

# Standards and Service Limits

Unit: mm (in.)

5. Engine/Cylinder Head, Valve Train		MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT	
Compression	250 min <sup>-1</sup> (rpm) and wide-open throttle	Nominal	—	—	1,275 kPa (13.0 kg/cm <sup>2</sup> , 185 psi)	
		Minimum	—	—	932 kPa (9.5 kg/cm <sup>2</sup> , 135 psi)	
		Maximum variation	—	—	196 kPa (2 kg/cm <sup>2</sup> , 28 psi)	
Cylinder head	Warpage Height		141.95—142.05 (5.589—5.593)	—	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—0.015 (0—0.0006)	—	0.03 (0.0012)	
	Cam lobe height	IN Primary		33.088 (1.3027)	—	—
		Mid		36.267 (1.4278)	—	—
		EX Primary		34.987 (1.3774)	—	—
	Mid		32.785 (1.2907)	—	—	
	Secondary		35.720 (1.4063)	—	—	
		Secondary	34.691 (1.3658)	—	—	
Valve	Valve clearance	IN	0.15—0.19 (0.0059—0.0075)	—	—	
		EX	0.17—0.21 (0.0067—0.0083)	—	—	
	Valve stem O.D.	IN	5.475—5.485 (0.2156—0.2159)	—	5.445 (0.2144)	
		EX	5.450—5.460 (0.2146—0.2150)	—	5.420 (0.2134)	
Stem-to-guide clearance	IN	0.035—0.045 (0.0014—0.0018)	—	0.075 (0.0030)		
	EX	0.050—0.080 (0.0020—0.0031)	—	0.120 (0.0047)		
Valve seat	Width	IN and EX	1.25—1.55 (0.049—0.061)	—	2.0 (0.08)	
	Stem installed height	IN	37.465—37.935 (1.4750—1.4935)	—	38.185 (1.5033)	
		EX	37.165—37.635 (1.4632—1.4817)	—	37.885 (1.4915)	
Valve spring	Free length	IN Outer	40.70 (1.6024)* <sup>1</sup>	}	39.61 (1.5594)	
			40.71 (1.6028)* <sup>2</sup>			
		Inner	36.70 (1.4449)* <sup>1</sup>	}	35.69 (1.4051)	
			36.74 (1.4465)* <sup>2</sup>			
		EX	41.65 (1.6400)* <sup>1</sup>	}	40.63 (1.5596)	
41.64 (1.6394)* <sup>2</sup>						
Valve guide	I.D.	IN and EX	5.51—5.53 (0.2169—0.2177)	—	5.53 (0.2177)	
	Installed height	IN and EX	12.55—13.05 (0.4941—0.5138)	—	13.30 (0.5236)	
Rocker arm	Arm-to-shaft clearance	In and EX	0.025—0.052 (0.0010—0.0020)	—	0.080 (0.0031)	

