

# Stall Test

## AUTOMATIC TRANSMISSION

### 5. Stall Test

#### A: INSPECTION

##### NOTE:

The stall test is extremely important in diagnosing the condition of an automatic transmission and engine. The test is necessary to measure the engine stall speeds in "R" and "2nd of manual mode".

Purposes of the stall test:

- Operational check of the automatic transmission clutch
- Operational check of the torque converter clutch
- Engine performance check

1) Check that the throttle valve fully opens.

2) Check that the engine oil level is correct.

3) Check that the coolant level is correct.

4) Check that the ATF level is correct.

5) Check that the differential gear oil level is correct.

6) Increase the ATF temperature to 70 to 80°C (158 to 176°F) by idling the engine for approximately 30 minutes (with select lever set to "N" or "P").

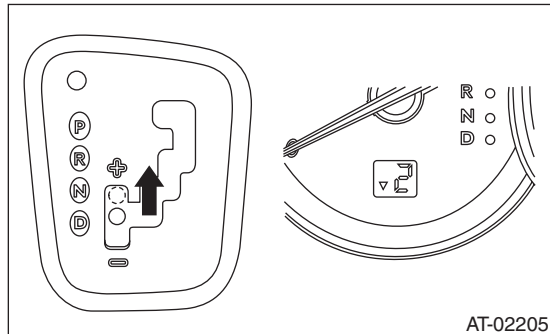
7) Place the wheel chocks at the front and rear of all wheels and apply the parking brake.

8) Move the manual linkage to ensure it operates properly, and then set to the "2nd gear of manual mode".

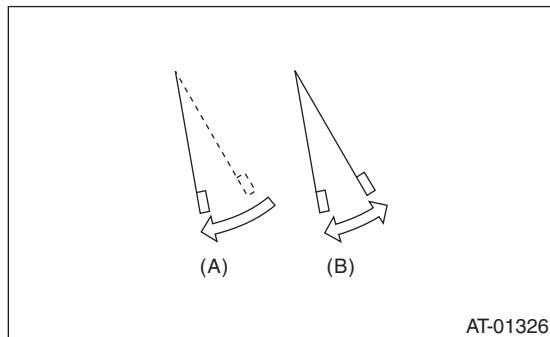
10) When the engine speed stabilizes, quickly record the engine speed and release accelerator pedal.

11) Shift the select lever to "N" range, and cool down the engine by idling it for more than one minute.

12) If the stall speed in "2nd gear of manual mode" is higher than specifications, low clutch slipping and 2-4 brake slipping may occur. To identify this, conduct the same test as above in "R" range.



9) While forcibly depressing the foot brake pedal, gradually depress the accelerator pedal until the engine operates at full throttle.



(A) Brake pedal

(B) Accelerator pedal

13) Perform the stall tests with the select lever in “D” range.

**NOTE:**

- Do not continue the stall test for more than 5 seconds at a time (from closed throttle, fully open throttle to stall speed reading). Failure to follow this instruction will cause the engine oil and ATF to deteriorate and the clutch and brake to be adversely affected.
- Be sure to cool down the engine for at least one minute after each stall test with the select lever set in the “P” or “N” range and with the idle speed lower than 1,200 rpm.
- If the stall speed is higher than the specified range, attempt to finish the stall test in as short a time as possible, in order to prevent the automatic transmission from sustaining damage.

**Stall speed (at sea level) :**  
**2,200 — 2,700 rpm**

Stall speed (at sea level)	Range	Cause
Below specified value	2nd gear on manual mode, R	<ul style="list-style-type: none"> <li>• Throttle valve is not fully open</li> <li>• Engine malfunction</li> <li>• One-way clutch of the torque converter is slipping</li> </ul>
Over specified value	D	<ul style="list-style-type: none"> <li>• Line pressure too low</li> <li>• Low clutch slipping</li> <li>• One-way clutch malfunctioning</li> </ul>
	R	<ul style="list-style-type: none"> <li>• Line pressure too low</li> <li>• Reverse clutch slipping</li> <li>• Low &amp; reverse brake slipping</li> </ul>
	2nd gear of manual mode	<ul style="list-style-type: none"> <li>• Line pressure too low</li> <li>• Low clutch slipping</li> <li>• 2-4 brake slipping</li> </ul>