2006 3.5L (L66)
ENGINE DIAGNOSTIC PARAMETERS

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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
THREE WAY CATALYTIC CONVERTER (TWC)	P0420 (BANK 1) P0430 (BANK 2)	B	SECONDARY HO2S SIGNAL VARIANCE METHOD	CTAGE67 (BANK 1) 2) CTAGE68 (BANK 2) 2)	>15000(hex) >0B000(hex)	ECT IAT2 VEHICLE SPEED MAP ENGINE SPEED SHORT TERM FUEL TRIM STATUS CATALYST TEMPERATURE (ESTIMATED VALUE BY PCM) MAP DIFFERENCE FUEL SYSTEM STATUS SV DIFFERENCE 3) MONITOR PRECONDITION MONITORING PRIORITY ORDER	>69deg.C >-21.5deg.C >3mph 250<MAP<550mmHg 1150<RPM<2000rpm WITHIN SHORT TERM FUEL TRIM LIMITS ΔKACT<0.05 5) >500deg.C <32.2mmHg 6) SECONDARY HO2S FEED BACK IS ACTIVATED DISABLE CONDITION: <0.488 DURING 3sec. SECONDARY HO2S MONITOR PASS OR SENSOR SIGNAL PASSES ACROSS VOLTAGE ZONE FROM 0.742V TO 0.293V LEVEL C: P0133 7)	JUDGMENT PASS: (MIN): 90sec. 4) JUDGMENT FAULT: (MIN): 90sec. 4) MONITORING RUNS ONCE PER DRIVING CYCLE	2 D/C

Note: 1): Refer to section for logic flowchart.
2): CTAGE67/CTAGE68: Calculated value derived from averaging the variance of secondary HO2S signal.
3): SV: Predicted exhaust gas volume introduced into catalyst. The value of less than 0.488 is equivalent to vehicle cruise condition.
4): The monitor takes approximate 150sec. in a driving cycle after battery cancel.
5): ΔKACT: Difference in coefficient factor calculated based on A/F sensor signal per a specific time.
6): MAP difference: {MAP(n)-MAP(n-1)}+{MAP(n-2)-MAP(n-3)}+{MAP(n-4)-MAP(n-5)} < 32.23mmHg (n=50msec.)
7): Level C: This monitor is temporarily disabled when level C monitors start monitoring. After the check has completed, this monitor restarts if applicable enable conditions are met.

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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
HEATED AIR FUEL RATIO (A/F) SENSOR	P2297 (BANK 1) P2298 (BANK 2)	B	RATIONALITY CHECK A/F SENSOR OUTPUT CURRENT MONITORING METHOD	A/F SENSOR SIGNAL(ANALOG)	>4.50V OR <2.90V	FUEL SYSTEM STATUS ECT ENGINE SPEED IAT2 VEHICLE SPEED CUMULATIVE TIME AFTER HEATER ON HEATER OPERATING STATUS A/F SENSOR ELEMENT RESISTANCE A/F SENSOR VOLTAGE	FUEL CUT CONDITION >69deg.C <2200rpm >-21.5deg.C >30mph >5sec. ACTIVATING <110ohm >2.0V	JUDGMENT FAULT OR PASS: (MIN): 4.25sec. 2) (MAX): 3) MONITORING RUNS ONCE PER DRIVING CYCLE	2 D/C

Note: 1): Refer to section for logic flowchart.
2): Under A/F sensor stable output condition (A/F sensor output voltage difference <0.05V per 0.15sec.)
3): Maximum time to judgment fault or pass is not specified, because A/F sensor stable output condition is needed for monitoring.

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HEATED AIR FUEL RATIO (A/F)SENSOR	P0133 (BANK 1) P0153 (BANK 2)	B	RESPONSE RATE CHECK	A/F SENSOR SIGNAL(ANALOG)	Gair(sec.) Tcyl(sec.) 0.5 3.10 1.0 2.70 1.5 2.40 2.0 2.20 3.5 2.00 6)	ENGINE SPEED MAP ECT IAT2 VEHICLE SPEED FLUCTUATION OF MAP SENSOR OUTPUT DURING 1 ENGINE REV A/F SENSOR ELEMENT RESISTANCE CUMULATIVE TIME AFTER HEATER ON SHORT TERM FUEL TRIM STATUS FUEL SYSTEM STATUS MONITORING PRIORITY ORDER	1050<RPM<2000rpm RPM MAP(mmHg) 2100 200-510 1800 200-510 1500 210-510 1200 250-510 1050 350-510 >69degC >-21.5deg.C >30mph <19mmHg <110ohm >5sec. WITHIN SHORT TERM FUEL TRIM LIMITS STOICHIOMETRIC A/F CONDITION LEVEL C: P0171,P0172, P0420,P0442, P0456 4)	JUDGMENT FAULT OR PASS: (MAX): 14.5sec. MONITORING RUNS ONCE PER DRIVING CYCLE	2 D/C

Note: 1): Refer to section for logic flowchart.
2): Judgment counter is paused during any of enable conditions are unsatisfied. The counter resumes after delay time of 2sec. from the instance of fulfillment of the enable conditions. So, maximum judgment time is extended by the counter pause time.
3): Monitoring time depends on switching period of sensor signal and vehicle driving conditions.
4): Level C: This monitor is temporarily disabled when level C monitors start monitoring. After level C monitors have completed, this monitor restarts if applicable enable conditions are met.
5): Gair: Cumulative time of fuel injection during monitoring.
Tcyl: Averaged one cycle of A/F sensor signal

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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
HEATED AIR FUEL RATIO (A/F) SENSOR	P2252 (BANK 1) P2255 (BANK 2)	F	A/F SENSOR CELL CIRCUIT CHECK (SHORT)	VOLTAGE IN SENSOR CELL CIRCUIT	<0.3V	CUMULATIVE TIME AFTER ENGINE START VRPVS 2) SENSOR HEATER OPERATING STATUS ENGINE STATUS	>85sec. >4.6V ACTIVATING RUNNING	JUDGEMENT FAULT : 5.5sec MONITORING RUNS CONTINUOUSLY	1 D/C
	P2245 (BANK 1) P2249 (BANK 2)		A/F SENSOR REFERENCE VOLTAGE CIRCUIT CHECK (SHORT)	VOLTAGE IN SENSOR CELL CIRCUIT	<1.5V				
	P2238 (BANK 1) P2241 (BANK 2)		A/F SENSOR PUMP CELL CIRCUIT CHECK (SHORT)	VOLTAGE IN PUMP CELL CIRCUIT	<1.0V	CUMULATIVE TIME AFTER ENGINE START SENSOR HEATER OPERATING STATUS ENGINE STATUS	>85sec. ACTIVATING RUNNING	JUDGEMENT FAULT : 5.0sec MONITORING RUNS CONTINUOUSLY	
	P2253 (BANK 1) P2256 (BANK 2)		A/F SENSOR CELL CIRCUIT CHECK (OPEN)	VOLTAGE IN SENSOR CELL CIRCUIT	>6.0V	LOWEST VRPVS SINCE ENGINE START VRPVS 2) SENSOR HEATER OPERATING STATUS ENGINE STATUS	<3.2V >4.6V ACTIVATING RUNNING	JUDGMENT FAULT :5sec MONITORING RUNS CONTINUOUSLY	
	P2243 (BANK 1) P2247 (BANK 2)		A/F SENSOR REFERENCE VOLTAGE CIRCUIT CHECK (OPEN)	VOLTAGE IN SENSOR CELL CIRCUIT	<3.4V DETECTED 50 TIMES AND >4.8V DETECTED 50 TIMES 3)	SENSOR HEATER OPERATING STATUS ENGINE STATUS	ACTIVATING RUNNING	JUDGMENT FAULT : (MAX)7sec MONITORING RUNS CONTINUOUSLY	
	P2239 (BANK 1) P2242 (BANK 2)		A/F SENSOR PUMP CELL CIRCUIT CHECK (OPEN)	VOLTAGE IN PUMP CELL CIRCUIT	<2.0V OR >5.6V	VOLTAGE IN SENSOR CELL CIRCUIT VRPVS 2) SENSOR HEATER OPERATING STATUS ENGINE STATUS	3.4 < VOLTAGE <4.7V <4.6V ACTIVATING RUNNING	JUDGMENT FAULT :15sec MONITORING RUNS CONTINUOUSLY	
	P2627 (BANK 1) P2630 (BANK 2)		A/F SENSOR LABEL RESISTOR SIGNAL (HIGH)	A/F SENSOR VLBL SIGNAL (ANALOG)	>4.7V	SENSOR HEATER OPERATING STATUS	ACTIVATING	JUDGMENT FAULT :5sec MONITORING RUNS CONTINUOUSLY	
	P2628 (BANK 1) P2631 (BANK 2)		A/F SENSOR LABEL RESISTOR SIGNAL (LOW)	A/F SENSOR VLBL SIGNAL (ANALOG)	>0.29V				

Note: 1): Refer to section for logic flowchart.
2): VRPVS: Voltage corresponding to internal resistance of sensor cell in normal condition. Output is 5V when A/F sensor controller detects particular malfunctions.
3): If voltage in sensor cell circuit (VS) oscillates, reference voltage circuit is judged open.
VS is monitored every 0.01sec, and VS is judged oscillating when both VS more than 4.8V and VS less than 3.4V are detected 50 times or more.

