SEN06367-03

Shop Manual

HYDRAULIC
EXCAVATOR

PC170LC-10

SERIAL NUMBERS 30001 and up

KOMATSU®

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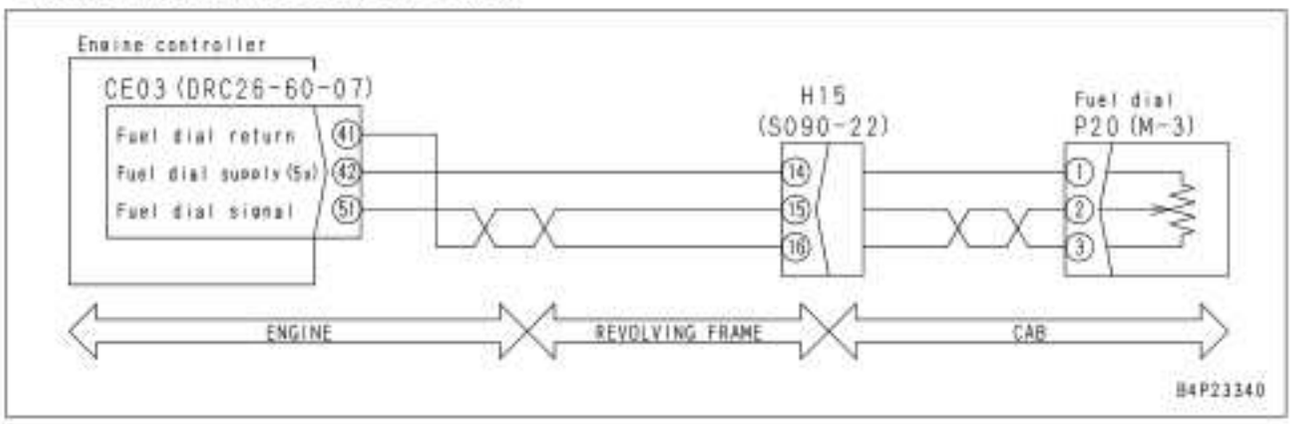
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No.	Cause	Procedure, measuring location, criteria and remarks			
7	Ground fault in wiring harness (contact with ground circuit)	1. Turn starting switch to OFF position. 2. Disconnect connectors CE03 and P20, and connect T-adapters to either female side.			
		Resistance	Between CE03 (female) (51) or P20 (female) (2) and ground		Min. 1 MΩ
8	Defective engine controller	If no failure is found by above checks, engine controller is defective. (Since this is an internal defect, troubleshooting cannot be performed.) • Reference 1. Turn starting switch to OFF position. 2. Insert T-adapters into connector CE03. 3. Turn starting switch to ON position. 4. Operate fuel control dial and perform troubleshooting.			
		Voltage	Between CE03 (42) and (41)	Power supply	4.75 to 5.25 V
			Between CE03 (51) and (41)	Sensor output	0.4 to 4.5 V

Circuit diagram related to throttle sensor



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Failure code [DB2RKR] CAN1 Discon (Engine Con) (PC160-DB2RKR-400-A-Z0-A)

Action level	Failure code	Failure	CAN1 Disconnection (Engine Controller) (Detected by machine monitor.) (Machine monitor system)
L03	DB2RKR		
Detail of failure	• Machine monitor does not recognize engine controller over CAN communication-1 line (KOMNET/r).		
Action of controller	• Retains current working mode. • Retains current selection of auto-deceleration. • Retains information at time of occurrence of failure.		
Problem on machine	• Information to be obtained from engine controller is not displayed and special functions that need information do not work. Or update of received data is stopped. • Engine cannot be controlled. • Engine speed and coolant temperature cannot be detected. • Engine coolant and hydraulic oil temperature gauge pointers disappear on machine monitor screen.		
Related information	• Method of reproducing failure code: Turn starting switch to ON position. • Start of CAN communication is recognized by each controller when ACC signal of starting switch is received. • If failure code [DB2QKR] is also displayed, engine controller is probably defective (cause 1). • Machine monitor uses failure code [DA2RKR] to indicate failure in CAN communication over CAN 1 line. When failure code [DA2RKR] is displayed simultaneously on screen, there may be a ground fault, short circuit, or hot short circuit in wiring harness (CAN communication line). • Terminating resistor of CAN1 on cab side is inside machine monitor, and that on engine side is led from J2 while no connector is used (not in CAN communication-1 line (KOMNET/r)). • Since each controller and machine monitor are connected directly to battery, they are supplied with power even after starting switch is turned to OFF position. • Since signal of active CAN communication line is pulse voltage, it cannot be measured by using multimeter.		

