

Operator's manual

Vibratory rammer

BS

50, 60, 70



Model	BS
Document	5100041492
Issue	09.2017
Version	04
Language	en



Copyright © 2017 Wacker Neuson Produktion GmbH & Co. KG

Printed in Germany

All rights are reserved, in particular the worldwide applicable copyright, right of duplication and right of distribution.

This document may only be used by the recipient for the intended purpose. The document may not be reproduced entirely or partially, or translated into any other language.

Reproduction or translation, even extracts thereof, only with written approval of Wacker Neuson Produktion GmbH & Co. KG.

Any breach of the statutory provisions, in particular the protection of copyright, will lead to civil and criminal prosecution.

Wacker Neuson Produktion GmbH & Co. KG is constantly working on the improvement of its products as part of the technical further development. Therefore, we reserve the right to make changes to the illustrations and descriptions in this documentation without incurring any obligation to make changes to machines already delivered.

Errors excepted.

The machine on the cover may have special equipment (options).



Manufacturer

Wacker Neuson Produktion GmbH & Co. KG

Wackerstraße 6

D-85084 Reichertshofen

www.wackerneuson.com

Tel.: +49 845 3340 3200

E-mail address: service-LE@wackerneuson.com

Original operator's manual

1	Preface	5
2	Introduction	6
	2.1 Using the manual.....	6
	2.2 Storage location of the manual.....	6
	2.3 Accident prevention regulations.....	6
	2.4 More information.....	6
	2.5 Target group	6
	2.6 Explanation of symbols.....	6
	2.7 Wacker Neuson Contact partner	7
	2.8 Disclaimer.....	7
	2.9 Product identification of the machine.....	7
3	Security	8
	3.1 Policy	8
	3.2 Proper use	8
	3.3 Use not in accordance with the intended purpose.....	8
	3.4 Structural changes.....	8
	3.5 Areas of responsibility of the operator	9
	3.6 Operator responsibilities	9
	3.7 Personnel qualification.....	9
	3.8 Residual dangers.....	9
	3.9 General safety instructions	9
	3.10 Specific safety instructions – Vibratory rammer BS.....	10
	3.11 General safety instructions – Combustion engines	11
	3.12 General safety instructions – Fuel, lubricants and coolants	11
	3.13 Maintenance	11
	3.14 Personal Protective Equipment	11
	3.15 Safety devices	13
	3.16 Behavior in dangerous situations.....	13
4	Safety and information labels	14
5	Setup and function	17
	5.1 Standard package	17
	5.2 Application areas	17
	5.3 Short description.....	17
	5.4 Versions.....	17
6	Components and operator's controls	18
7	Transport	19
	7.1 Preparing the machine.....	19
8	Storage	20
9	Operation and use	21
	9.1 Inspection before commissioning	21
	9.2 Notes about operation	21
	9.3 Commissioning	22
	9.4 Operation.....	23
	9.5 Decommissioning	24
10	Maintenance	25
	10.1 Maintenance table	26
	10.2 Maintenance work.....	26
11	Troubleshooting	33
	11.1 Fault table.....	33

12	Accessories	34
13	Technical data	35
13.1	Noise and vibration information	35
13.2	BS50-2.....	35
13.3	BS50-2plus	36
13.4	BS60-2 / BS60-2plus	37
13.5	BS70-2 / BS70-2plus	38
13.6	Combustion engine two-cycle.....	39
13.7	BS50-4.....	40
13.8	BS60-4.....	41
13.9	BS70-4.....	42
13.10	Combustion engine four-cycle	43
14	Emission Control Systems Information and Warranty	44
14.1	Emission Control System Background Information	44
14.2	Limited Defect Warranty for Wacker Neuson Emission Control Systems	44
	EC Declaration of Conformity	48
	EC Declaration of Conformity	49

1 Preface

This operator's manual contains important information and procedures for the safe, proper and economic operation of this Wacker Neuson machine. Carefully reading, understanding and observing is an aid to avoiding hazards, repair costs and downtime, and therefore to increasing the availability and service life of the machine.

This operator's manual is not a manual for extensive maintenance or repair work. Such work should be carried out by Wacker Neuson service or by technically trained personnel. The Wacker Neuson machine should be operated and maintained in accordance with this operator's manual. An improper operation or improper maintenance can pose dangers. Therefore, the operator's manual should be constantly available at the location of the machine.

Defective machine parts must be exchanged immediately!

If you have any questions concerning the operation or maintenance, a Wacker Neuson contact person is always available.

2 Introduction

2.1 Using the manual

This manual is to be considered part of the machine and should be carefully stored during the entire service life of the machine. This manual shall be transferred to subsequent owners or users of the machine.

2.2 Storage location of the manual

This manual is part of the machine and must be kept in the immediate vicinity of the machine and made accessible to staff at all times.

If this manual is lost, or if a second copy is required, there are two options to obtain a replacement:

- Download from the Internet: www.wackerneuson.com
- Contact your Wacker Neuson contact partner.

2.3 Accident prevention regulations

In addition to the notes and safety instructions in this manual, the local accident prevention regulations as well as the national health and safety regulations apply.

2.4 More information

This manual applies to various machine types from one product series. For this reason, some figures may vary slightly in appearance from the machine purchased. Depending on the model, there may be descriptions of components that are not included in the standard package.

The information contained in this manual is based on machines manufactured up to the time of printing. Wacker Neuson reserves the right to change this information.

The manufacturer shall immediately include any modifications or additions in this manual.

2.5 Target group

Individuals working with this machine must be regularly trained on the dangers of handling the machine.

This manual is intended for the following people:

Operating personnel:

These individuals have been trained on the machine and informed about the possible dangers in the event of improper conduct.

Technically trained personnel:

These people have professional training as well as additional knowledge and experience. They are able to assess the tasks assigned to them and recognize possible dangers.

2.6 Explanation of symbols

This manual contains specially emphasized safety instructions in the following categories: **DANGER**, **WARNING**, **CAUTION** and **NOTICE**.

Before performing any work on or with this machine, the notes and safety instructions must be read and understood. All notes and safety instructions in this manual must be passed on to the maintenance, repair, and transport personnel.



DANGER

This combination of symbol and signal word indicates a hazardous situation that will lead to death or serious injury if it is not avoided.



WARNING

This combination of symbol and signal word indicates a hazardous situation that can lead to death or serious injury if it is not avoided.



CAUTION

This combination of symbol and signal word indicates a hazardous situation that can lead to minor injury or damage to the machine if it is not avoided.

NOTICE

Supplementary information.

2.7 Wacker Neuson Contact partner

Depending on the country, the Wacker Neuson contact partner is a Wacker Neuson service department, a Wacker Neuson subsidiary, or a Wacker Neuson dealer.

On the Internet at www.wackerneuson.com.

2.8 Disclaimer

For the following violations, Wacker Neuson dismisses any liability for personal injury or material damage:

- Failure to follow this manual.
- Unintended use.
- Deployment of untrained personnel.
- Using non-approved spare parts and accessories.
- Improper handling.
- Structural modifications of any kind.
- Failure to observe the "General Terms and Conditions" (GT&Cs).

2.9 Product identification of the machine**Data of the nameplate**

The nameplate contains information that uniquely identifies this machine. This information is required for ordering spare parts and when inquiring about technical issues.

- Enter information about the machine in the following table:

Designation	Your information
Group and model	
Year of manufacture	
Machine number	
Version no.	
Item number	

3 Security

NOTICE

Read and comply with all notes and safety instructions in this manual. Failure to comply with these instructions can cause electric shock, fire and/or serious injuries as well as damage to the machine and/or damage to other objects. Keep safety instructions and notes for the future.

3.1 Policy

In keeping with the latest technological developments

The machine has been built in keeping with the latest technological developments and the recognized technical safety rules. Nevertheless, improper use can result in hazards to life and limb of the user, third parties or to damage to the machine and other material assets.

3.2 Proper use

The machine may only be used for the following purposes:

The machine is intended for the compaction of cohesive, mixed and granular soils.

The machine may only be combined and operated with permissible components.

The machine may only be operated with the approved accessories from Wacker Neuson.

Use in accordance with the intended purpose also includes the observation of all safety instructions in this manual as well as complying with the prescribed care and maintenance instructions.

3.3 Use not in accordance with the intended purpose

The machine may not be used for the following purposes:

- Compaction of very cohesive soils.
- Compaction of frozen soils.
- Compaction of hard, non-compressible soils.
- Compaction of non-load-bearing soils.
- Vibration of sett paving (paving stones).