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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
HEATED AIR FUEL RATIO (A/F) SENSOR	P2414 (BANK 1) P2415 (BANK 2)	G	MONITOR OF LEAN A/F SENSOR OUTPUT	A/F SENSOR SIGNAL (ANALOG)	>2.9V	ENGINE OPERATING STATUS A/F SENSOR ELEMENT RESISTANCE FUEL SYSTEM STATUS CUMULATIVE TIME AFTER FUEL CUT NO.OF TIMES WHEN SENSOR OUTPUT IS STORED IN BUFFER	NOT ENGINE STALL <=200ohm NOT FUEL CUT >5sec >=23 2)	JUDGMENT FAULT: 7sec. MONITORING RUNS ONCE PER DRIVING CYCLE	1 D/C
	P0132 (BANK 1) P0152 (BANK 2)	F	OUT OF RANGE	VOLTAGE IN CIRCUIT	>4.70V	HEATER OPERATING STATUS A/F SENSOR ELEMENT RESISTANCE	ACTIVATING <=220/200ohm 3)	JUDGMENT FAULT 7sec. MONITORING RUNS CONTINUOUSLY	1 D/C
HEATED AIR FUEL RATIO (A/F) SENSOR OR ITS HEATER	P0135 (BANK 1) P0155 (BANK 2)	F	MONITOR OF A/F SENSOR ACTIVITY	SENSOR ELEMENT RESISTANCE (ANALOG) OR VOLTAGE IN SENSOR CELL CIRCUIT (ANALOG)	>110ohm >=4.35V OR <=3.85V	DELAY TIME AFTER FUEL CUT ENGINE OPERATION STATUS BATTERY VOLTAGE FUEL SYSTEM STATUS	>15sec. RUNNING >10.5V NOT FUEL CUT	JUDGMENT FAULT: 90sec.(INITIAL CHECK) 15sec.(AFTER INITIAL CHECK) MONITORING RUNS CONTINUOUSLY	1 D/C
HEATED AIR FUEL RATIO (A/F) SENSOR HEATER	P0030 (BANK 1) P0050 (BANK 2)		CIRCUIT CHECK (OPEN/SHORT)	VOLTAGE IN HEATER CIRCUIT (ANALOG)	=0V =12V	A/F SENSOR HEATER OPERATING STATUS	OFF ON	JUDGMENT FAULT: 1sec. MONITORING RUNS CONTINUOUSLY	

Note: 1): Refer to section for logic flowchart.
2): It takes less than 1sec. to store sensor output 23times in buffer.
3): Hysteresis, low to high resistance/high to low resistance

COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S)	P0137 (BANK 1) P0157 (BANK 2)	F	CIRCUIT CHECK SHORT	SECONDARY HO2S SIGNAL	<0.293V	ECT IAT FUEL SYSTEM STATUS	>68.8deg.C >-21.5deg.C STOICHIOMETRIC A/F CONDITION	JUDGMENT TIME: CIRCUIT CHECK SHORT : 40sec. CIRCUIT CHECK OPEN : 5sec.	1 D/C
	P0138 (BANK 1) P0158 (BANK 2)		CIRCUIT CHECK OPEN		>1.27V	SV 2) SHORT TERM FUEL TRIM STATUS MONITORING PRIORITY ORDER	>3E80 hex WITHIN SHORT TERM FUEL TRIM LIMITS LEVEL C: P0133 3)	MONITORING RUNS CONTINUOUSLY	
SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S) HEATER	P0141 (BANK 1) P0161 (BANK 2)	F	CURRENT CHECK	HEATER CURRENT (ANALOG)	<0.38A OR >3.33A	ECT BATTERY VOLTAGE 4) HEATER OPERATING STATUS	>5deg.C >10.50V ACTIVATED CONDITION	JUDGMENT TIME: 5.0sec. MONITORING RUNS CONTINUOUSLY	1 D/C
	P0036 (BANK 1) P0056 (BANK 2)		CIRCUIT CHECK (OPEN/SHORT)	VOLTAGE IN HEATER CIRCUIT (ANALOG)	=0V	HO2S HEATER OPERATING STATUS	OFF	JUDGMENT TIME: 1sec.	
					=12V		ON	MONITORING RUNS CONTINUOUSLY	

Note: 1): Refer to section for logic flowchart
2): Predicted exhaust gas volume introduced into catalyst.
3): Level C: This monitor is temporarily disabled when level C monitors start monitoring. After level C monitors have completed, this monitor restarts if applicable enable conditions are met.
4): Read value by PCM.

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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S)	P0139 (BANK 1) P0159 (BANK 2)	B	RESPONSE RATE CHECK	MOVING TIME OF A/F SENSOR SIGNAL	FAIL THRESHOLD T1 4) T2 5) (SEC) (SEC) 0.00 >0.60 0.92 >0.60 1.08 >0.86 3.45 >1.26 15.0 >3.21 PASS THRESHOLD T1 4) T2 5) (SEC) (SEC) 0.92 <0.49 0.93 <0.60 1.08 <0.86 3.45 <1.26 15.0 <3.21	ECT IAT MAP ENGINE SPEED VEHICLE SPEED SECONDARY HO2S SIGNAL AT MONITORING START DELTA MAP DELTA KCMD DURING RICH AND LEAN CONTROL 5) CUMULATIVE TIME AFTER ENGINE START FEED BACK CONTROL SYSTEM STATUS FUEL SYSTEM STATUS DELAY TIME AFTER FUEL CUT DELAY TIME AFTER PURGE CUT MONITORING PRIORITY ORDER	>68.8deg.C >=-21.5deg.C 160mmHg<MAP<520mmHg 1100rpm<RPM<1850rpm >30mph >0.293V <20mmHg/2engine revs <0.047 >150sec. 6) CLOSED LOOP CONDITION STOICHIOMETRIC A/F CONDITION MONITOR IS DISABLED AFTER FUEL CUT FUEL CUT TIME (sec) / DISABLE TIME (sec) 0.0 / 0.0 30.0 / 2.8 60.0 / 60.0 180.0 / 90.0 300.0 / 150.0 MONITOR IS DISABLED DURING 2.5sec AFTER PURGE CUT LEVEL A: P0137, P0138, P2270, P2271, P2272, P2273 7) LEVEL D: P0171, P0172 8)	JUDGMENT FAULT OR PASS: (MAX): 15.5sec. MONITORING RUNS ONCE PER DRIVING CYCLE	2 D/C

Note: 1): Refer to section for logic flowchart
2): T1: No reaction time of A/F sensor, duration after the PCM changes A/F command rich-to-lean intrusively until secondary HO2S output reaches 0.4V.
3): T2: Duration after secondary HO2S output passes 0.4V until it reaches 0.15V.
4): If secondary HO2S output can not reach 0.15V during 3.3sec. after secondary HO2S output passes 0.4V, the ECM judges as malfunction.
5): KCMD: Command value of fuel injection coefficient. When actual A/F before catalyst change, KCMD value changes to control actual A/F to stoiciometric condition.
6): If fuel cut condition is met during 150sec. after engine start, this disable time becomes long according to fuel cut time.
7): Level A: This monitor is disabled until level A monitors have had pass judgment.
8): Level D: This monitor is disabled only when level D monitor run intrusively purge cut.

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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S)	P2271 (BANK 1) P2273 (BANK 2)	B	SECONARY HO2S SIGNAL STUCK CHECK (RICH)	SECONDARY HO2S SIGNAL	>0.293V	SAME AS SECONDARY PARAMETERS OF P0139, P0159 EXCEPT FOR THE PARAMETER BELOW DURING LEAN CONTROL	SAME AS ENABLE CONDITIONS OF P0139, P0159 EXCEPT FOR THE CONDITION BELOW KCMD=0.957 2)	JUDGMENT TIME: (RICH STUCK): 15.0sec. (LEAN STUCK): 14.0sec. MONITORING RUNS ONCE PER DRIVING CYCLE	2 D/C
	P2270 (BANK 1) P2272 (BANK 2)		SECONARY HO2S SIGNAL STUCK CHECK (LEAN)	SECONDARY HO2S SIGNAL	<0.65V	SAME AS SECONDARY PARAMETERS OF P0139, P0159 EXCEPT FOR THE PARAMETER BELOW DURING RICH CONTROL	SAME AS ENABLE CONDITIONS OF P0139, P0159 EXCEPT FOR THE CONDITION BELOW KCMD=1.027 2)		

Note: 1): Refer to section for logic flowchart
2): KCMD: Command value of fuel injection coefficient. When actual A/F before catalyst change, KCMD value changes to control actual A/F to stoiciometric condition.

