

Operation & Maintenance Manual



WA250PT-5H

WHEEL LOADER

SERIAL NUMBERS WA250H60051 AND UP



DANGER

Incorrect operation and maintenance of this machine may be hazardous and cause injuries. The operator and maintenance personnel must read this manual before commencing operation or maintenance. Keep this manual within reach at all times and ensure that operating personnel read it at regular intervals.

NOTE

Komatsu has had the operating and maintenance instructions translated into all the languages of the European Union. Should you require a copy in another language please inquire at your local dealer's.



FOREWORD

Foreword

This manual provides rules and guidelines which will help you use this machine safely and effectively. The precautions in this manual must be followed at all times when performing operation and maintenance. Most accidents are caused by the failure to follow fundamental safety rules for the operation and maintenance of machines. Accidents can be prevented by knowing beforehand conditions that may cause a hazard when performing operation and maintenance.

WARNING

Operators and maintenance personnel must always do as follows before beginning operation or maintenance.

- **Always be sure to read and understand this manual thoroughly before performing operation and maintenance.**
- **Read the safety messages given in this manual and the safety labels affixed to the machine thoroughly and be sure that you understand them fully.**

Keep this manual at the storage location for the Operation and Maintenance Manual given below, and have all personnel read it periodically.

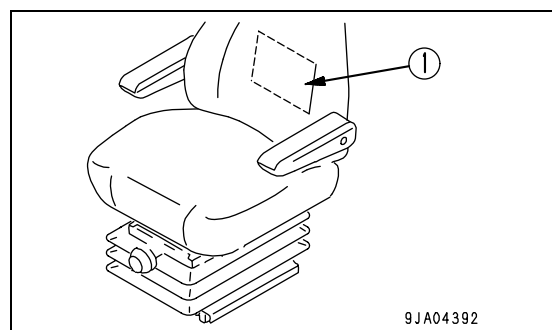
If this manual has been lost or has become dirty and cannot be read, request a replacement manual immediately from Komatsu or your Komatsu distributor.

If you sell the machine, be sure to give this manual to the new owners together with the machine.

Komatsu delivers machines that comply with all applicable regulations and standards of the country to which it has been shipped. If this machine has been purchased in another country or purchased from someone in another country, it may lack certain safety devices and specifications that are necessary for use in your country. If there is any question about whether your product complies with the applicable standards and regulations of your country, consult Komatsu or your Komatsu distributor before operating the machine.

Storage location for the Operation and Maintenance Manual:

Pocket (1) at rear of operator's seat



EU Directives

Machines supplied by us fulfil the Directive for Machinery 89/392/EEC and its supplements. If the machine is being used in another country, it is possible that certain safety regulations and specifications may not be fulfilled for use in that country. For example, priority vehicle warning lamps may be used in some countries, but are forbidden in others.

Please contact our dealer before using the machine if you have any questions regarding the fulfilment of standards and regulations in a specific country.

Notes on subsequent installation of electrical and electronic equipment and components

Electrical and electronic equipment and/or components which have been installed subsequently, emit electromagnetic radiation which can influence the function of the electronic components and sections of the machine. This can have an influence on the safety of the machine and endanger persons. For this reason, please ensure that the following safety instructions are observed.

If you are installing electrical or electronic equipment and/or components in the machine and connect them to the vehicle electrical system, you must check at own responsibility that the installations do not cause any disturbance to the vehicle's electronic system or other components. Above all, you must ensure that any subsequently installed electrical and electronic components comply with the EMV Directive 89/336/EEC in its current edition and bear the CE mark.

The following requirements also have to be met for subsequent installation of mobile communication systems (e.g. radio, telephone):

- Only equipment approved by national legislation (e.g. BZT approval for Germany) may be used
- The unit must be fixed in position
- Portable or mobile units may only be used inside the vehicles if they are connected to a fixed outside antenna
- The transmitter unit must be spatially separated from the vehicle's electronic system
- Make sure when installing the antenna that this is installed correctly with good earth connection between antenna and vehicle mass

Also observe machine manufacturer's installation instructions for wiring, installation and maximum permitted power consumption.




