ON-BOARD DIAGNOSTIC SYSTEM PID/DATA MONITOR INSPECTION [GW6A-EL, GW6AX-EL]

id050230290300

1. Connect the M-MDS to the DLC-2.
2. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
   (1) Select “Data Logger”.
   (2) Select “Modules”.
   (3) Select “TCM”.
3. Select the applicable PID from the PID table.
4. Verify the PID data according to the directions on the screen.

Note

- The PID data screen function is used for monitoring the calculated value of input/output signals in the module. Therefore, if the monitored value of the output parts is not within the specification, it is necessary to inspect the monitored value of input parts corresponding to the applicable output part control. In addition, because the system does not display an output part malfunction as an abnormality in the monitored value, it is necessary to inspect the output parts individually.
- When detecting DTCs, PIDs related to a malfunctioning system may not display even if the module is normal. Therefore, if a PID is not displayed, it is necessary to verify the DTC, perform malfunction diagnosis of the DTC that was detected, and do repairs.

PID/DATA monitor item table (Reference)

—: Not applicable

Item	Unit/ Condition	Test condition	Specification (Reference)	Output part name
DGP_DIS_1	km {mile}	Displays traveled distance since the differential protection control operated due to excessive rotation difference between left/right drive wheels		—
DGP_DIS_2	km {mile}	Displays traveled distance since the DGP_MAX_DIF is updated		—
DGP_MAX_DIF	RPM	Displays maximum rotation difference since the differential protection control operated due to excessive rotation difference between left/right drive wheels		—
DGP_SPD	KPH {MPH}	Displays vehicle speed with trailing wheels since the differential protection control operated due to excessive rotation difference between left/right drive wheels		—
ECT	°C {°F}	Displays ECT		ECT sensor
ECU_A	°C {°F}	Displays ECU internal temperature A		ECU internal temperature sensor A
ECU_B	°C {°F}	Displays ECU internal temperature B		ECU internal temperature sensor B
ECU_C	°C {°F}	Displays ECU internal temperature C		ECU internal temperature sensor C
EOP_DUTY	%	Displays drive duty ratio for electric AT oil pump		Electric AT oil pump
EOP_RLY	Off/On	Electric AT oil pump relay stopped	Off	Electric AT oil pump relay
		Electric AT oil pump relay operating	On	
GEAR_RA	Ratio	Selector lever in 1GR at D position	Approx. 3.5526	• Shift solenoid No.1 • Shift solenoid No.2 • Shift solenoid No.3 • Shift solenoid No.4
		Selector lever in 2GR at D position	Approx. 2.0228	
		Selector lever in 3GR at D position	Approx. 1.4522	
		Selector lever in 4GR at D position	Approx. 1.0000	
		Selector lever in 5GR at D position	Approx. 0.7084	
		Selector lever in 6GR at D position	Approx. 0.5993	
GEAR_SEL	1/2/3/4/5/6	Selector lever in 1GR at D position	1	• Shift solenoid No.1 • Shift solenoid No.2 • Shift solenoid No.3 • Shift solenoid No.4
		Selector lever in 2GR at D position	2	
		Selector lever in 3GR at D position	3	
		Selector lever in 4GR at D position	4	
		Selector lever in 5GR at D position	5	
		Selector lever in 6GR at D position	6	

