SEBM035005

SHOP MANUAL

KOMATSU®

D31EX, PX-21
D37EX, PX-21
D39EX, PX-21

MACHINE MODEL	SERIAL NUMBER
D31EX-21	**50501 and up**
D31PX-21	**50501 and up**
D37EX-21	**5501 and up**
D37PX-21	**5501 and up**
D39EX-21	**1501 and up**
D39PX-21	**1501 and up**

- This shop manual may contain attachments and optional equipment that are not available in your area. Please consult your local Komatsu distributor for those items you may require. Materials and specifications are subject to change without notice.

- D31, D37, D39EX, PX-21 mount the SAA4D102E-2 engine.
  For details of the engine, see the 102 Series Engine Shop Manual.

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CONTENTS

No. of page

01 GENERAL 01-1

10 STRUCTURE AND FUNCTION, MAINTENANCE STANDARD 10-1

20 TESTING AND ADJUSTING 20-1

30 DISASSEMBLY AND ASSEMBLY 30-1

90 OTHERS 90-1

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Machine model				D31EX-21	D31PX-21	
				400 mm Single shoe	600 mm Single shoe	600 mm Swamp shoe
Serial No.				50501 and up		
Engine	Model		—	SAA4D102E-2-B		
	Type		—	4-cycle, water-cooled, in-line vertical type, 4 cylinders, direct injection, with turbocharger, air-cooled after cooler		
	No. of cylinders – bore x stroke		mm	4 – 102 x 120		
	Piston displacement		ℓ {cc}	3.92 {3,920}		
	Performance	Rated horsepower	kW {HP} /rpm	56 {75}/2,000		
		Max. torque	Nm {kgm} /rpm	384 {39.2}/1,300		
		High idling	rpm	2,200		
		Low idling	rpm	800		
		Min. fuel consumption ratio	g/kWh (g/HPh)	211 {157}		
	Starting motor		—	24 V, 5.5 kW		
	Alternator		—	24 V, 25 A		
	Battery (*1)		—	12 V, 60 Ah x 2		
	Radiator core type		—	D-5		
Power train system	HST pump	Type, number	—	Variable displacement swash-plate piston type x 2 Fix displacement internal-gear type x 1		
		Discharge amount (variable pump) (charge pump)	cm^3/rev	63 40		
		Set pressure (variable pump) (charge pump)	MPa {kg/cm^2}	42.2 {430} 3.0 {31}		
	HST motor	Type, number	—	Variable displacement angled piston type (3-stage selection, with parking brake) x 2		
		Discharge amount (Max.) (Medium) (Min.)	cm^3/rev	93 61 46		
	Final drive		—	Planetary gear, 2-stage reduction type, splash type lubrication		
Undercarriage	Suspension		—	Rigid		
	Carrier roller		—	1 on each side		
	Track roller		—	5 on each side	6 on each side	
	Track shoe • Assembly-type single grouser		—	Width: 400 mm Q'ty on each side: 38 pieces Pitch: 154.3 mm	Width: 600 mm Q'ty on each side: 40 pieces Pitch: 154.3 mm	—
	• Assembly-type special swamp shoe			—	—	Width: 600 mm Q'ty on each side: 40 pieces Pitch: 154.3 mm

*1: The battery capacity (Ah) is the 5-hour rate value.

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Error code [DHH5KB] (LH pump pressure sensor: Short circuit)

Action code	Error code	Trouble	Failure phenomenon	LH pump pressure sensor: Short circuit (HST controller system)
E01	DHH5KB			
Contents of trouble	• The input voltage from the LH pump pressure sensor is above 4.5 V.			
Action of controller	• Controls the machine with the pressure signal received just before the trouble occurs until the machine is stopped. • Controls the machine, assuming the pump pressure to be 9.81 MPa {100 kg/cm²}, once the machine is stopped. • Even if the cause of the failure disappears, the system does not reset itself until the starting switch is turned OFF.			
Problem that appears on machine	• The auto shift-down/up function may not work. • The LH pump oil pressure may not be monitored in the monitoring mode.			
Related information	★ If the 5 V circuit (B) and ground circuit (A) of the pressure sensor are connected inversely, the pressure sensor will be broken. Accordingly, take extreme care when checking. • The input state (voltage) from the LH pump pressure sensor can be checked in the monitoring mode. (Code: 52502-HST L SENS) • Method of reproducing error code: Turn the starting switch ON or start the engine.			

