SEN06607-03

Shop Manual

HYDRAULIC
EXCAVATOR

PC170LC-11

SERIAL NUMBERS 35001 and up

KOMATSU®

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FAILURE CODE [CA4169]

Action level	Failure code	Failure	AdBlue/DEF Pump Heater OFF Stuck Error (Engine controller system)
L01	CA4169		
Detail of failure	AdBlue/DEF pump thawing cannot be completed.		
Action of controller	Activates inducement strategy.		
Phenomenon on machine	• AdBlue/DEF pump thawing is disabled. • NOx emission increases because AdBlue/DEF injection is disabled at low temperature.		
Related information	• Connectors of electrical parts around engine may be defective due to heat and vibration. See "RELATED INFORMATION ON TROUBLESHOOTING", "CHECKS BEFORE TROUBLESHOOTING", "Electrical equipment", and check them according to the descriptions of wiring harness and connectors. • If failure codes [CA2976], [CA3558], [CA3559], [CA4155], or [CA4156] is also displayed, perform the troubleshooting for that code first. • On Pre-defined Monitoring screen, AdBlue/DEF pump thawing control related is used. • 19309 AdBlue/DEF Pump Heater State, 1: Thawing, 2: Warming, 3 or 0: OFF (The numbers below denote monitoring codes.) • Pre-defined Monitoring (20/22) AdBlue/DEF pump thawing control related 1. 19107 AdBlue/DEF Pump Heater 1 Command 2. 19309 AdBlue/DEF Pump Heater State 3. 19136 AdBlue/DEF Pump Temperature 4. 19304 AdBlue/DEF Pump State 5. 19400 Ambient Temperature 6. 03203 Battery Power Supply **NOTICE** **For this failure code, after investigating the cause of the problem and completing the repair, perform "Loaded Diagnostics Operation to Confirm Failure Correction", and determine by that result if repair is completed.** **(Do not determine the completion of repair by clearing of failure code.)** **(This failure code is not cleared by simply turning the starting switch to ON position or performing "AdBlue/DEF Pump Heater Relay Test".)** • **When starting switch is turned to ON position, if "AdBlue/DEF Pump Temperature" is higher than 45 °C, controller cannot determine the completion of repair correctly even if "Loaded Diagnostics Operation to Confirm Failure Correction" is performed. Wait until "AdBlue/DEF Pump Temperature" becomes 45 °C or lower.** • **If "AdBlue/DEF Pump Temperature" is 55 °C or higher, "AdBlue/DEF Pump Heater Relay Test" of "Loaded Diagnostics Operation to Confirm Failure Correction" cannot be performed.**		

No.	Cause	Procedure, measuring location, criteria and remarks
1	Defective AdBlue/DEF pump heater	1. Perform "Loaded Diagnostics Operation To Confirm Failure Correction". 2. If the AdBlue/DEF pump temperature does not rise by at least 5 °C during the test, replace the AdBlue/DEF pump. 3. Perform "Loaded Diagnostics Operation To Confirm Failure Correction".
2	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.)

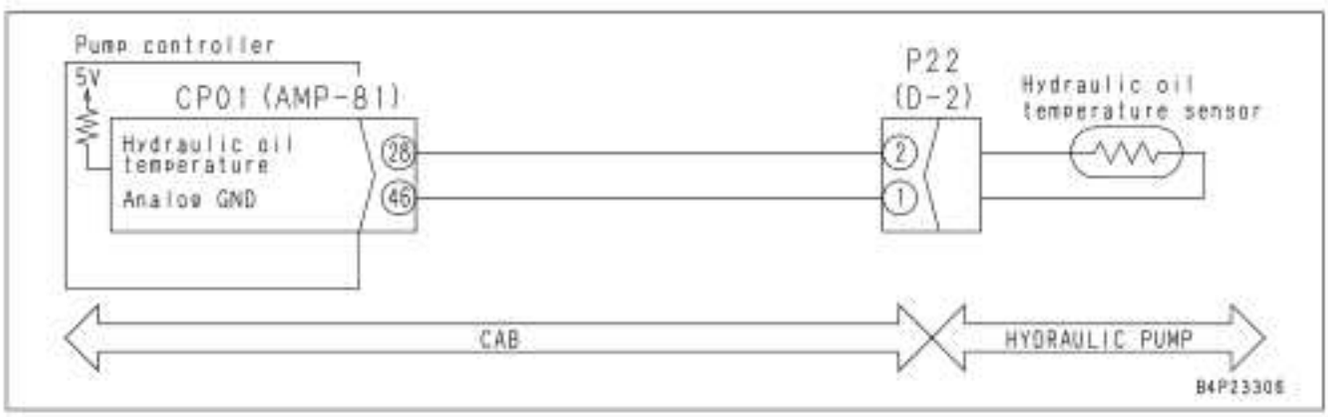
Loaded Diagnostics Operation To Confirm Failure Correction

