

Operation & Maintenance Manual



PW160-7K

WHEELED EXCAVATOR

SERIAL NUMBER

PW160-7K - K40001 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

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 (5)" 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/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 (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 (186)" 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.

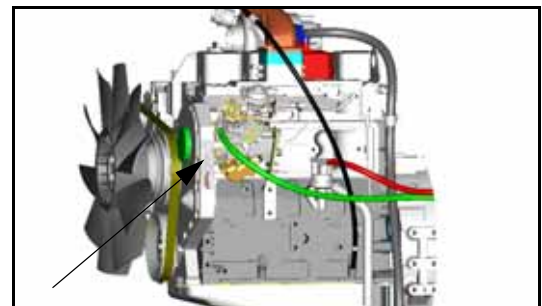


TABLE TO ENTER SERIAL NO. AND DISTRIBUTOR

Machine serial No.:

Engine Serial No.:

Product Identification 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 number Manufacturing year

MODEL SERIAL No. MANUFACT. YEAR

CE MAX. DRAWBAR PULL N

MASS kg

ENGINE POWER kW

Product Identification Number

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

KOMATSU 20G-00-K2382

Manufactured by Komatsu UK Ltd. Birtley, Co. Durham, United Kingdom, under License from Komatsu Ltd.

GERMANY SERIAL PLATE

TYP FABR. NR. BAUJAHR

CE ZUL. ZUGKRAFT 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.

KOMATSU 20G-00-K2382

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 DA A kg

TOTAL MAX WEIGHT FROM TO kg

CARICO AMMISSIBILE ASSE ANT. DA A kg

WEIGHT FRONT AXLE FROM TO kg

CARICO AMMISSIBILE ASSE POST. DA A kg

WEIGHT REAR AXLE FROM TO kg

Massa rimorchiabile ammissibile non atto

POTENZA MOTORE ANNO

ENGINE POWER kW YEAR

Numero di Identificazione del Prodotto. Product Identification Number

KOMATSU 20E-00-K1933

CONTENTS

FOREWORD.....	3
FOREWORD	4
SAFETY INFORMATION	5
SAFETY MESSAGES	5
NOISE	6
VIBRATION	6
EMERGENCY STEERING	7
INTRODUCTION	8
INTENDED USE	8
FEATURES	8
BREAKING IN YOUR NEW MACHINE	9
LOCATIONS OF PLATES, TABLE TO ENTER SERIAL NO. AND DISTRIBUTOR	10
MACHINE SERIAL NO. PLATE POSITION	10
ENGINE SERIAL NO. PLATE POSITION	10
TABLE TO ENTER SERIAL NO. AND DISTRIBUTOR	10
MACHINE SERIAL PLATES	11
SAFETY	19
GENERAL PRECAUTIONS	20
PRECAUTION DURING OPERATION	27
BEFORE STARTING ENGINE	27
OPERATING MACHINE	28
TRANSPORTATION	35
BATTERY	36
TOWING	37
BUCKET WITH HOOK OR BUCKET LINK WITH LIFTING EYE	38
PRECAUTIONS FOR MAINTENANCE	42
BEFORE CARRYING OUT MAINTENANCE	42
DURING MAINTENANCE	45
POSITION FOR ATTACHING SAFETY LABELS	48
POSITION FOR ATTACHING SAFETY LABELS	48
LIFTING CAPACITY CHART PW160-7K	56
ONE PIECE BOOM Lift capacity tables	56
TWO PIECE BOOM Lift capacity tables	62
ROTATING ARM capacity tables	68
OVERLOAD CAUTION	70

OPERATION.....	71
GENERAL VIEW	72
GENERAL VIEW OF MACHINE	72
GENERAL VIEW OF CONTROLS AND GAUGES	73
EXPLANATION OF COMPONENTS	74
MACHINE MONITOR	74
BASIC CHECK ITEMS	77
SWITCHES	106
CONTROL LEVERS, PEDALS	114
FRONT WINDOW	119
EMERGENCY EXIT FROM OPERATOR'S CAB	123
DOOR LOCK	124
CAP, COVER WITH LOCK	125
FUSE	126
LUGGAGE TRAY	127
ASHTRAY	127
CUP HOLDER	127
HOT AND COOL BOX	127
CAB RADIO	128
POWER PICK-UP PORT	128
HANDLING AIR CONDITIONER	129
FUSIBLE LINK	142
CONTROLLER	142
TOOL BOX (CHASSIS)	143
REFUELLING PUMP	143
WARNING LAMPS	145
HANDLING ACCUMULATORS	146
OPERATION	147
CHECK BEFORE STARTING ENGINE	147
OPERATIONS AND CHECKS BEFORE STARTING ENGINE	158
STARTING ENGINE	160
MOVING MACHINE OFF	169
STEERING	172
TRAVELLING ON PUBLIC HIGHWAY	173
STOPPING & PARKING	174
SWINGING (Slewing the upper carriage)	176
OPERATION OF WORK EQUIPMENT	177
WORKING MODE SELECTION	180
PROHIBITIONS FOR OPERATION	181
PRECAUTIONS FOR OPERATION	182
PRECAUTIONS WHEN TRAVELLING UP OR DOWN HILLS	184
HOW TO ESCAPE FROM MUD	185
WORK POSSIBLE USING HYDRAULIC EXCAVATOR	186