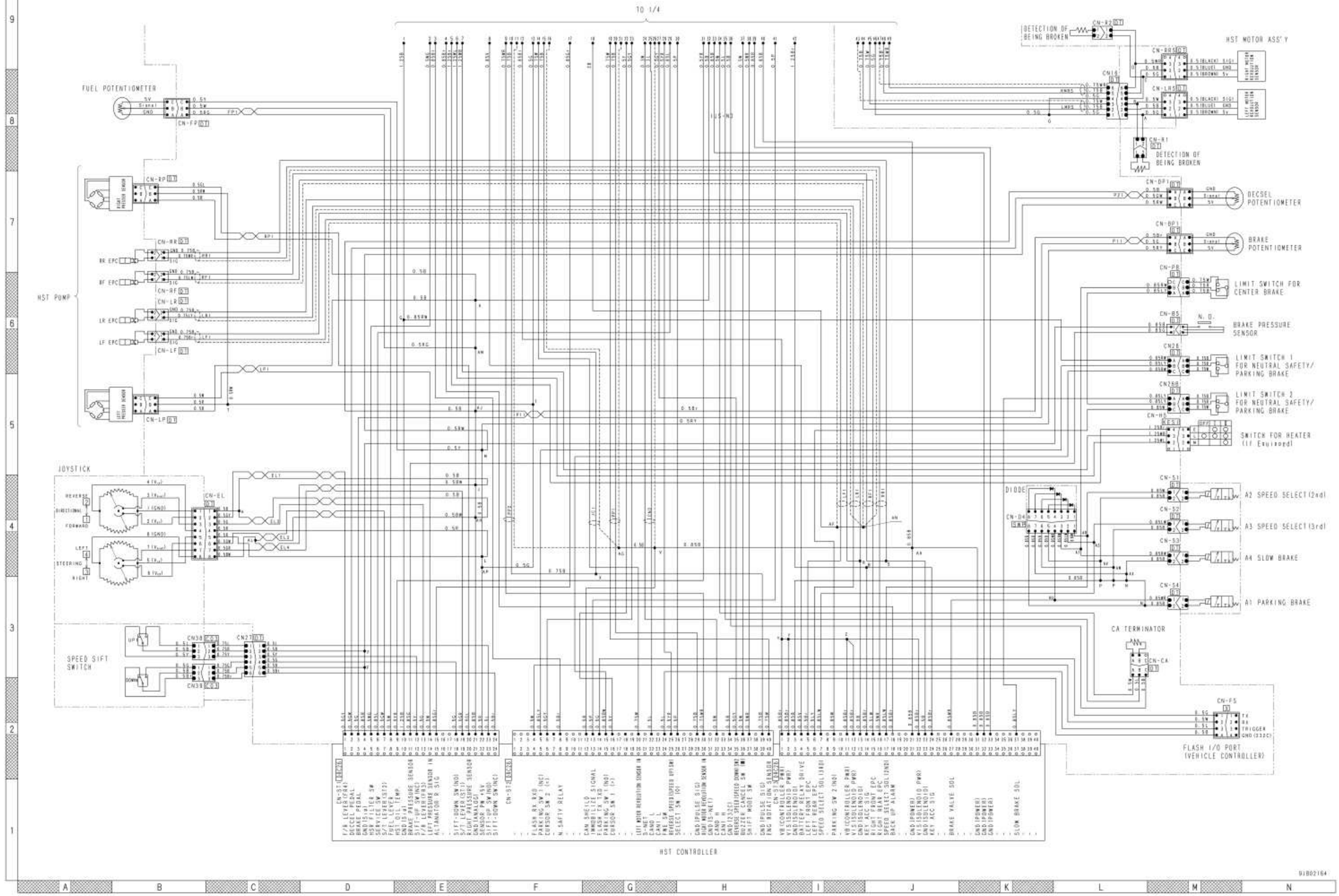
Possible causes and standard value in normal state		Cause	Standard value in normal state/Remarks on troubleshooting			
	1	Defective sensor power supply system	If error code [DAJ5KK] is displayed, carry out troubleshooting for it first.			
	2	Defective LH pump pressure sensor (Internal defect)	★ Prepare with starting switch OFF, then turn starting switch ON or start engine and carry out troubleshooting.			
			CN-LP		Voltage	
			Between (B) and (A)	Power supply	4.5 – 5.5 V	
			Between (C) and (A)	Signal	0.4 – 0.6 V	
			The pressure sensor voltage is measured with the wiring harness connected. Accordingly, if the voltage is abnormal, check the wiring harness and controller, too, for another cause of the trouble, and then judge.			
	3	Short circuit with power source in wiring harness (Contact with 24 V circuit)	★ Prepare with starting switch OFF, then turn starting switch ON and carry out troubleshooting.			
			Between CN-ST1 (female) (14) – CN-LP (female) (C) wiring harness and chassis ground		Voltage	Max. 1 V
	4	Defective HST controller	★ Prepare with starting switch OFF, then turn starting switch ON or start engine and carry out troubleshooting.			
			CN-ST1		Voltage	
			Between (22) and (21)	Power supply	4.5 – 5.5 V	
			Between (14) and (21)	Signal	0.4 – 0.6 V	

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Possible causes and standard value in normal state	Cause		Standard value in normal state/Remarks on troubleshooting		
	7	Disconnection in wiring harness (Disconnection in wiring harness or defective contact in connector)	★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch.		
			Wiring harness between CN-KS (280) and CN11 (female) (3)	Resistance	Max. 1 Ω
			Wiring harness between CN11 (female) (5) and CN4 (female) (1)	Resistance	Max. 1 Ω
			Wiring harness between CN-T4 and CN-T2	Resistance	Max. 1 Ω
			Wiring harness between CN-T8 and CN-T1	Resistance	Max. 1 Ω
			Wiring harness between CN-T1 and CN-T3	Resistance	Max. 1 Ω
	8	Short circuit with chassis ground in wiring harness (Contact with ground circuit)	★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch.		
			Between CN-KS (280) – CN11 (female) (3) or CN-S03 (female) (7) or another related circuit wiring harness and chassis ground	Resistance	Min. 1 MΩ
			Between CN11 (female) (5) – CN4 (female) (1) or CN15 (female) (1) wiring harness and chassis ground	Resistance	Min. 1 MΩ
			Between CN-T4 – CNT2 wiring harness and chassis ground	Resistance	Min. 1 MΩ
			Between CN-T8 – CNT1 wiring harness and chassis ground	Resistance	Min. 1 MΩ
			Between CN-T1 – CN-T3 wiring harness and chassis ground	Resistance	Min. 1 MΩ
	9	Short circuit with power source in wiring harness (Contact with 24 V circuit)	★ Prepare with starting switch OFF, then turn starting switch ON and carry out troubleshooting.		
			Between CN-4 (female) (2) – CN-T16 or CN-S04 (female) (9) or CN-ST1 (female) (15) or another related circuit wiring harness and chassis ground	Voltage	Max. 1 V

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ELECTRICAL CIRCUIT DIAGRAM (2/4)



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