WACKER NEUSON

Operator's Manual

Dumper

1001, 1501, 2001

Machine type	**D01-04/D01-05/D05-02**
Edition	**3.3**
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Wacker Neuson Linz GmbH keep abreast of the latest technical developments and constantly improve their products. For this reason, we may from time to time need to make changes to diagrams and descriptions in this documentation which do not reflect products which have already been delivered and which will not be implemented on these machines.

Technical data, dimensions and weights are given as an indication only. Responsibility for errors or omissions not accepted. Non-metric weights and measurements are approximate.

The cover features machines with possible optional equipment.

Pictures and graphics are symbolic representations and can differ from the actual product.

Wacker Neuson Linz GmbH

Flughafenstraße 7

A-4063 Hörsching

Table of contents

Introduction **1**
Important information on this Operator's Manual ... 1-1
Brief description ... 1-2
Regulations ... 1-2
EC declaration of conformity 1001 for all machines delivered before 29 December 2009 1-3
EC declaration of conformity 1001 for all machines delivered after 29 December 2009 1-4
EC declaration of conformity 1501 for all machines delivered before 29 December 2009 1-5
EC declaration of conformity 1501 for all machines delivered after 29 December 2009 1-6
EC declaration of conformity 2001 for all machines delivered before 29 December 2009 1-7
EC declaration of conformity 2001 for all machines delivered after 29 December 2009 1-8
Type labels and component numbers ... 1-9
Other signs and symbols ... 1-10

Safety Information **2**
Safety Symbols Found in this Manual ... 2-1
Warranty ... 2-2
Designated use ... 2-2
General Conduct and Safety Instructions ... 2-3
User training and knowledge ... 2-3
Preparing for use ... 2-3
Modifications and spare parts ... 2-3
General conduct and safety instructions ... 2-4
Organizational measures ... 2-4
Selection and qualification of staff, basic responsibilities ... 2-5
Safety instructions regarding operation ... 2-6
Normal operation ... 2-6
Operation with lowered rollbar ... 2-8
Trailer operation ... 2-8
Staff Qualifications and Basic Responsibilities ... 2-9
User/owner responsibility ... 2-9
Repair person qualifications ... 2-9
Safety instructions regarding operation ... 2-9
Preparing for use ... 2-9
Startup and shutdown ... 2-9
Job Site awareness ... 2-10
Danger zone awareness ... 2-10
Operating the machine ... 2-10
Special operating notes ... 2-10
Carrying passengers ... 2-11
Mechanical integrity ... 2-11
Traveling on public roads ... 2-11
Trailering and Transport ... 2-12
Trailers ... 2-12
Transport ... 2-12
Temperature Range ... 2-12
Safety Guidelines for Maintenance ... 2-12
General maintenance notes ... 2-12
Personal safety measures ... 2-13
Preparing for maintenance and repair work ... 2-13

Performing maintenance and repairs ... 2-13
Special hazards ... 2-14
Battery ... 2-14
Tracks (track dumpers) ... 2-14
Electric energy ... 2-14
Gas, dust, steam, smoke ... 2-15
Hydraulics ... 2-15
Noise ... 2-15
Oil, grease and other chemical substances ... 2-15
MSDS ... 2-15
Tires (wheel dumpers) ... 2-16
Safety Guidelines while using Internal Combustion Engines ... 2-16
Guidelines for running the engine ... 2-16
Guidelines for fueling the engine ... 2-17

Operation **3**
Description of 2001S components (overview) ... 3-4
Description of 2001 SLE components ... 3-5
1001/1501/1501S operating equipment up to serial no. AB 3-6
1001/1501/1501S operating equipment from serial no. AB 3-7
2001/2001SLE operating equipment ... 3-8
Putting into operation ... 3-9
Safety instructions ... 3-9
Putting into operation for the first time ... 3-9
Running-in period ... 3-9
Check lists ... 3-10
Start-up checklist ... 3-10
Operation checklist ... 3-11
“Parking” checklist ... 3-11
Machine travel ... 3-12
Preheating start switch (overview) ... 3-12
Accelerator pedal (overview) ... 3-12
Indicator lights and warning lights (overview) ... 3-13
Mirrors (option) ... 3-15
Adjusting the outside rearview mirrors on left and right ... 3-15
StVO accessories (option) ... 3-16
Reversing signal (option) ... 3-16
Before starting the engine ... 3-16
General information on starting the engine ... 3-16
Procedure ... 3-17
Travel interlock ... 3-18
When the engine has started 3-19
Engine warm-up ... 3-19
Jump-starting the engine (supply battery) ... 3-19
Special instructions for traveling on public roads ... 3-20
Checks before traveling on public roads ... 3-20
Starting machine travel ... 3-20
Brake pedal (standard for 1001 + 1501, option for 2001) ... 3-21
Parking brake ... 3-22
Hazard warning system ... 3-23
Rotating beacon (option) ... 3-23
Machine travel on slopes ... 3-23
Specific safety instructions ... 3-23
Driving on slopes with a loaded skip ... 3-24
Machine travel on slopes with an empty skip ... 3-24
Machine travel across slopes ... 3-24
Parking the machine ... 3-25

Loading the machine ... 3-26
Seat adjustment ... 3-27
Weight adjustment ... 3-27
Horizontal adjustment ... 3-27
Backrest adjustment ... 3-27
Seat belt ... 3-28
Engine cover ... 3-29
Working with the machine ... 3-30
General safety instructions ... 3-30
Skip operation ... 3-31
Operation of high-tip skip (1001/1501H) ... 3-31
Swivel skip operation (1501S/option) ... 3-31
Swivel skip operation (2001S) ... 3-31
Swivel skip and loader unit operation (2001SLE) ... 3-32
Loader unit (option 2001) ... 3-33
Rollbar ... 3-34
Towing 1001/1501/2001 ... 3-35
Opening the high-pressure circuit 1001/1501 ... 3-35
Releasing the hydraulic parking brake 1001/1501 ... 3-36
Opening the high-pressure circuit 2001 ... 3-36
Releasing the hydraulic parking brake 2001 ... 3-37
Center-pivot prop ... 3-38
Locking the control levers ... 3-38
Locking the control levers (1001/1501) ... 3-38
Locking the control levers (2001) ... 3-39
Lifting the machine ... 3-40
Loading and transporting the machine ... 3-41
Tying down the machine ... 3-42
Battery master switch 1001 – 1501 ... 3-42

Malfunctions **4**
Engine trouble ... 4-1

Maintenance **5**
Introduction ... 5-1
Brake test ... 5-2
High-tip skip maintenance prop (1001/1501H) ... 5-3
Swivel skip maintenance prop (1501S/option) ... 5-3
Swivel skip maintenance prop 2001S ... 5-4
Fuel system ... 5-5
Specific safety instructions ... 5-5
Refueling ... 5-5
Stationary fuel pumps ... 5-7
Diesel fuel specification ... 5-7
Bleeding the fuel system ... 5-7
Fuel prefilter with water separator ... 5-8
Replacing the fuel filter ... 5-9
Engine lubrication system ... 5-10
Checking the oil level ... 5-10
Adding engine oil ... 5-11
Engine and hydraulics cooling system ... 5-12
Specific safety instructions ... 5-12
Checking the coolant level/adding coolant ... 5-13
Air filter (1001/1501: up to serial no. EA01742) ... 5-15
Replacing the filter ... 5-16
Air filter (1001/1501: from serial no. EA01743) ... 5-17
Replacing the air filter ... 5-17
V-belt ... 5-18

Checking V-belt tension 5-18
Retightening the V-belt 5-19
Hydraulic system 5-20
Specific safety instructions 5-20
Checking the hydraulic oil level 5-21
Adding hydraulic oil 5-22
Changing hydraulic oil 5-23
Dirt indicator for hydraulic oil filter 5-23
Replacing the hydraulic oil filter element 5-23
Important information on the use of biodegradable oil 5-24
Checking hydraulic pressure lines 5-25
Tires 5-26
Inspection work 5-26
Wheel change 5-27
Electrical system 5-28
Specific safety instructions 5-28
Servicing and maintenance at regular intervals 5-28
Instructions concerning specific components 5-29
Alternator 5-29
Battery 5-29
General maintenance 5-30
Cleaning 5-30
General instructions for all areas of the machine 5-30
Exterior of the machine 5-31
Engine compartment 5-31
Threaded fittings and attachments 5-31
Pivots and hinges 5-31
Engine/machine fluids and lubricants (1001 and 1501) 5-32
Engine/machine fluids and lubricants (2001) 5-34
Maintenance plan 1001 – 1501 (overview) 5-36
Maintenance plan 2001 (overview) 5-39
Lubrication plan 1001/1501H (high-tip skip) 5-42
Lubrication plan 1501S (swivel skip) 5-44
Lubrication plan 2001 (swivel skip) 5-46

Technical data (1001 – 1501) 6
Chassis 6-1
Engine 6-1
Traveling drive 1001 6-2
Traveling drive 1501 6-2
Brakes 6-2
Steering system 6-2
Operating hydraulics 6-3
Loader unit 6-3
Travel specifications 6-3
Electrical system 6-4
Fuse box (up to AC000101) 6-4
Relays (up to AC000101) 6-4
Fuse box (from AB150001H/150002D) 6-4
Relays (from AB150001H/150002D) 6-5
Tires 1001/1501 6-6
Noise levels 6-6
Coolant compound table 6-6
Vibration 6-6
Dimensions model 1001 6-9
Dimensions model 1501 6-10
Dimensions model 1501S 6-11

Technical data (2001) **6**
Chassis ... 6-12
Engine ... 6-12
Traveling drive ... 6-13
Brakes ... 6-13
Steering system ... 6-13
Operating hydraulics ... 6-13
Loader unit ... 6-14
Travel specifications ... 6-14
Electrical system ... 6-14
Fuse box ... 6-14
Relays ... 6-15
Tires ... 6-16
Coolant compound table ... 6-16
Noise levels ... 6-16
Vibration ... 6-16
Dimensions model 2001 ... 6-19

Safety instructions for operation of earth moving machines **7**
Preliminary remark ... 7-1
Designated use ... 7-1
General ... 7-2
Danger zone ... 7-3
Stability ... 7-3
Operation ... 7-4
Assembly, maintenance, repair ... 7-8
Towing and transporting ... 7-10
Monitoring ... 7-10

Numerisch

14 3-8

A

Abbreviations 1-1
Air filter 5-15

B

Biodegradable oil 5-24

C

Check lists 3-10

D

Driving on public roads 3-20
Driving the dumper 3-12

F

Fastening the seat belt 3-28
Fluids and lubricants 5-32, 5-34

I

Important information
- On this Operator's Manual 1-1

Indicator lights and warning lights 3-13
Instrument panel overview 3-2, 3-3, 3-4, 3-5

L

Legal regulations 1-2
Lifting the machine 3-40

M

Machine
- Brief description 1-2
- Loading and transporting 3-41

Maintenance
- Adding coolant 5-13
- Adding engine oil 5-11
- Adding hydraulic oil 5-22
- Air filter 5-16
- Biodegradable oil 5-24
- Checking the coolant level 5-13
- Checking the engine oil level 5-10
- Checking the hydraulic oil level 5-21
- Cleaning 5-30
- Electrical system 5-28
- Engine and hydraulics cooling system 5-12
- Engine lubrication system 5-10
- Fluids and lubricants 5-32, 5-34
- Fuel system 5-5
- General maintenance 5-30
- Hydraulic pressure lines 5-25
- Hydraulic system 5-20
- Instructions concerning specific components 5-29
- Maintenance plan 5-36, 5-39
- Pivots and hinges 5-31
- Replacing the fuel filter 5-9
- Servicing and maintenance at regular intervals 5-28
- Threaded fittings 5-31
- Tires 5-26
- V-belt 5-18

O

Operation 3-1
- Before starting the engine 3-15
- Control stand overview 3-5
- Description of 1001/1501 components (overview) 3-2
- Description of 1501S components (overview) 3-3
- Description of 2001S components (overview) 3-4
- Instrument panel overview 3-2, 3-3, 3-4, 3-5
- Parking the machine 3-25
- Seat belt height adjustment 3-28
- Starting the engine 3-16

P

Preheating start switch 3-12
Putting into operation 3-2, 3-3, 3-4, 3-5
- Check lists 3-10
- Putting into operation for the first time 3-9
- Safety instructions 3-9

R

Refueling 5-5
Rollbar 3-34
Rotating beacon (option) 3-23
Running-in period 3-9

S

Safety instructions
- Operation 2-6
- Trailers and attachments 2-8

Seat adjustment 3-27
- Backrest adjustment 3-27
- Horizontal adjustment 3-27
- Weight adjustment 3-27

Seat belt 3-28
Signs and symbols 1-10
Starting aid 3-19

T

Technical data 6-1, 6-12
- Chassis 6-1
- Coolant compound table 6-8, 6-19
- Dimensions 6-9, 6-10, 6-11, 6-19
- Electrical system 6-4, 6-14
- Engine 6-1, 6-12
- Noise levels 6-6, 6-16

Tires 5-26

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 hazardous situations and reduce repair costs and downtimes. Furthermore, the reliability and the service life of the machine will be increased by following the instructions in the Operator's Manual. This is why **the Operator's Manual must always be kept at hand in the machine.**

Your own safety, as well as the safety of others, depends to a great extent on how the machine is moved and operated. Therefore, carefully read and understand this Operator's Manual prior to the first drive. This Operator's Manual will help to familiarize 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 servicing is absolutely necessary. Extensive maintenance and repair work must always be performed by an expert with appropriate training. Insist on using original spare parts when performing maintenance and repair work. This ensures operational safety and readiness of your machine, and maintains its value.

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

Abbreviations/symbols

- Identifies a list
  - Subdivision within lists or an activity. Follow the steps in the recommended order

☞ *Identifies an activity*

➥ 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 skip or front skip
- Yanmar three cylinder diesel engine
- Sturdy steel sheet chassis

Important

The machine can be equipped with the **"Telematic"** option (for transmitting operating data, location, etc. via satellite).

1.3 Regulations

Requirements to be met by the operator

Earth moving machines may be traveled 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 perform 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 1001 for all machines delivered before 29 December 2009

EG-Konformitätserklärung

Gemäß Maschinen-Richtlinie 98/37/EG, Anhang II A

Der Unterzeichnende — Wacker Neuson Linz GmbH
Haidfeldstraße 37
A-4060 Leonding

bescheinigt, daß die Baumaschine,

NEUSON

Firmenstempel

1. Art	Kompakt-Dumper
2. Fabrikmarke	WACKER NEUSON
3. Typ	**1001**
4. Nummer innerhalb der Typenserie des Geräts	

folgenden einschlägigen Bestimmungen entspricht — 98/37/EG
2004/108/EG
2000/14/EG
2005/88/EG

Angewandte harmonisierte Normen — EN 474-1, EN 474-6
EN ISO 12100-1, EN ISO 12100-2
EN 982

Nationale Normen und technische Spezifikationen

Gemessener Schalleistungspegel — 91,7 dB
Garantierter Schalleistungspegel — **93 dB**
Zertifikat-Nr.: **OR/150012/013**

Einbezogene Prüfstelle — TÜV Anlagen und Umwelt GmbH
Westendstraße 199
D-80686 München

Die gemeldete Stelle nach Anhang VII — Fachausschuß Tiefbau
Landsbergerstr. 309
D - 80687 München

Wurde (wird) eingeschaltet zur

Freiwilligen Baumusterprüfung — Baumusterprüfbescheinigungs-Nr.: **08003-E**

Leonding, ...: — .....:
Ort, Datum — Josef Erlinger, Geschäftsführer
Unterschrift

1.5 EC declaration of conformity 1001 for all machines delivered after 29 December 2009

EC Declaration of Conformity

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

Manufacturer

Wacker Neuson Linz GmbH
Haidfeldstr. 37
4060 Linz-Leonding

Product

Machine designation:	Compact dumper
Machine model:	1001
Serial no.:	_____
Output (kW):	17 kW
Measured sound power level:	100.6 dB (A)
Guaranteed sound power level:	101 dB (A)

Conformity assessment procedure

Notified body according to Directive 2006/42/EC, appendix XI:
Fachausschüsse Bau und Tiefbau
Prüf- und Zertifizierungsstelle im BG-PRÜFZERT
Landsberger Str. 309
D-80687 Munich
Distinguishing EU number 0036

Notified body according to Directive 2000/14/EC, appendix VI:
TÜV SÜD Industrie Service GmbH
Westendstr. 199
D-80686 Munich

Directives and standards

We hereby declare that this product corresponds to the relevant regulations and requirements of the following Directives and standards:
2006/42/EC (old 98/37 EC), 2004/108/EC (old 89/336/EEC), 2002/44/EC, 2005/88/EC, 2000/14/EC;
DIN EN ISO 12100-1 and 2, DIN EN 474-1 and 6, DIN EN 14121,
DIN EN 3471, DIN EN 13510, EN ISO 3744, EN ISO 3746, DIN EN ISO 3449

Leonding, _____	_____	_____
Place, date	Thomas Köck,	Josef Erlinger,

1.6 EC declaration of conformity 1501 for all machines delivered before 29 December 2009

EG-Konformitätserklärung

Gemäß Maschinen-Richtlinie 98/37/EG, Anhang II A

Der Unterzeichnende: Wacker Neuson Linz GmbH
Haidfeldstraße 37
A-4060 Leonding

NEUSON

Firmenstempel

bescheinigt, daß die Baumaschine,

1. Art	Kompakt-Dumper
2. Fabrikmarke	WACKER NEUSON
3. Typ	**1501**
4. Nummer innerhalb der Typenserie des Geräts	
folgenden einschlägigen Bestimmungen entspricht	98/37/EG 2004/108/EG 2000/14/EG 2005/88/EG
Angewandte harmonisierte Normen	EN 474-1, EN 474-6 EN ISO 12100-1, EN ISO 12100-2 EN 982
Nationale Normen und technische Spezifikationen	
Gemessener Schalleistungspegel	92,8 dB
Garantierter Schalleistungspegel	**93 dB**

Zertifikat-Nr.: **OR/01589**

Einbezogene Prüfstelle	TÜV Anlagen und Umwelt GmbH Westendstraße 199 D-80686 München
Die gemeldete Stelle nach Anhang VII	Fachausschuß Tiefbau Landsbergerstr. 309 D - 80687 München

Wurde (wird) eingeschaltet zur Freiwilligen Baumusterprüfung — Baumusterprüfbescheinigungs-Nr.: **03154-E**

Leonding, ...:
Ort, Datum

.....:
Josef Erlinger, Geschäftsführer
Unterschrift

1.7 EC declaration of conformity 1501 for all machines delivered after 29 December 2009

EC Declaration of Conformity

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

Manufacturer

Wacker Neuson Linz GmbH
Haidfeldstr. 37
4060 Linz-Leonding

Product

Machine designation:	Compact dumper
Machine model:	1501
Serial no.:	_____
Output (kW):	17 kW
Measured sound power level:	101 dB (A)
Guaranteed sound power level:	101 dB (A)

Conformity assessment procedure

Notified body according to Directive 2006/42/EC, appendix XI:
Fachausschüsse Bau und Tiefbau
Prüf- und Zertifizierungsstelle im BG-PRÜFZERT
Landsberger Str. 309
D-80687 Munich
Distinguishing EU number 0036

Notified body according to Directive 2000/14/EC, appendix VI:
TÜV SÜD Industrie Service GmbH
Westendstr. 199
D-80686 Munich

Directives and standards

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2006/42/EC (old 98/37 EC), 2004/108/EC (old 89/336/EEC), 2002/44/EC, 2005/88/EC, 2000/14/EC;
DIN EN ISO 12100-1 and 2, DIN EN 474-1 and 6, DIN EN 14121,
DIN EN 3471, DIN EN 13510, EN ISO 3744, EN ISO 3746, DIN EN ISO 3449

Leonding, _____	_____	_____
Place, date	Thomas Köck,	Josef Erlinger,

1.8 EC declaration of conformity 2001 for all machines delivered before 29 December 2009

EG-Konformitätserklärung

Gemäß Maschinen-Richtlinie 98/37/EG, Anhang II A

Der Unterzeichnende — Wacker Neuson Linz GmbH
Haidfeldstraße 37
A-4060 Leonding

NEUSON

Firmenstempel

bescheinigt, daß die Baumaschine,

1. Art	Kompakt-Dumper
2. Fabrikmarke	WACKER NEUSON
3. Typ	**2001**
4. Nummer innerhalb der Typenserie des Geräts	

folgenden einschlägigen Bestimmungen entspricht — 98/37/EG
2004/108/EG
2000/14/EG
2005/88/EG

Angewandte harmonisierte Normen — EN 474-1, EN 474-6
EN ISO 12100-1, EN ISO 12100-2
EN 982
EN 13510

Nationale Normen und technische Spezifikationen

Gemessener Schalleistungspegel — 92,5 dB
Garantierter Schalleistungspegel — **93 dB**
Zertifikat-Nr.: **OR/150012/015**

Einbezogene Prüfstelle — TÜV Anlagen und Umwelt GmbH
Westendstraße 199
D-80686 München

Die gemeldete Stelle nach Anhang VII — Fachausschuß Tiefbau
Landsbergerstr. 309
D - 80687 München

Wurde (wird) eingeschaltet zur

Freiwilligen Baumusterprüfung — Baumusterprüfbescheinigungs-Nr.: **03155-E**

Leonding, ...:
Ort, Datum

.....:
Josef Erlinger, Geschäftsführer

1.9 EC declaration of conformity 2001 for all machines delivered after 29 December 2009

EC Declaration of Conformity

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

Manufacturer

Wacker Neuson Linz GmbH
Haidfeldstr. 37
4060 Linz-Leonding

Product

Machine designation:	Compact dumper
Machine model:	2001
Serial no.:	_____
Output (kW):	22.5 kW
Measured sound power level:	101.1 dB (A)
Guaranteed sound power level:	101 dB (A)

Conformity assessment procedure

Notified body according to Directive 2006/42/EC, appendix XI:
Fachausschüsse Bau und Tiefbau
Prüf- und Zertifizierungsstelle im BG-PRÜFZERT
Landsberger Str. 309
D-80687 Munich
Distinguishing EU number 0036

Notified body according to Directive 2000/14/EC, appendix VI:
TÜV SÜD Industrie Service GmbH
Westendstr. 199
D-80686 Munich

Directives and standards

We hereby declare that this product corresponds to the relevant regulations and requirements of the following Directives and standards:
2006/42/EC (old 98/37 EC), 2004/108/EC (old 89/336/EEC), 2002/44/EC, 2005/88/EC, 2000/14/EC;
DIN EN ISO 12100-1 and 2, DIN EN 474-1 and 6, DIN EN 14121,
DIN EN 3471, DIN EN 13510, EN ISO 3744, EN ISO 3746, DIN EN ISO 3449

Leonding, _____ _____ _____
Place, date Thomas Köck, Josef Erlinger,

1.10 Type labels and component numbers

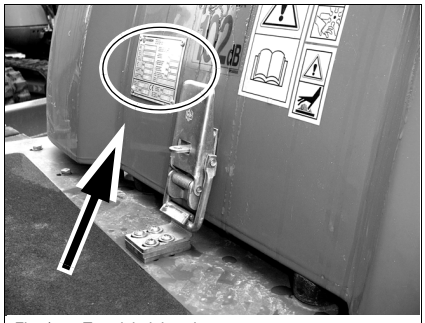


Fig. 1: Type label: location

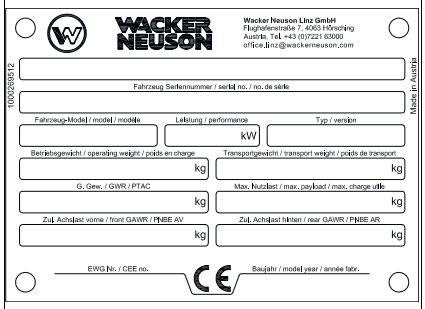


Fig. 2: Type label (symbolic representation)

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* ***Technical data (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

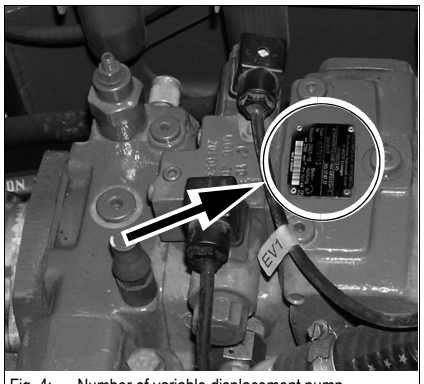


Fig. 4: Number of variable displacement pump

Hydraulic pump number

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

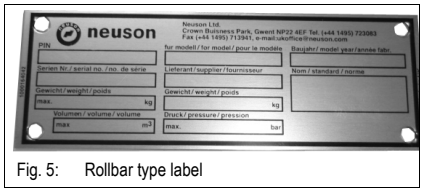


Fig. 5: Rollbar type label

Rollbar number

The type label is located on the left on the rollbar

1.11 Other signs and symbols

Important

Type, quantity and position of the labels depend on options, country and machine.

The following states signs and symbols that do not contain explanatory text and that are not explained in the following chapters.

Short model designations

☞ *1501 swivel skip = 1501S*

☞ *1501 high-tip skip = 1501H*

Fig. 6: Lifting eye

Meaning

Raise the machine or machine parts only by means of these eyelets.

Position

At the lifting eyes.

Fig. 7: Fuel tank

Meaning

Machine runs with diesel fuel. Add diesel fuel only!

Position

On the fuel tank

Fig. 8: Hydraulic oil reservoir

Meaning

Reservoir contains hydraulic oil

Position

On the hydraulic oil reservoir

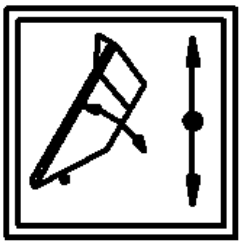


Fig. 9: Tilting out the skip

Meaning

Shows how the skip can be tilted out.

Position

On the engine cover

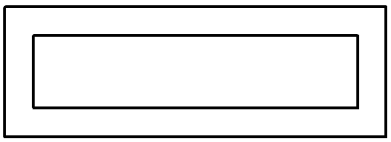


Fig. 10: Serial number

Meaning

This label includes the serial number of the machine

Position

At the front right of the chassis

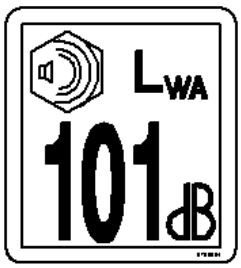


Fig. 11: Sound power level

Meaning

Value of sound power level according to the 2000/14/EC standard.

Position

On the engine cover

Fig. 12: Seat belt (label version 1)

Meaning

Machine operation is only allowed if the rollbar is raised and locked, and if the seat belt is fastened.

Position

On the engine cover

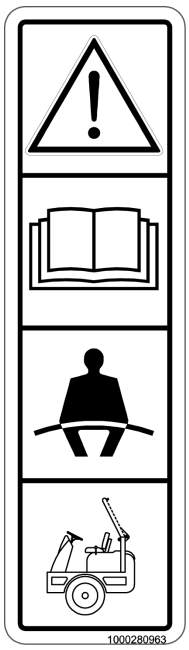


Fig. 13: Seat belt (label version 2)

Meaning

Machine operation is only allowed if the rollbar is raised and locked, and if the seat belt is fastened.

Position

On the ROPS rollbar on the left in travel direction.

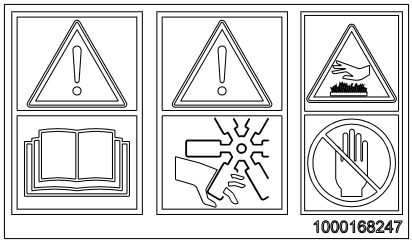


Fig. 14: Rotating and hot parts

Meaning

Caution – rotating or hot parts! Read the Operator's Manual

Position

On the engine cover

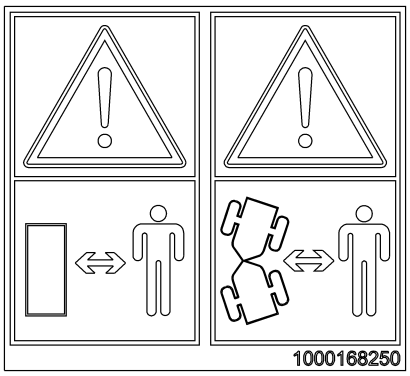


Fig. 15: Distance from machine

Meaning

Indicates that persons other than the operator must keep a safe distance from the machine during operation!

Position

On the skip

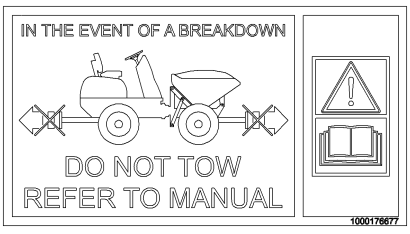


Fig. 16: Towing

Meaning

Machine must be towed away only by trained personnel. Follow the instructions in the Operator's Manual!

Position

On the engine cover

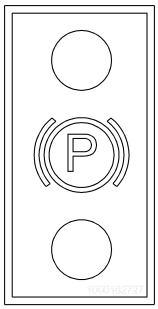


Fig. 17: Parking brake

Label only with parking brake switch without lock

Meaning

Parking brake

Position (1501H-S, 1001)

Control stand

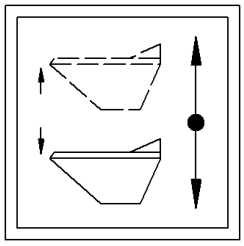


Fig. 18: Raising and lowering the skip

Meaning

Information on raising/lowering the skip

Position (1501H, 1001)

On the engine cover

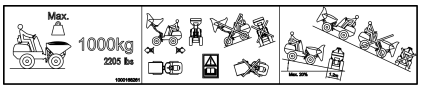


Fig. 19: Angle of inclination

Meaning

This label shows the following information/regulations:

- Maximum payload of machine.
- Tilt out the raised skip only on horizontal ground.
- Tilt out only in straight machine position.
- Maximum slope inclination allowed for tilting out downhill.

Position (1001)

On the skip

Fig. 20: Angle of inclination

Meaning

This label shows the following information/regulations:

- Maximum payload of machine.
- Do not tilt out the skip if material is stuck in the skip.

Position (1501S)

On the skip

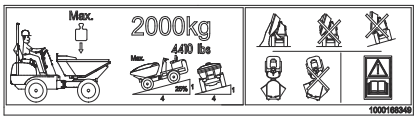


Fig. 21: Angle of inclination

Meaning

This label indicates the maximum authorized angle of inclination for traveling on slopes, whatever the position of the machine.

Position (2001)

On the skip

Fig. 22: Skip swivel

Meaning

Skip swivel

Position (1501S, 2001)

On the engine cover

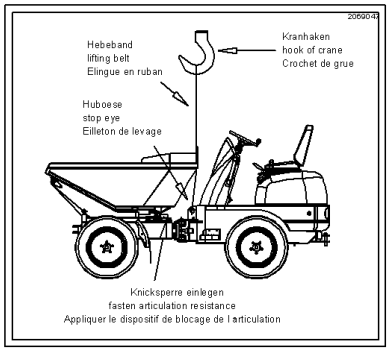


Fig. 23: Loading the dumper

Meaning

Loading the dumper

Position (2001)

At the rear right on the chassis

Fig. 24: Maintenance prop

Meaning

Maintenance prop

Position

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

Fig. 25: (symbolic representation)

Meaning

Identifies the design-specific machine speed.

