CEBM031202

Shop Manual

KOMATSU®

WA320-8

WHEEL LOADER

SERIAL NUMBERS **WA320-8 A38001 and up**

ENGINE **6D107E-3**

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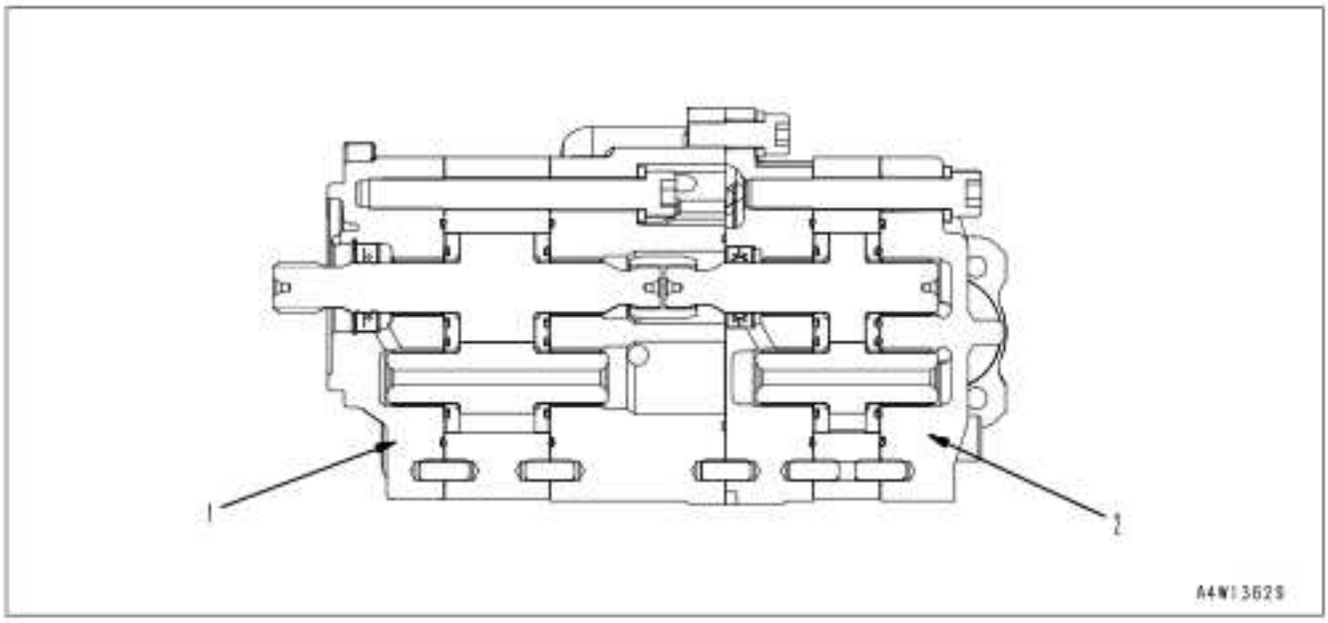
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BRAKE AND COOLING FAN PUMP AND TRANSFER LUBRICATION PUMP

