## 2004file14.xls

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0	F16	Manifest Objects and	Diamen Malford Co.	Thereshold	0	0	Final	Facility	11-9-	70	F	0.31	
Component/ System	Fault Code	Monitor Strategy Description	Primary Malfunction Signal and Criteria	Threshold Value	Specified Units	Secondary Parameters	Enable Condition	Enable Value	Units	Time Required	Frequency of Checks	Criteria for Code	MIL Illumination
System	Code	Description	Signal and Criteria	value	UIIIIS	Farameters	Condition	value		Required	OI CHECKS	101 Code	illullillatioi
Camshaft Control											I		
Electrical								<del>                                     </del>				-	-
Bank 1 Intake	P0010	circuit continuity - open	Voltage	IC Internal	_	engine speed	>	80	rpm	0.01 sec	0.01 sec	50 sec	two driving
Bank i make	P2088	circuit continuity - ground	Voltage	10 Internal		battery voltage	>	10	V	0.01300	0.01 300	cumulative	cycles
	P2089	circuit continuity - voltage				battery voltage	<	18	V				50 sec
Bank 1 Exhaust	P0013	circuit continuity - open					activated and de	eactivated for comple	ete checking				cumulative
	P2092	circuit continuity - ground											+
	P2093	circuit continuity - voltage											
Bank 2 Exhaust	P0020	circuit continuity - open											
	P2092	circuit continuity - ground											
	P2093	circuit continuity - voltage											
Bank 2 Exhaust	P0023	circuit continuity - open											
	P2092	circuit continuity - ground											
	P2093	circuit continuity - voltage											
System - Control													
Bank 1 Intake	P0011	rationality low / high	difference (filtered actual angle versus	range: 2 to 10	degrees	engine speed	>	1000	rpm	approx.	0.01 sec	50 sec	two driving
Bank 1 Exhaust	P0014		filtered desired angle) >	_		engine run time	>	1	sec	300 sec		cumulative	cycles
Bank 2 Intake	P0021		for multiple activation occurrences	5	count	camshaft control circuit test	complete	-	-				50 sec
Bank 2 Exhaust	P0024		up / down counter			error: camshaft control circuit	not set	-	-				cumulative
System - Cam - Crank Alignment							I						
Bank 1 Intake	P0016	cam-crank adapted angle limit check	adapted angle >	9.0	degrees	engine run time >	>	5	sec	approx.	0.2 sec	50 sec	two driving
Bank 1 Exhaust	P0017					engine coolant temp >	>	20.25	°C	600 sec.		cumulative	cycles
Bank 2 Intake	P0018					engine coolant temp <	<	90	°C				50 sec
Bank 2 Exhaust	P0019					model: engine oil temp <	<	95	° C	fail after			cumulative
Bank 1 Idler Sprocket	P0008		adapted angle for both cams >	7.0	degrees	cam-crank adaptation	stable	and	complete	2 adaptation			
Bank 2 Idler Sprocket	P0009					error: camshaft sensor	not set	-	-	cycles -			
•						error: camshaft control circuit	not set	-	-	required			
Camshaft position sensor							I						
Bank 1 Intake	P0341	plausibility check	signal erratic or out of position	4	count	engine in synchronized mode	TRUE	-	-	continuous	1 per rev	50 sec	two driving
	P0342	circuit low	signal permanently low	5	count							cumulative	cycles
	P0343	circuit continuity or high	signal permanently high	5	count								50 sec
													cumulative
Bank 2 Intake	P0346	plausibility check	signal erratic or out of position										
	P0347	circuit low	signal permanently low										
	P0348	circuit continuity or high	signal permanently high										
Bank 1 Exhaust	P0366	plausibility check	signal erratic or out of position										
	P0367	circuit low	signal permanently low										
	P0368	circuit continuity or high	signal permanently high										
Bank 2 Exhaust	P0391	plausibility check	signal erratic or out of position										
	P0392	circuit low	signal permanently low										
	P0393	circuit continuity or high	signal permanently high										
Air Fuel Ratio Sensor Heaters and C	Oxygen Senso	or Heaters											
heater circuits - electrical													
bank 1 sensor 1 (primary)	P0030	circuit continuity - open	Voltage	IC Internal	-	engine speed	>	80	rpm	0.01 sec	0.01 sec	50 sec	two driving
	P0031	circuit continuity - ground				battery voltage	>	10	V			cumulative	cycles
	P0032	circuit continuity - voltage				battery voltage	<	18	V				50 sec
bank 1 sensor 2 (secondary)	P0036	circuit continuity - open				output	activated and de	eactivated for comple	ete checking				cumulative
	P0037	circuit continuity - ground											
	P0038	circuit continuity - voltage											
bank 2 sensor 1 (primary)	P0050	circuit continuity - open											
	P0051	circuit continuity - ground					ļ						
	P0052	circuit continuity - voltage					ļ		1			<b></b>	
bank 2 sensor 2 (secondary)	P0056	circuit continuity - open										<u> </u>	4
	P0057	circuit continuity - ground											1
	P0058	circuit continuity - voltage											
	1			1					1	_		السحم	
heater performance	1						ļ						
bank 1 sensor 2 (secondary)	P0141	ceramic temperature	Measured rear O2 sensor internal	range: 100 to 300	Ohms	battery voltage	>	10.5	V	approx.	0.1 sec	50 sec	two driving
bank 2 sensor 2 (secondary)	P0161		resistance times degradation factor >	3.5	1-	battery voltage	<	18	V	100 sec		cumulative	
	1		for time	6	sec	engine running	TRUE	-	-			<b></b>	50 sec
	1			1	1	rear O2 power supply OK	TRUE	-	-			<b></b>	cumulative
	1				-	no fuel cut off	TRUE	-	-			<b></b>	
	1			1	1	no rear O2 disconnection	TRUE	-	-			<b></b>	4
	1				1	rear O2 internal resistance	TRUE	-	-				1
	+			1	1	measured			_	1		<del>                                     </del>	+
	+			1	1	ambient temp.	>	-6.8	С	1		<del>                                     </del>	+
	1				1	no error last trip otherwise		4					1
	+			1	1	stop time	>	120	sec.	1		<del>                                     </del>	+
	1				1	modeled exhaust temp.	in range	360<<420	С				
harter and and	1								1	1			_
heater performance (primary)	Bc :		1.00									<del> </del>	4
bank 1 sensor 1	P0135	A/F sensor temperature below threshold	A/F sensor temperature <	range: 672 to 740	° C	max heating power reached	TRUE			60 sec	0.1 sec	50 sec	two driving
	P0155					modeled exhaust wall temp.	>	600	°C	1		cumulative	
bank 2 sensor 1													50 sec
Darik 2 Serisor 1						time after fuel cutoff	>	50	sec				
Darik 2 Serisor 1						time after fuel cutoff time after A/F sensor heating started	>	50	sec				cumulative

Page 1 of 18

## 2004file14.xls

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Component/	Fault	Monitor Strategy	Primary Malfunction	Threshold	Specified	Secondary	Enable	Enable	Units	Time	Frequency	Criteria	MIL
System	Code	Description	Signal and Criteria	Value	Units	Parameters	Condition	Value		Required	of Checks	for Code	Illumination
						engine speed	>	25	rpm				
						battery voltage	<	18	V				
						battery voltage	>	10.5	V				
						error: A/F sensor IC	not set	-	-				
						error: A/F sensor heater	not set						
						circuit	not set	-	-				
·						error: A/F sensor circuit	not set	-	-				

2004file14.xls Page 2 of 18

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2004file14.xls													
Component/ System	Fault Code	Monitor Strategy Description	Primary Malfunction Signal and Criteria	Threshold Value	Specified Units	Secondary Parameters	Enable Condition	Enable Value	Units	Time Required	Frequency of Checks	Criteria for Code	MIL Illumination
bank 1 sensor 1	P0053	no A/F sensor heating	A/F sensor heating power <	0.1	%	modeled exhaust temperature at A/F sensor	<	400	°C	60 sec			
bank 2 sensor 1	P0059					modeled A/F sensor temperature	<	500	°C				
						critical misfire rate	not detected						
						engine speed	>	25	rpm				
						battery voltage	<	18	V				
						battery voltage error: A/F sensor IC	> not set	10.5	V -				
						error: A/F sensor heater		-	-				
						circuit	not set	-	-				
						error: A/F sensor circuit	not set	-	-				
		·				·	·						
bank 1 sensor 1	P0053	correction value for A/F sensor internal resistance measurement above threshold	absolute value of correction value for A/F sensor internal resistance measurement >	15	Ohms	battery voltage	<	18	V	40 sec			
bank 2 sensor 1	P0059		measurement >			battery voltage	>	10.5	V				
						error: A/F sensor IC	not set	-	-				
						error: A/F sensor circuit	not set	-	-				
		1.00			1 0	h				Les			
bank 1 sensor 1	P0135	A/F sensor internal resistance below threshold	measured internal resistance <	20	Ohms	battery voltage	>	18	V	15 sec			
bank 2 sensor 1	P0155					battery voltage  A/F sensor warm up control	complete	10.5	- V				
						internal resistance	·						
						measurement enabled	TRUE	=	-				
						A/F sensor internal resistance correction too big	FALSE	-	-				
						error: A/F sensor IC	not set	-	-				
						error: A/F sensor heater							
						circuit	not set	-	-				
						error: A/F sensor circuit	not set	-	-				
bank 1 sensor 1	P0135	A/F sensor temperature exceeds threshold	A/F sensor temperature <	600	°C	battery voltage	<	18	V	120 sec			
bank 2 sensor 1	P0155	A/F serisor temperature exceeds threshold	A/F serisor temperature <	000	C	battery voltage	>	10.5	V	120 Sec			
Barin E concor i	1 0 100					internal resistance	TO.15						
						measurement enabled	TRUE	-	-				
						all injectors activated	TRUE	=	-				
						A/F sensor internal resistance correction too big	FALSE	-	-				
						previous engine shut off time	>	300	sec				
						A/F sensor heating ready for	TRUE	-	_				
						operation error: A/F sensor IC	not set	-	-				
						error: A/F sensor heater		-	-				
						circuit	not set	-	-				
						error: A/F sensor circuit	not set	-	-				
Air Fuel Ratio Sensor (primary)													
response	D0400	Response	A/F sensor dynamic value below threshold <	0.4	-	forced fuel trim amplitude	active	=	=		0.04	50	to a delicar
Bank 1 Sensor 1	P0133					A/F sensor ready for operation	TRUE	-	-	approx.	0.01 sec	50 sec	two driving
Bank 2 Sensor 1	P0153					Max Trim	FALSE	-	-	600 sec	İ	cumulative	cycles
						Min Trim	FALSE	÷	-				50 sec
						measured A/F	<	1.06	lambda				cumulative
					1	measured A/F	> <	0.94 2520	lambda	-	1		1
						engine speed engine speed	>	2520 1520	rpm rpm	+			
			1			relative air charge	<	45	%				
						relative air charge	>	15.8	%	1			
						relative air charge gradient	<	3	%				
	-					number of samples	>	80	count				
						error: evap canister purge valve	not set	=	-	1			
						error: evap canister purge valve circuit	not set	-	-				
					1	scheduled by System							
						Manager	TRUE	-	-	1			
electrical						A/F						50	
wire to wire short circuit		sensor short to heater	air/fuel sensor voltage gradient >	range: 0.2 to 0.5		A/F sensor heater control	on and off	-	-	10 sec	0.01 sec	50 sec	two driving
bank 1 sensor 1	P2231		+			switching heater duty cycle	>	5	%	+		cumulative	cycles
bank 1 sensor 1 bank 2 sensor 1	P2231		+			A/F sensor heated	TRUE	- 5	70	- additional		cumulative	50 sec
	. 2234					relative air charge gradient	<	3	% / sec ?	600 sec for			cumulative
						all injectors activated	TRUE	-	-	low fuel level	İ		
						battery voltage	<	18	V				
						battery voltage	>	10.5	V				
						critical misfire rate detected	FALSE	-	-	+			
	1		1	1	1	catalyst warm up control	not active	-	=	1			

