

Standards and Service Limits

5. Engine/Cylinder Head, Valve Train (SOHC Engine)

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Compression	250 min ⁻¹ (rpm) and wide-open throttle		Normal Minimum Maximum variation	1,275 kPa (13.0 kg/cm ² , 185 psi) 932 kPa (9.5 kg/cm ² , 135 psi) 196 kPa (2 kg/cm ² , 28 psi)
Cylinder head	Warpage Height		— 94.95–95.05	0.05 (0.002) —
Camshaft	End play		0.05–0.15 (0.002–0.006)	0.5 (0.02)
	Oil clearance		0.050–0.089 (0.002–0.004)	0.15 (0.006)
	Runout		0–0.03 (0–0.001) max.	0.06 (0.002)
	Cam lobe height	IN EX	36.957 (1.4515) 36.996 (1.4565)	— —
Valve	Valve clearance	IN EX	0.17–0.22 (0.007–0.009) 0.22–0.27 (0.009–0.011)	— —
	Valve stem O.D.	IN	5.48–5.49 (0.2157–0.2161)	5.45 (0.2147)
		EX	5.45–5.46 (0.2147–0.2150)	5.42 (0.2134)
	Stem-to-guide clearance	IN	0.02–0.05 (0.001–0.002)	0.08 (0.003)
		EX	0.05–0.08 (0.002–0.003)	0.11 (0.004)
	Stem installed height	IN	46.985–47.455 (1.8498–1.8683)	47.705 (1.8781)
EX		48.965–49.435 (1.9278–1.9263)	49.685 (1.9561)	
Valve seat	Width	IN	0.85–1.15 (0.033–0.045)	1.6 (0.06)
		EX	1.25–1.55 (0.049–0.061)	2.0 (0.08)
Valve spring	Free length	IN	48.58 (1.9126)	47.64 (1.8756)
		EX	49.19 (1.9366)	48.32 (1.9024)
	Squareness	IN/EX	—	1.70/1.72 (0.0669/0.0677)
Valve guide	I.D.	IN and EX	5.51–5.53 (0.2169–0.2177)	5.55 (0.2185)
Rocker arm	Arm-to-shaft clearance	IN	0.017–0.050 (0.0007–0.0020)	0.08 (0.003)
		EX	0.018–0.054 (0.0007–0.0021)	0.08 (0.003)

5. Engine/Cylinder Head, Valve Train (DOHC Engine)

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Compression	250 min ⁻¹ (rpm) and wide-open throttle		Nominal Minimum Maximum variation	1,324 kPa (13.5 kg/cm ² , 192 psi) 932 kPa (9.5 kg/cm ² , 135 psi) 196 kPa (2 kg/cm ² , 28 psi)
Cylinder head	Warpage Height		— 131.95–132.05	0.05 (0.002) —
Camshaft	End play		0.05–0.15 (0.002–0.006)	0.5 (0.02)
	Oil clearance		0.050–0.089 (0.002–0.004)	0.15 (0.006)
	Runout		0–0.03 (0–0.001) max.	0.06 (0.002)
	Cam lobe height	IN EX	33.021 (1.3000) 32.382 (1.2749)	— —
Valve	Valve clearance	IN EX	0.12–0.17 (0.005–0.007) 0.14–0.19 (0.006–0.008)	— —
	Valve stem O.D.	IN	6.58–6.59 (0.2591–0.2595)	6.55 (0.2579)
		EX	6.55–6.56 (0.2579–0.2583)	6.52 (0.2567)
	Stem-to-guide clearance	IN	0.02–0.05 (0.001–0.002)	0.08 (0.003)
		EX	0.05–0.08 (0.002–0.003)	0.11 (0.004)
	Stem installed height	IN	45.545–46.015 (1.7931–1.8116)	46.265 (1.8215)
EX		44.735–45.205 (1.7612–1.7797)	45.455 (1.7896)	
Valve seat	Width	IN and EX	1.25–1.55 (0.049–0.061)	2.0 (0.08)
Valve spring	Free length	IN	47.49 (1.8697)	46.46 (1.8291)
		EX	46.89 (1.8461)	45.93 (1.8083)
	Squareness	IN/EX	—	1.66/1.64 (0.065/0.065)
Valve guide	I.D.	IN and EX	6.61–6.63 (0.2602–0.2610)	6.55 (0.2579)