Safety information

To enable you to use this machine safely, safety precautions and labels are given in this manual and affixed to the machine to give explanations of situations involving potential hazards and of the methods of avoiding such situations.

Signal words

The following signal words are used to inform you that there is a potential hazardous situation that may lead to personal injury or damage.

In this manual and on machine labels, the following signal words are used to express the potential level of hazard.

 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. This word is used also to alert against unsafe practices that may cause property damage.

Example of safety message using signal word

WARNING

When standing up from the operator's seat, always place the safety lock lever in the LOCK position. If you accidentally touch the control levers when they are not locked, this may cause a serious injury or death.

Other signal words

In addition to the above, the following signal words are used to indicate precautions that should be followed to protect the machine or to give information that is useful to know.

NOTICE	This word is used for precautions that must be taken to avoid actions which could shorten the life of the machine.
REMARKS	This word is used for information that is useful to know.

Safety labels

Safety labels are affixed to the machine to inform the operator or maintenance worker on the spot when carrying out operation or maintenance of the machine that may involve hazard.

This machine uses “Safety labels using pictograms” to indicate safety procedures.

Safety labels using pictogram

Safety pictograms use a picture to express a level of hazardous condition equivalent to the signal word. These safety pictograms use pictures in order to let the operator or maintenance worker understand the level and type of hazardous condition at all times. Safety pictograms show the type of hazardous condition at the top or left side, and the method of avoiding the hazardous condition at the bottom or right side. In addition, the type of hazardous condition is displayed inside a triangle and the method of avoiding the hazardous condition is shown inside a circle.

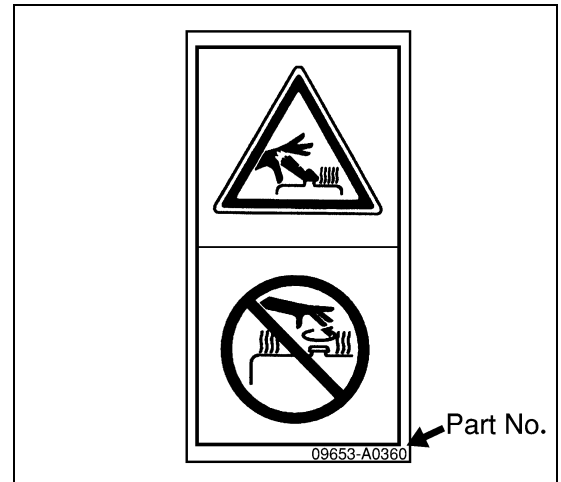
Komatsu cannot predict every circumstance that might involve a potential hazard in operation and maintenance. Therefore, the safety messages in this manual and on the machine may not include all possible safety precautions.

If any procedures or actions not specifically recommended or allowed in this manual are used, it is your responsibility to take the necessary steps to ensure safety.

In no event should you engage in prohibited uses or actions described in this manual.

The explanations, values, and illustrations in this manual were prepared based on the latest information available at that time. Continuing improvements in the design of this machine can lead to changes in detail which may not be reflected in this manual. Consult Komatsu or your Komatsu distributor for the latest available information of your machine or for questions regarding information in this manual.

The numbers in circles in the illustrations correspond to the numbers in () in the text. (For example: ① -> (1))



