

Workshop Manual

ZW 220 250

Wheel Loader (EU Specification)



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

INTRODUCTION

TO THE READER

- This manual is written for an experienced technician to provide technical information needed to maintain and repair this machine.
- Be sure to thoroughly read this manual for correct product information and service procedures.
- If you have any questions or comments, at if you found any errors regarding the contents of this manual, please contact using "Service Manual Revision Request Form" at the end of this manual.
(Note: Do not tear off the form. Copy it for usage.):
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FAX: 81-29-831-1162

ADDITIONAL REFERENCES

- Please refer to the materials listed below in addition to this manual.
 - The Operator's Manual
 - The Parts Catalog
 - The Engine Manual
 - Parts Catalog of the Engine
 - Hitachi Training Material

MANUAL COMPOSITION

- This manual consists of three portions: the Technical Manual (Operational Principle), the Technical Manual (Troubleshooting) and the Workshop Manual.
- Information included in the Technical Manual (Operational Principle):
technical information needed for redelivery and delivery, operation and activation of all devices and systems.
- Information included in the Technical Manual (Troubleshooting):
technical information needed for operational performance tests, and troubleshooting procedures.
- Information included in the Workshop Manual:
technical information needed for maintenance and repair of the machine, tools and devices needed for maintenance and repair, maintenance standards, and removal/installation and assemble/disassemble procedures.

PAGE NUMBER

- Each page has a number, located on the center lower part of the page, and each number contains the following information:

Example : T 1-3-5

Consecutive Page Number for Each Group

Group Number

Section Number

T: Technical Manual W: Workshop Manual

INTRODUCTION

SAFETY ALERT SYMBOL AND HEADLINE NOTATIONS

In this manual, the following safety alert symbol and signal words are used to alert the reader to the potential for personal injury or machine damage.

 This is the safety alert symbol. When you see this symbol, be alert to the potential for personal injury. Never fail to follow the safety instructions prescribed along with the safety alert symbol.

The safety alert symbol is also used to draw attention to component/part weights.

To avoid injury and damage, be sure to use appropriate lifting techniques and equipment when lifting heavy parts.

- **CAUTION:**

Indicated potentially hazardous situation which could, if not avoided, result in personal injury or death.

- **IMPORTANT:**

Indicates a situation which, if not conformed to the instructions, could result in damage to the machine.

- **NOTE:**

Indicates supplementary technical information or know-how.

UNITS USED

- SI Units (International System of Units) are used in this manual.

MKSA system units and English units are also indicated in parentheses just behind SI units.

Example : 24.5 MPa (250 kgf/cm², 3560 psi)

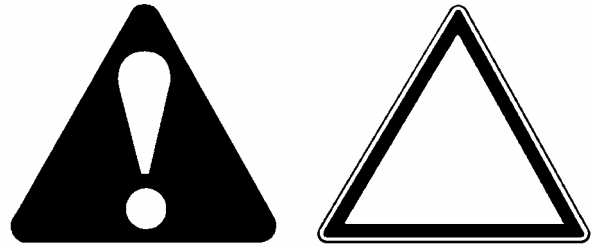
A table for conversion from SI units to other system units is shown below for reference purposes.

Quantity	To Convert From	Into	Multiply By	Quantity	To Convert From	Into	Multiply By
Length	mm	in	0.03937	Pressure	MPa	kgf/cm ²	10.197
	mm	ft	0.003281		MPa	psi	145.0
Volume	L	US gal	0.2642	Power	kW	PS	1.360
	L	US qt	1.057		kW	HP	1.341
	m ³	yd ³	1.308	Temperature	°C	°F	°C×1.8+32
Weight	kg	lb	2.205	Velocity	km/h	mph	0.6214
Force	N	kgf	0.10197		min ⁻¹	rpm	1.0
	N	lbf	0.2248	Flow rate	L/min	US gpm	0.2642
Torque	N·m	kgf·m	1.0197		mL/rev	cc/rev	1.0
	N·m	lbf·ft	0.7375				

SAFETY

RECOGNIZE SAFETY INFORMATION

- These are the **SAFETY ALERT SYMBOLS**.
 - When you see these symbols on your machine or in operator's manual, be alert to the potential for personal injury.
 - Follow recommended precautions and safe operating practices.



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UNDERSTAND SIGNAL WORDS

- On machine safety signs, signal words designating the degree or level of hazard - DANGER, WARNING, or CAUTION - are used with the safety alert symbol.
 - **DANGER** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
 - **WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 - **CAUTION** indicates a potentially hazardous situation
 - which, if not avoided, may result in minor or moderate injury.
 - **DANGER or WARNING safety signs** are located near specific hazards. General precautions are listed on **CAUTION safety signs**.
 - Some safety signs don't use any of the designated signal words above after the safety alert symbol are occasionally used on this machine.
- To avoid confusing machine protection with personal safety messages, a signal word **IMPORTANT** indicates a situation which, if not avoided, could result in damage to the machine.
-  **NOTE** indicates an additional explanation for an element of information.



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