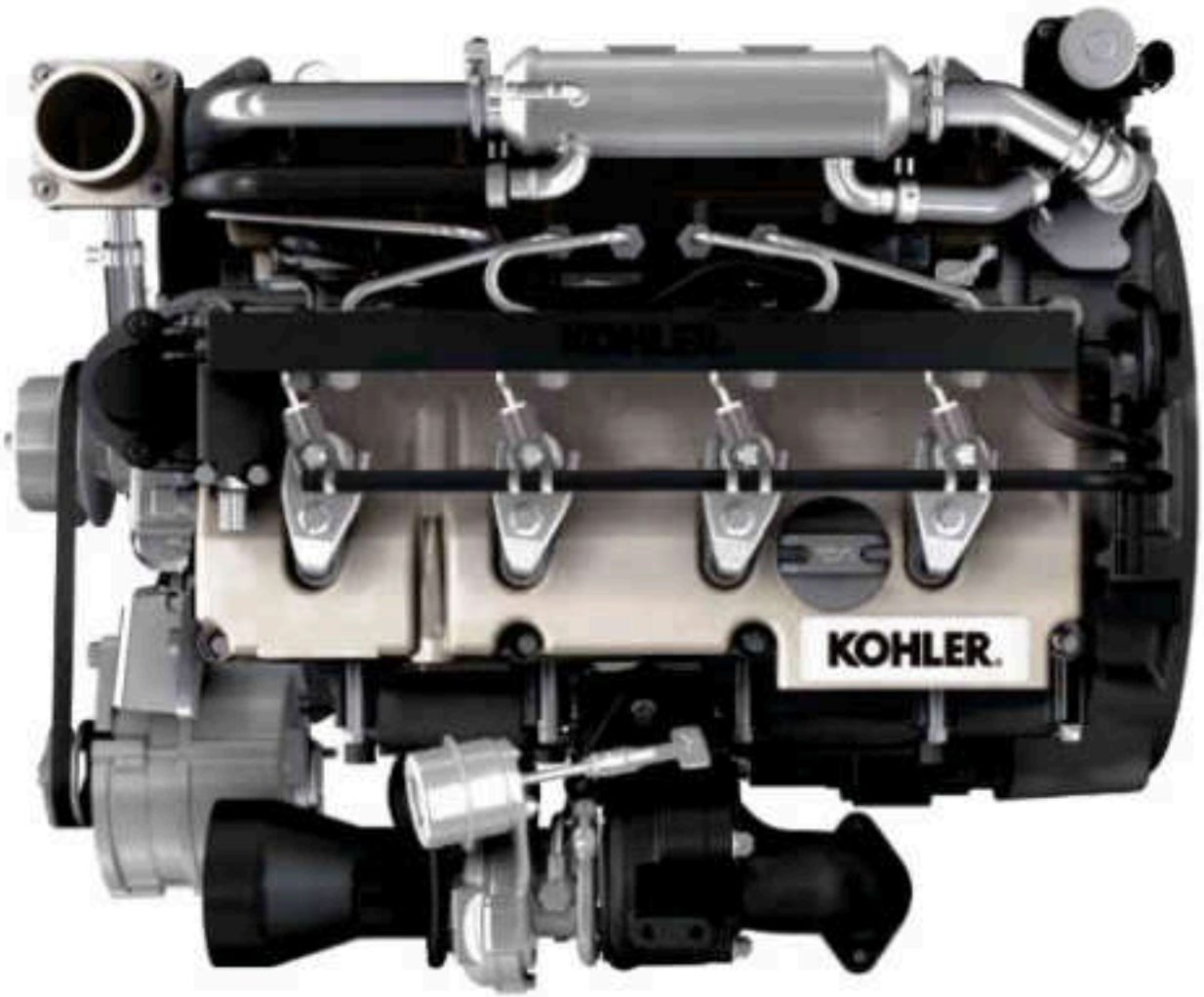
1903 TCR -2504 TCR

WORKSHOP MANUAL

KOHLER® Diesel KDI



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9.17 Summary table of tightening torques and the use of sealants