Position

At the rear of the machine (left, right and rear).

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 severe injury.

Consequences in case of non-observance.

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

WARNING

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

Consequences in case of non-observance.

- Obey all safety messages that follow this symbol to avoid possible injury or death

CAUTION

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

Consequences in case of non-observance.

- Obey all safety messages that follow this symbol to avoid possible minor or moderate injury

NOTICE

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

Important

Identifies 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

- The machine is intended for:
  - Moving earth, gravel, coarse gravel or ballast and rubble
  - Every other application is regarded as not designated for the use of the machine. Wacker Neuson will not be liable for damage resulting from use other than mentioned above. The user alone will bear the risk.
- “Designated use” also includes observing the instructions set forth in this Operator's Manual and observing the maintenance schedule.
- Machine safety can be negatively affected by performing 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 performing maintenance on or with the machine
  - 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 serviceable 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 machine operation. 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 machine operation and traveling.
- 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 General conduct and safety instructions

Organizational measures

- The machine has been designed and built in accordance with state-of-the-art standards and the 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
- The machine must only be used in technically perfect condition in accordance with its designated use and the instructions set forth in the Operator's Manual, and only by safety-conscious persons who are fully aware of the risks involved in operating the machine. Any functional disorders, especially those affecting the safety of the machine, must therefore be rectified immediately!
  Basic rule*:*
- Before starting the machine ensure that:
  - All safety devices and guards are in place and in working order.
  - All controls operate correctly.
  - The machine is set up correctly according to the instructions in the Operator's Manual.
  - The machines is clean.
  - The machine's labels are legible.
  - No safety devices or guards are missing or inoperative.
- Careful and prudent machine operation is the best way to avoid accidents!
- The Operator's Manual must always be at hand on the machine and must therefore be stored in the tool kit.
  Immediately replace an incomplete or illegible Operator's Manual.
- In addition to the Operator's Manual, observe and instruct the operator in all other generally applicable legal and other mandatory regulations relevant to accident prevention and environmental protection.
  These compulsory regulations may also deal with handling hazardous substances, issuing and/or wearing personal protective equipment, or traffic regulations
- With regard to specific operational features, e.g. those relevant to job organization, task sequences or the persons entrusted with the task, supplement the Operator's Manual by corresponding instructions, including those relevant to supervising and reporting duties
- Persons entrusted with service/maintenance on the machine must have read and understood the Operator's Manual and in particular, the chapter “Safety Instructions”, before beginning service/maintenance. This applies especially to persons working only occasionally on the machine, e.g., set-up or maintenance
- The user/owner must check – at least from time to time – whether the persons entrusted with operation or maintenance of the machine are working in compliance with the Operator's Manual and are aware of risks and safety factors
- The operator or service technician must wear personal protective equipment as specified by local regulations.
- In the event of safety-relevant modifications or changes on the machine or of its behavior, stop the machine immediately and report the malfunction to the competent authority/person. Safety-relevant damage or malfunctions of the machine must be rectified immediately
- Never make any modifications, additions or conversions to the machine and its super-structures, as well as to the attachments, which might affect safety without the approval of Wacker Neuson! This also applies to the installation and the adjustment of safety devices and valves, as well as to welding work on load-bearing elements

- Spare parts must comply with the technical requirements specified by Wacker Neuson. Original spare parts can be relied to do so.
- Replace hydraulic hoses within stipulated and appropriate intervals even if no safety-relevant defects have been detected.
- Before servicing the machine, remove jewelry, such as rings, wristwatches, bracelets etc., and tie back long hair and do not wear loose-fitting garments, such as unbuttoned or unzipped jackets, ties or scarves.
  Injury can result from being caught up in the machinery or from rings catching on moving parts!
- Keep the machine clean. This reduces
  - Fire hazard e.g. due to oil-soaked rags lying around
  - Injury hazard e.g. due to dirt or debris on the footholds, and
  - Accident hazard e.g. due to dirt pile-up on the travel pedals
- Observe all safety, warning and information signs and labels on the machine
- Adhere to prescribed intervals or those specified in the Operator's Manual for routine checks/inspections and maintenance on or with the machine!
- For service, inspection, maintenance or repair tools and workshop equipment adapted to the task on hand are absolutely indispensable

Selection and qualification of staff, basic responsibilities

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

Danger zone:

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

- machine
- work equipment
- additional equipment or
- material
- This also includes the area affected by falling material, equipment or by debris which are thrown out.
  The danger zone must be extended by 0.5 m in the immediate vicinity of
- buildings
- scaffolds or
- other elements of construction

2.6 Safety instructions regarding operation

Normal operation

- Avoid any operational mode that might be prejudicial to safety!
- Before beginning machine operation, familiarize yourself with the surroundings and circumstances of the work site. These are e.g. obstacles in the traveling area or the job site, the soil bearing capacity and any necessary barriers separating the work site from public roads
- Take the necessary precautions to make sure the machine is used only when in a safe and reliable state!
  Operate the machine only if all protective and safety-oriented devices, e.g. removable safety-devices, soundproofing elements and 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 (incl. changes in the machine's operational behavior) to the competent organization/person immediately! If necessary, stop the machine immediately and lock it!
- In the event of malfunctions, stop the machine immediately and lock it! Have any defects rectified immediately!
- Start and operate the machine from the operator‘s seat only!
- Perform start-up and shut-down procedures in accordance with the Operator's Manual, and observe the indicators!
- Before putting the machine into operation (start-up/moving), make sure no one is at risk by putting the machine into operation!
- Before machine travel, and also after interrupting operation, check whether the service brake, the parking brake (the drive must be switched off if the parking brake is applied!) and the signalling and the light systems are functional!
- When traveling on public roads, ways and places, observe the local traffic regulations in force and, if necessary, make sure beforehand that the machine is in a condition perfectly compatible with these regulations!
- Always switch on the lights in conditions of poor visibility and after dark.
- Do not carry any other persons apart from the operator!
- When crossing underpasses, bridges and tunnels, or when passing under overhead lines always make sure there is enough clearance!
- Always keep at a safe distance from the edges of building pits and slopes!
- When working in buildings or in enclosed areas, look out for:
  - Height of the ceiling/clearances
  - Width of entrances
  - Maximum load of ceilings and floors
  - Sufficient room ventilation – poisoning hazard! (exhaust)

- Avoid any operation that might be a risk to machine stability!
- On sloping terrain always adapt your travel speed to the prevailing ground conditions! Never change to lower gear on a slope but always before reaching it!
- Before leaving the seat always secure the machine against unintentional movement and unauthorized use!
- Before starting work check whether
  - all safety devices are properly installed and functional.
  - dirt has been removed from all footholds.
- Before starting machine travel or operation:
  - Make sure visibility is sufficient!
  - Adjust your correct seat position, never adjust the seat when traveling or operating!
  - Always fasten the seat belt if the rollbar is raised!
  - Inspect the immediate area and ensure no one is in the danger zone.
  - On the job site the operator is responsible for third parties!
- Caution when handling fuel – increased fire hazard!
  - Make sure fuel does not come into contact with hot parts!
    Stop the engine before refueling, do not smoke and avoid open flames or sparks.
- Never get on or off during travel or operation! Never jump off the machine!
- Should it be too dark for performing work safely, provide additional lighting on the job site.
- Installed work lights must not be switched on for travel on public roads. They can be switched on in work operation if users of public roads are not blinded.
- Adjust the travel speed to your abilities and the circumstances.
- Always adapt your travel speed to the road and ground conditions, and to the visibility conditions. Ask someone to guide you in case of difficult passages or obstacles. Always avoid tipping over the dumper by traveling appropriately and slowly as required. This applies in particular to rough terrain, the edges of trenches, curves and emergency braking. Use only the low speed range when traveling off-road (turtle indicator light on the instrument panel).
- Proceed with extreme care when working on slopes. The dumper can be traveled on firm ground in all positions on slopes up to 25 % steep. On slopes that are less steep if you expect the wheels on one side to sink in. When traveling on slopes steeper than 25 %, travel the loaded dumper only with the skip facing uphill, i.e. travel downhill reversing. When traveling downhill with an empty skip on slopes steeper than 25 %, the skip must face downhill.
- Make sure the engine cover is closed and locked before starting the dumper.
- When traveling downhill with a full skip, travel slowly and reduce engine speed by slowly reducing the pressure on the accelerator pedal. The dumper brakes hydraulically at idling speed of the diesel engine. The center of gravity of the payload is shifted to the front on slopes. Reverse downhill if you are not sure.
- 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 skip before leaving the dumper. Apply the parking brake only in an emergency during machine travel.
- 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. Tilt out sticky or frozen material only to the front and with the dumper in straight-ahead position on level ground. As you raise the skip, watch whether the material is dumped out before fully raising the skip. Failure to watch whether the material is dumped out correctly can cause the dumper to tip over.

- Never travel too close to the edges of pits, precipices, etc., since the pressure of the wheels on the ground can cause the edge to give way. If edges are secured sufficiently and a barrier prevents the ground from giving way, you may travel closer to edges of pits, precipices, etc.
- Never tilt out material into trenches in which there are persons. If the operator cannot see into the trench, he must be instructed by a person who can see into the trench.
- Always make sure the brakes are in a perfect condition.

Operation with lowered rollbar

WARNING

Crushing hazard during machine travel with lowered rollbar!

Can cause severe injuries or death.

- Depending on the situation, travelling over very short distances with a lowered rollbar is allowed (in case of low clearance heights, for example), however only if the following conditions are fulfilled:
  - Obtain the approval of the competent national authority.
  - Machine operation with a lowered rollbar is prohibited.
  - Machine travel is only allowed on absolutely level ground.
  - Avoid tipping movements of the machine under all circumstances.
  - Operation in areas involving a risk of falling objects or fragments flying around is prohibited.
  - Do not fasten the seat belt in order to be able to leave the machine immediately in an emergency.
  - Wear protective equipment (protective clothing, safety glasses, for example).

Trailer operation

In spite of being equipped with towing gear, the dumper 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 down the skip with 25 % of the payload. However, the towed equipment including the weight in the skip may not exceed the dumper's payload. Secure the towing pin of the towing gear with a split pin!

2.7 Staff Qualifications and Basic Responsibilities

User/owner responsibility

- Only allow trained and experienced individuals to travel, maintain or repair the machine. Never let unauthorized or underaged persons travel or operate 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 operate the machine without being permanently supervised by an experienced person.

Repair person qualifications

- Service on the electric system and equipment, on the undercarriage and the steering and brake systems may be performed only by skilled individuals who have been specially trained for such work.
- Service on the hydraulic system of the machine must be performed only by staff with special knowledge and experience in hydraulic equipment.

2.8 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 may be caused by dirt build-up on the travel pedals or footholds.
- Observe all safety, warning and informational signs and labels on the machine.
- Start and operate the machine from the operator‘s 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 machine operation. Never change the seat position during machine travel or operation.
- Make sure that all safety devices are properly installed and functional before starting machine operation.
- 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

- Perform 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 travel levers, the signaling and the light systems are functional before operating the machine, and also before restarting after a interruption of machine operation.
- Make sure that the service brake and the parking brake are functional before operating the machine, and also after an interruption of machine operation. The machine will not start unless the parking brake is applied. The drive must be switched off if the parking brake is applied

Job Site awareness

- Familiarize yourself with the surroundings and circumstances of the job site before beginning machine operation. Be aware of:
  - obstacles in the working and traveling area
  - the soil weight-bearing capacity
  - any necessary barriers separating the job 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—carbon monoxide poisoning hazard!
- Observe the danger zone. See “Danger zone awareness”.
- Use the rearview mirror to stay aware of job 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 on the job site if the lights of the machine are not sufficient for performing safe operation.
- Travel slowly on meadows, on leaves or wet steel plates. The machine can slip even if the ground is level.

Danger zone awareness

- The danger zone is the area in which persons are endangered due to the movements of the machine, work equipment, additional equipment, or material.
- The danger zone also includes the area affected by falling material, equipment or construction debris. The danger zone must be extended by 0.5 m (20”) in the immediate vicinity of buildings, scaffolds, or other elements of construction.
- Seal off the danger zone if it is not possible to keep a safe distance. Stop operating immediately if persons do not leave the danger zone 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. Stop the engine before releasing the seat belt.
- On sloping terrain, adapt your travel speed to the prevailing ground conditions.
- Never get on or off a machine during travel or operation, and never jump off the machine.

Special operating notes

- Always adapt your travel 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, travel 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 traveling off-road (see the turtle indicator light 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 skip before leaving the dumper. Apply the parking brake only in an emergency during machine travel.
- 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 travel too close to the edges of unsecured pits, precipices, etc. The pressure of the wheels on the ground may cause the edge to give way.
- Never tilt out material into trenches where people are working. If the operator 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 operator, 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 machine operation shift for visible damage and defects. Report any changes, including changes in the machine's operational 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.

Traveling on public roads

- When traveling on public roads, ways and places, observe all applicable traffic regulations. If necessary, make sure 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.

2.9 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 skip 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 skip!
- Secure the towing pin of the towing gear with a split pin.
- 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 lights 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.

2.10 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.

2.11 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.
- For inspection and maintenance, 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 on or with the machine, immediately refit and check any safety devices removed for set-up or maintenance purposes.

Personal safety measures

- Brief the staff and the operator before beginning maintenance or repair. 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 to work on hazardous machine parts, always ensure safety devices and guards are in place.
- Use extreme caution when working on the fuel system due to the increased fire hazard.
- Engine and muffler 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 performing repair and maintenance, 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 task concerning the operation, conversion or adjustment of the machine and its safety-oriented devices, or any work related to inspection and maintenance.
- Prior to performing assembly maintenance on the machine, make sure no movable parts will roll away or start moving.
- Perform maintenance 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 starter key has been removed
- Perform maintenance beneath a raised machine, attachments or additional equipment only if a safe and secure support has been provided. The use of hydraulic hydraulic cylinders 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 performed only by qualified personnel.
- Disconnect the negative battery terminal when working on the electric system.
- Do not allow the machine to be serviced, repaired, or test-traveled by unauthorized staff.
- If maintenance with the engine running cannot be avoided, lower the skip and apply the parking brake.

- Wear a safety harness when performing elevated maintenance. 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 perform overhead assembly maintenance. 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 performing any maintenance.

2.12 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 hazardous if performed improperly. Observe the safety instructions regarding the battery.

Tracks (track dumpers)

- Repair on the tracks must be performed only by trained technical staff or by a Wacker Neuson service center.
- Malfunctioning 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 electric system malfunctions, stop the machine immediately, disconnect the battery (by using the battery master switch)and perform troubleshooting procedures.
- During machine operation, maintain a safe distance from overhead electric lines! If machine operation must be performed 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 travel the machine out of the danger zone.
  - 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 service on the electric system is performed only by a technician with appropriate training, in accordance with applicable electrical engineering codes.
- Inspect and check the electric 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.

Gas, dust, steam, smoke

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

Hydraulics

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

Oil, grease and other chemical substances

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

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 on the tires must be performed only by trained technical staff or by a Wacker Neuson service center.
- Malfunctioning 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.

2.13 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.

CALIFORNIA
Proposition 65 Warning

Engine exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Guidelines for running the engine

- Keep the area around muffler 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, through 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 running 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 indicator lights 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 (for example 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:

- Identifies a list
  - Subdivision within lists or an activity. Follow the steps in the recommended order

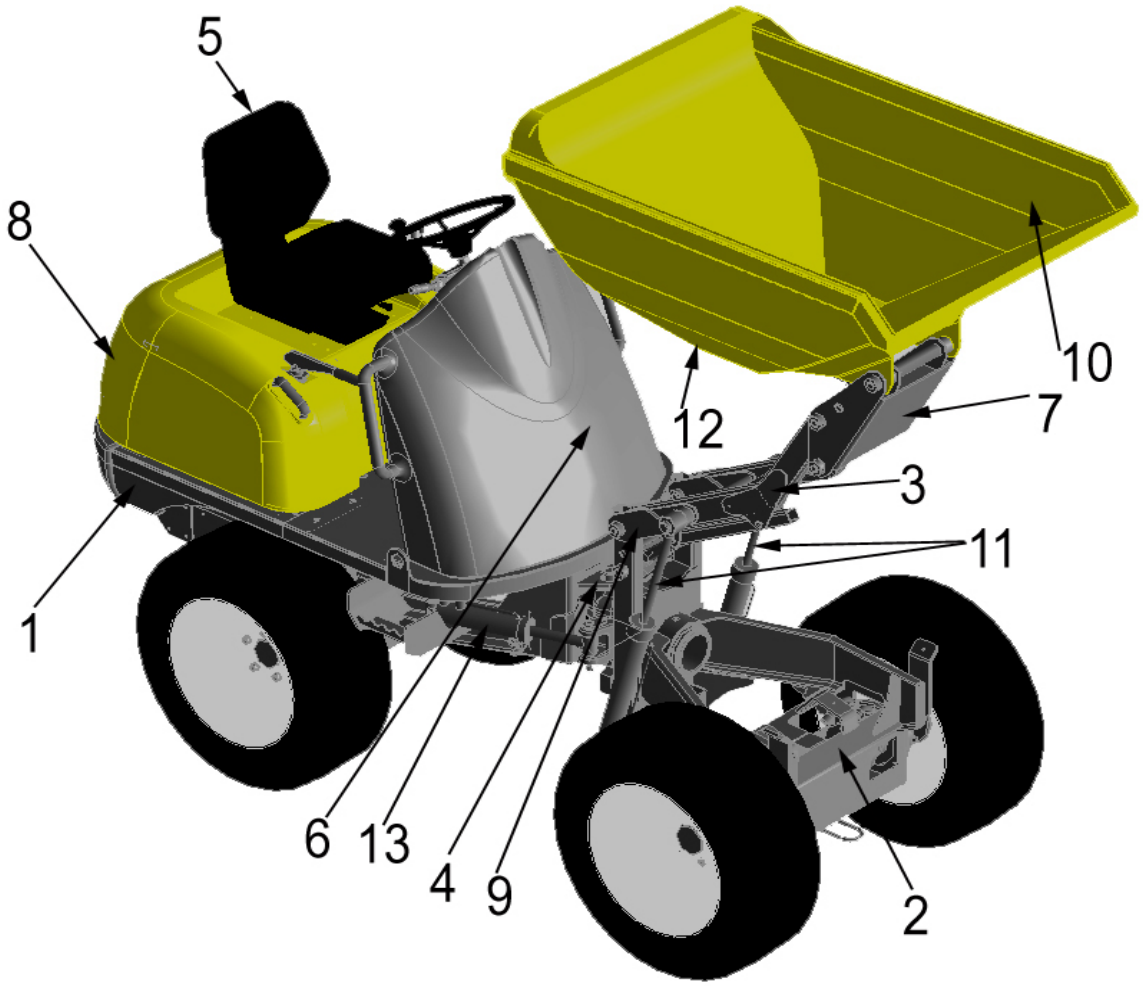
☞ *Identifies an activity*

➥ Description of the effects or results of an activity

n. s. = not shown

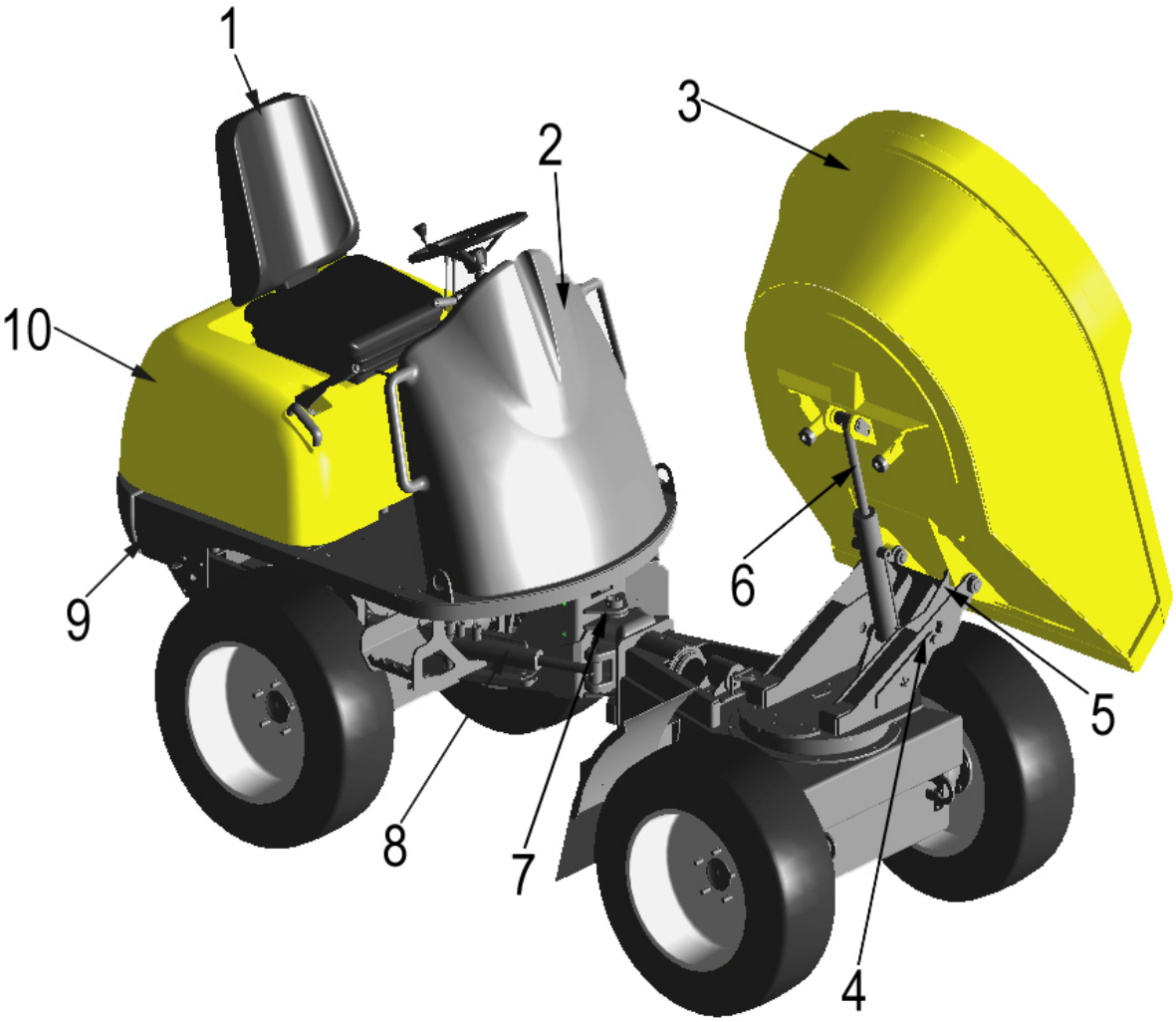
Opt = option

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



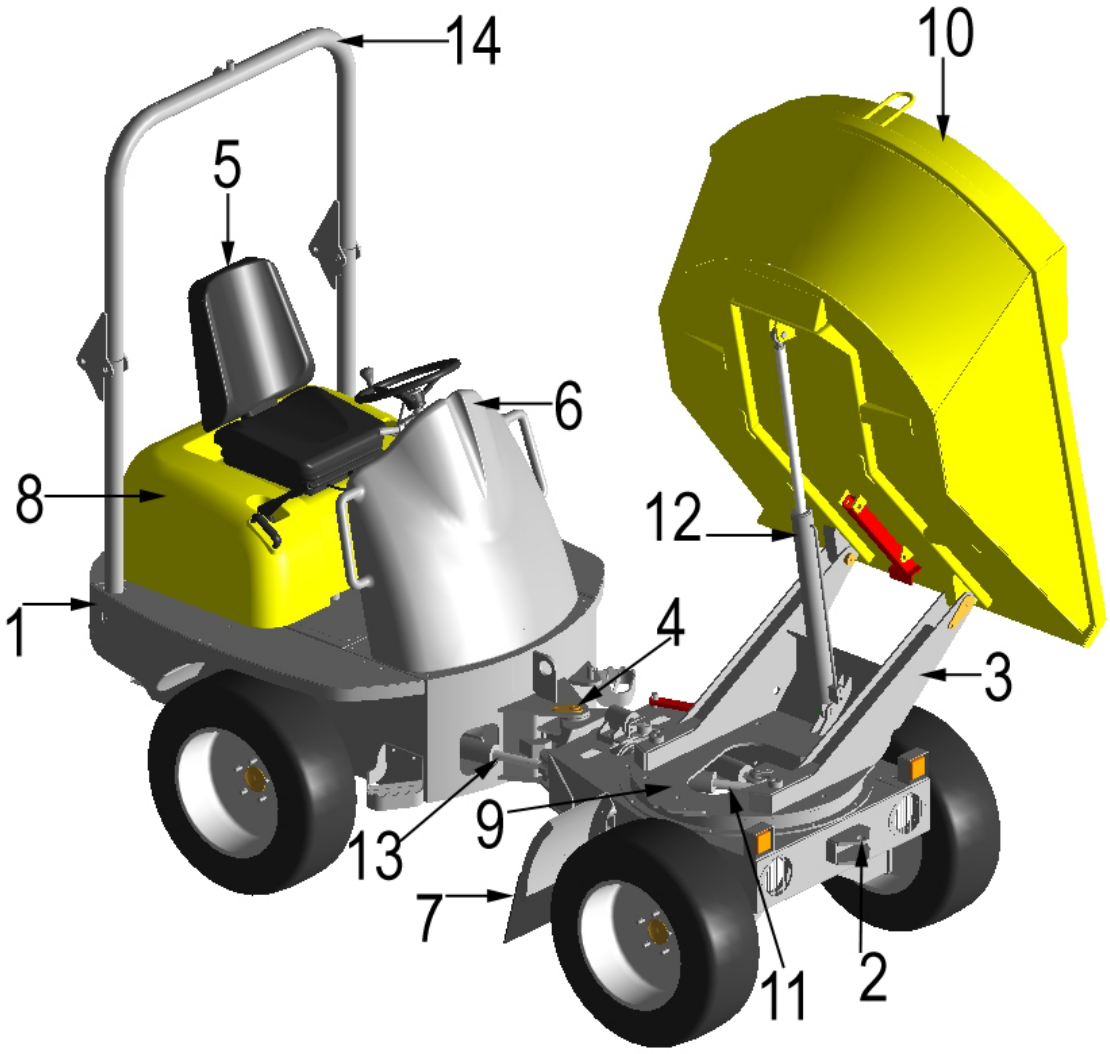
Description of 1001/1501 components (overview)

Pos.	Designation
1	Rear chassis
2	Front chassis
3	Lift frame
4	Articulated joint
5	Operator seat
6	Control stand
7	Tilt console
8	Engine cover
9	Parallel lift
10	Skip
11	Lift cylinder
12	Tilt cylinder (not shown)
13	Steering cylinder



Description of 1501S components (overview)

Pos.	Designation
1	Operator seat
2	Control stand
3	Skip
4	Swivel centring
5	Swiveling console
6	Tilt cylinder
7	Articulated joint
8	Steering cylinder
9	Rear chassis
10	Engine cover

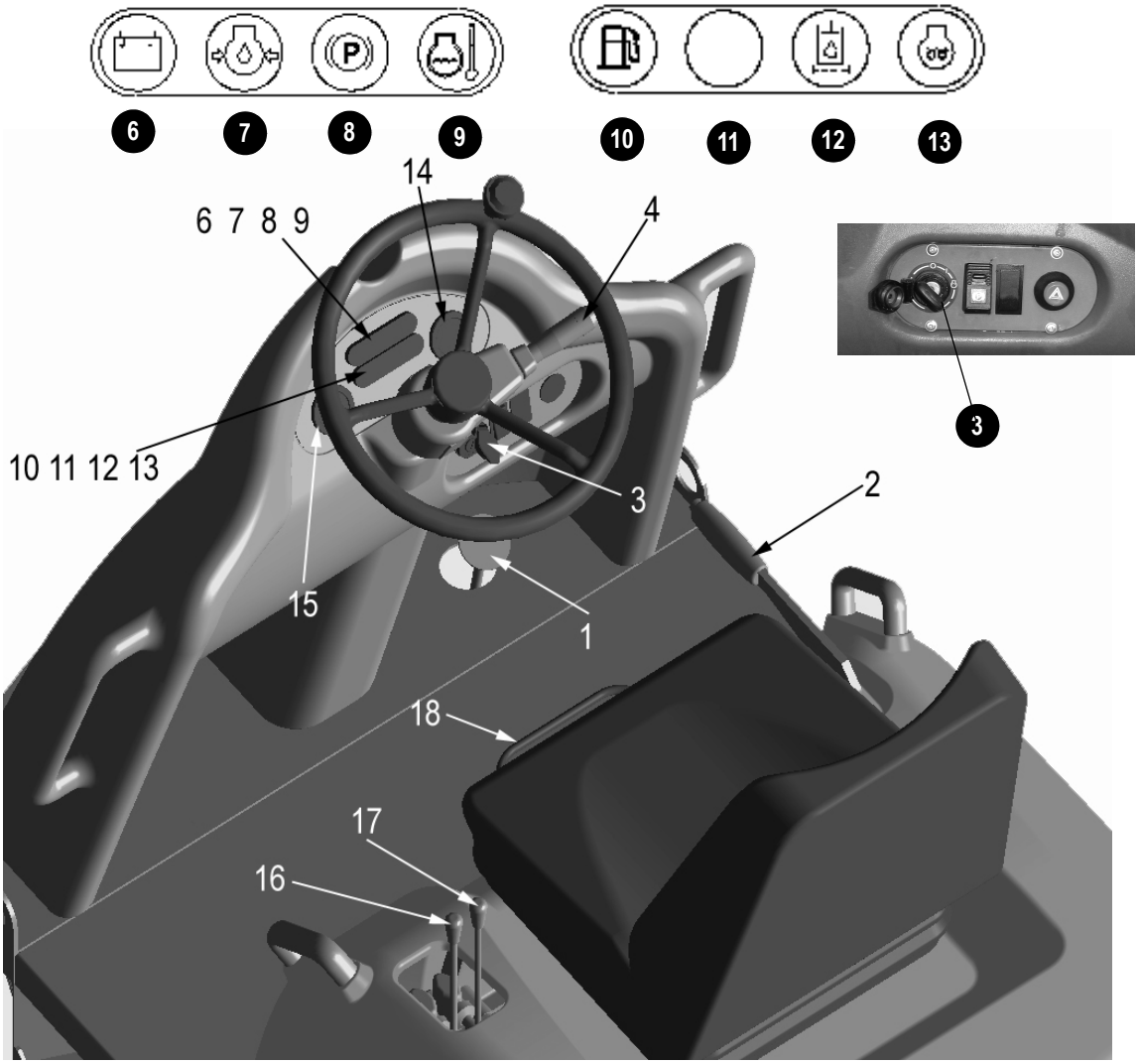


3.1 Description of 2001S components (overview)

Pos.	Designation
1	Rear chassis
2	Front chassis
3	Swiveling console
4	Articulated joint
5	Operator seat
6	Control stand
7	Mudguard
8	Engine cover
9	Swivel centring
10	Skip
11	Swiveling cylinder
12	Tilt cylinder
13	Steering cylinder
14	Rollbar

