14. Diagnostic Procedure with Diagnostic Trouble Code (DTC) 5004527

A: DTC 11 ENGINE SPEED SIGNAL 5004521110

DIAGNOSIS:

Engine speed input signal circuit is open or shorted.

- TROUBLE SYMPTOM:
- No lock-up (after engine warm-up).
- "AT OIL TEMP" warning light remains on when the vehicle speed is "0".

WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	 CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and ECM. 3) Measure the resistance of harness between TCM and ECM connector. Connector & terminal 2.5 L model without VDC system (B55) No. 4 — (B134) No. 30: 3.0 L model with VDC system (B55) No. 17 — (B136) No. 9: 3.0 L model without VDC system (B55) No. 4 — (B136) No. 9: 3.0 L model without VDC system (B55) No. 4 — (B136) No. 9: 	Is the resistance less than 1 Ω?	Go to step 2.	Repair open cir- cuit in harness between TCM and ECM connector.
2	CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM. Measure the resistance of harness between TCM connector and chassis ground. Connector & terminal Without VDC system (B55) No. 4 — Chassis ground: With VDC system (B55) No. 17 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 3.	Repair short cir- cuit in harness between TCM and ECM connector.
3	PREPARE SUBARU SELECT MONITOR.	Do you have a Subaru Select Monitor?	Go to step 5.	Go to step 4.
4	 CHECK INPUT SIGNAL FOR TCM. 1) Connect the connectors to TCM and ECM. 2) Turn the ignition switch to ON (engine OFF). 3) Measure the voltage between TCM connector and chassis ground. Connector & terminal Without VDC system (B55) No. 4 (+) — Chassis ground (-): With VDC system (B55) No. 17 (+) — Chassis ground (-): 	Is the voltage 0 V?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- nector in the TCM and ECM.	Go to step 6.
5	 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect the connectors to TCM and ECM. 2) Connect the Subaru Select Monitor to data link connector. 3) Start the engine, and turn the Subaru Select Monitor switch to ON. 4) Warm-up the engine until engine coolant temperature is above 80°C (176°F). 5) Engine idling. 6) Read the data of engine speed using the Subaru Select Monitor. Display shows engine speed signal value sent from ECM. 	Is the revolution value the same as the tachometer reading shown on the com- bination meter?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- nector in the TCM and ECM.	Go to step 6.
6	CHECK POOR CONTACT.	Is there poor contact in engine speed signal cir- cuit?	Repair poor con- tact.	Go to step 7.

Automatic	Transmi	ssion ([Diagnostics)
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No.	Step	Check	Yes	No
7	CONFIRM DTC 11.	Replace the ECM with a	Replace the TCM.	Replace the ECM.
		new one. Does the trouble	<ref. at-49,<="" th="" to=""><th></th></ref.>	
		code appear again, after	Transmission	
		the memory has been	Control Module	
		cleared?	(TCM).>	

MEMO:

B: DTC 27 ATF TEMPERATURE SENSOR 5004521111

DIAGNOSIS:

Input signal circuit of TCM to ATF temperature sensor is open or shorted. **TROUBLE SYMPTOM:** Excessive shift shock. **WIRING DIAGRAM:**



No.	Step	Check	Yes	No
1	CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmis- sion and TCM. 3) Measure the resistance of harness between TCM and transmission connector. <i>Connector & terminal</i> <i>Without VDC system</i> (B55) No. 10 — (B11) No. 12: With VDC system (B54) No. 20 — (B11) No. 12:	Is the resistance less than 1 Ω?	Go to step 2.	Repair open cir- cuit in harness between TCM and transmission con- nector.
2	CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR. Measure the resistance of harness between TCM and transmission connector. Connector & terminal Without VDC system (B55) No. 11 — (B11) No. 11: With VDC system (B54) No. 11 — (B11) No. 11:	Is the resistance less than 1 Ω?	Go to step 3.	Repair open cir- cuit in harness between TCM and transmission con- nector.
3	CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR. Measure the resistance of harness between TCM connector and chassis ground. <i>Connector & terminal</i> <i>Without VDC system</i> (B55) No. 10 — Chassis ground: With VDC system (B54) No. 20 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 4.	Repair short cir- cuit in harness between TCM and transmission con- nector.
4	CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR. Measure the resistance of harness between TCM connector and chassis ground. <i>Connector & terminal</i> <i>Without VDC system</i> (B55) No. 11 — Chassis ground: With VDC system (B54) No. 11 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 5 .	Repair short cir- cuit in harness between TCM and transmission con- nector.

No	Stop	Chook	Vac	No
NO.			fes	NO Co to stop 11
5	1) Turn the ignition switch to OEE	275 and 375 O2		
	2) Connect the connectors to transmission	275 414 675 22		
	and TCM.			
	3) Turn the ignition switch to ON and start			
	engine.			
	4) Warm-up the transmission until the ATF			
	temperature reaches to 80°C (176°F).			
	NOTE:			
	If ambient temperature is below 0°C (32°F),			
	drive the vehicle until the AIF reaches its			
	5) Disconnect the connector from transmic			
	6) Measure the resistance between transmis-			
	sion connector terminals.			
	Connector & terminal			
	(T4) No. 11 — No. 12:			
6	CHECK ATF TEMPERATURE SENSOR.	Does the resistance value	Go to step 7.	Go to step 11.
	1) Turn the ignition switch to ON (engine	increase while the ATF		
	OFF).	temperature decreases?		
	2) Measure the resistance between transmis-			
	sion connector terminals.			
	Connector & terminal			
	(T4) No. 11 — No. 12:			
7	PREPARE SUBARU SELECT MONITOR.	Do you have a Subaru	Go to step 9.	Go to step 8.
		Select Monitor?		
8	CHECK INPUT SIGNAL FOR TCM.	Is the voltage between 0.4	Even if the AT OIL	Go to step 10.
	1) Connect the connector to transmission.	and 0.9 V?	I EIVIP warning	
	2) Warn-up the transmission until the ATF		cuit bas returned	
	NOTE.		to a normal condi-	
	If ambient temperature is below 0°C (32°F).		tion at this time.	
	drive the vehicle until the ATF reaches its		Temporary poor	
	operating temperature.		contact of the	
	3) Measure the voltage between TCM con-		connector or har-	
	nector terminal.		ness may be the	
	Connector & terminal		case. Repair har-	
	Without VDC system		ness or contact in	
	(B55) No. 11 (+) — No. 10 (-):		the AIF tempera-	
	(RE4) No. 11 (r) No. 20 ();		ture sensor and	
	(B54) NO. 11 $(+)$ — NO. 20 $(-)$.		nector	
<u>م</u>	CHECK INDUT SIGNAL FOR TOM LISING	Does the ATE temperature	Even if the AT OIL	Go to step 10
3	SUBABLI SELECT MONITOR	gradually decrease?	TEMP warning	
	1) Connect the connector to transmission.		lights up, the cir-	
	2) Turn the ignition switch to ON (engine		cuit has returned	
	OFF).		to a normal condi-	
			tion at this time.	
			Temporary poor	
			contact of the	
			connector or har-	
			ness may be the	
			case. Repair har-	
			ness or contact in	
			the ATF tempera-	
			ture sensor and	
			transmission con-	
			nector.	

No.	Step	Check	Yes	No
10	CHECK POOR CONTACT.	Is there poor contact in ATF temperature sensor circuit?	Repair poor con- tact.	Replace the TCM. <ref. at-49,<="" th="" to=""></ref.>
				Transmission
				(TCM).>
11	CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND ATF TEM- PERATURE SENSOR.	Is the resistance less than 1 Ω ?	Go to step 12.	Repair open cir- cuit in harness between ATF tem-
	 2) Disconnect the connector from transmis- sion. 			and transmission
	3) Remove the transmission connector from bracket.			
	4) Lift-up the vehicle and place safety stand. NOTE:			
	On AWD models, raise all wheels off ground. 5) Drain the automatic transmission fluid. CAUTION:			
	Do not drain the automatic transmission fluid until it cools down.			
	6) Remove the oil pan, and disconnect the connector from ATF temperature sensor con-			
	7) Measure the resistance of harness			
	mission connector.			
	Connector & terminal			
12	CHECK HABNESS CONNECTOR	Is the resistance less than	Go to step 13	Benair open cir-
	BETWEEN TRANSMISSION AND ATF TEM- PERATURE SENSOR.	1 Ω ?		cuit in harness between ATF tem-
	Measure the resistance of harness between			perature sensor
	connector.			connector.
	Connector & terminal (T4) No. 12 — (AT1) No. 1:			
13	CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND ATF TEM- PERATURE SENSOR.	Is the resistance more than 1 $M\Omega$?	Go to step 14.	Repair short cir- cuit in harness between ATF tem-
	Measure the resistance of harness between			perature sensor
	transmission connector and transmission ground.			and transmission
	Connector & terminal			
	(T4) No. 11 — Transmission ground:			
14	CHECK HARNESS CONNECTOR	Is the resistance more than	Replace the ATF	Repair short cir-
	PERATURE SENSOR.		sor. < Ref. to	between ATF tem-
	Measure the resistance of harness between		AT-41, Shift	perature sensor
	transmission connector and transmission ground.		Solenoids, Duty Solenoids and	and transmission connector.
	Connector & terminal (T4) No. 12 — Transmission ground:		ATF Temperature Sensor.>	

C: DTC 31 THROTTLE POSITION SENSOR 5004521G62

DIAGNOSIS:

Input signal circuit of throttle position sensor is open or shorted. **TROUBLE SYMPTOM:** Shift point too high or too low; excessive shift shock; excessive tight corner "braking". **WIRING DIAGRAM:** • 2.5 L ENGINE MODEL



B3M2221

• 3.0 L ENGINE MODEL



B3M2222

No.	Step	Check	Yes	No
1	CHECK ENGINE GROUND TERMINALS.	Have engine ground termi- nals been tightened?	Go to step 2.	Tighten the engine ground terminals.

