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Model Year: 2007	Model: Camry	Doc ID: RM000000PDN017X
Title: 2GR-FE ENGINE CONTROL SYSTEM: SFI SYSTEM: DATA LIST / ACTIVE TEST (2007 Camry)		

DATA LIST / ACTIVE TEST

1. DATA LIST

By reading the DATA LIST displayed on an intelligent tester, you can check values, including those of the switches, sensors, and actuators, without removing any parts. Reading the DATA LIST as the first step in troubleshooting is one method of shortening diagnostic time.

In the table below, the values listed under Normal Condition are 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 the intelligent tester to the DLC3.
- (d) Turn the ignition switch on (IG).
- (e) Turn the tester on.
- (f) Enter the following menus: 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	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 deg: Idling	-
CALC LOAD	Load calculated by ECM: Min.: 0%, Max.: 100%	<ul style="list-style-type: none"> • 10 to 20%: Idling • 10 to 20%: Running without load at 2,500 rpm 	Load value
VEHICLE LOAD	Vehicle load: Min.: 0%, Max.: 25,700%	Actual vehicle load	Load percentage in terms of maximum intake air flow amount

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
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.: Running without load at 2,500 rpm	If value is approximately 0.0 g/sec.: <ul style="list-style-type: none"> • Mass air flow meter power source circuit open • VG circuit open or shorted If value is 160.0 g/sec. or more: <ul style="list-style-type: none"> • E2G circuit open
ENGINE SPD	Engine speed: Min.: 0 rpm, Max.: 16,383.75 rpm	600 to 700 rpm: Idling	-
VEHICLE SPD	Vehicle speed: Min.: 0 km/h, Max.: 255 km/h	Actual vehicle speed	Speed indicated on speedometer
COOLANT TEMP	Engine coolant temperature: Min.: -40°C, Max.: 140°C	80 to 100°C (176 to 212°F): After warming up	<ul style="list-style-type: none"> • If value is -40°C (-40°F): sensor circuit open • If value is 140°C (284°F) or more: sensor circuit shorted
INTAKE AIR	Intake air temperature: Min.: -40°C, Max.: 140°C	Equivalent to ambient air temperature	<ul style="list-style-type: none"> • If value is -40°C (-40°F): sensor circuit open • If value is 140°C (284°F) or more: sensor circuit shorted
AIR-FUEL RATIO	Ratio compared to stoichiometric level: 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

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
EVAP PURGE FLOW	Ratio of evaporative purge flow to intake air volume: Min.: 0%, Max.: 102.4%	0 to 8%: Idling	-
EVAP PURGE VSV	EVAP (PURGE) VSV control duty: Min.: 0%, Max.: 100%	0 to 100%: Idling	Command signal from ECM
VAPOR PRES PUMP	Vapor pressure: Min.: 33.853 kPa, Max.: 125.596 kPa	0 kPa: Fuel tank cap removed	EVAP system pressure monitored by canister pressure sensor
VAPOR PRES CALC	Vapor pressure (calculated): Min.: -5.632 kPa, Max.: 715.264 kPa	0 kPa: Fuel tank cap removed	EVAP system pressure monitored by canister pressure sensor
KNOCK CRRT VAL	Correction learning value of knocking: Min: -64°C, Max.: 1,984°C	0 to 22°C: Driving at 70 km/h (44 mph)	Service data
KNOCK FB VAL	Feedback value of knocking: Min: -64°C, Max.: 1,984°C	-22 to 0°C: Driving at 70 km/h (44 mph)	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	Read value with ignition switch ON (Do not start engine)
ACCEL POS #2	Absolute APP No. 2: Min.: 0%, Max.: 100%	12 to 42%: Accelerator pedal released 66 to 98%: Accelerator pedal fully depressed	Read value with ignition switch ON (Do not start engine)
ACCEL POS #1	APP sensor No. 1 voltage: Min.: 0 V, Max.: 4.98 V	-	ETCS freeze frame data

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
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	Read value with ignition switch ON (Do not start engine)
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	Read value with ignition switch ON (Do not start engine)
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 V, Max.: 4.98 V	-	ETCS service data
ACCEL LRN VAL#1	Accelerator fully closed learning value No. 1: Min.: 0 deg, Max.: 124.512 deg	-	ETCS service data
ACCEL LRN VAL#2	Accelerator fully closed learning value No. 2: Min.: 0 deg, Max.: 124.512 deg	-	ETCS service data
FAIL #1	Whether or not fail safe function executed:	ON: ETCS has failed	-

