SEN03813-03

Shop Manual

WHEEL LOADER

WA250 -6
WA250PZ-6

SERIAL NUMBERS WA250- 75001 and up
WA250PZ- 75001

ecot3

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Failure code [D1B0KA] HST safety relay: Disconnection

Action code	Failure code	Trouble	HST safety relay: Disconnection (HST controller system)
E03	D1B0KA		
Contents of trouble	• Disconnection was detected in HST safety relay circuit when starting switch is turned ON.		
Action of machine monitor	• Turns clutch EPC solenoid output OFF. • Turns motor 1 solenoid output OFF. • Turns HST safety relay output OFF. • Even if trouble disappears, system does not reset itself until starting switch is turned OFF. • Turns the centralized warning lamp and alarm buzzer ON.		
Problem that appears on machine	• Traction force decreases. • Travel speed is not limited with speed range selector switch and travel speed control dial. • If engine is stopped without applying parking brake securely on slope, machine moves down suddenly.		
Related information	• If [**DAJ2L3**] or [**DAJ2L4**] is displayed, carry out troubleshooting for it first. • Following output command values can be checked with monitoring function. Motor 1 solenoid output: HST – 80000 – MOTOR SOL DIR (mA) HST safety relay output: HST – 40979 – D_OUT_15 (ON/OFF) Clutch EPC solenoid output: HST – 80100 – CLUTCH SOL DIR (mA)		

	Causes		Standard value in normal state/Remarks on troubleshooting			
Possible causes and standard value in normal state	1	Defective HST safety relay (Internal defect)	★ Prepare with starting switch OFF, then start engine and carry out troubleshooting.			
			Replace HST safety relay (L111) with another relay.	Condition becomes normal.	Relay (L111) is defective.	
				Condition does not become normal.	Relay (L111) is normal.	
			★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.			
			Between L111 (male) (1) – (2)		Resistance	200 – 400 Ω
	2	Defective VIS power supply holding relay (Internal short circuit)	★ Prepare with starting switch OFF, then start engine and carry out troubleshooting.			
			Replace VIS power supply holding relay (L102) with another relay.	Condition becomes normal.	Relay (L102) is defective.	
				Condition does not become normal.	Relay (L102) is normal.	
			★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.			
			Between L102 (male) (1) – (2)		Resistance	200 – 400 Ω
	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 HST (female) (17) – L111 (female) (2)		Resistance	Max. 1 Ω
			Wiring harness between L102 (female) (3) – L111 (female) (1)		Resistance	Max. 1 Ω
			Wiring harness between fuse FS1 (No. 3) – L102 (female) (5)		Resistance	Max. 1 Ω
	4	Defective HST controller	★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.			
			HST		Voltage	
			Between (17) – ground		Max. 1 V	

