

Husqvarna, 2018-03-12

### **Safety and Operating Instructions**

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The Husqvarna Group is vouching for the quality of this product.

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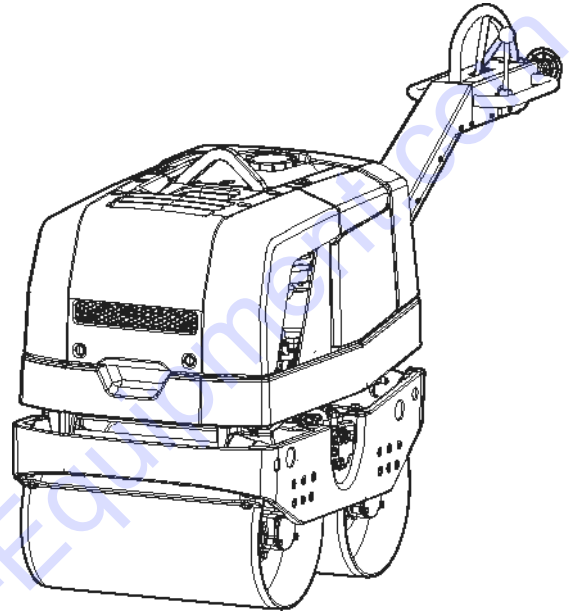
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## Safety and operating instructions Duplex roller



# Contents

Introduction.....	5
About the Safety and operating instructions.....	5
<b>Safety instructions.....</b>	6
<b>Safety signal words.....</b>	6
<b>Personal precautions and qualifications.....</b>	6
Personal protective equipment.....	6
Drugs, alcohol or medication.....	6
<b>Operation, precautions.....</b>	6
<b>Transport, precautions.....</b>	10
<b>Maintenance, precautions.....</b>	10
<b>Storage, precautions.....</b>	10
<b>Overview.....</b>	11
<b>Design and function.....</b>	11
<b>Main parts.....</b>	11
<b>Labels.....</b>	12
Data plate.....	13
Noise level label.....	13
Safety label, rotating fan blades.....	13
Safety label, read the instruction manual.....	13
Safety label, handle locking.....	13
Safety label, hot surfaces.....	14
Safety label, maximum slope angle.....	14
Safety label, read the instruction manual.....	14
Hydraulic oil level label.....	14
Hydraulic oil filter label.....	14
Lifting point label.....	14
Securing point label.....	14
Sprinkler label.....	14
Water label.....	14
Operator panel label.....	15
Start panel label.....	15
<b>Transport.....</b>	15
<b>Lifting the machine.....</b>	15
Lifting the machine.....	16
<b>Secure transport.....</b>	16
Secure transport.....	16
<b>Installation.....</b>	16
<b>Fuel.....</b>	16
Filling.....	16
<b>Operation.....</b>	17
<b>Operating near edges.....</b>	17
<b>Operating on slopes.....</b>	17
Tilt.....	18
Gradeability.....	18
<b>Start and stop.....</b>	18
Before starting.....	18
Handle positions.....	20
Control box, electrical system.....	20
Starting the engine, manual start.....	21
Starting the engine, electric start.....	22

Stopping the engine, manual start ..... 23

Stopping the engine, electric start ..... 24

**Operating** ..... 25

    Driving ..... 25

**When taking a break** ..... 25

    Parking ..... 25

**Maintenance** ..... 25

**Every 10 hours of operating (daily)** ..... 25

        Diesel engine, checking oil level and water separator ..... 26

        Checking the air filter ..... 26

        Hydraulic system, checking the oil level ..... 27

        Scrapers, checking and adjusting ..... 27

        Water tank, filling ..... 27

        Check the bolted joints ..... 28

        Checking the safety straps ..... 28

        Cleaning the machine ..... 28

**After the first 20 hours of operation** ..... 28

**Every 250 hours of operation** ..... 28

        Diesel engine, changing the oil and filter ..... 28

        Checking battery connectors ..... 29

**Every 500 hours of operation (yearly)** ..... 30

        Diesel engine, replacing the fuel filter ..... 30

        Hydraulic system, changing the oil ..... 30

        Hydraulic system, replacing the oil filter ..... 32

        Eccentric element, changing the oil ..... 33

**Disposal** ..... 33

**Storage** ..... 33

**Before starting after long-term storage** ..... 33

**Technical data** ..... 34

**Machine data** ..... 34

**Noise and vibration declaration statement** ..... 34

**Noise and vibration data** ..... 35

**Uncertainties, sound value** ..... 35

**Dimensions** ..... 36

**EC Declaration of Conformity** ..... 37

**EC Declaration of Conformity (EC Directive 2006/42/EC)** ..... 37

## 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.

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## 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.

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## 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:

<b>DANGER</b>	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
<b>WARNING</b>	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
<b>CAUTION</b>	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

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### ▲ **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

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### ▲ **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

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- ◆ 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

LP rollers are equipped with a large water tank and are ideal for compacting thin layers of granular soils, wet sand and asphalt. They are recommended for jobs on limited areas, parking lots, repair works, or similar jobs.

LP rollers must only be used in well-ventilated areas, as is the case for all combustion engine machines.

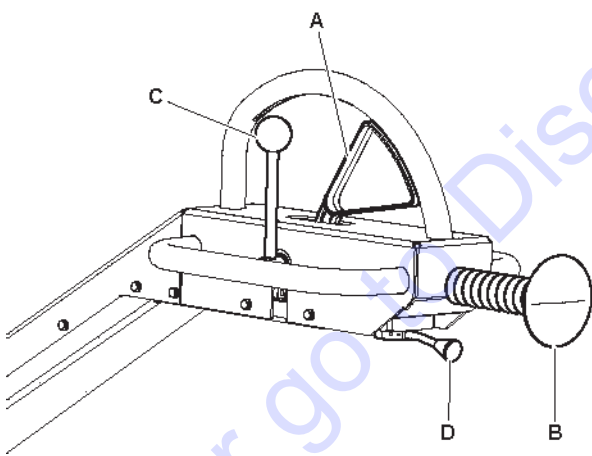
The LP rollers are equipped with automatic hydraulic brakes in the drum motors. Never tow the machine.

Never operate on steeper slopes than recommended in this manual.

For professional use only.

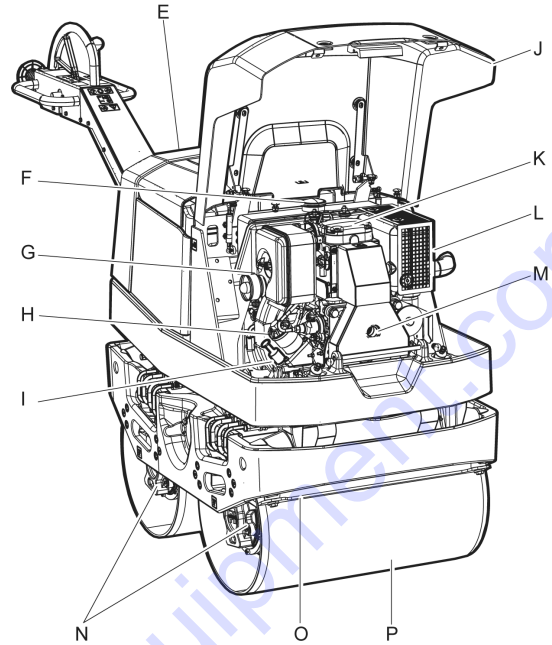
No other use is permitted.

## Main parts

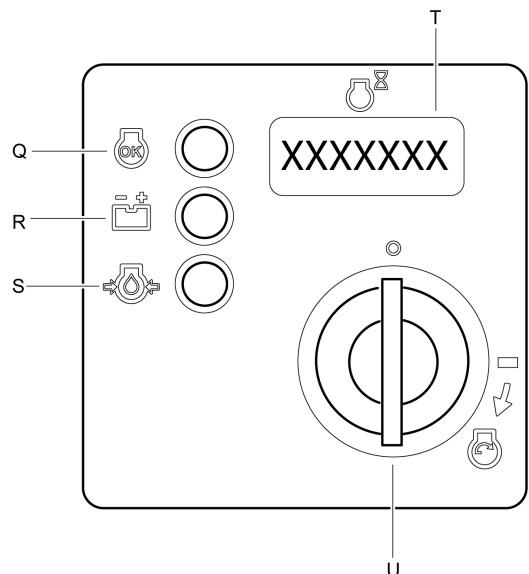


- A. Forward and reverse control
- B. Push-stop
- C. Vibration control, ON and OFF

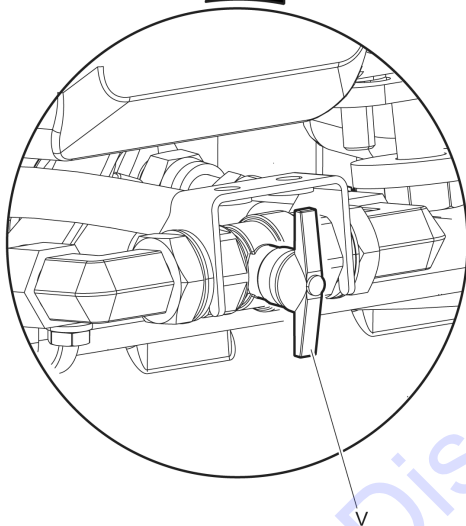
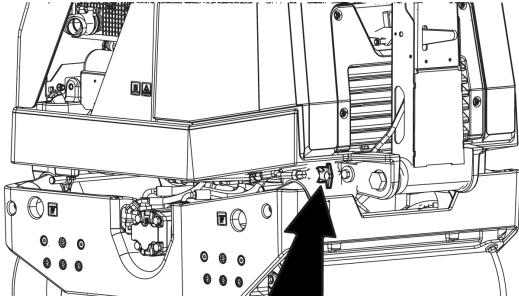
### D. Throttle control



