WEAM007000

Operation & Maintenance Manual

GALEO

PC20MR-2

HYDRAULIC EXCAVATOR

SERIAL NUMBER

PC20MR-2 15001 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 Utility

1.1 FOREWORD

- This manual has been carried out by Komatsu Utility 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 inside the seat support, where also the ownership documents and the logbook are usually kept.
- 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.
  Komatsu machines are constantly improved in order to increase their efficiency and reliability; this manual sums up all the information regarding the most recent techniques applied at the moment in which the machine is marketed.
  For any further and/or updated information, contact your Komatsu Dealer.
- 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 either the hour meter and the maintenance plan frequently.
- Over the years Komatsu Dealers have gathered considerable experience in customer service.
  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 suggest the use of 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.
  Furthermore, Komatsu Dealers also ensure their assistance for the supply of Komatsu genuine 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 injuries and even death.**
- **Operators and maintenance personnel must carefully read this manual before using the machine or performing maintenance operations.**
- **Any serious accident that may occur during the use of the machine or during maintenance operations is due to failure to comply 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 on to the machine. 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

q Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to most extreme situations.

⚠ WARNING

q Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

q Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

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 are useful to know.

IMPORTANT

- **This word is used for precautions that must be taken to avoid actions which could shorten the life of the machine.**

NOTE

- This gives information that is useful to know.

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 can 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 a firm and level surface, lower the equipment to the ground, engage the safety locks of either the equipment and the controls and stop the engine.**

⚠ 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 engine protection casing is open, if this is not expressly prescribed for some specific maintenance operations.**

⚠ WARNING

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

⚠ WARNING

- **Before carrying out any electrical welding, 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 ATTACHMENTS AND OPTIONS - GENERAL INFORMATION").**

⚠ DANGER

- **It is absolutely forbidden to operate the machine while standing on the ground.**
  Every single manoeuvre must be carried out by the operator, correctly seated in driving position.

1.3 INTRODUCTION

1.3.1 INTENDED USES

The Komatsu MACHINES described in this manual have been designed and constructed to be used mainly for EXCAVATION and EARTH-MOVING OPERATIONS.

If provided with suitable safety devices, they can be used with authorized optional equipment having the characteristics illustrated at point “6. AUTHORIZED OPTIONAL EQUIPMENT”.

1.3.2 IMPROPER OR UNAUTHORIZED USES

⚠ CAUTION

- **This paragraph describes some of the improper or unauthorized uses of the machine; since it is impossible to predict all the possible improper uses, if the machine happens 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 MACHINES 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.
- TRANSPORT OF CONTAINERS WITH FLAMMABLE OR DANGEROUS FLUIDS.
- USE OF THE BUCKET FOR DRIVING OR EXTRACTING PILES.
- USE OF THE MACHINE FOR TOWING DAMAGED VEHICLES.

1.3.3 MAIN CHARACTERISTICS

- Simple and easy operation.
- Hydrostatic transmission obtained through two axial piston motors that operate epicyclic reduction gears.
- Rotation of the upper structure achieved by means of an axial piston hydraulic motor acting on an epicyclic reduction gear.
- Main equipment servolevers ensuring also combined movements that can be modulated proportionally and continually.
- Pedal controls for the boom swing and the optional equipment.
- Lever controls for travel and blade.
- Travel speed increase achieved through a pedal-operated push button.
- Complete series of instruments visible from the operating position.
- Lever accelerator.
- 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 excessive work load at the beginning of operation, its potential yield and its functionality will be shortly and 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.