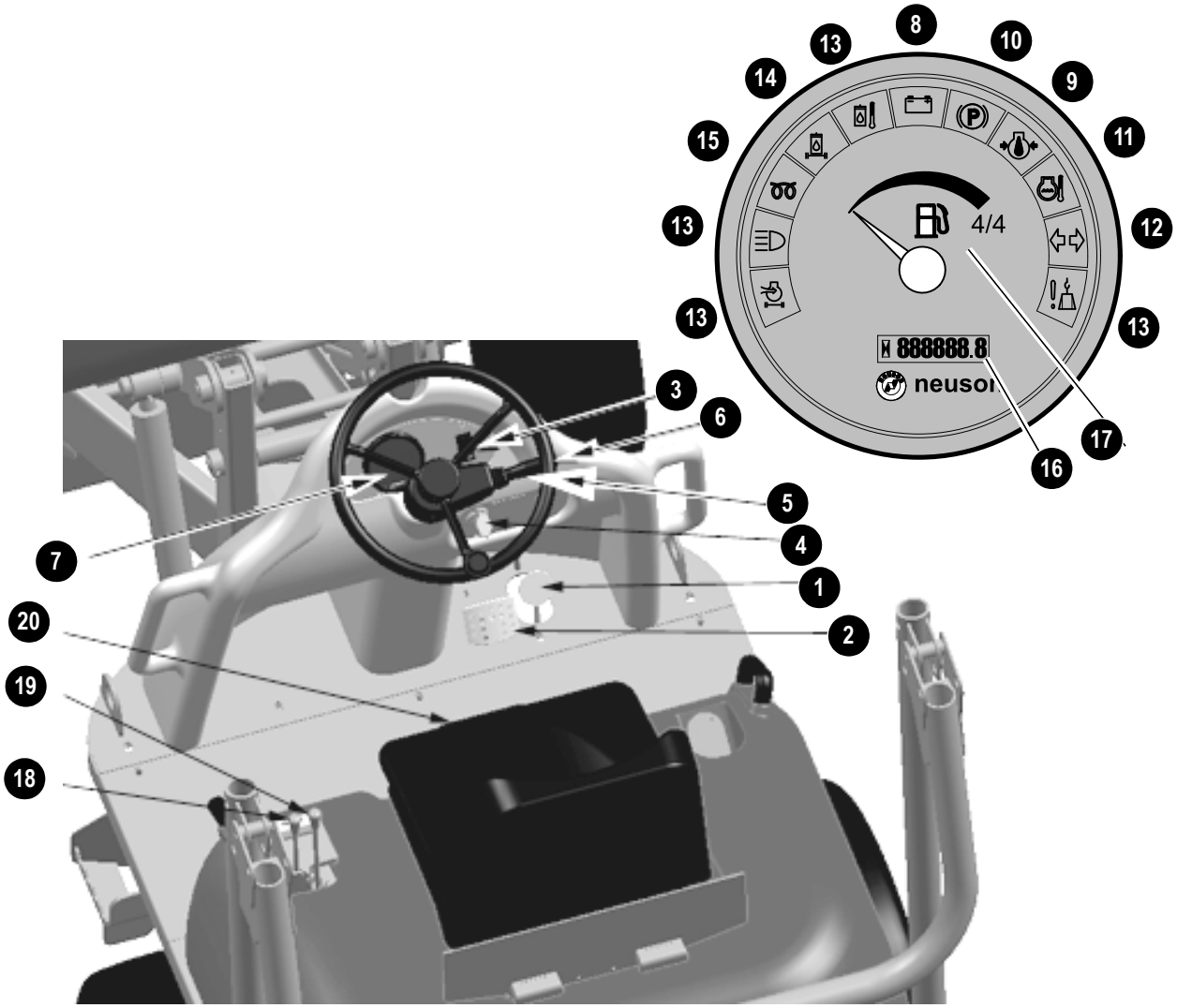
3.2 Description of 2001 SLE components

Pos.	Designation
1	Lift frame
2	Lift cylinder
3	Bucket cylinder
4	Bucket
5	Fastening mount
6	Articulation (large)
7	Articulation (small)



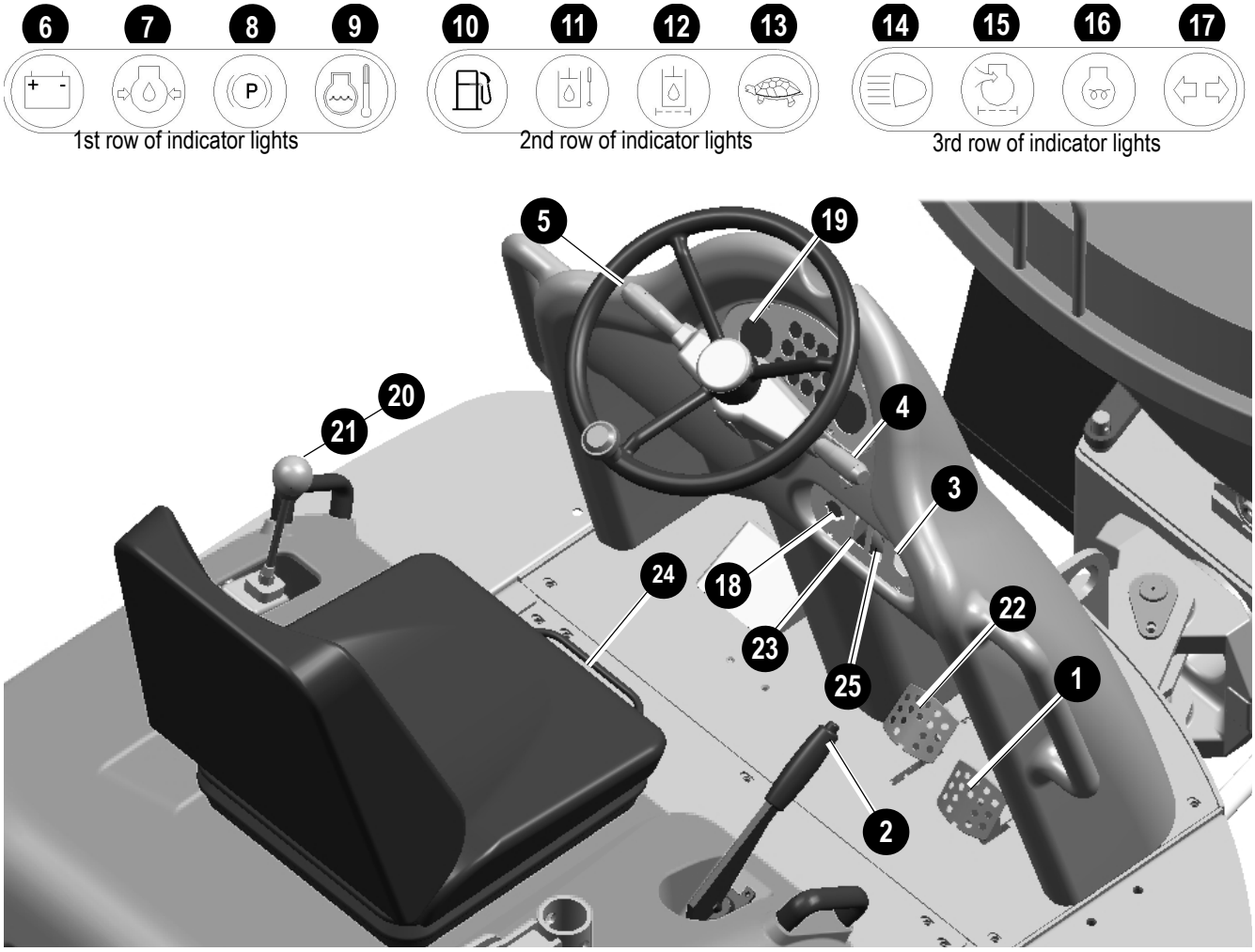
3.3 1001/1501/1501S operating equipment up to serial no. AB ...

Pos.	Designation	Pos.	Designation
1	Accelerator pedal	14	Hour meter
2	Parking brake	15	Fuel level indicator
3	Preheating start switch	16	Lever “Tilting out/lowering the skip”
4	Travel direction lever	17	Lever “Raising/lowering the skip”
5	Horn	18	Bar for horizontal seat adjustment
6	Alternator charge indicator light		
7	Engine oil pressure indicator light		
8	Parking brake indicator light		
9	Engine temperature indicator light		
10	Spare fuel indicator light		
11	Not assigned		
12	Hydraulic oil filter indicator light		
13	Preheating indicator light		



3.4 1001/1501/1501S operating equipment from serial no. AB ...

Pos.	Designation	Pos.	Designation
1	Accelerator pedal	14	Hydraulic oil filter indicator light
2	Service brake	15	Preheating indicator light
3	Parking brake	16	Hour meter
4	Preheating start switch	17	Fuel level indicator
5	Travel direction lever	18	Lever “Tilting out/lowering the skip”
6	Horn	19	Lever “Raising/lowering the skip”
7	Display element	20	Bar for horizontal seat adjustment
8	Alternator charge indicator light		
9	Engine oil pressure indicator light		
10	Parking brake indicator light		
11	Engine temperature indicator light		
12	Turn indicator light		
13	Not assigned		



3.5 2001/2001SLE operating equipment

Pos.	Designation	Pos.	Designation
1	Accelerator pedal	14	High beam indicator light
2	Parking brake	15	Not assigned
3	Preheating start switch	16	Preheating indicator light
4	Travel direction lever	17	Turn indicator light
5	Horn	18	Hour meter
6	Alternator charge function indicator light	19	Fuel level indicator
7	Engine oil pressure indicator light	20	Lever for tilting/lowering the skip
8	Parking brake indicator light	21	Lever: swivel skip
9	Engine temperature indicator light	22	Hydrostatic brake pedal
10	Spare fuel indicator light	23	Light switch
11	Not assigned	24	Seat adjustment lever
12	Hydraulic oil filter indicator light	25	Skip/loader unit switch (option 2001)
13	Not assigned		

3.6 Putting into operation

Safety instructions

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

Putting into operation for the first time

Important information

- The machine may only be put into operation by authorized personnel – *see chapter* ***Selection and qualification of personnel, basic responsibilities*** on page 2-4 and – *see chapter 2.5* ***Safety instructions regarding operation*** on page 2-5 of this Operator's Manual.
- The personnel must have read and understood this Operator's Manual before putting the machine into operation.
- The machine may only be used in technically perfect condition in accordance with its designated use and the instructions set forth in the Operator's Manual, and only by safety-conscious persons who are fully aware of the risks involved in operating the machine.
- Go through the "Start-up" checklist in the following chapter.

Running-in period

Handle the machine carefully during its first 50 operating hours.

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

- Do not overload the machine, but at the same time do not travel too cautiously either, as the machine will never reach its proper operating temperature
- Do not run the engine at high speed for extended periods
- Increase the load gradually while varying the engine speed
- Strictly observe the maintenance schedules in the appendix – *see chapter 5.16* ***Maintenance plan 2001 (overview)*** on page 5-39

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 work listed below is 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? (➠ *5-5*)	
2	Coolant level OK? (➠ *5-13*)	
3	Remove water in the diesel fuel prefilter (➠ *5-7*)	
4	Engine oil level OK? (➠ *5-10*)	
5	Oil level in hydraulic oil reservoir OK? (➠ *5-21*)	
7	V-belt condition and tension checked? (➠ *5-18*)	
8	Lubrication points greased?	
9	Check hydraulic hoses, connections and cylinder seals for leaks	
10	Firm position of battery terminals	
11	Tires checked for cracks, cuts, etc. ? (➠ *5-26*)	
12	Footholds clean?	
13	Engine cover locked with the buckle? (➠ *3-29*)	
14	Especially after cleaning, maintenance or repair work: ➥ Rags, tools and other loose objects removed?	
15	Seating position adjusted correctly? (➠ *3-27*)	
16	Rollbar raised and locked?	
17	Seat belt fastened? (➠ *3-28*)	

Operation checklist

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

No.	Question	✔
1	Anyone in the danger zone of the machine?	
2	Indicator lights for engine oil pressure and alternator charge function gone out? (➠ *3-13*)	
3	Temperature indicators for engine coolant do not illuminate? (➠ *3-13*)	
4	Accelerator and brake pedals working correctly? (➠ *3-20*)	

“Parking” checklist

Check and observe the following points when parking the machine:

No.	Question	✔
1	Skip lowered?	
2	Travel lever in neutral position?	
3	Parking brake applied?	
4	Starting 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 Machine travel

Preheating start switch (overview)

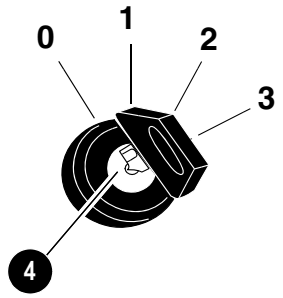


Fig. 26: Preheating start switch

Position	Function	Power consumer
0	Insert or remove the starting key	None
1	ON/travel position	All functions are operational ➥ Indicator lights illuminate ➥ Rotating beacon illuminates (option)
2	Preheats the engine (10 – 15 seconds)	➥ Until the preheating indicator light goes out
3	Starts the engine	➥ Starter is actuated ➥ Indicator lights must go out

Accelerator pedal (overview)

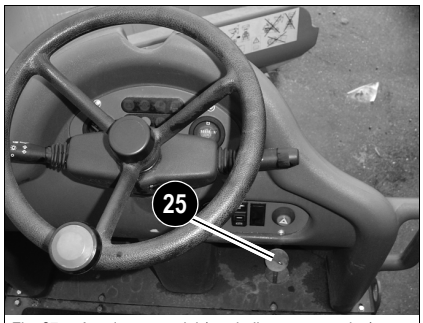


Fig. 27: Accelerator pedal (symbolic representation)

The accelerator pedal controls the engine speed as follows:

- Speed can be set continuously with accelerator pedal 25

  ☞ Press down the accelerator pedal:

  ➥ Engine speed rises

  ☞ Reduce the pressure on the accelerator pedal:

  ➥ Engine speed is reduced

Indicator lights and warning lights (overview)

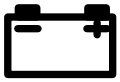
14 Indicator light (red) – hydraulic oil filter

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

☞ *Have the hydraulic oil return filter checked and, if necessary, replaced by a Wacker Neuson service center*

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

8 Indicator light (red) – alternator charge function



NOTICE

The coolant pump no longer runs if the V-belt is faulty. Danger of engine overheating or breakdown!
If the indicator light illuminates with the engine running:

☞ *Stop the engine immediately and*

☞ *Have the cause repaired by a Wacker Neuson service center*

The V-belt is malfunctioning or there is an error in the charging circuit of the alternator if the indicator light illuminates with the engine running. The battery is no longer charged.

9 Indicator light (red) – engine oil pressure

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

☞ *Stop the machine*

☞ *Stop the engine immediately and check the oil level*

The indicator light illuminates when the starter is turned on and goes out as soon as the engine runs.

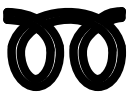
11 Indicator light (red) – coolant temperature

WARNING

Burn hazard! The engine coolant is under pressure at high temperature.
Can cause severe injury or death.

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

15 Indicator light (yellow) – preheating



Illuminates 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 light goes out as soon as preheating temperature is reached (15 – 20 sec)

13 Not assigned

10 Indicator light (red) – parking brake

Illuminates if the parking brake is applied!

In this case:

☞ *Actuate lever **2** to release the parking brake*

Indicator light (blue) – high beam

Illuminates if high beam is on.

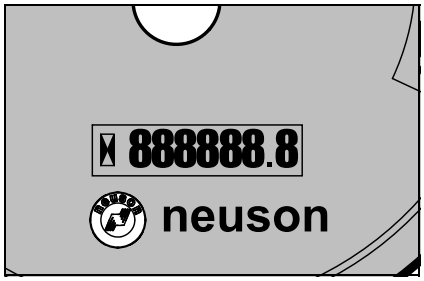
WARNING

Accident hazard! Motorists can be blinded by bright lights on the job site.
Can cause severe injuries or death.

- Switch on low beam when other motorists are nearby.
- If this is not possible, stop machine operation and only resume it if sufficient illumination of the job site can be ensured without blinding other motorists.

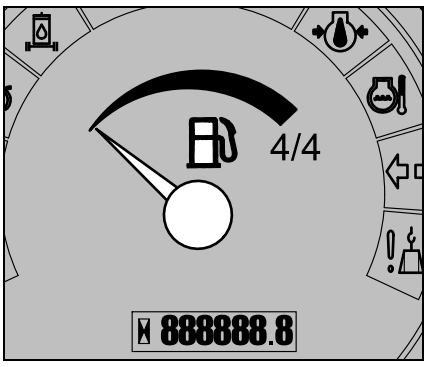
12 Indicator light (green) – turn indicators

Flashes if the turn indicators are switched on.



16 Hour meter

Counts the engine operating hours with the engine 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.

Mirrors (option)

WARNING

Accident hazard if mirrors are adjusted incorrectly!
Can cause severe injury or death.

- Use safety-oriented ladders and work platforms for adjustment work on the machine.
- Never use machine parts or attachments/superstructures as a climbing aid.
- Do not adjust the mirrors during machine travel.
- Immediately replace damaged or broken mirrors.
- Additional equipment or attachments must not impair visibility.
- Convex mirrors enlarge, reduce or distort the field of view. Bear this in mind when adjusting and using such mirrors.

WARNING

Injury hazard to persons in the danger zone!
Can cause severe injury or death.

- Follow the safety instructions.
- Check the surroundings constantly.
- Put the machine into operation/machine travel only if visibility is sufficient (have another person guide you if necessary).

Adjusting the outside rearview mirrors on left and right

Important

We recommend having the mirrors adjusted by a second person.


Fig. 26: Mirrors (symbolic representation)

Adjust the mirrors in order to:

- Ensure sufficient visibility from the operator seat onto the job site.
- Ensure maximum visibility to the rear.
- Ensure visibility of the rear edges of the machine in the mirrors.

StVO accessories (option)

Scope of delivery of StVO accessories:

- Headlights and rear lights
- Turn indicators and clearance lights
- Reversing light and reflectors
- Numberplate console and light
- Wheel chock
- Control lever lock

Reversing signal (option)

The reversing signal sounds during backward machine travel.

WARNING

Accident hazard when traveling forward/backward!
Crushing hazard causing death or severe injury.

- Do not allow anyone to stay in the danger zone.
- Do not rely on the reversing signal under any circumstances.
- If the reversing signal does not sound, stop machine operation immediately and get in touch with a Wacker Neuson service center (observe the relevant national regulations).

Before starting the engine

☞ *Adjust your seating position – see* ***Seat adjustment*** *on page 3-27*

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 3-28*

☞ *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*

General information on starting the engine

Important

The model 1001 and 1501 engine will not start unless the parking brake is applied and the brake pedal is pressed at the same time.

- 1001: from serial no. EA03289.
- 1501: from serial no. WNCD0105TPAL00166.

- Besides, the starter cannot be actuated if:
  - the engine is already running (start repeat interlock),
  - the travel lever is not in neutral position,
  - the parking brake is not applied.

  ➥ 1001: up to serial no. EA03288.

  ➥ 1501: up to serial no. WNCD0105TPAL00165.
  - the parking brake is not applied (2001).

- Do not run the starter for more than 10 seconds
- Wait about 1 minute so the battery can recover before trying again

Procedure

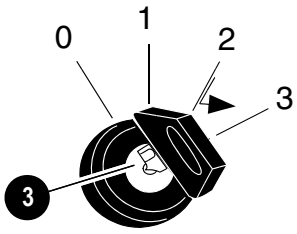


Fig. 27: Preheating start switch

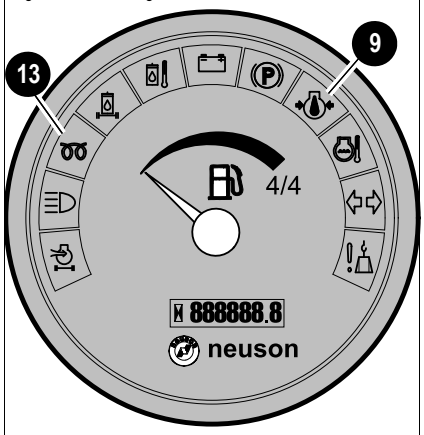


Fig. 28: Indicator lights

After you have completed the starting preparations:

☞ *Insert the starting key in preheating start switch **3***

☞ *Turn the starting key to position "**1**"*

☞ *Check whether the following indicator lights illuminate:*

➥ Indicator light **9** for engine oil pressure

➥ Indicator light **13** for alternator charge function

☞ *Replace malfunctioning indicator lights immediately.*

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

☞ *Turn the starting 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 starting key*

When the engine runs smoothly (increased engine speed):

3.14 Travel interlock

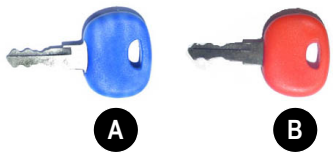


Fig. 29: Travel interlock key

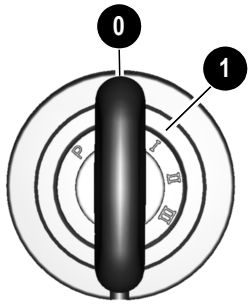


Fig. 30: Travel interlock key

Scope of delivery

A: starting key (blue, 2 pieces)

B: master key (red)

Important

Keys can be coded or deleted only with the master key. A new travel interlock must be installed if the master key is lost.

Coding keys

1 Insert the master key in the starter and turn it to position **1** for a maximum 5 seconds.

2 Remove the master key.

3 Turn the keys requiring coding to position **1** within 15 seconds, for at least one second.

➥ The key is registered.

Coding is automatically interrupted if no key is coded within 15 seconds.

Coding can be performed for a maximum 10 keys.

Deleting a key

If a coded key is lost, all keys have to be deleted and recoded.

1 Insert the master key in the starter and turn it to position **1** for at least 20 seconds.

➥ The coded keys are deleted now. New or existing keys have to be recoded.

When the engine has started ...

☞ *Check whether all indicator lights have gone out:*

☞ *Let the engine warm up*

At cold temperatures:

☞ *Increase the engine speed slowly*

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

Engine warm-up

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

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

Procedure

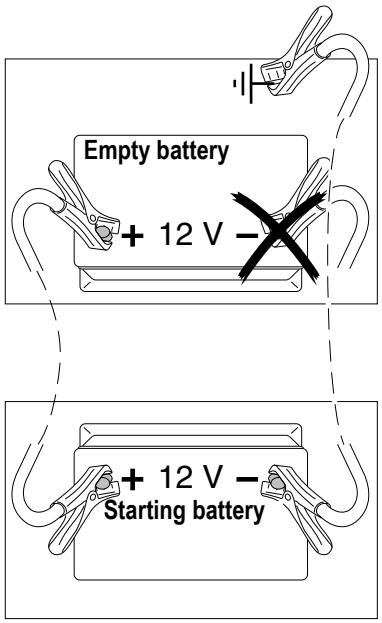


Fig. 31: Starting aid with battery jumper cables

☞ *Travel 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 empty 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 cable (**–**) to a solid metal component fimly screwed on the engine block or onto the engine block itself. Do not connect it to the negative terminal of the empty battery, as otherwise explosive gas emerging from the battery can ignite if sparks are formed!*

☞ *Start the engine of the machine with the empty 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 near 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.

Checks before traveling on public roads

- Stop the engine.
- Apply the parking brake.
- Check the operator seat for correct adjustment.
- Check the StVO accessories (option) for completeness and correct function.
- Check the mirrors (option) for correct adjustment.
- Check the brake system for correct function.
- Check the tires for correct inflation pressure.
- Move the travel direction lever to neutral.
- Let the skip lock in the straight position.
- Lock the control lever for skip operation.
- Secure the load adequately.
- Remove dirt from the controls and loose material.

Starting machine travel

WARNING

Accident hazard due to incorrectly adjusted traveling direction lever!
Can cause severe injury or death.

- Ensure that the surrounding area is clear.
- Press the brake pedal or apply the parking brake.
- Set the travel direction lever to the correct position before starting machine travel.
- Press the accelerator pedal to start machine travel.

WARNING

Accident hazard! The machine can travel when the brake is not activated.
Can cause severe injury or death.

- Stop the machine and activate the brake during travel direction changeover.

WARNING

Accident hazard due to traveling direction changeover during machine travel!
Can cause severe injury or death.

- Stop the machine and activate the brake during travel direction changeover.

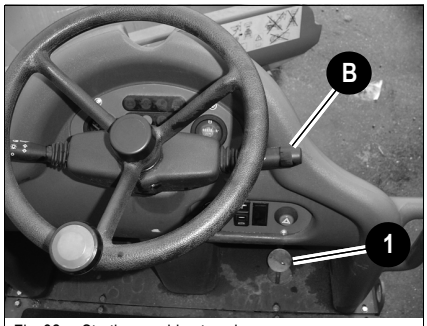


Fig. 32: Starting machine travel

☞ **Selection of travel direction**

☞ *Stop the machine.*

☞ *Press brake pedal* **2** *or apply the parking brake – see chapter* ***Parking brake*** *on page 3-22.*

☞ *Set travel direction lever* **B** *to the required position.*

☞ *Release the brake and press accelerator pedal* **1** *to start machine travel.*

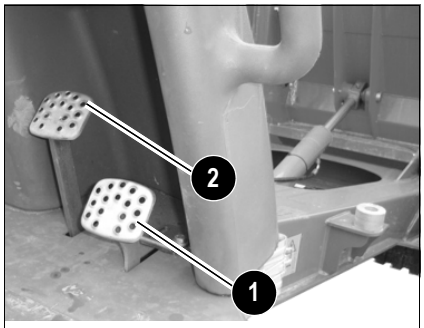


Fig. 33: Accelerator pedal (symbolic representation)

Accelerator pedal **1** sets the engine speed and travel speed.

Function	
Press the pedal	The machine accelerates
Reduce the pressure on the pedal	The machine is braked
Release the pedal	Idling speed

The speed with which the skip moves also depends on the position of the accelerator pedal.

Brake pedal (standard for 1001 + 1501, option for 2001)

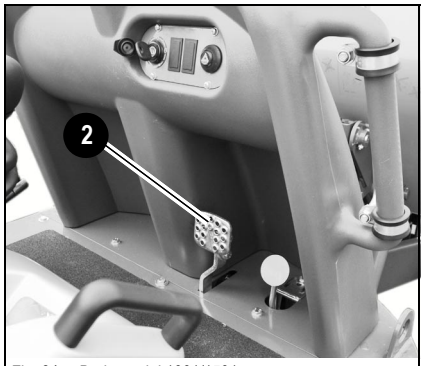


Fig. 34: Brake pedal 1001/1501

The machine 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 brake pedal **2** for faster deceleration, or during downhill machine travel, for example.

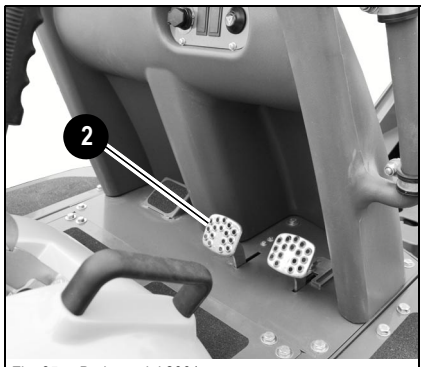


Fig. 35: Brake pedal 2001

Press brake pedal **2** to brake the machine.

1001:

- Option up to serial no. EA03288
- Standard from serial no. EA03289

1501:

- Option up to serial no. WNCD0105TPAL00165
- Standard from serial no. WNCD0105TPAL00166

Parking brake

WARNING

Accident hazard! Do not apply the parking brake during machine travel.
Can cause severe injury or death.

- Apply the parking brake only at machine standstill.

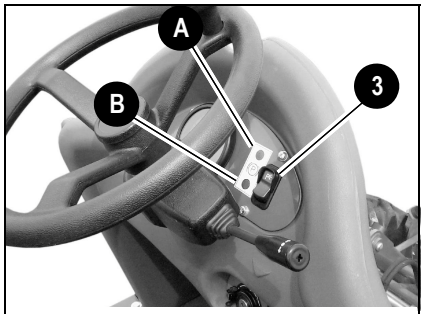


Fig. 36: Parking brake 1001/1501

1001/1505 (switch without lock):

To apply: press switch ***3*** to position **A**.

To release: press switch ***3*** to position **B**.

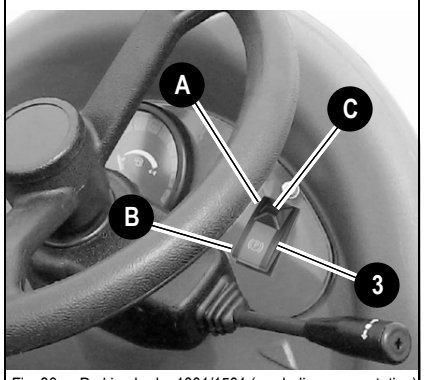


Fig. 36: Parking brake 1001/1501 (symbolic representation)

1001/1501 (switch with lock):

To apply: Pull lock **C** downward and press switch ***3*** to position **B**.

To release: Pull lock **C** downward and press switch ***3*** to position **A**.

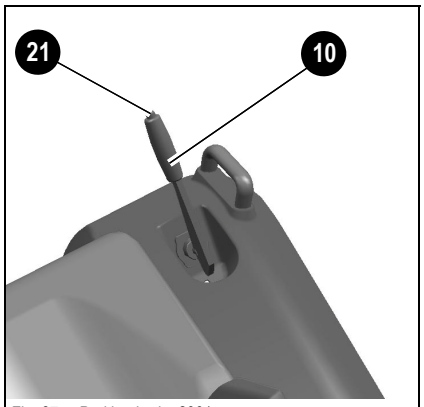


Fig. 37: Parking brake 2001

2001:

To apply: pull lever ***10*** upward.

To release: press and hold button **21**, then lower lever ***10*** completely.

3.15 Hazard warning system

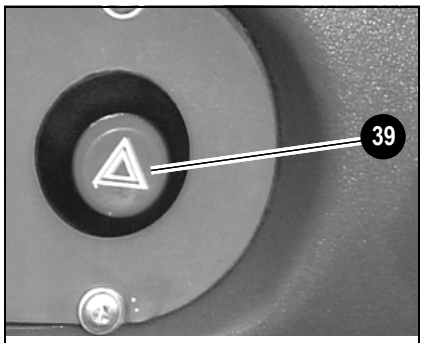


Fig. 38: Hazard warning system

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

Rotating beacon (option)


Fig. 39: Rotating beacon on the rollbar

The rotating beacon is switched on as soon as the starting key is in position **1**.