Perform the following procedure to check that the repair is completed.

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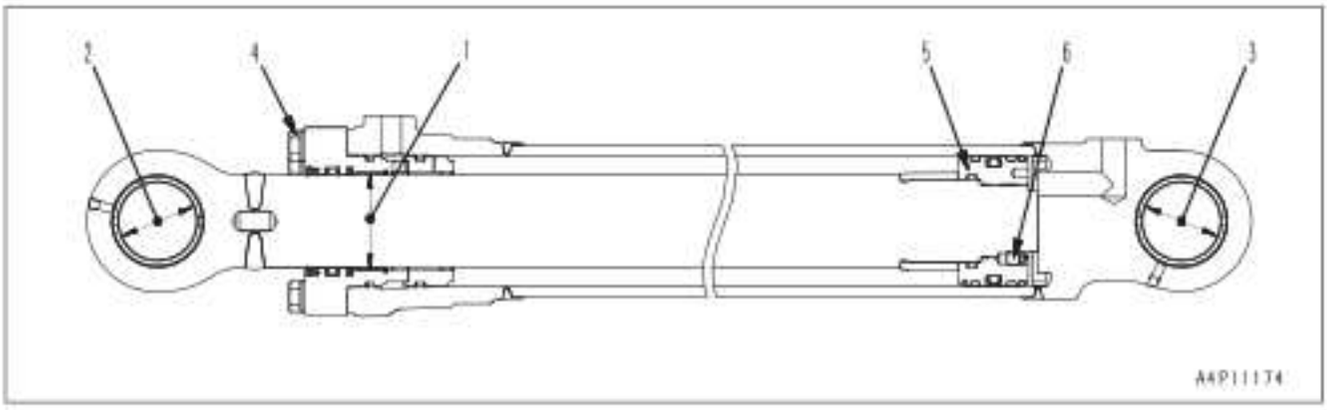
<table>
<tr><th>No.</th><th>Cause</th><th colspan="3">Procedure, measuring location, criteria and remarks</th></tr>
<tr><td rowspan="2">3</td><td rowspan="2">Open or short circuit in wiring harness</td><td colspan="3">1. Turn starting switch to OFF position.
2. Disconnect connector CP01 and connect T-adapter to female side.
REMARK
The resistance value is the same as the one listed in Temperature-Resistance characteristics table of cause 1
REMARK
If the resistance value is 1 MΩ or more, a open circuit exists. If 1 Ω or less, a short circuit exists</td></tr>
<tr><td>Resistance</td><td>Between CP01 (female) (28) and (46)</td><td>3.5 to 90 kΩ</td></tr>
<tr><td rowspan="3">4</td><td rowspan="3">Open circuit in wiring harness
(Wire breakage or defective contact of connector)</td><td colspan="3">If failure code is still displayed after above checks on cause 2, this check is not required.
1. Turn starting switch to OFF position.
2. Disconnect connectors CP01 and P22 and connect T-adapters to each female side.</td></tr>
<tr><td rowspan="2">Resistance</td><td>Between CP01 (female) (46) and P22 (female) (1)</td><td>Max. 1 Ω</td></tr>
<tr><td>Between CP01 (female) (28) and P22 (female) (2)</td><td>Max. 1 Ω</td></tr>
<tr><td>5</td><td>Defective pump controller</td><td colspan="3">If no failure is found by preceding checks, pump controller is defective. (In case of an internal defect, troubleshooting is impossible as an assembly. Replace whole assembly).</td></tr>
</table>