Any other use or use that exceeds this is considered as not being in accordance with the intended purpose. The manufacturer's liability and warranty are canceled for any damage resulting from improper use. The risk lies entirely with the operator.

In particular, misuse is considered:

- The connection of non-permissible components.
- Operating the machine outside of the power rating.
- Operation contrary to the notes and safety instructions fixed to the machine and included in the manual.

3.4 Structural changes

Structural modifications may not be undertaken without the written permission of the manufacturer.

Unapproved structural changes may result in risks to the operator and/or third parties as well as damage to the machine.

In the event of unapproved structural changes, the manufacturer's liability, warranty and exhaust certification are also not applicable.

The following in particular are considered structural changes:

- Opening the machine and the permanent removal of components.
- Installing spare parts that do not originate from Wacker Neuson or are not comparable in the design system and quality of the original parts.
- Attaching accessories that do not originate from Wacker Neuson.

Spare parts or accessories that originate from Wacker Neuson can be safely mounted. They can be found on the Internet under www.wackerneuson.com.

3.5 Areas of responsibility of the operator

The operator is the individual who personally operates this machine for industrial or commercial purposes or who entrusts a third party with the use. The operator bears legal responsibility for his/her protection as well as that of third parties.

The user must make the operator's manual available to the operator and ensure that this has been read and understood.

3.6 Operator responsibilities

- Know and implement the applicable industrial safety regulations.
- Use a risk assessment to identify the dangers that result from the working conditions at the site of application.
- Create operating instructions for the operation of this machine.
- Periodically check whether the user instructions correspond to the current state of regulations.
- Clearly regulate and specify the responsibilities for installation, operation, troubleshooting, maintenance and cleaning.
- Regularly train employees and inform them about potential hazards.
- Periodically refresh the instruction.
- Keep records of the training received and provide them to the competent authorities upon request.
- Provide employees with the necessary equipment.

3.7 Personnel qualification

This machine may only be installed and operated by trained personnel.

Faulty operation, misuse or operation by untrained personnel can endanger health of the operator or third parties and lead to damage to or total loss of the machine.

In addition, the operator should be:

- physically and mentally fit.
- not under the influence of drugs, alcohol or medication that can impair responsiveness.
- familiar with the safety instructions in this manual.
- familiar with the intended use of this machine.
- instructed in the independent operation of the machine.

3.8 Residual dangers

Residual dangers in particular are hazards when dealing with machines that, despite a safe design, cannot be eliminated.

These residual dangers are not obvious and may be the source of a possible injury or health hazard.

If unforeseeable residual dangers occur, the operation of the machine is to be stopped immediately and the competent supervisor is to be informed. This supervisor shall make the following decisions and initiate everything required to eliminate the occurring danger.

If necessary, the manufacturer is to be informed.

3.9 General safety instructions

The safety instructions in this chapter include the "General Safety Instructions", which should be reported in the manual in accordance with the applicable standards. There may be information that is not relevant to this machine.

3.9.1 Working area

- Keep the working area tidy. Cluttered or dark working areas can lead to accidents.
- Before beginning work, familiarize yourself with the working environment, e.g. the load-bearing capacity of the floor or obstacles in the vicinity.
- Make working area safe for the public transport sector.
- When using this machine, children and unauthorized individuals must be kept away. Distraction can lead to loss of control of the machine.
- Always protect the machine against tilting, rolling, sliding, and crashing. Risk of injury!

3.9.2 Service

- The machine should only be maintained/repaired by technically trained personnel.
- Use only original spare parts and accessories. This preserves the operational safety of the machine.

3.9.3 Personal safety

- Working under the influence of drugs, alcohol, or drugs can lead to serious injuries.
- Protective equipment should be worn for all work. Appropriate personal protective equipment considerably reduces the risk of injury.
- Remove any tools before the machine is put into operation. Tools that are located on a rotating machine part can be ejected and cause serious injury.
- Always ensure good footing.
- In the case of extensive work with this machine, long-term vibration-induced damage cannot be ruled out. For the vibration load of the machine, see chapter *Technical data*.
- Wear suitable clothing. Keep baggy or loose clothing, protective gloves, jewelry and long hair away from moving/rotating machine parts. Danger of being pulled!

3.9.4 Handling and use

- Never operate machines whose switches are defective. Have defective switches exchanged immediately. Machines with defective switches have a high risk of injury.
- Store unused machines out of the reach of children. The machine may only be operated by authorized personnel.
- Handle the machine with care. Have defective parts exchanged immediately before the machine is operated. Defective machines have a high risk of accidents.
- Use the machine, accessories, insertion tools, etc. according to these instructions.

3.10 Specific safety instructions – Vibratory rammer BS

3.10.1 External influences

The vibratory rammer may not be operated in the event of the following external influences:

- In an explosive vicinity.
- Oil field environments – methane leaks from ground. Explosion hazard!
- In dry, flammable vegetation. Fire hazard!

3.10.2 Take work breaks regularly

When operating this machine for long periods of time, vibration-induced circulatory disorders may occur to your fingers, hands or wrists.

Symptoms:

- The aforementioned body parts falling asleep, tingling, pain, sharp pains and changes to skin color.

NOTICE

If these symptoms are determined, seek medical attention immediately.

- If you have a personal disposition to poor blood circulation, your working time may be reduced despite wearing protective gloves and taking regular work breaks.

3.10.3 Operational safety

- When operating the machine, make sure that no gas, water, or electric lines are damaged.
- Pay maximum attention near drops or slopes. Risk of crashing!
- In trenches and pits, pay very close attention to the sidewalls to ensure they are stable and do not collapse from the vibration. Danger of collapse!
- Never leave the machine running unattended. Risk of injury!
- Delimit spacious workspace and restrict access to unauthorized individuals. Risk of injury!
- Machine operators must ensure that people in the working area keep a minimum distance of 5 meters from the running machine.



3.11 General safety instructions – Combustion engines

The following notes must be observed:

- Before starting work, check the engine to ensure there are no leaks and cracks in the fuel lines, tank and fuel cap.
- Do not operate a defective engine. Replace damaged parts immediately.
- The pre-set engine speed may not be adjusted. This could lead to engine damage.
- Make sure that the exhaust system of the engine is free of debris. Fire hazard!
- Switch off the engine and allow it to cool before refueling.
- Use the correct fuel type. The fuel may not be mixed with other liquids.
- Use clean filling aids for refueling. Do not spill fuel. Immediately wipe up any spilled fuel.
- The engine may not be started near spilled fuel. Explosion hazard!
- When operating in partially enclosed spaces, adequate aeration must be ensured. Do not inhale exhaust fumes. Risk of poisoning!
- The engine surface and exhaust system can quickly become extremely hot. Risk of burns!

NOTICE

This machine is outfitted with an EPA-certified engine.
Adjusting the revolutions per minute (RPM) impacts the EPA-certification and the emissions. Settings for this engine may only be changed by a professional.
For more information, contact the manufacturer or your Wacker Neuson contact partner.

3.12 General safety instructions – Fuel, lubricants and coolants

The following notes must be observed:

- Always wear safety glasses and protective gloves when handling fuel, lubricants, and coolants. Seek medical attention, for example if you get oil or grease in your eyes.
- Avoid direct skin contact with fuel, lubricants and coolants. Immediately rinse skin with soap and water.
- Do not eat or drink while working with fuel, lubricants and coolants.
- Contaminated oil from dirt or water can lead to premature wear or failure of the machine.

If fuel, lubricants and coolants escape from the machine, do not operate the machine any longer and have it repaired immediately by the Wacker Neuson contact partner.

3.13 Maintenance

The following notes must be observed:






- This machine may not be maintained, repaired, adjusted or cleaned while switched on.
- Adhere to maintenance intervals.
- Observe the maintenance table. Non-listed work must be taken over by the service department of the Wacker Neuson contact partner.
- Immediately replace worn or damaged machine parts. Only use spare parts from Wacker Neuson.
- Keep the machine clean.
- Missing, damaged, or illegible safety warning labels should be replaced immediately. Safety stickers contain important information for the protection of the operator.

Maintenance work must be performed in a clean and dry vicinity (e.g. workshop).

3.14 Personal Protective Equipment

NOTICE

To prevent personal injury when handling this machine, personal protective equipment must be worn when working on or around this machine.

Pictogram	Significance	Description
	Wear safety shoes!	Safety shoes provide protection from bruises, falling objects, and slipping.
	Wear safety glasses!	Safety glasses protect against flying objects and liquid spray.
	Wear protective gloves!	Protective gloves provide protection from abrasion, cuts, punctures, and hot surfaces.
	Wear ear protection!	Ear protection provides protection from permanent hearing impairment.
	Wear a protective helmet!	A protective helmet protects against injuries from falling objects.

