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## DUCATO (290/295) - ENGINE AND TRANSMISSION CONTROL MODULES (ECM-TCM) - ENGINE FAILURE INDICATOR WITH DTC ERRORS

**Engine management failure warning light - Loss of performance with one or more DTC errors - Service Solution**

 Cancels and replaces Service News 10.023.19 of 20/06/2019 and of 04/11/2019

### APPLICABILITY

Ducato FL (290/295) 2.3JTD Euro6B 130/150/177 HP manual transmission (MT) and electro-hydraulic transmission MTA).

### CLAIMED FAULT

Engine warning light turning on with poor performance.

The analysis with the diagnosis equipment detects the presence of one or more of the following DTC errors in the engine control module:

- P0236-7A - Air intake circuit fault - Fluid leakage or fault
- P0238-61 - Turbocharger control positive drift (low pressure) - Signal calculation failure
- P0401-61 - High pressure EGR valve blocked closed - Signal calculation fault
- P0402-61 - Air monitoring control system - Signal calculation fault
- P1451-92 - Result of diagnosis test for DPF efficiency - Incorrect performance or operation
- P213A-72 - Low pressure EGR valve actuator stuck open - Open circuit
- P250A-38 - Oil level sensor fault - Incorrect signal frequency (check that the oil level is correct)

### TECHNICAL CAUSE

Software calibration.

### NETWORK INTERVENTIONS

**Standards of conduct of the Dealership towards the Customer**

- Once the customer's claimed fault is confirmed, reassure the Customer that the fault will be solved by reprogramming the engine control module (ECM) and, for vehicles with automatic transmission, the transmission control module, as well (if necessary).
- After completing the operation, illustrate what has been done and ensure that the Customer is satisfied.

### Service Solution

If the customer's claimed fault is confirmed, check the DTC errors using diagnosis equipment and perform the corresponding intervention according to the following Operating Cycle.

 This operation DOES NOT apply to Euro 6D vehicles - vehicles not equipped with SCR (Selective Catalytic Reduction).

## OPERATING CYCLE

- Connect the diagnostic tool updated to the latest software release.
- Perform a Scan Report and save a copy for any further investigation.
- Check for presence of DTC errors and, according to the type of error, perform the corresponding operation as specified on the following table.

DTC error	Operation
Presence of DTC error P213A-72.	Reprogram the engine control module (ECM) and, for the MTA versions, also the transmission control module (TCM) (if necessary) (Cycle D).
Presence of DTC error P250A-38 and vehicle engine with number lower than 3516492.	Perform the oil level sensor check procedure (Cycle A) and then reprogram the engine control module (ECM) and, for the MTA versions, also the transmission control module (TCM) (if necessary) (Cycle D).
Presence of DTC error P250A-38 and the vehicle engine with number equal to or higher than 3516492.	Reprogram the engine control module (ECM) and, for the MTA versions, also the transmission control module (TCM) (if necessary) (Cycle D).



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Presence of DTC error P1451-92	Replace the DPF (See Technical Service Manual Op. 1080B81) and then reprogram the engine control module (ECM) and, for the MTA versions, also the transmission control module (TCM) (if necessary) (Cycle D).
Presence of DTC error P0401-61	Replace the high pressure EGR valve (See Technical Service Manual, Op. 1080C93) and then perform the following procedures, in the specified order: <ul style="list-style-type: none"> <li>• DPF check (Cycle B)</li> <li>• Injector check (Cycle C)</li> <li>• Perform the procedure for reprogramming the engine control module (ECM) and, for the MTA versions, also the transmission control module (TCM) (if necessary) (Cycle D).</li> </ul>
Presence of one or more of the following DTC errors: <ul style="list-style-type: none"> <li>• P0236-7A</li> <li>• P0238-61</li> <li>• P0402-61</li> </ul>	Perform the following procedures in sequence: <ul style="list-style-type: none"> <li>• DPF check (Cycle B)</li> <li>• Injector check (Cycle C)</li> <li>• Perform the procedure for reprogramming the engine control module (ECM) and, for the MTA versions, also the transmission control module (TCM) (if necessary) (Cycle D).</li> </ul>

## CYCLE A - Oil level sensor check

Open the bonnet.

Disconnect the connector of the engine oil level control module (A - Fig. 1).