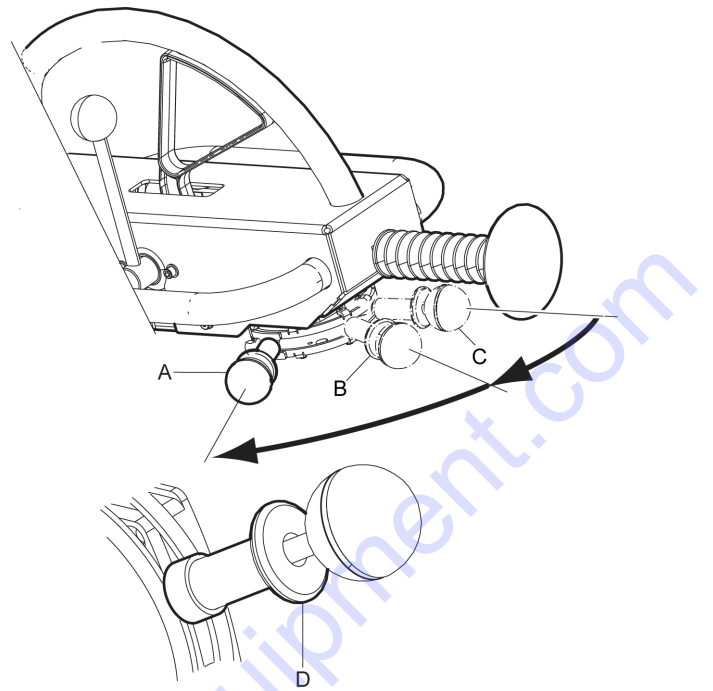
- E. Water tank
- F. Fuel tank
- G. Air filter
- H. Engine oil filter
- I. Oil dipstick
- J. Hood
- K. Engine
- L. Silencer
- M. Connection, for safety crank handle
- N. Drum motor
- O. Scraper
- P. Drum



- Q. Control lamp, operating
- R. Control lamp, charging
- S. Control lamp, engine oil pressure
- T. Hourmeter
- U. Ignition switch



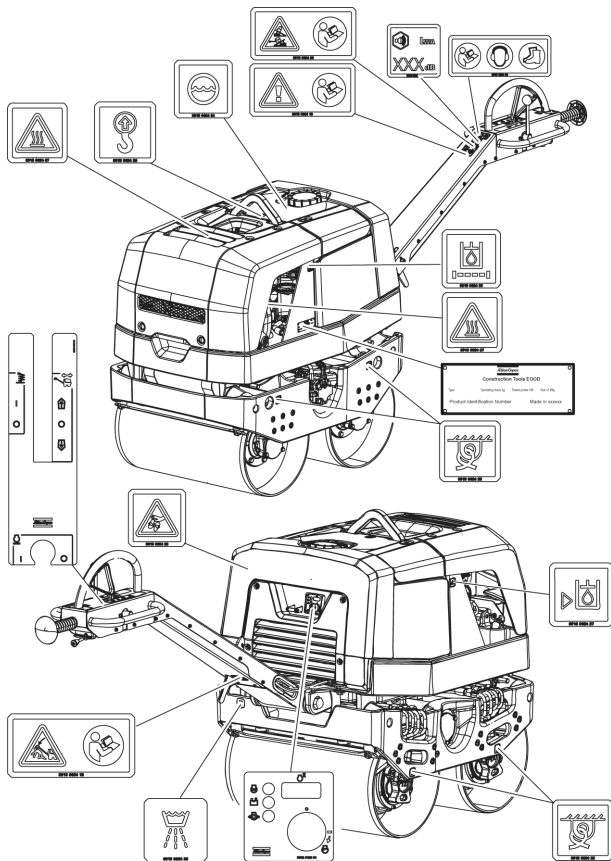
- V. Water valve, ON and OFF
- EPA (US Environmental Protection Agency) throttle control with three fixed positions.**



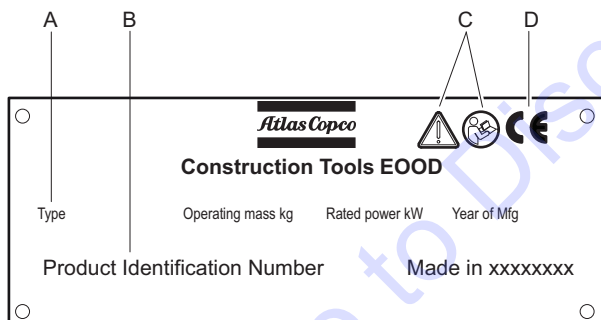
- A. Working mode position
- B. Start/Idling speed position
- C. Stop position
- D. Position lock

## 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.

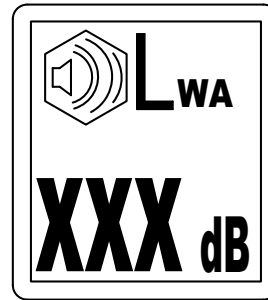


**Data plate**



- 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**



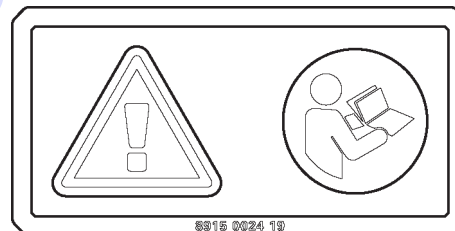
The label indicates the guaranteed noise level corresponding to EC-directive 2000/14/EC. See "Technical data" for accurate noise level.

**Safety label, rotating fan blades**



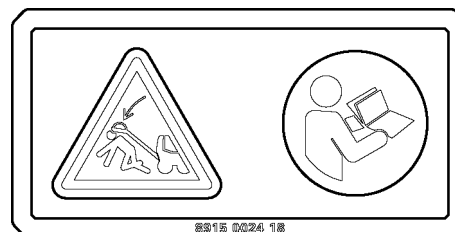
Rotating fan blades. Keep your hands at a safe distance from the danger zone.

**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**



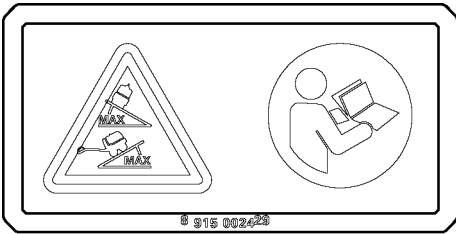
The handle must be locked when in the raised position. Read the instruction manual.

**Safety label, hot surfaces**



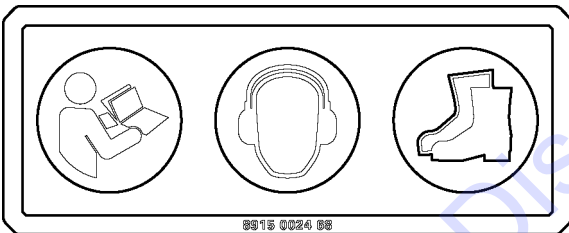
Hot surfaces in the engine compartment. Keep your hands at a safe distance from the danger zone.

**Safety label, maximum slope angle**



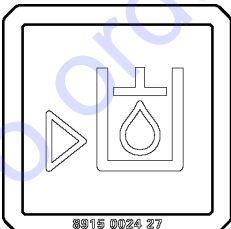
The operator must read the safety, operation and maintenance instructions before operating the machine.

**Safety label, read the instruction manual**

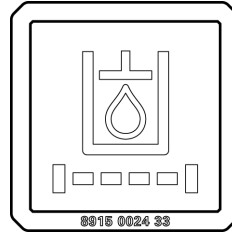


- ◆ Instruction manual. The operator must read the safety, operation and maintenance instructions before operating the machine.
- ◆ Use ear protectors.
- ◆ Use personal protective equipment.

