DATA LIST / ACTIVE TEST

1. DATA LIST

HINT:

Reading the DATA LIST displayed on an intelligent tester enables values, including those of the switches, sensors, and actuators, to be checked without removing any parts. Reading the DATA LIST as the first step in troubleshooting is one method to shorten diagnostic time.

NOTICE:

In the table below, the values listed under Normal Condition are for reference only. Do not depend solely on these values when determining whether or not a part is faulty.

(a) Warm up the engine.
(b) Turn the ignition switch off.
(c) Connect an intelligent tester to the DLC3.
(d) Start the engine.
(e) Turn the tester ON.
(f) Select the following menu items: DIAGNOSIS / ENHANCED OBD II / DATA LIST.
(g) Check the values by referring to the table below.

Tester Display	Measurement Item/Range	Normal Condition*	Diagnostic Note
INJECTOR (PORT)	Injection period of No. 1 cylinder: Min.: 0 ms, Max.: 32.64 ms	1.2 to 2.4 ms: Idling	-
IGN ADVANCE	Ignition timing advance for No. 1 cylinder: Min.: -64 deg., Max.: 63.5 deg.	BTDC 7 to 24°: Idling	-
CALC LOAD	Load calculated by ECM: Min.: 0%, Max.: 100%	• 10 to 20%: Idling • 10 to 20%: Running without load (2500 rpm)	-
VEHICLE LOAD	Vehicle load: Min.: 0%, Max.: 25700%	Actual vehicle load	-
MAF	Air flow rate from MAF meter: Min.: 0 g/sec., Max.: 655.35 g/sec.	2 to 5 g/sec.: Idling 8 to 19 g/sec.: 2500 rpm	If value is approximately 0.0 g/sec.: • Mass air flow meter power source circuit open • VG circuit open or shorted If value is 160.0 g/sec. or more: • E2G circuit open
ENGINE SPD	Engine speed: Min.: 0 rpm, Max.: 16383.75 rpm	600 to 700 rpm: Idling	-
VEHICLE SPD	Vehicle speed: Min.: 0 km/h (0 mph), Max.: 255 km/h (158 mph)	Actual vehicle speed	Speed indicated on speedometer
COOLANT TEMP	Engine coolant temperature: Min.: -40°C (-40°F), Max.: 140°C (284°F)	80 to 100°C (176 to 212°F): After warming up	• If value is -40°C (-40°F): sensor circuit open • If value is 140°C (284°F): sensor circuit shorted
INTAKE AIR	Intake air temperature: Min.: -40°C (-40°F), Max.: 140°C (284°F)	Equivalent to ambient air temperature	• If value is -40°C (-40°F): sensor circuit open • If value is 140°C (284°F): sensor circuit shorted
AIR-FUEL RATIO	Air-fuel ratio: Min.: 0, Max.: 1.999	0.8 to 1.2: Idling	-
PURGE DENSITY	Learning value of purge density: Min.: -50, Max.: 350	-40 to 0%: Idling	Service data
EVAP PURGE FLOW	EVAP purge flow	-	-

