

Applicable Model Year: 2007; Applicable Vehicle Line: IMPREZA, FORESTER, LEGACY, OUTBACK with Turbo Charged Engine System

Applicable System ; System E

2007 MY Summary Sheet for OBD Strategy (2)

Component/ System	Fault Code	Monitor Strategy Description/Method	Malfunction Criteria	Secondary Parameters	Enable Conditions			Time Required	MIL Illum.	
					FORESTER	Impreza WRX	Legacy & Outback			
(3) Fuel system	P0171	fuel trim limits exceeded (based on a primary oxygen sensor) /Method 3 on page 02-5	$fsobd = (sglmd - tglmda) + faf + flaf$ where, sglmd = measured lambda tglmda = target lambda faf = feed-back lambda coefficient every 64 msec. flaf = learning lambda	fuel learning system engine coolant temperature intake air intake air change during 0.5 engine rev. components listed on #3 of page 03-E-1	in operation ≥ 70 \geq see Map 5 of page 03-E-3 ≤ 0.02 no failure	<--	<--	deg C	10sec x 5time	two driving cycles
	P0172			fuel learning system engine coolant temperature intake air intake air change during 0.5 engine rev. learning value of EVAP conc. during purge accumulative time of canister purge after engine start continuous period after canister purge starting components listed on #3 of page 03-H-1	in operation ≥ 70 \geq see Map 5 of page 03-E-3 ≤ 0.02 ≤ 0.1 ≥ 20 ≥ 29884 no failure	<--	<--	deg C g/rev sec msec	10sec x 5time	
	P2096 P2097	fuel trim limits exceeded (based on a secondary oxygen sensor)	Secondary learning lambda (LTFT of secondary O2 sensor)	Sub feed back learning condition all secondary parameters to be in enable conditions	in enable condition ≥ 1	<--	<--	sec	5sec x 1time	
(4) Front lambda sensor -Output voltage	P1152	output range check /Method 4 on page 02-7	output lambda when rear oxygen sensor feedback value being at low limit	engine coolant temperature atmospheric pressure battery voltage components listed on #4 of page 03-E-1	≥ 70 > 75.06029 > 10.9 no failure	<--	<--	deg C KPa V	10000msec	two driving cycles
	P1153		output lambda when rear oxygen sensor feedback value being at high limit	closed loop control with oxygen sensors rear oxygen sensor output voltage - feed-back target or rear oxygen sensor feed - back adjust or rear oxygen sensor feed - back adjust intake air change during 0.5 engine rev. impedance of front lambda sensor after engine starting vehicle speed amount of intake air accumulative time of canister purge after engine start learning value of EVAP conc. during purge all secondary parameters to be in enable conditions Target lambda load correction coefficient	operating ≥ -0.2 and < 0.1 on minimum limit on maximum limit < 0.02 ≥ 0 and < 50 ≥ 60000 ≥ 12.428 ≥ 6 ≥ 19.9 < 0.2 ≥ 4096 $\geq NA$ and $< NA$	<--	<--	V V g/rev ohm ohm msec mph g/s sec msec		

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2007 MY Summary Sheet for OBD Strategy (4)

Component/ System	Fault Code	Monitor Strategy Description/Method	Malfunction Criteria	Secondary Parameters	Enable Conditions				Time Required	MIL Illum.
					FORESTER	Impreza WRX	Legacy & Outback			
(7) Secondary oxygen sensor -Output voltage	P0140	output range check /Method 7 on page 02-13	maximum output voltage	components listed on #7 of page 03-E-1	no failure	<--	<--		200000 msec	two driving cycles
			minimum output voltage	coolant temperature target output voltage of rear oxygen sensor	>= 70 >= 0.6	<-- <--	<-- <--	deg C V		
(7)Secondary oxygen sensor - A lack of circuit continuity	P0138	output range check /Method 7 on page 02-13	maximum output voltage caused by a lack of circuit continuity	secondary air system closed loop control with oxygen sensors misfire detection during 200 engine revs. compensation factor for front lambda sensor battery voltage	not in operation in operation < 5 not in limit value	<-- <-- <-- <--	<-- <-- <-- <--	times V	2500 msec	two driving cycles
			minimum output voltage caused by a lack of circuit continuity	secondary air system closed loop control with oxygen sensors misfire detection during 200 engine revs. compensation factor for front lambda sensor battery voltage amount of intake air	not in operation in operation < 5 not in limit value > 10.9 >= 10	<-- <-- <-- <-- <--	<-- <-- <-- <-- <--	times V g/s		
(7)Secondary oxygen sensor - A lack of circuit continuity	P0137	output range check /Method 7 on page 02-13	maximum output voltage caused by a lack of circuit continuity	secondary air system closed loop control with oxygen sensors misfire detection during 200 engine revs. compensation factor for front lambda sensor battery voltage amount of intake air	not in operation in operation < 5 not in limit value	<-- <-- <-- <--	<-- <-- <-- <--	times V	20000 msec 20000 msec	two driving cycles
			minimum output voltage caused by a lack of circuit continuity	secondary air system closed loop control with oxygen sensors misfire detection during 200 engine revs. compensation factor for front lambda sensor battery voltage amount of intake air continuous time of rear O2 sensor heating fuel shut-off	not in operation in operation < 5 not in limit value > 10.9 < 10 >= 25000 no experienced	<-- <-- <-- <-- <-- <--	<-- <-- <-- <-- <-- <--	times V g/s msec	40000 msec 150000 msec	
(7)Secondary oxygen sensor - A lack of circuit continuity	P0137	output range check /Method 7 on page 02-13	maximum output voltage caused by a lack of circuit continuity	secondary air system closed loop control with oxygen sensors misfire detection during 200 engine revs. compensation factor for front lambda sensor battery voltage amount of intake air continuous time of rear O2 sensor heating fuel shut-off	not in operation in operation < 5 not in limit value	<-- <-- <-- <--	<-- <-- <-- <--	times V	* see table	two driving cycles
			minimum output voltage caused by a lack of circuit continuity	secondary air system closed loop control with oxygen sensors misfire detection during 200 engine revs. compensation factor for front lambda sensor battery voltage amount of intake air continuous time of rear O2 sensor heating fuel shut-off	not in operation in operation < 5 not in limit value > 10.9 < 10 >= 25000 experienced	<-- <-- <-- <-- <-- <--	<-- <-- <-- <-- <-- <--	times V g/s msec		

