FREEZE FRAME DATA

1. FREEZE FRAME DATA

(a) The vehicle (sensor) status, stored during ABS and/or VSC operation or at the time of an error code detection, can be displayed by the intelligent tester.

(b) Only one record of freeze frame data is stored and the freeze frame data generated during ABS and/or VSC operation are updated whenever the vehicle status is changed. Also, the number of the ignition switch is ON after the freeze frame data is stored can be stored up to 31 and it can be displayed. After storing the DTC, the freeze frame data is not updated.
HINT:
If the ignition switch "ON" operation exceeds 31 times, "31"appears on the display.

(c) If a malfunction occurs, the freeze frame data is stored but the ABS actuation data is deleted.

Tester Display	Measurement Item	Reference Value*1
VEHICLE SPD	Wheel speed sensor reading	Speed indicated on speedometer
STOP LIGHT SW	Stop light switch signal	Stop light switch ON: ON, OFF: OFF
# IG ON	Number of operations of ignition switch ON after memorizing freeze frame data	0 to 31
MAS CYL PRESS	Master cylinder pressure sensor reading	Brake pedal release : 0.3 to 0.9 V Brake pedal depress: 0.8 to 4.5 V
MASS PRESS GRADE	Master cylinder pressure sensor change	-30 to 200 MPa/s
SYSTEM	System status	ABS activated: ABS VSC/TRC activated: VSC/TRC BA activated: BA Fail safe mode activated: FAIL SF No system activated: NO SYS
YAW RATE	Yaw rate angle sensor reading	-100 to 100
STEERING ANG	Steering sensor reading	Left turn: Increase Right turn: Drop
THROTTLE	Throttle position sensor reading	Release accelerator pedal: Approx. 0 deg. Depress accelerator pedal: Approx. 90 deg.
G (RIGHT & LEFT)	Right and left G	-1.869 to 1.869
G (BACK & FORTH)	Back and forth G	-1.869 to 1.869
VSC (TRC) OFF SW*2	Traction OFF switch signal	TRAC OFF SW ON: ON OFF: OFF
SHIFT POSITION	Shift lever position	FAIL P,N R D 4 3 2 L

*1: 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.

*2: 2WD only

DATA LIST / ACTIVE TEST

1. DATA LIST

HINT:

With the intelligent tester connected to the DLC3 and the ignition switch to the ON position, the ABS, TRAC and VSC data list can be displayed. Follow the prompts on the tester screen to access the DATA LIST.

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ABS MOT RELAY	ABS motor relay / ON or OFF	ON : Motor relay ON	-
SOL RELAY	Solenoid relay / ON or OFF	ON : Solenoid relay ON	-
VSC / TRC OFF SW*	Traction OFF switch / ON or OFF	ON : Traction OFF switch OFF	-
IDLE SW	Main idle switch / ON or OFF	ON : Accelerator pedal released OFF : Accelerator pedal depressed	-
STOP LIGHT SW	Stop light switch / ON or OFF	ON : Brake pedal depressed OFF : Brake pedal released	-
PKB SW	Parking brake switch / ON or OFF	ON : Parking brake applied OFF : Parking brake released	-
ABS OPERT FR	ABS operation (FR) / BEFORE or OPERATE	BEFORE : No ABS operation (FR) OPERATE : During ABS operation (FR)	-
ABS OPERT FL	ABS operation (FL) / BEFORE or OPERATE	BEFORE : No ABS operation (FL) OPERATE : During ABS operation (FL)	-
ABS OPERT RR	ABS operation (RR) / BEFORE or OPERATE	BEFORE : No ABS operation (RR) OPERATE : During ABS operation (RR)	-
ABS OPERT RL	ABS operation (RL) / BEFORE or OPERATE	BEFORE : No ABS operation (RL) OPERATE : During ABS operation (RL)	-
WHEEL SPD FR	Wheel speed sensor (FR) reading / min.: 0 km/h (0 MPH, max.: 326 km/h (202 MPH)	Actual wheel speed	Similar speed as indicated on speed meter
WHEEL SPD FL	Wheel speed sensor (FL) reading / min.: 0 km/h (0 MPH, max.: 326 km/h (202 MPH)	Actual wheel speed	Similar speed as indicated on speed meter
WHEEL SPD RR	Wheel speed sensor (RR) reading / min.: 0 km/h (0 MPH, max.: 326 km/h (202 MPH)	Actual wheel speed	Similar speed as indicated on speed meter
WHEEL SPD RL	Wheel speed sensor (RL) reading / min.: 0 km/h (0 MPH, max.: 326 km/h (202 MPH)	Actual wheel speed	Similar speed as indicated on speed meter
DECELERAT SENS	Deceleration sensor 1 reading / min.: -1.869 G, max.: 1.869 G	Approximately 0 +- 0.13G at still condition	Reading changes when vehicle is bounced
DECELERAT SENS2	Deceleration sensor 2 reading / min.: -1.869 G, max.: 1.869 G	Approximately 0 +- 0.13G at still condition	Reading changes when vehicle is bounced
IG VOLTAGE	ECU power supply voltage / UNDER / NORMAL	NORMAL: 9.5 V or over UNDER: Below 9.5 V	-
SFRR	ABS solenoid (SFRR) / ON or OFF	ON : Operate	-
SFRH	ABS solenoid (SFRH) / ON or OFF	ON : Operate	-
SFLR	ABS solenoid (SFLR) / ON or OFF	ON : Operate	-
SFLH	ABS solenoid (SFLH) / ON or OFF	ON : Operate	-

