompass/Mi	irror Modu	le		CAN					
0	(SOBDM	l) Seconda	ary OBD Co	ntrol Mod	ule A	CAN					
7	(FCM)	Fuel Cell	L Control	Module		CAN					
8	(CTCM)	Coolant	Temperatu	re Contro	l Module	CAN					5
В	(FACM)	Fuel Add	ditive Con	trol Modu	le	CAN					
С	(BECM)	Battery	Energy Co	ntrol Mod	ule	CAN					Open
D	(PMM)	Powertrai	in Control	Monitor	Module	CAN					
E	(SGM)	Starter/0	Generator	Control M	odule	CAN					
F	(AHCM)	Auxilia	ry Heater	Control M	odule	CAN					
F	(FFH)	Fuel Fire	ed Coolant	Heating	Module	K-Lir	le				
0	(PCM)	Powertrai	in Control	Module		CAN					×.
0	(PCM)	Powertrai	in Control	Module		K-Lir	ie 🛛				Next
1	(SPCM)	Seconda:	y Powertr	ain Contr	ol Module	CAN					
5	(CCM)	Cruise Co	ontrol Mod	ule		CAN					
<u>^</u>	(2.500)	-1.	·	a i 1 M							
2	Vehicle Sele	ection	👔 Special	Functions	🔅 Option:	s			_		
5	8885				<u></u>			<u> </u>	G		3
		(Bildin	-000tr		<u>اللا</u> مح	200	Construction of the local division of the lo				\$\$=
	fileage alibration	EEPROM	Flash	Service Functions	Key Learning	OutIncode Calculator	Remote Kevless Entrv	Car Audio	Open		Options
neu	anoration			runctions		Calculatur	Reviess Entry				
	لا على ال	(²⁵ 4)		i Ca	•	0360	03993	- / 🗌			
	العنيك	الم الم	S a \$ =	N % =	~	160	160				
lr	njectors	VID	Live Data	Powertrain	Airbag	Snapshots	PMI	Speed Limiter 🚽			Exit

2. Vehicle Context

By default, when ABRITES diagnostics for Ford/Mazda is started in the main list all available electronic control units are displayed. You can reduce the number of displayed units by specifying the vehicle context. To change the vehicle context select a desired model.



3. Scanning for ECUs

The device scanning function is helpful when you want to perform a quick DTC check of all available device units in a vehicle. When you click on the "Scan all" button on the main screen, a progress window will appear. The behavior of the scanning can be changed by the "Device Scanning" option in the "Options" tab.

A AE	RITES Commander for Ford / Mazda 4.9	www.abritus72.co			<u>_ × ×</u>
#	Scanned Units	Protocol	VIN	DTC	
					Previous
-	Please Wait		×		6
-	K7 Searching				Open
	0x58(RCM) Restraints Co	ontrol Module			
_					Next
	Vehicle Selection		X Cancel		
	rrent context				
	< Scan Result >	\mathcal{P}	A 1		
	Ford Models	Scan for Units	Clear all DTCs Filt	er	Options
	<select ford="" model="">></select>				
					Exit

4. Options

The Abrites diagnostics for Ford/Mazda is a diagnostic software application, used together with AVDI (Abrites Vehicle Diangnostics Interface), that allows the user to perform standard and advanced diagnostics for Ford and Mazda vehicles.

Standard diagnostics include functions such as reading, identification and clearing of diagnostic trouble codes, module identification, extended module identification, service interval reset, actuator tests and many others.

The above described functions are standard features of the Abrites diagnostics for Ford/Mazda. They allow the user to determine the cause of an issue as well as provide assistance in repairing problems with the vehicles.

The advanced diagnostic functionality of the Abrites diagnostics for Ford/Mazda allows the user to perform key learning, module exchange and cluster calibration using new and used parts in a quick and comprehensible manner. The list of supported models is constantly being updated and currently includes almost every model.

The software is quick, easy and agile, and by being such it manages to exceed the user's expectations and provide a diagnostic level higher than the main dealer tools every time.

Diagnostic

5. ECU identification

With this function hardware and software variant, calibration level can be seen. This information is useful when an used ECU is needed to replace damaged original part.

60 (IPC) Instrume	nt Panel Control Module			
		ECU identification		
	ntification Prefi	x	4M5T	
Part Number Idea	ntification Base		10849	
	ntification Suffi	x	GM (OCOB)	
Vehicle ID (VIN)			WF0WXXGCDW5B11026	
Module Serial Nu			0020100885	<u> </u>
Software Version			v.0 06/09/2004	
FNOS CAN Driver	Version Number		01.07.01	
FNOS OSEK NM Ve:	rsion Number		03.39.03	
FNOS NM Junior V	Version Number		01.11.00	
	n Layer Version N		03.24.03	
FNOS Network In:	itialization Vers	ion Number	01.12.00	
FNOS Transport 1	Layer Version Num	02.34.02		
FNOS Diagnostic:	s Version Number	01.25.00		
FNOS Generation	Tool Version Num	03.75.29		
	Version Number		01.02.00	
	se Version Number		04.07.16	
ECU Hardware Par	rt Number		4M5F-14B115-BB	
	ftware Part Numbe		4M51-14C026-BA	
	Software Part Nu		4M51-14C088-CA	
Module Programm:	ing & Configurati	on Design Specification	v.2001.1	
				~
Identification	Data Display	Security Access		Clear log
Read DTCs	Custom Request	ECU Reset		Write log
				~
Clear DTCs	РМІ			X
				Close

6. Read / Clear DTC

💐 60 (IPC) Instrumer	t Panel Control Module					<u>_ 🗆 🗙</u>
9 CMDTCs found! U1900 "CAN Commu No Additic DTC Presen	nication Bus Fau onal Fault Sympton at at Time of Req or this DTC .ete	lt - Receive Erro m Available for t	r"	Status:	60	*
No Additic DTC Presen	or Position Sens onal Fault Sympton It at Time of Req or this DTC .ete	m Available for t	his DTC	Status:	60	
No Additic DTC Presen	der Circuit Open" onal Fault Sympton at at Time of Req or this DTC .ete		this DTC	Status:	60	
B1681 "PATS Tran	sceiver Module S	ignal Is Not Rece	ived"	Status:	60	•
Identification	Data Display	Security Access				Clear log
Read DTCs	Custom Request	ECU Reset				Write log
Clear DTCs	РМІ					Close

7. Live Data

Live Data		
🕌 ECU 🔐 List 🧖 Graph		
Parameter	Value	Units
Number of Trouble Codes Set due to Diag	0	DTC(s)
Electronic Throttle Control (ETC) Throt	-27.0029	
Desired RPM for Idle Speed Control (Hig	900.0	
Engine Oil Temp	20.00	
Vehicle Speed - High Resolution	0.000	
Sensor supply voltage	4.95	Volts
]
]
R		
Stop New Graph Close Graph		Close

8. Special Functions

ABRITES diagnostics for Ford/Mazda provide some diagnostic functions, which are specific only to our product or they are not supported by the other similar diagnostic tools. These functions are separated in the Special Functions list.

The list is located in the bottom right corner of the main screen. You can run a special function by double clicking on it or by selecting it and clicking on the button Open in the right of the list.



