



Mazda 3 Workshop Manual - TRANSMISSION/TRANSAXLE + DTC + Wiring Diagrams

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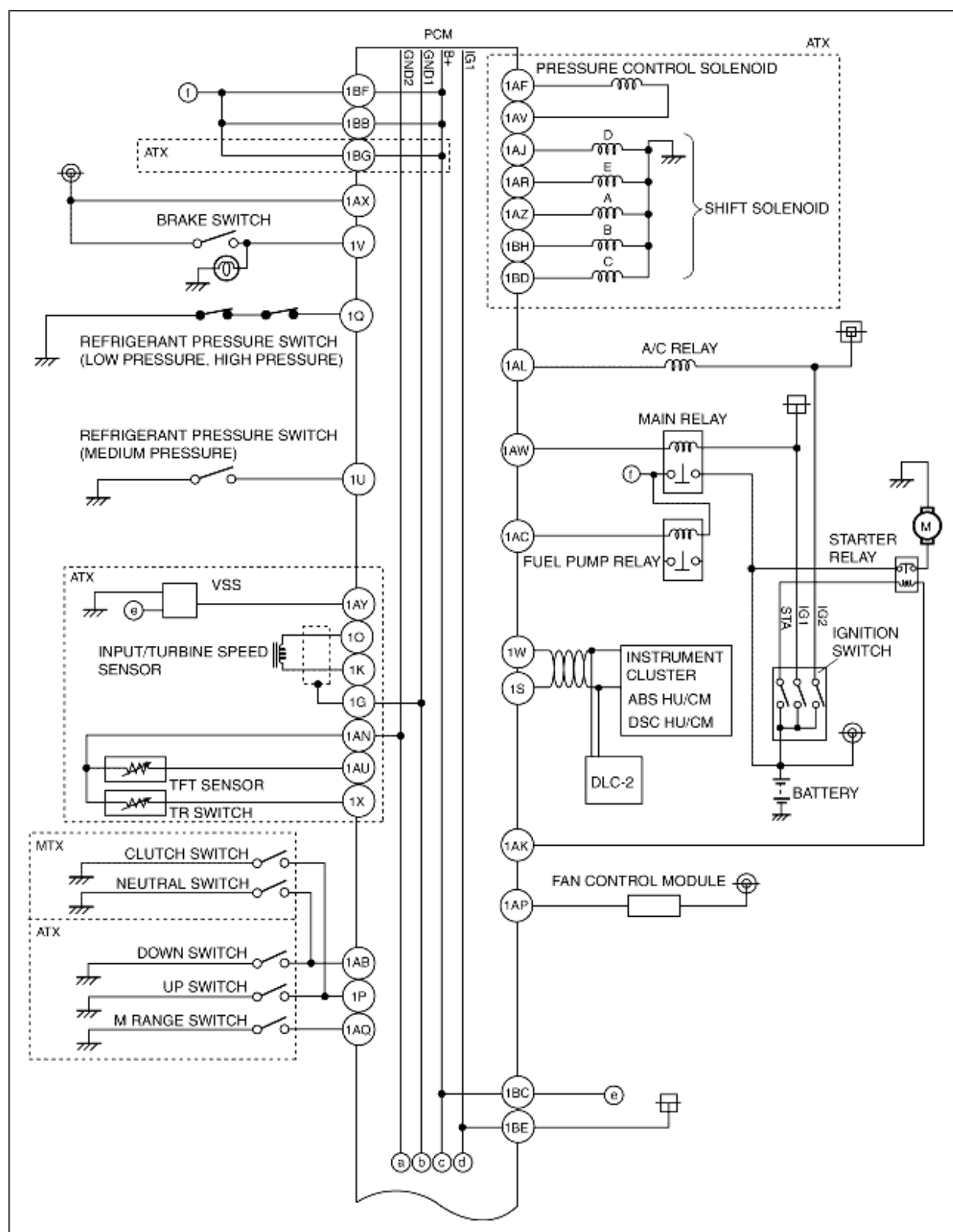
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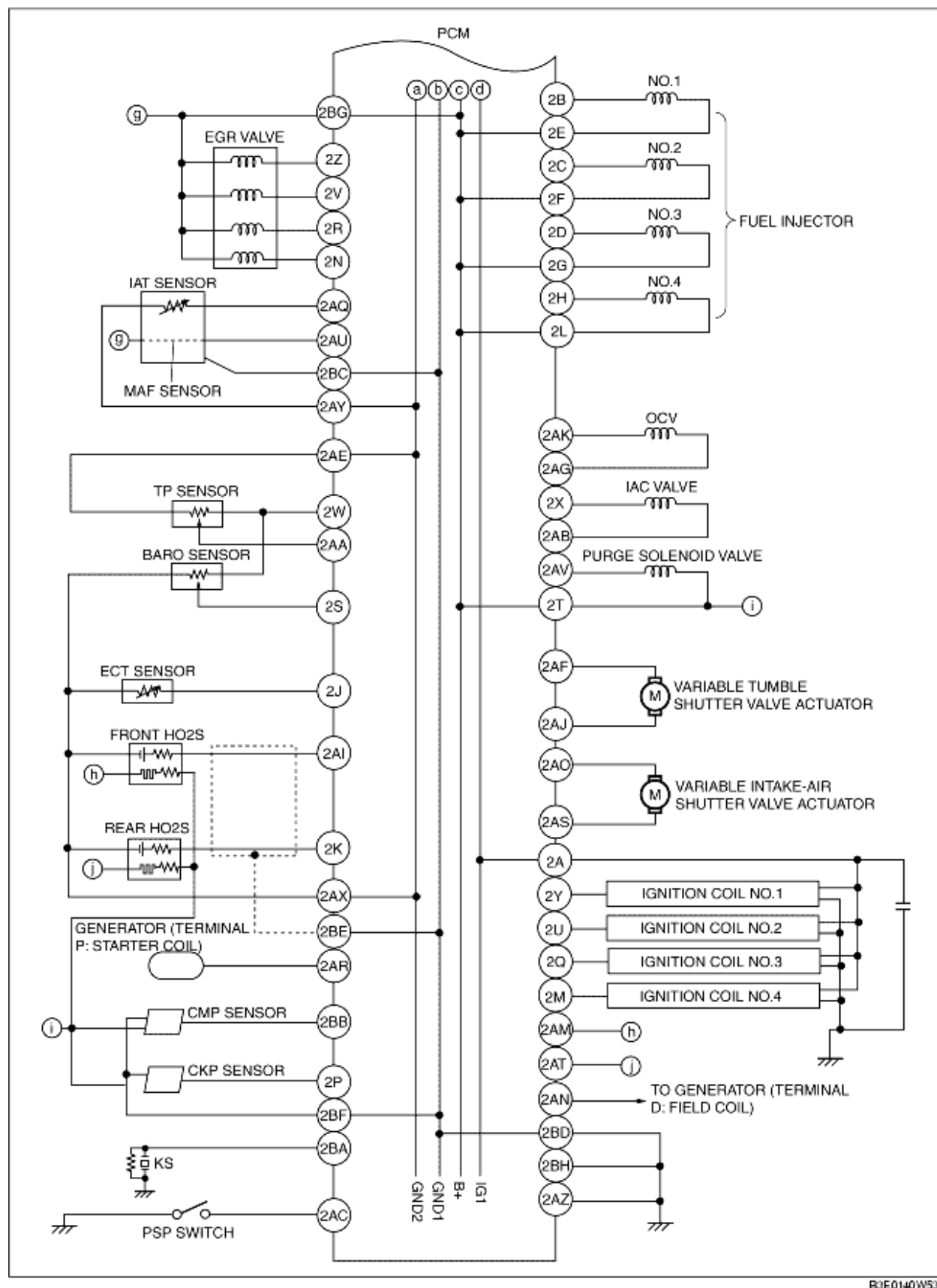
ON-BOARD DIAGNOSTIC

AUTOMATIC TRANSAXLE CONTROL SYSTEM WIRING DIAGRAM [FN4A-EL]

B3E050219090W01



B3E0140W532

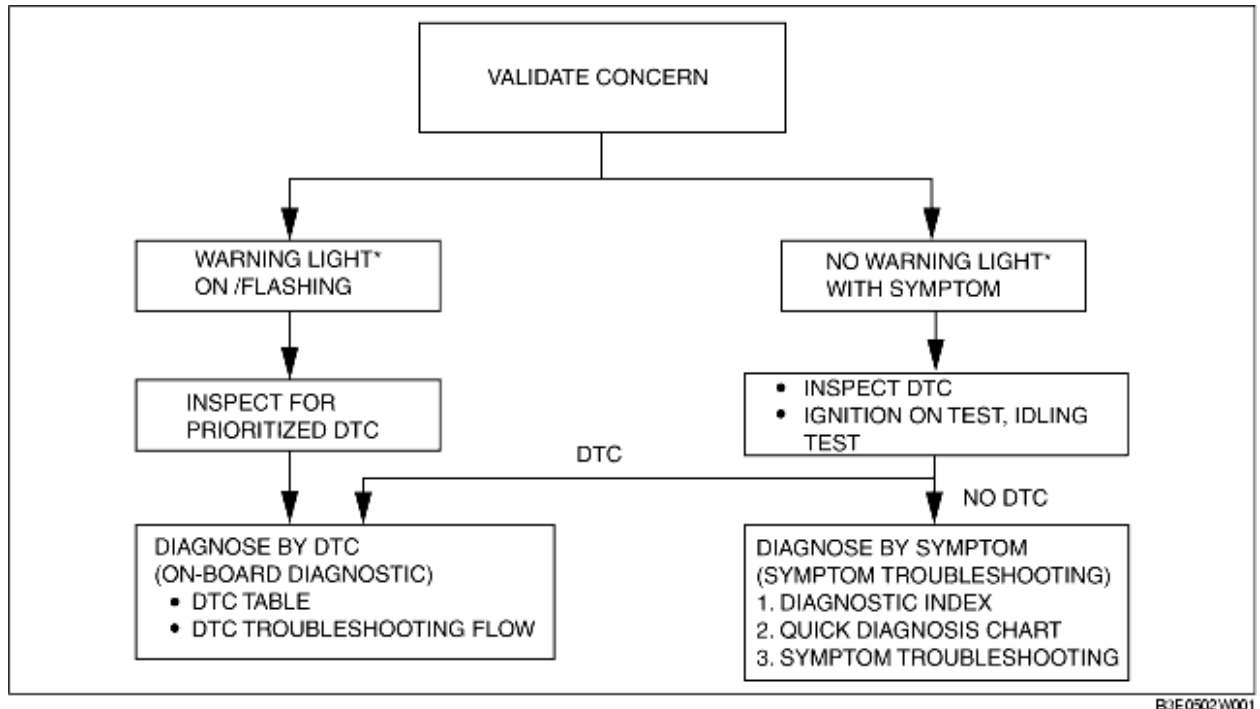


FOREWORD [FN4A-EL]

B3E050219090W02

• When the customer reports a vehicle malfunction, inspect the malfunction indicator lamp (MIL), AT warning light indication, and PCM memory for diagnostic trouble code (DTC), then diagnose the malfunction according to the following flowchart.

- If a DTC exists, diagnose the applicable DTC. (See [DTC TABLE \[FN4A-EL\]](#).)
- If no DTC exists, the MIL does not illuminate, and AT warning light does not illuminate. Diagnose the applicable symptom troubleshooting. (See [SYMPTOM TROUBLESHOOTING ITEM TABLE](#).)



*: Malfunction indicator lamp (MIL), AT warning light

AUTOMATIC TRANSAXLE ON-BOARD DIAGNOSTIC FUNCTION [FN4A-EL]

B3E050219090W03

DTC Reading Procedure

(See [ON-BOARD DIAGNOSTIC TEST \[LF\]](#).)

(See [ON-BOARD DIAGNOSTIC TEST \[Z6\]](#).)

AFTER REPAIR PROCEDURE [FN4A-EL]

B3E050219090W04

Caution

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

1. Connect the WDS or equivalent to the DLC-2.
2. Turn the ignition switch to the ON position (engine off).
3. Verify that DTCs are cleared from memory.
4. Decrease ATF temperature to **20 °C {68 °F} or less**.
5. Start the engine then wait **180 s or more**.
6. Warm up the engine and ATX.
 - Engine coolant temperature: **60 °C {140 °F} or more**.
 - Transaxle fluid temperature: **20 °C {68 °F} or more**.
7. Shift the selector lever between P position to M range while depressing brake pedal.
8. Drive the vehicle for **150 s or more** at a vehicle speed **between 25 and 59 km/h {15 and 36 mph}**, then **60 km/h {37 mph} or more** for **100 s or more**.
9. Drive the vehicle in D range and shift gears between 1st and 4th (TCC operation) gear.
10. Gradually slow down and stop the vehicle.
11. Make sure that the repaired DTC does not recur.

DTC TABLE [FN4A-EL]

B3E050219090W05

DTC No.	Condition	MIL	AT warning light illuminates	DC	Monitor item	Memory function	Page
P0011	CMP-timing over-advanced		(See DTC TABLE [Z6] .)				
P0012	CMP-timing over-retarded		(See DTC TABLE [Z6] .)				
P0031	Front HO2S heater control circuit low		(See DTC TABLE [Z6] .)				
P0032	Front HO2S heater control circuit high		(See DTC TABLE [Z6] .)				
P0037	Rear HO2S heater control circuit low		(See DTC TABLE [Z6] .)				
P0038	Rear HO2S heater control circuit high		(See DTC TABLE [Z6] .)				

P0102	MAF sensor circuit low input	(See DTC TABLE [Z6].)
P0103	MAF sensor circuit high input	(See DTC TABLE [Z6].)
P0111	IAT sensor circuit range/performance problem	(See DTC TABLE [Z6].)
P0112	IAT sensor circuit low input	(See DTC TABLE [Z6].)
P0113	IAT sensor circuit high input	(See DTC TABLE [Z6].)
P0117	ECT sensor circuit low input	(See DTC TABLE [Z6].)
P0118	ECT sensor circuit high input	(See DTC TABLE [Z6].)
P0121	TP sensor circuit range/performance problem	(See DTC TABLE [Z6].)
P0122	TP sensor circuit low input	(See DTC TABLE [Z6].)
P0123	TP sensor circuit high input	(See DTC TABLE [Z6].)
P0125	Insufficient coolant temperature for closed loop fuel control	(See DTC TABLE [Z6].)
P0132	Front HO2S circuit high voltage	(See DTC TABLE [Z6].)
P0133	Front HO2S circuit slow response	(See DTC TABLE [Z6].)
P0134	Front HO2S circuit no activity detected	(See DTC TABLE [Z6].)
P0138	Rear HO2S circuit high voltage	(See DTC TABLE [Z6].)
P0140	Rear HO2S circuit no activity detected	(See DTC TABLE [Z6].)
P0300	Random misfire detected	(See DTC TABLE [Z6].)
P0301	Cylinder No.1 misfire detected	(See DTC TABLE [Z6].)
P0302	Cylinder No.2 misfire detected	(See DTC TABLE [Z6].)
P0303	Cylinder No.3 misfire detected	(See DTC TABLE [Z6].)
P0304	Cylinder No.4 misfire detected	(See DTC TABLE [Z6].)
P0327	KS circuit low input	(See DTC TABLE [Z6].)
P0328	KS circuit high input	(See DTC TABLE [Z6].)
P0335	CKP sensor circuit problem	(See DTC TABLE [Z6].)
P0340	CMP sensor circuit problem	(See DTC TABLE [Z6].)
P0403	EGR control circuit problem	(See DTC TABLE [Z6].)

P0420	Catalyst system efficiency below threshold	(See DTC TABLE [Z6].)					
P0443	Purge solenoid valve circuit problem	(See DTC TABLE [Z6].)					
P0480	Cooling fan control circuit problem	(See DTC TABLE [Z6].)					
P0500	VSS circuit malfunction (MTX)	(See DTC TABLE [Z6].)					
	VSS circuit malfunction (ATX)	ON	YES	2	CCM	X	(See DTC P0500 [FN4A-EL].)
P0505	IAC system problem	(See DTC TABLE [Z6].)					
P0506	IAC system RPM lower than expected	(See DTC TABLE [Z6].)					
P0507	IAC system RPM higher than expected	(See DTC TABLE [Z6].)					
P0511	IAC circuit problem	(See DTC TABLE [Z6].)					
P0550	PSP switch circuit problem	(See DTC TABLE [Z6].)					
P0602	PCM programming error	(See DTC TABLE [Z6].)					
P0610	PCM vehicle options error	(See DTC TABLE [Z6].)					
P0660	VIS intake-air control circuit/open	(See DTC TABLE [Z6].)					
P0668	PCM temperature sensor circuit low input	(See DTC TABLE [Z6].)					
P0669	PCM temperature sensor circuit high input	(See DTC TABLE [Z6].)					
P0703	Brake switch input circuit problem	(See DTC TABLE [Z6].)					
P0704	CPP switch input circuit problem	(See DTC TABLE [Z6].)					
P0706	Transaxle range (TR) switch circuit range/performance	ON	YES	2	CCM	X	(See DTC P0706 [FN4A-EL].)
P0707	Transaxle range (TR) switch circuit low input	ON	YES	1	CCM	X	(See DTC P0707 [FN4A-EL].)
P0708	Transaxle range (TR) switch circuit high input	ON	YES	2	CCM	X	(See DTC P0708 [FN4A-EL].)

P0711	Transaxle fluid temperature (TFT) sensor circuit range/performance (stuck)	ON	NO	2	CCM	X	(See DTC P0711 [FN4A-EL.])
P0712	Transaxle fluid temperature (TFT) sensor circuit malfunction (short to ground)	ON	YES	1	CCM	X	(See DTC P0712 [FN4A-EL.])
P0713	Transaxle fluid temperature (TFT) sensor circuit malfunction (open circuit)	ON	YES	1	CCM	X	(See DTC P0713 [FN4A-EL.])
P0715	Input/turbine speed sensor circuit malfunction	ON	YES	1	CCM	X	(See DTC P0715 [FN4A-EL.])
P0731	Gear 1 incorrect (incorrect gear ratio detected)	OFF	YES	1	CCM	X	(See DTC P0731 [FN4A-EL.])
P0732	Gear 2 incorrect (incorrect gear ratio detected)	OFF	YES	1	CCM	X	(See DTC P0732 [FN4A-EL.])
P0733	Gear 3 incorrect (incorrect gear ratio detected)	OFF	YES	1	CCM	X	(See DTC P0733 [FN4A-EL.])
P0734	Gear 4 incorrect (incorrect gear ratio detected)	OFF	YES	1	CCM	X	(See DTC P0734 [FN4A-EL.])
P0741	Torque converter clutch (TCC) (stuck off)	OFF	YES	1	CCM	X	(See DTC P0741 [FN4A-EL.])
P0742	Torque converter clutch (TCC) (stuck on)	OFF	YES	1	CCM	X	(See DTC P0742 [FN4A-EL.])
P0745	Pressure control solenoid malfunction	OFF	YES	1	CCM	X	(See DTC P0745 [FN4A-EL.])
P0751	Shift solenoid A stuck off	ON	YES	2	CCM	X	(See DTC P0751 [FN4A-EL.])
P0752	Shift solenoid A stuck on	ON	YES	2	CCM	X	(See DTC P0752 [FN4A-EL.])
P0753	Shift solenoid A malfunction (electrical)	ON	YES	1	CCM	X	(See DTC P0753 [FN4A-EL.])

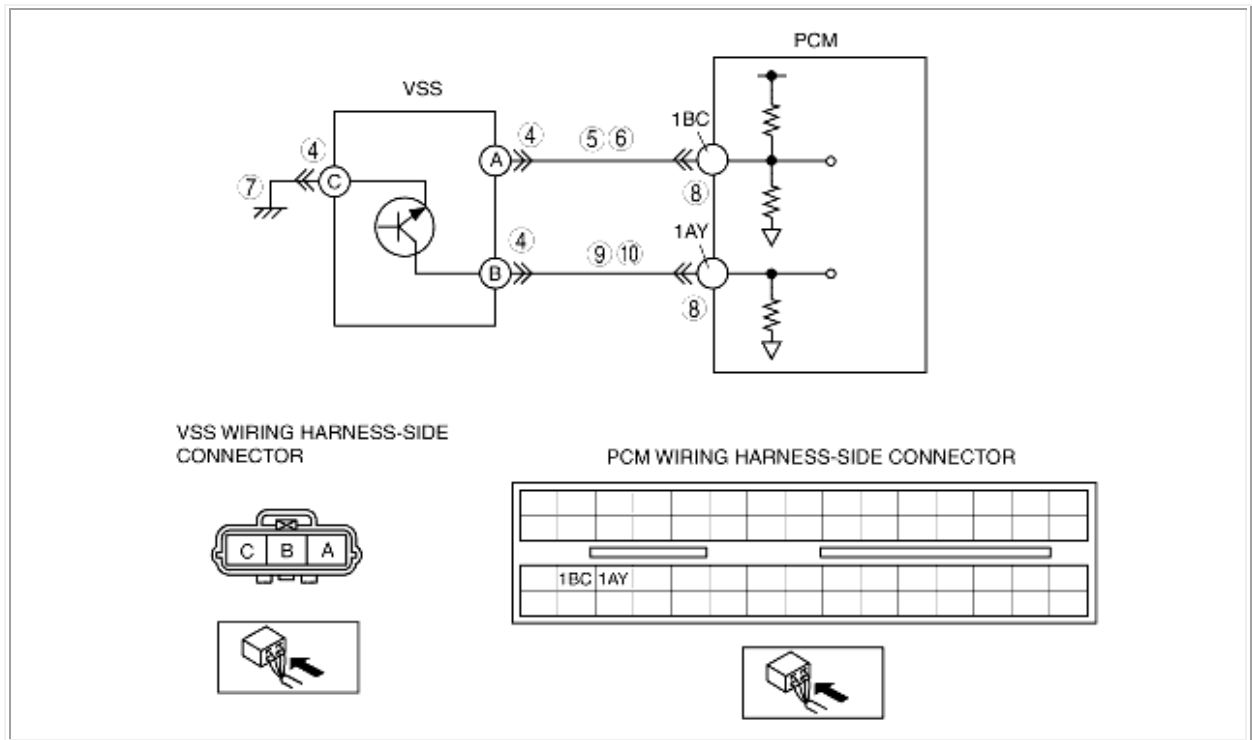
P0756	Shift solenoid B stuck off	ON	YES	2	CCM	X	(See DTC P0756 [FN4A-EL.])
P0757	Shift solenoid B stuck on	ON	YES	2	CCM	X	(See DTC P0757 [FN4A-EL.])
P0758	Shift solenoid B malfunction (electrical)	ON	YES	1	CCM	X	(See DTC P0758 [FN4A-EL.])
P0761	Shift solenoid C stuck off	ON	YES	2	CCM	X	(See DTC P0761 [FN4A-EL.])
P0762	Shift solenoid C stuck on	ON	YES	2	CCM	X	(See DTC P0762 [FN4A-EL.])
P0763	Shift solenoid C malfunction (electrical)	ON	YES	1	CCM	X	(See DTC P0763 [FN4A-EL.])
P0766	Shift solenoid D stuck off	ON	YES	2	CCM	X	(See DTC P0766 [FN4A-EL.])
P0767	Shift solenoid D stuck on	ON	YES	2	CCM	X	(See DTC P0767 [FN4A-EL.])
P0768	Shift solenoid D malfunction (electrical)	ON	YES	1	CCM	X	(See DTC P0768 [FN4A-EL.])
P0771	Shift solenoid E stuck off	ON	YES	2	CCM	X	(See DTC P0771 [FN4A-EL.])
P0772	Shift solenoid E stuck on	ON	YES	2	CCM	X	(See DTC P0772 [FN4A-EL.])
P0773	Shift solenoid E malfunction (electrical)	ON	YES	1	CCM	X	(See DTC P0773 [FN4A-EL.])
P0850	Neutral switch input circuit problem	(See DTC TABLE [Z6.])					
P0894	Forward clutch torque transmission	OFF	Yes	1	CCM	X	(See DTC P0894 [FN4A-EL.])
P1260	Immobilizer system problem	(See DTC TABLE [Z6.])					

P1384	Variable valve timing control system problem	(See DTC TABLE [Z6].)
P2006	Variable tumble control stuck close	(See DTC TABLE [Z6].)
P2008	Variable tumble control circuit/open	(See DTC TABLE [Z6].)
P2088	Variable valve timing control circuit low	(See DTC TABLE [Z6].)
P2089	Variable valve timing control circuit high	(See DTC TABLE [Z6].)
P2096	Target A/F feedback system too lean	(See DTC TABLE [Z6].)
P2097	Target A/F feedback system too rich	(See DTC TABLE [Z6].)
P2177	System too lean off idle	(See DTC TABLE [Z6].)
P2178	System too rich off idle	(See DTC TABLE [Z6].)
P2187	System too lean at idle	(See DTC TABLE [Z6].)
P2188	System too rich at idle	(See DTC TABLE [Z6].)
P2195	Front HO2S signal stuck lean	(See DTC TABLE [Z6].)
P2196	Front HO2S signal stuck rich	(See DTC TABLE [Z6].)
P2228	BARO sensor circuit low input	(See DTC TABLE [Z6].)
P2229	BARO sensor circuit high input	(See DTC TABLE [Z6].)
P2502	Charging system voltage problem	(See DTC TABLE [Z6].)
P2503	Charging system voltage low	(See DTC TABLE [Z6].)
P2504	Charging system voltage high	(See DTC TABLE [Z6].)
P2507	PCM power input signal low	(See DTC TABLE [Z6].)
U0073	Control module communication bus off	(See MULTIPLEX COMMUNICATION SYSTEM.)
U0121	Lost communication with anti-lock brake system (ABS) control module	(See MULTIPLEX COMMUNICATION SYSTEM.)
U0155	Lost communication with instrument panel cluster (IPS) control module	(See MULTIPLEX COMMUNICATION SYSTEM.)

DTC P0500 [FN4A-EL]

B3E050219090W06

DTC P0500	Vehicle speed sensor (VSS) circuit malfunction
DETECTION CONDITION	- Vehicle speed signal is not input after the following conditions are met and 4.5 s or more have passed. - D, or M range switch ON - P and N position of TR switch OFF - Engine coolant temperature 60 °C {140 °F} or more - Turbine speed 1,500 rpm or more Diagnostic support note: - This is a continuous monitor (CCM). - The MIL illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. - The PENDING CODE is available if the PCM detects the above malfunction condition during the first drive cycle. - FREEZE FRAME DATA is available. - The AT warning light illuminates. - The DTC is stored in the PCM memory.
POSSIBLE CAUSE	- VSS malfunction - Open circuit in wiring harness between VSS terminal B and PCM terminal 1AY - Short to ground in wiring harness between VSS terminal B and PCM terminal 1AY - Open circuit in wiring harness between VSS terminal A and PCM terminal 1BC - Short to ground in wiring harness between VSS terminal A and PCM terminal 1BC - Open circuit in wiring harness between VSS terminal C and body ground - Damaged connectors between VSS and PCM - PCM malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY STORED DTC IN ABS HU/CM OR DSC HU/CM - Turn the ignition switch to the ON position (Engine off). - Verify stored DTCs in ABS HU/CM or DSC HU/CM. (See ON-BOARD DIAGNOSIS [ABS] .) (See ON-BOARD DIAGNOSIS [DSC (DYNAMIC STABILITY CONTROL)] .) - Are DTCs stored?	Yes Go to the appropriate DTC inspection. (See DTC Table) (See DTC Table .)
		No Go to the next step.
2	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED Has the FREEZE FRAME DATA been recorded?	Yes Go to the next step.
		No Record the FREEZE FRAME DATA on the repair order, then go to the next step.
3	VERIFY RELATED SERVICE INFORMATION AVAILABILITY - Verify related Service Bulletins and or/on-line repair information availability. - Is any related repair Information available?	Yes Perform repair or diagnosis according to the available repair information. If the vehicle is not repaired, go to the next step.
		No Go to the next step.
4		Yes Go to the next step.

	INSPECT VSS CONNECTOR FOR POOR CONNECTION • Turn the ignition switch to the LOCK position. • Disconnect the VSS connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is the connection normal?	No	Repair or replace the pin or connector, then go to Step 11.
5	INSPECT VSS POWER CIRCUIT FOR OPEN CIRCUIT • Verify that the VSS connector is disconnected. • Turn the ignition switch to the ON position (engine off). • Inspect the voltage between VSS terminal A (wiring harness-side) and ground. • Is the voltage B+?	Yes	Go to Step 6.
		No	Go to the next step.
6	INSPECT VSS POWER CIRCUIT FOR SHORT TO GROUND • Turn the ignition switch to the LOCK position. • Inspect for continuity between VSS terminal A (wiring harness-side) and ground. • Is there continuity?	Yes	Go to the next step.
		No	Repair or replace the wiring harness, then go to Step 11.
7	INSPECT VSS GROUND CIRCUIT FOR OPEN CIRCUIT • Verify that the VSS connector is disconnected. • Inspect for continuity between VSS (wiring harness-side) terminal C and ground. • Is there continuity?	Yes	Go to the next step.
		No	Repair or replace the wiring harness, then go to Step 11.
8	INSPECT PCM CONNECTOR FOR POOR CONNECTION • Disconnect the PCM connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is the connection normal?	Yes	Go to the next step.
		No	Repair or replace the pin or connector, then go to Step 11.
9		Yes	Go to the next step.

	INSPECT VEHICLE SPEED SIGNAL CIRCUIT FOR OPEN CIRCUIT • Disconnect the PCM connector and VSS connector. • Inspect for continuity between VSS terminal B and PCM terminal 1AY. • Is there continuity?	No	Repair or replace the wiring harness, then go to Step 11.
10	INSPECT VEHICLE SPEED SIGNAL CIRCUIT FOR SHORT TO GROUND • Verify that the VSS connector and PCM connector are disconnected. • Inspect for continuity between PCM terminal 1AY and body ground. • Is there continuity?	Yes	Repair or replace the wiring harness, then go to the next step.
		No	Replace the VSS, then go to the next step. (See VEHICLE SPEED SENSOR (VSS) REMOVAL/INSTALLATION .)
11	VERIFY TROUBLESHOOTING OF DTC P0500 COMPLETED • Make sure to reconnect all the disconnected connectors. • Clear the DTC from the memory using the WDS or equivalent. • Warm up engine. • Drive the vehicle under the following conditions for 4.5 s or more while monitoring PIDs. - Engine coolant temp: 60 °C {140 °F} or more - Drive in M range - Frequency of input/turbine speed sensor: 800 Hz or more • Is the PENDING CODE present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6] .)
		No	No concern is detected. Go to the next step.
12	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0706 [FN4A-EL]

B3E050219090W07

DTC P0706	Transaxle range (TR) switch range/performance
DETECTION CONDITION	- When all conditions below are satisfied and 100 s or more have passed. - Engine speed 530 rpm or more - Vehicle speed 20 km/h {12 mph} or more - Voltage at PCM terminal 1X 0.5 V or more - P, R, N, or D range/position not detected Diagnostic support note: - This is a continuous monitor (CCM). - The MIL illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. - The PENDING CODE is available if the PCM detects the above malfunction condition during the first drive cycle. - FREEZE FRAME DATA is available. - The AT warning light illuminates. - The DTC is stored in the PCM memory.
POSSIBLE CAUSE	- TR switch malfunction - TR switch misadjustment - PCM malfunction

Diagnostic procedure

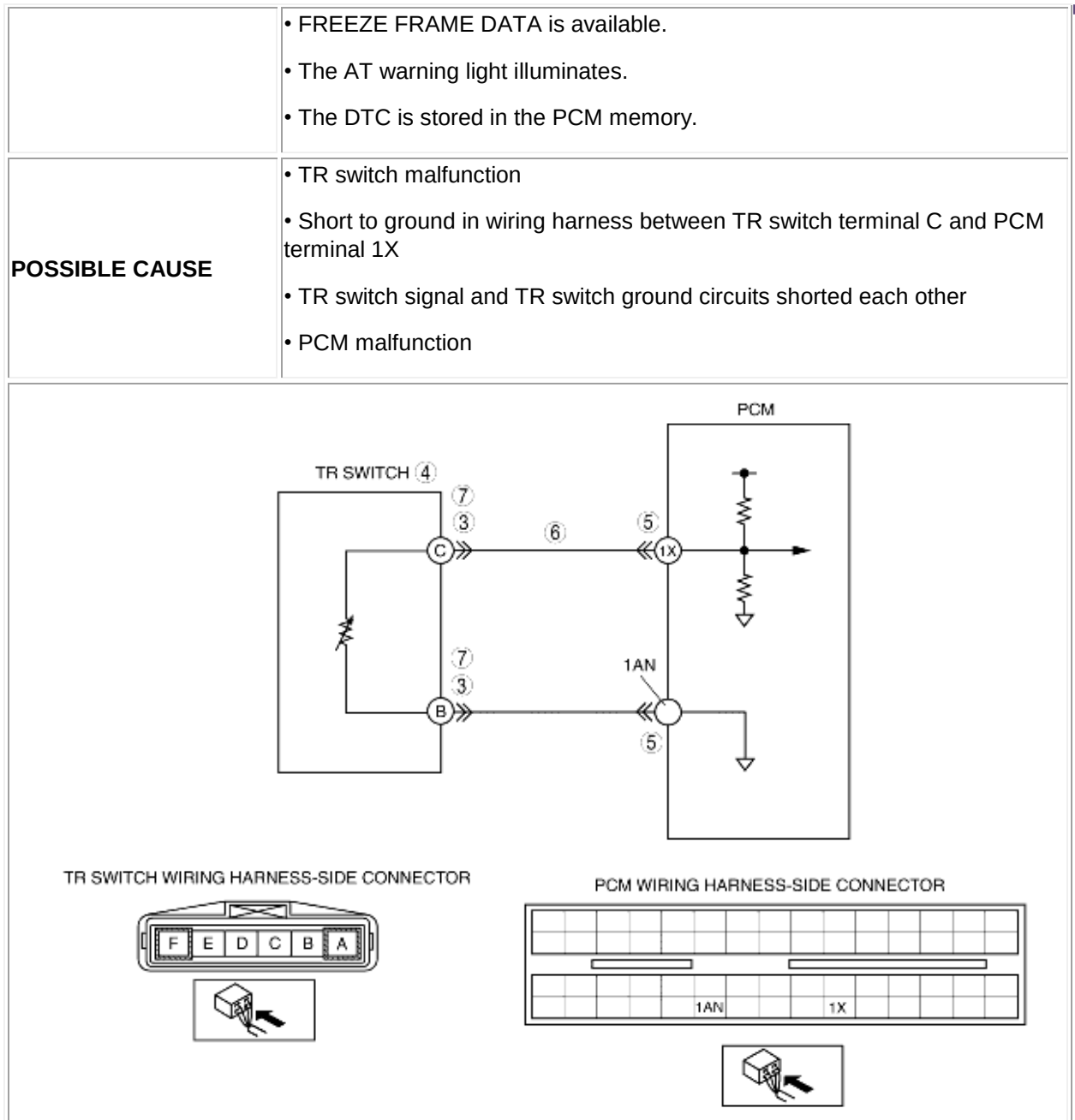
STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED	Yes Go to the next step.
	• Has the FREEZE FRAME DATA been recorded?	No Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY	Yes Perform repair or diagnosis according to the available repair information.
	• Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	No Go to the next step.
3	INSPECT TR SWITCH	Yes Adjust the TR switch, then go to the next step. (See TRANSAXLE RANGE (TR) SWITCH ADJUSTMENT.)
	• Turn the ignition switch to the LOCK position. • Disconnect the TR switch connector.	No Replace the TR switch, then go to the next step.

	- Inspect for resistance between TR switch terminals B and C (part-side). - Is the resistance normal? (See TRANSAXLE RANGE (TR) SWITCH INSPECTION.)		(See TRANSAXLE RANGE (TR) SWITCH REMOVAL/INSTALLATION .)
4	VERIFY TROUBLESHOOTING OF DTC P0706 COMPLETED - Make sure to reconnect all the disconnected connectors. - Clear the DTC from the memory using the WDS or equivalent. - Drive the vehicle in each range (D and R) for 100 s or more under the following conditions: - Engine speed (RPM PID): 530 rpm or more - Vehicle speed (VSS PID): 20 km/h {12 mph} or more - Is the PENDING CODE present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6] .)
		No	No concern is detected. Go to the next step.
5	VERIFY AFTER REPAIR PROCEDURE - Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) - Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0707 [FN4A-EL]

B3E050219090W08

DTC P0707	Transaxle range (TR) switch circuit low input
DETECTION CONDITION	- When all conditions below are satisfied and 100 s or more have passed. - Vehicle speed 20 km/h {12 mph} or more - Engine speed 530 rpm or more - Voltage at PCM terminal 1X below 0.5 V Diagnostic support note: - This is a continuous monitor (CCM). - The MIL illuminates if the PCM detects the above malfunction condition during the first drive cycle. - A PENDING CODE is not available.



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED	Yes Go to the next step.
	• Has the FREEZE FRAME DATA been recorded?	No Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY	Yes Perform repair or diagnosis according to the available repair information.
	• Verify related Service Bulletins and or/on-line repair information availability.	• If the vehicle is not repaired, go to the next step.
	• Is any related repair information available?	No Go to the next step.

3	INSPECT TR SWITCH CONNECTOR • Turn the ignition switch to the LOCK position. • Disconnect the TR switch connector. • Inspect for poor connection at TR switch terminals B and C (part-side) (such as damaged/pulled-out pins, corrosion) • Are TR switch terminals normal?	Yes	Go to the next step.
		No	Repair terminals or replace the TR switch, then go to Step 8. (See TRANSAXLE RANGE (TR) SWITCH REMOVAL/INSTALLATION.)
4	INSPECT TR SWITCH • Turn the ignition switch to the LOCK position. • Disconnect the TR switch connector. • Inspect for resistance between TR switch terminals B and C (part-side). • Is the resistance normal? (See TRANSAXLE RANGE (TR) SWITCH INSPECTION.)	Yes	Go to the next step.
		No	Replace the TR switch, then go to Step 8. (See TRANSAXLE RANGE (TR) SWITCH REMOVAL/INSTALLATION.)
5	INSPECT PCM CONNECTOR FOR POOR CONNECTION • Disconnect the PCM connector. • Inspect for poor connection at terminals 1X and 1AN (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace the terminal, then go to Step 8.
		No	Go to the next step.
6	INSPECT TR SWITCH SIGNAL CIRCUIT FOR SHORT TO GROUND • Inspect for continuity between TR switch terminal C (wiring harness-side) and body ground. • Is there continuity?	Yes	Repair or replace the wiring harness for short to ground, then go to Step 8.
		No	Go to the next step.
7	INSPECT TR SWITCH CIRCUIT FOR SHORT CIRCUIT • Inspect for continuity between TR switch terminals B and C (wiring harness-side). • Is there continuity?	Yes	Repair or replace the wiring harness for short circuit, then go to the next step.
		No	Go to the next step.
8	VERIFY TROUBLESHOOTING OF DTC P0707 COMPLETED	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6].)

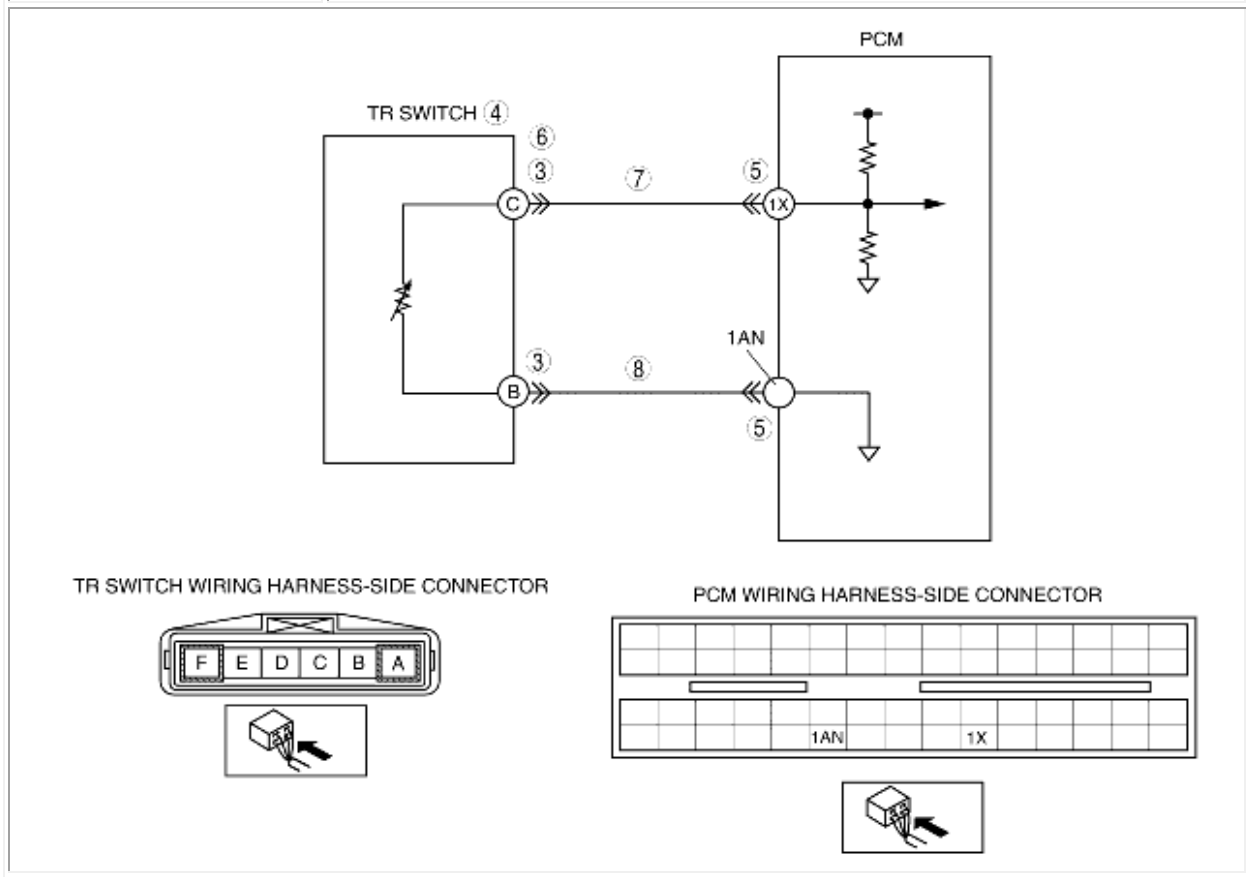
	• Make sure to reconnect all the disconnected connectors. • Clear the DTC from the memory using the WDS or equivalent. • Drive the vehicle for 100 s or more under the following conditions: - Engine speed (RPM PID): 530 rpm or more - Vehicle speed (VSS PID): 20 km/h {12 mph} or more • Is the PENDING CODE present?	No	No concern is detected. Go to the next step.
9	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL] .) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0708 [FN4A-EL]

B3E050219090W09

DTC P0708	Transaxle range (TR) switch circuit high input
DETECTION CONDITION	• When all conditions below are satisfied and 100 s or more have passed. - Vehicle speed 20 km/h {12 mph} or more - Engine speed 530 rpm or more - Voltage at PCM terminal 1X 4.79 V or more Diagnostic support note: • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. • A PENDING CODE is not available. • FREEZE FRAME DATA is available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• TR switch malfunction • Open circuit in wiring harness between TR switch terminal C and PCM terminal 1X

- Short to power supply in wiring harness between TR switch terminal C and PCM terminal 1X
- Open circuit in wiring harness between TR switch terminal B and PCM terminal 1AN
- Poor connection of TR switch or PCM connectors
- PCM malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED • Has the FREEZE FRAME DATA been recorded?	Yes Go to the next step.
		No Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	Yes Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No Go to the next step.
3		Yes Go to the next step.

	INSPECT TR SWITCH CONNECTOR FOR POOR CONNECTION • Turn the ignition switch to the LOCK position. • Disconnect the TR switch connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Are TR switch terminals normal?	No	Repair terminals or replace the TR switch, then go to Step 9. (See TRANSAXLE RANGE (TR) SWITCH REMOVAL/INSTALLATION.)
4	INSPECT TR SWITCH • Inspect for resistance between TR switch terminals B and C (part-side). • Is the resistance normal? (See TRANSAXLE RANGE (TR) SWITCH INSPECTION.)	Yes	Go to the next step.
		No	Replace the TR switch, then go to Step 9. (See TRANSAXLE RANGE (TR) SWITCH REMOVAL/INSTALLATION.)
5	INSPECT PCM CONNECTOR FOR POOR CONNECTION • Disconnect the PCM connector. • Inspect for poor connection at terminals 1X and 1AN (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace the terminal, then go to step 9.
		No	Go to the next step.
6	INSPECT TR SWITCH SIGNAL CIRCUIT FOR SHORT TO POWER SUPPLY • Turn the ignition switch to the ON position (engine off). • Inspect the voltage between TR switch terminal C and (wiring harness-side) body ground. • Is the voltage B+?	Yes	Repair or replace the wiring harness for short to power supply, then go to Step 9.
		No	Go to the next step.
7	INSPECT TR SWITCH SIGNAL CIRCUIT FOR OPEN CIRCUIT • Inspect for continuity between TR switch terminal C (wiring harness-side) and PCM terminal 1X. • Is there continuity?	Yes	Go to the next step.
		No	Repair or replace the wiring harness for open circuit, then go to step 9.
8	INSPECT TR SWITCH GROUND CIRCUIT FOR OPEN CIRCUIT • Inspect for continuity between TR switch terminal B (wiring harness-side) and PCM terminal 1AN.	Yes	Go to the next step.
		No	Repair or replace the wiring harness for open circuit, then go to the next step.

	• Is there continuity?		
9	VERIFY TROUBLESHOOTING OF DTC P0708 COMPLETED • Make sure to reconnect all the disconnected connectors. • Clear the DTC from the memory using the WDS or equivalent. • Drive the vehicle for 100 s or more under the following conditions: - Engine speed (RPM PID) 530 rpm or more - Vehicle speed (VSS PID) 20 km/h {12 mph} or more • Is the PENDING CODE present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6] .)
		No	No concern is detected. Go to the next step.
10	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0711 [FN4A-EL]

B3E050219090W10

DTC P0711	Transaxle fluid temperature (TFT) sensor circuit range/performance (stuck)
DETECTION CONDITION	• When all conditions below are satisfied. - When 180 s have passed after the engine is started, vehicle is driven for 150 s or more at vehicle speed between 25-59 km/h {15-36 mph}, then 60 km/h {37 mph} or more for 100 s or more. - P0712, P0713 not output - Variation in ATF voltage below 0.06 V Diagnostic support note: • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. • The PENDING CODE is available if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA is available.

	• AT warning light does not illuminate. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• TFT sensor malfunction • Connector corrosion • PCM malfunction

Diagnostic procedure

STEP	INSPECTION		ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED • Has the FREEZE FRAME DATA been recorded?	Yes	Go to the next step.
		No	Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	Yes	Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	INSPECT TFT SENSOR VOLTAGE • Turn the ignition switch to the ON position (engine off). • Measure the voltage at PCM terminal 1AU. • Record terminal 1AU voltage. • Start the engine. • Drive the vehicle at 60 km/h {37 mph} or more for 430 s or more. • Record terminal 1AU voltage again. • Is the variation in voltage 0.06 V or more?	Yes	Go to Step 5.
		No	Go to the next step.
4	INSPECT TERMINAL CONDITION • Turn the ignition switch to the LOCK position. • Disconnect the ATX connector. • Inspect terminals for corrosion. • Are terminals normal?	Yes	Go to the next step.
		No	Repair or replace the terminals, then go to the next step.
5	VERIFY TROUBLESHOOTING OF DTC P0711 COMPLETED • Make sure to reconnect all the disconnected connectors.	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6] .)
		No	Go to the next step.

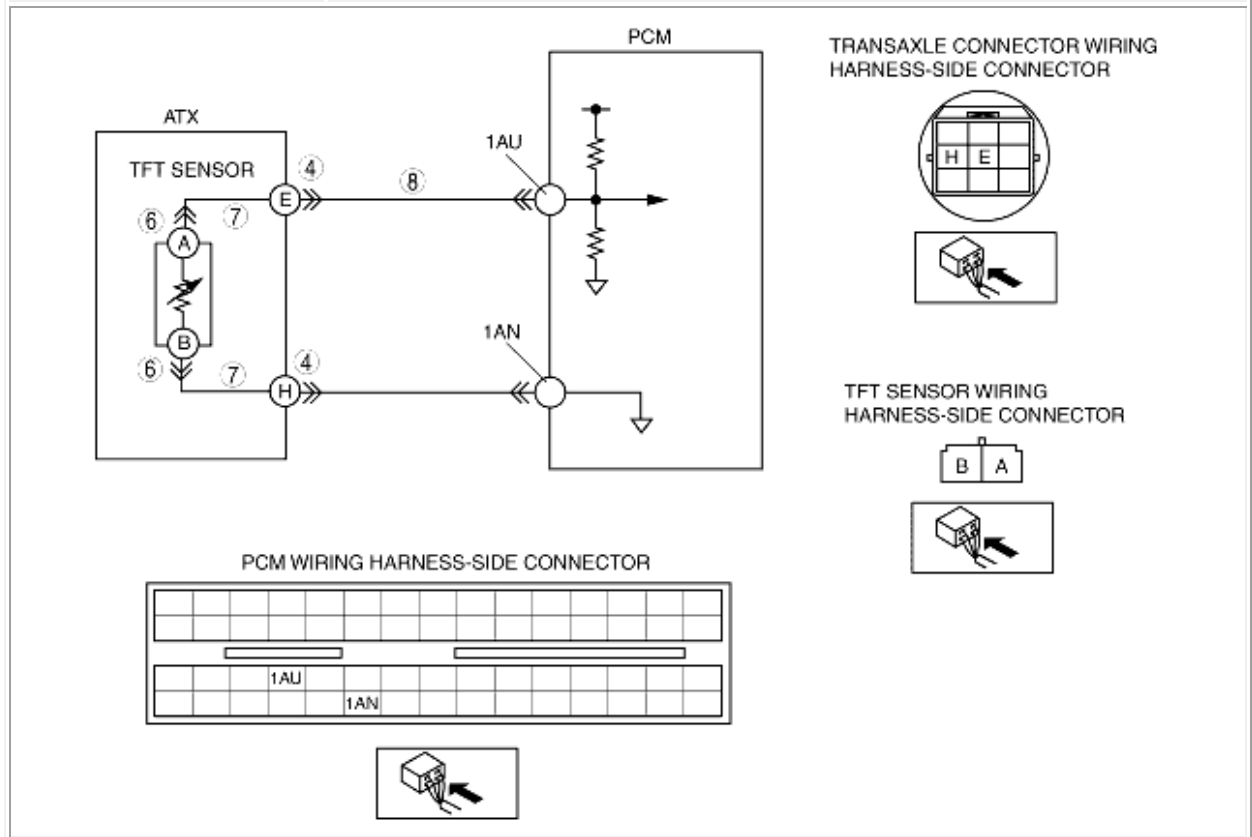
	• Clear the DTC from the memory using the WDS or equivalent. • Decrease ATF temperature to 20 °C {68 °F} or less. • Start the engine and wait for 180 s or more. • Drive the vehicle at a vehicle speed between 25-59 km/h {15-36 mph} for 150 s or more. • Drive the vehicle at a vehicle speed 60 km/h {37 mph} or more for 100 s or more. • Is the PENDING CODE present?		
6	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL] .) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0712 [FN4A-EL]

B3E050219090W11

DTC P0712	Transaxle fluid temperature (TFT) sensor circuit malfunction (short to ground)
DETECTION CONDITION	• If the PCM detects either of the following conditions for 150 s or more, the PCM determines that the TFT sensor circuit has a malfunction. - TFT sensor voltage 0.06 V or less and vehicle speed 20 km/h {12 mph} or more Diagnostic support note: • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction conditions during the first drive cycle. • A PENDING CODE is not available. • FREEZE FRAME DATA is available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• TFT sensor malfunction • Short to ground in wiring harness between TFT sensor terminal A and ATX terminal E • Short to ground in wiring harness between TFT sensor terminal B and ATX terminal H

- Short to ground in wiring harness between ATX terminal E and PCM terminal 1AU
- Damaged connectors between TFT sensor and PCM
- PCM malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED	
	• Has the FREEZE FRAME DATA been recorded?	Yes: Go to the next step. No: Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY	
	• Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	Yes: Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step. No: Go to the next step.
3	VERIFY CURRENT INPUT SIGNAL STATUS	
	• Turn the ignition switch to the ON position (engine off). • Inspect the voltage at PCM terminal 1AU.	Yes: Go to the intermittent concern troubleshooting procedure. (See INTERMITTENT CONCERN TROUBLESHOOTING [Z6] .) No: Go to the next step.

	Is the voltage above 0.06 V?		
4	INSPECT TERMINAL CONDITION - Turn the ignition switch to the LOCK position. - Disconnect the ATX connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Are the terminals bent?	Yes	Repair or replace the terminals, then go to Step 9. If the terminals cannot be repaired, replace the wiring harness, then go to Step 9.
		No	Go to the next step.
5	INSPECT TFT SENSOR CIRCUIT - Turn the ignition switch to the ON position (engine off). - Verify that the voltage changes to 4.67 V or more at PCM terminal 1AU when ATX connector is disconnected. - Does the voltage change?	Yes	Go to the next step.
		No	Go to Step 8.
6	INSPECT TFT SENSOR TERMINAL CONDITION - Turn the ignition switch to the LOCK position. - Remove the under cover of control valve body. - Disconnect the TFT sensor connector. - Inspect for bent TFT sensor terminals. - Are the terminals bent?	Yes	Repair terminals or replace the TFT sensor, then go to Step 9. (See TRANSAXLE FLUID TEMPERATURE (TFT) SENSOR REMOVAL/INSTALLATION.)
		No	Go to the next step.
7	INSPECT TFT SENSOR CIRCUIT FOR SHORT TO GROUND - Inspect for continuity between TFT sensor terminals (wiring harness-side) and body ground. - A and body ground - B and body ground - Is there continuity?	Yes	Repair or replace the wiring harness, then go to Step 9.
		No	Replace the TFT sensor, then go to Step 9. (See TRANSAXLE FLUID TEMPERATURE (TFT) SENSOR REMOVAL/INSTALLATION.)
8	INSPECT ATX CONNECTOR CIRCUIT FOR SHORT TO GROUND - Turn the ignition switch to the LOCK position. - Inspect for continuity between ATX terminal E (wiring harness-side) and body ground.	Yes	Repair or replace the wiring harness, then go to the next step.
		No	Go to the next step.

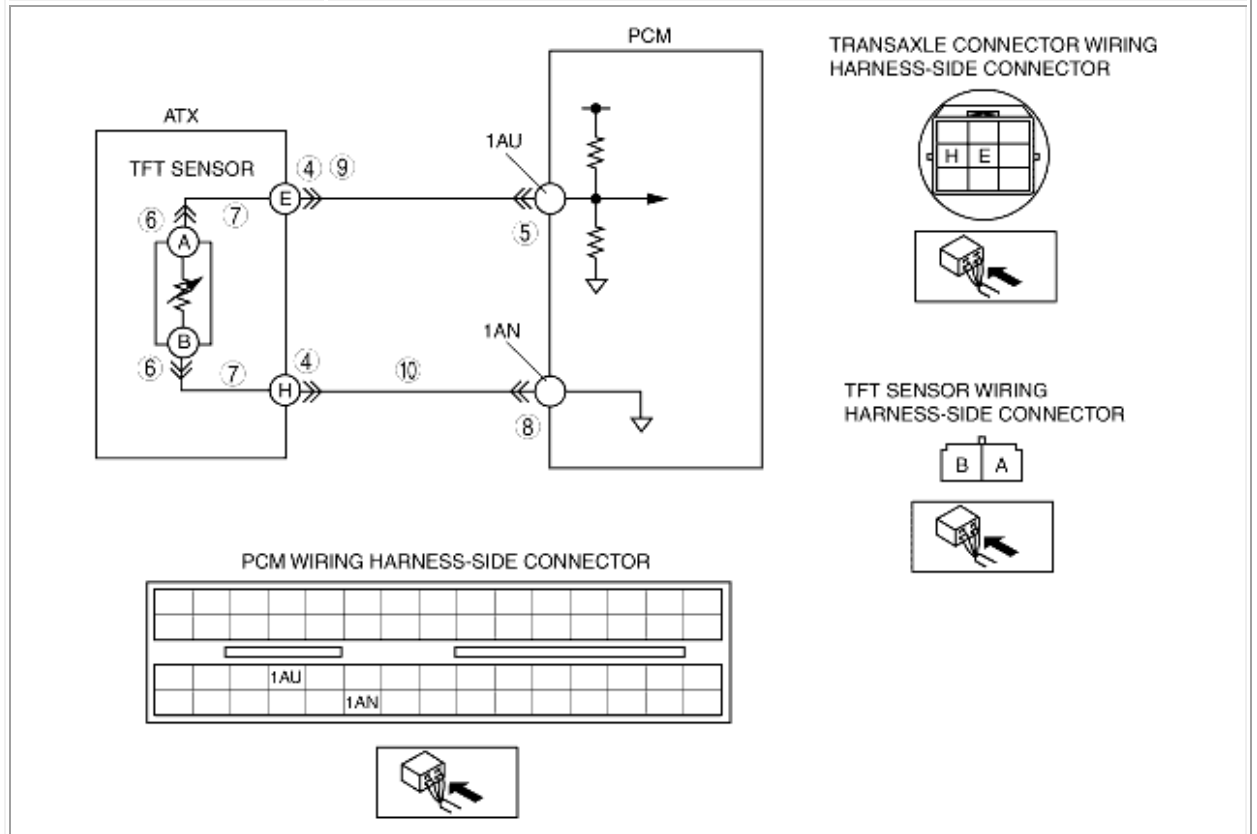
	• Is there continuity?		
9	VERIFY TROUBLESHOOTING OF DTC P0712 COMPLETED • Make sure to reconnect all the disconnected connectors. • Clear the DTC from the memory using the WDS or equivalent. • Drive the vehicle under the following condition for 150 s or more. - Vehicle speed (VSS PID) 20 km/h {12 mph} or more. • Is the same DTC present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6] .)
		No	Go to the next step.
10	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0713 [FN4A-EL]

B3E050219090W12

DTC P0713	Transaxle fluid temperature (TFT) sensor circuit malfunction (open circuit)
DETECTION CONDITION	• If the PCM detects the following condition for 150 s or more, the PCM determines that the TFT sensor circuit has a malfunction. - TFT sensor voltage 4.67 V or more and vehicle speed 20 km/h {12 mph} or more Diagnostic support note: • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction conditions during the first drive cycle. • A PENDING CODE is not available. • FREEZE FRAME DATA is available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• TFT sensor malfunction • Open circuit in wiring harness between TFT sensor terminal A and ATX terminal E

- Open circuit in wiring harness between TFT sensor terminal B and ATX terminal H
- Open circuit in wiring harness between ATX terminal E and PCM terminal 1AU
- Open circuit in wiring harness between ATX terminal H and PCM terminal 1AN
- Damaged connectors between TFT sensor and PCM
- PCM malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED	Yes
	• Has the FREEZE FRAME DATA been recorded?	No
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY	Yes
	• Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	No

3	VERIFY CURRENT INPUT SIGNAL STATUS • Turn the ignition switch to the ON position (engine off). • Measure the voltage at PCM terminal 1AU. • Is the voltage below 4.67 V?	Yes	Go to the intermittent concern troubleshooting procedure. (See INTERMITTENT CONCERN TROUBLESHOOTING [Z6] .)
		No	Go to the next step.
4	INSPECT ATX CONNECTOR FOR POOR CONNECTION • Turn the ignition switch to the LOCK position. • Inspect ATX connector connection. • Disconnect the ATX connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is the connection normal?	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 11.
5	INSPECT TFT SENSOR CIRCUIT • Turn the ignition switch to the ON position (engine off). • Measure the voltage at PCM terminal 1AU when connect between ATX terminals E and H (wiring harness-side) using jumper wire. • Verify that voltage changes to 0.06 V or less. • Does the voltage change?	Yes	Go to the next step.
		No	Go to Step 8.
6	INSPECT TFT SENSOR CONNECTOR FOR POOR CONNECTION • Turn the ignition switch to the LOCK position. • Remove the under cover of control valve body. • Disconnect the TFT sensor connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is the connection normal?	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals or replace the TFT sensor, then go to Step 11. (See TRANSAXLE FLUID TEMPERATURE (TFT) SENSOR REMOVAL/INSTALLATION .)
7	INSPECT TFT SENSOR CIRCUIT FOR OPEN CIRCUIT • Inspect for continuity between TFT sensor terminals (wiring harness-side) and ATX terminals (transaxle case side). - ATX terminal E and TFT sensor terminal A	Yes	Replace the TFT sensor, then go to Step 11. (See TRANSAXLE FLUID TEMPERATURE (TFT) SENSOR REMOVAL/INSTALLATION .)
		No	Repair or replace the wiring harness, then go to Step 11.

	- ATX terminal H and TFT sensor terminal B • Is there continuity?		
8	INSPECT PCM CONNECTOR FOR POOR CONNECTION • Turn the ignition switch to the LOCK position. • Disconnect the PCM connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is the connection normal?	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 11.
9	INSPECT WIRING HARNESS FOR OPEN CIRCUIT • Disconnect the ATX connector. • Connect the PCM connector. • Turn the ignition switch to the ON position (engine off). • Inspect the voltage at ATX terminal E (vehicle wiring harness-side). • Is the voltage 5 V?	Yes	Go to the next step.
		No	Repair or replace the wiring harness, then go to Step 11.
10	INSPECT ATX CONNECTOR CIRCUIT FOR OPEN CIRCUIT • Turn the ignition switch to the LOCK position. • Inspect for continuity between ATX terminal H (wiring harness-side) and body ground. • Is there continuity?	Yes	Go to the next step.
		No	Repair or replace the wiring harness, then go to the next step.
11	VERIFY TROUBLESHOOTING OF DTC P0713 COMPLETED • Make sure to reconnect all the disconnected connectors. • Clear the DTC from the memory using the WDS or equivalent. • Drive the vehicle under the following condition for 150 s or more. - Vehicle speed (VSS PID) 20 km/h {12 mph} or more. • Is the same DTC present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6] .)
		No	Go to the next step.
12	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure".	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

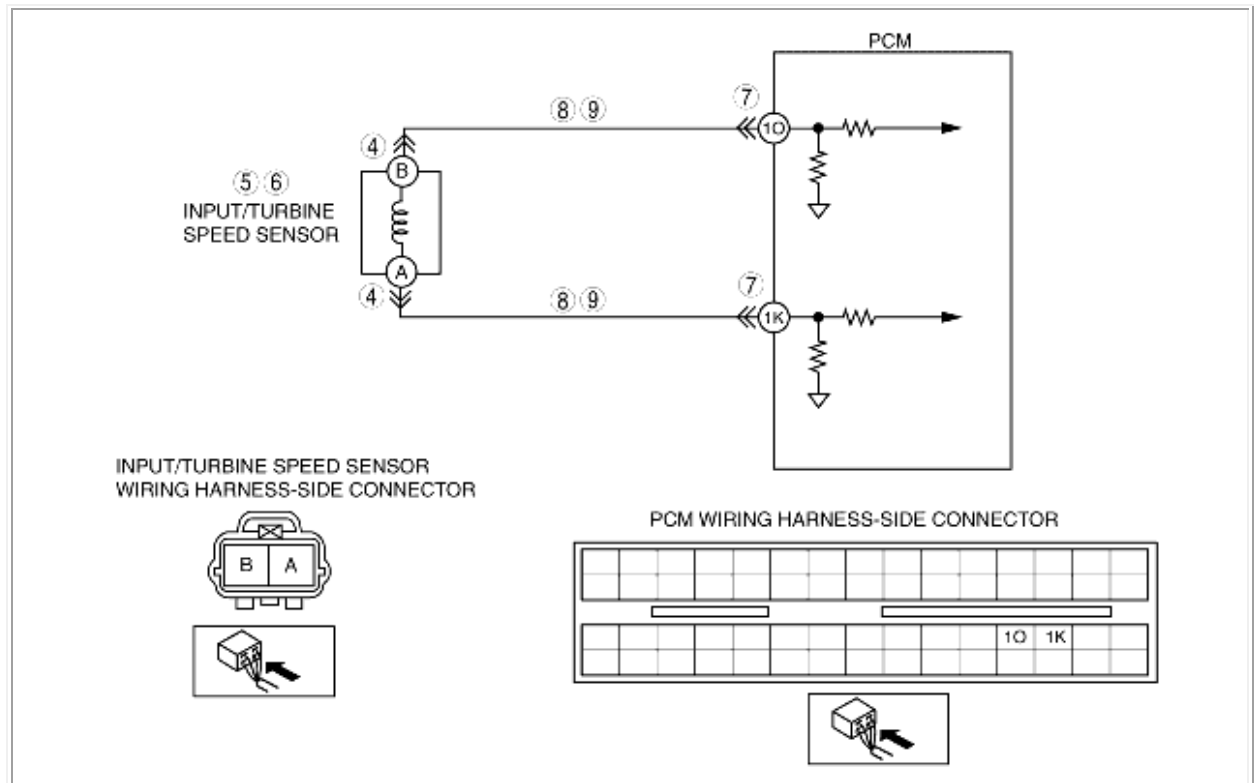
(See [AFTER REPAIR PROCEDURE \[FN4A-EL\]](#).)