Tester Display	Measurement Item/Range	Normal Condition*	Diagnostic Note
EVAP PURGE VSV	EVAP (Purge) VSV control duty: Min.: 0%, Max.: 100%	0 to 100%: Idling	Commanded signal from ECM
KNOCK CRRT VAL	Correction learning value of knocking	-	-
KNOCK FB VAL	Feed back value of knocking	-	-
VAPOR PRES PUMP	Vapor pressure: Min.: 33.853 kPa, Max.: 125.596 kPa	0 kPa: Fuel tank cap removed	Pressure inside fuel tank monitored by vapor pressure sensor
VAPOR PRESS CALC	Vapor pressure: (calculated) Min.: -5.632 kPa, Max.: 715.264 kPa	0 kPa: Fuel tank cap removed	Pressure inside fuel tank monitored by vapor pressure sensor
KNOCK CRRT VAL	Correction learning value of knocking: Min.: -64 CA, Max.: 1984 CA	0 to 22° CA: Driving, 44 mph (70 km/h)	Service data
KNOCK FB VAL	Feedback value of knocking: Min.: -64 CA, Max.: 1984 CA	-22 to 0° CA Driving, 44 mph (70 km/h)	Service data
ACCEL POS #1	Absolute Accelerator Pedal Position (APP) No. 1: Min.: 0%, Max.: 100%	10 to 22%: Accelerator pedal released 54 to 86%: Accelerator pedal fully depressed	-
ACCEL POS #2	Absolute APP No. 2: Min.: 0 %, Max.: 100 %	12 to 42%: Accelerator pedal released 66 to 98%: Accelerator pedal fully depressed	-
ACCEL POS #1	APP sensor No. 1 voltage: Min.: 0 V, Max.: 4.98 V	-	ETCS freeze frame data
ACCEL POS #2	APP sensor No. 2 voltage: Min.: 0 V, Max.: 4.98 V	-	ETCS freeze frame data
ACCEL POS #1	APP sensor No. 1 voltage: Min.: 0 V, Max.: 5 V	0.5 to 1.1 V: Accelerator pedal released 2.6 to 4.5 V: Accelerator pedal fully depressed	-
ACCEL POS #2	APP sensor No. 2 voltage: Min.: 0 V, Max.: 5 V	1.2 to 2.0 V: Accelerator pedal released 3.4 to 5.0 V: Accelerator pedal fully depressed	-
ACCEL IDL POS	Whether or not accelerator pedal position sensor detecting idle: ON or OFF	ON: Idling	-
THRTL LEARN VAL	Throttle valve fully closed (learned value): Min.: 0 V, Max.: 5 V	0.4 to 0.8 V	-
ACCEL SSR #1 AD	Accelerator fully closed value No. 1 (AD): Min.: 0, Max.: 4.9804 V	-	ETCS service data
ACCEL LRN VAL#1	Accelerator fully closed learning value No. 1: Min.: 0, Max.: 124.512	-	ETCS service data
ACCEL LRN VAL#2	Accelerator fully closed learning value No. 2: Min.: 0, Max.: 124.512	-	ETCS service data
FAIL #1	Whether or not fail safe function executed: ON or OFF	ON: ETCS has failed	-
FAIL #2	Whether or not fail safe function executed (Main CPU): ON or OFF	ON: ETCS has failed	-
ST1	Starter signal: ON or OFF	ON: Cranking	-
SYS GUARD JUDGE	System guard: ON or OFF	-	ETCS service data
OPN MALFUNCTION	Open side malfunction: ON or OFF	-	ETCS service data

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Tester Display	Measurement Item/Range	Normal Condition*	Diagnostic Note
THROTTLE POS	Absolute throttle position sensor: Min.: 0%, Max.: 100%	• 10 to 24%: Throttle fully closed • 64 to 96%: Throttle fully open	Read value with intrusive operation (active test)
THROTTL IDL POS	Whether or not throttle position sensor detecting idle: ON or OFF	ON: Idling	-
THRTL REQ POS	Throttle requirement position: Min.: 0 V, Max.: 5 V	0.5 to 1.0 V: Idling	-
THROTTLE POS	Throttle sensor positioning: Min.: 0%, Max.: 100%	10 to 18%: Idling	Calculated value based on VTA1
THROTTLE POS #2	Throttle sensor positioning #2: Min.: 0%, Max.: 100%	-	Calculated value based on VTA2
THROTTLE POS #1	Throttle position sensor No. 1 output voltage: Min.: 0 V, Max.: 4.98 V	-	ETCS freeze frame data
THROTTLE POS #2	Throttle position sensor No. 2 output voltage: Min.: 0 V, Max.: 4.98 V	-	ETCS freeze frame data
THROTTLE POS #1	Throttle position No. 1: Min.: 0 V, Max.: 5 V	• 0.5 to 1.2 V: Throttle fully closed • 3.2 to 4.8 V: Throttle fully opened	-
THROTTLE POS #2	Throttle position No. 2: Min.: 0 V, Max.: 5 V	• 2.0 to 2.9 V: Throttle fully closed • 4.6 to 5.0 V: Throttle fully open	Read value with intrusive operation (active test)
THRTL COMND VAL	Throttle position command value: Min.: 0 V, Max.: 4.9804 V	0.5 to 4.8 V	ETCS service data
THROTL OPN DUTY	Throttle actuator opening duty ratio: Min.: 0% , Max.: 100%	0 to 40%: Idling	• When accelerator pedal is depressed, duty ratio increaseds • Read value with ignition switch ON (Do not start engine)
THROTL CLS DUTY	Throttle actuator closed duty ratio: Min.: 0% , Max.: 100%	0 to 40%: Idling	• When accelerator pedal is increased quickly, duty ratio increaseds • Read value with ignition switch ON (Do not start engine)
THROTTLE SSR #1	Throttle sensor opener position No. 1: Min.: 0 V, Max.: 4.9804 V	0.6 to 0.9 V	ETCS service data
THROTTLE SSR #2	Throttle sensor opener position No. 2: Min.: 0 V, Max.: 4.9804 V	2.2 to 2.6 V	ETCS service data
THRTL SSR #1 AD	Throttle sensor opener position No. 1 (AD): Min.: 0 V, Max.: 4.9804 V	0.6 to 0.9 V	ETCS service data
THROTTLE MOT	Whether or not throttle motor control permitted: ON or OFF	ON: Idling	Read value with ignition switch on (Do not start engine)
THROTTLE MOT	Throttle motor current: Min.: 0 A, Max.: 80 A	0 to 3.0 A: Idling	-
THROTTLE MOT	Throttle motor: Min.: 0%, Max.: 100%	0.5 to 40%: Idling	-
THRTL MOT (OPN)	Throttle motor duty ratio (open): Min.: 0%, Max.: 100%	-	ETCS service data
THRTL MOT (CLS)	Throttle motor duty ratio (close): Min.: 0%, Max.: 100%	-	ETCS service data
O2S B1 S2	Heated oxygen sensor output voltage for bank 1 sensor 2: Min.: 0 V, Max.: 1.275 V	0.1 to 0.9 V: Driving 44 mph (70 km/h)	Performing INJ VOL or A/F CONTROL function of ACTIVE TEST enables technician to check voltage output of sensor