8.1 Memory Read / Write

19 14 00	06 FF	68	FF					05	01	0A	68	ਜ਼ਾਜ਼ਾ	10110					
14 00	FF			11)h>.		Read EEPROM
00				00												h		fra.
																pn.f	- 11	5
																.p.~p	- 11	Write EEPBOM
																		WITE EEPHUM
																		~
				_		_					_		_	_	_			Load from File
								_							_			
									_			_						
																		Save to File
02	FF	FF	FF	F'/	FF	FF	FF	06	2A	FF	FF	06	2A	FF	FF	**		
02	FA	FF	FF	02	FA	FF	FF	19	FF	FF	FF	C0	C0	11	42	В		
10	1в	04	07	04	00	00	E9	04	00	00	00	23	FB	80	00	#		
00	0E	28	28	28	09	66	01	00	FF	FF	08	DA	00	9C	C0	(((.f		
07	00	DA	00	07	00	FF	00	08	00	C 8	00	10	00	C 8	00			
11	00	BE	00	19	00	AC	00	23	00	9A	00	2F	00	83	00	#/		
3E	00	6C	00	4F	00	55	00	66	00	3E	00	87	00	27	00	>.1.0.U.f.>'.		
9E	00	1в	00	в9	00	10	00	С3	00	00	00	DA	00	00	00			
01	01	00	30	00	30	00	30	00	30	0E	28	00	30	00	30	0.0.0.0.(.0.0		
00	30	00	78	11	08	04	02	01	08	08	0B	11	01	01	01	.0.x		
	01 00 BE 03 0F 02 02 02 00 00 07 11 3E 9E 11 01	01 FF 00 00 BE 00 03 FF 0F A0 FF FF 02 FA 10 1B 00 0E 01 00 3E 00 9E 00 11 08 01 01	01 FF FF 00 00 C8 BE 00 05 03 FF FF 04 FF FF FF 02 FF FF FF 02 FF FF 02 FA FF 10 1B 04 00 0E 28 07 00 DA 11 00 BE 32 00 6C 92 00 1B 11 08 04 10 80 40 11 08 04 11 08 04	01 FF FF FF 00 00 00 00 00 01 00 00 55 55 03 FF FF FF FF 07 00 02 70 10 18 04 02 70 10 18 04 02 10 18 04 02 10 10 00 00 02 28 28 07 00 02 20 03 00 03 00 03 00 03 00 03 00 03 00 03 00 03 00 02 00 03 04 02 11 00 00 03 04 02 11 03 04 02 10 00 03 04 02 11 03 04 02 11 03 03 11 03 03 10 10 03 10	01 FF FF FF 10 00 00 00 00 00 00 00 00 00 00 01 00 00 70 1F 0F AO 02 70 1F 0F FF FF FF FF 02 FA FF FF FF 01 10 00 70 14 00 02 28 28 28 07 00 DA 00 70 00 02 28 28 28 07 00 DA 00 10 10 08 00 19 32 32 00 6C 00 4F 92 00 18 00 20 11 08 04 02 01	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	FF 01 FF FF FF 01 FF FF F10 FF FF FF FF FF FF FF FF FF 01 FF FF F10 FF FF FF F10 0 84 65 FF FF 02 00 C8 00 00 00 00 80 10 00 00 84 66 00 02 EA 03 00 C7 01 F40 04 75 46 50 09 83 5D C0 00 00 46 03 FF FF 03 FF 04 77 D1 F40 04 75 46 50 09 83 5D C0 00 68 00 05 74 FF FF 03 75 FF FF FF FF FF FF FF FF 07 A0 02 7D 1F 40 04 75 46 50 09 83 5D C0 00 80 00 07 A0 02 7D 1F 40 04 75 46 50 09 83 5D C0 00 80 00 07 A0 02 7D 1F 40 04 75 46 50 09 83 5D C0 00 80 00 07 FF 02 FA FF FF FF FF FF FF FF FF FF 02 FA FF FF 02 FA FF FF 19 FF FF FF 00 2A FF FF FF 00 00 C2 82 82 80 96 60 10 00 FF FF 80 BA 00 9C C0(((.f. 00 00 00 28 28 80 96 60 10 00 FF F0 80 BA 00 9C C0(((.f. 00 00 00 10 00 AC 00 23 00 9A 00 22 F0 08 30 0	01 FF FF FF 10 FF FF 01 F4 FF F0 3 E8 FF FF										

8.2 Key Learning

Go to the Special Functions screen. Select Key Learning.

#	All Un	its				Protoc	col VII	N	D	rc ∸	
00	(BTCM)	Battery	Control 1	Module		CAN					
00	(ESOF)	Electron	ic Shift	On the Fly	7	CAN					
00	(DSP)	Audic Dig	ital Sig	nal Process	sing Modul	e CAN					
00	(FACP)	Front Au	dio Cont	rol Pannel		CAN					Previo
00	(CM) C	ompass Mo	dule			CAN					
00	(SOBDM	l) Seconda	ry OBD C	ontrol Modu	le	CAN					
07	(FCM)	Fuel Cell	Control	Module		CAN					
80	(CTCM)	Coolant	Temperat	ure Control	Module	CAN					G
в				ntrol Modul		CAN					9
C		-		ontrol Modu		CAN					Oper
DD				l Monitor N		CAN					
)E				or Control		CAN					
)F			•	Control Ma		CAN					
)F				t Heating 1	Module	K-Line	•				
10	/	Powertrai				CAN					Nex
10	1/	Powertrai				K-Line	•				INEX
10	1/	Powertrai				J1850					
11			•	rain Contro	ol Module	CAN				-	
=	Vehicle Sel		👔 Specia	Functions	🙆 Option:						
1	8883	Count	10000	*				€	- C		(¢
	fileage calibration	EEPROM	Flash	Key Learning	OutIncode Calculator	Remote Keyless Entry	Car Audio	Injectors	Dp	en	Option
	Ċ		×	S	S.	۶.	Sec.	1			
	VID	Powertrain	Airbag	Snapshots	PMI	Service Functions	Custom	Dump Tool	-		Exit

8.3 PATS Information

Operation 🚯 Read PATS Info	<u> </u>	>
Read PATS Info		Execute
PCM: PATS Related		·
PCM: PATS Security Access Type: Coded		STOP
PCM: Security Access: Coded		
PCM: Service Module: Yes		<u>Stop</u>
PCM: Spare Key Programming: Enabled		
PCM: Unlimited Keys Mode: Disabled		
PCM: Timed access: 480 sec		
PCM: PATS Security Access: In Progress		
PCM: PATS Number Of Keys: 3		
PCM: Failsafe Status: Inactive		
PCM: Status: Disabled		
PCM: Master Key Present: No		
PCM: Clear Key Mode Status: Inactive		
PCM: PCM Verify OK: No		
PCM: PCM ID Status Stored: No		
PCM: Anti-Scan Function: Disabled		
PCM: PCM Request Received: No		
PCM: Unlimited Transponder Security Key ID: 01000000		
PCM: Session: 87		
PCM: Session: 81		
PCM: PATS Security Access: Denied		
J Ok.		X

8.4 PATS Key Learning

This procedure will add keys to the PATS system memory. Keys already known to the PATS system will not be erased.

Operation 🚯 Program PATS Key	· /
Program PATS Key	Execute
PCM: PATS Related	
PCM: PATS Security Access Type: Coded	STOP
PCM: Security Access: Coded	
PCM: Service Module: Yes	Stop
PCM: Spare Key Programming: Enabled	
PCM: Unlimited Keys Mode: Disabled	
PCM: Timed access: 480 sec	
PCM: PATS Security Access: In Progress	
PCM: PATS Number Of Keys: 3	
PCM: Failsafe Status: Inactive	
PCM: Status: Disabled	
PCM: Master Key Present: No	
PCM: Clear Key Mode Status: Inactive	
PCM: PCM Verify OK: No	
PCM: PCM ID Status Stored: No	
PCM: Anti-Scan Function: Disabled	
PCM: PCM Request Received: No	
PCM: Unlimited Transponder Security Key ID: 01000000	
PCM: Session: 87	
FCM: Operational Strategy Control: Fail!	
PCM: Set Security Access Switch: Ok!	
PCM: Executing PATS Coded Access: AA6B5A -> 6A86 Ok!	
PCM: PATS Security Access: Granted	
	×
Delay remaining 4 sec.	Close

🔥 Key Learning		
Operation 🚯	Program PATS Key	7
Program	m PATS Key	Execute
	A PATS Key Programming Instructions	× Evenue
PCM: PATS Se		STOP
PCM: Securit	1. Prepare New PATS Key	
PLM: Service	1. Hepare New Into Ney	Stop
PCM: Spare K		
PCM: Unlimit	11111 The second sector with a sector of the second sector of the second sector of the second sector of the second s	
PCM: Timed a	<pre>!!!!! Very Important !!!!!</pre>	
PCM: PATS Se	Steps 2, 3 and 4 must be executed	
DCM. Failasf		
PCM: Status:	within 10 sec	
PCM: Master		
PCM: Clear K		
PCM: PCM Ver	2. Turn Ignition OFF	
PCM: PCM ID	z. rum ignicion orr	
PCM: Anti-Sc	3. Insert New PATS Key	
PCM: PCM Reg		
PCM: Unlimit	4. Turn Ignition ON	
PCM: Session	5. Press OK	
PCM: Operati PCM: Set Sec	J. HESS OR	
PCM: Executi	Zummen and an and an	
PCM: PATS Se		
	CK Close	
		~
Delay re	emaining 4 sec.	K



Note: The steps to make keys when the alarm is on are as follows:

1. Open the car - the alarm will go off (start 15 minutes countdown)

- 2. Open all car doors
- 3. Counting down on 12th minute the alarm will stop, the hazard lights will continue blinking

4. Wait for the hazard lights to stop blinking and this is another 3 minutes- we have 9 minutes left

5. Wait 9 minutes more and as soon as you hear the double "Beep" sound, you have 1 minute timeframe to program new keys. (You program the keys between the 15th and 16th minute.) Should the 16 minutes pass and you're still not ready, the alarm will go off again and the same method should be applied.