- Are any DTCs present?

DTC P0715 [FN4A-EL]

B3E050219090W13

DTC P0715	Input/turbine speed sensor circuit malfunction
DETECTION CONDITION	• When all conditions below are satisfied and 0.7 s or more have passed. - D or M range of TR switch input - Driving vehicle at vehicle speed of 40 km/h {25 mph} or more - Input/turbine speed sensor signal not input Diagnostic support note: • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction conditions during the first drive cycle. • A PENDING CODE is not available. • FREEZE FRAME DATA is available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• Input/turbine speed sensor malfunction • Short to ground in wiring harness between input/turbine speed sensor terminal A and PCM terminal 1K • Short to ground in wiring harness between input/turbine speed sensor terminal B and PCM terminal 1O • Open circuit in wiring harness between input/turbine speed sensor terminal A and PCM terminal 1K • Open circuit in wiring harness between input/turbine speed sensor terminal B and PCM terminal 1O • Damaged connectors between input/turbine speed sensor and PCM • PCM malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED Has the FREEZE FRAME DATA been recorded?	Yes Go to the next step.
		No Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY - Verify related Service Bulletins and or/on-line repair information availability. - Is any related repair information available?	Yes Perform repair or diagnosis according to the available repair information. If the vehicle is not repaired, go to the next step.
		No Go to the next step.
3	VERIFY CURRENT INPUT SIGNAL STATUS - Turn the ignition switch to the LOCK position. - Start the engine. - Measure the frequency of input/turbine speed sensor using a oscilloscope. - IG ON: 0 Hz - Idle: Within 320-374 Hz (P, N position) - Are frequencies of input/turbine speed sensor within specifications?	Yes Go to the intermittent concern troubleshooting procedure. (See INTERMITTENT CONCERN TROUBLESHOOTING [Z6] .)
		No Go to the next step.

4	INSPECT INPUT/TURBINE SPEED SENSOR CONNECTOR FOR POOR CONNECTION • Turn the ignition switch to the LOCK position. • Disconnect the input/turbine speed sensor connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is the connection normal?	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 10.
5	INSPECT INPUT/TURBINE SPEED SENSOR RESISTANCE • Measure the resistance between the input/turbine speed sensor terminals (part-side). • Is the resistance within 250-600 ohms between input/turbine speed sensor terminals (part-side)? (See INPUT/TURBINE SPEED SENSOR INSPECTION.)	Yes	Go to the next step.
		No	Replace the input/turbine speed sensor, then go to Step 10. (See INPUT/TURBINE SPEED SENSOR REMOVAL/INSTALLATION.)
6	INSPECT INPUT/TURBINE SPEED SENSOR • Remove input/turbine speed sensor. • Is there iron powder stuck on input/turbine speed sensor? (See INPUT/TURBINE SPEED SENSOR REMOVAL/INSTALLATION.)	Yes	Clean the input/turbine speed sensor, then go to Step 10.
		No	Go to the next step.
7	INSPECT PCM CONNECTOR FOR POOR CONNECTION • Disconnect the PCM connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is the connection normal?	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 10.
8	INSPECT INPUT/TURBINE SPEED SENSOR CIRCUIT FOR OPEN CIRCUIT • Inspect the following input/turbine speed sensor terminals (wiring harness-side) and PCM terminals (wiring harness-side): - A and 1K - B and 1O • Is there continuity?	Yes	Go to the next step.
		No	Repair or replace the wiring harness, then go to Step 10.
9		Yes	Repair or replace the wiring harness, then go to the next step.

	INSPECT INPUT/TURBINE SPEED SENSOR CIRCUIT FOR SHORT TO GROUND - Inspect input/turbine speed sensor terminal (wiring harness-side) and body ground. - A and body ground - B and body ground - Is there continuity?	No	Go to the next step.
10	VERIFY TROUBLESHOOTING OF DTC P0715 COMPLETED - Make sure to reconnect all the disconnected connectors. - Clear the DTC from the memory using the WDS or equivalent. - Drive the vehicle a vehicle speed 40 km/h {25 mph} or more for 0.7 s or more. - Is the same DTC present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6] .)
		No	Go to the next step.
11	VERIFY AFTER REPAIR PROCEDURE - Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) - Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0731 [FN4A-EL]

B3E050219090W14

DTC P0731	Gear 1 incorrect (incorrect gear ratio detected)
DETECTION CONDITION	- The PCM monitors the revolution ratio of the forward clutch drum revolution to differential gear case revolution when the following monitoring conditions are met. If the revolution ratio is below 2.16, the PCM determines that there is a malfunction. Monitoring condition: - ATF temperature 20 °C {68 °F} or more - Driving in 1GR in D or M range - Engine running - Turbine speed within 225-4,987 rpm - Throttle opening angle 2.66% or more - Differential gear case (output) revolution speed 35 rpm or more.

	- None of the following present: DTC P0500, P0706, P0707, P0708, P0712, P0713, P0715, P0751, P0752, P0753, P0756, P0757, P0758, P0761, P0762, P0763, P0766, P0767, P0768, P0771, P0772, P0773 Diagnostic support note: • This is a continuous monitor (CCM). • The MIL does not illuminate. • The AT warning light illuminates if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA is not available. • A PENDING CODE is not available. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• ATF level low • Deteriorated ATF • Shift solenoid A stuck • Pressure control solenoid stuck • Line pressure low • One-way clutch slipping • Forward clutch slipping • Control valve stuck • Oil pump malfunction • PCM malfunction

Diagnostic procedure

STEP	INSPECTION		ACTION
1	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	Yes	Perform repair or diagnosis according to the available repair information.
		No	Go to the next step.
2	INSPECT ATF CONDITION • Inspect the ATF condition. (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION.) • Is it normal?	Yes	Go to the next step.
		No	Replace the transaxle, then go to Step 8.
3		Yes	Go to the next step.

	INSPECT ATF LEVEL - Start the engine. - Warm up the ATX. - Is the ATF level within the specification? (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION .)	No	Add ATF to the specified level, then go to Step 8.
4	INSPECT SHIFT SOLENOID VALVE A - Perform operation inspection. (See SOLENOID VALVE INSPECTION .) - Verify the click sound of shift solenoid A when applying B+ to transaxle terminal A. - Was a click heard from solenoids?	Yes	Go to the next step.
		No	Replace the solenoid that you could not hear a click sound, then go to Step 8. (See SOLENOID VALVE REMOVAL/INSTALLATION .)
5	INSPECT LINE PRESSURE - Start the engine. - Measure the line pressures. Specification Idle: 330-470 kPa {3.4-4.7 kgf/cm², 48-68 psi} Stall: 1,090-1,250 kPa {11.2-12.7 kgf/cm², 159-181 psi} - Are the line pressures within the specifications? (See Line Pressure Test .)	Yes	Go to the next step.
		No	All ranges: Replace the oil pump, then go to Step 8. Any ranges: Replace the control valve body, then go to Step 8. (See CONTROL VALVE BODY REMOVAL .) (See CONTROL VALVE BODY INSTALLATION .)
6	INSPECT STALL SPEED - Measure the stall speed in D range. (See Stall Test .) Specification 2,100-2,700 rpm - Is the stall speed within the specification?	Yes	Go to the next step.
		No	Replace the automatic transaxle, then go to Step 8. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION .)
7	INSPECT FREQUENCY OF INPUT/TURBINE SPEED SENSOR WHEN DRIVING VEHICLE Turn the ignition switch to the LOCK position.	Yes	Go to the next step.
		No	Replace the control valve body, then go to the next step. (See CONTROL VALVE BODY REMOVAL .)

	• Connect the WDS or equivalent. • Start the engine. • Measure the frequency of input/turbine speed sensor while driving vehicle under the following conditions: - Vehicle speed (VSS PID): 20 km/h {12 mph} - Drive in the D range, 1GR - Throttle opening angle (TP PID): approx. 25% • Was the frequency of the input/turbine speed sensor at approx. 1,100 Hz?		(See CONTROL VALVE BODY INSTALLATION.)
8	VERIFY REPAIR OF DTC P0731 • Make sure to reconnect all the disconnected connectors. • Clear the DTC using the WDS or equivalent. • Start the engine. • Warm up the transaxle. • Drive the vehicle under the following conditions at least 4 times for more than 1 s: - ATF temperature: 20 °C {68 °F} or more - Drive in the D range, 1GR - Throttle opening angle (TP PID): 5.67% or more - Vehicle speed (VSS PID): 4 km/h {3 mph} or more • Are any DTCs present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6].)
		No	Go to the next step.
9	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0732 [FN4A-EL]

B3E050219090W15

DTC P0732	Gear 2 incorrect (incorrect gear ratio detected)
DETECTION CONDITION	- The PCM monitors revolution ratio of forward clutch drum revolution to differential gear case revolution when the following monitoring conditions are met. If revolution ratio is below 1.25 or 2.16 or more, the PCM determines that there is a malfunction. Monitoring condition: - ATF temperature 20 °C {68 °F} or more - Driving in 2 GR in D or M range - Engine running - Turbine speed within 225-4,987 rpm - Differential gear case (output) revolution speed 35 rpm or more - None of the following present: DTC P0500, P0706, P0707, P0708, P0712, P0713, P0715, P0751, P0752, P0753, P0756, P0757, P0758, P0761, P0762, P0763, P0766, P0767, P0768, P0771, P0772, P0773 Diagnostic support note: - This is a continuous monitor (CCM). - The MIL does not illuminate. - The AT warning light illuminates if the PCM detects the above malfunction condition during the first drive cycle. - FREEZE FRAME DATA is not available. - A PENDING CODE is not available. - The DTC is stored in the PCM memory.
POSSIBLE CAUSE	- ATF level low - Deteriorated ATF - Shift solenoids A, B or C stuck - Pressure control solenoid stuck - Line pressure low 2-4 brake band slipping - Forward clutch slipping - Control valve stuck - Oil pump malfunction - PCM malfunction

Diagnostic procedure

STEP	INSPECTION	ACTION
1	Yes	Perform repair or diagnosis according to the available repair information.

	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	No	Go to the next step.
2	INSPECT ATF CONDITION • Inspect the ATF condition. (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION.) • Is it normal?	Yes	Go to the next step.
		No	Replace the transaxle, then go to Step 8.
3	INSPECT ATF LEVEL • Start the engine. • Warm up the ATX. • Is the ATF level within the specification? (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION.)	Yes	Go to the next step.
		No	Add ATF to the specified level, then go to Step 8.
4	INSPECTION SHIFT SOLENOID VALVE A, B AND C FOR CLICK SOUND • Perform operation inspection. (See SOLENOID VALVE INSPECTION.) • Verify the click sound of shift solenoid A, B, and C when applying B+ to each transaxle terminal. • Was a click heard from solenoids?	Yes	Go to the next step.
		No	Replace the solenoid where you could not hear a click sound, then go to Step 8. (See SOLENOID VALVE REMOVAL/INSTALLATION.)
5	INSPECT LINE PRESSURE • Start the engine. • Measure the line pressures. Specification Idle: 330-470 kPa {3.4-4.7 kgf/cm², 48-68 psi} Stall: 1,090-1,250 kPa {11.2-12.7 kgf/cm², 159-181 psi} • Are the line pressures within the specifications? (See Line Pressure Test.)	Yes	Go to the next step.
		No	All ranges: Replace the oil pump, then go to Step 8. Any ranges: Replace the control valve body, then go to Step 8. (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.)
6		Yes	Go to the next step.

	INSPECT STALL SPEED • Measure the stall speed in D range. (See Stall Test.) Specification 2,100-2,700 rpm • Is the stall speed within the specification?	No	Replace the automatic transaxle, then go to Step 8. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.)
7	INSPECT FREQUENCY OF INPUT/TURBINE SPEED SENSOR WHEN DRIVING VEHICLE • Turn the ignition switch to the LOCK position. • Connect the WDS or equivalent. • Start the engine. • Measure the frequency of input/turbine speed sensor while driving vehicle under the following conditions: - Vehicle speed (VSS PID): 40 km/h {24 mph} - Drive in the D range, 2GR - Throttle opening angle (TP PID): approx. 25% • Was the frequency of the input/turbine speed sensor at approx. 1,156 Hz?	Yes	Go to the next step.
		No	Replace the control valve body, then go to the next step. (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.)
8	VERIFY REPAIR OF DTC P0732 • Make sure to reconnect all the disconnected connectors. • Clear the DTC using the WDS or equivalent. • Start the engine. • Warm up the transaxle. • Drive the vehicle under the following conditions at least 4 times for more than 1 s: - ATF temperature: 20 °C {68 °F} or more - Drive in the D range, 2GR - Vehicle speed (VSS PID): 3.8 km/h {2.4 mph} or more	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6].)
		No	Go to the next step.

	• Are any DTCs present?		
9	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL] .) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0733 [FN4A-EL]

B3E050219090W16

DTC P0733	Gear 3 incorrect (incorrect gear ratio detected)
DETECTION CONDITION	• The PCM monitors revolution ratio of forward clutch drum revolution to differential gear case revolution when the following monitoring conditions are met. If the revolution ratio is below 0.86 or 1.25 or more, the PCM determines that there is a malfunction. Monitoring condition: - ATF temperature 20 °C {68 °F} or more - Driving in 3 GR in D or M range - Engine running - Turbine speed within 225-4,987 rpm - Differential gear case (output) revolution speed 35 rpm or more - None of the following present: DTC P0500, P0706, P0707, P0708, P0712, P0713, P0715, P0751, P0752, P0753, P0756, P0757, P0758, P0761, P0762, P0763, P0766, P0767, P0768, P0771, P0772, P0773 Diagnostic support note: • This is a continuous monitor (CCM). • The MIL does not illuminate. • The AT warning light illuminates if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA is not available. • A PENDING CODE is not available. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• ATF level low • Deteriorated ATF • Shift solenoids A or C stuck • Pressure control solenoid stuck • Line pressure low

	3-4 clutch slipping • Forward clutch slipping • Control valve stuck (Bypass, TCC or 3-4 shift valve) • Oil pump malfunction • PCM malfunction
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Diagnostic procedure

STEP	INSPECTION		ACTION
1	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	Yes	Perform repair or diagnosis according to the available repair information.
		No	Go to the next step.
2	INSPECT ATF CONDITION • Inspect the ATF condition. (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION.) • Is it normal?	Yes	Go to the next step.
		No	Replace the transaxle, then go to Step 8.
3	INSPECT ATF LEVEL • Start the engine. • Warm up the ATX. • Is the ATF level within the specification? (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION.)	Yes	Go to the next step.
		No	Add ATF to the specified level, then go to Step 8.
4	INSPECTION SHIFT SOLENOID VALVE A AND C FOR CLICK SOUND • Perform operation inspection. (See SOLENOID VALVE INSPECTION.) • Verify the click sound of shift solenoid A and C when applying B+ to each transaxle terminal. • Was a click heard from solenoids?	Yes	Go to the next step.
		No	Replace the solenoid where you could not hear a click sound, then go to Step 8. (See SOLENOID VALVE REMOVAL/INSTALLATION.)
5	INSPECT LINE PRESSURE • Start the engine. • Measure the line pressures.	Yes	Go to the next step.
		No	All ranges: Replace the oil pump, then go to Step 8.

	Specification Idle: 330-470 kPa {3.4-4.7 kgf/cm², 48-68 psi} Stall: 1,090-1,250 kPa {11.2-12.7 kgf/cm², 159-181 psi} • Are the line pressures within the specifications? (See Line Pressure Test.)		Any ranges: Replace the control valve body, then go to Step 8. (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.)
6	INSPECT STALL SPEED • Measure the stall speed in D range. (See Stall Test.) Specification 2,100-2,700 rpm • Is the stall speed within the specification?	Yes	Go to the next step.
		No	Replace the automatic transaxle, then go to Step 8. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.)
7	INSPECT FREQUENCY OF INPUT/TURBINE SPEED SENSOR WHEN DRIVING VEHICLE • Turn the ignition switch to the LOCK position. • Connect the WDS or equivalent. • Start the engine. • Measure the frequency of input/turbine speed sensor while driving vehicle under the following conditions: - Vehicle speed (VSS PID): 60 km/h {37 mph} - Drive in the D range, 3GR - Throttle opening angle (TP PID): approx. 25% • Was the frequency of the input/turbine speed sensor at approx. 1,200 Hz?	Yes	Go to the next step.
		No	Replace the control valve body, then go to the next step. (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.)
8	VERIFY REPAIR OF DTC P0732 • Make sure to reconnect all the disconnected connectors. • Clear the DTC using the WDS or equivalent. • Start the engine.	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6].)
		No	Go to the next step.

	• Warm up the transaxle. • Drive the vehicle under the following conditions for more than 2 s: - ATF temperature: 20 °C {68 °F} or more - Drive in the D range, 3GR - Vehicle speed (VSS PID): 4 km/h {3 mph} or more • Are any DTCs present?		
9	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL] .) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0734 [FN4A-EL]

B3E050219090W17

DTC P0734	Gear 4 incorrect (incorrect gear ratio detected)
DETECTION CONDITION	• The PCM monitors revolution ratio of the forward clutch drum revolution to the differential gear case revolution when the following monitoring conditions are met. If the revolution ratio is below 0.6 or 1.25 or more, the PCM determines that there is a malfunction. Monitoring condition: - ATF temperature 20 °C {68 °F} or more - Driving in 4 GR in D or M range - Engine running - Turbine speed within 225-4,987 rpm - Vehicle speed 50 km/h {31 mph} or more - Closed throttle position - Differential gear case (output) revolution speed 35 rpm or more - None of the following present: DTC P0500, P0706, P0707, P0708, P0712, P0713, P0715, P0751, P0752, P0753, P0756, P0757, P0758, P0761, P0762, P0763, P0766, P0767, P0768, P0771, P0772, P0773 Diagnostic support note: • This is a continuous monitor (CCM). • The MIL does not illuminate.

	• The AT warning light illuminates if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA is not available. • A PENDING CODE is not available. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• ATF level low • Deteriorated ATF • Shift solenoids A, B or C stuck • Pressure control solenoid stuck • Line pressure low 2-4 brake band slipping 3-4 clutch slipping • Forward clutch slipping • Control valve stuck (Bypass or 3-4 shift valve) • Oil pump malfunction • PCM malfunction

Diagnostic procedure

STEP	INSPECTION		ACTION
1	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	Yes	Perform repair or diagnosis according to the available repair information.
		No	Go to the next step.
2	INSPECT ATF CONDITION • Inspect the ATF condition. (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION.) • Is it normal?	Yes	Go to the next step.
		No	Replace the transaxle, then go to Step 8.
3	INSPECT ATF LEVEL • Start the engine. • Warm up the ATX. • Is the ATF level within the specification? (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION.)	Yes	Go to the next step.
		No	Add ATF to the specified level, then go to Step 8.

4	INSPECT SHIFT SOLENOID VALVE A AND D FOR CLICK SOUND - Perform operation inspection. (See SOLENOID VALVE INSPECTION .) - Verify the click sound of shift solenoids A and D when applying B+ to each transaxle terminal. Note - The click from solenoid D is barely audible. Remove solenoids to correctly inspect if necessary. - Was a click heard from solenoids?	Yes	Go to the next step.
		No	Replace the solenoid where you could not hear click sound, then go to Step 8. (See SOLENOID VALVE REMOVAL/INSTALLATION .)
5	INSPECT LINE PRESSURE - Start the engine. - Measure the line pressures. Specification Idle: 330-470 kPa {3.4-4.7 kgf/cm², 48-68 psi} Stall: 1,090-1,250 kPa {11.2-12.7 kgf/cm², 159-181 psi} - Are the line pressures within the specifications? (See Line Pressure Test .)	Yes	Go to the next step.
		No	All ranges: Replace the oil pump, then go to Step 8. Any ranges: Replace the control valve body, then go to Step 8. (See CONTROL VALVE BODY REMOVAL .) (See CONTROL VALVE BODY INSTALLATION .)
6	INSPECT STALL SPEED - Measure the stall speed in D range. (See Stall Test .) Specification 2,100-2,700 rpm - Is the stall speed within the specification?	Yes	Go to the next step.
		No	Replace the automatic transaxle, then go to Step 8. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION .)
7	INSPECT FREQUENCY OF INPUT/TURBINE SPEED SENSOR WHEN DRIVING VEHICLE - Turn the ignition switch to the LOCK position. - Connect the WDS or equivalent. - Start the engine.	Yes	Go to the next step.
		No	Replace the control valve body, then go to the next step. (See CONTROL VALVE BODY REMOVAL .) (See CONTROL VALVE BODY INSTALLATION .)

	• Measure the frequency of input/turbine speed sensor while driving vehicle under the following conditions: - Vehicle speed (VSS PID): 80 km/h {49 mph} - Drive in the D range, 4GR - Throttle opening angle (TP PID): approx. 25% • Was the frequency of the input/turbine speed sensor at approx. 1,200 Hz?		
8	VERIFY REPAIR OF DTC P0732 • Make sure to reconnect all the disconnected connectors. • Clear the DTC using the WDS or equivalent. • Start the engine. • Warm up the transaxle. • Drive the vehicle under the following conditions for more than 5 s: - ATF temperature: 20 °C {68 °F} or more - Drive in the D range, 4GR - Throttle opening angle (TP PID): 0% - Vehicle speed (VSS PID): 50 km/h {31 mph} or more • Are any DTCs present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6] .)
		No	Go to the next step.
9	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0741 [FN4A-EL]

B3E050219090W18

DTC P0741	Torque converter clutch (TCC) stuck off
DETECTION CONDITION	• When all conditions below are satisfied.

	- ATF temperature 20 °C {68 °F} or more - Driving in 4GR at D range - Engine running - Turbine speed within 225-4,987 rpm - Vehicle speed within 60-100 km/h {37-62 mph} - Torque converter clutch (TCC) operating - Shift solenoid A duty value exceeds 99% - Normal mode - Difference between engine speed and turbine speed more than 100 rpm - None of the following present: DTC P0500, P0706, P0707, P0708, P0712, P0713, P0715, P0751, P0752, P0753, P0756, P0757, P0758, P0761, P0762, P0763, P0766, P0767, P0768, P0771, P0772, P0773 Diagnostic support note: • This is a continuous monitor (CCM). • The MIL does not illuminate if PCM detects the above malfunction conditions during first the drive cycle. • A PENDING CODE is not available. • FREEZE FRAME DATA is not available. • The AT warning light illuminates • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• ATF level low • Deteriorated ATF • Shift solenoids A, B, C, D, E, and pressure control solenoid stuck • Line pressure low 2-4 brake band slipping 3-4 clutch slipping • Control valve stuck • PCM malfunction

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and or/on-line repair information availability.	Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
	• Is any related repair information available?	No Go to the next step.

2	INSPECT ATF CONDITION • Turn the ignition switch to the LOCK position. • Inspect the ATF condition. - Clear red: Normal - Milky: Water mixed in fluid - Reddish brown: Deteriorated ATF • Is it normal? (See Automatic Transaxle Fluid (ATF) Condition Inspection.)	Yes	Go to the next step.
		No	If the ATF color is milky or reddish brown, replace ATF, then go to Step 4. (See AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT.)
3	INSPECT ATF LEVEL • Start the engine. • Warm up the ATX. • Is the ATF level within the specification? (See Automatic Transaxle Fluid (ATF) Level Inspection.)	Yes	Go to the next step.
		No	Add ATF to the specified level, then go to Step 6. (See Automatic Transaxle Fluid (ATF) Level Inspection.)
4	INSPECT LINE PRESSURE • Start the engine. • Measure the line pressure. Specification Idle: 330-470 kPa {3.4-4.7 kgf/cm², 48-68 psi} Stall: 1,090-1,250 kPa {11.2-12.7 kgf/cm², 159-181 psi} • Are the line pressures within the specifications? (See Line Pressure Test.)	Yes	Go to the next step.
		No	• All ranges: Replace the oil pump or control valve body, then go to Step 6. • Any ranges: Replace the ATX, then go to Step 6. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
5	INSPECT OPERATION OF EACH VALVE AND EACH SPRING • Turn the ignition switch to the LOCK position. • Remove the control valve body. • Disassemble the control valve body. • Is each valve operation normal and is the return spring normal? (See CONTROL VALVE BODY REMOVAL.)	Yes	Replace the ATX, then go to the next step (See ATX Workshop Manual FN4A-EL.)
		No	Repair or replace the shift valve and return spring, then go to the next step. (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)

	(See CONTROL VALVE BODY INSTALLATION .) (See ATX Workshop Manual FN4A-EL.)		
6	VERIFY TROUBLESHOOTING OF DTC P0741 COMPLETED • Make sure to reconnect all the disconnected connectors. • Clear the DTC from the memory using the WDS or equivalent. • Start the engine. • Warm up engine and ATX. • Drive the vehicle under the following conditions for 5 s or more. - ATF temperature: 20 °C {68 °F} or more - Drive in the D range, 4GR (TCC operation) - Vehicle speed (VSS PID): within 60-100 km/h {37-62 mph} • Are any DTCs present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6] .)
		No	Go to the next step.
7	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0742 [FN4A-EL]

B3E050219090W19

DTC P0742	Torque converter clutch (TCC) stuck on
DETECTION CONDITION	• All of the following conditions are satisfied under each of the following throttle conditions. - ATF temperature 20 °C {68 °F} or more - Driving in 4GR at D or M range - Engine running - Turbine speed within 225-4,987 rpm - Vehicle speed below 70 km/h {43 mph} - Torque converter clutch (TCC) no operating

	- Difference between engine speed and turbine speed below 50 rpm - DTC P0734 not output • Throttle conditions - Throttle opening angle (TP PID) is above 10% and 5 s or more have passed. - Throttle opening angle (TP PID) is within 3.13-10% and 3 s or more have passed. - Throttle opening angle is at closed throttle position and 5 s or more have passed. Diagnostic support note: • This is a continuous monitor (CCM). • The MIL does not illuminate if PCM detects the above malfunction conditions during first the drive cycle. • A PENDING CODE is not available. • FREEZE FRAME DATA is not available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• ATF level low • Deteriorated ATF • Shift solenoids A, B, C, D, E, and pressure control solenoid stuck • Line pressure low 2-4 brake band slipping 3-4 clutch slipping • Control valve stuck • PCM malfunction

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY RELATED REPAIR INFORMATION AVAILABILITY	
	• Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	Yes Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step. No Go to the next step.
2	INSPECT ATF CONDITION	
	• Turn the ignition switch to the LOCK position. • Inspect the ATF condition.	Yes Go to the next step. No If the ATF color is milky or reddish brown, replace ATF, then go to Step 4.

	- Clear red: Normal - Milky: Water mixed in fluid - Reddish brown: Deteriorated ATF • Is it normal? (See Automatic Transaxle Fluid (ATF) Condition Inspection.)		(See AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT.)
3	INSPECT ATF LEVEL • Start the engine. • Warm up the ATX. • Is the ATF level within the specification? (See Automatic Transaxle Fluid (ATF) Level Inspection.)	Yes	Go to the next step.
		No	Add ATF to the specified level, then go to Step 6. (See Automatic Transaxle Fluid (ATF) Level Inspection.)
4	INSPECT LINE PRESSURE • Start the engine. • Measure the line pressure. Specification Idle: 330-470 kPa {3.4-4.7 kgf/cm², 48-68 psi} Stall: 1,090-1,250 kPa {11.2-12.7 kgf/cm², 159-181 psi} • Are the line pressures within the specifications? (See Line Pressure Test.)	Yes	Go to the next step.
		No	• All ranges: Replace the oil pump or control valve body, then go to Step 6. • Any ranges: Replace the ATX, then go to Step 6. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
5	INSPECT OPERATION OF EACH VALVE AND EACH SPRING • Turn the ignition switch to the LOCK position. • Remove the control valve body. • Disassemble the control valve body. • Is each valve operation normal and is the return spring normal? (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)	Yes	Replace the ATX, then go to the next step. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
		No	Repair or replace the shift valve and return spring, then go to the next step. (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
6		Yes	Replace the PCM, then go to the next step.

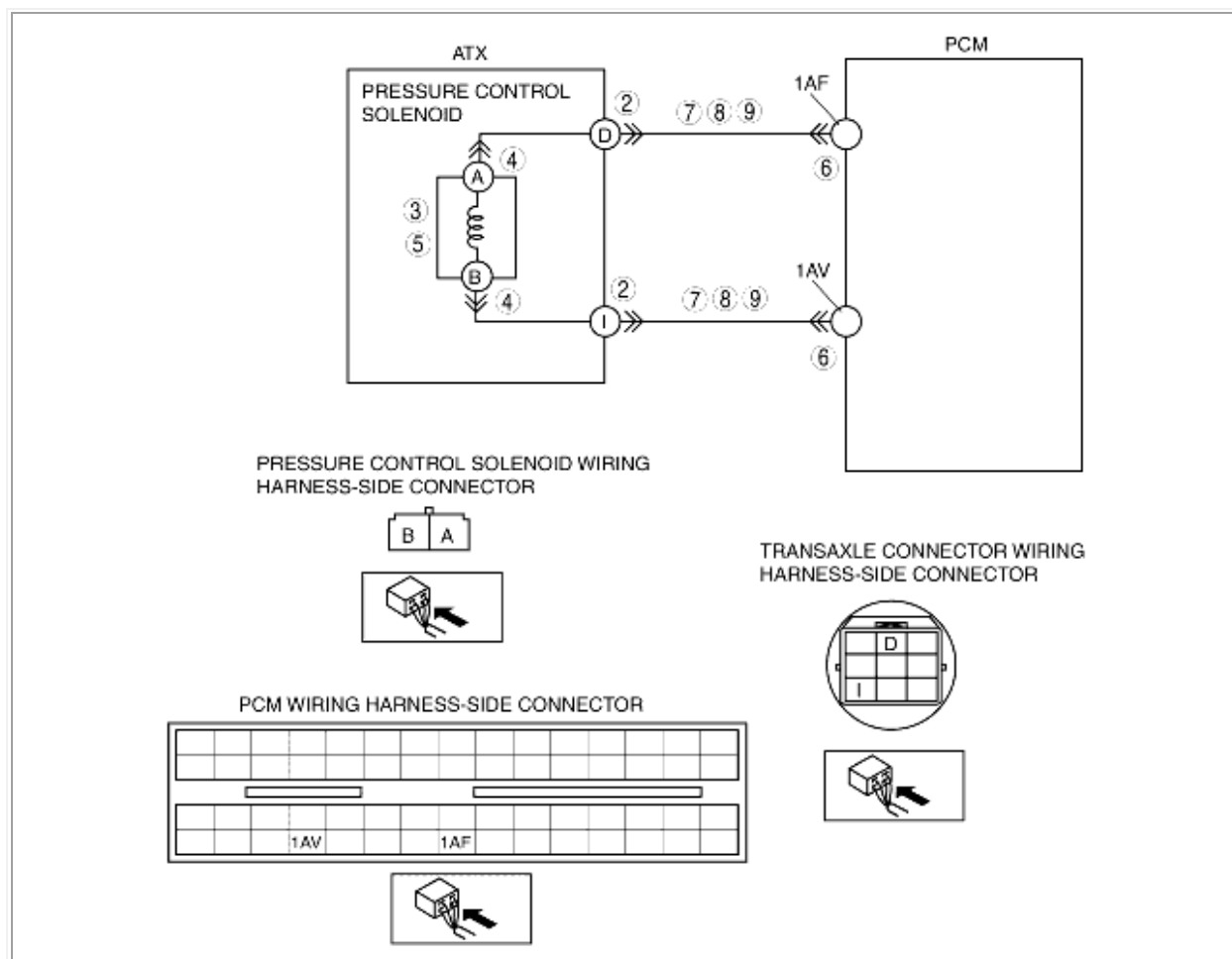
	VERIFY TROUBLESHOOTING OF DTC P0742 COMPLETED • Make sure to reconnect all the disconnected connectors. • Clear the DTC from the memory using the WDS or equivalent. • Start the engine. • Warm up engine and ATX. • Drive the vehicle under the following conditions: - ATF temperature: 20 °C {68 °F} or more - Drive in the D range, 4GR (TCC not in operation) - Vehicle speed: below 70 km/h {43 mph}. • Throttle conditions - Throttle opening angle (TP PID) above 10% and 5 s or more have passed. - Throttle opening angle (TP PID) within 3.13-10% and 3 s or more have passed. - Throttle opening angle at closed throttle position and 5 s or more have passed. • Are any DTCs present?	(See PCM REMOVAL/INSTALLATION [Z6] .)
		No Go to the next step.
7	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL] .) • Are any DTCs present?	Yes Go to the applicable DTC inspection.
		No DTC troubleshooting completed.

DTC P0745 [FN4A-EL]

B3E050219090W20

DTC P0745	Pressure control solenoid malfunction
DETECTION CONDITION	• If the PCM detects either of the following conditions, the PCM determines that pressure control solenoid circuit has a malfunction. - Pressure control solenoid voltage stuck 0 V after engine start

	- Pressure control solenoid voltage stuck B+ after engine start Diagnostic support note: • This is a continuous monitor (CCM). • The MIL does not illuminate if PCM detects above malfunction conditions during the first drive cycle. • A PENDING CODE is not available. • FREEZE FRAME DATA is not available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• Pressure control solenoid malfunction • Open circuit in wiring harness between pressure control solenoid terminal B and ATX terminal I • Open circuit in wiring harness between ATX terminal I and PCM terminal 1AV • Short to ground in wiring harness between ATX terminal D and PCM terminal 1AF • Short to power supply in wiring harness between ATX terminal D and PCM terminal 1AF • Open circuit in wiring harness between pressure control solenoid terminal A and ATX terminal D • Open circuit in wiring harness between ATX terminal D and PCM terminal 1AF • Damaged connector between pressure control solenoid and PCM • PCM malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY RELATED REPAIR INFORMATION AVAILABILITY	
	• Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	Yes: Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step. No: Go to the next step.
2	INSPECT ATX CONNECTOR FOR POOR CONNECTION	
	• Turn the ignition switch to the LOCK position. • Disconnect the ATX connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is the connection normal?	Yes: Go to the next step. No: Repair or replace the connector and/or terminals, then go to Step 10.
3	INSPECT RESISTANCE	
		Yes: Go to Step 6. No: Go to the next step.

	- Inspect the resistance between ATX terminals D and I (transaxle case side). - Is the resistance within 2.4-7.3 ohms? (See Resistance Inspection (On-Vehicle Inspection).)		
4	INSPECT PRESSURE CONTROL SOLENOID CONNECTOR FOR POOR CONNECTION - Disconnect the pressure control solenoid connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is the connection normal?	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 10.
5	INSPECT RESISTANCE - Inspect the resistance between the pressure control solenoid terminals A and B. - Is the resistance within 2.4-7.3 ohms? (See Resistance Inspection (Off-Vehicle Inspection).)	Yes	Replace the solenoid wiring harness, then go to Step 10.
		No	Verify pressure control solenoid installation. If solenoid installed correctly, replace the pressure control solenoid, then go to Step 10. (See SOLENOID VALVE REMOVAL/INSTALLATION.)
6	INSPECT PCM CONNECTOR FOR POOR CONNECTION - Disconnect the PCM connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is the connection normal?	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 10.
7	INSPECT ATX CONNECTOR CIRCUIT FOR OPEN CIRCUIT - Inspect for continuity between the PCM (wiring harness-side) and ATX connector (wiring harness-side). - PCM terminal 1AF and ATX terminal D - PCM terminal 1AV and ATX terminal I - Is there continuity between terminals?	Yes	Go to the next step.
		No	Repair or replace the wiring harness, the go to Step 10.
8	INSPECT ATX CONNECTOR CIRCUIT FOR SHORT TO POWER SUPPLY Turn the ignition switch to the ON position (engine off).	Yes	Go to the next step.
		No	Repair or replace the wiring harness, then go to Step 10.

	- Inspect the voltage at ATX terminal D (wiring harness-side). - Is the voltage 0 V?		
9	INSPECT PCM CIRCUIT FOR SHORT TO GROUND - Turn the ignition switch to the LOCK position. - Inspect for continuity between ATX terminal D (wiring harness-side) and body ground. - Is there continuity?	Yes	Repair or replace the wiring harness, then go to the next step.
		No	Go to the next step.
10	VERIFY TROUBLESHOOTING OF DTC P0745 COMPLETED - Make sure to reconnect all the disconnected connectors. - Clear the DTC from the memory using the WDS or equivalent. - Make sure to wait more than 1 s after turning the ignition switch to the ON position. - Are any DTCs present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6] .)
		No	No concern is detected. Go to the next step.
11	VERIFY AFTER REPAIR PROCEDURE - Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) - Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0751 [FN4A-EL]

B3E050219090W21

DTC P0751	Shift solenoid A stuck off
DETECTION CONDITION	- When P0731, P0732, and P0733 are not output, and all conditions below are satisfied. - ATF temperature 20 °C {68 °F} or more - Driving in 4GR at D range - Engine running - Turbine speed within 225- 4,987 rpm - Differential gear case (output) revolution speed 35 rpm or more - Torque converter clutch (TCC) not operating

	- Revolution ratio of forward clutch drum revolution to differential gear case revolution within 0.91-1.09 - None of the following present: DTC P0500, P0706, P0707, P0708, P0712, P0713, P0715, P0751, P0752, P0753, P0756, P0757, P0758, P0761, P0762, P0763, P0766, P0767, P0767, P0768, P0771, P0772, P0773 Diagnostic support note: • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. • The PENDING CODE is available if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA is available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• ATF level low • Deteriorated ATF • Shift solenoid A stuck • Control valve stuck • PCM malfunction

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED	Yes Go to the next step.
	• Has the FREEZE FRAME DATA been recorded?	No Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY	Yes Perform repair or diagnosis according to the available repair information.
	• Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	No Go to the next step.
3	INSPECT ATF CONDITION	Yes Go to the next step.
	• Turn the ignition switch to the LOCK position. • Inspect the ATF condition. - Clear red: Normal - Milky: Water mixed in fluid	No If the ATF color is milky or reddish brown, replace ATF, then go to Step 5. (See AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT .)

	- Reddish brown: Deteriorated ATF • Is it normal? (See Automatic Transaxle Fluid (ATF) Condition Inspection.)		
4	INSPECT ATF LEVEL • Start the engine. • Warm up the ATX. • Is the ATF level within the specification? (See Automatic Transaxle Fluid (ATF) Level Inspection.)	Yes	Go to the next step.
		No	Add ATF to the specified level, then go to Step 7. (See Automatic Transaxle Fluid (ATF) Level Inspection.)
5	INSPECT LINE PRESSURE • Start the engine. • Measure the line pressure. Specification Idle: 330-470 kPa {3.4-4.7 kgf/cm², 48-68 psi} Stall: 1,090-1,250 kPa {11.2-12.7 kgf/cm², 159-181 psi} • Are the line pressures within the specifications? (See Line Pressure Test.)	Yes	Go to the next step.
		No	• All ranges: Replace the oil pump or control valve body, then go to Step 7. • Any ranges: Replace the ATX, then go to Step 7. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
6	INSPECT OPERATION OF EACH VALVE AND EACH SPRING • Turn the ignition switch to the LOCK position. • Remove the control valve body. • Disassemble the control valve body. • Is each valve operation normal and is the return spring normal? (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)	Yes	Replace the ATX, then go to the next step. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
		No	Repair or replace the shift valve and return spring, then go to the next step. (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
7	VERIFY TROUBLESHOOTING OF DTC P0751 COMPLETED • Make sure to reconnect all the disconnected connectors.	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6].)
		No	Go to the next step.

	• Clear the DTC from the memory using the WDS or equivalent. • Start the engine. • Warm up the ATX. • Drive the vehicle under the following conditions and make sure that gears shift smoothly from 1GR to 4GR. - ATF temperature: 20 °C {68 °F} or more - Drive in the D range • Is the PENDING CODE present?		
8	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL] .) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0752 [FN4A-EL]

B3E050219090W22

DTC P0752	Shift solenoid A stuck on
DETECTION CONDITION	• When P0734 is not output, and all conditions below are satisfied in 1GR and 2GR. - ATF temperature 20 °C {68 °F} or more - Engine running - Either of P0705 or P0706 output, or D range selected - Brake pedal depressed - Throttle opening angle at closed throttle position - Vehicle speed 0 km/h {0 mph} - Input/turbine speed sensor signal 187.5 rpm or more. - None of the following present: DTC P0500, P0706, P0707, P0708, P0712, P0713, P0715, P0751, P0752, P0753, P0756, P0757, P0758, P0761, P0762, P0763, P0766, P0767, P0767, P0768, P0771, P0772, P0773 Diagnostic support note: • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM.

	• The PENDING CODE is available if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA is available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• ATF level low • Deteriorated ATF • Shift solenoid A stuck • Control valve stuck • PCM malfunction

Diagnostic procedure

STEP	INSPECTION		ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED • Has the FREEZE FRAME DATA been recorded?	Yes	Go to the next step.
		No	Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	Yes	Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	INSPECT ATF CONDITION • Turn the ignition switch to the LOCK position. • Inspect the ATF condition. - Clear red: Normal - Milky: Water mixed in fluid - Reddish brown: Deteriorated ATF • Is it normal? (See Automatic Transaxle Fluid (ATF) Condition Inspection.)	Yes	Go to the next step.
		No	If the ATF color is milky or reddish brown, replace ATF, then go to Step 5. (See AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT.)
4	INSPECT ATF LEVEL • Start the engine. • Warm up the ATX. • Is the ATF level within the specification?	Yes	Go to the next step.
		No	Add ATF to the specified level, then go to Step 7. (See Automatic Transaxle Fluid (ATF) Level Inspection.)

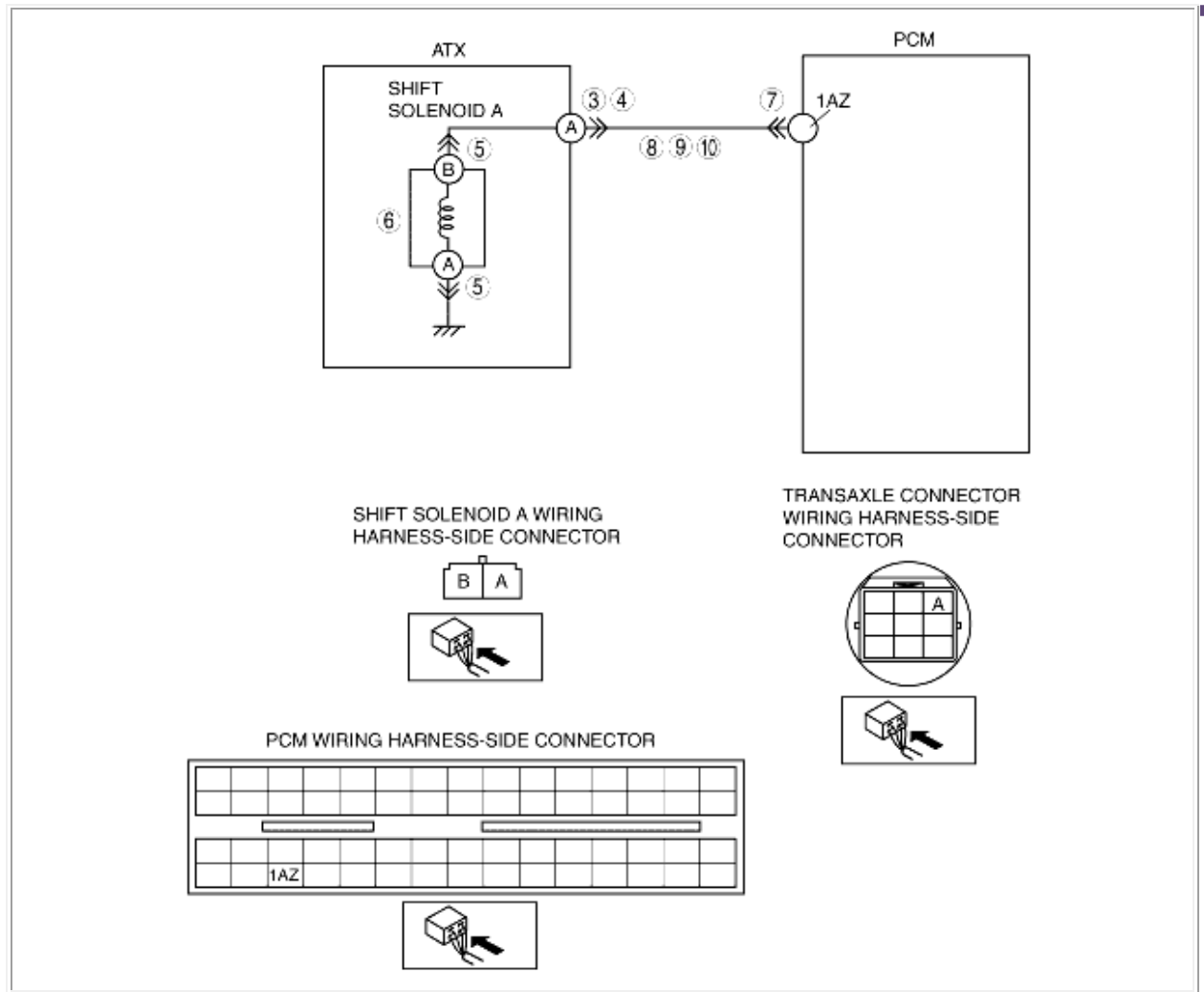
	(See Automatic Transaxle Fluid (ATF) Level Inspection.)		
5	INSPECT LINE PRESSURE - Start the engine. - Measure the line pressure. Specification Idle: 330-470 kPa {3.4-4.7 kgf/cm², 48-68 psi} Stall: 1,090-1,250 kPa {11.2-12.7 kgf/cm², 159-181 psi} - Are the line pressures within the specifications? (See Line Pressure Test.)	Yes	Go to the next step.
		No	- All ranges: Replace the oil pump or control valve body, then go to Step 7. - Any ranges: Replace the ATX, then go to Step 7. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
6	INSPECT OPERATION OF EACH VALVE AND EACH SPRING - Turn the ignition switch to the LOCK position. - Remove the control valve body. - Disassemble the control valve body. - Is each valve operation normal and is the return spring normal? (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)	Yes	Replace the ATX, then go to the next step. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
		No	Repair or replace the shift valve and return spring, then go to the next step. (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
7	VERIFY TROUBLESHOOTING OF DTC P0752 COMPLETED - Make sure to reconnect all the disconnected connectors. - Clear the DTC from the memory using the WDS or equivalent. - Start the engine. - Warm up the ATX. - Drive the vehicle under the following conditions and make sure that gears shift smoothly from 1GR to 4GR: - ATF temperature: 20 °C {68 °F} or more - Drive in the D range	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6].)
		No	Go to the next step.

	• Is the PENDING CODE present?		
8	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL] .) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0753 [FN4A-EL]

B3E050219090W23

DTC P0753	Shift solenoid A malfunction (electrical)
DETECTION CONDITION	• If PCM detects either of the following conditions, PCM determines that shift solenoid A circuit has a malfunction. - Shift solenoid A voltage stuck at B+ after engine start - Shift solenoid A voltage stuck at 0 V after engine start Diagnostic support note: • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction conditions during the first drive cycle. • A PENDING CODE is not available. • FREEZE FRAME DATA is available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• Shift solenoid A malfunction • Short to ground in wiring harness between ATX terminal A and PCM terminal 1AZ • Short to power supply in wiring harness between ATX terminal A and PCM terminal 1AZ • Open circuit in wiring harness between shift solenoid A terminal B and ATX terminal A • Open circuit in wiring harness between ATX terminal A and PCM terminal 1AZ • Open circuit in wiring harness between shift solenoid A terminal A and body ground • Damaged connector between shift solenoid A and PCM • PCM malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED • Has the FREEZE FRAME DATA been recorded?	Yes Go to the next step.
		No Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	Yes Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No Go to the next step.
3	INSPECT ATX CONNECTOR FOR POOR CONNECTION • Turn the ignition switch to the LOCK position. • Disconnect the ATX connector.	Yes Go to the next step.
		No Repair or replace the connector and/or terminals, then go to Step 11.

	- Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is the connection normal?		
4	INSPECT RESISTANCE - Inspect the resistance between ATX terminal A (transaxle case side) and body ground. - Is the resistance within 1.0-4.2 ohms? (See Resistance Inspection (On-Vehicle Inspection) .)	Yes	Go to Step 7.
		No	Go to the next step.
5	INSPECT SHIFT SOLENOID A CONNECTOR FOR POOR CONNECTION - Disconnect the shift solenoid A connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is the connection normal?	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 11.
6	INSPECT RESISTANCE - Inspect the resistance between shift solenoid A terminals A and B (part-side). - Is the resistance within 1.0-4.2 ohms? (See Resistance Inspection (Off-Vehicle Inspection) .)	Yes	Replace the solenoid wiring harness, then go to Step 11.
		No	Verify shift solenoid A installation. If solenoid installed correctly, replace the solenoid, then go to Step 11. (See SOLENOID VALVE REMOVAL/INSTALLATION .)
7	INSPECT PCM CONNECTOR FOR POOR CONNECTION - Disconnect the PCM connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is the connection normal?	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 11.
8	INSPECT ATX CONNECTOR CIRCUIT FOR OPEN CIRCUIT - Inspect for continuity between PCM terminal 1A2 (wiring harness-side) and ATX terminal A (wiring harness-side). - Is there continuity between terminals?	Yes	Go to the next step.
		No	Repair or replace the wiring harness, then go to Step 11.
9	INSPECT ATX CONNECTOR CIRCUIT FOR SHORT TO POWER SUPPLY Turn the ignition switch to the ON position (engine off).	Yes	Go to the next step.
		No	Repair or replace the wiring harness, then go to Step 11.

	- Inspect the voltage at ATX terminal A (wiring harness-side). - Is the voltage 0 V?		
10	INSPECT PCM CIRCUIT FOR SHORT TO GROUND - Turn the ignition switch to the LOCK position. - Inspect for continuity between PCM terminal 1AZ (wiring harness-side) and body ground. - Is there continuity?	Yes	Repair or replace the wiring harness, then go to Step 11.
		No	Go to the next step.
11	VERIFY TROUBLESHOOTING OF DTC P0753 COMPLETED - Make sure to reconnect all the disconnected connectors. - Clear the DTC from the memory using the WDS or equivalent. - Drive the vehicle in D range and make sure that the gears shift smoothly from 1GR to 4GR. - Are any DTCs present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6] .)
		No	No concern is detected. Go to the next step.
12	VERIFY AFTER REPAIR PROCEDURE - Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) - Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0756 [FN4A-EL]

B3E050219090W24

DTC P0756	Shift solenoid B stuck off
DETECTION CONDITION	- When DTC P0732, P0733, and P0734 are not output, and all conditions below are satisfied. - ATF temperature 20 °C {68 °F} or more - Driving in 1GR at D range - Engine running - Turbine speed within 225-4,987 rpm - Differential gear case (output) revolution speed 35 rpm or more - Throttle opening angle (TP PID) 2.66% or more

	- Revolution ratio of forward clutch drum revolution to differential gear case revolution below 2.157 - None of the following present: DTC P0500, P0706, P0707, P0708, P0712, P0713, P0715, P0751, P0752, P0753, P0756, P0757, P0758, P0761, P0762, P0763, P0766, P0767, P0767, P0768, P0771, P0772, P0773 Diagnostic support note: • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. • The PENDING CODE is available if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA is available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• ATF level low • Deteriorated ATF • Shift solenoid B stuck • Control valve stuck • PCM malfunction

Diagnostic procedure

STEP	INSPECTION		ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED	Yes	Go to the next step.
	• Has the FREEZE FRAME DATA been recorded?	No	Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY	Yes	Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
	• Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	No	Go to the next step.
3	INSPECT ATF CONDITION	Yes	Go to the next step.
	• Turn the ignition switch to the LOCK position. • Inspect the ATF condition. - Clear red: Normal - Milky: Water mixed in fluid	No	If the ATF color is milky or reddish brown, replace ATF, then go to Step 5. (See AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT .)

	- Reddish brown: Deteriorated ATF • Is it normal? (See Automatic Transaxle Fluid (ATF) Condition Inspection.)		
4	INSPECT ATF LEVEL • Start the engine. • Warm up the ATX. • Is the ATF level within the specification? (See Automatic Transaxle Fluid (ATF) Level Inspection.)	Yes	Go to the next step.
		No	Add ATF to the specified level, then go to Step 7. (See Automatic Transaxle Fluid (ATF) Level Inspection.)
5	INSPECT LINE PRESSURE • Start the engine. • Measure the line pressure. Specification Idle: 330-470 kPa {3.4-4.7 kgf/cm², 48-68 psi} Stall: 1,090-1,250 kPa {11.2-12.7 kgf/cm², 159-181 psi} • Are the line pressures within the specifications? (See Line Pressure Test.)	Yes	Go to the next step.
		No	• All ranges: Replace the oil pump or control valve body, then go to Step 7. • Any ranges: Replace the ATX, then go to Step 7. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
6	INSPECT OPERATION OF EACH VALVE AND EACH SPRING • Turn the ignition switch to the LOCK position. • Remove the control valve body. • Disassemble the control valve body. • Is each valve operation normal and is the return spring normal? (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)	Yes	Replace the ATX, then go to the next step. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
		No	Repair or replace the shift valve and return spring, then go to the next step. (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
7	VERIFY TROUBLESHOOTING OF DTC P0756 COMPLETED • Make sure to reconnect all the disconnected connectors.	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6].)
		No	Go to the next step.

	• Clear the DTC from the memory using the WDS or equivalent. • Start the engine. • Warm up the ATX. • Drive the vehicle under the following conditions and make sure that gears shift smoothly from 1GR to 4GR: - ATF temperature: 20 °C {68 °F} or more - Drive in the D range - Engine speed (RPM PID): 450 rpm or more - Throttle opening angle (TP PID): 5.67% or more • Is the PENDING CODE present?		
8	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0757 [FN4A-EL]

B3E050219090W25

DTC P0757	Shift solenoid B stuck on
DETECTION CONDITION	• When DTC P0731 and P0733 are not output, and both the following conditions are satisfied. - When all conditions below are satisfied while driving in 2GR • ATF temperature 20 °C {68 °F} or more • Driving in D range • Engine running • Turbine speed within 225-4,987 rpm • Differential gear case (output) revolution speed 35 rpm or more • Revolution ratio of forward clutch drum revolution to differential gear case revolution below 1.249 or more than 2.157 • None of the following present: DTC P0500, P0705, P0706, P0710, P0715, P0751, P0752, P0753, P0756, P0757, P0758, P0761, P0762, P0763, P0766, P0767, P0768, P0771, P0772, P0773

	- When all conditions below are satisfied with driving in 4GR • ATF temperature 20 °C {68 °F} or more • Driving in D range • Engine running • Turbine speed within 225-4,987 rpm • Differential gear case (output) revolution speed 35 rpm or more • Vehicle speed 50 km/h {31 mph} • Throttle opening angle at closed throttle position • Revolution ratio of forward clutch drum revolution to differential gear case revolution below 0.6 or 1.249 or more • None of the following present: DTC P0500, P0706, P0707, P0708, P0712, P0713, P0715, P0751, P0752, P0753, P0756, P0757, P0758, P0761, P0762, P0763, P0766, P0767, P0768, P0771, P0772, P0773 Diagnostic support note: • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. • The PENDING CODE is available if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA is available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• ATF level low • Deteriorated ATF • Shift solenoid B stuck • Control valve stuck • PCM malfunction

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED	Yes Go to the next step.
	• Has the FREEZE FRAME DATA been recorded?	No Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2		Yes Perform repair or diagnosis according to the available repair information.

	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?		• If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	INSPECT ATF CONDITION • Turn the ignition switch to the LOCK position. • Inspect the ATF condition. - Clear red: Normal - Milky: Water mixed in fluid - Reddish brown: Deteriorated ATF • Is it normal? (See Automatic Transaxle Fluid (ATF) Condition Inspection.)	Yes	Go to the next step.
		No	If the ATF color is milky or reddish brown, replace ATF, then go to Step 5. (See AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT.)
4	INSPECT ATF LEVEL • Start the engine. • Warm up the ATX. • Is the ATF level within the specification? (See Automatic Transaxle Fluid (ATF) Level Inspection.)	Yes	Go to the next step.
		No	Add ATF to the specified level, then go to Step 7. (See Automatic Transaxle Fluid (ATF) Level Inspection.)
5	INSPECT LINE PRESSURE • Start the engine. • Measure the line pressure. Specification Idle: 330-470 kPa {3.4-4.7 kgf/cm², 48-68 psi} Stall: 1,090-1,250 kPa {11.2-12.7 kgf/cm², 159-181 psi} • Are the line pressures within the specifications? (See Line Pressure Test.)	Yes	Go to the next step.
		No	• All ranges: Replace the oil pump or control valve body, then go to Step 7. • Any ranges: Replace the ATX, then go to Step 7. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
6	INSPECT OPERATION OF EACH VALVE AND EACH SPRING • Turn the ignition switch to the LOCK position.	Yes	Replace the ATX, then go to the next step. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)

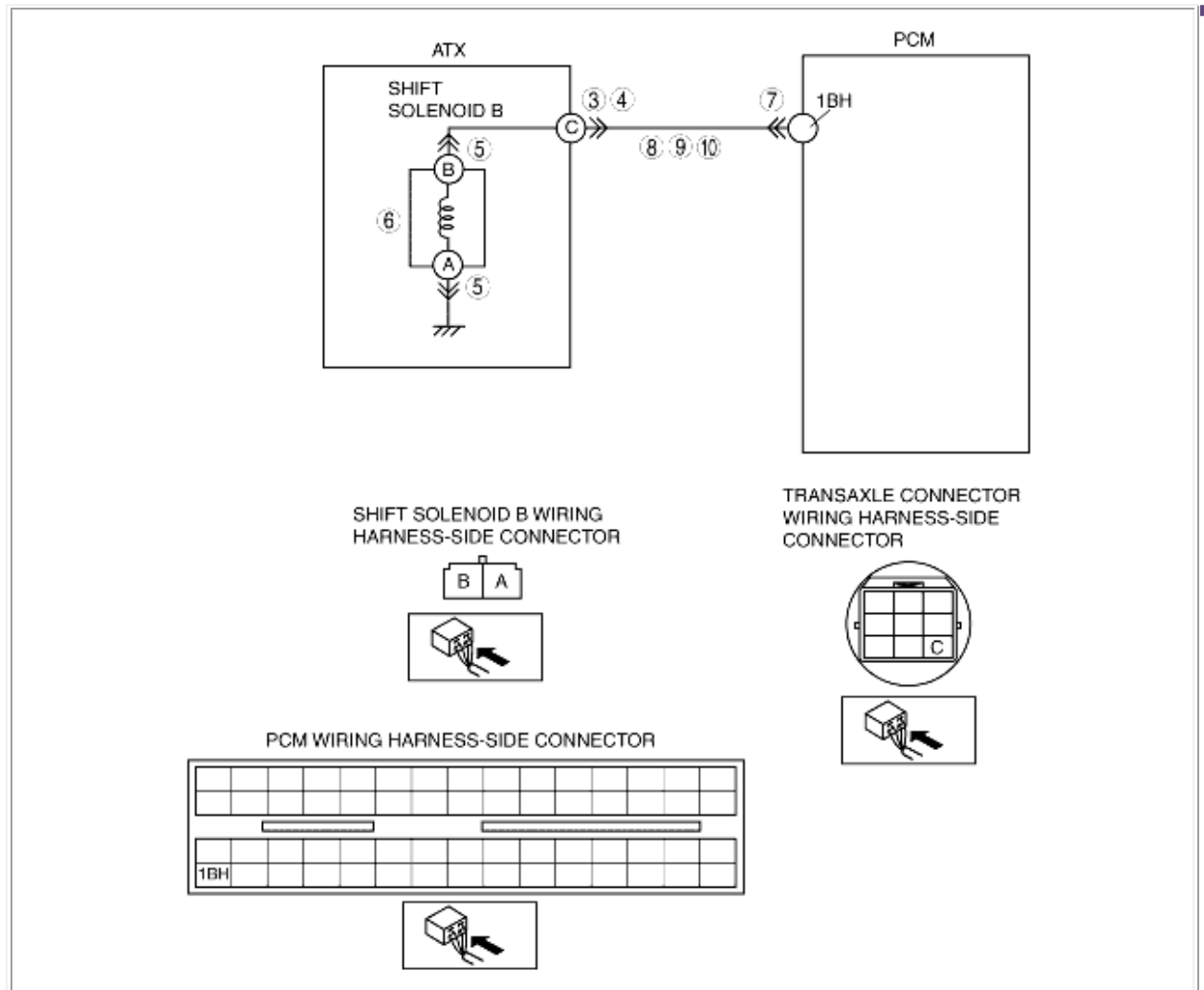
	- Remove the control valve body. - Disassemble the control valve body. - Is each valve operation normal and is the return spring normal? (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)	No	Repair or replace the shift valve and return spring, then go to the next step. (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
7	VERIFY TROUBLESHOOTING OF DTC P0757 COMPLETED - Make sure to reconnect all the disconnected connectors. - Clear the DTC from the memory using the WDS or equivalent. - Start the engine. - Warm up the ATX. - Drive the vehicle under the following conditions make sure that gears shift smoothly from 1GR to 4GR. - ATF temperature: 20 °C {68 °F} or more - Drive in the D range - Engine speed (RPM PID): 450 rpm or more - Throttle opening angle (TP PID): 0% (4GR only) - Vehicle speed (VSS PID): 50 km/h {31 mph} (4GR only) - Is the PENDING CODE present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6].)
		No	Go to the next step.
8	VERIFY AFTER REPAIR PROCEDURE - Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) - Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0758 [FN4A-EL]

B3E050219090W26

DTC P0758	Shift solenoid B malfunction (electrical)
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DETECTION CONDITION	• If the PCM detects either of the following conditions, the PCM determines that shift solenoid B circuit has a malfunction. - Shift solenoid B voltage stuck at B+ after engine start - Shift solenoid B voltage stuck at 0 V after engine start Diagnostic support note: • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction conditions during the first drive cycle. • A PENDING CODE is not available. • FREEZE FRAME DATA is available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• Shift solenoid B malfunction • Short to ground in wiring harness between ATX terminal C and PCM terminal 1BH • Short to power supply in wiring harness between ATX terminal C and PCM terminal 1BH • Open circuit in wiring harness between shift solenoid B terminal B and ATX terminal C • Open circuit in wiring harness between ATX terminal C and PCM terminal 1BH • Open circuit in wiring harness between shift solenoid B terminal A and body ground • Damaged connector between shift solenoid B and PCM • PCM malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED • Has the FREEZE FRAME DATA been recorded?	Yes Go to the next step.
		No Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	Yes Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No Go to the next step.
3	INSPECT ATX CONNECTOR FOR POOR CONNECTION • Turn the ignition switch to the LOCK position. • Disconnect the ATX connector.	Yes Go to the next step.
		No Repair or replace the connector and/or terminals, then go to Step 11.

	- Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is the connection normal?		
4	INSPECT RESISTANCE - Inspect the resistance between ATX terminal C (transaxle case side) and body ground. - Is the resistance within 1.0-4.2 ohms? (See Resistance Inspection (On-Vehicle Inspection) .)	Yes	Go to Step 7.
		No	Go to the next step.
5	INSPECT SHIFT SOLENOID B CONNECTOR FOR POOR CONNECTION - Disconnect the shift solenoid B connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is the connection normal?	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 11.
6	INSPECT RESISTANCE - Inspect the resistance between shift solenoid B terminals A and B (part-side). - Is the resistance within 1.0-4.2 ohms? (See Resistance Inspection (Off-Vehicle Inspection) .)	Yes	Replace the solenoid wiring harness, then go to Step 11.
		No	Verify shift solenoid B installation. If solenoid installed correctly, replace the solenoid, then go to Step 11. (See SOLENOID VALVE REMOVAL/INSTALLATION .)
7	INSPECT PCM CONNECTOR FOR POOR CONNECTION - Disconnect the PCM connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is the connection normal?	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 11.
8	INSPECT ATX CONNECTOR CIRCUIT FOR OPEN CIRCUIT - Inspect for continuity between PCM terminal 1BH (wiring harness-side) and ATX terminal C (wiring harness-side). - Is there continuity between terminals?	Yes	Go to the next step.
		No	Repair or replace the wiring harness, then go to Step 11.
9	INSPECT ATX CONNECTOR CIRCUIT FOR SHORT TO POWER SUPPLY Turn the ignition switch to the ON position (engine off).	Yes	Go to the next step.
		No	Repair or replace the wiring harness, then go to Step 11.

	- Inspect for voltage at ATX terminal C (wiring harness-side). - Is the voltage 0 V?		
10	INSPECT PCM CIRCUIT FOR SHORT TO GROUND - Turn the ignition switch to the LOCK position. - Inspect for continuity between PCM terminal 1BH (wiring harness-side) and body ground. - Is there continuity?	Yes	Repair or replace the wiring harness, then go to Step 11.
		No	Go to the next step.
11	VERIFY TROUBLESHOOTING OF DTC P0758 SHIFT SOLENOID B COMPLETED - Make sure to reconnect all the disconnected connectors. - Clear the DTC from the memory using the WDS or equivalent. - Drive the vehicle in D range and make sure that the gears shift smoothly from 1GR to 4GR. - Are any DTCs present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6] .)
		No	Go to the next step.
12	VERIFY AFTER REPAIR PROCEDURE - Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) - Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0761 [FN4A-EL]

B3E050219090W27

DTC P0761	Shift solenoid C stuck off
DETECTION CONDITION	- When DTC P0733 and P0734 are not output, and both the following conditions are satisfied. - When all conditions below are satisfied while driving in 1GR - ATF temperature 20 °C {68 °F} or more - Driving in D range - Engine running - Turbine speed within 225-4,987 rpm - Throttle opening angle (TP PID) 5.67% or more - Differential gear case (output) revolution speed 35 rpm or more

	• Revolution ratio of forward clutch drum revolution to differential gear case revolution below 2.157 • None of the following present: DTC P0500, P0706, P0707, P0708, P0712, P0713, P0715, P0751, P0752, P0753, P0756, P0757, P0758, P0761, P0762, P0763, P0766, P0767, P0767, P0768, P0771, P0772, P0773 - When all conditions below are satisfied while driving in 2GR • ATF temperature 20 °C {68 °F} or more • Driving in D range • Engine running • Turbine speed within 225-4,987 rpm • Differential gear case (output) revolution speed 35 rpm or more • Revolution ratio of forward clutch drum revolution to differential gear case revolution below 1.249 or 2.157 or more • None of the following present: DTC P0500, P0706, P0707, P0708, P0712, P0713, P0715, P0751, P0752, P0753, P0756, P0757, P0758, P0761, P0762, P0763, P0766, P0767, P0767, P0768, P0771, P0772, P0773 Diagnostic support note: • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. • The PENDING CODE is available if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA is available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• ATF level low • Deteriorated ATF • Shift solenoid C stuck • Control valve stuck • PCM malfunction

Diagnostic procedure

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

2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	Yes	Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	INSPECT ATF CONDITION • Turn the ignition switch to the LOCK position. • Inspect the ATF condition. - Clear red: Normal - Milky: Water mixed in fluid - Reddish brown: Deteriorated ATF • Is it normal? (See Automatic Transaxle Fluid (ATF) Condition Inspection.)	Yes	Go to the next step.
		No	If the ATF color is milky or reddish brown, replace ATF, then go to Step 5. (See AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT.)
4	INSPECT ATF LEVEL • Start the engine. • Warm up the ATX. • Is the ATF level within the specification? (See Automatic Transaxle Fluid (ATF) Level Inspection.)	Yes	Go to the next step.
		No	Add ATF to the specified level, then go to Step 7. (See Automatic Transaxle Fluid (ATF) Level Inspection.)
5	INSPECT LINE PRESSURE • Start the engine. • Measure the line pressure. Specification Idle: 330-470 kPa {3.4-4.7 kgf/cm², 48-68 psi} Stall: 1,090-1,250 kPa {11.2-12.7 kgf/cm², 159-181 psi} • Are the line pressures within the specifications? (See Line Pressure Test.)	Yes	Go to the next step.
		No	• All ranges: Replace the oil pump or control valve body, then go to Step 7. • Any ranges: Replace the ATX, then go to Step 7. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
6	INSPECT OPERATION OF EACH VALVE AND EACH SPRING • Turn the ignition switch to the LOCK position. • Remove the control valve body.	Yes	Replace the ATX, then go to the next step. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)

	- Disassemble the control valve body. - Is each valve operation normal and is the return spring normal? (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)	No	Repair or replace the shift valve and return spring, then go to the next step. (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
7	VERIFY TROUBLESHOOTING OF DTC P0761 COMPLETED - Make sure to reconnect all the disconnected connectors. - Clear the DTC from the memory using the WDS or equivalent. - Start the engine. - Warm up the ATX. - Drive the vehicle under the following conditions and make sure that the gears shift smoothly from 1GR to 4GR. - ATF temperature: 20 °C {68 °F} or more - Drive in the D range - Throttle opening angle (TP PID): 5.67% or more - Is the PENDING CODE present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6].)
		No	Go to the next step.
8	VERIFY AFTER REPAIR PROCEDURE - Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) - Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0762 [FN4A-EL]

B3E050219090W28

DTC P0762	Shift solenoid C stuck on
DETECTION CONDITION	- When DTC P0731 and P0732 are not output, and both the following conditions are satisfied. - When all conditions below are satisfied while driving in 3GR. - ATF temperature 20 °C {68 °F} or more.

	• Driving in D range • Engine running • Turbine speed within 225-4,987 rpm • Differential gear case (output) revolution speed 35 rpm or more • Revolution ratio of forward clutch drum revolution to differential gear case revolution below 0.863 or 1.249 or more • None of the following present: DTC P0500, P0706, P0707, P0708, P0712, P0713, P0715, P0751, P0752, P0753, P0756, P0757, P0758, P0761, P0762, P0763, P0766, P0767, P0767, P0768, P0771, P0772, P0773 - When all conditions below are satisfied while driving in 4GR • ATF temperature 20 °C {68 °F} or more • Driving in D range • Engine running • Turbine speed within 225-4,987 rpm • Vehicle speed 50 km/h {31mph} or more • Differential gear case (output) revolution speed 35 rpm or more • Throttle opening angle at closed throttle position • Revolution ratio of forward clutch drum revolution to differential gear case revolution below 0.6 or 1.249 or more • None of the following present: DTC P0500, P0706, P0707, P0708, P0712, P0713, P0715, P0751, P0752, P0753, P0756, P0757, P0758, P0761, P0762, P0763, P0766, P0767, P0767, P0768, P0771, P0772, P0773 Diagnostic support note: • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. • The PENDING CODE is available if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA is available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• ATF level low • Deteriorated ATF • Shift solenoid C and pressure control solenoid stuck • Control valve stuck • PCM malfunction

Diagnostic procedure

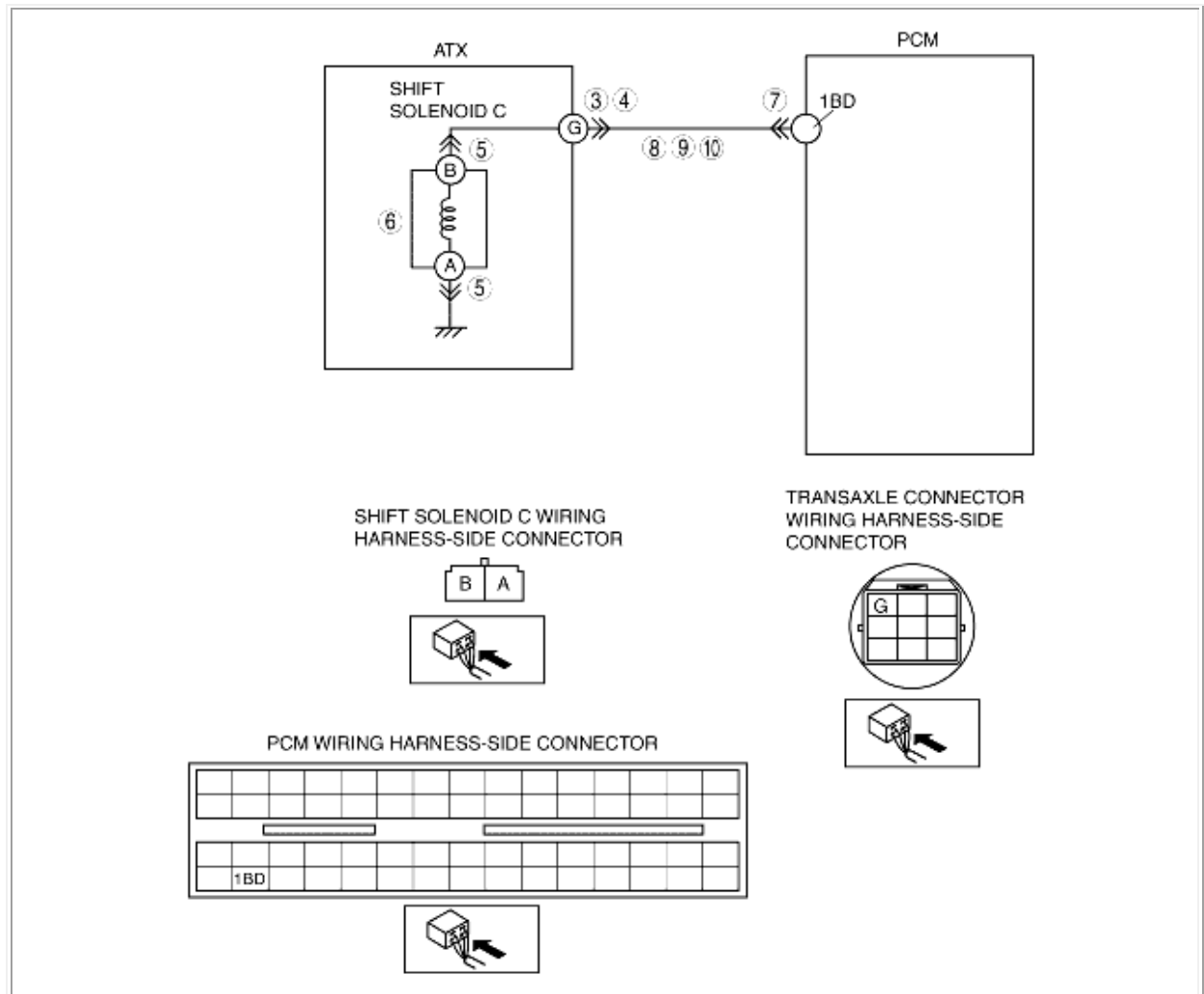


STEP	INSPECTION		ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED • Has the FREEZE FRAME DATA been recorded?	Yes	Go to the next step.
		No	Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	Yes	Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	INSPECT ATF CONDITION • Turn the ignition switch to the LOCK position. • Inspect the ATF condition. - Clear red: Normal - Milky: Water mixed in fluid - Reddish brown: Deteriorated ATF • Is it normal? (See Automatic Transaxle Fluid (ATF) Condition Inspection.)	Yes	Go to the next step.
		No	If the ATF color is milky or reddish brown, replace ATF, then go to Step 5. (See AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT.)
4	INSPECT ATF LEVEL • Start the engine. • Warm up the ATX. • Is the ATF level within the specification? (See Automatic Transaxle Fluid (ATF) Level Inspection.)	Yes	Go to the next step.
		No	Add ATF to the specified level, then go to Step 7. (See Automatic Transaxle Fluid (ATF) Level Inspection.)
5	INSPECT LINE PRESSURE • Start the engine. • Measure the line pressure. Specification Idle: 330-470 kPa {3.4-4.7 kgf/cm², 48-68 psi} Stall: 1,090-1,250 kPa {11.2-12.7 kgf/cm², 159-181 psi} • Are the line pressures within the specifications? (See Line Pressure Test.)	Yes	Go to the next step.
		No	• All ranges: Replace the oil pump or control valve body, then go to Step 7. • Any ranges: Replace the ATX, then go to Step 7. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)

6	INSPECT OPERATION OF EACH VALVE AND EACH SPRING • Turn the ignition switch to the LOCK position. • Remove the control valve body. • Disassemble the control valve body. • Is each valve operation normal and is the return spring normal? (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)	Yes	Replace the ATX, then go to the next step. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION .) (See ATX Workshop Manual FN4A-EL.)
		No	Repair or replace the shift valve and return spring, then go to the next step. (See CONTROL VALVE BODY REMOVAL .) (See CONTROL VALVE BODY INSTALLATION .) (See ATX Workshop Manual FN4A-EL.)
7	VERIFY TROUBLESHOOTING OF DTC P0762 COMPLETED • Make sure to reconnect all the disconnected connectors. • Clear the DTC from the memory using the WDS or equivalent. • Start the engine. • Warm up the ATX. • Drive the vehicle under the following conditions and make sure that gears shift smoothly from 1GR to 4GR: - ATF temperature: 20 °C {68 °F} or more - Drive in the D range - Throttle opening angle (TP PID): 0% (4GR only) - Vehicle speed (VSS PID): 50 km/h {31 mph} or more (4GR only) • Is the PENDING CODE present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6] .)
		No	Go to the next step.
8	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0763 [FN4A-EL]

DTC P0763	Shift solenoid C malfunction (electrical)
DETECTION CONDITION	• If the PCM detects either of the following conditions, the PCM determines that shift solenoid C circuit has a malfunction. - Shift solenoid C voltage stuck at B+ after engine start - Shift solenoid C voltage stuck at 0 V after engine start Diagnostic support note: • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction conditions during the first drive cycle. • A PENDING CODE is not available. • FREEZE FRAME DATA is available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• Shift solenoid C malfunction • Short to ground in wiring harness between ATX terminal G and PCM terminal 1BD • Short to power supply in wiring harness between ATX terminal G and PCM terminal 1BD • Open circuit in wiring harness between shift solenoid C terminal B and ATX terminal G • Open circuit in wiring harness between ATX terminal G and PCM terminal 1BD • Open circuit in wiring harness between shift solenoid C terminal A and body ground • Damaged connector between shift solenoid C and PCM • PCM malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED • Has the FREEZE FRAME DATA been recorded?	Yes Go to the next step.
		No Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	Yes Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No Go to the next step.
3	INSPECT ATX CONNECTOR FOR POOR CONNECTION • Turn the ignition switch to the LOCK position. • Disconnect the ATX connector.	Yes Go to the next step.
		No Repair or replace the connector and/or terminals, then go to Step 11.

	- Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is the connection normal?		
4	INSPECT RESISTANCE - Inspect the resistance between ATX terminal G (transaxle case side) and body ground. - Is the resistance within 1.0-4.2 ohms? (See Resistance Inspection (On-Vehicle Inspection) .)	Yes	Go to Step 7.
		No	Go to the next step.
5	INSPECT SHIFT SOLENOID C CONNECTOR FOR POOR CONNECTION - Disconnect the shift solenoid C connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is the connection normal?	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 11.
6	INSPECT RESISTANCE - Inspect the resistance between shift solenoid C terminals A and B (part-side). - Is the resistance within 1.0-4.2 ohms? (See Resistance Inspection (Off-Vehicle Inspection) .)	Yes	Replace the solenoid wiring harness, then go to Step 11.
		No	Verify shift solenoid C installation. If solenoid installed correctly, replace the solenoid, then go to Step 11. (See SOLENOID VALVE REMOVAL/INSTALLATION .)
7	INSPECT PCM CONNECTOR FOR POOR CONNECTION - Disconnect the PCM connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is the connection normal?	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 11.
8	INSPECT ATX CONNECTOR CIRCUIT FOR OPEN CIRCUIT - Inspect for continuity between PCM terminal 1BD (wiring harness-side) and ATX terminal G (wiring harness-side). - Is there continuity between terminals?	Yes	Go to the next step.
		No	Repair or replace the wiring harness, then go to Step 11.
9	INSPECT ATX CONNECTOR CIRCUIT FOR SHORT TO POWER SUPPLY Turn the ignition switch to the ON position (engine off).	Yes	Go to the next step.
		No	Repair or replace the wiring harness, then go to Step 11.

	- Inspect the voltage at ATX terminal G (wiring harness-side). - Is the voltage 0 V?		
10	INSPECT PCM CIRCUIT FOR SHORT TO GROUND - Turn the ignition switch to the LOCK position. - Inspect for continuity between PCM terminal 1BD (wiring harness-side) and body ground. - Is there continuity?	Yes	Repair or replace the wiring harness, then go to Step 11.
		No	Go to the next step.
11	VERIFY TROUBLESHOOTING OF DTC P0763 COMPLETED - Make sure to reconnect all the disconnected connectors. - Clear the DTC from the memory using the WDS or equivalent. - Drive the vehicle in D range and make sure that gears shift smoothly from 1GR to 4GR. - Are any DTCs present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6] .)
		No	No concern is detected. Go to the next step.
12	VERIFY AFTER REPAIR PROCEDURE - Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) - Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0766 [FN4A-EL]

B3E050219090W30

DTC P0766	Shift solenoid D stuck off
DETECTION CONDITION	- When any of DTC P0731, P0732, and P0733 not output (correct judgment), and all conditions below are satisfied. - ATF temperature 20 °C {68 °F} or more - Driving in 4GR at D range - Engine running - Turbine speed within 225-4,987 rpm - Differential gear case (output) revolution speed 35 rpm or more - Vehicle speed 50 km/h {31 mph} or more - Throttle opening angle at closed throttle position

	- Revolution ratio of forward clutch drum revolution to differential gear case revolution below 0.6 or 1.249 or more - None of the following present: DTC P0500, P0706, P0707, P0708, P0712, P0713, P0715, P0751, P0752, P0753, P0756, P0757, P0758, P0761, P0762, P0763, P0766, P0767, P0767, P0768, P0771, P0772, P0773 Diagnostic support note: • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. • The PENDING CODE is available if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA is available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• ATF level low • Deteriorated ATF • Shift solenoid D stuck • Control valve stuck • PCM malfunction

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED	Yes Go to the next step.
	• Has the FREEZE FRAME DATA been recorded?	No Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY	Yes Perform repair or diagnosis according to the available repair information.
	• Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	No Go to the next step.
3	INSPECT ATF CONDITION	Yes Go to the next step.
	• Turn the ignition switch to the LOCK position. • Inspect the ATF condition. - Clear red: Normal - Milky: Water mixed in fluid	No If the ATF color is milky or reddish brown, replace ATF, then go to Step 5. (See AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT .)

	- Reddish brown: Deteriorated ATF • Is it normal? (See Automatic Transaxle Fluid (ATF) Condition Inspection.)		
4	INSPECT ATF LEVEL • Start the engine. • Warm up the ATX. • Is the ATF level within the specification? (See Automatic Transaxle Fluid (ATF) Level Inspection.)	Yes	Go to the next step.
		No	Add ATF to the specified level, then go to Step 7. (See Automatic Transaxle Fluid (ATF) Level Inspection.)
5	INSPECT LINE PRESSURE • Start the engine. • Measure the line pressure. Specification Idle: 330-470 kPa {3.4-4.7 kgf/cm², 48-68 psi} Stall: 1,090-1,250 kPa {11.2-12.7 kgf/cm², 159-181 psi} • Are the line pressures within the specifications? (See Line Pressure Test.)	Yes	Go to the next step.
		No	• All ranges: Replace the oil pump or control valve body, then go to Step 7. • Any ranges: Replace the ATX, then go to Step 7. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
6	INSPECT OPERATION OF EACH VALVE AND EACH SPRING • Turn the ignition switch to the LOCK position. • Remove the control valve body. • Disassemble the control valve body. • Is each valve operation normal and is the return spring normal? (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)	Yes	Replace the ATX, then go to the next step. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
		No	Repair or replace the shift valve and return spring, then go to the next step. (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
7	VERIFY TROUBLESHOOTING OF DTC P0766 COMPLETED • Make sure to reconnect all the disconnected connectors.	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6].)
		No	Go to the next step.

	• Clear the DTC from the memory using the WDS or equivalent. • Start the engine. • Warm up the ATX. • Drive the vehicle under the following conditions and make sure that gears shift smoothly from 1GR to 4GR: - ATF temperature: 20 °C {68 °F} or more - Drive in the D range - Throttle opening angle (TP PID): 0% (4GR only) - Vehicle speed (VSS PID): 50 km/h {31 mph} or more. (4GR only) • Is the PENDING CODE present?		
8	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0767 [FN4A-EL]

B3E050219090W31

DTC P0767	Shift solenoid D stuck on
DETECTION CONDITION	• When any of DTC P0731, P0732, P0734, and P0741 are not output, and all conditions below are satisfied. - ATF temperature 20 °C {68 °F} or more - Driving in 3GR at D range - Engine running - Turbine speed within 225-4,987 rpm - Differential gear case (output) revolution speed 35 rpm or more - Revolution ratio of forward clutch drum revolution to differential gear case revolution below 0.863 or 1.249 or more - None of the following present: DTC P0500, P0706, P0707, P0708, P0712, P0713, P0715, P0751, P0752, P0753, P0756, P0757, P0758, P0761, P0762, P0763, P0766, P0767, P0767, P0768, P0771, P0772, P0773 Diagnostic support note:

	• This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. • The PENDING CODE is available if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA is available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• ATF level low • Deteriorated ATF • Shift solenoid D stuck • Control valve stuck • PCM malfunction

Diagnostic procedure

STEP	INSPECTION		ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED • Has the FREEZE FRAME DATA been recorded?	Yes	Go to the next step.
		No	Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	Yes	Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	INSPECT ATF CONDITION • Turn the ignition switch to the LOCK position. • Inspect the ATF condition. - Clear red: Normal - Milky: Water mixed in fluid - Reddish brown: Deteriorated ATF • Is it normal? (See Automatic Transaxle Fluid (ATF) Condition Inspection.)	Yes	Go to the next step.
		No	If the ATF color is milky or reddish brown, replace ATF, then go to Step 5. (See AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT.)
4		Yes	Go to the next step.

	INSPECT ATF LEVEL • Start the engine. • Warm up the ATX. • Is the ATF level within the specification? (See Automatic Transaxle Fluid (ATF) Level Inspection.)	No	Add ATF to the specified level, then go to Step 7. (See Automatic Transaxle Fluid (ATF) Level Inspection.)
5	INSPECT LINE PRESSURE • Start the engine. • Measure the line pressure. Specification Idle: 330-470 kPa {3.4-4.7 kgf/cm², 48-68 psi} Stall: 1,090-1,250 kPa {11.2-12.7 kgf/cm², 159-181 psi} • Are the line pressures within the specifications? (See Line Pressure Test.)	Yes	Go to the next step.
		No	• All ranges: Replace the oil pump or control valve body, then go to Step 7. • Any ranges: Replace the ATX, then go to Step 7. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
6	INSPECT OPERATION OF EACH VALVE AND EACH SPRING • Turn the ignition switch to the LOCK position. • Remove the control valve body. • Disassemble the control valve body. • Is each valve operation normal and is the return spring normal? (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)	Yes	Replace the ATX, then go to the next step. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
		No	Repair or replace the shift valve and return spring, then go to the next step. (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
7	VERIFY TROUBLESHOOTING OF DTC P0767 COMPLETED • Make sure to reconnect all the disconnected connectors. • Clear the DTC from the memory using the WDS or equivalent. • Start the engine. • Warm up the ATX.	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6].)
		No	Go to the next step.

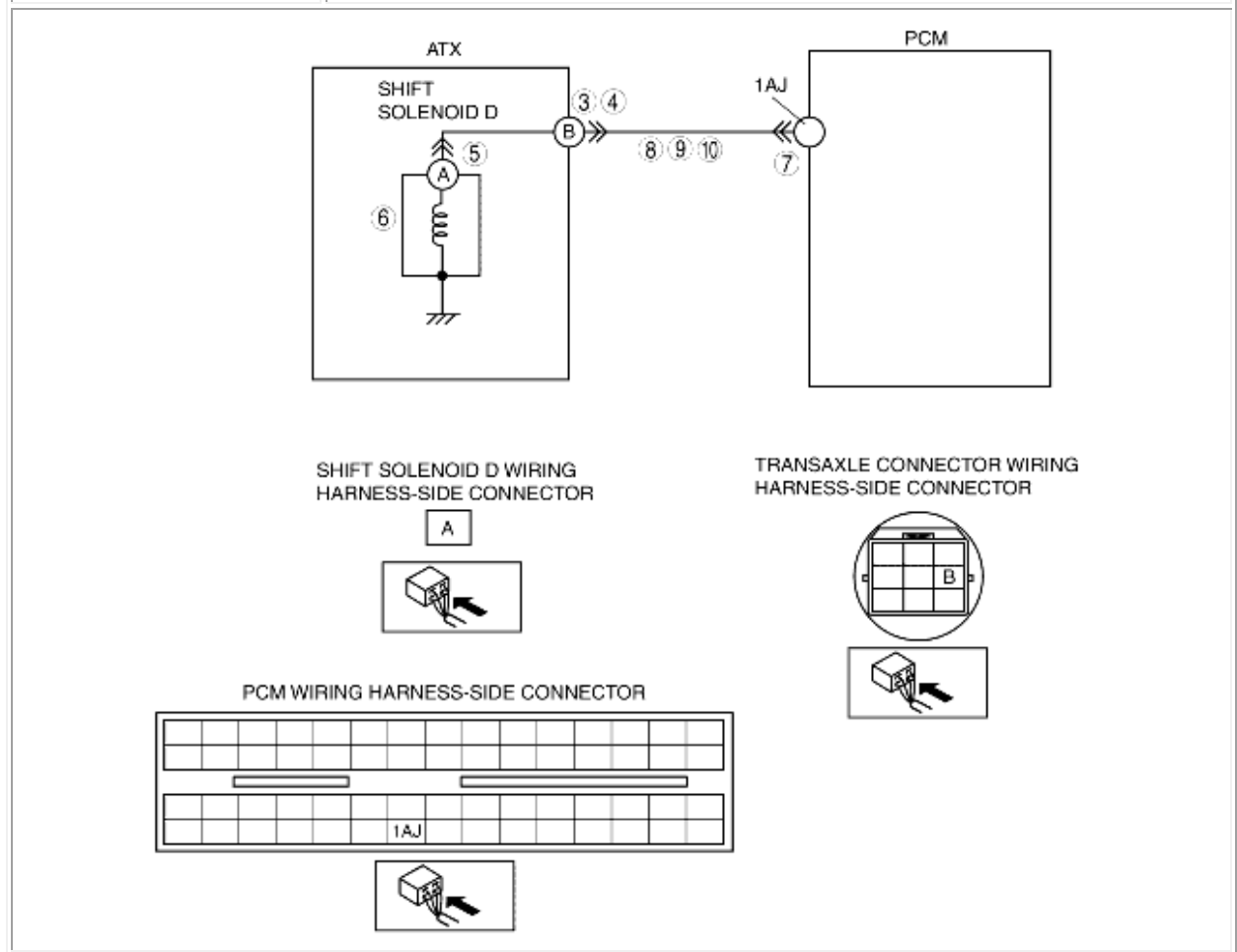
	• Drive the vehicle under the following conditions and make sure that gears shift smoothly from 1GR to 4GR. - ATF temperature: 20 °C {68 °F} or more - Drive in the D range, 3GR • Is the PENDING CODE present?		
8	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0768 [FN4A-EL]

B3E050219090W32

DTC P0768	Shift solenoid D malfunction (electrical)
DETECTION CONDITION	• If PCM detects either of the following conditions while driving in 4GR at D range, the PCM determines that shift solenoid D circuit has a malfunction. - Shift solenoid D voltage stuck at B+ after engine start - Shift solenoid D voltage stuck at 0 V after engine start Diagnostic support note: • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction conditions during the first drive cycle. • A PENDING CODE is not available. • FREEZE FRAME DATA is available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• Shift solenoid D malfunction • Short to ground in wiring harness between ATX terminal B and PCM terminal 1AJ • Short to power supply in wiring harness between ATX terminal B and PCM terminal 1AJ • Open circuit in wiring harness between shift solenoid D terminal A and ATX terminal B • Open circuit in wiring harness between ATX terminal B and PCM terminal 1AJ

- Damaged connector between shift solenoid D and PCM
- PCM malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED	Yes Go to the next step.
	• Has the FREEZE FRAME DATA been recorded?	No Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY	Yes Perform repair or diagnosis according to the available repair information.
	• Verify related Service Bulletins and or/on-line repair information availability.	• If the vehicle is not repaired, go to the next step.
3	• Is any related repair information available?	No Go to the next step.
	INSPECT ATX CONNECTOR FOR POOR CONNECTION	Yes Go to the next step.
3	• Turn the ignition switch to the LOCK position.	No Repair or replace the connector and/or terminals, then go to Step 11.
	• Disconnect the ATX connector.	

	- Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is the connection normal?		
4	INSPECT RESISTANCE - Inspect the resistance between ATX terminal B (transaxle case side) and body ground. - Is the resistance within 10.9-26.2 ohms? (See Resistance Inspection (On-Vehicle Inspection) .)	Yes	Go to Step 7.
		No	Go to the next step.
5	INSPECT SHIFT SOLENOID D CONNECTOR FOR POOR CONNECTION - Disconnect the shift solenoid D connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is the connection normal?	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 11.
6	INSPECT RESISTANCE - Inspect the resistance between shift solenoid D terminal A (part-side) and body ground. - Is the resistance within 10.9-26.2 ohms? (See Resistance Inspection (On-Vehicle Inspection) .)	Yes	Replace the solenoid wiring harness, then go to Step 11.
		No	Verify shift solenoid D installation. If solenoid installed correctly, replace the solenoid, then go to Step 11. (See SOLENOID VALVE REMOVAL/INSTALLATION .)
7	INSPECT PCM CONNECTOR FOR POOR CONNECTION - Disconnect the PCM connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is the connection normal?	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 11.
8	INSPECT ATX CONNECTOR CIRCUIT FOR OPEN CIRCUIT - Inspect for continuity between PCM terminal 1AJ (wiring harness-side) and ATX terminal B (wiring harness-side). - Is there continuity between terminals?	Yes	Go to the next step.
		No	Repair or replace the wiring harness, then go to Step 11.
9	INSPECT ATX CONNECTOR CIRCUIT FOR SHORT TO POWER SUPPLY Turn the ignition switch to the ON position (engine off).	Yes	Go to the next step.
		No	Repair or replace the wiring harness, then go to Step 11.

	- Inspect the voltage at ATX terminal B (wiring harness-side). - Is the voltage 0 V?		
10	INSPECT PCM CIRCUIT FOR SHORT TO GROUND - Turn the ignition switch to the LOCK position. - Inspect for continuity between PCM terminal 1AJ (wiring harness-side) and body ground. - Is there continuity?	Yes	Repair or replace the wiring harness, then go to Step 11.
		No	Go to the next step.
11	VERIFY TROUBLESHOOTING OF DTC P0768 COMPLETED - Make sure to reconnect all the disconnected connectors. - Clear the DTC from the memory using the WDS or equivalent. - Drive the vehicle in D range and make sure that gears shift smoothly from 1GR to 4GR. - Are any DTCs present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6] .)
		No	No concern is detected. Go to the next step.
12	VERIFY AFTER REPAIR PROCEDURE - Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) - Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0771 [FN4A-EL]

B3E050219090W33

DTC P0771	Shift solenoid E stuck off
DETECTION CONDITION	- When any of P0731, P0732, and P0734 are not output, and all conditions below are satisfied. - ATF temperature 20 °C {68 °F} or more - Driving in 4GR at D range - Engine running - Turbine speed within 225-4,987 rpm - Vehicle speed within 60-100 km/h {37-62 mph} - Torque converter clutch (TCC) operating - Shift solenoid A duty value exceeds 99%

	- Power or normal mode - Difference between engine speed and turbine speed more than 100 rpm - None of the following present: DTC P0500, P0706, P0707, P0708, P0712, P0713, P0715, P0751, P0752, P0753, P0756, P0757, P0758, P0761, P0762, P0763, P0766, P0767, P0767, P0768, P0771, P0772, P0773 Diagnostic support note: • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. • The PENDING CODE is available if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA is available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• ATF level low • Deteriorated ATF • Shift solenoid E stuck • Control valve stuck • PCM malfunction

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED	Yes Go to the next step.
	• Has the FREEZE FRAME DATA been recorded?	No Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY	Yes Perform repair or diagnosis according to the available repair information.
	• Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	No Go to the next step.
3	INSPECT ATF CONDITION	Yes Go to the next step.
	• Turn the ignition switch to the LOCK position. • Inspect the ATF condition. - Clear red: Normal - Milky: Water mixed in fluid	No If the ATF color is milky or reddish brown, replace ATF, then go to Step 5. (See AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT .)

	- Reddish brown: Deteriorated ATF • Is it normal? (See Automatic Transaxle Fluid (ATF) Condition Inspection.)		
4	INSPECT ATF LEVEL • Start the engine. • Warm up the ATX. • Is the ATF level within the specification? (See Automatic Transaxle Fluid (ATF) Level Inspection.)	Yes	Go to the next step.
		No	Add ATF to the specified level, then go to Step 7. (See Automatic Transaxle Fluid (ATF) Level Inspection.)
5	INSPECT LINE PRESSURE • Start the engine. • Measure the line pressure. Specification Idle: 330-470 kPa {3.4-4.7 kgf/cm², 48-68 psi} Stall: 1,090-1,250 kPa {11.2-12.7 kgf/cm², 159-181 psi} • Are the line pressures within the specifications? (See Line Pressure Test.)	Yes	Go to the next step.
		No	• All ranges: Replace the oil pump or control valve body, then go to Step 7. • Any ranges: Replace the ATX, then go to Step 7. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
6	INSPECT OPERATION OF EACH VALVE AND EACH SPRING • Turn the ignition switch to the LOCK position. • Remove the control valve body. • Disassemble the control valve body. • Is each valve operation normal and is the return spring normal? (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)	Yes	Replace the ATX, then go to the next step. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
		No	Repair or replace the shift valve and return spring, then go to the next step. (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
7	VERIFY TROUBLESHOOTING OF DTC P0771 COMPLETED • Make sure to reconnect all the disconnected connectors.	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6].)
		No	Go to the next step.

	• Clear the DTC from the memory using the WDS or equivalent. • Start the engine. • Warm up the ATX. • Drive the vehicle under the following conditions and make sure that gears shift smoothly from 1GR to 4GR. - ATF temperature: 20 °C {68 °F} or more - Drive in the D range - Vehicle speed: within 60-100 km/h {37-62 mph} (4GR only). • Is the PENDING CODE present?		
8	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL] .) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0772 [FN4A-EL]

B3E050219090W34

DTC P0772	Shift solenoid E stuck on
DETECTION CONDITION	• When any of DTC P0731, P0733, and P0734 are not output, and all of the following conditions are satisfied under each of the following throttle conditions. - ATF temperature 20 °C {68 °F} or more - Driving in 4GR at D range - Engine running - Turbine speed within 225-4,987 rpm - Vehicle speed below 70 km/h {43 mph} - Torque converter clutch (TCC) no operating - Difference between engine speed and turbine speed below 50 rpm • Throttle conditions - Throttle opening angle (TP PID) is above 10.1% and 5 s or more have passed - Throttle opening angle (TP PID) is within 3.1-10.1% and 3 s or more have passed

	- Throttle opening angle is at closed throttle position and 5 s or more have passed Diagnostic support note: • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. • The PENDING CODE is available if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA is available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• ATF level low • Deteriorated ATF • Shift solenoid E stuck • Control valve stuck • PCM malfunction

Diagnostic procedure

STEP	INSPECTION		ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED	Yes	Go to the next step.
	• Has the FREEZE FRAME DATA been recorded?	No	Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY	Yes	Perform repair or diagnosis according to the available repair information.
	• Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	No	Go to the next step.
3	INSPECT ATF CONDITION	Yes	Go to the next step.
	• Turn the ignition switch to the LOCK position. • Inspect the ATF condition. - Clear red: Normal - Milky: Water mixed in fluid - Reddish brown: Deteriorated ATF • Is it normal?	No	If the ATF color is milky or reddish brown, replace ATF, then go to Step 5. (See AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT.)

	(See Automatic Transaxle Fluid (ATF) Condition Inspection.)		
4	INSPECT ATF LEVEL - Start the engine. - Warm up the ATX. - Is the ATF level within the specification? (See Automatic Transaxle Fluid (ATF) Level Inspection.)	Yes	Go to the next step.
		No	Add ATF to the specified level, then go to Step 7. (See Automatic Transaxle Fluid (ATF) Level Inspection.)
5	INSPECT LINE PRESSURE - Start the engine. - Measure the line pressure. Specification Idle: 330-470 kPa {3.4-4.7 kgf/cm², 48-68 psi} Stall: 1,090-1,250 kPa {11.2-12.7 kgf/cm², 159-181 psi} - Are the line pressures within the specifications? (See Line Pressure Test.)	Yes	Go to the next step.
		No	- All ranges: Replace the oil pump or control valve body, then go to Step 7. - Any ranges: Replace the ATX, then go to Step 7. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
6	INSPECT OPERATION OF EACH VALVE AND EACH SPRING - Turn the ignition switch to the LOCK position. - Remove the control valve body. - Disassemble the control valve body. - Is each valve operation normal and is the return spring normal? (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)	Yes	Replace the ATX, then go to the next step. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
		No	Repair or replace the shift valve and return spring, then go to the next step. (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) (See ATX Workshop Manual FN4A-EL.)
7	VERIFY TROUBLESHOOTING OF DTC P0772 COMPLETED - Make sure to reconnect all the disconnected connectors. - Clear the DTC from the memory using the WDS or equivalent. - Start the engine.	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6].)
		No	Go to the next step.

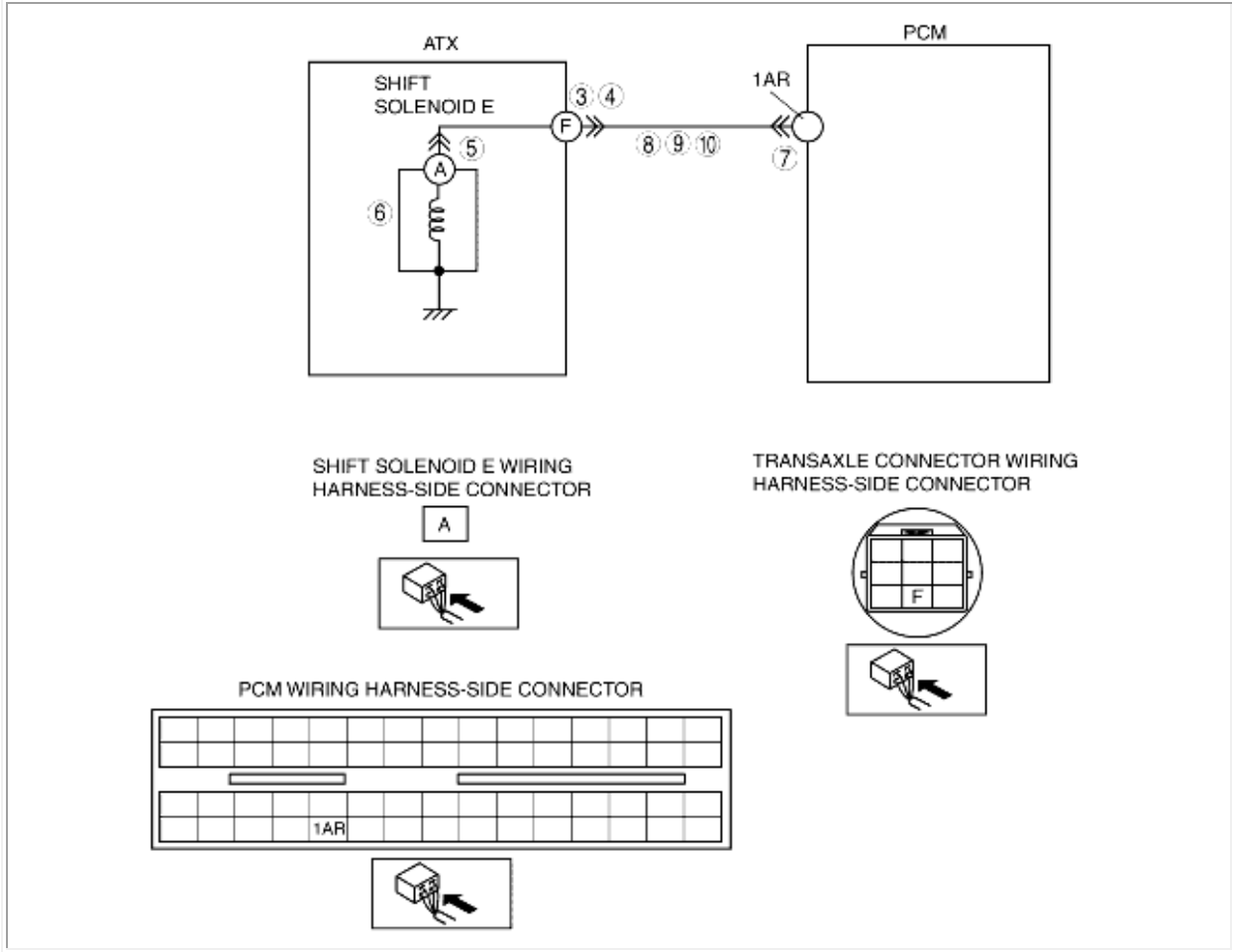
	• Warm up the ATX. • Drive the vehicle under the following conditions and make sure that gears shift smoothly from 1GR to 4GR. - ATF temperature: 20 °C {68 °F} or more - Drive in the D range - Vehicle speed (VSS PID): below 70 km/h {43 mph} (4GR only) • Is the PENDING CODE present?		
8	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL] .) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0773 [FN4A-EL]

B3E050219090W35

DTC P0773	Shift solenoid E malfunction (electrical)
DETECTION CONDITION	• If PCM detects either of the following conditions while driving in 4GR at D range with TCC operating, PCM determines that shift solenoid E circuit has a malfunction. - Shift solenoid E voltage stuck at B+ after engine start - Shift solenoid E voltage stuck at 0 V after engine start Diagnostic support note: • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction conditions during the first drive cycle. • A PENDING CODE is not available. • FREEZE FRAME DATA is available. • The AT warning light illuminates. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• Shift solenoid E malfunction • Short to ground in wiring harness between ATX terminal F and PCM terminal 1AR • Short to power supply in wiring harness between ATX terminal F and PCM terminal 1AR

- Open circuit in wiring harness between shift solenoid E terminal A and ATX terminal F
- Open circuit in wiring harness between ATX terminal F and PCM terminal 1AR
- Damaged connector between shift solenoid E and PCM
- PCM malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED • Has the FREEZE FRAME DATA been recorded?	Yes Go to the next step.
		No Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and or/on-line repair information availability. • Is any related repair information available?	Yes Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No Go to the next step.

3	INSPECT ATX CONNECTOR FOR POOR CONNECTION • Turn the ignition switch to the LOCK position. • Disconnect the ATX connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is the connection normal?	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 11.
4	INSPECT RESISTANCE • Inspect the resistance between ATX terminal F (transaxle case side) and body ground. • Is the resistance within 10.9-26.2 ohms? (See Resistance Inspection (On-Vehicle Inspection) .)	Yes	Go to Step 7.
		No	Go to the next step.
5	INSPECT SHIFT SOLENOID E CONNECTOR FOR POOR CONNECTION • Disconnect the shift solenoid E connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is the connection normal?	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 11.
6	INSPECT RESISTANCE • Inspect the resistance between shift solenoid E terminal A (part-side) and body ground. • Is the resistance within 10.9-26.2 ohms? (See Resistance Inspection (Off-Vehicle Inspection) .)	Yes	Replace the solenoid wiring harness, then go to Step 11.
		No	Verify shift solenoid E installation. • If solenoid installed correctly, replace the solenoid, then go to Step 11. (See SOLENOID VALVE REMOVAL/INSTALLATION .)
7	INSPECT PCM CONNECTOR FOR POOR CONNECTION • Disconnect the PCM connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is the connection normal?	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 11.
8	INSPECT ATX CONNECTOR CIRCUIT FOR OPEN CIRCUIT • Inspect for continuity between PCM terminal 1AR (wiring harness-side) and ATX terminal F (wiring harness-side). • Is there continuity between terminals?	Yes	Go to the next step.
		No	Repair or replace the wiring harness, then go to Step 11.

9	INSPECT ATX CONNECTOR CIRCUIT FOR SHORT TO POWER SUPPLY • Turn the ignition switch to the ON position (engine off). • Inspect the voltage at ATX terminal F (wiring harness-side). • Is the voltage 0 V?	Yes	Go to the next step.
		No	Repair or replace the wiring harness, then go to Step 11.
10	INSPECT PCM CIRCUIT FOR SHORT TO GROUND • Turn the ignition switch to the LOCK position. • Inspect for continuity between PCM terminal 1AR (wiring harness-side) and body ground. • Is there continuity?	Yes	Repair or replace the wiring harness, then go to Step 11.
		No	Go to the next step.
11	VERIFY TROUBLESHOOTING OF DTC P0773 COMPLETED • Make sure to reconnect all the disconnected connectors. • Clear the DTC from the memory using the WDS or equivalent. • Drive the vehicle in D range and make sure that gears shift smoothly from 1GR to 4GR. • Are any DTCs present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6] .)
		No	No concern is detected. Go to the next step.
12	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

DTC P0894 [FN4A-EL]

B3E050219090W36

DTC P0894	Forward clutch power transmission malfunction
DETECTION CONDITION	• With the engine running and the selector lever in the D or M range, all of the following conditions are met: - ATF temperature 20 °C {68 °F} or more - Vehicle speed 0 km/h {0 mph} (brake on) - Even when 3 s or more has passed since the engine has started, the turbine speed will not decrease to less than 187 rpm.

	Diagnostic support note: • This is a continuous monitor (CCM). • The MIL does not illuminate if the PCM detects above malfunction conditions during the first drive cycle. • A PENDING CODE is not available. • FREEZE FRAME DATA is not available. • The AT warning light illuminates. • DTCs are stored in the PCM memory.
POSSIBLE CAUSE	• Forward clutch not engaged or slipped • Short to power supply in wiring harness between shift solenoid A terminal B and PCM terminal 1AZ • Shift solenoid A stuck on • VSS malfunction • PCM malfunction

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED	Yes Go to the next step.
	• Has the FREEZE FRAME DATA been recorded?	No Record the FREEZE FRAME DATA on the repair order, then go to the next step.
2	VERIFY DTCS	Yes Go to the applicable DTC inspection.
	• Turn the ignition switch to the LOCK position, then to the ON position. • Verify the DTCs in the PCM memory. • Are DTCs P0500, P0752, and P0753 output?	No Replace the forward clutch, then go to the next step.
3	VERIFY TROUBLESHOOTING OF DTC P0894 COMPLETED	Yes Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [Z6] .)
	• Make sure to reconnect all the disconnected connectors. • Clear the DTC from the memory using the WDS or equivalent. • Warm up the engine. • With the selector lever in the D range and the vehicle stopped (brake on), wait 3 s or more.	No No concern is detected. Go to the next step.

	• Are any DTCs present?		
4	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL] .) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

PID/DATA MONITOR INSPECTION [FN4A-EL]

B3E050219090W37

1. Connect the WDS or equivalent to the DLC-2.
2. Measure the PID value.

Note

- Perform part inspection for the output device after PCM inspection.
- The PID/DATA MONITOR function monitors the calculated value of the input/output signals in the PCM. Therefore, if a monitored value of an output device is out of specification, it is necessary to inspect the monitored value of the input device related to the output device control. Since an output device malfunction is not directly indicated as a malfunction of the monitored value for the output device, it is necessary to inspect the output device individually using methods such as the simulation function.

PID/DATA MONITOR AND RECORD function table

Monitor item (Definition)	Unit/Condition		Condition/Specification	Action	PCM terminal
DWN SW (Down switch)	ON/OFF		• M range, downshift: ON • Other: OFF	Inspect the selector lever component. (See SELECTOR LEVER COMPONENT INSPECTION .)	1AB
GEAR	-		1GR: 1 2GR: 2 3GR: 3 4GR: 4	Inspect the following PIDs: SSA/SS1, SSB/SS2, SSC/SS3	N/A
LINEDES	kPa	inHg	Indicates target line pressure	Inspect the following PIDs: TFT, TFTV, TP, TR, TROD, TSS, VPWR, VSS	N/A

LPS (Pressure control solenoid)	%		Change current value according to throttle opening angle	Inspect the pressure control solenoid. (See SOLENOID VALVE INSPECTION.)	1AV, 1AF
MNL SW (M range switch)	ON/OFF		M range: ON Other: OFF	Inspect the selector lever component. (See SELECTOR LEVER COMPONENT INSPECTION.)	1AQ
OSS (Output shaft speed)	km/h	mph	Indicates output shaft speed	Inspect the VSS. (See VEHICLE SPEED SENSOR (VSS) INSPECTION.)	1AY
SSA/SS1 (Shift solenoid A)	%		4GR: 99% others: 0%	Inspect the shift solenoid A. (See SOLENOID VALVE INSPECTION.)	1AZ
SSB/SS2 (Shift solenoid B)	%		1GR at D range: 99% Others: 0%	Inspect the shift solenoid B. (See SOLENOID VALVE INSPECTION.)	1BH
SSC/SS3 (Shift solenoid C)	%		1GR/2GR: 99% Others: 0%	Inspect the shift solenoid C. (See SOLENOID VALVE INSPECTION.)	1BD
TFT (Transaxle fluid temperature)	°C	°F	Indicates transaxle fluid temperature	Inspect the TFT sensor. (See TRANSAXLE FLUID TEMPERATURE (TFT) SENSOR INSPECTION.)	1AU
TFTV (Transaxle fluid signal voltage)	V		ATF 20 °C {68 °F}: 3.4-3.6 V ATF 130 °C {266 °F}: 0.4-0.5 V	Inspect the TFT sensor. (See TRANSAXLE FLUID TEMPERATURE (TFT) SENSOR INSPECTION.)	1AU
TP (Throttle position sensor)	%		CTP: 12% WOT: 75%	Inspect the TP sensor. (See THROTTLE POSITION (TP) SENSOR INSPECTION [Z6].)	2AA
	V		CTP: 0.3-1.0 V WOT: 3.1-4.5 V	Inspect the TP sensor. (See THROTTLE POSITION (TP) SENSOR INSPECTION [Z6].)	2AA
TPCT	V		CTP: 0.3-1.0 V WOT: 3.1-4.5 V	Inspect the TP sensor.	2AA

(Lowest closed throttle position)			(See THROTTLE POSITION (TP) SENSOR INSPECTION [Z6].)	
TP REL (Relative throttle position)	%	CTP: 0% WOT: 100%	Inspect the TP sensor. (See THROTTLE POSITION (TP) SENSOR INSPECTION [Z6].)	2AA
TR (Transaxle range)	-	P position: P R position: R N position: N D range: D	Inspect the TR switch. (See TRANSAXLE RANGE (TR) SWITCH INSPECTION.)	1X
TR SENS (TR switch)	V	P position: 4.34-4.79 V R position: 3.83-4.18 V N position: 3.05-3.50 V D range: 2.23-2.66 V	Inspect the TR switch. (See TRANSAXLE RANGE (TR) SWITCH INSPECTION.)	1X
TSS (Input/turbine speed)	rpm	Ignition switch ON: 0 rpm Idle: 700-800 rpm (P, N position) Indicates Input/turbine speed	Inspect the input/turbine speed sensor. (See INPUT/TURBINE SPEED SENSOR INSPECTION.)	1O, 1K
UP SW (Up switch)	ON/OFF	• M range, upshift: ON • Other: OFF	Inspect the selector lever component. (See SELECTOR LEVER COMPONENT INSPECTION.)	1P
VPWR (Battery positive voltage)	V	Ignition switch ON: B+ Engine running: B+	Inspect the main relay. (See RELAY INSPECTION.) Inspect the battery. (See BATTERY INSPECTION.)	1AX, 1BB, 1BG, 1BF
VSS (Vehicle speed)	km/h	mph	Indicates vehicle speed	1S, 1W

SYMPTOM TROUBLESHOOTING

FOREWORD

B3E050319090W01

- Refer to 00-00 section and thoroughly read and understand the basic flow of troubleshooting in order to properly perform the procedures.

BASIC INSPECTION

B3E050319090W02

STEP	INSPECTION		ACTION
1	Perform the mechanical system test. (See MECHANICAL SYSTEM TEST .) Is the mechanical system normal?	Yes	Go to the next step.
		No	Repair or replace any malfunctioning parts according to the inspection result.
2	Turn the ignition switch to the ON position. When the selector lever is moved, does the gear position indicator light indication correspond to the selector lever position? Also, when other ranges are selected from N or P during idling, does the vehicle move within 1-2 s ?	Yes	Go to the next step.
		No	Inspect the selector lever and TR switch. Repair or replace malfunctioning parts. (See SELECTOR LEVER INSPECTION .) (See TRANSAXLE RANGE (TR) SWITCH INSPECTION .) If the selector lever and TR switch are normal, go to the next step.
3	Inspect the ATF color and condition. (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION .) Are the ATF color and odor normal?	Yes	Go to the next step.
		No	Repair or replace any malfunctioning parts according to the inspection result. Flush the ATX and cooler line if necessary.
4	Perform the line pressure test. (See Line Pressure Test .) Is the line pressure normal?	Yes	Go to the next step.
		No	Adjust the accelerator cable if necessary.

			Repair or replace any malfunctioning parts according to the inspection result.
5	Perform the stall test. (See Stall Test.) Is the stall speed normal?	Yes	Go to the next step.
		No	Repair or replace any malfunctioning parts according to the inspection result.
6	Inspect the value at the following PCM PIDs using the WDS or equivalent. (See PCM INSPECTION [Z6].) • TFT • TFTV • VPWR • TR • TR_SENS • MNL SW • DWN SW • UP SW • ECT • TCS • RPM • TP • TSS • OSS Are the PID values normal?	Yes	Perform the symptom troubleshooting and follow the procedures.
		No	Repair or replace any malfunctioning parts according to the inspection result.

SYMPTOM TROUBLESHOOTING ITEM TABLE

B3E050319090W03

- Use the chart below to verify the symptoms of the trouble in order to diagnose the appropriate area.

No.	TROUBLESHOOTING ITEM	DESCRIPTION	PAGE
1	Vehicle does not move in D, M ranges, or in R position	Vehicle does not move when accelerator pedal is depressed.	(See NO.1 VEHICLE DOES NOT MOVE IN D, M RANGES, OR IN R POSITION.)
2	Vehicle moves in N position	Vehicle creeps in N position.	(See NO.2 VEHICLE MOVES IN N POSITION.)

		Vehicle creeps if brake pedal is not depressed in N position.	
3	Vehicle moves in P position, or parking gear does not disengage when P position is disengaged	Vehicle rolls when on a downward slope and tires do not lock in P position. Tires locked when P position is disengaged, vehicle does not move in D, M ranges, and R position when accelerator pedal is depressed, and engine remains in stalled condition.	(See NO.3 VEHICLE MOVES IN P POSITION, OR PARKING GEAR DOES NOT DISENGAGE WHEN P IS DISENGAGED.)
4	Excessive creep	Vehicle accelerates in D, M ranges and R position when accelerator pedal is not depressed.	(See NO.4 EXCESSIVE CREEP.)
5	No creep at all	Vehicle does not move in D, M ranges, or R position when idling on flat paved road.	(See NO.5 NO CREEP AT ALL.)
6	Low maximum speed and poor acceleration	Vehicle acceleration is poor at start. Delayed acceleration when accelerator pedal is depressed while driving.	(See NO.6 LOW MAXIMUM SPEED AND POOR ACCELERATION.)
7	No shifting	Single shift range only. Sometimes shifts correctly.	(See NO.7 NO SHIFTING.)
8	Does not shift to 4GR	Vehicle does not upshift from 3GR to 4GR even though vehicle speed is increased. Vehicle does not shift to 4GR even though accelerator pedal is released in D range at 60 km/h {37 mph} .	(See NO.8 DOES NOT SHIFT TO 4GR.)
9	Abnormal shifting	Shifts incorrectly (incorrect shift pattern).	(See NO.9 ABNORMAL SHIFTING.)
10	Frequent shifting	Downshifting occurs suddenly even when accelerator pedal is depressed slightly in D range.	(See NO.10 FREQUENT SHIFTING.)
11	Shift point is high or low	Shift point considerably different from automatic shift diagram. Shift delays when accelerating. Shift occurs suddenly when accelerating and engine speed does not increase.	(See NO.11 SHIFT POINT IS HIGH OR LOW.)

12	Torque converter clutch (TCC) non-operation	TCC does not operate when vehicle reaches TCC operation range.	(See NO.12 TORQUE CONVERTER CLUTCH (TCC) NON-OPERATION.)
13	No kickdown	Does not downshift when accelerator pedal is fully depressed within kickdown range.	(See NO.13 NO KICKDOWN.)
14	Engine flares up or slips when upshifting or downshifting	When accelerator pedal is depressed, engine speed increases normally but vehicle speed increases slowly. When accelerator pedal is depressed while driving, engine speed increases but vehicle speed does not.	(See NO.14 ENGINE FLARES UP OR SLIPS WHEN UPSHIFTING OR DOWNSHIFTING.)
15	Engine flares up or slips when accelerating vehicle	Engine flares up when accelerator pedal is depressed for upshifting. Engine flares up suddenly when accelerator pedal is depressed for downshifting.	(See NO.15 ENGINE FLARES UP OR SLIPS WHEN ACCELERATING VEHICLE.)
16	Judder upon torque converter clutch (TCC) operation	Vehicle jolts when TCC is engaged.	(See NO.16 JUDDER UPON TORQUE CONVERTER CLUTCH (TCC) OPERATION.)
17	Excessive shift shock from N to D or N to R position/range	Strong shock is felt when shifting from N to D or N to R position/range at idle.	(See NO.17 EXCESSIVE SHIFT SHOCK FROM N TO D OR N TO R POSITION/RANGE.)
18	Excessive shift shock is given when upshifting and downshifting	Excessive shift shock is felt when depressing accelerator pedal to accelerate at upshifting. During cruising, excessive shift shock is felt when depressing accelerator pedal at downshifting.	(See NO.18 EXCESSIVE SHIFT SHOCK IS FELT WHEN UPSHIFTING AND DOWNSHIFTING.)
19	Excessive shift shock on torque converter clutch (TCC)	Strong shock is felt when TCC is engaged.	(See NO.19 EXCESSIVE SHIFT SHOCK ON TORQUE CONVERTER CLUTCH (TCC).)
20	Noise occurs at idle when vehicle is stopped in all positions/ranges	Transaxle is noisy in all positions and ranges when vehicle idling.	(See NO.20 NOISE OCCURS AT IDLE WHEN VEHICLE IS STOPPED IN ALL POSITIONS/RANGES.)
21	Noise occurs at idle when vehicle is stopped in D, M ranges, or in R position	Transaxle is noisy in driving ranges when vehicle is idling.	(See NO.21 NOISE OCCURS AT IDLE WHEN VEHICLE IS STOPPED IN D, M RANGES, OR IN R POSITION.)

22	No engine braking in 1GR position of M range	Engine speed drops to idle but vehicle coasts when accelerator pedal is released when in M range (1GR) at low vehicle speed.	(See NO.22 NO ENGINE BRAKING IN 1GR POSITION OF M RANGE.)
23	Transaxle overheats	Burnt smell emitted from the transaxle. Smoke is emitted from the transaxle.	(See NO.23 TRANSAXLE OVERHEATS.)
24	Engine stalls when shifted to D, M ranges, or in R position	Engine stalls when shifting from N or P position to D, M ranges or R position at idle.	(See NO.24 ENGINE STALLS WHEN SHIFTED TO D, M RANGES, OR IN R POSITION.)
25	Engine stalls when driving at slow speeds or stopping	Engine stalls when brake pedal is depressed while driving at low speed or stopping.	(See NO.25 ENGINE STALLS WHEN DRIVING AT SLOW SPEEDS OR STOPPING.)
26	Starter does not work	Starter does not work even when in P or N position.	(See NO.26 STARTER DOES NOT WORK.)
27	Gear position indicator light does not illuminate in M range	Gear position indicator light in instrument cluster does not illuminate in M range with ignition switch at ON.	(See NO.27 GEAR POSITION INDICATOR LIGHT DOES NOT ILLUMINATE IN M RANGE.)
28	Gear position indicator light illuminates in D range or P, N, R positions	Gear position indicator light in instrument cluster illuminates in D range or P, N, R positions with ignition switch at ON.	(See NO.28 GEAR POSITION INDICATOR LIGHT ILLUMINATES IN D RANGE OR P, N, R POSITIONS.)
29	Does not upshift in M range	Gear position indicator light in instrument cluster illuminates but vehicle does not upshift when selector lever is pushed to "+" side.	(See NO.29 DOES NOT UPSHIFT IN M RANGE.)
30	Does not downshift in M range	Gear position indicator light in instrument cluster illuminates but vehicle does not downshift when selector lever is pushed to "-" side.	(See NO.30 DOES NOT DOWNSHIFT IN M RANGE.)

