Torque Converter Stall Test

This test measures the maximum engine speed when the select lever is at the "D" or "R" position and the torque converter stalls to test the operation of the torque converter, starter motor and one-way clutch operation and the holding performance of the clutches and brakes in the transmission.

⚠ CAUTION

Do not let anybody stand in front of or behind the vehicle while this test is being carried out.

1. Check the automatic transmission fluid level and temperature and the engine coolant temperature.
   - Fluid level : At the HOT mark on the oil level gauge
   - Fluid temperature : 80~100°C (176~212°F)
   - Engine coolant temperature : 80~100°C (176~212°F)
2. Check both rear wheels (left and right).
3. Pull the parking brake lever on, with the brake pedal fully depressed.
4. Start the engine.
5. Move the select lever to the "D" position, fully depress the accelerator pedal and take a reading of the maximum engine speed at this time.

NOTICE

- The throttle should not be left fully open for any more than 5 seconds.
- If carrying out the stall test two or more times, move the select lever to the "N" position and run the engine at 1,000 r/min to let the automatic transaxle fluid cool down before carrying out subsequent tests.
- Move the select lever to the "R" position and carry out the same test again.

Stall rpm : 2,000~2,700 RPM

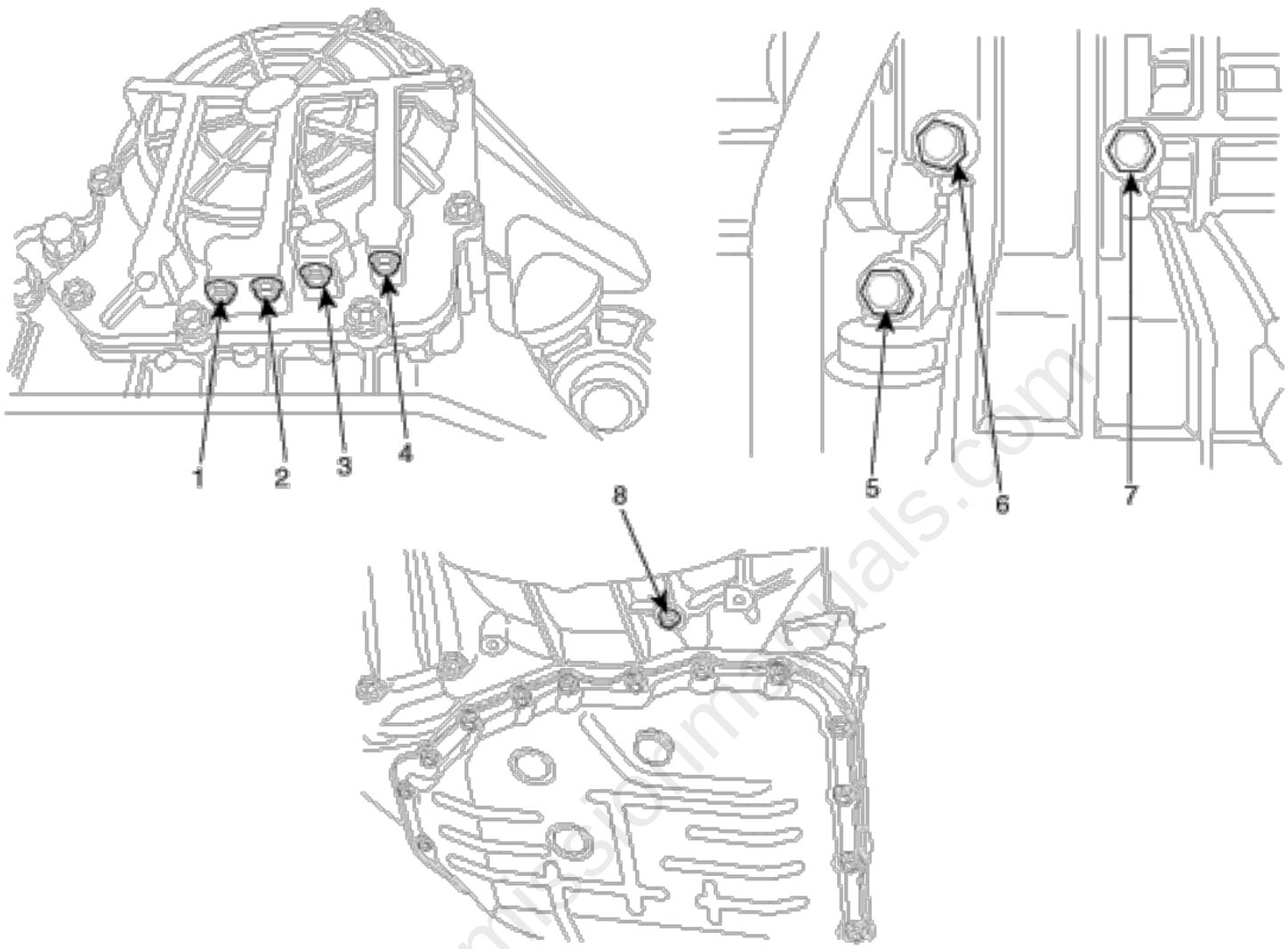
Range	Condition	Passable cause
R range slip	Reverse	REV in D range normal L/R in D range abnormal
D1 range slip	D range 1st/ Sports mode 1st	L/R in reverse range abnormal UD in reverse range normal
D3 range slip	3rd gear hold	OD in 3rd gear slip (1st and 2nd gear normal)
Forwarding, reverse slip	D range, R range	Torque converter Oil pump, Manual valve in the valve Driving device abnormal

