

Design	1-cylinder 4-stroke engine, water-cooled	
Displacement (Every 450 models)	449.3 cm ³ (27.418 cu in)	
Displacement (505 XC-F USA)	477.5 cm ³ (29.139 cu in)	
Stroke	60.8 mm (2.394 in)	
Bore (Every 450 models)	97 mm (3.82 in)	
Bore (505 XC-F USA)	100 mm (3.94 in)	
Compression ratio	12,5:1	
Idle speed	1,600... 1,650 rpm	
Control	DOHC, four valves controlled via cam lever, drive via helical gear pair and tooth-wheel chain	
Valve diameter, intake	40.4 mm (1.591 in)	
Valve diameter, exhaust	31.7 mm (1.248 in)	
Valve clearance, cold, intake	0.07... 0.13 mm (0.0028... 0.0051 in)	
Valve clearance, cold, exhaust	0.12... 0.18 mm (0.0047... 0.0071 in)	
Crankshaft bearing	2 cylinder roller bearing	
Conrod bearing	Needle bearing	
Piston pin bearing (Every 450 models)	Bronze bush	
Piston pin bearing (505 XC-F USA)	not a bearing bush - DLC-plated piston pins	
Pistons	Forged light alloy	
Piston rings	1 compression ring, 1 oil scraper ring	
Engine lubrication	Pressure circulation lubrication with 3 rotor pumps	
Primary transmission	29:74	
Clutch	Multidisc clutch in oil bath/hydraulically activated	
Transmission ratio (SX-F)		
1st gear	17:32	
2nd gear	19:30	
3rd gear	21:28	
4th gear	23:26	
Transmission ratio (XC-F)		
1st gear	16:34	
2nd gear	19:31	
3rd gear	20:26	
4th gear	23:25	
5th gear	26:24	
Generator	12 V, 42 W	
Ignition	Contactless controlled fully electronic ignition with digital ignition adjustment, type Kokusan	
Spark plug	NGK CR 9 EKB	
spark plug electrode gap	0.7 mm (0.028 in)	
Cooling	Water cooling, permanent circulation of coolant by water pump	
Starting aid	Electric starter	

Capacity - engine oil

Engine oil	1.35 l (1.43 qt.)	Engine oil (SAE 10W/50) (☛ p. 88)
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Capacity - coolant

Coolant	1.2 l (1.3 qt.)	Coolant (☛ p. 88)
		Coolant (mixed ready to use) (☛ p. 88)

Engine housing vent jet	M4		Loctite® 243™
Oil jet, piston cooling	M4	4 Nm (3 lbf ft)	Loctite® 243™
Oil jet, cam lever lubrication	M4	6 Nm (4.4 lbf ft)	Loctite® 243™
Oil jet, clutch oil supply	M5x1	6 Nm (4.4 lbf ft)	Loctite® 243™
Screw, locking lever	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
Screw, camshaft bearing retaining bracket	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
Screw, timing train axle retaining bracket	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
Screw, ignition pulse generator	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
Screw, ignition pulse generator adapter	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
Screw, stator cable holder	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
Screw, bearing bolt of oil pump idler shaft	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
Locking screw for bearing	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
Screw, oil pump cover	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
Screw, stator bracket	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
Oil jet, timing chain tensioner	M6x0.6	6 Nm (4.4 lbf ft)	Loctite® 243™
Nut, water-pump wheel	M6	6 Nm (4.4 lbf ft)	Loctite® 243™
Nut, cylinder head	M6	10 Nm (7.4 lbf ft)	lubricated with engine oil
Screw, exhaust flange	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
Screw, starter motor	M6	10 Nm (7.4 lbf ft)	–
Screw, ignition pulse generator cable holder	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
Screw, clutch cover	M6	10 Nm (7.4 lbf ft)	–
Screw, clutch spring	M6	10 Nm (7.4 lbf ft)	–
Screw, clutch slave cylinder	M6	10 Nm (7.4 lbf ft)	–
Screw, engine housing	M6	10 Nm (7.4 lbf ft)	–
Screw, oil filter cover	M6	10 Nm (7.4 lbf ft)	–
Screw, oil pump casing	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
Screw, shift drum locating	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
Screw, shift lever	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
Screw, valve cover	M6	8 Nm (5.9 lbf ft)	–
Screw, water pump cover	M6	10 Nm (7.4 lbf ft)	–
Screw, ignition cover	M6	10 Nm (7.4 lbf ft)	–
Stud, cylinder head	M6	10 Nm (7.4 lbf ft)	–
Screw, clutch cover	M7x1	14 Nm (10.3 lbf ft)	–
Screw, engine housing	M7x1	14 Nm (10.3 lbf ft)	–
Screw, camshaft bearing bridge	M7x1	14 Nm (10.3 lbf ft)	lubricated with engine oil
Plug, crankshaft location	M8	20 Nm (14.8 lbf ft)	–
Screw, unlocking of timing chain tensioner	M10x1	10 Nm (7.4 lbf ft)	–
Screw, camshaft gear	M10x1	50 Nm (36.9 lbf ft)	lubricated with engine oil
Screw, rotor	M10x1	80 Nm (59 lbf ft)	lubricated with engine oil
Plug, oil channel	M10x1	10 Nm (7.4 lbf ft)	–
Plug, cam lever axle	M10x1	10 Nm (7.4 lbf ft)	–

