

Operation & Maintenance Manual

PW200-7K PW220-7K

WHEELED EXCAVATOR

SERIAL NUMBER

PW200-7K - K40146 and up

PW220-7K - K40146 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 (4)" and in "SAFETY" from page 19.**
-


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.

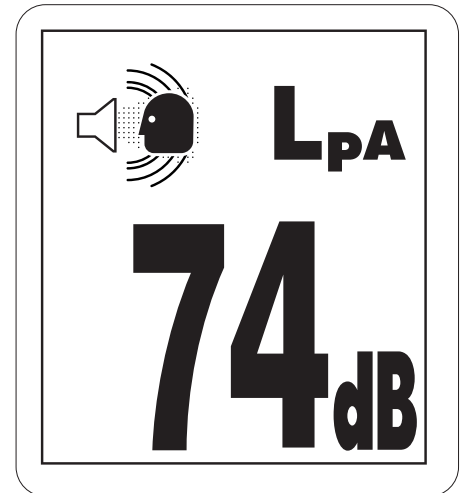
NOTICE - This word is used for precautions that must be taken to avoid actions which could shorten the life of the machine.

Safety precautions are described in SAFETY from page 19.

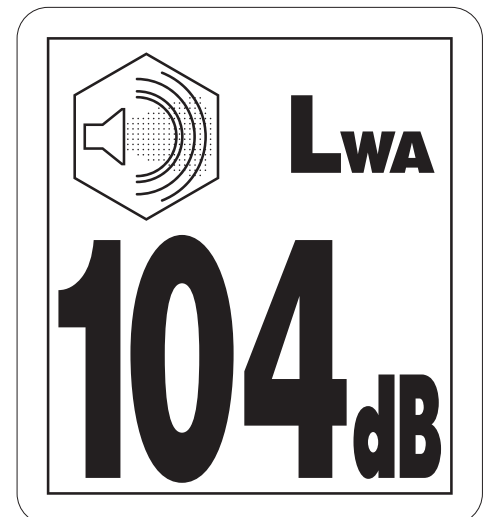
Komatsu cannot predict every circumstance that might involve a potential hazard in operation and maintenance. Therefore the safety message in this manual and on the machine may not include all possible safety precautions. If any procedures or actions not specifically recommended or allowed in this manual 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

- 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 the European directive 2000/14/EC



VIBRATION

- The weighted root mean square acceleration value to which the operator's arms are subjected does not exceed 2.5 m/s^2
- The weighted root mean square acceleration value to which the operator's body is subjected was measured at 0.64 m/s^2

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 (BSEN 12643). 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.

EMERGENCY BRAKING

This machine is equipped with an emergency braking system and complies to ISO 3450. In the advent of failure of the source of power for the braking system (engine failure) whilst travelling, the brakes can be actuated from stored energy in the accumulators to bring the machine safely to a stop.

In such a case, seven brake applications can be made before exhausting the energy in the accumulators. In the advent of service brake failure, the park brake can be used as an emergency brake to bring the machine to a stop.

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 see "WORK POSSIBLE USING HYDRAULIC EXCAVATOR (226)" 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.
- Sophisticated drive train provides fast and smooth travelling on the highway and off road.

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 left of the undercarriage



ENGINE SERIAL NO. PLATE POSITION

On the gear case front corner.

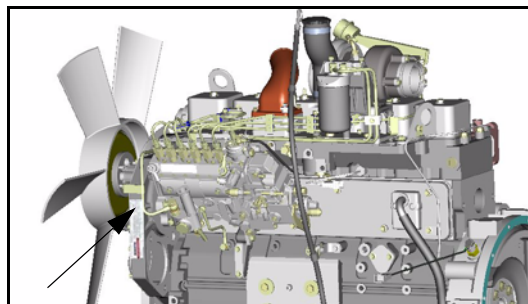


TABLE TO ENTER SERIAL NO. AND DISTRIBUTOR

Machine serial No.:

Engine Serial No.:

Product Identificaiton Number :

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		
	SERIAL No.		
	MANUFACT. YEAR		
	MAX. DRAWBAR PULL		N
	MASS		kg
	ENGINE POWER		kW
Product Identification Number			
MANUFACTURER	Manufactured by Komatsu UK Ltd. for Komatsu Ltd., Tokyo, Japan		
			