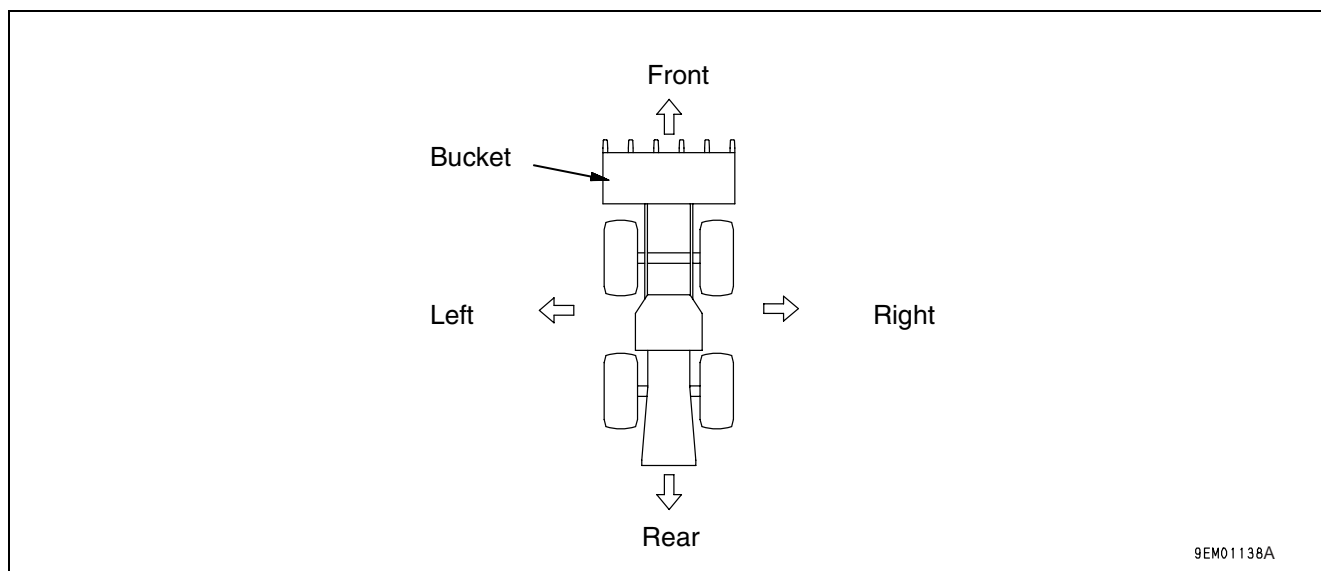
Introduction

This Komatsu machine is designed to be used mainly for the following work:

- Digging work
- Smoothing
- Pushing work
- Loading work

For details of the operating procedure, see “Work possible using wheel loader on page 3-84”.

Directions of machine



9EM01138A

In this manual, the directions of the machine (front, rear, left, right) are determined according to the view from the operator's seat in the direction of travel (front) of the machine.

FOREWORD

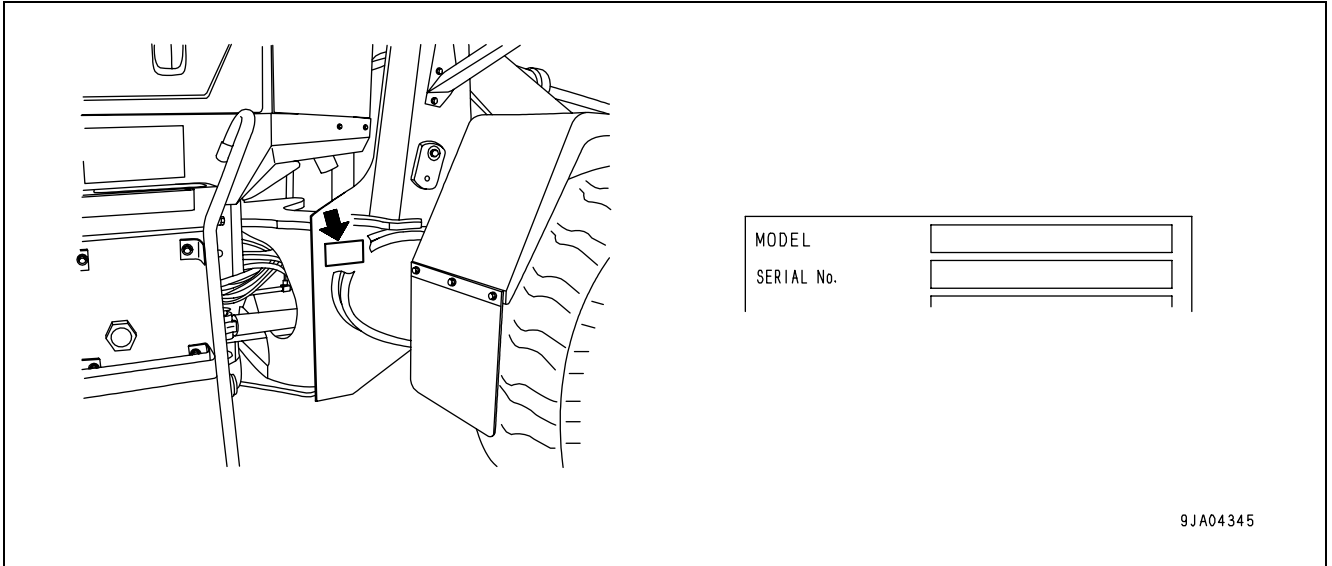
Necessary information
Machine serial No. plate and position

