

# AUTOMATIC TRANSMISSION

## SERVICE DATA

SS1HQ-01

Oil Pump		
Body clearance	STD	0.07 – 0.15 mm (0.0028 – 0.0059 in.)
	Maximum	0.3 mm (0.012 in.)
Tip clearance	STD	0.11 – 0.14 mm (0.0043 – 0.0055 in.)
	Maximum	0.3 mm (0.012 in.)
Side clearance	STD	0.02 – 0.04 mm (0.0008 – 0.0016 in.)
	Maximum	0.1 mm (0.004 in.)
Pump body bushing inside diameter	Maximum	38.19 mm (1.5035 in.)
Stator shaft inside diameter	(Front side) Maximum	21.58 mm (0.8496 in.)
	(Rear side) Maximum	27.08 mm (1.0661 in.)
3rd Coast Brake		
Piston rod stroke		2.0 – 3.0 mm (0.079 – 0.118 in.)
Piston rod length		77.65 mm (3.057 in.)
		78.40 mm (3.087 in.)
		79.15 mm (3.116 in.)
		79.90 mm (3.146 in.)
		80.65 mm (3.175 in.)
O/D Direct Clutch		
Piston stroke		0.85 – 1.10 mm (0.033 – 0.043 in.)
Clutch return spring free length	STD	15.8 mm (0.622 in.)
Clutch drum bushing inside diameter	Maximum	27.11 mm (1.0673 in.)
O/D planetary gear bushing	Maximum	11.27 mm (0.444 in.)
Planetary pinion gear thrust clearance	STD	0.2 – 0.6 mm (0.008 – 0.024 in.)
	Maximum	1.0 mm (0.039 in.)
Flange thickness	No. 21	3.1 mm (0.122 in.)
	No. 20	3.2 mm (0.126 in.)
	No. 19	3.3 mm (0.130 in.)
	No. 18	3.4 mm (0.134 in.)
	No. 17	3.5 mm (0.138 in.)
	No. 16	3.6 mm (0.142 in.)
	No. 22	3.7 mm (0.146 in.)
	No. 23	3.8 mm (0.151 in.)
O/D Brake		
Piston return spring free length	STD	17.82 mm (0.702 in.)
Piston stroke		1.32 – 1.62 mm (0.052 – 0.064 in.)
Flange thickness	No. 77	3.3 mm (0.130 in.)
	No. 78	3.5 mm (0.138 in.)
	No. 79	3.6 mm (0.142 in.)
	No. 80	3.7 mm (0.146 in.)
	No. 81	3.8 mm (0.150 in.)
	No. 82	3.9 mm (0.154 in.)
	No. 83	4.0 mm (0.157 in.)