STRUCTURE OF BRAKE AND COOLING FAN PUMP/TRANSFER LUBRICATION PUMP

Sectional view



1: Brake and cooling fan pump 2: Transfer lubrication pump

SPECIFICATIONS OF BRAKE AND COOLING FAN PUMP AND TRANSFER LUBRICATION PUMP

Brake and cooling fan pump

Model: SAR(1)25

Type: Gear type

Speed: 2250 rpm

Maximum discharged pressure: 18.7 MPa {190 kg/cm^2}

Standard discharged volume: 51 ℓ/min

Allowable minimum discharged volume: 45 ℓ/min

Transfer lubrication pump

Model: SAR(1)12

Type: Gear type

Speed: 2250 rpm

Maximum discharged pressure: 1 MPa {10 kg/cm^2}

Standard discharged volume: 27 ℓ/min

Allowable minimum discharged volume: 26 ℓ/min

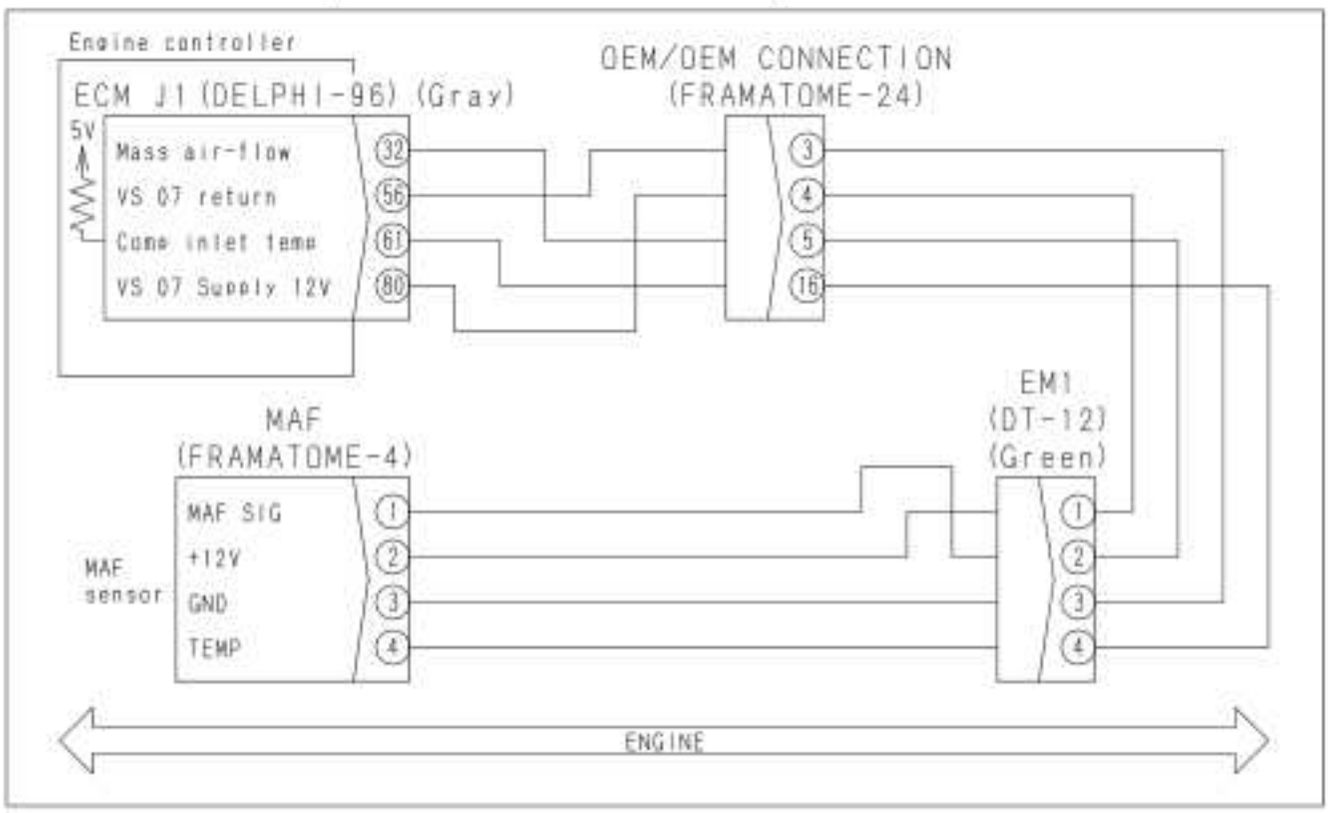
FUNCTION OF BRAKE AND COOLING FAN PUMP AND TRANSFER LUBRICATION PUMP

The brake and cooling fan pump and transfer lubrication pump are installed to the through drive of steering and work equipment pump. It is driven by shaft rotation in order to supply the oil pressure to the brake and cooling fan and transfer lubrication circuit.

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No.	Cause	Procedure, measuring location, criteria and remarks		
4	Hot short circuit in wiring harness	1. Turn starting switch to OFF position. 2. Disconnect connector MAF. 3. Insert T-adapter into connector ECM J1, or connect T-adapter to female side of MAF. 4. Turn starting switch to ON position.		
		Voltage	Between ECM J1 (61) and (56) or MAF (female) (4) and (3).	Max. 5.25 V
5	Short circuit in wiring harness	1. Turn starting switch to OFF position. 2. Disconnect connectors ECM J1 and MAF, and connect T-adapters to female side of ECM J1.		
		Continuity	Between ECM J1 (female) (61) and each pin other than ECM J1 (61) pin.	No continuity
6	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 (MASS AIR FLOW SENSOR)



