

Operator's Manual

Track excavator

1404



Machine model	1404
Edition	2.0
Order no.	1000164553
Language	EN



**WACKER
NEUSON**

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The cover features the machine with possible optional equipment.

Translation of original Operator's Manual



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1 Introduction

1.1 Important information on this Operator's Manual

Please store the Operator's Manual in the storage bin under the seat.

This Operator's Manual contains important information on how to work safely, correctly and economically with the machine. Therefore, it aims not only at new operators, but it also serves as a reference for experienced ones. It helps to avoid dangerous situations and reduce repair costs and downtimes. Furthermore, the reliability and the service life of the machine will be increased by following the instructions in the Operator's Manual. This is why **the Operator's Manual must always be kept at hand in the machine.**

Your own safety, as well as the safety of others, depends to a great extent on how the machine is moved and operated. Therefore, carefully read and understand this Operator's Manual prior to the first drive. This Operator's Manual will help to familiarise yourself more easily with the machine, thereby enabling you to use it more safely and efficiently.

Prior to the first drive, carefully read chapter "Safety Instructions" as well, in order to be prepared for possible dangerous situations, as it will be too late for it during operation. As a rule, keep the following in mind:

Careful and prudent working is the best way to avoid accidents!

Operational safety and readiness of the machine do not only depend on your skill, but also on maintenance and servicing of the machine. This is why regular maintenance and service work is absolutely necessary. Extensive maintenance and repair work must always be carried out by an expert with appropriate training. Insist on using original spare parts when carrying out maintenance and repair work. This ensures operational safety and readiness of your machine, and maintains its value.

- Special equipment and superstructures are not described in this Operator's Manual.
- We reserve the right to improve the technical standard of our machines without adapting the Operator's Manual.
- Modifying Wacker Neuson products and fitting them with additional equipment and attachments not included in our delivery program requires Wacker Neuson's written authorisation, otherwise warranty and product liability for possible damage caused by these modifications shall not be applicable.
- Subject to modifications and printing errors.

Your Wacker Neuson dealer will be pleased to answer any further questions regarding the machine or the Operator's Manual.

Abbreviations/symbols

- This symbol stands for a list
 - Subdivision within lists or an activity. Follow the steps in the recommended sequence

 This symbol requires you to carry out the activity described

 Description of the effects or results of an activity

n. s. = not shown

"Opt" = option

Stated whenever controls or other components of the machine are installed as an option.

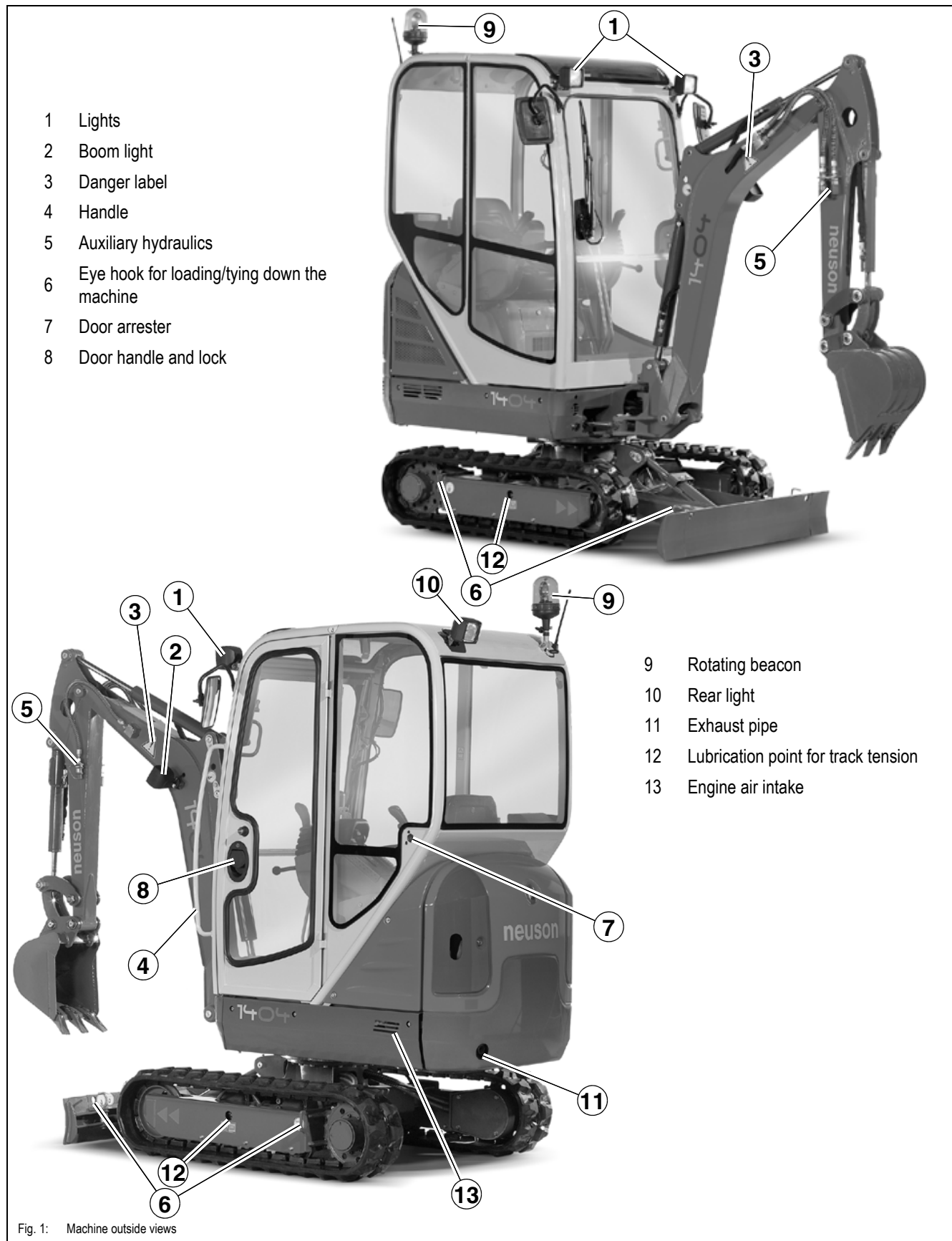


This symbol shows the driving direction – for better orientation in figures and graphics.



Introduction

1.2 Machine overview





1.3 Brief description

The model 1404 excavator is a self-propelled work machine.

Get informed on and follow the legal regulations of your country.

This machine is a versatile and powerful helper for moving earth, gravel and debris on construction sites and elsewhere. A wide range of attachments accounts for the numerous applications of the machine, among others hammer and grab applications. See chapter *1.4 Fields of application, attachments* for further applications.

The main components of the machine are:

- FOPS, TOPS and ROPS tested open cab (standard)
- FOPS, TOPS and ROPS tested closed cab (option)
- Model 1404: water-cooled Yanmar three cylinder diesel engine
- Sturdy steel sheet chassis; rubber-mounted engine

Travelling drive

The diesel engine permanently drives the gear pump whose oil flow is sent to a hydraulic motor.

Work hydraulics

The diesel engine drives the joint gear pump for the work hydraulics. The oil flow of this pump depends on the diesel engine speed only.

Cooling system

The telltales in the instrument panel of the machine ensure constant monitoring of the engine and hydraulic oil temperature, as well as of the coolant temperature and level.

Cab (ROPS, TOPS and FOPS)

Modifying or carrying out improper repair work on the cab is dangerous. Do not modify the cab. Repair work may be carried out by an authorised workshop only. If the cab has been damaged, check it before resuming work and have it repaired if necessary. Please contact your Wacker Neuson dealer for support. Failure to follow this precautionary measure can lead to severe or fatal injury. The cab has been specially designed for your protection in case of an accident.

Fasten your seatbelt, otherwise you can be thrown around or even outside the cab and crushed. Therefore always fasten your seatbelt as you drive and work with the machine. Tighten the seatbelt before taking up work with the machine.



Introduction

1.4 Fields of application, attachments

The attachments will decide in the first place how the excavator is used.



Caution!

In order to avoid damage to the machine, only the attachments listed below have been certified for installation on the machine.

Please contact your Wacker Neuson dealer if you wish to use other attachments.

Using tools of other manufacturers, or tools which have been released for other excavator types, can reduce the machine's output and stability considerably, and can also cause damage to the machine and injuries to the operator or the staff.

Always compare the weight of the attachment and its maximum payload with the indications in the lift capacity table. Never exceed the maximum payload stated in the lift capacity table.

Use: attachment

Possible attachments

Description of attachment	Capacity	Item no.:	Excavator	Remarks
Complete quickhitch		1000004049	1404	Required for operation of Wacker Neuson quickhitch systems ³
Bucket B = 250 mm	23 l	1000093251	1404	
	23 l	1000017084	1404	For quickhitch
Bucket B = 300 mm	27 l	1000093249	1404	
	27 l	1000017085	1404	For quickhitch
Bucket B = 400 mm	35 l	1000093252	1404	
	35 l	1000017087	1404	For quickhitch
Bucket B = 500 mm	44 l	1000093253	1404	
	44 l	1000017088	1404	For quickhitch
Bucket B = 600 mm	53 l	1000093254	1404	
	53 l	1000017089	1404	For quickhitch
Offset bucket B = 850 mm	50 l	1000093255	1404	
	50 l	1000017090	1404	For quickhitch
Offset bucket B = 1000 mm	56 l	1000096515	1404	
	56 l	1000017091	1404	For quickhitch
Ditch cleaning bucket B = 850 mm	69 l	1000093460	1404	
	68 l	1000093335	1404	For quickhitch
Ditch cleaning bucket B = 1000 mm	82 l	1000096528	1404	
	80 l	1000096518	1404	For quickhitch
Hammer console		1000020344	1404	Universal mount



Description of attachment	Capacity	Item no.:	Excavator	Remarks
Hammer mounting kit		1000157326	1404	Mount for Wacker Neuson hammers

1.5 Regulations

Requirements to be met by the driver

Earth moving machines may be driven and serviced only by persons who meet the following requirements:

- 18 years or older
- Physically and mentally suited for this work
- Persons have been instructed in driving and servicing the earth moving machine and have proven their qualifications to the contractor
- Persons are expected to carry out work reliably.

They have been appointed by the contractor for driving and servicing the earth moving machine.

Get informed on and follow the legal regulations of your country.



1.6 EC Declaration of Conformity version 1404 RD



**WACKER
NEUSON**

EC Declaration of Conformity

According to Machine Directive 2006/42/EC, appendix II A

Manufacturer

Wacker Neuson Linz GmbH
Haidfeldstr. 37
A-4060 Linz-Leonding

Product

Machine designation:	Hydraulic excavator
Machine model:	1404
Serial no.:	_____
Output (kW):	13.2 kW
Measured sound power level:	92.1 dB (A)
Guaranteed sound power level:	93 dB (A)

Conformity assessment procedure

Notified body according to Directive 2006/42/EC, appendix XI:

Fachausschüsse Bau und Tiefbau
Prüf- und Zertifizierungsstelle im BG-PRÜFZERT
Landsberger Str. 309
D-80687 Munich
Distinguishing EU number 0036

Notified body according to Directive 2000/14/EC, appendix VI:

TÜV SÜD Industrie Service GmbH
Westendstr. 199
D-80686 Munich

Directives and standards

We hereby declare that this product corresponds to the relevant regulations and requirements of the following Directives and standards:

2006/42/EC (old 98/37 EC), 2004/108/EC (old 89/336/EEC), 2002/44/EC, 2005/88/EC, 2000/14/EC;
DIN EN ISO 12100-1 and 2, DIN EN 474-1 and 5, DIN EN 14121,
DIN EN 3471, DIN EN 13510, EN ISO 3744, EN ISO 3746, DIN EN ISO 3449

Leonding, _____
Place, date


Thomas Köck,
Responsible for documentation


Josef Erlinger,
Managing director

1.7 Type labels and component numbers

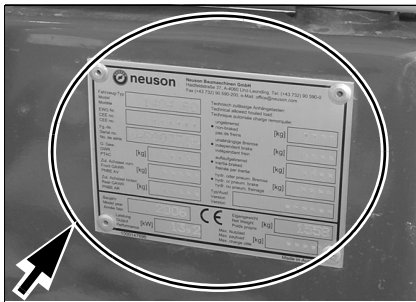


Fig. 1: Type label: location

[illegible]

Fig. 2: Type label



Fig. 3: Cab type label

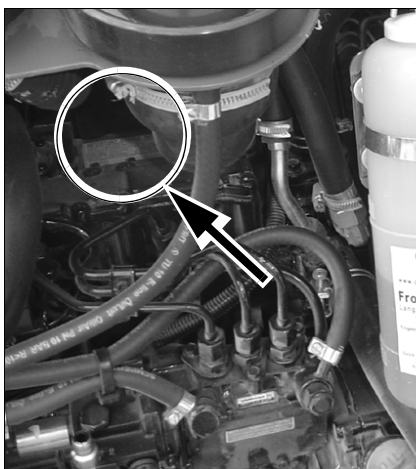


Fig. 4: Diesel engine number

Serial number

The serial number is stamped on the machine chassis.
It is also located on the type label.

The type label is located at the front left on the machine chassis (at cab level)

Type label information

Example: 1404 RD

Machine model:	1404 RD
Serial no.:	e.g. AF01272
Model year:	2006
Output:	13.2 kW
Dead weight:	1550 kg

Other information – see [chapter 6 Specifications](#) on page 6-1

Cab number

The type label (arrow) is located at the top right on the cab frame.

Engine number

The type label (arrow) is located on the valve cover (engine).

Example: Yanmar 46557



Introduction

1.8 Signs and symbols



Fig. 5: Eye hook label

Meaning

Machine is raised by the eye hooks

Location

On either side of the stabiliser blade, and on either side of the boom



Fig. 6: Label for points used for tying down the machine

Meaning

Points for tying down the machine.

The machine is tied and tied down at these points during loading and transport.

Location

On either side of the stabiliser blade, and on either side of the undercarriage

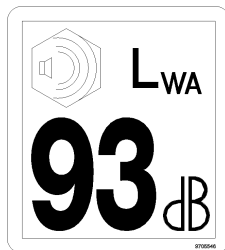


Fig. 7: Noise level label

Meaning

Noise levels produced by the machine.

L_{WA} = sound power level

Location

On the front side of the engine cover

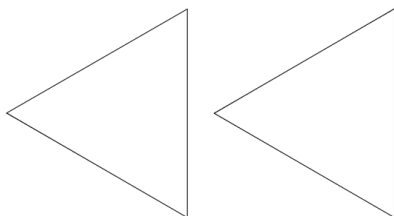


Fig. 8: Direction arrows

Meaning

This label shows the forwards driving direction.

Location

On either side of the undercarriage



Fig. 9: Danger label

Meaning

General indication of danger.

This label warns persons standing or working near the excavator of an existing danger within the area of increased danger around the machine.

Location

On either side of the boom

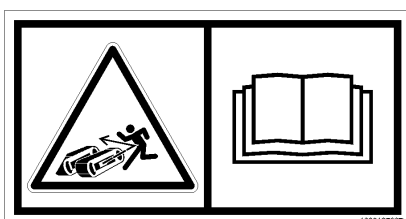


Fig. 10: Tighten tracks

Meaning

The label means the following:

- Caution, danger of spurting grease!
- Always read the Operator's Manual before tightening the tracks.

Always follow the instructions on the safety label!

Location

On the undercarriage



Fig. 11: Prohibitory label

Meaning

Do not open engine cover before engine is at a standstill!
Do not touch any moving or turning parts!

Location

On the front side of the engine cover, on the radiator



Fig. 12: Rotating V-belt

Meaning

This safety label warns of the following dangers:

- Caution, rotating fan!
Stop the engine before opening the engine cover!
Stay clear of the engine compartment if the fan is still running.
- Caution, danger of being caught up!
Stay clear of the engine compartment with the engine running!
Carry out work in the engine compartment at engine standstill only.
- The tank is hot and under pressure!
Allow the tank to cool down!
Carefully and slowly open the cover only after the tank has cooled down, to release the pressure.
Wear suitable protective clothing to open the cover.

Location

In the engine compartment



Fig. 13: Hot surfaces

Meaning

Do not touch hot surfaces, wait for parts to cool down.

Location

On the front side of the engine cover



Fig. 14: Diesel

Meaning

Fill in diesel fuel only!

Location

On the fuel tank

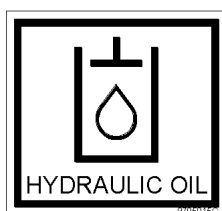


Fig. 15: Hydraulic oil

Meaning

The tank contains hydraulic oil.

Location

On the hydraulic oil tank



Introduction



Fig. 16: Hydraulic oil tank under pressure

Meaning

The tank is hot and under pressure!

Location

On the top right of the radiator, on the front side of the engine cover



Fig. 17: Front window

Meaning

Caution, danger of being caught up!

Always use the handles to open and close the front window!

Always fasten the front window with both locks!

Location

On the front window



Fig. 18: Read the Operator's Manual

Meaning

Read the Operator's Manual before working with the machine!

Location

On the control panel

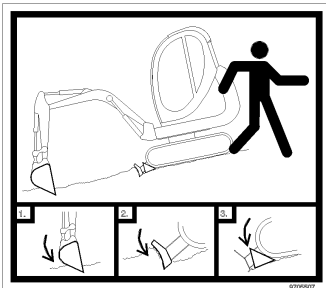


Fig. 19: Parking the machine correctly

Meaning

Press the boom and the stabiliser blade into the ground as you leave the machine, remove the ignition key and place chocks on the left and right under the tracks.

Location

On the front side of the engine cover

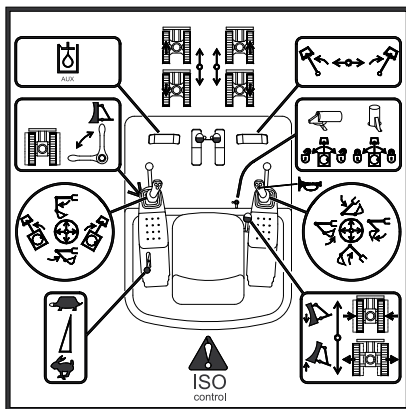


Fig. 20: Controls

Meaning

This label describes the pedal and control lever functions.

– see *Control levers/ISO controls: overview* on page 3-39

Location

On the control panel



1.9 Fire extinguisher



Fig. 21: Position of fire extinguisher

The fire extinguisher is not supplied with the machine.

🔧 *Retrofitting a fire extinguisher according to DIN-EN 3 must be carried out by an authorised workshop*

🔧 *Location:*

➡ In the cab, on the left in driving direction behind the seat (see [Fig. 21](#)).

🔧 *Installation:*

- Drill 2 holes of a diameter of 4.5 mm into the cab profile (see [Fig. 21](#)).
- Then fasten the fixture for the fire extinguisher with 2 M5x20 sheet-metal screws



Notice!

Check the fire extinguisher at regular intervals, also make sure it is safely mounted.



2 Safety instructions

2.1 Identification of warnings and dangers

Important indications regarding the safety of the staff and the machine are identified in this Operator's Manual with the following terms and symbols:



Danger!

Failure to observe the instructions identified by this symbol can result in personal injury or death for the operator or other persons.

 *Measures for avoiding danger*



Caution!

Failure to observe the instructions identified by this symbol can result in damage to the machine.

 *Measures for avoiding danger for the machine*



Notice!

This symbol identifies instructions for a more efficient and economical use of the machine.



Environment!

Failure to observe the instructions identified by this symbol can result in damage to the environment. The environment is in danger if environmentally hazardous material (e.g. waste oil) is not subject to proper use or disposal.

2.2 Warranty

Warranty claims can be brought forward to your Wacker Neuson dealer only. Furthermore, the instructions in this Operator's Manual must be observed.



2.3 Designated use and exemption from liability

- The machine is intended for:
 - Moving earth, gravel, coarse gravel or ballast and rubble
- Every other application is regarded as not designated for the use of the machine. Wacker Neuson will not be liable for damage resulting from use other than mentioned above. The user alone will bear the risk.
Designated use also includes observing the instructions set forth in the Operator's Manual and observing the maintenance and service conditions.
- The safety of the machine can be negatively affected by carrying out machine modifications without proper authority and by using spare parts, equipment, attachments and optional equipment which have not been checked and released by Wacker Neuson GmbH. Wacker Neuson GmbH will not be liable for damage resulting from this.
- Wacker Neuson Linz GmbH shall not be liable for personal injury and/or damage to property caused by failure to observe the safety instructions and the Operator's Manual, and by the negligence of the duty to exercise due care when:
 - handling
 - operating
 - servicing and carrying out maintenance work and
 - repairing the machine. This is also applicable in those cases in which special attention has not been drawn to the duty to exercise due care, in the safety instructions, the Operator's Manuals and maintenance manuals (machine/engine).
 - Read and understand the Operator's Manual before starting up, servicing or repairing the machine. Observe the safety instructions!
- The machine may not be used for transport jobs on public roads!



2.4 General conduct and safety instructions

Organisational measures

- The machine has been designed and built in accordance with state-of-the-art standards and the recognised safety regulations. Nevertheless, its use can constitute a risk to life and limb of the user or of third parties, or cause damage to the machine and to other material property
- The machine must only be used in technically perfect condition in accordance with its designated use and the instructions set forth in the Operator's Manual, and only by safety-conscious persons who are fully aware of the risks involved in operating the machine. Any functional disorders, especially those affecting the safety of the machine, must therefore be rectified immediately!

Basic rule:

Before starting up the machine, inspect the machine for safety in work and road operation!

- Careful and prudent working is the best way to avoid accidents!
- The Operator's Manual must always be at hand at the place of use of the machine, and must therefore be kept in its storage bin.
Immediately complete or replace an incomplete or illegible Operator's Manual!
- In addition to the Operator's Manual, observe and instruct the operator in all other generally applicable legal and other mandatory regulations relevant to accident prevention and environmental protection.
These compulsory regulations may also deal with handling hazardous substances, issuing and/or wearing personal protective equipment, or traffic regulations
- With regard to specific operational features, e.g. those relevant to job organisation, work sequences or the persons entrusted with the work, supplement the Operator's Manual by corresponding instructions, including those relevant to supervising and reporting duties
- Persons entrusted with work on the machine must have read and understood the Operator's Manual and in particular, chapter "Safety Instructions" before beginning work. This applies especially to persons working only occasionally on the machine, e.g. set-up or maintenance
- The user/owner must check – at least from time to time – whether the persons entrusted with operation or maintenance of the machine are working in compliance with the Operator's Manual and are aware of risks and safety factors
- The user/owner commits himself to operate and keep the machine in perfect condition, and, if necessary or required by law, to require the operating or servicing persons to wear protective clothing etc.
- In the event of safety-relevant modifications or changes on the machine or of its behaviour, stop the machine immediately and report the malfunction to the competent authority/person.
Safety-relevant damage or malfunctions of the machine must be rectified immediately!
- Never make any modifications, additions or conversions to the machine and its superstructures (e.g. cab etc.), as well as to the attachments, which might affect safety without the approval of Wacker Neuson GmbH! This also applies to the installation and the adjustment of safety devices and valves, as well as to welding work on load-bearing elements
- Spare parts must comply with the technical requirements specified by Wacker Neuson. Original spare parts can be relied to do so.
- Replace hydraulic hoses within stipulated and appropriate intervals even if no safety-relevant defects have been detected.



- Before working on or with the machine, remove jewellery, such as rings, wristwatches, bracelets etc., and tie back long hair and do not wear loose-fitting garments, such as unbuttoned or unzipped jackets, ties or scarves.
Injury can result from being caught up in the machinery or from rings catching on moving parts!
- Keep the machine clean. This reduces
 - Fire hazard, e.g. due to oil-soaked rags lying around
 - Danger of injury, e.g. due to dirt or debris on the footholds, and
 - Danger of accidents e.g. due to dirt pile-up on the drive pedals
- Observe all safety, warning and information signs and labels on the machine!
- Adhere to prescribed intervals or those specified in the Operator's Manual for routine checks/inspections and maintenance work!
- Tools and workshop equipment adapted to the task on hand are absolutely indispensable for carrying out service, inspection, maintenance or repair work!

Selection and qualification of staff, basic responsibilities

- Any work on or with the machine must be carried out by reliable staff only. Do not let unauthorised persons drive or work with the machine! Observe statutory minimum age limits!
- Employ only trained or instructed staff on the machine, and clearly and unequivocally define the individual responsibilities of the staff for operation, set-up, maintenance and repair!
- Define the machine operator's responsibilities – also with regard to observing traffic regulations. Give the operator the authority to refuse instructions by third parties that are contrary to safety
- Do not allow persons to be trained or instructed or persons taking part in a general training course to work on or with the machine without being permanently supervised by an experienced person!
- Work on the electrical system and equipment, on the undercarriage and the steering and brake systems may be carried out only by skilled staff which has been specially trained for such work.
Work on the hydraulic system of the machine must be carried out only by staff with special knowledge and experience in hydraulic equipment!
- Seal off the danger area should it not be possible to keep a safe distance.
Stop work if persons do not leave the danger area in spite of warning! Keep out of the danger area!

Danger area:

The danger area is the area in which persons are in danger due to the movements of the

- machine
- work equipment
- additional equipment or
- material

This also includes the area affected by falling material, equipment or by parts which are thrown out.

The danger area must be extended by 0.5 m in the immediate vicinity of

- buildings
- scaffolds or
- other elements of construction



2.5 Safety instructions regarding operation

Normal operation

- Avoid any operational mode that might be prejudicial to safety!
- Apart from the driver, no other persons are allowed to ride on the machine.
- Before beginning work, familiarise yourself with the surroundings and circumstances of the work site. These are e.g. obstacles in the working and travelling area, the soil bearing capacity and any necessary barriers separating the work site from public roads
- When driving across a slope with the telescopic undercarriage extended, position the boom facing down the slope and the bucket about 10 – 20 cm above the ground. This reduces the risk of injuries and damage to a minimum in the event of a hose rupture on the telescopic ram, which might cause the undercarriage to retract (narrow track) and jeopardise the machine's stability.
- Take the necessary precautions to make sure the machine is used only when in a safe and reliable state!
Operate the machine only if all protective and safety-oriented devices, e.g. removable safety-devices, soundproofing elements and exhausters etc., are in place and fully functional!
- Check the machine at least once a day/per work shift for visible damage and defects. Report any changes (incl. changes in the machine's working behaviour) to the competent organisation/person immediately! If necessary, stop the machine immediately and lock it!
- In the event of malfunctions, stop the machine immediately and lock it! Have any defects rectified immediately!
- Start and operate the machine from the seat only!
- Driving and working with the machine is allowed only with the seat belt fastened and tightened. Stop the engine before releasing the seat belt!
- Carry out start-up and shut-down procedures in accordance with the Operator's Manual, and observe the telltales!
- Before putting the machine/attachment into operation (start-up/moving), make sure no-one is at risk by putting the machine/attachment into operation!
- Before driving with the machine, and also after interrupting work, check whether the drive levers, the signalling and the light systems are functional!
- Before moving the machine always check whether the supplementary equipment and the attachments have been safely stowed away or attached!
- When driving on public roads, ways and places, observe the valid traffic regulations and, if necessary, make sure beforehand that the machine is in a condition perfectly compatible with these regulations!
- Always switch on the lights in conditions of poor visibility and after dark!
- No lifting, lowering or carrying persons in the work equipment/attachments!
- Installing a man basket or a working platform is prohibited!
- When crossing underpasses, bridges and tunnels, or when passing under overhead lines always make sure there is enough clearance!
- Always keep at a safe distance from the edges of building pits and slopes!



- When working in buildings or in enclosed areas, look out for:
 - Height of the ceiling/clearances
 - Width of entrances
 - Maximum load of ceilings and floors
 - Sufficient room ventilation – danger of poisoning!
- Avoid any operation that might be a risk to machine stability!
- During operation on slopes, drive or work uphill or downhill. If driving across a slope cannot be avoided, bear in mind the tilting limit of the machine!
Always keep the attachments/work equipment close to the ground. This also applies to driving downhill!
When driving or working across a slope, the load must be on the uphill side of the machine
- On sloping terrain always adapt your drive speed to the prevailing ground conditions!
- Before leaving the seat always secure the machine against unintentional movement and unauthorised use!
Lower the attachments to the ground.
- Before starting work check whether
 - all safety devices are properly installed and functional.
- Before moving the machine or before taking up work:
 - Make sure visibility is sufficient
 - Adjust your correct seat position,
never adjust the seat when driving or working!
 - Fasten your seat belt
 - Inspect the immediate area (children!)
 - In the work area the operator is responsible for third parties!
- Caution when handling fuel – increased danger of fire!
 - Make sure fuel does not come into contact with hot parts!
Do not smoke during refuelling, and avoid fire and sparks! Stop the engine during refuelling and do not smoke!
- Never get on or off a moving machine! Never jump off the machine!
- Should the lights of the machine not be sufficient for carrying out work safely, provide additional lighting of the work area.
- Empty the bucket before driving on public roads.
- Installed work lights must not be switched on for travel on public roads.
They can be switched on in work operation if users of public roads are not dazzled.
- The drive levers take time getting used to them. Therefore, adjust the drive speed to your abilities and the circumstances.



Safety instructions

Applications with lifting gear

Definition:

Applications with lifting gear are understood as procedures involving raising, transporting and lowering loads with the help of slings and load-securing devices (e.g. ropes, chains). In doing so, the help of persons is necessary for securing and detaching the load. This applies for example to lifting and lowering pipes, shaft rings or containers.

- No applications with lifting gear!

