

Design	1-cylinder 4-stroke engine, water-cooled	
Displacement	654 cm ³ (39.91 cu in)	
Stroke	80 mm (3.15 in)	
Bore	102 mm (4.02 in)	
Compression ratio	11,8:1	
Idle speed	1600... 1700 rpm	
Control	OHC, 4 valves controlled via rocker arm, drive via tooth/wheel chain	
Valve diameter, intake	40 mm (1.57 in)	
Valve diameter, exhaust	34 mm (1.34 in)	
Valve play, cold	0.07... 0.13 mm (0.0028... 0.01 in)	
Crankshaft bearing	2 cylinder roller bearing	
Engine lubrication	Pressure circulation lubrication with 2 rotor pumps (engine)	
Primary transmission	36:79	
Clutch	Multidisc clutch in oil bath / hydraulically activated	
Transmission ratio		
1st gear	14:35	
2nd gear	16:28	
3rd gear	21:28	
4th gear	23:26	
5th gear	24:25	
6th gear	25:24	
Generator	12 V, 224 W	
Ignition	Contactless controlled fully electronic ignition with digital ignition adjustment, type Kokusan	
Spark plug	NGK LKAR 8AI - 9	
spark plug electrode gap	0.9 mm (0.04 in)	
Cooling	Water cooling, permanent circulation of coolant by water pump	

Capacity- engine oil

Engine oil	2.2 l (2.32 qt.)	Engine oil (SAE 10W/60) (☛ P. 94)
		Engine oil (SAE 20W/60) (☛ P. 95)

Capacity - cooling liquid

Coolant	1.2 l (1.27 qt.)	Coolant (☛ P. 94)
		Coolant (mixed ready to use) (☛ P. 94)

Plug, oil bore	self-tapping	9 Nm (6.64 lbf ft)	Loctite® 243™
Screw, membrane fixation	M3	2.5 Nm (1.84 lbf ft)	Loctite® 243™
Oil jet, conrod lubrication	M4	2 Nm (1.48 lbf ft)	Loctite® 243™
Hose clamp, intake flange	M4	1.5 Nm (1.11 lbf ft)	–
Screw, cover plate for oil return line	M5	6 Nm (4.43 lbf ft)	–
Screw, breather cover on valve cover	M5	3 Nm (2.21 lbf ft)	Loctite® 243™
Screw, gear sensor	M5	5 Nm (3.69 lbf ft)	Loctite® 243™
Locking screw for bearing	M5	6 Nm (4.43 lbf ft)	Loctite® 648™
Screw, oil filter cover	M5	6 Nm (4.43 lbf ft)	–
Screw, oil pump cover	M5	6 Nm (4.43 lbf ft)	Loctite® 243™
Oil jet, piston cooling	M6x0,75	6 Nm (4.43 lbf ft)	Loctite® 243™
Screw, locking lever	M6	10 Nm (7.38 lbf ft)	Loctite® 243™
Screw, Autodecompression	M6	3... 4 Nm (2.21... 2.95 lbf ft)	Loctite® 243™
Screw, axial lock of camshaft	M6	10 Nm (7.38 lbf ft)	Loctite® 243™
Screw, starter motor	M6	10 Nm (7.38 lbf ft)	Loctite® 243™
Screw, timing chain guide rail	M6	10 Nm (7.38 lbf ft)	Loctite® 243™
Screw, ignition pulse generator	M6	10 Nm (7.38 lbf ft)	Loctite® 243™
Screw, rocker arm shaft	M6	12 Nm (8.85 lbf ft)	–
Screw, large clutch cover	M6	10 Nm (7.38 lbf ft)	–
Screw, small clutch cover	M6	6 Nm (4.43 lbf ft)	–
Screw, clutch spring	M6	10 Nm (7.38 lbf ft)	–
Screw, clutch slave cylinder	M6x20	10 Nm (7.38 lbf ft)	Loctite® 243™
Screw, clutch slave cylinder	M6x35	10 Nm (7.38 lbf ft)	–
Screw, engine housing	M6	10 Nm (7.38 lbf ft)	–
Screw, shift drum locating	M6	10 Nm (7.38 lbf ft)	Loctite® 243™
Screw, shift lever	M6	10 Nm (7.38 lbf ft)	Loctite® 222
Screw, timing chain tensioning rail	M6	10 Nm (7.38 lbf ft)	Loctite® 243™
Screw, stator bracket	M6	10 Nm (7.38 lbf ft)	Loctite® 243™
Screw, thermostat housing	M6	10 Nm (7.38 lbf ft)	Loctite® 243™
Plug, vacuum connection	M6	10 Nm (7.38 lbf ft)	Loctite® 243™
Screw, valve cover	M6	10 Nm (7.38 lbf ft)	–
Screw, water pump wheel	M6	10 Nm (7.38 lbf ft)	Loctite® 243™
Screw, ignition cover	M6	10 Nm (7.38 lbf ft)	Loctite® 243™
Screw, ignition cover in chain shaft	M6	10 Nm (7.38 lbf ft)	Loctite® 243™
Screw, cylinder	M6	10 Nm (7.38 lbf ft)	Loctite® 243™
Screw, cylinder head	M6	10 Nm (7.38 lbf ft)	Loctite® 243™
Fixation of exhaust flange	M8	Tightening sequence: Replace the nuts. Tighten both nuts simultaneously. 20 Nm (14.75 lbf ft)	Copper paste
Plug, crankshaft location	M8	20 Nm (14.75 lbf ft)	–
Stud, exhaust flange	M8	10 Nm (7.38 lbf ft)	Loctite® 243™
Oil pressure sensor in the oil filter cover	M10x1	5 Nm (3.69 lbf ft)	–
Plug, drain hole of water pump	M10x1	15 Nm (11.06 lbf ft)	–
Screw, unlocking of timing chain tensioner	M10x1	10 Nm (7.38 lbf ft)	–
Plug, oil bore for oil radiator	M10x1	15 Nm (11.06 lbf ft)	–
Plug, oil bore	M10x1	15 Nm (11.06 lbf ft)	Loctite® 243™

