05DVU–12

DATA LIST/ACTIVE TEST

1. READ DATA LIST

HINT:

Using the intelligent tester II's Data List allows switch, sensor, actuator, and other item values to be read without removing any parts. Reading the Data List early in troubleshooting is one way to save time.

NOTICE:

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

(a) Warm up the engine.
(b) Turn the ignition switch OFF.
(c) Connect the intelligent tester II to the DLC3.
(d) Turn the ignition switch ON.
(e) Turn the intelligent tester II ON.
(f) Enter the following menus: Powertrain / Engine / Data List.
(g) Read the Data List.

Intelligent Tester II Display (Abbreviation)	Measurement Item/Range (Display)	Normal Conditions*	Diagnostic Notes
Calculated Load (Calc Load)	Engine load/ 0 to 100 % (100 % means fully open throttle)	11.4 to 16.4 %: idle (A/C OFF and shift position N) 13.1 to 18.9 %: 2,500 rpm (A/C OFF and shift position N)	–
Coolant Temp (Coolant Temp)	Engine coolant temperature (ECT)/ –40 to 140°C (–40 to 284°F)	80 to 95°C (167 to 203°F): engine warmed–up	–40°C (–40°F) : ECT sensor circuit open 140°C (284°F) or more: ECT sensor circuit shorted
Engine Speed (Engine Spd)	Engine RPM/ 0 to 16383.75 rpm	650 to 750 rpm: idle after engine warmed–up	–
Vehicle Speed (Vehicle Spd)	Vehicle speed/ 0 to 255 km/h	Actual vehicle speed	Same as speedometer indication
Intake Air (Intake Air)	Intake Air Temperature (IAT)/ –40 to 140°C (–40 to 284°F)	Same as ambient temperature	–40°C (–40°F) : IAT sensor circuit open 140°C (284°F) or more: IAT sensor circuit shorted
MAF (MAF)	Air flow rate from Mass Air Flow (MAF) sensor/ 0 to 655.35 gm/s	5 to 12 gm/s: Idling	0 gm/s: MAF sensor power source circuit is open or VG circuit is open/shorted 160 gm/s or more: E2G circuit is open
MAP (MAP)	Absolute pressure inside intake manifold/ 0 to 255 kPa	95 to 105 kPa: Idling 100 to 130 kPa : Engine running at 2,000 rpm 110 to 140 kPa : Engine running at 3,000 rpm	–
Engine Run Time (Eng Run Time)	Time after engine start/ 0 to 65,535 sec	–	–
MIL ON Run Distance (MIL On Run Dist)	Distance after MIL ON/ 0 to 65,535 km	0 km	–
Fuel Press (Fuel Press)	Fuel Pressure/ 0 to 655,350 kPa	30,000 to 40,000 kPa: Idling	–
EGR Position (EGR Pos)	EGR position/ 0 to 100%	50 to 100 %: idle after engine warmed–up and vehicle is under normal atmospheric pressure	
Warm–up Cycle Cleared DTC (Wu Cyc DTC Clear)	Distance after DTC clear/ 0 to 255	–	–