QUICK DIAGNOSIS CHART

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X : Applied

1	Vehicle does not move in D, M ranges, or in R position	X	X	X																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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B3E0503W001

X : Applied

1	Vehicle does not move in D, M ranges, or in R position					X				X		X	
2	Vehicle moves in N position												
3	Vehicle moves in P position, or parking gear does not disengage when P is disengaged												
4	Excessive creep												
5	No creep at all					X	X			X	X	X	
6	Low maximum speed and poor acceleration	X	X	X	X	X				X	X	X	
7	No shifting					X				X		X	
8	Does not shift to 4GR	X	X	X	X					X	X	X	
9	Abnormal shifting	X	X			X				X		X	
10	Frequent shifting									X			
11	Shift point is high or low									X			
12	Torque converter clutch (TCC) non-operation	X	X	X	X					X	X	X	
13	No kickdown					X				X		X	
14	Engine flares up or slips when upshifting or downshifting	X	X			X				X		X	
15	Engine flares up or slips when accelerating vehicle	X	X			X	X			X	X	X	
16	Judder upon torque converter clutch (TCC) operation					X				X	X		
17	Excessive shift shock from N to D or N to R position/range					X	X			X	X	X	
18	Excessive shift shock is felt when upshifting and downshifting					X	X	X		X	X	X	
19	Excessive shift shock on torque converter clutch (TCC)									X	X		
20	Noise occurs at idle when vehicle is stopped in all positions/ranges					X							
21	Noise occurs at idle when vehicle is stopped in D, M ranges, or in R position												
22	No engine braking in 1GR position of M range						X			X		X	
23	Transaxle overheats					X	X				X	X	
24	Engine stalls when shifted to D, M ranges, or in R position												
25	Engine stalls when driving at slow speeds or stopping												
26	Starter does not work	X	X										
27	Gear position indicator light does not illuminate in M range					X							
28	Gear position indicator light illuminates in D range or P, N, R positions						X						
29	Does not upshift in M range					X		X	X				
30	Does not downshift in M range					X				X	X		
No.	Item	Electrical system components											
Symptom		ATX outer parts											
		TR switch	M range switch	Up switch	Down switch	Brake switch					TFT sensor		
Cause of trouble		Mis-adjusted	No signal input	Abnormal signal input	No signal input	Abnormal signal input	No signal input	Abnormal signal input	Always ON	Poor GND	No signal input	Malfunction signal input	Shift solenoid D malfunction
		Not operating properly											

X : Applied												
1	Vehicle does not move in D, M ranges, or in R position	X	X	X		X	X				X	X
2	Vehicle moves in N position					X					X	
3	Vehicle moves in P position, or parking gear does not disengage when P is disengaged											
4	Excessive creep											
5	No creep at all		X	X	X	X	X				X	X
6	Low maximum speed and poor acceleration	X	X	X	X	X	X				X	X
7	No shifting	X	X	X	X	X	X				X	X
8	Does not shift to 4GR	X	X	X		X					X	X
9	Abnormal shifting	X	X	X	X	X	X	X			X	X
10	Frequent shifting										X	X
11	Shift point is high or low										X	
12	Torque converter clutch (TCC) non-operation	X	X			X						X
13	No kickdown	X	X	X	X	X					X	X
14	Engine flares up or slips when upshifting or downshifting	X	X	X	X	X	X				X	X
15	Engine flares up or slips when accelerating vehicle	X	X		X	X	X				X	X
16	Judder upon torque converter clutch (TCC) operation	X	X			X						X
17	Excessive shift shock from N to D or N to R position/range		X	X	X	X	X	X	X		X	
18	Excessive shift shock is felt when upshifting and downshifting	X	X	X	X	X	X	X	X		X	X
19	Excessive shift shock on torque converter clutch (TCC)	X	X			X	X					X
20	Noise occurs at idle when vehicle is stopped in all positions/ranges											
21	Noise occurs at idle when vehicle is stopped in D, M ranges, or in R position											
22	No engine braking in 1GR position of M range	X			X	X					X	X
23	Transaxle overheats						X			X		X
24	Engine stalls when shifted to D, M ranges, or in R position						X					X
25	Engine stalls when driving at low speeds or stopping						X					X
26	Starter does not work											
27	Gear position indicator light does not illuminate in M range											
28	Gear position indicator light illuminates in D range or P, N, R positions											
29	Does not upshift in M range											
30	Does not downshift in M range											
No.	Item	Electrical system components				Hydraulic system components				Powertrain system		
		ATX inner parts										
	Symptom	Shift solenoid E malfunction	Shift solenoid A malfunction	Shift solenoid B malfunction	Shift solenoid C malfunction	Pressure control solenoid malfunction	Control valve is not operating properly	Forward accumulator is not operating properly	Servo apply accumulator is not operating properly	Pressure switch malfunction	Oil cooler is not operating properly	Slipping (Brake, clutch)
	Cause of trouble											Burnt (Brake, clutch)
												Torque converter is not operating properly
												TCC burnt inspection method

B3E0503W003

NO.1 VEHICLE DOES NOT MOVE IN D, M RANGES, OR IN R POSITION

B3E050319090W05

1	Vehicle does not move in D, M ranges, or in R position
DESCRIPTION	Vehicle does not move when the accelerator pedal is depressed.

POSSIBLE CAUSE	• If the vehicle does not move in D, M ranges or R position, basically, the malfunction is in the ATX. (Vehicle will move even with a malfunction in the PCM.) Since a malfunction is in the sensor circuit or output circuit is the cause of the malfunction in the ATX, inspect the sensors, output circuit, and the related wiring harnesses. 1. Clutch slippage, worn (D, M ranges-Forward clutch, R position-Reverse clutch, Low and reverse brake) • Line pressure low • Shift solenoid D malfunction • Shift solenoid E malfunction • Shift solenoid A malfunction • Shift solenoid B malfunction • Pressure control solenoid malfunction • Body GND malfunction • Control valve body malfunction 2. Selector lever malfunction 3. Improper operation of parking mechanism 4. Torque converter malfunction Note • Before following the troubleshooting steps, make sure that the Automatic Transaxle On-Board Diagnostic and Automatic Transaxle Basic Inspection are conducted.
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Diagnostic procedure

STEP	INSPECTION	ACTION
1	When the vehicle is stopped on a flat, level road and the engine is off, does the vehicle move when pushed? (in D range or N, R positions with the brake pedal released)	Yes Go to the next step.
		No Inspect for parking mechanism. (See ATX workshop manual (FN4A-EL).)
2	Disconnect the PCM connector. Is the resistance between the ground terminal at the PCM connector and the body ground less than 5.0 ohms ?	Yes Go to the next step.
		No Repair open ground circuit.
3	Inspect LPS PID value using the WDS or equivalent. Is the LPS PID value normal? (See PCM INSPECTION [Z6] .)	Yes Overhaul the control valve body and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).) If any problem remains, overhaul the transaxle and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).)

		No	Repair or replace any malfunctioning parts.
4	• Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms. - If the malfunction remains, inspect the related Service information and perform repair or diagnosis. • If the vehicle is repaired, troubleshooting is completed. • If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.		

NO.2 VEHICLE MOVES IN N POSITION

B3E050319090W06

2	Vehicle moves in N position
DESCRIPTION	• Vehicle creeps in N position. • Vehicle creeps if brake pedal is not depressed in N position.
POSSIBLE CAUSE	• If the vehicle moves in N position, basically, the malfunction is in the ATX. Since a malfunction in the sensor circuit or output circuit is the cause of the malfunction in the ATX, inspect the sensors, output circuit, and the related wiring harnesses. 1. Clutch burnt (Forward clutch) • Control valve body malfunction 2. Selector lever position disparity (Although the selector indicator shows N position, the hydraulic circuit shows D range or R position) Note • Before following the troubleshooting steps, make sure that the Automatic Transaxle On-Board Diagnostic and Automatic Transaxle Basic Inspection are conducted.

Diagnostic procedure

STEP	INSPECTION		ACTION
1	Does the vehicle creep when the selector lever is moved slightly in N position?	Yes	Go to the next step.
		No	Adjust the selector lever. (See SELECTOR CABLE ADJUSTMENT .)
2	Disconnect the PCM connector. Is the resistance between the ground terminal at the PCM connector and the body ground less than 5.0 ohms ?	Yes	Go to the next step.
		No	Repair open ground circuit. Reconnect the PCM.

3	Inspect LPS PID value using the WDS or equivalent. Is the LPS PID value normal? (See PCM INSPECTION [Z6] .)	Yes	Overhaul the control valve body and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).) If any problem remains, overhaul the transaxle and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).)
		No	Repair or replace any malfunctioning parts.
4	• Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms. - If the malfunction remains, inspect the related Service information and perform repair or diagnosis. • If the vehicle is repaired, troubleshooting is completed. • If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.		

NO.3 VEHICLE MOVES IN P POSITION, OR PARKING GEAR DOES NOT DISENGAGE WHEN P IS DISENGAGED

B3E050319090W07

3	Vehicle moves in P position, or parking gear does not disengage when P is disengaged
DESCRIPTION	• Vehicle rolls on a downward slope in P position. • Tires are locked when P is disengaged. Vehicle does not move in D, M ranges, and R position when the accelerator pedal is depressed, and the engine remains in a stalled condition.
POSSIBLE CAUSE	1. Parking mechanism malfunction (May have effect on noise or shock from transaxle) 2. Improper adjustment of selector lever 3. If vehicle moves in N position, perform No.2 "VEHICLE MOVES IN N POSITION"

NO.4 EXCESSIVE CREEP

B3E050319090W08

4	Excessive creep
DESCRIPTION	• Vehicle accelerates in D, M ranges and R position when accelerator pedal is not depressed.

POSSIBLE CAUSE	1. Engine idle speed is high (transaxle system is not cause of problem) 2. Go to No.9 "FAST IDLE/RUNS ON" (See NO.9 FAST IDLE/RUNS ON [Z6].)
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NO.5 NO CREEP AT ALL

B3E050319090W09

5	No creep at all
DESCRIPTION	Vehicle does not move in D, M ranges and R position when idling on a flat paved road.
POSSIBLE CAUSE	- Either transaxle is stuck in 3GR or 4GR position, or there is clutch circuit slippage due to a stuck 3-4 clutch. - Clutch burnt - Line pressure low - Shift solenoid D malfunction - Shift solenoid A malfunction - Shift solenoid B malfunction - Shift solenoid C malfunction - Pressure control solenoid malfunction - Body GND malfunction - Control valve body malfunction - Transaxle fixed in 3GR (Operation of fail-safe function) - Short or open circuit in wiring harness - Poor connection of connector - Malfunction of electronic parts of output and input system - There is no engine torque - Torque converter malfunction Note - Before following the troubleshooting steps, make sure that the Automatic Transaxle On-Board Diagnostic and Automatic Transaxle Basic Inspection are conducted.

Diagnostic procedure

STEP	INSPECTION		ACTION
1	Does the vehicle creep in any range/position?	Yes	Go to the next step.
		No	Inspect or adjust the selector lever.

			(See SELECTOR LEVER COMPONENT REMOVAL/INSTALLATION .)
2	Inspect the value at the following PCM PID using the WDS or equivalent. (See PCM INSPECTION [Z6] .) • TP Is the PID value normal?	Yes	Go to the next step.
		No	Repair or replace any malfunctioning parts.
3	Disconnect the PCM connector. Is the resistance between the ground terminal at the PCM connector and the body ground less than 5.0 ohms ?	Yes	Go to the next step.
		No	Repair open ground circuit.
4	Inspect the LPS PID value. Is the LPS PID value normal? (See PCM INSPECTION [Z6] .)	Yes	Overhaul the control valve body and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).) If any problem remains, overhaul the transaxle and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).)
		No	Repair or replace any malfunctioning parts.
5	• Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms. - If the malfunction remains, inspect the related Service information and perform repair or diagnosis. • If the vehicle is repaired, troubleshooting is completed. • If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.		

NO.6 LOW MAXIMUM SPEED AND POOR ACCELERATION

B3E050319090W10

6	Low maximum speed and poor acceleration
DESCRIPTION	- Vehicle acceleration is poor at start. - Delayed acceleration when accelerator pedal is depressed while driving.
POSSIBLE CAUSE	- If the clutch is stuck or does not stay in 3GR, the malfunction is in the engine circuit. - Clutch slippage, burnt - Line pressure low

- Shift solenoid D malfunction
 - Shift solenoid E malfunction
 - Shift solenoid A malfunction
 - Shift solenoid B malfunction
 - Shift solenoid C malfunction
 - Pressure control solenoid malfunction
 - Body GND malfunction
 - Control valve body malfunction
2. Signal malfunction
- Vehicle speed sensor malfunction
 - Sensor GND malfunction
 - TP sensor malfunction
 - Input/turbine speed sensor malfunction
3. Transaxle fixed in 3GR (Operation of fail-safe function)
- Short or open circuit in wiring harness
 - Poor connection of connector
 - Malfunction of electronic parts of output and input system
4. Transaxle fixed in 4GR (Operation of fail-safe function)
- Forward clutch slippage
 - Vehicle speed sensor malfunction
 - Shift solenoid A malfunction (Stuck on)
 - Poor connection of connector
5. Insufficient starting torque (Suspected when in-gear condition, shift control and engine circuit are normal)
- Torque converter malfunction (Poor operation, stuck)
6. Engagement of TCC operation range (Operation of fail-safe function)
- Transaxle fluid temperature sensor malfunction (Short or open circuit)
7. Transaxle fixed in M range
- M range switch malfunction
8. TR switch adjustment incorrect

Note

- Before following the troubleshooting steps, make sure that the Automatic Transaxle On-Board Diagnostic and Automatic Transaxle Basic Inspection are conducted.

Diagnostic procedure

STEP	INSPECTION		ACTION
1	With the ignition switch at the ON position, does the gear position indicator light indication correspond to the selector lever position?	Yes	Go to the next step.
		No	Go to No.27 "GEAR POSITION INDICATOR LIGHT DOES NOT ILLUMINATE IN M RANGE" or No.28 "GEAR POSITION INDICATOR LIGHT ILLUMINATES IN D RANGE OR P, N, R POSITIONS"
2	Go to No.12 "LACK/LOSS OF POWER". (See NO.12 LACK/LOSS OF POWER-ACCELERATION/CRUISE [Z6] .) Is the CIS system normal?	Yes	Go to the next step.
		No	Repair or replace any malfunctioning parts.
3	Disconnect the solenoid connector. Does the vehicle operate as follows? D range: 3GR (fixed) R position: Reverse	Yes	Go to the next step.
		No	Overhaul the control valve body and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).) If any problem remains, overhaul the transaxle and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).)
4	Drive the vehicle in D range. Does the vehicle start from stop in first gear?	Yes	Go to the next step.
		No	Inspect the value at the following PCM PIDs using the WDS or equivalent. (See PCM INSPECTION [Z6] .) • TP • OSS • TSS • TR Repair or replace any malfunctioning parts.
5	Inspect the value at the following PCM PIDs using the WDS or equivalent. (See PCM INSPECTION [Z6] .) • SSA/SS1 • SSB/SS2 • SSC/SS3 Are the PID values normal?	Yes	Go to the next step.
		No	Inspect the value at the following PCM PIDs using the WDS or equivalent. (See PCM INSPECTION [Z6] .) • TP • OSS • TSS Repair or replace any malfunctioning parts.
6	Perform the stall test. (See Stall Test .)	Yes	Reverify symptoms of malfunction.

	Is stall speed normal?	No	Overhaul the transaxle and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).)
7	• Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms. - If the malfunction remains, inspect the related Service information and perform repair or diagnosis. • If the vehicle is repaired, troubleshooting is completed. • If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.		

NO.7 NO SHIFTING

B3E050319090W11

7	No shifting
DESCRIPTION	• Single shift range only. • Sometimes it shifts correctly.
POSSIBLE CAUSE	• When the gear position is fixed in 3GR due to the fail-safe operation, the malfunction is in the ATX. • Perform malfunction diagnosis according to No.6 "Low maximum speed and poor acceleration". 1. Clutch slippage, burnt • Line pressure low • Shift solenoid D malfunction • Shift solenoid E malfunction • Shift solenoid A malfunction • Shift solenoid B malfunction • Shift solenoid C malfunction • Pressure control solenoid malfunction • Body GND malfunction • Control valve body malfunction 2. Signal malfunction • Vehicle speed sensor malfunction • Sensor GND malfunction • TP sensor malfunction • Input/turbine speed sensor malfunction 3. Transaxle fixed in 3GR (Operation of fail-safe function)

	• Short or open circuit in wiring harness • Poor connection of connector • Disconnected shift solenoid connector • Poor ground of shift solenoid 4. Transaxle fixed in 4GR (Operation of fail-safe function) • Forward clutch slippage • Vehicle speed sensor malfunction • Shift solenoid A malfunction (Stuck on) • Poor connection of connector 5. Transaxle fixed in M range • M range switch malfunction
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NO.8 DOES NOT SHIFT TO 4GR

B3E050319090W12

8	Does not shift to 4GR
DESCRIPTION	• Vehicle does not upshift from 3GR to 4GR even though vehicle speed is increased. • Vehicle does not shift to 4GR even though accelerator pedal is released in D range at 60 km/h {37 mph}.
POSSIBLE CAUSE	• Basically, TCC does not operate when the fail-safe is operating. Verify the DTCs first. If the TCC operates when driving at high speeds only, the malfunction (improper adjustment) is in the TR switch circuit. Caution • If the TCC is stuck, inspect it. In addition, inspect the oil cooler for foreign particles which may have mixed in with the ATF. 1. TCC piston slippage, burned • Line pressure low • TP sensor malfunction • Engine coolant temperature sensor malfunction • Vehicle speed sensor malfunction • Input/turbine speed sensor malfunction • Sensor GND malfunction 2. Transaxle fluid temperature sensor malfunction • Short or open circuit in wiring harness • Poor connection of connector • Sensor malfunction

	3. TR switch malfunction • Short or open circuit in wiring harness • Poor connection of connector • Sensor malfunction • Selector lever adjustment incorrect • TR switch adjustment incorrect 4. Shift solenoid A, shift solenoid B, shift solenoid D valve malfunction • Short or open circuit in wiring harness • Poor connection of connector • Solenoid valve stuck 5. M range switch malfunction 6. Control valve body malfunction Note • Before following the troubleshooting steps, make sure that the Automatic Transaxle On-Board Diagnostic and Automatic Transaxle Basic Inspection are conducted.
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Diagnostic procedure

STEP	INSPECTION		ACTION
1	With the ignition switch at the ON position, does the gear position indicator light indication correspond to the selector lever position?	Yes	Go to the next step.
		No	Go to No.27 "GEAR POSITION INDICATOR LIGHT DOES NOT ILLUMINATE IN M RANGE" or No. 28 "GEAR POSITION INDICATOR LIGHT ILLUMINATES IN D RANGE OR P, N, R POSITIONS"
2	Inspect the value at the following PCM PIDs using the WDS or equivalent. (See PCM INSPECTION [Z6] .) • TFT • TFTV Are the PID values normal?	Yes	Go to the next step.
		No	Repair or replace any malfunctioning parts.
3	Inspect the value at the following PCM PIDs using the WDS or equivalent. (See PCM INSPECTION [Z6] .) • SSA/SS1 • SSB/SS2	Yes	Overhaul the control valve body and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).) If any problem remains, overhaul the transaxle and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).)
		No	Go to the next step.

	• SSC/SS3 Are the PID values normal?		
4	Disconnect the PCM connector. Is the resistance between the ground terminal at the PCM connector and the body ground less than 5.0 ohms?	Yes • TR • TSS • OSS Repair or replace any malfunctioning parts.	Inspect the value at the following PCM PIDs using the WDS or equivalent. (See PCM INSPECTION [Z6].)
		No	Repair open ground circuit. Reconnect the PCM.
5	• Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms. - If the malfunction remains, inspect the related Service information and perform repair or diagnosis. • If the vehicle is repaired, troubleshooting is completed. • If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.		

NO.9 ABNORMAL SHIFTING

B3E050319090W13

9	Abnormal shifting
DESCRIPTION	• Shifts incorrectly (incorrect shift pattern).
POSSIBLE CAUSE	• There is a malfunction in the signal circuit which controls shifting (TP sensor, input/turbine speed sensor, vehicle speed sensor), the control valve is stuck, the accumulator (forward or servo apply) is stuck, or the clutch circuit is stuck. 1. Clutch slippage, burnt • Line pressure low • Control valve body malfunction • Shift solenoid D malfunction • Shift solenoid E malfunction • Shift solenoid A malfunction • Shift solenoid B malfunction • Shift solenoid C malfunction • Body GND malfunction • Accelerator cable mis-adjustment

	2. Signal malfunction • Vehicle speed sensor malfunction • Sensor GND malfunction • TP sensor malfunction or mis-adjustment • Input/turbine speed sensor malfunction 3. TR switch malfunction • Selector lever adjustment incorrect • TR switch adjustment incorrect Note • Before following the troubleshooting steps, make sure that the Automatic Transaxle On-Board Diagnostic and Automatic Transaxle Basic Inspection are conducted.
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Diagnostic procedure

STEP	INSPECTION		ACTION
1	Disconnect the PCM connector.	Yes	Go to the next step.
	Is the resistance between the ground terminal at the PCM connector and the body ground less than 5.0 ohms ?	No	Repair open ground circuit. Reconnect the PCM.
2	Inspect the value at the following PCM PIDs using the WDS or equivalent. (See PCM INSPECTION [Z6] .)	Yes	Overhaul the control valve body and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).) If any problem remains, overhaul the transaxle and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).)
	• TP • TSS • OSS Are the PID values normal?	No	Repair or replace any malfunctioning parts.
3	• Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms. - If the malfunction remains, inspect the related Service information and perform repair or diagnosis. • If the vehicle is repaired, troubleshooting is completed. • If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.		

NO.10 FREQUENT SHIFTING

B3E050319090W14

10	Frequent shifting
DESCRIPTION	Downshifting occurs suddenly even when accelerator pedal is depressed slightly in D range.
POSSIBLE CAUSE	The malfunctioning circuit is basically the same as No.9 "ABNORMAL SHIFTING". However, a malfunction of the input signal to the TP sensor, input/turbine speed sensor, vehicle speed sensor (including the sensor GND, sensor wiring harness and connector), or clutch slippage (clutch stuck, low pressure in line) may also be the cause.

NO.11 SHIFT POINT IS HIGH OR LOW

B3E050319090W15

11	Shift point is high or low
DESCRIPTION	- Shift point considerably different from automatic shift diagram. - Shift delays when accelerating. - Shift occurs quickly when accelerating and engine speed does not increase.
POSSIBLE CAUSE	- If the transaxle does not shift abnormally, there is a malfunction of the input signal to the TP sensor, input/turbine speed sensor, or vehicle speed sensor (including sensor GND). - If the engine speed is high or low, regardless of normal shifting, inspect the tachometer. - Verify that the output signal of the TP sensor changes linearly.

NO.12 TORQUE CONVERTER CLUTCH (TCC) NON-OPERATION

B3E050319090W16

12	Torque converter clutch (TCC) non-operation
DESCRIPTION	TCC does not operate when vehicle reaches TCC operation range.
POSSIBLE CAUSE	- Basically, the TCC does not operate when the fail-safe is operating. Verify the DTC first. Caution - If the TCC is stuck, inspect it. In addition, inspect the oil cooler for foreign particles which may have mixed in with the ATF.

	1. TCC burnt (1) Input sensor system malfunction • Transaxle fluid temperature sensor • Vehicle speed sensor • Input/turbine speed sensor • Sensor GND (2) Output solenoid valve system malfunction (Sticking) • Shift solenoid E malfunction • Shift solenoid A malfunction (3) Control valve body malfunction system (Poor operation, stuck) • TCC hydraulic pressure system 2. TP sensor malfunction (Not operating linear) 3. Input/turbine speed sensor or vehicle speed sensor malfunction 4. Brake switch malfunction (Always ON) 5. ECT sensor malfunction Note • Before following the troubleshooting steps, make sure that the Automatic Transaxle On-Board Diagnostic and Automatic Transaxle Basic Inspection are conducted.
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Diagnostic procedure

STEP	INSPECTION		ACTION
1	With the ignition switch at the ON position, does the gear position indicator light indication correspond to the selector lever position?	Yes	Go to the next step.
		No	Go to No.27 "GEAR POSITION INDICATOR LIGHT DOES NOT ILLUMINATE IN M RANGE" or No.28 "GEAR POSITION INDICATOR LIGHT ILLUMINATES IN D RANGE OR P, N, R POSITIONS"
2	Inspect the value at the following PCM PIDs using the WDS or equivalent. (See PCM INSPECTION [Z6] .) • TP • OSS • TSS Are the PID values normal?	Yes	Go to the next step.
		No	Repair or replace any malfunctioning parts.
3	Disconnect the PCM connector.	Yes	Go to the next step.
		No	Repair the open ground circuit.

	Is the resistance between the ground terminal at the PCM connector and the body ground less than 5.0 ohms ?		
4	Inspect the resistance between shift solenoid A and E control circuit at the PCM connector and control valve body connector. Inspect resistance between shift solenoid A and E circuit at the PCM connector and control valve body connector. Are the resistances less than 5.0 ohms?	Yes	Go to the next step.
		No	Repair the shift solenoid A or E control. Reconnect the PCM.
5	Inspect the shift solenoid A and E. (See SOLENOID VALVE INSPECTION.) Are the shift solenoids operating properly?	Yes	Replace the PCM.
		No	Overhaul the control valve body and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).) If any problem remains, overhaul the transaxle and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).)
6	• Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms. - If the malfunction remains, inspect the related Service information and perform repair or diagnosis. • If the vehicle is repaired, troubleshooting is completed. • If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.		

NO.13 NO KICKDOWN

B3E050319090W17

13	No kickdown
DESCRIPTION	• Does not downshift when accelerator pedal is fully depressed within kickdown range.
POSSIBLE CAUSE	• If transaxle does not downshift though shifting is normal, the malfunction is in the TP sensor circuit (including sensor GND, sensor wiring harness and connector).

NO.14 ENGINE FLARES UP OR SLIPS WHEN UPSHIFTING OR DOWNSHIFTING

B3E050319090W18

14	Engine flares up or slips when upshifting or downshifting
DESCRIPTION	• When the accelerator pedal is depressed for driveaway, engine speed increases but vehicle speed increases slowly. • When the accelerator pedal is depressed while driving, engine speed increases but the vehicle does not.
POSSIBLE CAUSE	• There is clutch slippage because the clutch is stuck or the line pressure is low. 1. Clutch stuck, slippage (forward clutch, 3-4 clutch, 2-4 brake band, one-way clutch) • Line pressure low • Shift solenoid D malfunction • Shift solenoid E malfunction • Shift solenoid A malfunction • Shift solenoid B malfunction • Shift solenoid C malfunction • Pressure control solenoid malfunction • Body GND malfunction • Accelerator cable mis-adjustment • Control valve body malfunction 2. Signal malfunction • Vehicle speed sensor malfunction • Sensor GND malfunction • TP sensor malfunction or mis-adjustment • Input/turbine speed sensor malfunction 3. Poor operation of mechanical pressure • Selector lever position disparity • TR switch position disparity Note • Before following the troubleshooting steps, make sure that the Automatic Transaxle On-Board Diagnostic and Automatic Transaxle Basic Inspection are conducted.

Diagnostic procedure

STEP	INSPECTION		ACTION
1	Is shift point normal?	Yes	Go to the next step.
		No	Go to No.9 "ABNORMAL SHIFTING".
2	Inspect the value at the following PCM PID using the WDS or equivalent. (See PCM INSPECTION [Z6] .) • TP Is the PID value normal?	Yes	Go to the next step.
		No	Repair or replace any malfunctioning parts.
3	Disconnect the PCM connector. Is the resistance between the ground terminal at the PCM connector and the body ground less than 5.0 ohms ?	Yes	Go to the next step.
		No	Repair the open ground circuit. Reconnect the PCM.
4	Inspect the LPS PID value. Is the LPS PID value normal? (See PCM INSPECTION [Z6] .)	Yes	Overhaul the control valve body and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).) If any problem remains, overhaul the transaxle and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).)
		No	Repair or replace any malfunctioning parts.
5	• Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms. - If the malfunction remains, inspect the related Service information and perform repair or diagnosis. • If the vehicle is repaired, troubleshooting is completed. • If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.		

NO.15 ENGINE FLARES UP OR SLIPS WHEN ACCELERATING VEHICLE

B3E050319090W19

15	Engine flares up or slips when accelerating the vehicle
DESCRIPTION	• Engine flares up when the accelerator pedal is depressed for upshifting. • Engine flares up suddenly when the accelerator pedal is depressed for downshifting.
POSSIBLE CAUSE	• The malfunction is basically the same as for No.14 "ENGINE FLARES UP OR SLIPS WHEN UPSHIFTING OR DOWNSHIFTING". If conditions for No.14 worsen, the malfunction will develop to No.15.

NO.16 JUDDER UPON TORQUE CONVERTER CLUTCH (TCC) OPERATION

B3E050319090W20

16	Judder upon torque converter clutch (TCC) operation
DESCRIPTION	• Vehicle jolts when TCC is engaged.
POSSIBLE CAUSE	• Poor TCC engagement due to either slippage because the TCC is stuck or the line pressure is low Caution • If the TCC is stuck, inspect it. In addition, inspect the oil cooler for foreign particles which may have mixed in with the ATF. 1. Torque converter clutch piston slippage, burnt • Line pressure high • Shift solenoid A malfunction • Control valve body malfunction • Body GND malfunction • Pressure control solenoid malfunction 2. Signal malfunction • Vehicle speed sensor malfunction • Sensor GND malfunction • TFT sensor malfunction • TP sensor malfunction or mis-adjustment • Input/turbine speed sensor malfunction 3. Torque converter malfunction Note • Before following the troubleshooting steps, make sure that the Automatic Transaxle On-Board Diagnostic and Automatic Transaxle Basic Inspection are conducted.

Diagnostic procedure

STEP	INSPECTION	ACTION
1	Inspect the value at the following PCM PID using the WDS or equivalent. (See PCM INSPECTION [Z6] .)	Yes Go to the next step.
	• TSS Is the PID value normal?	No Repair or replace any malfunctioning parts.

2	Disconnect the PCM connector.	Yes	Go to the next step.
	Is the resistance between the ground terminal at the PCM connector and the body ground less than 5.0 ohms ?	No	Repair the open ground circuit.
3	Inspect the resistance between shift solenoid A control circuit at the PCM connector and control valve body connector.	Yes	Go to the next step.
	Inspect the resistance between shift solenoid A circuit at the PCM connector and control valve body connector. Are the resistances less than 5.0 ohms ?	No	Repair the shift solenoid A circuit.
4	Inspect the shift solenoid. (See SOLENOID VALVE INSPECTION .) Is the solenoid valve operating properly?	Yes	Go to the next step.
		No	Overhaul the control valve body and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).) If any problem remains, overhaul the transaxle and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).)
5	Inspect the LPS PID value. Is the LPS PID value normal? (See PCM INSPECTION [Z6] .)	Yes	Overhaul the control valve body and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).) If any problem remains, overhaul the transaxle and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).)
		No	Replace the PCM.
6	• Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms. - If the malfunction remains, inspect the related Service information and perform repair or diagnosis. • If the vehicle is repaired, troubleshooting is completed. • If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.		

NO.17 EXCESSIVE SHIFT SHOCK FROM N TO D OR N TO R POSITION/RANGE

B3E050319090W21

17	Excessive shift shock from N to D or N to R position/range
DESCRIPTION	• Strong shock felt when shifting from N to D or N to R position/range.

POSSIBLE CAUSE	• Shift shock may worsen when the fail-safe is operating. If no DTC is output, the shift shock may worsen due to poor operation of the control valve body or sticking of the clutch. 1. Clutch burnt (N→D: Forward clutch, N→R: Reverse clutch or low and reverse brake) • Line pressure low, high • TP sensor malfunction • Vehicle speed sensor malfunction • Input/turbine speed sensor malfunction • Shift solenoid B malfunction • Shift solenoid D malfunction • Shift solenoid A malfunction • Shift solenoid C malfunction • Pressure control solenoid malfunction • Accelerator cable mis-adjustment • Control valve body malfunction • Sensor GND malfunction • Body GND malfunction 2. Poor hydraulic operation (Malfunction in range change) • Forward accumulator malfunction • Servo apply accumulator malfunction • Pressure switch malfunction 3. Idle speed high 4. Poor tightening torque of engine mount, exhaust mount 5. Poor operation of mechanical pressure • Selector lever position disparity Note • Before following the troubleshooting steps, make sure that the Automatic Transaxle On-Board Diagnostic and Automatic Transaxle Basic Inspection are conducted.
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Diagnostic procedure

STEP	INSPECTION		ACTION
1	Does the shift shock occur only when the engine is cold?	Yes	Go to the next step.
		No	Go to Step 3.

2	Disconnect the PCM connector. Is the resistance between the ground terminal at the PCM connector and the body ground less than 5.0 ohms ?	Yes	Inspect the value at the following PCM PIDs using the WDS or equivalent. (See PCM INSPECTION [Z6] .) • TP • TFT • TFTV Repair or replace any malfunctioning parts.
		No	Repair the open ground circuit. Reconnect the PCM.
3	Perform the stall test. (See Stall Test .) Is the stall speed normal?	Yes	Go to the next step.
		No	Go to Step 5.
4	Inspect the value at the following PCM PID using the WDS or equivalent. (See PCM INSPECTION [Z6] .) • TR Is the PID value normal?	Yes	Overhaul the control valve body and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).) If any problem remains, overhaul the transaxle and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).)
		No	Repair or replace any malfunctioning parts.
5	Inspect the value at the following PCM PID using the WDS or equivalent. (See PCM INSPECTION [Z6] .) • TP Is the PID value normal?	Yes	Go to the next step.
		No	Repair or replace any malfunctioning parts.
6	Disconnect the PCM connector. Is the resistance between the ground terminal at the PCM connector and the body ground less than 5.0 ohms ?	Yes	Go to the next step.
		No	Repair the open ground circuit. Reconnect the PCM.
7	Inspect LPS PID value. Is LPS PID value normal? (See PCM INSPECTION [Z6] .)	Yes	Overhaul the control valve body and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).) If any problem remains, overhaul the transaxle and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).)
		No	Repair or replace any malfunctioning parts.
8	• Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms. - If the malfunction remains, inspect the related Service information and perform repair or diagnosis. • If the vehicle is repaired, troubleshooting is completed.		

- If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.

NO.18 EXCESSIVE SHIFT SHOCK IS FELT WHEN UPSHIFTING AND DOWNSHIFTING

B3E050319090W22

18	Excessive shift shock is felt when upshifting and downshifting
DESCRIPTION	• Excessive shift shock is felt when depressing the accelerator pedal at upshifting. During cruising, excessive shift shock is felt when depressing the accelerator pedal at downshifting.
POSSIBLE CAUSE	• Shift shock may worsen when the fail-safe is operating. The shift shock has worsened if the TP sensor, input/turbine speed sensor, or vehicle speed sensor signal malfunctions. 1. Clutch slippage, burnt (Forward clutch, 2-4 brake band, 3-4 clutch) • Line pressure low, high • Shift solenoid D malfunction • Shift solenoid E malfunction • Shift solenoid A malfunction • Shift solenoid B malfunction • Shift solenoid C malfunction • Pressure control solenoid malfunction • Accelerator cable mis-adjustment • Control valve body malfunction • Body GND malfunction 2. Signal malfunction • Transaxle temperature sensor malfunction • Vehicle speed sensor malfunction • Sensor GND malfunction • TP sensor malfunction • Input/turbine speed sensor malfunction 3. Poor hydraulic operation (Malfunction in range change) • Pressure switch malfunction • Forward accumulator malfunction • Servo apply accumulator malfunction 4. Engine mounts installation • Loose attaching bolts

- Worn parts

Note

- Before following the troubleshooting steps, make sure that the Automatic Transaxle On-Board Diagnostic and Automatic Transaxle Basic Inspection are conducted.

Diagnostic procedure

STEP	INSPECTION		ACTION
1	Inspect the engine mounts for loose tightening bolts or worn parts.	Yes	Go to the next step.
	Are all engine mounts normal?	No	Readjust, retighten or replace engine mounts.
2	Perform the stall test. (See Stall Test.)	Yes	Go to the next step.
	Is the stall speed normal?	No	Repair or replace any malfunctioning parts.
3	Inspect the value at the following PCM PID using the WDS or equivalent. (See PCM INSPECTION [Z6].)	Yes	Go to the next step.
	• TP V Is the PID value normal?	No	Repair or replace any malfunctioning parts.
4	Disconnect the PCM connector.	Yes	Go to the next step.
	Is the resistance between the ground terminal at the PCM connector and the body ground less than 5.0 ohms ?	No	Repair the open ground circuit. Reconnect the PCM.
5	Inspect the LPS PID value.	Yes	Overhaul the control valve body and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).)
	Is the LPS PID value normal? (See PCM INSPECTION [Z6].)		If any problem remains, overhaul the transaxle and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).)
		No	Repair or replace any malfunctioning parts.
6	• Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms. - If the malfunction remains, inspect the related Service information and perform repair or diagnosis. • If the vehicle is repaired, troubleshooting is completed. • If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.		

NO.19 EXCESSIVE SHIFT SHOCK ON TORQUE CONVERTER CLUTCH (TCC)

B3E050319090W23

19	Excessive shift shock on torque converter clutch (TCC)
DESCRIPTION	Strong shock is felt when the TCC is engaged.
POSSIBLE CAUSE	The troubleshooting flow is the same as No.16 "JUDDER UPON TCC OPERATION".

NO.20 NOISE OCCURS AT IDLE WHEN VEHICLE IS STOPPED IN ALL POSITIONS/RANGES

B3E050319090W24

20	Noise occurs at idle when vehicle is stopped in all positions/ranges
DESCRIPTION	Transaxle is noisy in all positions and ranges when the vehicle is idling.
POSSIBLE CAUSE	- The malfunction is in the oil pump which causes a high-pitched noise to be emitted from the transaxle at idle. Note - If a noise is emitted during shifting only, the malfunction is in shift solenoid D, E or shift solenoid A, B, C. If a noise is emitted during shifting at certain gears only or during deceleration only, it is gear noise. - Before following the troubleshooting steps, make sure that the Automatic Transaxle On-Board Diagnostic and Automatic Transaxle Basic Inspection are conducted.

Diagnostic procedure

STEP	INSPECTION	ACTION
1	Inspect engine condition.	Yes Go to appropriate symptom troubleshooting. (See Section F.) No Go to the next step.
	Is there any engine concern (i. e. rough idle)?	
2	Does the noise stop when the solenoid connector is disconnected?	Yes Go to the next step.
		No Overhaul the control valve body and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).) If any problem remains, overhaul the transaxle and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).)

3	Inspect the value at the following PCM PIDs using the WDS or equivalent. (See PCM INSPECTION [Z6] .) • TP • OSS • TSS Are the PID values normal?	Yes	Go to the next step.
		No	Repair or replace any malfunctioning parts.
4	Disconnect the PCM connector. Is the resistance between the ground terminal at the PCM connector and the body ground less than 5.0 ohms ?	Yes	Go to the next step.
		No	Repair the open ground circuit. Reconnect the PCM.
5	Inspect the LPS PID value. Is the LPS PID value normal? (See PCM INSPECTION [Z6] .)	Yes	Overhaul the control valve body and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).) If any problem remains, overhaul the transaxle and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).)
		No	Repair or replace any malfunctioning parts.
6	• Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms. - If the malfunction remains, inspect the related Service information and perform repair or diagnosis. • If the vehicle is repaired, troubleshooting is completed. • If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.		

NO.21 NOISE OCCURS AT IDLE WHEN VEHICLE IS STOPPED IN D, M RANGES, OR IN R POSITION

B3E050319090W25

21	Noise occurs at idle when vehicle is stopped in D, M ranges, or in R position
DESCRIPTION	• Transaxle is noisy in D, M ranges, or in R position when vehicle is idling.
POSSIBLE CAUSE	• Although the malfunction is basically the same as No.20 "NOISE OCCURS AT IDLE WHEN VEHICLE IS STOPPED IN ALL POSITIONS/RANGES", other causes may include selector lever position disparity or TR switch position disparity.

NO.22 NO ENGINE BRAKING IN 1GR POSITION OF M RANGE

22	No engine braking in 1GR position of M range
DESCRIPTION	• Engine speed drops to idle but the vehicle coasts when the accelerator pedal is released when in 1GR of M range at low vehicle speed.
POSSIBLE CAUSE	1. Clutch slippage, burnt (low and reverse brake) • Line pressure low • Shift solenoid D malfunction • Shift solenoid E malfunction • Shift solenoid C malfunction • Control valve body malfunction • Body GND malfunction 2. Signal malfunction • TP sensor malfunction • Vehicle speed sensor malfunction • Sensor GND malfunction • Input/turbine speed sensor malfunction 3. PCM does not determine that the M range switch is ON (short, or open circuit, poor operation) • M range switch signal malfunction Note • Before following the troubleshooting steps, make sure that the Automatic Transaxle On-Board Diagnostic and Automatic Transaxle Basic Inspection are conducted.

Diagnostic procedure

STEP	INSPECTION	ACTION
1	Do the following symptoms occur concurrently?	Yes Go to symptom troubleshooting NO.14 "ENGINE FLARES UP OR SLIPS WHEN UPSHIFTING OR DOWNSHIFTING" or No.15 "ENGINE FLARES UP OR SLIPS WHEN ACCELERATING VEHICLE".
	• Engine flares up or slips during acceleration. • Engine flares up or slips when shifting.	No Repeat basic inspection and repair or replace any malfunctioning parts according to the inspection result. (See BASIC INSPECTION .)
2	• Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms. - If the malfunction remains, inspect the related Service information and perform repair or diagnosis.	

- If the vehicle is repaired, troubleshooting is completed.
- If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.

NO.23 TRANSAXLE OVERHEATS

B3E050319090W27

23	Transaxle overheats
DESCRIPTION	• Burnt smell emitted from transaxle. • Smoke emitted from transaxle.
POSSIBLE CAUSE	• The malfunction is restricted to the hindrance of coolant at the oil cooler. In addition, overheating of the transaxle may be caused by a malfunction of the transaxle fluid temperature sensor. 1. Burnt (TCC) • Line pressure low • Control valve body malfunction • Accelerator cable mis-adjustment 2. Oil cooler malfunction (Foreign material mixed in ATF) 3. Transaxle fluid temperature sensor malfunction 4. Excessive amount of ATF 5. Torque converter malfunction Note • Before following the troubleshooting steps, make sure that the Automatic Transaxle On-Board Diagnostic and Automatic Transaxle Basic Inspection are conducted.

Diagnostic procedure

STEP	INSPECTION		ACTION
1	Inspect for bending, damage, corrosion or kinks of the oil cooler pipes.	Yes	Go to the next step.
	Are oil cooler pipes normal?	No	Replace any malfunctioning parts.
2	Perform the stall test. (See Stall Test .)	Yes	Go to the next step.
	Is the stall speed normal?	No	Repair or replace any malfunctioning parts.
3	Inspect the value at the following PCM PID using the WDS or equivalent.	Yes	Go to the next step.
		No	Repair or replace any malfunctioning parts.

	(See PCM INSPECTION [Z6] .) • TP Is the PID value normal?		
4	Disconnect the PCM connector.	Yes	Go to the next step.
	Is the resistance between the ground terminal at the PCM connector and the body ground less than 5.0 ohms ?	No	Repair the open ground circuit. Reconnect the PCM.
5	Inspect the LPS PID value. Is the LPS PID value normal? (See PCM INSPECTION [Z6] .)	Yes	Overhaul the control valve body and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).) If any problem remains, overhaul the transaxle and repair or replace any malfunctioning parts. (See ATX workshop manual (FN4A-EL).)
		No	Repair or replace any malfunctioning parts.
6	• Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms. - If the malfunction remains, inspect the related Service information and perform repair or diagnosis. • If the vehicle is repaired, troubleshooting is completed. • If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.		

NO.24 ENGINE STALLS WHEN SHIFTED TO D, M RANGES, OR IN R POSITION

B3E050319090W28

24	Engine stalls when shifted to D, M ranges, or in R position
DESCRIPTION	• Engine stalls when shifting from N or P position to D, M ranges or R position at idle.
POSSIBLE CAUSE	• The malfunction is on the engine control side (i.e. IAC system). Otherwise, the malfunction is in the input/turbine speed sensor (engine sometimes starts) or the TCC circuit (engine always stalls).

Diagnostic procedure

STEP	INSPECTION	ACTION
1	Go to symptom troubleshooting No.10 "LOW IDLE/STALLS DURING DECELERATION".	Yes Repeat the basic inspection and repair or replace any malfunctioning parts according to the inspection result. (See BASIC INSPECTION .)

	(See NO.10 LOW IDLE/STALLS DURING DECELERATION [Z6].) Is the engine control system normal?	No	Repair or replace any malfunctioning parts according to the inspection results.
2	• Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms. - If the malfunction remains, inspect the related Service information and perform repair or diagnosis. • If the vehicle is repaired, troubleshooting is completed. • If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.		

NO.25 ENGINE STALLS WHEN DRIVING AT SLOW SPEEDS OR STOPPING

B3E050319090W29

25	Engine stalls when driving at slow speeds or stopping
DESCRIPTION	• Engine stalls when the brake pedal is depressed while driving at low speed or stopping.
POSSIBLE CAUSE	• Malfunction is in engine control system (e.g. Fuel injection control, IAC system). Otherwise, the malfunction is in the control valve body, shift solenoid E or TCC.

Diagnostic procedure

STEP	INSPECTION		ACTION
1	Go to symptom troubleshooting No.10 "LOW IDLE/STALLS DURING DECELERATION". (See NO.10 LOW IDLE/STALLS DURING DECELERATION [Z6].) Is the engine control system normal?	Yes	Go to the next step.
		No	Repair or replace any malfunctioning parts according to the inspection results.
2	Go to symptom troubleshooting No.5 "ENGINE STALLS-AFTER START/AT IDLE" (See NO.5 ENGINE STALLS-AFTER START/AT IDLE [Z6].) Is the engine control system normal?	Yes	Repeat the basic inspection and repair or replace any malfunctioning parts according to the inspection result. (See BASIC INSPECTION.)
		No	Repair or replace any malfunctioning parts according to the inspection results.
3	• Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms.		

- If the malfunction remains, inspect the related Service information and perform repair or diagnosis.
- If the vehicle is repaired, troubleshooting is completed.
- If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.

NO.26 STARTER DOES NOT WORK

B3E050319090W30

26	Starter does not work
DESCRIPTION	• Starter does not work even when in P or N position.
POSSIBLE CAUSE	• Selector lever mis-adjustment • TR switch mis-adjustment • Open or short circuit in the TR switch terminal

NO.27 GEAR POSITION INDICATOR LIGHT DOES NOT ILLUMINATE IN M RANGE

B3E050319090W31

27	Gear position indicator light does not illuminate in M range
DESCRIPTION	• Gear position indicator light in instrument cluster does not illuminate in M range with the ignition switch at ON.
POSSIBLE CAUSE	• M range switch, gear position indicator light or related wiring harness malfunction Note • Before following the troubleshooting steps, make sure that the Automatic Transaxle ON-Board Diagnostic and Automatic Transaxle Basic Inspection are conducted.

Diagnostic procedure

STEP	INSPECTION		ACTION
1	Do other indicator lights illuminate with the ignition switch at ON?	Yes	Go to the next step.
		No	Inspect the meter fuse.
2	Inspect the MNL SW PID value using the WDS or equivalent. Is the MNL SW PID value normal?	Yes	Inspect the instrument cluster.
		No	Inspect the M range switch. If the M range switch is normal, inspect for continuity between the M range switch and PCM terminal 1AQ.

3	• Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms. - If the malfunction remains, inspect the related Service information and perform repair or diagnosis. • If the vehicle is repaired, troubleshooting is completed. • If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.
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NO.28 GEAR POSITION INDICATOR LIGHT ILLUMINATES IN D RANGE OR P, N, R POSITIONS

B3E050319090W32

28	Gear position indicator light illuminates in D range or P, N, R positions
DESCRIPTION	• Gear position indicator light illuminates in D range or P, N, R positions with the ignition switch at ON.
POSSIBLE CAUSE	• M range switch related wiring harness malfunction Note • Before following the troubleshooting steps, make sure that the Automatic Transaxle On-board Diagnostic and Automatic Transaxle Basic Inspection are conducted.

Diagnostic procedure

STEP	INSPECTION	ACTION
1	Do other indicator lights illuminate with the ignition switch at ON?	Yes Go to the next step.
		No Inspect the meter fuse.
2	Inspect the MNL SW PID value using the WDS or equivalent. Is the MNL SW PID value normal?	Yes Inspect the instrument cluster.
		No Inspect the M range switch. If the M range switch is normal, inspect for continuity between the M range switch and PCM terminal 1AQ.
3	• Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms. - If the malfunction remains, inspect the related Service information and perform repair or diagnosis. • If the vehicle is repaired, troubleshooting is completed. • If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.	

NO.29 DOES NOT UPSHIFT IN M RANGE

B3E050319090W33

29	Does not upshift in M range
DESCRIPTION	Gear position indicator light in instrument cluster illuminates, but the vehicle does not upshift when the selector lever is pushed to "+" side.
POSSIBLE CAUSE	- Up switch or related wiring harness malfunction Note - Before following the troubleshooting steps, make sure that the Automatic Transaxle On-board Diagnostic and Automatic Transaxle Basic Inspection are conducted.

Diagnostic procedure

STEP	INSPECTION	ACTION
1	Inspect the UP SW PID value using the WDS or equivalent. (See PCM INSPECTION [Z6] .) Is the UP SW PID value normal?	Yes Inspect the instrument cluster.
		No Inspect the up switch. If the up switch is normal, inspect for continuity between the up switch and PCM terminal 1P.
2	- Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms. - If the malfunction remains, inspect the related Service information and perform repair or diagnosis. - If the vehicle is repaired, troubleshooting is completed. - If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.	

NO.30 DOES NOT DOWNSHIFT IN M RANGE

B3E050319090W34

30	Does not downshift in M range
DESCRIPTION	Gear position indicator light in instrument cluster illuminates, but the vehicle does not downshift when the selector lever is pushed to "-" side.
POSSIBLE CAUSE	Down switch or related wiring harness malfunction Note

- Before following the troubleshooting steps, make sure that the Automatic Transaxle On-board Diagnostic and Automatic Transaxle Basic Inspection are conducted.

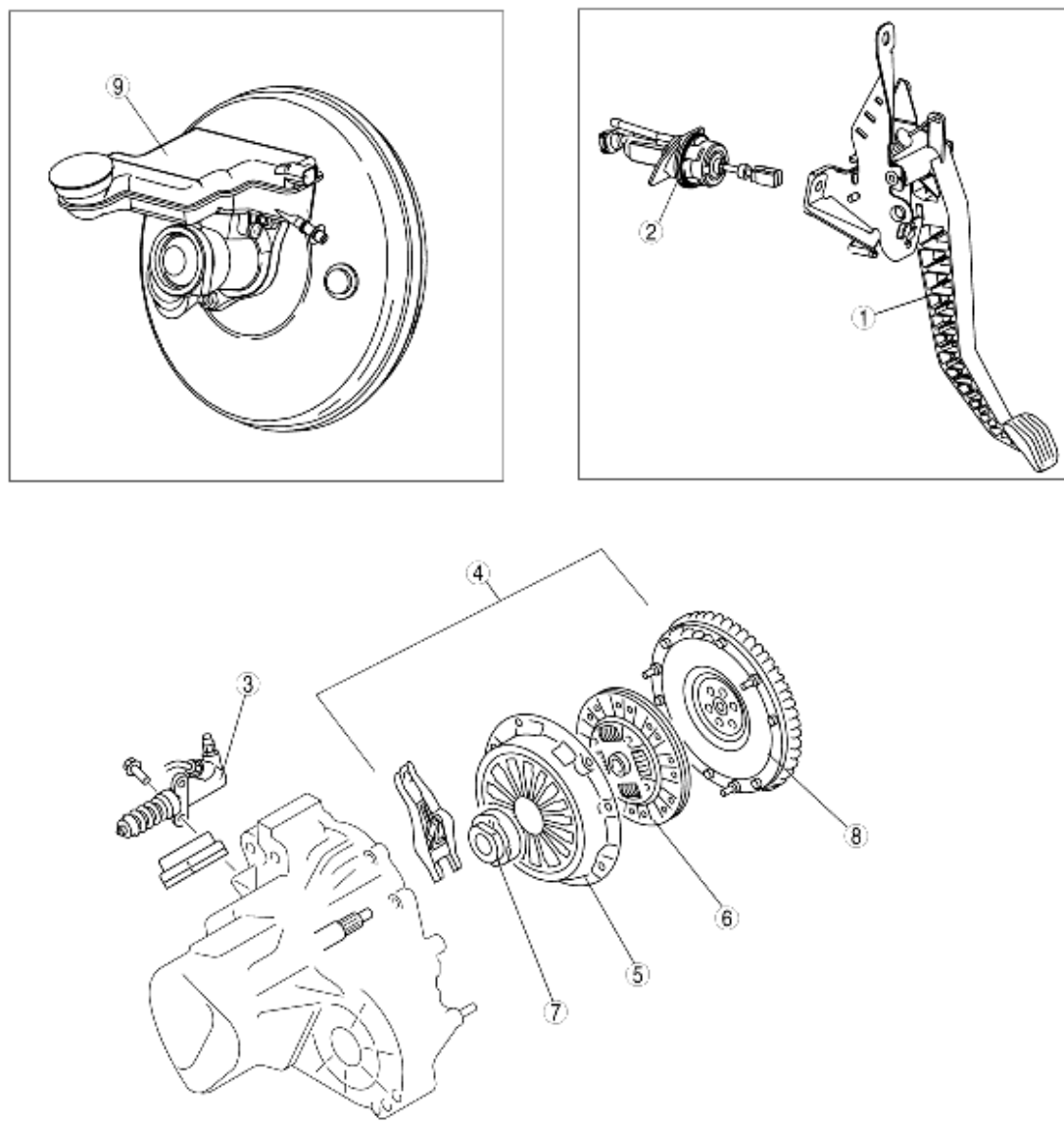
Diagnostic procedure

STEP	INSPECTION	ACTION
1	Inspect the DWN SW PID value using the WDS or equivalent. (See PCM INSPECTION [Z6] .) Is the DWN SW PID value normal?	Yes Inspect the instrument cluster.
		No Inspect the down switch. If the down switch is normal, inspect for continuity between the down switch and PCM terminal 1AB.
2	• Verify the test results. - If normal, return to the diagnostic index to service any additional symptoms. - If the malfunction remains, inspect the related Service information and perform repair or diagnosis. • If the vehicle is repaired, troubleshooting is completed. • If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM.	

CLUTCH

CLUTCH LOCATION INDEX

B3E051016003W01



B3E0510W018

	Clutch pedal
1	(See CLUTCH PEDAL INSPECTION.) (See CLUTCH PEDAL REMOVAL/INSTALLATION.)
2	Clutch master cylinder (See CLUTCH MASTER CYLINDER REMOVAL/INSTALLATION.)
3	Clutch release cylinder (See CLUTCH RELEASE CYLINDER REMOVAL/INSTALLATION.)
4	Clutch unit (See CLUTCH UNIT REMOVAL/INSTALLATION.)

5	Clutch cover (See CLUTCH COVER INSPECTION.)
6	Clutch disc (See CLUTCH DISC INSPECTION.)
7	Clutch release collar (See CLUTCH RELEASE COLLAR INSPECTION.)
8	Flywheel (See FLYWHEEL INSPECTION.)
9	Clutch fluid (See CLUTCH FLUID INSPECTION.) (See CLUTCH FLUID REPLACEMENT.)

GENERAL PROCEDURES (CLUTCH)

B3E051016003W02

Note

- A common reserve tank is used for the clutch and brake system fluid.

Caution

- If clutch pipes have been disconnected any time during the procedure, add clutch fluid (brake fluid), bleed the air, and inspect for leakage after the procedure has been completed.

CLUTCH FLUID INSPECTION

B3E051016010W01

Note

- A common reserve tank is used for the clutch and brake system fluid.
- The fluid in the reserve tank must be maintained between the MIN/MAX level during replacement.

CLUTCH FLUID REPLACEMENT

B3E051016010W02

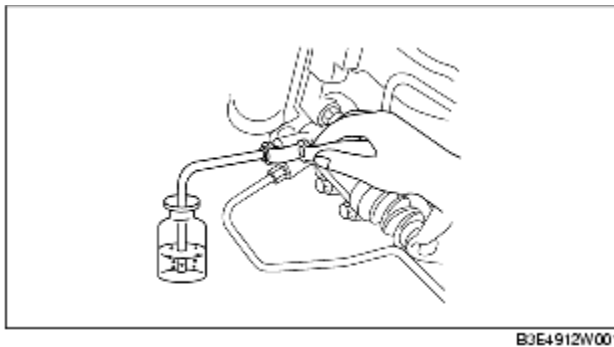
Caution

- Be careful not to spill clutch fluid on a painted surface. If this should happen, wash it off immediately.

Note

- Do not mix different brands of clutch fluid.

- Do not reuse the clutch fluid that was drained out.
1. Draw the fluid from the reserve tank with a suction pump.
 2. Remove the bleeder cap from the clutch release cylinder and attach a vinyl hose to the bleeder plug.
 3. Place the other end of the vinyl hose into a container.
 4. Slowly pump the clutch pedal several times.
 5. With the clutch pedal depressed, loosen the bleeder screw to let fluid escape.
 6. Tighten the bleeder screw to stop the fluid.



7. Repeat Steps 4 and 5 until only clean fluid is seen.
8. Tighten the bleeder screw.

Tightening torque

F35M-R:

4.0-6.0 N·m

{41-61 kgf·cm, 36-53 in·lbf}

G35M-R:

5.0-10.0 N·m

{51-101 kgf·cm, 45-88 in·lbf}

9. Add fluid to the MAX mark.
10. Verify the correct clutch operation.

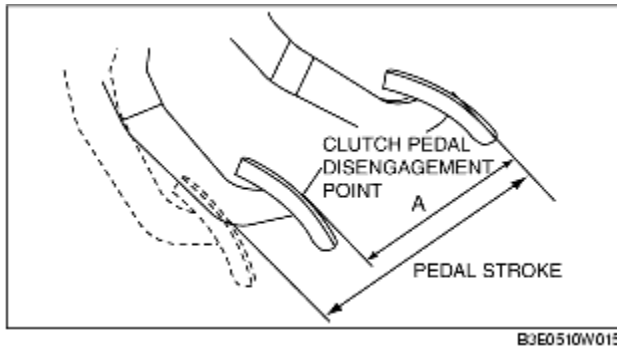
CLUTCH PEDAL INSPECTION

B3E051041030W01

Clutch Pedal Disengagement Point Inspection

1. Apply the parking brake and fix the front and rear of the wheels with the wheel chocks.
2. Start the engine at idle.

- Without depressing the clutch pedal, move the shift lever slowly to the reverse position.
- Hold the lever when the gear noise is heard.
- Depress the clutch pedal slowly.
- Hold the pedal when the gear noise stops (clutch pedal disengagement point).
- Measure distance A, verify that they are within specification.



Clutch pedal disengagement stroke

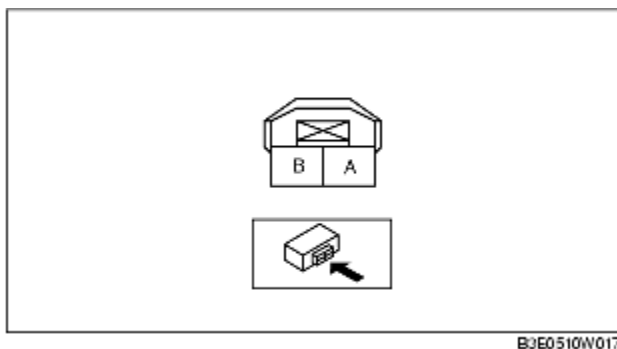
90-110 mm {3.55-4.33 in} (Reference value)

Pedal stroke

135 mm {5.31 in} (Reference value)

Clutch Switch Inspection

- Disconnect the negative battery cable.
- Disconnect the clutch switch connector.
- Verify that the continuity is as indicated in the table.



Condition	Connector terminal	
	A	B
Clutch pedal is depressed	○ — ○	○ — ○
Clutch pedal is not depressed		

• If there is any malfunction, replace the clutch switch. (See [CLUTCH PEDAL REMOVAL/INSTALLATION](#).)

CLUTCH PEDAL REMOVAL/INSTALLATION

B3E051041030W02

1. Remove the battery and battery tray.

(See [BATTERY REMOVAL/INSTALLATION \[Z6\]](#).)

(See [BATTERY REMOVAL/INSTALLATION \[LF\]](#).)

2. Separate the steering shaft.

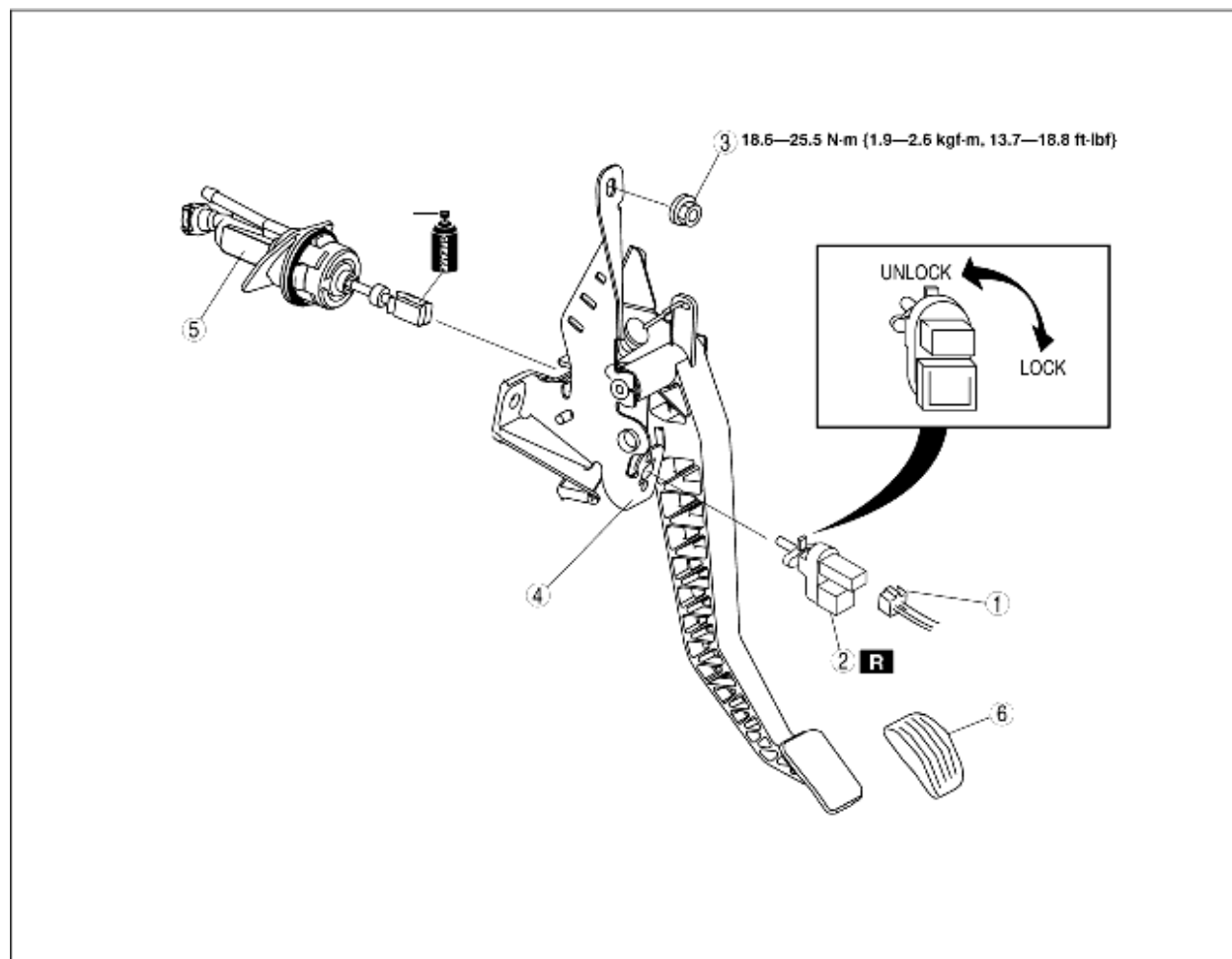
3. Separate the clutch pipe and reserve hose.

(See [CLUTCH MASTER CYLINDER REMOVAL/INSTALLATION](#).)

4. Remove in the order indicated in the table.

5. Install in the reverse order of removal.

6. After installation, inspect the clutch pedal. (See [CLUTCH PEDAL INSPECTION](#).)



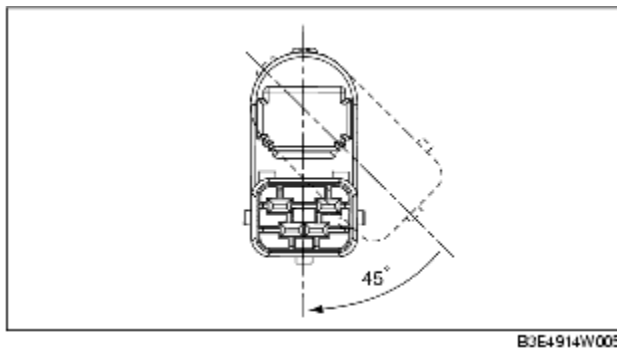
B3E0510W001

1 Clutch switch connector

2	Clutch switch (See Clutch Switch Installation Note.)
3	Nuts
4	Clutch pedal component
5	Clutch master cylinder (See CLUTCH MASTER CYLINDER REMOVAL/INSTALLATION.)
6	Pedal pad

Clutch Switch Installation Note

1. Insert the new clutch switch into hole of the pedal bracket until the switch stops.
2. Rotate the clutch switch **45°** clockwise.

