

Operation & Maintenance Manual

PC110R-1

HYDRAULIC EXCAVATOR

SERIAL NUMBER

PC110R-1 2265010001 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.



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 behind the seat, 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 Utility or your Komatsu Utility 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 technical progress at the moment in which the machine is launched on the market.
Consult your Komatsu Utility Dealer for any 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 either the Hour meter and the maintenance plan frequently.
- Over the years Komatsu Utility Dealers have gathered considerable experience in customer service.
If more information is needed, do not hesitate to contact your Komatsu Utility 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 Utility Dealers also ensure their assistance for the supply of Komatsu Utility 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

- **Improper operation and maintenance of this machine may be hazardous and cause serious injuries 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 injuries 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 identify the messages regarding safety that are included in this manual and written on the machine plates, the following words have been used.



DANGER

- This word is used in the safety warnings in the manual and on the plates when the situation is dangerous and it may possibly result in serious injuries or even death.

These messages describe the safety precautions to be taken in order to avoid any risk. Non-compliance with these instructions may also result in serious damage to the machine.



CAUTION

- This word is used in the safety warnings in the manual and on the plates to signal risks that may cause moderate damage or injuries.

The message can be used even to indicate the risk of damage to the machine only.



IMPORTANT

- This word is used when precautions are indicated, which must be taken to avoid actions that may shorten the life of the machine.
-

Komatsu Utility 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 Utility 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 the equipment and of 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.
-



DANGER

- It is strictly forbidden to modify the setting of the hydraulic system safety valves; Komatsu Utility 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.
-



DANGER

- Before carrying out any electrical welding, disconnect the battery and the alternator (See “2.8.13 PRECAUTIONS CONCERNING THE BATTERY AND THE ALTERNATOR”).
-



DANGER

- Install only authorized additional equipment (See “6.1.3 CHARACTERISTICS OF THE OPTIONAL EQUIPMENT”).
-

1.3 INTRODUCTION

1.3.1 INTENDED USES

The Komatsu Utility MACHINES described in this manual have been designed and constructed to be used by duly trained personnel 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 "6.1 AUTHORIZED OPTIONAL EQUIPMENT".

1.3.2 IMPROPER OR UNAUTHORIZED USE



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 Utility 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 Utility, 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 Utility 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 variable displacement motors that operate epicyclic reduction gears equipped with hydraulic brakes with negative control.
- Upper structure rotation achieved through an axial piston hydraulic motor acting on an epicyclic reduction gear.
- Lubrication of the ball-bearing ring toothing and of the pinion in grease bath.
- Main equipment servo levers ensuring also combined movements that can be modulated proportionally and continually.
- Boom swing and travel controls with servo assisted pedals that ensure proportional and continuous modulated movements.
- Travel speed increase by means of a button.
- Servo controls also for the two-piece boom and the blade.
- 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 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, carry out the following operations, in addition to those to be performed every 250 hours:
 - 1 - Change the oil in the travel reduction gears.
 - 2 - Change the oil in the swing reduction gear.
 - 3 - Change the hydraulic circuit oil filter.
 - 4 - Check and adjust the engine valve clearance.

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.**
-

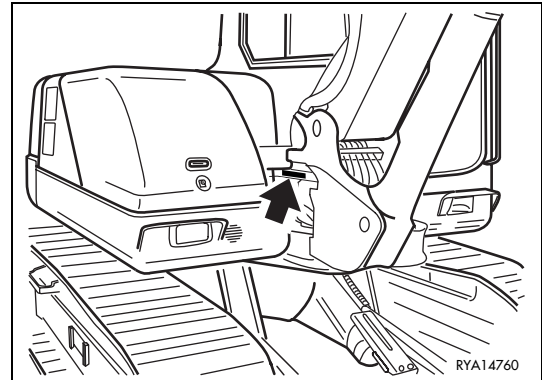
1.4 PRODUCT IDENTIFICATION

The Komatsu Utility 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

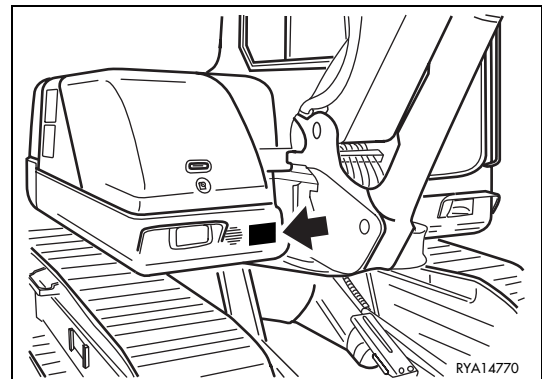
The machine serial number is stamped on the front right part of the main frame.