Trailers and attachments

- Prior to driving on public roads remove all attachments which cannot be secured in compliance with the legal regulations of your country!
- Attachments and counterweights affect handling and the machine's steering capability!
- Fit the attachments with the specially required devices only!
- Before uncoupling or coupling hydraulic lines (hydraulic quick couplers)
 - Stop the engine
 - Release the pressure in the hydraulic system. In order to do so, move the control levers of the hydraulic control units back and forth a couple of times
- Coupling attachments requires special care!
- Secure the attachments against unintentional movement!
- Operate the machine only if all protective facilities have been installed and are functional, and if all brake, light and hydraulic connections have been connected!
- If optional equipment is installed, all light installations, telltales etc. that are required in addition must be installed and functional.
- Mount the attachments only if the engine and the drive have been switched off.
- Especially when driving or working with machines equipped with a quickhitch for the attachments, make sure the attachment is securely locked in the quickhitch. The lock pin must be visible on either side of the bores on the attachment. Check before starting work.
- Prior to fitting attachments to the stick, secure the control lever of the hydraulic control unit against unintentional movement

Transport

- The machine must be towed, loaded and transported only in accordance with the Operator's Manual!
- For towing the machine observe the prescribed transport position, admissible speed and itinerary
- Use only suitable means of transport of adequate capacity/payload!
- Safely secure the machine on means of transport! Use suitable mounting points and load-securing devices.
- The recommissioning procedure must be strictly in accordance with the Operator's Manual!
- Tighten the cab fastening screws to the specific torque before raising the machine.
- – [see](#) *Screw connections and attachments* on page 5-32





2.6 Safety instructions for maintenance

- Avoid any operational mode that might be prejudicial to safety!
- Operational readiness and the service life of machines are heavily dependent on maintenance.
- It is therefore in the interest of the machine owner to carry out the prescribed maintenance work.
- The manufacturer requires the owner to carry out maintenance work under all circumstances. Otherwise warranty shall not be given in full.
- Observe the adjustment, maintenance and inspection activities and intervals set forth in the Operator's Manual, including information on the replacement of parts/partial equipment!
These activities must be carried out by technical staff only
- The machine may not be serviced, repaired or test-driven by unauthorised staff.
- Brief the staff/the driver before beginning special operations and maintenance work!
Appoint a person to supervise the activities!
- In any work concerning the operation, conversion or adjustment of the machine and its safety-oriented devices, or any work related to maintenance, inspection and repair, observe the start-up and shut-down procedures set forth in the Operator's Manual, and the information on maintenance work.
- If required, secure the maintenance area appropriately!
- Prior to carrying out service, maintenance and repair work, attach a warning label, such as "Repair work – do not start machine!", to the ignition lock or to the control elements. Remove the ignition key!
- Carry out service, maintenance and repair work only if the
 - machine is positioned on firm and level ground
 - all hydraulically movable attachments and working equipment have been lowered to the ground
 - engine is at a standstill
 - ignition key is removed and
 - pressure accumulator is empty
 -  control levers have been moved
 - machine has been secured against unintentional movement
- Should maintenance or repair be inevitable with the engine running:
 - Lower the stabiliser blade and fold up the control lever bases
 - Only work in groups of two
 - Both persons must be authorised for the operation of the machine
 - One person must be seated on the seat and maintain visual contact with the other person
 - Observe the specific safety instructions in the work manual
 - Keep a safe distance from all rotating and moving parts, e.g. fan blades, V-belt drives, PTO shaft drives, fans etc.
- Prior to carrying out assembly work on the machine, make sure no movable parts will roll away or start moving.
- To avoid the risk of accidents, parts and large assemblies being moved for replacement purposes must be carefully attached and secured to lifting gear.
Use only suitable lifting gear and suspension systems in a technically perfect state with adequate load-bearing capacity!
Stay clear of suspended loads!



Safety instructions

- Have loads fastened and crane operators instructed by experienced persons only!
The person giving the instructions to the operator must be within sight or sound of him.
- Disconnect the negative terminal of the battery if work needs to be carried out on the electrical system.
- Always use specially designed or otherwise safety-oriented ladders and working platforms to carry out overhead assembly work.
Never use machine parts or attachments/superstructures as a climbing aid!
Wear a safety harness when carrying out maintenance work at greater heights!
Keep all handles, steps, handrails, platforms, landings and ladders free from dirt, snow and ice!
- Clean the machine, especially connections and threaded unions, of any traces of oil, fuel or preservatives before carrying out maintenance/repair work!
Do not use aggressive detergents!
Use lint-free cleaning rags!
- Before cleaning the machine with water, steam jet (high-pressure cleaner) or detergents, cover or tape up all openings which – for safety and functional reasons – must be protected against water, steam or detergent penetration. Special care must be taken with the electrical system.
- After cleaning, remove all covers and tapes applied for that purpose!
- After cleaning, examine all fuel, lubricant and hydraulic oil lines for leaks, chafe marks and damage! Rectify all defects without delay!
- Always tighten any screw connections that have been loosened during maintenance and repair!
- Any safety devices removed for set-up, maintenance or repair purposes must be refitted and checked immediately upon completion of the maintenance and repair work.
- Make sure all consumables and replaced parts are disposed of safely and with minimum environmental impact!
- Do not use the work equipment as lifting platforms for persons!
- Before taking up work on machine parts dangerous for life and limb (bruising, cutting), always ensure safe blocking/support of these areas.
- Carry out maintenance and repair work beneath a raised machine, attachments or additional equipment only if a safe and secure support has been provided for (the sole use of hydraulic rams, jacks etc. does not sufficiently secure raised machines or equipment/attachments).
- Avoid contact with hot parts, such as the engine block or the exhaust system during the operation of the machine and for some time afterwards – danger of burns!
- Retainer pins can fly out or splinter when struck with force – danger of personal injury!
- Do not use starting fuel! This especially applies to those cases in which a heater plug (intake-air preheating) is used at the same time – danger of explosions!
- Apply special care when working on the fuel system – increased danger of fire!



2.7 Warning of special hazards

Electrical energy

- Use only original fuses with the specified current rating!
Switch off the machine immediately, disconnect the battery (e.g. fold the battery master switch over) and carry out troubleshooting in case of malfunctions in the electrical system!
- When working with the machine, maintain a safe distance from overhead electric lines! If work must be carried out close to overhead lines, the equipment/attachments must be kept well away from them. Caution, danger! Get informed on the prescribed safety distances!
- If your machine comes into contact with a live wire
 - Do not leave the machine
 - Drive the machine out of the danger area
 - Warn others against approaching and touching the machine
 - Have the live wire de-energised
 - Do not leave the machine until the line that has been touched or damaged has been safely de-energised!
- Work on the electrical system may only be carried out by a technician with appropriate training, in accordance with the applicable electrical engineering rules.
- Inspect and check the electric equipment of the machine at regular intervals. Defects such as loose connections or scorched cables must be rectified immediately.
- Observe the operating voltage of the machine/attachments!
- Always remove the earthing strap from the battery when working on the electrical system or when carrying out welding work!
- Starting with a battery jump cable can be dangerous if carried out improperly. Observe the safety instructions regarding the battery!

Gas, dust, steam, smoke

- Operate the machine only on adequately ventilated premises! Before starting internal combustion engines or operating fuel-operated heating systems on enclosed premises, make sure there is sufficient ventilation!
Observe the regulations in force at the respective site!
- Carry out welding, flame-cutting and grinding work on the machine only if this has been expressly authorised. There can be a risk of explosion and fire, for example!
- Before carrying out welding, flame-cutting and grinding work, clean the machine and its surroundings from dust and other inflammable substances, and make sure the premises are adequately ventilated – danger of explosions!

Hydraulics

- Work on the hydraulic equipment of the machine must be carried out only by persons having specific technical knowledge and experience in hydraulic systems!
- Check all lines, hoses and screw connections regularly for leaks and obvious damage! Repair any damage and leaks immediately! Splashed oil can cause injury and fire!
- In accordance with the Operator's Manual/instructions for the respective assembly, release the pressure in all system sections and pressure lines (hydraulic system) to be opened before carrying out any implementing/repair work!
- Hydraulic and compressed-air lines must be laid and fitted properly. Make sure no connections are interchanged. The fittings, lengths and quality of the hoses must comply with the technical requirements.

Noise

- During operation all sound baffles must be closed.
- Wear ear protectors if necessary!



Safety instructions

Oil, grease and other chemical substances

- When handling oil, grease and other chemical substances (e.g. battery electrolyte – sulphuric acid), observe the product-related safety regulations (safety data sheet)!
- Be careful when handling hot consumables – risk of burning or scalding!

Battery

- When handling the battery observe the specific safety instructions and regulations relevant to accident prevention. Batteries contain sulphuric acid – caustic!
 - Especially when charging batteries, as well as during normal operation of batteries, an oxyhydrogen mixture is formed in the battery cells – danger of explosion!
 - In case of a frozen battery or of an insufficient electrolyte level, do not try start-up with a battery jump cable. The battery can burst or explode
- ☞ Dispose of the battery immediately!

Air intake

When crossing water fords or similar, make sure that the engine air intake slits are always above water level, otherwise the engine is damaged – [see chapter Air intake](#) on page 5-13!

Tracks

- Repair work on the tracks must be carried out by technical staff or by an authorised workshop only!
- Defective tracks reduce the machine's operational safety. Therefore carry out regular checks of the tracks for
 - Cracks, cuts or other damage
- Check track tension at regular intervals



3 Operation

This chapter describes the controls, and contains information on the function and handling of the telltales and controls in the cab.

The pages stated in the table refer to the description of the controls.

A combination of digits, or a combination of digits and letters (e.g. 40/18 or 40/A) used for identifying the control elements, means:

fig. no. 40/control element no. 18 or position **A** in fig. no. 40

Figures carry no numbers if they are placed to the left of the text.

The symbols used in the description have the following meanings:

- This symbol stands for a list
 - Subdivision within lists or an activity. Follow the steps in the recommended sequence
-  *This symbol requires you to carry out the activity described*
-  Description of the effects or results of an activity

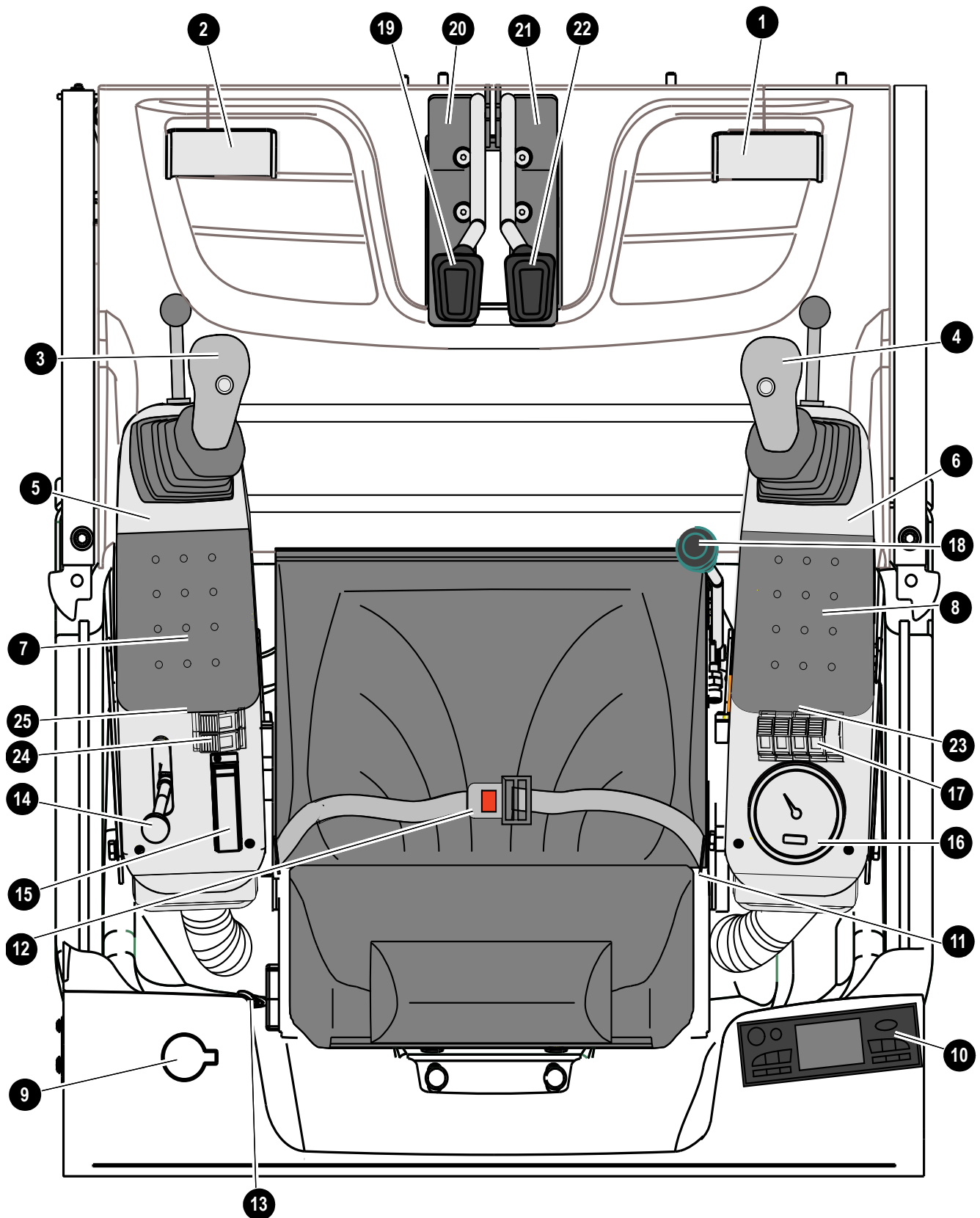
n. s. = not shown

"Opt" = option

Stated whenever controls or other components of the machine are installed as an option.

Operation

3.1 Cab overview





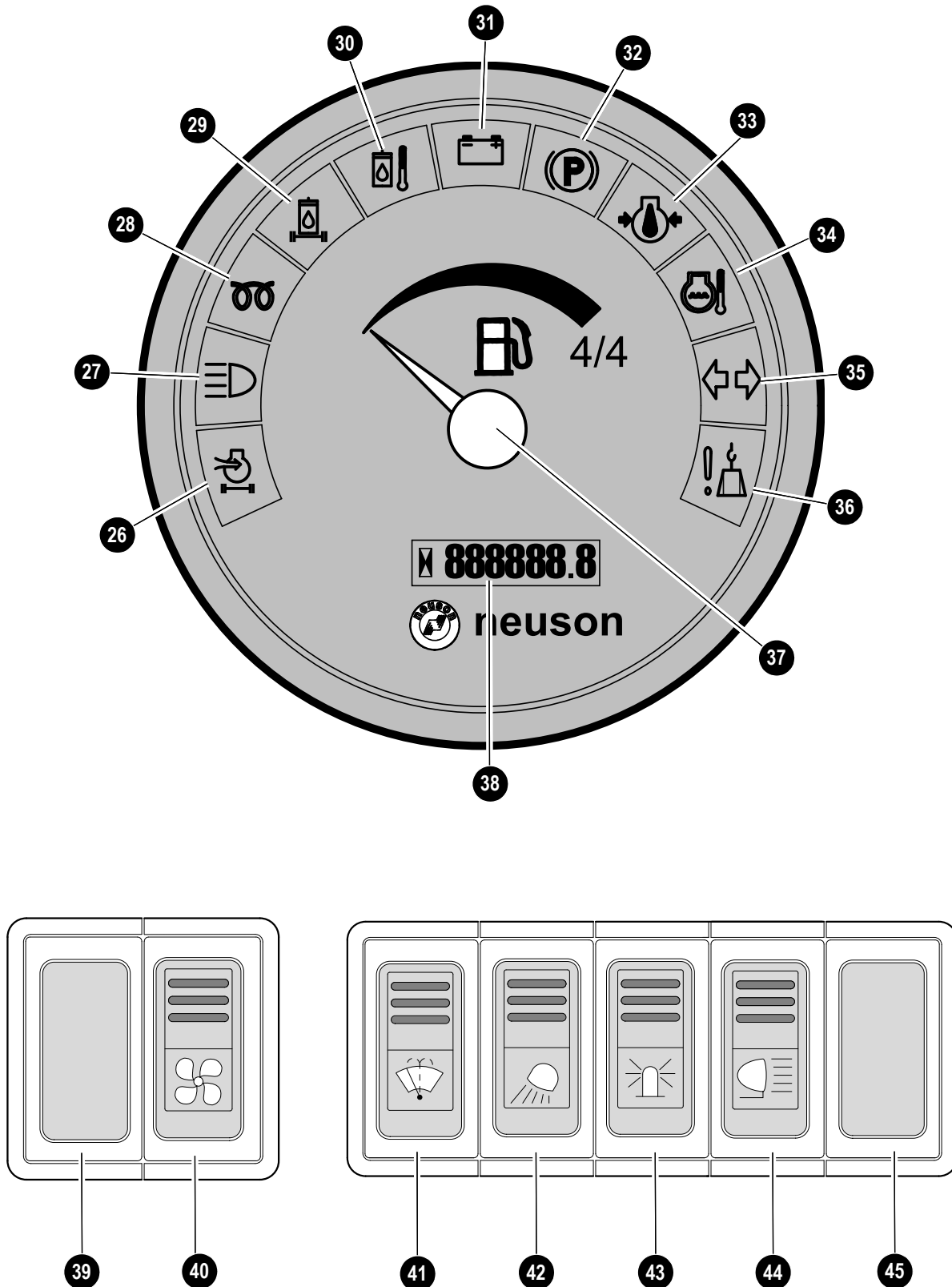
3.2 Cab overview (legend)

Pos.	Description	For more information see page
1	Hammer pedal (auxiliary hydraulics)	3-40
2	Hammer pedal (boom swivel)	3-39
3	Control lever (left)	3-39
4	Control lever (right)	3-40
5	Control lever base (left)	
6	Control lever base (right)	
7	Armrest (left)	
8	Armrest (right)	
9	Tank for washer system	3-24
10	Radio (option)	
11	Seat (backrest adjustment)	3-25
12	Seat belt (lock)	3-26
13	Heating controller (option)	3-23
14	Throttle	3-9
15	Fuse box	6-3
16	Round display element	3-4
17	Switch panel (right-hand side console)	
18	Stabiliser blade/lever for telescopic undercarriage (option)	3-19
19	Drive lever (left)	3-16
20	Drive pedal (left)	3-16
21	Drive pedal (right)	3-16
22	Drive lever (right)	3-16
23	Preheating start switch	3-9
24	Switch panel (left-hand side console)	
25	Cigarette lighter	



Operation

3.3 Instrument panel overview





3.4 Instrument panel overview (legend)

Pos.	Description	For more information see page
26	Air filter telltale (red)	3-10
27	Not assigned	
28	Telltale (red) – cold starter	3-10
29	Hydraulic oil filter telltale (red).....	3-10
30	Telltale (red) – hydraulic oil temperature	3-10
31	Alternator charge function telltale (red)	3-11
32	Not assigned	
33	Engine oil pressure telltale (red).....	3-10
34	Coolant temperature telltale (red)	
35	Not assigned	
36	Not assigned	
37	Fuel level indicator	
38	Hour meter	3-11
39	Not assigned	
40	Ventilation (option)	3-24
41	Washer system (option)	3-25
42	Working lights	3-22
43	Rotating beacon (option).....	3-23
44	Roof lights (option)	3-22
45	Not assigned	



3.5 Putting into operation

Safety instructions

- Only use the steps and handles provided when entering and leaving the cab
- Never use the controls or movable lines and cables as handles
- Never get on or off a moving machine! Never jump off the machine
- Refer to the corresponding load diagrams for the boom

Putting the machine into operation for the first time

Important information

- The machine may be put into operation by authorised staff only!
 - [see chapter 1.5 Regulations](#) on page 1-5
 - [see chapter Selection and qualification of staff, basic responsibilities](#) on page 2-4
- The staff must have read and understood this Operator's Manual before putting the machine into operation
- The machine may only be used in technically perfect condition in accordance with its designated use and the instructions set forth in the Operator's Manual, and only by safety-conscious persons who are fully aware of the risks involved in operating the machine.
- Go through the "Start-up" checklist in the following chapter

Running-in period

Handle the machine carefully during its first 50 operating hours.

The future performance and service life of the machine are heavily dependent on the observance of the following recommendations during the running-in period.

- Do not change engine speed abruptly
- Avoid using the machine under heavy loads and/or at high speeds.
- Avoid abrupt acceleration, braking and changing driving direction.
- Do not run the engine at high speed for extended periods
- Strictly observe the maintenance schedules in the appendix
 - [see chapter 5.14 Maintenance plan \(overview\)](#) on page 5-36



Check lists

The checklists below are intended to assist you in checking and monitoring the machine before, during and after operation.

These checklists cannot claim to be exhaustive; they are merely intended as an aid for you in fulfilling your duties as a conscientious operator.

The checking and monitoring jobs listed below are described in greater detail in the following chapters.

If the answer to one of the following questions is NO, first rectify the cause of the fault before starting or continuing work.

Start-up checklist

Check the following points before putting the machine into operation or starting the engine:

No.	Question	✓
1	Enough fuel in the tank? (→ 5-2)	
2	Coolant level OK? (→ 5-10)	
3	Water drained from the fuel prefilter? (→ 5-5)	
4	Engine oil level OK? (→ 5-6)	
5	Oil level in hydraulic tank OK? (→ 5-18)	
6	Water level in washer tank OK? (→ 3-24)	
7	V-belt condition and tension checked? (→ 5-16/5-17)	
8	Lubrication points greased? (→ 5-26)	
9	Tracks checked for cracks, cuts etc. ? (→ 5-24)	
10	Lights, signals, indicators, warning lights and telltales OK? (→ 3-22)	
11	Windows, mirrors, lights and steps clean?	
12	Control lever base folded down? (→ 3-31)	
13	Attachment safely locked? (→ 3-44)	
14	Engine cover safely locked? (→ 3-30)	
15	Especially after cleaning, maintenance or repair work: → Rags, tools and other loose objects removed?	
16	Correct seat position? (→ 3-25)	
17	Seat belt fastened? (→ 3-26)	


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Operation

Operation checklist

After starting the engine and during operation, check and observe the following points:

No.	Question	✓
1	Anyone dangerously close to the machine?	
2	Telltale for engine oil pressure and alternator charge function gone out? (→ 3-10)	
3	Temperature indicator for engine coolant in normal range? (→ 3-11)	
4	Drive pedals working correctly? (→ 3-16)	

Parking checklist

Check and observe the following points when parking the machine:

No.	Question	✓
1	Attachments lowered to the ground? (→ 3-38)	
2	Control lever base folded up? (→ 3-31)	
3	Cab locked, especially if the machine cannot be supervised? (→ 3-29)	
When parking on public roads:		
4	Machine adequately secured?	
When parking on slopes:		
5	Machine also secured with chocks under the tracks to prevent it from rolling away?	



3.6 Driving the excavator



Danger!

When crossing water fords or similar, make sure that the engine air intake slits are always above water level, otherwise the engine is damaged!

Danger of engine damage!

☞ – see chapter Air intake on page 5-13

Preheating start switch: overview

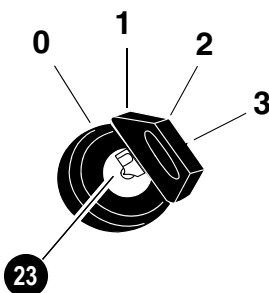


Fig. 22: Preheating start switch



Notice!

The engine can only be started if the left-hand side control lever base is folded down.

Position	Function	Power consumer
0	Insert or remove the ignition key	None
1	ON/drive position	All functions are operational ☞ Telltales come on ☞ Shrill sound
2	Preheats the engine (10 – 15 seconds)	
3	Starts the engine	☞ Starter is actuated ☞ Telltales must go out

Throttle lever: overview

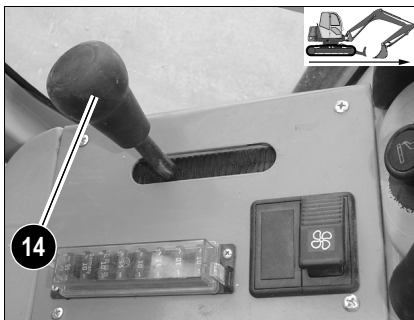


Fig. 23: Engine speed control

The throttle lever controls the engine speed as follows:

☞ Continuously (throttle lever 14)



Operation

Telltale and warning lights: overview



Hydraulic oil filter telltale (red)

Indicates inadmissibly high pressure in the hydraulic reflux line to the tank. In this case:

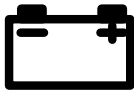
- ☞ Have the hydraulic oil reflux filter checked and, if necessary, replaced by an authorised workshop
- ☞ The telltale can come on briefly if the hydraulic oil is cold, but goes out again once operating temperature is reached



Air filter telltale (red)

Comes on if air filter is contaminated

- ☞ Stop the machine
- ☞ Stop the engine immediately and check the outside and inside filters



Alternator charge function telltale (red)



Caution!

The coolant pump no longer runs if the V-belt is faulty. Danger of engine overheating or breakdown!

If telltale comes on with the engine running:

- ☞ Stop the engine immediately and
- ☞ Have the cause repaired by an authorised workshop

The V-belt or the charging circuit of the alternator is faulty if the telltale comes on with the engine running. The battery is no longer charged.



Engine oil pressure telltale (red)

Comes on if the engine oil pressure is too low. In this case:

- ☞ Stop the machine
- ☞ Stop the engine immediately and check the oil level

The telltale comes on when the ignition is turned on and goes out as soon as the engine runs.



Coolant temperature telltale (red)



Danger!

Never open the radiator and never drain coolant if the engine is warm since the cooling system is under high pressure

—

Danger of burns!

- ☞ *Wait at least 10 minutes after stopping the engine!*
- ☞ *Wear protective gloves and clothing*
- ☞ *Open the cap to the first notch and release the pressure*

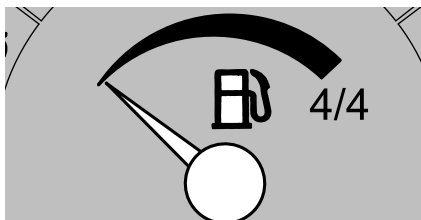
Cold starter telltale (yellow)



Comes on if the key in the preheating start switch is in position **2**.

A glow plug preheats the air in the combustion chamber of the engine when the key is in this position.

Fuel level indicator



Hour meter

Counts the engine service hours with the engine running.





Operation

Before starting the engine

☞ Adjust seat position and rearview mirror – see **Seat adjustment** on page 3-25



Notice!

All controls must be within easy reach. You must be able to move the drive levers to their limit positions!

☞ Fasten your seat belt – see **Seat belt** on page 3-26

☞ Check whether all levers and pedals are in neutral position

☞ Move the throttle to the centre position (between minimum and maximum) if the engine is cold

Starting the engine: general

- The starter cannot be actuated if the engine is already running (start repeat interlock)
- Do not run the starter for more than 10 seconds
- Wait about 1 minute so the battery can recover before trying again

Procedure



Caution!

Actuating the preheating system too long can damage the preheater.

☞ Never preheat the engine more than 20 seconds

After you have completed the starting preparations:

☞ Insert the ignition key in preheating start switch

☞ Turn the ignition key to position “1”

☞ Check whether all telltales come on:

☞ Replace defective telltales immediately

☞ Turn the ignition key to position “2” and hold it in this position for about 5 seconds

➡ The intake air is preheated

☞ Turn the ignition key to position “3” and hold it in this position until the engine starts

➡ If the engine does not start after 10 seconds

☞ Interrupt the start procedure and try again after about 1 minute

➡ If the engine still does not start after the second try

☞ Contact a Wacker Neuson workshop for troubleshooting.

➡ As soon as the engine runs:

☞ Release the ignition key

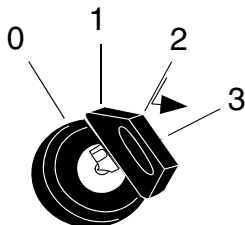


Fig. 24: Preheating start switch

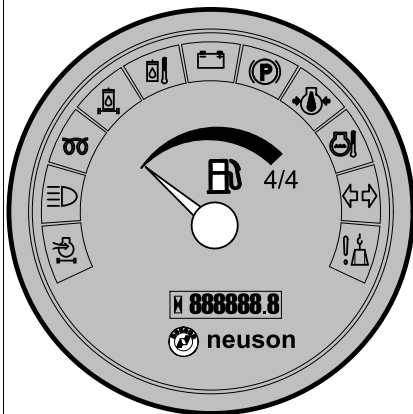


Fig. 25: Telltales



Starting with the drive interlock (option)

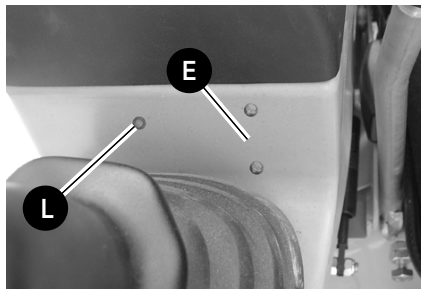


Fig. 26: Drive interlock

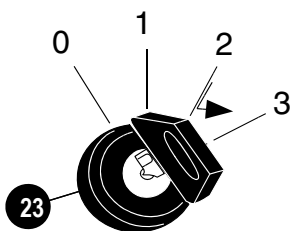


Fig. 26: Preheating start switch

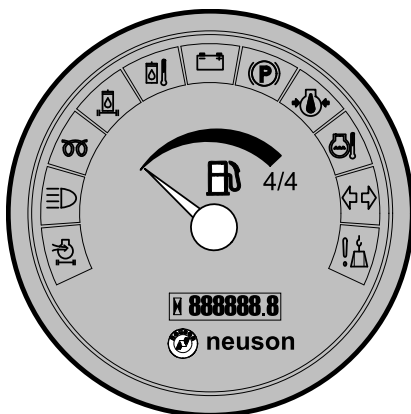


Fig. 26: Telltales

After you have completed the starting preparations:

- Approach the transponder key to about 2 cm from the emitter/receiver unit **E**
- The machine can be started as soon as the red telltale **L** goes out
- Insert the ignition key in the preheating start switch **23** within 30 seconds and
- Turn the ignition key at least to position "1"
- Check whether all telltales come on:
- Replace defective telltales immediately
- Turn the ignition key to position "2" and hold it in this position for about 5 seconds
 - The intake air is preheated
- Turn the ignition key to position "3" and hold it in this position until the engine starts
 - If the engine does not start after 10 seconds
 - Interrupt the start procedure and try again after about 1 minute
 - If the engine still does not start after the second try
 - Contact a Wacker Neuson workshop for troubleshooting
- As soon as the engine runs:
- Release the ignition key



Operation

Starting at low temperatures

- ☞ Turn the ignition key to position "2" and hold it in this position for about 15 seconds
 - ➔ Engine is preheated
- ☞ Turn the ignition key to position "3" and hold it in this position until the engine starts
 - ➔ If the engine does not start after 10 seconds
 - ☞ Interrupt the start procedure and try again after about 1 minute
 - ➔ If the engine still does not start after the second try
- ☞ Contact a Wacker Neuson workshop for troubleshooting
- ☞ Release the ignition key

When the engine runs smoothly (increased engine speed):



Notice!

In general, a battery delivers less energy in cold conditions. Therefore make sure the battery is always well charged.

When the engine has started ...

