05CRK–02

DATA LIST/ACTIVE TEST

1. DATA LIST

HINT:

Using the DATA LIST displayed by the hand–held tester or the OBD II scan tool, you can read the value of the switches, sensors, actuators and so on without parts removal. Reading the DATA LIST as a first step of troubleshooting is one method to shorten diagnostic time.

NOTICE:

The values given below for "Normal Condition" are representative values. A vehicle may still be normal even if its value differs from those listed here. Do not solely depend on the "Normal Condition" here when deciding whether a part is faulty or not.

(a) Warm up the engine.
(b) Turn the ignition switch OFF.
(c) Connect the hand–held tester or the OBD II scan tool to the DLC3.
(d) Turn the ignition switch ON.
(e) Push the "ON" button of the hand–held tester or the OBD II scan tool.
(f) Select the item "DIAGNOSIS / ENHANCED OBD II / DATA LIST".
(g) According to the display on the tester, read the "DATA LIST".

Hand–held tester display	Measurement Item/Range (Display)	Normal Condition*1	Diagnostic Note
INJECTOR	Injection period of the No. 1 cylinder/ Min.: 0 ms, Max: 32.64 ms	Idling: 1.1 to 2.5 ms	—
IGN ADVANCE	Ignition timing advance for No. 1 cylinder/ Min.: –64 deg., Max.: 63.5 deg.	Idling: BTDC 8 to 20˚	—
IAC DUTY RATIO	Intake Air Control Valve duty ratio Opening ratio rotary solenoid type ISC valve/ Min.: 0 %, Max.: 99 %	Idling: 25 to 45 % Running without load (2,500 rpm): 12.3 to 17.9 %	—
CALC LOAD	Calculated load by ECM/ Min.: 0 %, Max.: 100 %	Idling: 11.3 to 20.0 % Running without load (2,500 rpm): 11.5 to 17.9 %	—
MAF	Air flow rate from MAF sensor/ Min.: 0 gm/s, Max.: 655 gm/s	Idling: M/T 1.4 to 2.3 gm/s. A/T 1.4 to 2.3 gm/s. Racing without load (2,500 rpm): 5.4 to 7.9 gm/s.	If the value is approximately 0.0 gm/s: • Mass air flow meter power source circuit open • VG circuit open or short If the value is 160.0 gm/s or more: • E2G circuit open
ENGINE SPD	Engine Speed/ Min.: 0 rpm, Max.: 16,383 rpm	Idling: M/T 650 to 750 rpm A/T 650 to 750 rpm	—
COOLANT TEMP	Coolant temperature/ Min.: –40 °C, Max.: 140 °C	After warming up: 80 to 95˚C (176 to 203˚F)	• If the value is –40°C (–40°F): sensor circuit is open. • If the value is greater than 140°C (284°F): sensor circuit is shorted.
INTAKE AIR	Intake air temperature/ Min.: –40 °C, Max.: 140 °C	Equivalent to Ambient Temp.	
THROTTLE POS	Absolute throttle position sensor/ Min.: 0 %, Max.: 100 %	Throttle Fully Closed: 8 to 18 % Throttle Fully Open: 64 to 98 %	Read the value with the ignition switch ON (Do not start engine)
CTP SW	Closed throttle position switch/ ON or OFF	Throttle Fully Closed: ON Throttle Open: OFF	—
VEHICLE SPD	Vehicle Speed/ Min.: 0 km/h, Max.: 255 km/h	Vehicle stopped: 0 km/h (0 mph)	—

