

SHOP MANUAL

W90-3

WHEEL LOADER

SERIAL NUMBERS

WA90-3 - 70001 and up



— WARNING —

Unsafe use of this machine may cause serious injury or death. Operators and maintenance personnel must read this manual before operating or maintaining this machine. This manual should be kept inside the cab for reference and periodically reviewed by all personnel who will come into contact with the machine.

KOMATSU

SHOP MANUAL

KOMATSU

W90-3

MACHINE MODEL SERIAL No.

W90-3

70001 and up

The affected pages are indicated by the use of the following marks. It is requested that necessary actions be taken to these pages according to the table below.

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○	Pages to be newly added	Add
●	Page to be replaced	Replace
()	Page to be deleted	Discard

Pages having no marks are not revised.

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IMPORTANT SAFETY NOTICE

Proper service and repair is extremely important for the safe operation of machine. The service and repair techniques recommended by Komatsu and described in this manual are both effective and safe methods of operation. Some of these operations require the use of tools specially designed by Komatsu for the purpose.

To prevent injury to workers, the symbols  and  are used to mark safety precautions in this manual. The cautions accompanying these symbols should always be followed carefully. If any dangerous situation arises or may possibly arise, first consider safety, and take the necessary actions to deal with the situation.

FOREWORD

This shop manual has been prepared as an aid in improving the quality of repairs by giving the serviceman an accurate understanding of the product and by showing him the correct way to perform repairs and make judgements. Make sure you understand the contents of this manual and use it to full effect at every available opportunity.

Organization

This shop manual mainly contains the necessary technical information for operations performed in a service workshop. For ease of understanding, the manual is divided into chapters for each main group of components, these chapters are further divided into the following sections:

Structure and function

This section explains the structure and function of each component. It serves not only to give an understanding of the structure, but also serves as reference material for troubleshooting.

Testing and adjusting

This section explains checks to be made before and after performing repairs, as well as adjustments to be made at completion of the checks and repairs. Troubleshooting charts correlating "Diagnoses" to "Causes" are also included in this section.

Disassembly and assembly

This section explains the order to be followed when removing, installing, disassembling or assembling each component, as well as precautions to be taken for these operations.

Maintenance standards

This section gives the judgement standards when inspecting disassembled parts.

USING THE SHOP MANUAL

Volumes

Shop manuals are issued for carrying out repairs.

They are divided as follows

Chassis volume: **issued for every machine model**

Engine volume issued for each engine series

Electrical volume

Fuel system volume

Attachments volume

} each issued as one volume to cover all models

In addition, the following volumes are issued for high level rebuilding techniques to cover all models

Engine volume

The following volumes are issued for inspection and tests after repairs:

Guidance for reusable parts volume

Bench test methods volume

These various volumes are designed to avoid duplicating the same information. Therefore to deal with all repairs for any model, it is necessary to have the shop manual for that model as well as the relevant engine volume, the fuel system volume and the electrical volume.

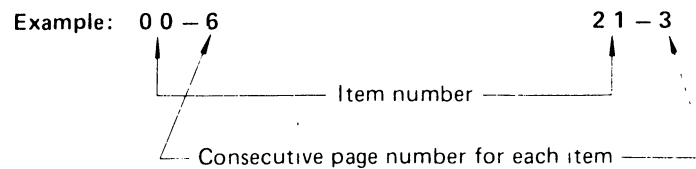
This shop manual is **chassis volume**.

Distribution and Updating

Recipients of shop manuals are recorded at the Komatsu Head Office. Any additions, amendments or other changes will be sent to all recipients without fail, so someone should be appointed to be in charge of manuals. In this way, pages can be added or removed immediately and the manuals kept up to date and easy to use.

Filing Method

- 1) File under the manual title file printed on the bottom of the page
- 2) Method of taking out the pages for filing is as follows. First order each item number starting with the lowest, and next order according to the consecutive page number for each item.



- 3) Additional pages. Additional pages are indicated by a dash (-) and number after the page number. File as in the example.

Example: $21-4$
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Besides this, when necessary, information will be written in the filing ring hole's margin. Look when filing.

