

7.1 Fault table

7.2 Engine management

Faults, causes and remedies

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- Faults are often caused by incorrect operation or maintenance of the engine.
- For every fault, check whether or not all operating and maintenance specifications have been observed.
- A corresponding fault table can be found overleaf.
- If you cannot recognise the cause of a fault or cannot remedy a fault yourself, please contact your **DEUTZ Service**.



Before starting make sure that there is nobody in the engine / work machine danger area.
For repairs: Caution: Separate battery connection!

7.1 Fault table

Faults, causes and remedies

Faults										Action			
Engine doesn't start up, or starts up with difficulty										Set Change	S Ch		
Engine doesn't start up and diagnosis light is blinking													
Engines starts up, but runs irregularly or misfires													
Engine gets too hot. Temperature warning system is activated													
Engine lacks power													
Engine lacks power and diagnosis light is lit up													
Engine doesn't work on all cylinders													
Engine has no, or too little, oil pressure													
Engine has too high oil consumption													
Engine smoulders - blue													
- white													
- black													
Cause												Section	
●												Not disconnected (if possible)	Operation
●								●		Starting limit temperature not reached		C	
●			●							Engine shutdown lever is still in stop position (shutdown magnet defective)		C	
		●			●					Oil level too low		F	
		●	●			●	●			Oil level too high		L	
					●	●	●			Engine is tilted too far (only with mech. regulators)		C / S	
●										Set throttle to halfway		C / S	
		●	●						●	Air filter soiled / exhaust turbocharger defective	Combustion air	C / Ch	
		●	●						●	Air filter maintenance switch / display defective		C	
		●	●						●	Charge air line leaking		C / Ch	
		●								Cool water pump defective (V-rib belt torn or loose)		C	
			●						●	Charge air cooler soiled	Cooling system	C / Cl	
		●								Coolant heat exchanger soiled		C / Cl	
●		●	●	●		●				V-rib belt torn or loose (fuel pump in belt drive)		C / W	
			●	●						Cool air heating / heat short circuit		C	
●										Battery defective or not charged	Electrics	C	

Faults, causes and remedies

7.1 Fault table

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Faults										Action	
Engine doesn't start up, or starts up with difficulty										Check	C
Engine doesn't start up and diagnosis light is blinking										Set	S
Engines starts up, but runs irregularly or misfires										Change	Ch
Engine gets too hot. Temperature warning system is activated										Clean	Cl
Engine lacks power										Fill up	F
Engine lacks power and diagnosis light is lit up										Lower	L
Speed changes are possible + diagnostic light is lit up										Engine electronics	E*
Engine has no, or too little, oil pressure										* Identify fault by monitoring the blink code or fault memory	
Engine has too high oil consumption											
Engine has too high oil consumption											
Engine smoulders - blue											
- white											
- black											
										Cause	Section
●										Starter, circuit cable connections loose or oxidised	Electrics
●										Starter defective or pinion doesn't mesh	
●	●	●					●	●		Valve clearance incorrect	Engine
●	●	●		●						Injection line leaking	
		●								Ventilation line blocked (coolant heat exchanger)	
●								●		Heating plug defective	
●	●	●	●		●			●	●	Injector defective	
●	●	●		●						Air in fuel system	
●	●	●		●						Fuel filter / fuel pre-cleaner soiled	
		●								Oil filter defective	
●						●	●			Incorrect SAE class or quality of engine lube oil	Operating substance
●	●	●						●		Fuel quality does not comply with instruction manual	
		●								Lack of cooling water	
	●									Engine electronics prevent start	Electronics
				●						Engine electronics reduce power	
				●						Engine electronics has detected a system error and activates an equivalent speed	

7.2.1 Engine protection function of the electronic engine controller EMR3

Depending on the design of the monitoring functions, the EMR3 can protect the engine from damage in certain fault situations by monitoring compliance with important limit values during operation and checking the correct functioning of the system components. Depending on the severity of a detected fault, the engine may continue running with restrictions, whereby the fault lamp lights steadily or the fault lamp indicates a serious system fault by flashing. **In this case the engine must be switched off as soon as it is safe to do so!**

Depending on the engine configuration, the flashing fault lamp can have the following meaning:

- Request to the operator to shut down
Caution: Failure to heed this will lead to loss of warranty!
- Autom. switching off of the engine after a short pre-warning time, possibly in connection with a start lock
- To cool down the engine before switching off, forced engine operation at low idling speed, automatic switch-off if necessary
- Start lock (see also chap. 3.3)



When the fault is corrected the light goes out. For some faults it is necessary to switch off the ignition, wait for 30 s and then switch the ignition back on.