<small>21G-01-K2382</small>			

Manufactured by Komatsu UK Ltd.
for Komatsu Ltd., Tokyo, Japan

GERMANY SERIAL PLATE

	TYP		
	FABR. NR.		
	BAUJAHR		
	ZUL. ZÜCKRAFT		N
	ZUL. GESAMTGEWICHT		kg
	LEISTUNG		kW
	ZUL. ACHSLAST VORN		kg
	ZUL. ACHSLAST HINTEN		kg
Produkt Identifizierung Nummer			
HERSTELLER	Hergestellt vom Komatsu UK Ltd., Birtley Co Durham, United Kingdom unter Lizenz der Komatsu Ltd.		
			
<small>20G-00-K2392</small>			

ITALIAN SERIAL PLATE

MANUFACTURER		Manufactured by Komatsu UK Ltd. for Komatsu Ltd., Tokyo, Japan.	
CE	TIPO TYPE-MODEL	[]	
	NUMERO DI OMOLOGAZIONE HOMOLOGATION NUMBER	[]	
	MATRICOLA SERIAL NUMBER	[]	
	MASSA TOTALE AMMISSIBILE TOTAL MAX WEIGHT	DA / FROM	A / TO
	CARICO AMMISSIBILE ASSE ANT. WEIGHT FRONT AXLE	DA / FROM	A / TO
	CARICO AMMISSIBILE ASSE POST. WEIGHT REAR AXLE	DA / FROM	A / TO
	POTENZA MOTORE ENGINE POWER	[] kW	ANNO YEAR []
Numero di Identificazione del Prodotto. Product Identification Number		[]	
Massa rimorchiabile ammissibile: - Massa rimorchiabile con frenata: non atto - Massa rimorchiabile con frenatura indipendente: non atto - Massa rimorchiabile con frenatura ad iniezione: non atto - Massa rimorchiabile con frenatura assistita: non atto			
KOMATSU		20E-00-K1932	

CONTENTS

FOREWORD	3
SAFETY INFORMATION	4
SAFETY MESSAGES	4
NOISE	5
VIBRATION	5
EMERGENCY STEERING	6
INTRODUCTION	7
INTENDED USE	7
FEATURES	7
BREAKING IN YOUR NEW MACHINE	8
LOCATIONS OF PLATES, TABLE TO ENTER SERIAL NO. AND DISTRIBUTOR	9
MACHINE SERIAL NO. PLATE POSITION	9
ENGINE SERIAL NO. PLATE POSITION	9
TABLE TO ENTER SERIAL NO. AND DISTRIBUTOR	9
MACHINE SERIAL PLATES	10
SAFETY	19
GENERAL PRECAUTIONS	20
PRECAUTION DURING OPERATION	26
BEFORE STARTING ENGINE	26
OPERATING MACHINE	27
TRANSPORTATION	33
BATTERY	34
TOWING	35
BUCKET WITH HOOK OR BUCKET LINK WITH LIFTING EYE	36
PRECAUTIONS FOR MAINTENANCE	39
BEFORE CARRYING OUT MAINTENANCE	39
DURING MAINTENANCE	42
POSITION FOR ATTACHING SAFETY LABELS	45
POSITION FOR ATTACHING SAFETY LABELS	45
LIFTING CAPACITY CHART PW200-7K	53
ONE PIECE BOOM Lift capacity tables for 2.5 metre undercarriage	53
ONE PIECE BOOM Lift capacity tables for 2.75 metre undercarriage	60
TWO PIECE BOOM Lift capacity tables for 2.5 metre undercarriage	67
TWO PIECE BOOM Lift capacity tables for 2.75 metre undercarriage	74
LIFTING CAPACITY CHART PW220-7K	81
ONE PIECE BOOM Lift capacity tables for 2.75 metre undercarriage and heavy duty counterweight.	81