Necessary information

When requesting service or ordering replacement parts, please inform your Komatsu distributor of the following items.

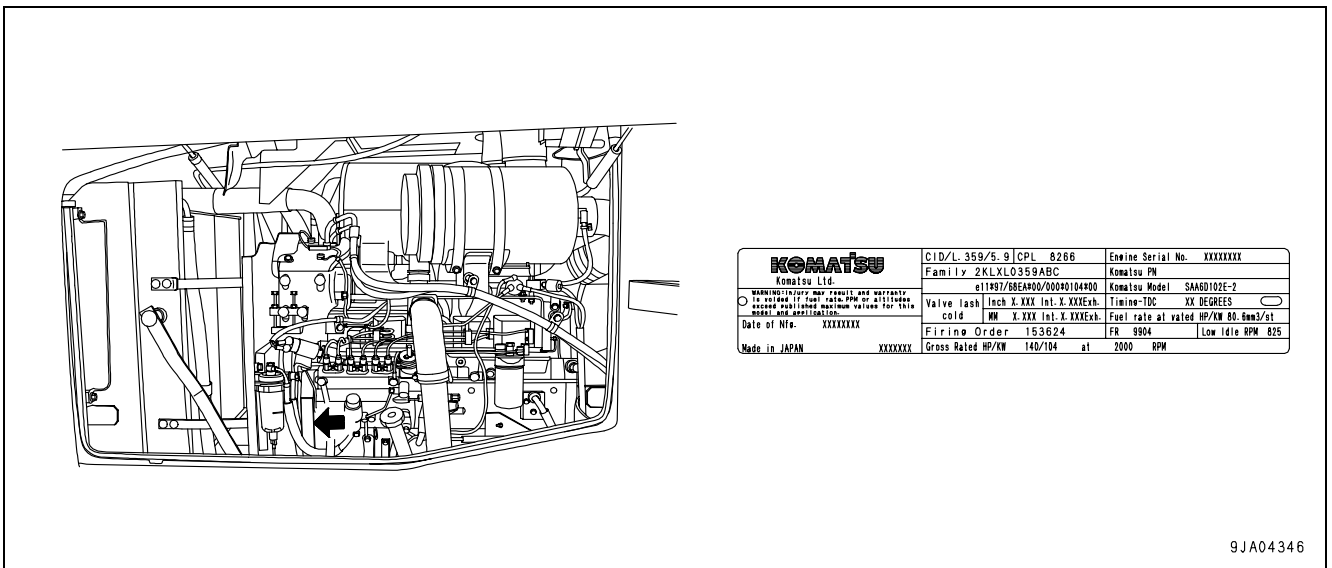
Machine serial No. plate and position

On the center right of the front frame.



Engine serial No. plate and position

This is on the side face of the engine cover on the right side of the machine.



EPA: Environmental Protection Agency, U.S.A.

Position of service meter

It is at the center bottom of the machine monitor.

