

TRANSMISSION/TRANSAXLE

05
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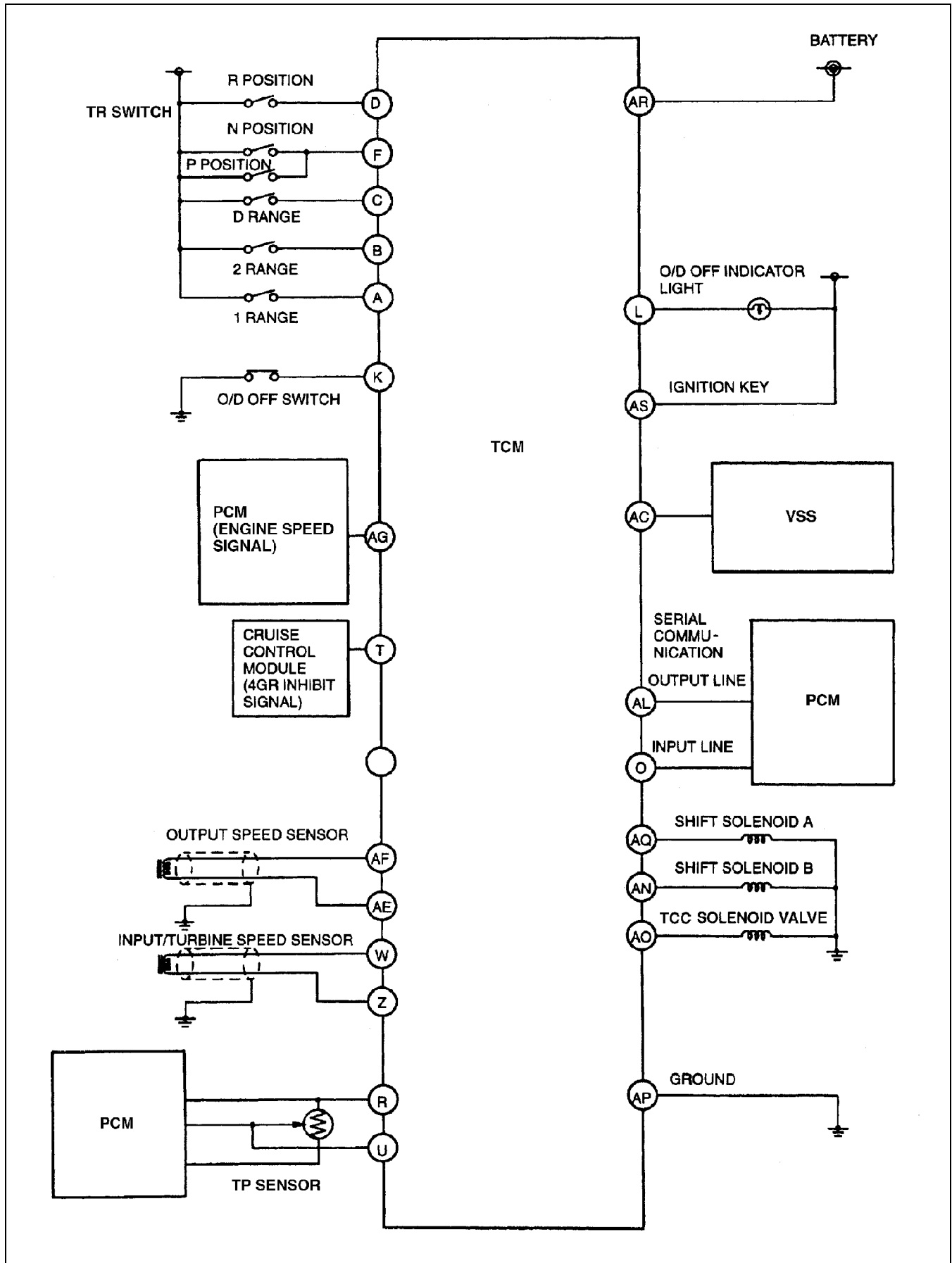
05-02 ON-BOARD DIAGNOSTIC

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ON-BOARD DIAGNOSTIC

AUTOMATIC TRANSMISSION CONTROL SYSTEM WIRING DIAGRAM

A5U050201026W01

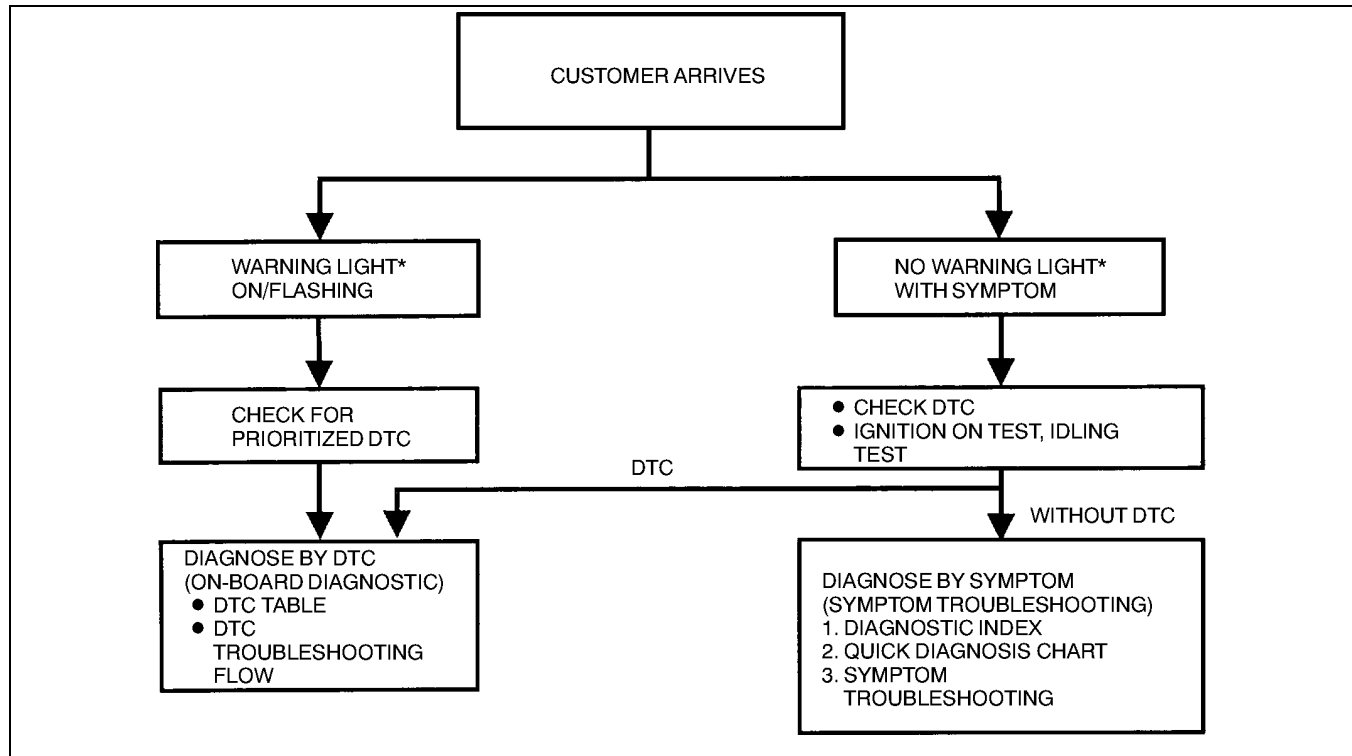


A5U0502W001

FORWORD

A5U050201026W02

- When the customer reports a vehicle malfunction, check the malfunction indicator lamp (MIL) indication, O/D OFF indicator light flashing, and TCM memory for diagnostic trouble code (DTC), then diagnose the malfunction according to the following flowchart.
 - If a DTC exists, diagnose the applicable DTC. (See 05-02-5 DTC TABLE.)
 - If not DTC exists, MIL does not illuminate, and O/D OFF indicator light flashes, diagnose the applicable symptom troubleshooting. (See 05-03-4 AUTOMATIC TRANSMISSION SYMPTOM TROUBLESHOOTING.)



05-02

YMU102WBX

*: Malfunction Indicator Lamp (MIL), O/D OFF indicator light

AUTOMATIC TRANSMISSION ON-BOARD DIAGNOSTIC FUNCTION

A5U050201026W03

DTC Reading Procedure

(See 01-02A-8 DTCs Reading Procedure.)

AFTER REPAIR PROCEDURE

A5U050201026W04

Caution

- After repairing a malfunction, perform this procedure to verify that the malfunction has been corrected.
- When this procedure is carried out, be sure to drive the vehicle at lawful speed and pay attention to the other vehicles.

- Connect the **SSTs** (WDS or equivalent) to the DLC-2.
- Turn the ignition key to ON (engine off).
- Select the clear code function and clear the DTC.
- Perform the following DTC inspections to ensure that the DTC has been resolved:
 - For P0705
 - Start the engine.
 - Drive the vehicle in each range (P, R, N, D, 2, and 1) for **10 seconds or more**.
 - Go to Step 5.
 - For P0706
 - Start the engine.
 - Drive the vehicle in each range (D, 2, and 1) under the following conditions for **25 seconds or more**.
 - Vehicle speed (VSS PID): **60 km/h {37 mph} or above**
 - Go to Step 5.

ON-BOARD DIAGNOSTIC

- For P0715
 - i. Start the engine.
 - ii. Drive the vehicle under the following conditions for **50 seconds or more**.
 - Vehicle speed (VSS PID): **20 km/h {12.4 mph}**
 - TR switch position: D range
 - Gear position: 1GR
 - iii. Go to Step 5.
 - For P0720
 - i. Start the engine.
 - ii. Drive the vehicle under the following conditions for **85 seconds or more**.
 - Vehicle speed (VSS PID): **60 km/h {37 mph} or above**
 - TR switch position: D range
 - Gear position: 3GR
 - iii. Go to Step 5.
 - For P0725
 - i. Start the engine.
 - ii. Drive the vehicle under the following condition for **10 seconds or more**.
 - Vehicle speed (VSS PID): **60 km/h {37 mph} or above**
 - iii. Go to Step 5.
 - For P0741, P0742
 - i. Start the engine.
 - ii. Warm up the engine and transmission.
 - iii. Drive the vehicle under the following conditions for **24 seconds or more**.
 - Vehicle speed (VSS PID): **Within 5 km/h {3.1 mph}—100 km/h {62 mph}**
 - Engine coolant temperature (ECT PID): **60°C {140°F} or above**
 - Engine speed (RPM PID): **600 rpm or above**
 - Gear position: 3GR and 4GR
 - TR switch position: D range
 - TCC operation
 - iv. Go to Step 5.
 - For P0751, P0752, P0756, P0757
 - i. Start the engine.
 - ii. Warm up the engine and transmission.
 - iii. Drive the vehicle and make sure that the gears shift smoothly from 1GR to 4GR under the following conditions.
 - Engine coolant temperature (ECT PID): **60°C {140°F} or above**
 - Engine speed (RPM PID): **600 rpm or above**
 - Vehicle speed (VSS PID): **5 km/h {3.1 mph} or above**
 - iv. Go to Step 5.
 - For P0743, P0753, P0758
 - i. Start the engine.
 - ii. Warm up the engine and transmission.
 - iii. Drive the vehicle in D range and make sure that the gears shift smoothly from 1GR to 4GR and TCC is operated.
 - iv. Go to Step 5.
 - For P0222, P0223
 - i. Start the engine for **2 seconds or more**.
 - ii. Go to Step 6.
5. Gradually slow down and stop the vehicle.
6. Make sure that the repaired DTC does not recur.

ON-BOARD DIAGNOSTIC

DTC TABLE

A5U050201026W05

DTC No.	Condition	MIL	O/D OFF indicator light flashes	DC	*1 Monitor item	Memory function	Page
P0010	CMP actuator circuit	(See 01-02A-18 DTC P0010)					
P0011	CMP - timing over-advanced	(See 01-02A-20 DTC P0011)					
P0012	CMP - timing over-retarded	(See 01-02A-21 DTC P0012)					
P0031	HO2S heater control circuit low (front)	(See 01-02A-22 DTC P0031)					
P0032	HO2S heater control circuit high (front)	(See 01-02A-24 DTC P0032)					
P0037	HO2S heater control circuit low (rear)	(See 01-02A-26 DTC P0037)					
P0038	HO2S heater control circuit high (rear)	(See 01-02A-27 DTC P0038)					
P0101	MAF circuit range/performance problem	(See 01-02A-29 DTC P0101)					
P0102	MAF circuit low input	(See 01-02A-30 DTC P0102)					
P0103	MAF circuit high input	(See 01-02A-32 DTC P0103)					
P0106	BARO circuit performance problem	(See 01-02A-34 DTC P0106)					
P0107	BARO circuit low input	(See 01-02A-35 DTC P0107)					
P0108	BARO circuit high input	(See 01-02A-37 DTC P0108)					
P0111	IAT circuit performance problem	(See 01-02A-39 DTC P0111)					
P0112	IAT circuit low input	(See 01-02A-40 DTC P0112)					
P0113	IAT circuit high input	(See 01-02A-41 DTC P0113)					
P0116	ECT circuit range/performance problem	(See 01-02A-43 DTC P0116)					
P0117	ECT circuit low input	(See 01-02A-45 DTC P0117)					
P0118	ECT circuit high input	(See 01-02A-46 DTC P0118)					
P0121	TP circuit range/performance problem	(See 01-02A-48 DTC P0121)					
P0122	TP circuit low input	(See 01-02A-50 DTC P0122)					
P0123	TP circuit high input	(See 01-02A-51 DTC P0123)					
P0125	Insufficient coolant temperature for closed loop fuel control	(See 01-02A-53 DTC P0125)					
P0126	Coolant thermostat stuck to open	(See 01-02A-55 DTC P0126, P0128)					
P0128							
P0131	HO2S (front) no inversion (low voltage stuck)	(See 01-02A-57 DTC P0131)					
P0132	HO2S (front) no inversion (high voltage stuck)	(See 01-02A-60 DTC P0132)					
P0133	HO2S (front) circuit slow response	(See 01-02A-62 DTC P0133)					
P0134	HO2S (front) circuit no activity detected	(See 01-02A-65 DTC P0134)					
P0138	HO2S (rear) circuit high input	(See 01-02A-67 DTC P0138)					
P0140	HO2S (rear) circuit no activity detected	(See 01-02A-68 DTC P0140)					
P0171	Fuel trim system too lean	(See 01-02A-70 DTC P0171)					
P0172	Fuel trim system too rich	(See 01-02A-73 DTC P0172)					
P0222	Throttle position (TP) sensor circuit short	ON	YES	1	CCM	×	(See 05-02-7 DTC P0222)
P0223	Throttle position (TP) sensor circuit open	ON	YES	1	CCM	×	(See 05-02-9 DTC P0223)
P0300	Random misfire detected	(See 01-02A-75 DTC P0300)					
P0301	Cylinder 1 misfire detected	(See 01-02A-78 DTC P0301, P0302, P0303, P0304)					
P0302	Cylinder 2 misfire detected	(See 01-02A-78 DTC P0301, P0302, P0303, P0304)					
P0303	Cylinder 3 misfire detected	(See 01-02A-78 DTC P0301, P0302, P0303, P0304)					
P0304	Cylinder 4 misfire detected	(See 01-02A-78 DTC P0301, P0302, P0303, P0304)					
P0327	KS circuit low input	(See 01-02A-80 DTC P0327)					
P0328	KS circuit high input	(See 01-02A-81 DTC P0328)					
P0335	CKP sensor circuit malfunction	(See 01-02A-82 DTC P0335)					
P0340	CMP sensor circuit malfunction	(See 01-02A-84 DTC P0340)					
P0401	EGR flow insufficient detected	(See 01-02A-86 DTC P0401)					
P0402	EGR flow excessive detected	(See 01-02A-88 DTC P0402)					
P0420	Catalyst system efficiency below threshold	(See 01-02A-89 DTC P0420)					
P0442	EVAP control system leak detected (small leak)	(See 01-02A-90 DTC P0442)					