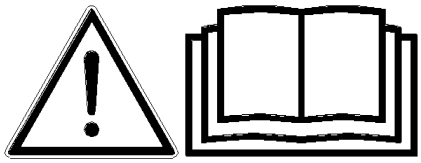
Important

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

3.16 Machine travel on slopes

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

Specific safety instructions



☞ *Tilt in the skip during machine travel.*

☞ *Always travel in low speed on slopes!*

☞ *During machine travel, ensure that you can stop safely any time if the machine starts to skid or if it becomes unstable.*

☞ *Avoid swiveling the skip downhill on slopes, otherwise the machine can lose its balance and tip over.*

➥ Always tilt out the skip uphill.

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

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

☞ *Travel slowly in meadows, on leaves or wet steel plates. The machine can slip even if the ground is level.*

Driving on slopes with a loaded skip

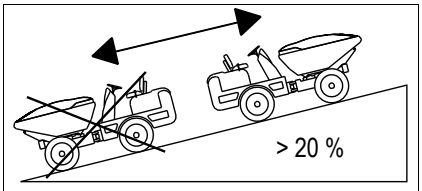


Fig. 40: Driving on slopes with a loaded skip

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

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

WARNING

Accident hazard due to tipping over or slipping of the machine on slopes!
Can cause severe injury or death.

- Travel on slopes only on firm and level ground.
- Do not reverse down slopes.
- Traveling diagonally is prohibited.

Machine travel on slopes with an empty skip

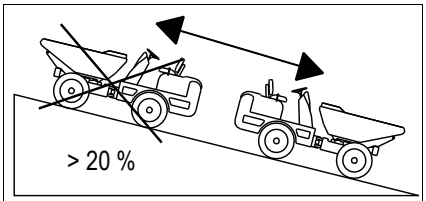


Fig. 41: Driving on slopes with an empty skip

☞ *When traveling on slopes (> 20 %) with an empty skip, the skip 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.*

Machine travel across slopes

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

☞ *When traveling across slopes with lateral inclinations up to 20 %, tilt out the skip only uphill for stability reasons.*

WARNING

Accident hazard due to tipping over or slipping of the machine on slopes!
Can cause severe injury or death.

- Machine travel across slopes (max. inclination up to 20 %) is allowed only on firm ground.

Parking the machine

Important

Always park the machine on firm ground!

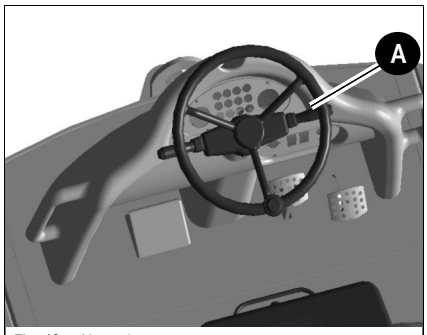


Fig. 42: Neutral

☞ *Select a level surface*

☞ *Stop the machine*

☞ *Move travel lever **A** to neutral position*

☞ *Lower the skip*

☞ *Apply the parking brake*

☞ *Switch off the starter*

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

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 switch it off.

Important

Secure the machine against unauthorized operation.

- Remove the key.

Loading the machine

WARNING

Injury hazard when loading the machine!
Can cause severe injury or death.

- Leave the machine before the loading operation and only get onto it again after finishing the loading operation.

NOTICE

Incorrect loading causes damage on the machine.

☞ *Ensure that the payload is not exceeded!*

- Ensure that the operator's visibility is not impaired.

- Before loading:

☞ *Select the neutral position with the travel lever*

☞ *Lower the skip*

☞ *Apply the parking brake*

☞ *Stay clear of the control stand and the danger zone*

- Once loading is over:

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

☞ *Remove loose material*

3.17 Seat adjustment

WARNING

Accident hazard! Do not change the seat position when traveling or operating.
Can cause severe injury or death.

- Adjust the operator seat only at machine standstill and with the brake applied.

Weight adjustment

Important

Adjust the seat suspension correctly to ensure an optimal level of ride comfort.

Fig. 43: 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. 44: Horizontal seat adjustment

☞ *Sit down on the seat*

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

☞ *Move the operator seat forward or backward.*

Backrest adjustment

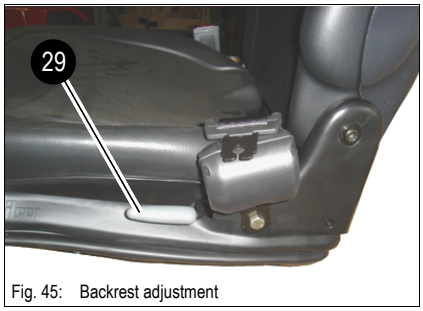


Fig. 45: Backrest adjustment

☞ *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.*

3.18 Seat belt

WARNING

Personal injury hazard! Do not travel or operate with the seat belt unbuckled.
Can cause severe injury or death.

- Operating the machine without fastening the seat belt is prohibited under all circumstances.
- Seat belt must not be twisted.
- The seat belt must run over the hips – and not over the stomach.
- Do not place the seat belt over hard, edged or fragile items (tools, rulers, glasses, pen) carried inside your clothes.
- Never buckle up 2 persons with one seat belt.
- Check seat belts regularly. Have damaged parts immediately replaced by a Wacker Neuson service center.
- Always keep the seat belt clean, as coarse dirt can impair proper functioning.
- Seat belt buckle must not be obstructed by foreign bodies, otherwise the buckle latch cannot lock into place.
- Depending on the situation, traveling over very short distances with a lowered rollbar is allowed (in case of low clearance heights, for example) – *see chapter* ***Operation with lowered rollbar*** on page 2-7

  After an accident the belt strap is stretched and no longer serviceable. In an accident, the seat belt does not provide enough safety.
- Replace the seat belt after an accident.
- Have fastening points and seat fixture checked for bearing capacity.

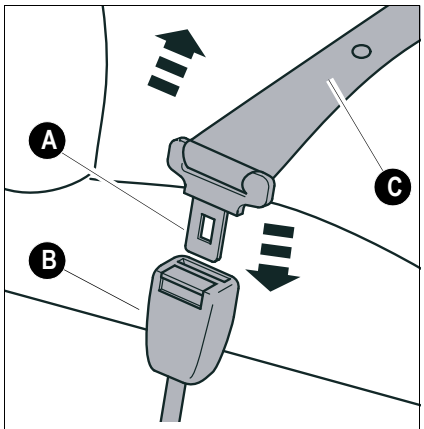


Fig. 46: Fastening the seat belt

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

Fastening the seat belt:

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

- Hold belt on buckle latch **A** and run it slowly and steadily over the hips to buckle **B**
- Insert buckle latch **A** into buckle ***B*** with an audible click **(pull test)**

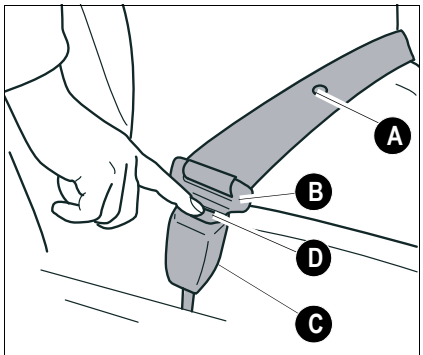


Fig. 47: Unfastening the seat belt

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

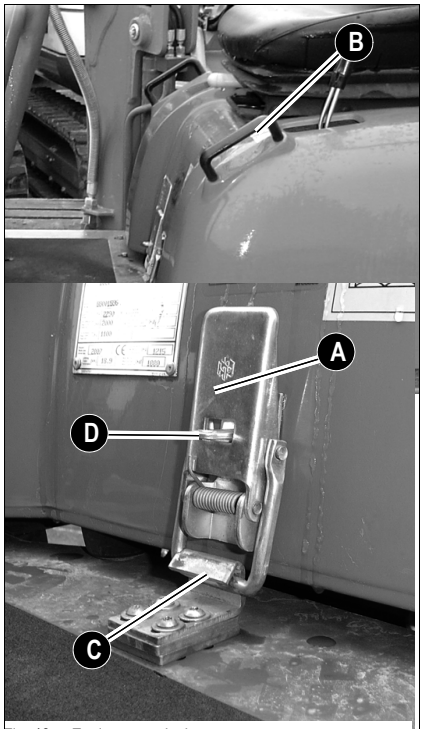


Fig. 48: Engine cover lock

Opening:

☞ *Stop the machine. Stop the engine.*

☞ *Let the engine cool down*

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

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

Closing:

☞ *Press down the engine cover*

☞ *Press buckle **A** forward 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 in eyelet **D** with an external lock

Important

Do not lock the engine cover during machine operation since the emergency switch is located under the engine cover.

3.19 Working with the machine

General safety instructions

- Never travel up to the edge of a pit from outside – danger of cave-in!
- Do not travel under 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.
- The hydraulic system of the machine is still pressurized even when the engine is not running! Release the pressure in the sections of the system and hydraulic lines that are to be opened before starting setup or repair work.
- Before tilting out the skip next to an excavation, secure the machine with suitable wheel chocks or other auxiliary means.
- Always watch the material as you tilt out the skip: ensure that the material is dumped out evenly and does not remain stuck in the skip, otherwise the machine could tip over.
- Do not dump the load when working on sloping ground.
- Always perform precise and smooth control movements, do not perform abrupt movements.
- Do 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 ensure that no one is at risk.
- Machine operation is only allowed if the rollbar is raised and locked, and if the seat belt is fastened.
- Use an external light source in case of poor illumination of the job site. If this is not enough to illuminate the job site sufficiently, stop machine operation and start it again if sufficient illumination can be ensured.

WARNING

Accident hazard when traveling with a tilted-out skip!
Can cause severe injury or death.

☞ *Machine travel with a tilted-out skip is prohibited.*

☞ *Material that sticks in the skip may be tilted out only to the front in the straight position of the machine.*

☞ *Before tilting out the skip, keep a safe distance from buildings or the edges of building pits, for example.*

☞ *Secure the edge of the pit with a wooden beam anchored in the ground.*

NOTICE

Lowering the skip too rapidly and knocking it against the chassis can cause damage.

3.20 Skip operation

Important

The working speed of the skip is set with the travel of the control lever and with the accelerator pedal.

Operation of high-tip skip (1001/1501H)

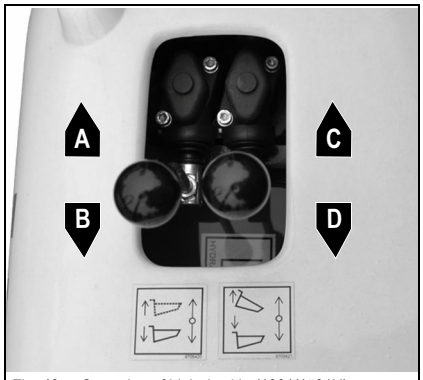


Fig. 49: Operation of high-tip skip (1001/1501H)

Position	Lever	Function
A	Lever forward	Raises the lift frame
B	Lever to the rear	Lowers the lift frame
C	Lever forward	Tilts out the skip
D	Lever to the rear	Lowers the skip

Swivel skip operation (1501S/option)

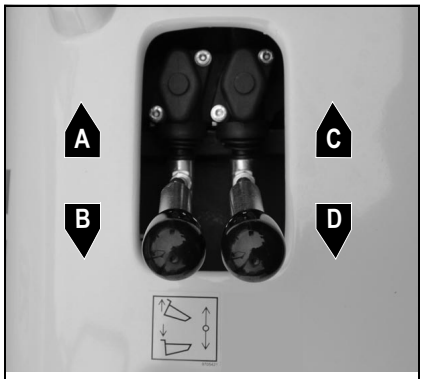


Fig. 50: Swivel skip operation (1501S)

Position	Lever	Function
A	Lever forward	Tilts out the skip
B	Lever to the rear	Lowers the skip
C	Lever forward	Skip is rotated to the right
D	Lever to the rear	Skip is rotated to the left

Swivel skip operation (2001S)

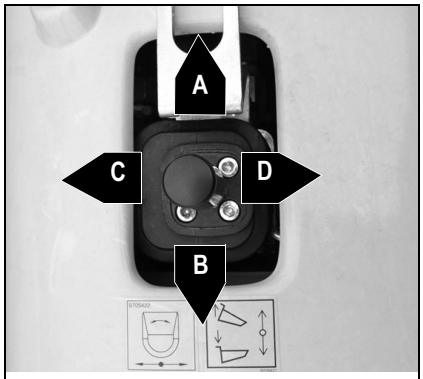


Fig. 51: Swivel skip operation (2001)

Position	Lever	Function
A	Lever forward	Tilts out the skip
B	Lever to the rear	Lowers the skip
C	Lever to the left	Skip is rotated to the left
D	Lever to the right	Skip is rotated to the right

Swivel skip and loader unit operation (2001SLE)

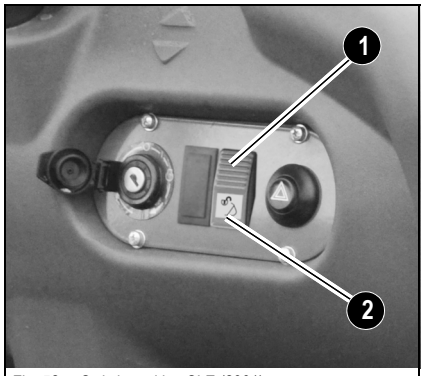


Fig. 52: Switch position SLE (2001)

Switch position 1: loader unit operation

Switch position 2: skip operation

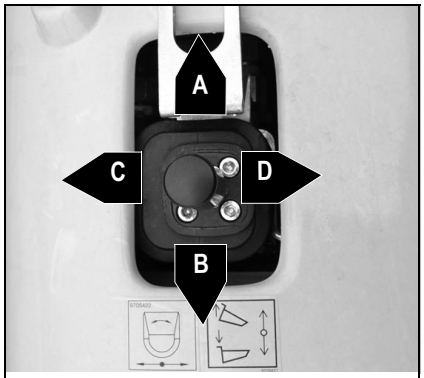


Fig. 53: Swivel skip operation (2001)

Switch position 2:

Position	Lever	Function
A	Lever forward	Tilts out the skip
B	Lever to the rear	Lowers the skip
C	Lever to the left	Skip is rotated to the left
D	Lever to the right	Skip is rotated to the right

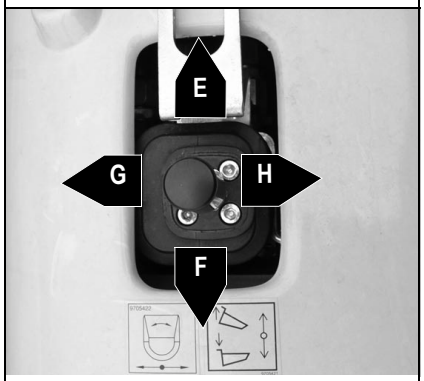


Fig. 54: Loader unit operation (2001)

Switch position 1:

Position	Lever	Function
E	Lever forward	Lowers the lift frame
F	Lever to the rear	Raises the lift frame
G	Lever to the left	Tilts in the bucket
H	Lever to the right	Tilts out the bucket

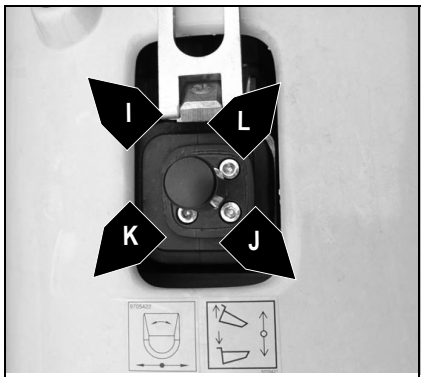


Fig. 55: Loader unit operation (2001)

Switch position 1:

Position	Lever	Function
I	Lever to the left and forward	Lowers the lift frame and tilts in the bucket
J	Lever to the right and rear	Raises the lift frame and tilts out the bucket
K	Lever to the left and rear	Raises the lift frame and tilts in the bucket
L	Lever to the right and front	Lowers the lift frame and tilts out the bucket

3.21 Loader unit (option 2001)

WARNING

Crushing hazard! Falling objects.
Can cause severe injury or death.

- Do not perform jerky movements with the lift frame and bucket to avoid throwing material over the skip.

Important

In order to avoid damage to the machine, observe the following:

- Do not perform any excavating, grading, lifting or other movements with the loader unit.
- Avoid wheel spin when picking up material.
- Lower the loader unit before turning or tilting out the skip.

Fig. 56: Loader unit (option 2001)

The loader unit has been designed for lifting up to 300 kg of loose material.

Observe the following when working with the loader unit:

- Do not allow anyone to stay in the danger zone of the machine.
- Only tilt out the bucket if the skip is lowered.
- Do not work on slopes with the loader unit.
- Do not perform any steering movements when picking up material.
- Position the loader unit in the rear end position on the skip before traveling.

Important

Grease all lubrication points of the loader unit daily.

3.22 Rollbar

WARNING

Personal injury hazard when operating the machine with a lowered rollbar.
Can cause severe injury or death.

- Machine operation is only allowed if the rollbar is raised and locked, and if the seat belt is fastened.
- Wear protective equipment (protective clothing, safety glasses, for example).
- Depending on the situation, traveling over very short distances with a lowered rollbar is allowed (in case of low clearance heights, for example) – *see chapter* ***Operation with lowered rollbar*** on page 2-7.

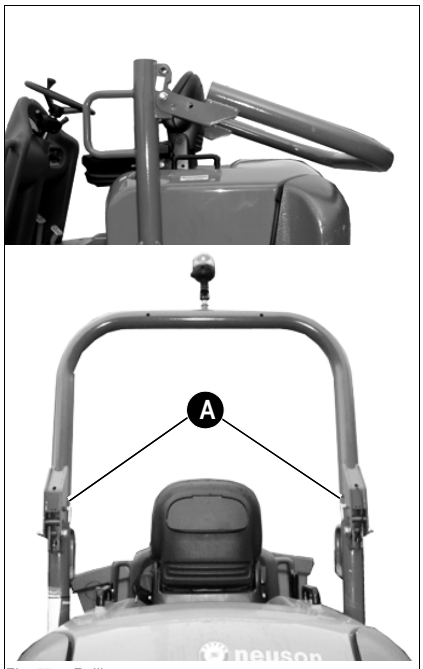


Fig. 57: Rollbar

WARNING

Injury hazard when lowering or raising the rollbar!
Can cause severe injury or death.

- Lowering or raising the rollbar must be performed by two persons.

Lowering the rollbar:

☞ *Park the machine on horizontal 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.*

Raising the rollbar:

☞ *Park the machine on horizontal ground.*

☞ *Raise the rollbar.*

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

3.23 Towing 1001/1501/2001

In order to tow away the dumper, the high-pressure circuit on the hydrostatic pump must be opened and the hydraulic parking brake on both rear wheel motors must be released.

Opening the high-pressure circuit 1001/1501

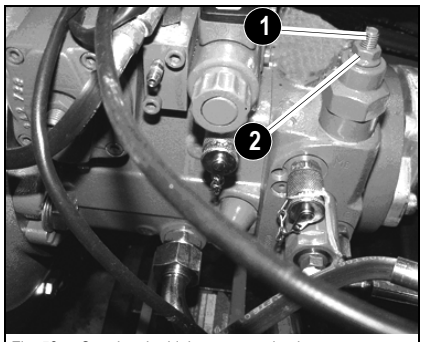


Fig. 58: Opening the high-pressure circuit

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:

☞ *Stop the engine.*

☞ *Open the floor panel.*

☞ *Loosen locknuts 2 with half a revolution to the left.*

☞ *Turn screws 1 to the right with an allen key until you can feel a firmer resistance.*

☞ *Then screw in a further half revolution.*

NOTICE

Screwing in any further damages the valve.

☞ *Retighten the locknuts*

☞ *You can now slowly tow the machine (max. 2 kph/1.2 mph) over a short distance (max. 1 km/0.6 miles).*

Important

After towing the machine, the pressure must be set and the machine put back into operation by a Wacker Neuson service center.

3.24 Releasing the hydraulic parking brake 1001/1501

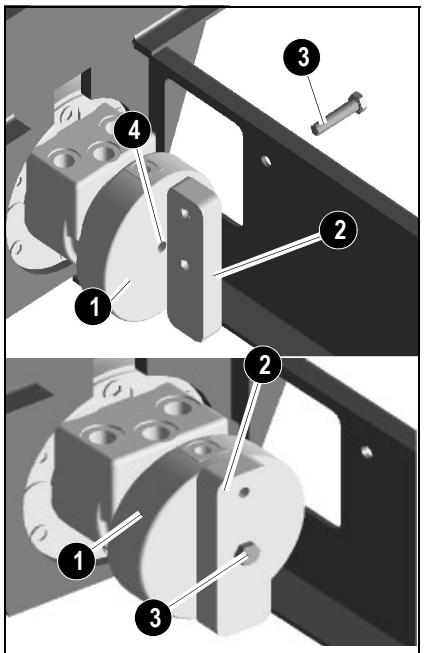


Fig. 59: Opening the high-pressure circuit

☞ *Remove both extraction units (2) installed on the rear axle body to release the hydraulic parking brake (1). Remove hexagon head screw (3) M12x35 (ws 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 ft.lbs) until the wheel turns freely.*

3.25 Opening the high-pressure circuit 2001

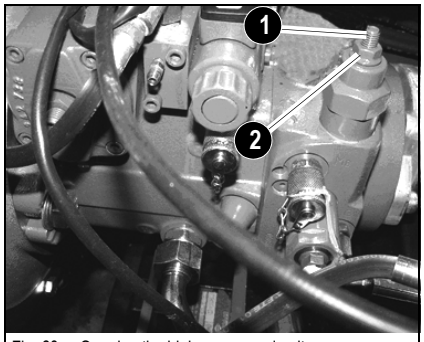


Fig. 60: Opening the high-pressure circuit

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:

☞ *Loosen locknut ws 14 (part 2) and unscrew it to the end of the screw.*

☞ *Screw in the screw with an allen key ws 4 part 1 until it is flush with the nut.*

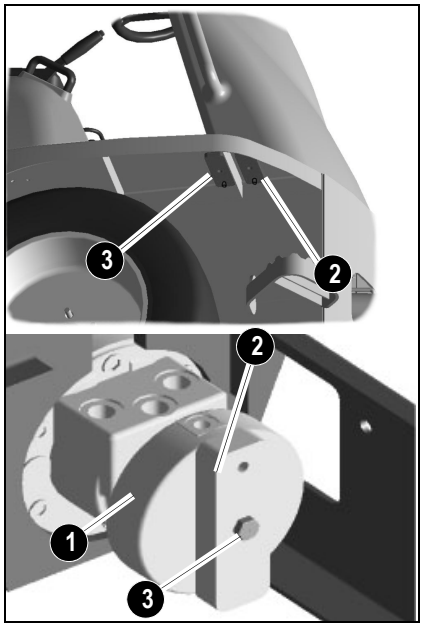
☞ *Retighten the locknut.*

☞ *You can now slowly tow the machine (max. 2 kph/1.2 mph) over a short distance (max. 1 km/0.6 miles).*

Important

After towing the machine, the pressure must be set and the machine put back into operation by a Wacker Neuson service center.

3.26 Releasing the hydraulic parking brake 2001



☞ *Remove both extraction units (2) installed at the front on the mudguard to release the hydraulic parking brake (1). Remove hexagon head screw (3) M12x35 (ws 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 ft.lbs) until the wheel turns freely.*

3.27 Center-pivot prop

WARNING

Crushing hazard if the skip is not supported correctly!
Can cause severe injury or death.

- Support the skip before performing maintenance.

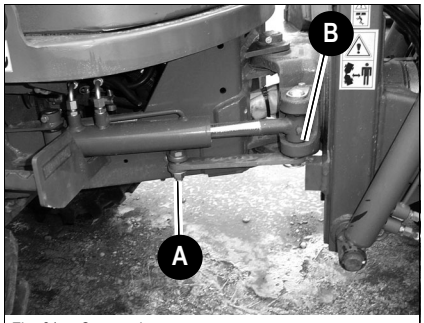


Fig. 61: Center-pivot prop

The center-pivot prop connects the front and rear chassis to prevent steering movements (via the articulated joint) when crane handling the dumper.

Proceed as follows:

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

☞ *Turn center-pivot prop **A** toward the rear chassis*

☞ *Secure center-pivot prop **A** with the spring plug and pin **B***

Important

Before putting the machine into operation again, install the center-pivot prop back onto the front chassis again by means of pin **B**.

3.28 Locking the control levers

Important

Lock the control levers for the skip during road travel.

☞ *This avoids unintentional actuation of the skip.*

Locking the control levers (1001/1501)

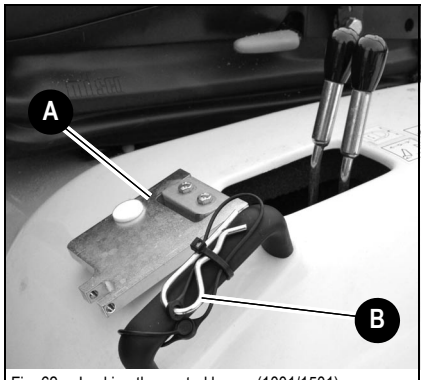


Fig. 62: Locking the control levers (1001/1501)

Fold back control lever lock **A**.

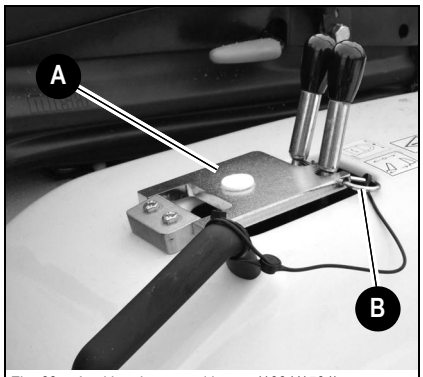


Fig. 63: Locking the control levers (1001/1501)

Fasten control lever lock **A** with split pin **B**.

Locking the control levers (2001)

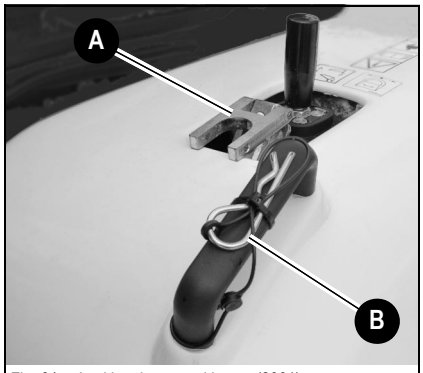


Fig. 64: Locking the control levers (2001)

Fold back control lever lock **A**.

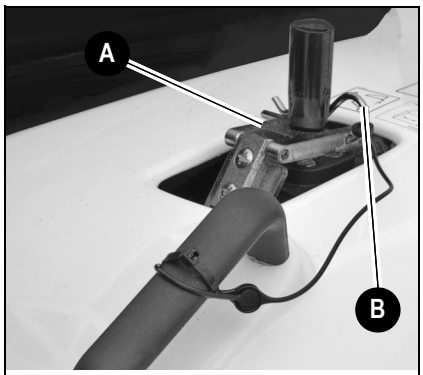


Fig. 65: Locking the control levers (2001)

Fasten control lever lock **A** with split pin **B**.

3.29 Lifting the machine

Safety instructions

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

WARNING

Accident hazard due to incorrect loading!
Can cause severe injury or death.

- Ensure that no one is near the machine!
- Have loads fastened and crane operators guided by experienced persons only! The person guiding the crane operator must be within sight or sound of him!
- Ensure that the crane and the lifting gear (cables, chains) have sufficient load-bearing capacity!
- Raise the machine only if the skip is empty!
- Stay clear of suspended loads!
- It is essential that you read the safety instructions at the beginning of this chapter and follow any other safety instructions relevant in your country!

Important

Use OSHA-rated and approved lifting devices capable lifting the machine, attachments, options and accumulated debris. Refer to the general weight guidelines in the specification section of this manual. Do not attempt to lift the machine with any type of crane including wheel loaders unless the crane operator is qualified to lift loads in craning operations. The crane operator shall be knowledgable of OSHA 1910 craning regulations

☞ *Load the machine as follows:*

- Empty the skip
- Lower the skip
- Stop and park the machine
- Lock the control levers
  – see chapter 3.28 ***Locking the control levers*** on page 3-38
- The rollbar can be lowered to reduce the transport height.
- Put the cente-pivot prop in place
- Use suitable lifting gear, chains, etc.

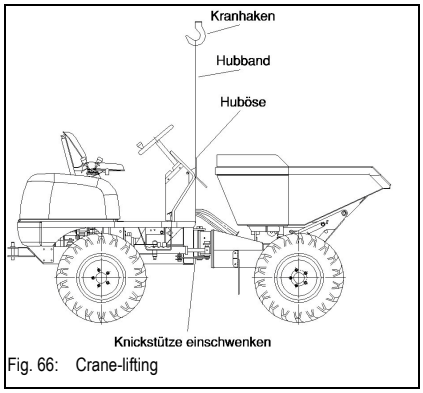


Fig. 66: Crane-lifting

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 center-pivot prop when raising the machine.

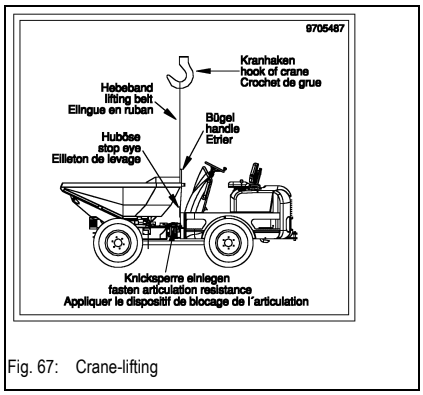


Fig. 67: Crane-lifting

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 skip. Fold in the center-pivot prop when raising the machine.

Loading and transporting the machine

Safety instructions

- The transport vehicle must be of adequate size. Dimensions and weights of machine: see
- *Chapter* ***6 "Technical data (1001 – 1501)"***
- and *Chapter* ***6 "Technical data (2001)"***.
- Remove any mud, snow or ice from the tires so that the machine can be safely traveled onto the ramps
- Secure the machine against unintentional movement
  – see ***Parking the machine*** on page 3-25!

WARNING

Accident hazard due to incorrect loading!
Can cause severe injury or death.

- Follow the safety instructions at the beginning of this chapter and any other safety instructions relevant in your country.

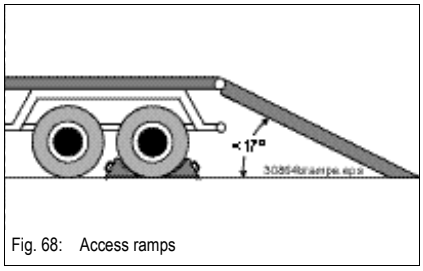


Fig. 68: Access ramps

☞ *Load as follows:*

- Secure the transport vehicle with chocks to prevent it from rolling
- Place the access ramps at the smallest possible angle. Ensure that the grade does not exceed 17° (30 %). Use access ramps with an antiskid surface only.
- Ensure that the loading area is clear and access to it is not obstructed – by superstructures, for example
- Ensure that the ramps and the tires of the dumper are free of oil, grease and ice
- Start the engine of the dumper
- Lower the skip 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.

