U151E AUTOMATIC TRANSAXLE

SERVICE DATA

Line pressure (Wheel locked)		
	Engine idling	
	D position	370 to 410 kPa (3.8 to 4.2 kgf*cm^2, 54 to 60 psi)
	R position	670 to 740 kPa (6.8 to 7.5 kgf*cm^2, 97 to 106 psi)
	AT stall (Throttle valve fully opened)	
	D position	931 to 1,031 kPa (9.5 to 10.5 kgf*cm^2, 135 to 150 psi)
	R position	1,768 to 1,968 kPa (18.0 to 20 kgf*cm^2, 256 to 285 psi)
Engine stall revolution	D and R positions	2,300 +- 150 rpm
Time lag	N → D position	Less than 1.2 seconds
	N → R position	Less than 1.5 seconds
Engine idle speed (A/C OFF)	N position	650 +- 50 rpm
Drive plate runout	Max.	0.20 mm (0.0079 in.)
Torque converter runout	Max.	0.30 mm (0.0118 in.)
Differential oil seal drive in depth	LH side	0 +- 0.5 mm (0 +- 0.020 in.)
	RH side	0 +- 0.5 mm (0 +- 0.020 in.)
TIRE: 215/65R16		
Shift schedule		
Throttle valve fully open (Normal)		
	1 → 2	47 to 54 km/h (29 to 34 mph)
	2 → 3	94 to 100 km/h (58 to 62 mph)
	3 → 4	152 to 163 km/h (94 to 101 mph)
	4 → 5	227 to 238 km/h (141 to 148 mph)
	5 → 4	218 to 229 km/h (135 to 142 mph)
	4 → 3	146 to 157 km/h (91 to 98 mph)
	3 → 2	89 to 95 km/h (55 to 59 mph)
	2 → 1	37 to 43 km/h (23 to 27 mph)
Throttle valve fully closed (Normal)	4 → 5	66 to 72 km/h (41 to 45 mph)
	5 → 4	38 to 44 km/h (24 to 27 mph)
Throttle valve fully open (Cold)		
	1 → 2	29 to 36 km/h (18 to 22 mph)
	2 → 3	47 to 53 km/h (29 to 33 mph)
	3 → 4	77 to 83 km/h (48 to 52 mph)
	4 → 3	72 to 78 km/h (45 to 48 mph)
	3 → 2	42 to 48 km/h (26 to 30 mph)
	2 → 1	23 to 29 km/h (14 to 18 mph)
Throttle valve fully open (Failure)		
	1 → 3	29 to 36 km/h (18 to 22 mph)
	3 → 4	77 to 83 km/h (48 to 52 mph)
	4 → 3	72 to 78 km/h (45 to 48 mph)
	3 → 1	23 to 29 km/h (14 to 18 mph)

Manual down shift speed		
	→ 3	152 to 163 km/h (94 to 101 mph)
	→ 2	94 to 100 km/h (58 to 62 mph)
	→ 1	40 to 46 km/h (25 to 29 mph)
Lock-up schedule (Throttle valve opening 5%)		
5th gear	Lock-up ON	63 to 70 km/h (39 to 43 mph)
	Lock-up OFF	61 to 68 km/h (38 to 42 mph)
4th gear	Lock-up ON	101 to 107 km/h (63 to 66 mph)
	Lock-up OFF	98 to 104 km/h (61 to 65 mph)
3th gear	Lock-up ON	63 to 70 km/h (39 to 43 mph)
	Lock-up OFF	61 to 67 km/h (38 to 42 mph)
TIRE: 225/60R17		
Shift schedule		
Throttle valve fully open (Normal)		
	1 → 2	48 to 55 km/h (30 to 34 mph)
	2 → 3	96 to 103 km/h (60 to 64 mph)
	3 → 4	156 to 168 km/h (97 to 104 mph)
	4 → 5	233 to 245 km/h (145 to 152 mph)
	5 → 4	224 to 236 km/h (139 to 147 mph)
	4 → 3	150 to 161 km/h (93 to 100 mph)
	3 → 2	91 to 97 km/h (67 to 62 mph)
	2 → 1	38 to 44 km/h (24 to 27 mph)
Throttle valve fully closed (Normal)	5 → 4	68 to 74 km/h (42 to 46 mph)
	4 → 3	39 to 45 km/h (24 to 28 mph)
Throttle valve fully open (Cold)		
	1 → 2	30 to 37 km/h (19 to 23 mph)
	2 → 3	48 to 55 km/h (30 to 34 mph)
	3 → 4	79 to 85 km/h (49 to 53 mph)
	4 → 3	74 to 80 km/h (46 to 50 mph)
	3 → 2	43 to 49 km/h (27 to 30 mph)
	2 → 1	24 to 29 km/h (15 to 18 mph)
Throttle valve fully open (Failure)		
	1 → 3	30 to 37 km/h (19 to 23 mph)
	3 → 4	79 to 85 km/h (49 to 53 mph)
	4 → 3	74 to 80 km/h (46 to 50 mph)
	3 → 1	24 to 29 km/h (15 to 18 mph)
Manual down shift speed		
	→ 3	156 to 168 km/h (97 to 104 mph)
	→ 2	96 to 103 km/h (60 to 64 mph)
	→ 1	41 to 47 km/h (25 to 29 mph)
Lock-up schedule (Throttle valve opening 5%)		
5th gear	Lock-up ON	68 to 75 km/h (42 to 47 mph)
	Lock-up OFF	66 to 73 km/h (41 to 45 mph)
4th gear	Lock-up ON	108 to 114 km/h (67 to 71 mph)
	Lock-up OFF	104 to 111 km/h (65 to 69 mph)