## SERVICE SPECIFICATIONS – AUTOMATIC TRANSMISSION

Direct Clutch		
Piston stroke		0.40 – 0.70 mm (0.016 – 0.028 in.)
Clutch piston return spring free length	STD	23.25 mm (0.915 in.)
Clutch drum bushing inside diameter	Maximum	53.97 mm (2.1248 in.)
Flange thickness	No. 53	3.3 mm (0.130 in.)
	No. 34	3.4 mm (0.134 in.)
	No. 35	3.5 mm (0.138 in.)
	No. 36	3.6 mm (0.142 in.)
	No. 37	3.7 mm (0.146 in.)
	No. 38	3.8 mm (0.150 in.)
	No. 39	3.9 mm (0.154 in.)
	No. 40	4.0 mm (0.157 in.)
	No. 41	4.1 mm (0.161 in.)
Forward Clutch		
Piston stroke		0.60 – 0.90 mm (0.024 – 0.035 in.)
Clutch drum bushing inside diameter	Maximum	20.08 mm (0.790 in.)
Flange thickness	No. 61	3.0 mm (0.118 in.)
	No. 60	3.2 mm (0.126 in.)
	No. 45	3.4 mm (0.134 in.)
	No. 62	3.6 mm (0.142 in.)
	No. 44	3.8 mm (0.150 in.)
	No. 42	4.0 mm (0.157 in.)
Multiple Disc Brake		
Piston stroke		0.56 – 0.86 mm (0.022 – 0.034 in.)
Piston return spring free length	STD	36.8 mm (1.449 in.)
Flange thickness	No. 36	3.6 mm (0.142 in.)
	No. 37	3.7 mm (0.146 in.)
	No. 38	3.8 mm (0.150 in.)
	No. 39	3.9 mm (0.154 in.)
	No. 40	4.0 mm (0.157 in.)
	No. 41	4.1 mm (0.161 in.)
	No. 42	4.2 mm (0.165 in.)
Front Planetary Gear		
Planetary pinion gear thrust clearance	STD	0.2 – 0.6 mm (0.008 – 0.024 in.)
	Maximum	1.0 mm (0.0394 in.)
Front & Center Planetary Sun Gear		
Sun gear bushing inside diameter	Maximum	24.79 mm (0.976 in.)
Center Planetary Gear		
Planetary gear bushing inside diameter	Maximum	41.31 mm (1.626 in.)
Planetary pinion gear thrust clearance	STD	0.2 – 0.6 mm (0.008 – 0.024 in.)
	Maximum	1.0 mm (0.039 in.)
2nd Brake		
Flange thickness	No. 21	2.1 mm (0.083 in.)
	No. 23	2.3 mm (0.091 in.)
	No. 25	2.5 mm (0.098 in.)
	No. 27	2.7 mm (0.106 in.)
	No. 29	2.9 mm (0.114 in.)
	No. 31	3.1 mm (0.118 in.)

Rear Planetary Gear		
Planetary pinion gear thrust clearance	STD	0.2 – 0.6 mm (0.008 – 0.024 in.)
	Maximum	1.0 mm (0.0394 in.)
Rear planetary ring gear inside bushing	Maximum	38.56 mm (1.518 in.)
1st & Reverse Brake		
Pack clearance		0.5 – 0.8 mm (0.021 – 0.031 in.)
Piston return spring free length	STD	20.0 mm (0.787 in.)
Plate thickness	No. 01	1.8 mm (0.071 in.)
	No. 02	1.9 mm (0.075 in.)
	No. 03	2.0 mm (0.079 in.)
	No. 04	2.1 mm (0.083 in.)
	No. 05	2.2 mm (0.087 in.)
	No. 06	2.3 mm (0.090 in.)
	No. 07	2.4 mm (0.094 in.)
	No. 08	2.5 mm (0.098 in.)
	No. 09	2.6 mm (0.102 in.)
	No. 10	2.7 mm (0.106 in.)
	No. 11	2.8 mm (0.110 in.)
	No. 12	2.9 mm (0.114 in.)
	No. 13	3.0 mm (0.118 in.)
Output Shaft		
Output shaft thrust play		1.63 – 2.89 mm (0.064 – 0.114 in.)
Output shaft inside bushing	Maximum	20.08 mm (0.791 in.)
Extension Housing		
Extension housing inside bushing	Maximum	40.08 mm (1.5779 in.)

