



Test Value and Test Limit

The following is the information specified in Service \$06 of SAE J1979/ISO 15031-5.

The test value is a parameter used to determine whether a system/circuit diagnostic test is OK or NG while being monitored by the ECM during self-diagnosis. The test limit is a reference value which is specified as the maximum or minimum value and is compared with the test value being monitored.

These data (test value and test limit) are specified by On Board Monitor ID (OBDMID), Test ID (TID), Unit and Scaling ID and can be displayed on the GST screen.

The items of the test value and test limit will be displayed with GST screen which items are provided by the ECM. (e.g., if bank 2 is not applied on this vehicle, only the items of bank 1 are displayed)

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
HO2S	01H	Air fuel ratio (A/F) sensor 1 (Bank 1)	P0131	83H	0BH	Minimum sensor output voltage for test cycle
cardiagn.com						

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	

cardiagn.com

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
			P0131	84H	0BH	Maximum sensor output voltage for test cycle
			P0130	85H	0BH	Minimum sensor output voltage for test cycle
			P0130	86H	0BH	Maximum sensor output voltage for test cycle
			P0133	87H	04H	Response rate: Response ratio (lean to rich)
			P0133	88H	04H	Response rate: Response ratio (rich to lean)
			P2A00 or P2096	89H	84H	The amount of shift in air fuel ratio (too lean)
			P2A00 or P2097	8AH	84H	The amount of shift in air fuel ratio (too rich)
			P0130	8BH	0BH	Difference in sensor output voltage
			P0133	8CH	83H	Response gain at the limited frequency
			P014C	8DH	04H	O2 sensor slow response - Rich to lean bank 1 sensor 1
			P014C	8EH	04H	O2 sensor slow response - Rich to lean bank 1 sensor 1
			P014D	8FH	84H	O2 sensor slow response - Lean to rich bank 1 sensor 1
			P014D	90H	84H	O2 sensor slow response - Lean to rich bank 1 sensor 1
			P015A	91H	01H	O2 sensor delayed response - Rich to lean

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
						bank 1 sensor 1
			P015A	92H	01H	O2 sensor delayed response - Rich to lean bank 1 sensor 1
			P015B	93H	01H	O2 sensor delayed response - Lean to rich bank 1 sensor 1
			P015B	94H	01H	O2 sensor delayed response - Lean to rich bank 1 sensor 1
			P0133	95H	04H	Response rate: Response ratio (lean to rich)
			P0133	96H	84H	Response rate: Response ratio (rich to lean)
			P2297	97H	0BH	A/F Sensor IL High Gain Monitor
			P2297	98H	0BH	A/F Sensor IL Low Gain Monitor
			P0138	07H	0CH	Minimum sensor output voltage for test cycle
			P0137	08H	0CH	Maximum sensor output voltage for test cycle
			P0138	80H	0CH	Sensor output voltage
			P0139	81H	0CH	Difference in sensor output voltage
			P0139	82H	11H	Rear O2 sensor delay response diagnosis
	02H	Heated oxygen sensor 2 (Bank 1)				

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
	03H	Heated oxygen sensor 3 (Bank 1)	P0143	07H	0CH	Minimum sensor output voltage for test cycle
			P0144	08H	0CH	Maximum sensor output voltage for test cycle
			P0146	80H	0CH	Sensor output voltage
			P0145	81H	0CH	Difference in sensor output voltage

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
	05H	Air fuel ratio (A/F) sensor 1 (Bank 2)	P0151	83H	0BH	Minimum sensor output voltage for test cycle

cardiagn.com

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
			P0151	84H	0BH	Maximum sensor output voltage for test cycle
			P0150	85H	0BH	Minimum sensor output voltage for test cycle
			P0150	86H	0BH	Maximum sensor output voltage for test cycle
			P0153	87H	04H	Response rate: Response ratio (lean to rich)
			P0153	88H	04H	Response rate: Response ratio (rich to lean)
			P2A03 or P2098	89H	84H	The amount of shift in air fuel ratio (too lean)
			P2A03 or P2099	8AH	84H	The amount of shift in air fuel ratio (too rich)
			P0150	8BH	0BH	Difference in sensor output voltage
			P0153	8CH	83H	Response gain at the limited frequency
			P014E	8DH	04H	O2 sensor slow response - Rich to lean bank 2 sensor 1
			P014E	8EH	04H	O2 sensor slow response - Rich to lean bank 2 sensor 1
			P014F	8FH	84H	O2 sensor slow response - Lean to rich bank 2 sensor 1
			P014F	90H	84H	O2 sensor slow response - Lean to rich bank 2 sensor 1
			P015C	91H	01H	O2 sensor delayed response - Rich to lean