NOTICE

With this machine, the permissible, country-specific noise limit (personal rating level) may be exceeded.

Therefore, ear protection must be worn. For exact values for noise measurement, see chapter *Technical data*.

Work particularly cautiously and pay attention when wearing ear protection, as your ability to hear noises, such as screams or signal tones, is restricted.

Wacker Neuson recommends always wearing ear protection.

3.15 Safety devices

Safety devices protect the user of this machine from being exposed to existing hazards. These are barriers (separating protective devices) or other technical measures. This prevents the user from being exposed to a danger. The source of danger will be eliminated in certain situations or the danger will be reduced.

This machine has the following safety equipment:



Item	Description
1	Heat shield

Heat shield

The heat shield protects the operator from radiant heat.

3.16 Behavior in dangerous situations

Preventive measures:

- Always be prepared for accidents.
- Keep first aid equipment on hand.
- Make sure that all employees are familiar with accident reporting, first aid, and rescue facilities.
- Keep access routes clear for emergency vehicles.
- Make sure that employees receive first aid training.

Measures in the case of an emergency:

- Immediately take the machine out of operation.
- Remove injured and other people from the danger zone.
- Initiate first aid measures.
- Alert rescuers.
- Keep access routes clear for emergency vehicles.
- Inform the person responsible at the site of application.

4 Safety and information labels



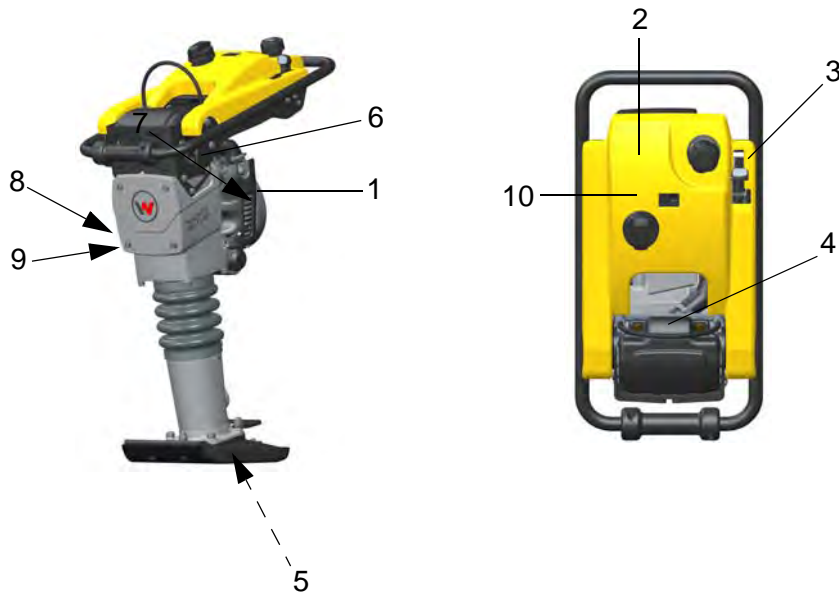
WARNING

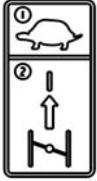






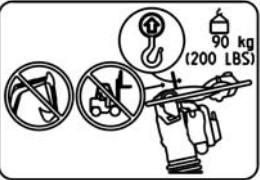
Illegible symbols

Over time, labels and signs on the machines can become dirty or otherwise unrecognizable.

- Keep all safety, warning, and operating instructions on the machine in a legible condition.
- Replace damaged labels and signs immediately.

The following labels are located on the machine:



Item	Label	Description
1	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>2-Takt</p>  </div> <div style="text-align: center;"> <p>4-Takt</p>  </div> </div>	<ol style="list-style-type: none"> Put the throttle lever in the IDLING position. Activate the choke.
2	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>2-Takt</p>  </div> <div style="text-align: center;"> <p>4-Takt</p>  </div> </div> <p>US</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div>	<p>Danger of suffocation</p> <ul style="list-style-type: none"> Engines give off carbon monoxide. Do not operate the machine in closed spaces. No sparks, flames or burning objects are permitted near the machine. Turn off the machine before refueling. <p>Warning</p> <ul style="list-style-type: none"> Wear ear protection. Read operator's manual. <p>Start engine</p> <ol style="list-style-type: none"> Put the throttle lever in the IDLING position. Press the purge bulb 10x. Activate the choke. Pull the starter rope of the recoil starter. Put the throttle lever in the FULL THROTTLE position. <p>Decommissioning the machine</p> <ol style="list-style-type: none"> Put the throttle lever in the OFF position. <p>Hold the control handle left and right for an optimal control, performance and minimal hand-arm-vibrations.</p>
3		<p>Turtle = idling/low engine speed Hare = high/fast engine speed</p>
4		<p>Raise and transport the machine by the central lifting point.</p> <ul style="list-style-type: none"> Only use suitable and tested lifting gear and tackle (safety load hooks) of sufficient lifting capacity. Do not lift the machine with an excavator bucket or forklift.

Item	Label	Description
5	<p>US</p>	<p>Warning Slowly release the cover so that the spring does not pop out. Read the repair instructions.</p>
6		<p>Guaranteed sound power level.</p>
7	<p>US</p>	<p>Warning In dry, flammable vegetation. Fire hazard!</p>
8	<p>US</p>	<p>Warning against hot surface.</p>
9	<p>US</p>	<p>Low oil protection display</p>
10	<p>2-Takt</p>	<p>Tank capacity for 2-cycle oil</p>

5 Setup and function

5.1 Standard package

The standard package includes:

- Vibratory rammer.
- Operator's manual.

5.2 Application areas

The vibratory rammer is used for the compaction of soil and is used in gardening and landscaping, civil engineering and road and highway construction.

5.3 Short description

The Wacker Neuson vibratory rammer essentially consists of the drive motor, ramming system, ramming shoe and control handle.

The drive occurs via a gasoline engine. Depending on the design, this works according to the 2-cycle or 4-cycle principle and is started via a recoil starter. The rotational movement of the drive motor is converted into a lifting movement via a centrifugal clutch, a single-level spur gear unit and a crank gear mechanism. The power is transferred to the ramming system and creates an impact force to compact the ground.

It receives its travel speed from the tilt of the vibratory rammer.

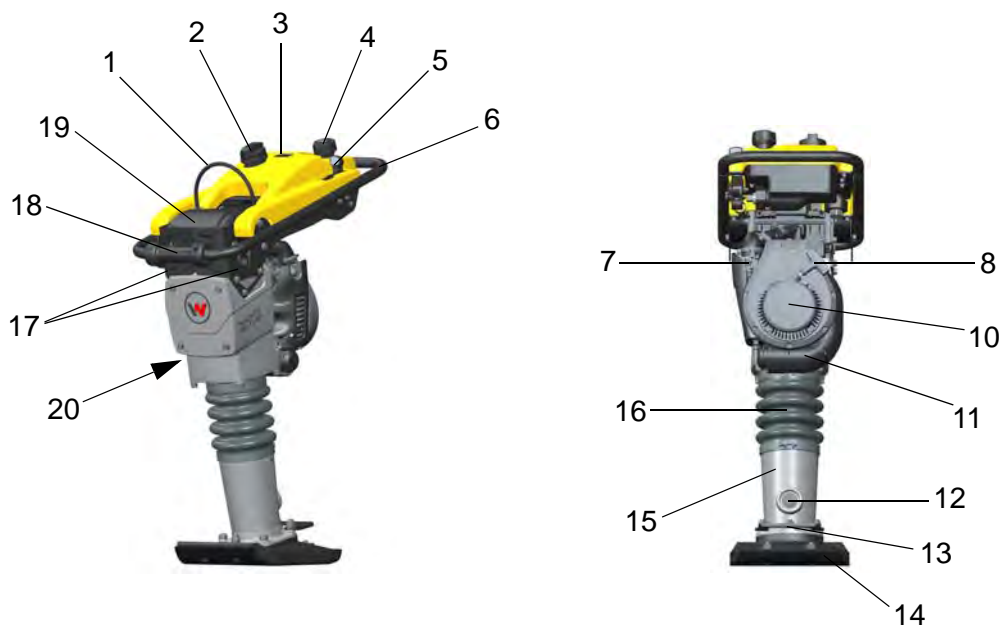
The control handle is decoupled from the ramming system by rubber elements (inserts). This reduces the transmission of vibrations to the operator.

