SEN04041-05

Shop Manual

BULLDOZER

D39EX-22
D39PX-22

SERIAL NUMBERS D39EX-3001 and up
D39PX-3001

ecot3

KOMATSU®

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Composition of shop manual

The contents of this shop manual are shown together with Form No. in a list.

Note 1: Always keep the latest version of this manual in accordance with this list and utilize accordingly.
The marks shown to the right of Form No. denote the following:
○: New issue (to be filed additionally) ●: Revision (to be replaced for each Form No.)

Note 2: This shop manual can be supplied for each Form No.

Note 3: To file this shop manual in the special binder for management, handle it as follows:
- Place a divider on the top of each section in the file after matching the Tab No. with No. indicated next to each Section Name shown in the table below:
- File overview and other materials in sections in the order shown below and utilize them accordingly.

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Shop Manual, contents binder, binder label and tabs	SEN04041-05	
00 Index and foreword	SEN04042-05	
100 Index	SEN04050-05	●
200 Foreword and general information	SEN04051-02	
01 General	SEN04043-01	
100 Specification and technical data	SEN04052-01	
10 Structure, function and maintenance standard	SEN04044-01	
100 Engine and cooling system	SEN04230-00	
200 Power train	SEN04231-01	
300 Undercarriage and frame	SEN04232-01	
410 Hydraulic system, Part 1	SEN04233-01	
420 Hydraulic system, Part 2	SEN04234-01	
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Machine model/type				D39EX-22	D39PX-22	
				460 mm Single shoe	635 mm Single shoe	700 mm Swamp shoe
Serial No.				3001 and up	3001and up	
Engine	Model name		—	SAA4D107E-1		
	Type		—	4-cycle, water-cooled, in-line 4-cylinder, direct injection type with turbocharger and air-cooled aftercooler		
	Number of cylinders – Bore x Stroke		mm	4 – 107 x 124		
	Total displacement		ℓ {cc}	4.46 {4,460}		
	Performance	Rated output • Net [ISO 9249/SAE J1349] (*1) • Gross [SAE J1995] (*2)	kW{HP}/rpm	79 {105}/2,200 79.9 {107}/2,200		
		Max. torque	Nm{kgm}/rpm	475.6 {45.8}/1,500		
		High idle speed under no load	rpm	2,400		
		Low idle speed under no load	rpm	975		
		Fuel consumption rate, at rated speed	g/kWh{g/HPh}	217 {162}		
	Starting motor		—	24 V, 5.5 kW		
	Alternator		—	24 V, 35 A		
	Battery (*3)		—	12 V, 92 Ah x 2 pieces		
	Radiator core type		—	Aluminum corrugate, 8/2		
Power train	HST pump	Type, number of unit (Main pump) (Charge pump)	—	Variable displacement swash plate piston type x 2 Fixed displacement gear type x 1		
		Delivery (Main pump) (Charge pump)	cm³/rev	75 40		
		Set pressure (Main pump) (Charge pump)	MPa{kg/cm²}	41.2{420} 3.23{33}		
	HST motor	Type, number of unit	—	Variable displacement bent axis piston type (with parking brake) x 2		
		Delivery	cm³/rev	105		
	Final drive		—	Planetary gear, 2-stage reduction, splash lubrication type		
Undercarriage	Suspension type		—	Rigid type		
	Carrier roller		—	1 piece on each side		
	Track roller		—	6 pieces on each side		
	Track shoe • Assembly-type single grouser		—	Width: 460 mm Each side: 39 pieces Pitch: 171.5 mm	Width: 635 mm Each side: 39 pieces Pitch: 171.5 mm	—
	• Assembly-type special swamp shoe		—	—	—	Width: 700 mm Each side: 31 pieces Pitch: 171.5 mm

*1: Indicates the value at the lowest cooling fan speed.
*2: Indicates the value of the engine alone (without cooling fan.)
★ The engine rated output is indicated in the net value and gross value. Gross denotes the rated output measured of an independent engine. While, net denotes the value measured of an engine under the condition essentially the same as that when it is installed on machine.
★ Following shows the rated output (net) at the maximum cooling fan speed.
71 kW {95 HP}/2,200 rpm
*3: The battery capacity (Ah) is indicated in the 5-hour rate value.

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Failure code [D130KA] Neutral safety relay: Disconnection

Action code	Failure code	Trouble	Neutral safety relay: Disconnection (HST controller system)
E02	D130KA		
Contents of trouble	• When the ground circuit of the neutral safety relay is disconnected, 24V is not generated.		
Action of controller	• Flashes the warning lamp and sounds the alarm buzzer. • Even if cause of error disappears, system does not reset itself until starting switch is turned OFF.		
Problem that appears on machine	• When the engine is stopped, it can not be restarted (Disconnection). • Engine can be started regardless of the parking lever switch position (Ground fault).		
Related information	• Output state to the neutral safety switch (ON and OFF, voltage) can be checked with the monitoring mode. (Controller: HST, code: 40918 D-OUT [3], code: 50901 N-SAFETY) • Method of reproducing failure code: Turn the starting switch ON and operate parking brake lever (Free). • This failure code is generated when the primary (coil side) of neutral safety relay has failed. A failure of the secondary cannot be detected with this code.		