No.	Cause	Procedure, measuring location, criteria, and remarks		
1	Defective engine controller system	Perform checks on causes 1 to 3 in troubleshooting for failure code [DB2QKR].		
2	Defective CAN terminating resistor (Internal open or short circuit)	1. Turn starting switch to OFF position. 2. Disconnect connectors CM02 and ECM J2, and connect T-adapters to male side of CM02 and female side of ECM J2.		
		Resistance	Between ECM J2 (female) (24) and (25)	120±12 Ω
			Between CM02 (male) (10) and (12)	120±12 Ω
3	Open or short circuit in wiring harness	• CAN communication line ★ CAN terminating resistor of 120 Ω is also located in machine monitor. That is, 2 CAN terminating resistors of 120 Ω are connected in parallel. When circuit resistance is measured at connector of controller other than machine monitor, if combined resistance is 60 Ω, wiring harness does not have open circuit. 1. Turn starting switch to OFF position, and turn battery disconnect switch to OFF position. 2. Disconnect connectors CM02, ECM J1, and ECM J2 one by one, and connect T-adapters to each female side. ★ If open circuit is found (resistance between 2 terminals is 1 Ω or below), disconnect all CAN communication connectors of every controller and check whether open circuit occurs in wiring harness or inside controller.		
		Resistance	Between CM02 (female) (11) and (12)	Approx. 120 Ω
			Between CP01 (female) (7) and (26)	Approx. 60 Ω
			Between ECM J1 (female) (8) and (18)	Approx. 120 Ω
4	Open circuit in wiring harness	• ACC signal of starting switch (start of CAN communication is not recognized)		