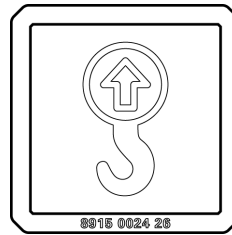
**Hydraulic oil level label**



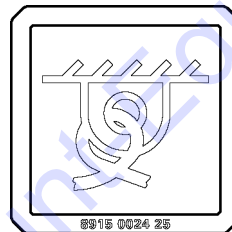
**Hydraulic oil filter label**



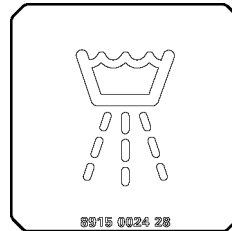
**Lifting point label**



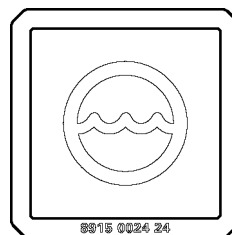
**Securing point label**



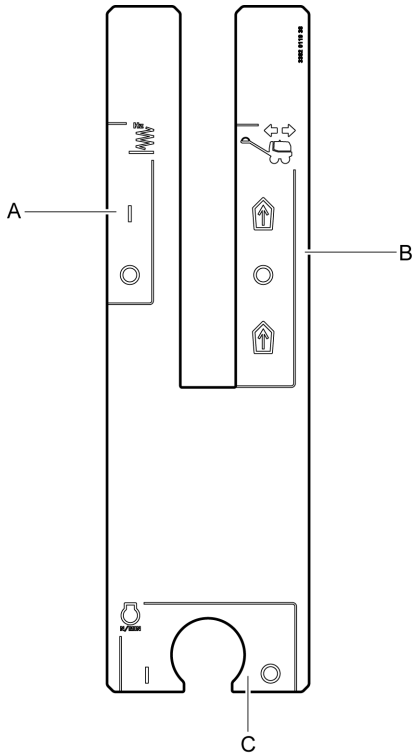
**Sprinkler label**



**Water label**



**Operator panel label**



- A. Vibration ON/OFF control.
- B. Forward and reverse control.
- C. Engine speed.

- D. Hourmeter.
- E. Ignition switch.

**Transport**

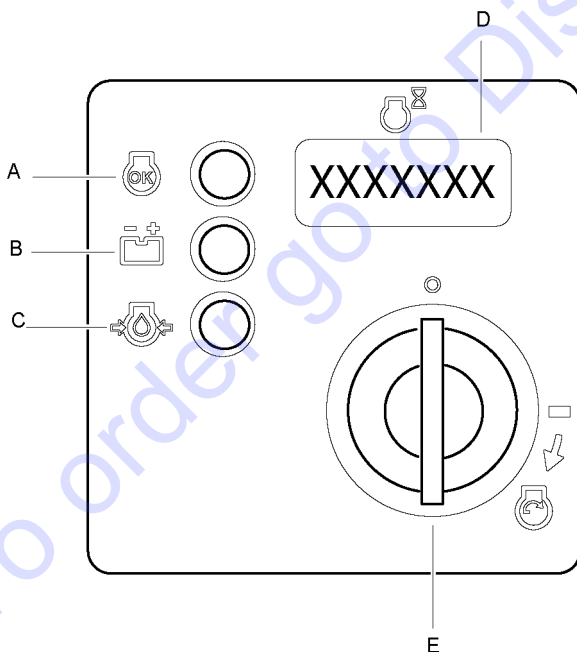
**Lifting the machine**

**▲ 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 the machine's data plate for information of the weight.
- ▶ Check that the shock absorbers, safety straps and protective frame are correctly attached and not damaged.
- ▶ Check that all equipment is dimensioned in accordance with applicable regulations.
- ▶ Only lift the machine by the hook on the frame.
- ▶ Never lift the machine by the lifting eye at the engine.
- ▶ Never walk or stand under a lifted machine.
- ▶ Never tow the machine.

**Start panel label**

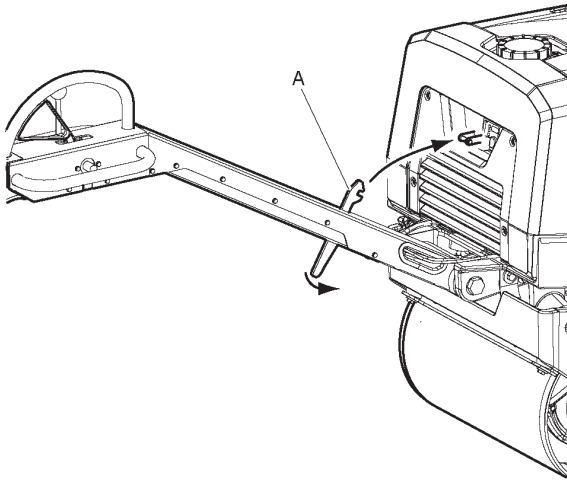


- A. Control lamp, operating.
- B. Control lamp, charging.
- C. Control lamp, engine oil pressure.

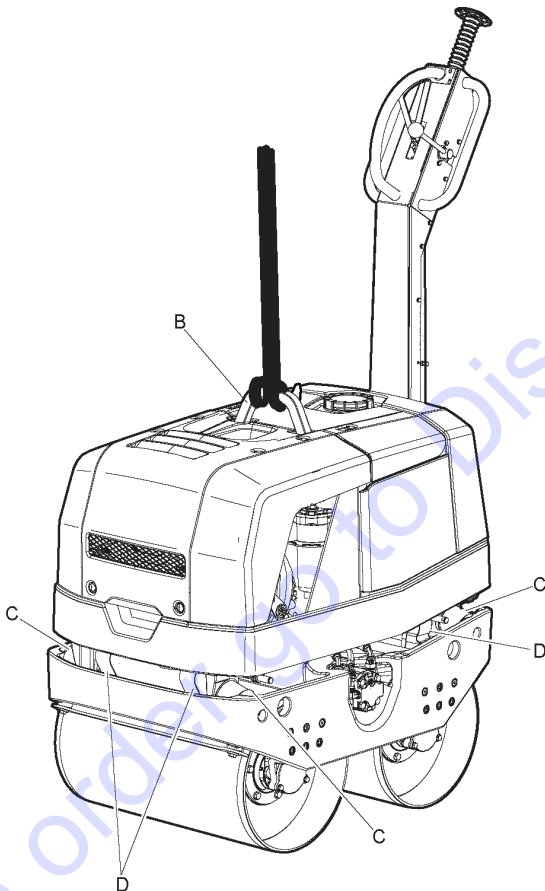


### Lifting the machine

- ◆ Before lifting the machine, lock the catch (A) in the transport position.



- ◆ Only lift the machine by the hook on the frame (B).



- ◆ Make sure that the shock absorbers (C), safety straps (D) and the hook (B) are correctly attached and not damaged.

### Secure transport

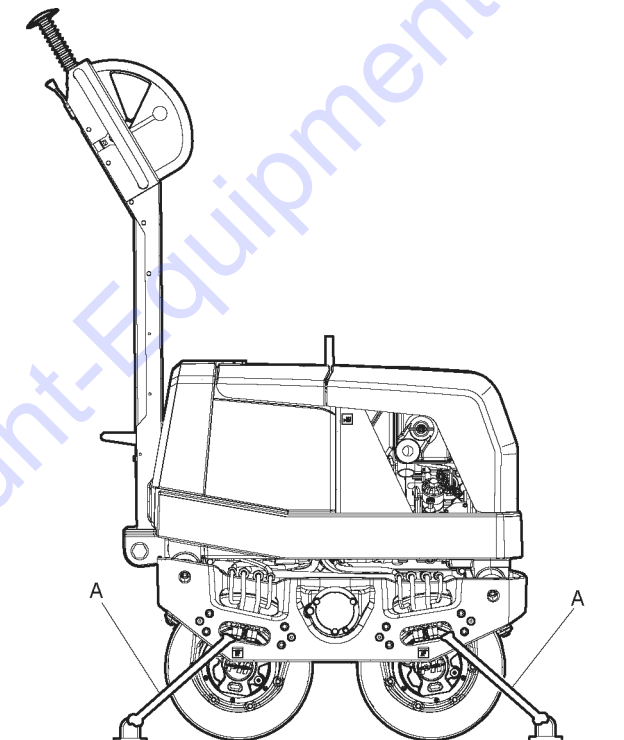
#### ▲ WARNING Transport hazard

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

- ▶ Use the front and rear securing points to secure the machine.

#### Secure transport

- ◆ Secure the machine with straps (A) at the front and rear; labels indicate the securing points.



### Installation

#### Fuel

##### Filling

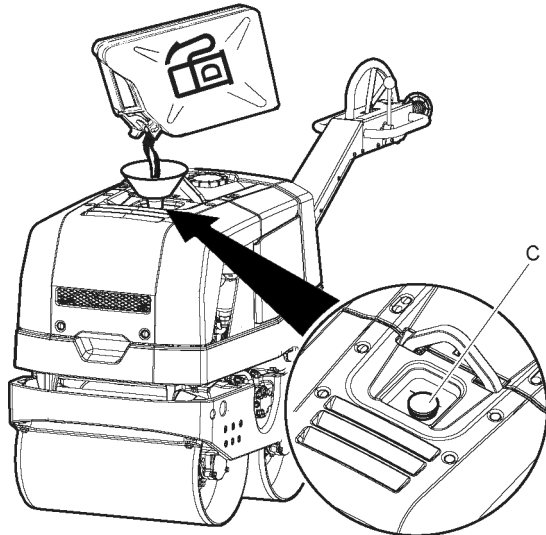
#### ▲ WARNING Fuel hazard

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.

