

# Standards and Service Limits

## 5. Engine/Cylinder Head, Valve Train

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Compression	200 min <sup>-1</sup> (rpm) and wide-open throttle	Nominal: 1,177 kPa (12.0 kg/cm <sup>2</sup> , 171 psi) Minimum: 981 kPa (10.0 kg/cm <sup>2</sup> , 142 psi) Maximum variation: 196 kPa (2 kg/cm <sup>2</sup> , 28 psi)	
Cylinder head	Warpage Height	133 (5.24)	0.05 (0.002) 132.8 (5.23)
Camshaft	End play Oil clearance Runout Cam lobe height	0.05–0.15 (0.002–0.006) 0.045–0.081 (0.0018–0.0032) 0.015 (0.0006) 39.460 (1.5535)	0.5 (0.02) 0.10 (0.004) 0.03 (0.001) —
	IN EX	39.409 (1.5515)	—
Valve	Valve clearance Valve stem O.D. Stem-to-guide clearance Stem installed height	0 0 6.58–6.59 (0.2591–0.2594) 6.55–6.56 (0.2579–0.2583) 0.02–0.05 (0.001–0.002) 0.05–0.08 (0.002–0.003) 50.00 (1.969) 47.50 (1.870)	— — 6.55 (0.258) 6.52 (0.257) 0.08 (0.003) 0.11 (0.004) 50.35 (1.982) 47.85 (1.884)
	IN EX IN EX IN EX		
Valve seat	Width	1.25–1.55 (0.049–0.061)	2.0 (0.08)
Valve spring	Free length Squareness	53.90 (2.12) 44.95 (1.77) 49.55 (1.95)	52.90 (2.08) 43.95 (1.73) 48.55 (1.91)
	IN EX Inner Outer IN EX Inner Outer	— — — — — —	1.89 (0.072) 1.57 (0.062) 1.73 (0.068)
Valve guide	I.D.	6.61–6.63 (0.260–0.261)	6.65 (0.262)
Rocker arm	Arm-to-shaft clearance	0.018–0.054 (0.0007–0.0021)	0.08 (0.003)
Push rod	Runout	—	0.02 (0.0008)
Hydraulic tappet	Compression stroke	0.01–0.08 (0.0003–0.0031)	—

## 5. Engine/Engine Block

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Cylinder block	Warpage of deck surface Bore diameter Bore taper Reboring limit	0.07 (0.003) max. 87.00–87.02 (3.4252–3.4259) — —	0.10 (0.004) 87.07 (3.4279) 0.05 (0.002) 0.5 (0.02)
	A B		
Piston	Skirt O.D. (At 18 mm (0.71 in) from bottom of skirt) Clearance in cylinder Piston-to-ring clearance (top and second)	86.981–86.994 (3.4244–3.4250) 86.971–86.984 (3.4240–3.4246) 0.016–0.039 (0.0006–0.0015) 0.015–0.045 (0.0006–0.0018)	86.97 (3.4240) 86.96 (3.4236) 0.08 (0.003) 0.13 (0.005)
Piston ring	Ring end gap Top Second Oil	0.20–0.35 (0.008–0.014) 0.35–0.50 (0.014–0.019) 0.20–0.70 (0.008–0.028)	0.6 (0.02) 0.75 (0.03) 0.8 (0.03)
Connecting rod	Pin-to-rod interference Large end bore diameter End play installed on crankshaft	0.013–0.032 (0.0005–0.0013) Nominal 55 (2.17) 0.15–0.30 (0.006–0.012)	— — 0.40 (0.016)
Crankshaft	Main journal diameter Taper/out-of-round, main journal Rod journal diameter Taper/out-of-round, rod journal End play Runout	63.976–64.000 (2.5187–2.5197) 0.005 (0.0002) max. 51.976–52.000 (2.0463–2.0472) 0.005 (0.0002) max. 0.10–0.35 (0.004–0.014) 0.01 (0.0004) max.	— 0.010 (0.0004) — 0.010 (0.0004) 0.45 (0.018) 0.015 (0.0006)
Bearings	Main bearing-to-journal oil clearance Rod bearing-to-journal oil clearance	0.024–0.048 (0.0009–0.0019) 0.026–0.050 (0.0010–0.002)	0.05 (0.002) 0.05 (0.002)