5. Engine/Engine Block

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Cylinder block	Warpage of deck surface	0.07 (0.0028) max.	0.10 (0.004)
	Bore diameter	75.00—75.02 (2.9526—2.9535)	75.07 (2.9555)
	Bore taper	—	0.05 (0.002)
	Reboring limit	—	0.5 (0.02)
Piston	Skirt O.D. At 16 mm (0.63 in) from bottom of skirt	74.98—74.99 (2.9520—2.9524)	74.97 (2.9517)
	Clearance in cylinder	0.01—0.04 (0.0004—0.0016)	0.05 (0.002)
	Piston-to-ring clearance	0.03—0.06 (0.0012—0.0024)	0.13 (0.005)
Piston ring	Ring end gap	Top	0.15—0.30 (0.006—0.012)
		2nd	0.30—0.45 (0.012—0.018)
		Oil	0.20—0.80 (0.008—0.031)
Connecting rod	Pin-to-rod interference	0.014—0.040 (0.0006—0.0016)	—
	Large end bore diameter	Nominal 48.0 (1.89)	—
	End play installed on crankshaft	0.15—0.30 (0.006—0.012)	0.40 (0.016)
Crankshaft	Main journal diameter	54.976—55.000 (2.1644—2.1654)	—
	Taper/out-of-round, main journal	0.0025 (0.0001) max.	0.010 (0.004)
	Rod journal diameter	44.976—45.000 (1.7707—1.7765)	—
	Taper/out-of-round, rod journal	0.0025 (0.0001) max.	0.010 (0.004)
	End play	0.10—0.35 (0.004—0.014)	0.45 (0.018)
	Runout	0.015 (0.0006) max.	0.03 (0.002)
Bearings	Main bearing-to-journal oil clearance	No. 1 and 5 journals	0.018—0.036 (0.0007—0.0014)
		No. 2 and 4 journals	0.024—0.042 (0.0010—0.0017)
		No. 3 journal	0.030—0.048 (0.0012—0.0019)
	Rod bearing-to-journal oil clearance		0.020—0.038 (0.0008—0.0015)

5. Engine/Engine Lubrication

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Engine oil	Capacity ℓ (U.S. qt., Imp. qt)	SOHC	4.0 (4.2, 3.5) After engine disassembly
		DOHC	3.5 (3.7, 3.1) After oil change, including oil filter
			4.3 (4.5, 3.8) After engine disassembly
			3.8 (4.0, 3.3) After oil change, including oil filter
Oil pump	Displacement	SOHC	44 ℓ (11.6 U.S. gal., 9.7 Imp. gal.) 6,250 min ⁻¹ (rpm)
		DOHC	62 ℓ (16.4 U.S. gal., 13.7 Imp. gal.) 6,750 min ⁻¹ (rpm)
Relief valve	Pressure setting 80°C (176°F)	Idle	157 kPa (1.6 kg/cm ² , 23 psi) min.
		3,000 min ⁻¹ (rpm)	
			510 kPa (5.2 kg/cm ² , 74 psi) min.