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ON-BOARD DIAGNOSTIC

DTC No.	Condition	MIL	O/D OFF indicator light flashes	DC	*1 Monitor item	Memory function	Page
P0443	EVAP control system purge control valve circuit malfunction	(See 01-02A-92 DTC P0443)					
P0451	FTP sensor performance problem	(See 01-02A-94 DTC P0451)					
P0452	EVAP control system pressure sensor low input	(See 01-02A-96 DTC P0452)					
P0453	EVAP control system pressure sensor high input	(See 01-02A-97 DTC P0453)					
P0455	EVAP control system leak detected (gross leak)	(See 01-02A-99 DTC P0455)					
P0461	Fuel gauge sender unit circuit range/performance	(See 01-02A-102 DTC P0461)					
P0462	Fuel gauge sender unit circuit low input	(See 01-02A-103 DTC P0462)					
P0463	Fuel gauge sender unit circuit high input	(See 01-02A-104 DTC P0463)					
P0464	Fuel gauge sender unit circuit performance problem (slosh check)	(See 01-02A-106 DTC P0464)					
P0480	Cooling fan relay circuit	(See 01-02A-106 DTC P0480)					
P0500	VSS circuit malfunction	(See 01-02A-108 DTC P0500)					
P0505	IAC valve circuit malfunction	(See 01-02A-112 DTC P0505)					
P0506	Idle control system RPM lower than expected	(See 01-02A-114 DTC P0506)					
P0507	Idle control system RPM higher than expected	(See 01-02A-116 DTC P0507)					
P0550	PSP switch circuit malfunction	(See 01-02A-117 DTC P0550)					
P0605	Internal control module read only memory (ROM) error	(See 01-02A-118 DTC P0605)					
P0703	Brake switch input malfunction	(See 01-02A-118 DTC P0703)					
P0704	Clutch switch input circuit malfunction	(See 01-02A-120 DTC P0704)					
P0705	Transmission range (TR) switch circuit malfunction (short circuit) (AT)	ON	NO	1	CCM	×	(See 05-02-11 DTC P0705)
P0706	Transmission range (TR) switch circuit malfunction (open circuit)	ON	NO	2	CCM	×	(See 05-02-14 DTC P0706)
P0715	Input/turbine speed sensor circuit malfunction	ON	YES	2	CCM	×	(See 05-02-17 DTC P0715)
P0720	Output speed sensor circuit malfunction	ON	YES	1	CCM	×	(See 05-02-19 DTC P0720)
P0725	Engine speed input circuit malfunction	ON	NO	2	CCM	×	(See 05-02-21 DTC P0725)
P0741	Torque converter clutch (TCC) solenoid valve malfunction (stuck off)	ON	NO	2	CCM	×	(See 05-02-23 DTC P0741)
P0742	Torque converter clutch (TCC) solenoid valve malfunction (stuck on)	ON	NO	2	CCM	×	(See 05-02-25 DTC P0742)
P0743	Torque converter clutch (TCC) solenoid valve circuit malfunction	ON	YES	1	CCM	×	(See 05-02-26 DTC P0743)
P0751	Shift solenoid A malfunction (stuck off)	ON	NO	2	CCM	×	(See 05-02-28 DTC P0751)
P0752	Shift solenoid A malfunction (stuck on)	ON	NO	2	CCM	×	(See 05-02-30 DTC P0752)
P0753	Shift solenoid A circuit malfunction	ON	YES	1	CCM	×	(See 05-02-32 DTC P0753)
P0756	Shift solenoid B malfunction (stuck off)	ON	NO	2	CCM	×	(See 05-02-34 DTC P0756)
P0757	Shift solenoid B malfunction (stuck on)	ON	NO	2	CCM	×	(See 05-02-35 DTC P0757)
P0758	Shift solenoid B circuit malfunction	ON	YES	1	CCM	×	(See 05-02-37 DTC P0758)
P0850	Neutral switch input circuit malfunction	(See 01-02A-122 DTC P0850)					
P1449	CDCV open or short	(See 01-02A-124 DTC P1449)					
P1450	EVAP control system malfunction (excessive vacuum)	(See 01-02A-125 DTC P1450)					
P1487	EGR boost sensor solenoid valve circuit malfunction	(See 01-02A-127 DTC P1487)					

ON-BOARD DIAGNOSTIC

DTC No.	Condition	MIL	O/D OFF indicator light flashes	DC	*1 Monitor item	Memory function	Page
P1496	EGR valve motor coil 1 open or short						(See 01-02A-128 DTC P1496)
P1497	EGR valve motor coil 2 open or short						(See 01-02A-130 DTC P1497)
P1498	EGR valve motor coil 3 open or short						(See 01-02A-132 DTC P1498)
P1499	EGR valve motor coil 4 open or short						(See 01-02A-134 DTC P1499)
P1512	VTCS malfunction (stuck close)						(See 01-02A-136 DTC P1512)
P1518	VTCS malfunction (stuck open)						(See 01-02A-138 DTC P1518)
P1562	PCM +BB voltage low						(See 01-02A-140 DTC P1562)
P1569	VTCS solenoid valve circuit low input						(See 01-02A-141 DTC P1569)
P1570	VTCS solenoid valve circuit high input						(See 01-02A-143 DTC P1570)
P1601	Communication line error (PCM-TCM)						(See 01-02A-145 DTC P1601)
P1602	Immobilizer unit-PCM communication error						(See 01-02A-147 DTC P1602)
P1603	Key ID number unregistered in PCM						(See 01-02A-149 DTC P1603)
P1604	Code word unregistered in PCM						(See 01-02A-150 DTC P1604)
P1608	PCM internal circuit malfunction						(See 01-02A-150 DTC P1608)
P1621	Code word mismatch after engine cranking						(See 01-02A-151 DTC P1621)
P1622	Key ID number mismatch						(See 01-02A-152 DTC P1622)
P1623	Code word or key ID number read/write error in PCM						(See 01-02A-152 DTC P1623)
P1624	Immobilizer system communication counter = 0						(See 01-02A-153 DTC P1624)
P1631	Generator output voltage signal no electricity						(See 01-02A-153 DTC P1631)
P1633	Battery overcharge						(See 01-02A-155 DTC P1633)
P1634	Generator terminal B circuit open						(See 01-02A-156 DTC P1634)

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*1 : Indicates the applicable item in On-Board System Readiness Test defined by CARB.

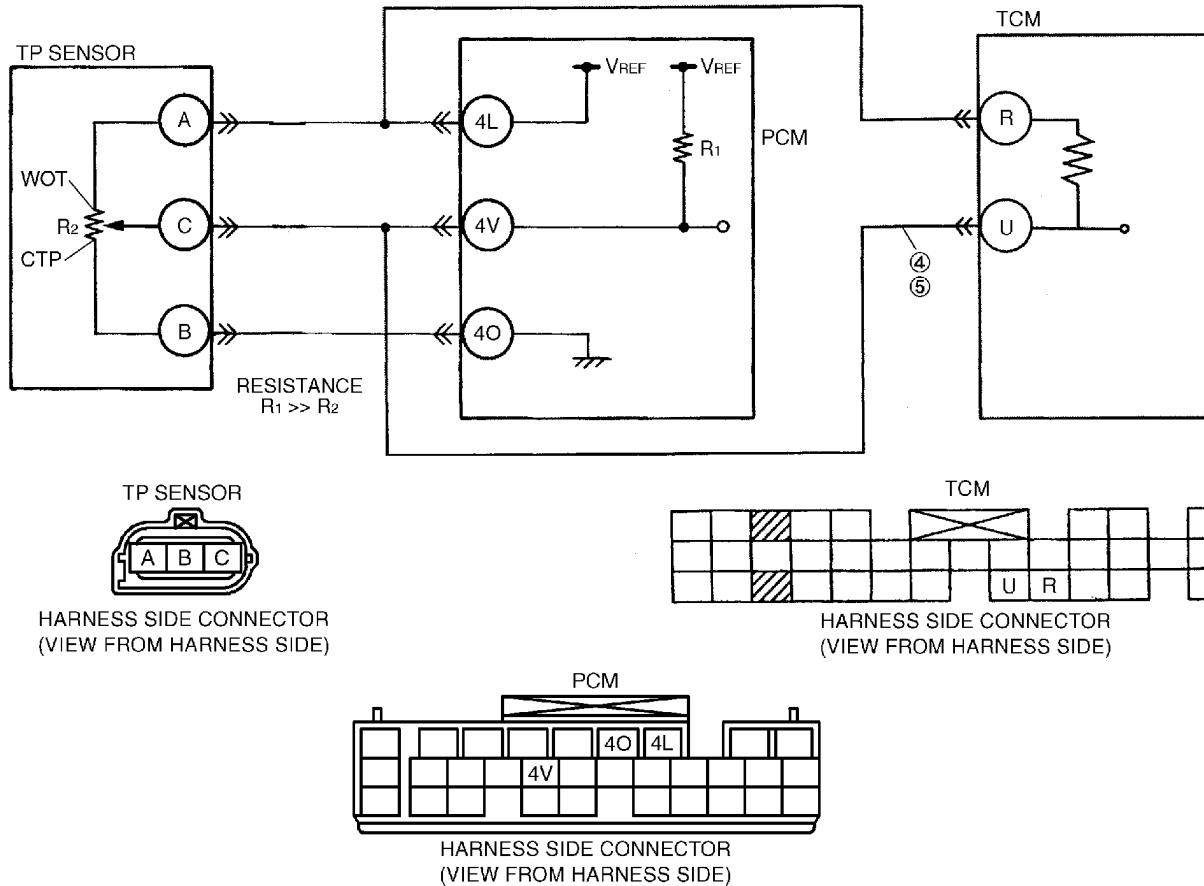
DTC P0222

A5U050201026W06

DTC P0222	Throttle position (TP) sensor circuit short
DETECTION CONDITION	<ul style="list-style-type: none"> TP sensor voltage is 0.14 V or below and engine speed 300 rpm or above for 2 seconds or more. <p>Diagnostic support note:</p> <ul style="list-style-type: none"> This is continuous monitor (CCM). MIL illuminates if TCM detects the above malfunction conditions during first drive cycle. PENDING CODE is not available. FREEZE FRAME DATA is available. O/D OFF indicator light flashes. DTC is stored in TCM memory.
POSSIBLE CAUSE	<ul style="list-style-type: none"> TP sensor malfunction Short to ground between TP sensor terminal C and TCM terminal U Damaged connector between TCM and TP sensor TCM malfunction

ON-BOARD DIAGNOSTIC

DTC P0222 Throttle position (TP) sensor circuit short



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED <ul style="list-style-type: none"> Has FREEZE FRAME PID DATA been recorded? 	Yes Go to next step.
		No Record FREEZE FRAME PID DATA on repair order, then go to next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY <ul style="list-style-type: none"> Inspect for related Service Bulletins and/or on-line repair information availability. Is any related repair information available? 	Yes Perform repair or diagnosis according to available repair information. <ul style="list-style-type: none"> If vehicle is not repaired, go to next step.
		No Go to next step.
3	VERIFY STORED DTC <ul style="list-style-type: none"> Turn ignition key to ON (engine off). Verify stored DTC. Are DTCs P0122 and/or P0123 present? 	Yes Go to next step.
		No Go to Step 6.
4	INSPECT TCM CIRCUIT FOR SHORT TO GROUND <ul style="list-style-type: none"> Turn ignition key to OFF (engine off). Disconnect TP sensor connector and TCM connector. Turn ignition key to ON (engine on). Inspect voltage at TCM terminal U (harness-side) Is voltage 5 V? 	Yes Refer to flowchart for P0122 and/or P0123, and perform diagnostic troubleshooting.
		No Go to next step.

ON-BOARD DIAGNOSTIC

STEP	INSPECTION	ACTION
5	INSPECT TCM CIRCUIT FOR SHORT TO GROUND <ul style="list-style-type: none"> Turn ignition key to OFF. Disconnect PCM connector. Inspect for continuity between TCM terminal U (harness-side) and body ground. Is there continuity? 	Yes Repair or replace harness, then go to nest step.
		No Refer to flowchart for P0122 and/or P0123, and perform diagnostic troubleshooting.
6	VERIFY TROUBLESHOOTING OF DTC P0222 COMPLETED <ul style="list-style-type: none"> Make sure to reconnect all disconnected connectors. Clear DTC from memory using WDS or equivalent. Start engine. Warm up AT. Drive vehicle under following condition for 2 seconds or more. <ul style="list-style-type: none"> Throttle position (TP PID): 0.1—4.9 V Is same DTC present? 	Yes Replace PCM, then go to next step. (See 05-13-24 TRANSMISSION CONTROL MODULE (TCM) REMOVAL/INSTALLATION.)
		No Go to next step.
7	VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none"> Perform "After Repair Procedure". (See 05-02-3 AFTER REPAIR PROCEDURE.) Are any DTCs present? 	Yes Go to applicable DTC inspection.
		No Troubleshooting completed.

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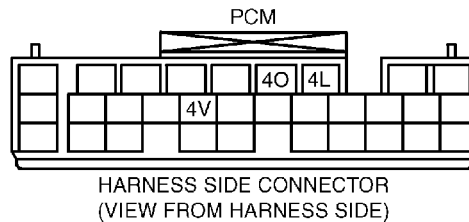
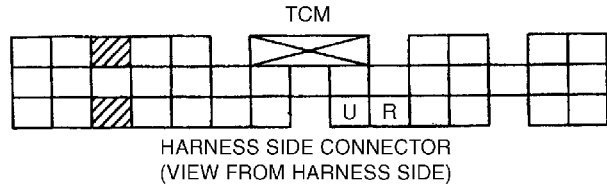
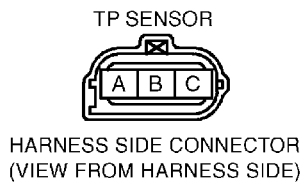
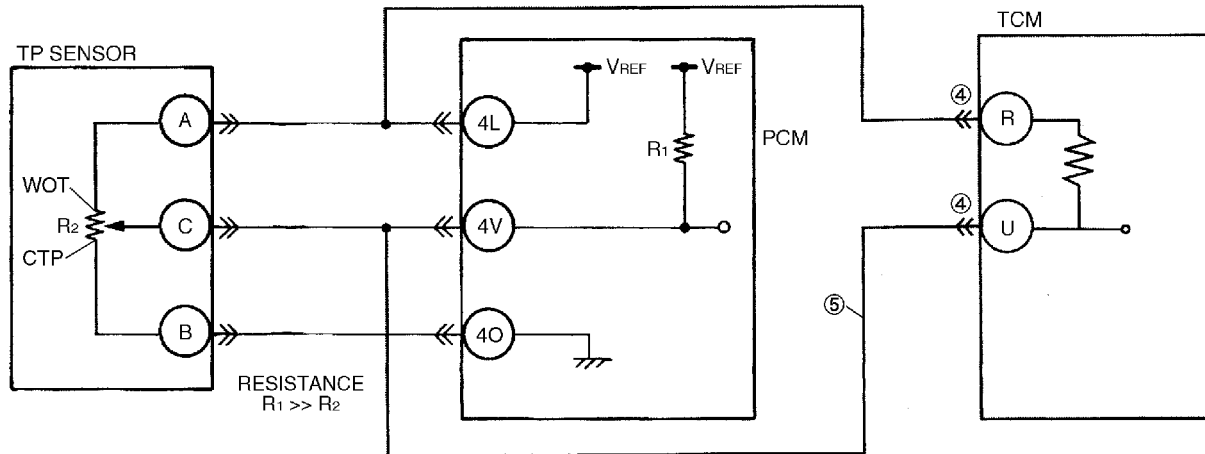
DTC P0223

A5U050201026W07

DTC P0223	Throttle position (TP) sensor circuit open
DETECTION CONDITION	<ul style="list-style-type: none"> TP sensor voltage is 4.78 V or above and engine speed is 300 rpm or above for 2 seconds or more. Diagnostic support note: <ul style="list-style-type: none"> This is continuous monitor (CCM). MIL illuminates if TCM detects the above malfunction conditions during first drive cycle. PENDING CODE is not available. FREEZE FRAME DATA is available. O/D OFF indicator light flashes. DTC is stored in TCM memory.
POSSIBLE CAUSE	<ul style="list-style-type: none"> TP sensor malfunction Open circuit between TP sensor terminal C and TCM terminal U Damaged connector between TCM and TP sensor TCM malfunction

ON-BOARD DIAGNOSTIC

DTC P0223 Throttle position (TP) sensor circuit open



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED <ul style="list-style-type: none"> Has FREEZE FRAME PID DATA been recorded? 	Yes Go to next step.
		No Record FREEZE FRAME PID DATA on repair order, then go to next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY <ul style="list-style-type: none"> Inspect for related Service Bulletins and/or on-line repair information availability. Is any related repair information available? 	Yes Perform repair or diagnosis according to available repair information. <ul style="list-style-type: none"> If vehicle is not repaired, go to next step.
		No Go to next step.
3	VERIFY STORED DTC <ul style="list-style-type: none"> Turn ignition key to ON (engine off). Verify stored DTC. Are DTCs P0122 and/or P0123 present? 	Yes Refer to flowchart for P0122 and/or P0123, and perform diagnostic troubleshooting.
		No Go to next step.
4	INSPECT TCM CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> Turn ignition key to OFF. Disconnect TCM connector. Inspect for poor connection (damaged, pulled-out terminals, corrosion, etc.). Is connection okay? 	Yes Go to next step.
		No Repair or replace connector and/or terminals, then go to Step 6.
5	INSPECT TCM CIRCUIT FOR OPEN CIRCUIT <ul style="list-style-type: none"> Disconnect TP sensor connector. Inspect for continuity between TCM terminal U (harness-side) and TP sensor terminal C (harness-side) Is there continuity between terminals? 	Yes Go to next step.
		No Repair or replace harness, then go to next step.