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
	ON or OFF		
FAIL #2	Whether or not fail safe function executed: 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
THROTTLE POS	Absolute throttle position sensor: Min.: 0%, Max.: 100%	<ul style="list-style-type: none"> • 10 to 24%: Throttle fully closed • 64 to 96%: Throttle fully open 	<ul style="list-style-type: none"> • Calculated value based on VTA1 • Read value with ignition switch ON (Do not start engine)
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 position: Min.: 0%, Max.: 100%	0 to 18%: Idling	Calculated value based on VTA1
THROTTLE POS #2	Absolute throttle position sensor No. 2: Min.: 0%, Max.: 100%	-	Calculated value based on VTA2
THROTTLE POS #1	Throttle position sensor No. 1 output voltage:	-	ETCS freeze frame data

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
	Min.: 0 V, Max.: 4.98 V		
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 sensor No. 1 output voltage: Min.: 0 V, Max.: 5 V	<ul style="list-style-type: none"> • 0.5 to 1.2 V: Throttle fully closed • 3.2 to 4.8 V: Throttle fully open 	-
THROTTLE POS #2	Throttle position sensor No. 2 output voltage: Min.: 0 V, Max.: 5 V	<ul style="list-style-type: none"> • 2.0 to 2.9 V: Throttle fully closed • 4.6 to 5.0 V: Throttle fully open 	Read value with ignition switch ON (Do not start engine)
THRTL COMND VAL	Throttle position command value: Min.: 0 V, Max.: 4.9804 V	0.5 to 4.8 V	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 position sensor No. 1 output voltage (AD): Min.: 0 V, Max.: 4.9804 V	0.6 to 0.9 V	ETCS service data

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
THROTTLE MOT	Whether or not throttle actuator control permitted: ON or OFF	ON: Idling	Read value with ignition switch ON (Do not start engine)
THROTTLE MOT	Throttle actuator current: Min.: 0 A, Max.: 80 A	0 to 3.0 A: Idling	-
THROTTLE MOT	Throttle actuator: Min.: 0%, Max.: 100%	0.5 to 40%: Idling	-
THROTTLE MOT	Throttle actuator current: Min.: 0 A, Max.: 19.92 A	0 to 3.0 A: Idling	-
THROTL OPN DUTY	Throttle actuator opening duty ratio: Min.: 0%, Max.: 100%	0 to 40%: Idling	<ul style="list-style-type: none"> • When accelerator pedal is depressed, duty ratio increases • 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	<ul style="list-style-type: none"> • When accelerator pedal is increaseds quickly, duty ratio increases • Read value with ignition switch ON (Do not start engine)
THRTL MOT (OPN)	Throttle actuator duty ratio (open): Min.: 0%, Max.: 100%	-	ETCS service data
THRTL MOT (CLS)	Throttle actuator duty ratio (closed): Min.: 0%, Max.: 100%	-	ETCS service data
O2S B1 S2	Heated oxygen sensor output	0.1 to 0.9 V: Driving at 70 km/h (44 mph)	Performing INJ VOL or A/F CONTROL function of ACTIVE

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
	voltage for bank 1 sensor 2: Min.: 0 V Max.: 1.275 V		TEST enables technician to check output voltage of sensor
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 at 70 km/h (44 mph)	Performing INJ VOL or A/F CONTROL function of ACTIVE TEST enables technician to check output voltage 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 output voltage 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 output voltage 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 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 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:	-20 to 20%	Short-term fuel compensation used to maintain air-fuel ratio at

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
	Min.: -100%, Max.: 99.2%		stoichiometric air-fuel ratio
SHORT FT #2	Short-term fuel trim of bank 2: Min.: -100%, Max.: 99.2%	-20 to 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%	-20 to 20%	Overall fuel compensation carried out in long-term to compensate for continual deviation of short-term fuel trim from central value
LONG FT #2	Long-term fuel trim of bank 2: Min.: -100%, Max.: 99.2%	-20 to 20%	Overall fuel compensation carried out in long-term to compensate for 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	<ul style="list-style-type: none"> • OL (Open Loop): Has not yet satisfied conditions to go closed loop • CL (Closed Loop): Using A/F 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 A/F sensor, which used for fuel control malfunctioning
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	<ul style="list-style-type: none"> • OL (Open Loop): Has not yet satisfied conditions to go closed loop

