Operator's Manual

Dumper

3001

Machine model	**3001**
Edition	**4.0**
Language	**EN**
Article number	**1000172672**

WACKER NEUSON

1.4 EC declaration of conformity dumper 3001

WACKER NEUSON

EC Declaration of Conformity

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

Manufacturer

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

Product

Machine designation:	Compact dumper
Machine model:	3001
Serial no.:	_____
Output (kW):	26 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

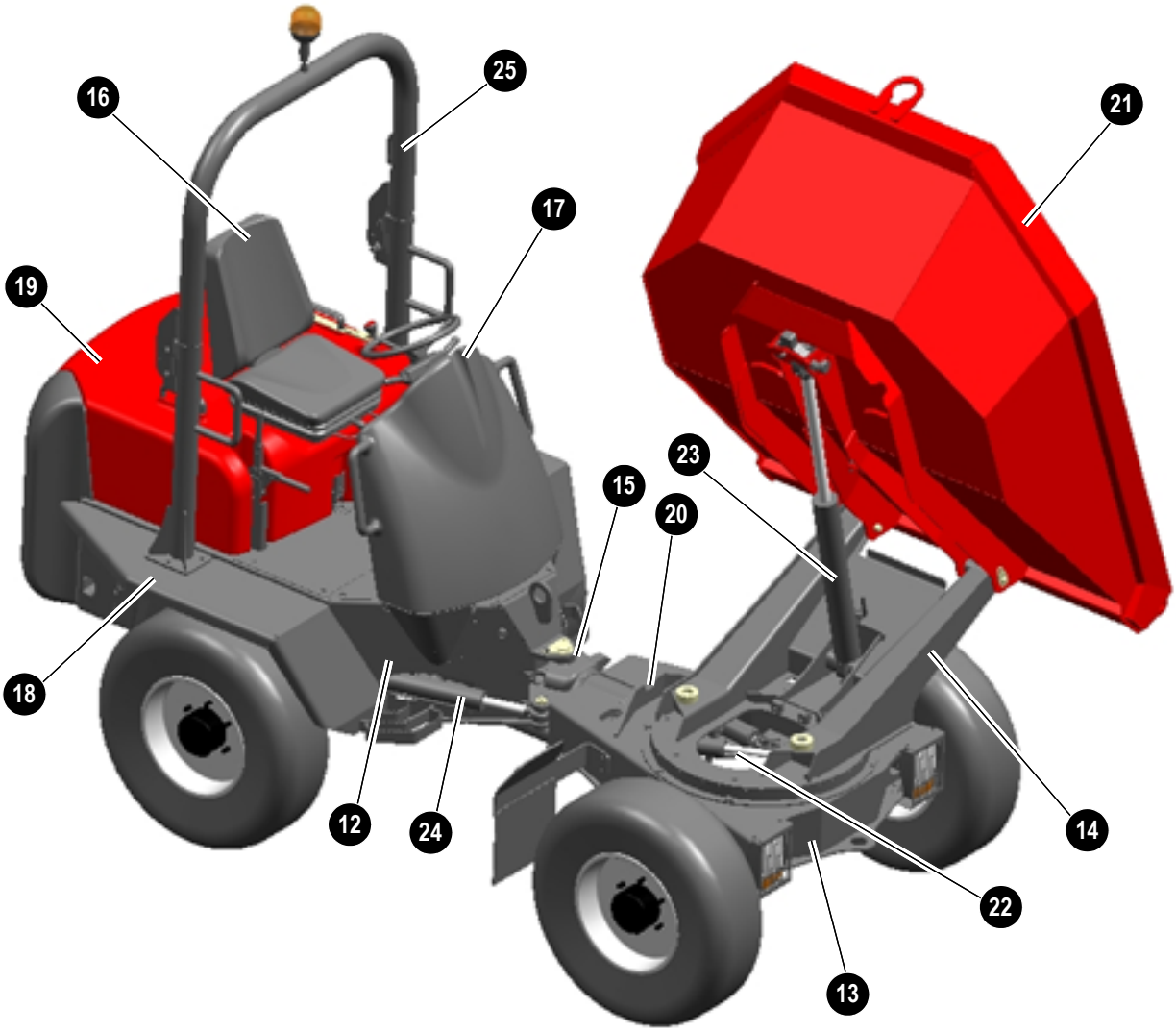
We hereby declare that this product corresponds to the relevant regulations and requirements of the following Directives and standards:
2006/42/EC (old 98/37 EC), 2004/108/EC (old 89/336/EEC), 2002/44/EC, 2005/88/EC, 2000/14/EC;
DIN EN ISO 12100-1 and 2, DIN EN 474-1 and 6, DIN EN 14121,
DIN EN 3471,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