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
SRRR (SRR)	ABS solenoid (SRRR (SRR)) / ON or OFF	ON : Operate	-
SRRH (SRH)	ABS solenoid (SRRH (SRH)) / ON or OFF	ON : Operate	-
SRLR	ABS solenoid (SRLR) / ON or OFF	ON : Operate	-
SRLH	ABS solenoid (SRLH) / ON or OFF	ON : Operate	-
SMF (BA-SOL)	TRAC solenoid (SMF) / ON or OFF	ON : Operate	-
SMR	TRAC solenoid (SMR) / ON or OFF	ON : Operate	-
THROTTLE	Throttle position sensor/ Min.: 0 deg, Max.: 125 deg	Release accelerator pedal: Approx. 0 deg. Depress accelerator pedal: Approx. 90 deg.	-
ENGINE SPD	Engine Speed/ Min.: 0 rpm, Max.: 6000 rpm	Actual engine speed	-
VEHICLE SPD	Maximum wheel speed sensor reading / min.: 0 km/h (0 MPH), max.: 326 km/h (202 MPH)	Actual vehicle speed	Speed indicated on speedometer
YAW RATE	Yaw rate sensor/ Min.: -128 deg/s, Max.: 128 deg/s	Min.: -128 deg/s Max.: 128 deg/s	-
YAW ZERO VALUE	Memorized zero value/ Min.: -128 deg/s, Max.: 128 deg/s	Min.: -128 deg/s Max.: 128 deg/s	-
STEERING ANG	Steering sensor/ Min.: -1152 deg, Max.: 1150.875 deg	Left turn: Increase Right turn: Decrease	-
MAS CYL PRS 1	Master cylinder pressure sensor 1 reading / min.: 0 V, max.: 5 V	When brake pedal is released : 0.3 to 0.9 V	Reading increases when brake pedal is depressed
AIR BLD SUPPORT	Air bleed support / NOT SUP or SUPPORT	Not supported	-
SPD SEN FR	FR speed sensor open detection / OPN DET/NORMAL	NORMAL	-
SPD SEN FL	FL speed sensor open detection / OPN DET/NORMAL	NORMAL	-
SPD SEN RR	RR speed sensor open detection / OPN DET/NORMAL	NORMAL	-
SPD SEN RL	RL speed sensor open detection / OPN DET/NORMAL	NORMAL	-
EFI COM	EFI communication open detection / OPN DET/NORMAL	NORMAL	-
YAWRATE SEN	Yaw rate sensor open detection / OPN DET/NORMAL	NORMAL	-
DECELE SEN	Deceleration sensor open detection / OPN DET/NORMAL	NORMAL	-
STEERING SEN	Steering sensor sensor open detection / OPN DET/NORMAL	NORMAL	-
TEST MODE	Test mode / NORMAL or TEST	NORMAL : Normal mode TEST : During test mode	-
#CODES	Number of DTC recorded / min.: 0, max.: 255	Min.: 0 Max.: 255	-

*: 2WD

2. ACTIVE TEST

HINT:

Performing the ACTIVE TEST using the intelligent tester allows the relay and actuator, etc. to operate without removing any parts. Performing the ACTIVE TEST as the first step of troubleshooting is one of the methods to shorten labor time.

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

(a) Connect the intelligent tester to the DLC3.

(b) Turn the ignition switch to the ON position.

(c) According to the display on the tester, perform the "ACTIVE TEST".

HINT:

Ignition switch must be turned to the ON position to proceed to the Active Test using the intelligent tester.

Tester Display	Test Part	Control Range	Diagnostic Note
SFRR	ABS solenoid (SFRR)	Solenoid ON / OFF	Operation of solenoid (clicking sound) can be heard
SFRH	ABS solenoid (SFRH)	Solenoid ON / OFF	Operation of solenoid (clicking sound) can be heard
SFLR	ABS solenoid (SFLR)	Solenoid ON / OFF	Operation of solenoid (clicking sound) can be heard
SFLH	ABS solenoid (SFLH)	Solenoid ON / OFF	Operation of solenoid (clicking sound) can be heard
SRRR	ABS solenoid (SRRR)	Solenoid ON / OFF	Operation of solenoid (clicking sound) can be heard
SRRH	ABS solenoid (SRRH)	Solenoid ON / OFF	Operation of solenoid (clicking sound) can be heard
SRLR	ABS solenoid (SRLR)	Solenoid ON / OFF	Operation of solenoid (clicking sound) can be heard
SRLH	ABS solenoid (SRLH)	Solenoid ON / OFF	Operation of solenoid (clicking sound) can be heard
SMF (BA-SOL)	TRAC solenoid SMF (BA-SOL)	Solenoid ON / OFF	Operation of solenoid (clicking sound) can be heard
SMR	TRAC solenoid SMR	Solenoid ON / OFF	Operation of solenoid (clicking sound) can be heard
SOL RELAY	ABS solenoid relay	Relay ON / OFF	Operation of solenoid (clicking sound) can be heard
ABS MOT RELAY	ABS motor relay	Relay ON / OFF	Operation of motor (clicking sound) can be heard
ABS WARN LIGHT	ABS warning light	Warning light ON / OFF	Observe combination meter
VSC WARN LIGHT	VSC warning light	Warning light ON / OFF	Observe combination meter
VSC / TRAC OFF IND*	TRAC OFF indicator light	Indicator light ON / OFF	Observe combination meter
SLIP INDI LIGHT	SLIP indicator light	Indicator light ON / OFF	Observe combination meter
BRAKE WARN LIGHT	BRAKE warning light	Warning light ON / OFF	Observe combination meter
VSC / BR WARN BUZ	Skid control buzzer	Buzzer ON / OFF	Buzzer can be heard

*: 2WD