

# Technical Manual

## ZW 20 Wheel Loader



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



# INTRODUCTION

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## 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, or 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 use.):  
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## ADDITIONAL REFERENCES

- Please refer to the other materials (operator's manual, parts catalog, engine technical material and Hitachi training material etc.) in addition to this manual.

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## MANUAL COMPOSITION

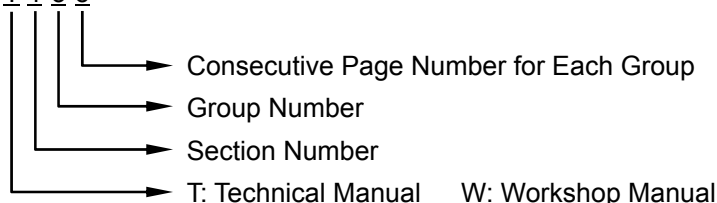
- This manual consists of the Technical Manual and the Workshop Manual.
- Information included in the Technical Manual: technical information needed for redelivery and delivery, operation and activation of all devices and systems, operational performance tests, and troubleshooting procedures.
- Information 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.

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## 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



# 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/cm<sup>2</sup>, 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 <sup>2</sup> | 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 <sup>3</sup>  | yd <sup>3</sup> | 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 <sup>-1</sup> | 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

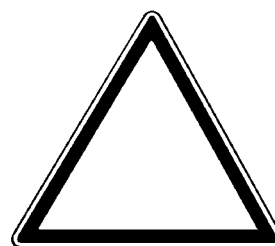
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### RECOGNIZE SAFETY INFORMATION

- These are the **SAFETY ALERT SYMBOLS**.
  - When you see these symbols on your machine or in this 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 do not 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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