

Operation & Maintenance Manual



WB93R-5

BACKHOE-LOADER

SERIAL NUMBER

WB93R-5 F50003 and up



ATTENTION

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
Utility

1.1 FOREWORD

- This manual has been produced by Komatsu Utility S.p.A. in order to supply their customers with all the necessary information on the machine and the safety regulations related to it, together with the use and maintenance instructions that enable the operator to exploit the capacity of the machine with optimal results and to keep the machine efficient over time.
- The operation manual, together with the spare parts catalogue, is an integral part of the machine and must accompany it, even when it is resold, until its final disposal.
- The manual must be handled with the greatest care and always kept on board the machine, so that it can be consulted at any moment; it must be placed in the appropriate compartment behind the seat, where also the ownership documents and the logbook are usually kept (see "3.5.9 TECHNICAL DOCUMENTATION").
- This manual must be given to the persons who have to use the machine and carry out the routine maintenance operations; they must read the contents carefully more than once, in such a way as to clearly understand what are the correct operating conditions and the dangerous conditions that must be avoided. §
In case of loss or damage, request a new copy to Komatsu or your Komatsu Dealer.
- The illustrations contained in this manual may represent machine configurations available on request. The machines are constantly upgraded in order to increase their efficiency and reliability; this manual sums up all the information regarding the state of the art at the moment when the machine is launched on the market. Contact your Komatsu Dealer for updated information.
- Punctual periodic annotations regarding the maintenance operations that have been carried out are important to have a clear prospect of the situation and to know exactly what has been done and what has to be done after the next maintenance interval. Therefore, it is advisable to consult both the hour meter and the maintenance plan frequently.
- Komatsu Dealers have gathered a considerable amount of experience over years of work in close contact with the users.
If more information is needed, do not hesitate to contact your Komatsu Dealer: he always knows how to get the best performance from the machine, he can recommend the equipment that is most suitable for specific needs and can provide the technical assistance necessary for any change that may be required to conform the machine to the safety standards and traffic rules.
Komatsu Dealers also provide assistance for the supply of original Komatsu spare parts, which alone guarantee safety and interchangeability.
- The table included in this manual must be filled in with the machine data, which are the data that must always be indicated to the Dealer when requiring assistance and ordering spare parts.



CAUTION

- **The incorrect use of the machine and inappropriate maintenance operations may cause serious injury and even death.**
 - **Operators and maintenance personnel must carefully read this manual before using the machine or performing maintenance operations.**
 - **Some actions involved in the operation and maintenance of the machine may cause serious injury or even death, if they are not performed in compliance with the instructions given herein.**
 - **The procedures and precautions described in this manual are valid for application to the machine only when it is used correctly.**
If the machine is used for any purpose or in any way other than those described herein, the operator shall be responsible for his own safety and for the safety of any other person involved.
-

1.2 INFORMATION ON SAFETY

Many accidents are caused by insufficient knowledge of and failure to comply with the safety regulations prescribed for the maintenance operations that must be performed on the machine.

In order to avoid accidents, before starting work and before carrying out any maintenance operation, carefully read and be sure to understand all the information and warnings contained in this manual and given on the plates applied onto the machine.

To allow the operator to use the machine in total safety, precautions and safety plates are described in this manual and applied to the machine in order to supply information regarding situations that involve potential risks and the measures that may be adopted to avoid such situations.

Terminology used in the signs

The following terms are used in the signs to inform the user that there is a situation of potential danger that may cause injury or damage.

In this manual and in the plates applied to the machine the following terms are used to indicate potential dangers.

DANGER

- Indicates a situation of imminent danger that, if not avoided, may cause serious injury and even death. The use of this term must be limited to situations of extreme danger.
-

WARNING

- Indicates a situation of potential danger that, if not avoided, may cause serious injury and even death.
-

CAUTION

- Indicates a situation of potential danger that, if not avoided, may cause moderate injury. This term can also be used as a warning in case of dangerous procedures.
-

Other terms used in the signs

In addition to those indicated above, the following warning terms are used to recommend the precautions to be taken to protect the machine or to supply useful information.

