KOBELCO

SERVICE MANUAL

EXCAVATOR

SK25SR
SK30SR
SK35SR

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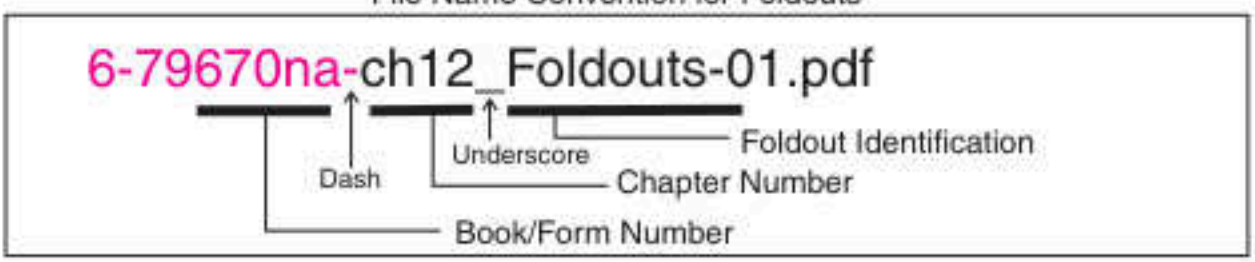
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4. Troubleshooting

4-1. Trouble causes and remedies

The following table summarizes the symptoms and causes of general troubles. If any symptom of trouble is found, a corrective action shall be taken before the said symptom develops into a serious accident.

Carefully read Chapter 6, Measurement, Inspection and Adjustments, and Chapter 7, Measuring Procedures, Service Data and Countermeasures. Familiarize yourself with Chapter 6 and Chapter 7, which practice is extremely important for extending the service life of the engine.

	Cause \ Symptom of trouble	Fails to start				Insufficient engine output			Poor exhaust color		High knocking sound during combustion	Abnormal engine noise	Uneven combustion sound	Hunting		Large engine vibration	Poor return to low speed	Excessive fuel consumption	Lubricating oil				Much blow-by gas	Cooling water		Air intake		Exhaust temperature rise				Corrective action
		Engine will not start.	Engine starts but stops soon.			Exhaust color			During work					During idling	During work				Excessive consumption	Diluted by fuel oil	Mixture with water	Low L.O. pressure		Overheat	Low water temperature	Pressure drop	Pressure rise					
			Exhaust smoke																												
			Nil	Less	More	Regular	White	Black	White	Black																						
Engine System	Improper clearance of intake/exhaust valve	○	○			○						○														○		○				Adjust valve clearance (Refer to Chapter 6, 6-2.)
	Compression leakage from the valve seat					○		○		○		○						○					○			○		○				Rap valve seat (Refer to Chapter 7, 7-1-2.)
	Seized intake/exhaust valve	○			○	○		○		○		○			○	○				○			○			○						Correct or replace.
	Blowout of cylinder head gasket					○															○			○								Replace the gasket. (Refer to Chapter 8, 8-2-(10))
	Seized or broken piston ring	○			○		○		○			○		○		○			○	○			○	○				○				Replace the piston ring. (Refer to Chapter 7, 7-4-3, 4, (5))
	Worn piston ring, piston and cylinder	○			○		○		○										○	○			○									Make honing and use oversize parts. (Refer to Chapter 7, 7-2-3. & 7-4-(6))
	Seized crank pin metal and bearing	○	○									○		○	○	○							○									Repair or replace.
	Improper arrangement of piston ring joints		○				○												○				○									Correct the ring joint positions. (Refer to Chapter 7, 7-4-(5))
	Reverse assembly of the piston ring						○		○			○							○				○									Properly reassemble. (Refer to Chapter 7, 7-4-(5))
	Worn crank pin and journal metal					○						○		○	○	○						○										Measure and replace . Refer to Chapter 7, 7-5-3. and 7-7-(5))
	Loosened connecting rod bolt											○				○						○										Tighten bolt to the specified torque. (Refer to Chapter 10, 10-1.)
	Foreign matter trapped in combustion chamber	○										○							○				○									Disassemble and repair the combustion chamber. Eliminate foreign matter.
	Excessive gear backlash											○																				Adjust meshing of gears. (Refer to Chapter 7, 7-8-(2))
	Worn valve guide of intake/exhaust valves						○												○				○									Measure and replace. (Refer to Chapter 7, 7-1-(3))
	Poor governor		○											○	○	○	○															Repair and adjust. (Refer to Chapter 13.)
	Improper open/close timing of intake/exhaust valves	○					○	○	○	○		○																				Adjust valve clearance (refer to Chapter 6, 6-2) and check intake/exhaust valve timing (Refer to Chapter 9, 9-1)
Turbocharger	Dirty blower						○		○																○							Clean the blower.
	Waste gate malfunction						○		○																○							Disassemble and inspect the waste gate.
	Worn journal bearing					○		○																								Disassemble and inspect the journal bearing.
Cooling Water System	Cooling effect of radiator, excessive							○										○						○								Malfunction of thermostat (kept closed). (Refer to Chapter 6, 6-9)
	Cooling effect of radiator, insufficient						○																○				○					Malfunction of thermostat (kept opened). (Refer to Chapter 6, 6-9) Slipping fan belt (Refer to Chapter 6, 6-3)
	Insufficient cooling water level						○																○				○					Check water leakage from Cooling water system (Refer to Chapter 6, 6-7) and clean cooling water system (Refer to chapter 2, 3-1)
	Cracked water jacket																				○	○	○									Repair and replace.
	Slackened fan belt tension						○																○				○					Adjust fan belt tension. (Refer to Chapter 6, 6-3)
	Poor thermostat						○																○	○								Check or replace. (Refer to Chapter 6, 6-9)

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