5.4 Versions

This operator's manual covers the following models:

Versions	Description
2	Two-cycle engine
4	Four-cycle engine
A	Honda engine
plus	separately lubricated, 2 separate tanks for oil and fuel
ha	high altitude - for working at high altitudes
s	Low oil protection, automatic shutdown if the oil level is too low

6 Components and operator's controls



Item	Designation	Item	Designation
1	Central lifting point	11	Exhaust
2	Oil tank (Versions plus)	12	Oil sight glass
3	Operating hour meter/speed display (optional)	13	Handle
4	Fuel tank	14	Ramming shoe
5	Gas throttle lever	15	Ramming system
6	Control handle	16	Bellows
7	Choke	17	Vibration damper
8	Recoil starter	18	Roller kit
9	Purge bulb	19	Air filter system
10	Drive motor	20	Nameplate

7 Transport


WARNING

Improper handling may result in injury or serious material damage.

- Please read and follow all safety instructions in this operator's manual.


WARNING

Danger from falling.

Falling machines can cause serious injuries from crushing.

- Only use suitable and tested lifting gear and slings with sufficient lifting capacity.
- Reliably secure the machine to the lifting gear.
- Do not lift the machine with an excavator bucket or forklift.
- Evacuate danger zone while lifting, do not stop under suspended loads.


WARNING

Risk of fire and explosion from fuel.

Escaping fuel may catch fire and cause serious burns.

- Raise the machine upright.

7.1 Preparing the machine

Carry out preparations

1. Decommissioning the machine.
2. Lean the machine upright against a solid object and secure from tipping over.
3. Allow the machine and engine to cool down.

7.1.1 Removing the fuel system

NOTICE

The fuel cap has an excess and low-pressure valve through which fuel may escape in a heated state (e.g. in the event of solar radiation).



Item	Designation
1	Fuel cap

4. Remove dirt accumulation in the area of the fuel cap.
5. Unscrew the fuel cap and remove.
6. Pump the fuel into a suitable container or tank, e.g. with a suction lift pump.
7. Attach the fuel cap and tighten.
8. Start the engine and allow it to idle until the fuel in the carburetor has been used and the engine stops.

7.1.2 Lifting and lashing down the machine

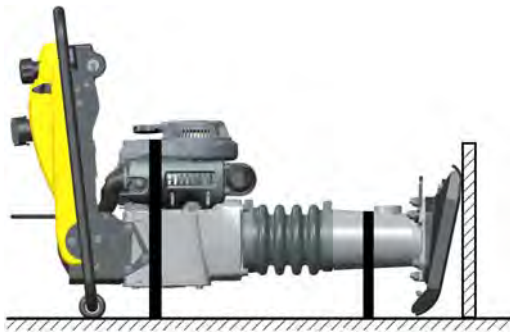
NOTICE

Appoint a specialist flagman for a safe lifting operation.



Item	Designation	Item	Designation
1	Central lifting point	2	Roller kit

1. To lift the motor, hang suitable tackle at the central lifting point.
2. Carefully load machine into or onto a stable means of transport.
3. Move the machine forward onto the roller kit.



4. After loading the machine, lash down the machine to prevent it from rolling off, slipping, or tipping over. Attach and tension the tension belt over the vibratory rammer.

8 Storage

If the machine will not be operated for longer periods of time, e.g. during the winter months, carry out the following activities:

- Do not store the machine outdoors.
- Store dry and free of dust.
- Empty the fuel system.

9 Operation and use

**WARNING**

Improper handling may result in injury or serious material damage.

- Please read and follow all safety instructions in this operator's manual.

9.1 Inspection before commissioning

- Check the machine and components for damage. In the event of visible damage, do not operate the machine and immediately contact a Wacker Neuson dealer.
- Check the operator's controls for functionality.
- Ensure that loose packaging material has been removed from the machine.
- Current regulations of the local authorities for noise emissions are to be observed.
- Check the fuel level.
- Check the oil level.
- Check to ensure the screwed connections are firmly seated.
- Check the air intake area for contamination.

NOTICE

Perform control procedures according to the *Maintenance* chapter. If necessary, top off missing fuel, lubricants and coolants, see chapter *Technical Data*.

9.2 Notes about operation

**WARNING**

Danger of tipping

There is a serious risk of injury from slipping or tipping over of the machine.

- Always secure the machine from tipping over.
- Place the machine on level surface with a firm substrate.

**WARNING**

Danger of crushing

It is possible to crush hands and feet.

- Work carefully.

**CAUTION**

Beware of physical impairments caused by vibration.

Increasing hand and arm vibrations.

- Do not overload the machine.
- Take breaks periodically.

**CAUTION**

Injuries or material damage.

There can be strong recoils on firm, hard or rigid bottoms.

- Avoid these bottoms.

- In accordance with the intended purpose, the operator should stand behind the machine.
- Guide and steer the machine using the control handle.
- Utilize the machine's dead weight when working.
- Allow the machine to pull forward independently. Do not push or pull forward or backward with muscle power.

- Hold the control handle left and right for an optimal control, performance and minimal hand-arm-vibrations.
- To avoid damage to the machine, the machine may not be relocated in a running state.
- Use caution with coarse materials. In order to avoid extreme wear of the ramming shoe, this must always strike parallel to the ground to be compacted.

Operation in channels

- On pit, cavity, dump and embankment edges, on trench edges and terraces, operate the machine so that there is no danger of tipping or falling over.
- Pay attention to the sidewalls and their stability. Danger of collapse and burying!
- Stability!

Operation below freezing

The cold oil in the percussion system can increase the resistance so much that the centrifugal clutch slips.

- Allow the machine to warm up at a low rpm, as otherwise the centrifugal clutch will wear quickly.

9.3 Commissioning

NOTICE

The machine must stand upright when starting and be placed on a suitable subsurface.

9.3.1 Start engine



WARNING

Hot silencer
Contact may cause burns.

- Firmly hold the machine only by the control handle.
 - Wear protective gloves.
-



CAUTION

Incorrect handling during starting can cause minor injuries.

- Only pull the starter rope if there is sufficient place and no people are in the immediate vicinity.
-

NOTICE

Improper handling can damage the machine.

- Do not pull the starter rope all the way to the detent.
 - Slowly allow the starter rope to reel in again.
-

NOTICE

To start the engine, remove the engine at least 3 m from the refueling point.



Item	Designation	Item	Designation
1	Purge bulb	3	Gas throttle lever
2	Choke		

1. Firmly hold the machine by the control handle.
2. Activate the choke if the engine is cold.
3. Put the throttle lever in the IDLING position. The fuel cock opens automatically.
4. Press the purge bulb 10x until it is completely filled with fuel.
5. Pull the starter rope of the recoil starter several times until the engine starts.
6. Allow the engine to warm up.
7. The machine will start and the vibration starts in the forward direction.

NOTICE

At full throttle, the choke will automatically disengage.

9.4 Operation

Only guide and steer the machine using the control handle.

9.4.1 Compacting material**WARNING**

Injuries from uncontrolled and unguided machines.

- Always hold the machine with both hands and assume a secure stance.
-

1. Guide the machine with both hands on the control handle.
2. Actuate the throttle lever until the desired rpm is reached.
3. Once the material is compacted, raise the machine and relocate.
 - When lifting the machine, place the throttle lever to IDLING so that the engine will continue to run at a low rpm.

9.5 Decommissioning



1. Slowly put the throttle lever in the OFF position. The fuel cock will close automatically.
2. Wait until the machine has come to a complete standstill.



CAUTION

Hot surfaces

- Wear protective gloves.
-

NOTICE

Park the machine so that it cannot tip over, fall or slip away.

10 Maintenance

**WARNING**

Improper handling may result in injury or serious material damage.

- Please read and follow all safety instructions in this operator's manual.

**WARNING**

Danger of poisoning from exhaust fumes.

Exhaust fumes contain poisonous carbon monoxide, which can lead to unconsciousness or to death.

- Only perform maintenance work with the machine switched off.

**WARNING**

Risk of fire and explosion from fuel and fuel vapors.

Fuel and fuel vapors can ignite or catch fire and cause serious burns.

- Do not smoke.
- Do not refuel near open flames.
- Switch off the engine and allow it to cool before refueling.

**WARNING**

Warning of hot surfaces.

The crankcase with the engine and ramming system can heat up greatly after even a short period of time, which can lead to severe burns on contact with skin.

- Always allow the engine to cool down completely after use.
- If there is not enough time to allow the machine to cool down (e.g. in an emergency situation.) – use heat-resistant protective gloves.

**WARNING**

Risk of injury due to non-existent or non-functioning safety devices.

- Only operate the machine if the safety devices are properly fixed and functioning.
- Do not modify or remove safety devices.

