SEN00177-16

Shop Manual

ENGINE

125E -5 SERIES

KOMATSU®

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Composition of shop manual

The contents of this shop manual are shown together with Form No. in a list.

Note 1: Always keep the latest version of this manual in accordance with this list and utilize accordingly.
The marks shown to the right of Form No. denote the following:
○: New issue (to be filed additionally) ●: Revision (to be replaced for each Form No.)

Note 2: This shop manual can be supplied for each Form No.

Note 3: To file this shop manual in the special binder for management, handle it as follows:
- Place a divider on the top of each section in the file after matching the Tub No. with No. indicated next to each Section Name shown in the table below:
- File overview and other materials in sections in the order shown below and utilize them accordingly.

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Specifications

Engine name			SAA6D125E-5
Applicable machine			PC400-7E0, PC400LC-7E0, PC400-8, PC400LC-8 PC450-7E0, PC450LC-7E0, PC450-8, PC450LC-8
Number of cylinders – Bore × Stroke		mm	6 – 125 × 150
Total displacement		ℓ {cc}	11.0 {11,040}
Firing order		—	1–5–3–6–2–4
Dimensions	Overall length	mm	1,713
	Overall width	mm	1,001
	Overall height (excluding exhaust pipe)	mm	—
	Overall height (including exhaust pipe)	mm	1,741
Performance	Rated output	kW/rpm {HP/rpm}	262.5 / 1,900 {352 / 1,900} (Gross)
	Max. torque	Nm/rpm {kgm/rpm}	1,422 / 1,400 {145 / 1,400} (Gross)
	No-load max. speed (High idle speed)	rpm	1,930 (+35/-15)
	No-load min. speed (Low idle speed)	rpm	1,000 ± 25
	Fuel consumption ratio at rated output	g/kW·h {g/HP·h}	211 {157}
Dry weight		kg	1,310
Fuel injection pump		—	DENSO ECD-U2
Governor		—	Electronic control type
Quantity of lubricating oil (Refill capacity)		ℓ	46 (37)
Quantity of coolant (for only engine)		ℓ	 (21)
Alternator		—	24V, 35A, 60A
Starting motor		—	24V, 7.5kW
Battery		—	12V, 150Ah×2
Turbocharger		—	KOMATSU KTR90
Air compressor		—	—
Others		—	With air-cooled aftercooler

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E-40 Code [451/CA451] Rail Press. Sensor High Error

Error code	Failure code	Trouble	Rail Press. Sensor High Error
451	**CA451**		
Contents of trouble	• Signal voltage in common rail pressure sensor circuit is abnormally high.		
Action of controller	• Limits output and continues operation (Limits common rail pressure).		
Problem that appears on machine	• Output drops.		
Related information	• Different machine models may have different connector Nos.		

	Causes		Standard value in normal state/Remarks on troubleshooting			
Possible causes and standard value in normal state	1	Defective sensor power supply system	If code [**352**/**CA352**] or [**386**/**CA386**] is indicated, carry out troubleshooting for it first.			
	2	Defective common rail pressure sensor (Internal trouble)	★ Prepare with starting switch OFF, then turn starting switch ON or start engine and carry out troubleshooting.			
			PFUEL		Voltage	
			Between (1) – (3)	Power supply	4.75 – 5.25V	
			Between (2) – (3)	Signal	0.25 – 4.6V	
			Sensor voltage is measured with wiring harness connected. Accordingly, if voltage is abnormal, check wiring harness and controller, too, for another cause of trouble, and then judge.			
	3	Disconnection in wiring harness (Disconnection in wiring or defective contact in connector)	★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.			
			Wiring harness between ENG (female) (33) – PFUEL (female) (1)		Resistance	Max. 1 Ω
			Wiring harness between ENG (female) (25) – PFUEL (female) (2)		Resistance	Max. 1 Ω
			Wiring harness between ENG (female) (47) – PFUEL (female) (3)		Resistance	Max. 1 Ω
	4	Ground fault in wiring harness (Short circuit with GND circuit)	★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.			
			Wiring harness between ENG (female) (33) – PFUEL (female) (1) and chassis ground		Resistance	Min. 1 MΩ
			Wiring harness between ENG (female) (25) – PFUEL (female) (2) and chassis ground		Resistance	Min. 1 MΩ
			Wiring harness between ENG (female) (47) – PFUEL (female) (3) and chassis ground		Resistance	Min. 1 MΩ

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Troubleshooting of mechanical system (S-mode)

Method of using troubleshooting charts

The troubleshooting chart consists of the "questions", "check items", "causes", and "troubleshooting" blocks. The questions and check items are used to pinpoint high probability causes by simple inspection or from phenomena without using troubleshooting tools.
Next, troubleshooting tools or direct inspection are applied to check the narrowed causes in order from the most probable one to make final confirmation according to the troubleshooting procedure.

Questions:
Items to be drawn from the user or operator. They correspond to **A** and **B** in the chart on the right.
The items in **A** are basic ones. The items in **B** can be drawn from the user or operator, depending on their level.

Check items:
Simple check items used by the serviceman to narrow the causes. They correspond to **C** in the chart on the right.

Causes:
Items to be narrowed from the questions and check items.
The serviceman narrows down the probable causes from **A**, **B**, and **C**.

Troubleshooting:
Items used to find out the true cause by verifying the narrowed causes finally in order from the most probable one by applying troubleshooting tools or direct inspection.

Items listed in the [Questions] and [Check items] and related to the [Causes] are marked with △, ○, and ◎.
△: Causes to be referred to for questions and check items
○: Causes related to questions and check items
◎: Causes highly probable among ones marked with ○
★ When narrowing the "causes", apply the items marked with ◎ before those marked with ○.
When narrowing the "causes", do not apply the items marked with △ (If no items have other marks and the causes cannot be narrowed, however, you may apply them.)

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