IMPORTANT

- This term is used to indicate precautions that must be taken in order to avoid actions that may reduce the life of the machine.

NOTE

- This word is used to indicate a useful piece of information.

Komatsu cannot reasonably predict every circumstance that might involve a potential hazard during the operation or maintenance of the machine; for this reason, the safety messages included in this manual and applied onto the machine may not include all possible safety precautions.

If all the procedures and operations prescribed for this machine are kept to, you can be sure that the operator and the persons in the vicinity will work in total safety, with no risk of damaging the machine. In case of doubt regarding the safety measures necessary for some procedures, contact Komatsu or your local Dealer.

 DANGER

- Before starting any maintenance operation, position the machine on firm and level ground, engage the safety locks of the equipment and of the controls, stop the engine and apply the parking brake.
-

 DANGER

- To make the information clearer, some illustrations in this manual represent the machine without safety guards. Do not use the machine without guards and do not start the engine when the hood is open, unless this is expressly prescribed for certain maintenance operations.
-

 WARNING

- It is strictly forbidden to modify the setting of the hydraulic system safety valves; Komatsu cannot be held liable for any personal injury, or damage to property or the machine, if this has been tampered with by modifying the standard setting of the hydraulic system.
-

 WARNING

- Before carrying out any electric welding operation, disconnect the battery and the alternator. (See "2.8.13 PRECAUTIONS CONCERNING THE BATTERY AND THE ALTERNATOR").
-

 WARNING

- Install only authorized additional equipment (See "6.1 AUTHORIZED OPTIONAL EQUIPMENT").
-

 WARNING

- The machine can travel on roads only if equipped with suitable lighting, signalling and safety devices and if this type of use is authorized by the logbook.
Before travelling on roads, make sure that the equipment with which the machine is provided is homologated and that the safety locks are correctly engaged.
-

 DANGER

- It is absolutely forbidden to manoeuvre the machine while standing on the ground.
Each operation must be carried out by the operator correctly seated in the driving position.
-

1.3 INTRODUCTION

1.3.1 INTENDED USES

The Komatsu BACKHOE LOADERS described in this manual have been designed and constructed to be used mainly with the following functions:

- LOADER
- EXCAVATOR

Through the installation of optional equipment, the machine can also be used for the following applications:

- HANDLING OF MATERIALS (4IN1 BUCKET - PALLET FORKS)
- SNOWPLOWH (ANGLEDOZER BLADE - SNOWPLOWH)
- DEMOLITION (HAND HAMMER - HAMMER ON THE BACKHOE)
- DITCH CLEANING AND DIGGING (SPECIAL BUCKETS)

1.3.2 IMPROPER OR UNAUTHORIZED USE

CAUTION

- **This paragraph describes some improper or unauthorized uses of the machine; since it is impossible to predict all possible improper uses, if the machine is going to be used for particular applications, contact your Komatsu Dealer before carrying out the work.**

IMPORTANT

- **The instructions regarding the authorized optional equipment are given in the relevant operation and maintenance manuals; if the equipment is supplied by Komatsu, these publications are enclosed to this manual.**
- **The instructions regarding the assembly of the authorized equipment, the controls requiring special arrangements on the machine and the hydraulic couplings necessary for the operation of the equipment are grouped in the final section of this manual.**

Komatsu BACKHOE LOADERS are constructed exclusively for the handling, excavation and treatment of inert materials; therefore, the following uses are absolutely forbidden:

- USE OF THE MACHINE BY MINORS OR INEXPERIENCED PERSONS.
- USE OF THE MACHINE FOR LIFTING PERSONS OR OBJECTS.
- TRANSPORTATION OF PERSONS even if they are in the operator's cab.
- TRANSPORTATION OF CONTAINERS with fluids, flammable fluids, loose material, without the appropriate slinging equipment.
- TRANSPORTATION AND LIFTING (EVEN IF IN EXCEPTIONAL CASES) OF EQUIPMENT OR MATERIALS THAT PROTRUDE FROM THE BUCKET OR ARE NOT SECURED TO THE BUCKET BY MEANS OF ROPES OR CHAINS.
- USE OF THE BUCKET FOR DRIVING OR EXTRACTING PILES.
- USE OF THE MACHINE FOR TOWING DAMAGED VEHICLES ON ROADS.
- USE OF THE MACHINE FOR LIFTING DAMAGED VEHICLES.