10.1 Maintenance table

Maintenance work	daily	weekly/ 25 h	months/ 100 h	3 months/ 300 h	annually
Clean the machine Visual check for completeness. Visual inspection for damage.	■				
Clean the air filter, replace if necessary.	■				
Check the oil level, top off if necessary. ■ Percussion system. ■ Four-cycle engine.	■				
Check the fuel lines and connections for cracks and leaks. Replace if necessary.	■				
Check screw connections of the ramming shoe. Tighten if necessary.		■			
Clean the cooling fins of the engine.		■			
Clean the spark plug and check the gap.		■			
Oil change. ■ Four-cycle engine.			■		
Oil change. ■ Percussion system.				■ ¹	
Check the central lifting point for wear, damage or misuse.				■	
Replace the spark plug.					■
Clean the fuel filter. Replace if necessary.					■
¹ Change the oil after the first 50 hours of operation. * Have this work performed by the service department of your Wacker Neuson contact partner.					

10.2 Maintenance work



CAUTION

Health risk from fuel, lubricants and coolants.

- Do not inhale fuel, lubricants, coolants or vapors.
- Avoid contact of skin or eyes with fuel, lubricants and coolants.

Carry out preparation work:

1. Place the machine on a level surface.
2. Decommissioning the machine.
3. Let the machine cool.

10.2.1 Clean the machine

NOTICE

Do not use high-pressure washers!
 Penetrating water can damage the drive motor, electrical operator's controls or components of the machine.

1. After cleaning, check the cable, utility lines and hardware for loose connections, chafe marks and other damage.
2. Immediately eliminate detected deficiencies.

10.2.2 Top off the fuel


WARNING

Risk of fire and explosion from fuel and fuel vapors.

- Do not smoke.
- Do not refuel near open flames.
- Switch off engine and allow it to cool before refueling.


CAUTION

Health risk from fuel.

- Refuel in a well-ventilated area.
- Do not inhale fuel vapors.
- Avoid fuel contact with skin or eyes.



Item	Designation
1	Fuel cap

1. Remove dirt accumulation in the area of the fuel cap.
2. Slowly unscrew the fuel cap and remove.

NOTICE

Slowly unscrew the fuel cap so that any existing excess pressure can slowly escape.

3. Top off the fuel with a clean funnel.
 - For the fuel specification, see the chapter *Technical data*.
 - For the fuel mixing specification, see the chapter *Technical data*.
4. Tighten the fuel cap.

10.2.3 Screwed connections

For vibratory rammers, all screwed connections must be checked to ensure a firm seat at regular intervals. Loose screw connections must be tightened with the specified or standard torque setting.

10.2.4 Clean/replace the air cleaner


WARNING

Risk of explosion and fire

- Do not use fuels or other solvents with a low flash point to clean the air filter.
- Use compressed air, a mild cleaning agent or warm water.

NOTICE

Do not operate the machine without an air filter. This may lead to serious engine damage.

NOTICE

During cleaning, no grime may get into the intake port of the engine. This may cause engine damage.

1. Remove the air cleaner (filter) cover.



Item	Designation
1	Air cleaner (filter) cover/air filter

2. Remove the main filter element and the prefilter and check for holes or cracks. Replace the filter elements if necessary.
 - Main filter element: Replace the filter element if very contaminated.
 - Prefilter: Only use low-pressure compressed air to clean the prefilter. If highly contaminated, the filter element must be washed out with a mild cleaning agent and warm water. Rinse with clean water. Allow to dry completely prior to installation.

NOTICE

Do not oil or lubricate the prefilter.

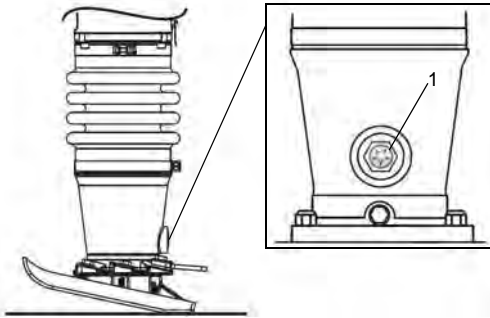
3. Wipe out the air cleaner (filter) housing with a clean cloth. Do not use any compressed air!
4. Ensure that the contaminant ejection slot of the prefilter is clean.
5. Insert both filter elements into the air cleaner (filter) housing and screw on the air cleaner (filter) cover.

10.2.5 Check/top off the oil level

NOTICE

If the vibratory rammer was transported in a horizontal position or was just relocated, it must be put in a vertical position for 15 minutes before the oil level can be checked.

1. Remove dirt accumulation within the range of the oil sight glass.

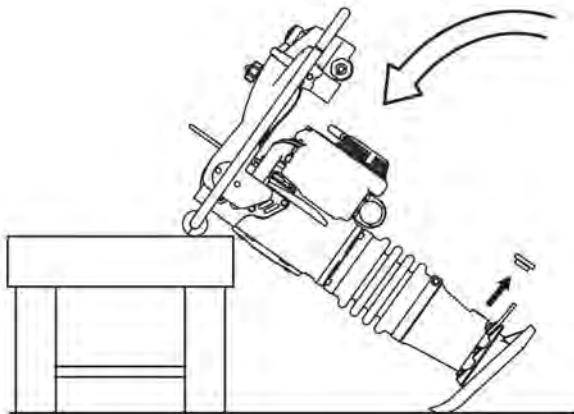


Item	Designation
1	Oil sight glass

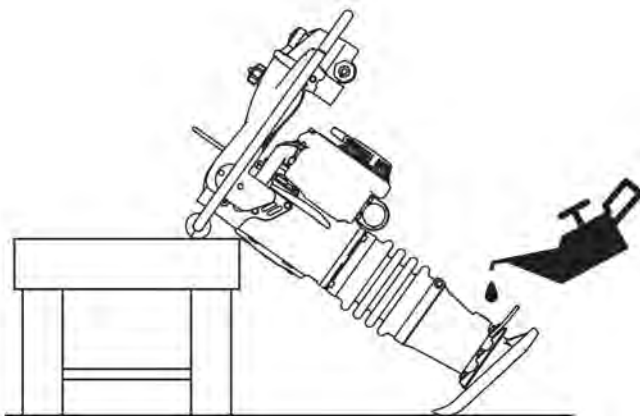
2. Tilt the vibratory rammer so that it forms a right angle to the ground.
3. Check the oil level through the oil sight glass. Oil must fill 1/2 to 3/4 of the oil sight glass.
4. If the oil level is too low, top off the oil. For the oil specification, see the chapter *Technical Data*.

NOTICE

Do not overfill the ramming system with oil. An oil level that is too high can lead to a hydraulic lock in the ramming system. This can lead to faulty operation and damage to the ramming system.



5. Tilt the vibratory rammer forward and secure in this position.
6. Screw on the oil sight glass. Clean the thread on the oil sight glass and wrap with Teflon tape.



7. Fill oil through the opening in the oil sight glass in the housing.

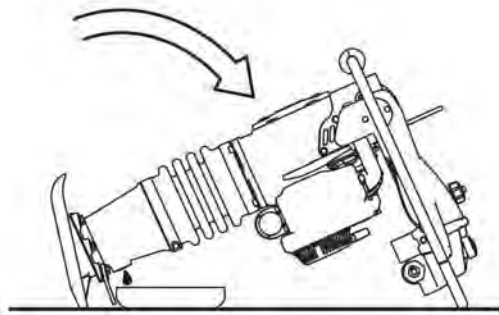
8. Screw the oil sight glass back on, but do not tighten.
9. Stand the vibratory rammer upright to check the oil level.
10. If necessary, top off the oil until the oil sight glass is 1/2 to 3/4 filled.
11. Then tighten the oil sight glass. The torque setting is 9 Nm.
12. Wipe the area of the oil sight glass with a clean cloth.

10.2.6 Oil change

1. Remove dirt accumulation within the range of the oil sight glass.
2. Screw on the oil sight glass. Clean the thread on the oil sight glass and wrap with Teflon tape.

NOTICE

Used oil must be disposed of according to the applicable local environmental protection regulations.



3. Tilt the vibratory rammer backward until it rests on the control handle and drain the used oil into a suitable reservoir.

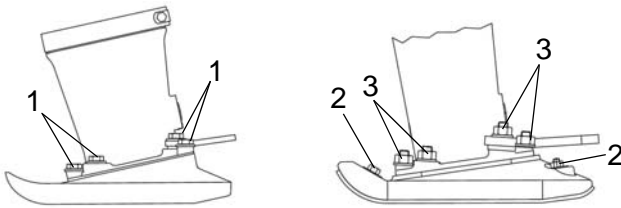
NOTICE

This process can take up to 10 minutes.