2004file14.xls Page 3 of 18

## 2004file14.xls

2004file14.xls													
Component/ System	Fault Code	Monitor Strategy Description	Primary Malfunction Signal and Criteria	Threshold Value	Specified Units	Secondary Parameters	Enable Condition	Enable Value	Units	Time Required	Frequency of Checks		MIL Illumination
Cystem	Couc	Bescription	oignai una ontena	Value	Office	1 didifictors	Condition	value		rtequired	Of Officers	ioi oode	mammaton
						A/F sensor IC checked	TRUE	-	-				
						error: A/F sensor IC	not set	800	° C			-	
						modeled exh. gas temp.  # of hi gradients in 10 sec	>	18	count		+	+	
			<u>'</u>						1000				
sensor voltage	D0007	A/F sensor voltage exceeds threshold	A/F sensor voltage >	3.7		A/F sensor heated	TRUE	-	-	10 sec	0.1 sec	50 sec	two driving
bank 1 sensor 1 bank 2 sensor 1	P2297 P2298					engine started desired A/F	TRUE <	1.6	lambda		+	cumulative	cycles 50 sec
Durk E Scrisor 1	1 2200					error: A/F sensor IC	not set	-	-	-	+	1	cumulative
						all injectors activated	TRUE	-	-				
						A/F sensor voltage below threshold	<	4.81	V				
					_	ullestiold	_			_			
integrated circuit interface	P0606	A/F sensor voltage corrective value above threshold	A/F sensor voltage corrective value >	0.1	V	A/F sensor heater control	on and off	-	-	10 sec	0.1 sec	50 sec	two driving
integrated circuit interface	1 0000	741 School voltage corrective value above till corrot	741 School Voltage Confedite Value 1			switching	on and on			10 300	0.1300	a	au alaa
		A/F sensor IC operating voltage too low	A/F sensor IC operating voltage too low	TRUE	_	number of jumps coordinated with heater activation in 10	>	4	count			cumulative	cycles
		741 Scrisor to operating voltage too low	741 Sensor to operating voltage too low	INOL		sec		7	Count				
		A/F sensor IC SPI interface communication error	A/F sensor IC SPI interface	TRUE	_	A/F sensor warm up control	complete	-	_				50 sec
			communication error  A/F sensor ic circuit write error at INIT		4		-					-	cumulative
		A/F sensor IC circuit write error at INIT register	register	TRUE	-								cumulative
			g										
measurement ground circuit open		A/F sensor heater coupling occurs due to max heating control	A/F sensor voltage gradient >	0.03		A/F sensor heater control	on and off	-	-	10 sec	0.1 sec	50 sec	two driving
		reached as a result of ground circuit disconnection				switching number of jumps coordinated	+		+	+	+	cumulative	cycles
bank 1 sensor 1	P2251					with heater activation in 10	>	4	count			cumulative	cycles
						sec							
bank 2 sensor 1	P2254					A/F sensor warm up control	complete		-				50 sec
						error: A/F sensor heater circuit	not set	-	-				cumulative
					+		<del>                                     </del>		+	_	+	+	
						A/F sensor internal resistance	>	570	Ohms				
						A/F sensor voltage	<	1.53	V				
						A/F sensor voltage	>	1.47	V				
reference ground circuit onen		A/F sensor voltage above upper threshold or below lower threshol	d A/E conservatore	0.2	V	error: A/F sensor heater	not set		_	1 000	0.1 sec	50 sec	two driving
reference ground circuit open		A/F sensor voltage above upper threshold of below lower threshold	d A/F sensor voltage <	0.2	v	circuit	not set	-		1 sec	U. I Sec		cycles
bank 1 sensor 1	P2243		A/F sensor voltage >	2.4	V	A/F sensor internal resistance	>	570	Ohms			cumulative	50 sec
bank 2 sensor 1	P2247					A/F sensor warm up control	complete	=	-	-	+	1	cumulative
measuring current circuit open		A/F sensor voltage above threshold	A/F sensor voltage >			fuel cut off	TRUE	-	-	600 sec	0.1 sec	50 sec	two driving cycles
bank 1 sensor 1	P2626				+	engine started	TRUE	-	-	if fuel level	+	cumulative	50 sec
bank 2 sensor 1	P2629					modeled exhaust temp	<talsusmx< td=""><td>750</td><td>°C</td><td>is low</td><td></td><td></td><td>cumulative</td></talsusmx<>	750	°C	is low			cumulative
	1		absolute value of lambda control factor						_	_		50 sec	two driving
pumping current circuit open		lambda control factor change above threshold	change >			A/F sensor voltage	<	1.52	V	1.5 sec	0.1 sec	50 Sec	cycles
bank 1 sensor 1	P2237				+	A/F sensor voltage	>	1.48	V	_		cumulative	50 sec
bank 2 sensor 1	P2240					A/F sensor electrical trimming	not active	-	_				cumulative
						A/F sensor heated	TRUE					+	
						A/F sensor warm up control	complete	-	-	+	+		
					+	lambda closed loop control	TRUE	-	-	_			
						forced fuel trim amplitude	TRUE	=	-				
						absolute value of forced A/F amplitude	>	0.02	lambda				
						catalyst warm up control			+	_	+	+	
						heating switching on or off	FALSE	=	-				
						rear O2 sensor trim switching	FALSE	-	-				
						on or off lean mixture inhibit switching			+	+	+	+	1
						on or off	FALSE	-	-				
						lambda closed loop control	FALSE	_	_		1		
						initialization	TALOL		<del>-</del>	+		<del> </del>	
						start of lambda closed loop control	FALSE	-	-				
			<u>'</u>										
pumping current circuit open		A/F sensor voltage within upper and lower thresholds	A/F sensor voltage <	1.52		target lambda above upper limit	>	1.03	lambda		0.1 sec	50 sec	two driving
bank 1 sensor 1	P2237		and A/F sensor voltage >	1.48		or below lower limit	<	0.97	lambda	+	+	cumulative	cycles
bank 2 sensor 1	P2240					closed loop control	TRUE						50 sec
						A/F sensor response test	TRUE						cumulative
						complete			+	+		+	
						error: A/F sensor response A/F sensor heated	not set TRUE	-	-	+	+	+	
				-		A/F sensor electrical trimming			1	1	+	1	
						active	FALSE						
	1					error: A/F sensor heating	not set	-	-		4	<del></del>	
			The state of the s										
						integrated exhaust gas mass	>	200	g				

Page 4 of 18

#### 2004file14.xls

2004file14.xls													
Component/ System	Fault Code	Monitor Strategy Description	Primary Malfunction Signal and Criteria	Threshold Value	Specified Units	Secondary Parameters	Enable Condition	Enable Value	Units	Time Required	Frequency of Checks	Criteria for Code	MIL Illumination
pumping current circuit open		A/F sensor not lean enough after fuel cut off	A/F sensor voltage <	1.7	V	time after fuel shut off	>	3 + 2	sec	5 sec	0.1 sec	50 sec	two driving
bank 1 sensor 1	P2237	_	-			A/F sensor heated	TRUE					cumulative	cycles 50 sec
bank 2 sensor 1	P2240					A/F sensor response test complete	TRUE					Camalativo	cumulative
measurement ground circuit;	1	A/F sensor signal at VM above upper limit								T	0.1 sec	50 sec	two driving
reference ground circuit; or		A/F sensor signal at VM below lower limit										cumulative	cycles
measuring current circuit	D0424	A/F sensor signal at UN above upper limit											50 sec
bank 1 sensor 1 - low voltage bank 1 sensor 1 - high voltage	P0131 P0132	A/F sensor signal at UN below lower limit A/F sensor signal at IA above upper limit							-	+			cumulative
bank 2 sensor 1 - low voltage	P0151	A/F sensor signal at IA below lower limit											<b>—</b>
bank 2 sensor 1 - high voltage	P0152												
Oxygen Sensor (secondary) Trim of a primary LEAN / secondary RICH	Air Fuel Rati	o Sensor (primary)											
Bank 1	P2096	A/F sensor long term rich shift correction below threshold	rear O2 sensor trim integration part <	-0.029	-	rear O2 sensor aging checked				2 sec	0.1 sec	50 sec	two driving cycles
Bank 2	P2098					rear O2 sensor aging fault engine started	FALSE TRUE					cumulative	50 sec cumulative
Bank 1					1						i	50 sec	two driving
	P2097 P2099	A/F sensor long term lean shift correction above threshold	rear O2 sensor trim integration part >	0.029	-	rear O2 sensor aging checked	FALSE			2 sec	0.1 sec		
Bank 2	P2099					rear O2 sensor aging fault suspicion A/F sensor lean	FALSE					cumulative	cycles 50 sec
						shift engine started	TRUE						cumulative
B 1.1									i		,		
Bank 1	P2096	Rear O2 sensor measured too rich	rear O2 sensor voltage >	0.85	V	A/F sensor measured lambda	>	1.08	lambda		0.1 sec	50 sec	two driving
Bank 2	P2098					richest fuel trim	TRUE	-	-			cumulative	cycles 50 sec
						A/F sensor ready for operation	TRUE	-	-				
						rear O2 sensor ready for operation	TRUE	-	=				cumulative
			rear O2 sensor voltage >	0.85	V	A/F sensor measured lambda	>	1.08	lambda				
						rear O2 fuel trim P portion (as dominating portion)	>	0.003	lambda				
						A/F sensor ready for operation	TRUE	-	=				
						rear O2 sensor ready for	TRUE	_	_				
			rear O2 sensor voltage >	0.85	V	operation target lambda	>	1.08	lambda	2 sec			+
						A/F sensor ready for operation	TRUE	-	-				
						rear O2 sensor ready for	TRUE	-	-				+
						operation lambda closed loop control	TRUE						+
						activated Rear O2 sensor diagnosed	TRUE	-	-				+
						leanest fuel trim	FALSE	-	-				+
			rear O2 sensor voltage >	0.85	٧	rear O2 fuel trim P portion (as dominating portion)	>	0.003	lambda	2 sec			
						A/F sensor ready for operation	TRUE	-	-				
						rear O2 sensor ready for operation	TRUE	=	=				
						leanest fuel trim	FALSE	-	-				
Bank 1	P2097	Rear O2 sensor measured too lean	rear O2 sensor voltage <	0.1523	V	A/F sensor measured lambda	<	0.92	lambda		0.1 sec	50 sec	two driving
Bank 2	P2099					leanest fuel trim	TRUE	-	-			cumulative	cycles
						A/F sensor ready for operation	TRUE	-	-				50 sec
						rear O2 sensor ready for operation	TRUE	-	-				cumulative
			rear O2 sensor voltage <	0.1523	V	A/F sensor measured lambda	<	0.92	lambda				1
						rear O2 fuel trim P portion (as	<	-0.003	lambda				+
						dominating portion)  A/F sensor ready for operation		-	-				+
						rear O2 sensor ready for	TRUE	-	-				
			rear O2 sensor voltage <	0.1523	V	operation target lambda	- KUE	0.96	lambda	2 sec	-		+
			TOW OF SCHOOL FORMAGE	0.1020	· ·	A/F sensor ready for operation	TRUE	0.90	lallibua -	2 300	1		†
						rear O2 sensor ready for							-
						operation lambda closed loop control	TRUE	=	=				1
						activated	TRUE	-	-				1
	1					Rear O2 sensor diagnosed	TRUE	-	-				