No.	Step	Check	Yes	No
2	CHECK GROUND CIRCUIT OF ECM.	Is the resistance less than	Go to step 3.	Repair open cir-
-	1) Turn the ignition switch to OFF.	5Ω ?		cuit in harness
	2) Disconnect the connector from ECM.			between ECM
	3) Measure the resistance of harness			connector and
	between ECM and engine ground.			engine grounding
	Connector & terminal			terminal.
	2.5 L engine model			
	(B134) No. 27 — Engine ground:			
	(B134) No. 8 — Engine ground:			
	(B134) No. 7 — Engine ground:			
	(B136) No. 21 — Engine ground:			
	(B136) No. 22 — Engine ground:			
	(B134) No. 35 — Engine ground:			
	(B134) No. 34 — Engine ground:			
	3.0 L engine model			
	(B134) No. 22 — Engine ground:			
	(B136) No. 8 — Engine ground:			
	(B136) No. 17 — Engine ground:			
	(B136) No. 18 — Engine ground:			
	(B137) No. 8 — Engine ground:			
	(B137) No. 9 — Engine ground:			
	(B137) No. 21 — Engine ground:			
	(B137) No. 31 — Engine ground:			
3	CHECK THROTTLE POSITION SENSOR.	Is the resistance between	Go to step 4.	Replace the
	1) Disconnect the connector from throttle	3.0 and 4.2 kΩ?		throttle position
	position sensor.			sensor.
	2) Measure the resistance between throttle			
	position sensor connector receptacle's termi-			
	nals.			
	Terminals			
	2.5 L engine model			
	No. 4 — No. 2:			
	3.0 L engine model			
	No. 1 — No. 3:			
4	CHECK THROTTLE POSITION SENSOR.	Is the resistance between	Go to step 5.	Replace the
	Measure the resistance between throttle posi-	0.35 and 0.5 kΩ?		throttle position
	tion sensor connector receptacle's terminals.			sensor.
	Terminals			
	2.5 L engine model			
	No. 2 — No. 3:			
	3.0 L engine model			
	No. 2 — No. 1:			
5	CHECK HARNESS CONNECTOR	Is the resistance less than	Go to step 6.	Repair open cir-
	BETWEEN TCM AND THROTTLE POSITION	1 Ω?		cuit in harness
	SENSOR.			between TCM and
	I) Usconnect the connector from ICM.			throttle position
	2) weasure the resistance of harness			sensor connector,
	between I CM and throttle position sensor			and poor contact
				in coupling con-
	Connector & terminal			nector.
	2.5 L engine model			
	(B55) NO. 2 — (E13) NO. 3:			
	3.0 L engine model with VDC system			
	(B54) NO. 3 — (E13) NO. 2:			
	S.U L ENGINE MODEL WITHOUT VUC SYSTEM			
	(B55) NO. 2 — (E13) NO. 2:			

No.	Step	Check	Yes	No
6		Is the resistance less than	Go to step 7	Renair open cir-
ľ	BETWEEN TOM AND THROTTLE POSITION			cuit in harness
	SENSOR.	1 32.		between TCM and
	Measure the resistance of harness between			throttle position
	TCM and throttle position sensor connector.			sensor connector,
	Connector & terminal			and poor contact
	Without VDC system			in coupling con-
	(B55) No. 1 — (E13) No. 4:			nector.
	With VDC system			
	(B54) No. 2 — (E13) No. 4:			
7	CHECK HARNESS CONNECTOR	Is the resistance more than	Go to step 8.	Repair short cir-
	BETWEEN TCM AND THROTTLE POSITION	1 MΩ?		cuit in harness
	SENSOR.			between TCM and
	Measure the resistance of harness between			throttle position
	ICM connector and chassis ground.			sensor connector.
	Connector & terminal			
	(R55) No. 2 Chapping ground			
	(B55) NO. 2 — Chassis ground: With VDC system			
	(B54) No. 3 — Chassis ground:			
8	CHECK HARNESS CONNECTOR	Is the resistance more than	Go to step 9	Benair short cir-
ľ	BETWEEN TCM AND THROTTLE POSITION	1 MO?		cuit in harness
	SENSOR.			between TCM and
	Measure the resistance of harness between			throttle position
	TCM connector and chassis ground.			sensor connector.
	Connector & terminal			
	Without VDC system			
	(B55) No. 1 — Chassis ground:			
	With VDC system			
	(B54) No. 2 — Chassis ground:			
9	CHECK HARNESS CONNECTOR	Is the resistance less than	Go to step 10.	Repair open cir-
	BETWEEN TCM AND ECM.	1 Ω?		cuit in harness
	Measure the resistance of harness between			between TCM and
	Connector & terminal			ECIM connector.
	251 engine model			
	$(B55) \text{ No } 2 - (B136) \text{ No } 17^{\circ}$			
	3.0 L engine model with VDC system			
	(B54) No. 3 — (B135) No. 7:			
	3.0 L engine model without VDC system			
	(B55) No. 2 — (B135) No. 7:			
10	CHECK HARNESS CONNECTOR	Is the resistance less than	Go to step 11.	Repair open cir-
	BETWEEN TCM AND ECM.	1 Ω?		cuit in harness
	Measure the resistance of harness between			between TCM and
	TCM and ECM connector.			ECM connector.
	Connector & terminal			
	2.5 L engine model			
	(B55) No. 1 — (B136) No. 15:			
	S.U L ENGINE MODEL WITH VUC SYSTEM			
	(D34) NU. $2 - (D133)$ NO. 9:			
	$(B55) N_0 1 - (B135) N_0 0$			
11		Do you have a Subary	Go to stop 14	Go to stop 12
''	FREFARE SUBARU SELECT MUNITUR.	Select Monitor?		
		Select Monitor?		

No.	Step	Check	Yes	No
12	CHECK INPUT SIGNAL FOR TCM.	Is the voltage between	Go to step 13.	Go to step 18.
	1) Connect the connectors to TCM, throttle	approx. 0.5 V in throttle		
	position sensor and ECM.	fully closed?		
	2) Turn the ignition switch to ON (engine			
	OFF).			
	(1) Measure the voltage between TCM con-			
	nector and chassis ground			
	Connector & terminal			
	Without VDC system			
	(B55) No. 2 (+) — Chassis ground (–):			
	With VDC system			
	(B54) No. 3 (+) — Chassis ground (–):			
13	CHECK INPUT SIGNAL FOR TCM.	Is the voltage between	Go to step 16.	Go to step 18.
	1) Open the throttle completely.	approx. 4.3 V with throttle		
	2) Measure the voltage between TCM con-	fully open?		
	Connector & terminal			
	Without VDC system			
	(B55) No. 2 (+) — Chassis ground (–):			
	With VDC system			
	(B54) No. 3 (+) — Chassis ground (–):			
14	CHECK INPUT SIGNAL FOR TCM USING	Is the value voltage	Go to step 15.	Go to step 18.
	SUBARU SELECT MONITOR.	between approx. 0.5 V?		
	1) Connect the connectors to TCM, throttle			
	2) Connect the Subary Select Monitor to data			
	Link connector			
	3) Turn the ignition switch to ON (engine			
	ÓFF).			
	4) Turn the Subaru Select Monitor switch to			
	ON.			
	5) Throttle fully closed.			
	b) Read the data of throttle position sensor			
	 Throttle position sensor input signal is indi- 			
	cated.			
15	CHECK INPUT SIGNAL FOR TCM USING	Is the value voltage	Go to step 18.	Go to step 17.
	SUBARU SELECT MONITOR.	between approx. 4.3 V?		
	Throttle fully open.			
	NOTE:			
	Must be changed correspondingly with accel-			
	"depressed" position			
16		Is the voltage between 4.8	Even if the AT OIL	Go to step 18
	(THROTTLE POSITION SENSOR POWER	and 5.3 V?	TEMP warning	
	SUPPLY).		lights up, the cir-	
	Measure the voltage between TCM connector		cuit has returned	
	and chassis ground.		to a normal condi-	
	Connector & terminal		tion at this time. A	
	(R55) No. 1 (L) Chassis around ():		temporary poor	
	With VDC system		connector or har-	
	(B54) No. 2 (+) — Chassis around (-):		ness may be the	
			cause. Repair	
			harness or con-	
			nector in throttle	
			position sensor	
			circuit.	

No.	Step	Check	Yes	No
17	CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR (THROTTLE POSITION SENSOR POWER SUPPLY). Read the data of throttle position sensor power supply using Subaru Select Monitor. • Throttle position sensor power supply volt- age is indicated.	Is the value voltage between 4.8 and 5.3 V?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- nector in throttle position sensor circuit.	Go to step 18.
18	CHECK POOR CONTACT.	Is there poor contact in throttle position sensor cir- cuit?	Repair the poor contact.	Replace the TCM. <ref. at-49,<br="" to="">Transmission Control Module (TCM).></ref.>

MEMO:

D: DTC 33 FRONT VEHICLE SPEED SENSOR 5004521113

DIAGNOSIS:

- The vehicle speed signal is abnormal.The circuit in combination meter is faulty.
- The harness connector between TCM and vehicle speed sensor is in short or open.

TROUBLE SYMPTOM:

- Erroneous idling.
- Engine stalls.
- Poor driving performance.

Automatic Transmission (Diagnostics)

WIRING DIAGRAM:



B3M2223

No.	Step	Check	Yes	No
1	 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal Without VDC system (B55) No. 5 — (B11) No. 17: With VDC system (B55) No. 18 — (B11) No. 17: 	Is the resistance less than 1 Ω?	Go to step 2.	Repair open cir- cuit in harness between TCM and transmission con- nector.
2	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM and transmission connector. Connector & terminal Without VDC system (B55) No. 21 — (B11) No. 18: With VDC system (B54) No. 10 — (B11) No. 18:	Is the resistance less than 1 Ω ?	Go to step 3.	Repair open cir- cuit in harness between TCM and transmission connector, and poor contact in coupling connec- tor.
3	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM and transmission connector. Connector & terminal Without VDC system (B55) No. 21 — Chassis ground: With VDC system (B54) No. 10 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 4.	Repair short cir- cuit in harness between TCM and transmission con- nector.
4	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM and transmission connector. Connector & terminal Without VDC system (B55) No. 5 — Chassis ground: With VDC system (B55) No. 18 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 5.	Repair short cir- cuit in harness between TCM and transmission connector, and poor contact in coupling connec- tor.
5	CHECK FRONT VEHICLE SPEED SENSOR. Measure the resistance between transmission connector receptacle's terminals. Connector & terminal (T4) No. 17 — No. 18:	Is the resistance between 450 and 650 Ω?	Go to step 6 .	Replace the front vehicle speed sensor. <ref. to<br="">AT-33, Front Vehicle Speed Sensor.></ref.>
6	PREPARE OSCILLOSCOPE.	Do you have an oscillo- scope?	Go to step 9.	Go to step 7.
7	PREPARE SUBARU SELECT MONITOR.	Do you have a Subaru Select Monitor?	Go to step 10.	Go to step 8.