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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
MISFIRE	P0301 (#1CYL) P0302 (#2CYL) P0303 (#3CYL) P0304 (#4CYL) P0305 (#5CYL) P0306 (#6CYL) P0300 (MULT.)	REFER TO SECTION FOR MONITORING DESCRIPTION	CRANKSHAFT SPEED FLUCTUATION METHOD	MISFIRE RATIO (CATALYST DAMAGE)	REFER TO SUPPORT DATA 1)	MISFIRE COUNTER STATUS	RUNNING (MISFIRE COUNTER STARTS AFTER 1sec. FROM ENCOUNTERING THE ENABLE CONDITIONS)	JUDGMENT FAULT OR PASS: 200 ENGINE REVS	REFER TO SECTION FOR MONITORING DESCRIPTION
						ECT	>-10deg.C (ECT AT ENGINE START>-10deg.C) >20deg.C (ECT AT ENGINE START<-10deg.C)	MONITORING RUNS CONTINUOUSLY	
						IAT2	>-10deg.C		
				MISFIRE RATIO (FTP EMISSION)	1.47%	ENGINE SPEED	500<RPM<6300rpm	JUDGMENT FAULT OR PASS: 1000 ENGINE REVS	
						MAP	POSITIVE TORQUE CONDITIONS WHICH ENGINE LOAD IS ABOVE THE ONES IN THE TABLES BELOW 3)	MONITORING RUNS CONTINUOUSLY	
						CUMULATIVE TIME FROM ENGINE START	2)		
						THROTTLE ANGLE DIFFERENCE	>5deg./10msec *MISFIRE COUNTER IS HELD *DISABLE CONDITION		
						VEHICLE OPERATING CONDITION	ROUGH LOAD *MISFIRE COUNTER IS RESET *DISABLE CONDITION		

Note: 1): Refer to support data for misfire.

2): Before picking-up pulsar pitch error or when engine speed is more than 2000rpm, misfire counters are compensated for 10 engine revs after reaching the engine speed of 500 rpm when ignition is turned on. In another case, misfire counters are compensated for 2 engine revs after reaching the engine speed of 500 rpm when ignition is turned on.

3): Positive torque conditions are shown below:

-After compensating for pick-up pulsar pitch errors-

NO LOAD CONDITION (VEHICLE SPEED=0)		ROAD LOAD CONDITION (VEHICLE SPEED>0)			
		1ST OR 2ND GEAR POSITION		3RD OR HIGHER GEAR POSITION	
ENGINE SPEED (RPM)	MAP (mmHg)	ENGINE SPEED (RPM)	MAP (mmHg)	MAP (mmHg)	MAP (mmHg)
500	185	500	245	500	245
1000	158	1440	180	1080	205
2100	135	2090	180	1900	205
2500	148	2350	198	3500	335
3000	148	3950	198	5200	335
6500	330	6500	330	6500	450

-Before compensating for pick-up pulsar pitch errors-

NO LOAD CONDITION (VEHICLE SPEED=0)		ROAD LOAD CONDITION (VEHICLE SPEED>0)			
		1ST OR 2ND GEAR POSITION		3RD OR HIGHER GEAR POSITION	
ENGINE SPEED (RPM)	MAP (mmHg)	ENGINE SPEED (RPM)	MAP (mmHg)	MAP (mmHg)	MAP (mmHg)
900	185	1000	760	1000	760
920	500	1600	180	1600	205
2000	500	2090	180	1900	205
2500	148	2350	198	3500	335
3000	148	3950	198	5200	335
6500	330	6500	330	6500	450

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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
FUEL INJECTOR	P0201 (#1CYL) P0202 (#2CYL) P0203 (#3CYL) P0204 (#4CYL) P0205 (#5CYL) P0206 (#6CYL)	F	CIRCUIT CHECK (OPEN/SHORT)	VOLTAGE IN INJECTOR CONTROL CIRCUIT (ANALOG)	=0V	INJECTOR OPERATING STATUS	OFF (NO FUEL INJECTING)	JUDGMENT FAULT: 1sec. MONITORING RUNS CONTNUOUSLY	1 D/C
					=12V		ON (FUEL INJECTING)		

Note: 1): Refer to section for logic flowchart.

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EXHAUST GAS RECIRCULATION (EGR) SYSTEM	P0404	E	LIFT FEEDBACK CONTROL METHOD WHICH COMPARES THE ACTUAL VALVE LIFT(LACT) TO THE LOGICAL VALVE LIFT(LCMD)	EGR VALVE LIFT SENSOR SIGNAL (ANALOG)	|LCMD- LACT| >1.02mm	LCMD ENGINE SPEED BATTERY VOLTAGE 2) MONITORING PRIORITY ORDER	>0.3mm <4000rpm >10.50V LEVEL C: P0406 3)	JUDGEMENT FAULT OR PASS: 5sec. MONITORING RUNS CONTINUOUSLY	2 D/C
	P2413	G	LIFT FEEDBACK CONTROL METHOD WHICH COMPARES THE ACTUAL VALVE LIFT(LACT) TO THE LOGICAL VALVE LIFT(LCMD)	EGR VALVE LIFT SENSOR SIGNAL (ANALOG)	LACT<0.15mm	LCMD ENGINE SPEED BATTERY VOLTAGE 2) MONITORING PRIORITY ORDER	>1.00mm <4000rpm >10.50V LEVEL C: P0401 3)	JUDGEMENT FAULT OR PASS: 3sec. MONITORING RUNS ONCE PER DRIVING CYCLE	2 D/C
	P0403	F	EGR CONTROL SOLENOID CIRCUIT RETURN SIGNAL CHECK	RETURN SIGNAL CHECK(ANALOG)	NO SIGNAL CHANGE	BATTERY VOLTAGE 2)	>10.50V	JUDGEMENT FAULT: 2sec. MONITORING RUNS CONTNUOUSLY	1 D/C
	P0406		RANGE CHECK	EGR VALVE LIFT SENSOR SIGNAL (ANALOG)	>4.88V	KEY POSITION	IG ON	JUDGMENT FAULT: 2sec. MONITORING RUNS CONTINUOUSLY	

Note: LCMD: EGR valve lift command signal
LACT: Actual EGR valve lift signal
1): Refer to section for logic flowchart.
2): Read value by PCM.
3): Level C: This monitor is temporarily disabled when level C monitors start monitoring. After level C monitors have completed, this monitor restarts if applicable enable conditions are met.

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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
EXHAUST GAS RECIRCULATION (EGR) SYSTEM	P0401	B	INTAKE AIR PRESSURE METHOD WHICH MEASURES THE VARIATION OF THE PRESSURE BETWEEN EGR VALVE CLOSE AND OPEN	REGRF 2)	<15%	FUEL SYSTEM STATUS ENGINE SPEED ECT MAP VEHICLE SPEED BATTERY VOLTAGE 2) ENGINE SPEED FLUCTUATION AFTER MONITORING START MONITORING PRIORITY ORDER	FUEL CUT CONDITION 1100<RPM<2200rpm >69deg.C >100mmHg >30mph >10.50V -800<ΔRPM<200rpm LEVEL A: P0404, P2413 3)	JUDGEMENT FAULT OR PASS: 3.0sec. MONITORING RUNS ONCE PER DRIVING CYCLE	2 D/C

Note: 1): Refer to section for logic flowchart.
2): REGRF: The ratio indicates the extent of EGR valve clogging. REGRF = DPBBF / DPBST
DPBBF: Actual difference of intake air pressure between EGR valve close and open
DPBST: Predicted difference of intake air pressure between EGR valve close and open when EGR has no clogging
DPBST values are shown below

BARO = 460mmHg	
ENGINE SPEED (rpm)	DPBST (mmHg)
1100	67.9
1400	53.8
1700	40.2
2000	35.0
2200	34.6

BARO = 760mmHg	
ENGINE SPEED (rpm)	DPBST (mmHg)
1100	109.6
1400	89.3
1700	73.9
2000	61.7
2200	53.1

3): Level A: This monitor is disabled until level A monitors have had pass judgment.

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COMPONENT / SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
FUEL SYSTEM	P0172 (BANK 1) P0175 (BANK 2)	C	LONG TERM FUEL TRIM METHOD - RICH	LONG TERM FUEL TRIM VALUE CALCULATED BY A/F SENSOR AND SECONDARY HO2S (DIGITAL)	<0.844 (NORMAL) <0.852 (PURGE CUT)	ECT IAT2 MAP ENGINE SPEED LONG TERM FUEL TRIM VALUE (P0172 ONLY)	>69deg.C >0deg.C 160mmHg 640<RPM<4000rpm IF THE INFLUENCE OF EVAP PURGE IS FOUND BY PAUSING PURGE, MONITORING IS DISABLED UNTIL EVAP VAPOR IS PURGED TO PREDETERIMINED LEVEL 2) CLOSED LOOP CONDITION LEVEL D: P0455 3)	JUDGMENT FAULT: 7sec.INTERVAL MONITORING RUNS CONTINUOUSLY	2 D/C
	P0171 (BANK 1) P0174 (BANK 2)		LONG TERM FUEL TRIM METHOD - LEAN		>1.164	FEEDBACK CONTROL SYSTEM STATUS MONITORING PRIORITY ORDER			

Note: 1): Refer to section for logic flowchart.
2): Monitoring disable time depends on EVAP vapor amount, but the monitoring forces to restart after 5 minutes disablement even if the influence of EVAP vapor still remains.
3): This monitor is held only when decompression mode of P0455 monitor is performed. And after the decompression mode has completed, this monitor continues monitoring again.