Page 5 of 18

#### 2004file14.xls

2004file14.x	15												
Component/	Fault	Monitor Strategy	Primary Malfunction	Threshold	Specified	Secondary	Enable	Enable	Units	Time	Frequency	Criteria	MIL
System	Code	Description	Signal and Criteria	Value	Units	Parameters	Condition	Value		Required	of Checks	for Code	Illumination
						richest fuel trim	FALSE	-	-				
			rear O2 sensor voltage <	0.1523	V	rear O2 fuel trim P portion (as	<	-0.003	lambda	2 sec			
			real O2 serisor voltage <	0.1525	V	dominating portion)	,	-0.003	Idilibud	2 500			
						A/F sensor ready for operation	TRUE	_	_				
						, ,	TROL		_				
						rear O2 sensor ready for	TRUE	_	_				
						operation							
						richest fuel trim	FALSE	-	-				
											1-		1
Oxygen sensor (secondary)											0.1 sec	50 sec	two driving
bank 1 sensor 2	P2270	oscillation check low	sensor voltage <	0.74	V	rear O2 sensor ready						cumulative	
bank 2 sensor 2	P2272		for time >	100		for time	>	10	sec.				50 sec
			then ramping in enrichment by	0.3		rear closed loop control active							cumulative
			at gradient	0.005		all injectors activated							
			for time (after enrichment limit reached)	10		engine air flow	>	8.33	g/sec				
			for additional time for low fuel level	600		engine air flow	<	33.33	g/sec				
			with no fuel level sensor error			engine air flow	>	9.72	g/sec				
		1			1	1							
bank 1 sensor 2	P2270	enrichment check low	sensor voltage <	0.499		rear O2 sensor enough heated							
bank 2 sensor 2	P2272		at lambda <	0.85		rear O2 sensor over dew point							
			for time >	5		for time	>	30	sec.				
			then ramping in enrichment by	0.3		engine air flow	>	16.67	g/sec				
			at gradient	0.005		heater powerstage checked OK							
			for time (after enrichment limit reached)	10		O2 sensor wiring checked OK							
						no O2 sensor heater error							
		,	,										
bank 1 sensor 2	P2271	oscillation check high	sensor voltage >	0.74		rear O2 sensor ready							
bank 2 sensor 2	P2273		for time >	100		for time	>	10	sec.				
			then ramping in enleanment by	0.07		rear closed loop control active							
			at gradient	0.005		all injectors activated							
			for time (after enleanment limit reached)	10	sec.	engine air flow	>	5.56	g/sec				
						engine air flow	<	33.33	g/sec				
						engine air flow	>	9.72	g/sec				1

2004file14.xls Page 6 of 18

#### 2004file14.xls

2004file14.xls													
Component/ System	Fault Code	Monitor Strategy Description	Primary Malfunction Signal and Criteria	Threshold Value	Specified Units	Secondary Parameters	Enable Condition	Enable Value	Units	Time Required	Frequency of Checks	Criteria for Code	MIL Illumination
bank 1 sensor 2	P2271	fuel out off check high	concer voltage	0.202	V	roor O2 copper anough heated					1	ı	
bank 2 sensor 2	P2271	fuel cut off check high	sensor voltage > time after fuel cut off >	4	sec.	rear O2 sensor enough heated rear O2 sensor over dew point							+
						for time	>	30	sec.				
						air passed after fuel cut off	>	15	g				
						heater powerstage checked Ok O2 sensor wiring checked OK							
						no O2 sensor heater error							
Oxygen sensor (secondary)	_								1				
bank 1 sensor 2	P0137	short circuit to ground	sensor voltage <	0.06	V	rear sensor enough heated						50 sec	two driving
						and mod. Exhaust-gas temp.			_		0.1 sec		
bank 2 sensor 2	P0157		for time >	0.1	202	for time	>	250 90	C			cumulative	cycles
Dalik 2 Selisul 2	1 0137		ioi une >	0.1	360	engine running	TRUE	-	-			cumulative	50 sec
						battery voltage	>	10.5	V				cumulative
						mod. exhaust-gas temp. time duration after start	<	800 1	C sec				
						error: engine coolant temp	not set	-	sec -				
						engine temp at stop	>	60	С				
						engine temp	<	40	С				
bank 1 sensor 2	P0138	short circuit to battery voltage	sensor voltage >	1.5	V	rear sensor enough heated				1			-
		,g-				and mod. Exhaust-gas temp.							
						6 (1)	>	250	С				
bank 2 sensor 2	P0158		for time >	5.1	sec.	for time engine running	> TRUE	90	sec -				
						battery voltage	>	10.5	V				
						mod. exhaust-gas temp.	<	800	С				
bank 1 sensor 2	P0140	sensor line disconnection	sensor voltage >	0.4	V	rear sensor enough heated				1			-
Darik 1 Serisor 2	1 0140	Sensor line disconnection	Serisor voltage >	0.4		and mod. Exhaust-gas temp.							
							>	250	С				
bank 2 sensor 2	P0160		and sensor voltage <	0.5	V	for time	>	90	sec				
			for time >	60	sec.	engine running battery voltage	TRUE >	10.5	- V				-
			sensor internal resistance >	40000	Ohm	mod. exhaust-gas temp.	<	800	C				
			when modeled exhaust gas temperature >	600	° C								
bank 1 sensor 2	P0136	sensor line short circuit to heater output line	sensor voltage gradient >	2	V	rear sensor enough heated				1			-
Darik 1 Serisor 2	1 0 130	sensor line short circuit to heater output line	Sensor voltage gradient	2		and mod. Exhaust-gas temp.							
							>	250	С				
bank 2 sensor 2	P0156		within time after heater turn off <	0.04	sec.	for time	> TDI IE	90	sec				
			for occurrences > out of heater turn offs	<u>4</u> 6	count	engine running battery voltage	TRUE >	10.5	V				-
				<u> </u>		mod. exhaust-gas temp.	<	800	Ċ				
						purge control	-	-	-				
Mass air flow sensor	P0102	circuit check low	mass air flow <	-15.02777778	a/sec	battery voltage	>	10.5	V	2 sec	0.01 sec	50 sec	two driving
made all new defices	1 0 102	range check low	mass air flow <	range: -1.4 to 78.6	9,000	time after start	>	0.3	sec	2 000	0.01 000	cumulative	cycles
	P0103	circuit check high	mass air flow >	305.555556	g/sec	cam revolution counter	>	120	rev				50 sec
		range check high	mass air flow >	range: 26.7 to 278		error: throttle position sensor engine speed	not set	320	rpm				cumulative
		Tange check night	mass an now -	range. 20.7 to 270		engine speed	-	020	трііі				
													+
Inteller eleteration	D0440	The state of the s		400		Mary to talls		40			0.4	50	Accordance
Intake air temperature sensor	P0112 P0113	range check low range check high	air temperature > air temperature <	132 -37.5		time in idle time after engine start	>	10 180	sec	3 sec	0.1 sec	50 sec cumulative	two driving cycles
301301	10110	Tange oncok night	un temperature 4	-07.0		time diter engine start	-	100	300			Cumulative	50 sec cum
Engine coolant	P0117	range check high	coolant temperature >	140.25	° C		-		-	3 sec	0.1 sec		two driving
temperature sensor	P0118 P0125	range check low Signal check	coolant temperature < Temperature for closed loop control not	-42 120 < < 300	° C sec	engine speed						cumulative	cycles 50 sec
			reached after time			- J							
	P0125	plausibility check	calculated reference coolant	9.8	°C								cumulative
			temperature - limit >										
Engine Coolant	P0128	Coolant Temperature Below Thermostat Regulating Temperature	(calculated reference coolant	10.5	°C	debouncing time	>	20	sec	approx.	0.1 sec	50 sec	two driving
Thermostat Monitoring		(plausibility check)	temperature - coolant temperature) >										
			Delta  Calculated reference coolant model Limit			fuel cut-off	not active	-	-	900 sec		cumulative	cycles
			Calculated reference coolant model Limit			error: engine coolant temp	not active	= = = = = = = = = = = = = = = = = = = =	-	900 SEC		cumulative	50 sec
						error: vehicle speed sensor	not set	-	-				cumulative
·				-	1	est. ambient temperature	>	-10.5	°C		1		1
			+			est. ambient temperature vehicle speed	>	45 9.375	°C mph				+
	+		+			engine speed	>	9.375	rpm		1		+
						coolant temperature at start	<	50.3	°C				
						integrated air mass flow	>	3000	g				4
					1	engine soaking time	>	600	sec	1	1		

2004file14.xls Page 7 of 18

## 2004file14.xls

2007111617.21													
Component/	Fault	Monitor Strategy	Primary Malfunction	Threshold	Specified	Secondary	Enable	Enable	Units	Time	Frequency	Criteria	MIL
System	Code	Description	Signal and Criteria	Value	Units	Parameters	Condition	Value		Required	of Checks	for Code	Illumination
						engine block heating	not set or 25	not set or 25 sec	not set or 25 sec				
							sec						
Throttle Position	P0121	range check poti voltage	sensor difference >	> 9 %	%	battery voltage	> 7 V	> 7 V	> 7 V	continuous			yes
Sensor 1 (primary)	P0122	plausibility to other poti	sensor circuit low voltage <	< 0,176 V	V								
	P0123		sensor circuit high voltage >	> 4,629 V	V								
1													
(													
Sensor 2 (redundant)		range check poti voltage,	sensor difference >	> 9 %	%	battery voltage	> 7 V	> 7 V	> 7 V	continuous			yes
		plausibility to other poti	sensor circuit low voltage <	< 0,156 V	V								
	P0223		sensor circuit high voltage >	> 4,883 V	V								

