UEN00084-01

Shop Manual

KOMATSU®

PC210-8
PC210LC-8
PC210NLC-8
PC230NHD-8
PC240LC-8
PC240NLC-8

SERIAL NUMBERS	PC210-	K50001	and up
	PC210LC-	K50001	
	PC210NLC-	K50001	
	PC230NHD-	K50001	
	PC240LC-	K50001	
	PC240NLC-	K50001	

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Table of fuel, coolant and lubricants

★ For details of the notes (Notes 1, Note 2...) in the table, see Operation and Maintenance Manual.

Reservoir	Fluid type	AMBIENT TEMPERATURE		Recommended komatsu Fluids
		Min	Max	
Engine oil pan	Engine oil	-30°C	30°C	Komatsu EOS0W30
		-25°C	40°C	Komatsu EOS5W40
		-20°C	40°C	Komatsu EO10W30DH
		-15°C	50°C	Komatsu EO15W40DH
		0°C	40°C	Komatsu EO30DH
Swing machinery case Final drive case Damper case	Power train oil (Note. 2)	-30°C	50°C	TO30
Hydraulic system	Power train oil	-20° C	50° C	TO10
	Hydraulic oil	-20° C	50° C	HO46-HM
Grease fitting	Hyper grease (Note. 3)	-20° C	50° C	G2-TE
	Lithium EP grease	-20° C	50° C	G2-LI
Cooling system	Supercoolant AF-NAC	-30°C	50°C	AF-NAC (Note. 4)
Fuel tank	Diesel fuel	0° C	50° C	ASTM No. 2-D (Grade low sulphur)
		-30° C	20° C	ASTM No. 1-D (Grade low sulphur)

		Engine oil pan	Swing machinery case	Final drive case (each)	Damper case	Hydraulic system	Fuel tank	Cooling system
Specified capacity	litre	25.4	7.1 (PC210/230) 8.2 (PC240)	3.5 (PC210) 5.4 (PC230/240)	0.65	234 (PC210/230) 239 (PC240)	325 400	21.0 (PC210/230) 20.4 (PC240)
Refill capacity	litre	23.1	7.1 (PC210/230) 8.2 (PC240)	3.3 (PC210) 5.2 (PC230/240)	-	135	-	-

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Failure code [CA488] Chg Air Temp High Torque Derate

User code	Failure code	Trouble	Charge air temperature high torque derate (Engine controller system)
E15	CA488		
Contents of trouble	• Temperature signal of boost pressure/temperature sensor exceeded control upper temperature limit.		
Action of controller	• Limits output and continues operation.		
Problem that appears on machine	• Engine output lowers.		
Related information	• Boost temperature can be checked with monitoring function. (Code: 18500 Boost temperature) • 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	Lowering of cooling performance of aftercooler	Cooling performance of aftercooler may be low. Check following points directly. • Looseness and breakage of fan belt. • Insufficiency of cooling air • Clogging of aftercooler fins
	2	Abnormal rise of turbocharger outlet temperature	Outlet temperature of turbocharger may be abnormally high. Check related parts directly.
	3	Defective engine controller	If causes 1 – 2 are not detected, engine controller may be defective. (Since trouble is in system, troubleshooting cannot be carried out.)

Failure code [CA553] Rail Press High Error

User code	Failure code	Trouble	Common rail pressure high error (Engine controller system)
E11	CA553		
Contents of trouble	• There is high pressure error in common rail circuit.		
Action of machine monitor	• None in particular.		
Problem that appears on machine	• Engine sound becomes large when no or light load is applied. • Engine output lowers.		
Related information	• Common rail pressure can be checked with monitoring function. (Code: 36400 Common rail pressure) • 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	Defect in related system	If another failure code is displayed, carry out troubleshooting for it.
	2	Defective connection of ground terminal	Ground terminal may be connected defectively. Check following terminals directly. • Ground terminal of machine ((–) terminal of battery) • Ground terminal of engine • Ground terminal of engine controller • Ground terminal of starting motor
	3	Breakage of O-ring of supply pump actuator	O-ring of supply pump actuator may be broken. Check it directly.

