TECHNICAL SPECIFICATIONS – LC8 ENGINE

Engine	950 LC8
Design	Liquid-cooled, 2-cylinder 4-stroke engine with 75° V arrangement with balancer shaft and electric starter
Displacement	942 cm3
Bore / Stroke	100/60 mm
Compression ratio	11.5:1
Fuel	unleaded premium fuel with at least RON 95 (ROZ 80 - 94 for other ignition curve)
Valve timing	4 valves controlled over bucket tappet and 2 camshafts, camshaft drive with gears/chain
Valve diameter	Intake: 38 mm Exhaust: 33 mm
Valve clearance, cold	Intake: 0,10 - 0,18 mm Exhaust: 0,23 - 0,31 mm
Crankcase bearing	Friction bearings (2 main bearings / 1 supporting bearing)
Conrod bearing	Friction bearing
Piston pin bearing	Dual-fuel bearing
Piston	Light alloy – forged
Piston rings	1 compression ring, 1 taper face ring, 1 single-piece oil scraper ring with spiral-type expander
Engine lubrication	Dry sump with 2 trochoidal pumps (pressure pump and suction pump)
Engine oil	SAE 5W/40, 10W-50 (f.ex. Motorex Power Synt 4T)
Quantity of engine oil	approx. 3.0 liters during oil/filter change or approx. 3.3 liters for dry engine
Primary drive	Straight-toothed spur wheels 67 : 35
Clutch	Multi-disc clutch in oil bath
Transmission	6-speed claw shifted
Gear ratio	1st gear 35:12 2nd gear 32:15 3rd gear 30:18 4th gear 27:20 5th gear 27:24 6th gear 26:27
Ignition system	breakerless transistorized electronic ignition system with digital ignition advance
Ignition timing	5° from TDC at 1200 rpm
Generator	12V 450W at 6000 rpm
Spark plug	NGK CR 8 EK
Electrode distance	0.6 mm
Cooling system	liquid cooled, permanent circulation of cooling liquid through water pump
Cooling liquid	2.1 liters, 40% antifreeze, 60% water, at least –25° C
Starting aid	0.9 kW electric starter

BASIC CARBURETOR SETTING	
	950 LC8 ADVENTURE
Type of carburetor	CVRD 43
Main jet	155 (front) / 160 (rear)
Main air jet	40
Idling jet	42
Idle air jet	50
Idle air cutoff jet	80
Jet needle	NDFB
Needle position	2nd from top
Mixture control screw open	2 1/4 turns
Starting jet	68