Tying down the machine

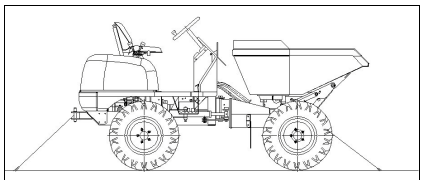


Fig. 69: Tying down the machine

WARNING

Accident hazard due to incorrect loading!
Can cause severe injury or death.

- Follow the safety instructions at the beginning of this chapter and any other safety instructions relevant in your country.

Important

Only use OSHA-approved lifting devices. Use edge protectors to avoid damage both to the machine and the OSHAapproved lifting devices.

- 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
- Ensure that the operator of the transport vehicle knows the overall height, width and weight of his vehicle (including the dumper) before starting machine travel, and the legal transport regulations of the country or countries in which transport will take place!

3.30 Battery master switch 1001 – 1501

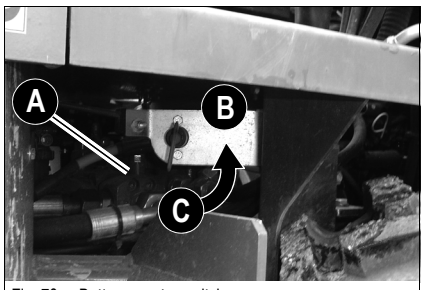


Fig. 70: Battery master switch

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 electrical system.*

Interrupting power supply:

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

Switching on power supply:

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

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

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

4 Malfunctions

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

Repairs must only be performed by authorized personnel.

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	*5-32*
	Fuel grade does not comply with specifications	*5-32*
	Malfunctioning or empty battery	*5-29*
	Loose or oxidized cable connections in starter circuit	
	Malfunctioning starter, or pinion does not engage	
	Wrong valve clearance	
	Malfunctioning fuel injector	
Engine starts, but does not run smoothly or faultless	Fuel grade does not comply with specifications	*5-32*
	Wrong valve clearance	
	Injection line leaks	
	Malfunctioning fuel injector	
Engine overheats. Temperature warning system responds	Oil level too low	*5-10*
	Oil level too high	*5-10*
	Dirty air filter	*5-15*
	Dirty oil radiator fins	
	Malfunctioning fuel injector	
Insufficient engine output	Oil level too high	*5-10*
	Fuel grade does not comply with specifications	*5-32*
	Dirty air filter	*5-15*
	Wrong valve clearance	
	Injection line leaks	
	Malfunctioning fuel injector	
Engine does not run on all cylinders	Injection line leaks	
	Malfunctioning fuel injector	
Insufficient or no engine oil pressure	Oil level too low	*5-10*
	Machine inclination too high (max. 25°)	
	Wrong SAE grade of engine lubrication oil	*5-32*
Engine oil consumption too high	Oil level too high	*5-10*
	Machine inclination too high (max. 25°)	

Problem		Possible causes	See
Engine smoke	Blue	Oil level too high	*5-10*
		Machine inclination too high (max. 25°)	
	White	Engine starting temperature too low	
		Fuel grade does not comply with specifications	*5-32*
		Wrong valve clearance	
		Malfunctioning fuel injector	
	Black	Dirty air filter	*5-15*
		Wrong valve clearance	
		Malfunctioning 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 mandatory maintenance.

Before performing servicing and maintenance, 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.

Dirt can be blown away and cause severe injury when using compressed air. Always wear safety glasses, protective masks and clothing.

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

The maintenance plans indicate when the maintenance mentioned below must be performed – *see* ***Maintenance plan 2001 (overview)*** on page 5-39.

5.2 Brake test

Important

Do not put the machine into operation if a brake test gives a negative result or if there are doubts as to the correct brake function. Contact a Wacker Neuson service center and have the malfunction rectified.

The following tests are performed to check the brake function on firm, level and horizontal ground. On slopes or in the case of machines with loads, for example, the braking effect of the parking brake may still be insufficient to safely brake the machine. If possible, always park the machine without any load and on level ground, and secure it with suitable means (chocks, for example).

Test the brakes once a day.

Parking brake test

Park the machine on firm, level and horizontal ground. With the parking brake applied, turn the steering wheel several times to the left and right limits.

➥ The rear axle wheels must block when turning the steering wheel.

Service brake test

Models with brake pedal:

Start machine travel in the slow speed range and press the brake pedal.

Models without brake pedal:

Start machine travel in low gear and move the travel direction lever to neutral.

➥ Deceleration must be stronger than when only releasing the accelerator pedal.

WARNING

Crushing hazard if the skip is not supported correctly!
Can cause severe injury or death.

- Support the skip before performing maintenance.

WARNING

Crushing hazard when lowering the skip!
Can cause severe injury or death.

- Slowly and carefully lower the skip.

High-tip skip maintenance prop (1001/1501H)

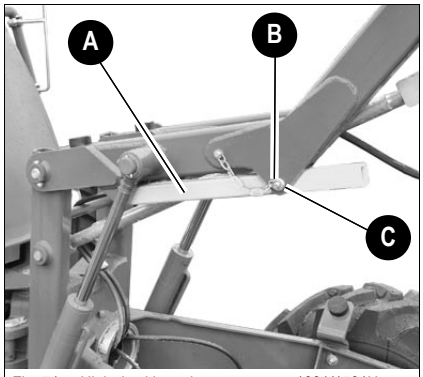


Fig. 71: High-tip skip maintenance prop 1001/1501H

Remove split pin **B** and pin **C**.

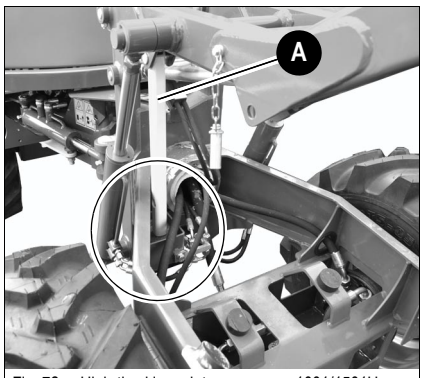


Fig. 72: High-tip skip maintenance prop 1001/1501H

Slowly lower the lift frame until maintenance prop **A** is firmly in its position.

Swivel skip maintenance prop (1501S/option)

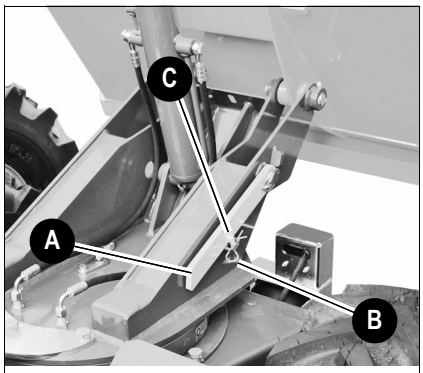


Fig. 73: Swivel skip maintenance prop 1501S

Remove split pin **B** and pin **C**.

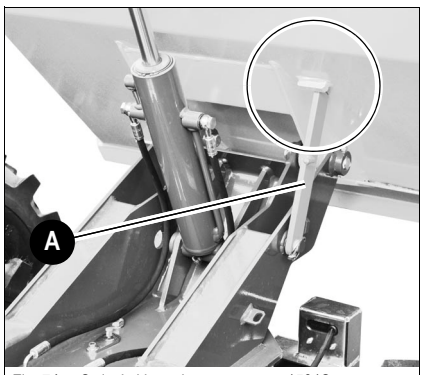


Fig. 74: Swivel skip maintenance prop 1501S

Slowly lower the skip until maintenance prop **A** is firmly in its position.

Swivel skip maintenance prop 2001S

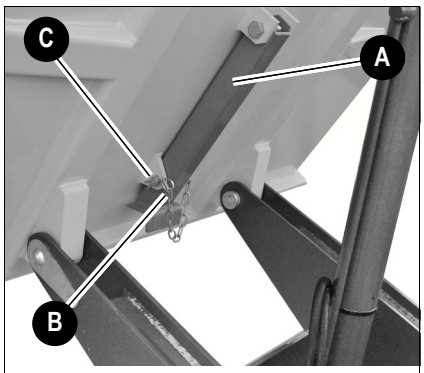


Fig. 75: Swivel skip maintenance prop 2001S

Remove split pin **B** and pin **C**.

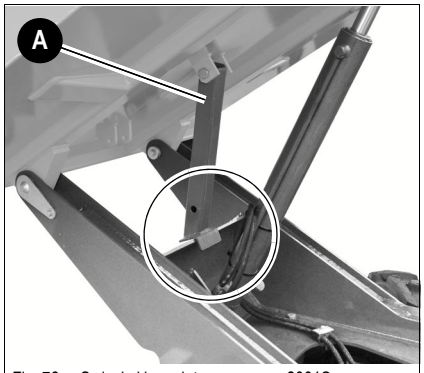


Fig. 76: Swivel skip maintenance prop 2001S

Slowly lower the skip until maintenance prop **A** is firmly in its position.

5.3 Fuel system

Specific safety instructions

WARNING

Explosion hazard when handling fuel!
Can cause severe burns or death.

- Before refueling, stop the engine and remove the starting key.
- Never perform work on the fuel system near open flames or sparks.
- Do not smoke.
- Keep the machine and the surroundings clean.
- Do not refuel in closed rooms.
- Wear protective clothes.

WARNING

Fire hazard when handling fuel!
Can cause severe burns or death.

- Before refueling, stop the engine and remove the starting key.
- Never perform work on the fuel system near open flames or sparks.
- Do not smoke.
- Keep the machine and the surroundings clean.
- Do not refuel in closed rooms.
- Wear protective clothes.

Refueling

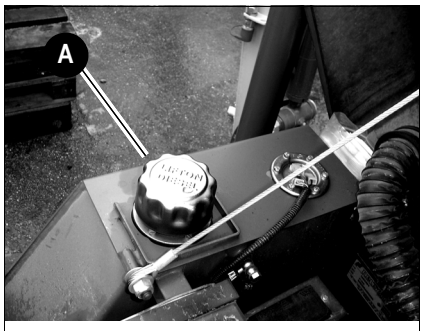


Fig. 77: Fuel filler inlet 1001/1501

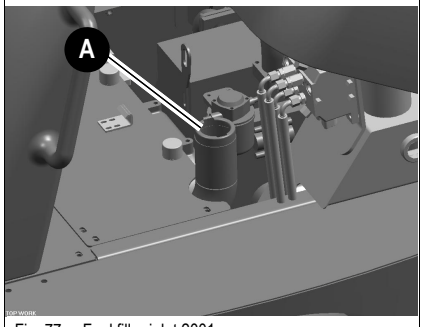


Fig. 77: Fuel filler inlet 2001

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 fluids and lubricants as they flow out and dispose of them 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 5-7.

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 dirty.

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. 78):

- Barrels must neither be rolled nor tilted before refueling
- Protect the suction pipe opening of the barrel pump with a fine-mesh screen
- Immerse it down to a max. 15 cm above the bottom 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

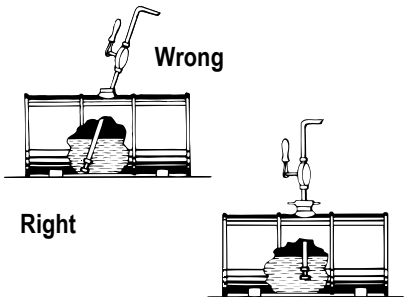


Fig. 78: Refueling from a barrel

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 (39.2 °F) or for operation above 1500 m (4,921 ft) altitude

Bleeding the fuel system

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 starting 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 personnel if necessary*

Fuel prefilter with water separator

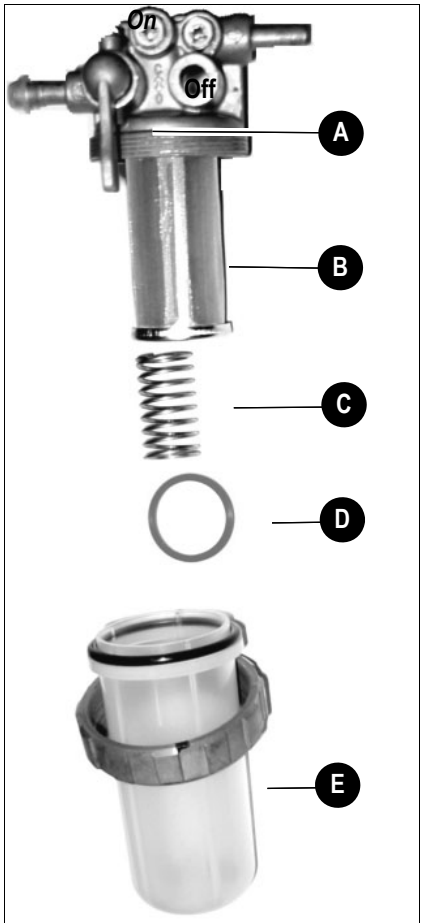


Fig. 79: Fuel prefilter

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***

☞ *Install the filter insert*

☞ *Install the housing (sight glass) with the maintenance indicator (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

Use a suitable container to collect fluids and lubricants as they flow out and dispose of them in an environmentally friendly manner.

Replacing the fuel filter

Environment

Use a suitable container to collect fluids and lubricants as they flow out and dispose of them in an environmentally friendly manner.

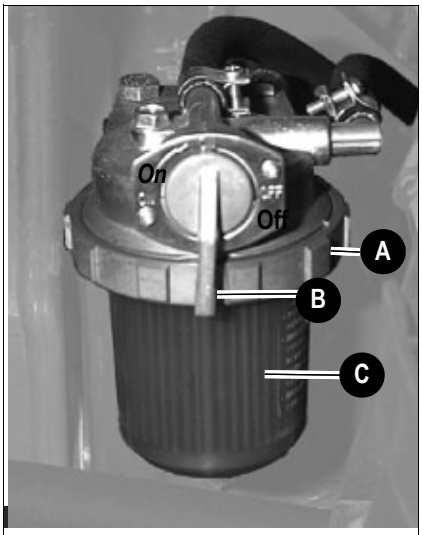


Fig. 80: Fuel filter 1001/1501

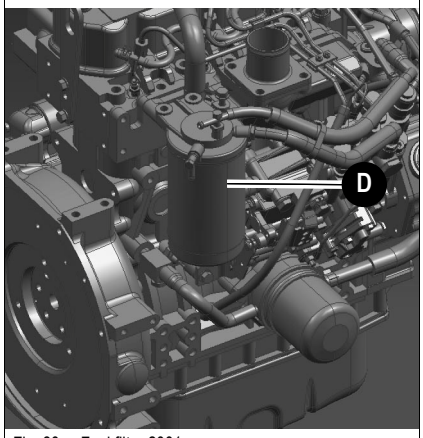


Fig. 80: Fuel filter 2001

Removing the fuel filter (D)

☞ *Close fuel cock **B***

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

☞ *Remove filter housing **C***

Installing the fuel filter (D)

☞ *Install 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 5-7*

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

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

5.4 Engine lubrication system

NOTICE

Engine damage and loss of output in case of insufficient engine oil level, or wrong engine oil!

☞ *Have the oil changed by a Wacker Neuson service center*
– see chapter 5.16 ***Maintenance plan 2001 (overview)*** *on page 5-39*

Important

In order to avoid engine damage, add the engine oil slowly so it can go down without entering the intake system.

Checking the oil level

Important

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

Checking the oil level

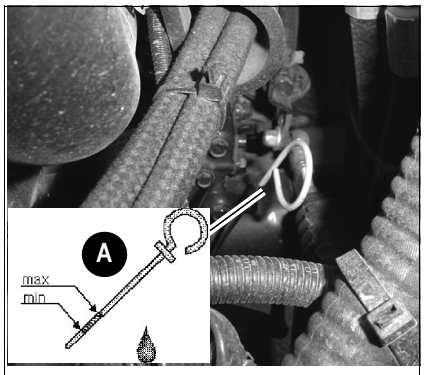


Fig. 81: Checking the oil level

☞ *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, add oil at the latest when the oil reaches the MIN mark on the oil dipstick* **A**

Adding engine oil

NOTICE

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

☞ *Do not add engine oil above the MAX mark of oil dipstick 81/**A***

☞ *Use only the specified engine oil*

Important

In order to avoid engine damage, add the engine oil slowly so it can go down without entering the intake system.

Environment

Use a suitable container to collect fluids and lubricants as they flow out and dispose of them in an environmentally friendly manner.

Adding engine oil

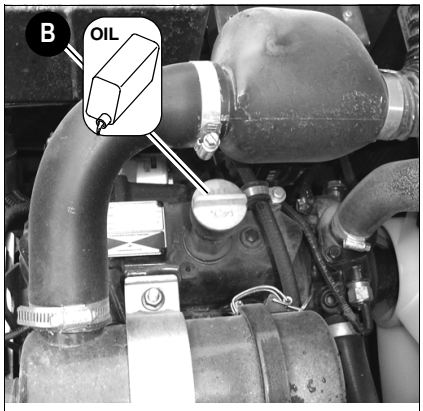


Fig. 82: Adding engine oil

☞ *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 5-10
- Add oil 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

5.5 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 operating hydraulics.

The coolant reservoir is located in the engine compartment next to the toolbox.

Specific safety instructions

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

Environment

Use a suitable container to collect fluids and lubricants as they flow out and dispose of them in an environmentally friendly manner.

Checking the coolant level/adding coolant

WARNING

Burn hazard! The engine coolant is under pressure at high temperature.
Can cause severe injury or death.

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

WARNING

Hazardous material! Antifreeze is poisonous.
Can cause severe injury or death.

- Keep away from flames.
- Avoid eye contact with antifreeze.
  - If antifreeze comes into contact with the eyes:
  - immediately rinse with clean water and seek medical assistance.

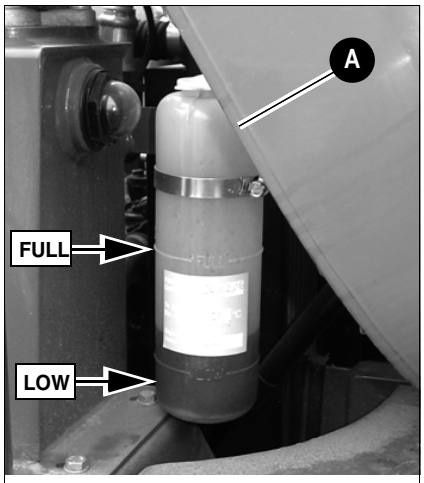


Fig. 83: Coolant reservoir

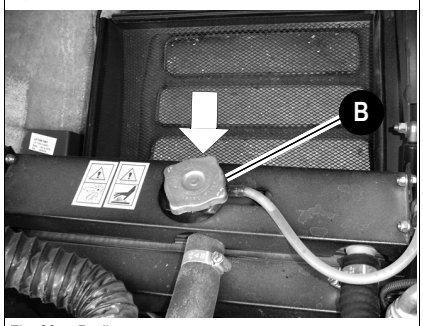


Fig. 83: Radiator

Checking the coolant level

☞ *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 reservoir **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

Important

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

Adding 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** reservoir seams

☞ *If necessary, add coolant and repeat the procedure until the coolant level remains constant*

NOTICE

Do not add a different coolant to the one in the reservoir.

☞ *Use only the coolant prescribed by Wacker Neuson*
*– see chapter 5.13 **Engine/machine fluids and lubricants (1001 and 1501)** on page 5-32*
*– see chapter 5.14 **Engine/machine fluids and lubricants (2001)** on page 5-34.*

Important

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

5.6 Air filter (1001/1501: up to serial no. EA01742)

NOTICE

The filter cartridge will be damaged if it is washed or brushed out!

Bear in mind the following to avoid premature engine wear!

☞ *Do not clean the filter cartridge*

☞ *Replace the filter cartridge when the indicator light illuminates*

☞ *Never reuse a damaged filter cartridge*

☞ *Ensure cleanliness when replacing the filter cartridge!*

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

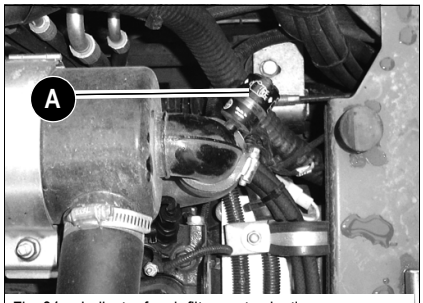


Fig. 84: Indicator for air filter contamination

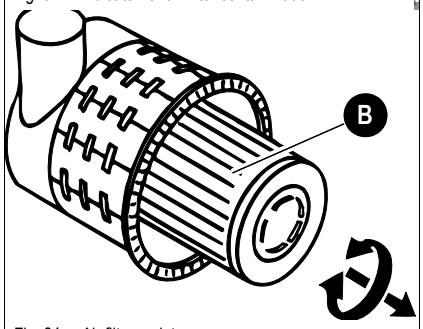


Fig. 84: Air filter maintenance

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

☞ *Replace filter **B** after no more than 50 operating 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

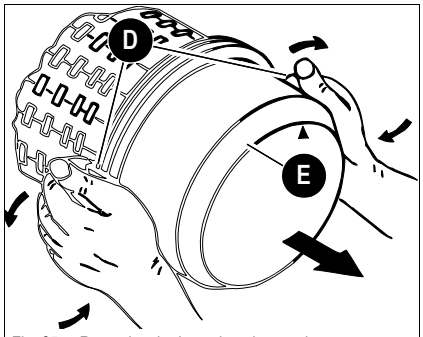


Fig. 85: Removing the lower housing section

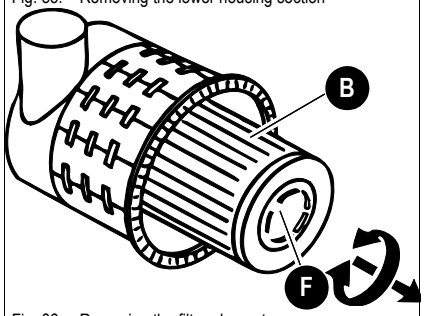


Fig. 86: Removing the filter element

- Replace filter ***A*** as follows:

☞ *Stop the engine*

☞ *Remove the key and carry it with you*

☞ *Let the engine cool down*

☞ *Open the engine cover*

☞ *Remove dirt and dust from the air filter and the area around the air filter*

☞ *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*

☞ *Ensure that 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. Use only intact and clean filters*

☞ *Carefully insert the new filter* **B** *in the air filter housing*

☞ *Position lower housing section* **E** *(ensure that it is properly seated)*

☞ *Close both bow clips* **D**

5.7 Air filter (1001/1501: from serial no. EA01743)

Replacing the air filter

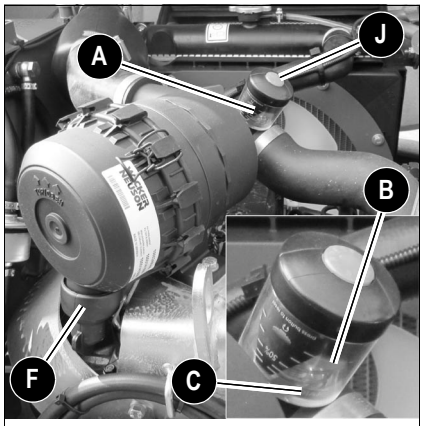


Fig. 87: Removing the lower housing section

The air filter elements must be replaced:

- If the yellow piston **B** in dirt indicator **A** reaches the red service mark **C**.
- Every 1000 operating hours or once a year at the latest.

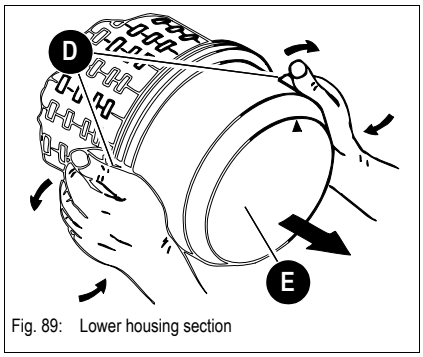


Fig. 89: Lower housing section

1 Park the machine, stop the engine, remove the starting key and carry it with you.
2 Open the engine cover.
3 Remove dirt and dust from the air filter housing and the area around it.
4 Fold bow clips **D** on lower housing section **E** to the outside.
5 Remove lower housing section **E**.

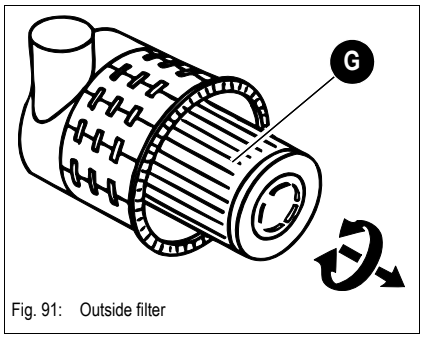


Fig. 91: Outside filter

6 Carefully remove outside filter **G** with slightly turning movements.
7 Ensure that all contamination (dust) inside the upper and lower housing sections (including the dust valve) has been removed.
8 Clean the parts with a clean lint-free cloth, do not use compressed air.

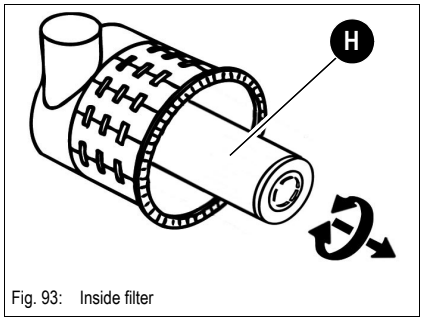


Fig. 93: Inside filter

9 Carefully remove inside filter **H** with slightly turning movements.
10 Check the new inside filter **H** and outside filter **G** for damage and carefully insert them in the air filter housing.
11 Close bow clips **D**.
12 Ensure that dust valve **F** shows downward once it is installed.
13 After replacing the filters, press button **J** to reset the yellow piston **B**.

5.8 V-belt

WARNING

Personal injury hazard due to rotating parts!
Can cause severe injury or death.

- Stop the engine before performing inspection work in the engine compartment.
- Disconnect the battery.
- Let the engine cool down.

CAUTION

Cracked and stretched V-belts cause engine damage.
☞ *Have the V-belt replaced by a Wacker Neuson service center*

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

Checking V-belt tension

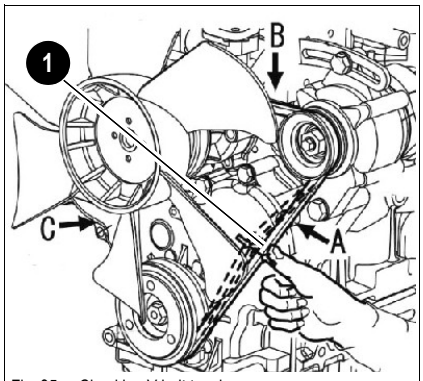


Fig. 95: Checking V-belt tension

- Check as follows:
  - ☞ Stop 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 personnel
  - ☞ Press with your thumb about 100 N (22.5 lbf) 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 (0.2 to 0.4 in), a used V-belt (after about 5 minutes running time) should have a deflection of 7 to 9 mm (0.3 to 0.4 in).
  - ☞ Retighten the V-belt if necessary

Retightening the V-belt

NOTICE

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.

☞ *Checking V-belt tension – see* ***Checking V-belt tension*** *on page 5-18*

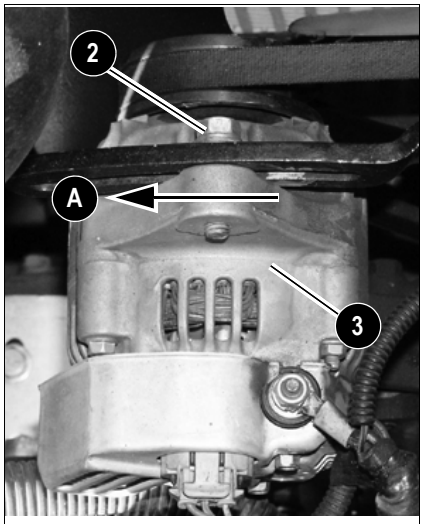


Fig. 96: Retightening the V-belt

- Retighten as follows:

☞ Stop the engine

☞ Raise the control lever base

☞ 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

☞ Loosen 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. 96)

☞ Keep the alternator in this position, and at the same time retighten fastening screws **2**

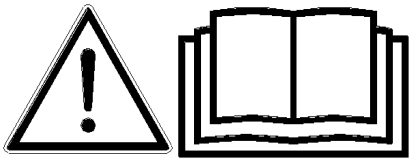
☞ Check V-belt tension again and adjust it if necessary

☞ Connect the battery or the battery master switch

☞ Close the engine cover

5.9 Hydraulic system

Specific safety instructions



- 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 severe injury. Always consult a doctor immediately even if the wound seems insignificant – otherwise severe infections could set in!
- If the hydraulic oil in the sight glass is cloudy, this indicates that water or air has penetrated the hydraulic system. This can cause damage to the hydraulic pump!
- Oil or fuel flowing out of high pressure lines can cause fire or malfunctions, and severe injury or damage to property. Interrupt work immediately if loose 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

Contaminated hydraulic oil, lack of oil or the wrong hydraulic oil can damage the hydraulic system.

- Take care to avoid dirt when working!

  ☞ *Always add hydraulic oil using the filling screen!*

  ☞ *Only use authorized oils of the same type*
  – see chapter 5.13 ***Engine/machine fluids and lubricants (1001 and 1501)*** *on page 5-32*

  ☞ *Always add hydraulic oil before the level gets too low*
  – see ***Adding hydraulic oil*** *on page 5-22*

  ☞ *If the hydraulic system is filled with biodegradable oil, then use only biodegradable oil of the same type for adding oil – observe the sticker on the hydraulic oil reservoir!*

  ☞ *Contact customer service if the hydraulic system filter is contaminated with metal chippings. Otherwise, follow-on damage can result!*

Environment

Use a suitable container to collect fluids and lubricants as they flow out and dispose of them in an environmentally friendly manner.

Checking the hydraulic oil level

NOTICE

Do not add oil if the oil level is above the FULL mark, otherwise the hydraulic system can be damaged and oil can escape.

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

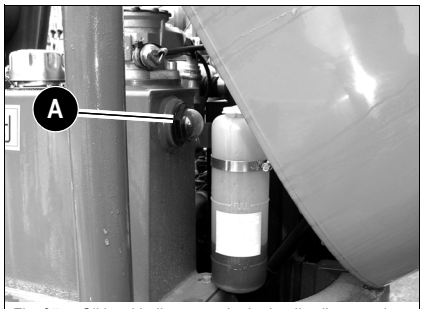


Fig. 97: Oil level indicator on the hydraulic oil reservoir 1001/1501

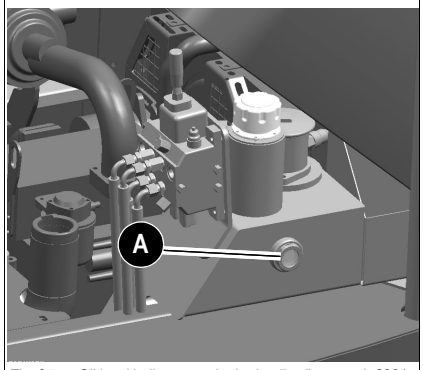


Fig. 97: Oil level indicator on the hydraulic oil reservoir 2001

☞ *Proceed as follows:*

- Park the machine on level ground
- Retract all hydraulic cylinders

☞ Fully tilt in the skip

- Stop the engine
- Sight glass **A** is under the engine cover behind the hydraulic oil reservoir
- Check the oil level on sight glass **A**
- The oil level must be at the **FULL** level
- A gage element in sight glass **A** indicates the oil level

If the oil level is lower

- Add hydraulic oil

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

Machine condition	Temperature	Oil level
• Before putting into operation	Between 10 and 30 °C (between 50 and 86 °F)	**LOW** mark
• Normal operation	Between 50 and 90 °C (between 122 and 194 °F)	**FULL** mark

Important

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

Adding hydraulic oil

WARNING

High pressure hydraulic oil ejection hazard! Removing the filler plug can cause oil to escape.
Can cause severe injury or death.