5. Engine/Cooling

	MEASUREMENT	STANDARD (NEW)
Radiator	Capacity (Includes heater) ℓ (U.S. qt., Imp. qt.) (Includes reservoir tank 0.4 (0.42, 0.35))	DOHC 5.5 (5.8, 4.8)
		SOHC 5.4 (5.7, 4.8)
Radiator cap	Pressure cap opening pressure	74—103 kPa (0.75—1.05 kg/cm ² , 11—15 psi)
Thermostat	Starts to open	76°C—80°C (169—176°F)
	Full open	90°C (194°F)
	Valve lift at full open	8 (0.31) min.
Water pump	Pulley ratio (crankshaft)	1 : 1
	Capacity: ℓ per min/at min ⁻¹ (rpm)	SOHC 85 (22.4 U.S. gal., 18.7 Imp. gal.)/4,000 min ⁻¹ (rpm) DOHC 76 (20.0 U.S. gal., 16.7 Imp. gal.)/4,000 min ⁻¹ (rpm)
Cooling fan	Fan-to-core clearance	28.0 (1.10)
	Thermoswitch "ON" temperature	88.5—91.5°C (191—197°F)
	Thermoswitch "OFF" temperature	Subtract 5±1.5°C (9±2.7°F) from actual "ON" temperature.

(cont'd)

Standards and Service Limits (cont'd)

6. Fuel and Emission

MEASUREMENT		STANDARD (NEW)
Fuel pump	Delivery pressure Displacement Relief valve opening pressure	250 kPa (2.55 kg/cm ² , 36psi) 230 cm ³ (7.8 oz) in 10 seconds at 12V. 441–588 kPa (4.5–6.0 kg/cm ² , 64–85 psi)
Pressure regulator	Pressure	245–255 kPa (2.5–2.6 kg/cm ² , 36–37 psi)
Fuel tank	Capacity	45 ℓ (11.9 U.S. gal., 9.9 Imp. gal.)
Fast idle		1,000–2,000 min ⁻¹ (rpm)
Idle speed	with headlights and cooling fan off	SOHC KY 780 ± 50 min ⁻¹ (rpm)
		DOHC KQ except KQ 750 ± 50 min ⁻¹ (rpm) 800 ± 50 min ⁻¹ (rpm)
Idle CO	With Catalytic Converter	0.1% max.
	Without Catalytic Converter	1.0 ± 1.0%

7. Clutch

MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Clutch pedal	Pedal height	LHD 213 (8.39) to floor	—
		RHD 208 (8.19) to floor	—
	Stroke	LHD 140–150 (5.5–5.9)	—
		RHD 135–145 (5.31–5.71)	—
	Pedal free play	LHD 15–20 (0.59–0.79)	—
		RHD 70 (2.76) min. to floor	—
Disengagement height	RHD 65 (2.56) min. to floor	—	
Clutch release arm	Free play at arm	3.0–4.0 (0.12–0.16)	
Flywheel	Clutch surface runout	0.05 (0.002) max.	0.15 (0.006)
Clutch disc	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 spline at circumference (200φ)	0.1–0.5 (0.004–0.020)	3.4 (0.134)
	Thickness	8.1–8.8 (0.32–0.35)	5.7 (0.224)
Clutch release bearing holder	I.D.	31.00–31.15 (1.220–1.226)	31.2 (1.228)
	Holder-to-guide sleeve clearance	0.050–0.239 (0.002–0.009)	0.28 (0.011)
Clutch cover	Unevenness of diaphragm spring	0.8 (0.03) max.	1.0 (0.04)