\* 1: NIPPON HATSUJO made

\* 2: CHUO HATSUJO made

## 5. Engine/Engine Block

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT	
Cylinder block	Warpage of deck surface	0.05 (0.0020)	0.10 (0.004)	
	Bore diameter	81.000—81.020 (3.1890—3.1898)	} 81.070 (3.1917)	
	Bore taper	81.000—81.015 (3.1890—3.1896)		
	Reboring limit	—	0.05 (0.002) 0.25 (0.01)	
Piston	Skirt O.D. At 16 mm (0.63 in) from bottom of skirt	80.98—80.99 (3.1882—3.1886)	80.97 (3.1879)	
	Clearance in cylinder	0.01—0.04 (0.0004—0.0016)	0.05 (0.002)	
	Ring groove width	Top	1.030—1.040 (0.0406—0.0409)	1.060 (0.0417)
		Oil	1.230—1.240 (0.0484—0.0488)	1.260 (0.0496)
Piston ring	Piston-to-ring clearance	Top	0.045—0.070 (0.0018—0.0028)	
		2nd	0.045—0.070 (0.0018—0.0028)*1	
	Ring end gap	Top	0.040—0.065 (0.0015—0.0026)*2	} 0.130 (0.0051)
		2nd	0.20—0.35 (0.0079—0.0138)	
Oil		0.40—0.55 (0.0157—0.0217)	0.60 (0.0236)	
Piston pin	Diameter	20.994—21.000 (0.8265—0.8268)	—	
	Pin-to-piston clearance	0.010—0.022 (0.0004—0.0009)	—	
	Connecting rod	Pin-to-rod interference	0.013—0.032 (0.0005—0.0013)	—
		Small end bore diameter	20.968—20.981 (0.8255—0.8260)	—
Crankshaft	Main journal diameter	Large end bore diameter	48.0 (1.89)	
		End play installed on crankshaft	0.15—0.30 (0.0059—0.0118)	
	Bearing	Main bearing-to-journal oil clearance	No. 1, 2, 4 and 5 journals	0.024—0.042 (0.0009—0.0017)
			No. 3 journal	0.030—0.048 (0.0012—0.0019)
Rod bearing-to-journal oil clearance		No. 1, 2, 4 and 5 journals	0.032—0.050 (0.0013—0.0020)	0.050 (0.0020)
		No. 3 journal	0.030—0.048 (0.0012—0.0019)	0.060 (0.0024)

\*1: TEIKOKU PISTON RING made

\*2: RIKEN made

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5. Engine/Engine Lubrication			
	MEASUREMENT		SERVICE LIMIT
Engine oil	Capacity ℓ (US qt, Imp qt)		4.8 (5.1, 4.2) For engine disassembly 4.0 (4.2, 3.6) For oil change, including oil filter
Oil pump	Displacement ℓ (US gal, Imp gal)/min@min <sup>-1</sup> (rpm)		71 (1.87, 1.56)@7,600
	Inner-to-outer rotor radial clearance		0.04–0.16 (0.0016–0.0063)
	Pump body-to-rotor radial clearance		0.10–0.19 (0.0039–0.0075)
Relief valve	Pump body-to-rotor side clearance		0.02–0.07 (0.0008–0.0026)
	Pressure setting 80 °C (176 °F) kPa (kg/cm <sup>2</sup> , psi)	Idle	69 (0.7, 10) min.
		3,000 min <sup>-1</sup> (rpm)	343 (3.5, 50) min.

5. Engine/Cooling			
	MEASUREMENT		STANDARD (NEW)
Radiator coolant	Capacity ℓ (US qt, Imp qt)		5.7 (6.0, 5.0) For engine disassembly
	(Includes reservoir tank 0.4 (0.42, 0.35))		4.7 (5.0, 4.1) For coolant change
Radiator cap	Pressure cap opening pressure kPa (kg/cm <sup>2</sup> , psi)		74–103 (0.75–1.05, 11–15)
Thermostat	Starts to open °C (°F)		76–80 (169–176)
	Full open °C (°F)		90 (194)
	Valve lift at full open		8 (0.31) min.
Water pump	Capacity: ℓ (US gal, Imp gal)/min @ min <sup>-1</sup> (rpm)		140 (37.0, 30.8) @7,600
Cooling fan	Thermoswitch "ON" temperature °C (°F)		91.5–94.5 (196–202)
	Thermoswitch "OFF" temperature °C (°F)		88–91 (190–196)

## 6. Fuel and Emission

	MEASUREMENT	STANDARD (NEW)
Fuel pump	Delivery pressure kPa (kg/cm <sup>2</sup> , psi)	250 (2.55, 36)
	Displacement cm <sup>3</sup> (oz)	230 (7.8) in 10 seconds at 12 V.
	Relief valve opening pressure kPa (kg/cm <sup>2</sup> , psi)	441-588 (4.5-6.0, 64-85)
Pressure regulator	Pressure kpa (kg/cm <sup>2</sup> , psi)	245-255 (2.5-2.6, 36-37)
Fuel tank	Capacity ℓ (US gal, Imp gal)	45 (11.9, 9.9)
Fast idle	min <sup>-1</sup> (rpm)	1,600-2,000
Idle speed	with headlights and cooling fan off min <sup>-1</sup> (rpm)	750±50
Idle CO	%	0.1 max.


