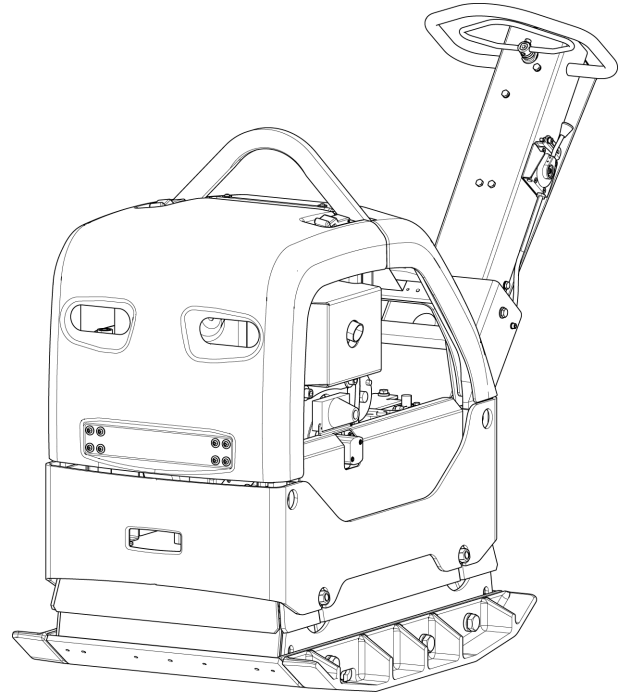


Safety and operating instructions

Forward and reversible plate



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Introduction

Thank you for choosing a product from Atlas Copco. Since 1873, we have been committed to finding new and better ways of fulfilling our customers' needs. Through the years, we have developed innovative and ergonomic product designs that have helped customers improve and rationalize their daily work.

Atlas Copco has a strong global sales and service network, consisting of customer centers and distributors worldwide. Our experts are highly trained professionals with extensive product knowledge and application experience. In all corners of the world, we can offer product support and expertise to ensure that our customers can work at maximum efficiency at all times.

For more information please visit: www.atlascopco.com

Construction Tools EOOD

7000 Rousse

Bulgaria

About the Safety and operating instructions

The aim of the instructions is to provide you with knowledge of how to use the machine in an efficient, safe way. The instructions also give you advice and tell you how to perform regular maintenance on the machine.

Before using the machine for the first time you must read these instructions carefully and understand all of them.

Safety instructions

To reduce the risk of serious injury or death to yourself or others, read and understand the Safety and operating instruction before installing, operating, repairing, maintaining, or changing accessories on the machine.

Post this Safety and operating instruction at work locations, provide copies to employees, and make sure that everyone reads the Safety and operating instruction before operating or servicing the machine. For professional use only.

In addition, the operator or the operator's employer must assess the specific risks that may be present as a result of each use of the machine.

Additional instructions for the engine can be found in the manufacturer's engine manual.

Safety signal words

The safety signal words Danger, Warning and Caution have the following meanings:

DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

Personal precautions and qualifications

Only qualified and trained persons may operate or maintain the machine. They must be physically able to handle the bulk, weight, and power of the machine. Always use your common sense and good judgement.

Personal protective equipment

Always use approved protective equipment. Operators and all other persons in the working area must wear protective equipment, including at a minimum:

- Protective helmet
- Hearing protection
- Impact resistant eye protection with side protection
- Respiratory protection when appropriate
- Protective gloves
- Proper protective boots

- Appropriate work overall or similar clothing (not loose-fitting) that covers your arms and legs.

Drugs, alcohol or medication

▲ **WARNING** Drugs, alcohol or medication

Drugs, alcohol or medication may impair your judgment and powers of concentration. Poor reactions and incorrect assessments can lead to severe accidents or death.

- ▶ Never use the machine when you are tired or under the influence of drugs, alcohol or medication.
- ▶ No person who is under the influence of drugs, alcohol or medication may operate the machine.

Operation, precautions

▲ **DANGER** Explosion hazard

If a warm machine or exhaust pipe comes into contact with explosives, an explosion could occur. During operating with certain materials, sparks and ignition can occur. Explosions will lead to severe injuries or death.

- ▶ Never operate the machine in any explosive environment.
- ▶ Never use the machine near flammable materials, fumes or dust.
- ▶ Make sure that there are no undetected sources of gas or explosives.
- ▶ Avoid contact with the warm exhaust pipe or the bottom of the machine.

▲ **DANGER** Fire hazard

If a fire starts in the machine, it can cause injury.

- ▶ If possible use an ABE-class powder extinguisher, otherwise use a BE-type carbon dioxide fire extinguisher.

▲ **DANGER** Fuel hazard

The fuel is flammable and fuel fumes can explode when ignited, causing serious injury or death.

- ▶ Protect your skin from contact with the fuel. If fuel has penetrated the skin, consult a qualified health professional.
- ▶ Never remove the filler cap, or fill the fuel tank when the machine is hot.
- ▶ Fill the fuel tank outdoors or in a clean and well ventilated place, free from sparks and open flames. Fill the fuel tank at least ten meters (30 feet) from the place where the machine is to be used.

- ▶ Release the filler cap slowly to let pressure escape.
- ▶ Never overfill the fuel tank.
- ▶ Make sure the filler cap is screwed on when the machine is used.
- ▶ Avoid spilling fuel on the machine, wipe off any spilled fuel.
- ▶ Check regularly for fuel leaks. Never use the machine if it is leaking fuel.
- ▶ Never use the machine in the proximity of material that can generate sparks. Remove all hot or spark-generating devices before starting the machine.
- ▶ Never smoke when filling the fuel tank or when working with the machine or servicing it.
- ▶ Only store fuel in a container that is specially constructed and approved for the purpose.
- ▶ Consumed fuel and oil containers must be taken care of and returned to the retailer.
- ▶ Never use your fingers to check for fluid leaks.

▲ WARNING Unexpected movements

The machine is exposed to heavy strains during operation. If the machine breaks or gets stuck, there may be sudden and unexpected movement that can cause injuries.

- ▶ Always inspect the machine prior to use. Never use the machine if you suspect that it is damaged.
- ▶ Make sure that the handle is clean and free of grease and oil.
- ▶ Keep your feet away from the machine.
- ▶ Never sit on the machine.
- ▶ Never strike or abuse the machine.
- ▶ Pay attention and look at what you are doing.

▲ WARNING Dust and fume hazard

Dusts and/or fumes generated or dispersed when using the machine may cause serious and permanent respiratory disease, illness, or other bodily injury (for example, silicosis or other irreversible lung disease that can be fatal, cancer, birth defects, and/or skin inflammation).

Some dusts and fumes created by compaction work contain substances known to the State of California and other authorities to cause respiratory disease, cancer, birth defects, or other reproductive harm.

Some examples of such substances are:

- Crystalline silica, cement, and other masonry products.
- Arsenic and chromium from chemically-treated rubber.
- Lead from lead-based paints.

Dust and fumes in the air can be invisible to the naked eye, so do not rely on eye sight to determine if there is dust or fumes in the air.

To reduce the risk of exposure to dust and fumes, do all of the following:

- ▶ Perform site-specific risk assessment. The risk assessment must include dust and fumes created by the use of the machine and the potential for disturbing existing dust.
- ▶ Use proper engineering controls to minimize the amount of dust and fumes in the air and to minimize build-up on equipment, surfaces, clothing, and body parts. Examples of controls include: exhaust ventilation and dust collection systems, water sprays, and wet drilling. Control dusts and fumes at the source where possible. Make sure that controls are properly installed, maintained and correctly used.
- ▶ Wear, maintain and correctly use respiratory protection as instructed by your employer and as required by occupational health and safety regulations. The respiratory protection must be effective for the type of substance at issue (and if applicable, approved by relevant governmental authority).
- ▶ Work in a well ventilated area.
- ▶ If the machine has an exhaust, direct the exhaust so as to reduce disturbance of dust in a dust filled environment.
- ▶ Operate and maintain the machine as recommended in the operating and safety instructions
- ▶ Wear washable or disposable protective clothes at the worksite, and shower and change into clean clothes before leaving the worksite to reduce exposure of dust and fumes to yourself, other persons, cars, homes, and other areas.

- ▶ Avoid eating, drinking, and using tobacco products in areas where there is dust or fumes.
- ▶ Wash your hands and face thoroughly as soon as possible upon leaving the exposure area, and always before eating, drinking, using tobacco products, or making contact with other persons.
- ▶ Comply with all applicable laws and regulations, including occupational health and safety regulations.
- ▶ Participate in air monitoring, medical examination programs, and health and safety training programs provided by your employer or trade organizations and in accordance with occupational health and safety regulations and recommendations. Consult with physicians experienced in relevant occupational medicine.
- ▶ Work with your employer and trade organization to reduce dust and fume exposure at the worksite and to reduce the risks. Effective health and safety programs, policies and procedures for protecting workers and others against harmful exposure to dust and fumes must be established and implemented based on advice from health and safety experts. Consult with experts.

▲ DANGER Exhaust gas hazard

The exhaust gas from the machine's combustion engine contains carbon monoxide which is poisonous, and chemicals known to the State of California and other authorities to cause cancer, birth defects, or other reproductive harm. Inhalation of exhaust fumes can cause serious injury, illness, or death.

- ▶ Never inhale exhaust fumes.
- ▶ Ensure good ventilation (extraction of air by fan if necessary).

▲ WARNING Battery hazard

The battery contains poisonous and corrosive sulphuric acid and can explode, this can cause injury.

- ▶ Never expose the battery to naked flames, sparks, strong heat, or anything else where there is a risk of explosion.
- ▶ Avoid getting acid on your skin, clothes or on the machine.
- ▶ Wear protective glasses to avoid getting acid in your eyes, if you get acid in your eyes rinse them with water for at least 15 minutes and seek immediate medical treatment.
- ▶ Never short-circuit the battery poles when fitting or replacing the battery.

▲ WARNING Projectiles

Failure of the work piece, of accessories, or even of the machine itself may generate high velocity projectiles. During operating, splinters or other particles from the compacted material may become projectiles and cause personal injury by striking the operator or other persons. To reduce these risk:

- ▶ Use approved personal protective equipment and safety helmet, including impact resistant eye protection with side protection.
- ▶ Make sure that no unauthorised persons trespass into the working zone.
- ▶ Keep the workplace free from foreign objects.

▲ WARNING Hydraulic system hazard

Hydraulic hoses are made of rubber and can deteriorate with age, with the consequent risk of splitting. This can cause injuries.

- ▶ Maintain the hydraulic system regularly.
- ▶ Whenever there are uncertainties as to durability and wear, replace hoses with new original hoses.

▲ WARNING Slope hazards

During operation, secure the machine so it can not fall if it is placed on a sloping ground. A fall can lead to severe accidents and result in personal injury.

- ▶ Always ensure that all personnel in the working area are higher up the slope than the machine.
- ▶ Always operate the machine straight up and down when placed on slopes.
- ▶ Never exceed the maximum recommended slope angle when operating the machine. Follow the recommendations.

▲ WARNING Motion hazards

When using the machine to perform work-related activities, you may experience discomfort in the hands, arms, shoulders, neck, or other parts of the body.

- ▶ Adopt a comfortable posture while maintaining secure footing and avoiding awkward off-balanced postures.
- ▶ Changing posture during extended tasks may help avoid discomfort and fatigue.
- ▶ In case of persistent or recurring symptoms, consult a qualified health professional.

▲ WARNING Vibration hazards

Normal and proper use of the machine exposes the operator to vibration. Regular and frequent exposure to vibration may cause, contribute to, or aggravate injury or disorders to the operator's fingers, hands, wrists, arms, shoulders and/or nerves and blood supply or other body parts, including debilitating and/or permanent injuries or disorders that may develop gradually over periods of weeks, months, or years. Such injuries or disorders may include damage to the blood circulatory system, damage to the nervous system, damage to joints, and possibly damage to other body structures.

If numbness, persistent recurring discomfort, burning sensation, stiffness, throbbing, tingling, pain, clumsiness, weakened grip, whitening of the skin, or other symptoms occur at any time, when operating the machine or when not operating the machine, stop operating the machine, tell your employer and seek medical attention. Continued use of the machine after the occurrence of any such symptom may increase the risk of symptoms becoming more severe and/or permanent.

Operate and maintain the machine as recommended in these instructions, to prevent an unnecessary increase in vibration.

