

Groups 030-049: Mixture Control, O2S Heating, Catalytic Converter

030	Oxygen sensor, status		2-bank systems	
	Bank 1, sensor 1	Bank 1, sensor 2	Bank 2, sensor 1	Bank 2, sensor 2
	xxx 4 └ Control active └ Sensor ready └ Sensor heater ON	xxx [1] └ Control active └ Sensor ready └ Sensor heater ON	xxx 4 └ Control active └ Sensor ready └ Sensor heater ON	xxx 4 └ Control active └ Sensor ready └ Sensor heater ON
030	Oxygen sensor, status		1- bank systems	
	Bank 1, sensor 1	Bank 1, sensor 2		
	xxx 4 └ Control active └ Sensor ready └ Sensor heater ON	xxx 4 └ Control active └ Sensor ready └ Sensor heater ON		
031	Oxygen sensor voltage		2- bank systems	
	Bank 1, sensor 1	Bank 1, sensor 2	Bank 2, sensor 1	Bank 2, sensor 2
	[V]	[V]	[V]	[V]
031	Oxygen sensor voltage		1- bank systems	
	Bank 1, sensor 1	Bank 1, sensor 2		
	[V]	[V]		
031	Linear oxygen sensors		2- bank systems	
	Lambda actual value Bank 1	Lambda specified value Bank 1	Lambda actual value Bank 2	Lambda specified value Bank 2
	[]	[]	[]	[]
031	Linear oxygen sensors		1- bank systems	
	Lambda actual value Bank 1	Lambda specified value Bank 1		
	[]	[]		
032	Oxygen sensors learning values (maximum value)		2- bank systems	
	Bank 1, sensor 1, idle	Bank 1, sensor 1, partial load	Bank 2, sensor 1, idle	Bank 2, sensor 1, partial load
	[%]	[%]	[%]	[%]
032	Oxygen sensors learning values (maximum value)		1- bank systems	
	Bank 1, sensor 1, idle	Bank 1, sensor 1, partial load		
	[%]	[%]		
033	Lambda control value		2- bank systems	
	Bank 1, control value	Bank 1, Oxygen sensor voltage	Bank 2, control value	Bank 2, knock sensor voltage
	[%]	[V]	[%]	[V]
033	Lambda control value		1- bank systems	
	Bank 1, control value	Bank 1, Oxygen sensor voltage		

	[%]	[V]		
033	Linear oxygen sensor control value		2- bank systems	
	Bank 1, control value	Bank 1, sensor voltage before cat. converter of a broad band sensor	Bank 2, control value	Bank 2, sensor voltage before cat. converter of a broad band sensor
	[%]	[V]	[%]	[V]
034	Oxygen sensor aging test Bank 1 or Bank 3 before catalytic converter, short trip			
	RPM	Exhaust gas / cat. converter temperature	Length of period	Result
	[1/min]	[°C]	[s]	Text: Test ON/Test OFF/ B1-S1 OK/B1-S1 not OK or: B3-S1 OK /B3-S1 not OK
034	Oxygen sensor aging test Bank 1 or Bank 3 before cat. converter for linear oxygen sensors. short trip			
	RPM	Exhaust gas / cat. converter temperature	Dynamic factor	Result
	[1/min]	[°C]	[]	Text: Test ON/Test OFF/ B1-S1 OK/B1-S1 not OK or B3-S1 OK ./B3-S1 not OK
035	Oxygen sensor aging test Bank 2 or Bank 4 before cat. converter, short trip		2-bank systems	
	RPM	Exhaust gas / cat. converter temperature	Length of period	Result
	[1/min]	[°C]	[s]	Text: Test ON/Test OFF/ B2-S1 OK/B2-S1 not OK or B4-S1 OK/B4-S1 not OK
035	Oxygen sensor aging test Bank 2 or Bank 4 before cat. converter for linear oxygen sensors, short trip		2- bank systems	
	RPM	Exhaust gas / cat. converter temperature	Dynamic factor	Result
	[1/min]	[°C]	[]	Text: Test ON/Test OFF/ B2-S1 OK /B2-S1 not OK or: B4-S1 OK/B4-S1 not OK
035	Oxygen sensor aging test Bank 2 before cat. converter		1- bank systems	
036	Oxygen sensor readiness after cat. converter, short trip		2- bank systems	
	Bank 1, sensor 2	Result	Bank 2, sensor 2	Result

