

SHOP MANUAL

KOMATSU

W170-2

MACHINE MODEL	SERIAL No.
W170-2	60001 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.

Mark	Indication	Action required
○	Pages to be newly added	Add
●	Page to be replaced	Replace
()	Page to be deleted	Discard

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LIST OF REVISED PAGES

Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number
●	00- 1	①		21- 3		○	22- 8	①	○	23-41	①	○	23-82	①
○	00- 2	①		21- 4		○	22- 9	①	○	23-42	①	○	23-83	①
○	00- 2-1	①		21- 5		○	23- 1	①	○	23-43	①	○	23-84	①
●	00- 3	①		21- 6		○	23- 3	①	○	23-44	①	○	23-85	①
	00- 4			21- 8		○	23- 4	①	○	23-45	①	○	23-86	①
	00- 5			21- 9		○	23- 5	①	○	23-46	①	○	23-87	①
	00- 6			21-10		○	23- 6	①	○	23-47	①	○	23-89	①
	00- 7			21-11		○	23- 7	①	○	23-48	①	○	23-90	①
	00- 8			21-12		○	23- 8	①	○	23-49	①	○	23-91	①
	00- 9			21-14		○	23- 9	①	○	23-50	①	○	23-92	①
	00-10			21-15		○	23-10	①	○	23-51	①	○	23-93	①
	01- 1			21-16		○	23-11	①	○	23-52	①	○	23-94	①
	01- 3			21-17		○	23-12	①	○	23-53	①	○	23-95	①
	01- 4			21-18		○	23-13	①	○	23-54	①	○	23-96	①
	01- 5			21-19		○	23-14	①	○	23-55	①	○	23-97	①
	01- 6			21-20		○	23-15	①	○	23-56	①	○	23-98	①
	01- 7			21-21		○	23-16	①	○	23-57	①	○	23-100	①
	0-1 8			21-22		○	23-17	①	○	23-58	①	○	23-101	①
	01- 9			21-23		○	23-18	①	○	23-59	①	○	23-102	①
	01-10			21-24		○	23-19	①	○	23-60	①	○	23-103	①
	01-11			21-25		○	23-20	①	○	23-61	①	○	23-104	①
	01-12			21-26		○	23-21	①	○	23-62	①	○	23-105	①
	01-13			21-27		○	23-22	①	○	23-63	①	○	23-106	①
	01-14			21-28		○	23-23	①	○	23-64	①	○	23-107	①
	01-15			21-30		○	23-24	①	○	23-65	①	○	23-108	①
	01-16			21-31		○	23-25	①	○	23-66	①	○	23-109	①
	01-17			21-32		○	23-26	①	○	23-67	①	○	23-110	①
	01-18			21-33		○	23-27	①	○	23-68	①	○	23-111	①
	01-19			21-34		○	23-28	①	○	23-69	①	○	23-112	①
	01-20			21-35		○	23-30	①	○	23-70	①	○	23-113	①
	01-21			21-36		○	23-31	①	○	23-72	①	○	23-114	①
	01-22			21-37		○	23-32	①	○	23-73	①	○	23-115	①
○	13- 1	①		21-38		○	23-33	①	○	23-74	①	○	23-116	①
○	13- 3	①		21-39		○	23-34	①	○	23-75	①	○	23-117	①
○	13- 4	①	○	22- 1	①	○	23-35	①	○	23-76	①	○	23-118	①
○	13- 5	①	○	22- 3	①	○	23-36	①	○	23-77	①	○	23-119	①
○	13- 6	①	○	22- 4	①	○	23-37	①	○	23-78	①	○	23-120	①
○	13- 7	①	○	22- 5	①	○	23-38	①	○	23-79	①	○	23-121	①
○	13- 8	①	○	22- 6	①	○	23-39	①	○	23-80	①	○	23-122	①
	21- 1		○	22- 7	①	○	23-40	①	○	23-81	①	○	23-124	①



Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number
○	23-125	①		44- 4			54- 5		○	63-23	①	○	72- 5	①
○	23-126	①		51- 1			54- 6		○	63-24	①	○	73- 1	①
○	23-127	①		51- 3			54- 7		○	63-25	①	○	73- 3	①
○	23-128	①		51- 4			54- 8		○	63-26	①	○	73- 4	①
○	23-129	①		51- 5			61- 1		○	63-27	①	○	73- 5	①
○	23-130	①		51- 6			61- 3		○	63-28	①	○	73- 6	①
○	23-131	①		51- 7			61- 4		○	63-29	①	○	73- 7	①
○	23-132	①		51- 8			61- 5		○	63-30	①	○	73- 8	①
○	23-133	①		51- 9			61- 6		○	63-31	①	○	73- 9	①
○	23-134	①		51-10			61- 7		○	63-32	①	○	73-10	①
○	23-135	①		51-11			61- 8		○	63-33	①	○	73-11	①
○	23-136	①		51-12			61- 9		○	63-34	①	○	73-12	①
○	23-137	①		51-13			61-10		○	63-35	①	○	73-14	①
○	23-138	①		51-14			61-11		○	63-36	①	○	73-15	①
○	23-139	①		51-15			61-12		○	63-37	①	○	73-16	①
	24- 1			51-16			61-13		○	63-38	①	○	73-17	①
	24- 3			51-17			61-14		○	63-39	①	○	73-18	①
	24- 4			51-18			61-15		○	63-40	①	○	73-19	①
	24- 5		○	52- 1	①		61-16		○	63-41	①	○	73-20	①
	24- 6		○	52- 3	①		61-17		○	63-42	①	○	73-22	①
	24- 7		○	52- 4	①		61-18		○	63-43	①	○	73-23	①
	24- 8		○	52- 5	①		61-19		○	63-44	①	○	73-24	①
	24- 9		○	52- 6	①		61-20		○	63-45	①	○	73-25	①
	24-10		○	52- 7	①		61-22		○	63-46	①	○	73-26	①
	24-11		○	52- 8	①		61-23		○	63-47	①	○	73-27	①
	24-12		○	52- 9	①		61-24		○	63-48	①	○	73-28	①
	24-13		○	53- 1	①		61-25		○	63-49	①	○	73-29	①
	24-14		○	53- 3	①		61-26		○	63-50	①	○	73-30	①
	24-15		○	53- 4	①		61-27		○	63-51	①	○	73-31	①
	24-16		○	53- 5	①	○	62- 1	①	○	63-52	①	○	73-32	①
	41- 1		○	53- 6	①	○	62- 3	①	○	63-53	①	○	73-33	①
	41- 3		○	53- 7	①	○	62- 4	①	○	63-54	①		74- 1	
	41- 4		○	53- 8	①	○	62- 5	①	○	63-56	①		74- 3	
	41- 5		○	53-10	①	○	62- 6	①	○	63-57	①		74- 4	
	41- 6		○	53-11	①	○	62- 7	①	○	63-58	①		74- 5	
○	42- 1	①	○	53-12	①	○	63- 1	①	○	63-59	①		74- 6	
○	42- 3	①	○	53-13	①	○	63- 3	①	○	63-60	①		74- 7	
○	42- 4	①	○	53-14	①	○	63- 4	①	○	63-61	①		74- 8	
○	42- 5	①	○	53-15	①	○	63- 5	①	○	63-62	①		91- 1	
○	42- 6	①	○	53-16	①	○	63- 6	①		64- 1			91- 3	
○	42- 7	①	○	53-17	①	○	63- 8	①		64- 3			91- 5	
○	42- 8	①	○	53-18	①	○	63- 9	①		64- 4			91- 6	
○	43- 1	①	○	53-19	①	○	63-10	①		64- 5			91- 7	
○	43- 3	①	○	53-20	①	○	63-11	①		64- 6			91- 8	
○	43- 4	①	○	53-21	①	○	63-12	①		64- 7			91- 9	
○	43- 5	①	○	53-22	①	○	63-13	①		64- 8			91-10	
○	43- 6	①	○	53-23	①	○	63-14	①		71- 1			91-11	
○	43- 7	①	○	53-24	①	○	63-15	①		71- 3			91-12	
○	43- 8	①	○	53-25	①	○	63-16	①		71- 4			91-13	
○	43- 9	①	○	53-26	①	○	63-17	①		71- 5			91-14	
○	43-10	①	○	53-27	①	○	63-18	①		71- 6				
○	43-11	①		54- 1		○	63-20	①	○	72- 1	①			
	44- 1			54- 3		○	63-21	①	○	72- 3	①			
	44- 3			54- 4		○	63-22	①	○	72- 4	①			

