

PART NO. WNHD-E-00

HITACHI

ZW550-G WHEEL LOADER WORKSHOP MANUAL

Workshop Manual

ZW 550-G Wheel Loader

 **Hitachi Construction Machinery**

URL:<http://www.hitachi-c-m.com>

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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

Foreword

To ensure good machine performance, reduce failures or problems, and prolong the service life of each component, it is necessary to operate the machine as is directed in the Operator and Maintenance Manual.

To effectively diagnose and repair the machine, it is important to follow the guidelines laid out in this Shop Manual.

Disassembly & Reassembly Service Standard

For the engine, refer to the engine Shop Manual provided by the engine manufacturer.

The purpose of this manual is to provide information on the product and the correct maintenance and repair methods. Please read this manual to ensure correct troubleshooting and good repair service.

This manual will be periodically reviewed and revised for more satisfactory content. If you have any opinion or requests, please inform us.

Machine Specification

Market	Serial numbers	Remarks
Asia and Africa	0101 and up	Powered by CUMMINS QSK19-C Engine
Europe	9001 and up	

Safety precautions

The most important point in providing repair service is safety. To ensure safety, observe the general cautions described below.

- This manual is intended for properly trained and equipped service technicians.
- Any work on the machine must be performed by the trained personnel only.
- Carefully read this manual to thoroughly understand the operation method before you operate or repair the machine.
- Be sure to wear appropriate clothes and protectors, such as safety boots, hard hat and goggles.
- Place the machine on level and solid ground, and place chocks against the wheels to prevent movement.
- Remove the cable from the battery before starting the service work, and attach a "DO NOT OPERATE!" tag to the steering wheel.

IMPORTANT

If a battery terminal is removed from a machine in less than 30 seconds after the key is put into the "OFF" position, it can corrupt the ECM program, which can disable the engine. Always wait 1 full minute to be sure to be past this "write to memory function" prior to removing battery terminals.

- To remove a heavy unit (20 kg (40 lbs) or more), be sure to use a crane or other lifting device.
- Just after stopping operation, be careful not to directly touch a hot component. You may get burned.
- Contact tire manufacturer's local dealer for tire servicing and changing.
- Always store the tools in good condition, and use them properly.
- Keep the work area clean. Clean up spills immediately.
- Avoid the use of flammable solvents and cleaners.
- When working outdoors keep work areas, ladders, steps, decks and work platforms clear of snow, ice, and mud.
- Use safe work platforms to reach higher areas of the machine.
- Any technician that operates a refrigerant recovery and recycling machine must first be certified through an EPA approved testing program.
- Be sure to release the internal pressure before you remove a pipe, such as the hydraulic oil, air, or engine coolant pipe.
- Be sure to apply the articulation stopper before starting work.
- While supporting the bottom of the chassis using a jack, be sure to support the chassis using the blocks.
- When the boom or bucket is raised or when a unit is lifted by a crane, be sure to place a stand or adequate cribbing under the unit to prevent unexpected dropping.
- Do not start to work in an enclosed area if adequate ventilation is not provided.

Safety Symbols

An accident may occur if you disregard safety rules.

In this manual, several expressions are used according to levels of danger for inspection and repair work as shown below. Read the work procedures and cautions described in this manual, and take preventive measures against possible problems before starting service work.

DANGER

This danger symbol identifies special warnings or procedures which, if not strictly observed, will result in death or serious injury.

WARNING

This warning symbol identifies special warnings or procedures which, if not strictly observed, could result in death or serious injury.

CAUTION

This caution symbol identifies special instructions or procedures which, if not strictly observed, may result in minor or moderate injury.

IMPORTANT

This important symbol identifies special instructions or procedures which, if not correctly followed, may result in serious machine damage.

We cannot predict all possible accidents or incidents that may occur during service work. Therefore, an accident that is not specifically mentioned in this manual may occur. To protect yourself from all accidents, be careful when doing service work.

MEMO

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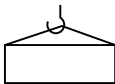
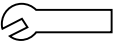
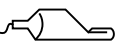


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Symbols

For safe and effective service work, the following symbols are used for notes and useful information in this manual.