Nut, cylinder head	M10x1.25	Tightening sequence: Tighten in diagonal sequence. Tightening stage 1 10 Nm (7.4 lbf ft) Tightening stage 2 30 Nm (22.1 lbf ft) Tightening stage 3 50°	lubricated with engine oil
Stud, cylinder head	M10x1.25	20 Nm (14.8 lbf ft)	–
Screw, engine sprocket	M10	60 Nm (44.3 lbf ft)	Loctite® 243™
Spark plug	M10	10... 12 Nm (7.4... 8.9 lbf ft)	–
Screw-in studs for clutch cover	M12x1.5	20 Nm (14.8 lbf ft)	–
Oil drain plug with magnet	M12x1.5	20 Nm (14.8 lbf ft)	–
Axle guide rail for timing chain	M14x1	15 Nm (11.1 lbf ft)	–
Axle tension rail for timing chain	M14x1	15 Nm (11.1 lbf ft)	–
Nut, compensating sprocket	M14x1	20 Nm (14.8 lbf ft)	Loctite® 243™
Oil suction pipe	M14x1	15 Nm (11.1 lbf ft)	Loctite® 243™
Oil pressure regulator valve plug	M14x1.5	18 Nm (13.3 lbf ft)	–
Nut, inner clutch hub	M18x1.5	80 Nm (59 lbf ft)	Loctite® 243™
Plug, timing chain tensioner	M24x1.5	25 Nm (18.4 lbf ft)	–
Nut, freewheel hub	M27x1	80 Nm (59 lbf ft)	Loctite® 243™
Nut, primary gear	M27x1	80 Nm (59 lbf ft)	Loctite® 243™
Plug, oil screen	M32x1.5	30 Nm (22.1 lbf ft)	–

Every 450 models

Carburetor type	KEIHIN FCR-MX 41
Carburetor identification number	4125I
Needle position	4th position from top
Idle mixture adjusting screw	
Open	1.5 turns
Pump membrane stop	2.15 mm (0.0846 in)
Hot start button	
Diameter of bore in carburetor body	2.5 mm (0.098 in)
Main jet	185
Jet needle	OBDTR
Idling jet	42
Idle air jet	100
Cold start jet	85

505 XC-F USA

Carburetor type	KEIHIN FCR-MX 41
Carburetor identification number	4125J
Needle position	5th position from top
Idle mixture adjusting screw	
Open	1.5 turns
Pump membrane stop	2.15 mm (0.0846 in)
Hot start button	
Diameter of bore in carburetor body	2.5 mm (0.098 in)
Main jet	185
Jet needle	OBDTP
Idling jet	42
Idle air jet	100
Cold start jet	85