8.4.1 Key learning for Mazda CX-30 / Mazda 3 2019+

Using the latest MZ001 special function for Mazda you can easily program keys for the Mazda CX-30/ Mazda 3 models, produced after 2019. This function requires no additional hardware other than your AVDI and a valid AMS.

The procedure is simple and the only specific is that it requires seven minutes of waiting time in the beginning to read the BCM. Please do not disconnect the AVDI and have a steady power supply of 12V going to the vehicle's battery during this time. The function programs the key completely during this operation, starting the vehicle, remote and keyless (if available) are included.

1. Select the model you are working with

Model Selection			-	×
Vehicle				
Brand	Mazda		•	
Model	2020 Mazda CX-30		•	
Engine	1.5 S5 SkyActiv-D		•	
			~	
		Select	Close	

NB! In the cases of all keys lost it is always a good idea to delete previous keys before starting the key programming, this can be done by selecting the "Delete all keys (smart or mechanical)" option. Make sure to remove all keys from the car (at least 2 meters or 6ft.) before erasing.

2. Once you have selected the key learning menu and you have chosen the model of the car you will be working with make sure to press the "Execute" button and then the software will lead you the rest of the way. In the beginning you will see that the software will start calculating the security key to access the BCM. This is where you need to wait 7 minutes.

<table-of-contents> Mazda / 2020 / M</table-of-contents>	lazda CX-30/ 1.5 S5 SkyActiv-D - Key learning	-		×
	lazda CX-30 1.5 SS SkyActiv-D - Key learning		5	X DOP Dop
が Calcul	ating security key (7 minutes)		2	lack.

3. Once the access is granted you will here two or three distinct beeping sounds.

4. Follow the on-screen instructions closely and you will be able to program keys.

豫 Mazda / 2020 / Mazda CX-30/ 1.5 S5 SkyActiv-D - Key learning	
<pre>Ww Mazda / 2020 / Mazda (X-30) 15 S5 SKyACU-D - Key learning Erase All Smart Keys BCM: PATS Security Access: Granted BCM: Number of Programmed (RKE) Transmitters: 0 BCM: Status: Enabled BCM: Master Key Present: No BCM: SCU verified OK: No BCM: SCU verified OK: No BCM: SCL verified OK: No BCM: SCL verified OK: No</pre>	
BCM: Passive anti-theft system power supply: Off BCM: Immoboliser identification stored: Yes BCM: Immoboliser identification stored: Yes BCM: PATS RF Transmit Status: Off BCM: PATS Delivery Mode: B and A mode BCM: PATS Unlimited Key Mode: Disabled BCM: Number of Programmed (RRE) Transmitters: 1 BCM: PATS RF Transmit Status: On	
BCM: Number of Programmed (RRE) Transmitters: 2	
Operation Successful	<mark>∲</mark> Back

8.5 PATS Erase All Keys

This procedure will erased all stored keys from the PATS system memory. Once completed a minimum of 2 new keys must be programmed,

👫 Key Learning	
Operation 🚯 Erase All PATS Keys	
PCM: PATS NUMBER OF KEYS: 3	Execute
PCM: Failsafe Status: Inactive	
PCM: Status: Disabled	
PCM: Master Key Present: No	STOP
PCM: Clear Key Mode Status: Inactive	Stop
PCM: PCM Verify OR: No	L
PCM: PCM ID Status Stored: No	
PCM: Anti-Scan Function: Disabled	
PCM: PCM Request Received: No	
PCM: Unlimited Transponder Security Key ID: 01000000	
PCM: Session: 87	
PCM: Operational Strategy Control: Fail!	
PCM: Set Security Access Switch: Ok!	
PCM: Executing PATS Coded Access: AAAF59 -> AE85 0k!	
PCM: PATS Security Access: Granted	
PCM: Executing Erase All PATS Keys: Ok!	
PCM: PATS Number Of Keys: 0	
PCM: Set Service Mode: 0k!	
PCM: Security Access: Coded	
PCM: Service Module: No	
PCM: Spare Key Programming: Enabled	
PCM: Unlimited Keys Mode: Disabled	
PCM: Timed access: 480 sec	
PCM: Set Security Access Switch: Ok!	
PCM: Session: 81	
	i .
	X
V Ok.	
	Close

8.6 PATS Initialization

This procedure is used to match the PCM to IPC (HEC) and/or BCM or FIP as appropriate. It is important that the key in the ignition is programmed to the vehicle, otherwise module initialization is not possible.

PCM - Powertrain Control Module HEC - Hybrid Electrical Cluster (instrument cluster) FIP - Fuel Injection Pump

Key Learning	
Operation 🚯 PATS Initialization	
Operation N PATS Initialization . PCM: Service Module: No . PCM: Spare Key Programming: Enabled . PCM: Unlimited Keys Mode: Disabled . PCM: Unlimited Keys Mode: Disabled . PCM: Timed access: 480 sec . PCM: PATS Security Access: In Progress . PCM: PATS Number Of Keys: 0 . PCM: Failsafe Status: Inactive . PCM: Status: Disabled . PCM: Status: Disabled . PCM: Clear Key Mode Status: Inactive . PCM: PCM Verify OK: NO . PCM: PCM ID Status Stored: No . PCM: PCM ID Status Stored: No . PCM: PCM Request Received: No . PCM: Unlimited Transponder Security Key ID: 01000000 . PCM: Session: 87 . PCM: Operational Strategy Control: Fail! . PCM: Executing PATS Coded Access: A2AB58 -> AA84 Ok! . PCM: PATS Security Access Granted .	Execute
PCM: PAIS Security Access: Granted PCM: Set Immobiliser Identification: Fail! PCM: Parameter Reset Security TD: Ok! PCM: Set Security Access Switch: Ok! PCM: Session: 81	
🗸 Ок.	X <u>C</u> lose

8.7 Spare Key Programming Enable / Disable

Enables or disables the spare key programming procedure as listed in the Owners manual.

8.8 Unlimited Key Mode Enable / Disable

Unlimited key mode is intended for use by those customers who need more than 8 keys for their vehicle.

The unlimited key mode is set up by creating a special, unique unlimited transponder security key code and programming this key code into all of the vehicle keys so they contain the same key code.

The customer must choose an 8-digit number (except for 0000000 or 0000001) to be programmed into all of their vehicles keys (or, to all of the keys they want programmed to one vehicle). All customer vehicles keys (or all keys for one vehicle) need to use the same number. Valid digits are 0-9 and the letters A-F.

If the PID UNL_KEY_ID is not available, unlimited key mode is turned on, and must be turned off before viewing the stored code. At this time, unlimited keys may be programmed to the vehicle. To view/change the stored code, follow the procedure for disabling the unlimited key mode below. Monitor the PID UNL_KEY_ID and compare its value against the code chosen in Step 1. It should not be the same key code.



8.9 PATS OUT - IN code Calculator

The special function "PATS INcode Calculator" is commonly used together with Ford/Mazda IDS. Open Special Functions list control and select OutIncode Calculator icon.



Following dialog appears on the display:

Incode Calculator				
Outcode:	0044	000000	000000	Calculate
Incode:				
				Close

Start Ford IDS and connect to the car. Follow instructions and lets IDS read vehicle data. For example let you have this IDS screen.

ID5-85.01	
Coded Access	
You will be required to enter the following data into TIS.	
TIS will supply an 'Incode' for use on the following screen.	
• <u>VIN</u> :- WF0MXXGBWD1234567	
Reason For Access.:- 3	
• Part Number:- 4M5T 10849 GM	
• Serial Number:- 000020 100885	
• Outcode:- 0040 8EDB43 000000	
• Error Control:- 19844	
	<mark>4</mark> 📼

The essential here is the line:

Outcode:- 0040 8EDB43 000000

This is "SINGLE" outcode.

It is used during key erasing or programming operation.

If ECU initialization is needed. IDS returns "DOUBLE" outcode:

Outcode:- 0044 8EDB43 ABCDEF

Note that "SINGLE" outcode has xx40 in the first digits group, and "DOUBLE" outcode has xx44. Be sure that you enter xx44 (PATS Outcode Prefix) as it is provided from IDS. Enter digits from Outcode line in the three edit boxes and press button "Calculate". After a short time calculated INCode will appear in Incode edit box. Enter calculated value in IDS.

屢 Incode Calculator				X
Outcode:	0040	8EDB43	000000	Calculate
Incode:		D253	0000	
				Close

8.10 Vehicle Identification Data (VID) Block

VID block is a array of 128 bytes present in PCM (Powertrain Control Module) in most of Ford/Mazda models.