4. Tilt the vibratory rammer forward and secure in this position.
5. Fill oil through the opening in the oil sight glass in the housing. For the oil specification, see chapter *Technical Data*.
6. Screw the oil sight glass back on, but do not tighten.
7. Stand the vibratory rammer upright to check the oil level.
8. If necessary, top off the oil until the oil sight glass is 1/2 to 3/4 filled.
9. Then tighten the oil sight glass to a torque setting of 9 Nm.
10. Wipe the area of the oil sight glass with a clean cloth.

10.2.7 Checking/tightening the screw connections of the ramming shoe

For vibratory rammers, all screw connections of the ramming shoe must be checked to ensure a firm seat at regular intervals.



Item	torque setting Nm (ft-lbs.)
1	86 (63)
2	19 (14)
3	79 (58)

10.2.8 Cleaning the cooling fins of the engine

Clean cooling fins on the engine make it possible for fresh air to circulate around the combustion chamber unimpeded. An unimpeded circulation of air is necessary so that the engine does not overheat.

- Clean the engine cooling fins of grime and residue with compressed air.

10.2.9 Checking/cleaning/replacing the spark plug



CAUTION

Touching the hot spark plug may cause burns.

- Only unscrew the spark plug if the engine has cooled down.

Remove the spark plug

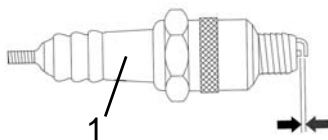
1. Thoroughly clean the area around the spark plug.
2. Remove the spark plug cap from the spark plug.

NOTICE

Do not pull the spark plug cap from the spark plug by the ignition cable.

3. Loosen the spark plug with a spark plug wrench and unscrew.

Checking/cleaning the spark plug



Item	Designation
1	Isolator

1. Check the isolator - if damaged, replace the spark plug.
2. Clean the electrodes with a wire brush.
3. Measure the spark plug air gap with a feeler. If necessary, correct by bending the side electrode.
 - For the spark plug type and spark plug air gap, see chapter *Technical Data*.
4. Check the spark plug seal ring - if damaged, replace the spark plug.

Installing the spark plug

1. First, screw in the spark plug by hand and then tighten with a spark plug wrench. The torque setting is 25 Nm.
2. Attach the spark plug cap to the spark plug.

NOTICE

Screwed-in spark plugs that are too loose or too tight may cause engine damage.

- Tighten the spark plug with the prescribed torque setting.
-

10.2.10 Clean/replace the fuel filter



Item	Designation
1	Fuel filter

1. Disconnect the fuel line and then remove it from the fuel filter.
2. Unscrew the fuel filter and remove.
3. Wipe the visible residue and dirt particles from the outside of the fuel filter screen with a clean, dry, lint-free cloth.
4. Check the fuel filter screen for cracks, damage and dirt particles. Replace if damaged and contaminated.
5. Reinstall the fuel filter.

NOTICE

In order to ensure a secure connection, cut the fuel line about 10 mm (3/8") from the end and connect to the fuel filter.

6. Before restarting the machine, check the fuel system for leaks.

11 Troubleshooting


DANGER

Danger to life from unauthorized troubleshooting.

- If faults occur with this machine that are not described in this manual, contact the manufacturer. Do not eliminate the faults independently.

11.1 Fault table

Fault	Possible causes	Remedial measure
The engine does not start.	Fuel cock is not closed.	Put the throttle lever in the IDLING position.
	Choke is disabled.	Place the throttle lever on IDLE and activate the choke.
	Purge bulb not pressed.	Press the purge bulb 10x.
	Fuel tank is empty.	Top off the fuel.
	Fuel filter is dirty.	Replace the filters.
	Air filter contaminated.	Clean the filter. Replace if necessary.
	The spark plug is contaminated or wet.	Clean the spark plug. Replace if necessary.
	The spark plug air gap of the spark plug is too large.	Correct the gap or replace the spark plug.
The engine runs, but the machine does not ram.	Defective centrifugal clutch.	Replace the centrifugal clutch.*
The engine output is too low.	Air cleaner is dirty.	Clean the filter. Replace if necessary.
	Fuel filter is dirty.	Replace the filters.
Machines with oil injection		
The engine starts and goes off after about 30 seconds.	Too little oil in the oil tank.	Top off the oil.
	The cable linkage on the engine is loose.	Check the connection and correct if necessary.
	Oil sensor in the oil tank is defective.	Replace the oil sensor.*
The idling speed is too high or too low.	The idling speed screw is incorrectly positioned.	Correct the screw position.
* Have this work performed by the service department of the Wacker Neuson contact partner.		

12 Accessories



CAUTION

Accessories and spare parts that do not originate from Wacker Neuson can increase the risk of injury and possible damage to the machine.

- The use of other accessories and spare parts that do not originate from Wacker Neuson shall cancel any liability.
-

A wide range of accessories is offered for the machine.

More information about the individual accessories can be found online at www.wackerneuson.com.

Lockable oil fuel cap

The lockable oil fuel cap is intended to prevent refueling errors.

Ramming shoe

The ramming shoes are available in different widths. These can be used to increase or decrease the operating width of the machine.

Wheel set/cart

For easier transport on the job site.

13 Technical data

13.1 Noise and vibration information

The noise and vibration information listed was determined according to the following guidelines with the machine-typical operating states / specific test conditions while applying harmonized standards:

- Machine directive 2006/42/EC
- Noise emissions directive 2000/14/EC

In operational application, deviating values may result depending on the prevailing operating conditions.

13.1.1 Noise information

Sound pressure level at operator's location

- The L_{pA} was determined pursuant to EN ISO 11201 and EN 500-4.

Guaranteed sound power level

- The L_{WA} was determined pursuant to EN ISO 3744 and EN 500-4.

13.1.2 Vibration information hand-arm vibration (HAV)

Weighted vibration total value

- The a_{hv} was determined pursuant to EN ISO 20643 and EN 500-4.

13.2 BS50-2

Designation	Unit	BS50-2 11"	BS50-2 11" US	BS50-2 6"
Item number		5100030591	5100030590	5100030592
Percussion rate	rpm	687		
Impact force	kN	16		
Travel speed	m/min	9,5		7,9
Length	mm	673		
Width	mm	343		
Height	mm	940		
Length (ramming shoe)	mm	340		
Width (ramming shoe)	mm	280		165
Weight	kg	59		56
Operating power	kW	1,7		
Operating speed*	rpm	4.250		
Standard		ISO 3046-1		
Operating temperature range	°C	-10 – +40		
Sound pressure level L _{pA}	dB(A)	92		
Sound power level L _{WA} measured	dB(A)	107		
guaranteed	dB(A)	108		
Vibration total value a _{hv}	m/s ²	9,8		5,4
Uncertainty of measurement of the vibration total value a _{hv}	m/s ²	1,5		
Oil specification		SAE 10W-40		
Oil quantity	l	0,7		
* Depending on the operating parameters, material properties and environmental impacts.				

13.3 BS50-2plus

Designation	Unit	BS50-2plus 11"	BS50-2plus 11" US	BS50-2plus 11" ha US	BS50-2plus 6" (24mm)
Item number		5100030596	5100030594	5100030595	5100030597
Percussion rate	rpm	687			
Impact force	kN	16			
Travel speed	m/min	9,5			7,9
Length	mm	673			
Width	mm	343			
Height	mm	940			
Length (ramming shoe)	mm	340			
Width (ramming shoe)	mm	280			165
Weight	kg	59			56
Operating power	kW	1,7			
Operating speed*	rpm	4.250			
Standard		ISO 3046-1			
Operating temperature range	°C	-10 – +40			
Sound pressure level L_{pA}	dB(A)	92			
Sound power level L_{WA} measured guaranteed	dB(A)	107			
	dB(A)	108			
Vibration total value a_{HV}	m/s^2	9,8			5,4
Uncertainty of measurement of the vibration total value a_{HV}	m/s^2	1,5			
Oil specification		SAE 10W-40			
Oil quantity	l	0,7			
* Depending on the operating parameters, material properties and environmental impacts.					