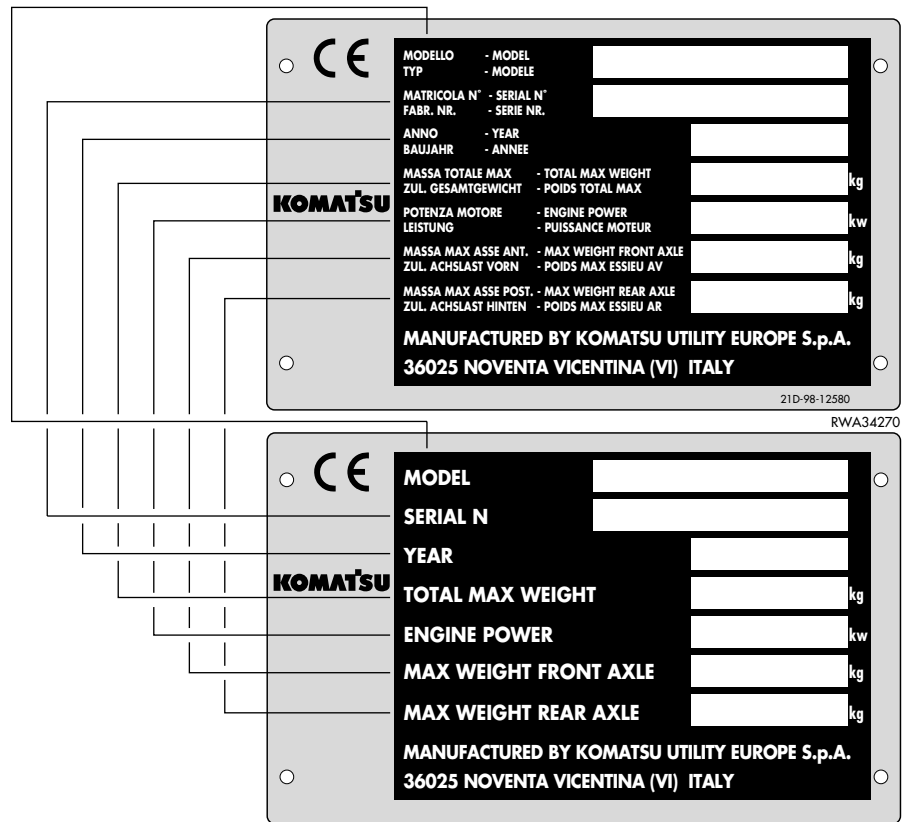


1.4.2 MACHINE IDENTIFICATION PLATE

The Komatsu Utility EXCAVATORS described in this manual are provided with the CE mark, which certifies that they are in compliance with the CE harmonized standards.

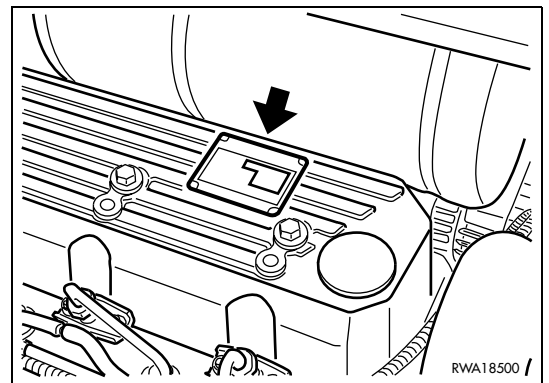
The plate with the mark is applied onto the front wall of the main frame, on the right side.





1.4.3 ENGINE SERIAL NUMBER AND EXHAUST GAS EMISSION PLATE

The engine serial number is stamped on the plate positioned on the upper side of the tappet cover.



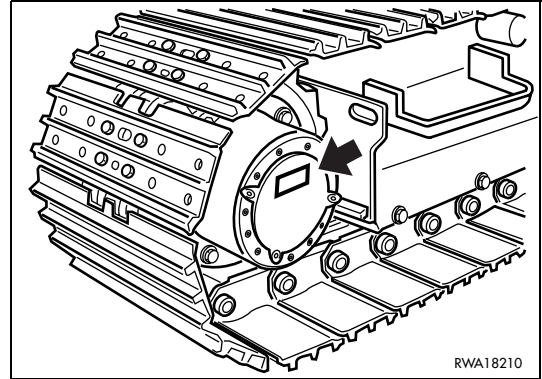
The exhaust gas emission plate is applied to the front side of the tappet cover.



PRODUCT IDENTIFICATION

1.4.4 TRAVEL REDUCTION GEAR SERIAL NUMBER

The serial number of the travel reduction gear is stamped on the plate positioned on the outer side of the reduction gear cover.



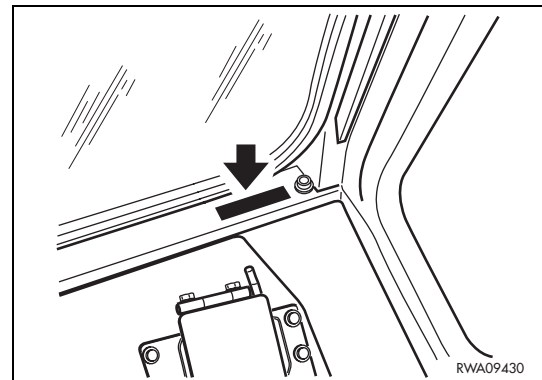
1.4.5 SWING REDUCTION GEAR SERIAL NUMBER

The serial number of the swing reduction gear is stamped on the plate positioned on the side of the reduction gear body.



1.4.6 CAB SERIAL NUMBER

The cab serial number is stamped on the plate positioned on the right side of the front base cross member.



1.4.7 SERIAL NUMBERS AND DEALER'S ADDRESS

Machine n. _____ Model _____
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

SAFETY, NOISE AND VIBRATION PLATES

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 Utility or to your Komatsu Utility 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.