No.	Step	Check	Yes	No
8	CHECK INPUT SIGNAL FOR TCM.	Is the voltage more than	Even if the AT OIL	Go to step 11.
 	1) Connect all connectors.	AC 1 V?	TEMP warning	0.0 10 0.00
	2) Lift-up or raise the vehicle and place safety	-	lights up, the cir-	
	stands.		cuit has returned	
	NOTE:		to a normal condi-	
	On AWD models, raise all wheels off floor.		tion at this time. A	
	3) Start the engine and set the vehicle in 20		temporary poor	
	km/h (12 MPH) condition.		contact of the	
	NOTE:		connector or har-	
	The speed difference between front and rear		ness may be the	
	wheels may light the ABS warning light, but		case. Repair har-	
	this indicates no malfunction. When the AT		ness or connector	
	control diagnosis is finished, perform the ABS		in the front vehicle	
	memory clearance procedure of on-board		speed sensor cir-	
	diagnostics system. <ref. abs-21,="" clear<="" th="" to=""><th></th><th>cuit.</th><th></th></ref.>		cuit.	
	Memory Mode.>			
	4) Measure the voltage between I CIVI con-			
	Connector & terminal			
	Without VDC system			
	(B55) No. 5 (+) - (B54) No. 21 (-):			
	(D33) No. 3 (+) $-(D34)$ No. 21 (-). With VDC system			
	$(B55) \text{ No } 18 (+) - (B54) \text{ No } 10 (-)^{\circ}$			
9	CHECK FRONT VEHICLE SPEED SENSOR	Is the voltage more than	Even if the AT OIL	Go to step 11
ľ	USING OSCILLOSCOPE.	AC 4 V?	TEMP warning	
	1) Connect all connectors.		lights up, the cir-	
	2) Lift-up the vehicle and place safety stands.		cuit has returned	
	NOTE:		to a normal condi-	
	On AWD models, raise all wheels off ground.		tion at this time. A	
	3) Set the oscilloscope to TCM connector ter-		temporary poor	
	minals.		contact of the	
	Connector & terminal		connector or har-	
	Without VDC system		ness may be the	
	Positive probe; (B55) No. 5		case. Repair har-	
	Earth lead; (B55) No. 21		ness or connector	
	With VDC system		in the front vehicle	
	Positive probe; (B55) No. 18		speed sensor cir-	
	(1) Start the engine and drive the wheele			
	NOTE			
	The speed difference between front and rear			
	wheels may light the ABS warning light, but			
	this indicates no malfunctions. When the AT			
	control diagnosis is finished, perform the ABS			
	memory clearance procedure of self-diagnosis			
	system. <ref. abs-21,="" clear="" memory<="" th="" to=""><th></th><th></th><th></th></ref.>			
	Mode.>			
	5) Measure the signal voltage indicated on			
	oscilloscope.			

No.	Step	Check	Yes	No
10	 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect all connectors. 2) Connect the Subaru Select Monitor to data link connector. 3) Lift-up or raise the vehicle and place safety stands. NOTE: On AWD models, raise all wheels off floor. 4) Turn the ignition switch to ON and turn the Subaru Select Monitor switch to ON. 5) Start the engine. 6) Read the data of vehicle speed using Subaru Select Monitor. Compare the speedometer with Subaru Select Monitor. Vehicle speed is indicated in "km/h" or "MPH". 7) Slowly increase the vehicle speed to 60 km/h or 37 MPH. NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When the AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <ref. abs-21,="" clear="" memory="" mode.="" to=""></ref.> 	Does the speedometer indi- cation increase as the Subaru Select Monitor data increases?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor connector or har- ness may be the case. Repair har- ness or connector in the front vehicle speed sensor cir- cuit.	Go to step 11.
11	CHECK POOR CONTACT.	Is there poor contact in front vehicle speed sensor circuit?	Repair poor con- tact.	Replace the TCM. <ref. at-49,<br="" to="">Transmission Control Module (TCM).></ref.>

MEMO:

E: DTC 36 TORQUE CONVERTER TURBINE SPEED SENSOR 5004521114

DIAGNOSIS:

Input signal circuit of TCM is open or shorted. **TROUBLE SYMPTOM:**

Excessive shift shock.

WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	 CHECK TORQUE CONVERTER TURBINE SPEED SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Measure the resistance between transmission connector receptacle's terminals. Connector & terminal (T4) No. 14 — No. 15: 	Is the resistance between 450 and 650 Ω?	Go to step 2.	Replace the tur- bine speed sen- sor. <ref. to<br="">AT-38, Torque Converter Turbine Speed Sensor.></ref.>
2	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Disconnect the connector from TCM. 2) Measure the resistance of harness between TCM and transmission connector. Connector & terminal Without VDC system (B55) No. 12 — (B11) No. 14: With VDC system (B55) No. 8 — (B11) No. 14:	Is the resistance less than 1 Ω?	Go to step 3.	Repair open cir- cuit in harness between TCM and transmission con- nector.
3	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM and transmission connector. Connector & terminal Without VDC system (B55) No. 21 — (B11) No. 15: With VDC system (B55) No. 9 — (B11) No. 15:	Is the resistance less than 1 Ω?	Go to step 4.	Repair open cir- cuit in harness between TCM and transmission connector, and poor contact in coupling connec- tor.
4	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM and chassis ground. Connector & terminal Without VDC system (B55) No. 21 — Chassis ground: With VDC system (B55) No. 9 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 5.	Repair short cir- cuit in harness between TCM and transmission con- nector.
5	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM and chassis ground. Connector & terminal Without VDC system (B55) No. 12 — Chassis ground: With VDC system (B55) No. 8 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 6.	Repair short cir- cuit in harness between TCM and transmission connector, and poor contact in coupling connec- tor.
6	PREPARE OSCILLOSCOPE.	Do you have an oscillo- scope?	Go to step 10.	Go to step 7.
7	PREPARE SUBARU SELECT MONITOR.	Do you have a Subaru Select Monitor?	Go to step 9.	Go to step 8.

No.	Step	Check	Yes	No
8	CHECK INPUT SIGNAL FOR TCM.	Is the voltage more than	Even if the AT OIL	Go to step 11.
	1) Connect the connectors to TCM and trans-	AC 1 V?	TEMP warning	
	mission.		lights up, the cir-	
	2) Start the engine and move select lever to		cuit has returned	
	"P" or "N" range.		to a normal condi-	
	3) Measure the voltage between TCM con-		tion at this time. A	
	nector terminals.		temporary poor	
	Connector & terminal		contact of the	
	Without VDC system		connector or nar-	
	(B55) NO. 12 (+) — NO. 21 (-):		ness may be the	
	(R55) No R(1) No R(1)		barnoss or con	
	(B33) NO. 8 (+) - NO. 9 (-).		namess of con-	
			and transmission	
0		Is the revolution value	Even if the AT OIL	Go to stop 11
9	SUBABLI SELECT MONITOR	same as the tachometer	TEMP warning	
	1) Connect the connectors to TCM and trans-	reading shown on the com-	lights up the cir-	
	mission	hination meter?	cuit has returned	
	2) Connect the Subaru Select Monitor to data		to a normal condi-	
	link connector.		tion at this time. A	
	3) Turn the ignition switch to ON and turn the		temporary poor	
	Subaru Select Monitor switch to ON.		contact of the	
	4) Start the engine.		connector or har-	
	5) Move the select lever to "P" or "N" range.		ness may be the	
	6) Read the data of turbine speed using		cause. Repair	
	Subaru Select Monitor.		harness or con-	
	Compare the tachometer with Subaru		nector in the TCM	
	Select Monitor indications.		and transmission.	
10	CHECK INPUT SIGNAL FOR TCM USING	Is the signal voltage more	Even if the AT OIL	Go to step 11.
	1) Connect the connectors to TCM and trans-		lights up the cir-	
	mission.		cuit has returned	
	2) Set the oscilloscope to TCM connector ter-		to a normal condi-	
	minals.		tion at this time. A	
	Connector & terminal		temporary poor	
	With VDC system		contact of the	
	Positive probe; (B55) No. 8		connector or har-	
	Earth lead; (B55) No. 9		ness may be the	
	Without VDC system		cause. Repair	
	Positive probe; (B55) No. 12		harness or con-	
	Earth lead; (B55) No. 21		nector in the TCM	
	3) Start the engine and move the select lever		and transmission.	
11	CHECK POOR CONTACT.	Is there poor contact in	Repair poor con-	Replace the TCM
		torque converter turbine	tact.	<ref. at-49.<="" th="" to=""></ref.>
		speed sensor circuit?		Transmission
				Control Module
				(TCM).>

MEMO:

F: DTC 38 TORQUE CONTROL SIGNAL S004521G66

DIAGNOSIS:

• The signal circuit is open or shorted. **TROUBLE SYMPTOM:** Excessive shift shock. **WIRING DIAGRAM:**



B3M2225

No.	Step	Check	Yes	No
1	CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and ECM. 3) Measure the resistance of harness between TCM and ECM connector. Connector & terminal 2.5 L engine model (B54) No. 21 — (B134) No. 17: (B54) No. 13 — (B134) No. 16: 3.0 L engine model with VDC model (B56) No. 14 — (B135) No. 18: (B56) No. 5 — (B135) No. 19: 3.0 L engine model without VDC model (B54) No. 21 — (B135) No. 18: (B54) No. 21 — (B135) No. 19: 3.0 L engine model without VDC model (B54) No. 21 — (B135) No. 18: (B54) No. 13 — (B135) No. 19:	Is the resistance less than 1 Ω?	Go to step 2.	Repair open cir- cuit in harness between TCM and ECM connector.

No.	Step	Check	Yes	No
2	CHECK HABNESS CONNECTOR	Is the resistance more than	Go to step 3	Renair short cir-
 ²	BETWEEN TCM AND ECM.	1 MO?		cuit in harness
	Measure the resistance of harness between			between TCM and
	TCM connector and chassis ground.			ECM connector.
	Connector & terminal			
	Without VDC system			
	(B56) No. 21 — Chassis ground:			
	(B54) No. 13 — Chassis ground:			
	With VDC system			
	(B56) No. 14 — Chassis ground:			
	(B56) No. 5 — Chassis ground:			
3	CHECK OUTPUT SIGNAL EMITTED FROM	Is the voltage more than	Even if the AT OIL	Go to step 4.
	TCM.	4.8 V?	TEMP warning	
	1) Connect the connectors to TCM and ECM.		lights up, the cir-	
	2) Turn the ignition switch to ON (engine		cuit has returned	
	OFF).		to a normal condi-	
	3) Measure the voltage between TCM con-		tion at this time. A	
	nector terminals.		temporary poor	
	Connector & terminal		contact of the	
	(RE4) No. 21 (c) Chapping ground ():		connector or nar-	
	(B54) No. 21 (+) — Chassis ground (-): (B54) No. 13 (+) — Chassis ground (-):		ness may be the	
	With VDC system		harness or con-	
	(B56) No 14 $(+)$ — Chassis around $(-)$:		nector in the TCM	
	(B56) No. 5 (+) — Chassis ground (-):		and ECM.	
4	CHECK POOR CONTACT.	Is there poor contact in	Repair poor con-	Go to step 5.
		torque control signal cir-	tact.	
		cuit?		
5	CHECK GROUND LINE BETWEEN TRANS-	Is there any dirt or rust at	Remove dirt and	Go to step 6.
	MISSION AND BODY.	ground line installing point?	rust.	
	Check the installing condition of ground line in			
	transmission and body.			
6	CHECK GROUND LINE BETWEEN TRANS-	Is the tightening torque	Go to step 7.	Tighten to speci-
		value within specification?		fied torque.
	Check the installing condition of ground line in			
	Transmission and body.			
	$12\pm 2 \text{ Nm} (12\pm 0.2 \text{ kafm} 0.4\pm 2.2 \text{ ft lb})$			
7		le the tightening torque	Co to stop 0	Tighton to oncoi
′	SION	value within specification?		fied torque
	1) Drain the AT fluid and remove the oil pan	value within speemeation.		lica torque.
	2) Check the tightening torque value of			
	around line installing bolt.			
	Tightening torque:			
	T: 8±1 N⋅m (0.8±0.1 kgf-m, 5.8±0.7 ft-lb)			
8	CHECK GROUND CIRCUIT OF ECM.	Is there any trouble?	Repair ground	Go to step 9.
	<ref. 31="" at-52,="" dtc="" posi-<="" th="" throttle="" to=""><th></th><th>terminal and/or</th><th></th></ref.>		terminal and/or	
	TION SENSOR, Diagnostic Procedure with		ground circuit of	
	Diagnostic Trouble Code (DTC).>		ECM.	
9	RECHECK OUTPUT SIGNAL EMITTED	Is each voltage more than	Replace the TCM.	Replace the ECM.
	FROM TCM.	4.8 V?	<ref. at-49,<="" th="" to=""><th></th></ref.>	
	Measure the voltage between TCM connector		Transmission	
	and chassis ground.		Control Module	
	Connector & terminal		(ICM).>	
	Without VDC system			
	(B54) No. 21 (+) — Chassis ground (–):			
	(B54) No. 13 (+) — Chassis ground (-):			
	WITH VUC SYSTEM			
	(DOO) NO. 14 (+) — Unassis ground (-): (B56) No. 5 (+) — Chassis ground (-):			
L	(1000) No. $3(+) = 0$ massis ground (-):	<u> </u>	<u> </u>	