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ENGINE DIAGNOSTIC PARAMETERS

COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
ENGINE COOLANT TEMPERATURE (ECT) SENSOR	P0125	B	ACHIEVING TIME METHOD WHICH MEASURES THE TIME INTERVAL UNTIL ECT ACHIEVES ABOVE CLOSED LOOP ENABLE TEMPERATURE AFTER ENGINE START	CUMULATIVE ENGINE RUNNING TIME UNTIL ECT REACHES -12deg.C	TEMP deg.C) / TIME (sec.) -31.4 >=300 -20.3 >=120 -12.0 >=60	ECT AT ENGINE START FUEL SYSTEM STATUS	-48.7deg.C<ECT<-12deg.C EXCEPT FUEL CUT CONDITIONS	JUDGMENT FAULT OR PASS : ACCORDING TO THRESHOLD MONITORING RUNS ONCE PER DRIVING CYCLE	2 D/C
				CUMULATIVE HIGH ENGINE LOAD TIME UNTIL ECT REACHES -12deg.C	>1200sec.	ECT AT ENGINE START ENGINE LOAD	<-48.7deg.C RPM / MAP(mmHg) 500 >600 1000 >360 2000 >250 3000 >160		
	P0116		MONITOR OF ECT SENSOR DEVIATION AT COLD START 1)	DIFFERENCE OF ECT SENSOR OUTPUT	<10deg.C	SOAK TIME BEFORE RUNNING FUEL CONSUMPTION AFTER ENGINE START IG OFF TIME AFTER RUNNING	>6hours >0.65L >10sec.	JUDGMENT FAULT OR PASS: 10sec. 2)	2 D/C
			MONITOR OF ECT SENSOR DEVIATION AT HOT START 1)			FUEL CONSUMPTION AFTER ENGINE START IG OFF TIME AFTER RUNNING	>0.65L >150min.	JUDGMENT FAULT OR PASS: 10sec. 2)	
	P0117	F	RANGE CHECK-LOW	ECT SENSOR SIGNAL(ANALOG)	<0.08V	KEY POSITION	IG ON	JUDGMENT FAULT: 2sec. MONITORING RUNS CONTINUOUSLY	1 D/C
	P0118		RANGE CHECK-HIGH		>4.92V				
ENGIN COOLANT TEMPERATURE (ECT) SENSOR AND INTAKE AIR TEMPERATURE 1 (IAT1) SENSOR	P1126 P0111	B	COMPARISON CHECK BETWEEN ECT AND IAT 1 SENSOR	DIFFERENCE OF ECT SENSOR AND IAT 1 SENSOR OUTPUT AT ENGINE START	FAIL JUDGMENT: 3) |IAT1-ECT|>28deg.C PASS JUDGMENT: 3)4) a) |IAT1-ECT|<=28deg.C b) ECT<35deg.C	ENGINE OPERATING STATUS SOAK TIME BEFORE ENGINE START	RUNNING >6hours	JUDGMENT FAULT OR PASS: 10sec. MONITORING RUNS ONCE PER DRIVING CYCLE	2 D/C

Note: 1): Refer to section for logic flowchart.
2): The malfunction is detected after 10seconds from engine start in next driving cycle
3): Minimum values of ECT and IAT sensor output during 10sec. after engine start are used for judgment.
4): For IAT sensor, only condition a) is applied to pass judgment.
For ECT sensor, condition a) and b) are applied to pass judgment. If condition b) does not satisfy, judgment for ECT sensor is suspended.

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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
THROTTLE POSITION (TP) SENSOR 1 (TPS1)	P0122	F	RANGE CHECK-LOW	TP SENSOR SIGNAL (ANALOG)	<0.28V			JUDGMENT FAULT: 0.1sec. MONITORING RUNS CONTINUOUSLY	1 D/C
	P0123		RANGE CHECK-HIGH		>4.747V				
THROTTLE POSITION (TP) SENSOR 2 (TPS2)	P0222		RANGE CHECK-LOW		<0.182V				
	P0223		RANGE CHECK-HIGH		>4.843V				
THROTTLE POSITION (TP) SENSORS	P2135		COMPARISON CHECK	DIFFERENCE OF SIGNALS BETWEEN TPS1 AND TPS2	|TPS1-TPS2| > 5deg.				
			SHORT CIRCUIT BETWEEN TPS1 AND TPS2 CHECK	DIFFERENCE OF SIGNALS BETWEEN TPS1 AND TPS2	|TPS1-TPS2| < 0.05V	CIRCUIT VOLTAGE OF TPS2	= 0V 2)	JUDGMENT FAULT: 10sec. MONITORING RUNS CONTINUOUSLY	
ACCELERATOR POSITION (AP) SENSOR 1 (APS1)	P2122	F	RANGE CHECK-LOW	AP SENSOR SIGNAL (ANALOG)	<0.2V			JUDGMENT FAULT: 0.2sec. MONITORING RUNS CONTINUOUSLY	1 D/C
	P2123		RANGE CHECK-HIGH		>4.85V				
ACCELERATOR POSITION (AP) SENSOR 2 (APS2)	P2127		RANGE CHECK-LOW		<0.2V				
	P2128		RANGE CHECK-HIGH		>4.85V				
ACCELERATOR POSITION (AP) SENSORS	P2138		COMPARISON CHECK	DIFFERENCE OF SIGNALS BETWEEN APS1 AND APS2	APS1/2-0.12V>APS2 OR APS1/2+0.12V<APS2			JUDGMENT FAULT: 0.3sec. MONITORING RUNS CONTINUOUSLY	
SERIAL DATA LINK	U0107	F	SIGNAL EXISTANCE CHECK	SERIAL DATA LINK SIGNAL (DIGITAL)	NO SIGNAL	BATTERY VOLTAGE CPU INITIAL DELAY	>7.0V 3) >1sec	JUDGMENT FAULT: 0.25sec. MONITORING RUNS CONTINUOUSLY	1 D/C

Note: 1): Refer to section for logic flowchart.
2): Power supply in TPS2 is compulsorily cut for 0.0045 seconds every 1 second in order to monitor short circuit between TPS1 and TPS2.
3): Read value by PCM.

COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
THROTTLE VALVE CONTROL	P2100	F	CURRENT CHECK	MOTOR CURRENT (ANALOG)	>8A			JUDGMENT FAULT: 0.5sec. MONITORING RUNS CONTINUOUSLY	1 D/C
	P2101		FUNCTION CHECK	DIFFERENCE OF VALUE BETWEEN ESTIMATED (THHT) THROTTLE ANGLE AND ACTUAL TROTTLE (TH) ANGLE DTHE=|THHT-TH|	DTHE > 5deg.			JUDGMENT FAULT: 0.3sec. MONITORING RUNS CONTINUOUSLY	
					DTHE > 5deg.	|TTH(n) – TTH(n-1)|	> 5deg.	JUDGMENT FAULT: 0.2sec. MONITORING RUNS CONTINUOUSLY	
					DTHE > 2deg.	|TTH(n) – TTH(n-1)|	> 2deg.	JUDGMENT FAULT: 0.5sec. MONITORING RUNS CONTINUOUSLY	
					DTHE > 2deg. 2)	|TTH(n) – TTH(n-1)|	< 0.25deg.	JUDGMENT FAULT: (MIN) 0.2sec. 2) (MAX) 2) MONITORING RUNS CONTINUOUSLY	
	P2176	G	RANGE CHECK (FULL CLOSE POINT)	THROTTLE POSITION SENSOR 1 (TPS1) SIGNAL	>ITPS1 + 0.151V OR <ITPS1 – 0.108V	BATTERY VOLTAGE KEY POSITION	>7.0V 3) THE INSTANCE OF IGINITION ON	JUDGMENT FAULT: 0.5sec. MONITORING RUNS ONCE PER DRIVING CYCLE	
					|TPS1 – LFCTPS1| > 0.5deg.				
				THROTTLE POSITION SENSOR 2 (TPS2) SIGNAL	>ITPS2 + 0.151V OR <ITPS2 – 0.108V				
					|TPS2 – LFCTPS2| > 0.5deg.				

Note: THHT : Estimated throttle value calculated from target throttle value.
TTH(n) : Target throttle value.
TTH(n-1) : Target throttle value of 0.01seconds ago.
ITPS1/2 : Full close point value set at the throttle body assembling.
LFCTPS1/2 : Full close point value set at last D/C.
1): Refer to section for logic flowchart.
2): This monitoring checks oscillation of actual throttle angle. The monitoring carries out every 0.0015seconds. The counter is increased by 2 when the criteria is exceeded, and the counter is decreased when the criteria is not exceeded. When the counter exceeds 267, the throttle valve control is regarded to oscillate fail. Judgment time is according to oscillating condition.
3): Read value by PCM.

COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
THROTTLE VALVE CONTROL (contd.)	P2108	F	COMPARISON CHECK (CPU) 2)	MARK BIT(INCLUDE SERIAL LINK DATA)	NOT EQUAL			JUDGMENT FAULT: 0.2sec. MONITORING RUNS CONTINUOUSLY	1 D/C
	P2553	G	FUNCTION CHECK (RELAY) 3)	SERIAL DATA LINK SIGNAL (DIGITAL)	NORMAL SIGNAL	BATTERY VOLTAGE KEY POSITION	>7.0V 4) IG OFF	JUDGMENT FAULT: 0.25sec. MONITORING RUNS ONCE PER DRIVING CYCLE 5)	
	P2554	F	RANGE CHECK (LOW)	THROTTLE INHIBIT CIRCUIT (ANALOG)	<0.498V	PCM STATUS	PROCESSING	JUDGMENT FAULT: 0.2sec. MONITORING RUNS CONTINUOUSLY	
	P2555		RANGE CHECK (HIGH)		>10V (IG ON) >4.5V (IG OFF)				
	P2112	G	FUNCTION CHECK (DEFAULT POSITION SPRING) 4)	THROTTLE POSITION SENSOR SIGNAL (ANALOG)	<3.7deg.	KEY POSITION ECT	IG OFF >=69.5deg.C	JUDGMENT FAULT: 4sec. MONITORING RUNS ONCE PER DRIVING CYCLE 5)	
	P2111		FUNCTION CHECK (RETURN SPRING) 4)	THROTTLE POSITION SENSOR SIGNAL (ANALOG)	>9.1deg.				

Note: 1): Refer to section for logic flowchart.
2): Two units(FI,ETCS) check each other including RAM and ROM SUM checks.
3): If relay is normal, no serial data.
4): Read value by PCM.
5): The monitor carries out after ignition OFF timing. (MIL is illuminated at the next driving cycle.)

COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
THROTTLE VALVE CONTROL (contd.)	P0507 (HIGH) P0506 (LOW)	E	FUNCTIONAL CHECK	CKP SENSOR SIGNAL (PULSE)	RPM>TARGET+200rpm OR RPM<TARGET-100rpm	ECT IAT2 BATTERY VOLTAGE 2) THROTTLE ANGLE SHORT TERM FUEL TRIM STATUS FUEL SYSTEM STATUS CUMULATIVE TIME AFTER ENGINE START	>69deg.C >0deg.C >10.50V <0.3deg. WITHIN SHORT TERM FUEL TRIM LIMITS CLOSED LOOP CONDITION >15sec.	JUDGMENT FAULT OR PASS: 20sec. MONITORING RUNS CONTINUOUSLY 3)	2 D/C

Note: 1): Refer to section for logic flowchart.
2): Read value by PCM.
3): This monitor runs whenever enable conditions are met until fail is detected. If fail is detected, temporary fault code is stored and the monitoring is disabled for the reminder of the D/C. If fail is detected at initial monitoring event of 2nd D/C, fault code is stored and MIL is illuminated. Otherwise, temporary fault code is erased unless fail is detected again for the reminder of the 2nd D/C.

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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR	P0107	F	RANGE CHECK-LOW	MAP SENSOR SIGNAL (ANALOG)	<0.23V	KEY POSITION	IG ON	JUDGMENT FAULT: 2sec.	1 D/C
	P0108		RANGE CHECK-HIGH		>4.49V			MONITORING RUNS CONTINUOUSLY	
	P1128	B	RATIONALITY-LOW		BARO (mmHg) / VOLT.(V) 776 / <1.61 460 / <1.14	ENGINE SPEED VEHICLE SPEED ECT THROTTLE ANGLE	1100<RPM<6300rpm >15mph >69deg.C RPM / TH-ANGLE(deg.) 1000 / >11.8 2000 / >19.0 3000 / >25.0 4000 / >31.5 5500 / >40.5	JUDGMENT FAULT OR PASS: 2sec. MONITORING RUNS ONCE PER DRIVING CYCLE	2 D/C
	P1129		RATIONALITY-HIGH		>1.14V	ENGINE SPEED VEHICLE SPEED ECT FUEL SYSTEM STATUS	1100<RPM<6300rpm >15mph >69deg.C FUEL CUT CONDITION		

Note: 1): Refer to section for logic flowchart.

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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
BAROMETRIC PRESSURE (BARO) SENSOR	P2228	F	CIRCUIT CHECK-LOW	BARO SENSOR SIGNAL(ANALOG)	<1.58V	KEY POSITION	IG ON	JUDGMENT FAULT: 2sec. MONITORING RUNS CONTINUOUSLY	1 D/C
	P2229		CIRCUIT CHECK-HIGH		>3.59V				
	P2227	H	RATIONALITY CHECK	JUDGMENT A: DIFFERENCE OF SIGNALS BETWEEN BARO SENSOR AND MAP SENSOR WHEN KEY IS ON BUT ENGINE IS NOT RUNNING (ANALOG)	|BARO-MAP| >150mmHg(0.55V)	ENGINE OPERATING CONDITION FLUCTUATION OF MAP SENSOR OUTPUT FLUCTUATION OF BARO SENSOR OUTPUT IMMOBILIZER SYSTEM STATUS	STOP (WHILE KEY SWITCH IS TURNED FROM ON TO CRANKING POSITION) <26.8mmHg/210msec. <26.8mmHg/210msec. OK	JUDGMENT FAULT OR PASS (MIN): 0.63sec. MONITORING RUNS ONCE PER DRIVING CYCLE	2 D/C 2)
				JUDGMENT B: 2) DEFFERENCE OF SIGNALS BETWEEN BARO SENSOR AND MAP SENSOR	|BARO-MAP| >190mmHg(0.69V)	THROTTLE ANGLE FLUCTUATION OF MAP SENSOR OUTPUT AFTER ENGINE START FLUCTUATION OF TP SENSOR OUTPUT AFTER ENGINE START	RPM TH-ANGLE(deg.) 1000 >13.31 2000 >20.70 3000 >26.86 4000 >33.53 5500 >42.77 >43mmHg >2deg.	JUDGMENT FAULT OR PASS: 2.5sec. MONITORING RUNS ONCE PER DRIVING CYCLE	

Note: 1): Refer to section for logic flowchart.
2): Judgment B runs if judgment A does not completed.

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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
CAMSHAFT POSITION SENSOR (CMP)	P0340 (SHORT /OPEN)	F	COMPARISON CHECK (BETWEEN CMP1 SIGNAL AND CKP SIGNAL)	CMP SENSOR SIGNAL (PULSE)	NO SIGNAL	ENGINE STATUS	RUNNING	JUDGMENT FAULT: 17 ENGINE REVS 2) MONITORING RUNS CONTINUOUSLY	1 D/C
	P0341 (NOISE)			COUNTER OF IMPROPER CMP SIGNAL 3)	=30	ENGINE SPEED	>400rpm	JUDGMENT FAULT: 2.2 sec. 4) MONITORING RUNS CONTINUOUSLY	
CRANKSHAFT POSITION SENSOR A (CKP1)	P0335 (SHORT /OPEN)		COMPARISON CHECK (BETWEEN CKP1 SIGNAL AND CKP2 SIGNAL)	CKP1 SENSOR SIGNAL (PULSE)	NO SIGNAL	ENGINE STATUS	RUNNING	JUDGMENT FAULT: 5 ENGINE REVS 5) MONITORING RUNS CONTINUOUSLY	
	P0336 (NOISE)			COUNTER OF IMPROPER CKP1 SIGNAL 6)	=30	ENGINE SPEED	>400rpm	JUDGMENT FAULT: 2.2sec. 4) MONITORING RUNS CONTINUOUSLY	
CRANKSHAFT POSITION SENSOR B (CKP2)	P0385 (SHORT /OPEN)		COMPARISON CHECK (BETWEEN CKP2 SIGNAL AND CKP1 SIGNAL)	CKP2 SENSOR SIGNAL (PULSE)	NO SIGNAL	ENGINE STATUS	RUNNING	JUDGMENT FAULT: 17 ENGINE REVS 5) MONITORING RUNS CONTINUOUSLY	
	P0386 (NOISE)			COUNTER OF IMPROPER CKP2 SIGNAL 6)	=30	ENGINE SPEED	>400rpm	JUDGMENT FAULT: 2.2sec. 4) MONITORING RUNS CONTINUOUSLY	

Note: 1): Refer to section for logic flowchart.
2): Engine rev is based on CKP1 signal. 22CKP1 signals are regarded as 1 engine rev.
3): Proper rate means 3CMP signals per 44CKP signals. Signal check is done every half a engine rev. When improper number of CMP signals is detected, the counter counts 1 up. The counter goes 1 back every 10sec.
4): Monitoring time at engine idling.
5): Engine rev is based on CMP signal. 3CMP signals are regarded as 2engine rev.
6): Proper rate means 44CKP signals per 3CMP signal. Signal check is done every half a engine rev. When improper number of CKP signals is detected, the counter counts 1 up. The counter goes 1 back every 10sec.

