SEN06597-05

Shop Manual

WHEEL LOADER **WA320-8**

SERIAL NUMBERS 85001 and up

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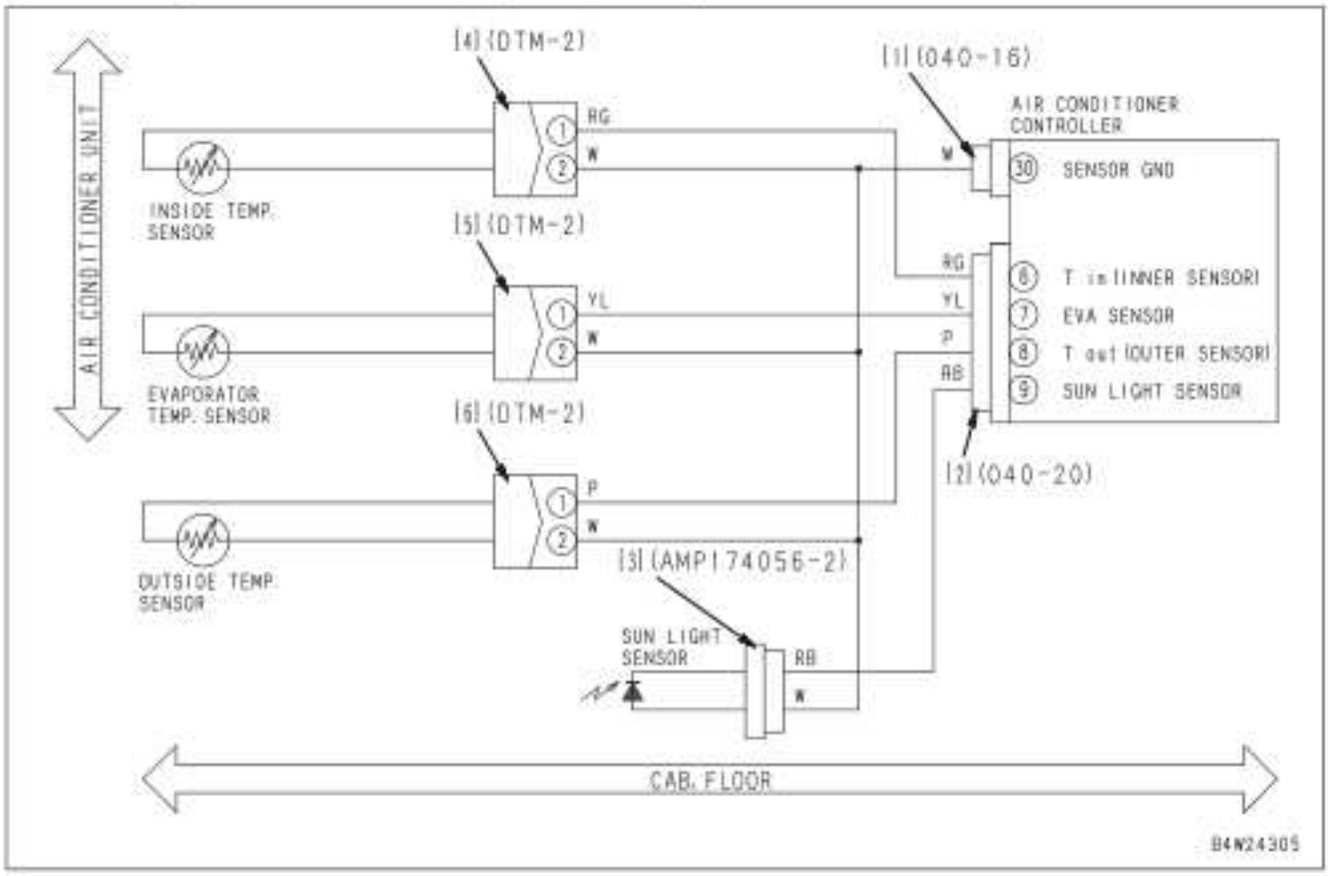
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Circuit diagram related to evaporator temperature sensor electrical circuit



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FAILURE CODE [CA4169]