### 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.

## 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.

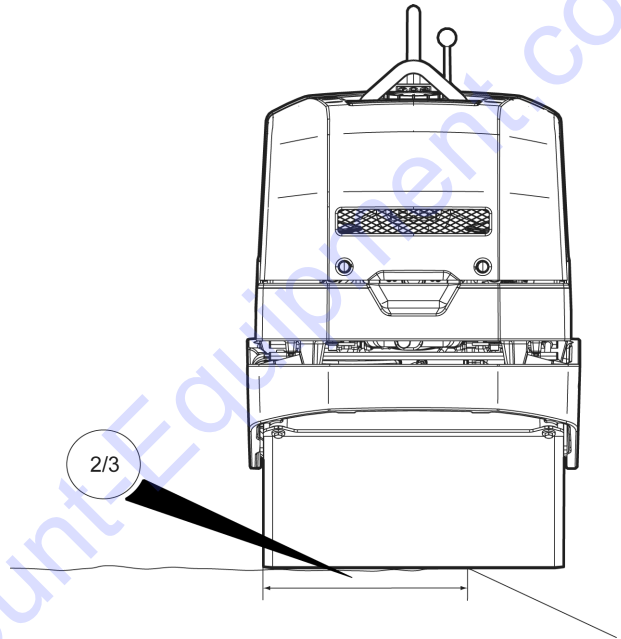
**NOTICE** When operating the machine, follow the instructions in the manual; never sit or stand on the machine when it is working.

## 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

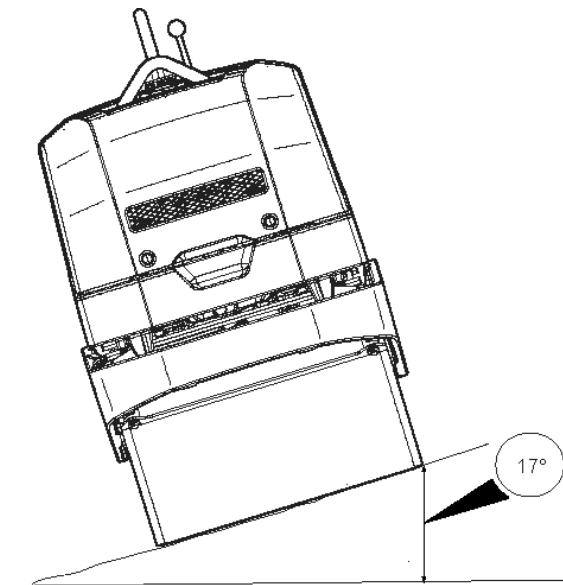
During operation, secure the machine so it can not fall if it is placed on a sloping ground. A fall can lead to severe accidents and result in personal injury.

- ▶ Always ensure that the work area is secure and that all personnel 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 wet or loose ground, vibration switched ON, and driving speed can all cause the machine to tip over even on a lesser slope than specified here. Always exercise extreme caution on sloping and uneven terrain.

### Tilt

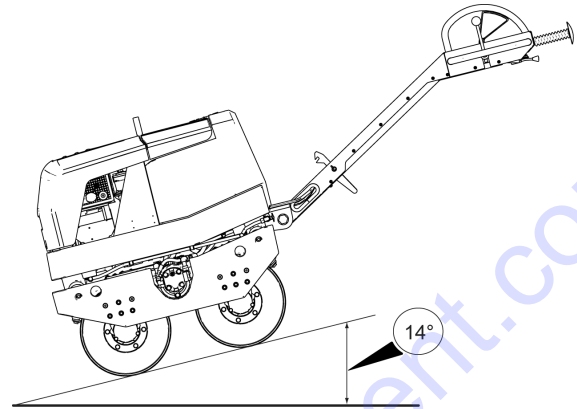
- ◆ The maximum tilt of the machine is 17°.



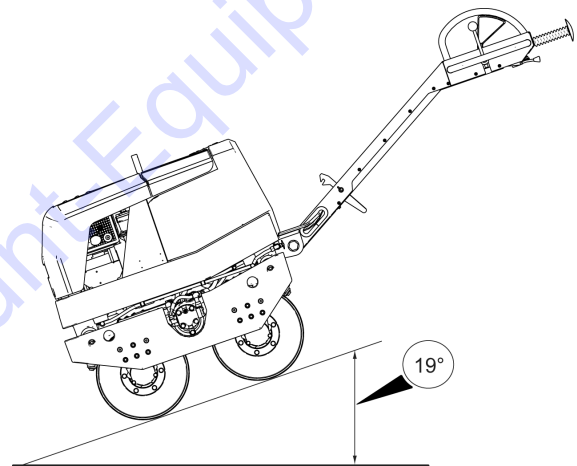
The tilting angle is measured on a hard level surface with the machine stationary. Vibration switched OFF and all tanks full.

### Gradeability

- ◆ The maximum gradeability of the machine with vibration switched on is 14°.



The maximum gradeability of the machine with vibration switched off is 19°.



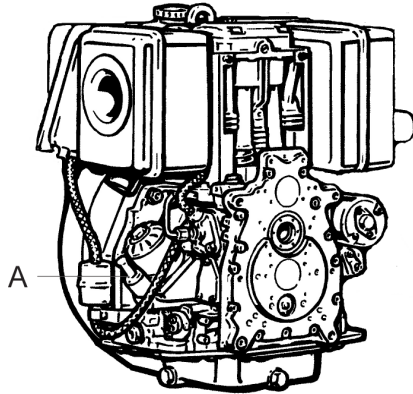
- ◆ The inclination angle is measured on a hard level surface with the machine stationary. Vibration switched OFF and all tanks full.

## Start and stop

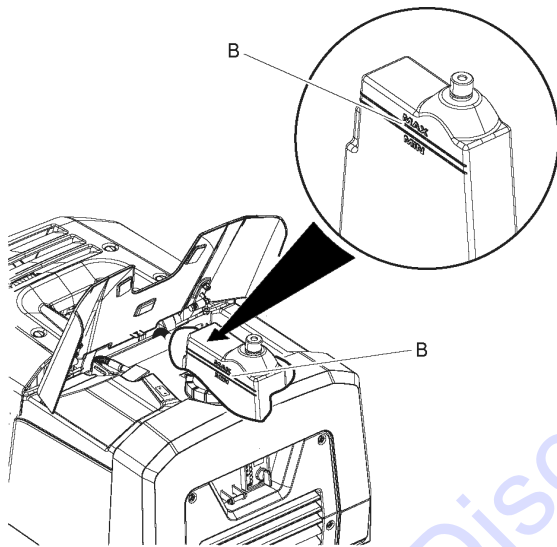
### Before starting

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

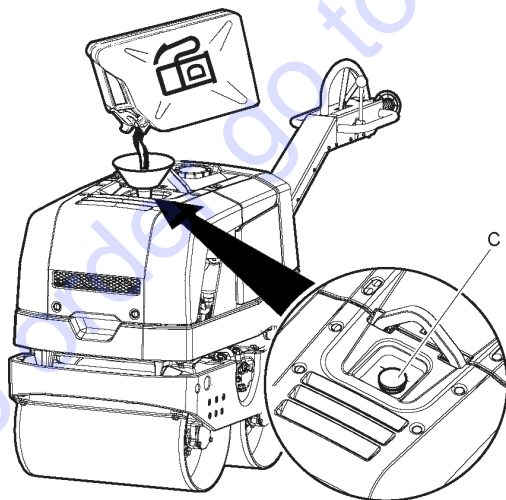
1. Check the engine oil level (A).



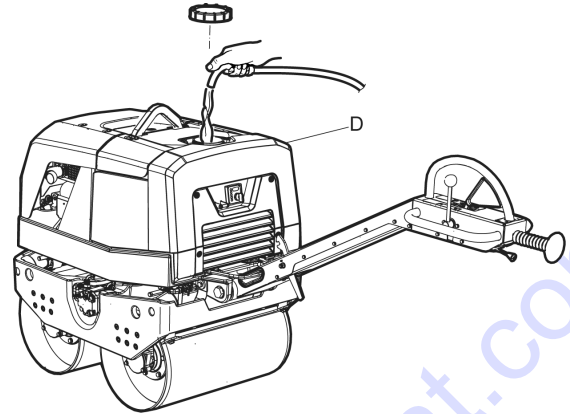
2. Check the oil level (B) in the hydraulic system.