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
			<ul style="list-style-type: none"> • CL (Closed Loop): Using A/F 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 A/F sensor, which used for fuel control, malfunctioning
O2FT B1 S2	Short-term fuel trim associated with bank 1 sensor 2: Min.: -100%, Max.: 99.2%	-20 to 20%	Same as SHORT FT #1
O2FT B2 S2	Short-term fuel trim associated with bank 2 sensor 2: Min.: -100%, Max.: 99.2%	-20 to 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	<ul style="list-style-type: none"> • Less than 1 = Rich • 1 = Stoichiometric air-fuel ratio • More than 1 = Lean 	-
AF FT B2 S1	Short-term fuel trim associated with bank 2 sensor 1: Min.: 0, Max.: 1.999	<ul style="list-style-type: none"> • Less than 1 = Rich • 1 = Stoichiometric air-fuel ratio • More than 1 = Lean 	-

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
AFS B1 S1	A/F sensor current: Min.: -128 mA, Max.: 127.99 mA	-	-
CAT TEMP B1S1	Estimated catalyst temperature (bank 1 sensor 1): Min.: -40°C, Max.: 6,513.5°C	-	-
CAT TEMP B1S2	Estimated catalyst temperature (bank 1 sensor 2): Min.: -40°C, Max.: 6,513.5°C	-	-
CAT TEMP B2S1	Estimated catalyst temperature (bank 2 sensor 1): Min.: -40°C, Max.: 6,513.5°C	-	-
CAT TEMP B2S2	Estimated catalyst temperature (bank 2 sensor 2): Min.: -40°C, Max.: 6,513.5°C	-	-
S O2S B1S2	Sub heated oxygen sensor impedance (bank 1 sensor 2): Min.: 0 Ω, Max.: 21,247.68 Ω	-	-
S O2S B2S2	Sub heated oxygen sensor impedance (bank 2 sensor 2): Min.: 0 Ω, Max.: 21,247.68 Ω	-	-
INI COOL TEMP	Engine coolant temperature at engine start: Min.: -40°C, Max.: 120°C	Close to ambient air temperature	-


TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
INI INTAKE TEMP	Intake air temperature at engine start: Min.: -40°C, Max.: 120°C	Close to ambient air temperature	-
INJ VOL	Injection volume (cylinder 1): Min.: 0 ml, Max.: 2.048 ml	Max.: 0.5 ml	Fuel volume injected over 10 injections
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 (history): ON or OFF	ON: When steering wheel is first turned after battery terminals connected	Signal status usually ON until battery terminals disconnected
CTP SW	Closed throttle position switch: ON or OFF	<ul style="list-style-type: none"> • ON: Throttle fully closed • OFF: Throttle open 	-
A/C SIGNAL	A/C signal: ON or OFF	ON: A/C ON	-
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	-

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
+BM VOLTAGE	+BM voltage: Min.: 0, Max.: 19.922	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)	-
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	Purge VSV status: 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 leak detection 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	ON: Electric fan motor operating	Active Test support data

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
AICV VSV	VSV for Air Intake Control System Status: ON or OFF	-	-
ACM INHIBIT	ACM VSV: ON or OFF	OFF: Idling	-
TC/TE1	TC and CG (TE1) terminal of DLC3: ON or OFF	-	Active Test support data
ENG SPEED #1	Engine Speed of Cylinder #1 of Injection Stopped	-	-
ENG SPEED #2	Engine Speed of Cylinder #2 of Injection Stopped	-	-
ENG SPEED #3	Engine Speed of Cylinder #3 of Injection Stopped	-	-
ENG SPEED #4	Engine Speed of Cylinder #4 of Injection Stopped	-	-
ENG SPEED #5	Engine Speed of Cylinder #5 of Injection Stopped	-	-
ENG SPEED #6	Engine Speed of Cylinder #6 of Injection Stopped	-	-
ENG SPEED #ALL	Avg Eng Spd, All Cylinder of Injection Stopped	-	-
ACM	ACM: Min.: 0 %, Max.: 255 %	-	ACTIVE TEST service data
VVTL AIM ANGL#1*	VVT aim angle (bank 1 Intake side): Min.: 0%, Max.: 100%	-	-