Action level	Failure code	Failure	AdBlue/DEF Pump Heater OFF Stuck Error (Engine controller system)
L01	CA4169		
Detail of failure	AdBlue/DEF pump thawing is not complete.		
Action of controller	None in particular		
Phenomenon on machine	• AdBlue/DEF pump is not thawed • NOx emission increases because AdBlue/DEF injection is disabled at low temperature.		
Related information	• On the Pre-defined Monitoring screen troubleshooting for AdBlue/DEF pump thawing control is used. • 19309 "AdBlue/DEF Pump Heater State", 1: Thawing 2: Heating 3 or 0: OFF (the figures below denote monitoring codes). Troubleshooting for AdBlue/DEF pump thawing control 19107 AdBlue/DEF Pump Heater Control Command 19309 AdBlue/DEF Pump Heater State 19136 AdBlue/DEF Pump Temperature 19304 AdBlue/DEF Pump State 19400 Ambient Temperature 03203 Battery Power Supply **NOTICE** **After investigating the cause of the problem and completing the repair, perform "Loaded Diagnostics Operation To Confirm Failure Correction" to check if the repair is completed. (Clearing the failure code does not determine the completion of repair.) (This failure code is not cleared by starting switch at ON position or "AdBlue/DEF pump heater relay drive test" only.)** • **If "AdBlue/DEF pump temperature " is 45 °C or higher when starting switch is turned to ON position, "Loaded Diagnostics Operation To Confirm Failure Correction" cannot determine if the repair is completed successfully, therefore, wait until "AdBlue/DEF pump temperature" becomes 45 °C or lower.** • **In addition, if "AdBlue/DEF pump temperature " is 55 °C or higher, "AdBlue/DEF pump heater relay drive test" in "Loaded Diagnostics Operation To Confirm Failure Correction" is disabled.**		

No.	Cause	Procedure, measuring location, criteria and remarks
1	Defective AdBlue/DEF pump system	Perform troubleshooting for failure code [CA3558] or [CA3559] or [CA2976].
2	Defective AdBlue/DEF pump heater relay system	Perform troubleshooting for failure codes [CA4155] and [CA4156].
3	Defective AdBlue/DEF pump heater	1. Perform "Loaded Diagnostics Operation To Confirm Failure Correction". 2. If the AdBlue/DEF pump temperature does not rise by at least 5 °C during the test, replace the AdBlue/DEF pump. 3. Perform "Loaded Diagnostics Operation To Confirm Failure Correction".
4	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.)

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REMOVE AND INSTALL COUNTERWEIGHT ASSEMBLY

Tools to be used when removing and installing the counterweight assembly

Symbol	Part No.	Part name	Necessity	Q'ty	New/Redesign	Sketch	Remarks
A	Commercially available	Lifting tool	•	1			Removal and installation of grille assembly
B	Commercially available	Webbing sling	•	1			Removal and installation of battery
C	Commercially available	Lifting tool	•	2			Removal and installation of counterweight assembly
D	Commercially available	Lifting tool	•	2			

⚠ **Place the machine on a level ground, and set the parking brake switch to ON position.**

⚠ **Set the frame lock bar to LOCK position, and chock the tires.**

⚠ **Lower the work equipment to the ground, and set the work equipment lock switch to LOCK position.**

⚠ **Turn the starting switch to OFF position to stop the engine.**

⚠ **Turn the battery disconnect switch to OFF position, and remove the key. (For details, see TESTING AND ADJUSTING, "HANDLE BATTERY DISCONNECT SWITCH".)**