Tester Display	Measurement Item/Range	Normal Condition*	Diagnostic Note
O2S B2 S2	Heated oxygen sensor output voltage for bank 2 sensor 2: Min.: 0 V, Max.: 1.275 V	0.1 to 0.9 V: Driving 44 mph (70 km/h)	Performing INJ VOL or A/F CONTROL function of ACTIVE TEST enables technician to check voltage output of sensor
AFS B1 S1	A/F sensor output voltage for bank 1 sensor 1: Min.: 0 V, Max.: 7.999 V	2.8 to 3.8 V: Idling	Performing INJ VOL or A/F CONTROL function of ACTIVE TEST enables technician to check voltage output of sensor
AFS B2 S1	A/F sensor output voltage for bank 2 sensor 1: Min.: 0 V, Max.: 7.999 V	2.8 to 3.8 V: Idling	Performing INJ VOL or A/F CONTROL function of ACTIVE TEST enables technician to check voltage output of sensor
AFS B2 S1	A/F sensor current: Min.: -128 mA, Max.: 127.99 mA	-	-
TOTAL FT #1	Total fuel trim of bank 1 Average value for fuel trim system of bank 1: Min.: -0.5, Max.: 0.496	-0.2 to 0.2: Idling	-
TOTAL FT #2	Total fuel trim of bank 2 Average value for fuel trim system of bank 2: Min.: -0.5, Max.: 0.496	-0.2 to 0.2: Idling	-
SHORT FT #1	Short-term fuel trim of bank 1: Min.: -100%, Max.: 99.2%	0 +/- 20%	Short-term fuel compensation used to maintain air-fuel ratio at stoichiometric air-fuel ratio
LONG FT #1	Long-term fuel trim of bank 1: Min.: -100%, Max.: 99.2%	0 +/- 20%	Overall fuel compensation carried out in long-term to compensate for a continual deviation of short-term fuel trim from central value
SHORT FT #2	Short-term fuel trim of bank 2: Min.: -100%, Max.: 99.2%	0 +/- 20%	Short-term fuel compensation used to maintain air-fuel ratio at stoichiometric air-fuel ratio
LONG FT #2	Long-term fuel trim of bank 2: Min.: -100%, Max.: 99.2%	0 +/- 20%	Overall fuel compensation carried out in long-term to compensate for a continual deviation of short-term fuel trim from central value
FUEL SYS #1	Fuel system status (Bank 1): OL or CL or OL DRIVE or OL FAULT or CL FAULT	CL: Idling after warming up	• OL (Open Loop): Has not yet satisfied conditions to become a closed loop • CL (Closed Loop): Using heated oxygen sensor as feedback for fuel control • OL DRIVE: Open loop due to driving conditions (fuel enrichment) • OL FAULT: Open loop due to detected system fault • CL FAULT: Closed loop but heated oxygen sensor, used for fuel control, malfunctions
FUEL SYS #2	Fuel system status (Bank 2): OL or CL or OL DRIVE or OL FAULT or CL FAULT	CL: Idling after warming up	• OL (Open Loop): Has not yet satisfied conditions to go closed loop • CL (Closed Loop): Using heated oxygen sensor as feedback for fuel control • OL DRIVE: Open loop due to driving conditions (fuel enrichment) • OL FAULT: Open loop due to detected system fault • CL FAULT: Closed loop but heated oxygen sensor, used for fuel control, malfunctions