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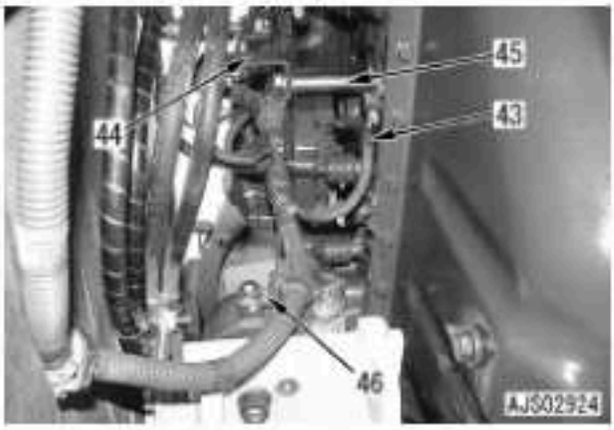
Failure code [DXE0KA] LS-EPC Sol Discon

User code	Failure code	Trouble	LS-EPC solenoid system disconnection (Pump controller system)
—	DXE0KA		
Contents of trouble	• When LS-EPC solenoid was driven, disconnection was detected in circuit.		
Action of controller	• None in particular (Since no current flows, solenoid does not operate). • If cause of failure disappears, system resets itself.		
Problem that appears on machine	• Travel speed is high at Lo and Mi. • Work equipment speed and swing speed are high in lifting mode (L).		
Related information	• Drive current of LS-EPC solenoid can be checked with monitoring function. (Code: 01500 LS-EPC solenoid current) • Method of reproducing failure code: Turn starting switch ON.		

	Cause		Standard value in normal state/Remarks on troubleshooting			
Possible causes and standard value in normal state	1	Defective LS-EPC solenoid (Internal disconnection)	★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.			
			V19 (male)	Resistance		
			Between (1) – (2)	7 – 14 Ω		
	2	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 C02 (female) (88) – V19 (female) (1)	Resistance	Max. 1 Ω	
			Wiring harness between C02 (female) (115), (117), (120) – V19 (female) (2)	Resistance	Max. 1 Ω	
	3	Defective pump controller	★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.			
			C02 (female)	Resistance		
			Between (88) – (115), (117), (120)	7 – 14 Ω		

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41. Disconnect engine controller ground T12 (43).
42. Disconnect bracket (44) and remove spacer (45).
43. Disconnect clamp (46).



44. Disconnect terminal (46) from the starter ST.
45. Disconnect connector E10 (47).
    ★ Connector at the starting motor side:T13
46. Disconnect connectors E08 (48) and P44 (49).
47. Disconnect clamp (50).



48. Disconnect clamp (51). (PC240-8 only)
49. Remove filter and bracket assembly (52).
    ★ Put it on hose bracket (HB).

PC210/230-8

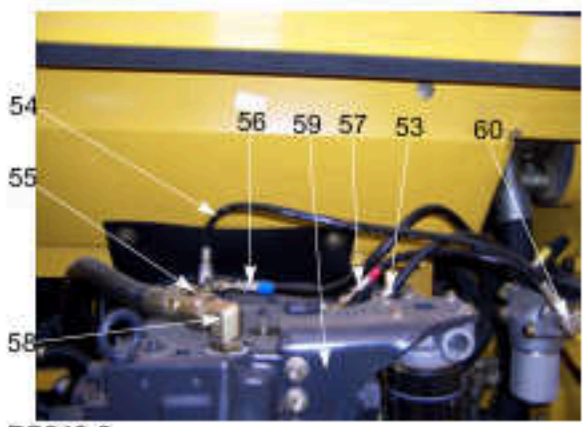


PC240-8

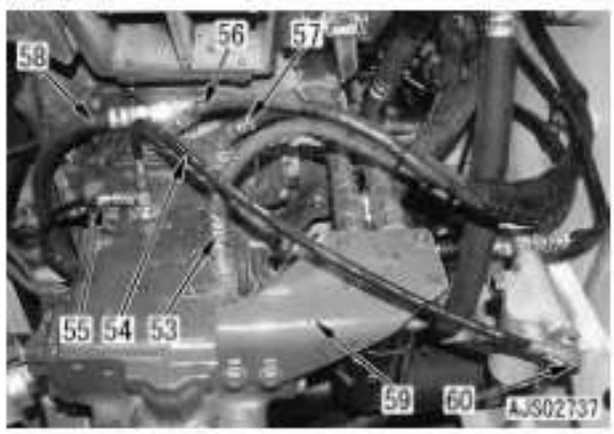


50. Disconnect six hoses.
    - (53): Rear load pressure input port hose (Color band: No color)
    - (54), (55): EPC basic pressure port hose (Color band: No color)
    - (56): Pump pressure input port hose (Color band: blue)
    - (57): Front load pressure input port hose (Color band: red)
    - (58): Drain port hose
51. Disconnect bracket (59).
52. Turn elbow (60) downward.
    ★ To be not obstructive in removing the engine.