fuel shut-off time (ms)	RO2KVNG F1	RO2KVNG F1
0	40000	150000
2000	40000	150000
10000	60000	150000

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2007 MY Summary Sheet for OBD Strategy (7)

Component/ System	Fault Code	Monitor Strategy Description/Method	Malfunction Criteria	Secondary Parameters	Enable Conditions				Time Required	MIL Illum.
					FORESTER	Impreza WRX	Legacy & Outback			
(40) Radiator fan	P0691	circuit continuity	drain voltage of FET & signal from ECM for relays	engine speed	>= 500	<--	<--	rpm	2500 msec	two driving cycles
	P0692		drain voltage of FET & signal from ECM for relays	battery voltage	>= 10.9	<--	<--	V	2500 msec	
	P0483	functional check	coolant temperature	after engine starting ignition switch	>= 1	<--	<--	secs.		
(46) Neutral switch	P0851	circuit continuity for AT	switch signal when park/ neutral="on" & any other switches="off" on AT	components listed on #40 of page 03-E-1 engine speed	no failure	<--	<--		300000 msec	two driving cycles
	P0852		switch signal when park/ neutral="off" & any other switches="on" on AT	idle switch	>= 550	<--	<--	rpm	6.5 secs. 64 ms x 100 time	
	P0851	circuit continuity for MT	switch signal for MT	vehicle speed	< 950	<--	<--	rpm		
P0852			range switch on AT TCM	idle switch	= 0	<--	<--	km/h		
(46) Neutral switch	P0851	circuit continuity for AT	switch signal when park/ neutral="on" & any other switches="off" on AT	components listed on #46 of page 03-E-1 ignition switch	"off" to "on"	<--	<--		degC	two driving cycles
	P0852		switch signal when park/ neutral="off" & any other switches="on" on AT	after engine starting	>= 95	<--	<--		V	
	P0851	circuit continuity for MT	switch signal for MT	ignition switch	>= 10.9	<--	<--			
(46) Neutral switch	P0852	circuit continuity for MT	switch signal for MT	after engine starting	no failure	<--	<--		secs.	two driving cycles
	P0851		switch signal for MT	starter switch	on	<--	<--			
	P0852		switch signal for MT	battery voltage	>= 2	<--	<--	secs.		
(46) Neutral switch	P0851	circuit continuity for MT	switch signal for MT	battery voltage	turn off	<--	<--		V	two driving cycles
	P0852		switch signal for MT	driving condition change	>= 10.9	<--	<--			
	P0851	circuit continuity for MT	switch signal for MT	driving condition change	a) vehicle speed	<= 0	<--	<--	mph	
(46) Neutral switch	P0852	circuit continuity for MT	switch signal for MT	a) vehicle speed & engine speed	>= 600	<--	<--	rpm	3 time	two driving cycles
	P0851		switch signal for MT	b) vehicle speed	<= and 900	<--	<--	rpm		
	P0852		switch signal for MT	b) vehicle speed & engine speed	>= 39.7696	<--	<--	mph		
(46) Neutral switch	P0851	circuit continuity for MT	switch signal for MT	b) vehicle speed	>= 1600	<--	<--	rpm	3 time	two driving cycles
	P0852		switch signal for MT	engine speed	and <= 2550	<--	<--	rpm		
	P0851	circuit continuity for MT	switch signal for MT	engine speed	>= 1600	<--	<--	rpm		

