PART NO. TTNHD-E-00

HITACHI

Technical Manual
Troubleshooting

ZW 550-G
Wheel Loader

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle)	: Vol. No.TONHD-E
Technical Manual (Troubleshooting)	: Vol. No.TTNHD-E
Workshop Manual	: Vol. No.WNHD-E

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Troubleshooting

01

Cautions Regarding Troubleshooting ····· 01-3

How to Use Quick Troubleshooting Table ····· 01-4

Safety Precautions ····· 01-5

Quick Troubleshooting Table

Torque Converter and Transmission Group

1. Machine does not move in any shift lever position ····· 01-6
2. Machine does not move at a certain shift lever position ····· 01-7
   (or: Machine moves only in a certain shift lever position)
3. Machine moves at the neutral position ····· 01-8
   (Example: Machine moves forward at the neutral position)
4. Large shock at starting or changing speeds / direction ····· 01-9
5. Large time lag at starting or changing speed / direction ····· 01-10
6. Low power ····· 01-11
   (Defective torque converter or transmission)
7. Torque converter oil is overheating ····· 01-12
8. Machine moves reverse when starting to
   climb up on a slope using inching brake ····· 01-13
9. Automatic speed change is not possible ····· 01-14
10. QUAD switch does not work ····· 01-15

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Hydraulic Group

1. Boom and/or bucket do not move ····· 01-16
2. Boom and/or bucket have low power, or move too slowly ····· 01-17
3. Excessive cylinder drift ····· 01-18
4. Boom and/or bucket are spongy ····· 01-19
   (Holding bucket against the ground is not possible)
5. Bucket positioner (kick out) does not work ····· 01-20
6. Steering is not possible or hard to steer ····· 01-21
7. Machine sways, or has a shock during steering ····· 01-22
8. Abnormal noise in hydraulic system ····· 01-23
9. Others ····· 01-24

Brake Group

1. Brake does not work well
   (In the worst case, the brake does not work at all) ····· 01-25
2. Brake is dragging when released ····· 01-26
3. Stepping on the brake pedal sounds the buzzer ····· 01-27
4. Accumulator pressure does not rise, or too slow in rising ····· 01-28
5. Parking brake does not work ····· 01-29
   (or: Releasing the brake is not possible)
6. Auto brake does not work ····· 01-30

Electrical Group

1. Instrument panel does not indicate properly ····· 01-31
2. Breaker of the transmission controller is turned off ····· 01-32

Operator Station Group

1. Air conditioner ····· 01-33

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For Europe specification (S/N 11C4-9001~9010)

Measurement conditions:

Temperature of torque converter oil : 50 to 80°C (120–180°F)
Temperature of hydraulic oil : 50 to 80°C (120–180°F)
Temperature of engine coolant : 50 to 80°C (120–180°F)

