


DUCATO 2.0 16V ENGINE DOES NOT PRODUCE BEST PERFORMANCE D05


The engine operates normally at moderate/low speeds but does not achieve its usual performance peaks (in terms of speed and acceleration).

STEP	OPERATIONS TO BE CARRIED OUT	TEST RESULTS		
0	PRELIMINARY CHECKS	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check the following, in order: <ul style="list-style-type: none"> condition of the air intake circuit; that there are no faults in the air filter; the seal of the diesel pipes; no obstructions in the catalytic converter 	Move on to Step 1	Air intake circuit faulty	Repair the air intake circuit
			Air filter blocked	Replace the filter element Op. 1048A14 AIR CLEANER FILTERING ELEMENT - REPLACE.
			Leaks from diesel pipes	Eliminate the leaks
			Catalytic converter obstructed	Replace the catalytic converter Op. 1080B62 CATALYTIC CONVERTER - R + R
1	CHECK USING DIAGNOSTIC EQUIPMENT	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Connect the diagnostic equipment to the diagnostic socket. Check: <ul style="list-style-type: none"> that there are no errors in the control unit; the plausibility of the parameters; correct accelerator pedal end of travel setting 	Move on to Step 2	Error detected in the control unit	Continue following the instructions for the diagnostic equipment
			Parameters not plausible	Continue following the instructions for the diagnostic equipment
			Incorrect accelerator pedal setting	Adjust accelerator pedal end of travel position
2	ROAD TEST USING DIAGNOSTIC EQUIPMENT	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Carry out a road test keeping the diagnostic equipment connected.  Make sure that the conditions in which the problem occurs are reproduced Check: <ul style="list-style-type: none"> that there are no errors in the control unit; parameter plausibility 	Move on to Step 3	The sudden onset of errors in the control unit is detected	Continue following the instructions for the diagnostic equipment
			Parameters off the scale	Continue following the instructions for the diagnostic equipment
			No communication with the control unit	Restore the connection between the engine management control unit and the diagnostic connector See E5050 DIESEL ENGINES ELECTRONIC MANAGEMENT
3	BRAKE PEDAL SWITCH CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check that the brake pedal switch is working properly	Move on to Step 4	Brake pedal does not return	Eliminate the cause of the sticking
			Switch stuck closed	Replace the switch
			Wiring short circuited	Eliminate the cause of the problem
4	TURBOCHARGER CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION

	Check the operation of the turbocharger as described in Test 1064BA . See Test 1064B CONTROL/SAFETY DEVICES	Move on to Step 5	Turbocharger faulty	Replace the turbocharger
5	HIGH PRESSURE CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Connect the diagnostic equipment to the diagnostic socket. Check, as described in Test 1060D , that the diesel pressure parameter is correct. See Test 10600 DIESEL FUEL INJECTION SUPPLY TESTS	Move on to Step 12	Pressure not correct	Move on to Step 6
6	LOW RETURN PRESSURE CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check, as described in Test 1060A , that the pressure in the return pipe to the tank is less than 0.5 bar . See Test 10600 DIESEL FUEL INJECTION SUPPLY TESTS	Move on to Step 7	Pressure above the maximum limit: return pipe to the tank obstructed	Repair the pipe and replace if necessary
7	LOW SUPPLY PRESSURE CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check, as described in Test 10600B , that the diesel pressure between the filter and the pressure pump is between 0.6 and 0.7 bar . See Test 10600 DIESEL FUEL INJECTION SUPPLY TESTS	Move on to Step 11	Pressure below the minimum limit or above the maximum limit	Move on to Step 8
			Pressure above the maximum limit	Replace Bontaz pressure relief valve
8	LOW SUPPLY PRESSURE CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check that the difference in pressure upstream and downstream of the filter is less than 0.2 bar	Move on to Step 9	Difference in pressure more than 1 bar	Replace the fuel filter cartridge Op. 1044B20 FUEL FILTER FILTERING ELEMENT - REPLACE
9	LOW SUPPLY PRESSURE CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check that the pressure difference between the electric pump outlet and the filter inlet is less than 0.3 bar	Move on to Step 10	Difference in pressure more than 0.3 bar	Replace the pipe Op. 1040B30 FUEL DELIVERY LINE - R R
10	PRESSURE REGULATOR ACTIVE DIAGNOSIS	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check pressure regulation pump operation while in active diagnosis mode.	Move on to Step 11	Valve defective	Change valve Op. 1060G16 PRESSURE RELIEF SENSOR - R R
11	CHECK ON CORRECT OPERATION	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Replace the pressure pump and check that the fault is no longer present. Op. 1060E10 PRESSURE PUMP - R R	End of diagnosis	Fault persists	Renew the pressure pump and move on to Step 12
12	VALVE CLEARANCE CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION

	Check that the tappet clearance is correct Op. 1036H14 VALVE TAPPETS - CHECK CLEARANCE	Move on to Step 13	Valve clearance not correct	Replace tappets Op. 1036H57 HYDRAULIC TAPPETS ALL R R
13	ENGINE CYLINDER HEAD CHECKS	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	R/R head for valve leakage test Op. 1016C10 SINGLE CYLINDER HEAD, REMOVED - OVERHAUL Check condition of cylinders/piston rings	Move on to Step 14	Valve seal insufficient Cylinders/piston rings worn	Restore the seal Overhaul the cylinder head Op. 1016E10 SINGLE CYLINDER HEAD, REMOVED - OVERHAUL
14	CHECK ON CORRECT OPERATION	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check that the fault is no longer present	End of diagnosis	Fault persists: control unit defective	Replace the engine management control unit Op. 1060G80 DS ELECTRIC INJECTION CONTROL UNIT - R R

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STEP	OPERATIONS TO BE CARRIED OUT	TEST RESULTS		
0	PRELIMINARY CHECKS	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check the following, in order: <ul style="list-style-type: none"> condition of the air intake circuit; that there are no faults in the air filter; the seal of the diesel pipes; the accelerator pedal travel; no obstructions at the catalyzer 	Move on to Step 1	Air intake circuit faulty Air filter blocked Leaks from diesel pipes Accelerator pedal does not complete its full travel Catalytic converter obstructed	Repair the air intake circuit Replace the filter element Op. 1048A14 AIR CLEANER FILTERING ELEMENT - REPLACE. Eliminate the leaks Eliminate the cause of the problem Replace the catalytic converter Op. 1080B62 CATALYTIC CONVERTER - R + R
1	CHECK USING DIAGNOSTIC EQUIPMENT	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Connect the diagnostic equipment to the diagnostic socket. Check: <ul style="list-style-type: none"> that there are no errors in the control unit; parameter plausibility 	Move on to Step 2	Error detected in the control unit Parameters not plausible	Continue following the instructions for the diagnostic equipment Continue following the instructions for the diagnostic equipment
2	ROAD TEST USING DIAGNOSTIC EQUIPMENT	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Carry out a road test keeping the diagnostic equipment connected. Make sure that the conditions in which the problem occurs are reproduced  Check: <ul style="list-style-type: none"> that there are no 	Move on to Step 3	The sudden onset of errors in the control unit is detected Parameters off the scale	Continue following the instructions for the diagnostic equipment Continue following the instructions for the diagnostic equipment Restore the connection between the engine

	errors in the control unit; • parameter plausibility		No communication with the control unit	management control unit and the diagnostic connector See E5050 DIESEL ENGINES ELECTRONIC MANAGEMENT
3	CHECK PRESSURE PUMP THIRD PISTON DEACTIVATION DEVICE	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check operation of the third pressure pump piston deactivation device.	Move on to Step 4	Electrical connections not correct	Repair the electrical connections See E5050 DIESEL ENGINES ELECTRONIC MANAGEMENT
			The device is not working: it remains closed even above 2/3 of the engine full load conditions	Replace the pressure pump Op. 1060E10 PRESSURE PUMP - R R
4	BRAKE PEDAL SWITCH CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check that the brake pedal switch is working properly	Move on to Step 5	Brake pedal does not return	Eliminate the cause of the sticking
			Switch stuck closed	Replace the switch
			Wiring short circuited	Eliminate the cause of the problem See E5050 DIESEL ENGINES ELECTRONIC MANAGEMENT
5	TURBOCHARGER CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check the operation of the turbocharger as described in Test 1064BA See Test 1064B CONTROL/SAFETY DEVICES	Move on to Step 6	Turbocharger faulty	Replace the turbocharger
6	HIGH PRESSURE CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Connect the diagnostic equipment to the diagnostic socket. Check, as described in Test 1060OD , that the diesel pressure parameter is correct. See Test 1060O DIESEL FUEL INJECTION SUPPLY TESTS	Move on to Step 14	Pressure not correct	Move on to Step 7
7	LOW RETURN PRESSURE CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check, as described in Test 1060OA , that the pressure in the return pipe to the tank is less than 1 bar . See Test 1060O DIESEL FUEL INJECTION SUPPLY TESTS	Move on to Step 8	Pressure above the maximum limit: return pipe to the tank obstructed	Repair the pipe and replace if necessary
8	LOW SUPPLY PRESSURE CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check, as described in Test 1060OB , that the diesel pressure between the filter and the pressure pump is between 2 and 3 bar . See Test 1060O DIESEL	Move on to Step 14	Pressure below the minimum limit or above the maximum limit	Move on to Step 9