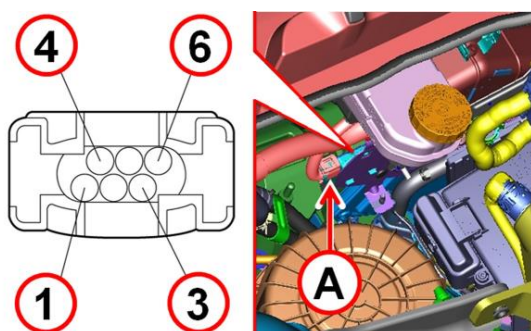
With the engine cold and ambient temperature between 0 and 30 °C, use a multimeter to measure the resistance of the engine oil level sensor at PIN 3 and 6 of the control module.

- If the resistance is between 7.8 and 10 Ohm, the sensor is compliant, continue with the reprogramming operation (Cycle D).
- If the resistance value is NOT between 7.8 and 10 Ohm, check the electrical continuity/wiring insulation between the control module connector (A - Fig. 1) and the oil level sensor; repair the wiring, if necessary.
- If the wiring is correct, replace the oil level sensor and continue with the reprogramming operation (Cycle D).

✓ To replace the engine oil level sensor, refer to Technical Service Manual Op. 1084A40.

✓ To replace the wiring, refer to Service News 55.16.15.

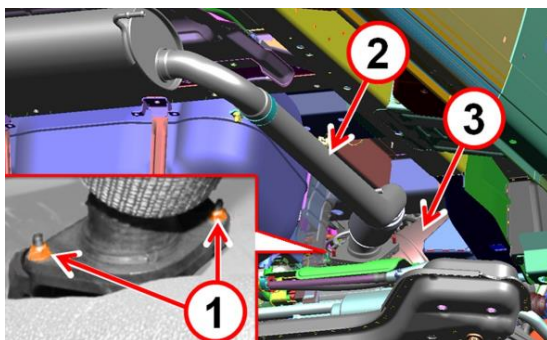
Fig. 1



## CYCLE B - DPF check

- Put the car on the lift.
- Undo the nuts (1 - Fig. 2) fixing the exhaust of the pipe (2) to the DPF (3).

Fig. 2

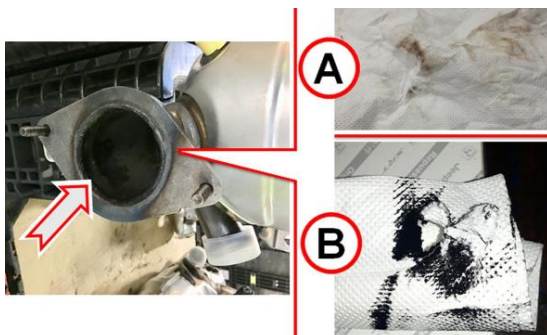


Move the exhaust pipe away from the DPF filter, wipe a clean white cloth inside the DPF filter outlet and check cleanliness.

- If the cloth remains sufficiently clean (A - Fig. 3), the DPF filter is OK. Continue with the reprogramming operation (Cycle D).
- If the cloth becomes heavily soiled with black spots and soot (black particulate matter), replace the DPF filter and continue with reprogramming (Cycle D).

✓ To replace the DPF filter, refer to Technical Service Manual Op. 1080B81.

Fig. 3



## CYCLE C - Injector check

With the diagnostic equipment, check that the fuel injector correction values correspond to those shown on the following table

Maximum fuel correction per cylinder (Max fuel correction)	2mm3/H (2 cubic millimetres/hour)
Sum of injectors fuel corrections	0mm3/H (0 cubic millimetres/hour)

- If the values are correct, continue with the reprogramming operation (Cycle D)
- If the values are not correct, replace each faulty injector and continue with the reprogramming operation (Cycle D).

☒ To replace the fuel injector (or injectors), refer to Technical Service Manual Op. 1060F11 (or Op. 1060F10 for replacing 4 injectors).

☒ Whenever the high pressure pipes connecting the fuel manifold to the injectors are removed/disconnected, they must be replaced with new pipes taken from Spare Parts when they are refitted.

## CYCLE D - Reprogramming engine and transmission control modules

Update the software of the engine control module and, for vehicles with automatic transmission, check and update the software of both control modules (engine and transmission - ECM+TCM), following the procedures described.

- Connect the diagnostic tool updated to the latest software release.



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 Read all the instructions and warning messages displayed during reprogramming; do not continue with the following messages without performing all of the relevant procedures when prompted.

- Reprogram the engine control module (ECM).

For versions with electro-hydraulic transmission (MTA), compare the number of the installed software; if it does not correspond to the updated version (\*), reprogram the transmission control module (TCM).