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
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 operation duty (bank 1 Intake side): 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%	10 to 50%: Idling	Requested duty value for intrusive operation
VVT EX CHG ANGL1*	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 operation duty (bank 1 Exhaust side): 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 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
VVT OCV DUTY B2*	VVT OCV operation duty (bank 2 Intake side): Min.: 0%, Max.:	0 to 100%	Requested duty value for intrusive operation

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
	100%		
VVT EX HOLD 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 operation duty (bank 2 Exhaust side): 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 fully closed and engine speed over 2,800 rpm
FC TAU	Fuel cut TAU (Fuel cut with very light load): ON or OFF	ON: Fuel cut operating	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

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
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 99.22%	Misfire detecting margin
#CODES	#Codes: Min.: 0, Max.: 255	-	Number of detected DTCs
CHECK MODE	Check mode: ON or OFF	ON: Check mode ON	
SPD TEST	Check mode result for vehicle speed sensor: COMPL or INCMPL	-	-
MISFIRE TEST	Check mode result for misfire monitor: COMPL or INCMPL	-	-
OXS2 TEST	Check mode result for HO2 sensor (bank 2): COMPL or INCMPL	-	-
OXS1 TEST	Check mode result for HO2 sensor	-	-

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
	(bank 1): COMPL or INCMPL		
A/F SSR TEST B1	Check mode result for air-fuel ratio sensor (bank 1): COMPL or INCMPL	-	-
A/F SSR TEST B2	Check mode result for air-fuel ratio sensor (bank 2): COMPL or INCMPL	-	-
MIL	MIL status: ON or OFF	ON: MIL ON	-
MIL ON RUN DIST	MIL ON run distance: Min.: 0 mile, Max.: 105,465 mile	Distance driven after DTC detected	-
MIL ON RUN TIME	Running time from MIL ON: Min.: 0 minutes, Max.: 65,535 minutes	Running time after MIL ON	-
ENG RUN TIME	Engine run time: Min.: 0 seconds, Max.: 65,535 seconds	Time after engine start	-
TIME DTC CLEAR	Time after DTC cleared: Min.: 0 minutes, Max.: 65,535 minutes	Time after DTCs erased	-
DIST DTC CLEAR	Distance after DTC cleared: Min.: 0 mile, Max.: 105,465 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

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
OBD CERT	OBD requirement	OBD2	-
#CARB CODES	Number of emission related DTCs	-	-
COMP MON	Comprehensive component monitor: NOT AVL or AVAIL	-	-
FUEL MON	Fuel system monitor: NOT AVL or AVAIL	-	-
MISFIRE MON	Misfire monitor: NOT AVL or AVAIL	-	-
EGR MON	EGR monitor: NOT AVL or AVAIL	-	-
EGR MON	EGR monitor: COMPL or INCMPL	-	-
O2S (A/FS) HTR	O2S (A/FS) heater monitor: NOT AVL or AVAIL	-	-
O2S (A/FS) HTR	O2S (A/FS) heater monitor: COMPL or INCMPL	-	-
O2S (A/FS) MON	O2S (A/FS) monitor: NOT AVL or AVAIL	-	-
O2S (A/FS) MON	O2S (A/FS) monitor: COMPL or INCMPL	-	-
A/C MON	A/C monitor: NOT AVL or AVAIL	-	-
A/C MON	A/C monitor: COMPL or INCMPL	-	-
2nd AIR MON	Secondary Air monitor: NOT AVL or AVAIL	-	-
2nd AIR MON	Secondary Air monitor: COMPL or INCMPL	-	-