PC210/230-8



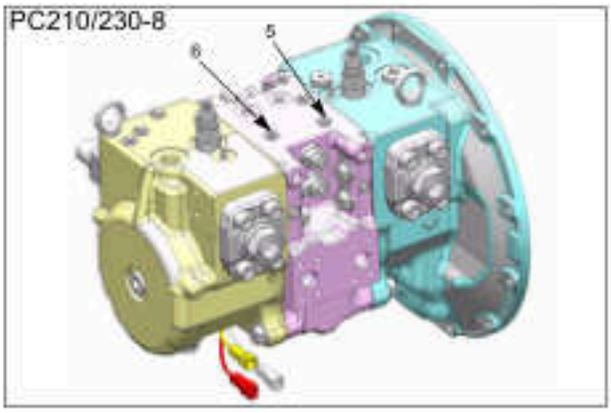
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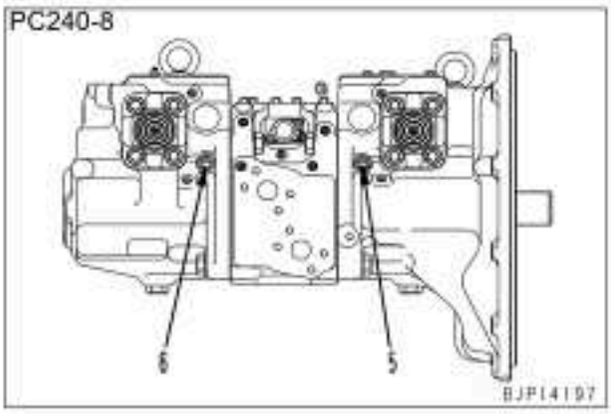
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- (5): Front LS pressure pickup plug
- (6): Rear LS pressure pickup plug

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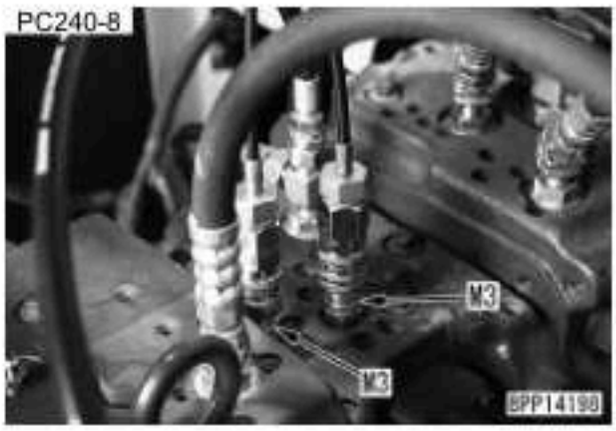


2) Install nipples **M3** and connect it to differential pressure gauge **M2** or the oil pressure gauge of hydraulic tester **M1**.
   - ★ When using differential pressure gauge **M2**:
     Connect the pump discharge pressure to the high pressure side (back side) and connect the LS pressure to the low pressure side (lower side). Since the differential pressure gauge needs a 12V power source, connect it to a battery.
   - ★ When using oil pressure gauge (in **M1**):
     Use the oil pressure gauge of 58.8 MPa {600 kg/cm^2} having the unit of 0.98 MPa {10 kg/cm^2}. Since the differential pressure is about 3.9 MPa {40 kg/cm^2} at maximum, measure it by installing the same gauge to the pickup plugs alternately.
   - The figure shows the pump discharge pressure side.

PC210/230-8



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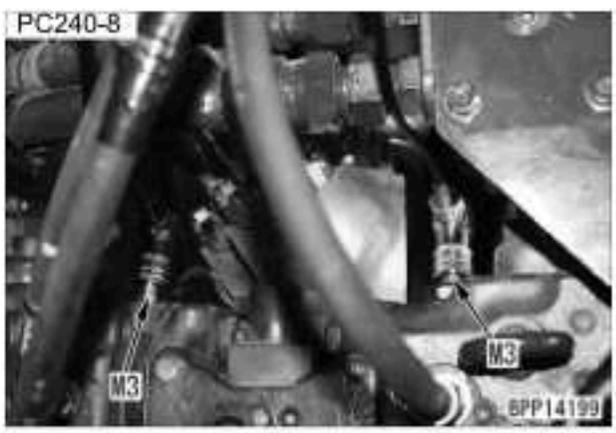


- The figure shows the LS pressure side.