The following may help to reduce exposure to vibration for the operator:

- ▶ If the machine has vibration absorbing handles, keep them in a central position, avoid pressing the handles into the end stops.
- ▶ When the percussion mechanism is activated, the only body contact with the machine you must have are your hands on the handle or handles. Avoid any other contact, for example supporting any part of the body against the machine or leaning onto the machine trying to increase the feed force.
- ▶ Make sure that the machine is well-maintained and not worn out.
- ▶ Immediately stop working if the machine suddenly starts to vibrate strongly. Before resuming the work, find and remove the cause of the increased vibrations.
- ▶ Participate in health surveillance or monitoring, medical exams and training programs offered by your employer and when required by law.
- ▶ When working in cold conditions wear warm clothing and keep hands warm and dry.

See the "Noise and vibration declaration statement" for the machine, including the declared vibration values. This information can be found at the end of these Safety and operating instructions.

▲ WARNING Trapping hazard

There is a risk of neck ware, hair, gloves, and clothes getting dragged into or caught by rotating machine parts. This may cause choking, scalping, lacerations, or death. To reduce the risk:

- ▶ Never grab or touch a rotating machine part.
- ▶ Avoid wearing clothing, neck ware or gloves that may get caught.
- ▶ Cover long hair with a hair net.

▲ DANGER Electrical hazard

The machine is not electrically insulated. If the machine comes into contact with electricity, serious injuries or death may result.

- ▶ Never operate the machine near any electric wire or other source of electricity.
- ▶ Make sure that there are no concealed wires or other sources of electricity in the working area.

▲ WARNING Concealed object hazard

During operating, concealed wires and pipes constitute a danger that can result in serious injury.

- ▶ Check the composition of the material before operating.
- ▶ Watch out for concealed cables and pipes for example electricity, telephone, water, gas, and sewage lines.
- ▶ If the machine seems to have hit a concealed object, switch off the machine immediately.
- ▶ Make sure that there is no danger before continuing.

▲ WARNING Involuntary start

Involuntary start of the machine may cause injury.

- ▶ Keep your hands away from the start and stop device until you are ready to start the machine.
- ▶ Learn how the machine is switched off in the event of an emergency.

▲ WARNING Noise hazard

High noise levels can cause permanent and disabling hearing loss and other problems such as tinnitus (ringing, buzzing, whistling, or humming in the ears). To reduce risks and prevent an unnecessary increase in noise levels:

- ▶ Risk assessment of these hazards and implementation of appropriate controls is essential.
- ▶ Operate and maintain the machine as recommended in these instructions.
- ▶ If the machine has a silencer, check that it is in place and in good working condition.
- ▶ Always use hearing protection.

Transport, precautions

▲ WARNING Loading and unloading hazard

When the machine is lifted by a crane and similar appliance, this can lead to injury.

- ▶ Use marked lifting points.
- ▶ Make sure that all lifting devices are dimensioned for the weight of the machine.
- ▶ Never remain under or in the immediate vicinity of the machine.

Maintenance, precautions

▲ WARNING Machine modification

Any machine modification may result in bodily injuries to yourself or others.

- ▶ Never modify the machine. Modified machines are not covered by warranty or product liability.
- ▶ Always use original parts and accessories approved by Atlas Copco.
- ▶ Change damaged parts immediately.
- ▶ Replace worn components in good time.

▲ WARNING Hot oil hazard

When changing the oil, oil filter or hydraulic oil on a hot machine, there is a risk of burns.

- ▶ Wait until the machine has cooled down before changing the oil.

▲ CAUTION High temperature

The machine's front cover, exhaust pipe, and hydraulic system become hot during operation. Touching them can lead to burns.

- ▶ Never touch a hot front cover.
- ▶ Never touch the hot exhaust pipe.
- ▶ Never touch the hydraulic system.
- ▶ Wait until the front cover, exhaust pipe, and bottom of the machine has cooled down before carrying out maintenance work.

NOTICE Any use of a quick-charger to charge the battery can shorten the life time of the battery.

Storage, precautions

- ◆ Keep the machine in a safe place, out of the reach of children and locked up.

Overview

To reduce the risk of serious injury or death to yourself or others, read the Safety instructions section found on the previous pages of this manual before operating the machine.

Design and function

LG forward and reversible plates are efficient compaction machines that are specially designed to compact medium to deep layers of granular soils in limited areas, such as trenches, parking lots, and foundations among other areas. No other use is permitted.

LG compactors must only be used in well ventilated areas, as is the case with all combustion engine machines.

The LG compactor must not be towed behind vehicles.

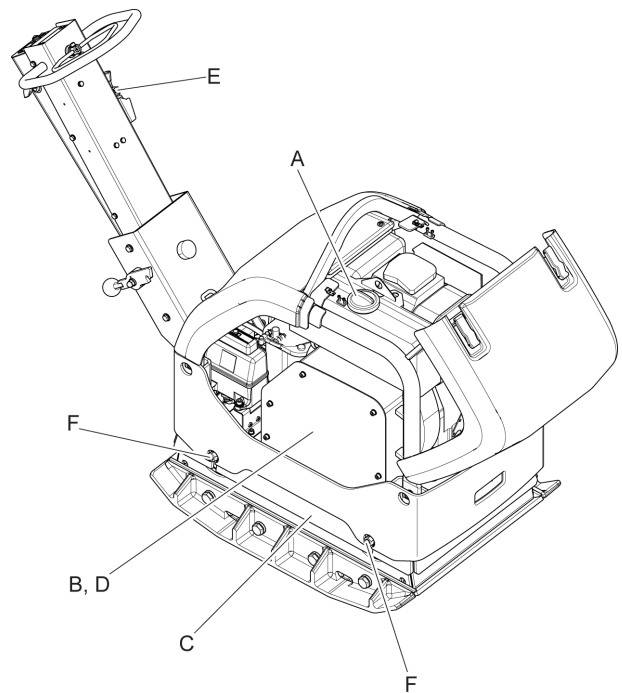
Do not operate on steeper slopes than recommended in this manual.

With a block paving kit they are also suitable for block paving applications.

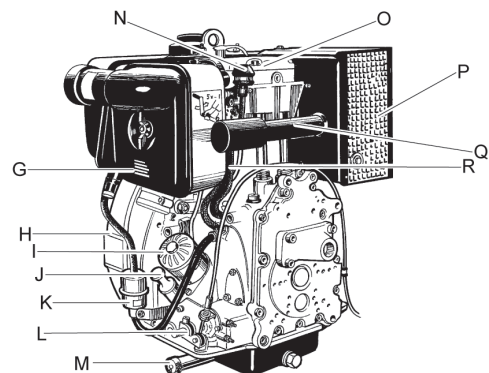
To choose the correct parts and kits, see the spare parts list.

For professional use only.

Main parts

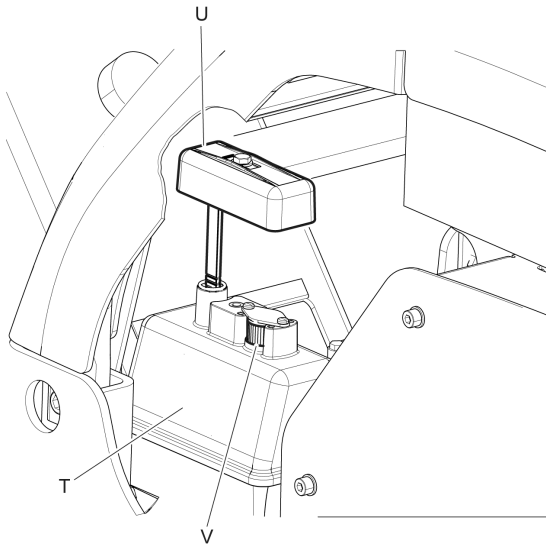
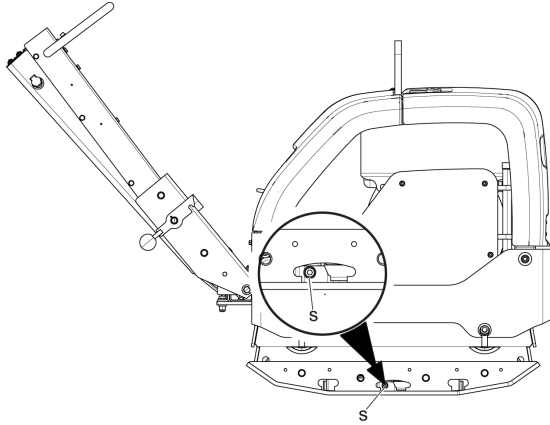


- A. Fuel tank
- B. Belt guard
- C. Eccentric element
- D. V-belt
- E. Throttle control
- F. Shock absorber



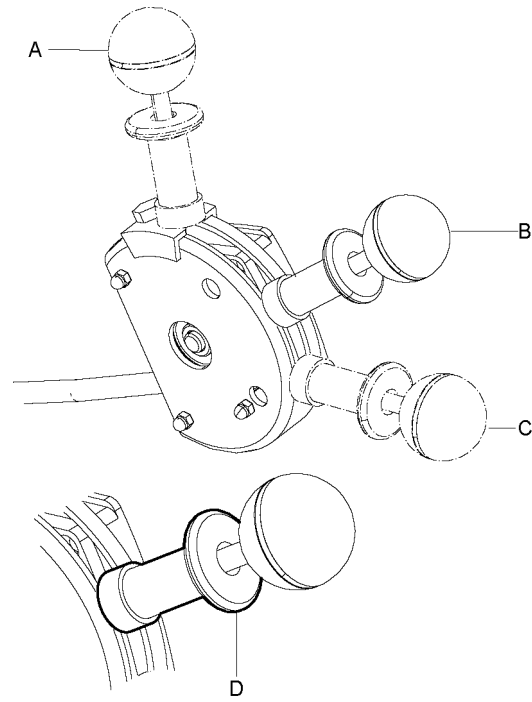
- G. Air filter
- H. Cooling system
- I. Oil filter
- J. Dipstick
- K. Fuel filter
- L. Engine RPM control
- M. Oil draining plug
- N. Air filter indicator

- O. Cylinder head cover
- P. Silencer
- Q. Exhaust pipe
- R. Injector pump
- S. Oil plug, eccentric element



- T. Hydraulic reservoir
- U. Dipstick, hydraulic fluid
- V. Breathing filter

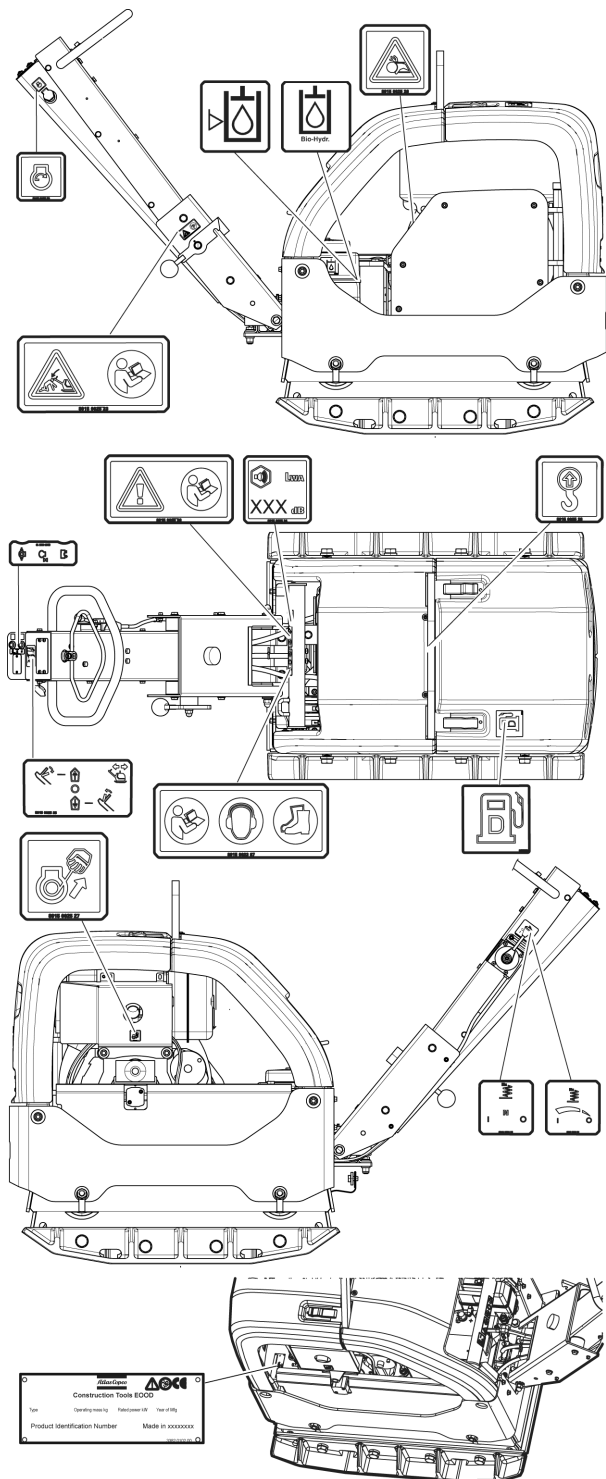
EPA (US Environmental Protection Agency) throttle control with three fixed positions.



