

Operation & Maintenance Manual

PW170ES-6K

HYDRAULIC EXCAVATOR

SERIAL NUMBER

PW170ES-6K - K34001 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

FOREWORD

This manual provides rules and guidelines which will help you use this machine safely and effectively. Keep this manual handy and have all personnel read it periodically. If this manual has been lost or has become dirty and can not be read, request a replacement manual from Komatsu or your Komatsu distributor.

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

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 for your machine or for questions regarding information in this manual.

WARNING

- **This operation & maintenance manual may contain attachments and optional equipment that are not available in your area. Please consult your local Komatsu distributor for those items you require.**
 - **This machine complies with EC directive (89/392/EEC). Machines complying with this directive display the CE mark**
 - **Improper operation and maintenance of this machine can be hazardous and could result in serious injury or death.**
 - **Operators and maintenance personnel should read this manual thoroughly before beginning operation or maintenance.**
 - **Some actions involved in operation and maintenance of the machine can cause a serious accident, if they are not done in a manner described in this manual.**
 - **The procedures and precautions given in this manual apply only to intended uses of the machine. If you use your machine for any unintended uses that are not specifically prohibited, you must be sure that it is safe for you and others. In no event should you or others engage in prohibited uses or actions as described in this manual.**
 - **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.**
 - **The description of safety is given see "SAFETY INFORMATION" on page 4. and in "SAFETY" from page 17**
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SAFETY INFORMATION


SAFETY MESSAGES


Most accidents are caused by the failure to follow fundamental safety rules for the operation and maintenance of machines.

To avoid accidents, read, understand and follow all precautions and warnings in this manual and on the machine before performing operation and maintenance.

To identify hazards on the machine pictorial decals are used (see POSITION FOR ATTACHING SAFETY LABELS).

 **RED WARNING TRIANGLE** - This is used on safety labels where there is a high probability of serious injury or death if the hazard is not avoided. These safety messages or labels usually describe precautions that must be taken to avoid the hazard. Failure to avoid this hazard may also result in serious damage to the machine.

 **ORANGE WARNING TRIANGLE** - This is used on safety labels where there is a potentially dangerous situation which could result in serious injury or death if the hazard is not avoided. These safety messages or labels usually describe precautions that must be taken to avoid the hazard. Failure to avoid this hazard may also result in serious damage of the machine

 **YELLOW SAFETY TRIANGLE** - This is used on safety labels for hazards which could result in minor or moderate injury if the hazard is not avoided. This word might also be used for a hazard where the only result could be damage to the machine.

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

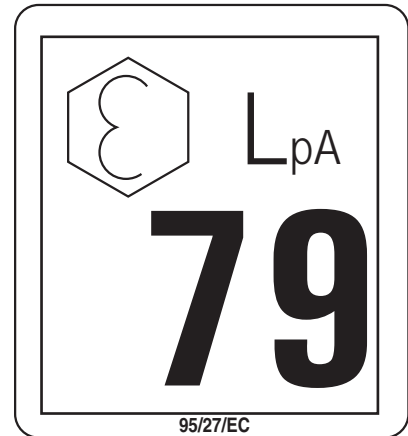
Safety precautions are described in SAFETY from page 1-1.

Komatsu cannot predict every circumstance that might involve a potential hazard in operation and maintenance. Therefore the safety message 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, you must be sure that you and others can do such procedures and actions safely and without damaging the machine. If you are unsure about the safety of some procedures, contact Komatsu or your Komatsu distributor.

NOISE

Valid until 31 December 2001

Operator ears noise value (Sound pressure level)



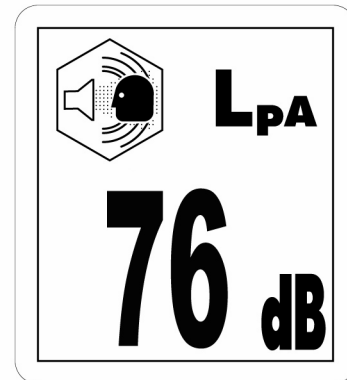
Ambient noise value (Sound power level)



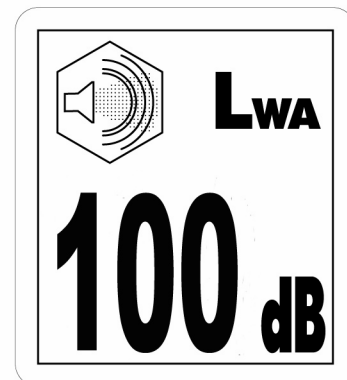
Noise level indicated is the guaranteed value measured by the dynamic test method as specified in the directive 86/662/EEC, as amended by 95/27/EC.