TOLERANCES AND FITTING CLEARANCES

COMPONENT	MEASUREMENT/TEST	SETPOINT VALUE	TOLERANCE LIMIT
Valves	Valve shaft runout		max. 0.1mm
	Sealing seat width, intake	1.2 mm – 1.4 mm	
	Sealing seat width, exhaust	1.2 mm – 1.4 mm	
	Valve disk runout		max. 0.03 mm
	Valve guide, inner diameter	6.006 mm – 6.018 mm	
	Valve shaft, outer diameter, intake	5.961 mm – 5.975 mm	
	Valve shaft, outer diameter, exhaust	5.946 mm – 5.960 mm	
Valve springs	Inner length, unloaded	new 39.4 mm	min. 38.0 mm
	Outer length, unloaded	new 42.8 mm	min. 41.3 mm
	Inner valve spring tension	20.3 mm with a load of at least 25 kg	
	Outer valve spring tension	23.3 mm with a load of a least 60 kg	
Camshafts/cylinder head	Cam height, intake	37.80 mm – 37.90 mm	
	Cam height, exhaust	36.56 mm – 36.55 mm	
	Camshaft bearing bore	24.000 mm – 24.021 mm	
	Camshaft bearing journal	23,960 mm 23,980 mm	
	Camshaft bearing clearance	0.020 mm – 0..061 mm	max. 0.09 mm
	Cylinder head distortion		max. 0.05 mm
Cylinder	Size I	100.000 mm – 100.012 mm	
	Size II	100.012 mm – 100.025 mm	
	Cylinder distortion		max. 0.05 mm
Piston	Size I – 9 mm (from lower edge)	99.960 mm – 99.972 mm	
	Size II – 9 mm (from lower edge)	99.973 mm – 99.984 mm	99.930 mm
	Mounting clearance	0,04 mm – 0,06 mm	0,10 mm
Piston ring	Gap	0.15 mm – 0.35 mm	0.5 mm
	Width of piston ring groove – 1st ring (L-ring)	0.92 mm – 0.94 mm	
	Width of piston ring groove – 1st ring (L-ring)	1.80 mm – 1.84 mm	
	Width of piston ring groove – 2nd ring	1.27 mm – 1.29 mm	
	Width of piston ring groove – oil scraper ring	2.51 mm – 2.53 mm	
	Thickness of 1st ring (L-ring)	0.85 mm – 0.87 mm	
	Thickness of 1st ring (L-ring)	1.20 mm – 1.22 mm	
	Thickness of 2nd ring	1.22 mm – 1.24 mm	
	Thickness of oil scraper ring	2.47 mm – 2.49 mm	
Piston pin / piston	Diameter of piston ring bore	22.006 mm – 22.11 mm	22.030 mm
	Diameter of piston pin	21.996 mm – 22.000 mm	21.980 mm
Crankshaft/conrod	Diameter of crankshaft journal	49.975 mm – 49.985 mm (blue)	
	Diameter of crankshaft journal	49.986 mm – 49.995 mm (red)	
	Mounting clearance of crankshaft journal	0.025 mm – 0.055 mm	0.08 mm
	Diameter of support bearing journal	27.985 mm – 28.000 mm	
	Mounting clearance of support bearing	0.030 mm – 0.070 mm	0.09 mm
	Axial clearance of crankshaft	0.1 mm – 1.3 mm	2.0 mm
	Diameter of conrod eye	22.010 mm – 22.020 mm	22.040 mm
	Diameter of conrod journal	41.990 mm – 42.000 mm (blue)	
	Diameter of conrod journal	42.001 mm – 42.011 mm (red)	
	Mounting clearance of conrod bearing	0.030 mm – 0.060 mm	0.080 mm
	Axial clearance of conrod eye on conrod journal	0.30 mm – 0.45 mm	0.60 mm
	Width of conrod bottom	21.948 mm – 22.000 mm	
	Width of conrod journal	44.30 mm – 44.35 mm	
Oil pressure	Oil pressure of engine at operating temperature (at least 60° C)	min. 1.5 bar at 1500 rpm	
		min. 3.0 bar – max. 4.0 bar at 6000 rpm	
Oil consumption			max. 1.0 liter /1000 km
Pressure pump	Clearance between inner and outer rotor	0.1 mm	0.25 mm
	Clearance between outer rotor and case	0.2 mm	0.4 mm
	Axial clearance	0.04 mm – 0.09 mm	0.25 mm
Suction pump	Clearance between inner and outer rotor	0.1 mm	0.25 mm
	Clearance between outer rotor and housing	0.2 mm	0.40 mm
Axial clearance	0.04 mm – 0.09 mm	0.25 mm	
Bypass valve	Length of spring, unloaded		min. 42.0 mm
	Spring tension	27 mm at a load of at least 3.5 kg	

TOLERANCES AND FITTING CLEARANCES

COMPONENT	MEASUREMENT/TEST	SETPOINT VALUE	TOLERANCE LIMIT
Clutch	Total height of disk package	50.20 mm – 51.20 mm	min. 48.0 mm
	Thickness of lining disks	2.72 mm – 2.88 mm	2.65 mm
	Thickness of steel disks	1.95 – 2.05 mm	1.85 mm
	Length of clutch springs, unloaded	30.77 mm	29.0 mm
	Spring tension	19.0 at a load of at least 20 kg – 24 kg	
Thermostat/radiator	Opening temperature of thermostat	73° C – 77° C	
	Opening stroke of thermostat	over 7 mm at 100° C	
	Discharge pressure of radiator cap	1.4 bar	
	Switch-on temperature of radiator fan switch	102° C	
Transmission	Clearance between shift fork and groove	0.1 mm – 0.25 mm	0.4 mm
	Width of shift fork groove	5.05 mm – 5.10 mm	
	Thickness of shift fork	4.85 mm – 4.95 mm	