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
	06H	Heated oxygen sensor 2 (Bank 2)				bank 2 sensor 1
			P015C	92H	01H	O2 sensor delayed response - Rich to lean bank 2 sensor 1
			P015D	93H	01H	O2 sensor delayed response - Lean to rich bank 2 sensor 1
			P015D	94H	01H	O2 sensor delayed response - Lean to rich bank 2 sensor 1
			P0153	95H	04H	Response rate: Response ratio (lean to rich)
			P0153	96H	84H	Response rate: Response ratio (rich to lean)
			P2298	97H	0BH	A/F Sensor IL High Gain Monitor
			P2298	98H	0BH	A/F Sensor IL Low Gain Monitor
			P0158	07H	0CH	Minimum sensor output voltage for test cycle
			P0157	08H	0CH	Maximum sensor output voltage for test cycle
			P0158	80H	0CH	Sensor output voltage
			P0159	81H	0CH	Difference in sensor output voltage
			P0159	82H	11H	Rear O2 sensor delay response diagnosis

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
CATALYST	07H	Heated oxygen sensor 3 (Bank2)	P0163	07H	0CH	Minimum sensor output voltage for test cycle
			P0164	08H	0CH	Maximum sensor output voltage for test cycle
			P0166	80H	0CH	Sensor output voltage
			P0165	81H	0CH	Difference in sensor output voltage
	21H	Three way catalyst function (Bank1)	P0420	80H	01H	O2 storage index
			P0420	82H	01H	Switching time lag engine exhaust index value
			P2423	83H	0CH	Difference in 3rd O2 sensor output voltage
			P2423	84H	84H	O2 storage index in HC trap catalyst
	22H	Three way catalyst function (Bank2)	P0430	80H	01H	O2 storage index
			P0430	82H	01H	Switching time lag engine exhaust index value
			P2424	83H	0CH	Difference in 3rd O2 sensor output voltage
			P2424	84H	84H	O2 storage index in HC trap catalyst

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
EGR SYSTEM	31H	EGR function	P0400	80H	96H	Low flow faults: EGR temp change rate (short term)
			P0400	81H	96H	Low flow faults: EGR temp change rate (long term)
			P0400	82H	96H	Low flow faults: Difference between max EGR temp and EGR temp under idling condition
			P0400	83H	96H	Low flow faults: Max EGR temp
			P1402	84H	96H	High Flow Faults: EGR temp increase rate
			P0402	85H	FCH	EGR differential pressure high flow
			P0401	86H	37H	EGR differential pressure low flow
			P2457	87H	96H	EGR temperature
			P0402	87H	FCH	Delta intake pressure of EGR high flow monitor
			P0401	88H	FCH	Delta intake pressure of EGR low flow monitor
			P0402	89H	FCH	Intake manifold pressure as parameter of HP-EGR high flow monitor

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
VVT SYSTEM	35H	VVT Monitor (Bank1)	P100A	84H	10H	VEL slow response diagnosis

cardiagn.com

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
			P1090	85H	10H	VEL servo system diagnosis
			Advanced: P052A Retarded: P052B	87H	9DH	VTC intake intermediate lock system diagnosis (VTC intermediate lock position check diagnosis)
			P0011	88H	9DH	VTC function failure diagnosis (Intake ADV side)
			P0012	89H	9DH	VTC function failure diagnosis (Intake RET side)
			P0015	8AH	9DH	VTC function failure diagnosis (Exhaust RET side)
			P0014	8BH	9DH	VTC function failure diagnosis (Exhaust ADV side)
			Advanced: P054A Retarded: P054B	8CH	9DH	Exhaust intermediate lock VTC function check diagnosis

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
36H	VVT Monitor (Bank2)		P100B	84H	10H	VEL slow response diagnosis
			P1093	85H	10H	VEL servo system diagnosis
			Advanced: P052C Retarded: P052D	87H	9DH	VTC intake intermediate lock system diagnosis (VTC intermediate lock position check diagnosis)
			P0021	88H	9DH	VTC function failure diagnosis (Intake ADV side)
			P0022	89H	9DH	VTC function failure diagnosis (Intake RET side)
			P0025	8AH	9DH	VTC function failure diagnosis (Exhaust RET side)
			P0024	8BH	9DH	VTC function failure diagnosis (Exhaust ADV side)
			Advanced: P054C Retarded: P054D	8CH	9DH	Exhaust intermediate lock VTC function check diagnosis