1.3.3 MAIN CHARACTERISTICS

- Simple and easy operation.
- Servo-assisted steering with priority hydraulic system.
- 4-gear mechanical gearshift and transmission with hydraulic converter; reversal controlled by a lever positioned under the steering wheel.
- Loader control through a single servo lever ensuring also combined movements that can be modulated proportionally and continually.
- Backhoe controls through mechanical levers ensuring also combined movements that can be modulated proportionally and continually. On request, the backhoe can be controlled by means of two servo levers.
- Complete series of instruments visible from the two operating positions (loader or backhoe).
- Separate accelerator controls for the two operating positions.
- Foot brake control.
- Easy maintenance with simplified intervals.

1.3.4 RUNNING-IN

Every machine is scrupulously adjusted and tested before delivery.

A new machine, however, must be used carefully for the first 100 hours, in order to ensure proper running-in of the various components.

If the machine is subjected to an excessive work load at the beginning of its service life, its productivity and functionality will be untimely reduced.

Every new machine must be used carefully, paying special attention to the following indications:

- After the start, let the engine idle for 5 minutes, in such a way as to warm it up gradually before actual operation.
- Avoid operating the machine with the limit loads allowed or at high speed.
- Avoid abrupt starts or accelerations, useless sudden decelerations and abrupt reversals.
- After the first 250 hours of use, carry out the following operations, in addition to those to be performed every 250 hours:
 - 1 - Change the hydraulic transmission oil and filter.
 - 2 - Change the differential unit oil (front and rear axle).
 - 3 - Change the final reduction gear oil (front and rear axle).
 - 4 - Change the hydraulic circuit oil filter.

SYNTHETIC BIODEGRADABLE OIL TYPE HEES

On machines in which the synthetic biodegradable oil type HEES is used, the following operations are to be performed together with the standard maintenance operations.

- After the first 50 hours of operation, change the hydraulic circuit drain filter.
- After the first 500 hours of operation, change the hydraulic circuit oil.

IMPORTANT

- **When changing the oil filters (cartridges), check their inner part to make sure that there are no deposits. If abundant deposits are observed, find out what may have caused their accumulation before starting the machine.**
- **The number of operation hours is indicated by the hour meter.**

1.4 PRODUCT IDENTIFICATION

The Komatsu backhoe loader and its main components are identified by serial numbers stamped on the identification plates. The serial number and the identification numbers of the components are the only numbers that must be indicated to the Dealer when requiring assistance and ordering spare parts.

1.4.1 MACHINE IDENTIFICATION NUMBER (PIN)



The machine identification number "PIN" is stamped on the right side of the frame front.





1.4.2 MACHINE IDENTIFICATION PLATE AND PRODUCT IDENTIFICATION NUMBER (PIN) (alternatively for some markets)

The Komatsu BACKHOE LOADERS described in this manual are CE marked, in fact they are in full compliance with the EU harmonised standards. The Product Identification Number (PIN) is stamped on the lower part of the plate. The customer must be able to indicate the PIN at any time, that is why it must compulsorily be written in the following table. The plate with the CE marking is applied inside the cab, on the left vertical wall of the frame, at the height of the brake pedals.