G: DTC 45 INTAKE MANIFOLD PRESSURE SIGNAL SOU4521116

DIAGNOSIS:

Input signal circuit of TCM from ECM is open or shorted. **TROUBLE SYMPTOM:** Excessive shift shock. **WIRING DIAGRAM:**



No.	Step	Check	Yes	No
1	CHECK ENGINE GROUND TERMINALS AND GROUND CIRCUIT OF ECM <ref. 31="" at-52,="" dtc="" posi-<br="" throttle="" to="">TION SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).></ref.>	Is there any trouble?	Repair ground terminal and/or ground circuit of ECM.	Go to step 2.
2	CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and ECM. 3) Measure the resistance of harness between TCM and ECM connector. Connector & terminal 2.5 L engine model (B55) No. 20 — (B136) No. 11: 3.0 L engine model without VDC system (B55) No. 20 — (B135) No. 28: 3.0 L engine model with VDC system (B54) No. 10 — (B135) No. 28:	Is the resistance less than 1 Ω?	Go to step 3.	Repair open cir- cuit in harness between TCM and ECM connector.

No.	Step	Check	Yes	No
3	CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM. Measure the resistance of harness between TCM connector and chassis ground. Connector & terminal Without VDC system (B55) No. 20 — Chassis ground: With VDC system (B54) No. 10 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 4.	Repair short cir- cuit in harness between TCM and ECM connector.
4	PREPARE SUBARU SELECT MONITOR.	Do you have a Subaru Select Monitor?	Go to step 6.	Go to step 5.
5	 CHECK INPUT SIGNAL FOR TCM. 1) Connect the connectors to TCM and ECM. 2) Start the engine, and warm-up the transmission until the ATF temperature is above 80°C (176°F). NOTE: If ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 3) Engine idling. 4) Measure the voltage between TCM connector and chassis ground. Connector & terminal Without VDC system (B55) No. 20 (+) — Chassis ground (-): With VDC system (B54) No. 10 (+) — Chassis ground (-): 	Is the voltage between 1.2 and 1.8 V?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- nector in the TCM and ECM.	Go to step 7.
6	 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect the connectors to TCM and ECM. 2) Connect the Subaru Select Monitor to data link connector. 3) Start the engine, and turn the Subaru Select monitor switch to ON. 4) Warm-up the engine until the engine cool- ant temperature is above 80°C (176°F). 5) Engine idling. 6) Read the data of intake manifold pressure signal using Subaru Select Monitor. • Display shows the intake manifold pressure signal value sent from ECM. 	Is the value between 1.2 and 1.8 V?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- nector in the TCM and ECM.	Go to step 7.
7	CHECK POOR CONTACT.	Is there poor contact in intake manifold pressure signal circuit?	Repair poor con- tact.	Replace the TCM. <ref. at-49,<br="" to="">Transmission Control Module (TCM).></ref.>

H: DTC 71 SHIFT SOLENOID 1 S004521117

DIAGNOSIS:

Output signal circuit of shift solenoid 1 is open or shorted. **TROUBLE SYMPTOM:** Does not shift. **WIRING DIAGRAM:**



No.	Step	Check	Yes	No
1	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and transmission. 3) Measure the resistance of harness between TCM and shift solenoid 1 connector. <i>Connector & terminal</i> <i>Without VDC system</i> (B54) No. 7 — (B11) No. 1: <i>With VDC system</i> (B54) No. 22 — (B11) No. 1:	Is the resistance less than 1 Ω?	Go to step 2.	Repair open cir- cuit in harness between TCM and transmission con- nector.
2	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM connector and chassis ground. Connector & terminal Without VDC system (B54) No. 7 — Chassis ground: With VDC system (B54) No. 22 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 3.	Repair short cir- cuit in harness between TCM and transmission con- nector.
3	CHECK SHIFT SOLENOID 1. Measure the resistance between transmission connector terminals. Connector & terminal (T4) No. 1 — No. 16:	Is the resistance between 10 and 16 Ω?	Go to step 4.	Go to step 7.
4	 CHECK OUTPUT SIGNAL EMITTED FROM TCM. 1) Connect the connectors to TCM and transmission. 2) Turn the ignition switch to ON (engine OFF). 3) Move the select lever to "D" range. 4) Measure the voltage between TCM connector and chassis ground. Connector & terminal Without VDC system (B54) No. 7 (+) — Chassis ground (-): With VDC system (B54) No. 22 (+) — Chassis ground (-): 	Is the voltage more than 9V?	Go to step 5.	Go to step 6.
5	CHECK OUTPUT SIGNAL EMITTED FROM TCM. 1) Move the select lever to "2" range. 2) Measure the voltage between TCM con- nector and chassis ground. Connector & terminal Without VDC system (B54) No. 7 (+) — Chassis ground (-): With VDC system (B54) No. 22 (+) — Chassis ground (-):	Is the voltage less than 1V?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- tact in the TCM.	Go to step 6 .
6	CHECK POOR CONTACT.	Is there poor contact in shift solenoid 1 circuit?	Repair poor con- tact.	Replace the TCM. <ref. at-49,<br="" to="">Transmission Control Module (TCM).></ref.>

No.	Step	Check	Yes	No
7	 CHECK SHIFT SOLENOID 1 (IN TRANSMIS- SION). 1) Remove the transmission connector from bracket. 2) Lift-up or raise the vehicle and support with safety stand. NOTE: On AWD models, raise all wheels off ground. 3) Drain the automatic transmission fluid. CAUTION: Do not drain the automatic transmission fluid until it cools down. 4) Remove the oil pan, and disconnect the connector from shift solenoid 1. 5) Measure the resistance between shift sole- noid 1 connector and transmission ground. Terminal No. 1 — Transmission ground: 	Is the resistance between 10 and 16 Ω?	Go to step 8.	Replace the shift solenoid 1. <ref. to AT-41, Shift Solenoids, Duty Solenoids and ATF Temperature Sensor.></ref.
8	CHECK HARNESS CONNECTOR BETWEEN SHIFT SOLENOID 1 AND TRANSMISSION. Measure the resistance of harness between shift solenoid 1 and transmission connector. Connector & terminal (AT5) No. 1 — (T4) No. 1:	Is the resistance less than 1 Ω?	Go to step 9.	Repair open cir- cuit in harness between shift solenoid 1 and transmission con- nector.
9	CHECK HARNESS CONNECTOR BETWEEN SHIFT SOLENOID 1 AND TRANSMISSION. Measure the resistance of harness between shift solenoid 1 connector and transmission ground. <i>Connector & terminal</i> (T4) No. 1 — Transmission ground:	Is the resistance more than 1 MΩ?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- nector in shift solenoid 1 and transmission.	Repair short cir- cuit harness between shift solenoid 1 and transmission con- nector.

MEMO:

I: DTC 72 SHIFT SOLENOID 2 S004521118

DIAGNOSIS:

Output signal circuit of shift solenoid 2 is open or shorted. **TROUBLE SYMPTOM:** Does not shift. **WIRING DIAGRAM:**



No.	Step	Check	Yes	No
1	CHECK HARNESS CONNECTOR	Is the resistance less than	Go to step 2.	Repair open cir-
	BETWEEN TCM AND TRANSMISSION.	1 Ω?		cuit in harness
	1) Turn the ignition switch to OFF.			between TCM and
	2) Disconnect the connector from TCM and			transmission con-
	transmission.			nector.
	between TCM and shift solenoid 2 connector			
	Connector & terminal			
	Without VDC system			
	(B54) No. 6 — (B11) No. 2:			
	With VDC system			
	(B54) No. 5 — (B11) No. 2:			
2	CHECK HARNESS CONNECTOR	Is the resistance more than	Go to step 3.	Repair short cir-
	BETWEEN TCM AND TRANSMISSION.	1 MΩ?		cuit in harness
	Measure the resistance of harness between			between TCM and
	ICM connector and chassis ground.			transmission con-
	Connector & terminal			nector.
	(B54) No. 6 — Chassis around:			
	With VDC system			
	(B54) No. 5 — Chassis ground:			
3	CHECK SHIFT SOLENOID 2.	Is the resistance between	Go to step 4.	Go to step 6.
	Measure the resistance between transmission	10 and 16 Ω?		
	connector terminals.			
	Connector & terminal			
	(T4) No. 2 — No. 16:			
4	CHECK OUTPUT SIGNAL EMITTED FROM	Is the voltage less than 1	Even if the AT OIL	Go to step 5.
	ICM.	V?	TEMP warning	
	T) Connect the connectors to TCM and trans-		ngnis up, the cir-	
	2) Lift-up or raise the vehicle and support with		to a normal condi-	
	safety stand.		tion at this time. A	
	NOTE:		temporary poor	
	On AWD models, raise all wheels off ground.		contact of the	
	3) Start the engine and warm-up the transmis-		connector or har-	
	sion until the ATF temperature is above 80°C		ness may be the	
	(176°F).		cause. Repair	
	NOIE:		harness or con-	
	(32°E) drive the vehicle until the ATE reaches		and transmission	
	its operating temperature			
	4) Move the selector lever to "D", and slowly			
	increase the vehicle speed to 50 km/h (31			
	MPH).			
	NOTE:			
	The speed difference between front and rear			
	wheels may light the ABS warning light, but			
	this indicates no malfunction. When the AI			
	memory clearance procedure of on-board			
	diagnostics system < Bef to ABS-21 Clear			
	Memory Mode.>			
	5) Measure the voltage between TCM con-			
	nector and chassis ground.			
	Connector & terminal			
	Without VDC system			
	(B54) No. 6 (+) — Chassis ground (–):			
	With VDC system			
	(B54) No. 5 (+) — Chassis ground (–):			
No.	Step	Check	Yes	No
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5	CHECK POOR CONTACT.	Is there poor contact in shift solenoid 2 circuit?	Repair poor con- tact.	Replace the TCM. <ref. at-49,<br="" to="">Transmission Control Module (TCM).></ref.>
6	 CHECK SHIFT SOLENOID 2 (IN TRANSMIS-SION). 1) Remove the transmission connector from bracket. 2) Drain the automatic transmission fluid. CAUTION: Do not drain the automatic transmission fluid until it cools down. 3) Remove the oil pan, and disconnect the connector from shift solenoid 2. 4) Measure the resistance between shift solenoid 2 connector and transmission ground. Connector & terminal No. 1 — Transmission ground: 	Is the resistance between 10 and 16 Ω?	Go to step 7.	Replace the shift solenoid 2 assem- bly. <ref. to<br="">AT-41, Shift Solenoids, Duty Solenoids and ATF Temperature Sensor.></ref.>
7	CHECK HARNESS CONNECTOR BETWEEN SHIFT SOLENOID 2 AND TRANSMISSION. Measure the resistance of harness between shift solenoid 2 and transmission connector. Connector & terminal (AT6) No. 1 — (T4) No. 2:	Is the resistance less than 1 Ω?	Go to step 8.	Repair open cir- cuit in harness between shift solenoid 2 and transmission con- nector.
8	CHECK HARNESS CONNECTOR BETWEEN SHIFT SOLENOID 2 AND TRANSMISSION. Measure the resistance of harness between shift solenoid 2 connector and transmission ground. Connector & terminal (T4) No. 2 — Transmission ground:	Is the resistance more than 1 MΩ?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- nector in shift solenoid 2 and transmission.	Repair short cir- cuit harness between shift solenoid 2 and transmission con- nector.

