SEN01892-05

Shop Manual

HYDRAULIC
EXCAVATOR

PC160LC-7E0

SERIAL NUMBERS 20001 and up

ecot3

KOMATSU®

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Failure code [CA778] Eng Bkup speed sensor error

User code	Failure code	Trouble	Engine Bkup speed sensor error (Engine controller system)
E15	CA778		
Contents of trouble	• There is error in signal from engine Bkup speed sensor.		
Action of controller	• Continues control with signal from engine Ne speed sensor.		
Problem that appears on machine	• Engine does not start easily. • Engine output lowers.		
Related information	• Method of reproducing failure code: Start engine.		

	Cause		Standard value in normal state/Remarks on troubleshooting		
Possible causes and standard value in normal state	1	Defective sensor power supply 2 system	If failure code [CA187] is also displayed, carry out troubleshooting for it first.		
	2	Defective engine Bkup speed sensor	★ Prepare with starting switch OFF, then turn starting switch ON and carry out troubleshooting.		
			CAM		Voltage
			Between (1) – (2)	Power supply	4.75 – 5.25 V
			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	Breakage or improper clearance of engine Bkup speed sensor	Engine Bkup speed sensor may be broken or may have improper clearance. Check it directly.		
	4	Breakage of rotation sensor ring	Rotation sensor ring may be broken. Check it directly.		
	5	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 ECM (female) (26) – CAM (female) (3)	Resistance	Max. 10 Ω
	6	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 ECM (female) (26) – CAM (female) (3)	Resistance	Min. 100 kΩ
	7	Hot short (Short circuit with 5V/24V circuit) in wiring harness	★ Prepare with starting switch OFF, then turn starting switch ON and carry out troubleshooting.		
			Wiring harness between ECM (female) (26) – CAM (female) (3)	Voltage	Max. 1 V
	8	Short circuit in wiring harness (With another wiring harness)	★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.		
			Wiring harness between ECM (female) (26) – CAM (female) (3) or between ECM (female) (37) – S1 – CAM (female) (1)	Resistance	Min. 100 kΩ
			Wiring harness between ECM (female) (26) – CAM (female) (3) or between ECM (female) (47) – S2 – CAM (female) (2)	Resistance	Min. 100 kΩ

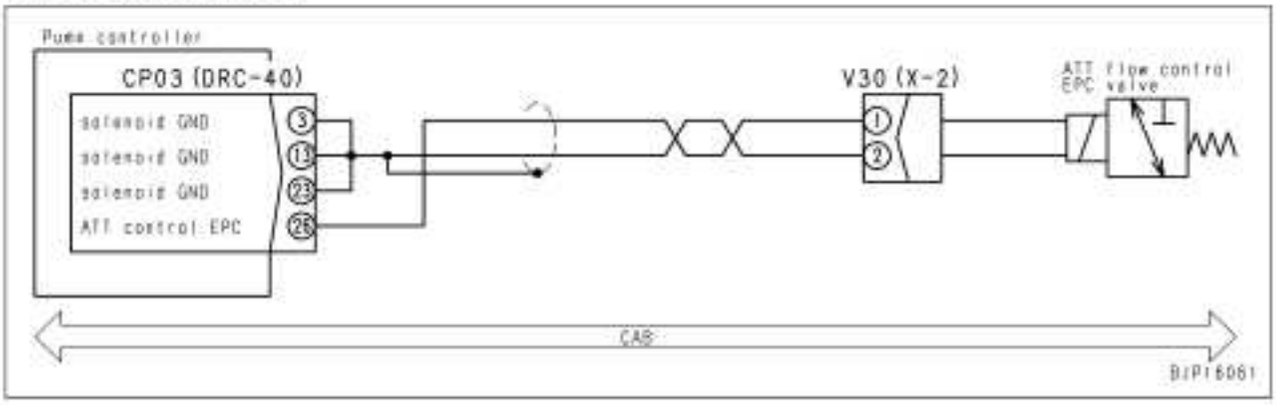
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Failure code [DXE4KB] Service current EPC S/C

User code	Failure code	Trouble	Service current EPC solenoid short (Pump controller system)
—	**DXE4KB**		
Contents of trouble	• Abnormal current flowed to service current EPC solenoid circuit.		
Action of controller	• Sets output to service current EPC solenoid circuit to 0. • Even if cause of failure disappears, system does not reset itself until starting switch is turned OFF.		
Problem that appears on machine	• Attachment does not move.		
Related information	• Carry out troubleshooting only for setting with ATT. (Confirm settings on the machine monitor.) • Output to service current EPC solenoid (current value) can be checked with monitoring function. (Code **01700**: Service solenoid current)		

	Cause		Standard value in normal state/Remarks on troubleshooting		
Possible causes and standard value in normal state	1	Defective service current EPC solenoid (Internal short circuit or ground fault)	★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.		
			V30 (male)	Resistance	
			Between (1) – (2)	7 – 14 Ω	
			Between (1) – chassis ground	Min. 1 MΩ	
	2	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 CP03 (female) (26) – V30 (female) (1) and chassis ground	Resistance	Min. 1 MΩ
	3	Defective pump controller	★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.		
			CP03 (female)	Resistance	
			Between (26) – (3), (13), (23)	7 – 14 Ω	
			Between (26) – chassis ground	Min. 1 MΩ	

Circuit diagram related



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Removal and installation of counterweight

Special tools

Symbol	Part number	Part name	Necessity	Q'ty	N/R	Sketch
–	Commercially available	Impact wrench	●	1		
	Commercially available	Socket wrench (Width across flats : 50 mm)	●	1		

★ Use the impact wrench and socket wrench applicable for the tightening torque for the counterweight mounting bolt.