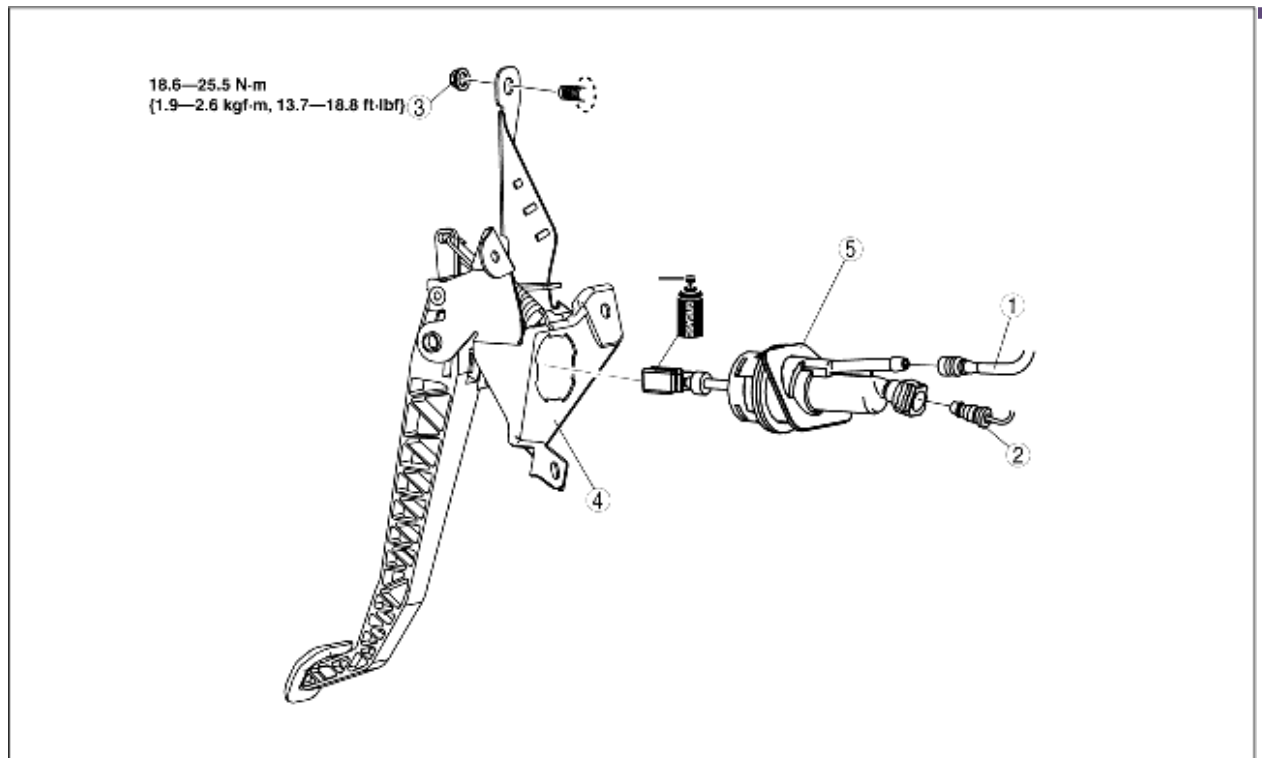


3. Verify that the clutch switch is locked securely.

CLUTCH MASTER CYLINDER REMOVAL/INSTALLATION

B3E051041990W01

1. Remove the battery and battery tray.
(See [BATTERY REMOVAL/INSTALLATION \[Z6\].](#))
(See [BATTERY REMOVAL/INSTALLATION \[LF\].](#))
2. Separate the steering shaft.
3. Remove in the order indicated in the table.
4. Plug the clutch pipe after removing it to avoid leakage.
5. Install in the reverse order of removal.
6. After installation, inspect the clutch pedal. (See [CLUTCH PEDAL INSPECTION.](#))

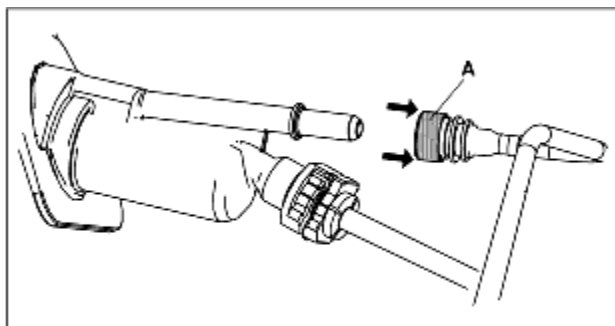


B3E0510W006

1	Reserve hose
2	Clutch pipe
3	Nuts
4	Clutch pedal component (See CLUTCH PEDAL REMOVAL/INSTALLATION.)
5	Clutch master cylinder

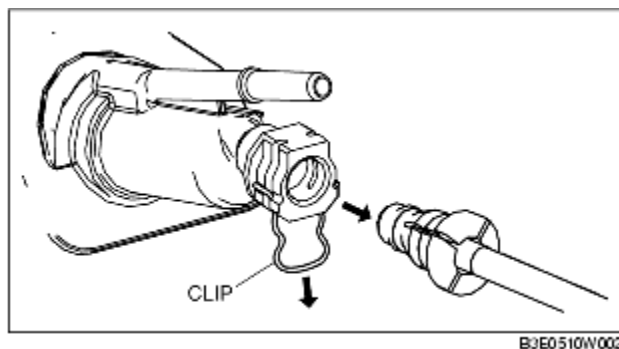
Clutch Pipe and Clutch Reserve Hose Removal Note

1. Pull area A of the reserve hose connector in the direction of the arrow and detach it.



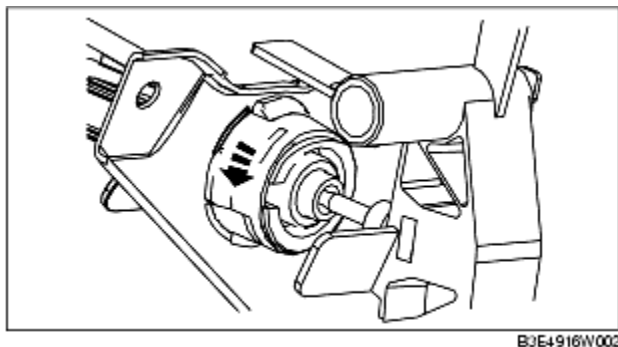
B3E0510W004

2. Pull the clutch master cylinder clip to the position shown in the figure and pull out the clutch pipe connector straight to detach it.

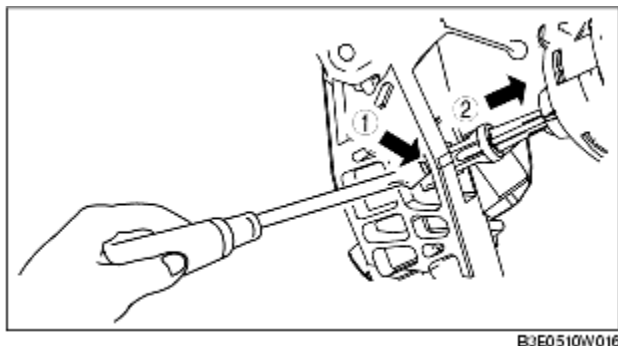


Clutch Master Cylinder Removal Note

1. Rotate the clutch master cylinder in the direction shown and remove.

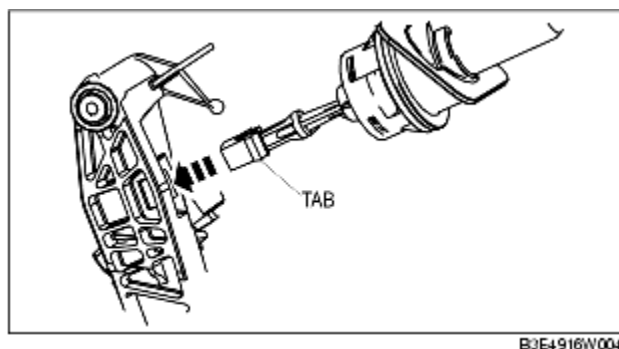


2. Press on the tabs of the push rod using a flathead screwdriver and remove the rod.

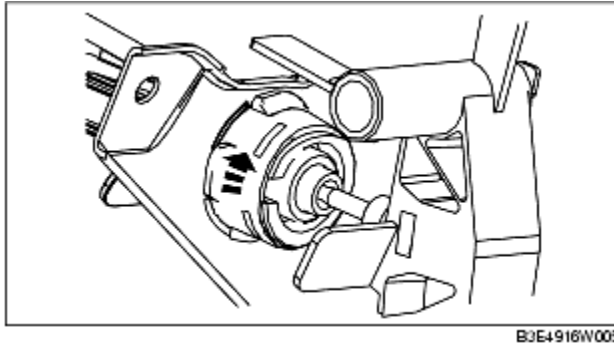


Clutch Master Cylinder Installation Note

1. Push the push rod in until the tabs lock.



2. Rotate the clutch master cylinder in the direction shown until it stops.

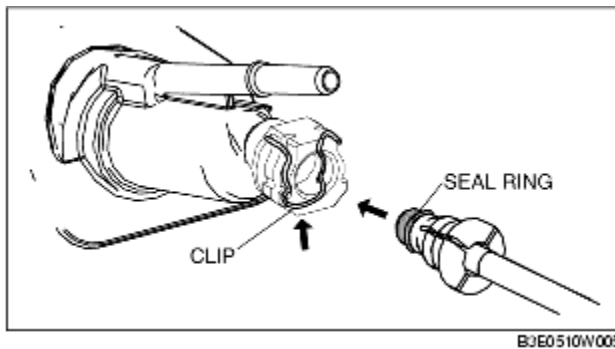


Clutch Pipe and Clutch Reserve Hose Installation Note

1. Return the clutch master cylinder clip to the position shown in the figure.

Caution

- Verify that there is no chipping or damage to the seal ring of the clutch pipe connector.

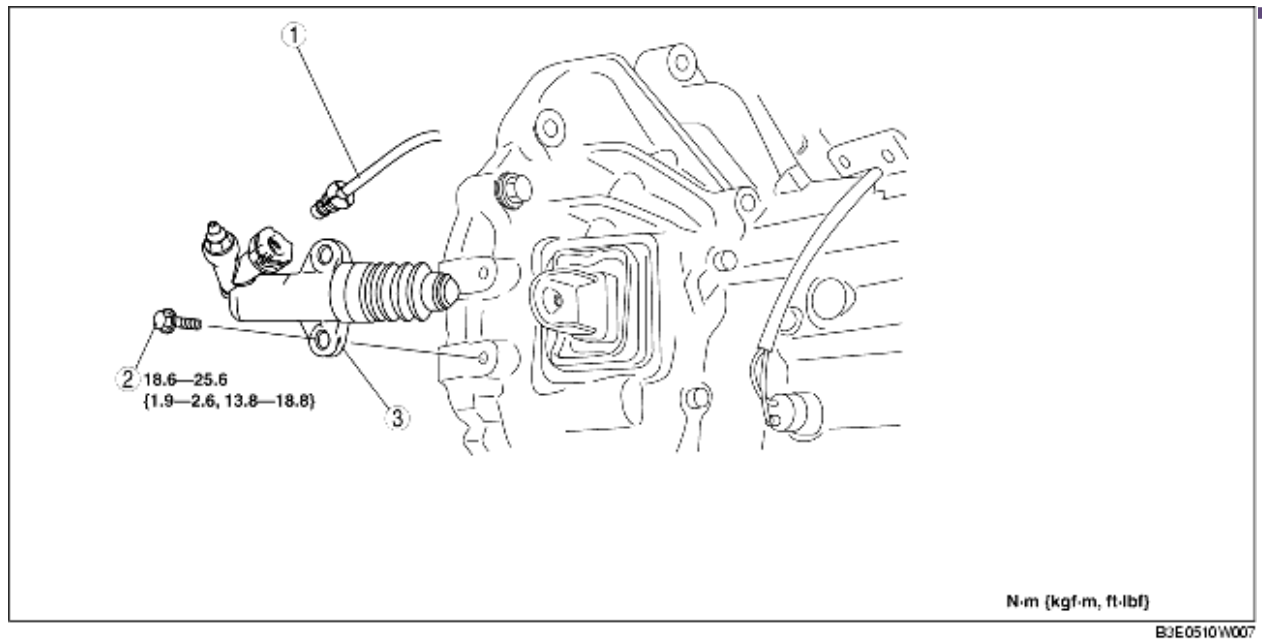


2. Insert the clutch pipe connector straight.
3. Pull the clutch pipe to verify that it does not come off, and reinsert it completely.
4. Insert the reserve hose connector straight until a click is heard.
5. Pull the reserve hose to verify that it does not come off, and reinsert it completely.

CLUTCH RELEASE CYLINDER REMOVAL/INSTALLATION

B3E051041920W01

1. Remove the under cover.
2. Remove in the order indicated in the table.
3. Install in the reverse order of removal.

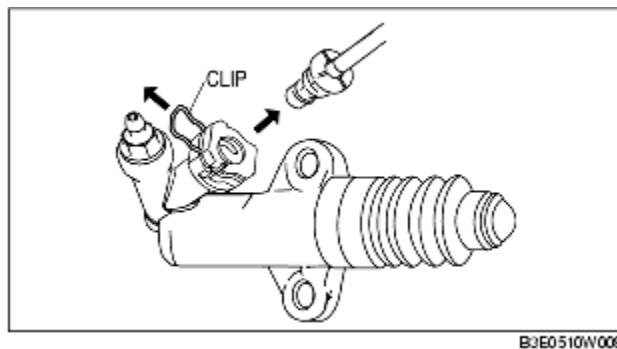


1	Clutch pipe
2	Bolt
3	Clutch release cylinder

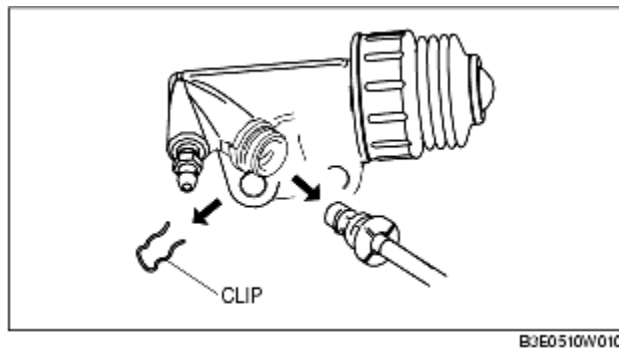
Clutch Pipe Removal Note

1. Pull the clip to the position shown in the figure and pull out the clutch pipe connector straight to detach it.

F35M-R



G35M-R



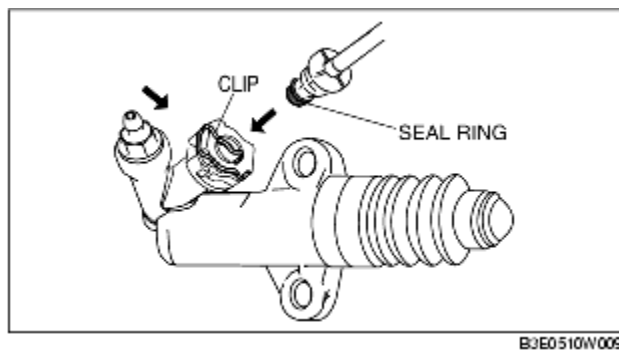
Clutch Pipe Installation Note

1. Return the clip to the position shown in the figure.

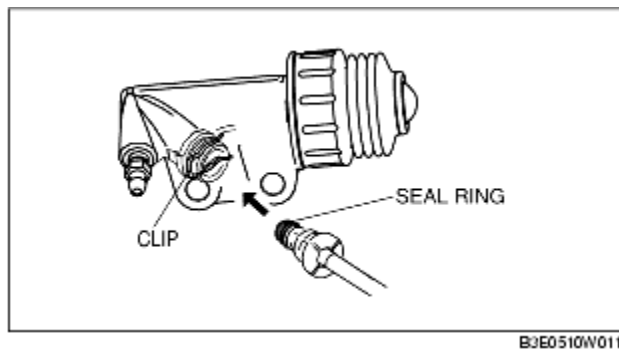
Caution

- Verify that there is no chipping or damage to the seal ring of the clutch pipe connector.

F35M-R



G35M-R

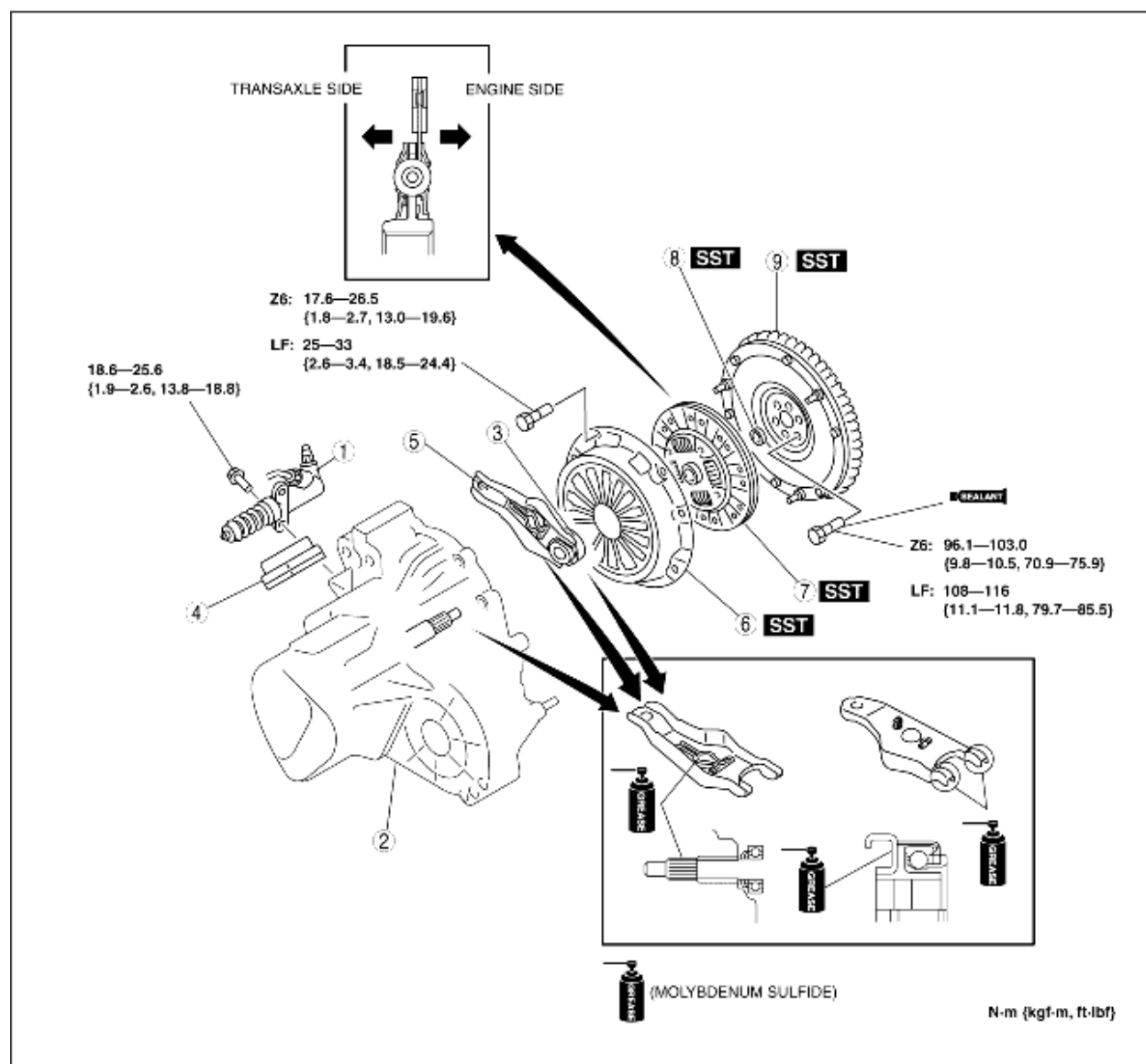


2. Insert the clutch pipe connector straight.
3. Pull the clutch pipe to verify that it does not come off, and reinsert it completely.

CLUTCH UNIT REMOVAL/INSTALLATION

B3E051016000W01

1. Remove in the order indicated in the table.
2. Install in the reverse order of removal.



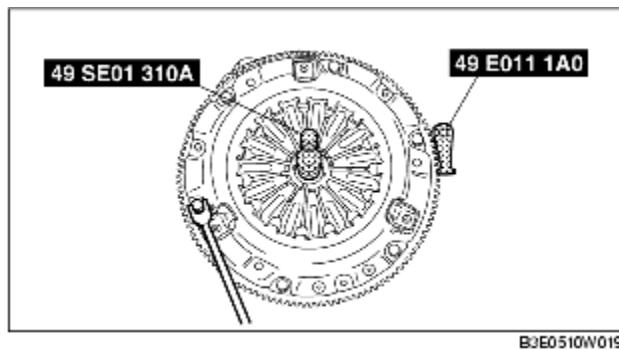
B3E0510/W014

1	Clutch release cylinder (See CLUTCH RELEASE CYLINDER REMOVAL/INSTALLATION.)
2	Manual transaxle (See MANUAL TRANSAXLE REMOVAL/INSTALLATION [F35M-R].) (See MANUAL TRANSAXLE REMOVAL/INSTALLATION [G35M-R].)
3	Clutch release collar (See CLUTCH RELEASE COLLAR INSPECTION.)
4	Boot
5	Clutch release fork

Clutch cover
6 (See Clutch Cover and Disc Removal Note.) (See Clutch Cover Installation Note.)
Clutch disc
7 (See Clutch Cover and Disc Removal Note.) (See Clutch Disc Installation Note.)
Pilot bearing
8 (See Pilot Bearing Removal Note.) (See Pilot Bearing Installation Note.)
Flywheel
9 (See Flywheel Removal Note.) (See Flywheel Installation Note.)

Clutch Cover and Disc Removal Note

1. Install the **SSTs**.
2. Loosen each bolt one turn at a time in a crisscross pattern until spring tension is released.
3. Remove the clutch cover and disc.

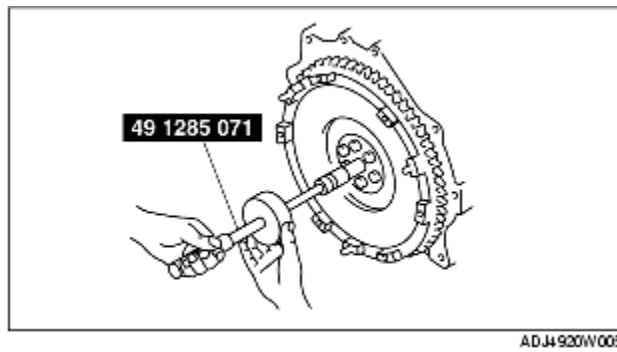


Pilot Bearing Removal Note

Note

- The pilot bearing does not need to be removed unless you are replacing it.

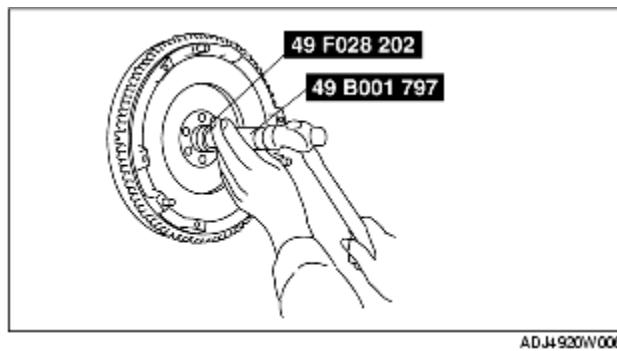
1. Use the **SST** to remove the pilot bearing.



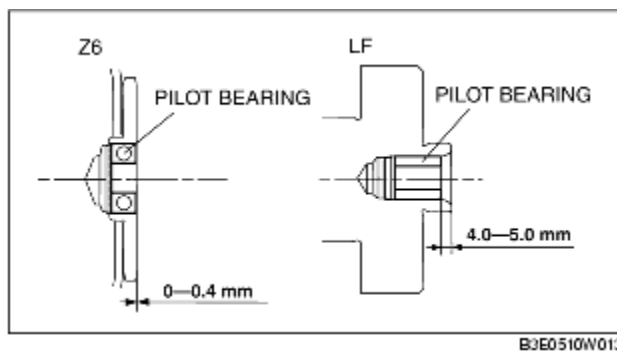
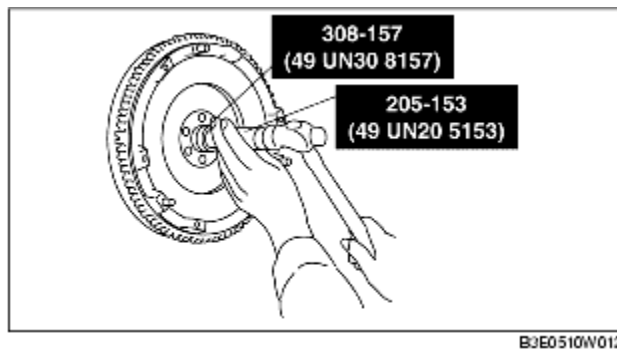
Pilot Bearing Installation Note

1. Use the **SSTs** to install the pilot bearing.

Z6

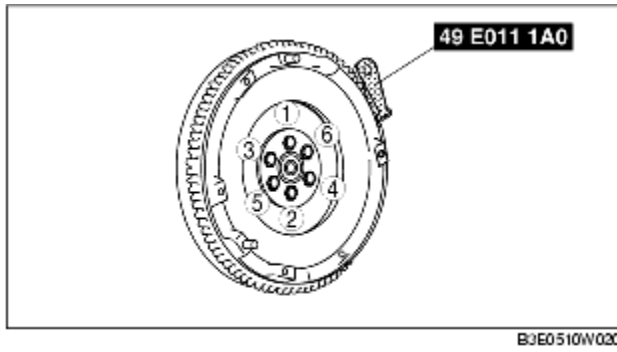


LF



Flywheel Removal Note

1. Hold the flywheel using the **SST**.
2. Remove the bolts evenly and gradually in a crisscross pattern.
3. Remove the flywheel.



4. Inspect for oil leakage from the crankshaft rear oil seal.

- If there is any malfunction, replace the crankshaft rear oil seal.

(See [REAR OIL SEAL REPLACEMENT \[Z6\]](#).)

(See [REAR OIL SEAL REPLACEMENT \[LF\]](#).)

Flywheel Installation Note

1. Install the flywheel to the crankshaft.

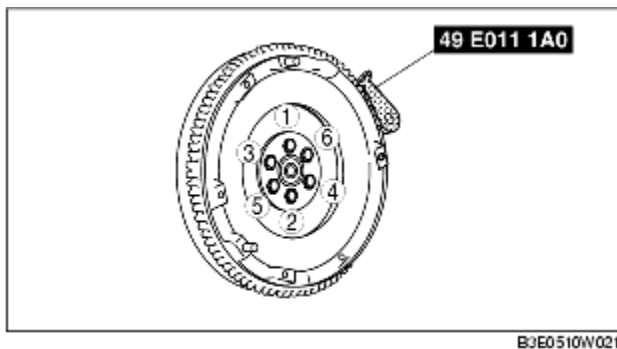
2. When reusing the bolts, clean threads and hole, then apply locking compound to the threads.

Note

- No locking compound is needed when using new bolts.

3. Hand-tighten the flywheel lock bolts.

4. Install the **SST** to the flywheel.



5. Gradually tighten the flywheel lock bolts in a crisscross pattern.

Tightening torque

Z6: 96.1-103.0 N·m

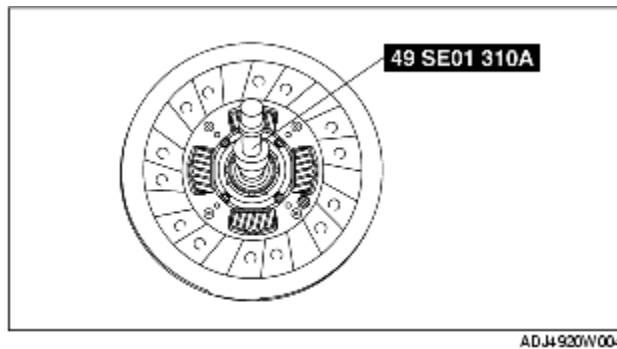
{9.8-10.5 kgf·m, 70.9-75.9 ft·lbf}

LF: 108-116 N·m

{11.1-11.8 kgf·m, 79.7-85.5 ft·lbf}

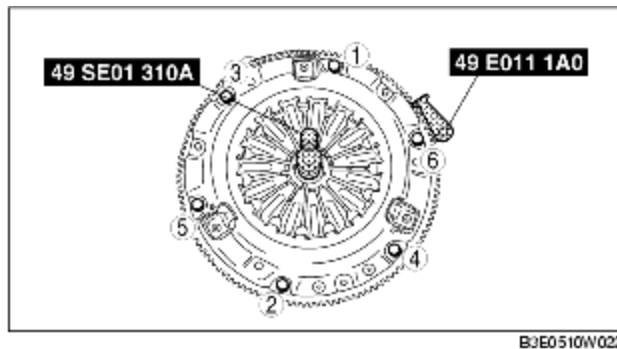
Clutch Disc Installation Note

1. Hold the clutch disc position using the **SST**.



Clutch Cover Installation Note

1. Install the **SSTs**.
2. Tighten the bolts evenly and gradually in a crisscross pattern.



Tightening torque

Z6: 17.6-26.5 N·m

{1.8-2.7 kgf·m, 13.0-19.6 ft·lbf}

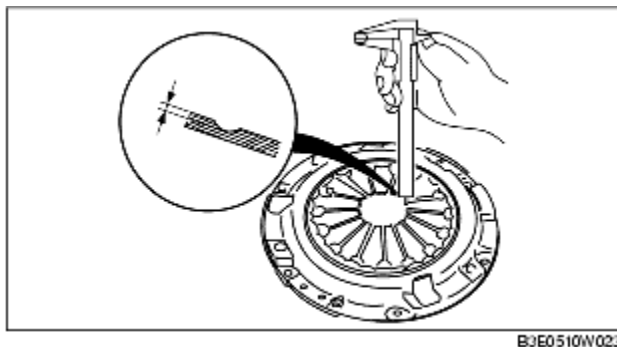
LF: 25.0-33.0 N·m

{2.6-3.4 kgf·m, 18.5-24.4 ft·lbf}

CLUTCH COVER INSPECTION

B3E051016410W01

1. Measure the wear of the diaphragm spring fingers.



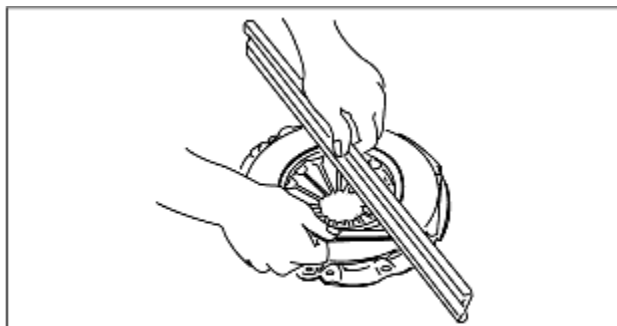
B3E0510W023

- If it exceeds the maximum specification, replace the clutch cover.

Maximum depth

0.6 mm {0.024 in}

2. Measure the flatness of the pressure plate with a straight edge and a feeler gauge.



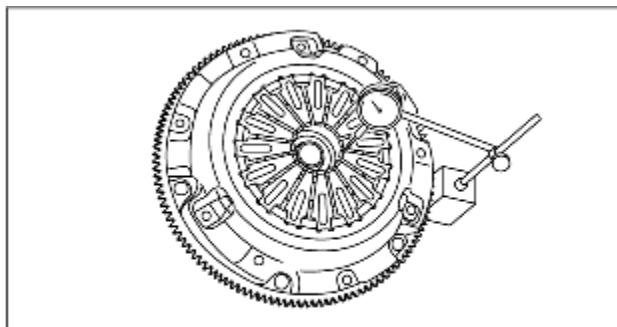
B3E0510W024

- If it exceeds the maximum specification, replace the clutch cover.

Maximum clearance

0.5 mm {0.020 in}

3. When checking the diaphragm spring fingers, mount a dial indicator on the cylinder block.
4. Rotate the flywheel and check for misaligned diaphragm spring fingers.



BHJ0510W026

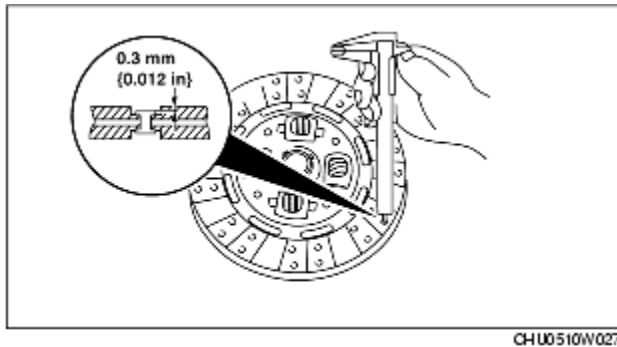
- If it exceeds the maximum specification, replace the clutch cover.

Maximum height difference

1.0 mm {0.039 in}

CLUTCH DISC INSPECTION

1. Remove the clutch disc.
2. Inspect the lining surface for discoloration and grease adhesion.
3. Inspect the torsion spring for weakness and the rivet for looseness.
4. Using a vernier caliper, measure the depth between the lining surface and the rivet head.



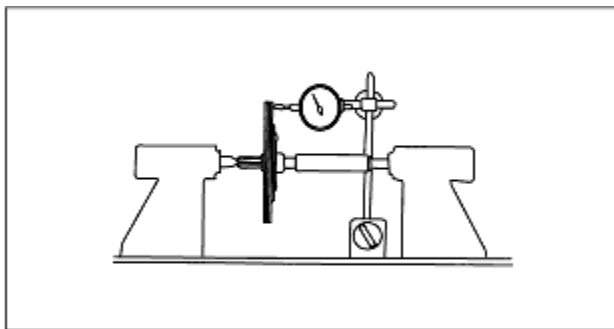
CHU0510W027

Minimum depth

0.3 mm {0.012 in}

- If it is less than the minimum specification, replace the clutch disc.

5. Measure the clutch disc runout using a dial gauge.



B3E0510W025

Maximum runout

0.7 mm {0.028 in}

- If it exceeds the maximum specification, replace the clutch disc.

6. Install the clutch disc.

CLUTCH RELEASE COLLAR INSPECTION

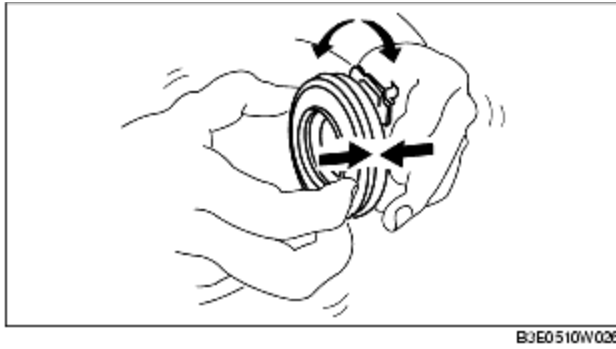
B3E051016510W01

Caution

- Do not clean the clutch release collar with cleaning fluids or a steam cleaner because it is filled with grease.

1. Remove the clutch release collar.

2. Turn the collar while applying force in the axial direction, and inspect for sticking, excessive resistance, and an abnormal noise.



B3E0510W036

- If there is any malfunction, replace the clutch release collar.

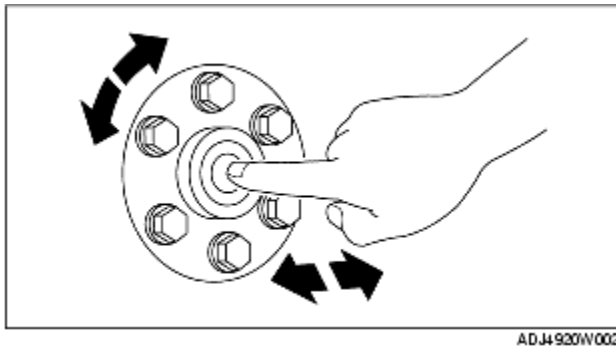
3. Install the clutch release collar.

PILOT BEARING INSPECTION

B3E051011501W01

1. Without removing the pilot bearing, turn the bearing while applying force in the axial direction.

- If there is any malfunction, replace the pilot bearing.



ADJ4920W002

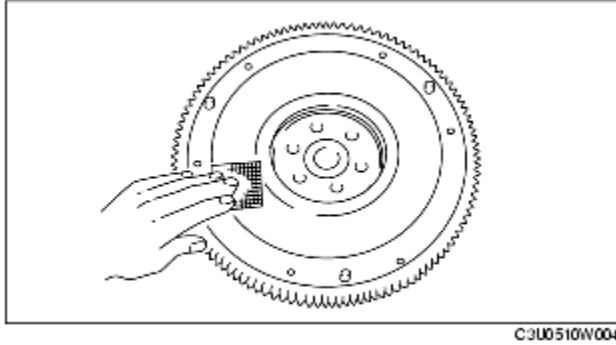
FLYWHEEL INSPECTION

B3E051011500W02

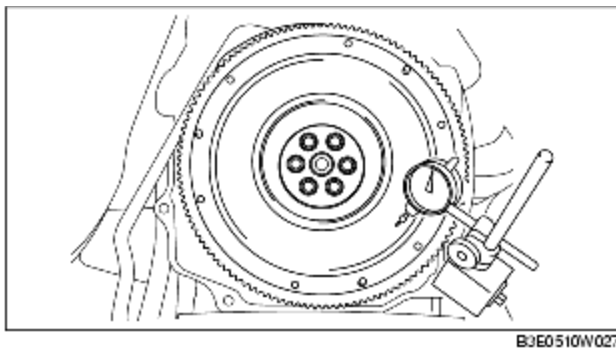
1. Remove the flywheel.

Note

- Correct slight scratches and discoloration using sandpaper.



- Inspect the runout of the surface that contacts the clutch disc with the flywheel installed to the crankshaft.
2. Inspect the surface that contacts the clutch disc for scratches, nicks, and discoloration.
 3. Inspect the ring gear teeth for damage and wear.
 4. Install the flywheel.
 5. Measure the runout of the surface that contacts the clutch disc using a dial gauge.



Maximum runout

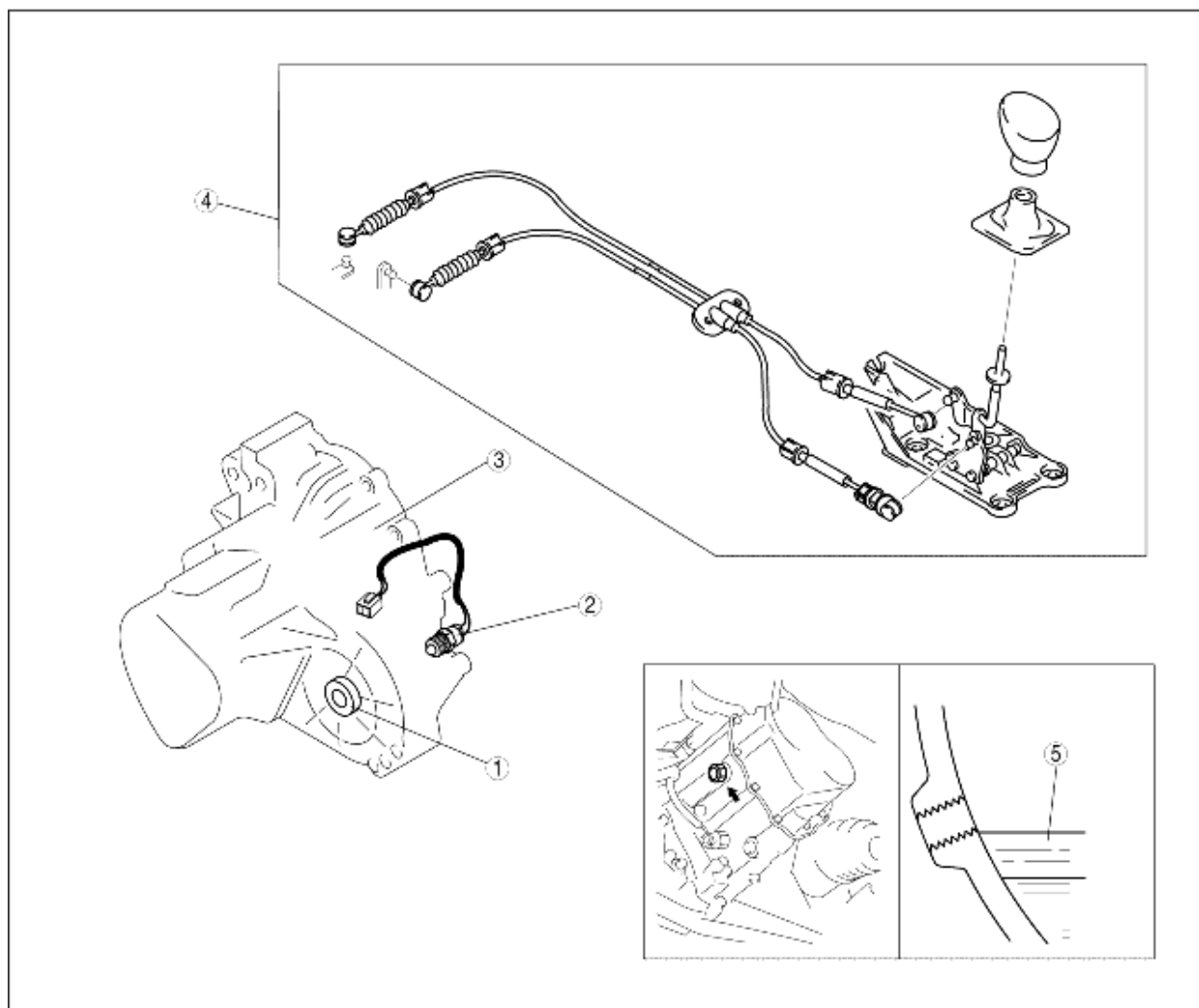
0.1 mm {0.004 in}

- If it exceeds the maximum specification, replace the flywheel.

MANUAL TRANSAXLE[F35M-R]

MANUAL TRANSAXLE LOCATION INDEX [F35M-R]

B3E051501029W01



B3E0515W001

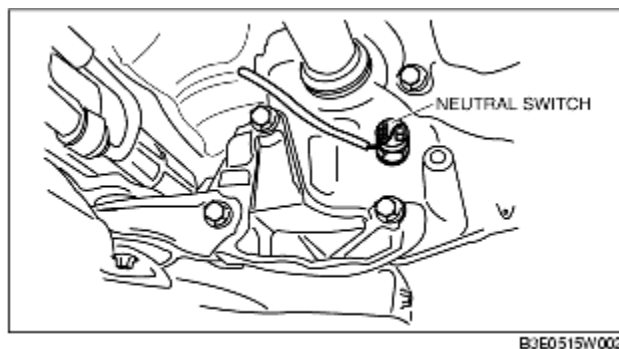
1	Oil seal (differential) (See OIL SEAL (DIFFERENTIAL) REPLACEMENT [F35M-R].)
2	Neutral switch (See NEUTRAL SWITCH REMOVAL/INSTALLATION [F35M-R].) (See NEUTRAL SWITCH INSPECTION [Z6].)
3	Manual transaxle (See MANUAL TRANSAXLE REMOVAL/INSTALLATION [F35M-R].)
4	Shift mechanism (See SHIFT MECHANISM REMOVAL/INSTALLATION.)
5	Transaxle oil (See TRANSAXLE OIL INSPECTION [F35M-R].) (See TRANSAXLE OIL REPLACEMENT [F35M-R].)

NEUTRAL SWITCH REMOVAL/INSTALLATION [F35M-R]

178

B3E051501029W02

1. Remove the under cover.
2. Remove the neutral switch.



3. Install the neutral switch (with a new packing) to the transmission case.

Tightening torque

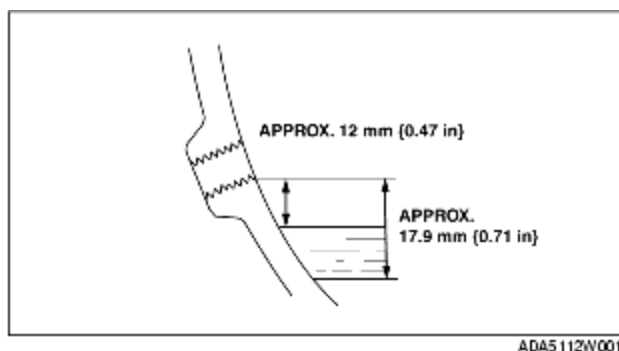
19.6-29.4 N·m

{2.0-2.9 kgf·m, 14.5-21.6 ft·lbf}

TRANSAXLE OIL INSPECTION [F35M-R]

B3E051527001W01

1. Park the vehicle on level ground.
2. Remove the oil level plug and washer.
3. Verify that the oil level is as shown in the figure.



- If the oil level is lower than the low level, add the specified amount and type of oil through the oil level plug hole.

Oil grade

API Service GL-4 or GL-5

Oil viscosity**All-season: SAE 75W-90****Above 10 °C {50 °F}: SAE 80W-90**

4. Install a new washer and the oil level plug.

Tightening torque**39-59 N·m {4.0-6.0 kgf·m, 29-43 ft·lbf}**

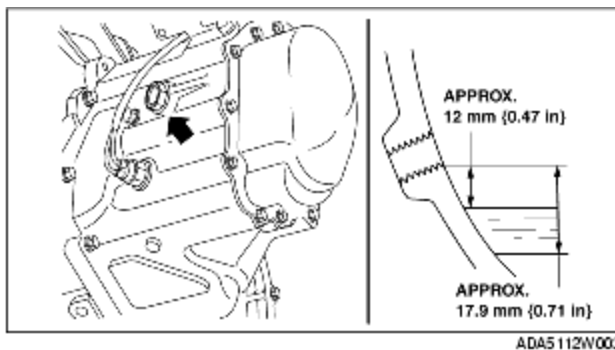
TRANSAXLE OIL REPLACEMENT [F35M-R]

B3E051527001W02

1. Park the vehicle on level ground.
2. Remove the drain plug with the washer.
3. Drain the oil into a suitable container.
4. Install a new washer and the drain plug.

Tightening torque**39-59 N·m {4.0-6.0 kgf·m, 29-43 ft·lbf}**

5. Remove the oil level plug with washer and add the specified amount and type of oil through the oil level plug hole until the level reaches as shown in the figure.

**Oil grade****API Service GL-4 or GL-5****Oil viscosity****All-season: SAE 75W-90****Above 10 °C {50 °F}: SAE 80W-90****Capacity (approx. quantity)****3.04 L {3.21 US qt, 2.67 Imp qt}**

6. Install a new washer and the oil level plug.

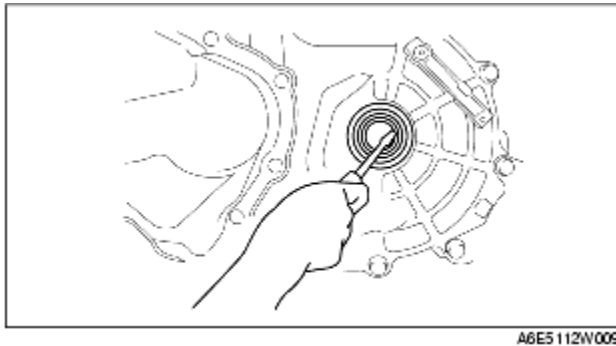
Tightening torque

39-59 N·m {4.0-6.0 kgf·m, 29-43 ft·lbf}

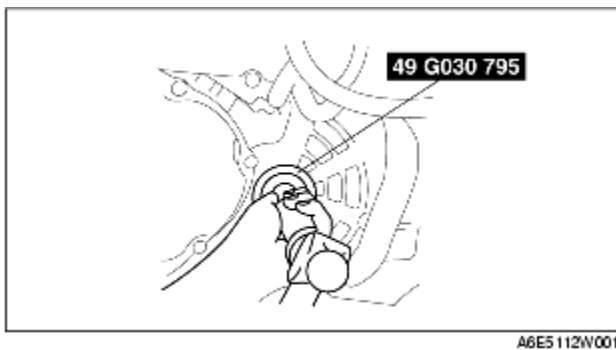
OIL SEAL (DIFFERENTIAL) REPLACEMENT [F35M-R]

B3E051527165W01

1. On level ground, jack up the vehicle and support it evenly on safety stands.
2. Drain the oil from the transaxle.
3. Remove the front wheels and splash shields.
4. Separate the drive shaft and joint shaft from the transaxle. (See [DRIVE SHAFT REMOVAL/INSTALLATION](#).) (See [JOINT SHAFT REMOVAL/INSTALLATION](#).)
5. Remove the oil seals using a screwdriver.



6. Using the **SST** and a hammer, tap each new oil seal in evenly until the **SST** contacts the transaxle case.



7. Coat the lip of each oil seal with transaxle oil.
8. Insert the drive shaft and joint shaft to the transaxle. (See [DRIVE SHAFT REMOVAL/INSTALLATION](#).) (See [JOINT SHAFT REMOVAL/INSTALLATION](#).)
9. Install the wheels and splash shields.
10. Add the specified amount and type of oil. (See [TRANSAXLE OIL REPLACEMENT \[F35M-R\]](#).)

MANUAL TRANSAXLE REMOVAL/INSTALLATION

[F35M-R]

B3E051501029W03

1. Remove the following parts:

(1) Battery and battery tray

(See [BATTERY REMOVAL/INSTALLATION \[Z6\]](#).)

(2) Air cleaner component

(See [INTAKE-AIR SYSTEM REMOVAL/INSTALLATION \[Z6\]](#).)

(3) EGR pipe

(See [EXHAUST SYSTEM REMOVAL/INSTALLATION \[Z6\]](#)

(4) Wheels, tires and splash shields

(5) Under cover

(6) Starter

(See [STARTER REMOVAL/INSTALLATION \[Z6\]](#).)

2. Drain the transaxle oil into a suitable container.

3. Remove in the order indicated in the table.

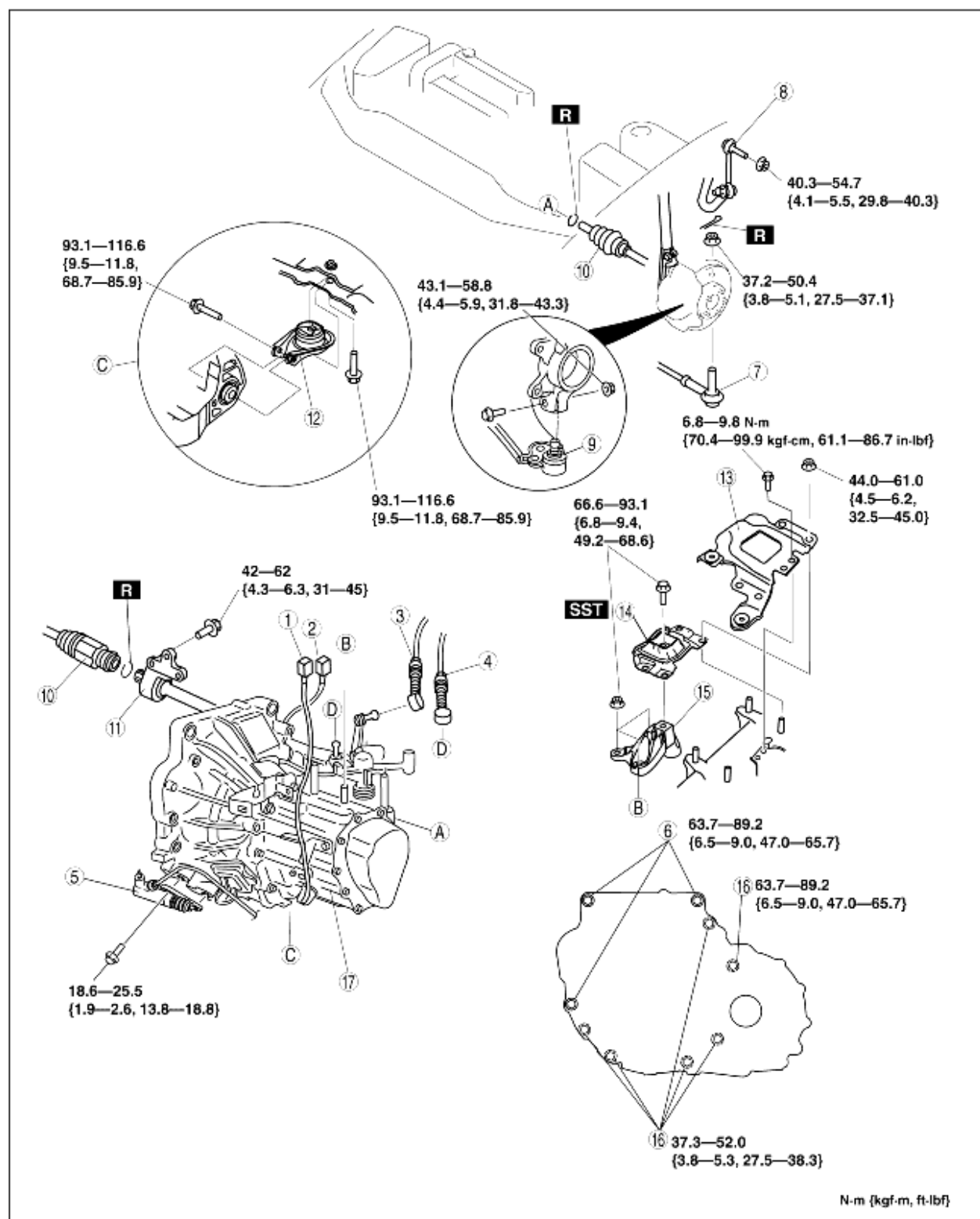
4. Install in the reverse order of removal.

5. Add the specified amount of specified transaxle oil.

Note

- If the transaxle is overhauled and installed to the vehicle, perform the 'INSPECTION AFTER TRANSAXLE OVERHAUL' and verify that there is no abnormality.

(See [INSPECTION AFTER TRANSAXLE OVERHAUL \[F35M-R\]](#).)



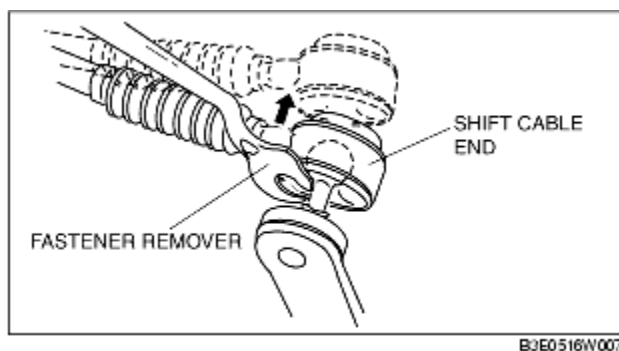
B3E0515W004

1	Back-up light switch connector
2	Neutral switch connector
3	Select cable (See Shift Cable and Select Cable Removal Note .)

4	Shift cable (See Shift Cable and Select Cable Removal Note.)
5	Clutch release cylinder
6	Transaxle mounting bolt (upper side)
7	Tie-rod end ball joint (See STEERING GEAR AND LINKAGE REMOVAL/INSTALLATION.)
8	Stabilizer control link
9	Lower arm ball joint
10	Drive shaft (See DRIVE SHAFT REMOVAL/INSTALLATION.)
11	Joint shaft (See JOINT SHAFT REMOVAL/INSTALLATION.)
12	No.1 engine mount rubber (See No.1 Engine Mount and No.4 Engine Mount Bracket Installation Note.)
13	Battery tray bracket
14	No.4 engine mount rubber (See No.1 Engine Mount and No.4 Engine Mount Bracket Installation Note.)
15	No.4 engine mount bracket (See No.1 Engine Mount and No.4 Engine Mount Bracket Installation Note.)
16	Transaxle mounting bolt (lower side)
17	Manual transaxle (See Manual Transaxle Removal Note.) (See Manual Transaxle Installation Note.)

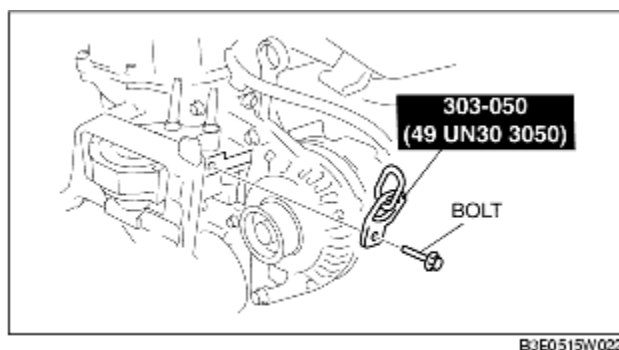
Shift Cable and Select Cable Removal Note

1. Remove the both shift cable end and select cable end using a fastener remover.



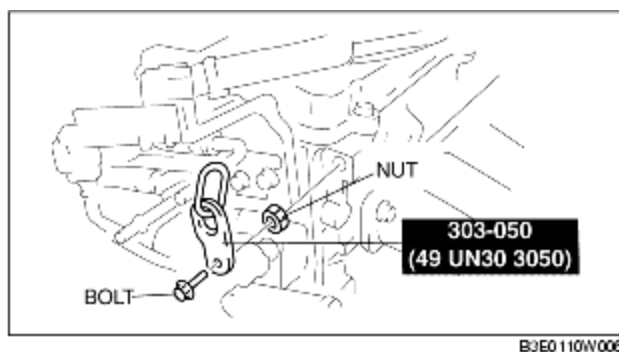
No.4 Engine Mount Removal Note

1. Remove the P/S reserve tank and coolant reserve tank with the hose still connected.
2. Using the bolts **part number 99794 1025** or **M10×1.25, length 25 mm {0.98 in}** to install the **SST** to the position shown in the figure.



Caution

- When attaching the SST in the engine rear side, install a suitable nut between the engine and the SST.

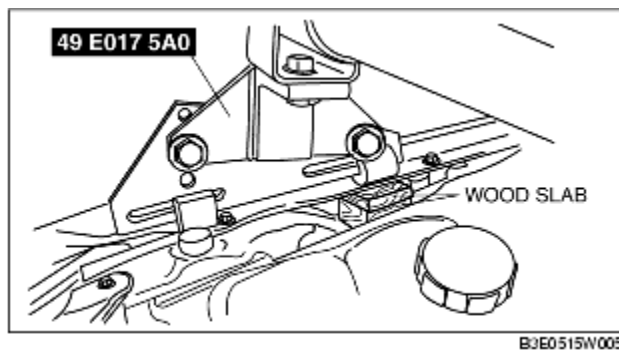


Tightening torque

38-51 N·m

{3.9-5.2 kgf·m, 29-37 ft·lbf}

3. Insert a wood slab of appropriate size between the front fender panel and upper apron reinforcement.



Note

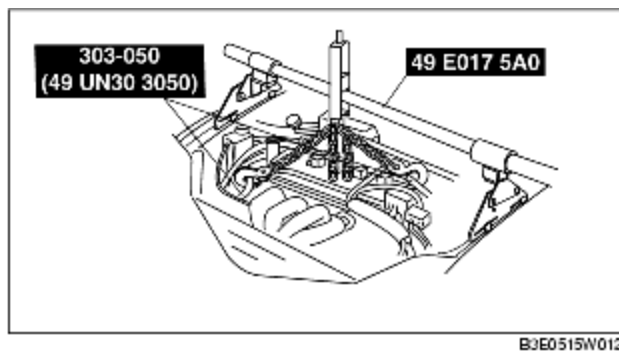
- Wood slab height

4SD : approx. 35 mm {1.4 in}

5HB : approx. 60 mm {2.4 in}

- Cut the wood slab into two pieces and insert.

4. Support the engine using the **SST**.



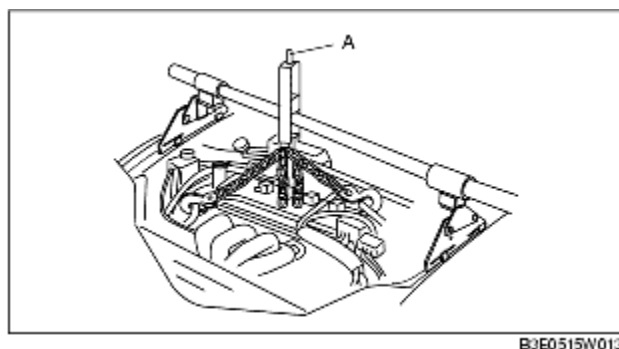
Note

- A hoist or small crane can be used in place of the **SST** (49E 017 5A0).

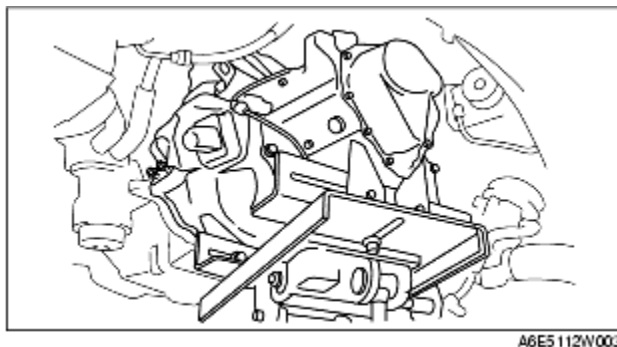
5. Remove the battery tray bracket, No.4 engine mount rubber and bracket.

Manual Transaxle Removal Note

1. Loosen the part marked A and lean the engine toward the transaxle.



2. Support the transaxle on a jack.



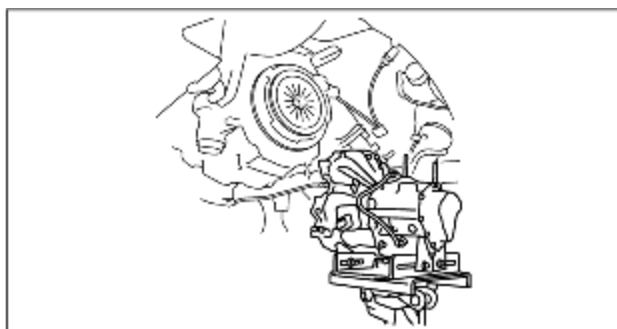
A6E5112W003

3. Remove the transaxle mounting bolts.

4. Remove the transaxle.

Manual Transaxle Installation Note

1. Set the transaxle on a jack and lift into place.



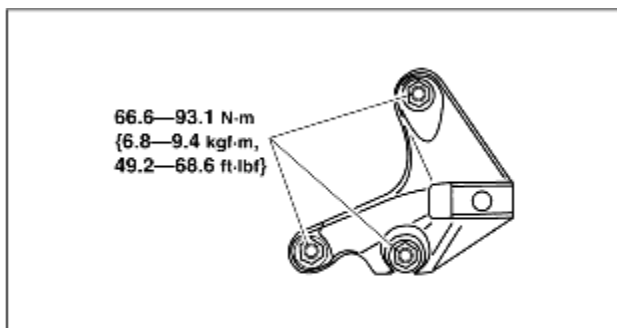
A6E5112W004

2. Install the transaxle mounting bolts.

3. Tighten the **SST** (49 E017 5A0) so that the engine is located at the specified position.

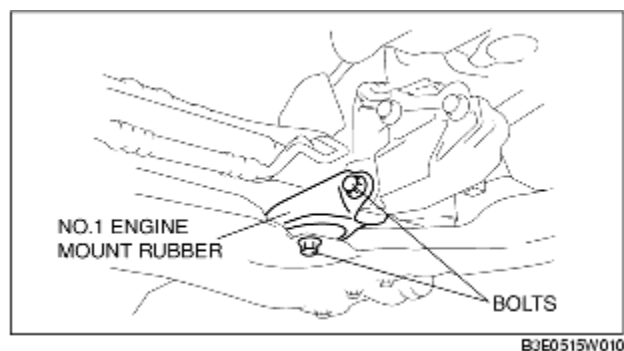
No.1 Engine Mount and No.4 Engine Mount Bracket Installation Note

1. Install the No.4 engine mount bracket on the transaxle case and tighten nuts.

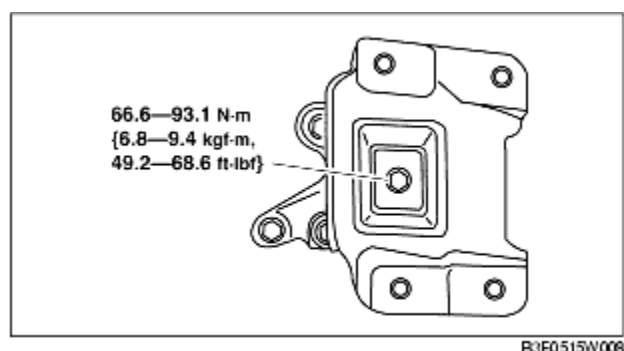


B3E0515W011

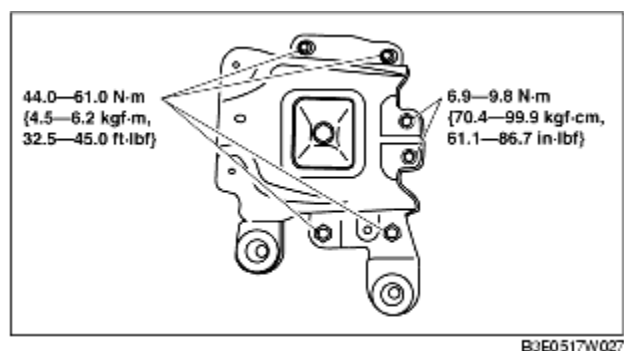
2. Install the No.1 engine mount rubber to the cross member and temporarily tighten bolts.