- ☞ Check whether all telltales have gone out:
 - ☞ Let the engine warm up
- At cold temperatures:
- ☞ Increase the engine speed slowly
 - ☞ Do not run the engine at full load until it has reached its operating temperature

Engine warm-up

After the engine has started, allow it to warm up at slightly increased idling speed until it reaches its operating temperature of 70 °C (coolant). Run the engine with no load during the warm-up phase (fold left-hand side control lever base up). During the warm-up phase, check for unusual noise, exhaust colour, leaks, malfunctions or damage.

In case of malfunctions, damage or leaks, park and secure the machine, and find out the cause for the damage and have it repaired.



Jump-starting the engine (supply battery)

Safety instructions

- Never jump-start the engine if the battery of the machine is frozen – danger of explosion!
➡ Dispose of a frozen battery!
- The excavator must not touch the jump-starting vehicle when connected with jump leads – risk of sparking!
- The external power source must deliver 12 V; higher supply voltages will damage the electrical system of the vehicles!
- Use only authorised jump leads which conform to the safety requirements and which are in perfect condition!
- The jump lead connected to the positive + terminal of the starting battery must never be brought into connection with electrically conductive vehicle parts
– **danger of short circuit!**
- Route the jump leads so they cannot catch on rotating components in the engine compartment!

Procedure

- ➡ Drive the jump-starting vehicle close enough to the machine so that the jump leads can reach to connect the two batteries
- ➡ Let the engine of the jump-starting vehicle run
- ➡ First connect one end of the red jump lead (+) to the + terminal of the flat battery, then connect the other end to the + terminal of the starting battery
- ➡ Connect one end of the black jump lead (–) to the – terminal of the starting battery
- ➡ Connect the other end of the black jump lead (–) onto a solid metal component firmly mounted on the engine block or onto the engine block itself. Do not connect it to the negative terminal of the flat battery, as otherwise explosive gas emerging from the battery can ignite if sparks are formed!
- ➡ Start the engine of the machine with the flat battery

Once the engine has started:

- ➡ With the engine running, disconnect both jump leads in exactly the reverse order (first remove the – terminal, then the + terminal) – this prevents sparking in the vicinity of the battery!

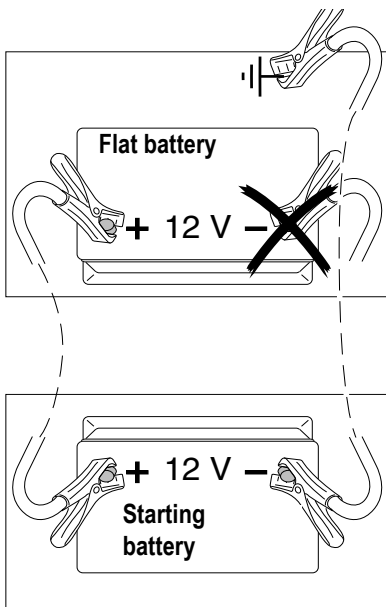


Fig. 27: Starting aid with jump leads

Special instructions for driving on public roads

The machine is subject to the:

- Applicable legal regulations of your country

Also observe the applicable regulations for accident prevention of your country.



Operation

Moving off

After starting the engine:

- ☞ The alternator charge telltale goes out
- ☞ Slowly actuate the drive levers or the drive pedals
- ➔ Machine moves off

Drive levers

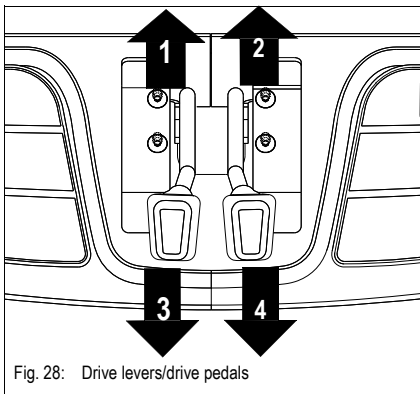


Danger!

Rotating through 180° (stabiliser blade now at the rear) inverts the drive lever functions.

Danger of accidents!

☞ Bear in mind the stabiliser blade's position



The stabiliser blade side is the front side.

Raise the bucket and the stabiliser blade.

The machine can be moved either with the drive levers or with the drive pedals. Lock the upper carriage when travelling over longer distances.

Position	Function	
• 1 • 2	Push forwards Push forwards	Track excavator moves forwards
• 3 • 4	Pull backwards Pull backwards	Track excavator moves backwards
• 3 • 2	Pull backwards Push forwards	Track excavator turns to the left
• 1 • 4	Push forwards Pull backwards	Track excavator turns to the right

Forwards or reverse drive speed depends on the position of the drive levers or drive pedals.



Notice!

Make sure both tracks move as you change direction, otherwise the rubber tracks are subject to increased abrasion.

Hydraulic brake

The drive levers automatically return to their initial positions as soon as they are released, which creates sufficient hydraulic braking effect.

When driving downhill, the automatic hydraulic brake valves prevent the machine from "racing". The machine does not run any faster than the admissible drive speed.

However, the automatic hydraulic brake valves in the undercarriage circuit no longer work properly if the diesel engine does not run at full revs.



Notice!

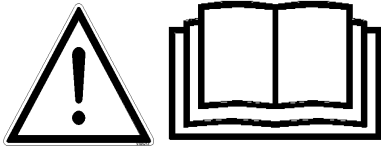
Therefore, make sure you drive downhill at full engine speed under all circumstances. Use the drive levers or drive pedals to reduce the drive speed as required.



3.7 Driving on slopes

Follow these safety instructions carefully when driving on slopes, in order to avoid accidents.

Specific safety instructions



- ☞ *Raise the bucket about 20 – 30 cm off the ground as you move the machine. Avoid reversing downhill.*
- When driving through hollows or crossing obstacles
 - ☞ Keep the attachment close to the ground and drive slowly.
- Do not steer or drive across slopes.
 - ☞ Always change your driving direction on level ground. This may take more time but is decisively safer.
- ☞ *When driving the machine, make sure you can stop safely any time if the machine starts to skid or if it becomes unstable.*
- Swivelling or operating the attachment on slopes can cause the machine to lose its balance and to tip over.
 - ☞ Avoid this under all circumstances.
- Rotating the upper carriage when driving downhill with a full bucket is especially dangerous.
 - ☞ Should this be nevertheless necessary, create a platform of level ground so that the machine can work in horizontal position.
- ☞ *Do not drive on slopes steeper than 15°, otherwise the machine can tip over.*
- If the sliding blocks slip as you drive uphill and if it is no longer possible to move on with the force of the tracks alone
 - ☞ Do not apply pressure with the boom to move the machine – danger of tipping over!



Operation

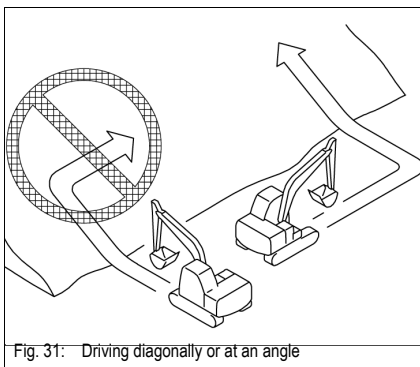
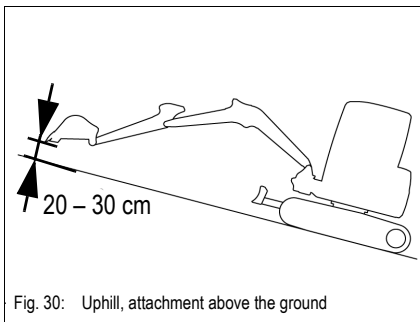
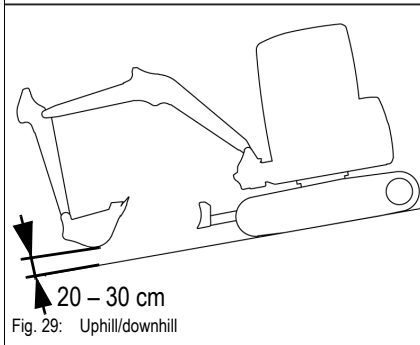
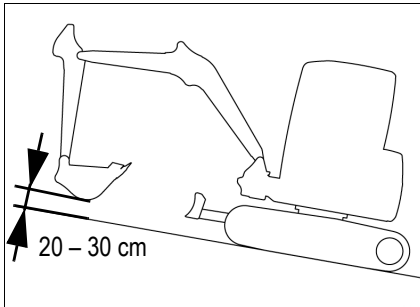
Driving on slopes

Proceed as follows to prevent the machine from tipping over or slipping sideways.



Caution!

When driving across a slope with the telescopic undercarriage extended, position the boom facing down the slope and the bucket about 10 – 20 cm above the ground. This reduces the risk of injuries and damage to a minimum in the event of a hose rupture on the telescopic ram, which might cause the undercarriage to retract (narrow track) and jeopardise the machine's stability.



☞ Keep the attachment about 20 – 30 cm above the ground. In an emergency, lower the attachment immediately to the ground so you can stop the machine more easily.

☞ Place the upper carriage with the front side upwards as you drive uphill, and downwards as you drive downhill. Always check the ground's firmness underneath the front part of the machine as you drive.

☞ When driving downhill, extend the attachment to improve stability, and keep it about 20 – 30 cm above the ground. Drive slowly.

☞ Reduce engine speed when driving downhill, keep the drive lever next to neutral position and drive slowly.

☞ Always drive straight ahead when driving uphill or downhill. Driving diagonally or at an angle to the slope is very dangerous.

☞ Never change direction on slopes or drive across slopes. Always change position on level ground before continuing to drive on a slope.

☞ Drive slowly in meadows, on leaves or wet steel plates. The machine can slip even if the ground is level. If the engine stops as you drive across a slope, immediately put the control levers to neutral position and start the engine again.



Stabiliser blade control/telescopic undercarriage (option)



Danger!

The stabiliser blade lever is not blocked: in case of unintentional operation –

Danger of accidents!

 *Do not touch the control lever for the stabiliser blade if you do not need to carry out any work with it.*



Caution!

Lowering the stabiliser blade too deeply into the ground can create a resistance.

 *Slightly raise the stabiliser blade*



Danger!

Careful – reduced stability due to narrow track!

Danger of accidents!

 *When driving across a slope with the telescopic undercarriage extended, position the boom facing down the slope and the bucket about 10 – 20 cm above the ground. This reduces the risk of injuries and damage to a minimum in the event of a hose rupture on the telescopic ram, which might cause the undercarriage to retract and jeopardise the machine's stability.*



Caution!

Do not run the machine in an intermediate telescopic position, otherwise this can cause damage to the shift mechanism!

 *Always move the undercarriage fully in or out!*



Caution!

The stabiliser blade is lowered slowly if the telescopic undercarriage is retracted at the same time, and more quickly once you have finished retracting or extending the undercarriage!

Caution: danger!



Operation

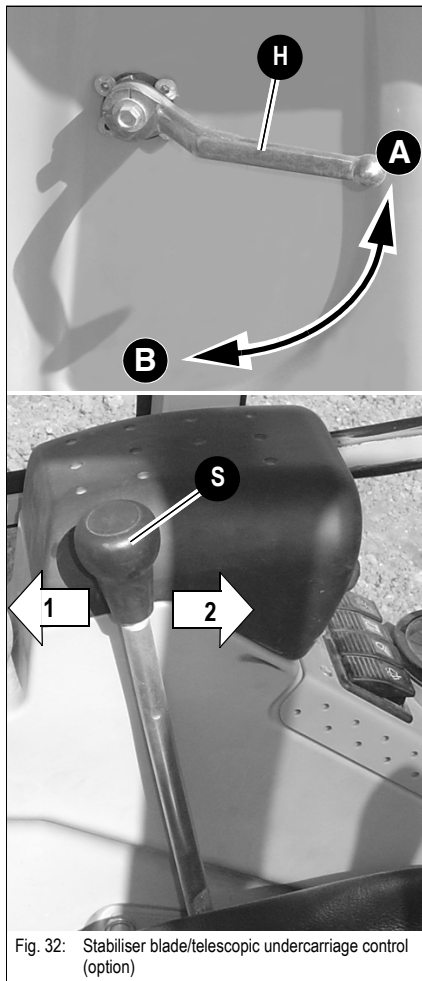


Fig. 32: Stabiliser blade/telescopic undercarriage control (option)

In order to improve stability during work, you can lower the stabiliser blade and extend the machine's track hydraulically (option).

Proceed as follows:

☞ Select the required function with lever **H**:

Position	Function	
• A	Lever H upwards	The stabiliser blade is actuated with control lever S
• B	Lever H downwards	The telescopic undercarriage is actuated with control lever S

☞ The stabiliser blade/telescopic undercarriage (option) is actuated with control lever **S**:

Position	Function	
• 1	Push forwards	The stabiliser blade is lowered/the telescopic undercarriage is retracted (narrow track)
• 2	Pull backwards	The stabiliser blade is raised/the telescopic undercarriage is extended (wide track)



Notice!

Before retracting or extending the undercarriage telescopically, raise the machine with the stabiliser blade and the boom to avoid unnecessary strain and load on the telescopic mechanism.



Notice!

Push or pull control lever **S** until the undercarriage has reached its final position.



Notice!

Check the position of the stabiliser blade before driving the machine.



Parking the machine



Danger!

Always park the machine on firm ground –

Danger of accidents

- ☞ Lower the boom and the stabiliser blade to the ground
- ☞ Park the machine on level ground
- ☞ Secure the tracks accordingly (e.g. chocks)

-
- ☞ Stop the machine
 - ☞ Lower the bucket and the stabiliser blade to the ground
 - ☞ Reduce engine speed completely
 - ☞ Switch off ignition
 - ☞ Fold up the control lever base
-



Caution!

Never stop the engine under full load, otherwise it can be damaged due to overheating. Except in case of an emergency, always make sure the engine can cool down before it is stopped.

- ☞ Let the engine run at idling speed with no load for at least 5 minutes before you switch it off.
-



Notice!

Secure the machine against unauthorised operation.

- Fold up the control lever base
 - Remove the ignition key and carry it with you.
 - Lock the cab (option)
-

Parking the machine on slopes

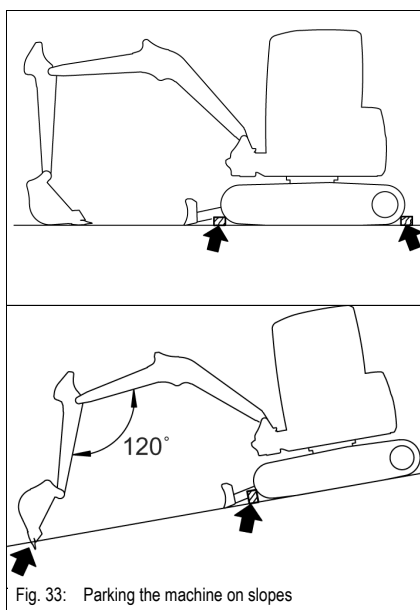


Fig. 33: Parking the machine on slopes

- ☞ Avoid stopping the machine abruptly. Always make sure there is enough space for stopping the machine.
- Park the machine on level ground with sufficient bearing capacity. Never park on slopes. If you cannot avoid parking the machine on a slope:
 - ☞ Place chocks under the tracks and lower the attachment *into* the ground to prevent the machine from moving.
 - Severe accidents may be caused by unintentionally actuating the control levers, and hence moving the attachment or the entire machine.
 - ☞ Fold the control lever base up before leaving the seat.
 - ☞ Place the stabiliser blade downhill and lower it to the ground.



Operation

Light system

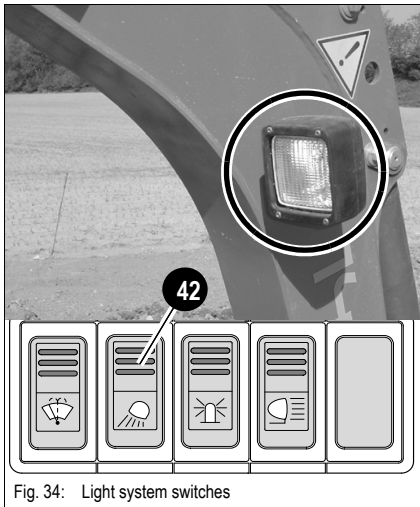


Fig. 34: Light system switches

The switch panel for the light system is located on the instrument panel.

Boom light

ON	Press switch 42 down	Telltale in switch 42 comes on
OFF	Press switch 42 up	Telltale in switch 42 goes out

Roof lights (option)

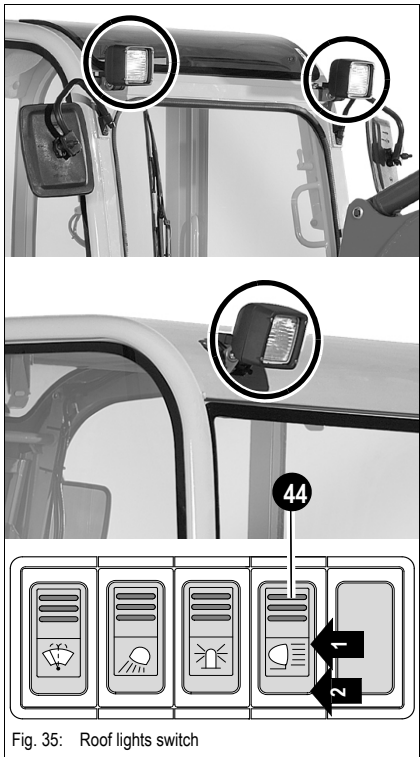


Fig. 35: Roof lights switch



Danger!

The working lights can dazzle motorists on public roads –

Do not switch on the working lights when driving on public roads. When operating the machine, only switch the working lights on when no-one can be dazzled by it!

Roof lights

ON	Press switch 44 to the 1st position Press switch 44 to the 2nd position	Telltale in switch comes on
OFF	Press switch 44 up	Telltale in switch goes out

Interior light

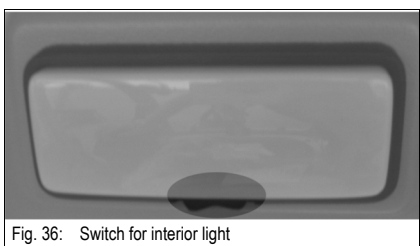


Fig. 36: Switch for interior light

Interior light

ON	Press switch to the left or right
OFF	Move switch to centre position



Rotating beacon (option)

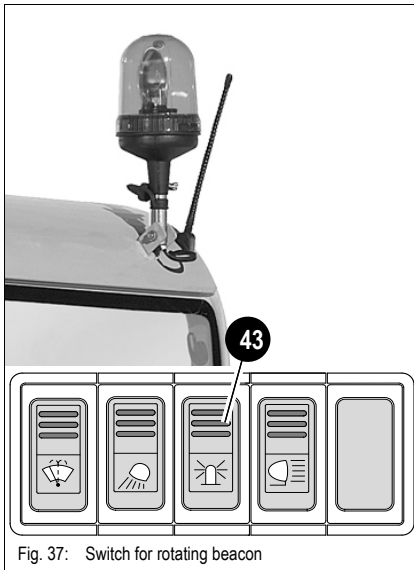


Fig. 37: Switch for rotating beacon

Rotating beacon (option)

ON	Press switch 43 down	Telltale in switch comes on
OFF	Press switch 43 up	Telltale in switch goes out



Notice!

Observe the legal regulations of your country for operating the rotating beacon.

Cab heating and ventilation

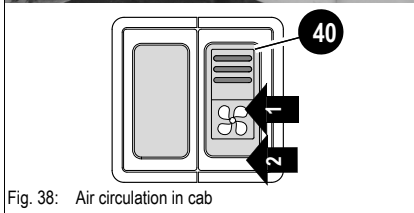
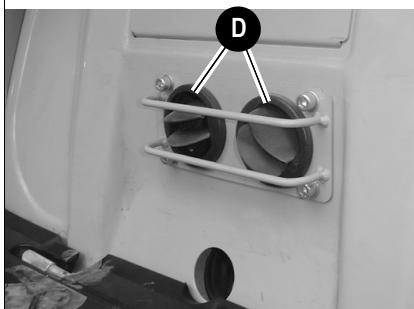
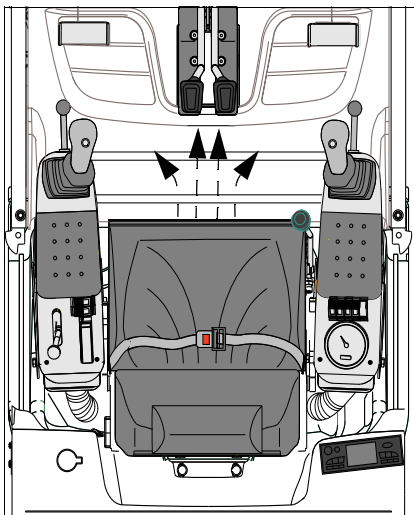


Fig. 38: Air circulation in cab



Notice!

The cab is fitted with two air nozzles. Each nozzle can be closed and directed separately. Open both nozzles to defrost the front window effectively.

- Direct the nozzles **D** to the front window
- Open or close the nozzles as required to vent or heat the cab.
- Do not place flammable or explosive material or objects near the nozzles.
- Air the cab from time to time

Ventilation (fresh air)

1st speed	Press switch 40 down one step	Low fan speed
2nd speed	Press switch 40 down two steps	High fan speed
OFF	Press switch 40 all the way down	Fan OFF



Operation

Heating adjustment

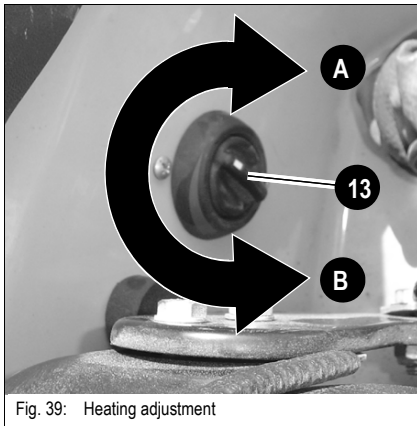


Fig. 39: Heating adjustment

Adjust cab temperature as follows:

- Cooling:
☞ Turn heater valve **13** towards **A** until you reach the required temperature.
- Heating:
☞ Turn heater valve **13** towards **B** until you reach the required temperature.



Notice!

In order to reach the required temperature quickly, we recommend carrying out only small changes of the setting on control valve **1**, otherwise it takes some time for the air in the cab to reach the required temperature.

Washer system

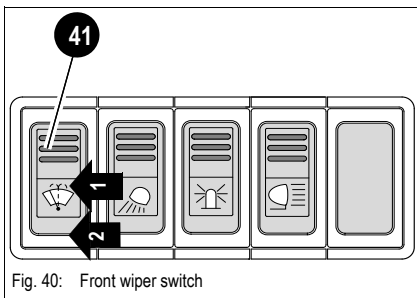


Fig. 40: Front wiper switch

Front window  wiper		
ON	☞ Press switch 41 down	☞ Front wiper is on
OFF	☞ Press switch 41 up	☞ Front wiper returns to base position
1st speed	☞ Press switch 41 down to the 1st position	☞ Front wiper is on
2nd speed	☞ Press switch 41 down to the 2nd position	☞ Pump sprays washer water on the window



Notice!

Do not actuate the washer system with the front window folded up. Do not actuate the washer system if the tank is empty, otherwise this can damage the electric pump.

Tank for washer system



Fig. 41: Tank for washer system

The tank filler inlet is located at the rear left in the cab.



Notice!

Fill with clean tap water only!
Add a suitable cleaning agent if required.
In winter: add antifreeze for washer systems to the water.
Refer to the antifreeze instructions for further information on concentrations.



Seat adjustment

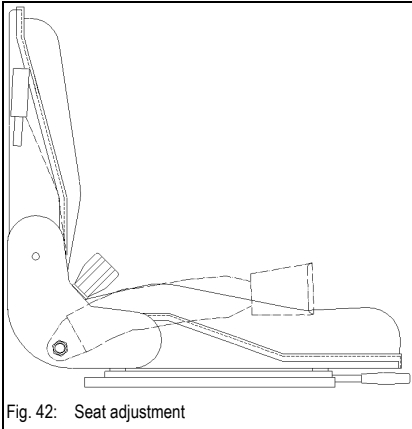


Fig. 42: Seat adjustment



Danger!

Never change the seat position when driving or working – see **Before starting the engine** on page 3-12

Danger of accidents!

☞ *Adjust the seat before moving the machine*



Caution!

Adjusting the backrest can damage the rear window and the removable part of the front window.

- ☞ *Make sure the backrest does not touch the rear window or the removable part of the front window as you adjust backrest inclination.*
- ☞ *Select a seat position which will not damage the window panels when working with the machine.*

Weight adjustment



Notice!

Adjust the seat suspension correctly to ensure a high level of ride comfort. Use the lever to adjust the seat suspension.

A label on the seat indicates the correct position for the respective weight.

Weight adjustment: 50 – 120 kg

☞ *Adjusting the weight is easier if you avoid sitting on the seat during adjustment.*

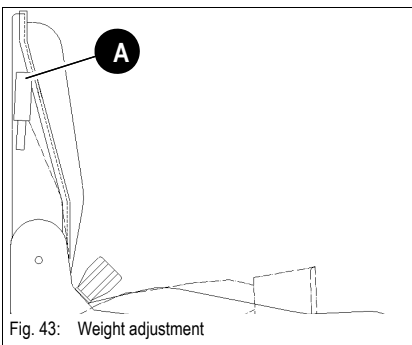


Fig. 43: Weight adjustment

To adjust to a higher weight:

☞ *Turn lever A upwards*

To adjust to a lower weight:

☞ *Turn lever A downwards.*

Horizontal adjustment

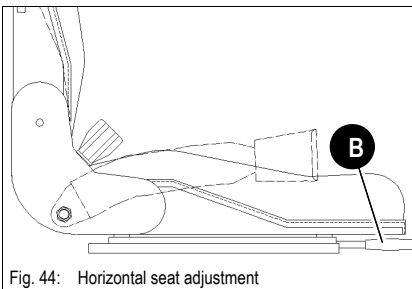


Fig. 44: Horizontal seat adjustment

☞ *Sit down on the seat*

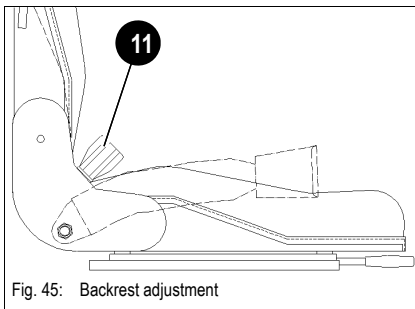
☞ *Pull lever B upwards and at the same time*

☞ *Move the seat forwards or backwards*



Operation

Backrest adjustment



☞ Turn rotary switch **11** in the required direction

- ➡ + backrest inclination to the rear
- ➡ + backrest inclination to the front

Seat belt



Danger!

Do not drive or work with the seat belt unbuckled –

Danger of personal injury!

☞ Buckle up before moving or working with the machine!

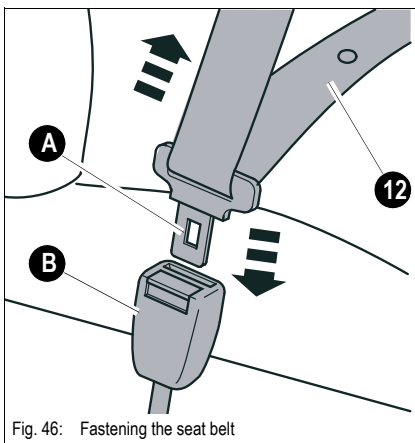
- Seat belt must not be twisted!
- Seat belt must run over the hips – not over the stomach – and must always be applied tightly!
- Do not place the seat belt over hard, edged or fragile items (tools, meter rule, glasses, pen) carried inside your clothes!
- Never buckle up 2 persons (children!) with one seat belt!
- Check seat belts regularly. Have damaged parts immediately replaced by an authorised workshop!
- Always keep the seat belt clean, as coarse dirt can impair proper functioning!
- Seat belt buckle must not be obstructed by foreign bodies (paper or similar); otherwise the buckle latch cannot lock into place!

After an accident the belt strap is stretched and no longer serviceable. In an accident, the seat belt

Will not provide adequate protection!

☞ Replace the seat belt after an accident

☞ Have fastening points and seat fixture checked for bearing capacity!

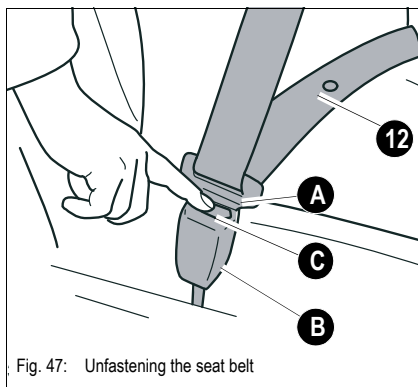


Seat belt **12** is for the driver's safety during work on construction sites and during road travel.

Fastening the seat belt:

☞ Fasten seat belt **12** as follows before moving the machine:

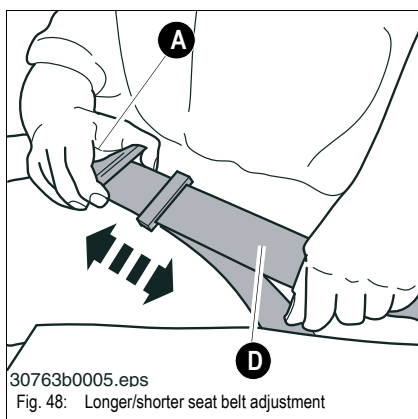
- Hold belt on buckle latch **A** and run it slowly and steadily over the hips to buckle **B**
- Insert buckle latch **A** into buckle **B** with an audible click (**pull test**)
- Tighten the seat belt by pulling at its end
 - ➡ The seat belt must always be tightly in place over the hips!



Unfastening the seat belt:

☞ *Unfasten seat belt 12 as follows:*

- Hold the seat belt
- Press red switch **C** on buckle **B**
 - ☞ Latch **A** is released from buckle **B** by spring pressure
- Slowly return the seat belt to the retractor



Longer/shorter lap belt adjustment:

☞ *Lengthen the lap belt as follows:*

- Hold buckle latch **A** at a right angle to the seat belt and pull the seat belt to the required length
- To shorten the lap belt, just pull the free end **D** of the belt

Emergency exit (with cab option)

You can enter and exit the cab through the side and front windows in an emergency.



Danger!

The front and the right-hand side of the machine have neither footholds nor handles for safely entering or exiting the cab –

Danger of personal injury!