Mounting bolt:

2,160 – 2,450 Nm {220 – 250 kgm}

Removal

1. Set eyebolts [1] to counterweight assembly (1) and sling the counterweight assembly temporarily.
2. Remove 4 mounting bolts (2). [*1]
3. Lift off counterweight assembly (1).
   ★ Take care not hit the counterweight against the engine. [*2]
   Counterweight: **2,900 kg**



Installation

- Carry out installation in the reverse order to removal.

[*1]

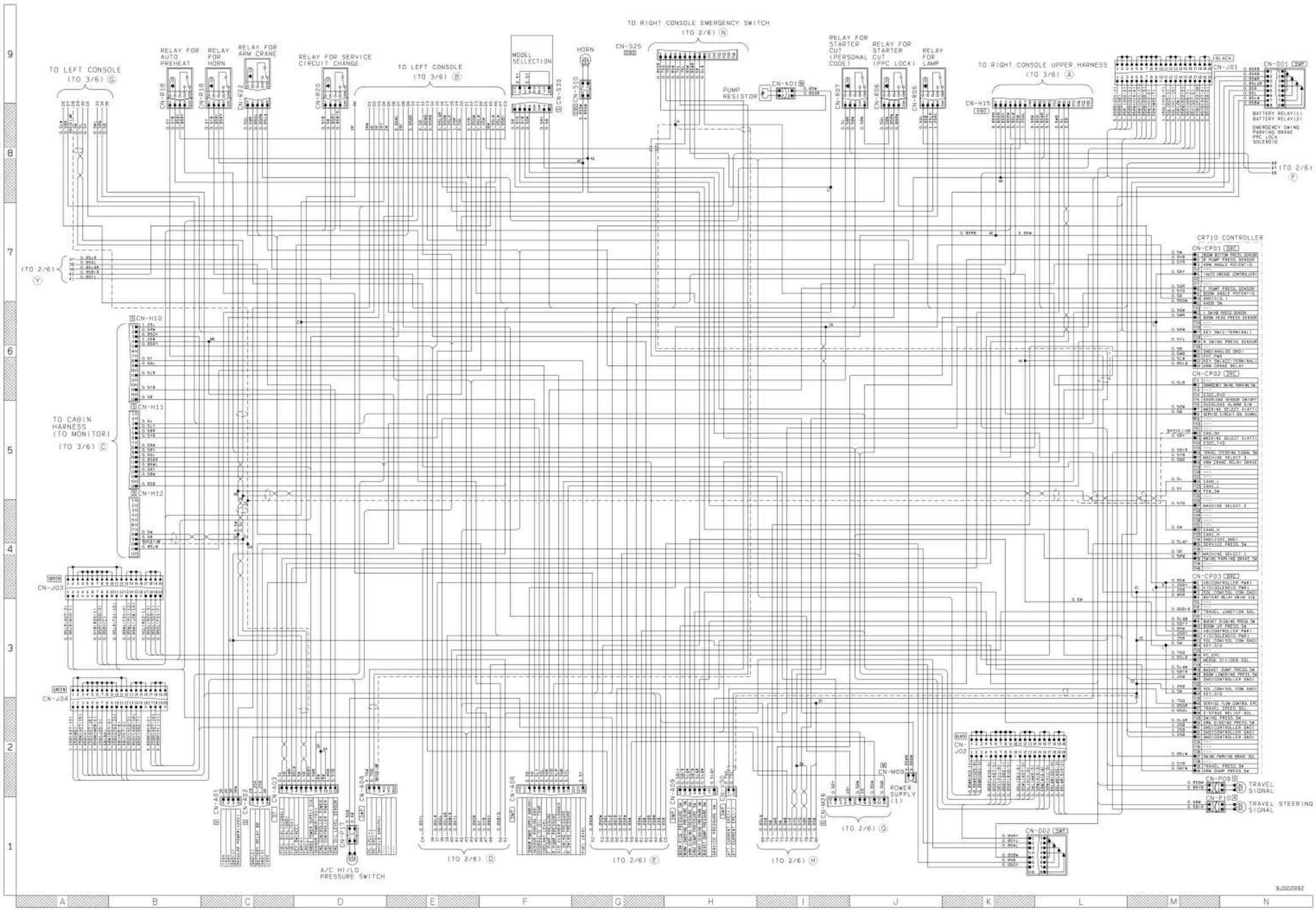
Threads of mounting bolt: **Adhesive (LT-2)**

Mounting bolt (width acrossflats: 50 mm):
2,160 – 2,450 Nm {220 – 250 kgm}

[*2]

★ Install the counterweight so that the clearance between it and the revolving frame and the clearance between it and exterior door will be 10 ± 5 mm on each side.

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