Symbol	Item	Description
	Reference	Shows the condition or procedure that will be useful or efficient in doing service work.
	Weight	Shows the weight of a part or unit. The weight should be considered in selecting wire rope or cable for slinging work or determining the working posture.
	Tightening torque	Shows the tightening torque of a section that should be carefully tightened during assembly work.
	Coating	Shows the type of coating or adhesive and the coating section.
	Oil or water supply	Shows the oil or water supply port and the refill amount.
	Drainage	Shows the oil or water drain port and the drain amount.

IMPORTANT

If the specified conditions are not satisfied or the specified procedure is not observed, there is a strong possibility that the product will be damaged or the performance of the product will be reduced.
 The message shows the preventive measures.

Abbreviation

To save space, abbreviations are used in sentences. To understand the contents of this manual, refer to the following abbreviation list.

E/G Engine	RH Right hand side	3rd3rd speed
T/C Torque converter	LH Left hand side	4th4th speed
T/M Transmission	H High	M/CMachine
SOL Solenoid valve	L Low	min ⁻¹RPM
SW Switch	GND Ground	MCU.....Machine control unit
F Front or Forward	OPT Option	QUADQuick up and down shift
A/M Auto/Manual	Assy Assembly	
B Battery	1st 1st speed	
R Rear or Reverse	2nd 2nd speed	

Weight of Main Components

Item		Approx. weight (kg)	Approx. weight (lb)	Remarks	
Unit name	Part name				
Chassis	Bucket	4,985	10,990	RVT bucket	
	Boom	3,210	7,080	Standard	
	"Z" -Lever	435/pc	960/pc		
	Link (Bucket to Lever)	90/pc	200/pc		
	Screen board	200	445		
	Engine room	Roof	65	143	
		Radiator guard	250	555	
	Hydraulic tank	360	795	Excluding oil	
	Fuel tank	330	730	Excluding fuel	
	Floor board	160	355	Including ope. board, instrument panel and control box	
	Deck	Right side	80	180	With handrail
		Left side	105	230	With handrail
	Front chassis	3,700	8,160		
	Rear chassis	4,000	8,820		
	Counter weight	1,530	3,375		
Cab	270	595			
ROPS	840	1,855			
Power line	Engine	1,900	4,190	Excluding water and oil	
	Radiator	730	1,610	Excluding water and oil	
	Torque converter	350	775	Excluding oil	
	Transmission	1,100	2,425	Excluding oil	
	First propeller shaft	14	35		
	Second propeller shaft	180	400		
	Third propeller shaft	27	60		
	Front axle assembly	2,780	6,130	Excluding tires and oil	
	Rear axle assembly	2,940	6,485	Excluding tires and oil (Including axle support)	
Differential	560	1,235			
Hydraulic system	Multiple control valve	95	210		
	Pilot valve	9.5	21		
	Steering valve	50	110		
	Gear pump	40	90	Main & pilot	
		40	90	Switch	
	Boom cylinder	510/pc	1,125/pc	Excluding oil	
	Bucket cylinder	245/pc	540/pc	Excluding oil	
Steering cylinder	80/pc	180/pc	Excluding oil		
Other	Tire	1,530/pc	3,375/pc	With rim (35/65-33-24PR); No Hydro Inflation	
	Battery	60/pc	135/pc		

Bolt Tightening Torque

Hexagon bolt

1. Thread type
 Metric thread, Unified thread
2. Bolt strength
 8.8 (8T) ~ 10.9 (11T)
3. Thread pitch
 Metric thread: Coarse pitch thread (C), fine pitch thread (F)
 Unified thread: Coarse pitch thread (UNC), fine pitch thread (UNF)

(N-m)

