Kubota

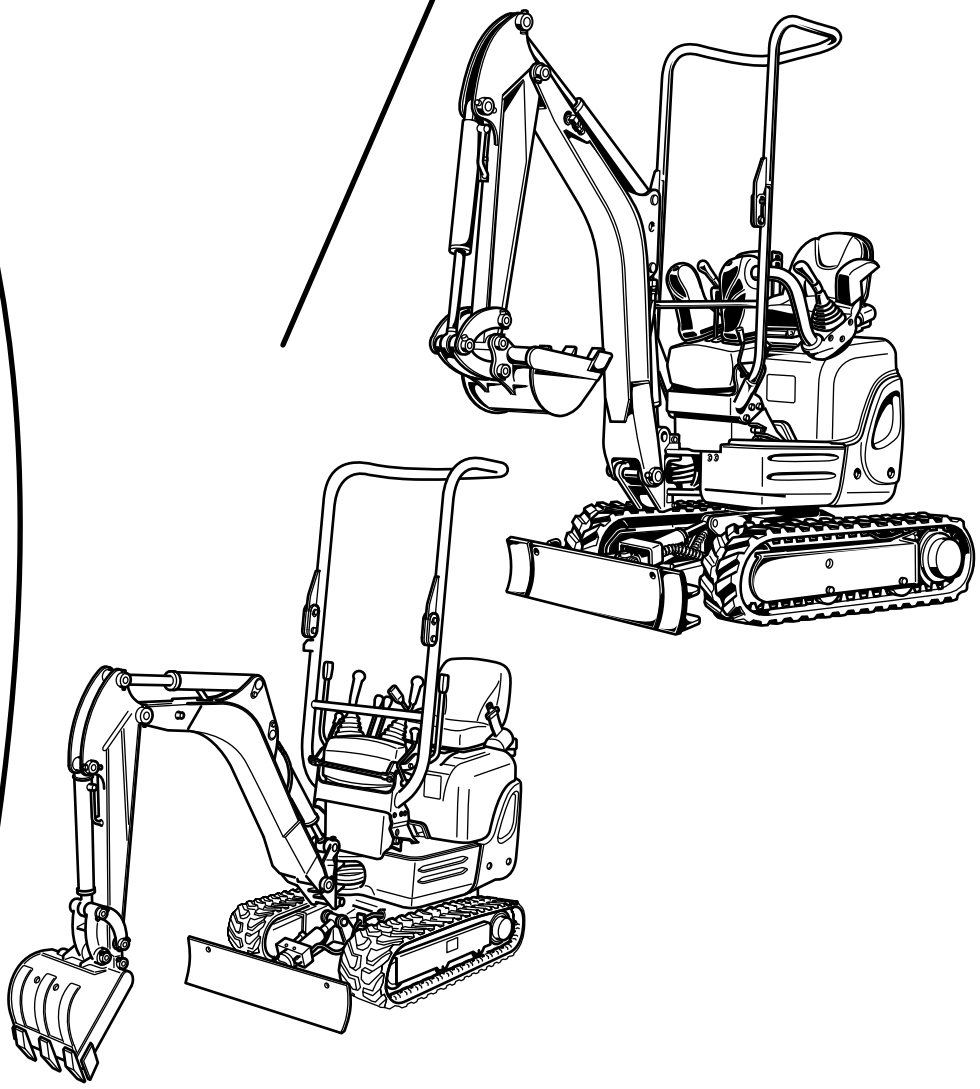
COMPACT EXCAVATOR

GB

MODELS

K008-3

U10-3



CE

OPERATING INSTRUCTIONS

W9212-8235-4 - Original - 03/2019

Dear valued customer,

please fill in the form below. Your information will help us to help you.

Type:
Year of construction:
Product identification number:
Shipment date:

These operating instructions only apply to KUBOTA excavators K008-3 and U10-3, which comply with the following EC declaration of conformity (page 8).
In addition, the machine's product identification number must correspond to the following scope of application.

K008-3 - Valid as of product identification number KBCK0083TK3C70184
U10-3 - Valid as of product identification number KBCU0103AK3C70320

Please contact your KUBOTA dealer for any additional information or troubleshooting procedures not mentioned in these operating instructions.

We also point out that the contents of these operating instructions are not part of an earlier existing agreement, promise or legal relationship or amend these. All responsibilities arise of the respective sales contract containing the complete and exclusively valid contractual warranty. See the "Duties, liability and warranty" section (page 10). This documentation does neither extend nor restrict the contractual warranty.

KUBOTA Baumaschinen GmbH reserves its right to change the information contained in this document with respect to future technical development without altering the basic characteristics of the excavators described herein and without amending this document.

Distribution and reproduction of this documentation and disclosure of its content are not allowed unless expressly approved by the manufacturer. Violators of the above terms are liable for compensation for damages.

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Abbreviations

%	percent
°	degrees
°C	degree Celsius
1/min	revolutions per minute
A	Ampere
acc.	according
API	American Petroleum Institute
approx.	approximately
ASTM	American Society for Testing and Materials
bar	Bar
CECE	Committee for European Construction Equipment
CO_2	carbon dioxide
dB	decibel
DIN	Deutsches Institut für Normung (German Institute for Standards)
e.g.	for example
EMC	electromagnetic compatibility
EN	Europäische Norm (European standard)
GL	Ground level
h	Hour
incl.	including
ISO	International Organization for Standardization
kg	kilogramme
km/h	kilometre per hour
kN	kilonewton
kV	kilovolt
kW	kilowatt
l	litre
l/min	litres per minute
LpA	sound pressure level operator's place
LwA	sound power level
m	metre
m/s^2	metre per square second
m^3	cubic metre
max.	maximum
MIL	Military Standards
mm	millimetre
MPa	Megapascal
N	Newton
OPG	Operator Protective Guard
resp.	respectively
RMS	Root Mean Square
ROPS	Roll Over Protective Structure
s	second
SAE	Society of Automotive Engineers
t	ton
TOPS	Tipping Over Protective Structure
V	Volt

General symbols

	Warning symbol
	Fuel level indicator
	Engine oil pressure indicator
	Charge lamp
	Coolant temperature indicator
	Glow display
	Diesel
	Read the operating instructions
	Lock
	Release
	Extendable track width
	Hydraulic oil
	Travel speed
	Low speed
	Forward travel
	Backward travel

	Raise boom
	Lower boom
	Arm dump
	Arm crowd
	Bucket crowd
	Bucket dump
	Swivel boom (left)
	Swivel boom (right)
	Dozer blade up
	Dozer blade down
	Control lever direction
	Control lever direction

GENERAL INFORMATION

Foreword

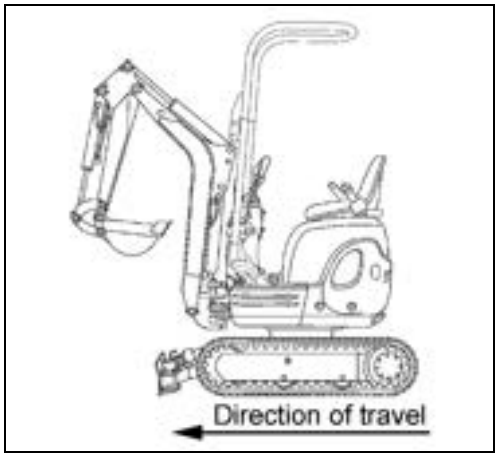
Safety instructions, the rules and regulations for the use of excavators given in these operating instructions apply to the excavators mentioned in this documentation.

It is the responsibility of the owner(s):

- to ensure local, regional and national regulations are observed,
- to observe the bodies of rules (laws, regulations, guidelines, etc) stated in the operating instructions to ensure safe handling of the equipment,
- to ensure that the operating instructions are always available for the operating personnel and the information, such as notes, warnings and safety rules and regulations are followed in all points.

The data in the operating instructions apply for all variants. Differences are highlighted (e.g. K008-3 or U10-3 or U10-3 SIDE LEVER).

The terms "front" and "direction of travel" refer to the view of the operator when seated on the operator's seat. Forward direction of travel means that the dozer blade is at the front when driving forwards as shown in the figure.



The symbols for operating and safety instructions are listed under "Safety Symbols" (page 12).

EC declaration of conformity

With the EC declaration of conformity, KUBOTA Baumaschinen GmbH certifies that the excavator is in conformity with the valid standards and regulations at the time of marketing. The CE conformity marking is located on the type plate and indicates compliance with the regulations.

If the excavator is modified or retrofitted without the approval of the manufacturer, the safety of the excavator may be affected, thus invalidating the EC declaration of conformity.

The EC declaration of conformity is attached to the operating instructions for delivery of the excavator.

Keep the EC declaration of conformity in a safe place and show it, if requested, to the responsible authorities.

Should the EC declaration of conformity get lost, please contact your KUBOTA dealer.

Date of issue of the operating instructions

The date of issue of the operating instructions is printed on the bottom right of the front page of the book.

Operating personnel

The duties of personnel with respect to operation, servicing, repairs and safety inspections must be set forth clearly by the owner.

Personnel in training are allowed to work on or with the excavator only under the supervision of an experienced operator.

Operator

According to industrial safety regulations, only persons who were instructed in the operation of the excavator, who have proven their ability to the owner (employer) and who can be expected to perform their duties in a reliable way are allowed to operate the excavator independently.

Only instructed personnel are allowed to start the excavator and operate the controls.

Trained personnel

Trained personnel are skilled persons with a technical qualification who are able to determine damages to the excavator and perform repairs in their area of qualification (e.g. hydraulic or electrical engineering).

Only trained and instructed personnel are allowed to work on the machine.

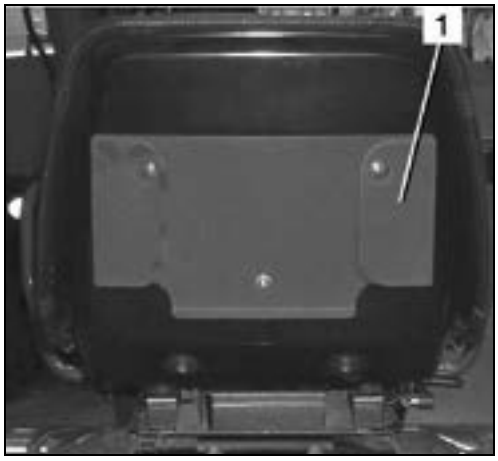
Qualified personnel

Based on their technical training and experience in their field, qualified personnel should have sufficient knowledge about the technology used in this machine and be familiar with the applicable national work safety regulations, accident prevention regulations and the generally accepted technical rules so that they can assess the safe condition of the machine.

Location of the operating instructions

The operating instructions must always be kept on the excavator. If the operating instructions have become illegible due to continuous use, the owner (operator) must order a replacement from the manufacturer.

At the rear of the operator's seat is a compartment (1) for the operating instructions.



Spare parts

When ordering spare parts, please always provide the following information:

- Machine’s product identification number and year of construction (see type plate)
- Designation/type of spare part (see original KUBOTA spare parts catalogue)
- Part number of the spare part (see original KUBOTA spare parts catalogue)
- Quantity
- Customer number

For written orders, please provide this information exactly, or for telephone orders, please have this information ready before calling. This makes the process easier for us and for you, and prevents errors and incorrect orders or deliveries.

Please place your order with your KUBOTA dealer.

SAFETY RULES

Basic safety instructions

- The EC machine utilization directive (2009/104/EC) dated 16/09/2009 applies for the operation of the aforementioned excavator.
- The information in these operating instructions applies for maintenance and repairs.
- National rules and regulations apply where applicable.

Duties, liability and warranty

A basic requisite for the safe handling and problem-free operation of the excavator is the knowledge of the safety instructions and safety regulations.

These operating instructions, in particular the safety instructions, must be followed by all persons working near or with the excavator. Above and beyond this, the safety rules and regulations applicable for the site must also be observed.

Hazards occurring during the handling of the excavator:

- The excavators are manufactured according to the state of technology and the recognized safety rules. Nevertheless, danger to the life and limbs of the operator or a third party, or damage to the excavator or to other property can occur. The excavator(s) may only be used

  → for the approved use and

  → in a completely safe operating state.

  Malfunctions which can reduce safety must be repaired immediately.

Warranty and liability

The scope, period and form of the warranty are set forth in the sales and delivery conditions of the manufacturer. The operating instructions valid at the time of delivery shall be the basis for any warranty claims arising from errors in the valid operating instructions (page 8). The following applies above and beyond the sales and delivery conditions: No warranty or liability shall be assumed for personnel and property damages resulting from one or more of the following reasons:

- unapproved use of the excavator,
- improper starting, operation and maintenance of the excavator,
- operation of the excavator with defective safety devices or improperly installed or non-operational safety and protective devices,
- ignorance or non-observance of these operating instructions,
- insufficiently qualified or insufficiently instructed operating personnel,
- improperly performed repairs,
- unauthorised engineering changes to the excavator,
- poor surveillance of machine parts subject to wear,
- catastrophes caused by the effect of foreign objects or an act of God.

The owner must ensure at his own responsibility that

- the safety rules are observed (page 10),
- unapproved use and unauthorised operation (page 13) are excluded and
- the approved use (page 13) is ensured and the excavator is operated in accordance with the contractual conditions of use.

Safety symbols

The following terms and hazard symbols are used in these operating instructions:

Identifies important operating procedure information which may not be immediately evident to the operator.

Identifies operating procedures which must be followed exactly to prevent damage to the excavator or other property.

Identifies operating procedures which must be followed exactly to prevent danger to persons.

Identifies possible hazards in the handling of batteries.

Identifies possible hazards from caustic materials (battery acid).

Identifies possible hazards from explosive materials.

Prohibits the use of fire, ignition sources, and smoking.

Prohibits the spraying of water.

Identifies operating procedures for the proper disposal and storage of ensuing waste materials.

Approved use

The excavators specified in this operating instructions may only be used to loosen the ground, excavating, picking up, transporting and dumping soils, rocks and other materials, for work with the dozer or with a breaker. The load may be transported largely without driving the excavator. Do not exceed the maximum lifting capacity.

Approved use also includes:

- observation of all notes in these operating instructions,
- regular servicing,
- regular safety inspections.

Unapproved use

Any improper use – i.e. any deviation from the information in the "Approved use" section (page 13) of these operating instructions – is considered an unapproved use. This also applies to the non-observance of the standards and guidelines listed in these operating instructions.

Hazards can occur as a result of improper use. Such improper uses include:

- Using the excavator to lift loads without the proper equipment for lifting operations
- Using the excavator in contaminated environments
- Using the excavator in closed rooms without sufficient ventilation
- Using the excavator under conditions of extreme temperatures (extreme heat or cold)
- Using the excavator for underground work
- Using the excavator to transport persons in the bucket
- Using the excavator for demolition work, with the danger of falling objects (e.g. tearing down walls).

Special duties of the owner

Owner of the excavator in the sense of these operating instructions is any person or company which uses the excavator itself or on whose order it is used. In special cases (e.g. leasing, rental), the owner is the person who must perform the duties arising from operation according to the conditions of the contract between owner and user of the excavator.

The owner must ensure that the excavator is only used properly and that any danger to the life and health of the user or others who are in the proximity of the user are eliminated. Furthermore, observance of the safety rules and observance of the operating, maintenance and repair regulations must be ensured. The owner must make sure that all operators and users have read and understood these operating instructions.

Refuse such as old oil, fuel, hydraulic fluid, coolant and batteries comes under the category of toxic waste and can be a hazard to the environment, people and animals.

Disposal must be undertaken in an appropriate way, according to legally prescribed pollution control and safety regulations.

If you have questions about the correct disposal or storage of refuse and toxic waste, contact your KUBOTA dealer or a local waste management contractor.

Noise emission and vibration

The values specified in this manual have been identified in the test cycle at an identical machine and are valid for a standard equipment machine. The determined values are shown in the Specifications (page 36).

Noise emission

The noise levels were determined using the method of determining the guaranteed sound pressure level of ISO 4871 based on directive 2000/14/EC, appendix VI.

The noise levels shown are not applicable for the determination of additional workplace noise emissions. The actual noise levels may need to be determined directly at the workplaces, subject to actually existing conditions (other noise sources, special operating conditions, sound reflections).

Depending on the actual noise emissions the owner must provide the necessary personal protective equipment to the operator (ear protection).

Noise of a noise level of more than 85 dB (A) can cause hearing damage.
From a noise level of 80 dB (A), the use of an ear protection is recommended.
From a noise level of 85 dB (A), the operator must wear an ear protection.

Vibrations

The vibrations at the machine have been determined at an identical machine.

The vibration stress on the operator over a longer period of time must be determined by the owner at the site of application, in compliance with directive 2002/44/ EC in order to consider individual magnitudes of influence.

Danger, warning and safety labels on the machine

Care of danger, warning and safety labels

- Keep danger, warning and safety labels clean and free from interfering objects.
- Clean danger, warning and safety labels with soap and water and dry with a soft, clean cloth.
- Replace damaged or missing danger, warning and safety labels with new ones from your KUBOTA dealer.
- If a component with glued-on danger, warning and safety labels is replaced with a new part, make sure that the new labels are affixed to the same location as the replaced component.
- Danger, warning and safety labels should be stuck only on clean and dry surfaces. Press any air bubbles into the outer edge of the sticker.

The positioning of the danger, warning and safety instructions is illustrated in the following figures.

1) Code #: RB456-5739-0

Mortal danger from moving excavator!

When staying in the danger zone and in the case of a suddenly starting excavator, there is the danger of being run over by the excavator.

- Only start the machine from the operator's seat.
- Do not start the machine by bypassing the starter poles.

2) Code #: RB238-5736-0

Risk of fire from inflammable diesel fuel!

Inflammatory vapours can occur in the fuel tank, which may go up in flames as a result of an ignition source.

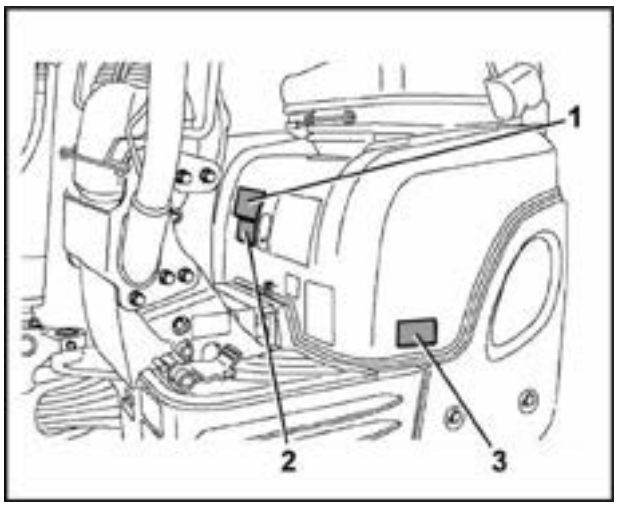
- Do not use open flames in the vicinity of the fuel tank.

3) Code #: RD458-5738-0

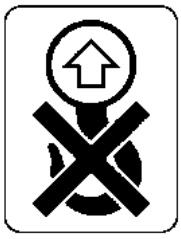
Danger of cutting and crushing through rotating parts!

The rotating fans can cut into limbs and the rotating belt drive can pull in and crush limbs.

- Switch off the engine before working in the engine room.
- Ensure that the engine and all the engine parts have come to a complete standstill.
- Do not reach into rotating components.

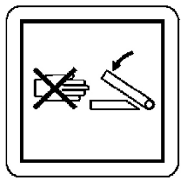


1) Code #: RB419-5796-0
Not an attachment point for lifting gear.

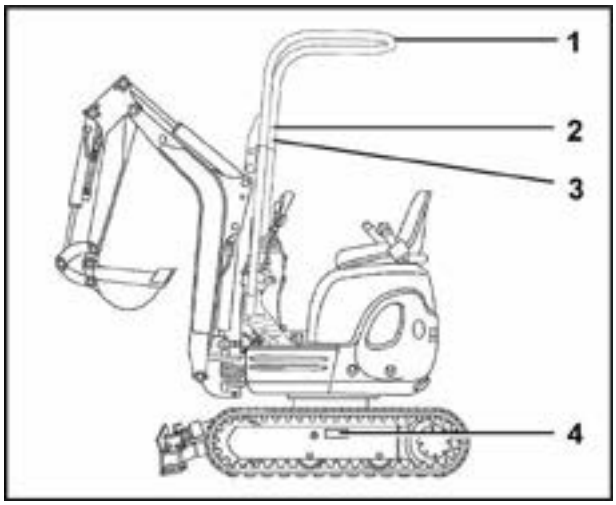


2) Code #: RA029-4539-0
Risk of death when working with the roll-over safety bar folded down!
If the machine tips over while the roll-over safety bar is folded down, the operator is not protected on the operator's seat. Because of the fastened seat belt, the operator cannot jump off of the machine. The machine can fall onto the operator and roll over him.
- As a rule, always work with the roll-over safety bar folded up and with the seat belt fastened.
- Only operate the machine with the roll-over safety bar folded down and without the seat belt fastened when passing through a low point on level ground.

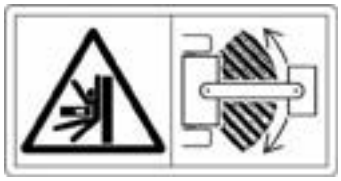
3) Code #: RA028-4537-0
Danger of being crushed by swinging roll-over safety bar!
Shear forces can cause serious injuries if any limbs are crushed.
- Keep hands away from the swivel joints when swinging the roll-over safety bar.



4) Code #: RB456-5795-0
Danger of injury from components under pressure!
In the case of improper operating of the crawler tensioner, grease or the pressure valve can splash out under high pressure and lead to injury.
- Before working on the crawler tensioner, please read the operating instructions!



1) Code #: RB456-5722-0

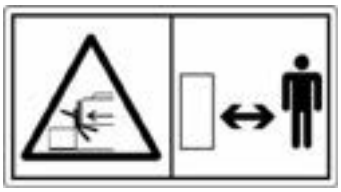


Mortal danger by crushing!

A low safe distance to the boom can impede an emergency exit from the danger zone. Being crushed by the boom can result in severe injury or death.

- Do not remain within the swinging range of the boom.
- Ensure safe distance to obstacles and sufficient freedom of movement.

2) Code #: RA028-5728-0

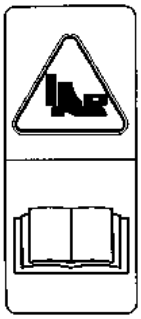


Mortal danger by crushing!

Low safe distance to the excavator and to obstacles can prevent an emergency exit from the danger zone. Crushing by excavator results in severe injury or death.

- Do not enter the manoeuvring area.
- Ensure safe distance to obstacles and sufficient freedom of movement.

3) Code #: RA118-5776-0



Risk of being crushed by the boom!

When lifting and swinging the boom, there is a danger of getting caught between the boom and the protective structure or swivel frame.

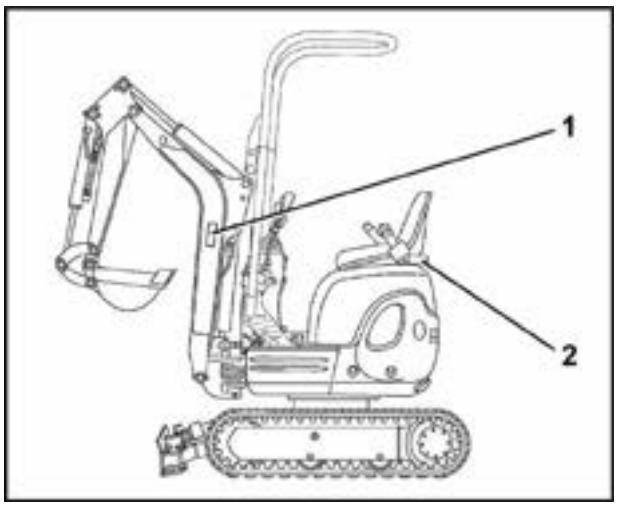
- Do not step beyond the front part of the boom swing pedal.
- Please read the operating instructions before commissioning.

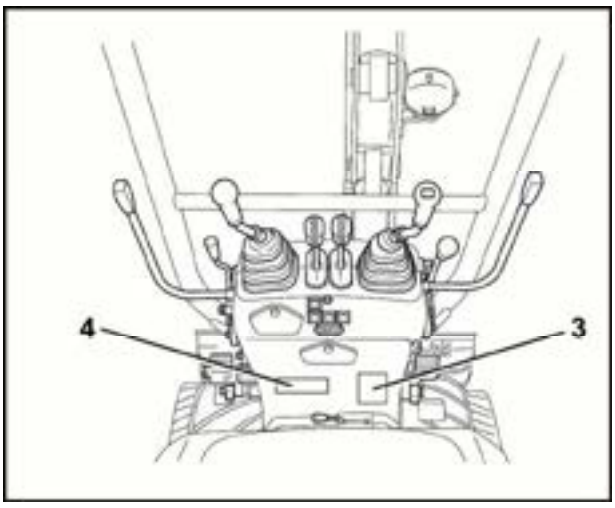
4) Code #: 69198-5784-0

Risk of accidents due to incorrect operation!

Improper operating can lead to damage to the excavator, to serious accidents with a high risk of injury and death as a result.

- Please read the operating instructions before commissioning.





Safety rules

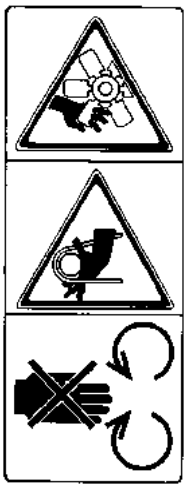
1) Code #: TA040-4958-0

Risk of burns from hot components!

Surfaces can be hot and lead to burns.

- Do not touch hot parts, such as exhaust muffler, etc.

2) Code #: RA128-5776-0



Danger of cutting and crushing through rotating parts!

The rotating fans can cut into limbs and the rotating belt drive can pull in and crush limbs.

- Switch off the engine before working in the engine room.
- Ensure that the engine and all the engine parts have come to a complete standstill.
- Do not reach into rotating components.

3) Code #: RA028-5724-0

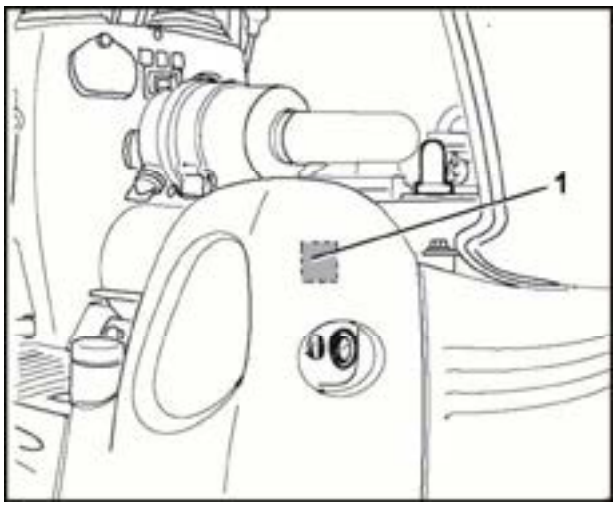
Danger of injury from liquids under pressure!

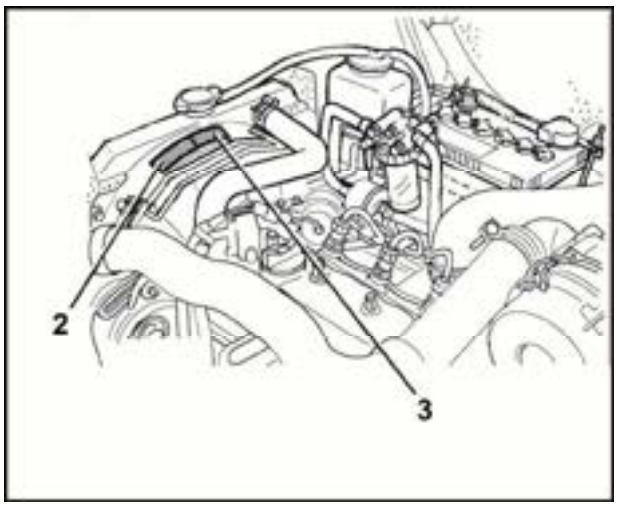
Escaping hydraulic oil under pressure can penetrate into the skin.

Risk of burns from hot components!

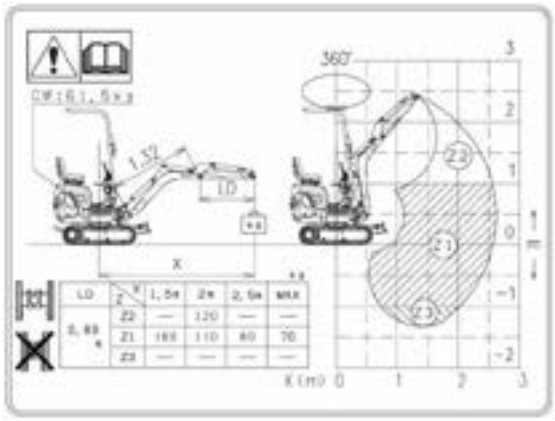
Surfaces can be hot and lead to burns.

- Apertures, e.g., ventilation systems, and hot components, must not be covered with hands.

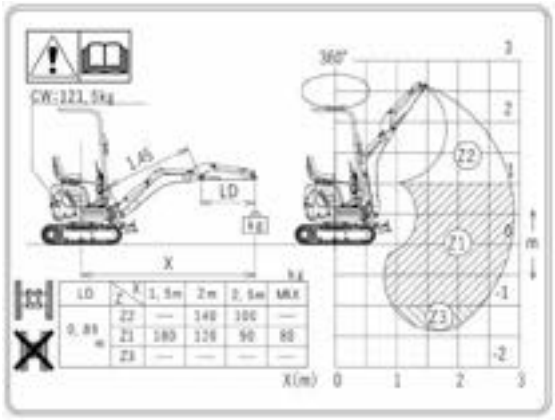


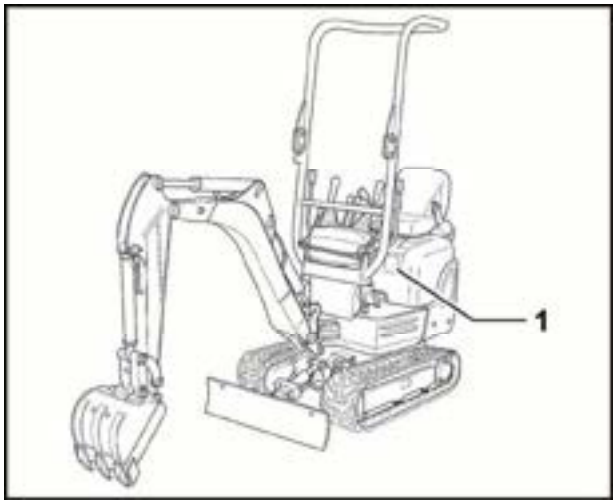


1) Code #: RA028-5746-0
Max. lifting capacity during swivel operation is 360°
K008-3



1) Code #: RA138-5746-0
Max. lifting capacity during swivel operation is 360°
U10-3





1) Code #: RA131-9371-0

Caution! Risk of component damage!

Fastening onto the roll-over safety bar can damage the control lever console.

- Carefully swing the roll-over safety bar up.

2) Code #: RA131-9375-0

Caution! Risk of component damage!

Fastening onto the roll-over safety bar can damage the control lever console.

- Carefully swing the roll-over safety bar up.

3) Code #: RA131-9361-0

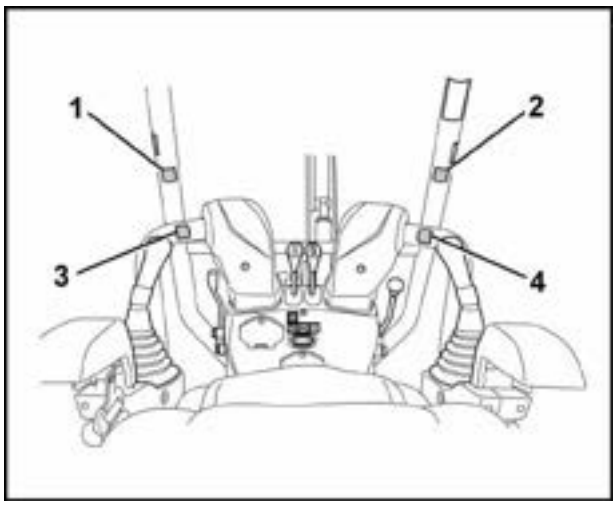
Danger of impact on the control lever!