Screw, cylinder head	M10	Tightening sequence: Tighten diagonally, beginning with the rear screw on the chain shaft. Step 1 15 Nm (11.06 lbf ft) Step 2 30 Nm (22.13 lbf ft) Step 3 45 Nm (33.19 lbf ft) Step 4 60 Nm (44.26 lbf ft)	Engine oil (any)
Temperature switch VDO	M10x1	4 Nm (2.95 lbf ft)	Loctite® 243™
Adapter for coolant sensor on cylinder head	M12x1,5	12 Nm (8.85 lbf ft)	–
Coolant temperature sensor on cylinder head	M12x1,5	12 Nm (8.85 lbf ft)	–
Oil drain plug with magnet	M12x1,5	20 Nm (14.75 lbf ft)	–
Plug, excess pressure valve	M12x1,5	20 Nm (14.75 lbf ft)	–
Spark plug	M12x1,25	17 Nm (12.54 lbf ft)	–
Plug, oil bore	M14x1,5	15 Nm (11.06 lbf ft)	Loctite® 243™
Ignition rotor nut	M18x1,5	100 Nm (73.76 lbf ft)	–
Nut, engine sprocket	M20x1,5	60 Nm (44.26 lbf ft)	Loctite® 243™
Nut, inner clutch hub	M20x1,5	100 Nm (73.76 lbf ft)	Loctite® 243™
Nut, primary gear	M20LHx1,5	100 Nm (73.76 lbf ft)	Loctite® 243™
Plug, oil screen	M20x1,5	15 Nm (11.06 lbf ft)	–
Plug, timing chain tensioner	M20x1,5	25 Nm (18.44 lbf ft)	–
Screw in ignition cover	M24x1,5	8 Nm (5.9 lbf ft)	–
Plug, oil thermostat	M24x1,5	15 Nm (11.06 lbf ft)	–

690 Rally Factory Replica

Carburetor type	KEIHIN FCR-MX 41
Carburetor identification number	4100B
Needle position	5 th position from top
Idle mixture adjusting screw	
Open	2 turns
Main jet	168 (160)
Jet needle	OBDVT (OBEKR)
Idling jet	42 (45)
Main air jet	200
Idle air jet	100
Cold start jet	85
Throttle slide	15