1000184998	2.3
0608	

Dumper

1001, 1501, 2001

OPERATOR'S MANUAL

1 0 0 0 1 8 4 9 9 8

Documentation

Description		*Order no.*
Operator's Manual		1000184998
Service manual	1001 1501 2001	1000144662 1000144667 1000154504
Spare parts catalogue	1001 1501 2001	1000135891/1000164057 1000165936/1000135893 1000110328

Legend

Edition	Issued
2.3	06/2008

The cover features the machine with possible optional equipment.

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

Document: BA 1001/1501/2001 US
Order no.: 1000184998
Edition: 2.3

Table of contents

1 Introduction

1.1 Important information on this Operator's Manual

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

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 on 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.

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.

1.2 Brief description

The model 1001/1501/2001 dumpers are self-propelled work machines.
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. The main components of the machine are:

- Rollbar
- Hydraulic swivel dump bucket or front dump bucket
- Yanmar three cylinder diesel engine
- Sturdy steel sheet chassis

1.3 Operator Qualifications

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.

1.4 EC declaration of conformity dumper 1001AB (serial number: AB ...)

CE

EG-Konformitätserklärung

EC-Declaration of Conformity

Déclaration de conformité

im Sinne der EG-Maschinenrichtlinie Anhang II A 98/37/EC,
in addition to the EC machine directives Annex
dans l'esprit des directives du conseil relatives aux machines Annexe

Hiermit erklären wir, daß der Kompakt-Allraddumper
We declare, that the compact-dumper
Nous déclarons, que le dumper compact

Typ 1001 Fahrgestell-Nr. .....
type *serial-no.*
type *numéra de série.*

folgenden einschlägigen Bestimmungen entspricht:	98/37/EC
fulfills the *following directives:*	89/336EEC
est en conformité avec des prescriptions suivant:	2000/14/EC

Angewendete harmonisierte europäische Normen	EN 12100-1 : 2003
Harmonized standards applied	EN 12100-2 : 2003
Normes euopéen harmonisées appliquées	EN 474-1 1994
	EN 474-6 1996

Garantierter Schalleistungspegel L_{WA} 101
Guarantee weighted Sound Power Level
Niveau sonore garanti de la puissance

Gemessener Schallleistungspegel L_{WA} 101
Measured weighted Sound Power Level
Niveau sonore mesuré de la puissance

Freiwilligen Baumusterprüfung:	Baumusterprüfungsbescheinigung-Nr.:
Voluntary type-examination	*Eximination certificate No.:*
Effectuer l´examen de type volontaire	*Attestation de type n°:*

Tredegar, 18/12/2007
.....
Ort, Datum / Place, date / Lieu, date

.....
Lee Morris / Technical Director

1.5 EC declaration of conformity dumper 1501AB from serial number: AB ...

CE

EG-Konformitätserklärung

EC-Declaration of Conformity

Déclaration de conformité

im Sinne der EG-Maschinenrichtlinie Anhang II A 98/37/EC,
in addition to the EC machine directives Annex
dans l'esprit des directives du conseil relatives aux machines Annexe

Hiermit erklären wir, daß der Kompakt-Allraddumper
We declare, that the compact-dumper
Nous déclarons, que le dumper compact

Typ 1501 Fahrgestell-Nr. .....
type *serial-no.*
type *numéra de série.*

folgenden einschlägigen Bestimmungen entspricht:	98/37/EC
fulfills the *following directives:*	89/336EEC
est en conformité avec des prescriptions suivant:	2000/14/EC

Angewendete harmonisierte europäische Normen	EN 12100-1 : 2003
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Garantierter Schalleistungspegel L_{WA} 101
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Measured weighted Sound Power Level
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Freiwilligen Baumusterprüfung:	Baumusterprüfungsbescheinigung-Nr.:
Voluntary type-examination	*Eximination certificate No.:*
Effectuer l´examen de type volontaire	*Attestation de type n°:*

Tredegar, 18/12/2007 .. ...
..... Lee Morris / Technical Director
Ort, Datum / Place, date / Lieu, date

1.6 EC declaration of conformity dumper 2001 CB (serial number: CB ...)

CE

EG-Konformitätserklärung

EC-Declaration of Conformity

Déclaration de conformité

im Sinne der EG-Maschinenrichtlinie Anhang II A 98/37/EC,
in addition to the EC machine directives Annex
dans l'esprit des directives du conseil relatives aux machines Annexe

Hiermit erklären wir, daß der Kompakt-Allraddumper
We declare, that the compact-dumper
Nous déclarons, que le dumper compact

Typ 2001 Fahrgestell-Nr. .....
type *serial-no.*
type *numéra de série.*

folgenden einschlägigen Bestimmungen entspricht:	98/37/EC
fulfills the *following directives:*	89/336EEC
est en conformité avec des prescriptions suivant:	2000/14/EC

Angewendete harmonisierte europäische Normen	EN 12100-1 : 2003
Harmonized standards applied	EN 12100-2 : 2003
Normes euopéen harmonisées appliquées	EN 474-1 1994
	EN 474-6 1996

Garantierter Schalleistungspegel L_{WA} 101
Guarantee weighted Sound Power Level
Niveau sonore garanti de la puissance

Gemessener Schallleistungspegel L_{WA} 101
Measured weighted Sound Power Level
Niveau sonore mesuré de la puissance

Freiwilligen Baumusterprüfung:	Baumusterprüfungsbescheinigung-Nr.:
Voluntary type-examination	*Eximination certificate No.:*
Effectuer l´examen de type volontaire	*Attestation de type n°:*

Tredegar, 18/12/2007 .....
Ort, Datum / Place, date / Lieu, date

....
Lee Morris / Technical Director

1.7 Type labels and component numbers

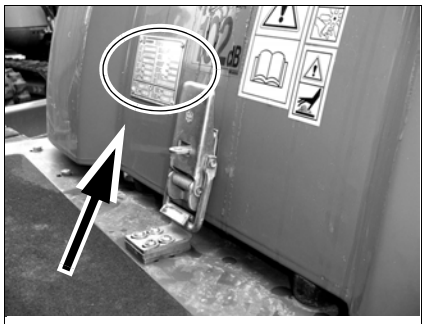


Fig. 1: Type label: location

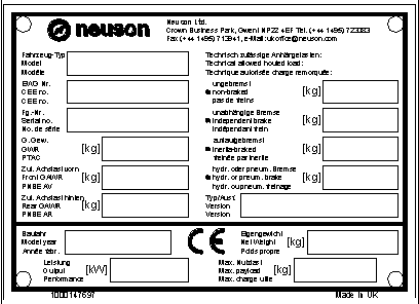


Fig. 2: Type label

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 rear right of the control stand.
Type label information
Example: 1001

Model:		1001
Year:	----------	
PIN: (serial number)		AB1001 ...
Power:		----------
Mass:		----------
Load:		----------

Other information – *see chapter 6 Specifications (1001 – 1501)* on page 6-1

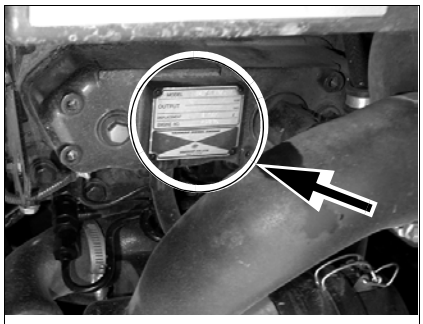


Fig. 3: Yanmar diesel engine number

Engine number

The type label (arrow) is located on the cylinder-head cover of the engine.

Example: Yanmar 46557

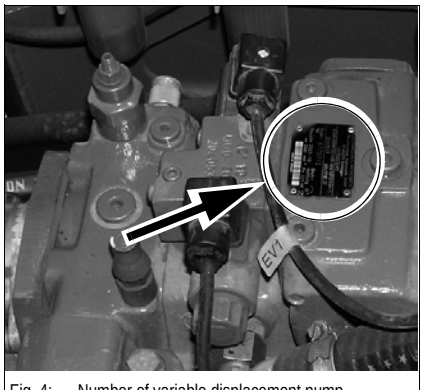


Fig. 4: Number of variable displacement pump

Hydraulic pump number

The type label (arrow) is located on the hydraulic pump housing

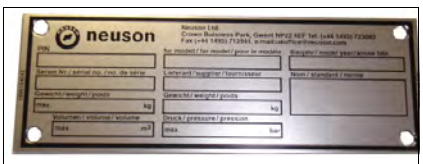
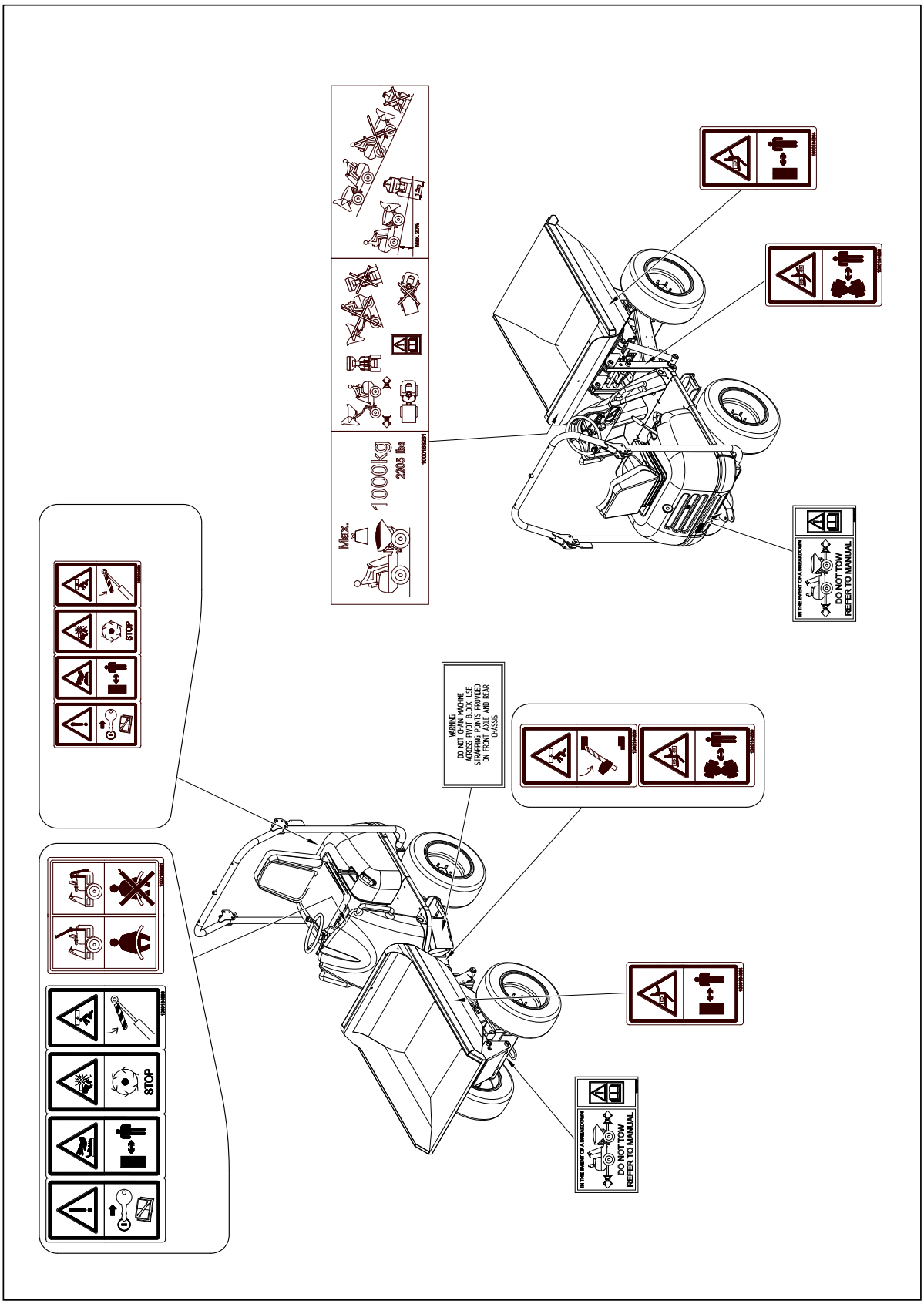


Fig. 5: ROPS label

ROPS certification number

The type label is located on the left on the rollbar

1.8 Label Overview 1001



1.9 Symbol descriptions

The following symbols are displayed on the machine to provide pictorial information to the user. The information and explanations are provided to avoid misinterpretation by the user. The symbols have been chosen to provide important information to those involved with operating, adjusting, maintaining, and repairing this machine.

Explanation of designations in figures

☞ *1501 swivel dumper = 1501S*

☞ *1501 high-tip dumper = 1501H*

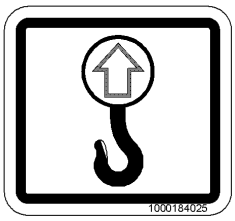


Fig. 6: Lifting pointk

Description

Lift the machine or machine parts only by means of these lifting points.

Location

The label is affixed in different positions on the machine next to the lifting points.

Fig. 7: Label for points used for strapping down the machine

Description

Tie down points.

Location points designated for tie down of the machine during transport to prevent movement during transport.

Location

In the ner of the dump bucket

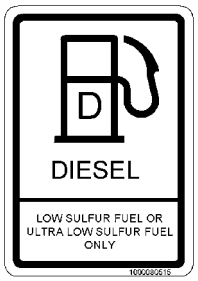


Fig. 8: Fuel requirement

Description

Fill location for diesel fuel only.

Location

On the fuel tank

Fig. 9: Hydraulic oil reservoir

Description

Hydraulic oil reservoir. Use only specified hydraulic fluid.

Location

On the hydraulic oil reservoir

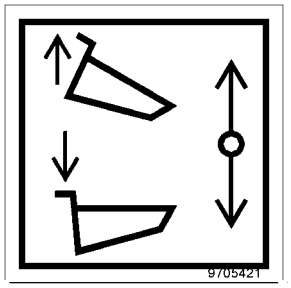


Fig. 10: Dump bucket unloading mode

Description
Unloading mode for the dump bucket.
Location
On the engine cover

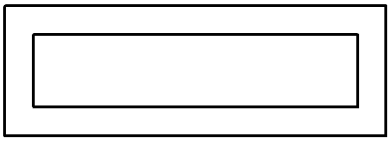


Fig. 11: Serial number

Description
Machine serial number label
Location
At the front right of the chassis

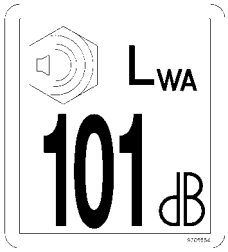


Fig. 12: Sound power level

Description
Value of sound power level according to the 2000/14/EC standard.
Location
On the engine cover

Fig. 13: Lap belt

Description
Always fasten the seat belt if the rollbar is raised!
Do not use the seat belt when the ROPS is lowered to the stored position.
Location
On the engine cover

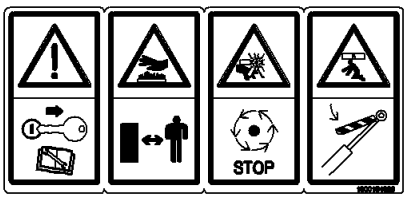


Fig. 14: Rotating and hot parts

Description
1:Attention! Remove starter key and read the Service Manual before servicing the machine.
2:Hot surface! Do not touch. Keep a safe distance from the machine.
3:Cutting hazard. Cooling fan can cut when rotating. Stop engine before working on the engine or cooling system.
4:Crushing hazard. Place safety strut in blocking position on the hydraulic cylinder before performing maintenance.
Location
On the engine cover

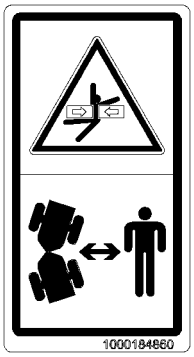


Fig. 15: Distance to machine

Description

Articulation joint crushing hazard. Stay away!

Location

On the dump bucket

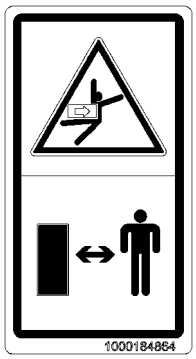


Fig. 16: Distance to machine

Description

Stay away from the machine work area.

Location

On the dump bucket

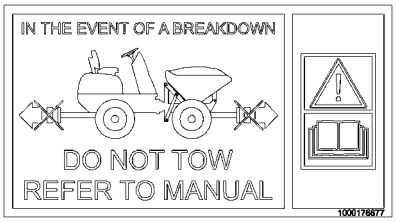


Fig. 17: Towing

Description

To avoid damage to the machine and safety risks, read the Operator's Manual before towing the machine.

Location

On the engine cover

Fig. 18: Tire pressure

Description

Recommended tire inflation pressure. Read the Operator's Manual for detailed instructions and load ratings.

Location (1501S-H, 1001)

On the mudguards and the dump bucket

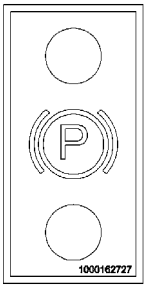


Fig. 19: Parking brake

Description
Parking brake
Location (1501H-S, 1001)
Control stand

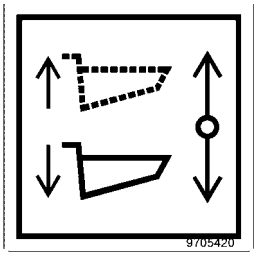


Fig. 20:

Description
Dump bucket control mode: dump and lower
Location (1501H, 1001)
On the engine cover

Fig. 21: Tire pressure

Description
This label indicates the maximum authorized angle of inclination for driving on slopes, whatever the position of the machine.
Location (1001)
Dump bucket

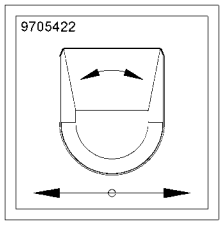


Fig. 22:

Description
Control identification for swiveling the dump bucket as viewed from the operator seat.
Location (1501S, 2001)
On the engine cover

Fig. 23: Tire pressure

Description
This label indicates the maximum authorized angle of inclination for driving on slopes, whatever the position of the machine.
Location (1501S)
Dump bucket

Fig. 24: Tire pressure

Description
Recommended operating tire pressure.
Location (2001)
2x on mudguards
2x on dump bucket

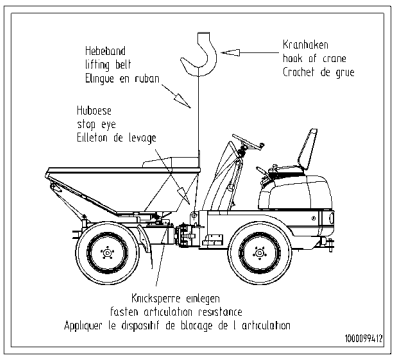


Fig. 25: Lifting instructions

Description

Lifting instructions

Location (2001)

At the rear right on the chassis

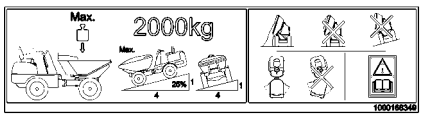


Fig. 26: Slope limits

Description

This label describes the slope limits of the dumper with a 2000kg (4409 lbs) load in the dump bucket. Do not articulate the machine at the maximum load limit on the slope. Read the Operator's Manual for more information.

Location (2001)

Fig. 27: Support bracket

Description

Install the locking bracket before working under the raised dump bucket.

Location

On the front chassis (1001, 1501) and on the swivelling console (2001)

2 Safety Information

2.1 Safety Symbols Found in this Manual

This is the safety alert symbol. It is used to alert you to potential personal hazards.

- Obey all safety messages that follow this symbol.

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

☞ *Obey all safety messages that follow this symbol to avoid injury or death*

- Aufzählung zur Vermeidung

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

☞ *.Obey all safety messages that follow this symbol to avoid possible injury or death.*

- Aufzählung zur Vermeidung

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

☞ *Obey all safety messages that follow this symbol to avoid possible minor or moderate injury.*

- Aufzählung zur Vermeidung

NOTICE: Used without the safety alert symbol. NOTICE indicates a hazardous situation which, if not avoided, could result in property damage.

Important

Iidentifies an instruction that, when followed, provides 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 endangered if environmentally hazardous material, such as waste oil, is not properly used or disposed of.

2.2 Warranty

Warranty claims must be submitted to your Wacker Neuson dealer only. This requires, among other things, following the instructions in this Operator's Manual.

2.3 Designated Use

- In accordance with its designated use, the machine may be used ONLY for moving earth, gravel, coarse gravel or ballast and rubble. It may also be used for working with the attachments mentioned in the "Fields of Application" chapter.
- No other applications are 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 this Operator's Manual and observing the maintenance schedule.
- Machine safety 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. Wacker Neuson will not be liable for damage resulting from unapproved parts or unauthorized modifications.
- Wacker Neuson shall not be liable for personal injury and/or damage to property caused by failure to observe the safety instructions on labels and in this Operator's Manual, and by the negligence of the duty to exercise due care when:
  - handling the machine
  - operating the machine
  - servicing the machine and carrying out maintenance work
  - repairing the machine

  ☞ This is also applicable when special attention has not been drawn to the duty to exercise due care.
- Read and understand this Operator's Manual before starting up, servicing or repairing the machine. Observe all safety instructions.
- The machine may NOT be used for transport jobs on public roads!

2.4 General Conduct and Safety Instructions

Conditions for use

- The machine has been designed and built in accordance with state-of-the-art standards and recognized 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.
- Read and follow this Operator's Manual and other manuals that accompany the machine.
- The machine must only be used in accordance with its designated use and the instructions set forth in this Operator's Manual.
- The machine must only be used by safety-conscious persons who are fully aware of the risks involved in operating the machine.
- The machine must only be used when it is in technically perfect condition. Any mechanical dysfunctions, especially those affecting the safety of the machine, must be repaired immediately.

- 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 and safety equipment.

User training and knowledge

- Always keep this Operator's Manual and other manuals that accompany the machine on hand in their storage bin at the place of use of the machine. Immediately replace an incomplete or illegible Operator's Manual.
- All persons working on or with the machine must read and understand the safety information in this Manual before beginning work. This applies especially to persons working only occasionally on the machine, such as performing set-up or maintenance tasks.
- Follow, and instruct the operator in, legal and other mandatory regulations relevant to accident prevention and environmental protection.These may include handling hazardous substances, issuing and/or wearing personal protective equipment, or obeying traffic regulations.
- The user/owner must regularly ensure that all persons entrusted with operation or maintenance of the machine are working in compliance with this Operator's Manual and are aware of the risks and safety factors of the machine.

Preparing for use

- Before starting up the machine, ALWAYS inspect the machine to make sure that it is ready for safe work and road operation.
- Wear close-fitting work clothes that do not hinder movement. Tie back long hair and remove all jewelry (including rings).
-

Modifications and spare parts

- NEVER make any modifications, additions or conversions to the machine and its superstructures (for example, cab, etc.), or the machine's attachments, without the approval of Wacker Neuson! Such modifications may affect safety and/or machine performance. This also applies to the installation and 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. Contact your Wacker Neuson dealer for assistance.

2.5 Staff Qualifications and Basic Responsibilities

User/owner responsibility

- Only allow trained and experienced individuals to drive, maintain, or repair the machine. NEVER let unauthorized or underaged persons drive or work with the machine.
- Clearly and unequivocally define the individual responsibilities of the staff for operation, maintenance, and repair.
- Define the machine operator's responsibilities on the job site and for 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 by anyone other than an experienced person. Also, NEVER allow persons taking part in a general training course to work on or with the machine without being permanently supervised by an experienced person.

Repair person qualifications

- Work on the electric system and equipment, on the undercarriage and the steering and brake systems may be carried out only by skilled individuals who have 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.

2.6 Safety instructions Regarding Operation

Preparing for use

- Keep the machine clean. This reduces the risk of fire hazards (such as from combustible materials like rags), and reduces the risk of injury or operational accidents that can be caused by dirt build-up on the drive pedals or footholds.
- Observe all safety, warning, and informational signs and labels on the machine.
- Start and operate the machine from the seat only.
- The operator must sit in the seat, fasten and tighten the seat belt before putting the machine into operation.
- Always adjust the seat position before starting work. Never change the seat position when driving or working!
- Make sure that all safety devices are properly installed and functional before starting work.
- Before putting the machine/attachment into operation (startup/moving), make sure that no one in the immediate vicinity will be at risk.

Startup and shutdown

- Carry out startup and shutdown procedures according to this Operator's Manual.
- Observe all indicator lights.
- Do not use starting fluid (for example, ether) especially in those cases in which a heater plug (intake air pre-heating) is used at the same time.
- Make sure the drive levers, the signaling and the light systems are functional before operating the machine, and also before restarting after an interruption of work.

- Fold up the control lever base before releasing the seat belt in order to avoid unintentional operation.

Work area awareness

- Familiarize yourself with the surroundings and circumstances of the work site before beginning work. Be aware of:
  - obstacles in the working and traveling area
  - the soil weight-bearing capacity
  - any necessary barriers separating the work site from public roads
- Always keep a safe distance from the edges of building pits and slopes.
- Look out for the following when working in buildings or in enclosed areas:
  - height of the ceiling/clearances
  - width of entrances
  - maximum load of ceilings and floors
  - sufficient room ventilation—danger of carbon monoxide poisoning!
- Observe the danger area. See “Danger area awareness”.
- Use the rearview mirror to stay aware of work site obstacles and personnel.
- Always switch on the work lights in conditions of poor visibility and after dark. However, make sure that users of public roads will not be temporarily blinded by the work lights.
- Provide additional lighting of the work area if the lights of the machine are not sufficient for carrying out work safely.
- Drive slowly in meadows, on leaves or wet steel plates. The machine can slip even if the ground is level.

Danger area awareness

- 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.
- The danger area also includes the area affected by falling material, equipment or construction debris. The danger area must be extended by 0.5 m (20 inches) in the immediate vicinity of buildings, scaffolds, or other elements of construction.
- Seal off the danger area if it is not possible to keep a safe distance. Stop work immediately if persons do not leave the danger area in spite of warnings!

Operating the machine

- Never operate the machine if you are standing on the ground.
- Operate the machine ONLY when you are seated and you have fastened your seat belt. Switch off the engine before releasing the seat belt.
- On sloping terrain, adapt your drive speed to the prevailing ground conditions.
- Never get on or off a moving machine, and do not jump off the machine.