ONE PIECE BOOM Lift capacity tables for 2.75 metre undercarriage	88
TWO PIECE BOOM Lift capacity tables for 2.75 metre undercarriage and heavy duty counterweight	95
TWO PIECE BOOM Lift capacity tables for 2.75 metre undercarriage	102
OPERATION.....	111
GENERAL VIEW	112
GENERAL VIEW OF MACHINE	112
GENERAL VIEW OF CONTROLS AND GAUGES	113
EXPLANATION OF COMPONENTS	114
1. MACHINE MONITOR	114
BASIC CHECK ITEMS	117
SWITCHES	146
CONTROL LEVERS, PEDALS	154
FRONT WINDOW	159
EMERGENCY EXIT FROM OPERATOR'S CAB	163
DOOR LOCK	164
CAP, COVER WITH LOCK	165
FUSE	166
LUGGAGE TRAY	167
ASHTRAY	167
CUP HOLDER	167
HOT AND COOL BOX	167
CAB RADIO	168
POWER PICK-UP PORT	168
HANDLING AIR CONDITIONER	169
FUSIBLE LINK	182
CONTROLLER	182
TOOL BOX	183
REFUELLING PUMP	183
WARNING LAMPS	185
HANDLING ACCUMULATORS	186
OPERATION	187
CHECK BEFORE STARTING ENGINE	187
OPERATIONS AND CHECKS BEFORE STARTING ENGINE	199
STARTING ENGINE	201
MOVING MACHINE OFF	210
STEERING	213
TRAVELLING ON PUBLIC HIGHWAY	214
STOPPING & PARKING	215
SWINGING (Slewing the upper carriage)	217
OPERATION OF WORK EQUIPMENT	218
WORKING MODE SELECTION	221

PROHIBITIONS FOR OPERATION	222
PRECAUTIONS FOR OPERATION	223
PRECAUTIONS WHEN TRAVELLING UP OR DOWN HILLS	225
HOW TO ESCAPE FROM MUD	226
WORK POSSIBLE USING HYDRAULIC EXCAVATOR	226
REPLACEMENT AND INVERSION OF BUCKET	228
STOPPING ENGINE	230
CHECK AFTER FINISHING WORK	230
CHECK AFTER STOPPING ENGINE	231
LOCKING	231
OVERLOAD WARNING DEVICE	231
HANDLING THE WHEELS	231
TRANSPORTATION	235
LOADING, UNLOADING WORK	235
PRECAUTIONS FOR LOADING	237
PRECAUTIONS FOR TRANSPORTATION	239
TRAVELLING POSTURE	240
COLD WEATHER OPERATION	241
PRECAUTIONS FOR LOW TEMPERATURE	241
PRECAUTIONS AFTER COMPLETION OF WORK	243
AFTER COLD WEATHER	243
LONG-TERM STORAGE	244
BEFORE STORAGE	244
DURING STORAGE	244
AFTER STORAGE	245
STARTING MACHINE AFTER LONG-TERM STORAGE	245
TROUBLESHOOTING	246
PHENOMENA THAT ARE NOT FAILURES	246
METHOD OF TOWING MACHINE	247
PRECAUTIONS ON PARTICULAR JOBSITES	247
DISCHARGED BATTERY	248
OTHER TROUBLE	252
MAINTENANCE	257
GUIDES TO MAINTENANCE	258
OUTLINE OF SERVICE	261
USE OF BIO-DEGRADABLE OIL	261
If an abnormality is found in the characteristics of the oil, change the oil immediately.	261
OUTLINE OF OIL, FUEL, COOLANT	262
OUTLINE OF ELECTRIC SYSTEM	266
OUTLINE OF HYDRAULIC SYSTEM	266