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2007 MY Summary Sheet for OBD Strategy (11)

Component/ System	Fault Code	Monitor Strategy Description/Method	Malfunction Criteria	Secondary Parameters	Enable Conditions			Time Required	MIL Illum.	
					FORESTER	Impreza WRX	Legacy & Outback			
(72) Thermostat	P0128	functional check	(estimated - measured) coolant temperature	engine coolant temperature engine coolant temperature at engine starting battery voltage vehicle speed components listed on #72 of page 03-E-1 estimated coolant temperature estimated ambient air temperature	< 70 < 55 >= 10.9 >= 18.642 no failure >= 70 >= -7	<-- <-- <-- <-- <-- <-- <--	<-- <-- <-- <-- <-- <-- <--	deg C deg C V mph deg C deg C	not determined	two driving cycles
(74) Fuel pump control module	P0230	Functional/ check	fuel controller output diagnostic signal	battery voltage fuel level after engine starting fuel pump control	>= 8 >= 16.6667 >= 180000 on	8 <-- <-- <--	<-- 15.625 <-- <--	V % msec	2500 msec	two driving cycles
(76) Tumble generator valve (TGV)	P2008(RH) P2011(LH)	circuit continuity (for open circuit)	diagnostic input - open diagnostic input - short	battery voltage output signal from ECM	>= 10.9 at before change "on" to "off"	10.9 <--	<--	V	2 sec 20 time x 98 ms	immediately
	P2009(RH) P2012(LH)	circuit continuity (for short circuit)	diagnostic input - open diagnostic input - short						1 sec 10 time x 98 ms	
	P2004(RH) P2005(LH)	functional check (for open stuck)	TGV angle	the time of TGV "close" signal output coolant temperature ambient temperature battery voltage components listed on #76 of page 03-E-1	>= 2200 >= 0 >= 0 >= 10.9 no failure	<-- <-- <-- <-- <--	3200 -30 -30 <-- <--	msec deg C deg C V	3000 msec	
	P2006(RH) P2007(LH)	functional check (for closed stuck)		the time of TGV "open" signal output coolant temperature ambient temperature battery voltage components listed on #76 of page 03-E-1	>= 1432 >= 0 >= 0 >= 10.9 no failure	<-- <-- <-- <-- <--	4600 -30 -30 <-- <--	msec deg C deg C V		
(77) TGV position sensor	P2016(RH) P2021(LH)	range check	output voltage						500 msec	immediately
	P2017(RH) P2022(LH)								500 msec	
	(78) Turbocharger pressure control solenoid	P0245	circuit continuity	ECM output signal	battery voltage after engine starting duty ratio for turbocharged pressure control	> 10.9 >= 1 < 75	<-- <-- <--	<-- <-- <--	V secs. %	
P0246		battery voltage after engine starting duty ratio for turbocharged pressure control			> 10.9 >= 1 > 25	<-- <-- <--	<-- <-- <--	V secs. %	640 ms 4 ms x 160 time	
P0244		functional check	intake manifold pressure						1 sec	immediately