	Cause		Standard value in normal state/Remarks on troubleshooting			
Possible causes and standard value in normal state	1	Defective starting switch (Internal disconnection)	★ Prepare with starting switch OFF and carry out troubleshooting without and with turning starting switch.			
			Starting switch	Starting switch	Resistance	
			Between T250 (B) and T270 (ACC)	OFF	Min. 1 MΩ	
				ON	Max. 1 Ω	
	2	Defective neutral safety relay (Internal disconnection)	★ Prepare with starting switch OFF and carry out troubleshooting without turning starting switch.			
			CN-11 (Male)		Resistance	
			Between (1) and (2)		200 – 400 Ω	
	3	Disconnection of wiring harness (Disconnection or defective contact of connector)	★ Prepare with starting switch OFF and carry out troubleshooting without turning starting switch.			
			Wiring harness between CN-ST2 (female) (8) – CN-11 (female) (2)		Resistance	Max. 1 Ω
			Wiring harness between CN-11 (female) (1) – starting switch CN-T270 (ACC)		Resistance	Max. 1 Ω
	4	Grounding fault in wiring harness (Short circuit with ground circuit)	★ Prepare with starting switch OFF and carry out troubleshooting without turning starting switch.			
			Wiring harness between CN-ST2 (female) (8) – CN-11 (female) (2) and chassis ground		Resistance	Min. 1 MΩ
			Wiring harness between CN-11 (female) (1) – starting switch CN-Y270 (ACC), – F01 (20F) inlet and chassis ground		Resistance	Min. 1 MΩ
	5	Defective HST controller	★ Prepare with starting switch OFF, then turn starting switch ON and carry out troubleshooting.			
			CN-ST2	Parking brake lever	Voltage	
			Between (8) and chassis ground	Free	20 – 30 V	
				Locked	Max. 1 V	

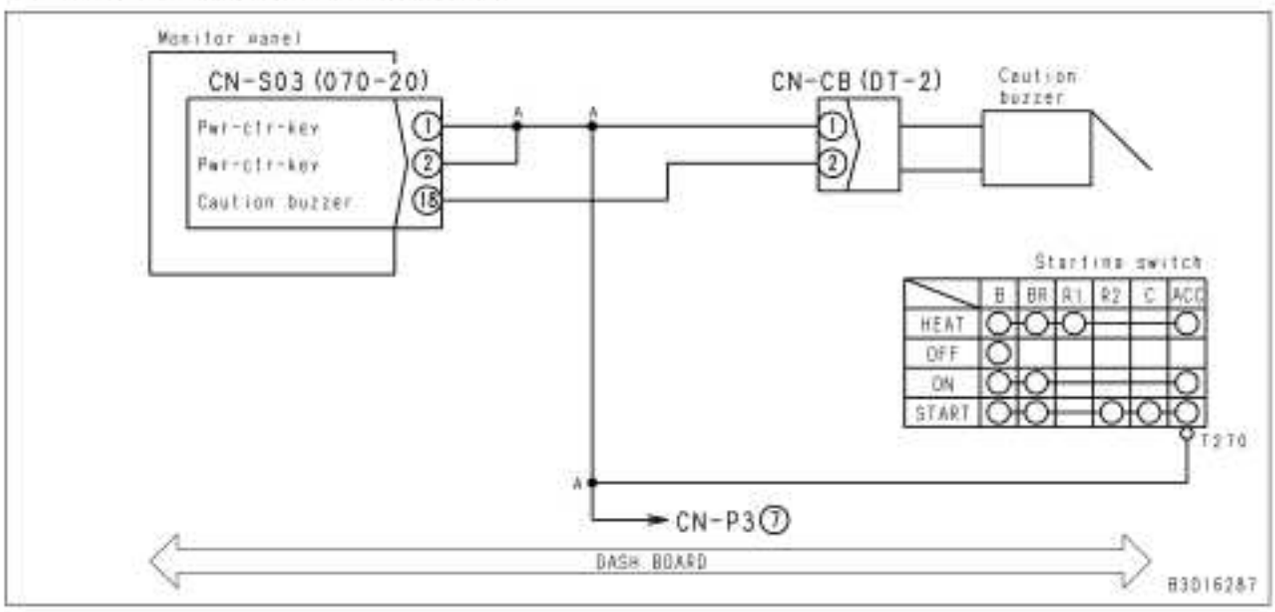
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Failure code [DV00KB] Caution buzzer: Short circuit

Action code	Failure code	Trouble	Caution buzzer: Short circuit (Monitor panel system)
E01	**DV00KB**		
Contents of trouble	• Abnormal current flowed at the GND output to the caution buzzer circuit.		
Action of controller	• Stops GND output from the caution buzzer circuit. • Even if cause of error disappears, system does not reset itself until starting switch is turned OFF.		
Problem that appears on machine	• The caution buzzer dose not sound when the starting switch is turned ON, emergency warning items becomes abnormal, or action code **[E02]**, **[E03]** or **[E04]** is displayed.		
Related information	• Method of reproducing failure code: Turn the starting switch ON.		