SYNTHETIC BIODEGRADABLE OIL TYPE HEES

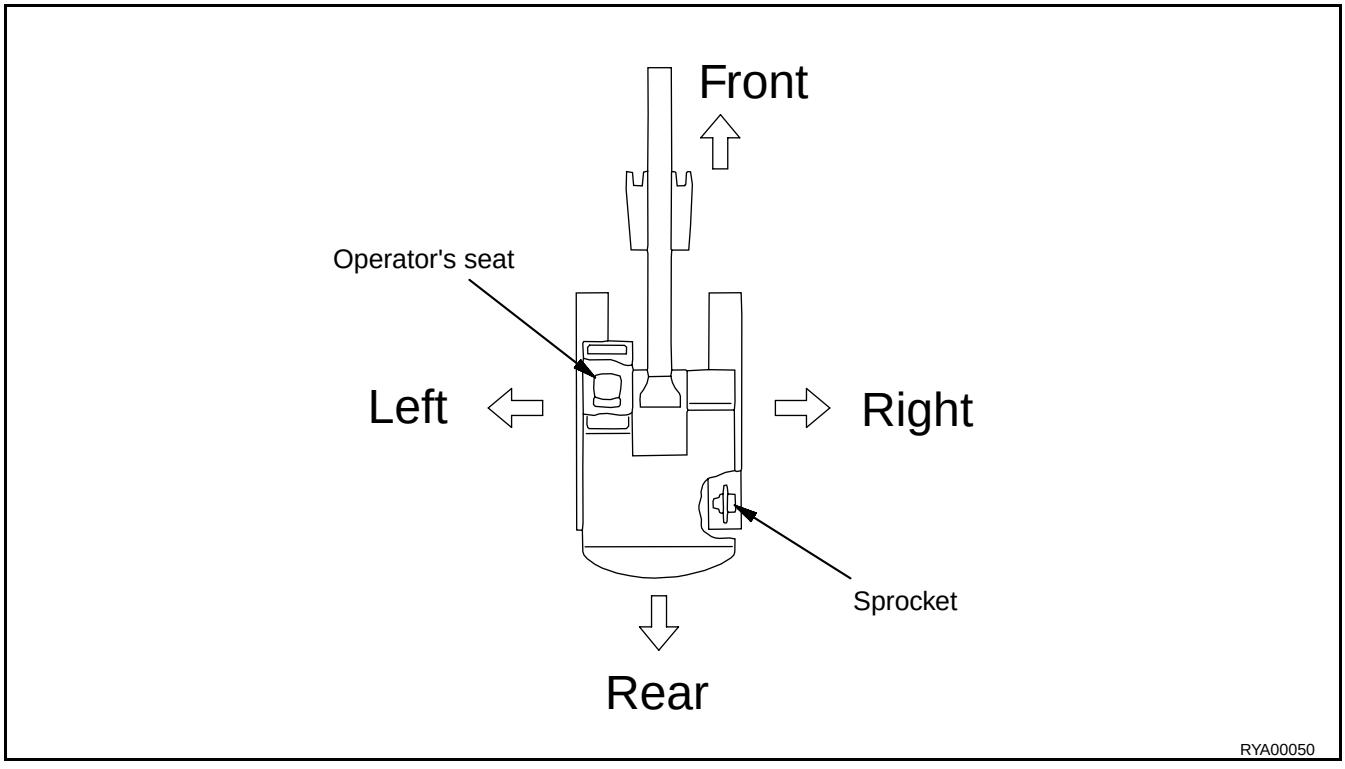
On machines in which the synthetic biodegradable oil type HEES is used, the following operations are to be performed besides the standard maintenance operations:

- 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 considerable deposits are observed, find out what may have caused them before starting the machine.**
- **The number of operating hours is indicated by the hour meter.**

1.3.5 DIRECTIONS OF MACHINE



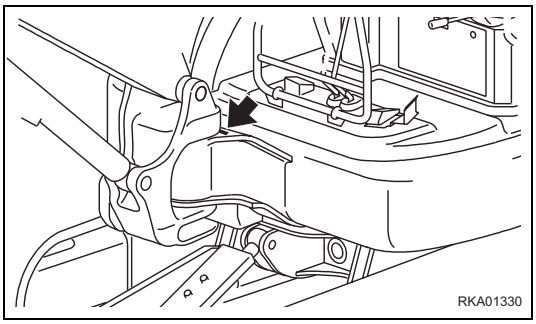
In this manual, the terms front, rear, left, and right refer to the travel direction as seen from the operator's seat when the operator's seat is facing the front and the sprocket is at the rear of the machine.

1.4 PRODUCT IDENTIFICATION

The Komatsu EXCAVATOR 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.