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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION 2)	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
THERMOSTAT	P0128	B	COMPARISON OF : (a) TIME INTERVAL UNTIL COMPUTER PREDICTED ECT FOR NORMAL THERMOSTAT REACHES 75deg.C (T1), (b) TIME INTERVAL UNTIL COMPUTER PREDICTED ECT FOR FULL OPEN-STUCK THERMOSTAT REACHES 70deg.C (T2), AND (c) TIME INTERVAL UNTIL ECT SENSOR READING VALUE REACHES 70deg.C (T0)	TIME INTERVAL	T0>T1 3)	IAT2 AT ENGINE START ECT AT ENGINE START ECT AT ENGINE START –IAT2 AT ENGINE START IAT2 AT ENGINE START -IAT2 4)	-7<=IAT2<=50deg.C -7<=ECT<=50deg.C <=6deg.C <=2deg.C	ONCE PER DRIVING CYCLE 5)	2 D/C
			METHOD WHICH CHECKS THE DIFFERENCE BETWEEN ECT SENSOR READING AND COMPUTER PREDICTED TEMPERATURES	ECT DIFFERENCE	>10deg.C				

Note: 1): Refer to section for logic flowchart.
2): For detail explanation, see section 16.09.02.08(System description of thermostat monitoring).
3): If T0 is shorter than T1, & T2, the monitoring is completed with pass judgment.
If T0 is shorter than T1 but longer than T2, the monitoring is suspended without any judgment.
4): If engine start IAT2-engine start ECT>=6deg.C, this condition is cancelled to avoid unnecessary disablement after complete soak.
5): For example, fail is judged at approximately 230sec. when driven in LA-4 at ambient temperature of 77deg.F using vehicle speed proportional cooling fan.

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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
INTAKE AIR TEMPERATURE 1 SENSOR (IAT1)	P0112	F	RANGE CHECK-LOW	IAT1 SENSOR SIGNAL (ANALOG)	<0.078V	KEY POSITION	IG ON	JUDGMENT FAULT: 2.0sec. MONITORING RUNS CONTINUOUSLY	1 D/C
	P0113		RANGE CHECK-HIGH		>4.922V				
INTAKE AIR TEMPERATURE 2 SENSOR (IAT2)	P0097		RANGE CHECK-LOW	IAT2 SENSOR SIGNAL (ANALOG)	<0.078V			JUDGMENT FAULT: 2.0sec. MONITORING RUNS CONTINUOUSLY	
	P0098		RANGE CHECK-HIGH		>4.922V				
IAT2 SENSOR OR IAT1 SENSOR	P2199	B	CHECK OF TEMPERATURE DIFFERENCE BETWEEN IAT1 AND IAT2 AT COLD ENGINE START	IAT1 SENSOR OUTPUT SIGNAL(ANALOG) AND IAT2 SENSOR OUTPUT SIGNAL |IAT2-IAT1|	>25deg.C	SOAK TIME CUMULATIVE TIME AFTER IG ON	>8hours >5sec.	JUDGMENT FAULT: 200msec. MONITORING RUNS ONCE PER DRIVING CYCLE	2 D/C
KNOCK SENSOR (KS)	P0325	F	EXISTENCE OF KS SIGNAL	KS SIGNAL (ANALOG)	NO SIGNAL	ECT ENGINE SPEED	>60deg.C >2000rpm	JUDGMENT FAULT: 5sec. MONITORING RUNS CONTINUOUSLY	1 D/C
VARIABLE VALVE TIMING ELECTRIC CONTROL (VTEC) SYSTEM	P2647		VTEC OIL PRESSURE HIGH STUCK	VTEC PRESSURE SWITCH SIGNAL	VTEC PRESSURE SWITCH OFF SIGNAL	VTEC SOLENOID COMMAND SIGNAL BATTERY VOLTAGE 2)	OFF (LOW VALVE TIMING) >10.50V	JUDGMENT FAULT: 5sec. MONITORING RUNS CONTINUOUSLY	
	P2646		VTEC OIL PRESSURE LOW STUCK	VTEC PRESSURE SWITCH SIGNAL	VTEC PRESSURE SWITCH ON SIGNAL	VTEC SOLENOID COMMAND SIGNAL BATTERY VOLTAGE 2)	ON (HIGH VALVE TIMING) >10.50V		
	P2649		RETURN SIGNAL CHECK	RETURN SIGNAL VOLTAGE	=12V	VTEC SOLENOID COMMAND SIGNAL BATTERY VOLTAGE 2)	OFF (LOW VALVE TIMING) >10.00V	JUDGMENT FAULT: 2.0sec. MONITORINTG RUNS CONTINUOUSLY	
	P2648			RETURN SIGNAL VOLTAGE	=0V	VTEC SOLENOID COMMAND SIGNAL BATTERY VOLTAGE 2)	ON (HIGH VALVE TIMING) >10.00V	JUDGMENT FAULT: 2.0sec. MONITORINTG RUNS CONTINUOUSLY	

Note: 1): Refer to section for logic flowchart.
2): Read value by PCM.

COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C& MIL ILLUM.
POSITIVE CRANKCASE VENTILATION (PCV) VALVE	P2282	B	FUNCTIONAL CHECK BY ESTIMATING AIR LEAK FROM PCV DISCONNECTION	CALCULATED AIR QUANTITY	MAP-BARO (mmHg) / Qpcv 2) (liter/min.) -570 / >200 -470 / >175 -400 / >160 -330 / >145 -260 / >135	CUMULATIVE TIME AFTER ENGINE START ECT IAT BATTERY VOLTAGE MAP-BARO THROTTLE ANGLE FEED BACK CONTROL SYSTEM STATUS FUEL TRIM STATUS	>15.0sec. >69deg.C >0deg.C >10.50V <-260mmHg <0.3deg. CLOSED LOOP CONDITIONS WITHIN SHORT TERM FUEL TRIM LIMITS	JUDGMENT FAULT OR PASS: 22.0sec. ONCE PER DRIVING CYCLE	2 D/C

Note: 1): Refer to section for logic flowchart.
2): Qpcv means the amount of air quantity that return to the intake manifold from PCV valve.

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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C& MIL ILLUM.
POWERTRAIN CONTROL MODULE (PCM)	P1621	F	CHECK SUM-CHECK OF E2PROM	E2PROM DATA	CHECK SUM ERROR (5 TIMES)			JUDGMENT FAULT: 2) MONITORING RUNS CONTINUOUSLY	1 D/C
	NO CODE	N/A	CHECK SUM-CHECK OF ROM	ROM DATA	CHECK SUM ERROR (1 TIME)				
	P2610	F	INTERNAL ENGINE OFF TIMER PERFORMANCE	GAP BETWEEN EONV TIMER AND PCM TIMER 3)	<-500sec. OR >500sec.	EONV TIMER KEY POSITION	<51 hours IG ON	JUDGMENT FAULT: 360sec. MONITORING RUNS CONTINUOUSLY	
	P0685		POWER SUPPLY CHECK	POWER SUPPLY	FAILURE	KEY POSITION PCM STATUS ENGINE SPEED AT THE MOMENT KEY POSITION CHANGED TO IG OFF AT THE LAST D/C	IG OFF PROCESSING >400rpm	JUDGMENT FAULT: 1sec. MONITORING RUNS CONTINUOUSLY	
SENSOR REFERENCE VOLTAGE A	P0641	F	CIRCUIT CHECK	REFERENCE VOLTAGE (ANALOG)	<0.96V OR >1.07V			JUDGMENT FAULT: 2.0sec. MONITORING RUNS CONTINUOUSLY	
SENSOR REFERENCE VOLTAGE B	P0651								

Note: 1): Refer to section for logic flowchart.
2): Approximately 30 to 60 seconds depending on operating condition.
3): EONV timer is reset and started when the key position becomes IG on or IG off. PCM timer is started when the key position becomes IG on and reset when the key position becomes IG off.

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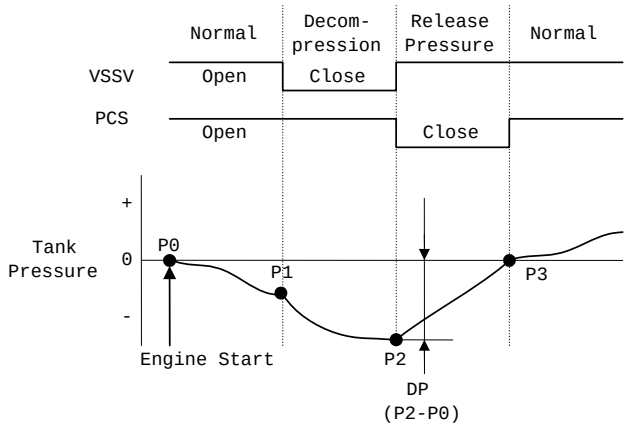
COMPONENT / SYSTEM	FAULT CODE	FLOW CHART TYPE 2)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
EVAPORATIVE SYSTEM -LEAK CHECK	P0455 (0.09")	B	JUDGMENT A: 2) 0.09" LEAK CHECK BY DECOMPRESSION METHOD	CHANGE OF FUEL TANK PRESSURE (FTP) SENSOR SIGNAL WHILE DECOMPRESSION (ANALOG) NUMBER OF OCCURENCE	DP>-16mmHg 4) TWICE	ECT AT ENGINE START IAT1 AT ENGINE START DIFFERENCE OF ECT AND IAT1 AT ENGINE START BATTERY VOLTAGE ECT MAP ENGINE SPEED VEHICLE SPEED BARO SHORT TERM FUEL TRIM STATUS (APPLIED ONLY FOR DECOMPRESSION MODE) DP 4) DELTA VEHICLE SPEED MONITORING PRIORITY ORDER	4<ECT<30deg.C 4<IAT1<30deg.C ECT-IAT1<10deg.C >10.5V >68.8deg.C RPM MAP(mmHg) 1000 >225 1500 >200 2000 >177 3000 >150 4000 >135 >1000rpm >6.2mph >562mmHg NOT RICH LIMIT <5mmHg < 0.87MPH / 0.08sec. LEVEL A: P0496 3)	JUDGMENT PASS: 18sec. JUDGMENT FAULT: 30sec. MONITORING RUNS ONCE PER DRIVING CYCLE	2 D/C 2)

Note: 1): Refer to section for logic flowchart.
2): This judgment doesn't fail until the second occurrence in 1 D/C. After second failure of judgment A, judgment B is executed. (See the next page)
3): Level A: This monitor is disabled until level A monitors have had pass judgment.
4): Refer to the following figure.



