

# AUTOMATIC TRANSMISSION V5A51

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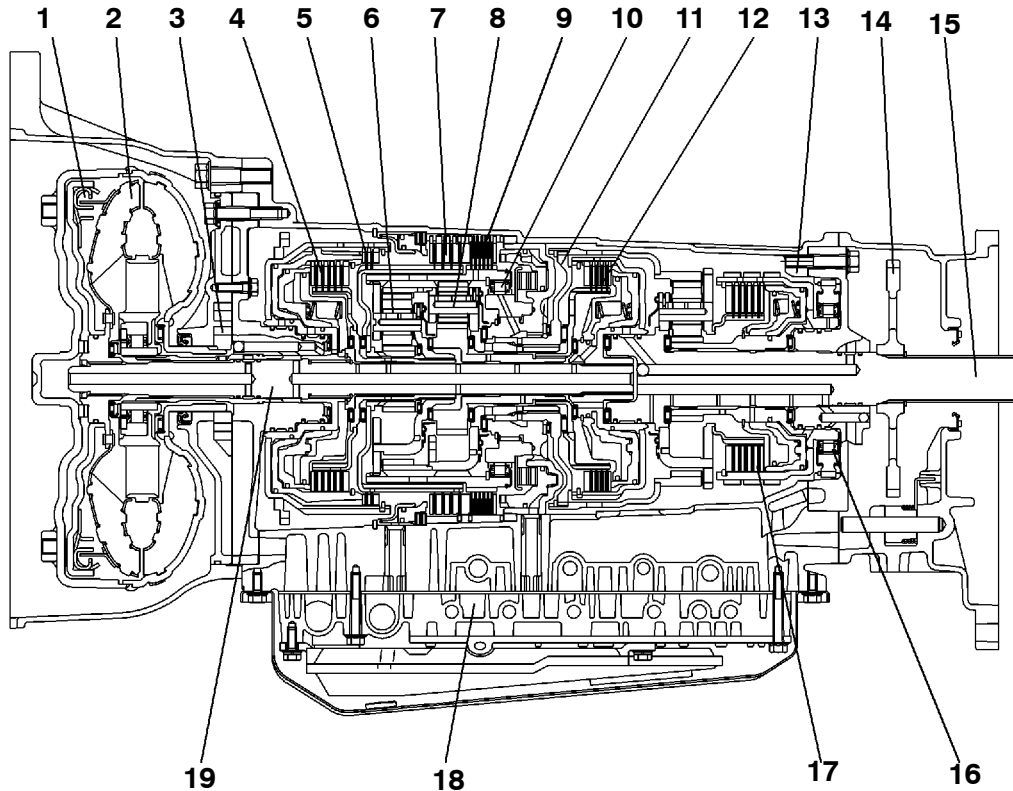
**NOTES**

## GENERAL INFORMATION

This transmission is the newly developed 5-speed automatic transmission that merges advanced electronic technology and mechanical technology.

- (1) A hydraulic balance mechanism is incorporated for the transmission clutch, allowing speed changes at ultra-high speeds to be handled.
- (2) The weight has been reduced by using precision sheet metal pressing of the clutch retainer, etc., and using aluminum die cast for the oil pump housing, etc.

