SEN02223-15

Shop Manual

HYDRAULIC
EXCAVATOR

PC400 -8
PC400LC-8
PC450 -8
PC450LC-8

SERIAL NUMBERS

PC400-	70001	and up
PC400LC-	70001	
PC450-	70001	
PC450LC-	70001	

ecot3

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Table of contents

00 Index and foreword
Index SEN02225-15
Composition of shop manual 2
Table of contents 4
Foreword and general information SEN02226-02
Safety notice 2
How to read the shop manual 7
Explanation of terms for maintenance standard 9
Handling of electric equipment and hydraulic component 11
Handling of connectors newly used for engines 20
How to read electric wire code 23
Precautions when carrying out operation 26
Method of disassembling and connecting push-pull type coupler 29
Standard tightening torque table 32
Conversion table 36

01 Specification
Specification and technical data SEN02228-02
Specification dimension drawings 2
Specifications 4
Weight table 8
Table of fuel, coolant and lubricants 12

10 Structure, function and maintenance standard
Engine and cooling system SEN02230-00
Engine related parts 2
Radiator, oil cooler and aftercooler 3
Power train SEN02231-00
Power train 2
Swing circle 3
Swing machinery 4
Final drive 6
Sprocket 8
Undercarriage and frame SEN02232-00
Track frame and recoil spring 2
Idler 4
Carrier roller 6
Track roller 7
Track shoe 8
Hydraulic system, Part 1 SEN02233-00
Hydraulic equipment layout drawing 2
Hydraulic tank and filter 4
Hydraulic pump 6
Hydraulic system, Part 2 SEN02234-04
Control valve 2
CLSS 14
Functions and operation by valve 18
Merge-divider valve 33
Attachment circuit selector valve 58
Holding valve 60
Hydraulic system, Part 3 SEN02235-02
Valve control 2
PPC valve 4
Solenoid valve 20

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PPC accumulator 22
Anti-drop valve for boom 24
Anti-drop valve for arm 30
Return oil filter 37
Center swivel joint 38
Travel motor 39
Swing motor 51
Hydraulic cylinder 60
Work equipment SEN02236-00
Work equipment 2
Dimensions of components 4
Cab and its attachments SEN02237-00
Air conditioner piping 2
Electrical system SEN02238-03
Engine control 2
Electronic control system 13
Monitor system 38
Sensor 65
KOMTRAX system 68

20 Standard value table
Standard service value table SEN02643-03
Standard value table for engine related parts 2
Standard value table for chassis related parts 3
Standard value table for chassis related parts (Loading shovel specification) 12

30 Testing and adjusting
Testing and adjusting, Part 1 SEN02644-04
Tools for testing, adjusting and troubleshooting 3
Sketches of special tools 7
Testing engine speed 8
Testing air boost pressure 9
Testing exhaust temperature 10
Testing exhaust gas color 11
Adjusting valve clearance 12
Testing compression pressure 14
Testing blow-by pressure 16
Testing engine oil pressure 17
Testing EGR valve drive pressure 18
Handing fuel system parts 19
Releasing residual pressure from fuel system 19
Testing fuel pressure 20
Handing during cylinder cut-out operation 21
Handing during no injection cranking operation 21
Testing fuel return and leakage 22
Bleeding air from fuel circuit 25
Checking fuel circuit for leakage 27
Checking and adjusting fan belt and alternator belt 28
Checking and adjusting air conditioner compressor belt tension 29
Testing swing circle bearing clearance 30
Checking and adjusting track shoe tension 31
Testing and adjustment oil pressure in work equipment, swing, and travel circuits 32
Testing control circuit basic pressure 36
Checking and adjusting pump PC control circuit oil pressure 37
Checking and adjusting pump LS control circuit oil pressure 40
Testing solenoid valve output pressure 45
Testing PPC valve output pressure 48

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Adjusting play of work equipment and swing PPC valves 50
Inspecting locations of hydraulic drift of work equipment 51
Release of residual pressure from hydraulic circuit 53
Testing oil leakage 54
Bleeding air from various parts 57
Testing and adjusting, Part 2 SEN02645-06
Special functions of machine monitor 2
Testing and adjusting, Part 3 SEN02662-02
Handling voltage circuit of engine controller 2
Preparation work for troubleshooting of electrical system 3
Procedure for testing diodes 8
Pm Clinic service 9
Undercarriage troubleshooting report 16