CONTENTS

	No. of page
GENERAL	01-1
ENGINE	
13 DISASSEMBLY AND ASSEMBLY	13-1
POWER TRAIN	
21 STRUCTURE AND FUNCTION	21-1
22 TESTING AND ADJUSTING	22-1
23 DISASSEMBLY AND ASSEMBLY	23-1
24 MAINTENANCE STANDARD	24-1
STEERING SYSTEM	
41 STRUCTURE AND FUNCTION	41-1
42 TESTING AND ADJUSTING	42-1
43 DISASSEMBLY AND ASSEMBLY	43-1
44 MAINTENANCE STANDARD	44-1
AIR SYSTEM	
51 STRUCTURE AND FUNCTION	51-1
52 TESTING AND FUNCTION	52-1
53 DISASSEMBLY AND ASSEMBLY	53-1
54 MAINTENANCE STANDARD	54-1
HYDRAULIC SYSTEM	
61 STRUCTURE AND FUNCTION	61-1
62 TESTING AND ADJUSTING	62-1
63 DISASSEMBLY AND ASSEMBLY	63-1
64 MAINTENANCE STANDARD	64-1
WORK EQUIPMENT	
71 STRUCTURE AND FUNCTION	71-1
72 TESTING AND ADJUSTING	72-1
73 DISASSEMBLY AND ASSEMBLY	73-1
74 MAINTENANCE STANDARD	74-1
OTHERS	
91 ELECTRICAL SYSTEM	91-1

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 : } each issued as one volume to cover all models
Attachments volume : }

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.




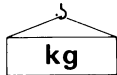
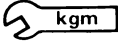



This shop manual is **chassis volume**.

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.

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

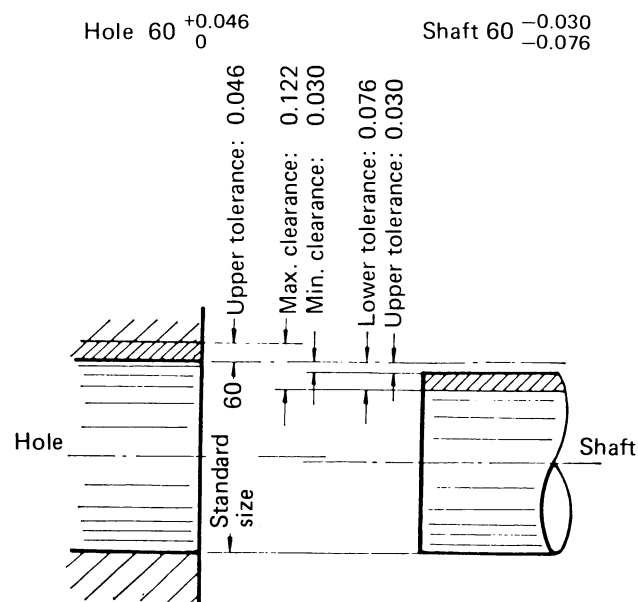
Standard Size, Tolerance

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
		Serial No.	Standard size	Repair limit	
1					