Item	Unit/ Condition	Test condition	Specification (Reference)	Output part name
HI_TEMP	—	Displays ATF high temperature mode determination amount (ATF temperature 132 °C {270 °F} or more)		—
HTM_CNT	—	Displays ATF high temperature mode determination amount (ATF temperature 132 °C {270 °F} or more)		—
HTM_DIS	km {mile}	Displays traveled distance after determining the ATF high temperature mode (ATF temperature 132 °C {270 °F} or more)		—
LINEDES	kPa {kgf/cm^2, psi}	Idle at P position after warm-up	Approx. 500 kPa {5.10 kgf/cm^2, 72.5 psi}	—
LN_C_CLUTCH	kPa {kgf/cm^2, psi}	Displays hydraulic control learning value data		—
LN_O_CLUTCH	kPa {kgf/cm^2, psi}	Displays hydraulic control learning value data		—
LN_OV_SCOPE	—	Displays hydraulic control learning value data		—
LN_T_CLUTCH	kPa {kgf/cm^2, psi}	Displays hydraulic control learning value data.		—
LOCK_UP	OFF/SLIP/ON	OFF: • Except below SLIP: • "SLIP" is displayed during TCC control with the difference between the engine speed and turbine shaft speed less than the control value. • Resets while TCC control is stopped or if the difference between the engine speed and turbine/shaft speed is the specification or more. ON: • "ON" is displayed during TCC control and there is almost no difference between the engine speed and turbine shaft speed*. • Resets while TCC control is stopped or if the difference between the engine speed and turbine shaft speed is the specification or more. *: The TCC controls the TCC hydraulic pressure to suppress hydraulic pressure loss and transaxle vibration due to TCC clutch engagement Therefore, normally, there is a difference between the engine speed and turbine shaft speed. Because the TCC hydraulic pressure is increased by the fail-safe and TCC is performed while the ATF is hot, there is almost no difference.		—
LONGI_ACCEL	—	Displays acceleration calculated from the drive wheels		—
OP_SW1	Off/On	Selector lever at P position	Off	Oil pressure switch No.1
		Selector lever at R position	Off	
		Selector lever at N position	Off	
		Selector lever in 1GR at D position	On	
		Selector lever in 2GR at D position	On	
		Selector lever in 3GR at D position	On	
		Selector lever in 4GR at D position	On	
		Selector lever in 5GR at D position	Off	
		Selector lever in 6GR at D position	Off	
OP_SW1_OFF	kPa {kgf/cm^2, psi}	After performing on-board diagnostic test mode	More than 50 kPa {0.51 kgf/cm^2, 7.3 psi} (0 kPa {0 kgf/cm^2, 0 psi} before performing on-board diagnostic test mode)	Oil pressure switch No.1
OP_SW1_ON	kPa {kgf/cm^2, psi}	After performing on-board diagnostic test mode	Less than 320 kPa {3.26 kgf/cm^2, 46.4 psi} (0 kPa {0 kgf/cm^2, 0 psi} before performing on-board diagnostic test mode)	Oil pressure switch No.1

Item	Unit/ Condition	Test condition	Specification (Reference)	Output part name
OP_SW2	Off/On	Selector lever at P position	Off	Oil pressure switch No.2
		Selector lever at R position	Off	
		Selector lever at N position	Off	
		Selector lever in 1GR at D position	Off	
		Selector lever in 2GR at D position	On	
		Selector lever in 3GR at D position	Off	
		Selector lever in 4GR at D position	Off	
		Selector lever in 5GR at D position	Off	
		Selector lever in 6GR at D position	On	
OP_SW2_OFF	kPa {kgf/cm^2, psi}	After performing on-board diagnostic test mode	More than 50 kPa {0.51 kgf/cm^2, psi} (0 kPa {0 kgf/cm^2, 0 psi} before performing on-board diagnostic test mode)	Oil pressure switch No.2
OP_SW2_ON	kPa {kgf/cm^2, psi}	After performing on-board diagnostic test mode	Less than 260 kPa {2.65 kgf/cm^2, 37.7 psi} (0 kPa {0 kgf/cm^2, 0 psi} before performing on-board diagnostic test mode)	Oil pressure switch No.2
OP_SW3	Off/On	Selector lever at P position	Off	Oil pressure switch No.3
		Selector lever at R position	On	
		Selector lever at N position	Off	
		Selector lever in 1GR at D position	Off	
		Selector lever in 2GR at D position	Off	
		Selector lever in 3GR at D position	On	
		Selector lever in 4GR at D position	Off	
		Selector lever in 5GR at D position	On	
		Selector lever in 6GR at D position	Off	
OP_SW3_OFF	kPa {kgf/cm^2, psi}	After performing on-board diagnostic test mode	More than 50 kPa {0.51 kgf/cm^2, 7.3 psi} (0 kPa {0 kgf/cm^2, 0 psi} before performing on-board diagnostic test mode)	Oil pressure switch No.3
OP_SW3_ON	kPa {kgf/cm^2, psi}	After performing on-board diagnostic test mode	Less than 215 kPa {2.19 kgf/cm^2, 31.2 psi} (0 kPa {0 kgf/cm^2, 0 psi} before performing on-board diagnostic test mode)	Oil pressure switch No.3
OP_SW4	Off/On	Selector lever at P position	Off	Oil pressure switch No.4
		Selector lever at R position	Off	
		Selector lever at N position	Off	
		Selector lever in 1GR at D position	Off	
		Selector lever in 2GR at D position	Off	
		Selector lever in 3GR at D position	Off	
		Selector lever in 4GR at D position	On	
		Selector lever in 5GR at D position	On	
		Selector lever in 6GR at D position	On	
OP_SW4_OFF	kPa {kgf/cm^2, psi}	After performing on-board diagnostic test mode	More than 50 kPa {0.51 kgf/cm^2, 7.3 psi} (0 kPa {0 kgf/cm^2, 0 psi} before performing on-board diagnostic test mode)	Oil pressure switch No.4
OP_SW4_ON	kPa {kgf/cm^2, psi}	After performing on-board diagnostic test mode	Less than 260 kPa {2.65 kgf/cm^2, 37.7 psi} (0 kPa {0 kgf/cm^2, 0 psi} before performing on-board diagnostic test mode)	Oil pressure switch No.4
OSS	RPM	Vehicle stopped	0 RPM	Output shaft speed sensor
		Vehicle speed 30 km/h {19 mph} in 3GR at D position	Approx. 1000 RPM	
PUMP_SPEED	RPM	• Vehicle stopped at D position • During i-stop control	200—2,000 RPM	—
RPM	RPM	Displays engine speed		PCM
SC_STATE	Not Active/ Active	The shift control execution condition is displayed.		—