Type	Bolt size			Bolt strength	
	Nominal dimension	Nominal dia.	Pitch	8.8 (8T)	10.9 (11T)
Metric thread	M8	8	(C) 1.25	26	38
	M10	10	(C) 1.5	53	76
			(F) 1.25	55	80
	M12	12	(C) 1.75	90	132
			(F) 1.25	96	142
	M14	14	(C) 2.0	142	206
			(F) 1.5	152	221
	M16	16	(C) 2.0	216	314
			(F) 1.5	226	330
	M18	18	(C) 2.5	299	436
			(F) 1.5	324	476
	M20	20	(C) 2.5	417	608
			(F) 1.5	451	662
	M22	22	(C) 2.5	559	814
			(F) 1.5	598	878
	M24	24	(C) 3.0	721	1,030
			(F) 2.0	770	1,128
	M27	27	(C) 3.0	1,030	1,520
(F) 2.0			1,128	1,618	
M30	30	(C) 3.5	1,422	2,109	
		(F) 2.0	1,569	2,256	
M33	33	(C) 3.5	1,912	2,844	
		(F) 2.0	2,059	3,040	
Unified thread	5/16	05	18 UNC	25	35
	3/8	06	16 UNC	44	65
	7/16	07	14 UNC	71	103
	1/2	08	13 UNC	103	147
	9/16	09	12 UNC	147	216
	5/8	10	11 UNC	201	294
	3/4	12	10 UNC	358	525
	7/8	14	9 UNC	554	809
	1	16	8 UNC	868	1,275

Note: Tighten the bolts according to the above list, unless otherwise specified.

(kgf-m)

Type	Bolt size			Bolt strength	
	Nominal dimension	Nominal dia.	Pitch	8.8 (8T)	10.9 (11T)
Metric thread	M8	8	(C) 1.25	2.7	3.9
	M10	10	(C) 1.5	5.4	7.8
			(F) 1.25	5.6	8.2
	M12	12	(C) 1.75	9.2	13.5
			(F) 1.25	9.8	14.5
	M14	14	(C) 2.0	14.5	21.0
			(F) 1.5	15.5	22.5
	M16	16	(C) 2.0	22.0	32.0
			(F) 1.5	23.0	33.7
	M18	18	(C) 2.5	30.5	44.5
			(F) 1.5	33.0	48.5
	M20	20	(C) 2.5	42.5	62.0
			(F) 1.5	46.0	67.5
	M22	22	(C) 2.5	57.0	83.0
			(F) 1.5	61.0	89.5
	M24	24	(C) 3.0	73.5	105.0
(F) 2.0			78.5	115.0	
M27	27	(C) 3.0	105.0	155.0	
		(F) 2.0	115.0	165.0	
M30	30	(C) 3.5	145.0	215.0	
		(F) 2.0	160.0	230.0	
M33	33	(C) 3.5	195.0	290.0	
		(F) 2.0	210.0	310.0	
Unified thread	5/16	05	18 UNC	2.5	3.6
	3/8	06	16 UNC	4.5	6.6
	7/16	07	14 UNC	7.2	10.5
	1/2	08	13 UNC	10.5	15.0
	9/16	09	12 UNC	15.0	22.0
	5/8	10	11 UNC	20.5	30.0
	3/4	12	10 UNC	36.5	53.5
	7/8	14	9 UNC	56.5	82.5
	1	16	8 UNC	88.5	130.0

Note: Tighten the bolts according to the above list, unless otherwise specified.

00-6
 General Information
 Bolt Tightening Torque

(lb-ft)