8. Manual Transmission

MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Transmission oil	Capacity ℓ (US.qt., Imp.qt.)	1.8 (1.9, 1.6) at oil change 1.9 (2.0, 1.7) at assembly	
Mainshaft	End play	0.11–0.18 (0.004–0.007)	Adjust with a shim
	Diameter of ball bearing contact area	25.977–25.990 (1.0227–1.0232)	25.92 (1.020)
	Diameter of third gear contact area	33.984–34.000 (1.3380–1.2713)	33.93 (1.336)
	Diameter of 4th, 5th gear contact area	26.980–26.993 (1.0622–1.0627)	26.93 (1.060)
	Diameter of ball bearing contact area	21.987–22.000 (0.8656–0.8661)	21.93 (0.863)
	Runout	0.02 (0.0008) max.	0.05 (0.002)
Mainshaft third and fourth gears	I.D.	39.009–39.025 (1.5358–1.5364)	39.07 (1.538)
		End play	3rd 0.06–0.21 (0.0024–0.008) 4th 0.06–0.19 (0.0024–0.0075)
	Thickness	3rd 30.22–30.27 (1.1898–1.1917)	30.15 (1.187)
		4th 30.12–30.17 (1.1858–1.1878)	30.05 (1.183)
Mainshaft fifth gears	I.D.	37.009–37.025 (1.4570–1.4577)	37.07 (1.459)
	End play	0.06–0.19 (0.0024–0.0075)	0.31 (0.012)
	Thickness	28.42–28.47 (1.1189–1.1209)	28.35 (1.116)
Countershaft	End play	0.17–0.38 (0.0067–0.0150)	0.53 (0.021)
	Diameter of needle bearing contact area	30.000–30.015 (1.1811–1.817)	29.95 (1.179)
	Diameter of ball bearing contact area	24.980–24.993 (0.9835–0.9840)	24.93 (0.981)
	Diameter of low gear contact area	35.984–36.000 (1.4167–1.4173)	35.93 (1.415)
	Runout	0.02 (0.0008) max.	0.05 (0.002)
Countershaft low gear	I.D.	41.009–41.025 (1.6145–1.6152)	41.07 (1.617)
	End play (when torqued properly)	0.03–0.10 (0.0012–0.0039)	0.22 (0.009)
	Thickness	29.41–29.44 (1.1579–1.1591)	29.36 (1.156)
Countershaft Second gear	I.D.	44.009–44.025 (1.7326–1.7333)	44.07 (1.735)
	End play (when torqued properly)	0.03–0.11 (0.0012–0.0043)	0.23 (0.009)
	Thickness	29.92–29.97 (1.1780–1.1799)	29.85 (1.175)

8. Manual Transmission

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT	
Spacer collar (Countershaft second gear)	I.D.	32.975–32.985 (1.2982–1.2986)	33.03 (1.300)	
	O.D.	38.989–39.000 (1.5350–1.5354)	38.93 (1.533)	
	Length	30.03–30.06 (1.1823–1.1835)	30.01 (1.181)	
Spacer collar (Mainshaft fourth and fifth gears)	I.D.	27.002–27.012 (1.0631–1.0635)	27.06 (1.065)	
	O.D.	33.989–34.000 (1.3381–1.3386)	33.93 (1.336)	
	Length	4th	31.989–32.000 (1.2594–1.2598)	31.93 (1.257)
		4th	27.43–27.46 (1.0799–1.0811)	27.41 (1.079)
		5th	23.53–23.56 (0.9264–0.9276)	23.51 (0.926)
Reverse idler gear	I.D. Gear-to-reverse gear shaft clearance	15.016–15.043 (0.5911–0.5922) 0.032–0.077 (0.0013–0.0030)	15.08 (0.594) 0.14 (0.006)	
Synchro ring	Ring-to-gear clearance (ring pushed against gear)	0.73–1.18 (0.029–0.046)	0.4 (0.016)	
Shift fork	Shift fork finger thickness	6.4–6.5 (0.252–0.255)	—	
	Fork-to-synchro sleeve clearance	0.25–0.45 (0.0098–0.0177)	0.8 (0.03)	
Reverse shift fork	Shift fork paul groove width	12.7–13.0 (0.500–0.512)	—	
	Fork-to-reverse idler gear clearance	0.5–1.1 (0.020–0.043)	1.8 (0.071)	
	Groove width	7.05–7.25 (0.278–0.285)	—	
	Fork-to-fifth/reverse shift piece pin clearance	0.05–0.35 (0.002–0.014)	0.5 (0.02)	
Shift arm A	Diameter of shift rod contact area	13.005–13.130 (0.5120–0.5169)	—	
	Shift arm A-to-shift rod clearance	0.005–0.230 (0.0002–0.0091)	0.35 (0.0138)	
Shift arm B	Diameter of shift arm shaft contact area	13.973–14.000 (0.5501–0.5512)	—	
	Shift arm B-to-shift arm shaft clearance	0.013–0.070 (0.0005–0.0028)	0.16 (0.0063)	
	Shift arm B-to-shift piece clearance	0.2–0.5 (0.0079–0.0197)	0.62 (0.0244)	
	Shift piece diameter of shift fork shaft contact area	12.9–13.0 (0.5079–0.5118)	12.78 (0.5031)	
Ring gear	Backlash	0.072–0.130 (0.0028–0.0051)	0.18 (0.007)	
Differential carrier	Pinion shaft bore diameter	18.000–18.018 (0.7087–0.7094)	—	
	Carrier-to-pinion shaft clearance	0.017–0.047 (0.0007–0.0019)	0.095 (0.004)	
	Driveshaft bore diameter	26.025–26.045 (1.0246–1.0254)	—	
	Carrier-to-driveshaft clearance	0.045–0.086 (0.0017–0.0034)	0.14 (0.006)	
	Carrier-to-intermediate shaft clearance	0.075–0.111 (0.0030–0.0044)	0.16 (0.006)	
	Side clearance	0.15 max.	—	
Differential pinion gear	Backlash	0.05–0.15 (0.002–0.006)	Adjust with a washer.	
	Pinion gear bore diameter	18.042–18.066 (0.7103–0.7113)	—	
	Pinion gear-to-pinion shaft clearance	0.059–0.095 (0.0023–0.0037)	0.15 (0.006)	