☞ *Enter and exit the cab through the side and front windows in an emergency only!*

Opening the front window completely:

☞ – see **Front window (with cab option)** on page 3-28



Operation

Front window (with cab option)

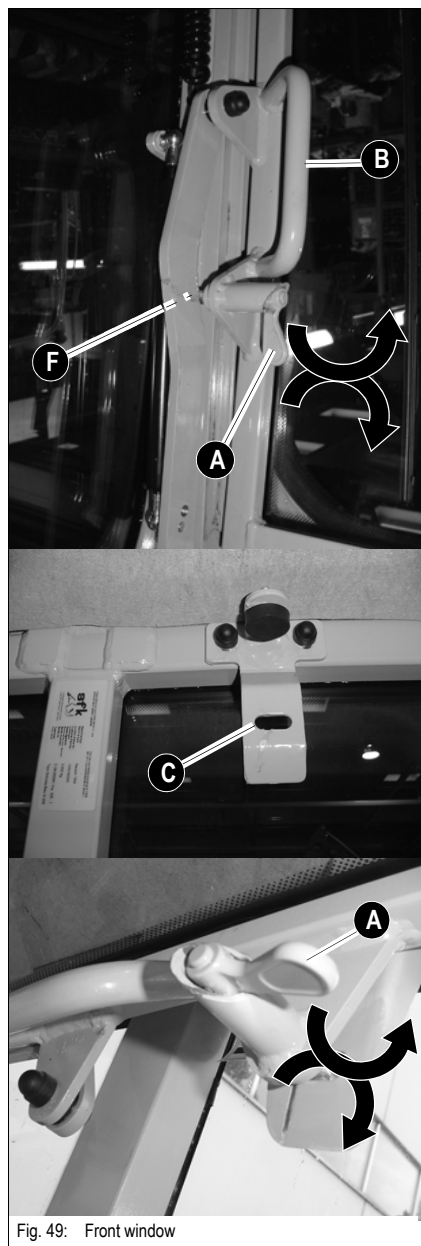


Fig. 49: Front window



Danger!

Careful when opening the front window –

Danger of crushing!

- ☞ Stay clear (extremities, clothing) of the window run
- ☞ Always pull the front window upwards with both handles **B**
- ☞ Always let levers **A** lock into place on either side in locks **F**



Notice!

Fold up the control lever base before opening or closing the front window, in order to avoid any unintentional operation or movement of the machine!

Open the front window as follows:

- Either side of the front window is fitted with a lever
- ☞ Push levers **A** down on either side
- ☞ Pull the front window upwards with handles **B**
 - ➡ The front window must lock into rails **C** on either side
- ☞ Lock with levers **A** on either side in **C**
 - ☞ Pull levers **A** to the rear to do this
 - ☞ Check whether both levers **A** are actually locked in rails **C**

Fold down the front window as follows:

- ☞ Push levers **A** forwards on either side
- ☞ Pull the front window downwards with handles **B**
- ☞ Lock the front window again by means of levers **A** in lock **F**
 - ☞ Pull levers **A** upwards to do this
 - ☞ Check whether both levers **A** are actually locked in rails **F**



Door (with cab option)



Danger!

Close/secure the door and the side window when driving and working with the machine

—

Danger of accidents!

☞ *Close the door before moving the machine*

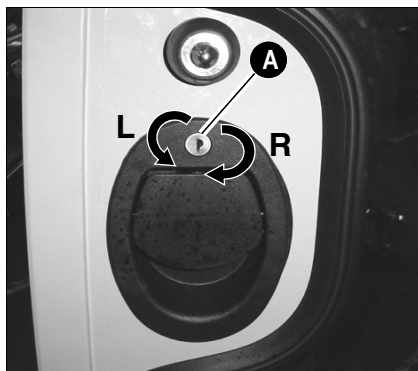


Fig. 50: Outside door opener and lock

Opening the door from the outside:

☞ Press door lock **A**

Locking the door:

☞ Turn the key in door lock **A** to the **left (L)**

☞ The door is locked

Unlocking the door:

☞ Turn the key in door lock **A** to the **right (R)**

☞ The door is unlocked

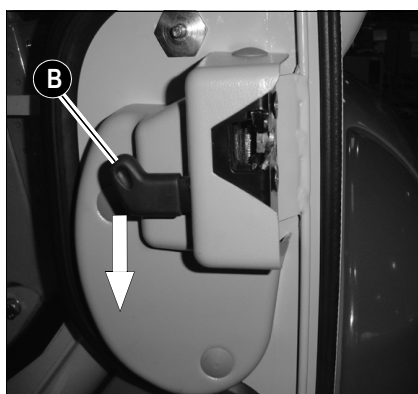


Fig. 51: Inside door opener (left/right)

Opening the door from the inside:

☞ Press the lever on the inside left on door lock **B** down

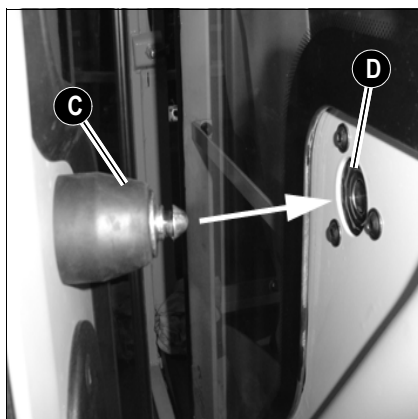


Fig. 52: Door arrester

Securing an open door:

☞ Press the door against bracket **C** of arrester **D** with an audible click



Operation

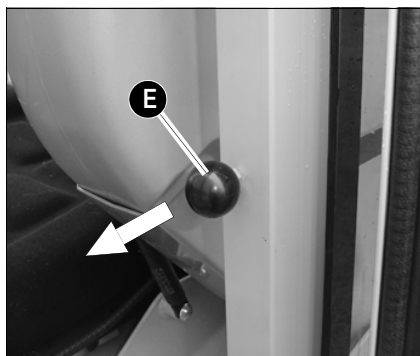


Fig. 53: Releasing the door arrester

Releasing the door opener:

Pull button **E** to release the door from the arrester.

Engine cover

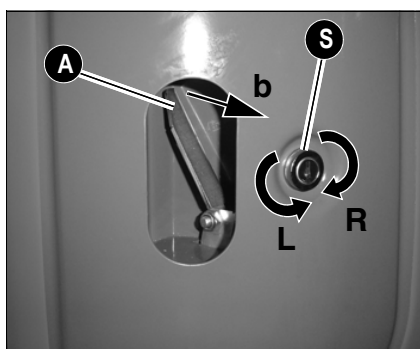


Fig. 54: Engine cover lock

Opening:

- ☞ Pull lever **A** towards **b**

Closing:

- ☞ Firmly press the engine cover towards the machine until lock **S** engages with an audible click

Locking and unlocking:

Close the engine cover with the ignition key of the preheating start switch.

- ☞ Turn the ignition key in lock **S** to the **left (L)**
 - ➔ Engine cover locked
- ☞ Turn the ignition key in lock **S** to the **right (R)**
 - ➔ Engine cover unlocked

Battery master switch (model 1404)

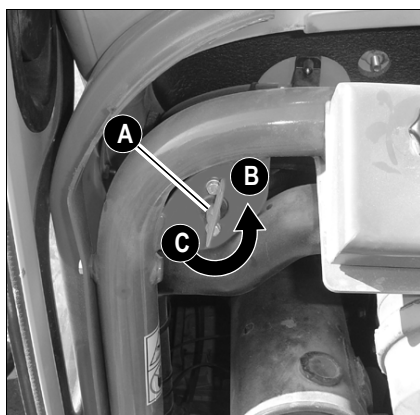


Fig. 55: Battery master switch model 1404



Notice!

Do not disconnect the battery while the engine is running.



Notice!

Power supply is interrupted directly after the battery, by means of a key

- Before working on the electrical system
- As an antitheft precaution

Interrupting power supply:

- ☞ Turn key **A** of the battery master switch to position **B** and remove it

Switching on power supply:

- ☞ Insert key **A** in the battery master switch
- ☞ Turn the key down to the notched position **C**


Exit through the door (with standard cab option)

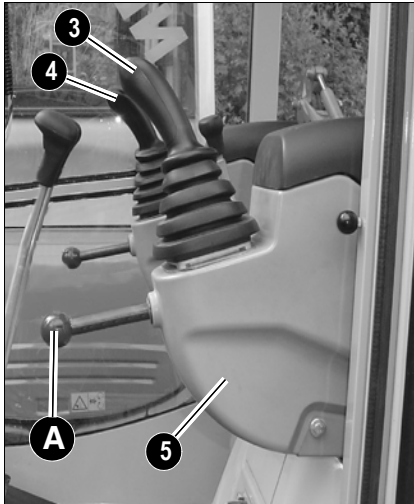
Danger!

When entering or exiting the cab –

Danger of accidents!

⚠ *Bear in mind the following before entering or leaving the cab:*

- Stop and secure the machine
– see **Parking the machine** on page 3-21
- Lower the boom
- Stop the engine
- Remove the ignition key
- Move control levers **2** and **3** repeatedly in all directions



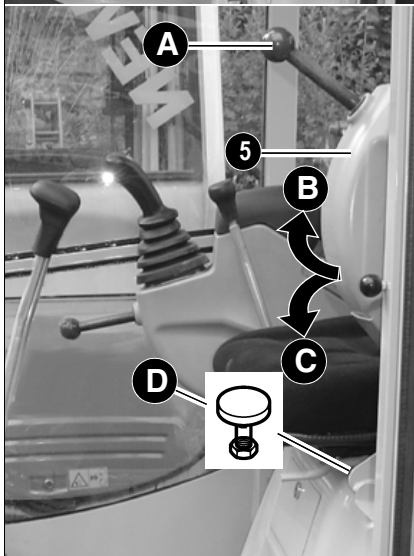
⚠ *Raise control lever base **5** with handle **A** to position **B***

➡ The gas strut keeps the control lever base in the top position


Caution!

*Do not use handle **A** on the control lever base as a support to ease your entrance to the cab:*

⚠ *Use the entrance handles in the cab*



⚠ *Fold control lever base **5** down to position **C** once you are in the cab*

➡ The gas strut keeps the control lever base in the lower position


Notice!

The height of the control lever base can be set with stop bolt **D**


Notice!

Enter and leave the cab only through the door as a rule. You can enter and exit the cab through the front and the right-hand side window in an emergency.

Fig. 56: Control lever base



Operation

Towing the track excavator

Safety instructions:

- Make sure the excavator can be towed safely
- Use the towing bracket for towing the machine.
- Use the towing bracket only for towing the machine
- Use a shackle pin with a lock pin
- Move off slowly!
- Make sure no-one is close to the towing equipment (towing bar, cable)!

Towing



Danger!

Keep out of the danger area of the machine –

Danger of accidents!

☞ *Make sure no-one is dangerously close to the excavator.*



Caution!

The towing bracket has a maximum admissible load of 2330 daN.

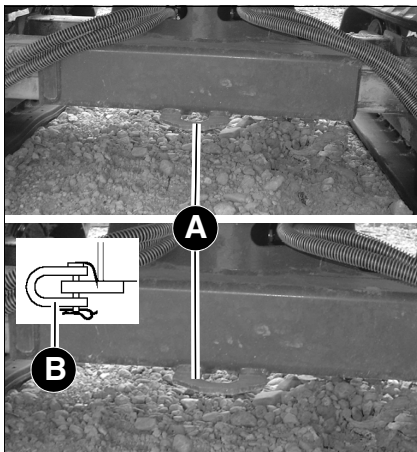


Fig. 57: Towing bore

- ☞ Use towing bracket **A**
- ☞ Secure shackle **B** with the shackle pin and a lock pin
- ☞ Mount a towing bar or cable of adequate size to the towing bore
- ☞ Pull the machine slowly



Notice!

Follow the following instructions under all circumstances:

- Do not tow away the machine if it is at a standstill or broken down, otherwise the machine's travelling drive can be damaged
- The manufacturer's warranty shall not apply to accidents or damage caused by towing the excavator.
- No towing away other machines with towing bracket **A**.



Crane handling the machine

Safety instructions

- The crane and the lifting gear must have suitable dimensions
- Crane handling the machine requires suitable lifting gear
- Secure the machine against unintentional movement!
- Check the cab for damage.



Danger!

Incorrect crane handling of the machine –

Danger of accidents!

- ☞ *Make sure no-one is in the machine!*
- ☞ *Have loads fastened and crane operators instructed by experienced persons only! The person giving the instructions to the crane operator must be within sight or sound of him*
- ☞ *Make sure the crane and the lifting gear (cables, chains) have sufficient lifting capacity!*
- ☞ *Raise the machine only if the standard bucket is empty*
- ☞ *Stay clear of suspended loads!*
- ☞ *It is essential that you read the safety instructions at the beginning of this chapter and follow any other safety instructions relevant in your country!*
- ☞ *Make sure the lifting gear has the required lengths **L1** and **L2***

Check the following screws with a torque wrench:



Caution!

Tighten the following screw connections to the specific torque before raising the machine.
Retighten loose connections immediately. Contact an authorised workshop if necessary.

– see **Screw connections and attachments** on page 5-32

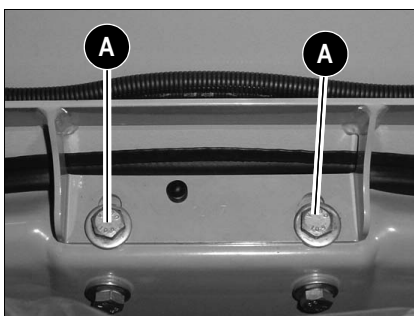


Fig. 58: Cab attachment on rear wall

- ☞ *Remove the cover from the rear wall of the cab.*
- ☞ *Tighten both screws **A** to 110 Nm (81 ft/lbs).*



Operation

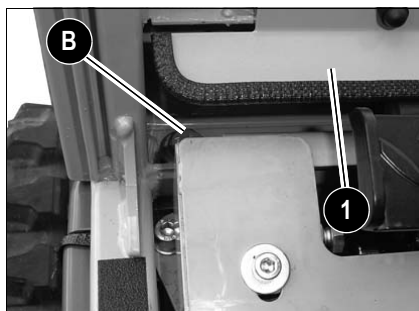


Fig. 59: Left and right-hand side cab attachment

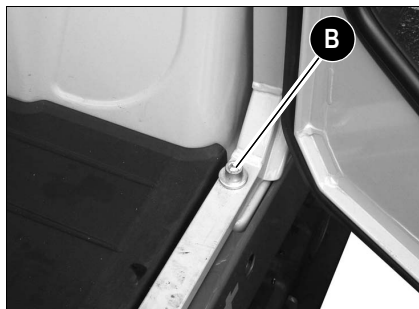


Fig. 60: Rear left cab attachment

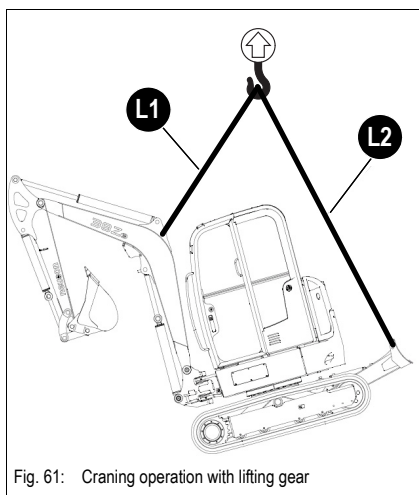


Fig. 61: Craning operation with lifting gear

- ☞ Raise the floor mat on either side.
- ☞ Remove cover 1.
- ☞ Tighten screws **B** on either side to 110 Nm (81 ft/lbs).
- ☞ Place the floor mat on either side and mount the cover.

Tighten screws **B** on either side to 110 Nm (81 ft/lbs).

Load the machine as follows:

- Fit the standard bucket and lock it safely
- Empty the standard bucket
- Tilt in the standard bucket and lower it to transport position
- Fully raise the boom
- Pull the stick towards the machine
- Stop the engine
- Fold the control lever base up
- Remove the ignition key
- Lock the upper carriage
- Do not allow anyone to stay in the cab, and close the doors and the engine cover
- Use suitable lifting gear, chains etc.
- Mount the lifting gear at the point on the boom provided for lifting the machine
- Mount the lifting gear at the points on the stabiliser blade provided for lifting the machine
- Make sure the lifting gear has the required lengths **L1** and **L2**
- Slowly raise the machine

Required lengths L1 and L2 of the lifting gear:

Length	Dimension
L1	1910 mm
L2	3150 mm

Authorised loads	Force
Boom lift eye	40 kN
Stabiliser blade lift eye	40 kN

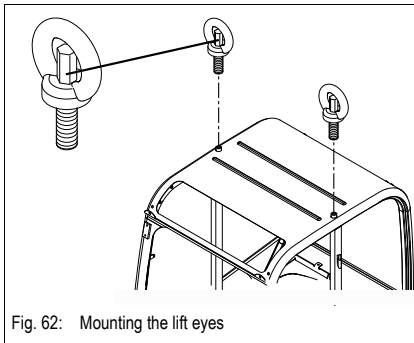


Fig. 62: Mounting the lift eyes

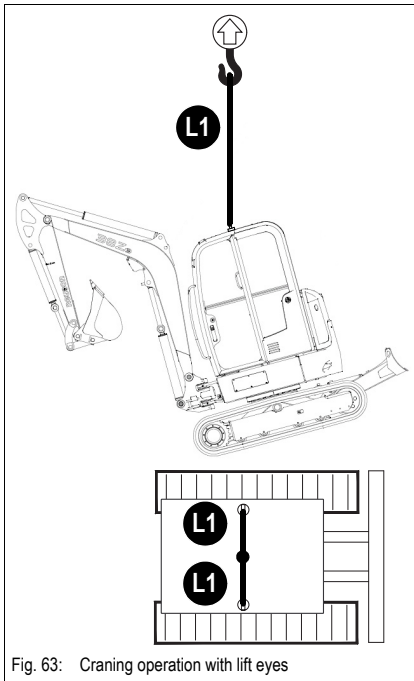


Fig. 63: Craning operation with lift eyes

Load the machine as follows (with lift eyes):

- Fit the standard bucket and lock it safely
- Empty the standard bucket
- Tilt in the standard bucket and lower it to transport position
- Fully raise the boom
- Pull the stick towards the machine
- Stop the engine
- Fold the control lever base up
- Remove the ignition key
- Lock the upper carriage
- Do not allow anyone to stay in the cab, and close the doors and the engine cover
- Mount the extension on the lift eyes
- Mount and tighten the lift eyes on the cab (as shown in [Fig. 62](#))
- Use suitable lifting gear, chains etc.
- Mount the lifting gear on both lift eyes
- Make sure the lifting gear has the required length **L1**
- Slowly raise the machine

Required lengths L1 and L2 of the lifting gear:

Excavator	Length	Dimension
1404 _s	L1	1200 mm



Operation

Loading and transporting the machine

Safety instructions

- The transport vehicle must be of adequate size – refer to [Chapter 6 “Specifications”](#) for the machine's dimensions and weights!
- Remove any mud, snow or ice from the tracks so that the machine can be safely driven onto the ramps
- Secure the machine against unintentional movement – see [Parking the machine](#) on page 3-21!



Danger!

The machine must be loaded and transported properly –

Danger of accidents!

It is essential that you read the safety instructions at the beginning of this chapter and follow any other safety instructions relevant in your country!

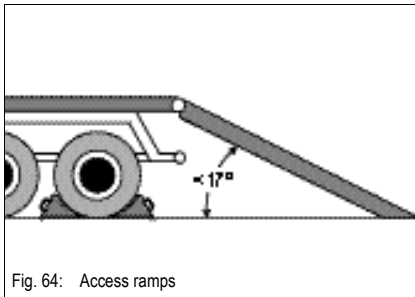


Fig. 64: Access ramps

Load as follows:

- Secure the transport vehicle with chocks to prevent it from rolling
- Place the access ramps at the smallest possible angle. Make sure the grade does not exceed 17° (30 %). Use access ramps with an antiskid surface only.
- Make sure the loading area is clear and access to it is not obstructed – e.g. by superstructures
- Make sure the ramps and the tracks of the excavator are free of oil, grease and ice
- Start the engine of the excavator
- Raise the bucket sufficiently so that it will not touch the ramps
- Carefully drive the excavator onto the middle of the transport vehicle
- Lower the bucket to the loading area
- Stop the engine
- Fold the control lever base up
- Remove the ignition key
- Do not allow anyone to stay in the cab, and close the doors and the engine cover



Notice!

The manufacturer's warranty shall not apply to accidents or damage caused by loading or transporting the excavator.



Tying down the machine

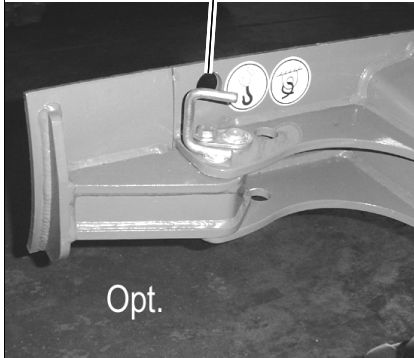
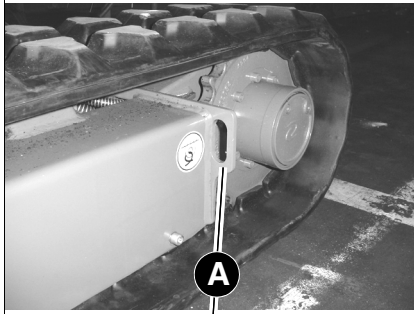
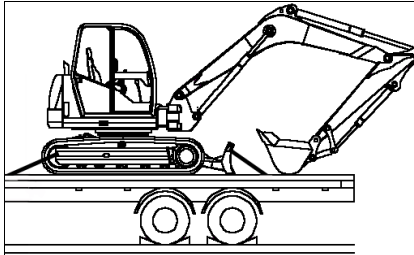


Fig. 65: Tying down the excavator



Danger!

The machine must be loaded and transported properly –

Danger of accidents!

It is essential that you read the safety instructions at the beginning of this chapter and follow any other safety instructions relevant in your country!

- Make sure the authorised maximum height is not exceeded
- Secure the tracks of the excavator at the front, rear and at the sides
- Lower the stabiliser blade and the boom
- Firmly tie down the excavator at the eye hooks **A** onto the platform, with belts or chains of adequate size
- Before transporting the machine through heavy rain:
close the outlet of the exhaust silencer with a simple cap or suitable adhesive tape
- Make sure the driver of the transport vehicle knows the overall height, width and weight of his vehicle (incl. excavator) before departure, as well as the legal transport regulations of the country or countries where transport is to take place!



3.8 Working with the machine

General safety instructions

- Never drive up to the edge of a pit from outside – danger of cave-in!
- Never undermine the foundations of walls – danger of collapse!
- Do not dig under projecting ground. Stones or the projecting earth can fall onto the machine.
- Do not excavate deeply under the front side of the machine. The ground under the machine could collapse and cause it to tip over.
- In order to leave the cab more easily under especially difficult circumstances, position the tracks perpendicularly to the roadside or to the uphill slope with the drive pinion behind the driver.
- Do not carry out demolition work below the machine, otherwise it can lose its balance and tip over.
- When working on roofs or similar structures, check the resistance and the structure itself before starting work. The building can collapse, causing severe injury and damage.
- Do not place the machine directly underneath the workplace during demolition, otherwise demolished parts can fall onto the machine or the building can collapse, causing severe injury or damage.
- Do not use the impact force of the attachment to carry out demolition work. Demolished parts can cause personal injury or damage to property or the equipment.
- In general the machine is more liable to tilt if the attachment is positioned laterally than if it is positioned at the front or rear of the machine.
- The machine can lose its balance and tilt if a demolition hammer or other heavy attachment is used. Proceed as follows to carry out work both on level ground and on slopes:
 - ⚠ Never lower, turn or set down the attachment abruptly.
 - ⚠ Do not extend or retract the main boom ram abruptly, otherwise the machine can tip over.
- Do not raise the bucket over the heads of other workers or over the driver seats of trucks or of other means of transport. The material can tip over, or the bucket can knock against the truck and cause severe injury or damage.
- Operation of the machine by unauthorised staff is prohibited!
- Look out for high-voltage cables, underground cables, gas and water pipes during excavation work!
- The hydraulic system of the machine is still pressurised even when the engine is not running! Release the pressure in the sections of the system and hydraulic lines which are to be opened before starting setup or repair work, e.g. fitting/removing an attachment with hydraulic functions
 - see **Lowering the boom at engine standstill/energy failure** on page 3-41.



3.9 Control levers/ISO controls: overview



Notice!

Fast actuation of the control lever for the attachment moves the attachment fast.
Slow actuation of the control lever moves the attachment slowly.

Left-hand side control lever



Danger!

Unintentional operation of control lever fig. 66/3 when driving on public roads –

Danger of accidents!

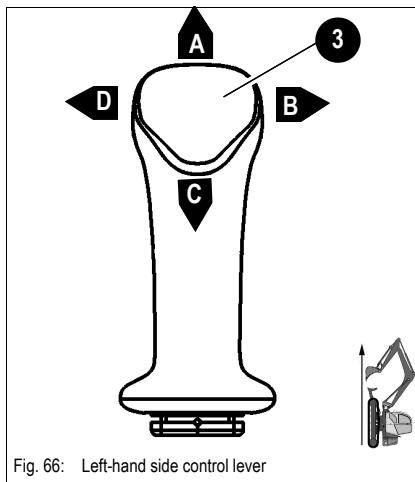


Fig. 66: Left-hand side control lever

Position	Lever	Function
• A	☞ <i>Forwards</i>	☞ Stick is extended
• B	☞ <i>To the right</i>	☞ Upper carriage rotates to the right
• C	☞ <i>Backwards</i>	☞ Stick is retracted
• D	☞ <i>To the left</i>	☞ Upper carriage rotates to the left



Notice!

Always carry out smooth control movements.

Boom swivel controls

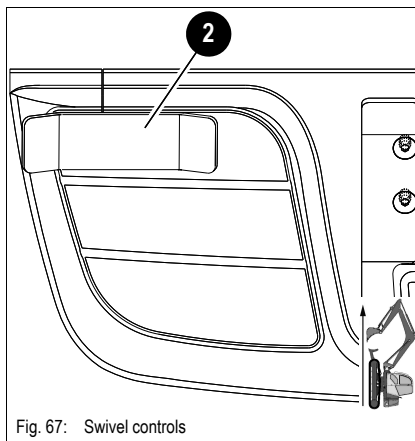


Fig. 67: Swivel controls

Swivel boom to the left:

☞ Move the right-hand side pedal 2 to the left

Swivel boom to the right:

☞ Move the right-hand side pedal 2 to the right



Operation

Auxiliary hydraulics

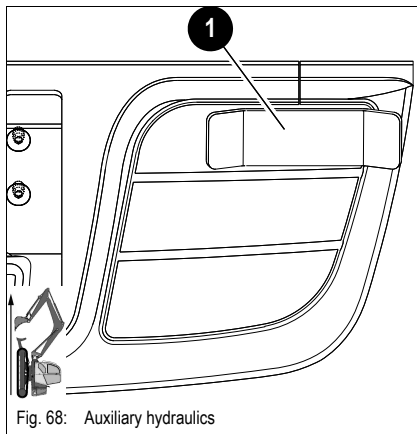


Fig. 68: Auxiliary hydraulics

Actuating the auxiliary hydraulics:

Oil flow in 1st direction:

➡ Move the left-hand side pedal 1 to the left

Oil flow in 2nd direction:

➡ Move the left-hand side pedal 1 to the right

Right-hand side control lever

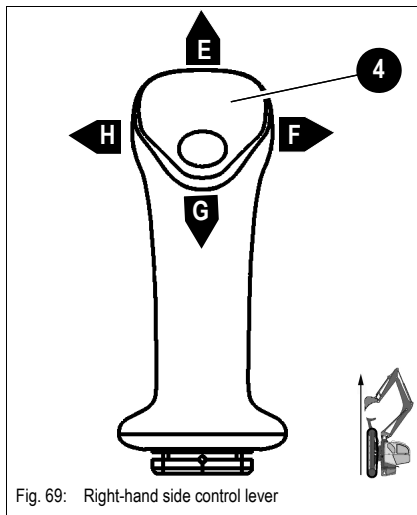


Fig. 69: Right-hand side control lever

Position	Lever	Function
• E	➡ Forwards	➡ Boom is lowered
• F	➡ To the right	➡ Dumps out the bucket
• G	➡ Backwards	➡ Boom is raised
• H	➡ To the left	➡ Dumps in the bucket

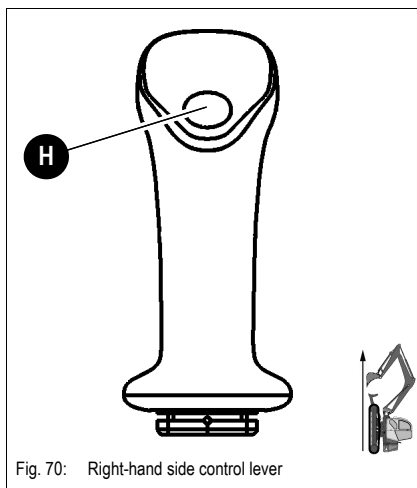
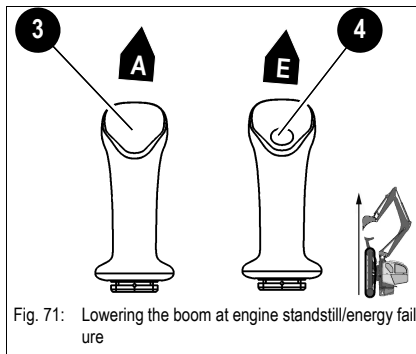


Fig. 70: Right-hand side control lever

Button	Function
➡ H	➡ Horn



Lowering the boom at engine standstill/energy failure



Danger!

With the engine stopped or in case of energy failure, the boom can be lowered with the control lever at any time –

Danger of accidents!

Lower the boom as follows:

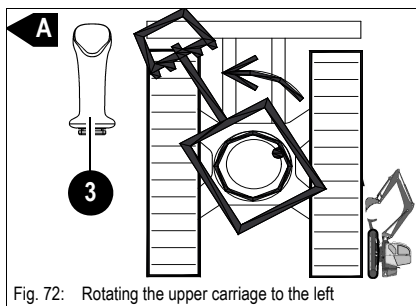
- *Make sure no-one is dangerously close to the machine*
- *Press forwards and hold the control lever (A and E)*
 - ➡ *Until the boom is completely lowered.*
- *Return the control lever to neutral*

Rotating the upper carriage

Rotating the upper carriage is described with standard ISO controls.