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ENGINE DIAGNOSTIC PARAMETERS

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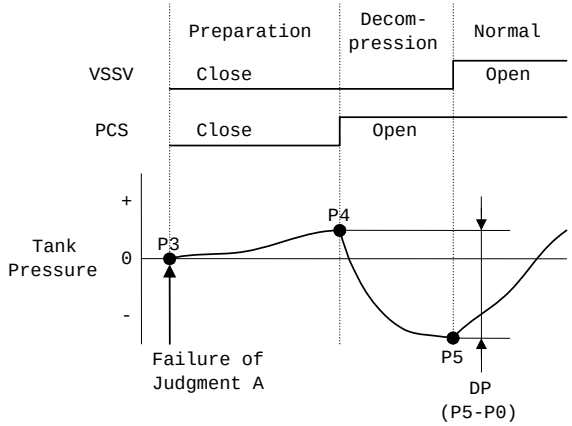
COMPONENT / SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
EVAPORATIVE SYSTEM -LEAK CHECK	P0455 (0.09")	B	JUDGMENT B: 2) 0.09" LEAK CHECK BY DECOMPRESSION METHOD	CHANGE OF FUEL TANK PRESSURE (FTP) SENSOR SIGNAL WHILE DECOMPRESSION (ANALOG)	DP>-16mmHg 7)	CUMULATIVE TIME AFTER JUDGMENT A FAILS ECT AT ENGINE START IAT1 AT ENGINE START DIFFERENCE OF ECT AND IAT1 AT ENGINE START ECT SEQUENCIAL TIME WHICH VEHICLE SPEED IS HIGHER THAN 5mph DP 7) MONITORING PRIORITY ORDER	500sec. 3) 4<ECT<30deg.C 4<IAT1<30deg.C ECT-IAT1<10deg.C >68.8deg.C >100sec. 4) <5.6mmHg 6) LEVEL A: P0496 5)	JUDGMENT PASS : 50sec. JUDGMENT FAULT: 500sec. MONITORING RUNS ONCE PER DRIVING CYCLE 2)	1 D/C 2)

Note: 1): Refer to section for logic flowchart.
2): If judgment B does not finish during current D/C, MIL is illuminated.
3): Before judgment B starts, the monitoring finishes with no judgment if (P4-P0) becomes higher than 5mmHg.
4): When this condition is met, the monitoring is paused.
5): Level A: This monitor is disabled until level A monitors have had pass judgment.
6): In case this condition is not met, the monitoring finishes with no judgment.
7): Refer to the following figure.



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ENGINE DIAGNOSTIC PARAMETERS

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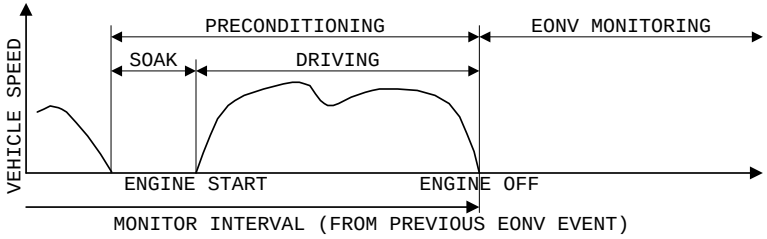
COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
EVAPORATIVE SYSTEM -LEAK CHECK	P0442	L	0.02" LEAK CHECK BY ENGINE OFF NATURAL VACUUM (EONV) METHOD 2)	FUEL TANK PRESS.(FTP) SENSOR	FAIL THRESHOLD: EWMA VALUE 3) >0.55 PASS THRESHOLD: EWMA VALUE 3) <=0.55 PASS THRESHOLD 4): EWMA VALUE 3) <=0.45	MONITORING PRECONDITIONS: MONITOR INTERVAL for PASSING SYSTEM MONITOR INTERVAL for FAILING SYSTEM SOAK TIME ECT AT ENGINE START IAT1 AT ENGINE START DIFFERENCE OF ECT AND IAT1 AT ENGINE START DRIVING TIME FUEL CONSUMPTION DRIVING DISTANCE ECT AT ENGINE OFF ESTIMATED AMBIENT TEMP AT ENGINE OFF MONITORING PRIORITY ORDER	 >17hours 5) >10hours 5) >8hours ECT<30deg.C 4<IAT1<30deg.C ECT–IAT1<10deg.C >SET VALUE 7) >SET VALUE 8) >2000meters ECT>68.8deg.C 4<TEMP<30deg.C LEVEL A: P2199, P0112, P0113, P0455 9)	JUDGMENT FAULT: (MAX): 60min. (MIN): 35min. JUDGMENT PASS: (MAX): 60min. (MIN): 35min. MONITORING RUNS ONCE PER DRIVING CYCLE.	MAX 12 MONITORING EVENTS

Note: 1): Refer to section for logic flowchart.
2): Overall monitoring sequence



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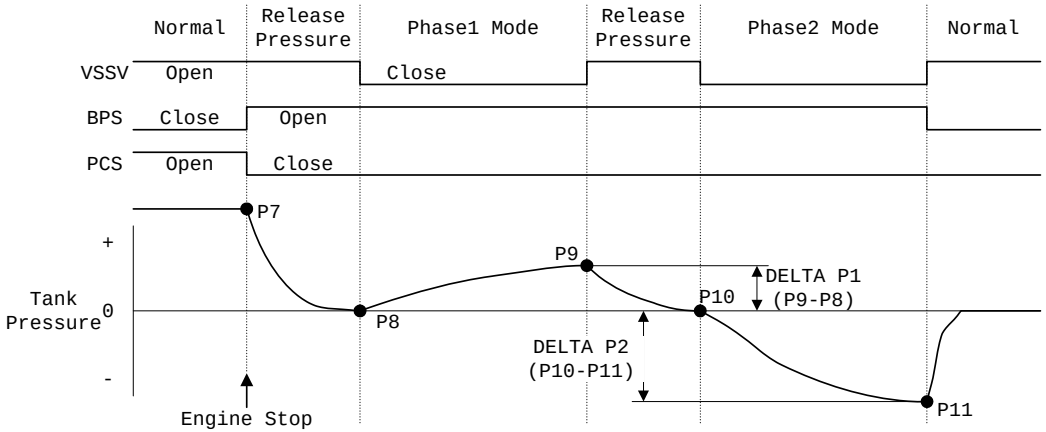
Note: 3): EWMA : Exponentially Weighted Moving Average, EWMA_Value(n) = Raw_value x C_filter + EWMA_value(n-1) x (1-C_filter)
Raw_Value : 1 – (DELTA_P1+DELTA_P2) / K
K : Coefficient factor according to fuel level

fuel level	0%	70%	80%	100%
K [mmHg]	6.5	4.7	4.7	4.7

An initial value of EWMA is set to 0.42 for shortening the detection time.

EONV monitoring sequence



4): This pass threshold is used only when a confirmed fault code for 0.02" leak is stored
5): If EONV monitoring starts to run but isn't completed, this disable condition is cancelled up to two EONV monitoring events.
6): Regarded as refueling if fuel level increases by 10% when vehicle is stopped.
7): Driving time (min.)

ESTIMATED AMBIENT TEMPERATURE(deg.C) / FUEL LEVEL (%)	0	10	25	35
15	20	20	10	10
40	25	25	20	15
60	25	25	20	15
85	25	25	20	20

8): Fuel consumption (liter)

ESTIMATED AMBIENT TEMPERATURE(deg.C) / FUEL LEVEL (%)	0	10	25	35
15	0.84	0.84	0.48	0.48
40	1.14	1.14	0.84	0.66
60	1.14	1.14	0.84	0.66
85	1.14	1.14	0.84	0.84

9): Level A: This monitor is disabled until level A monitors have had pass judgment.