VID consists of are many configurable vehicle parameters: VIN Tyre Size Axle Ratio Anti-Lock Brake System Auxiliary Cabin Heaters Cooling Pack Air Conditioning Transmission Body Type Driveline Speed Control Generator Vehicle Speed Output Vehicle Type Fuel Type Octane Of Fuel Octane Adjust / Spark Retard Country

Go to the Special Functions screen. Select VID.

AB	RITES Co	ommander for	Ford / Maz	da 4.3		www.abritu	s72.com					
#	All Un	its				Proto	col VIN	1		DTC		
32	(CDP)	Compact D	isc Play	er / Change	r Module	CAN					ſ	
85	(DABM)	Digital	Audio Br	oadcast Mod	lule	CAN						Δ
86	(AAM)	Audic Amp	lifier M	odule		CAN						
37	(TVM)	Televisio	n Module			CAN						Previous
39	(APIM)	Accessor	y Protoc	ol Interfac	e Module	CAN						
BA	(FEM)	Front Ent	ertainme	nt Control	Moule	CAN						
BB	(REM)	Rear Ente	rtainmen	t Control M	lodule	CAN					_ [-
BC	(RACM)	Rear Aud	io Contr	ol Module		CAN						G
BD		-		ontrol Modu	le C	CAN						
90	(TEL)	Telephone	Control	Module		CAN						Open
91	1/			Unit Modul	.e	CAN						
92	(SPRM)	Speech R	ecogniti	on Module		CAN						
94			-	Control Mo	dule	CAN						
98	(HVAC)	HVAC Con	trol Mod	ule		CAN						~
99	(RHVAC) Rear HV	AC Contr	ol Module		CAN						Next
9C	(SCME)	Seat Con	trol Mod	ule E		CAN						Ivext
9D		Seat Con				CAN						
40	/	Driver Fr	ont Door			CAN					- T	
	Vehicle Sel		1 Specia	al Functions	🔅 Optio	ns .	1					
				<u></u>				Č	-	6	71	100
	8888	C00000	60000	1 I	288	and the second se		"~		\mathbf{e}		- (J=
	fileage alibration	EEPROM	Flash	Key Learning	OutIncode Calculator	Remote Keyless Entry	Car Audio	Injectors		Jpen	IJĮ	Options
	e		•	2757	288	2	2					
		N		24	24	U 🖸		-0494a				\bigcirc
	VID	Powerrain	Airbag	Snapshots	Custom	Dump Tool	Test J1850 Adaptor	Full Scan	-			Exit

See PCM Configuration	
Binary 👔 Parameters	2
00000000 7 46 30 35 58 57 50 44 35 35 50 30 31 32 32 WF05XXWPD55P0122 00000010 32 FF FF	VIC Read
🗸 Ok.	X Close

Parameter	Value	VIC Read
VIN	WF05xxWPD55P01222	
Tyre Size	829	
Axle Ratio	3.492	- I
Anti-Lock Brake System	Equipped	VIP. Write
Auxiliary Cabin Heaters	Equipped	
Cooling Pack	North Africa / Gulf Coast Countries	
Air Conditioning	Equipped	Load from File.
Transmission	Manual	
Body Type		
Driveline	Front Wheel Drive	
Speed Control		Save to File
Generator	120 Amp	
Vehicle Speed Output	Message from ABS via CAN	
Vehicle Type	Focus	
Fuel Type	Gasohol	
Octane Of Fuel	91 RON	
Octane Adjust / Spark Retard	Normal	
Country	European	
đ		1

8.11 Programmable Module Installation (PMI)

Step 1

Go to the Special Functions screen. Select PMI.

AB	RITES Co	mmander for	Ford / Maz	da 4.5		www.abritu	s72.com				_
ŧ	All Un	its				Protoc	col VIN	1		DTC	
0	(BTCM)	Battery	Control	Module		CAN					
0	(ESOF) Electronic Shift On the Fly			CAN							
0					e CAN						
0	(FACP)				CAN					Previo	
0	(CM) Compass Module			CAN							
0	(SOBDM) Secondary OBD Control Module			CAN							
-			CAN								
08 (CTCM) Coolant Temperature Control Module			CAN					6			
в	(FACM)	Fuel Add	itive Co	ntrol Modul	e	CAN					- G
с	(BECM)	Battery	Energy C	ontrol Modu	le	CAN					Oper
D	(PMM)	Powertrai	n Contro	1 Monitor M	lodule	CAN					
Е	(SGM)	Starter /	Generat	or Control	Module	CAN					
F (AHCM) Auxiliary Heater Control Module			CAN					-			
F (FFH) Fuel Fired Coolant Heating Module			K-Line	•							
0 (PCM) Powertrain Control Module			CAN								
0	(PCM) Powertrain Control Module			K-Line	-				Nex		
1	(SPCM)	Secondar	y Powert	rain Contro	l Module	CAN					
5	(CCM)	Cruise Co	ntrol Mo	dule		CAN		/			
<u>_</u>	(2000)			a + 1 M	1.1			/		-	
•	Vehicle Sele	ection	👔 Specia	I Functions	🔅 Option	2					
1	8 8 8 8	6		S.			1000	¥	-		823
		About.	Abbara.	ध्य 🤏	000						S 2=
	lileage alibration	EEPROM	Flash	Key Learning	OutIncode Calculator	Remote Koyless Entry	Car Audio	Injectors)pen	Option
1	- -	233		(Internet)			(I) WI	2			
	الريكا	S 2=	~	12:	125	/	2. El	1 1			
	VID	Powerrain	Airbag	Snapshots	PMI	Service	Custom	Dump Tool			
				SF	\sim	Functions			-1		Exit

Step 2

Following Dialog Appears. Select ECU from combobox.

(PMI) Programmable Module Installation	
1월 ECU 1월 As Built 1월 Parameter 1월 Hex	Fead
1 0x60 (IPC) Instrument Panel Cluster Control Module •	Write
	Load A:-Built Data
	Save A≎-Built Data
\checkmark	Close

If the original ECU is available, you can read PMI data. Use "Read" button.

Step 4

If the original ECU is not available, you can obtain vehicle PMI data from Motorcraft website. Connect to internet and open online form Motorcraft website:

https://www.motorcraftservice.com/AsBuilt

Enter the VIN in the box and press "Submit" button at the bottom.

FORD SERVICE INFO.COM	Log In Contact Us 🗮 Cart (0)
Home Service Info Free Resources +	
Module Build Data (As-Built)	
Step 1. enter a VIN (Vehicle Identification Number)	
Step 2. submit the As Built request	
Your request will be submitted to As Built. During peak times, this operation could take up to 5 minutes. Do not pre than once. Doing so will only cancel the current request and issue another, which will start process over again.	ess the submit button more
Warning: Inaccurate or no data will be displayed if an invalid VIN is entered (please verify VIN accuracy by running only applies to some 1999 to current model year vehicles.	g Oasis). Also, AS Built data
Submit	
o and a class of the second distance in the second distance in the second distance in the Common interface	

The "Module Reprogramming" page will open with the "VIN" and "Vehicle Data" at the top. Below this are two columns, the one on the left is PCM data and the one on the right is BCE data. Only programmable modules available in that vehicle will be listed under BCE Modules. Some modules may have more than one line of data.

If a module is not listed, then it is not a programmable module.

Module Reprogramming

VIN: WF0WXXGCDW5B01234 Vehicle Data: 3735 FFFF FF69

click here if module data required is not available below.

PCM Module	BCE Modules	TSB SSM Instructions
PCM 1 FFFF FFFF 0310	720-01-01 COC0 1152	0C
PCM 2 410D A4FF FF02	720-02-01 5757 5757	57DD
PCM 3 7841 FFFF FFC9	720-03-01 5746 3057	58A7
PCM 4 FFFF FF26 265D	720-03-02 5847 4344	57A9
PCM 5 2020 3727 FFB2	720-03-03 3542 3031	3237
PCM 6 FFFF FFFF FF11	720-03-04 3334 95	
PCM 7 FFFF FFFF FF12	-	
PCM 8 FFFF FFFF FF13	726-01-01 640C 50FE	ED
PCM 9 FFFF FFFF FF14	726-02-01 2704 308B	
	727-01-01 0203 083D	
	730-01-01 5746 3057	58B5
	736-01-01 5746 3057	58BB
	741-01-01 5746 3057	58C6
	760-01-01 5746 3057	58E5
	760-01-02 5847 4344	57E7
	760-01-03 3542 3031	3275
	760-01-04 3334 D3	
	760-02-01 006A	

Find data for desired ECU by ID. Enter As-Built vehicle data in diagnostics. Note that you must enter data without leading spaces, one entry per line.