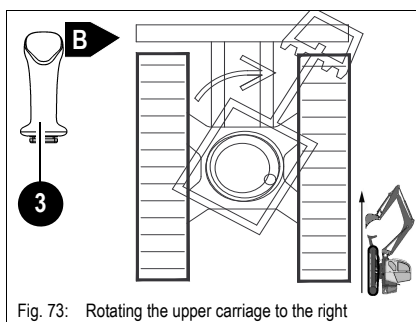
Specific safety instructions

- The upper carriage can rotate a little bit further if the machine has not yet reached its operating temperature.
- Fast actuation of the control lever rotates the upper carriage fast, slow actuation of the control lever rotates the upper carriage slowly.
- If the upper carriage needs to be rotated on a slope, let the engine run at idling speed and actuate the control lever very slowly. Proceed with extreme care and avoid abrupt movements if the bucket is full.



Rotate the upper carriage to the left as follows:

- *Push the left-hand side control lever 3 to the left A*
 - ➡ *The upper carriage rotates to the left*



Rotate the upper carriage to the right as follows:

- *Push the left-hand side control lever 3 to the right B*
 - ➡ *The upper carriage rotates to the right*

Swivel unit brake

Hydraulic swivel unit brake:

The upper carriage's rotation is sufficiently braked by moving control lever 3 back to initial position. Moving the control lever in the opposite direction (counteraction) brakes the upper carriage with maximum hydraulic output.



3.10 Changeover valve for SAE/ISO controls (option)



Danger!

Changing the directional valve over modifies the controls (control levers) –

Danger of accidents!

- ☞ *Make sure you know which control mode has been selected before starting work*
- ☞ *Always secure wing nut J on the changeover lever of the directional valve*

Left-hand side control lever

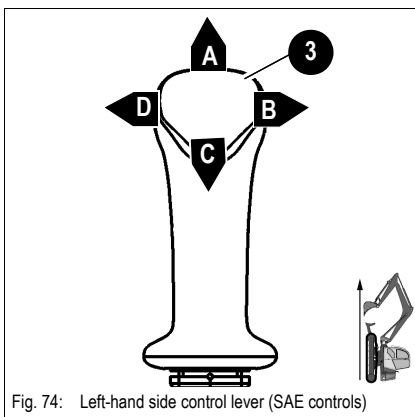


Fig. 74: Left-hand side control lever (SAE controls)

Position	Lever	Function
• A	☞ <i>Forwards</i>	☞ Boom is lowered
• B	☞ <i>To the right</i>	☞ Upper carriage rotates to the right
• C	☞ <i>Backwards</i>	☞ Boom is raised
• D	☞ <i>To the left</i>	☞ Upper carriage rotates to the left

Right-hand side control lever

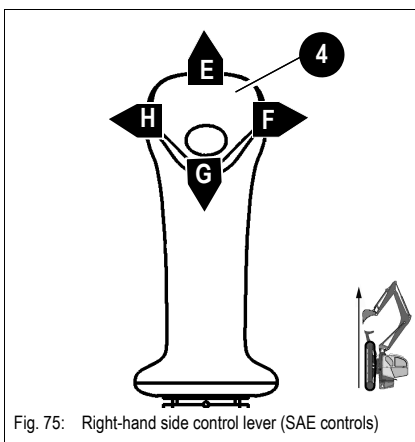
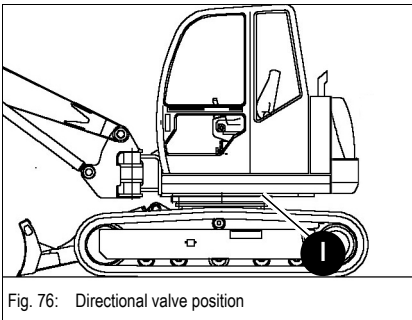


Fig. 75: Right-hand side control lever (SAE controls)

Position	Lever	Function
• E	☞ <i>Forwards</i>	☞ Stick is extended
• F	☞ <i>To the right</i>	☞ Dumps out the bucket
• G	☞ <i>Backwards</i>	☞ Stick is retracted
• H	☞ <i>To the left</i>	☞ Dumps in the bucket

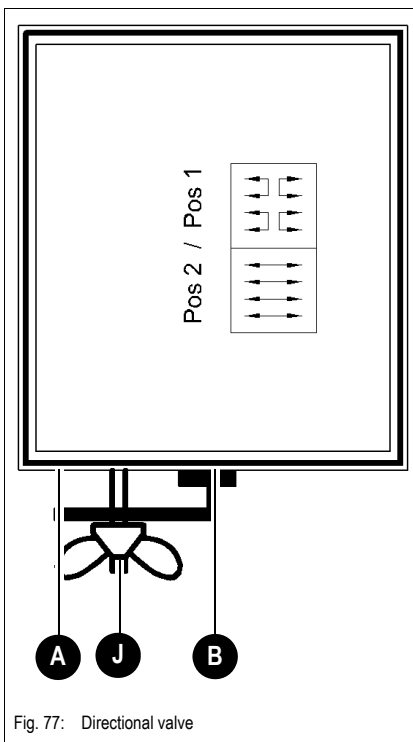


Directional valve position



The directional valve is located on the left in base plate I of the chassis.

Directional valve



The changeover valve switches from ISO to SAE controls and vice versa.

Position	Function
• A	➡ ISO controls
• B	➡ SAE controls

🔧 Tighten wing nut **J** after changing control mode.



Caution!

No driving or working with the machine if wing nut **J** is defective!

🔧 Immediately contact a Wacker Neuson workshop to replace a defective wing nut.



3.11 Re-equipping attachments

Re-equipping the attachments is described below for a bucket. If you are fitting or removing attachments with their own hydraulic functions – e.g. grab or offset bucket – you must follow the special information given in the Operator's Manual of the attachment. Also refer to the Operator's Manual of the attachment for the procedure to follow for fitting an attachment onto a quickhitch.

Specific safety instructions

- Driving in pins with a hammer can cause them to splinter, which can cause severe personal injury.
 - ☞ Always carry protective goggles, helmets, gloves and other protective equipment.
- Do not stand behind the bucket when removing pins.
 - ☞ Do not place your foot underneath the bucket.
- Pay special attention to your fingers when removing and reinserting pins.
- Never insert fingers in the bores of the pins as you align them.



Danger!

Re-equipping attachments –

Danger of personal injury!

☞ Avoid accidents and injuries by following the information below:

- Stop the engine
 - Fold the control lever base up
 - Re-equip attachments only with suitable tools
 - Do not align components with your fingers or your hands but use suitable tools – danger of crushing!
- ☞ Once you have re-equipped the attachments, or before starting work, make sure the attachment is safely locked with the stick and the tilt rod, or with the quickhitch (option).

Removing a bucket

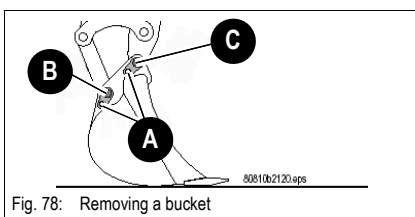


Fig. 78: Removing a bucket

☞ Re-equip as follows:

- Lower the bucket to the ground with its flat side facing down
- Stop the engine
- Remove lynch pin A
- First remove pin B, and then pin C. Carefully expel pins that are stuck with a hammer and a brass punch

If pin C is stuck:

- Start the engine
- Slightly raise and lower the boom to take the load off the pin
- Stop the engine



Notice!

Place the bucket only with minimum pressure on the ground as you remove the pins. The higher the pressure on the ground, the higher the resistance and the more difficult it is to remove the pins.



Mounting a bucket

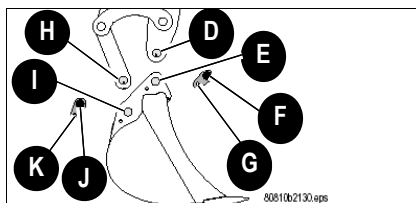


Fig. 79: Mounting a bucket

➤ Proceed as follows:

- Lower the bucket to the ground with its flat side facing down
- Grease the joints and the pins before inserting them
- Start the engine
- Straighten the stick so that bores **D** and **E** are flush
- Insert greased pin **F**
- Tighten lock screw **G**
- Actuate the stick ram until bores **H** and **I** are flush
- Insert the greased pin **J**
- Lock linch pin **K**

Quickhitch (option)

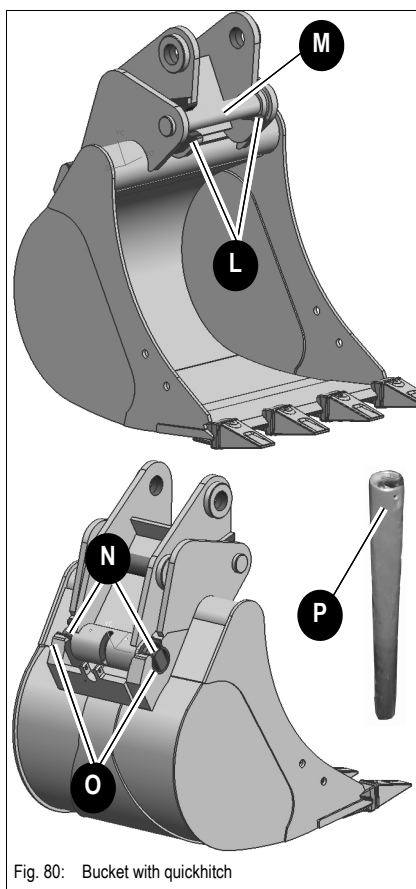


Fig. 80: Bucket with quickhitch



Danger!

The attachment must always be safely locked onto the quickhitch –

Danger of accidents!

➤ Before starting work, make sure the attachment is securely locked onto the quickhitch by means of the lock mechanism. You must be able to see the lock on either side of the mounting bore of the attachment.

➤ Re-equip as follows:

- Approach the machine to the attachment
- Hitch coupling bar **M** onto coupling claws **L** of the quickhitch to pick up the bucket
- Engage lock mechanism **N** in mounting bores **O**
- Place the bucket on level ground



Operation

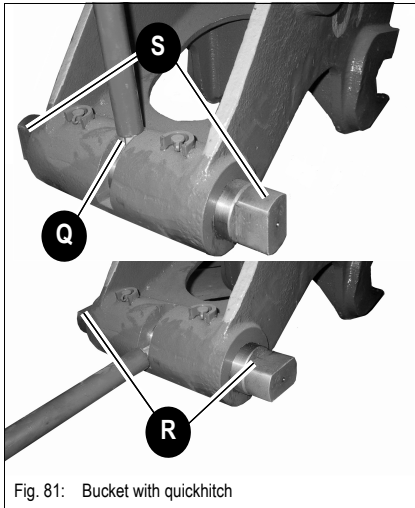


Fig. 81: Bucket with quickhitch

Lock as follows:

- Stop the engine
- Insert tube **P** (included in scope of delivery) in clamping sleeve **Q**
- Press the tube downwards
- The lock pins must be in position **R**

Unlock as follows:

- Stop the engine
- Insert tube **P** (included in scope of delivery) in clamping sleeve **Q**
- Press the tube upwards
- The lock pins must be in position **S**



Hydraulic quickhitch (option)



Caution!

Before putting this feature into operation, specific training must be carried out by authorised technical staff and must be understood by the operator. For reasons of safety, the quickhitch must be operated with two control elements! This avoids opening the quickhitch unintentionally during work operation.

Maintenance

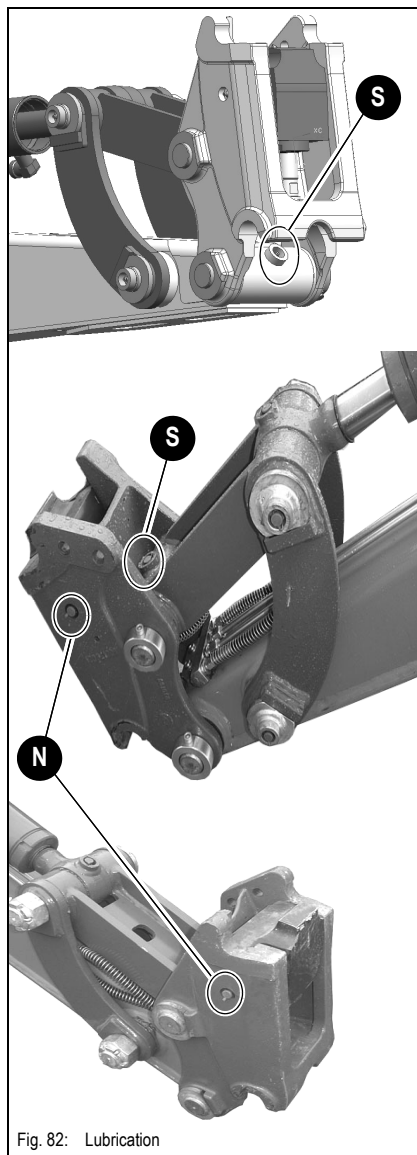


Fig. 82: Lubrication



Notice!

Before picking up an attachment, the driver must make sure it can be hitched correctly by removing all dirt on either claw of the quickhitch. Carry out maintenance on the quickhitch system once a day with the other maintenance work for the machine.

Carry out visual checks for possible defects, damage or cracks.

Remove all dirt on and around moving parts.

The claws must be clean and slightly greased.

Apply grease to the pins via grease nipples **S**.

Apply grease to the friction surfaces of the lock mechanism via 2 further grease nipples **N** on either side of the quickhitch (see [Fig. 82](#)).

Before starting work, check the acoustic signal which must be audible when pressing switch **50**.



Operation

Operation

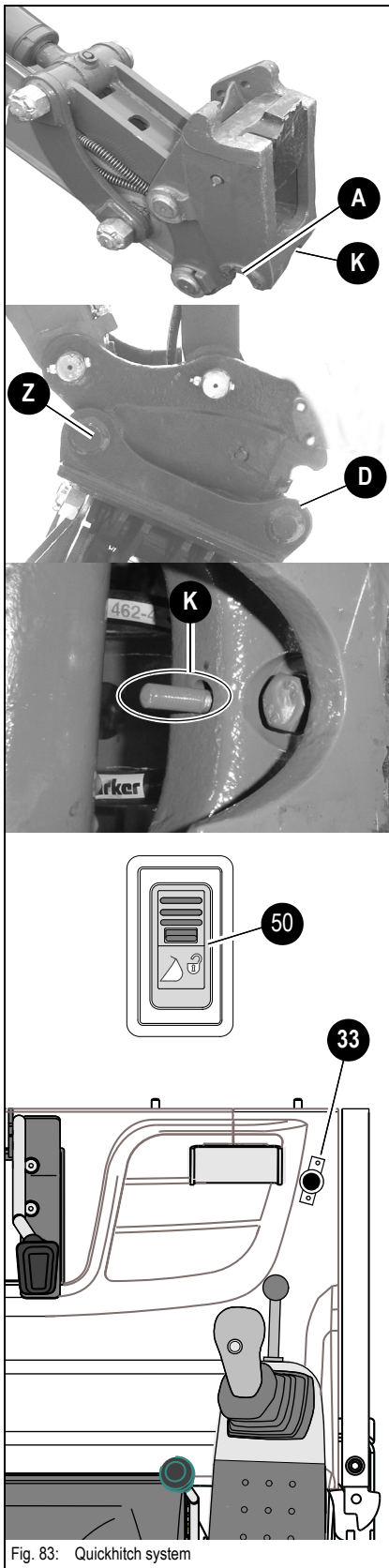


Fig. 83: Quickhitch system

Picking up an attachment



Danger!

Before working, make sure the attachment is mounted correctly and that it is fully functional.

Do not allow anyone to stay in the danger area!

- ☞ For instance, with a short and rapid succession of stick and bucket movements as close as possible to the ground.
- ☞ Do not operate an attachment with a defective lock under no circumstances!

For system-specific reasons, the hydraulic quickhitch opens and closes with the functions "Stabiliser blade", "Auxiliary hydraulics", "Boom swivel" and "Rotate upper carriage".

For reasons of safety, only use the function "Raise stabiliser blade" to open or close!



Caution!

The optical check pin **K** must be fully retracted.

If it can still be seen, or if you are unsure whether the bucket is mounted on the machine without any play:

- ☞ Troubleshoot and rectify immediately!

Proceed as follows:

- ☞ Actuate switch **50**.
 - ➔ The buzzer sounds.
 - ➔ The hydraulic quickhitch is enabled and can be operated.
- ☞ Press and hold the foot-operated tip switch **33**.
- ☞ Operate the stabiliser blade (raise as far as it will go).
 - ➔ The quickhitch opens.
 - ➔ Check pin **K** (red) indicates that the quickhitch is fully open.
- ☞ Hitch claws **A** (on the side of the excavator) into pins **Z** of the bucket mount.
- ☞ Move the attachment inwards with a turning movement by actuating the bucket ram, so that the second pin **D** of the attachment also makes contact with quickhitch.
- ☞ Check whether the bucket touches the quickhitch with the second pin **D**.
- ☞ Release the foot-operated tip switch **33**.
- ☞ Operate the stabiliser blade (raise as far as it will go).
 - ➔ The quickhitch closes.
- ☞ Switch off switch **50**.
 - ➔ The buzzer is mute.
 - ➔ The hydraulic quickhitch is disabled.
- ☞ Check the bucket and make sure it is firmly installed!



Setting down an attachment

Proceed as follows:

- ☞ Lower the attachment to about 5 – 10 cm above the ground
- ☞ Press switch **50**
 - ➔ The buzzer sounds
- ☞ Press and hold the foot-operated tip switch **33**.
- ☞ Operate the stabiliser blade (raise as far as it will go).
 - ➔ The quickhitch opens and unhitches the attachment.
 - ➔ Check pin **K** (red) indicates that the quickhitch is fully open.
- ☞ Retract the bucket ram
 - ➔ Set down the bucket
- ☞ Raise the boom
- ☞ Release the foot-operated tip switch **33**.
- ☞ Operate the stabiliser blade (raise as far as it will go).
 - ➔ The quickhitch closes.
- ☞ Switch off switch **50**.
 - ➔ The buzzer is mute

Shovel bucket operation

With some restrictions, Wacker Neuson backhoe buckets can also be used for shovel bucket operation.



Fig. 84: Possible damage



Danger!

Do not tilt the bucket fully back in shovel bucket operation (see [Fig. 84](#)), otherwise the bucket base can touch and damage the stick.

Connections for auxiliary hydraulics

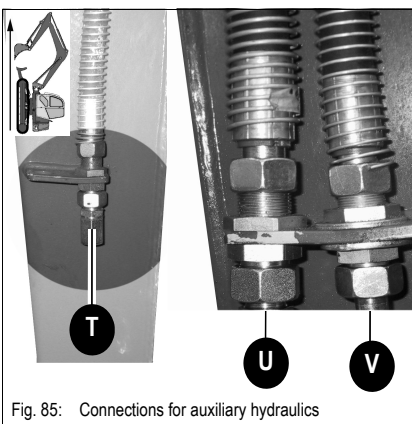


Fig. 85: Connections for auxiliary hydraulics

Port	Stick (left)	Stick (right)
T	☞ Pressure line	
U		☞ Large reflux line
V		☞ Pressure line



Notice!

Follow the instructions in the Operator's Manual of the attachment manufacturer for connecting the auxiliary hydraulics to attachments.



Operation

Grab couplings

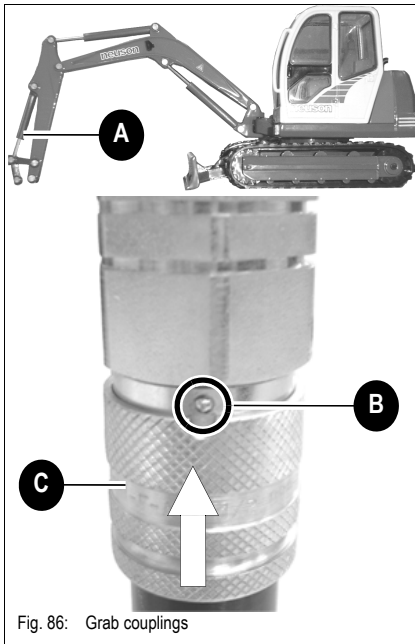


Fig. 86: Grab couplings

Connect and disconnect the grab couplings as follows:

Removing the coupling:

- Park the machine on firm and level ground
- Extend stick ram **A** halfway through
- Stop the engine
- Release the pressure on stick ram **A** by moving the right-hand side control lever to the left and right
- Fold the control lever base up
- Turn lock sleeve **C** towards lock ball **B**
- Pull lock sleeve **C** upwards
 - The coupling opens

Connecting the coupling:

- Connect the coupling onto the stick ram connection making sure it is straight
 - Wait until you hear a hissing sound of the connection
 - Fully connect the coupling on the connection
- Turn back the lock again (away from lock ball **B**)



Attachments



Notice!

Please refer to the Operator's and maintenance manual of the attachment manufacturer for using and carrying out maintenance on attachments such as hammers, grabs etc.

Working with the standard bucket

The following section describes work operations with the machine equipped with the standard bucket.

The standard bucket is mainly used for digging earth, and for loosening, picking up, digging and loading loose or solid material.

Inadmissible work procedures

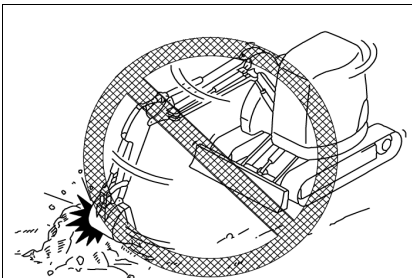


Fig. 87: Working with the swivel force

Working with the swivel force

- ⚠ Do not use the swivel force of the upper carriage to compact the ground or tear down piles or walls.
- ⚠ Do not allow the bucket teeth to penetrate into the ground as you rotate the upper carriage.
- ➡ Working this way damages the attachments.

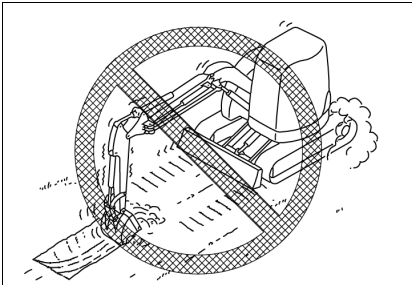


Fig. 88: Working with the drive force

Working with the drive force

- ⚠ Do not allow the bucket to penetrate into the ground and do not excavate by using the drive force of the machine.
- ➡ Working this way can damage the machine or the attachments.

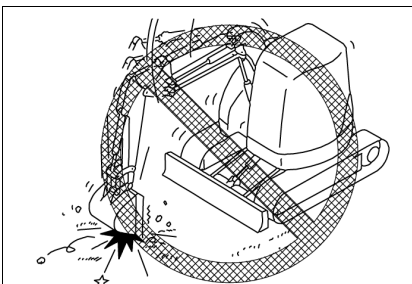


Fig. 89: Working with the falling force by lowering the bucket

Working with the falling force by lowering the bucket

- ⚠ Do not use the machine's falling force for excavating, and do not use the bucket's falling force as a hoe, hammer or pile-driver.
- ➡ Working this way can greatly reduce the machine's service life.

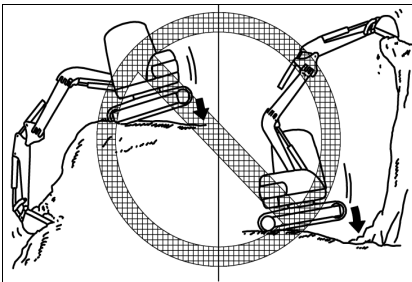


Fig. 90: Working with the machine's falling force

Working with the falling force by lowering the machine

- ⚠ Do not use the machine's falling force for excavating.



Operation

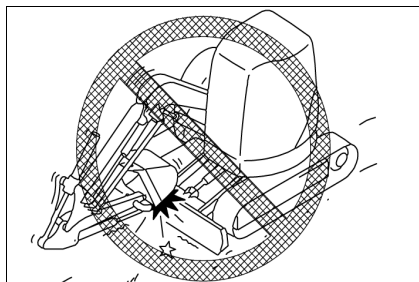


Fig. 91: Retracting attachments

Retracting attachments

- Make sure the bucket does not hit the stabiliser blade as you retract attachments for driving or transport.

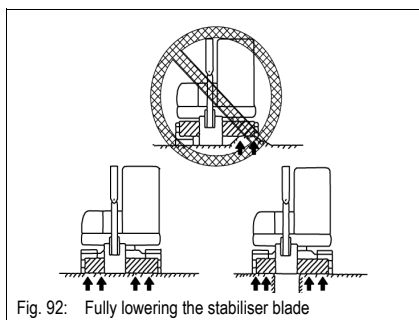


Fig. 92: Fully lowering the stabiliser blade

Fully lowering the stabiliser blade

- Fully lower the stabiliser blade when using it on the side opposite the excavation side.

Excavator work position

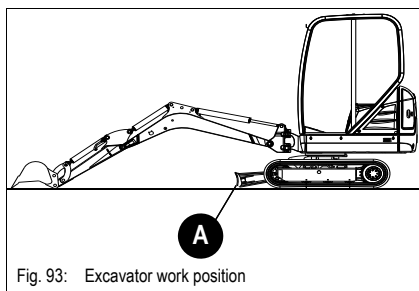


Fig. 93: Excavator work position

Proceed as follows:

- Place stabiliser blade **A** on the side you want to dig

Bucket position when digging

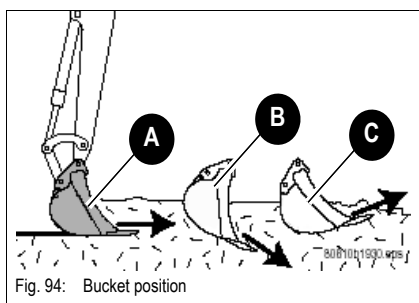


Fig. 94: Bucket position

- Move the bucket as shown in **A**
 - Move the flat side of the bucket parallel to the ground



Notice!

Position **B** causes the bucket to penetrate into the ground. Work slows down, and the engine and the hydraulic pump are subject to overload if this position is used over a longer period of time!

Position **C** causes the bucket to be forced upwards and not to be filled completely. This slows down work, too.

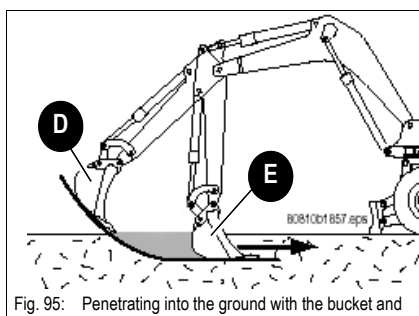


Fig. 95: Penetrating into the ground with the bucket and

Dig as follows:

- Penetrate into the ground with the bucket **D**
- Lower the stick and at the same time align bucket **E** until
- Reaching the required digging depth and
- The flat side of the bucket is parallel to the ground (see bucket position)

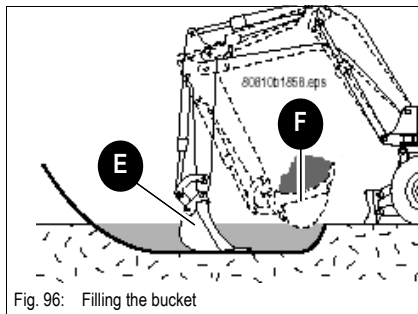


Fig. 96: Filling the bucket

☞ Pull bucket **E** parallel to the ground towards the excavator. At the same time, if possible:

- Move the stick towards the excavator
- Lower the boom

☞ With a sufficiently full bucket **E**:

- Keep on moving the stick towards the excavator and at the same time
- Tilt in stick **F**

Excavating trenches

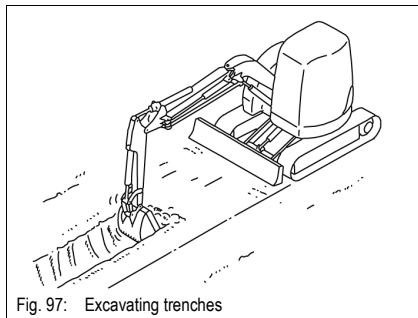


Fig. 97: Excavating trenches

- Excavating trenches is more efficient
 - ☞ by using a suitable bucket for this work and positioning the tracks parallel to the limit line of the trench.
 - ☞ In case of large trenches, first excavate the side sections and then the centre section.

Loading

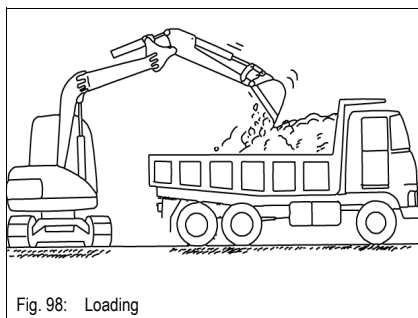


Fig. 98: Loading

- Loading in confined areas with a limited angle of rotation is more efficient
 - ☞ by positioning the truck so as to ensure maximum visibility for the driver of the excavator.
- Loading material on trucks is easier and faster
 - ☞ if the hydraulic excavator is placed at the rear end of the truck and not at the sides.

Grading

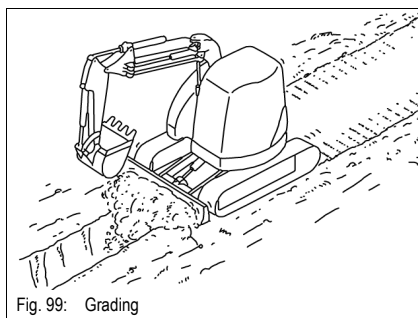


Fig. 99: Grading

- Use the stabiliser blade to fill in trenches and to grade surfaces.



Notice!

Work on level ground. Grade with the stabiliser blade first in case of sloping ground



Operation

Excavating trenches sideways

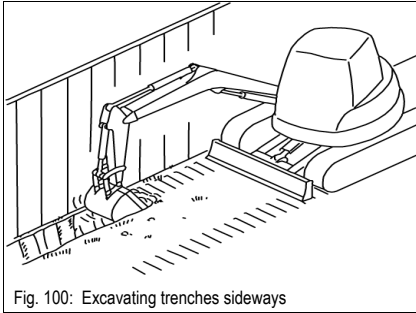


Fig. 100: Excavating trenches sideways

- The machine can be used for excavating trenches sideways in confined areas
 - ☞ by rotating the upper carriage and swivelling the main boom (combined position and movement of both).

Further practical hints for digging

When planning and carrying out digging work, we recommend that you observe the following points:

- Exits from pits must be outside the digging line and as level as possible
- Dig by removing adjacent strips if possible
- Make sure you can drive forwards when driving out of the digging area with a fully loaded bucket
- Whenever possible, drive in reverse when transporting a full bucket down a steep slope

Loading vehicles

When loading vehicles, we recommend taking the following into account:

- If possible, the truck and the working direction of the bucket should form an angle of 45°
- Only raise the full bucket to dump height when you are standing in a straight line with regard to a truck, for instance
- If possible dump with the wind behind you to keep the dust away from your eyes, air filters and fans!