Page 8 of 18

#### 2004file14.xls

2004file14.xls													
Component/	Fault	Monitor Strategy	Primary Malfunction	Threshold	Specified	Secondary	Enable	Enable	Units	Time	Frequency	Criteria	MIL
System	Code	Description	Signal and Criteria	Value	Units	Parameters	Condition	Value		Required	of Checks	for Code	Illumination
Ford Ordered Land	D0474	Contain Parts on and	delle levels de	/ 050/	/ 050/	Miles Marchael and Conf				00	_		
Fuel System Lean	P0171	fuel trim limits exceded	delta lambda >	> +/- 25%	> +/- 25%	if limit exceeded and fuel				30 sec	<b></b> _		two driving
Multiplicative	P0172		or delta lambda <			tank empty, calculated				continuous	ļ		cycles
and Additive		Range 1 (leakage air)			1	air mass flow have to be							50 sec
		low speed and low load			1	higher than value							cumulative
						closed loop control	-	-	-				
						tmot	ca. 50 °C	ca. 50 °C	ca. 50 °C		<u> </u>		
						purge control	-	-	-		ļ		
				,									
Fuel System Rich	P0174	fuel trim limits exceded	delta lambda >	> +/- 25%	> +/- 25%	if limit exceeded and fuel							
Multiplicative	P0175		or delta lambda <			tank empty, calculated							
and Additive		Range 2 (multipl. fault)				air mass flow have to be							
		load > threshold and				higher than value					l l		
		air flow > threshold				closed loop control	-	-	-				
						tmot	ca. 50 °C	ca. 50 °C	ca. 50 °C		ļ		
						purge control	-	-	-		ļ		
Fuel Injector											,		
Cylinder #1	P0201	circuit continuity - open	Voltage	IC Internal	_	engine speed	>	80	rpm	50 sec	10 ms ?	50 sec	two driving
-,	P0261	circuit continuity - ground	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			battery voltage	>	10	V	cumulative		cumulative	cycles
	P0262	circuit continuity - voltage				battery voltage	<	18	V	Cumulative	<del>                                     </del>	Cumulative	50 sec
Cylinder #2	P0202			+	+			activated for comp		+	$\vdash$		
Cylinder #2		circuit continuity - open		+	-	output	activated and de	activated for comp	icie diecking	+	$\vdash$		cumulative
	P0264	circuit continuity - ground		1	1	1				+	<b> </b>		
	P0265	circuit continuity - voltage									<u> </u>		
Cylinder #3	P0203	circuit continuity - open				1				1	<u> </u>		
	P0267	circuit continuity - ground				1				1			
	P0268	circuit continuity - voltage											
Cylinder #4	P0204	circuit continuity - open			1								
	P0270	circuit continuity - ground			1	1				1			
	P0271	circuit continuity - yourd			1	1	<del></del>		1	1			
Cylinder #E				+	+	1	+		1	+	$\vdash$		1
Cylinder #5	P0205	circuit continuity - open									ļ		
	P0273	circuit continuity - ground				ļ					<u> </u>		
	P0274	circuit continuity - voltage											
Cylinder #6	P0206	circuit continuity - open				<u> </u>				1			
1	P0276	circuit continuity - ground									J		
	P0277	circuit continuity - voltage											
					•								
Misfire		crankshaft speed	Emissions relevant misfire rate	3	%	engine speed	>	430	rpm	1000 revs	continuously		Fault during
Multiple Cylinder	P0300	fluctuation cylinder 1 to				engine speed	<	6520	rpm		monitored		1st interval:
Cylinder #1	P0301	cylinder 6				indicated torque (idle, no drive		12	%				2 faults in
Cylinder #2	P0302	cylinder o		+	+	indicated torque (drive)	>	430	%				2 different
Cylinder #3	P0303					engine speed change	<	4000	rpm/sec				drive cycles
Cylinder #4	P0304					load change	<	900	%/rev				
Cylinder #5	P0305					ignitions after engine start	>	6	ignitions				Fault during
Cylinder #6	P0306					air temperature	>	-30	°C		,		remaining
						rough road	-	-	-		J		intervals:
						traction control	-	-	-		į į		8 faults in 2
						leak detection	-	-	-		†		different
						active handling					ļ		drive cycles
				+	+	ABS	-	-	-				with at least
						engine drag control	-	-	-				4 faults in
						fuel cut off	-	-	-				each.
				1	1	Ifuel level		10	%	1	1		
						fuel level	>						
						AND fuel level error	-	-	-		I		
				_					- %				
						AND fuel level error	-	-					
						AND fuel level error fuel level AND solid misfire MIL	- <	- 10	%				
						AND fuel level error fuel level AND solid misfire MIL error: throttle position	- < -	- 10 -	% -				
						AND fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor	- < - -	- 10 - - -	% - - -				
						AND fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor	- < - - -	- 10 - - -	% - - - -				
						AND fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor error: evap purge valve	- < - -	- 10 - - -	% - - -				
						AND fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor error: evap purge valve error: camshaft control	- < - - -	- 10 - - -	% - - - -				
						AND fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor error: evap purge valve error: camshaft control error: camshaft power stage	- < - - -	- 10 - - -	% - - - -				
						AND fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor error: evap purge valve error: camshaft control	- < - - -	- 10 - - -	% - - - -				
						AND fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor error: evap purge valve error: camshaft control error: camshaft power stage	- < - - -	- 10 - - -	% - - - -				
			OR			AND fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: evap purge valve error: camshaft control error: camshaft power stage error: camshaft power stage error: camshaft gignment	- <	- 10 - - -	% - - - -				
			OR Catalyst damaging misfire rate			AND fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor error: evap purge valve error: camshaft control error: camshaft power stage	- <	- 10 - - -	% - - - -	1000 revs			First
						AND fuel level error fuel level and solid misfire MIL error: throttle position error: crankshaft sensor error: crankshaft sensor error: evap purge valve error: camshaft control error: camshaft power stage error: camshaft alignment Includes all the above with the	- <	- 10 - - -	% - - - -				
						AND fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: evap purge valve error: camshaft control error: camshaft power stage error: camshaft power stage error: camshaft gignment	- <	- 10 - - -	% - - - -	1000 revs First interval 200 revs			First occurance:
						AND fuel level error fuel level and half single single fuel fuel error: throttle position error: crankshaft sensor error: erap purge valve error: camshaft control error: camshaft control error: camshaft gligment error: camshaft alignment lincludes all the above with the following exceptions:		- 10 - - - - - -	%	First interval 200 revs			occurance: immediate
						AND fuel level error fuel level error fuel level AND solid misfire Mil. error: throttle position error: crankshaft sensor error: evap purge valve error: camshaft control error: camshaft power stage error: camshaft power stage error: camshaft alignment lincludes all the above with the following exceptions: First interval extention fuel level		- 10 - - - - - - - - - - - 1	%	First interval 200 revs all remaining			occurance: immediate flashing
				rame 19.1 h F	0.0	AND fuel level error fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor error: evap purge valve error: camshaft control error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft alignment  Includes all the above with the following exceptions: First interval extention fuel level AND blinking MIL		- 10 	%	First interval 200 revs			occurance: immediate flashing while error
				range: 18.1 to 5	%	AND fuel level error fuel level AND solid misfire Mil. error: throttle position error: crankshaft sensor error: evap purge valve error: camshaft control error: camshaft power stage error: camshaft power stage error: camshaft alignment lincludes all the above with the following exceptions: First interval extention fuel level		- 10 - - - - - - - - - - - 1	%	First interval 200 revs all remaining			occurance: immediate flashing while error present, their
				range: 18.1 to 5	%	AND fuel level error fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor error: evap purge valve error: camshaft control error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft alignment  Includes all the above with the following exceptions: First interval extention fuel level AND blinking MIL		- 10 	%	First interval 200 revs all remaining			occurance: immediate flashing while error present, ther no MIL
				range: 18.1 to 5	%	AND fuel level error fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor error: evap purge valve error: camshaft control error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft alignment  Includes all the above with the following exceptions: First interval extention fuel level AND blinking MIL		- 10 	%	First interval 200 revs all remaining			occurance: immediate flashing while error present, their
				range: 18.1 to 5	%	AND fuel level error fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor error: evap purge valve error: camshaft control error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft alignment  Includes all the above with the following exceptions: First interval extention fuel level AND blinking MIL		- 10 	%	First interval 200 revs all remaining			occurance: immediate flashing while error present, ther no MIL with no error
				range: 18.1 to 5	%	AND fuel level error fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor error: evap purge valve error: camshaft control error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft alignment  Includes all the above with the following exceptions: First interval extention fuel level AND blinking MIL		- 10 	%	First interval 200 revs all remaining			occurance: immediate flashing while error present, ther no MIL
				range: 18.1 to 5	96	AND fuel level error fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor error: evap purge valve error: camshaft control error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft alignment  Includes all the above with the following exceptions: First interval extention fuel level AND blinking MIL		- 10 	%	First interval 200 revs all remaining			occurance: immediate flashing while error present, ther no MIL with no error
				range: 18.1 to 5	%	AND fuel level error fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor error: evap purge valve error: camshaft control error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft alignment  Includes all the above with the following exceptions: First interval extention fuel level AND blinking MIL		- 10 	%	First interval 200 revs all remaining			occurance: immediate flashing while error present, then no MIL with no error Second occurance:
				range: 18.1 to 5	%	AND fuel level error fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor error: evap purge valve error: camshaft control error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft alignment  Includes all the above with the following exceptions: First interval extention fuel level AND blinking MIL		- 10 	%	First interval 200 revs all remaining			occurance: immediate flashing while error present, thet no MIL with no error  Second occurance: immediate
				range: 18.1 to 5	%	AND fuel level error fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor error: evap purge valve error: camshaft control error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft alignment  Includes all the above with the following exceptions: First interval extention fuel level AND blinking MIL		- 10 	%	First interval 200 revs all remaining			occurance: immediate flashing while error present, thei no MIL with no error  Second occurance: immediate flashing
				range: 18.1 to 5	%	AND fuel level error fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor error: evap purge valve error: camshaft control error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft alignment  Includes all the above with the following exceptions: First interval extention fuel level AND blinking MIL		- 10 	%	First interval 200 revs all remaining			occurance: immediate flashing while error present, thei no MIL with no error Second occurance: immediate flashing while error
				range: 18.1 to 5	%	AND fuel level error fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor error: evap purge valve error: camshaft control error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft alignment  Includes all the above with the following exceptions: First interval extention fuel level AND blinking MIL		- 10 	%	First interval 200 revs all remaining			occurance: immediate flashing while error present, thei no MIL with no error  Second occurance: immediate flashing while error present, thei
				range: 18.1 to 5	%	AND fuel level error fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor error: evap purge valve error: camshaft control error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft alignment  Includes all the above with the following exceptions: First interval extention fuel level AND blinking MIL		- 10 	%	First interval 200 revs all remaining			occurance: immediate flashing while error present, thei no MIL with no error  Second occurance: immediate flashing while error present, thei
				range: 18.1 to 5	%	AND fuel level error fuel level error fuel level AND solid misfire MIL error: throttle position error: crankshaft sensor error: reference mark sensor error: evap purge valve error: camshaft control error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft power stage error: camshaft alignment  Includes all the above with the following exceptions: First interval extention fuel level AND blinking MIL		- 10 	%	First interval 200 revs all remaining			occurance: immediate flashing while error present, thei no MIL with no error  Second occurance: immediate flashing while error present, thei

2004file14.xls Page 9 of 18

#### 2004file14.xls

2004111614.215													
Component/	Fault	Monitor Strategy	Primary Malfunction	Threshold	Specified	Secondary	Enable	Enable	Units	Time	Frequency	Criteria	MIL
System	Code	Description	Signal and Criteria	Value	Units	Parameters	Condition	Value		Required	of Checks	for Code	Illumination
Rough Road Signal	P0318	signal missing	signal missing	-	-	no	-	-	-	12 sec	0.1 sec	50 sec	no
												cumulative	
Knock Control													
Circuit	P0324	zero test (part 1)	integrator voltage - 715 mV   >	0.22	V	knock control	active	active	active	50 sec	every 510	50 sec	two driving
			(abs. value )	2	count	engine speed	no dynamics	no dynamics	no dynamics	cumulative	engine	cumulative	cycles
			for consecutive events			engine load	no dynamics	no dynamics	no dynamics		cycles		50 sec
			or			test pulse fault assumption	not set	not set	not set				cumulative

