SEN06573-06

Shop Manual

WHEEL LOADER **WA380-8**

SERIAL NUMBERS 15001 and up

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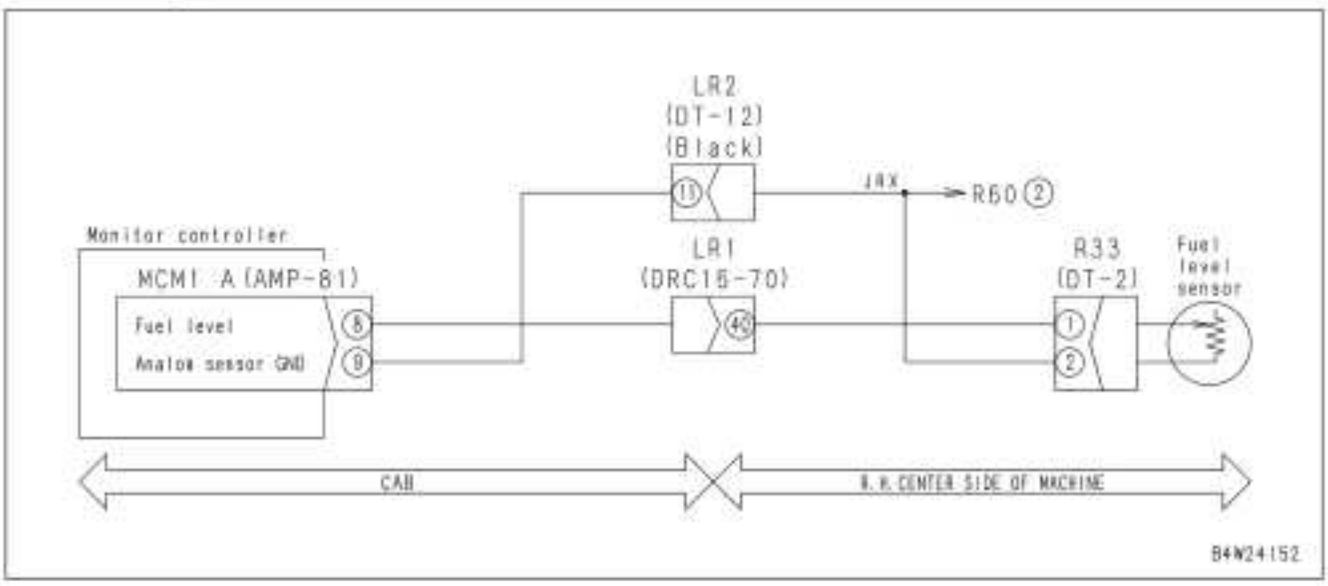
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Machine model			WA380-8				
Engine			SAA6D107E-3				
Item	Testing conditions	Unit	Standard value for new machine	Repair limit	Measured value	Good	No good
Engine speed at hydraulic stall	• Engine coolant temperature: 60 to 100 °C • Hydraulic oil temperature: 45 to 55 °C • Torque converter oil temperature: 80 to 100 °C • Power mode: P mode • Accelerator pedal: Depress to stroke end (High idle) • Operation of work equipment: At bucket TILT relieved	rpm	2080 to 2280	1980 to 2380			
Engine speed at full stall (torque converter stall+hydraulic stall)	• Engine coolant temperature: 60 to 100 °C • Hydraulic oil temperature: 45 to 55 °C • Torque converter oil temperature: 80 to 100 °C • Power mode: P mode • Operation of work equipment: At bucket TILT relieved	rpm	1620 to 1820	1520 to 1920			
Engine Oil Pressure	• Engine coolant temperature: Min. 60 °C • Power mode: P mode • Each control lever: NEUTRAL position • Engine oil (*2) EO10W30-LA EO15W40-LA EOS5W30-LA EOS5W40-LA	Accelerator pedal: Depress to stroke end (High idle)	MPa {kg/cm^2}	Min. 0.29 {Min. 3.0}	Min. 0.25 {Min. 2.5}		
		Accelerator pedal: Release (Low idle)		Min. 0.1 {Min. 1.0}	Min. 0.07 {Min. 0.7}		
Blowby pressure	• Engine coolant temperature: 60 to 100 °C • Torque converter oil temperature: 80 to 100 °C • With torque converter stalled	kPa {mmH$_2$O}	Max. 0.98 {Max. 100}	Max. 1.96 {Max. 200}			
Boost pressure	• Engine coolant temperature: 60 to 100 °C • Torque converter oil temperature: 80 to 100 °C • Power mode: P mode • With torque converter stalled	kPa {mmHg}	Min. 120 {Min. 900}	Min. 93 {Min. 700}			