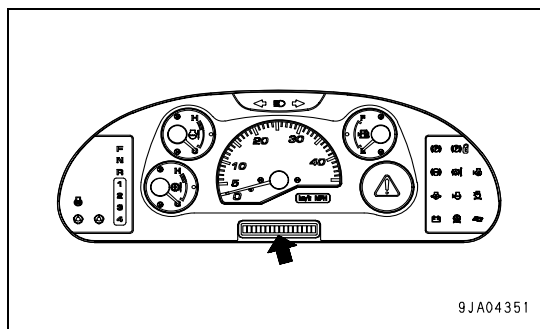


Table to enter serial No. and distributor

Machine serial No.	
Engine serial No.	
Distributor name	
Address	
Service Personnel	
Phone/Fax	

Contents

FOREWORD

Foreword	1-2
Safety information	1-4
Introduction	1-6
Directions of machine	1-6
Necessary information	1-7
Machine serial No. plate and position	1-7
Engine serial No. plate and position	1-7
Position of service meter.....	1-8
Table to enter serial No. and distributor.....	1-8
Contents	1-9
.....	1-9
Dimensions, weights and operating data	1-15
WA250PT-5H: Dimensions, weights and operating data.....	1-15
CE-conforming equipment	1-16
CE-conforming equipment	1-16
Manufacturer-supplied CE-conforming equipment, according to document 421-93-H1900.....	1-17

SAFETY

Safety labels	2-3
Location of safety labels	2-3
Presentation of safety labels.....	2-4
General precautions	2-7
Safety rules	2-7
Precautions for operation	2-16
Starting engine.....	2-16
Operation	2-17
Transportation.....	2-24
Battery.....	2-25
Towing	2-27
Precautions for maintenance	2-28
Safety instructions.....	2-28
Precautions with tires	2-35
Handling tires	2-35
Precautions when storing tires.....	2-35

OPERATION

General view	3-3
General view of machine	3-3
General view of controls and gauges.....	3-4
Explanation of components	3-6
Machine monitor	3-6
Monitor system.....	3-7
Types of warning.....	3-8
Central warning lamp.....	3-9

Character display portion	3-10
Emergency stop item	3-14
Caution items	3-16
Warning/limit functions for travel speed	3-18
Inspection and maintenance item	3-19
Pilot display portion	3-21
Meter display portion	3-24
Other functions of machine monitor	3-26
Switches	3-30
Control levers, pedals	3-38
Steering tilt lock lever	3-41
Cap and cover with lock	3-42
Safety bar	3-43
Towing pin	3-43
Grease pump	3-43
Cab door inner lock	3-44
Cab door open lock	3-44
Cab window open lock cancel knob	3-44
Fuse	3-45
Fuse capacity and name of circuit	3-45
Slow blow fuse	3-46
Power outlet	3-47
Air conditioner	3-48
General locations and function of control panel	3-48
Method of operation	3-51
Precautions when using	3-52
Handling cab wiper	3-53
Preventing damage to wiper arm bracket	3-53
Operation	3-54
Check before starting engine, adjust	3-54
Walk-around check	3-54
Check before starting	3-57
Adjustment	3-62
Operations and checks before starting engine	3-66
Starting engine	3-68
Operations and checks after starting engine	3-70
Breaking-in the machine	3-70
Normal operation	3-70
Stopping engine	3-72
Moving the machine (Directional, speed), stopping the machine	3-73
Moving the machine	3-73
Changing direction	3-75
Stopping the machine	3-78
Turning	3-79
Emergency steering	3-79
Operation of work equipment	3-80
Handling hydraulic quick coupler	3-81
Installing the attachment	3-81
Removal and installation of the attachment	3-83
Precautions for use	3-83
Precautions when removing the attachment	3-83
Work possible using wheel loader	3-84
Digging operations	3-84
Leveling operations	3-86
Pushing operation	3-86
Load and carry operations	3-86
Loading operations	3-87
Precautions for operation	3-89
Permissible water depth	3-89