- Carefully unscrew the plug to slowly reduce the pressure inside the reservoir.
- Wear protective equipment. If oil contacts the eye flush immediately with clean water and seek medical treatment.

Do not add hydraulic oil unless the engine is stopped. Otherwise, hydraulic oil will overflow at the filler opening on the hydraulic oil reservoir.

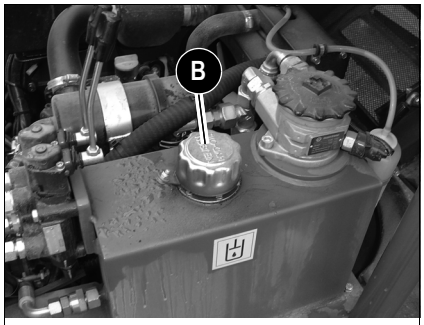


Fig. 98: Hydraulic oil reservoir

☞ *Add as follows:*

- Park the machine on level ground
- Retract all hydraulic cylinders
- Stop 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**
- Add 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 skip in center position before draining the oil (dumper in straight-ahead position).

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

☞ *Check the hydraulic oil reservoir for contamination and clean it if necessary*

☞ *Replace the filter according to the maintenance specifications*

☞ *Screw the drain plug back in correctly*

☞ *Add clean hydraulic oil through the screen*
*– see **Adding hydraulic oil** on page 5-22*

☞ *Close the hydraulic oil reservoir correctly*

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

Dirt indicator for hydraulic oil filter

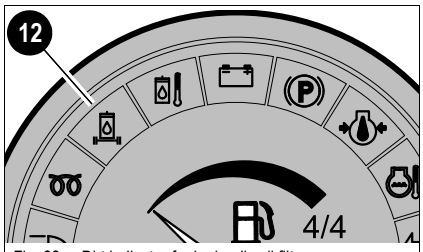


Fig. 99: Dirt indicator for hydraulic oil filter

A red indicator light on the instrument panel monitors the filter.

Replace the filter:

- If the indicator light illuminates when the hydraulic oil is at operating temperature
- According to the maintenance interval

In cold weather the indicator light can illuminate 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

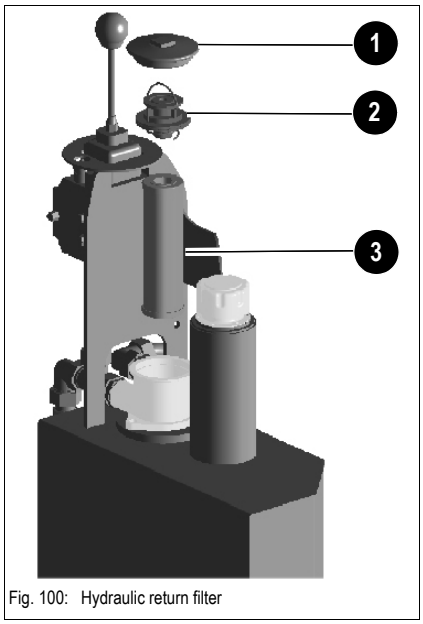


Fig. 100: Hydraulic return filter

Proceed as follows:

☞ *Stop 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 reservoir*

☞ *Open the cover completely and remove it*

☞ *Pull filler pipe **2** upward 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 on the use of biodegradable oil

- Use only the biodegradable hydraulic fluids which have been tested and approved by Wacker Neuson GmbH. Always contact Wacker Neuson for the use of other products that 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 that can be proved to be due to the hydraulic fluid.
- Use only biodegradable oil of the same type for adding oil. In order to avoid misunderstandings, a label providing clear information is located on the hydraulic oil reservoir (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, ensure that the remaining amount of initial hydraulic fluid in the hydraulic system does not exceed 8 % when changing biodegradable oil (manufacturer indications).
- Do not add 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 5-39.
- Always have the condensation water in the hydraulic oil reservoir drained by a Wacker Neuson 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 installed 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 a Wacker Neuson service center or by your Wacker Neuson dealer

Checking hydraulic pressure lines

Specific safety instructions

WARNING

High pressure hydraulic oil ejection hazard when checking hydraulic pressure lines.
Can cause severe injury or death.

- Always consult a doctor immediately, even if the wound seems insignificant. Hydraulic oil causes blood poisoning.
- Always observe the following instructions:
  - Retighten leaking threaded fittings and hose connections only when the system is not under pressure; in other words, release the pressure before working on pressurized lines!
  - Never weld or solder damaged or leaking pressure lines and threaded fittings. Replace damaged parts with new ones!
  - Do not search for hydraulic leaks with your bare hands. Wear protective gloves and search for hydraulic leaks with a piece of cardboard.
  - Use paper or wood to check for minor leaks. Never use an unprotected light or open flame!
  - Have damaged flexible lines replaced by a Wacker Neuson service center only!

- Leaks and damaged pressure lines must be immediately repaired or replaced by a Wacker Neuson service center or after-sales personnel.
  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. 101: Tires

Tire wear can vary according to work and ground conditions.

WARNING

Accident hazard due to incorrect tire repairs!
Can cause severe injury or death.

- All repair work on tires and rims may only be performed by a 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 technical data for the approved tire types and the correct tire pressures.

Important

Replace tires after 6 years (irrespective of condition) and dispose of them correctly.

Inspection work

☞ *Perform the following maintenance once a day:*

- Visual check of the tire condition
- Check the tire pressure
- 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, a jack, etc.*

NOTICE

Fitting narrow tires is prohibited.

Removing

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*

Installing

Proceed as follows:

☞ *Place the wheel onto the wheel bolts*

☞ *Tighten all wheel nuts part-way*

☞ *Lower the raised axle*

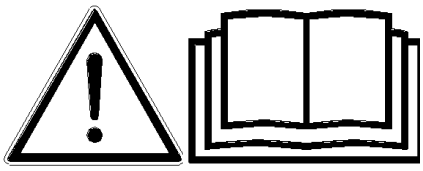
☞ *Tighten the wheel nuts to 200 Nm (148 ft.lbs)*

Important

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

5.11 Electrical system

Specific safety instructions



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

  Therefore when recharging or working near the battery:

  ☞ Always wear safety glasses and protective clothing with long sleeves

If acid is spilt:

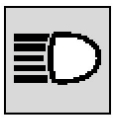
  ☞ Thoroughly rinse all affected surfaces immediately with plenty of water

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

- Especially when charging batteries, as well as during normal operation of batteries, an oxyhydrogen mixture is formed in the battery cells – explosion hazard!
- Do not attempt to jump-start the machine if the battery is frozen or if the acid level is low. The battery can burst or explode!

  ☞ Replace the battery immediately
- Avoid open flames and sparks and do not smoke near open battery cells – otherwise the gas produced during normal battery operation can ignite!
- Use only 12 V power sources. Higher voltages will damage the electrical components
- When connecting the battery leads, ensure that the poles +/− are not inverted, otherwise sensitive electrical components will be damaged
- Do not interrupt voltage-carrying circuits at the battery terminals because of the sparking hazard!
- Never place tools or other conductive articles on the battery – risk of short circuit!
- Disconnect the negative (−) battery terminal from the battery before starting repair work on the electrical system
- Dispose of used batteries properly

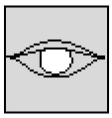
Servicing and maintenance at regular intervals



Before performing machine travel

☞ *Check every time before performing machine travel:*

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



Every week

☞ *Check once a week:*

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

Instructions concerning specific components

Cables, bulbs and fuses

Always observe the following instructions:

- Malfunctioning components of the electrical system must always be replaced by a Wacker Neuson service center. Bulbs and fuses may be changed by unqualified persons
- When performing maintenance on the electrical system, pay particular attention to ensuring good contact in leads

Alternator

Always observe the following instructions:

- Only test run the engine with the battery connected
- When connecting the battery, ensure that the poles (+/−) are not inverted
- Always disconnect the battery before performing welding work or connecting a quick battery charger

Battery

WARNING

Explosion hazard when working on the electrical system!
Can cause severe injury or death.

- Wear protective gloves and safety glasses.
- Do not attempt to jump-start the machine if the battery is frozen or if the acid level is low. The battery can burst or explode. Replace the battery immediately.
- Always disconnect the negative terminal from the battery before starting repair work on the electrical system.

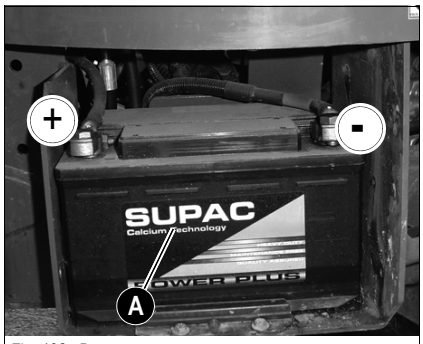


Fig. 102: Battery

Battery **A** is located under the engine cover. The battery is “maintenance-free”. However have the battery checked at regular intervals to ensure that the electrolyte level is between the MIN and MAX marks.

Checking the battery requires it to be removed and must be performed by a Wacker Neuson service center.

Always follow the specific battery safety instructions!

Important

Do not disconnect the battery while the engine is running!

5.12 General maintenance

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 on the one hand, and on the other undermine the health of the persons in charge of cleaning the machine. Therefore always observe the following instructions.

General instructions for all areas of the machine

Cleaning with washing solvents

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

Cleaning with compressed air

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

Cleaning with a high-pressure cleaner or steam jet

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

Cleaning with volatile and easily flammable anticorrosion agents and sprays:

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

Exterior of the machine

NOTICE

Cleaning the machine can cause engine damage.

☞ *Protect the engine against humidity*

The following articles are generally suitable:

- High-pressure cleaner
- Steam jet

Engine compartment

WARNING

Injury hazard when working on a running engine!
Can cause severe injury or death.

- Stop the engine before performing maintenance.
- Remove the starting key and carry it with you.

NOTICE

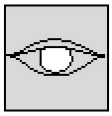
When cleaning the engine with a water or steam jet

☞ *The engine must be cold*

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

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

Threaded fittings and attachments



All threaded fittings 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 a Wacker Neuson 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.

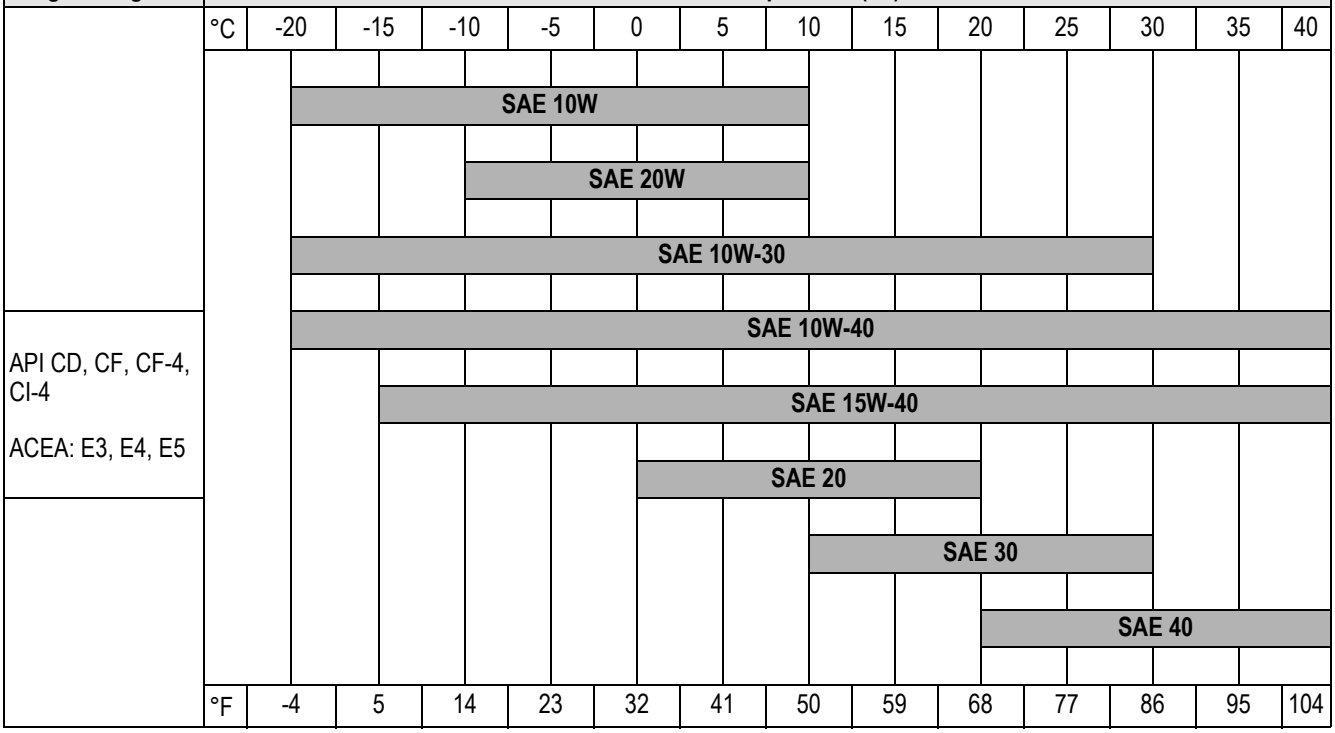
5.13 Engine/machine fluids and lubricants (1001 and 1501)

Component/application	Fluid/lubricant	Specification	Season/temperature	Capacities [1]
Diesel engine	Engine oil	API CD, CF, CF-4, CI-4	−20 °C (−4 °F) +40 °C (104 °F)	3.4 l (0.9 gal)
		ACEA: E3, E4, E5 (SAE 10W40)[2]		
Hydraulic oil reservoir	Hydraulic oil	HVLP46[3]	Year-round	20 l (5.3 gal)
	Biodegradable oil[4]	PANOLIN HLP Synth 46		
		FINA BIOHYDRAN SE 46		
		BP BIOHYD SE-46		
Grease nipples	Multipurpose grease [5]	FINA Energrease L21 M	Year-round	As required
Battery terminals	Acid-proof grease [6]	FINA Marson L2	Year-round	As required
Fuel tank	Diesel fuel	2-D ASTM D975 – 94 (USA)	Summer or winter diesel depending on outside temperatures	15 l (4 gal)
		1-D ASTM D975 – 94 (USA)		
		EN 590 : 96 (EU)		
		ISO 8217 DMX (International)		
		BS 2869 – A1 (GB)		
		BS 2869 – A2 (GB)		
Radiator	Coolant	Distilled water + antifreeze ASTM D4985 (reddish)[7]	Year-round	4 l (1 gal)
		Distilled water + antifreeze ASTM D6210 (violet)[8]		

1. The capacities indicated are approximate 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. Biodegradable hydraulic oil based on saturated synthetic esters with an iodine value of < 10, according to DIN 51524, section 3, HVLP, HEES
5. KF2K-25 according to DIN 51502 multipurpose lithium grease with MoS^2 additive
6. Standard acid-proof grease
7. 1001: up to serial no. WNCD0104PPAL00399/1501: up to serial no. WNCD0105APAL00399
8. 1001: from serial no. WNCD0104HPAL00400/1501: from serial no. WNCD0105KPAL00400

Oil grades for the diesel engine, depending on temperature

Engine oil grade	Ambient temperature (°C)



API CD, CF, CF-4, CI-4

ACEA: E3, E4, E5

5.14 Engine/machine fluids and lubricants (2001)

Component/application	Fluid/lubricant	Specification	Season/temperature	Capacities [1]
Diesel engine	Engine oil	Q8 T660, SAE10W-40[2]	−20 °C (−4 °F) +40 °C (104 °F)	5.25 l (1.4 gal)
Hydraulic oil reservoir	Hydraulic oil	HVLP46[3]	Year-round	48 l (12.7 gal)
	Biodegradable oil[4]	PANOLIN HLP Synth 46		
		FINA BIOHYDRAN SE 46		
		BP BIOHYD SE-46		
All lubrication points		FINA Energrease L21M	Year-round	As required
Battery terminals	Acid-proof grease [5]	FINA Marson L2	Year-round	As required
Fuel tank	Diesel fuel	2-D ASTM D975 – 94 (USA)		40 l (10.6 gal)
		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	Distilled water + antifreeze ASTM D4985 (reddish)[6]	Year-round	8.5 l (2.2 gal)
		Distilled water + antifreeze ASTM D6210 (violet)[7]		

1. The capacities indicated are approximate 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. Biodegradable hydraulic oil based on saturated synthetic esters with an iodine value of < 10, according to DIN 51524, section 3, HVLP, HEES
5. Standard acid-proof grease
5. First replacement after 50 operating hours
6. Up to serial no. WNCD0502APAL00299
7. From serial no. WNCD0502KPAL00300

Oil grades for the diesel engine, depending on temperature

Engine oil grade	Ambient temperature (°C)														
	°C	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40
		SAE 10W												
				SAE 20W										
		SAE 10W-30												
API: CH4, CE/SJ ACEA: A3, B3, E3		SAE 10W-40												
			SAE 15W-40											
						SAE 20								
								SAE 30						
										SAE 40				

5.15 Maintenance plan 1001 – 1501 (overview)

Work description

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

	Maintenance plan/operating hours (o/h)					
	Maintenance (once a day)	Every 50 o/h	Every 500 o/h	Every 1000 o/h once a year	Customer	Wacker Neuson service center
Fluid and filter changes ( ):						
Perform 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 dirt 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 radiator for engine and hydraulic oil for dirt. Clean if necessary	●				●	
Check cooling systems, heating and hoses for leaks and pressure (visual check)	●				●	
Air filter (damage)	●				●	
Prefilter with water separator: drain water	●				●	
• Clean			●		●	
Check V-belt condition and tension	●				●	
Replace the V-belt			●			●
Check the exhaust system for damage and condition	●				●	
Check valve clearance. Adjust if necessary				●		●

5.15 Maintenance plan 1001 – 1501 (overview)

Work description

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

	Maintenance plan/operating hours (o/h)					
	Maintenance (once a day)	Every 50 o/h	Every 500 o/h	Every 1000 o/h once a year	Customer	Wacker Neuson service center
Clean and adjust the fuel injection pump [7]				●		●
Check and adjust the injection pressure of the injection nozzles, clean the injection needles/nozzles				●		●
Check and adjust injection time [8]				●		●
Empty diesel fuel tank[9]			●			●
Check battery electrolyte. Add 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[10]		●	●			●
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[11]		●	●			●
Check pin lock	●				●	
Check line fixtures	●				●	
Check indicator lights for correct function		●	●			●
Couplings, dirt pile-up on hydraulic system dust caps if necessary	●				●	
Check insulating mats in engine compartment for damage/condition		●			●	
Check labels and Operator's Manual for completeness and condition		●			●	

5.15 Maintenance plan 1001 – 1501 (overview)

Work description

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

	Maintenance plan/operating hours (o/h)					
	Maintenance (once a day)	Every 50 o/h	Every 500 o/h	Every 1000 o/h once a year	Customer	Wacker Neuson service center
Functional check ( ):						
Check the function of the following assemblies/components. Rectify if necessary:						
• Lights, signaling system, acoustic warning system[11]		●	●			●
Leakage check ():						
Check for tightness, leaks and chafing: pipes, flexible lines and threaded fittings of the following assemblies and components. Rectify if necessary:						
• Visual check	●				●	
☞ Engine, hydraulic system and hydraulic components	●				●	
☞ Cooling circuit	●				●	
☞ Traveling drive	●				●	
Lubrication service ():						
Lubricate the machine according to the lubrication plan	●				●	

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

5.16 Maintenance plan 2001 (overview)

Work description

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

	Maintenance plan/operating hours (o/h)							
	Maintenance (once a day)	Every 50 o/h	Every 250 o/h	Every 500 o/h	Once a year or after 1000 o/h	After 1500 o/h	Customer	Wacker Neuson service center
Fluid and filter changes ( ):								
Perform 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 reservoir breather					●			●
Inspection work ( ):								
Check the following material. Refill if necessary:								
• Engine oil	●						●	
• Engine coolant	●						●	
• Hydraulic oil	●						●	
Clean the water ducts[5]					●			●
Check radiator for engine and hydraulic oil for dirt. 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	●						●	

1. Drain engine oil the first time after 50 o/h, then every 250 o/h
2. Replace the engine oil filter the first time after 50 o/h, then every 250 o/h
3. Replace the fuel filter the first time after 50 o/h, then every 250 o/h
4. Replace the hydraulic oil filter insert the first time after 50 o/h, then every 500 o/h
5. Clean the water ducts every other 1000 o/h servicing

5.16 Maintenance plan 2001 (overview)

Work description

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

	Maintenance plan/operating hours (o/h)							
	Maintenance (once a day)	Every 50 o/h	Every 250 o/h	Every 500 o/h	Once a year or after 1000 o/h	After 1500 o/h	Customer	Wacker Neuson service center
Check V-belt condition and tension	●						●	
Replace the V-belt				●				●
Check the exhaust system for damage and condition	●						●	
Check valve clearance, adjust if necessary					●			●
Fuel injection pump						●		●
Injection and pressure					●			●
Check injection nozzles and valves [1]						●		●
Empty diesel fuel tank				●				●
Check battery electrolyte. Add 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[2]		●		●				●
Pin lock	●						●	
Line fixtures	●						●	
Check indicator lights for correct function		●		●				●
Insulating mats in engine compartment		●		●				●
Cleanliness of access	●						●	
Adhesive labels and Operator's Manual		●		●				●
Engine cover gas strut	●						●	

5.16 Maintenance plan 2001 (overview)

Work description

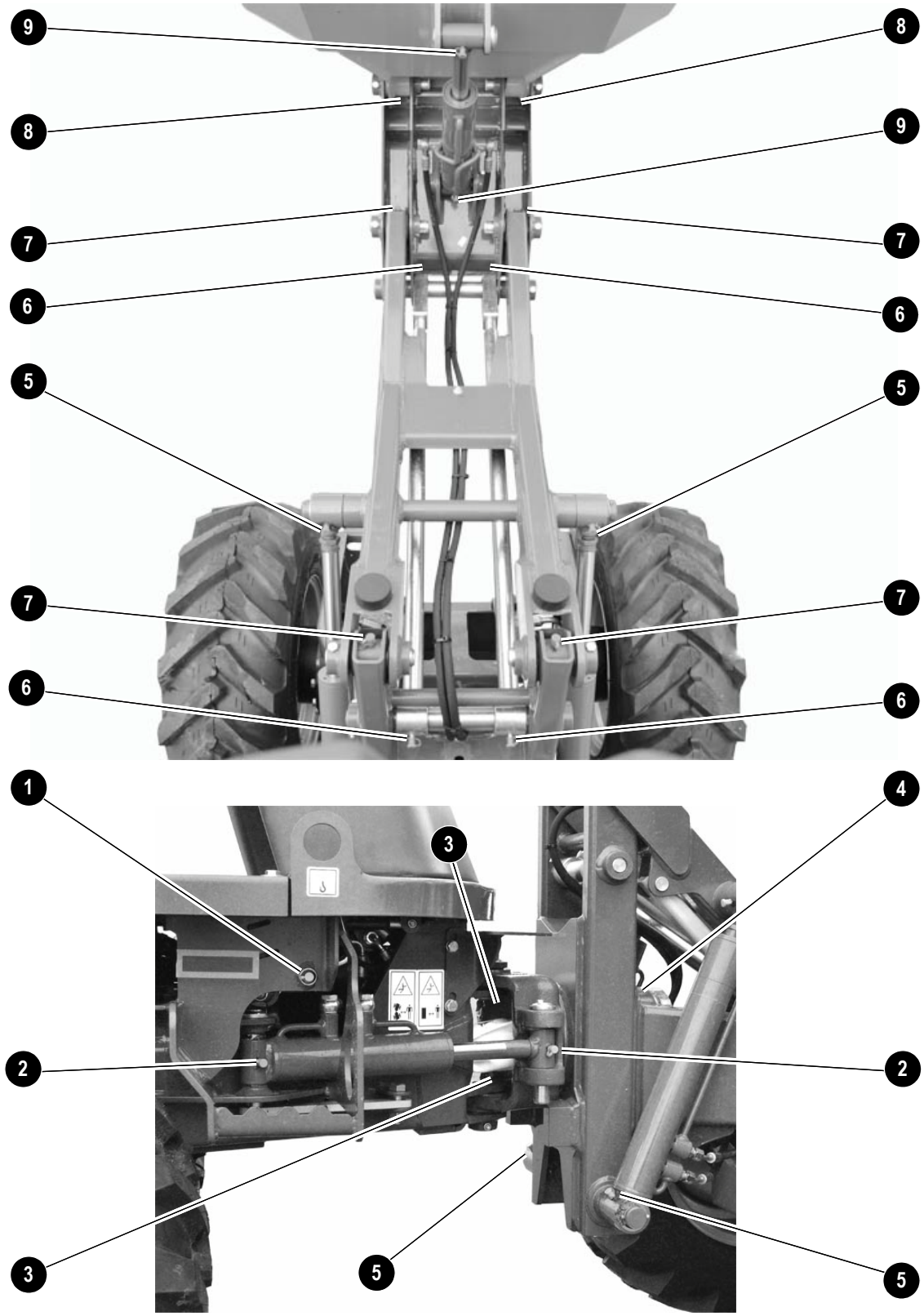
For servicing and maintenance on the attachment, please refer to the operation and maintenance manual of the attachment manufacturer as well.

	Maintenance plan/operating hours (o/h)							
	Maintenance (once a day)	Every 50 o/h	Every 250 o/h	Every 500 o/h	Once a year or after 1000 o/h	After 1500 o/h	Customer	Wacker Neuson service center
Functional check ( ):								
Check the function of the following assemblies/components. Rectify if necessary:								
• Lights, signaling system, acoustic warning system		●						●
• Parking brake function	●						●	
• Steering function	●						●	
Leakage check ( ):								
Check for tightness, leaks and chafing: pipes, flexible lines and threaded fittings of the following assemblies and components. Rectify if necessary:								
• Visual check	●						●	
☞ Engine and hydraulic system	●						●	
☞ Cooling circuit	●						●	
☞ Traveling drive	●						●	
☞ Lubricate the machine according to the lubrication plan	●						●	

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

5.17 Lubrication plan 1001/1501H (high-tip skip)

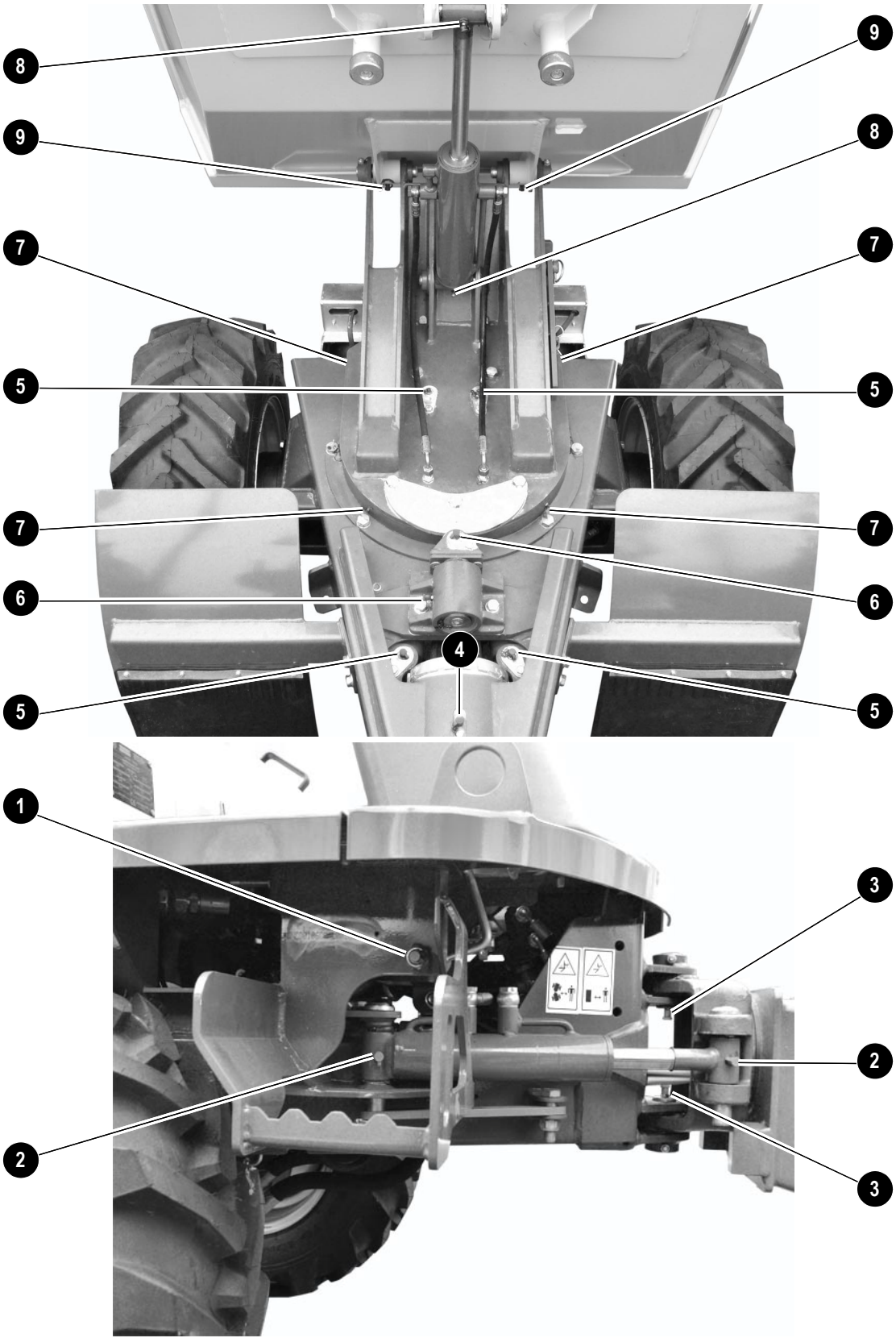
Lower the red maintenance prop before performing maintenance with a raised lift frame – *see* ***High-tip skip maintenance prop (1001/1501H)*** on page 5-3.