10. Driveshaft

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Driveshaft	Right boot as installed	485–490 (19.01–19.29)	—
	with intermediate shaft	481.5–486.5 (18.96–19.15)	—
	without intermediate shaft	—	—
	Left boot as installed	485–490 (19.09–19.29)	—
with intermediate shaft	774.5–779.5 (30.49–30.69)	—	
without intermediate shaft	—	—	

11. Steering

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Steering wheel	Play	10 (0.39) max.	—
Gear box	Pinion starting torque N·m (kg-m, lb-ft) with P/S	0.39–1.37 (0.04–0.14, 0.29–1.01) 0.98 (0.1, 0.72) max.	—
	Angle of rack-guide-screw loosened from locked position with P/S	10°–15° 20°–25°	—
Pump	Pump pressure with valve closed (Oil temp./ speed: 40°C (104°F) min/idle. Do not run for more than 5 seconds) kPa (kg/cm ² , psi)	7,845–8,826 (80–90, 1,138–1,280)	—
Power steering fluid	Fluid capacity	0.4 ℓ (0.42 U.S. qt., 0.35 Imp. qt.) approx 1.2 ℓ (1.3 U.S. qt., 1.1 Imp. qt.)	—
	Reservoir At change	—	—
Power steering belt	Deflection midway between pulleys/load	9–12 (0.35–0.47)/98N (10 kg, 22 lb) for used belt 7–10 (0.28–0.39)/98N (10 kg, 22 lb) after replacement of belt	—
Rack end	Pivoting resistance N·m (kg-m, lb-ft)	0.49–1.96 (0.05–0.20, 0.36–1.45)	—

(cont'd)

Standard and Service Limits (cont'd)