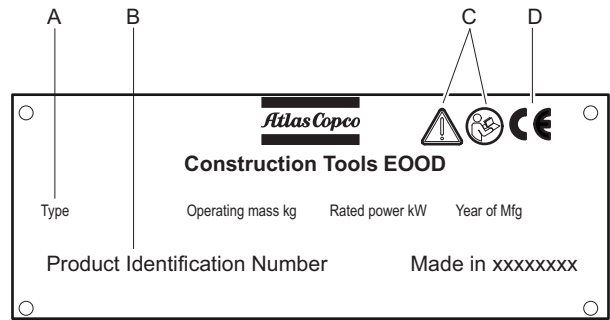
- A. Working mode position
- B. Start/Idling speed position
- C. Stop position
- D. Position lock

Labels

The machine is fitted with labels containing important information about personal safety and machine maintenance. The labels must be in such condition that they are easy to read. New labels can be ordered from the spare parts list.

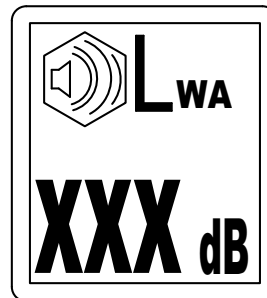


Data plate



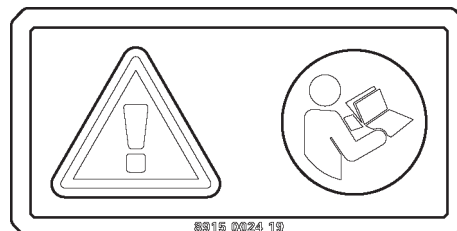
- A. Machine type
- B. Product Identification Number
- C. The warning symbol together with the book symbol means that the user must read the safety and operating instructions before the machine is used for the first time.
- D. The CE symbol means that the machine is EC-approved. See the EC Declaration of Conformity which is delivered with the machine for more information.

Noise level label



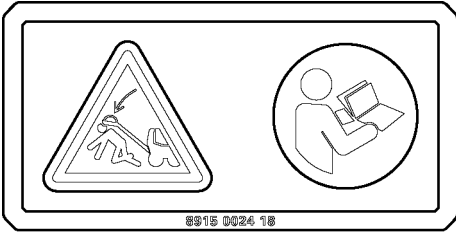
The label indicates the guaranteed noise level corresponding to EC-directive 2000/14/EC. See "Technical data" for accurate noise level.

Safety label, read the instruction manual



Instruction manual. The operator must read the safety, operation and maintenance instructions before operating the machine.

Safety label, handle locking



The handle must be locked when in the raised position. Read the instruction manual.

Safety label

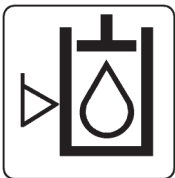


Rotating V-belts. Keep your hands at a safe distance from the danger zone.

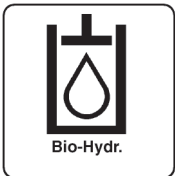
Lifting point label



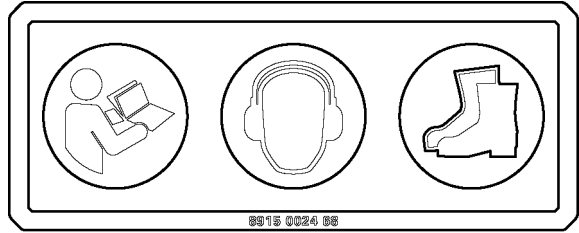
Hydraulic oil level label



Biological hydraulic oil label

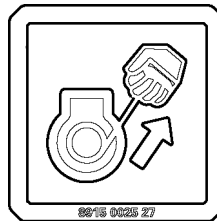


Safety label, read the instruction manual



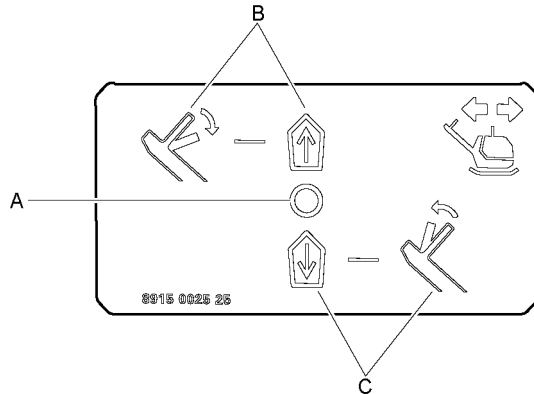
- ◆ Instruction manual. The operator must read the safety, operation and maintenance instructions before operating the machine.
- ◆ Use ear protectors.
- ◆ Use personal protective equipment.

Manual engine start label



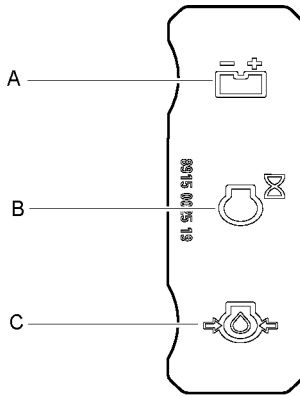
Read the safety, operation and maintenance instructions before starting the machine.

Operator panel label



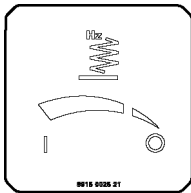
- A. Hydraulic valve lever, neutral position
- B. Forward direction
- C. Backward direction

Information label



- A. Control lamp, charging.
- B. Hour meter.
- C. Control lamp, engine oil pressure.

Throttle control label



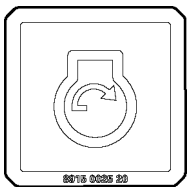
For standard throttle control.

Throttle control label



For EPA (US Environmental Protection Agency) throttle control with three fixed positions.

Electrical engine start label



Transport

Lifting the machine

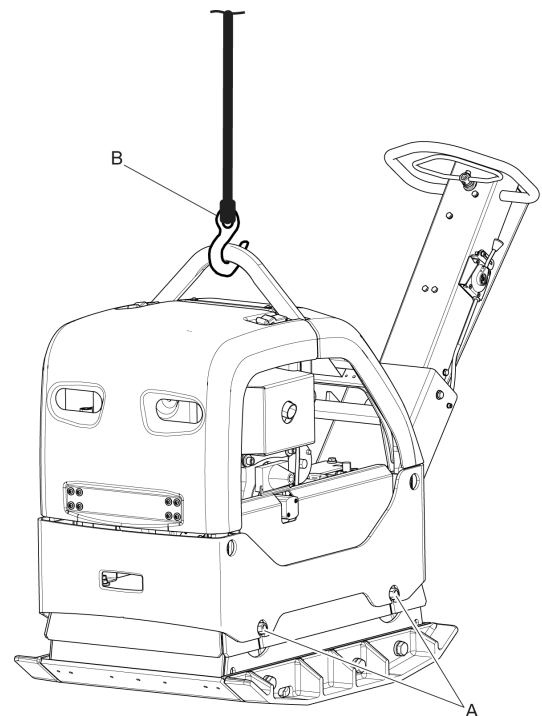
▲ WARNING Lifting hazard

Never lift the machine without checking if it is intact. A damaged machine can fall apart, which can result in serious injury.

- ▶ Check that all equipment are dimensioned in accordance with applicable regulations.
- ▶ Never tow the machine.
- ▶ Never walk or stand under a lifted machine.
- ▶ Only lift the machine by a hook on the frame.
- ▶ Check that the shock absorbers and safety frame are correctly attached and not damaged.
- ▶ Check that the safety straps are not damaged, change if necessary.
- ▶ Check the machine's data plate for weight information.

Lifting the machine

- ◆ Before lifting the machine check that the shock absorbers (A) and safety frame lifting point (B) are correctly attached and not damaged.
- ◆ Only use the safety frame lifting point (B) for lifting the machine.



Secure transport

▲ WARNING Transport hazard

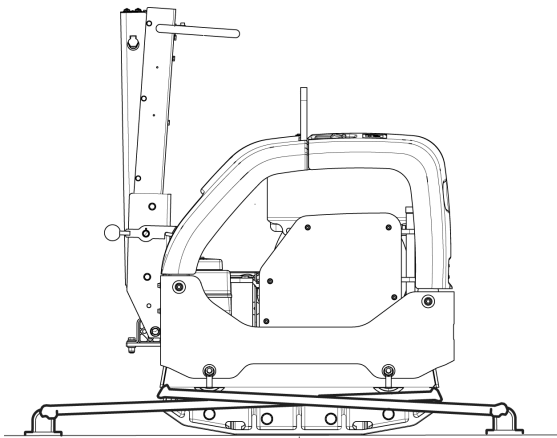
During transportation always strap the machine securely, otherwise it can cause injury.

- ▶ Place lashing straps in a U-shape around the bottom plate and secure both front and rear.
- ▶ Lock the handle

Secure transport

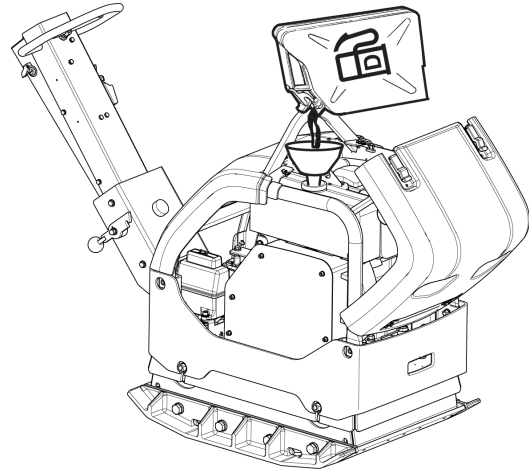
Secure the machine for all transportation.

- ◆ Place lashing straps (A) in a U-shape around the bottom plate and secure both front and rear.
- ◆ Lock the handle (B).



Filling procedure

1. Stop the engine and let it cool down before filling the tank.
2. Release the filler cap slowly to let any pressure escape.
3. Fill the fuel tank to the lower edge of the filler pipe.



4. Never overfill the tank. Due to the movement of the fuel within the tank, it is possible to have fuel at a higher level than the tank cap, which can lead to a spillage of fuel if the tank cap is opened. This can be avoided by only opening the tank cap when the machine is on level ground and the tank cap is at the fuel tank's highest point.

Installation

Fuel

Filling

▲ WARNING Fuel hazard

The fuel is extremely flammable and fuel fumes can explode when ignited, causing serious injury or death.

- ▶ Protect your skin from contact with the fuel.
- ▶ Never remove the filler cap or fill the fuel tank when the machine is hot.
- ▶ Never smoke when filling the fuel tank or when working with the machine or servicing it.
- ▶ Avoid spilling fuel and wipe off any fuel spilled on the machine.

Operation

▲ WARNING Engine running hazard

Vibrations from the engine can cause material changes, this can cause the machine to move and cause injuries.

- ▶ Never leave the machine with the engine running.
- ▶ Ensure that only authorized personnel operate the machine.