	Cause		Standard value in normal state/Remarks on troubleshooting		
Possible causes and standard value in normal state	1	Defective caution buzzer (Internal short circuit)	★ Prepare with starting switch OFF, then turn starting switch ON and carry out troubleshooting. • Remove the buzzer, then connect +24V to CN-CB (male) (1) and GND to CN-CB (male) (2).		
			Alarm buzzer sounds	Alarm buzzer is normal	
			Alarm buzzer does not sound	Defective alarm buzzer	
	2	Short circuit with power supply line circuit in wiring harness (Contact with 24 V)	★ Prepare with starting switch OFF, then turn starting switch ON and carry out troubleshooting.		
			Wiring harness between CN-S03 (female) (18) – CN-CB (female) (2) and chassis ground	Voltage	Max. 1 V
	3	Defective monitor panel	★ Prepare with starting switch OFF, then turn starting switch ON and carry out troubleshooting.		
			CN-S03	Caution buzzer	Voltage
			Between (18) and chassis ground	When stopped	20 – 30 V
				When operated (sounded)	Max. 1 V

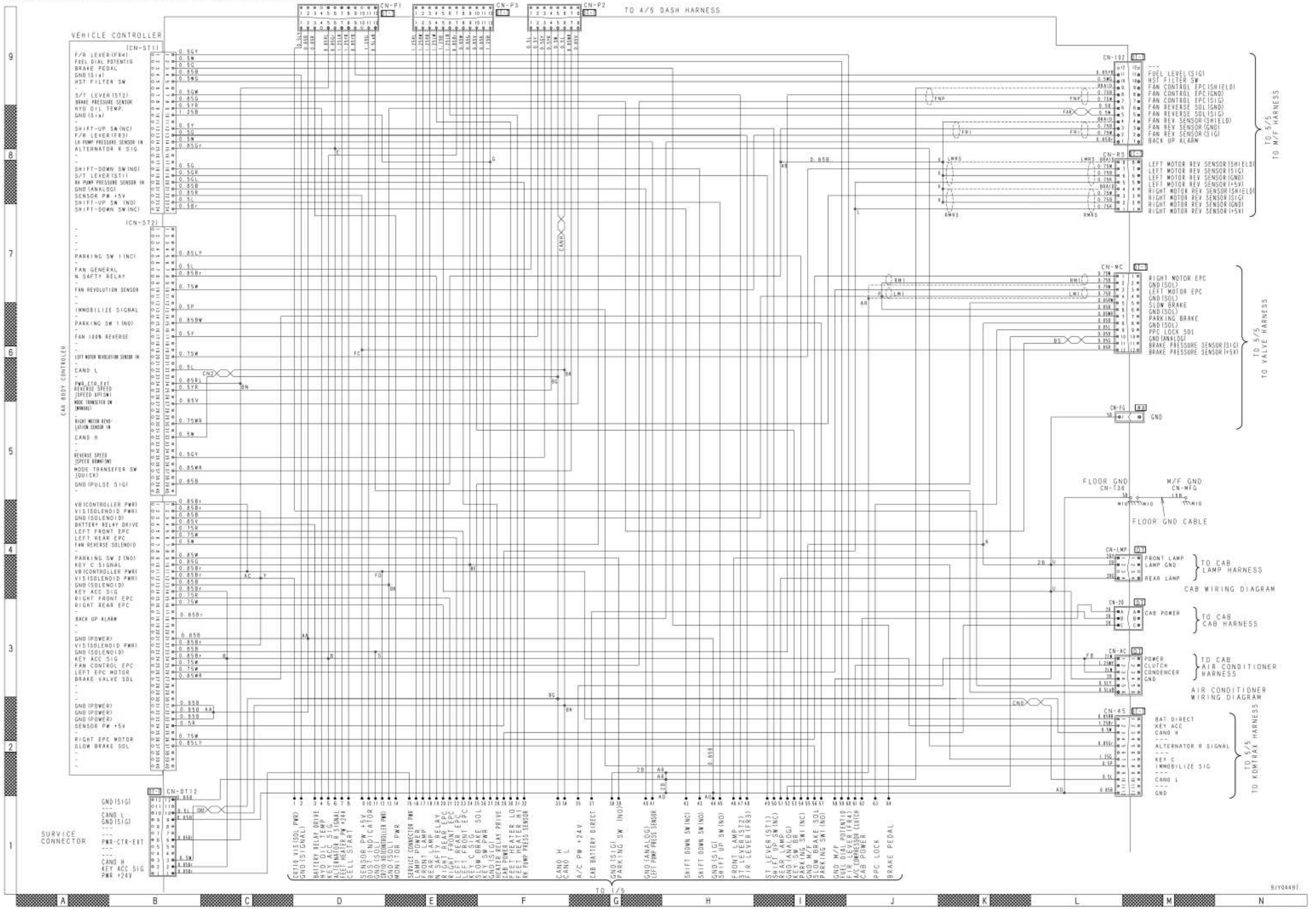
Circuit diagram related to caution buzzer



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Electrical circuit diagram (2/5)

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



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