

TECHNICAL DATA – ENGINE 660 RALLYE FACTORY REPLICA 2004

Type	660 LC4
Design	Liquid-cooled single cylinder 4-stroke engine with balancer shaft and electric starter
Displacement	653,7 cm ³
Bore / Stroke	102 / 80 mm
Ratio	11,6 : 1
Fuel	unleaded premium gasoline with a least RON 95
Valve timing	4 valves over rocker arm and 1 overhead camshaft, camshaft drive through single chain
Camshaft	MSP3/1
Valve diameter	Intake: 36 mm Exhaust: 32 mm
Valve clearance cold	Intake: 0.10 mm Exhaust: 0.10 mm
Crank shaft bearing	2 cylinder roller bearing
Connecting rod bearing	needle bearing
Top end bearing	bronze bushing
Piston	forged aluminium alloy
Piston rings	1 compression ring, 1 taper face ring, 1 oil scraper ring
Engine lubrication	2 Eaton-Oilpumps
Quantity of engine oil	see table #
Engine oil	2,2 liters including frame
Primary ratio	straight geared spur wheels 31 : 79 teeth
Clutch	multi disc clutch in oil bath
Transmission	5-speed claw shifted
Ignition system	contactless DC- CDI ignition with digital advanced system type KOKUSAN
Ignition timing	adjustment to max. 33° BTDC at 85000 rpm
Generator	12V 200W
Spark plug	NGK DR9 EA
Spark plug gap	0.9 mm
Cooling system	liquid cooled, permanent rotation of cooling liquid through mechanic driven water pump
Cooling liquid	1,8 liter, 40% antifreeze, 60% water, at least -25° C (-13° F)
Starting equipment	electric starter

TIGHTENING TORQUES - ENGINE

Hexagon nut at primary gear	M20x1.5	Loctite 243 + 220 Nm	(162 ft.lb)
Collar nut flywheel	M16x1.25 LH thread	80° C + 150 Nm	(132 ft.lb)
Hexagon nut for inner clutch hub	M18x1.5	Loctite 243 80 - 100 Nm	(60 - 74 ft.lb)
Hexagonscrew oil pump	M6	Loctite 243 + 8 Nm	(6 ft.lb)
Allan head screws freewheel hub	M6x12/M6x12.5	Loctite 648 + 12/16 Nm	(9/12 ft.lb)
Hexagon screw camshaft gear	M10	Loctite 243 + 35 Nm	(26 ft.lb)
Allan head screw cylinder head top sect.	M6x25/M6x65/M6x70 (8.8)	8 Nm	(6 ft.lb)
Allan head screw cylinder head top sect.	M7x55/M7x60 (12.9)	20 Nm	(15 ft.lb)
Cylinder head screws	M10	60 Nm	(44 ft.lb)
Collar nuts at cylinder base	M10	50 Nm	(35 ft.lb)
Hexagon screw chain sprocket	M10	Loctite 243 + 40 Nm	(30 ft.lb)
Oil drain plug	M22x1.5	30 Nm	(22 ft.lb)
Magnetic plug	M12x1.5	20 Nm	(15 ft.lb)
Plug bypass valve	M12x1.5	20 Nm	(15 ft.lb)
Hollow screws oil lines	M8x1	10 Nm	(7.4 ft.lb)
Hollow screws oil lines	M10x1	15 Nm	(11 ft.lb)
Jet screw clutch cover	M8	10 Nm	(7.4 ft.lb)
Screw plug timing-chain tensioner	M12x1.5	20 Nm	(15 ft.lb)
Counternuts valve adjusting screws	M7x0.75	16 Nm	(12 ft.lb)
Crankshaft locking bolt	M8	20 Nm	(15 ft.lb)
Engine mounting bolt	M8	40 Nm	(30 ft.lb)
Engine mounting bolt	M10	70 Nm	(50 ft.lb)

GEAR RATIOS				
Primary ratio	Transmission	Original final drive ratio	Available chain drive sprockets	Available final drive sprockets
31:79	1st gear 15:33 2nd gear 15:24 3rd gear 18:21 4th gear 20:19 5th gear 22:18	16:44	14 t 15 t for chain 16 t $\frac{5}{8} \times \frac{1}{4}$ "	42 t for chain 44 t $\frac{5}{8} \times \frac{1}{4}$ " 45 t

BASIC CARBURATOR SETTING

	660 RALLY (throttled)	660 RALLY (open)
Type	Keihin CR 39	Keihin CR 39
Main jet	190	190
Jet needle	OBDVR	OBDVR
Idling jet	48	52
Main air jet	200	200
Idling air jet	100	100
Needle position	3rd from top	5th from top
Starting jet	85	85
Mixture control screw open	2	2
Slide	15	15
Performance restrictor	24,5	–
Stop pump membrane	3,2 mm	3,2 mm

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Engine oil

Use only oil brands, which meet quality requirements (MOTOREX MOTOR OILS POWER SYNT 4T SAE 10W/50) of API-class SG (informations on bottles) or higher.

! CAUTION !

POOR OIL QUALITY OR MINOR QUANTITY EFFECT EARLY ENGINE-WEAR.