Circuit diagram related to hydraulic oil temperature sensor



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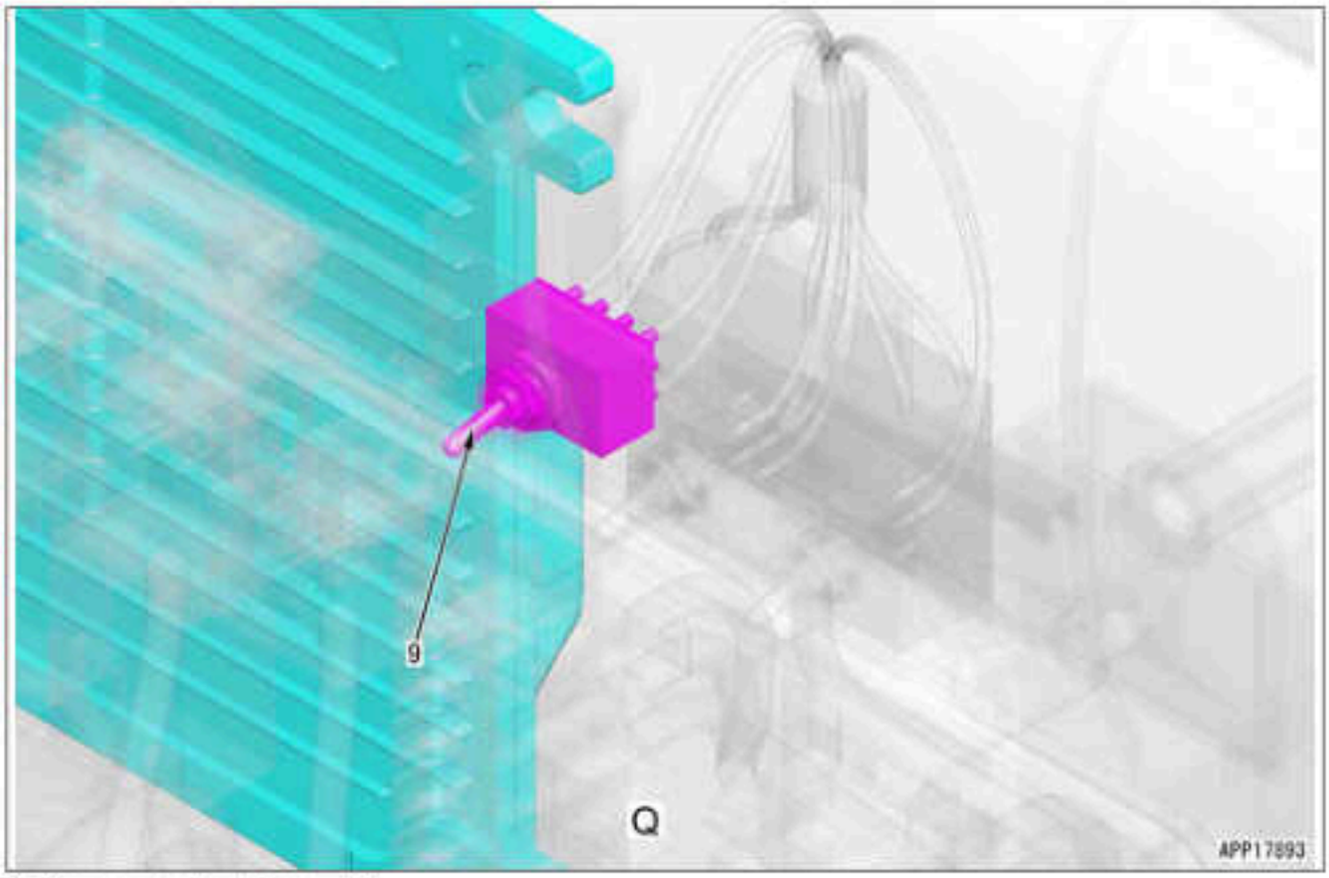
MAINTENANCE STANDARD OF BOOM CYLINDER