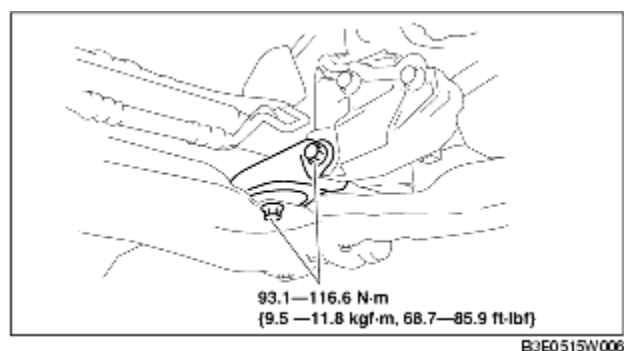
3. Place the No.4 engine mount rubber with the body stud bolts passing through the holes and tighten the bolt in the figure.



4. Place the battery tray bracket on the No.4 Engine mount rubber with the body stud bolts passing through the holes and tighten nuts in the figure.



5. Fully tighten the bolts.



6. Remove the SSTs.

INSPECTION AFTER TRANSAXLE OVERHAUL [F35M-R]

B3E051501029W04

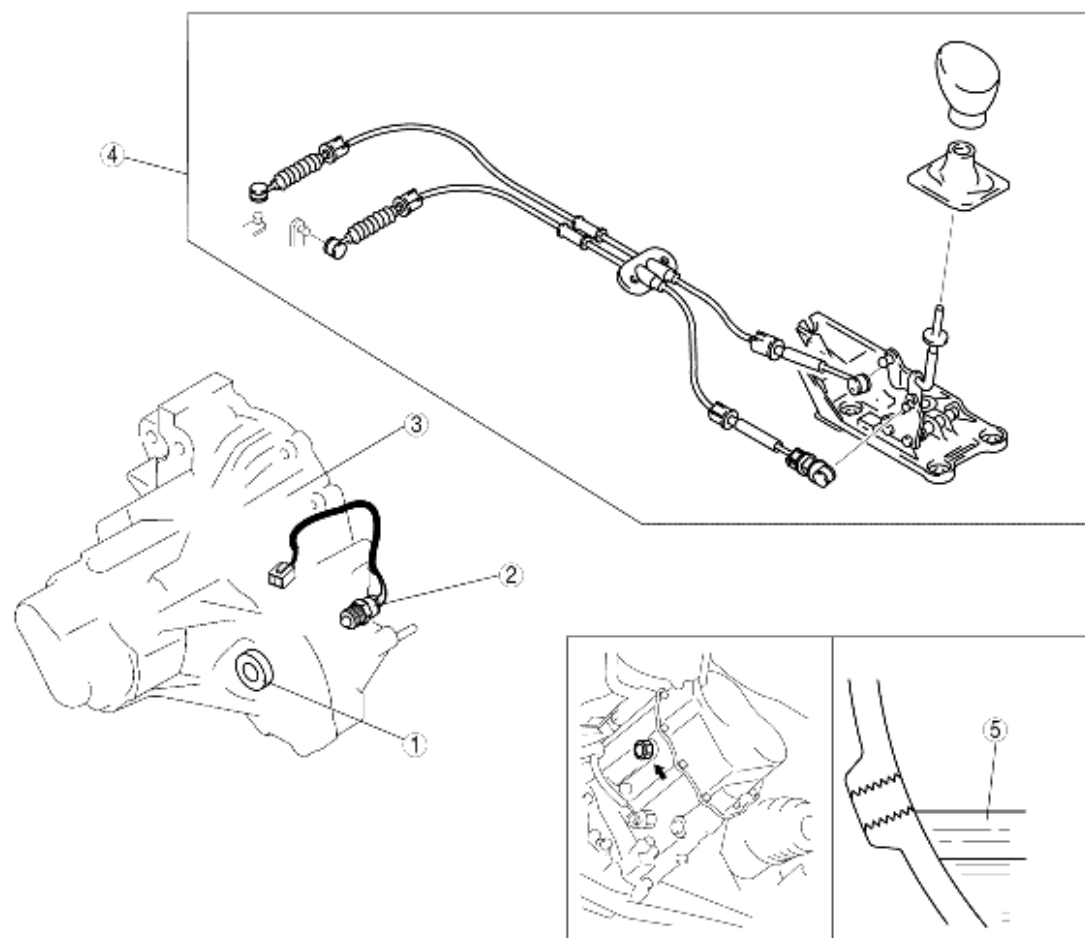
1. After warming up the engine, drive the vehicle and inspect the following items:

- (1) No abnormal noise in each shift position.
- (2) Smooth shift operation when shifting gears.
- (3) No gear slipout after shifting gears.
- (4) Back-up light switch operates correctly.

MANUAL TRANSAXLE[G35M-R]

MANUAL TRANSAXLE LOCATION INDEX [G35M-R]

B3E051501029W05



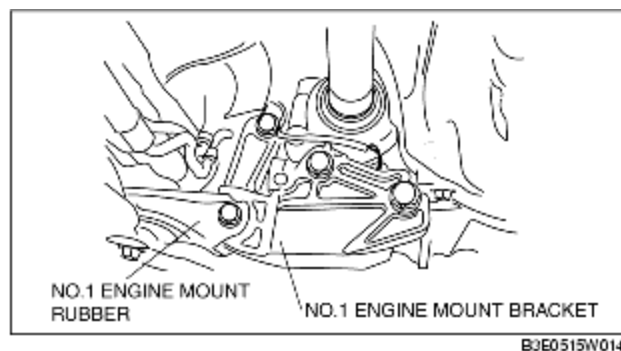
B3E5100W001

1	Oil seal (differential) (See OIL SEAL (DIFFERENTIAL) REPLACEMENT [G35M-R].)
2	Neutral switch (See NEUTRAL SWITCH REMOVAL/INSTALLATION [G35M-R].) (See NEUTRAL SWITCH INSPECTION [LF].)
3	Manual transaxle (See MANUAL TRANSAXLE REMOVAL/INSTALLATION [G35M-R].)
4	Shift mechanism (See SHIFT MECHANISM REMOVAL/INSTALLATION.)
5	Transaxle oil (See TRANSAXLE OIL INSPECTION [G35M-R].) (See TRANSAXLE OIL REPLACEMENT [G35M-R].)

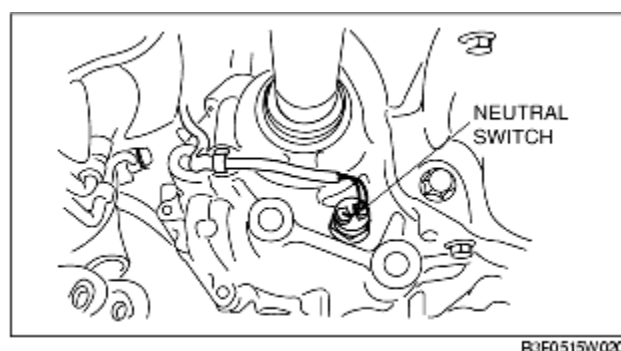
NEUTRAL SWITCH REMOVAL/INSTALLATION [G35M-R]

B3E051501029W06

1. Remove the under cover.
2. Remove the No.1 engine mount rubber and No.1 engine mount bracket.



3. Remove the neutral switch.



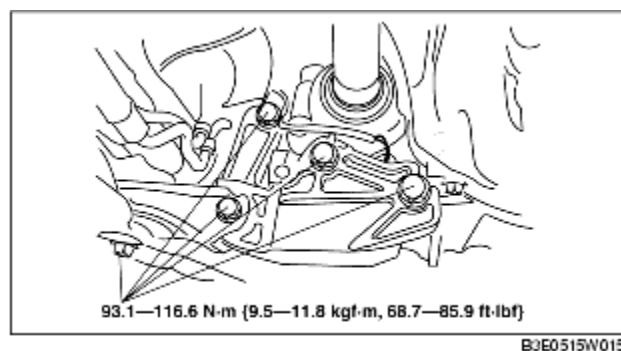
4. Install the neutral switch (with a new packing) to the transmission case.

Tightening torque

19.6-29.4 N·m

{2.0-2.9 kgf·m, 14.5-21.6 ft·lbf}

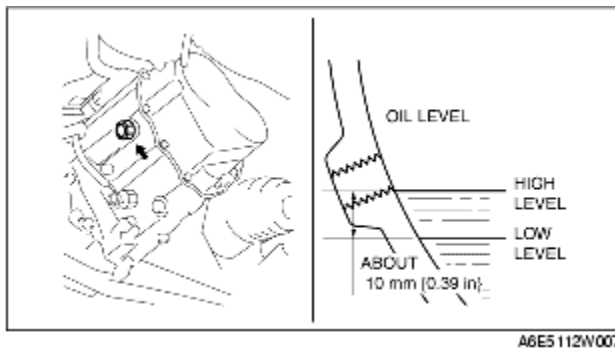
5. Install the No.1 engine mount bracket and No.1 engine mount rubber.



TRANSAXLE OIL INSPECTION [G35M-R]

B3E051527001W03

1. Park the vehicle on level ground.
2. Remove the oil level plug and washer.
3. Verify that the oil is near the brim of the plug port.



- If the oil level is lower than the low level, add the specified amount and type of oil through the oil level plug hole.

Specified oil grade

API Service GL-4 or GL-5

Specified oil viscosity

All-season: SAE 75W-90

Above 10 °C {50 °F}: SAE 80W-90

4. Install a new washer and the oil level plug.

Tightening torque

40-58 N·m {4.0-6.0 kgf·m, 29-43 ft·lbf}

TRANSAXLE OIL REPLACEMENT [G35M-R]

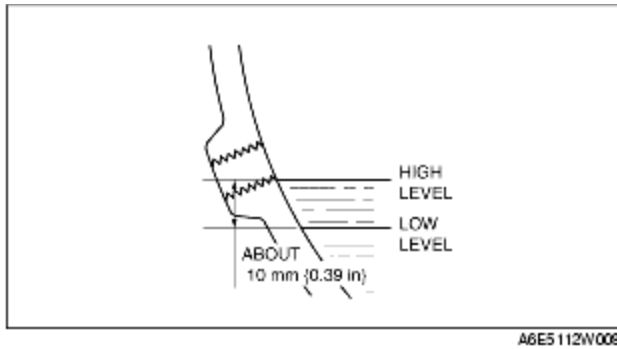
B3E051527001W04

1. Remove the drain plug with the washer.
2. Drain the oil into a suitable container.
3. Install a new washer and the drain plug.

Tightening torque

40-58 N·m {4.0-6.0 kgf·m, 29-43 ft·lbf}

4. Remove the oil level plug with washer and add the specified amount and type of oil through the oil level plug hole until the level reaches the bottom of the oil level plug hole.



Specified oil viscosity

All-season: SAE 75W-90

Above 10 °C {50 °F}: SAE 80W-90

Capacity (approx. quantity)

2.87 L {3.03 US qt, 2.53 Imp qt}

5. Install a new washer and the oil level plug.

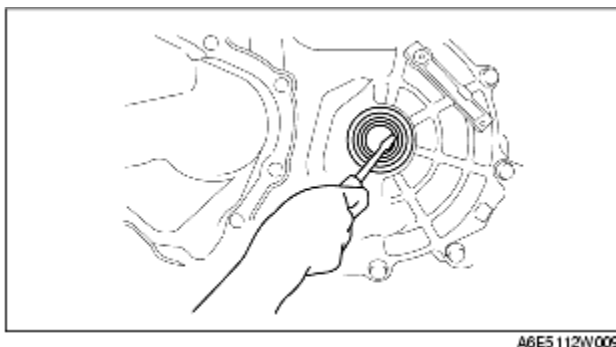
Tightening torque

40-58 N·m {4.0-6.0 kgf·m, 29-43 ft·lbf}

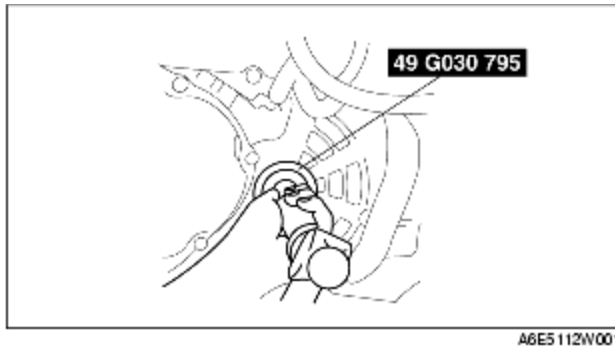
OIL SEAL (DIFFERENTIAL) REPLACEMENT [G35M-R]

B3E051527165W02

1. On level ground, jack up the vehicle and support it evenly on safety stands.
2. Drain the oil from the transaxle.
3. Remove the front wheels and splash shields.
4. Separate the drive shaft and joint shaft from the transaxle. (See [DRIVE SHAFT REMOVAL/INSTALLATION](#).) (See [JOINT SHAFT REMOVAL/INSTALLATION](#).)
5. Remove the oil seals using a screwdriver.



6. Using the **SST** and a hammer, tap each new oil seal in evenly until the **SST** contacts the transaxle case.



7. Coat the lip of each oil seal with transaxle oil.
8. Insert the drive shaft and joint shaft to the transaxle. (See [DRIVE SHAFT REMOVAL/INSTALLATION](#).) (See [JOINT SHAFT REMOVAL/INSTALLATION](#).)
9. Install the wheels and splash shields.
10. Add the specified amount and type of oil. (See [TRANSAXLE OIL REPLACEMENT \[G35M-R\]](#).)

MANUAL TRANSAXLE REMOVAL/INSTALLATION [G35M-R]

B3E051501029W07

1. Remove the following parts:

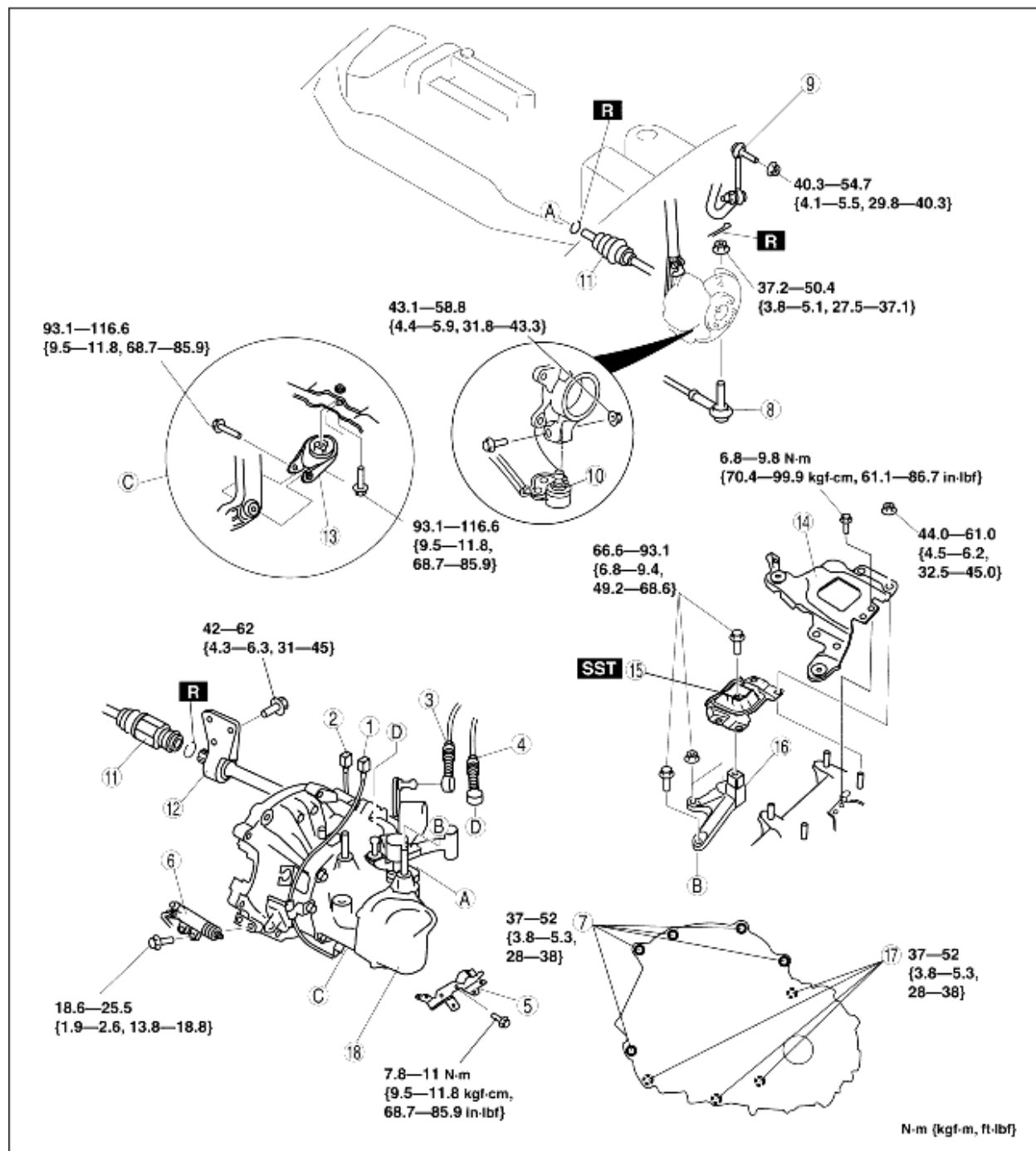
- (1) Battery and battery tray
(See [BATTERY REMOVAL/INSTALLATION \[LF\]](#).)
- (2) Air cleaner component
(See [INTAKE-AIR SYSTEM REMOVAL/INSTALLATION \[LF\]](#).)
- (3) Exhaust manifold insulator
- (4) Wheels, tires and splash shields
- (5) Under cover
- (6) Starter
(See [STARTER REMOVAL/INSTALLATION \[LF\]](#).)

2. Drain the transaxle oil into a suitable container.
3. Remove in the order indicated in the table.
4. Install in the reverse order of removal.
5. Add the specified amount of specified transaxle oil.

Note

- If the transaxle is overhauled and installed to the vehicle, perform the 'INSPECTION AFTER TRANSAXLE OVERHAUL' and verify that there is no abnormality.

(See [INSPECTION AFTER TRANSAXLE OVERHAUL \[G35M-R\]](#).)



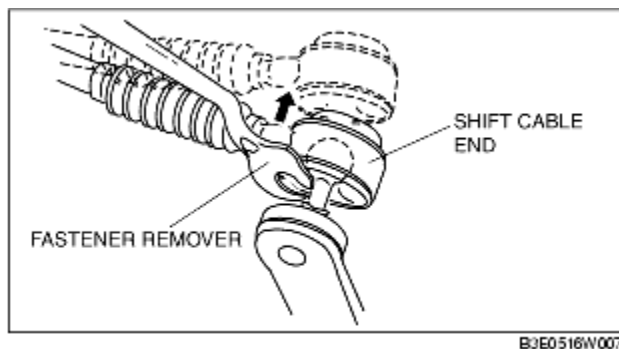
B3E0515W021

1	Back-up light switch connector
2	Neutral switch connector
3	Select cable (See Shift Cable And Select Cable Removal Note.)
4	Shift cable

	(See Shift Cable And Select Cable Removal Note.)
5	Harness bracket
6	Clutch release cylinder
7	Transaxle mounting bolt (upper side)
8	Tie-rod end ball joint (See STEERING GEAR AND LINKAGE REMOVAL/INSTALLATION.)
9	Stabilizer control link
10	Lower arm ball joint
11	Drive shaft (See DRIVE SHAFT REMOVAL/INSTALLATION.)
12	Joint shaft (See JOINT SHAFT REMOVAL/INSTALLATION.)
13	No.1 engine mount rubber (See No.1 Engine Mount and No.4 Engine Mount Installation Note.)
14	Battery tray bracket
15	No.4 engine mount rubber (See No.4 Engine Mount Removal Note.) (See No.1 Engine Mount and No.4 Engine Mount Installation Note.)
16	No.4 engine mount bracket (See No.4 Engine Mount Removal Note.) (See No.1 Engine Mount and No.4 Engine Mount Installation Note.)
17	Transaxle mounting bolt (lower side)
18	Manual transaxle (See Manual Transaxle Removal Note.) (See Manual Transaxle Installation Note.)

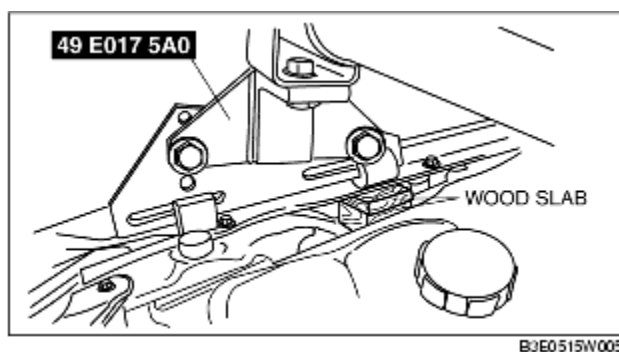
Shift Cable And Select Cable Removal Note

1. Remove the both shift cable end and select cable end using a fastener remover.



No.4 Engine Mount Removal Note

1. Insert a wood slab of appropriate size between the front fender panel and upper apron reinforcement.



Note

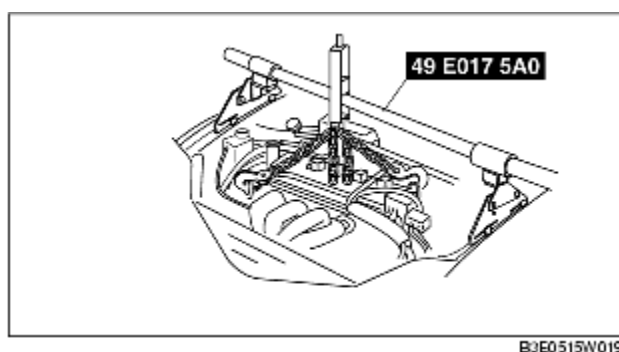
- Wood slab height

4SD : approx. 35 mm

5HB : approx. 60 mm

- Cut the wood slab into two pieces and insert.

2. Support the engine using the **SST**.



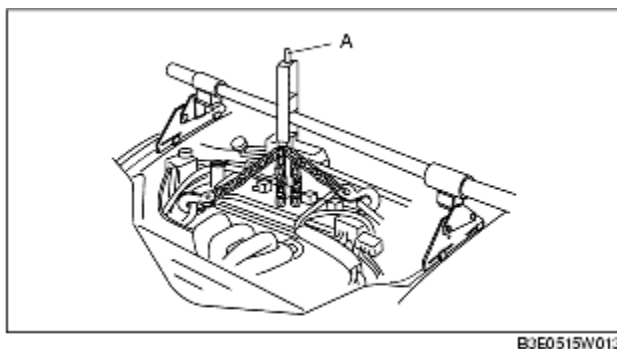
Note

- A hoist or small crane can be used in place of the **SST** (49E 017 5A0).

3. Remove the battery tray bracket, No.4 engine mount rubber and bracket.

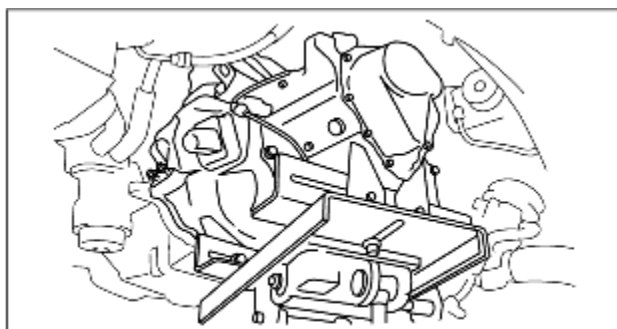
Manual Transaxle Removal Note

1. Loosen the part marked A and lean the engine toward the transaxle.



B3E0515W013

2. Support the transaxle on a jack.



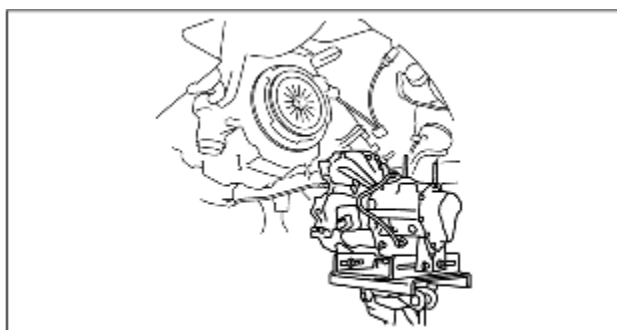
A6E5112W003

3. Remove the transaxle mounting bolts.

4. Remove the transaxle.

Manual Transaxle Installation Note

1. Set the transaxle on a jack and lift into place.



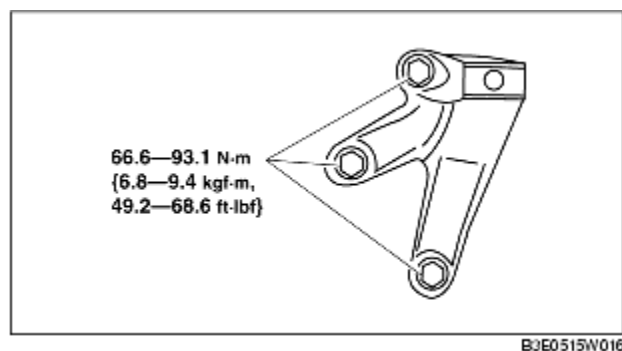
A6E5112W004

2. Install the transaxle mounting bolts.

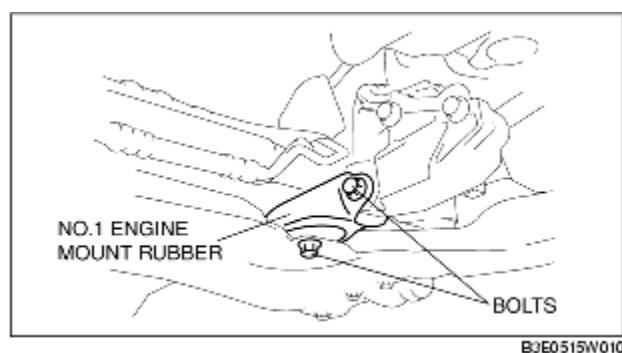
3. Tighten the **SST** (49 E017 5A0) so that the engine is located at the specified position.

No.1 Engine Mount and No.4 Engine Mount Installation Note

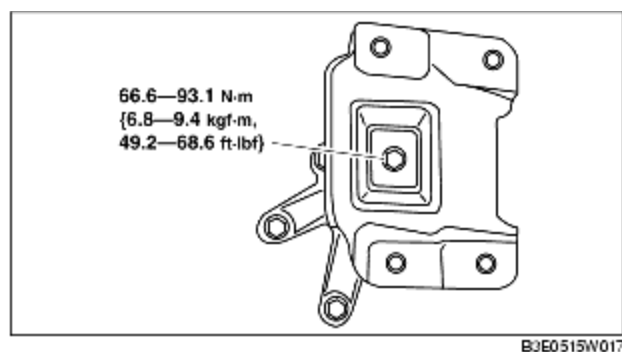
1. Install the No.4 engine mount bracket on the transaxle case and tighten bolt and nuts.



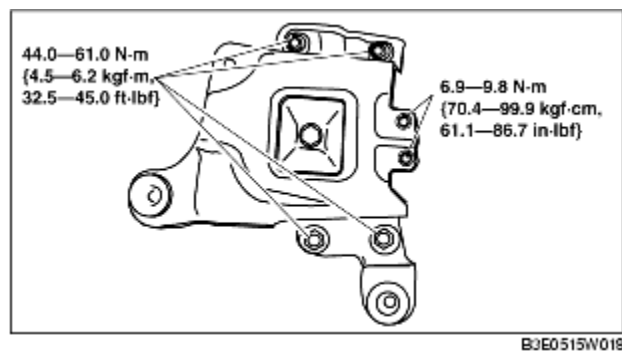
2. Install the No.1 engine mount rubber to the cross member and temporarily tighten bolts.



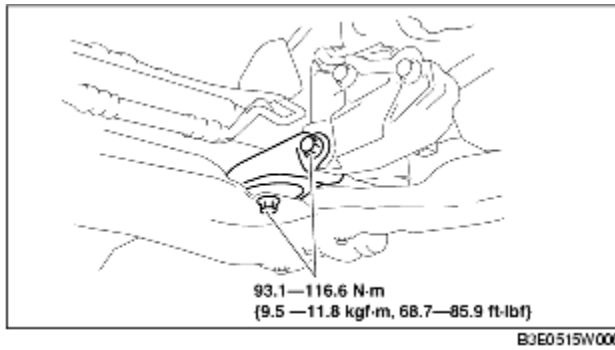
3. Place the No.4 engine mount rubber with the body stud bolts passing through the holes and tighten the bolt in the figure.



4. Place the battery tray bracket on the No.4 Engine mount rubber with the body stud bolts passing through the holes and tighten nuts in the figure.



5. Fully tighten the bolts.



6. Remove the **SST** (49 E017 5A0).

INSPECTION AFTER TRANSAXLE OVERHAUL [G35M-R]

B3E051501029W08

1. After warming up the engine, drive the vehicle and inspect the following items:

- (1) No abnormal noise in each shift position.
- (2) Smooth shift operation when shifting gears.
- (3) No gear slipout after shifting gears.
- (4) Back-up light switch operates correctly.

MANUAL TRANSAXLE SHIFT MECHANISM

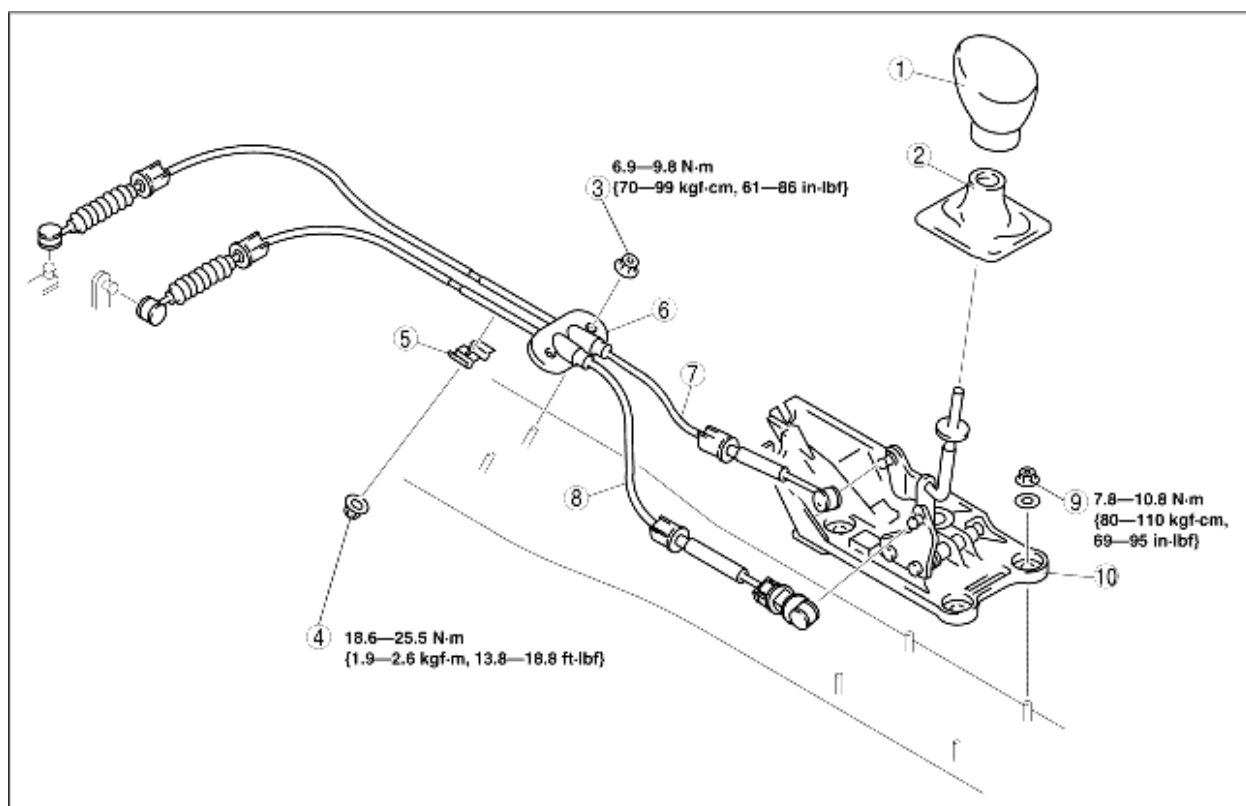
SHIFT MECHANISM REMOVAL/INSTALLATION

B3E051646010W01

1. Remove the following parts:

- (1) battery and battery tray
(See [BATTERY REMOVAL/INSTALLATION \[Z6\]](#).)
(See [BATTERY REMOVAL/INSTALLATION \[LF\]](#).)
- (2) Center console
(See [CONSOLE REMOVAL/INSTALLATION](#).)
- (3) Heat insulator (Front)

2. Remove in the order indicated in the table.
3. Install in the reverse order of removal.
4. After installation, verify that the shift lever can be shifted smoothly into each position.

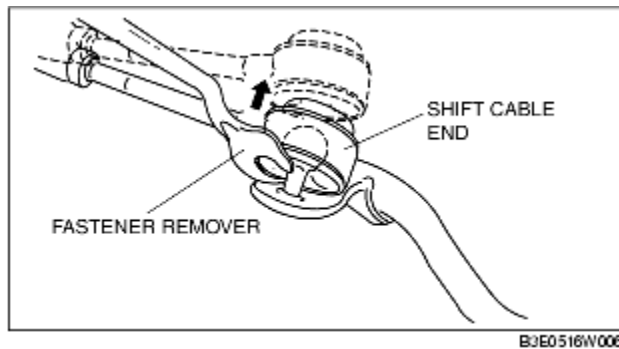


B3E0516W001

1	Shift lever knob
2	Boot panel
3	Nuts
4	Nut
5	Bracket
6	Seal plate
7	Main shift cable (See Main Shift Cable and Main Select Cable Removal Note.)
8	Main select cable (See Main Shift Cable and Main Select Cable Removal Note.) (See Select Cable Installation Note.)
9	Nuts
10	Shift lever component

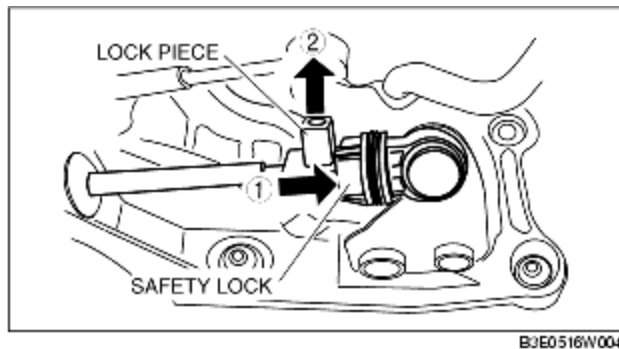
Main Shift Cable and Main Select Cable Removal Note

1. Remove the both shift cable end and select cable end using a fastener remover.

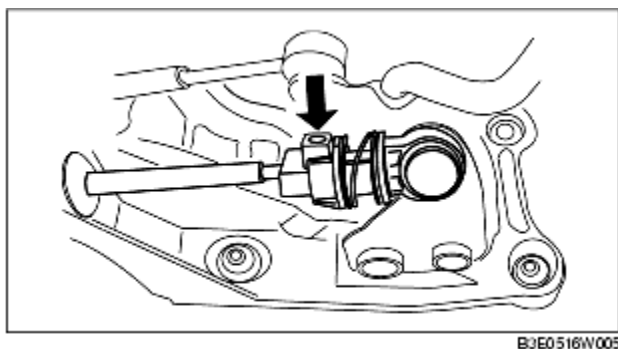


Select Cable Installation Note

1. Make sure that the shift lever (transaxle side) is in neutral.
2. Push the safety lock, then unlock the lock piece of the select cable in the order shown in the figure.



3. Shift the shift lever to neutral.
4. Lock the lock piece of the selector cable in the figure.



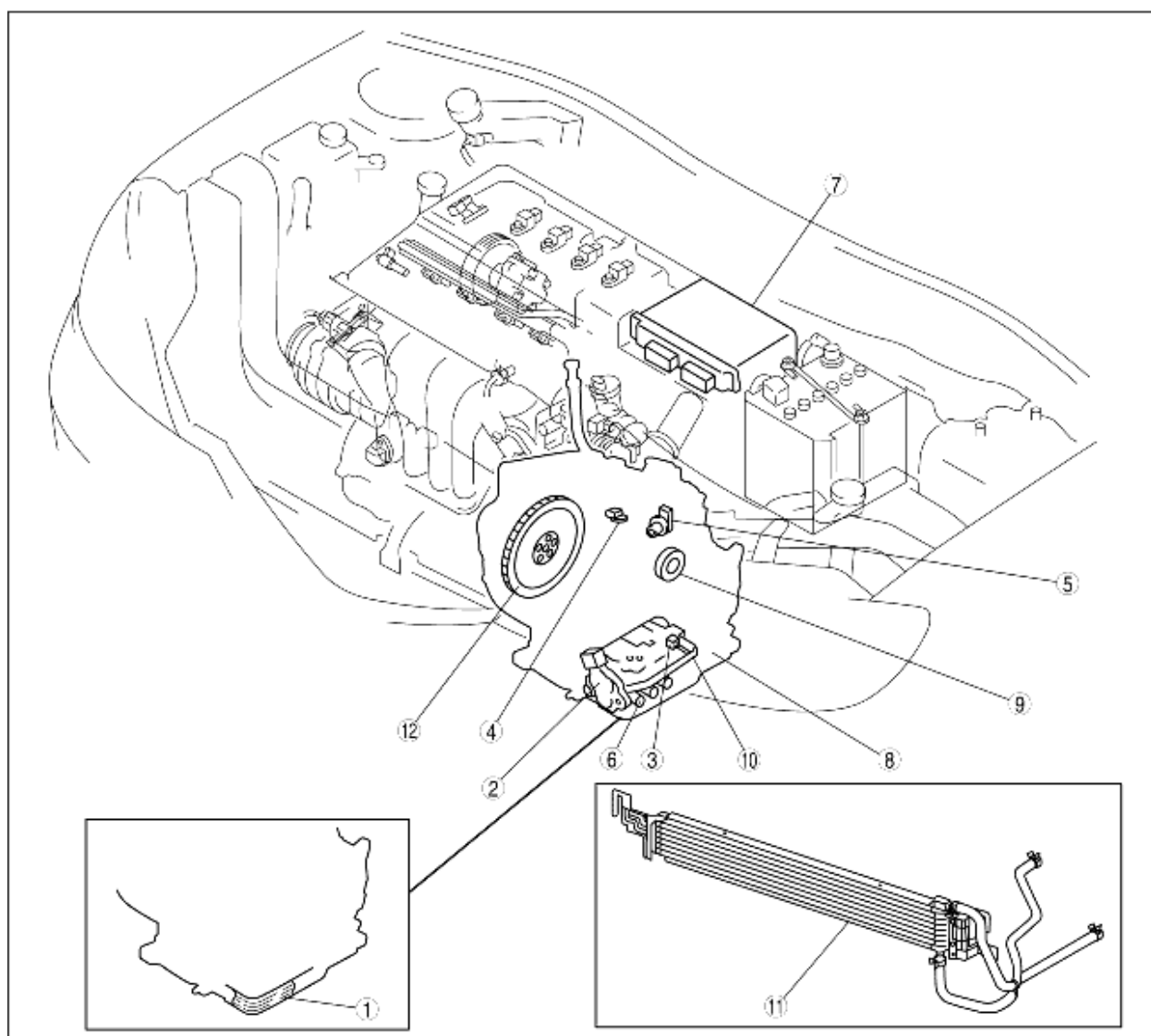
5. Shift the shift lever from neutral to other position, and make sure that there are no other components in that area to interfere with the lever.

AUTOMATIC TRANSAXLE

AUTOMATIC TRANSAXLE LOCATION INDEX

B3E051701074W01

202



B3E0517W001

1	Automatic transaxle fluid (ATF) (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION.) (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION.)
2	Transaxle range (TR) switch (See TRANSAXLE RANGE (TR) SWITCH INSPECTION.) (See TRANSAXLE RANGE (TR) SWITCH REMOVAL/INSTALLATION.) (See TRANSAXLE RANGE (TR) SWITCH ADJUSTMENT.)
3	Transaxle fluid temperature (TFT) sensor (See TRANSAXLE FLUID TEMPERATURE (TFT) SENSOR INSPECTION.)

	(See TRANSAXLE FLUID TEMPERATURE (TFT) SENSOR REMOVAL/INSTALLATION.)
4	Input/turbine speed sensor (See INPUT/TURBINE SPEED SENSOR INSPECTION.) (See INPUT/TURBINE SPEED SENSOR REMOVAL/INSTALLATION.)
5	Vehicle speed sensor (See VEHICLE SPEED SENSOR (VSS) INSPECTION.) (See VEHICLE SPEED SENSOR (VSS) REMOVAL/INSTALLATION.)
6	Solenoid valve (See SOLENOID VALVE INSPECTION.) (See SOLENOID VALVE REMOVAL/INSTALLATION.)
7	PCM (See PCM INSPECTION.) (See PCM REMOVAL/INSTALLATION.)
8	Automatic transaxle (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION.)
9	Oil seal (See OIL SEAL REPLACEMENT [AUTOMATIC TRANSAXLE].)
10	Control valve body (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.)
11	Oil cooler (See OIL COOLER FLUSHING [AUTOMATIC TRANSAXLE].) (See OIL COOLER REMOVAL/INSTALLATION [AUTOMATIC TRANSAXLE].)
12	Drive plate (See DRIVE PLATE REMOVAL/INSTALLATION.)

MECHANICAL SYSTEM TEST

B3E051701074W02

Mechanical System Test Preparation

1. Engage the parking brake and use wheel chocks at the front and rear of the wheels.
2. Inspect the engine coolant level. (See [COOLING SYSTEM SERVICE WARNINGS.](#)) (See [ENGINE COOLANT LEVEL INSPECTION.](#))

3. Inspect the engine oil level. (See [ENGINE OIL LEVEL INSPECTION \[Z6\]](#).)
4. Inspect the ATF level. (See [Automatic Transaxle Fluid \(ATF\) Level Inspection](#).)
5. Inspect the ignition timing. (See [Ignition Timing Inspection](#).)
6. Inspect the idle speed. (See [Idle Speed Inspection](#).)

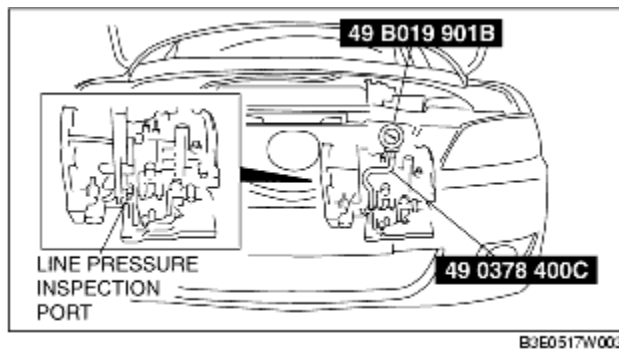
Line Pressure Test

1. Perform mechanical system test preparation. (See [Mechanical System Test Preparation](#).)

Warning

- Removing the square head plug when the ATF is hot can be dangerous. Hot ATF can come out of the opening and badly burn you. Before removing the square head plug, allow the ATF to cool.

2. Connect the **SSTs** (49 0378 400C) to the line pressure inspection port and replace the gauge of the **SST** (49 0378 400C) with the **SST** (49 B019 901B).



3. Start the engine and warm it up until the ATF reaches **60-70 °C {140-158 °F}**.
4. Shift the selector lever to the D range.
5. Read the line pressure while the engine is idling for the D range.
6. Read the line pressure while the engine is idling for the R position and M (1GR, 2GR) range in the same manner as in Steps 4-5.
7. Stop the engine, then replace the **SST** (49 B019 901B) with the gauge of the **SST** (49 0378 400C).
8. Start the engine.
9. Firmly depress the brake pedal with the left foot.
10. Shift the selector lever to the D range.

Caution

- If the accelerator pedal is pressed for more than 5 s while the brake pedal is pressed, the transaxle could be damaged. Therefore, perform Steps 11 and 12 within 5 s.
11. Gradually depress the accelerator pedal with the right foot.

12. When the engine speed no longer increases, quickly read the line pressure and release the accelerator pedal.

13. Shift the selector lever to the N position and idle the engine for **1 min or more** to cool the ATF.

14. Read the line pressure at the engine stall speed for the M (1GR, 2GR) range and R position in the same manner as in Steps 9-13.

Line pressure specification

Position/range	Line pressure (kPa {kgf/cm ² , psi})	
	Idle	Stall
D, M (1GR, 2GR)	330-470 {3.4-4.7, 48-68}	1,090-1,250 {11.2-12.7, 159-181}
R	490-710 {5.0-7.2, 72-102}	1,470-1,690 {15.0-17.2, 214-245}

Warning

- Removing the SST when the ATF is hot can be dangerous. Hot ATF can come out of the opening and badly burn you. Before removing the SST, allow the ATF to cool.

15. Remove the **SSTs**.

16. Install a new square head plug in the inspection port.

Tightening torque

4.8-9.8 N·m {49-99 kgf·cm, 43-85 in·lbf}

Evaluation of line pressure test

Condition	Possible cause
Low pressure in all positions/ranges	• Worn oil pump • Oil leaking from oil pump, control valve body, and/or transaxle case • Pressure regulator valve stuck • Pressure control solenoid malfunction • Solenoid reducing valve stuck
Low pressure in D, M (1GR, 2GR) only	• Oil leaking from forward clutch hydraulic circuit
Low pressure in M (2GR) only	• Oil leaking from 2-4 brake band hydraulic circuit
Low pressure in M (1GR), R only	• Oil leaking from low and reverse brake hydraulic circuit
Low pressure in R only	• Oil leaking from reverse clutch hydraulic circuit

Higher pressure in all positions/ranges	• Pressure control solenoid malfunction and/or open harness • Pressure regulator valve stuck • TCM malfunction
---	--

Stall Test

1. Perform mechanical system test preparation. (See [Mechanical System Test Preparation](#).)
2. Start the engine.
3. Firmly depress the brake pedal with the left foot.
4. Shift the selector lever to the D range.

Caution

- If the accelerator pedal is depressed for more than 5 s while the brake pedal is depressed, the transaxle could be damaged. Therefore, perform Steps 5 and 6 within 5 s.

5. Gently depress the accelerator pedal with the right foot.
6. When the engine speed no longer increases, quickly read the engine speed and release the accelerator pedal.
7. Shift the selector lever to the N position and idle the engine for **1 min or more** to cool the ATF.
8. Perform a stall test of the M range and R position in the same manner as in Steps 3-7.
9. Turn off the engine.

Engine stall speed

Position/range	Engine stall speed (rpm)
D, M (1GR, 2GR)	2,100-2,700
R	

Evaluation of stall test

Condition	Possible cause	
Above specification	Insufficient line pressure, torque converter pressure	• Worn oil pump
		• Oil leaking from oil pump, control valve, and/or transaxle case
		• Pressure regulator valve sticking
		• Converter relief valve sticking
		• Pressure control solenoid malfunction

	In D, M (1GR, 2GR) ranges	• Forward clutch slipping
	In M (2GR) range	2-4 brake band slipping
	In M (1GR) range and R position	• Low and reverse brake slipping
	In R position	• Low and reverse brake slipping • Reverse clutch slipping • Perform road test to determine whether problem is in low and reverse brake or reverse clutch • Engine braking felt in M (1GR) range: Reverse clutch is defective. • Engine braking not felt in M (1GR) range: Low and reverse brake is defective.
Below specification		• Engine lack of power

Time Lag Test

1. Perform mechanical system test preparation. (See [Mechanical System Test Preparation](#).)
2. Start the engine.
3. Warm up the engine until the ATF temperature reaches **60-70°C {140-158°F}**.
4. Shift the selector lever from the N position to D range.
5. Use a stopwatch to measure the time it takes from shifting until shock is felt. Take three measurements for each test and average from the results using the following formula.

Formula

$$\text{Average time lag} = (\text{Time 1} + \text{Time 2} + \text{Time 3}) / 3$$

6. Perform the test for the following shifts in the same manner as in Step 5.

- N position → R position

Average time lag

N position→D range: 0.4-0.7 s

N position→R position: 0.4-0.7 s

Evaluation of time lag test

Condition		Possible cause
N→D shift	More than specification	• Low line pressure • Forward clutch slipping • Oil leaking from forward clutch fluid circuit

		• Shift solenoid A not operating properly
	Less than specification	• Forward accumulator not operating properly • Shift solenoid A not operating properly • Excessive line pressure
N→R shift	More than specification	• Low line pressure • Low and reverse brake slipping • Reverse clutch slipping • Shift solenoid B not operating properly
	Less than specification	• Servo apply accumulator not operating properly • Shift solenoid B not operating properly • Excessive line pressure

ROAD TEST

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Warning

- When performing a road test, be aware of other vehicles, people, impediments to avoid an accident.

Note

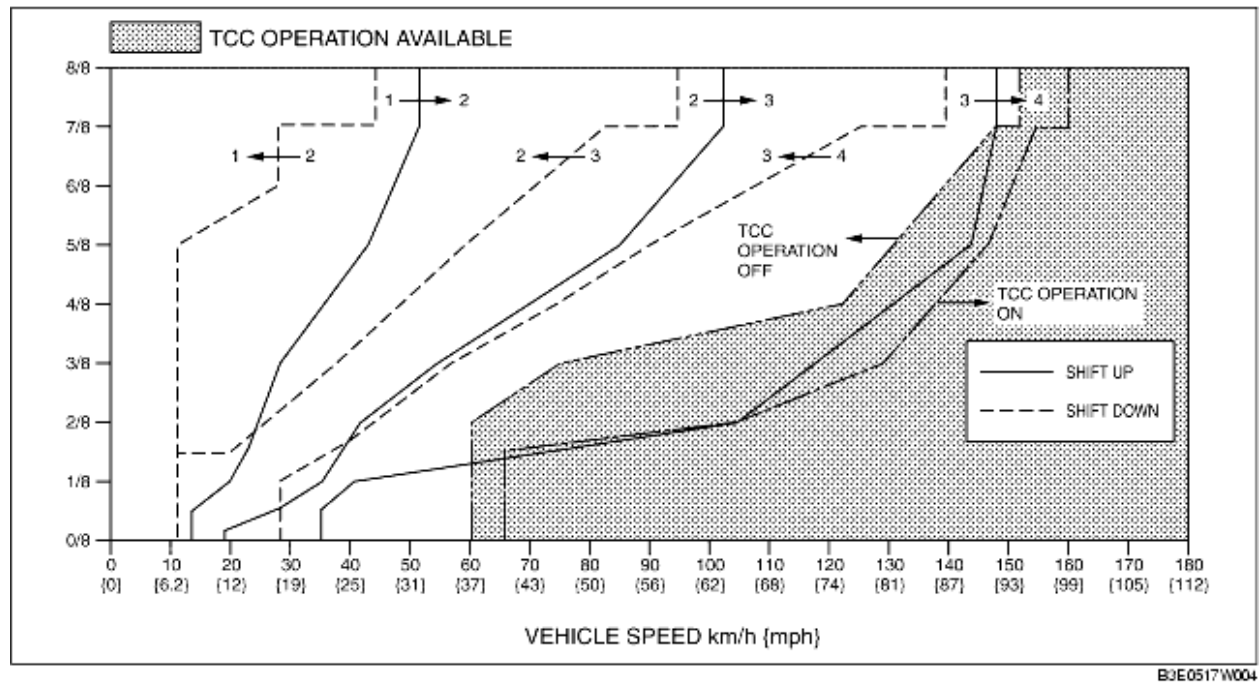
- When the legal speed limit must be exceeded, use a chassis dynamometer instead of performing a road test.

Road Test Preparation

1. Inspect the engine coolant level. (See [COOLING SYSTEM SERVICE WARNINGS.](#)) (See [ENGINE COOLANT LEVEL INSPECTION.](#))
2. Inspect the engine oil level. (See [ENGINE OIL LEVEL INSPECTION \[Z6\].](#))
3. Inspect the ATF level. (See [Automatic Transaxle Fluid \(ATF\) Level Inspection.](#))
4. Inspect the ignition timing. (See [Ignition Timing Inspection.](#))
5. Inspect the idle speed. (See [Idle Speed Inspection.](#))
6. Bring up the engine and transaxle to normal operating temperature.

Shift Diagram

D range (normal mode)



D Range Test

1. Perform road test preparation. (See [Road Test Preparation](#).)
2. Shift the selector lever to D range.
3. Accelerate the vehicle at half and wide open.
4. Verify that 1→2, 2→3, and 3→4 upshifts and downshifts are obtained. The shift points must be as shown in the table below.
 - If there is any malfunction, inspect the PCM and ATX. (See [SYMPTOM TROUBLESHOOTING ITEM TABLE](#).)
5. Drive the vehicle in 4GR, 3GR, and 2GR and verify that kickdown occurs for 4→3, 3→2, 2→1 downshifts, and that the shift points are as shown in the table below.
 - If there is any malfunction, inspect the PCM and ATX. (See [SYMPTOM TROUBLESHOOTING ITEM TABLE](#).)
6. Decelerate the vehicle and verify that engine braking effect is felt in 2GR, 3GR and 4GR.
 - If there is any malfunction, inspect the PCM and ATX. (See [SYMPTOM TROUBLESHOOTING ITEM TABLE](#).)
7. Drive the vehicle and verify that TCC operation is obtained. The operation points must be as shown in the table below.
 - If there is any malfunction, inspect the PCM and ATX. (See [SYMPTOM TROUBLESHOOTING ITEM TABLE](#).)

Vehicle speed at shift point table

Range	Mode	Throttle condition	Shift	Vehicle speed (km/h {mph})	Turbine speed (rpm)
D	NORMAL	Wide open	D ₁ →D ₂	51-57 {32-35}	5,550-6,150
			D ₂ →D ₃	100-108 {62-66}	5,800-6,200
			D ₃ →D ₄	145-155 {90-96}	5,600-5,950
			TCC ON(D ₄)	157-167 {98-103}	4,400-4,650
		Half open	D ₁ →D ₂	31-40 {20-24}	3,350-4,350
			D ₂ →D ₃	61-79 {38-48}	3,500-4,550
			D ₃ →D ₄	119-142 {74-88}	4,550-5,450
			TCC ON(D ₄)	127-148 {79-91}	3,550-4,100
		Closed	D ₄ →D ₃	25-31 {16-19}	700-850
			D ₃ →D ₁	8-14 {5-8}	350-500
		Kickdown	D ₄ →D ₃	135-145 {84-89}	3,800-4,000
			D ₃ →D ₂	90-98 {56-60}	3,500-3,750
			D ₂ →D ₁	41-47 {26-29}	2,400-2,700
	POWER	Wide open	D ₁ →D ₂	51-57 {32-35}	5,550-6,150
			D ₂ →D ₃	100-108 {62-66}	5,800-6,200
			D ₃ →D ₄	145-155 {90-96}	5,600-5,950
		Half open	D ₁ →D ₂	31-40 {20-24}	3,350-4,350
			D ₂ →D ₃	61-79 {38-48}	3,500-4,550
			D ₃ →D ₄	119-142 {74-88}	4,550-5,450
		Closed	D ₄ →D ₃	25-31 {16-19}	700-850
			D ₃ →D ₁	8-14 {5-8}	350-500
		Kickdown	D ₄ →D ₃	135-145 {84-89}	3,800-4,000
			D ₃ →D ₂	90-98 {56-60}	3,500-3,750
			D ₂ →D ₁	41-47 {26-29}	2,400-2,700

M Range Test

1. Perform road test preparation. (See [Road Test Preparation](#).)

2. Shift the selector lever to M range.

3. Verify that 1→2, 2→3, and 3→4 upshifts and 4→3, 3→2, and 2→1 downshifts are obtained by manual shifting of the selector lever forward and back.

- If there is any malfunction, inspect the PCM and ATX. (See [SYMPTOM TROUBLESHOOTING ITEM TABLE](#).)

4. Decelerate the vehicle and verify that 4→3, 3→1 downshifts are obtained. The shift points must be as shown in the table below.

- If there is any malfunction, inspect the PCM and ATX. (See [SYMPTOM TROUBLESHOOTING ITEM TABLE](#).)

5. Decelerate the vehicle and verify that engine braking effect is felt in all gears.

- If there is any malfunction, inspect the PCM and ATX. (See [SYMPTOM TROUBLESHOOTING ITEM TABLE](#).)

Vehicle speed at shift point table

Range	Mode	Throttle condition	Shift	Vehicle speed km/h {mph}	Turbine speed (rpm)
M	Manual	All round	M ₄ →M ₃	28-34 {18-21}	800-900
			M ₃ →M ₁	5-11 {4-6}	200-400

P Position Test

1. Shift into P position on a gentle slope. Release the brake and verify that the vehicle does not roll.

- If there is any malfunction, inspect the ATX. (See [SYMPTOM TROUBLESHOOTING ITEM TABLE](#).)

AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION

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Automatic Transaxle Fluid (ATF) Condition Inspection

1. Inspect the ATF for the following to determine whether the transaxle should be disassembled.

- The ATF is muddy.
- The ATF smells strange or unusual.

ATF Condition

Condition		Possible cause
Clear dark red	Normal	-

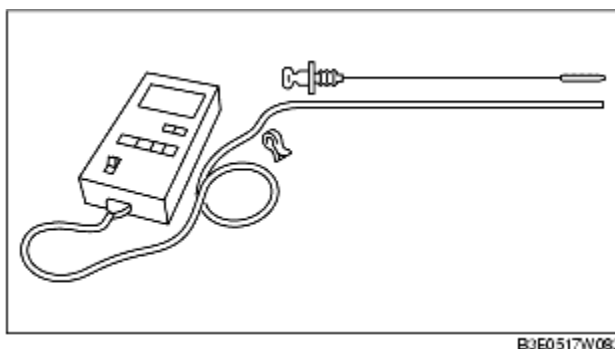
Light red (pink)		Contaminated with water	• Damaged oil cooler • Poor filler tube installation: Problem could occur to parts inside the transaxle by water contamination. It is necessary to overhaul the transaxle and detect defected parts. If necessary, replace the transaxle.
Reddish brown	Has burnt smell and metal particles are found	Deteriorated ATF	Defective powertrain components inside the transaxle: Particles cause wide range of problems by plugging up in oil pipe, control valve body and oil cooler. • When large amount of metal particles are found, overhaul the transaxle and inspect for defective parts. If necessary, replace the transaxle. • Implement flushing operation as there is a possibility to have particles plugging up the oil pipe or oil cooler.
	Has no burnt smell	Normal	• Discoloration by oxidation

Automatic Transaxle Fluid (ATF) Level Inspection

Caution

- The ATF amount varies according to ATF temperature. Therefore, when checking the ATF level or replacing the ATF, use a thermometer to measure the temperature then adjust the ATF amount to the specified level according to the specified temperature.

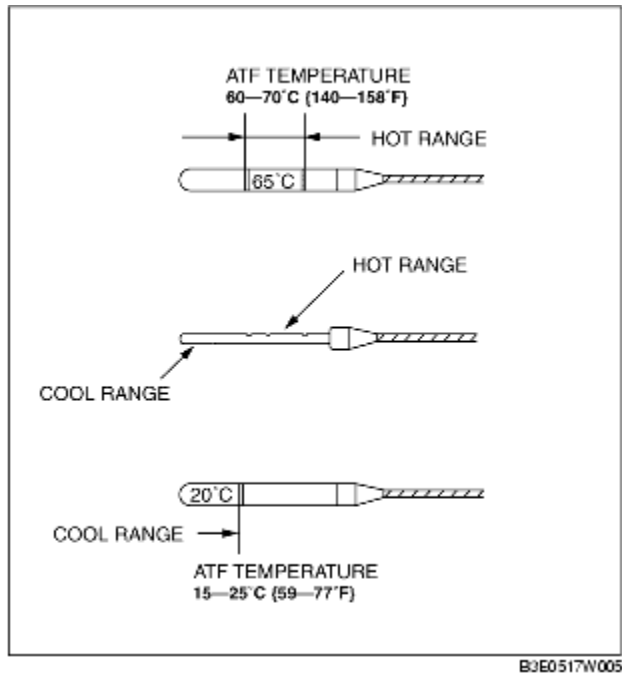
1. Place the vehicle on level ground.
2. Apply the parking brake and position wheel chocks securely to prevent the vehicle from rolling.
3. Adjust the length of thermometer probe so that the length is the same as the depth gauge, and hold the probe with a paper holder. Insert into the filler tube and measure the temperature.



- If necessary, inspect the ATF before warming up the engine. In this case, use the cool range (**15-25 °C {59-77 °F}**).

4. Warm up the engine until the ATF reaches **60-70 °C {140-158 °F}**.
5. Shift the selector lever and pause momentarily in each range (P-D) while depressing the brake pedal.

6. Shift the selector lever to P position.
7. Verify that the ATF level is in the HOT range (**65 °C {149 °F}**) while the engine is idling.



- If necessary, add ATF to the specification.

ATF type

ATF M-V

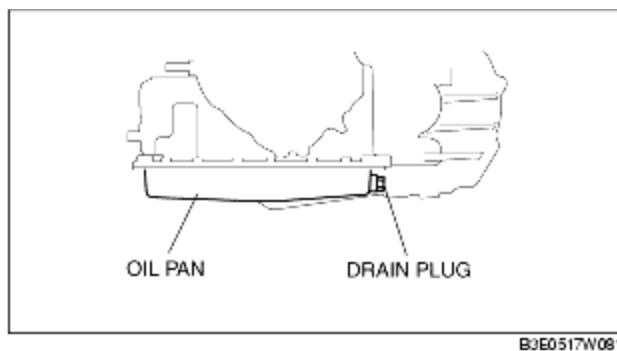
AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT

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Warning

- A hot transaxle and ATF can cause severe burns. Turn off the engine and wait until they are cool before replacing the ATF.

1. Remove the oil dipstick.
2. Remove the oil drain plug and washer.



3. Drain the ATF into a container.

4. Install a new washer and the drain plug.

Tightening torque

29.4-41.2 N·m

{3.0-4.2 kgf·m, 21.7-30.3 ft·lbf}

5. Add the specified ATF until ATF level reaches lower notch of dipstick type of ATF through the oil filler tube.

ATF type

ATF M-V

Capacity (Approx. quantity)

7.0 L {7.4 US qt, 6.2 Imp qt}

6. Ensure that the ATF level is in the HOT range (65 °C {149 °F}).

- Add ATF to the specified level as necessary.