## SERVICE SPECIFICATIONS – AUTOMATIC TRANSMISSION

Valve Body Spring		
Spring	Free length/Outer diameter mm (in.)	Total No. of coils & (Color)
●Upper Valve Body		
Lock-up relay valve	23.42 (0.922) / 5.86 (0.231)	12.25 (Red)
C-0 exhaust valve	24.25 (0.955) / 8.70 (0.343)	7.58 (Orange)
4-5 shift valve	25.50 (1.004) / 9.73 (0.383)	7.75 (Red)
Coast brake control valve	26.92 (1.060) / 8.70 (0.343)	10.53 (Green)
Secondary regulator valve	34.48 (1.357) / 9.22 (0.363)	13.5 (Red)
C-1 orifice control valve	37.13 (1.461) / 11.14 (0.439)	11.25 (White)
C-1 orifice control valve	21.50 (0.846) / 7.76 (0.306)	11.5 (None)
C-1 accumulator	78.16 (3.077) / 17.50 (0.689)	15.9 (Yellow)
Solenoid modulator valve	35.99 (1.417) / 8.30 (0.327)	13.8 (Light blue)
2-3 shift valve	25.50 (1.004) / 9.73 (0.383)	7.75 (Red)
B-3 control valve	26.05 (1.026) / 7.20 (0.283)	11.83 (Yellow)
B-3 control valve	19.79 (0.779) / 7.70 (0.303)	8.51 (Pink)
●Lower Valve No. 1 Body		
3-4 shift valve	25.50 (1.004) / 9.73 (0.383)	7.75 (Red)
1-2 shift valve	25.50 (1.004) / 9.73 (0.383)	7.75 (Red)
B-2 release control valve	24.25 (0.955) / 8.70 (0.343)	7.58 (Orange)
Primary regulator valve	39.78 (1.566) / 18.88 (0.743)	6.65 (Light green)
Lock-up control valve	20.87 (0.822) / 5.55 (0.219)	11.15 (Yellow)
Cut back valve	22.60 (0.890) / 8.13 (0.320)	8.0 (None)
C-0 control relay valve	20.30 (0.799) / 6.10 (0.240)	12.75 (None)
Accumulator control valve	27.47 (1.081) / 8.85 (0.348)	11.59 (Light green)
Solenoid relay valve	32.11 (1.264) / 8.80 (0.346)	8.6 (Beige)
●Lower Valve No. 2 Valve		
Reverse control valve	25.58 (1.007) / 8.64 (0.340)	8.75 (None)
Accumulator Spring		
Spring	Free length/Outer diameter mm (in.)	Color
B <sub>2</sub>	80.91 (3.185) / 19.97 (0.786)	Pink & White
C <sub>2</sub>	Inside 41.00 (1.614) / 14.10 (0.555)	Orange
	Outside 75.20 (2.961) / 20.10 (0.791)	White & Blue
B <sub>0</sub>	69.4 (2.732) / 16.25 (0.640)	White
C <sub>0</sub>	65.00 (2.559) / 20.59 (0.811)	None

Valve Body Key			
Key	Hight mm (in.)	Width mm (in.)	Thickness mm (in.)
●Upper Valve Body			
Lock-up relay valve	–	–	–
C-0 exhaust valve	8.5 (0.335)	5.0 (0.197)	3.2 (0.126)
4-5 shift valve	10.0 (0.394)	5.0 (0.197)	3.2 (0.126)
Coast brake control valve	15.0 (0.591)	ø 5.0 (0.197)	ø 5.0 (0.197)
Secondary regulator valve	10.0 (0.394)	5.0 (0.197)	3.2 (0.126)
C-1 orifice control valve	8.5 (0.335)	5.0 (0.197)	3.2 (0.126)
C-1 accumulator	36.5 (1.437)	–	3.2 (0.126)
Solenoid modulator valve	21.0 (0.827)	–	3.2 (0.126)
Check valve	10.0 (0.394)	5.0 (0.197)	3.2 (0.126)
2-3 shift valve	8.0 (0.315)	8.0 (0.315)	3.2 (0.126)
B-3 control valve	16.5 (0.650)	6.0 (0.236)	3.2 (0.126)
●Lower Valve No. 1 Body			
3-4 shift valve	8.0 (0.315)	8.0 (0.315)	3.2 (0.126)
1-2 shift valve	8.0 (0.315)	8.0 (0.315)	3.2 (0.126)
B-2 release control valve	21.0 (0.827)	–	3.2 (0.126)
Primary regulator valve	–	–	3.2 (0.126)
Lock-up control valve	19.0 (0.748)	5.0 (0.197)	3.2 (0.126)
Cut back valve	21.0 (0.827)	–	3.2 (0.126)
C-0 control relay valve	8.5 (0.335)	5.0 (0.197)	3.2 (0.126)
Accumulator control valve	29.0 (1.142)	5.0 (0.197)	3.2 (0.126)
Solenoid relay valve	8.0 (0.315)	8.0 (0.315)	3.2 (0.126)
●Lower Valve No. 2 Body			
Reverse control valve	8.5 (0.335)	5.0 (0.197)	3.2 (0.126)