SERVICE MANUAL

LS Series
L3AL / L3BL
Tier 3
Engine

Part number 47731080
English
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Engine lubrication system - General specification

Lubrication system

Engine model	L3AL, L3BL
Minimum oil pressure	1 bar (14 psi)
Relief pressure	3 bar (50 psi) +/- 0.5 bar (7 psi)
Oil capacity (High / low level)	6 L (2 US gal) / 5 L (1 US gal)
Lubrication oil	AMBRA SUPER GOLD 15W-40/AKCELA ENGINE OIL 15W-40
Maximum oil temperature	130 °C (266 °F)

Engine lubrication system - General specification

Engine model	L3AL, L3BL
Pressure relief valve	
Opening pressure	3 - 4 bar (43 - 57 psi)
Fully open at **2600 RPM**	4 bar (57 psi)
Rotor-to-vane clearance	
Standard	0.13 - 0.15 mm (0.0051 - 0.0059 in)
Maximum	0.20 mm (0.0078 in)
Rotor-to-cover clearance	
Standard	0.04 - 0.09 mm (0.0015 - 0.0035 in)
Maximum	0.15 mm (0.0059 in)
Oil pump volume	5 - 6 L/min (1 - 2 US gpm)

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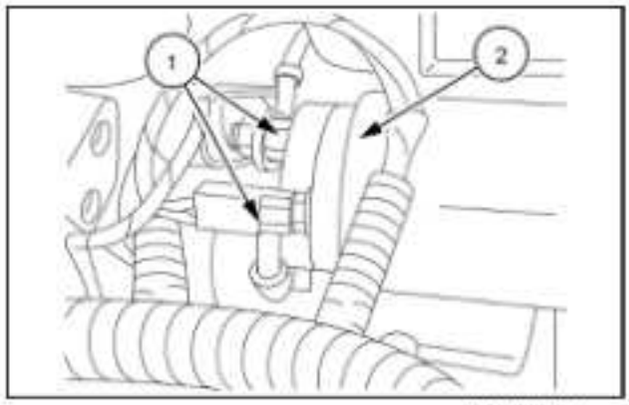
Crankcase ventilation system - Troubleshooting

Problem	Possible Cause	Correction
Engine seals leaking oil	Excessive crankcase pressure. High pressure caused by breather hose clogged.	Inspect breather hose for damage or contamination. Replace breather hose if necessary.
Engine emitting a bluish smoke	Excessive blow by gases of engine. Possible worn piston rings or scored cylinder walls.	Replace piston rings, hone cylinder walls to seat new rings.

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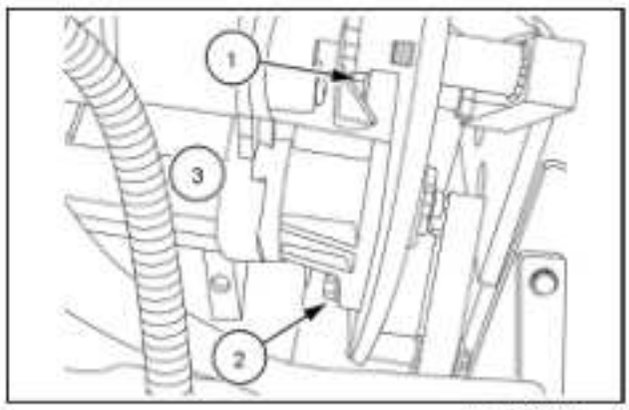
Engine starter - Remove

1. Disconnect the wiring harness connections **(1)** from the starter motor **(2)**.



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2. Remove the M10 x 30 bolt **(2)** and the M10 nut **(1)** and lock washers which secure the starter assembly **(3)** to the engine.
3. Remove the starter assembly **(3)**.



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