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
EVAP SYSTEM	39H	EVAP control system leak (Cap Off)	P0455	80H	0CH	Difference in pressure sensor output voltage before and after pull down
	3BH	EVAP control system leak (Small leak)	P0442	80H	05H	Leak area index (for more than 0.04 inch)
	3CH	EVAP control system leak (Very small leak)	P0456	80H	05H	Leak area index (for more than 0.02 inch)
			P0456	81H	FDH	Maximum internal pressure of EVAP system during monitoring
			P0456	82H	FDH	Internal pressure of EVAP system at the end of monitoring
	3DH	Purge flow system	P0441	83H	0CH	Difference in pressure sensor output voltage before and after vent control valve close
		Fuel Tank Vent Line	P00FE	84H	04H	Evap system air volume ratio of estimated to measured

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
O2 SENSOR HEATER	41H	A/F sensor 1 heater (Bank 1)	P0030	83H	0BH	A/F sensor heater circuit malfunction
			P0053	84H	14H	A/F sensor heater circuit malfunction (RACmonitor)
	42H	Heated oxygen sensor 2 heater (Bank 1)	P0141	81H	14H	Rear O2 sensor internal impedance
			P00D2	82H	0CH	Rear O2 sensor heater performance
	43H	Heated oxygen sensor 3 heater (Bank 1)	P0043	80H	0CH	Converted value of heater electric current to voltage
	45H	A/F sensor 1 heater (Bank 2)	P0036	83H	0BH	A/F sensor heater circuit malfunction
			P0059	84H	14H	A/F sensor heater Malfunction (RACmonitor)
	46H	Heated oxygen sensor 2 heater (Bank 2)	P0161	81H	14H	Rear O2 sensor internal impedance
			P00D4	82H	0CH	Rear O2 sensor heater performance
	47H	Heated oxygen sensor 3 heater (Bank 2)	P0063	80H	0CH	Converted value of heater electric current to voltage

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
SECONDARY AIR	71H	Secondary air system	P0411	80H	01H	Secondary air injection system incorrect flow detected
			Bank1: P0491 Bank2: P0492	81H	01H	Secondary air injection system insufficient flow
			P2445	82H	01H	Secondary air injection system pump stuck off
			P2448	83H	01H	Secondary air injection system high airflow
			Bank1: P2440 Bank2: P2442	84H	01H	Secondary air injection system switching valve stuck open
			P2440	85H	01H	Secondary air injection system switching valve stuck open
			P2444	86H	01H	Secondary air injection system pump stuck on

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
Fuel System	81H	Fuel injection system function (Bank 1)	P219A	82H	03H	Air-fuel ratio cylinder imbalance diagnosis parameter backup

cardiagn.com

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	

cardiagn.com

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
			P219C	83H	83H	Air-fuel ratio cylinder imbalance diagnosis CPS method #1 cylinder parameter
			P219D	84H	83H	Air-fuel ratio cylinder imbalance diagnosis CPS method #2 cylinder parameter
			P219E	85H	83H	Air-fuel ratio cylinder imbalance diagnosis CPS method #3 cylinder parameter
			P219F	86H	83H	Air-fuel ratio cylinder imbalance diagnosis CPS method #4 cylinder parameter
			P21A0	87H	83H	Air-fuel ratio cylinder imbalance diagnosis CPS method #5 cylinder parameter
			P21A2	89H	83H	Air-fuel ratio cylinder imbalance diagnosis CPS method #7 cylinder parameter
			P23FE	8AH	03H	Air-fuel ratio cylinder imbalance diagnosis for DIG+MPI area parameter backup
			P23F2	8BH	83H	Air-fuel ratio cylinder imbalance diagnosis CPS

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
						method for DIG+MPI area #1 cylinder parameter
			P23F3	8CH	83H	Air-fuel ratio cylinder imbalance diagnosis CPS method for DIG+MPI area #2 cylinder parameter
			P23F4	8DH	83H	Air-fuel ratio cylinder imbalance diagnosis CPS method for DIG+MPI area #3 cylinder parameter
			P23F5	8EH	83H	Air-fuel ratio cylinder imbalance diagnosis CPS method for DIG+MPI area #4 cylinder parameter
			P23F6	8FH	83H	Air-fuel ratio cylinder imbalance diagnosis CPS method for DIG+MPI area #5 cylinder parameter
			P23F8	91H	83H	Air-fuel ratio cylinder imbalance diagnosis CPS method for DIG+MPI area #7 cylinder parameter