Freeing the machine

If your machine gets stuck in the ground:

- ☞ *Dump out the bucket until the blade is vertical above the ground*
- ☞ *Lower the boom all the way*
- ☞ *Slowly dump out the bucket*
 - ➡ The machine is pushed backwards
- ☞ *Reverse slowly*
- ☞ *Repeat this procedure until the tracks reach firm ground*
- ☞ *Reverse the machine away*



3.12 Grading



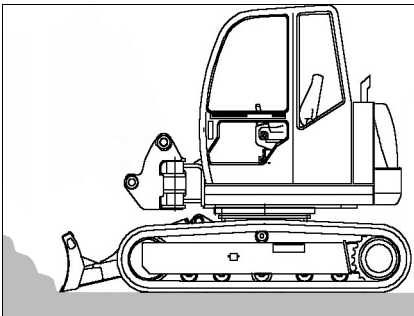
Danger!

Careful when grading –

Danger of accidents!

- ☞ Make sure no-one is in the danger area when working with the stabiliser blade

Grading



- ☞ Lower the stabiliser blade to the ground
– see chapter **Stabiliser blade control/telescopic undercarriage (option)** on page 3-19
- ☞ Set the depth of the layer you want to remove with the stabiliser blade lever
 - ➔ No raising the machine by lowering the stabiliser blade
 - ➔ The clearance between the stabiliser blade and the ground should be about 1 cm

Working alongside trenches

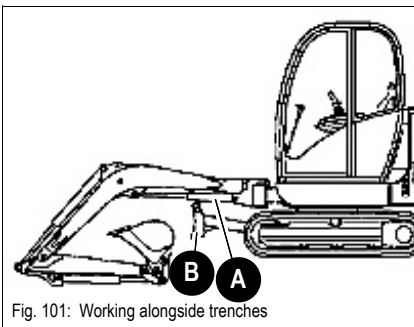


Fig. 101: Working alongside trenches



Caution!

Danger of damaging piston rod **A** of the boom ram when working alongside trenches, slopes etc. and operating the stabiliser blade and the boom incorrectly.

- ☞ Always use stabiliser blade **B** for stabilisation during excavation work
- ☞ Make sure stabiliser blade **B** never touches piston rod **A** (Fig. 101).
- ☞ If you carry out deep excavations with stabiliser blade **B** at the front, make sure piston rod **A** does not touch or rest on stabiliser blade **B** (Fig. 102).

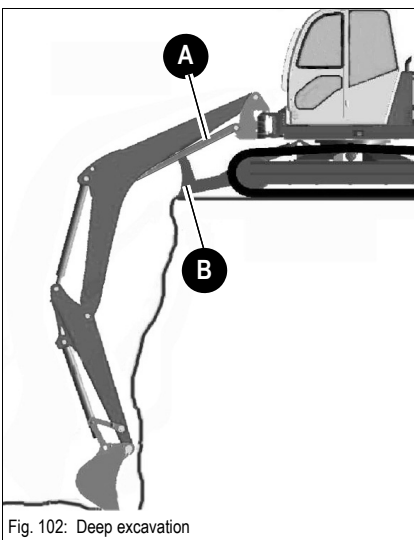


Fig. 102: Deep excavation





4 Troubleshooting

The information given in this chapter is provided for maintenance staff, for fast and reliable detection of malfunctions and their appropriate repair.

Repairs must be carried out by authorised staff.

4.1 Engine trouble

Problem	Possible causes	See
Engine does not start or is not easy to start	Wrong SAE grade of engine lubrication oil	5-33
	Fuel grade does not comply with specifications	5-33
	Defective or flat battery	5-29
	Loose or oxidised cable connections in starter circuit	
	Defective starter, or pinion does not engage	
	Wrong valve clearance	
	Defective fuel injector	
Engine starts, but does not run smoothly or faultless	Fuel grade does not comply with specifications	5-33
	Wrong valve clearance	
	Injection line leaks	
	Defective fuel injector	
Engine overheats. Temperature warning system responds	Oil level too low	5-6
	Oil level too high	5-6
	Dirty air filter	5-13
	Dirty oil radiator fins	5-9
	Defective fan, torn or loose V-belt	5-15
	Resistance in cooling system too high, flow capacity too low	
	Defective fuel injector	
Insufficient engine output	Oil level too high	5-6
	Fuel grade does not comply with specifications	5-33
	Dirty air filter or air intake	5-13
	Wrong valve clearance	
	Injection line leaks	
	Defective fuel injector	
Engine does not run on all cylinders	Injection line leaks	
	Defective fuel injector	
Insufficient or no engine oil pressure	Oil level too low	5-6
	Machine inclination too high (max. 15°)	
	Wrong SAE grade of engine lubrication oil	5-33
Engine oil consumption too high	Oil level too high	5-6
	Machine inclination too high (max. 15°)	



Troubleshooting

Problem		Possible causes	See
Engine smoke	Blue	Oil level too high	5-6
		Machine inclination too high (max. 15°)	
	White	Engine starting temperature too low	
		Fuel grade does not comply with specifications	5-33
		Wrong valve clearance	
		Defective fuel injector	
	Black	Dirty air filter	5-13
		Wrong valve clearance	
		Defective fuel injector	



5 Maintenance

5.1 Introduction

Operational readiness and the service life of machines are heavily dependent on maintenance.

It is therefore in the interest of the machine owner to carry out the prescribed maintenance work.

Before carrying out service and maintenance work, always read, understand and follow the instructions given in:

- Chapter 2 "SAFETY INSTRUCTIONS" of this Operator's Manual
- The Operator's Manuals of the attachments.

Carry out the prescribed inspections and rectify any disorders before putting the machine into operation.

Secure open (engine) covers appropriately. Do not open (engine) covers on slopes or in strong wind.

Dirt can be blown away and cause severe injuries when using compressed air. Always wear protective goggles, masks and clothing.

Daily service and maintenance work, and maintenance according to maintenance plan "A" must be carried out by a specifically trained driver. All other maintenance work must be carried out by trained and qualified staff only.

The maintenance plans indicate when the maintenance work mentioned below must be carried out – see **Maintenance plan (overview)** on page 5-36.



Maintenance

5.2 Fuel system

Specific safety instructions

- Extreme caution is essential when handling fuel – high risk of fire!
- Never carry out work on the fuel system in the vicinity of naked flames or sparks!
- Do not smoke when working on the fuel system or when refuelling!
- Before refuelling, stop the engine and remove the ignition key!
- Do not refuel in closed rooms!
- Wipe away fuel spills immediately!
- Keep the machine clean to reduce the risk of fire!

Refuelling

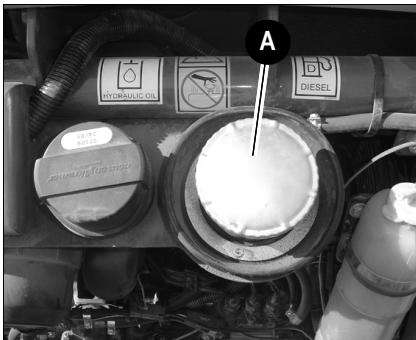


Fig. 103: Fuel filler inlet

Filler inlet **A** for the fuel tank is located in the engine compartment, on the left in driving direction.



Danger!

All work involving fuel carries an increased

Danger of fire and poisoning!

- ⚠ *Do not refuel in closed rooms*
- ⚠ *Never carry out work on the fuel system in the vicinity of naked flames or sparks*
- ⚠ *No smoking, no fire!*



Environment!

Use a suitable container to collect the fuel as it drains and dispose of it in an environmentally friendly manner!



Notice!

Do not run the fuel tank completely dry. Otherwise, air is drawn into the fuel system. This requires bleeding the fuel system – see **Bleeding the fuel system** on page 5-4.



Notice!

Fill up the tank with the correct fuel type at the end of each working day. This prevents condensation water from forming in the fuel tank over night. Do not fill the tank completely but leave some space for the fuel to expand.



Draining the fuel

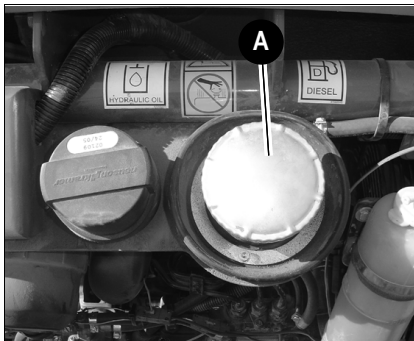


Fig. 104: Fuel tank



Danger!

All work involving fuel carries an increased

Danger of fire and poisoning!

- ☞ Do not work in closed rooms
- ☞ Never carry out work on the fuel system in the vicinity of naked flames or sparks
- ☞ No smoking, no fire!



Environment!

Use a suitable container to collect the fuel as it drains and dispose of it in an environmentally friendly manner!

Filler inlet **A** for the fuel tank is located in the engine compartment, on the left in driving direction.

Proceed as follows:

- ☞ Open filler inlet **A**
- ☞ Pump out the fuel with a suitable pump
 - ➔ Collect the fuel in a suitable container

Stationary fuel pumps

General

Only refuel from stationary fuel pumps. Fuel from barrels or cans is usually dirty.

Even the smallest particles of dirt can cause

- Increased engine wear
- Malfunctions in the fuel system and
- Reduced effectiveness of the fuel filters

Refuelling from barrels

If refuelling from barrels cannot be avoided, note the following points (see fig. 105):

- Barrels must neither be rolled nor tilted before refuelling
- Protect the suction pipe opening of the barrel pump with a fine-mesh screen
- Immerse it down to a max. 15 cm above the floor of the barrel
- Only fill the tank using refuelling aids (funnels or filler pipes) with integral microfilter
- Keep all refuelling containers clean at all times

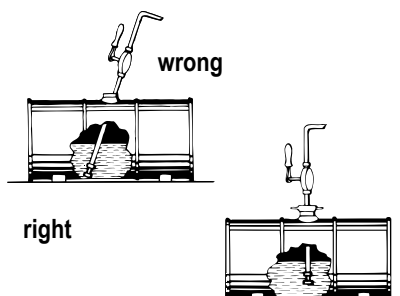


Fig. 105: Refuelling from a barrel



Maintenance

Diesel fuel specification

Use only high-grade fuels

Grade	Use
• 2-D ASTM D975 – 94	USA
• 1-D ASTM D975 – 94	
• EN 590 : 96	EU
• ISO 8217 DMX	International
• BS 2869 – A1	England
• BS 2869 – A2	

Bleeding the fuel system



Danger!

If the fuel, as it drains, comes into contact with hot engine parts or the exhaust system, there is an increased

Danger of burns!

⚠ *Never bleed the fuel system if the engine is hot!*

Bleed the fuel system in the following cases:

- After removing and fitting the fuel filter, prefilter or the fuel lines back on again
- After running the fuel tank empty
- After running the engine again, after it has been out of service for a longer period of time

⚠ *Bleed the fuel system as follows:*

- Fill the fuel tank
- Turn the ignition key to the first position
- Wait about 5 minutes while the fuel system bleeds itself automatically
- Start the engine

If the engine runs smoothly for a while and then stops, or if it does not run smoothly:

- Stop the engine
- Bleed the fuel system again as described above
- Have this checked by authorised staff if necessary



Fuel prefilter with water separator

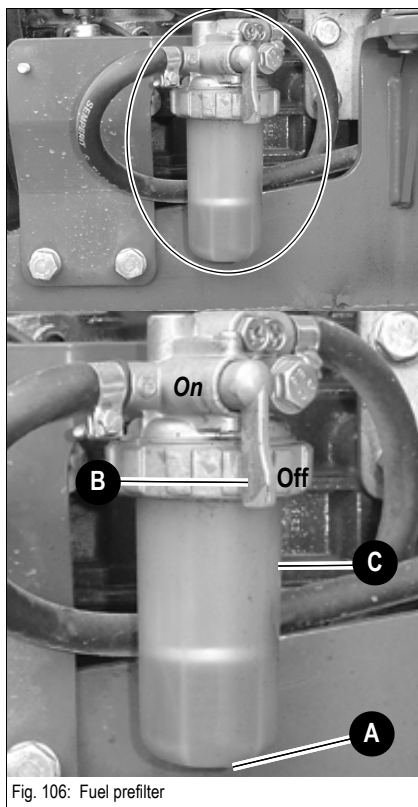


Fig. 106: Fuel prefilter

Check the fuel prefilter as follows:

- ☞ If the red indicator ring rises to position **C**
- ☞ Unscrew thread **A**
 - ➔ The water drains
 - ➔ Wait until the indicator ring returns to the bottom of the water separator
- ☞ Screw thread **A** back on again

Interrupt fuel supply as follows:

- ☞ Turn ball-type cock **B** to the **OFF** mark
 - ➔ Fuel supply is interrupted
- ☞ Turn ball-type cock **B** to the **ON** mark
 - ➔ Fuel supply is open again



Environment!

Thread **A** is fitted with a hose. Collect the water as it drains with a suitable container and dispose of it in an environmentally friendly manner.

5.3 Engine lubrication system



Caution!

If the engine oil level is too low or if an oil change is overdue, this can cause

Engine damage or loss of output!

☞ Have the oil changed by an authorised workshop
– see [chapter 5.14 Maintenance plan \(overview\)](#) on page 5-36

Checking the oil level



Notice!

Check the oil level once a day.
We recommend checking it before starting the engine. After stopping a warm engine, wait at least 5 minutes before checking.

Checking the oil level

☞ Proceed as follows:

- Park the machine on level ground
- Stop the engine!
- Fold the control lever base up
- Let the engine cool down
- Open the engine cover
- Clean the area around the oil dipstick with a lint-free cloth
- Oil dipstick A:

- ☞ Pull it out
- ☞ Wipe it with a lint-free cloth
- ☞ Push it back in as far as possible
- ☞ Withdraw it and read off the oil level

☞ However if necessary, fill up oil at the latest when the oil reaches the MIN mark on the oil dipstick A

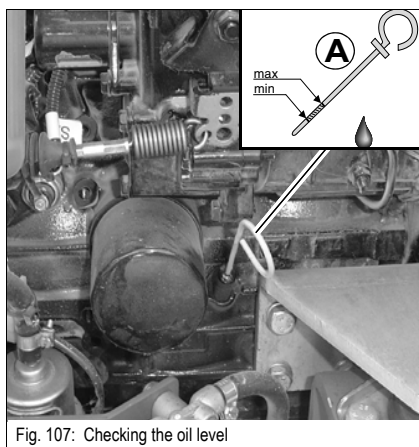


Fig. 107: Checking the oil level



Draining engine oil



Environment!

Use a suitable container to collect the engine oil as it drains and dispose of it in an environmentally friendly manner!

The oil drain plug is located under the engine and is unscrewed through a recess in the chassis at the lower rear of the machine.

Draining engine oil

 *Proceed as follows:*

- Clean the area around oil filler cap **B** with a lint-free cloth
- Open filler cap **B**
- Place a suitable container under oil drain plug **A** to collect the oil as it drains
- Unscrew oil drain plug **A**
- ➡ Let the oil drain
- Then dispose of the oil by an ecologically safe method
- Screw the oil drain plug back on again

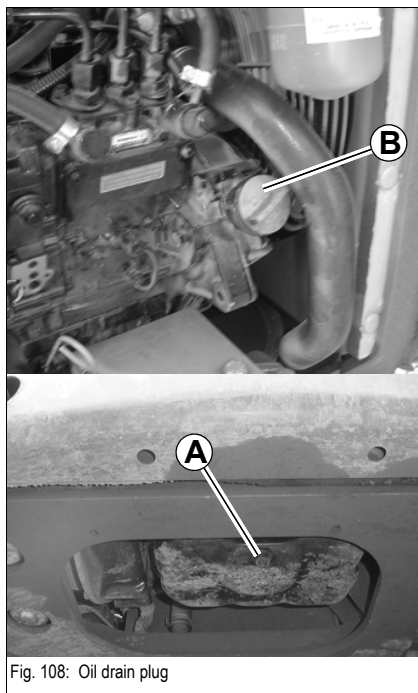


Fig. 108: Oil drain plug

Filling up engine oil



Caution!

Too much or incorrect engine oil can result in engine damage! For this reason:

- ▣ Do not add engine oil above the MAX mark of oil dipstick 109/A
- ▣ Use only the specified engine oil



Environment!

Use a suitable container to collect the engine oil as it drains and dispose of it in an environmentally friendly manner!

Filling up engine oil

▣ Proceed as follows:

- Clean the area around oil filler cap **B** with a lint-free cloth
- Open filler cap **B**
- Raise oil dipstick **A** slightly to allow any trapped air to escape
- Fill in engine oil
- Wait about 3 minutes until all the oil has run into the oil sump
- Check the oil level – see **Checking the oil level** on page 5-6
- Fill up if necessary and check the oil level again
- Close filler cap **B**
- Push oil dipstick **A** back in as far as possible
- Completely remove all oil spills from the engine

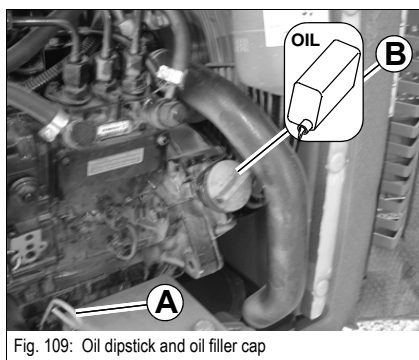


Fig. 109: Oil dipstick and oil filler cap



5.4 Engine cooling system

The radiator is located in the engine compartment, on the right-hand side of the engine, and cools the diesel engine.

The expansion tank for the coolant is also located in the engine compartment, behind the engine.

Specific safety instructions

- Dirt on the radiator fins reduces the cooler's heat dissipation capacity!
To avoid this:
 - ☞ Clean the outside of the radiator at regular intervals. Use oil-free compressed air (2 bar max.) to clean. Maintain a certain distance from the radiator to avoid damage to the radiator fins. Refer to the maintenance plans in the appendix for the cleaning intervals
 - ☞ In dusty or dirty work conditions, clean more frequently than indicated in the maintenance plans.
- An insufficient coolant level reduces the heat dissipation capacity as well and can lead to engine damage! Therefore:
 - ☞ Check the coolant level at regular intervals. Refer to the maintenance plans in the appendix for the intervals.
 - ☞ If coolant must be added frequently, check the cooling system for leaks and/or contact your dealer!
 - ☞ Never fill in cold water/coolant if the engine is warm!
 - ☞ After filling the expansion tank, make a test run with the engine and check the coolant level again after stopping the engine!
- The use of the wrong coolant can destroy the engine and the cooler. Therefore:
 - ☞ Add enough antifreeze compound to the coolant – but never more than 50 %. If possible use brand-name antifreeze compounds with anticorrosion additives!
 - ☞ Observe the coolant compound table – [see chapter 6.10 Coolant compound table](#) on page 6-4
 - ☞ Do not use cooler cleaning compounds if an antifreeze compound has been added to the coolant – otherwise this causes sludge to form, which can damage the engine!
- Once you have filled the expansion tank:
 - ☞ Test run the engine
 - ☞ Stop the engine
 - ☞ Let the engine cool down
 - ☞ Check the coolant level again



Environment!

Use a suitable container to collect the coolant as it drains and dispose of it in an environmentally friendly manner!



Maintenance

Checking/filling up coolant



Danger!

Never open the coolant tank and never drain coolant if the engine is warm since the cooling system is under high pressure

–

Danger of burns!

- ☞ *Wait at least 15 minutes after stopping the engine!*
- ☞ *Wear protective gloves and clothing*
- ☞ *Open filler cap **B** to the first notch and release the pressure*
- ☞ *Make sure the coolant temperature is sufficiently low so you can touch the radiator plug with your hands*

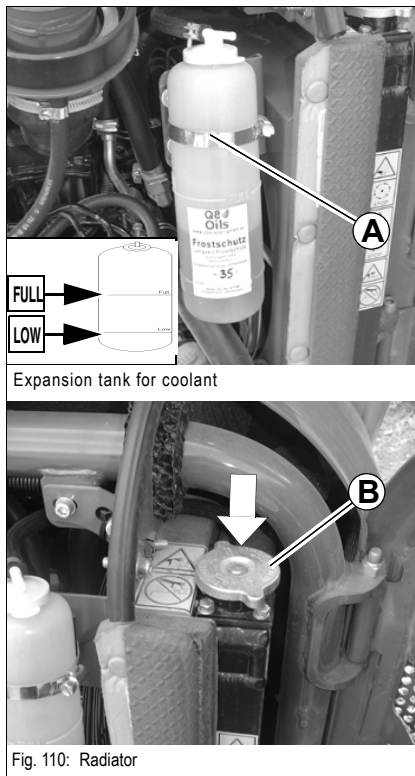


Danger!

Antifreeze is flammable and poisonous –

Danger of accidents!

- ☞ *Keep away from flames!*
- ☞ *Avoid eye contact with antifreeze*
 - If antifreeze comes into contact with the eyes
 - ➡ Immediately rinse with clean water and seek medical assistance



Checking the coolant level

➤ *Proceed as follows:*

- Park the machine on level ground
 - Stop the engine!
 - Fold up the control lever base
 - Remove the key and carry it with you
 - Let the engine and the coolant cool down
 - Open the engine cover
 - Check the coolant level on the transparent coolant tank **A** and on the radiator **B**
- If the coolant level is below the **LOW** seam or if there is no coolant at the radiator's filler inlet:
- ➔ Fill up coolant



Notice!

Check the coolant level once a day.
We recommend checking it before starting the engine.

Filling up coolant

After the engine has cooled down:

- *Release overpressure in the radiator*
 - *Carefully open cap **B** to the first notch and fully release the pressure*
 - *Open filler cap **B***
 - *Fill in coolant up to the lower edge of the filler inlet (radiator)*
 - *Close filler cap **B***
 - *Start the engine and let it warm up for about 5 – 10 minutes*
 - *Stop the engine*
 - *Remove the key and carry it with you*
 - *Let the engine cool down*
 - *Check the coolant level again*
- ➔ The coolant level must be between the **LOW** and **FULL** tank seams
- *If necessary, fill up coolant and repeat the procedure until the coolant level remains constant*



Notice!

Check the antifreeze every year before the cold season sets in





5.5 Air filter



Caution!

The filter cartridge will be damaged if it is washed or brushed out! Bear in mind the following to avoid premature engine wear!

- ☞ *Do not clean the filter cartridge*
- ☞ *Replace the filter cartridge when the telltale comes on*
- ☞ *Never reuse a damaged filter cartridge*
- ☞ *Ensure cleanliness when replacing the filter cartridge!*

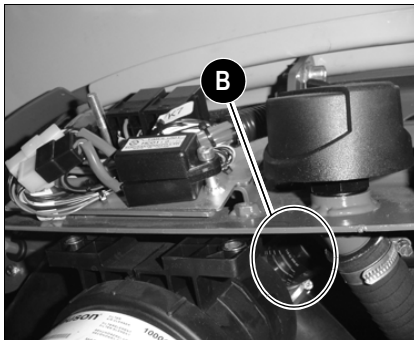


Fig. 111: Indicator for air filter contamination



Notice!

For applications in especially dusty environment, the air filter is fitted with an extra inside filter C. Do not clean inside filter C.



Caution!

Filter cartridges degrade prematurely when in service in acidic air for longer periods of time. This risk is present for example in acid production facilities, steel and aluminium mills, chemical plants and other nonferrous-metal plants.

- ☞ *Replace the air filter after 50 service hours at the latest!*

General instructions for air filter maintenance:

- Store filters in their original packaging and in a dry place!
- Do not knock the filter against other objects as you install it!
- Check air filter attachments, air intake hoses and air filters for damage, and immediately repair or replace if necessary!
- Check the screws at the induction manifold and the clamps for tightness!
- Check the function of the dust valve, replace if necessary!

Air intake



Fig. 112: Engine air intake



Danger!

When crossing water fords or similar, make sure that the engine air intake slits are always above water level, otherwise the engine is damaged!

Danger of engine damage!

- ☞ – see chapter **Air intake** on page 5-13
- ☞ *Check once a day for cleanliness before putting the machine into operation!*

Replacing the filter

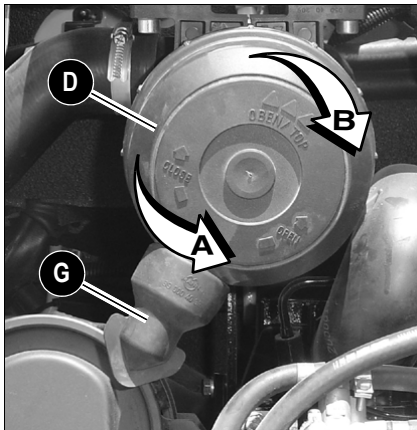


Fig. 113: Removing the lower housing section

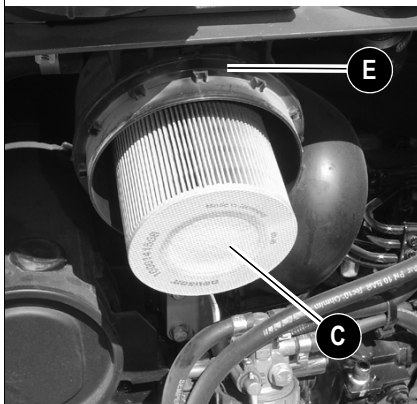


Fig. 106: Removing the outside filter element

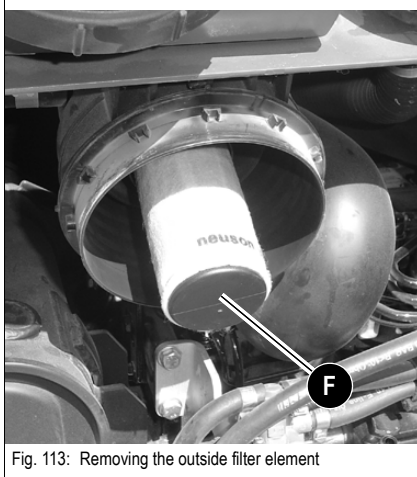


Fig. 113: Removing the outside filter element

- Replace air filter **C** as follows:

- ✎ Stop the engine
- ✎ Remove the key and carry it with you
- ✎ Let the engine cool down
- ✎ Open the engine cover
- ✎ Remove dirt and dust from the air filter and the area around the air filter
- ✎ Turn the lower housing section **D** to the right **A**
- ✎ Remove the lower housing section **D**
- ✎ Carefully remove air filter **C** with slightly turning movements
- ✎ **Make sure** all dirt (dust) inside the upper and lower housing sections (**E** and **D**), including dust valve **G**, has been removed
- ✎ Clean the parts with a clean lint-free cloth, do not use compressed air
- ✎ Check the air filter cartridges for damage, only install intact filters
- ✎ Carefully insert the new air filter **C** in the upper housing section **E**
- ✎ Position lower housing section **D** (make sure it is properly seated)
- ✎ Turn the lower housing section **D** to the left **B**

- Replace air filter **F** as follows:

- ✎ Stop the engine
- ✎ Remove the key and carry it with you
- ✎ Let the engine cool down
- ✎ Open the engine cover
- ✎ Remove dirt and dust from the air filter and the area around the air filter
- ✎ Turn the lower housing section **D** to the right **A**
- ✎ Remove the lower housing section **D**
- ✎ Carefully remove the outside air filter **C** with slightly turning movements
- ✎ Carefully extract inside air filter **F**
- ✎ Cover the air supply at the end of the filter with a clean lint-free cloth to prevent dust from entering the engine
- ✎ **Make sure** all dirt (dust) inside the upper and lower housing sections (**E** and **D**), including dust valve **G**, has been removed
- ✎ Clean the parts with a clean lint-free cloth, do not use compressed air
- ✎ Remove the cloth from the air supply
- ✎ Check the air filter cartridges for damage, only install intact filters
- ✎ Carefully insert the new air filter **F** in the upper housing section **E**
- ✎ Carefully insert the outside air filter **C** in the upper housing section **E**
- ✎ Position lower housing section **D** (make sure it is properly seated)
- ✎ Turn the lower housing section **D** to the left **B**



Notice!

Make sure dust valve **G** shows downwards once it is installed!



5.6 V-belt



Danger!

Only check or retighten/replace the V-belt when the engine is stopped

Danger of personal injury!

- ☞ Stop the engine before carrying out inspection work in the engine compartment!
- ☞ Disconnect the battery or the battery master switch
- ☞ Let the engine cool down



Caution!

Cracked and stretched V-belts cause engine damage

- ☞ Have the V-belt replaced by an authorised workshop

Check the V-belt once a day or every 10 service hours, and retighten if necessary!
Retighten new V-belts after about 15 minutes of running time.

Checking V-belt tension

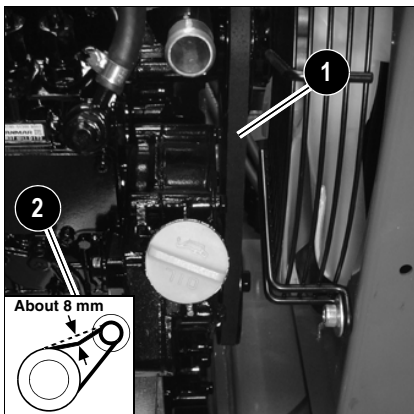


Fig. 114: Checking V-belt tension

- Check as follows:
 - ☞ Stop the engine
 - ☞ Fold up the control lever base
 - ☞ Remove the key and carry it with you
 - ☞ Open the engine cover
 - ☞ Disconnect the battery or the battery master switch
 - ☞ Let the engine cool down
 - ☞ Carefully check V-belt **1** for damage, cracks or cuts.
 - ☞ Replace the V-belt if it touches the base of the V-belt groove or the discs of the pulley.
- If the V-belt is damaged:
 - ☞ Have the V-belt replaced by authorised staff.
 - ☞ Press with your thumb about 100 N to check the deflection of the V-belt between the crankshaft disc and the fan wheel. A new V-belt should have a deflection of 6 to 8 mm, a used V-belt (after about 5 minutes running time) should have a deflection of 7 to 9 mm (fig. **114/2**).
 - ☞ Retighten the V-belt if necessary.

Tightening the V-belt (dynamo)

**Caution!**

Overtightening the V-belt can damage the V-belt, the V-belt guide and the water pump bearing.

Avoid contact of oil, grease or similar substances with the V-belt.