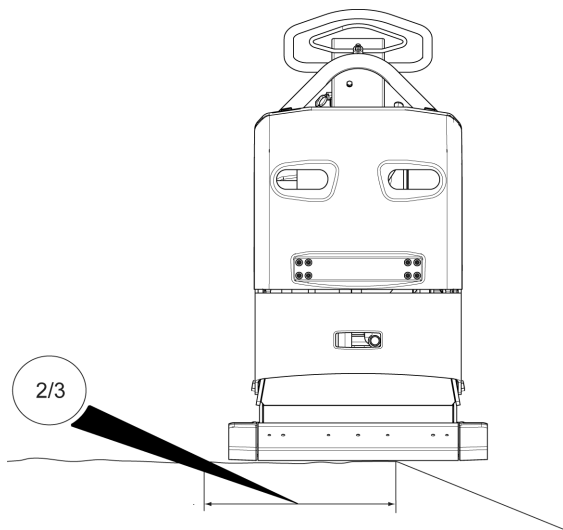
NOTICE When operating the machine, follow the instructions in the manual; never sit or stand on the machine when it is working.

Operating near edges

▲ WARNING Overturning hazard

When operating along edges, at least $\frac{2}{3}$ of the machine must be on a surface with full bearing strength, otherwise the machine can tip over.

- ▶ Switch off the machine and lift it back on surface with full bearing strength.



Operating on slopes

▲ WARNING Slope hazards

During operation, secure the machine so it can not fall if it is placed on a sloping ground. A fall can lead to severe accidents and result in personal injury.

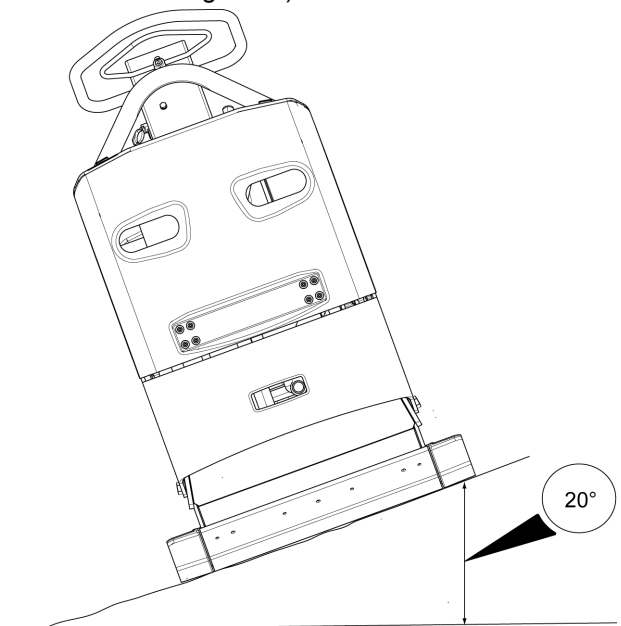
- ▶ Always ensure that all personnel in the working area are higher up the slope than the machine.
- ▶ Always operate the machine straight up and down when placed on slopes.
- ▶ Never exceed the maximum recommended slope angle when operating the machine. Follow the recommendations.

NOTICE Remember that loose ground, vibration switched ON, and driving speed can all cause the machine to tip over even on a lesser slope than specified here.

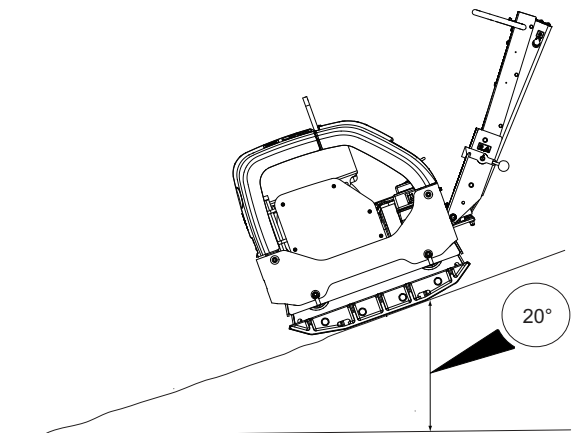
Operating on slopes

- ◆ Ensure that the work area is secure. Wet and loose earth reduces manoeuvrability especially on sloping ground. Always exercise extreme caution on sloping and uneven terrain.

- ◆ Never work on slopes that exceed the capabilities of the machine. The maximum slope of the machine in operation is 20° (depending on the condition of the ground).



- ◆ The tilting angle is measured on a hard level surface with the machine stationary. Vibration switched OFF and all tanks full.



Start and stop

▲ WARNING Sudden machine movement hazard

During the starting procedure when the hydraulic system is connected, the machine may move in either direction. If the machine moves, it may be sudden and this movement that can cause injuries.

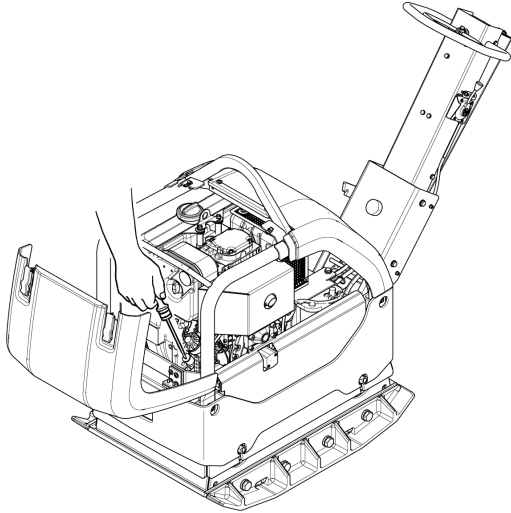
- ▶ Keep your feet away from the machine.
- ▶ Pay attention and look at what you are doing.

NOTICE During operation oil leaks can occur and bolted joints can come loose, this can cause engine breakdown.

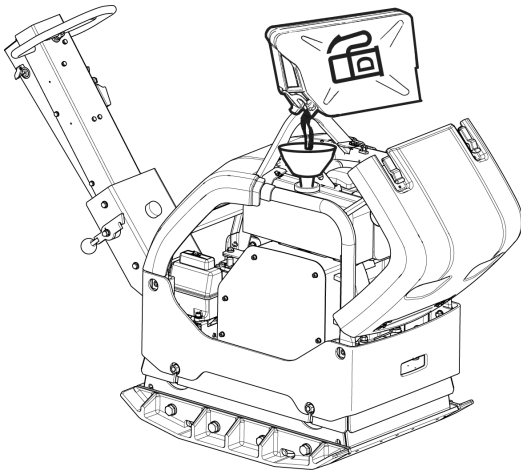
Before starting, Hatz

Follow the general safety precautions supplied with the machine at the delivery. We recommend that you study the engine manual supplied with the machine. Check that the maintenance routines have been carried out.

1. Check the engine oil level.



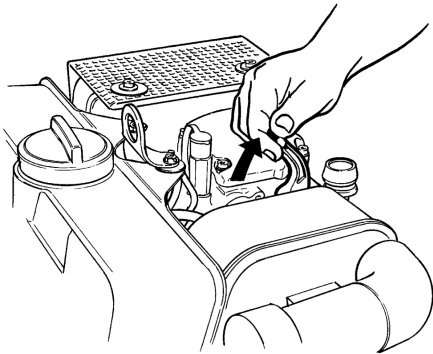
2. Fill the fuel tank with fuel.



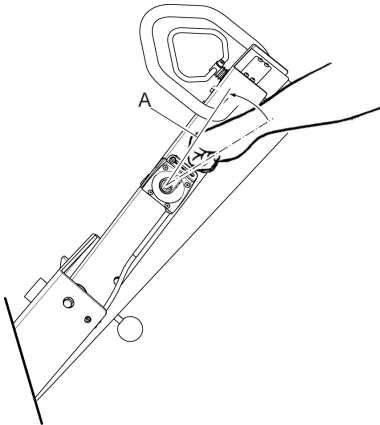
3. Check that all the controls are working.
4. Make sure that there is no oil leakage, and that all bolted joints are tightened.
5. When starting the engine, leave the throttle control in the idling position for a few minutes to warm up the engine without loading it.

Starting the engine, Hatz manual start

1. Pull up the automatic decompression device to start position.



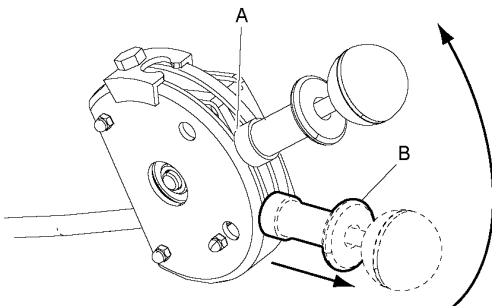
2. Move the throttle control handle to idling position.
For non EPA throttle control:
 Move the throttle control handle to half throttle, position (A).



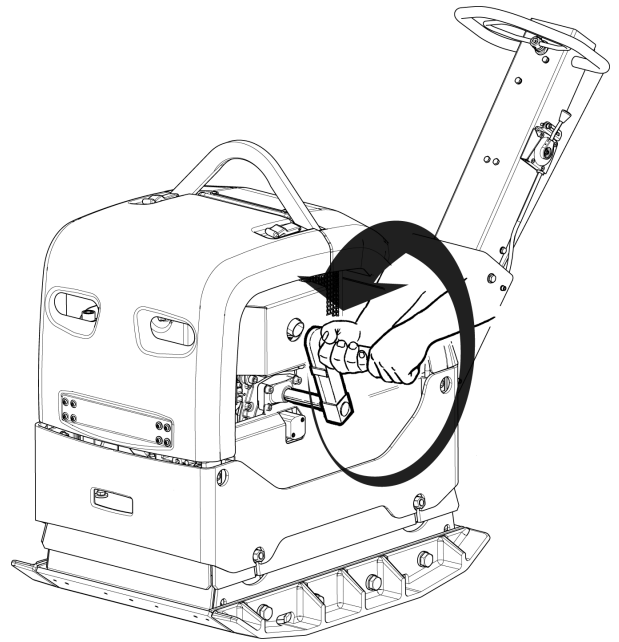
For EPA throttle control:

Pull up the stop (B) to release the throttle control handle. Move the throttle control handle to half throttle, position (A).

NOTICE The EPA throttle control has three fixed positions. Make sure the throttle control handle is in a fixed position.



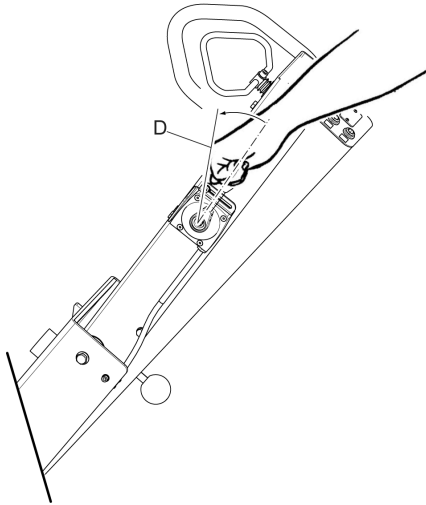
3. Rotate the start handle until the engine resists.



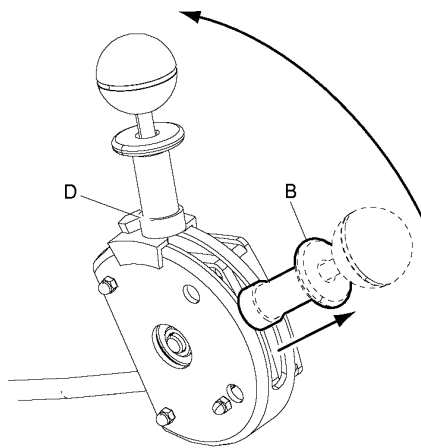
4. Allow the engine to idle for a few minutes.

5. Increase to full power by moving the throttle control to position (D).

For non EPA throttle control:



For EPA throttle control:

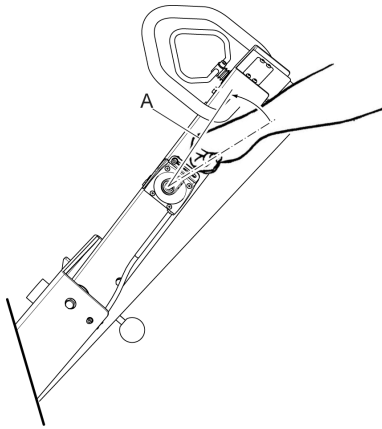


Starting the engine, Hatz electric start

1. Move the throttle control handle to idling position.

For non EPA throttle control:

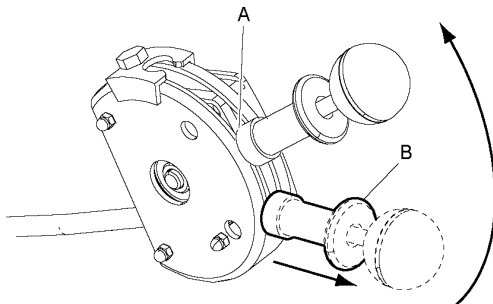
Move the throttle control handle to half throttle, position (A).