- Actuate the throttle lever carefully.

4) Code #: RA131-9365-0

Danger of impact on the control lever!

- Actuate the dozer control lever carefully.



1) Code #: RB456-5786-0

Danger due to electric current!

Excess voltage can cause injuries while working on the electrical system.

- Before working on the electrical system, disconnect it from the power supply.
- Wear personal protective equipment.
- Before working on the electrical system, please read the operating instructions!

2) Code #: RB456-5789-0

Danger in the danger zone of the front attachments!

Standing in the danger zone while the front attachments are moving suddenly can lead to severe injury or even death.

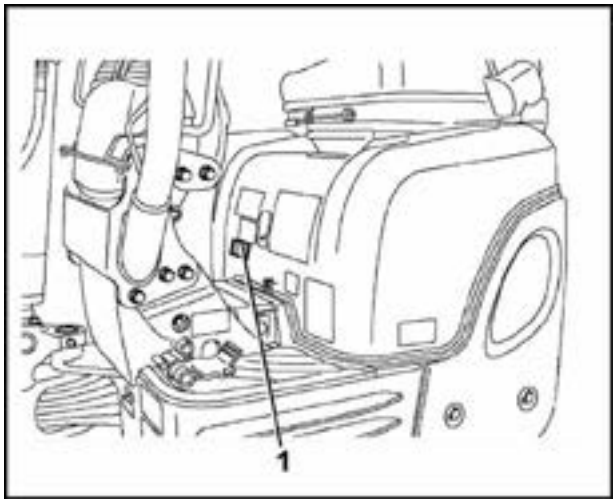
- Do not stand in the danger zone of the front attachments.
- Ensure safe distance to obstacles and sufficient freedom of movement.

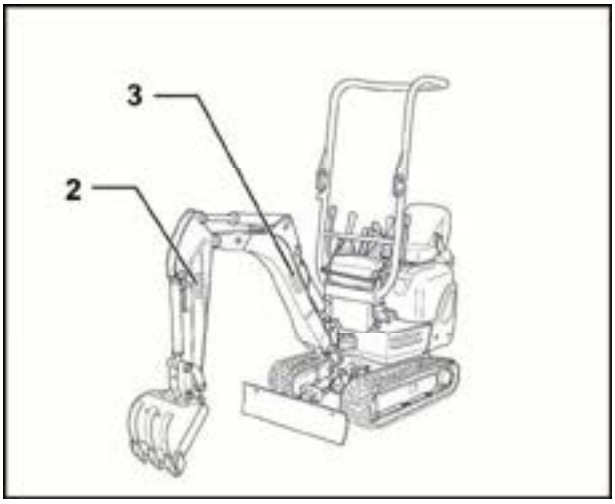
3) Code #: RB456-5788-0

Risk of death due to electric current!

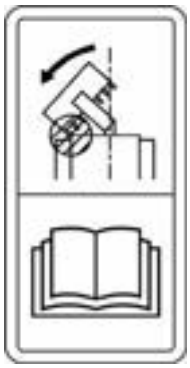
When working in the vicinity of overhead power lines without a sufficient safe distance between them and the machine, the electricity can jump onto the machine.

- Maintain a safe distance from overhead power lines.





1) Code #: RD839-5739-0

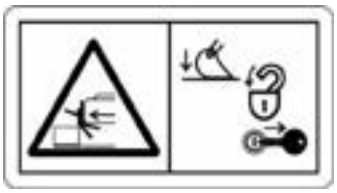


Caution! Risk of component damage!

When using a wider or deeper bucket, take good care when swinging or retracting the front attachments to make sure that the bucket does not hit the canopy.

- Read the Operating Instructions for the attachment.

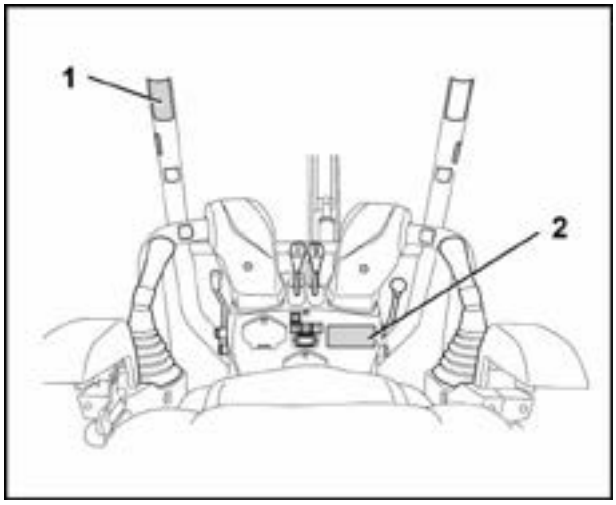
2) Code #: RB456-5783-0



Mortal danger by crushing!

Low safe distance to the excavator and to obstacles can prevent an emergency exit from the danger zone. Crushing by excavator results in severe injury or death.

- Before leaving the machine, lower bucket to the ground.
- Lift the control lever lock, turn the starter switch to the STOP position and remove the key.



Safety devices

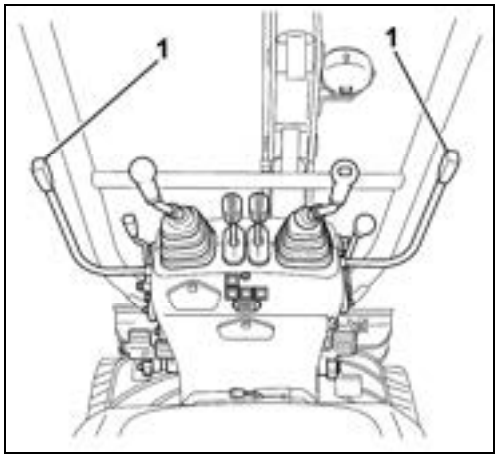
Before starting the machine, all safety devices must be installed properly and operational. Manipulating the safety devices is prohibited.

Protective devices may only be removed after

- The excavator is standing still and the engine is stopped
- and secured against restarting (starter switch in STOP position and key removed).

Locking the control lever K008-3/U10-3

If the control lever lock (1) is located in the upper position, the control lever functions are locked and out of service.



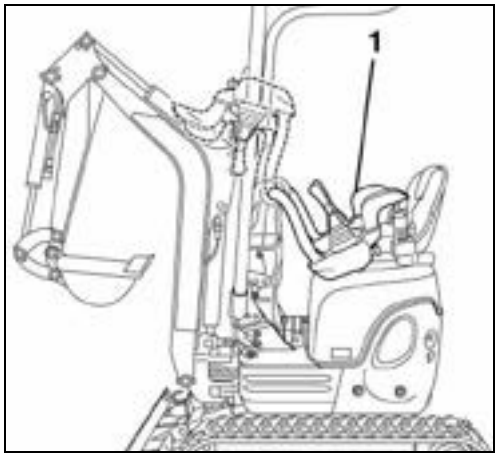
Make sure that all controls are in the neutral position and that the control levers are locked.

The hydraulic functions for driving, setting the track width, operating the dozer, swinging the boom and operating the auxiliary port are not locked by the control lever lock and can be activated.

- To release the control lever, place the control lever lock into the lower position.

Locking the control lever U10-3 SIDE LEVER

If the control lever console (1) is elevated, the control lever functions are locked and out of service.

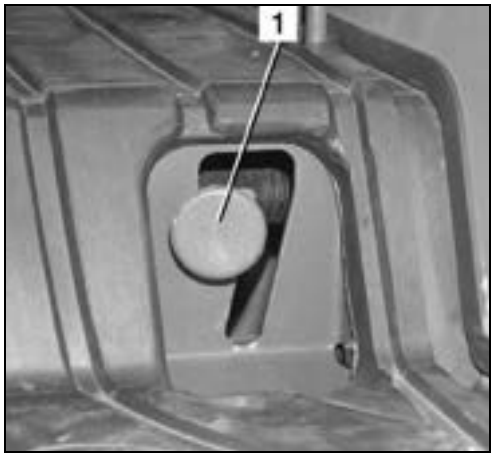


The hydraulic functions for driving, setting the track width, operating the dozer, swinging the boom and operating the auxiliary port are not locked by the control lever lock and can be activated.

- Swivel down the control lever console to release the control lever.

Locking the swivel frame

If the swivel frame lock (1) is in the bottom position, the swivel frame and the track frame are interlocked.



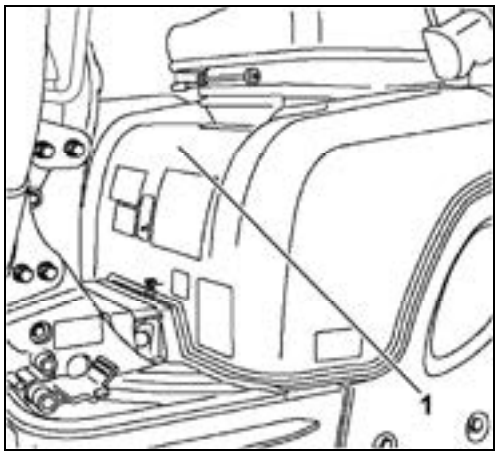
Prior to locking the swivel, frame the swivel frame and the track frame have to be aligned together in a parallel position.

Manually stopping the engine

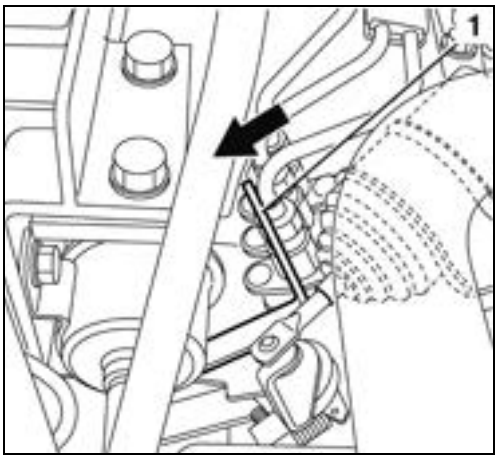
If the electrical system fails, the engine can be shut off manually.

To stop the engine:

- Open the engine compartment cover (1) (Page 89).



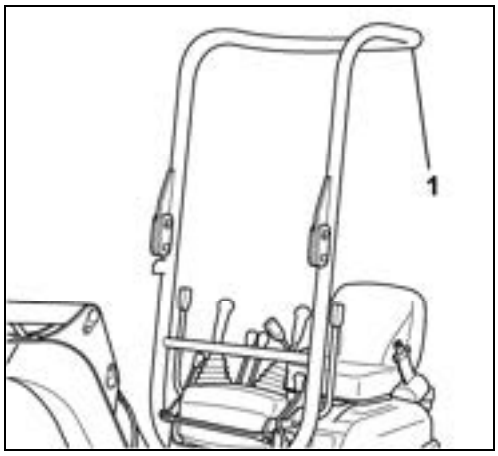
- To stop the engine, push lever (1) in direction of arrow until the engine is stationary.



Caution! Do not touch the fan wheel → risk of injury.

Roll-over safety bar

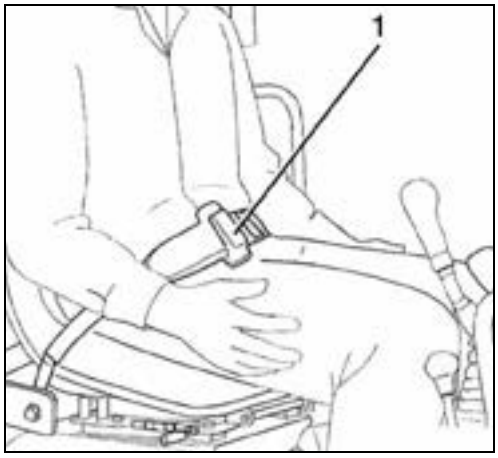
- If the roll-over safety bar (1) is in the swivelled upward position and if it is locked in this position, then the operator with tightly fastened seat belt is protected against crushing if the excavator tips over.



When operating the excavator, the roll-over safety bar must be in the swivelled upward, locked position (page 67).

Seat belt

- If the operator with tightly fastened seat belt (1) is on the operator's seat, then he is protected against falling off and therefore against crushing or bruising in the event of a collision or tipping over of the excavator.



When operating the excavator with the roll-over safety bar swivelled upward and locked, wear the seat belt (page 61). When driving with the roll-over safety bar swivelled downward (e. g. driving through a low passageway), do not wear the seat belt.

Hazards coming from the hydraulic system

If hydraulic oil gets into the eyes, rinse them immediately with clear water and subsequently seek medical aid.

Do not allow hydraulic oil to contact the skin or clothing. Skin parts which may have come in contact with hydraulic oil must be washed with water and soap immediately, if possible. Do this thoroughly and repeatedly, otherwise there is a risk of damage to the skin.

Immediately take off any clothes dirtied or soaked with hydraulic oil.

Persons who have inhaled hydraulic oil vapours (mist) should be taken to a doctor immediately.

If leaks have occurred in the hydraulic system, the excavator may not be taken into operation or, if in operation, operation must cease at once.

Do not use the naked hand to search for leaks; always use a piece of wood or cardboard. Protective clothing (eye protection and gloves) must be worn when seeking leaks.

Leaking hydraulic oil must be bound immediately with an oil binding agent. The contaminated oil binding agent must be stored in suitable containers and in accordance with the valid regulations.

Fire protection

The excavator components and attachments (in particular the engine and the exhaust system) reach high temperatures even at normal working conditions. An electric installation which is damaged or not properly serviced may lead to flashovers and/or electric arcs. The following Fire Protection Guidelines may help you ensure the maintenance and efficiency of your equipment and minimize fire hazards.

- Remove any accumulated dirt adjacent to hot components, e.g. engine, muffler, exhaust manifold/tubes, etc. If the machine is being used to full capacity, the cleaning procedure should be performed more frequently.

- Accumulated residues from plants and trees, or any other flammable materials, should be removed from the machine. This must be observed in particular in the proximity of the engine and the exhaust system, but also at the swivel frame, the track frame, and the boom.

- Check the condition and wear of all fuel lines and hydraulic hoses. Any defective parts should be replaced immediately in order to avoid leakage.

- Electric lines and connections must be checked regularly for signs of damage. Damaged components and lines must be replaced or repaired before starting up the machine. All electric connections must be kept clean and solid.

- Exhaust pipes and mufflers must be checked daily for leaks, damage and any loose or missing joints. Leaking or damaged exhaust system components must be replaced or repaired before starting up the machine.

- Always keep a multipurpose fire extinguisher at or close to the machine. Make yourself familiar with the operation of the fire extinguisher. In the event of fire in the electrical or hydraulic system, use a CO_2 fire extinguisher to combat the fire.

A fire extinguisher is not included in the basic equipment of the machine.

RECOVERY, LOADING AND TRANSPORT

Safety rules for recovery

- For recovery of the excavator, a towing vehicle of at least the same weight class as the excavator must be used.
- A tow bar must be used for the recovery. If a tow rope is used, an additional vehicle to brake the excavator must also be attached. The tow bar or tow rope must be suitable for the recovery of the excavator in respect of the towed load. Do not use damaged recovery aids.
- Do not step into the danger zone between the vehicles during the recovery procedure. If a tow rope is used, keep a distance of at least 1½ times the length of the rope.
- Use the towing eye on the track frame for the recovery.
- The above safety rules also apply if the excavator is used as the towing or recovery vehicle.
- Observe the admissible values for the towed load and the maximum pressing load vertical down on the towing eye during recovery, see "Specifications" (page 36).

Safety rules for hoisting the excavator with a crane

- The lifting gear for hoisting must be suitable for the weight of the excavator.
- Before the lifting gear is attached, check that the specified safety inspections have been performed and the lifting gear is in perfect condition.
- The excavator may only be lifted at the points provided. Do not attach the lifting gear to any other grommets or areas as this can lead to substantial damage.
- Always adhere to the valid safety regulations for the lifting of loads.
- The excavator must be secured with a holding rope when it is being lifted.
- The crane operator is responsible for the observance of these safety rules.

Safety rules for transport

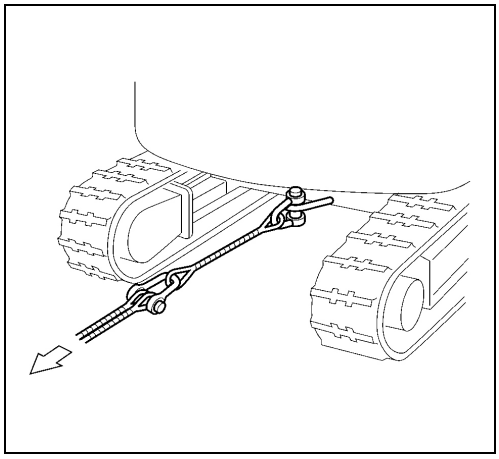
- The ramps must have a sufficient load capacity for bearing the weight of the excavator. They must be placed securely on the transport vehicle and fastened.
- Support the loading area at the rear of the transport vehicle with sufficiently dimensioned supports.
- The ramps must be wider than the track of the excavator and have footboards on the side.
- The transport vehicle must be designed for the load of the excavator.
- Place the left and the right ramp so that the centre line of the transport vehicle is aligned with the centre line of the excavator to be loaded.
- Do not drive the excavator onto the transport vehicle without ramps and with the boom.
- Engage the parking brake of the transport vehicle and secure its front and rear wheels with chocks.

- Secure the excavator against sliding on the transport vehicle with chocks or chains or with suitable tiedown straps. The chocks must be secured at the crawlers and on the transport vehicle with suitable means. The driver of the transport vehicle is responsible for the secure fastening of the excavator on the vehicle.
- A guide is required for driving the excavator onto and off the transport vehicle. The guide is responsible for the safe loading. The excavator may only be moved on instruction of the guide; the operator and guide must always have eye contact. If this is not possible, the operator must stop the excavator immediately.
- When driving with an excavator loaded, always keep a clearance of 1.0 m to overhead power lines. Observe the applicable traffic rules and regulations.

Recovery

Adhere to the safety rules (page 10) and the safety rules for recovery (page 28).

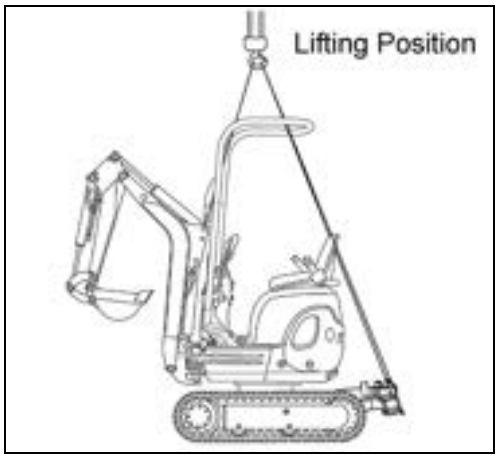
A recovery is only allowed over a short distance and at walking speed (0.5 m/s ~ 1.0 m/s).



- Attach the tow bar or tow rope to the towing eye (see figure) on the excavator and to the towing vehicle. The tow bar should be mounted at a right angle to the vehicles.
- If the towing eye of the excavator is not accessible, a tow rope can also be fastened around the centre of the dozer blade.
- During the recovery procedure, the operator must be seated on the operator's place.
- Drive slowly with the towing vehicle to avoid abrupt loads.

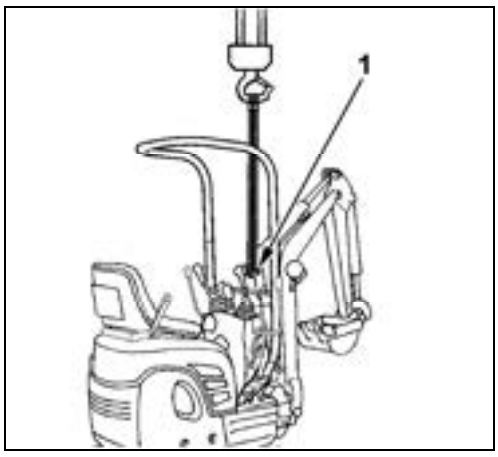
Hoisting the excavator with a crane

Adhere to the safety rules (page 10) and the safety rules for hoisting the excavator with a crane (page 28).

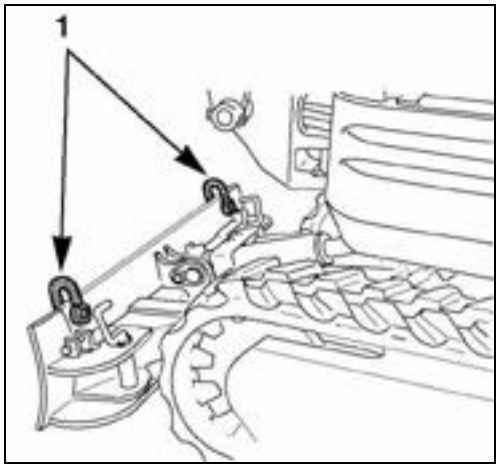


- Bring the excavator to the lifting position (see figure) on level ground.
- Swivel the swivel frame so that the dozer is located at the rear (page 72).
- Lock the swivel frame (page 25).
- Lift the dozer until the dozer cylinders are fully retracted.
- Completely extend the bucket cylinder and arm cylinder.

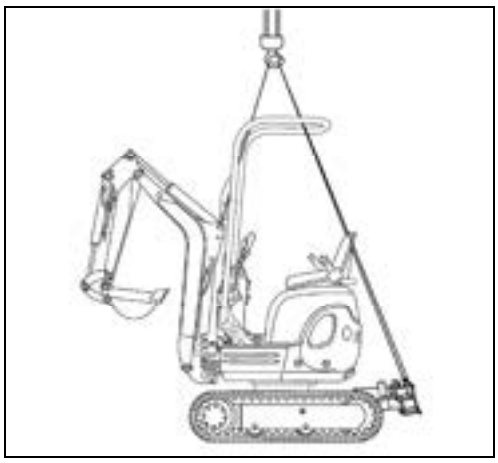
- Completely retract the boom cylinder.
- Swing the boom from the central position approx. 10 to 15 degrees to the right.
- Attach the lifting gear with a shackle to the lifting eye (1) on the left side of the boom.



- Attach the lifting gear with shackles to the lifting eyes (see figure) on each side of the dozer.



Tension the lifting gear slightly with the crane (see figure).

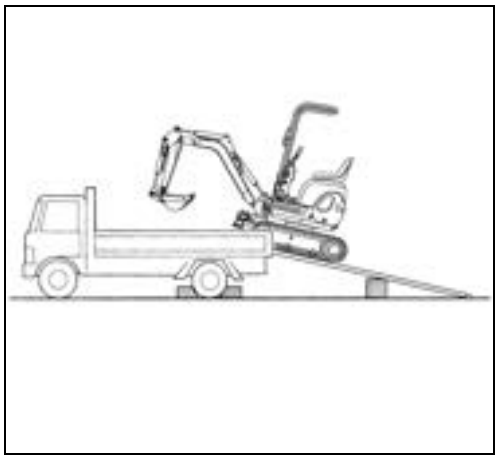


As soon as the lifting gear is attached to the excavator, press cloths between lifting gear and excavator to protect the excavator.

Always keep the machine level. Be sure that the centre line of the crane hook is aligned as exactly as possible with the rotation centre line of the excavator and that the lifting angle is ≤ 60°. Lift the excavator.

Transport on a flat bed trailer

Adhere to the safety rules (page 10) and the safety rules for transport (page 28).



- Place the loading ramps on the transport vehicle at an angle of 10° to 15°. Observe the track width.
- Bring the excavator exactly into line with the ramps and drive up straight.

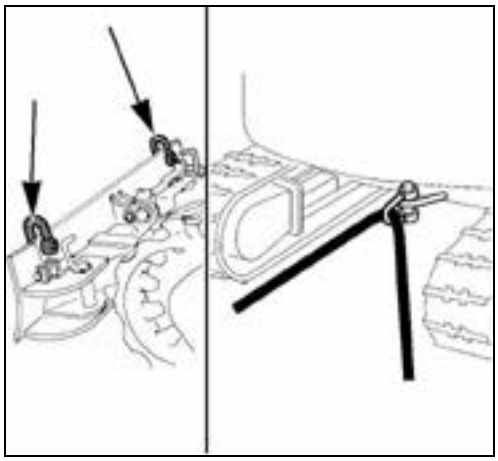
Do not turn or steer while driving up the ramps; if necessary, reverse the excavator and drive up again after realigning it.

Danger to life!
No person is allowed to stand in the loading area during movement. Risk of crushing.

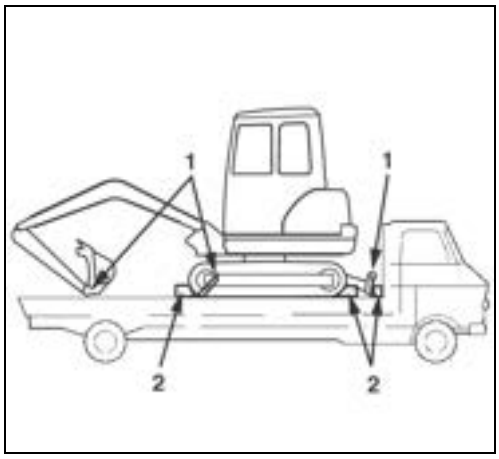
Take care during swivel operations, the front attachments could thrust against the transport vehicle. This could damage the transport vehicle and the excavator.

- Turn swivel frame by 180° until the front attachments face the rear of the transport vehicle.

For protecting the vehicle, use the points as shown in the figure.



- For safe attachment, swing out the arm and bucket and lower the boom to the ground until the bucket linkage touches the loading area.
- Secure the chains and the dozer blade with beams (2).
- Secure the excavator against sliding on the transport vehicle with chocks or chains at the specified positions (1) (note the vehicle weight).
- Swivel the roll-over safety bar downward (page 67).

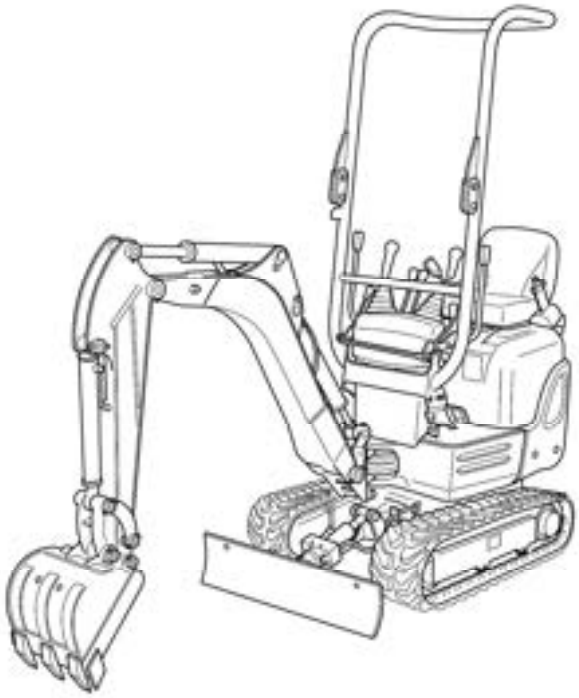


DESCRIPTION OF THE EXCAVATOR

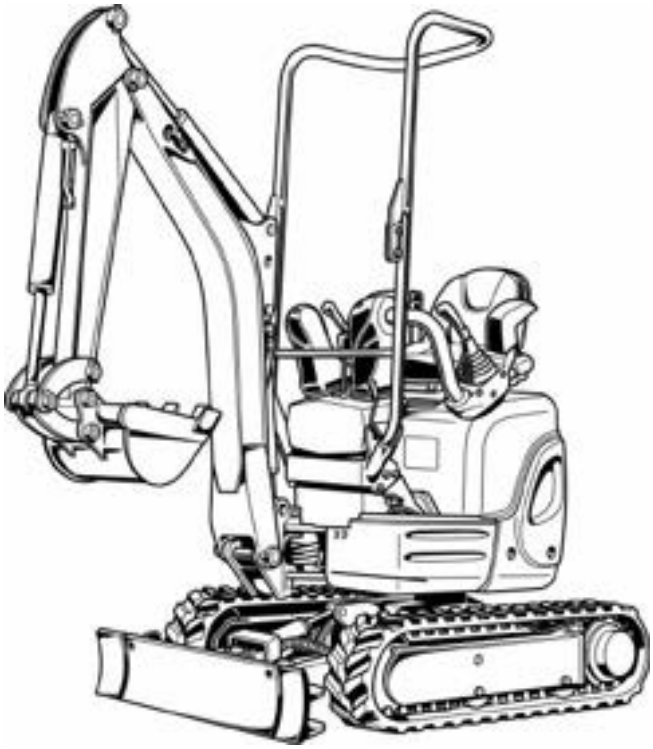
Model overview

The excavator is available in two different models K008-03 and U10-3. Only the model U10-3 is supplied with the equipment variant SIDE LEVER.

Model K008-3/U10-3



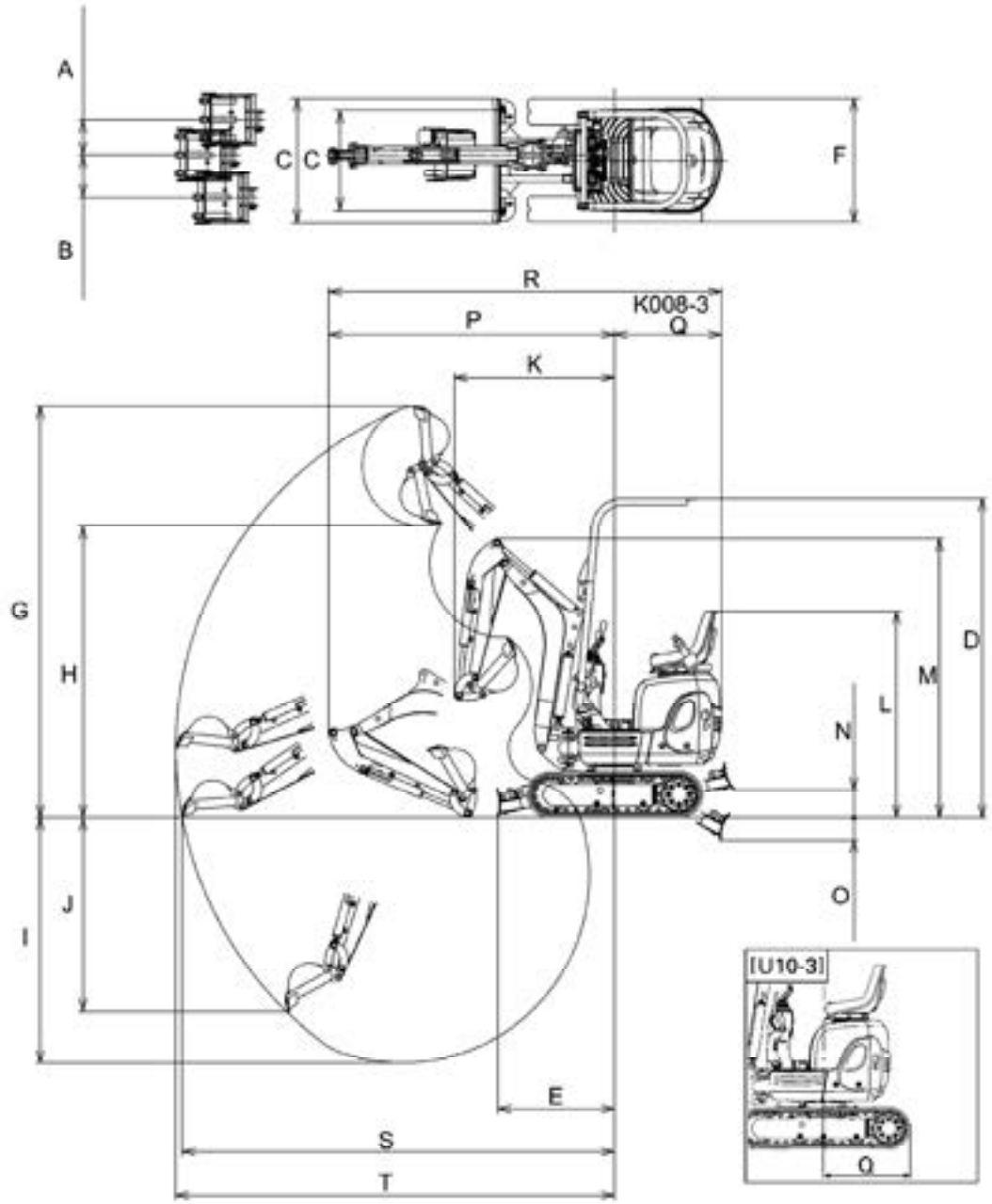
Variant U10-3 SIDE LEVER



Dimensions

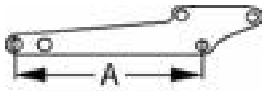
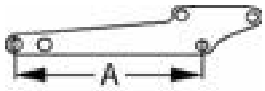
For the dimensions of the K008-3 and U10-3, refer to the following figures and the table.