## 5. Engine/Engine Lubrication

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Engine oil	Capacity ℓ (U.S. qt., Imp. qt.)	5.7 (6.0, 5.0) After engine disassembly 4.5 (4.8, 4.0) After oil change, including oil filter	
Oil pump	Displacement	55.9 ℓ (14.8 U.S. gal., 12.3 Imp. gal.)	5,000 min <sup>-1</sup> (rpm)
	Inner-to-outer rotor radial clearance	0.04–0.18 (0.002–0.007)	0.2 (0.008)
	Pump body-to-rotor radial clearance	0.10–0.18 (0.004–0.007)	0.2 (0.008)
	Pump body-to-rotor side clearance	0.02–0.07 (0.001–0.003)	0.12 (0.005)
Relief valve	Pressure setting	At Idle	137 kPa (1.4 kg/cm <sup>2</sup> , 20 psi) min.
	80°C (176°F)	At 3,000 min <sup>-1</sup> (rpm)	490–569 kPa (5.0–5.8 kg/cm <sup>2</sup> , 71–82 psi)

## 5. Engine/Cooling

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	MEASUREMENT	STANDARD (NEW)	
Radiator	Capacity (Includes heater) ℓ (U.S. qt., Imp. qt.) (Includes reservoir tank 0.7 (0.74, 0.61))	M/T: 8.8 (9.3, 7.7) A/T: 8.7 (9.2, 7.7)	
	Pressure cap opening pressure	88–118 kPa (0.9–1.20 kg/cm <sup>2</sup> , 14–17 psi)	
Thermostat	Starts to open	78 ± 2°C (172 ± 36°F)	86–90°C (187–194°F)
	Full open	91°C (196°F)	
	Valve lift at full open	8 (0.31) min.	
Water pump	Gear ratio (crankshaft)	1.044	
	Capacity: ℓ per min/at min <sup>-1</sup> (rpm)	150/6,000 (39.6 U.S. gal, 33 Imp. gal./6,000 min <sup>-1</sup> (rpm))	
Cooling fan	Fan-to-core clearance	7.5 (0.29)	
	Thermoswitch "ON" temperature (Low)	81–87°C (179–189°F)	
	Thermoswitch "OFF" temperature (Low)	Subtract 6 ± 2°C (43 ± 36°F) from the actual "ON" temperature (LOW).	
	Thermoswitch "ON" temperature (High)	87–93°C (188–199°F)	
	Thermoswitch "OFF" temperature (High)	Subtract 6 ± 2°C (43 ± 36°F) from the actual "ON" temperature (HIGH).	

## 6. Fuel and Emissions

	MEASUREMENT	STANDARD (NEW)
Fuel pump	Delivery pressure	250 kPa (2.55 kg/cm <sup>2</sup> , 36 psi)
	Displacement	230 cm <sup>3</sup> (cc)/min in 10 seconds
	Relief valve opening pressure	441–588 kPa (4.5–6.0 kg/cm <sup>2</sup> , 64–85 psi)
Pressure regulator	Pressure	245–255 kPa (2.5–2.6 kg/cm <sup>2</sup> , 35–37 psi)
Fuel Tank	Capacity	68 ℓ (18.0 U.S. gal., 15.0 Imp. gal.)
Engine	Fast idle	1,100–1,900 min <sup>-1</sup> (rpm)
	Idle speed with headlights and cooling fan off	Manual 680 ± 50 min <sup>-1</sup> (rpm) with cata, 720 ± 50 min <sup>-1</sup> (rpm) without cata Automatic 680 ± 50 min <sup>-1</sup> (rpm) ("N" position)
	Idle CO	0.1 % with cata, 2.0 % max without cata

## 7. Clutch

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Clutch pedal	Pedal height	153 (6.0) to carpet	—
	Stroke	145–150 (5.7–5.9)	—
	Pedal play	9–15 (0.4–0.6)	—
	Disengagement height	90 (3.5) min. to floor	—
Flywheel	Clutch surface runout	0.05 (0.002) max.	0.15 (0.006)
	I.D. of pilot bush	19.000–19.071 (0.7480–0.7508)	—
Clutch plate	Rivet head depth	1.3 (0.05) min.	0.2 (0.008)
	Surface runout	0.8 (0.03) max.	1.0 (0.04)
	Radial play in splines	0.7–2.1 (0.028–0.083)	4.0 (0.16)
	Thickness	8.5–9.2 (0.33–0.36)	6.1 (0.24)
Clutch release bearing holder	I.D.	35.00–35.059 (1.378–1.380)	35.09 (1.381)
	Holder-to-guide sleeve clearance	0.05–0.15 (0.002–0.006)	0.22 (0.009)
Clutch cover	Unevenness of diaphragm spring	0.6 (0.02) max.	0.8 (0.03)