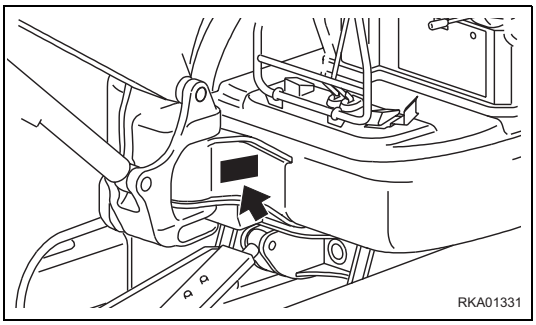
1.4.1 MACHINE SERIAL NUMBER

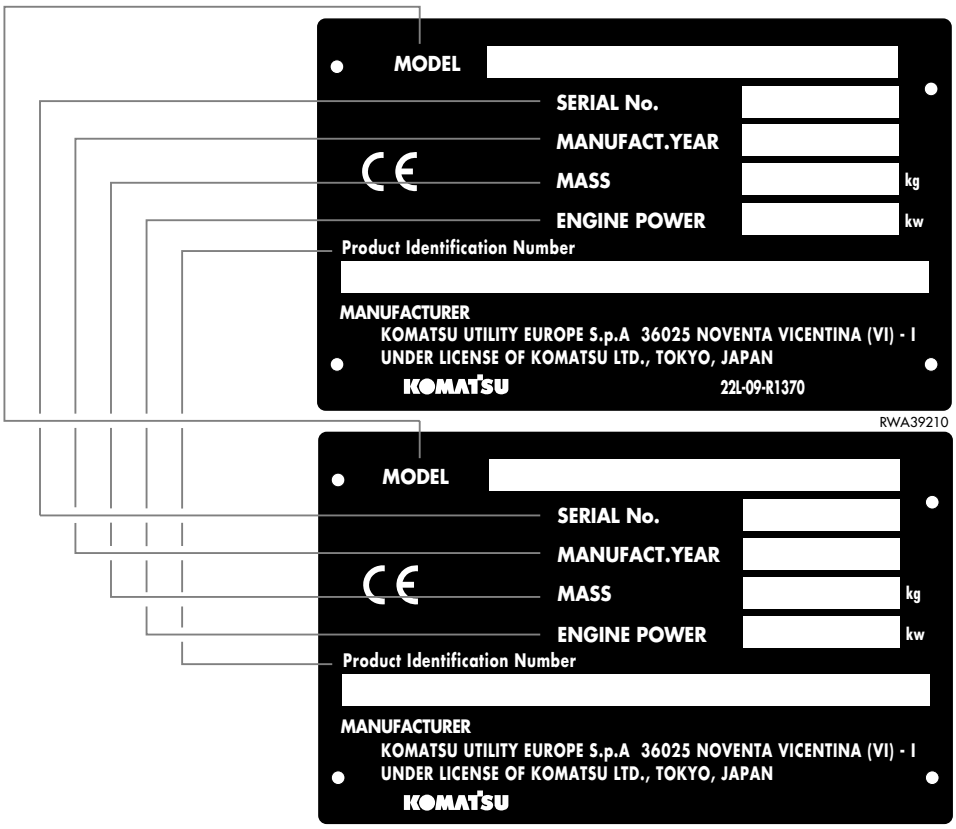
The machine serial number is stamped on the front upper part of the main frame, on the left side.



1.4.2 MACHINE IDENTIFICATION PLATE AND PRODUCT IDENTIFICATION NUMBER (PIN)

The Komatsu EXCAVATORS described in the present manual are provided with the CE mark, which certifies that they are in compliance with the harmonized standards of the European Community. The plate provided with the mark is applied onto the front wall of the main frame, on the left side.





1.4.3 ENGINE SERIAL NUMBER AND EXHAUST GAS EMISSION PLATE

The serial number is stamped on the plate positioned on the engine.

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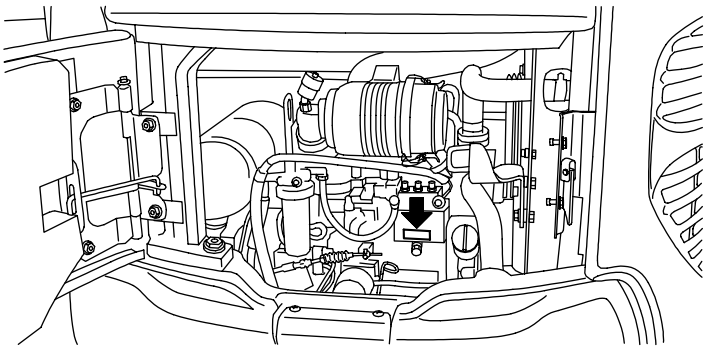