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No.	Cause	Procedure, measuring location, criteria and remarks		
5	Ground fault in wiring harness (contact with ground circuit)	If no failure is found by checks of wiring harness for open circuit, short circuit, ground fault, or hot short circuit, this check is not required. 1. Turn the starting switch to OFF position. 2. Disconnect connectors MCM1 A and R33, and connect T-adapter to either female side.		
		Resistance	Between ground and MCM1 A (female) (8) or R33 (female) (1)	Min. 1 MΩ
6	Short circuit in wiring harness	1. Turn the starting switch to OFF position. 2. Disconnect connectors MCM1 A and R33, and connect T-adapter to female side of MCM1 A. Check it by using multimeter in continuity mode.		
		Continuity	Between MCM1 A (female) (8) and each pin other than pin (8)	No continuity
7	Defective monitor controller	If no failure is found by preceding checks, monitor controller is defective.		

Circuit diagram related to fuel level sensor



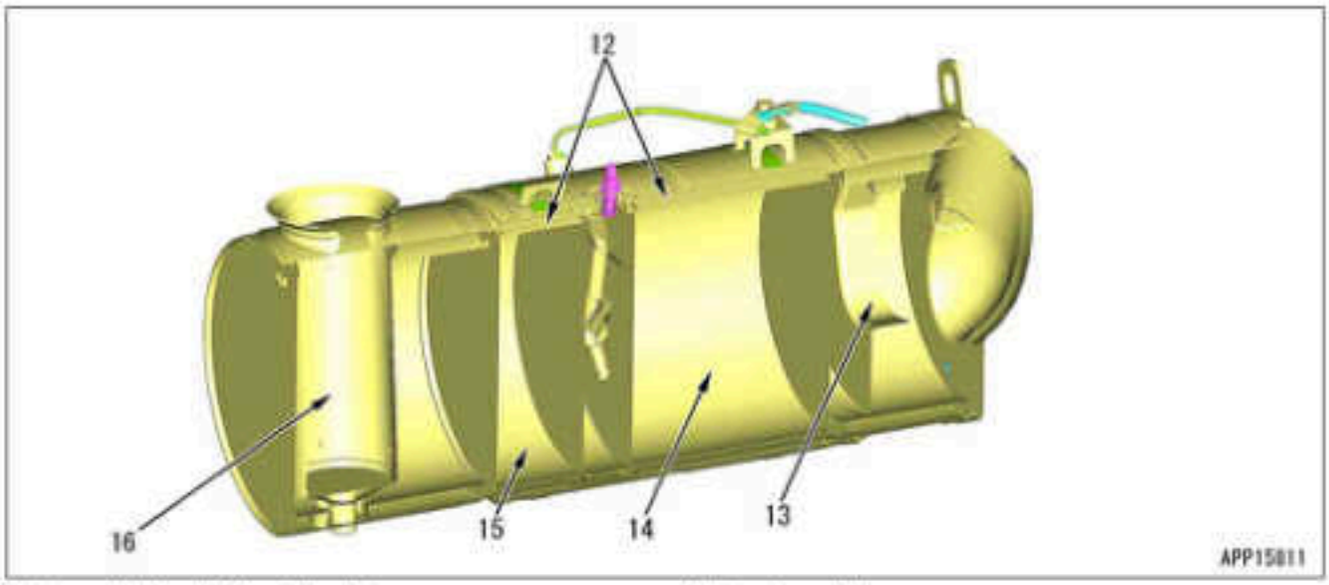
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S-24 AdBlue/DEF CONSUMPTION IS EXCESSIVE

Failure	AdBlue/DEF consumption is excessive.
Related information	If any failure code is displayed, perform troubleshooting for that code first.