ON-BOARD DIAGNOSTIC

STEP	INSPECTION	ACTION
6	VERIFY TROUBLESHOOTING OF DTC P0223 COMPLETED <ul style="list-style-type: none"> Make sure to reconnect all disconnected connectors. Clear DTC from memory using WDS or equivalent. Start engine. Warm up AT. Drive vehicle under following condition for 2 seconds or more. <ul style="list-style-type: none"> Throttle position (TP PID): 0.1—4.9 V Is same DTC present? 	Yes Replace PCM, then go to next step. (See 05-13-24 TRANSMISSION CONTROL MODULE (TCM) REMOVAL/INSTALLATION.)
		No Go to next step.
7	VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none"> Perform "After Repair Procedure". (See 05-02-3 AFTER REPAIR PROCEDURE.) Are any DTCs present? 	Yes Go to applicable DTC inspection.
		No Troubleshooting completed.

DTC P0705

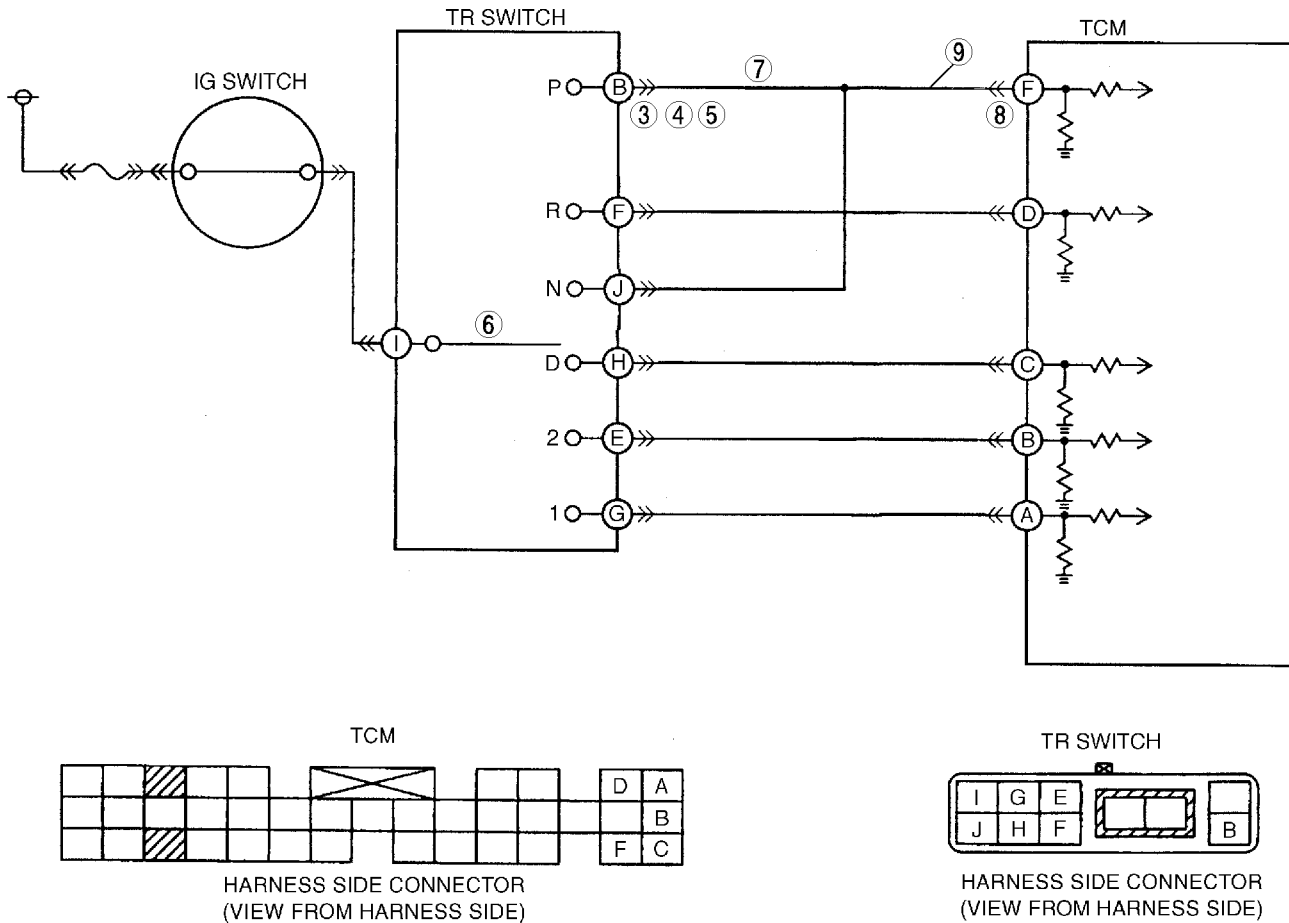
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DTC P0705	Transmission range (TR) switch circuit malfunction (short circuit)
DETECTION CONDITION	<ul style="list-style-type: none"> Any of P, R, N, D, 2, or 1 positions/ranges switches are ON for 10 seconds or more. Diagnostic support note: <ul style="list-style-type: none"> This is a continuous monitor (CCM). MIL illuminates if TCM detects the above malfunction conditions during first drive cycle. PENDING CODE is not available. FREEZE FRAME DATA is available. O/D OFF indicator light does not flash. DTC is stored in TCM memory.
POSSIBLE CAUSE	<ul style="list-style-type: none"> TR switch malfunction Short to power between TR switch terminal B and TCM terminal F Short to power between TR switch terminal J and TCM terminal F Short to power between TR switch terminal F and TCM terminal D Short to power between TR switch terminal H and TCM terminal C Short to power between TR switch terminal E and TCM terminal B Short to power between TR switch terminal G and TCM terminal A Damaged connector between TR switch and TCM TCM malfunction

ON-BOARD DIAGNOSTIC

DTC P0705 Transmission range (TR) switch circuit malfunction (short circuit)



Diagnostic procedure

STEP	INSPECTION	ACTION	
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED <ul style="list-style-type: none"> Has FREEZE FRAME PID DATA been recorded? 	Yes	Go to next step.
		No	Record FREEZE FRAME PID DATA on repair order, then go to next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY <ul style="list-style-type: none"> Inspect for related Service Bulletins and/or on-line repair information availability. Is any related repair information available? 	Yes	Perform repair or diagnosis according to available repair information. <ul style="list-style-type: none"> If vehicle is not repaired, go to next step.
		No	Go to next step.

ON-BOARD DIAGNOSTIC

STEP	INSPECTION		ACTION
3	VERIFY TCM CONNECTOR TERMINAL VOLTAGE <ul style="list-style-type: none"> Connect voltmeter to TCM connector. Turn ignition key to ON (engine off). Inspect TCM connector terminal voltage. <ul style="list-style-type: none"> Terminal F <ul style="list-style-type: none"> P position: B+ N position: B+ Other position and all ranges: 0 V Terminal D <ul style="list-style-type: none"> R position: B+ Other position and all ranges: 0 V Terminal C <ul style="list-style-type: none"> D range: B+ All position and other ranges: 0 V Terminal B <ul style="list-style-type: none"> 2 range: B+ All position and other ranges: 0 V Terminal A <ul style="list-style-type: none"> 1 range: B+ All position and other ranges: 0 V Are two or more of above terminal voltages B+ at the same time when shifting selector lever from P position to 1 range? 	Yes	Go to next step.
		No	Go to Step 8.
4	INSPECT TR SWITCH CONNECTOR <ul style="list-style-type: none"> Turn ignition key OFF. Disconnect TR switch connector. Inspect for bent terminals. Are TR switch terminals okay? 	Yes	Go to next step.
		No	Repair terminals or replace TR switch, then go to Step 10.
5	INSPECT TR SWITCH CIRCUIT MALFUNCTION <ul style="list-style-type: none"> Connect voltmeter to TCM connector. Turn ignition key to ON (engine off). Does TCM connector terminal voltage change from B+ to 0 V when TR switch connector is disconnected? 	Yes	Go to next step.
		No	Go to Step 7.
6	INSPECT TR SWITCH CONTINUITY <ul style="list-style-type: none"> Turn ignition key to OFF. Inspect TR switch for continuity in position/ranges failed in Step 4. Is there continuity between TR switch terminals (part-side)? (See 05-13-14 TRANSMISSION RANGE (TR) SWITCH INSPECTION.)	Yes	Go to Step 10.
		No	Replace TR switch, then go to Step 10. (See 05-13-15 TRANSMISSION RANGE (TR) SWITCH REMOVAL/INSTALLATION.)
7	INSPECT TR SWITCH FOR SHORT TO POWER <ul style="list-style-type: none"> Measure voltage at TCM connector male terminals F, D, C, B, and A. Is there 0 V at TCM connector? 	Yes	Go to Step 10.
		No	Repair or replace wiring, then go to Step 10.
8	TCM TERMINAL CONDITION <ul style="list-style-type: none"> Turn ignition key to OFF. Disconnect TCM connector. Inspect for bent terminals. Are TCM terminals okay? 	Yes	Go to next step.
		No	Repair terminals, then go to Step 10.
9	INSPECT TCM CIRCUIT FOR SHORT TO POWER <ul style="list-style-type: none"> Remove the TCM connector. Connect voltmeter to TCM. Turn ignition key to ON (engine off). Measure voltage at TCM connector terminals D, F, C, B and A (harness-side). Are voltages 0 V? 	Yes	Go to next step.
		No	Repair or replace harness, then go to next step.

05-02

ON-BOARD DIAGNOSTIC

STEP	INSPECTION	ACTION
10	VERIFY TROUBLESHOOTING OF DTC P0705 COMPLETED <ul style="list-style-type: none"> Make sure to reconnect all disconnected connectors. Clear DTC from memory using WDS or equivalent. Drive vehicle in each range (P, R, N, D, 2, and 1) for 10 seconds or more. Is same DTC present? 	Yes Replace TCM, then go to next step. (See 05–13–24 TRANSMISSION CONTROL MODULE (TCM) REMOVAL/INSTALLATION.)
		No Go to next step.
11	VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none"> Perform "After Repair Procedure". (See 05–02–3 AFTER REPAIR PROCEDURE.) Are any DTCs present? 	Yes Go to applicable DTC inspection.
		No Troubleshooting completed.

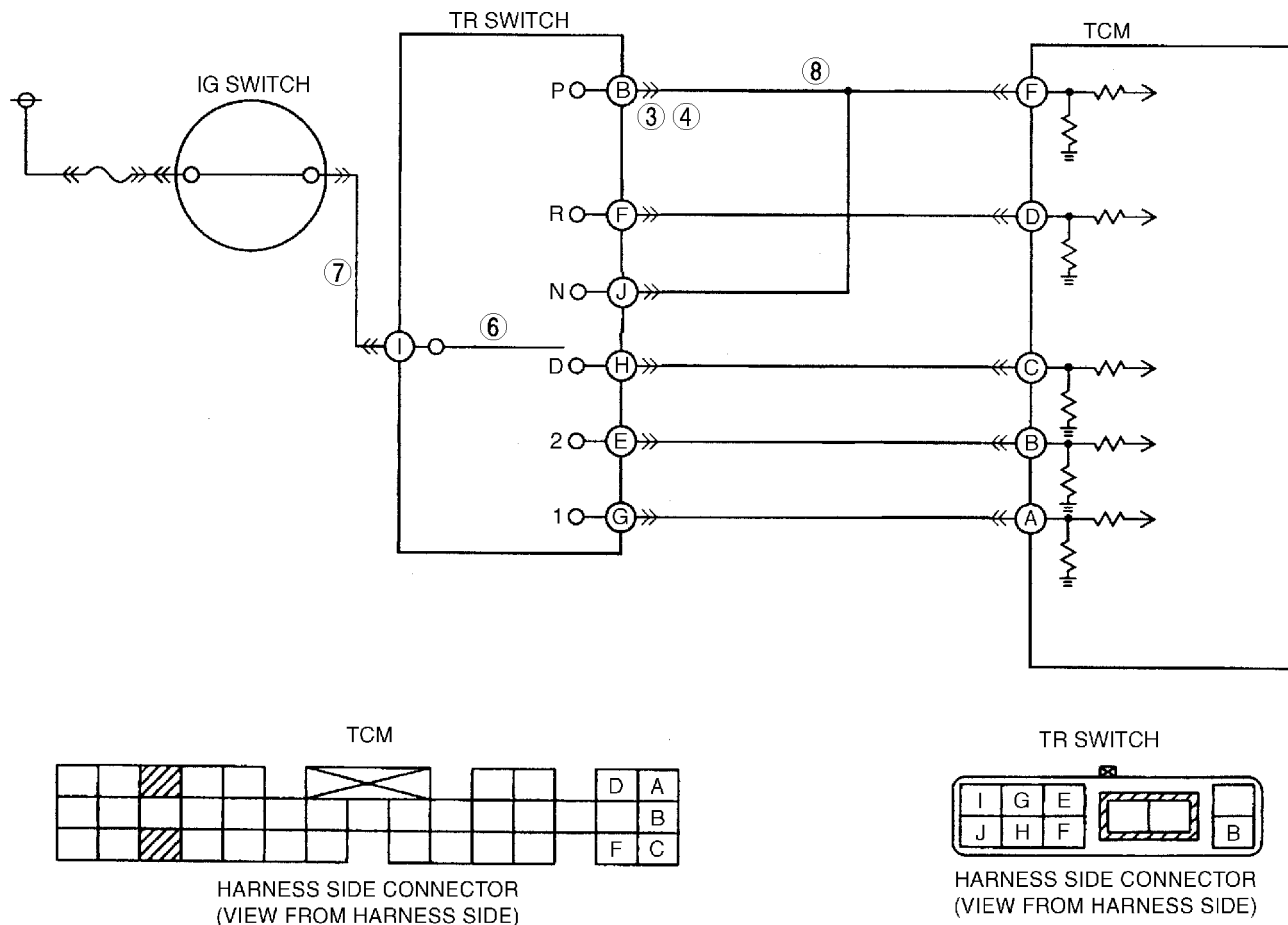
DTC P0706

A5U050201026W09

DTC P0706	Transmission range (TR) switch circuit malfunction (open circuit)
DETECTION CONDITION	<ul style="list-style-type: none"> P, R, N, D, 2, and 1 range switch do not input for 25 seconds or more under following conditions: <ul style="list-style-type: none"> Vehicle speed is 60 km/h {37 mph} or above. Diagnostic support note: <ul style="list-style-type: none"> This is a continuous monitor (CCM). MIL illuminates if TCM detects above malfunction conditions in two consecutive drive cycles. PENDING CODE is available. FREEZE FRAME DATA is available. O/D OFF indicator light does not flash. DTC is stored in TCM memory.
POSSIBLE CAUSE	<ul style="list-style-type: none"> TR switch malfunction. TR switch misadjustment. Open circuit between main fuse and TR switch terminal I Open circuit between TR switch terminal B and TCM terminal F Open circuit between TR switch terminal J and TCM terminal F Open circuit between TR switch terminal F and TCM terminal D Open circuit between TR switch terminal H and TCM terminal C Open circuit between TR switch terminal E and TCM terminal B Open circuit between TR switch terminal G and TCM terminal A Damaged connector between TR switch and TCM TCM malfunction