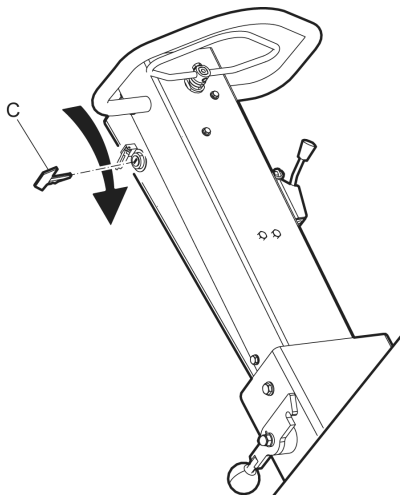
For EPA throttle control:

Pull up the stop (B) to release the throttle control handle. Move the throttle control handle to half throttle, position (A).

NOTICE The EPA throttle control has three fixed positions. Make sure the throttle control handle is in a fixed position.

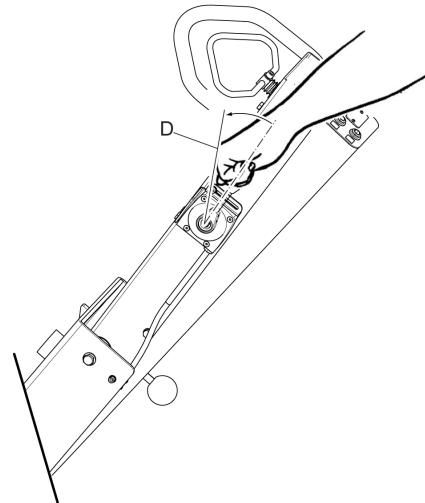


2. Turn the ignition key (C) to ignition position I. The control lamps for charging and oil pressure light up.

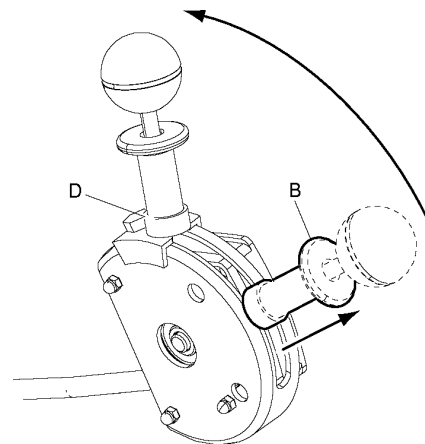


3. Turn the ignition key (C) through position II, to position III.
4. Release the ignition key as soon as the engine starts. (If the engine has not started in 10 seconds, wait a few seconds before trying again.)
5. Allow the engine to idle for a few minutes.
6. Increase to full power by moving the throttle control to position (D).

For non EPA throttle control:



For EPA throttle control:



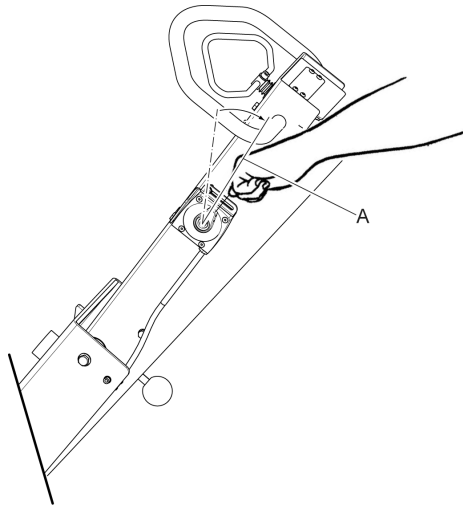
NOTICE If the engine fails to start; turn the ignition key to position 0, and wait 5 to 10 seconds before making a new attempt to start.

Stopping the engine, Hatz manual start

1. Move the throttle control handle to idling position.

For non EPA throttle control:

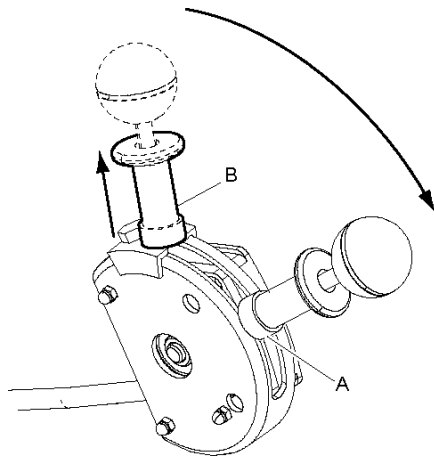
Move the throttle control handle to half throttle, position (A).



For EPA throttle control:

Pull up the stop (B) to release the throttle control handle. Move the throttle control handle to half throttle, position (A).

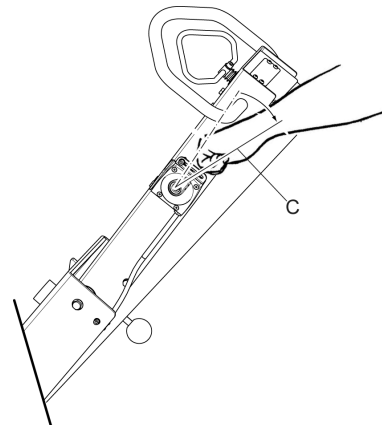
NOTICE The EPA throttle control has three fixed positions. Make sure the throttle control handle is in a fixed position.



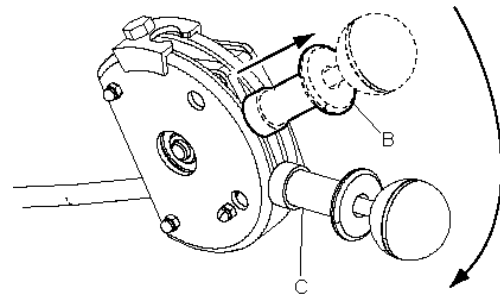
2. Allow the engine to idle for a few minutes.

3. Stop the engine by moving the throttle control handle to position (C).

For non EPA throttle control:



For EPA throttle control:

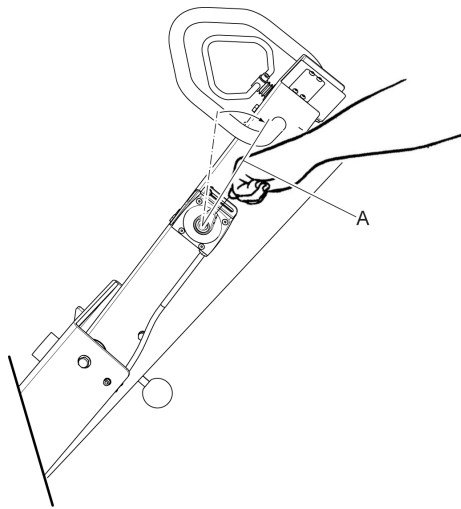


Stopping the engine, Hatz electric start

1. Move the throttle control to idling position.

For non EPA throttle control:

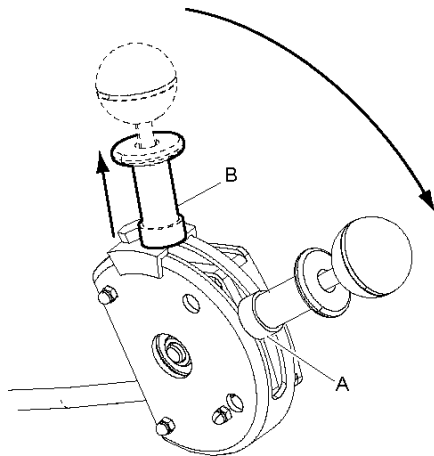
Move the throttle control handle to half throttle, position (A).



For EPA throttle control:

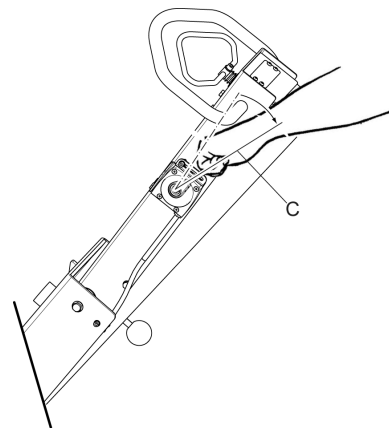
Pull up the stop (B) to release the throttle control handle. Move the throttle control handle to half throttle, position (A).

NOTICE The EPA throttle control has three fixed positions. Make sure the throttle control handle is in a fixed position.

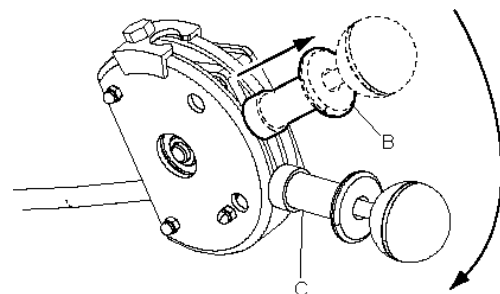


2. Allow the engine to idle for a few minutes.
3. Move the throttle control to the stop position (C).

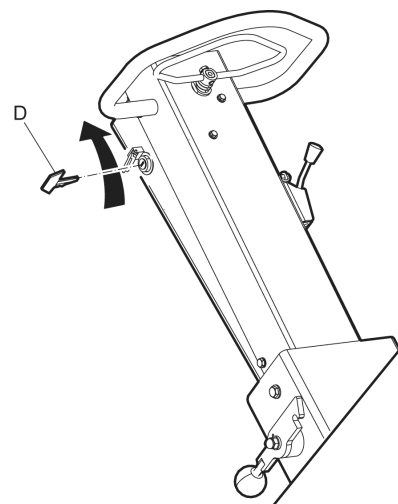
For non EPA throttle control:



For EPA throttle control:



4. Stop the engine by turning the ignition key (D) to position 0.

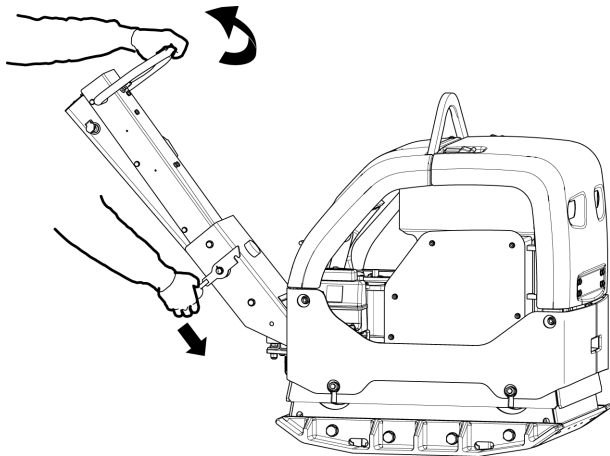


Operating

▲ DANGER Handle hazard

When changing the locking position, the handle must be held, otherwise it can cause injuries.

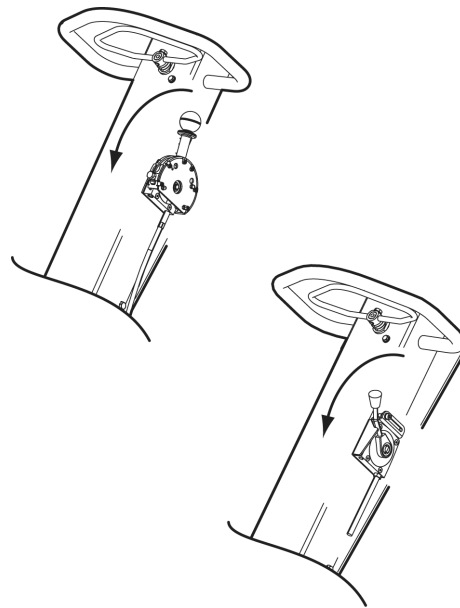
- ▶ Hold the handle.
- ▶ Lower the handle with caution.



NOTICE During compaction work the engine must always be run at full throttle.

Driving

Open throttle control fully.