If wheel brake does not work	3-89
Precautions when driving up or down slopes.....	3-89
Adjusting work equipment posture	3-90
Adjusting boom kickout.....	3-90
Adjusting bucket positioner.....	3-91
Adjusting fork positioner.....	3-92
Bucket level indicator	3-92
Parking machine	3-93
Check after stopping engine	3-95
Checks after completion of operation	3-95
Locking.....	3-95
Handling the tires	3-96
Precautions when handling tires	3-96
Tire pressure.....	3-96
Precautions for using load and car method	3-97
Transportation	3-98
Transportation procedure.....	3-98
Loading, unloading work with trailers.....	3-98
Loading	3-98
Securing machine	3-99
Unloading.....	3-99
Lifting machine.....	3-100
Location of lifting position mark.....	3-101
Weight table.....	3-101
Lifting procedure	3-102
Cold weather operation	3-103
Precautions for low temperature	3-103
Fuel and lubricants.....	3-103
Coolant	3-103
Battery	3-104
Precautions after completion of work.....	3-105
After cold weather.....	3-105
Warming-up operation for steering hydraulic circuit in cold weather	3-105
Long-term storage	3-106
Before storage	3-106
During storage	3-106
After storage	3-106
Troubleshooting	3-107
When machine runs out of fuel	3-107
Towing the machine.....	3-107
When engine can be used	3-108
When engine cannot be used	3-108
If battery is discharged.....	3-109
Removal and installation of battery.....	3-109
Precautions for charging battery	3-110
Starting engine with booster cable.....	3-110
Other trouble	3-112
Electrical system.....	3-112
Chassis	3-113
Engine.....	3-115

MAINTENANCE

Guides to maintenance	4-2
Outlines of service	4-4
Handling oil, fuel, coolant and performing oil clinic.....	4-4
Oil	4-4

Fuel	4-4
Coolant.....	4-4
Grease	4-4
Carrying out KOWA (Komatsu Oil Wear Analysis)	4-5
Storing oil and fuel	4-5
Filters	4-6
Biodegradable hydraulic oil and lubricants	4-6
Outline of electric system	4-6
Wear parts	4-7
Wear parts list	4-7
Fuel, coolant and lubricants	4-8
Lubrication chart.....	4-8
Proper selection of fuel, coolant and lubricants	4-9
Standard tightening torques for bolts and nuts	4-13
Torque list	4-13
Periodic replacement of safety critical parts	4-15
Safety critical parts	4-15
Maintenance schedule chart	4-17
Service schedule.....	4-17
Service procedure	4-19
Initial 250 hours service (only after the first 250 hours)	4-19
When required.....	4-20
Check, clean, or replace air cleaner element.....	4-20
Dust pre-extractor "Turbo II": check, clean	4-23
Clean inside of cooling system	4-24
Check oil level in transfer case, add oil.....	4-27
Check axle oil level, add oil.....	4-28
Clean axle case breather	4-29
Clean air conditioner condenser	4-29
Check window washing fluid level, add fluid	4-30
Clean radiator fins and cooler fins	4-30
Clean transfer oil cooler fins	4-31
Check electrical intake air heater	4-31
Replace bolt on cutting edge	4-31
Replace bucket teeth	4-32
Check air conditioner	4-33
Replace slow blow fuse	4-34
Selection and inspection of tires	4-35
Check before starting	4-37
Every 50 hours service.....	4-38
Drain water, sediment from fuel tank	4-38
Every 100 hours service.....	4-39
Lubricate rear axle pivot pin.....	4-39
Clean element in air conditioner fresh air filter.....	4-39
Check oil level in hydraulic tank, add oil	4-40
Every 250 hours service.....	4-41
Check battery electrolyte level	4-41
Check parking brake	4-43
Check air conditioner compressor belt tension, adjust	4-43
Check for loose wheel hub bolts, tighten	4-44
Clean element in air conditioner recirculation filter	4-45
Lubricating	4-46
Every 500 hours service.....	4-47
Change oil in engine oil pan, replace engine oil filter cartridge.....	4-47
Replace fuel filter cartridge	4-48
Clean water separator strainer.....	4-49
Every 1000 hours service.....	4-50
Change oil in transfer case	4-50
Clean transfer case breather	4-51