40 Troubleshooting
Failure code table and fuse locations SEN02646-03
Failure codes table 2
Fuse locations 5
General information on troubleshooting SEN02647-03
Points to remember when troubleshooting 2
Sequence of events in troubleshooting 3
Checks before troubleshooting 4
Classification and procedures for troubleshooting 5
Information contained in troubleshooting table 6
Phenomena looking like troubles and troubleshooting Nos. 8
Connection table for connector pin numbers 10
T- branch box and T- branch adapter table 46
Troubleshooting by failure code (Display of code), Part 1 SEN02648-04
Failure code [989L00] Engine Controller Lock Caution 1 3
Failure code [989M00] Engine Controller Lock Caution2 4
Failure code [989N00] Engine Controller Lock Caution3 5
Failure code [AA10NX] Air cleaner Clogging 6
Failure code [AB00KE] Charge Voltage Low 8
Failure code [B@BAZG] Eng Oil Press. Low 10
Failure code [B@BAZK] Eng Oil Level Low 12
Failure code [B@BCNS] Eng. Water Overheat 14
Failure code [B@BCZK] Eng Water Level Low 16
Failure code [B@HANS] Hydr Oil Overheat 18
Failure code [CA111] ECM Critical Internal Failure 19
Failure code [CA115] Eng Ne and Bkup Speed Sens Error 21
Failure code [CA122] Chg Air Press Sensor High Error 22
Failure code [CA123] Chg Air Press Sensor Low Error 24
Failure code [CA131] Throttle Sensor High Error 26
Failure code [CA132] Throttle Sensor Low Error 28
Failure code [CA135] Eng Oil Press Sensor High Error 30
Failure code [CA141] Eng Oil Press Sensor Low Error 32
Failure code [CA141] Eng Oil Press Sensor Low Error 33
Failure code [CA145] Coolant Temp Sens Low Error 35
Failure code [CA153] Chg Air Temp Sensor High Error 37
Failure code [CA154] Chg Air Temp Sensor Low Error 39
Failure code [CA187] Sens Supply 2 Volt Low Error 41
Failure code [CA221] Ambient Press Sens High Error 43
Failure code [CA222] Ambient Press Sens Low Error 45
Failure code [CA227] Sens Supply 2 Volt High Error 47
Failure code [CA234] Eng Overspeed 48
Failure code [CA238] Ne Speed Sens Supply Volt Error 49
Failure code [CA263] Fuel Temp Sensor High Error 50

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Related circuit diagram

This drawing is a part of the electric circuit diagram related to troubleshooting.

- Connector No.: Indicates (Model – Number of pins) and (Color).
- "Connector No. and pin No." from each branching/merging point: Shows the ends of branch or source of merging within the parts of the same wiring harness.
- Arrow (⟷): Roughly shows the location on the machine.

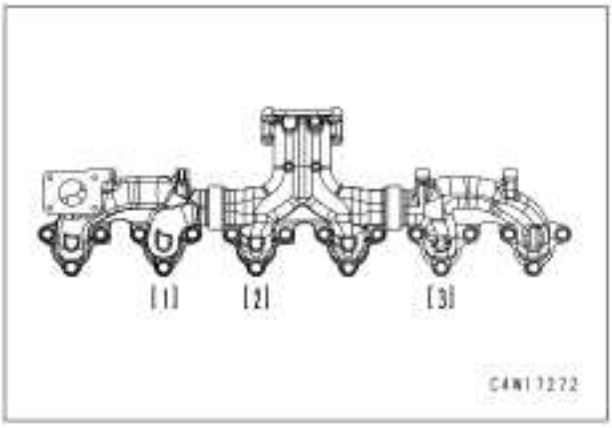
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Failure code [DHPAMA] F Pump Press Sensor Abnormality

Action code	Failure code	Trouble	F Pump Press Sensor Abnormality (Pump controller system)
-	DHPAMA		
Contents of trouble	• Signal voltage from F pump pressure sensor is below 0.3 V or above 4.42 V.		
Action of controller	• Fixes F pump pressure at 0 MPa {0 kg/cm^2} and continues control. • If cause of failure disappears, system resets itself.		
Problem that appears on machine	• No automatic gear shifting		
Related information	★ If 5 V circuit (3) and ground circuit (1) of pressure sensor are connected inversely, pressure sensor will be broken. Accordingly, take extreme care when checking. • Input from F pump pressure sensor (pressure) can be checked with monitoring function. (Code 01112: F pump pressure		