Item	Unit/ Condition	Test condition	Specification (Reference)	Output part name
SE_TYPE	No valid data/ Bf_1st Af_2nd/ Bf_1st Af_3rd/ Bf_1st Af_4th/ Bf_1st Af_5th/ Bf_1st Af_6th/ Bf_2nd Af_1st/ Bf_2nd Af_3rd/ Bf_2nd Af_4th/ Bf_2nd Af_5th/ Bf_2nd Af_6th/Bf_3rd Af_1st/Bf_3rd Af_2nd/ Bf_3rd Af_4th/Bf_3rd Af_5th/Bf_3rd Af_6th/Bf_4th Af_1st/Bf_4th Af_2nd/ Bf_4th Af_3rd/Bf_4th Af_5th/Bf_4th Af_6th/Bf_5th Af_1st/Bf_5th Af_2nd/ Bf_5th Af_3rd/Bf_5th Af_4th/Bf_5th Af_6th/Bf_6th Af_1st/Bf_6th Af_2nd/ Bf_6th Af_3rd/Bf_6th Af_4th/Bf_6th Af_5th	The gear shift position before shifting gears is displayed. **Note** Bf indicates gear position before shifting Af indicates gear position after shifting (Example of display) Bf_1st Af_2nd • Bf_1st:Gear position at 1st gear before shifting • Af_2nd:Gear position at 2nd gear after shifting		—
SHIFT_CTRL	DEFAULT/ MANUAL/ C_CONTROL / HIGH_TEMP/ D_MANUAL/ FAIL_SAFE	D position normal mode	DEFAULT	—
		M position manual mode	MANUAL	
		Cruise control (cruise control system)	C_CONTROL	
		Automatic transaxle protection mode (ATF high temperature mode)	HIGH_TEMP	
		D position direct mode	D_MANUAL	
		Fail-safe mode	FAIL_SAFE	
SS_ON-OFF	Off/On	On/off solenoid is off.	Off	On/off solenoid
		On/off solenoid is on.	On	
SS1	A	Vehicle stopped at P position	Approx. 0 A	Shift solenoid No.1
		Vehicle stopped at R position	Approx. 0 A	
		Vehicle stopped at N position	Approx. 0 A	
		Driving in D position 1GR	Approx. 1 A	
		Driving in D position 2GR	Approx. 1 A	
		Driving in D position 3GR	Approx. 1 A	
		Driving in D position 4GR	Approx. 1 A	
		Driving in D position 5GR	Approx. 0 A	
		Driving in D position 6GR	Approx. 0 A	