Component/ System	Fault Code	Monitor Strategy Description/Method	Malfunction Criteria	Secondary Parameters	Enable Conditions			Time Required	MIL Illum.	
					FORESTER	Impreza WRX	Legacy & Outback			
(81) Positive crankcase ventilation system	P1491	circuit continuity	Positive crankcase ventilation diagnostic. signal	battery voltage engine speed	> 10.9 ≥ 500	<-- <--	<-- <--	V rpm	2500 msec	immediately
(82) Active Valve Control System (AVCS)	P0340 (RH) P0345 (LH)	circuit continuity for cam position sensor	amount of cam sensor signal during 2 rev.	battery voltage components listed on #82 of page 03-E-1	> 8 no failure	<-- <--	<-- <--	V	100 revs 50	immediately
			cam sensor signal	starter switch	on	<--	<--		3000 msec	
	P2088 (RH) P2092 (LH)	circuit continuity for Oil control valve (OCV)	OCV control actual current	battery voltage components listed on #82 of page 03-E-1	> 10.9 no failure	<-- <--	<-- <--	V	2000 msec	immediately
			OCV control duty	OCV control duty	> 99.61	<--	<--	%		
	P2089 (RH) P2093 (LH)	circuit continuity for Oil control valve (OCV)	OCV control actual current	battery voltage components listed on #82 of page 03-E-1	> 10.9 no failure	<-- <--	<-- <--	V	2000 msec	
			OCV control duty	OCV control duty	< 0.39	<--	<--	%		
P0011 (RH) P0021 (LH)	functional check for AVCS system									
		vtd > 0 Σ vtd _n	R bank	battery voltage components listed on #82 of page 03-E-1	> 10.9 no failure	<-- <--	<-- <--	V	30000 msec	two driving cycles
		vtd < 0 Σ vtd _n	L bank	engine speed coolant temperature AVCS	> 1300 > 60 operating	<-- <-- <--	<-- <-- <--	rpm deg C		
			R bank	target position change during 64msec. AVCS target position	< 1.07 > 0	<-- <--	<-- <--	°CA °CA		
			L bank	all secondary parameters to be in enable conditions	> 3000	<--	<--	msec		
		where, vtd= target position- actual position								
	P0016 (Bank1) P0018 (Bank2)	Camshaft position		battery voltage components listed on #82 of page 03-E-1 engine speed coolant temperature AVCS	> 10.9 no failure ≥ 500 ≥ 60 not operating	<-- <-- <-- <--	<-- <-- <--	V rpm deg C	20000 msec	two driving cycles
(83) CAN system	P0600	functional check	bus off flag or error warning flag or communication ID from TCU or ECU or VDC/ABS ECU not received (LEGACY) communication ID from TCM not received (FORESTER, IMPREZA) or the data from ECU does not be updated (LEGACY) the data from AT does not be updated (FORESTER, IMPREZA)	battery voltage components listed on #83 of page 03-E-1 starter switch engine	> 10.9 no failure off run	<-- <-- <--	<-- <--	V	1 sec	immediately
(84) Transmission control system	P0700	functional check /Method 11 on page 02-20	MIL request flag from TCM	battery voltage components listed on #84 of page 03-E-1	> 10.9 no failure	<-- <--	<-- <--	V	2500 msec	immediately
(95) Cold start emission reduction strategy	P1602	amount of intake air	Estimated exhaust gas temperature after 14 seconds at cold start	atmospheric pressure battery voltage	> 75.0629 > 10.9	<-- <--	<-- <--	KPa V	14 sec	two driving cycles
			Duration to satisfy "nefbgd - ne" Duration to satisfy "Ignition timing retard"	components listed on #95 of page 03-E-1 engine vehicle speed Misfire detection during 200 engine rev. (Because of catalyst damages) Time after engine starting	no failure run ≤ 1.2428 < 5 = 14	<-- <-- <-- <--	<-- <-- <--	mph sec		

Component/ System	Fault Code	Monitor Strategy Description/Method	Malfunction Criteria	Secondary Parameters	Enable Conditions			Time Required	MIL Illum.	
					FORESTER	Impreza WRX	Legacy & Outback			
(201) Throttle actuator control	P0638	functional check	motor control Duty	ignition switch	on	<--	<--	V	5000msec	immediately
				motor supply voltage	>= 6.2	<--	<--			
			motor relay	on	<--	<--	rpm			
			CPU communication	no failure	<--	<--				
			previous diagnosis result	no failure	<--	<--				
engine speed	< 500	<--	<--							
target throttle position -	ignition switch	on	no failure	no failure	<--	<--	rpm	see table 21-2 table 21-2		
									engine speed	>= 500
battery voltage	>= 6.2	<--	<--	rpm	V	deg	throttle position sensor1 (deg)	time msecs.		
							throttle position sensor 1	>= target throttle position	<--	<--
motor supply voltage	>= 6.2	<--	<--	rpm	V	deg	9.0	400		
							throttle position sensor 1 circuit diagnosis	complete	<--	<--
throttle position sensor 2 circuit diagnosis	complete	<--	<--	rpm	V	deg	22.0	250		
							throttle position sensor rationality diagnosis	complete	<--	<--
ignition switch	on	no failure	no failure	no failure	<--	<--	V	1000msec		
									motor supply voltage	>= 6.2
engine speed	>= 500	<--	<--	rpm	V	deg	V	rpm		
									battery voltage	>= 6.2
throttle position sensor 1	< target throttle position	<--	<--	rpm	V	deg	V	rpm		
									throttle position sensor 1 circuit diagnosis	complete
throttle position sensor 2 circuit diagnosis	complete	<--	<--	rpm	V	deg	V	rpm		
									throttle position sensor rationality diagnosis	complete
ignition switch	on	no failure	no failure	no failure	<--	<--	V	5000msec		
									motor supply voltage	>= 6.2
engine speed	>= 500	<--	<--	rpm	V	deg	V	rpm		
									battery voltage	>= 6.2
throttle position sensor 1 circuit diagnosis	complete	<--	<--	rpm	V	deg	V	rpm		
									throttle position sensor 2 circuit diagnosis	complete
throttle position sensor rationality diagnosis	complete	<--	<--	rpm	V	deg	V	rpm		
									throttle position sensor rationality diagnosis	complete
(202) Throttle actuator control motor	P2101	circuit continuity	malfunction flag from motor operation IC	ignition switch	on	<--	<--	V	500msec	immediately
	P2102		motor supply voltage	motor relay	on	<--	<--			
			battery voltage	>= 11	<--	<--				
P2103	motor supply voltage	motor relay	off	<--	<--	<--	V	600msec		
		battery voltage	>= 6	<--	<--					
(203) Throttle return spring	P1160	functional check	throttle position sensor 1 at diagnosis start	ignition switch	off	<--	<--	msecs.	600msec	immediately
			- throttle position sensor 1	the time after ignition switch off	= 992	<--	<--			
CPU communication	no failure	<--	no failure	no failure	<--	<--	V	rpm		
									throttle position sensor 1 circuit diagnosis	complete
throttle position sensor 2 circuit diagnosis	complete	<--	<--	rpm	V	deg	V	rpm		
									throttle position sensor rationality diagnosis	complete
motor supply voltage	>= 6	<--	<--	rpm	V	deg	V	rpm		
									battery voltage	>= 6
target throttle position at diagnosis start	- throttle position sensor 1 at diagnosis start	< 2	<--	<--	<--	<--	deg	rpm		
									throttle position sensor 1 at diagnosis start	< 2
(204) Throttle position sensor minimum stop	P2109	rationality check	minimum stop position	battery voltage	>= 6	<--	<--	V	8msec	immediately
			previous diagnosis result	no failure	<--	<--				
throttle position at ignition switch off to on	- throttle minimum stop position	>= 6	<--	<--	<--	<--	V	80msec		
									previous diagnosis result	no failure

