

Standards and Service Limits

Manual Transmission — Section 13

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT	
Transmission oil	Capacity ℓ (US qt, Imp qt)	2.8 (3.0, 2.5) for overhaul 2.7 (2.9, 2.4) for oil change		
Mainshaft	Diameter of ball bearing contact area (transmission housing side)	30.984-31.000 (1.220-1.221)	30.93 (1.2177)	
	Diameter of needle bearing contact area	42.984-43.000 (1.692-1.693)	42.93 (1.690)	
	Diameter of ball bearing contact area (clutch housing side)	32.002-32.018 (1.260-1.261)	31.95 (1.258)	
	Runout	0.02 (0.001) max.	0.05 (0.002)	
	End play	0.14-0.21 (0.006-0.008)	Adjust with a shim.	
Mainshaft 3rd gear	I.D.	49.009-49.025 (1.9295-1.9301)	49.08 (1.9323)	
	End play	0.06-0.21 (0.002-0.008)	0.3 (0.012)	
	Thickness	35.92-35.97 (1.414-1.416)	35.80 (1.409)	
Mainshaft 4th gear	I.D.	49.009-49.025 (1.9295-1.9301)	49.08 (1.9323)	
	End play	0.06-0.21 (0.002-0.008)	0.3 (0.012)	
	Thickness	35.92-35.97 (1.414-1.416)	35.80 (1.409)	
Mainshaft 5th gear	I.D.	47.009-47.025 (1.8507-1.8514)	47.08 (1.8535)	
	End play	0.06-0.21 (0.002-0.008)	0.3 (0.012)	
	Thickness	34.92-34.97 (1.375-1.377)	34.80 (1.370)	
Spacer collar (Mainshaft)	I.D.	36.002-36.012 (1.417-1.418)	36.06 (1.420)	
	O.D.	4th gear side	42.989-43.000 (1.692-1.693)	42.94 (1.691)
		5th gear side	41.989-42.000 (1.653-1.654)	41.94 (1.651)
	Length	4th gear side	29.53-29.58 (1.163-1.165)	29.51 (1.162)
		5th gear side	28.53-28.58 (1.123-1.125)	28.51 (1.122)

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Countershaft	Diameter of needle bearing contact area (clutch housing side)	43.974 – 43.990 (1.731 – 1.732)	43.92 (1.729)	
	Diameter of needle and ball bearing contact area (transmission housing side)	33.984 – 34.000 (1.338 – 1.339)	33.93 (1.336)	
	Runout	0.02 (0.001) max.	0.05 (0.002)	
Countershaft 1st gear	I.D. End play (when tightened by the specified torque)	60.510 – 60.529 (2.382 – 2.383) 0.04 – 0.10 (0.002 – 0.004)	60.58 (2.385) Adjust with a washer.	
Countershaft 2nd gear	I.D. End play (when tightened by the specified torque)	57.010 – 57.029 (2.244 – 2.245) 0.04 – 0.10 (0.002 – 0.004)	57.08 (2.247) Adjust with a collar.	
Countershaft reverse gear	Diameter of needle bearing contact area	54.487 – 54.500 (2.145 – 2.146)	54.43 (2.143)	
Spacer collar (Countershaft)	I.D.	43.046 – 43.056 (1.6947 – 1.6951)	43.10 (1.697)	
	O.D.	51.987 – 52.000 (2.0467 – 2.0472)	51.94 (2.045)	
Reverse idler gear shaft	O.D.	21.987 – 22.000 (0.8656 – 0.8661)	21.93 (0.8634)	
Reverse driven gear and reverse drive gear	I.D.	28.007 – 28.020 (1.1026 – 1.1031)	28.07 (1.1051)	
Oil pump	Driven gear boss-to-transmission housing clearance	0.3 – 0.8 (0.01 – 0.03)	0.9 (0.04)	
	Driven gear thickness	17.0 – 17.1 (0.669 – 0.673)	16.9 (0.665)	
	Inner-to-outer rotor radial clearance	0.14 (0.006) max.	0.20 (0.008)	
	Pump body-to-outer rotor radial clearance	0.1 – 0.2 (0.004 – 0.008)	0.22 (0.009)	
	Pump body-to-outer rotor side clearance	0.03 – 0.10 (0.001 – 0.004)	0.15 (0.006)	
Synchro ring	Ring-to-gear clearance (ring pushed against gear)	0.85 – 1.10 (0.033 – 0.043)	0.4 (0.016)	
Dual cone synchro ring	Clearance (ring pushed against gear)			
	Outer synchro ring-to-gear	0.95 – 1.68 (0.037 – 0.066)	0.6 (0.024)	
	Synchro cone-to-gear	0.5 – 1.0 (0.020 – 0.039)	0.3 (0.012)	
Shift fork	Finger thickness	1st/2nd shift fork	8.9 – 9.0 (0.350 – 0.354)	—
		3rd/4th shift fork	7.4 – 7.5 (0.291 – 0.295)	—
		5th shift fork	6.4 – 6.5 (0.252 – 0.256)	—
		Reverse shift fork	6.4 – 6.5 (0.252 – 0.256)	—
	Finger-to-synchro sleeve clearance	0.45 – 0.65 (0.018 – 0.026)	1.0 (0.039)	
Reverse shift arm	Arm-to-5th/reverse shift piece clearance	0.05 – 0.30 (0.002 – 0.012)	0.5 (0.02)	
	Groove width	7.05 – 7.20 (0.278 – 0.283)	—	
	Arm-to-reverse shift fork clearance	0.05 – 0.35 (0.002 – 0.014)	0.5 (0.02)	
	Diameter (at the contact point with the reverse shift fork)	12.8 – 13.0 (0.504 – 0.512)	—	
Shift arm	Arm-to-shift piece clearance	0.05 – 0.25 (0.002 – 0.010)	0.5 (0.02)	
	Diameter (at the contact point with the shift piece)	12.9 – 13.0 (0.508 – 0.512)	—	
Interlock	Interlock-to-select arm clearance	0.03 – 0.15 (0.001 – 0.006)	—	
	Diameter (at the contact point with the select arm)	11.95 – 12.00 (0.470 – 0.472)	—	
Shift piece	Shift piece-to-shift forks and 5th/reverse shift piece clearance	0.2 – 0.5 (0.008 – 0.020)	0.6 (0.024)	
	Diameter (at the contact point with the shift forks and 5th/reverse shift piece)	11.9 – 12.0 (0.469 – 0.472)	—	