Carrying passengers

- Always adapt your drive speed to the road and ground conditions, and to the visibility conditions. Ask for help in navigating difficult passages or obstacles. To avoid tipping the dumper, drive appropriately and slowly as conditions dictate. This applies in particular to rough terrain, the edges of trenches, curves and emergency braking. Use only the low speed range when driving off-road (see the turtle indicator on the instrument panel).
- Make sure the engine cover is closed and locked before starting the dumper.
- Apply the parking brake when parking the machine. If possible, do not park the dumper on slopes. If this cannot be avoided, use wheel chocks, etc. Lower the dump bucket before leaving the dumper. Apply the parking brake only in an emergency when driving the machine.
- Keep the base plate of the skip in a clean condition so that the material is easily dumped out of the skip. Load only material that can be easily dumped out.
- Never drive too close to the edges of unsecured pits, precipices, etc. The pressure of the wheels on the ground can cause the edge to give way.
- Never dump material into trenches where people are working. If the driver cannot see into the trench, he or she must be guided by someone who can see into the trench.
- Always make sure the brakes are in perfect condition.

Carrying passengers

- Apart from the driver, do not allow anyone to ride on the machine.
- Never lift, lower, or carry persons in the work equipment or attachments.
- Never install a man basket or a working platform to the machine.

Mechanical integrity

- 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 (ROPS, removable safety devices, soundproofing elements, mufflers, 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, including changes in the machine's working behavior, to your supervisor immediately!
- If the machine is behaving unpredictably, stop the machine immediately, lock it, and report the malfunction to the competent authority/person. Safety-relevant damage or malfunctions of the machine must be rectified immediately.

Driving on public roads

- When traveling on public roads, ways and places, observe all applicable traffic regulations. If necessary, make sure beforehand that the machine is in compliance with these regulations.
- When crossing underpasses, gates, bridges and tunnels, or when passing under overhead lines, make sure the clearance height and width are sufficient.

2.7 Trailering and Transport

Trailers

- Even though the dumper is equipped with towing gear, it is not a tractor and may not be used as such in difficult terrain.
- If the dumper is used on construction sites for towing trailers, weight the dump bucket with 25% of the payload. However, do not exceed the dumper's maximum payload with the combination of towed equipment and the weight in the dump bucket!
- Secure the towing pin of the towing gear with a split pin.
- Counterweights affect handling and the machine's steering capability.
- Use special care when coupling trailers, and couple them with the specially required devices only.
- Always secure trailers against unintentional movement.
- If optional equipment such as a trailer is installed, make sure that all lights and associated indicator lamps are installed and functional.

Transport

- The machine must be towed, loaded, and transported only in accordance with procedures described in this Operator's Manual.
- For towing the machine, observe the prescribed transport position, admissible speed, and itinerary.
- Make sure that the vehicle transporting the machine has a sufficient capacity and payload.
- Safely secure the machine on the transporting vehicle. Use the specified tie-down points.

2.8 Temperature Range

The machine may only be used between a maximum +45°C (113°F) and minimum -15°C (5°F). Contact your Wacker Neuson dealer if you intend to use the machine in other temperature ranges. Store the machine in a dry place at room temperature (about 15°C, or 59°F). Observing these temperature ranges will help to prolong the machine's service life.

2.9 Safety Guidelines for Maintenance

General maintenance notes

- Adhere to prescribed intervals or those specified in this Operator's Manual for routine checks/inspections and maintenance work.
- For inspection and maintenance work, ensure that all tools and workshop equipment are adapted to the task that must be performed.
- Replace hydraulic hoses within stipulated and appropriate intervals even if no safety-relevant defects have been detected.
- Make sure all consumables and replaced parts are disposed of safely and with minimum environmental impact.
- Always tighten any screws, electrical connections, or hose connections that may have been loosened during maintenance.

- Upon completion of the maintenance and repair work, immediately refit and check any safety devices removed for set-up or maintenance purposes.

Personal safety measures

- Brief the staff and the driver before beginning maintenance or repair work. Appoint someone to supervise the activities.
- Always work in groups of two. Both persons must be trained on 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 Maintenance section of this Operator's Manual.
- Always keep a safe distance from all rotating and moving parts, for example, fan blades, V-belt drives, PTO shaft drives, fans, etc.
- Before starting work on machine parts dangerous to life and limb (bruising, cutting), always ensure safe guarding/support of these areas.
- Apply special care when working on the fuel system due to the increased danger of fire.
- Engine block and exhaust system become very hot during operation and require cool-down time after machine is shut off. Avoid contact with hot parts. Wait for the machine to cool before touching components.
- Retainer pins can fly out or splinter when struck with force. Avoid striking the pins during operation, repair, or maintenance.
- Do not use starting fluid (for example, ether), especially in those cases in which a heater plug (intake air pre-heating) is used at the same time.

Preparing for maintenance and repair work

- Prior to carrying out repair and maintenance work, always attach a warning label such as "Repair work—do not start machine!" to the control elements as a precautionary measure.
- Observe the startup and shutdown procedures set forth in this Operator's Manual. This applies to any work concerning the operation, conversion or adjustment of the machine and its safety-oriented devices, or any work related to inspection and maintenance.
- Prior to carrying out assembly work on the machine, make sure no movable parts will roll away or start moving.
- Carry out maintenance work ONLY if:
  - the machine is positioned on firm and level ground
  - secured against unintentional movement
  - all hydraulically movable attachments and working equipment have been lowered to the ground
  - the engine is switched off
  - the ignition key has been removed
  - the pressure accumulator is empty
- Carry out maintenance work beneath a raised machine, attachments or additional equipment ONLY if a safe and secure support has been provided. The use of hydraulic rams or jacks as the sole method of support does NOT sufficiently secure raised machines or equipment/attachments!

Performing maintenance and repairs

- Observe the adjustment, maintenance and inspection activities and intervals set forth in this Operator's Manual, including information on the replacement of parts and partial equipment. These activities must be carried out only by qualified personnel.
- Disconnect the negative battery terminal when working on the electrical system.
- Do not allow the machine to be serviced, repaired, or test-driven by unauthorized staff.
- If maintenance with the engine running cannot be avoided, lower the dump bucket and apply the parking brake.
- Wear a safety harness when performing elevated maintenance work. Keep all handles, steps, handrails, platforms, landings, and ladders free from dirt, snow and ice.
- 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!
- Do not use the work equipment as lifting platforms for persons.
- In accordance with this Operator's Manual and instructions for the respective assembly, release the pressure in all system sections and pressure lines (hydraulic system) before carrying out any maintenance work.

2.10 Special Hazards

Battery

- In case of a frozen battery or of an insufficient electrolyte level, do not try starting the machine with battery jumper cables. The battery can burst or explode.
- Batteries contain caustic sulphuric acid. When handling the battery, observe the specific safety instructions and regulations relative to accident prevention.
- A volatile oxyhydrogen mixture forms in batteries during normal operation and especially when charging. Always wear gloves and eye protection when working with batteries.
- Starting the machine with a battery jumper cable can be dangerous if carried out improperly. Observe the safety instructions regarding the battery.

Tracks (Track dumpers)

- Repair work on the tracks must be carried out only by trained technical staff or by an authorized workshop.
- Defective tracks reduce the machine's operational safety. Therefore, check the tracks regularly for cracks, cuts or other damage.
- Check track tension at regular intervals.

Electric energy

- Use only original fuses with the specified current rating.
- In case of electrical system malfunctions, switch off the machine immediately, disconnect the battery (by using the battery master switch), and carry out troubleshooting procedures.
- 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 and attachments must be kept well away from them.

- If the machine comes into contact with a live wire:
  - Immediately drive the machine out of the danger area.
  - Warn others against approaching and touching the machine.
  - Do not leave the machine until the line that has been touched or damaged has been safely de-energized!
- Make sure that work on the electric system is carried out only by a technician with appropriate training, in accordance with applicable electrical engineering codes.
- Inspect and check the electrical equipment of the machine at regular intervals. Defects such as loose connections or scorched cables must be repaired immediately.
- Observe the operating voltage of the machine/attachments.
- Always remove the grounding strap from the battery when working on the electric system.

Hydraulics

- Check all lines, hoses, and screwed connections regularly for leaks and obvious damage. Repair any damage and leaks immediately. Leaking oil can cause injury and fire!

Noise

- Close all sound baffles during operation.
- Wear ear protection. This is especially important when performing hammer operations or working in enclosed areas.

MSDS

- When handling oil, grease, and other chemical substances such as battery electrolyte or hydraulic fluid, observe the product-related safety regulations (Material Safety Data Sheet: MSDS).

Tires (Wheel dumpers)

- Repair work on the tires must be carried out only by trained technical staff or by an authorized workshop.
- Defective tires reduce the machine's operational safety. Therefore, check the tires regularly for cracks, cuts or other damage.
- Check the tire pressure at regular intervals.

2.11 Safety Guidelines while using Internal Combustion Engines

WARNING

Internal combustion engines present special hazards during operation and fueling. Failure to follow the warnings and safety guidelines could result in severe injury or death.

☞ *Read and follow the warning instructions in the engine owner's manual and the safety guidelines below.*

Guidelines for running the engine

- Keep the area around exhaust pipe free of flammable materials.
- Check the fuel lines and the fuel tank for leaks and cracks before starting the engine. Do not run the machine if fuel leaks are present or the fuel lines are loose.
- Engine exhaust CAN KILL YOU IN MINUTES. Engine exhaust contains carbon monoxide. This is a poison you cannot see or smell. Never run the machine indoors or in an enclosed area such as a deep trench unless adequate ventilation, trough such items as exhaust fans or hoses, is provided.
- Do not smoke while operating the machine.
- Do not run the engine near open flames.
- Do not touch the engine or muffler while the engine is on or immediately after it has been turned off.
- Do not operate a machine when its fuel cap is loose or missing.
- Do not remove the radiator cap when the engine is running or hot. The radiator fluid is hot and under pressure, and may cause severe burns!

Guidelines for fueling the engine

When fueling the engine:

- Clean up any spilled fuel immediately.
- Refill the fuel tank in a well-ventilated area.
- Replace the fuel tank cap after refueling.

When fueling the engine:

- Do not smoke.
- Do not refuel a hot or running engine.
- Do not refuel the engine near an open flame.

3 Operation

This chapter describes the controls, and contains information on the function and handling of the indicators and controls on the control stand.

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

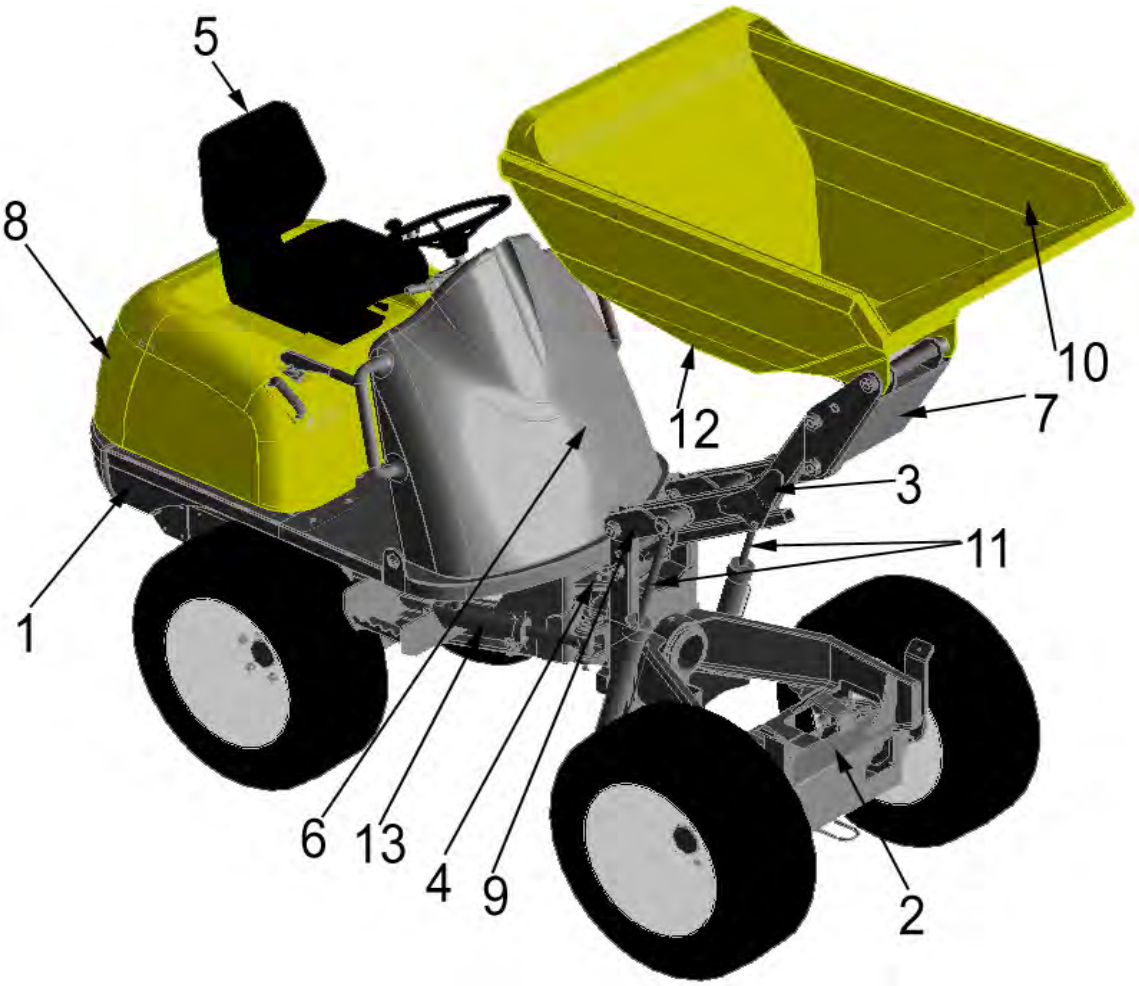
☞ *This symbol requires you to perform the activity described*

➥ Description of the effects or results of an activity

n. s. = not shown

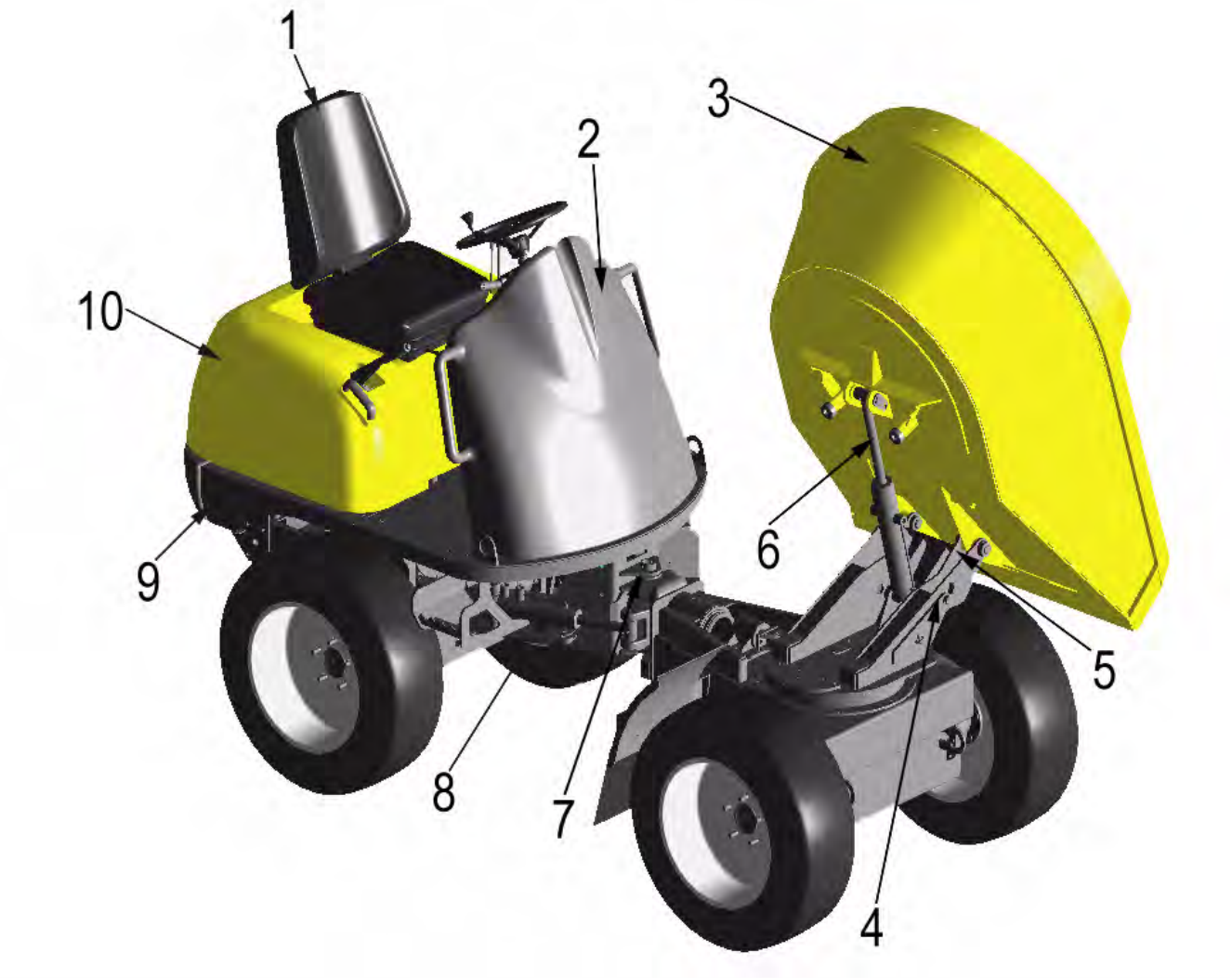
Opt = option

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



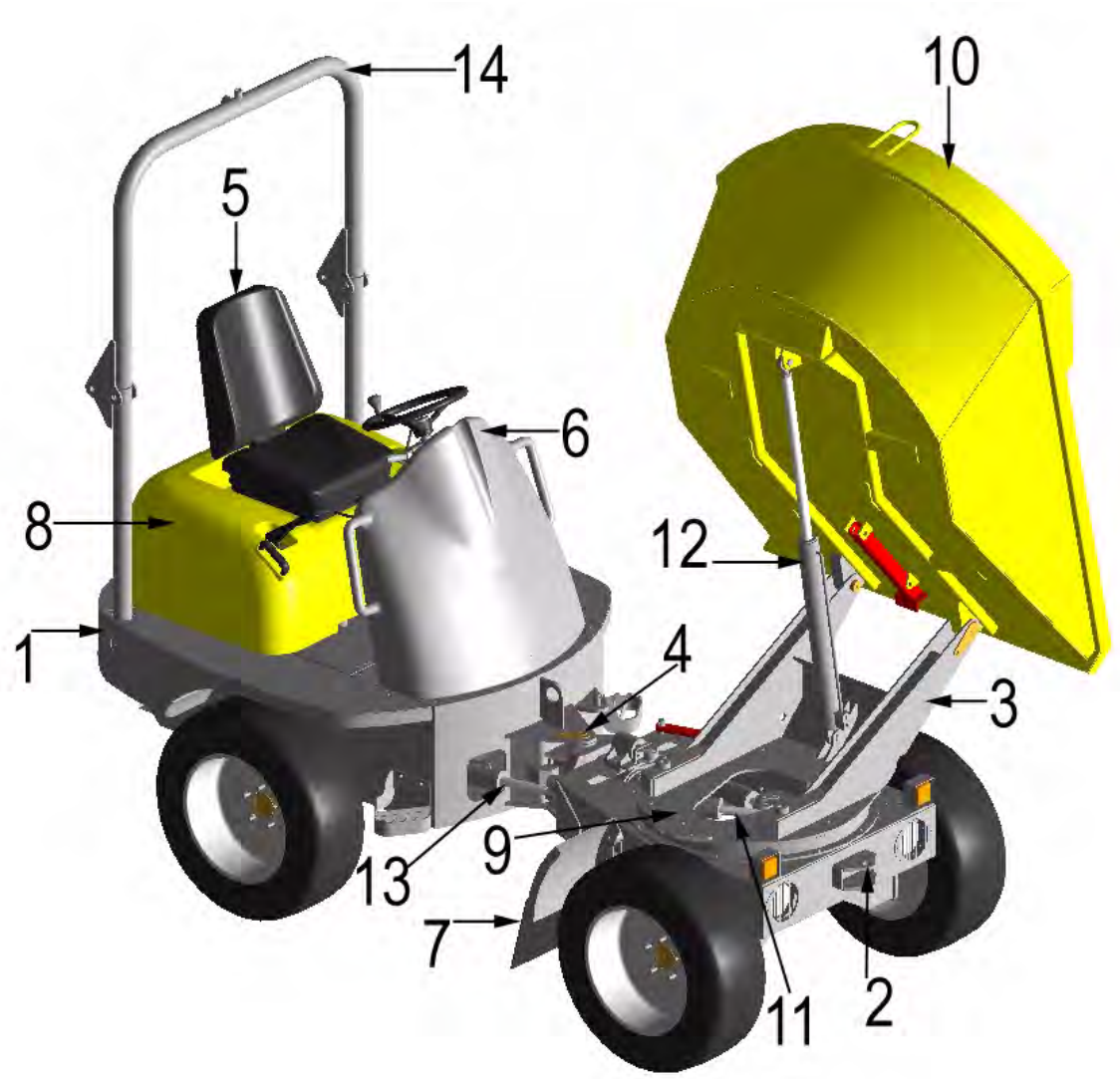
Description of 1001/1501 components (overview)

Pos.	Description
1	Rear chassis
2	Front chassis
3	Loader unit
4	Articulated joint
5	Seat
6	Control stand
7	Tilt console
8	Engine cover
9	Parallel lift
10	Dump bucket
11	Lift ram
12	Tilt ram (not shown)
13	Steering ram



Description of 1501S components (overview)

Pos.	Description
1	Seat
2	Control stand
3	Dump bucket
4	Swivel centring
5	Swivelling console
6	Tilt ram
7	Articulated joint
8	Steering ram
9	Rear chassis
10	Engine cover

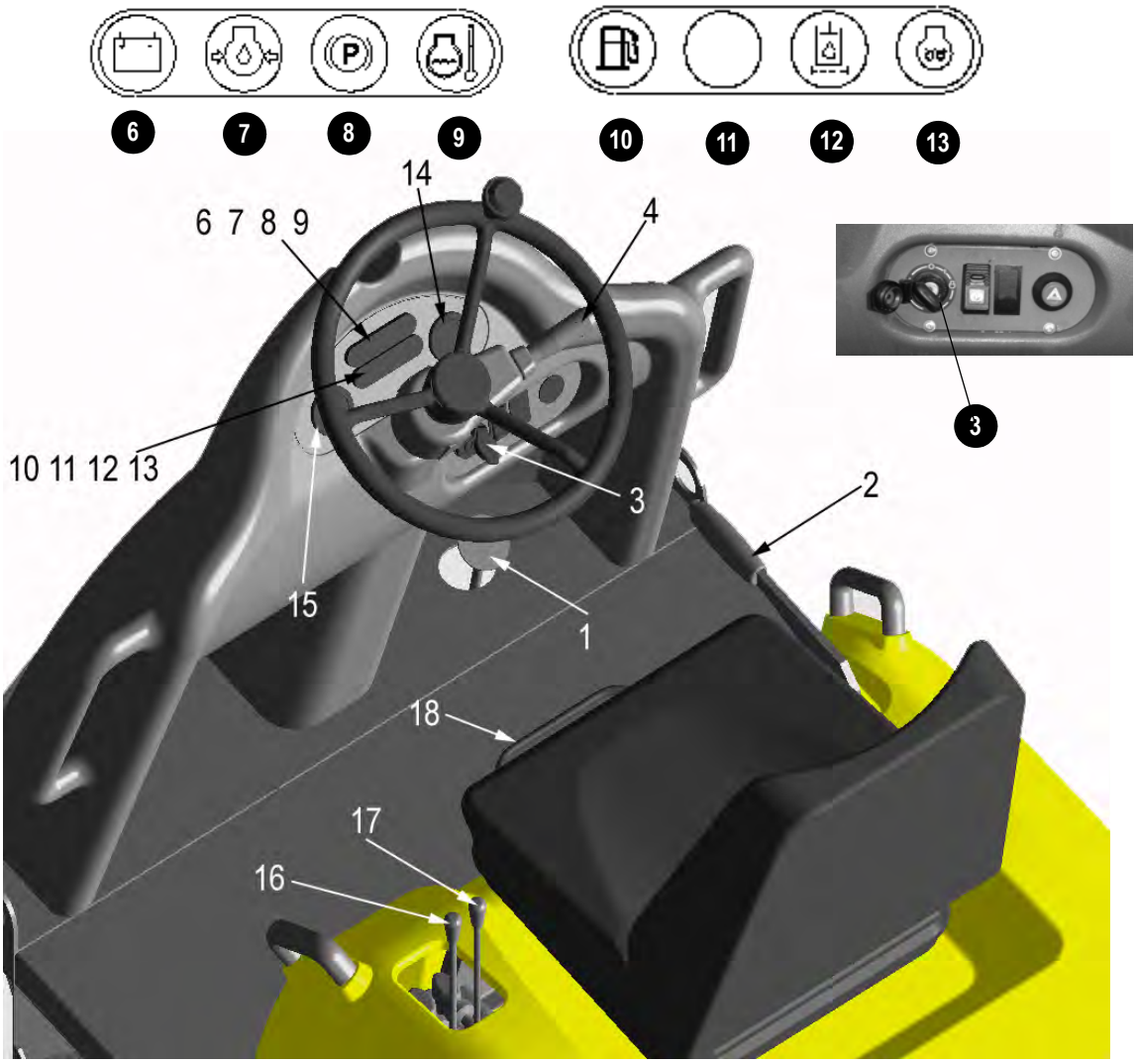


3.1 Description of 2001S components (overview)

Pos.	Description
1	Rear chassis
2	Front chassis
3	Swivelling console
4	Articulated joint
5	Seat
6	Control stand
7	Mudguard
8	Engine cover
9	Swivel centring
10	Dump bucket
11	Offset ram
12	Tilt ram
13	Steering ram
14	Rollbar

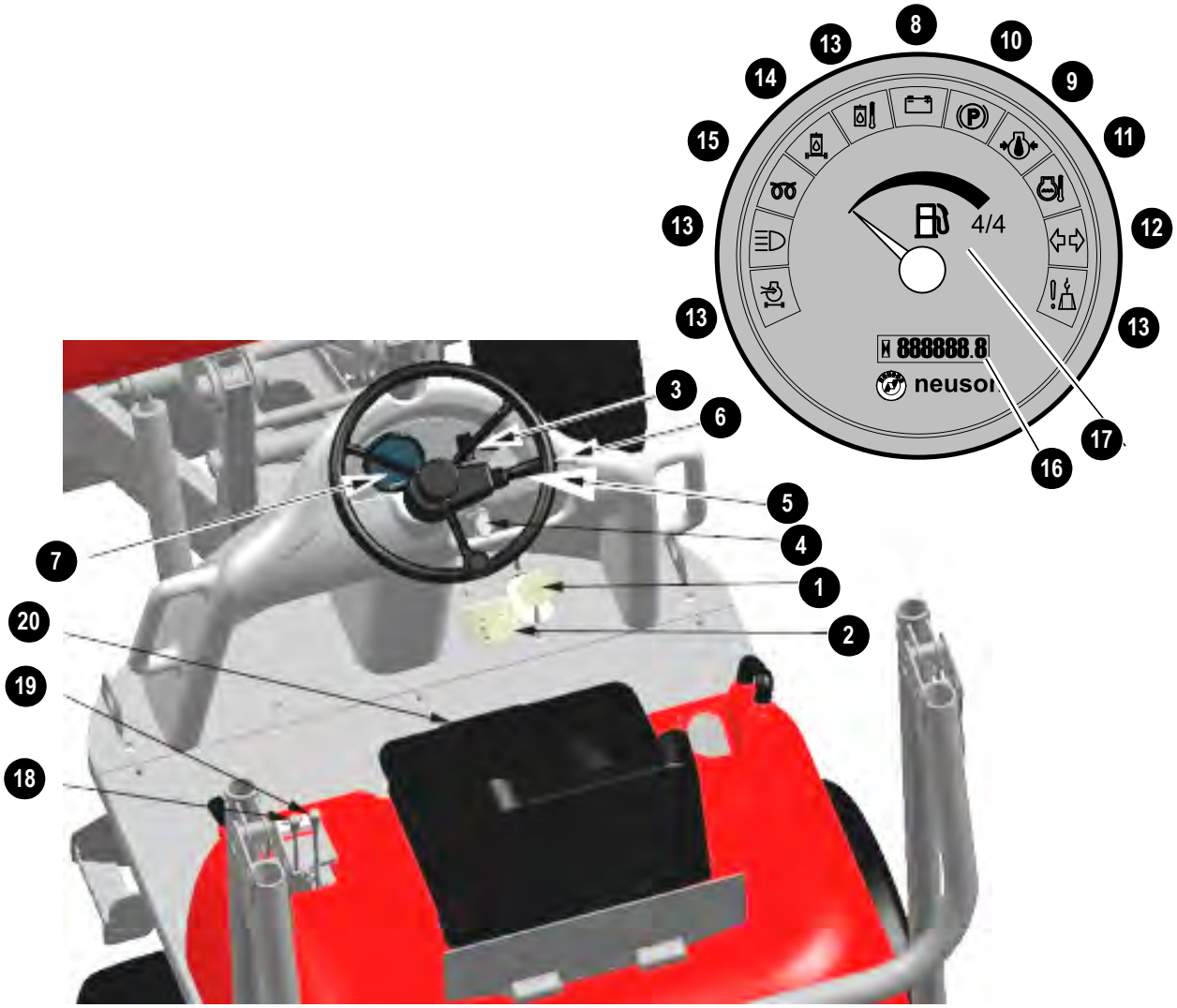
3.2 Description of 2001 SLE components

Pos.	Description
1	Lift frame
2	Lift ram
3	loader unit ram
4	Loader unit bucket
5	Fastening mount
6	Articulation (large)
7	Articulation (small)



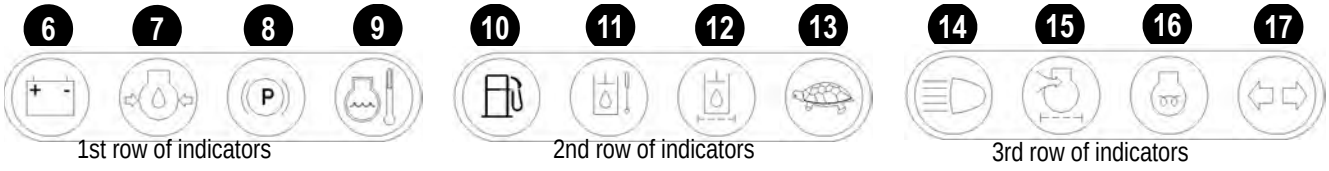
3.3 1001/1501/1501S operating equipment up to serial number AC ...