	FUEL INJECTION SUPPLY TESTS			
9	LOW SUPPLY PRESSURE CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Constrict the return pipe, downstream of the valve, and carry out Test 1060B again with the pipe constricted checking that the pressure at the filter outlet stays below 2 bar See Test 10600 DIESEL FUEL INJECTION SUPPLY TESTS	Move on to Step 10	Pressure rises to 5 bar : low pressure regulator in filter mounting defective	Replace filter mounting
10	LOW SUPPLY PRESSURE CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check that the difference in pressure upstream and downstream of the filter is less than 1 bar	Move on to Step 11	Difference in pressure more than 1 bar	Replace the fuel filter cartridge Op. 1044B20 FUEL FILTER FILTERING ELEMENT - REPLACE
11	LOW SUPPLY PRESSURE CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check that the supply pump pressure is more than 2.2 bar	Move on to Step 14	Pressure below 2 bar	Move on to Step 12
12	LOW SUPPLY PRESSURE CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check that the pressure difference between the electric pump outlet and the filter inlet is less than 0.3 bar	Move on to Step 13	Difference in pressure more than 0.3 bar	Replace the pipe
13	LOW SUPPLY PRESSURE CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check, as described in Test 1040AA , that the pump supply voltage is equal to 12 volt and that the current absorbed is between 2 and 10 Ampere See Test 1040A FUEL TANK AND COMPONENTS	Move on to Step 14	Voltage < 12 V	Check electrical wiring See E5050 DIESEL ENGINES ELECTRONIC MANAGEMENT
			Current > 10 Amps : pump not running smoothly	Replace the fuel pump assembly Op. 1040A70 SUBMERGED PUMP ASSEMBLY COMPLETE WITH LEVEL GAUGE CONTROL - R + R
			Current < 2 Amps : pump obstructed	Replace the fuel pump assembly and clean the fuel tank Op. 1040A70 SUBMERGED PUMP ASSEMBLY COMPLETE WITH LEVEL GAUGE CONTROL - R + R
14	CHECK ON CORRECT OPERATION	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Replace the DRV pressure regulation valve and check that the fault is no longer present Op. 1060E50 PRESSURE REGULATOR - R R	End of diagnosis	Fault persists	Renew the valve and move on to Step 15
15	CHECK ON CORRECT OPERATION	ALL OK	PROBLEMS ENCOUNTERED	ACTION

	Replace the pressure pump and check that the fault is no longer present Op. 1060E10 PRESSURE PUMP - R R	End of diagnosis	Fault persists	Renew the pump and move on to Step 16
16	TIMING CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check that the valve gear timing is correct	Move on to Step 17	Valve gear timing not correct	Restore the correct valve gear timing Op. 1032B10 TOOTHED TIMING BELT - R + R FOR TIMING ADJUSTMENT OR REPLACEMENT
17	VALVE CLEARANCE CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check that the tappet clearance is correct Op. 1036H14 VALVE TAPPETS - CHECK CLEARANCE	Move on to Step 18	Valve clearance not correct	Adjust the tappets Op. 1036H10 VALVE TAPPETS - CHECK AND ADJUST CLEARANCE
18	CYLINDER COMPRESSION CHECK	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Carry out the cylinder compression check	Move on to Step 20	Cylinder compression insufficient	Move on to Step 19
19	CHECK ON CAUSE OF INSUFFICIENT COMPRESSION	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	R/R head for valve leakage test Op. 1016C10 SINGLE CYLINDER HEAD, REMOVED - OVERHAUL Check condition of cylinders/piston rings	Move on to Step 20	Valve seal insufficient	Restore the seal
			Cylinders/piston rings worn	Overhaul the cylinder head Op. 1016E10 SINGLE CYLINDER HEAD, REMOVED - OVERHAUL
20	CHECK ON CORRECT OPERATION	ALL OK	PROBLEMS ENCOUNTERED	ACTION
	Check that the fault is no longer present	End of diagnosis	Fault persists: control unit defective	Replace the engine management control unit Op. 1060G80 DS ELECTRIC INJECTION CONTROL UNIT - R R