◆ Forward operation:

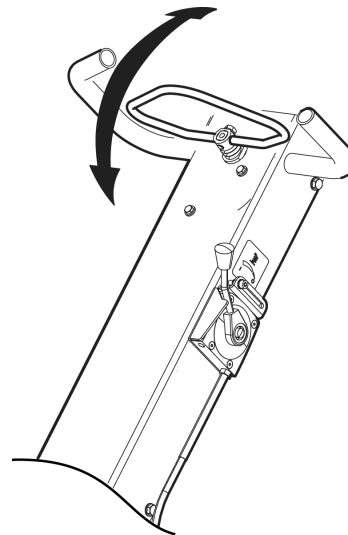
Move the forward and reverse control forwards with small movements.

◆ Reverse operation:

Move the forward and reverse control backwards with small movements.

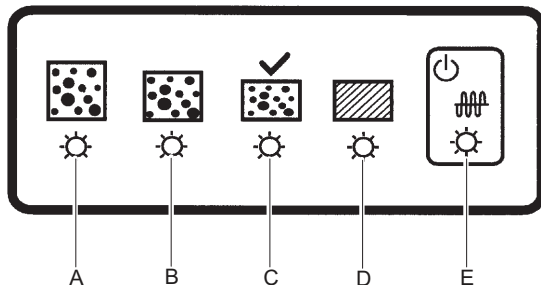
◆ Stationary:

Move the reverse control in the opposite direction until the machine is stationary.



CI - Compaction Indicator (Option)

NOTICE Operating with constant red indication (LED D) does not improve the compaction. Instead, such operation can be damaging for the machine.



- A. (Yellow) indicates a degree of compaction between 0 and 30%.
- B. (Yellow) indicates a degree of compaction between 30 and 60%.
- C. (Green) indicates a degree of compaction between 60 and 90%.
- D. Alternating indication between LEDs C (Green) and D (Red), shows that maximum compaction has been reached for the machine and ground surface.

(Red) the degree of compaction is between 90 and 100%.

Avoid operating with constant indication from LED D (Red).
- E. (Red/Green) power supply indicator.

When taking a break

- ◆ Stop the machine during breaks.
- ◆ During all breaks, put the machine away so that there is no risk for unintentional start.

Parking, electric start

Always park the machine on the most level ground. Before leaving it:

- ◆ Turn off the engine and pull out the ignition key.

Maintenance

Regular maintenance is a basic requirement for the continued safe and efficient use of the machine. Follow the maintenance instructions carefully.

- ◆ Before starting maintenance on the machine, clean it in order to avoid exposure to hazardous substances. See “Dust and fume hazard”.
- ◆ Use only authorised parts. Any damage or malfunction caused by the use of unauthorised parts is not covered by warranty or product liability.
- ◆ When cleaning mechanical parts with solvent, comply with appropriate health and safety regulations and ensure there is satisfactory ventilation.
- ◆ For major service of the machine, contact the nearest authorised workshop.
- ◆ After each service, check that the machine's vibration level is normal. If not, contact the nearest authorised workshop.

Battery charging

Use a voltage regulated battery charger (constant voltage). A switched two-stage charger with constant voltage is recommended. A two-stage charger automatically reduces the charging voltage (14.4 V) to trickle charging (13.3 V) when the battery is fully charged.

Battery storage and trickle charging

Never leave a machine with a discharged battery. A discharged battery freezes at a temperature of about -7°C (19F). A fully charged battery will freeze at -67°C (-89F). A battery that is not being used must be fully charged before being put aside.

Trickle charging is not normally required during a period of 6 to 8 months. If a battery has not been in use for a long period, it must be fully charged before being used. Trickle charging is recommended a couple of times during the season (especially in winter).

Every 10 hours of operation (daily)

NOTICE Check at full throttle each time the engine is started, that the filter indicator does not indicate that the filter is clogged.

Before undertaking any maintenance, turn the machine off.

- ◆ Inspect the machine before starting. Inspect the entire machine so that leakages or other faults are detected.
- ◆ Check the ground under the machine. Leakages are more easily detected on the ground than on the machine itself.

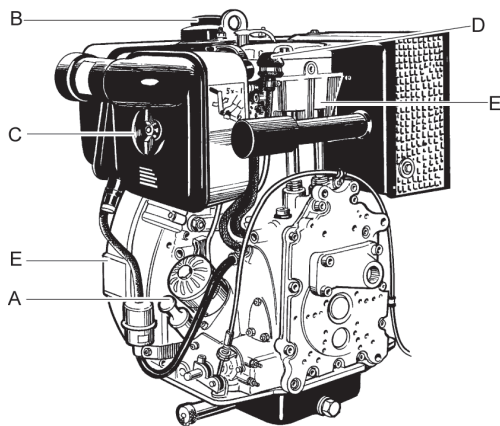
In order to ensure that the machine remains within the stated vibration level values, the following checks must be performed:

Maintenance routines:

- ◆ Check and replenish fuel.
- ◆ Check and replenish lube oil.
- ◆ Check for oil leaks.
- ◆ Clean and refit air filter.
- ◆ Check the tightness of all nuts and bolts.
- ◆ Keep the machine clean.
- ◆ Check and clean the engine's cooling flanges. See the engine manual for more information.
- ◆ Check the engine's air filter indicator. See the engine manual for more information.
- ◆ Check that the controls are not damaged or do not jam.

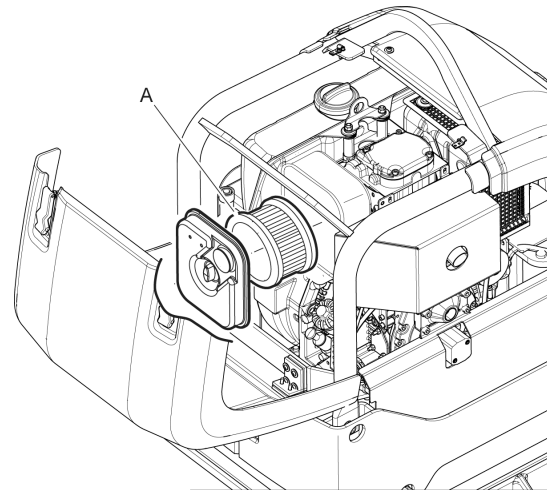
Checking the engine

1. Stop the engine and wait for a few minutes. The machine must be horizontal.
2. Clean around the dipstick (A).
3. Check the oil level with the dipstick (A), fill up if necessary.
4. Check the fuel level (B).
5. Check for oil leakage.
6. Check the air filter (C) replace if necessary.
7. Check the air filter indicator (D).
8. Check the engine's cooling system (E) and cooling flanges. Clean if necessary.



Checking the air filter

- ◆ Check the engine air filter (A).

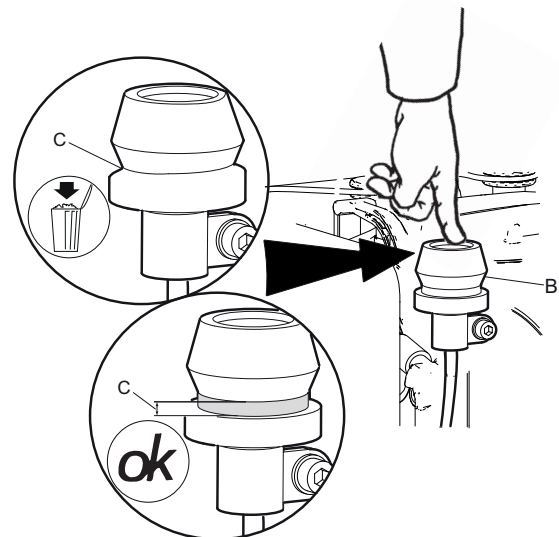


- ◆ If the engine air filter is contaminated by dry dust, tap it against the palm of the hand until all loose dust is dislodged.
- ◆ If the engine air filter is wet or oily, replaced it by a new filter.

Air filter indicator

NOTICE Each time the engine is started, run the machine at full throttle and check the filter indicator if the filter is clogged.

1. Press down the air filter indicator (B).



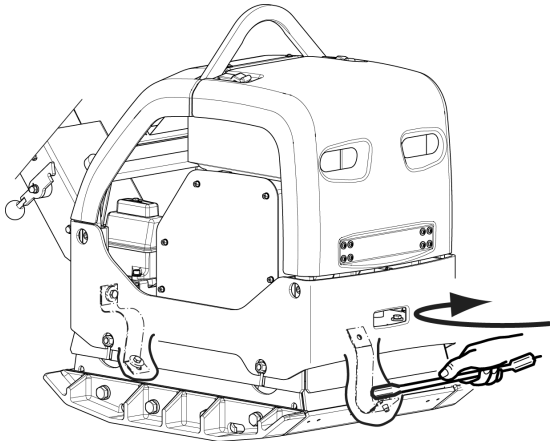
2. If the air filter indicator (B) goes up again so the green mark (C) is visible, the air filter is OK do not need any maintenance.

If the air filter indicator (B) stays down so the green mark (C) is hidden, the air filter needs to be cleaned or changed.

See the engine manual for more information.

Checking the safety straps

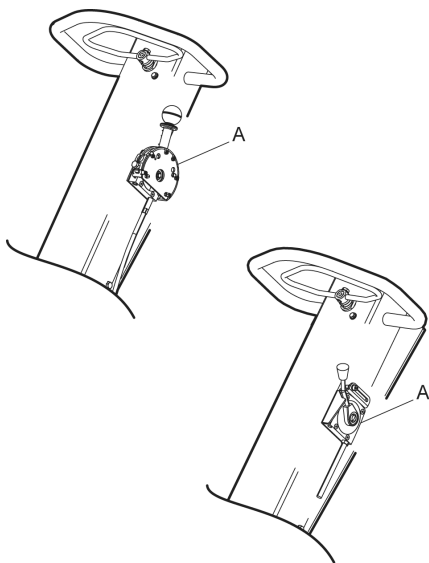
- ◆ Check the safety straps on the front and back of the machine. Replace if they are damaged.



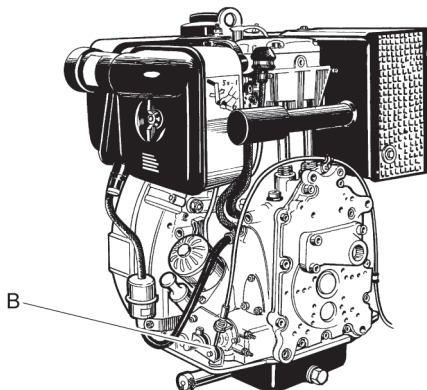
- ◆ Check the screws and nuts on the safety straps, if necessary tighten or replace.

Check the machine's controls

1. Check that the throttle control (A) is not damaged and does not jam.



2. Lubricate the controls (A, B) if necessary.



Cleaning the machine

- ◆ Do not spray water directly onto electrical components or the instrument panel.
- ◆ Place a plastic bag over the fuel filler cap and secure with a rubber band. (This will prevent water from entering the venting hole in the filler cap. Otherwise this could cause operational disturbances, such as clogged filters.)

NOTICE Never aim a water jet directly at the fuel filler cap. This is particularly important when using a high-pressure cleaner.

After the first 20 hours of operation

Maintenance routines:

- ◆ Change the engine oil. See the engine manual for more information.
- ◆ Clean and refit air filter.
- ◆ Check the engine speed.
- ◆ Check and adjust valve clearances. See the engine manual for more information.

Every 100 hours of operation

Maintenance routines:

- ◆ Check the shock absorbers.
- ◆ Check the engine speed.
- ◆ Check the V-belt.

▲ CAUTION Cover the V-belt

Running a machine without the protective cover over the V-belt may cause trapping or machine damage, which can cause injury.

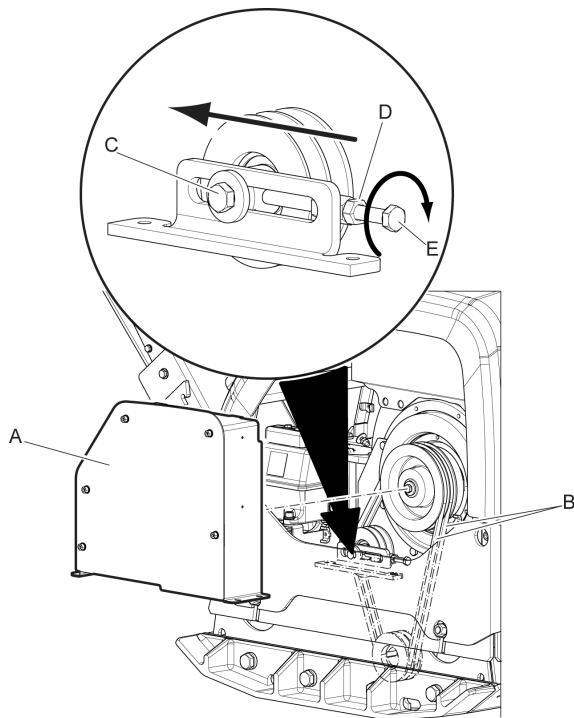
- ▶ Never run the machine without the protective cover over the V-belt.
- ▶ Stop the engine before removing the protective cover.