Dimensions of the K008-3/U10-3



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
K008-3	245	300	700/ 860	2230	820	700/ 860	2870	2030	1720	1380	1120	1420	1940	200	180	2000	750	2750	3020	3070
U10-3	355	435	750/ 990	2230	900	750/ 990	3050	2210	1800	1550	1250	1420	2100	215	190	2310	670	2980	3330	3380

Arm version

Name		Type	
K008-3	Arm 890 mm		A = 890 mm
U10-3	Arm 890 mm		A = 890 mm

All dimensions in mm with original KUBOTA bucket and rubber crawlers.
Subject to technical changes.

Specifications

Following are the specifications for these series.

				KUBOTA Excavator	
Model name				K008-3	U10-3
Type				Rubber crawler	Rubber crawler
Machine weight*			kg	830	970
Operating weight**			kg	905	1045
Bucket	Volume		m³	0.022	0.024
	Width		mm	350	380
Engine	Type			Water-cooled three-cylinder diesel engine	
	Model name			D722-E4-BH-2EU	D722-E4-BH-3EU
	Displacement		cm³	719	719
	Engine performance ISO 9249		kW	7.5	7.5
	Rated speed		1/min	2050	2050
	CO_2 emission*** (Engine family HKBXL.778KCB)		g/kWh	1019.8	1019.8
Performance	Swivel speed (swivel frame)		1/min	8.3	8.3
	Vehicle speed		fast km/h	-	4.0
			slow km/h	2.0	2.0
	Ground pressure (without operator)		kPa (kgf/cm²)	22.5 (0.23)	24.5 (0.25)
	Climbing performance		% (degrees)	27 (15)	27 (15)
	max. lateral sway		% (degrees)	18 (10)	18 (10)
Dozer	width x height		mm	700x200 / 860x200	750x200 / 990x200
Swing angle of the boom	Left		rad (degrees)	0.96 (55)	0.96 (55)
	Right		rad (degrees)	1.05 (60)	0.96 (55)
Auxiliary port	max. volume (theoretical)		L/min	21	21
	max. pressure		MPa	16.7	17.7
			bar	167	177
Volume of the fuel reservoir			l	12	12
Pulling capacity at the towing eye			N	35300	35300
Vertical load at the towing eye			N	4100	4100
Noise level	LpA		dB (A)	77	77
	LwA (2000/14/EC)		dB (A)	90	90
Vibration****	Hand-arm system (ISO 5349-2:2001)	Digging	m/s² RMS	< 2.5	< 2.5
		Levelling	m/s² RMS	< 2.5	< 2.5
		Driving	m/s² RMS	< 2.5	2.9
		Idling	m/s² RMS	< 2.5	< 2.5
	Whole body (ISO 2631-1:1997)	Digging	m/s² RMS	< 0.5	< 0.5
		Levelling	m/s² RMS	< 0.5	< 0.5
		Driving	m/s² RMS	0.85	1.21
		Idling	m/s² RMS	< 0.5	< 0.5

* With original KUBOTA bucket 17.5 kg, ready for operation.

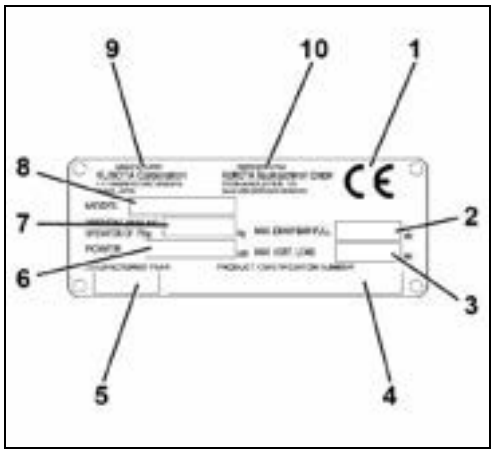
** Machine weight incl. operator 75 kg.

*** The CO_2 measurement is based on the check carried out for an engine representative of the engine family, using a designated check cycle under laboratory conditions. The specifications do not implicate or guarantee the performance of a given engine.

**** These values are measured under specific conditions at maximum engine speed and can deviate, depending on the operating situation.

Identification of the excavator

The type plate of the excavator is located at the front of the swivel frame. The owner should enter the stamped data in the field on the back of the front cover.



1. CE label
2. Max. pulling capacity at the towing eye
3. Max. vertical load at the towing eye
4. Product identification number
5. Year of construction
6. Engine performance
7. Operating weight
8. Model name
9. Manufacturer
10. Representative

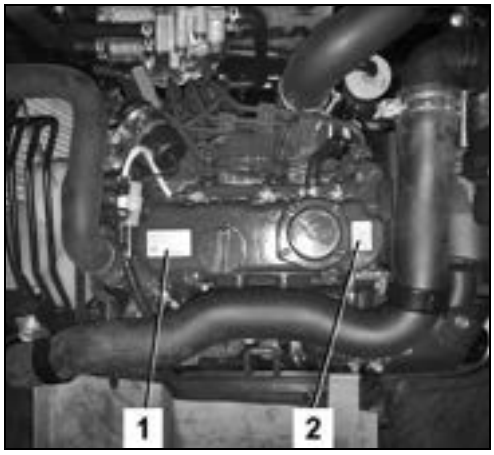
Standard equipment

The different models have the following standard equipment:

- Spare parts list
- Protective cover for the operating instructions
- Operating instructions
- Grease gun
- Filter wrench
- Two ignition keys
- Screw for setting the auxiliary port pedal
- Spare fuses (5, 10, 15 A)

Identification of the engine

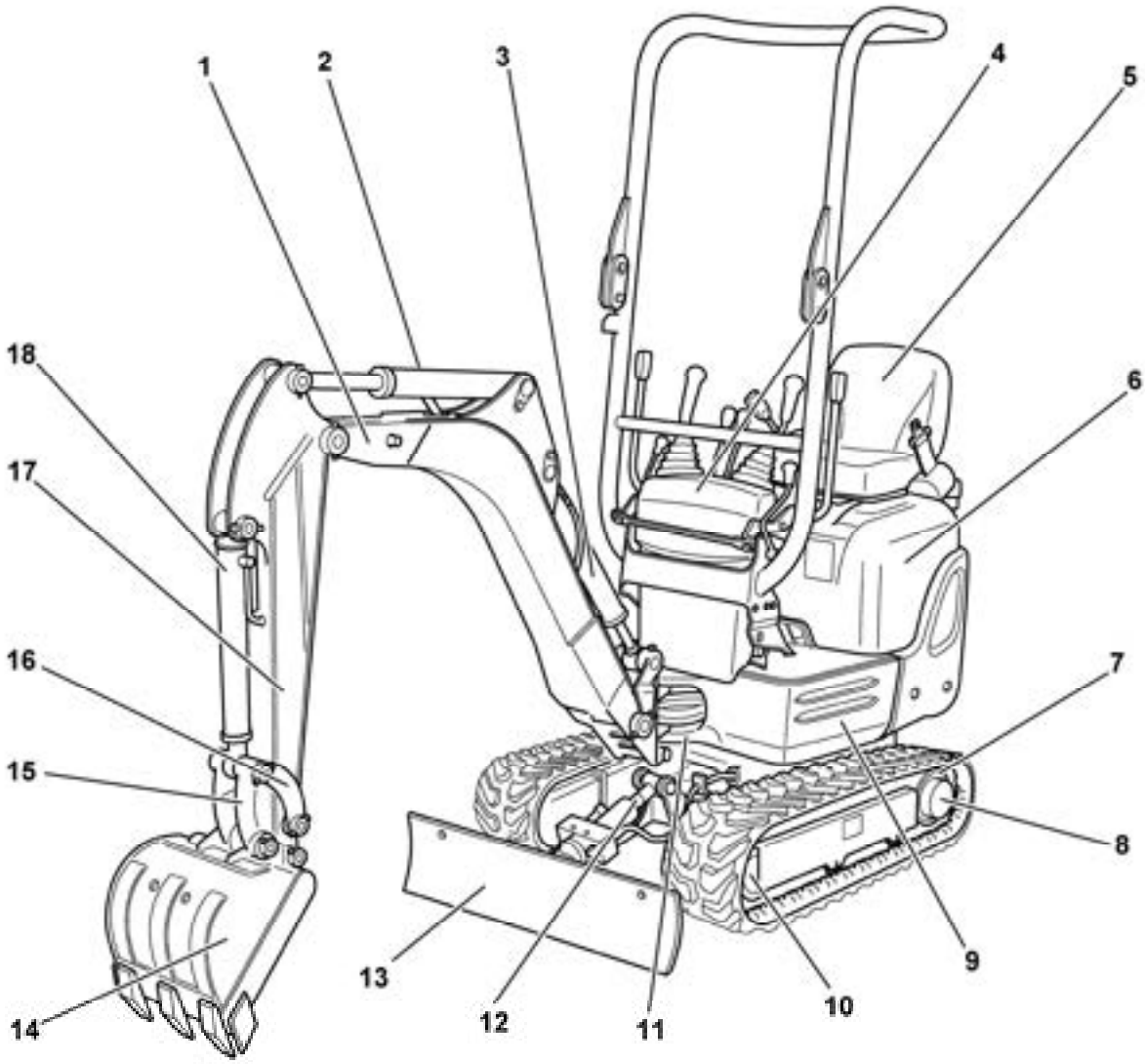
The engine can be identified based on the engine number and the numbers for the engine family and engine type. The numbers are affixed to the engine's valve cover:



1. Engine number
2. Engine family and engine type

ASSEMBLY AND FUNCTIONS

Component overview

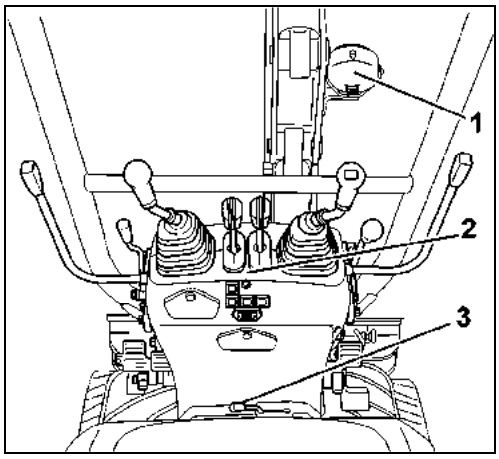


1. Boom
2. Arm cylinder
3. Boom cylinder
4. Control console
5. Operator's seat
6. Engine hood
7. Drive sprocket
8. Drive unit
9. Swivel frame
10. Idler
11. Swing block
12. Dozer cylinder
13. Dozer blade
14. Bucket
15. Bucket linkage 1
16. Bucket linkage 2 and 3
17. Arm
18. Bucket cylinder

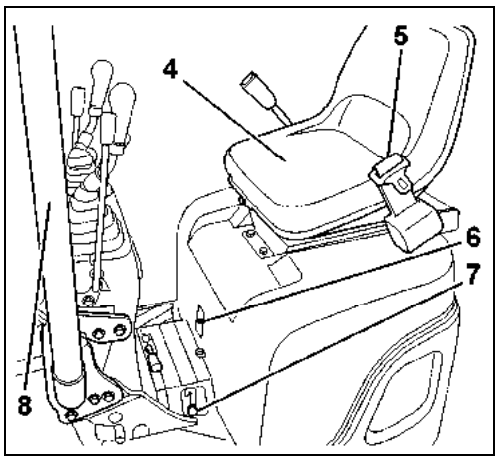
Operator's place

The operator's place is located in the middle of the excavator. It includes the following control elements:

1. Working light
2. Control console
3. Selector lever for the dozer/extendable track width



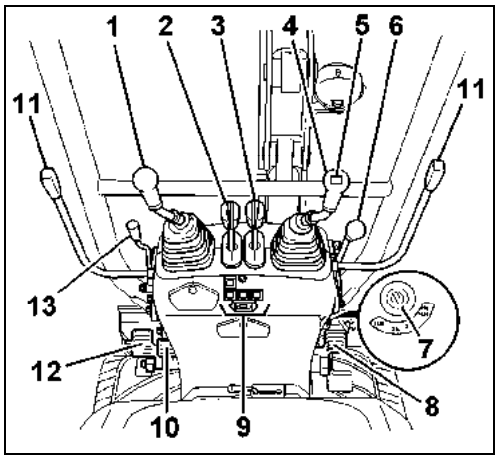
4. Operator's seat
5. Seat belt
6. Lever for the engine hood
7. Swivel frame lock
8. Roll-over safety bar



Control console K008-3/U10-3

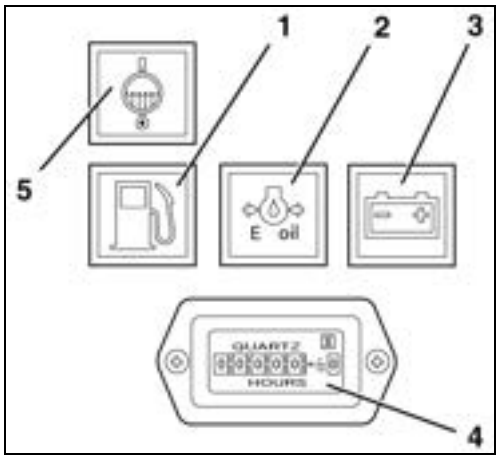
The control console (see figure) includes the following components:

1. Left control lever
2. Left drive lever
3. Right drive lever
4. Right control lever
5. Horn switch
6. Dozer control lever
7. Starter switch
8. Boom swing pedal
9. Displays and indicators
10. Fast drive position pedal (only for U10-3)
11. Control lever lock
12. Auxiliary port pedal
13. Throttle lever



The control console contains the following displays and indicators:

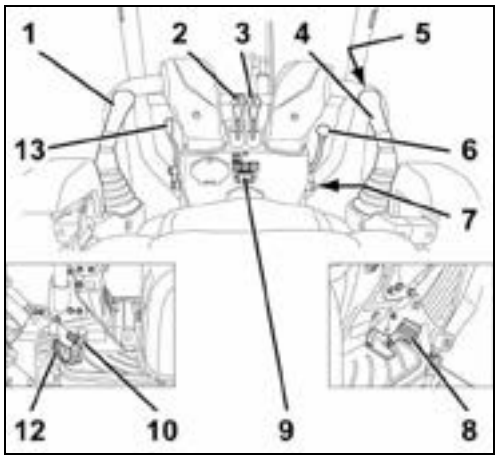
1. Fuel level indicator
2. Engine oil pressure indicator
3. Charge lamp
4. Time meter
5. Coolant temperature indicator



Control console U10-3 SIDE LEVER

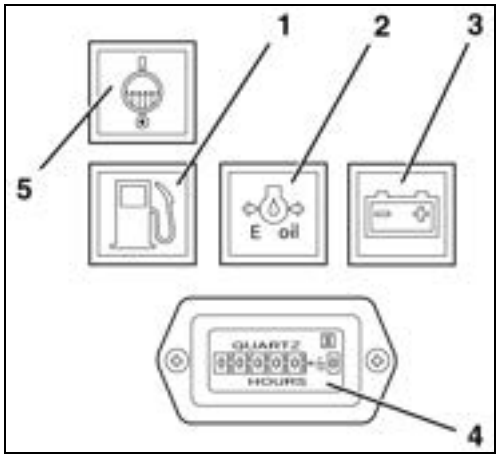
The control console (see figure) includes the following components:

1. Left control lever
2. Left drive lever
3. Right drive lever
4. Right control lever
5. Horn switch
6. Dozer control lever
7. Starter switch
8. Boom swing pedal
9. Displays and indicators
10. Fast drive position pedal
11. Control lever lock (not shown)
12. Auxiliary port pedal
13. Throttle lever



The control console contains the following displays and indicators:

1. Fuel level indicator
2. Engine oil pressure indicator
3. Charge lamp
4. Time meter
5. Coolant temperature indicator



Description of the components of the control console

1. Left control lever
The functions of the left control lever are described in the "Controls" section (page 43).

2./3. Left and right drive levers
The functions of the left and right drive lever are described in the "Controls" section (page 43).

4. Right control lever
The functions of the right control lever are described in the "Controls" section (page 43).

5. Horn switch
Depressing the horn switch activates the horn.

6. Dozer control lever
The functions of the dozer control lever are described in the "Controls" section (page 43).

7. Starter switch
The starter switch serves as the master switch for the entire machine and as switch for pre-glowing and starting the engine.

8. Boom swing pedal
This pedal is used to swing the boom right and left.

9. Displays and indicators
The functions of the displays and indicators are described in the "Displays and indicators" section (page 43).

10. Fast drive position pedal (only for U 10-3)
Pressing the pedal activates the fast drive position.

11. Control lever lock
The operation of the control lever lock is described in the "Controls" section (page 43).

12. Auxiliary port pedal
The auxiliary port pedal is used to operate an implement.

13. Throttle lever
The engine speed can be infinitely adjusted from idle to maximum engine speed using the throttle lever. To increase engine speed, pull back the throttle lever. To decrease engine speed, push forth the throttle lever.

Displays and indicators - description

1. **Fuel level indicator**
   The fuel level indicator lights up when there are only 2 L of fuel left in the fuel tank.

2. **Engine oil pressure indicator**
   The indicator lights up when the starter switch is switched to the RUN position. It also lights up when the engine oil pressure drops considerably and upon stopping the engine.

3. **Charge lamp**
   The indicator lights up when the starter switch is switched to the RUN position. The charge lamp goes off as soon as the engine has started.

4. **Time meter**
   The time meter indicates in intervals of 0.1 hours (i.e. 6 minutes) the hours of operation of the machine.

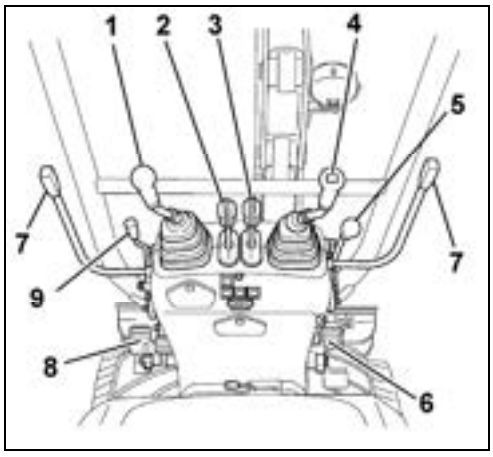
The time meter even continues when the engine has stopped but the starter switch is still in the RUN position.

5. **Coolant temperature indicator**
   The warning lamp lights up when the temperature of the coolant lies outside of the normal range.

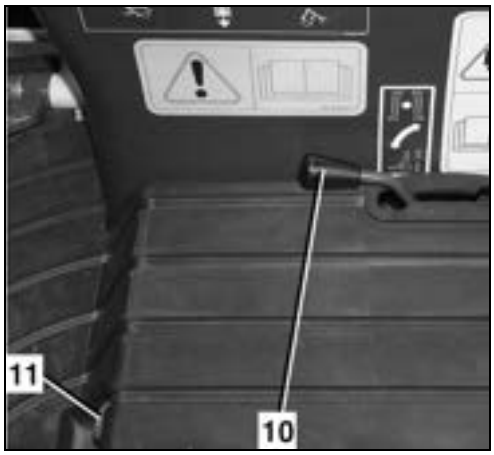
Controls K008-3/U10-3

The controls include the following components:

1. Left control lever
2. Left drive lever
3. Right drive lever
4. Right control lever
5. Dozer control lever
6. Boom swing pedal
7. Control lever lock
8. Auxiliary port pedal
9. Throttle lever

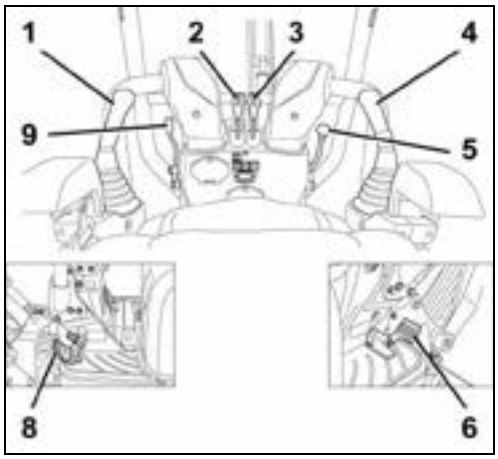


10. Selector lever for the dozer/extendable track width
11. Swivel frame lock

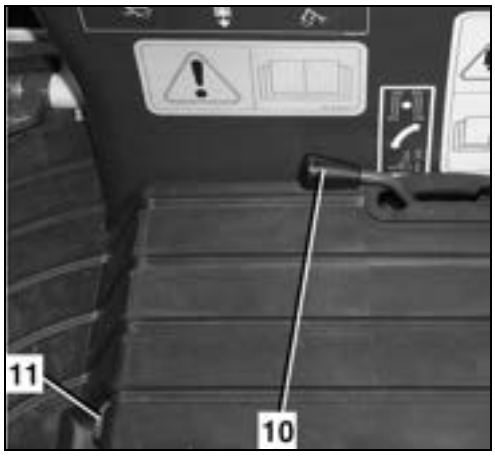


Controls U10-3 SIDE LEVER

The controls include the following components:



1. Left control lever
2. Left drive lever
3. Right drive lever
4. Right control lever
5. Dozer control lever
6. Boom swing pedal
7. Control lever lock (not shown)
8. Auxiliary port pedal
9. Throttle lever



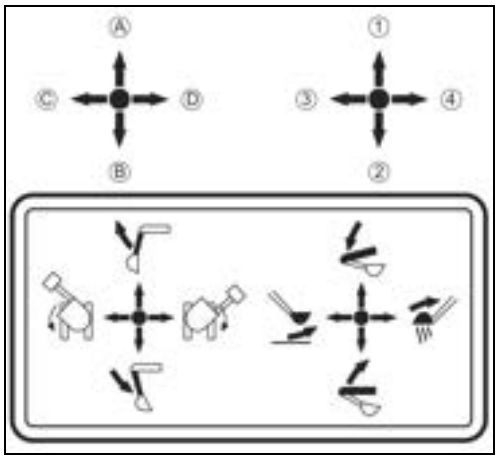
10. Selector lever for the dozer/extendable track width
11. Swivel frame lock

Description of the controls

1. Left control lever

The left control lever is used to swivel the swivel frame and move the arm. See the table below for details.

The figure shows, in connection with the following table, the functions of the left and right control levers.



Control levers		Movement
Right control lever	1 2 3 4	Lower boom Raise boom Bucket crowd Bucket dump
Left control lever	A B C D	Arm dump Arm crowd Swivel frame to the left Swivel frame to the right

2./3. Left and right drive levers

With the drive levers the excavator can be driven forwards and backwards and also turned. The left drive lever controls the left track and the right drive lever controls the right track.

4. **Right control lever**
   The right control lever is used to move the boom and the bucket. See the figure above illustrating the right control lever.

5. **Dozer control lever**
   The dozer control lever is used to raise or lower the dozer blade. Pushing the lever forward lowers the dozer blade and pulling it back raises it.

6. **Boom swing pedal**
   This pedal is used to swing the boom right and left.

7. **Control lever lock**
   The control lever lock prevents the operator from inadvertently activating the control levers.

8. **Auxiliary port pedal**
   The auxiliary port pedal is used to operate an implement.

9. **Throttle lever**
   The engine speed can be infinitely adjusted from idle to maximum engine speed using the throttle lever. To increase engine speed, pull back the throttle lever. To decrease engine speed, push forth the throttle lever.

10. **Selector lever for the dozer/extendable track width**
    With the selector lever in the extendable track width position, the dozer control lever can be used to adjust the track width. To reduce the track width, push the lever forward, to increase, pull the lever backward.

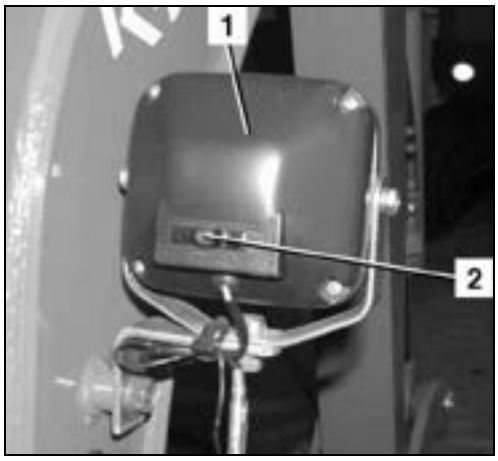
11. **Swivel frame lock**
    Using the swivel frame lock you can interlock the swivel frame and the track frame.

Other machine components

The following details the other machine components.

Working light

For illuminating the working area a working light (1) is installed to the right of the boom. This light can be switched on and off using the switch (2).

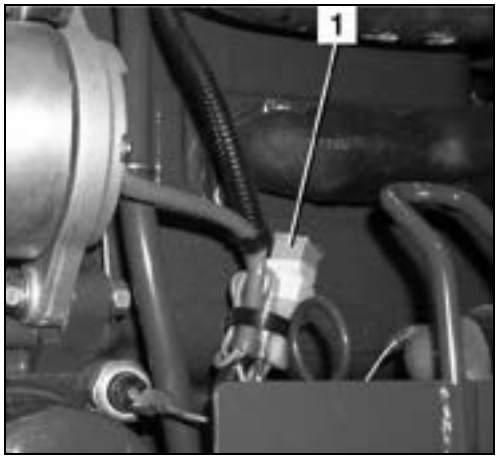


Fuse box

The fuse box (1) is positioned to next to the radiator under the engine hood.

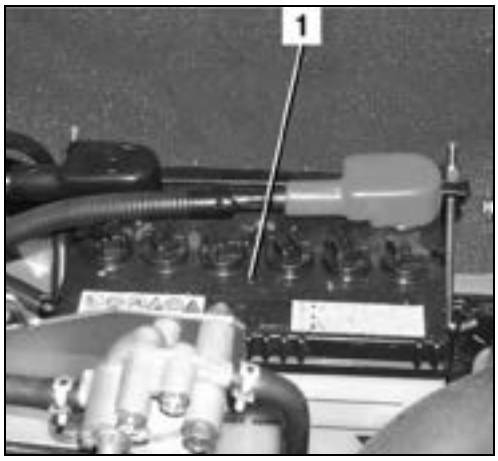
Main fuse

The main fuse (1) is positioned near the oil dipstick.



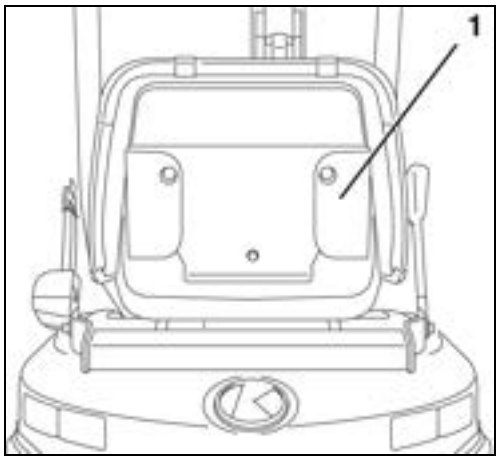
Battery

The battery (1) is positioned behind the engine under the engine hood.



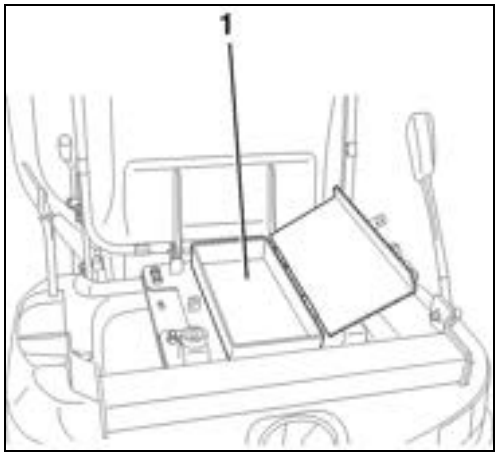
Tray

The tray (1) is positioned at the rear of the operator's seat.



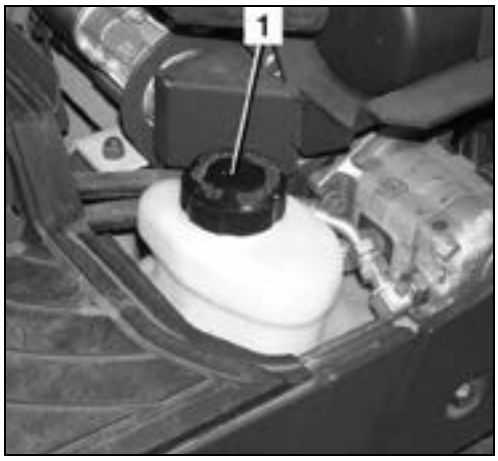
Tool compartment

The tool compartment (1) is located below the operator's seat.



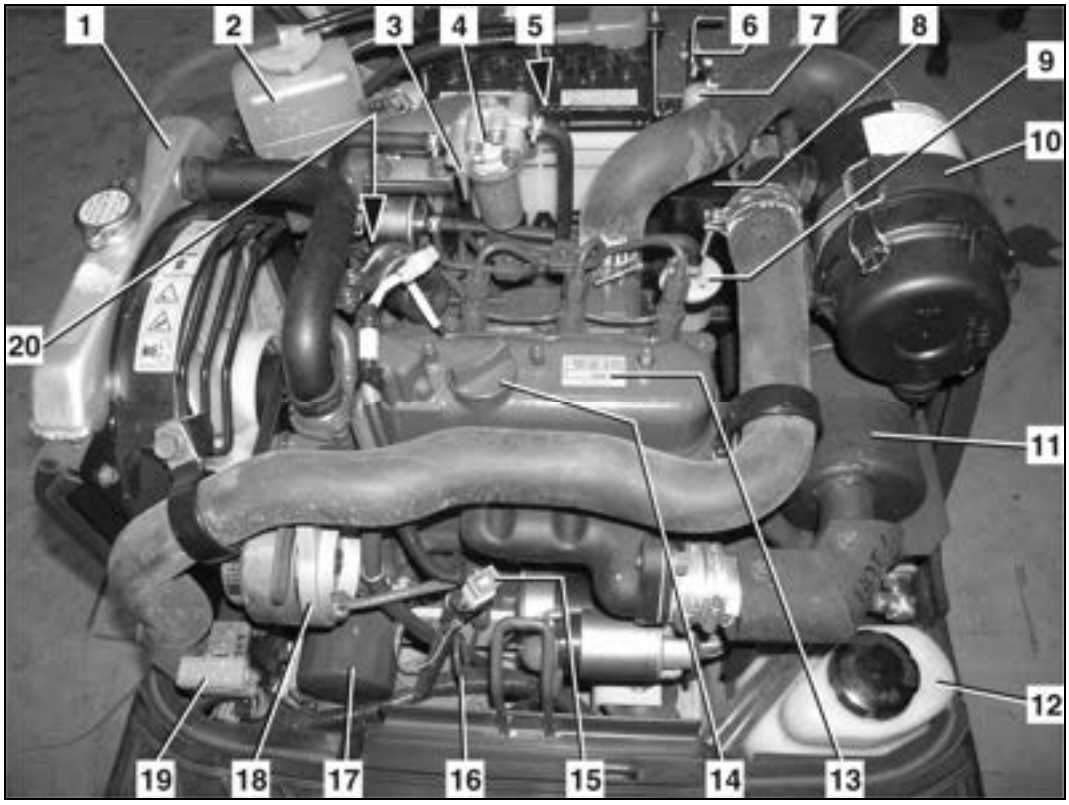
Fuel tank filler opening

The fuel tank filler opening (1) is positioned to the left in front of the engine under the engine hood.