Leonding, _____		
Place, date	Thomas Köck, Responsible for documentation	Josef Erlinger, Managing director

2.5 Safety instructions regarding operation

Normal operation

- Avoid any operational mode that might be prejudicial to safety!
- Before beginning work, familiarise yourself with the surroundings and circumstances of the work site. These are e.g. obstacles in the working and travelling area, the soil bearing capacity and any necessary barriers separating the work site from public roads
- Take the necessary precautions to make sure the machine is used only when in a safe and reliable state!
  Operate the machine only if all protective and safety-oriented devices, e.g. removable safety-devices, soundproofing elements and exhausters etc., are in place and fully functional!
- Check the machine at least once a day/per work shift for visible damage and defects. Report any changes (incl. changes in the machine's working behaviour) to the competent organisation/person immediately! If necessary, stop the machine immediately and lock it!
- In the event of malfunctions, stop the machine immediately and lock it! Have any defects rectified immediately!
- Start and operate the machine from the seat only!
- Carry out start-up and shut-down procedures in accordance with the Operator's Manual, and observe the telltales!
- Before putting the machine into operation (start-up/moving), make sure no-one is at risk by putting the machine into operation!
- Before driving the machine, and also after interrupting work, 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 driving 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 driver!
- When crossing underpasses, bridges and tunnels, or when passing under overhead lines always make sure there is enough clearance!
- Always keep at a safe distance from the edges of building pits and slopes!
- When working in buildings or in enclosed areas, look out for:
  - Height of the ceiling/clearances
  - Width of entrances
  - Maximum load of ceilings and floors
  - Sufficient room ventilation – danger of poisoning! (exhaust)



3.2 Description of 3001S components (overview)

Pos.	Description
12	Rear chassis
13	Front chassis
14	Swivelling console
15	Articulated joint
16	Seat
17	Control stand
18	Mudguard
19	Engine cover
20	Swivel centring
21	Skip
22	Offset ram
23	Tilt ram
24	Steering ram
25	Rollbar

When the engine has started ...

☞ *Check whether all telltales have gone out:*

☞ *Let the engine warm up*

At cold temperatures:

☞ *Increase the engine speed slowly*

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

Engine warm-up

Once it has started, let the engine warm up at slightly increased idling revs. Run the engine without load during the warm-up phase (drive lever in neutral position). During the warm-up phase, check for unusual noise, exhaust colour, leaks, malfunctions or damage. In case of malfunctions, damage or leaks, park and secure the machine, and find out the cause for the damage and have it repaired.

Jump-starting the engine (supply battery)

Safety instructions

- Never jump-start the engine if the battery of the machine is frozen – danger of explosion!

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

Procedure

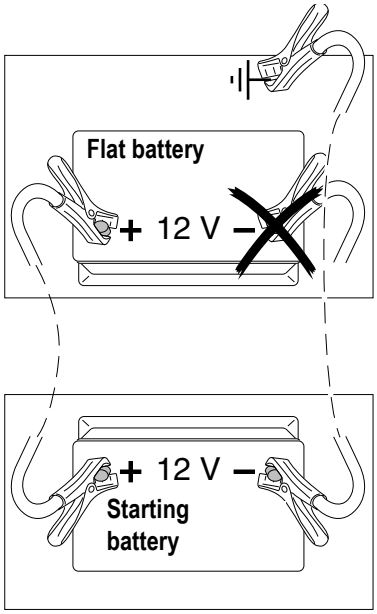


Fig. 23: Starting aid with jump leads

☞ *Drive the jump-starting vehicle close enough to the machine so that the jump leads can reach to connect the two batteries*

☞ *Let the engine of the jump-starting vehicle run*

☞ *First connect one end of the red jump lead (**+**) to the **+** terminal of the flat battery, then connect the other end to the **+** terminal of the starting battery*