3. Fill the fuel tank (C) with fuel.



4. Fill the sprinkler water tank (D) with water.

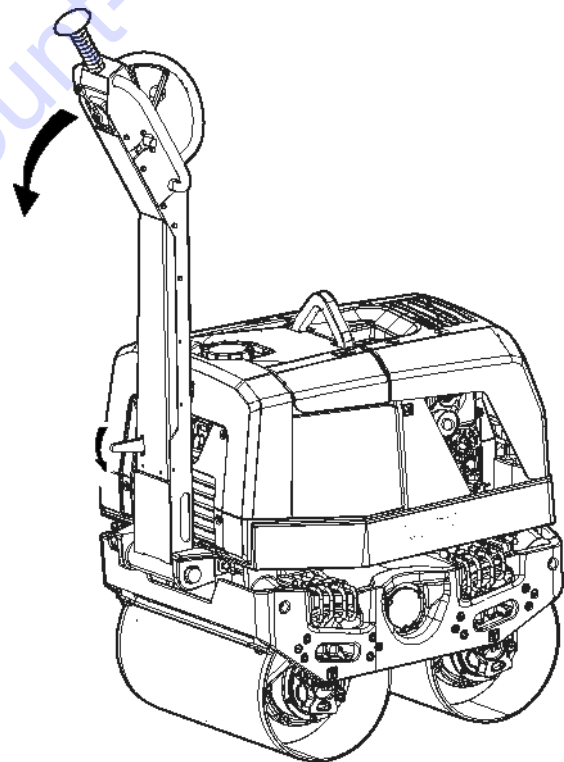


**NOTICE** During operation oil leaks can occur and bolted joints can come loose, this can cause engine breakdown.

**▲ DANGER Handle hazard**

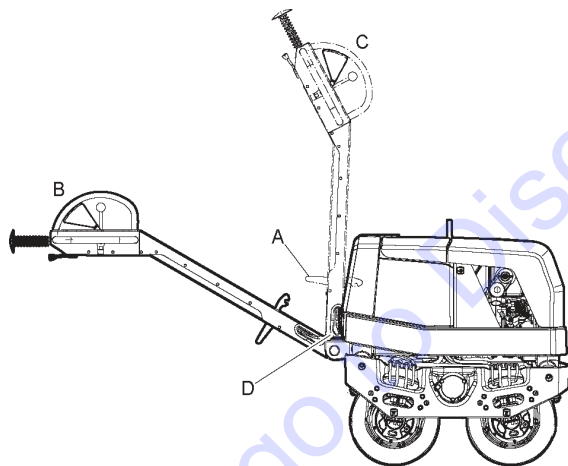
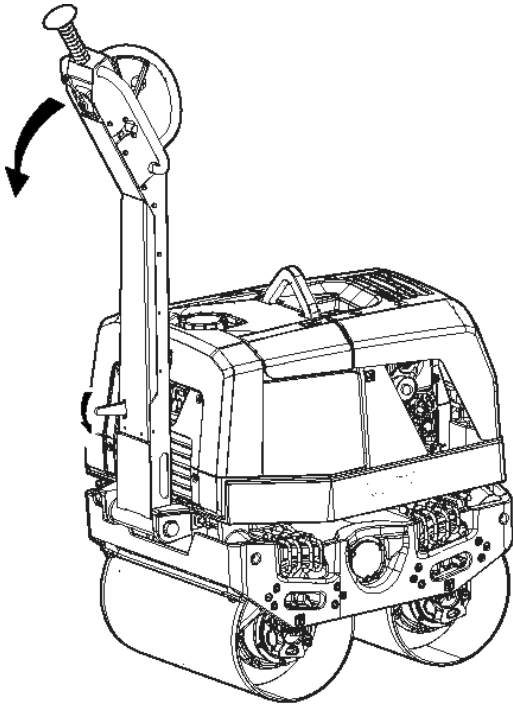
When changing the handle position, the handle must be held, otherwise it can cause injuries.

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



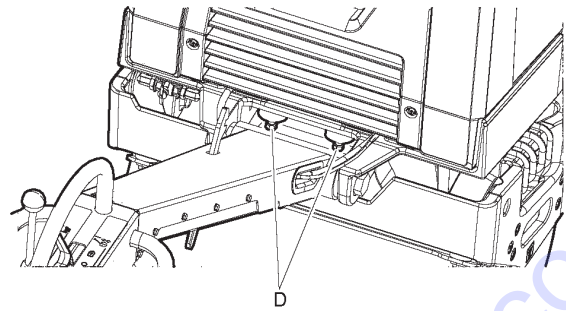
**Handle positions**

- ◆ To operate the machine, press the catch (A) and lower the handle to position (B).

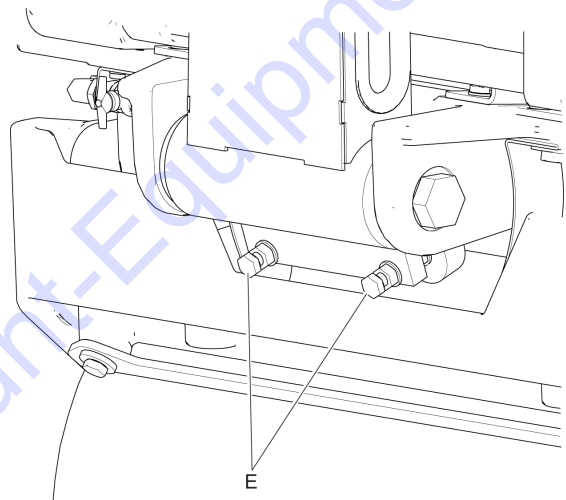


- ◆ When transporting the machine, raise the handle and push it to locked position (C).

- ◆ The height of the handle is adjusted with the shock absorbers (D).

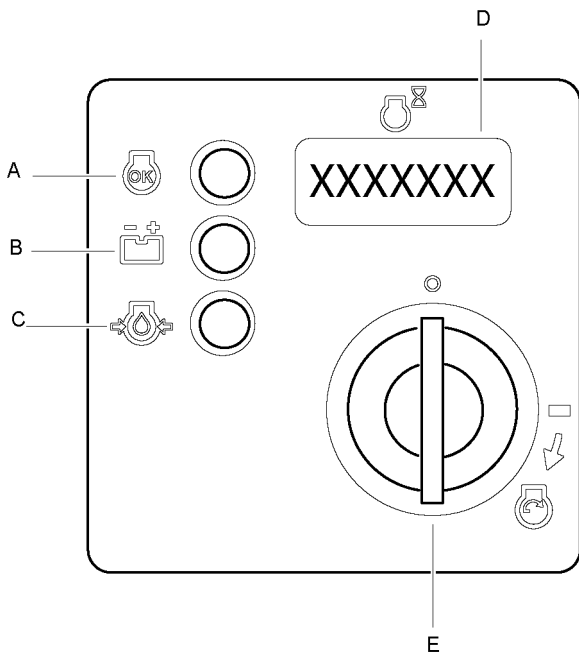


**NOTICE** Adjust the shock absorbers' screws (E) to the same height to avoid uneven load of the handle.

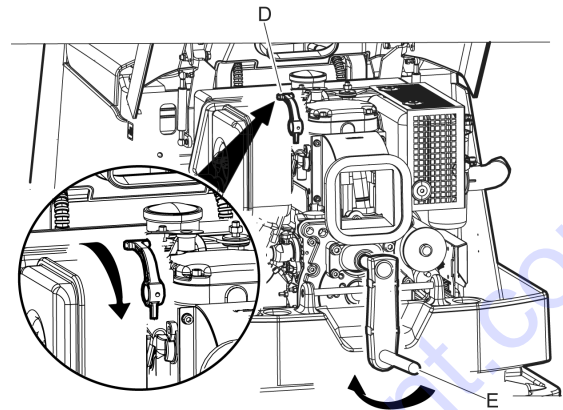


**Control box, electrical system**

- ◆ Operating lamp (A), lights when engine is running.
- ◆ Charging lamp (B), lights if there are charging problems.
- ◆ Oil pressure (C), lights with low oil pressure.
- ◆ Hourmeter (D).
- ◆ Ignition key (E).



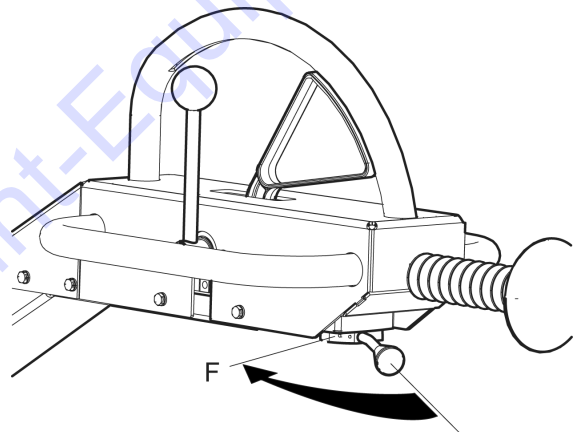
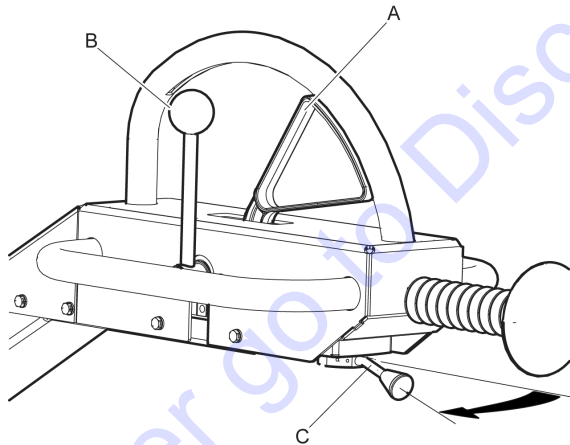
4. Lift up the automatic decompression device (D) to the starting position.



5. Turn over the engine with the starting handle (E).
6. Allow the engine to idle a few minutes before increasing up to full working speed (F).

**Starting the engine, manual start**

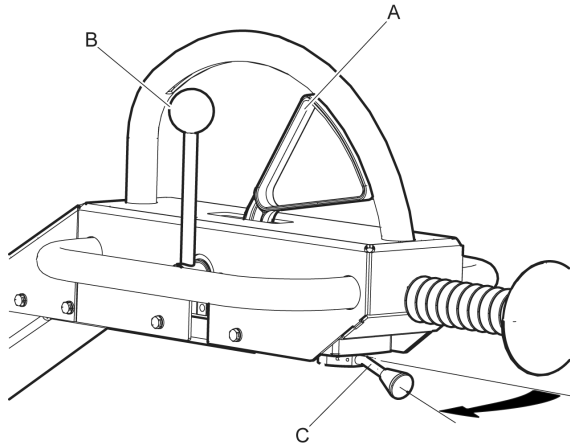
1. Check that the forward and reverse control (A) is in neutral position.
2. Check that the vibration control (B) is in position 0.
3. Set the throttle control (C) to 1/2 throttle.