Item	Unit/ Condition	Test condition	Specification (Reference)	Output part name
SS1_C	A	Vehicle stopped at P position	Approx. 0 A	Shift solenoid No.1
		Vehicle stopped at R position	Approx. 0 A	
		Vehicle stopped at N position	Approx. 0 A	
		Driving in D position 1GR	Approx. 1 A	
		Driving in D position 2GR	Approx. 1 A	
		Driving in D position 3GR	Approx. 1 A	
		Driving in D position 4GR	Approx. 1 A	
		Driving in D position 5GR	Approx. 0 A	
		Driving in D position 6GR	Approx. 0 A	
SS2	A	Vehicle stopped at P position	Approx. 0 A	Shift solenoid No.2
		Vehicle stopped at R position	Approx. 0 A	
		Vehicle stopped at N position	Approx. 0 A	
		Driving in D position 1GR	Approx. 0 A	
		Driving in D position 2GR	Approx. 1 A	
		Driving in D position 3GR	Approx. 0 A	
		Driving in D position 4GR	Approx. 0 A	
		Driving in D position 5GR	Approx. 0 A	
		Driving in D position 6GR	Approx. 1 A	
SS2_C	A	Vehicle stopped at P position	Approx. 0 A	Shift solenoid No.2
		Vehicle stopped at R position	Approx. 0 A	
		Vehicle stopped at N position	Approx. 0 A	
		Driving in D position 1GR	Approx. 0 A	
		Driving in D position 2GR	Approx. 1 A	
		Driving in D position 3GR	Approx. 0 A	
		Driving in D position 4GR	Approx. 0 A	
		Driving in D position 5GR	Approx. 0 A	
		Driving in D position 6GR	Approx. 1 A	
SS3	A	Vehicle stopped at P position	Approx. 1 A	Shift solenoid No.3
		Vehicle stopped at R position	Approx. 0 A	
		Vehicle stopped at N position	Approx. 1 A	
		Driving in D position 1GR	Approx. 1 A	
		Driving in D position 2GR	Approx. 1 A	
		Driving in D position 3GR	Approx. 0 A	
		Driving in D position 4GR	Approx. 1 A	
		Driving in D position 5GR	Approx. 0 A	
		Driving in D position 6GR	Approx. 1 A	
SS3_C	A	Vehicle stopped at P position	Approx. 1 A	Shift solenoid No.3
		Vehicle stopped at R position	Approx. 0 A	
		Vehicle stopped at N position	Approx. 1 A	
		Driving in D position 1GR	Approx. 1 A	
		Driving in D position 2GR	Approx. 1 A	
		Driving in D position 3GR	Approx. 0 A	
		Driving in D position 4GR	Approx. 1 A	
		Driving in D position 5GR	Approx. 0 A	
		Driving in D position 6GR	Approx. 1 A	
SS4	A	Vehicle stopped at P position	Approx. 0 A	Shift solenoid No.4
		Vehicle stopped at R position	Approx. 0 A	
		Vehicle stopped at N position	Approx. 0 A	
		Driving in D position 1GR	Approx. 0 A	
		Driving in D position 2GR	Approx. 1 A	
		Driving in D position 3GR	Approx. 1 A	
		Driving in D position 4GR	Approx. 0 A	
		Driving in D position 5GR	Approx. 0 A	
		Driving in D position 6GR	Approx. 0 A	

Item	Unit/ Condition	Test condition	Specification (Reference)	Output part name
SS4_C	A	Vehicle stopped at P position	Approx. 0 A	Shift solenoid No.4
		Vehicle stopped at R position	Approx. 0 A	
		Vehicle stopped at N position	Approx. 0 A	
		Driving in D position 1GR	Approx. 0 A	
		Driving in D position 2GR	Approx. 1 A	
		Driving in D position 3GR	Approx. 1 A	
		Driving in D position 4GR	Approx. 0 A	
		Driving in D position 5GR	Approx. 0 A	
		Driving in D position 6GR	Approx. 0 A	
SSLU	A	Vehicle stopped at P position	Approx. 0 A	TCC control solenoid
		Vehicle stopped at R position	Approx. 0 A	
		Vehicle stopped at N position	Approx. 0 A	
		Under the following conditions: • Driving in D position 1GR • Accelerator pedal opening angle is approx. 10 %	Approx. 430 mA	
		Under the following conditions: • Driving in D position 2GR • Accelerator pedal opening angle is approx. 10 %	Approx. 430 mA	
		Under the following conditions: • Driving in D position 3GR • Accelerator pedal opening angle is approx. 10 %	Approx. 430 mA	
		Under the following conditions: • Driving in D position 4GR • Accelerator pedal opening angle is approx. 10 %	Approx. 430 mA	
		Under the following conditions: • Driving in D position 5GR • Accelerator pedal opening angle is approx. 10 %	Approx. 430 mA	
		Under the following conditions: • Driving in D position 6GR • Accelerator pedal opening angle is approx. 10 %	Approx. 430 mA	

