

TECHNICAL SPECIFICATIONS – ENGINE 640 LC4, ADVENTURE, DUKE 2005

ENGINE	640 LC4
Design	Liquid-cooled single cylinder 4-stroke engine with balancer shaft and electric starter
Displacement	625 cm ³
Bore / Stroke	101 / 78 mm
Ratio	11,7 : 1
Fuel	unleaded premium gasoline with at least RON 95 (USA = Premium RON 91) (RON 80-94 for other ignition curve)
Valve timing	4 valves over rocker arm and 1 overhead camshaft, camshaft drive through single chain
Camshaft	249/1
Valve diameter	Intake: 36 mm Exhaust: 32 mm
Valve clearance cold	Intake: 0,12 - 0,15 mm Exhaust: 0,12 - 0,15 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	two Eaton-oilpumps
Engine oil quantity	appr. 2,1 liters including frame
Primary ratio	straight geared spur wheels 31 : 79 teeth
Clutch	multi disc clutch in oil bath, hydraulically operated
Transmission	5-speed claw shifted
Gear ratio	1 st 14:35 2 nd 15:24 3 rd 18:21 4 th 20:19 5 th 22:18
Ignition system	contactless DC-CDI ignition with digital advanced system type KOKUSAN 4K5
Ignition timing	TPS
Generator	12V 200W
Spark plug	NGK DCPR 8 E
Spark plug gap	0,9 mm
Cooling system	liquid cooled, permanent rotation of cooling liquid through mechanic driven water pump
Cooling liquid	1 liter, 50% antifreeze, 50% distilled water, at least -25 ° C (-13 ° F)
Starting equipment	electric starter and kickstarter

Art.-Nr. 3.206.024 -E

Repair manual KTM LC4

BASIC CARBURETOR SETTING		
	640 LC4 Enduro, 640 ADVENTURE	640 LC4 Supermoto, 640 DUKE
Type	BST40-266	BST40-273
Main jet	152,5	165
Needle jet	X-6 689	X-6 689
Idling jet	45	45
Jet needle	6G5	6G5
Needle clip pos. f. top	3. from top	3. from top
Mixt. adj. screw open	2,25	2,25