No.	Cause	Point to check, remarks	Remedy
1	Usage of AdBlue/DEF which is not up to standard	Check that concentration of AdBlue/DEF in the tank is not lower than the standard concentration. (The specified AdBlue/DEF urea concentration is 32.5 %).	Replace AdBlue/DEF in the AdBlue/DEF tank with a product with the standard concentration.
2	Defective AdBlue/DEF hose	• Check AdBlue/DEF hose (check if there is any place where AdBlue/DEF is leaking). • Perform AdBlue/DEF pump pressure up test to specify the place where it is leaking.	Replacement of AdBlue/DEF hose
3	Defective AdBlue/DEF pump	Check AdBlue/DEF pump. (Check that no AdBlue/DEF leaks from the connecting part.)	Replacement of AdBlue/DEF pump
4	Defective AdBlue/DEF tank	Check for AdBlue/DEF leakage from AdBlue/DEF tank.	Replacement of AdBlue/DEF tank
5	Defective AdBlue/DEF injector	• Check for AdBlue/DEF injector related failure code. • Perform AdBlue/DEF Injection quantity test. • Perform troubleshooting for failure code [CA3568].	Replacement of AdBlue/DEF injector
6	Defective ammonia sensor	• Check for oil leakage from ammonia sensor mounting part • Check for breakage in appearance • Perform troubleshooting for failure code [CA4281].	Repair and replacement of the installation part of the ammonia sensor
7	Defective SCR outlet NOx sensor	• Check that there is no gas leakage from mounting part of SCR outlet NOx sensor. • Check that there is no damage on the appearance. • Perform troubleshooting for failure code [CA1694].	Repair and replacement of the installation part of the SCR outlet NOx sensor
8	Defective KDPF temperature sensor	• Check that there is no gas leakage from mounting part of KDPF temperature sensor. • Check that there is no damage on the appearance. • Perform troubleshooting for failure code [CA3322].	Repair and replacement of the installation part of the KDPF temperature sensor
9	Defective SCR temperature sensor	• Check that there is no gas leakage from mounting part of SCR temperature sensor. • Check that there is no damage on the appearance. • Perform troubleshooting for failure code [CA3151].	Repair and replacement of the installation part of the SCR temperature sensor