Engine compartment

The engine compartment (see figure below) is located at the rear of the swivel frame below the operator's seat. It is covered by a lockable engine hood.

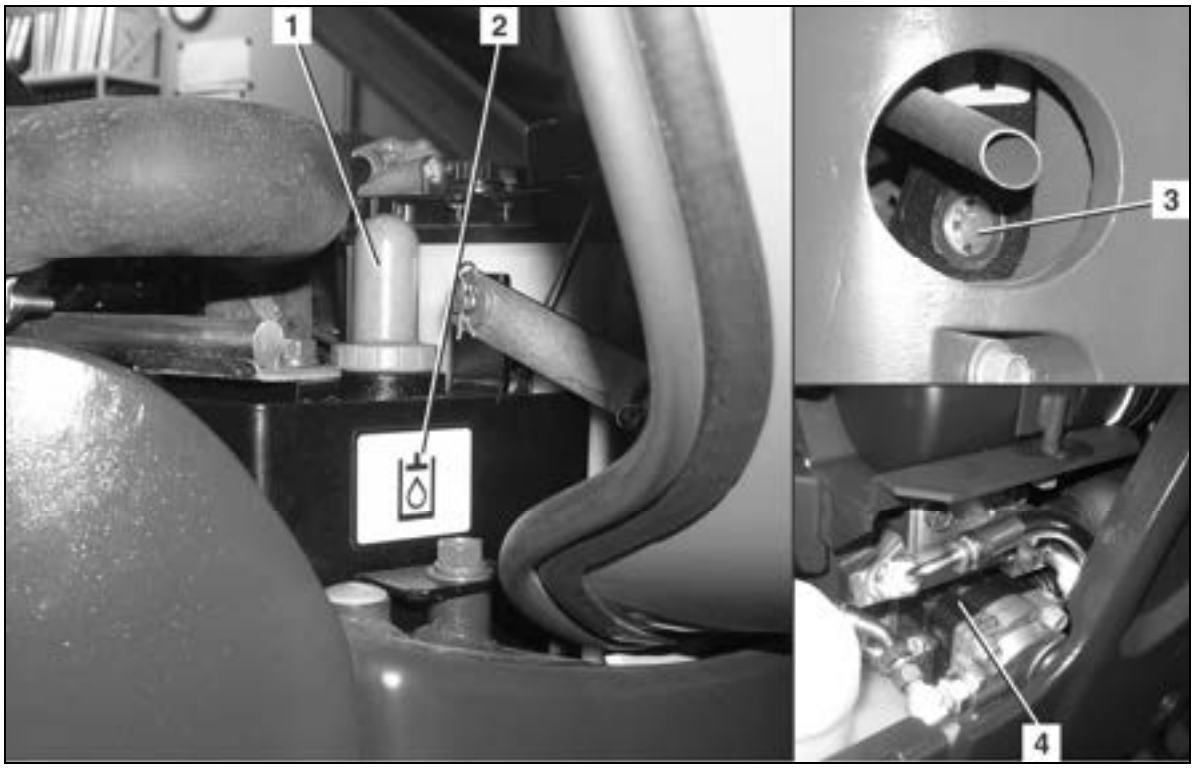


1. Radiator
2. Coolant expansion reservoir
3. Cock
4. Fuel filter with water separator
5. Battery
6. Engine hood lock
7. Hydraulic oil tank cap
8. Hydraulic oil tank
9. Preliminary fuel filter
10. Air filter
11. Exhaust silencer
12. Fuel reservoir
13. Engine
14. Oil filler cap
15. Main fuse
16. Oil dipstick
17. Oil filter
18. Alternator
19. Fuse box
20. Engine stop knob

Hydraulic system for the K008-3

The drive levers and control levers, the boom swing pedal and the auxiliary port pedal activate the valve for the corresponding cylinders, drive unit or the implement itself.

The hydraulic oil tank contains the suction filter and the return filter.



1. Cap
2. Hydraulic oil tank
3. Sight glass for hydraulic oil level
4. Hydraulic oil pump

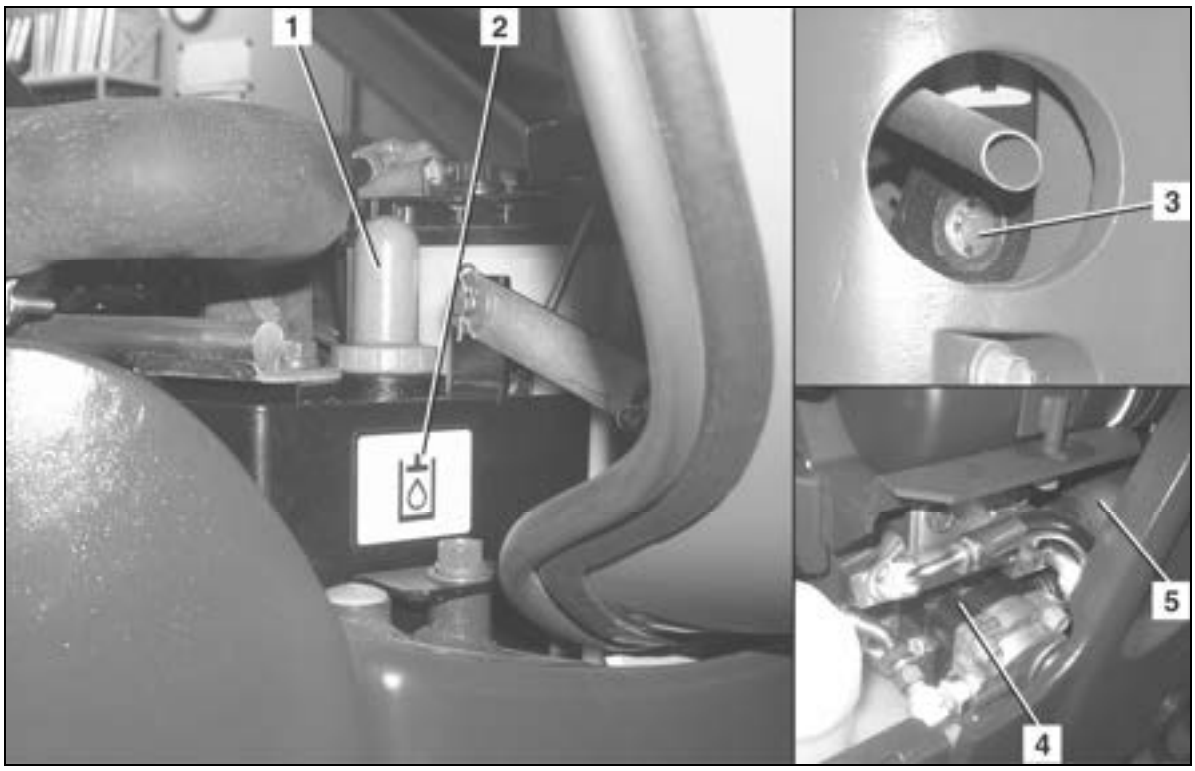
Hydraulic system for the U10-3

The left and right control levers activate the hydraulic oil pilot control circuits that will address the corresponding valve for the cylinder or swivelling motor.

The accumulator allows the boom and the arm to be lowered in case of an engine failure.

The drive levers, the boom swing pedal and the auxiliary port pedal activate the valve for the corresponding cylinders, drive unit or the implement itself.

The hydraulic oil tank contains the suction filters and the return filter.



1. Cap
2. Hydraulic oil tank
3. Sight glass for hydraulic oil level
4. Hydraulic oil pump
5. Accumulator

OPERATION

Safety rules for operation

- The safety instructions (page 10) must be followed.
- The excavator may only be operated according to its approved use (page 13).
- The machine may only be operated by instructed or trained personnel (page 8).
- Do not operate the excavator when under the influence of drugs, medication or alcohol. Stop operation when getting tired. The operator must be physically capable of operating the excavator safely.
- The excavator should only be operated if all safety and protective devices are fully operational.
- Before starting or working with the excavator, make sure that there is no danger for any person nearby.
- Before starting the excavator, it must be checked for external damage and operability, and the pre-start checks must be carried out. If defects are detected, the excavator should only be taken into operation after the defects have been repaired.
- Wear tightly fitting working clothes in accordance with the trade association regulations.
- During the operation of the excavator, nobody except the operator is allowed to mount the excavator or to be inside the excavator.
- For getting on and off, the swivel frame should be put in an angle which allows the operator to use the crawler as a step.
- Always stop the engine when leaving the excavator. In exceptional cases, e.g. for troubleshooting, the excavator can also be left with the engine running. The operator must make sure that the control levers are locked during such an operation. The controls may only be used while the operator is sitting on the operator's seat.
- During operation the operator must remain seated on the operator's seat with tightly fastened seat belt. Arms, legs or head must not protrude beyond the swivel frame at any time.
- If the operator leaves the excavator (e.g. for breaks or at the end of work), the engine must be stopped and the excavator must be secured against restarting by removing the key. The control levers are to be locked. Before leaving the excavator, park the machine so that it can not move.
- Whenever work is interrupted, the bucket must always be lowered to the ground.
- Do not allow the engine to run indoors, unless the room is equipped with an exhaust gas extraction system or otherwise well ventilated. The exhaust gas contains carbon monoxide, a colourless, odourless, and lethal gas.
- Never crawl under the excavator before the engine is stopped, the key is removed and the excavator is secured against moving.
- Never crawl under the excavator if it is only raised with the bucket or the dozer. Always use suitable supports.

Safety for children

Children are normally attracted to machines and their normal operation. If children are in the vicinity of the machine and are not at a suitable distance and in the field of vision of the operator, this can lead to serious accidents or even death of the children.

Always observe the following rules of conduct:

- Never assume that children will remain where you last saw them.
- Keep children far away from the working area and always under the supervision of other responsible adults.
- Be vigilant and switch the machine off when children enter the working area.
- Never let children drive with you on your machine, there is no safe place for passengers. Children could fall off the machine and be run over or affect the control of the machine.
- Children must never operate the machine, even under supervision of an adult.
- Never let children play on the machine or attachments.
- Be particularly careful when manoeuvring. Look behind and down below on the machine and ensure that there are no children in the manoeuvring area.
- Before leaving the machine, park it so that it cannot move. When leaving the machine (e.g. for breaks or at the end of work), stop the engine, remove the key and close the cab door, if present.

Guiding the operator

- If the operator's working and driving area is obscured, the operator must be supported by a guide.
- The guide must be capable of performing this kind of work.
- Before starting work, the guide and the operator must agree the necessary signals.
- The guide's position must be clearly visible by the operator.
- The operator must stop the excavator immediately if the eye contact to the guide is interrupted.
  → As a rule, either the excavator or the guide may move, never both at once!

Working in the vicinity of overhead power lines

When working with the excavator in the vicinity of overhead power lines and tram lines, a minimum distance as specified in the following table must be maintained between the excavator and its attachments and the power line.

Rated voltage [V]		Safe distance [m]
	up to 1 kV	1.0 m
over 1 kV	up to 110 kV	3.0 m
over 110 kV	up to 220 kV	4.0 m
over 220 kV	up to 380 kV or when rated voltage is unknown	5.0 m

If safe distances can not be maintained, the power lines must be switched off in coordination with their owner or provider and secured against making them live again.

When approaching overhead power lines, any possible movements of the excavator must be taken into consideration.

Unevenness of the ground or sloping the excavator can reduce the safe distance.

Wind can cause the overhead power lines to sway, thus reducing the safe distance.

In case of a power cross-over, leave the danger zone with the excavator, if possible, by taking suitable measures. If this is not possible, do not leave the operator's place, warn any approaching persons of the danger, and have the power switched off.

Working in the vicinity of underground power lines

Before starting with excavation work, the owner of the excavator or the person responsible for the work must check if there are any underground power lines in the proposed working area.

If there are underground power lines present, the position and routing of the power lines must be determined together with the owners or operators and the required safety measures must be determined.

If power lines are encountered or accidentally damaged, the operator must stop working immediately and inform the responsible person.

Initial operation

Before initial operation, the excavator must first be checked visually for external transit damages and checked if the shipped equipment is complete as ordered.

- Check fluid levels as described in the "Maintenance" section (page 93).
- For a description of all operation features, see the "Operating the excavator" section (page 55) as well as the following sections.

If defects are detected, please inform your dealer immediately.

Running-in of the excavator

During the first 50 hours of operation, the following points should be adhered to in all cases:

- Do not operate the excavator with full speed and full load.
- When working in cold weather, allow some extra time for the engine to warm up.
- Make sure the engine always runs at a low speed.

Operating the excavator

For a safe excavator operation, see the following sections.

Pre-operational services

For the performance of the services, the excavator must be parked on level ground and the key must be removed. Also, the control levers and the swivel frame have to be locked (page 24, 25).

- Open the engine compartment cover (page 89). Always close the engine compartment cover after the work is done.

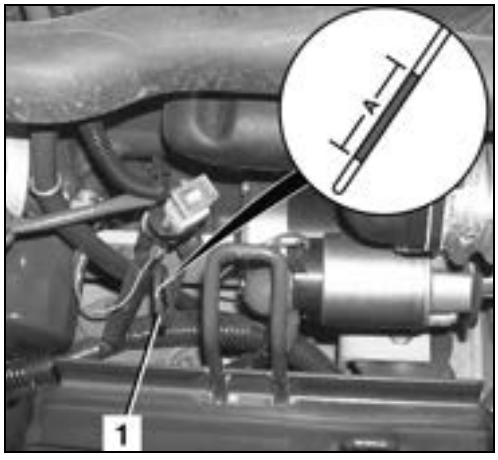
Walk-around inspection

- Check the excavator for visible damage, loose screws and leaks.
- Check the danger, warning and safety labels on the machine. They must be complete and legible (page 15).

Check the engine oil level

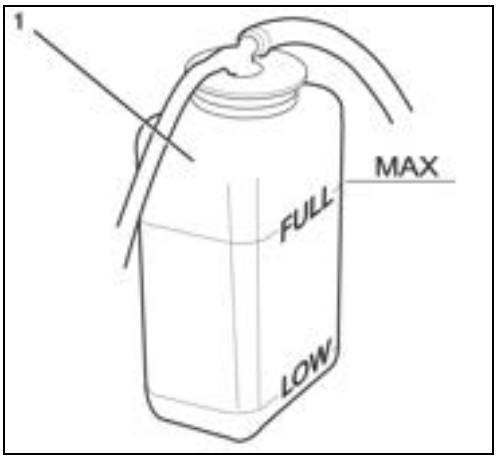
- Pull out the oil dipstick (1) and wipe it with a clean cloth.
- Insert the oil dipstick completely and pull it out again. The oil level should be in the "A" area. If the oil level is too low, add engine oil (page 102).

When the oil level is too high or too low, the engine might get damaged during operation.



Checking the coolant level

- Check the coolant level in the expansion reservoir (1). The fluid level must be between FULL and LOW.



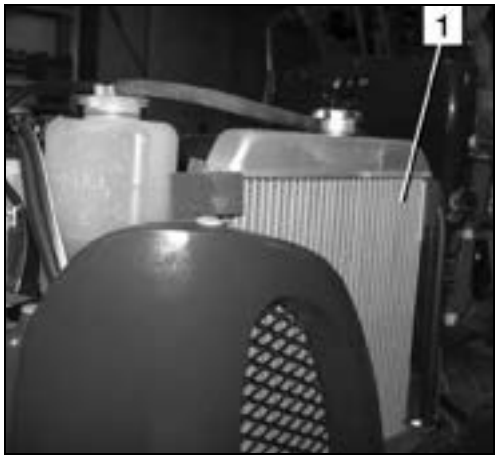
Do not open the radiator cap.

If the coolant level is below the LOW mark, refill (page 99).

If the coolant level is below the LOW mark a short time after adding coolant, the cooling system is leaky. The excavator must only be started again after the fault is repaired.

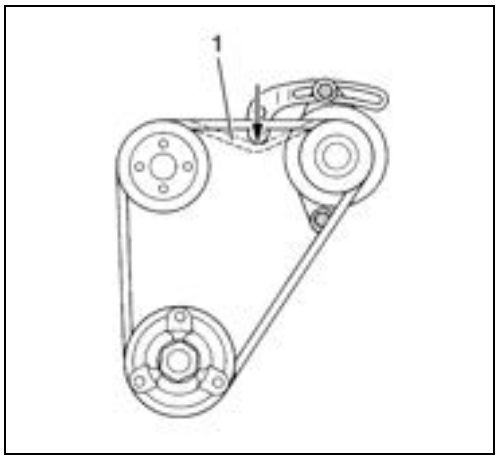
Checking the radiator

- Check the radiator (1) for leaks and debris (e.g. leaves).
- If there are leaves or other debris at the radiator, clean the radiator (page 100).



Checking the V-belt

- Check the V-belt (1) for cracks and proper tension. It should be possible to depress the V-belt for about 10 mm. Tighten the V-belt (page 100).



Checking the exhaust system for leaks

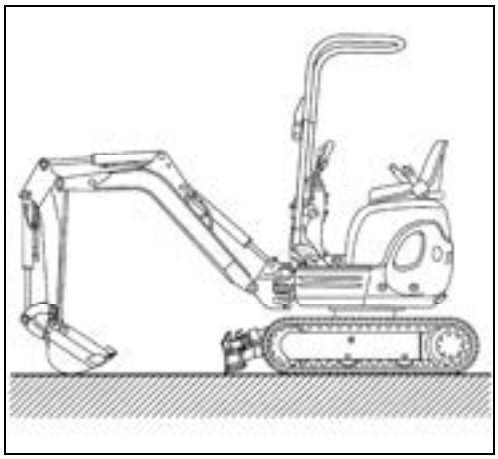
- Check the exhaust system for leaks and security (formation of cracks).

If the inspection is carried out when the engine is warm, there is a risk of burns at the exhaust system.

- If the exhaust system is leaky or loose, the excavator may only be taken into operation after the defects are eliminated.

Checking the oil level of the hydraulic system

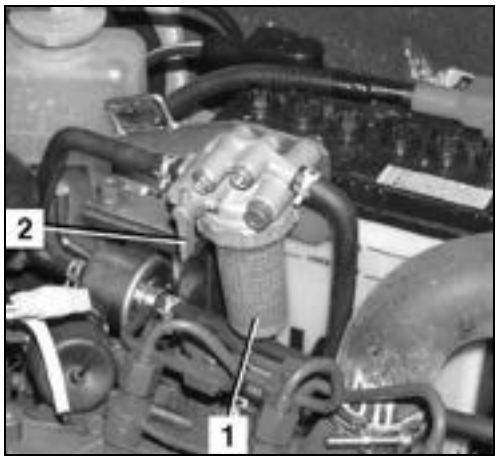
To exactly assess the oil level, all hydraulic cylinders have to be extended half way (see figure), the boom has to be in line with the excavator, the dozer has to be lowered to the ground and the extendable track width has to be set to standard track width.



- Check the oil level in the sight glass (1). The oil level should be half way up the sight glass. Carefully check the position of the hydraulic cylinders again before topping up. For more information, see the "Topping up hydraulic oil" section (page 106).

Checking the water separator of the fuel system

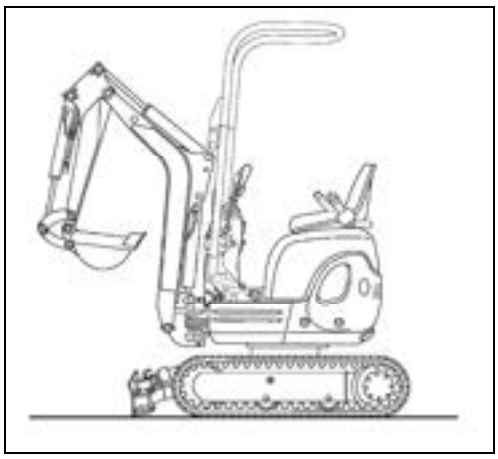
- Check the water separator (1) for water content and contamination, clean if necessary (page 105).



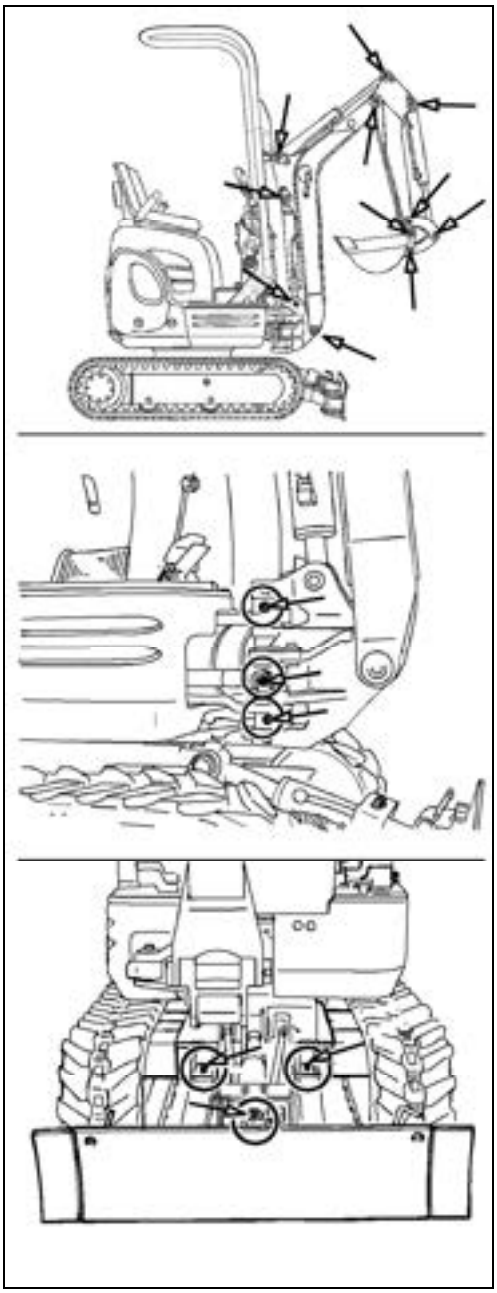
The cock (2) should be vertical in the "O" position.

Lubrication

- Start the engine (page 61).
- Position the boom, arm, bucket and dozer as shown in the figure. Lock the control lever, stop the engine and remove the ignition key. See the "Operating the controls during excavation work" section (page 72).
- Lubricate all grease points (see figure below) with grease - see the "Recommended lubricants" section (page 117) - until fresh grease emerges.

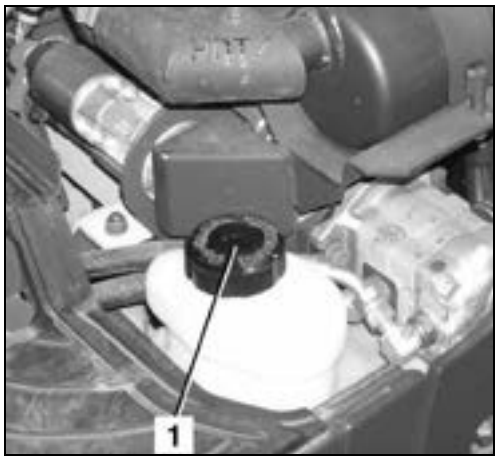


Wipe emerged grease off immediately and store dirty cleaning cloths in the containers provided for disposal.



Checking the fuel level of the fuel tank

- Open the engine hood (page 89).
- Open the filler cap (1).
- Check the fuel level.
- If the fuel level is too low, refuel the excavator (page 87).
- Close the filler cap.



Setting up the workplace

When getting on and off the excavator, always make sure the control levers and the swivel frame are locked (page 24, 25).

Getting on the excavator

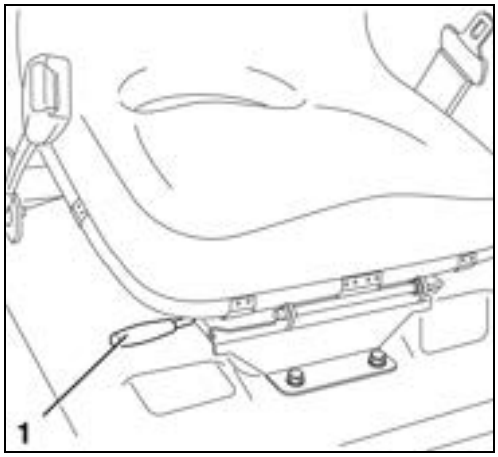
- Get on the excavator by using the crawler as a step.
- Check that the engine compartment cover is locked.
- Sit down on the operator's seat.

Adjusting the operator's seat

Adjust the operator's seat so that fatigue-free and comfortable working is possible. It should be possible to operate all controls safely.

Horizontal seat adjustment (seat stand-off)

Pull the horizontal seat adjustment lever (1) up and slide the seat to the desired position by moving it forward or back, then release the lever.

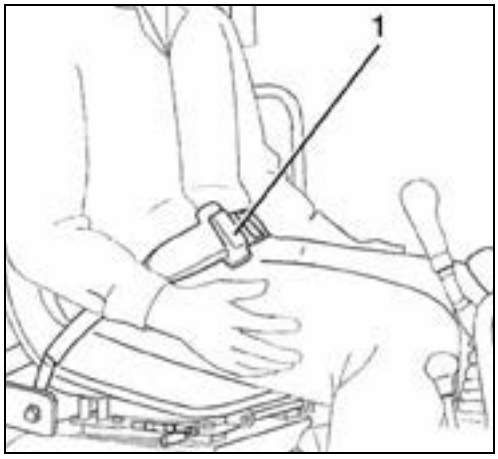


STOP *Check that the seat is locked into place.*

Fastening the seat belt

If the engine compartment cover is not locked, the operator's seat can tilt backwards. Before buckling up the seat belt, check that the engine compartment cover is locked.

- Fasten the seat belt (1).
- Be sure that the seat belt is tightly fastened.



Do not operate the excavator without the seat belt fastened.

Starting and stopping the engine

Make sure that there are no persons within the excavator's working area. It is essential to warn persons in the vicinity of the excavator by briefly honking the horn.

Make sure that all operational controls are in neutral position. Also make sure the control levers are locked.

Starting and stopping the excavator is only allowed when the operator is sitting on the operator's seat.

Starting the engine

When starting the excavator for the first time on a work day, carry out the pre-operational services (page 55).

Before starting the engine, make the necessary operator station adjustments (page 60).

If the engine does not start immediately, cease the starting procedure. Wait a short time before reattempting a start. If the engine does not start after several attempts, contact skilled personnel. If the battery is discharged, jump-start the excavator (page 85).

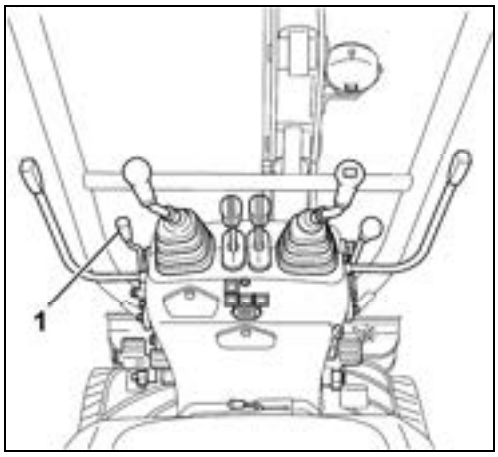
Do not use Start Pilot or similar substances as a starting aid.

Under cold engine conditions:

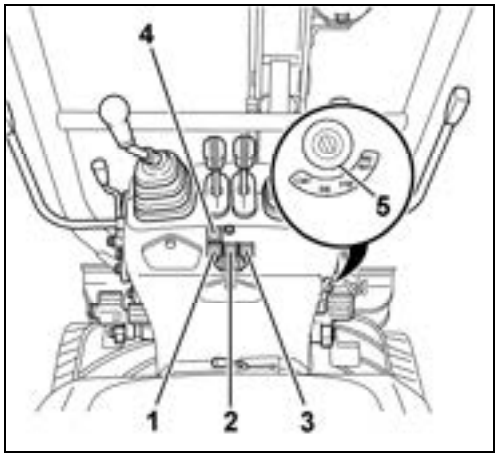
- Set the throttle lever (1) between medium and maximum engine speed.

At engine operating temperature:

- Set the throttle lever (1) to idle speed.



- Insert the key into the starter switch (5) and turn it to the RUN position.



When switching the starter switch to the RUN position, the fuel level indicator (1) and the coolant temperature indicator (4) are tested for functionality. Both indicators will light up for three seconds.

If the fuel level indicator (1) lights up, there are only 2.0 L of fuel left. Refuel the excavator (page 87).

The engine oil pressure indicator (2) lights up and goes off after the engine has started.

The charge lamp (3) lights up and goes off after the engine has started.

The coolant temperature indicator (4) lights up and goes off after the engine has started.

Under cold engine conditions:

- Turn the starter switch to the PREHEAT position for 5 to 15 seconds, depending on the outside temperature.

- Turn the starter switch to the START position and release it as soon as the engine has started.

The switch will return automatically to the RUN position.

Some smoke is normal after starting the engine, even if it lasts a few seconds.

- Set the throttle lever to idle speed and warm up the engine for approx. 5 minutes.

Operate the engine at low speed until operating temperature is reached.

At engine operating temperature:

- Turn the starter switch to PREHEAT for approx. 5 seconds.
- Turn the starter switch to the START position and release it as soon as the engine has started.

The switch will return automatically to the RUN position.

Set the engine speed required for operation:

- Set the throttle lever to the desired speed.

Check the displays and indicators during operation (page 63).

Stopping the engine

If the engine is to be stopped to take the excavator out of operation, the services for placing the excavator out of operation (page 83) must be carried out.

- Set the throttle lever to idle speed.
- Turn the starter switch to the STOP position and remove the key.

Observation of the displays after starting and during operation

The operator must observe the indicators and displays after starting and during operation.

If the engine oil pressure indicator lights up during operation, immediately stop the engine and contact skilled personnel.

If the charge lamp lights up during operation, immediately stop the engine and contact skilled personnel.

If the fuel level indicator lights up, there are only 2 L of fuel left. Refuel the excavator (page 87).

If the coolant temperature indicator lights up during operation, park the machine at a safe location and allow the engine to idle. Turn off the engine after it has idled for about 5 min. and check the level of the coolant (page 56).

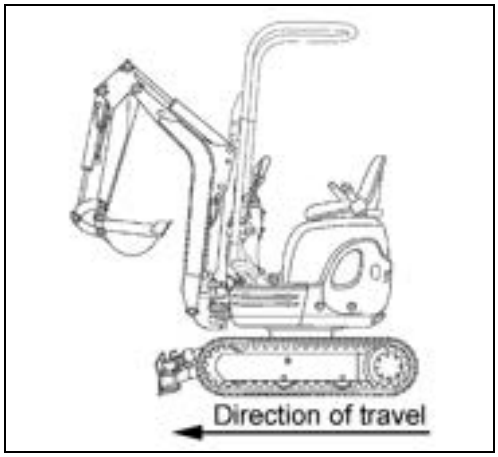
Also stop the engine immediately if

- the engine speed rises or drops suddenly,
- abnormal noises are heard,
- the excavating devices do not respond to the control lever as expected or
- the exhaust fumes are black or white. When the engine is still cold, white smoke for a short time is normal.

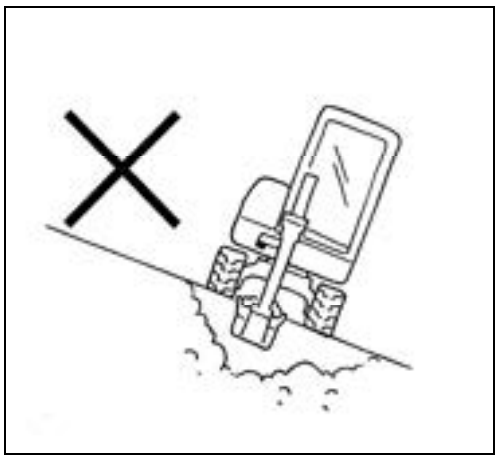
Driving the excavator

- Adhere to the general safety rules (page 10) and the safety rules for operation (page 52).
- Carry out pre-operational services (page 55).
- Start the engine (page 61).
- Check the displays and indicators (page 63).