Another view format.

Here you can see whole PMI data block.

Double-click on data block to see and edit it in binary editor.

🕴 (PMI) Progra	mmable Module Installation	
🔒 ECU	🐕 As Built 🕌 Parameter 🔐 Hex	2
Param	Value	Fead
720-00-	C0C01142	6
720-01-	575B57575B	5
720-02-	5746305758584743445735423031303236	Write
		Coad As-Built Data
		Save As-Built Data
6		
	· · · · · · · · · · · · · · · · · · ·	
		12
🧹 Ok.		Close

If needed edit As Built data before writing.



Step 9

Turn Ignition OFF and properly connect new ECU. Use "Write" button to enter data in newly installed ECU.

Step 10

During the write process, automatic backup of PMI data is performed. If something going wrong, you can find backup PMI file in AVDI log folder. PMI backup files have format "Backup_yyyymmdd_hh.mm.ss.pmi". Use "Load" and "Write" buttons to restore data.
8.12 Fuel Injector Programming (TDCi Engines)

Fuel Injector Correction Factors

There are 3 common situations that demand this function.

- After Injector replacement.
- Fuel Injection system calibration
- Drivability problems like Lack of power, Black smoke and the presence of DTC's P2336, P2337, P2338 can often be fixed by re-entering the existing 4 injector codes. Support for more than 4 injectors has been added.

Note:

- On earlier model years (pre-2003) it is not possible to read the actual injector codes.
- It is important to check the codes carefully before entering them.

- After entering an injector code the fuel system will initially run without any pilot injector sequence. The car must be driven for a few kilometers.

Engine Type: Duratorq-Turbo Diesel Common Rail Injection Capacity: 1.6L

Implement this service function if a new fuel injector has been installed.

Each injector has an individual 9 digit code called an injector correction factor.

This code applies individual compensation for each injector as a means of reducing the fuel delivery tolerance.

Perform this procedure to enter the required injector correction factor.

The injector correction factor is located on the head of the injector.

The injector correction factor is 8 digits long.

Ignore the last digit of the 9 digit code printed on the fuel injector.

Enter the injector correction factors in cylinder order.

To update or enter a new code, select the required injector and enter the relevant 8 digit code.

Enter all of the required codes, then press the return key displayed on the screen.

Engine Type: Duratorq-Turbo Diesel Common Rail Injection Capacity: 1.8L Capacity: 2.0L

The data required for each injector can be found on the injector body.

It consists of 16 characters - numbers and letters.

If you are certain that the original injectors are still fitted to the engine, you may find the data on a lebel on the engine. Engine Type: Duratorq-Turbo Diesel Common Rail Injection Capacity: 2.2L Capacity: 2.4L Capacity: 3.2L

Carry out this procedure if the Fuel Injector has been replaced:

Each injector has an individual 16 digit code called an injector correction factor.

This code applies individual compensation for each injector as a means of reducing the fuel delivery tolerance.

Perform this procedure to enter the required injector correction factor.

The injector correction factor is located on the injector body.

To update or enter a new code, select the required injector and enter the relevant 16 digit code.

Enter all of the required codes, then press the return key displayed on the screen.

If a label listing the injector code is still present (on top of the engine), remove it.

Information on the label is no longer correct and could mislead other service technicians

The Pilot Correction Learn procedure must now be performed

Engine Type: Duratorq-Turbo Diesel Common Rail Injection

Capacity: 2.2L

Perform this procedure if the following new component has been installed: Fuel Injector Each injector has an individual 6 digit code called an injector correction factor. This code applies individual compensation for each injector as a means of reducing the fuel delivery tolerance. Perform this procedure to enter the required injector correction factor. The injector correction factor is located on the injector body. Enter the injector correction factors in cylinder order. To update or enter a new code, select the required injector and enter the relevant code. Enter all of the required codes, then press the return key displayed on the screen.

Engine Type: Duratorq-Turbo Diesel Common Rail Injection StgV Capacity: 2.0L

Perform this procedure if the following new component has been installed: Fuel Injector

Each injector has an individual 20 digit code called an injector correction factor. This code applies individual compensation for each injector as a means of reducing the fuel delivery tolerance. Perform this procedure to enter the required injector correction factor. The injector correction factor is located on the injector body. Enter the injector correction factors in cylinder order. To update or enter a new code, select the required injector and enter the relevant code. Enter all of the required codes, then press the return key displayed on the screen.

This function is required by service centres when an Injector needs to be replaced, or there is a driveability problem.

For 1.6 TDCi engines the each injector has an 8-digit calibration code stamped on the body. For 1.8, 2.0, 2.2 and 2.4 TDCi engines the each injector has a 16-digit calibration code stamped on the body.

These codes relate to the electrical and structural characteristics of each injector, which are defined during production. The PCM must know the calibration codes for each injector in order to treat and operate the injectors in the correct manner. This helps to reduce emissions and improve performance. The code must be programmed in by communicating and downloading the code into the PCMs memory.

There are three common situations which demand this function.

- 1. After Injector replacement.
- 2. Fuel injection system 'calibration'.
- 3. To cure drivability problems. Lack of power, black smoke and the presence of DTC's:
- P2336 Cylinder 1 Above Knock Threshold

P2337 - Cylinder 2 Above Knock Threshold

P2338 - Cylinder 3 Above Knock Threshold

P2339 - Cylinder 4 Above Knock Threshold

can often be fixed by re-entering the existing 4 injector codes.

Fuel Injectors Programming is used on the following vehicles:

Model	Engine	MY	
Fiesta	1.6 TDCi	2004 -	
Focus	1.8 TDCi	2001 - 2005	FFDA/F9DA/F9DB
Focus	2.0 TDCi	2001 - 2005	FIFA
Focus (new shape)	1.6 TDCi	2005 -	
Focus C-Max	1.6 TDCi	2005 -	
Mondeo	2.0 TDCi	2000 - 2006	HJBA/HJBB/HJBC/FMBA/N7BA§
Mondeo	2.2 TDCi	2000 - 2006	
Transit	2.0 TDCi	2000 - 2005	
Transit	2.4 TDCi	2000 - 2005	H9FA
Transit Connect	1.8 TDCi	2002 - 2006	

NOTE:

- On earlier model years (approx pre-2003) it is not possible to read the actual injector codes. On these vehicles you will see '00 00 00 00 00 00 00 00' or 'FF FF FF FF FF FF FF FF FF 'or a mixture.
- After entering an injector code the fuel system will initially run without any pilot injection sequence. The car must be driven for a few miles to correct this. The codes of the ORIGINAL injectors fitted to vehicle can be found on a label, which is fitted to the side of the engine or on the engine rocker top (if it has not yet been removed).

The codes of the ORIGINAL injectors fitted to vehicle can be found on a label, which is fitted to the side of the engine or on the engine rocker top (if it has not yet been removed).

The codes on the label are in the following format:

(1&2)	X111111122222222X
(3&4)	X333333344444444X

Where:

11111111 is the code for injector 1, 22222222 is the code for injector 2, 333333333 is the code for injector 3, 444444444 is the code for injector 4.

NOTE:

The injectors are in the physical order, NOT firing order.

When replacing an Injector the code stamped on the body of the new Injector must be programmed into the PCM, NOT the code on the label.

Duratorq-Turbo Diesel Common Rail Injection 2.4L Carry out this procedure if the following component has been replaced: Fuel Injector Each injector has an individual 16 digit code called an injector correction factor. This code applies individual compensation for each injector as a means of reducing the fuel delivery tolerance. Perform this procedure to enter the required injector correction factor. The injector correction factor is located on the injector body. To update or enter a new code, select the required injector and enter the relevant 16 digit code. Enter all of the required codes, then press the return key displayed on the screen.

WARNING:

Before attempting Injector Programming it is necessary for the vehicle to be left stationary with the Engine off for at least 8 hours. This is to ensure that the engine is stone cold before Injector Programming is performed. Failure to follow these instructions may result in failure of the Injector Programming function and/or drivability problems.



Fuel Injectors		
	Injector 1 Cylynder 1	2
	Injector 2 Cylynder 3	Fead
	Injector 3 Cylynder 4	Write
	Injector 4 Cylynder 2	 ✓
Info		Close





Remote Keyless Entry

Go to the Special Functions screen. Select Remote Keyless Entry.