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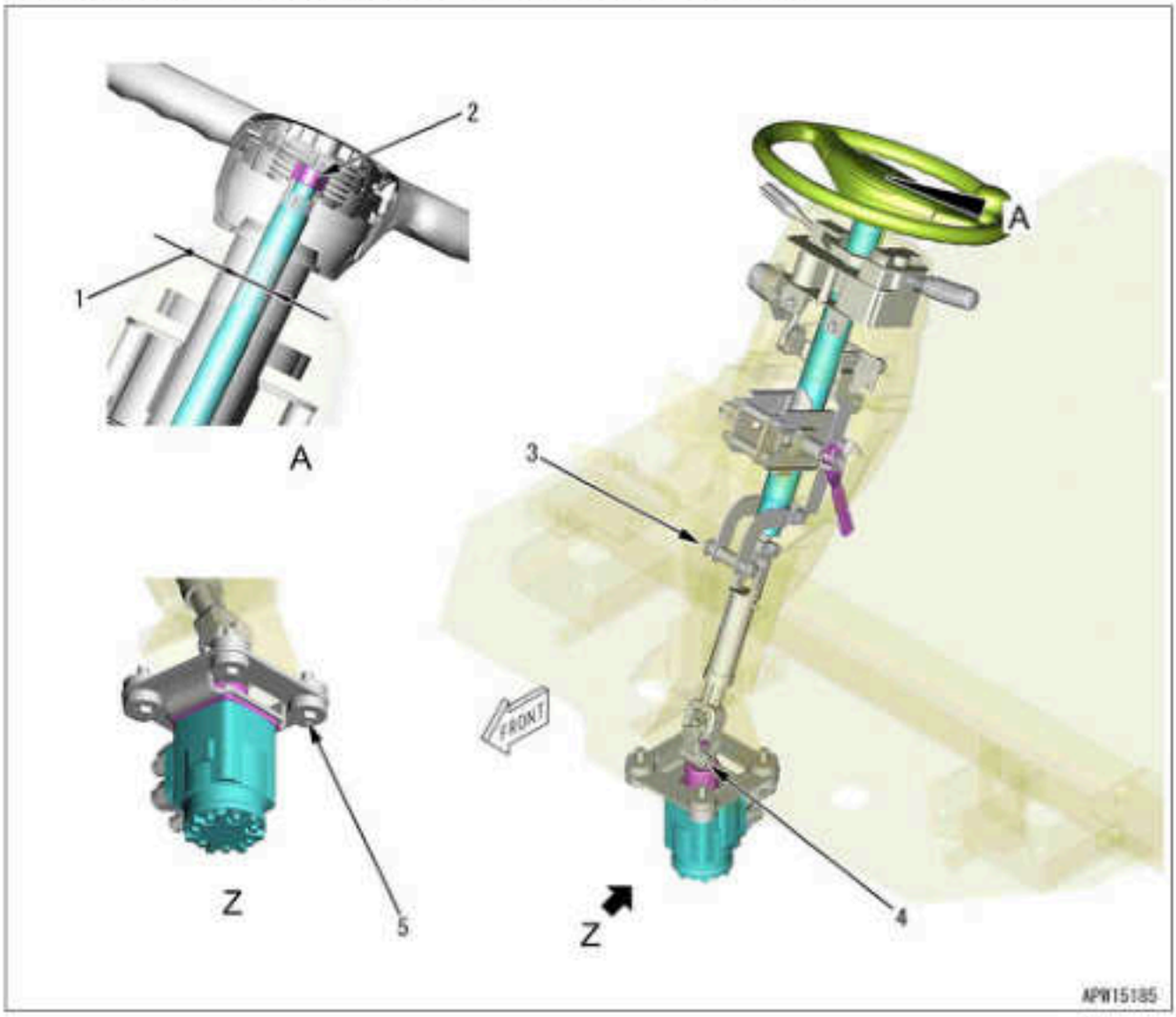
A: From AdBlue/DEF mixing tube
1: SCR body
2: SCR temperature sensor
3: SCR outlet NOx sensor
4: SCR outlet temperature sensor
5: Temperature sensor controller
6: Ammonia sensor
7: Hanger plate
8: water baffle
9: Water drain port
B: To exhaust pipe
10: Sensor table
11: Sensor table band
12: Catalyzer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

MAINTENANCE STANDARD OF STEERING COLUMN



Unit: mm

No.	Item	Judgment criteria					Remedy
		Standard dimension	Tolerance		Standard clearance	Allowable clearance	
			Shaft	Hole			
1	Clearance between steering shaft and column bushing	19	0 -0.08	+0.15 +0.05	0.05 to 0.23	0.4	Replace
2	Tightening torque of nut	29.4±2.94 Nm {3.0±0.3 kgm}					Retighten
3	Tightening torque of bolt	11.8 to 24.5 Nm {1.2 to 2.5 kgm}					
4	Tightening torque of bolt	48.1 to 62.8 Nm {4.9 to 6.4 kgm}					
5	Tightening torque of bolt	98 to 123 Nm {10 to 12.5 kgm}					

