

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 Oil clearance Runout Cam lobe height	IN Ex. KY KY EX Ex. KY KY	0.05—0.15 (0.002—0.006) 0.050—0.089 (0.002—0.004) 0—0.03 (0—0.001) max. 36.603 (1.4411) 36.957 (1.4515) 36.747 (1.4467) 36.996 (1.4565)	0.5 (0.02) 0.15 (0.006) 0.03 (0.001) — — —
Valve	Valve clearance Valve stem O.D. Stem-to-guide clearance Stem installed height	IN EX IN EX IN EX IN EX	0.17—0.22 (0.007—0.009) 0.22—0.27 (0.009—0.011) 5.48—5.49 (0.2157—0.2161) 5.45—5.46 (0.2147—0.2150) 0.02—0.05 (0.001—0.002) 0.05—0.08 (0.002—0.003) 46.985—47.455 (1.8498—1.8683) 48.965—49.435 (1.9278—1.9263)	— — 5.45 (0.2147) 5.42 (0.2134) 0.08 (0.003) 0.12 (0.005) 47.705 (1.8781) 49.685 (1.9561)
Valve seat	Width	IN EX	0.85—1.15 (0.033—0.045) 1.25—1.55 (0.049—0.061)	1.6 (0.06) 2.0 (0.08)
Valve spring	Free length Squareness	IN EX IN/EX	48.58 (1.9126) 49.19 (1.9366) —	47.64 (1.8756) 48.32 (1.9024) 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 EX	0.017—0.05 (0.0007—0.0020) 0.018—0.054 (0.0007—0.0021)	0.08 (0.003) 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 Oil clearance Runout Cam lobe height	IN EX	0.05—0.15 (0.002—0.006) 0.050—0.089 (0.002—0.004) 0—0.03 (0—0.001) max. 33.021 (1.3000) 32.382 (1.2749)	0.5 (0.02) 0.15 (0.006) 0.03 (0.001) — —
Valve	Valve clearance Valve stem O.D. Stem-to-guide clearance Stem installed height	IN EX IN EX IN EX IN EX	0.13—0.17 (0.005—0.007) 0.15—0.19 (0.006—0.008) 6.58—6.59 (0.2591—0.2595) 6.55—6.56 (0.2579—0.2583) 0.02—0.05 (0.001—0.002) 0.05—0.08 (0.002—0.003) 45.545—46.015 (1.7931—1.8116) 44.735—45.205 (1.7612—1.7797)	— — 6.55 (0.2579) 6.52 (0.2567) 0.08 (0.003) 0.12 (0.005) 46.265 (1.8215) 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 Squareness	IN EX IN/EX	47.49 (1.8697) 46.89 (1.8461) —	46.46 (1.8291) 45.93 (1.8083) 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)

Unit: mm (in.)

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—0.35 (0.006—0.014)
		2nd	0.15—0.35 (0.006—0.014)
		Oil	0.20—0.60 (0.008—0.024)
Connecting rod	Pin-to-rod interference	0.014—0.040 (0.0006—0.0016)	—
	Large end bore diameter	Nominal 45.0 (1.77)	—
	End play installed on crankshaft	0.15—0.30 (0.006—0.012)	0.40 (0.016)
Crankshaft	Main journal diameter	44.976—45.000 (1.7707—1.7718)	—
	Taper/out-of-round, main journal	0.005 (0.0002) 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	0.024—0.042 (0.0010—0.0017)	0.5 (0.002)
	No. 1, 2, 4 and 5 journals	0.030—0.048 (0.0012—0.0019)	0.5 (0.002)
	No. 3 journal	0.020—0.038 (0.0008—0.0015)	0.05 (0.002)
	Rod bearing-to-journal oil clearance	—	—

Unit: mm (in.)

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	
			3.5 (3.7, 3.1) After oil change, including oil filter	
		DOHC	3.0 (3.2, 2.6) After oil change, without 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	67 ℓ (17.7 U.S. gal., 14.7 Imp. gal.) 6,750 min ⁻¹ (rpm)	
	Inner-to-outer rotor radial clearance	0.14 (0.006)	0.2 (0.008)	
		Pump body-to-rotor radial clearance	0.10—0.175 (0.004—0.007)	0.2 (0.008)
		Pump body-to-rotor side clearance	0.03—0.08 (0.001—0.003)	0.15 (0.006)
Relief valve	Pressure setting 80°C (176°F)	Idle	SOHC	167 kPa (1.7 kg/cm ² , 24 psi) min.
			DOHC	137 kPa (1.4 kg/cm ² , 20 psi) min.
		3,000 min ⁻¹ (rpm)	SOHC	451 kPa (4.6 kg/cm ² , 65 psi)
			DOHC	470 kPa (4.8 kg/cm ² , 68 psi)

5. Engine/Cooling

	MEASUREMENT	STANDARD (NEW)
Radiator	Capacity (incl. heater) ℓ (U.S. qt., Imp. qt.) (Includes reservoir tank 0.4 (0.42, 0.35))	DOHC 4.5 (4.8, 4.0)
		SOHC 4.4 (4.7, 3.9)
Radiator cap	Pressure cap opening pressure	74—103 kPa (0.75—1.05 kg/cm ² , 11—15 psi)
Thermostat	Starts to open	78°C ± 2 (172 ± 3)
	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)	108 (27 U.S. gal., 23 Imp. gal.)/5,000 min ⁻¹ (rpm)
Cooling fan	Fan-to-core clearance	28.0 (1.10)
	Thermostat "ON" temperature	88.5°—91.5°C (191°—197°F)
	Thermostat "OFF" temperature	83.5°—86.5°C (182°—188°F)