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2007 MY Summary Sheet for OBD Strategy (14)

Component/ System	Fault Code	Monitor Strategy Description/Method	Malfunction Criteria	Secondary Parameters	Enable Conditions			Time Required	MIL Illum.	
					FORESTER	Impreza WRX	Legacy & Outback			
(205) Throttle position sensor	P0122 (sensor1) P0222 (sensor2)	circuit continuity	output voltage (sensor2)	ignition switch motor supply voltage previous diagnosis result	on =>6 no failure	<-- <-- <--	<-- <-- <--	V	24 msec	immediately
	P0123 (sensor1) P0223 (sensor2)								(sensor1) (sensor2)	
	P2135	rationality check	throttle position sensor 1(deg) - throttle position sensor 2(deg)	ignition switch motor supply voltage previous diagnosis result throttle position sensor 1 circuit diagnosis throttle position sensor 2 circuit diagnosis	on =>6 no failure complete complete	<-- <-- <-- <-- <--	<-- <-- <-- <-- <--	V	212 msec	
(206) Pedal position sensor	P2122 (sensor1) P2127 (sensor2)	circuit continuity	output voltage (sensor1) (sensor2)	ignition switch motor relay previous diagnosis result battery voltage	on on no failure =>6	<-- <-- <-- <--	<-- <-- <-- <--	V	100 msec 100 msec	immediately
	P2123 (sensor1) P2128 (sensor2)								(sensor1) (sensor2)	
	P2138	rationality check	pedal position sensor 1 (deg) - pedal position sensor 2 (deg)	ignition switch previous diagnosis result battery voltage pedal position sensor 1 circuit diagnosis pedal position sensor 2 circuit diagnosis	on no failure =>6 complete complete	<-- <-- <-- <-- <--	<-- <-- <-- <-- <--	V	116 msec	

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2007 MY Summary Sheet for OBD Strategy (15)