Intelligent Tester II Display (Abbreviation)	Measurement Item/Range (Display)	Normal Conditions*	Diagnostic Notes
Distance from DTC Cleared (Dist DTC Clear)	Distance after DTC clear/ 0 to 65,535 km	–	–
Atmosphere Pressure (Atm Pressure)	Atmospheric pressure value/ 0 to 255 kPa	Actual atmospheric pressure	–
Battery Voltage (BATT)	Battery voltage/ 0 to 65,535 V	11 to 14 V	–
Accelerator Position No.1 (Accel Pos #1)	Accelerator pedal position No.1/ 0 to 100 %	• Accelerator pedal released: 0.5 to 1.1 V • Accelerator pedal pressed: 2.6 to 4.5 V	Read value with ignition switch ON (do not start engine)
Accelerator Position No.2 (Accel Pos #2)	Accelerator pedal position No.1/ 0 to 100 %	• Accelerator pedal released: 1.2 to 2.0 V • Accelerator pedal pressed: 3.4 to 5.0 V	Read value with ignition switch ON (do not start engine)
Running Time From MIL ON (MIL On Run Time)	Engine running time after MIL ON/ 0 to 65,535 min	0 min	–
Time After DTC Cleared (Time DTC Clear)	Time after DTC clear/ 0 to 65,535 min	–	–
Pilot 1 Injection (Pilot 1 Inj)	Pilot 1 Injection/ 0 to 65,535 μs	330 to 570 μs: Idling	–
Pilot 2 Injection (Pilot 2 Inj)	Pilot 2 Injection/ 0 to 65,535 μs	330 to 570 μs: Idling	–
Main Injection (Main Inj)	Main injection/ 0 to 65,535 μs	330 to 1,000 μs: Idling	–
After Injection (After Inj)	After injection/ 0 to 65,535 μs	–	–
Pilot 1 Injection (Pilot 1 Inj)	Pilot 1 injection/ –70 to 20°CA	–20 to –17°CA: idle after engine warmed–up and vehicle is under normal atmospheric pressure	–
Pilot 2 Injection (Pilot 2 Inj)	Pilot 2 injection/ –50 to 20°CA	–13 to –11°CA: idle after engine warmed–up and vehicle is under normal atmospheric pressure	–
Main Injection (Main Inj)	Main injection/ –90 to 90°CA	1 to 4°CA: idle after engine warmed–up and vehicle is under normal atmospheric pressure	–
After Injection (After Inj)	After injection/ –10 to 50°CA	–	–
Injection Feedback Volume (Inj Fb Val)	Injection volume feedback learning value/ –10 to 9.92 mm^3	–4.0 to 4.0 mm^3: Idling	–
Injection Feedback Vol #1 (Inj Fb Val #1)	Injection volume correction for cylinder 1/ –10 to 10 mm^3	–3.0 to 3.0 mm^3: Idling	–
Injection Feedback Vol #2 (Inj Fb Val #2)	Injection volume correction for cylinder 2/ –10 to 10 mm^3	–3.0 to 3.0 mm^3: Idling	–
Injection Feedback Vol #3 (Inj Fb Val #3)	Injection volume correction for cylinder 3/ –10 to 10 mm^3	–3.0 to 3.0 mm^3: Idling	–
Injection Feedback Vol #4 (Inj Fb Val #4)	Injection volume correction for cylinder 4/ –10 to: 10 mm^3	–3.0 to 3.0 mm^3: Idling	–

Intelligent Tester II Display (Abbreviation)	Measurement Item/Range (Display)	Normal Conditions*	Diagnostic Notes
Injection Volume (Inj Vol)	Injection volume/ 0 to 1279.98 mm^3	3 to 12 mm^3: Idling	–
Model Code (Model Code)	Model code	–	Identifying the model code: KDJ12##
Engine Type (Engine Type)	Engine type	–	Identifying the engine type: 1KDFTV
Cylinder Number (Cylinder)	Cylinder number: 0 to 255	–	Identifying the cylinder number: 4
Transmission Type (Transmission)	Transmission type	–	Identifying the transmission type: ECT(5AT), M/T
Destination (Distination)	Destination	–	Identifying the destination: W (Europe)
Model Year (Model Year)	Model year/ 1900 to 2155	–	Identifying the model year: 2###
System Identification (System)	System identification	–	Identifying the engine system: Diesel
Accel Position (ACCEL POSITION)	Accelerator position status/ Min.: 0 %, Max.: 100 %	–	ECD Freeze data
VNT Command (VNT Command)	VN turbo command/ 0 to 100 %	–	ECD Freeze data
Pump VCM Angle (Pump VCM Ang)	Pump VCM angle/ –6000 to 6000 mA	–	ECD Freeze data
IDL Stable Control (IDL Stable)	IDL stable control / –80 to 79 mm^3/ct	–	ECD Freeze data
Accel Position 1 (Accel Pos 1)	Accelerator pedal position sensor No. 1 output voltage/ 0 to 5 V	• Accelerator pedal released: 0.5 to 1.1 V • Accelerator pedal depressed: 2.6 to 4.5 V	Read value with ignition switch ON (do not start engine)
Accel Position 2 (Accel Pos 2)	Accelerator pedal position sensor No. 2 output voltage/ 0 to 5 V	• Accelerator pedal released: 1.2 to 2.0 V • Accelerator pedal depressed: 3.4 to 5.0 V	Read value with ignition switch ON (do not start engine)
Alternate Duty Ratio (Alt Duty Ratio)	Alternate duty ratio/ 0 to 100%	20 to 60 %: All accessories are OFF	
Target Common Rail Pressure (Tag Comm Rail Press)	Target common rail pressure/ 0 to 655,350 kPa	30,000 to 40,000 kPa: Idling	
VNT Type (VNT Type)	VN turbo type: 0: Not, 1: Commo, 2: Vacuum	1: Commo	
VNT Max Angle (VNT Max Angle)	VN turbo Max angle: 0 to 100%	100 %	
VNT Min Angle (VNT Min Angle)	VN turbo Min angle: 0 to 100%	10 %	
Injection Pressure Correction (Inj Press FB Val)	Injection pressure correction: –500 to 780 mm^3/st	–400 to 400 mm^3/st	
EGR Valve Learning Value (EGR Lean Val)	EGR valve learning value: 0 to 5 deg	–	
Check Mode (Check Mode)	Check mode: 0: ON, 1: OFF	ON: Check mode ON	See page 05–468
SPD Test (SPD Test)	Check mode result for vehicle speed sensor: 0: COMPL, 1: INCOMPL	–	See page 05–468