MEMO:

J: DTC 73 LOW CLUTCH TIMING SOLENOID 5004521119

DIAGNOSIS:

Output signal circuit of low clutch timing solenoid is open or shorted. **TROUBLE SYMPTOM:** Excessive shift shock. **WIRING DIAGRAM:**



No.	Step	Check	Yes	No
1	 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal Without VDC system (B54) No. 14 — (B11) No. 3: With VDC system (B54) No. 15 — (B11) No. 3: 	Is the resistance less than 1 Ω?	Go to step 2 .	Repair open cir- cuit in harness between TCM and transmission con- nector.
2	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM connector and transmission ground. Connector & terminal Without VDC system (B54) No. 14 — Chassis ground: With VDC system (B54) No. 15 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 3.	Repair short cir- cuit in harness between TCM and transmission con- nector.
3	CHECK LOW CLUTCH TIMING SOLENOID. Measure the resistance between transmission connector terminals. Connector & terminal (T4) No. 3 — No. 16:	Is the resistance between 10 and 16 Ω?	Go to step 4.	Go to step 7.
4	 CHECK OUTPUT SIGNAL EMITTED FROM TCM. 1) Connect the connectors to TCM and trans- mission. 2) Turn the ignition switch to ON (engine OFF). 3) Move the select lever to "D" range. 4) Measure the voltage between TCM con- nector and chassis ground. Connector & terminal Without VDC system (B54) No. 14 (+) — Chassis ground (-): With VDC system (B54) No. 15 (+) — Chassis ground (-): 	Is the voltage more than 9V?	Go to step 5.	Go to step 6.
5	CHECK OUTPUT SIGNAL EMITTED FROM TCM. 1) Move the select lever to "2" range. 2) Measure the voltage between TCM con- nector and chassis ground. Connector & terminal Without VDC system (B54) No. 14 (+) — Chassis ground (-): With VDC system (B54) No. 15 (+) — Chassis ground (-):	Is the voltage less than 1V?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- tact in the TCM and transmission.	Go to step 6 .
6	CHECK POOR CONTACT.	Is there poor contact in low clutch timing solenoid cir- cuit?	Repair poor con- tact.	Replace the TCM. <ref. at-49,<br="" to="">Transmission Control Module (TCM).></ref.>

No.	Step	Check	Yes	No
7	 CHECK LOW CLUTCH TIMING SOLENOID (IN TRANSMISSION). 1) Remove the transmission connector from bracket. 2) Lift-up or raise the vehicle and support with safety stands. NOTE: On AWD models, raise all wheels off ground. 3) Drain the automatic transmission fluid. CAUTION: Do not drain the automatic transmission fluid until it cools down. 4) Remove the oil pan, and disconnect the connector from low clutch timing solenoid. 5) Measure the resistance between low clutch timing solenoid connector and transmission ground. Terminal No. 1 — Transmission ground: 	Is the resistance between 10 and 16 Ω?	Go to step 8.	Replace the low clutch timing sole- noid. <ref. to<br="">AT-41, Shift Solenoids, Duty Solenoids and ATF Temperature Sensor.></ref.>
8	CHECK HARNESS CONNECTOR BETWEEN LOW CLUTCH TIMING SOLE- NOID AND TRANSMISSION. Measure the resistance of harness between low clutch timing solenoid and transmission connector. Connector & terminal (AT9) No. 1 — (T4) No. 3:	Is the resistance less than 1 Ω?	Go to step 9.	Repair open cir- cuit in harness between low clutch timing sole- noid and trans- mission connec- tor.
9	CHECK HARNESS CONNECTOR BETWEEN LOW CLUTCH TIMING SOLE- NOID AND TRANSMISSION. Measure the resistance of harness between low clutch timing solenoid connector and transmission ground. <i>Connector & terminal</i> (T4) No. 3 — Transmission ground:	Is the resistance more than 1 MΩ?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- nector in low clutch timing sole- noid and trans- mission.	Repair short cir- cuit harness between low clutch timing sole- noid and trans- mission connec- tor.

MEMO:

K: DTC 74 2-4 BRAKE TIMING SOLENOID 5004521120

DIAGNOSIS:

Output signal circuit of 2-4 brake timing solenoid is open or shorted. **TROUBLE SYMPTOM:** Excessive shift shock. **WIRING DIAGRAM:**



No.	Step	Check	Yes	No
1	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal Without VDC system (B54) No. 5 — (B11) No. 4: With VDC system (B54) No. 16 — (B11) No. 4:	Is the resistance less than 1 Ω?	Go to step 2.	Repair open cir- cuit in harness between TCM and transmission con- nector.
2	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM connector and transmission ground. Connector & terminal Without VDC system (B54) No. 5 — Chassis ground: With VDC system (B54) No. 16 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 3.	Repair short cir- cuit in harness between TCM and transmission con- nector.
3	CHECK 2-4 BRAKE TIMING SOLENOID. Measure the resistance between transmission connector terminals. Connector & terminal (T4) No. 4 — No. 16:	Is the resistance between 10 and 16 Ω?	Go to step 4.	Go to step 7.
4	 CHECK OUTPUT SIGNAL EMITTED FROM TCM. 1) Connect the connectors to TCM and transmission. 2) Lift-up or raise the vehicle and support with safety stands. NOTE: On AWD models, raise all wheels off ground. 3) Start the engine and warm-up the transmission until the ATF temperature is above 80°C (176°F). NOTE: If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 4) Move the select lever to "1", and slowly increase vehicle speed to 10 km/h (6 MPH). NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When the AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <ref. abs-21,="" clear="" memory="" mode.="" to=""></ref.> 5) Measure the voltage between TCM connector & terminal Without VDC system (B54) No. 5 (+) — Chassis ground (-): With VDC system (B54) No. 16 (+) — Chassis ground (-): 	V?	Go to step 5.	Go to step 6.

No.	Step	Check	Yes	No
5	CHECK OUTPUT SIGNAL EMITTED FROM TCM. 1) Move the select lever to "D", and slowly increase vehicle speed to 65 km/h (40 MPH). NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When the AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <ref. abs-21,="" clear<br="" to="">Memory Mode.> 2) Measure the voltage between TCM con- nector and chassis ground. Connector & terminal Without VDC system (B54) No. 5 (+) — Chassis ground (-): With VDC system (B54) No. 16 (+) — Chassis ground (-):</ref.>	Is the voltage more than 9 V?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- tact in the trans- mission.	Go to step 6.
6	CHECK POOR CONTACT.	Is there poor contact in 2-4 brake timing solenoid cir- cuit?	Repair poor con- tact.	Replace the TCM. <ref. at-49,<br="" to="">Transmission Control Module (TCM).></ref.>
7	CHECK 2-4 BRAKE TIMING SOLENOID (IN TRANSMISSION). 1) Remove the transmission connector from bracket. 2) Lift-up or raise the vehicle and support with safety stands. NOTE: On AWD models, raise all wheels off ground. 3) Drain the automatic transmission fluid. CAUTION: Do not drain the automatic transmission fluid until it cools down. 4) Remove the oil pan, and disconnect the connector from 2-4 brake timing solenoid. 5) Measure the resistance between 2-4 brake timing solenoid connector and transmission ground. Terminal No. 1 — Transmission ground:	Is the resistance between 10 and 16 Ω?	Go to step 8.	Replace the 2-4 brake timing sole- noid. <ref. to<br="">AT-41, Shift Solenoids, Duty Solenoids and ATF Temperature Sensor.></ref.>
8	CHECK HARNESS CONNECTOR BETWEEN 2-4 BRAKE TIMING SOLENOID AND TRANSMISSION. Measure the resistance of harness between 2-4 brake timing solenoid and transmission connector. Connector & terminal (AT8) No. 1 — (T4) No. 4:	Is the resistance less than 1 Ω ?	Go to step 9 .	Repair open cir- cuit in harness between 2-4 brake timing sole- noid and trans- mission connec- tor.

No. Step	Check	Yes	No
9 CHECK HARNESS CONNECTOR BETWEEN 2-4 BRAKE TIMING SOLENOID AND TRANSMISSION. Measure the resistance of harness between 2-4 brake timing solenoid connector and transmission ground. <i>Connector & terminal</i> (T4) No. 4 — Transmission ground:	Is the resistance more than 1 MΩ?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- nector in 2-4 brake timing sole- noid and trans- mission.	Repair short cir- cuit harness between 2-4 brake timing sole- noid and trans- mission connec- tor.