Hydraulic Pressure Test

1. Warm up the engine until the automatic transaxle fluid temperature is 80~100°C(176~212°F).

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2. Jack up the vehicle so that the wheels are free to turn.
3. Connect the special tools(09452-21500, 09452-21000, 09452-21600) oil pressure gauge to each pressure discharge port.
4. Measure the hydraulic pressure at each port under the conditions given in the standard hydraulic pressure table, and check that the measured values are within the standard value ranges.
5. If a value is outside the standard range, correct the problem while referring to the hydraulic pressure test diagnosis table.



Torques : 8~10Nm(80~100kgf.cm, 6~7lb-ft)

1. RED pressure port	5. DA pressure port
2. OD pressure port	6. UD pressure port
3. 2ND pressure port	7. LR pressure port
4. REV pressure port	8. DR pressure port

Standard Hydraulic Pressure Table

No.	Shift range position	Operation					Measuring	Oil pressure (kgf/㎠)				
		PCSV-A	PCSV-B	PCSV-C	PCSV-D	ON/OFF		LR	2/4(2ND)	UD	OD	REV
1	D	0	100	0	0	ON	LR	10.5±0.2	0	10.5±0.2	0	0
2	↑	50	↑	↑	↑	↑	↑	5.6±0.4	↑	↑	↑	↑
3	↑	75	↑	↑	↑	↑	↑	1.0±0.3	↑	↑	↑	↑
4	↑	100	↑	↑	↑	↑	↑	0	↑	↑	↑	↑
5	↑	↑	0	↑	100	OFF	2/4(2ND)	0	10.5±0.2	↑	↑	↑
6	↑	↑	50	↑	↑	↑	↑	↑	5.3±0.4	↑	↑	↑
7	↑	↑	75	↑	↑	↑	↑	↑	0.9±0.3	↑	↑	↑
8	↑	↑	100	↑	↑	↑	↑	↑	0	↑	↑	↑
9	↑	0	↑	↑	↑	↑	OD	↑	↑	↑	10.5±0.2	↑
10	↑	50	↑	↑	↑	↑	↑	↑	↑	↑	5.6±0.4	↑
11	↑	75	↑	↑	↑	↑	↑	↑	↑	↑	1.0±0.3	↑
12	↑	100	↑	↑	↑	↑	↑	↑	↑	↑	0	↑
13	↑	↑	↑	0	0	↑	UD	↑	↑	10.5±0.2	↑	↑
14	↑	↑	↑	50	↑	↑	↑	↑	↑	5.6±0.4	↑	↑
15	↑	↑	↑	75	↑	↑	↑	↑	↑	1.0±0.3	↑	↑
16	↑	0	↑	100	↑	↑	↑	↑	↑	0	↑	↑
17	R	↑	0	↑	↑	ON	REV	17.7±0.8	↑	↑	↑	17.7±0.8
18	↑	↑	50	↑	↑	↑	↑	↑	↑	↑	↑	8.8±0.8
19	↑	↑	75	↑	↑	↑	↑	↑	↑	↑	↑	0.9±0.5
20	↑	↑	100	↑	↑	↑	↑	↑	↑	↑	↑	0

[Measure condition]

- Oil pump revolution : 2500rpm
- LPCSV Duty ratio : 0%

Note) The oil pressure values of "0" marked on the above table must measure less than 0.1kgf/㎠ when testing.