(cont'd)

# Standards and Service Limits

## 8. Manual Transmission

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Transmission oil	Capacity ℓ (U.S. qt., Imp. qt.)	2.3 (2.4, 2.0) at assembly 2.2 (2.3, 1.9) at oil change	
Mainshaft	End play Diameter of ball bearing contact area Diameter of third gear contact area Diameter of ball bearing contact area Diameter of pilot bush contact area Runout	0.14–0.21 (0.006–0.083) 27.977–27.990 (11.015–11.020) 37.984–38.000 (1.4954–1.4961) 27.987–28.000 (1.1018–1.1024) 18.80–18.85 (0.7402–0.7421) 0.02 (0.0008) max.	Adjust with a shim. 29.930 (1.1783) 37.930 (1.4933) 27.940 (1.1000) — 0.05 (0.002)
Mainshaft third and fourth gears	I.D. End play Thickness 3rd gear 4th gear	43.009–43.025 (1.6933–1.6939) 0.06–0.21 (0.0024–0.0083) 35.42–35.47 (1.3945–1.3965) 33.45–33.47 (1.3169–1.3177)	43.080 (1.6961) 0.30 (0.012) 35.30 (1.3898) 33.33 (1.3122)
Mainshaft fifth gear	I.D. End play Thickness	43.009–43.025 (1.6933–1.6939) 0.06–0.21 (0.0024–0.0083) 31.92–31.97 (1.2567–1.2587)	43.080 (1.6961) 0.30 (0.012) 31.80 (1.2520)
Countershaft	End play Diameter of needle bearing contact area Diameter of ball bearing needle bearing contact area Diameter of low gear contact area Runout	0.10–0.35 (0.004–0.014) 33.000–33.015 (1.2992–1.2998) 24.987–25.000 (0.9837–0.9845) 39.984–40.000 (1.5742–1.5748) 0.02 (0.0008) max.	0.50 (0.02) 32.95 (1.297) 24.94 (0.982) 39.93 (1.572) 0.05 (0.002)
Countershaft low gear	I.D. End play	46.009–46.025 (1.8114–1.8120) 0.03–0.08 (0.0012–0.0031)	46.08 (1.923) Adjust with a shim.
Countershaft second gear	I.D. End play Thickness	50.009–50.025 (1.9689–1.9695) 0.03–0.10 (0.0012–0.0039) 32.92–32.97 (1.2961–1.2980)	50.08 (1.972) Adjust with a collar. 32.8 (1.2913)
Spacer collar (Countershaft second gear)	I.D. O.D. Length	36.48–36.49 (1.4362–1.4366) 43.984–44.000 (1.7317–1.7323) 28.98–29.00 (1.1409–1.1417) 29.03–29.05 (1.1429–1.1437)	36.50 (1.437) 43.94 (1.730) — —