Replace HST oil filter element	4-52
Lubricating	4-53
Check tightening parts of turbocharger.....	4-53
Check play of turbocharger rotor	4-53
Check alternator driving belt tension and replacement.....	4-53
Every 2000 hours service	4-54
Change oil in hydraulic tank, replace hydraulic filter element.....	4-54
Replace hydraulic tank breather element	4-55
Change axle oil	4-56
Replace element in air conditioner recirculation air filter, fresh air filter.....	4-56
Check alternator, starting motor.....	4-56
Check engine valve clearance, adjust	4-56
Check brake disc wear.....	4-57
Clean and check turbocharger.....	4-57
Check accumulator gas pressure	4-57
Check vibration damper	4-57
Every 4000 hours service	4-58
Lubricating	4-58
Check water pump	4-58

TECHNICAL DATA

Technical data	5-2
Noise emission levels	5-4
Vibration level	5-4

ATTACHMENTS, OPTIONS

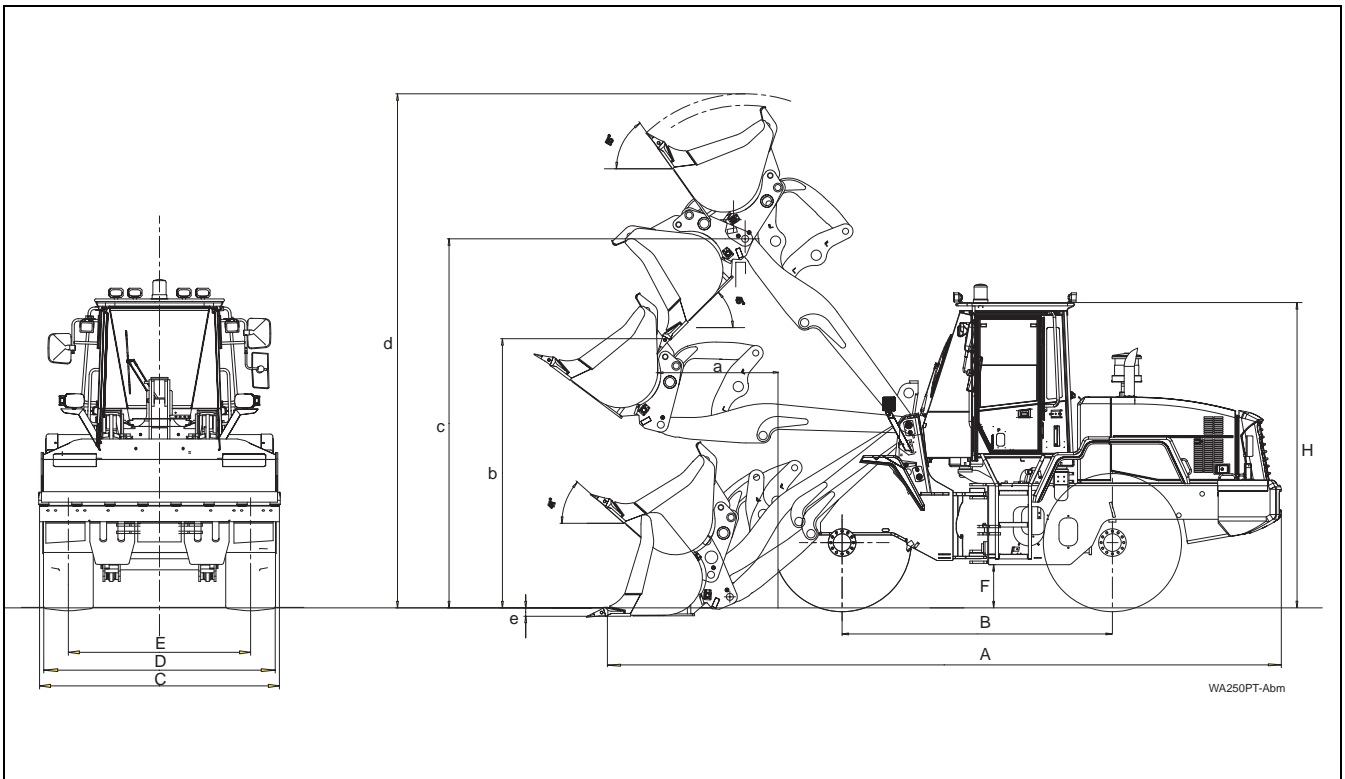
Selecting bucket and tires	6-2
Handling fork tool	6-3
Explanation of components.....	6-3
Work equipment lever	6-3
Operation	6-4
Loading operation	6-4
Method of using 3 levers	6-7
Explanation of components.....	6-7
Lift arm control lever	6-7
Bucket control lever	6-8
Auxiliary control lever.....	6-8
Directional selector switch	6-8
Directional selector actuation switch.....	6-9
Operation	6-10
Using switch to change between forward and reverse	6-10
Central lubrication system	6-12
Operating the central lubrication system.....	6-12
Display and control unit.....	6-12
Led-display.....	6-12
Pushbuttons.....	6-13
Changing the lubrication interval times	6-13

