CEBM027701

Shop Manual

KOMATSU®

WA320-7

WHEEL LOADER

SERIAL NUMBERS **WA320-7 A36001 and up**

ENGINE **6D107E-2**

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Machine model / Serial No.	Unit	WA320-7 / A36001 and up
Engine		
Model	—	SAA6D107E-2
Type	—	4-cycle, water-cooled, in-line, vertical, direct injection, with variable geometry turbocharger and air-cooled aftercooler
No. of cylinders - bore x stroke	mm	6 - 107 x 124
Total piston displacement	ℓ {cc}	6.69 {6,690}
Performance Rated horsepower • SAE J1995 (Gross) (*1) • ISO 14396 • ISO 9249/SAE J1349 (Net) (*2)	kW {HP}/ min^{-1} (rpm)	 127 {170} / 2,100 {2,100} 127 {170} / 2,100 {2,100} 123 {165} / 2,100 {2,100}
Max. torque (*1)	Nm {kgm}/ min^{-1} (rpm)	767 {78.2} / 1,400 {1,400}
Max. speed with no load	min^{-1} (rpm)	2,250 {2,250}
Min. speed with no load	min^{-1} (rpm)	825 {825}
Min. fuel consumption ratio	g/kWh {g/HPh}	212 {158}
Starting motor	—	24 V, 5.5 kW
Alternator	—	24 V, 60 A
Battery (*3)	—	12 V, 92 Ah x 2 pieces

*1: Indicates the value of the basic engine (without cooling fan).

*2: Indicates the value at the minimum cooling fan speed.

*3: The battery capacity (Ah) is indicated in the 5-hour rate.

★ The engine rated horsepower is indicated in the net value and gross value. The gross denotes the rated horsepower measured on the basic engine unit, while the net denotes the value measured of an engine under the condition essentially the same as that when it is installed on a machine.

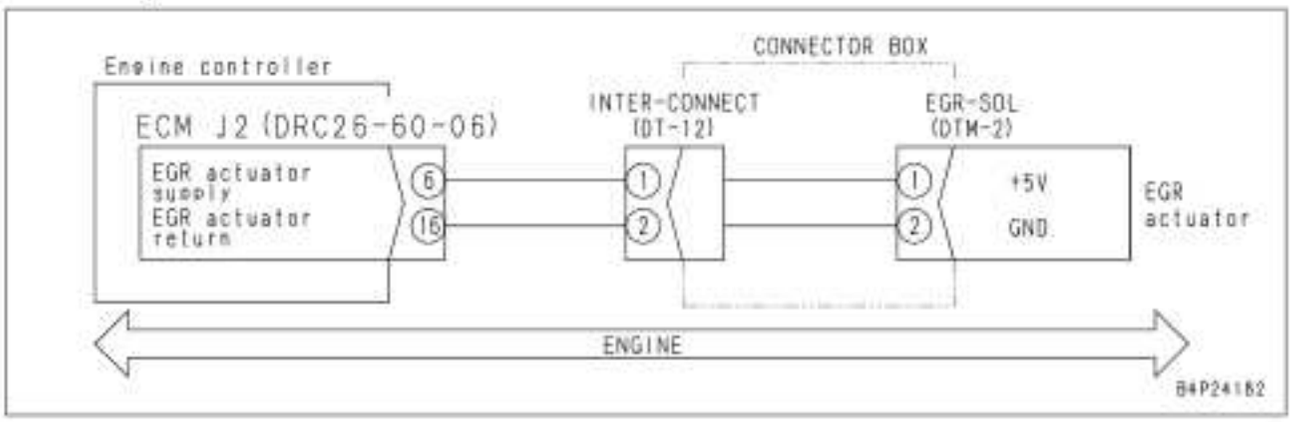
★ Following shows the rated horsepower (net) at the maximum cooling fan speed.
112 kW (151 HP) / 2,100 min^{-1} {2,100 rpm}