(cont'd)

Standards and Service Limits (cont'd)

6. Fuel and Emission

	MEASUREMENT		STANDARD (NEW)	
Fuel pump	Delivery pressure		250 kPa (2.55 kg/cm ² , 36psi)	
	Displacement		236 cc /minutes in 10 seconds min.	
	Relief valve opening pressure		441-588 kPa (4.5-6.0 kg/cm ² , 64-85 psi)	
Pressure regulator	Pressure		230-270 kPa (2.35-2.75 kg/cm ² , 33-39 psi)	
Fuel Tank	Capacity		45 ℓ (11.9 U.S. gal., 9.9 Imp. U.S.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)
			Ex. KY	750 ± 50 min ⁻¹ (rpm)
		DOHC	KQ	750 ± 50 min ⁻¹ (rpm)
			Ex. KQ	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		213 (8.39) to floor	—
	Stroke		140-150 (5.5-5.9)	—
	Pedal play		15-20 (0.59-0.79)	—
	Disengagement height		70 (2.76) min. to floor	—
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)
	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		0.05-0.239 (0.002-0.009)	0.28 (0.011)
Clutch cover	Unevenness of diaphragm spring		0.8 (0.03) max.	1.0 (0.04)
Clutch release lever	Lever play		4.0-5.0 (0.16-0.20)	—

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 2.4 (2.1, 2.5) at assembly	
Mainshaft	End play		0.13-0.20 (0.005-0.008)	Adjustable
	Diameter of needle 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 (0.0012-0.008)	0.33 (0.013)
		4th	0.06-0.19 (0.0024-0.0075)	0.31 (0.012)
	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)	39.07 (1.538)
	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.		41.009-44.025 (1.6145-1.6152)	41.07 (1.617)
	End play		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		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 (cont'd)

	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)
	4th	31.989–32.000 (1.2594–1.2598)	31.93 (1.257)
	5th	27.43–27.46 (1.0799–1.0811)	27.41 (1.079)
Reverse idler gear	Length	23.53–23.56 (0.9264–0.9276)	23.51 (0.926)
	I.D.	15.016–15.043 (0.5911–0.5922)	15.08 (0.594)
Synchro ring	Gear-to-reverse gear shaft clearance	0.032–0.077 (0.0013–0.0030)	0.14 (0.006)
	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	Pinionshaft bore diameter	18.000–18.018 (0.7087–0.7094)	—
	Carrier-to-pinionshaft clearance	0.017–0.047 (0.007–0.0019)	0.095 (0.004)
	Driveshaft bore diameter	26.025–26.045 (1.0246–0.0413)	—
	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)	Selection with 7 type of washers
	pinion gear bore diameter Pinion gear to pinionshaft clearance	18.042–18.066 (0.7103–0.7113) 0.059–0.095 (0.0023–0.0037)	0.15 (0.006)

10. Driveshaft

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

* boot as installed

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	0.49–1.67 (0.05–0.17, 0.36–1.27)	
		0.098 (0.01, 0.072)	
Power steering	The angle of rack-guide-nut loosened locked position with P/S 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)	40° ± 60° 20°–25°	
		7,845–8,826 (80–90, 1,138–1,280)	
Power steering fluids	Fluid capacity Reservoir At change	0.4 ± (0.42 U.S.qt., 0.35 Imp. qt.) approx 1.2 ℓ (1.3 U.S. qt., 1.1 Imp.qt.)	
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	Floating torque N·m (kg-m, lb-ft)	0.49–2.94 (0.05–0.3, 0.36–1.27)	

Standard and Service Limits (cont'd)

12. Suspension

		MEASUREMENT		STANDARD (NEW)		SERVICE LIMIT
Wheel alignment	Toe-in			Front 0 ± 3 (0 ± 0.12)	Rear 2 ± 2 (0.08 ± 0.08)	
	Camber			0'00' ± 1"	-0'30' ± 1"	
	Caster			3'00' ± 1"		
	Side slip			0 ± 3 (0 ± 0.12)		
	Turning angle (MAX.)	Inward wheel		41'30' ± 2"		
		Outward wheel		33'30' ± 2"		
Wheel	Rim runout	Steel		0-1.0 (0-0.039)		2.0 (0.08)
		Aluminum		0-0.7 (0-0.028)		1.5 (0.06)
Wheel bearing	End play	Front		0		0.05
		Rear		0		0.05

Δ: Maximam steering angle at which front and rear wheel in place.

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	19.0 (0.75)		17.0 (0.67)	
		Rear	10.0 (0.39)		8.0 (0.32)	
	Disc runout		—		0.1 (0.004)	
	Disc parallelism		—		0.015 (0.006)	
Pad thickness	Front	10.0 (0.39)		1.6 (0.06)		
	Rear	8.0 (0.32)		1.6 (0.06)		
Brake Drum	I.D.	180 (7.09)		181 (7.13)		
	Lining thickness	4.5 (0.18)		2.0 (0.08)		
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	0.378—0.462 ohms			
	Secondary winding resistance	9,440—14,160 ohms			
Ignition wire	Resistance	25,000 ohms max.			
Spark plug	Type	See Section 16			
	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	15.5 (0.61)	5.3 (0.21)		
	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 (0.008)	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—2.89 N (1.85—2.4 kg, 4.1—5.4 lb)	—	20.1—26.5 N (2.05—2.7 kg, 4.5—6.0 lb)	—