☞ *Connect one end of the black jump lead (**–**) to the **–** terminal of the starting battery*

☞ *Connect the other end of the black jump lead (**–**) onto a solid metal component fimly mounted on the engine block or onto the engine block itself. Do not connect it to the negative terminal of the flat battery, as otherwise explosive gas emerging from the battery can ignite if sparks are formed!*

☞ *Start the engine of the machine with the flat battery*

Once the engine has started:

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

3.12 Working with the machine

General safety instructions

- Never drive up to the edge of a pit from outside – danger of cave-in!
- Do not drive underneath projecting earth. Stones or the projecting earth can fall onto the machine.
- When working on roofs or similar structures, check the resistance and the structure itself before starting work. The building can collapse, causing severe injury and damage.
- Do not place the machine directly underneath the workplace during demolition, otherwise demolished parts can fall onto the machine or the building can collapse, causing severe injury or damage.
- Operation of the machine by unauthorised staff is prohibited!
- The hydraulic system of the machine is still pressurised even when the engine is not running! Release the pressure in the sections of the system and hydraulic lines which are to be opened before starting setup or repair work.
- Before dumping out the skip next to an excavation, secure the machine with suitable wheel chocks or other auxiliary means.
- Always watch the material as you dump out the skip: make sure 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.
- No transporting of persons, animals etc. in the skip.
- Driving with a dumped-out skip is prohibited!
- Always carry out precise and smooth control movements, do not carry out 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 make sure no-one is at risk.
- Always fasten your seat belt when working with machines with rollover protection structures.

4 Troubleshooting

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

Repairs must be carried out by authorised staff.

4.1 Engine trouble

Problem	Possible causes	See
Engine does not start or is not easy to start	Wrong SAE grade of engine lubrication oil	*5-32*
	Fuel grade does not comply with specifications	*5-32*
	Defective or flat battery	*5-29*
	Loose or oxidised cable connections in starter circuit	
	Defective starter, or pinion does not engage	
	Wrong valve clearance	
	Defective fuel injector	
Engine starts, but does not run smoothly or faultless	Fuel grade does not comply with specifications	*5-32*
	Wrong valve clearance	
	Injection line leaks	
	Defective fuel injector	
Engine overheats. Temperature warning system responds	Oil level too low	*5-7*
	Oil level too high	*5-7*
	Dirty air filter	*5-14*
	Dirty oil radiator fins	
	Defective fuel injector	
Insufficient engine output	Oil level too high	*5-7*
	Fuel grade does not comply with specifications	*5-32*
	Dirty air filter	*5-14*
	Wrong valve clearance	
	Injection line leaks	
	Defective fuel injector	
Engine does not run on all cylinders	Injection line leaks	
	Defective fuel injector	
Insufficient or no engine oil pressure	Oil level too low	*5-7*
	Machine inclination too high (max. 25°)	
	Wrong SAE grade of engine lubrication oil	*5-32*
Engine oil consumption too high	Oil level too high	*5-7*
	Machine inclination too high (max. 25°)	

5.4 Engine and hydraulics cooling system

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

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

Specific safety instructions

- Dirt on the radiator fins reduces the cooler's heat dissipation capacity! To avoid this:
  - ☞ Clean the outside of the radiator at regular intervals. Use oil-free compressed air (2 bar max.) to clean. Maintain a certain distance from the radiator to avoid damage to the radiator fins. Refer to the maintenance plans in the appendix for the cleaning intervals
  - ☞ In dusty or dirty work conditions, clean more frequently than indicated in the maintenance plans
- An insufficient coolant level reduces the heat dissipation capacity as well and can lead to engine damage! Therefore:
  - ☞ Check the coolant level at regular intervals. Refer to the maintenance plans in the appendix for the intervals
  - ☞ If coolant must be added frequently, check the cooling system for leaks and/or contact your dealer!
  - ☞ Never fill in cold water/coolant if the engine is warm!
  - ☞ After filling the expansion tank, make a test run with the engine and check the coolant level again after stopping the engine
- The use of the wrong coolant can destroy the engine and the cooler. Therefore:
  - ☞ Add enough antifreeze compound to the coolant – but never more than 50 %. If possible use brand-name antifreeze compounds with anticorrosion additives
  - ☞ Observe the coolant compound table – *see chapter 6.12* ***Coolant compound table*** on page 6-4
  - ☞ Do not use cooler cleaning compounds if an antifreeze compound has been added to the coolant – otherwise this causes sludge to form, which can damage the engine
- Once you have filled the expansion tank:
  - ☞ Test run the engine
  - ☞ Stop the engine
  - ☞ Let the engine cool down
  - ☞ Check the coolant level again

Environment!