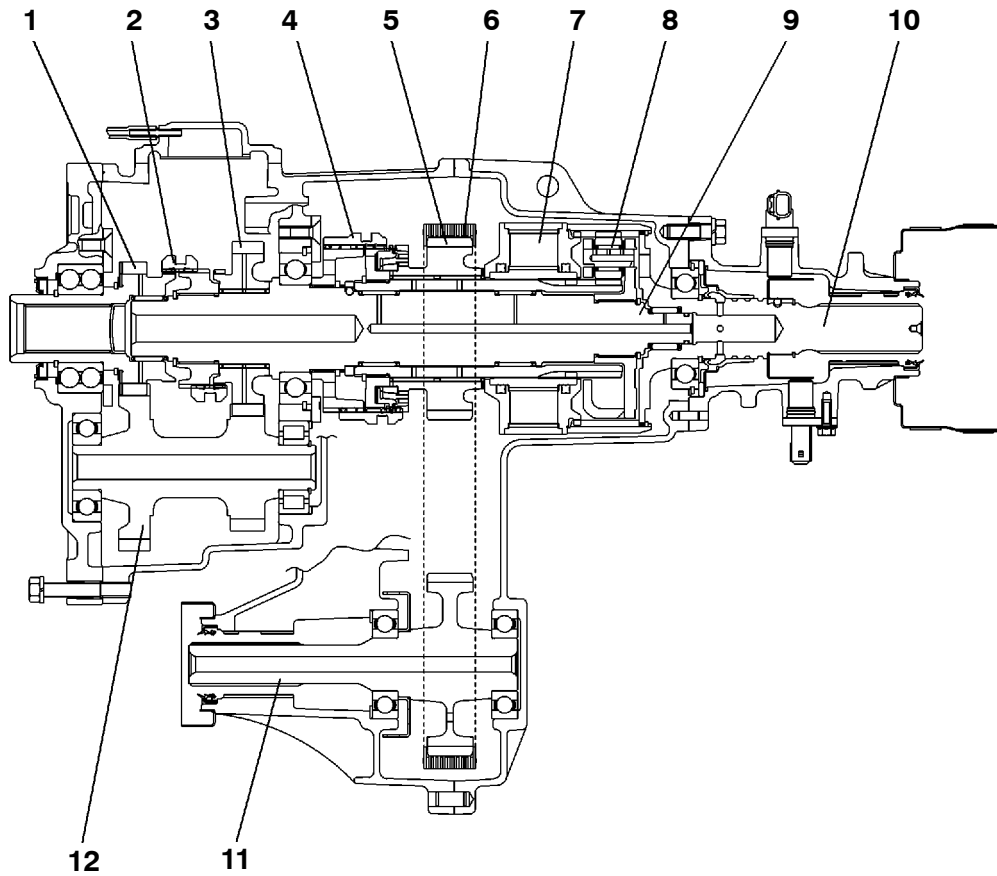
### SECTIONAL VIEW <TRANSMISSION>



TRA1851

- |                                |                          |
|--------------------------------|--------------------------|
| 1. Torque converter clutch     | 11. Center support       |
| 2. Torque converter            | 12. Underdrive clutch    |
| 3. Oil pump                    | 13. Output shaft support |
| 4. Overdrive clutch            | 14. Parking gear         |
| 5. Reverse clutch              | 15. Output shaft         |
| 6. Overdrive planetary carrier | 16. One-way clutch       |
| 7. Second brake                | 17. Direct clutch        |
| 8. Output planetary carrier    | 18. Valve body           |
| 9. Low/reverse brake           | 19. Input shaft          |
| 10. One-way clutch             |                          |