	Causes		Standard value in normal state/Remarks on troubleshooting		
Possible causes and standard value in normal state	1	Defective sensor power supply system	If failure code [DA25KP] is also displayed, carry out troubleshooting for it first.		
	2	Defective F pump pressure sensor (Internal defect)	★ Prepare with starting switch OFF, then start engine and carry out troubleshooting. P25 – Voltage Between (3) – (1) – 4.5 – 5.5 V Between (2) – (1) – 0.5 – 4.5 V ★ If the power supply voltage is normal and the signal voltage is not normal, perform troubleshooting as follows. 1) Turn starting switch to OFF position 2) Replace connector P26 with connector P25 of R pump pressure sensor. 3) Turn starting switch to ON position and display the electrical failure history screen of the machine monitor. 4) If E mark is not lighted in failure code column, R pump pressure sensor is defective. ★ After the troubleshooting, restore the connector.		
	3	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 CP01 (female) (9) – P25 (female) (3)	Resistance	Max .1 Ω
			Wiring harness between CP01 (female) (18) – P25 (female) (1)	Resistance	Max. 1 Ω
			Wiring harness between CP01 (female) (49) – P25 (female) (2)	Resistance	Max. 1 Ω
	4	Groundfault 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 CP01 (female) (49) – P25 (female) (2) and chassis ground	Resistance	Min. 1 MΩ
	5	Hot short (Short circuit with 24 V circuit) in wiring harness	★ Prepare with starting switch OFF, then turn starting switch ON and carry out troubleshooting.		
			Wiring harness between CP01 (female) (9) – P25 (female) (3) and chassis ground	Voltage	Max.5.5 V.
			Wiring harness between CP01 (female) (49) – P25 (female) (2) and chassis ground	Voltage	Max..4.5 V
	6	Hot short (Short circuit with 5V in wiring harness	★ Prepare with starting switch OFF, then turn starting engine and carry out troubleshooting.		
			Wiring harness between CP01 (female) (9) – P25 (female) (3) and CP01 (female) (49) – P25 (female) (2)	Resistance	Min. 1 MΩ
	7	Defectivepump controller	★ Prepare with starting switch OFF, then start engine and carry out troubleshooting. CP01 – Voltage Between (9) – (18) – 4.5 – 5.5 V Between (49) – (18) – 0.5 – 4.5 V		

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[*8]
★ For details on and how to install the high-pressure tube cover, see Paragraph [*5] in "Removal and installation of fuel injector assembly."

High-pressure tube installation instructions
★ Don't correct high-pressure tube by bending it for re-use.
1) Tighten high-pressure tube permanently.
   ⇦ Sleeve nut:
   39.2 – 49 Nm {4 – 5 kgm}
2) Temporarily tighten high-pressure clamp and brackets all by hand.
3) Tighten high-pressure tube clamp permanently.
   ⇦ Clamp nut:
   11.8 – 14.7 Nm {1.2 – 1.5 kgm}
4) Tighten bracket permanently.
5) Install cover.
   ★ Direct the slit to the side of cylinder head.
6) Temporarily install gate-type bracket and cover (also working as clamp).
7) Tighten the cover permanently.
   ⇦ Cover mounting bolt:
   11.8 – 14.7 Nm {1.2 – 1.5 kgm}
8) Tighten the gate-type bracket permanently.

[*9]
⇦ Spill tube: **9.8 – 12.7 Nm {1.0 – 1.3 kgm}**

[*10]
⇦ Air vent tube: **9.8 – 12.7 Nm {1.0 – 1.3 kgm}**

[*11]
⇦ Head cover mounting bolt:
9.8 ± 1 Nm {1.0 ± 0.1 kgm}

[*12]
★ Tighten the capture nuts alternately.
⇦ Capture nut: **2.0 – 2.4 Nm {0.2 – 0.24 kgm}**

[*13]
1) Loosen locknut, then install rocker arm and rocker shaft assembly.
   ⇦ Rocker shaft mounting bolt:
   58.8 – 73.5 Nm {6 – 7.5 kgm}
2) Remove the cover and adjust the valve clearance.
   Pointer is located under the cover.
   • Valve clearance
     Intake : **0.33 mm**
     Exhaust : **0.71 mm**

★ See the paragraph of "Adjusting valve clearance" in the part for Testing and adjusting for the valve clearance instructions.
⇦ Rocker arm locknut:
58.8 – 73.5 Nm {6 – 7.5 kgm}