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

Checking the hydraulic oil level

Caution!

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

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

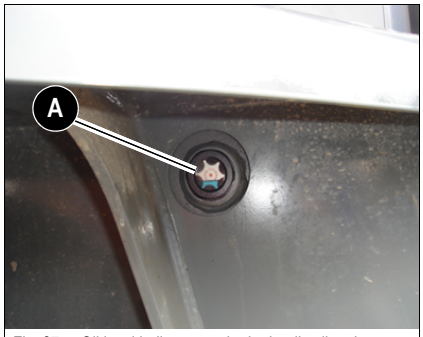


Fig. 37: Oil level indicator on the hydraulic oil tank

☞ *Proceed as follows:*

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

☞ Fully dump in the skip

- Stop the engine
- Sight glass **A** is located under the right-hand side mudguard
- Check the oil level on sight glass **A**
- The oil level must be at the **FULL** level
  - A gauge element in sight glass **A** indicates the oil level

If the oil level is lower

- Fill up hydraulic oil

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

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

Notice!

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

Battery

Danger!

Battery acid is highly caustic!

Danger of caustic injury!

Therefore when recharging and/or working near the battery:

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

If acid is spilt:

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

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

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

Danger of explosion!

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

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

- Replace the battery immediately

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

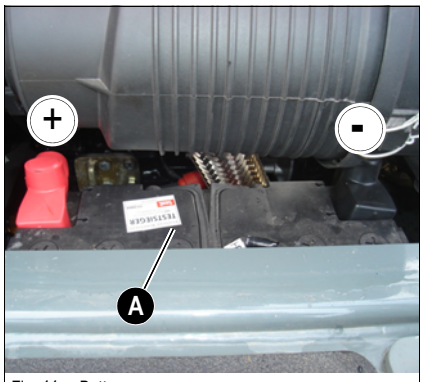


Fig. 44: Battery

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

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

Always follow the specific battery safety instructions!

Notice!

Do not disconnect the battery while the engine is running.

6 Specifications

6.1 Chassis

Sturdy steel sheet chassis, rubber-mounted engine

6.2 Engine

Engine	Model 3001 (AC31 ... + AD31 ...)	Model 3001 Tier 3 (AE 31 ...)
Product	Yanmar diesel engine	
Type	3TNV88-KNSV	3TNV88-BKNSV
Design	Water-cooled 4 stroke diesel engine	
No. of cylinders	3	
Displacement	1642 cm³	
Nominal bore and stroke	88 x 90 mm	
Output	26 kW +/- 5 % at 2800 rpm	
Interm. torque	108.9 Nm at 1680 rpm	106.5 Nm at 1680 rpm
Max. engine speed without load	2800 rpm +/- 25 rpm	
Idling speed	~ 1000 rpm +/- 25 rpm	
Fuel injection system	Direct injection	
Starting aid	Preheater (preheating time 15 seconds)	Glow elements (preheating time 10 – 15 seconds)
Max. inclined position (engine no longer supplied with oil):	30° in all directions	
Exhaust values according to	97/68/EC – tier 2 EPA tier 2	97/68/EC – tier 3 EPA tier 3

6.3 Travelling drive

Variable displacement pump	Model 3001
Design	Axial piston pump
Displacement	45 cm³/rev
Flow rate	126 l/min
Max. operating pressure	360 bar
Boost pump (integrated in variable displacement pump)	
Design	Gear pump
Displacement	8.4 cm³
Charging/boost pressure	25 bar

6.4 Brakes

Service brake/parking brake	Model 3001
Design	Wet multidisc brakes
Location	Front axle
Effect	Hydraulic service brake; mechanical parking brake

7.4 Danger area

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

The danger area 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 area.

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 area 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, e.g. 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 drive 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 outriggers 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.