Checking the V-belt

The V-belt must be checked and adjusted by authorized service personnel.

NOTICE An over tensioned v-belt can damage the machine.

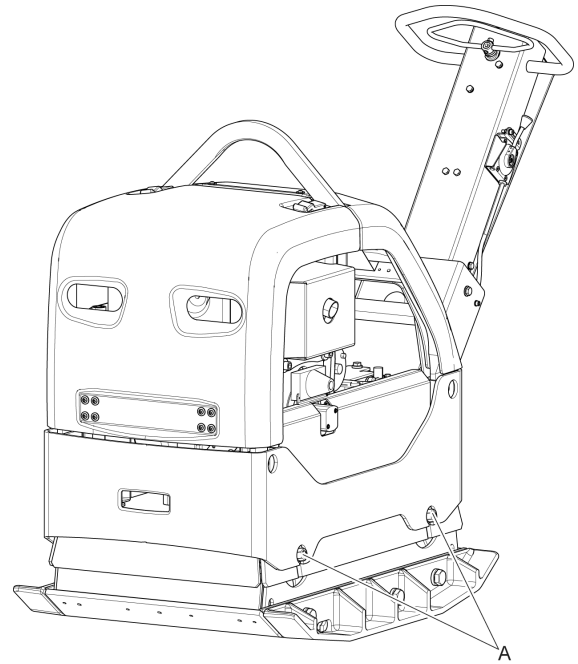
1. Remove the protective cover (A).
2. Check if the V-belt (B) is damaged, change if necessary.



3. If the V-belt tension needs adjusting, release the belt tensioner (C) and the lock nut (D).
4. Adjust the belt tightener with the adjustment screw (E) .
5. Tighten the screw on the tensioner (C) and the lock nut (D).
6. Reinstall the protective cover (A).

Checking the shock absorbers

1. Check all the shock absorbers (A) for cracks or if they are exhausted. There are two shock absorbers (A) on each side of the machine.



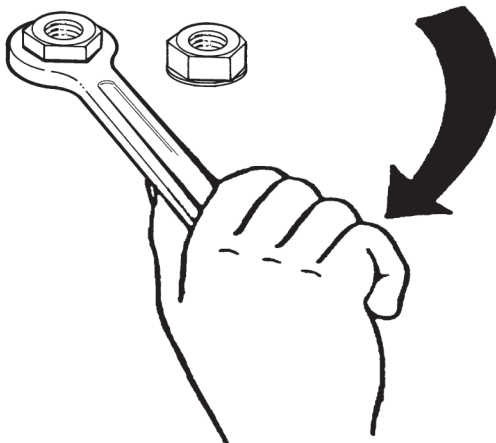
2. Change the shock absorbers (A) if they are damaged.

Every 250 hours of operation (every month)

Maintenance routines:

- ◆ Change the engine oil and replace the oil filter. See the engine manual for more information.
- ◆ Clean the air filter housing and replace the air filter on the engine.
- ◆ Check and adjust engine valve clearances. See the engine manual for more information.
- ◆ Check and clean the engine air cooling system. See the engine manual for more information.
- ◆ If a battery is fitted, check the battery connections.
- ◆ If operating is during high ambient temperature, or intensive use of the machine, change the oil in the eccentric element.

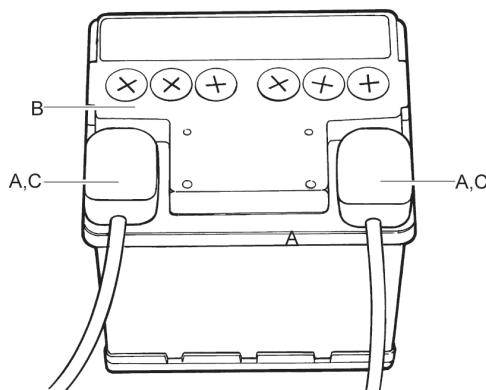
Checking bolted joint



Check and if necessary tighten screws and nuts.

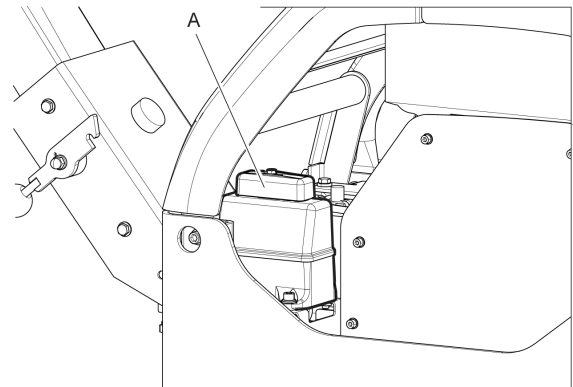
Checking the battery

1. Disconnect the battery cables (A).
2. Check that the battery (B) is not damaged.
3. Clean the battery terminals (C).
4. Refit the battery cables (A).



Hydraulic system, checking the hydraulic oil level

1. Check the hydraulic oil level by using the dipstick (A).



2. Fill up with hydraulic oil if necessary, see chapter "Hydraulic system, changing the hydraulic oil".

Every 500 hours of operation (yearly)

Maintenance routines:

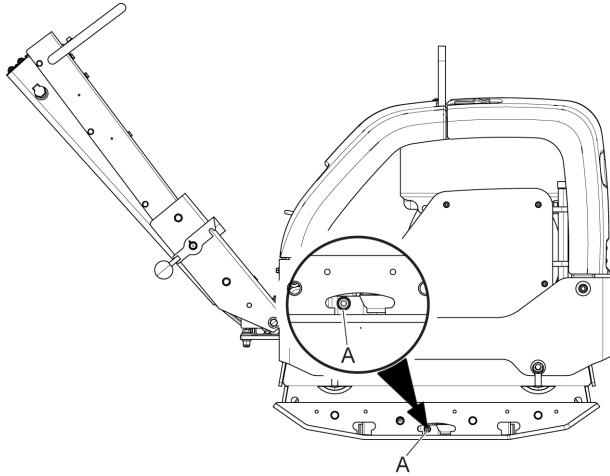
- ◆ Adjust valve head clearance for intake and exhaust valves. See the engine manual for more information.
- ◆ Clean and check the fuel filter and fuel tank. See the engine manual for more information.
- ◆ Replace the air filter.
- ◆ Clean the engine's cooling flanges. See the engine manual for more information.
- ◆ Check the fuel injection pump. See the engine manual for more information.
- ◆ Check the fuel injection nozzle. See the engine manual for more information.
- ◆ Change the oil in the engine. See the engine manual for more information.
- ◆ Drain the fuel system of water. See the engine manual for more information.
- ◆ Replace the fuel filter. See the engine manual for more information.
- ◆ Change the oil filter. See the engine manual for more information.
- ◆ Changing the oil in the eccentric element.
- ◆ Hydraulic system, changing the hydraulic oil.

Changing the oil in the eccentric element

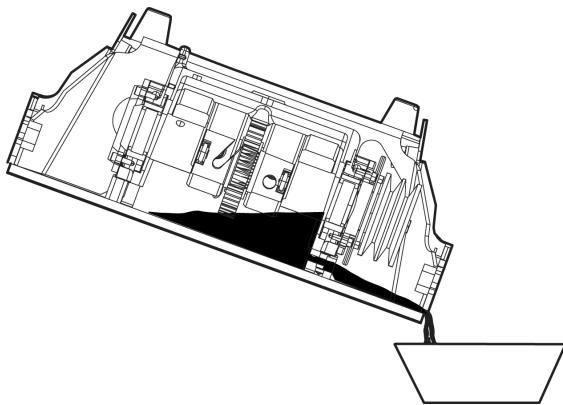
Drain the oil from the eccentric element by doing one of the following ways:

Tilting the machine

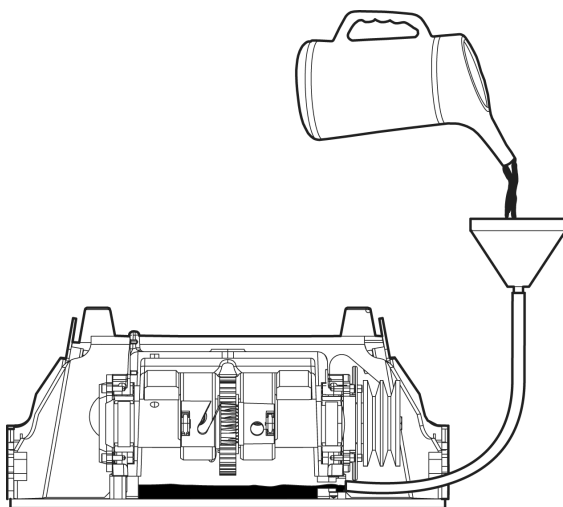
1. Loosen the filler plug (A).



2. Tilt the machine.



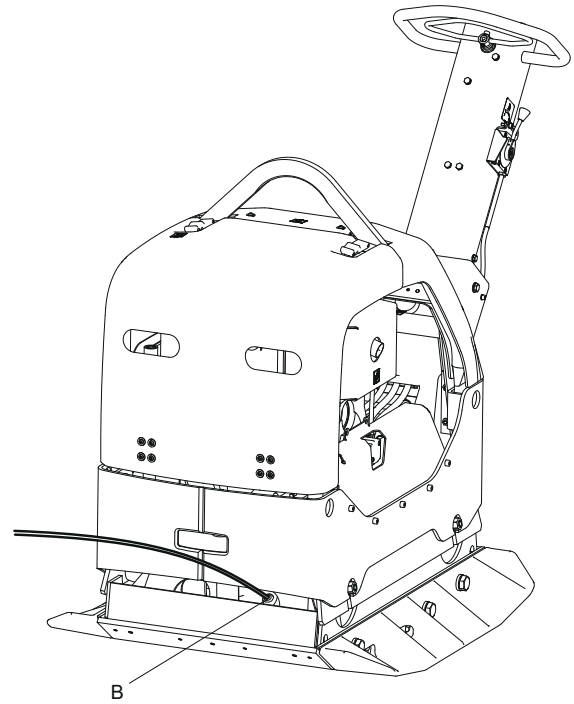
3. Clean the sealing surfaces.
4. Level the machine and fill with oil.



5. Screw in the filler plug.

Using a suction pipe (optional equipment)

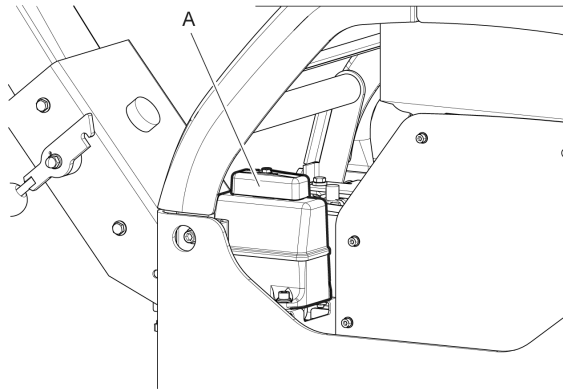
6. Loosen the sheet metal in front of the plug (B) by unscrew two screws.



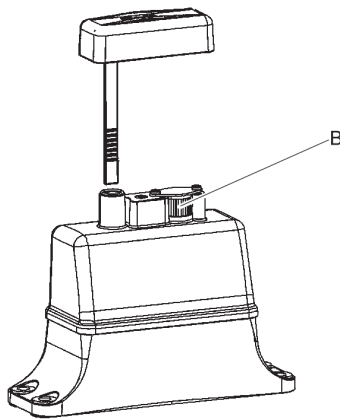
7. Loosen the plug (B) and add a suction pipe and drain the oil.
8. Clean the sealing surfaces.
9. Fill the machine with oil.
10. Screw in the plug (B) and refit the sheet in metal by screw in the screws.