Pos.	Designation	Interval	Quantity
1	Accelerator pedal	Daily	1
2	Steering cylinder	Daily	2
3	Articulated joint (vertical)	Daily	2
4	Articulated joint (horizontal)	Daily	1
5	Lift cylinder	Daily	4
6	Connecting rods	Daily	4
7	Lift frame	Daily	4
8	Skip	Daily	2
9	Tilt cylinder	Daily	2

5.18 Lubrication plan 1501S (swivel skip)

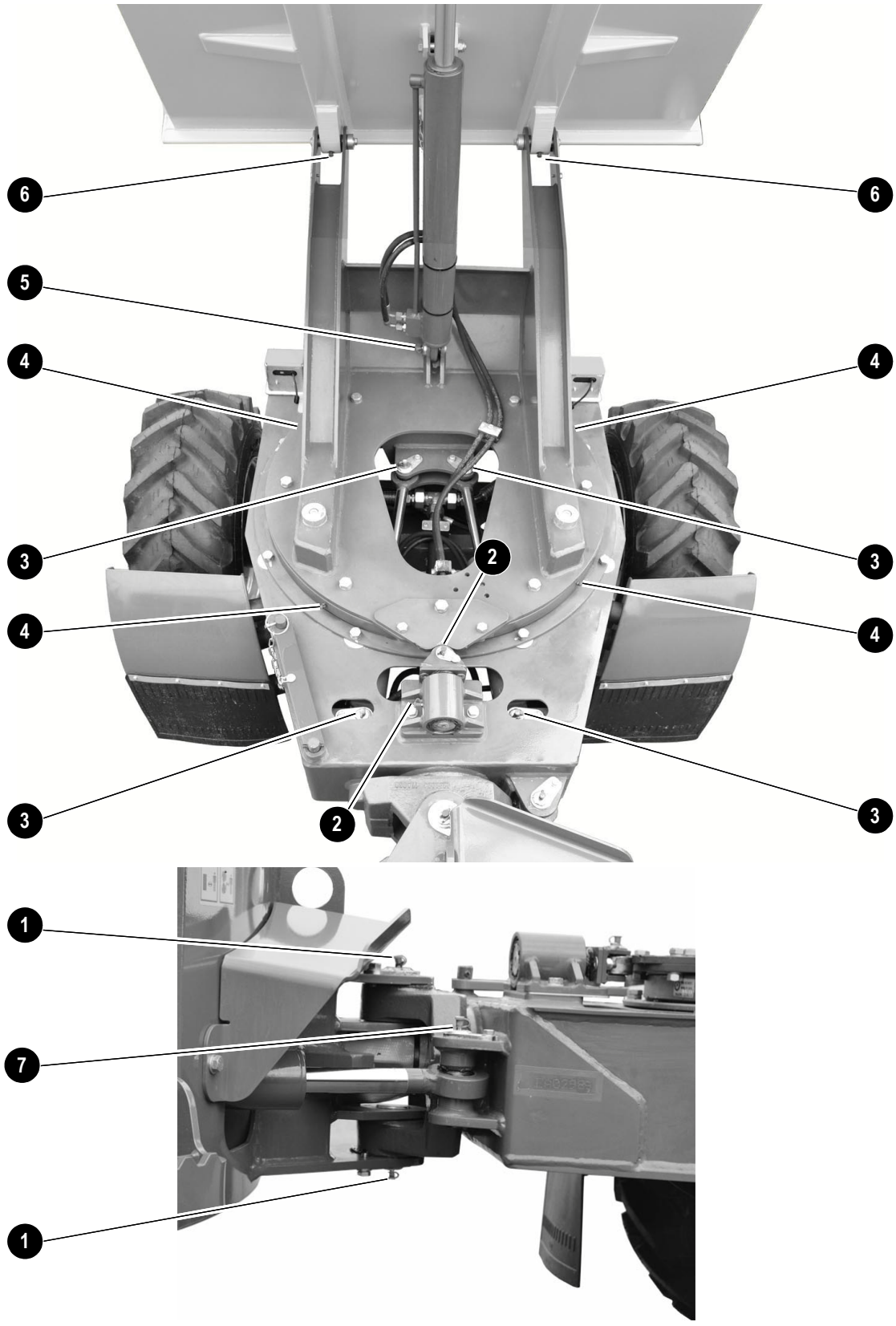
Lower the red maintenance prop before performing maintenance with a raised lift frame – *see chapter* ***Swivel skip maintenance prop (1501S/option)*** on page 5-3

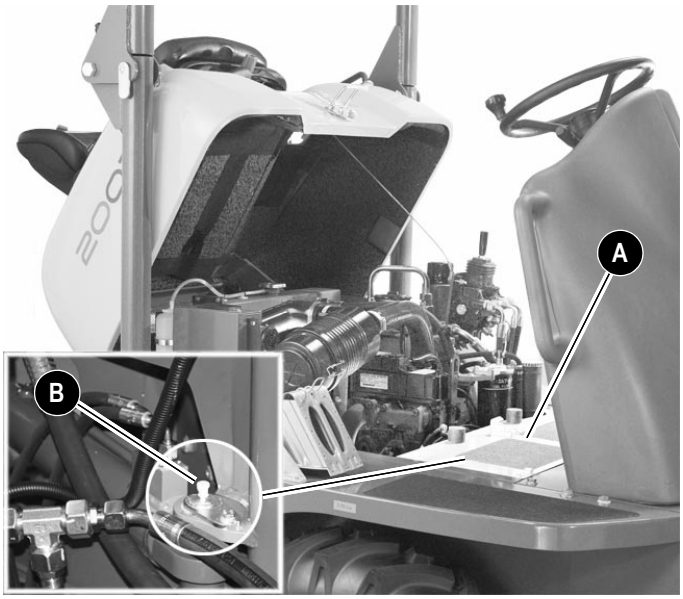


Pos.	Designation	Interval	Quantity
1	Accelerator pedal	Daily	1
2	Steering cylinder	Daily	2
3	Articulated joint (vertical)	Daily	2
4	Articulated joint (horizontal)	Daily	1
5	Swiveling cylinder	Daily	4
6	Swivel lock	Daily	2
7	Live ring	Daily	4
8	Tilt cylinder	Daily	2
9	Skip	Daily	2

5.19 Lubrication plan 2001 (swivel skip)

Lower the red maintenance prop before performing maintenance with a raised lift frame – *see chapter* ***Swivel skip maintenance prop 2001S*** on page 5-4.





Pos.	Designation	Interval	Quantity
1	Articulated joint	Daily	2
2	Swivel lock	Daily	2
3	Swiveling cylinder	Daily	4
4	Live ring	Daily	4
5	Tilt cylinder	Daily	1
6	Skip	Daily	2
7	Steering cylinder (front)	Daily	1
8	Steering cylinder (grease nipple **B**)	Every 500 o/h or every 6 months	1

Grease nipple **B** is located under base plate **A**. Removing it requires opening the engine cover first – *see chapter* ***Engine cover*** on page 3-29

Remove the screws of the base plate with a suitable tool and apply grease to grease nipple **B**

6 Technical data (1001 – 1501)

6.1 Chassis

Sturdy steel sheet chassis, rubber-mounted engine

6.2 Engine

Engine	Model 1001 up to AC000335 Models 1501/1501S up to AC000101	From AB100001H 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
Number 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 2,500 rpm)	17 kW at 2500 rpm (22.8 hp at 2,500 rpm)
Max. torque	63 Nm at 1600 rpm (46.5 lbf ft at 1,600 rpm)	65.8 Nm at 1600 rpm (48.5 lbf ft at 1,600 rpm)
Max. engine speed without load	2500 rpm	1001: 2900 rpm; 1501: 3210 rpm
Idling speed	1100 +/− 25 rpm	1300 +/− 25 rpm
Valve clearance (intake = outlet)	0.15 – 0.25 mm (cold) / (0.0059 – 0.0098 in)	
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 (392 psi at 250 rpm)	28 bar at 250 rpm (406 psi at 250 rpm)
Engine oil pressure under full load	3 – 4 bar (44 – 58 psi)	3.0 – 4.5 bar (44 – 65 psi)
Pressure switch for engine oil pump	0.5 +/− 0.1 bar (7.3 +/− 1.5 psi)	
Thermostat opens at	69.5 – 72.5 °C (157 – 163 °F)	
Thermal switch	107 – 113 °C (225 – 235 °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 plugs (preheating time 4 seconds)
Specific fuel consumption	279 g/kWh (0.615 lb/hph)	272 g/kWh (0.599 lb/hph)
Exhaust values according to	97/68/EC	EPA Tier II

6.3 Traveling drive 1001

Variable displacement pump	1001 (up to BB001360)	1001 (from AB100001H)
Design	Axial piston pump	Axial piston variable displacement pump
Flow rate	99 l/min (26 gal/min)	81 l/min (21 gal/min)
Max. operating pressure	360 bar (5,221 psi)	350 bar (5,076 psi)
Boost pump (integrated in variable displacement pump)		
Design	Gear pump	Gear pump
Flow rate	25 l/min (6.6 gal/min)	25 l/min (6.6 gal/min)
Charging/boost pressure	20 bar (290 psi)	25 bar (363 psi)

6.4 Traveling drive 1501

Variable displacement pump	Models 1501/1501S
Design	Axial piston pump
Flow rate	138 l/min (36 gal/min)
Max. operating pressure	360 bar (5,221 psi)
Boost pump (integrated in variable displacement pump)	
Design	Gear pump
Flow rate	25.8 l/min (68 gal/min)
Charging/boost pressure	20 bar (290 psi)

6.5 Brakes

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	

6.6 Steering system

Steering system	Model 1001/1501/1501S
Design	Hydrostatic chassis articulation steering with emergency steering features.
Steering mode	Chassis articulation steering

6.7 Operating hydraulics

Operating hydraulics	Models 1501/1501S
Hydraulic pump flow rate	18 l/min (4.8 gal/min)
Control valve	2 sections
Max. operating pressure	170 bar (2,466 psi)
Secondary pressure limiting for swiveling cylinder	165 bar (2,393 psi)
Hydraulic oil radiator	Standard
Hydraulic reservoir capacity	20 l (5.3 gal)

6.8 Loader unit

Loader unit	Model 1001	Models 1501/1501S
Skip capacity (struck)	415 l (110 gal)	650 l (172 gal)
Skip capacity (heaped)	525 l (139 gal)	800 l (211 gal)
Skip capacity (liquid capacity)	275 l (73 gal)	420 l (111 gal)
Payload with standard tires	1000 kg (2,204 lbs)	1500 kg (3,307 lbs)
Payload with narrow tires	850 kg (1,874 lbs)	Not available

6.9 Travel specifications

Steering system	Model 1001	Models 1501/1501S
Maximum speed	16 kph (10 mph)	16 kph (10 mph)
Articulation	+/− 33°	+/− 33°
Oscillation	+/− 15°	+/− 15°
Outside turning radius	3200 mm (10'-6")	3500 mm (11'-6")
Hill climbing ability	45 %	45 %
Safe authorized inclination	20 % in all directions	20 % in all directions

6.10 Electrical system

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

Fuse box (up to AC000101)

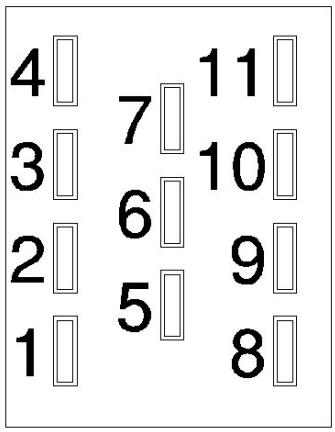


Fig. 103: Fuse box

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 (up to AC000101)

Fig. 104: Relays

The relays are located in the relay box under the control stand, next to the swiveling 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
A 3	– Regulator
F12	– Main fuse

Fuse box (from AB150001H/150002D)

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

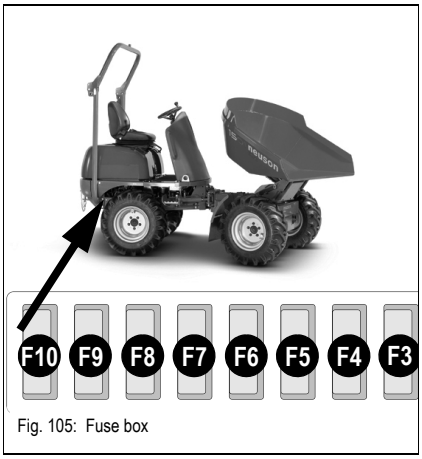


Fig. 105: Fuse box

Fuse no.	Rated current (A)	Protected circuit
F 3	10 A	– Cutoff solenoid, cutoff solenoid time lag relay
F 4	15 A	– Machine travel 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

Relays (from AB150001H/150002D)

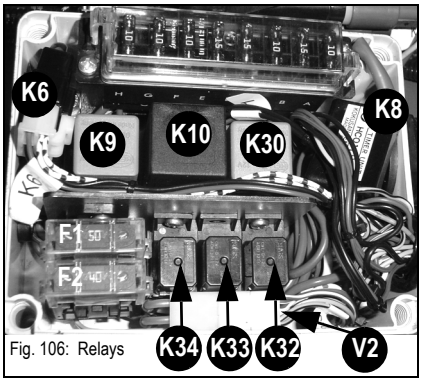


Fig. 106: Relays

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
V 2	– Diodes
F 1, 2	– Main fuses

6.11 Tires 1001/1501

Tire size	Tire pressure	Load-bearing capacity
10.0/7.5x15.3 (standard tires)	3 bar (44 psi)	PR 8
6.0/16 (narrow tires – 1001 option)	2.75 bar (40 psi)	PR 6
10.0/75x15.3 (grass tires – option)	3.1 bar (45 psi)	PR 8

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.
Operator-perceived noise level measured according to EC Directives 84/532/EEC, 89/514/EEC and 95/27/EEC.
Measurements performed on asphalted surface.

6.13 Coolant compound table

Outside temperature[1]	Distilled water	Coolant[2]
Up to °C (°F)	% by volume	% by volume
−37 (−34.6)	50	50

1. Use the 1:1 concentration for warm outside temperatures, too, to ensure protection against corrosion, cavitation and deposits.
2. Do not mix the coolant with other coolants.

6.14 Vibration

Vibration	
Effective acceleration value for the upper extremities of the body (hand-arm vibration)	< Trigger value < 2.5 m/s^2
Effective acceleration value for the body (whole-body vibration)	< 0.5 m/s^2

Vibration values indicated in m/s².

Directive 2002/44/EC of European Parliament and Coucil on minimum health and safety requirements regarding exposure of workers to risks arising from physical agents (vibration).

Indications on hand-arm vibration

Hand-arm vibration is less than 2.5 m/s² during correct machine operation.

Indications on whole-body vibration

Whole-body vibration is less than 0.5 m/s² during correct machine operation.

Uncertainty of measurement K has been taken into account for the specified values.

The degree of vibration is influenced by various parameters.

Some of them are listed below:

- Operator: training, behavior, working method and strain.

- Work site: organization, preparation, surroundings, weather conditions and material.
- Machine: version, seat quality, quality of suspension system, attachments and condition of attachments.

Precise indications on the vibration degrees cannot be made for the machine.

Determination of vibration level for the three vibration axes.

- Under typical operating conditions, use the average vibration values measured.
- In order to obtain the estimated vibration value for an experienced operator on level ground, subtract the factors from the average vibration value.
- In case of an aggressive working method or difficult terrain, add the environmental factors to the average vibration level in order to obtain the estimated vibration level.

Note:

For further vibration indications, refer to the indications in ISO/TR 25398 Mechanical Vibrations – Directive on Estimation of whole-body vibration when driving earth moving machines. This publication uses measuring values of international institutes, organizations and manufacturers. It contains information on whole-body vibration for operators in earth moving machines. For more information on the vibration values of the machine, refer to Directive 2002/44/EC of European Parliament and Coucil on minimum health and safety requirements regarding exposure of workers to risks arising from physical agents (vibration).

It explains the values for vertical vibration under heavy operating conditions.

Directives on reduction of vibration values in earth moving machines:

- Perform correct adjustments and maintenance on the machine.
- Avoid jerky movements during machine operation.
- Keep slopes in a perfect condition.

Whole-body vibration can be reduced with the following guidelines:

- Use a machine and equipment of correct type and size.
- Follow the manufacturer's recommendations for maintenance.
  - Tire pressure.
  - Brake and steering systems.
  - Control elements, hydraulic system and linkage.
- Keep the job site in good condition:
  - Remove large rocks or obstacles.
  - Fill up ditches and holes.
  - Provide a machine and enough time to keep the job site in good condition.
- Use an operator seat according to the ISO 7096 requirements. Keep the operator seat in good condition and adjust it correctly:
  - Adjust the operator seat and suspension to the operator's weight and size.
  - Check and maintain the seat adjustment and suspension.
- Perform the following activities smoothly without any jerks:
  - Steering
  - Brakes
  - Acceleration
  - Shifting gears
- Move attachments without any jerks.
- Adapt your speed and the itinerary to minimize vibration:
  - Travel around obstacles and uneven ground.
  - Reduce your speed when traveling across rough terrain.
- Reduce vibration to a minimum during long work cycles or when traveling over long distances:

- Use a machine with a suspension system (operator seat, for example).
- Enable the hydraulic oscillation damping if the machine is equipped with tracks.
- If the machine is not equipped with hydraulic oscillation damping, reduce your speed to avoid bumps and jolts.
- Load the machine on a truck or trailer to move between work sites.

- Other risk factors can affect travel comfort negatively. The following measures can improve drive comfort:
  - Adjust the operator seat and the control elements to a relaxed body posture.
  - Adjust the rearview mirrors to ensure optimal visibility so you can adopt an upright seating position.
  - Provide breaks to avoid sitting for long periods.
  - Do not jump off the cabin.
  - Picking up and raising loads repeatedly must be limited to a minimum.

Reference:

The vibration values and calculations are based on the indications made in ISO/TR 25398 Mechanical Vibrations – Guidelines for assessment of exposure to whole-body vibration when operating earth moving machines.

The harmonized data comply with measurements made by international institutes, organizations and manufacturers. This publication offers information on the calculation of whole-body vibrations for operators of earth moving machines. This method is based on vibration measurements under real operating conditions for all machines. Read the original guidelines. This chapter summarizes part of the legal regulations. However, its aim is not to replace the original references. Other parts of this document are based on information of the United Kingdom Health and Safety Executive.

For more information on vibration, refer to Directive 2002/44/EC of European Parliament and Coucil on minimum health and safety requirements regarding exposure of workers to risks arising from physical agents (vibration).

Your Wacker Neuson dealer provides information on other machine functions reducing vibration and on safe operation.

6.15 Dimensions model 1001

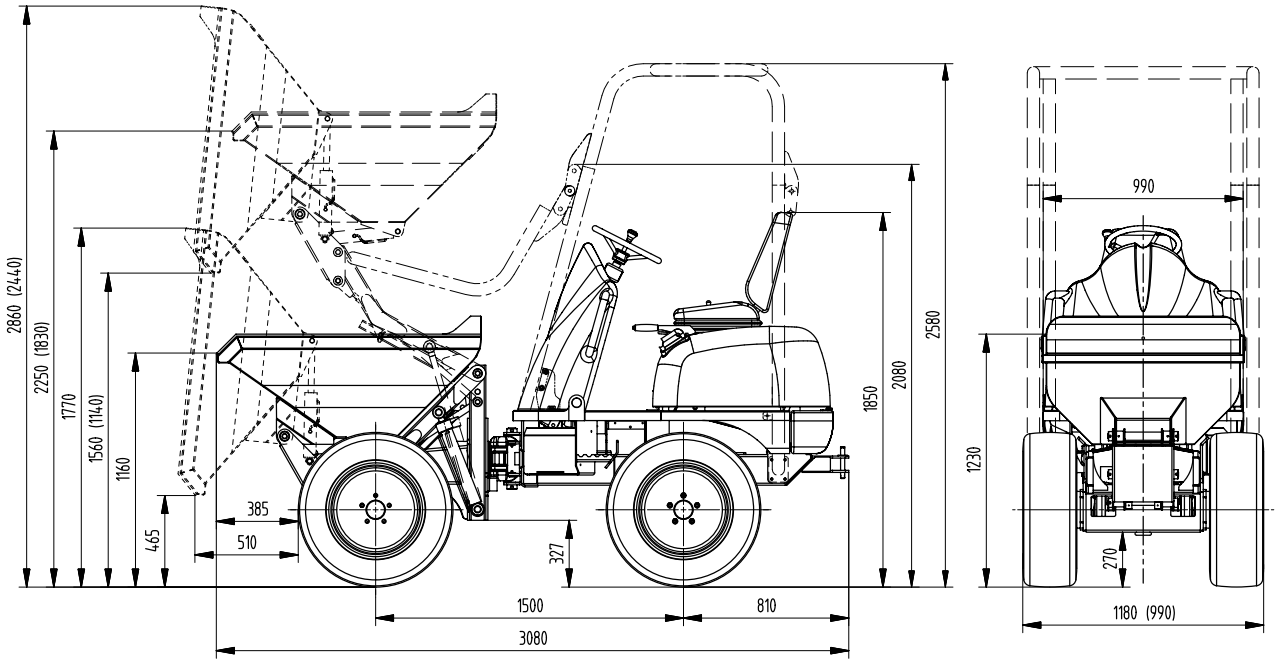


Fig. 107: Machine dimensions (model 1001)

Main data	Model 1001
Dead weight	1165 kg (2,569 lbs)
Overall height	2580 mm (8'-6")
Overall height with lowered rollbar	2080 mm (82 in)
Overall height without rollbar	1850 mm (73 in)
Overall width	1180 mm (46 in)
Overall width (narrow version)	990 mm (39 in)
Ground clearance	270 mm (11 in)
Wheelbase	1500 mm (59 in)
Outside turning radius	3200 mm (10'-6")

6.16 Dimensions model 1501

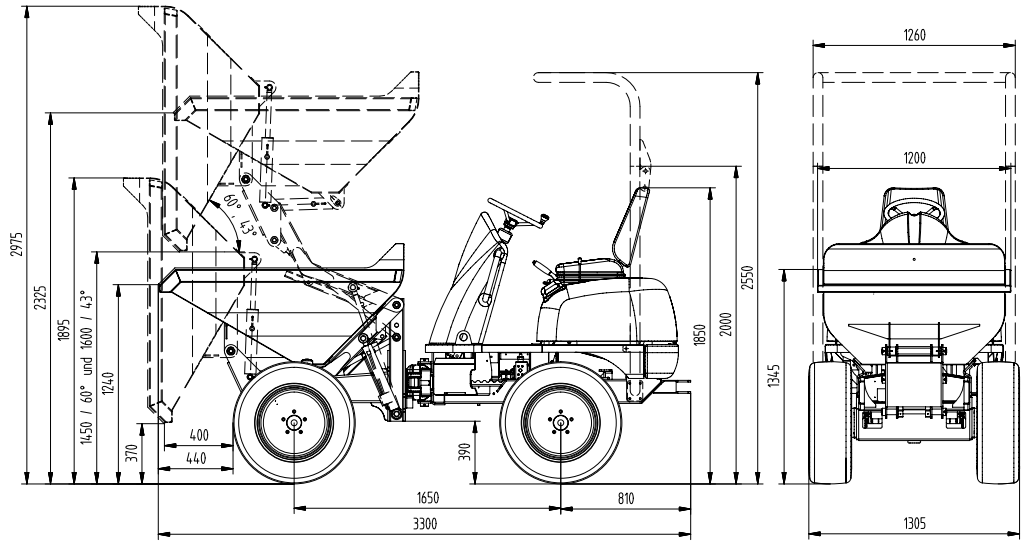


Fig. 108: Machine dimensions (model 1501)

Main data	Model 1501
Dead weight	1226 kg (2,703 lbs)
Overall height	2550 mm (8'-4")
Overall height with lowered rollbar	2000 mm (79 in)
Overall height without rollbar	1850 mm (73 in)
Overall width	1305 mm (51 in)
Ground clearance	270 mm (11 in)
Wheelbase	1650 mm (65 in)
Outside turning radius	3300 mm (10'-10")

6.17 Dimensions model 1501S

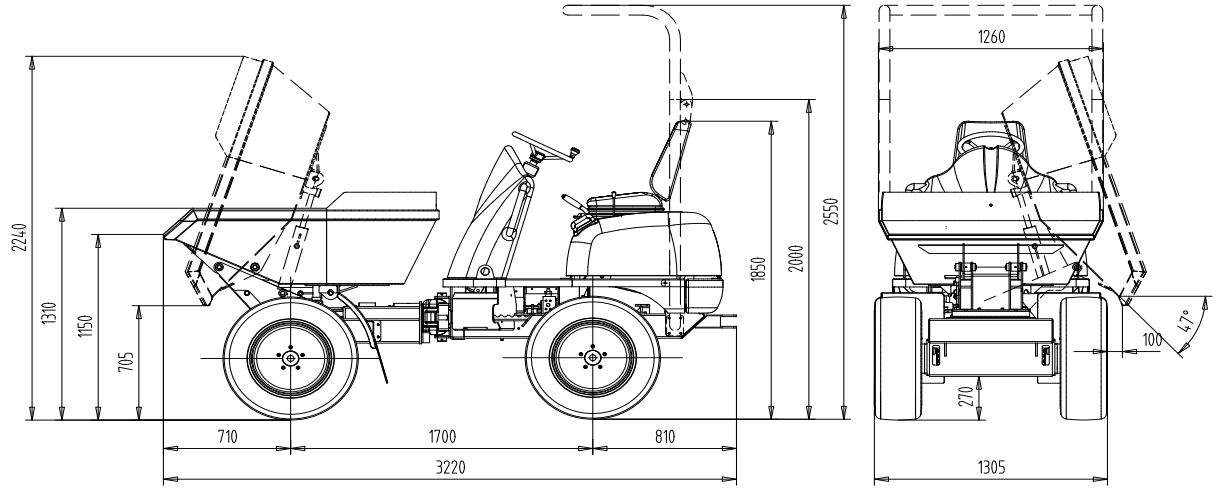


Fig. 109: Machine dimensions (model 1501S)

Main data	Model 1501S
Dead weight	1210 kg (2,668 lbs)
Overall height	2550 mm (8'-4")
Overall height with lowered rollbar	2000 mm (79 in)
Overall height without rollbar	1850 mm (73 in)
Overall width	1305 mm (51 in)
Ground clearance	270 mm (11 in)
Wheelbase	1700 mm (67 in)
Outside turning radius	3300 mm (10'-10")

6 Technical data (2001)

6.1 Chassis

Sturdy steel sheet chassis, rubber-mounted engine

6.2 Engine

Engine	Model 2001	
	American Tier 2	**American Tier 3**
Product	Yanmar diesel engine	
Type	3TNV82V-DNSV	3TNV82A-BDNSV
Design	Water-cooled 4 stroke diesel engine	
Number 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 cm³	
Nominal bore and stroke	82 x 84 mm	
Output	22.1 kW +/− 3 % at 3000 rpm	22.5 kW +/− 3 % at 3000 rpm
Max. torque	83 Nm at 1800 rpm	84 Nm
Max. engine speed without load	3180 rpm +/− 25 rpm	3180 rpm +/− 25 rpm
Idling speed	~ 1050 rpm +/− 25 rpm	~ 1000 rpm +/− 25 rpm
Valve clearance (intake = outlet)	0.15 – 0.25 mm (cold)	
Injection pressure	220 – 230 bar	200 – 210 bar
Engine oil pressure	3 – 4 bar	3.2 – 4.7 bar
Pressure switch for engine oil pump	0.5 +/− 0.1 bar	0.39 – 0.54 bar
Thermostat opening temperature	69.5 – 72.5 °C	70 – 73 °C (fully open at 85 °C)
Thermal switch	107 – 113 °C	
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)
Exhaust values according to	97/68/EG EPA II	97/68/EC EPA

6.3 Traveling drive

Variable displacement pump	Model 2001
Design	Axial piston pump
Flow rate	168 l/min (44 gal/min)
Max. operating pressure	420 bar (6,092 psi)
Boost pump (integrated in variable displacement pump)	
Design	Gear pump
Flow rate	34.8 l/min (9.2 gal/min)
Charging/boost pressure	25 bar (363 psi)

6.4 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

6.5 Steering system

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

6.6 Operating hydraulics

Operating hydraulics	Model 2001
Hydraulic pump flow rate	25 l/min (6.6 gal/min)
Control valve	2 sections
Max. operating pressure	175 bar (2,538 psi)
Secondary pressure limiting for swiveling cylinder	160 bar (2,321 psi)
Hydraulic oil radiator	Standard
Hydraulic reservoir capacity	28 l (7.4 gal)

6.7 Loader unit

Loader unit		Model 2001	Model 2001 (special skip)	Model 2001 SLE
Skip capacity	Struck	930 l (246 gal)	785 l (207 gal)	775 l (205 gal)
	Heaped	1210 l (320 gal)	1000 l (264 gal)	1050 l (277 gal)
	Liquid capacity	680 l (180 gal)	570 l (151 gal)	550 l (145 gal)
Payload		2000 kg (4,409 lbs)		

6.8 Travel specifications

Steering system	Model 2001
Maximum speed	21 kph (13 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 Electrical system

Electrical system	
Alternator	12 V 40 A
Starter	12 V 1.7 kW
Battery	12 V 74 Ah

Fuse box

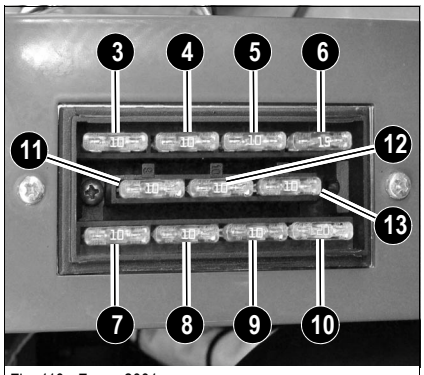


Fig. 110: Fuses 2001

The fuse box is located on the right under the engine cover.

Fuse number	Rated current (A)	Protected circuit
F3	10 A	– Hazard warning system (switched plus)
F4	10 A	– Clearance lights
F5	10 A	– Low beam
F6	15 A	– High beam
F7	10 A	– Rotating beacon
F8	10 A	– Traveling drive
F9	10 A	– Cutoff solenoid
F10	20 A	– 12 V/30
F11	10 A	– Start clearance, fuel pump
F12	10 A	– Horn, brake lights, brake valve
F13	10 A	– Hazard warning system (permanent plus)

Relays

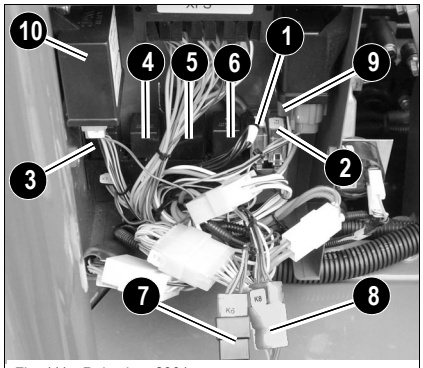


Fig. 111: Relay box 2001

The relays are located in the relay box on the right under the engine cover.