ON-BOARD DIAGNOSTIC

DTC P0706 Transmission range (TR) switch circuit malfunction (open circuit)



05-02

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED <ul style="list-style-type: none"> Has FREEZE FRAME PID DATA been recorded? 	Yes
		No
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY <ul style="list-style-type: none"> Inspect for related Service Bulletins and/or on-line repair information availability. Is any related repair information available? 	Yes
		No

ON-BOARD DIAGNOSTIC

STEP	INSPECTION	ACTION	
3	INSPECT TR SWITCH CIRCUIT <ul style="list-style-type: none"> Connect voltmeter to TCM connector. Inspect TCM terminal voltage. <ul style="list-style-type: none"> Terminal F <ul style="list-style-type: none"> P position: B+ N position: B+ R position and all ranges: 0 V Terminal D <ul style="list-style-type: none"> R position: B+ Other positions and all ranges: 0 V Terminal C <ul style="list-style-type: none"> D range: B+ Other ranges and all positions: 0 V Terminal B <ul style="list-style-type: none"> 2 range: B+ Other ranges and all positions: 0 V Terminal A <ul style="list-style-type: none"> 1 range: B+ Other ranges and all positions: 0 V Are any of above terminal voltages are B+ for even a moment while shifting selector lever slowly from P position to 1 range? 	Yes	Adjust TR switch, then go to Step 9. (See 05–13–16 TRANSMISSION RANGE (TR) SWITCH ADJUSTMENT.)
		No	Go to next step.
4	INSPECT TR SWITCH CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> Turn ignition key to OFF. Inspect TR switch connector connection. Inspect for poor connection (damaged pulled-out terminals, corrosion, etc.). Is connection okay? 	Yes	Go to next step.
		No	Repair or replace connector and/or terminals, then go to Step 9.
5	INSPECT TR SWITCH CIRCUIT <ul style="list-style-type: none"> Connect voltmeter to TCM connector terminal. Turn ignition key to ON (engine off). Connect harness side connector power line and signal line using jumper wire. <ul style="list-style-type: none"> P position: I and B R position: I and F N position: I and J D range: I and H 2 range: I and E 1 range: I and G Inspect if terminal voltage changes 0 V to B+. Does terminal voltage change? 	Yes	Go to next step.
		No	Go to Step 8.
6	INSPECT TR SWITCH FOR OPEN CIRCUIT <ul style="list-style-type: none"> Turn ignition key to OFF. Inspect for continuity between TR switch terminals (part-side). <ul style="list-style-type: none"> P position: I and B R position: I and F N position: I and J D range: I and H 2 range: I and E 1 range: I and G Is there continuity between TR switch terminals (part-side)? (See 05–13–14 TRANSMISSION RANGE (TR) SWITCH INSPECTION.) 	Yes	Go to next step.
		No	Replace TR switch, then go to Step 9. (See 05–13–14 TRANSMISSION RANGE (TR) SWITCH INSPECTION.)
7	INSPECT TR SWITCH POWER CIRCUIT FOR OPEN CIRCUIT <ul style="list-style-type: none"> Turn ignition key to ON (engine off). Inspect voltage at TR switch terminal I (vehicle harness-side). Is there B+ at TR switch terminal I (vehicle harness-side)? 	Yes	Go to Step 9.
		No	Inspect main fuse. <ul style="list-style-type: none"> If okay, repair or replace wiring, then go to Step 9.

ON-BOARD DIAGNOSTIC

STEP	INSPECTION	ACTION	
8	INSPECT TR SWITCH SIGNAL CIRCUIT FOR OPEN CIRCUIT <ul style="list-style-type: none"> Turn ignition key to OFF. Inspect for continuity between TR switch terminals (vehicle harness-side) and TCM connector. <ul style="list-style-type: none"> N position: B to F R position: F to D N position: J to F D range: H to C 2 range: H to B 1 range: H to A Is there continuity? 	Yes	Go to next step.
		No	Repair or replace harness, then go to next step.
9	VERIFY TROUBLESHOOTING OF DTC P0706 COMPLETED <ul style="list-style-type: none"> Make sure to reconnect all disconnected connectors. Clear DTC from memory using WDS or equivalent. Drive vehicle in each range (R, D, 2, and 1) for 25 seconds or more under following condition. <ul style="list-style-type: none"> Vehicle speed (VSS PID): 60 km/h {37 mph} Is pending code present? 	Yes	Replace TCM, then go to next step. (See 05-13-24 TRANSMISSION CONTROL MODULE (TCM) REMOVAL/INSTALLATION.)
		No	Go to next step.
10	VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none"> Perform "After Repair Procedure". (See 05-02-3 AFTER REPAIR PROCEDURE.) Are any DTCs present? 	Yes	Go to applicable DTC inspection.
		No	Troubleshooting completed.

05-02

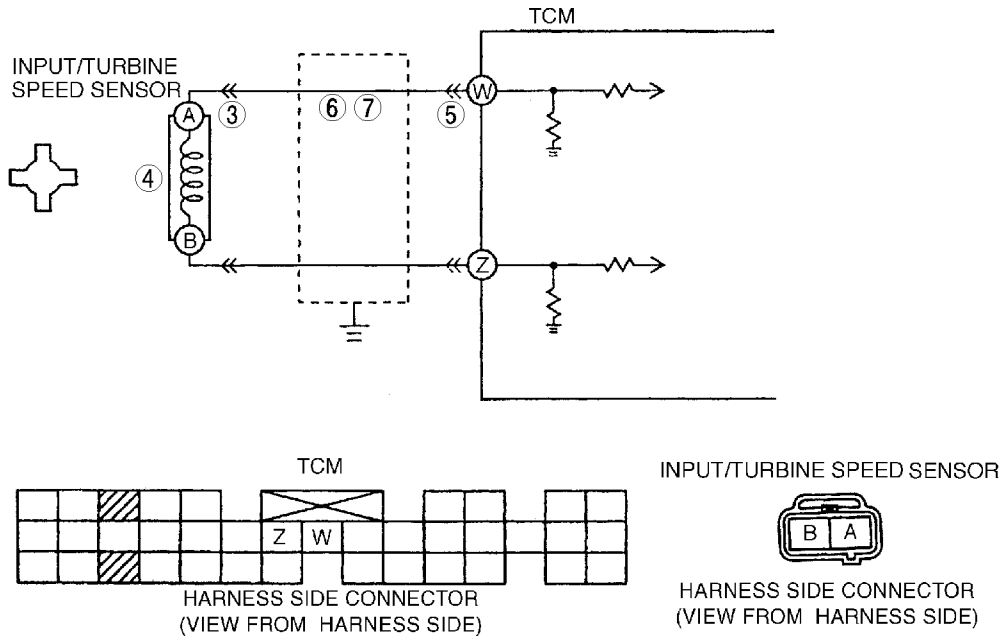
DTC P0715

A5U050201026W10

DTC P0715	Input/turbine speed sensor circuit malfunction
DETECTION CONDITION	<ul style="list-style-type: none"> While driving vehicle with vehicle speed 20 km/h {12.4 mph}, input/turbine speed sensor signal is not inputted for 7 seconds or more. Diagnostic support note: <ul style="list-style-type: none"> This is a continuous monitor (CCM). MIL illuminates if TCM detects above malfunction conditions in two consecutive drive cycles. PENDING CODE is available. FREEZE FRAME DATA is available. O/D OFF indicator light flashes. DTC is stored in TCM memory.
POSSIBLE CAUSE	<ul style="list-style-type: none"> Input/turbine speed sensor malfunction Open circuit between input/turbine speed sensor terminal A and TCM terminal W Open circuit between input/turbine speed sensor terminal B and TCM terminal Z Short to ground between input/turbine speed sensor terminal A and TCM terminal W Short to ground between input/turbine speed sensor terminal B and TCM terminal Z Damaged connectors between input/turbine speed sensor and TCM TCM malfunction

ON-BOARD DIAGNOSTIC

DTC P0715 Input/turbine speed sensor circuit malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED <ul style="list-style-type: none"> Has FREEZE FRAME PID DATA been recorded? 	Yes Go to next step.
		No Record FREEZE FRAME PID DATA on repair order, then go to next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY <ul style="list-style-type: none"> Inspect for related Service Bulletins and/or on-line repair information availability. Is any related repair information available? 	Yes Perform repair or diagnosis according to available repair information. • If vehicle is not repaired, go to next step.
		No Go to next step.
3	INSPECT INPUT/TURBINE SPEED SENSOR CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> Disconnect input/turbine speed sensor connector. Inspect for poor connection (damaged, pulled-out terminals, corrosion, etc.). Is connection okay? 	Yes Go to next step.
		No Repair or replace connector and/or terminals, then go to Step 8.
4	INSPECT INPUT/TURBINE SPEED SENSOR RESISTANCE <ul style="list-style-type: none"> Measure resistance between input/turbine speed sensor terminals (part-side). Is resistance within 560—680 ohms between input/turbine speed sensor terminals (part-side)? (See 05–13–16 INPUT/TURBINE SPEED SENSOR INSPECTION.)	Yes Go to next step.
		No Replace input/turbine speed sensor, then go to Step 8. (See 05–13–16 INPUT/TURBINE SPEED SENSOR REMOVAL/INSTALLATION.)
5	INSPECT TCM CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> Disconnect TCM connector. Inspect for poor connection (damaged, pulled-out terminals, corrosion, etc.). Is connection okay? 	Yes Go to next step.
		No Repair or replace connector and/or terminals, then go to Step 8.

ON-BOARD DIAGNOSTIC

STEP	INSPECTION	ACTION	
6	INSPECT HARNESS FOR OPEN CIRCUIT <ul style="list-style-type: none"> Inspect for continuity between input/turbine speed sensor terminals (harness-side) and TCM connector. <ul style="list-style-type: none"> — A and W — B and Z Is there continuity? 	Yes	Go to next step.
		No	Repair or replace harness, then go to Step 8.
7	INSPECT HARNESS FOR SHORT TO GROUND <ul style="list-style-type: none"> Inspect for continuity between input/turbine speed sensor connector terminal and body ground. <ul style="list-style-type: none"> — A and body ground — B and body ground Is there continuity? 	Yes	Go to next step.
		No	Repair or replace harness, then go to next step.
8	VERIFY TROUBLESHOOTING OF DTC P0715 COMPLETED <ul style="list-style-type: none"> Make sure to reconnect all disconnected connectors. Clear DTC from memory using WDS or equivalent. Drive vehicle with vehicle speed 20 km/h {25 mph} or above for 7 seconds or more. <ul style="list-style-type: none"> — Vehicle speed (VSS PID): 20 km/h {25 mph} Is pending code present? 	Yes	Replace TCM, then go to next step. (See 05–13–24 TRANSMISSION CONTROL MODULE (TCM) REMOVAL/INSTALLATION.)
		No	Go to next step.
9	VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none"> Perform “After Repair Procedure”. (See 05–02–3 AFTER REPAIR PROCEDURE.) Are any DTCs present? 	Yes	Go to applicable DTC inspection.
		No	Troubleshooting completed.

05–02

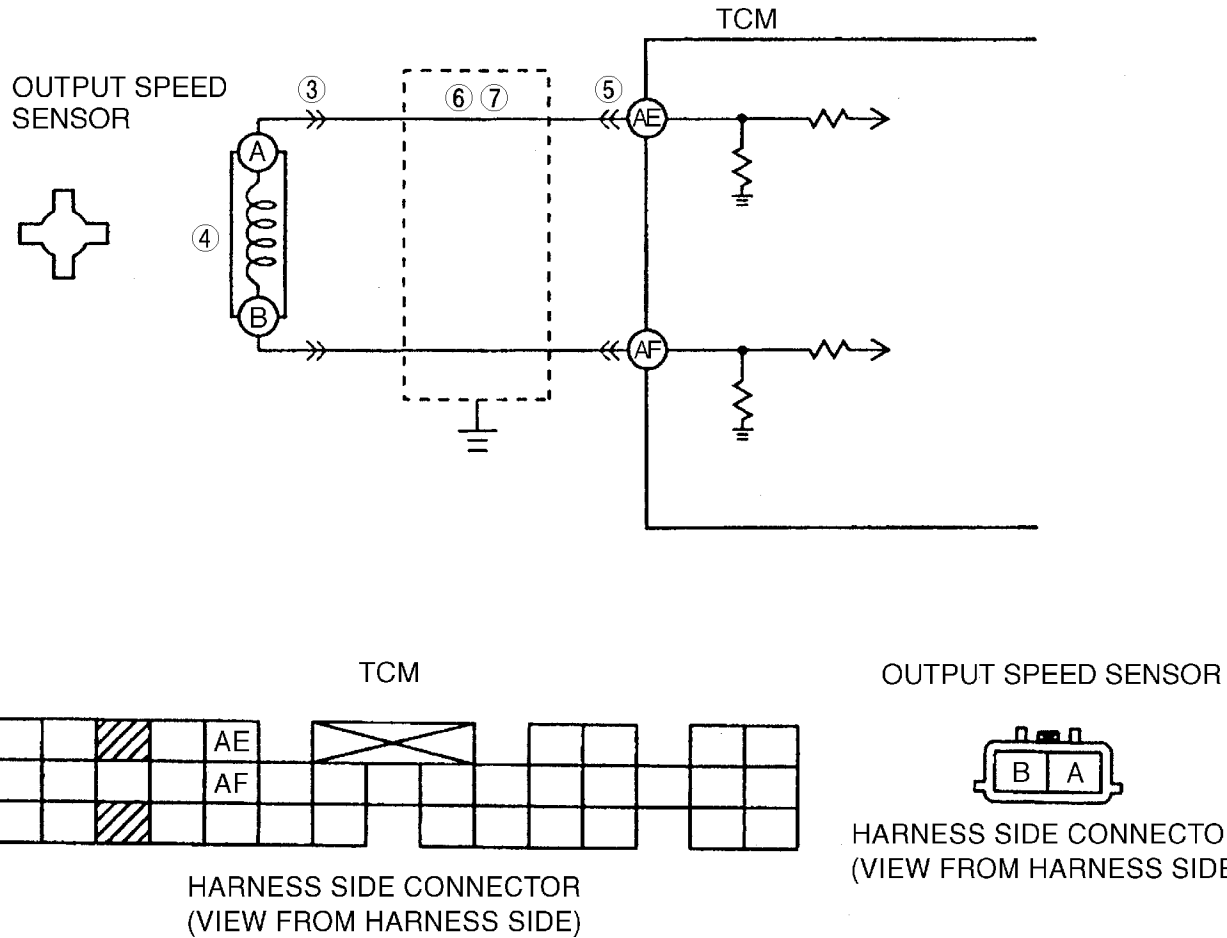
DTC P0720

A5U050201026W11

DTC P0720	Output speed sensor circuit malfunction
DETECTION CONDITION	<ul style="list-style-type: none"> While driving vehicle with vehicle speed 60 km/h{37 mph}, output speed sensor signal is not inputted for 85 seconds or more. Diagnostic support note: <ul style="list-style-type: none"> This is a continuous monitor (CCM). MIL illuminates if TCM detects above malfunction condition during first drive cycle. PENDING CODE is not available. FREEZE FRAME DATA is available. O/D OFF indicator light flashes. DTC is stored in TCM memory.
	POSSIBLE CAUSE <ul style="list-style-type: none"> Output speed sensor malfunction Open circuit between output speed sensor terminal A and TCM terminal AE Open circuit between output speed sensor terminal B and TCM terminal AF Short to ground between output speed sensor terminal A and TCM terminal AE Short to ground between output speed sensor terminal B and TCM terminal AF Damaged connectors between output speed sensor and TCM TCM malfunction

