SERVICE SPECIFICATIONS

SERVICE DATE

AT04P-0D

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 — 0.05 mm	0.0008 — 0.0020 in.
	Maximum	0.1 mm	0.004 in.
Pump body bushing inside diameter	Maximum	38.19 mm	1.5035 in.
Stator shaft bushing inside diameter			
Front side	Maximum	21.58 mm	0.8496 in.
Rear side	Maximum	27.08 mm	1.0661 in.

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Overdrive Direct Clutch

Clutch drum bushing inside diameter	Maximum	27.11 mm	1.0673 in.
Overdrive direct clutch piston stroke		1.85 — 2.15 mm	0.0728 — 0.0846 in.
Overdrive planetary gear bushing	Maximum	11.27 mm	0.4437 in.
Planetary pinion gear thrust clearance	STD	0.20 — 0.60 mm	0.0079 — 0.0236 in.
	Maximum	1.00 mm	0.0394 in.
Flange thickness	No.16	3.6 mm	0.142 in.
	No.17	3.5 mm	0.138 in.
	No.18	3.4 mm	0.134 in.
	No.19	3.3 mm	0.130 in.
	No.20	3.2 mm	0.126 in.
	No.21	3.1 mm	0.122 in.

Overdrive Brake

Piston stroke		1.40 — 1.70 mm	0.0551 — 0.0669 in.

Direct Clutch

Piston stroke		1.37 — 1.60 mm	0.0359 — 0.0630 in.
Drum bushing inside diameter		53.99 mm	2.1256 in.
Flange thickness	No.33	3.0 mm	0.118 in.
	No.32	3.1 mm	0.122 in.
	No.31	3.2 mm	0.126 in.
	No.30	3.3 mm	0.130 in.
	No.29	3.4 mm	0.134 in.
	No.28	3.5 mm	0.138 in.
	No.27	3.6 mm	0.142 in.
	No.34	3.7 mm	0.146 in.

Forward Clutch

Pack clearance		0.5 – 0.9 mm	0.020 – 0.035 in.
Drum bushing inside diameter		24.08 mm	0.9480 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.
	No.63	4.2 mm	0.165 in.
	No.64	4.4 mm	0.173 in.

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Second Coast Brake

Piston stroke		1.5 – 3.0 mm	0.059 – 0.118 in.
Piston rod length		72.9 mm	2.870 in.
		71.4 mm	2.811 in.

Front Planetary Gear

Maximum inside diameter		24.08 mm	0.9480 in.
Planetary pinion gear thrust clearance	STD	0.20 – 0.60 mm	0.0079 – 0.0236 in.
	Maximum	1.00 mm	0.0394 in.

Planetary Sun Gear

Sun gear bushing inside diameter	Maximum	27.08 mm	1.0661 in.

Second Brake

Pack clearance		0.62 – 1.98 mm	0.0244 – 0.0780 in.

First and Reverse Brake

Pack clearance		0.60 – 1.32 mm	0.0236 – 0.0520 in.

Rear Planetary Gear

Planetary pinion gear thrust clearance	STD	0.20 – 0.60 mm	0.0079 – 0.0236 in.
	Maximum	1.00 mm	0.0394 in.

Valve Body Spring

Spring	Free length and Coil outer diameter mm (in.)		Total No. of coils and Color	
Upper valve body				
Secondary regulator valve	30.9 (1.217)	11.2 (0.441)	10.5	Blue
Lock—up relay valve	21.4 (0.843)	5.5 (0.217)	17.5	Light Gray
3 — 4 shift valve	30.8 (1.213)	9.7 (0.382)	10.5	Purple
Down shift plug	27.3 (1.075)	8.7 (0.343)	12.5	Yellow
Throttle valve	20.6 (0.811)	9.2 (0.362)	9.5	Blue
	or 23.3 (0.917)	9.2 (0.362)	9.5	White
Second coast modulator valve	25.3 (0.996)	8.6 (0.339)	11.5	Orange
Cut—back valve	21.8 (0.858)	6.0 (0.236)	13.5	Red
2 — 3 shift valve	30.8 (1.213)	9.7 (0.382)	10.5	Blue
Low coast modulator valve	30.4 (1.197)	8.3 (0.327)	10.5	Light Green
Lower valve body				
Check valve	20.2 (0.796)	12.1 (0.476)	6.5	None
Pressure relief valve	11.2 (0.441)	6.4 (0.252)	7.5	None
1 — 2 shift valve	30.8 (1.213)	9.7 (0.382)	10.5	Purple
Primary regulator valve	62.3 (2.453)	18.6 (0.732)	12.5	Purple
Accumulator control valve	33.9 (1.335)	8.8 (0.346)	12.0	Pink