Unit: mm

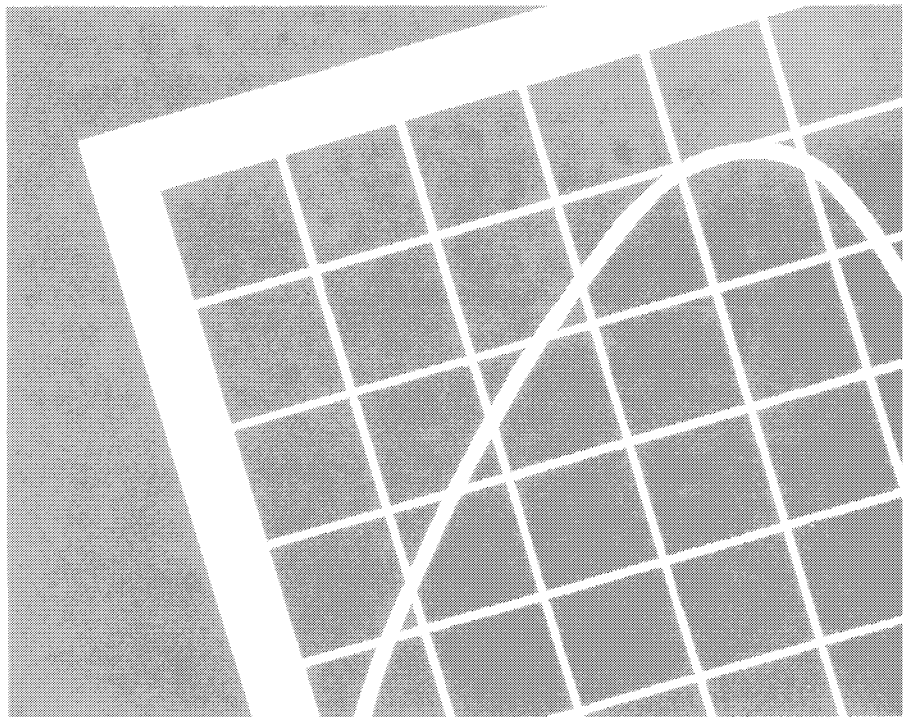
No.	Check item	Criteria					Remedy	
		Serial No.	Standard size	Tolerance		Standard clearance		Clearance limit
				Shaft	Hole			
10								

SHOP MANUAL

W170-2

SERIAL NO. W170-2 60001 and up

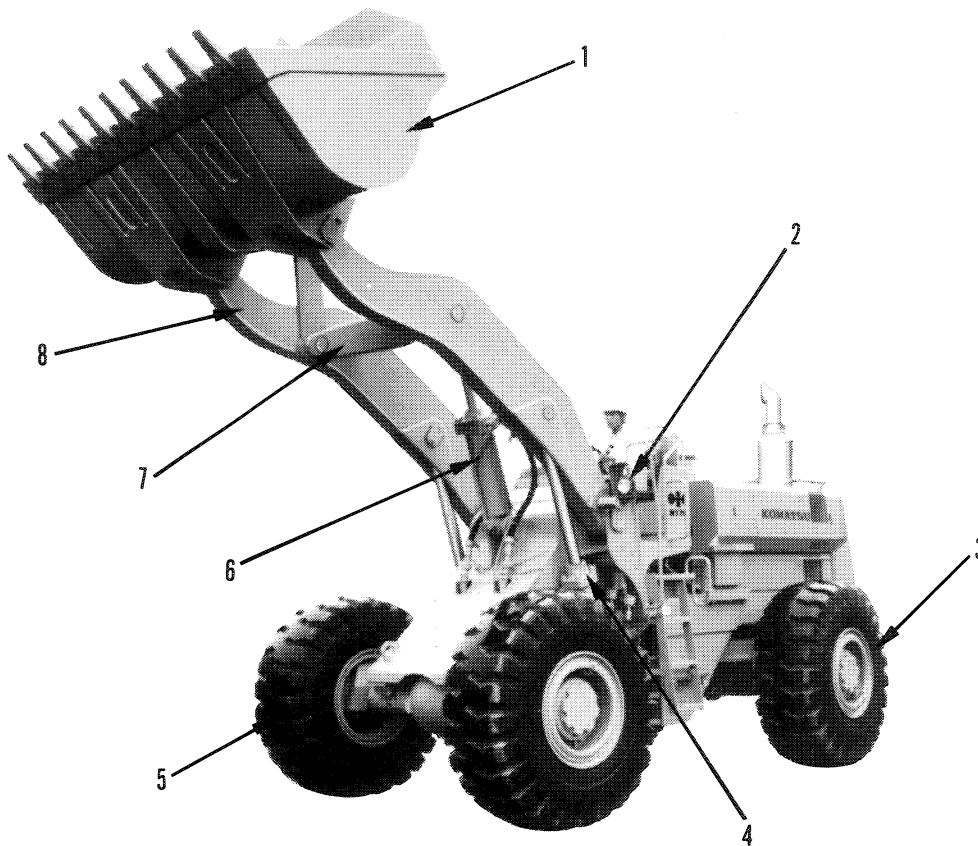
01 GENERAL



GENERAL

General view	01- 4
General assembly drawing	01- 5
Specifications	01- 6
Weight of component parts	01- 8
System capacity	01- 9
General inspection and test	01-10
General precautions for disassembly	01-12
General precaution for assembly	01-14
Standard tightening torque	01-20