## SECTIONAL VIEW &lt;TRANSFER&gt;

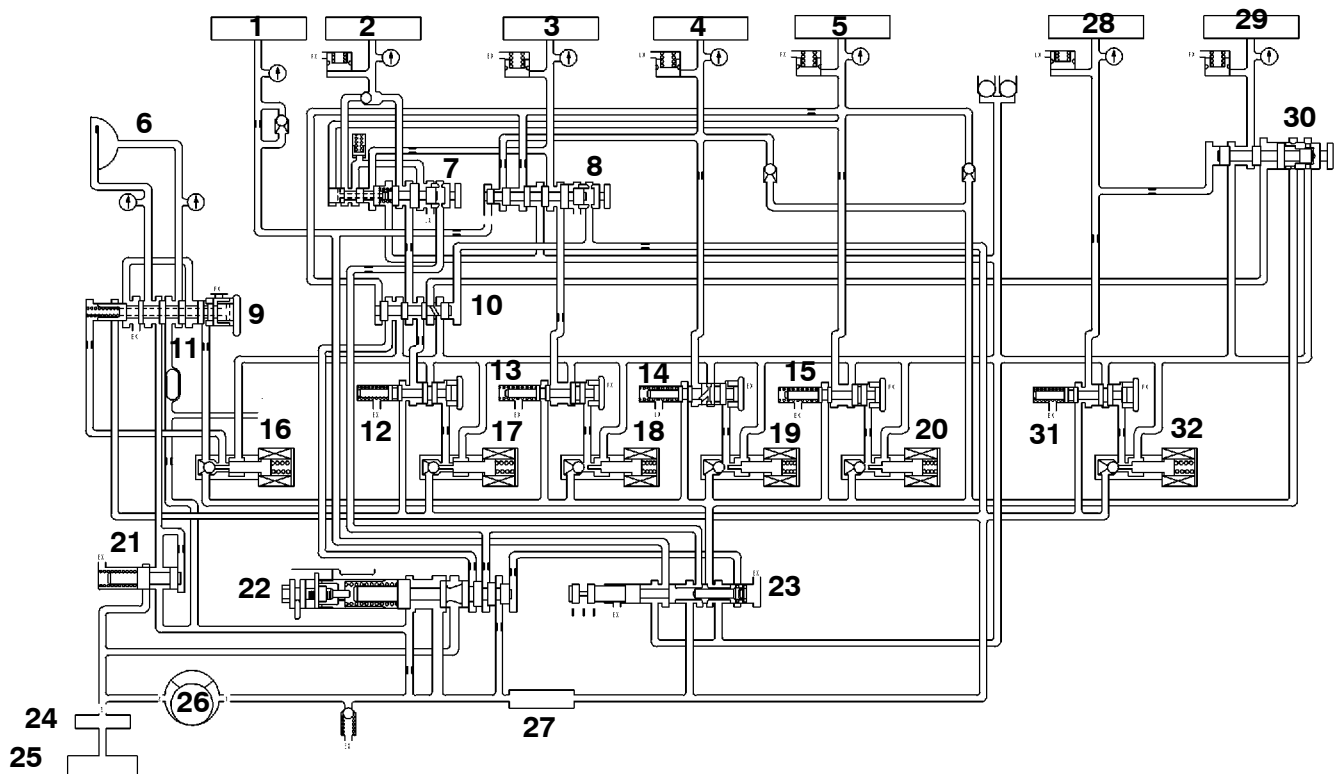


TRA1852

1. Transfer input gear
2. H-L clutch
3. Low speed gear
4. 2-4WD clutch sleeve
5. Drive sprocket
6. Chain

7. Viscous coupling
8. Center differential planetary carrier
9. Transfer drive shaft
10. Rear output shaft
11. Front output shaft
12. Counter shaft gear

## HYDRAULIC CONTROL SYSTEM



TRA1357

- |                                                    |                                             |
|----------------------------------------------------|---------------------------------------------|
| 1. Reverse clutch                                  | 17. Low-reverse brake solenoid valve        |
| 2. Low/reverse brake                               | 18. Second brake solenoid valve             |
| 3. Second brake                                    | 19. Underdrive clutch solenoid valve        |
| 4. Underdrive clutch                               | 20. Overdrive clutch solenoid valve         |
| 5. Overdrive clutch                                | 21. Torque converter pressure control valve |
| 6. Torque converter clutch                         | 22. Regulator valve                         |
| 7. Fail-safe valve A                               | 23. Manual valve                            |
| 8. Fail-safe valve B                               | 24. Oil filter                              |
| 9. Torque converter clutch control valve           | 25. Oil pan                                 |
| 10. Switching valve                                | 26. Oil pump                                |
| 11. Cooler                                         | 27. Oil strainer                            |
| 12. Low-reverse brake pressure control valve       | 28. Reduction brake                         |
| 13. Second brake pressure control valve            | 29. Direct clutch                           |
| 14. Underdrive clutch pressure control valve       | 30. Fail-safe valve C                       |
| 15. Overdrive clutch pressure control valve        | 31. Reduction brake pressure control valve  |
| 16. Torque converter clutch control solenoid valve | 32. Reduction brake solenoid valve          |