Intelligent Tester II Display (Abbreviation)	Measurement Item/Range (Display)	Normal Conditions*	Diagnostic Notes
Stop Light SW (STOP LIGHT SW)	Stop lamp switch/ ON or OFF	ON: Brake pedal depressed OFF: Brake pedal released	–
Starter SIG (STARTER SIG)	Starter signal/ ON or OFF	ON: Cranking	–
A/C Signal (A/C Signal)	A/C signal/ ON/OFF	ON: A/C switch is turned ON	–
Power Steering Switch (PS SW)	Power steering signal: ON or OFF	ON: Power steering operation	–
EGR Learning Status (EGR Lrn Status)	EGR learning status: NG or OK	OK	
Diesel Throttle Learn Status (Diesel Thrtl Lrn)	Diesel throttle learn status/ NG or OK	OK	
Throttle Open Switch (Throttle Open SW)	Throttle open switch/ ON or OFF	OFF: Idling ON: Throttler fully open	
EGR Position (EGR Pos)	EGR position/ 0 to 100%	50 to 100 %: idle after engine warmed–up and vehicle is under normal atmospheric pressure	
EGR Close Learning Value (EGR Cls Lrn Val)	EGR close learning value/ 0 to 5 V	0.15 to 1.45 V	
EGR (EGR)	EGR control status for Active Test/ ON or OFF	–	Active Test support data
ACT VSV (ACT VSV)	A/C cut status for Active Test/ ON or OFF	–	Active Test support data
ACM Inhibit (ACM Inhibit)	Active control engine mount inhibit: ON or OFF	ON: Idling OFF: Engine running at 2,000 rpm	Active Test support data
TC and TE1 (TC/E1)	Connection of TC and TE1 on DLC3/ ON (connected)/OFF (disconnected	–	–
Initial Engine Coolant Temp (Ini Cool Temp)	ECT when engine starts –40 to 110°C	–	–
Initial Intake Air Temperature (Ini Intake Temp)	IAT when engine starts –40 to 120°C	–	–

HINT:

*: If no idling conditions are specified, the shift lever is in the neutral position, and the A/C switch and all accessory switches are OFF.

2. PERFORM ACTIVE TEST

HINT:

Performing the intelligent tester II's Active Test allows relay, VSV, actuator and other items to be operated without removing any parts. Performing the Active Test early in troubleshooting is one way to save time. The Data List can be displayed during the Active Test.

(a) Connect the intelligent tester II to the DLC3.
(b) Turn the ignition switch ON.
(c) Turn the intelligent tester II ON.
(d) Enter the following menus: Powertrain / Engine / Active Test.
(e) Perform the Active Test.

Intelligent Tester II Display (Abbreviation)	Test Details	Control Range	Diagnostic Notes
Control the A/C cut signal (A/C CUT SIG)	Control A/C cut signal	ON/OFF	–
Control ACM inhibit (ACM Inhibit)	Control ACM inhibit	ON/OFF	–

Intelligent Tester II Display (Abbreviation)	Test Details	Control Range	Diagnostic Notes
Control the EGR system (EGR system)	Control EGR system	ON/OFF	–
Connect the TC and TE1 (TC/TE1)	Turn on TC and TE1 connection	ON/OFF	–
Injector cut #1 (INJECTOR CUT #1)	Cut off fuel injection from No. 1 injector	ON/OFF	Fuel injection stopped while test ON
Injector cut #2 (INJECTOR CUT #2)	Cut off fuel injection from No. 2 injector	ON/OFF	As above
Injector cut #3 (INJECTOR CUT #3)	Cut off fuel injection from No. 3 injector	ON/OFF	As above
Injector cut #4 (INJECTOR CUT #4)	Cut off fuel injection from No. 4 injector	ON/OFF	As above
Test the Turbo Charger Step Motor (Turbo Motor Test)	Activate the DC motor for turbocharger	0 to 100 %	–
Test the Fuel Leak (Fuel Leak Test)	Pressurizes common rail internal fuel pressure, and checks for fuel leaks	ON/OFF	• Fuel pressure inside common rail pressurized to specified value and engine speed increased to 2,000 rpm when ON selected • Above conditions preserved while test ON
Activate the VSV for EGR Cut (EGR Cut VSV)	Activate the EGR cut VSV	ON/OFF	–