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
	82H	Fuel injection system function (Bank 2)	P219B	82H	03H	Air-fuel ratio cylinder imbalance diagnosis parameter backup

cardiagn.com

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
			P219D	83H	83H	Air-fuel ratio cylinder imbalance diagnosis CPS method #2 cylinder parameter
			P219F	85H	83H	Air-fuel ratio cylinder imbalance diagnosis CPS method #4 cylinder parameter
			P21A1	87H	83H	Air-fuel ratio cylinder imbalance diagnosis CPS method #6 cylinder parameter
			P21A3	89H	83H	Air-fuel ratio cylinder imbalance diagnosis CPS method #8 cylinder parameter
			P23FF	8AH	03H	Air-fuel ratio cylinder imbalance diagnosis for DIG+MPI area parameter backup
			P23F3	8BH	83H	Air-fuel ratio cylinder imbalance diagnosis CPS method for DIG+MPI area #2 cylinder parameter
			P23F5	8DH	83H	Air-fuel ratio cylinder imbalance diagnosis CPS method for DIG+MPI area #4 cylinder parameter
			P23F7	8FH	83H	Air-fuel ratio cylinder imbalance diagnosis CPS

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
						method for DIG+MPI area #6 cylinder parameter
			P23F9	91H	83H	Air-fuel ratio cylinder imbalance diagnosis CPS method for DIG+MPI area #8 cylinder parameter

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
MISFIRE	A1H	Multiple cylinder misfires	P0301	80H	24H	Misfiring counter at 1000 revolution of the first cylinder

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	

cardiagn.com

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	

cardiagn.com

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
			P0302	81H	24H	Misfiring counter at 1000 revolution of the second cylinder
			P0303	82H	24H	Misfiring counter at 1000 revolution of the third cylinder
			P0304	83H	24H	Misfiring counter at 1000 revolution of the fourth cylinder
			P0305	84H	24H	Misfiring counter at 1000 revolution of the fifth cylinder
			P0306	85H	24H	Misfiring counter at 1000 revolution of the sixth cylinder
			P0307	86H	24H	Misfiring counter at 1000 revolution of the seventh cylinder
			P0308	87H	24H	Misfiring counter at 1000 revolution of the eighth cylinder
			P0300	88H	24H	Misfiring counter at 1000 revolution of the multiple cylinders
			P0301	89H	24H	Misfiring counter at 200 revolution of the first cylinder
			P0302	8AH	24H	Misfiring counter at 200 revolution of the second

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
						cylinder
			P0303	8BH	24H	Misfiring counter at 200 revolution of the third cylinder
			P0304	8CH	24H	Misfiring counter at 200 revolution of the fourth cylinder
			P0305	8DH	24H	Misfiring counter at 200 revolution of the fifth cylinder
			P0306	8EH	24H	Misfiring counter at 200 revolution of the sixth cylinder
			P0307	8FH	24H	Misfiring counter at 200 revolution of the seventh cylinder
			P0308	90H	24H	Misfiring counter at 200 revolution of the eighth cylinder
			P0300	91H	24H	Misfiring counter at 1000 revolution of the single cylinder
			P0300	92H	24H	Misfiring counter at 200 revolution of the single cylinder
			P0300	93H	24H	Misfiring counter at 200 revolution of the multiple cylinders

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
	A2H	No. 1 cylinder misfire	P0301	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0301	0CH	24H	Misfire counts for last/current driving cycles
	A3H	No. 2 cylinder misfire	P0302	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0302	0CH	24H	Misfire counts for last/current driving cycles
	A4H	No. 3 cylinder misfire	P0303	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0303	0CH	24H	Misfire counts for last/current driving cycles
	A5H	No. 4 cylinder misfire	P0304	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0304	0CH	24H	Misfire counts for last/current driving cycles

Item	OBDMID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
PM FILTER	A6H	No. 5 cylinder misfire	P0305	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0305	0CH	24H	Misfire counts for last/current driving cycles
	A7H	No. 6 cylinder misfire	P0306	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0306	0CH	24H	Misfire counts for last/current driving cycles
	A8H	No. 7 cylinder misfire	P0307	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0307	0CH	24H	Misfire counts for last/current driving cycles
	A9H	No. 8 cylinder misfire	P0308	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0308	0CH	24H	Misfire counts for last/current driving cycles
	B2H	PM Filter Monitor (Bank 1)	P226D	80H	84H	GPF Removal diagnosis parameter by Tdiff
			P226D	81H	84H	GPF Removal diagnosis parameter by Pdiff