Hand–held tester display	Measurement Item/Range (Display)	Normal Condition*1	Diagnostic Note
O2S B1 S1	Heated oxygen sensor output voltage for bank 1 sensor 1/ Min.: 0 V, Max.: 1.275 V	Idling: 0.1 to 0.9 V	Performing the INJ VOL or A/F CONTROL function of the ACTIVE TEST enables the technician to check the voltage output of each sensor.
O2S B1 S2	Heated oxygen sensor output voltage for bank 1 sensor 2/ Min.: 0 V, Max.: 1.275 V	Idling: 0.1 to 0.9 V	
VAPOR PRESS	Vapor Pressure/ Min.: –4.125 kPa, Max.: 2.125 kPa	Fuel tank cap removed: 0 kPa	Pressure inside the fuel tank can be read by the vapor pressure sensor
SHORT FT #1	Short term fuel trim of bank 1/ Min.: –100 %, Max.: 100 %	0 ± 20%	—
LONG FT #1	Long term fuel trim of bank 1/ Min.: –100 %, Max.: 100 %	0 ± 20%	This item is the overall fuel compensation carried out in long–term to compensate for a continual deviation of the short–term fuel trim from the central value.
TOTAL FT #1	Total fuel trim of bank 1: Average value for fuel trim system of bank 1/ Min.: 0.5, Max.: 1.496	Idling: 0.5 to 1.4	—
O2FT B1 S1	Short term fuel trim associated with the bank 1 sensor 2/ Min.: –100 %, Max.: 100 %	0 ± 20 %	Same as SHORT FT #1
O2FT B1 S2	Short term fuel trim associated with the bank 1 sensor 2/ Min.: –100 %, Max.: 100 %	0 ± 20 %	Same as SHORT FT #2
FUEL SYS #1	Fuel system status (Bank 1)/ OL or CL or OL DRIVE or OL FAULT or CL FAULT	Idling after warming up: CLOSED	• OL: Open loop has not yet satisfied conditions to go closed loop. • CL: Closed loop using heated oxygen sensor(s) as feed back 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 one of heated oxygen sensors, which is used for fuel control, is functioning improperly.
FC IDL	Fuel cut idle/ON or OFF	Fuel cut operating: ON	FC IDL = ”ON” when throttle valve is fully closed and engine speed is over 1,500 rpm.
O2 LR B1 S1	Responsetime of the heated oxygen sensor, lean to rich (bank 1 sensor 1)/ Min.: 0 ms, Max.: 16,711 ms	Idling after warming up: 0 to 1,000 m/s.	—
O2 RL B1 S1	Responsetime of the heated oxygen sensor, from rich to lean (bank 1 sensor 1)/ Min.: 0 ms, Max.: 16,711 ms	Idling after warming up: 0 to 1,000 m/s.	—
MIL	MIL status/ ON or OFF	MIL ON: ON	—
STARTER SIG	Starter Signal/ON or OFF	Cranking: ON	—
A/C SIG	A/C Signal/ON or OFF	A/C ON: ON	—
PNP SW [NSW] *2	Park/neutral position switch signal/ ON or OFF	P or N position: ON	—
ELECT LOAD SIG	Electrical load signal / ON or OFF	Defogger switch ON: ON	—

Hand–held tester display	Measurement Item/Range (Display)	Normal Condition*1	Diagnostic Note
STOP LIGHT SW *2	Stop Light Switch /ON or OFF	• Brake pedal depressed ON • Brake pedal released OFF	—
PS OIL PRESS SW	Power steering signal / ON or OFF	Steering position is; center: OFF Except center:ON	—
PS SIGNAL	Power steering signal/ ON or OFF	When the steering wheel is turned	This signal is usually ON status until the IG switch is turned OFF.
FUEL PUMP / SPD	Fuel pump / speed status / ON/H or OFF/M,L	Idling: ON	—
A/C MAG CLUTCH	A/C magnet clutch status / ON or OFF	A/C magnet clutch ON: ON	—
EVAP VSV	VSV status for EVAP control/ ON or OFF	VSV operating: ON	VSV for EVAP is controlled by the ECM (ground side duty control)
VVT CTRL B1	VVT control status (bank 1)/ ON or OFF	VVT system operation: ON	—
IGNITION	Ignition counter/ Min.: 0, Max.: 400	0 to 400	—
CYL #1, #2, #3, #4	Misfire ratio of the cylinder 1 to 4/ Min.: 0 %, Max.: 50 %	0 %	This item is displayed in only idling
MISFIRE LOAD	Engine load for first misfire range/ Min.: 0 g/rev, Max.: 3.98 g/rev	Misfire 0: 0 g/rev	—
MISFIRE RPM	Engine RPM for first misfire range/ Min.: 0 rpm, Max.: 6,375 rpm	Misfire 0: 0 rpm	—
O2 LR B1 S2	Responsetime of the heated oxygen sensor, lean to rich (bank 1 sensor 2)/ Min.: 0 ms, Max.: 16,711 ms	Idling after warming up: 0 to 1,000 m/s.	—
FC TAU	Fuel Cut TAU: Fuel cut during very light load	Fuel cut operating: ON	The fuel cut is being performed under very light load to prevent the engine combustion from becoming incomplete.
O2 RL B1 S2	Responsetime of the heated oxygen sensor, rich to lean (bank 1 sensor 2)/ Min.: 0 ms, Max.: 16,711 ms	Idling after warming up: 0 to 1,000 m/s.	—
CHECK MODE	Check mode/ON or OFF	Check mode ON:OFF	—