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Unit: mm

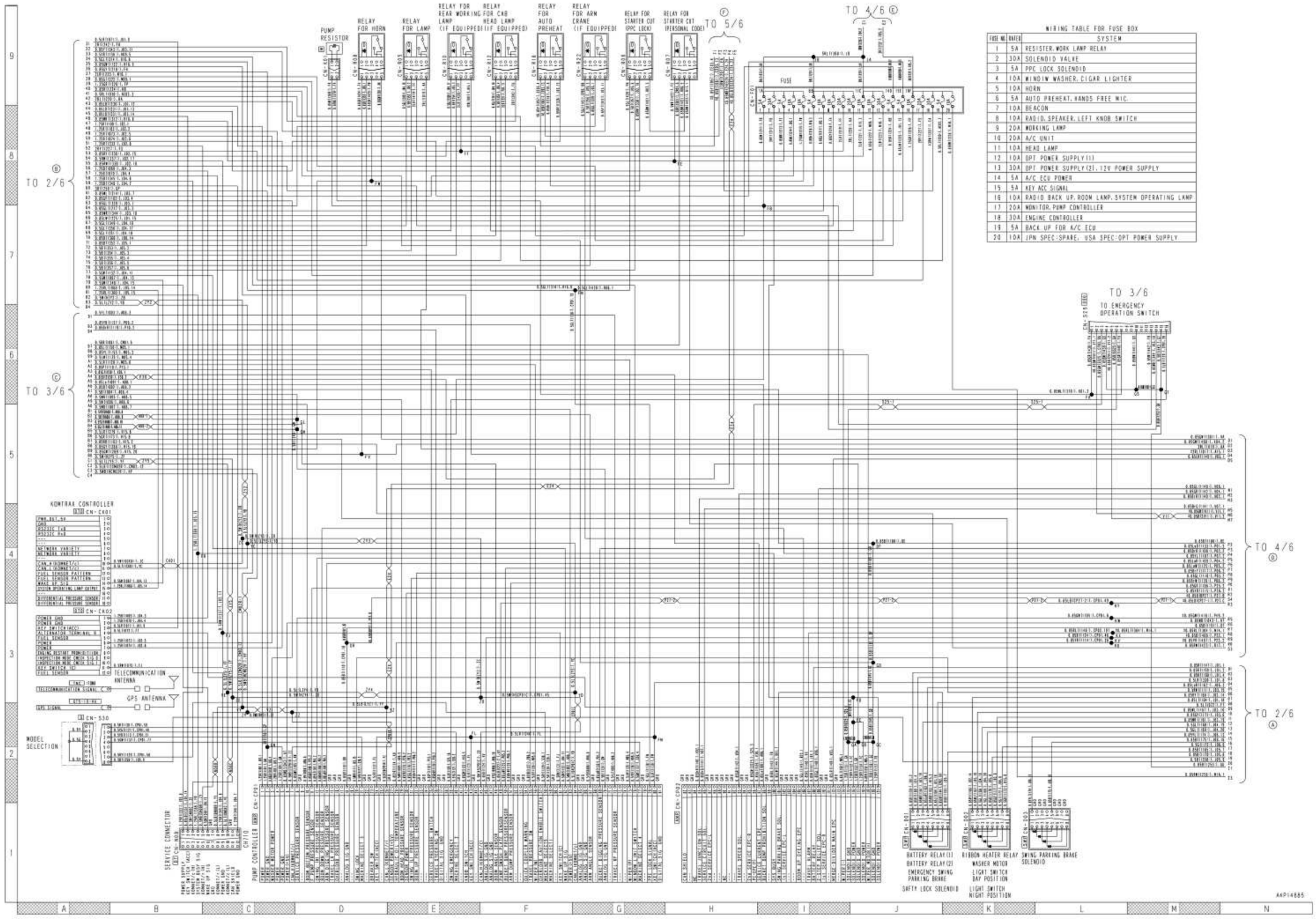
No.	Item		Criteria			Remedy
1	Link pitch		Standard dimension	Repair limit		Turn 180 deg. or replace
			190.3	193.3		
2	Outside diameter of bushing		Standard dimension	Invert		
			59.4	54.4		
3	Thickness of bushing		10.4	5.4		
4	Link height		Standard dimension	Repair limit		Repair or replace
			105	97		
5	Thickness of link (the part where bushing is press-fitted)		28.5	20.5		
6	Shoe bolt pitch		160.4			Adjust or replace
7			124.4			
8			62			
9	Link	Inside width	84.8			
10		Overall width	45.4			
11		Tread width	39.6			
12	Protrusion of pin	Regular	2.5			
		Master	2.5			
13	Protrusion of bushing	Regular	4.85			
		Master	0.0			
14	Overall length of pin	Regular	212			
		Master	212			
15	Overall length of bushing	Regular	138.5			
		Master	128.7			
16	Thickness of spacer		—			
17	Press-fitting force	Bushing	88.2 to 245 kN {9 to 25 ton}			—
18		Regular pin	127.4 to 274.4 kN {13 to 28 ton}			
(*1) 19		Master pin	78.4 to 147 kN {8 to 15 ton}			
20	Shoe bolt	a. Regular link	Tightening torque (Nm {kgm})		Retightening angle (deg.)	Retighten
			Triple grouser shoe	490 ± 49 {50 ± 5}	120 ± 10	
			Road liner	549 ± 59 {56 ± 6}	—	
		b. Master link	Tightening torque (Nm {kgm})	Retightening angle (deg.)	Lower limit torque (Nm {kgm})	
			—	—	—	
21	Interference between bushing and link		Standard dimension	Tolerance		Standard interference	Adjust or replace
				Shaft	Hole	
			59	+0.434 +0.394	+0.074 0	0.320 to 0.434
22	Interference between regular pin and link		38	+0.222 +0.162	–0.138 –0.200	0.300 to 0.422
23	Clearance between regular pin and bushing		Standard dimension	Tolerance		Standard clearance
				Shaft	Hole	
			38	+0.222 +0.162	+0.902 +0.402	0.180 to 0.740

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Electrical circuit diagram (1/6)

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★ This figure covers the equipment and devices that are unavailable as optional items in some areas.



WIRING TABLE FOR FUSE BOX

FUSE NO.	RATED	SYSTEM
1	5A	RESISTER, WORK LAMP RELAY
2	30A	SOLENOID VALVE
3	5A	PPC LOCK SOLENOID
4	10A	WINDOW WASHER, CIGAR LIGHTER
5	10A	HORN
6	5A	AUTO PREHEAT, HANDS FREE MIC.
7	10A	BEACON
8	10A	RADIO, SPEAKER, LEFT KNOB SWITCH
9	20A	WORKING LAMP
10	20A	A/C UNIT
11	10A	HEAD LAMP
12	10A	OPT POWER SUPPLY(1)
13	30A	OPT POWER SUPPLY(2), 12V POWER SUPPLY
14	5A	A/C ECU POWER
15	5A	KEY ACC SIGNAL
16	10A	RADIO BACK UP, ROOM LAMP, SYSTEM OPERATING LAMP
17	20A	MONITOR, PUMP CONTROLLER
18	30A	ENGINE CONTROLLER
19	5A	BACK UP FOR A/C ECU
20	10A	JPN SPEC:SPARE, USA SPEC:OPT POWER SUPPLY

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