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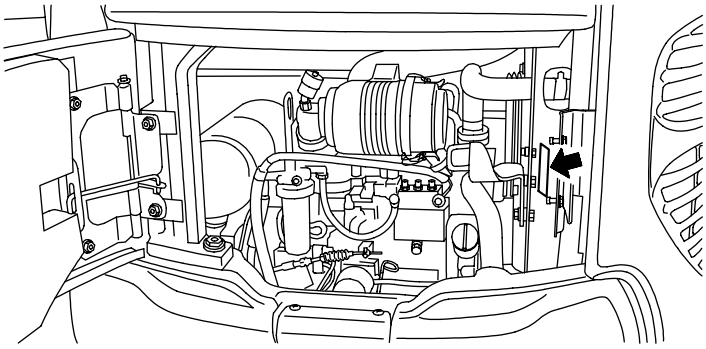
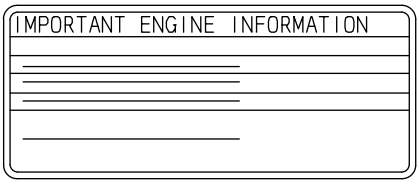
The exhaust gas emission plate is positioned on the radiator chassis.





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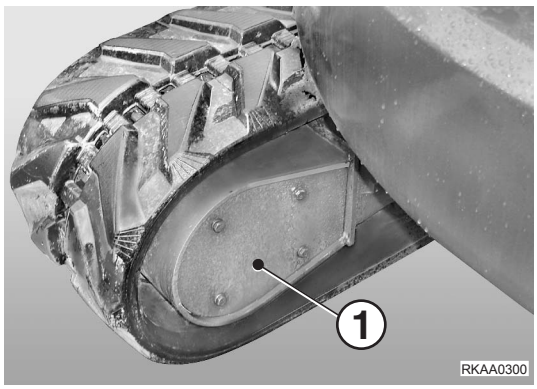
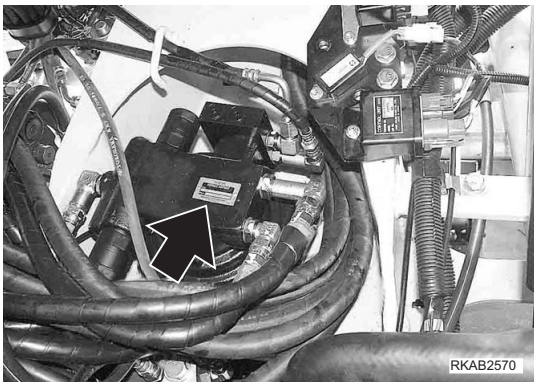
1.4.4 TRAVEL REDUCTION GEAR SERIAL NUMBER

The serial number is stamped on the plate positioned inside the travel reduction gear and can be seen after removing the cover (1).



1.4.5 SWING REDUCTION GEAR SERIAL NUMBER

The serial number is stamped on the plate positioned on the upper side of the swing motor.



1.4.6 CAB SERIAL NUMBER

The CAB serial number is stamped on the plate positioned on the top left side.

1.4.7 SERIAL NUMBERS AND DEALER'S ADDRESS

Machine n. _____ Model _____

Product identification number (PIN) _____

Engine n. _____

Travel reduction gear n. _____

Swing reduction gear n. _____

Cab n. _____

Dealer:

_____

_____

_____

_____

Address: _____

_____

_____ Tel. _____

Person to contact: _____

NOTES: _____

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SAFETY AND ACCIDENT PREVENTION

2.1 SAFETY, NOISE AND VIBRATION PLATES

2.1.1 POSITION OF THE SAFETY PLATES

- The safety plates must always be legible and in good conditions; for this reason, if they are dirty with dust, oil or grease, it is necessary to clean them with a solution made of water and detergent.
  Do not use fuel, petrol or solvents.
- If the plates are damaged, ask for new ones to Komatsu or to your Komatsu Dealer.
- In case of replacement of a component provided with a safety plate, make sure that this plate is applied also on the new piece.
- The machine can be provided with other plates in addition to those indicated below; keep also to the instructions given in the additional plates, in any case.