# 1. SPECIFICATIONS

## TRANSMISSION MODEL TABLE - MODEL 2001

Transmission models		Vehicle model	Engine model
EUR	V5A51-7-ACA	V65W, V75W	6G74
	V5A51-7-SDA	V68W, V78W	4M41
EXP	V5A51-7-CCA1	V75W	6G74
	V5A51-7-CCA2	V65W, V75W	6G74
	V5A51-7-SDA1	V78W	4M41

## GENERAL SPECIFICATIONS

Item			V5A51
Torque converter	Type		3-element, with torque converter clutch
Transmission	Type		5-speed, fully automatic
	Gear ratio	1st	3.789
		2nd	2.057
		3rd	1.421
		4th	1.000
		5th	0.731
		Reverse	3.865
Transfer	Type		2-speed constant mesh
	Gear ratio	High	1.000
		Low	1.900

**SERVICE SPECIFICATIONS****TRANSMISSION**

Item	Standard value
Direct planetary carrier mm	0.25 - 0.55
Underdrive clutch end play mm	1.6 - 1.8
Input shaft end play mm	0.25 - 0.81
Direct clutch end play mm	1.0 - 1.2
Overdrive clutch end play mm	2.0 - 2.2
Overdrive clutch return spring retainer end play mm	0 - 0.09
Second brake end play mm	1.49 - 1.95
Center support end play mm	0 - 0.16
Brake reaction plate end play mm	0 - 0.16
Reverse clutch end play mm	1.5 - 1.7
Low/reverse brake end play mm	1.65 - 2.11

**TRANSFER**

Item	Standard value	Limit
Input gear bearing end play mm	0 - 0.06	-
Countershaft gear end play mm	0 - 0.15	-
Countershaft gear bearing end play mm	0 - 0.08	-
2-4WD clutch hub end play mm	0 - 0.08	-
H-L clutch hub end play mm	0 - 0.08	-
Rear output shaft preload mm	0.12 - 0.24	-
Rear output shaft end play mm	0 - 0.12	-
Rear output shaft bearing end play mm	0 - 0.08	-
Rear output shaft annulus gear end play mm	0 - 0.08	-
Differential lock hub end play mm	0 - 0.08	-
Clearance between outer synchronizer ring and drive sprocket mm	-	0.3



**VALVE BODY SPRING IDENTIFICATION**

Item	Wire diameter mm	Outside diameter mm	Free height mm	Number of loops
Orifice check ball spring	0.5	4.5	15.4	15
Torque converter clutch control valve spring	0.7	5.9	28.1	19
Damping valve spring	1.0	7.7	35.8	17
Torque converter pressure control valve spring	1.6	11.2	29.4	9.5
Fail-safe valve A spring	0.7	8.9	21.9	9.5
Pressure control valve spring	0.7	7.6	37.7	25
Line relief valve spring	1.0	7.0	17.3	10
Regulator valve spring	1.3	13.3	44.6	10.5

**TORQUE SPECIFICATIONS****TRANSMISSION**

Item	Torque Nm
Output shaft support mounting bolt	23 ± 3
Upper valve body mounting bolt	11 ± 1
Park/neutral position switch mounting bolt	11 ± 1
Anchor plug	98 ± 15
Oil pan mounting bolt	11 ± 1
Oil filter mounting bolt	6 ± 1
Oil pump mounting bolt	23 ± 3
Cable end bracket mounting bolt	48 ± 6
Converter housing to transmission case tightening bolt	48 ± 6
Output shaft speed sensor mounting bolt	11 ± 1
Reduction brake piston nut	19 ± 3
Separating plate mounting bolt	6 ± 1
Solenoid support mounting bolt	6 ± 1
Transfer to transfer case adapter tightening bolt	35 ± 6
Transmission case to transfer case adapter tightening bolt	48 ± 6
Input shaft speed sensor mounting bolt	11 ± 1
Valve body mounting bolt	11 ± 1
Detent spring mounting bolt	6 ± 1
Manual control lever mounting nut	22 ± 3
Lower valve body mounting bolt	11 ± 1
Lower valve body cover mounting bolt	11 ± 1