

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

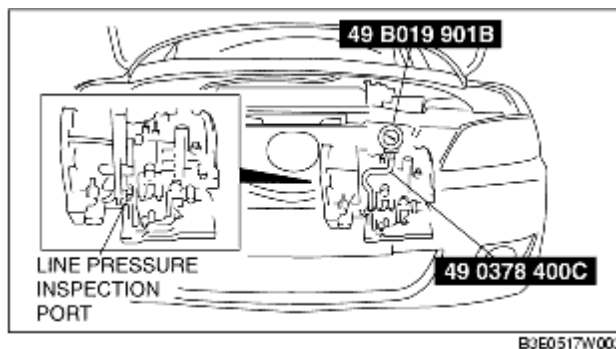
Line Pressure Test

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})	
		Z6	LF
D, M (1GR, 2GR)	Idle	330-470 {3.4-4.7, 48-68}	
	Stall	1,090-1,250 {11.2-12.7, 159-181}	1,160-1,320 {11.8-13.5, 168-191}
R	Idle	490-710 {5.0-7.2, 72-102}	
	Stall	1,470-1,690 {15.0-17.2, 214-245}	1,600-1,820 {16.4-18.5, 234-263}

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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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)	
	Z6	LF
D, M (1GR, 2GR)	2,100-2,700	2,000-2,600
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
		• Low and reverse brake slipping

	In R position	<ul style="list-style-type: none"> • 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		<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Low line pressure • Forward clutch slipping • Oil leaking from forward clutch fluid circuit • Shift solenoid A not operating properly
	Less than specification	<ul style="list-style-type: none"> • Forward accumulator not operating properly • Shift solenoid A not operating properly • Excessive line pressure
N→R shift	More than specification	<ul style="list-style-type: none"> • Low line pressure • Low and reverse brake slipping • Reverse clutch slipping • Shift solenoid B not operating properly
	Less than specification	<ul style="list-style-type: none"> • Servo apply accumulator not operating properly • Shift solenoid B not operating properly • Excessive line pressure