(\*) According to the engine version, the updated software number will be one of the following: FEA10AAU, FEA10BAU, FEA10CAU, FEA10DAU, FEA10EAU, FEA10FAU. Check the specific tables in the Transmission Control Module Codes section below.

 The vehicle battery must be in full charge conditions or supported by a battery charger/booster battery so as to ensure a rated voltage of 12V during reprogramming.

 If the reprogramming process is interrupted/aborted, it must be restarted.

- Reset all errors (DTCs) generated in other modules as a result of reprogramming. After reprogramming, all DTCs will be displayed automatically so that they can be reset.
- Once the work is completed, perform a Scan Report and save a copy for any further investigation before disconnecting the diagnosis equipment.

## PCM CODES

The following tables show the hardware (HW) and software (SW) codes of the Engine Control Module, before and after reprogramming.

### 2.3JTD Euro6B 130 HP manual transmission (MT)

Before programming, the control module must have the following data			
HW number	HW version	SW number	SW version
MJ9DFHW000	00	4E42A116	0016
MJ9DFHW000	00	4E42A118	0018
MJ9DFHW000	00	4F42A123	0023
MJ9DFHW000	00	4I40A124	0024
MJ9DFHW000	00	4L43A128	0028
After programming, the control module will have the following data			
HW number	HW version	SW number	SW version
MJ9DFHW000	00	4L43A132	0032





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## 2.3JTD Euro6B 150 HP manual transmission (MT)

Before programming, the control module must have the following data			
HW number	HW version	SW number	SW version
MJ9DFHW000	00	4E42A216	0016
MJ9DFHW000	00	4E42A218	0018
MJ9DFHW000	00	4F42A223	0023
MJ9DFHW000	00	4I40A224	0024
MJ9DFHW000	00	4I40A225	0025
MJ9DFHW000	00	4L43A228	0028
After programming, the control module will have the following data			
HW number	HW version	SW number	SW version
MJ9DFHW000	00	4L43A232	0032

## 2.3JTD Euro6B 177 HP manual transmission (MT)

Before programming, the control module must have the following data			
HW number	HW version	SW number	SW version
MJ9DFHW000	00	4E42A316	0016
MJ9DFHW000	00	4E42A318	0018
MJ9DFHW000	00	4F42A323	0023
MJ9DFHW000	00	4I40A324	0024
MJ9DFHW000	00	4I40A325	0025
MJ9DFHW000	00	4L43A328	0028
After programming, the control module will have the following data			
HW number	HW version	SW number	SW version
MJ9DFHW000	00	4L43A332	0032

## 2.3JTD Euro6B 130 HP electro-hydraulic transmission (MTA)

Before programming, the control module must have the following data			
HW number	HW version	SW number	SW version
MJ9DFHW000	00	4E42A416	0016
MJ9DFHW000	00	4E42A418	0018
MJ9DFHW000	00	4F42A423	0023
MJ9DFHW000	00	4I40A424	0024
MJ9DFHW000	00	4L43A428	0028
After programming, the control module will have the following data			
HW number	HW version	SW number	SW version
MJ9DFHW000	00	4L43A432	0032

## 2.3JTD Euro6B 150 HP electro-hydraulic transmission (MTA)

Before programming, the control module must have the following data			
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HW number	HW version	SW number	SW version
MJ9DFHW000	00	4E42A516	0016
MJ9DFHW000	00	4E42A518	0018
MJ9DFHW000	00	4F42A523	0023
MJ9DFHW000	00	4I40A524	0024
MJ9DFHW000	00	4I40A525	0025
MJ9DFHW000	00	4L43A528	0028
After programming, the control module will have the following data			
HW number	HW version	SW number	SW version
MJ9DFHW000	00	4L43A532	0032

## 2.3JTD Euro6B 177 HP electro-hydraulic transmission (MTA)

Before programming, the control module must have the following data			
HW number	HW version	SW number	SW version
MJ9DFHW000	00	4E42A616	0016
MJ9DFHW000	00	4E42A618	0018
MJ9DFHW000	00	4F42A623	0023
MJ9DFHW000	00	4I40A624	0024
MJ9DFHW000	00	4I40A625	0025
MJ9DFHW000	00	4L43A628	0028
After programming, the control module will have the following data			
HW number	HW version	SW number	SW version
MJ9DFHW000	00	4L43A632	0032

## TRANSMISSION CONTROL MODULE CODES

The following tables show the ABS hardware (HW) and software (SW) codes, before and after flashing.