WEAR PARTS LIST	268
USE FUEL, COOLANT AND LUBRICANTS ACCORDING TO AMBIENT TEMPERATURE	269
PROPER SELECTION OF FUEL, COOLANT AND LUBRICANTS	269
USE FUEL, COOLANT AND LUBRICANTS ACCORDING TO AMBIENT TEMPERATURE CONT.	271
STANDARD TIGHTENING TORQUES FOR BOLTS AND NUTS	273
INTRODUCTION OF NECESSARY TOOLS	273
TIGHTENING TORQUE SPECIFICATIONS	274
TIGHTENING TORQUE LIST	274
PERIODIC REPLACEMENT OF SAFETY CRITICAL PARTS	275
SAFETY CRITICAL PARTS	276
MAINTENANCE SCHEDULE CHART	277
KEY TO LUBRICATION POINTS	281
SERVICE PROCEDURE	283
INITIAL 250 HOURS SERVICE	283
WHEN REQUIRED	284
CHECKING COOLANT LEVEL	292
CHECK AND TIGHTEN WHEEL NUTS	295
CHECK ELECTRICAL INTAKE AIR HEATER	295
CHECK ALTERNATOR	295
REPLACE BUCKET SIDE CUTTERS	296
REPLACE BUCKET TEETH	297
ADJUST BUCKET CLEARANCE	301
CHECK WINDOW WASHER FLUID LEVEL, ADD FLUID	302
CHECK AND ADJUST AIR CONDITIONER	303
DRAIN ENGINE BREATHER OIL CATCHER	304
CHECK BEFORE STARTING	305
CHECK COOLANT LEVEL, ADD WATER	305
EVERY 50 HOURS	309
EVERY 100 HOURS SERVICE	309
EVERY 250 HOURS MAINTENANCE	315
EVERY 500 HOURS SERVICE	320
EVERY 1000 HOURS SERVICE	328
EVERY 2000 HOURS SERVICE	334
EVERY 4000 HOURS SERVICE	335
EVERY 5000 HOURS SERVICE	336
 SPECIFICATIONS.....	 339
SPECIFICATIONS	340
1 - PIECE BOOM	341
2 - PIECE BOOM	343

WORKING RANGE: ONE PIECE BOOM	345
WORKING RANGE: TWO PIECE BOOM	346

OPTIONS, ATTACHMENTS 347

GENERAL PRECAUTIONS 348

PRECAUTIONS RELATED TO SAFETY	348
-------------------------------------	-----

PRECAUTIONS WHEN INSTALLING ATTACHMENTS 349

HANDLING BUCKET WITH HOOK 351

CHECKING FOR DAMAGE TO BUCKET WITH HOOK	351
PROHIBITED OPERATIONS	351
PRECAUTIONS DURING OPERATIONS	351

MACHINES READY FOR ATTACHMENTS 352

GENERAL LOCATIONS	352
HANDLING THE CLAMSHELL BUCKET	354
OPERATION	355
METHOD FOR RELEASING PRESSURE IN CONTROL CIRCUIT OF MACHINES EQUIPPED WITH ACCUMULATOR	357
LONG-TERM STORAGE	357

INTRODUCTION OF ATTACHMENTS AND EXTENDING MACHINE SERVICE LIFE 358

HYDRAULIC BREAKER	358
POWER RIPPER	361
FORK GRAB	362
GRAPPLE BUCKET	363
SCRAP GRAPPLE	364
CRUSHER & SMASHER	366
HYDRAULIC PILE DRIVER	367
HYDRAULIC EXCAVATOR WITH MULTIPURPOSE CRANE	368

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 authorised 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 work site traffic duty, be sure all personnel understand all hand signals that are to be used.

SAFETY FEATURES

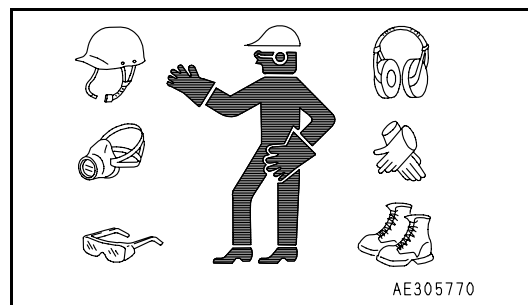
- Be sure all guards and covers are in their proper position. Have guards and covers repaired if damaged.
- Use safety features such as safety lock lever at all times.
- NEVER remove any safety features. ALWAYS keep them in good operating condition.
- Always wear safety belt when operating machine.
- Improper use of safety features could result in serious bodily injury or death.

CLOTHING AND PERSONAL PROTECTIVE ITEMS

- Avoid loose clothing, jewellery, 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 (228)"

Cleaning of air cleaner element, see "WHEN REQUIRED (284)" in service procedure.



UNAUTHORISED MODIFICATION

- Any modification made without authorisation from Komatsu can create hazards.
- Before making a modification, consult your Komatsu distributor. Komatsu will not be responsible for any injury or damage caused by any unauthorised modification.