**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.

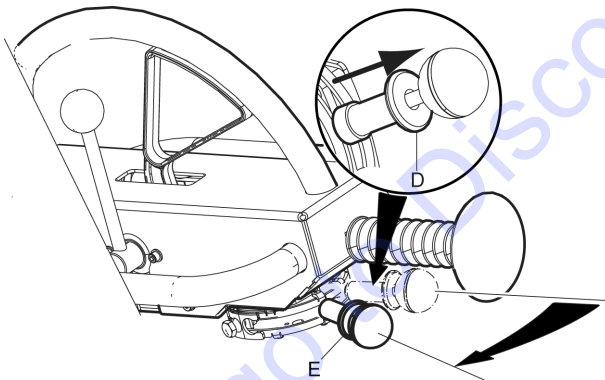
**Starting the engine, electric start**

1. Check that the forward and reverse control (A) is in position.
2. Check that the vibration control (B) is in neutral position 0.
3. **For non EPA throttle control:**  
Set the throttle control (C) to ½ throttle.

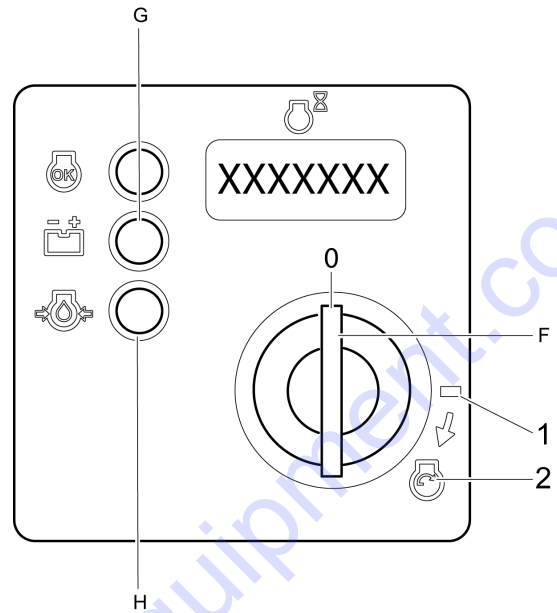


**For EPA throttle control:**

Pull up the stop (D) to release the throttle control handle. Move the throttle control handle to start/idling speed position (E).

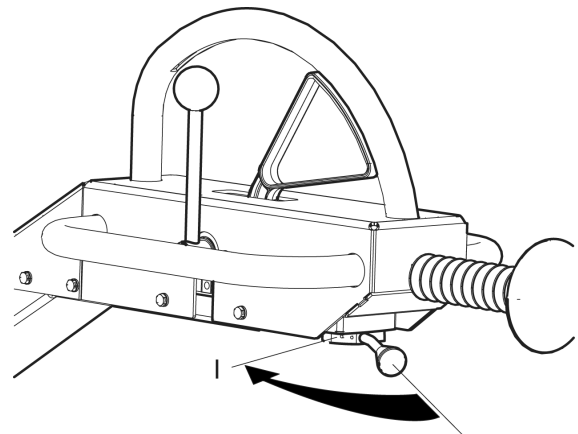


4. Turn the ignition key (F) to the ignition position 1. The control lamps for charging (G) and oil pressure (H) lights up.

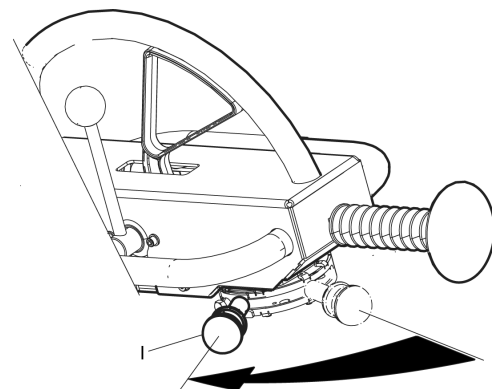


5. Turn the ignition key (F) to the starting position 2 and release the ignition key when the engine starts.
6. Allow the engine to idle a few minutes before increasing to full working speed (I).

**For non EPA throttle control:**

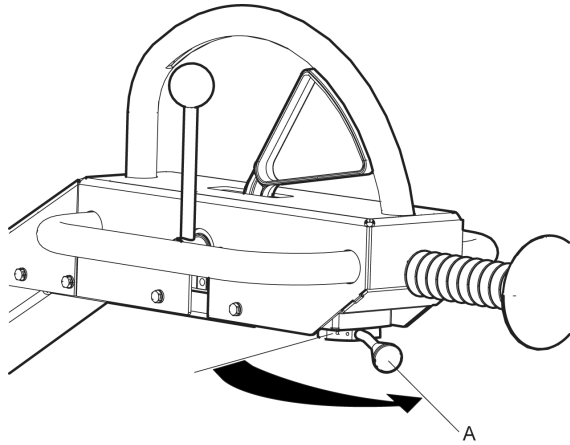


**For EPA throttle control:**

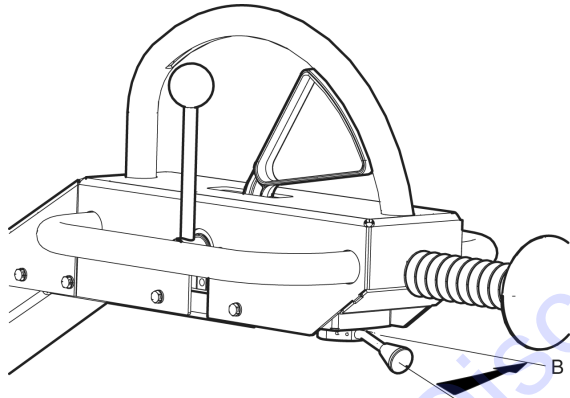


**Stopping the engine, manual start**

1. Turn the throttle control (A) to allow the engine to idle for a minute.



2. Turn the throttle control (B) to the stop position to stop the engine.

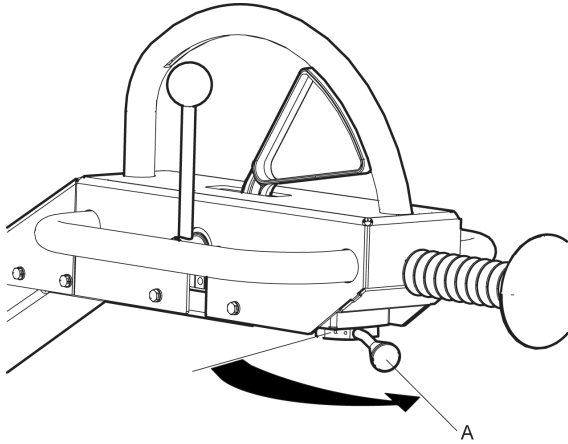




**Stopping the engine, electric start**

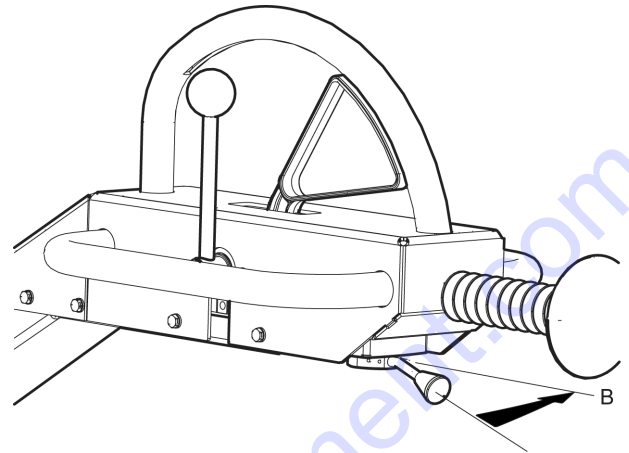
1. Turn the throttle control (A) to allow the engine to idle for a minute.