**Revised Edition
Mark**




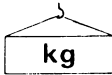
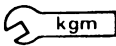



When a manual is revised, a revision number is placed within a circle and printed on the bottom inside corner of the pages to distinguish it from the old manual. Therefore, higher circled numbers supersede lower ones.

Revisions

A table listing revisions and revised pages to the present is printed on the back of the title page, so when there is a revision, revise the title page also, and use it to keep the file in order.

Symbols

So that the shop manual can be of sufficient practical use, we have marked important places for safety and quality with the following symbols

SYMBOL	ITEM	REMARKS
	Safety	Special safety precautions are necessary when performing the work
		Extra special safety precautions are necessary when performing the work because it is under internal pressure
	Caution	Special technical precautions or other precautions for preserving standards are necessary when performing the work
	Weight	Weight of parts or systems Caution necessary when selecting hoisting wire, or when working posture is important, etc
	Tightening torque	Places that require special care with the tightening torque when assembling
	Coat	Places to be coated with adhesives, etc. when assembling
	Oil, water	Places for filling with oil, etc Oil capacity
	Drain	Places for draining oil, etc Quantity to be drained.

DEFINITION

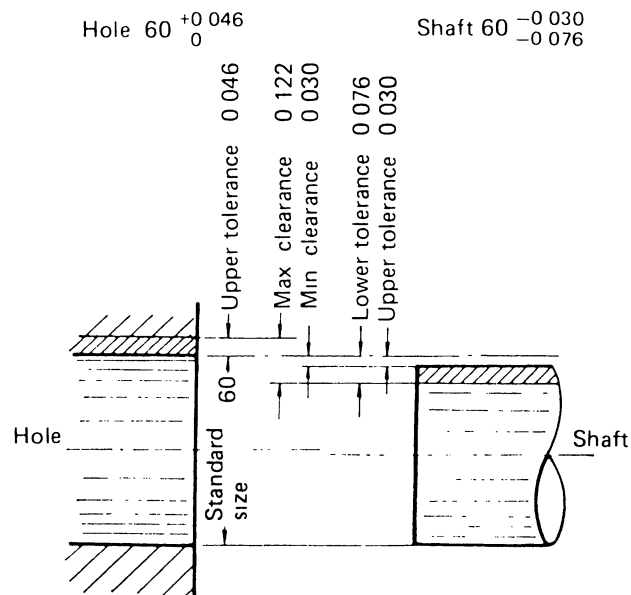
Standard Size, Tolerance

The dimensions of finished parts each differ a little. Therefore, when determining the finished dimensions of parts, a dimension that will be standard is determined provisionally, and then the difference allowed from it is indicated. The former is called the **standard size**, and the latter the **tolerance**.

The way to show this is by a plus or a minus sign with the tolerance in smaller numerals to the right the standard size.

Example. $120 \begin{smallmatrix} -0.022 \\ -0.126 \end{smallmatrix}$ (The same meaning as 119.874 – 119.978)

Moreover, when expressing the dimensions of a hole and the shaft that goes inside it, for the sake of convenience, the standard size for the hole and the shaft usually taken as the same, and the tolerances changed to indicate the tightness of the fit. For example, the fit of revolving shaft is indicated as follows, and is shown in the drawing.



Standard Size This is the standard value at the time of design, the finished dimension of new parts

Repair Limit This is the limit in dimension up to which the part can be used. (The size of parts changes due to wear or distortion during use). When parts exceed the repair limit, they must be repaired or replaced as specified.

Standard Clearance This is the clearance between two new parts after assembly, shown as a range between minimum clearance and maximum clearance. In general, parts are adjusted to this clearance after repair.

Clearance Limit This is the maximum clearance allowed between parts. (The clearance increases due to wear, etc. during use.)
When the clearance exceeds the clearance limit, the parts must be repaired or replaced as specified.

Maintenance Standard This is the number given to items in diagrams of individual components. The same number is given in the left-hand column for ease of identification.