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TIGHTENING TORQUES – ENGINE		
Hexagon nut on primary gear	M33x1.5 left	Loctite 243 + 130 Nm
Multipoint head bolt on conrod caps	M10x1	25 Nm/30Nm/60°
Hexagon nut on balancer shaft	M20x1.5	Loctite 243 + 150 Nm
Hexagon nut on cylinder head	M10	25 Nm /46 Nm
AH bolts on cylinder head	M8	18 Nm/23 Nm
Hexagon nut on cylinder head	M6	8 Nm
Studs in engine case	M6	10 Nm
Studs in engine case	M10	20 Nm
Stud on exhaust flange	M8	15 Nm
Plug on front cylinder head	M12x1.5	15 Nm
Bolts to attach bearings	M5	Loctite 243 + 6 Nm
Crankshaft locking bolt	M8	10 Nm
Bearing bolts on tensioning rail	M8	Loctite 243 + 20 Nm
Bearing bolts on guide rail	M8	Loctite 243 + 15 Nm
Bearing bolts on double timing gear	M10	30 Nm
Bolt on chain tensioner	M16x1.5	20 Nm
AH bolts on camshaft bearing bridges	M8 10.9	10 Nm/18 Nm
AH bolts on camshaft bearing bridges	M6 10.9	10 Nm
HH bolts on valve covers	M6	10 Nm
HH bolts on engine case halves	M6	10 Nm
HH bolts on engine case halves	M8	20 Nm
AH bolts on freewheel support	M6 10.9	Loctite 648 + 13 Nm
HH bolts on freewheel holder	M6	Loctite 243 + 10 Nm
Oil plug (clutch lubrication)	M10	15 Nm
Oil drain plug	M22x1.5	20 Nm
Oil line screw connections	M6	10 Nm
HH bolts on oil pump cover	M6	Loctite 243 + 10 Nm
Plug on oil filter housing	M14x1.5	Loctite 243 + 15 Nm
Oil jets	M6x0.75	Loctite 243 + 10 Nm
Oil pressure switch	M10x1	10 Nm
AH bolt on shift locating drum	M6	Loctite 243 + 10 Nm
HH bolt on shift locking lever	M5	Loctite 243 + 8 Nm
HH bolt on the shift lever	M6 10.9	Loctite 243 + 18 Nm
Hexagon nut on clutch clutch hub	M22x1.5	Loctite 243 + 130 Nm
HH bolts on clutch pressure cap	M6	10 Nm
HH bolt on clutch cover	M6	10 Nm
HH bolt on clutch cover	M8	15 Nm
HH bolt on outer clutch cover	M6	10 Nm
AH bolt on ignition rotor	M16	Loctite 243 + 150 Nm
HH bolt on generator cover	M6	10 Nm
Fixing bolts on the stator	M6	Loctite 243 + 10 Nm
Plug on generator cover	M24x1.5	8 Nm
Bleeder flange on generator cover	M16x1.5	Loctite 243 + 10 Nm
Bearing bolt on generator cover	M6	Loctite 243 + 10 Nm
Fixing bolts on ignition pickup	M6	Loctite 243 + 10 Nm
HH bolts on gear sensor	M5	4 Nm
Spark plugs	M10x1.0	12 Nm
Collar bolt on water pump wheel	M6	Loctite 243 + 10 Nm
HH bolt on water pump cover	M6	10 Nm
Water temperature sensor	M12x1.5	12 Nm
Water connections for cylinder head	M20x1.5	Loctite 577 + 10 Nm
HH bolt on the starter motor	M6	10 Nm
Vacuum connections for intake port	M6	Loctite 243 + 8 Nm
Hexagon nut on chain sprocket	M20x1.5	sheet retainer + 100 Nm Nm
Other engine bolts	M5	6 Nm
	M6	10 Nm