## 7. Clutch

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Clutch pedal	Pedal height to floor	LHD	210 (8.27)
		RHD	205 (8.07)
	Stroke	LHD	142-147 (5.59-5.79)
		RHD	137-142 (5.39-5.59)
	Pedal free play		15-20 (0.59-0.79)
	Disengagement height to floor	LHD	70 (2.76) min
RHD		65 (2.56) min	
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)	0.2-0.6 (0.008-0.024)	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	0.05-0.23 (0.002-0.009)	0.30 (0.012)
Clutch cover	Unevenness of diaphragm spring	0.8 (0.03) max.	1.0 (0.04)
	Warpage of pressure plate	0.03 (0.001)	0.15 (0.006)

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## 8. Manual Transmission

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Transmission oil	Capacity ℓ (US qt, Imp qt)	2.1 (2.2, 1.8) For oil change 2.2 (2.3, 1.9) For disassembly	— —
Mainshaft	End play Diameter of ball bearing contact area (clutch case side) Diameter of third gear contact area Diameter of ball bearing contact area (transmission case side) Runout	0.11–0.18 (0.0043–0.0071) 27.977–27.990 (1.1015–1.1020) 31.984–32.000 (1.2592–1.2598) 21.987–22.000 (0.8656–0.8661) 0.02 (0.0008) max.	Adjust with a shim 27.930 (1.0996) 31.930 (1.2571) 21.940 (0.8638) 0.05 (0.0020)
Mainshaft third and fourth gears	I.D. End play Thickness 3rd 4th	37.009–37.025 (1.4570–1.4577) 0.06–0.21 (0.0024–0.0083) 31.92–31.97 (1.2567–1.2587) 31.42–31.47 (1.2370–1.2390)	37.08 (1.4598) 0.30 (0.0118) 31.85 (1.2539) 31.35 (1.2342)
Mainshaft fifth gears	I.D. End play Thickness	37.009–37.025 (1.4570–1.4577) 0.06–0.21 (0.0024–0.0083) 29.42–29.47 (1.1583–1.1602)	37.08 (1.4598) 0.30 (0.0118) 29.35 (1.1555)
Countershaft	Diameter of needle bearing contact area Diameter of ball bearing contact area Diameter of low gear contact area Runout	33.000–33.015 (1.2992–1.2998) 24.987–25.000 (0.9837–0.9843) 36.984–37.000 (1.4561–1.4567) 0.02 (0.0008) max.	32.95 (1.2972) 24.94 (0.9819) 36.93 (1.4539) 0.05 (0.0020)
Countershaft low gear	I.D. End play (when torqued properly)	42.009–42.025 (1.6539–1.6545) 0.04–0.12 (0.0016–0.0047)	42.08 (1.6567) Adjust with a shim
Countershaft Second gear	I.D. End play (when torqued properly) Thickness	47.009–47.025 (1.8507–1.8514) 0.05–0.12 (0.0020–0.0047) 32.42–32.47 (1.2764–1.2783)	47.08 (1.8535) Adjust with a collar 32.35 (1.2736)
Spacer collar (countershaft second gear)	I.D. O.D. Length A B	34.995–35.005 (1.3778–1.3781) 41.989–42.000 (1.6531–1.6535) 32.56–32.58 (1.2819–1.2827) 32.59–32.61 (1.2831–1.2839)	35.015 (1.3785) 41.94 (1.6512) } Adjust with a collar
Spacer collar (mainshaft fourth and fifth gears)	I.D. O.D. Length  A B	25.002–25.012 (0.9843–0.9847) 31.989–32.000 (1.2594–1.2598) 57.95–58.05 (2.2815–2.2854) 27.03–27.08 (1.0642–1.0661)	25.06 (0.9866) 31.94 (1.2575) — —
Reverse idler gear	I.D. Gear-to-reverse gear shaft clearance	20.016–20.036 (0.7880–0.7888) 0.036–0.077 (0.0014–0.0030)	— 0.14 (0.0055)
Synchro ring	Ring-to-gear clearance (ring pushed against gear)	0.85–1.10 (0.0335–0.0433)	0.40 (0.0157)
Shift fork	Shift fork finger thickness Fork-to-synchro sleeve clearance	7.40–7.50 (0.2913–0.2953) 0.45–0.65 (0.0177–0.0256)	— 1.0 (0.0394)
Reverse shift fork	Shift fork paul groove width Fork-to-reverse idler gear clearance “L” groove width Reverse side Fifth gear side Fork-to-shaft clearance Reverse side Fifth gear side	13.00–13.30 (0.5118–0.5236) 0.5–1.1 (0.0197–0.0433) 7.05–7.25 (0.2776–0.2854) 7.40–7.70 (0.2913–0.3031) 0.05–0.35 (0.0020–0.0138) 0.40–0.80 (0.0157–0.0315)	— 1.8 (0.0709) — — 0.5 (0.0197) 1.0 (0.0394)
Shift rod guide	Groove width of shift arm contact area Shift rod guide-to-shift arm clearance	12.05–12.15 (0.4744–0.4783) 0.05–0.35 (0.0020–0.0138)	— 0.80 (0.0315)
Shift guide	Groove width of shift arm contact area Shift guide-to-shift arm clearance I.D. Shift guide-to-shift fork clearance	8.10–8.20 (0.3189–0.3228) 0.10–0.30 (0.0039–0.0118) 14.000–14.068 (0.5512–0.5539) 0.20–0.50 (0.0079–0.0197)	— 0.60 (0.0236) — 0.80 (0.0315)