## 2.3JTD Euro6 130 HP electro-hydraulic transmission (MTA) Light versions

Before programming, the control module must have the following data			
HW number	HW version	SW number	SW version
CFC 448F.03	00	FEA09AAT	0000
CFC 448F.03	00	FEA08AAQ	0000
After programming, the control module will have the following data			
HW number	HW version	SW number	SW version
CFC 448F.03	00	FEA10AAU	0000

## 2.3JTD Euro6 130 HP electro-hydraulic transmission (MTA) Heavy versions



Before programming, the control module must have the following data

HW number	HW version	SW number	SW version
CFC 448F.02	00	FEA09BAT	0000
CFC 448F.02	00	FEA08BAQ	0000

After programming, the control module will have the following data

HW number	HW version	SW number	SW version
CFC 448F.02	00	FEA10BAU	0000

## 2.3JTD Euro6 150 HP electro-hydraulic transmission (MTA) Light versions

Before programming, the control module must have the following data

HW number	HW version	SW number	SW version
CFC 448F.05	00	FEA09CAT	0000
CFC 448F.05	00	FEA08CAQ	0000

After programming, the control module will have the following data

HW number	HW version	SW number	SW version
CFC 448F.05	00	FEA10CAU	0000

## 2.3JTD Euro6 150 HP electro-hydraulic transmission (MTA) Heavy versions

Before programming, the control module must have the following data

HW number	HW version	SW number	SW version
CFC 448F.04	00	FEA09DAT	0000
CFC 448F.04	00	FEA08DAQ	0000

After programming, the control module will have the following data

HW number	HW version	SW number	SW version
CFC 448F.04	00	FEA10DAU	0000

## 2.3JTD Euro6 177 HP electro-hydraulic transmission (MTA) Light versions

Before programming, the control module must have the following data

HW number	HW version	SW number	SW version
CFC 448F.07	00	FEA09EAT	0000
CFC 448F.07	00	FEA08EAQ	0000

After programming, the control module will have the following data

HW number	HW version	SW number	SW version
CFC 448F.07	00	FEA10EAU	0000

## 2.3JTD Euro6 177 HP electro-hydraulic transmission (MTA) Heavy versions



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Before programming, the control module must have the following data			
HW number	HW version	SW number	SW version
CFC 448F.06	00	FEA09FAT	0000
CFC 448F.06	00	FEA08FAQ	0000
After programming, the control module will have the following data			
HW number	HW version	SW number	SW version
CFC 448F.06	00	FEA10FAU	0000

## SPARE PARTS AVAILABILITY

Version	Description	Order no.	Qty
All models in question	Engine oil level sensor	5802119659	1
2.3JTD 130HP	DPF filter	1398664080	1
2.3JTD 150/177HP	DPF filter	1398668080	1
All models in question	High pressure EGR valve	71796727	1
All models in question	Gasket between exhaust pipe and DPF filter	53140107	1
All models in question	Nuts M8 fixing exhaust pipe to DPF filter	14060011	2 (*)
All models in question	Injector	71796822	1 - 4
All models in question	High-pressure pipes from rail to injector	504097481	1

(\*) Each pack contains 10 nuts

## CLAIM FORM DATA

Version	Operation	Part	Fault	Position	Time
MT transmission	1060285 (*)	1	RA	-	0.35 (*)
MTA transmission	1060286 (*)	1	RA	-	0.45 (*)
MT transmission	1060287 (**)	1	RA	-	0.50 (**)
MTA transmission	1060288 (**)	1	RA	-	0.60 (**)
MT transmission	1060289 (***)	1	RA	-	0.60 (**)

MTA transmission	1060290 (***)	1	RA	-	0.70 (***)
MT transmission	1060283 (°)	1	RA	-	0.30 (°)
MTA transmission	1060284 (°°)	1	RA	-	0.40 (°)

(\*) Each pack contains 10 nuts

MT = manual transmission


MTA = Electro-hydraulic transmission

(\*) Operation Code and Time allowance for operations A+D.

(\*\*) Operation Code and Time allowance for operations B+C+D

(\*\*\*) Operation Code and Time allowance for operations A+B+C+D.

(°) Operation Code and Time allowance for operations D.

 Any replacement of components (e.g. DPF filter, injectors, high pressure EGR valve, etc.) and repair of wiring must be coded separately as per the repair Tempario.



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