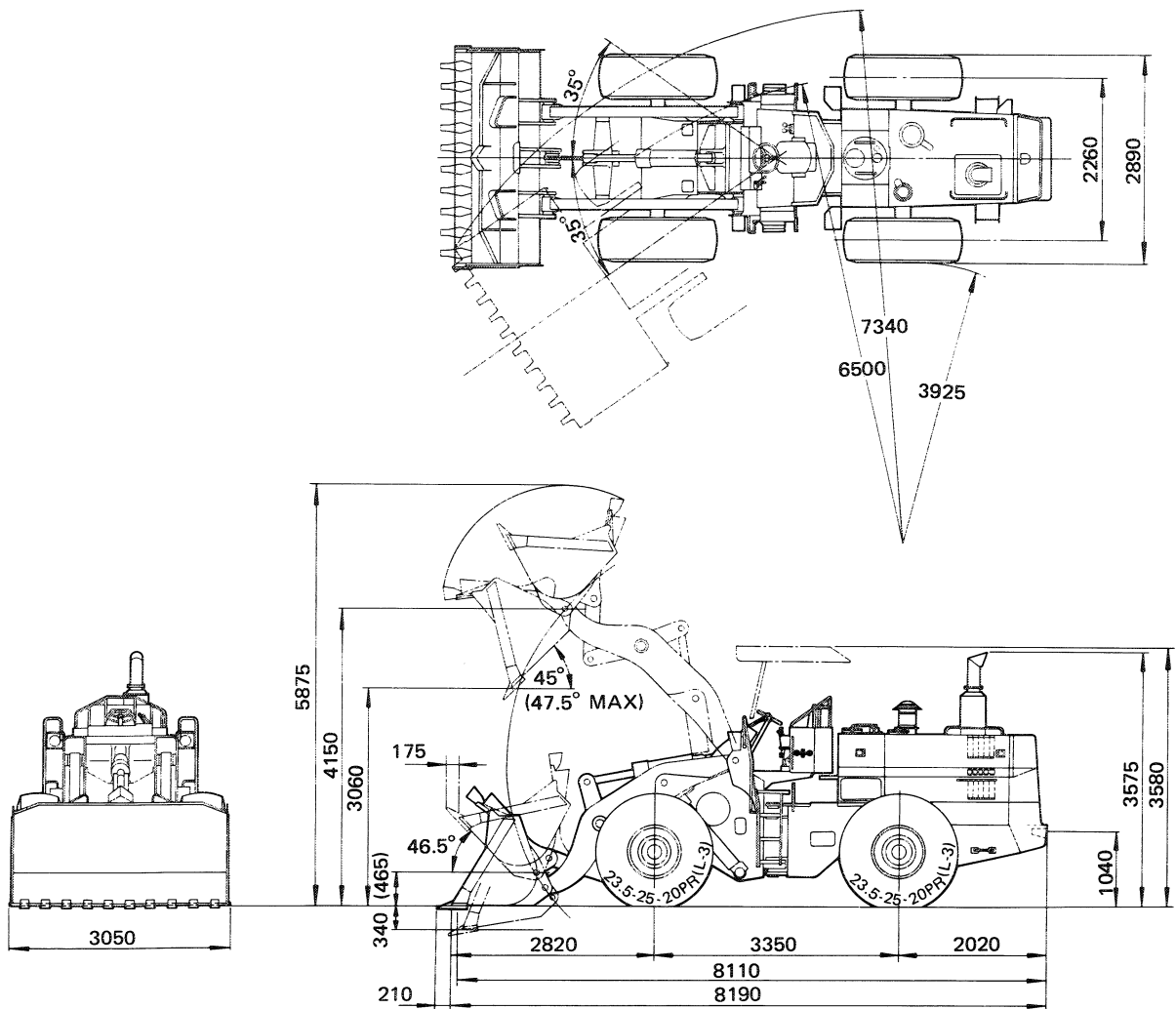
GENERAL VIEW



PQ700 I

- | | |
|------------------|--------------------|
| 1. Bucket | 5. Front wheel |
| 2. Head lamp | 6. Bucket cylinder |
| 3. Rear wheel | 7. Bell crank |
| 4. Boom cylinder | 8. Boom |

GENERAL ASSEMBLY DRAWING



SPECIFICATIONS

Machine name and model		W170-2			
Serial numbers		60001 ~			
Weight	Operating weight	kg	19,320		
	Front wheel loading	kg	9,660		
	Rear wheel loading	kg	9,660		
Dimensions	Overall length	mm	8,400		
	Overall width	Overall width of machine	mm	2,890	
		Overall width of bucket	mm	3,050	
	Overall height	Top edge of canopy	mm	2,780	
		During bucket ascent	mm	5,875	
	Wheel base	mm	3,350		
	Tread	mm	2,260		
	Bucket hinge pin height	mm	4,150		
	Dumping clearance (blade edge)	mm	2,880		
	Dumping reach (blade edge)	mm	1,210		
	Bucket dump angle	°	46.5		
	Bucket tilt angle (traveling posture)	°	47.5		
	Excavation depth (10° dump)	mm	340		
	Minimum height above ground	mm	375		
	Bucket capacity	m ³	3.5		
Operating load	kg	5,600			
Performance	Bucket ascent time	sec	6.8		
	Bucket descent time	sec	3.5		
	Maximum traction force	kg	17,200		
	Gradeability	°	25		
	Minimum turning radius	At outside of machine	mm	6,500	
	Travel speed	Forward	1st speed	km/h	0 ~ 6.6
			2nd speed	km/h	0 ~ 11.5
			3rd speed	km/h	0 ~ 33.2
		Reverse	1st speed	km/h	0 ~ 6.6
2nd speed			km/h	0 ~ 11.5	
3rd speed			km/h	0 ~ 33.2	