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ENGINE DIAGNOSTIC PARAMETERS

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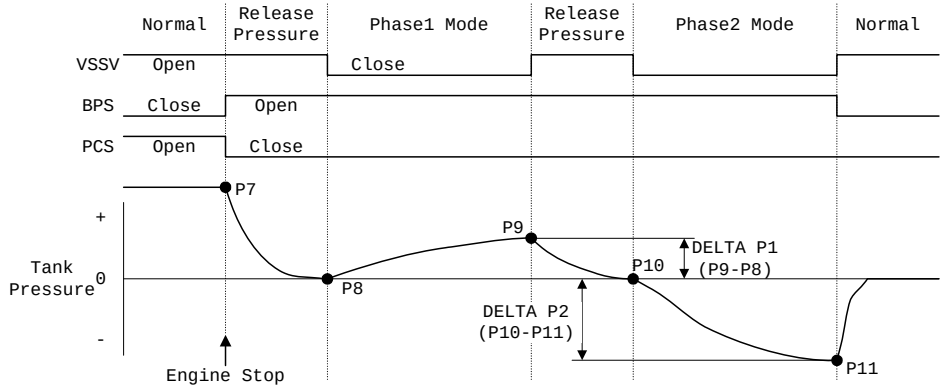
COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
EVAPORATIVE SYSTEM -LEAK CHECK (contd.)	P0442		0.02" LEAK CHECK BY ENGINE OFF NATURAL VACUUM (EONV)			ENABLE CONDITIONS FOR EONV MONITORING: KEY POSITION REFUELING STATUS IN EONV MONITORING BARO FTP IN PHASE2 MODE (P11) FUEL LEVEL BATTERY VOLTAGE VEHICLE SPEED FTP AT THE END OF RELEASE PRESSURE MODE RATIONALITY CHECK FOR FTP OR FUEL LEVEL SENSORS	 OFF NO REFUELING 2) >562mmHg DOES NOT EXCEED SET VALUE THREE TIMES SET VALUE FLEVEL(%) PTANK(mmHg) 15 3 40 3 60 2 85 1.5 15<FLEVEL<85 % >10.5V =0mph 3) -5mmHg<P8<5mmHg 4) PASS 4)5)		MAX 12 MONITORING EVENTS

Note: 1): Refer to section for logic flowchart..
2): Regarded as refueling if fuel level increases by 10% during EONV monitoring or change in FTP exceeds 2.5mmHg/2sec.
3): Read by PCM. This condition is equivalent to that the actual vehicle speed is less than about 2mph.
4): Monitoring is disabled if this condition isn't met, and "1.00" is taken as Raw value.
5): See the next page about rationality check for FTP or fuel level sensors.



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ENGINE DIAGNOSTIC PARAMETERS

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COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
FTP SENSOR OR FUEL LEVEL SENSOR (FLEVEL)	NO CODE	F	RATIONALITY CHECK WHILE FAST REFUELING	FLEVEL OUTPUT – FLEVEL OUTPUT WHEN EONV STARTS	<10% 2)	EONV STATUS MAX DELTA FTP SENSOR OUTPUT	MONITORING >2.5mmHg/2sec	JUDGMENT FAULT: 45sec. MONITORING RUNS CONTINUOUSLY	MIL IS NOT ILLUMINATED 4)
				FLEVEL OUTPUT – FLEVEL OUTPUT WHEN FAST REFUELING IS DETECTED	<0%	EONV STATUS FAST RUFUELING JUDGMENT	MONITORING FAST REFUELING	JUDGMENT FAULT: 15sec. MONITORING RUNS CONTINUOUSLY	
FUEL LEVEL SENSOR (FLEVEL)	NO CODE	F	RATIONALITY CHECK WHILE SLOW REFUELING	FLEVEL OUTPUT – FLEVEL OUTPUT WHEN SLOW REFUELING IS DETECTED	<0%	EONV STATUS EVAP CANISTER VENT SHUT VALVE COMMAND STATUS SLOW RUFUELING JUDGMENT 3)	MONITORING CLOSE SLOW REFUELING	JUDGMENT FAULT: 15sec. JUDGMENT PASS : 60sec. MONITORING RUNS CONTINUOUSLY	

Note: 1): Refer to section for logic flowchart..
2): When this judgment passes, fast refueling is detected.
3): Slow refueling is detected at the case below:
(FLEVEL output) - (FLEVEL when EONV starts) > 10%
4): MIL is not illuminated when the judgment fails. "1.00" is taken as EWMA value at current D/C.

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ENGINE DIAGNOSTIC PARAMETERS

COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
EVAP CANISTER PURGE VALVE	P0496	B	MONITOR OF PURGE VALVE STUCK OPENED	FAIL THREDHOLD: FTP – FTP@ENG START (ANALOG) PASS THREDHOLD: FTP – FTP@ENG START (ANALOG)	<-10mmHg >=-10mmHg WHEN BARO – MAP >100mmHg	ENGINE OPERATION STATUS ECT AT ENGINE START IAT1 AT ENGINE START DIFFERENCE OF ECT AND IAT1 AT ENGINE START FUEL LEVEL BATTERY VOLTAGE 3)	RUNNING 4<ECT<30deg.C 4<IAT1<30deg.C ECT-IAT1<10deg.C 15<FLEVEL<85% >10.5V	JUDGMENT TIME: (PASS) : 2sec. (FAULT): 1sec. MONITORING RUNS ONCE PER DRIVING CYCLE	2D/C
	P0443	F	RETURN SIGNAL CHECK	PURGE VALVE RETURN SIGNAL (ANALOG)	NO SIGNAL CHANGE	BATTERY VOLTAGE 3)	>10.05V	JUDGMENT FAULT: 5sec. MONITORINTG RUNS CONTINUOUSLY	1 D/C
EVAP CANISTER VENT SHUT VALVE	P0446	B	CHECK OF VENT SHUT VALVE STUCK CLOSED	FAIL THREDHOLD: FTP – FTP@ENG START (ANALOG) PASS THREDHOLD: FTP – FTP@ENG START (ANALOG)	<-10mmHg >=-10mmHg WHEN CUMULATIVE PURGE VOLUME >4L	ENGINE OPERATION STATUS FUEL LEVEL BATTERY VOLTAGE 3) MONITORING PRIORITY ORDER	RUNNING 15<FLEVEL<85 % >10.5V LEVEL A: P0455 4)	JUDGMENT FAULT: 5.0sec. 5) MONITORING RUNS ONCE PER DRIVING CYCLE	2 D/C
	P0498	F	RETURN SIGNAL CHECK(LOW)	VENT SHUT VALVE RETURN SIGNAL(ANALOG)	=0V	VENT SHUT VALVE OPERATING STATUS	OPEN	JUDGMENT FAULT: 5.0sec.	1 D/C
	P0499		RETURN SIGNAL CHECK(HIGH)		=12V	VENT SHUT VALVE OPERATING STATUS	CLOSE	MONITORINTG RUNS CONTINUOUSLY	
FUEL TANK PRESSURE (FTP) SENSOR	P0452	B	RANGE CHECK (LOW)	FTP SENSOR SIGNAL DURING 4sec. AFTER ENGINE START (ANALOG)	>13.1mmHg			JUDGMENT FAULT: 7sec. MONITORING RUNS ONCE PER DRIVING CYCLE	2 D/C
	P0453		RANGE CHECK (HIGH)		<-31.8mmHg				

Note: 1): Refer to section for logic flowchart..
2): If engine start IAT1 – engine start ECT > 6deg.C, this disablement is cancelled to avoid unnecessary disablement after complete soak.
3): Read by PCM
4): Level A: This monitor is disabled until level A monitors have had pass judgment.
5): Pass judgment time cannot be specified because it depends on cumulative purge volume.

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ENGINE DIAGNOSTIC PARAMETERS

COMPONENT/ SYSTEM	FAULT CODE	FLOW CHART TYPE 1)	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	STORING F/C & MIL ILLUM.
FUEL LEVEL SENSOR	P0461	F	RATIONALITY CHECK	DECREASE OF FUEL LEVEL SENSOR OUTPUT (ANALOG)	<1.6% (0.31 gallons)	CUMULATIVE TRAVELING DISTANCE 2) BATTERY VOLTAGE 3)	>120 miles (193km) >10.5V	JUDGMENT FAULT: 0.1 sec. MONITORING RUNS CONTINUOUSLY	1 D/C MIL ISN'T ILLUMINATED 4)5)
	P0462		RANGE CHECK-LOW	FUEL LEVEL SENSOR OUTPUT SIGNAL (ANALOG)	<0.49V	BATTERY VOLTAGE 3)	>10.5V	JUDGMENT FAULT: 30.0sec.	
	P0463		RANGE CHECK-HIGH	FUEL LEVEL SENSOR OUTPUT SIGNAL (ANALOG)	>4.50V			MONITORING RUNS CONTINUOUSLY	

Note: 1): Refer to section for logic flowchart..
2): When the vehicle is coasting in fuel cut deceleration, cumulative distance isn't increased.
Cumulative distance is reset in cases shown below:
Judging P0461(this monitoring) pass (including refueling) or fault, battery cancel or PCM memory cleared
3): Read by PCM
4): If malfunction is detected, default value is taken instead of actual fuel level sensor output so that the EVAP leak check is capable to run without a significant reduction in the monitoring performance.
5): The confirmed fault code for fuel level sensor is stored only when the confirmed fault code for EVAP leak check is stored.