Unit: mm

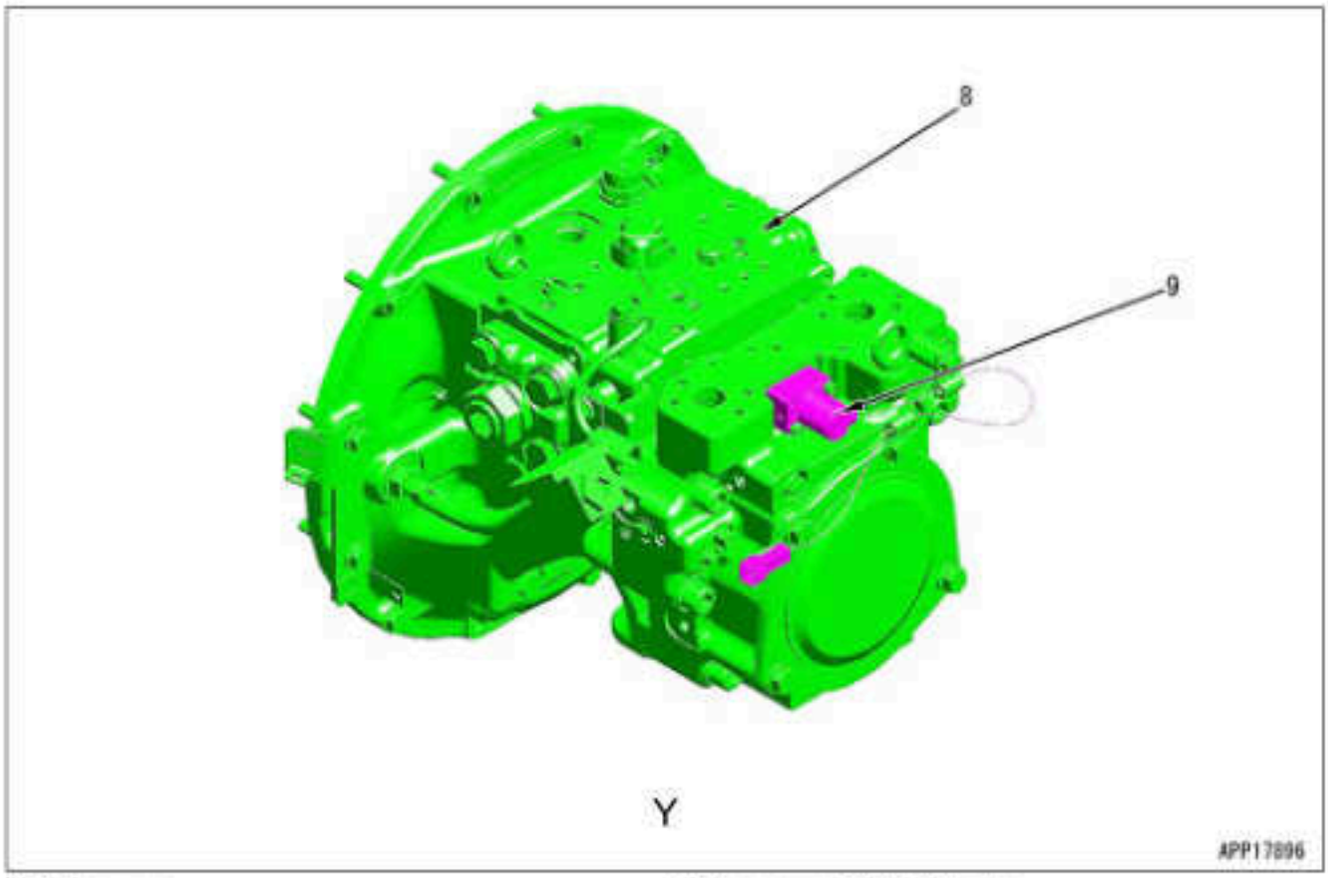
No.	Item	Criteria					Remedy
		Standard dimension	Tolerance		Standard clearance	Allowable clearance	
			Shaft	Hole			
1	Clearance between piston rod and bushing	75	-0.030 -0.076	+0.279 +0.065	0.095 to 0.355	0.455	Replace bushing
2	Clearance between piston rod support shaft and bushing	70	-0.030 -0.060	+0.190 +0.070	0.100 to 0.250	1.0	Replace pin and bushing
3	Clearance between cylinder bottom support shaft and bushing	70	-0.030 -0.060	+0.190 +0.070	0.100 to 0.250	1.0	
4	Tightening torque of cylinder head	270 ± 39.0 Nm {27.5 ± 4.0 kgm}					Retighten
5	Tightening torque of cylinder piston	294 ± 29.4 Nm {30.0 ± 3.0 kgm}					
6	Tightening torque of cylinder piston fixing screw	58.9 to 73.6 Nm {6.0 to 7.5 kgm}					