Ensure that the boom and the dozer blade are in the direction of travel as shown in the figure.



When driving with the excavator, always observe the following safety instructions.



- Lock the swivel frame (page 25).
- Release control lever (page 24).

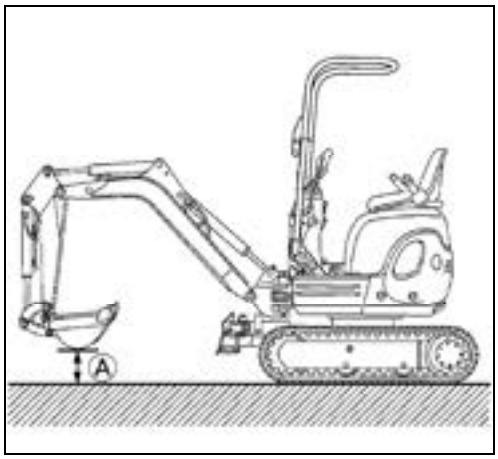
When working on slopes, observe the tilt of the excavator (see figure).

Max. lateral sway → 18 % resp. 10°

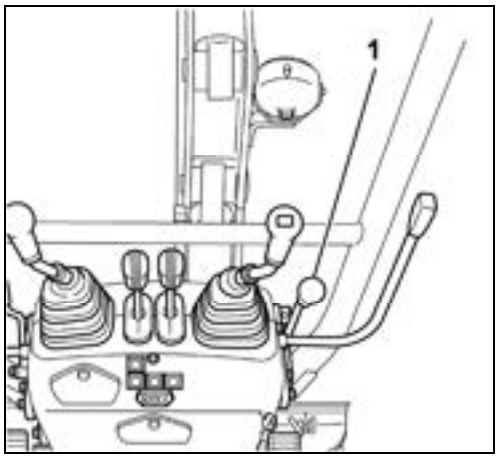
Climbing performance → 27 % resp. 15°

- Keep the bucket as low as possible when driving.
- Check the ground for stability, and verify if there are holes or other potential obstacles.

- Approach overhangs and edges of ditches carefully as they could cave in.
- Drive slowly downhill, do not allow the vehicle speed to increase uncontrollably.
- When driving, the bucket should be approx. 200 to 400 mm (A) above the ground (see figure).



- Raise the dozer blade to the top position by pulling the dozer control lever (1) back.
- Select an appropriate engine speed.

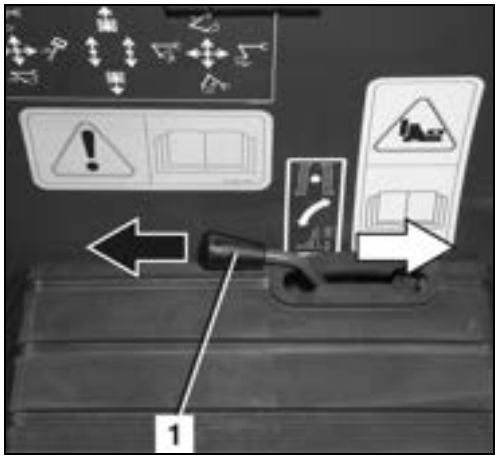


Adjusting the track width of the K008-3

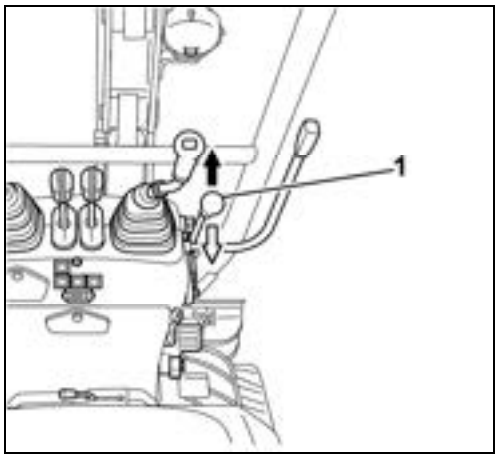
For models with extendable track width, adjust the desired track width prior to operation. To do this:

- Move the selector lever for the dozer/extendable track width (1) fully to the right (figure position ⇨).

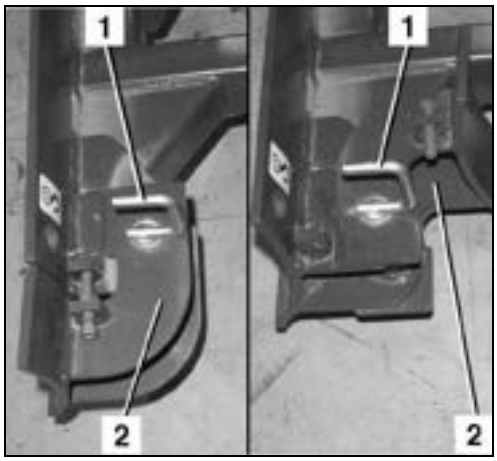
To change the track width, both track width cylinders need to be either fully extended (standard track width) or retracted (narrow track width).



- Using the dozer control lever (1), adjust the desired track width.
- To decrease the track width from 860 to 700 mm, move the dozer control lever forward (figure position ↑).
- To increase the track width from 700 to 860 mm, move the dozer control lever backward (figure position ↓).
- After adjusting the track width, immediately move the selector lever for the dozer/extendable track width fully to the left (figure above, position ←).



Do not operate the excavator with the narrow track width (700 mm), risk of flipping. Always use the standard track width (860 mm) unless you pass through narrow places on a flat surface.



Changing the standard dozer blade width to narrow:

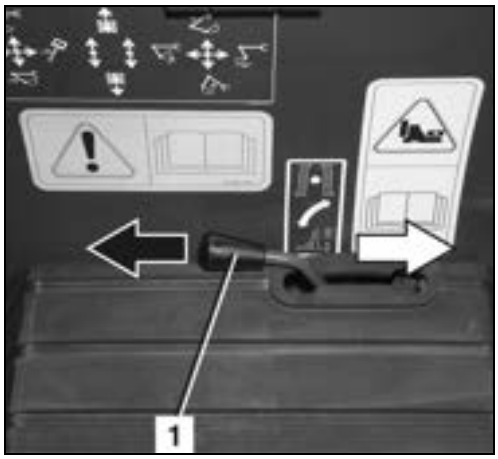
- Pull out the lock pin (1) and remove the dozer extension (2).
- Attach the dozer extension as shown in the figure, fit in the lock pin.
- Use the same procedure for the other side (left or right) as well as for the adjustment of the track width from narrow to standard.

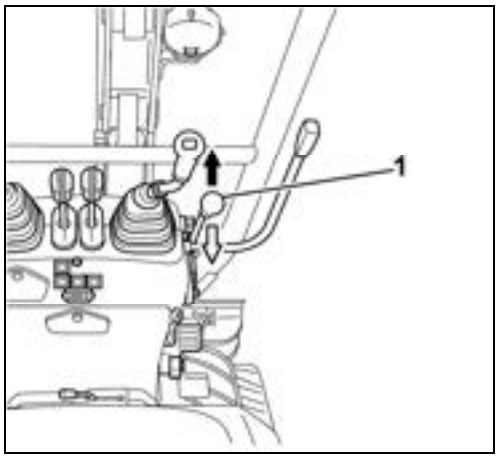
Adjusting the track width of the U10-3

For models with extendable track width, adjust the desired track width prior to operation. To do this:

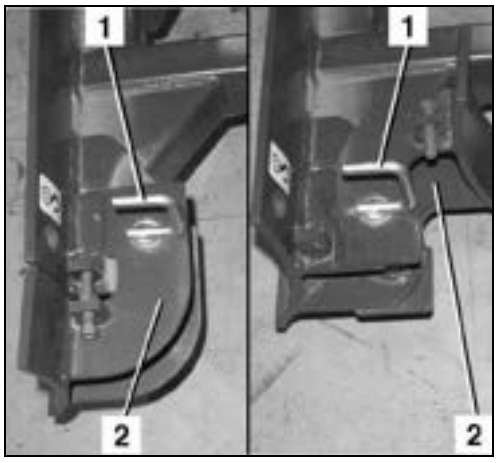
- Move the selector lever for the dozer/extendable track width (1) fully to the right (figure position →).

To change the track width, both track width cylinders need to be either fully extended (standard track width) or retracted (narrow track width).





- Using the dozer control lever (1), adjust the desired track width.
- To decrease the track width from 990 to 750 mm, move the dozer control lever forward (figure position ↑).
- To increase the track width from 750 to 990 mm, move the dozer control lever backward (figure position ↓).
- After adjusting the track width, immediately move the selector lever for the dozer/track width fully to the left (figure above, position ←).



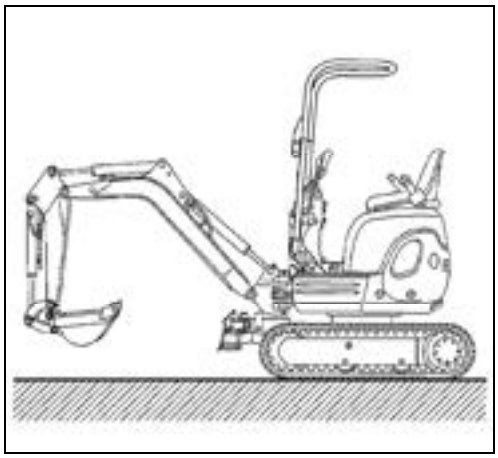
Do not operate the excavator with the narrow track width (750 mm), risk of flipping. Always use the standard track width (990 mm) unless you pass through narrow places on a flat surface.

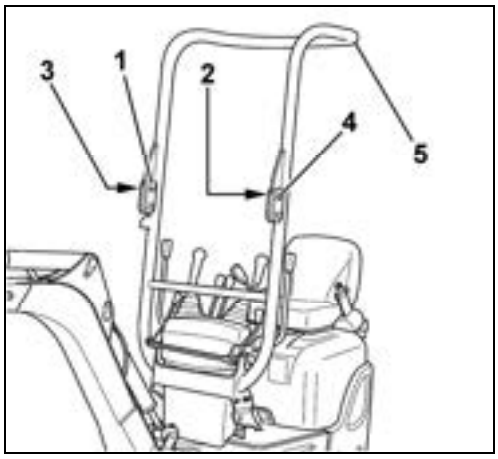
Changing the standard dozer blade width to narrow:

- Pull out the lock pin (1) and remove the dozer extension (2).
- Attach the dozer extension as shown in the figure, fit in the lock pin.
- Use the same procedure for the other side (left or right) as well as for the adjustment of the track width from narrow to standard.

Swivelling the roll-over safety bar upward and downward and locking it

- Position the front attachments as illustrated.
- Turn off the engine (page 63).





- Pull out the safety bolts (1 and 2).
- Pull out the locking bolts (3 and 4).
- Grasp the upper part (5) of the safety bar firmly with both hands at the highest point possible above the swivel joints.
- Slowly swivel the upper part of the safety bar downward.

STOP

Take care to assure that your hands are not crushed during the downward movement.

STOP

The excavator must not be operated when the safety bar has been swivelled downward. Always carry out work with the safety bar swivelled upward, unless you drive through a low passageway on a flat surface.

- Swivelling the roll-over saftey bar upward is effected in reverse order.

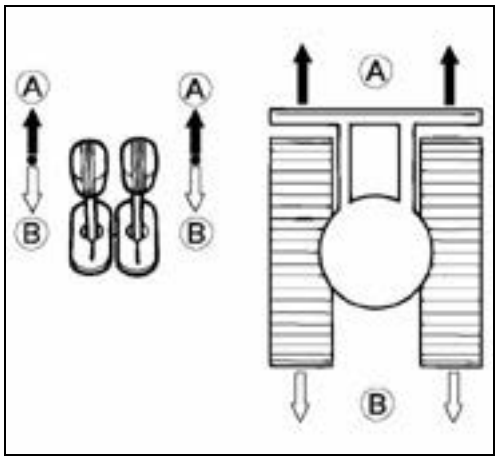
STOP

Make sure that the roll-over safety bar in the swivelled upward position is locked by the locking bolts (previous figure/3 and 4) and secured by the safety bolts (previous figure/1 and 2).

Driving

- Push both drive levers simultaneously forward to drive the excavator straight. Releasing the drive levers stops the excavator immediately.
  To reverse the excavator, pull both drive levers back simultaneously.

(A) Forward
(B) Reverse



STOP

If the dozer is not at the front, as shown in the figure, but at the rear, the operation of the drive levers is exactly opposite. Drive levers forward → the excavator drives backwards.

Fast drive position U 10-3

- To drive faster, press the fast drive position button (1) while driving. When the fast drive position pedal is no longer activated, the machine automatically returns to the normal drive position.

When driving over muddy or uneven surfaces, slow down.

Turning

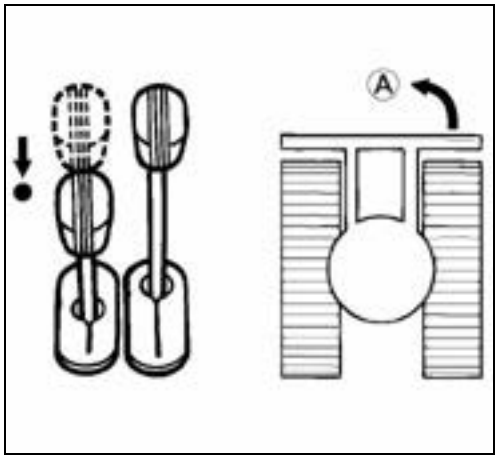
Turns are described for the forward direction of travel with the dozer at the front. If the dozer is positioned at the rear, the steering movements should be in the opposite direction.

When making turns, be sure nobody is standing within the swing area of the excavator.

During driving

- Pull the left drive lever to neutral, leave the right drive lever pushed forward.

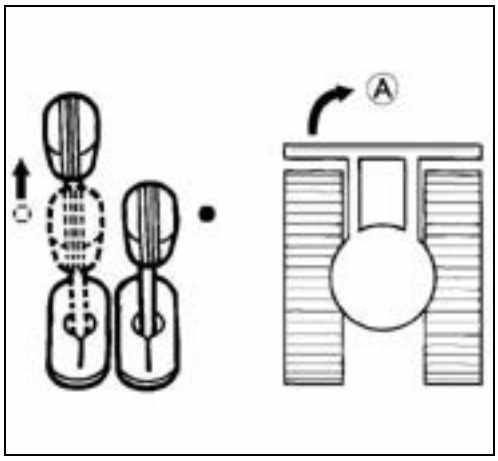
(A) The excavator makes a left turn.



From a standing position

- Leave the right drive lever in neutral, push the left drive lever forward. In this case, the turning radius is determined by the right track.

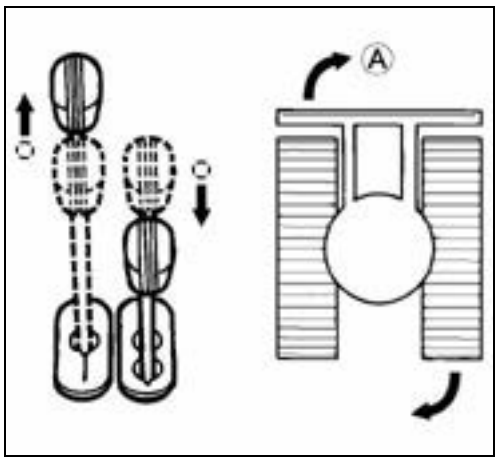
(A) The excavator makes a right turn.



Turning on the spot

- Move the drive levers in opposite directions. The tracks will turn in opposite directions. The centre of the vehicle is the turning axis.

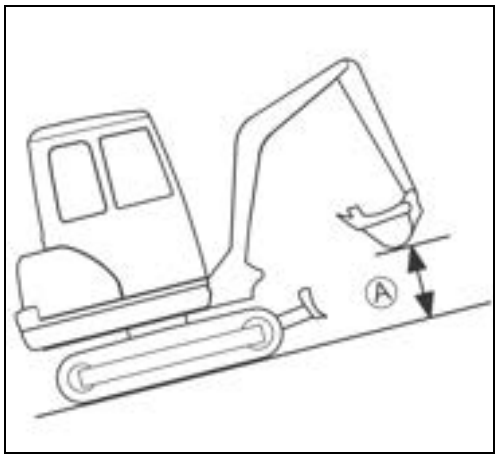
(A) Turning on the spot to the right.



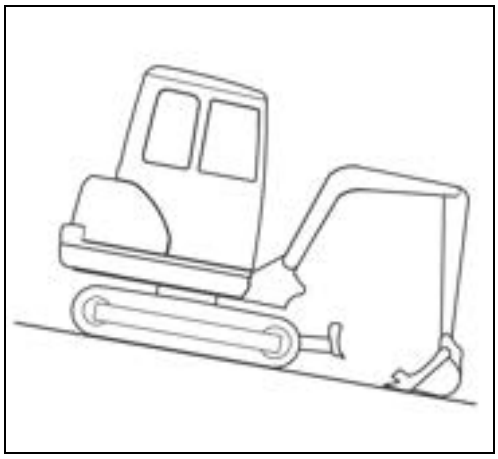
Driving uphill and downhill

Exercise extreme caution and proceed slowly when driving up and down a slope.

- When driving on gradients, raise the bucket approx. 200 to 400 mm (A) above the ground (see figure).



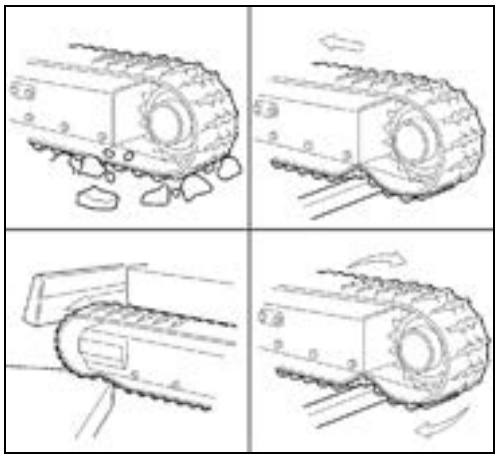
- When driving on gradients, let the bucket slide over the ground if the terrain allows it.



Notes for rubber crawler operation

- Driving or turning on sharp objects or over steps causes excessive wear on the rubber crawlers and will lead to breaking of the rubber crawler or cause the crawler running surface and the steel inserts to be cut.

- Make sure that no foreign objects get stuck in the rubber crawler. Foreign objects lead to excessive crawler wear and can cause it to break.



- Keep oil products away from the rubber crawlers.

- Remove any fuel or hydraulic oil spilled on the rubber crawlers.

Making sharp turns

- On streets with a high-friction tarmac, e.g. concrete, do not make sharp turns.

Protecting the crawler against salt

- Do not work with the machine on the seashore. (The salt will cause the steel insert to corrode.)

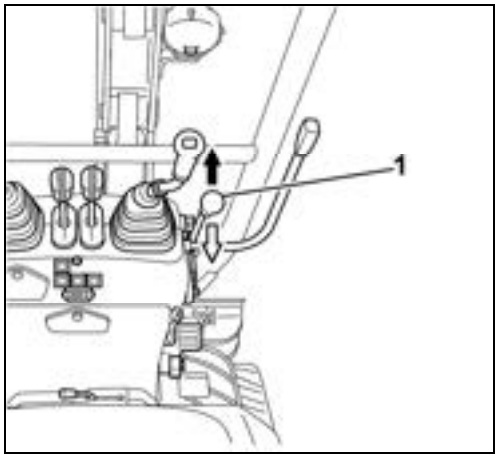
Operating the controls during excavation work

Always observe the following safety instructions when working with the excavator.

- The maximum track width (standard track width) should also be set before excavation work in order to ensure maximum stability while working with the machine.
- The suitability of the machine for attachments depends on the size, weight and arm attachment (interface). These factors should be observed by the operator. Various attachments (e.g. light cargo buckets) can only be used on a restricted basis.
- Using a light cargo bucket can, depending on the nature of the bulk material, exceed the tipping load of the machine.
- Breaking concrete or rocks with the bucket is prohibited.
- Do not use the dropping action of the bucket for excavation.
- Never fully extend the cylinders. Always keep a certain safety margin, especially when operating with a breaker (accessory).
- Never use the bucket as a hammer to drive posts into the ground.
- Do not drive or dig with the bucket teeth rammed into the ground.
- When loading soil, do not dig the bucket deeply into the ground. Instead, make relatively shallow slices with the bucket out as far as possible. This technique reduces the stress on the bucket.
- When working in water, the water should only reach up the lower edge of the swivel frame.
- After using the machine in water, always grease the pins at the bucket and arm with grease until the old lubricating grease emerges.
- When digging with the boom above the dozer, make sure that the boom cylinder does not come into contact with the dozer.
- It is not allowed to use the excavator for crane work.
- Adhering soil can be shaken off when the bucket is being emptied by moving the cylinder to the end of the stroke. Should this not suffice, swing out the arm as far as possible and operate the bucket back and forth.

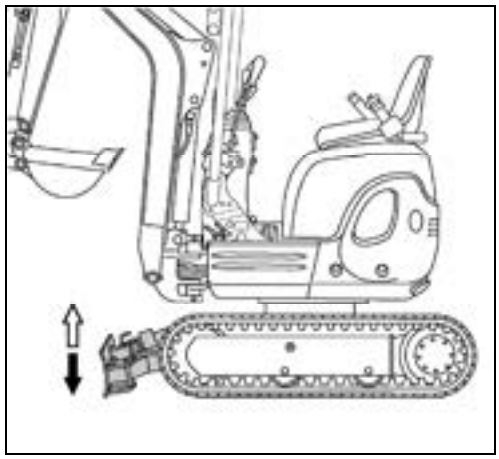
Operating the dozer blade

When working with the dozer blade, operate both drive levers with the left hand and the dozer control lever with the right hand.



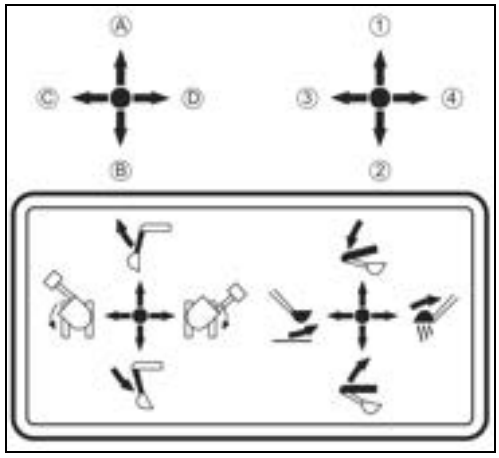
- To lift the dozer blade, pull the dozer control lever (1) back (figure position ⇩).
- To lower the dozer blade, push the dozer control lever (1) forward (figure position ⇧).

The dozer blade moves as shown in the figure.



Overview of control lever functions

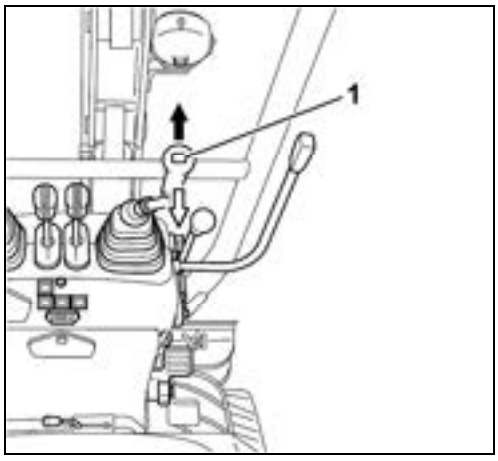
The figure shows, in connection with the following table, the functions of the left and right control levers.



Control levers		Movement
Right control lever	1	Lower boom
	2	Raise boom
	3	Bucket crowd
	4	Bucket dump
Left control lever	A	Arm dump
	B	Arm crowd
	C	Swivel frame to the left
	D	Swivel frame to the right

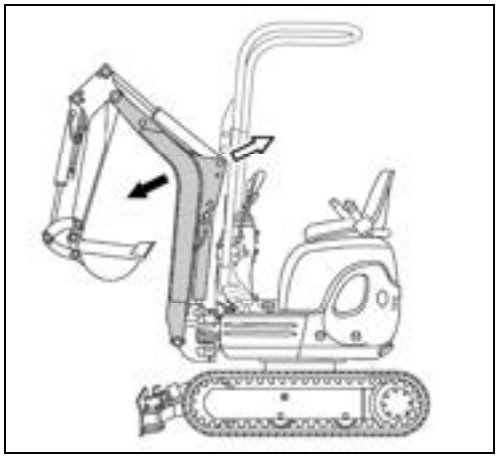
Operating the boom K008-3/U10-3

- To raise the boom, pull the right control lever back (figure position).
- To lower the boom, push the right control lever forward (figure position).



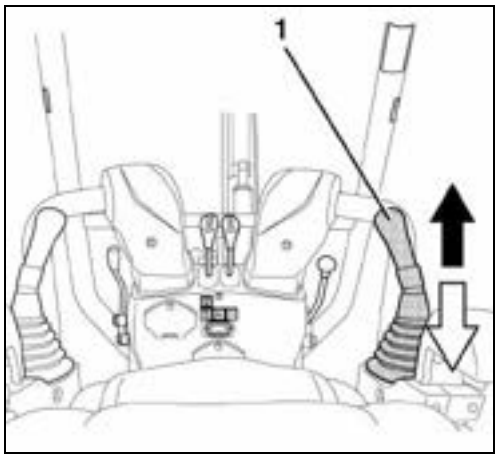
Watch the boom during lowering, so that the boom or the bucket teeth do not hit the dozer blade.

The boom moves as shown in the figure.



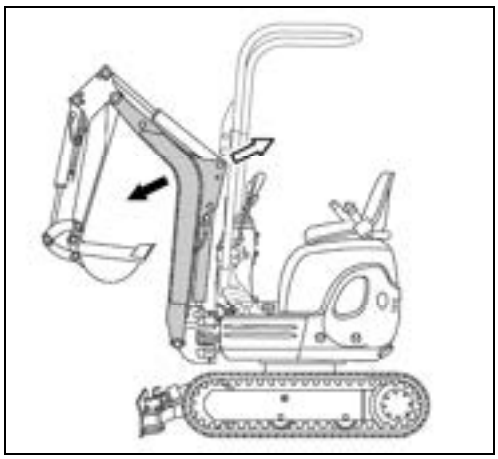
Operating the boom U10-3 SIDE LEVER

- To raise the boom, pull the right control lever back (figure position).
- To lower the boom, push the right control lever forward (figure position).



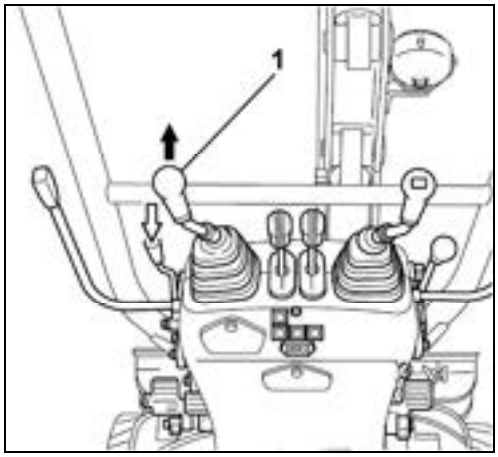
Watch the boom during lowering, so that the boom or the bucket teeth do not hit the dozer blade.

The boom moves as shown in the figure.

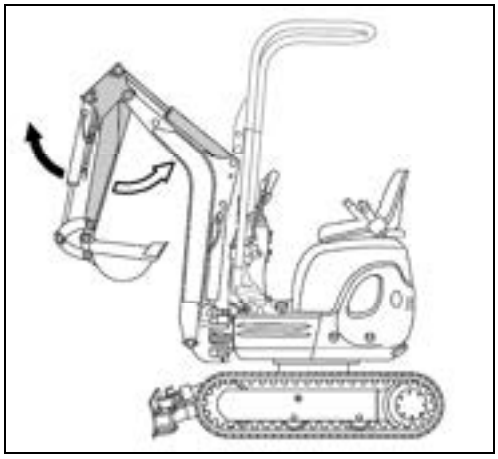


Operating the arm K008-3/U10-3

- To dump the arm, push the left control lever (1) forward (figure ↑).
- To crowd the arm, pull the left control lever back (figure position ↓).

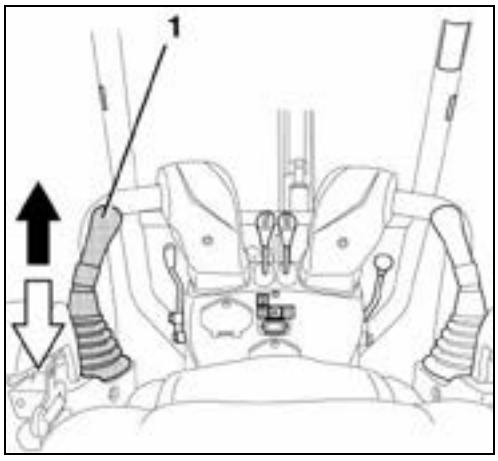


The arm moves as shown in the figure.

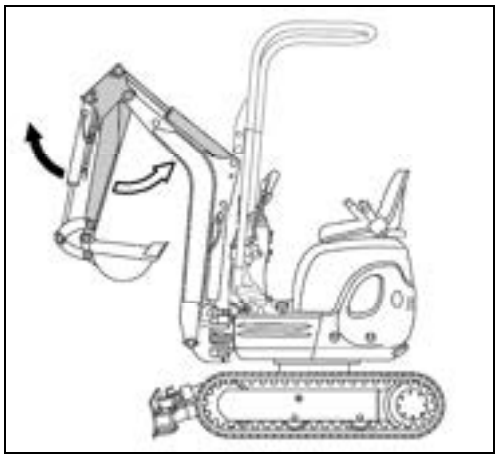


Operating the arm U10-3 SIDE LEVER

- To dump the arm, push the left control lever (1) forward (figure ↑).
- To crowd the arm, pull the left control lever back (figure position ↓).



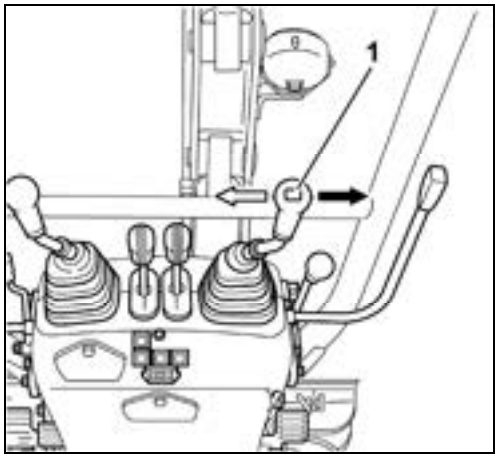
The arm moves as shown in the figure.



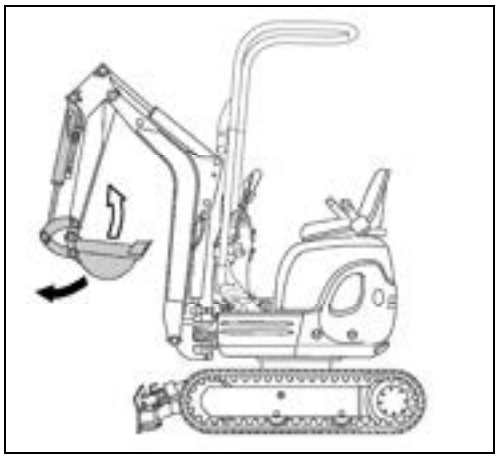
Operating the bucket K008-3/U10-3

- To crowd (digging) the bucket, move the right control lever (1) to the left (figure position ←).
- To dump (empty) the bucket, move the right control lever to the right (figure/→).

When crowding the bucket in, take care that the teeth do not hit the dozer blade.