Spacer collar (Mainshaft fourth and fifth gears)	I.D. O.D. Length	31.002–31.012 (1.2205–1.2209) 37.989–38.000 (1.4956–1.4961) 55.95–56.05 (2.2028–2.2067) 26.03–26.08 (1.0248–1.0268)	31.06 (1.223) 37.94 (1.494) — —
Reverse idler gear	I.D. Gear-to-reverse gear shaft clearance	20.020–20.041 (0.7882–0.7890) 0.020–0.054 (0.0008–0.0021)	20.09 (0.7909) 0.160 (0.0006)
Synchronizer ring	Ring-to-gear clearance (ring pushed against gear)	0.85–1.10 (0.0335–0.0433)	0.40 (0.016)
Shift fork	Synchronizer sleeve gear Low and 2nd gears 3rd and 4th gears 5th gear Fork-to-synchronizer sleeve clearance	8.90–9.00 (0.3504–0.3543) 8.40–8.50 (0.3307–0.3346) 5.40–5.50 (0.2126–0.2165) 0.45–0.65 (0.018–0.026)	— — — 1.0 (0.039)
Reverse shift fork	End gap Fork-to-reverse idler gear clearance Groove width Fork-to-fifth/reverse shift shaft clearance	13.0–13.3 (0.5118–0.5236) 0.5–1.1 (0.018–0.043) 7.05–7.25 (0.2776–0.2854) 0.05–0.35 (0.002–0.014)	— 1.8 (0.071) — 0.5 (0.02)
Shift arm	Width of groove in shift rod guide Shift arm-to-shift rod guide clearance Width in shift guide Shift arm-to-shift guide clearance	8.1–8.2 (0.319–0.323) 0.2–0.3 (0.008–0.012) 13.05–13.25 (0.514–0.522) 0.05–0.35 (0.002–0.014)	— 0.55 (0.022) — 0.6 (0.02)
Interlock	O.D. Interlock-to-change piece clearance	12.05–12.15 (0.4744–0.4783) 0.05–0.25 (0.002–0.010)	— 0.5 (0.02)
Ring gear	Backlash	0.085–0.142 (0.0033–0.0056)	0.2 (0.0079)
Differential carrier	Pinion shaft bore diameter Carrier-to-pinion shaft clearance Driveshaft bore diameter Carrier-to-driveshaft clearance	18.000–18.018 (0.7087–0.7094) 0.016–0.052 (0.0006–0.0020) 30.000–30.021 (1.1811–1.1819) 0.025–0.066 (0.0010–0.0026)	— 0.1 (0.004) — 0.12 (0.005)
Differential pinion gear	Backlash  Pinion gear bore diameter Pinion gear-to-pinion shaft clearance	0.08–0.15 (0.003–0.006)  18.043–18.061 (0.7104–0.7111) 0.057–0.095 (0.0022–0.0037)	Adjust with a washer. — 0.15 (0.006)
Differential taper roller bearing	Preload N·m (kg-m, lb-ft)	1.4–2.0 (0.14–0.20, 1.0–1.4)	Adjust with a washer.