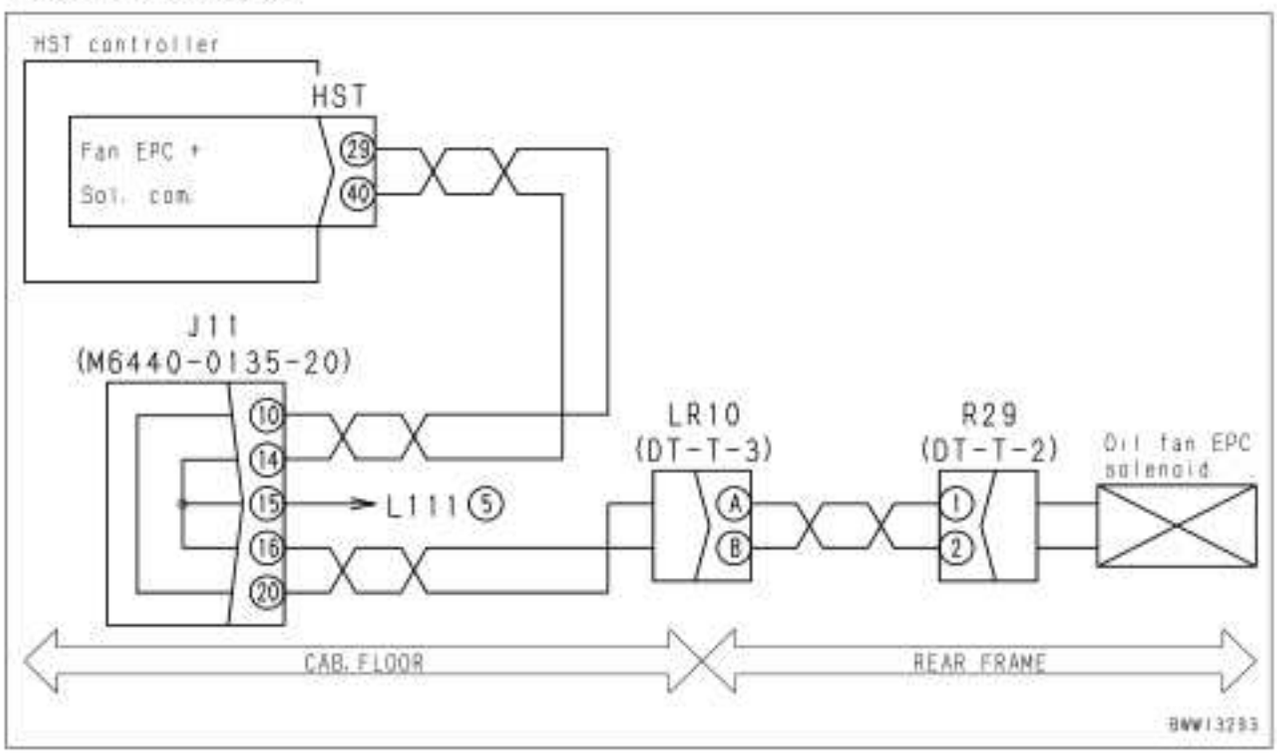
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Failure code [DX16KY] Fan EPC solenoid: Hot short

Action code	Failure code	Trouble	Fan EPC solenoid: Hot short (HST controller system)
E01	DX16KY		
Contents of trouble	• Since the fan EPC solenoid system is shorted with the power source, abnormal voltage is applied when the fan EPC solenoid output is OFF.		
Action of controller	• Turns the output to the fan EPC solenoid OFF. • If problem is removed, system is returned to normal operating state.		
Problem that appears on machine	• The fan speed is minimized.		
Related information	• The output state (current) to the fan EPC solenoid can be checked with the monitoring function (Code: HST – 41400 – FAN EPC DIR). • Method of reproducing failure code: Turn the starting switch ON.		

	Causes		Standard value in normal state/Remarks on troubleshooting		
Possible causes and standard value in normal state	1	Defective fan EPC solenoid (Internal short circuit)	★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.		
			R29 (male)	Resistance	
			Between (1) – (2)	5 – 10 Ω	
			Between (1), (2) and ground	Min. 1 MΩ	
	2	Hot short in wiring harness (Contact with 24V circuit)	★ Prepare with starting switch OFF, then turn starting switch ON and carry out troubleshooting.		
			Wiring harness between HST (female) (29) – R29 (female) (1) and ground	Voltage	Max. 1 V
	3	Defective HST controller	• If causes 1 – 2 are not detected, HST controller may be defective. (Since trouble is in system, troubleshooting cannot be carried out.)		

Related circuit diagram



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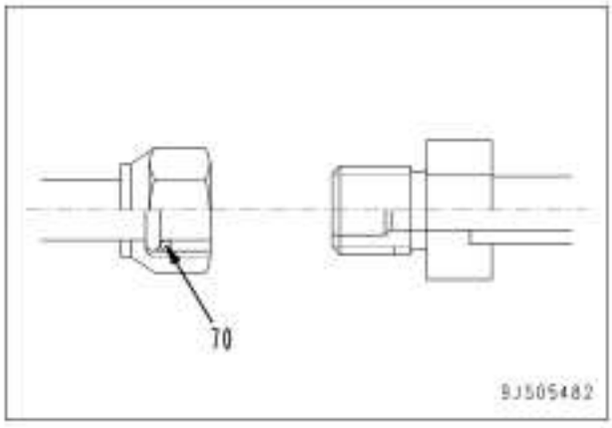
Installation

- Carry out installation in the reverse order to removal.