L: DTC 75 LINE PRESSURE DUTY SOLENOID 5004521121

DIAGNOSIS:

Output signal circuit of line pressure duty solenoid is open or shorted. **TROUBLE SYMPTOM:** Excessive shift shock. **WIRING DIAGRAM:**



No.	Step	Check	Yes	No
1	CHECK VEHICLE.	Is the target model without VDC system?	Go to step 2.	Go to step 7.
2	 CHECK RESISTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from dropping resistor. 3) Measure the resistance between dropping resistor terminal. Terminals No. 1 — No. 2: 	Is the resistance between 9 and 15 Ω ?	Go to step 3.	Replace the drop- ping resistor. <ref. at-50,<br="" to="">Dropping Resis- tor.></ref.>

No.	Step	Check	Yes	No
3	CHECK HARNESS CONNECTOR BETWEEN TCM AND DROPPING RESIS- TOR. 1) Disconnect the connector from TCM. 2) Measure the resistance of harness between TCM connector and dropping resis- tor connector. Connector & terminal (B54) No. 18 — (B4) No. 1:	Is the resistance less than 1 Ω?	Go to step 4.	Repair open cir- cuit in harness between TCM and dropping resistor connector.
4	CHECK HARNESS CONNECTOR BETWEEN TCM AND DROPPING RESIS- TOR. Measure the resistance of harness between dropping resistor connector and chassis ground. Connector & terminal (B4) No. 1 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 5 .	Repair short cir- cuit in harness between TCM and dropping resistor connector.
5	CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND DROP- PING RESISTOR. 1) Disconnect the connector from transmis- sion. 2) Measure the resistance of harness between transmission and dropping resistor connector. Connector & terminal (B4) No. 2 — (B11) No. 5:	Is the resistance less than 1 Ω?	Go to step 6.	Repair open cir- cuit in harness between dropping resistor and trans- mission connec- tor.
6	CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND DROP- PING RESISTOR. Measure the resistance of harness between dropping resistor connector and chassis ground. Connector & terminal (B4) No. 2 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 7.	Repair short cir- cuit in harness between dropping resistor and trans- mission connec- tor.
7	 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission and TCM. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal (B54) No. 9 — (B11) No. 5: 	Is the resistance less than 1 Ω?	Go to step 8.	Repair open cir- cuit in harness between TCM and transmission con- nector.
8	CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND. Measure the resistance of harness between TCM and chassis ground. Connector & terminal (B54) No. 9 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 9.	Repair short cir- cuit in harness between TCM and transmission con- nector.
9	CHECK LINE PRESSURE DUTY SOLE- NOID. Measure the resistance between transmission connector receptacle's terminals. <i>Terminal</i> (T4) No. 5 — No. 16:	Is the resistance between 2.0 and 4.5 Ω ?	Go to step 10 .	Go to step 16.
10	PREPARE SUBARU SELECT MONITOR.	Do you have a Subaru Select Monitor?	Go to step 13.	Go to step 11.

Yes No. Check No Step 11 CHECK OUTPUT SIGNAL EMITTED FROM Is the voltage between 1.5 Go to step 12. Go to step 15. and 5.0 V with throttle fully TCM. 1) Connect all connectors. closed? 2) Start the engine and warm-up the transmission until the ATF temperature is above 80°C (176°F). NOTE: If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 3) Turn the ignition switch to ON (engine OFF). 4) Move the select lever to "N". 5) Measure the voltage between TCM connector and chassis ground. Connector & terminal (B54) No. 9 (+) — Chassis ground (–): 12 CHECK OUTPUT SIGNAL EMITTED FROM Is the voltage less than 1 V Even if the AT OIL Go to step 15. with throttle fully open? TEMP warning TCM. Measure the voltage between TCM connector lights up, the circuit has returned and chassis ground. to a normal condi-Connector & terminal (B54) No. 9 (+) — Chassis ground (-): tion at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in transmission. 13 CHECK OUTPUT SIGNAL EMITTED FROM Is the value 100%? Go to step 14. Go to step 15. TCM USING SUBARU SELECT MONITOR. 1) Connect the connectors to TCM and transmission. 2) Connect the Subaru Select Monitor to data link connector. 3) Start the engine, and turn the Subaru Select Monitor switch to ON. 4) Warm-up the transmission until the ATF temperature is above 80°C (176°F). NOTE: If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 5) Stop the engine and turn the ignition switch to ON (engine OFF). 6) Move the select lever to "N". 7) Read the data of line pressure duty solenoid using Subaru Select Monitor. Line pressure duty solenoid is indicated in "%". 8) Throttle is fully closed.

No.	Step	Check	Yes	No
14	CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR. 1) Turn the ignition switch to ON (Engine OFF). 2) Throttle is fully open.	Is the value less than 25%?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- nector in trans- mission.	Go to step 15.
15	CHECK POOR CONTACT.	Is there poor contact in line pressure duty solenoid cir- cuit?	Repair poor con- tact.	Replace the TCM. <ref. at-49,<br="" to="">Transmission Control Module (TCM).></ref.>
16	 CHECK LINE PRESSURE DUTY SOLENOID (IN TRANSMISSION). 1) Remove the transmission connector from bracket. 2) Drain the automatic transmission fluid. CAUTION: Do not drain the automatic transmission fluid until it cools down. 3) Remove the oil pan, and disconnect the connector from line pressure duty solenoid. 4) Measure the resistance between line pres- sure duty solenoid connector and transmis- sion ground. Terminal No. 1 — Transmission ground: 	Is the resistance between 2.0 and 4.5 Ω?	Go to step 17.	Replace the line pressure duty solenoid. <ref. to<br="">AT-41, Shift Solenoids, Duty Solenoids and ATF Temperature Sensor.></ref.>
17	CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LINE PRESSURE DUTY SOLENOID. Measure the resistance of harness between line pressure duty solenoid and transmission connector. Connector & terminal (T4) No. 5 — (AT2) No. 1:	Is the resistance less than 1 Ω ?	Go to step 18.	Repair open cir- cuit in harness between line pres- sure duty solenoid and transmission connector.
18	CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LINE PRESSURE DUTY SOLENOID. Measure the resistance of harness between transmission connector and transmission ground. Connector & terminal (T4) No. 5 — Transmission ground:	Is the resistance more than 1 MΩ?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- nector in line pressure duty solenoid and transmission.	Repair short cir- cuit in harness between line pres- sure duty solenoid and transmission connector.

M: DTC 76 2-4 BRAKE DUTY SOLENOID 5004521122

DIAGNOSIS:

Output signal circuit of 2-4 brake duty solenoid is open or shorted. **TROUBLE SYMPTOM:** Excessive shift shock. **WIRING DIAGRAM:**



B3M2232

No.	Step	Check	Yes	No
1	CHECK VEHICLE.	Is the target model without VDC system?	Go to step 2.	Go to step 7.
2	 CHECK RESISTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from dropping resistor. 3) Measure the resistance between dropping resistor terminal. Terminals No. 3 — No. 4: 	Is the resistance between 9 and 15 Ω ?	Go to step 3.	Replace the drop- ping resistor. <ref. at-50,<br="" to="">Dropping Resis- tor.></ref.>

No.	Step	Check	Yes	No
3	CHECK HARNESS CONNECTOR BETWEEN TCM AND DROPPING RESIS- TOR. 1) Disconnect the connector from TCM. 2) Measure the resistance of harness between TCM connector and dropping resis- tor connector. Connector & terminal	Is the resistance less than 1 Ω?	Go to step 4.	Repair open cir- cuit in harness between TCM and dropping resistor connector.
4	CHECK HARNESS CONNECTOR BETWEEN TCM AND DROPPING RESIS- TOR. Measure the resistance of harness between dropping resistor connector and chassis ground. Connector & terminal (B4) No. 3 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 5 .	Repair short cir- cuit in harness between TCM and dropping resistor connector.
5	 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND DROP- PING RESISTOR. 1) Disconnect the connector from transmission. 2) Measure the resistance of harness between transmission and dropping resistor connector. Connector & terminal (B4) No. 4 — (B11) No. 9: 	Is the resistance less than 1 Ω?	Go to step 6.	Repair open cir- cuit in harness between dropping resistor and trans- mission connec- tor.
6	CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND DROP- PING RESISTOR. Measure the resistance of harness between dropping resistor connector and chassis ground. Connector & terminal (B4) No. 4 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 7.	Repair short cir- cuit in harness between dropping resistor and trans- mission connec- tor.
7	 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission and TCM. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal Without VDC system (B54) No. 8 — (B11) No. 9: With VDC system (B54) No. 18 — (B11) No. 9: 	Is the resistance less than 1 Ω?	Go to step 8.	Repair open cir- cuit in harness between TCM and transmission con- nector.
8	CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND. Measure the resistance of harness between TCM and chassis ground. Connector & terminal Without VDC system (B54) No. 8 — Chassis ground: With VDC system (B54) No. 18 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 9.	Repair short cir- cuit in harness between TCM and transmission con- nector.

No.	Step	Check	Yes	No
9	CHECK 2-4 BRAKE DUTY SOLENOID. Measure the resistance between transmission connector receptacle's terminals. <i>Terminal</i>	Is the resistance between 2.0 and 4.5 Ω ?	Go to step 10 .	Go to step 16.
10	PREPARE SUBARU SELECT MONITOR.	Do you have a Subaru	Go to step 13.	Go to step 11.
11	 CHECK OUTPUT SIGNAL EMITTED FROM TCM. 1) Connect all connectors. 2) Start the engine and warm-up the transmission until the ATF temperature is above 80°C (176°F). NOTE: If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 3) Turn the ignition switch to ON (engine OFF). 4) Move the select lever to "N". 5) Measure the voltage between TCM connector and chassis ground. Connector & terminal Without VDC system (B54) No. 8 (+) — Chassis ground (-): With VDC system 	Is the voltage between 1.5 and 5.0 V with throttle fully closed?	Go to step 12.	Go to step 15.
12	CHECK OUTPUT SIGNAL EMITTED FROM TCM. Measure the voltage between TCM connector and chassis ground. Connector & terminal Without VDC system (B54) No. 8 (+) — Chassis ground (-): With VDC system (B54) No. 18 (+) — Chassis ground (-):	Is the voltage less than 1 V with throttle fully open?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- nector in TCM and transmission.	Go to step 15.

No.	Step	Check	Yes	No
13	 CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR. 1) Connect all connectors. 2) Connect the Subaru Select Monitor to data link connector. 3) Start the engine, and turn the Subaru Select Monitor switch to ON. 4) Warm-up the transmission until the ATF temperature is above 80°C (176°F). NOTE: If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 5) Stop the engine and turn the ignition switch to ON (engine OFF). 6) Move the select lever to "N". 7) Read the data of 2-4 brake duty solenoid using Subaru Select Monitor. 2-4 brake duty solenoid is indicated in "%". 8) Throttle is fully closed. 	Is the value 100%?	Go to step 14.	Go to step 15.
14	CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR. 1) Turn the ignition switch to ON (Engine OFF). 2) Throttle is fully open.	Is the value less than 25%?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- nector in TCM and transmission.	Go to step 15.
15	CHECK POOR CONTACT.	Is there poor contact in 2-4 brake duty solenoid circuit?	Repair poor con- tact.	Replace the TCM. <ref. at-49,<br="" to="">Transmission Control Module (TCM).></ref.>
16	 CHECK 2-4 BRAKE DUTY SOLENOID (IN TRANSMISSION). 1) Remove the transmission connector from bracket. 2) Drain the automatic transmission fluid. CAUTION: Do not drain the automatic transmission fluid until it cools down. 3) Remove the oil pan, and disconnect the connector from 2-4 brake duty solenoid. 4) Measure the resistance between 2-4 brake duty solenoid connector and transmission ground. Terminal No. 1 — Transmission ground: 	Is the resistance between 2.0 and 4.5 Ω?	Go to step 17.	Replace the 2-4 brake duty sole- noid. <ref. to<br="">AT-41, Shift Solenoids, Duty Solenoids and ATF Temperature Sensor.></ref.>

No.	Step	Check	Yes	No
17	CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND 2-4 BRAKE DUTY SOLENOID. Measure the resistance of harness between 2-4 brake duty solenoid and transmission con- nector. Connector & terminal (T4) No. 9 — (AT7) No. 1:	Is the resistance less than 1 Ω ?	Go to step 18.	Repair open cir- cuit in harness between 2-4 brake duty sole- noid and trans- mission connec- tor.
18	CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND 2-4 BRAKE DUTY SOLENOID. Measure the resistance of harness between transmission connector and transmission ground. Connector & terminal (T4) No. 9 — Transmission ground:	Is the resistance more than 1 MΩ?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- nector in line pressure duty solenoid and transmission.	Repair short cir- cuit in harness between 2-4 brake duty sole- noid and trans- mission connec- tor.

