SEN01418-10

Shop Manual

HYDRAULIC
EXCAVATOR

PC228US -3E0
PC228USLC-3E0

SERIAL NUMBERS PC228US- 40001 and up
PC228USLC- 40001

ecot3

KOMATSU®

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Failure code [CA778] Eng Bkup Speed Sensor Error

Action 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 SENSOR		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 CE01 (female) (26) – JC03 – CAM SENSOR (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 CE01 (female) (26) – JC03 – CAM SENSOR (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 CE01 (female) (26) – JC03 – CAM SENSOR (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 CE01 (female) (26) – JC03 – CAM SENSOR (female) (3) or between CE01 (female) (37) – JC01 – CAM SENSOR (female) (1)	Resistance	Min. 100 kΩ
			Wiring harness between CE01 (female) (26) – JC03 – CAM SENSOR (female) (3) or between CE01 (female) (47) – JC02 – CAM SENSOR (female) (2)	Resistance	Min. 100 kΩ

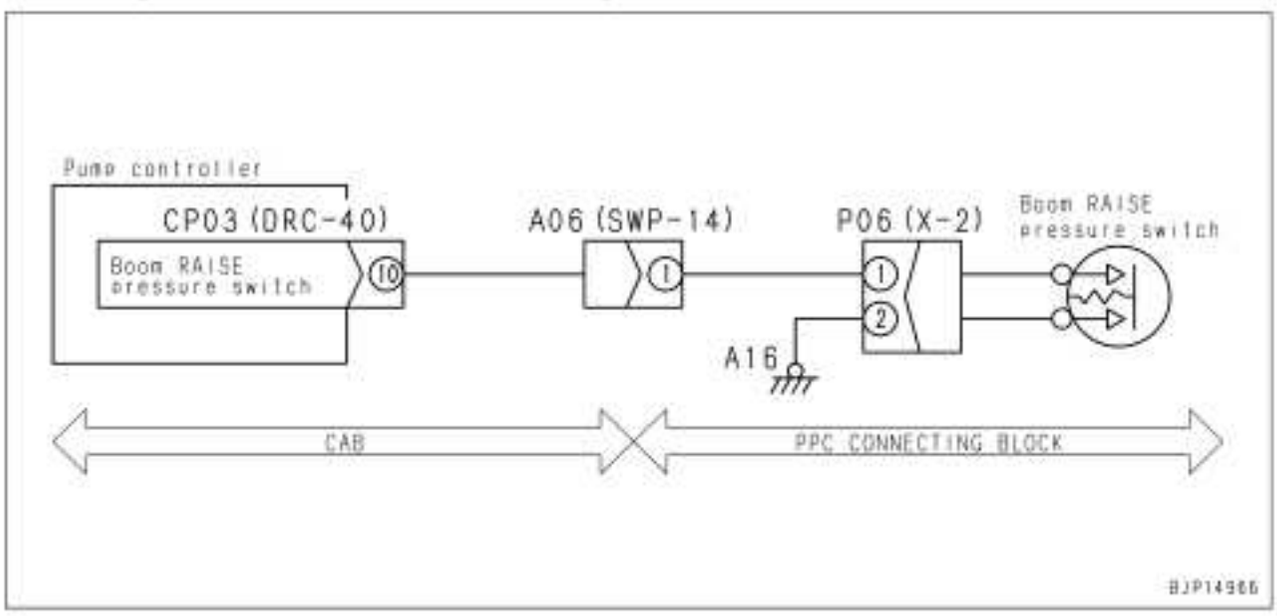
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E-17 Monitoring function fails to display “boom raise” normally

Trouble	• Boom RAISE operation is not displayed normally by machine monitoring function (Special functions)
Related information	• Monitoring code: 01900 (Pressure Switch 1)