Tab. 9.1

DESCRIPTION	DIAMETER PER STEP (mm)	MAX. INSTALLATION TORQUE (mm)	SEALANT	PAGE
BALANCER SHAFTS (4-CYLINDER)				
Fastening screw shaft holder	M10x1.5	50		140+140
Fastening screw box closure plate	M6x1	8		
CAMSHAFT				
Fastening screw gear	M10x1	100		
ALTERNATOR				
Alternator fixing bolt	M8x1.25	10		
Fastening screw bracket	M8x1.25	10		
CRANKCASE				
Crankcase tightening cycle				
Fastening screw lower crankcase	M12x1.25	40		
Fastening screw lower crankcase	M12x1.25	70		
Fastening screw lower crankcase	M12x1.25	120		
Fastening screw lower crankcase	M8x1.25	20		
Fastening screw lower crankcase	M8x1.25	35		
Fastening screw lower crankcase	M8x1.25	20		
Fastening screw lower crankcase	M8x1.25	35		
Locking screw crankcase lubricant hole	M14x1.5		Loctite 270	
Plug hole water discharge	M16x1.5	50		
Pressure switch	M12x1.5	35		
Vent pipe underpan	M12x1.5		Loctite 648	
Fastening screw MIM. oil sprayers	M6x1	10		
CONNECTING ROD				
Screw tightening cycle connecting rod				
Fastening Screw	M10x1	40		
Fastening Screw	M10x1	85		
OIL SUMP CRANKCASE DISTRIBUTOR				
Cover fastening screw	TG6	8		
ROCKER ARM COVER				
Fastening screw rocker cap	M6x1	10		
TIMING SYSTEM CRANKCASE				
Fastening screw phase sensor	TG6	8		
Fastening screw distributor crankcase	M8x1.25	25		
Fastening screw speed sensor	TG6	8		
Fastening screw phonic wheel clamp sensor	TG6	8		
Pressure relief valve cap	M16x1.5	50		
CLOSING HOLE BLOW BY M				
Plate closure fastening screw	M6x1	10		
INTAKE MANIFOLD				
Fastening screw MAP and water pipes sensor	TG6	8		
Fastening screw intake manifold head	M8x1.25	25		
Fastening screw intake flange	TG8	25		
Fastening screw semi-collector	TG8	25		
COVER 3 PTO				
Fastening Screw	M8x1.25	25		
COVER 4 PTO				
Fastening Screw	TG6	8		
OIL SUMP				
Oil intake pipe fastening screw	M6x1	10		
Fastening Screw	M8x1.25	25		
Oil drain plug	M18x1.5	50		
CRANKCASE SETTLING TANK				
Fastening screw settling tank flange	M6x1	10		
GEAR TIMING SYSTEM				
Fastening screw phonic wheel	M5x0.8	5		

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2.1 Engine specifications

GENERAL INFORMATION	UNIT OF MEASURE	ENGINE TYPE	
		KDI 1903 TCR	KDI 2504 TCR
Operating cycle		diesel - 4-stroke	
Cylinders	No.	3	4
Bore x stroke	mm	88x102	
Displacement	cm^3	1861	2482
Compression ratio		17:1	
Intake		Supercharged with Turbocharger	
Cooling		Liquid	
Crankshaft rotation (view from flywheel side)		Counterclockwise	
Combustion sequence		1-3-2	1-3-4-2
Timing System			
Valves per cylinder		4	
Timing System		Rods and rocker arms - Camshaft in the crankcase	
Tappets		Hydraulic	
Injection		Direct - Common rail	
Engine dry weight		233	267
Maximum inclination 30' continuous operation		25°	
Maximum inclination 1' intermittent operation		35°	
Volume of aspirated air (2600 rpm)	Kg/h	240	280
POWER AND TORQUE			
MAX. operating speed	rpm	2600	
MAX. operating power (ISO TR 14396 - SAE J1995 - CE 97/68)	kW	42	55.4
Maximum torque (at 1500 rpm)	Nm	225	300
Admissible axial load on crankshaft	Kg	300	
CONSUMPTIONS			
Specific fuel consumption (best point)	g/kWh	210	
Oil consumption	%Fuel	< 0.05	
FUEL SUPPLY SYSTEM			
Type of fuel		Diesel UNI-EN590 - ASTM D975-09	
Injection pump		DENSO HP3	
Fuel supply		Low pressure electric pump (if necessary)	
Fuel filter			
Filtering surface	cm^2	2300	
Degree of filtration	µm	Efficiency >95% - 5 µm	
Maximum pressure at injection pump inlet	bar	0.2	
LUBRICATION CIRCUIT			
Lubrication		API CJ4 LOW SAPS - SAE 5W-40 / 10W-30	
Circuit forced		Gear pump	
Oil sump capacity (**MAX.**)	L	7.5	9.75
Oil sump capacity balancer shafts (optional) (**MAX.**)	L		7
Oil pressure switch			
Intervention pressure (**MIN.**)	bar	0.8±0.1	
Oil filter			
Maximum operating pressure	bar	4.0	
Degree of filtration	µm	17 ±2	
Filtering surface	cm^2	1744	

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