2004file14.xls Page 10 of 18

2004file1	4.xls
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2004file14.xls		1																	
Component/ System	Fault Code	Monitor Strategy Description	Primary Malfunction Signal and Criteria	Threshold Value	Specified Units		Enable Condition	Enable Value	Units	Time Frequency Required of Checks	Criteria for Code	MIL Illumination							
System	Code	Description	Signal and Criteria	value	Office	i arameters	Condition	value		required of checks	ioi code	iliumination							
					_							_							
	P0324	zero test (part 2)	integrator gradient   ( absolute value ) :	range: 60 to 40	V / sec	knock control	active	active	active	50 sec every 510									
			for consecutive events	2	count		no dynamics	no dynamics	no dynamics	cumulative engine									
						engine load	no dynamics	no dynamics	no dynamics	cycles									
						test pulse fault assumption	not set	not set	not set										
						engine speed	>	2000	rpm										
						engine speed	<	4240	rpm										
		le e i	h		1	1													
	P0324	test pulse	test pulse integral <	3.7	V	engine coolant temp.	>	40	°C	50 sec every 510									
			for consecutive events	2	count		no dynamics	no dynamics	no dynamics	cumulative engine									
						engine load zero test fault assumption	no dynamics not set	no dynamics not set	no dynamics not set	cycles									
					1	zero test radit assumption	not set	Hot set	not set										
Bank 1	P0327	range check low	reference voltage <	range: 0.9 to 2.2	V	engine coolant temp.	>	40	°C	approx. 10 sec 0.1 sec	50 sec	two driving							
Performance	1 0027	range check low	for consecutive events	20	count		>	2000	rpm	approx. 10 sec 0.1 sec	cumulative	cycles							
1 Gridinando			TO CONSCIOUNT OF CITE		Count	cylinder identification	possible	-	-		damaidavo	50 sec							
	P0328	range check high	reference voltage >	see table		engine speed	>	1200	rpm			cumulative							
		, , , , , , , , , , , , , , , , , , ,	for consecutive events	20	count	engine speed	no dynamics	no dynamics	no dynamics										
						engine load	no dynamics	í-											
						knock control circuit (IC)	no error	=	-										
						engine speed limp home	not active	-	-										
Bank 2	P0332	range check low	reference voltage <	range: 0.9 to 2.2	V	engine coolant temp.	>	40	°C	approx. 10 sec 0.1 sec	50 sec	two driving							
Performance			for consecutive events	20	count	engine speed	>	2000	rpm		cumulative	cycles							
	Dance	and the state of t			.,	cylinder identification	possible	possible	possible		1	50 sec							
	P0333	range check high	reference voltage >	range: 5 to 60	V	engine speed	>	1200	rpm		1	cumulative							
	-	<u> </u>	for consecutive events	20	count	engine speed	no dynamics	no dynamics	no dynamics	<del>                                     </del>	-								
<u> </u>	-	<u> </u>			+	engine load	no dynamics	no dynamics	no dynamics		-								
						knock control circuit (IC)	no error	no error	no error	-									
						engine speed limp home	not active	not active	not active										
Crankshaft position sensor	P0335	circuit continuity	no engine signal but phase signals	0	rpm	camshaft revolutions detected	>	12	counts	approx. 5 sec 0.01 sec	50 sec	two driving							
Granicanari position scrisor	1 0000	Circuit Continuity	available	· ·	ı pııı	carrishan revolutions detected	-	12	Counts	approx. o see 0.01 see	50 300	two driving							
	P0335	rationality check	reference gap missing >	3	gaps	_	>	3	counts		cumulative	cycles							
	1 0000	Tationality check	sensor signal but no reference		gups		,		Counts		cumulative	50 sec							
	P0336	rationality check	unexpected re-synchronization >	-	-	-	>	6	counts			cumulative							
		radionally oncor	loss of reference mark						Counto			- Carrialative							
	P0338	rationality check	difference in counted teeth between	8	teeth	tooth count error occurences	>	8	counts	approx. 2 sec 1 per rev									
		,	reference gap position events >							11									
			* * * * * * * * * * * * * * * * * * * *																
Ignition Coil																			
Cylinder #1	P0351	circuit continuity - open	Voltage >	20	revs	engine speed	>	480	rpm	approx. 1 / 2 rev	50 sec	two driving							
	P2300	circuit continuity - ground		20	revs	engine speed	<	5000	rpm	1 sec	cumulative	cycles							
	P2301	circuit continuity - voltage		20	revs	battery voltage	>	10.5	V			50 sec							
Cylinder #2	P0352	circuit continuity - open				battery voltage	<	18	V			cumulative							
	P2303	circuit continuity - ground																	
	P2304	circuit continuity - voltage																	
Cylinder #3	P0353	circuit continuity - open																	
	P2306	circuit continuity - ground																	
0.15-1	P2307	circuit continuity - voltage								-									
Cylinder #4	P0354	circuit continuity - open								-									
	P2309	circuit continuity - ground			-				<b>+</b>	+	1								
Cylinder #5	P2310 P0355	circuit continuity - voltage			+	-			1	+	<del>                                     </del>								
Cylinder #5	P0355 P2312	circuit continuity - open circuit continuity - ground			+	+	+		1	+ + +	+								
	P2312 P2313	circuit continuity - ground circuit continuity - voltage			+	+			1		1								
Cylinder #6	P0356	circuit continuity - voltage			+	+			1		1								
- J		circuit continuity - open			+	1			1	+ + + + + + + + + + + + + + + + + + + +	<del>                                     </del>								
	P2316	circuit continuity - voltage							1										
	20.0					·						•							
Catalyst Bank 1	P0420	oxygen storage of catalyst	normalized Oxgen storage	1	factor	Exhaust gas mass flow	>	6.94	g/sec	approximately 0.01 sec	50 sec	two driving							
Catalyst Bank 2	P0430	·- v /	less than normalized oxygen storage			Exhaust gas mass flow	<	19.44	g/sec	1000 sec	cumulative	cycles							
,			of a limit catalyst			catalyst temp. model	<	750	° C	during active		50 sec							
	1		·			catalyst temp. model	<u>&gt;</u>	400	° C	driving		cumulative							
						catalyst temp. model change	٧	3	° C / sec										
							<	4.17	g/sec <sup>2</sup>	average of	1								
						Exhaust gas mass flow change	,	4.17	y/sec										
								-	g/sec -	4 checks									
						fuel system status lambda controller	closed loop active			-									
						fuel system status	closed loop			-									
						fuel system status lambda controller	closed loop active	-	-	4 checks									
						fuel system status lambda controller engine start temp.	closed loop active	- - -30	- - ° C	4 checks one test									
						fuel system status lambda controller engine start temp. error: secondary HO2S signal	closed loop active	- - -30	- - ° C	4 checks one test									
						fuel system status lambda controller engine start temp. error: secondary HO2S signal changing check	closed loop active > not set	- - -30 -	- - ° C -	4 checks  one test with 4 checks									
						fuel system status lambda controller engine start temp. error: secondary HO2S signal changing check error: fuel system	closed loop active > not set	- - -30 -	- - ° C -	4 checks one test with 4 checks per driving									
Evaporative system and leak monito						fuel system status lambda controller engine start temp. error: secondary HO2S signal changing check error: fuel system scheduled by System Manage	closed loop active > not set not set TRUE	- -30 - -	- ° C	4 checks  one test with 4 checks  per driving cycle									
Evaporative system and leak monito Small Leak - 0.020*		natural pressure/vacuum	filtered fault index >	0.75		fuel system status lambda controller engine start temp. error: secondary HO2S signal changing check error: fuel system scheduled by System Manager estimated ambient air temp	closed loop active  > not set  not set  TRUE	-30 -	- ° C	4 checks  one test with 4 checks  per driving cycle  approximately 0.1 sec	immediate	immediate							
Evaporative system and leak monito Small Leak - 0.020 "		natural pressure/vacuum in tank		0.75	-	fuel system status lambda controller engine start temp. error: secondary HO2S signal changing check error: fuel system scheduled by System Managet estimated ambient air temp estimated ambient air temp	closed loop active > not set TRUE > <a href="https://recommons.py.ncb/"> <a <="" href="htt&lt;/td&gt;&lt;td&gt;-&lt;br&gt;-30&lt;br&gt;-&lt;br&gt;-&lt;br&gt;-&lt;br&gt;-&lt;br&gt;1.5&lt;/td&gt;&lt;td&gt;- ° C ° C ° C&lt;/td&gt;&lt;td&gt;4 checks one test with 4 checks per driving cycle approximately 600 sec 0.1 sec&lt;/td&gt;&lt;td&gt;immediate&lt;/td&gt;&lt;td&gt;immediate&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;Evaporative system and leak monito&lt;br&gt;Small Leak - 0.020 " td=""><td></td><td></td><td>based on:</td><td></td><td></td><td>fuel system status lambda controller engine start temp. error: secondary HO2S signal changing check error: fuel system scheduled by System Manage estimated ambient air temp estimated ambient air temp engine coolant temp at shut of</td><td>closed loop active &gt; not set TRUE &gt;&gt; &gt; /td><td>- -30 - - - - 1.5 32 80</td><td>- ° C ° C ° C ° C</td><td>4 checks  one test with 4 checks per driving cycle  approximately 600 sec in a driving</td><td>immediate</td><td></td></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a>			based on:			fuel system status lambda controller engine start temp. error: secondary HO2S signal changing check error: fuel system scheduled by System Manage estimated ambient air temp estimated ambient air temp engine coolant temp at shut of	closed loop active > not set TRUE >> > > > > > > > > > > > > > > > > >	- -30 - - - - 1.5 32 80	- ° C ° C ° C ° C	4 checks  one test with 4 checks per driving cycle  approximately 600 sec in a driving	immediate	
Evaporative system and leak monito Small Leak - 0.020 *				0.75	- Pa	fuel system status lambda controller engine start temp. error: secondary HO2S signal changing check error: fuel system scheduled by System Managet estimated ambient air temp estimated ambient air temp engine coolant temp at shut of engine run time	closed loop active  > not set  rrue  rrue  > closed loop active  > not set  rrue  > closed loop active > not set  rrue > > >		° C ° C ° C ° C sec	4 checks one test with 4 checks per driving cycle approximately 600 sec 0.1 sec	immediate	immediate							
Evaporative system and leak monitor Small Leak - 0.020 **			based on:			fuel system status lambda controller engine start temp. error: secondary HO2S signal changing check error: fuel system scheduled by System Manager estimated ambient air temp estimated ambient air temp engine coolant temp at shut of engine run time distance travelled	closed loop active > not set TRUE  >		° C ° C ° C sec miles	4 checks  one test with 4 checks per driving cycle  approximately 600 sec in a driving cycle	immediate	once filter value							
Evaporative system and leak monito Small Leak - 0.020 *			based on: pressure detected >			fuel system status lambda controller engine start temp. error: secondary HO2S signal changing check error: fuel system scheduled by System Manager estimated ambient air temp estimated ambient air temp engine coolant temp at shut of engine run time distance travelled above vehicle speed	closed loop active > not set not set TRUE > > > > > > > > > > > > > > > > > > >		° C ° C ° C ° C Sec miles mph	4 checks  one test with 4 checks per driving cycle  approximately 0.1 sec 600 sec in a driving cycle  approximately	immediate	once filter value has							
Evaporative system and leak monito Small Leak - 0.020 *			based on:		Pa	fuel system status lambda controller engine start temp. error: secondary HO2S signal changing check error: fuel system scheduled by System Manager estimated ambient air temp estimated ambient air temp engine coolant temp at shut of engine run time distance travelled	closed loop active > not set not set TRUE > > > > > > > > > > > > > > > > > >		° C ° C ° C sec miles	4 checks  one test with 4 checks per driving cycle  approximately 600 sec in a driving cycle	immediate	once filter value							