**For non EPA throttle control:**

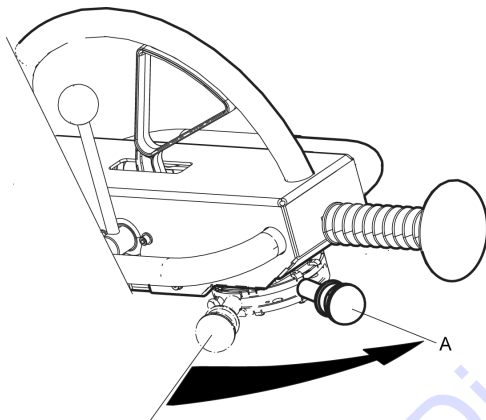


2. Turn the throttle control (B) to the stop position to stop the engine.

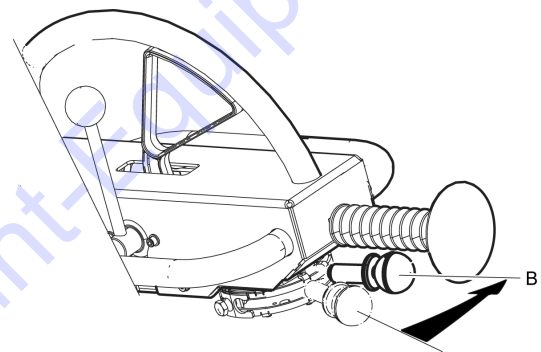
**For non EPA throttle control:**



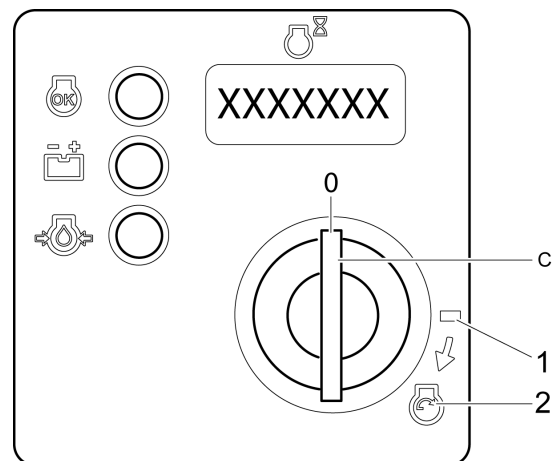
**For EPA throttle control:**



**For EPA throttle control:**



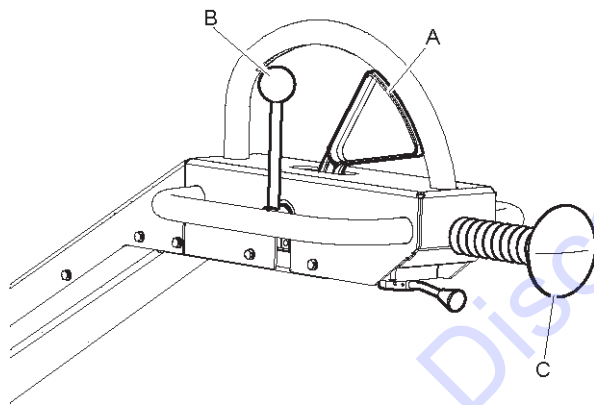
3. Turn the ignition key (C) to the neutral position 0.



## Operating

### Driving

- ◆ **Forward operation:**  
Move the forward and reverse control (A) forwards.  
Hold to run.
- ◆ **Reverse operation:**  
Move the forward and reverse control (A) backwards. Hold to run.
- ◆ **Vibration on:**  
Move the vibration control (B) to position I.
- ◆ **Vibration off:**  
Move the vibration control (B) to position 0.
- ◆ **Push-stop:**  
*NOTICE* The machine is equipped with a protection device to stop the propulsion.  
Push the push-stop (C) to stop the propulsion.



### ▲ CAUTION Driving hazard

The machine stops when the hold to run handle is released, if not it can cause injury.

- ▶ Check that the machine stops when the hold to run handle is released and/or the push-stop is pushed.

## 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

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

1. Turn off the engine and pull out the ignition key.

The integrated hydraulic parking brake automatically engages when the machine is shut off.

## 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".
- ◆ Disconnect the battery before maintenance.
- ◆ Attach a warning tag to the machine to inform other service staff about ongoing maintenance.
- ◆ 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 Discount-equipment.
- ◆ After each service, check that the machine's vibration level is normal. If not, contact Discount-equipment.

### 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 operating (daily)

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.
- ◆ Check that the controls are not damaged and does not jam. Lubricate the controls if necessary.

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

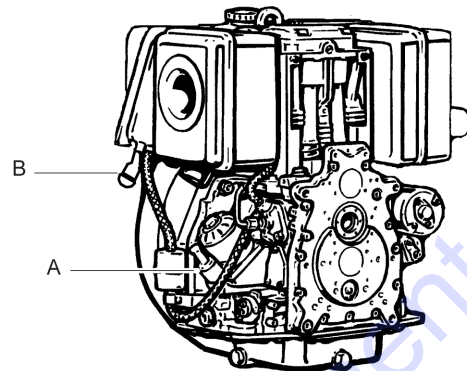
Maintenance routines:

- ◆ Check the oil level in the engine. See the engine manual for more information.
- ◆ Fill up with fuel for the engine.
- ◆ Check/empty the water separator. See the engine manual for more information.
- ◆ Check the air filter on the engine.
- ◆ Check the hydraulic oil level.
- ◆ Check the adjustment of the scrapers.
- ◆ Check that the shock absorbers for frame and handle are not damaged, change if necessary.
- ◆ Fill the sprinkler system with water.
- ◆ Check for oil leakage on the machine.
- ◆ Check that all bolted joints are tightened.
- ◆ Keep the machine clean.
- ◆ Check that the safety straps are not damaged, change if necessary.

**Diesel engine, checking oil level and water separator**

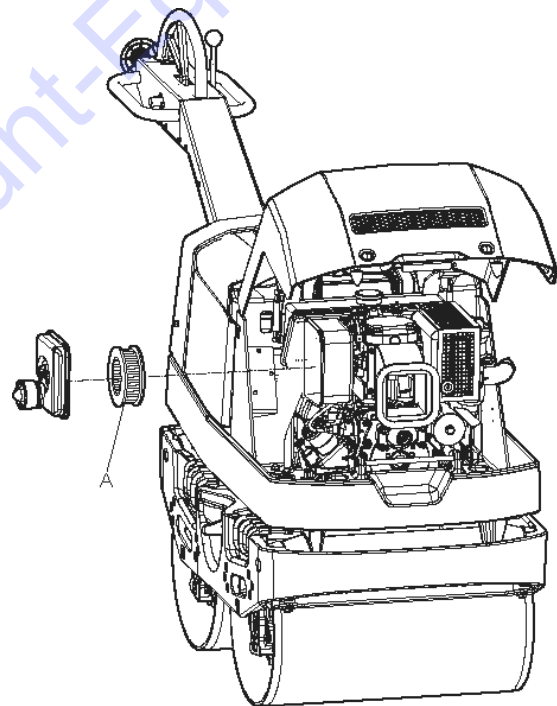
- ◆ Stop the engine and wait for a few minutes. The machine must be horizontal.
- ◆ Clean around the dipstick (A).
- ◆ Check the oil level with the dipstick (A).

- ◆ Check the water separator (B) - diesel fuel and water separate in the glass bowl. If there is any water, drain until only pure fuel is left in the bowl.



**Checking the air filter**

- ◆ Check the engine air filter and clean the filter (A) if necessary.



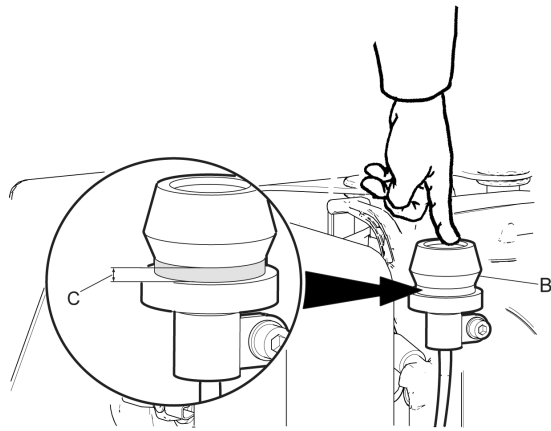
If the filter is contaminated by dry dust, tap the filter against the palm of the hand until all loose dust is dislodged.

- ◆ The filter must be replaced if it is wet or oily.
- ◆ **NOTICE** Check at full throttle each time the engine is started, that the filter indicator does not indicate that the filter is clogged.

◆ **Air filter indicator**

Press in the air filter indicator (B).

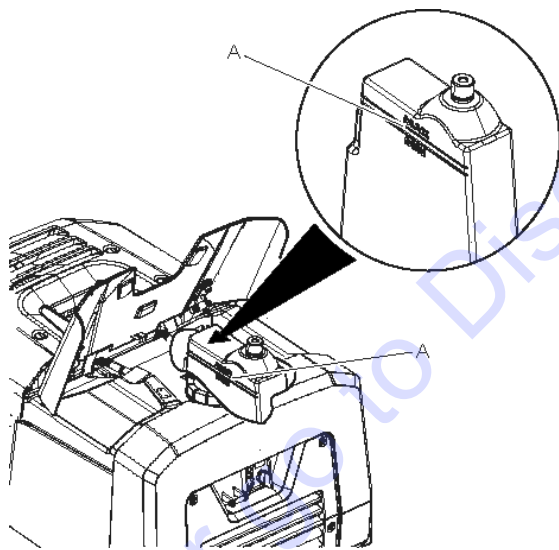
If the indicator stays in the green mode (C), clean or replace the air filter.



See the engine manual for more information.

**Hydraulic system, checking the oil level**

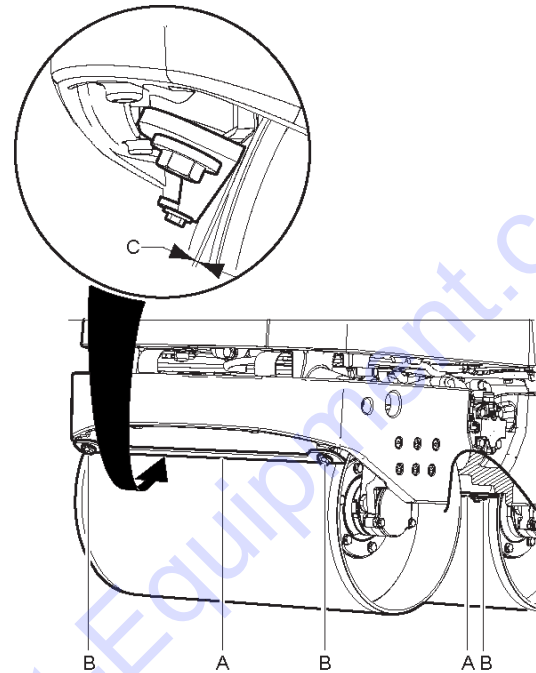
- ◆ Check that the correct oil level (A) is indicated in the hydraulic oil tank.