Tester Display	Measurement Item/Range	Normal Condition*	Diagnostic Note
O2FT B1 S2	Short-term fuel trim associated with bank 1 sensor 2: Min.: -100%, Max.: 99.2%	0 +/- 20%	Same as SHORT FT #1
O2FT B2 S2	Short-term fuel trim associated with bank 2 sensor 2: Min.: -100%, Max.: 99.2%	0 +/- 20%	Same as SHORT FT #2
AF FT B1 S1	Short-term fuel trim associated with bank 1 sensor 1: Min.: 0, Max.: 1.999	• Value less than 1 (0.000 to 0.999) = Rich • Stoichiometric air-fuel ratio = 1 • Value greater than 1 (1.001 to 1.999) = Lean	-
AFS B1 S1	A/F sensor current: Min.: -128 mA, Max.: 127.99 mA	-	-
AF FT B2 S1	Short-term fuel trim associated with bank 2 sensor 1: Min.: 0, Max.: 1.999	• Value less than 1 (0.000 to 0.999) = Rich • Stoichiometric air-fuel ratio = 1 • Value greater than 1 (1.001 to 1.999) = Lean	-
CAT TEMP B1S1	Catalyst temperature (Bank 1, Sensor 1): Min.: -40°C (-40°F), Max.: 6513.5°C (11756.3°F)	-	-
CAT TEMP B2S1	Catalyst temperature (Bank 2, Sensor 1): Min.: -40°C (-40°F), Max.: 6513.5°C (11756.3°F)	-	-
CAT TEMP B1S2	Catalyst temperature (Bank 1, Sensor 2): Min.: -40°C (-40°F), Max.: 6513.5°C (11756.3°F)	-	-
CAT TEMP B2S2	Catalyst temperature (Bank 2, Sensor 2): Min.: -40°C (-40°F), Max.: 6513.5°C (11756.3°F)	-	-
S O2S B1 S2	Sub heated oxygen sensor impedance (bank 1 sensor 2): Min.: 0 Ω, Max.: 21247.68 Ω	-	-
EGR ENA	EGR monitor: UNABLE or ENABLE	-	-
EGR CMPL	EGR monitor: COMPL or INCMPL	-	-
S O2S B2 S2	Sub heated oxygen sensor impedance (bank 2 sensor 2): Min.: 0 Ω, Max.: 21247.68 Ω	-	-
INI COOL TEMP	Initial engine coolant temperature: Min.: -40°C (-40°F), Max.: 120°C (248°F)	Close to ambient air temperature	Service data
INI INTAKE TEMP	Initial intake air temperature: Min.: -40°C (-40°F), Max.: 120°C (248°F)	Close to ambient air temperature	Service data
INJ VOL	Injection volume (cylinder 1): Min.: 0 ml, Max.: 2.048 ml	Max.: 0.5 ml	Quantity of fuel injected in 10 injections
ACC Relay	ACC Relay: ON or OFF	ON: Cranking	-
Starter Relay	Starter relay: ON or OFF	ON: Cranking	-
STARTER SIG	Starter signal: ON or OFF	ON: Cranking	-
STARTER CONTROL	Starter switch signal: ON or OFF	-	-
PS SW	Power steering signal: ON or OFF	ON: Power steering operation	-
PS SIGNAL	Power steering signal: ON or OFF	ON: Steering wheel is first turned after ignition switch is turned on	This signal status is usually ON until ignition switch is turned off
CTP SW	Closed throttle position switch: ON or OFF	• ON: Throttle fully closed • OFF: Throttle open	-
A/C SIG NAL	A/C signal: ON or OFF	ON: A/C ON	-