*1: If no conditions are specifically stated for ”Idling”, it means the shift lever is in the N or P position, the A/C switch is OFF and all accessory switches are OFF.
*2: A/T only

2. ACTIVE TEST

HINT:

Performing the ACTIVE TEST using the hand–held tester or the OBD II scan tool allows the relay, VSV, actuator and so on to operate without parts removal. Performing the ACTIVE TEST as a first step of troubleshooting is one method to shorten diagnostic time.

It is possible to display the DATA LIST during the ACTIVE TEST.

(a) Warm up the engine.
(b) Turn the ignition switch OFF.
(c) Connect the hand–held tester or the OBD II scan tool to the DLC3.
(d) Turn the ignition switch ON.
(e) Push the ”ON” button of the hand–held tester or the OBD II scan tool.
(f) Select the item ”DIAGNOSIS / ENHANCED OBD II / ACTIVE TEST”.
(g) According to the display on the tester, perform the ”ACTIVE TEST”.

Hand–held Tester Display	Test Details	Diagnostic Note
INJ VOL	[Test Details] Control the injection volume Min.: –12.5 %, Max.: 24.8 % [Vehicle Condition] Engine speed: 3,000 rpm or less	• All injectors are tested at once. • Injection volume is gradually changed between –12.5 and 25%.
A/F CONTROL	[Test Details] Control the injection volume –12.5 or 25 % (Change the injection volume –12.5 % or 25 %.) [Vehicle Condition] Engine speed: 3,000 rpm or less	The following A/F CONTROL procedure enables the technician to check and graph the voltage outputs of both the A/F sensor and heated oxygen sensor. For displaying the graph indication, enter ”ACTIVE TEST/A/F CONTROL/USER DATA”, then select ”O2S B1S1 and O2S B1S2” by pressing ”YES” button and push ”ENTER” button before pressing ”F4” button.
IAC DUTY RATIO	[Test Details] Control the ISC duty ratio 0 to 90 % [Vehicle Condition] • Engine speed: Idling • Vehicle speed: 0 mph (0 km/h) • Battery voltage: 8.5 V or more	—
CAN CTRL VSV	[Test Details] Activate the VSV for canister control ON or OFF	—
TANK BYPASS VSV	[Test Details] Activate the VSV for tank bypass. ON or OFF	—
EVAP VSV (ALONE)	[Test Details] Activate the VSV for EVAP control ON or OFF	—
A/C MAG CLUTCH	[Test Details] Control the A/C magnet clutch. ON or OFF	—
FUEL PUMP / SPD	[Test Details] Control the fuel pump ON or OFF	—

Hand–held Tester Display	Test Details	Diagnostic Note
VVT CTRL B1	[Test Details] Activate the VVT system (Bank 1). ON or OFF	• ON: Rough idle or engine stall. • OFF: Normal engine speed.
TC/TE1	[Test Details] Connect the TC and TE1 ON or OFF	—
FC IDL PROHBT	[Test Details] Control the idle fuel cut prohibit ON or OFF	—