3th gear	Lock-up ON	68 to 75 km/h (42 to 47 mph)
	Lock-up OFF	65 to 72 km/h (43 to 45 mph)

Oil pump		
Body clearance	STD	0.10 to 0.17 mm (0.0039 to 0.0067 in.)
	Max.	0.17 mm (0.0067 in.)
Tip clearance	STD	0.07 to 0.15 mm (0.0028 to 0.0059 in.)
	Max.	0.15 mm (0.0059 in.)
Side clearance	STD	0.02 to 0.05 mm (0.0008 to 0.0020 in.)
	Max.	0.05 mm (0.0020 in.)
Drive gear thickness	Mark	
	A	11.690 to 11.699 mm (0.4602 to 0.4606 in.)
	B	11.700 to 11.709 mm (0.4606 to 0.4610 in.)
	C	11.710 to 11.720 mm (0.4610 to 0.4614 in.)
	D	11.721 to 11.730 mm (0.4615 to 0.4618 in.)
	E	11.731 to 11.740 mm (0.4619 to 0.4622 in.)
Driven gear thickness	Mark	
	A	11.690 to 11.699 mm (0.4602 to 0.4606 in.)
	B	11.700 to 11.709 mm (0.4606 to 0.4610 in.)
	C	11.710 to 11.720 mm (0.4610 to 0.4614 in.)
	D	11.721 to 11.730 mm (0.4615 to 0.4618 in.)
	E	11.731 to 11.740 mm (0.4619 to 0.4622 in.)
Pump body bushing inside diameter	STD	38.113 to 38.138 mm (1.50050 to 1.50149 in.)
	Max.	38.188 mm (1.50346 in.)
Stator shaft bushing inside diameter	STD	21.500 to 21.526 mm (0.84646 to 0.84748 in.)
	Max.	21.57 mm (0.8492 in.)

Multiple disc clutch		
Inside diameter	STD	23.025 to 23.045 mm (0.9065 to 0.9073 in.)
	Max.	23.09 mm (0.9091 in.)

Forward clutch		
Pack clearance		1.00 to 1.25 mm (0.0394 to 0.4921 in.)
Return spring free length		26.74 mm (1.0528 in.)
Flange thickness	Mark	
	1	3.00 mm (0.1181 in.)
	2	3.15 mm (0.1240 in.)
	3	3.30 mm (0.1299 in.)
	4	3.45 mm (0.1358 in.)
	5	3.60 mm (0.1417 in.)

Reverse clutch		
Pack clearance:		0.60 to 0.82 mm (0.02362 to 0.03228 in.)
Flange thickness	Mark	
	1	3.0 mm (0.118 in.)
	2	3.1 mm (0.122 in.)
	3	3.2 mm (0.126 in.)
	4	3.3 mm (0.130 in.)
	5	3.4 mm (0.134 in.)
	6	3.5 mm (0.138 in.)
	7	3.6 mm (0.142 in.)

Direct clutch & O/D clutch		
Pack clearance		0.61 to 0.83 mm (0.02401 to 0.03268 in.)
Return spring free length		25.91 mm (1.0201 in.)
Flange thickness	Mark	
	0	2.5 mm (0.098 in.)
	1	2.6 mm (0.102 in.)
	2	2.7 mm (0.106 in.)
	3	2.8 mm (0.110 in.)
	4	2.9 mm (0.114 in.)
	5	3.0 mm (0.118 in.)
	6	3.1 mm (0.122 in.)