12. Suspension

		MEASUREMENT		STANDARD (NEW)		SERVICE LIMIT
Wheel alignment	Toe-in			Front 0 ± 2 (0 ± 0.08)	Rear 2 ± 1 (0.08 ± 0.04)	
	Camber			0'00' ± 1'	-0'30' ± 1'	
	Caster			3'00' ± 1'		
	Side slip			0 ± 3 (0 ± 0.12)		
	Turning angle (MAX.)	Inward wheel	Outward wheel	41'30' ± 2'	33'30' ± 2'	
Wheel	Rim runout	Steel	Aluminum	0-1.0 (0-0.039)		2.0 (0.08)
				0-0.7 (0-0.028)		1.5 (0.06)
Wheel bearing	End play	Front	Rear	0		0.05
				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 6-10 notches			
Foot brake pedal	Pedal height		RHD	161 (6.3) from floor		—	
	Free play		LHD	153 (6.0) from floor		—	
				1-5 (0.04-0.20)		5 (0.20)	
Master cylinder		Piston-to-push rod clearance		0-0.4 (0-0.016)		—	
Disc brake	Disc thickness	Front	Rear	19.0 (0.75)		17.0 (0.67)	
	Disc runout	Front	Rear	10.0 (0.39)		8.0 (0.32)	
	Disc parallelism			—		0.1 (0.004)	
	Pad thickness	Front	Rear	9.0 (0.35)		0.15 (0.006)	
				8.0 (0.32)		0.015 (0.0006)	
						3.0 (0.12)	
						1.6 (0.06)	
Brake booster	Characteristics	Vacuum (mm Hg)	Pedal Pressure kg (lbs)			Line Pressure kPa (kg/cm ² , psi)	
			0	20 (44)		1.362 (13.9, 198)	
			300	20 (44)		4.508 (46.0, 654)	
			500	20 (44)		6.605 (67.4, 960)	

16. Electrical

	MEASUREMENT		STANDARD (NEW)		
Ignition coil	Rated voltage	12 Volts			
	Primary winding resistance	0.3—0.5 ohms			
	Secondary winding resistance	9,440—14,160 ohms			
Ignition wire	Resistance	25,000 ohms max.			
Spark plug	Type		Makes	Standard	Option
		With Catalytic converter	NGK	BCPR6E-11	BCPR7E-11
			ND	Q20PR-UL11	Q20PR-U11 Q22PR-U11 Q22PR-UL11
		Without catalytic converter * : DOHC only	NGK	BCPR6E-11	BCPR7E-11* BCPR6EY-N11* BCPR7EY-N11*
	ND		Q20PR-U11	Q22PR-U11	
Gap	1.0—1.1 (0.039—0.043)				
Ignition timing	At idling SOHC	18° ± 2° (Red) BTDC			
	DOHC	16° ± 2° (Red) BTDC			
Battery	Lighting capacity (20-hour ratio)	40, 45, 47 Ampere Hours			
	Starting capacity (5-second ratio)	8.6 V min. at 300 Ampere draw			
Alternator	Output	13.5V / 60A			
	MEASUREMENT	STANDARD (NEW)		SERVICE LIMIT	
	Coil resistance (rotor)	2.8—3.0 ohm		±0.1 ohm	
	Slip ring O.D.	32.5 (1.28)		32.1 (1.26)	
	Brush length	13.5 (0.53)		4.5 (0.18)	
	Brush Spring tension	300—500g (10.6—17.6 oz)		—	
Starting motor		ND 1.0 kW, 1.2 kW		MITSUBA 1.0 kW, 1.4 kW	
	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT	STANDARD (NEW)	SERVICE LIMIT
	Mica depth	0.5—0.8 (0.020—0.031)	0.2 (0.008)	0.4—0.5 (0.016—0.020)	0.15 (0.006)
	Commutator	0—0.02 (0.0008)	0.05 (0.002)	0—0.02 (0.0008)	0.05 (0.002)
	Commutator O.D.	29.9—30.0 (1.18)	29.0 (1.14)	28.0—28.1 (1.10—1.11)	27.5 (1.08)
	Brush length	12.5—13.5 (0.49—0.53)	8.5 (0.33)	14.3—14.7 (0.56—0.58)	9.3 (0.37)
	Spring Pressure (new)	18.1—23.5 N (1.85—2.4 kg, 4.1—5.3 lb)	—	20.1—26.5 N (2.05—2.7 kg, 4.5—6.0 lb)	—