	Sensor voltage	Text: Test ON/Test OFF/ B1-S2 OK/B1-S2 not OK or: B3-S2 OK/B3-S2 not OK	Sensor voltage	Text: Test ON/Test OFF/ B2-S2 OK/B2-S2 not OK or: B4-S2 OK/B4-S2 not OK
036	Oxygen sensor readiness after cat. converter, short trip		1- bank systems	
	Bank 1, sensor 2	Result		
	Sensor voltage	Text: Test ON/Test OFF/ B1-S2 OK./B1-S2 not OK.		
037	Oxygen sensors, short trip			
	Last	Bank 1: Oxygen sensor voltage after cat. converter	Bank 1: TV shift	Result
	[%]	[V]	[ms]	Text: Test ON/Test OFF/ Sys. OK/Sys. not OK
037	Linear oxygen sensors, short trip			
	Last	Bank 1: Oxygen sensor voltage after cat. converter	Bank 1: D Lambda	Result
	[%]	[V]	[]	Text: Test ON/Test OFF/ Sys. OK/Sys. not OK
038	Oxygen sensors, short trip		2- bank systems	
	Last	Bank 2: Oxygen sensor voltage after cat. converter	Bank 2: TV shift	Result
	[%]	[V]	[ms]	Text: Test ON/Test OFF/ Sys OK/Sys. not OK
038	Linear oxygen sensors, short trip		2- bank systems	
	Last	Bank 2: Oxygen sensor voltage after cat. converter	Bank 2: D Lambda	Result
	[%]	[V]	[]	Text: Test ON/Test OFF/ Sys OK/Sys. not OK
038	Oxygen sensors		1- bank systems	
	Not used			
039	Sensor exchange after cat. converter short trip			
	Air mass	Bank 1: sensor voltage	Bank 2 sensor voltage	Result
	[g/s]	[V]	[V]	Text:Test ON/Test OFF/ Sys OK/Sys. not OK
040	Oxygen sensor heaters resistor Combined wires and heaters		2- bank systems	
	Heater resistor	Condition	Heater resistors	Condition
	Banks 1+2, sensor 1 [Ω]	Text: Heater before cat. ON/ Heater before cat. OFF	Banks 1+2, sensor 2 [Ω]	Text: Heater before cat. ON/ Heater before cat. OFF
040			1- bank systems	
	Not used			

041	Oxygen sensor heater			1- bank systems
	Resistor	Condition or duty cycle	Resistors	Condition
	Bank 1, sensor 1 [Ω]	Text: Heater before cat. ON/ Heater before cat. OFF or: sensor 1 [%]	Bank 1, Sensor 2 [Ω]	Text: Heater after cat. ON/ Heater after cat. OFF
042	Oxygen sensor heaters, separate wires of heaters			2- bank systems
	Resistor	Condition or duty cycle	Resistors	Condition
	Bank 2, Sensor 1 [Ω]	Text: Heater before cat. ON/ Heater before cat. OFF or: Sensor 1 [%]	Bank 2, Sensor 2 [Ω]	Text: Heater after cat. ON/ Heater after cat. OFF
043	Oxygen sensor ageing after cat. converter, linear oxygen sensors, short trip			Bank 1
	RPM	Exhaust gas / cat. converter temperature	Oxygen sensor voltage	Result
	[U/min]	[°C]	[V]	Text: Test ON/Test OFF/ B1-S2 OK/B1-S2 not OK Or: B3-S2 OK/B3-S2 not OK
044	Oxygen sensor ageing after cat. converter, short trip			Bank 2
	RPM	Exhaust gas / cat. converter temperature	Oxygen sensor voltage	Result
	[U/min]	[°C]	[V]	Text : Test ON/Test OFF/ B2-S2 OK /B2-S2 not OK Or: B4-S2 OK/B4-S2 not OK
044				1-bank systems
045	NOx memory cat. converter Bank 1, short trip		NOx memory cat. converter Bank 2	
	Factor memory entry NOx	Result	Factor memory entry NOx	Result
		Text: Test ON/Test OFF/ Sys. OK/Sys. not OK		Text: Test ON/Test OFF/ Sys. OK/Sys. not OK
046	Cat. converter conversion test Bank 1 or Bank 3, short trip			
	RPM	Cat. converter temperature	Measuring value cat. Converter conversion	Result
	[1/min]	[°C]		Text: Test ON/Test OFF/ Cat B1 OK/ Cat B1 not OK or: Cat B3 OK/ Cat B3 not OK
047	Cat. converter conversion test Bank 2 or Bank 4, short trip			2-Bank-Systems

	RPM	Cat. converter temperature	Measuring value cat. Converter conversion	Result
	[1/min]	[°C]		Text: Test ON/Test OFF/ Cat B2 OK/ Cat B2 not OK or: Cat B4 OK/ Cat B4 not OK
047	Cat. converter conversion test Bank 2		1-Bank-Systems	
	Not used			
048	Thermal cat. converter diagnosis Bank 1, short trip			
	Operating system BDE	Number of test steps	Exothermal temperature increase	Result
	[-]	[-]	[K]	Text: Test ON/Test OFF/ Sys. OK/Sys. not OK
049	Thermal cat. converter diagnosis Bank 2, short trip			
	Operating system BDE	Number of test steps	Exothermal temperature increase	Result
	[-]	[-]	[K]	Text: Test ON/Test OFF/ Sys. OK/Sys. not OK

[1] Condition fulfilled = 1; Condition not fulfilled = 0