MEMO:

N: DTC 77 LOCK-UP DUTY SOLENOID 5004521123

DIAGNOSIS:

Output signal circuit of lock-up duty solenoid is open or shorted. **TROUBLE SYMPTOM:** No "lock-up" (after engine warm-up). **WIRING DIAGRAM:**



No.	Step	Check	Yes	No
1	CHECK DTC.	Do multiple trouble codes appear in the on-board diagnostics test mode?	Go to another trouble code.	Go to step 2.

No.	Step	Check	Yes	No
2	 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal Without VDC system (B54) No. 16 – (B11) No. 13: With VDC system (B54) No. 7 – (B11) No. 13: 	Is the resistance less than 1 Ω ?	Go to step 3.	Repair open cir- cuit in harness between TCM and transmission con- nector.
3	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness connector between TCM and chassis ground. Connector & terminal Without VDC system (B54) No. 16 — Chassis ground: With VDC system (B54) No. 7 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 4.	Repair short cir- cuit in harness between TCM and transmission con- nector.
4	CHECK LOCK-UP DUTY SOLENOID. Measure the resistance between transmission connector receptacle's terminals. Connector & terminal (T4) No. 13 — No. 16:	Is the resistance between 10 and 17 Ω?	Go to step 5 .	Go to step 11.
5	PREPARE SUBARU SELECT MONITOR.	Do you have a Subaru Select Monitor?	Go to step 8.	Go to step 6.
6	CHECK OUTPUT SIGNAL EMITTED FROM TCM. 1) Connect the connectors to TCM and trans- mission. 2) Lift-up the vehicle and place safety stand. NOTE: On AWD models, raise all wheels off ground. 3) Start the engine and warm-up the transmis- sion until the ATF temperature is above 80°C (176°F). NOTE: If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 4) Move the select lever to "D" and slowly increase the vehicle speed to 75 km/h (47 MPH). Wheels will lock-up. NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When the AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <ref. abs-21,="" clear<br="" to="">Memory Mode.> 5) Measure the voltage between TCM con- nector and chassis ground. <i>Connector & terminal</i> <i>Without VDC system</i> <i>(B54) No. 16 (+) — Chassis ground (-):</i> <i>With VDC system</i> <i>(B54) No. 7 (+) — Chassis ground (-):</i></ref.>	Is the voltage more than 8.5 V?	Go to step 7.	Go to step 10.

	-			
No.	Step	Check	Yes	No
7	CHECK OUTPUT SIGNAL EMITTED FROM TCM. 1) Return the engine to idling speed and move the select lever to "N".	Is the voltage less than 0.5 V?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned	Go to step 10 .
	2) Measure the voltage between TCM con- nector and chassis ground.		to a normal condi- tion at this time. A	
	Connector & terminal		temporary poor	
	(B54) No. 16 (+) — Chassis ground (–):		contact of the connector or har-	
	With VDC system (B54) No. 7 (+) — Chassis around (–):		ness may be the cause. Repair	
			harness or con- nector in TCM and transmission.	
8	CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR. 1) Connect the connectors to TCM and trans-	Is the value 95%?	Go to step 9.	Go to step 10.
	mission. 2) Lift-up the vehicle and place safety stand. NOTE:			
	On AWD models, raise all wheels off ground. 3) Connect the Subaru Select Monitor to data link connector.			
	Select Monitor switch to ON.			
	5) Start the engine and warm-up the transmis- sion until the ATF temperature is above 80°C (176°F).			
	If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature.			
	6) Read the data of lock-up duty solenoid using Subaru Select Monitor.			
	 Lock-up duty solenoid is indicated in "%". 7) Move the select lever to "D" and slowly 			
	increase the vehicle speed to 75 km/h (47 MPH). Wheels will lock-up.			
	The speed difference between front and rear			
	this indicates no malfunction. When the AT			
	control diagnosis is finished, perform the ABS memory clearance procedure of on-board			
	diagnostics system. <ref. abs-21,="" clear<br="" to="">Memory Mode.></ref.>			
9	CHECK OUTPUT SIGNAL EMITTED FROM	Is the value 5%?	Even if the AT OIL	Go to step 10.
	TCM USING SUBARU SELECT MONITOR.		TEMP warning	
	the select lever to "N".		cuit has returned	
	The speed difference between front and rear		to a normal condi- tion at this time. A	
	wheels may light the ABS warning light, but		temporary poor	
	diagnosis is finished, perform the ABS		connector or har-	
	memory clearance procedure of on-board diagnostics system. <ref. abs-21,="" clear<="" th="" to=""><th></th><th>ness may be the cause. Repair</th><th></th></ref.>		ness may be the cause. Repair	
	Memory Mode.>		harness or con- nector in TCM	
			and transmission.	

No.	Step	Check	Yes	No
10	CHECK POOR CONTACT.	Is there poor contact in lock-up duty solenoid cir- cuit?	Repair poor con- tact.	Replace the TCM. <ref. at-49,<br="" to="">Transmission Control Module (TCM).></ref.>
11	CHECK LOCK-UP DUTY SOLENOID (IN TRANSMISSION). 1) Remove the transmission connector from bracket. 2) Drain the automatic transmission fluid. CAUTION: Do not drain the automatic transmission fluid until it cools down. 3) Remove the oil pan, and disconnect the connector from lock-up duty solenoid. 4) Measure the resistance between lock-up duty solenoid connector and transmission ground. Terminal No. 1 — Transmission ground:	Is the resistance between 10 and 17 Ω?	Go to step 12.	Replace the lock-up duty sole- noid. <ref. to<br="">AT-41, Shift Solenoids, Duty Solenoids and ATF Temperature Sensor.></ref.>
12	CHECK HARNESS CONNECTOR BETWEEN LOCK-UP DUTY SOLENOID AND TRANSMISSION. Measure the resistance of harness between lock-up duty solenoid and transmission con- nector. Connector & terminal (T4) No. 13 — (AT3) No. 1:	Is the resistance less than 1 Ω?	Go to step 13.	Repair open cir- cuit in harness between TCM and transmission con- nector.
13	CHECK HARNESS CONNECTOR BETWEEN LOCK-UP DUTY SOLENOID AND TRANSMISSION. Measure the resistance of harness between transmission connector and transmission ground. Connector & terminal (T4) No. 13 — Transmission ground:	Is the resistance more than 1 MΩ?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- nector in lock-up duty solenoid and transmission.	Repair short cir- cuit in harness between lock-up duty solenoid and transmission con- nector.

O: DTC 79 TRANSFER DUTY SOLENOID 5004521124

DIAGNOSIS:

Output signal circuit of transfer duty solenoid is open or shorted. **TROUBLE SYMPTOM:** Excessive "braking" in tight corners. **WIRING DIAGRAM:**



No.	Step	Check	Yes	No
1	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal Without VDC system (B54) No. 15 — (B11) No. 6: With VDC system (B54) No. 6 — (B11) No. 6:	Is the resistance less than 1 Ω?	Go to step 2.	Repair open cir- cuit in harness between TCM and transmission con- nector.
2	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance harness connector between TCM and chassis ground. Connector & terminal Without VDC system (B54) No. 15 — Chassis ground: With VDC system (B54) No. 6 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 3.	Repair short cir- cuit in harness between TCM and transmission con- nector.
3	CHECK TRANSFER DUTY SOLENOID. Measure the resistance between transmission connector and transmission terminals. Connector & terminal (T4) No. 6 — No. 16:	Is the resistance between 10 and 17 Ω?	Go to step 4 .	Go to step 13.
4	PREPARE SUBARU SELECT MONITOR.	Do you have a Subaru Select Monitor?	Go to step 7.	Go to step 5.
5	 CHECK OUTPUT SIGNAL EMITTED FROM TCM. 1) Connect the connectors to TCM and transmission. 2) Turn the ignition switch to ON (engine OFF). 3) Throttle is fully closed. 4) Measure the voltage between TCM connector and chassis ground. Connector & terminal Without VDC system (B54) No. 15 (+) — Chassis ground (-): With VDC system (B54) No. 6 (+) — Chassis ground (-): 	Is the voltage less than 1 V in "P" range?	Go to step 6.	Go to step 12.
6	CHECK OUTPUT SIGNAL EMITTED FROM TCM. Measure the voltage between TCM connector and chassis ground. Connector & terminal Without VDC system (B54) No. 15 (+) — Chassis ground (-): With VDC system (B54) No. 6 (+) — Chassis ground (-):	Is the voltage between 5 and 7 V in "D" range?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- nector in the TCM and transmission.	Go to step 12.
7	CHECK VEHICLE	Is the target model without VDC system?	Go to step 8.	Go to step 10.

No.	Step	Check	Yes	No
8	 CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR. 1) Connect the connectors to TCM and transmission. 2) Connect the Subaru Select Monitor to data link connector. 3) Turn the ignition switch to ON (engine OFF) and turn the Subaru Select Monitor switch to ON. 4) Move the select lever to "D" with throttle fully open (vehicle speed 0 km/h or 0 MPH). 5) Read the data of transfer duty solenoid using Subaru Select Monitor. Transfer duty solenoid is indicated in "%". 	Is the value between 5 and 10%?	Go to step 9.	Go to step 12.
9	 CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR. 1) Move the select lever to "D" with throttle fully closed (vehicle speed 0 km/h or 0 MPH). 2) Read the data of transfer duty solenoid using Subaru Select Monitor. Transfer duty solenoid is indicated in "%". 	Is the value between approx. 60% and approx. 70%?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- nector in the TCM and transmission.	Go to step 12 .
10	 CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR. 1) Connect connectors to TCM and transmission. 2) Connect Subaru Select Monitor to data link connector. 3) Turn ignition switch to ON (engine OFF) and turn Subaru Select Monitor switch to ON. 4) Move select lever to "D" with throttle fully open (vehicle speed 0 km/h or 0 MPH). 5) Read data of transfer duty solenoid using Subaru Select Monitor. Transfer duty solenoid is indicated in "%". 	Is the value between 80 and 95%?	Go to step 11.	Go to step 12.
11	 CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR. 1) Move select lever to "N" with throttle fully close (vehicle speed 0 km/h or 0 MPH). 2) Rear data of transfer duty solenoid using Subaru Select Monitor. Transfer duty solenoid is indicated in "%". 	Is the value approx. 40%?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- nector in the transfer duty sole- noid and TCM connector.	Go to step 12.