Item					Standard measurement values for performance check		Remarks
System	Measurement item				Normal	Power	
Engine	Engine speed (min⁻¹) (rpm)	Minimum no-load speed, Low Idle (LI)			775 ± 50		
		Maximum no-load speed, High Idle (HI)			2,250 ± 50		
		Maximum speed in torque converter stall mode			2,130 ± 100		
		Maximum speed in multiple control valve relief mode			2,140 ± 100		
		Maximum speed in torque converter stall plus multiple control valve relief mode			1,520 +150 −100	1,650 +150 −100	
Transmission	Clutch pressure MPa (kgf/cm²) (psi)	Engine speed	Low idle	1st speed	2.2 ~ 2.3 (22 ~ 23) (313 ~ 327)		
				Except 1st speed	2.5 ~ 2.6 (25 ~ 26) (356 ~ 370)		
			High idle	1st speed	2.5 ~ 2.6 (25 ~ 26) (356 ~ 370)		
				Except 1st speed	2.6 ~ 2.9 (27 ~ 30) (384 ~ 427)		
	Clutch time lag (sec)	Neutral → Forward 1st speed (engine speed: 1,500 min⁻¹ (rpm))			0.3 ± 0.1		Before wheels move
Hydraulic line	Cylinder drift (when boom and bucket are horizontal and with no load) (mm/min) (in/min)	Boom cylinder			3 (1/8) or less		
		Bucket cylinder			4 (5/32) or less		
	Boom rising time (no load) (sec)	Engine speed	Idling (LI)		23 ± 3.0		
			1,500 min⁻¹ (rpm)		10.5 ± 1.0		
			Maximum (HI)		6.4 ± 0.5		
	Full steering time (sec)	Engine speed	Idling (LI)		5.0 ± 0.5		
			1,500 min⁻¹ (rpm)		3.9 ± 0.3		
			Maximum (HI)		3.9 ± 0.3		
	Relief valve setting pressure MPa (kgf/cm²) (psi)	Loading line main relief pressure (HI)			20.6 ± 0.5 (210 ± 5) (2,986 ± 71)		
		Loading line overload relief pressure (LI)			23.5 ± 0.5 (240 ± 5) (3,413 ± 71)		Run engine at lowest possible speed while setting
		Steering line main relief pressure (HI)			20.6 ± 0.5 (210 ± 5) (2,986 ± 71)		
		Steering line overload relief pressure (LI)			24.5 +1.5 −0 (250 +15 −0) (3,555 +215 −0)		Run engine at lowest possible speed while setting
		Fan motor line relief pressure (HI) (Reference values)			• Low press.: 9.5 (97) (1,380) • High press.: 19.0 (194) (2,755)		
		Pilot line reducing pressure (LI)			3.5 (36) (512)		
	Fan Max. revolution min⁻¹ (rpm)	Engine water temp. < 94 °C (200 °F)			1,120		• Low press. 9.5 MPa
		Engine water temp. > 94 °C (200 °F)			1,600		• High press. 19.0 MPa

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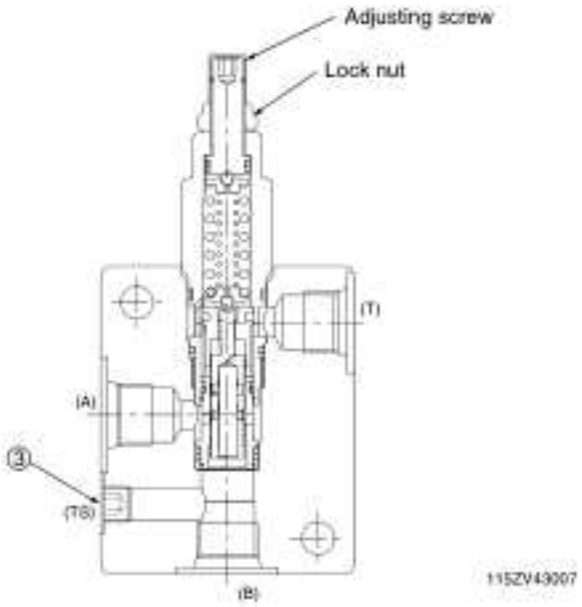
4. Measuring pilot circuit relief pressure (Reducing pressure) (S/N 0104~, S/N 9004~)

1) Attach the pressure gauge to the port (③).
   Gauge port plug width across flat : 5 mm
2) Move the bucket control lever to the roll back position.
3) Keep the engine speed at low idle.
4) Hold the bucket control lever at the roll back position and record the pressure.

Adjusting pilot line pressure :

Loosen the lock nut and adjust the pressure by the adjusting screw.

Turn clockwise the adjusting screw to raise the pilot line pressure.



IMPORTANT
After the completion of the adjustment of the pilot line pressure, be sure to tighten the lock nut.

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● **Possible cause of extremely high or low measurement valve and solution**

Unloader valve

The pressure is too low.

Possible cause	Solution
Inappropriate set unloader valve pressure	Adjustment
Debris stuck in pilot valve (poppet)	Disassembly & clean
Pilot spring broken	Disassembly & repair
Defect inside pilot pump	Disassembly & repair
Inappropriate set reducing valve pressure	Inspection & repair

The pressure is too high

Possible cause	Solution
Inappropriate set unloader valve pressure	Adjustment

Reducing valve

The pressure is too low.

Possible cause	Solution
Inappropriate set reducing valve pressure	Adjustment
Debris stuck in ball seat face	Disassembly & clean
Spring broken	Disassembly & repair

The pressure is too high.

Possible cause	Solution
Inappropriate set reducing valve pressure	Adjustment
Debris stuck in orifice	Disassembly & clean
Sticking plunger	Disassembly & clean

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