ON-BOARD DIAGNOSTIC

DTC P0720 Output speed sensor circuit malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED <ul style="list-style-type: none"> Has FREEZE FRAME PID DATA been recorded? 	Yes
		No
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY <ul style="list-style-type: none"> Inspect for related Service Bulletins and/or on-line repair information availability. Is any related repair information available? 	Yes
		No
3	INSPECT OUTPUT SPEED SENSOR CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> Disconnect output speed sensor connector. Inspect for poor connection (damaged, pulled-out terminals, corrosion, etc.). Is connection okay? 	Yes
		No
4	INSPECT OUTPUT SPEED SENSOR RESISTANCE <ul style="list-style-type: none"> Measure resistance between output speed sensor terminals (part-side). Is resistance within 387—473 ohms between output speed sensor terminals (part-side)? (See 05-13-17 OUTPUT SPEED SENSOR INSPECTION.) 	Yes
		No

ON-BOARD DIAGNOSTIC

STEP	INSPECTION	ACTION	
5	INSPECT TCM CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> Disconnect TCM connector. Inspect for poor connection (damaged, pulled-out terminals, corrosion, etc.). Is connection okay? 	Yes	Go to next step.
		No	Repair or replace connector and/or terminals, then go to Step 8.
6	INSPECT HARNESS FOR OPEN CIRCUIT <ul style="list-style-type: none"> Inspect for continuity between output speed sensor terminals (harness-side) and TCM connector male terminals. <ul style="list-style-type: none"> — A and AE — B and AF Is there continuity? 	Yes	Go to next step.
		No	Repair or replace harness, then go to Step 8.
7	INSPECT HARNESS FOR SHORT TO GROUND <ul style="list-style-type: none"> Inspect for continuity between output speed sensor connector terminal and body ground. <ul style="list-style-type: none"> — A and body ground — B and body ground Is there continuity? 	Yes	Go to next step.
		No	Repair or replace harness, then go to next step.
8	VERIFY TROUBLESHOOTING OF DTC P0720 COMPLETED <ul style="list-style-type: none"> Make sure to reconnect all disconnected connectors. Clear DTC from memory using WDS or equivalent. Drive vehicle with vehicle speed 60 km/h {37 mph} or above for 85 seconds or more. <ul style="list-style-type: none"> — Vehicle speed (VSS PID): 60 km/h {37 mph} Is same DTC present? 	Yes	Replace TCM, then go to next step. (See 05–13–24 TRANSMISSION CONTROL MODULE (TCM) REMOVAL/INSTALLATION.)
		No	Go to next step.
9	VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none"> Perform “After Repair Procedure”. (See 05–02–3 AFTER REPAIR PROCEDURE.) Are any DTCs present? 	Yes	Go to applicable DTC inspection.
		No	Troubleshooting completed.

05–02

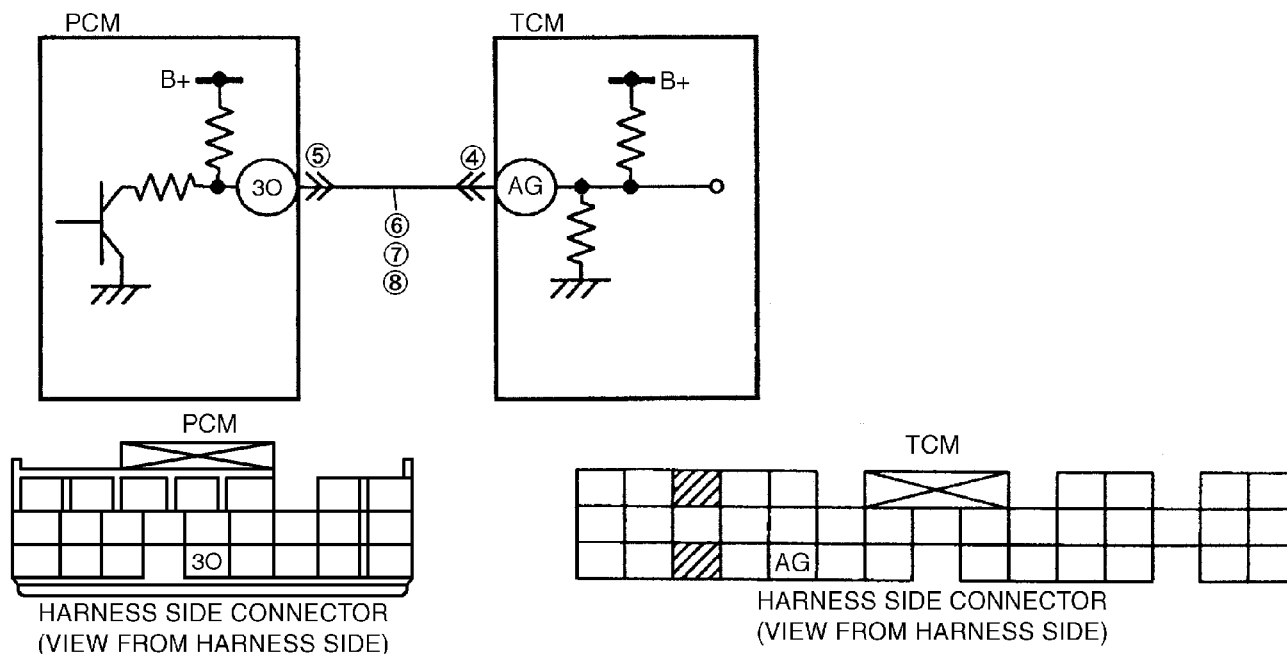
DTC P0725

A5U050201026W12

DTC P0725	Engine speed input circuit malfunction
DETECTION CONDITION	<ul style="list-style-type: none"> While driving vehicle with vehicle speed 60 km/h {37 mph} or above, engine speed signal is 300 rpm or below for 10 seconds or more. Diagnostic support note: <ul style="list-style-type: none"> This is a continuous monitor (CCM). MIL illuminates if TCM detects above malfunction condition in two consecutive drive cycles. PENDING CODE is available. FREEZE FRAME DATA is available. O/D OFF indicator light does not flash. DTC is stored in TCM memory.
POSSIBLE CAUSE	<ul style="list-style-type: none"> CKP sensor malfunction Short to ground between TCM terminal AG and PCM terminal 3O Open circuit between TCM terminal AG and PCM terminal 3O Short to power between TCM terminal AG and PCM terminal 3O Damaged connectors between TCM and PCM TCM and/or PCM malfunction

ON-BOARD DIAGNOSTIC

DTC P0725 Engine speed input circuit malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED <ul style="list-style-type: none"> Has FREEZE FRAME PID DATA been recorded? 	Yes Go to next step.
		No Record FREEZE FRAME PID DATA on repair order, then go to next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY <ul style="list-style-type: none"> Inspect for related Service Bulletins and/or on-line repair information availability. Is any related repair information available? 	Yes Perform repair or diagnosis according to available repair information. <ul style="list-style-type: none"> If vehicle is not repaired, go to next step.
		No Go to next step.
3	VERIFY STORED DTC <ul style="list-style-type: none"> Turn ignition key to ON (engine off). Verify stored DTC. Is DTC P0335 present? 	Yes Go to appropriate DTC inspection.
		No Go to next step.
4	INSPECT TCM CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> Turn ignition key to OFF. Disconnect TCM condition. Inspect for poor connection (damage, pulled-out terminals, corrosion, etc.). Is connection okay? 	Yes Go to next step.
		No Repair or replace connector and/or terminals, then go to Step 9.
5	INSPECT PCM CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> Disconnect PCM connector. Inspect for poor connection (damage, pulled-out terminals, corrosion, etc.). Is connection okay? 	Yes Go to next step.
		No Repair or replace connector and/or terminals, then go to Step 9.
6	INSPECT HARNESS FOR SHORT TO POWER <ul style="list-style-type: none"> Connect voltmeter to TCM terminal AG. Turn ignition key to ON (engine off). Inspect voltage at TCM terminal AG (harness-side). Is voltage B+? 	Yes Repair or replace harness, then go to Step 9.
		No Go to next step.

ON-BOARD DIAGNOSTIC

STEP	INSPECTION	ACTION
7	INSPECT HARNESS FOR OPEN CIRCUIT <ul style="list-style-type: none"> Turn ignition key to OFF. Inspect for continuity between TCM terminal AG (harness-side) and PCM terminal 3O (harness-side). Is there continuity? 	Yes Go to next step.
		No Repair or replace harness, then go to Step 9.
8	INSPECT HARNESS FOR SHORT TO GROUND <ul style="list-style-type: none"> Connect voltmeter to TCM terminal AG. Inspect for continuity between TCM terminal AG (harness-side) and body ground. Is there continuity? 	Yes Repair or replace harness, then go to next step.
		No Go to next step.
9	VERIFY TROUBLESHOOTING OF DTC P0725 COMPLETED. <ul style="list-style-type: none"> Make sure to reconnect all disconnected connectors. Clear DTC from memory using WDS or equivalent. Drive vehicle with vehicle speed 60 km/h {37 mph} or above for 10 seconds or more. — Vehicle speed (VSS PID): 60 km/h {37 mph} Is pending code present? 	Yes Replace TCM, then go to next step. (See 05–13–24 TRANSMISSION CONTROL MODULE (TCM) REMOVAL/INSTALLATION.)
		No Go to next step.
10	VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none"> Perform “After Repair Procedure”. (See 05–02–3 AFTER REPAIR PROCEDURE.) Are any DTCs present? 	Yes Go to applicable DTC inspection.
		No Troubleshooting completed.

05–02

DTC P0741

A5U050201026W13

DTC P0741	Torque converter clutch (TCC) solenoid valve malfunction (stuck off)
DETECTION CONDITION	<ul style="list-style-type: none"> All conditions below are satisfied with ignition key turned to ON (Start engine). <ul style="list-style-type: none"> Engine coolant temperature is 60°C {140°F} or above. Driving in D range for 20 seconds or more. Engine speed is 600 rpm or above. Vehicle speed is within 5 km/h {3.1 mph}—100 km/h {62 mph}. Throttle opening angle is 8% or above. Brake pedal is released. Difference between engine speed and turbine speed is above preset value. None of the following are output: DTCs P0705, P0706, P0715, P0720, P1740, P1742, P1751, P1752, P1756, P1757, P1771, or P1772. <p>Diagnostic support note:</p> <ul style="list-style-type: none"> This is a continuous monitor (CCM). MIL illuminates if PCM detects above malfunction conditions in two consecutive drive cycles. PENDING CODE is available. FREEZE FRAME DATA is available. O/D OFF indicator light does not flash. DTC is stored in TCM memory.
POSSIBLE CAUSE	<ul style="list-style-type: none"> ATF level is low. Deteriorated ATF Line pressure is low. Torque converter malfunction TCC solenoid valve is stuck. Oil pump malfunction Control valve is stuck. TCM malfunction.

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED <ul style="list-style-type: none"> Has FREEZE FRAME PID DATA been recorded? 	Yes Go to next step.
		No Record FREEZE FRAME PID DATA on repair order, then go to next step.

ON-BOARD DIAGNOSTIC

STEP	INSPECTION		ACTION
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY <ul style="list-style-type: none"> Inspect for related Service Bulletins and/or on-line repair information availability. Is any related repair information available? 	Yes	Perform repair or diagnosis according to available repair information. <ul style="list-style-type: none"> If vehicle is not repaired, go to next step.
		No	Go to next step.
3	INSPECT ATF CONDITION <ul style="list-style-type: none"> Turn ignition key to OFF. Inspect ATF condition. <ul style="list-style-type: none"> Clear red: Normal Milky: Water mixed in fluid Reddish brown: Deteriorated ATF Is it okay? (See 05-13-8 ATF Condition Inspection.)	Yes	Go to next step.
		No	If ATF color is milky or reddish brown, replace ATF, then go to Step 5. (See 05-13-9 AUTOMATIC TRANSMISSION FLUID (ATF) REPLACEMENT.)
4	INSPECT ATF LEVEL <ul style="list-style-type: none"> Start engine. Warm up AT. Is ATF level within specification? (See 05-13-9 ATF Level Inspection.)	Yes	Go to next step.
		No	Adjust ATF level, then go to Step 8. (See 05-13-9 ATF Level Inspection.)
5	INSPECT LINE PRESSURE <ul style="list-style-type: none"> Measure line pressure. Specification Idle: 370—420 kPa {3.7—4.2 kgf/cm², 53—59 psi} Stall: 960—1110 kPa {9.8—11.4 kgf/cm², 140—162 psi} <ul style="list-style-type: none"> Is line pressure within specification? (See 05-13-5 Line Pressure Test.)	Yes	Go to next step.
		No	<ul style="list-style-type: none"> All ranges: Adjust throttle cable, or replace oil pump or control valve body, then go to Step 8. Any of D, 2, or 1 ranges: Replace AT, then go to Step 8. (See 05-13-25 AUTOMATIC TRANSMISSION REMOVAL/INSTALLATION.) (See Automatic Transmission Workshop Manual SB4A-EL (9999-95-422H-99).)
6	CLICK TEST OF SOLENOID VALVE <ul style="list-style-type: none"> Turn ignition key to OFF. Remove TCC solenoid valve. Verify click sounds of TCC solenoid valve. Are there click sounds? (See 05-13-17 SOLENOID VALVES INSPECTION.)	Yes	Go to next step.
		No	Replace TCC solenoid valve, then go to Step 8. (See 05-13-18 SOLENOID VALVES REMOVAL/INSTALLATION.)
7	INSPECT OPERATION OF EACH VALVE AND SPRING <ul style="list-style-type: none"> Disassemble control valve body. Are operations of each valve and spring okay? 	Yes	Replace AT, then go to next step. (See 05-13-25 AUTOMATIC TRANSMISSION REMOVAL/INSTALLATION.)
		No	Repair or replace control valve body, then go to next step. (See 05-13-32 CONTROL VALVE BODY REMOVAL/INSTALLATION.)
8	VERIFY TROUBLESHOOTING OF DTC P0741 COMPLETED. <ul style="list-style-type: none"> Make sure to reconnect all disconnected connectors. Clear DTC from memory using WDS or equivalent. Start engine. Drive vehicle under following condition for 25 seconds or more. <ul style="list-style-type: none"> Engine coolant temperature (ECT PID): 60°C {140°F} Engine speed (RPM PID): 600 rpm or above Vehicle speed (VSS PID): Within 5 km/h {3.1 mph}—100 km/h {62 mph} TR switch position: D range TP sensor (TP PID): 0.6 V or above Is there pending code present? 	Yes	Replace TCM, then go to next step. (See 05-13-24 TRANSMISSION CONTROL MODULE (TCM) REMOVAL/INSTALLATION.)
		No	Go to next step.
9	VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none"> Perform "After Repair Procedure". (See 05-02-3 AFTER REPAIR PROCEDURE.) <ul style="list-style-type: none"> Are any DTCs present? 	Yes	Go to applicable DTC inspection.
		No	Troubleshooting completed.