REPLACEMENT AND INVERSION OF BUCKET	187
STOPPING ENGINE	189
CHECK AFTER FINISHING WORK	189
CHECK AFTER STOPPING ENGINE	190
LOCKING	190
OVERLOAD WARNING DEVICE	190
HANDLING THE WHEELS	190
TRANSPORTATION	195
LOADING, UNLOADING WORK	195
PRECAUTIONS FOR LOADING	197
PRECAUTIONS FOR TRANSPORTATION	200
TRAVELLING POSTURE	202
COLD WEATHER OPERATION	203
PRECAUTIONS FOR LOW TEMPERATURE	203
PRECAUTIONS AFTER COMPLETION OF WORK	205
AFTER COLD WEATHER	205
LONG-TERM STORAGE	206
BEFORE STORAGE	206
DURING STORAGE	206
AFTER STORAGE	207
STARTING MACHINE AFTER LONG-TERM STORAGE	207
TROUBLESHOOTING	208
PHENOMENA THAT ARE NOT FAILURES	208
METHOD OF TOWING MACHINE	209
PRECAUTIONS ON PARTICULAR JOBSITES	209
DISCHARGED BATTERY	210
OTHER TROUBLE	214
MAINTENANCE	219
GUIDES TO MAINTENANCE	220
OUTLINE OF SERVICE	223
OUTLINE OF OIL, FUEL, COOLANT	223
OUTLINE OF ELECTRIC SYSTEM	226
OUTLINE OF HYDRAULIC SYSTEM	227
WEAR PARTS LIST	229
USE FUEL, COOLANT AND LUBRICANTS ACCORDING TO AMBIENT TEMPERATURE	230
PROPER SELECTION OF FUEL, COOLANT AND LUBRICANTS	230

USE FUEL, COOLANT AND LUBRICANTS ACCORDING TO AMBIENT TEMPERATURE CONT.	232
STANDARD TIGHTENING TORQUES FOR BOLTS AND NUTS	234
INTRODUCTION OF NECESSARY TOOLS	234
TIGHTENING TORQUE SPECIFICATIONS	235
TIGHTENING TORQUE LIST	235
PERIODIC REPLACEMENT OF SAFETY CRITICAL PARTS	236
SAFETY CRITICAL PARTS	237
MAINTENANCE SCHEDULE CHART	238
KEY TO LUBRICATION POINTS	242
SERVICE PROCEDURE	244
INITIAL 250 HOURS SERVICE	244
WHEN REQUIRED	245
CHECKING COOLANT LEVEL	253
CHECK AND TIGHTEN WHEEL NUTS	256
CHECK ELECTRICAL INTAKE AIR HEATER	256
CHECK ALTERNATOR	256
REPLACE BUCKET SIDE CUTTERS	257
REPLACE BUCKET TEETH	258
ADJUST BUCKET CLEARANCE	262
CHECK WINDOW WASHER FLUID LEVEL, ADD FLUID	263
CHECK AND ADJUST AIR CONDITIONER	264
CHECK BEFORE STARTING	265
CHECK COOLANT LEVEL, ADD WATER	265
EVERY 50 HOURS	270
EVERY 100 HOURS SERVICE	270
EVERY 250 HOURS MAINTENANCE	276
EVERY 500 HOURS SERVICE	282
EVERY 1000 HOURS SERVICE	290
EVERY 2000 HOURS SERVICE	296
EVERY 4000 HOURS SERVICE	297
EVERY 5000 HOURS SERVICE	298

SPECIFICATIONS..... 301

SPECIFICATIONS	302
1 - PIECE BOOM	303
2 - PIECE BOOM	304
WORKING RANGE: ONE PIECE BOOM	305
WORKING RANGE: TWO PIECE BOOM	306
WORKING RANGE: ROTATING ARM	307

OPTIONS, ATTACHMENTS	309
GENERAL PRECAUTIONS	310
PRECAUTIONS RELATED TO SAFETY	310
PRECAUTIONS WHEN INSTALLING ATTACHMENTS	311
HANDLING BUCKET WITH HOOK	313
CHECKING FOR DAMAGE TO BUCKET WITH HOOK	313
PROHIBITED OPERATIONS	313
PRECAUTIONS DURING OPERATIONS	313
MACHINES READY FOR ATTACHMENTS	314
GENERAL LOCATIONS	314
HANDLING THE CLAMSHELL BUCKET	316
OPERATION	318
METHOD FOR RELEASING PRESSURE IN CONTROL CIRCUIT OF MACHINES EQUIPPED WITH ACCUMULATOR	321
LONG-TERM STORAGE	321
INTRODUCTION OF ATTACHMENTS AND EXTENDING MACHINE SERVICE LIFE	322
HYDRAULIC BREAKER	322
POWER RIPPER	325
FORK GRAB	326
GRAPPLE BUCKET	327
SCRAP GRAPPLE	328
CRUSHER & SMASHER	330
HYDRAULIC PILE DRIVER	331
HYDRAULIC EXCAVATOR WITH MULTIPURPOSE CRANE	332
ROTATING ARM	337
GENERAL LOCATION AND SPECIFICATIONS.	337
GENERAL VIEW OF CONTROLS	339
TRAVELLING POSTURE	341
MAINTENANCE	343

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 clothes 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 (187)"

Cleaning of air cleaner element, see "WHEN REQUIRED (245)" 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.

