

Ford Transit (MY2006 on) - Pilot Correction Learn

This function should be used following:

- Fuel injector replacement and calibration
- PCM (Engine ECU) replacement

Function overview

Each fuel injector fitted to the engine and controlled by the PCM has different characteristics. The way in which they deliver fuel through opening durations will vary. Injector characteristics vary with fuel rail pressure. Normal pilot correction learning is designed to learn changes to injectors during the normal operating time of the injectors, so only allows incremental changes from previously learned values.

The 'pilot correction learn' procedure carries out learning at five fuel rail pressure points. The procedure is repeated a total of three times. Three of the pressure points are carried out at engine idle speed while the remaining two are carried out at an increased idle speed.

The function will abort if certain DTCs are present or certain conditions are not met. See below for details of DTC's and 'failure codes'.

Procedure

- Select Pilot Correction Learn from within the Engine management 'Service Functions Menu'
- Follow on screen prompts and instructions
- Procedure can take up to 5 minutes to complete

Important Note:

Fuel injector Pilot Correction Learn function will fail unless the *Fuel Injection Pump Learn* procedure was completed successfully. To determine whether the *Fuel Injector Pump Learn* has completed successfully, check PMPLRN_ST (Pump learning status) in MONITOR LIST. 'Learned' should be displayed.

Function will fail if any of the following are present:	
U2A04	Vehicle speed over CAN
P0110	Inlet Air Temp
P0190	Fuel Rail Pressure
P0335	Crank Position Sensor
P1250	SCV Control
P0091	SCV Control
P0081	SCV Control
P006A	MAP Sensor
P0235	MAP Sensor
P0069	MAP Sensor
P0100	MAF Sensor
P0110	Accelerator Pedal Sensor
P0180	Fuel Temp Sensor
P1250	Fuel Pump
P1169	Fuel Pump
P2635	Fuel Pump
P0088	Fuel Pump
P1246	Alternator
P0622	Alternator

The function will also fail if any of the following are true:

- The difference between the desired fuel rail pressure and the actual fuel rail pressure is greater than 10 bar.
- The difference between the desired engine speed and the actual engine idle speed is greater than 75 rpm.
- Excessive fuel demand.
- Unstable Idle speed.
- Cylinder balance offsets unstable.
- Idle correction quantity is unstable.

Description of failure codes:

00	Pilot correction learning does not have a valid calibration
01	Non volatile memory has become corrupt and may have lost previously learnt values.
02	Pilot correction learning has never been invoked
03	Pilot correction learning has never been completed
04	Pilot correction learning was completed at a previous key cycle but has not been completed this key cycle
0A	Currently learning pressure point 1
0B	Currently learning pressure point 2
0C	Currently learning pressure point 3
0D	Currently learning pressure point 4
0E	Currently learning pressure point 5
10	Not started due to engine temperature being below or significantly above normal operating temperature
11	Not started due to air temperature
12	Not started due to fuel temperature
13	Not started due to pump learning not complete
14	Not started due to related system fault detected
1F	Not started due to IO Control
1F	Not started due to IO Control
21	Not started due to rail pressure stability and limits
22	Not started due to fuel quantity stability and limits
23	Not started due to cylinder balancing stability
24	Not started due to change in fan state
25	Not started due to accelerator pedal position out of range
26	Not started due to vehicle speed above limit
27	Not started due to not in a neutral gear
28	Not started due to in Start Mode
29	Not started due to alternator saturation
2A	Not started due to clutch engaged
2B	Not started due to injector QR codes not entered (or NVM corrupted)
30	Pilot learning has learnt incorrect trims
31	Pilot Learning has already failed
40	Exited due to engine temperature. Engine is either below or significantly above normal running temperature
41	Exited due to air temperature
42	Exited started due to fuel temperature
43	Exited due to Pump Learning not complete
44	Exited due to related system fault detected
47	Exited due to accelerator pedal position out of range
48	Exited due to vehicle speed above limit
49	Exited due to not in a neutral gear
50	Exited due to in Start Mode
51	Exited due to Pilot Correction Timeout
52	Exited due to Excessive Fuel Demand (Fuel demand significantly greater than PC entry)
53	Exited due to Cylinder balancing Offsets unstable
54	Exited due to Rail Pressure Unstable
55	Exited due to Engine Speed Unstable
56	Exited due to Idle correction quantity unstable
57	Exited due to rate of change of idle correction quantity
58	Failed due to Excessive Correction Values
59	Exited due to alternate learn request from external tool
60	Exited due to stop request from external tool
61	Exited due to alternator saturation
62	Exited due to clutch engaged
63	Exited due to injector QR codes not entered (or NVM corrupted)
80	Learn successful
81	Relearn successful