TRANSAXLE RANGE (TR) SWITCH INSPECTION

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Operating Inspection

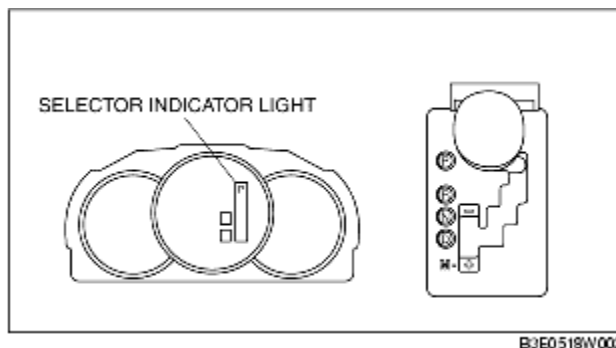
1. Verify that the starter operates only when the ignition switch is turned to the START position with the selector lever in P or N position.

- If there is any malfunction, adjust the TR switch.

2. Verify that the back-up lights illuminate when shifted to R position with the ignition switch at the ON position.

- If there is any malfunction, adjust the TR switch.

3. Verify that the positions of the selector lever and the indicator are aligned.



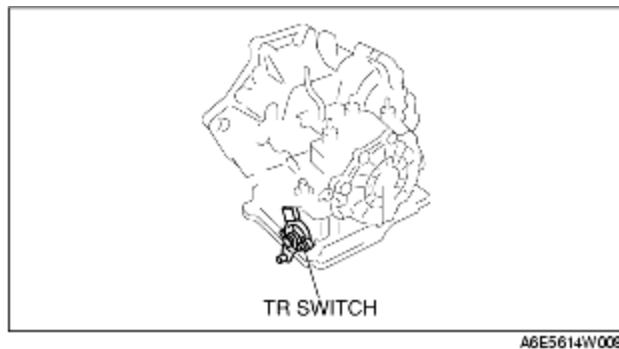
- If there is any malfunction, adjust the TR switch.

Continuity Inspection

Caution

- Water or foreign material entering the connector can cause a poor connection or corrosion. Be sure not to drop water or foreign material on the connector when disconnecting it.

1. Remove the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\]](#).)
2. Disconnect the negative battery cable.
3. Remove the under cover.
4. Disconnect the TR switch connector.

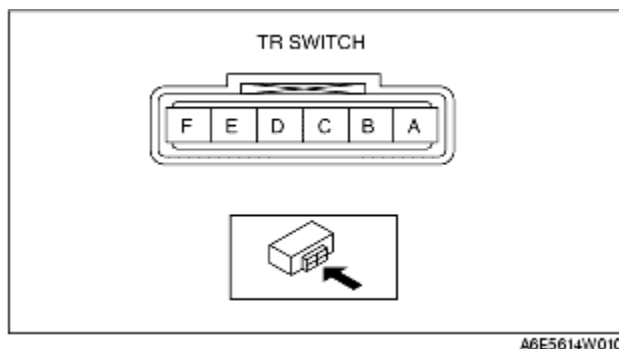


5. Verify that the continuity is as indicated in the table.

○—○ : Continuity

Position/Range	Connector terminal			
	A	F	D	E
P	○—○			
R			○—○	
N	○—○			
D				

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- If there is any malfunction, adjust the TR switch and go to Step 5.

6. Reinspect for continuity at TR switch.

- If there is any malfunction, replace the TR switch. (See [TRANSAXLE RANGE \(TR\) SWITCH REMOVAL/INSTALLATION](#).)

7. Connect the TR switch connector.

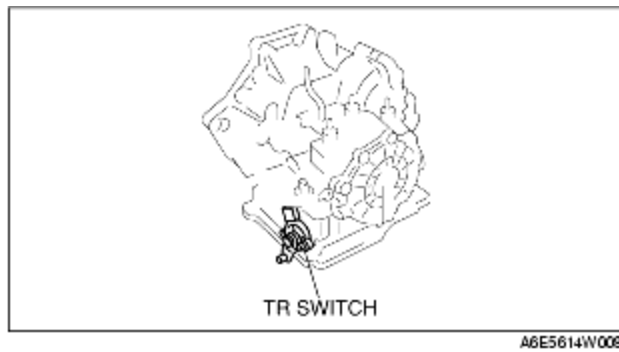
8. Install the under cover.
9. Connect the negative battery cable.
10. Install the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\]](#).)

Resistance Inspection (On-Vehicle Inspection)

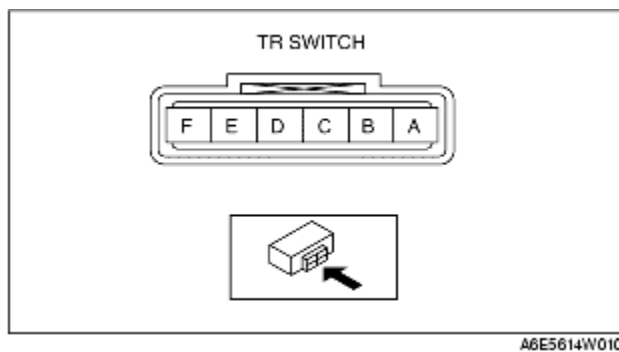
Caution

- Water or foreign material entering the connector can cause a poor connection or corrosion. Be sure not to drop water or foreign material on the connector when disconnecting it.

1. Remove the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\].](#))
2. Disconnect the negative battery cable.
3. Remove the under cover.
4. Disconnect the TR switch connector.



5. Measure the resistance between the following terminals.



- If there is any malfunction, inspect the ground, then perform the operating inspection.

Terminal	Position/Range	Resistance (ohm)
B-C	P	4,085-4,515
	R	1,425-1,575
	N	713-788
	D	371-409

6. Connect the TR switch connector.
7. Install the under cover.
8. Connect the negative battery cable.
9. Install the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\].](#))

TRANSAXLE RANGE (TR) SWITCH REMOVAL/INSTALLATION

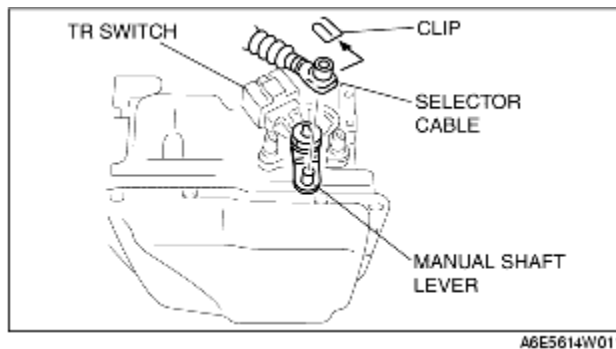
B3E051719440W02

1. Remove the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\]](#).)
2. Disconnect the negative battery cable.
3. Remove the under cover.

Caution

- Water or foreign material entering the connector can cause a poor connection or corrosion. Be sure not to drop water or foreign material on the connector when disconnecting it.

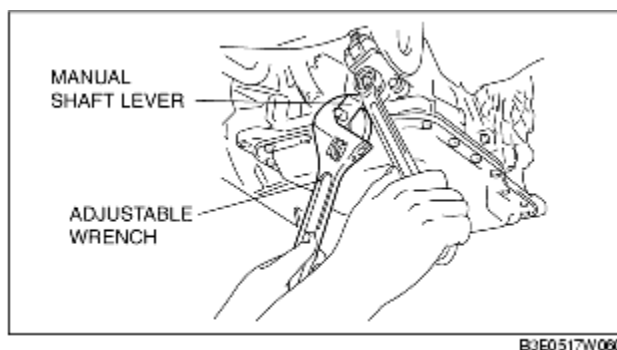
4. Disconnect the TR switch connector.
5. Remove the clip and disconnect the selector cable.



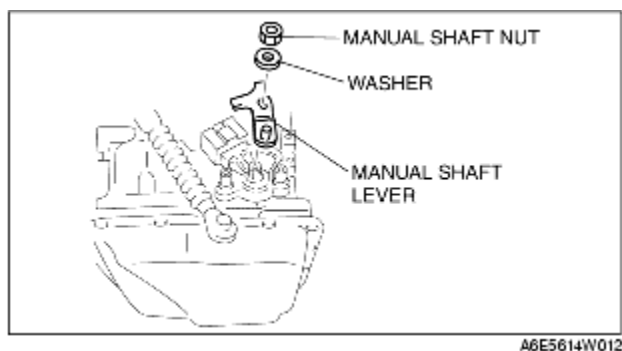
Caution

- Do not use an impact wrench. Hold the manual shaft lever when removing the manual shaft nut, or the transaxle may be damaged.

6. Set the adjustable wrench as shown in the figure to hold the manual shaft lever.



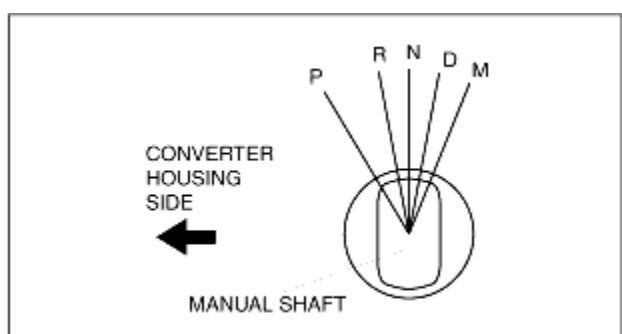
7. Remove the manual shaft nut and washer.
8. Remove the manual shaft lever.



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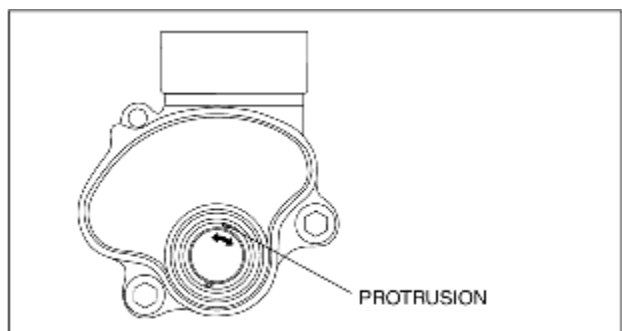
9. Remove the TR switch.

10. Rotate the manual shaft to the converter housing side fully, then return two notches to set the N position.

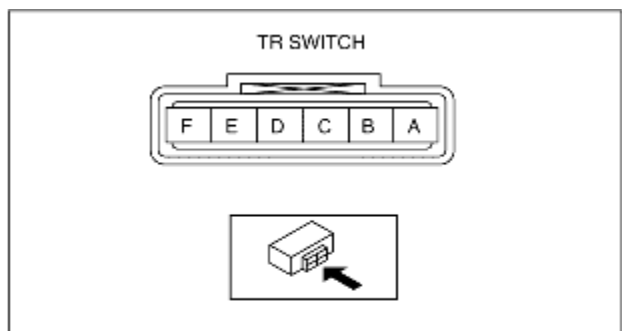


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11. Turn the protrusion between the TR switch terminals B and C until the resistance becomes **750 ohms**.

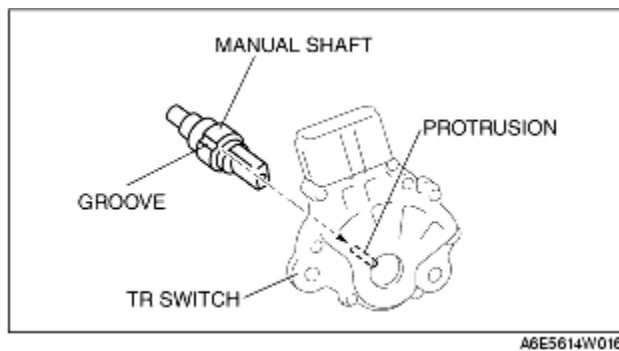


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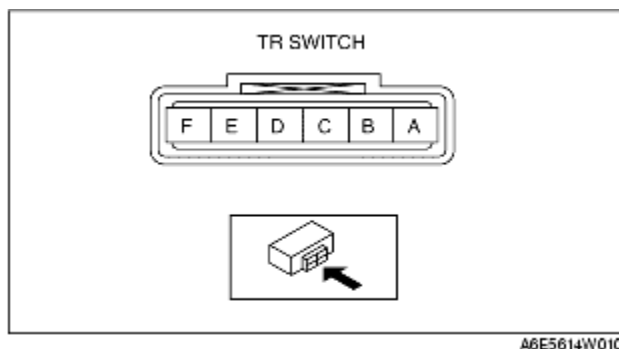


A6E5614W010

12. Install the TR switch while aligning the protrusion and groove as shown in the figure.



13. Hand-tighten the TR switch mounting bolts.
14. Inspect the resistance between the TR switch terminals B and C.



- If there is any malfunction, readjust the TR switch. (See [TRANSAXLE RANGE \(TR\) SWITCH ADJUSTMENT](#).)

Resistance

750 ohms

15. Tighten the TR switch mounting bolts.

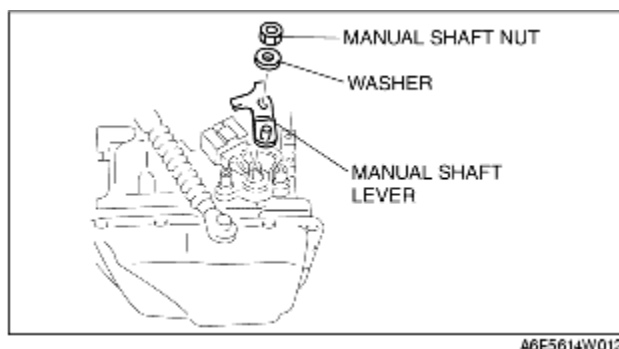
Tightening torque

8-11 N·m {82-112 kgf·cm, 71-97 in·lbf}

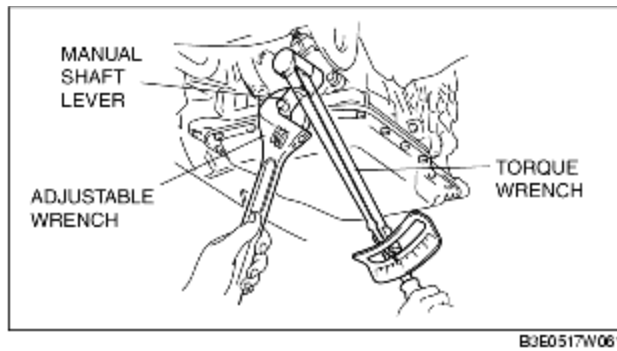
Caution

- Do not use an impact wrench. Hold the manual shaft lever when removing the manual shaft nut, or the transaxle may be damaged.

16. Install the manual shaft lever and the washer.



17. Set the adjustable wrench as shown in the figure to hold the manual shaft lever, and tighten the manual shaft nut.

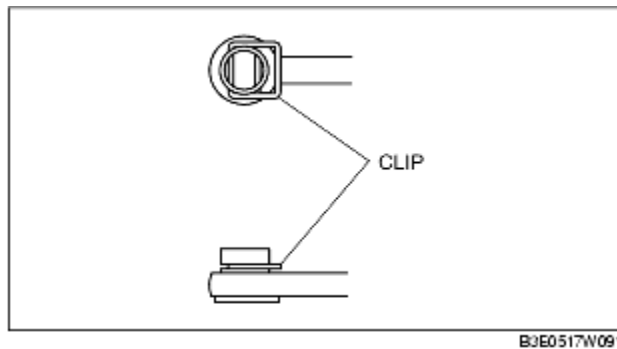


Tightening torque

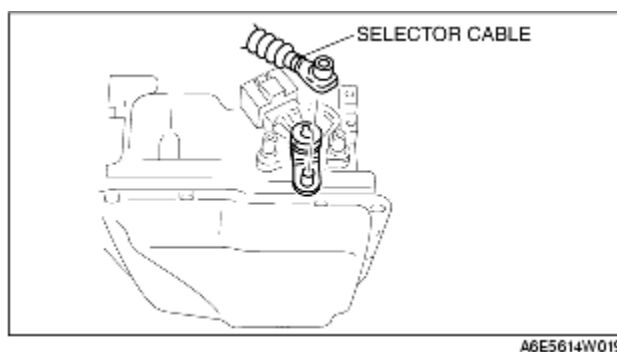
31.4-46.1 N·m

{3.2-4.7 kgf·m, 23.2-33.9 ft·lbf}

18. Install the clip to the selector cable as shown in the figure.



19. Shift the selector lever to P position.
20. Turn the manual shaft lever to P position.
21. Connect the selector cable.



22. Inspect for continuity at the TR switch. (See [TRANSAXLE RANGE \(TR\) SWITCH INSPECTION.](#))
- If there is any malfunction, readjust the TR switch. (See [TRANSAXLE RANGE \(TR\) SWITCH ADJUSTMENT.](#))
23. Connect the TR switch connector.

24. Install the under cover.
25. Connect the negative battery cable.
26. Install the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\]](#).)
27. Inspect operation of the TR switch. (See [TRANSAXLE RANGE \(TR\) SWITCH INSPECTION](#).)

- If there is any malfunction, readjust the TR switch. (See [TRANSAXLE RANGE \(TR\) SWITCH ADJUSTMENT](#).)

TRANSAXLE RANGE (TR) SWITCH ADJUSTMENT

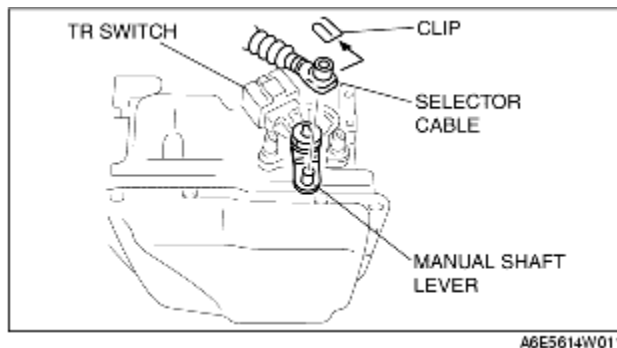
B3E051719440W03

1. Remove the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\]](#).)
2. Disconnect the negative battery cable.
3. Remove the under cover.

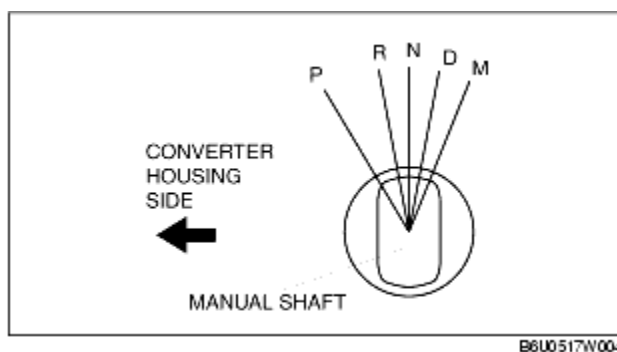
Caution

- Water or foreign material entering the connector can cause a poor connection or corrosion. Be sure not to drop water or foreign material on the connector when disconnecting it.

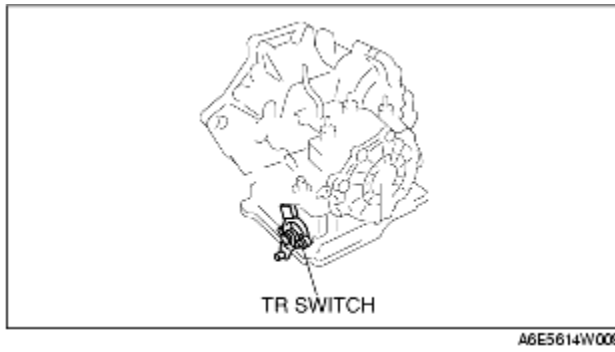
4. Remove the clip and disconnect the selector cable.



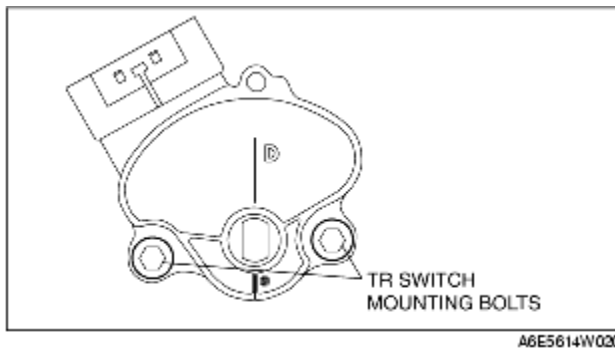
5. Rotate the manual shaft to the converter housing side fully, then return two notches to set the N position.



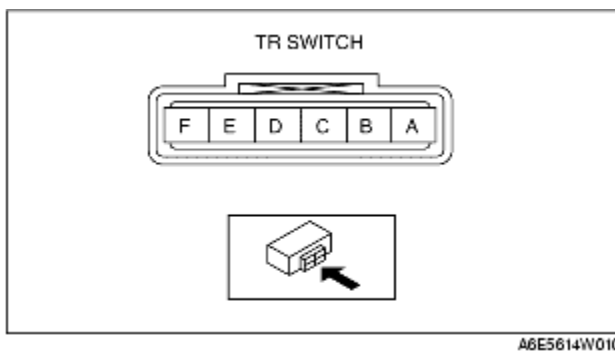
6. Disconnect the TR switch connector.



7. Loosen the TR switch mounting bolts.



8. Measure the resistance between the TR switch terminals B and C.



9. Adjust the switch to the point as follows.

Resistance

750 ohms

10. Tighten the TR switch mounting bolts.

Tightening torque

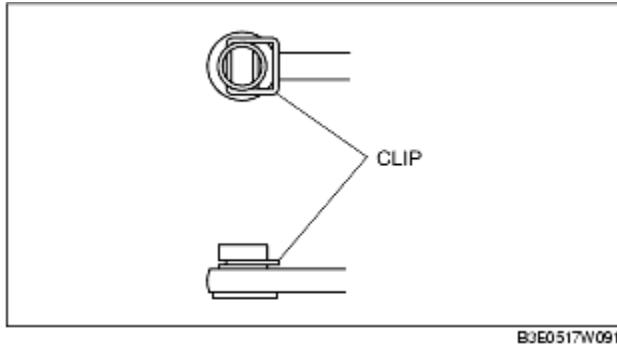
8-11 N·m {82-112 kgf·cm, 71-97 in·lbf}

11. Move the selector lever to N position.

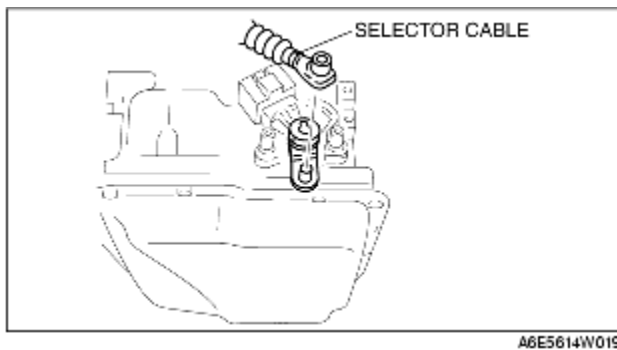
12. Verify that the TR switch is aligned with N position.

13. Connect the TR switch connector.

14. Install the clip to the selector cable as shown in the figure.



15. Connect the selector cable to the manual shaft lever as shown in the figure.



16. Inspect the TR switch operation. (See [TRANSAXLE RANGE \(TR\) SWITCH INSPECTION](#).)

- If there is any malfunction, readjust the TR switch.

17. Install the under cover.

18. Connect the negative battery cable.

19. Install the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\]](#).)

TRANSAXLE FLUID TEMPERATURE (TFT) SENSOR INSPECTION

B3E051719010W01

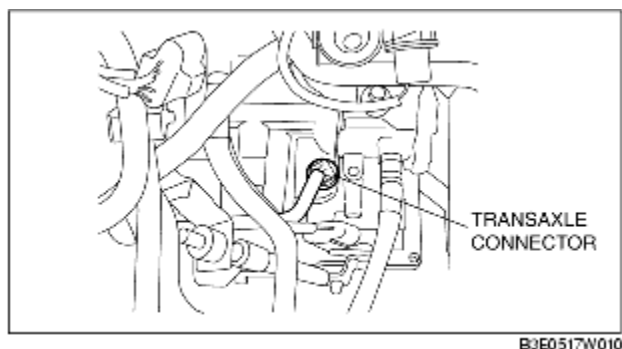
On-Vehicle Inspection

1. Remove the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\]](#).)
2. Disconnect the negative battery cable.
3. Remove the under cover.

Caution

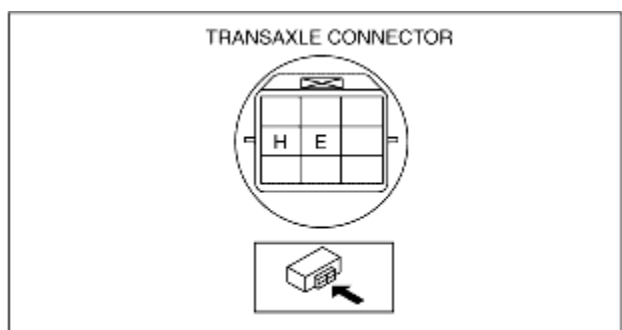
- Water or foreign material entering the connector can cause a poor connection or corrosion. Be sure not to drop water or foreign material on the connector when disconnecting it.

4. Disconnect the transaxle connector.



B3E0517W010

5. Measure the resistance between the transaxle connector terminals E and H.



B3E0517W062

- If there is any malfunction, perform the off-vehicle inspection of TFT sensor. (See [TRANSAXLE FLUID TEMPERATURE \(TFT\) SENSOR REMOVAL/INSTALLATION](#).)

ATF temperature (°C {°F})	Resistance (kilohm)
-20 {-4}	236-324
0 {32}	84.3-110
20 {68}	33.5-42.0
40 {104}	14.7-17.9
60 {140}	7.08-8.17
80 {176}	3.61-4.15
100 {212}	1.96-2.24
120 {248}	1.13-1.28
130 {266}	0.87-0.98

6. Install the under cover.

7. Connect the negative battery cable.

8. Install the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\].](#))

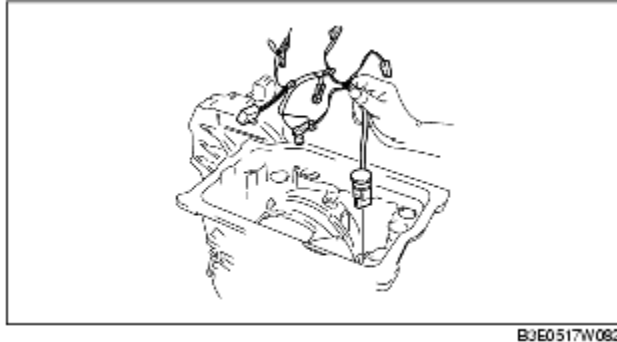
Off-Vehicle Inspection

Warning

- A hot transaxle and ATF can cause severe burns. Turn off the engine and wait until they are cool before replacing the ATF.

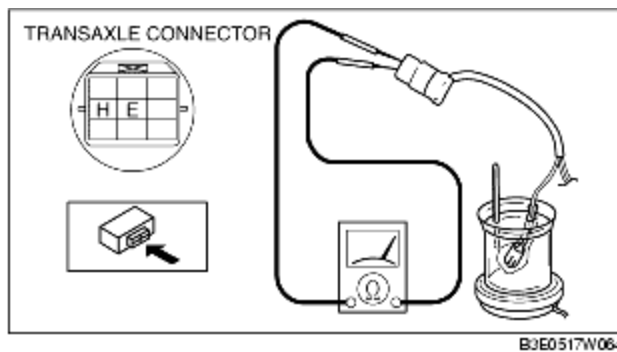
1. Remove the control valve body. (See [CONTROL VALVE BODY REMOVAL.](#))

2. Remove the coupler component.



3. Place the TFT sensor and a thermometer in ATF as shown in the figure, and heat the ATF gradually.

4. Measure the resistance between the terminals of the TFT sensor.



- If there is any malfunction, replace the TFT sensor. (See [TRANSAXLE FLUID TEMPERATURE \(TFT\) SENSOR REMOVAL/INSTALLATION.](#))

ATF temperature (°C {°F})	Resistance (kilohm)
-20 {-4}	236-324
0 {32}	84.3-110
20 {68}	33.5-42.0
40 {104}	14.7-17.9
60 {140}	7.08-8.17
80 {176}	3.61-4.15
100 {212}	1.96-2.24

120 {248}	1.13-1.28
130 {266}	0.87-0.98

5. Install the coupler component.
6. Install the control valve body. (See [CONTROL VALVE BODY INSTALLATION](#).)

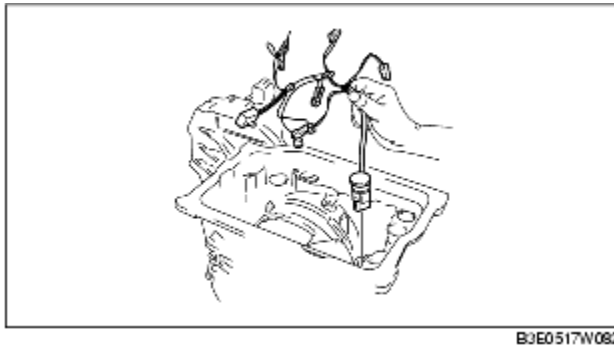
TRANSAXLE FLUID TEMPERATURE (TFT) SENSOR REMOVAL/INSTALLATION

B3E051719010W02

Warning

- A hot transaxle and ATF can cause severe burns. Turn off the engine and wait until they are cool before replacing the ATF.

1. Remove the oil pan. (See [CONTROL VALVE BODY REMOVAL](#).)
2. Remove the control valve body. (See [CONTROL VALVE BODY REMOVAL](#).)
3. Remove the coupler component.



B3E051719010W03

4. Install a coupler component.
5. Install the control valve body. (See [On-Vehicle Installation](#).)
6. Install the oil pan. (See [CONTROL VALVE BODY INSTALLATION](#).)
7. Perform the mechanical system test. (See [MECHANICAL SYSTEM TEST](#).)

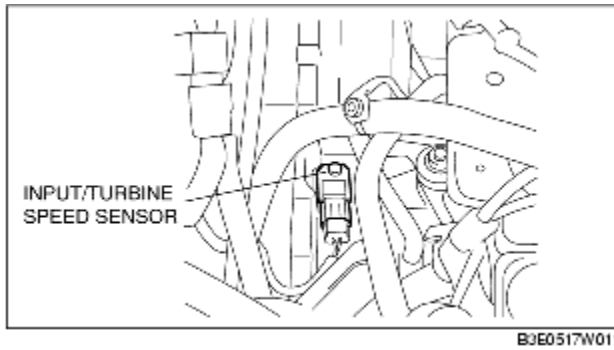
INPUT/TURBINE SPEED SENSOR INSPECTION

B3E051719010W03

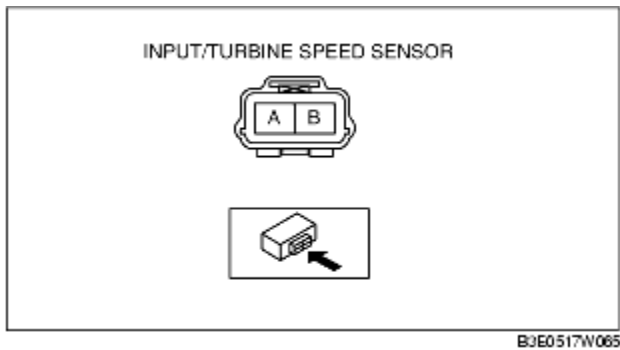
Caution

- Water or foreign material entering the connector can cause a poor connection or corrosion. Be sure not to drop water or foreign material on the connector when disconnecting it.

1. Remove the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\].](#))
2. Disconnect the negative battery cable.
3. Remove the battery, battery box and battery tray. (See [BATTERY REMOVAL/INSTALLATION \[Z6\].](#))
4. Disconnect the input/turbine speed sensor connector.



5. Measure the resistance between the input/turbine speed sensor terminals.



- If there is any malfunction, replace the input/turbine speed sensor.

Resistance

250-600 ohms (ATF temperature: -40-160 °C {-40-320 °F})

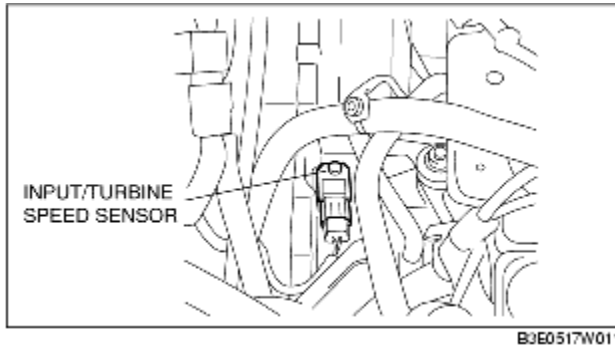
6. Connect the input/turbine speed sensor connector.
7. Install the battery, battery box and battery tray. (See [BATTERY REMOVAL/INSTALLATION \[Z6\].](#))
8. Connect the negative battery cable.
9. Install the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\].](#))

INPUT/TURBINE SPEED SENSOR REMOVAL/INSTALLATION

B3E051719010W04

1. Remove the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\].](#))
2. Disconnect the negative battery cable.

3. Remove the battery, battery box and battery tray. (See [BATTERY REMOVAL/INSTALLATION \[Z6\].](#))
4. Disconnect the input/turbine speed sensor connector.



5. Remove the input/turbine speed sensor.
6. Apply ATF to a new O-ring and install it on an input/turbine speed sensor.
7. Install the input/turbine speed sensor.

Tightening torque

8-11 N·m {82-112 kgf·cm, 71-97 in·lbf}

8. Connect the input/turbine speed sensor connector.
9. Install the battery, battery box and battery tray. (See [BATTERY REMOVAL/INSTALLATION \[Z6\].](#))
10. Connect the negative battery cable.
11. Install the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\].](#))

VEHICLE SPEED SENSOR (VSS) INSPECTION

B3E051719010W05

1. Connect the WDS or equivalent, drive the vehicle, and verify the input value of the OSS PID.
 - If the input value is 0 rpm, perform the "Power Supply Voltage Inspection", "Open Circuit Inspection", or "Short Circuit Inspection".
 - If the input value is other than 0 rpm, perform the "Visual Inspection" or "Wave Profile Inspection".

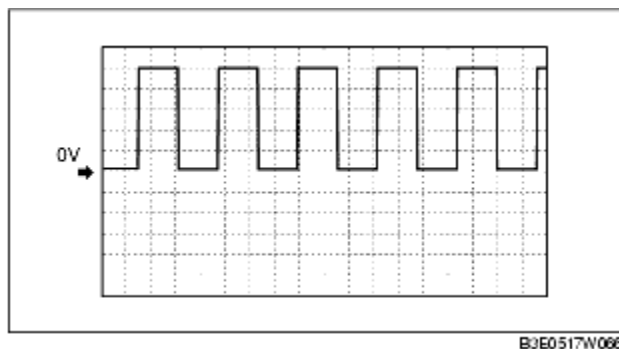
Visual Inspection

1. Remove the VSS. (See [VEHICLE SPEED SENSOR \(VSS\) REMOVAL/INSTALLATION.](#))
2. Verify that the sensor is free of any metallic shavings or particles.
 - If there is any malfunction, clean them off.

3. Install the VSS. (See [VEHICLE SPEED SENSOR \(VSS\) REMOVAL/INSTALLATION](#).)

Wave Profile Inspection

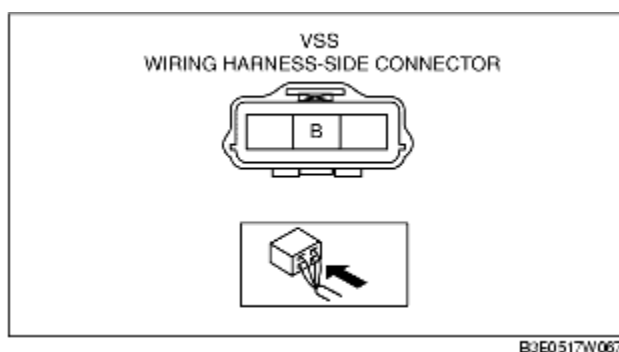
1. Remove the PCM. (See [INTAKE-AIR SYSTEM REMOVAL/INSTALLATION \[Z6\]](#).)
2. Connect the WDS or equivalent to DLC-2.
3. Connect oscilloscope test leads to the following PCM connector terminals.
 - (+) lead: PCM terminal 1AY
 - (-) lead: PCM terminal 2Y
4. Start the engine.
5. Monitor VSS PID.
6. Inspect wave profile.



- PCM terminal: 1AY (+)-2Y (-)
- Oscilloscope setting: 1 V/DIV (Y), 2.5 ms/DIV (X), DC range
- Vehicle condition: drive the vehicle with 32 km/h {20 mph}
- If there is any malfunction, perform the "Open Circuit Inspection" or "Short Circuit Inspection"

Power Supply Voltage Inspection

1. Disconnect the VSS connector.
2. Turn the ignition switch to the ON position.
3. Measure voltage at VSS terminal B.



Specification**4.5-5.5 V**

- If voltage is normal, go to Open Circuit Inspection and Short Circuit Inspection.
- If there is any malfunction, repair wiring harness between VSS and PCM.

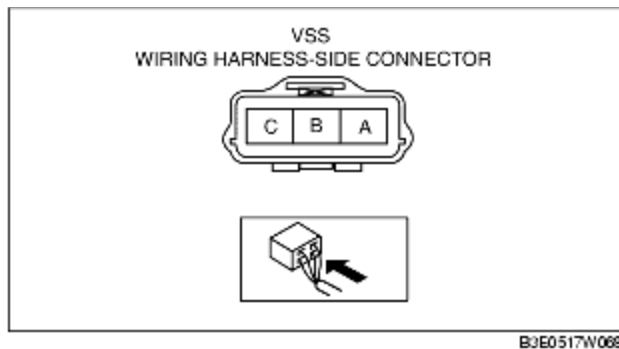
Open Circuit Inspection

1. Inspect the following circuit for open.

- Power circuit (VSS terminal A to main relay terminal D)
- Ground circuit (VSS terminal C to GND)
- If an open circuit or short circuit is found, repair the malfunctioning wiring harness.
- If there are no open or short circuits, perform the sensor rotor inspection.

Short Circuit Inspection

1. Inspect the following circuit for short circuit.



- Power circuit (VSS terminal A to main relay terminal D)
- If an open circuit or short circuit is found, repair the malfunctioning wiring harness.
- If there are no open or short circuits, perform the sensor rotor inspection.

Sensor Rotor Inspection

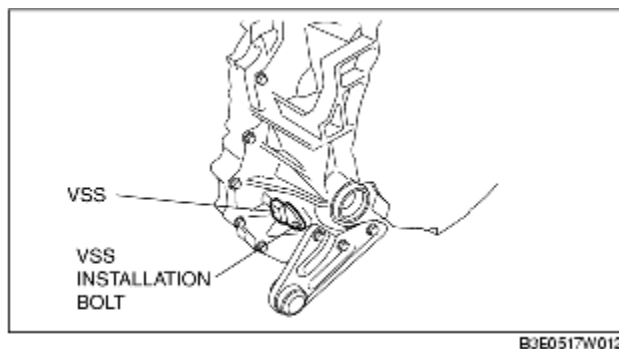
1. Remove the VSS. (See [VEHICLE SPEED SENSOR \(VSS\) REMOVAL/INSTALLATION.](#))
2. Shift the selector lever to N position.
3. Inspect sensor rotor surface via VSS installation hole while rotating the front tire manually.
 - (1) Is sensor rotor free of damage and cracks?
 - (2) Is sensor rotor free of any metallic shavings or particles?
 - If sensor rotor is normal, replace the VSS.
 - If there is any malfunction, clean or replace the sensor rotor.

VEHICLE SPEED SENSOR (VSS) REMOVAL/INSTALLATION

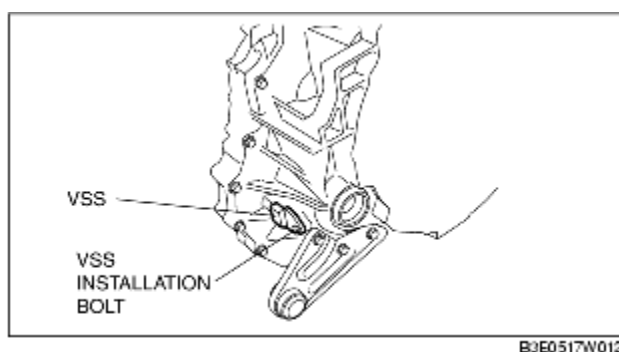
Caution

- Water or foreign material entering the connector can cause a poor connection or corrosion. Be sure not to drop water or foreign material on the connector when disconnecting it.
- If foreign materials are stuck to the VSS, disturbance by magnetic flux can cause sensor output to be abnormal and thereby negatively affect control. Make sure that foreign materials such as iron filings are not stuck to the VSS during installation.

1. Remove the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\].](#))
2. Disconnect the negative battery cable.
3. Remove the under cover.
4. Disconnect the VSS connector.
5. Remove the VSS.



6. Apply ATF to a new O-ring and install it on a VSS.
7. Install the VSS.

**Tightening torque****8-11 N·m {82-112 kgf·cm, 71-97 in·lbf}**

8. Connect the VSS connector.
9. Install the under cover.
10. Connect the negative battery cable.
11. Install the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\].](#))

SOLENOID VALVE INSPECTION

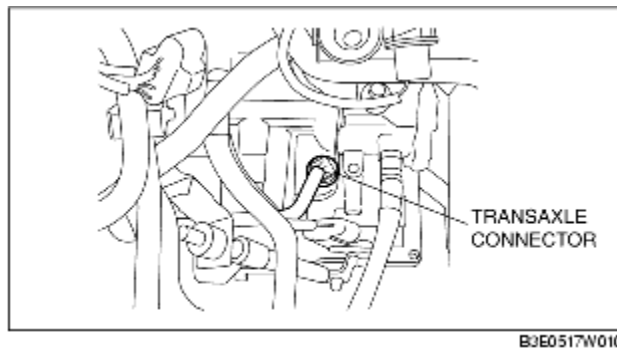
B3E051721280W01

Resistance Inspection (On-Vehicle Inspection)

Caution

- Water or foreign material entering the connector can cause a poor connection or corrosion. Be sure not to drop water or foreign material on the connector when disconnecting it.

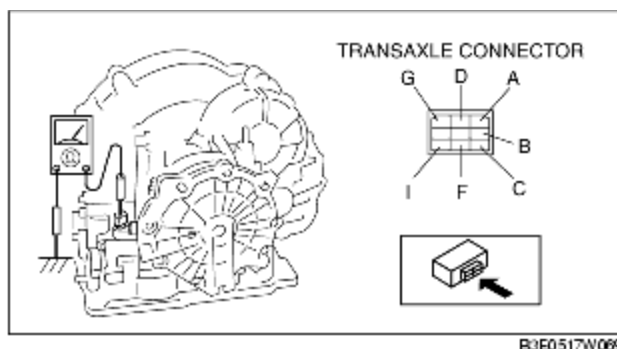
1. Remove the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\]](#).)
2. Disconnect the negative battery cable.
3. Remove the under cover.
4. Disconnect the transaxle connector.



Note

- When inspecting the pressure control solenoid, connect the ground connection to the ground terminal (terminal I) of the pressure control solenoid inside the solenoid valve connector.

5. Measure the resistance between the following terminals.



- If there is any malfunction, inspect the ground, then perform the operating inspection.

ATF temperature: -40-150 °C {-40-302 °F}

Terminal	Solenoid valve	Resistance (ohm)
A-GND	Shift solenoid A	1.0-4.2

C-GND	Shift solenoid B	1.0-4.2
G-GND	Shift solenoid C	1.0-4.2
B-GND	Shift solenoid D	10.9-26.2
F-GND	Shift solenoid E	10.9-26.2
D-I	Pressure control	2.4-7.3

6. Connect the transaxle connector.
7. Install the under cover.
8. Connect the negative battery cable.
9. Install the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\]](#).)

Operating Inspection

1. Disconnect the transaxle connector.

Caution

- Do not apply battery position voltage to terminals A, B, C, D, F and G for more than 3 s.

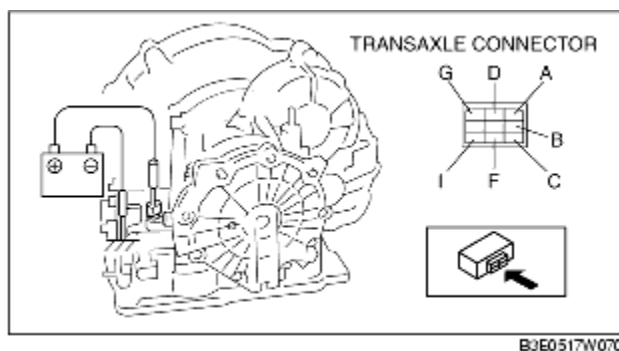
Note

- Because the operation sound of the valves is small, perform inspection in a quiet place.

2. Apply battery positive voltage to the transaxle connector terminals A, B, C, F or G and battery negative voltage to GND, and verify that operating sound is heard from the solenoid.

- If the "click" is not heard, inspect the transaxle harness.
- If the transaxle harness is normal, perform the resistance inspection (off-vehicle inspection).
- If there is any malfunction, repair or replace the transaxle harness.

3. Apply battery positive voltage to the transaxle connector terminal D and battery negative voltage to the transaxle connector terminal I, and verify that operating sound is heard from solenoid.

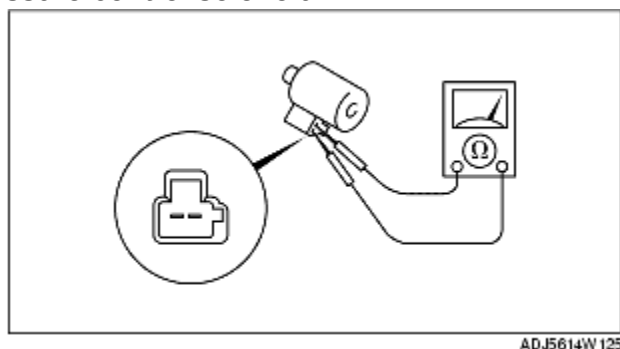


- If the "click" is not heard, inspect the transaxle harness.
- If transaxle harness is normal, perform the resistance inspection (off-vehicle inspection).
- If there is any malfunction, repair or replace the transaxle harness.

Resistance Inspection (Off-Vehicle Inspection)

1. Remove the control valve body. (See [SOLENOID VALVE REMOVAL/INSTALLATION](#).)
2. Measure the resistance of each solenoid valve individually.
 - If there is any malfunction, replace the solenoid valve.
3. Install the control valve body. (See [SOLENOID VALVE REMOVAL/INSTALLATION](#).)

Pressure control solenoid



ADJ5614W125

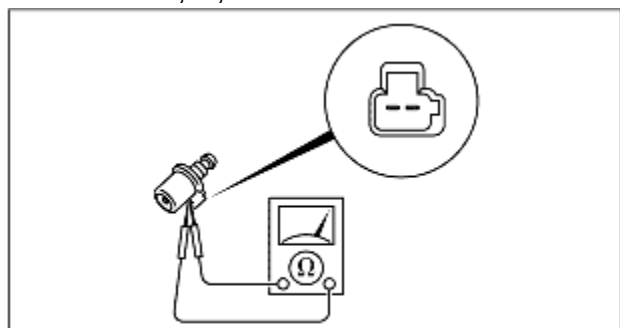
Resistance

2.4-7.3 ohms

(ATF temperature: -40-150 °C

{-40-302 °F})

Shift solenoid A, B, C



B3E0517W071

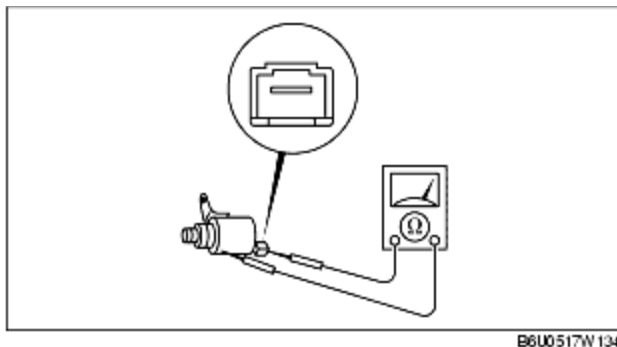
Resistance

1.0-4.2 ohms

(ATF temperature: -40-150 °C

{-40-302 °F})

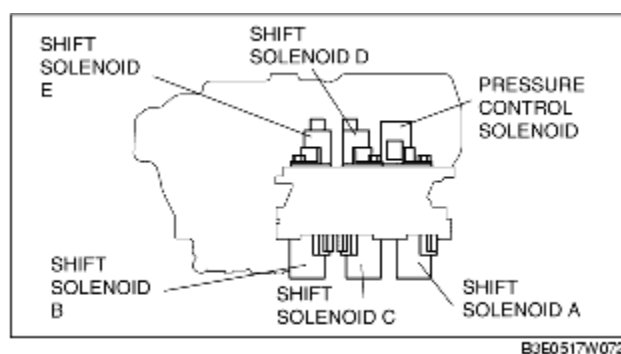
Shift solenoid D, E

**Resistance****10.9-26.2 ohms****(ATF temperature: -40-150 °C****{-40-302 °F})**

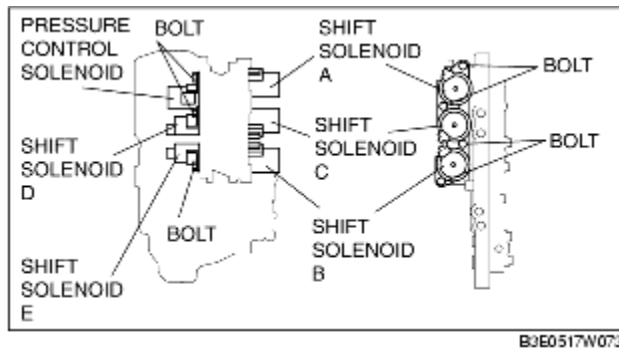
SOLENOID VALVE REMOVAL/INSTALLATION

B3E051721280W02

1. Remove the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\].](#))
2. Disconnect the negative battery cable.
3. Remove the under cover.
4. Remove the control valve body. (See [CONTROL VALVE BODY REMOVAL.](#))
5. Remove the solenoid valve(s).



6. Apply ATF to a new O-ring and install it on the solenoid valve.
7. Install the solenoid valve in the control valve body.



Tightening torque

7.8-10.8 N·m

{80-110 kgf·cm, 69.5-95.4 in·lbf}

8. Install the control valve body. (See [CONTROL VALVE BODY REMOVAL](#).)
9. Install the under cover.
10. Connect the negative battery cable.
11. Install the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\]](#).)
12. Add ATF and, with the engine idling, inspect the ATF level and inspect for leakage. (See [Automatic Transaxle Fluid \(ATF\) Level Inspection](#).)
13. Perform the mechanical system test. (See [MECHANICAL SYSTEM TEST](#).)
14. Perform the road test. (See [ROAD TEST](#).)

PCM INSPECTION

B3E051718901W01

1. Inspect the PCM. (See [PCM INSPECTION \[Z6\]](#).)

PCM REMOVAL/INSTALLATION

B3E051718901W02

1. Remove and install the PCM. (See [PCM REMOVAL/INSTALLATION \[Z6\]](#).)

AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION

B3E051701030W01

1. Remove the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\]](#).)
2. Disconnect the negative battery cable.
3. Remove the battery, battery tray and battery box. (See [BATTERY REMOVAL/INSTALLATION \[Z6\]](#).)

4. Remove the air cleaner component. (See [INTAKE-AIR SYSTEM REMOVAL/INSTALLATION \[Z6\].](#))
5. Remove the EGR pipe.
6. Remove the front tires and splash shield.
7. Remove the under cover.
8. Drain the ATF. (See [AUTOMATIC TRANSAXLE FLUID \(ATF\) REPLACEMENT.](#))

Warning

- Improperly jacking a transaxle is dangerous. It can slip off the jack and may cause serious injury.

Caution

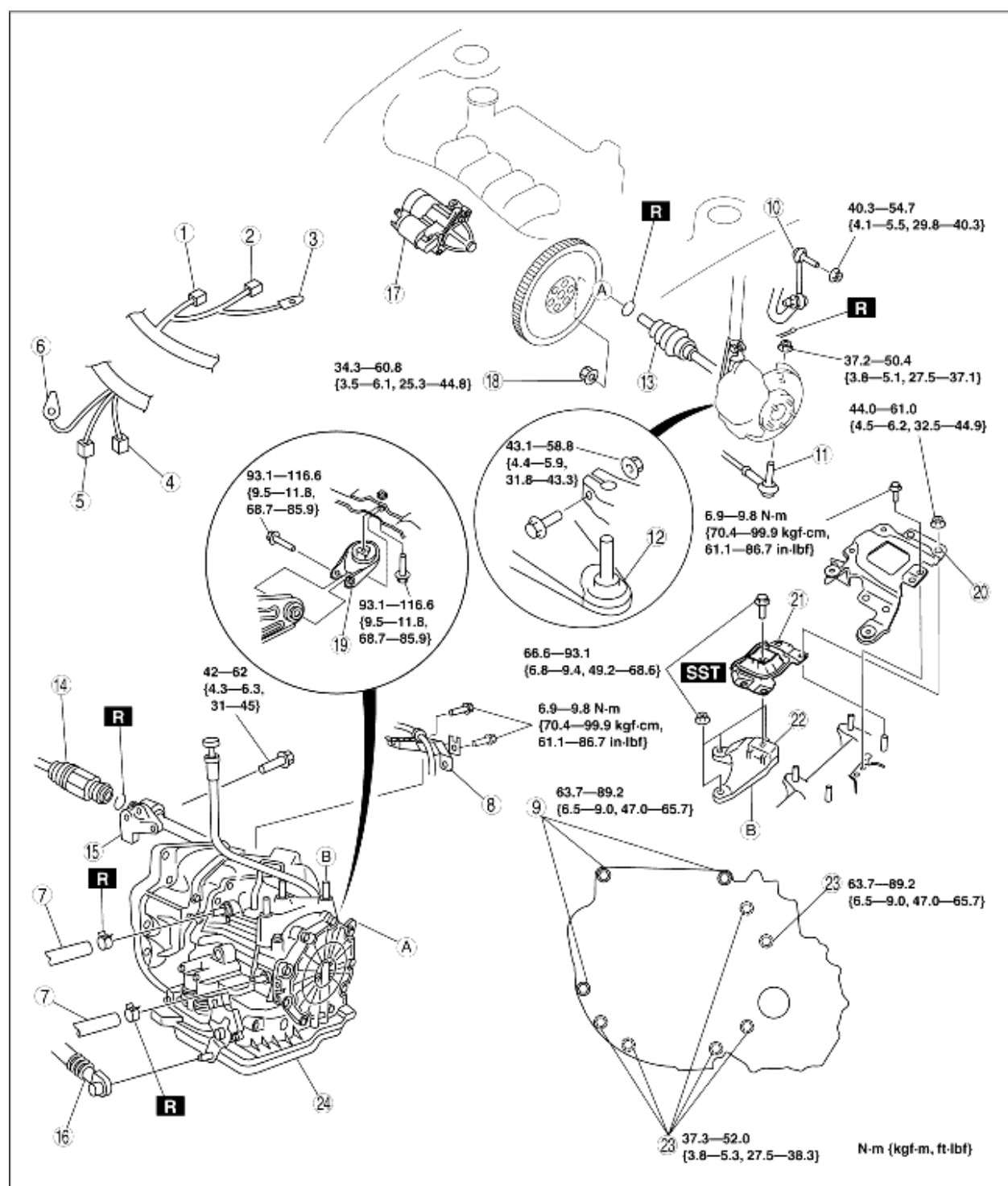
- To prevent the torque converter and transaxle from separating, remove the transaxle without tilting it toward the torque converter.

9. Remove in the order indicated in the table.
10. Install in the reverse order of removal.
11. Add ATF to the specified level. (See [AUTOMATIC TRANSAXLE FLUID \(ATF\) REPLACEMENT.](#))
12. Perform the mechanical system test. (See [MECHANICAL SYSTEM TEST.](#))

Service item	Test item			
	Line pressure test	Stall test	Time lag test	Road test
ATX replacement	X			
ATX overhaul	X	X	X	X
Torque converter replacement	X	X		
Oil pump replacement	X			
Clutch system replacement	X		X	

X :

Test to be performed after the service work



B3E0517W022

1	Input/turbine speed sensor connector
2	VSS connector
3	GND wiring harness
4	Transaxle connector
5	TR switch connector

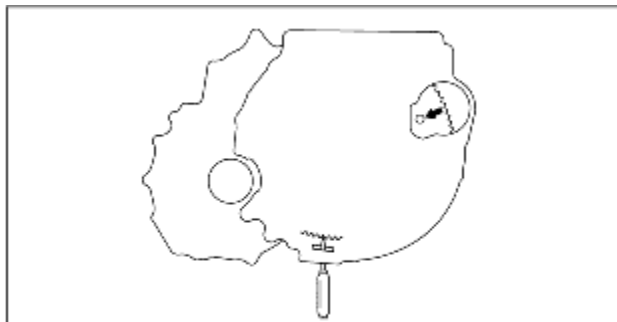
6	GND wiring harness
7	Oil hose
8	Selector cable bracket
9	Transaxle mounting bolt (upper side)
10	Stabilizer control link
11	Tie-rod end ball joint (See STEERING GEAR AND LINKAGE REMOVAL/INSTALLATION.)
12	Lower arm ball joint
13	Drive shaft (See DRIVE SHAFT REMOVAL/INSTALLATION.)
14	Drive shaft (See DRIVE SHAFT REMOVAL/INSTALLATION.)
15	Joint shaft (See JOINT SHAFT REMOVAL/INSTALLATION.)
16	Selector cable
17	Starter (See STARTER REMOVAL/INSTALLATION [Z6].)
18	Torque converter installation nuts (See Torque Converter Nuts Removal Note.) (See Torque Converter Nuts Installation Note.)
19	No.1 engine mount rubber (See No.1 Engine Mount and No.4 Engine Mount Installation Note.)
20	Battery tray bracket
21	No.4 engine mount rubber (See No.4 Engine Mount Removal Note.) (See No.1 Engine Mount and No.4 Engine Mount Installation Note.)
22	No.4 engine mount bracket (See No.4 Engine Mount Removal Note.) (See No.1 Engine Mount and No.4 Engine Mount Installation Note.)
23	Transaxle mounting bolt (lower side)
24	Transaxle

(See [Transaxle Removal Note](#).)

(See [Transaxle Installation Note](#).)

Torque Converter Nuts Removal Note

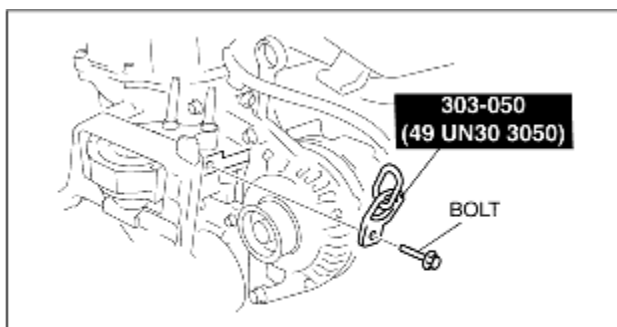
1. Using the flathead screwdriver, lock the drive plate.
2. Remove the torque converter nuts from the starter installation hole.



ADJ5614W014

No.4 Engine Mount Removal Note

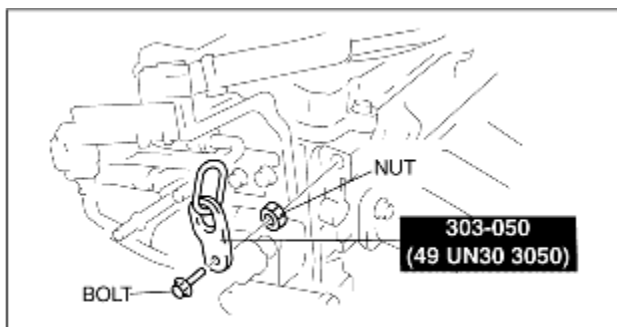
1. Remove the P/S reserve tank and coolant reserve tank with the hose still connected.
2. Using the bolts **part number 99794 1025** or **M10× 1.25, length 25 mm {0.98 in}** to install the **SST** to the position as shown in the figure.



B3E0515W022

Caution

- When attaching the SST in the engine rear side, install a suitable nut between the engine and the SST.



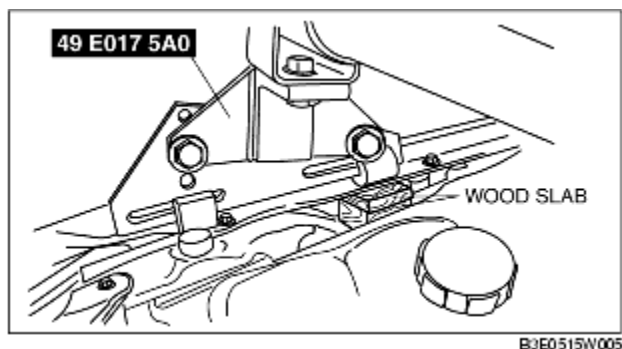
B3E0110W006

Tightening torque

38-51 N·m

{3.9-5.2 kgf·m, 29-37 ft·lbf}

3. Insert a wood slab of appropriate size between the front fender panel and upper apron reinforcement.



Note

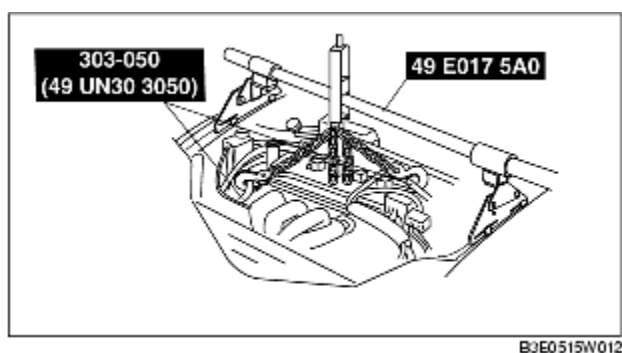
- Wood slab height

4SD : approx. 35 mm {1.4 in}

5HB : approx. 60 mm {2.4 in}

- Cut the wood slab into two pieces and insert.

4. Support the engine using the **SST**.



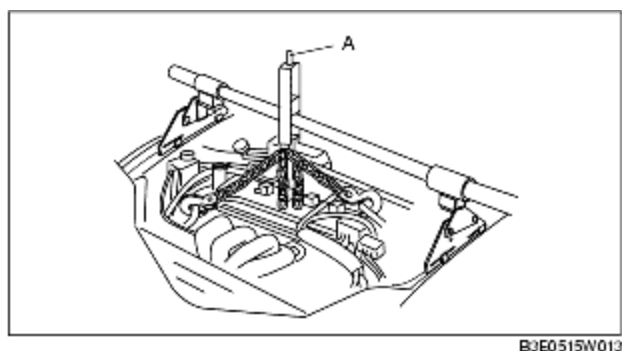
Note

- A hoist or small crane can be used in place of the **SST** (49 E017 5A0).

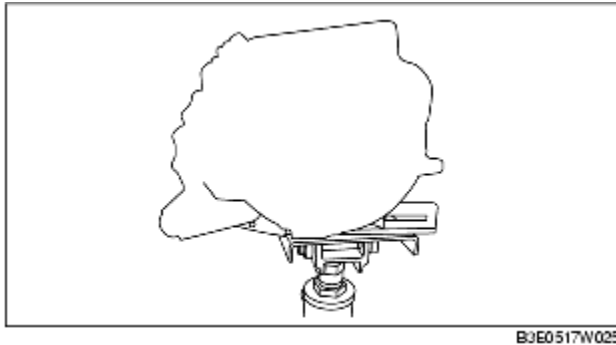
5. Remove the battery tray bracket, No.4 engine mount rubber and bracket.