Tester Display	Measurement Item/Range	Normal Condition*	Diagnostic Note
PNP SW (NSW)	PNP switch status: ON or OFF	ON: P or N position	-
ELECT LOAD SIG	Electrical load signal: ON or OFF	ON: Headlights or defogger turned ON	-
STOP LIGHT SW	Stop light switch: ON or OFF	ON: Brake pedal depressed	-
+BM	Whether or not electric throttle control system power input: ON or OFF	ON: Idling	-
+BM VOLTAGE	+BM voltage: Min.: 0, Max.: 19.92182 [V]	10 to 15 V: Idling	ETCS service data
BATTERY VOLTAGE	Battery voltage: Min.: 0 V, Max.: 65.535 V	9 to 14 V: Idling	-
ACTUATOR POWER	Actuator power supply: ON or OFF	ON: Idling	ETCS service data
ATM PRESSURE	Atmospheric pressure: Min.: 0 kPa, Max.: 255 kPa	Equivalent to atmospheric pressure (absolute pressure)	-
FUEL PUMP SP CTL	Fuel pump speed control status: ON or OFF	-	Active Test support status
ACIS VSV	VSV for Acoustic Control Induction System Status: ON or OFF	-	ON: Open OFF: Closed
VVT CTRL B2	VVT control (bank 2) status: ON or OFF	-	Active Test support data
EVAP (Purge) VSV	VSV status for EVAP control: ON or OFF	-	Active Test support data
FUEL PUMP / SPD	Fuel pump/status: ON or OFF	-	Active Test support data
VVT CTRL B1	VVT control (bank 1) status: ON or OFF	-	Active Test support data
VACUUM PUMP	Key-off EVAP system pump status: ON or OFF	-	Active Test support data
EVAP VENT VAL	Key-off EVAP system vent valve status: ON or OFF	-	Active Test support data
FAN MOTOR	Electric fan motor: ON or OFF	-	Active Test support data
TC/TE1	TC and TE1 terminals of DLC3: ON or OFF	-	-
ACM	VSV for ACM duty control: Min.: 0%, Max.: 255%	-	Active Test support data
VVTL AIM ANGL #1	VVT aim angle (bank 1 Intake side): Min.: 0%, Max.: 100%	-	VVT duty signal value during intrusive operation
VVT CHNG ANGL #1	VVT change angle (bank 1 Intake side): Min.: 0° FR, Max.: 60° FR	0 to 5° FR: Idling	Displacement angle during intrusive operation
VVT OCV DUTY B1	VVT OCV (bank 1 Intake side) operation duty: Min.: 0%, Max.: 100%	0 to 100%	Requested duty value for intrusive operation
VVT EX HOLD B1	VVT exhaust hold duty ratio learning value (bank 1 Exhaust side): Min.: 0%, Max.: 100%	0 to 50%: Idling	Requested duty value for intrusive operation
VVT EX CHG ANG1	VVT change angle (bank 1 Exhaust side): Min.: 0° FR, Max.: 60° FR	0 to 5° FR: Idling	Displacement angle during intrusive operation
VVT EX OCV D B1	VVT OCV (bank 1 Exhaust side) operation duty: Min.: 0%, Max.: 100%	0 to 100%	Requested duty value for intrusive operation
VVTL AIM ANGL #2	VVT aim angle (bank 2 Intake side): Min.: 0%, Max.: 100%	-	VVT duty signal value during intrusive operation
VVT CHNG ANGL #2	VVT change angle (bank 2 Intake side): Min.: 0° FR, Max.: 60° FR	0 to 5° FR: Idling	Displacement angle during intrusive operation