2004file14.xls Page 11 of 18

## 2004file14.xls

Component/	Fault	Monitor Strategy	Primary Malfunction	Threshold	Specified	Secondary	Enable	Enable	Units		Frequency	Criteria	MIL
System	Code	Description	Signal and Criteria	Value	Units	Parameters	Condition	Value		Required	of Checks	for Code	Illumination
						fuel level	<	85	%	average run			
						current fuel level - initial key of	>	10	%	length			
						error: vehicle speed sensor	not set	-	-	to exceed			
						error: engine coolant temp	not set	-	-	failure			
						error: purge valve	not set	-	-	threshold			
						error: tank pressure sensor	not set	-	-				
						error: power supply voltage	not set	-	-				
						error: canister vent valve	not set	-	-				
						condition: altitude adaption val	set	-	-				
						condition: tank vacuum out of r	not set	-	-				
						vacuum pull down suspect sma		-	-				
						Vacuum pull down incomplete	not set	-	-				
						intake air temp - engine coolan	<	10	° C				1

Page 12 of 18

## 2004file14.xls

Component/ System	Fault Code	Monitor Strategy Description	Primary Malfunction Signal and Criteria	Threshold Value	Specified Units	Secondary Parameters engine start coolant temp	Enable Condition	Enable Value 40	Units ° C	Time Freque Required of Che		MIL Illumination
System	Code	Description	Signal and Chiena	value	Office				° C	Required of Cite	cks for code	Illullillation
						engine start coolant temp		40	° C		· · · · · · · · · · · · · · · · · · ·	
						intake air temp	>	1.5	°C			_
						intake air temp	<	40	° C			
						accumulated time between EC	>	0	sec			
						ambient pressure	>	68	kPa			
						battery voltage	>	11	Volts			
						minimum vehicle mileage	>	12.4	miles			
						fuel tank pressure	<	10	hPa	The test		
						fuel tank pressure	>	-25	hPa	will attempt		
						a ation at a diametria at ta ann	<	32	° C	to run up		
						estimated ambient temp estimated ambient temp	>	1.5	°C	to 10 times until it		
						fuel level	<	85	%	successfully		
	-					fuel level	>	15	%	completes		
						engine start temp	<	ambient temp + 10	°C	a test	-	-
						time after start	>	1000	sec			_
						or fuel mixture adapt stable		1000		+		-
						error: mass air flow sensor	not set	-	-	1		-
-						error: pedal position sensor	not set	-	-			
						error: engine coolant temp	not set	-	-			
						error: intake air temp sensor	not set	-	-			
						error: purge sol. Valve flow	not set	-	-			
						error: fuel tank pres sensor	not set	-	-			
						error: system voltage	not set	-	-	<del>                                     </del>		
						error: vehicle speed sensor	not set	-	-			
				1 010	ln.	lu a			ı			1
Tank pressure sensor	P0451	rationality - signal oscillation	sensor signal >=	810	Pa	time after start	>	3	sec	25.5 0.1 se		two driving
		rationality - signal increment check rationality - signal range check	sensor signal <= sensor signal >=	94 900	Pa Pa	vehicle speed <= vehicle speed >=	<= >=	18.75 1.875	mph mph	3 checks 10sec	cumulative	cycles 50 sec
		rationality - signal range check	sensor signal >= sensor signal >=	-1800			>= <=	0.477	mpn			
	P0452	circuit continuity - ground	sensor signal <	-4000	Pa Pa	manifold / vacuum pressure engine start temp	<=	35	° C	10sec 10 sec		cumulative
		circuit continuity - yoltage	sensor signal >	1750	Pa	engine	running	33	C	10 360		
	1 0400	circuit continuity - voitage	Scrisor signar -	1700	1 4	fuel level	<	85	%		-	-
						fuel level	>	15	%			-
						purge active	running		,-		_	_
				·		II 3						
Leaking purge valve	P0496	underpressure in tank	tank pressure loss gradient <	-7	Pa	fuel system status	closed loop	-	-	about 4 sec 0.1 se	ec 50 sec	two driving
						vehicle speed	<	1.875	mph		cumulative	
•						engine	idling	-	-	Only one		50 sec
						battery voltage	<	11	V	test per		cumulative
						battery voltage	>	18	V	driving cycle		
						calculated HC conc. of	>	26	%	will be		
						relative manifold pressure	<	0.55		completed.		
						estimated ambient pressure	<	680	kPa			
						fuel tank pressure	<	10	hPa	The test		
						fuel tank pressure	>	-25	hPa	will attempt		
						estimated ambient temp	<	32	°C	to run up to 10 times		
						estimated ambient temp	>	1.5	°C	until it		
<del></del>						fuel level	<	85	%	successfully		
						fuel level	>	15	%	completes	-	-
						engine start temp	<	ambient temp + 10	° C	a test		-
						time after start	>	1000	sec			
-						or fuel mixture adapt stable						
						error: mass air flow sensor	not set	-	-			
						error: pedal position sensor	not set	-	-			
	1					error: engine coolant temp	not set	-	=			
						error: intake air temp sensor	not set	-	-			
						error: purge sol. Valve flow	not set	-	-	++-	-	
						error: fuel tank pres sensor	not set	-	-	+		+
	1			+		error: system voltage error: vehicle speed sensor	not set not set	-	-	+	+	+
	1					citor, verilide speed sellsol	1101 361					
Large leak	P0455	underpressure in tank	tank pressure gradient			fuel system status	closed loop	1 _ 1	_	10 sec 0.1 se	ec 50 sec	two driving
	. 5455		Jan process gradient			vehicle speed	< <	1.875	mph	.0.000 0.13	cumulative	
-			tank pressure		hPa	engine	idling	-	-	Only one		50 sec
	1		<u>'</u>			battery voltage	<	11	V	test per		cumulative
				1		battery voltage	>	18	V	driving cycle		
						calculated HC conc. of	>	26	%	will be		
						relative manifold pressure	<	0.55	-	completed.		
						estimated ambient pressure	<	680	kPa			
	1					fuel tank pressure	<	10	hPa			
	1					fuel tank pressure	>	-25	hPa	-		
	1			1			1			The test		
	1			+		estimated ambient temp	<	32	°C	will attempt	-	
	1			+		estimated ambient temp	>	1.5	° C	to run up		+
	1			+		fuel level fuel level	>	85 15	%	to 10 times until it		+
	1			+		engine start temp	>	ambient temp + 10	° C	successfully	+	+
	1			1	1	program oran comp	1 ~	ambient temp : 101		Jacobsolully	1	+
						time after start	>	1000	sec	completes		
						time after start or fuel mixture adapt stable	>	1000	sec	completes a test		+

2004file14.xls Page 13 of 18

## 2004file14.xls

Component/	Fault	Monitor Strategy	Primary Malfunction	Threshold	Specified	Secondary	Enable	Enable	Units	Time	Frequency	Criteria	MIL
System	Code	Description	Signal and Criteria	Value	Units	Parameters	Condition	Value		Required	of Checks	for Code	Illumination
						error: pedal position sensor	not set	-	-				
						error: engine coolant temp	not set	-	-				
						error: intake air temp sensor	not set	-	-				
						error: purge sol. Valve flow	not set	-	-				
						error: fuel tank pres sensor	not set	-	-				
						error: system voltage	not set	-	-				
						error: vehicle speed sensor	not set	-	-				