Valid as of 1 January 2002

- Sound pressure level at the operator's station, measured according to ISO6396 (Dynamic test method, simulated working cycle)



- Sound power level emitted. This is the guaranteed value as specified in European directive 2000/14/EC.



This machine complies with the requirements of RAL (German Institute for quality assurance and marking) pertaining to the award of the environmental mark (blue angel) for low noise.



VIBRATION

- The weighted root mean square acceleration value to which the operator's arms are subjected does not exceed 2.5 m/s²
- The weighted root mean square acceleration value to which the operator's body is subjected was measured at 0.64 m/s²

These results were obtained by accelerometers during trench digging.

EMERGENCY STEERING

This machine is equipped with an emergency steering system and complies to ISO 5010. In the advent of failure of the source of power for the steering system (engine failure) whilst travelling the machine can be steered allowing the machine to be safely stopped.

In such a case the effort required at the steering wheel and the number of turns to steer the machine will increase. To confirm function of emergency steering system raise the front wheels off the ground (using the work equipment) and with the engine off, turn the steering wheel and check movement of the wheels.

INTRODUCTION

INTENDED USE

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

- Digging
- Smoothing work
- Ditching work
- Loading work

See the section “WORK POSSIBLE USING HYDRAULIC EXCAVATOR” on page 138 for further details

Features

- This Komatsu HYDRAULIC EXCAVATOR is equipped with various controls based on an advanced electronics system.
- The monitor panel greatly facilitates daily maintenance and self-diagnosis.
- Working mode & travel speed are selectable.
- Digging and lifting force can be increased by light-touch control. (For details, see operation section.)
- Adjustable wrist control levers make operations smooth and easy.
- Fresh filtered air conditioner assures comfortable operation.
- Low noise level and smart urban style design and colouring.
- Superb operation performance provided by powerful engine and high-performance hydraulic pump.
- Low fuel consumption controlled by an electronic control system provides an environment-friendly machine.

BREAKING IN YOUR NEW MACHINE

Your Komatsu machine has been thoroughly adjusted and tested before shipment.

However, operating the machine under severe conditions at the beginning can adversely affect the performance and shorten the machine life.

Be sure to break in the machine for the initial 100 hours (as indicated by the hour meter.)

During breaking in:

- Idle the engine for 5 minutes after starting it up.
- Avoid operation with heavy loads or at high speeds.
- Sudden starting or acceleration, unnecessarily abrupt braking and sharp turning should be avoided except in cases of emergency.

Additionally for the first 20 hours

- Avoid operating engine for prolonged periods at constant speed (including idle.)
- Avoid high speed travelling for periods of more than 5 minutes.

Pay particular attention to oil pressure and temperature indicators & check coolant and oil levels frequently during breaking in.

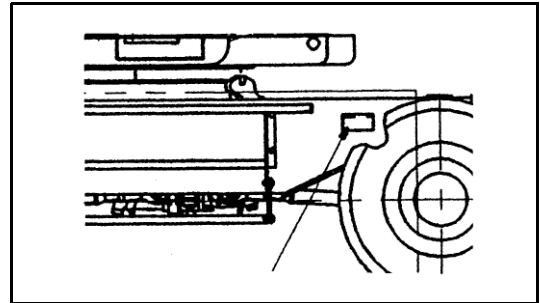
The precautions given in this manual for operating, maintenance, and safety procedures are only those that apply when this product is used for the specified purpose. If the machine is used for a purpose that is not listed in this manual, Komatsu cannot bear any responsibility for safety. All consideration of safety in such operations is the responsibility of the user.

Operations that are prohibited in this manual must never be carried out under any circumstances.