[*1]

★ When installing the hoses of the air conditioner circuit, take care that dirt, dust, water, etc. will not enter them.
★ When installing each air conditioner hose, check that O-ring (70) is fitted to it.
★ Check O-ring (70) for a flaw and deterioration.
★ When connecting each refrigerant pipe, apply compressor oil for new refrigerant (R134a) (DENSO: ND-OIL8 or ZEXEL ZXL100PT (equivalent to PAG46) to O-ring (70).

Threaded part of hose (M16 × 1.5):
12 – 15 Nm {1.2 – 1.5 kgm}
Threaded part of hose (M22 × 1.5):
20 – 25 Nm {2.0 – 2.5 kgm}
Threaded part of hose (M24 × 1.5):
30 – 35 Nm {3.0 – 3.5 kgm}



- **Charging with refrigerant (R134a)**
  Charge the air conditioner circuit with refrigerant (R134a).

★ Charge capacity: **1,200 ± 50 g**

[*2]

Hose insertion area of steering pump suction tube (11): **Gasket sealant (THREEBOND 1206E or equivalent)**
Hose clamp of steering pump suction tube (11): **8.8 ± 0.5 Nm {0.9 ± 0.05 kgm}**

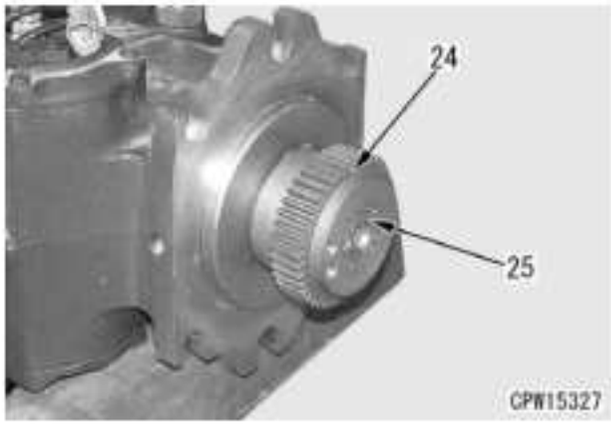
[*3]

Insertion area of hydraulic tank return hose (17): **Gasket sealant (THREEBOND 1206E or equivalent)**
Clamp of hydraulic tank return hose (17):
8.8 ± 0.5 Nm {0.9 ± 0.05 kgm}

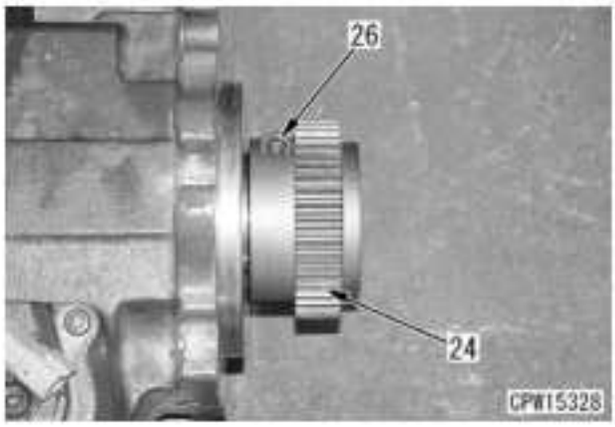
[*4]

Mating face of HST pump and 4-gear pump assembly: **Gasket sealant (LG-6)**
HST pump and 4-gear pump assembly mounting bolts:
M12 (22) (4 pieces):
98 – 123 Nm {10.0 – 12.5 kgm}
M16 (23) (2 pieces):
245 – 309 Nm {25.0 – 31.5 kgm}

1. If boss (24) was removed from the HST pump assembly, install it according to the following procedure.
   ★ Install boss (24) so that it will be flush with the shaft end face of pump shaft (25).
   - Level difference between boss and pump shaft end face: **Max. 0.5 mm**



