

MECHANICAL SYSTEM TESTS

1. STALL SPEED TEST

HINT:

This test is to check the overall performance of the engine and transmission.

NOTICE:

- **Do not perform the stall speed test longer than 5 seconds.**
 - **To ensure safety, perform this test in an open and level area that provides good traction.**
 - **The stall speed test should always be performed with at least 2 people. One person should observe the condition of the wheels and wheel chocks while the other is performing the test.**
- (a) Connect the intelligent tester to the CAN VIM. Then connect the CAN VIM to the DLC3.
 - (b) Run the vehicle until the transmission fluid temperature has reached 50 to 80°C (122 to 176°F).
 - (c) Allow the engine to idle with the air conditioning OFF.
 - (d) Chock all 4 wheels.
 - (e) Set the parking brake and keep the brake pedal depressed firmly with your left foot.
 - (f) Shift the shift lever into the D position.
 - (g) Depress the accelerator pedal as much as possible with your right foot.
 - (h) Read the engine rpm (stall speed) and release the accelerator pedal immediately.

Standard value:

1,850 to 2,150 rpm

Evaluation:

Test Result	Possible Cause
Stall speed is lower than standard value	<ul style="list-style-type: none"> • Stator one-way clutch is not operating properly • Torque converter is faulty (stall speed is less than standard value by 600 rpm or more) • Engine power may be insufficient
Stall speed is higher than standard value	<ul style="list-style-type: none"> • Line pressure is low • Forward clutch slipping • No. 2 one-way clutch is not operating properly • O/D one-way clutch is not operating properly • Improper fluid level

2. SHIFT TIME LAG TEST

HINT:

This test is to check the condition of the direct clutch, forward clutch, 1st brake and reverse brake.

- (a) Connect the intelligent tester to the CAN VIM. Then connect the CAN VIM to the DLC3.
- (b) Run the vehicle until the transmission fluid temperature has reached 50 to 80°C (122 to 176°F).
- (c) Allow the engine to idle with the air conditioning OFF.
- (d) Set the parking brake and keep the brake pedal depressed firmly.

- (e) Check the D range time lag.
 - (1) Shift the shift lever into the N position and wait for 1 minute.
 - (2) Shift the shift lever into the D position and measure the time until the shock is felt.
 - (3) Repeat the 2 procedures above 3 times, and calculate the average time of the 3 tests.
- (f) Check the R range time lag.
 - (1) Shift the shift lever into the N position and wait for 1 minute.
 - (2) Shift the shift lever into the R position and measure the time until the shock is felt.
 - (3) Repeat the 2 procedures above 3 times, and calculate the average time of the 3 tests.

Standard value:**D range time lag is less than 1.2 seconds****R range time lag is less than 1.5 seconds****Evaluation:**

Test Result	Possible Cause
D range time lag exceeds standard value	<ul style="list-style-type: none"> • Line pressure is low • Forward clutch is worn • O/D one-way clutch is not operating properly
R range time lag exceeds standard value	<ul style="list-style-type: none"> • Line pressure is low • Direct clutch is worn • 1st brake and reverse brake is worn • O/D one-way clutch is not operating properly