Component/ System	Fault Code	Monitor Strategy Description/Method	Malfunction Criteria	Secondary Parameters	Enable Conditions			Time Required	MIL Illum.						
					FORESTER	Impreza WRX	Legacy & Outback								
(207) ECM performance	P0607	circuit continuity (inside ECM)	input voltage of throttle position sensor 1 main CPU - sub CPU	ignition switch previous diagnosis result battery voltage CPU communication starter switch the time after sub CPU reset	on	<--	<--	V msec	600	immediately					
					no failure	<--	<--		400						
					>= 6	<--	<--		350						
					no failure	<--	<--		300						
					off	<--	<--		250						
	circuit continuity (inside ECM)	input voltage of pedal position sensor 1 main CPU - sub CPU	ignition switch previous diagnosis result CPU communication battery voltage starter switch	on	<--	<--	V	Forester, I 750 msec moreza 830	immediately						
				no failure	<--	<--		Forester, I 550 msec moreza 720							
				>= 6	<--	<--		Forester, I 400 msec moreza 610							
				off	<--	<--		Forester, I 300 msec moreza 415							
	functional check (Sub CPU)	Watch dog signal from Sub CPU	ignition switch previous diagnosis result starter sw battery voltage the time after sub CPU reset	on	<--	<--	V msec	200	immediately						
no failure	<--	<--	200												
functional check (CPU communication)	(Main CPU) sum check error, key word error, data writing error or communication error from sub CPU data	ignition switch previous diagnosis result starter switch battery voltage the time after sub CPU reset	on	<--	<--	V msec	200	immediately							
			no failure	<--	<--		200								
functional check (Sub CPU)	(Sub CPU) sum check error, key word error, or communication error from main CPU data	ignition switch previous diagnosis result battery voltage	on	<--	<--	V	200	immediately							
			no failure	<--	<--		200								
functional check (AMP circuit in ECM)	throttle position sensor 1 - (amplified throttle position sensor 1) / 4	ignition switch previous diagnosis result battery voltage throttle position sensor 1	on	<--	<--	V deg	24	immediately							
			no failure	<--	<--		24								
	(amplified throttle position sensor 1) / 4	ignition switch previous diagnosis result battery voltage throttle position sensor 1	on	<--	<--	V deg	24	immediately							
			no failure	<--	<--		24								
		Map24		<table border="1"> <thead> <tr> <th>battery voltage (V)</th> <th>TAAD (deg.)</th> </tr> </thead> <tbody> <tr> <td>7.5</td> <td>27.5</td> </tr> <tr> <td>8.0</td> <td>31</td> </tr> </tbody> </table>		battery voltage (V)	TAAD (deg.)	7.5	27.5	8.0	31				
battery voltage (V)	TAAD (deg.)														
7.5	27.5														
8.0	31														
functional check (cruise control)	cruise control	brake switch ignition switch motor relay battery voltage Sub CPU ETC activation previous diagnosis result CPU communication	on	<--	<--	V	250	immediately							
on	<--	<--	250												
rationality check (brake switch circuit)	brake switch of main CPU brake switch of sub CPU	ignition switch battery voltage previous diagnosis result CPU communication	on	<--	<--	V	200	immediately							
			no failure	<--	<--		200								
	brake switch of main CPU brake switch of sub CPU	ignition switch battery voltage previous diagnosis result CPU communication	>= 10.9	<--	<--										
			no failure	<--	<--										
			no failure	<--	<--										

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2007 MY Summary Sheet for OBD Strategy (16)

Component/ System	Fault Code	Monitor Strategy Description/Method	Malfunction Criteria	Secondary Parameters	Enable Conditions			Time Required	MIL Illum.
					FORESTER	Impreza WRX	Legacy & Outback		
(207) ECM performance	P0607	functional check (instruction check)	(Main CPU) instruction error	ignition switch	off to on CPU reset	<-- <--	<-- <--	2 time	immediately
			calculated data through CPU and FPU compare with expectation	ignition switch throttle position sensor 1 circuit diagnosis	on complete	<-- <--	<-- <--	512 msec	
			(Sub CPU) calculated data from Main CPU compare with expectation	CPU communication the time after sub CPU reset	no failure ≥200	<-- <--	<-- <--	240 msec 40 msec * 6 time msec	
		functional check (software flow check)	(Main CPU) software flow error	ignition switch	on	<--	<--	504 msec	
			(Sub CPU) calculated data from Main CPU compare with expectation	CPU communication the time after sub CPU reset	no failure ≥200	<-- <--	<-- <--	240 msec 40 msec * 6 time msec	
			functional check (software monitor check)	software monitor error	CPU communication the time after sub CPU reset	no failure ≥200	<-- <--	248 msec msec	
(208)RAM in ECM	P0604	functional check	(Main CPU) Setting value can be written in all RAM area, and the values can be read correctly	ignition switch	off to on (CPU reset)	<--	<--	not determined	immediately
			(Sub CPU) check sum data on RAM , calculated sum data compare	CPU communication ignition switch the time after sub CPU reset	no failure off to on ≥200	<-- <-- <--	<-- <-- <--		
(209)ROM in ECM	P0605	functional check	check sum data on ROM , calculated sum data compare	(Main CPU) ignition switch	off to on (CPU reset)	<--	<--	not determined	immediately
				(Sub CPU) ignition switch motor supply voltage previous diagnosis result CPU communication the time after sub CPU reset	on ≥6 no failure no failure ≥200	<-- <-- <-- <--	<-- <-- <-- <--		

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Applicable System ; System E (Forester AT)

