MECHANICAL SYSTEM TESTS

1. PERFORM MECHANICAL SYSTEM TESTS

(a) Measure the stall speed.
The object of this test is to check the overall performance of the transaxle and engine by measuring the stall speeds in the D position.
NOTICE:
- **Driving test should be done on a paved road (a nonskid road).**
- **Perform the test at the normal operating ATF (Automatic Transmission Fluid) temperature 50 to 80°C (122 to 176°F).**
- **Do not continuously run this test for longer than 10 seconds.**
- **To ensure safety, do this test in a wide, clear level area which provides good traction.**
- **The stall test should always be carried out in pairs. One technician should observe the conditions of wheels or wheel stoppers outside the vehicle while the other is doing the test.**

(1) Chock the 4 wheels.
(2) Connect the intelligent tester together with the CAN VIM (controller area network vehicle interface module) to the DLC3.
(3) Fully apply the parking brake.
(4) Keep your left foot pressed firmly on the brake pedal.
(5) Start the engine.
(6) Shift into the D position. Press all the way down on the accelerator pedal with your right foot.
(7) Quickly read the stall speed at this time.
Stall speed:
2,550 +- 150 rpm

Evaluation:

Problem	Possible cause
(a) Stall engine speed is low in D position	• Engine power output may be insufficient • Stator one-way clutch not operating properly HINT: If the value is less than the specified value by 600 rpm or more, the torque converter could be faulty.
(b) Stall engine speed is high in D position	• Line pressure is too low • Forward clutch slipping • No. 2 one-way clutch not operating properly • U/D one-way clutch not operating properly • Improper fluid level

(b) Measure the time lag.
(1) When the shift lever is shifted while the engine is idling, there will be a certain time lapse or lag before the shock can be felt. This is used for checking the condition of the clutch and brake.
NOTICE:
- **Perform the test at the normal operating ATF (Automatic Transmission Fluid) temperature: 50 to 80°C (122 to 176°F).**

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- **Be sure to allow 1 minute interval between tests.**
- **Perform the test three times, and measure the time lags. Calculate the average value of the three time lags.**

(2) Connect the intelligent tester together with the CAN VIM (controller area network vehicle interface module) to the DLC3.
(3) Fully apply the parking brake.
(4) Start and warm up the engine and check idle speed.
Idle speed:
approx. 700 rpm (In N position and A/C OFF)
(5) Shift the lever from N to D position. Using a stop watch, measure the time from when the lever is shifted until the shock is felt.
Time lag:
N → D less than 1.2 seconds
(6) In the same way, measure the time lag for N → R.
Time lag:
N → R less than 1.5 seconds

Evaluation (If N → D or N → R time lag is longer than the specified):

Problem	Possible cause
N → D time lag is longer	• Line pressure is too low • Forward clutch worn • U/D one-way clutch is not operating properly
N → R time lag is longer	• Line pressure is too low • Direct clutch worn • 1st and reverse brake worn • U/D one-way clutch no operating properly

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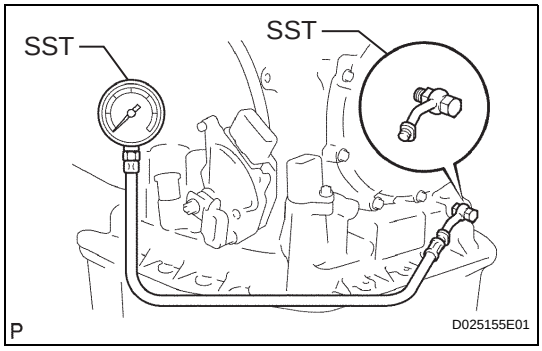

HYDRAULIC TEST

1. PERFORM HYDRAULIC TEST

(a) Measure the line pressure.
NOTICE:
- **Perform the test at the normal operating ATF (Automatic Transmission Fluid) temperature: 50 to 80°C (122 to 176°F).**
- **The line pressure test should always be carried out in pairs. One technician should observe the conditions of wheels or wheel stoppers outside the vehicle while the other is performing the test.**
- **Be careful to prevent SST hose from interfering with the exhaust pipe.**
- **This Check must be conducted after checking and adjusting engine.**
- **Perform under condition that A/C is OFF.**
- **When conducting stall test, do not continue more than 10 seconds.**

(1) Warm up the ATF:

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(2) Remove the test plug on the front left side of the transaxle case and connect SST.
SST 09992-00095 (09992-00231, 09992-00271)
(3) Fully apply the parking brake and chock the 4 wheels.
(4) Connect the intelligent tester together with the CAN VIM (controller area network vehicle interface module) to the DLC3.
(5) Start the engine and check idling speed.
(6) Keep your left foot pressing firmly on the brake pedal and shift into D position.
(7) Measure the line pressure when the engine is idling.
(8) Depress the accelerator pedal all the way down. Quickly read the highest line pressure when engine speed reaches stall speed.
(9) In the same way, do the test in R position.

Specified line pressure:

Condition	D position kPa (kgf/cm^2, psi)	R position kPa (kgf/cm^2, psi)
Idling	324 to 451 kPa (3.3 to 4.6 kgf/cm^2, 47 to 65 psi)	577 to 817 kPa (5.9 to 8.3 kgf/cm^2, 84 to 118 psi)
Stall test	713 to 844 kPa (7.27 to 8.61 kgf/cm^2, 103 to 122 psi)	1,520 to 1,755 kPa (15.5 to 17.9 kgf/cm^2, 220 to 254 psi)

Evaluation:

Problem	Possible cause
If the measured values at all positions are higher	• Shift solenoid valve SLT defective • Regulator valve detective
If the measured values at all positions are lower	• Shift solenoid valve SLT defective • Regulator valve detective • Oil pump defective • O/D direct clutch defective
If pressure is low in the D position only	• D position circuit fluid leak • Forward clutch defective
If pressure is low in the R position only	• R position circuit fluid leak • Direct clutch defective • 1st and reverse brake defective

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