METHOD FOR REMOVING COUNTERWEIGHT ASSEMBLY

Grille assembly

1. Open the cover (1) on the left side of the machine.

   REMARK

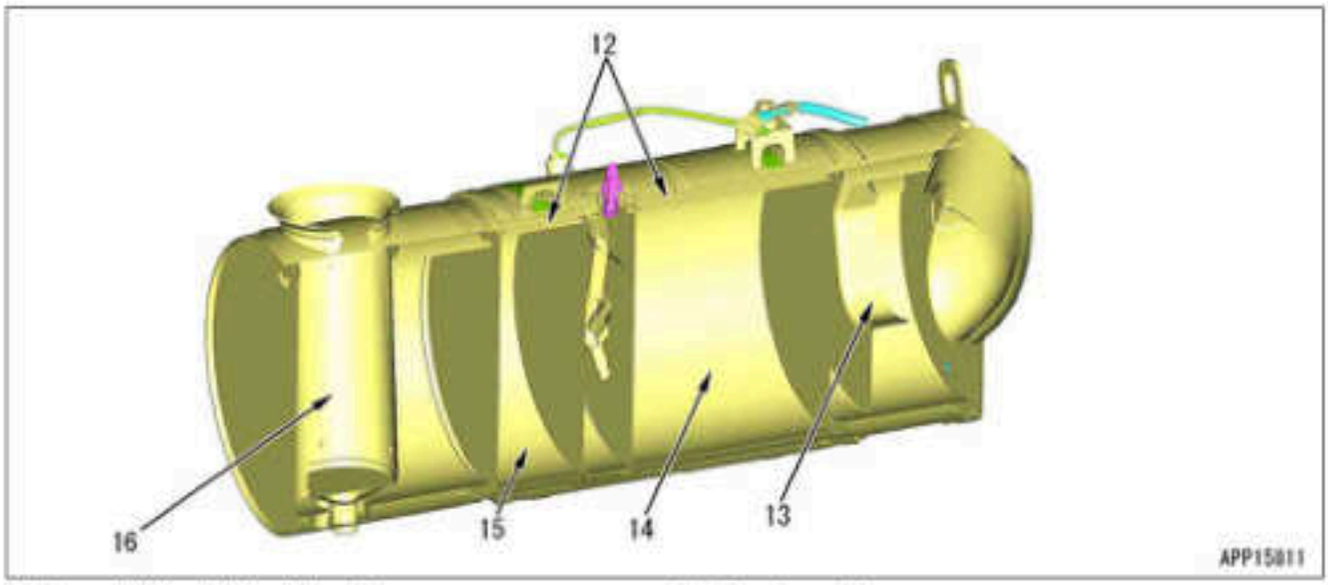
   Check the lock lever (1a) is securely locked at the lock position.

2. Open the grille assembly (2) upward.





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A: From AdBlue/DEF mixing tube
B: To exhaust pipe
1: SCR body
2: SCR temperature sensor
3: SCR outlet NOx sensor
4: SCR outlet temperature sensor
5: Temperature sensor controller
6: Ammonia sensor
7: Hanger plate
8: water baffle
9: Water drain port
10: Sensor table
11: Sensor table band
12: Catalyzer hold mat
13: Water dam
14: Downstream SCR catalyst and ammonia oxidation catalyst (integrated type)
15: Upstream SCR catalyst
16: Rectifier tube

- SCR assembly consists of rectifier tube (16) equalizing the distribution of flow speed by leading exhaust gas, upstream SCR catalyst (15), downstream SCR catalyst, ammonia oxidation catalyst (14), and water dam which prevents rain water from entering into downstream SCR catalyst and ammonia oxidation catalyst (14) while exhausting gas.
- Ammonia oxidation catalyst (a part of 14) oxidizes ammonia to water and nitrogen with ammonia oxidation catalyst (a part of 14) to prevent ammonia which is supplied to SCR assembly from being released out because SCR catalyst (a part of 14, 15)cannot completely consume it.
- Each 1 piece of SCR temperature sensor (2), SCR outlet temperature sensor (4), ammonia sensor (6), and SCR outlet NOx sensor (3) are installed. These sensors are usable for various troubleshooting, such as they are used to control the feedback of denitration efficiency or they monitor that SCR catalyst properly functions or not.
- Rectifying tube (16) equalizes the distribution of exhaust gas flow speed.
- SCR catalyst (15, a part of 14) uses the ceramic honeycomb.
- The catalyzer holding mat (12) is made of a specific fiber and protects the ceramic catalyst against vibrations by the engine and the machine body. It also protects the outer periphery of SCR assembly against a heat transfer of the ceramics during operation.
- Water dam (13) is located at the upstream side of the outlet and prevents rainwater from entering into downstream SCR catalyst unit and ammonia oxidation catalyst (14).
- Water baffle (8) is located at the downstream side of the outlet and prevents rainwater at outlet from splashing over the detection part of NOx sensor.