GENERAL

SPECIFICATIONS

Machine name and model		W170-2	
Serial numbers		60001 ~	
Engine	Name	Komatsu CUMMINS NT-855-C	
	Model	4-cycle diesel direct injection	
	Number of cylinders – Diameter x bore	6 – 139.7 mm x 152.4 mm	
	Overall displacement	14,010 cc	
	Rated output	335 HP/2200 rpm	
	Maximum torque	100 HP/1400 rpm	
	Fuel consumption	160 g/Hph	
	Starting motor	24V, 5.5 KW	
	Battery	24V (12V x 2) – 200 Ah	
Power train	Torque converter	KOMATSU TCA38-1A, 3-elements, single stage, single phase	
	Transmission	Constant-mesh, full power shift	
	Reduction unit	Hypoid gear	
	Differential	Straight bevel gear	
	Final drive	Planetary gear	
Shaft and wheel	Drive system	Four wheel drive	
	Front wheel shaft	Fixed frame, full floating	
	Rear wheel shaft	Center pin support, full floating	
	Tire	23.5 – 25 – 20 PR	
Brake	Foot brake	Air over hydraulic actuated on four wheels with separate axle-by-axle, dry single disc.	
	Hand brake	Dry single disc, air release, apply spring	
Steering unit		Center pivot steering, re-circulation ball, hydraulic actuated	
Hydraulic units	Work equipment pump discharge	(1) 138 ℓ/2200 rpm, (2) 175 ℓ/2200 rpm	
	Work equipment valve set pressure	210 kg/cm ²	
	Steering valve set pressure	161 kg/cm ²	
	Cylinder (Number – Bore x stroke)	Boom cylinder	2 – 160 mm x 930 mm
		Bucket cylinder	1 – 200 mm x 560 mm
Steering cylinder		2 – 100 mm x 432 mm	