2007 MY Summary Sheet for OBD Strategy (17)

Component/ System	Code	Monitor Strategy Description/Method	Malfunction Criteria	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
(301) Range switch	P0705	functional check	"D" signal continuously	shifted vehicle speed	"N" to "3" >= 60 km/h	3.0 secs.	two driving cycles
			simultaneous signals	engine speed engine speed signal	> 3000 rpm not failure	3.0 secs.	
(302) Brake switch for AT	P0719	functional check	"on" signal	vehicle speed change	30 to 0 km/h	10 times	two driving cycles
	P0724	functional check	"off" signal	vehicle speed change	0 to 30 km/h	10 times	two driving cycles
(303) ATF temperature sensor	P0712	range check	output voltage	vehicle speed	>= 10 km/h	60.0 secs.	immediately
	P0713	range check	output voltage	vehicle speed	>= 10 km/h	60.0 secs.	immediately
(304) Turbine shaft speed sensor	P0715	range check	turbine shaft speed	engine speed output shaft speed range switch	>= 3000 rpm >= 1600 rpm "D", "3", "2" or "1"	3.0 secs.	immediately
(305) Vehicle speed sensor	P0720	range check	output shaft speed	determined output shaft speed determined output shaft speed	>= 800 rpm not failure	3.0 secs.	immediately
(306) Engine speed signal for AT	P0725	range check	engine speed	turbine shaft speed turbine shaft speed sensor vehicle speed vehicle speed sensor	>= 1000 rpm not failure >= 10 km/h not failure	3.0 secs.	immediately
(307) Automatic transmission gear ratio	P0731	functional check	GR/(1st gear ratio)	upshift or downshift events output shaft speed turbine shaft speed range switch throttle angle (at 1st gear) throttle angle (at not 1st gear) range switch turbine shaft speed sensor vehicle speed sensor	not in operation >= 300 rpm >= 300 rpm "D", "3", "2" or "1" >= 30 deg >= 6 deg not failure not failure not failure	3.0 secs.	immediately
	P0732		GR/(2nd gear ratio)				
	P0733		GR/(3rd gear ratio)				
	P0734		GR/(4th gear ratio)				
			where, GR = (turbine shaft speed) / (output shaft speed)				
(308) Lock-up clutch	P0741	functional check	engine speed - turbine shaft speed >= 40 + vehicle speed /2	duty ratio for duty solenoid valve engine speed signal turbine shaft speed sensor	>= 90 % not failure not failure	10.0 secs.	two driving cycles
(309) Lock-up clutch duty solenoid	P0743	functional check	drain level of FET for solenoid valve is not change in one duty cycle	on duty ratio for duty solenoid valve	>= 5 %	200 msecs.	immediately
			drain level of FET for solenoid valve	on duty ratio for duty solenoid valve	= 0 %	200 msecs.	
(310) AT line pressure linear solenoid	P0748	functional check	cur_mon cur_mon or cur_tgt - cur_mon	cur_tgt cur_tgt	>= 100 mA >= 100 mA	0.10 secs. 0.06secs.	immediately
			where, cur_mon=monitor current for solenoid cur_tgt=target current for solenoid				
(311) Low clutch duty solenoid	P0753	functional check	drain level of FET for solenoid valve is not change in one duty cycle	on duty ratio for duty solenoid valve	>= 5 %	200 msecs.	immediately
			drain level of FET for solenoid valve	on duty ratio for duty solenoid valve	= 0 %	200 msecs.	
(312) 2-4th brake duty solenoid	P0758	functional check	drain level of FET for solenoid valve is not change in one duty cycle	on duty ratio for duty solenoid valve	>= 5 %	200 msecs.	immediately
			drain level of FET for solenoid valve	on duty ratio for duty solenoid valve	= 0 %	200 msecs.	
(313) High clutch duty solenoid	P0763	functional check	drain level of FET for solenoid valve is not change in one duty cycle	on duty ratio for duty solenoid valve	>= 5 %	200 msecs.	immediately
			drain level of FET for solenoid valve	on duty ratio for duty solenoid valve	= 0 %	200 msecs.	
(314) Low&Reverse brake duty solenoid	P0768	functional check	drain level of FET for solenoid valve is not change in one duty cycle	on duty ratio for duty solenoid valve	>= 5 %	200 msecs.	immediately
			drain level of FET for solenoid valve	on duty ratio for duty solenoid valve	= 0 %	200 msecs.	
(317) CAN communication	P1718	functional check	CAN bus condition fail counter from ECM is not change	turbine shaft speed range switch	> 0 rpm "D", "3", "2" or "1"	500 msecs.	immediately