2004file14.xls Page 14 of 18

## 2004file14.xls

Component/													
	Fault	Monitor Strategy	Primary Malfunction	Threshold	Specified		Enable	Enable	Units	Time	Frequency	Criteria	MIL
System	Code	Description	Signal and Criteria	Value	Units	Parameters	Condition	Value		Required	of Checks	for Code	Illumination
Cooling fan 1 relay	P0480	circuit continuity - open	Voltage	IC Internal		engine speed	>	80	rpm	0.01 sec	0.01 sec	50 sec	two driving
Control Circuit	P0691	circuit continuity - ground	vollago	10 111011101		battery voltage	>	10	V	0.01 000	0.01 000	cumulative	cycles
	P0692	circuit continuity - voltage				battery voltage	<	18	V				50 sec
		, ,				output							cumulative
Cooling fan 2 relay	P0481	circuit continuity - open	Voltage	IC Internal	-	engine speed	>	80	rpm	0.01 sec	0.01 sec	50 sec	two driving
Control Circuit	P0693	circuit continuity - ground				battery voltage	>	10	V			cumulative	cycles
	P0694	circuit continuity - voltage				battery voltage	<	18	V				50 sec
													cumulative
Fuel Level Canasa Circuit						1	ı		1		1		
Fuel Level Sensor Circuit fuel sender 1													no
signal stuck	P0461	rationality	fuel level sensor signal movement	< 1.0	L	difference between engine con	>	30	L	300 sec	0.1 sec	300 sec	
Signal Stuck	1 0401	lationality	ider iever serisor signar movement	- 1.0	_	and change of fuel level signal		- 00	_	000 300	0.1 300	000 300	
						time	>	300	sec				
						sensor signal without failure	TRUE	-	-				
						fuel level state stable	TRUE	=	-				
						start ended	running	-	-				
							,						
signal low	P0462	range check low	voltage	0.25	V	battery voltage	>=	10	V	about 60 s	0.1 sec	about 60 s	
						battery voltage	<=	18	V			1	
signal high	P0463	range check high	voltage	3.2	V	start ended	running	-	-			ı	
signal high	1.0403	range check high	voltage	3.2	v	fuel level state stable	running	-	<u> </u>	+			
						Tuci level state Stable	1		1	-		1	
fuel sender 2													
signal stuck	P2066	rationality	fuel level sensor signal movement	< 1	L	difference between engine con	>	30	L	300 sec	0.1 sec	300 sec	
orginal otdox	. 2000	rationality	ide for concer digital movement		_	and change of fuel level signal				000 000	0.1 000	000 000	
						time	>	300	sec				
						sensor signal without failure	TRUE	-	-				
						fuel level state stable	TRUE	-	-				
						start ended	running	-	-				
signal low	P2067	range check low	voltage	0.25	V	battery voltage	>=	10	V				
						battery voltage	<=	18	V				
aireal high	Dance	anne abeel bieb	lucite se	2.0	V	Intent and ad			1	ahaut CO a	0.1	about CO a	
signal high	P2068	range check high	voltage	3.2	V	start ended fuel level state stable	running	-	-	about 60 s	0.1 sec	about 60 s	
	_				_	luei level state stable				1			
fuel transfer pump	P2636	transfer pump failure	fuel level 1 <	7	L	sensor signal without failure	TRUE	-	-	> 240 s	0.1 sec	> 120 s	
			and			fuel level state stable	TRUE	-	-				
			fuel level 2 >	15	L	start ended	running	-	-				
Idle Speed System													
							<						two driving
	P0506	functional check	desired rpm - actual rpm >	100	rpm	load (for underspeed only)		35	%	2.0 sec	0.1 sec	50 sec	
		functional check				coolant temp.	>	80.3	° C	2.0 sec	0.1 sec	50 sec cumulative	cycles
	P0506 P0507	functional check	desired rpm - actual rpm <	-200	rpm	coolant temp. intake air temp	>			2.0 sec	0.1 sec		cycles 50 sec
		functional check	desired rpm - actual rpm < or	-200	rpm	coolant temp. intake air temp vehicle speed	> > Yes	80.3 0	°C	2.0 sec	0.1 sec		cycles
		functional check	desired rpm - actual rpm < or fuel cut off due to overspeed >			coolant temp. intake air temp vehicle speed altitude correction factor	> > Yes >	80.3	° C	2.0 sec	0.1 sec		cycles 50 sec
		functional check	desired rpm - actual rpm < or	-200	rpm	coolant temp. intake air temp vehicle speed altitude correction factor evap purge (high HC conc.)	> Yes > FALSE	80.3 0	°C	2.0 sec	0.1 sec		cycles 50 sec
		functional check	desired rpm - actual rpm < or fuel cut off due to overspeed >	-200	rpm	coolant temp. intake air temp vehicle speed altitude correction factor	> > Yes >	80.3 0	°C	2.0 sec	0.1 sec		cycles 50 sec
		functional check	desired rpm - actual rpm < or fuel cut off due to overspeed >	-200	rpm	coolant temp. intake air temp vehicle speed altitude correction factor evap purge (high HC conc.) intrusive evap test	> Yes > FALSE not active	80.3 0	°C	2.0 sec	0.1 sec		cycles 50 sec
		functional check	desired rpm - actual rpm < or fuel cut off due to overspeed >	-200	rpm	coolant temp. intake air temp vehicle speed altitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature	> Yes > FALSE not active not set not set	80.3 0	°C	2.0 sec	0.1 sec		cycles 50 sec
		functional check	desired rpm - actual rpm < or fuel cut off due to overspeed >	-200	rpm	coolant temp. intake air temp vehicle speed altitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: coolant temperature	> Yes > FALSE not active not set not set not set	80.3 0	°C	2.0 sec	0.1 sec		cycles 50 sec
		functional check	desired rpm - actual rpm < or fuel cut off due to overspeed >	-200	rpm	coolant temp. intake air temp vehicle speed altitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: intake air temperature error: intake air temperature error: evap system	> Yes > FALSE not active not set not set not set not set not set	80.3 0	°C	2.0 sec	0.1 sec		cycles 50 sec
		functional check	desired rpm - actual rpm < or fuel cut off due to overspeed >	-200	rpm	coolant temp. intake air temp vehicle speed altitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: coolant temperature	> Yes > FALSE not active not set not set not set	80.3 0	°C	2.0 sec	0.1 sec		cycles 50 sec
System Voltage		functional check	desired rpm - actual rpm < or fuel cut off due to overspeed >	-200	rpm	coolant temp. intake air temp vehicle speed altitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: intake air temperature error: intake air temperature error: evap system	> Yes > FALSE not active not set not set not set not set not set	80.3 0	°C	2.0 sec	0.1 sec		cycles 50 sec
System Voltage	P0507		desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle	-200	rpm	coolant temp. intake air temp vehicle speed altitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: intake air temperature error: intake air temperature error: evap system	> Yes > FALSE not active not set	80.3 0 0.703	° C			cumulative	cycles 50 sec cumulative
System Voltage		rationality	desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle	-200	rpm	coolant temp. intake air temp vehicle speed altitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: intake air temperature error: intake air temperature error: evap system	> Yes > FALSE not active not set not set not set not set not set	80.3 0	°C	2.0 sec	0.1 sec	cumulative 50 sec	cycles 50 sec
System Voltage	P0507		desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle  powertrain supply relay feedback input voltage	-200	rpm	coolant temp. intake air temp vehicle speed altitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: intake air temperature error: intake air temperature error: evap system	> Yes > FALSE not active not set	80.3 0 0.703	° C			cumulative	cycles 50 sec cumulative
System Voltage	P0507	rationality	desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle	-200 3	rpm	coolant temp. intake air temp vehicle speed altitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: intake air temperature error: evap system error: evap purge valve	> Yes > Yes   FALSE   not active   not set   n	80.3 0 0.703	° C ° C			cumulative 50 sec	cycles 50 sec cumulative
System Voltage	P0507	rationality	desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle  powertrain supply relay feedback input voltage	-200 3	rpm	coolant temp. intake air temp vehicle speed altitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: intake air temperature error: evap system error: evap purge valve  time after engine start  time after engine start	> Yes > Yes   FALSE   not active   not set   n	80.3 0 0.703	° C ° C			cumulative 50 sec	cycles 50 sec cumulative
System Voltage	P0507  P0560  P0562	rationality range check low	desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle  powertrain supply relay feedback input voltage voltage	2.55 10	rpm	coolant temp. intake air temp vehicle speed altitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: inteke air temperature error: evap system error: evap purge valve	> Yes > Yes > FALSE not active not set not set not set not set not set not set -	80.3 0 0.703	° C ° C sec			cumulative 50 sec	cycles 50 sec cumulative
	P0507  P0560  P0562	rationality range check low	desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle  powertrain supply relay feedback input voltage voltage	2.55 10	rpm	coolant temp. intake air temp vehicle speed altitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: intake air temperature error: evap system error: evap purge valve  time after engine start  time after engine start	> Yes > Yes   Section   Yes	80.3 0 0.703	° C ° C			cumulative 50 sec	cycles 50 sec cumulative
System Voltage  ECM monitoring	P0507  P0560  P0562  P0563	rationality range check low range check high	desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle  powertrain supply relay feedback input voltage voltage voltage	2.55 10	rpm	coolant temp. intake air temp vehicle speed altitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: intake air temperature error: evap system error: evap purge valve  time after engine start vehicle speed	> Yes > Yes > FALSE not active not set not set not set not set not set not set >	80.3 0 0.703 - 180 180 3.125	° C ° C	2 sec	0.1 sec	cumulative 50 sec	cycles 50 sec cumulative
	P0507  P0560  P0562  P0563	rationality range check low	desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle  powertrain supply relay feedback input voltage voltage	2.55 10	rpm	coolant temp. intake air temp vehicle speed alitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: evap system error: evap system error: evap purge valve  time after engine start time after engine start vehicle speed power down calculation in the	> Yes > Yes > FALSE not active not set not set not set not set not set not set > Set	80.3 0 0.703	° C ° C		0.1 sec	cumulative 50 sec	cycles 50 sec cumulative
	P0507  P0560  P0562  P0563	rationality range check low range check high	desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle  powertrain supply relay feedback input voltage voltage voltage	2.55 10	rpm	coolant temp. intake air temp vehicle speed altitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: intake air temperature error: evap system error: evap purge valve  time after engine start vehicle speed	> Yes > Yes > FALSE not active not set not set not set not set not set not set >	80.3 0 0.703 - 180 180 3.125	° C ° C	2 sec	0.1 sec	cumulative 50 sec	cycles 50 sec cumulative
	P0507  P0560  P0562  P0563	rationality range check low range check high	desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle  powertrain supply relay feedback input voltage voltage voltage	2.55 10	rpm	coolant temp. intake air temp vehicle speed alitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: evap system error: evap system error: evap purge valve  time after engine start time after engine start vehicle speed power down calculation in the	> Yes > Yes > FALSE not active not set not set not set not set not set not set > Set	80.3 0 0.703 - 180 180 3.125	° C ° C	2 sec	0.1 sec	cumulative 50 sec	cycles 50 sec cumulative
	P0507  P0560  P0562  P0563	rationality range check low range check high	desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle  powertrain supply relay feedback input voltage voltage voltage wrong ROM checksum	2.55 10	rpm	coolant temp. intake air temp vehicle speed alitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: evap system error: evap system error: evap purge valve  time after engine start time after engine start vehicle speed power down calculation in the	> Yes > Yes > FALSE not active not set not set not set not set not set not set > Set	80.3 0 0.703 - 180 180 3.125	° C ° C	2 sec	once per driving cycle	50 sec cumulative	cycles 50 sec cumulative  no  no  5 sec
	P0507  P0560  P0562  P0563	rationality range check low range check high	desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle  powertrain supply relay feedback input voltage voltage  voltage  wrong ROM checksum	2.55 10 18.0	rpm	coolant temp. intake air temp vehicle speed alitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: evap system error: evap system error: evap purge valve  time after engine start time after engine start vehicle speed power down calculation in the	> Yes > Yes > FALSE not active not set not set not set not set not set not set > Set	80.3 0 0.703 - 180 180 3.125	° C ° C	2 sec	0.1 sec	50 sec cumulative	cycles 50 sec cumulative
	P0507  P0560  P0562  P0563	rationality range check low range check high	desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle  powertrain supply relay feedback input voltage voltage voltage wrong ROM checksum	2.55 10 18.0	rpm	coolant temp. intake air temp vehicle speed alitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: evap system error: evap system error: evap purge valve  time after engine start time after engine start vehicle speed power down calculation in the	> Yes > Yes > FALSE not active not set not set not set not set not set not set > Set	80.3 0 0.703 - 180 180 3.125	° C ° C	2 sec	once per driving cycle	50 sec cumulative	cycles 50 sec cumulative  no  no  5 sec
	P0507  P0560  P0562  P0563	rationality range check low range check high  rationality  rationality	desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle  powertrain supply relay feedback input voltage voltage  voltage  wrong ROM checksum  wrong cyclic ROM checksum of function monitoring  VIN not programmed; Service-ECU;	2.55 10 18.0	rpm	coolant temp. intake air temp vehicle speed alitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: evap system error: evap system error: evap purge valve  time after engine start time after engine start vehicle speed power down calculation in the	> Yes > Yes > FALSE not active not set not set not set not set not set not set > Set	80.3 0 0.703 - 180 180 3.125	° C ° C	2 sec	once per driving cycle	50 sec cumulative	cycles 50 sec cumulative  no  no  5 sec
	P0507  P0560  P0562  P0563  P0601	rationality range check low range check high  rationality  rationality  rationality  ECU ID information	desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle  powertrain supply relay feedback input voltage voltage  voltage  wrong ROM checksum  wrong cyclic ROM checksum of function monitoring  VIN not programmed; Service-ECU; security access not armed	2.55 10 18.0	rpm	coolant temp. intake air temp vehicle speed alitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: evap system error: evap system error: evap purge valve  time after engine start time after engine start vehicle speed power down calculation in the	> Yes > Yes > FALSE not active not set not set not set not set not set not set > Set  - Set > Set  completely finished	80.3 0 0.703 - 180 180 3.125	° C ° C	2 sec 30 sec	once per driving cycle	50 sec cumulative	cycles 50 sec cumulative  no 5 sec 5 sec
	P0507  P0560  P0562  P0563  P0601	rationality range check low range check high  rationality  rationality	desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle  powertrain supply relay feedback input voltage voltage  voltage  wrong ROM checksum  wrong cyclic ROM checksum of function monitoring  VIN not programmed; Service-ECU;	2.55 10 18.0	rpm	coolant temp. intake air temp vehicle speed alitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: evap system error: evap system error: evap purge valve  time after engine start time after engine start vehicle speed power down calculation in the	> Yes > Yes > FALSE not active not set not set not set not set not set not set > Set  - Set > Set  completely finished	80.3 0 0.703 - 180 180 3.125	° C ° C	2 sec 30 sec	once per driving cycle	50 sec cumulative	cycles 50 sec cumulative  no 5 sec 5 sec
	P0507  P0507  P0507  P0560  P0562  P0563  P0601	rationality range check low range check high  rationality  rationality  rationality  rationality  ECU ID information programming incomplete	desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle  powertrain supply relay feedback input voltage voltage  voltage  wrong ROM checksum  wrong cyclic ROM checksum of function monitoring  VIN not programmed; Service-ECU; security access not armed - count down	2.55 10 18.0	rpm	coolant temp. intake air temp vehicle speed alitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: evap system error: evap system error: evap purge valve  time after engine start time after engine start vehicle speed power down calculation in the	> Yes > Yes > FALSE not active not set not set not set not set not set not set > Set  - Set > Set  completely finished	80.3 0 0.703 - 180 180 3.125	° C ° C	2 sec	O.1 sec  Once per driving cycle  O.01 sec  O.01 sec	50 sec cumulative	cycles 50 sec cumulative  no  no  5 sec  5 sec  5 sec
	P0507  P0507  P0507  P0560  P0562  P0563  P0601	rationality range check low range check high  rationality  rationality  rationality  ECU ID information programming incomplete rationality	desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle  powertrain supply relay feedback input voltage voltage  voltage  wrong ROM checksum  wrong cyclic ROM checksum of function monitoring  VIN not programmed; Service-ECU; security access not armed - count down  wrong error counter value of the	2.55 10 18.0	rpm	coolant temp. intake air temp vehicle speed alitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: evap system error: evap system error: evap purge valve  time after engine start time after engine start vehicle speed power down calculation in the	> Yes > Yes > FALSE not active not set not set not set not set not set not set > Set  - Set > Set  completely finished	80.3 0 0.703 - 180 180 3.125	° C ° C	2 sec 30 sec	once per driving cycle	50 sec cumulative	cycles 50 sec cumulative  no 5 sec 5 sec
	P0507  P0507  P0507  P0560  P0562  P0563  P0601	rationality range check low range check high  rationality   desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle  powertrain supply relay feedback input voltage voltage  voltage  wrong ROM checksum  wrong cyclic ROM checksum of function monitoring  VIN not programmed; Service-ECU; security access not armed - count down  wrong error counter value of the monitoring module	2.55 10 18.0	rpm	coolant temp. intake air temp vehicle speed allitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: evap system error: evap system error: evap system time after engine start time after engine start vehicle speed	> Yes > Yes > FALSE not active not set not set not set not set not set not set completely finished	80.3 0 0.703 - 180 180 3.125	° C ° C	2 sec	O.1 sec  Once per driving cycle  O.01 sec  O.01 sec	50 sec cumulative	so sec cumulative  no  no  5 sec  5 sec  5 sec	
	P0507  P0507  P0507  P0560  P0562  P0563  P0601	rationality range check low range check high  rationality  rationality  rationality  ECU ID information programming incomplete rationality	desired rpm - actual rpm < or fuel cut off due to overspeed > during this idle  powertrain supply relay feedback input voltage voltage  voltage  wrong ROM checksum  wrong cyclic ROM checksum of function monitoring  VIN not programmed; Service-ECU; security access not armed - count down  wrong error counter value of the	2.55 10 18.0	rpm	coolant temp. intake air temp vehicle speed alitude correction factor evap purge (high HC conc.) intrusive evap test error: throttle position error: vehicle speed error: coolant temperature error: evap system error: evap system error: evap purge valve  time after engine start time after engine start vehicle speed power down calculation in the	> Yes > Yes > FALSE not active not set not set not set not set not set not set > Set  - Set > Set  completely finished	80.3 0 0.703 - 180 180 3.125	° C ° C	2 sec	O.1 sec  Once per driving cycle  O.01 sec  O.01 sec	50 sec cumulative	cycles 50 sec cumulative  no  no  5 sec  5 sec  5 sec