☞ Check V-belt tension – see **Checking V-belt tension** on page 5-15

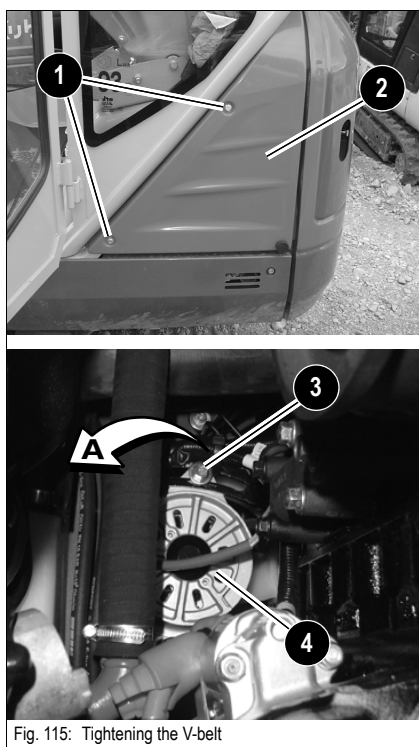


Fig. 115: Tightening the V-belt

- Retighten as follows:

- ☞ Stop the engine
- ☞ Fold up the control lever base
- ☞ Remove the key and carry it with you
- ☞ Open the engine cover
- ☞ Disconnect the battery or the battery master switch
- ☞ Let the engine cool down
- ☞ Slacken fastening screws 1 of cover 2
- ➡ Remove cover 2
- ☞ Slacken fastening screw 3 of dynamo 4
- ☞ Use a suitable tool to push the dynamo in the direction of arrow A until reaching the correct V-belt tension – see **chapter Checking V-belt tension** on page 5-15
- ☞ Keep the dynamo in this position, and at the same time retighten fastening screw 3
- ☞ Check V-belt tension again and adjust it if necessary
- ☞ Tighten fastening screws 1 of cover 2
- ☞ Connect the battery or the battery master switch
- ☞ Close the engine cover


Tightening the V-belt (alternator)

Caution!

Overtightening the V-belt can damage the V-belt, the V-belt guide and the water pump bearing.

Avoid contact of oil, grease or similar substances with the V-belt.

☞ Check V-belt tension – see **Checking V-belt tension** on page 5-15

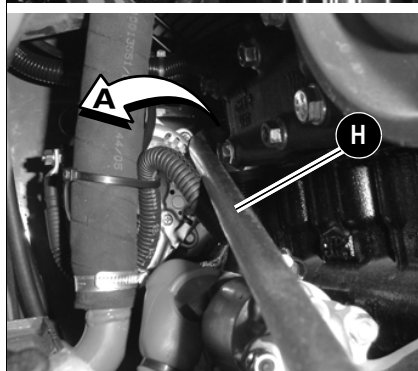
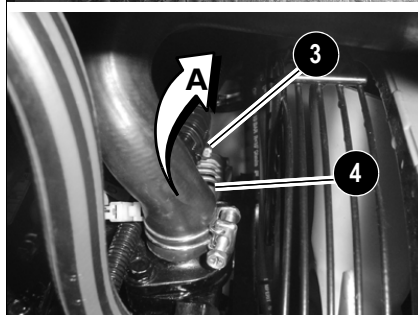
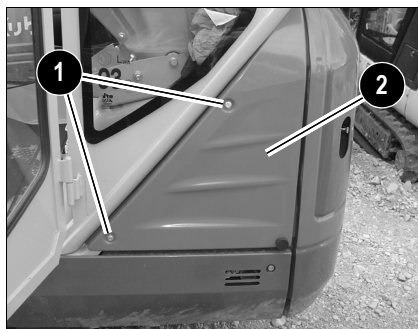


Fig. 116: Tightening the V-belt

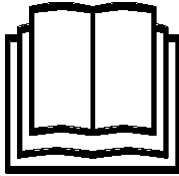
• Retighten as follows:

- ☞ Stop the engine
- ☞ Fold up the control lever base
- ☞ Remove the key and carry it with you
- ☞ Open the engine cover
- ☞ Disconnect the battery or the battery master switch
- ☞ Let the engine cool down
- ☞ Slacken fastening screws 1 of cover 2
 - ➔ Remove cover 2
- ☞ Slacken fastening screw 3 of alternator 4
- ☞ Use a suitable tool H to push the alternator in the direction of arrow A until reaching the correct V-belt tension – see **chapter Checking V-belt tension** on page 5-15
- ☞ Keep the alternator in this position, and at the same time retighten fastening screw 3
- ☞ Check V-belt tension again and adjust it if necessary
- ☞ Tighten fastening screws 1 of cover 2
- ☞ Connect the battery or the battery master switch
- ☞ Close the engine cover



5.7 Hydraulic system

Specific safety instructions



- Release the pressure in all lines carrying hydraulic oil prior to any maintenance and repair work. To do this:
 - Lower all hydraulically controlled attachments to the ground
 - Move all control levers of the hydraulic control valves several times
- Fold up the control lever base
- Hydraulic oil escaping under high pressure can penetrate the skin and cause serious injuries. Always consult a doctor immediately even if the wound seems insignificant – otherwise serious infections could set in!
- If the hydraulic oil in the sight glass is cloudy, this indicates that water or air has penetrated the hydraulic system. This can cause damage to the hydraulic pump!
- Oil or fuel flowing out of high pressure lines can cause fire or malfunctions, and severe injuries or damage to property. Interrupt work immediately if slack nuts or damaged hoses and lines are detected.
 - ☞ Contact your Wacker Neuson dealer immediately
- Replace the hose or line if one of the problems mentioned below is detected.
 - ☞ Damaged or leaky hydraulic seals.
 - ☞ Worn or torn shells or uncovered reinforcement branches.
 - ☞ Expanded shells in several positions.
 - ☞ Entangled or crushed movable parts.
 - ☞ Foreign bodies jammed or stuck in protective layers.



Caution!

Dirty hydraulic oil, lack of oil or wrong hydraulic oil –

Danger of severe damage to the hydraulic system!

- ☞ Take care to avoid contamination when working!
- ☞ Always fill in hydraulic oil using the filling screen!
- ☞ Only use authorised oils of the same type
 - see [chapter 5.13 Fluids and lubricants](#) on page 5-33
- ☞ Always fill up hydraulic oil before the level gets too low
 - see [Filling up hydraulic oil](#) on page 5-20
- ☞ If the hydraulic system is filled with biodegradable oil, then only use biodegradable oil of the same type for filling up – observe the sticker on the hydraulic oil tank!
- ☞ Contact customer service if the hydraulic system filter is contaminated with metal chippings. Otherwise, follow-on damage can result!



Environment!

Collect drained hydraulic oil and biodegradable oil in a suitable container!
 Dispose of drained oil and used filters by an ecologically safe method.
 Always contact the relevant authorities or commercial establishments in charge of oil disposal before disposing of biodegradable oil.

Checking the hydraulic oil level


Caution!

Do not fill up oil if the oil level is above the **MAX** mark, otherwise the hydraulic system can be damaged and escaping oil can cause serious injuries.

☞ *Check the hydraulic oil level each time the machine is put into operation or once a day*

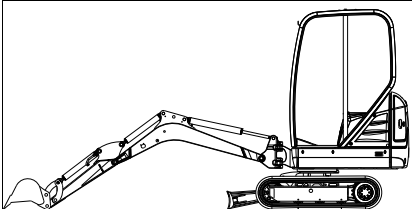


Fig. 117: Parking the excavator

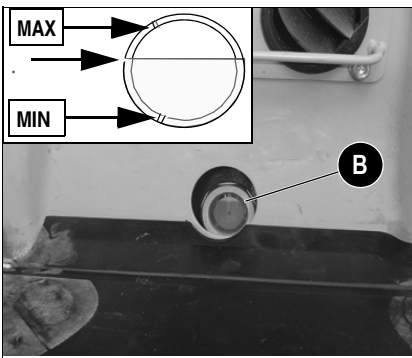


Fig. 118: Oil level indicator on the hydraulic oil tank

- If the attachment is not positioned as shown:
 - ☞ Start the engine and let it run at idling speed
 - ☞ Retract the bucket and boom rams, lower the boom and the bucket teeth to the ground
 - ☞ Extend the stabiliser blade ram, lower the stabiliser blade to the ground.
 - ☞ Stop the engine again.
- ☞ *Proceed as follows:*
 - Park the machine on level ground
 - Retract the bucket and boom rams, lower the boom and the bucket teeth to the ground
 - Extend the stabiliser blade ram, lower the stabiliser blade to the ground.
 - Set the boom straight
 - Stop the engine
 - Fold up the control lever base
 - Sight glass **B** is located at the rear of the machine in the trim.
 - Check the oil level on sight glass **B**
 - The oil level must be about 1 cm over the centre, between positions **MIN** and **MAX**, as shown by the arrows in fig. 118.
 - ☞ The **MIN** level is marked by the lower joint
 - ☞ The **MAX** level is marked by the upper joint

If the oil level is lower

- Fill up hydraulic oil

The oil level varies according to the machine's operating temperature:

Machine condition	Temperature	Oil level
• Before putting into operation	Between 10 and 30 °C	LOW mark
• Normal operation	Between 50 and 90 °C	FULL mark


Notice!

Measure the oil level of the hydraulic system only after the machine reaches its operating temperature.



Maintenance

Filling up hydraulic oil



Danger!

Removing the breather filter can cause oil to escape suddenly and at high pressure –

Danger of accidents!

☞ *Carefully unscrew the breather filter to slowly reduce the pressure inside the tank.*

Do not fill up the hydraulic oil unless the engine is stopped. Otherwise, hydraulic oil will overflow at the filler opening on the hydraulic tank.

☞ *Fill up as follows:*

- Park the machine on level ground
- Retract the bucket and boom rams, lower the boom and the bucket teeth to the ground
- Lower the stabiliser blade to the ground
- Set the boom straight
- Stop the engine
- Fold up the control lever base
- Let the engine cool down
- Slowly open breather filter **C**
- Check the hydraulic oil level on sight glass **B**
- Fill up if necessary and check again
- Firmly tighten breather filter **C** again



Fig. 119: Hydraulic oil tank



Important information for the use of biodegradable oil

- Use only the biodegradable hydraulic fluids which have been tested and approved by Wacker Neuson GmbH. Always contact Wacker Neuson GmbH for the use of other products which have not been recommended. In addition, ask the oil supplier for a written declaration of guarantee. This guarantee is applicable to damage occurring on the hydraulic components, which can be proved to be due to the hydraulic fluid.
- Use only biodegradable oil of the same type for filling up. In order to avoid misunderstandings, a label providing clear information is located on the hydraulic oil tank (next to the filler inlet) regarding the type of oil currently used!
The joint use of two different biodegradable oils can affect the quality of one of the oil types. Therefore, make sure the remaining amount of initial hydraulic fluid in the hydraulic system does not exceed 8 % when changing biodegradable oil (manufacturer indications).
- Do not fill up with mineral oil – the content of mineral oil should not exceed 2 % in order to avoid foaming problems and to ensure biological degradability.
- When running the machine with biodegradable oil, the same oil and filter replacement intervals are valid as for mineral oil – [see chapter 5.14 Maintenance plan \(overview\)](#) on page 5-36.
- Always have the condensation water in the hydraulic oil tank drained by an authorised workshop before the cold season. The water content may not exceed 0.1 % by weight.
- The instructions in this Operator's Manual concerning environmental protection are also valid for the use of biodegradable oil.
- If additional hydraulic attachments are mounted or operated, use the same type of biodegradable oil for these attachments to avoid mixtures in the hydraulic system.

Subsequent change from mineral oil to biodegradable oil must be carried out by an authorised workshop or by your Wacker Neuson partner.

5.8 Pilot valve (from serial number AF01441)



Caution!

Check and if necessary, clean the pilot control filter every 1000 s/h in order to protect the piston valves in the control valve from damage due to dirt in the oil!

Check the pilot valve as follows:

- ☞ Park the machine on level ground
- ☞ Retract the bucket and boom rams, lower the boom and the bucket teeth to the ground
- ☞ Lower the stabiliser blade to the ground
- ☞ Set the boom straight
- ☞ Stop the engine
- ☞ Move the control levers in all directions repeatedly
- ☞ Switch off ignition and remove the ignition key
- ☞ Fold up the control lever base
- ☞ Let the engine cool down
- ☞ Slowly open breather filter **C**
 - ➡ Release the pressure
- ☞ Install the vacuum pump
- ☞ Switch on the pump before routing the hoses
- ☞ Remove the side panel on the left-hand side of the excavator
 - ☞ To this effect, slacken the 6 fastening screws **S** and remove the trim.
- ☞ Remove pilot control hose **A** from the control valve
- ☞ Remove pilot control filter **B** from the control valve
- ☞ Check pilot control filter screen **C** for dirt and clean it if necessary. Replace it by a new filter if it is damaged!
- ☞ Assemble in the reverse order.

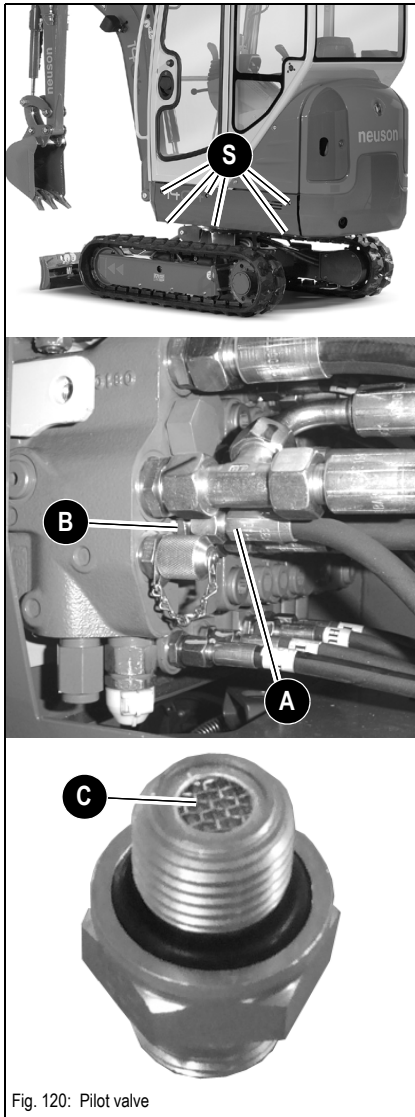


Fig. 120: Pilot valve



Checking hydraulic pressure lines

Specific safety instructions



Danger!

Caution when checking hydraulic lines, especially when searching for leaks. Hydraulic oil escaping under high pressure can penetrate the skin and cause serious injuries.

Danger of personal injury!

☞ *Always consult a doctor immediately, even if the wound seems insignificant – otherwise serious infections could set in!*

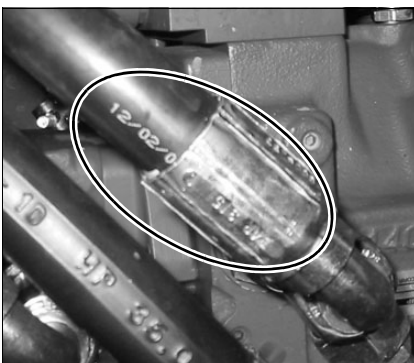
☞ *Always observe the following instructions:*

- Retighten leaking screwed fittings and hose connections only when the system is not under pressure; i.e. release the pressure before working on pressurised lines!
- Never weld or solder damaged or leaking pressure lines and screw connections. Replace damaged parts with new ones!
- Never search for leaks with your bare hands, but wear protective gloves!
- Use paper or wood to check for minor leaks. Never use an unprotected light or naked flame!
- Have damaged flexible lines replaced by authorised workshops only!

- Leaks and damaged pressure lines must be immediately repaired or replaced by an authorised workshop or after-sales staff.
This not only increases the operating safety of your machine but also helps to protect the environment
- Replace hydraulic hoses every 6 years from the date of manufacture, even if they do not seem to be damaged

In this respect, we recommend that you observe all the relevant safety regulations for hydraulic lines, as well as the safety regulations regarding accident prevention and occupational health and safety in your country. Also observe DIN 20066, part 5.

The article number is marked on the clamping section, and the date of manufacture is indicated on the hose of each hose connection.



5.9 Tracks

- Track wear can vary according to work and ground conditions.
- ☞ We recommend checking track wear and tension once a day.
- ☞ Park the machine on firm and level ground to check and carry out maintenance.

Checking track tension



Danger!

Working under the machine with the tracks off the ground and only supported by the attachment is extremely dangerous.

Caution, danger!

☞ Firmly support the machine with chocks or suitable brackets

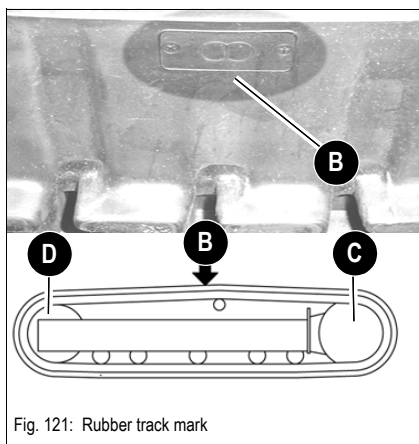


Fig. 121: Rubber track mark

Check track tension as follows:

- The rubber track has a mark **B** as shown in [Fig. 121](#)
- ☞ Place the excavator so that mark **B** of the rubber track is between the drive pinion **C** and the track tension roller **D**

- ☞ Park the machine on firm and level ground
- ☞ Raise the excavator with the boom and the stick
- ☞ Slowly and carefully actuate the control levers
- ☞ Stop the engine
- ☞ Remove the key and carry it with you
- ☞ Fold up the control lever base
- ☞ Use suitable auxiliary means to support the machine

- Standard play between the sliding block's shoulder and the contact area of the second support roller of the drive pinion is 20 – 25 mm.
- ☞ Set the tension as follows if it is not in accordance with the rated value.

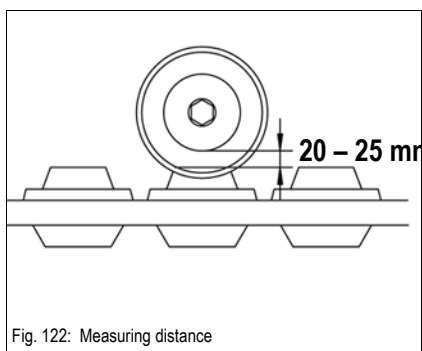


Fig. 122: Measuring distance



Setting the tracks



Danger!

The lubricating valve can be squeezed out due to the high grease pressure in the hydraulic ram.

Danger of personal injury!

- ⚠ Do not slacken and unscrew the lubricating valve by more than one turn.
- ⚠ Slacken no other component except the lubricating valve.
- ⚠ Keep your face away from the lubricating valve connection.
 - ➡ Contact your Wacker Neuson dealer if this does not reduce the tension of the rubber sliding block.



Caution!

Excessive tension of the tracks causes severe damage to the ram and the track.

- ⚠ Tighten the tracks only up to the prescribed measuring distance

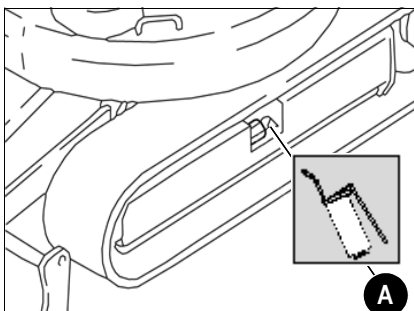


Fig. 123: Tightening the tracks

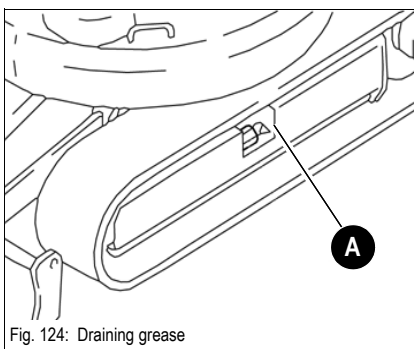


Fig. 124: Draining grease

Tightening the tracks

- ⚠ Inject grease with the pump through lubricating valve **A**
- ⚠ Check the tension is correct by starting the engine, letting it run at idling speed and slowly moving the machine forwards and reverse and switching it off again
- ⚠ Check the tension of the tracks again.
 - ➡ If it is not correct:
 - ⚠ Adjust again
- ⚠ Should the track still be slack after injecting more grease, replace the track or the seal in the ram. Contact a Wacker Neuson dealer in this case

Reducing tension

- Draining grease in a way different from the one described below is very dangerous. Also bear in mind the safety instructions on this page
- ⚠ Slowly open the lubricating valve **A** by 1 turn to allow the grease to flow out.
 - ⚠ Place a suitable container underneath to collect the grease
 - ➡ The grease flows out of the groove of the lubricating valve
- ⚠ Retighten the lubricating valve **A**
- ⚠ Check the tension is correct by starting the engine, letting it run at idling speed and slowly moving the machine forwards and reverse and switching it off again
- ⚠ Check the tension of the tracks again
 - ➡ If it is not correct:
 - ⚠ Adjust again



Environment!

Use a suitable container to collect the grease as it flows out and dispose of it in an environmentally friendly manner.



5.10 Travelling drive



Danger!

Immediately after stopping the engine, the engine's components and the oil are very hot. This can cause burns.

If the inside of the drive gear is under pressure, the oil or the plug can be squeezed out.

Danger of injury and scalding!

- ☞ Wait until the engine has cooled down before taking up work.
- ☞ Slowly open the plug to reduce the pressure inside.

Checking the oil level and filling up oil

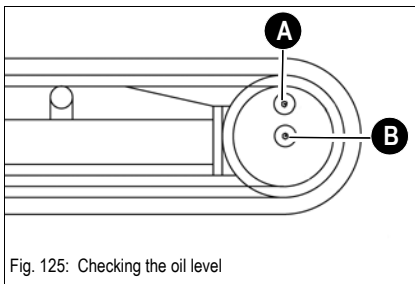


Fig. 125: Checking the oil level

- ☞ Park the machine on firm and level ground
- ☞ Place the machine so that filler plug **A** is at the top
- ☞ Stop the engine
- ☞ Let the engine cool down
- ☞ Fold the control lever base up
- ☞ Unscrew screws **A** and **B** with a suitable tool
- ☞ A small quantity of oil must flow out of opening **B**
- ➔ If the oil does not flow out of opening **B**, fill up oil:
 - ☞ Fill in oil through opening **A**,
 - ➔ until a small quantity of oil flows out of opening **B**
- ☞ Screw screws **A** and **B** back in again
- ☞ Move the machine a few metres
- ☞ Check the oil level again
- ➔ If the oil level is not correct:
 - ☞ Repeat the procedure

Draining oil

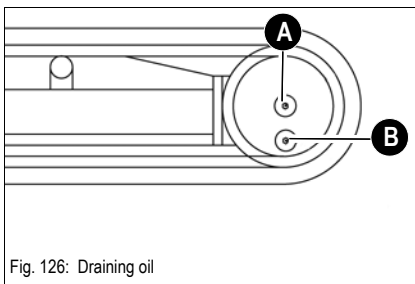


Fig. 126: Draining oil

- ☞ Park the machine on firm and level ground
- ☞ Place the machine so that filler plug **B** is at the bottom
- ☞ Stop the engine
- ☞ Let the engine cool down
- ☞ Fold the control lever base up
- ☞ Unscrew screws **A** and **B** with a suitable tool
- ➔ The oil now flows out of opening **B**
- ☞ Use a suitable container to collect the oil as it drains



Environment!

Collect the oil with a suitable container and dispose of it in an environmentally friendly manner.

Maintenance of attachments



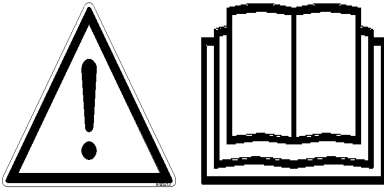
Notice!

Correct maintenance and service is absolutely necessary for smooth and continuous operation, and for an increased service life of the attachments. Please observe the lubrication and maintenance instructions in the Operator's Manuals of the attachments



5.11 Electrical system

Specific safety instructions



- The battery contains sulphuric acid! This acid must not be allowed to come into contact with the skin, the eyes, clothing or the machine.

Therefore when recharging or working near the battery:

- ☞ Always wear goggles and protective clothing with long sleeves

If acid is spilt:

- ☞ Thoroughly rinse all affected surfaces immediately with plenty of water
- ☞ Thoroughly wash any part of the body touched by the acid immediately with plenty of water and seek medical attention at once!

- Especially when charging batteries, as well as during normal operation of batteries, an oxyhydrogen mixture is formed in the battery cells – danger of explosion!
- Do not attempt to jump-start the machine if the battery is frozen or if the acid level is low. The battery can rupture or explode!
- ☞ Replace the battery immediately
- Avoid naked flames and sparks and do not smoke in the vicinity of open battery cells – otherwise the gas produced during normal battery operation can ignite!
- Use only 12 V power sources. Higher voltages will damage the electric components
- When connecting the battery leads, make sure the poles +/– are not inverted, otherwise sensitive electric components will be damaged
- Do not interrupt voltage-carrying circuits at the battery terminals because of the danger of sparking!
- Never place tools or other conductive articles on the battery – danger of short circuit!
- Disconnect the negative (–) battery terminal from the battery before starting repair work on the electrical system
- Dispose of used batteries properly

Service and maintenance work at regular intervals

Before driving the machine

☞ Check every time before driving the machine:

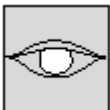
- Is the light system OK?
- Is the signalling and warning system OK?



Every week

☞ Check once a week:

- Electric fuses
- Cable and earth connections
- Battery charge condition – see **Battery** on page 5-29
- Condition of battery terminals





Maintenance

Instructions concerning specific components

Cables, bulbs and fuses

Always observe the following instructions:

- Defective components of the electrical system must always be replaced by an authorised expert. Bulbs and fuses may be changed by unqualified persons
- When carrying out maintenance work on the electrical system, pay particular attention to ensuring good contact in leads and fuses
- Blown fuses indicate overloading or short circuits. The electrical system must therefore be checked before installing the new fuse
- Only use fuses with the specified load capacity (amperage)

Alternator

Always observe the following instructions:

- Only test run the engine with the battery connected
- When connecting the battery, make sure the poles (+/–) are not inverted
- Always disconnect the battery before carrying out welding work or connecting a quick battery charger
- Replace defective charge telltales immediately
– [see chapter Telltales and warning lights: overview](#) on page 3-10



Battery



Danger!

Battery acid is highly caustic!

Danger of caustic injury!

Therefore when recharging and/or working near the battery:

☞ *Always wear goggles and protective clothing with long sleeves*

If acid is spilt:

☞ *Thoroughly rinse all affected surfaces immediately with plenty of water*

☞ *Thoroughly wash any part of the body touched by the acid immediately with plenty of water and seek medical attention at once!*

Especially when charging batteries, as well as during normal operation of batteries, an oxyhydrogen mixture is formed in the battery cells –

Danger of explosion!

☞ *Avoid naked lights and sparks in the vicinity of the battery and do not smoke!*

☞ *Do not attempt to jump-start the machine if the battery is frozen or if the acid level is low. The battery can rupture or explode!*

- Replace the battery immediately

☞ *Always disconnect the negative terminal (–) from the battery before starting repair work on the electrical system!*

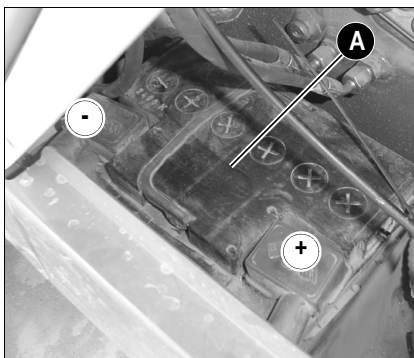


Fig. 127: Battery

Battery **A** is located behind the rear left side trim. The battery is “maintenance-free”. However have the battery checked at regular intervals to make sure the electrolyte level is between the MIN and MAX marks.

Checking the battery requires it to be removed and must be carried out by an authorised workshop.

Always follow the specific battery safety instructions!



Notice!

Do not disconnect the battery while the engine is running.



5.12 General maintenance work

Cleaning

Cleaning the machine is divided into 3 separate areas:

- Inside the cab
- Exterior of the machine
- Engine compartment

The wrong choice of cleaning equipment and agents can impair the operating safety of the machine on the one hand, and on the other undermine the health of the persons in charge of cleaning the machine. It is therefore essential to observe the following instructions.

General instructions for all areas of the machine

Cleaning with washing solvents

- Ensure adequate room ventilation
- Wear suitable protective clothing
- Do not use flammable liquids, such as petrol or diesel

Cleaning with compressed air

- Work carefully
- Wear goggles and protective clothing
- Do not aim the compressed air at the skin or at other people
- Do not use compressed air for cleaning your clothing

Cleaning with a high-pressure cleaner or steam jet

- Electric components and damping material must be covered and not directly exposed to the jet
- Cover the vent filter on the hydraulic oil tank and the filler caps for fuel, hydraulic oil etc.
- Protect the following components from moisture:
 - Engine
 - Electric components such as the alternator etc.
 - Control devices and seals
 - Air intake filters etc.

Cleaning with volatile and easily flammable anticorrosion agents and sprays:

- Ensure adequate room ventilation
- Do not use unprotected lights or naked flames
- Do not smoke!



Inside the cab



Caution!

Never use high-pressure cleaners, steam jets or high-pressure water to clean inside the cab. Water under high pressure can

- penetrate into the electrical system and cause short circuits and
- damage seals and disable the controls!

We recommend using the following aids to clean the cab:

- Broom
- Vacuum cleaner
- Damp cloth
- Bristle brush
- Water with mild soap solution

Cleaning the seat belt:

- Clean the seat belt (which remains fitted in the machine) only with a mild soap solution; do not use chemical agents as they can destroy the fabric!

Exterior of the machine

The following articles are generally suitable:

- High-pressure cleaner
- Steam jet

Engine compartment



Danger!

Clean the engine at engine standstill only –

Danger of personal injury!

 *Stop the engine before cleaning*



Caution!

When cleaning the engine with a water or steam jet

 *The engine must be cold*

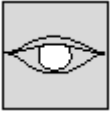
 *and do not point the jet directly at electric sensors such as the oil pressure switch.*

The humidity penetrating any such sensors causes them to fail and leads to engine damage!



Maintenance

Screw connections and attachments



All screw connections must be checked regularly for tightness, even if they are not listed in the maintenance schedules.

- ☞ *Engine fastening screws*
- ☞ *Fastening screws on the hydraulic system*
- ☞ *Line, bucket teeth and pin fastenings on the attachment*

Retighten loose connections immediately. Contact an authorised workshop if necessary.

Pivots and hinges



All mechanical pivot points on the machine (e.g. door hinges, joints) and fittings (e.g. door arresters) must be lubricated regularly, even if they are not listed in the lubrication plan.