## 9. Automatic Transmission

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Transmission oil	Capacity ℓ (U.S. qt., Imp. qt.)	3.2 (3.4, 2.8) at oil change 6.5 (6.9, 5.7) at assembly	
Hydraulic pressure	Line pressure at 2,000 min <sup>-1</sup> (rpm)	814–863 kPa (8.3–8.8 kg/cm <sup>2</sup> , 118–125 psi)	765 kPa (7.8 kg/cm <sup>2</sup> , 111 psi)
	4th, 3rd, 2nd clutch pressure at 2,000 min <sup>-1</sup> (rpm)	490–863 kPa (5.0–8.8 kg/cm <sup>2</sup> , 71–125 psi)	441 kPa (4.5 kg/cm <sup>2</sup> , 64 psi) with lever released 765 kPa (7.8 kg/cm <sup>2</sup> , 111 psi) with throttle more than 3/8 OPEN
	1st clutch pressure at 2,000 min <sup>-1</sup> (rpm)	814–863 kPa (8.3–8.8 kg/cm <sup>2</sup> , 118–125 psi)	765 kPa (7.8 kg/cm <sup>2</sup> , 111 psi)
	Throttle pressure B Full closed Full open	0 814–863 kPa (8.3–8.8 kg/cm <sup>2</sup> , 118–125 psi)	765 kPa (7.8 kg/cm <sup>2</sup> , 111 psi)
	Modulator pressure	520–559 kPa (5.3–5.7 kg/cm <sup>2</sup> , 75–81 psi)	490 kPa (5.0 kg/cm <sup>2</sup> , 71 psi)
Stall speed	Check with car on level ground	2,150–2,450 min <sup>-1</sup> (rpm)	—
Clutch	Clutch initial clearance	1st 2nd, 3rd 4th	— — —
	Clutch return spring free length Clutch disc thickness Clutch plate thickness Clutch end plate thickness	31.0 (1.22) 1.88–2.0 (0.074–0.079) 1.95–2.05 (0.077–0.079) 2.05–2.10 (0.081–0.083) 2.15–2.20 (0.085–0.087) 2.25–2.30 (0.089–0.091) 2.35–2.40 (0.093–0.094) 2.45–2.50 (0.096–0.098) 2.55–2.60 (0.100–0.102) 2.65–2.70 (0.104–0.106) 2.75–2.80 (0.108–0.110) 2.85–2.90 (0.112–0.114) 2.95–3.00 (0.116–0.118) 3.05–3.10 (0.120–0.122) 3.15–3.20 (0.124–0.126) 3.25–3.30 (0.128–0.130) 3.35–3.40 (0.132–0.134)	29.0 (1.14) Until grooves worn out Discoloration  Discoloration
Transmission	Diameter of needle bearing contact area on main and stator shaft	22.980–22.993 (0.9047–0.9052)	Wear or damage
	Diameter of needle bearing contact area on mainshaft 2nd gear	35.975–35.991 (1.4163–1.4169)	Wear or damage
	Diameter of needle bearing contact area on mainshaft 4th gear collar	31.975–31.991 (1.2588–1.2594)	Wear or damage
	Diameter of needle bearing contact area on mainshaft 1st gear collar	30.975–30.991 (1.2195–1.2201)	Wear or damage
	Diameter of needle bearing contact area on countershaft (R side)	38.505–38.515 (1.5159–1.5163)	Wear or damage
	Diameter of needle bearing contact area on countershaft 3rd gear	43.975–43.991 (1.7313–1.7319)	Wear or damage
	Diameter of needle bearing contact area on countershaft 4th gear	31.975–31.991 (1.2589–1.2595)	Wear or damage
	Diameter of needle bearing contact area on countershaft reverse gear collar	32.975–32.991 (1.2982–1.2989)	Wear or damage
	Diameter of needle bearing contact area on countershaft 1st gear collar	32.975–32.991 (1.2982–1.2989)	Wear or damage
	Diameter of needle bearing contact area on reverse idle gear	13.990–14.000 (0.5508–0.5512)	Wear or damage
	Reverse idler shaft holder I.D.	14.416–14.434 (0.5676–0.5683)	Wear or damage
	Mainshaft 2nd gear I.D.	42.000–42.016 (1.6141–1.6148)	Wear or damage
	Mainshaft 1st gear I.D.	36.000–36.016 (1.4173–1.4179)	Wear or damage
	Countershaft 4th gear I.D.	38.000–38.016 (1.4961–1.4966)	Wear or damage
	Countershaft 3rd gear I.D.	49.000–49.016 (1.9291–1.9298)	Wear or damage
	Countershaft 1st gear I.D.	39.000–39.016 (1.5354–1.5361)	Wear or damage
	Countershaft reverse gear I.D.	39.000–39.016 (1.5354–1.5361)	Wear or damage
	Reverse idle gear I.D.	18.007–18.020 (0.7086–0.7094)	Wear or damage
	Mainshaft 4th gear end play	0.10–0.22 (0.004–0.009)	Adjustable
	Mainshaft 2nd gear end play	0.07–0.15 (0.003–0.006)	Adjustable
	Mainshaft 1st gear end play	0.08–0.24 (0.003–0.009)	Adjustable
	Countershaft 3rd gear end play	0.07–0.15 (0.003–0.006)	Adjustable
	Countershaft 2nd gear end play	0.07–0.15 (0.003–0.006)	Adjustable
	Reverse idler gear end play	0.05–0.18 (0.002–0.007)	Adjustable
	Countershaft reverse gear end play	0.10–0.25 (0.004–0.010)	Adjustable