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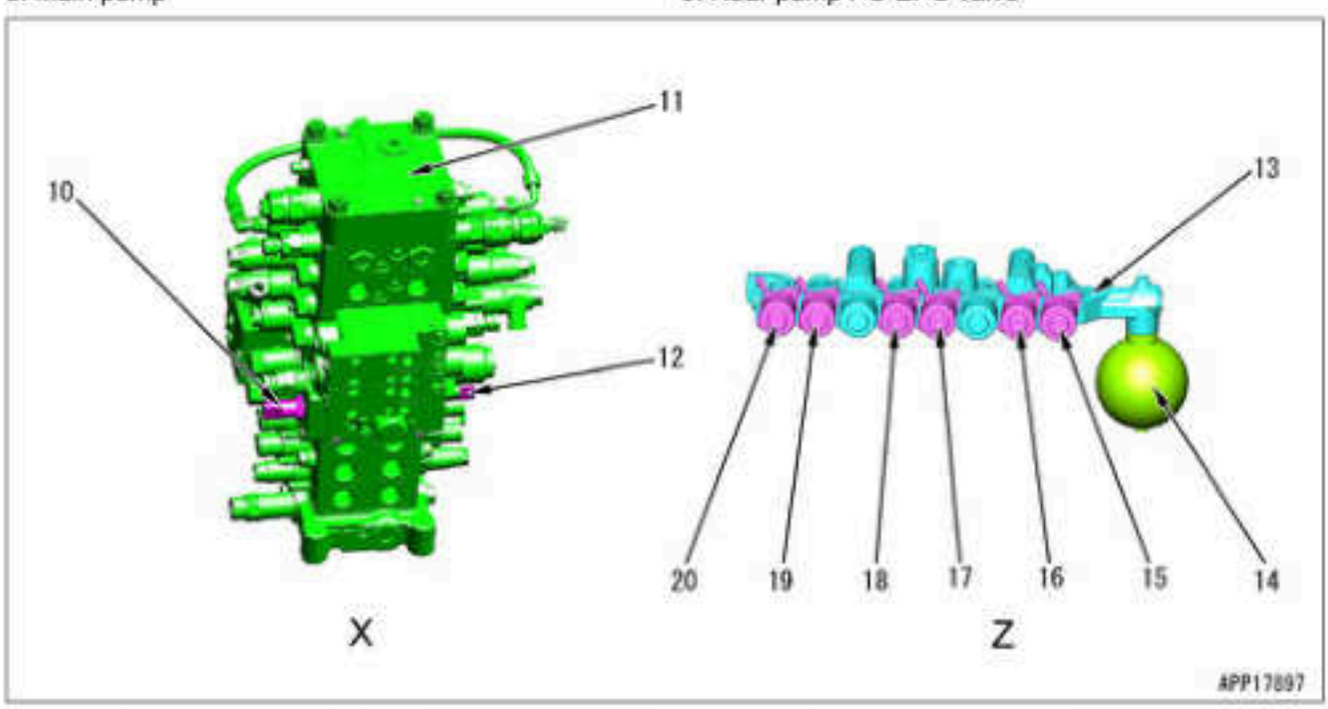


9: Pump secondary drive switch

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8: Main pump
9: Rear pump PC-EPC valve



10: Front pump oil pressure sensor
11: Control valve
12: Rear pump oil pressure sensor
13Solenoid valve
14: Pilot circuit accumulator
15: PPC lock solenoid valve
16: 2-stage relief solenoid valve
17: Travel speed increase solenoid valve
18: Travel junction solenoid valve
19: LS separation solenoid valve
20: Attachment circuit selector solenoid valve