Valve Body Key

Key	Height mm (in.)	Width mm (in.)	Thickness mm (in.)
Upper valve body			
Low coast modulator valve	14.5 (0.571)	5.0 (0.197)	3.2 (0.126)
2 — 3 shift valve	14.0 (0.551)	5.0 (0.197)	3.2 (0.126)
Cut—back valve	15.0 (0.591)	5.0 (0.197)	3.2 (0.126)
Secondary regulator valve	14.0 (0.551)	5.0 (0.197)	3.2 (0.126)
Lock—up relay valve	21.2 (0.835)	5.0 (0.197)	3.2 (0.126)
3 — 4 shift valve	16.5 (0.650)	5.0 (0.197)	3.2 (0.126)
2nd coast modulator valve	16.5 (0.650)	5.0 (0.197)	3.2 (0.126)
Lower valve body			
Accumulator control valve	21.2 (0.835)	5.0 (0.197)	3.2 (0.126)
1 — 2 shift valve	16.5 (0.650)	5.0 (0.197)	3.2 (0.126)
Primary regulator valve	16.2 (0.638)	5.0 (0.197)	3.2 (0.126)

Output Shaft

Thrust play	0.27 — 0.86 mm	0.0106 — 0.0339 in.

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Transfer Direct Clutch

Piston stroke	2.28 — 2.68 mm	0.0898 — 0.1055 in.
Drum bushing inside diameter	47.65 mm	1.8760 in.
Flange thickness	3.9 mm	0.154 in.
	4.1 mm	0.161 in.
	4.3 mm	0.169 in.
	4.5 mm	0.177 in.

Transfer Low Speed Brake

Center support bushing inside diameter		35.08 mm	1.3811 in.
Ring gear flange bushing inside diameter		35.08 mm	1.3811 in.
Planetary gear bushing inside diameter		18.08 mm	0.7118 in.
Planetary pinion gear thrust clearance	STD	0.30 — 0.60 mm	0.0118 — 0.0236 in.
	Maximum	1.00 mm	0.0394 in.

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Transfer Front Drive Clutch

Piston stroke	2.38 — 3.22 mm	0.0937 — 0.1268 in.

Transfer Valve Body Spring

Spring	Free length and Coil outer diameter mm (in.)		Total No. of coils and Color	
Upper valve body				
Direct clutch accumulator valve	55.7 (2.193)	18.3 (0.720)	11.1	Blue
Center valve body				
Accumulator control valve	29.3 (1.154)	8.2 (0.323)	11.8	White
Low—high relay valve	31.7 (1.248)	8.5 (0.335)	11.2	Light Blue
Low shift valve	29.2 (1.213)	8.2 (0.323)		
Lower valve body				
Low—high shift timing valve	33.1 (1.303)	8.7 (0.343)	15.0	Red
Low—high orifice control valve	29.7 (1.196)	9.0 (0.354)	12.3	Green

Transfer Valve Body Key

Key	Height mm (in.)	Width mm (in.)	Thickness mm (in.)
Upper valve body			
Direct clutch accumulator valve	9.5 (0.374)	9.5 (0.374)	3.2 (0.126)
Center valve body			
Accumulator control valve	21.2 (0.835)	5.0 (0.197)	3.2 (0.126)
Low—high relay valve	8.5 (0.335)	5.0 (0.197)	3.2 (0.126)
Low shift valve	9.5 (0.374)	5.0 (0.197)	3.2 (0.126)
Lower valve body			
Low—high shift timing valve	8.5 (0.335)	5.0 (0.197)	3.2 (0.126)
Low—high orifice control valve	8.5 (0.335)	5.0 (0.197)	3.2 (0.126)

Transfer Case And Front Support

Front support bushing inside diameter	31.40 mm	1.2362 in.