 	MODELLO - MODEL TYP - MODELE _____
	MATRICOLA N° - SERIAL N° FABR. NR. - SERIE NR. _____
	ANNO - YEAR BAUJAHR - ANNEE _____
	MASSA TOTALE - TOTAL WEIGHT GESAMTGEWICHT - POIDS TOTAL _____ kg
	POTENZA MOTORE - ENGINE POWER LEISTUNG - PUISSANCE MOTEUR _____ kw
	Product Identification Number PIN _____
MANUFACTURED BY KOMATSU UTILITY EUROPE S.p.A. 36025 NOVENTA VICENTINA (VI) - ITALY	
37A-98-11820 RKA14970	

 	MODEL SERIAL N° _____
	YEAR _____
	TOTAL WEIGHT _____ kg
	ENGINE POWER _____ kw
	Product Identification Number PIN _____
MANUFACTURED BY KOMATSU UTILITY EUROPE S.p.A. 36025 NOVENTA VICENTINA (VI) - ITALY	

1.4.3 MACHINE IDENTIFICATION PLATE AND PRODUCT IDENTIFICATION NUMBER (PIN)

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The Product Identification Number (PIN) is stamped on the lower part of the plate. The customer must be able to indicate the PIN at any time, that is why it must compulsorily be written in the following table. The plate with the CE marking is applied inside the cab, on the left vertical wall of the frame, at the height of the brake pedals.



CE	TIPO TYPE - MODEL			
	NUMERO DI OMOLOGAZIONE HOMOLOGATION NUMBER			
	DA	kg	A	kg
	FROM		TO	
	DA	kg	A	kg
	FROM		TO	
	DA	kg	A	kg
	FROM		TO	
	Product Identification Number			
	PIN			
	- Massa rimorchiabile: non atto			
	MATRICOLA SERIAL NUMBER			
	POTENZA MOTORE	kW	ANNO	
	MANUFACTURED BY KOMATSU UTILITY EUROPE S.p.A. 36025 NOVENTA VIC. (VI) -ITALY			
	RKA16060			

CE	TIPO TYPE			
	HOMOLOGAZIONE NUMBER HOMOLOGATION NUMBER			
	FROM	kg	TO	kg
	TOTAL MASS WEIGHT			
	FROM	kg	TO	kg
	WEIGHT FRONT AXLE			
	FROM	kg	TO	kg
	WEIGHT REAR AXLE			
	FROM	kg	TO	kg
	Product Identification Number			
	PIN			
	- Towable weight: not suitable			
	SERIAL NUMBER			
	ENGINE POWER	kW	YEAR	
	MANUFACTURED BY KOMATSU UTILITY EUROPE S.p.A. 36025 NOVENTA VIC. (VI) -ITALY			
	RKA16060			

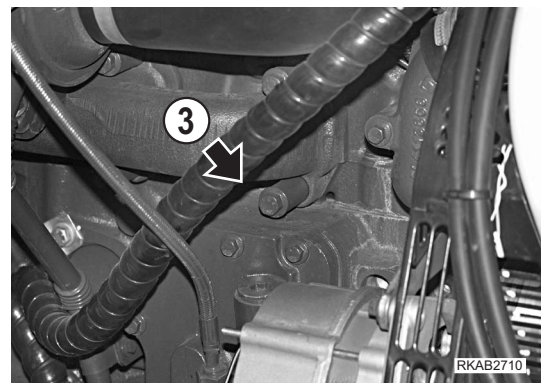
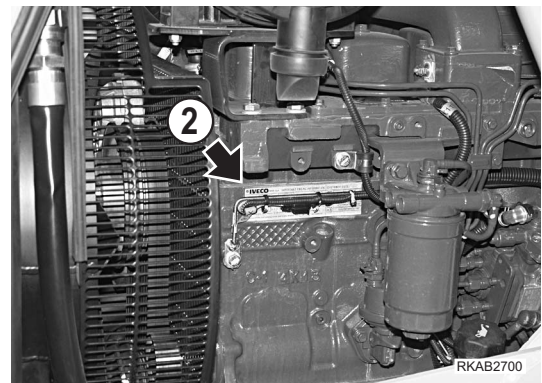
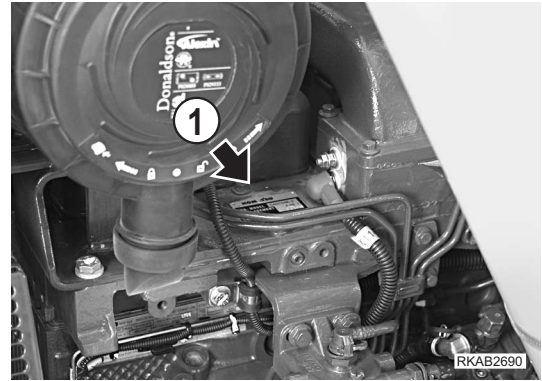
1.4.4 ENGINE SERIAL NUMBER AND EXHAUST GAS EMISSION PLATE