Type	Bolt size			Bolt strength	
	Nominal dimension	Nominal dia.	Pitch	8.8 (8T)	10.9 (11T)
Metric thread	M8	8	(C) 1.25	19.5	28
	M10	10	(C) 1.5	39	56
			(F) 1.25	40	59
	M12	12	(C) 1.75	66	97
			(F) 1.25	70	105
	M14	14	(C) 2.0	105	150
			(F) 1.5	110	160
	M16	16	(C) 2.0	160	230
			(F) 1.5	165	245
	M18	18	(C) 2.5	220	320
			(F) 1.5	235	350
	M20	20	(C) 2.5	305	450
			(F) 1.5	330	490
	M22	22	(C) 2.5	410	600
			(F) 1.5	440	650
	M24	24	(C) 3.0	530	760
			(F) 2.0	565	830
	M27	27	(C) 3.0	760	1,120
(F) 2.0			830	1,190	
M30	30	(C) 3.5	1,050	1,550	
		(F) 2.0	1,160	1,660	
M33	33	(C) 3.5	1,410	2,100	
		(F) 2.0	1,520	2,240	
Unified thread	5/16	05	18 UNC	18.0	26
	3/8	06	16 UNC	32	47
	7/16	07	14 UNC	52	76
	1/2	08	13 UNC	76	105
	9/16	09	12 UNC	110	160
	5/8	10	11 UNC	150	215
	3/4	12	10 UNC	265	385
	7/8	14	9 UNC	410	595
	1	16	8 UNC	640	940

Note: Tighten the bolts according to the above list, unless otherwise specified.

Flanged hexagon bolt

1. Bolt type: Metric thread
2. Bolt strength: 8.8 (8T)
3. Thread pitch: Coarse pitch thread (C)

(N-m)

Type	Bolt size		Bolt strength
	Nominal dimension	Pitch	8.8 (8T)
Metric thread	M5	0.8	7
	M6	1	12
	M8	1.25	28
	M10	1.5	53
	M12	1.75	94
	M16	2	231
	M20	2.5	441
	M24	3	765

(kgf-m)

Type	Bolt size		Bolt strength
	Nominal dimension	Pitch	8.8 (8T)
Metric thread	M5	0.8	0.7
	M6	1	1.2
	M8	1.25	2.9
	M10	1.5	5.4
	M12	1.75	9.6
	M16	2	23.5
	M20	2.5	45.0
	M24	3	78.0

(lb-ft)

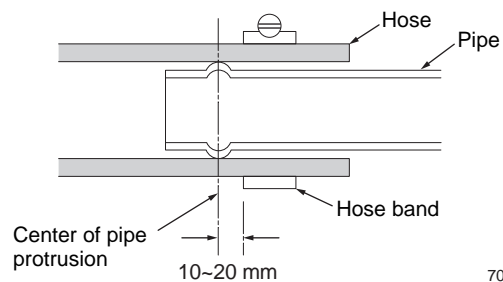
Type	Bolt size		Bolt strength
	Nominal dimension	Pitch	8.8 (8T)
Metric thread	M5	0.8	5.0
	M6	1	8.6
	M8	1.25	20.9
	M10	1.5	38.9
	M12	1.75	69.1
	M16	2	169.2
	M20	2.5	324.0
	M24	3	561.6

Hose Band Tightening Torque

Low pressure hose (heat resisting hose)		Hose band	Tightening torque (N-m)	Tightening torque (kgf-cm)	Tightening torque (lb-ft)
Inner dia. (mm)	Outer dia. (mm)				
6.3	16.5	69002-02200	1.6	16	1.2
7.9	18.5				
9.5	20.5				
12.7	24.5	69002-02700	4	40	2.9
15.9	29.9	69002-03100			
19.0	30.0				
25.4	38.0	69002-04400			
31.8	45.8	69002-05200			
38.1	52.1	69002-05700			
50.8	67.8	69002-07100			
60.5	76.0	69002-08200			
75.5	93.0	69002-09500			

Low pressure hose		Hose band	Tightening torque (N-m)	Tightening torque (kgf-cm)	Tightening torque (lb-ft)
Inner dia. (mm)	Outer dia. (mm)				
6	16.5	69002-02200	1.6	16	1.2
8	18.5				
9	20.5				
9	22.0	69002-02300	4	40	2.9
12	24.5	69002-02700			
12	26.0				
15	29.0	69002-03100			
15	30.5				
19	32.0	69002-03800			
19	34.0				
25	39.5	69002-04400			
25	41.5				
32	46.0	69002-05200			
32	48.0				
38	54.0	69002-05700			
50	70.5	69002-07600			
50	73.0				

To connect the hose to the pipe, tighten the hose band at the following position:



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