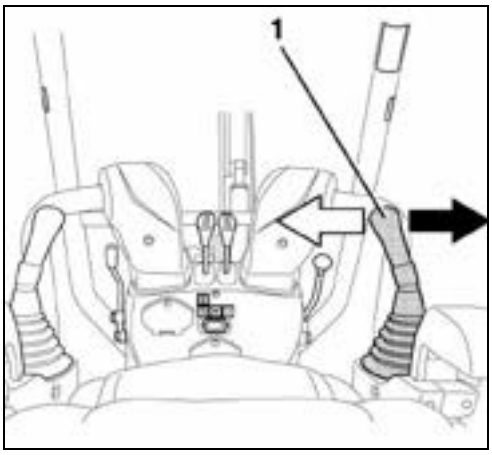


The bucket moves as shown in the figure.



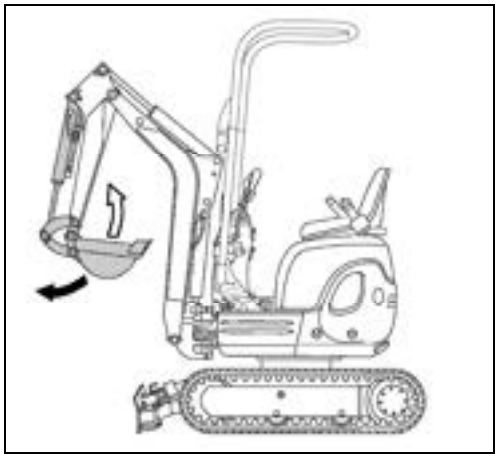
Operating the bucket U10-3 SIDE LEVER

- To crowd (digging) the bucket, move the right control lever (1) to the left (figure position ⇦).
- To dump (empty) the bucket, move the right control lever to the right (figure/➔).



When crowding the bucket in, take care that the teeth do not hit the dozer blade.

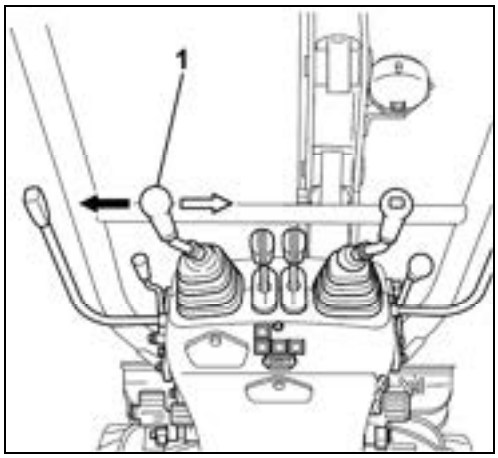
The bucket moves as shown in the figure.



Swivelling the swivel frame K008-3/U10-3

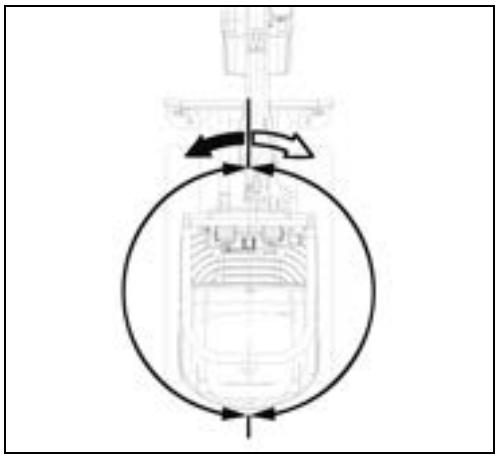
No person is allowed to stand in the swivel area during the movement.

Swivel carefully to avoid any contact of the front attachments with adjacent objects.



- To turn anticlockwise, move the left control lever (1) to the left (figure ←).
- To turn clockwise, move the left control lever to the right (figure/⇨).

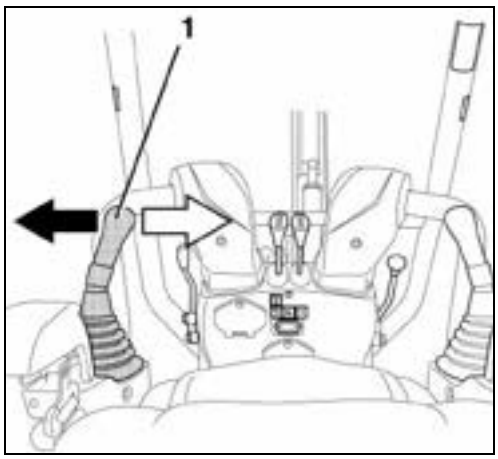
The turning operation takes place as shown in the figure.



Swivelling the swivel frame U10-3 SIDE LEVER

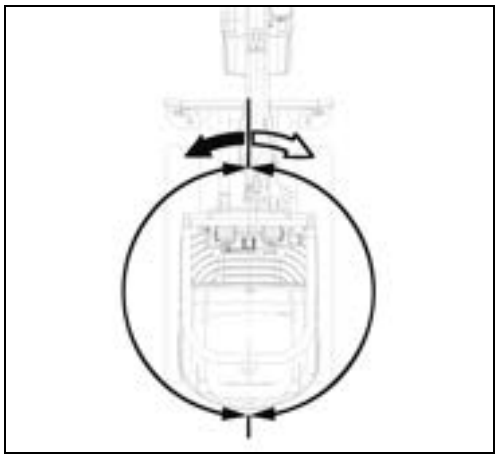
No person is allowed to stand in the swivel area during the movement.

Swivel carefully to avoid any contact of the front attachments with adjacent objects.



- To turn anticlockwise, move the left control lever (1) to the left (figure ←).
- To turn clockwise, move the left control lever to the right (figure/⇨).

The turning operation takes place as shown in the figure.



Swinging the boom

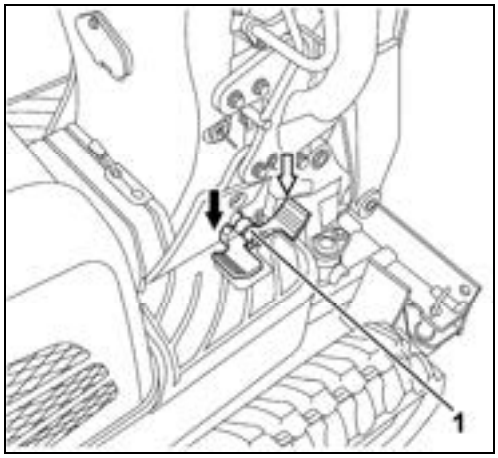
No person is allowed to stand in the swing area during the movement. Do not move the foot outside the front part of the boom swing pedal → risk of bruising.

Swing carefully to avoid any contact of the front attachments with adjacent objects.

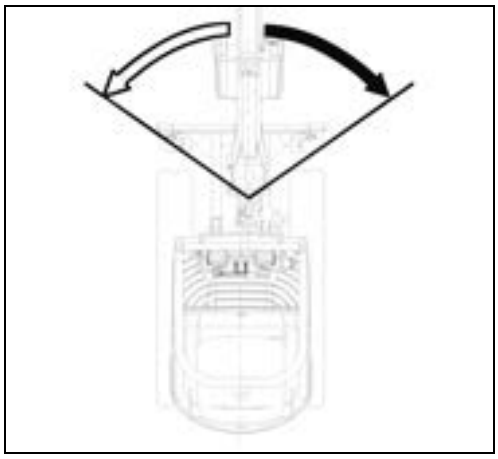
- Tilt the boom swing pedal (figure below, position 1).

The auxiliary port pedal (figure below, position 1) can be secured against inadvertent operation by lowering its rear part. When the boom swing pedal is not in use tilt the rear part of the boom swing pedal forward.

- To swing clockwise, press the boom swing pedal downward onto the rear part (figure position ⬇).
- To swing the boom to the left, press the boom swing pedal downward onto the front part (figure position ⬇).



The figure details the swing movement.



Operating the auxiliary port

Implements are operated using the auxiliary port.

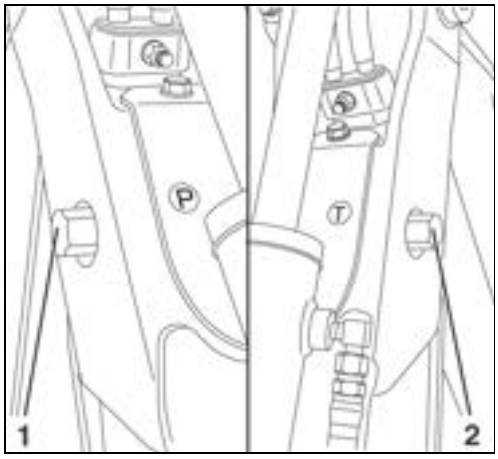
Only implements approved by KUBOTA may be used. The implements must be operated in accordance with the operating instructions supplied with them.

With the use of a breaker or another attachment for demolition work, where material (e.g. asphalt) is removed and can uncontrollably sputter away, personal protective equipment is absolutely to be worn (safety shoes, safety helmet, eye protection, ear protection and if necessary facial mask).

For auxiliary port specifications, see the "Specifications" section (page 36).

The auxiliary port pedal may only be activated when an implement is attached.

- Connect the implement according to the corresponding operating instructions at the supply connection "P" (1) and the return flow connection "T" (2).

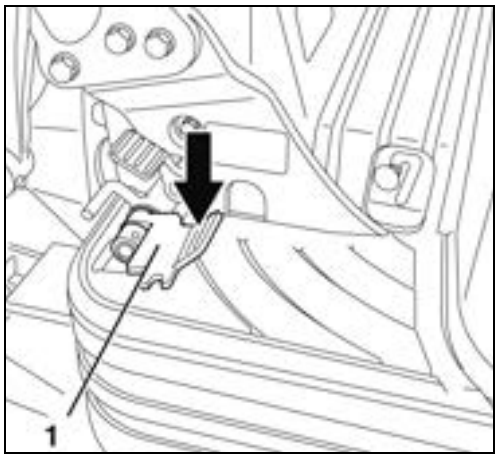


If the auxiliary port has not been in use over a long period of time, dirt may have accumulated on the pipe connections of the supply connection "P" (1). Before installing the implement, drain approx. 0.1 L of hydraulic oil at the supply connection "P".

Catch the drained hydraulic oil in a container and discard it in accordance with the valid environmental regulations.

The auxiliary port pedal (figure below, position 1) can be secured against inadvertent operation by tilting it forward. When the auxiliary port pedal is not in use tilt it forward.

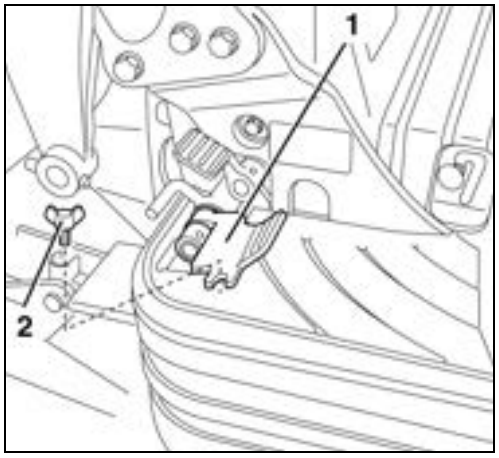
- Tilt the auxiliary port pedal (1) backward.
- To operate the implement, press the auxiliary port pedal downward (figure position ↓).



Locking the auxiliary port pedal

- The auxiliary port pedal (1) may be locked with the locking screw (2) for usage with special devices, such as augers and crushers.
- You will find the locking screw, which is part of the standard equipment, in the tool compartment (page 47).

If there is no hole for the locking screw in the mat, drill a suitable hole.

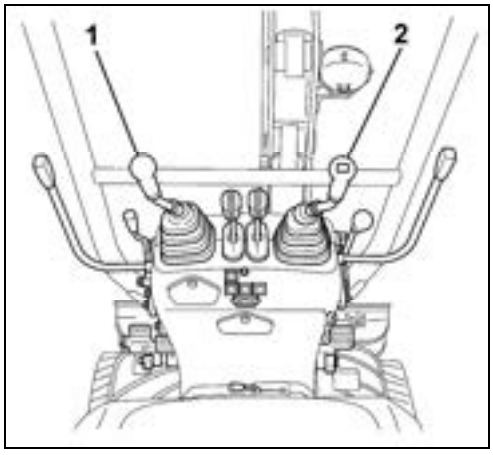


Pressure relief of the hydraulic system K008-3/U10-3

- Lower front attachments and dozer completely.
- Turn the starter switch to the STOP position.
- Wait until the engine has come to a standstill.
- Turn the starter switch to the RUN position.

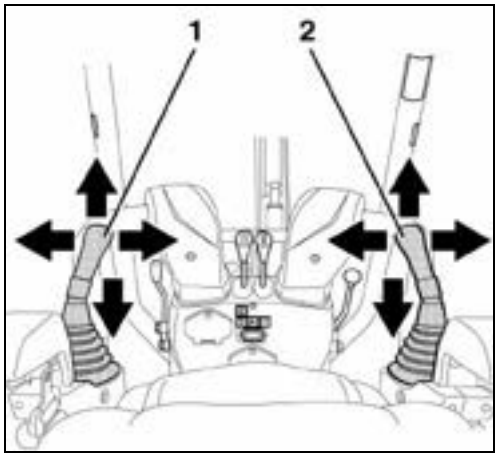
Do not start the engine!

- Move control levers (1 and 2) several times to limit stop in all directions.



The hydraulic system is pressure relieved.

Pressure relief of the hydraulic system K008-3/U10-3



- Lower front attachments and dozer completely.
- Turn the starter switch to the STOP position.
- Wait until the engine has come to a standstill.
- Turn the starter switch to the RUN position.

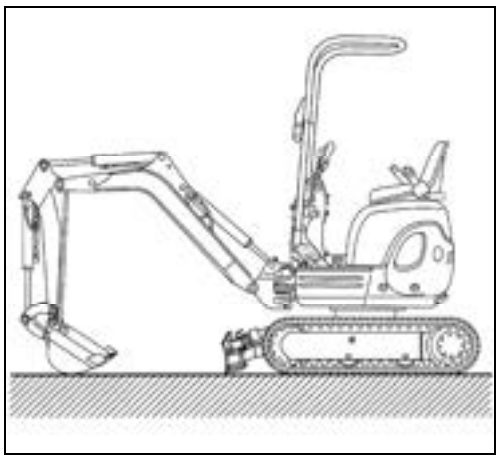
Do not start the engine!

- Move control levers (1 and 2) several times to limit stop in all directions.

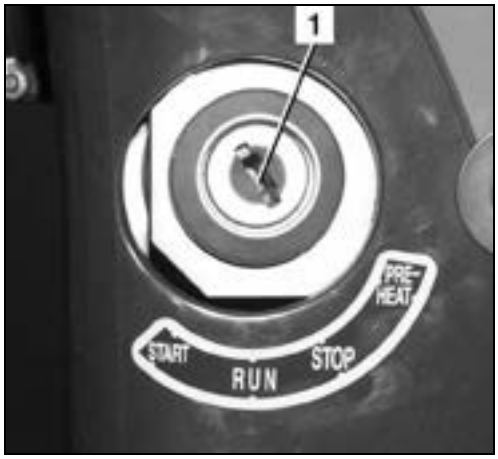
The hydraulic system is pressure relieved.

Placing out of operation

Park the excavator in such a way that it can not move and is secured against unauthorised use.



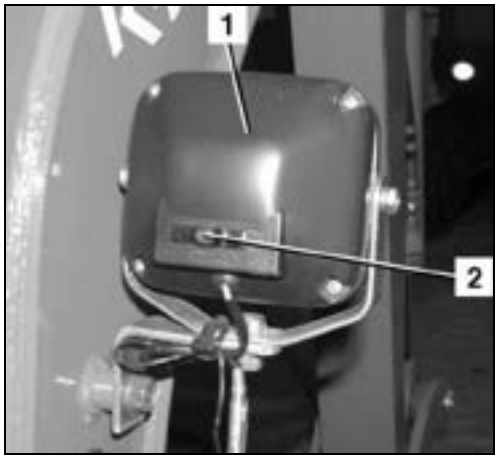
- Drive the excavator on level ground. The machine should be parked under a roof.
- All hydraulic cylinders have to be extended half way (see figure), the boom has to be in line with the excavator, the dozer has to be lowered to the ground and the extendable track width has to be set to standard track width.
- Lock the swivel frame and the control levers (page 24, 25).
- Reduce the engine speed to idle speed and let the engine run for approx. 5 minutes to let it cool down.
- Turn the starter switch (1) to the STOP position, remove the key. The key must remain with the operator.
- Unbuckle the seat belt.
- Check the excavator for external damage and for leaks. Any defects must be repaired before the next start.
- In case of a heavy accumulation of dirt in the area of the tracks and the hinges at the front attachments, clean the excavator (page 99).
- Refuel the excavator, if necessary (page 87).



Working light

- The starter switch is in the RUN position.
- Press the working light button (1). Both the working lights and the instrument lighting are turned on.
- Press the button again to switch off.

During work on public roads other road users must not be blinded.



Cold weather operation

Operating the excavator at an ambient temperature below 5 °C is regarded as cold weather operation.

Necessary preparations prior to the winter season

- If necessary, replace the engine oil and hydraulic oil with those of the specified viscosities.
- Only use regular diesel fuel with winter additives. Do not mix petrol and diesel fuel.
- Check the battery's state of charge (page 107). In case of extremely low temperatures, it may be necessary to remove the battery after work and store it in a heated room.
- Check the antifreeze strength in the cooling system (page 99). If necessary, add antifreeze until the protection ranges from -25 °C to -40 °C.

Operation during the winter season

- The excavator must be cleaned after work is finished (page 99). Special attention must be paid to the crawlers, the front attachments and the piston rods of the hydraulic cylinders. If the excavator is cleaned with a water jet, it must then be parked in a dry, frost-free and well-ventilated enclosed space.
- If necessary, park the excavator on boards or mats in order to prevent freezing to the ground.
- Before starting, check if the piston rods of the hydraulic cylinders are free of ice to avoid damage. Also check if the crawlers are frozen to the ground. If so, do not take the excavator into operation.

Be careful when getting on and off, the crawler could be slippery.

Start the engine (page 61). However, make sure to do the following:

- Switch the starter switch for approx. 10 seconds (rather than 5 seconds) to the PREHEAT position.
- Let the engine warm up for approx. 10 minutes (rather than 5 minutes) at idle speed.

Jump-starting the excavator

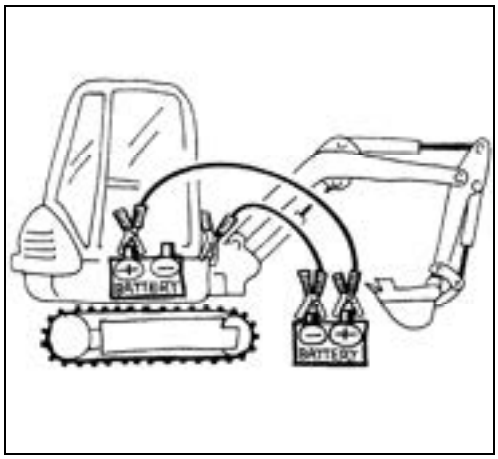
Only a vehicle or starting device with a 12V power supply may be used.

The operator must remain seated on the operator's place, the battery jumper cables must be connected by a second person.

- Make the battery accessible, and remove the positive terminal cover.
- Position the other vehicle or starting machine beside the excavator.

Only use cables with an appropriate cross section as jumper cables.

- Connect the positive terminal of the excavator battery with the positive terminal of the helping vehicle (see figure).
- Connect the negative terminal of the helping vehicle to the frame of the excavator. Do not use the negative terminal of the excavator battery. The connecting point on the frame must be blank and clean.



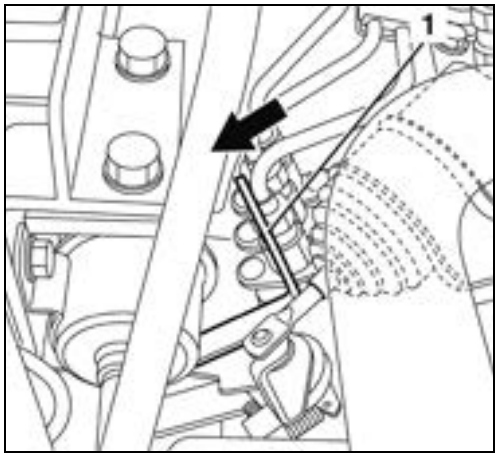
- Start the helping vehicle and let it run at a higher idle speed.
- Start the excavator and let it run. Check if the charge lamp turns off after starting.
- Disconnect the jumper cable at the frame of the excavator first, and then at the negative terminal of the helping vehicle.
- Disconnect the second jumper cable from the positive terminal of the excavator battery first, and then from the positive terminal of the helping vehicle.
- Refit the positive terminal cover on the excavator battery and install the cover and rubber mat.
- If the jumper cables will be required for the next start of the excavator, check the battery and the alternator's charging circuit, contact skilled personnel, if necessary.

Emergency stop functions

In an emergency, the engine can be stopped manually.

Manual engine stop

If the engine cannot be stopped with the key, it can be stopped manually.



You can only stop the engine with the starter switch when the speed lever is pushed back (idle speed).

- Open the engine hood (page 89).
- To stop the engine, push lever (1) in direction of arrow until the engine is stationary.

Caution! Do not touch the fan wheel → risk of injury.

The excavator may only be taken back into operation after the malfunction has been eliminated.

Refuelling the excavator

When refuelling the excavator, smoking, an open flame, or other sources of ignition are not allowed. The danger zone must be marked with signs. A fire extinguisher must be kept at hand in the danger zone.

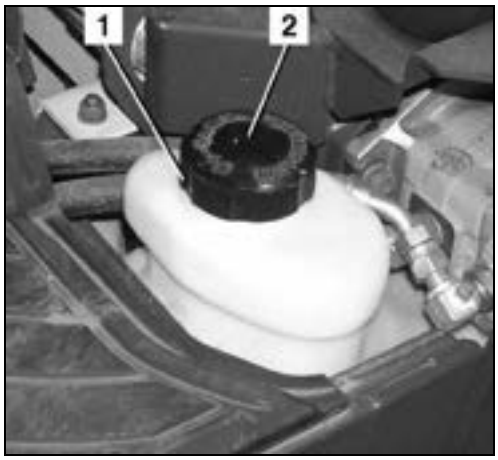
Spilled fuel must be bound immediately with an oil binding agent. The contaminated oil binding agent must be disposed of in accordance with the applicable environmental regulations.

If no pumping station is available, the diesel fuel may only be stored in approved canisters.

Refuel the excavator in time so that the fuel tank is not running empty. Air in the fuel system can damage the fuel injection pump.

- Stop the engine.
- Open the engine hood (page 89).
- Open the filler cap (1).
- Fill diesel fuel up to the base of the filler tube.
- Clean the air filter (2) inside the filler cap.

Mud at the air filter causes a depression inside the fuel reservoir.



- Close the filler cap and the engine hood.

Bleeding the fuel system

If the fuel tank was run empty or if work was performed on the fuel system, then the fuel system has to be bled.

- To bleed the fuel system, move the starter switch to the RUN position.

The electrical fuel pump will bleed the fuel system automatically within approx. 60 s.

- If the bleeding was insufficient, the engine will stop again. In this case repeat the procedure.

Replacing the fuses

Defective fuses may only be replaced with fuses of the same type and same rating.

The bypassing of fuses, for example with a wire, is not allowed.

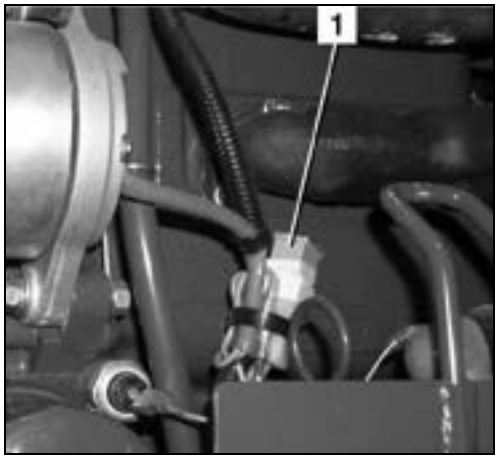
If the malfunction can not be remedied by replacing the fuse, or if the fuse blows again when starting, contact skilled personnel.

- Open the engine hood (page 89).
- Open the fuse box (1) and replace the defective fuse.

The spare fuses (1) are positioned near the battery.

The fuse layout is shown in the next section.

- Replace the defective main fuse (1) analogously, which is positioned near the oil dipstick.

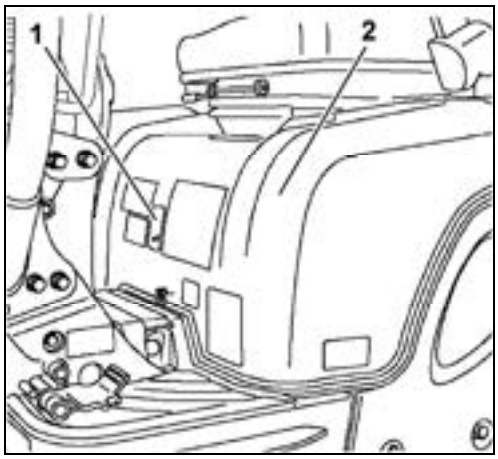


Fuse layout of the fuse box

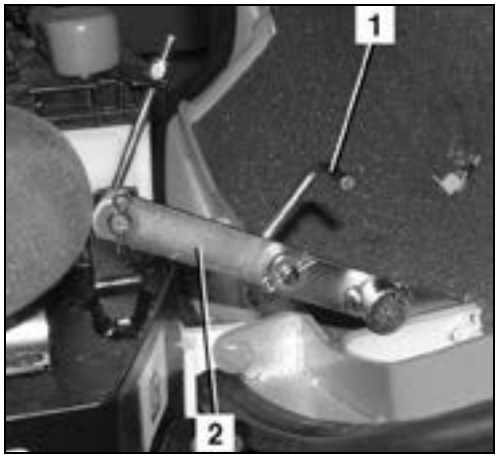
10 A
Working light, horn
5 A
Time meter, fuel pump, indicators, control
5 A
Timer relay
15 A
Engine stop solenoid

Opening and closing the engine hood

- Pull lever (1) up and tilt the engine hood (2) backward. The engine hood will stay in the open position because of the mounting.



- To close, pull up the lever (1) at the mounting (2), then flip the engine hood forward until it snaps in.



Replacing the bucket

When replacing the bucket, make sure to wear an eye protection, a helmet and protective gloves.

During attaching and detaching, chippings and burrs may occur at the bolts or bushings. These may cause severe injuries.

Never use your fingers for the alignment of the components (link, bucket, arm). The components may sever your fingers by uncontrolled movements.

TROUBLESHOOTING

The troubleshooting section includes only malfunctions and incorrect operations which must be remedied by the operator. Any other malfunctions may only be eliminated by trained personnel. The troubleshooting must be performed with the aid of the troubleshooting table. In order to locate a malfunction, first look in the MALFUNCTION column for the corresponding excavator malfunction. In the POSSIBLE CAUSE column you will find the possible causes for the malfunction. The REPAIR column indicates the required remedial measure. If the fault can not be remedied by the measure indicated in the REPAIR column, consult trained personnel.

In order to resolve malfunctions related to the operation, use or maintenance of the exhaust purification system, implement the measures immediately in accordance with the troubleshooting table.

Safety rules for troubleshooting

Adhere to the general safety rules (page 10) and the safety rules for operation (page 52).

The operator is not allowed to open the electrical and hydraulic system. These services are reserved for trained personnel.

During troubleshooting, the safety on and around the excavator must always be ensured.

If troubleshooting of the excavator calls for the bucket being raised, the operator may not stand in the area of the front attachments unless the front attachments are secured against inadvertent lowering by suitable measures.

Troubleshooting: Pre-operational services

MALFUNCTION	POSSIBLE CAUSE	REPAIR
Start-up		
No function available when the starter switch is turned to the RUN position	Main fuse defective	Replace the main fuse (page 88).
Indicator lights do not come on as expected when the starter switch is turned to the RUN position	Defective fuse	Replace the fuses (page 88).
Starter does not turn when the starter switch is turned to the START position	Battery depleted	Charge the battery (page 108). Jump-start the excavator (page 85).
Engine does not start when the starter switch is turned to the START position, but starter turns	Air in the fuel system Water in the fuel system	Check the fuel system for leaks and bleed it (page 87). Check the water separator for water content, drain if necessary (page 58).

Troubleshooting: Operation

MALFUNCTION	POSSIBLE CAUSE	REPAIR
Operation		
Exhaust gas colour very black	Air filter restricted	Check and clean the air filter (page 104).
Insufficient engine power	Air filter restricted Fuel filter restricted or water in fuel system	Check and clean the air filter (page 104). Check the water separator for water content, drain if necessary (page 58), replace the fuel filter (page 105).
Coolant temperature too high (overheated)	Radiator dirty Low coolant level Cooling system components leaking V-belt too loose	Clean the radiator (page 100). Check the coolant level, add coolant, if necessary (page 99). Check the cooling system for leaks. Please contact your KUBOTA dealer. Check and adjust the V-belt tension (page 100).
Charge lamp lights up	V-belt too loose Defective fuse in fuse box	Check and adjust the V-belt tension (page 100). Replace the fuses (page 88).
Deviation in driving direction of excavator	Crawler tension adjusted incorrectly	Check and adjust the crawler tension, if necessary (page 112).
Power of hydraulic functions is too low or disruptive	Hydraulic oil level too low Suction filter restricted	Check hydraulic oil level and top up, if necessary (page 106). Change the hydraulic oil tank suction filter. Please contact your KUBOTA dealer.
Horn and working light do not work	Defective fuse in fuse box	Replace the fuses (page 88).

Troubleshooting: Displays and indicators

Display	Colour	Problem/Error	Preliminary Measure	Solution
	Red	No fuel.	- -	Refill.
	Red	Oil pressure too low.	Stop the engine immediately.	Engine may be defective. Immediately contact skilled personnel.
	Red	Faulty battery charger circuit. Charging error.	Check the V-belt. When the V-belt is OK, let the engine run until indicator goes out.	If the indicator does not go out, contact skilled personnel.
	Red	Coolant temperature too high.	Park the machine at a safe location and allow the engine to continue idling. Turn off the engine only after it has idled about 5 min.	Check the cooling system for leaks. Check coolant level. Check the V-belt tension. Check the radiator for dirt.

MAINTENANCE

The "Maintenance" section includes all care and maintenance tasks to be performed on the excavator.

A careful maintenance of the excavator will guarantee functional safety and longer service life.

Neglect of the servicing will void the warranty and any liability by KUBOTA.

Only use spare parts that are recommended by the manufacturer. Non-approved spare parts of inferior quality or wrong classification result in an increased risk of accidents. Operators using non-approved spare parts are fully responsible for any damage arising thereof.

The machine’s engine features an exhaust purification system. In order to maintain the emission performance, operate, use and service the engine according to the following provisions:

- Use the fuel recommended in these operating instructions.
- Use the engine oil recommended in these operating instructions.
- Service the engine according to the service intervals defined in these operating instructions.
- Replace the components associated with the engine in accordance with the intervals defined in these operating instructions.

Safety rules for maintenance

- Persons who work with or on the excavator must be provided by the operator with, and where applicable use suitable personal protective equipment (PPE), for example suitable working clothes, safety shoes, safety helmets, eye protection, ear protection and air-filter masks. The owner/employer bears the main responsibility for the PPE, which is specified by the safety rules for particular types of activity.
- Maintenance, cleaning and care activities may only be carried out if the excavator is fully shut down. the excavator must be secured against starting by removal of the key. The bucket must always be lowered to the ground for servicing.
- The bucket must always be lowered to the ground for servicing.
- When defects are detected during servicing or maintenance, the excavator may only be operated after the defects are remedied. Repairs may only be carried out by trained personnel.
- When carrying out maintenance and care activities, always make sure that the excavator is secured and stable.
- When working on the fuel system, smoking, open flames and the operation of other ignition sources are not allowed. The danger zone has to be clearly marked with signs. A fire extinguisher must be kept at hand in the danger zone.
- All waste materials must be discarded in accordance with environmental protection regulations.
- Use the maintenance and care materials listed in the "Recommended lubricants" section (page 117).
- When working on the electrical system, disconnect it from the voltage source before starting the work. The work may only be carried out by technicians with electrical training.
- Always use a ladder or a scaffold if the work cannot be reached by the operator.
- The controls may only be used while the operator is sitting on the operator's seat.