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Tester Display	Measurement Item/Range	Normal Condition*	Diagnostic Note
VVT OCV DUTY B2	VVT OCV (bank 2 Intake side) operation duty: Min.: 0%, Max.: 100%	0 to 100%:	Requested duty value for intrusive operation
VVT EX HOLD D B2	VVT exhaust hold duty ratio learning value (bank 2 Exhaust side): Min.: 0%, Max.: 100%	10 to 50%: Idling	Requested duty value for intrusive operation
VVT EX CHG ANG2	VVT change angle (bank 2 Exhaust side): Min.: 0° FR, Max.: 60° FR	0 to 5° FR: Idling	Displacement angle during intrusive operation
VVT EX OCV D B2	VVT exhaust (bank 2 Exhaust side) operation duty: Min.: 0%, Max.: 100%	0 to 100%	Requested duty value for intrusive operation
FC IDL	Fuel cut idle: ON or OFF	ON: Fuel cut operation	FC IDL = ON when throttle valve is fully closed and engine speed is over 2800 rpm
FC TAU	Fuel cut TAU: Fuel cut with very light load: ON or OFF	ON: Fuel cut operation	Fuel cut being performed with very light load to prevent incomplete engine combustion
IGNITION	Ignition counter: Min.: 0, Max.: 800	0 to 800	-
CYL #1	Misfire ratio of cylinder 1: Min.: 0, Max.: 255	0%	This item displayed only during idling
CYL #2	Misfire ratio of cylinder 2: Min.: 0, Max.: 255	0%	This item displayed only during idling
CYL #3	Misfire ratio of cylinder 3: Min.: 0, Max.: 255	0%	This item displayed only during idling
CYL #4	Misfire ratio of cylinder 4: Min.: 0, Max.: 255	0%	This item displayed only during idling
CYL #5	Misfire ratio of cylinder 5: Min.: 0, Max.: 255	0%	This item displayed only during idling
CYL #6	Misfire ratio of cylinder 6: Min.: 0, Max.: 255	0%	This item displayed only during idling
CYL ALL	All cylinders misfire rate: Min.: 0, Max.: 255	0 to 35	-
MISFIRE RPM	Engine RPM for first misfire range: Min.: 0 rpm, Max.: 6,375 rpm	0 rpm: Misfire 0	-
MISFIRE LOAD	Engine load for first misfire range: Min.: 0 g/rev, Max.: 3.98 g/rev	0 g/rev: Misfire 0	-
MISFIRE MARGIN	Misfire monitoring: Min.: -100%, Max.: 99.22%	-100 to 99.2%	Misfire detecting margin
CAT OT MF F/C	Catalyst overheat misfire prevention fuel cut availability: NOT AVL or AVAIL	AVAIL: CAT OT FC available NOT AVL: CAT OT FC not available	Service data
CAT OT FC HSTRY	Catalyst overheat misfire prevention fuel cut history: ON or OFF	ON: Fuel cut operation history exists	Service data
CAT OT FC CYL#1	Display of fuel cut operation in No. 1 cylinder (if certain level of misfire malfunction is detected): ON or OFF	ON: Fuel cut is operating	-
CAT OT FC CYL#2	Display of fuel cut operation in No. 2 cylinder (if certain level of misfire malfunction is detected): ON or OFF	ON: Fuel cut is operating	-
CAT OT FC CYL#3	Display of fuel cut operation in No. 3 cylinder (if certain level of misfire malfunction is detected): ON or OFF	ON: Fuel cut is operating	-

Tester Display	Measurement Item/Range	Normal Condition*	Diagnostic Note
CAT OT FC CYL#4	Display of fuel cut operation in No. 4 cylinder (if certain level of misfire malfunction is detected): ON or OFF	ON: Fuel cut is operating	-
CAT OT FC CYL#5	Display of fuel cut operation in No. 5 cylinder (if certain level of misfire malfunction is detected): ON or OFF	ON: Fuel cut is operating	-
CAT OT FC CYL#6	Display of fuel cut operation in No. 6 cylinder (if certain level of misfire malfunction is detected): ON or OFF	ON: Fuel cut is operating	-
#CODES	#Codes: Min.: 0, Max.: 255	-	Number of detected DTCs
CHECK MODE	Check mode: 0: OFF, 1: ON	ON: Check mode ON	See page ES-43
SPD TEST	Check mode result for vehicle speed sensor: 0: COMPL, 1: INCMPL	-	-
MISFIRE TEST	Check mode result for misfire monitor: 0: COMPL, 1: INCMPL	-	-
OXS2 TEST	Check mode result for HO2 sensor (bank 2): 0: COMPL, 1: INCMPL	-	-
OXS1 TEST	Check mode result for HO2 sensor (bank 1): 0: COMPL, 1: INCMPL	-	-
A/F SSR TEST B2	Check mode result for air-fuel ratio sensor (bank 2): 0: COMPL, 1: INCMPL	-	-
A/F SSR TEST B1	Check mode result for air-fuel ratio sensor (bank 1): 0: COMPL, 1: INCMPL	-	-
MIL ON RUN DIST	MIL ON Run Distance: Min.: 0 km (0 mile), Max.: 65535 km (40723 mile)	Distance driven after DTC detected	-
MIL ON RUN TIME	Running time from MIL ON: Min.: 0 minute, Max.: 65535 minutes	Running time after MIL ON	-
ENG RUN TIME	Engine run time: Min.: 0 second, Max.: 65535 seconds	Time after engine start	Service data
TIME DTC CLEAR	Time after DTC cleared: Min.: 0 minute, Max.: 65535 minutes	Time after DTCs erased	-
DIST DTC CLEAR	Distance after DTC cleared: Min.: 0 km (0 mile), Max.: 65535 km/h (40723 mile)	Distance driven after DTCs erased	-
WU CYC DTC CLEAR	Warm-up cycle after DTC cleared: Min.: 0, Max.: 255	-	Number of warm-up cycles after DTC cleared
OBD CERT	OBD Requirement:	OBD2 (CARB)	-
#CARB CODES	Number of Emission related DTC	-	-
COMP MON	Comprehensive Component Monitor: NOT AVL / AVAIL	-	-
FUEL MON	Fuel System Monitor: NOT AVL / AVAIL	-	-
MISFIRE MON	Misfire Monitor: NOT AVL / AVAIL	-	-
O2S (A/FS) HTR	O2S (A/FS) heater Monitor: NOT AVL / AVAIL	-	-
O2S (A/FS) HTR	O2S (A/FS) heater Monitor: COMPL/INCMPL	-	-
O2S (A/FS) MON	O2S (A/FS) Monitor: NOT AVL / AVAIL	-	-