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No.	Cause	Procedure, measuring location, criteria and remarks
2	Defective KDPF system (Abnormal exhaust gas temperature to SCR)	1. If failure code [CA3251] is displayed, perform troubleshooting for [CA3251]. 2. If failure code [CA3253], [CA3254], or [CA3311] is displayed, perform troubleshooting for [CA3253], [CA3254], or [CA3311]. 3. If failure code [CA3255], [CA3256], or [CA3312] is displayed, perform troubleshooting for [CA3255], [CA3256], or [CA3312].
3	Defective SCR temperature sensor (installation error or malfunction)	See "Disassembly and assembly", "Removal and installation of SCR temperature sensor" and fix installation error, if any.
4	Improper AdBlue/DEF quality	1. Turn starting switch to ON position. 2. If failure code [CA4277] is displayed or failure code [CA4277] is logged on the abnormality record screen, perform troubleshooting these first. 3. Confirm the "AdBlue/DEF concentration" on the Pre-defined Monitoring screen (normal value: 29 to 36 %). 4. If failure code is still displayed after above checks, it may be contaminated. Replace the AdBlue/DEF in the tank. 5. Replace the AdBlue/DEF injector. 6. Perform "Loaded Diagnostics Operation To Confirm Failure Correction".
5	Defective SCR outlet temperature sensor (internal defect)	1. If the failure code persists after the above checks, replace the SCR temperature sensor. 2. Perform "Loaded Diagnostics Operation To Confirm Failure Correction".
		If the failure code is cleared, the SCR temperature sensor may be defective.
6	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.)

Loaded Diagnostics Operation To Confirm Failure Correction

Perform the procedure below to check that the repair is completed.

(Make sure that this failure code is cleared after this procedure.)

REMARK

If this failure code is displayed during "Loaded Diagnostics Operation To Confirm Failure Correction", return to troubleshooting.

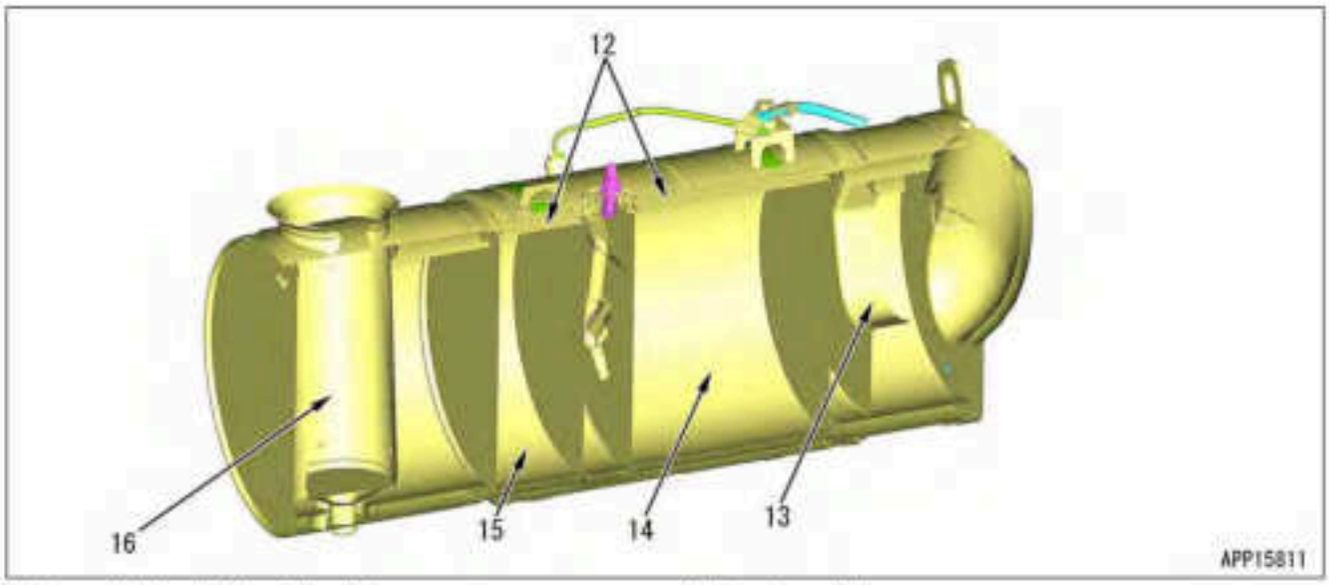
⚠ Place the machine on a level ground, set the gear shift lever to "PARKING (P)" position, and chock the tires.

1. Turn the starting switch to ON position.
2. Clear this failure code by "Engine Con Inducement Fault Clear".
3. Turn the starting switch to OFF position, and shut down the engine controller.
4. Turn the starting switch to ON position, and start the engine.
5. Run the engine at low idle speed for approximately 1 minute.
6. Select P mode (power mode) by the power mode selector switch.
7. Run the engine at high idle with accelerator pedal at 100 % for 15 minutes.
8. Make sure that this failure code is cleared.

   REMARK

   - If this failure code is cleared, repair is completed.
   - If this failure code is displayed, return to troubleshooting.