Transaxle Removal Note

1. Loosen the part marked A and lean the engine toward the transaxle.



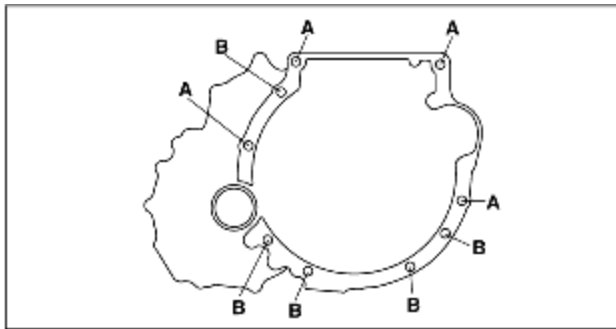
2. Support the transaxle on a jack.
3. Remove the transaxle mounting bolts.
4. Remove the transaxle.



B3E0517W025

Transaxle Installation Note

1. Set the transaxle on a jack and lift it.
2. Install the transaxle mounting bolts.



ADJ5614W013

Tightening torque

A: 63.7-89.2 N·m

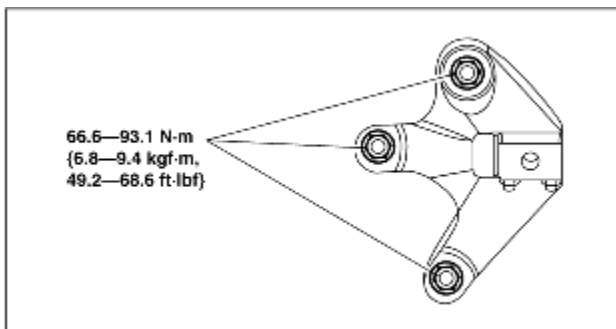
{6.5-9.0 kgf·m, 47.0-65.7 ft·lbf}

B: 37.3-52.0 N·m

{3.8-5.3 kgf·m, 27.5-38.3 ft·lbf}

No.1 Engine Mount and No.4 Engine Mount Installation Note

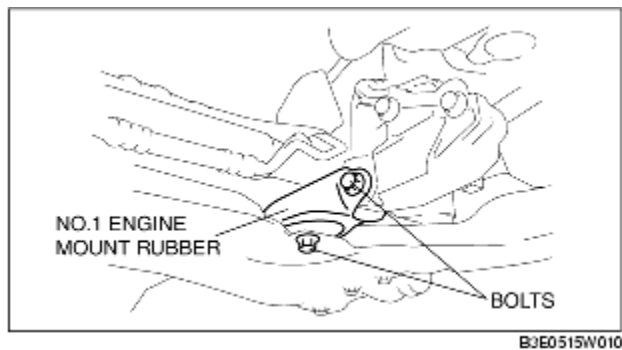
1. Install the No.4 engine mount bracket on the transaxle case and tighten nuts.



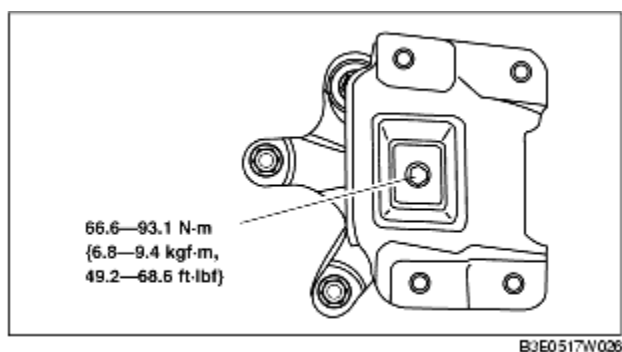
66.6—93.1 N·m
{6.8—9.4 kgf·m,
49.2—68.6 ft·lbf}

B3E0517W023

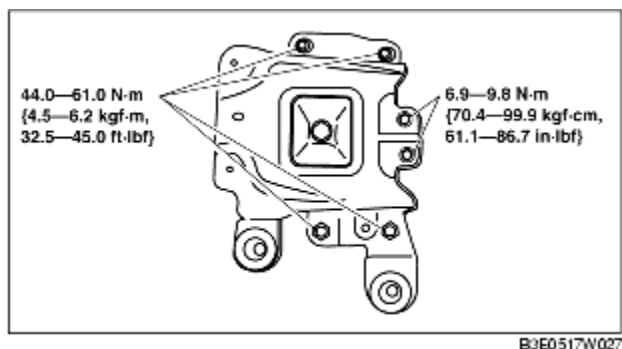
2. Install the No.1 engine mount rubber to the crossmember and temporarily tighten bolts.



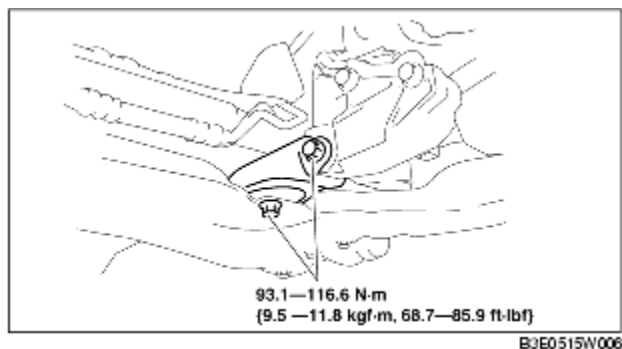
3. Place the No.4 engine mount rubber with the body stud bolts passing through the holes and tighten the bolt as shown in the figure.



4. Place the battery tray bracket on the No.4 engine mount rubber with body stud bolts passing through the holes and tighten bolts and nuts as shown in the figure.



5. Fully tighten the bolts



6. Remove the **SSTs**.

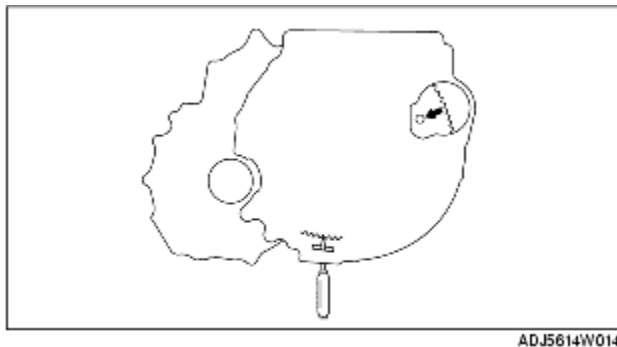
Torque Converter Nuts Installation Note

1. Using the flathead screwdriver, lock the drive plate.
2. Hold the crankshaft pulley to prevent the drive plate from rotating.

Caution

- Loosely and equally tighten the torque converter nuts, then further tighten them to the specified tightening torque.

3. Tighten the torque converter mounting nuts.



Tightening torque

34.3-60.8 N·m

{3.5-6.1 kgf·m, 25.3-44.8 ft·lbf}

OIL SEAL REPLACEMENT [AUTOMATIC TRANSAXLE]

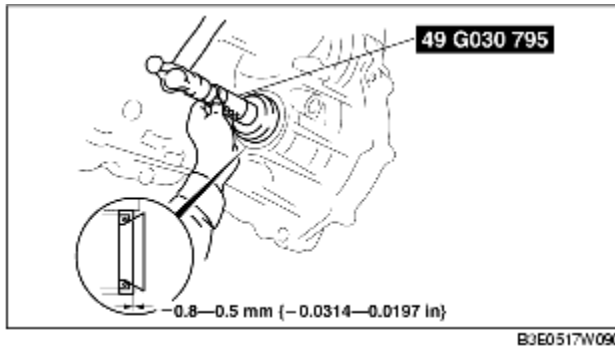
B3E051701030W02

1. Drain the ATF. (See [AUTOMATIC TRANSAXLE FLUID \(ATF\) REPLACEMENT](#).)

Caution

- The oil seal is easily damaged by the sharp edges of the drive shaft splines. Do not let the splines contact the oil seal.

2. Remove the drive shaft and joint shaft. (See [DRIVE SHAFT REMOVAL/INSTALLATION](#).) (See [JOINT SHAFT REMOVAL/INSTALLATION](#).)
3. Remove the oil seal.
4. Using the **SST** and a hammer, tap a new oil seal in evenly until the **SST** contacts the transaxle case.



5. Coat the lip of the oil seal with transaxle oil.
6. Install the drive shaft and joint shaft. (See [DRIVE SHAFT REMOVAL/INSTALLATION](#).) (See [JOINT SHAFT REMOVAL/INSTALLATION](#).)
7. Add ATF to the specified level. (See [AUTOMATIC TRANSAXLE FLUID \(ATF\) REPLACEMENT](#).)
8. Perform the mechanical system test. (See [MECHANICAL SYSTEM TEST](#).)

CONTROL VALVE BODY REMOVAL

B3E051721100W01

On-Vehicle Removal

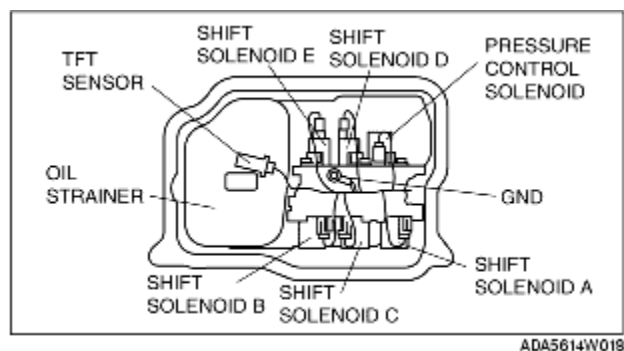
Warning

- Using compressed air can cause dirt and other particles to fly out, causing injury to the eyes. Wear protective eyeglasses whenever using compressed air.

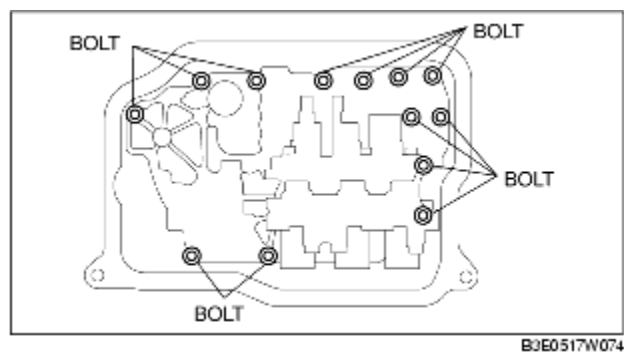
Caution

- Clean the transaxle exterior throughout with a steam cleaner or cleaning solvents before removal.
- If any old sealant gets into the transaxle during installation of the oil pan, trouble may occur in the transaxle case and oil pan. Clean with cleaning fluids.

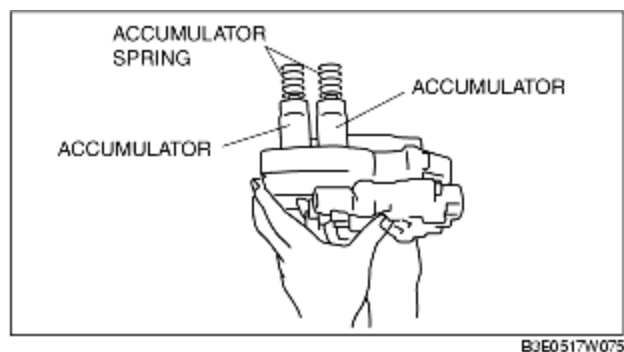
1. Remove the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\]](#).)
2. Disconnect the negative battery cable.
3. Drain the ATF into a separate suitable container. (See [AUTOMATIC TRANSAXLE FLUID \(ATF\) REPLACEMENT](#).)
4. Remove the under cover.
5. Remove the oil pan.
6. Disconnect the solenoid connectors and GND.
7. Remove the oil strainer.



8. Remove the control valve body installation bolts as shown in the figure, then remove the control valve body component as shown in the figure.



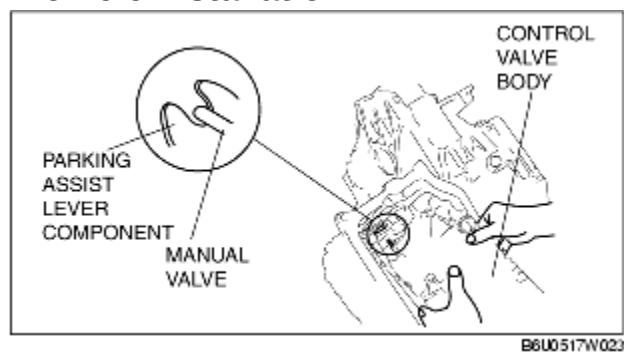
9. Remove the accumulators and accumulator springs.



CONTROL VALVE BODY INSTALLATION

B3E051721100W02

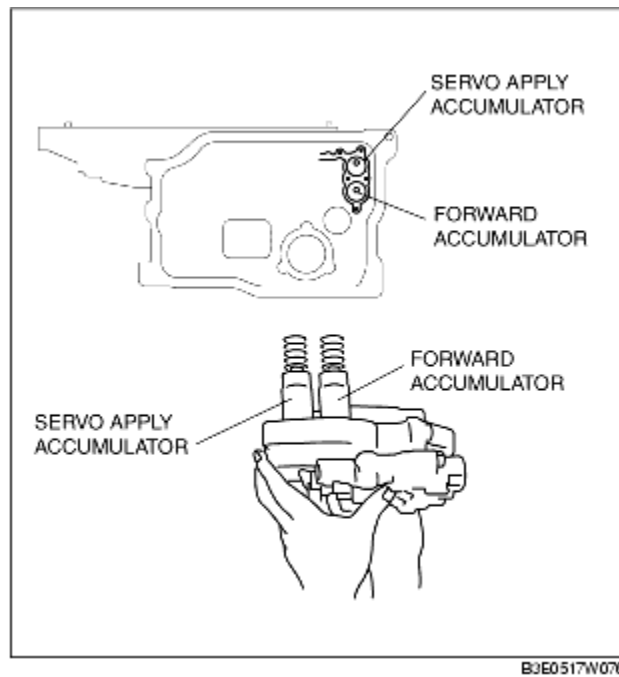
On-Vehicle Installation



Caution

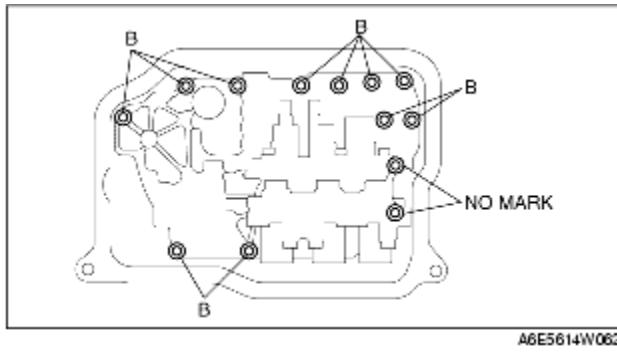
- Be sure to align the parking rod and the manual valve.

1. Install the accumulator springs and accumulators into the transaxle case.



Spring	Outer diameter (mm {in})	Free Length (mm {in})	No. of coils	Wire diameter (mm {in})
Servo apply accumulator large spring	21.0 {0.827}	67.8 {2.669}	10.3	3.5 {0.138}
Servo apply accumulator small spring	13.0 {0.512}	67.8 {2.669}	17.1	2.2 {0.087}
Forward accumulator small spring	21.0 {0.827}	75.0 {2.953}	10.7	2.3 {0.091}
Forward accumulator large spring	15.6 {0.614}	49.0 {1.929}	7.7	2.4 {0.094}

2. Install the control valve body component.

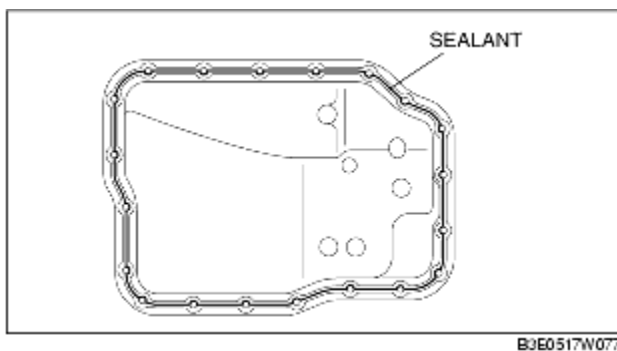
**Tightening torque****7.8-10.8 N·m****{80-110 kgf·cm, 70-95 in·lbf}****Bolt length (measured from below the head)****Mark B: 40 mm {1.575 in}****No mark: 70 mm {2.756 in}**

3. Install the oil strainer.

4. Match the harness colors, then connect the solenoid connectors and GND, and install the TFT sensor.

Spring	Color of connector (harness side)
Pressure control solenoid	Black
Shift solenoid A	White
Shift solenoid B	Blue
Shift solenoid C	Green
Shift solenoid D	White
Shift solenoid E	Black

5. Apply a light coat of silicon sealant to the contact surfaces of the oil pan and transaxle case.



6. Install the oil pan.

Tightening torque

6-8 N·m {62-81 kgf·cm, 53-70 in·lbf}

7. Install the under cover.
8. Connect the negative battery cable.
9. Install the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\]](#).)
10. Add ATF and with the engine idling, inspect the ATF level. (See [AUTOMATIC TRANSAXLE FLUID \(ATF\) REPLACEMENT](#).)
11. Perform the mechanical system test. (See [MECHANICAL SYSTEM TEST](#).)
12. Perform the road test. (See [ROAD TEST](#).)

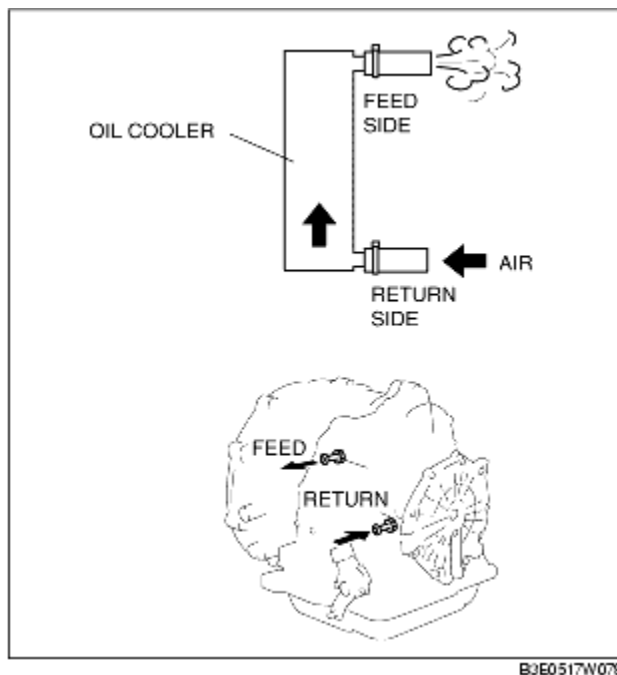
OIL COOLER FLUSHING [AUTOMATIC TRANSAXLE]

B3E051719900W01

Note

- The contaminated cooler line (oil pipes and hoses) and oil cooler must be flushed completely when ATX is overhauled or replaced.

1. Remove the two oil cooler line hoses and apply air pressure of **196 kPa {2.0 kgf/cm², 28 psi}** from the return hose (pipe) side.



Caution

- Power flushing should be performed very carefully when removing the accumulated debris from the fluid baffle, otherwise the debris cannot be removed or the problem becomes even worse.

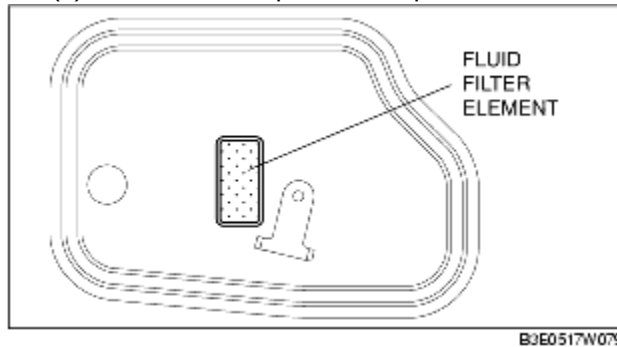
2. If there is no air blown out the feed side, flush the oil cooler lines using the power-flushing tool. (See [Power Flushing](#).)

Recommended power-flushing manufacturer

Manufacturer	Part number	Description
Kent Moore	J35944-AMAZ	Flushing kit or equivalent
OTC	60081	Portable torque converter, oil cooler cleaner or equivalent

3. If there is ventilation, perform the following steps.

(1) Remove the oil pan and inspect the fluid filter element from the front filter.



(2) If the element is covered with too much debris or particles and cannot be seen, replace the oil cooler. (See [OIL COOLER REMOVAL/INSTALLATION \[AUTOMATIC TRANSAXLE\]](#).)

(3) If the element can be seen, flush the oil cooler lines using the power-flushing tool.

- Performing back and reverse power flushing two times each does not work because debris or particles flow out from the feed pipe side of ATX.

Power Flushing

Repair procedure

1. Before power flushing, inspect the hoses/lines and clamps. Power flushing must begin with back flushing followed by forward flushing to quickly dislodge the restriction. If back flushing is not performed before forward flushing, the restriction could further reduce the ATF flow through the internal mesh type baffle of the cooler and flushing will not be effective or possible.

Inspecting oil lines and clamps

1. Be sure to inspect the lines (hoses/pipes) for cuts, crimps (pinched), cracks or any other damage before reusing them.

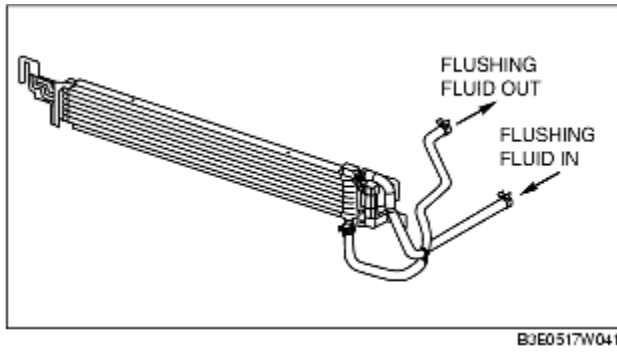
- If there is any malfunction, replace lines and clamps.

Caution

- Always use new clamps when replacing hoses.

Back flushing

1. Using the power flushing equipment manufacturer's instructions, connect equipment so the flushing fluid flows in the opposite direction of normal fluid flow.



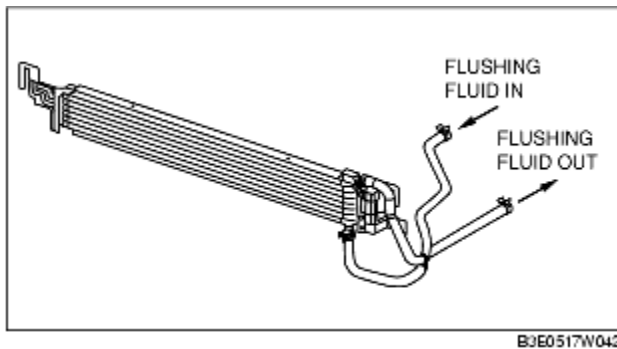
2. Flush oil cooler/lines until discharge fluid is clean.

Caution

- If the cooler can not be properly flushed using recommended equipment, send the oil cooler out for sublet cleaning or replace.

Forward flushing

1. Connect power flushing equipment so the flushing fluid flows in the direction of normal fluid flow.
2. Flush oil cooler/lines until discharge fluid is clean.

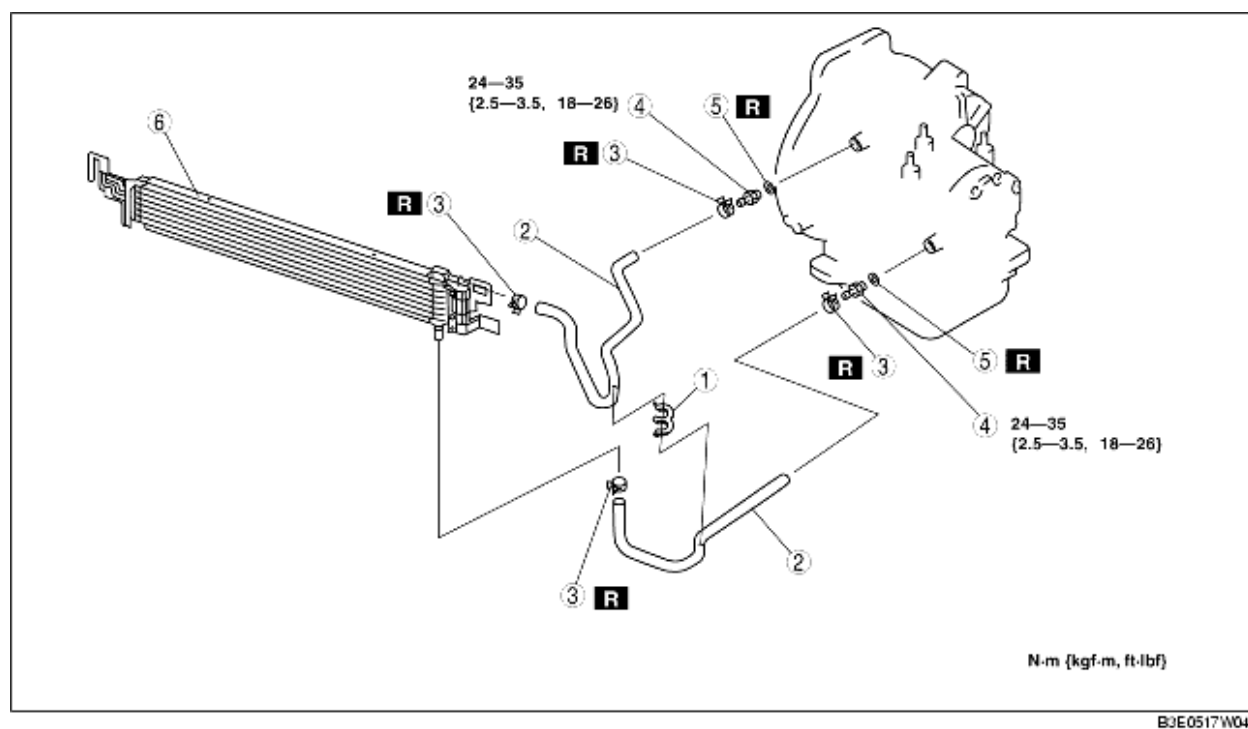


OIL COOLER REMOVAL/INSTALLATION [AUTOMATIC TRANSAXLE]

B3E051719900W02

1. Remove the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\].](#))
2. Disconnect the negative battery cable.
3. Remove the radiator grille. (4SD)
4. Remove the under cover.
5. Drain the ATF into a container. (See [AUTOMATIC TRANSAXLE FLUID \(ATF\) REPLACEMENT.](#))
6. Remove the radiator mount.

7. Remove the cooling fan component. (See [Cooling Fan Component Installation Note.](#))
8. Remove the radiator rubber mount from the mount installation hole. (See [Radiator Removal Note.](#))
9. Remove in the order indicated in the table.
10. Install in the reverse order of removal.
11. Add ATF to the specified level. (See [AUTOMATIC TRANSAXLE FLUID \(ATF\) REPLACEMENT.](#))
12. Inspect for oil leakage from the oil pipes and oil hoses.
13. Inspect for coolant from the hoses.
14. Inspect the ATF level and condition. (See [AUTOMATIC TRANSAXLE FLUID \(ATF\) INSPECTION.](#))
15. Perform the line pressure test. (See [MECHANICAL SYSTEM TEST.](#))
16. Perform the road test. (See [ROAD TEST.](#))



1	Hose clip
2	Oil hose (See Hose Clamp, Oil Hose Installation Note.)
3	Hose clamp (See Hose Clamp, Oil Hose Installation Note.)
4	Connector bolt
5	O-ring

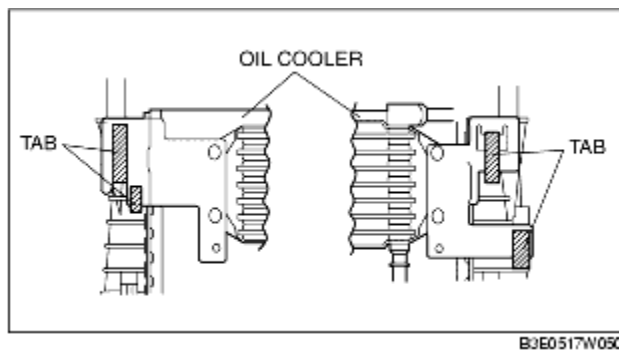
- | | |
|---|--|
| 6 | Oil cooler
(See Oil Cooler Installation Note.) |
|---|--|

Oil Cooler Installation Note

1. The automatic transaxle oil cooler flushing must be performed whenever a transaxle is removed for service because the existing fluid may be contaminated, and to prevent contamination of new fluid.

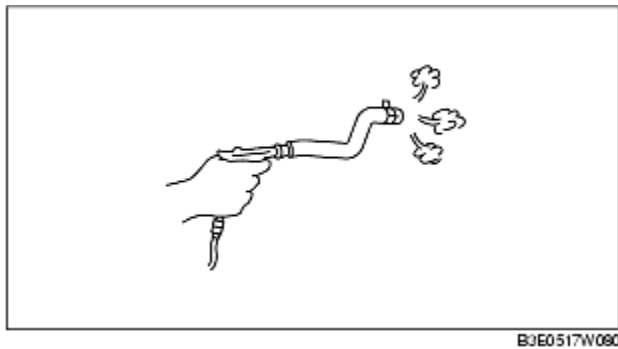
Note

- Flushing must be performed after installation of the overhauled or replaced transaxle.
2. Follow the instructions in the manufacturer's publication for flushing operation.
 3. Insert the oil cooler to tab of the radiator.

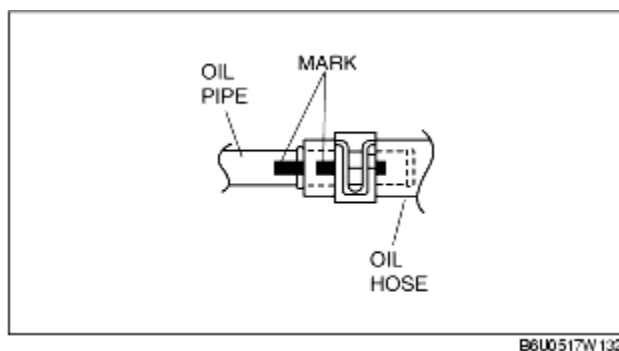


Hose Clamp, Oil Hose Installation Note

1. Apply compressed air to the cooler-side opening, and blow any remaining grime and foreign material from the cooler pipes. Compressed air should be applied for no **less than 1 min.**



2. Align the marks, and slide the oil hose onto the oil pipe until it is fully seated as shown.



B6U0517W132

Note

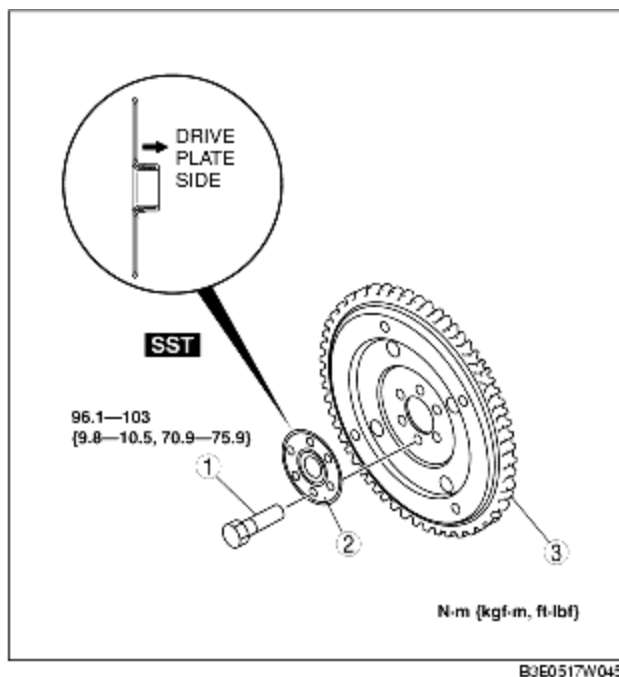
- If reusing the hose, install the new hose clamp exactly on the mark left by the previous hose clamp. Then apply force to the hose clamp in the direction of the arrow in order to fit the clamp in place.

3. Install the new hose clamp onto the hose.
4. Verify that the hose clamp does not interfere with any other components.

DRIVE PLATE REMOVAL/INSTALLATION

B3E051719020W01

1. Remove the transaxle. (See [AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION](#).)
2. Remove in the order indicated in the table.
3. Install in the reverse order of removal.



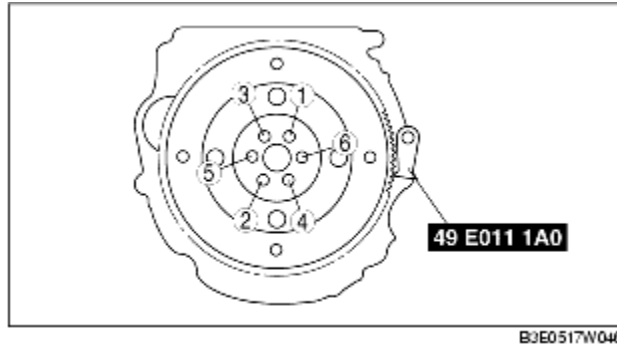
B3E0517W045

- | | |
|---|---|
| 1 | Drive plate mounting bolts
(See Drive Plate Mounting Bolts Removal Note .) |
|---|---|

2	Adapter
3	Drive plate (See Drive Plate Installation Note.)

Drive Plate Mounting Bolts Removal Note

1. Set the **SST** or equivalent against the drive plate.



2. Remove the bolts and the drive plate.

Drive Plate Installation Note

Caution

- If the bolts are reused, remove the oil sealant from the bolt threads. Tightening a bolt that has old sealant on it can cause thread damage.

1. Remove the sealant from the bolt holes in the crankshaft and from the drive plate mounting bolts.

Note

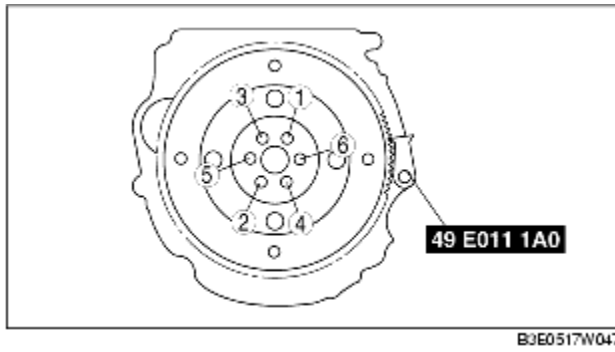
- If all the previous sealant cannot be removed from a bolt, replace the bolts.
- Do not apply sealant if new bolts are used.

2. Install the drive plate.
3. Install the adapter.
4. Apply sealant to the drive plate mounting bolts and install them.
5. Set the **SST** or equivalent against the drive plate.

Caution

- When installing sealant covered bolts, tighten them immediately. Leaving these bolts in a half installed condition could cause them to be stuck that way, due to the natural hardening of the sealant.

6. Tighten the drive plate mounting bolts in two or three steps in the order as shown in the figure.

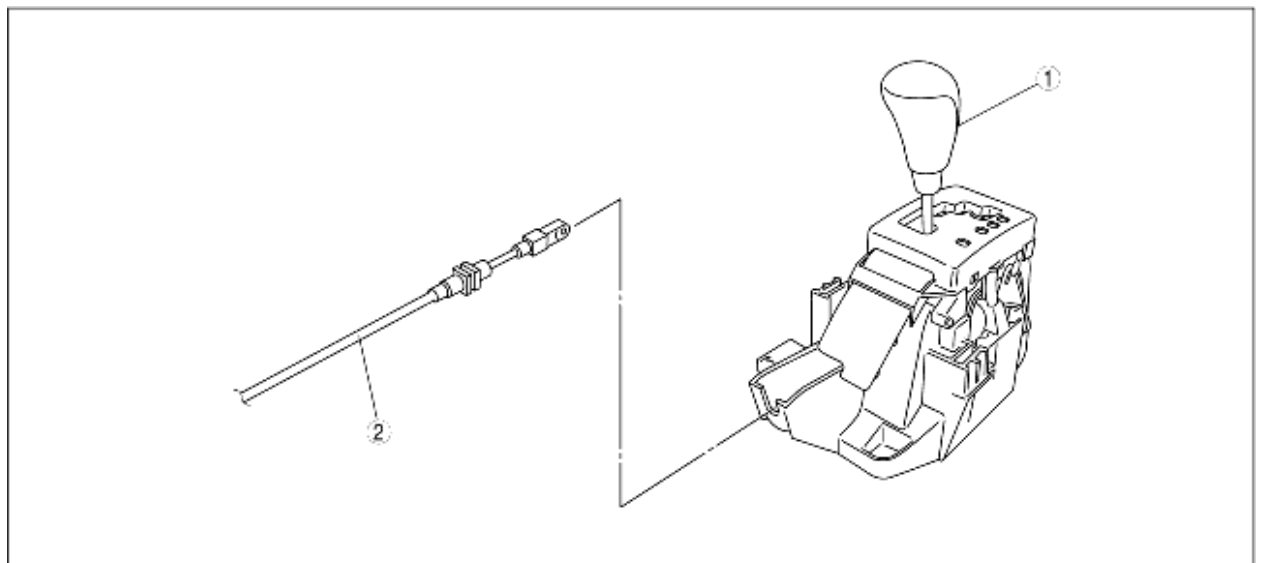
**Tightening torque****96.1-103 N·m****{9.8-10.5 kgf·m, 70.9-75.9 ft·lbf}**

7. Install the transaxle. (See [AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION](#).)

AUTOMATIC TRANSAXLE SHIFT MECHANISM

AUTOMATIC TRANSAXLE SHIFT MECHANISM LOCATION INDEX

B3E051846010W01



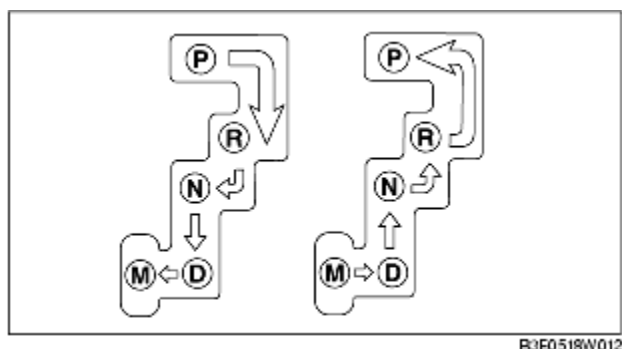
B3E0518W001

	Selector lever (See SELECTOR LEVER INSPECTION.) 1 (See SELECTOR LEVER COMPONENT INSPECTION.) (See SELECTOR LEVER COMPONENT REMOVAL/INSTALLATION.) (See SELECTOR LEVER DISASSEMBLY/ASSEMBLY.)
2	Selector cable (See SELECTOR CABLE ADJUSTMENT.)

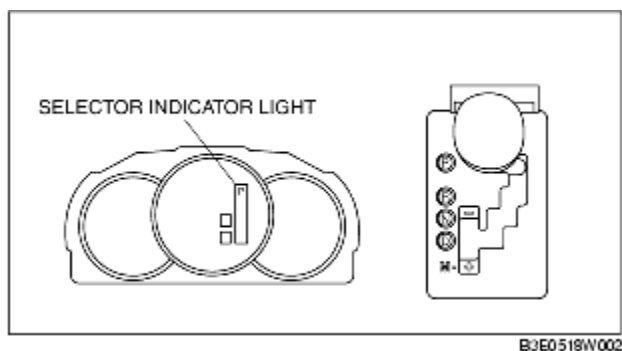
SELECTOR LEVER INSPECTION

B3E051846102W01

1. Turn the ignition switch to the ON position (engine off).
2. With the brake pedal depressed, verify that there is a "click" at each range when shifted.



3. Verify that the selector lever can be shifted.
4. Verify that there is a "click" at each position when shifted from P position to M range.
5. Verify that the positions of the selector lever and the indicator are aligned.



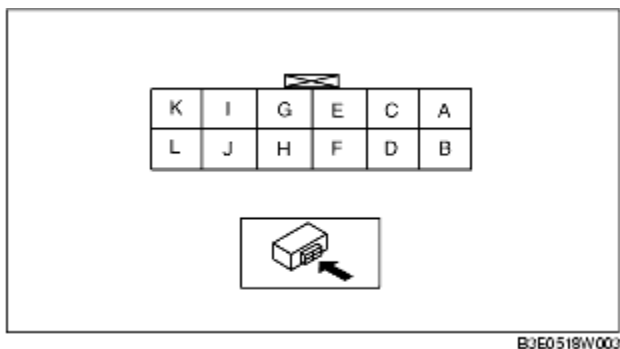
- If there is any malfunction, adjust the TR switch. (See [TRANSAXLE RANGE \(TR\) SWITCH ADJUSTMENT.](#))

6. Verify that the vehicle operates in each selected range.

SELECTOR LEVER COMPONENT INSPECTION

B3E051846102W02

1. Remove the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\].](#))
2. Disconnect the negative battery cable.
3. Remove the console. (See [CONSOLE REMOVAL/INSTALLATION.](#))
4. Disconnect the selector lever component connector.
5. Verify that the continuity is as indicated in the table.



B3E0518W003

- If there is any malfunction, adjust the selector cable. (See [SELECTOR CABLE ADJUSTMENT.](#))

 : Continuity

Selector lever position/range		Connector terminal											
		A	B	C	D	E	F	G	H	I	J	K	L
M range	- M			○								○	
	center M	○										○	
	+ M		○									○	
Other													

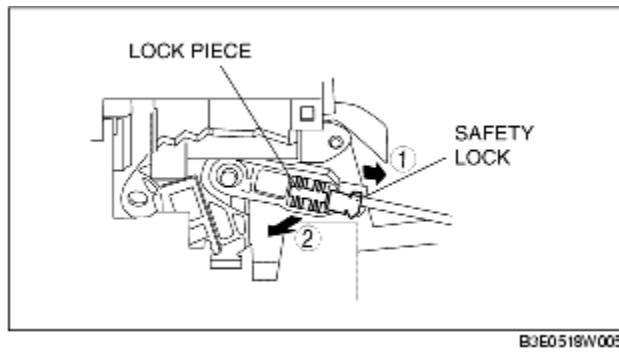
B3E0518W000

B3E0518W004

SELECTOR CABLE ADJUSTMENT

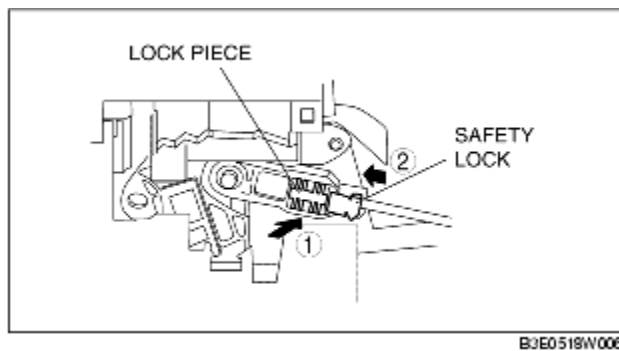
B3E051846102W03

1. Remove the console. (See [CONSOLE REMOVAL/INSTALLATION.](#))
2. Shift the selector lever to the P position.
3. Unlock the lock piece of the selector cable (selector lever side) in the order as shown in the figure.



4. Verify that the manual shaft is in the P position.

5. Lock the lock piece and safety lock of the selector cable (selector lever side) in the order as shown in the figure.



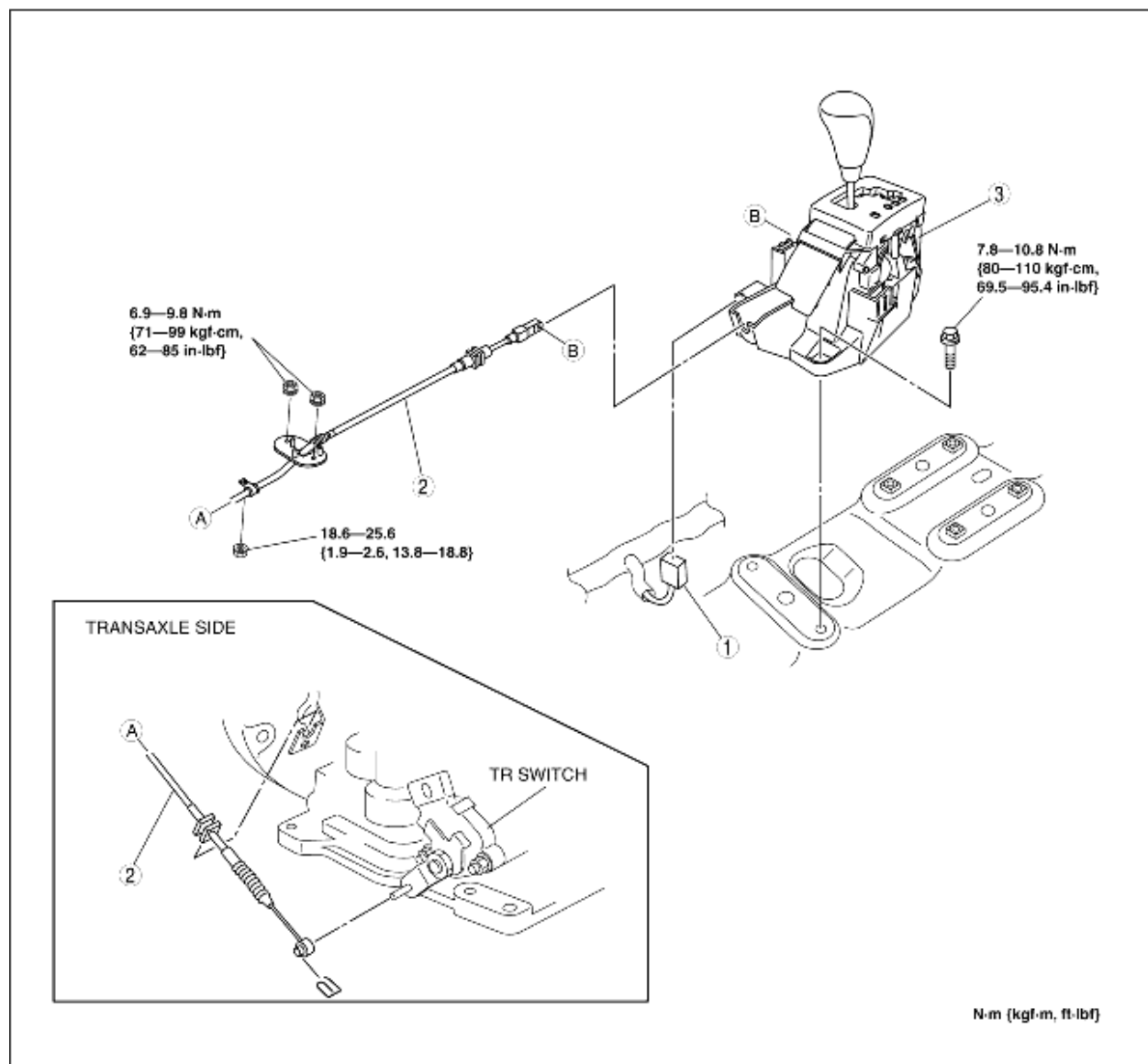
6. Install the console. (See [CONSOLE REMOVAL/INSTALLATION](#).)

7. Shift the selector lever from the P position to M range, and make sure that there are no other components in that area to interfere with the lever.

SELECTOR LEVER COMPONENT REMOVAL/INSTALLATION

B3E051846102W04

1. Remove the battery cover. (See [BATTERY REMOVAL/INSTALLATION \[Z6\]](#).)
2. Disconnect the negative battery cable.
3. Remove the battery, battery box and battery tray. (See [BATTERY REMOVAL/INSTALLATION \[Z6\]](#).)
4. Remove the air cleaner component. (See [INTAKE-AIR SYSTEM REMOVAL/INSTALLATION \[Z6\]](#).)
5. Remove the console. (See [CONSOLE REMOVAL/INSTALLATION](#).)
6. Remove the heat insulator. (front and center)
7. Remove in the order indicated in the table.
8. Install in the reverse order of removal.

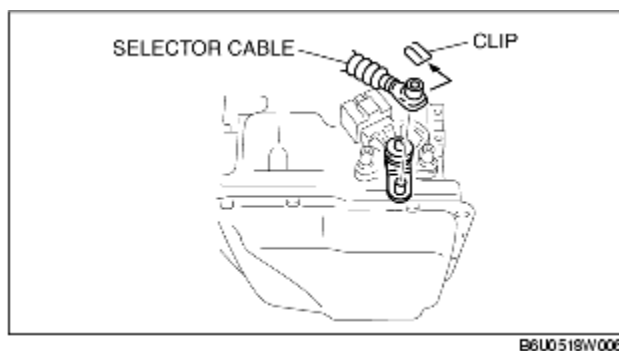


B3E0518/W007

1	Selector lever component connector
	Selector cable
2	(See Selector Cable Removal Note.) (See Selector Cable Installation Note.)
3	Selector lever component (See Selector Lever Component Installation Note.)

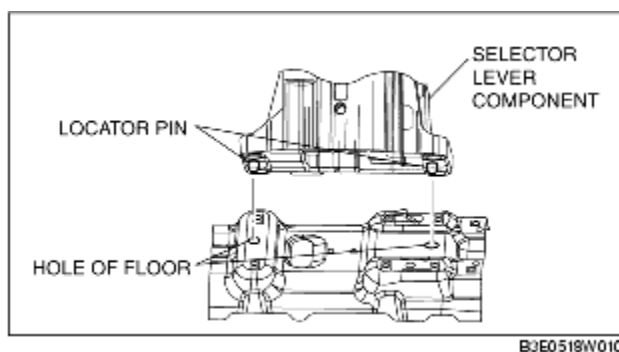
Selector Cable Removal Note

1. Remove the clip.
2. Remove the selector cable.



Selector Lever Component Installation Note

1. Insert the locator pin of selector lever component to the hole of floor.



2. Tighten the selector lever component installation bolts.

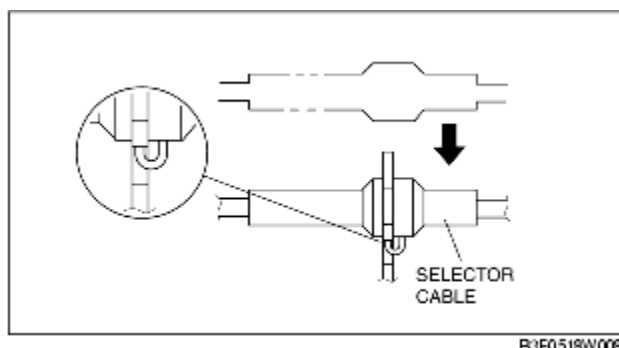
Tightening torque

7.8-10.8 N·m

{80-110 kgf·cm, 69.5-95.4 in·lbf}

Selector Cable Installation Note

1. Install the selector cable to the selector lever securely.
2. Install the selector cable to the bracket securely.

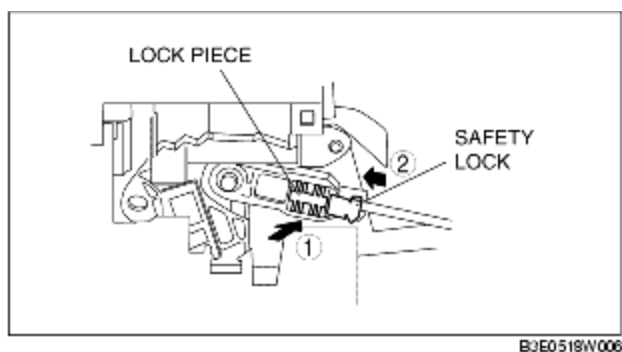


Note

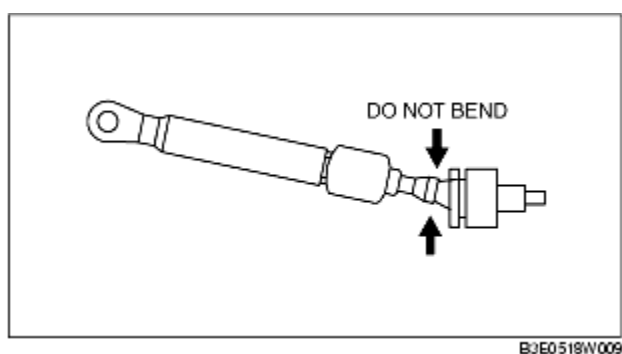
- Steps 3 and 4 are for the selector cable replacement only.

3. Verify that the selector lever is in the P position.

4. Lock the lock piece and safety lock of the selector cable (selector lever side) in the order as shown in the figure.



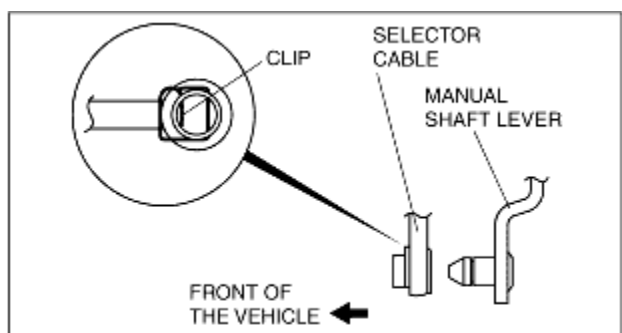
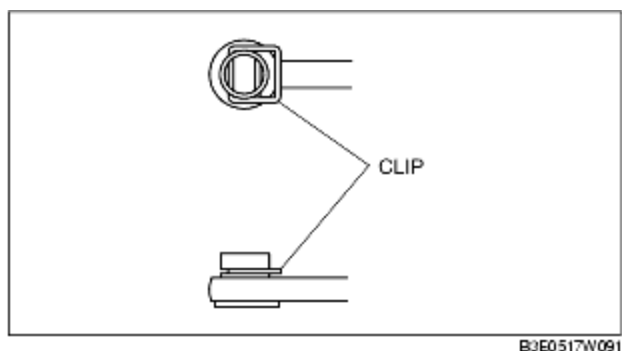
5. Verify that the manual shaft is in the P position.



Caution

- Bending the selector cable in the manner shown in the figure will damage the cable and it may become loose when shifted. When installing the selector cable, hold it straight.

6. Install the clip as shown in the figure.



Note

- Install the selector cable to the manual shaft lever with the clip side of the selector cable end facing the front of the vehicle.

7. Install the selector cable to the manual shaft lever in such a way that the selector cable does not bear a load.

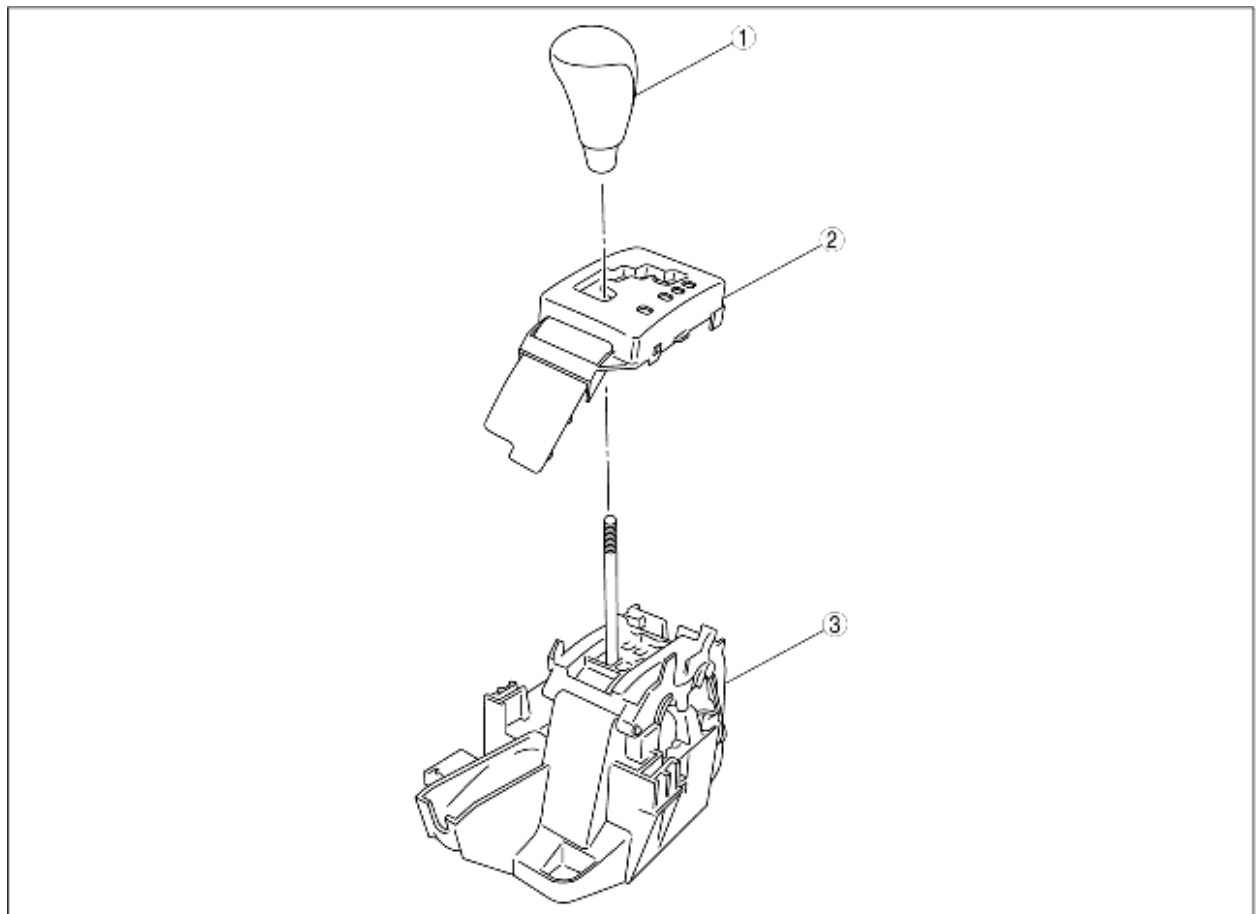
8. Confirm that the end of the manual shaft lever sticks out of the end of the selector cable.

9. Install the selector cable to the selector cable bracket securely.

SELECTOR LEVER DISASSEMBLY/ASSEMBLY

B3E051846102W05

1. Disassemble in the order indicated in the table.
2. Assemble in the reverse order of disassembly.



B3E0518W011

1	Selector lever knob
2	Indicator panel
3	Selector lever component

TECHNICAL DATA

TRANSMISSION/TRANSAXLE TECHNICAL DATA

B3E055001024W01

Item				Specifications
CLUTCH				
Clutch pedal	Disengagement point	Disengagement stroke	(mm {in})	90-110 {3.55-4.33} (Reference value)
		Pedal stroke	(mm {in})	135 {5.31} (Reference value)
Clutch cover	Diaphragm spring fingers	Depth	(mm {in})	0.6 {0.024}
		Maximum height difference	(mm {in})	1.0 {0.039}
	Maximum clearance of flatness of the pressure plate		(mm {in})	0.5 {0.020}
Clutch disc	Minimum depth		(mm {in})	0.3 {0.012}
	Maximum runout		(mm {in})	0.7 {0.028}
Flywheel	Maximum runout		(mm {in})	0.1 {0.004}
Clutch fluid	Type			SAE J1703, FMVSS 116 DOT-3 or DOT-4
MANUAL TRANSAXLE				
Engine type				Z6
Manual transaxle type				F35M-R
Oil	Grade		API Service GL-4 or GL-5	
	Viscosity	All-season		SAE 75W-90
		Above 10 °C {50 °F}		SAE 80W-90
	Capacity (Approximate quantity)			3.04 {3.21, 2.67}
	(L {US qt, Imp qt})			
Engine type				LF

Manual transaxle type			G35M-R	
Oil	Grade		API Service GL-4 or GL-5	
	Viscosity	All-season	SAE 75W-90	
		Above 10 °C {50 °F}	SAE 80W-90	
	Capacity (Approximate quantity)		2.87 {3.03, 2.53}	
	(L {US qt, Imp qt})			
AUTOMATIC TRANSAXLE				
Automatic transaxle type			FN4A-EL	
ATF	Type		ATF M-V	
	Capacity (Approx. quantity)		7.0 {7.4, 6.2}	
	(L {US qt, Imp qt})			
Line pressure		D, M (1GR, 2GR) range	Idle	330-470 {3.4-4.7, 48-68}
			Stall	1,090-1,250 {11.2-12.7, 159-181}
(kPa {kgf/cm², psi})		R position	Idle	490-710 {5.0-7.2, 72-102}
			Stall	1,470-1,690 {15.0-17.2, 214-245}
Engine stall speed	(rpm)	D, M range		2,100-2,700
		R position		
Time lag	(s)	N position→ D range		0.4-0.7
		N position→ R position		0.4-0.7
Transaxle range (TR) switch	(ohm)	P position		4,085-4,515
		R position		1,425-1,575
		N position		713-788
		D range		371-409
Transaxle Fluid temperature (TFT) sensor	(kilohm)	ATF temperature: -20 °C {-4 °F}		236-324
		ATF temperature: 0 °C {32 °F}		84.3-110

		ATF temperature: 20 °C {68 °F}	33.5-42.0
		ATF temperature: 40 °C {104 °F}	14.7-17.9
		ATF temperature: 60 °C {140 °F}	7.08-8.17
		ATF temperature: 80 °C {176 °F}	3.61-4.15
		ATF temperature: 100 °C {212 °F}	1.96-2.24
		ATF temperature: 120 °C {248 °F}	1.13-1.28
		ATF temperature: 130 °C {266 °F}	0.87-0.98
Input/turbine speed sensor	(ohm)	ATF temperature: -40-160 °C {-40-320 °F}	250-600
Vehicle speed sensor (VSS)		(V)	4.5-5.5
Solenoid valves ATF temperature: -40-150 °C {-40-302 °F}	(ohm)	Shift solenoid A	1.0-4.2
		Shift solenoid B	1.0-4.2
		Shift solenoid C	1.0-4.2
		Shift solenoid D	10.9-26.2
		Shift solenoid F	10.9-26.2
		Pressure control	2.4-7.3

SERVICE TOOLS

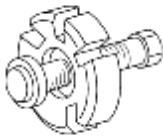
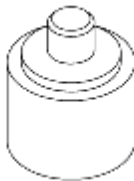
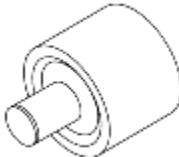
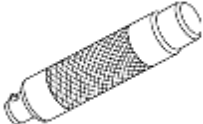
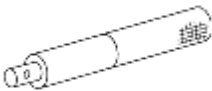
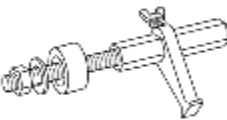
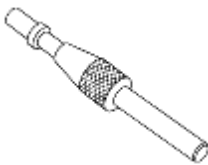
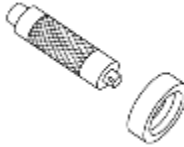
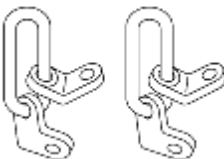
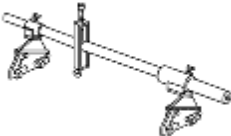
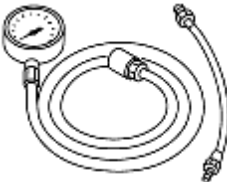
TRANSMISSION/TRANSAXLE SST

B3E056001024W01

1: Mazda SST number

2: Global SST number

Example

1:49 UN30 3009 2:303-009 Crankshaft damper remover					
1:49 UN30 8157 2:308-157 Pilot bearing installer		1:49 F028 202 2: - Bush installer		49 B001 797 2: - Handle	
1:49 UN20 5153 2:205-153 Handle		1:49 E011 1A0 2: - Ring gear brake set		1:49 SE01 310A 2: - Clutch disc centering tool	
1:49 1285 071 2: - Bearing puller		1:49 G030 795 2: - Oil seal installer		1:49 UN30 3050 2: 303-050 Engine lifting bracket	
1:49 E017 5A0 2: - Engine support set		1:49 B019 901B 2: - Oil pressure gauge		1:49 0378 400C 2: - Oil pressure gauge set	
1: - 2: - WDS					

