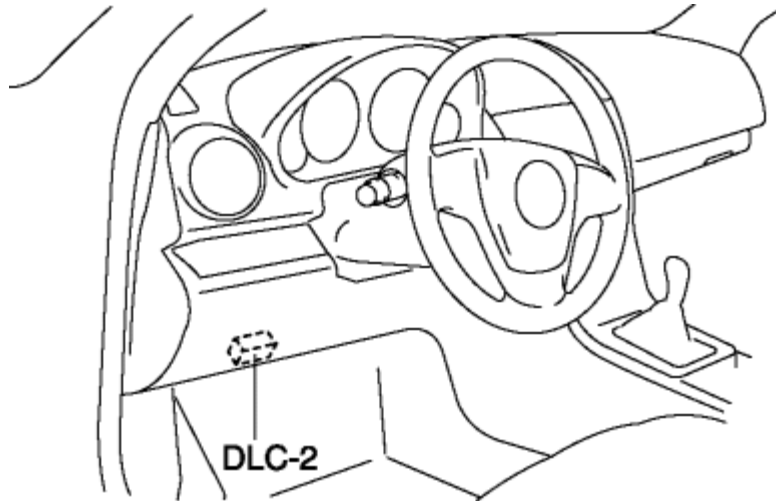


2012 - Mazda6 - Transmission/ Transaxle

ON-BOARD DIAGNOSTIC SYSTEM PID/ DATA MONITOR INSPECTION [AY6A-EL]

1. Connect the M-MDS(IDS) to the DLC-2.



2. After the vehicle is identified, select the following items from the initialization screen of the IDS.
 - a. Select "DataLogger".
 - b. Select "Modules".
 - c. 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 Table (Reference)

Monitor item	Unit/Condition	Test condition	Specification	Inspection item
BOO	On/Off	Brake pedal fully released	Off	- Brake switch (See BRAKE SWITCH INSPECTION.) - Related harness
		Brake pedal fully depressed	On	
DWN_SW	On/Off	Selector lever at shift down position	On	- Down switch (See DOWN SWITCH INSPECTION [AY6A-EL].) - Related harness
		Except selector lever at shift down position	Off	
ECT	°C, {°F}	ECT 20 °C {68 °F}	Approx.20 °C {68 °F}	PCM (See PCM INSPECTION [MZI 3.7 V6].)
		ECT 80 °C {176 °F}	Approx.80 °C {176 °F}	
ENG_TORQ	Nm	Idle after engine warm-up	14—17 Nm	PCM (See PCM INSPECTION [MZI 3.7 V6].)
GEAR_RA	—	1GR	4.148	- Following PIDs: - SSA - SSB - SSC - SSD - SSE - SSF
		2GR	2.370	
		3GR	1.555	
		4GR	1.154	
		5GR	0.859	
		6GR	0.685	
GEAR_SEL	1st/2nd/3rd/4th/5th/6th	1GR	1st	- Following PIDs: - SSA - SSB - SSC - SSD
		2GR	2nd	
		3GR	3rd	

		4GR	4th	▪ SSE ▪ SSF
		5GR	5th	
		6GR	6th	
LOAD	%	Idle after engine warm-up	Approx.17%	• PCM (See PCM INSPECTION [MZI 3.7 V6].)
LPS	A	Verify electrical current changes according to selector lever position or accelerator opening angle.		• Line pressure control solenoid (See LINE PRESSURE CONTROL SOLENOID INSPECTION [AY6A-EL].) • Related harness
MNL SW	On/Off	Selector lever at P position	Off	• M position switch (See M POSITION SWITCH INSPECTION [AY6A-EL].) • Related harness
		Selector lever at R position	Off	
		Selector lever at N position	Off	
		Selector lever at D position	Off	
		Selector lever at M position	On	
OSS	RPM	Vehicle stopped	0 RPM	• VSS (See VEHICLE SPEED SENSOR (VSS) INSPECTION [AY6A-EL].) • Related harness
		Vehicle speed 25 km/h {16 mph}	Approx.642 RPM	
		Selector lever at P position	On	• TR switch built in
		Selector lever at R position	Off	

PNP	On/Off	Selector lever at N position	On	TCM (See TRANSAXLE RANGE (TR) SWITCH INSPECTION [AY6A-EL] .)
		Selector lever at D position	Off	
		Selector lever at M position	Off	
RPM	RPM	Engine stopped	0 RPM	PCM (See PCM INSPECTION [MZI 3.7 V6] .)
		Engine speed 1,000 rpm	Approx.1,000 RPM	
SSA	On/Off	1GR at M position	On	- Shift solenoid A (See SHIFT SOLENOID A INSPECTION [AY6A-EL] .) - Related harness
		Other conditions	Off	
SSB	On/Off	1GR at M position	On	- Shift solenoid B (See SHIFT SOLENOID B INSPECTION [AY6A-EL] .) - Related harness
		Other conditions	Off	
SSC	A	P, R or N position	Approx.100 mA	- Shift solenoid C (See SHIFT SOLENOID C INSPECTION [AY6A-EL] .) - Related harness
		5GR or 6GR at D position or M position	296—298 mA	
		Other conditions	562—591 mA	
		P, R or N position	Approx.1,000 mA	- Shift solenoid D (See SHIFT SOLENOID D INSPECTION [AY6A-EL] .) - Related harness
		2GR or 3GR at D position or M position	908—925 mA	