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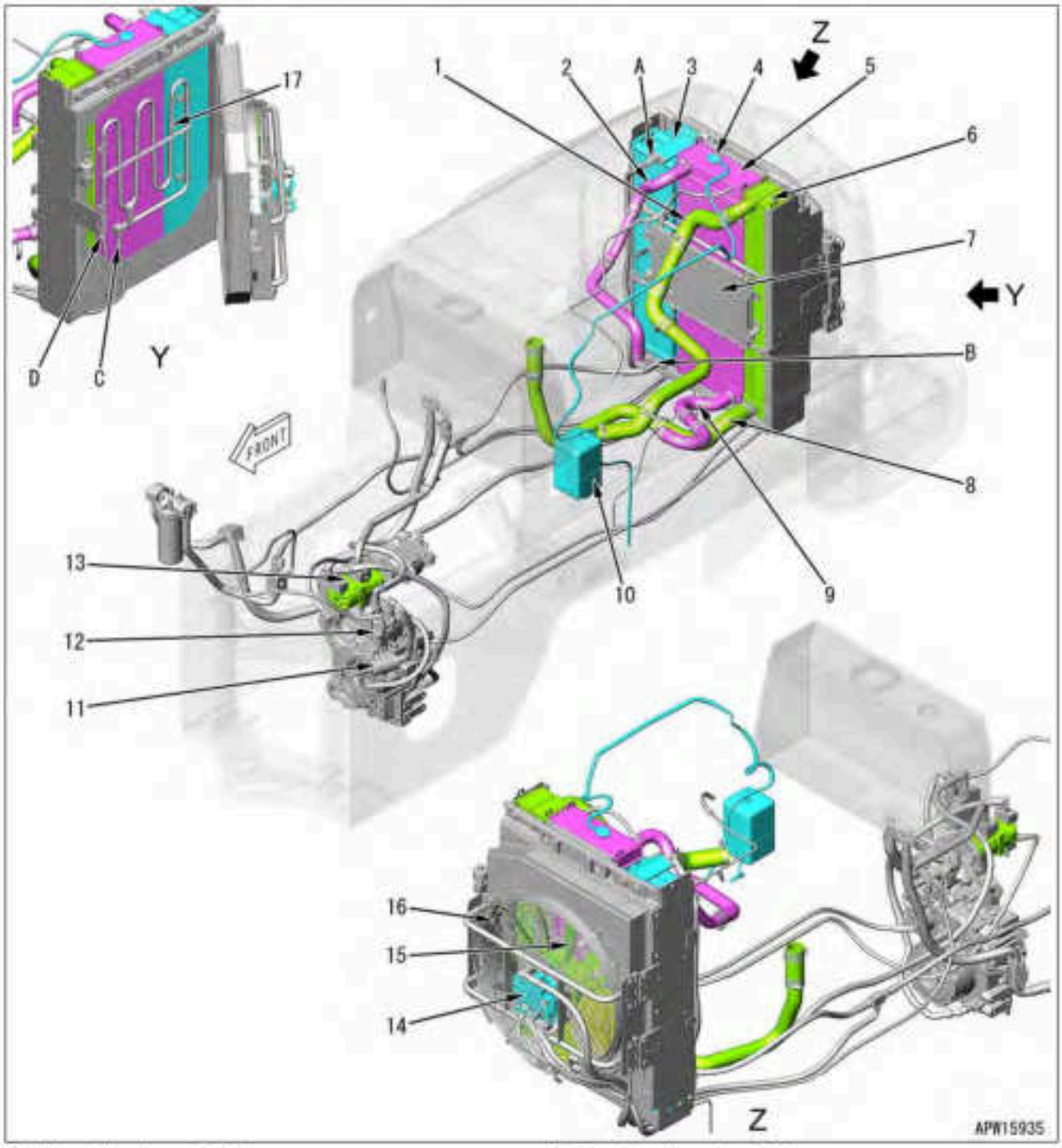
A: From AdBlue/DEF mixing tube
1: SCR body
2: SCR temperature sensor
3: SCR outlet NOx sensor
4: SCR outlet temperature sensor
5: Temperature sensor controller
6: Ammonia sensor
7: Hanger plate
8: water baffle
9: Water drain port
B: To exhaust pipe
10: Sensor table
11: Sensor table band
12: Catalyzer 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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COOLING SYSTEM

LAYOUT DRAWING OF COOLING SYSTEM



A: Hydraulic oil cooler inlet
B: Hydraulic oil cooler outlet
1: Aftercooler inlet hose
2: Radiator inlet hose
3: Hydraulic oil cooler
4: Radiator cap
5: Radiator
C: Transfer oil cooler inlet
D: Transfer oil cooler outlet
6: Aftercooler
7: Condenser
8: Aftercooler outlet hose
9: Radiator outlet hose
10: Reservoir tank (with built-in coolant level sensor)

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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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