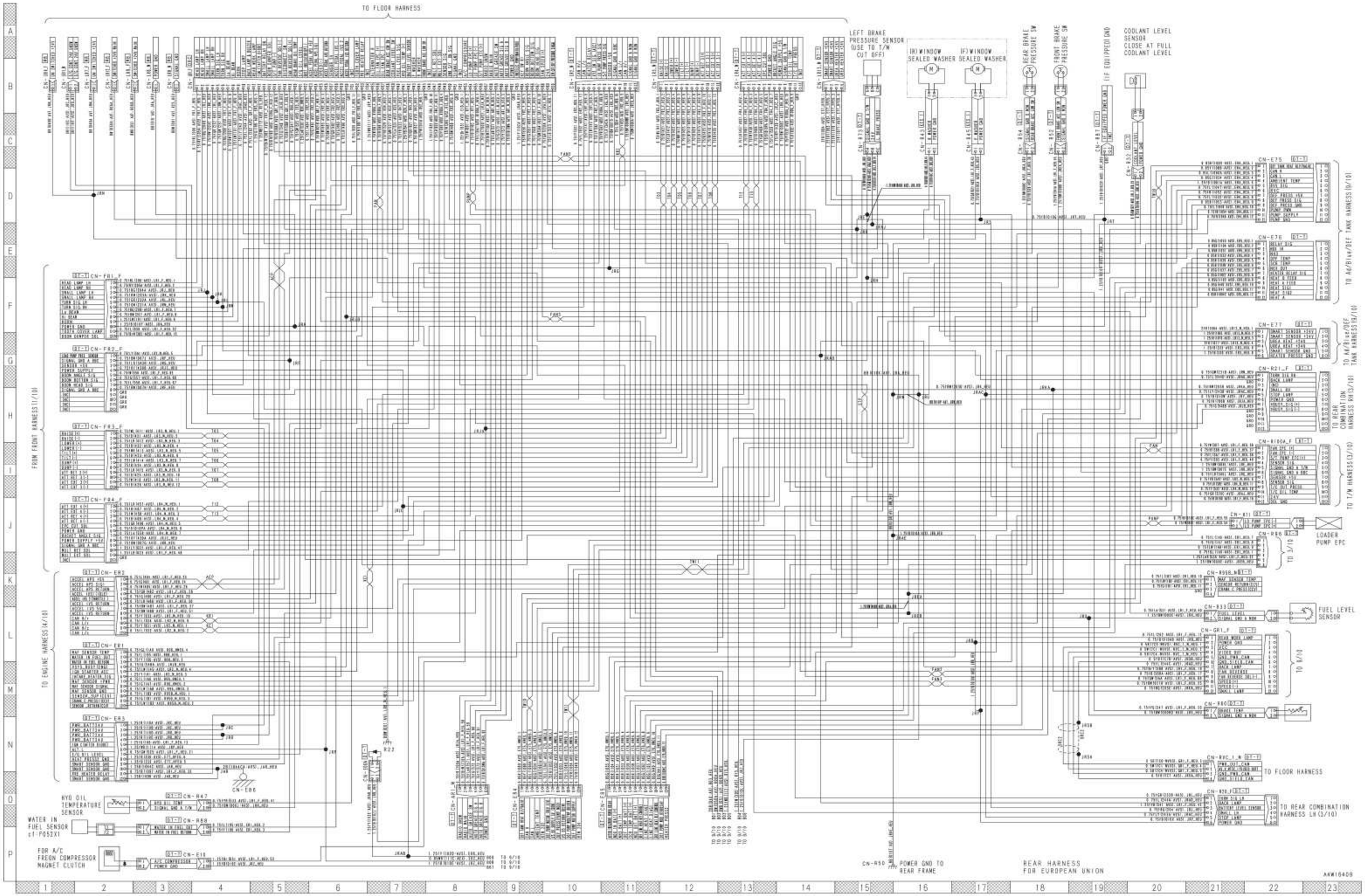
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ELECTRICAL CIRCUIT DIAGRAM OF MACHINE (8/10)

WA380-8

REMARK

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



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