Hydraulic system, changing the hydraulic oil

1. Remove the dipstick (A).



2. Use an oil suction pipe to empty the hydraulic oil from the tank.
3. Clean the tank opening and breather filter (B).



4. Fill with new hydraulic oil.
5. Refit the dipstick (A).

Disposal

A used machine must be treated and disposed of in such a way that the greatest possible portion of the material can be recycled and any negative influence on the environment is kept as low as possible, and in accordance with local restrictions.

Before a fuel driven machine is deposited it must be emptied and cleaned of all oil and fuel. Remaining oil and fuel must be dealt with in a way that does not adversely affect the environment.

Always send used filters, drained oil and fuel remnants to environmentally correct disposal.

Storage

- ◆ Empty the fuel tank before storing the machine.
- ◆ Clean the machine.
- ◆ Clean the air filter.
- ◆ Wipe off any oil and dust that has accumulated on the rubber parts.
- ◆ Cover the machine and store it in a dry, dust-free area.

Technical data

Machine data

	Hatz, manual start	Hatz, electric start	Hatz EPA, electric start
Engine			
Type	Hatz 1 D81Z 4-stroke	Hatz 1 D81Z 4-stroke	Hatz 1 D81Z 4-stroke
Power, kW (hp)	9.2 (12.3)	9.2 (12.3)	9.2 (12.3)
Rated speed, r.p.m.	2,550	2,550	2,550
Performance			
Operating speed, m/min (feet/min)	30 (98.4)	30 (98.4)	30 (98.4)
Maximum tilt, °	20	20	20
Compaction data			
Vibration frequency, Hz (r.p.m.)	69 (4,140)	69 (4,140)	69 (4,140)
Centrifugal force, kN (lbf)	65 (14,612)	65 (14,612)	65 (14,612)
Amplitude, mm (in.)	2.4 (0.064)	2.4 (0.064)	2.4 (0.064)
Fluid volumes			
Fuel tank, litres (qts)	7.0 (7.40)	7.0 (7.40)	7.0 (7.40)
Crank case, litres (qts)	2.0 (2.11)	2.0 (2.11)	2.0 (2.11)
Hydraulic fluid, litres (qts)	1.0 (1.06)	1.0 (1.06)	1.0 (1.06)
Eccentric element, litres (qts)	0.7 (0.74)	0.7 (0.74)	0.7 (0.74)
Lubricants			
Engine oil	Atlas Copcos IMPACT-OIL or Atlas Copcos PAROIL E Mission Green		
Eccentric element oil	Atlas Copcos IMPACT-OIL or Atlas Copcos PAROIL E Mission Green		
Hydraulic fluid	Shell Tellus S2 V32		
Biological hydraulic fluid	Shell Naturelle HFEX 46		
Fuel	Hatz: Use diesel oil that complies with EN 590 or DIN 51601.		
Fuel consumption, litres/hour (qts/h)	1.8 (1.9)	1.8 (1.9)	1.8 (1.9)
Electrical system			
Battery type	-	Lead-acid battery	Lead-acid battery
Battery voltage	-	12V/48Ah	12V/48Ah
Alternator, type	-	Magnetic ring fitted on engine flywheel	Magnetic ring fitted on engine flywheel
Alternator capacity (W)	-	350	350
Starter motor	-	12V/2.0 kW	12V/2.0 kW
Lamp type, oil pressure	-	LED, red 12V/16mA	LED, red 12V/16mA
Lamp type, operation	-	LED, red 12V/16mA	LED, red 12V/16mA
Charging relay	-	12V	12V
Weights			
Weight, base plate for extensions, kg (lb)	447 (985.5)	467 (1,029.6)	496 (1,093.5)
Operating weight EN500, base plate for extensions, kg (lb)	449.5 (991)	469.5 (1,035.1)	498.5 (1,099)
Weights, accessories			
Extensions 2 units per machine, 2 x 150mm (5.9 in.) kg (lb)	40 (88.2)	40 (88.2)	40 (88.2)
Block paving set, width 750 mm, kg (lb)	10 (22)	10 (22)	10 (22)
Block paving set, width 850 mm, kg (lb)	11 (24.6)	11 (24.6)	11 (24.6)

Noise and vibration declaration statement

Guaranteed sound power level **L_w** according to EN ISO 3744 in accordance with directive 2000/14/EC.

Sound pressure level **L_p** according to EN ISO 11201, EN 500-4.

Vibration value determined according to EN 500-4. See table "Noise and vibration data" for the values etc.

These declared values were obtained by laboratory type testing in accordance with the stated directive or standards and are suitable for comparison with the declared values of other machines tested in accordance with the same directive or standards. These declared values are not suitable for use in risk assessments and values measured in individual work places may be higher. The actual exposure values and risk of harm experienced by an individual user are unique and depend upon the way the user works, in what material the machine is used, as well as upon the exposure time and the physical condition of the user, and the condition of the machine.

We, Construction Tools EOOD, cannot be held liable for the consequences of using the declared values, instead of values reflecting the actual exposure, in an individual risk assessment in a work place situation over which we have no control.

This machine may cause hand-arm vibration syndrome if its use is not adequately managed. An EU guide to managing hand-arm vibration can be found at <http://www.humanvibration.com/humanvibration/EU/VIBGUIDE.html>

We recommend a programme of health surveillance to detect early symptoms which may relate to vibration exposure, so that management procedures can be modified to help prevent future impairment.

Noise and vibration data

Type	Noise			Vibration	
	Declared values			Declared values	
	Sound pressure	Sound power		Three axes values	
	EN ISO 11201	2000/14/EC		EN 500-4	
	L _p at operator's ear	L _w guaranteed dB(A) rel 1pW	L _w measured dB(A) rel 1pW	m/s ² value	permitted working hours/day
LG 504 electric	96	109	108	2.5	8

Permitted working hours per day are calculated on action value of 2.5 m/s² as per 2002/44/EC.

Uncertainties, sound value

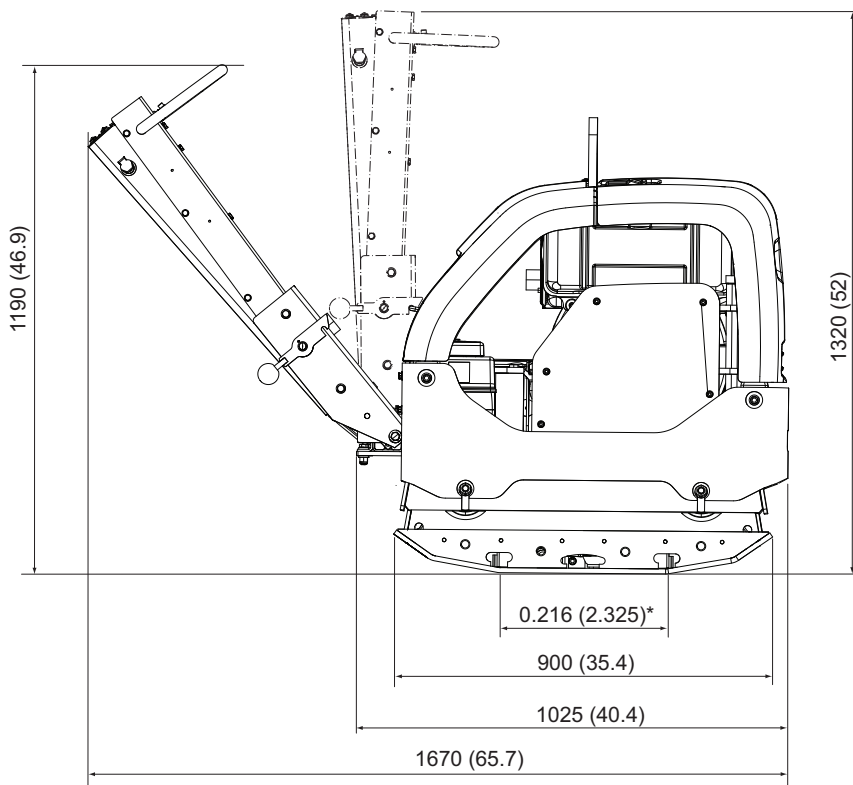
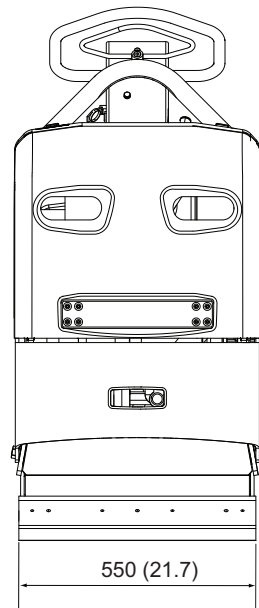
Type	Uncertainties, sound value	
	K _{wa} dB(A)	K _{pa} dB(A)
LG 504 electric	1.5-2.5	2.5-3.0

Uncertainty factor for gravel bed.

Dimensions (without extensions)

mm (in.)

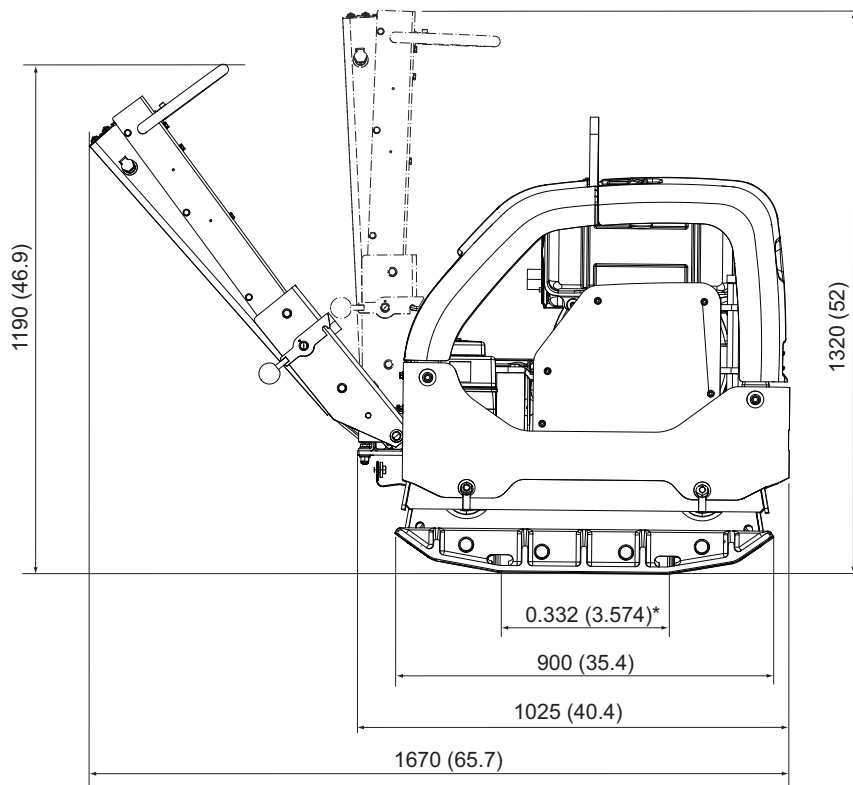
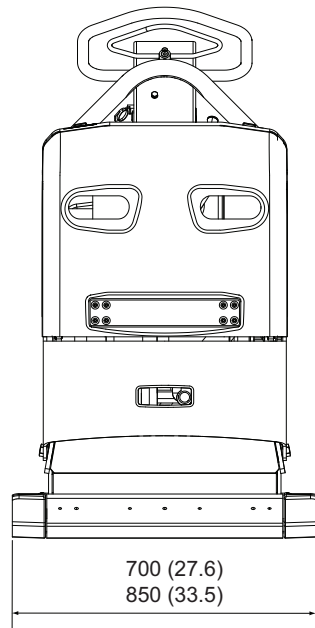
*Contact area, m² (sq feet).



Dimensions (with extensions)

mm (in.)

*Contact area, m² (sq feet).



EC Declaration of Conformity

EC Declaration of Conformity (EC Directive 2006/42/EC)

We, Construction Tools EOOD, hereby declare that the machines listed below conform to the provisions of EC Directive 2006/42/EC (Machinery Directive) and 2000/14/EC (Noise Directive), and the harmonised standards mentioned below.

Machines	Guaranteed sound power level [dB(A)]	Measured sound power level [dB(A)]
LG 504 Electric	109	108

Following harmonised standards were applied:

- ◆ EN500-1 +A1
- ◆ EN500-4

Following other standards were applied:

- ◆ 2000/14/EC, appendix VIII
- ◆ 2004/108/EC

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Rousse, 2015-11-24

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