LOCATIONS OF PLATES, TABLE TO ENTER SERIAL NO. AND DISTRIBUTOR

MACHINE SERIAL NO. PLATE POSITION

On the front right of the undercarriage



ENGINE SERIAL NO. PLATE POSITION

On the gear case front corner.

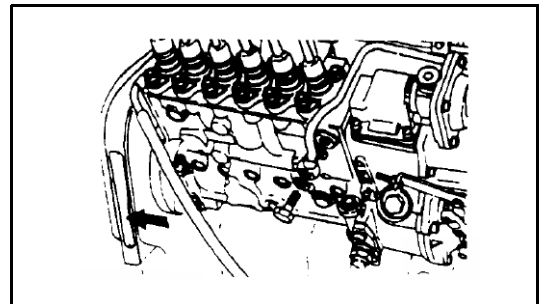


TABLE TO ENTER SERIAL NO. AND DISTRIBUTOR

Machine serial No.:

Engine Serial No.:

Manufacturer's name: Komatsu UK Ltd.

Address

Durham Road
Birtley
Chester-Le-Street
County Durham DH32QX
United Kingdom



Distributor

Address



Phone

MACHINE SERIAL PLATES



STANDARD SERIAL PLATE

 	MODEL	<input type="text"/>
	SERIAL No	<input type="text"/>
	MANUFACTURING YEAR	<input type="text"/>
	MAX. DRAWBAR PULL	<input type="text"/> N
	WEIGHT	<input type="text"/> kg
	ENGINE POWER	<input type="text"/> kW
Manufactured by Komatsu UK Ltd. Birtley, CO. Durham, United Kingdom under Licence from Komatsu Ltd.		
20G-00-K2380		

GERMANY SERIAL PLATE

 	TYPE	<input type="text"/>
	FABR. NR.	<input type="text"/>
	BAUJAHR	<input type="text"/>
	ZUL. ZUGKRAFT	<input type="text"/> N
	ZUL. GESAMTGEWICHT	<input type="text"/> kg
	LEISTUNG	<input type="text"/> kW
	ZUL. ACHSLAST VORN	<input type="text"/> kg
	ZUL. ACHSLASTHINTEN	<input type="text"/> kg
Hergestellt von Komatsu UK Ltd., Birtley CO. Durham, United Kingdom unter lizenz der Komatsu Ltd.		
20G-00-K2390		

ITALIAN SERIAL PLATE

 	Manufactured by Komatsu UK Ltd. Birtley, CO. Durham, United Kingdom under Licence from Komatsu Ltd.				
	TIPO	<input type="text"/>			
	TYPE-MODEL	<input type="text"/>			
	NUMERO DI OMOLOGAZIONE	<input type="text"/>			
	HOMOLOGATION NUMBER	<input type="text"/>			
	MATRICOLA	<input type="text"/>			
	SERIAL NUMBER	<input type="text"/>			
	MASSA TOTALE AMMISSIBILE	DA	<input type="text"/>	A	<input type="text"/>
	TOTAL MAX WEIGHT	FROM		TO	
	CARICO AMMISSIBILE ASSE ANT.	DA	<input type="text"/>	A	<input type="text"/>
	FRONT AXLE WEIGHT	FROM		TO	
	CARICO AMMISSIBILE ASSE POST.	DA	<input type="text"/>	A	<input type="text"/>
REAR AXLE WEIGHT	FROM		TO		
POTENZA MOTORE		<input type="text"/>	ANNO		
ENGINE POWER		<input type="text"/> kW	YEAR <input type="text"/>		
20G-00-K2570					

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SAFETY

 **WARNING**

Read and follow all safety precautions. Failure to do so may result in serious injury or death.

This safety section also contains precautions for optional equipment and attachments.

⚠ WARNING: For reasons of safety, always follow these safety precautions.

GENERAL PRECAUTIONS

SAFETY RULES

- ONLY trained and authorized personnel can operate and maintain the machine.
- Follow all safety rules, precautions and instructions when operating or performing maintenance on the machine.
- When working with another operator or a person on worksite traffic duty, be sure all personnel understand all hand signals that are to be used.

