PART NO. TTNDF-EN-01

HITACHI

Reliable solutions

Technical Manual
Troubleshooting

ZW

140-5B
140PL-5B
Wheel Loader

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle)	: Vol. No.TONDF-EN
Technical Manual (Troubleshooting)	: Vol. No.TTNDF-EN
Workshop Manual	: Vol. No.WNDF-EN

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SECTION 4

OPERATIONAL PERFORMANCE TEST

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Evaluation (Specification of Differential Pressure)

Item			Differential Pressure (kPa)	Remarks
Condition for Differential Pressure Check	Engine speed: 2420 min^{-1}		-	-
	CSF temperature: 230 °C (446 °F)		-	-
Differential pressure whether has been cleaned up	Muffler filter maintenance (h)	0	3.6	Differential pressure whether has been cleaned up after completing regeneration.
		1000	3.6	
		2000	3.6	
		3000	3.6	
		4000	3.6	
		4500	3.6	
Regeneration starting differential pressure (press3)	Muffler filter maintenance (h)	0	4.3	Differential pressure will be regenerated.
		1000	4.3	
		2000	4.3	
		3000	4.4	
		4000	4.4	
		4500	4.4	
PM over-restriction differential pressure (press5)	Muffler filter maintenance (h)	0	6.2	The engine alarm is displayed on the monitor.
		1000	6.2	
		2000	6.3	
		3000	6.3	
		4000	6.3	
		4500	6.3	
Filter replacement differential pressure	Muffler filter maintenance (h)	0	6.8	Allowable limit value.
		1000	6.9	
		2000	6.9	
		3000	7.0	
		4000	7.0	
		4500	7.0	

Remedy

Step	Content	Evaluation	Remedy
1	Measure No-Load-Max differential pressure and check the filter replacement differential pressure.	Less than filter replacement differential pressure	Perform Manual Muffler Filter Regeneration: Slow Regeneration of Engine Setting on the monitor. Then, change the engine oil.
		Filter replacement differential pressure or more	Replace the filter (CSF).

NOTE: Manual Muffler Filter Regeneration: Slow Regeneration is performed for about two hours.

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Pilot System Failure

Fault Code	Trouble	Cause	Symptoms in Machine Operation When Trouble Occurs.	Remedy
111330-3	Pressure Sensor (Front Attachment Pressure) Circuit High Input	Voltage: more than 4.75 V	The matching control cannot be activated.	Check the harness. Replace the pressure sensor (front attachment pressure).
111330-4	Pressure Sensor (Front Attachment Pressure) Circuit Low Input	Voltage: less than 0.25 V	The matching control cannot be activated.	Check the harness. Replace the pressure sensor (front attachment pressure).
111331-3	HST Circuit Pressure 1 Sensor Circuit High Input	Voltage: more than 4.75 V	The maximum speed and maximum traction force are limited. (while driving in forward direction)	Check the harness. Replace the HST circuit pressure 1 sensor.
111331-4	HST Circuit Pressure 1 Sensor Circuit Low Input	Voltage: less than 0.25 V	The maximum speed and maximum traction force are limited. (While driving in forward direction)	Check the harness. Replace the HST circuit pressure 1 sensor.
111332-5	Enable Signal Disconnection Error	Faulty harness	The travel operation is impossible.	Check the harness.
111333-3	HST Circuit Pressure 2 Sensor Circuit High Input	Voltage: more than 4.75 V	The maximum speed and maximum traction force are limited. (While driving in reverse direction)	Check the harness. Replace the HST circuit pressure 2 sensor.
111333-4	HST Circuit Pressure 2 Sensor Circuit Low Input	Voltage: less than 0.25 V	The maximum speed and maximum traction force are limited. (While driving in reverse direction)	Check the harness. Replace the HST circuit pressure 2 sensor.
111334-3	Brake Angle Sensor Circuit High Input	Voltage: more than 4.75 V	The inching control is not activated.	Check the harness. Replace the brake angle sensor.
111334-4	Brake Angle Sensor Circuit Low Input	Voltage: less than 0.25 V	The inching control is not activated.	Check the harness. Replace the brake angle sensor.

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Air Conditioner Controller Fault Codes E11 to E22

Preparation

- Check the wiring connections first.
- Before inspection, set the key switch to the ON position.

Fault Code	Trouble	Inspection Method	Evaluation	Cause
E11	Open circuit in re-circulated air sensor	Measure resistance between sensor #1 and #2.	∞ Ω (Normal value: 300 to 430 kΩ)	Faulty sensor.
		Measure voltage between sensor harness end #1 and body.	0 V	Open circuit in harness #1.
		-	Normal in above check.	Open circuit in harness #2.
E12	Shorted circuit in re-circulated air sensor	Measure resistance between sensor #1 and #2.	0 Ω (Normal value: 300 to 430 kΩ)	Faulty sensor.
		-	Normal in above check.	Shorted circuit in harness #1 and #2.
E13	Open circuit in outdoor ambient temperature sensor	Measure resistance between sensor #1 and #2.	∞ Ω (Normal value: 100 to 210 kΩ)	Faulty sensor.
		Measure voltage between sensor harness end #1 and body.	0 V	Open circuit in harness #1.
		-	Normal in above check.	Open circuit in harness #2.
E14	Shorted circuit in outdoor ambient temperature sensor	Measure resistance between sensor #1 and #2.	0 Ω (Normal value: 100 to 210 kΩ)	Faulty sensor.
		-	Normal in above check.	Shorted circuit in harness #1 and #2.
E18	Shorted circuit in solar radiation sensor	Check continuity between sensor harness end #1 and #2.	0 Ω	Shorted circuit in harness #1 and #2.
		-	Normal in above check.	Faulty sensor.
E21	Open circuit in frost sensor	Measure resistance between sensor #1 and #2.	∞ Ω (Normal value: 100 to 115 kΩ)	Faulty sensor.
		Measure voltage between sensor harness end #1 and body.	0 V	Open circuit in harness #1.
		-	Normal in above check.	Open circuit in harness #2.
E22	Shorted circuit in frost sensor	Measure resistance between sensor #1 and #2.	0 Ω (Normal value: 100 to 115 kΩ)	Faulty sensor.
		-	Normal in above check.	Shorted circuit in harness #1 and #2.

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