2004file14.xls Page 15 of 18

## 2004file14.xls

E accellé												
Fault	Monitor Strategy	Primary Malfunction	Threshold	Specified	Secondary	Enable	Enable	Units	Time	Frequency	Criteria	MIL
Code	Description	Signal and Criteria	Value	Units	Parameters	Condition	Value		Required	of Checks	for Code	Illuminati
fu	inctional check	switching off of the output circuits										5 sec
	ETC monitoring	is not responding properly										
	shut down control											
P0604 fu	nctional check	RAM writeability check			power down calculation	completly	1	-	5 sec	0.01 sec		5 sec
		read and write test			in the last driving cycle	finished						
cy	yclic RAM-check	writeability check of										5 sec
	Code fu	Code Description  functional check     ETC monitoring     shut down control	Code Description Signal and Criteria  functional check switching off of the output circuits ETC monitoring is not responding properly shut down control  P0604 functional check RAM writeability check read and write test	Code Description Signal and Criteria Value    functional check switching off of the output circuits     ETC monitoring is not responding properly     shut down control     P0604   functional check   RAM writeability check     read and write test	Code Description Signal and Criteria Value Units    functional check   switching off of the output circuits     ETC monitoring   is not responding properly     shut down control	Code Description Signal and Criteria Value Units Parameters    functional check   switching off of the output circuits     ETC monitoring   is not responding properly     shut down control       P0604   functional check   RAM writeability check   power down calculation     read and write test   in the last driving cycle	Code Description Signal and Criteria Value Units Parameters Condition    functional check   switching off of the output circuits     ETC monitoring   is not responding properly     shut down control	Code Description Signal and Criteria Value Units Parameters Condition Value    functional check   switching off of the output circuits	Code Description Signal and Criteria Value Units Parameters Condition Value    functional check   switching off of the output circuits	Code Description Signal and Criteria Value Units Parameters Condition Value Required    functional check   switching off of the output circuits	Code Description Signal and Criteria Value Units Parameters Condition Value Required of Checks    functional check   switching off of the output circuits	Code Description Signal and Criteria Value Units Parameters Condition Value Required of Checks for Code    functional check   switching off of the output circuits

Page 16 of 18

2004file14.
Component/
System

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Component/ System	Fault Code	Monitor Strategy Description	Primary Malfunction Signal and Criteria	Threshold Value	Specified Units	Secondary Parameters	Enable Condition	Enable Value	Units	Time Required	Frequency of Checks	Criteria for Code	MIL Illumination
	P0606	monitor of torque				power down calculation	completly	-	-	5 sec	0.01 sec		5 sec
		monitor of air flow				in the last driving cycle	finished						
		monitor of variable valve timing monitor of engine speed									+'		
		monitor of accelerator pedal											
		monitor of A/D converter sequence monitor of throttle valve lower limit				in the last driving cycle	finished				<del>                                     </del>	<u> </u>	
		monitor of failsoft control											
		monitor of A/D converter for accelerator pedal signal monitor of CAN communication									<del>                                     </del>	<del></del>	5 sec
		montor of O/44 communication				in the last driving cycle	finished						0 300
												<del></del>	ļ
						in the last driving cycle	finished						
Electronic Throttle Control													
	P0638	motor control range check low motor control range check high	powerstage (negative) duty cycle > powerstage (positive) duty cycle >	-80 80	%	battery voltage battery voltage	>	7	V	0.6 sec 5.0 sec	0.01 sec	0.6 sec 5.0 sec	5 sec 5 sec
		inotor control range check high	powerstage (positive) duty cycle			battery voltage		,		J.0 3ec			3 360
	P1551	limp-home throttle position out of range	throttle position <	0.3799	%	vehicle speed	<=	0 250	mph	5 sec	0.01 sec	50 sec	two driving
			OR throttle position >	13.07	%	engine speed engine coolant temperature	>=	5.3	rpm ° C		+	cumulative	cycles 50 sec
						engine coolant temperature	<=	100.5	° C			<u> </u>	cumulative
			+			intake air temperature intake air temperature	>= <=	5.25 143	° C		+'		+
						battery voltage	>	9.99	V				
						accelerator pedal position	<	14.9	%				
	P2100	powerstage circuit switch-off	output circuits not deactivated	-	-	-	-			0.1 sec	0.01 sec	5 sec	5 sec
			as commanded										
	P2101	difference between set and actual position of throttle blade	difference between set and	10	%	electronic throttle adaptation	not active	-	-	0.5 sec	0.01 sec	5 sec	5 sec
			actual position of throttle blade >			battery voltage	>	7	V				
torque - plausible limit	P2105	rationality	torque out of range high	-	-	engine speed	>	1120	rpm	5.5 sec	0.01 sec	5 sec	5 sec
	P2119	functionality of return spring	throttle blade return response	0.72	sec	vehicle speed	<=	0	mph	0.72 sec	0.01 sec	5 sec	5 sec
						engine speed	<	250	rpm				
						engine coolant temperature engine coolant temperature	>= <=	5.3 100.5	° C		<del>                                     </del>	<del></del>	
						intake air temperature	>=	5.25	°C				
						intake air temperature	<= >	143 9.99	° C		<u> </u>	<del>                                     </del>	
						battery voltage accelerator pedal position	<	14.9	%				<del>                                     </del>
MIL Control Circuit	P0650	circuit continuity - open	Voltage	IC Internal	-	engine speed	>	80	rpm	0.01 sec	0.01 sec	50 sec	no
		circuit continuity - ground				battery voltage	>	10	V			cumulative	(but is
		circuit continuity - voltage				battery voltage output	< activated and de	18 eactivated for comp	V olete checking		+		shown in Mode \$03)
Towns and a size Operated Mandala	D0700	ODD anticipa fault	Planet land							0.04	0.04	0.04	
Transmission Control Module  MIL Illumination Request	P0700 (Specific	OBD emission fault detected by the TCM	signal input	-	-	=	-	-	=	0.01 Sec	0.01 sec	0.01 sec	5 sec
·	TCM DTC										1	1	
	shown in freeze										1	1	
	frame)											<u> </u>	
Intake Manifold Runner Control	P2008	circuit continuity - open	Voltage	IC Internal	L	engine speed	>	80	rpm	0.01 sec	0.01 sec	50 sec	two driving
Solenoid Control Circuit	P2009	circuit continuity - ground	Voltage	TO III.OTTO		battery voltage	>	10	V	0.01 000	0.01.000	cumulative	cycles
	P2010	circuit continuity - voltage				battery voltage output	<	18 eactivated for comp	V Nete checking			<del></del>	50 sec cumulative
							activated and de	sactivated for comp					
Accelerator Pedal Position Sensor 1	P2122	range check low	voltage	0.8398	V	battery voltage	>	7	V	0.14 sec	0.01 sec	5 sec	5 sec
	P2123	range check high		4.8242	V								
Accelerator Pedal Position Sensor 2	P2127	range check low	voltage	0.6641	V	battery voltage	>	7	V	0.14 sec	0.01 sec	5 sec	5 sec
Accelerator i edal i osition occisor 2			voltage			battery voltage	,	,	•	0.14 300	0.01 300	0 300	0 300
	P2128	range check high		4.8242	V								
Accelerator Pedal Position 1 vs. 2	P2138	plausibility	voltage difference >	0.2148	V	-	- 1	-		0.5 sec	0.01 sec	5 sec	5 sec
			idle range	0.2734	V							<u> </u>	
			voltage difference pedal partially pressed >	0.2734	V					+	+		+
				1.0574	V	1	1				1		T
			voltage difference >	1.0574	V								
		plausibility when leaving idle range	pedal fully pressed										
		plausibility when leaving idle range		1.1719 0.039	V								

2004file14.xls Page 17 of 18

## 2004file14.xls

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Component/	Fault	Monitor Strategy	Primary Malfunction	Threshold	Specified	Secondary	Enable	Enable	Units	Time	Frequency	Criteria	MIL
System	Code	Description	Signal and Criteria	Value	Units	Parameters	Condition	Value		Required	of Checks	for Code	Illumination
Barometric Pressure Sensor	P2228	range check low	voltage <	0.195	V	engine	running	-	-	3 sec	0.1 sec	50 sec	two driving
			sensor signal <	30	KPa	error: MAF sensor	not set	=	-			cumulative	cycles
	P2229	range check high	voltage <	4.883	V								50 sec
			sensor signal <	120.5	KPa								cumulative
OBD ISO-15765 Communication E	Bus												
	U0001	ISO-15765 Bus Off	No communication	-	-	-	-	-	-	5 sec	0.1 sec	50 sec	two driving
		or communication error	or improper communication									cumulative	cycles
													50 sec cum
	U0101	Communication with TCM	TCM Messages	missing or delayed									two driving
													cycles
													50 sec cum
1													
Vehicle speed sensor													
Automatic Transmission	U0402	signal missing	vehicle speed	missing	-	communication errors	FALSE	-	-	5 sec	0.1 sec	50 sec	two driving
-					1	transmission communication	OK	-	-	1		cumulative	cycles

Page 18 of 18