TIGHTENING TORQUE - ENGINE

Hexagon nut at primary gear	M20x1,5	Loctite 243 + 170 Nm
Collar nut flywheel (LC4, ADVENTURE, DUKE)	M16x1,25 links	150 Nm
Collar nut flywheel (SC, SXC)	M12x1 left	60 Nm
Hexagon nut for inner clutch hub	M18x1,5	Loctite 243 + 90 Nm
Collar bolt clutch springs	M6	10 Nm
Kickstarter stop bolt	M12x1,5	50 Nm
Allen head bolt freewheel hub (E-STARTER)	M6x12 12.9	Loctite 2701 + 16 Nm
Allen head bolt freewheel hub (E-STARTER)	M6x12.5 8.8	Loctite 2701 + 12 Nm
Allen head bolts oil pumps	M6	Loctite 243 + 8 Nm
Collar bolts oil pumps (from modell 2003 on)	M6	Loctite 243 + 10 Nm
Hexagon bolt camshaft gear	M10	Loctite 243 + 35 Nm
Allen head bolts cylinder head top section	M6x25/M6x35/M6x65/M6x70 (8.8)	8 Nm
Allen head bolts cylinder head top section	M6x50/M6x55 (12.9)	15 Nm
Bolts cylinder head top section (from model 2003 on)	M6 (8.8)	10 Nm
Bolts cylinder head top section (from model 2003 on)	M7 (12.9)	15 Nm
Cylinder head to cylinder	M8	25 Nm
Cylinder head to cylinder	M6	8 Nm
Cylinder head to cylinder (from model 2003 on)	M6	10 Nm
Cylinder head bolts	M10	50 Nm
Cylinder head bolts (from the 2004 model)	M10	10/53 Nm
Collar nuts at cylinder base	M10	50 Nm
Plug at cylinder head (SC)	M10	20 Nm
Hexagon bolt chain sprocket 8.8	M10	Loctite 243 + 40 Nm
Hexagon bolt chain sprocket 12.9	M10	Loctite 243 + 60 Nm
Nut chain sprocket	M20x1,5	Loctite 243 + 60 Nm
Oil drain plug	M22x1,5	30 Nm
Magnetic plug	M12x1,5	20 Nm
Plug Bypass valve	M12x1,5	20 Nm
Banjo bolts oil lines	M8x1	10 Nm
Banjo bolts oil lines	M10x1	15 Nm
Jet screw clutch cover	M8	10 Nm
Plug timing-chain tensioner	M12x1,5	20 Nm
Timing-chain tensioner to cylinder	M6	Loctite 243 + 8 Nm
Timing-chain tensioner to cylinder (from model 2003 on)	M6	10 Nm
Timing-chain guide to cylinder	M12x1,25	Loctite 243 + 8 Nm
Hexagon bolt timing-chain guide	M6	Loctite 243 + 10 Nm
Tension guide	M8	Loctite 243 + 15 Nm
Timing-chain securing guide	M6	8 Nm
Allen head bolt timing-chain securing guide (from model 2003 on)	M6	Loctite 243 + 10 Nm
Counternuts valve adjusting screws	M7x0,75	16 Nm
Crankshaft locking bolt	M8	20 Nm
Spark plug	M12x1,25	20 Nm
Engine mounting bolt	M8	40 Nm
Engine mounting bolt	M10	70 Nm
Retaining plate for main shaft bearing	M6	Loctite 648 + 8 Nm
Retaining plate for main shaft bearing (from model 2003 on)	M6	Loctite 648 + 10 Nm
Shift mechanism support, securing device for bearing	M5	Loctite 243 + 6 Nm
Shift mechanism support	M6	Loctite 243 + 8 Nm
Shift mechanism support (from model 2003 on)	M6	Loctite 243 + 10 Nm
Shift drum locating	M6	Loctite 243 + 8 Nm
Engine housing, clutch cover, ignition cover	M6	10 Nm
Water pump cover	M6	10 Nm
Bolts for pulse generator	M5	Loctite 243 + 6 Nm
Stator (SC)	M6	Loctite 243 + 8 Nm
Stator (E-Start)	M5	Loctite 243 + 6 Nm
Kick starter	M8	25 Nm
Shifting lever	M6	Loctite 222 + 10 Nm
Oil filter cover	M6	10 Nm
Microfilter cover (SC)	M5	6 Nm
Starter flange, starter cover	M6	10 Nm
AH bolt for slave cylinder	M6	Loctite 243 + 10 Nm
Starter	M6	10 Nm
Valve cover	M6	10 Nm
Exhaust flange	M6	10 Nm
AH screw for decompression shaft lever	M6	Loctite 243 + 10 Nm
Retaining shim for ignition (SC)	M5	Loctite 243 + 6 Nm
Contact screws	M10	15 Nm
Oil jet	M6x0,75	Loctite 648 + 10 Nm
Plug for gear detection sensor	M10	25 Nm
Water pump wheel	M5	Loctite 243 + 6 Nm
Thermostat case	M6	6 Nm
Closing panel for ignition (SC)	M5	Loctite 243 + 6 Nm
Pulse generator	M5	Loctite 243 + 6 Nm
Other bolts, engine	M5	6 Nm
	M6	10 Nm

ASSEMBLY CLEARANCE, WEAR LIMIT	
Crank shaft	axial play except Rally0.10 - 0.20 mm
	axial play Rally only0.15 - 0.25 mm
	run out of crank studmax. 0.08 mm
Connecting rod bearing	radial playmax. 0.05 mm
	axial playmax. 1.10 mm
Cylinder 400	boremax. 89.04 mm
Cylinder 640	boremax. 101.04 mm
Cylinder 660	boremax. 102.04 mm
Piston forged	assembly clearancemin. 0,06 - max. 0.12 mm
Piston cast	assembly clearancemax. 0.05 mm
Piston rings end gap	compression ringsmax. 0.80 mm
	oil scraper ringmax. 1.00 mm
Valves	seat sealing intakemax. 1.50 mm
	seat sealing exhaustmax. 2.00 mm
	run out of valve headsmax. 0.05 mm
	valve guides diametermax. 7.05 mm
Oil pumps	clearance outer rotor - housingmax. 0.20 mm
	clearance outer rotor - inner rotormax. 0.20 mm
Bypass valve	minimum spring length25.00 mm
Clutch	Length of springsmin. 34.5 mm (new 37.00 mm)
	wear limit organicmin. 2.50 mm
	Length of the clutch spring 660 SMCmin. 31.5 mm (new 33.5 mm)
Camshaft	diameter of bearing bolt (needle bearing)min. 19.97 mm
Transmission shafts	axial play0.10 - 0.40 mm
Crankshaft webs – outer dimension66 mm +/- 0.05 mm
Rocker arm	Axial clearance.0,2 - 0,3 mm
max. oil consumption	per 1000 kilometers0.3 - 0.8 liters