Item	Unit/ Condition	Test condition	Specification (Reference)	Output part name
SSLU_C	A	Vehicle stopped at P position	Approx. 0 A	TCC control solenoid
		Vehicle stopped at R position	Approx. 0 A	
		Vehicle stopped at N position	Approx. 0 A	
		Under the following conditions: • Driving in D position 1GR • Accelerator pedal opening angle is approx. 10 %	Approx. 430 mA	
		Under the following conditions: • Driving in D position 2GR • Accelerator pedal opening angle is approx. 10 %	Approx. 430 mA	
		Under the following conditions: • Driving in D position 3GR • Accelerator pedal opening angle is approx. 10 %	Approx. 430 mA	
		Under the following conditions: • Driving in D position 4GR • Accelerator pedal opening angle is approx. 10 %	Approx. 430 mA	
		Under the following conditions: • Driving in D position 5GR • Accelerator pedal opening angle is approx. 10 %	Approx. 430 mA	
		Under the following conditions: • Driving in D position 6GR • Accelerator pedal opening angle is approx. 10 %	Approx. 430 mA	
SSLU_PRES	kPa {kgf/cm^2, psi}	Vehicle stopped at P position	0 kPa {0 kgf/cm^2, 0 psi}	TCC control solenoid
		Vehicle stopped at R position	0 kPa {0 kgf/cm^2, 0 psi}	
		Vehicle stopped at N position	0 kPa {0 kgf/cm^2, 0 psi}	
		Under the following conditions: • Driving in D position 1GR • Accelerator pedal opening angle is approx. 10 %	Approx. 360 kPa {3.67 kgf/cm^2, 52.2 psi}	
		Under the following conditions: • Driving in D position 2GR • Accelerator pedal opening angle is approx. 10 %	Approx. 360 kPa {3.67 kgf/cm^2, 52.2 psi}	
		Under the following conditions: • Driving in D position 3GR • Accelerator pedal opening angle is approx. 10 %	Approx. 360 kPa {3.67 kgf/cm^2, 52.2 psi}	
		Under the following conditions: • Driving in D position 4GR • Accelerator pedal opening angle is approx. 10 %	Approx. 360 kPa {3.67 kgf/cm^2, 52.2 psi}	
		Under the following conditions: • Driving in D position 5GR • Accelerator pedal opening angle is approx. 10 %	Approx. 360 kPa {3.67 kgf/cm^2, 52.2 psi}	
		Under the following conditions: • Driving in D position 6GR • Accelerator pedal opening angle is approx. 10 %	Approx. 360 kPa {3.67 kgf/cm^2, 52.2 psi}	