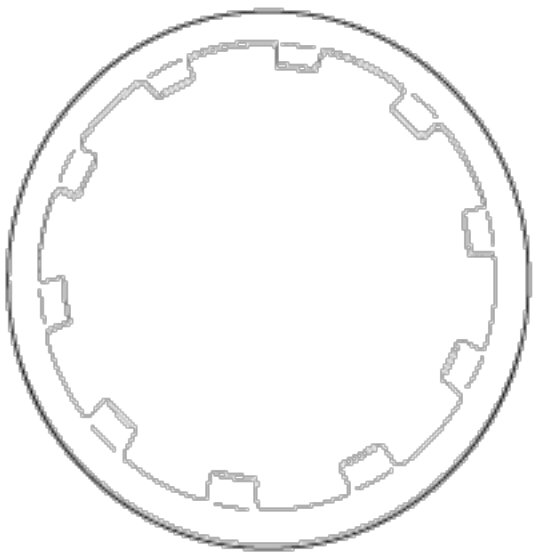
※ The values are subject to change according to vehicle model or condition.

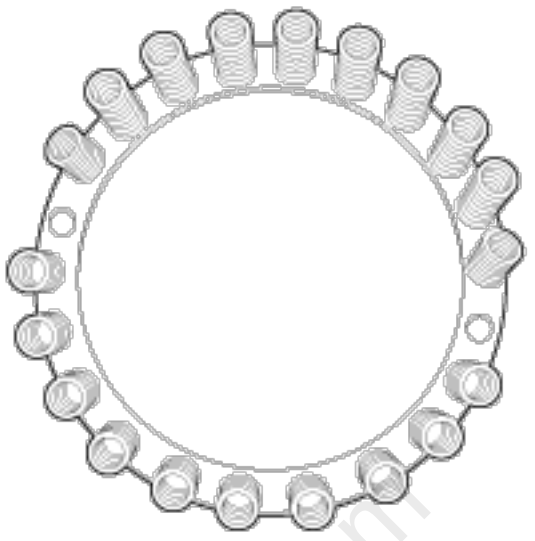
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DESCRIPTION

Brakes

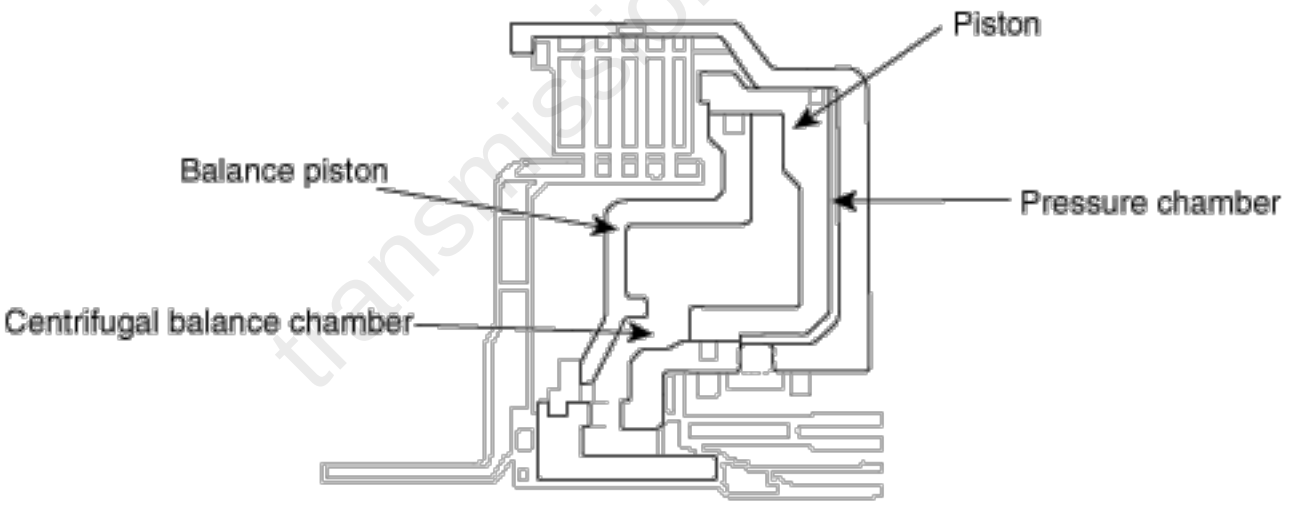
The automatic transaxle (A4CF0) uses the low and reverse brake and the second brake. The low and reverse brake is fixed by the low and reverse annulus gear and overdrive planetary carrier.
The overdrive sun gear is held on the transaxle case by the second brake.