Following Dialog Appears

6	Remote Keyless Entry		ĸ
ſ	RKE		
	Slot #1	Program	
	Number Of Known Keys: 0		
	1		
	A		
		Read Close	

Turn ignition OFF and press button "Read" to get number of programmed smart keys. Press button "Erase" to erase all of programmed smart keys. Press button "Program" to program 1 smart key. You will be prompted to remove Key Cover and to place the key in emergency slot in the steering column shroud All of smart key operations must be performed while ignition is OFF. Ford Mondeo 2016 for an exaple and other models have the following Emergency Key slot position:



Manual reprogram a remote transmitter.

The following procedure has to be used to program the remote control key.

1.Turn ignition from OFF to RUN 4 times within 6 seconds with the 4-th time ending in OFF.

2.The system will chime to confirm programming mode entry.

3. Press any button on the first remote transmitter.

4.System will chime to confirm programming.

5.Repeat steps 2 and 4 for all subsequent remote transmitters.

6.Turn ignition to the RUN position to exit the programming mode.

Note:

- All keyfobs for the vehicle must be programmed at the same time. Any of the keyfobs which are not programmed during this procedure will no longer function.
- Up to 4 transmitters can be programmed.

Note: After programming Smart keys in Mazda, you may experience the **"Keyless System Inspection Required"** error message on the dash. This happens when keys that are intended for Mazda3, Mazda6 are programmed on Mazda CX3 and CX5 and vice versa. The only solution is to erase all Smart Keys and use the correct keys for the model. If there is even one wrong key programmed, the same error will show up. It has no effect on the overall performance of the car:



8.13 Dump Tool

Dump Tool is an instrument for editing the content of the EEPROM files of specific electronic control units. You have to select a unit and load a dump file. Then when you click on the "Parameters..." button you will see a pop-up window with all available parameters related to the chosen unit. Typical parameters are odometer, security code and VIN. For the airbag units the option clear crash data is available. You can modify them by clicking on the parameter value. When complete with modifications click on the OK button. The dump data will be updated accordingly. All necessary check sums will be regenerated.

9. Service Functions

9.1 Powertrain Control Module (PCM)

9.1.1 Reset Keep Alive Memory (KAM)

This procedure will reset the Learned Values stored in the Powertrain Control Module (PCM) such as idle and fuel.

9.1.2 Reset the Diesel Particulate Filter (DPF) Learned Values

This procedure must be carried out if a new diesel particulate filter is installed

The powertrain control module will continually learn the characteristics of certain components over time. There may be differences in the characteristics from the old and new components which will result in differences in the learned values. If a new component is installed the difference in learned values may result in poor driveability or set a diagnostic trouble code. This service function will reset the learned values of the old component. The learning process of the new component may occur immediately or over a number of drive cycles.

9.1.3 Reset the Water in Fuel (WIF) Warning Indicator

Execute this procedure only if water is detected in the fuel. After performing this procedure the WIF warning indicator is extinguished.

9.1.4 Reset the Knock Sensor Learned Values

Execute this procedure only if a full set of replacement injectors has been fitted. The engine must not be running.

9.1.5 Reset the Fuel Metering Valve Learned Values

Execute this procedure if High Pressure Fuel Pump has been renewed. The engine must not be running.

9.1.6 Reset the Intake Air Throttle Valve Learned Values

Execute this procedure if Intake Air Throttle Valve has been installed.

9.1.7 Reset the Exhaust Gas Recirculation (EGR) Valve Learned Values

Execute this service function if a new exhaust gas recirculation valve has been Installed.

9.1.8 Reset the Differential Pressure Sensor Learned Values

This procedure will return the learned values back to the nominal settings.

9.1.9 Reset the High Pressure Fuel System Learned Values

This service function must be performed if any new components associated with the high pressure fuel pressure system have been installed.

The powertrain control module will continually learn the characteristics of certain components over time. There may be differences in the characteristics from the old and new components which will result in differences in the learned values. If a new component is installed the difference in learned values may result in poor driveability or set a diagnostic trouble code. This service function will reset the learned values of the old component. The learning process of the new component may occur immediately or over a number of drive cycles.

9.1.10 Fuel Injector Correction Factors

Execute this procedure if a Fuel Injector has been replaced.

9.1.11 Relearn Vehicle Data

Execute this procedure to force a previously configured PCM to relearn new configuration data from BCM.

9.1.12 Reset the Mass Air Flow (MAF) Sensor Learned Values

Execute this service function if a new mass air flow sensor has been installed.

9.1.13 Reset the Fuel Pressure Relief Valve Open Count Learned Value

This procedure clears the counters that store the total number of times the fuel rail pressure relief valve has opened.

9.1.14 Reset the Fuel Pressure Relief Valve Open Duration Learned Value

This procedure clears the counters that store the total time the fuel rail pressure relief valve has opened.

9.1.15 Speed Limiter

This procedure sets maximum vehicle speed.

9.2 Transmission Control Module (TCM)

9.2.1 Resolving the U2300 DTC in Ford/Mazda cars

1. Open the ABS Unit and check if the DTC is present:



2. Enter the "Service Functions" menu:

ID	Mazda		2012 Maz	da CX-5		Protocol	VIN		DTC 🔺	
706	(FSC) Forward	Sensing (Camera			CAN HS				
720	(IC) Instrume:	nt Cluster				CAN HS				
726	(F_BCM) Front	Body Cont	rol Mcdule			CAN HS				Previou
730	(EPS) Electro	nic-Contro	olled Fower	: Steerir	ng	CAN HS				
731	(SSU) Smart S	tart Unit				CAN HS				G
734	(AFS) Adaptiv	e Front Li	ighting Sys	stem		CAN HS				Open
737	(RCM) Restrai	nt Control	L Module			CAN HS				
744	(DSM) Driver's	s Seat Mod	lule			CAN HS				
760	(ABS) Antilos	k braking	system			CAN HS				
761	(4X4M) 4X4 Co	ntrol modu	ıle			CAN HS				Next
764	(SBS/MRCC) Sm	art Erake	Support/Ma	azda Rada	w	CAN HS				
🔒 V	shice Selection	👔 Special	Functions	🔅 Opto	ins					
-		0			Ś				6	
Se Fun	tvice Live Data	Cluster Calibration	NVD a:a	Flash	Key Le		ode Remo ulator Kayless		Open	Option
			C,	Ċ,	2	1	s) 🗲			
Car	Con'ig Calibration	FordETIS	Fuel Injector	VID	Ait	ag F	M Speed L	imiler		

3.Enter the "Allow Central Configuration data parameter (CDP) Learning Menu:

۲ Mazda / 2012 / Mazda CX-5/ 2.0 PE SkyActiv-G - Service Functions		_ 🗆 ×
Special Ignition ON	•	\$
Headlamp	-	Execute
ABS Lateral Acceleration Sensor		
ABS Longitudinal Acceleration Sensor		
ABS Brake Fluid Pressure Sensor		
ABS Yaw rate sensor		
ABS TPMS Reset		
Allow Central Configuration Data Parameter (CDP) Learning		
Reset ECU Central Configuration State/Data To Not Configured		
SBS/MRCC System initialize		
BSM Radar Test	-	
1	I	
\checkmark		×
		Close

4. Execute the "Reset ECU Central Configuration State/Data to Not Configured" function

Mazda / 2012 / Mazda CX-5/ 2.0 PE SkyActiv-G - Service Functions		×
Special Ignition ON	•	5
ABS Brake Fluid Pressure Sensor	-	Execute
ABS Yaw rate sensor		
ABS TPMS Reset		
Allow Central Configuration Data Parameter (CDP) Learning		
Reset ECU Central Configuration State/Data To Not Configured		
SBS/MRCC System initialize		
BSM Radar Test		
BSM Radar Test		
Allow Central Configuration Data Parameter (CDP) Learning		
Reset ECU Central Configuration State/Data To Not Configured	-	
	[
\checkmark		X
		Close

9.3 Body Control Module (BCM)

9.3.1 Set Vehicle Power Mode

This application enables the setting of the vehicle power mode.

9.4 Restraints Control Module (RCM)

9.4.1 Clear Restraint Control Module (RCM) Crash Data Memory

This routine will clear the crash data memory in the Restraints Control Module.

9.4.2 Restraints Control Module (RCM) Module Central Car Configuration (CCC) Update

Carry this procedure out if RCM module has been replaced

9.4.3 Tyre pressure measurement system sensors

Ford Focus and C-Max very often have an issue with the Tyre pressure measurement system sensors that get defective and display an error. There are different types of sensors and people often use a 2nd set of tyres that have no sensors. The photo below shows the error on the dash on a 2016 Focus:





The issue does not affect the overall driveability of the car, but according to the European regulations, all cars must have these sensors. It is up to the owner of the vehicle whether he will fix the error with replacing the sensors or put tyres without the sensors and clearing the warning.