<table>
<tr><td rowspan="16">Possible causes and standard value in normal state</td><td colspan="2">Cause</td><td colspan="4">Standard value in normal state/Remarks on troubleshooting</td></tr>
<tr><td rowspan="4">1</td><td rowspan="4">Defective boom RAISE PPC oil pressure switch (Internal disconnection or short circuit)</td><td colspan="4">★ Prepare with starting switch OFF, then start engine and carry out troubleshooting.</td></tr>
<tr><td>P06 (male)</td><td>Boom lever</td><td colspan="2">Resistance</td></tr>
<tr><td rowspan="2">Between (1) – (2)</td><td>Neutral</td><td colspan="2">Min. 1 MΩ</td></tr>
<tr><td>Boom RAISE</td><td colspan="2">Max. 1 Ω</td></tr>
<tr><td rowspan="3">2</td><td rowspan="3">Disconnection in wiring harness (Disconnection in wiring or defective contact in connector)</td><td colspan="4">★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.</td></tr>
<tr><td colspan="2">Wiring harness between CP03 (female) (10) – P06 (female) (1)</td><td>Resistance</td><td>Max. 1 Ω</td></tr>
<tr><td colspan="2">Wiring harness between P06 (female) (2) – chassis ground</td><td>Resistance</td><td>Max. 1 Ω</td></tr>
<tr><td rowspan="2">3</td><td rowspan="2">Ground fault in wiring harness (Short circuit with GND circuit)</td><td colspan="4">★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.</td></tr>
<tr><td colspan="2">Wiring harness between CP03 (female) (10) – P06 (female) (1) and chassis ground</td><td>Resistance</td><td>Min. 1 MΩ</td></tr>
<tr><td rowspan="2">4</td><td rowspan="2">Hot short (Short circuit with 24V circuit) in wiring harness</td><td colspan="4">★ Prepare with starting switch OFF, then turn starting switch ON and carry out troubleshooting.</td></tr>
<tr><td colspan="2">Wiring harness between CP03 (female) (10) – P06 (female) (1) and chassis ground</td><td>Voltage</td><td>Max. 1 V</td></tr>
<tr><td rowspan="4">5</td><td rowspan="4">Defective pump controller</td><td colspan="4">★ Prepare with starting switch OFF, then turn starting switch ON and carry out troubleshooting.</td></tr>
<tr><td>CP03</td><td>Boom lever</td><td colspan="2">Voltage</td></tr>
<tr><td rowspan="2">Between (10) – chassis ground</td><td>Neutral</td><td colspan="2">20 – 30 V</td></tr>
<tr><td>Boom RAISE</td><td colspan="2">Max. 1 V</td></tr>
</table>

Circuit diagram related to boom RAISE PPC oil pressure switch



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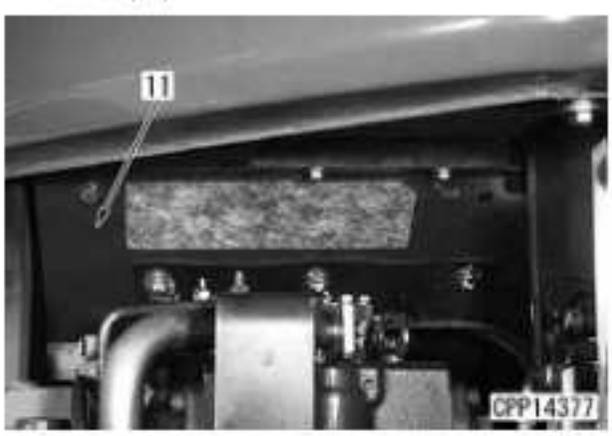
4. Remove the counterweight and following parts. For details, see "Removal of maintenance counterweight (rear of engine)".
   1) Engine hood (4)
   2) Cover (5)
   3) Fuel filter and bracket assembly (6)



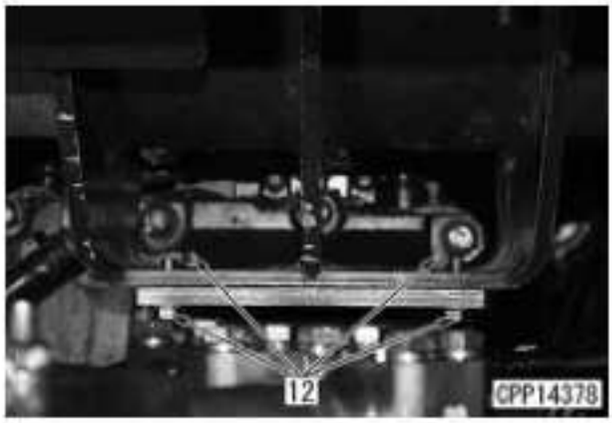
5. Remove covers (7) and (8).
6. Remove partition (rubber) (9).
7. Remove frame (10).



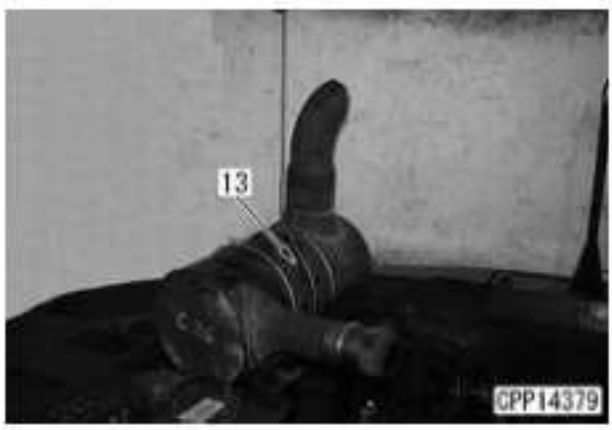
8. Open the rear right inspection cover and remove cover (11).