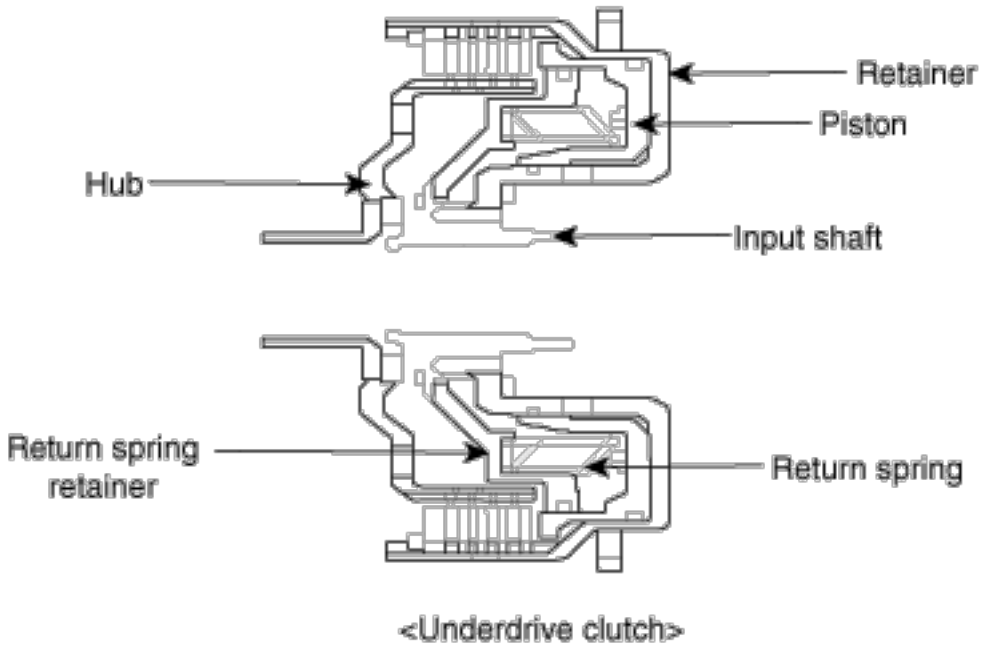
Clutch

The multiple clutches and the one way clutch are used as the transaxle device.
The retainer of each clutch is composed of the precision sheet metal parts to realize the productivity and the light weight.
The hydraulic centrifugal oil pressure balance device places inside the clutch assembly.
Generally the oil remained in the piston oil pressure chamber pushes the piston by the centrifugal force. But to prevent the piston from being pushed, the oil filled in between the piston and the return spring retainer occurs the centrifugal force and both of the power is offset so that the piston don't move. In result, it improves the durability and the shift control ability.



<Centrifugal balance device>

1. Underdrive Clutch
   The driving force of input shaft is delivered to the underdrive sun gear.
   The operating oil pressure in the underdrive clutch components operates between the piston and the retainer and pushes the piston to the clutch discs to deliver the driving force from the retainer to the hub.



<Underdrive clutch>

2. Reverse clutch and overdrive clutch
   The reverse clutch delivers the driving force of input shaft to the reverse sun gear.
   The overdrive clutch delivers the driving force of input shaft to the overdrive planetary carrier and the low and reverse annulus gear.
   The operating oil pressure of the reverse clutch operates between the reverse clutch retainer and reverse clutch piston and it has the whole overdrive clutch moved to deliver through the hub splines.

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