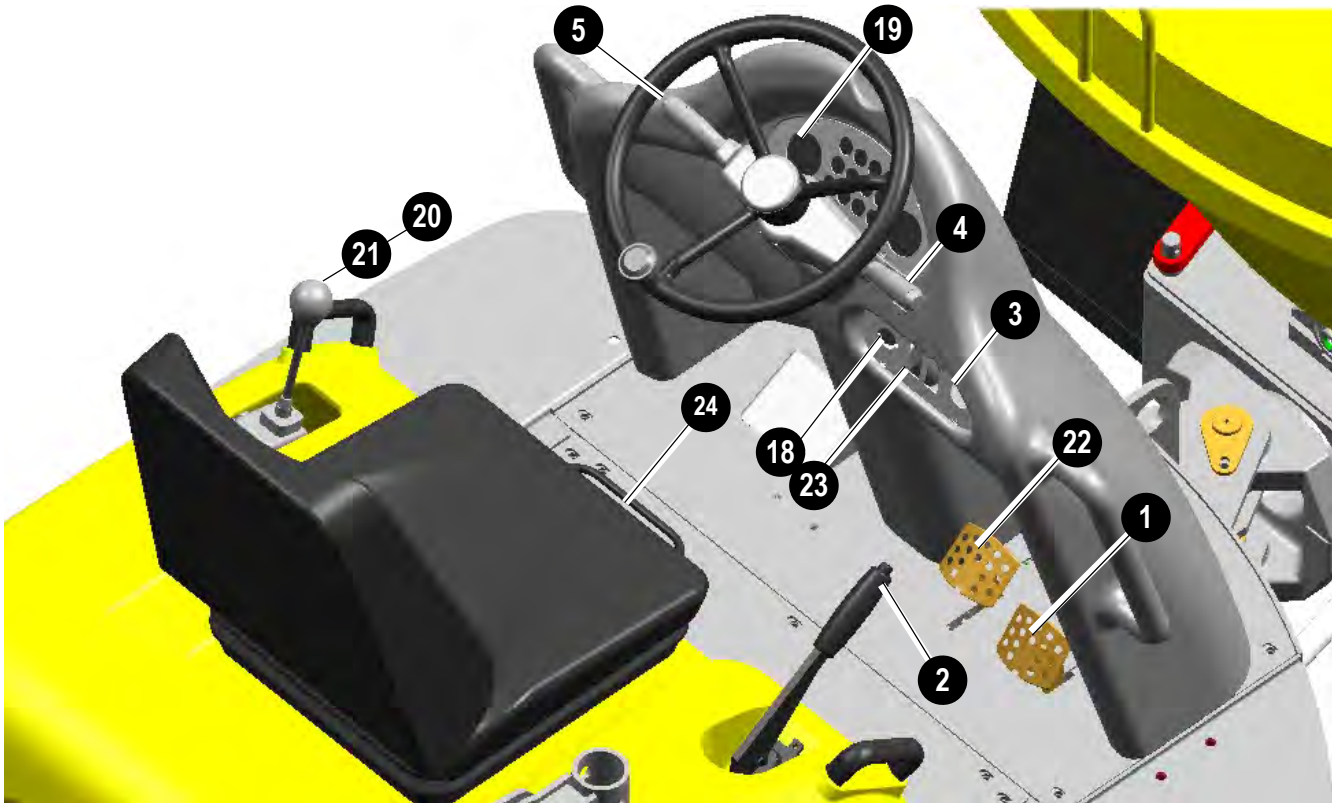
Pos.	Description	Pos.	Description
1	Accelerator pedal	14	Hour meter
2	Parking brake	15	Fuel level indicator
3	Starter lock	16	Lever “Dumping out/lowering the dump bucket”
4	Forwards-reverse control	17	Lever “Raising/lowering the dump bucket”
5	Horn	18	Bar for horizontal seat adjustment
6	Alternator charge indicator		
7	Engine oil pressure indicator		
8	Parking brake indicator		
9	Engine temperature indicator		
10	Spare fuel indicator		
11	Not assigned		
12	Hydraulic oil filter indicator		
13	Preheating indicator		



3.4 1001/1501/1501S operating equipment from serial number AB ...

Pos.	Description	Pos.	Description
1	Accelerator pedal	14	Hydraulic oil filter indicator
2	Service brake	15	Preheating indicator
3	Parking brake	16	Hour meter
4	Starter lock	17	Fuel level indicator
5	Forwards-reverse control	18	Lever “Dumping out/lowering the dump bucket”
6	Horn	19	Lever “Raising/lowering the dump bucket”
7	Indicator	20	Bar for horizontal seat adjustment
8	Alternator charge indicator		
9	Engine oil pressure indicator		
10	Parking brake indicator		
11	Engine temperature indicator		
12	Turn indicator indicator		
13	Not assigned		





3.5 2001/2001SLE operating equipment

Pos.	Description	Pos.	Description
1	Accelerator pedal	13	Not assigned
2	Parking brake	14	High beam indicator
3	Starter lock	15	Not assigned
4	Forwards-reverse control	16	Preheating indicator
5	Horn	17	Turn indicator indicator
6	Alternator charge function indicator	18	Hour meter
7	Engine oil pressure indicator	19	Fuel level indicator
8	Parking brake indicator	20	Lever for tilting/lowering the dump bucket
9	Engine temperature indicator	21	Lever: swivel dump bucket
10	Spare fuel indicator	22	Hydrostatic brake pedal
11	Not assigned	23	Light switch
12	Hydraulic oil filter indicator	24	Seat adjustment lever

3.6 Putting the machine into operation

Safety instructions

- Use footholds and handles to access and leave the machine
- Never use control elements as handles
- Never get on or off a moving machine! Never jump off the machine

Putting the machine into operation for the first time

Important information

- The machine may be put into operation by authorized staff only – *see chapter 2.5 Staff Qualifications and Basic Responsibilities* on page 2-4 and – *see chapter 2.6 Safety instructions Regarding Operation* on page 2-4 of this Operator's Manual.
- The staff must have read and understood this Operator's Manual before putting the machine into operation.
- The machine may only be used in serviceable 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 overload the machine, but at the same time do not drive too cautiously either, as the machine will never reach its proper operating temperature.
- Do not run the engine at high rpm for extended periods.
- Increase the load gradually while varying the engine revs.
- Strictly observe the maintenance schedules in the appendix.
  – *see chapter 5.16 Maintenance plan 2001: 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? (➠ *5-4*)	
2	Coolant level OK? (➠ *5-11*)	
3	Has water in the diesel prefilter been removed?(➠ *5-5*)	
4	Engine oil level OK? (➠ *5-8*)	
5	Oil level in hydraulic oil tank OK? (➠ *5-18*)	
7	V-belt condition and tension checked? (➠ *5-15*)	
8	Lubrication points greased? (➠ *5-40*)	
9	Have hydraulic hoses, connections and ram seals for leaks checked?	
10	Has position of battery terminalsfirmed?	
11	Tyres checked for cracks, cuts etc. ? (➠ *5-23*)	
12	Footholds clean?	
13	Engine cover locked with the buckle? (➠ *3-25*)	
14	Especially after cleaning, maintenance or repair work: ➥ Rags, tools and other loose objects removed?	
15	Correct seat position? (➠ *3-23*)	
16	Rollbar raised?	
17	Seat belt fastened? (➠ *3-24*)	

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	Indicators for engine oil pressure and alternator charge function gone out? (➠ *3-13*)	
3	Temperature indicators for engine coolant do not come on? (➠ *3-13*)	
4	Accelerator and brake pedals working correctly? (➠ *3-18*)	

Parking checklist

Check and observe the following points when parking the machine:

No.	Question	✔
1	Dump bucket lowered?	
2	Drive lever in neutral position?	
3	Parking brake applied?	
4	Ignition key removed?	
When parking on public roads:		
5	Machine adequately secured?	
When parking on slopes:		
6	Machine additionally secured with chocks under the wheels to prevent it from rolling away?	

3.7 Driving the dumper

Preheating/start switch: overview

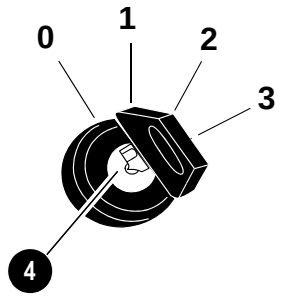


Fig. 1: Preheating start switch

Position	Function	Power consumer
0	Insert or remove the starter key	None
1	ON/drive position	All functions are operational ➥ indicators come on
2	Preheats the engine (10 – 15 seconds)	➥ Until the preheating indicator goes out
3	Starts the engine	➥ Starter is actuated ➥ Indicators must go out

Accelerator pedal: overview

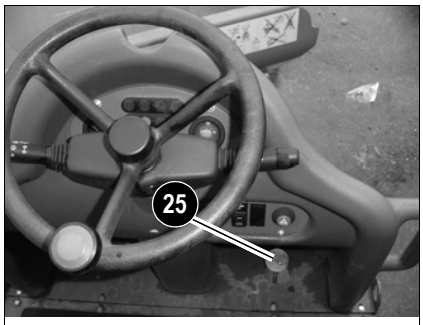


Fig. 2: Accelerator pedal

The accelerator pedal controls the engine speed as follows:

- Speed can be set with accelerator pedal 25

☞ Press down the accelerator pedal:

➥ Engine speed rises

☞ Reduce the pressure on the accelerator pedal:

➥ Engine speed is reduced

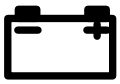
indicators and warning lights: overview

14 Indicator (red) – hydraulic oil filter

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

☞ *Have the hydraulic oil return filter checked and, if necessary, replaced by an authorized workshop.*

☞ *The indicator can come on briefly if the hydraulic oil is cold, but goes out again once operating temperature is reached.*



8 Indicator (red) – alternator charge function

NOTICE: The coolant pump no longer runs if the V-belt is faulty. Engine may overheat or break down.
If the indicator light comes on with the engine running:

☞ *Stop the engine immediately.*

☞ *Have the cause repaired by an authorized service center.*

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

9 Indicator (red) – engine oil pressure

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

☞ *Stop the machine*

☞ *Switch off the engine immediately and check the oil level*

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

11 Coolant temperature indicator (red)

WARNING

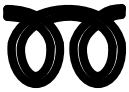
Burn hazard. The engine coolant is under pressure at high temperature. Failure to observe specific instructions to check the coolant level in the radiator of the cooling system can cause serious injury from burns or pressure spray of the coolant.

☞ *Do not attempt to remove the radiator filler cap or drain the radiator coolant until the coolant temperature is less than 43°C (110°F).*

☞ *Stop the engine and wait at least 10 minutes or until the cap is comfortable to the touch before attempting removal.*

☞ *Wear protective gloves and eye protection.*

☞ *After determining the temperature is low enough to avoid burns, slowly turn the cap counterclockwise to the first notch stopping cap rotation. Wait to confirm that any pressure has been relieved. Depress the cap and continue to rotate the cap in a counterclockwise motion until the cap is free and can be removed.*



15 Preheating indicator (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.

The indicator goes out as soon as preheating temperature is reached (15 – 20 sec)

13 Not assigned

10 Parking brake indicator (red)

Comes on if the parking brake is applied.
In this case:
☞ *Actuate lever **2** to release the parking brake*

High beam indicator (blue)

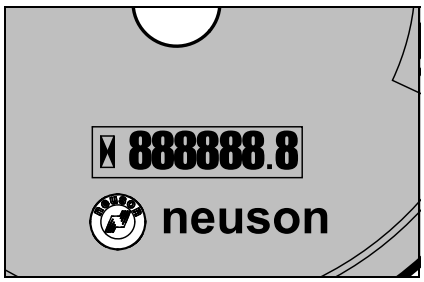
Comes on if high beam is on.

CAUTION

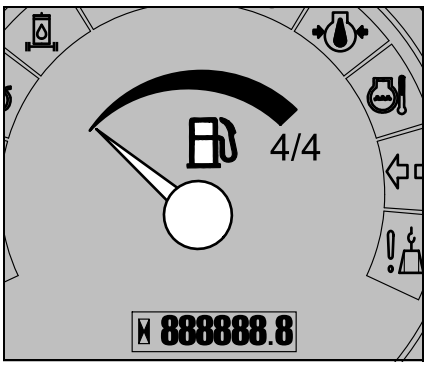
Make sure no other road users are blinded by lights.
☞ *Switch on low beam when other road users are nearby.*

12 Turn indicator indicator (green)

Flashes if the turn indicators are switched on



16 Hour meter
Counts the machine service hours when the engine is running



17 Fuel level indicator

Refuel immediately if the fuel level indicator reaches minimum. Otherwise the fuel system must be bled if it is run dry.

Before starting the engine

☞ *Adjust your seat position – see Seat adjustment on page 3-23*

Important

All controls must be within easy reach. You must be able to press the accelerator and brake pedals to their limit positions!

☞ *Fasten your seat belt – see Seat belt on page 3-24*

- Do not fasten your seat belt if the rollbar is not raised!

☞ *Check whether all levers and pedals are in neutral position*

☞ *Press the accelerator pedal to the center 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).
  - the drive lever is not in neutral position,
  - the parking brake is not applied.
- Do not run the starter for more than 10 seconds
- Wait about 1 minute so the battery can recover before trying again

Procedure

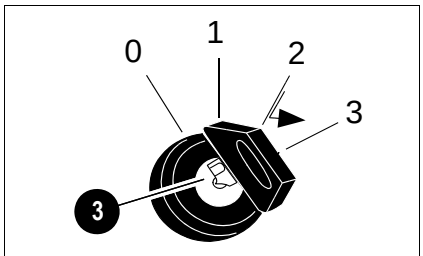


Fig. 1: Preheating/start switch

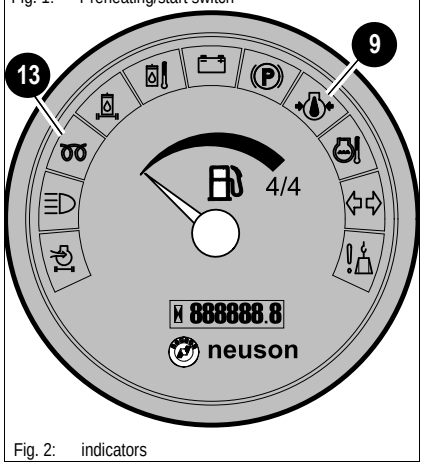


Fig. 2: indicators

After you have completed the starting preparations:

☞ *Insert the starter key into the preheating/start switch **3.***

☞ *Turn the starter key to position "1".*

☞ *Check whether the following indicators come on:*

➥ indicator **9** for engine oil pressure.

➥ indicator **13** for alternator charge function.

☞ *Replace defective indicators immediately.*

☞ *Turn the starter key to position "2" and hold it in this position until the preheating indicator goes out.*

☞ *Turn the starter 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 1 minute.

➥ If the engine still does not start after the second try.

☞ Contact a Wacker Neuson service center for troubleshooting.

➥ As soon as the engine runs:

☞ *Release the starter key.*

When the engine runs smoothly (increased engine speed):

Important

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 indicators have gone out:*

☞ *Let the engine warm up*

At cold temperatures:

☞ *Increase the engine rpm slowly*

☞ *Do not run the engine at full load until it has reached its operating temperature*

Engine warm-up

Once it has started, let the engine warm up at slightly increased idling rpm. Run the engine without load during the warm-up phase (drive lever in neutral position). During the warm-up phase, check for unusual noise, muffler color, 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

WARNING

Explosion hazard. A frozen battery may explode during a jump-starting operation.

☞ *Do not jump-start the engine if the battery is frozen.*

☞ *Dispose of the frozen battery in accordance with local environmental regulations.*

☞ *Replace the battery.*

CAUTION

Possibility of equipment damage or injury from improper jump-starting.

☞ *Make sure the jumper cables are rated for 12V and the maximum CCA rating of the battery.*

☞ *The cable clamping ends shall be colored red for positive post connectors, and black for the negative post connectors.*

☞ *To avoid sparking, the excavator must not touch the jump-starting vehicle when connected with jumper cables.*

☞ *Use a 12V source, either in the form of another battery or a charger equipped for jump starting. Using higher or lower voltage sources can damage the electrical system and potentially cause injury.*

☞ *To avoid short circuits, the jumper cable connected to the positive* **+** *terminal of the starting battery must never be brought into contact with electrically conductive vehicle parts.*

☞ *Route the jumper cables so they do not become entangled in rotating components in the engine compartment.*

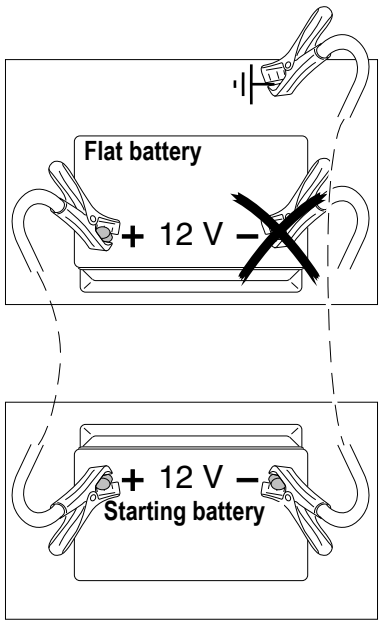


Fig. 3: Starting aid with jump leads

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 fimly 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!*

Special instructions for traveling 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.

Moving off

Important

Before pressing accelerator pedal **1**, verify that the surrounding area is clear and that the machine is in the proper gear (forward or reverse).

☞ *Make sure that the surrounding area is clear.*

☞ *Verify that the machine is in the proper gear (forward or reverse).*

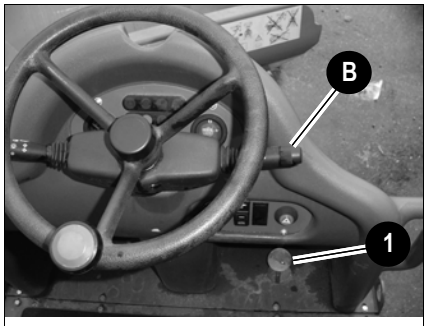


Fig. 4: Moving off

- Accelerate slowly.
- The travel direction is selected by using the drive lever **B.**

☞ *Select the required travel direction forward or reverse.*

☞ *Start machine travel by pressing accelerator pedal **1.***

☞ *The dumper brakes automatically to a standstill when releasing the accelerator pedal. Press and release the accelerator pedal slowly to avoid jerky movements of the dumper.*

☞ *Press the hydrostatic brake pedal **27** to brake the machine quickly (fig. 25).*

☞ *Apply the parking brake to park the dumper on slopes.*

NOTICE: Possible transmission damage. Do not change the driving direction while the machine is moving.

☞ *Bring the machine to a complete stop before changing the driving direction.*

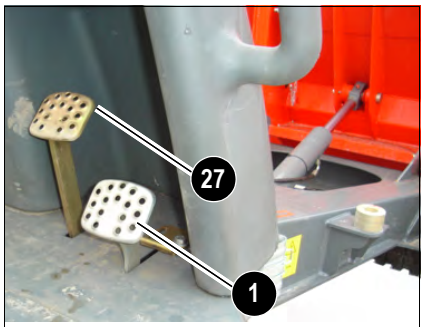


Fig. 5: Accelerator pedal

- Selecting another driving direction with the drive lever:

☞ *Stop the machine by relaising the accelerator and pressing the brake pedal **27**.*

☞ *Select the opposite travel direction with the drive lever.*

☞ *Start machine travel by pressing accelerator pedal **1** accelerate slowly here.*

Accelerator pedal ***1*** sets the engine speed. During travel operation, the machine accelerates as the engine speed increases. During dump bucket operation, the dump bucket dumps in or out more rapidly as engine speed is encreased.

Function	
Press the pedal	Engine speed rises
Reduce the pressure on the pedal	Engine speed is reduced
Release the pedal	Idling speed

The forward or reverse drive speed depends on the position of accelerator pedal.

Hydraulic brake

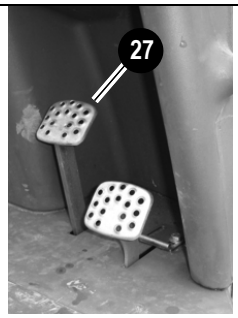


Fig. 6: Brake pedal

Hydrostatic drive.

Service brake ***2*** has its effect on the hydrostatic drive. The hydraulic parking brake in the rear wheel motors is enabled when pressing the brake pedal to the end position (2001: in the front wheel motors)

Important

Use service brake ***2*** on slopes to slow down the machine as required.

Mechanical brake

Fig. 7: Parking brake 1001/1501

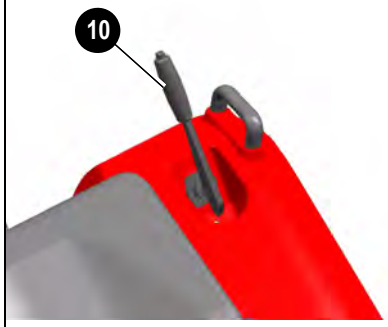


Fig. 7: Parking brake 2001

Parking brake with mechanical braking effect on the front axle.

Press parking brake ***3*** forwards to release it.

Important

Hitting parking brake ***2*** with your hand to release it can damage the lever!

Pull up the lever to apply parking brake ***10***.

3.12 Hazard warning system

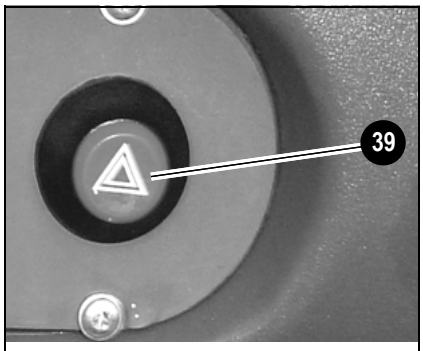


Fig. 8: Hazard warning system

Pressing switch **39** switches the hazard warning system on and off.

3.13 Driving on slopes

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

Specific safety instructions

☞ *Lower the dump bucket when driving the machine.*

☞ *Also drive in low speed on slopes!*

☞ *When driving the machine, make sure you can stop safely if the machine starts to skid or if it becomes unstable.*

☞ *Avoid swivelling the dump bucket when travelling on slopes, otherwise the machine can lose its balance and tip over.*

➥ When operating on a slope, only dump the dump bucket when the machine is facing uphill.