Component/ System	Fault Code	Monitor Strategy Description/Method	Malfunction Criteria	Secondary Parameters	Enable Conditions FORESTER	ble Conditions		Time Required	MIL Illum.
						Impreza WRX	Legacy & Outback		
(96)-1 Secondary Air System (at operating)				=lowest temperature among *,*,and* at engine starting battery voltage battery voltage atmospheric pressure engine operated	>= 4.4 >= 10.9 >= 7 >= 75.06029 operating	<-- <-- <-- <--	<-- <-- <-- <--	deg C V V KPa	10 sec
	P0410	secondary air flow is not detected (based on pressure sensor in piping)	<Monitoring for pressure of pump supplying> secondary air pressure in the pipe (after corrected by atmospheric pressure)	amount of intake air (ga) pump of secondary air comb. valve	>= 2 operating One comb. valve is opening (except both comb. valves are closing)	<-- <-- <--	<-- <-- <--	g/s	
	P2443	Control valve closed stick (Bank2)	<Monitoring for pulsation when one comb. valve closing> accumulated pulsation value when RH comb.valve is closing	area where monitoring is able to be executed see MAP 23 on page 03-E-10	>= 1	<--	---		
	P2441	Control valve closed stick (Bank1)	accumulated pulsation value when RH comb.valve is closing	after fuel shut-off	>= 0	<--	---	msec	
	P2440	Control valve opened stick (Bank1)	<Monitoring for pulsation when both comb. valves closing> accumulated pulsation value when RH and LH comb. valve are closing. flow when RH comb. valve is closing (dsaicflpr)	engine load (gn) after fuel shut-off	>= 0.2 >= 500	<-- <--	<-- 1000	g/rev msec	
	P2442	Control valve opened stick (Bank2)	accumulated pulsation value when RH and LH comb. valve are closing. flow when LH comb. valve is closing (dsaicflpl)						
	P2443	Control valve closed stick (Bank2)	<Monitoring for pressure when comb. valves switching> pressure change when LH comb. valve switches	amount of intake air (ga)	> 2	<--	<--	g/s	
	P2441	Control valve closed stick (Bank1)	pressure change when RH comb. valve switches	engine speed (ne) after fuel shut-off	< 20 < 4000 >= 500	<-- <-- <--	25 <-- 1000	g/s rpm msec	
P0411	secondary air flow increase unusual	<Monitoring for excessive flow> flow when RH comb. valve is closing (dsaicflestaivr) or flow when LH comb. valve is closing (dsaicflestafl) dsaicflp0r1vb – dsaicflp0rvb dsaicflp0r1vb – dsaicflp0lvb							

Applicable Model Year: 2007; Applicable Vehicle Line: IMPREZA, FORESTER, LEGACY, OUTBACK with Turbo Charged Engine System

Applicable System ; System E

2007 MY Summary Sheet for OBD Strategy (23)

Component/ System	Fault Code	Monitor Strategy Description/Method	Malfunction Criteria	Secondary Parameters	Enable Conditions			Time Required	MIL Illum.	
					FORESTER	Impreza WRX	Legacy & Outback			
(96)-2 Secondary Air System (at disable)	P1410	Control valve open stick	difference between maximum value and minimum value of pressure in piping and accumulation change of pressure in piping every 4ms. and Change of atmosphere	engine speed after engine starting after secondary air system disable amount of intake air battery voltage	>= 500 >= 9000 >= 9000 >= 2 and < 400 >= 10.9	<-- <-- <-- <-- <-- <--	<-- <-- <-- <-- <-- <--	rpm msec msec g/s g/s V	2000 msec x 20 time	immediately
	P2444	Pump "ON" stick	secondary air pressure in the pipe - secondary air pressure in the pipe (before the secondary air system operating)	battery voltage engine running ignition switch secondary air pressure in the pipe calculation completion (before the secondary air system operating) progress time after the control secondary air systems end Pump "ON" stick no failure	>= 3000 <= 8000	<-- <--	<-- <--	msec msec	8 sec	
(97) Secondary Air Control valve relay	P0413 (bank1) P0416 (bank2) P0414 (bank1) P0417 (bank2)	Circuit Continuity	drain voltage of FET & signal from ECM for relays drain voltage of FET & signal from ECM for relays	ignition switch battery voltage	>= on 10.9	<-- <--	<-- <--	V	2500 msec 2500 msec	immediately
(98) Secondary Air Pump relay	P0418	Circuit Continuity	drain voltage of FET & signal from ECM for relays	ignition switch battery voltage	>= on 10.9	<-- <--	<-- <--	V	2500 msec	immediately
	P1418		drain voltage of FET & signal from ECM for relays	Secondary Air Pump relay "low" no failure					2500 msec	
(99) Secondary Air Pressure Sensor	P2131	rationality check	pressure in piping - MAP	engine speed at engine starting vehicle speed in-mani press. at eng. start - MAP after secondary air system disable components listed on #62 of page 03-E-1	< 300 < 0.6214 < 1.331887 >= 2976 no failure	<-- <-- <-- <-- <--	<-- <-- <-- <-- <--	rpm mph KPa msec	328 msec	two driving cycles
	P2432 P2433	range check	output voltage	ignition switch	on	<--	<--		500 msec	immediately
(100) Solenoid valve for purge control 2	P2419	circuit continuity	drain voltage of FET and signal from ECM	battery voltage after engine starting	>= 10.9 >= 1	<-- <--	<-- <--	secs.	2500 msec	two driving cycles
	P2420		drain voltage of FET and signal from ECM	ignition switch	on	<--	<--		2500 msec	
	P0441	rationality check	fuel tank pressure difference between at the end of EVAP sys. diagnosis & 3.5 secs. later	EVAP emission control sys. amount of intake air fuel tank pressure at the end of EVAP system diagnosis	no failure < 45 < -1.29989	<-- <-- <--	<-- <-- <--	g/s KPa	3500 msec	two driving cycles