SSD	A	1GR at D position	908—925 mA	
		1GR at M position	811—818 mA	
		Other conditions	804—812 mA	
SSE	A	P or N position	Approx.1,000 mA	- Shift solenoid E (See SHIFT SOLENOID E INSPECTION [AY6A-EL].) - Related harness
		1GR, 2GR, 4GR or 6GR at D position or M position	908—925 mA	
		Other conditions	805—813 mA	
SSF	A	P, R or N position	Approx.100 mA	- Shift solenoid F (See SHIFT SOLENOID F INSPECTION [AY6A-EL].) - Related harness
		1GR, 3GR, 4GR or 5GR at D position or M position	290—292 mA	
		Other conditions	411—424 mA	
TCCC	A	TCC released	Approx.200 mA	- TCC control solenoid (See TORQUE CONVERTER CLUTCH (TCC) CONTROL SOLENOID INSPECTION [AY6A-EL].) - Related harness
		TCC engaged	Approx.1,000 mA	
TFT	°C, {°F}	ATF temperature 10 °C {50 °F}	Approx.10 °C {50 °F}	- TFT sensor (See TRANSAXLE FLUID TEMPERATURE (TFT) SENSOR INSPECTION [AY6A-EL].) - Related harness
		ATF temperature 25 °C {70 °F}	Approx.25 °C {70 °F}	
		ATF temperature 10	Approx.3.51	TFT sensor

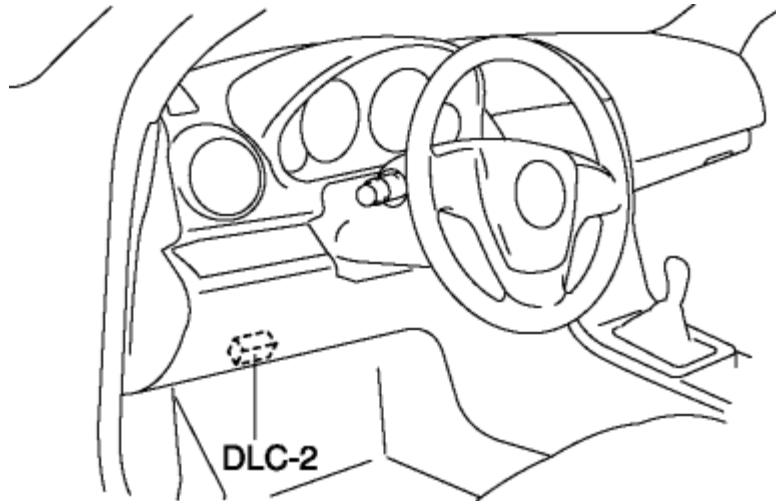
TFTV	V	°C {50 °F}	V	(See TRANSAXLE FLUID TEMPERATURE (TFT) SENSOR INSPECTION [AY6A-EL] .) • Related harness
		ATF temperature 25 °C {70 °F}	Approx.2.83 V	
THOP	%	Accelerator pedal fully released	Approx.20%	• PCM (See PCM INSPECTION [MZI 3.7 V6] .)
		Accelerator pedal fully depressed	Approx.90%	
TR	P/R/N/D	Selector lever at P position	P	• TR switch built in TCM (See TRANSAXLE RANGE (TR) SWITCH INSPECTION [AY6A-EL] .)
		Selector lever at R position	R	
		Selector lever at N position	N	
		Selector lever at D position	D	
		Selector lever at M position	M	
TRD	On/Off	Selector lever at P position	Off	• TR switch built in TCM (See TRANSAXLE RANGE (TR) SWITCH INSPECTION [AY6A-EL] .)
		Selector lever at R position	Off	
		Selector lever at N position	Off	
		Selector lever at D position	On	
		Selector lever at M position	On	
		Selector lever at P position	Off	
		Selector lever at R	On	

TRR	On/Off	position		TR switch built in TCM (See TRANSAXLE RANGE (TR) SWITCH INSPECTION [AY6A-EL] .)
		Selector lever at N position	Off	
		Selector lever at D position	Off	
		Selector lever at M position	Off	
TSS	RPM	Idle after engine warm-up	700—800 RPM	- Input/turbine speed sensor (See INPUT/ TURBINE SPEED SENSOR INSPECTION [AY6A-EL] .) - Related harness
UP_SW	On/Off	Selector lever at shift up position	On	- Up switch (See UP SWITCH INSPECTION [AY6A-EL] .) - Related harness
		Except selector lever at shift up position	Off	
VPWR	V	Under any condition	B+	- Battery (See BATTERY INSPECTION [MZI 3.7 V6] .) - Related harness
VSS	KPH, MPH	Vehicle stopped	Approx.0 KPH {0 MPH}	- VSS (See VEHICLE SPEED SENSOR (VSS) INSPECTION [AY6A-EL] .) - Related harness
		Vehicle speed 30 km/h {19 MPH}	Approx.30 KPH {19 MPH}	