☞ *Do not drive across slopes steeper than 20 % otherwise the machine can tip over laterally.*

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

Driving on slopes with a loaded dump bucket

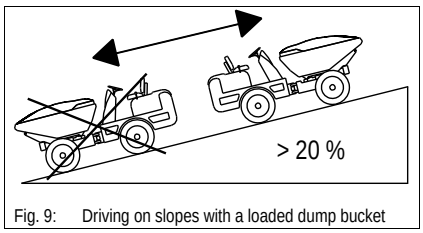


Fig. 9: Driving on slopes with a loaded dump bucket

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

☞ *When driving on slopes (> 20 %) with a loaded dump bucket, the dump bucket must always face uphill since the heavier part of the machine – in this case the load in the dump bucket – must face uphill to prevent the machine from tipping over.*

Driving on slopes with an empty dump bucket

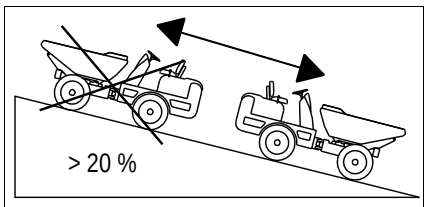


Fig. 10: Driving on slopes with an empty dump bucket

☞ *When driving on slopes (> 20 %) with an empty dump bucket, the dump bucket must always face downhill since the heavier part of the machine – in this case the engine – must face uphill to prevent the machine from tipping over.*

Driving across slopes

☞ *Do not drive across slopes with lateral inclinations steeper than 20 %!*

☞ *When driving across slopes with lateral inclinations up to 20 %, dump out the dump bucket only uphill for reasons of safety.*

WARNING

Tip-over hazard. Soft or uneven ground may affect machine stability while driving across slopes.

☞ *Pay special attention to the ground conditions while driving across slopes.*

☞ *Drive across slopes with inclinations of 20 % only when the ground is firm.*

Parking the machine

CAUTION

Possibility of inadvertent machine movement. To avoid unintentional movement of the machine once it has been parked:

☞ *Park the machine on level, stable ground.*

☞ *Stop the machine.*

☞ *Move drive lever **A** to neutral position.*

☞ *Lower the dump bucket.*

☞ *Apply the parking brake.*

☞ *Switch off the engine.*

☞ *If parking the machine on a slope cannot be avoided, place wheel chocks under the wheels to make sure the machine will not roll away under its own weight.*

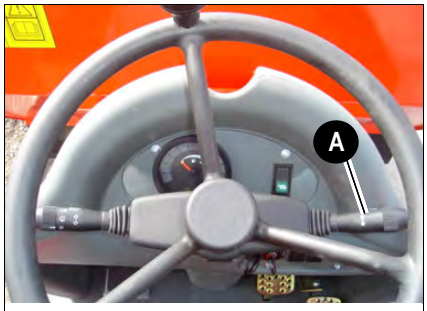


Fig. 11: Neutral

NOTICE: Never stop the engine under full load, otherwise it can be damaged due to overheating.

☞ *Let the engine briefly run at idling speed with no load before you stop it.*

Important

Secure the machine against unauthorized operation.

- Remove the key.

Loading the machine

WARNING

Crushing hazard.

☞ *Stay clear of the machine as it is being loaded.*

NOTICE: Incorrect loading causes severe damage to the machine.

☞ *Make sure the payload is not exceeded.*

☞ *Make sure the operator's visibility is not impaired.*

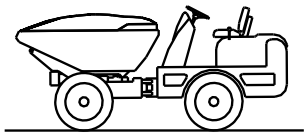


Fig. 12: Loading the machine

- Before loading:

☞ *Select the neutral position with the drive lever.*

☞ *Lower the dump bucket.*

☞ *Apply the parking brake.*

☞ *Stay clear of the control stand and of the danger area for reasons of safety.*

- Once loading is over:

☞ *Remove dirt, debris, dust etc. from the control elements.*

☞ *Remove loose material.*

3.14 Seat adjustment

CAUTION

Possible loss of machine control while adjusting the seat.

☞ *Never change the seat position during machine operation or travel.*

☞ *Adjust the seat before moving the machine.*

☞ *– see Before starting the engine on page 3-15.*

Weight adjustment

Important

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

Fig. 13: Weight adjustment

To adjust to a higher weight:

☞ *Turn the adjusting wheel to the right.*

To adjust to a lower weight:

☞ *Turn the adjusting wheel to the left.*

The specified weight is indicated by the yellow pointer next to the adjusting wheel.

Horizontal adjustment

Fig. 14: Horizontal seat adjustment

☞ *Sit down on the seat*

☞ *Pull lever 33 upwards and at the same time.*

☞ *Move the seat forwards or backwards.*

Backrest adjustment

Fig. 15: Backrest adjustment

☞ *Pull lever **29** up and at the same time press against the backrest to move it to the required position.*

☞ *Let lever **29** lock into place.*

3.15 Seat belt

WARNING

Personal injury hazard. The seat belt provides positive support in the operator seat during operation and travel and keeps the operator located within the comfort zone for control operation. The seat belt also reduces the risk of injury in the event a tipping incident occurs during use.

☞ *Always 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 with one seat belt.*

☞ *Never operate the machine with the ROPS in the folded position.*

☞ *Check seat belts each time the operator uses the machine. Have damaged parts immediately replaced by an authorized workshop before using the machine.*

☞ *Always keep the seat belt and buckle clean, as dirt and debris can cause the buckle to malfunction and accelerate internal webbing abrasion in the belt.*

☞ *Seat belt buckle must not be obstructed by foreign bodies (paper or similar); otherwise the buckle latch cannot lock into place!*

WARNING

Personal injury hazard. The seat belt strap will be stretched after an accident and is no longer serviceable.The seat belt will NOT provide adequate protection in the future!

☞ *Replace the seat belt after an accident.*

☞ *Have fastening points and seat fixture examined for damage or failure. Repair or replace if damaged.*

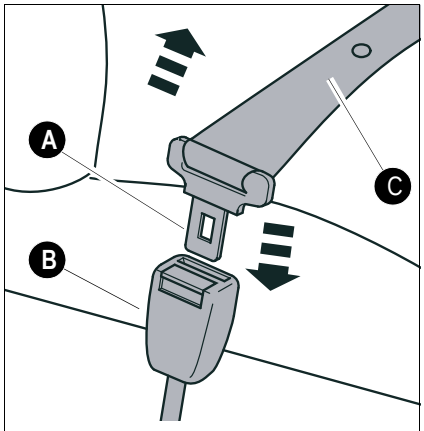


Fig. 16: Fastening the seat belt

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

Fastening the seat belt:

☞ *Fasten seat belt C as follows before operating 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).**

Important

Fasten the seat belt only if the rollbar is raised.

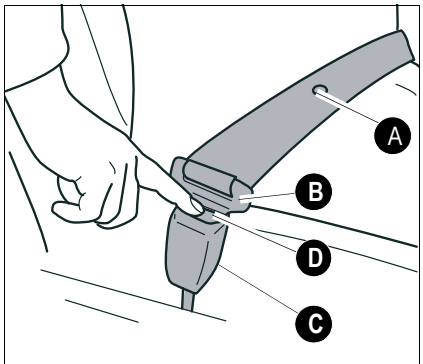


Fig. 17: Unfastening the seat belt

Unfastening the seat belt:

☞ *Unfasten seat belt A as follows:*

- Hold the seat belt.
- Press red button **D** on buckle **C.**

  ➥Latch **B** is released from buckle **C** by spring pressure.
- Slowly return the seat belt to the retractor.

Engine cover

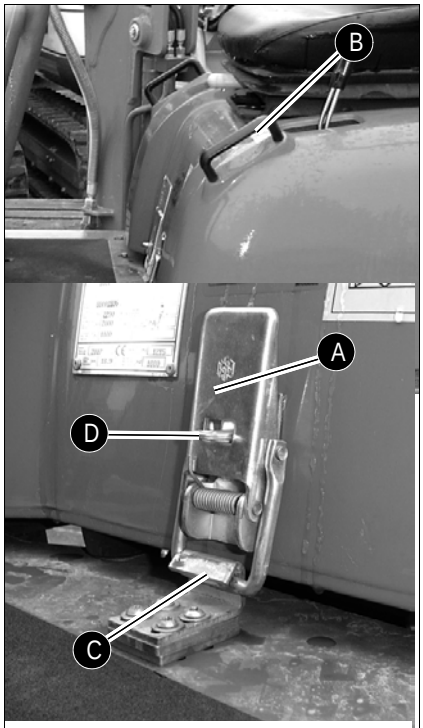


Fig. 18: Engine cover lock

Opening:

☞ *Stop the machine.*

☞ *Let the engine cool down.*

☞ *Press buckle A of the engine cover downwards and pull shackle **C** to the front.*

☞ *Pull the engine cover up with handle **B.***

Closing:

☞ *Press down the engine cover.*

☞ *Press buckle **A** forwards and hitch shackle **C** into the hook at the same time.*

☞ *Press lock A to the rear.*

Locking and unlocking:

The engine cover can be locked with an external lock in eyelet **D.**

Important

Do not lock the engine cover during machine operation!
The emergency switch is located underneath the engine cover!

3.16 Working with the machine

General safety instructions

- Avoid traveling near the edge of an excavation.
- Do not drive underneath projecting earth. Stones or the projecting earth can fall onto the machine.
- 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.
- Operation of the machine by unqualified operators is prohibited!
- 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.
- Before dumping out the dump bucket next to an excavation, secure the machine with suitable wheel chocks or other auxiliary means.
- Always watch the material as you dump out the dump bucket: make sure the material is dumped out evenly and does not remain stuck in the dump bucket, otherwise the machine could tip over
- Do not dump the load when working on sloping ground.
- No transporting of persons, animals etc. in the dump bucket.
- Always make precise and smooth control movements, not abrupt movements.
- Do not get on or off the machine when it is moving.
- Avoid dangerous work conditions on the work site, do not work in severe weather and make sure no-one is at risk.
- Always fasten your seat belt when working with machines with rollover protection structures.

3.17 High-tip dump bucket operation (1001 + 1501H + 1501S)

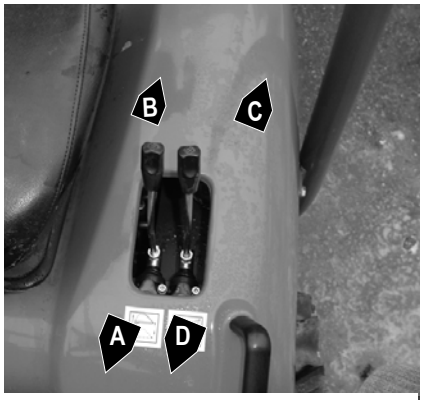


Fig. 19: Dumping in and out (1001/1501H)

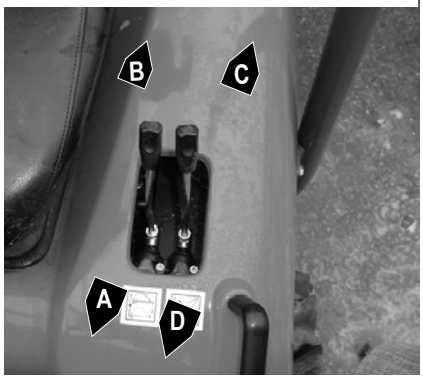


Fig. 19: Dumping in and out 1501S

CAUTION

Do not drive the machine with a raised dump bucket.

☞ *Make sure the dump bucket is completely lowered before driving the machine.*

The working speed of the dump bucket is set with the bucket of the control lever and the accelerator pedal.

NOTICE: Lowering the dump body too rapidly and knocking it against the chassis can cause machine damage

WARNING

Crush hazard. Lowering the dump bucket rapidly can cause the machine to tip over.

☞ *Do not lower the dump bucket rapidly*

When dumping into a pit:

- Always be certain the ground around the pit can support the weight of the machine and the load.
- Always place the forward-reverse control in the neutral position.
- Always use a seconary means of braking such as a beam to cock the front wheels.

Set the dump bucket to the required position before dumping out the dump bucket.

High-tip dump bucket operation (1001 + 1501H)

Position	Lever	Function
A	☞ *Lever forwards*	➥ Raises the dump bucket
B	☞ *Lever pulled backwards*	➥ Lowers the dump bucket
C	☞ *Lever to the left*	➥ Dumps in the dump bucket
D	☞ *Lever to the right*	➥ Dumps out the dump bucket

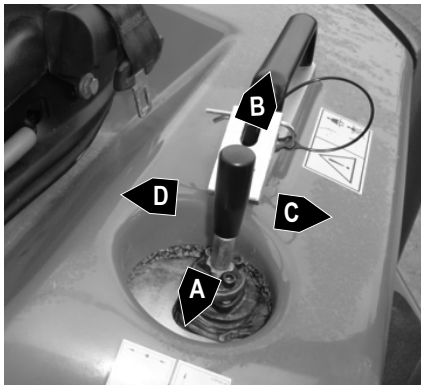
High-tip dump bucket operation (1501S)

Position	Lever	Function
A	☞ *Lever forwards*	➥ dump bucket swivels to the left
B	☞ *Lever pulled backwards*	➥ dump bucket swivels to the right
C	☞ *Lever to the left*	➥ Dumps in the dump bucket
D	☞ *Lever to the right*	➥ Dumps out the dump bucket

- The control levers for dump bucket operation (raising, lowering, swivelling, dumping in and out) are at the left of the seat.
- Swivel and empty the dump bucket only on a level surface, in straight-ahead position of the dumper

  ➥ See label on the right on the dump bucket.

3.18 Swivel dump bucket operation



Important

Do not drive the machine with a raised dump bucket.
The working speed of the dump bucket is set with the bucket of the control lever and the accelerator pedal.
Material that sticks in the dump bucket, shall be dumped out only to the front in the straight-ahead position of the dumper.

NOTICE: Lowering the dump body too rapidly and knocking it against the chassis can cause machine damage

WARNING

Crush hazard. Lowering the dump bucket rapidly can cause the machine to tip over.

☞ *Do not lower the dump bucket rapidly*

When dumping into a pit:

- Always be certain the ground around the pit can support the weight of the machine and the load.
- Always place the forward-reverse control in the neutral position.
- Always use a seconary means of braking such as a beam to cock the front wheels.

- The control levers for dump bucket operation (raising, lowering, swivelling, dumping in and out) are at the left of the seat.
- Swivel and empty the dump bucket only on a level surface, in straight-ahead position of the dumper

  ➥ See label on the right on the dump bucket.

Swivelling the dump bucket:

Before swivelling the dump bucket, press the lever forwards to raise it until the lock cog is raised from the lock recess.

The dump bucket can then be swivelled.

➥ Normal position of the dump bucket is the position in which the dump bucket is in center position and in which the lock cog engages in the lock recess.

Position	Lever	Function
A	☞ *Lever forwards*	➥ Dumps out the dump bucket
B	☞ *Lever pulled backwards*	➥ Lowers the dump bucket
C	☞ *Lever to the left*	➥ dump bucket swivels to the left
D	☞ *Lever to the right*	➥ dump bucket swivels to the right

3.19 Loader unit (2001 SLE)

Fig. 20: Loader Unit

The loader unit has been designed for raising loose material up to 300 kg. The 2001 SLE is not suitable for excavating or pushing heavy material.
When using the 2001 SLE,
bear in mind the following points:

☞ *Dump bucket must be lowered when loading.*

☞ *• Always lower the loader unit before dumping out or rotating the dump bucket.*

☞ *• Do not use the loader unit on slopes.*

☞ *• Other persons must stay clear of the dumper during work*

☞ Loader unit bucket *must be in a horizontal position when pushing or picking up material (see mark on bucket ram).*

☞ *• Dumper must be in a straight position when pushing or picking up material (no steering).*

☞ *• Never use the loader unit as a crane.*

☞ *Lower the loader unit bucket onto the dump bucket when driving the dumper.*

NOTICE: Possible equipment damage if the loader unit strikes the dump bucket.

☞ *Load material only with the dump bucket and the dumper in a straight position.*

Loader unit bucket teeth towards the rear side of the dump bucket.
Avoid dumping out the loader unit buckettoo fast otherwise the material can be thrown beyond the dump bucket.
Empty the loader unit bucket slowly (lever to the left)! Check whether the loader unit is lowered before rotating the dump bucket. The dump bucket can be dumped out to the right or left, or to the front through the lowered arms of the loader unit.
Avoid dumping material onto the loader unit.
Raise the loader unit bucket only with the dump bucket in a lowered and straight position.

- For light grading work, empty the dump bucket and rotate it to the side if it is not required for working. This gives you good visibility of the bucket. Reverse when grading, and press and hold the lever downwards and to the front (no float position).
- The transfer unit bucket has not been designed for transporting material. No excavating!
- The transfer unit bucket of the 2001 SLE is not comparable with a wheel loader bucket.

3.20 Information on working with the loader unit (if equipped)

- The loader unit bucket is no earthmoving tool! Load only bulk material. The loader unit has not been designed for higher forces.
- Always engage 1st speed and do not steer the wheels when driving against a pile of material. Always move the loader unit bucket flat on the ground before picking up material.
- When penetrating a pile with the loader unit bucket, make sure it is level (lever to the left). Avoid spinning the wheels: this can cause damage to the drive, or the wheels to dig into the ground on loose ground.
- Raise the loader unit bucket out of the material (lever to the rear). If there is too much material in the loader unit bucket, reverse a little to remove a little material from the bucket. Raise the bucket until you can see it over the front edge of the dump bucket.
- Avoid losing material by carefully dumping out the loader unit bucket (lever to the right) and by raising the whole loader unit at the same time (lever diagonally to the rear right).
- Keeping the loader unit bucket in a parallel position requires a little practice.

3.21 Rollbar

Fig. 21: Rollbar

CAUTION

Personal injury hazard. The rollbar is very heavy and should not be raised or lowered by one person.
☞ *Two persons are required for raising or lowering the rollbar.*

Important

Fasten the seat belt only if the rollbar is raised.

Raising up the rollbar:

☞ *Place the machine on level ground.*

☞ *Raise the rollbar with help of a second person.*

☞ *Fasten the rollbar with lock pins **A** and secure these pins with split pins.*

Lowering the rollbar:

☞ *Place the machine on level ground.*

☞ *Remove the split pins from lock pins **A.***

☞ *Remove lock pins **A.***

☞ *Slowly and carefully lower the rollbar with the help of a second person.*

3.22 Towing 1001/1501/1501 S/2001

NOTICE: Improper towing can damage the machine. To tow the dumper:

☞ *Open the high-pressure circuit on the hydrostatic pump.*

☞ *Release the hydraulic parking brake on both rear wheel motors.*

Opening the high-pressure circuit 1001/1501/1501 S

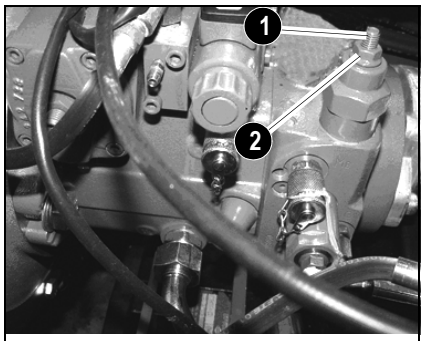


Fig. 22: Opening the high-pressure circuit

On the left on the pump under the floor panel, there are two HP pressure limiting valves, one on the upper left and the other on lower left.
Proceed as follows:

☞ *Slacken locknut w/f 14 (part 2) and unscrew it to the end of the screw.*

☞ *Screw in the screw with an allen key w/f 4 (part 1) until you can feel a firmer resistance.*

Then screw in a further half revolution.

NOTICE: Tightening the screw any farther will damage the valve.

☞ *Retighten the locknut*

☞ ** You can now slowly tow the machine (max. 2 kmh / 1.2 mph) over a short distance (max. 1 km / 0.6 miles) Then put the valves back into operation again.*
Proceed in the reverse order to do this (unscrew the screw as far as it will go)

3.23 Releasing the hydraulic parking brake 1001/1501/1501 S

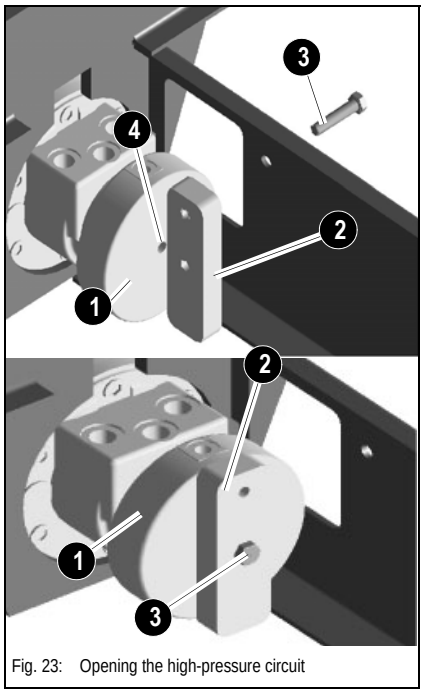


Fig. 23: Opening the high-pressure circuit

☞ *Remove both extraction units (2) mounted on the rear axle body to release the hydraulic parking brake (1). Remove hexagon head screw (3) M12x35 (w/f 19) to this effect.*

☞ *Remove the plastic plugs (4) in the middle on the face of the wheel motors.*

☞ *Place the extraction unit on the face of the wheel motor and fasten it with screw M12x35.*

☞ *Tighten the screw to 42 Nm / (31 lbf ft) until the wheel turns freely*

3.24 Opening the high-pressure circuit 2001

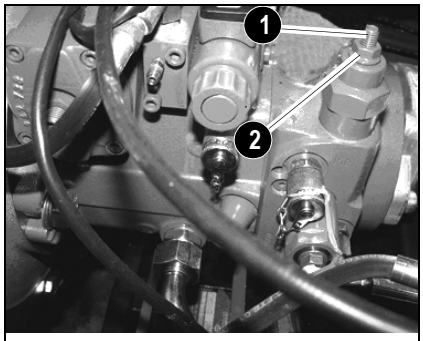


Fig. 24: Opening the high-pressure circuit

There are two HP pressure limiting valves on the pump under the floor panel, one on the upper left and the other on lower left.

Proceed as follows:

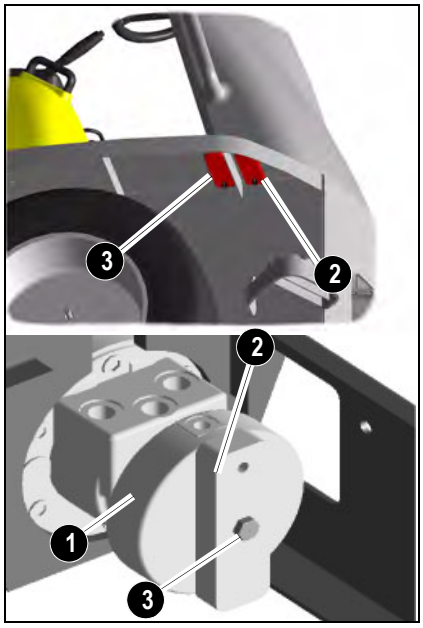
☞ *Slacken locknut w/f 14 (part 2) and unscrew it to the end of the screw*

☞ ** Screw in the screw with an allen key w/f 4 part 1 until it is flush with the nut*

☞ ** Retighten the locknut*

☞ ** You can now slowly tow the machine (max. 2 kmh / 1.2 mph) over a short distance (max. 1 km / 0.6 miles) Then put the valves back into operation again. Proceed in the reverse order to do this (unscrew the screw as far as it will go)*

3.25 Releasing the hydraulic parking brake 2001



☞ *Remove both extraction units (2) mounted at the front on the mudguard to release the hydraulic parking brake (1). Remove hexagon head screw (3) M12x35 (w/f 19) to this effect.*

☞ *Remove the plastic plugs (4) in the middle on the face of the wheel motors.*

☞ *Place the extraction unit on the face of the wheel motor and fasten it with screw M12x35.*

☞ *Tighten the screw to 42 Nm / (31 lbf ft) until the wheel turns freely*

3.26 Articulated steering locking bar

WARNING

Personal injury hazard. An unlocked articulated joint can cause unexpected machine movement while the machine is being lifted.

☞ *Secure the steering ram with the articulated steering locking bar when lifting the machine by the lift points.*

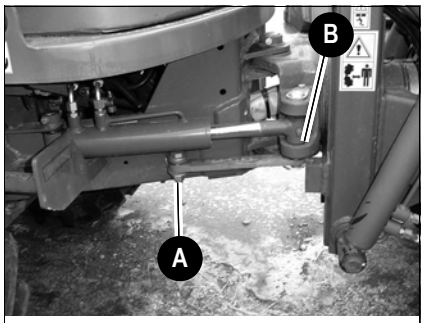


Fig. 25: articulated steering locking bar

The articulated steering locking bar secures the steering ram to prevent steering movements (via the articulated joint) when lifting the dumper.

Procedure to follow:

☞ *Remove the spring plug from pin **B.***

☞ *Turn articulated steering locking bar **A** towards the rear chassis.*

☞ *Secure articulated steering locking bar **A** with the spring plug and pin **B.***

Important

Before putting the machine into operation again, mount the articulated steering locking bar back onto the front chassis again by means of pin **B**.

3.27 Locking the control levers

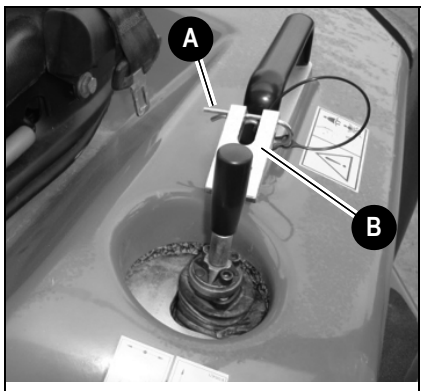


Fig. 26: Locking the control levers

CAUTION

Personal injury hazard. An unlocked control lever may cause unintentional actuation of the dump bucket.

☞ *Lock the control lever for the dump bucket while traveling.*

Lock as follows:

☞ *Remove split pin **A** from bracket **B.***

☞ *Fold bracket **B** to the front.*

☞ *Insert split pin **A** in bracket **B.***

Unlock in the reverse order!

3.28 Lifting the machine

Safety instructions

WARNING

Crushing hazard.

☞ *Do not lift the machine with someone in the operator seat/station or on the machine.*

☞ *Secure the machine against unintentional movement.*

☞ *Persons responsible for attaching the lifting devices to the machine shall be experienced with crane operations and hand signals.The crane operator shall maintain sight of the personnel attaching, guiding, and unhooking the dumper.*

☞ *Use OSHA-rated and approved lifting devices capable of lifting the dumper, attachments, options and accumulated debris. Refer to the general weight guidelines in the specification section of this manual.*

☞ *Do not lift the machine with material in the dump bucket.*

☞ *The crane operator shall observe the lift zone and lift the machine when the area is clear of people.*

☞ *Do not attempt to lift the dumper with any type of crane including wheel loaders unless the crane operator is qualified to lift loads in craning operations.*

☞ *Load the machine as follows:*

- Empty the dump bucket.
- Lower the dump bucket.
- Stop and park the machine.
- Lock the control levers – *see chapter 3.27 Locking the control levers* on page 3-34.
- The rollbar can be lowered to reduce the transport height.
- Put the articulated steering locking bar in place.
- Use suitable lifting gear, tracks etc.