ON-BOARD DIAGNOSTIC

DTC P0742

A5U050201026W14

DTC P0742	Torque converter clutch (TCC) solenoid valve malfunction (stuck on)
DETECTION CONDITION	<ul style="list-style-type: none"> All conditions below are satisfied with ignition key turned to ON (Start engine). <ul style="list-style-type: none"> Engine coolant temperature is 60°C {140°F} or above. Driving in D range for 20 seconds or more. Engine speed is 600 rpm or above. Vehicle speed is within 5 km/h {3.1 mph}—100 km/h {62 mph}. Throttle opening angle is 12.5% or above. Brake pedal is released. Difference between engine speed and turbine speed is above preset value. None of the following DTCs are output: P0705, P0706, P0715, P0720, P1740, P1742, P1751, P1752, P1756, P1757, P1771, or P1772. <p>Diagnostic support note:</p> <ul style="list-style-type: none"> This is a continuous monitor (CCM). MIL illuminates if TCM detects above malfunction conditions in two consecutive drive cycles. PENDING CODE is available. FREEZE FRAME DATA is available. O/D OFF indicator light does not flash. DTC is stored in TCM memory.
POSSIBLE CAUSE	<ul style="list-style-type: none"> ATF level is low. Deteriorated ATF Line pressure is low. Torque converter malfunction TCC solenoid valve is stuck. Oil pump malfunction Control valve is stuck. TCM malfunction

05-02

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED <ul style="list-style-type: none"> Has FREEZE FRAME PID DATA been recorded? 	Yes Go to next step.
		No Record FREEZE FRAME PID DATA on repair order, then go to next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY <ul style="list-style-type: none"> Inspect for related Service Bulletins and/or on-line repair information availability. Is any related repair information available? 	Yes Perform repair or diagnosis according to available repair information. <ul style="list-style-type: none"> If vehicle is not repaired, go to next step.
		No Go to next step.
3	INSPECT ATF CONDITION <ul style="list-style-type: none"> Turn ignition key to OFF. Inspect ATF condition. <ul style="list-style-type: none"> Clear red: Normal Milky: Water mixed in fluid Reddish brown: Deteriorated ATF Is it okay? (See 05-13-8 ATF Condition Inspection.)	Yes Go to next step.
		No If ATF color is milky or reddish brown, replace ATF, then go to Step 5. (See 05-13-9 AUTOMATIC TRANSMISSION FLUID (ATF) REPLACEMENT.)
4	INSPECT ATF LEVEL <ul style="list-style-type: none"> Start engine. Warm up AT. Is ATF level within specification? (See 05-13-8 ATF Condition Inspection.)	Yes Go to next step.
		No Adjust ATF level, then go to Step 8. (See 05-13-9 ATF Level Inspection.)
5	INSPECT LINE PRESSURE <ul style="list-style-type: none"> Measure line pressure. Specification Idle: 370—420 kPa {3.7—4.2 kgf/cm², 53—59 psi} Stall: 960—1110 kPa {9.8—11.4 kgf/cm², 140—162 psi} <ul style="list-style-type: none"> Is line pressure within specification? (See 05-13-5 Line Pressure Test.)	Yes Go to next step.
		No <ul style="list-style-type: none"> All ranges: Adjust throttle cable, or replace oil pump or control valve body, then go to Step 8. Any of D, 2, or 1 ranges: Replace AT, then go to Step 8. (See 05-13-25 AUTOMATIC TRANSMISSION REMOVAL/INSTALLATION.) (See Automatic Transmission Workshop Manual SB4A-EL (9999-95-422H-99).)

ON-BOARD DIAGNOSTIC

STEP	INSPECTION	ACTION
6	CLICK TEST OF SOLENOID VALVE <ul style="list-style-type: none"> • Turn ignition key to OFF. • Remove TCC solenoid valve. • Verify click sounds of TCC solenoid valve. • Are there click sounds? (See 05–13–17 SOLENOID VALVES INSPECTION.)	Yes Go to next step.
		No Replace TCC solenoid valve, then go to Step 8. (See 05–13–18 SOLENOID VALVES REMOVAL/INSTALLATION.)
7	INSPECT OPERATION OF EACH VALVE AND SPRING <ul style="list-style-type: none"> • Disassemble control valve body. • Are operations of each valve and spring okay? 	Yes Replace AT, then go to next step. (See 05–13–25 AUTOMATIC TRANSMISSION REMOVAL/INSTALLATION.)
		No Repair or replace control valve body, then go to next step. (See 05–13–32 CONTROL VALVE BODY REMOVAL/INSTALLATION.)
8	VERIFY TROUBLESHOOTING OF DTC P0742 COMPLETED. <ul style="list-style-type: none"> • Make sure to reconnect all disconnected connectors. • Clear DTC from memory using WDS or equivalent. • Start engine. • Drive vehicle under following conditions for 25 seconds or more. <ul style="list-style-type: none"> — Engine coolant temperature (ECT PID): 60°C {140°F} — Engine speed (RPM PID): 600 rpm or above — Vehicle speed (VSS PID): Within 5 km/h {3.1 mph}— 100 km/h {62 mph} — TR switch position: D range — TP sensor (TP PID): 0.6 V or above • Is pending code present? 	Yes Replace TCM, then go to next step. (See 05–13–24 TRANSMISSION CONTROL MODULE (TCM) REMOVAL/INSTALLATION.)
		No Go to next step.
9	VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none"> • Perform “After Repair Procedure”. (See 05–02–3 AFTER REPAIR PROCEDURE.) • Are any DTCs present? 	Yes Go to applicable DTC inspection.
		No Troubleshooting completed.

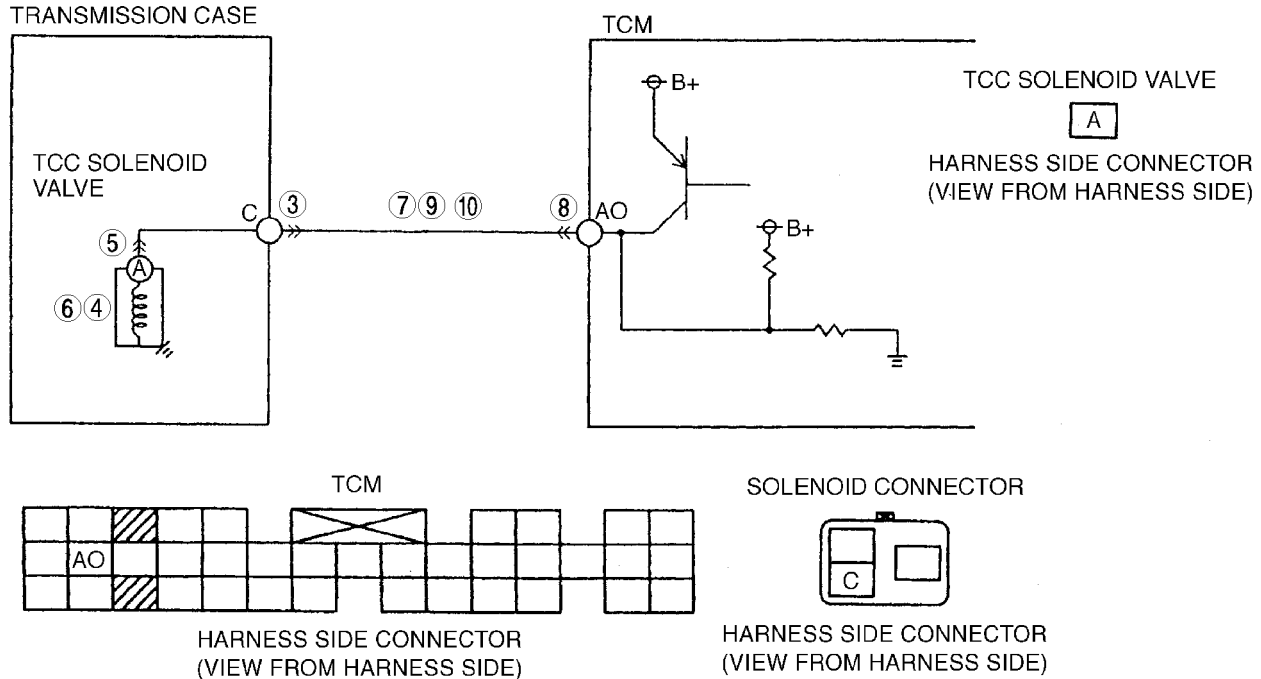
DTC P0743

A5U050201026W15

DTC P0743	Torque converter clutch (TCC) solenoid valve circuit malfunction
DETECTION CONDITION	<ul style="list-style-type: none"> • If TCM detects following condition, TCM determines that TCC solenoid valve circuit has a malfunction. <ul style="list-style-type: none"> — TCC solenoid valve voltage is stuck at B+ after engine start. — TCC solenoid valve voltage is stuck at 0 V after engine start. Diagnostic support note: <ul style="list-style-type: none"> • This is a continuous monitor (CCM). • MIL illuminates if TCM detects the above malfunction conditions during first drive cycle. • PENDING CODE is not available. • FREEZE FRAME DATA is available. • O/D OFF indicator light flashes. • DTC is stored in TCM memory.
POSSIBLE CAUSE	<ul style="list-style-type: none"> • TCC solenoid valve malfunction • Open circuit between TCC solenoid valve terminal A and solenoid connector terminal C. • Open circuit between solenoid connector terminal C and TCM terminal AO • Short to power between TCC solenoid valve terminal A and solenoid connector terminal C. • Short to power between solenoid connector terminal C and TCM terminal AO • Short to ground between TCC solenoid valve terminal A and solenoid connector terminal C • Short to ground between connector terminal C and TCM terminal AO • Damaged connectors between TCC solenoid valve and TCM. • TCM malfunction

ON-BOARD DIAGNOSTIC

DTC P0743 Torque converter clutch (TCC) solenoid valve circuit malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION	
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED <ul style="list-style-type: none"> Has FREEZE FRAME PID DATA been recorded? 	Yes	Go to next step.
		No	Record FREEZE FRAME PID DATA on repair order, then go to next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY <ul style="list-style-type: none"> Inspect for related Service Bulletins and/or on-line repair information availability. Is any related repair information available? 	Yes	Perform repair or diagnosis according to available repair information. <ul style="list-style-type: none"> If vehicle is not repaired, go to next step.
		No	Go to next step.
3	INSPECT SOLENOID CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> Disconnect solenoid connector. Inspect for poor connection (damaged, pulled-out terminals, corrosion, etc.). Is connection okay? 	Yes	Go to next step.
		No	Repair or replace connector and/or terminals, then go to Step 11.
4	INSPECT RESISTANCE <ul style="list-style-type: none"> Inspect resistance between solenoid connector terminal C (transaxle case side) and body ground. Is resistance within 11—15 ohms? (See 05-13-17 Inspection of Solenoid Valves.) 	Yes	Go to Step 7.
		No	Go to next step.
5	INSPECT TCC SOLENOID VALVE CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> Disconnect TCC solenoid valve connector. Inspect for connection (damaged, pulled-out terminals, connection, etc.). Are terminals okay? 	Yes	Go to next step.
		No	Repair or replace connector and/or terminals, then go to Step 11.
6	INSPECT RESISTANCE <ul style="list-style-type: none"> Inspect resistance between TCC solenoid valve terminal A (part-side) and body ground. Is resistance within 11—15 ohms? 	Yes	Replace solenoid harness, then go to Step 11.
		No	Verify TCC solenoid valve installation. <ul style="list-style-type: none"> If solenoid is installed correctly, replace solenoid, then go to Step 11. (See 05-13-18 SOLENOID VALVES REMOVAL/INSTALLATION.)

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ON-BOARD DIAGNOSTIC

STEP	INSPECTION	ACTION	
7	INSPECT SOLENOID CONNECTOR CIRCUIT FOR SHORT TO POWER <ul style="list-style-type: none"> Turn ignition key to ON (engine off). Inspect voltage at solenoid connector terminal C. Is voltage 0 V? 	Yes	Go to next step.
		No	Repair or replace harness, then go to Step 11.
8	INSPECT TCM CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> Disconnect TCM connector. Inspect for poor connection (damaged, pulled-out terminals, corrosion, etc.). Is there continuity between terminals? 	Yes	Go to next step.
		No	Repair or replace connector and/or terminals. then go to Step 11.
9	INSPECT SOLENOID CONNECTOR CIRCUIT FOR OPEN CIRCUIT <ul style="list-style-type: none"> Inspect for continuity between solenoid connector terminal C (vehicle harness-side) and TCM connector terminal AO. Is there continuity between terminals? 	Yes	Go to next step.
		No	Repair or replace harness, then go to next step.
10	INSPECT SOLENOID CONNECTOR CIRCUIT FOR SHORT TO GROUND <ul style="list-style-type: none"> Inspect for continuity between solenoid connector terminal C (harness-side) and body ground. Is there continuity? 	Yes	Repair or replace harness, then go to next step.
		No	Go to next step.
11	VERIFY TROUBLESHOOTING OF DTC P0743 COMPLETED <ul style="list-style-type: none"> Make sure to reconnect all disconnected connectors. Clear DTC from memory using WDS or equivalent. Drive vehicle in D range and make sure that gears shift smoothly from 1GR to 4GR and TCC is operated. Is same DTC present? 	Yes	Replace TCM, then go to next step. (See 05-13-24 TRANSMISSION CONTROL MODULE (TCM) REMOVAL/INSTALLATION.)
		No	Go to next step.
12	VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none"> Perform "After Repair Procedure" (See 05-02-3 AFTER REPAIR PROCEDURE.) Are any DTCs present? 	Yes	Go to applicable DTC inspection.
		No	Troubleshooting completed.

DTC P0751

A5U050201026W16

DTC P0751	Shift solenoid A malfunction (stuck off)
DETECTION CONDITION	<ul style="list-style-type: none"> All conditions below are satisfied with ignition key turned to ON (Start engine). <ul style="list-style-type: none"> Engine coolant temperature is 60°C {140°F} or above. Driving in D range for 20 seconds or more. Engine speed is 600 rpm or above. Vehicle speed is within 5 km/h {3.1 mph}—100 km/h {62 mph}. Throttle opening angle is 8% or above. Brake pedal is released. Difference between engine speed and turbine speed is above preset value. None of the following DTCs are output: P0705, P0706, P0715, P0720, P1740, P1742, P1751, P1752, P1756, P1757, P1771, or P1772. Diagnostic support note: <ul style="list-style-type: none"> This is a continuous monitor (CCM). MIL illuminates if TCM detects above malfunction conditions in two consecutive drive cycles. PENDING CODE is available. FREEZE FRAME DATA is available. O/D OFF indicator light does not flash. DTC is stored in TCM memory.

ON-BOARD DIAGNOSTIC

DTC P0751	Shift solenoid A malfunction (stuck off)
POSSIBLE CAUSE	<ul style="list-style-type: none"> • ATF level is low. • Deteriorated ATF • Shift solenoid A is stuck. • Line pressure is low. • Transmission malfunction • Control valve is stuck. • TCM malfunction

Diagnostic procedure

STEP	INSPECTION		ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED <ul style="list-style-type: none"> • Has FREEZE FRAME PID DATA been recorded? 	Yes	Go to next step.
		No	Record FREEZE FRAME PID DATA on repair order, then go to next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY <ul style="list-style-type: none"> • Inspect for related Service Bulletins and/or on-line repair information availability. • Is any related repair information available? 	Yes	Perform repair or diagnosis according to available repair information. <ul style="list-style-type: none"> • If vehicle is not repaired, go to next step.
		No	Go to next step.
3	INSPECT ATF CONDITION <ul style="list-style-type: none"> • Turn ignition key to OFF. • Inspect ATF condition. <ul style="list-style-type: none"> — Clear red: Normal — Milky: Water mixed in fluid — Reddish brown: Deteriorated ATF • Is it okay? (See 05-13-8 ATF Condition Inspection.)	Yes	Go to next step.
		No	If ATF color is milky or reddish brown, replace ATF, then go to Step 5. (See 05-13-9 AUTOMATIC TRANSMISSION FLUID (ATF) REPLACEMENT.)
4	INSPECT ATF LEVEL <ul style="list-style-type: none"> • Start engine. • Warm up AT. • Is ATF level within specification? (See 05-13-8 ATF Condition Inspection.)	Yes	Go to next step.
		No	Adjust ATF level, then go to Step 8. (See 05-13-9 ATF Level Inspection.)
5	INSPECT LINE PRESSURE <ul style="list-style-type: none"> • Measure line pressure. Specification Idle: 370—420 kPa {3.7—4.2 kgf/cm², 53—59 psi} Stall: 960—1110 kPa {9.8—11.4 kgf/cm², 140—162 psi} <ul style="list-style-type: none"> • Is line pressure within specification? (See 05-13-5 Line Pressure Test.)	Yes	Go to next step.
		No	<ul style="list-style-type: none"> • All ranges: Adjust throttle cable, or replace oil pump or control valve body, then go to Step 8. • Any of D, 2, or 1 ranges: Replace AT, then go to Step 8. (See 05-13-25 AUTOMATIC TRANSMISSION REMOVAL/INSTALLATION.) (See Automatic Transmission Workshop Manual SB4A-EL (9999-95-422H-99).)
6	CLICK TEST OF SOLENOID VALVE <ul style="list-style-type: none"> • Turn ignition key to OFF. • Remove shift solenoid A. • Verify click sounds of shift solenoid A. • Are there click sounds? (See 05-13-17 SOLENOID VALVES INSPECTION.)	Yes	Go to next step.
		No	Replace shift solenoid A, then go to Step 8. (See 05-13-18 SOLENOID VALVES REMOVAL/INSTALLATION.)
7	INSPECT OPERATION OF EACH VALVE AND SPRING <ul style="list-style-type: none"> • Disassemble control valve body. • Are operations of each valve and spring okay? 	Yes	Replace AT, then go to next step. (See 05-13-25 AUTOMATIC TRANSMISSION REMOVAL/INSTALLATION.)
		No	Repair or replace control valve body, then go to next step. (See 05-13-32 CONTROL VALVE BODY REMOVAL/INSTALLATION.)