The identification plate (1) is fixed above the engine head and indicates the engine model, total displacement and serial number.

The identification plate (2) is fixed to the left side of the engine block, bears the Manufacturer's mark and contains the following data:

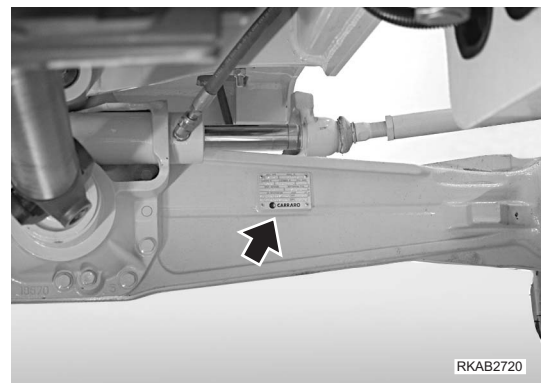
- 1 - Engine type
- 2 - Engine family
- 3 - Serial number
- 4 - EC Type Approval
- 5 - EPA

The serial number (3) is also stamped on the right side of the cylinder block, on the upper part of the oil cooling heat exchanger.



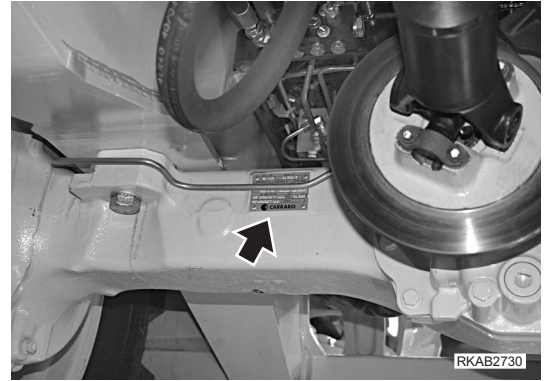
1.4.5 FRONT AXLE SERIAL NUMBER

The serial number of the front axle is stamped on the plate positioned on the right side of the axle body.



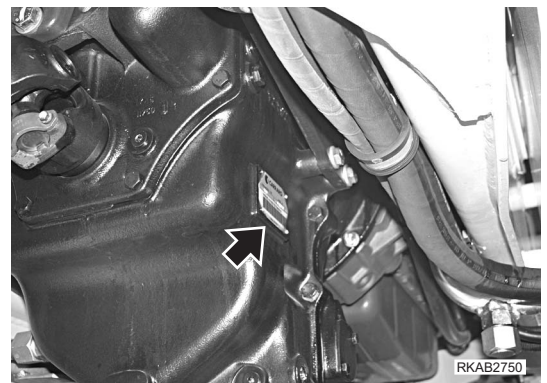
1.4.6 REAR AXLE SERIAL NUMBER

The serial number of the rear axle is stamped on the plate positioned on the right side of the axle body.



1.4.7 TRANSMISSION SERIAL NUMBER

The transmission serial number is stamped on the plate positioned on the right side of the transmission case.



1.4.8 CAB SERIAL NUMBER

The cab serial number is stamped on the plate positioned on the left side of the rear wall.



1.4.9 SERIAL NUMBERS AND DEALER'S ADDRESS

Machine no. _____ Mod. _____

Product identification number (PIN) _____

Engine no. _____

Front axle no. _____

Rear axle no. _____

Transmission no. _____

Cab no. _____

Dealer:

Address: _____

_____ Tel. _____

Contact person: _____

NOTES: _____

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