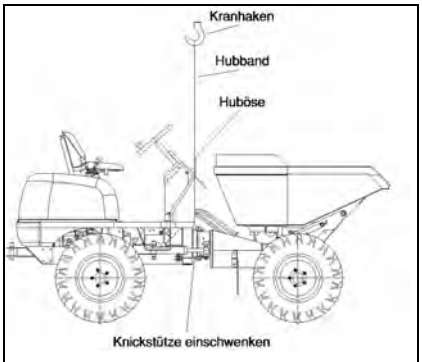


Fig. 27: Crane handling

1001/1501/1501 S

Raise the dumper by hitching the lifting gear onto the eyelet.

Do not hitch the lifting gear onto the handle.

- Fold in the articulated steering locking bar when raising the machine.

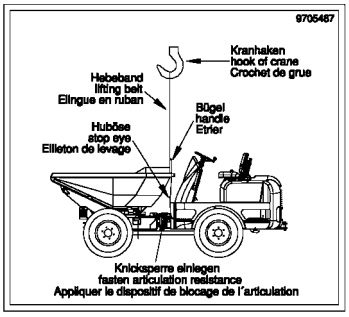


Fig. 28: Crane handling

2001/2001 SLE

Raise the dumper by hitching the lifting gear onto the eyelet on the rear chassis and make it go through the handle at the edge of the dump bucket.

Fold in the articulated steering locking bar.

Loading and transporting the machine

Safety instructions

- The transport vehicle must be of adequate size. Dimensions and weights of machine: see
- *Chapter 6 "Specifications (1001 – 1501)"*
- and *Chapter 6 "Specifications (2001)"*.
- Remove any mud, snow or ice from the tyres 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!

Important

Possibility of injury or equipment damage from improper loading and transporting.

☞ *Read the safety instructions at the beginning of this chapter and follow any other local safety regulations regarding loading and transporting the machine.*

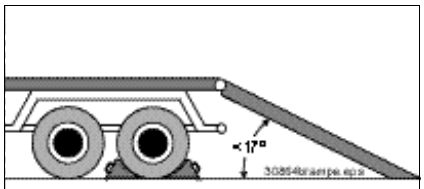


Fig. 29: Access ramps

☞ *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 tyres of the dumper are free of oil, grease and ice.
- Start the engine of the dumper.
- Lower the dump bucket of the dumper.
- Carefully reverse the dumper onto the middle of the transport vehicle.
- Stop and park the machine.

Important

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

Strapping down the machine

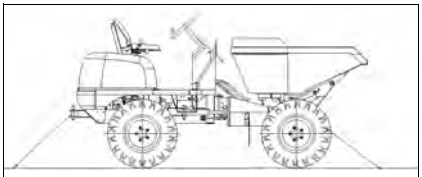


Fig. 30: Strapping down the machine

Important

Possibility of injury or equipment damage from improper tie-down procedure.

☞ *Read the safety instructions at the beginning of this chapter and follow any other local safety regulations regarding tie-down of the machine.*

- Secure the wheels of the dumper at the front, rear and at the sides
- Two eyelets on the front chassis of the dumper and a pin on the rear chassis are used for this
- Make sure the driver of the transport vehicle knows the overall height, width and weight of his vehicle (including the dumper) before transporting, and the legal transport regulations of the country or countries in which transport will take place!

3.29 Battery master switch 1001 – 1501

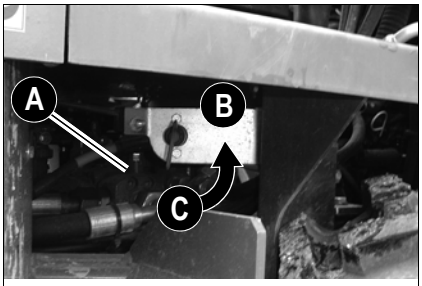


Fig. 31: Battery master switch

Important

Do not disconnect the battery while the engine is running.

Important

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

- *Before working on the electric system disconnect the battery.*

Interrupting power supply:

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

Switching on power supply:

☞ *Insert key A in the battery master switch.*

☞ *Turn the key down to the notched position C.*

The 2001 dumper has a Quickpower Plus terminal instead of a main switch.

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 authorized 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	*5-29*
	Fuel grade does not comply with specifications	*5-29*
	Defective or flat battery	*5-26*
	Loose or oxidized 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	*5-29*
	Wrong valve clearance	
	Injection line leaks	
	Defective fuel injector	
Engine overheats. Temperature warning system responds	Oil level too low	*5-8*
	Oil level too high	*5-8*
	Dirty air filter	*5-13*
	Dirty oil cooler fins	
	Defective fuel injector	
Insufficient engine output	Oil level too high	*5-8*
	Fuel grade does not comply with specifications	*5-29*
	Dirty air filter	*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	*5-8*
	Machine inclination too high (max. 20%)	
	Wrong SAE grade of engine lubrication oil	*5-29*
Engine oil consumption too high	Oil level too high	*5-8*
	Machine inclination too high (max. 20%)	

Problem		Possible causes	See
Engine smoke	Blue	Oil level too high	*5-8*
		Machine inclination too high (max. 20%)	
	White	Engine starting temperature too low	
		Fuel grade does not comply with specifications	*5-29*
		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 perform the prescribed maintenance work.

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

- Chapter 2 “SAFETY INSTRUCTIONS” of this Operator's Manual

Perform 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.

When using compressed air, dirt and debris can be blown into your face. Therefore, wear protective googles, masks, and clothing when using compressed air.

Daily service and maintenance work, and maintenance according to maintenance plan **“A”** must be performed by a specifically trained operator. All other maintenance work must be performed by trained and qualified staff only.

The maintenance plans indicate when the maintenance work mentioned below must be performed – *see Maintenance plan 2001: overview* on page 5-36.

Front dump bucket maintenance strut 1001

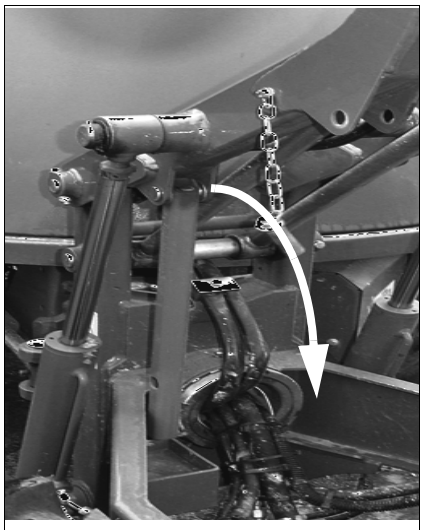


Fig. 1: High-tip dump bucket maintenance strut

WARNING

Crushing or striking hazard. An improperly supported dump bucket can fall unexpectedly during maintenance work.

☞ *Mount the red maintenance strut before you perform maintenance work with the dump bucket raised.*

This is performed by:

☞ *Pulling out spring plug and removing the pin.*

☞ *The maintenance strut shows downwards vertically and is automatically positioned in a socket in case the lift frame should be lowered.*

5.2 Maintenance strut, model 1501

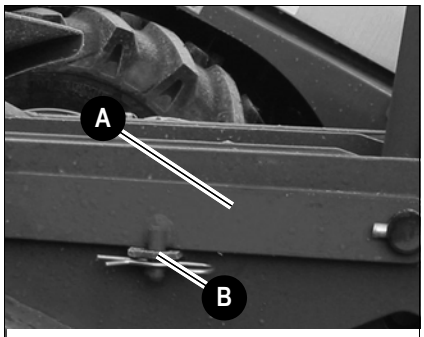


Fig. 2: Maintenance prop

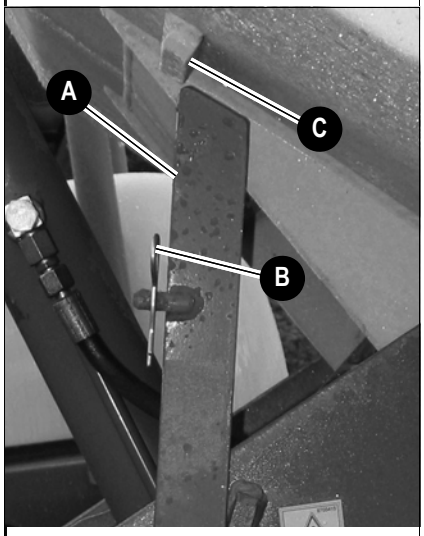


Fig. 3: Maintenance strut

WARNING

Crushing or striking hazard. An improperly supported dump bucket can lower unexpectedly during maintenance work.

☞ *Mount the red maintenance strut before you perform maintenance work with the dump bucket dumped out.*

The maintenance strut is upright and secured on the dump bucket, thereby preventing the dump bucket from being lowered.

Proceed as follows:

☞ *Remove the split pin from pin **B***

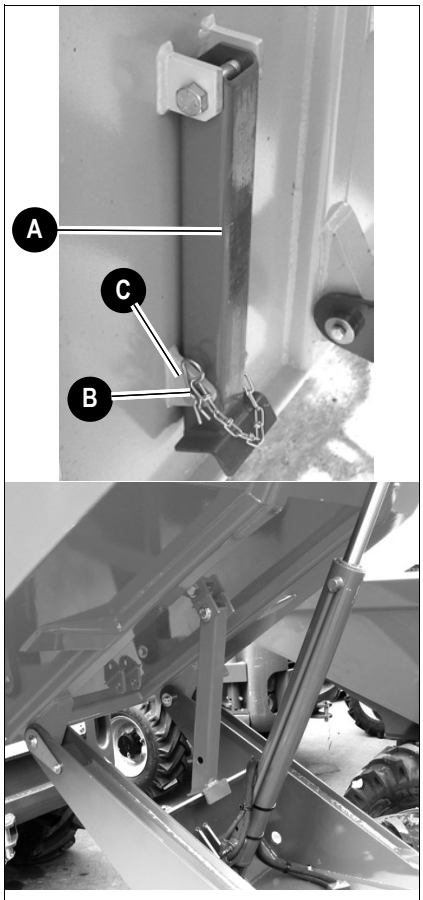
☞ *Fold up maintenance strut **A***

☞ *Lower the dump bucket until maintenance strut **A** is secured by safety device **C***

Important

Store the maintenance strut in the reverse order once maintenance work is over.

5.3 Maintenance strut 2001



ig. 4: Maintenance prop

DANGER

Crushing or striking hazard. An improperly supported dump bucket can fall unexpectedly during maintenance work.

☞ *Mount the red maintenance strut before you perform maintenance work with the dump bucket raised.*

The maintenance strut shows downwards vertically and is automatically positioned on support **D** in case the dump bucket should be lowered.

Procedure to follow:

☞ *Remove the spring plug from pin **B.***

☞ *Remove the pin from guide **C.***

☞ *Fold down maintenance strut **A.***

Important

Store the maintenace strut back onto the dump bucket when it is no longer needed.

5.4 Fuel system

Specific safety instructions

WARNING

Fire and fume inhalation hazards.

☞ *Do not refuel in closed rooms.*

☞ *Never perform maintenance or repair work on the fuel system in the vicinity of open flames or sparks.*

☞ *Never smoke when working on the fuel system or when refueling.*

☞ *Before refueling, stop the engine and remove the starting key.*

☞ *Wipe up any fuel spills immediately.*

☞ *Remove spilled fuel from the machine components and surfaces before use to reduce the risk of fire.*

Refueling

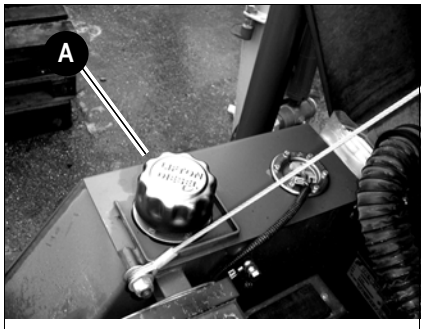


Fig. 5: Fuel filler inlet 1001/1501

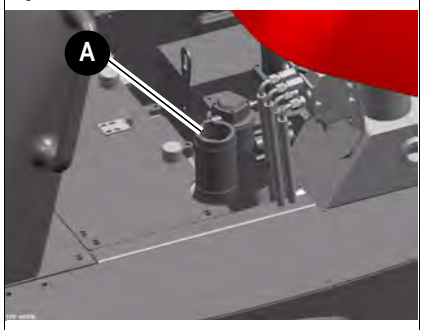


Fig. 5: Fuel filler inlet 2001

Filler inlet **A** for the fuel tank is located under the engine cover, on the right in driving direction.

Environment

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

Important

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 5-5.

Important

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.

Stationary fuel pumps

General

Only refuel from stationary fuel pumps. Fuel from barrels or cans is usually contaminated. Even the smallest particles of dirt can cause.

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

Refueling from barrels

If refueling from barrels cannot be avoided, note the following points (see fig. 6):

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

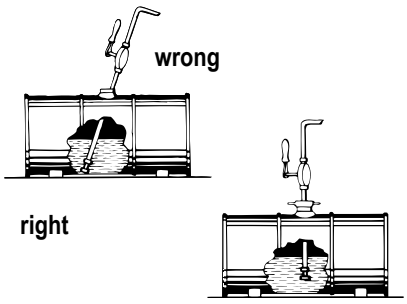


Fig. 6: Refueling from a barrel

Diesel fuel specification

Use only high-grade fuels

Grade	Cetane number	Use
• No. 2-D according to DIN 51601	**Min. 45**	For normal outside temperatures
• No. 1-D according to DIN 51601		For outside temperatures below 4 °C or for operation above 1500 m altitude

Bleeding the fuel system

WARNING

Fire and burn hazard. Draining fuel may ignite if it comes into contact with hot engine parts or the muffler system. Hot fuel may cause burns.

☞ *Always wear protective equipment and safety glasses when working with fuel.*

☞ *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 starter 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 authorized staff if necessary*

Fuel prefilter with water separator

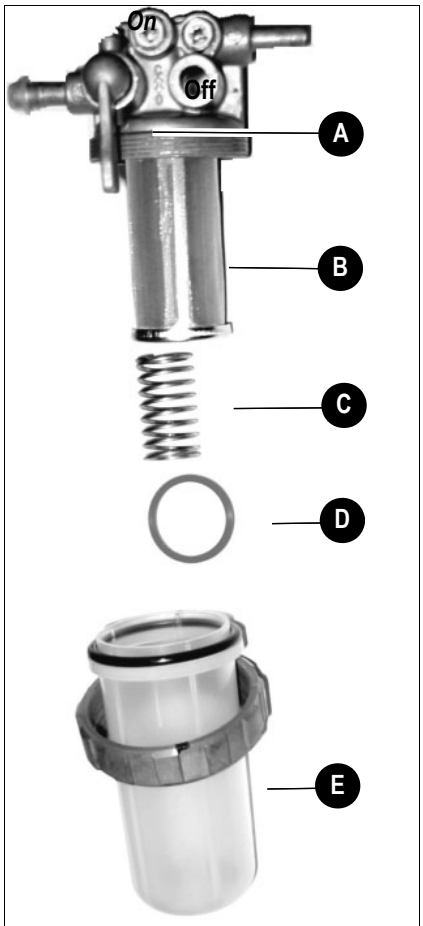


Fig. 7: Fuel prefilter

Check the fuel prefilter as follows:

- If the red indicator ring ***D*** in sight glass ***E*** rises.

☞ *Remove and clean the housing (sight glass).*

☞ *Remove and clean filter insert **B.***

☞ *Mount filter insert.*

☞ *Mount the housing (sight glass) with the maintenance display (red ring) and spring **D.***

☞ *Open stop cock **A.***

Interrupt fuel supply as follows:

☞ *Turn ball-type cock **A** to the **OFF** mark.*

➥ Fuel supply is interrupted.

☞ *Turn ball-type cock **A** 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.

Replacing the fuel filter

WARNING

Fire and burn hazard. Draining fuel may ignite if it comes into contact with hot engine parts or the muffler system. Hot fuel may cause burns.

☞ *Always wear protective equipment and safety glasses when working with fuel.*

☞ *Never replace the fuel filter if the engine is hot.*

Environment

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

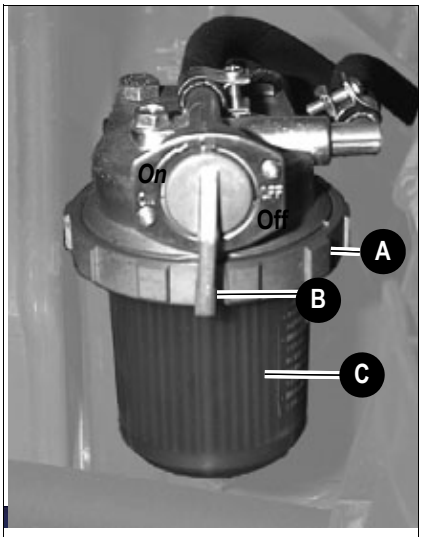


Fig. 8: Fuel filter 1001/1501

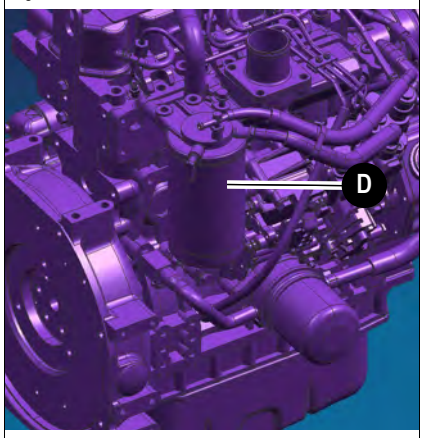


Fig. 8: Fuel filter 2001

Removing the fuel filter (D)

☞ *Close fuel cock **B***

☞ *Slacken union nut **A** Caution: the filter housing contains fuel*

☞ *Remove filter housing **C***

Mounting the fuel filter

☞ *Mount all elements in the reverse order with a new filter element*

☞ *Open the stop cock on the water separator again*

☞ *Bleed the fuel system – see Bleeding the fuel system on page 5-5*

☞ *Make a test run – and check for tightness!*

☞ *Dispose of the old fuel filter cartridge by an ecologically safe method*

5.5 Engine lubrication system

NOTICE: Possible engine damage or power loss due to improper oil management. If the engine oil level is too low or if an oil change is overdue, this can cause engine damage or a loss of power.

☞ *Have the oil changed by an authorized service center.*

☞ *– see chapter 5.16 Maintenance plan 2001: overview on page 5-36*

Checking the oil level

Important

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

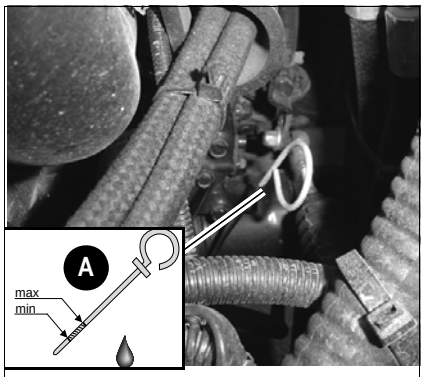


Fig. 9: Checking the oil level

Checking the oil level

☞ *Proceed as follows:*

- Park the machine on level ground
- stop the engine!
- 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**

Filling up engine oil

NOTICE: Possibility of engine damage from too much oil or incorrect engine oil.

☞ *Do not add engine oil above the MAX mark of oil dipstick 9/***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!

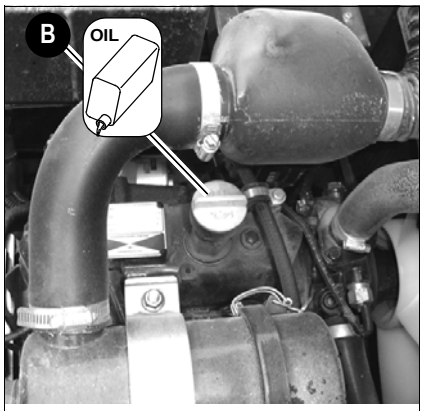


Fig. 10: Filling up engine oil

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.
- Add 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 5-8.
- 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.

5.6 Engine and hydraulics cooling system

The oil/water radiator is located in the engine compartment, behind the engine. It cools the diesel engine, and the hydraulic oil of the drive and work hydraulics.

The expansion tank for the coolant is located in the engine compartment next to the toolbox.

Checking/filling up coolant

NOTICE: Improperly maintaining the cooling system can cause engine damage.

- Dirt on the radiator fins reduces the radiator's heat dissipation capacity.
  - ▶ Clean the outside of the radiator at regular intervals. Use oil-free compressed air (2 bar max.) to clean. Maintain a certain distance to 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:
  - ▶ Check the coolant level at regular intervals. Refer to the maintenance plans for the recommended intervals.
  - ▶ If coolant must be added frequently, check the cooling system for leaks and/or contact your dealer.
  - ▶ Never add 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 switching off the engine.
- The use of the wrong coolant can destroy the engine and the radiator.
  - ▶ 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 6.14 Coolant compound table* on page 6-15
  - ▶ Do not use radiator cleaning compounds if an antifreeze compound has been added to the coolant – otherwise this causes sludge to form, which can damage the engine.

Environment

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

Specific safety instructions

CAUTION

Burn hazard. The coolant in the system is hot under normal operating conditions and under about 1 bar (15 psi) pressure.

☞ *Never open the coolant tank or drain coolant if the engine is hot.*

☞ *Wait at least 15 minutes after stopping the engine.*

☞ *Wear protective glasses, gloves and clothing.*

☞ *Open filler cap B to the first notch and allow the pressure to escape.*

☞ *Do not proceed with checking, maintaining or repairing the cooling system unless the components are comfortable to touch (less than 49°C (120°F)).*

CAUTION

Hazardous material. Coolant mixtures are poisonous and flammable. Contact with skin and eyes should be avoided.

☞ *Wash skin immediately to remove coolant mixture from the skin to avoid irritation.*

☞ *Wash eyes immediately if coolant comes in contact with the eye. Seek medical attention immediately.*

☞ *Store coolant concentrate and mixtures in a secure space to prevent unauthorized contact.*

☞ *Do not store or use coolant or coolant mixtures near open flames including smoking materials.*

☞ *Dispose of used coolant through approved methods for recycling. Do not dispose of coolant or mixtures in sewers, toilets or dumping on the ground.*

Checking the coolant level

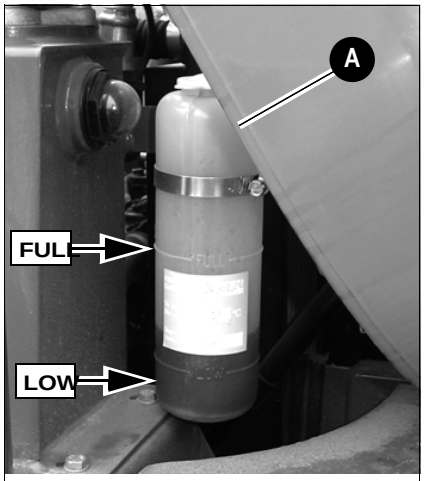


Fig. 11: Expansion tank for coolant

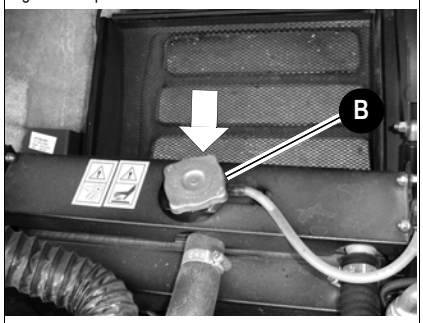


Fig. 11: Radiator

☞ *Proceed as follows:*

- Park the machine on level ground.
- stop the engine!
- 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:

- Add coolant to the coolant tank.

Important

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 the cap to the first notch and fully release the pressure.*

☞ *Open filler cap B.*

☞ *Add 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, add coolant and repeat the procedure until the coolant level remains constant.*

Important

Check the antifreeze every year before the cold season sets in!

5.7 Air filter

NOTICE: Possible equipment damage. The filter cartridge will be damaged if it is washed or brushed out.

Keep in mind the following to avoid premature engine wear:

☞ *Do not clean the filter cartridge.*

☞ *Replace the filter cartridge when the indicator light comes on.*

☞ *Never reuse a damaged filter cartridge.*

☞ *Ensure cleanliness when replacing the filter cartridge.*

Control element **A** on the air filter monitors the filter cartridge.

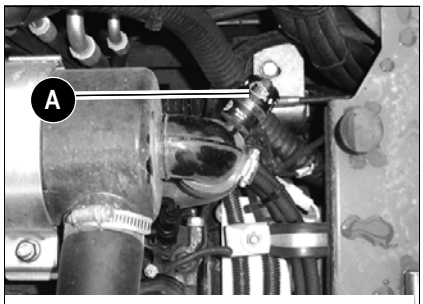


Fig. 12: Indicator for air filter contamination

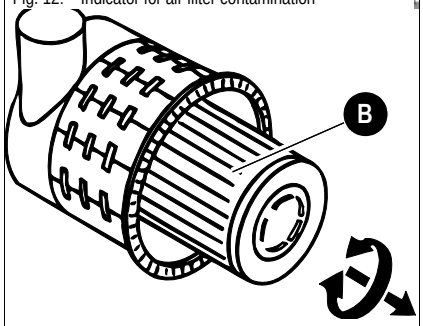


Fig. 12: Air filter maintenance

☞ *Replace filter B if:*

- Control element **A** indicates air filter contamination
- According to the maintenance plan

Important

For applications in especially dusty environment, replace or clean the air filter more frequently.

NOTICE: Filter cartridge degradation. Filter cartridges degrade prematurely when in service in acidic air, such as acid production facilities, steel and aluminum mills, chemical plants and other nonferrous-metal plants.

☞ *Replace filter B after no more than 50 service hours.*

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.

Replacing the filter

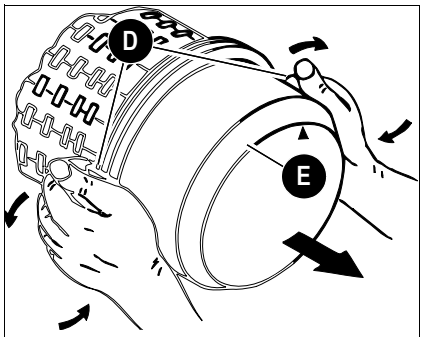


Fig. 13: Removing the lower housing section

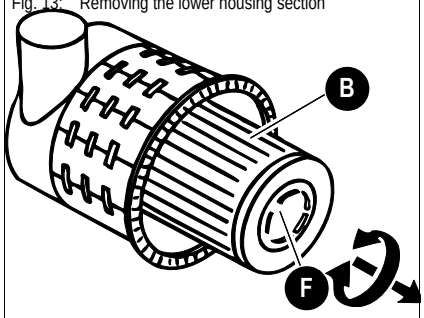


Fig. 14: Removing the filter element

- Replace filter *A* as follows:

☞ *Switch off 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.*

☞ *Fold both bow clips* **D** *on lower housing section* **E** *to the outside.*

☞ *Remove lower housing section* **E.**

☞ *Unscrew wing nut* ***F.***

☞ *Carefully remove filter* **B** *with slightly turning movements.*

☞ **Make sure** *all dirt (dust) inside the air filter housing 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 filter* **B** *in the air filter housing.*

☞ *Position lower housing section* **E** *(make sure it is properly seated).*

☞ *Close both bow clips* **D.**

5.8 V-belt

CAUTION

Crushing, cutting, or burn hazards.