5.13 Fluids and lubricants

Component/ application	Engine/machine fluid	Specification	Season/tempera- ture	Capacities ¹
Diesel engine	Engine oil	API CD, CF, CF-4, CI-4	–15 °C +45 °C	2.5 l
		ACEA: E3, E4, E5 (SAE 10W40) ²		
Travelling drive	Gearbox oil ³	Q8 T 55, SAE85W-90	Year-round	About 0.4 l each
		FINA PONTONIC GLS, SAE85W-90		
Hydraulic oil tank	Hydraulic oil	HVLP46 ⁴	Year-round ⁵	35 l
	Biodegradable oil ⁶	PANOLIN HLP Synth 46		
		FINA BIOHYDRAN SE 46		
		BP BIOHYD SE-46		
Grease	Roller and friction bearings ⁷	FINA Energrease L21M	Year-round	As required
	Open gear ⁸ (live ring gears)	BP Energrease MP-MG2	Year-round	As required
Grease nipples	Multipurpose grease ⁹	FINA Energrease L21 M	Year-round	As required
Battery terminals	Acid-proof grease ¹⁰	FINA Marson L2	Year-round	As required
Fuel tank	Diesel fuel	2-D ASTM D975 – 94 (USA)		24 l
		1-D ASTM D975 – 94 (USA)		
		EN 590 : 96 (EU)		
		ISO 8217 DMX (International)		
		BS 2869 – A1 (GB)	Depending on outside tempera- tures Summer or winter diesel fuel	
		BS 2869 – A2 (GB)		
Radiator	Coolant	Soft water + antifreeze ASTM D4985	Year-round	4 l
		Distilled water + antifreeze ASTM D4985		
Washer system	Cleaning agent	Water + antifreeze	Year-round	1.2 l

1. The capacities indicated are approximative values; the oil level check alone is relevant for the correct oil level
Capacities indicated are no system fills

2. According to DIN 51511

3. Hypoid gearbox oil based on basic mineral oil (SAE85W-90 according to DIN 51502), (API GL-4, GL5)

4. According to DIN 51524 section 3

5. Depending on local conditions – see **Hydraulics oil grade** on page 5-35

6. Hydraulic ester oils (HEES)

7. KF2K-25 according to DIN 51502 multipurpose lithium grease with MoS² additive

8. KP2N-20 according to DIN 51502 EP multipurpose calcium sulphonate complex grease

9. KF2K-25 according to DIN 51502 multipurpose lithium grease with MoS² additive

10. Standard acid-proof grease



Oil grades for the diesel engine, depending on temperature

Engine oil grade	Ambient temperature (C°)													
	°C	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40
API: CH4, CE/SJ ACEA: A3, B3, E3	SAE 10W													
	SAE 20W													
	SAE 10W-30													
	SAE 10W-40													
	SAE 15W-40													
	SAE 20													
	SAE 30													
	SAE 40													
	°F	-4	5	14	23	32	41	50	59	68	77	86	95	104

Additional oil change and filter replacement (hydraulics)

**Caution!**

An additional oil change and filter replacement can be required depending on how the machine is used. Failure to observe these replacement intervals can cause damage to hydraulic components.

☞ Observe the following intervals

Application		Hydraulic oil	Hydraulic oil filter insert
Normal work (excavation work)		Every 1000 s/h	Replace the first time after 50 s/h, then every 500 s/h
Percentage of hammer work	20 %	Every 800 s/h	300 s/h
	40 %	Every 400 s/h	
	60 %	Every 300 s/h	100 s/h
	Over 80 %	Every 200 s/h	

**Notice!**

Please refer to the maintenance plan on page 5-36 for additional maintenance work.



Oil grades for the hydraulic system, depending on temperature

Hydraulic oil grade	Ambient temperature														
	°C	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	50
HVLP ¹															
	°F	-4	5	14	23	32	41	50	59	68	77	86	95	104	122

1. According to DIN 51524 section 3



Maintenance

5.14 Maintenance plan (overview)	Work description For service and maintenance work on the attachment, please refer to the operation and maintenance manual of the attachment manufacturer as well.	Maintenance plan/service hours (s/h)					
		Maintenance work (once a day)	Every 50 s/h	Every 500 s/h	Every 1000 s/h once a year	Customer	Authorised workshop
		Fluid and filter changes ():					
		Carry out the following oil and filter changes (check oil levels after test run):					
		• Engine oil ¹	•	•			•
		• Engine oil filter ²	•	•			•
		• Fuel filter ³	•	•			•
		• Air filter element if fouling indicator is at "Service"				•	
		• Coolant			•		•
		• Hydraulic oil filter insert ⁴	•	•			•
		• Hydraulic oil ⁵		•	•		•
		• Hydraulic oil tank breather filter			•		
		• Gearbox oil ⁶	•		•		•
	Inspection work ():						
		Check the following material. Refill if necessary:					
	• Engine oil	•				•	
	• Engine coolant	•				•	
	• Hydraulic oil	•				•	
	• Gearbox oil		•				•
	Clean water ducts ⁷				•		•
	Check engine/hydraulic oil radiator and air conditioning for dirt. Clean if necessary	•				•	
	Check cooling systems, heating and hoses for leaks and pressure (visual check)	•				•	
	Check the pilot control filter on the safety valve for dirt, clean it if necessary				•		
	Replace the cab filter of the heating system (option)			•			•
	Air filter (damage)	•				•	
	Prefilter with water separator: drain water	•				•	
	• Clean			•		•	
	Check V-belt condition and tension	•				•	



5.14 Maintenance plan (overview) Work description For service and maintenance work on the attachment, please refer to the operation and maintenance manual of the attachment manufacturer as well.	Maintenance plan/service hours (s/h)					
	Maintenance work (once a day)	Every 50 s/h	Every 500 s/h	Every 1000 s/h once a year	Customer	Authorised workshop
	Check exhaust system for damage and condition	●			●	
	Check valve clearance. Adjust if necessary			●		●
	Clean and adjust the fuel injection pump ⁸			●		●
	Check and adjust the injection pressure of the injection nozzles, clean the injection needles/nozzles			●		●
Check and adjust injection time ⁹				●		●
Empty diesel fuel tank			●			●
Check battery electrolyte. Fill up with distilled water if necessary		●	●		●	
Check alternator, starter and electric connections, bearing play and function			●			●
Check preheating system and electric connections			●			●
Pressure check of primary pressure limiting valves		●	●			●
Check tracks for cracks and cuts	●				●	
Check track tension. Retighten if necessary	●				●	
Check bearing play of tread rollers, track carrier rollers, front idlers			●			●
Check piston rods for damage	●				●	
Check screws for tightness		●	●			●
Check pin lock	●				●	
Check line fixtures	●				●	
Check telltales for correct function		●	●			●
Couplings, dirt pile-up on hydraulic system dust caps if necessary	●				●	
Check insulating mats in the engine compartment for damage/condition		●			●	
Check labels and Operator's Manual for completeness and condition		●			●	
Check hydraulic quickhitch system for damage	●				●	



Maintenance

5.14 Maintenance plan (overview)

Work description

For service and maintenance work on the attachment, please refer to the operation and maintenance manual of the attachment manufacturer as well.

Lubrication service ():

Lubricate the following assemblies/components – see Maintenance label on page 5-40:

- Stabiliser blade
- Swivelling console
- Boom
- Stick
- Attachments
- Hydraulic quickhitch (option) – see Hydraulic quickhitch (option) on page 3-47
- Grease strip on chassis – see Maintenance label on page 5-40

Functional check ():

Check the function of the following assemblies/components. Rectify if necessary:

- Lights, signalling system, acoustic warning system¹⁰
- Heating function¹⁰
- Hydraulic quickhitch system (lock)

Leakage check ():

Check for tightness, leaks and chafing: pipes, flexible lines and screw connections of the following assemblies and components. Rectify if necessary:

Maintenance plan/service hours (s/h)	Maintenance work (once a day)					Customer	Authorised workshop
	Every 50 s/h	Every 500 s/h	Every 1000 s/h once a year				
• Visual check	●					●	
 Engine, hydraulic system and hydraulic components	●					●	
 Cooling circuit	●					●	
 Travelling drive	●					●	
 Hydraulic quickhitch system (hoses, valve)	●					●	

1. Drain engine oil the first time after 50 s/h, then every 250 s/h
2. Replace the engine oil filter the first time after 50 s/h, then every 250 s/h
3. Replace the fuel filter the first time after 50 s/h, then every 500 s/h
4. Replace the hydraulic oil filter insert the first time after 50 s/h, then every 500 s/h
5. Drain the hydraulic oil the first time after 500 s/h, then every 1000 s/h
6. Drain the gearbox oil the first time after 50 s/h, then every 1000 s/h
7. Clean the water ducts every other 1000 s/h servicing
8. Clean and adjust the fuel injection pump every other 1000 s/h servicing
9. Check and adjust injection time every other 1000 s/h servicing



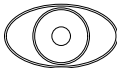
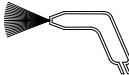
10. Check the first time at 50 s/h, then every 500 s/h

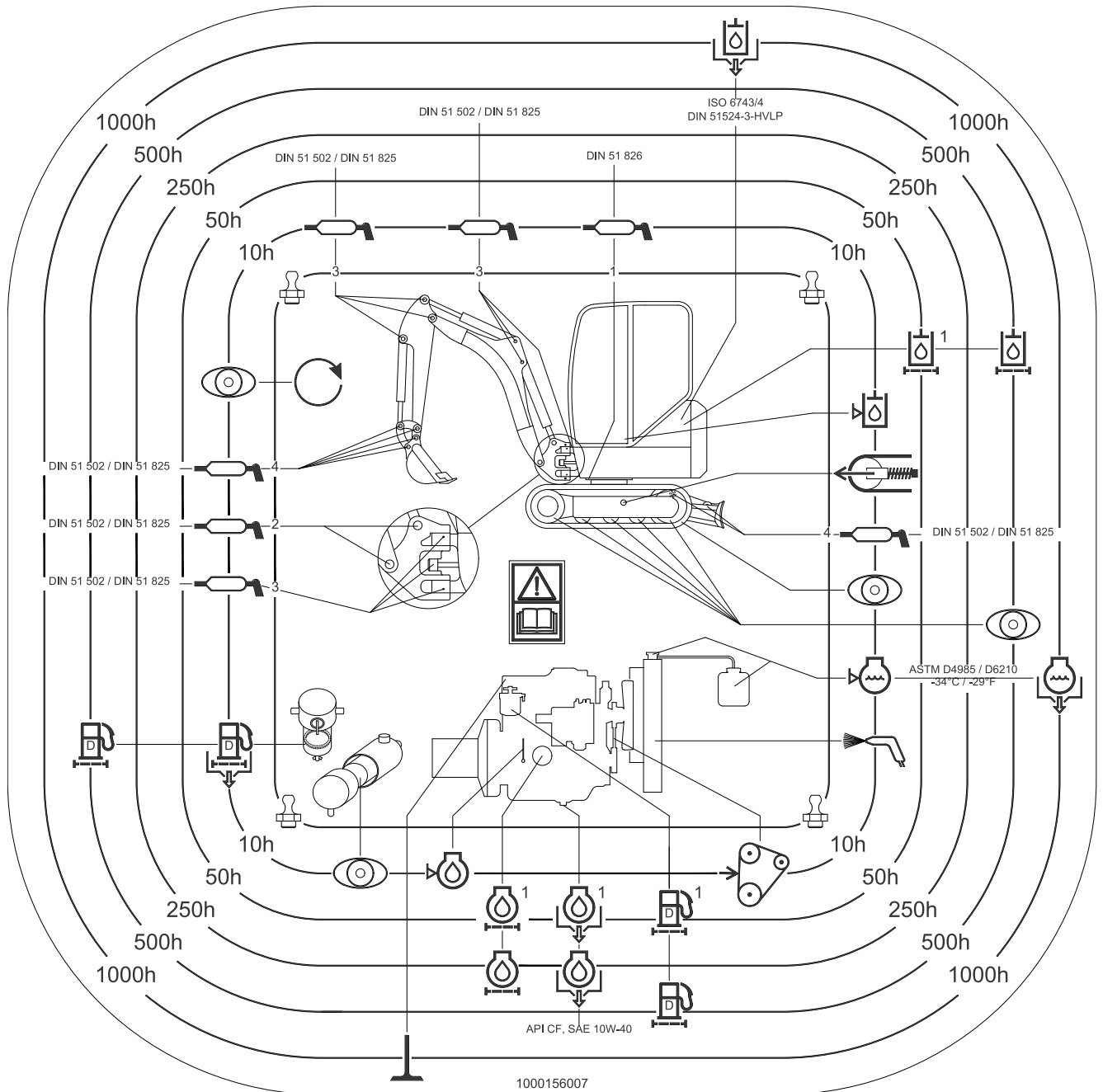


Maintenance

5.15 Maintenance label

Explanation of symbols on the maintenance label

Symbol	Assembly	Explanation
	General	Visual check
	General	Grease instructions
	Fuel system	Drain condensation water
	Fuel system	Replace the fuel filter, clean the fuel prefilter
	Radiator	Check the coolant level
	Radiator	Drain and fill in new coolant
	Engine	Check valve clearance. Adjust if necessary
	Engine	Check the engine oil level
	Engine	Change engine oil
	Engine	Replace the oil filter
	Engine	Check V-belt tension
	Hydraulic system	Check oil level
	Hydraulic system	Change hydraulic oil
	Hydraulic system	Replace the hydraulic oil filter, replace the breather filter
	Radiator fins	Clean
	Heating, air conditioning	Replace the recirculated air filter
	Undercarriage	Check track tension







6 Specifications

6.1 Chassis

Sturdy steel sheet chassis, rubber-mounted engine

6.2 Engine

Engine	Model 1404
Product	Yanmar diesel engine
Type	3TNV76-SNS2
Design	Water-cooled 4 stroke diesel engine
No. of cylinders	3
Displacement	1116 cm ³
Nominal bore and stroke	76 x 82 mm
Output	13.2 kW at 2200 rpm
Max. torque	65.8 Nm at 1600 rpm
Max. engine speed without load	2375 +/- 25 rpm
Idling speed	1300 +/- 50 rpm
Fuel injection system	Indirect injection
Starting aid	Glow plug (preheating time 4 seconds)
Max. inclined position (engine no longer supplied with oil):	30° briefly in all directions Observe the machine's climbing ability (30°/58 %)!
Exhaust values according to	EPA

6.3 Hydraulic system

Hydraulics	Model 1404
Pump	Gear pump 14 cm ³
Flow rate	33.3 l/min at 2376 rpm
Operating pressure for work and drive hydraulics	200 bar
Swivel unit operating pressure	130 bar
Hydraulic tank capacity	20 l



Specifications

6.4 Undercarriage and swivel unit

Undercarriage/swivel unit	Model 1404
Drive speed	2.25 kph
Climbing ability	30°/58 %
Track width	230 mm
No. of track rollers on either side	3
Ground clearance	180 mm
Ground pressure	0.26 kg/cm ²
Upper carriage swivel speed	9 rpm

6.5 Stabiliser blade

Stabiliser blade	Model 1404
Width (folded in/out, option)	990/1296 mm
Height	215 mm
Max. lift over/under subgrade	211/265 mm

6.6 Work hydraulics

Work hydraulics	Model 1404
Hydraulic pump displacement:	1 x 33.3 l/min at 2376 rpm
Control valve	9 sections
Max. operating pressure	200 ^{+6/-0} bar
Main pressure limiting valve for boom/bucket/stick	200 ^{+6/-0} bar
Main pressure limiting valve for stabiliser blade	200 ^{+6/-0} bar
Main pressure limiting valve for swivel unit engine pressure restriction	130 bar (PA: 150 bar; Pp: 180 bar) ¹
Filter	Reflux filter
Hydraulic oil tank	13.8 l

1. Pp = pump pressure = 180 bar
 PA = swivel unit pressure = 150 bar
 Secondary pressure limiting valve for swivel unit = 130 bar



6.7 Electrical system

Electrical system

Dynamo	12 V 20 A
Starter	12 V 1.1 kW
Battery	12 V 45 Ah

Fuses on left-hand side control lever base

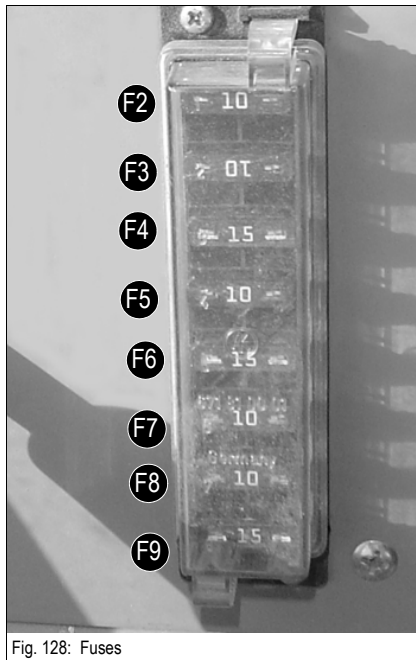


Fig. 128: Fuses

Fuse no.	Rated current (A)	Protected circuit
F2	10 A	– Fuse: relays, indicator, cutoff solenoid
F3	10 A	– Boom working light fuse
F4	15 A	– Cab working light fuse
F5	10 A	– Valves and horn fuse
F6	15 A	– Heating fuse
F7	10 A	– Wiper and interior light fuse
F8	10 A	– Rotating beacon, radio and drive interlock fuse
F9	15 A	– Socket and cigarette lighter fuse

Main fuse and relays in the engine compartment

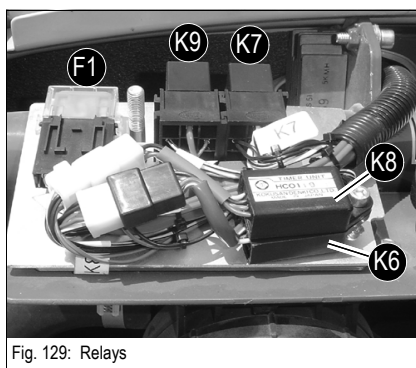


Fig. 129: Relays

Fuse no.	Rated current (A)	Protected circuit
F1	40 A	– Main fuse

Relay no.	Protected circuit
K 6	– Preheating time lag relay
K 7	– Start switching relay
K 8	– Cutoff solenoid time lag relay 1s
K 9	– Cutoff solenoid switching relay



Specifications

6.8 Noise levels

Sound power level	Model 1404
Sound power level (L_{WA})	93 dB (A)
Sound pressure level (L_{PA}) at the driver's ear	79 dB (A)



Notice!

Measurement of sound power level according to EC Directive 2000/14 EC. Noise level at the driver's ear measured according to EC Directives 89/514/EEC and 95/27/EEC. Measurements carried out on asphalted surface.

6.9 Vibration

Vibration	
Effective acceleration value for the upper extremities of the body ¹	< Trigger value
Effective acceleration value for the body ¹	< Trigger value

1. Measurements as per 2002/44/EC (excavating, driving and hammering with a Wacker Neuson hammer). Machine and attachment operation and maintenance as per Operator's Manual.

6.10 Coolant compound table

Depends on radiator antifreeze!

Table below applies to Wacker Neuson coolants.

Outside temperature	Coolant			
	Water	Anticorrosion agent		Antifreeze agent
Up to °C	% by volume	cm³/l	% by volume	% by volume
4	99	10	1	–
-10	78			21
-20	65			34
-25	60			39
-30	55			44



Notice!

Anticorrosion protection no longer ensured if coolant diluted below 33 % by volume (corresponds to freezing point over - 20 °C).



6.11 Dimensions model 1404

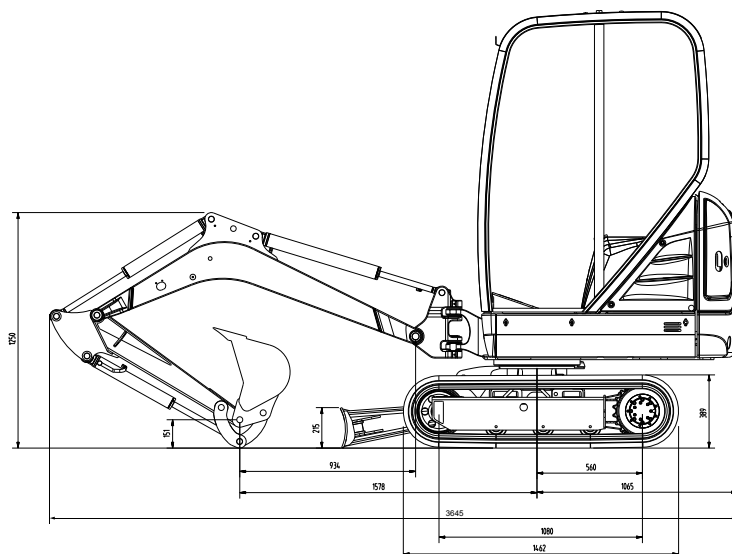
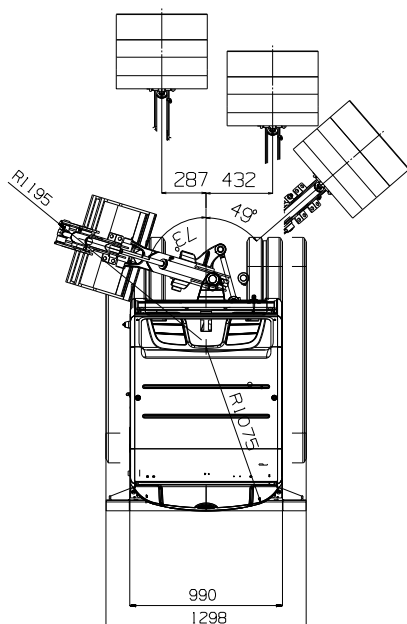
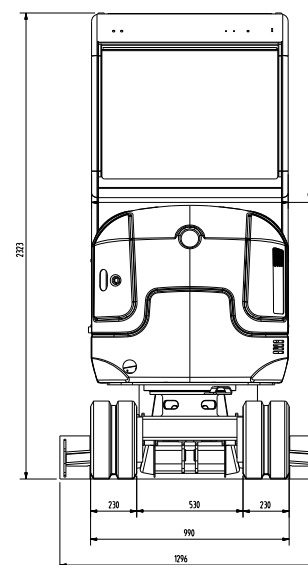


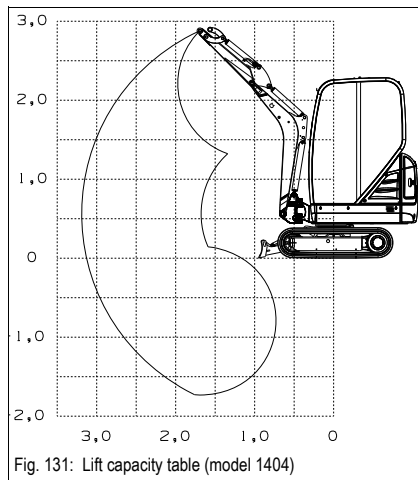
Fig. 130: Machine dimensions (model 1404)



Main data	Model 1404
Service weight canopy/cab (option)	1325/1450 kg
Service weight with telescopic undercarriage canopy/cab (option)	1390/1515 kg
Height (transport position)	2323 mm
Width	990 mm
Transport length	3645 mm
Max. digging depth	2240 mm
Stick length (standard)	940 mm
Long stick length (option)	1100 mm
Max. vertical digging depth	1640 mm
Max. digging height	3390 mm
Max. dump height	2370 mm
Max. digging radius	3700 mm
Max. reach at ground level	3650 mm
Max. breakout force at bucket tooth	14.2 kN
Max. tearout force	7.1 kN
Min. tail end slewing radius	1075 mm
Max. tail end lateral projection (90° rotation of upper carriage)	580 mm
Max. boom displacement to bucket centre (right-hand side)	432 mm
Max. boom displacement to bucket centre (left-hand side)	287 mm



6.12 Lift capacity table 1404 RD



		max.			3,0m			2,0m		
B	A	Über Schild		Über die Seite 360°	Über Schild		Über die Seite 360°	Über Schild		Über die Seite 360°
		abgesenkt	angehoben		abgesenkt	angehoben		abgesenkt	angehoben	
	1,5m	395*	180	170	400*	180	175	430*	330	315
	1,0m	380*	165	155	405*	180	170	615*	315	300
	0,5m	365*	160	155	410*	175	165	725*	295	280
	0,0m	350*	165	155	385*	170	165	715*	285	270

A	Reach from live ring centre
B	Load hook height

All table indications in kg and horizontal position on firm ground without bucket.

If equipped with a bucket or other attachments, lift capacity or tilt load is reduced by bucket or attachment dead weight.

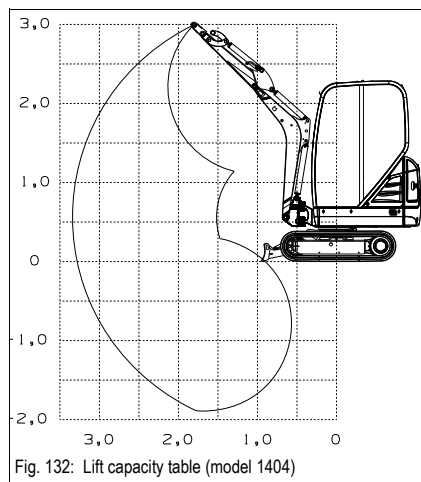
Calculation basis: according to ISO 10567

The compact excavator's lift capacity is restricted by the settings of the pressure limiting valves and the hydraulic system's stabilising features.

Neither 75 % of the static tilt load nor 87 % of the hydraulic lift capacity is exceeded.



6.13 Lift capacity table 1404 RD with long stick (option)



		max.			3,0m			2,0m		
B	A	Über Schild		Über die Seite 360°	Über Schild		Über die Seite 360°	Über Schild		Über die Seite 360°
		abgesenkt	angehoben		abgesenkt	angehoben		abgesenkt	angehoben	
1,5m		390*	170	160	415*	185	175	375*	355	335
1,0m		375*	155	150	425*	175	170	575*	325	305
0,5m		360*	150	145	410*	170	165	695*	290	275
0,0m		345*	155	145	400*	190	180	695*	270	255

A	Reach from live ring centre
B	Load hook height

All table indications in kg and horizontal position on firm ground without bucket.

If equipped with a bucket or other attachments, lift capacity or tilt load is reduced by bucket or attachment dead weight.

Calculation basis: according to ISO 10567

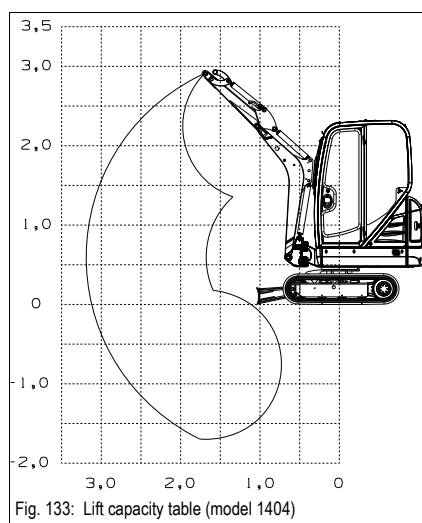
The compact excavator's lift capacity is restricted by the settings of the pressure limiting valves and the hydraulic system's stabilising features.

Neither 75 % of the static tilt load nor 87 % of the hydraulic lift capacity is exceeded.



Specifications

6.14 Lift capacity table 1404 RD with cab (option) and telescopic undercarriage (option)



		max.				3,0m				2,0m			
B	A	Über Schild		Über die Seite 360°		Über Schild		Über die Seite 360°		Über Schild		Über die Seite 360°	
		abgesenkt	angehoben	TELE ein	TELE aus	abgesenkt	angehoben	TELE ein	TELE aus	abgesenkt	angehoben	TELE ein	TELE aus
1,5m		395*	215	205	295	400*	220	210	300	430*	390	375	545
1,0m		380*	200	195	275	405*	215	210	295	615*	370	360	525
0,5m		365*	195	190	270	410*	210	205	290	725*	355	345	505
0,0m		350*	195	190	275	385*	205	200	300	715*	345	335	495

A	Reach from live ring centre
B	Load hook height

All table indications in kg and horizontal position on firm ground without bucket.

If equipped with a bucket or other attachments, lift capacity or tilt load is reduced by bucket or attachment dead weight.

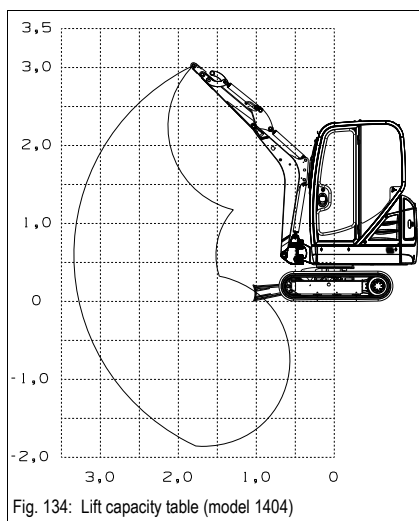
Calculation basis: according to ISO 10567

The compact excavator's lift capacity is restricted by the settings of the pressure limiting valves and the hydraulic system's stabilising features.

Neither 75 % of the static tilt load nor 87 % of the hydraulic lift capacity is exceeded.



6.15 Lift capacity table 1404 RD with cab (option), long stick (option) and telescopic undercarriage (option)



		max.				3,0m				2,0m			
B	A	Über Schild		Über die Seite 360°		Über Schild		Über die Seite 360°		Über Schild		Über die Seite 360°	
		abgesenkt	angehoben	TELE ein	TELE aus	abgesenkt	angehoben	TELE ein	TELE aus	abgesenkt	angehoben	TELE ein	TELE aus
1,5m		390*	205	200	280	415*	220	215	305	375*	375*	375*	375*
1,0m		375*	190	185	265	425*	215	210	300	575*	385	370	540
0,5m		360*	185	180	255	410*	210	200	290	695*	345	335	495
0,0m		345*	185	180	260	400*	225	220	315	695*	325	315	470

A	Reach from live ring centre
B	Load hook height

All table indications in kg and horizontal position on firm ground without bucket.

If equipped with a bucket or other attachments, lift capacity or tilt load is reduced by bucket or attachment dead weight.

Calculation basis: according to ISO 10567

The compact excavator's lift capacity is restricted by the settings of the pressure limiting valves and the hydraulic system's stabilising features.

Neither 75 % of the static tilt load nor 87 % of the hydraulic lift capacity is exceeded.



Specifications

Wacker Neuson Linz GmbH keep abreast of the latest technical developments and constantly improve their products. For this reason, we may from time to time need to make changes to diagrams and descriptions in this documentation which do not reflect products which have already been delivered and which will not be implemented on these machines. Technical data, dimensions and weights are given as an indication only. Responsibility for errors or omissions not accepted.

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