

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 |

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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 dimension |66 mm +/- 0.05 mm |
| Rocker arm | Axial clearance.0,2 - 0,3 mm |
| max. oil consumption | per 1000 kilometers0.3 - 0.8 liters |