**13.4 BS60-2 / BS60-2plus**

Designation	Unit	BS60-2 11"	BS60- 2plus 11"	BS60- 2plus 11" CN	BS60- 2plus 11" US	BS60- 2plus 11" ha US
Item number		5100030600 5100037561	5100030604	5100039660	5100030602	5100030603
Percussion rate	rpm	687				
Impact force	kN	18				
Travel speed	m/min	9,8				
Length	mm	673				
Width	mm	343				
Height	mm	965				
Length (ramming shoe)	mm	340				
Width (ramming shoe)	mm	280				
Weight	kg	66				
Operating power	kW	1,8				
Operating speed*	rpm	4.250				
Standard		ISO 3046-1				
Operating temperature range	°C	-10 – +40				
Sound pressure level L _{pA}	dB(A)	98				
Sound power level L _{WA} measured guaranteed	dB(A) dB(A)	107 108				
Vibration total value a _{hv}	m/s ²	7,6				
Uncertainty of measurement of the vibration total value a _{hv}	m/s ²	1,5				
Oil specification		SAE 10W-40				
Oil quantity	l	0,9				
* Depending on the operating parameters, material properties and environmental impacts.						

13.5 BS70-2 / BS70-2plus

Designation	Unit	BS70-2 11"	BS70-2plus 11"	BS70-2plus 11" US
Item number		5100030607	5100030609	5100030608
Percussion rate	rpm	687		
Impact force	kN	20		
Travel speed	m/min	8,9		
Length	mm	673		
Width	mm	343		
Height	mm	965		
Length (ramming shoe)	mm	340		
Width (ramming shoe)	mm	280		
Weight	kg	80		
Operating power	kW	2,0		
Operating speed*	rpm	4.250		
Standard		ISO 3046-1		
Operating temperature range	°C	-10 – +40		
Sound pressure level L_{pA}	dB(A)	92		
Sound power level L_{WA} measured guaranteed	dB(A)	107		
	dB(A)	108		
Vibration total value a_{hV}	m/s^2	6,8		
Uncertainty of measurement of the vibration total value a_{hV}	m/s^2	1,5		
Oil specification		SAE 10W-40		
Oil quantity	l	0,9		
* Depending on the operating parameters, material properties and environmental impacts.				

**13.6 Combustion engine two-cycle**

Designation	Unit		
Item number		5100030590, 5100030591, 5100030592, 5100030600, 5100030607	5100030594, 5100030595, 5100030596, 5100030597, 5100030602, 5100030603, 5100030604, 5100030608, 5100030609, 5100039660
Type of engine		WM80	
Manufacturer		Wacker Neuson	
Combustion method		two-cycle	
Displacement	cm ³	80	
Rated output	kW	2,0	
Rated speed	rpm	4.400	
Standard		ISO 3046-1	
Fuel type		Oil/alkylate fuel mixture Oil/Otto fuel mixture	Oil/alkylate fuel mixture
Fuel gasoline/oil mixing ratio		1:50 - 1:100	-
Fuel consumption	l/h	1,1	0,9
Tank capacity Fuel gasoline	l	2,9	
Oil specification		ISO-L EG C, ISO-L EG D, JASO FC, JASO FD	
Tank capacity for 2-cycle oil	l	-	1,4
Spark plug model		QL87YC	
Spark plug air gap	mm	0,5 - 0,8	

13.7 BS50-4

Designation	Unit	BS50-4As 11"	BS50-4As 11" US
Item number		5100030599	5100030598
Percussion rate	rpm	656	
Impact force	kN	16	
Travel speed	m/min	7,1	
Length	mm	673	
Width	mm	343	
Height	mm	940	
Length (ramming shoe)	mm	340	
Width (ramming shoe)	mm	280	
Weight	kg	65	
Operating power	kW	2,7	
Operating speed*	rpm	4.100	
Standard		ISO 3046-1	
Operating temperature range	°C	-10 – +40	
Sound pressure level L_{pA}	dB(A)	92	
Sound power level L_{WA} measured	dB(A)	107	
guaranteed	dB(A)	108	
Vibration total value a_{hV}	m/s ²	9,4	
Uncertainty of measurement of the vibration total value a_{hV}	m/s ²	1,5	
Oil specification		SAE 10W-40	
Oil quantity	l	0,7	
* Depending on the operating parameters, material properties and environmental impacts.			

**13.8 BS60-4**

Designation	Unit	BS60-4As 11"	BS60-4As 11" US
Item number		5100030606 5100037562	5100030605
Percussion rate	rpm	656	
Impact force	kN	18	
Travel speed	m/min	8,8	
Length	mm	673	
Width	mm	343	
Height	mm	965	
Length (ramming shoe)	mm	340	
Width (ramming shoe)	mm	280	
Weight	kg	72	
Operating power	kW	2,7	
Operating speed*	rpm	4.100	
Standard		ISO 3046-1	
Operating temperature range	°C	-10 – +40	
Sound pressure level L_{pA}	dB(A)	93	
Sound power level L_{WA} measured	dB(A)	107	
guaranteed	dB(A)	108	
Vibration total value a_{hv}	m/s^2	9,3	
Uncertainty of measurement of the vibration total value a_{hv}	m/s^2	1,5	
Oil specification		SAE 10W-40	
Oil quantity	l	0,9	
* Depending on the operating parameters, material properties and environmental impacts.			

13.9 BS70-4

Designation	Unit	BS70-4As 11"	BS70-4As 11" US
Item number		5100030611	5100030610
Percussion rate	rpm	656	
Impact force	kN	20	
Travel speed	m/min	7,0	
Length	mm	673	
Width	mm	343	
Height	mm	965	
Length (ramming shoe)	mm	340	
Width (ramming shoe)	mm	280	
Weight	kg	80	
Operating power	kW	2,7	
Operating speed*	rpm	4.100	
Standard		ISO 3046-1	
Operating temperature range	°C	-10 – +40	
Sound pressure level L_{pA}	dB(A)	93	
Sound power level L_{WA} measured	dB(A)	107	
guaranteed	dB(A)	108	
Vibration total value a_{hV}	m/s^2	7,4	
Uncertainty of measurement of the vibration total value a_{hV}	m/s^2	1,5	
Oil specification		SAE 10W-40	
Oil quantity	l	0,9	
* Depending on the operating parameters, material properties and environmental impacts.			

**13.10 Combustion engine four-cycle**

Designation	Unit	
Item number		5100030598, 5100030599, 5100030605, 5100030606, 5100030610, 5100030611
Type of engine		GXR120
Manufacturer		Honda
Combustion method		four-cycle
Displacement	cm ³	120
Rated output	kW	2,7
Rated speed	rpm	4.200
Standard		ISO 3046-1
Fuel type		Gasoline
Fuel consumption	l/h	1,0
Tank capacity Fuel gasoline	l	2,9
Oil specification		SAE 10W-30
Tank capacity for 2-cycle oil	l	0,3
Spark plug model		CR5HSB / U16FSR-UB
Spark plug air gap	mm	0,6 - 0,7

14 Emission Control Systems Information and Warranty

The Emission Control Warranty and associated information is valid only for the U.S.A., its territories, and Canada.

14.1 Emission Control System Background Information

Introduction

Wacker Neuson spark-ignited engines/equipment must conform with applicable Environmental Protection Agency (EPA) emissions regulations. There are two types of emissions that fall under these regulations: 1) exhaust, and 2) evaporative. These regulations require that manufacturers warrant the emission control systems for defects in materials and workmanship.

Furthermore, EPA regulations require all manufacturers to furnish written instructions describing how to operate and maintain the engines/equipment including the emission control systems. This information is provided with all Wacker Neuson engines/equipment at the time of purchase.

Exhaust Emissions

The combustion process produces carbon monoxide, oxides of nitrogen, and hydrocarbons. Control of hydrocarbons and oxides of nitrogen is very important because, under certain conditions, they react to form photochemical smog when subjected to sunlight. Carbon monoxide does not react in the same way, but it is toxic.

Wacker Neuson utilizes lean carburetor settings and other systems to reduce the emissions of carbon monoxide, oxides of nitrogen, and hydrocarbons.

Evaporative Emissions

Evaporative emissions are fuel emissions and generally include emissions that result from permeation of fuel through the fuel-system materials or from ventilation of the fuel system.

Wacker Neuson utilizes low-permeation fuel lines and fuel tanks where applicable to reduce evaporative emissions.

Problems that may affect Emissions

If any of the following symptoms arise, have the engine/equipment inspected and repaired by a Wacker Neuson dealer/service center.

- Hard starting or stalling after starting
- Rough idling
- Misfiring or backfiring under load
- Afterburning (backfiring)
- Presence of black exhaust smoke during operation
- High fuel consumption

Tampering and Altering

Tampering with or altering the emission control system may increase emissions beyond the legal limit. If evidence of tampering is found, Wacker Neuson may deny a warranty claim. Among those acts that constitute tampering are:

- Removing or altering of any part of the air intake, fuel, or exhaust systems.
- Altering or defeating the speed-adjusting mechanism causing the engine to operate outside its design parameters.