\*1st lutch only

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# Standards and Service Limits

## 9. Automatic Transmission (cont'd)

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Transmission (cont'd)	Thrust washer thickness		
	Mainshaft 2nd gear		
	A	3.97–4.00 (0.156–0.157)	—
	B	4.02–4.05 (0.158–0.159)	—
	C	4.07–4.10 (0.160–0.161)	—
	D	4.12–4.15 (0.162–0.163)	—
	E	4.17–4.20 (0.164–0.165)	—
	F	4.22–4.25 (0.166–0.167)	—
	G	4.27–4.30 (0.168–0.169)	—
	H	4.32–4.35 (0.170–0.171)	—
	I	4.37–4.40 (0.172–0.173)	—
	Mainshaft bearing contact area (L side)	3.75–3.85 (0.148–0.152)	Wear or damage
	Mainshaft 1st gear	2.43–2.50 (0.096–0.098)	Wear or damage
	"L" collar frange thickness	4.35–4.50 (1.1713–1.1772)	—
	Countershaft 4th gear collar thickness	47.42–47.45 (1.8669–1.8681)	—
	B	47.47–47.50 (1.8689–1.8701)	—
	C	47.52–47.55 (1.8709–1.8720)	—
	D	47.57–47.60 (1.8728–1.8740)	—
	E	47.62–47.65 (1.8748–1.8760)	—
	F	47.67–47.70 (1.8768–1.8779)	—
	G	47.72–47.75 (1.8787–1.8799)	—
	H	47.77–47.80 (1.8807–1.8819)	—
	I	47.82–47.85 (1.8827–1.8839)	—
	J	47.87–47.90 (1.8846–1.8858)	—
	Thrust washer thickness (mainshaft 1st gear R side)	1.45–1.50 (0.057–0.059)	1.4 (0.055)
	Mainshaft 1st gear collar length	24.50–24.55 (0.4646–0.9665)	—
	Mainshaft 1st gear collar flange thickness	2.5–2.6 (0.098–0.102)	Wear or damage
	Countershaft reverse gear collar length	12.0–12.1 (0.472–0.476)	—
	Countershaft reverse gear collar flange thickness	2.4–2.6 (0.094–0.102)	Wear or damage
	Countershaft 1st gear collar length	12.0–12.1 (0.472–0.476)	—
	Countershaft 1st gear collar flange thickness	2.4–2.6 (0.095–0.102)	Wear or damage
	Diameter of countershaft one-way clutch contact area	83.339–83.365 (3.2811–3.2821)	Wear or damage
	Diameter of parking gear one-way clutch contact area	66.685–66.698 (2.6254–2.6259)	Wear or damage
	Mainshaft feed pipe O.D.	8.97–8.98 (0.3531–0.3535)	8.95 (0.3524)
	Countershaft feed pipe O.D.	7.97–7.98 (0.3138–0.3142)	7.95 (0.31)
	Mainshaft sealing ring 35 mm Thickness	1.980–1.995 (0.0780–0.0785)	1.8 (0.071)
	Mainshaft bushing I.D.	6.018–6.030 (0.2369–0.2374)	6.045 (0.238)
	Mainshaft bushing I.D.	9.000–9.015 (0.3543–0.3549)	9.03 (0.356)
	Countershaft bushing I.D.	8.000–8.015 (0.3150–0.3156)	8.03 (0.316)
	Mainshaft sealing ring groove width	2.025–2.060 (0.0797–0.0811)	2.08 (0.082)
	Selector hub O.D.	51.87–51.90 (2.0421–2.0433)	Wear or damage
Regulator valve body	Sealing ring contact area diameter	35.000–35.025 (1.3780–1.3789)	35.05 (1.38)
Shifting device and parking brake control	Reverse shift fork thickness	5.9–6.0 (0.232–0.236)	5.4 (0.21)
	Parking brake ratchet pawl	—	Wear or other defect
	Parking gear	—	Wear or other defect
	Throttle cam stopper	18.5–18.6 (0.728–0.732)	—
Servo body	Shift fork shaft bore I.D.		
	A	14.000–14.005 (0.5512–0.5514)	—
	B	14.006–14.010 (0.5514–0.5516)	—
	C	14.011–14.015 (0.5516–0.5518)	—
	Shift fork shaft valve bore I.D.	37.000–37.039 (1.4567–1.4582)	37.045 (1.4585)
Valve body	Oil pump gear side clearance	0.03–0.05 (0.0012–0.0020)	0.07 (0.003)
	Oil pump gear-to-body clearance	Drive: 0.210–0.265 (0.0083–0.0104)	—
		Driven: 0.070–0.125 (0.003–0.005)	—
	Stator camshaft needle bearing contact I.D. (Torque converter side)	27.000–27.021 (1.0630–1.0638)	Wear or damage
	Stator camshaft needle bearing contact I.D. (Oil pump side)	29.000–29.013 (1.1417–1.1422)	—
	Oil pump driven gear I.D.	14.016–14.034 (0.5518–0.5525)	Wear or damage
	Oil pump shaft O.D.	13.980–13.990 (0.5504–0.5508)	Wear or damage