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
EVAP MON	EVAP monitor: NOT AVL or AVAIL	-	-
EVAP MON	EVAP monitor: COMPL or INCMPL	-	-
HTD CAT MON	Heated catalyst monitor: NOT AVL or AVAIL	-	-
HTD CAT MON	Heated catalyst monitor: COMPL or INCMPL	-	-
CAT MON	Catalyst monitor: NOT AVL or AVAIL	-	-
CAT MON	Catalyst monitor: COMPL or INCMPL	-	-
CCM ENA	Comprehensive component monitor: UNABLE or ENABLE	-	-
CCM CMPL	Comprehensive component monitor: COMPL or INCMPL	-	-
FUEL ENA	Fuel system monitor: UNABLE or ENABLE	-	-
FUEL CMPL	Fuel system monitor: COMPL or INCMPL	-	-
MISFIRE ENA	Misfire monitor: UNABLE or ENABLE	-	-
MISFIRE CMPL	Misfire monitor: COMPL or INCMPL	-	-
EGR ENA	EGR monitor: UNABLE or ENABLE	-	-
EGR CMPL	EGR monitor: COMPL or INCMPL	-	-

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
HTR ENA	O2S (A/FS) heater monitor: UNABLE or ENABLE	-	-
HTR CMPL	O2S (A/FS) heater monitor: COMPL or INCMPL	-	-
O2S (A/FS) ENA	O2S (A/FS) monitor: UNABLE or ENABLE	-	-
O2S (A/FS) CMPL	O2S (A/FS) monitor: COMPL or INCMPL	-	-
ACRF ENA	A/C monitor: UNABLE or ENABLE	-	-
ACRF CMPL	A/C monitor: COMPL or INCMPL	-	-
AIR ENA	2nd Air monitor: UNABLE or ENABLE	-	-
AIR CMPL	2nd Air monitor: COMPL or INCMPL	-	-
EVAP ENA	EVAP monitor: UNABLE or ENABLE	-	-
EVAP CMPL	EVAP monitor: COMPL or INCMPL	-	-
HCAT ENA	Heated catalyst monitor: UNABLE or ENABLE	-	-
HCAT CMPL	Heated catalyst monitor: COMPL or INCMPL	-	-
CAT ENA	Catalyst monitor: UNABLE or ENABLE	-	-
CAT CMPL	Catalyst monitor: COMPL or INCMPL	-	-
MODEL CODE	Model code information	-	Identifying model code: GSV40#

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
ENGINE TYPE	Engine type information	-	Identifying engine type: 2GRFE
CYLINDER NUMBER	Cylinder number: Min.: 0, Max.: 255	-	Identifying cylinder number: 6
TRANSMISSION	Transmission type information	-	Identifying transmission type: 6AT
DESTINATION	Destination information	-	Identifying destination: A (America)
MODEL YEAR	Model year: Min.: 1900, Max.: 2155	-	Identifying model year: 2007MY
SYSTEM	Engine system information	-	Identifying engine system: GASLIN (gasoline engine)

HINT:

- Normal Condition: 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.
- *: DATA LIST values are displayed only when performing the following ACTIVE TESTs: VVT B1, VVT B2, VVT EX B1 and VVT EX B2. For other ACTIVE TESTs, the DATA LIST value will be 0.

2. ACTIVE TEST

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 as the first step in troubleshooting is one method of shortening diagnostic time.

DATA LIST can be displayed during ACTIVE TEST.

- Connect the intelligent tester to the DLC3.
- Turn the ignition switch on (IG).
- Turn the tester on.
- Enter the following menus: DIAGNOSIS / ENHANCED OBD II / ACTIVE TEST.
- Perform the ACTIVE TEST by referring to the table below.

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
INJ VOL	Change injection	Between -12.5	<ul style="list-style-type: none"> • All injectors tested at the same time

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
	volume	and 24.8 %	<ul style="list-style-type: none"> • Perform test at less than 3,000 rpm • Injection volume can be changed in 1 % graduations within control range
A/F CONTROL	Change injection volume	Lower by 12.5 % or increase by 24.8 %	<ul style="list-style-type: none"> • Perform test at less than 3,000 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, and press YES and ENTER followed by F4
INTAKE CTL VSV1	Activate VSV for intake control	ON/OFF	<ul style="list-style-type: none"> • ON: ACIS VSV ON • OFF: ACIS VSV OFF
EVAP VSV (ALONE)	Activate EVAP VSV control	ON/OFF	-
FUEL PUMP / SPD	Activate fuel pump (C/OPN Relay)	ON/OFF	-
ACM	Control the ACM inhibit	ON/OFF	-
TC/TE1	Turn on and off TC and TE1 connection	ON/OFF	<ul style="list-style-type: none"> • ON: TC and TE1 connected • OFF: TC and TE1 disconnected
FC IDL PROHBT	Prohibit idling fuel cut control	ON/OFF	-
COOLING FAN	Control Electric Cooling Fan	ON/OFF	<p>Test is possible when following conditions are met:</p> <ul style="list-style-type: none"> • Ignition switch is on (IG) • Ignition is stopped
STARTER	Starter	ON/OFF	-