Power train		
HST pump Type Discharged volume	 — cm^3/rev	 Variable displacement swash plate piston type 0 to 110.4
HST motor 1 Type Discharged volume	 — cm^3/rev	 Variable displacement bent axis type piston motor 0 to 115.6
HST motor 2 Type Discharged volume	 — cm^3/rev	 Variable displacement bent axis type piston motor 41 to 115.6
Transfer	—	Multi-axis planetary gear compound type, helical gear constant mesh type, with selectable 2 power systems
Reduction gear system	—	Spiral bevel gear, splash lubrication type
Differential	—	Straight bevel gear type, torque proportioning
Final drive	—	Planetary gear, single reduction, splash lubrication type

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No.	Cause	Procedure, measuring location, criteria and remarks		
7	Short circuit in wiring harness	1. Turn starting switch to OFF position. 2. Disconnect connectors ECM J2 and EGR-SOL, and connect T-adapters to female side of ECM J2. ★ Check by using multimeter in continuity mode.		
		Continuity	Between EGR J2 (female) (6) and each pin other than pin (6)	No continuity (No sound is heard)
8	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.)		

Circuit diagram related to EGR valve solenoid



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Failure code [DPQ1KR] LIN Discon (Switch Panel) (WA320_7-DPQ1KR-400-A-Z0-A)

Action level	Failure code	Failure	LIN Disconnection (Switch Panel) (Machine monitor system)
L01	DPQ1KR		
Detail of failure	• Update of data received from switch panel (operation switches of machine monitor) through LIN communication line is stopped.		
Action of controller	• If cause of failure disappears, machine becomes normal by itself.		
Problem on machine	• Display operations in user menu and service menu are unavailable and setting operation by using those menus is also unavailable. • Operation of air conditioner is unavailable. • Display of SMR is unavailable while starting switch is in OFF position. • If engine start lock is enabled, engine cannot be started because password cannot be entered.		
Related information	• Since signal of active LIN communication line is pulse voltage, it cannot be measured by using multimeter. • If failure codes [DPQ2KR] and [DPQ3KR] are also displayed, LIN communication line probably has ground fault or hot short circuit. • Method of reproducing failure code: Turn starting switch to ON position.		