				Unit mm	
No	Check item	Criteria			Remedy
1		Serial No	Standard size	Repair limit	

						Unit mm	
No	Check item	Criteria				Remedy	
10		Serial No	Standard size	Tolerance		Standard clearance	Clearance limit
				Shaft	Hole		

SHOP MANUAL

W90.3

SERIAL NO. 70001 and up

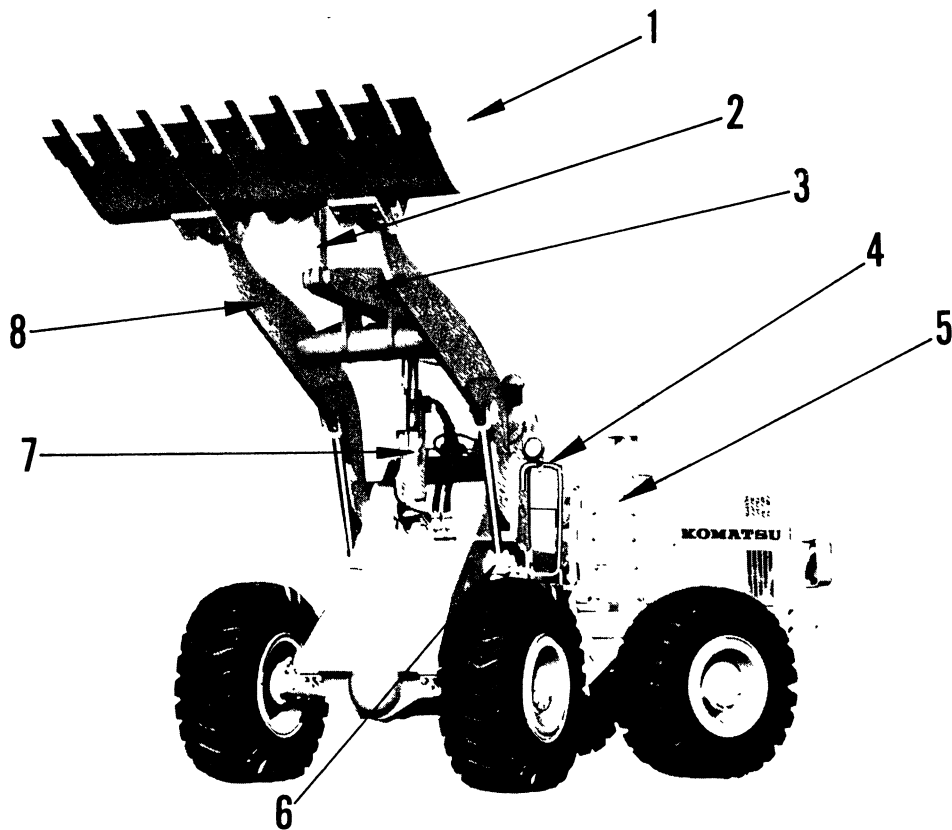
01 GENERAL



GENERAL

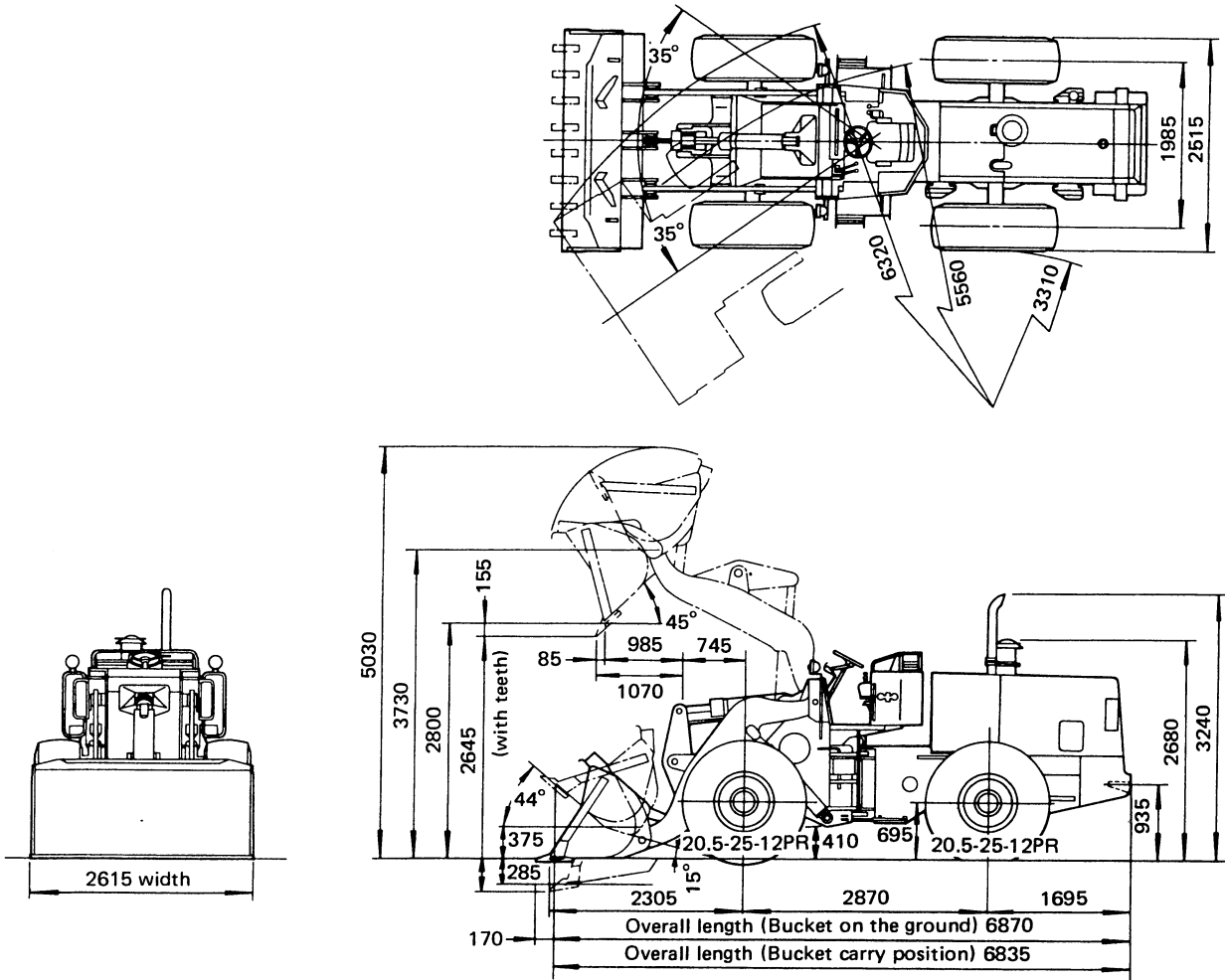
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GENERAL VIEW



1. Bucket
2. Link
3. Lever
4. Hydraulic tank
5. Battery box
6. Boom cylinder
7. Bucket cylinder
8. Boom

GENERAL ASSEMBLY DRAWING



SPECIFICATIONS

GENERAL

SPECIFICATIONS

Machine name and model		W90-3			
Serial numbers		70001 ~			
Weight	Operating weight	kg	12,200		
	Front wheel loading	kg	5,620		
	Rear wheel loading	kg	6,580		
Dimensions	Overall length (tooth length excluded)	mm	6,870		
	Overall width	Overall width of machine	mm	2,515	
		Overall width of bucket	mm	2,615	
	Overall height	Top edge of canopy	mm	3,330	
		During bucket ascent	mm	5,030	
	Wheel base	mm	2,870		
	Tread	mm	1,985		
	Bucket hinge pin height	mm	3,730		
	Dumping clearance (bucket base)	mm	2,800		
	Dumping reach (bucket base)	mm	985		
	Bucket dump angle	°	45		
	Bucket tilt angle (traveling posture)	°	44.2		
	Excavation depth (10° dump)	mm	285		
	Minimum height above ground	mm	410		
Performance	Bucket capacity	m ³	2.3		
	Operating load	kg	4,000		
	Bucket ascent time	sec	6.0		
	Bucket descent time	sec	3.5		
	Maximum traction force	kg	11,800		
	Gradeability	°	25		
	Mini. turning radius	At outside of machine	mm	6,320	
	Travel speed	Forward	1st speed	km/h	0 ~ 7.5
			2nd speed	km/h	0 ~ 13.3
			3rd speed	km/h	0 ~ 30.4
Reverse		1st speed	km/h	0 ~ 8.0	
		2nd speed	km/h	0 ~ 14.2	
		3rd speed	km/h	0 ~ 32.3	