SAFETY FEATURES

- Be sure all guards and covers are in their proper position. Have guards and covers repaired if damaged.
- Use safety features such as safety lock lever properly.
- NEVER remove any safety features. ALWAYS keep them in good operating condition.

Safety lever see “PARKING MACHINE” on page 142.

- Improper use of safety features could result in serious bodily injury or death.

CLOTHING AND PERSONAL PROTECTIVE ITEMS

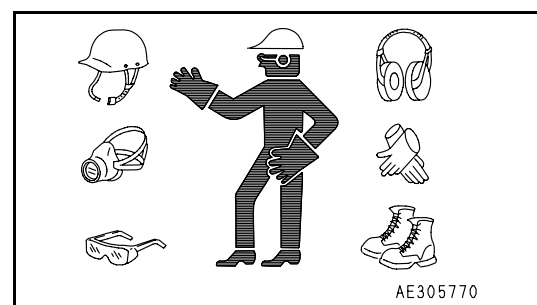
- Avoid loose clothing, jewelry, and loose long hair. They can catch on controls or in moving parts and cause serious injury or death. Also, do not wear oily cloths because they are flammable.
- Wear a hard hat, safety glasses, safety shoes, mask or gloves when operating or maintaining the machine. Always wear safety goggles, hard hat and heavy gloves if your job involves scattering metal chips or minute materials, this is so particularly when driving pins with a hammer and when cleaning the air cleaner element with compressed air. Check also that there is no one near the machine.

Driving in pins, see “REPLACEMENT AND INVERSION OF BUCKET” on page 139.

Cleaning of air cleaner element, see “WHEN REQUIRED” on page 194. in service procedure.

UNAUTHORISED MODIFICATION

- Any modification made without authorization from Komatsu can create hazards.



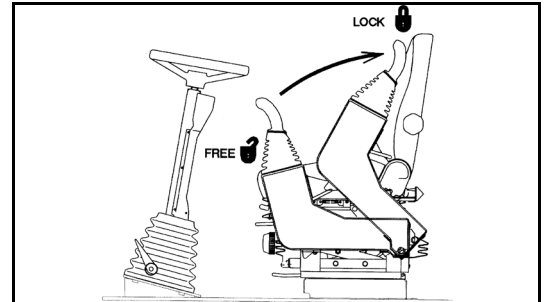
⚠ WARNING: Failure to follow these safety precautions may lead to a serious accident.

- Before making a modification, consult your Komatsu distributor. Komatsu will not be responsible for any injury or damage caused by any unauthorised modification.

ALWAYS APPLY LOCK WHEN LEAVING OPERATOR'S SEAT

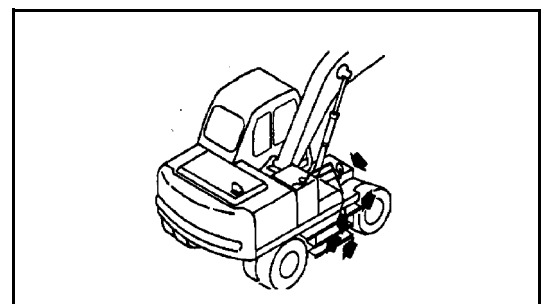
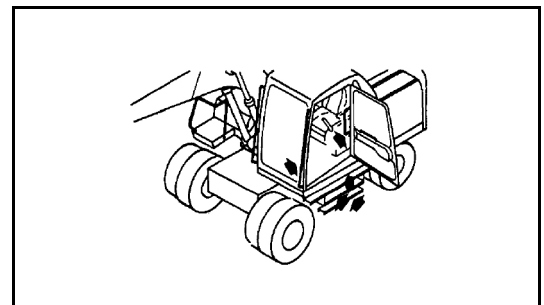
- When standing up from the operator's seat, always raise the control lever Pad Safety lock to the LOCK position. If you accidentally touch the travel or swing lever when they are not locked, the work equipment may suddenly move and cause serious injury or damage.
- When leaving the machine, lower the work equipment completely to the ground, set the control lever Pad safety lock lever to the LOCK position, then stop the engine and use the key to lock all the equipment. Always take the key with you.

Work equipment posture see "PARKING MACHINE" on page 142.