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ON-BOARD DIAGNOSTIC

STEP	INSPECTION	ACTION
8	VERIFY TROUBLESHOOTING OF DTC P0751 COMPLETED. <ul style="list-style-type: none"> Make sure to reconnect all disconnected connectors. Clear DTC from memory using WDS or equivalent. Start engine. Drive vehicle under following conditions for 25 seconds or more. <ul style="list-style-type: none"> Engine coolant temperature (ECT PID): 60°C {140°F} Engine speed (RPM PID): 600 rpm or above Vehicle speed (VSS PID): Within 5 km/h {3.1 mph}— 100 km/h {62 mph} D range position Throttle position (TP PID): 0.6 V or above Is pending code present? 	Yes Replace TCM, then go to next step. (See 05–13–24 TRANSMISSION CONTROL MODULE (TCM) REMOVAL/INSTALLATION.)
		No Go to next step.
9	VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none"> Perform "After Repair Procedure". (See 05–02–3 AFTER REPAIR PROCEDURE.) Are any DTCs present? 	Yes Go to applicable DTC inspection.
		No Troubleshooting completed.

DTC P0752

A5U050201026W17

DTC P0752	Shift solenoid A malfunction (stuck on)
DETECTION CONDITION	<ul style="list-style-type: none"> All conditions below are satisfied with ignition key turned to ON (Start engine). <ul style="list-style-type: none"> Engine coolant temperature is 60°C {140°F} or above. Driving in D range for 20 seconds or more. Engine speed is 600 rpm or above. Vehicle speed is within 5 km/h {3.1 mph}—100 km/h {62 mph}. Throttle opening angle is 5% or above. Brake pedal is released. Difference between engine speed and turbine speed is above preset value. None of the following DTCs are output: P0705, P0706, P0715, P0720, P1740, P1742, P1751, P1752, P1756, P1757, P1771, or P1772. Diagnostic support note: <ul style="list-style-type: none"> This is a continuous monitor (CCM). MIL illuminates if TCM detects above malfunction conditions in two consecutive drive cycles. PENDING CODE is available. FREEZE FRAME DATA is available. O/D OFF indicator light does not flash. DTC is stored in TCM memory.
POSSIBLE CAUSE	<ul style="list-style-type: none"> ATF level is low. Deteriorated ATF Shift solenoid A is stuck. Line pressure is low. Transmission malfunction Control valve is stuck. TCM malfunction

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED <ul style="list-style-type: none"> Has FREEZE FRAME PID DATA been recorded? 	Yes Go to next step.
		No Record FREEZE FRAME PID DATA on repair order, then go to next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY <ul style="list-style-type: none"> Inspect for related Service Bulletins and/or on-line repair information availability. Is any related repair information available? 	Yes Perform repair or diagnosis according to available repair information. <ul style="list-style-type: none"> If vehicle is not repaired, go to next step.
		No Go to next step.

ON-BOARD DIAGNOSTIC

STEP	INSPECTION		ACTION
3	INSPECT ATF CONDITION <ul style="list-style-type: none"> Turn ignition key to OFF. Inspect ATF condition. <ul style="list-style-type: none"> Clear red: Normal Milky: Water mixed in fluid Reddish brown: Deteriorated ATF Is it okay? (See 05-13-8 ATF Condition Inspection.)	Yes	Go to next step.
		No	If ATF color is milky or reddish brown, replace ATF, then go to Step 5. (See 05-13-9 AUTOMATIC TRANSMISSION FLUID (ATF) REPLACEMENT.)
4	INSPECT ATF LEVEL <ul style="list-style-type: none"> Start engine. Warm up AT. Is ATF level within specification? (See 05-13-8 ATF Condition Inspection.)	Yes	Go to next step.
		No	Adjust ATF level, then go to Step 8. (See 05-13-9 ATF Level Inspection.)
5	INSPECT LINE PRESSURE <ul style="list-style-type: none"> Measure line pressure. Specification Idle: 370—420 kPa {3.7—4.2 kgf/cm², 53—59 psi} Stall: 960—1110 kPa {9.8—11.4 kgf/cm², 140—162 psi} <ul style="list-style-type: none"> Is line pressure within specification? (See 05-13-5 Line Pressure Test.)	Yes	Go to next step.
		No	<ul style="list-style-type: none"> All ranges: Adjust throttle cable, or replace oil pump or control valve body, then go to Step 8. (See 05-13-25 AUTOMATIC TRANSMISSION REMOVAL/INSTALLATION.) (See Automatic Transmission Workshop Manual SB4A-EL (9999-95-422H-99).)
6	CLICK TEST OF SOLENOID VALVE <ul style="list-style-type: none"> Turn ignition key to OFF. Remove shift solenoid A. Verify click sounds of shift solenoid A. Are there click sounds? (See 05-13-17 SOLENOID VALVES INSPECTION.)	Yes	Go to next step.
		No	Replace shift solenoid A, then go to Step 8. (See 05-13-18 SOLENOID VALVES REMOVAL/INSTALLATION.)
7	INSPECT OPERATION OF EACH VALVE AND SPRING <ul style="list-style-type: none"> Disassemble control valve body. Are operations of each valve and spring okay? 	Yes	Replace AT, then go to next step. (See 05-13-25 AUTOMATIC TRANSMISSION REMOVAL/INSTALLATION.)
		No	Repair or replace control valve body, then go to next step. (See 05-13-32 CONTROL VALVE BODY REMOVAL/INSTALLATION.)
8	VERIFY TROUBLESHOOTING OF DTC P0752 COMPLETED. <ul style="list-style-type: none"> Make sure to reconnect all disconnected connectors. Clear DTC from memory using WDS or equivalent. Start engine. Drive vehicle under following conditions for 25 seconds or more. <ul style="list-style-type: none"> Engine coolant temperature (ECT PID): 60°C {140°F} Engine speed (RPM PID): 600 rpm or above vehicle speed (VSS PID): Within 5 km/h {3.1 mph}— 100 km/h {62 mph} D range position Throttle position (TP PID): 0.6 V or above Is pending code present? 	Yes	Replace TCM, then go to next step. (See 05-13-24 TRANSMISSION CONTROL MODULE (TCM) REMOVAL/INSTALLATION.)
		No	Go to next step.
9	VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none"> Perform "After Repair Procedure". (See 05-02-3 AFTER REPAIR PROCEDURE.) <ul style="list-style-type: none"> Are any DTCs present? 	Yes	Go to applicable DTC inspection.
		No	Troubleshooting completed.

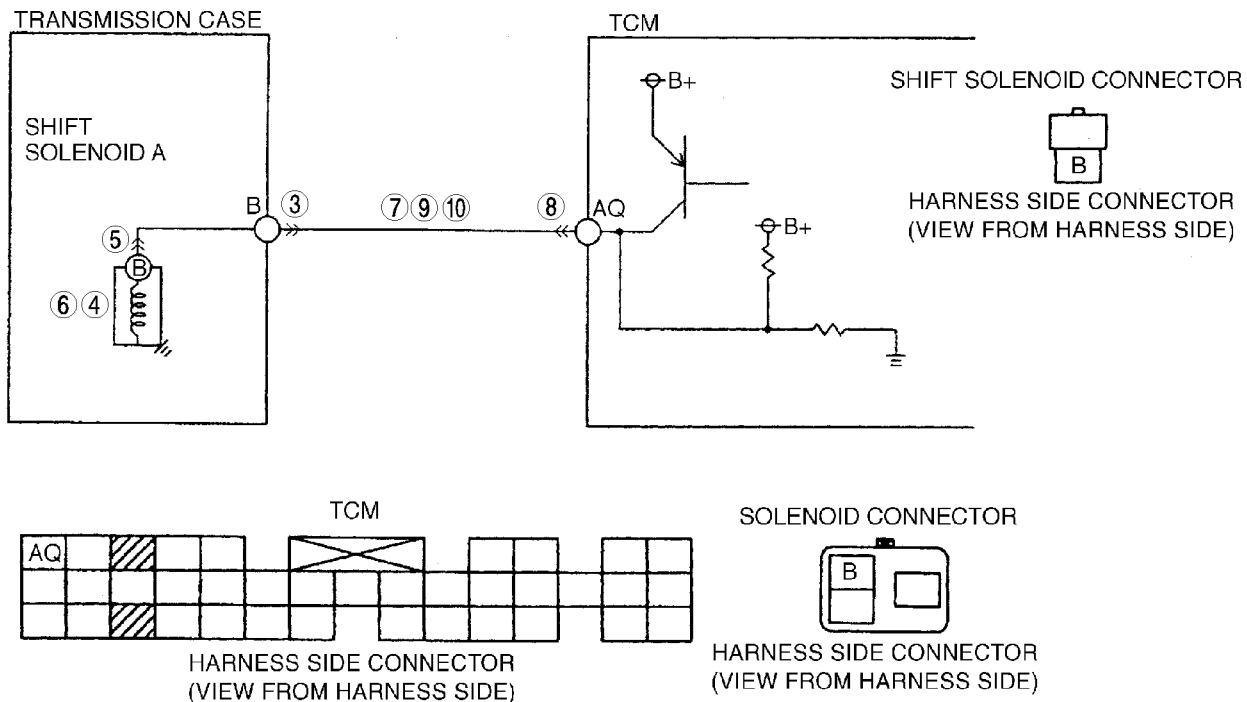
05-02

ON-BOARD DIAGNOSTIC

DTC P0753

A5U050201026W18

DTC P0753	Shift solenoid A circuit malfunction
DETECTION CONDITION	<ul style="list-style-type: none"> If TCM detects following conditions, TCM determines that shift solenoid A circuit has a malfunction. <ul style="list-style-type: none"> Shift solenoid A voltage is stuck at B+ after engine start. Shift solenoid A voltage is stuck at 0 V after engine start. <p>Diagnostic support note:</p> <ul style="list-style-type: none"> This is a continuous monitor (CCM). MIL illuminates if TCM detects the above malfunction conditions in two consecutive drive cycles. PENDING CODE is available. FREEZE FRAME DATA is available. O/D OFF indicator light dose not flash. DTC is stored in TCM memory.
POSSIBLE CAUSE	<ul style="list-style-type: none"> Shift solenoid A malfunction Open circuit between shift solenoid connector terminal B and solenoid connector terminal B Open circuit between solenoid connector terminal B and TCM terminal AQ Short to power between shift solenoid A terminal A and solenoid connector terminal B Short to power between solenoid connector terminal B and TCM terminal AQ Short to ground between shift solenoid A terminal B and solenoid connector terminal B Short to ground solenoid connector terminal B and TCM terminal AQ Damaged connectors between shift solenoid A and TCM TCM malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED <ul style="list-style-type: none"> Has FREEZE FRAME PID DATA been recorded? 	Yes: Go to next step. No: Record FREEZE FRAME PID DATA on repair order, then go to next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY <ul style="list-style-type: none"> Inspect for related Service Bulletins and/or on-line repair information availability. Is any related repair information available? 	Yes: Perform repair or diagnosis according to available repair information. <ul style="list-style-type: none"> If vehicle is not repaired, go to next step. No: Go to next step.

ON-BOARD DIAGNOSTIC

STEP	INSPECTION	ACTION	
3	INSPECT SOLENOID CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> Disconnect solenoid connector. Inspect for poor connection (damaged, pulled-out terminals, corrosion, etc.). Is connection okay? 	Yes	Go to next step.
		No	Repair or replace connector and/or terminals, then go to Step 11.
4	INSPECT RESISTANCE <ul style="list-style-type: none"> Inspect resistance between solenoid connector terminal B (transaxle case side) and body ground. Is resistance within 11—15 ohms? (See 05–13–17 Inspection of Solenoid Valves.) 	Yes	Go to Step 7.
		No	Go to next step.
5	INSPECT SHIFT SOLENOID CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> Disconnect shift solenoid connector. Inspect for connection (damaged, pulled-out terminals, corrosion, etc.). Are terminals okay? 	Yes	Go to next step.
		No	Repair or replace connector and/or terminals, then go to Step 11.
6	INSPECT RESISTANCE <ul style="list-style-type: none"> Inspect resistance between shift solenoid connector terminal B (part-side) and body ground. Is resistance within 11—15 ohms? 	Yes	Replace solenoid harness, then go to Step 11.
		No	Verify shift solenoid A installation. <ul style="list-style-type: none"> If solenoid is installed correctly, replace solenoid, then go to Step 11. (See 05–13–18 SOLENOID VALVES REMOVAL/INSTALLATION.)
7	INSPECT SOLENOID CONNECTOR CIRCUIT FOR SHORT TO POWER <ul style="list-style-type: none"> Turn ignition key to ON (engine off). Inspect voltage at solenoid connector terminal B. Is voltage 0 V? 	Yes	Go to next step.
		No	Repair or replace harness, then go to Step 11.
8	INSPECT TCM CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> Disconnect TCM connector. Inspect for poor connection (damaged, pulled-out terminals, corrosion, etc.). Is there continuity between terminals? 	Yes	Go to next step.
		No	Repair or replace connector and/or terminals, then go to Step 11.
9	INSPECT SOLENOID CONNECTOR CIRCUIT FOR OPEN CIRCUIT <ul style="list-style-type: none"> Inspect for continuity between solenoid connector terminal B (vehicle harness-side) and TCM connector terminal AQ. Is there continuity between terminals? 	Yes	Go to next step.
		No	Repair or replace harness, then go to Step 11.
10	INSPECT SOLENOID CONNECTOR CIRCUIT FOR SHORT TO GROUND <ul style="list-style-type: none"> Inspect for continuity between solenoid connector terminal B (harness side) and body ground. Is there continuity? 	Yes	Repair or replace harness, then go to next step.
		No	Go to next step.
11	VERIFY TROUBLESHOOTING OF DTC P0753 COMPLETED <ul style="list-style-type: none"> Make sure to reconnect all disconnected connectors. Clear DTC from memory using WDS or equivalent. Drive vehicle in D range and make sure that gears shift smoothly from 1GR to 4GR and TCC is operated. Is same DTC present? 	Yes	Replace TCM, then go to next step. (See 05–13–24 TRANSMISSION CONTROL MODULE (TCM) REMOVAL/INSTALLATION.)
		No	Go to next step.
12	VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none"> Perform “After Repair Procedure” (See 05–02–3 AFTER REPAIR PROCEDURE.) Are any DTCs present? 	Yes	Go to applicable DTC inspection.
		No	Troubleshooting completed.

