



Oxygen Sensor Monitoring – Discovery Series II

Component/ System	Fault Codes	Monitoring Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameter	Enable Conditions	Time Required	MIL Illumination
Oxygen Sensor (front)	P0133/53	response rate	oxygen sensor signal period (over 50 periods)	> 2.2 sec	engine speed engine load catalyst temperature (model) IAT EVAP canister purge status transfer gears	1400 < rpm < 2600 2.0 < TL msec < 5.0 > 340 °C • 65.25 °C Off on > 20 sec	immediately/ once per driving cycle	two driving cycles
	P1170/73	sensor ageing	rich shift delay Time	< -1.0 or > 1.0 sec	O2S post catalyst control transfer gears	active high range	30 sec	
	P1129	exchanged oxygen sensors connector	fuel control factor or	bank 1 > 1.22 and bank 2 < 0.77 bank 1 < 0.77 and bank 2 > 1.22			8.0 sec	
					heater on transfer gears	> 90 sec high range		
	P0134/54	O2S circuit continuity	voltage or voltage (front & rear)	0.399V < voltage < 0.598V voltage > 0.199V	over run fuel cut off	> 3.0 sec	15 sec/continuous 0.1 sec/continuous	
	P0132/52	range check (high)	voltage	voltage > 1.081V			5.1 sec/continuous	
	P0130/50	O2S short circuit	voltage	voltage < 0.0399V	O2S post catalyst voltage	• 0.501V	20 sec/continuous	
				Or	ECT battery voltage time after start ECT at power down	< 39.75 °C > 8.016V > 1.0 sec > 60 °C	0.1 sec/continuous	
				0.062V • voltage < 0.399V	O2S post catalyst voltage	• 0.501V	20 sec/continuous	



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Heater				0.598V • voltage • 1.081V	O2S post catalyst voltage	< 0.102V	10 sec/continuous		
	P0135/55	O2S heater current circuit continuity	calculated resistance voltage	resistance < 2.453 • • <u>or</u> resistance > 10.06 • •	after engine start up transfer gears	> 180 sec high range	10 sec/continuous		
Oxygen Sensor (rear)					O2S heater on transfer gears	> 90 sec high range		two driving cycles	
	P0140/60	O2S circuit continuity	voltage	0.399V < voltage < 0.501V			500 sec/continuous		
	P0138/58	range check (high)	voltage	voltage > 1.081V			5.1 sec/continuous		
	P0137/57	range check (low)	voltage	voltage < 0.501V	engine air flow O2S post catalyst control	> 16.67 g/sec Active	210 sec/continuous		
	P0136/56	short circuit	voltage	voltage < 0.0399	O2S post catalyst control	Active	200 sec/continuous		
	P0139/59	oscillation capability check				O2S post catalyst control catalyst temperature (model) engine air flow rear O2S ready for at least rear O2S heater test rear O2S rich & lean flags not set catalyst temperature (model)	Active > 300 °C > 13.89 g/sec 30.0 sec completed successfully > 120 sec		
			if rear O2S voltage not • • 0.625V for	enrichment request still present after 25 sec		> 300 °C			



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Heater			0.52 sec request enrichment					
	P0141/61	O2S heater current circuit continuity	if rear O2S voltage not ••0.625 V for 0.52 sec wait for over run fuel cut off (ORFCO) calculated resistance voltage	rear O2S voltage > 0.200V resistance < 2.453 •• or resistance > 10.06 ••	fuel system status integrated engine air flow whilst in ORFCO front O2S check after engine start up transfer gears	in over run fuel cut off (ORFCO) for > 4.0 sec > 35.0 g completed successfully > 180 sec high range	0.20 sec/ continuous	

If the above table does not include details of the following enabling conditions: - IAT, ECT, vehicle speed range, and time after engine start-up then the state of these parameters has no influence upon the execution of the monitor.

Oxygen Sensor Monitoring – Range Rover

Component/System	Fault Codes	Monitoring Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameter	Enable Conditions	Time Required	MIL Illumination
Oxygen Sensor (front)	P0133/53	response rate	O2S signal period (over 30 periods)	> 2.2 sec	engine speed engine load catalyst temperature (model) intake air temperature EVAP canister purge status	1400 < rpm < 2600 2.0 < TL msec < 5.0 > 340 °C ••69.75 °C off <u>or</u> on > 20 sec	Immediately/ once per driving cycle	two driving cycles