2012 - Mazda6 - Transmission/ Transaxle

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		Except selector lever at shift down position	Off	
ECT	°C, {°F}	ECT 20 °C {68 °F}	Approx.20 °C {68 °F}	PCM (See PCM INSPECTION [MZI 3.7 V6].)
		ECT 80 °C {176 °F}	Approx.80 °C {176 °F}	
ENG_TORQ	Nm	Idle after engine warm-up	14—17 Nm	PCM (See PCM INSPECTION [MZI 3.7 V6].)
GEAR_RA	—	1GR	4.148	- Following PIDs: - SSA - SSB - SSC - SSD - SSE - SSF
		2GR	2.370	
		3GR	1.555	
		4GR	1.154	
		5GR	0.859	
		6GR	0.685	
GEAR_SEL	1st/2nd/3rd/4th/5th/6th	1GR	1st	- Following PIDs: - SSA - SSB - SSC - SSD
		2GR	2nd	
		3GR	3rd	

		4GR	4th	▪ SSE ▪ SSF
		5GR	5th	
		6GR	6th	
LOAD	%	Idle after engine warm-up	Approx.17%	• PCM (See PCM INSPECTION [MZI 3.7 V6].)
LPS	A	Verify electrical current changes according to selector lever position or accelerator opening angle.		• Line pressure control solenoid (See LINE PRESSURE CONTROL SOLENOID INSPECTION [AY6A-EL].) • Related harness
MNL SW	On/Off	Selector lever at P position	Off	• M position switch (See M POSITION SWITCH INSPECTION [AY6A-EL].) • Related harness
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		Selector lever at N position	Off	
		Selector lever at D position	Off	
		Selector lever at M position	On	
OSS	RPM	Vehicle stopped	0 RPM	• VSS (See VEHICLE SPEED SENSOR (VSS) INSPECTION [AY6A-EL].) • Related harness
		Vehicle speed 25 km/h {16 mph}	Approx.642 RPM	
		Selector lever at P position	On	• TR switch built in
		Selector lever at R position	Off	

PNP	On/Off	Selector lever at N position	On	TCM (See TRANSAXLE RANGE (TR) SWITCH INSPECTION [AY6A-EL] .)
		Selector lever at D position	Off	
		Selector lever at M position	Off	
RPM	RPM	Engine stopped	0 RPM	PCM (See PCM INSPECTION [MZI 3.7 V6] .)
		Engine speed 1,000 rpm	Approx.1,000 RPM	
SSA	On/Off	1GR at M position	On	Shift solenoid A (See SHIFT SOLENOID A INSPECTION [AY6A-EL] .)
		Other conditions	Off	
SSB	On/Off	1GR at M position	On	Shift solenoid B (See SHIFT SOLENOID B INSPECTION [AY6A-EL] .)
		Other conditions	Off	
SSC	A	P, R or N position	Approx.100 mA	Shift solenoid C (See SHIFT SOLENOID C INSPECTION [AY6A-EL] .)
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		Other conditions	562—591 mA	
		P, R or N position	Approx.1,000 mA	Shift solenoid D (See SHIFT SOLENOID D INSPECTION [AY6A-EL] .)
		2GR or 3GR at D position or M position	908—925 mA	

SSD	A	1GR at D position	908—925 mA	
		1GR at M position	811—818 mA	
		Other conditions	804—812 mA	
SSE	A	P or N position	Approx.1,000 mA	- Shift solenoid E (See SHIFT SOLENOID E INSPECTION [AY6A-EL].) - Related harness
		1GR, 2GR, 4GR or 6GR at D position or M position	908—925 mA	
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SSF	A	P, R or N position	Approx.100 mA	- Shift solenoid F (See SHIFT SOLENOID F INSPECTION [AY6A-EL].) - Related harness
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		ATF temperature 10	Approx.3.51	TFT sensor

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		Accelerator pedal fully depressed	Approx.90%	
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		Selector lever at R position	R	
		Selector lever at N position	N	
		Selector lever at D position	D	
		Selector lever at M position	M	
TRD	On/Off	Selector lever at P position	Off	• TR switch built in TCM (See TRANSAXLE RANGE (TR) SWITCH INSPECTION [AY6A-EL] .)
		Selector lever at R position	Off	
		Selector lever at N position	Off	
		Selector lever at D position	On	
		Selector lever at M position	On	
		Selector lever at P position	Off	
		Selector lever at R	On	

TRR	On/Off	position		TR switch built in TCM (See TRANSAXLE RANGE (TR) SWITCH INSPECTION [AY6A-EL] .)
		Selector lever at N position	Off	
		Selector lever at D position	Off	
		Selector lever at M position	Off	
TSS	RPM	Idle after engine warm-up	700—800 RPM	- Input/turbine speed sensor (See INPUT/ TURBINE SPEED SENSOR INSPECTION [AY6A-EL] .) - Related harness
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