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Tester Display	Measurement Item/Range	Normal Condition*	Diagnostic Note
O2S (A/FS) MON	O2S (A/FS) Monitor: COMPL/ INCMPL	-	-
EVAP MON	EVAP Monitor: NOT AVL: AVAIL	-	-
CAT MON	Catalyst Monitor: NOT AVL / AVAIL	-	-
CAT MON	Catalyst Monitor: Complete / Incomplete	-	-
MODEL CODE	Model code information	-	Identifying model code: GSL2#
ENGINE TYPE	Engine type information	-	Identifying engine type: 2GRFE
CYLINDER NUMBER	Cylinder number: Min.: 0, Max.: 255	-	Identifying cylinder number: 6
DESTINATION	Destination	-	Identifying destination: A (America)
MODEL YEAR	Model year: Min.: 1900 MY, Max.: 2155 MY	-	Identifying model year: 200#

*: If no idling conditions are specified, the transmission gear selector lever should be in the N or P position, and the A/C switch and all accessory switches should be OFF.

2. ACTIVE TEST

HINT:

Performing an ACTIVE TEST enables components including the relays, VSV (Vacuum Switching Valve), and actuators, to be operated without removing any parts. The ACTIVE TEST can be performed with an intelligent tester. Performing an ACTIVE TEST in the first step in troubleshooting is one method to shorten diagnostic time.

DATA LIST can be displayed during ACTIVE TESTs.

(a) Connect an intelligent tester to the DLC3.
(b) Start the engine.
(c) Turn the tester ON.
(d) Select the following menu items: DIAGNOSIS / ENHANCED OBD II / ACTIVE TEST.
(e) Perform the ACTIVE TEST by referring to the table below.

Tester Display	Test Part	Control Range	Diagnostic Note
INJ VOL	Change the injection volume	Between -12.5% and 24.8%	• All injectors tested at the same time • Perform test at less than 3000 rpm • Injection volume can be changed by 1% within control range

Tester Display	Test Part	Control Range	Diagnostic Note
A/F CONTROL	Change the injection volume	Lower by 12.5% or increase by 24.8%	• Perform test at less than 3000 rpm • A/F CONTROL enables to check and to graph A/F (Air Fuel Ratio) sensor and Heated Oxygen (HO2) sensor voltage outputs • To conduct test, select following menu items: ACTIVE TEST / A/F CONTROL / USER DATA / AFS B1S1 and O2S B1S2, or AFS B2S1 and O2S B2S2, and press YES and ENTER. Then press F4.
FUEL PMP SP CTL	Fuel pump speed control	ON (low speed) / OFF (high speed)	Test possible when following conditions met: Ignition switch ON Engine is stopped
INTAKE CTL VSV1	Activate the VSV for Acoustic Control Induction System (ACIS)	ON / OFF	-
EVAP VSV (ALONE)	Activate EVAP VSV control	ON / OFF	-
VVT CTRL B1	Turn on and off OCV (Oil Control Valve) for VVT (Bank 1)	ON: Exhaust side camshaft moves to retard side OFF: Exhaust side camshaft moves to advance side	• Engine stalls or idles roughly when OCV on • Engine running or idling normally when OCV off
VVT CTRL B2	Turn on and off OCV (Oil Control Valve) for VVT (Bank 2)	ON: Exhaust side camshaft moves to retard side OFF: Exhaust side camshaft moves to advance side	• Engine stalls or idles roughly when OCV on • Engine running or idling normally when OCV off
FUEL PUMP/SPD	Activate fuel pump (C/OPN Relay)	ON / OFF	-
ACM INHIBIT	Control the ACM inhibit	ON / OFF	Test is possible while engine is idling
TC/TE1	Turn on and off TC and TE1 connection	ON / OFF	• ON: TC and TE1 connected • OFF: TC and TE1 disconnected
FC IDL PROHBT	Prohibit idling fuel cut control	ON / OFF	-
PRHBT CAT OT FC	Prohibit catalyst overheat malfunction prevention fuel cut operation during misfire	ON: Fuel cut is prohibited	Confirm that the Vehicle is Stopped and Engine Speed is 3000 rpm or less.
COOLING FAN	Control the electric cooling fan	ON / OFF	-
STARTER	Starter	ON / OFF	-
ACC CUT	Active ACC cut relay	ON / OFF	Test is possible when following conditions are met: • Ignition switch is ON position • Ignition is stopped
ETCS OPEN SLOW	Control the ETCS (throttle motor) opening slow speed	1: Throttle valve opens slowly	Test is possible when the following conditions are met: • Ignition switch on • Engine does not start • Accelerator pedal fully depressed (APP: 58 degrees or more)
ETCS CLOSE SLOW	Control the ETCS (throttle motor) closing slow speed	2: Throttle valve closes slowly	Same as above
ETCS OPEN FAST	Control the ETCS (throttle motor) opening fast speed	3: Throttle valve opens fast	Same as above
ETCS CLOSE FAST	Control the ETCS (throttle motor) closing fast speed	4: Throttle valve closes fast	Same as above