**9. Automatic Transmission (cont'd)**

Springs	MEASUREMENT	STANDARD (NEW)			
		Wire Dia.	O.D.	Free Length	No. of coils
	Low accumulator ball spring	0.29 (0.01)	4.0 (0.16)	14.0 (0.55)	13
	Idle shaft spring A	0.7 (0.03)	5.7 (0.22)	14.6 (0.57)	7
	Idle shaft spring B	0.8 (0.03)	5.6 (0.22)	20.7 (0.81)	11.5
	Servo detent spring	1.0 (0.04)	7.6 (0.30)	14.8 (0.58)	5.5
	Regulator valve spring A	1.8 (0.07)	14.7 (0.58)	87.4 (3.44)	16.5
	Regulator valve spring B	1.8 (0.07)	9.6 (0.38)	44.0 (1.73)	7.5
	Stator reaction spring	6.0 (0.24)	38.4 (1.51)	30.3 (1.19)	2
	Torque converter check valve spring	1.1 (0.04)	8.4 (0.33)	36.4 (1.43)	12
	Relief valve spring	1.0 (0.04)	8.4 (0.33)	52.0 (2.05)	23
	Cooler check valve spring	1.2 (0.05)	8.4 (0.33)	35.7 (1.41)	16.5
	2nd orifice control valve spring	0.8 (0.03)	6.6 (0.26)	38.5 (1.52)	28
	4th orifice control spring	0.9 (0.04)	6.6 (0.26)	27.6 (1.09)	10
	Servo orifice control valve spring	0.9 (0.04)	6.1 (0.24)	35.9 (1.41)	20
	Throttle control valve adjuster spring A	0.8 (0.03)	6.2 (0.24)	30.0 (1.18)	8
	Throttle control valve spring B	1.6 (0.06)	8.5 (0.33)	41.3 (1.63)	13.9
	1-2 shift spring	0.9 (0.04)	8.6 (0.34)	40.4 (1.59)	14.5
	2-3 shift spring	0.9 (0.04)	9.6 (0.38)	39.6 (1.56)	12
	3-4 shift spring	0.7 (0.03)	5.6 (0.22)	48.3 (1.90)	27.8
	Low accumulator spring A	2.8 (0.11)	21.5 (0.85)	58.5 (2.30)	8.3
	Low accumulator spring B	2.3 (0.09)	12.1 (0.48)	40.0 (1.57)	7.4
	Top accumulator spring	3.0 (0.12)	16.4 (0.65)	81.7 (3.22)	16.4
	2nd accumulator spring	2.71 x 4.4 (0.11 x 0.17)	20.0 (0.79)	79.7 (3.14)	16.2
	3rd accumulator spring	2.9 (0.11)	17.9 (0.70)	82.2 (3.24)	12.1
	L/C shift spring	1.1 (0.04)	8.6 (0.34)	51.0 (2.01)	18.6
	L/C timing spring B	0.9 (0.04)	5.6 (0.22)	40.7 (1.60)	30
				39.5 (1.56)	
	L/C control spring	0.8 (0.03)	6.6 (0.26)	40.2 (1.58)	25
				41.0 (1.61)	
	Modulator valve spring	1.5 (0.06)	9.4 (0.37)	30.6 (1.20)	9.9
	CPC valve spring A, B (Modulator valve)	1.4 (0.06)	9.4 (0.37)	33.0 (1.30)	10.5
	CPC valve spring A, B (CPC valve)	1.4 (0.06)	9.4 (0.37)	32.4 (1.28)	10.5
	4-3 kick down valve spring	0.9 (0.04)	6.6 (0.26)	32.2 (1.27)	16
	3-2 kick down valve spring	1.0 (0.04)	6.6 (0.26)	40.5 (1.59)	20
	2-1 orifice control spring	0.8 (0.03)	6.4 (0.25)	41.5 (1.63)	22.8
	2nd clutch return spring	6.0 x 6.4 (0.24 x 0.25)	66.4 (2.61) at free	31.0 (1.22)	1.25
	Low clutch return spring	6.3 x 5.82 (0.25 x 0.23)	63.2 (2.49) at free	31.0 (1.22)	1.25
	Servo control valve spring	1.2 (0.05)	8.1 (0.32)	43.2 (1.70)	19

(cont'd)

# Standards and Service Limits

## 9. Automatic Transmission (cont'd)

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Ring gear	Backlash		0.085–0.142 (0.0033–0.0056)	0.2 (0.0079)
Differential carrier	Pinion shaft bore diameter		18.000–18.018 (0.7087–0.7094)	—
	Carrier-to-pinion shaft clearance		0.016–0.052 (0.0006–0.0020)	0.1 (0.004)
	Driveshaft bore diameter		30.000–30.021 (1.1811–1.1819)	—
	Carrier-to-driveshaft clearance		0.025–0.066 (0.0010–0.0026)	0.12 (0.005)
Differential pinion gear	Backlash		0.08–0.15 (0.003–0.006)	Adjust with a washer.
	Pinion gear bore diameter		18.043–18.061 (0.7104–0.7111)	—
	Pinion gear-to-pinion shaft clearance		0.057–0.095 (0.0022–0.0037)	0.15 (0.006)
Differential taper roller bearing	Preload N·m (kg·m, lb·ft)	New	2.7–3.9 (0.28–0.4, 2.0–2.9)	Adjust with a washer.
		Reused	2.5–3.6 (0.25–0.37, 1.8–2.7)	Adjust with a washer.

