

## P0031

### Oxygen Sensor Heating Output Stage Ahead of TWC, Bank 1 – Below Limit

#### Diagnostic conditions

- Battery voltage between 10 V and 16 V
- Time after the engine is started longer than 10 seconds

#### Possible cause of fault

- ◆ Short circuit to ground
- ◆ Oxygen sensor faulty (short circuit to sensor casing)
- ◆ DME control module faulty

#### Affected pins

DME control module connector A, pin 5, and oxygen sensor connector ahead of TWC, bank 1, pin 4

#### Diagnosis/troubleshooting

**Note!**

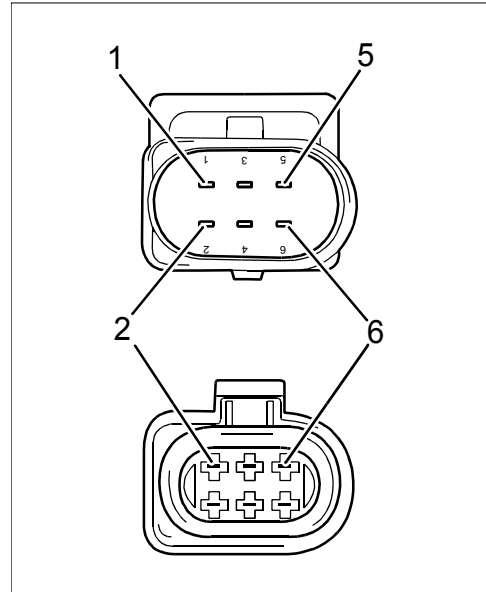
*Do not use contact spray on the oxygen sensor plug connections as this may cause irreparable damage to the wiring (contamination of the oxygen sensor via the reference air channel).*

**Note!**

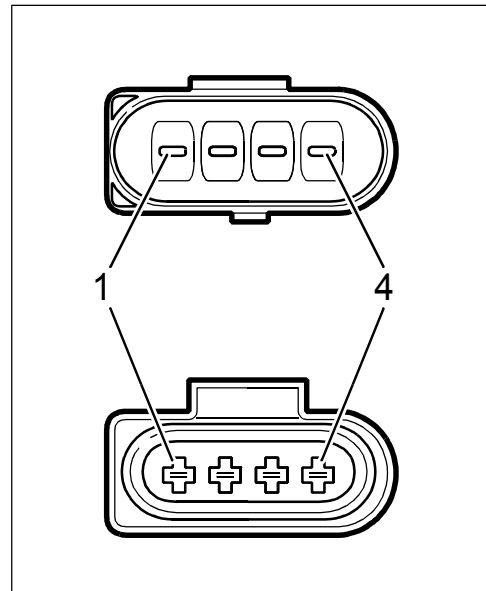
*Do not confuse oxygen sensor ahead of catalytic converter and oxygen sensor behind catalytic converter as this will cause implausible fault entries.*

**Distinguishing feature of both sensors:**

Oxygen sensor in front of catalytic converter (LSU) has a six-pin plug ▶



Oxygen sensor behind catalytic converter (LSF) has a four-pin plug ▶



**i** Note!

If connector A is disconnected from the DME control module and the ignition is or was switched on, the 'DME Control Module TIME-OUT' fault is recorded in many control modules.

 **Note!**

If control module connector A was disconnected from the DME in the course of troubleshooting or if the voltage supply was interrupted elsewhere (battery, fuse), the throttle adjusting unit must be adapted.

Work instruction			Display OK	If not OK
1	Check oxygen sensor heating for a short circuit to sensor casing	<ul style="list-style-type: none"> <li>◆ Disconnect oxygen sensor plug connection ahead of TWC, bank 1</li> </ul> Measure resistance between pin 4 of oxygen sensor connector and: <ul style="list-style-type: none"> <li>◆ Casing of oxygen sensor</li> <li>◆ Pin 1</li> <li>◆ Pin 2</li> <li>◆ Pin 5</li> <li>◆ Pin 6</li> </ul>	$\infty \Omega$ $\Rightarrow$ Step 2	$\Rightarrow$ Step 3
2	Check wire for short circuit to ground	<ul style="list-style-type: none"> <li>◆ Pull off plug A from DME control module</li> <li>◆ Visual inspection</li> <li>◆ Measure resistance between DME control module connector A, pin 5, towards the oxygen sensor and ground</li> </ul>	$\infty \Omega$ $\Rightarrow$ Step 4	Repair wire and correct the cause of the fault if necessary $\rightarrow$ End
3	Replace oxygen sensor		$\rightarrow$ End	$\Rightarrow$ Step 4
4	Check whether additional faults have been recorded		$\Rightarrow$ Step 5	Work through faults in accordance with instructions $\rightarrow$ End
5	Replace DME control module		Observe the notes on possible causes of faults in the introduction at all times!	