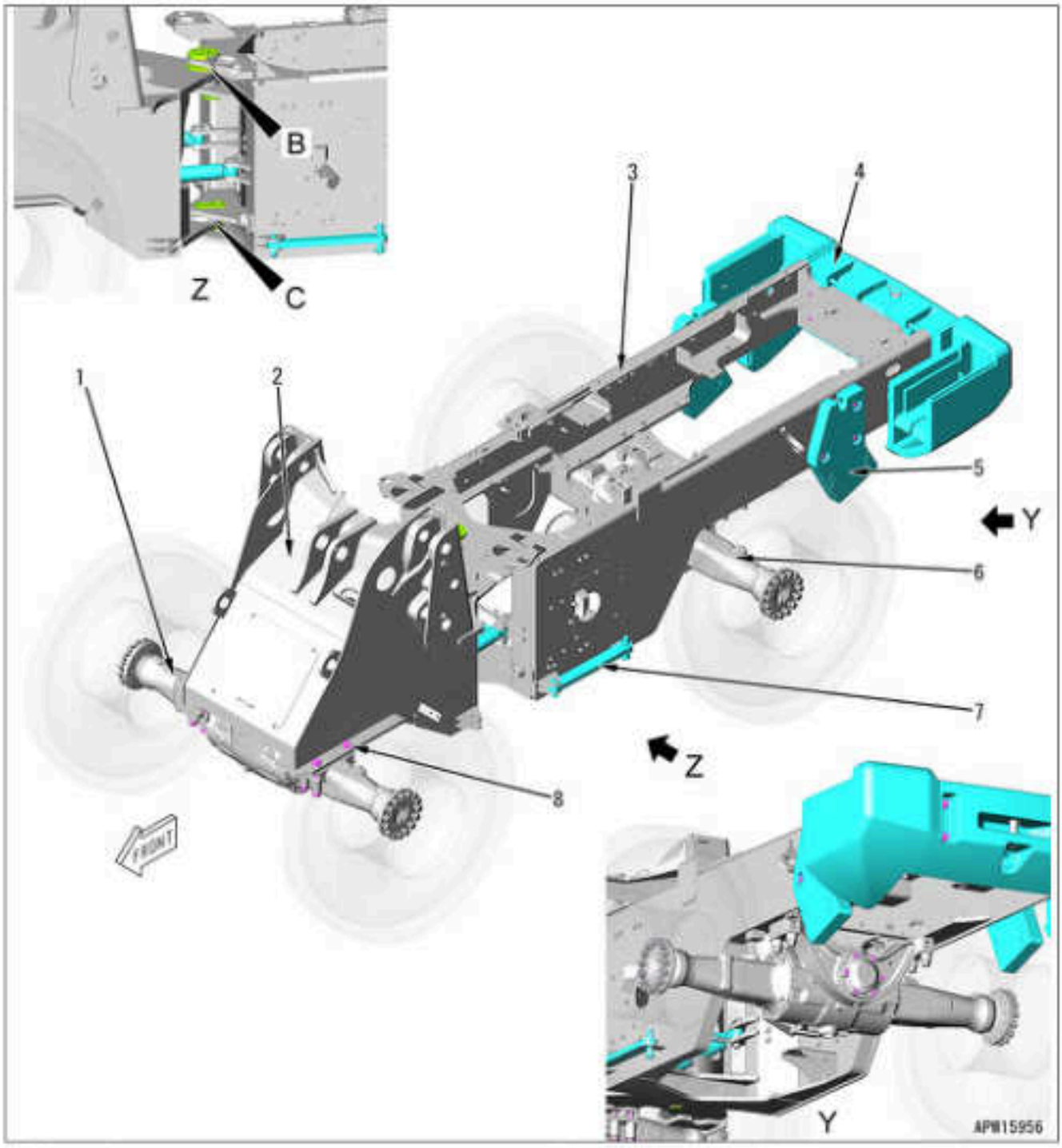
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UNDERCARRIAGE AND FRAME

FRAME, AXLE MOUNT AND CENTER HINGE PIN

STRUCTURE OF FRAME, AXLE MOUNT AND CENTER HINGE PIN

General view



1: Front axle
2: Front frame
3: Rear frame
4: Counterweight
5: Additional counterweight
6: Rear axle
7: Frame lock bar
8: Axle mount bolt

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ELECTRICAL CIRCUIT DIAGRAM OF FLOOR (1/9)

WA320–8

REMARK

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



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