INDEX

Index	7-3
--------------------	-----

Dimensions, weights and operating data

WA250PT-5H: Dimensions, weights and operating data



Measurements, operating data

	Bucket capacity to ISO 7546	m³	2,0	
	Material density	t/m ³	1,8	
	Bucket weight without teeth	kg	883	
	Static tipping load, straight	kg	8.672	
	Static tipping load, 40° angle	kg	7.548	
	Breakout force, hydraulic	kN	109	
	Lifting capacity, hydraulic, on ground	kN	61	
	Operating weight *)	kg	12.880	
a	Reach at 45° discharge	mm	1.023	
b	Dumping height at 45° discharge	mm	2.887	
c	Lift height, hinge pin	mm	3.959	
d	Height to upper edge of bucket	mm	5.514	
e	Digging depth	mm	90	
A	Overall length, bucket on ground	mm	7.424	
B	Wheel base	mm	2.900	
C	Bucket width	mm	2.540	
D	Width over tyres	mm	2.460	These values refer to machines with 20,5 R25 XHA
E	Gauge	mm	1.930	
F	Ground clearance	mm	450	*) Machine without additional counterweight
H	Overall height	mm	3.188	

CE-conforming equipment

CE-conforming equipment

CE-conforming equipment

	1	2	3	4	5	-
	Type	Part No.	Volume m ³	Load Capacity kg	Hydraulic pressure bar	Weight kg
Bucket	WA250PT-5H	418-70-H2710	2,0	-	-	884
		418-70-H2700	2,0	-	-	981
		418-70-H2720	2,1	-	-	1004
		418-70-H2850		-	-	625

KOMATSU HANOMAG
 AKTIENGESELLSCHAFT HANNOVER-GERMANY

Typ Type	①		
Teile Nr. Part number	②		
Volumen Volume	③	m ³	m ³
Tragfähigkeit Load Capacity	④	kg	kg
Hyd. Druck Hydr. pressure	⑤	bar	bar

R 567

GK100392

Manufacturer-supplied CE-conforming equipment, according to document 421-93-H1900

The responsibility for observing valid regulations in the case of wheel loaders with "interchangeable equipment" (e.g. bucket or fork-lift) which was not supplied from works lies with the customer which was subsequently fitted to the machine.

The directives for CE conformity and road-traffic registration are deemed to have been fulfilled when the manufacturer of the equipment confirms fulfilment of the form 421-93-H1900 alongside.

The certification must be sent to the customer and the wheel loader manufacturer. The CE conformity declaration for a specific wheel loader is only legally valid once this has taken place. The dimensions X1, X2, Y1 and Y2 must be provided by the customer for approval for use on public roads. (valid in Germany)

The dimension Sh (smallest tyre radius) must be added to the dimension D2.

The figure G (in kg) represents the maximum load (equipment and operating load) which may act upon this point.