2nd brake		
Pack clearance		0.62 to 0.91 mm (0.0244 to 0.0358 in.)
Return spring free length		16.61 mm (0.6539 in.)
Flange thickness	Mark	
	1	3.0 mm (0.118 in.)
	2	3.1 mm (0.122 in.)
	3	3.2 mm (0.126 in.)
	4	3.3 mm (0.130 in.)
	5	3.4 mm (0.134 in.)
	6	3.5 mm (0.138 in.)
	7	3.6 mm (0.142 in.)

U/D clutch		
Pack clearance		1.51 to 1.71 mm (0.0594 to 0.0673 in.)
U/D clutch drum bushing inside diameter	STD	37.06 to 37.08 mm (1.4591 to 1.4598 in.)
	Max.	37.13 mm (1.4618 in.)
Return spring free length		17.14 mm (0.6752 in.)
Flange thickness	Mark	
	1	3.0 mm (0.118 in.)
	2	3.1 mm (0.122 in.)
	3	3.2 mm (0.126 in.)
	4	3.3 mm (0.130 in.)
	5	3.4 mm (0.134 in.)

U/D brake		
Pack clearance		1.81 to 2.20 mm (0.0713 to 0.0866 in.)
Return spring free length		14.04 mm (0.5528 in.)
Flange thickness	Mark	
	1	3.0 mm (0.118 in.)
	2	3.2 mm (0.126 in.)
	3	3.4 mm (0.134 in.)

1st & reverse brake	
Pack clearance	1.16 to 1.35 mm (0.0457 to 0.0531in.)
Return spring free length	15.53 mm (0.6114 in.)

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1st & reverse brake		
Flange thickness	Mark	
	1	1.8 mm (0.071 in.)
	2	1.9 mm (0.075 in.)
	3	2.0 mm (0.079 in.)
	4	2.1 mm (0.083 in.)
	5	2.2 mm (0.087 in.)
	6	2.3 mm (0.091 in.)
	7	2.4 mm (0.094 in.)
	8	2.5 mm (0.098 in.)

U/D planetary gear	
Preload (at 60 rpm)	0.50 to 1.42 N*m (5.1 to 14.5 kgf*cm, 0.06 to 0.17 in.*lbf)

Front planetary gear		
Turning torque (at 60 rpm)	New Bearing	0.51 to 1.02 N*m (5.1 to 10.0 kgf*cm, 4.4 to 8.7 in.*lbf)
	Used Bearing	0.26 to 0.51 N*m (2.7 to 5.2 kgf*cm, 2.3 to 4.5 in.*lbf)

Input shaft	
End play	0.262 to 1.249 mm (0.0103 to 0.0492 in.)

Transaxle rear cover	
Bearing press fit depth	20.55 to 21.25 mm (0.8091 to 0.8366 in.)

Transmission valve body		
Valve body installation bolt length	A	41 mm (1.614 in.)
	B	57 mm (2.244 in.)
	C	25 mm (0.984 in.)

Accumulator			
Spring		Free length/Outer diameter	Color
B_3	Inner	62.00 (2.4409) / 15.50 (0.610)	Purple
	Outer	74.23 (2.9224) / 16.50 (0.649)	Purple
C_2		60.96 (2.3999) / 14.10 (0.555)	Yellow
C_3		72.20 (2.8425) / 19.0 (0.748)	Colorless

Front differential (U151E)		
Backlash		0.05 to 0.20 mm (0.0020 to 0.0079 in.)
Thrust washer thickness	Mark	
	-	1.625 mm (0.0640 in.)
	-	1.725 mm (0.0679 in.)
	-	1.825 mm (0.0719 in.)
Preload (at 60 rpm)	New bearing	0.20 to 0.69 N*m (2.0 to 7.0 kgf*cm, 1.8 to 6.1 in.*lbf)
	Used bearing	0.10 to 0.35 N*m (1.0 to 3.6 kgf*cm, 0.9 to 3.1 in.*lbf)

Front differential (U151E)		
Flange thickness	Mark	
	0	2.00 mm (0.0787 in.)
	1	2.05 mm (0.0807 in.)
	2	2.10 mm (0.0827 in.)
	3	2.15 mm (0.0846 in.)
	4	2.20 mm (0.0866 in.)
	5	2.25 mm (0.0886 in.)
	6	2.30 mm (0.0906 in.)
	7	2.35 mm (0.0925 in.)
	8	2.40 mm (0.0945 in.)
	9	2.45 mm (0.0965 in.)
	A	2.50 mm (0.0984 in.)
	B	2.55 mm (0.1004 in.)
	C	2.60 mm (0.1024 in.)
	D	2.65 mm (0.1043 in.)
	E	2.70 mm (0.1063 in.)
	F	2.75 mm (0.1083 in.)
	G	2.80 mm (0.1102 in.)
	H	2.85 mm (0.1122 in.)