## 8. Manual Transmission (cont'd)

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Shift guide	Groove width of shift arm contact area	8.10—8.20 (0.3189—0.3228)	—
	Shift guide-to-shift arm contact area clearance I.D.	0.10—0.30 (0.0039—0.0118)	0.60 (0.0236)
	Shift guide to shaft clearance	14.000—14.068 (0.5512—0.5539)	—
	Diameter of shift fork contact area	0.011—0.092 (0.0004—0.0036)	0.15 (0.0059)
	Shift guide-to-shift fork clearance	11.90—12.00 (0.4685—0.4724)	—
Selector arm	Selector arm-to-shift fork clearance	0.20—0.50 (0.0079—0.0197)	0.80 (0.0315)
	Diameter of shift rod guide contact area	11.90—12.00 (0.4685—0.4724)	—
	Selector arm-to-shift rod guide clearance	0.05—0.25 (0.0020—0.0098)	0.50 (0.0197)
	Groove width of contact area	10.05—10.15 (0.3957—0.3996)	—
Ring gear	Selector arm-to-interlock clearance	0.05—0.25 (0.0020—0.0098)	0.50 (0.0197)
	Backlash	0.085—0.142 (0.0033—0.0056)	0.20 (0.0079)
Differential carrier	Pinion shaft bore diameter	18.000—18.016 (0.7087—0.7093)	—
	Carrier-to-pinion shaft clearance	0.017—0.045 (0.0007—0.0018)	0.10 (0.0039)
	Driveshaft bore diameter	28.000—28.021 (1.1024—1.1032)	—
	Carrier-to-driveshaft clearance	0.020—0.062 (0.0008—0.0024)	0.12 (0.0047)
Differential pinion gear	Carrier-to-intermediate shaft clearance	0.050—0.087 (0.0020—0.0034)	0.14 (0.0055)
	Backlash	0.05—0.15 (0.0020—0.0059)	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 (0.0059)

## 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)	0.39—1.37 (0.04—0.14, 0.29—1.01)	
	Angle of rack-guide-screw loosened from locked position	10—15	
Rack end	Pivoting resistance N·m (kg-m, lb-ft)	0.49—1.96 (0.05—0.20, 0.36—1.45)	

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Unit: mm (in.)