Personnel requirements

- The operator may only carry out cleaning and care activities.
- The servicing may only be performed by trained personnel.

General maintenance chart: 50 to 500 hours of operation

Operator servicing

General maintenance	Elapsed hours of operation											
	50	100	150	200	250	300	350	400	450	500	Interval	Page
Check the engine oil level											daily	55
Check the hydraulic oil level											daily	57
Check the fuel level											daily	60
Check the coolant level											daily	56
Lubricate the front-end attachments											daily	58
Check the radiator											daily	56
Check the electric cables and connections											daily	113
Check the engine compartment cover lock											daily	-
Check the V-belt											daily	56
Tracks and chassis: clean, visually inspect and check the tension	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	weekly (50 h)	112
Battery service	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	50 h	107
Drain the water from the fuel tank	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	50 h	105
Lubricate the swivel gear	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	50 h	110
Check the water separator	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	50 h	58
Check the fuel lines and hoses				❍				❍			200 h	114
Check, clean the air filter 1.)				❍				❍			200 h	104
Grease the pitch bearing				❍				❍			200 h	111

1.) Under dusty conditions the air filter must be cleaned more frequently or replaced.

General maintenance chart: 550 to 1000 hours of operation

Operator servicing

General maintenance	Elapsed hours of operation											
	550	600	650	700	750	800	850	900	950	1000	Interval	Page
Check the engine oil level											daily	55
Check the hydraulic oil level											daily	57
Check the fuel level											daily	60
Check the coolant level											daily	56
Lubricate the front-end attachments											daily	58
Check the radiator											daily	56
Check the electric cables and connections											daily	113
Check the engine compartment cover lock											daily	-
Check the V-belt											daily	56
Tracks and chassis: clean, visually inspect and check the tension	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	weekly (50 h)	112
Battery service	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	50 h	107
Drain the water from the fuel tank	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	50 h	105
Lubricate the swivel gear	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	50 h	110
Check the water separator	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	50 h	58
Check the fuel lines and hoses		❍				❍				❍	200 h	114
Check, clean the air filter 1.)		❍				❍				❍	200 h	104
Grease the pitch bearing		❍				❍				❍	200 h	111

1.) Under dusty conditions the air filter must be cleaned more frequently or replaced.

Servicing maintenance chart: 50 to 500 hours of operation

Servicing by skilled personnel or KUBOTA dealer

Servicing	Elapsed hours of operation											
	50	100	150	200	250	300	350	400	450	500	Interval	Page
Check the nuts and bolts		❍		❍		❍		❍		❍	100 h	115
Check the coolant hoses and clamps					❍					❍	250 h	100
Check/adjust the V-belt tension					❍					❍	250 h	100
Change the engine oil and oil filter										❍	500 h	101
Replace the fuel filter 4.)										❍	500 h	105
Change the return filter for the hydraulic oil tank 3.)	Please contact your KUBOTA dealer.										1000 h	--
Change the hydraulic oil and suction filter 2.)	Please contact your KUBOTA dealer.										1000 h	--
Replace the air filter elements 1.)											1000 h	104
Change the running gear and track roller oil	Please contact your KUBOTA dealer.										2000 h	--
Check the alternator and starter motor	Please contact your KUBOTA dealer.										2000 h	--
Check the electric cables and connections	Please contact your KUBOTA dealer.										annually	113
Safety inspection											annually	120
Replace the fuel lines and hoses	Please contact your KUBOTA dealer.										every 2 years	114
Change the coolant											every 2 years	103
Change the hydraulic hoses	Please contact your KUBOTA dealer.										every 6 years	--

1.) Under dusty conditions the air filter must be cleaned more frequently or replaced.
2.) When using a breaker over 20% → every 800 h.
When using a breaker over 40 % → every 400 h.
When using a breaker over 60 % → every 300 h.
When using a breaker over 80 % → every 200 h.
3.) When using a breaker up to 50% → every 200 h.
When using a breaker over 50% → every 100 h.
4.) Earlier if necessary.

Servicing maintenance chart: 550 to 1000 hours of operation

Servicing by skilled personnel or KUBOTA dealer

Servicing	Elapsed hours of operation											
	550	600	650	700	750	800	850	900	950	1000	Interval	Page
Check the nuts and bolts		❍		❍		❍		❍		❍	100 h	115
Check the coolant hoses and clamps					❍					❍	250 h	100
Check/adjust the V-belt tension					❍					❍	250 h	100
Change the engine oil and oil filter										❍	500 h	101
Replace the fuel filter 4.)										❍	500 h	105
Change the return filter for the hydraulic oil tank 3.)	Please contact your KUBOTA dealer.										1000 h	--
Change the hydraulic oil and suction filter 2.)	Please contact your KUBOTA dealer.										1000 h	--
Replace the air filter elements 1.)										❍	1000 h	104
Change the running gear and track roller oil	Please contact your KUBOTA dealer.										2000 h	--
Check the alternator and starter motor	Please contact your KUBOTA dealer.										2000 h	--
Check electric cables and connections	Please contact your KUBOTA dealer.										annually	113
Safety inspection											annually	120
Replace the fuel lines and hoses	Please contact your KUBOTA dealer.										every 2 years	114
Change the coolant											every 2 years	103
Change the hydraulic hoses	Please contact your KUBOTA dealer.										every 6 years	--

1.) Under dusty conditions the air filter must be cleaned more frequently or replaced.
2.) When using a breaker over 20% → every 800 h.
When using a breaker over 40 % → every 400 h.
When using a breaker over 60 % → every 300 h.
When using a breaker over 80 % → every 200 h.
3.) When using a breaker up to 50% → every 200 h.
When using a breaker over 50% → every 100 h.
4.) Earlier if necessary.

Cleaning the excavator

Before cleaning, shut down the engine and secure it against starting.

If a steam cleaner is used for cleaning the excavator, do not direct the steam jet at electric components.

Do not direct a water jet into the intake opening of the air filter.

Do not clean the excavator with inflammable liquids.

The excavator may only be washed at suitable places (using oil and grease separators).

The excavator can be cleaned with water and a commercial cleaning agent. Make sure no water gets into the electrical system.

Use a plastic cleaner for plastic parts.

Maintenance

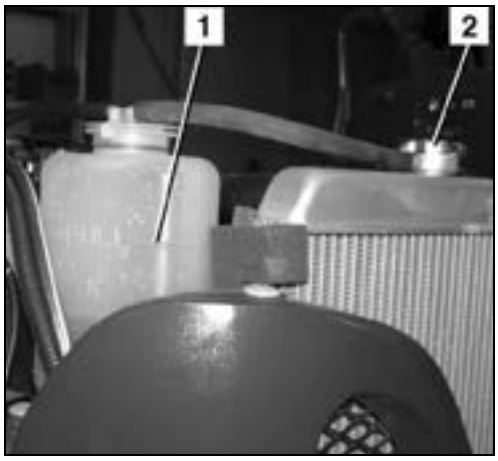
Adhere to the instructions for regular servicing to keep the excavator in good condition.

Refilling the coolant

- Check the antifreeze content with an antifreeze tester that is qualified for -25 °C.

The antifreeze portion of the coolant should not exceed 50%.

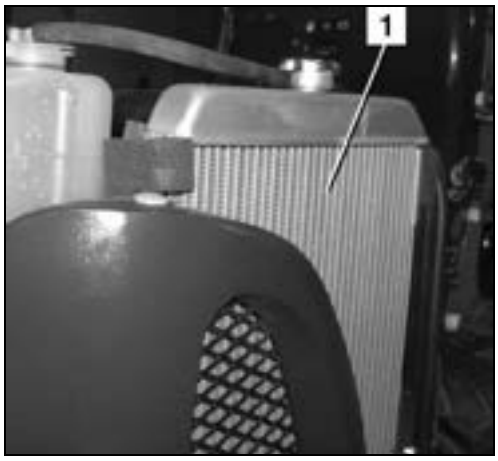
- Open the engine hood (page 89).
- Open the coolant expansion reservoir cap while the engine is cold and fill pre-mixed coolant up to the FULL mark (1).
- If the coolant expansion reservoir was completely empty, check the coolant level in the radiator.



Do not open the radiator cap while the engine is still hot, risk of scalding.

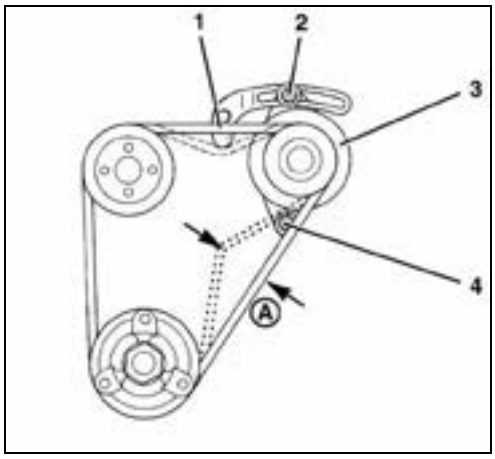
- Remove the radiator cap (2) by turning it anticlockwise.
- The coolant level should be at the lower mark of the filler plug; if not, add coolant.
- Refit the radiator cap and close the expansion reservoir.
- Close the engine hood.

Cleaning the radiator



- Open the engine hood (page 89).
- Clean the radiator (1) from the engine side with a water jet or with compressed air. Do not use high-pressure cleaners.
- Check the radiator for damage after cleaning it.
- Close the engine hood.

Checking and adjusting the V-belt tension



- Open the engine compartment cover (page 89).
- Depress the V-belt (1) at point "A". The V-belt deflection should be approx. 10 mm.
- Check the V-belt for proper condition and cracks.
- To tighten the V-belt, loosen the mounting screws (2 and 4), swing the alternator (3). Tighten the fastening screws and check the tension of the V-belt.
- Close the engine compartment cover.

Checking the coolant hoses

Carry out the inspection while the engine is cold.

- Open the engine hood (page 89).

Check all hose connections to the engine, coolant expansion reservoir and the radiator for condition (cracks, bulges, hard spots) and firm seating of the clamps. If necessary, have the hoses replaced by trained personnel.

- Close the engine hood.

Replacing the engine oil and oil filter

The engine oil change must be carried out while the engine is warm.

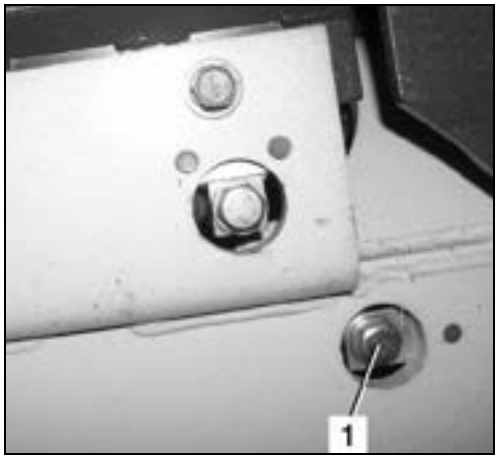
Caution: the engine oil and the oil filter are very hot → risk of scalding!

Place an oil pan with a capacity of about 5 L under the engine oil drain. The engine oil should not be allowed to seep into the earth and it must be discarded like the oil filter in accordance with the applicable environment protection regulations.

- Open the engine compartment cover (page 89).

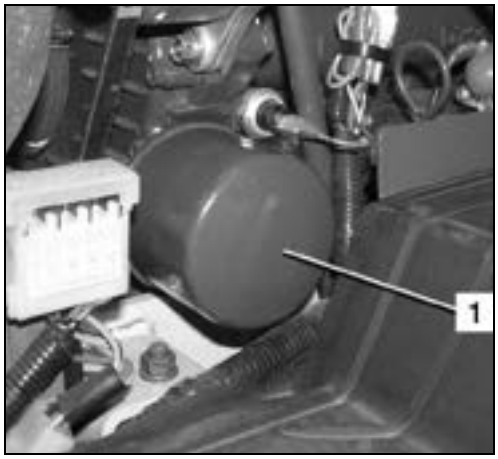
Draining the engine oil

- Remove the oil drain plug (1) and let the engine oil drain into the oil drain pan. Install the oil drain plug using a new seal.



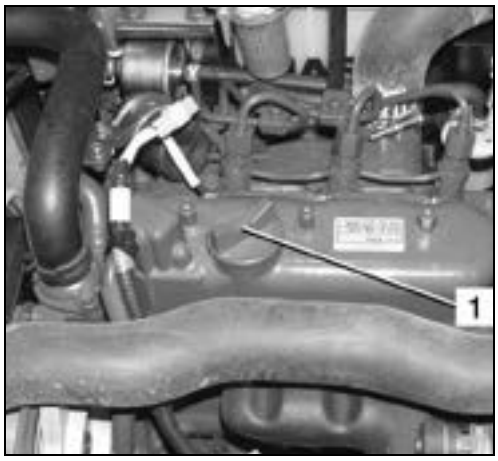
Replacing the oil filter

- Place an oil drain pan under the oil filter and remove the oil filter (1) with a filter wrench by turning it anticlockwise.
- Coat the sealing ring of the new oil filter with engine oil.
- Install and tighten the oil filter by hand. Do not use the filter wrench.



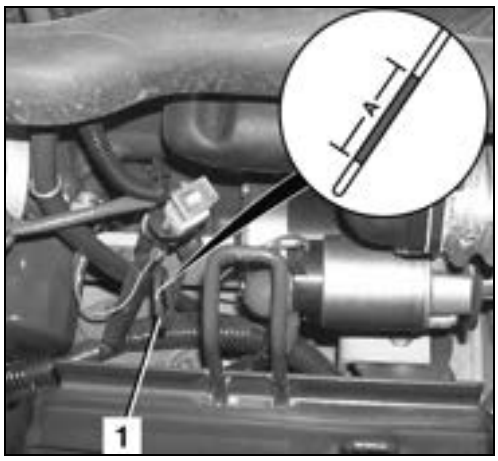
Filling the engine oil

- Open the engine hood (page 89).
- Unscrew the oil filler cap (1) and fill engine oil. See the "Recommended lubricants" section (page 117).



Filling capacity: 2.2 L

- Screw in the oil filler cap.
- Start the engine. The engine oil pressure indicator should disappear immediately after the engine has started; if not, stop the engine immediately and contact trained personnel.
- Let the engine run for approx. 4 minutes and then stop it. Check the oil level after 5 minutes.



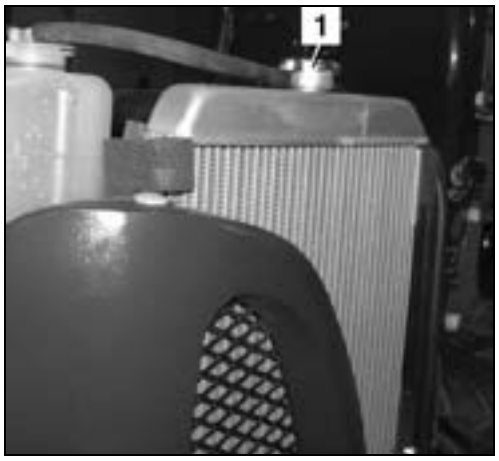
- Pull out the oil dipstick (1) and wipe it with a clean cloth.
- Insert the oil dipstick completely and pull it out again. The oil level should be in the "A" area. If the oil level is too low, add engine oil.

When the oil level is too high or too low, the engine might get damaged during operation.

- When changing the engine oil, fill engine oil up to the maximum of the "A" area.
- Close the engine hood.

Replacing the coolant

Drain the coolant only when the engine is cold.

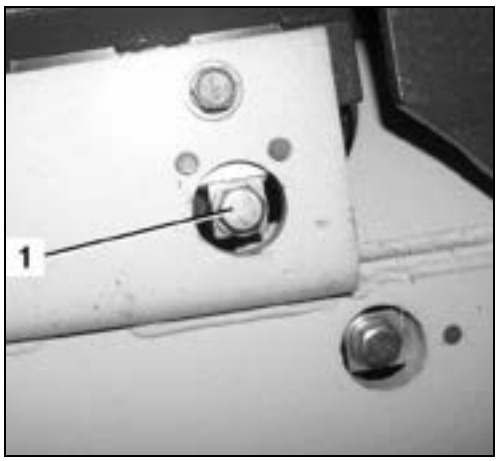


Total cooling system capacity: 3.5 L

- Open the engine hood (page 89).
- Open the radiator cap (1).

- Open the central coolant drain plug (1) and drain the coolant completely.

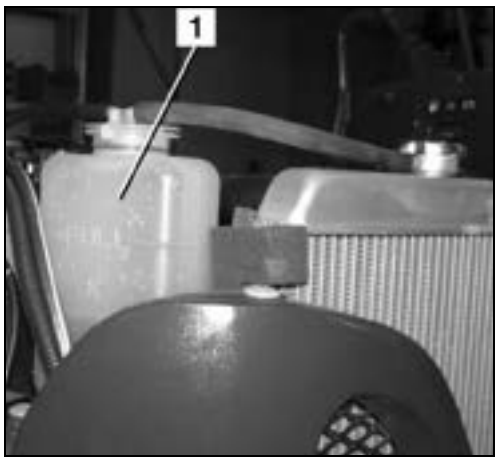
Fill the coolant in a container and dispose of it in accordance with the prevailing environmental protection regulations.



Purge the cooling system if the coolant is very dirty. To do this, spray water without additives into the cooling system with a hose through the filler opening until clear water emerges at the outlet.

- Close the central drain plug.
- Remove the coolant expansion reservoir (1) and drain it, cleaning it if necessary. Refit the reservoir.
- Fill the premixed coolant into the radiator and expansion reservoir.

Do not operate the cooling system with pure water (even in summer). The antifreeze also contains a corrosion inhibitor.

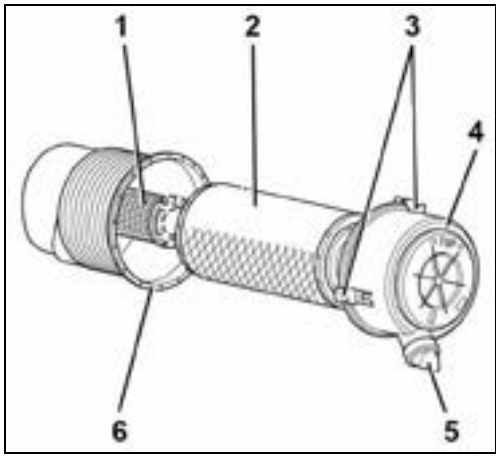


- Let the engine idle for about 5 min, shut it off and check the coolant level in the radiator. The coolant should reach the FULL mark; if not, add coolant.
- Close the engine hood.

Checking, cleaning and replacing the air filter

Risk of engine damage!
The interior filter element (1) must remain installed while cleaning the air filter case (6). Otherwise, particles of dirt could enter the air intake duct while cleaning and damage parts of the injection system and engine.

- Open the engine compartment cover (page 89).
- Open the clips (3) and remove the cover (4).
- Pull the outer filter element (2) out of the air filter case (6) and check it for dirt.
- Clean the air filter case and cover without removing the inner filter element (1). Remove the inner filter element only when replacing it.
- Clean the dust valve (5).
- Replace the outer filter element if it is damaged or too much dust has accumulated on it.



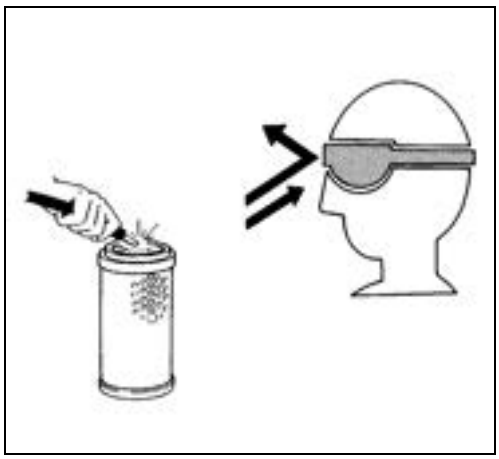
The internal filter element must only be replaced by skilled personnel in the framework of the corresponding service period.

- For the replacement, pull the internal filter element out and immediately insert a new filter element.

Do not clean the filter element with fluids. Never operate the engine without the air filter elements.

Always wear eye protection when working with compressed air.

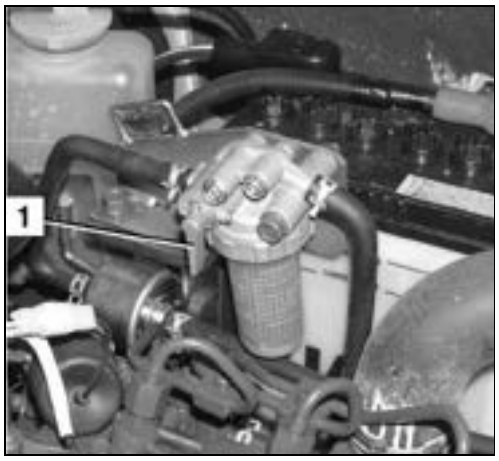
- Clean the outer filter element with compressed air (max. 5 bar) from the inside out without damaging the filter element. Wear eye protection for this service.
- Insert the outer air filter element and the cover with the TOP mark facing up. Then lock the braces.
- Close the engine compartment cover.



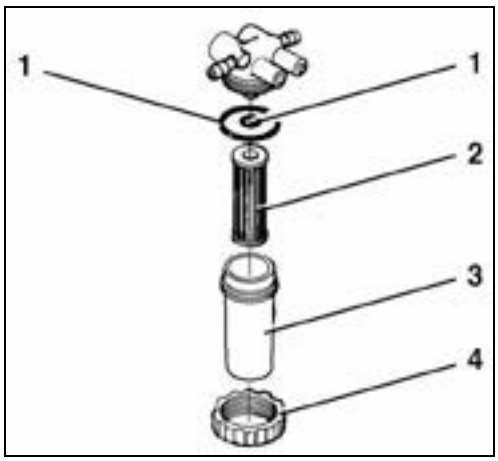
Replacing the fuel filter

- Open the engine hood (page 89).
- Set the cock (1) horizontal to the "C" position.

Place a cleaning cloth under the fuel filter to prevent fuel from spilling on the ground.



- Remove the filter cup retainer (4) while holding the filter cup (3).
- Remove the filter cup and filter.
- Clean the filter cup with clean diesel fuel.
- Replace the fuel filter (2) and the sealing rings (1).
- Apply a light coat of diesel fuel onto the sealing rings.



- Assemble the components in the order shown in the figure above. Tighten the filter cup retainer (4) by hand. Do not use a tool.
- Set the cock vertical to the "O" position.
- Bleed the fuel system (page 87). Check the water separator for leaks at the same time.
- Close the engine hood.

Draining water from the fuel tank

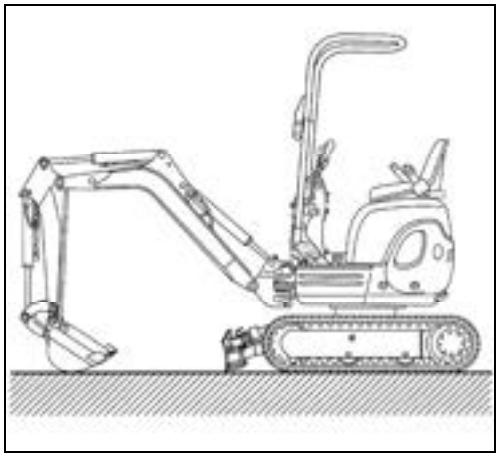
- Place a container with a minimum capacity of 20 L under the fuel drain plug.
- Remove the drain plug (1) and drain the water.
- Install the drain plug with a new o-ring on it.

Topping up hydraulic oil

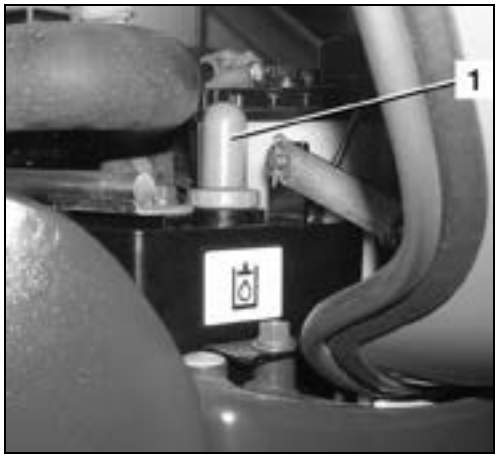
Pay attention to utmost cleanliness when servicing the hydraulic system.

This service may only be carried out after the hydraulic oil has cooled down.

- All hydraulic cylinders have to be extended half way (see figure), the boom has to be in line with the excavator, the dozer blade has to be lowered to the ground and the extendable track width has to be set to standard track width.
- Open the engine hood (page 89).



- Remove the oil filler cap (1).
- Insert a clean funnel into the filler port.



- Fill hydraulic oil to half way up the sight glass (1).
- Screw in the oil filler cap.
- Start the excavator and operate all control functions.
- Check again the oil level of the hydraulic system.

Working with the battery

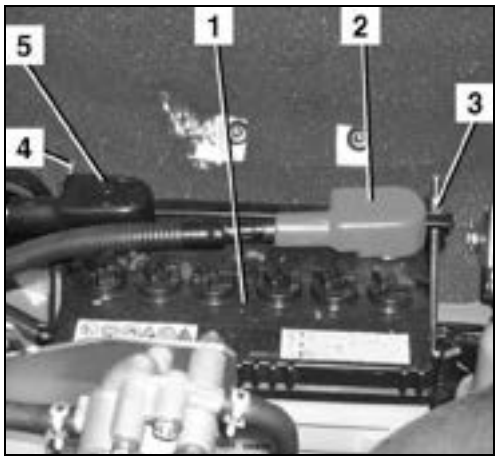
Battery acid is very caustic. Avoid contact with battery acid under all circumstances. If clothing, skin or eyes have come in contact with battery acid, rinse the affected parts immediately with water. If the eyes are affected, immediately seek medical attention! Neutralise spilled battery acid immediately.

When servicing a battery, always wear rubber gloves and eye protection.

- Open the engine hood (page 89). Always close the engine hood after the work is done.

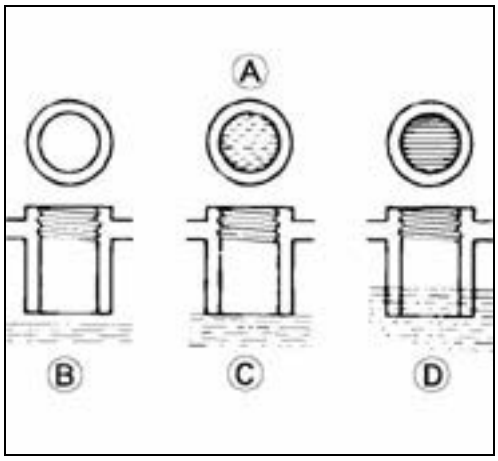
Battery service

- Regular maintenance can extend the life cycle of the battery considerably.
- Check the battery (1) for tightness, tighten with nuts (3 and 4), if necessary.
- Check the battery terminal (2 and 5) for cleanliness, cleaning it if necessary and covering it with petroleum jelly.



Be careful when cleaning the positive terminal - risk of short circuit! Do not use metal tools.

- Check the fluid level of the battery (figure above, position 1). The battery fluid level should be between LOWER LEVEL and UPPER LEVEL at the filler port (C). If necessary, refill with distilled water.



Do not open maintenance-free batteries!

Charging the battery

Charge batteries only in sufficiently ventilated rooms. Smoking, uncovered lights or fire are not allowed in these rooms.

Explosive gas is created when charging batteries. Open flames can cause an explosion.

Remove the fill caps when charging batteries that are virtually empty. Leave the fill caps inside (not empty) batteries that are only charged for maintenance purposes, the fill caps can stay in the batteries.

The battery can only be charged if the starter switch is in the STOP position and the key removed.

If the battery is charged when installed in the vehicle, the engine compartment cover must be left open during the charging procedure. After the charging procedure is completed, the engine compartment cover must be left open for ventilation for about 1 hour prior to start-up. → Risk of explosion.

- Check battery electrolyte level (page 108).
- Remove the negative terminal cover and take off the cable clamp. Put the clamp to the side so that contact with the negative terminal is excluded.
- Remove the positive terminal cover.
- Connect the battery charger to the battery according to the regulations of the charger manufacturer. Choose the normal (gentle) charging method.
- Clean the battery after charging and replenish the electrolyte, if necessary.

Checking the battery

- Charge the battery (page 108).
- Check the acid density with a hydrometer. The acid density should be between 1.24 and 1.28 kg/L. If the acid density differs considerably among the individual cells of a battery, the battery probably has a defect. Check the affected battery with a battery tester and contact trained personnel.

Removing/installing and replacing the battery

When disconnecting and connecting the battery, always observe the specified order. → Risk of short circuit!

- Remove the negative terminal cover and take off the cable clamp. Put the clamp to the side so that contact with the negative terminal is excluded.
- Remove the plus terminal cover and take off the cable clamp. Put the clamp to the side so that contact with the positive terminal is excluded.
- Remove the battery retainer and lift the battery out of the swivel frame.

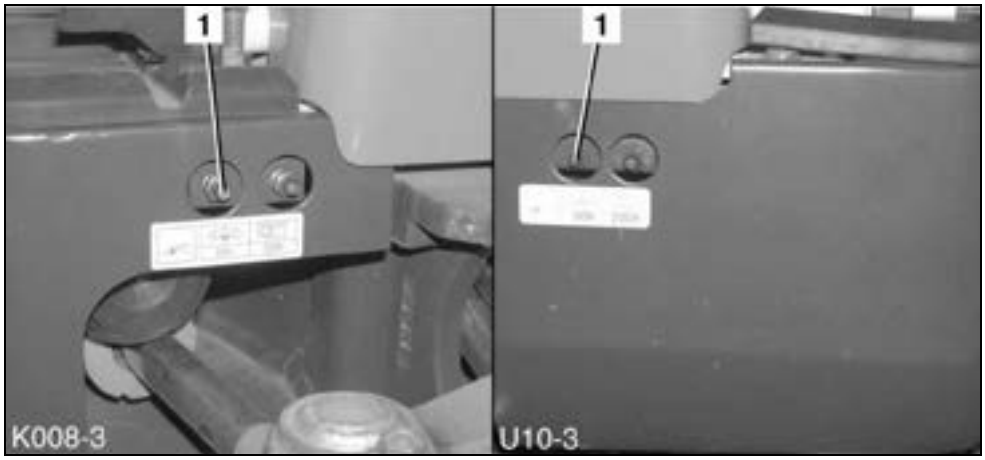
When replacing the battery, always install a battery of the same type with the same power rating and the same dimensions.

- Before installation, cover the battery terminals and cable clamps with petroleum jelly.
- Install the battery in the swivel frame and fasten it with the battery retainer. Check the battery for tightness. → Do not operate the excavator with a loose battery.
- Connect the positive cable clamp to the positive terminal (+) of the battery, install the positive terminal cover.
- Connect the negative terminal (-) of the battery, install the negative terminal cover.

Lubrication

The following describes all non-daily lubricating tasks at the attachments.