The function requires the user to enter the CenralCarConfiguration menu and set the parameter value to 100. The module in the list is named "Tyre pressure mode system".

9.4.4 Passenger Air Bag Deactivation (PAD) Switch Activation

The following procedure will activate/deactivate the passenger air bag switch.

10. Ford OBD-II diagnostic interface pinout and wiring

16 pin J1962 OBD-2 car proprietary connector at the Ford car.



Diagnostic interface for all model Ford vehicles.

Pin	Signal	Description
1		
2	J1850 PWM Bus+	
3	LS CAN High	Low speed (125Kb) CAN bus or UBP
4	CGND	Chassis ground
5	SGND	Signal ground
6	HS CAN High	High speed (500 Kb) CAN bus
7	K-LINE	(ISO 9141-2 and ISO/DIS 14230-4)
8		
9		
10	J1850 PWM Bus-	
11	LS CAN Low	Low speed (125Kb) CAN bus.
12		
13	FEPS	Flash EEPROM Program Signal. +18V
14	HS CAN Low	High speed (500 Kb) CAN bus.
15		
16	+12V	Battery power

Interfaces used: 1996 - 2004 : ISO 9141 1996 - 2007 : UBP 1996 - 2001 : J1850-PWM only 2002 - 2006 : J1850-PWM or CAN after 2006 : CAN

11. Troubleshooting

Below you can find a list of typical problems and how to solve them:

Problem:

When starting the "ABRITES diagnostics for Ford/Mazda" a message box with the text "Connection Error: Interface not connected!" appear:

Solution:

- Be sure that the USB interface drivers are installed properly. You can look at the device manager, the USB interface should appear as "USB Serial Port (COMxx)" where "xx" is the number of the port.
- Try to reconnect the USB connector of the interface
- Try to reconnect the OBD2 connector of the interface
- Be sure that the interface is connected with the car properly

12. Abbreviations

CAN DTC	Controller Area Network Diagnostic Trouble Code
ECM	Engine Control Module
ECU	Electronic Control Unit
IPC	Instrument Panel Cluster
тсм	Transmission Control Module
SLM	Shift Lever Module
TPMS	Tire Pressure Monitoring System
ACC	Adaptive Cruise Control
тс	Traction Control
ESP	Electronic Stability Program
EPS	Electro Power Steering
EHPS	Electro Hydraulic Power Steering
SAS	Steering Angle Sensor
SADS	Semi Active Damping System
CIM	Column Integrated Module
ВСМ	Body Control Module
PATS	Passive Anti Theft System.
DLC	Data Link Connector
PCM	Powertrain Control Module
KOEO	Key ON Engine OFF Test
KOER	Key ON Engine Running Test
RKE	Remote Keyless Entry

13. Best Practices

When doing all keys lost on a Ford Transit 2006, 2010, 2013+, when the alarm has been activated, the BCM is blocked and denies entering diagnostic session. This won't allow programming/deleting keys and the procedure will fail.

The following few steps are the workaround to this issue:

1. Select the CCC function - Central Car Configuration

ABRIT	ES Disgnostics for Ford / Mazda 7.9			12.10.000	www.abrites.com			
ID	Ford Europe 2006 Transit	Pro	VIN	DTC				1
726	(BCMii) Body Control Module	CAN HS						
760	(ABS) Antilock braking system	CAN HS						Previous
TE0	(PCM) Powertrain Control Module	CAN HS						Frevious
720	(IPC) Instrument Panel Control Module	CAN MS						
127	(ACM) Audio Control Module	CAN MS						6
736	(PAM) Parking Aid Module	CAN MS						Open
772	(SRM) Speech Recognition Module	CAN MS						
58	(RCM) Restraint Control Module	K7						
								Next
								123.
								(FE
								Options
🖨 Ve	hicle Selection 👔 Special Functions 🔯 🕻	Iptions						Ext
Fo	ord Europe					-	8	
		1.15.200					Scan for Units Clear DTCs	
20	06 Transit					-		
2	4 Duratorg TDCI					····· ·		
-	•							

726 (BCH1) Hody Control Module CAN MB with the Completed Module 760 (BS) Antilock heating syst 778 (BCH1) is Completed Module 780 (FC) Fourtrain Control Module The Control Module 9 (FC) Fourtrain Control Module 9 (Control Module 9 (FC) Restring All Module 9 (Control Module 9 (FC) Fourtrain Control Module 9 (Control Module 9 (FC) Restring All Module 9 (Control Module 9 (FC) Restrin All Module 9 (Control Module	D	Ford Europe 2	006 Transit Pro VIN DTC	
 (a) (AS) Antilock braking syst (FCM) Powertrain Control Media (FCM) Powertrain Control Media (FCM) Furturent Panel (Format) Model (FCM) Furturent (FCM) Format) Format) Format (FCM) Format <l< th=""><th>26</th><th>(BCMii) Body Control Modul</th><th></th><th></th></l<>	26	(BCMii) Body Control Modul		
60 (FCM) Fovertrain Control Me 20 (IFC) Instrument Fanel Cont 21 (ACM) Audio Control Module 22 (ACM) Audio Control Module 23 (BCM) Parking Aid Module 24 (SRM) Speech Recognition Me 25 (RCM) Restraint Control Mo 26 (RCM) Restraint Control Mo 27 (SRM) Restraint Control Mo 28 (RCM) Restraint Control Mo 29 (RCM) Restraint Control Mo 20 (SRM) Restraint Control Mo 2	60	(ABS) Antilock braking sys	V zor Brund Leong Colliformedule	1
10 (IFC) Instrument Fanel Cont 17 (ACM) Audio Control Module 16 (FMA) Parting Aid Module 16 (FMA) Parting Aid Module 16 (FMA) Parting Aid Module 17 (ACM) Audio Control Module 16 (FMA) Parting Aid Module 17 (SNA) Speech Recognition Me 18 (SNA) Speech Recognition Me 19 (SNA) Speech Recognition Me 10 (SNA) Restraint Control Module 10 Vahicle Mandacturer ECU Software Number 11 (SNA) Speech Recognition Me 12 (SNA) Speech Recognition Me 13 (SNA) Control Module Identification Number 14 (SNA) Control Module Identification Number 15 (SNA) Control Module Identification Number 16 (SNA) Control Module Identification Number 16 (SNA) Soci Control Module Identification Programmed 16 (SNA) Soci Control Module Identification	0.0	(PCM) Powertrain Control M		Previo
(ACM) Audio Control Module (PAM) Parking Aid Module (PAM) Parking Aid Module (PAM) Parking Aid Module (SNM) Speech Recognition Me (SNM) Speech Recognition Me (SNM) Restraint Control Mod (RCM) Restraint Control Mod (RCM) Restraint Control Mod (Control Recognition Number (Control Recognition Number) (Control Recognition Number) (Co	-		ev Module Identification	
77 (Ac0) Andic Control Module 66 (EAM) Parking Aid Module 67 (Ac0) Andic Control Module 68 (EAM) Parking Aid Module 69 (EAM) Parking Aid Module 60 (EAM) Parking Aid Module 61 (EAM) Parking Aid Module 62 (EAM) Parking Aid Module 63 (EAM) Parking Aid Module 64 (EAM) Parking Aid Module 65 (EAM) Parking Aid Module 66 (EAM) Parking Aid Module 67 (EAM) Parking Aid Module 68 (EAM) Parking Aid Module 69 (EAM) Parking Aid Module 60 (EAM) Parking Aid Module 60				
2 (SNM) Speech Recognition Me	27	(ACM) Audio Control Module		G
2 (SRM) Speech Recognition Mo	16	(PAM) Parking Aid Module	Vehicle Manufacturer ECU Software Number 6C12-14C094-AG	0.00
(RCM) Restraint Control Mod (RCM) Restraint Control Mod (RCM) Restraint Control Mod (Vehicle Mandaturer ECU Mardware Number 6c17-14024-BE (Cathole Mandaturer ECU Mardware Number 007247-BE (Cathole Mandaturer ECU Mardware Number 007247-BE (Cathole Mandaturer ECU Mardware Number 007247-BE (Cathole Mardware Number 007247-BE (Cath				Ope
Central Broadcast Vehicle Identification Number WF0FXXTFF7156718 C \$\\$ 00076 found! B1005:15-0A Alarm Siren B \$\\$ 01005:0-06 (FAT3) Key Less Than Minimum Programmed B \$\\$ 01008:0-06 (FAT3) Key Less Than Minimum Programmed B \$\\$ 01008:0-06 (FAT3) Key Less Than Minimum Programmed B \$\\$ 01008:0-06 (FAT3) Key Less Than Minimum Programmed B \$\\$ 01008:0-06 (FAT3) Key Less Than Minimum Programmed B \$\\$ 01008:0-06 (FAT3) Key Less Than Minimum Programmed B \$\\$ 01008:0-06 (FAT3) Key Less Than Minimum Programmed B \$\\$ 01008:0-06 (FAT3) Key Less Than Minimum Programmed B \$\\$ 0108:0-06	12	(SRM) Speech Recognition M	Vehicle Identification Number WF0FXXTTFF7L56718	
B ♥ 4 OUTCs found! B ♥ 4 OUTCs found! B ♥ 51007:51-06 (FAT3) Key B ♥ 51007:51-06 (FAT3) Key Less Than Minimum Programmed B ♥ 51004:62-06 (FAT3) Key Less Than Minimum Programmed B ♥ 51004:62-06 (FAT3) Key Less Than Minimum Programmed B ♥ 51004:62-06 (FAT3) Key Less Than Minimum Programmed B ♥ 51004:62-06 (FAT3) Key Less Than Minimum Programmed B ♥ 51004:62-06 (FAT3) Key Less Than Minimum Programmed B ♥ 51004:62-06 (FAT3) Key Less Than Minimum Programmed B ♥ 51004:62-06 (FAT3) Key Less Than Minimum Programmed B ♥ 51004:62-06 (FAT3) Key Less Than Minimum Programmed B ♥ 51004:62-06 (FAT3) Key Less Than Minimum Programmed B ♥ 716 (FAT3) Key Less Than Minimum Programmed B ♥ Pr	58	(RCM) Restraint Control Mo		
 B ♥ B1035:15-00 Alem Siren B ♥ B1005:00-46 (FATS) Key B ♥ B1005:00-46 (FATS) Key Less Than Minimum Programmed B ♥ B1005:00-46 (FATS) Target Identifier B ♥ B1005:00-46 (FATS) Target Identifier B ♥ D26 (BOMA1) Body Control Module A Work I Body Control Module B ♥ B1005:15-00 Alem Siren B ♥ B1055:15-00 Alem Siren B ♥ B1055:15-00 Alem Siren 				
<pre></pre>				Nex
B D 1008:00-48 (PATS) Key Lees Than Minimum Programmed B ♥ B1008:00-48 (PATS) Target Identifier				
i ⊕ NIOBA:C2-OA (FRIS) Target Identifier 				
Image: Control has been completed. Image: Control Hodule				
a Q 725 (BOHL) Body Control Nodule Q Module Identification B ♥ 1 CMDTCs found! d: ♥ sl005/15-0A Alarm Siren Q Operation has been completed.				
O Module Identification O Module Totatification O Module Totatification O Operation has been completed.				
(a) ♥ 1 OMCCs found! (b) ♥ BIOA5:15-0A Alarm Siren (- ◆ Operation has been completed.				
⊕ ♥ B10A5-15-0A Alarm Siren → Operation has been completed.				Option
Coperation has been completed.				Copilor
			• operation and been compreted.	0
				Exit
Identification Read DTCs Cear DTCs ECU Rest Advanced Cose				
Commission real provide Log reservation Log Re				