## 10. Driveshaft

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Driveshaft	Right boot	As installed	533–537.5 (21.0–21.2)	—
	Left boot	As installed	533–537.5 (21.0–21.2)	—

## 11. Power Steering

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Steering wheel	Play		10 (0.39) Max.	—
	Pinion starting torque N·m (kg·m, ft·lb)		1.2 (0.12, 0.86)	—
Power steering	Pump pressure with valve closed (Oil temp./ speed: 40°C (104°F) min/idle. Do not run for more than 5 seconds) kPa (kg/cm², psi)		7845–8826 (80–90, 1138–1280)	—
	Fluid capacity	Reservoir At change	0.5 ℓ (0.53 U.S. qt., 0.44 Imp. qt.) approx 1.7 ℓ (1.8 U.S. qt., 1.5 Imp. qt.)	—
Power steering belt	Deflection midway between pulleys/load		19–24 (0.75–0.94)/98N (10 kg/22 lb) for used belt 13–16 (0.51–0.63)/98N (10 kg/22 lb) for new belt	—

## 12. Suspension

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Wheel alignment	Camber		Front 0°00' ± 1°	—
	Caster		Rear 0°00' ± 1°	
	Toe-in		0°40' ± 1°	
			0 ± 3 (0 ± 0.12)	
Wheel	Rim runout	Aluminum	0 ± 4 (0 ± 0.16)	—
		Axial Radial	0–0.3 (0–0.012) 0–0.3 (0–0.012)	
Wheel bearing	End play	Front	0	0.05
		Rear	0	0.05

### 13. Brake

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Parking brake lever	Play in stroke 200N (20 kg, 44 lbs)		To be locked when pulled 7–11 notches	
Foot brake pedal	Pedal height Free play		170.6 (6.7) from floor 1–5 (0.04–0.20)	5 (0.20)
Master cylinder	Piston-to-pushrod clearance		0–0.2 (0–0.008)	
Disc brake	Disc thickness	Front Rear	21.0 (0.83) 10.0 (0.39)	19.0 (0.75) 8.0 (0.31)
	Disc runout	Front/Rear		0.1 (0.004)/0.15 (0.006)
	Disc parallelism			0.015 (0.0006)
	Pad thickness	Front Rear	11.5 (0.45) 10.0 (0.39)	3.0 (0.12) 3.0 (0.12)
Brake booster	Characteristics	Vacuum (mmHg)	Pedal Pressure Kg (lb.)	Line Pressure kPa (Kg/cm <sup>2</sup> , psi)
		0	20 (44)	774 (7.9, 112)
		300 500	20 (44) 20 (44)	6135 (62.6, 890) 8252 (84.2, 1198)

### 16. Electrical

	MEASUREMENT		STANDARD (NEW)	
Ignition coil	Rated voltage		12 Volts	
	Primary winding resistance		0.315–0.385 ohms	
	Secondary winding resistance		9,040–13,560 ohms	
Ignition wire	Resistance		25,000 ohms max.	
Spark plug	Type		BCPR6EY-N11 (NGK) <sup>*2</sup> BCPR7E-11 (NGK), Q22PR-U11 (ND) BCPR7EY-N11 (NGK) <sup>*2</sup> BCPR5E-11 (NGK) <sup>*1</sup> , Q16PR-U11 (ND) <sup>*1</sup> BCPR5EY-N11 (NGK) <sup>*1</sup> (or equivalent)  <sup>*1</sup> : KQ only <sup>*2</sup> : With catalytic converter	
	Gap		1.0–1.1 (0.039–0.043)	
	Ignition timing		15° ± 2° BTDC	
Battery	Lighting capacity (20-hour ratio)		60 Ampere Hours (KE, KQ only), 65 Ampere Hours (Others)	
	Starting capacity (5-second ratio)		8.4 V minimum at 300 Ampere draw	
Alternator	Output		13.5 V/70 A	
	Coil resistance (rotor)		2.8–3.0 ohms	
	Slip ring O.D.		14.4 (0.57)	14.0 (0.55)
	Brush length		10.5 (0.41)	5.5 (0.22)
	Brush spring tension		300–360 g (10.6–12.7 oz)	
Alternator belt	Deflection midway between pulleys/load		17.0–19.5 (0.67–0.77)/98 N (10 kg, 22 lb) for used belt 11–13 (0.43–0.51)/98 N (10 kg, 22 lb) for new belt	
Starting motor			1.6 KW (ND)	
	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
	Mica depth		0.5–0.8 (0.015–0.031)	0.2 (0.008)
	Commutator runout		0–0.05 (0–0.002)	0.4 (0.016)
	Commutator O.D.		29.9–30.0 (1.177–1.181)	29.0 (1.14)
	Brush length		15.0–15.5 (0.59–0.61)	10.0 (0.39)
	Spring pressure (new)		17–24 N (1.7–2.4 kg, 3.7–5.3 lb.)	