05–02

ON-BOARD DIAGNOSTIC

DTC P0756

A5U050201026W19

DTC P0756	Shift solenoid B malfunction (stuck off)
DETECTION CONDITION	<ul style="list-style-type: none"> All conditions below are satisfied with ignition key turned to ON (Start engine). <ul style="list-style-type: none"> Engine coolant temperature is 60°C {140°F} or above. Driving in D range for 20 seconds or more. Engine speed is 600 rpm or above. Vehicle speed is within 5 km/h {3.1 mph}—100 km/h {62 mph}. Throttle opening angle is 8% or above. Brake pedal is released. Difference between engine speed and turbine speed is above preset value. None of the following DTCs are output: P0705, P0706, P0715, P0720, P1740, P1742, P1751, P1752, P1756, P1757, P1771, or P1772. <p>Diagnostic support note:</p> <ul style="list-style-type: none"> This is a continuous monitor (CCM). MIL illuminates if TCM detects above malfunction conditions in two consecutive drive cycles. PENDING CODE is available. FREEZE FRAME DATA is available. O/D OFF indicator light does not flash. DTC is stored in TCM memory.
POSSIBLE CAUSE	<ul style="list-style-type: none"> ATF level is low. Deteriorated ATF Shift solenoid B is stuck. Line pressure is low. Transmission malfunction Control valve is stuck. PCM malfunction

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED <ul style="list-style-type: none"> Has FREEZE FRAME PID DATA been recorded? 	Yes Go to next step.
		No Record FREEZE FRAME PID DATA on repair order, then go to next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY <ul style="list-style-type: none"> Inspect for related Service Bulletins and/or on-line repair information availability. Is any related repair information available? 	Yes Perform repair or diagnosis according to available repair information. • If vehicle is not repaired, go to next step.
		No Go to next step.
3	INSPECT ATF CONDITION <ul style="list-style-type: none"> Turn ignition key to OFF. Inspect ATF condition. <ul style="list-style-type: none"> Clear red: Normal Milky: Water mixed in fluid Reddish brown: Deteriorated ATF Is it okay? (See 05-13-8 ATF Condition Inspection.)	Yes Go to next step.
		No If ATF color is milky or reddish brown, replace ATF, then go to Step 5. (See 05-13-9 AUTOMATIC TRANSMISSION FLUID (ATF) REPLACEMENT.)
4	INSPECT ATF LEVEL <ul style="list-style-type: none"> Start engine. Warm up AT. Is ATF level within specification? (See 05-13-9 ATF Level Inspection.)	Yes Go to next step.
		No Adjust ATF level, then go to Step 8. (See 05-13-9 ATF Level Inspection.)
5	INSPECT LINE PRESSURE <ul style="list-style-type: none"> Measure line pressure. Specification Idle: 370—420 kPa {3.7—4.2 kgf/cm², 53—59 psi} Stall: 960—1110 kPa{9.8—11.4 kgf/cm², 140—162 psi} <ul style="list-style-type: none"> Is line pressure within specification? (See 05-13-5 Line Pressure Test.)	Yes Go to next step.
		No <ul style="list-style-type: none"> All ranges: Adjust throttle cable, or replace oil pump or control valve body, then go to Step 8. Any of D, 2, or, 1 ranges: Replace AT, then go to Step 8. (See 05-13-25 AUTOMATIC TRANSMISSION REMOVAL/INSTALLATION.) (See Automatic Transmission Workshop Manual SB4A-EL (9999-95-422H-99).)

ON-BOARD DIAGNOSTIC

STEP	INSPECTION	ACTION
6	CLICK TEST OF SOLENOID VALVE <ul style="list-style-type: none"> Turn ignition key to OFF. Remove shift solenoid B. Verify click sounds of shift solenoid B. Are there click sounds? (See 05-13-17 SOLENOID VALVES INSPECTION.)	Yes Go to next step.
		No Replace shift solenoid B, then go to Step 8. (See 05-13-18 SOLENOID VALVES REMOVAL/INSTALLATION.)
7	INSPECT OPERATION OF EACH VALVE AND SPRING <ul style="list-style-type: none"> Disassemble control valve body. Are operations of each valve and spring okay? 	Yes Replace AT, then go to next step. (See 05-13-25 AUTOMATIC TRANSMISSION REMOVAL/INSTALLATION.)
		No Repair or replace control valve body, then go to next step. (See 05-13-32 CONTROL VALVE BODY REMOVAL/INSTALLATION.)
8	VERIFY TROUBLESHOOTING OF DTC P0756 COMPLETED. <ul style="list-style-type: none"> Make sure to reconnect all disconnected connectors. Clear DTC from memory using WDS or equivalent. Start engine. Drive vehicle under following conditions for 25 seconds or more. <ul style="list-style-type: none"> Engine coolant temperature (ECT PID): 60°C {140°F} Engine speed (RPM PID): 600 rpm or above Vehicle speed (VSS PID): Within 5 km/h {3.1 mph}—100 km/h {62 mph} D range position Throttle position (TP PID): 0.6 V or above Is pending code present? 	Yes Replace TCM, then go to next step. (See 05-13-24 TRANSMISSION CONTROL MODULE (TCM) REMOVAL/INSTALLATION.)
		No Go to next step.
9	VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none"> Perform "After Repair Procedure". (See 05-02-3 AFTER REPAIR PROCEDURE.) Are any DTCs present? 	Yes Go to applicable DTC inspection.
		No Troubleshooting completed.

05-02

DTC P0757

A5U050201026W20

DTC P0757	Shift solenoid B malfunction (stuck on)
DETECTION CONDITION	<ul style="list-style-type: none"> All conditions below are satisfied with ignition key turned to ON (Start engine). <ul style="list-style-type: none"> Engine coolant temperature is 60°C {140°F} or above. Driving in D range for 20 seconds or more. Engine speed is 600 rpm or above. Vehicle speed is within 5 km/h {3.1 mph}—100 km/h {62 mph}. Throttle opening angle is 5% or above. Brake pedal is released. Difference between engine speed and turbine speed is above preset value. None of the following DTCs are output: P0705, P0706, P0715, P0720, P1740, P1742, P1751, P1752, P1756, P1757, P1771, or P1772. Diagnostic support note: <ul style="list-style-type: none"> This is a continuous monitor (CCM). MIL illuminates if TCM detects above malfunction conditions in two consecutive drive cycles. PENDING CODE is available. FREEZE FRAME DATA is available. O/D OFF indicator light does not flash. DTC is stored in TCM memory.
POSSIBLE CAUSE	<ul style="list-style-type: none"> ATF level is low. Deteriorated ATF Shift solenoid B is stuck. Line pressure is low. Transmission malfunction Control valve is stuck. PCM malfunction

ON-BOARD DIAGNOSTIC

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED <ul style="list-style-type: none"> Has FREEZE FRAME PID DATA been recorded? 	Yes
		No
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY <ul style="list-style-type: none"> Inspect for related Service Bulletins and/or on-line repair information availability. Is any related repair information available? 	Yes
		No
3	INSPECT ATF CONDITION <ul style="list-style-type: none"> Turn ignition key to OFF. Inspect ATF condition. <ul style="list-style-type: none"> Clear red: Normal Milky: Water mixed in fluid Reddish brown: Deteriorated ATF Is it okay? (See 05-13-8 ATF Condition Inspection.)	Yes
		No
4	INSPECT ATF LEVEL <ul style="list-style-type: none"> Start engine. Warm up AT. Is ATF level within specification? (See 05-13-8 ATF Condition Inspection.)	Yes
		No
5	INSPECT LINE PRESSURE <ul style="list-style-type: none"> Measure line pressure. Specification Idle: 370—420 kPa {3.7—4.2 kgf/cm², 53—59 psi} Stall: 960—1110 kPa {9.8—11.4 kgf/cm², 140—162 psi} <ul style="list-style-type: none"> Is line pressure within specification? (See 05-13-5 Line Pressure Test.)	Yes
		No
6	CLICK TEST OF SOLENOID VALVE <ul style="list-style-type: none"> Turn ignition key to OFF. Remove shift solenoid B. Verify click sounds of shift solenoid B. Are there click sounds? (See 05-13-17 SOLENOID VALVES INSPECTION.)	Yes
		No
7	INSPECT OPERATION OF EACH VALVE AND SPRING <ul style="list-style-type: none"> Disassemble control valve body. Are operations of each valve operation and spring okay? 	Yes
		No
8	VERIFY TROUBLESHOOTING OF DTC P0757 COMPLETED. <ul style="list-style-type: none"> Make sure to reconnect all disconnected connectors. Clear DTC from memory using WDS or equivalent. Start engine. Drive vehicle under following conditions for 25 seconds or more. <ul style="list-style-type: none"> Engine coolant temperature (ECT PID): 60°C {140°F} Engine speed (RPM PID): 600 rpm or above Vehicle speed (VSS PID): Within 5 km/h {3.1 mph}— 100 km/h {62 mph} D range position Throttle position (TP PID): 0.6 V or above Is pending code present? 	Yes
		No

ON-BOARD DIAGNOSTIC

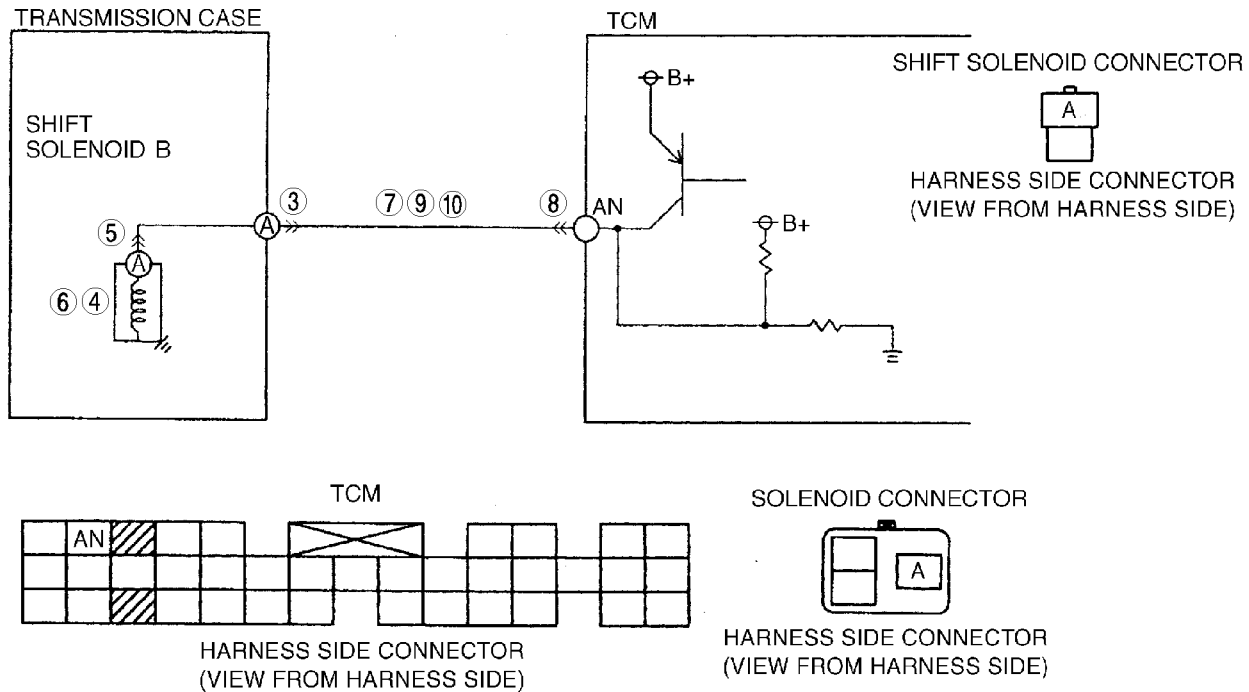
STEP	INSPECTION	ACTION
9	VERIFY AFTER REPAIR PROCEDURE • Perform "After Repair Procedure". (See 05-02-3 AFTER REPAIR PROCEDURE.) • Are any DTCs present?	Yes Go to applicable DTC inspection.
		No Troubleshooting completed.

DTC P0758

A5U050201026W21

DTC P0758	Shift solenoid B circuit malfunction
DETECTION CONDITION	<ul style="list-style-type: none"> If TCM detects following conditions, TCM determines that shift solenoid B circuit has a malfunction. <ul style="list-style-type: none"> Shift solenoid B voltage is stuck at B+ after engine start. Shift solenoid B voltage is stuck at 0 V after engine start. <p>Diagnostic support note:</p> <ul style="list-style-type: none"> This is a continuous monitor (CCM). MIL illuminates if TCM detects the above malfunction conditions during first drive cycle. PENDING CODE is not available. FREEZE FRAME DATA is available. O/D OFF indicator light flashes. DTC is stored in TCM memory.
POSSIBLE CAUSE	<ul style="list-style-type: none"> Shift solenoid B malfunction Open circuit between shift solenoid connector terminal A and solenoid connector terminal A Open circuit between solenoid connector terminal A and TCM terminal AN Short to power between shift solenoid B terminal A and solenoid connector terminal A Short to power between solenoid connector terminal A and TCM terminal AN Short to ground between shift solenoid B terminal A and solenoid connector terminal A Short to ground between solenoid connector A and TCM terminal AN Damaged connectors between shift solenoid B and TCM TCM malfunction

05-02



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED • Has FREEZE FRAME PID DATA been recorded?	Yes Go to next step.
		No Record FREEZE FRAME PID DATA on repair order, then go to next step.

ON-BOARD DIAGNOSTIC

STEP	INSPECTION		ACTION
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY <ul style="list-style-type: none"> Inspect for related Service Bulletins and/or on-line repair information availability. Is any related repair information available? 	Yes	Perform repair or diagnosis according to available repair information. <ul style="list-style-type: none"> If vehicle is not repaired, go to next step.
		No	Go to next step.
3	INSPECT SOLENOID CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> Disconnect solenoid connector. Inspect for poor connection (damaged, pulled-out terminals, corrosion, etc.). Is connection okay? 	Yes	Go to next step.
		No	Repair or replace connector and/or terminals, then go to Step 11.
4	INSPECT RESISTANCE <ul style="list-style-type: none"> Inspect resistance between solenoid connector terminal A (transmission case side) and body ground. Is resistance within 11—15 ohms? (See 05–13–17 Inspection of Solenoid Valves.)	Yes	Go to Step 7.
		No	Go to next step.
5	INSPECT SHIFT SOLENOID CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> Disconnect shift solenoid connector. Inspect for connection (damaged, pulled-out terminals, connection, etc.). Are terminals okay? 	Yes	Go to next step.
		No	Repair or replace connector and/or terminals, then go to Step 11.
6	INSPECT RESISTANCE <ul style="list-style-type: none"> Inspect resistance between shift solenoid connector terminal A (part-side) and body ground. Is resistance within 11—15 ohms? 	Yes	Replace solenoid harness, then go to Step 11.
		No	Verify shift solenoid B installation. <ul style="list-style-type: none"> If solenoid is installed correctly, replace solenoid, then go to Step 11. (See 05–13–18 SOLENOID VALVES REMOVAL/INSTALLATION.)
7	INSPECT SOLENOID CONNECTOR CIRCUIT FOR SHORT TO POWER <ul style="list-style-type: none"> Turn ignition key to ON (engine off). Inspect voltage at solenoid connector terminal A. Is voltage 0 V? 	Yes	Go to next step.
		No	Repair or replace harness, then go to Step 11.
8	INSPECT TCM CONNECTOR FOR POOR CONNECTION <ul style="list-style-type: none"> Disconnect TCM connector. Inspect for poor connection (damaged, pulled-out terminals, corrosion, etc.). Is there continuity between terminals? 	Yes	Go to next step.
		No	Repair or replace connector and/or terminals. then go to Step 11.
9	INSPECT SOLENOID CONNECTOR CIRCUIT FOR OPEN CIRCUIT <ul style="list-style-type: none"> Inspect for continuity between solenoid connector terminal A (vehicle harness-side) and TCM connector terminal AN. Is there continuity between terminals? 	Yes	Go to next step.
		No	Repair or replace harness, then go to Step 11.
10	INSPECT SOLENOID CONNECTOR CIRCUIT FOR SHORT TO GROUND <ul style="list-style-type: none"> Inspect for continuity between solenoid connector terminal B (harness side) and body ground. Is there continuity? 	Yes	Repair or replace harness, then go to Step 11.
		No	Go to next step.
11	VERIFY TROUBLESHOOTING OF DTC P0758 COMPLETED <ul style="list-style-type: none"> Make sure to reconnect all disconnected connectors. Clear DTC from memory using WDS or equivalent. Drive vehicle in D range and make sure that gears shift smoothly from 1GR to 4GR. Is same DTC present? 	Yes	Replace TCM, then go to next step. (See 05–13–24 TRANSMISSION CONTROL MODULE (TCM) REMOVAL/INSTALLATION.)
		No	Go to next step.

ON-BOARD DIAGNOSTIC

STEP	INSPECTION	ACTION
12	VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none">• Perform "After Repair Procedure"(See 05-02-3 AFTER REPAIR PROCEDURE.)• Are any DTCs present?	Yes
		No
		Go to applicable DTC inspection.
		Troubleshooting completed.