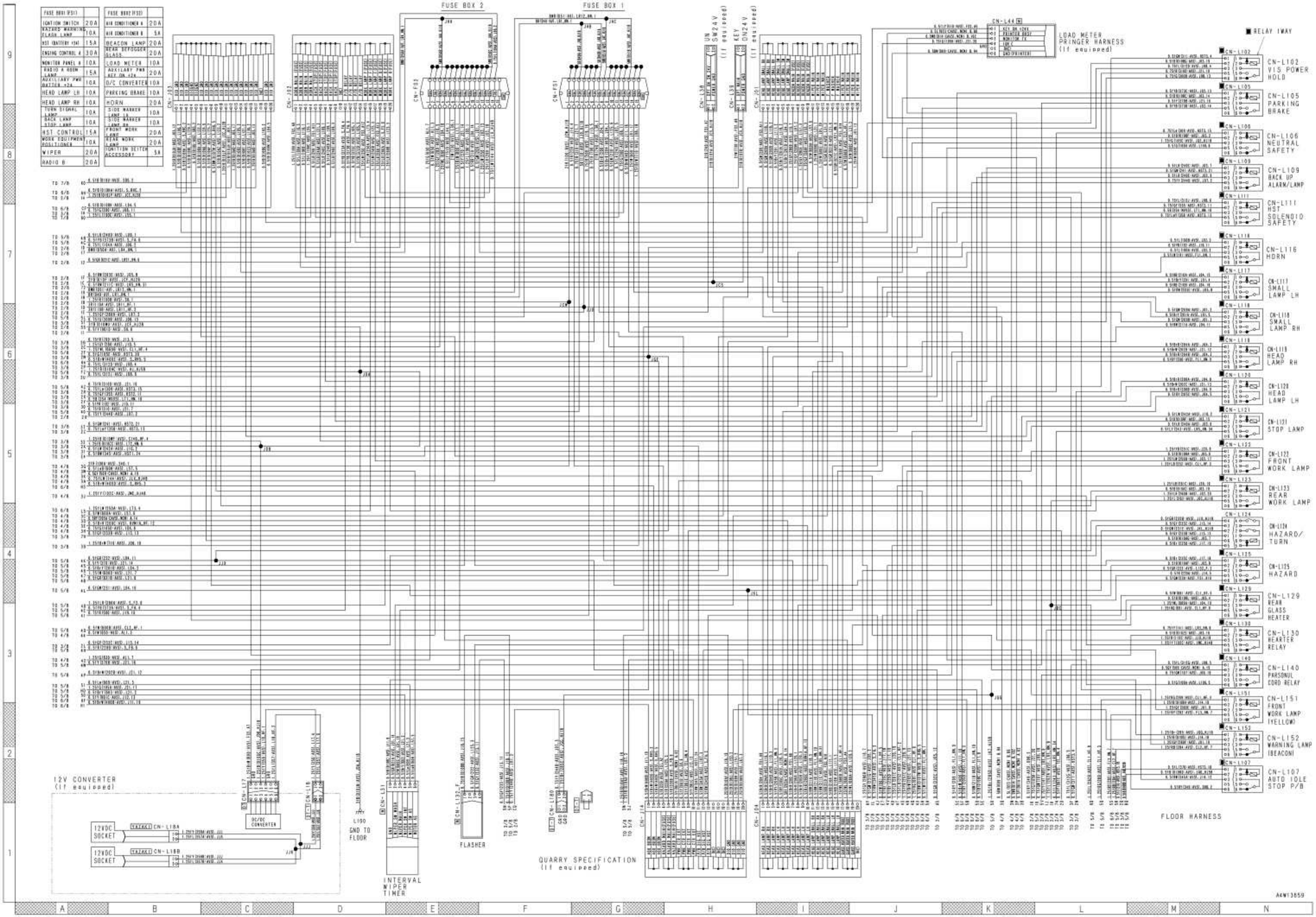
No.	Cause	Procedure, measuring location, criteria, and remarks		
1	Ground fault or hot short circuit in 12 V power supply line of switch panel	If failure code [DAFDKB] is also displayed, perform troubleshooting for [DAFDKB] first.		
2	Open circuit in 12 V power supply line of switch panel	1. Turn starting switch to OFF position. 2. Disconnect connector MOM1, and connect T-adapters to female side. 3. Turn starting switch to ON position.		
		Voltage	Between MOM1 (female) (1) and (2)	9 to 14 V
3	Defective 5 V power supply line of switch panel	1. Turn starting switch to OFF position. 2. Disconnect connector MOM1, and connect T-adapters to female side. 3. Turn starting switch to ON position.		
		Voltage	Between MOM1 (female) (4) and (2)	4 to 6 V
4	Hot short circuit in wiring harness (LIN communication line) (contact with 24 V circuit)	★ If failure codes [DPQ2KR] and [DPQ3KR] are not displayed together with this failure code, this check is not required. 1. Turn starting switch to OFF position. 2. Disconnect connector MOM1, and connect T-adapters to female side. 3. Turn starting switch to ON position.		
		Voltage	Between MOM1 (female) (3) and (2)	Approx. 9 V
5	Ground fault in wiring harness (contact with ground circuit)	★ If failure codes [DPQ2KR] and [DPQ3KR] are not displayed together with this failure code, this check is not required. ★ If no failure is found by check on cause 4, this check is not required. 1. Turn starting switch to OFF position. 2. Disconnect connectors MCM1 B, MDM2, MOM1, and RVM1, and connect T-adapter to any female side.		
		Resistance	Between ground and MCM1 B (female) (108), MDM2 (female) (3), MOM1 (female) (3) or RVM1 (female) (9)	Min. 1 MΩ
6	Defective switch panel (operation switches of machine monitor)	• Perform this check when failure codes [DPQ2KR] and [DPQ3KR] are also displayed. 1. Turn starting switch to OFF position. 2. Disconnect connector MOM1. 3. Turn starting switch to ON position.		
		If failure codes [DPQ2KR] and [DPQ3KR] disappear, switch panel is defective.		

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Electrical circuit diagram of floor (1/8)

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★ This diagram covers optional components that are unavailable in some areas.



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