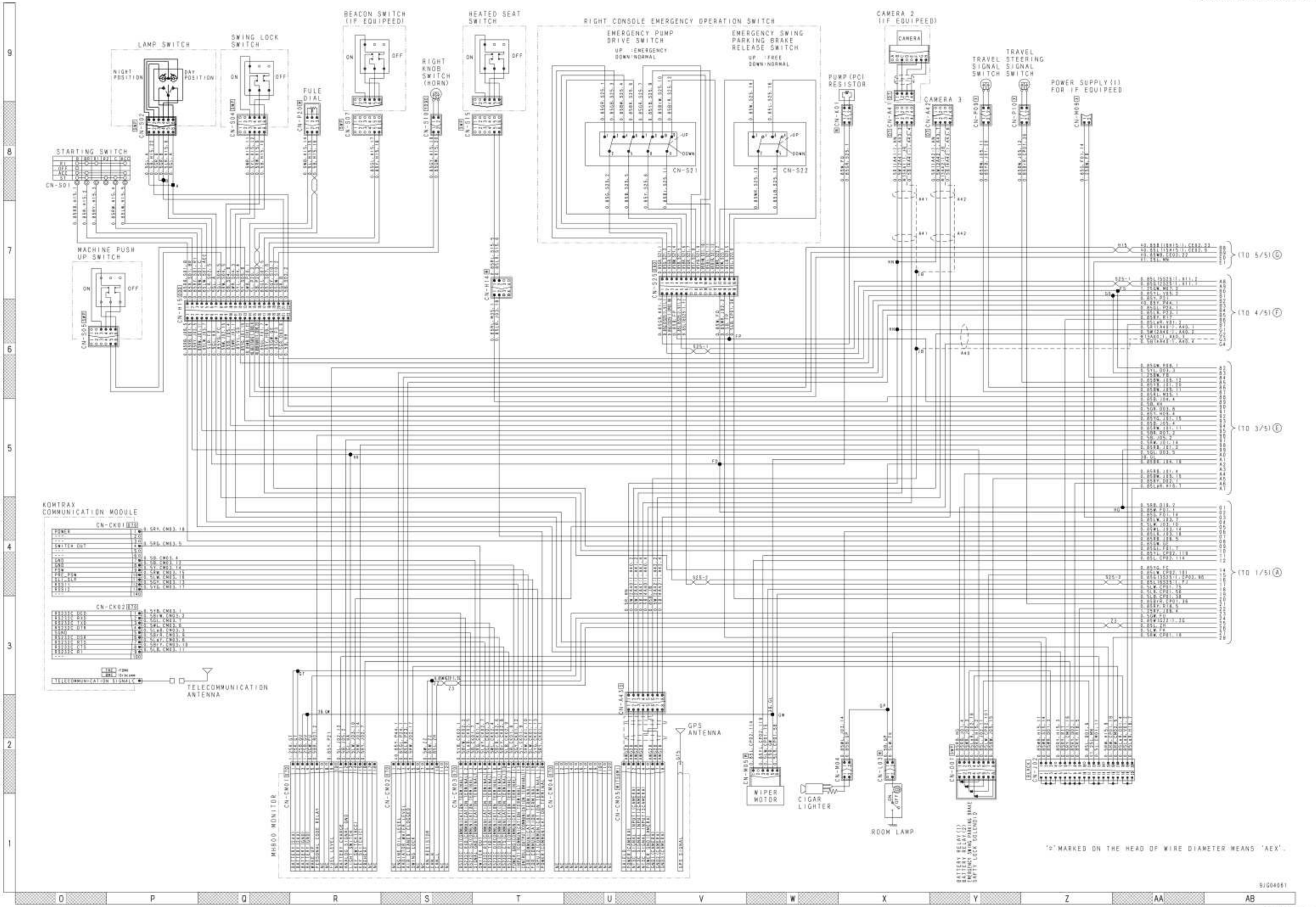
[*14]
★ For the mounting instructions of injector and holder, see the paragraph for the "Removal and installation of fuel injector assembly."

[*15]
★ Amply apply engine oil (EO30-CD) to crosshead guide and crosshead top face.
★ Adjust the crosshead according to the following procedure.
   1) Loosen the locknut and return the adjustment screw fully.
   2) Holding the top of the crosshead lightly, tighten the adjustment screw while keeping the crosshead in contact with the valve stem.
   3) After the adjustment screw touches the valve stem, tighten it further by 20°.
   4) Tighten the locknut at this position.
      ⇦ Locknut:
      58.7 ± 5.9 Nm {6.0 ± 0.6 kgm}

[*16]
⇦ Rocker housing mounting bolt:
58.8 – 73.5 Nm {6 – 7.5 kgm}

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Electrical circuit diagram (2/5)



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