

Design	1-cylinder 4-stroke engine, water-cooled
Displacement (450 SX ATV)	449.3 cm ³ (27.418 cu in)
Displacement (505 SX ATV)	477.5 cm ³ (29.139 cu in)
Stroke	60.8 mm (2.394 in)
Bore (450 SX ATV)	97 mm (3.82 in)
Bore (505 SX ATV)	100 mm (3.94 in)
Compression ratio	12.5:1
Idle speed	1,500... 1,600 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	Bronze bush
Pistons	Forged light alloy
Piston rings	1 compression ring, 1 oil scraper ring
Engine lubrication	Pressure circulation lubrication with 3 rotor pumps
Primary transmission	26:78 straight tooth spur gears
Clutch	Multidisc clutch in oil bath/hydraulically activated
Transmission ratio	
1st gear	16:34
2nd gear	19:31

3rd gear	20:26
4th gear	23:25
5th gear	26:24
Generator	12 V, 200 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	2.00 l (2.11 qt.)	External temperature: $\geq 0\text{ }^{\circ}\text{C}$ ($\geq 32\text{ }^{\circ}\text{F}$)	Engine oil (SAE 10W/50) (☛ p. 191)
		External temperature: $< 0\text{ }^{\circ}\text{C}$ ($< 32\text{ }^{\circ}\text{F}$)	Engine oil (SAE 5W/40) (☛ p. 191)

Capacity - coolant

Coolant	1.50 l (1.59 qt.)	Coolant (☛ p. 190)
		Coolant (mixed ready to use) (☛ p. 190)

TECHNICAL DATA - ENGINE TIGHTENING TORQUES

Engine housing vent jet	M4		Loctite® 243™
Oil jet, cam lever lubrication	M4	6 Nm (4.4 lbf ft)	Loctite® 243™
Oil jet, piston cooling	M4	4 Nm (3 lbf ft)	Loctite® 243™
Locking screw for bearing	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™
Screw, camshaft bearing 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, locking lever	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
Screw, oil filter cover	M5	6 Nm (4.4 lbf ft)	–
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™
Screw, stator cable holder	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
Screw, timing train axle retaining bracket	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
Oil jet, clutch oil supply	M5x1	6 Nm (4.4 lbf ft)	Loctite® 243™
Nut, cylinder head	M6	10 Nm (7.4 lbf ft)	lubricated with engine oil
Nut, water-pump wheel	M6	6 Nm (4.4 lbf ft)	Loctite® 243™
Screw, clutch cover	M6	10 Nm (7.4 lbf ft)	–
Screw, clutch slave cylinder	M6	10 Nm (7.4 lbf ft)	–
Screw, clutch spring	M6	10 Nm (7.4 lbf ft)	–
Screw, engine housing	M6	10 Nm (7.4 lbf ft)	–
Screw, exhaust flange	M6	10 Nm (7.4 lbf ft)	Loctite® 243™

TECHNICAL DATA - ENGINE TIGHTENING TORQUES

Screw, generator cover	M6	10 Nm (7.4 lbf ft)	–
Screw, ignition pulse generator cable holder	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
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, starter motor	M6	10 Nm (7.4 lbf ft)	–
Screw, valve cover	M6	8 Nm (5.9 lbf ft)	–
Screw, water pump cover	M6	10 Nm (7.4 lbf ft)	–
Stud, cylinder head	M6	10 Nm (7.4 lbf ft)	–
Oil jet, timing chain tensioner	M6x0.6	6 Nm (4.4 lbf ft)	Loctite® 243™
Screw, camshaft bearing bridge	M7x1	14 Nm (10.3 lbf ft)	lubricated with engine oil
Screw, clutch cover	M7x1	14 Nm (10.3 lbf ft)	–
Screw, engine housing	M7x1	14 Nm (10.3 lbf ft)	–
Plug, crankshaft location	M8	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)	–
Plug, cam lever axle	M10x1	10 Nm (7.4 lbf ft)	–
Plug, oil channel	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
Screw, unlocking of timing chain tensioner	M10x1	10 Nm (7.4 lbf ft)	–

TECHNICAL DATA - ENGINE TIGHTENING TORQUES

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)	–
Oil drain plug with magnet	M12x1.5	20 Nm (14.8 lbf ft)	–
Screw-in studs for clutch cover	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)	–

Carburetor type	KEIHIN FCR-MX 41
Carburetor identification number	4125L
Needle position	3 th position from top
Idle mixture adjusting screw	
Open	1.5 turns
Pump membrane stop	2.15 mm (0.0846 in)
Hot start button	
Bore diameter in carburetor body	2.5 mm (0.098 in)
Main jet	175
Jet needle	OBEKR
Idling jet	42
Idle air jet	100
Cold start jet	85