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
ACC CUT	Active ACC cut relay	ON/OFF	Test is possible when following conditions are met: <ul style="list-style-type: none"> • Ignition switch is on (IG) • Ignition is stopped
ETCS OPEN SLOW	Throttle actuator	ON: Throttle valve opens slowly	Test is possible when following conditions are met: <ul style="list-style-type: none"> • Ignition switch is on (IG) • Ignition is stopped • Accelerator pedal is fully depressed (APP: 58 degrees or more)
ETCS CLOSE SLOW	Throttle actuator	ON: Throttle valve closes slowly	Same as above
ETCS OPEN FAST	Throttle actuator	ON: Throttle valve opens fast	Same as above
ETCS CLOSE FAST	Throttle actuator	ON: Throttle valve closes fast	Same as above
VVT B1	Control VVT (bank 1)	-128 to 127 % This valve added to present OCV control duty 100 %: Maximum advance -100 %: Maximum retard	Engine stalls or roughly idles when VVT actuator is operated by 100 %. Test is possible during idling.
VVT CTRL B1	Turn on and off OCV (Oil Control Valve)	ON/OFF	<ul style="list-style-type: none"> • Engine stalls or idles roughly when OCV turned ON • Normal engine running or idling when OCV OFF
VVT B2	Control VVT (bank 2)	Between -128 and 127%	Engine stalls or roughly idles when VVT actuator is operated by 100 %. Test is possible during idling.
VVT CTRL B2	Turn on and off OCV (Oil Control Valve)	ON/OFF	<ul style="list-style-type: none"> • Engine stalls or idles roughly when OCV turned ON

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
			<ul style="list-style-type: none"> • Normal engine running or idling when OCV OFF
VVT EX B1	Control VVT (bank 1)	-128 to 127 % This valve added to present OCV control duty 100 %: Maximum advance -100 %: Maximum retard	-
VVT EX B2	Control VVT (bank 2)	Between -128 and 127 %	-
VACUUM PUMP	Vacuum pump	ON/OFF	-
VENT VALVE	Vent valve	ON/OFF	-
AICV VSV	AICV VSV	ON/OFF	-
FUEL CUT #1	Cylinder #1 injector fuel cut	ON/OFF	Test is possible during vehicle stopping and engine idling.
FUEL CUT #2	Cylinder #2 injector fuel cut	ON/OFF	Same as above
FUEL CUT #3	Cylinder #3 injector fuel cut	ON/OFF	Same as above
FUEL CUT #4	Cylinder #4 injector fuel cut	ON/OFF	Same as above
FUEL CUT #5	Cylinder #5 injector fuel cut	ON/OFF	Same as above
FUEL CUT #6	Cylinder #6 injector fuel cut	ON/OFF	Same as above
FUEL CUT ALL	Control the all cylinder fuel cut	ON/OFF	Same as above
COMPRESS CHECK	Check the cylinder compression pressure	ON/OFF	Fuel injection and ignition stop in all cylinders.

3. SYSTEM CHECK

Performing a **SYSTEM CHECK** enables the system, which consists of 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 the intelligent tester to the DLC3.
- (b) Turn the ignition switch on (IG).
- (c) Turn the tester on.
- (d) Enter the following menus: DIAGNOSIS / ENHANCED OBD II / SYSTEM CHECK.
- (e) Perform the SYSTEM CHECK by referring to the table below.

ECM:

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
OS2/RPM CHECK	Graphs HO2S voltage	-	-
FUEL CONSUMPTION	Long: Indicates fuel consumption for maximum 60 sec. Short: Indicates fuel consumption for maximum 20 sec.	-	While driving (vehicle speed 3.1 mph (5 km/h) or more)
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