2. Tighten hexagon socket head bolt (26) of boss (24).
   Mounting bolt (26): **86 Nm {8.8 kgm}**



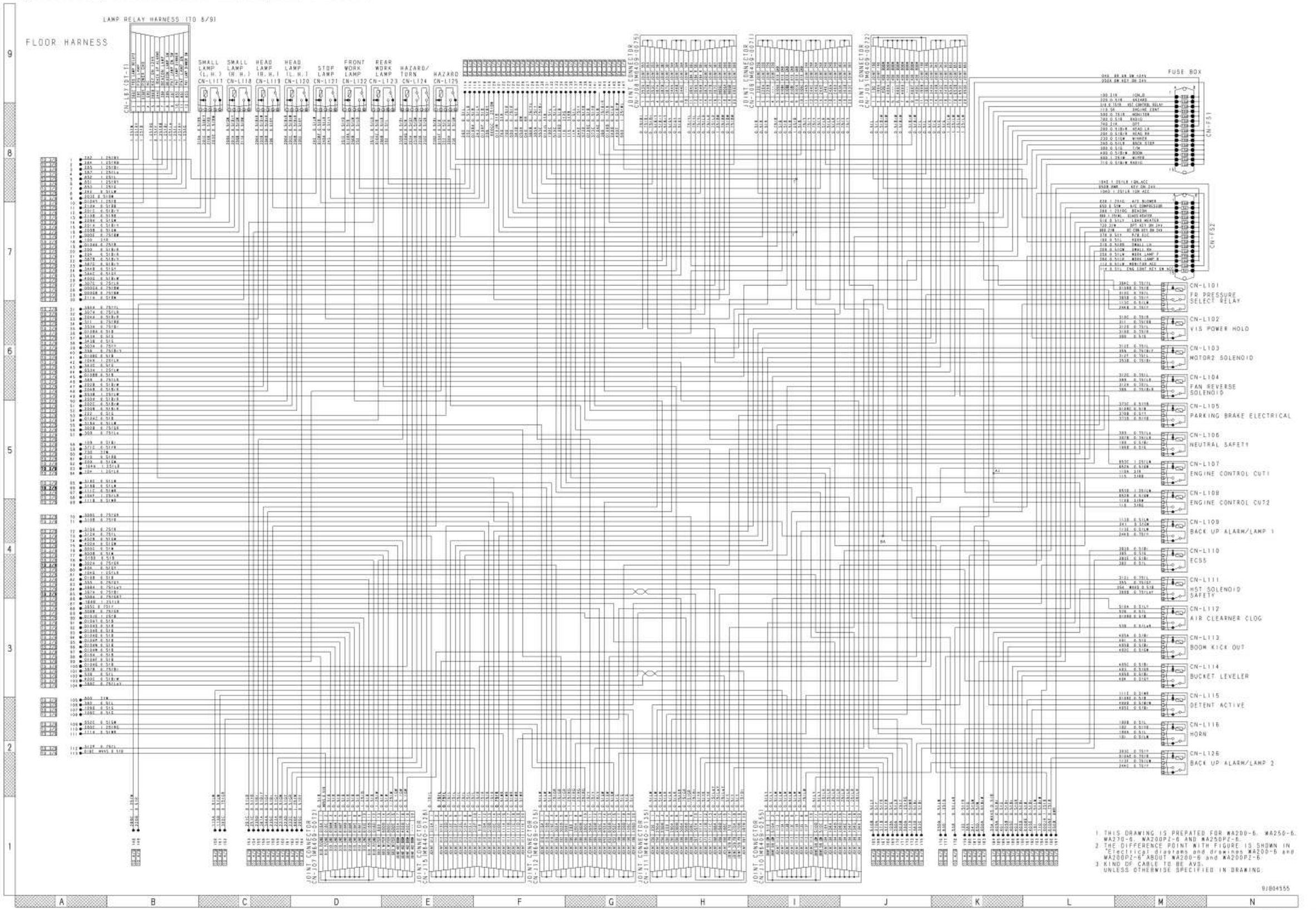
- **Refilling with oil (Hydraulic tank)**
  Add oil through the oil filler to the specified level. Run the engine to circulate the oil through the system. Then, check the oil level again.

Hydraulic oil (For details, see "Table of fuel, coolant and lubricants"):
Only necessary quantity

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Electrical circuit diagram (1/9)

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



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