No.	Step	Check	Yes	No
12	CHECK POOR CONTACT.	Is there poor contact in transfer duty solenoid cir- cuit?	Repair poor con- tact.	Replace the TCM. <ref. at-49,<br="" to="">Transmission Control Module (TCM).></ref.>
13	CHECK TRANSFER DUTY SOLENOID (IN TRANSMISSION). 1) Lift-up the vehicle and place safety stand. NOTE: On AWD models, raise all wheels off ground. 2) Drain the automatic transmission fluid. CAUTION: Do not drain the automatic transmission fluid until it cools down. 3) Remove the extension case, and discon- nect the connector from transfer duty sole- noid. 4) Measure the resistance between transfer duty solenoid connector and transmission ground. Connector & terminal (AT4) No. 1 — Transmission ground:	Is the resistance between 10 and 17 Ω?	Go to step 14.	Replace the trans- fer duty solenoid.
14	CHECK HARNESS CONNECTOR BETWEEN TRANSFER DUTY SOLENOID AND TRANSMISSION. Measure the resistance of harness between transfer duty solenoid and transmission con- nector. Connector & terminal (T4) No. 6 — (AT4) No. 1:	Is the resistance less than 1 Ω?	Go to step 15.	Repair open cir- cuit in harness between transfer duty solenoid and transmission con- nector.
15	CHECK HARNESS CONNECTOR BETWEEN TRANSFER DUTY SOLENOID AND TRANSMISSION. Measure the resistance of harness between transmission connector and transmission ground. Connector & terminal (T4) No. 6 — Transmission ground:	Is the resistance more than 1 MΩ?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- tact in the transfer duty solenoid and transmission.	Repair short cir- cuit in harness between transfer duty solenoid and transmission con- nector.

P: DTC 86 VDC COMMUNICATION SIGNAL 5004521J91

DIAGNOSIS:

Input signal circuit of TCM is open or shorted. **WIRING DIAGRAM:**



B3M2235

No.	Step	Check	Yes	No
1	CHECK DTC.	Do multiple trouble codes appear in the on-board diagnostics test mode?	Go to another trouble code.	Go to step 2.
2	CHECK HARNESS CONNECTOR BETWEEN TCM AND VDCCM. 1) Turn ignition switch to OFF. 2) Disconnect TCM and VDCCM connector. 3) Measure resistance of harness between TCM and VDCCM connector. Connector & terminal (B56) No. 18 — (F87) No. 81:	Is the resistance less than 1 Ω?	Go to step 3.	Repair open cir- cuit in harness between TCM and VDCCM, and poor contact in cou- pling connector.
3	CHECK HARNESS CONNECTOR BETWEEN TCM AND VDCCM. Measure resistance of harness between TCM and VDCCM connector. Connector & terminal (B56) No. 9 — (F87) No. 83:	Is the resistance less than 1 Ω?	Go to step 4.	Repair open cir- cuit in harness between TCM and VDCCM, and poor contact in cou- pling connector.
4	CHECK HARNESS CONNECTOR BETWEEN TCM AND VDCCM. Measure resistance of harness between TCM and VDCCM connector. Connector & terminal (B56) No. 18 — Chassis ground:	Is the resistance less than 1 MΩ?	Go to step 5 .	Repair short cir- cuit in harness between TCM and VDCCM connec- tor.
5	CHECK HARNESS CONNECTOR BETWEEN TCM AND VDCCM. Measure resistance of harness between TCM and VDCCM connector. Connector & terminal (B56) No. 9 — Chassis ground:	Is the resistance less than 1 MΩ?	Go to step 6 .	Repair short cir- cuit in harness between TCM and VDCCM connec- tor.
6	PREPARE OSCILLOSCOPE.	Do you have oscilloscope?	Go to step 8.	Go to step 7.
7	CHECK INPUT SIGNAL FOR TCM. 1) Connect TCM and VDCCM connector. 2) Turn ignition switch to ON (engine OFF). 3) Measure voltage between TCM connector and chassis ground. Connector & terminal (B56) No. 9 (+) — Chassis ground (-): (B56) No. 18 (+) — Chassis ground (-):	Does input voltage value change?	Go to step 10.	Repair poor con- tact in VDCCM.
8	CHECK INPUT SIGNAL FOR TCM USING OSCILLOSCOPE. 1) Connect TCM and VDCCM connector. 2) Set oscilloscope to TCM connector termi- nals. Connector & terminal Positive probe; (B56) No. 9 Earth lead; (B55) No. 9 3) Turn ignition switch to ON (engine OFF).	Check signal waveform pattern on oscilloscope. <ref. at-22,="" waveform,<br="">MEASUREMENT, Trans- mission Control Module (TCM) I/O Signal.> Is waveform pattern same as that shown in the figure?</ref.>	Go to step 9.	Repair poor con- tact in VDCCM.
9	CHECK INPUT SIGNAL FOR TCM USING OSCILLOSCOPE. 1) Set oscilloscope to TCM connector termi- nals. Connector & terminal Positive probe; (B56) No. 18 Earth lead; (B55) No. 9 2) Turn ignition switch to ON (engine OFF).	Check signal waveform pattern on oscilloscope. <ref. at-22,="" waveform,<br="">MEASUREMENT, Trans- mission Control Module (TCM) I/O Signal.> Is waveform pattern same as that shown in the figure?</ref.>	Go to step 10.	Repair poor con- tact in VDCCM.

No. Yes No Step Check 10 CHECK POOR CONTACT. Is there poor contact in Repair poor con-Replace TCM. <Ref. to AT-49, TCM? tact. Transmission **Control Module** (TCM).>

MEMO:

Q: DTC 93 REAR VEHICLE SPEED SENSOR 5004521/25

DIAGNOSIS:

Input signal circuit of TCM is open or shorted. **TROUBLE SYMPTOM:**

No lock-up or excessive tight corner "braking".

WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal Without VDC system (B55) No. 3 - (B11) No. 19: With VDC system (B55) No. 24 - (B11) No. 19: 	Is the resistance less than 1 Ω?	Go to step 2.	Repair open cir- cuit in harness between TCM and transmission con- nector.
2	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM and transmission connector. Connector & terminal Without VDC system (B55) No. 21 — (B11) No. 20: With VDC system (B54) No. 19 — (B11) No. 20:	Is the resistance less than 1 Ω ?	Go to step 3.	Repair open cir- cuit in harness between TCM and transmission, and poor contact in coupling connec- tor.
3	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM and chassis ground. Connector & terminal Without VDC system (B55) No. 3 — Chassis ground: With VDC system (B55) No. 24 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 4.	Repair short cir- cuit in harness between TCM and transmission con- nector.
4	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM and chassis ground. Connector & terminal Without VDC system (B55) No. 21 — Chassis ground: With VDC system (B54) No. 19 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 5.	Repair short cir- cuit in harness between TCM and transmission con- nector.
5	CHECK REAR VEHICLE SPEED SENSOR. Measure the resistance between transmission connector receptacle's terminals. Connector & terminal (T4) No. 19 — No. 20:	Is the resistance between 450 and 650 Ω?	Go to step 6 .	Replace the rear vehicle speed sensor. <ref. to<br="">AT-37, Rear Vehicle Speed Sensor.></ref.>
6	PREPARE OSCILLOSCOPE.	Do you have an oscillo- scope?	Go to step 10.	Go to step 7.
7	PREPARE SUBARU SELECT MONITOR.	Do you have a Subaru Select Monitor?	Go to step 9.	Go to step 8.

No.	Step	Check	Yes	No
8	CHECK INPUT SIGNAL FOR TCM.	Is the voltage more than	Even if the AT OIL	Go to step 11.
	1) Connect the connectors to TCM and trans-	AC 1 V?	TEMP warning	
	mission.		lights up, the cir-	
	2) Lift-up or raise the vehicle and place safety		cuit has returned	
	stands.		to a normal condi-	
	NOTE:		tion at this time. A	
	On AWD models, raise all wheels off floor.		temporary poor	
	3) Start the engine and set vehicle in 20 km/h		contact of the	
	(12 MPH) condition.		connector or har-	
	NOTE:		ness may be the	
	The speed difference between front and rear		cause. Repair	
	wheels may light the ABS warning light, but		harness or con-	
	this indicates no malfunction. When the AT		nector in the TCM	
	control diagnosis is finished, perform the ABS		and transmission.	
	memory clearance procedure of on-board			
	diagnostics system. <ref. abs-21,="" clear<="" th="" to=""><th></th><th></th><th></th></ref.>			
	Memory Mode.>			
	4) Measure the voltage between I CM con-			
	Connector & terminal			
	Without VDC system			
	(B55) No 3 (+) - (B55) No 21 (-);			
	(D33) No. 3 (+) — (D33) No. 21 (-). With VDC system			
	$(B55) No 24 (+) - (B54) No 19 (-)^{1}$			
0		Doos the speedometer indi	Even if the AT OIL	Go to stop 11
5		cation increase as the	TEMP warning	
	1) Connect the connectors to TCM and trans-	Subaru Select Monitor data	lights up the cir-	
	mission	increases?	cuit has returned	
	2) Connect the Subaru Select Monitor to data		to a normal condi-	
	link connector.		tion at this time. A	
	3) Lift-up or raise the vehicle and place safety		temporary poor	
	stands.		contact of the	
	NOTE:		connector or har-	
	Raise all wheels off floor.		ness may be the	
	4) Turn the ignition switch to ON and turn the		cause. Repair	
	Subaru Select Monitor switch to ON.		harness or con-	
	5) Start the engine.		nector in the TCM	
	6) Read the data of vehicle speed using		and transmission.	
	Subaru Select Monitor.			
	Compare the speedometer with Subaru			
	Select Monitor indications.			
	• Venicle speed is indicated in "km/h" or			
	"MPH".			
	7) Slowly increase the vehicle speed to 60			
	The speed difference between front and roor			
	wheels may light the ARS warning light, but			
	this indicates no malfunction When the AT			
	control diagnosis is finished perform the APS			
	memory clearance procedure of on-board			
	diagnostics system <ref ars-21="" clear<="" th="" to=""><th></th><th></th><th></th></ref>			
	Memory Mode.>			
	Memory Mode.>			

No.	Step	Check	Yes	No
10	CHECK INPUT SIGNAL FOR TCM USING OSCILLOSCOPE. 1) Connect the connectors to TCM and trans- mission. 2) Lift-up or raise the vehicle and place safety stands. NOTE: Raise all wheels off floor. 3) Set the oscilloscope to TCM connector ter- minals. Connector & terminal With VDC system Positive probe; (B55) No. 24 Earth lead; (B54) No. 19 Without VDC system Positive probe; (B55) No. 3 Earth lead; (B55) No. 21 4) Start the engine and set the vehicle in 20 km/h (12 MPH) condition. NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When the AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <ref. abs-21,="" clear<br="" to="">Memory Mode.> 5) Measure the signal voltage indicated on oscilloscope.</ref.>	Is the signal voltage more than AC 1 V?	Even if the AT OIL TEMP warning lights up, the cir- cuit has returned to a normal condi- tion at this time. A temporary poor contact of the connector or har- ness may be the cause. Repair harness or con- nector in the TCM and transmission.	Go to step 11.
11	CHECK POOR CONTACT.	Is there poor contact in rear vehicle speed sensor circuit?	Repair poor con- tact.	Replace the TCM. <ref. at-49,<br="" to="">Transmission Control Module (TCM).></ref.>