☞ *Stop the engine and permit a cool-down time. Wait until the engine is comfortable to touch.*

☞ *Only check, retighten, or replace the V-belt when the engine is stopped.*

☞ *Disconnect the battery or the battery master switch before proceeding with work on the V-belt.*

NOTICE: Cracked and stretched V-belts cause engine damage.

☞ *Have the V-belt replaced by an authorized service center.*

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

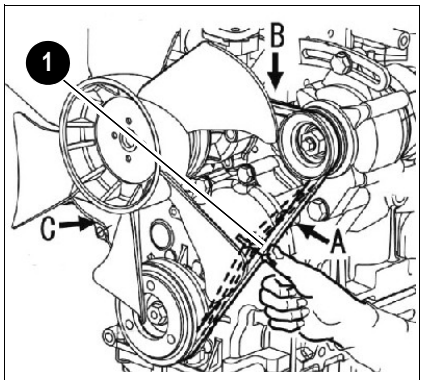


Fig. 15: Checking V-belt tension

- Check as follows:
  - ☞ Switch off the engine.
  - ☞ Remove the key and carry it with you.
  - ☞ Disconnect the battery.
  - ☞ Let the engine cool down.
  - ☞ Open the engine cover.
  - ☞ 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 authorized staff.
  - ☞ Press with your thumb about 100 N(22.5 lbs) 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(0.19 to 0.38 in), a used V-belt (after about 5 minutes running time) should have a deflection of 7 to 9 mm(0.27 to 0.35 in).
  - ☞ Retighten the V-belt if necessary.

Retightening the V-belt

NOTICE: Possible engine damage. 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 3-14.*

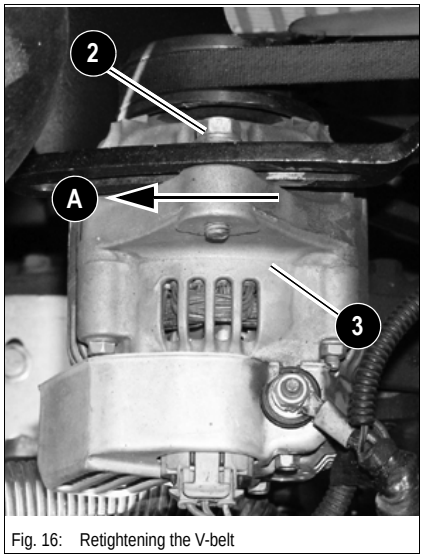


Fig. 16: Retightening the V-belt

- Retighten as follows:
  - ☞ Switch off the engine.
  - ☞ Fold the control lever base up.
  - ☞ Remove the key and carry it with you.
  - ☞ Disconnect the battery or the battery master switch.
  - ☞ Let the engine cool down.
  - ☞ Open the engine cover.
  - ☞ Slacken fastening screws **2** of alternator **3.**
  - ☞ Use a suitable tool to push the alternator in the direction of arrow **A** until reaching the correct V-belt tension (fig. 16).
  - ☞ Keep the alternator in this position, and at the same time retighten fastening screws **2.**
  - ☞ Check V-belt tension again and adjust it if necessary.
  - ☞ Connect the battery or the battery master switch.
  - ☞ Close the engine cover.

5.9 Hydraulic system

Specific safety instructions

WARNING

Pressurized hydraulic oil hazard. Hydraulic oil escaping under high pressure can catch fire, damage property, penetrate the skin and cause severe burns and injuries.

☞ *Do not operate the machine with leaking or damaged hydraulic system components.*

☞ *Use a piece of cardboard to diagnose the source of hydraulic leaks.*

☞ *Hydraulic oil can be hot and can cause serious burns if contact is made with skin. If contact occurs with hot oil, seek immediate medical attention and treatment for the burn.*

☞ *Wear safety glasses/goggles to avoid eye contact. If oil contacts the eye flush immediately with clean water and seek emergency medical treatment.*

☞ *Seek immediate medical attention if oil penetrates the skin. Oil can cause serious infections.*

- Release the pressure in all lines carrying hydraulic oil prior to any maintenance and repair work. To do this:
  - Lower all hydraulically controlled attachments
  - Move all control levers of the hydraulic control valves several times
- 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 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.

NOTICE: Possible equipment damage. Contaminated hydraulic oil, lack of oil, or the wrong hydraulic oil can severely damage the hydraulic system.

- ► Take care to avoid contamination when working.
- ► Always use the filling screen when refilling hydraulic oil.

☞ *Only use authorized oils of the specified type.*
– see chapter 5.13 Engine/machine fluids and lubricants (1001 and 1501) on page 5-29

☞ *Always fill up hydraulic oil before the level gets too low*
– see Filling up hydraulic oil on page 5-19

☞ *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 your* Wacker *Neuson dealer immediately if the hydraulic system filter is contaminated with metal shavings.*

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

WARNING

Personal injury hazard. Escaping oil may cause serious injuries.

☞ *Never fill the oil level above the MAX mark.*

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

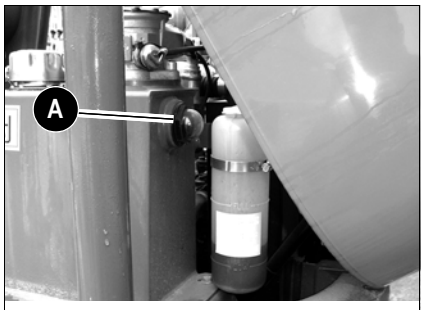


Fig. 17: Oil level indicator on the hydraulic oil tank 1001/ 1501

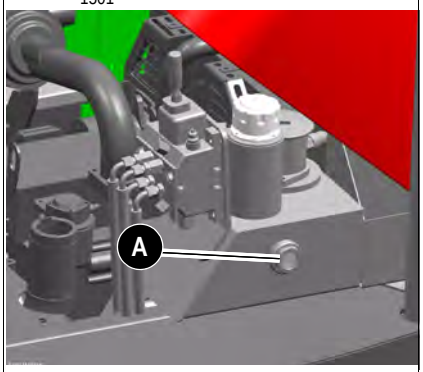


Fig. 17: Oil level indicator on the hydraulic oil tank 2001

☞ *Proceed as follows:*

- Park the machine on level ground.
- Retract all hydraulic rams.

☞ Fully dump in the dump bucket.

- Switch off the engine.
- Check the oil level on sight glass **A.**
- Sight glass **A** is under the engine cover behind the hydraulic oil tank.
-
- A gauge element in sight glass **A** indicates the oil level.

If the oil level is lower

- Fill up hydraulic oil.

The oil level must be at the **FULL** level.

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

Important

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

Filling up hydraulic oil

WARNING

Personal injury hazard. Removing the hydraulic filter plug can cause pressurized oil to escape. Escaping oil may cause serious injuries.

☞ *Alow the hydraulic oil to cool to a temperature that is comfortable to the touch.*

☞ *Slightly loosen the breather plug on the hydraulic reservoir enough to relieve pressure in the reservoir.*

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

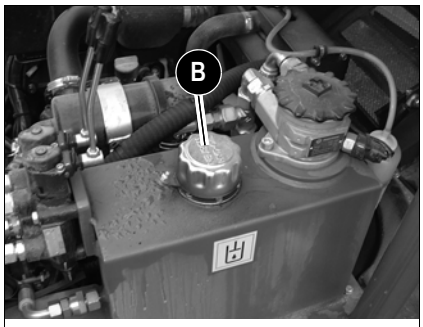


Fig. 18: Hydraulic oil tank

☞ *Fill up as follows:*

- Park the machine on level ground.
- Retract all hydraulic rams.
- Switch off the engine.
- Clean the area around filler inlet **B** with a cloth.
- Open filler inlet **B.**

With the filter insert in place:

- Add hydraulic oil.
- Check the hydraulic oil level on sight glass **A.**
- Fill up if necessary and check again.
- Firmly tighten plug **B.**

Changing hydraulic oil

Important

Only change the hydraulic oil if it is warm (about 50 °C / 122 °F).
Lower the dump bucket in center position before draining the oil (dumper in straight-ahead position).

Environment

Dispose of the old hydraulic oil by an ecologically safe method.

☞ *Open the drain plug to let the oil drain into a container.*

☞ *Check the hydraulic oil tank for contamination and clean if necessary.*

☞ *Replace the filter according to the maintenance specifications.*

☞ *Screw the drain plug back in correctly.*

☞ *Fill in clean hydraulic oil through the strainer – see Filling up hydraulic oil on page 5-19*

☞ *Close the hydraulic oil tank correctly.*

☞ *Let the machine run at idling speed without load for some minutes.*

Fouling indicator for hydraulic oil filter

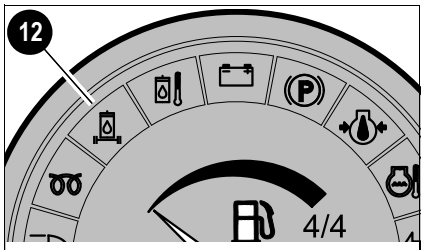


Fig. 19: Fouling indicator for hydraulic oil filter

A red indicator on the instrument panel monitors the filter.

Replace the filter:

- If the indicator comes on when the hydraulic oil is at operating temperature
- According to the maintenance interval

In cold weather the indicator can come on immediately when the engine is started. This is caused by increased oil viscosity. In this case:

☞ *Let the engine run at idling speed for about 2 minutes*

Replacing the hydraulic oil filter element

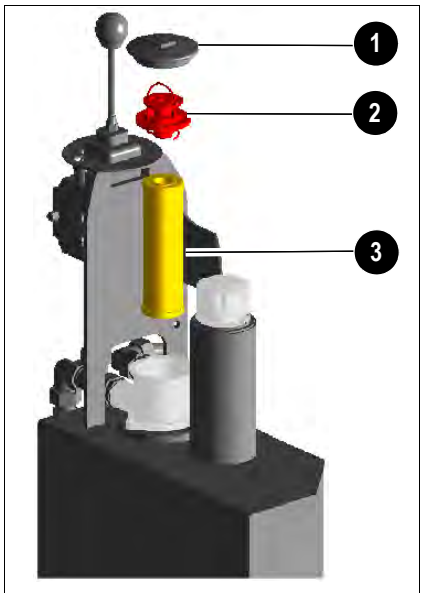


Fig. 21: Hydraulic reflux filter

Proceed as follows:

☞ *Switch off the engine.*

☞ *Open cover **1** by about 2 turns and wait until the oil level in the filter housing drops to the oil level in the hydraulic oil tank.*

☞ *Open the cover completely and remove it.*

☞ *Pull filler pipe **2** upwards with a slightly turning movement, together with filter element **3.***

☞ *Remove the filter element from the filler pipe and dispose of it.*

☞ *Slide the filler pipe onto the new filter element and insert it in the filter.*

☞ *Tighten the cover by hand.*

Important information for the use of biodegradable oil

- Use only the biodegradable hydraulic fluids which have been tested and approved by Neuson Baumaschinen GmbH. Always contact Neuson Baumaschinen 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! Replace missing labels!
  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 5.16 Maintenance plan 2001: overview* on page 5-36.
- Always have the condensation water in the hydraulic oil tank drained by an authorized service center 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 performed by an authorized Wacker Neuson service center.

Checking hydraulic pressure lines

Specific safety instructions

WARNING

Pressurized hydraulic oil hazard. Hydraulic oil escaping under high pressure can catch fire, damage property, penetrate the skin and cause severe burns and injuries.

☞ *Do not operate the machine with leaking or damaged hydraulic system components.*

☞ *Use a piece of cardboard to diagnose the source of hydraulic leaks.*

☞ *Hydraulic oil can be hot and can cause serious burns if contact is made with skin. If contact occurs with hot oil, seek immediate medical attention and treatment for the burn.*

☞ *Wear safety glasses/goggles to avoid eye contact. If oil contacts the eye flush immediately with clean water and seek emergency medical treatment.*

☞ *Seek immediate medical attention if oil penetrates the skin. Oil can cause serious infections.*

☞ *Retighten leaking threaded fittings and hose connections only when the system is not under pressure; i.e. release the pressure before working on pressurized lines.*

☞ *Never weld or solder damaged or leaking pressure lines and threaded connections. Replace damaged parts with new ones*

☞ *Do not check for leaks with an incandescent light or open flame due to explosive fire risk from vaporized oil mist.*

- Leaks and damaged pressure lines must be immediately repaired or replaced by an authorized service center 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.

5.10 Tires

Fig. 22: Tires

Tire wear can vary according to work and ground conditions.

CAUTION

Personal injury hazard. Improperly repaired tires or rims can cause accidents.

☞ *All repair work on tires and rims may only be performed by an authorized Wacker Neuson service center.*

☞ *We recommend checking the tires for wear and the wheel nuts for tightness once a day.*

☞ *Park the machine on firm and level ground to check and perform maintenance.*

Important

Checking the tires at regular intervals increases operational safety and the service life of the tires, and reduces machine downtimes. Please refer to *Chapter 6.12 "Tyres"* for the authorized tire types and the correct tire pressures.

Important

Replace tires with new ones after 6 years (irrespective of wear) and dispose of them correctly. After this period, the rubber no longer has its full capability due to various chemical and physical processes.

Inspection work

☞ *Perform the following maintenance work once a day:*

- Visual check of the tire condition
- Check the tire pressure
- Check tire and rim (outside and inside) for damage
- Check for wear
- Remove foreign bodies from the tire tread
- Remove traces of oil and grease from the tires

Wheel change

NOTICE: The wheels are heavy and can damage the threads on the wheel studs if they are handled incorrectly.

☞ *Use suitable assembly tools, such as covering sleeves for the studs and a jack capable of handling the load.*

Removing the wheels

Proceed as follows:

☞ *Park the machine on level and firm ground and prevent it from rolling away.*

☞ *Slightly loosen the wheel nuts of the wheel you want to remove.*

☞ *Place a jack under the axle body, making sure it is standing firmly.*

☞ *Raise the side of the axle from which you want to remove the wheel.*

☞ *Check the machine is standing firmly.*

☞ *Completely remove the wheel nuts.*

☞ *Remove the wheel.*

Fitting the wheels

Proceed as follows:

☞ *Place the wheel onto the wheel studs.*

☞ *Tighten all wheel nuts part-way.*

☞ *Lower the raised axle.*

☞ *Tighten the wheel nuts to the prescribed torque of 125 Nm (92 ft. lbs.).*

Important

Subsequent to changing wheels check the wheel nuts for tightness after 10 service hours – tighten if necessary!

5.11 Electric system

Specific safety instructions

WARNING

Batteries can explode or cause chemical burns. A battery contains sulfuric acid and emits explosive gases when heavily discharged.

☞ *Do not smoke or use an open flame near the battery.*

☞ *Do not handle the battery recklessly, causing acid to leak or spill.*

☞ *Do not add circuits or electrical accessories that exceed the system capacity.*

☞ *Do not connect a circuit without a correctly-rated fuse or circuit breaker.*

NOTICE: Possible equipment damage from improper battery connections.

☞ *When connecting the battery leads, make sure the poles +/– are not inverted, otherwise sensitive electric components will be damaged*

☞ *Use only 12V power sources. Higher voltages will damage the electric components.*

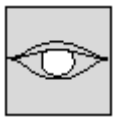
☞ *Do not interrupt voltage-carrying circuits at the battery terminals because of the danger of sparking.*

☞ *To prevent short circuits, never place tools or other conductive articles on the battery.*

☞ *Disconnect the negative (–) battery terminal from the battery before starting repair work on the electric 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:*

- Cable and earth connections.
- Battery charge condition – *see Battery* on page 5-26.
- Condition of battery terminals.

Instructions concerning specific components

Cables, bulbs and fuses

Always observe the following instructions:

- Defective components of the electric system must always be replaced by an authorized expert.
- When performing maintenance work on the electric system, pay particular attention to ensuring good contact in leads.

Alternator

Always observe the following instructions:

- Only test run the engine when the battery is connected.
- When connecting the battery, make sure the poles (+/–) are not inverted
- Always disconnect the battery before performing welding work or connecting a quick battery charger

Battery

WARNING

Battery acid hazard. The battery contains highly caustic sulphuric acid. This acid must not be allowed to come into contact with the skin, the eyes, clothing, or the machine.

☞ *When recharging and/or working near the battery, always wear goggles and protective clothing with long sleeves.*

☞ *If acid is spilled, thoroughly rinse affected skin immediately with clean water and seek medical attention immediately.*

WARNING

Battery explosion hazard. Lead acid batteries can generate a potentially explosive hydrogen and oxygen mixture. Batteries can explode or rupture during jump starting, particularly if the electrolyte is low or has been frozen.

☞ *Avoid open flames and sparks in the vicinity of the battery. Do not smoke.*

☞ *Before jump starting, take the battery to the dealer for appraisal by a qualified technician.*

☞ *Replace a dead battery with a new one equivalent to the original.*

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

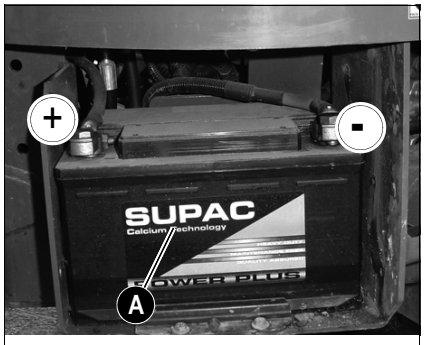


Fig. 23: Battery

Battery **A** is located underneath the engine cover. 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 performed by an authorized service center.

Always follow the specific battery safety instructions!

Important

Do not disconnect the battery while the engine is running.

5.12 General maintenance work

Cleaning

Cleaning the machine is divided into 2 separate areas:

- Exterior of the machine.
- Engine compartment.

The wrong choice of cleaning equipment and agents can impair the operating safety of the machine and 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

When using washing solvents

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

When using 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.

When using 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.

When using volatile and easily flammable anticorrosion agents and sprays:

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

Exterior of the machine

NOTICE: Cleaning the machine improperly can cause engine damage.

☞ *Follow the recommendations below to properly clean the machine and the engine.*

The following articles are generally suitable:

- High-pressure cleaner
- Steam jet

Engine compartment

CAUTION

Cutting, crushing, or burn hazards.

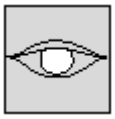
☞ *Stop the engine before cleaning.*

NOTICE: Possibility of sensor damage. Water or steam jet cleaners can penetrate sensitive electronic components, leading to sensor failure and possible engine damage.

☞ *Allow the machine to cool completely before cleaning the engine with a water or steam jet.*

Do not point the jet directly at electric sensors such as the oil pressure switch.

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 and pin fastenings on the attachment.*

Retighten loose connections immediately. Contact an authorized service center if necessary.

Pivots and hinges

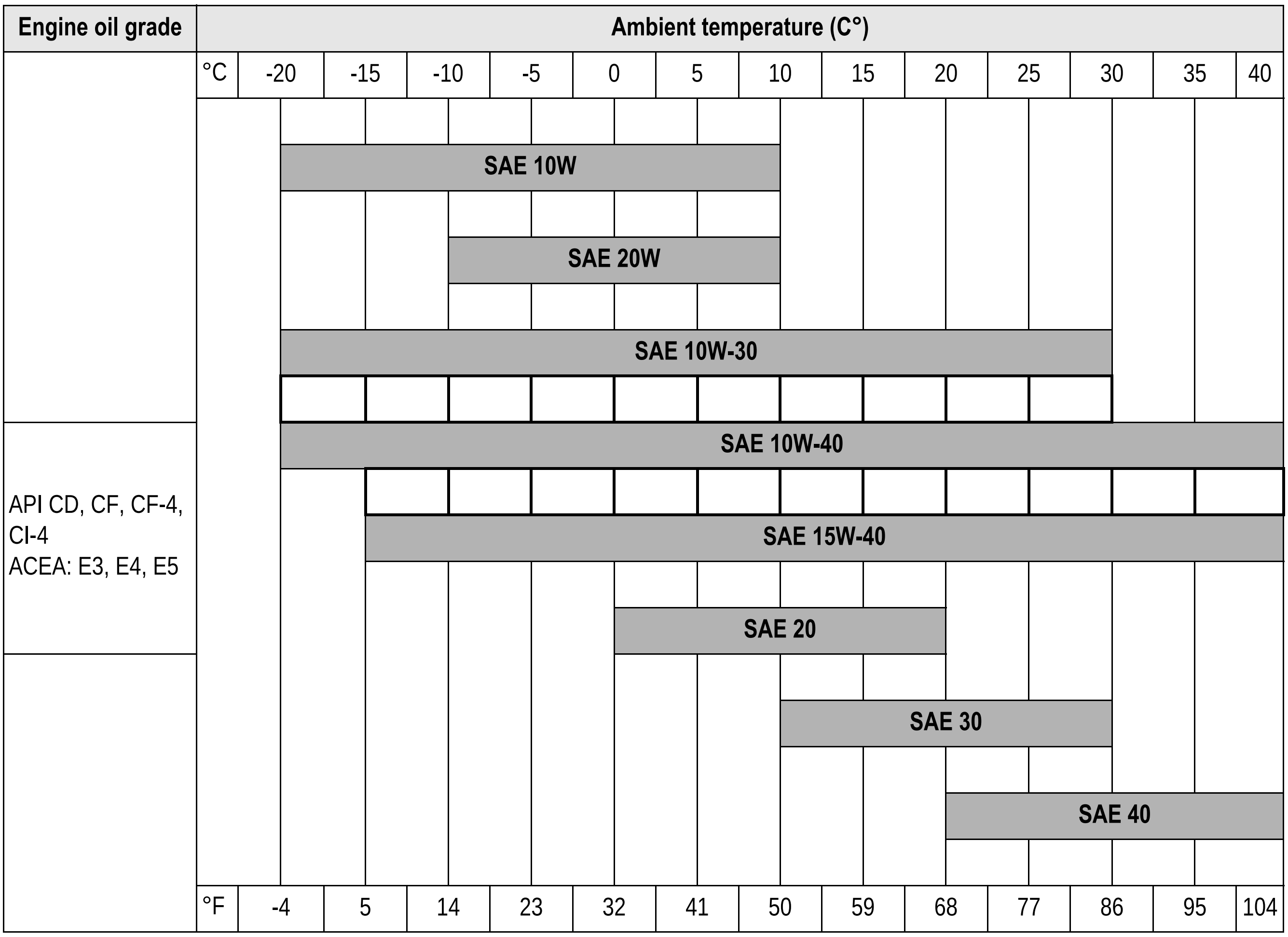
Lubricate all mechanical pivots on the machine (such as joints) and fittings at regular intervals even if they are not listed in the lubrication plan.