MOUNTING AND DISMOUNTING

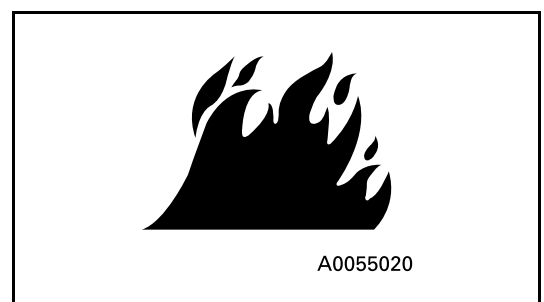
- NEVER jump on or off the machine. NEVER get on or off a moving machine.
- When mounting or dismounting, always face the machine and use the handrails, machine or chassis steps.
- Do not hold any control levers when getting on or off the machine.
- Ensure safety by always maintaining at least three-point contact of hands and feet with the handrails, steps or wheels.
- Always remove any oil or mud from the handrails, steps and wheels. If they are damaged, repair them and tighten any loose bolts.
- If grasping the door handrail when mounting or dismounting or moving on the chassis steps, open and lock the door securely in the open position. Otherwise, the door may move suddenly, causing you to lose balance and fall.



FIRE PREVENTION FOR FUEL AND OIL

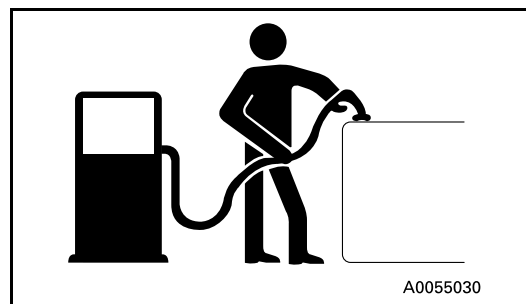
Fuel, oil, and antifreeze can be ignited by a flame. Fuel is particularly **FLAMMABLE** and can be **HAZARDOUS**.

- Keep flames away from flammable fluids.
- Stop the engine and do not smoke when refuelling.

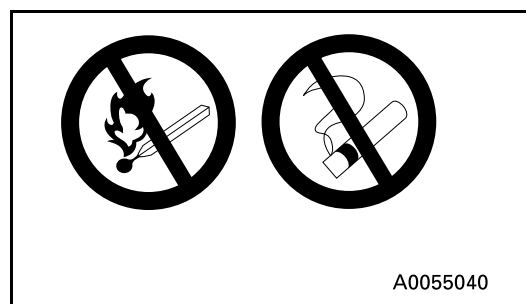


⚠ WARNING: For reasons of safety, always follow these safety precautions.

- Tighten all fuel and oil caps securely.
- Refuelling and oiling should be carried out in well ventilated areas.

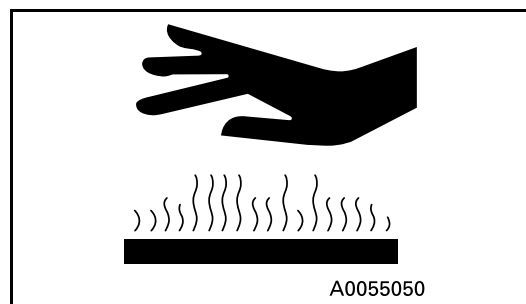


- Keep oil and fuel in a secure place and do not allow unauthorised persons to enter.



PRECAUTIONS WHEN HANDLING AT HIGH TEMPERATURES

- Immediately after operations are stopped, the engine coolant, engine oil, and hydraulic oil are at high temperatures, and are still under pressure. Attempting to remove the cap, drain the oil or water, or replace the filters may lead to serious burns. Always wait for the temperature to go down, and follow the specified procedures when carrying out these operations.



- To prevent hot water from spurting out:

1. Turn engine off.
2. Allow water to cool.
3. Slowly loosen cap to relieve pressure before removing.

- To prevent hot oil from spurting out:

1. Turn engine off.
2. Allow oil to cool.
3. Slowly loosen cap to relieve pressure before removing.

MACHINES FITTED WITH WHEELS

Never perform any repair work or modifications to wheel rims while the tyres are fitted, and never apply heat in the vicinity on the tyres