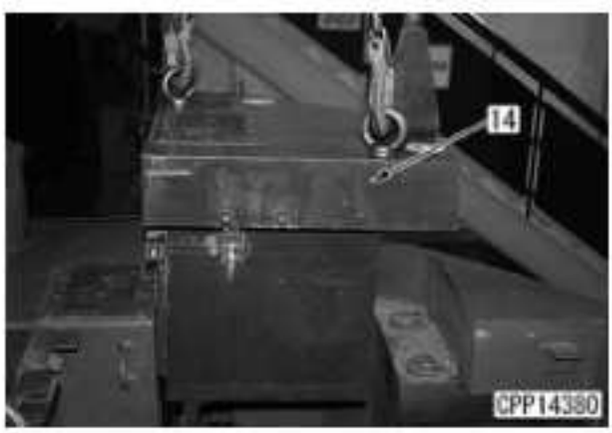
9. Remove muffler mount bolts (12).



10. Remove the muffler cover.
11. Lift off muffler assembly (13).
    Muffler assembly: **35 kg**

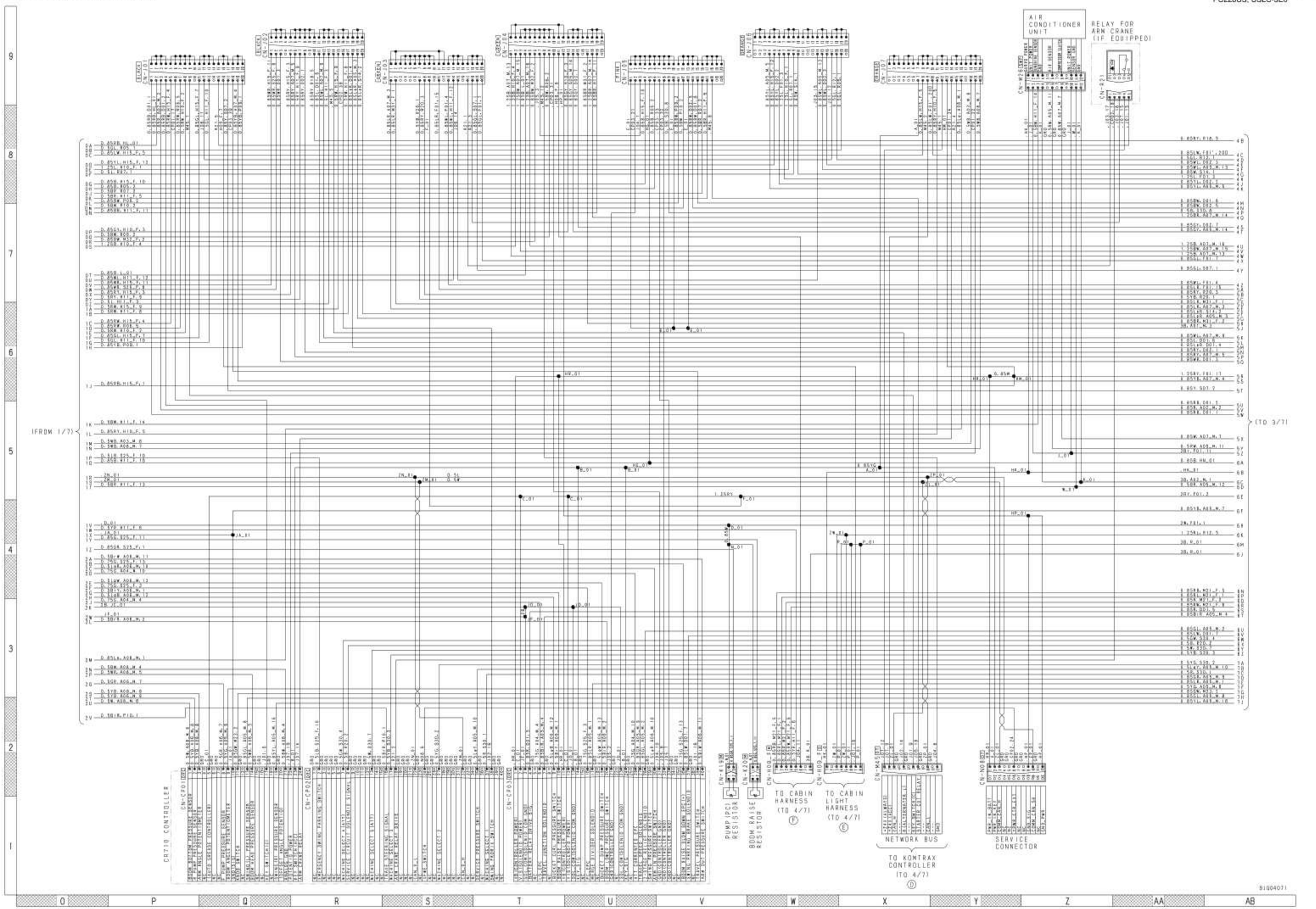


12. Remove side weight (14). For details, see "Removal and installation of maintenance counterweight (rear of engine)".
    Muffler assembly: **265 kg**



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Electrical circuit diagram (2/7)



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