14.2 Limited Defect Warranty for Wacker Neuson Emission Control Systems

The Emission Control Warranty is valid only for the U.S.A., its territories, and Canada.

Wacker Neuson Sales Americas, LLC, N92 W15000 Anthony Avenue, Menomonee Falls, WI 53051, (hereinafter "Wacker Neuson") warrants to the initial retail purchaser, and each subsequent owner, that this engine/equipment, including all parts of its emission control systems, have been designed, built, and equipped to conform at the time of initial sale to all applicable emission regulations of the U.S.

Environmental Protection Agency (EPA), and that the engine/equipment is free of defects in materials and workmanship which would cause this engine/equipment to fail to conform to EPA regulations during its warranty period.

Wacker Neuson is also liable for damages to other engine/equipment components caused by a failure of any warranted parts during the warranty period.

**Limited Defect Warranty Period for Wacker Neuson Emission Control Systems**

The warranty period for this engine/equipment begins on the date of sale to the initial purchaser and continues for a minimum of two (2) years. For the warranty terms for your specific engine/equipment, visit wackerneuson.com.

Any implied warranties are limited to the duration of this written warranty.

What is covered

Wacker Neuson recommends the use of genuine Wacker Neuson parts, or the equivalent, whenever maintenance is performed. The use of replacement parts not equivalent to the original parts may impair the effectiveness of the engine/equipment emission controls systems. If such a replacement part is used in the repair or maintenance of the engine/equipment, assure yourself that such part is warranted by its manufacturer to be equivalent to the parts offered by Wacker Neuson in performance and durability. Furthermore, if such a replacement part is used in the repair or maintenance of the engine/equipment, and an authorized Wacker Neuson dealer/service center determines it is defective or causes a failure of a warranted part, the claim for repair of the engine/equipment may be denied. If the part in question is not related to the reason the engine/equipment requires repair, the claim will not be denied.

For the components listed in the following table, an authorized Wacker Neuson dealer/service center will, at no cost to you, make the necessary diagnosis, repair, or replacement necessary to ensure that the engine/equipment complies with the applicable EPA regulations. All defective parts replaced under this warranty become property of Wacker Neuson.

Exhaust Emissions

Systems Covered	Components
Fuel metering system	Carburetor and internal parts.
	Air/fuel ratio feedback system (if applicable).
	Cold start enrichment system (if applicable).
	Regulator assembly (if applicable).
Exhaust system	Catalytic muffler (if applicable).
	Exhaust manifold (if applicable).
Air induction system	Air filter housing.
	Air filter element.*
	Intake manifold (if applicable).
Ignition system	Flywheel magneto.
	Ignition module.
	Electronic controls (if applicable).
	Spark advance/retard system (if applicable).
	Spark plug cap.
Miscellaneous parts associated with the exhaust emission control system	Spark plug.*
	Tubing.
	Fittings.
	Seals.
	Gaskets.
	Clamps.
* Indicates expendable maintenance items. Warranted only to first scheduled replacement point.	

Evaporative Emissions

Systems Covered	Components
Evaporative control system	Fuel tank (if applicable).
	Fuel tank cap (if applicable).
	Fuel line (if applicable).
	Fuel line fittings (if applicable).
	Clamps (if applicable).
	Carbon canister (if applicable).
	Purge port connector (if applicable).
Miscellaneous parts associated with the evaporative emission control system	Clamps.
	Gaskets.
	Mounting brackets.

What is not covered

- Failures other than those resulting from defects in material or workmanship.
- Any systems or parts which are affected or damaged by owner abuse, tampering, neglect, improper maintenance, misuse, improper fueling, improper storage, accident and/or collision; the incorporation of, or any use of, add-on or modified parts, or unsuitable attachments, or the alteration of any part.
- Replacement of expendable maintenance items made in connection with required maintenance services after the item’s first scheduled replacement as listed in the maintenance section of the engine/equipment operator’s manual, such as spark plugs and filters.
- Incidental or consequential damages such as loss of time or the use of the engine/equipment, or any commercial loss due to the failure of the engine/equipment.
- Diagnosis and inspection charges that do not result in warranty-eligible service being performed.
- Any non-authorized replacement part, or malfunction of authorized parts due to use of non-authorized parts.

Owner’s Warranty Responsibility

The engine/equipment owner is responsible for the performance of the required maintenance listed in the Wacker Neuson engine/equipment operator’s manual. Wacker Neuson recommends that all receipts covering maintenance on the engine/equipment be retained, but Wacker Neuson cannot deny warranty coverage solely for the lack of receipts or for the failure to ensure the performance of all scheduled maintenance.

Normal maintenance, replacement, or repair of emission control devices and systems may be performed by any repair establishment or individual; however, warranty repairs must be performed by an authorized Wacker Neuson dealer/service center.

The engine/equipment must be presented to an authorized Wacker Neuson dealer/service center as soon as a problem exists. Contact Wacker Neuson Product Support Department (1-800-770-0957) or visit wackerneuson.com to find a dealer/service center in your area, or to answer questions regarding warranty rights and responsibilities.

**How to Make a Claim**

In the event that any emission-related part is found to be defective during the warranty period, you shall notify Wacker Neuson Product Support Department (1-800-770-0957, or technical.support@wackerneuson.com, or wackerneuson.com), and you will be advised of the appropriate dealer/service center where warranty repair can be performed. All repairs qualifying under this limited warranty must be performed by an authorized Wacker Neuson dealer/service center.

You must take your Wacker Neuson engine/equipment along with proof of original purchase date, at your expense, to the authorized Wacker Neuson dealer/service center during their normal business hours.

For owners located more than 100 miles from an authorized dealer/service center (excluding the states with high-altitude areas as identified in 40 CFR Part 1068, Appendix III), Wacker Neuson will pay for pre-approved shipping costs to and from an authorized Wacker Neuson dealer/service center.

Claims for repair or adjustment found to be caused solely by defects in material or workmanship will not be denied because the engine/equipment was not properly maintained and used.

The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.



EC Declaration of Conformity

Manufacturer

Wacker Neuson Produktion GmbH & Co. KG, Wackerstraße 6, D-85084 Reichertshofen

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Product

Product	BS50-2	BS60-2	BS70-2
Product type	Vibratory rammer		
Function of product	Soil compaction		
Item number	5100030591, 5100030596, 5100030592, 5100030597	5100030600, 5100030604, 5100037561, 5100039660	5100030607, 5100030609
Net installed power	1.7 kW	1.8 kW	2.0 kW
Measured sound power level	107 dB(A)	107 dB(A)	107 dB(A)
Guaranteed sound power level	108 dB(A)	108 dB(A)	108 dB(A)

Conformity assessment procedure

According to 2000/14/EC (2009-03), Enclosure VIII

Appointed body

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen (NB 0044)

Guidelines and standards

We hereby declare that this product complies with the relevant provisions and requirements of the following guidelines and standards:

2006/42/EC (2014-02), 2000/14/EC (2009-03), 2014/30/EU (2014-02), EN 55012 (2009-07),
EN 500-1 (2009-12), EN 500-4 (2011-02)

Person responsible for technical documents

Robert Räthsel,
Wacker Neuson Produktion GmbH & Co. KG, Wackerstraße 6, D-85084 Reichertshofen

Reichertshofen, 21/09/2017

Helmut Bauer
Managing Director



EC Declaration of Conformity

Manufacturer

Wacker Neuson Produktion GmbH & Co. KG, Wackerstraße 6, D-85084 Reichertshofen

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Product

Product	BS50-4	BS60-4	BS70-4
Product type	Vibratory rammer		
Function of product	Soil compaction		
Item number	5100030599	5100030606, 5100037562	5100030611
Net installed power	2.7 kW	2.7 kW	2.7 kW
Measured sound power level	107 dB(A)	107 dB(A)	107 dB(A)
Guaranteed sound power level	108 dB(A)	108 dB(A)	108 dB(A)

Conformity assessment procedure

According to 2000/14/EC (2009-03), Enclosure VIII

Appointed body

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen (NB 0044)

Guidelines and standards

We hereby declare that this product complies with the relevant provisions and requirements of the following guidelines and standards:

2006/42/EC (2014-02), 2000/14/EC (2009-03), 2014/30/EU (2014-02), EN 55012 (2009-07),
EN 500-1 (2009-12), EN 500-4 (2011-02)

Person responsible for technical documents

Robert Rättsel,
Wacker Neuson Produktion GmbH & Co. KG, Wackerstraße 6, D-85084 Reichertshofen

Reichertshofen, 19/09/2017

Helmut Bauer
Managing Director