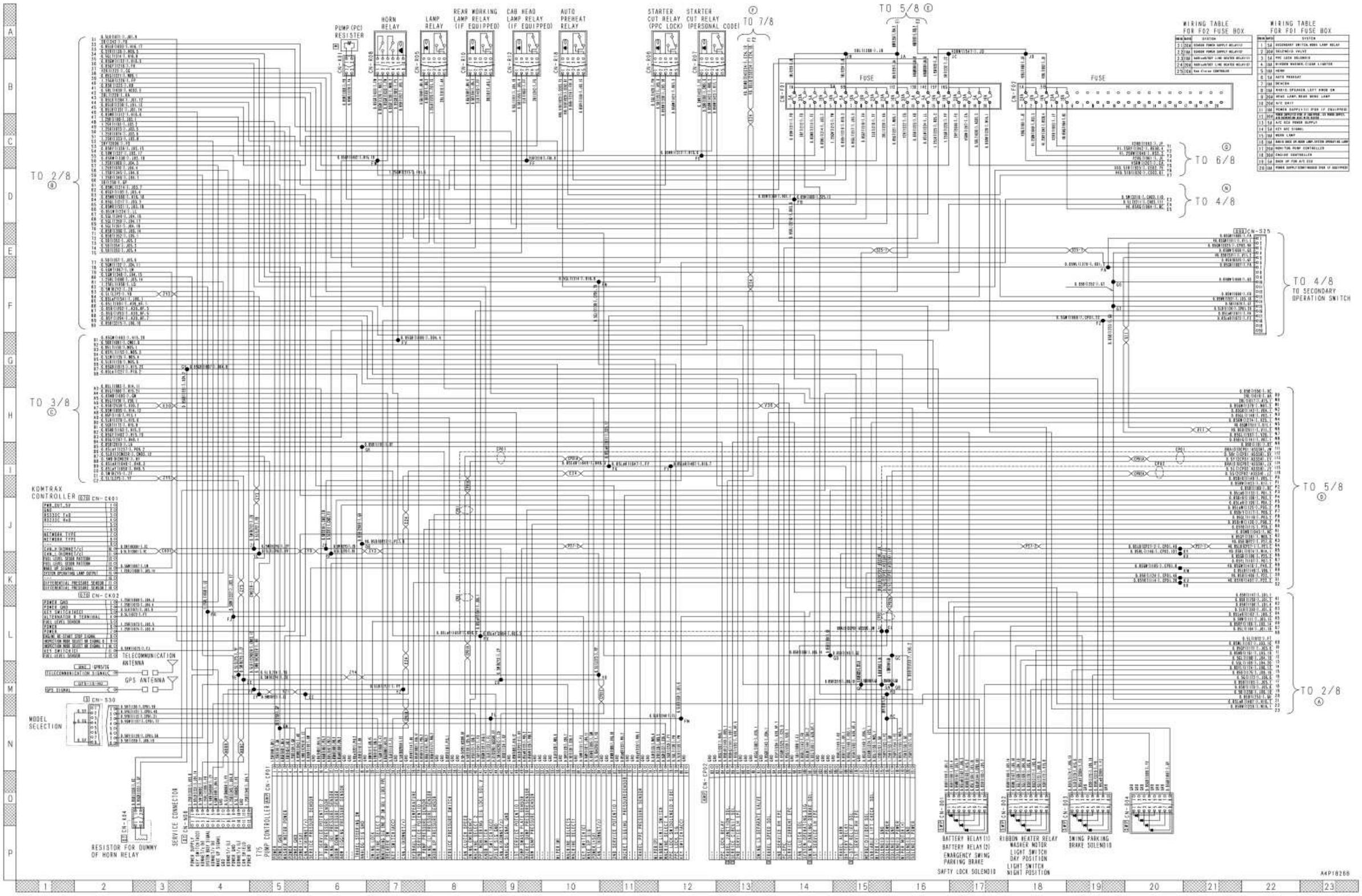
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ELECTRICAL CIRCUIT DIAGRAM (1/8)

PC170LC-11 (Machine with KomVision)

REMARK

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



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