Item	Unit/ Condition	Test condition	Specification (Reference)	Output part name
SSP	A	Vehicle stopped at P position	Approx. 980 mA	Pressure control solenoid
		Vehicle stopped at R position	Approx. 930 mA	
		Vehicle stopped at N position	Approx. 980 mA	
		Under the following conditions: • Driving in D position 1GR • Accelerator pedal opening angle is approx. 10 %	Approx. 400—800 mA	
		Under the following conditions: • Driving in D position 2GR • Accelerator pedal opening angle is approx. 10 %	Approx. 400—800 mA	
		Under the following conditions: • Driving in D position 3GR • Accelerator pedal opening angle is approx. 10 %	Approx. 400—800 mA	
		Under the following conditions: • Driving in D position 4GR • Accelerator pedal opening angle is approx. 10 %	Approx. 400—800 mA	
		Under the following conditions: • Driving in D position 5GR • Accelerator pedal opening angle is approx. 10 %	Approx. 400—800 mA	
		Under the following conditions: • Driving in D position 6GR • Accelerator pedal opening angle is approx. 10 %	Approx. 400—800 mA	
SSP_C	A	Vehicle stopped at P position	Approx. 980 mA	Pressure control solenoid
		Vehicle stopped at R position	Approx. 930 mA	
		Vehicle stopped at N position	Approx. 980 mA	
		Under the following conditions: • Driving in D position 1GR • Accelerator pedal opening angle is approx. 10 %	Approx. 400—800 mA	
		Under the following conditions: • Driving in D position 2GR • Accelerator pedal opening angle is approx. 10 %	Approx. 400—800 mA	
		Under the following conditions: • Driving in D position 3GR • Accelerator pedal opening angle is approx. 10 %	Approx. 400—800 mA	
		Under the following conditions: • Driving in D position 4GR • Accelerator pedal opening angle is approx. 10 %	Approx. 400—800 mA	
		Under the following conditions: • Driving in D position 5GR • Accelerator pedal opening angle is approx. 10 %	Approx. 400—800 mA	
		Under the following conditions: • Driving in D position 6GR • Accelerator pedal opening angle is approx. 10 %	Approx. 400—800 mA	

Item	Unit/ Condition	Test condition	Specification (Reference)	Output part name
SSP_PRES	kPa {kgf/cm^2, psi}	Vehicle stopped at P position	Approx. 45 kPa {0.46 kgf/cm^2, 6.5 psi}	Pressure control solenoid
		Vehicle stopped at R position	Approx. 80 kPa {0.82 kgf/cm^2, 12 psi}	
		Vehicle stopped at N position	Approx. 45 kPa {0.46 kgf/cm^2, 6.5 psi}	
		Under the following conditions: • Driving in D position 1GR • Accelerator pedal opening angle is approx. 10 %	130—460 kPa {1.33—4.69 kgf/cm^2, 18.9—66.7 psi}	
		Under the following conditions: • Driving in D position 2GR • Accelerator pedal opening angle is approx. 10 %	130—460 kPa {1.33—4.69 kgf/cm^2, 18.9—66.7 psi}	
		Under the following conditions: • Driving in D position 3GR • Accelerator pedal opening angle is approx. 10 %	130—460 kPa {1.33—4.69 kgf/cm^2, 18.9—66.7 psi}	
		Under the following conditions: • Driving in D position 4GR • Accelerator pedal opening angle is approx. 10 %	130—460 kPa {1.33—4.69 kgf/cm^2, 18.9—66.7 psi}	
		Under the following conditions: • Driving in D position 5GR • Accelerator pedal opening angle is approx. 10 %	130—460 kPa {1.33—4.69 kgf/cm^2, 18.9—66.7 psi}	
		Under the following conditions: • Driving in D position 6GR • Accelerator pedal opening angle is approx. 10 %	130—460 kPa {1.33—4.69 kgf/cm^2, 18.9—66.7 psi}	
TFT	°C {°F}	Displays ATF temperature		TFT sensor
THOP	%	Accelerator pedal fully released	Approx. 22 %	PCM
		Accelerator pedal fully depressed	Approx. 91 %	
TORQUE_ACT	Nm	Displays actual engine torque		—
TORQUE_DES	Nm	Displays desired engine torque		—
TR	P/ SHIFT_DOWN/SHIFT_UP/ M/D/N/R	Selector lever at P position	P	Transaxle range sensor
		Selector lever at M position (−) side position	SHIFT_DOWN	
		Selector lever at M position (+) side position	SHIFT_UP	
		Selector lever at M position	M	
		Selector lever at D position	D	
		Selector lever at N position	N	
		Selector lever at R position	R	
TSS	RPM	Vehicle stopped at D position	0 RPM	Turbine/input shaft speed sensor
		Engine speed 1,000 rpm at P position	900—1,100 RPM	
UPSHIFT_REV	Off/On	Shift-up due to engine request is not recorded. (Shift up request can be reset by clearing the DTCs.)	Off	—
		Shift-up due to engine request is recorded.	On	
VPWR	V	Displays TCM power supply voltage		• Battery • TCM
VSS	KPH {MPH}	Displays vehicle speed		Output shaft speed sensor