



Oxygen Sensor and Fuel System Monitoring													
Component/ System	Fault Codes	Monitoring Strategy Description	Malfunction Criteria	Threshold value	Secondary Parameter	Enable Conditions	Time Required	MIL Illumination					
<b>OXYGEN SENSORS</b> Banks 1 & 2 Front & Rear (Integrated with fuel system)	P0130- P0133	Signal range	Minimum O2S voltage (titanium sensor)	< 0.015 volts	Fuel control Disable	Closed loop O2S heater faults	25 sec	2 successive trips					
	P0136- P0139		Maximum O2S voltage (titanium sensor)	> 4.98 volts									
	P0150- P0153	Response rate (slope check)	Maximum rich to lean time	< 0.235 sec	Mass airflow rate Fuel control Disable Disable Disable	90 kg/hr Closed loop O2S heater faults Misfire, injector, coil faults Maximum or minimum fuel trim enabled	25 sec	2 successive trips					
	P0156- P0159		Maximum lean to rich time (between rich & lean thresholds 3.13 v & 1.13 v)	< 0.349 sec									
	P1137- P1138		Mark Space Ratio Check Switching period check Clamp test (short term fuel trim)	Outside permissible range					Mapped with speed/load	Mass airflow rate	40 kg/hr	25 sec	2 successive trips
	P1157- P1158			High period limit					> 1.2 sec				
			O2 percentage enleanment	>20%	Fuel control ECT TP output EVAP Canister Purge flow status Disable	Closed loop > 70 Celsius > 0.12 v (open) Off	7 sec (once a trip)	2 successive drive cycles					
			O2 percentage enrichment	>20%					Disable	Test in progress opposite bank O2S out of range O2S response rate failure O2S heater faults Injector fault on same bank Mass airflow rate fault (current) TP fault			