5.13 Engine/machine fluids and lubricants (1001 and 1501)

Component/ application	Engine/machine fluid	Specification	Season/ temperature	Capacities[1]
Diesel engine	Engine oil	API CD, CF, CF-4, CI-4	- 20 °C +40 °C	3.4 l
		ACEA: E3, E4, E5 (SAE 10W40)[2]		
Hydraulic oil tank	Hydraulic oil	HVLP46[3] 200 Hydraulic	Year-round	20 l
	Biodegradable oil[4]	PANOLIN HLP Synth 46		
		FINA BIOHYDRAN SE 46		
		BP BIOHYD SE-46 404 Biodegradeable Hydraulic 32/46		
Grease nipples	Multipurpose grease[5]	FINA Energrease L21 M Mobilgrease CM-P	Year-round	As required
Battery terminals	Acid-proof grease[6]	FINA Marson L2 Mobilux EP2	Year-round	As required
Fuel tank	Diesel fuel	2-D ASTM D975 – 94 (USA)		15 l
		1-D ASTM D975 – 94 (USA)		
		EN 590 : 96 (EU)		
		ISO 8217 DMX (International)		
		BS 2869 – A1 (GB)	Summer or winter diesel depending on outside temperatures	
		BS 2869 – A2 (GB)		
Radiator	Coolant	Soft water + antifreeze ASTM D4985	Year-round	4 l
		Distilled water + antifreeze ASTM D4985		

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. According to DIN 51524 section 3
4. Hydraulic ester oils (HEES)
5. KF2K-25 according to DIN 51502 multipurpose lithium grease with MoS^2 additive
6. Standard acid-proof grease

Oil grades for the diesel engine, depending on temperature

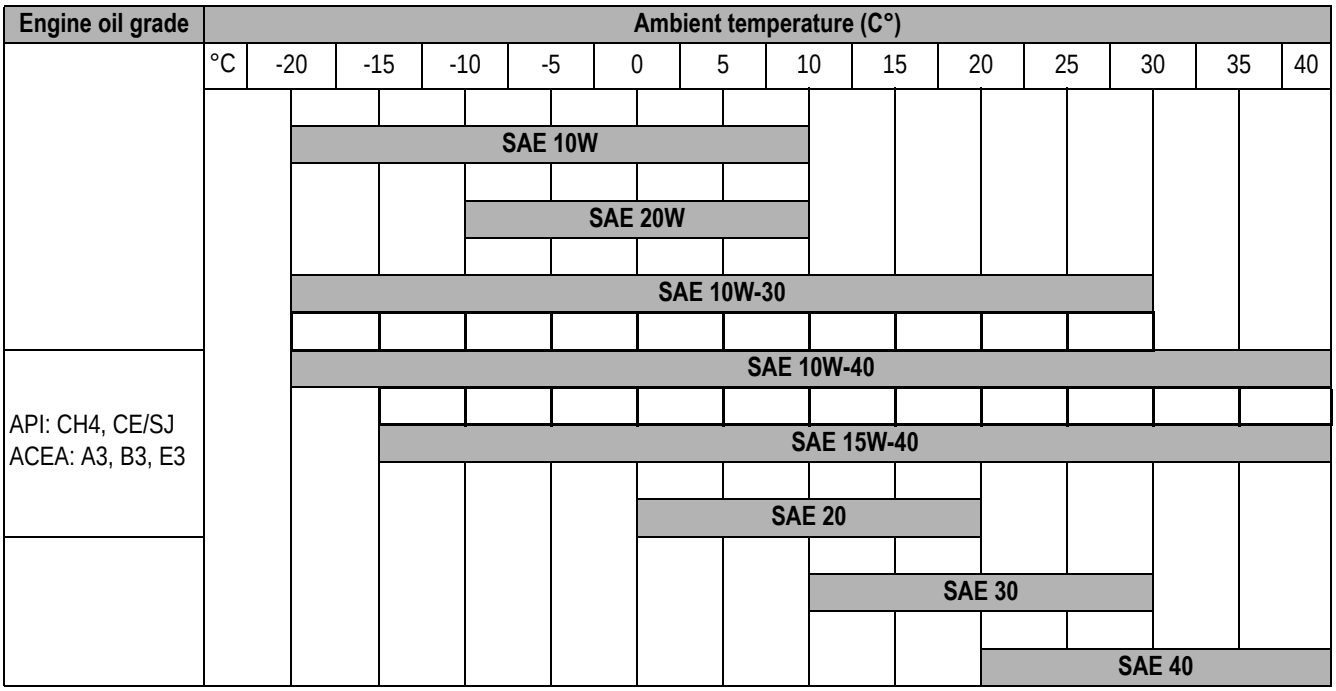


5.14 Engine/machine fluids and lubricants (2001)

Component/ application	Engine/machine fluid	Specification	Season/temperature	Capacities[1]
Diesel engine	Engine oil	Q8 T660, SAE10W-40[2]	-20 °C +40 °C	5.25 l
Hydraulic oil tank	Hydraulic oil	HVLP46[3] 200 Hydraulic	Year-round	48 l
	Biodegradable oil[4]	PANOLIN HLP Synth 46		
		FINA BIOHYDRAN SE 46		
		BP BIOHYD SE-46 404 Biodegradeable Hydraulic 32/46		
All lubrication points		FINA Energrease L21M Mobilgrease CM-P	Year-round	As required
Battery terminals	Acid-proof grease[5]	FINA Marson L2 Mobilux EP 2	Year-round	As required
Fuel tank	Diesel fuel	2-D ASTM D975 – 94 (USA)		40 l
		1-D ASTM D975 – 94 (USA)		
		EN 590 : 96 (EU)		
		ISO 8217 DMX (International)		
		BS 2869 – A1 (GB)	Summer or winter diesel depending on outside temperatures	
		BS 2869 – A2 (GB)		
Radiator	Coolant	Soft water + antifreeze ASTM D4985	Year-round	8.5 l
		Distilled water + antifreeze ASTM D4985		

1. The capacities indicated are approximative values; the oil level check alone is relevant for the correct oil level
2. As per DIN 51502; API CH4, CE/SJ; ACEA A3, B3, E3
3. According to DIN 51524 section 3
4. Hydraulic ester oils (HEES)
5. Standard acid-proof grease
5. First replacement after 50 service hours

Oil grades for the diesel engine, depending on temperature



5.15 Maintenance plan 1001 – 1501: 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	Authorized 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]			●	●		●
Inspection work ( ):						
Check the following material. Refill if necessary:						
• Engine oil	●				●	
• Engine coolant	●				●	
• Hydraulic oil	●				●	
Clean water ducts [6]				●		●
Check engine cooler and hydraulic oil for contamination. Clean if necessary	●				●	
Check cooling systems, heating and hoses for leaks and pressure (visual check)	●				●	
Check the pilot control filter on the main valve block for dirt, clean it if necessary[7]				●		
Air filter (damage)	●				●	
Prefilter with water separator: drain water	●				●	
• Clean			●		●	
Check V-belt condition and tension	●				●	
Check muffler system for damage and condition	●				●	

5.15 Maintenance plan 1001 – 1501: 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	Authorized workshop
Check valve tip 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[10]			●			●
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[11]		●	●			●
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 [8]		●	●			●
Check pin lock	●				●	
Check line fixtures	●				●	
Check indicators 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		●			●	
Lubrication service ( ):						
Lubricate the following assemblies/components (all grease nipples):						
• Stabilizer blade	●				●	

5.15 Maintenance plan 1001 – 1501: 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	Authorized workshop
• Dump bucket swivel base	●				●	
• Loader unit	●				●	
• Attachments	●				●	
• Grease strip on chassis	●				●	
Functional check ( ):						
Check the function of the following assemblies/components. Rectify if necessary:						
• Lights, signalling system, acoustic warning system[12]		●	●			●
Leakage check ( ):						
Check for tightness, leaks and chafing: pipes, flexible lines and screw connections of the following assemblies and components. Rectify if necessary:						
• Visual check	●				●	
☞ Engine, hydraulic system and hydraulic components	●				●	
☞ Cooling circuit	●				●	
☞ Travelling drive	●				●	

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. Replace the hydraulic oil the first time after 500 s/h, then every 1000 s/h
6. Clean the water ducts every other 1000 s/h servicing
7. Coarse dirt causes malfunctions and can even destroy the filter screen!
8. Clean and adjust the fuel injection pump every other 1000 s/h servicing
9. Check and adjust the fuel injection time every other 1000 s/h servicing
10. Empty the fuel tank every 250 s/h
11. First check after 50 s/h, then every 500 s/h
12. Check the first time at 50 s/h, then every 500 s/h

5.16 Maintenance plan 2001: 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 250 s/h	Every 500 s/h	Once a year or after 1000 s/h	After 1500 s/h	Customer	Authorized 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				●				●
• Coolant					●			●
• Hydraulic oil filter insert [4]		●		●				●
• Hydraulic oil				●				●
• Hydraulic oil tank breather					●			●
Inspection work ( ):								
Check the following material. Refill if necessary:								
• Engine oil	●						●	
• Engine coolant	●						●	
• Hydraulic oil	●						●	
Clean the water ducts [5]					●			●
Check cooler for engine and hydraulic oil for contamination. Clean if necessary	●						●	
Check cooling systems, heating and hoses for leaks and pressure (visual check)	●						●	
Air filter (damage)	●						●	
Check the air filter, clean if necessary	●						●	
Prefilter with water separator: drain water	●						●	
• Clean				●				●
Check V-belt condition and tension	●						●	

5.16 Maintenance plan 2001: 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 250 s/h	Every 500 s/h	Once a year or after 1000 s/h	After 1500 s/h	Customer	Authorized workshop
Check V-belt condition and tension	●						●	
Check muffler system for damage and condition	●						●	
Check valve tip clearance, adjust if necessary					●			●
Fuel injection pump						●		●
Injection and pressure					●			●
Check injection nozzles and valves [1]						●		●
Empty diesel fuel tank				●				●
Check battery electrolyte. Fill up with distilled water if necessary		●		●			●	
tire check (damage, air pressure, tread depth)	●						●	
Wheel nuts		●					●	
Check alternator, starter and electric connections, bearing play and function				●				●
Preheating system, electric connections				●				●
Pressure check of primary pressure limiting valves[2]		●		●				●
Check piston rods for damage	●						●	
Check screws for tightness		●		●				●
Pin lock	●						●	
Line fixtures	●						●	
Check indicator lights for correct function		●		●				●
Insulating mats in engine compartment		●		●				●

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 250 s/h
4. Replace the hydraulic oil filter insert the first time after 50 s/h, then every 500 s/h
5. Clean the water ducts every other 1000 s/h servicing

5.16 Maintenance plan 2001: 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 250 s/h	Every 500 s/h	Once a year or after 1000 s/h	After 1500 s/h	Customer	Authorized workshop
Cleanliness of access	●						●	
Adhesive labels and Operator's Manual		●		●				●
Engine cover gas strut	●						●	

1. Check injection nozzles and valves every second time 1500 s/h servicing is carried out
2. First check at 50 s/h, then every 500 s/h

Lubrication service ( ):

Lubricate the following assemblies/components – *see Lubrication points 2001: overview* on page 5-43:

• Steering ram	●						●	
• Offset ram	●						●	
• Articulated joint	●						●	
• dump bucket swivel base	●						●	

5.16 Maintenance plan 2001: 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.

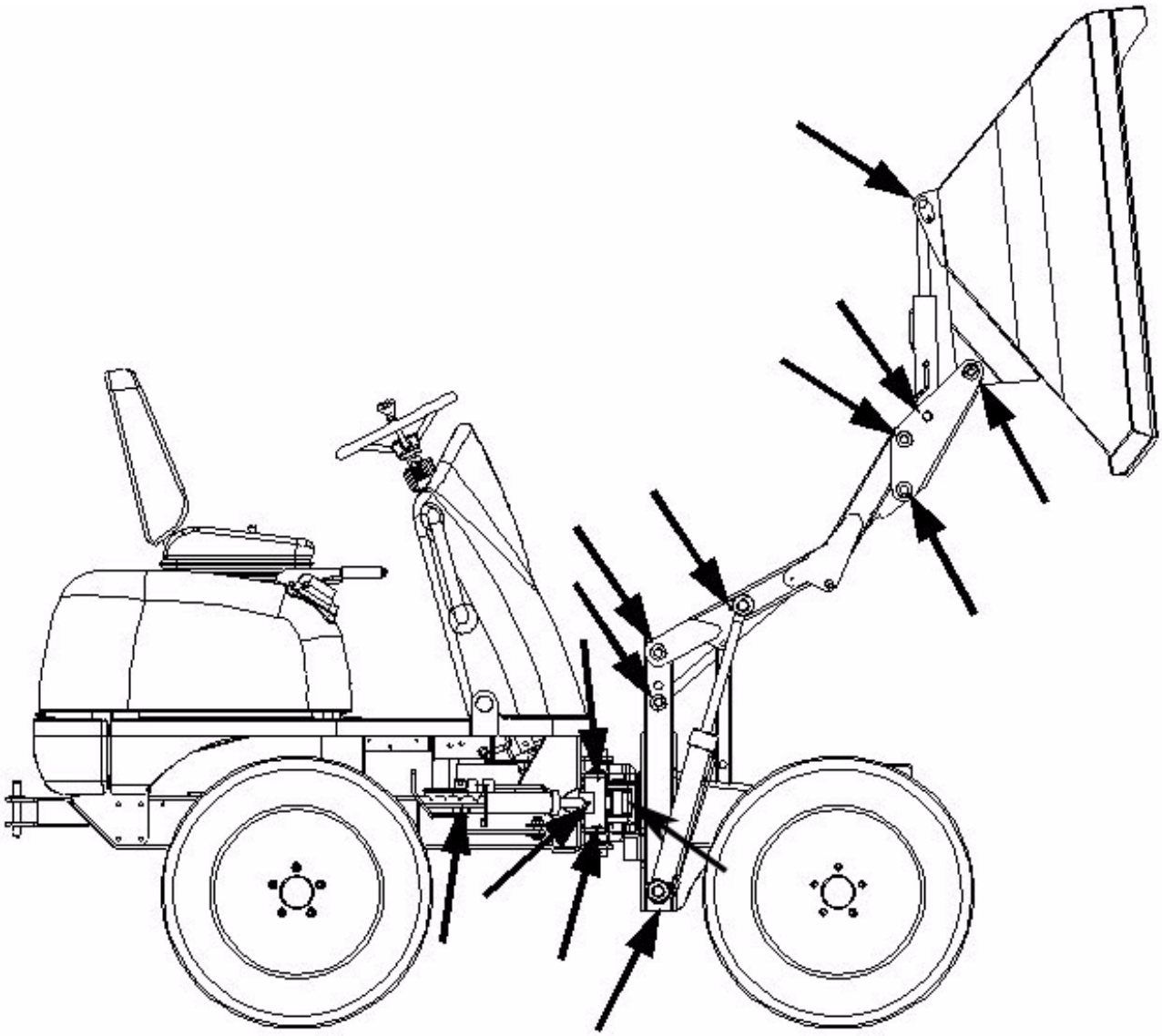
	Maintenance plan/service hours (s/h)							
	Maintenance work (once a day)	Every 50 s/h	Every 250 s/h	Every 500 s/h	Once a year or after 1000 s/h	After 1500 s/h	Customer	Authorized workshop
Functional check ( ):								
Check the function of the following assemblies/components. Rectify if necessary:								
• Lights, signalling system, acoustic warning system		●						●
• Parking brake function	●						●	
• Steering function	●						●	
Leakage check ( ):								
Check for tightness, leaks and chafing: pipes, flexible lines and screw connections of the following assemblies and components. Rectify if necessary:								
• Visual check	●						●	
☞ Engine and hydraulic system	●						●	
☞ Cooling circuit	●						●	
☞ Travelling drive	●						●	

5.17 Lubrication points 1001: overview

Grease all lubrication points daily! Use ENERGREASE L21M.

Fold down the red maintenance strut before you carry out maintenance work with the lift frame raised – *see Front dump bucket maintenance strut 1001* on page 5-1.

Lubricate all points daily with FINA Energrease L21M or Mobilgrease CM-P.



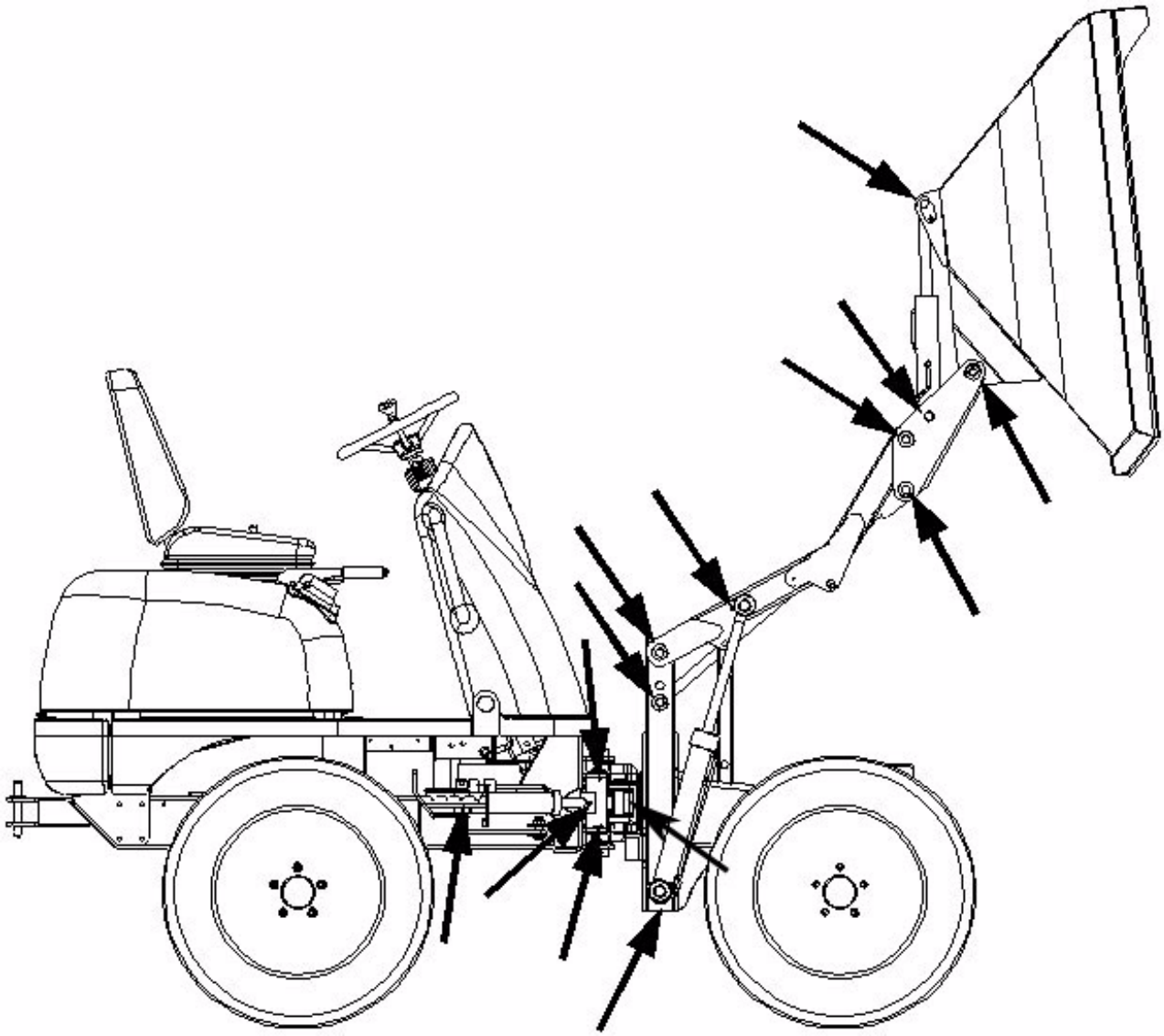
Apply multipurpose lithium grease with an MoS^2 additive to all lubrication points indicated.

5.18 Lubrication points 1501: overview

Grease all lubrication points daily! Use ENERGREASE L21M.

Fold down the red maintenance strut before you carry out maintenance work with the lift frame raised – *see Maintenance strut, model 1501* on page 5-2.

Lubricate all points daily with FINA Energrease L21M or Mobilgrease CM-P.



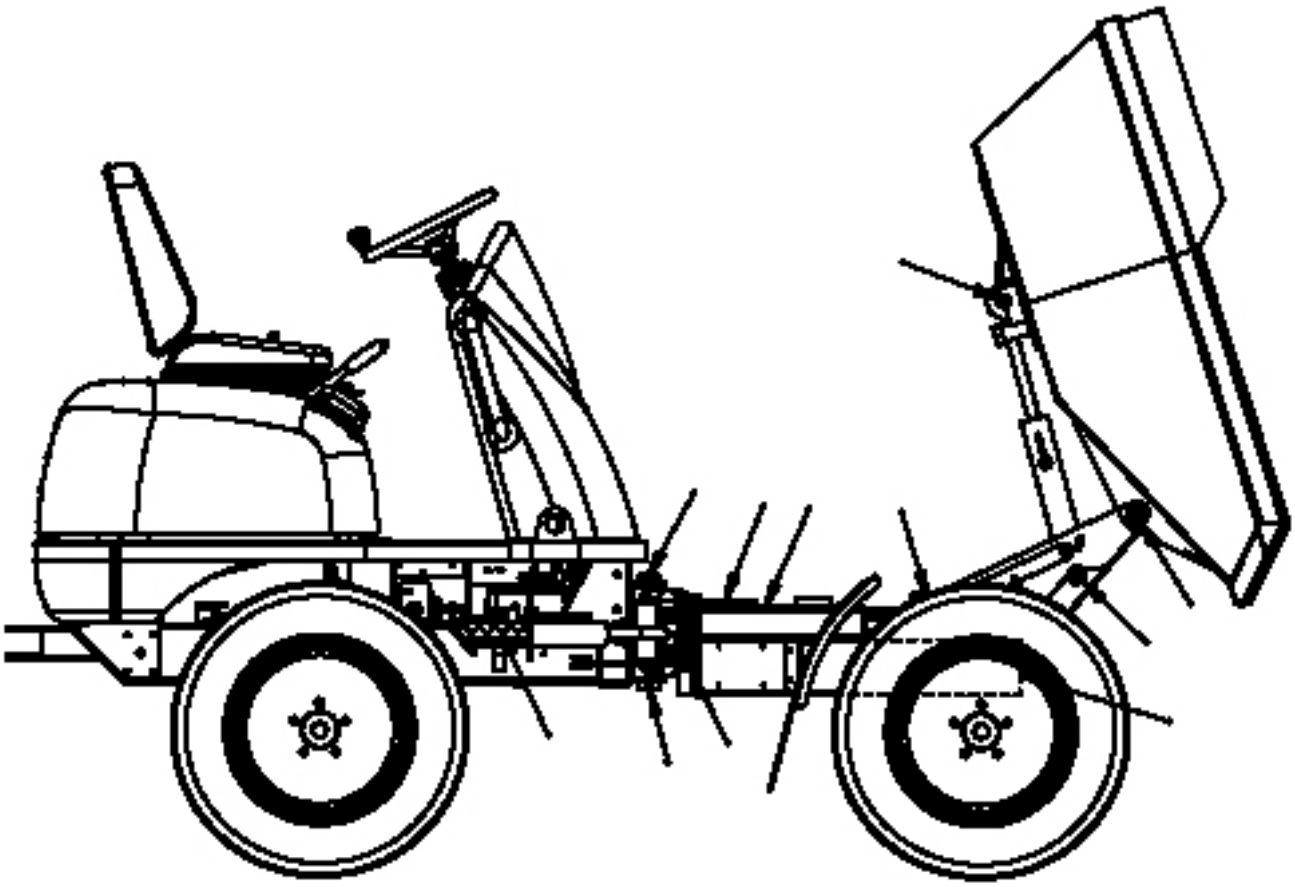
Apply multipurpose lithium grease with an MoS^2 additive to all lubrication points indicated.

5.19 Lubrication points 1501S: overview

Grease all lubrication points daily! Use ENERGREASE L21M.

Fold up the red maintenance prop before you carry out maintenance work with the lift frame raised – *see Maintenance strut, model 1501* on page 5-2.

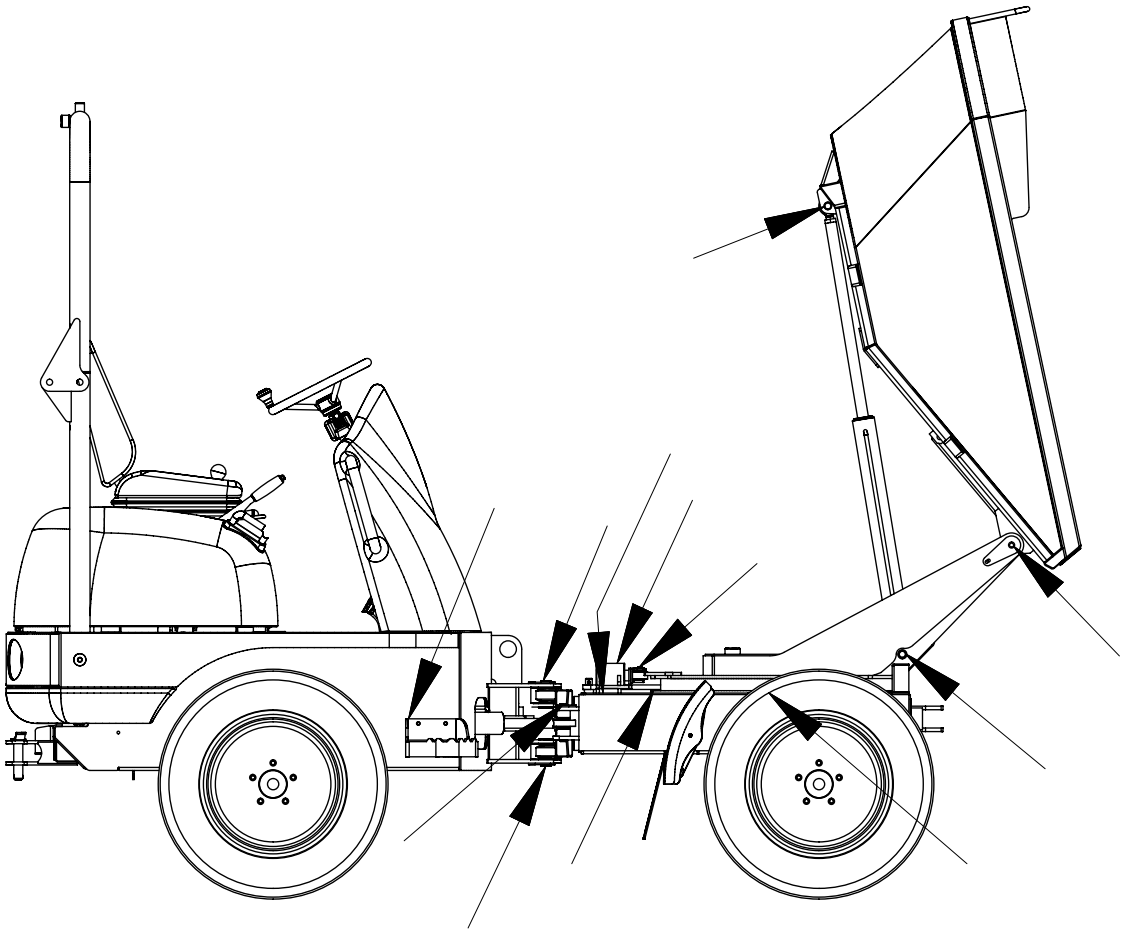
Lubricate all points daily with FINA Energrease L21M or Mobilgrease CM-P.



Apply multipurpose lithium grease with an MoS^2 additive to all lubrication points indicated.

5.20 Lubrication points 2001: overview

Fold down the red maintenance strut before you carry out maintenance work with the skip raised – *see Maintenance strut 2001* on page 5-3.
Lubricate all points daily with FINA Energrease L21M or Mobilgrease CM-P.



Apply multipurpose lithium grease with an MoS^2 additive to all lubrication points indicated.