Greasing the swivel gear



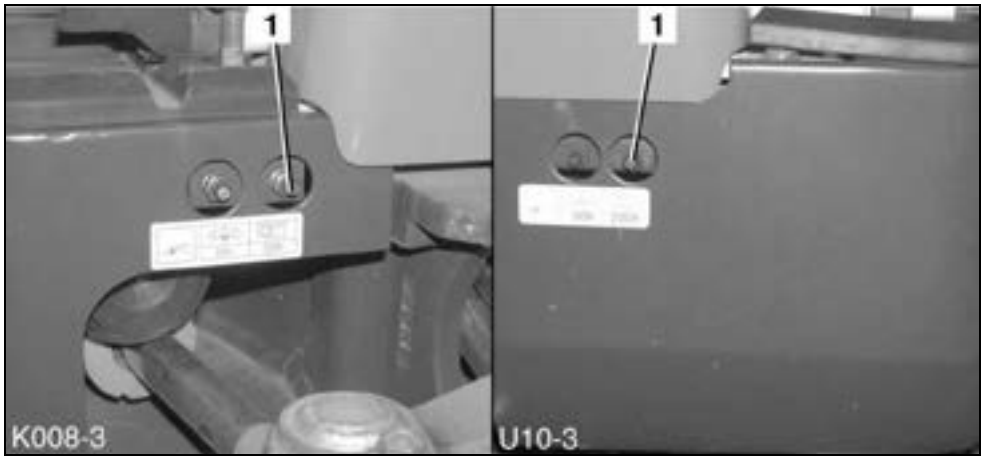
- Fill grease through the grease nipple (1) with a grease gun.

Grease at each 90° position of the swivel gear. Fill approx. 50 g of grease (20-30 shots with the grease gun). See the "Recommended lubricants" section (page 117).

- Operate the excavator and swivel the swivel frame 360° several times in succession to distribute the grease evenly.

When moving the swivel frame, make sure no person or material is in the swivel area. Turn the starter switch to the STOP position and remove the key before the next greasing procedure.

Greasing the pitch bearing



- Fill grease through the grease nipple (1) with a grease gun.

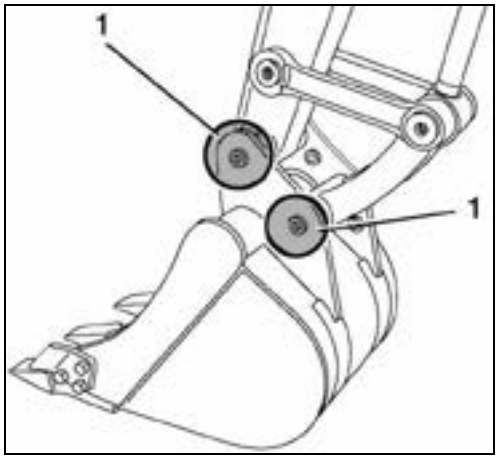
Grease at each 90° position of the pitch bearing. Using the grease gun, apply 20 shots at every position. See the "Recommended lubricants" section (page 117).

- Operate the excavator and swivel the swivel frame by 90° several times. After greasing, swivel the swivel frame 360° several times to distribute the grease evenly.

When moving the swivel frame, make sure no person or material is in the swivel area. Turn the starter switch to the STOP position and remove the key before the next greasing procedure.

Greasing the bucket bolts

- Start the engine (page 61).
- Position the bucket as illustrated. Lock the control lever, stop the engine and remove the key. See the "Operating the controls during excavation work" section (page 72).
- Lubricate all grease points (1) with grease until fresh grease emerges. See the "Recommended lubricants" section (page 117).



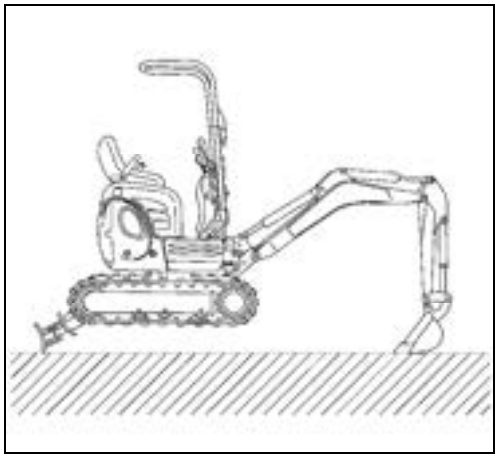
Wipe emerged grease off immediately and store dirty cleaning cloths in the containers provided for disposal.

Checking and adjusting the crawler tension

If the crawlers are too tight, wear is increased.

If the crawlers are too loose, wear is increased and the crawlers may come off.

When parking an excavator with rubber crawlers, ensure that the seam (∞) is on top half way between the two sliders. See figure in the "Checking the crawler tension" section (page 112).



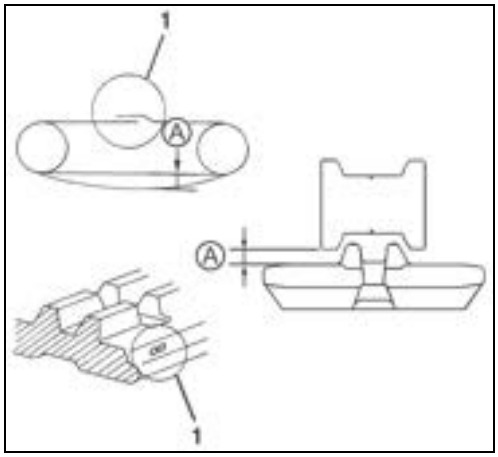
- Clean all parts of the running gear, paying particular attention to stones between the crawler and sprocket or idler. Clean the area of the crawler tensioning cylinder.
- Swivel the swivel frame 180° to the direction of travel as shown in the figure.
- Lower the dozer blade to the ground and raise the excavator until the dozer blade touches the ground.
- Lower the front attachments onto the ground and raise the excavator about 200 mm off the ground.

STOP *Have a guide supervise the procedure.*

Support the excavator with appropriate backing material, observing the vehicle weight.

Checking the crawler tension

- The crawler seam (1) is half way between the idler and sprocket.
- Check the crawler sag as shown in the figure.



Crawler sag "A" 10-15 mm

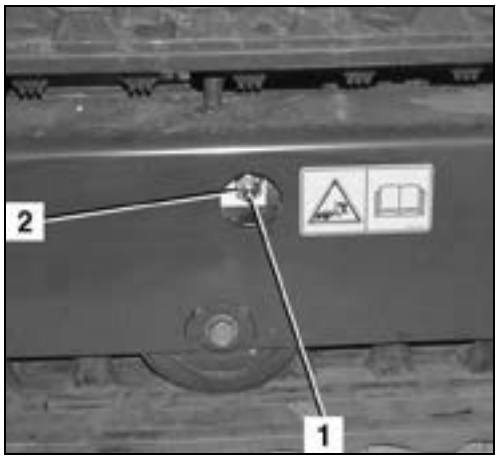
- If the crawler sag is more than 15 mm, adjust the crawler.
- If necessary, tighten or loosen the crawler.
- Start the engine and rotate the lifted crawler briefly.

STOP *Caution: The area around the rotating crawler must be free of persons. Turn the starter switch to the STOP position after turning and remove the key.*

- Recheck the crawler tension, readjusting it if necessary.
- Perform the procedures on the second crawler.

Adjusting the crawler tension

Tightening the crawlers



- Position the grease gun on the grease nipple (1).
- Pump the grease gun until the specified crawler tension is obtained.

Loosening the crawlers

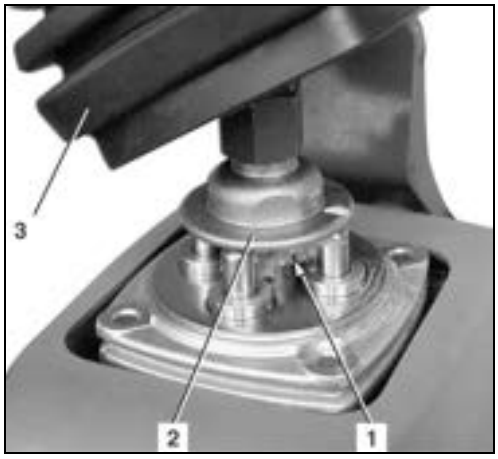
- Cautiously unscrew the pressure valve (2) and loosen the crawler.

Grease could squirt out from the cylinder opening.

- Screw in the pressure valve and torque to 98-108 Nm.
- Tighten the crawler.

The following description applies to the excavator type U10-3.

Greasing the pilot valve linkage



- Pull up the rubber boot on the control lever (3).
- Lubricate the u-joint (1) below the plate (2) with grease. See the "Recommended lubricants" section (page 117).
- Insert the rubber boot in the console.
- Carry out the service for the second control lever.

Checking the electric cables and connections

- Check all accessible electric cables, connectors and connections for condition and security.
- Repair or replace damaged parts.
- Check the fuse box and fuse holders for oxidation and dirt, clean if necessary.

Checking and replacing the fuel lines

Carry out the inspection while the engine is cold.

- Open the engine hood (page 89).
- Check all fuel lines and hoses at the engine, fuel reservoir and fuel filter for condition (cracks, bulges, hard spots) and firm seating of the connections. If necessary, have the lines and hoses replaced by trained personnel.
- Close the engine hood.

Checking the bolted joints

The table below contains the torques for nuts and bolts. These may only be tightened with a torque wrench. Missing torques can be requested from KUBOTA.

Tightening torque for screws

Nm (kgf•m)

	4 T (4.6)	7 T (8.8)	9 T (9.8-10.9)
M 6	7.8~9.3 (0.8~0.95)	9.8~11.3 (1.0~1.15)	12.3~14.2 (1.25~1.45)
M 8	17.7~20.6 (1.8~2.1)	23.5~27.5 (2.4~2.8)	29.4~34.3 (3.0~3.5)
M 10	39.2~45.1 (4.0~4.6)	48.1~55.9 (4.9~5.7)	60.8~70.6 (6.2~7.2)
M 12	62.8~72.6 (6.4~7.4)	77.5~90.2 (7.9~9.2)	103.0~117.7 (10.5~12.0)
M 14	107.9~125.5 (11.0~12.8)	123.6~147.1 (12.6~15.0)	166.7~196.1 (17.0~20.0)
M 16	166.7~191.2 (17.0~19.5)	196.1~225.6 (20.0~23.0)	259.9~304.0 (26.5~31.0)
M 20	333.4~392.3 (34.0~40.0)	367.7~431.5 (37.5~44.0)	519.8~568.8 (53.0~58.0)

Tightening torque for hose clamps

Size	Torque in Nm
13-20	3.5
15-24	3.5
22-32	3.5-5
26-38	3.5-5
40-60	3.5-5
38-50	3.5-5
50-65	3.5-6
68-85	3.5-6

Tightening torque for hydraulic hoses

Wrench size	Torque in Nm	Hose size	Thread
14	20-25	DN 4-1/8“	M12x1.5
17	25-30	DN 6-1/4“	M14x1.5
19	30-35	DN 8-5/16“	M16x1.5
22	40-45	DN 10-3/8“	M18x1.5
27	50-55	DN 13-1/2“	M22x1.5

Also applies to adaptors with pre-installed nut

Tightening torque for hydraulic pipes

Wrench size	Torque in Nm	Pipe size	Thread
17	30-35	6x1	M12x1.5
17	30-35	8x1	M14x1.5
19	40-45	10x1.5	M16x1.5
22	60-65	12x1.5	M18x1.5
27	75-80	15x1.5	M22x1.5
30	90-100	16x2	M24x1.5
32	110-120	18x2	M26x1.5
36	130-140	22x2	M30x2
41	140-160	25x2.5	M36x2
27	60-65	15x1.5	M22x1.5 for ED-2 only

Tightening torque for hydraulic adapters

Thread	Wrench size	Torque in Nm	Pipe size	Thread
1/8“	14	15-20	4x1	M10x1.0
1/8“	17	25-35	6x1	M12x1.5
1/4“	19	34-45	8x1	M14x1.5
1/4“	19-22	40-55	10x1.5	M16x1.5
3/8“	22-24	45-65	12x1.5	M18x1.5
1/2“	27	70-80	15x1.5	M22x1.5
1/2“	27	80-90	16x2	M24x1.5
3/4“	32	100-120	18x2	M26x1.5
1“	36	120-140	22x2	M30x2

Recommended lubricants

	Recommendation			Filled at the factory		Note
	Ambient temperature conditions	**Viscosity**	**Quality standard**	**Brand**	**Type**	
Engine oil	In winter and/or at low temperatures	SAE 10W SAE 20W	API CF API CI-4 API CJ-4			When diesel fuel with a high sulphur content (between 0.50 % and 1.0 %) is used, the engine oil and engine oil filter must be replaced at shorter intervals (approx. half as long). Never use diesel fuel with a sulphur content exceeding 1.0 %.
	In summer and/or at high ambient temperatures	SAE 30 SAE 40 SAE 50				
	All-weather	15W-40				
		15W-30		JOMO	DH-1 (API CF)	
Coolant			G048 SAE J1034 MB 325.0 ASTM D3306 / D4985	KUBOTA	LLC-N-50F mixing ratio 50%	Always use distilled water to mix with anti-freeze. Always follow the recommendations of the coolant manufacturer for the mixing ratio. Do not mix with other coolants.
Grease		NLGI-2	DIN 51825 KP2K-30	Cosmo	EP2*	
		NLGI-1				
Hydraulic oil	In winter and/or at low temperatures	ISO 32 ISO 46		Shell	Tellus S2 M 46*	
	In summer and/or at high ambient temperatures	ISO 46 ISO 68				
Biodegradable hydraulic oil (Option)			ISO 15380	Panolin	HLP SYNTH 46	Less than 2 % mineral oil remains in the system as per ISO 15380.

	Recommendation			Filled at the factory		Note
	Ambient temperature conditions	**Viscosity**	**Quality standard**	**Brand**	**Type**	
Gear oil	In winter and/or at low temperatures	SAE 75 SAE 80	MIL-L-2105C			
	In summer and/or at high ambient temperatures	SAE 90 SAE 140				
	All-weather	80W-90		Nippon Oil Corporation	Hypoid gear oil	
Fuel**			ASTM D975 EN 590			For preparing the excavator for use in winter, fill the fuel tank with winter diesel and allow the engine to run for a few minutes. Never use diesel fuel with a sulphur content exceeding 1.0 %.

* These lubricants are used by the manufacturer for the initial filling.

** Only use fuels with a maximum sulphur content of 10 mg/kg (20 mg/kg at the last distribution point to the end user), a minimum cetane rating of 45, and a maximum share of 7 % fatty acid methyl ester (FAME).

Repair work on the machine

Repairs on the machine may only be carried out by trained personnel.

If repairs are carried out on load supporting parts, for example welding on frame parts, the work has to be checked by a qualified person.

After repairs, the machine should be operated only if it is functioning properly. For this check particular attention must be paid to the repaired parts and the safety devices.

SAFETY INSPECTION

All safety inspections are based on the national worker's protection regulations, safety regulations and technical specifications applicable to the country where the machine is deployed.

The operator (page 13) should arrange for the safety inspections to be performed at specified intervals according to national rules and regulations.

Based on their technical training and experience, the qualified personnel should have sufficient knowledge in the domain of the machine described here and be familiar with the applicable national work safety regulations, accident prevention regulations and the generally accepted technical rules so that they can assess the safe condition of the machine.

The qualified person must keep his appraisal and evaluation neutral and must not be influenced by personal, economic or operational interests. The inspection is a visual and functional check of all components for condition and completeness and of the effectiveness of the safety devices.

The performance of the inspection must be documented as an inspection report containing at least the following information:

- Date and scope of the inspection indicating all pending checks,
- Result of the inspection with a report of the determined faults,
- Assessment in respect to starting or continuing operation,
- Information on necessary follow-up inspections and
- Name, address and signature of the inspector.

The owner/employer (company) is responsible for the observance of the inspection intervals. The acknowledgement and the elimination of the determined faults must be confirmed by the owner/employer in writing, along with the date, in the inspection report.

The inspection report must be kept on file at least until the next inspection.

TAKING OUT OF SERVICE AND STORAGE

If the excavator is taken out of service for up to six months, the measures before, during and after taking out of service must be carried out as described below. If the vehicle is to be taken out of service for a period of over six months, contact the manufacturer for additional measures.

Safety rules for taking out of service and storage

The general safety rules (page 10), the safety rules for operation (page 52) and the safety rules for maintenance (page 93) apply.

When taking the excavator out of service, secure it against unauthorised use.

Storage conditions

The storage place must have a sufficient bearing capacity for the weight of the excavator.

The storage place must be frost-free, dry and well ventilated.

Measures before taking out of service

- Clean and dry the excavator thoroughly (page 99).
- Check the hydraulic oil level, add oil if necessary (page 57).
- Change the engine oil and oil filter (page 101).
- Drive the excavator to the storage place.
- Remove the battery (page 109) and store it in a dry and frost-free room. If necessary, connect it to a trickle charger.
- Grease the front attachments (page 58).
- Grease the pitch bearing (page 111).
- Grease the swivel gear (page 110).
- Check the antifreeze strength of the coolant, add coolant if necessary (page 99).
- Grease the hydraulic cylinder piston rods.

Measures during taking out of service

- Charge the battery regularly (page 108).

Start-up after taking out of service

- If necessary, clean the excavator thoroughly.
- Check the hydraulic oil for condensate water, replacing the oil if necessary.
- Install the battery (page 109).
- Check the safety devices for proper operation.
- Carry out pre-operational services (page 55). If defects are detected whilst starting the machine, the excavator may only be started up after the defects have been repaired.
- If the safety inspection is due while the vehicle has been taken out of service, the inspection must be performed before start-up.
- Start the engine (page 61). Run the excavator at idle and check all functions.

LIFTING CAPACITY OF THE EXCAVATOR

- The lifting capacity of the excavator is based on ISO 10567 and does not exceed 75% of the static tipping load or 87% of the hydraulic lifting capacity of the machine.
- The lifting capacity is measured at the front pin part of the arm with the arm fully extended. The boom cylinder is the operating cylinder.
- The lifting conditions are:

1. Swivel up to 360°

The position of the dozer is not relevant to the maximum lifting capacity when swivelling up to 360°.
The illustration on the label is representative of both states: Dozer up and down.

2. Over front end, dozer down

3. Over front end, dozer up

- As well as the lifting conditions, the length of the arm also affects the permitted lifting capacities and the stability of the machine. Compare the dimensions of the machine arm with the details given in the lifting capacity tables, in order to use the correct lifting capacity table for your machine.

Dimensions for the arm, see table "Arm version" in the section "Dimensions" (page 34).

Do not lift loads which exceed the values indicated in the lifting capacity tables.

The values given in the tables apply only to level and hard grounds. When working on soft ground, the machine can tip over easily, as the load is concentrated on one side only and the track or the dozer can dig into the ground.

The values given in the tables apply only for loads without bucket. If a bucket is used, the weight of the bucket must be subtracted from the values in the tables. The weight of mounted accessories (e.g. breaker) must be subtracted from the lifting capacity.

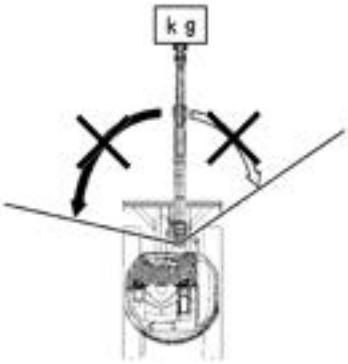
Always observe the maximum permissible lifting capacity of the hoisting gear (e.g. load hooks). The lifting of loads over the maximum permissible lifting capacity is not allowed.

During lifting operations, the boom may not be swivelled to the left or right. The machine could tilt! To avoid accidental operation, fold down the rear part of the boom swing pedal.

During lifting operations, driving/moving the crawler chassis is not permitted.

Use utmost care to avoid any risk of tipping, slipping, or other potential risks implied when lifting loads.
The operator must

- Pick up the load at the centre
- Avoid moving the machine abruptly
- Make sure the load does not swing



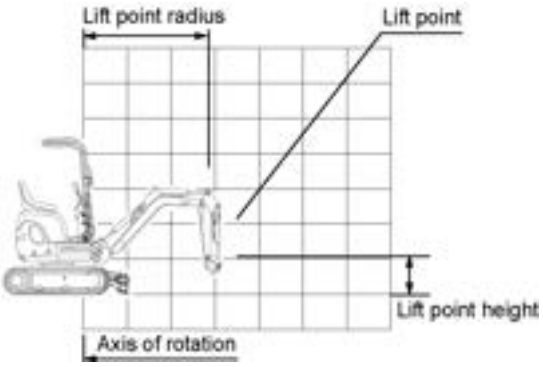
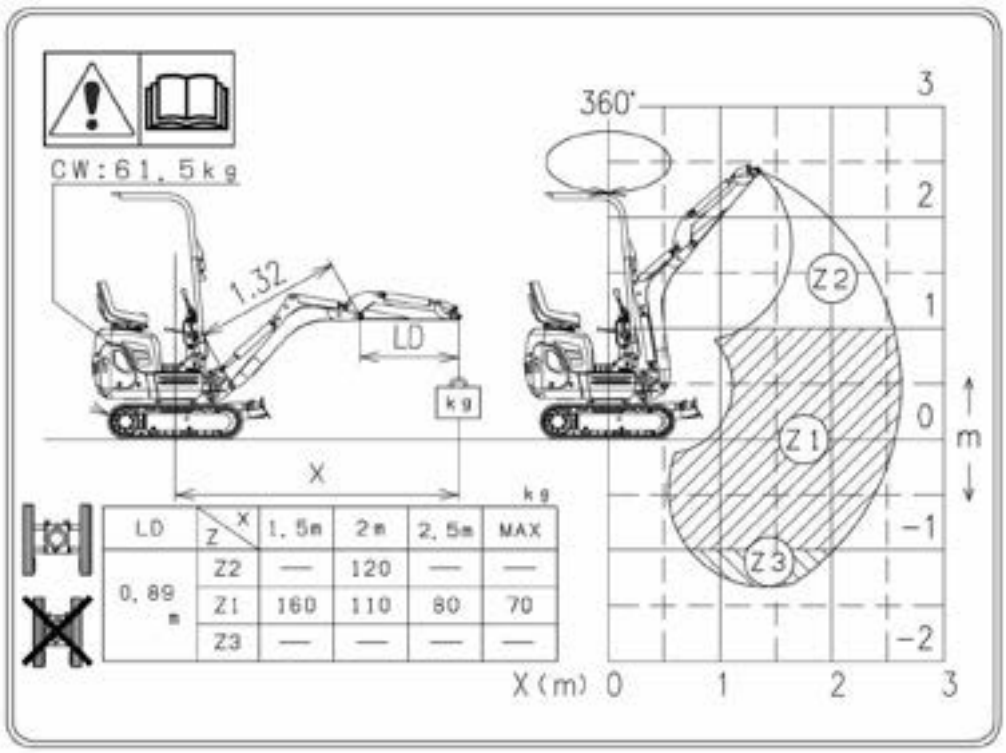


Table Max. lifting load during swivel operation 360°

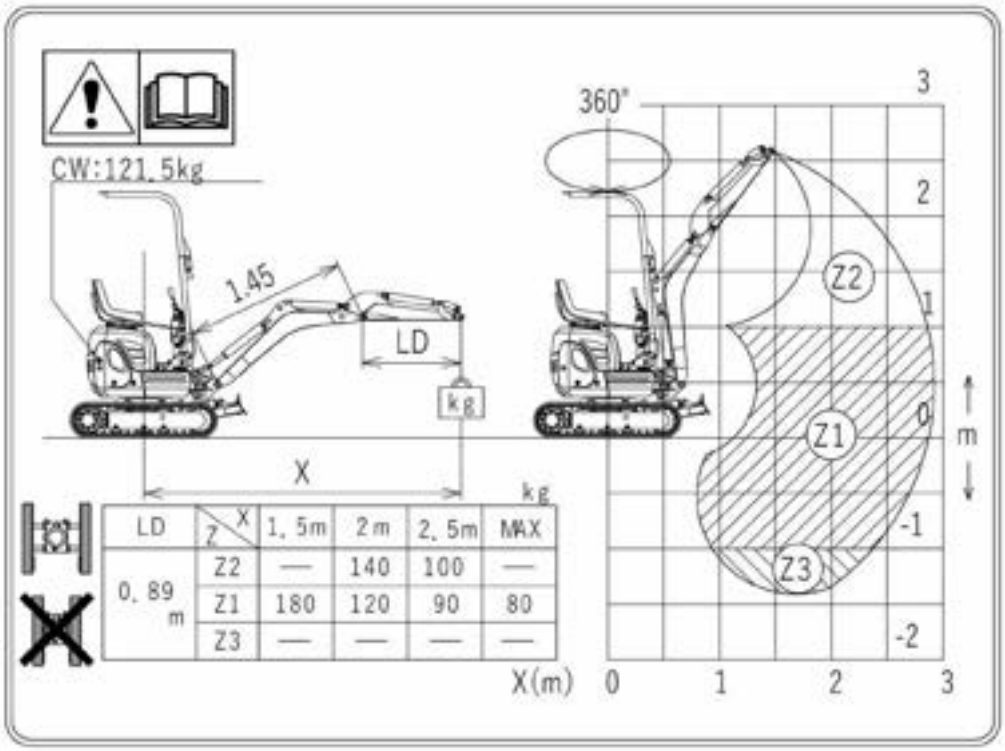
K008-3 / Arm 890 mm



kg

LD	Z \ X	1.5m	2m	2.5m	MAX
0.89 m	Z2	—	120	—	—
	Z1	160	110	80	70
	Z3	—	—	—	—

U10-3 / Arm 890 mm



kg

LD	Z \ X	1.5m	2m	2.5m	MAX
0.89 m	Z2	—	140	100	—
	Z1	180	120	90	80
	Z3	—	—	—	—

Lifting capacity over front end, dozer blade down

MODEL	K008-3

SPECIFICATION	RUBBER CRAWLER
	ARM 890 mm

kN (t)

HEIGHT of LIFTING CAPACITY [mm]		LIFT POINT RADIUS (mm)											
				Mini-mum	1500	2000	2500	Maxi-mum					
	4500												
	4000												
	3500												
	3000												
	2500												
	2000					1.9 (0.20)							
	1500					1.8 (0.18)							
	1000				2.4 (0.24)	2.0 (0.21)	1.7 (0.17)						
	500				3.4 (0.34)	2.3 (0.23)	1.7 (0.17)	1.5 (0.15)					
GL	0			6.0 (0.61)	3.4 (0.35)	2.2 (0.23)	1.5 (0.16)						
	-500			4.9 (0.50)	2.9 (0.30)	1.9 (0.20)							
	-1000			3.6 (0.37)	2.1 (0.22)	1.3 (0.13)							
	-1500												
	-2000												
	-2500												

Lifting capacity over front end, dozer blade up

MODEL	K008-3

SPECIFICATION	RUBBER CRAWLER
	ARM 890 mm

kN (t)

HEIGHT of LIFTING CAPACITY [mm]		LIFT POINT RADIUS (mm)											
				Mini-mum	1500	2000	2500	Maxi-mum					
	4500												
	4000												
	3500												
	3000												
	2500												
	2000					1.5 (0.15)							
	1500					1.5 (0.15)							
	1000				2.3 (0.24)	1.5 (0.15)	1.0 (0.10)						
	500				2.1 (0.22)	1.4 (0.14)	1.0 (0.10)	0.9 (0.09)					
GL	0			3.8 (0.39)	2.0 (0.20)	1.3 (0.14)	1.0 (0.10)						
	-500			3.8 (0.39)	1.9 (0.20)	1.3 (0.13)							
	-1000			3.6 (0.37)	2.0 (0.20)	1.3 (0.13)							
	-1500												
	-2000												
	-2500												

Please note the model name and operating weight on the type plate (page 38).

Lifting capacity of the excavator

MODEL	U10-3

SPECIFICATION	RUBBER CRAWLER
	ARM 890 mm

kN (t)

HEIGHT of LIFTING CAPACITY [mm]		LIFT POINT RADIUS (mm)												
				Mini-mum	1500	2000	2500	Maxi-mum						
	4500													
	4000													
	3500													
	3000													
	2500													
	2000					1.7 (0.17)								
	1500					1.8 (0.18)	1.7 (0.17)							
	1000				2.9 (0.29)	2.2 (0.22)	1.8 (0.18)							
	500				4.1 (0.42)	2.5 (0.26)	1.8 (0.19)	1.4 (0.14)						
GL	0				3.8 (0.39)	2.5 (0.25)	1.7 (0.18)							
	-500			5.6 (0.57)	3.2 (0.32)	2.1 (0.22)	1.5 (0.15)							
	-1000				2.4 (0.25)	1.6 (0.17)								
	-1500													
	-2000													
	-2500													

Lifting capacity over front end, dozer blade up

MODEL	U10-3

SPECIFICATION	RUBBER CRAWLER
	ARM 890 mm

kN (t)

HEIGHT of LIFTING CAPACITY [mm]		LIFT POINT RADIUS (mm)												
				Mini-mum	1500	2000	2500	Maxi-mum						
	4500													
	4000													
	3500													
	3000													
	2500													
	2000					1.7 (0.17)								
	1500					1.7 (0.17)	1.2 (0.12)							
	1000				2.6 (0.26)	1.6 (0.16)	1.1 (0.12)							
	500				2.3 (0.24)	1.5 (0.16)	1.1 (0.11)	0.9 (0.09)						
GL	0				2.2 (0.22)	1.5 (0.15)	1.1 (0.11)							
	-500			4.5 (0.46)	2.2 (0.22)	1.4 (0.15)	1.0 (0.11)							
	-1000				2.2 (0.22)	1.4 (0.15)								
	-1500													
	-2000													
	-2500													

Please note the model name and operating weight on the type plate (page 38).

ACCESSORIES

The accessories approved for this excavator by the respective countries are described in the following segments. For further accessories, please contact your KUBOTA dealer or authorized retailer.

Accessories from other manufacturers may only be fitted after prior written approval from KUBOTA. See also the "Approved use" section (page 13).

The size, weight and arm bracket of the excavator are important factors in the selection of attachments. These factors must be made known to the attachment manufacturer when ordering attachments, and be observed by the operator when operating the excavator. Various attachments are nevertheless of limited use only.

KUBOTA bucket accessories

For further bucket accessories, please contact your KUBOTA dealer or authorized retailer.

Kubota

U.S.A : **KUBOTA TRACTOR CORPORATION**
1000 Kubota Drive, Grapevine, TX 76051
Telephone: 888-4KUBOTA

Canada : **KUBOTA CANADA LTD.**
5900 14th Avenue, Markham, Ontario, L3S 4K4, Canada
Telephone: (905)294-7477

France : **KUBOTA EUROPE S.A.S.**
19-25, Rue Jules Vercruysse, Z.I. BP88, 95101 Argenteuil Cedex, France
Telephone: (33)1-3426-3434

Italy : **KUBOTA EUROPE S.A.S. Italy Branch**
Via Grandi, 29 20068 Peschiera Borrome (MI) Italy
Telephone: (39)02-51650377

Germany : **KUBOTA BAUMASCHINEN GmbH**
Steinhauser Str. 100, 66482 Zweibrücken Germany
Telephone: (49)6332-4870100

U.K. : **KUBOTA (U.K.) LTD.**
Dormer Road, Thame, Oxfordshire, OX9 3UN, U.K.
Telephone: (44)1844-214500

Australia : **KUBOTA TRACTOR AUSTRALIA PTY LTD.**
25-29 Permas Way, Truganina, VIC 3029, Australia
Telephone: (61)-3-9394-4400

Malaysia : **SIME KUBOTA SDN. BHD.**
No.3 Jalan Sepadu 25/123 Taman Perindustrian Axis,
Seksyen 25, 40400 Shah Alam, Selangor Darul Ehsan Malaysia
Telephone: (60)3-736-1388

Philippines : **KUBOTA PHILIPPINES, INC.**
232 Quirino Highway, Baesa, Quezon City 1106, Philippines
Telephone: (63)2-422-3500

Taiwan : **SHIN TAIWAN AGRICULTURAL MACHINERY CO., LTD.**
16, Fengping 2nd Rd, Taliao Shiang Kachsiung 83107, Taiwan R.O.C.
Telephone: (886)7-702-2333

Thailand : **SIAM KUBOTA CORPORATION CO., LTD.**
101/19-24 Moo 20, Navanakorn Industrial Estate, Tambon Khlongnueng,
Amphur Khlongluang, Pathumthani 12120, Thailand
Telephone: (66)2-909-0300

Japan : **KUBOTA CORPORATION**
Farm & Industrial Machinery International Operations Headquarters
2-47, Shikitsuhigashi 1-chome, Naniwa-ku, Osaka, Japan 556-8601