Number	Type	Designation
1	F 1	Main fuse (50 A)
2	F 2	Main fuse (40 A)
3	K7.1	Start clearance relay
4	K29	No function
5	K10	Turn indicator relay
6	K9	Pull contact high current relay
7	K6	Preheating time lag relay
8	K8	Pull contact time lag relay
9	K7	Start high-current relay
10	D1	Diode box

6.10 Tires

Tire size	Tire pressure	Load-bearing capacity
10.0/7.5x15.3 (standard tires)	3 bar (44 psi)	PR 8
10.0/75x15.3 (grass tires – option)	3.1 bar (45 psi)	PR 8

6.11 Coolant compound table

Outside temperature[1]	Water	Coolant[2]
Up to °C (°F)	% by volume	% by volume
−37 (−34.6)	50	50

1. Use the 1:1 concentration for warm outside temperatures, too, to ensure protection against corrosion, cavitation and deposits.
2. Do not mix the coolant with other coolants.

6.12 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.
Operator-perceived noise level measured according to EC Directives 84/532/EEC, 89/514/EEC and 95/27/EEC.
Measurements performed on asphalted surface.

6.13 Vibration

Vibration	
Effective acceleration value for the upper extremities of the body (hand-arm vibration)	< Trigger value < 2.5 m/s^2
Effective acceleration value for the body (whole-body vibration)	< 0.5 m/s^2

Vibration values indicated in m/s².

Directive 2002/44/EC of European Parliament and Coucil on minimum health and safety requirements regarding exposure of workers to risks arising from physical agents (vibration).

Indications on hand-arm vibration

Hand-arm vibration is less than 2.5 m/s² during correct machine operation.

Indications on whole-body vibration

Whole-body vibration is less than 0.5 m/s² during correct machine operation.

Uncertainty of measurement K has been taken into account for the specified values.

The degree of vibration is influenced by various parameters.

Some of them are listed below:

- Operator: training, behavior, working method and strain.

- Work site: organization, preparation, surroundings, weather conditions and material.
- Machine: version, seat quality, quality of suspension system, attachments and condition of attachments.

Precise indications on the vibration degrees cannot be made for the machine.

Determination of vibration level for the three vibration axes.

- Under typical operating conditions, use the average vibration values measured.
- In order to obtain the estimated vibration value for an experienced operator on level ground, subtract the factors from the average vibration value.
- In case of an aggressive working method or difficult terrain, add the environmental factors to the average vibration level in order to obtain the estimated vibration level.

Note:

For further vibration indications, refer to the indications in ISO/TR 25398 Mechanical Vibrations – Directive on Estimation of whole-body vibration when driving earth moving machines. This publication uses measuring values of international institutes, organizations and manufacturers. It contains information on whole-body vibration for operators in earth moving machines. For more information on the vibration values of the machine, refer to Directive 2002/44/EC of European Parliament and Coucil on minimum health and safety requirements regarding exposure of workers to risks arising from physical agents (vibration).

It explains the values for vertical vibration under heavy operating conditions.

Directives on reduction of vibration values in earth moving machines:

- Perform correct adjustments and maintenance on the machine.
- Avoid jerky movements during machine operation.
- Keep slopes in a perfect condition.

Whole-body vibration can be reduced with the following guidelines:

- Use a machine and equipment of correct type and size.
- Follow the manufacturer's recommendations for maintenance.
  - Tire pressure.
  - Brake and steering systems.
  - Control elements, hydraulic system and linkage.
- Keep the job site in good condition:
  - Remove large rocks or obstacles.
  - Fill up ditches and holes.
  - Provide a machine and enough time to keep the job site in good condition.
- Use an operator seat according to the ISO 7096 requirements. Keep the operator seat in good condition and adjust it correctly:
  - Adjust the operator seat and suspension to the operator's weight and size.
  - Check and maintain the seat adjustment and suspension.
- Perform the following activities smoothly without any jerks:
  - Steering
  - Brakes
  - Acceleration
  - Shifting gears
- Move attachments without any jerks.
- Adapt your speed and the itinerary to minimize vibration:
  - Travel around obstacles and uneven ground.
  - Reduce your speed when traveling across rough terrain.
- Reduce vibration to a minimum during long work cycles or when traveling over long distances:

- Use a machine with a suspension system (operator seat, for example).
- Enable the hydraulic oscillation damping if the machine is equipped with tracks.
- If the machine is not equipped with hydraulic oscillation damping, reduce your speed to avoid bumps and jolts.
- Load the machine on a truck or trailer to move between work sites.

- Other risk factors can affect drive comfort negatively. The following measures can improve drive comfort:
  - Adjust the operator seat and the control elements to a relaxed body posture.
  - Adjust the rearview mirrors to ensure optimal visibility so you can adopt an upright seating position.
  - Provide breaks to avoid sitting for long periods.
  - Do not jump off the cabin.
  - Picking up and raising loads repeatedly must be limited to a minimum.

Reference:

The vibration values and calculations are based on the indications made in ISO/TR 25398 Mechanical Vibrations – Guidelines for assessment of exposure to whole-body vibration when operating earth moving machines.

The harmonized data comply with measurements made by international institutes, organizations and manufacturers. This publication offers information on the calculation of whole-body vibrations for operators of earth moving machines. This method is based on vibration measurements under real operating conditions for all machines. Read the original guidelines. This chapter summarizes part of the legal regulations. However, its aim is not to replace the original references. Other parts of this document are based on information of the United Kingdom Health and Safety Executive.

For more information on vibration, refer to Directive 2002/44/EC of European Parliament and Coucil on minimum health and safety requirements regarding exposure of workers to risks arising from physical agents (vibration).

Your Wacker Neuson dealer provides information on other machine functions reducing vibration and on safe operation.

6.14 Dimensions model 2001

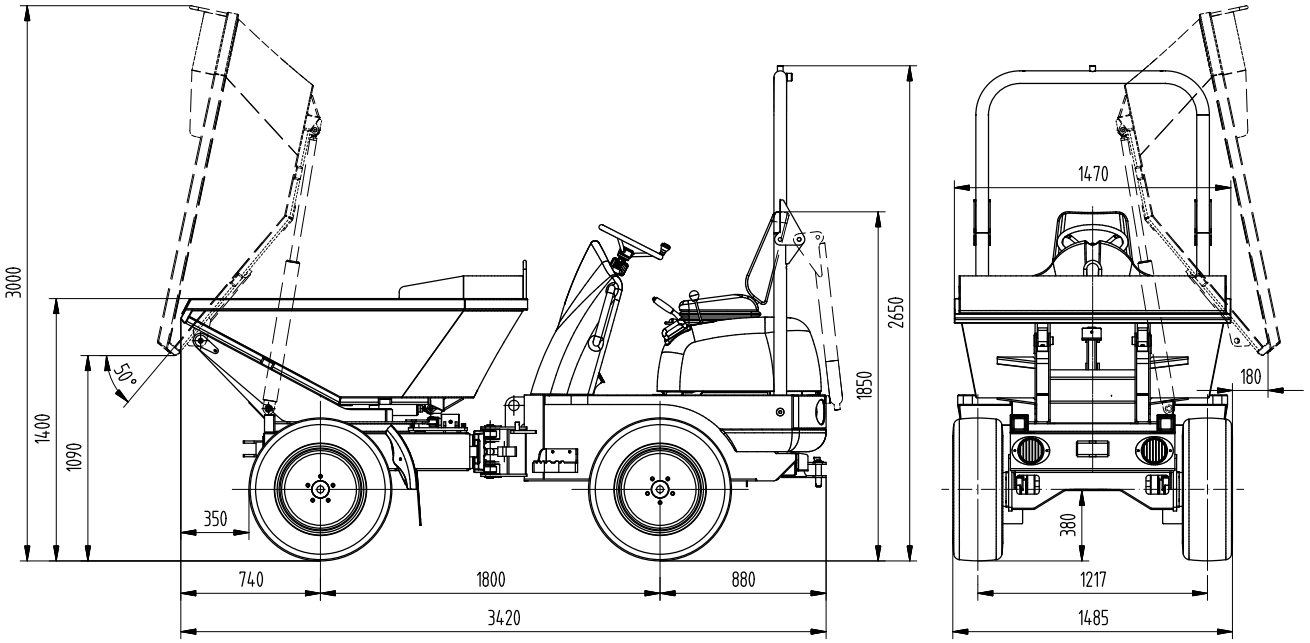


Fig. 112: Machine dimensions (model 2001)

Main data	Model 2001
Dead weight	1810 kg (3,990 lbs)
Overall height	2650 mm (8'-8")
Overall height with lowered rollbar	1850 mm (73 in)
Overall height without rollbar	1850 mm (73 in)
Overall width	1485 mm (58 in)
Ground clearance	380 mm (15 in)
Wheelbase	1800 mm (71 in)
Outside turning radius	3500 mm (11'-6")
Hill climbing ability	45 % theoretically
Safe authorized inclination	20 % in all machine travel positions

7 Safety instructions for operation of earth moving machines

7.1 Preliminary remark

The following machines are designated as earth moving machines:

- Excavators
- Loaders
- Backhoe loaders
- Dozers
- Dumpers
- Scrapers
- Graders
- Pipe laying machines
- Trench cutting machines
- Compactors and
- Other special earthmoving machines.

Instructions for the safe operation of earth moving machines are given in the following.

Also comply with the national safety standards – such as regulations for accident prevention or safety guidelines for machine maintenance – during operation and maintenance of earth moving machines.

In addition to the Operator's Manual, also bear in mind the legal regulations concerning public road traffic and accident prevention. These regulations may also deal with handling hazardous substances or wearing personal protective equipment.

Also bear in mind the existing safety regulations concerning specific work sites (tunnels, day drifts, quarries, pontoons, contaminated areas, etc.).

7.2 Designated use

7.2.1 Earth moving machines may be used only in compliance with their designated use, and by following the instructions given in the Operator's Manual of the manufacturer.

7.2.2 Designated use means that the earth moving machine is used with the work equipment for work in compliance with the European or national work safety regulations, or that the earth moving machine is used for other work the manufacturer has deemed the machine to be suitable for.

7.2.3 The operator may not perform any safety-relevant modifications on the earth moving machine without the manufacturer's authorization.

7.2.4 Spare parts must comply with the technical requirements specified by the manufacturer.

7.2.5 The loader unit has been designed for loading up to 300 kg of material (bulk material, for example) without any assistance.

7.3 General

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

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

Observe statutory minimum age limits.

7.3.2 Avoid any operational mode that might be prejudicial to safety.

7.3.3 Do not exceed the authorized load of the earth moving machine.

7.3.4 Operate the earth moving machine only in a safe and reliable state.

7.3.5 Follow the instructions given in the Operator's Manual of the manufacturer for all work involving operation, maintenance, repair, assembly and transport.

7.3.6 If necessary, the operator must supplement the safety instructions by specific instructions adapted to the local conditions of the work site.

7.3.7 The Operator's Manual and safety-relevant instructions must be carefully stored in the control stand. The manual and the safety instructions can be stored at the work site itself if the earth moving machine has no cabin.

7.3.8 The Operator's Manual and the safety instructions must be complete and legible.

7.3.9 Do not disable the function of the earth moving machine's safety equipment during operation.

7.3.10 Wear protective work clothes during work. Avoid wearing rings, scarves, unzipped or unbuttoned jackets. Specific work can require wearing safety glasses, safety shoes, a hard hat, protective gloves, reflective vests, ear protectors, etc.

7.3.11 Get informed on first aid and rescue possibilities (emergency physician, fire brigade, helicopter) before starting work.

Check whether the first-aid kit is installed and whether its contents are in compliance with regulations.

7.3.12 You must be familiar with the location and the operation of fire extinguishers on the earth moving machine, and with the local fire alarm and fire fighting facilities.

7.3.13 Secure loose parts, such tools or other equipment, on the earth moving machine.

7.3.14 Secure open doors, windows, covers, lids, etc., to prevent them from closing unintentionally.

7.4 Danger zone

7.4.1 All persons must stay clear of the danger zone of the earth moving machine.

The danger zone is the area around the earth moving machine in which persons are at risk by work-specific movements of the earth moving machine, its work equipment and attachments, by slewing or falling material, or by falling work equipment.

7.4.2 The machine operator may work with the earth moving machine only if no one is in the danger zone.

7.4.3 The machine operator must give warning signs in case of danger for persons.

7.4.4 The machine operator must stop work with the earth moving machine if persons do not leave the danger zone in spite of his warnings.

7.4.5 Do not step onto the articulation of articulation-steered earth moving machines if the engine is running.

7.4.6 Keep a sufficiently safe distance (min. 500 mm) to fixed elements of construction, for example buildings, walls to be pulled down, scaffolds or other machines to avoid danger of crushing.

7.4.7 If a safe distance cannot be kept, seal off the area between fixed elements of construction and the work range of the earth moving machine.

7.4.8 If the operator's visibility onto his drive and work range is impaired by work-specific circumstances, instruct the operator or seal off the drive and work range with a fixed barrier.

7.5 Stability

7.5.1 Always use, drive and operate the earth moving machine ensuring stability and safety from turning over (see also item 7.3).

7.5.2 The operator must adapt his travel speed to the prevailing conditions and lower the work equipment the closest possible to the ground when driving on sloping or uneven terrain.

7.5.3 Follow the instructions given in the specific sections of the Operator's Manual of the manufacturer when using an earth moving machine equipped with additional stabilizer legs or supporting equipment for increasing stability.

7.5.4 Keep the earth moving machine at a safe distance from the edges of quarries, pits, ditches, slopes or embankments to avoid danger of falling.

7.5.5 When driving or working near excavations, shafts, trenches or the edge of pits and embankments, secure the earth moving machine to prevent it slipping or rolling away.

7.6 Operation

7.6.1 General

7.6.1.1 Machine operators must be appointed by the contractor for driving and servicing the earth moving machine.

7.6.1.2 Controls (operating elements) may be actuated by the operator or from the operator seat only.

7.6.1.3 Use the footholds and surfaces provided for to access the machine. Keep them clean to ensure a safe hold at all times.

7.6.1.4 If the work equipment of the earth moving machine can be picked up and set down with a quickhitch, the lock of which cannot be easily seen from the operator seat for reasons of design or dirt, take the following additional safety measures:

- The operator or another person must ensure that the work equipment is firmly hitched by checking the quickhitch connection itself.
- If this is not possible, raise the work equipment only until you can check it is firmly hitched by tilting it in and out.

All other persons must stay clear of the danger zone during this check.

7.6.2 Transporting persons

7.6.2.1 Apart from the operator, persons may be transported on earth moving machines only if specific places have been provided for by the manufacturer.

These places must be provided with firm seats and restraints to prevent falling off the earth moving machine.

7.6.2.2 Persons may access or leave the earth moving machine only after the machine operator has allowed them to do so, and only after the machine is at a standstill.

7.6.3 Travel operation

7.6.3.1 In order to ensure safe work, adjust the seat, the rearview mirrors and the controls before putting the earth moving machine into operation.

7.6.3.2 Fasten the seat belt if the earth moving machine is fitted with a rollover protection structure (ROPS).

7.6.3.3 The windows must clean and free of mist or ice.

7.6.3.4 Do not use cold-starting aids (ether) near heat sources, open flames or in poorly ventilated premises.

7.6.3.5 The layout of roads and paths must ensure smooth and safe operation. In other words, they must be sufficiently wide, have sufficient load-bearing capacity and the slightest possible slopes.

7.6.3.6 Observe the load-bearing capacity of bridges, basement ceilings, vaults, etc., before moving the machine on them.

7.6.3.7 Bear in mind the clear widths and heights of underpasses, tunnels, etc. before driving through them.

7.6.3.8 When driving on steep slopes, carry loads on the uphill side, if possible, in order to increase stability.

7.6.3.9 Do not drive downhill with the clutch disengaged. Shift to a gear adapted to the terrain before driving down a slope, and do not shift gears on the slope.

7.6.3.10	When driving on slopes, select a route that will enable you to brake the earth moving machine safely.
7.6.3.11	Avoid reversing over longer distances.
7.6.3.12	Earth moving machines may be driven on public roads only if the operating and driving licenses as defined by national traffic regulations have been obtained for them.
7.6.3.13	When not driving on public roads, construction sites, for example, apply the road traffic rules accordingly. This also applies to driving permits.
7.6.4	Load and unloading
7.6.4.1	The machine operator may move the work equipment across persons in operator seats or work stations of other machines only if they are protected by canopies (FOPS).
7.6.4.2	If not protected accordingly, the operator of this vehicle must leave the operator's place if moving the work equipment across his place cannot be avoided.
7.6.4.3	When loading vehicles, ensure that they are not overloaded and that they will not loose any material when driving. Load them from the lowest possible height.
7.6.4.4	If possible, the places where material is unloaded should enable the operator to avoid reversing over longer distances.
7.6.4.5	At places where material is dumped, operate earth moving machines only after having taken appropriate measures to prevent the machines from falling down or rolling away under their own weight.
7.6.5	Persons guiding the machine operator
7.6.5.1	Persons guiding the machine operator must be easily visible, by means of high-visibility warning clothes, for example. They must maintain visual contact with the machine operator.
7.6.5.2	When performing their duty, persons guiding the machine operator must not be assigned other tasks that could distract them from their duty.
7.6.6	Operation with risk of falling objects
7.6.6.1	In case of danger of heavy objects falling down, use earth moving machines only if the operator seat is equipped with a canopy (FOPS), and with an additional front protection in the case of excavators.
7.6.6.2	When working in front of earth and rock walls, if possible position and operate the earth moving machine with the control stand and the access to the control stand facing the side opposite the wall.
7.6.6.3	Demolition work may be performed with earth moving machines only if no persons are at risk.
7.6.6.4	When performing demolition work with excavators (with demolition balls, for example), ensure that the weight of the ball matches the boom length and the load-bearing capacity of the machine.
7.6.6.5	If possible, the highest point of the work equipment of the earth moving machine must be higher than structure to be demolished.

7.6.7 Working in the area of underground electric lines

7.6.7.1 Before excavating with earth moving machines, find out whether there are any underground electric lines on the job site that might put persons at risk.

7.6.7.2 If there are underground electric lines, determine the positions and the routing of these lines, and define and perform the required safety measures after having agreed upon these activities with the owner or operator of the lines.

7.6.7.3 Before starting excavation work, clearly mark the routing of lines in the area of the construction site in the presence of the owner or operator. If the position of lines cannot be determined, dig trenches to search for the lines (by hand if necessary).

7.6.7.4 If the machine operator damages or unexpectedly comes across underground electric lines or their protective covers, he must stop work immediately and inform the person supervising the activities.

7.6.8 Working next to overhead electric lines

7.6.8.1 When working next to overhead electric lines and contact lines with the earth moving machine, maintain a safe distance (depending on the rated voltage of the lines) between these lines and the earth moving machine and its work equipment in order to avoid any current transfer. This also applies to the distance between these lines and attachments or loads.

7.6.8.2 The following safe distances apply in Germany:

Rated voltage	Safe distance
Up to 1000 V	1.0 m
Over 1 kV to 110 kV	3.0 m
Over 110 kV to 220 kV	4.0 m
Over 220 kV to 380 kV	
Or unknown rated voltage	5.0 m

7.6.8.3 In doing so, also bear in mind all work movements of the earth moving machine, for example boom positions, swinging of ropes and the size of hitched loads. Also bear in mind uneven ground resulting in an inclined position, and hence in a shorter distance of the earth moving machine to overhead electric lines.

Both overhead electric lines and the work equipment can be deflected even by slight wind, resulting in a reduced distance from the lines.

7.6.8.4 If no sufficient distance can be kept to overhead electric lines and contact lines, the contractor must take other safety measures to avoid current transfer in agreement with the owner or operator of the lines. This can be achieved, for example, by

- switching off the current,
- re-routing the overhead electric line,
- protecting overhead electric lines by installing them underground or
- limiting the work range of the earth moving machine.

7.6.8.5 In case of a current transfer or if the machine touches a live wire, the following rules apply:

- Do not leave the control stand
- Warn others against approaching and touching the machine
- If possible, move the work equipment or the entire earth moving machine out of the danger zone
- Have the live wire de-energized!
- Leave the machine only after the damaged line/the line you have come into contact with is de-energized.

7.6.9 Operation below ground and in enclosed areas

When using earth moving machines below ground and in enclosed areas, ensure adequate ventilation and follow the regulations that are in force.

7.6.10 Breaks/work interruptions

7.6.10.1 During breaks and at the end of a shift, the operator must park the earth moving machine on firm and level ground and secure the machine against unintentional movements.

Lower the work equipment to the ground or secure it in order to prevent unintentional movements.

7.6.10.2 The operator may not leave the earth moving machine if the work equipment has not been secured or lowered to the ground.

7.6.10.3 Park the earth moving machine only in places where it will not pose an obstacle, for example to traffic on public roads or construction sites.
If necessary, install warning devices, such as warning triangles, warning tape, flashing or warning lights, etc.

7.6.10.4 The operator must move all controls to their zero positions and apply the brakes before leaving the control stand.

7.6.10.5 The operator must stop the engines and secure them against unauthorized start-up if he goes away from the earth moving machine.

7.6.11 Applications with lifting gear

7.6.11.1 Applications with lifting gear are understood as procedures involving raising, transporting and lowering loads with the help of slings and load-securing devices (ropes, chains, etc.). In doing so, the help of persons is necessary for securing and detaching the load.

This applies for example to lifting and lowering pipes, shaft rings or containers with earth moving machines.

7.6.11.2 The earth moving machine may be used for applications with lifting gear only if the prescribed safety devices are in place and functional.

In the case of hydraulic excavators, these are for example:

- Safe possibilities of slinging and securing lifting gear
- Load diagram
- And in addition, for hydraulic excavators with an permissible load-carrying capacity of over 1000 kg or an overturning moment of over 40 000 Nm
- Safe load indicator
- Hose burst valve(s) on the boom lift cylinder(s).

7.6.11.3 The load must be secured so as to prevent it from falling or slipping.

7.6.11.4 Persons guiding the load or securing it must stay in visual contact with the machine operator.

7.6.11.5 The machine operator must guide the load the nearest possible to the ground and avoid any oscillating or swinging movements.

7.6.11.6 The earth moving machine may be driven with a raised load only if the path of the machine is as level as possible.

7.6.11.7 When using earth moving machinery for lifting gear applications, the persons attaching or securing loads may approach the boom from the side only, and only after the machine operator has given his permission. The machine operator may give his permission only after the machine is at a standstill and the work attachment no longer moves.

7.6.11.8 Do not use any lifting gear (ropes, chains) which is damaged or not of sufficient size. Always wear protective gloves when working with lifting gear.

7.7 Assembly, maintenance, repair

7.7.1 The earth moving machine may be assembled, modified or disassembled only in accordance with the Operator's Manual of the manufacturer and only under the supervision of suitable personnel appointed by the contractor.

7.7.2 For example, work on the

- Brake
- Steering
- Hydraulic and
- Electrical systems

of the earth moving machine may be performed only by specially trained personnel.

7.7.3 Stability must be ensured at all times during maintenance.

7.7.4 Secure the work equipment against movement by lowering it to the ground or by taking appropriate measures, for example supporting brackets or sleeves. If necessary, secure the upper carriage of the excavator against rotation.

7.7.5 When performing maintenance and repair work on an earth moving machine with an articulated joint, secure the joint with a positive lock when working in the area of the articulated joint.

7.7.6 When installing or removing counterweights, hitch them only at the points provided for by the manufacturer.

7.7.7 When jacking up the earth moving machine, place the lifting device in a position that will avoid slipping. Installing or placing the lifting device in inclined positions is not permissible.

7.7.8 Secure the raised earth moving machine by supporting it with, for example, supporting frames or trestles, or with boards or square beams stacked crosswise.

Safely prop the earth moving machine immediately after it has been raised with the work equipment. Working under a raised earth moving machine that is held only by the hydraulics is not permissible.

7.7.9 Before replacing the bucket blades of scrapers, ensure that the buckets are set down on a base avoiding tipping or damage.

7.7.10 Maintenance and repair work on scraper buckets may be performed only if the lock flap is secured.

7.7.11 Switch off all drives before performing maintenance and repair work.

An exception to this requirement is maintenance and repair work that cannot be performed without a drive. In case of danger, it must be possible to switch off the drive immediately during this work.

7.7.12 Disconnect the battery before performing arc welding or before working on the electrical system of an earth moving machine fitted with an internal combustion engine.

7.7.13 First remove the negative terminal, and then the positive terminal as you disconnect the battery. Proceed in the reverse order as you reconnect the battery.

7.7.14 Cover the battery with insulating material as you perform repair work in the area of the battery; do not place any tools whatsoever on the battery.

7.7.15 In the case of earth moving machines with electric drives, switch off the electric equipment and if necessary, the movable connecting lines as well, and secure against unintentional or unauthorized start-up.

7.7.16 Open or remove protective devices of moving machine parts only if the drive has been switched off and secured against unauthorized start-up.

Protective devices are, for example, engine covers, doors, protective screens, trims, etc.

7.7.17 Fit all the protective devices back on again correctly once assembly, maintenance or repair work is over.

7.7.18 Welding work on load-bearing elements of the earth moving machine, for example lattice booms, loader units, may be performed only in compliance with the acknowledged welding regulations.

7.7.19 Do not perform any welding, boring or drilling on rollover protection structures (ROPS) or canopies (FOPS) that could affect the stability of this equipment.

7.7.20 Any modification, such as welding the hydraulic or compressed-air system, may be performed only with the manufacturer's authorization.

7.7.21 Before starting work on the hydraulic system, release the control and the back pressures, and the pressure inside the reservoir.

7.7.22 Use only the hoses and lines prescribed by the manufacturer.

7.7.23 Install and route hydraulic hoses and lines correctly.

7.7.24 No smoking and no open flames during refueling.

7.8 Towing and transporting

7.8.1 Tow the earth moving machine only with a towing facility of sufficient size.

7.8.2 Use the towing points, such as eyelets, hooks, etc., prescribed by the manufacturer.

7.8.3 Start machine travel slowly when towing. All persons must stay clear of the towing facility.

7.8.4 When loading and transporting the earth moving machine, secure the machine itself and the auxiliary means against unintentional movements.

7.8.5 Remove mud, snow and ice from the running gear and the undercarriage of the earth moving machine in order to ensure safe driving on ramps with no slipping hazard.

7.8.6 Place wooden boards on the access ramps of flat-bed trailers before driving on them with tracked machines.

7.8.7 Inspect the planned route before starting machine travel, to ensure that the roads are sufficiently wide, that bridges and clearances are of sufficient size and that the roads, paths and bridges have sufficient load-bearing capacity.

7.9 Monitoring

7.9.1 Adhere to the prescribed intervals for routine checks.

7.9.2 Before every work shift, the operator must also check the function of the safety, drive and work equipment, such as the safe load indicator, brakes, steering system and lights in accordance with the manufacturer's instructions.

When installing work equipment onto the quickhitch, ensure that the work equipment is firmly hitched by moving it in all positions. In doing so, all persons must stay clear of the danger zone.

7.9.3 Replace hydraulic hosees as soon as the following damage is detected:

- Damage on the outside layer up to the inner ply
- Embrittlement on the outside layer
- Deformations in pressurized or unpressurized state which do not correspond to the original shape of the installed hose
- Leaks
- Damage on the hose fittings or on the connection between the fitting and the hose
- Damage due to storage (storage time of a hose must be under 2 years)
- Damage due to use beyond the service life (service life is no longer than 6 years if used under normal load).

7.9.4 Check the coolant level only after the filler cap has cooled down. Open the cap carefully to release overpressure.

7.9.5 The operator must immediately report damage to the person supervising the activities. If operators change, he must also report to the next operator.

7.9.6 In case of malfunctions affecting the operational safety of the earth moving machine, put the machine out of operation until the malfunctions have been repaired.

Wacker Neuson Linz GmbH keep abreast of the latest technical developments and constantly improve their products. For this reason, we may from time to time need to make changes to diagrams and descriptions in this documentation which do not reflect products that have already been delivered and that will not be implemented on these machines.

Technical data, dimensions and weights are only given as an indication. Responsibility for errors or omissions not accepted.

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Importante : Per informazioni sui pezzi di ricambio, contattare il rivenditore Wacker Neuson o visitare il sito di Wacker Neuson all'indirizzo www.wackerneuson.com.

Viktigt : För information om reservdelar, kontakta din Wacker Neuson-leverantör eller besök Wacker Neusons webbplats på http://www.wackerneuson.com/.

Tärkeää : Pyydä varaosatietoja Wacker Neusonin jälleenmyyjältä tai vieraile Wacker Neusonin web-sivustolla osoitteessa http://www.wackerneuson.com/

Viktig : For informasjon om reservedeler, vennligst kontakt din Wacker Neuson-forhandler, eller besøk Wacker Neusons nettside på http://www.wackerneuson.com/.

Vigtigt : Hvis du ønsker oplysninger om reservedele, bedes du kontakte din Wacker Neuson forhandler eller besøg Wacker Neuson websiden på http://www.wackerneuson.com/.

Belangrijk! Neem contact op met uw Wacker Neuson dealer of bezoek de website van Wacker Neuson op http://www.wackerneuson.com/ voor meer informatie over reserveonderdelen.

Importante : Para obter informações sobre as peças sobresselentes, consulte o seu fornecedor da Wacker Neuson ou aceda ao site Web da Wacker Neuson em http://www.wackerneuson.com

Ważne : W celu uzyskania informacji na temat części zamiennych skontaktuj się z przedstawicielem firmy Wacker Neuson lub skorzystaj z witryny internetowej http://wackerneuson.com/.

Důležité upozornění! Pro informace o náhradních dílech, prosím, kontaktujte svého Wacker Neuson dealera, nebo navštivte webové stránky http://www.wackerneuson.com/.

FONTOS: A pótalkatrészekre vonatkozó információkért kérjük, forduljon Wacker Neuson kereskedőjéhez vagy látogasson el a Wacker Neuson weboldalára a következő címen: http://www.wackerneuson.com/.

Важно! Для ознакомления с информацией о запасных частях, пожалуйста, обратитесь к местному торговому представителю компании Wacker Neuson или посетите веб-сайт http://www.wackerneuson.com/.

Σημαντικό : Για πληροφορίες σχετικά με τα ανταλλακτικά, μιλήστε με τον αντιπρόσωπό σας της Wacker Neuson, ή επισκεφθείτε τον ιστότοπο http://www.wackerneuson.com/.

Važno : Za rezervne dijelove obratite se svom Wacker Neuson prodavaču ili posjetite mrežne stranice tvrtke Wacker Neuson: http://www.wackerneuson.com/.

Önemli : Yedek parça bilgileri için Wacker Neuson Bayinize bakın veya Wacker Neuson web sitesini ziyaret edin. http://www.wackerneuson.com/

重要 交換部品の情報については、ワッカーノイソンディーラーにお問い合わせ頂くか、ワッカーノイソンウェブサイト http://www.wackerneuson.com/ をご覧ください。

重要 有关备件信息，请咨询您的威克诺森经销商或访问威克诺森网站：http://www.wackerneuson.com/。

Important : Pentru informaţii referitoare la piesele de schimb, vă rugăm să vă adresaţi distribuitorului Wacker Neuson sau să vizitaţi site-ul web Wacker Neuson la adresa http://www.wackerneuson.com/.

Важно : За информация относно резервни части, моля, обърнете се към местния дилър на Wacker Neuson или посетете уебсайта на Wacker Neuson на адрес http://www.wackerneuson.com/.

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