6 Specifications (1001 – 1501)

6.1 Chassis

Sturdy steel sheet chassis, rubber-mounted engine

6.2 Engine

Engine	Tier I Model 1001 up to AC000335 Models 1501/1501S up to AC000101	Tier II Model 1001 from AB100001H Models 1501/ 1501S from AB150001H/AB150002D
Product	Yanmar diesel engine	Yanmar diesel engine
Type	3TNE74-NSR3	3TNV76-XNSV
Design	Water-cooled 4 stroke diesel engine	Water-cooled 4-stroke diesel engine, EPA2
No. of cylinders	3	3
Fuel injection system	Direct injection	Indirect injection
Aspiration	Natural aspiration	Natural aspiration
Cooling system	Water-cooled	Water-cooled/aspirating fan
Lubrication system	Force-feed lubrication with trochoidal pump	Force-feed lubrication with trochoidal pump
Displacement	1006 cm³ (61.4 in^3)	1116 cm³ (68.1 in^3)
Nominal bore and stroke	74 x 78 mm (2.9'' x 3.1'')	76 x 82 mm (3'' x 3.2'')
Output	14 kW at 2500 rpm (18.8 hp at 2500 rpm)	17 kW 2500 rpm (22.8 hp at 2500 rpm)
Max. torque	63 Nm at 1600 rpm (46.47 lbf ft at 1600 rpm)	65.8 Nm at 1600 rpm (48.53 lbf ft at 1600rpm)
Max. engine speed without load	2500 rpm	3000 rpm
Idling speed	1100 +/- 25 rpm	1300 +/- 25 rpm
Valve tip clearance (intake = outlet)	0.15 – 0.25 mm (cold) / (0.0059 - 0.0098 '')	
Compression	23.0 : 1	23.5 : 1
Compression: specified value	35 +/- 1 bar at 250 rpm (507 +/- 14.5 psi at 250 rpm)	
Compression: threshold value	27 bar at 250 rpm (391.6 psi at 250 rpm)	28 bar at 250 rpm (406.1 psi at 250 rpm)
Engine oil pressure under full load	3 – 4 bar (43.5 - 58.0 psi)	0.3 – 0.45 bar (4.4 - 6.5 psi)
Pressure switch for engine oil pump	0.5 +/- 0.1 bar (7.25 +/- 1.45 psi)	
Thermostat opens at	69.5 – 72.5 °C (157.1 - 162.5°F)	
Thermal switch	107 – 113 °C (224.6 - 235.4°F)	
Firing order	1 – 3 – 2	1 – 3 – 2
Direction of rotation	Counterclockwise (as seen from the flywheel)	Counterclockwise (as seen from the flywheel)
Starting aid	Glow plug (preheating time 10 – 15 seconds)	Glow plugs (preheating time 4 seconds)
Max. inclined position (engine no longer supplied with oil):	25°/45 % in all directions	25°/46 % in all directions 30°/58 % for 3 minutes Observe the machine's climbing ability (30°/58 %)!
Specific fuel consumption	279 g/kWh (0.615 lb/hph)	272 g/kWh (0.599 lb/hph)
Muffler values according to	97/68/EC	EPA Tier II

6.3 Travelling drive

6.4 Brakes

Variable displacement pump	Models 1501/1501S
Design	Axial piston pump
Displacement	0 – 45 cm³/rev (0 - 2.7 in^3/rev)
Flow rate	99 l/min (26 gpm)
Max. service pressure	360 bar (5221.4 psi)
Boost pump (integrated in variable displacement pump)	
Design	Gear pump
Displacement	11.6 cm³/rev (0.707 in^3/rev)
Charging/boost pressure	20 bar (290 psi)

Service brake/ parking brake	Up to AC000335	From AB150001H AB150002 D
Design	Hydrostatic	Pedal-operated hydrostatic drive brake
Location	Rear hydraulic motors	
Effect	Hydraulic parking brake for auxiliary brake and parking brake with hand brake valve control	

6.5 Steering system

Steering system	Models 1501/1501S
Design	Hydrostatic chassis articulation steering with emergency steering features.
Steering mode	Chassis articulation steering

6.6 Work hydraulics

Work hydraulics	Models 1501/1501S
Hydraulic pump displacement	8.3 cm³/rev (0.506 in^3/rev)
Hydraulic pump flow rate	18 l/min / (4.8 gpm)
Control valve	2 sections
Max. service pressure	170 bar (2465.6 psi)
Secondary pressure limiting for offset ram	165 bar (2393 psi)
Hydraulic oil cooler	Standard
Hydraulic tank capacity	20 l (5.28 gal)

6.7 Loader unit

Loader unit	Models 1501/1501S
Dump bucket capacity	650 l struck (171.7 gal)
	800 l heaped (211.3 gal)
	420 l liquid capacity (110.95 gal)
Payload	1500 kg (3306.9 lb)

6.8 Drive specifications

Steering system	Models 1501/1501S
Drive speed	0 – 18 kph/ (0 - 11.2 mph)
Articulation	+/- 33°
Oscillation	+/- 15°
Outside turning radius	3500 mm(11’ 6’’)
Hill climbing ability	45 %
Safe authorized inclination	20 % in all directions

6.9 Electric system (up to AC000101)

Electric system	
Alternator	12 V 40 A
Starter	12 V 1.1 kW
Battery	12 V 45 Ah

Fuse box

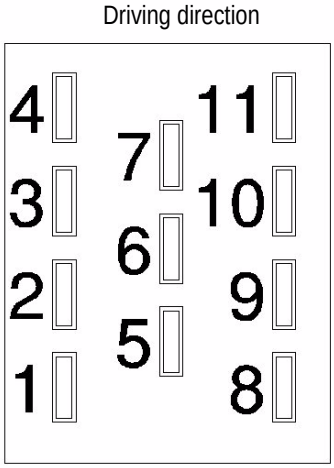


Fig. 24: Fuse box

Fuse no.	Rated current (A)	Protected circuit
1	30 A	– Cutoff solenoid, cutoff solenoid time lag relay
2	7.5 A	– Horn
3	7.5 A	– Alternator governor
4	7.5 A	– Solenoid valve pump
5	7.5 A	– Light switch
6		– Not assigned
7		– Not assigned
8	7.5 A	– Indicator lights
9		– Not assigned
10		– Not assigned
11		– Not assigned

Relays

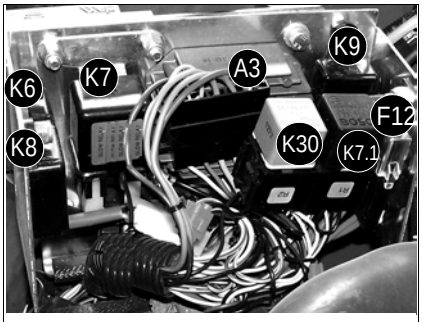


Fig. 25: Relays

The relays are located in the relay box under the control stand, next to the swivelling console

Switching relay no.	Protected circuit
K 6	– Preheating time lag relay
K 8	– Cutoff solenoid time lag relay
K 7	– Start high current relay
K 9	– Cutoff solenoid switching relay
K 30	– Relay for parking brake warning buzzer
K 7.1	– Start interlock relay
A3	– Regulator
F12	– Main fuse

6.10 Electric system (from AB150001H/150002D)

Electric system	
Alternator	12 V 40 A
Starter	12 V 1.1 kW
Battery	12 V 45 Ah

Fuse box

The fuse box is located on the right-hand side of the machine under the engine cover (see arrow).

Fig. 26: Fuse box

Fuse no.	Rated current (A)	Protected circuit
F 3	10 A	– Cutoff solenoid, cutoff solenoid time lag relay
F 4	15 A	– Drive solenoid valves
F 5	10 A	– Horn, parking brake, brake lights
F 6	15 A	– Turn indicators
F 7	15 A	– High beam
F 8	10 A	– Low beam
F 9	10 A	– Clearance light
F10	10 A	– Hazard warning system

6.11 Relays

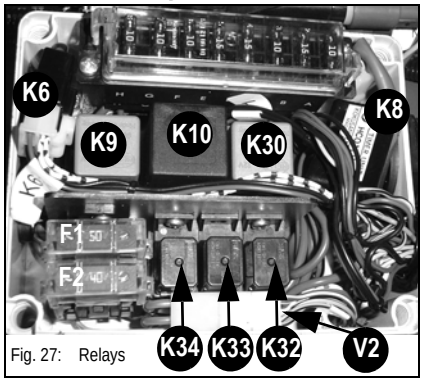


Fig. 27: Relays

Tyres 1001/1501/2001

Switching relay no.	Protected circuit
K 6	– Preheating time lag relay
K 8	– Cutoff solenoid time lag relay
K 9	– Cutoff solenoid switching relay
K 10	– Turn indicator relay
K 30	– Parking brake relay
K 32	– Start interlock relay
K 33	– Low beam relay
K 34	– High beam relay
V2	– Diodes
F 1, 2	– Main fuses

Tire size	Tyre pressure		
	Front	Rear	Wheel offset
10.00/7.5x15	3 bar (43,51 psi)	3 bar (43,51 psi)	20

6.12 Noise levels

Sound power level	Up to AC000335	From AB150001H AB150002D
Sound power level (L_{WA})	102 dB (A)	101 dB (A)

Important

Measurement of sound power level according to EC Directive 2000/14 EC.
Noise level at the driver's ear measured according to EC Directives 84/532/EEC, 89/514/EEC and 95/27/EEC.
Measurements carried out on asphalted surface.

6.13 Coolant compound table

Outside temperature	Coolant			
	Water	Anticorrosion agent		Antifreeze agent
Up to °C (°F)	% by volume	cm³/l (oz/gal)	% by volume	% by volume
4 (39,2)	99	10 (1.28)	1	–
-10 (14)	79			20
-20 (-4)	65			34
-25 (-13)	59			40
-30 (-22)	55			44

6.14 Dimensions model 1001

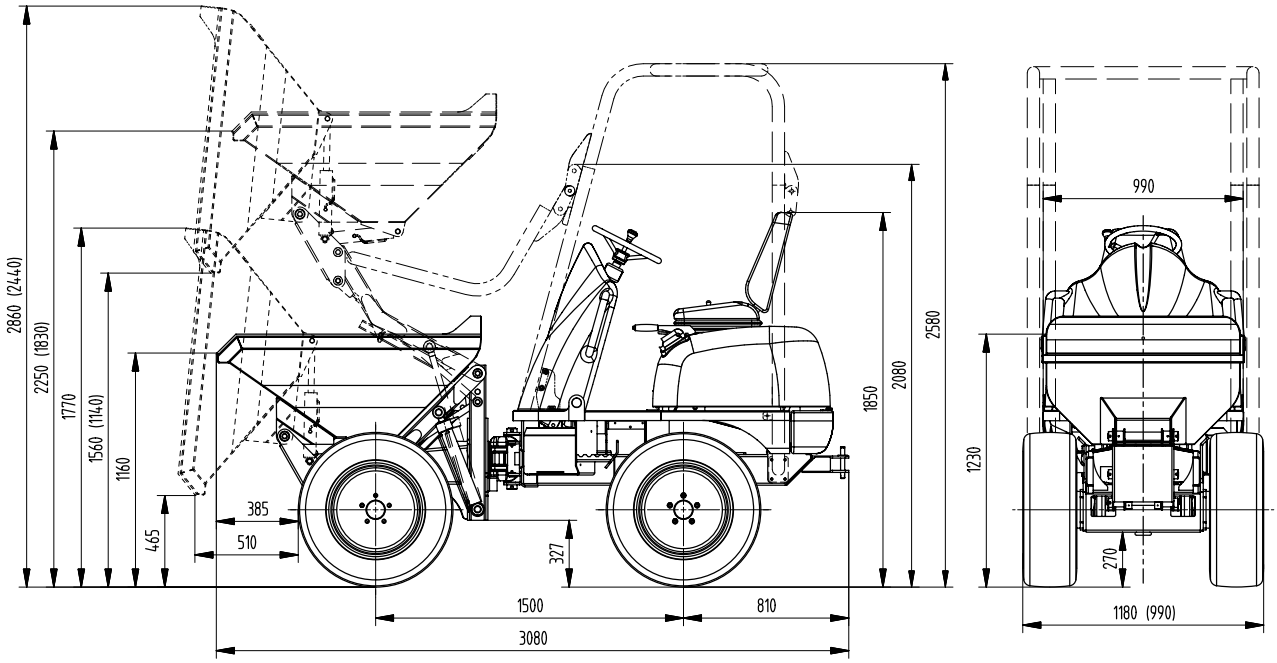


Fig. 28: Machine dimensions (model 1001)

The measurements are Metric (Imperial)

Main data	Model 1001
Dead weight	1165 kg (2568.4 lbs)
Overall height	2580 mm (8’ 6’’)
Overall height with rollbar folded down	2080 mm (6’ 10’’)
Overall height without rollbar	1850 mm (6’ 1’’)
Overall width	1180 mm (3’ 10’’)
Overall width (narrow version)	990 mm (3’ 3’’)
Ground clearance	270 mm (11’’)
Wheelbase	1500 mm (4’ 11’’)
Outside turning radius	3200 mm (10’ 6’’)

6.15 Dimensions model 1501

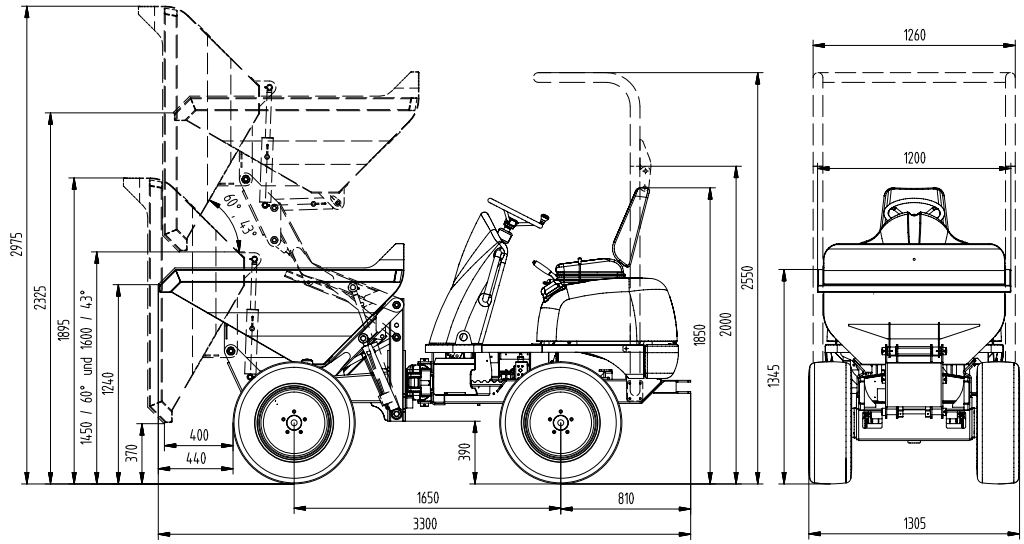


Fig. 29: Machine dimensions (model 1501)

The measurements are Metric (Imperial)

Main data	Model 1501
Dead weight	1226 kg (2702.9 lbs)
Overall height	2550 mm (8’ 4’’)
Overall height with rollbar folded down	2000 mm (6’ 7’’)
Overall height without rollbar	1850 mm (6’ 1’’)
Overall width	1305 mm (4’ 3’’)
Ground clearance	270 mm (11’’)
Wheelbase	1650 mm (5’ 5’’)
Outside turning radius	3500 mm (11’ 6’’)

6.16 Dimensions model 1501S

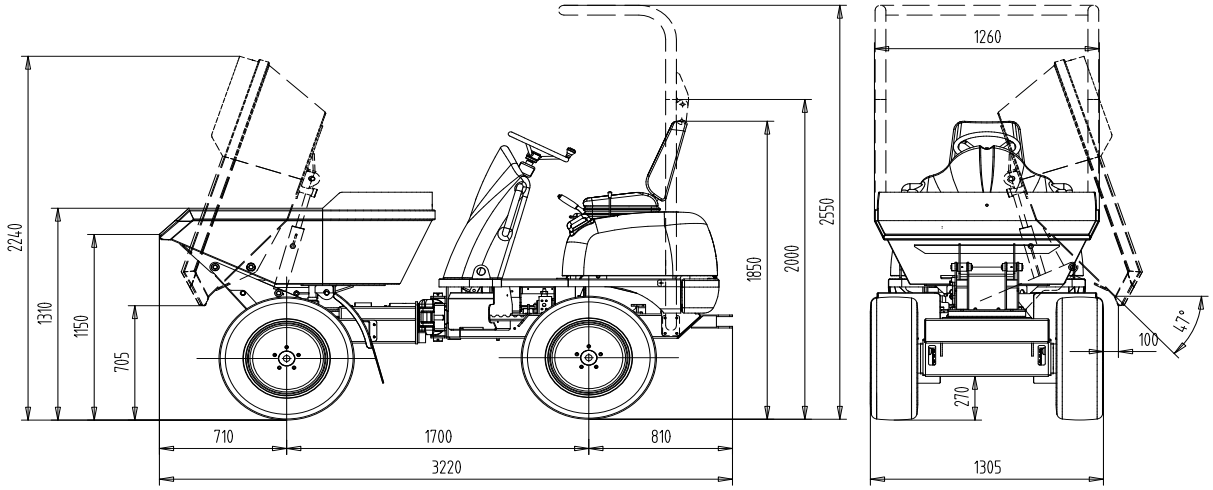


Fig. 30: Machine dimensions (model 1501S)

The measurements are Metric (Imperial)

Main data	Model 1501S
Dead weight	1210 kg (2667.6 lbs)
Overall height	2550 mm (8’ 4’’)
Overall height with rollbar folded down	2000 mm (7’ 7’’)
Overall height without rollbar	1850 mm (6’ 1’’)
Overall width	1305 mm (4’ 3’’)
Ground clearance	270 mm (11’’)
Wheelbase	1700 mm (6’ 7’’)
Outside turning radius	3500 mm (11’ 6’’)

6 Specifications (2001)

6.1 Engine

Engine	Model 2001	
	Tier 2	Tier 3
Product	Yanmar diesel engine	
Type	3TNV82V-DNSV	3TNV82A-BDNSV
Design	Water-cooled 4 stroke diesel engine	
No. of cylinders	3	
Fuel injection system	Direct injection	
Aspiration	Natural aspiration	
Cooling system	Water-cooled	
Lubrication system	Force-feed lubrication with trochoidal pump	
Displacement	1331 cm^3 (81.2 in^3)	
Nominal bore and stroke	82 x 84 mm (3.23'' x 3.3''')	
Output	22.1 kW +/- 3 % at 3000 rpm	
Max. torque	83 Nm at 1800 rpm	
Max. engine speed without load	3180 rpm +/- 25 rpm	
Idling speed	~ 1050 rpm +/- 25 rpm	
Valve clearance (intake = outlet)	0.15 – 0.25 mm (cold) (0.0059'' - 0.0098 '')	
Injection pressure	220 – 230 bar (3190 - 3335.9 psi)	
Compression	31 +/- 1 bar at 250 rpm (449.6 +/- 14.5 psi^2 at 250 rpm)	
Engine oil pressure	3 – 4 bar (43.5 - 58 psi)	3.2 – 4.7 bar (46.4 - 68.2 psi)
Pressure switch for engine oil pump	0.5 +/- 0.1 bar (7.3 +/- 1.5 psi)	
Thermostat opening temperature	69.5 – 72.5 °C (157.1 - 162.5°F)	
Thermal switch	107 – 113 °C (224.6 - 235.4 °F)	
Firing order	1 – 3 – 2	
Direction of rotation	Counterclockwise (as seen from the flywheel)	
Starting aid	Glow plug (preheating time 10 – 15 seconds)	Glow elements (preheating time 10 – 15 seconds)
Max. inclined position (engine no longer supplied with oil):	25°/45 % in all directions	
Muffler values according to	97/68/EG EPA II	97/68/EC EPA

6.2 Travelling drive

Variable displacement pump	Model 2001
Design	Axial piston pump
Displacement	0 – 56 cm³/rev (0 - 3.4in³/rev)
Flow rate	168 l/min (44.4 gpm)
Max. service pressure	420 bar (6091.6 psi)
Boost pump (integrated in variable displacement pump)	
Design	Gear pump
Displacement	8.3 cm³ (0.51 in³)
Charging/boost pressure	25 bar (362.6 psi)

6.3 Brakes

Service brake/parking brake	Model 2001
Design	Hydrostatic and hydraulic parking brake
Function	Effect on hydraulic pump via rotary throttle. In addition, solenoid valve on hydraulic parking brake on front wheel motors
Parking brake	Hydraulic parking brake on all four wheel motors actuated with parking brake valve

6.4 Steering system

Steering system	Model 2001
Design	Hydrostatic chassis articulation steering with emergency steering features
Steering mode	Chassis articulation steering

6.5 Work hydraulics

Work hydraulics	Model 2001
Hydraulic pump displacement	8.3 cm³/rev (0.51 in³)
Hydraulic pump flow rate	25 l/min (6.6 gpm)
Control valve	2 sections
Max. service pressure	175 bar (2538.2 psi)
Secondary pressure limiting for offset ram	160 bar (2320.6 psi)
Hydraulic oil cooler	Standard
Hydraulic tank capacity	28 l (7.4 gal)

6.6 Loader unit

Loader unit	Model 2001
Skip capacity	930 l struck (246 gal)
	1210 l heaped (320 gal)
	680 l liquid capacity (180 gal)
Payload	2000 kg (4409.2 lbs)

6.7 Drive specifications

Steering system	Model 2001
Drive speed	0 – 21 kph
Articulation	+/- 33°
Oscillation	+/- 15°
Outside turning radius	3500 mm (11’ 6’’)
Hill climbing ability	20 %
Safe authorized inclination	20 % in all directions

6.8 Electric system

Electric system	
Alternator	12 V 40 A
Starter	12 V 1.4 kW
Battery	12 V 74 Ah

Fuse box

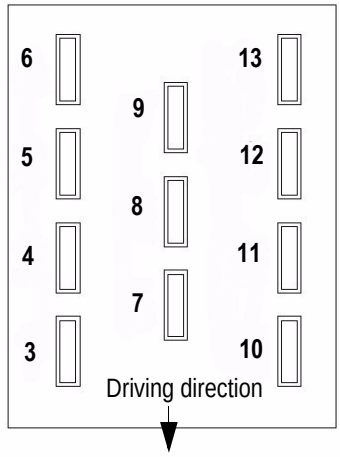


Fig. 31: Fuse box

Fuse number	Rated current (A)	Protected circuit
3	10 A	– Hazard warning system 30
4	7.5 A	– Clearance lights, numberplate lights
5	7.5 A	– Low beam
6	10 A	– High beam
7	7.5	– Not assigned
8	7.5 A	– Horn, brake lights
9	10 A	– Turn indicators, indicator lights, fuel level indicator, safety relays
10	7.5 A	– Rotating beacon
11	7.5 A	– Travelling drive
12	10 A	– Cutoff solenoid relay
13	20 A	– Cutoff solenoid 30

Relays

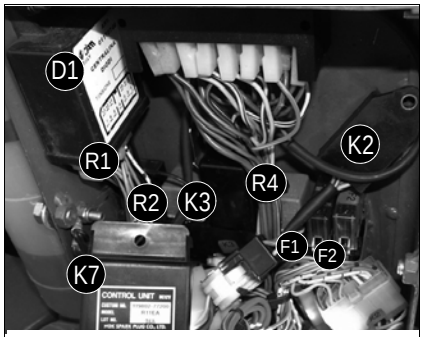


Fig. 32: Relays

The relays are located in the relay box under the control stand, next to the swivelling console

Switching relay no.	Protected circuit
F 1	– Main fuse
F 2	– Main fuse
R 1	– Start high current relay
R 2	– Start interlock relay
R 4	– Cutoff solenoid relay
K 2	– Preheating time lag relay
K 3	– Turn indicator relay
K 7	– Safety relay
D1	– Diode box

6.9 Tires

Tire size	Tire pressure		
	Front	Rear	Wheel offset
10.00/7.5x15	3 bar (43.5 psi)	3 bar (43.5 psi)	20

6.10 Noise levels

Sound power level	2001
Sound power level (L_{WA})	101 dB (A)

Important

Measurement of sound power level according to EC Directive 2000/14 EC.
Noise level at the driver's ear measured according to EC Directives 84/532/EEC, 89/514/EEC and 95/27/EEC.
Measurements carried out on asphalted surface.

6.11 Coolant compound table

Outside temperature	Coolant			
	Water	Anticorrosion agent		Antifreeze agent
Up to °C(°F)	% by volume	cm³/l (oz/gal)	% by volume	% by volume
4 (39.2)	99	10 (1.28)	1	–
-10 (14)	79			20
-20 (-4)	65			34
-25 (-13)	59			40
-30 (-22)	55			44

The relays are located in the relay box under the the floor panel of the control stand

Switching relay no.	Protected circuit
F1, F2	– Main fuses
K 6	– Preheating time lag relay
K7	– Start high current relay
K 8	– Cutoff solenoid time lag relay
K 9	– Cutoff solenoid switching relay
K 10	– Turn indicator relay
K32	– Start interlock relay
K33	– Low beam relay
K34	– High beam relay
V2	– Diodes

6.12 Tyres

Tyre size	Tyre pressure		
	Front	Rear	Wheel offset
10.00/7.5x15	3 bar (43.5 psi)	3 bar (43.5 psi)	20

6.13 Noise levels

Sound power level	3001
Sound power level (L_{WA})	101 dB (A)
Sound pressure level (L_{PA})	85 dB (A)

Important

Measurement of sound power level according to EC Directive 2000/14 EC.
Noise level at the driver's ear measured according to EC Directives 84/532/EEC, 89/514/EEC and 95/27/EEC.
Measurements carried out on asphalted surface.

6.14 Coolant compound table

Outside temperature	Coolant			
	Water	Anticorrosion agent		Antifreeze agent
Up to °C	% by volume	cm³/l (oz/gal)	% by volume	% by volume
4 (39.2)	99	10 (1.28)	1	–
-10 (14)	79			20
-20 (-4)	65			34
-25 (-13)	59			40
-30 (-22)	55			44

6.15 Dimensions model 2001

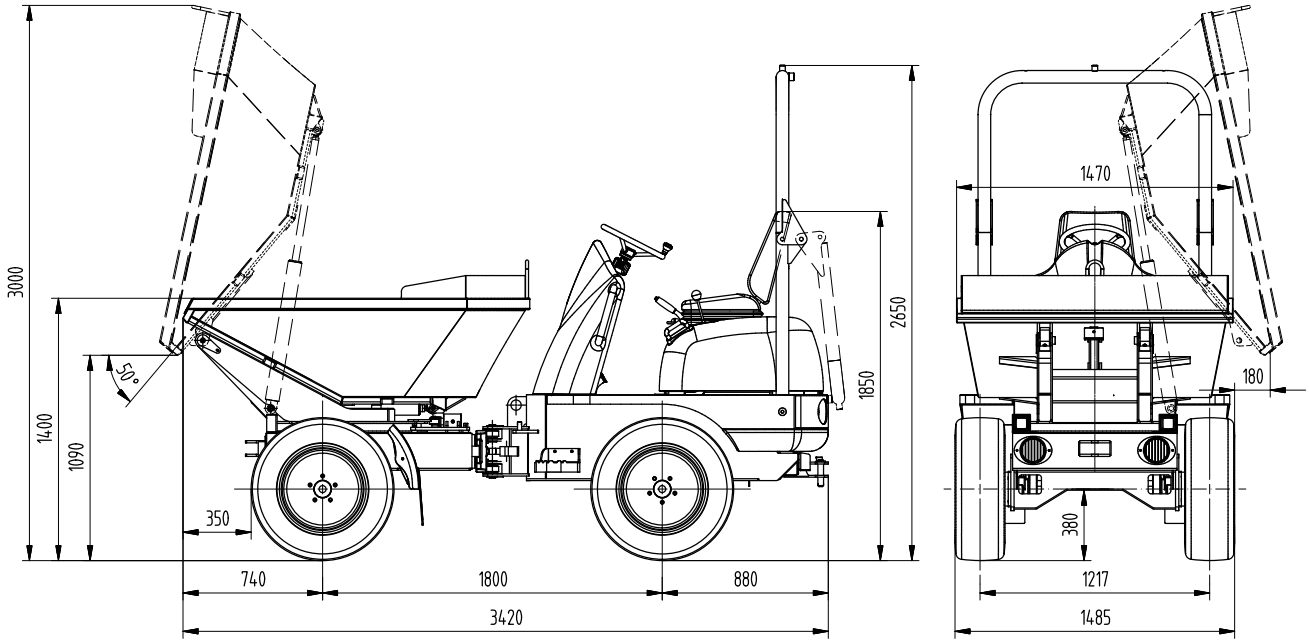


Fig. 33: Machine dimensions (model 2001)

The measurements are Metric (Imperial)

Main data	Model 2001
Dead weight	1810 kg (3990 lbs)
Overall height	2650 mm (8’ 8”)
Overall height with rollbar folded down	1850 mm (6’ 1”)
Overall height without rollbar	1850 mm (6’ 1”)
Overall width	1485 mm (5’ 10”)
Ground clearance	380 mm (1’ 3”)
Wheelbase	1800 mm (6’ 11”)
Outside turning radius	3500 mm (11’ 6”)
Hill climbing ability	45 % theoretically
Safe authorized inclination	20 % in all drive positions

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