2. Read the config from the Master BCM module

3. Find parameter "11 Alarm"- there is a value "01 Alarm" Edit it to "02 No Alarm" and write it

ID	Ford Europe 200	6 Transit	Pro VIN DTC		_
726	(BCMii) Body Control Module	Vehicle Con	CAN HS		
760	(ABS) Antilock braking syst	-			
7E0	(PCM) Powertrain Control Mo		. Parameter	V Variant	Previo
720	(IPC) Instrument Panel Cont	and the second	Alternator	01 150 A	
727	(ACM) Audio Control Module	4 7	Steering wheel position	02 Right hand drive	G
736	(PAM) Parking Aid Module	4 8	Gearbox	30 Manual 6-speed (MT82)	Ope
772	(SRM) Speech Recognition Mo	4 9	Gearbox Type	01 Manual	Lobe
58	(RCM) Restraint Control Mod	4 10	Fuel tank volume	02 Volume 80 litre	
		4 11	Alarm	01 Alarm	-
		4 12	Screen Skins	00 Not Configured	Nex
		Succession			
			Headlights, type	00 Not Configured	
			Headlights	00 Not Configured	
		4 15	Daylight running light	02 Standard dipped light - adjustable	- 283
		4 16	Dimmed dipped headlights	00 Not Configured	G
		4 17	Foglight function	01 Without foglight	Optio
		4 18	Rear foglight tow function	00 Not Configured	6
🔒 Vel	hicle Selection 👔 Special Functions	4 19	Trailer module	01 Without trailer module	Exit
1	< 🐕 👄 🧔		Kevless entry and start	02 Revless entry and start	
Serv					
Func		E List	Hex		-
4	ي 👷 🏅			Save to File Apply Close	
RPM C					

4. Now you can enter the function to erase/program keys- the BCM is no longer blocked

	S Diagnostics for Ford / Mazda 7.9		www.abrites.com	_ 0 >
ID	Ford Europe 20	06 Transit Pro VIN DTC		
726 (BCMii) Body Control Module				
760				
7E0	(PCM) Powertrain Control Mo		V Variant ^	Previo
720	(IPC) Instrument Panel Cont		01 150 A	
727	(ACM) Audio Control Module	4 7 Steering wheel position	02 Right hand drive	G
736	(PAM) Parking Aid Module	4 8 Gearbox	30 Manual 6-speed (MT82)	Ope
772	(SRM) Speech Recognition Mc	4 9 Gearbox Type	01 Manual	
58	(RCM) Restraint Control Mod	4 10 Fuel tank volume	02 Volume 80 litre	
		4 11 Alarm	02 No alarm	- 4
		4 12 Screen Skins	00 Not Configured	Nex
		4 13 Headlights, type	00 Not Configured	
		4 14 Headlights	00 Not Configured	
		4 15 Daylight running light	02 Standard dipped light - adjustable	
		4 16 Dimmed dipped headlights		G.
				Option
		4 17 Foglight function	01 Without foglight	
	0	4 18 Rear foglight tow function	00 Not Configured	0
S Vel	vicle Selection	4 19 Trailer module	01 Without trailer module	Exit
X	< 🕅 👄 🧔	4 20 Kevless entry and start	02 Revless entry and start	5
Serv	ice Live Data Cluster NVD	List DE Hex	bd Linvier Og	ben
		List 2019 Hex	Save to File Apply Close	
P BPM Co	ritroller Airbag DPF			

D	Ford Europe	2006 Transit Pro VIN DTC		
26	(BCMii) Body Control Modu			
60	(ABS) Antilock braking sy	S Ford Europe / 2006 / Transit/ 2.4 Duratorq TDCI - Key learning		
EO		PCM: Battery Voltage: 12.3 V		Previo
EU	(PCM) Powertrain Control I	C FCM: Battery Voltage: 12.3 V FCM: Security Access: Timed	STOP	
20	(IPC) Instrument Panel Com	te PCM: Service Module: Yes	Stop	
27	(ACM) Audio Control Module	PCM: Spare Key Programming: Disabled		C
36	(PAM) Parking Aid Module	PCM: Unlimited Keys Mode: Disabled PCM: Timed access: 720 sec		
				Oper
72	(SRM) Speech Recognition 1	PCM: Battery Voltage: 12.2 V		
58	(RCM) Restraint Control M			
		PCM: Service Module: Yes PCM: Spare Key Programming: Disabled		
		PCM: Unlimited Keys Mode: Disabled		
		FCM: Timed access: 720 sec		Nex
		PCM: Executing PATS Coded Access: 01C55CBA -> 2592 Success	The second s	
		BCM: Executing PATS Coded Access: 01A59735 -> 9ECD Success		
		PCM: Security Access: Timed PCM: Service Module: Yes		
		PCM: Service Module: res PCM: Spare Key Programming: Disabled		
		PCM: Unlimited Keys Mode: Disabled		123
		FCM: Timed access: 600 sec		3
		PCM: PATS Security Access: Granted		Option
		BCM: PATS Security Access: Granted		_
		PCM: Battery Voltage: 12.3 V		
	Ø	PCM: Security Access: Timed process: PCM: Service Module: Yes		
Vel	hicle Selection 🛛 👔 Special Functio	PCM: Spare Key Programming: Disabled		Est.
>	< 👫 🗢	PCM: Unlimited Keys Mode: Disabled	-	
Serv	rice Live Data Cluster NV	D	d Limiter Open	
Func	tions Calibration	X Unknown Error		-
1	s 👷 🔤		Back	
>		U		
PM C	ontroller Airbag DPF			

5. Once done, enter the CCC and enable the alarm using the original parameter