Tester Display	Test Part	Control Range	Diagnostic Note
FUEL CUT #1	Cylinder #1 injector fuel cut	ON / OFF	Test possible while vehicle stopped and engine idling*1
FUEL CUT #2	Cylinder #2 injector fuel cut	ON / OFF	
FUEL CUT #3	Cylinder #3 injector fuel cut	ON / OFF	
FUEL CUT #4	Cylinder #4 injector fuel cut	ON / OFF	
FUEL CUT #5	Cylinder #5 injector fuel cut	ON / OFF	
FUEL CUT #6	Cylinder #6 injector fuel cut	ON / OFF	
FUEL CUT ALL	All cylinder fuel cut	ON / OFF	
VVT B1	Control the VVT (bank 1 Intake Side)	Between -128 and 127% This valve added to present OCV control duty 100%: Maximum advance -100% : Maximum retard	Engine stalls or idles roughly when VVT actuator operated by 100%. Test is possible while idling.
VVT B2	Control the VVT (bank 2 Intake Side)	Between -128% and 127%	Same as above
VVT EX B1	Control the VVT (bank 1 Exhaust Side)	This valve added to present OCV control duty 100%: Maximum retard -100%: Maximum advance	Same as above
VVT EX B2	Control the VVT (bank 2 Exhaust Side)	Same as above	Same as above
VACUUM PUMP	Activate the Vacuum Pump built into pump module	ON / OFF	-
VENT VALVE	Activate the VSV for Vent Valve built into pump module	ON / OFF	-
AICV VSV	Activate the VSV for Air Intake Control System (AICS)	ON / OFF	-

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NOTICE:

- ***1: If the display of the DATA LIST's CAT OT MF F/C item is NOT AVL, perform this ACTIVE TEST with the vehicle stopped and the engine idling.**
- ***1: If the display of the DATA LIST's CAT OT MF F/C item is AVAIL, perform this ACTIVE TEST as described below.**
  (a) Stop the engine and turn the ignition switch ON to turn FUEL CUT#1 (to #6) ON.
  (b) Start the engine.

3. SYSTEM CHECK

HINT:

Performing a SYSTEM CHECK enables the system, which consists of the multiple actuators, to be operated without removing any parts. In addition, it can show whether or not any DTCs are set, and can detect potential malfunctions in the system. The SYSTEM CHECK can be performed with an intelligent tester.

(a) Connect an intelligent tester to the DLC3.
(b) Start the engine.
(c) Turn the tester ON.
(d) Select the following menu items: DIAGNOSIS / ENHANCED OBD II / SYSTEM CHECK.

(e) Perform the SYSTEM CHECK by referring to the table below.

Tester Display	Test Part	Control Range	Diagnostic Notes
EVAP SYS CHECK (AUTO OPERATION)	Perform 5 steps in order to operate EVAP key-off monitor automatically	-	35°C (95°F) or less
EVAP SYS CHECK (MANUAL OPERATION)	Perform 5 steps in order to operate EVAP key-off monitor manually	-	35°C (95°F) or less