Transfer Chain Front Case

Front drive shaft oil seal depth		2.7 — 3.3 mm	0.106 — 0.130 in.
Output shaft oil seal depth	Front	11.0 — 11.3 mm	0.433 — 0.445 in.
	Rear	0 — +0.3 mm	0 — +0.012 in.

Transfer Chain Rear Case

Front drive shaft bearing depth		1.2 — 1.8 mm	0.047 — 0.071 in.
Output shaft oil seal depth	Front	11.0 — 11.3 mm	0.433 — 0.445 in.
	Rear	0 — +0.3 mm	0 — +0.012 in.

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Transfer 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	0.15 — 0.42 mm	0.0059 — 0.0165 in.
	Maximum	0.6 mm	0.024 in.
Side clearance	STD	0.04 — 0.15 mm	0.0016 — 0.0059 in.

Transfer Extension Housing

Extension housing oil seal depth	2.7 — 3.3 mm	0.106 — 0.130 in.

Accumulator Spring

Spring		Free length / Outer diameter mm (in.)	Color
B_2		70.5 (2.776) / 19.7(0.776)	Yellow
C_2	Inner	42.1 (1.657) / 14.7 (0.579)	Pink
C_2	Outer	70.2 (2.764) / 20.2 (0.795)	Purple
B_0		62.0 (2.441) / 16.0 (0.630)	Green
C_0	Outer	74.6 (2.937) / 20.9 (0.823)	Orange
C_0	Inner	46.0 (1.811) / 14.0 (0.551)	Yellow

TORQUE SPECIFICATION

AT05Q-05

Part tightened	N·m	kgf·cm	ft·lbf
Stator shaft x Oil pump body	10	100	7
Upper valve body x Lower valve body	6.4	65	56 in.·lbf
Detent spring x Valve body	10	100	7
Transfer lower valve body x Transfer center valve body	6.4	65	56 in.·lbf
Transfer center valve body x Transfer upper valve body	6.4	65	56 in.·lbf
Transfer upper valve body x Transfer lower valve body	6.4	65	56 in.·lbf
No.4 solenoid x Valve body	10	100	7
Transfer pressure switch x Valve body	6.9	70	61 in.·lbf
Transfer oil strainer x Transfer chain rear case	6.9	70	61 in.·lbf
Transfer oil pump x Transfer oil pump cover	10	100	7
Oil pump x Transmission case	22	220	16
Parking lock pawl bracket	7.4	75	65 in.·lbf
Transfer case x Transmission case	34	345	25
Transfer front support x Transfer case	34	345	25
Transfer chain front case x Transfer case	34	345	25
Oil receiver x Transfer chain front case	10	100	7
Transfer chain front case x Transfer chain rear case	34	345	25
Transfer oil pump x Transfer chain rear case	16	160	12
Transfer extension housing x Transfer chain rear case	34	345	25
Front companion flange	123	1,250	90
Rear companion flange	123	1,250	90
Overdrive case x Transmission case	25	260	19
Valve body x Transmission case	10	100	7
Oil strainer case x Valve body	10	100	7
Oil strainer case x Oil strainer	6.9	70	61 in.·lbf
Transfer valve body x Transfer case	10	100	7
Transfer oil pan x Transfer case	7.4	75	65 in.·lbf
Transfer position switch	3.9	40	35 in.·lbf
Transfer control shaft lever	16	160	12
Speedometer drive gear	16	160	12
Transfer oil cooler tube	34	345	25
Transmission fluid temperature sensor	15	150	11
Transfer fluid temperature sensor	15	150	11
Transmission oil pan x Transmission case	7.4	75	65 in.·lbf
Transmission housing 14 mm bolt	34	345	25
17 mm bolt	57	580	42
Union	29	300	22
Park/Neutral position switch	6.9	70	61 in.·lbf
Park/Neutral position switch adjusting bolt	13	130	9
Control shaft lever	16	160	12