ENGINE OPERATING CONDITION

NOTICE: The values given below for "Normal Condition" are representative values, so a vehicle may still be normal even if its value varies from those listed here. So do not decide whether a part is faulty or not solely according to the "Normal Condition" here.

CARB Mandated Signals

TOYOTA hand–held tester display	Measurement Item	Normal Condition
FUEL SYS #1	Fuel System Bank 1 OPEN: Air–fuel ratio feedback stopped CLOSED: Air–fuel ratio feedback operating	Idling after warning up: CLOSED
FUEL SYS #2	Fuel System Bank 2 OPEN: Air–fuel ratio feedback stopped CLOSED: Air–fuel ratio feedback operating	Idling after warning up, CLOSED
CALC LOAD	Calculator Load: Current intake air volume as a proportion of max. intake air volume	Idling: 12.9 – 25.2% Racing without load (2,500 rpm): 11.7 – 23.9%
COOLANT TEMP	Engine Coolant Temperature Sensor Value	After warning up: 80 – 95°C (176 – 203°F)
SHORT FT #1	Short–term Fuel Trim Bank 1	0 ± 20%
LONG FT #1	Long–term Fuel Trim Bank 1	0 ± 20%
SHORT FT #2	Short–term Fuel Trim Bank 2	0 ± 20%
LONG FT #2	Long–term Fuel Trim Bank 2	0 ± 20%
ENGINE SPD	Engine Speed	Idling: 700 ± 50 rpm
VEHICLE SPD	Vehicle Speed	Vehicle Stopped: p km/h mph
IGN ADVANCE	Ignition Advance Ignition Timing of Cylinder No.1	Idling: BTDC 12 ±5°
INTAKE AIR	Intake Air Temperature Sensor Value	Equivalent to Ambient Temp.
MAF	Air Flow Rate Through Mass Air Flow Meter	Idling: 2.4 – 4.8 gm/sec Racing without load (2,500 rpm): 7.9 –.– 16.2 gm/sec
THROTTLE POS	Voltage Output of Throttle Position Sensor Calculated as a Percentage 0 V→ 0%, 5 V → 100%	Throttle Fully Closed: 7 – 11% Fully Open: 65 – 75%
02S B1, S1	Voltage Output of Oxygen Sensor Bank 1, Sensor 1	Idling: 0.1 – 0.9 V

If no conditions are specifically stated for "Idling", it means the shift lever is at N or P position, the A/C switch is OFF and all accessory switches are OFF.

TOYOTA hand–held tester display	Measurement Item	Normal Condition
O2FT B1, S1	Oxygen Sensor Fuel Trim Bank 1, Sensor 1 (Same as SHORT FT #1)	0 ± 20%
O2S B1, S2	Voltage Output of Oxygen Sensor Bank 1, Sensor 2	Driving (50 km/h, 31 mph): 0.1 – 0.9 V
O2S B2, S1	Voltage Output of Oxygen Sensor Bank 2, Sensor 1	Idling: 0.1 – 0.9 V
O2FT B2, S1	Oxygen Sensor Fuel Trim Bank 2, Sensor 1 (Same as SHORT FT #2)	0 ± 20%

TOYOTA Enhanced Signals

TOYOTA hand–held tester display	Measurement Item	Normal Condition
MISFIRE RPM	Engine RPM for first misfire range	Misfire 0: 0 RPM
MISFIRE LOAD	Engine load for first misfire range	Misfire 0: 0 g/r
INJECTOR	Fuel injection time for cylinder No.1	Idling: 2.2 – 5.1 ms
IAC DUTY RATIO	Intake Air Control Valve Duty Ratio Opening ratio rotary solenoid type IAC valve	Idling: 30 – 40%
STARTER SIG	Starter Signal	Cranking: ON
CTP SW	Closed Throttle Position Switch Signal	Throttle Fully Closed: ON
A/C SIG	A/C Switch Signal	A/C ON: ON
PNP SW	Park/Neutral Position Switch Signal	P or N position: ON
ELCTRCL LOAD SIG	Electrical Load Signal	Defogger S/W ON: ON
STOP LIGHT SW	Stop Light Switch Signal	Stop light switch ON: ON
FC IDL	Fuel Cut Idle: Fuel cut when throttle valve fully closed, during deceleration	Fuel cut operating: ON
FC TAU	Fuel Cut TAU: Fuel cut during very light load	Fuel cut operating: ON
CYL #1 □ CY L #6	Ratio of revolution variation for each cylinder when variation is large	0 %
IGNITION	Ignition rate for all cylinders every 1,000 revolutions	0 – 3,000
EGRT GAS	EGR Gas Temperature Sensor Value	EG R not operating: Temperature between intake air temp. and engine coolant temp.
INTAKE CTRL VSV	Intake Air Control Valve VSV Signal	VSV operating: ON
EGR SYSTEM	EG R system operating condition	Idling: OFF
FUEL PRES UP VSV	Fuel Pressure Up VSV Signal	High temp. restarting: ON
A/C CUT SIG	A/C Cut Signal	A/C S/W OFF: ON
A/C IDLE U P VSV	A/C Idle Up Signal	A/C S/W ON & D position & headlight ON: ON

TOYOTA hand–held tester display	Measurement Item	Normal Condition *
TOTAL FT B1	Total Fuel Trim Bank 1: Average value for fuel trim system of bank 1	Idling: 0.8 – 1.2
TOTAL FT B2	Total Fuel Trim Bank 2: Average value for fuel trim system of bank 2	Idling: 0.8 – 1.2
02 LR B1, S1	Oxygen Sensor Lean Rich Bank 1, Sensor 1 Response time for oxygen sensor output to switch from lean to rich.	Idling after warned up: 0 – 1,000 m sec.
02 LR B2, S1	Oxygen Sensor Lean Rich Bank 2, Sensor 1 Response time for oxygen sensor output to switch from lean to rich.	Idling after warned up: 0 – 1,000 msec.
02 RL B1, S1	Oxygen Sensor Rich Lean Bank 1, Sensor 1 Response time for oxygen sensor output to switch from rich to lean.	Idling after warned up: 0 – 1,000 msec.
02 RL B2, S1	Oxygen Sensor Rich Lean Bank 2, Sensor 1 Response time for oxygen sensor output to switch from rich to lean.	Idling after warned up: 0 – 1,000 msec.

*; If no conditions are specifically stated for ”Idling”, it means the shift lever is at Nor P position, the A/C switch is OFF and all accessory switches are OFF.