## 12. Suspension

		MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Wheel alignment	Toe-in		Front 0±2 (0±0.08)	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	38°00'±2°	
		Outward wheel	30°00'±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

## 13. Brake

		MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Parking brake lever	Play in stroke 200 N (20 kg, 44 lbs)		To be locked when pulled 6-10 notches	—
Foot brake pedal	Pedal height	RHD	161 (6.3) from floor	—
		LHD	153 (6.0) from floor	—
	Free play		1-5 (0.04-0.20)	5 (0.20)
Master cylinder	Piston-to-push rod clearance		0-0.4 (0-0.016)	—
Brake disc	Disc thickness	Front	21.0 (0.83)	19.0 (0.75)
		Rear	10.0 (0.39)	8.0 (0.32)
	Disc runout	Front	—	0.1 (0.004)
		Rear	—	0.15 (0.006)
	Disc parallelism		—	0.015 (0.0006)
Pad thickness	Front	11.0 (0.43)	1.6 (0.06)	
	Rear	8.0 (0.32)	1.6 (0.06)	
Brake booster	Characteristics	Vacuum (mm Hg)	Pedal Pressure N (kg, lb)	Line Pressure kPa (kg/cm <sup>2</sup> , psi)
		0	196 (20, 44)	990 (10.1, 143) min.
		300	196 (20, 44)	4,560 (46.5, 661) min.
		500	196 (20, 44)	6,933 (70.7, 1,005) min.

## 15. Air Conditioner

		MEASUREMENT	STANDARD (NEW)
Air conditioner system	Lubricant capacity cc (US oz, Imp oz)	Condenser	10 (0.34, 0.28)
		Evaporator	30 (1.00, 0.84)
		Line or hose	10 (0.34, 0.28)
		Reservoir	10 (0.34, 0.28)
Compressor	Lubricant capacity cc (US oz, Imp oz)	60-100 (2.03-3.38, 1.69-2.82)	
	Stator coil resistance at 20 °C (68 °F) Ω	3.4-3.8	
	Pulley-to-pressure plate clearance	0.35-0.65 (0.014-0.026)	
Compressor belt	Deflection between pulleys with 98 N (10 kg, 22 lb)	7.0-9.0 (0.28-0.35) with used belt	
		4.5-6.5 (0.18-0.26) with new belt	
		Belt tension between pulleys N (kg, lb) (measured with belt tension gauge)	
		343-490 (35-50, 77-110) with used belt	
		539-735 (55-75, 121-165) with new belt	

## 16. Electrical

	MEASUREMENT	STANDARD (NEW)		
Ignition coil	Rated voltage V	12		
	Primary winding resistance $\Omega$	0.63–0.77		
	Secondary winding resistance $\Omega$	9.760–14.640		
Ignition wire	Resistance $\Omega$	25,000 max.		
Spark plug	Type	Makes	Normal	Option
		NGK	BKR6E–N11	BKR7E–N11
		ND	K20PR–L11	K22PR–L11
	Gap	1.0–1.1 (0.039–0.043)		
Ignition timing	At idling	15°±2° (Red) BTDC		
Battery	Lighting capacity (20-hour ratio) AH	47		
	Starting capacity (5-second ratio)	8.6 V min. at 300 Ampere draw		
Alternator belt	Deflection between pulleys with 98 N (10 kg, 22 lb) Belt tension between pulleys N (kg, lb) (measure with belt tension gauge)	8.5–10.5 (0.33–0.41) with used belt 5.5–7.5 (0.22–0.30) with new belt 343–490 (35–50, 77–110) with used belt 588–785 (60–80, 132–176) with new belt		
Alternator	Output	13.5 V/70 A		
	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT	
	Coil resistance (rotor) $\Omega$	2.9	—	
	Slip ring O.D.	14.4 (0.57)	14.0 (0.55)	
	Brush length	10.5 (0.41)	1.5 (0.06)	
	Brush spring tension (new) g (oz)	330 (11.64)	—	
Starting motor		MITSUBA 1.4 kW		
	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT	
	Mica depth	0.4–0.5 (0.016–0.020)	0.15 (0.006)	
	Commutator	0–0.02 (0.0008)	0.05 (0.002)	
	Commutator O.D.	28.0–28.1 (1.10–1.11)	27.5 (1.08)	
	Brush length	15.8–16.2 (0.62–0.64)	10.0 (0.39)	
	Brush spring tension (new) N (kg, lb)	15.7–17.7 (1.6–1.8, 3.5–4.0)	—	