PC210/230-8



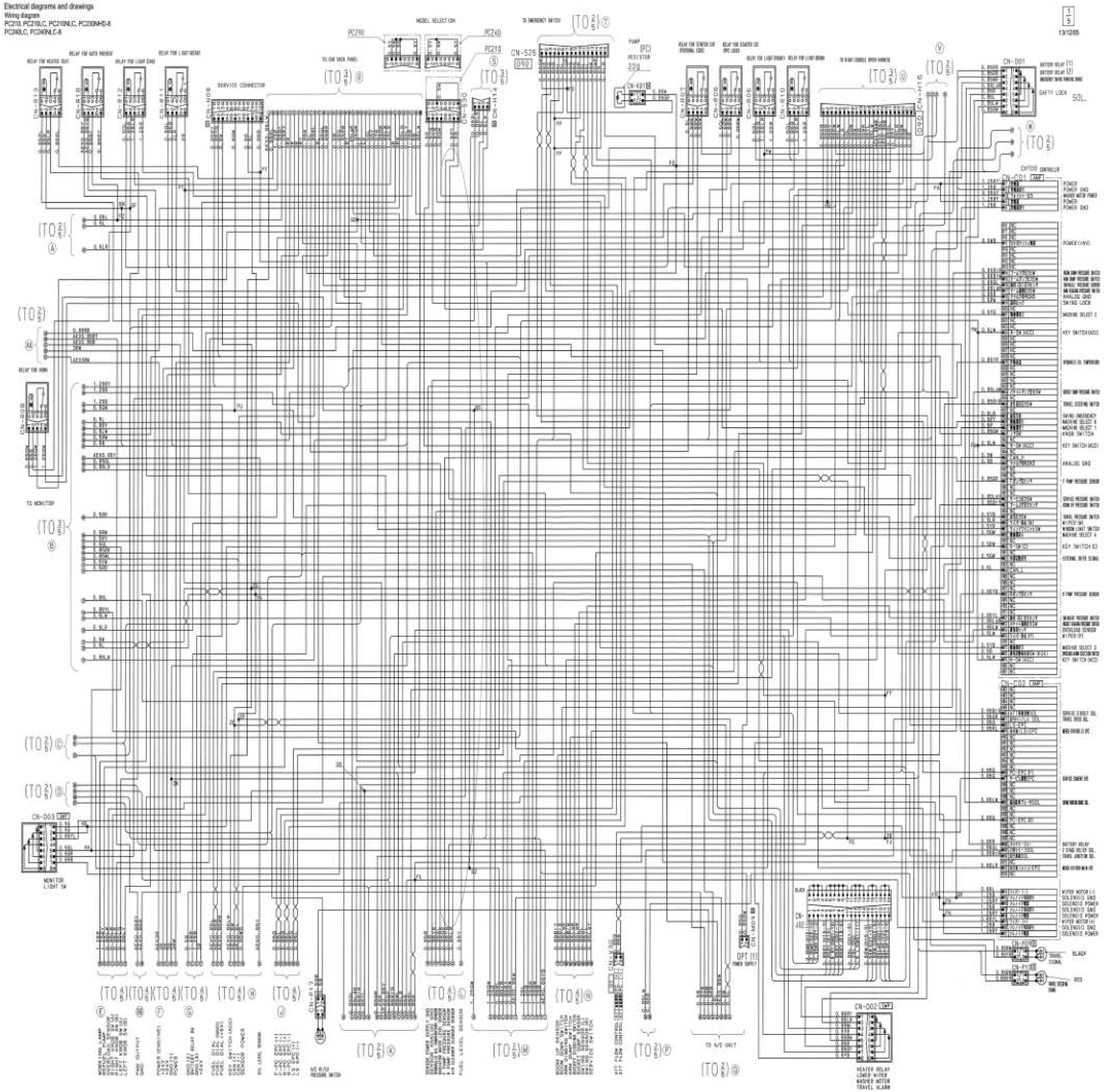
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Electrical diagrams and drawings

Electrical circuit diagram (1/5)



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