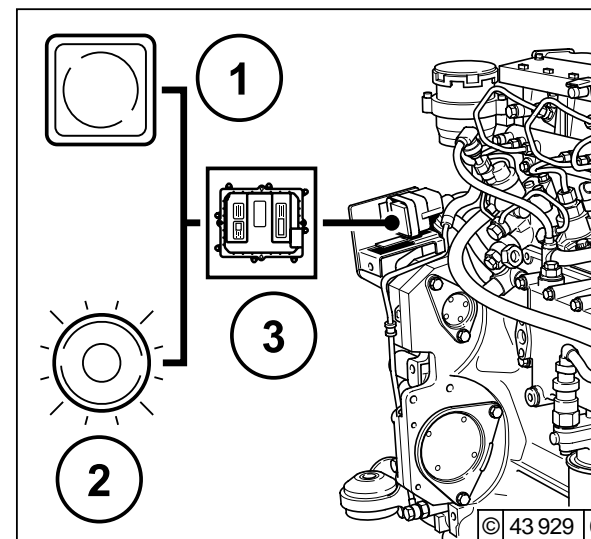
7.2.2 Using the diagnosis button

With the diagnosis button (1) the fault at hand can be read out as a blink code. The diagnosis button (1) and the fault light (2) can be found on the vehicle driving stand.

Faults are indicated by a blinking or continuous illumination of the fault light (2). More precise information regarding all existing faults can be read out in the form of a blink code, only when the engine is not running, in the following manner: After actuating the diagnosis button (1) for at least one second, the fault light (2) goes out and the first fault is, after releasing the key displayed as a blink code. Analyse the blink code as per the table on the following page. After the fault blink code has been displayed the fault light (2) goes out for five seconds.

Then the next existing fault (i.e. the following one in the fault memory) can be shown by actuating the diagnosis button (1) again. If the last existing fault has been shown, by actuating the diagnosis button (1) once more the first fault will be shown again.

7.2.3 Table of fault blink codes



The possible blink codes, their meaning and measures for correcting faults can be found in the table on the following page. The blink code values in the first column indicate the number of preliminary short blink signals (illuminated duration approx. 0.4 s), the number of subsequent long blink signals (illuminated duration approx. 0.8 s) as well as the number of concluding short blink signals. The code 2-1-4 for the fault "overspeed" is made up of two short, one long and four short blink signals, for example. If a fault cannot be corrected by the measures given in the table please contact your service representative responsible.

Blinkcode			Function / Component	Error
Short	Long	Short		
0.4s	0.8s	0.4s		
2	1	2	Monitoring camshaft/crankshaft	No camshaft signal, no crankshaft signal
2	1	3	Monitoring camshaft/crankshaft	Deviation between the camshaft and crankshaft signal
2	1	4	Engine protection:	Overspeed/override status implausible
2	1	6	Fuel low pressure sensor	Signal faulty
			Monitoring fuel low pressure	Fuel low pressure outside the nominal range
2	1	9	Output to adjuster exhaust valve engine brake	Signal faulty, overtemperature control unit
2	2	2	Input accelerator 1 (PWM)	PWM signal faulty
2	2	3	Charge air pressure sensor	Signal faulty
			Monitoring charge air pressure	Charge air pressure outside the nominal range
2	2	4	Oil pressure sensor	Signal faulty / implausible
2	2	5	Coolant temperature sensor	Signal faulty / implausible in comparison with the oil temperature, CAN signal invalid
2	2	6	Input accelerator 1 (analog)	Signal faulty / implausible
2	2	7	Fuel temperature sensor	Signal faulty
2	2	8	Water level sensor in the fuel filter	Signal faulty
			Monitoring fuel filter water level	Max. water level exceeded