- ◆ Fill up with hydraulic oil if necessary, see "Hydraulic system, changing the oil".

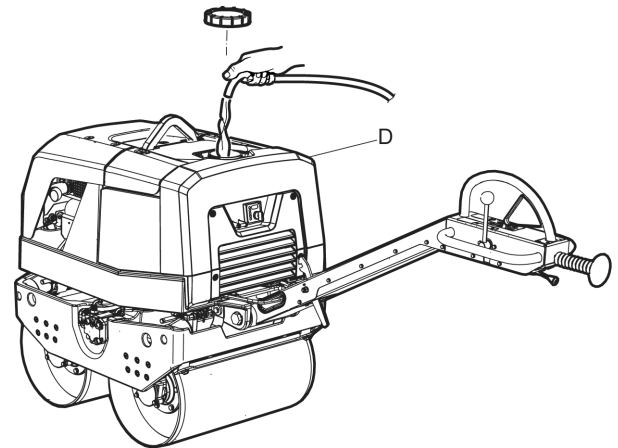
**Scrapers, checking and adjusting**

- ◆ Make sure that the scraper blades (A) are not touching the drums, and adjust the screws (B) if necessary to a clearance (C) of 1.5 mm (0.06 in.).



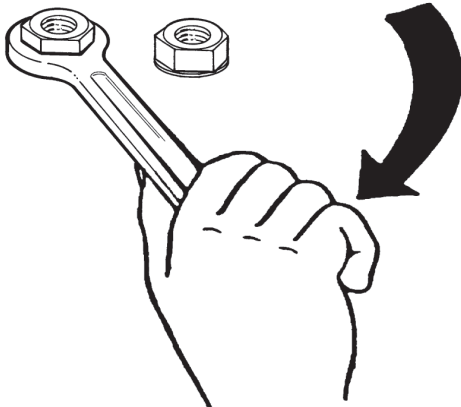
**Water tank, filling**

- ◆ Remove the tank cap and fill with clean water. The water is used for the sprinkler system.



### Check the bolted joints

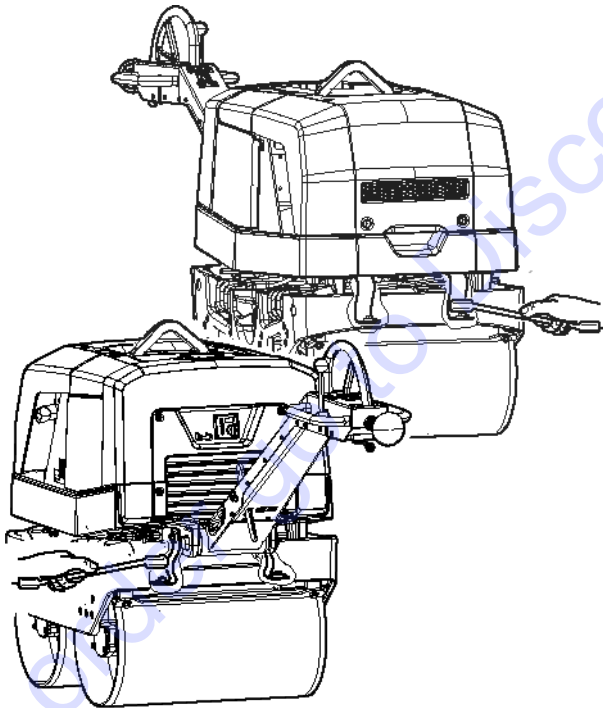
- ◆ Check that no oil is leaking from the machine.
- ◆ Check and, where necessary, tighten screws and nuts.



- ◆ Check the engine cooling system and clean if necessary.

### Checking the safety straps

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



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

### 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 oil in the engine. See the engine manual for more information.
- ◆ Replace the oil filter. See the engine manual for more information.
- ◆ Clean and refit the air filter.
- ◆ Check and adjust the engine valve clearance. See the engine manual for more information.

### Every 250 hours of operation

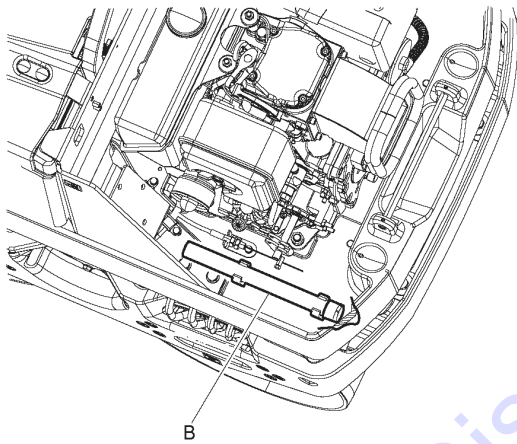
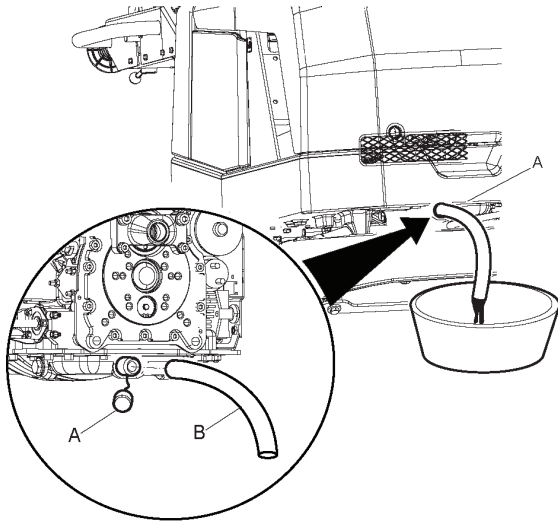
Maintenance routines:

- ◆ Check and adjust engine valve clearances. See the engine manual for more information.
- ◆ Change the oil in the engine. See the engine manual for more information.
- ◆ Replace the oil filter. See the engine manual for more information.
- ◆ Replace the air filter on the engine.
- ◆ Check and clean the engine air cooling system. See the engine manual for more information.
- ◆ Check and clean the hydraulic oil cooler.
- ◆ Check the battery connections.

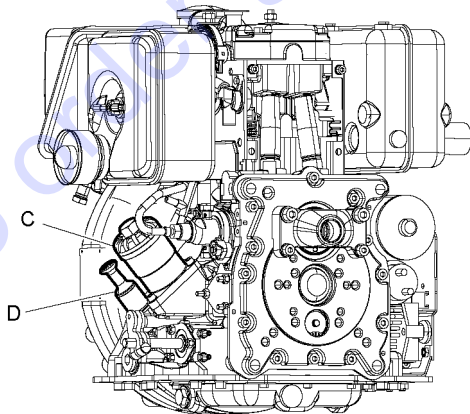
### Diesel engine, changing the oil and filter

Only drain engine oil while engine is warm.

1. Unscrew the drain valve cover (A) and drain the oil from the engine by using the drain hose (B).



2. Remove the drain hose and screw the drain valve cover (A) back on and make sure there is no leakage.
3. Loosen and replace the oil filter (C).
4. Fill the engine oil as per specifications to the maximum mark on the dipstick (D).



See the engine manual for more information.

### Checking battery connectors

- ◆ Clean the battery poles and cable shoes and apply a coating of acid-free grease (Vaseline).
- ◆ Tighten the battery connections.
- ◆ Check the attachment of the battery.

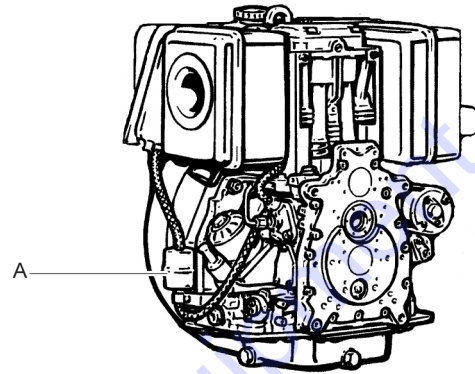
## Every 500 hours of operation (yearly)

Maintenance routines:

- ◆ Check and adjust engine valve clearances. See the engine manual for more information.
- ◆ Change the oil in the engine. See the engine manual for more information.
- ◆ Replace the oil filter. See the engine manual for more information.
- ◆ Clean fuel tank. See the engine manual for more information.
- ◆ Replace the fuel filter. See the engine manual for more information.
- ◆ Replace the air filter on the engine
- ◆ Check and clean the engine air cooling system. 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.
- ◆ Drain the fuel system of water. See the engine manual for more information.
- ◆ Change the hydraulic oil.
- ◆ Change the eccentric element oil

### Diesel engine, replacing the fuel filter

1. The replacement intervals for fuel filters depend on how heavily contaminated the fuel is.
2. Release the hoses on both sides of the fuel filter (A) and replace the filter.

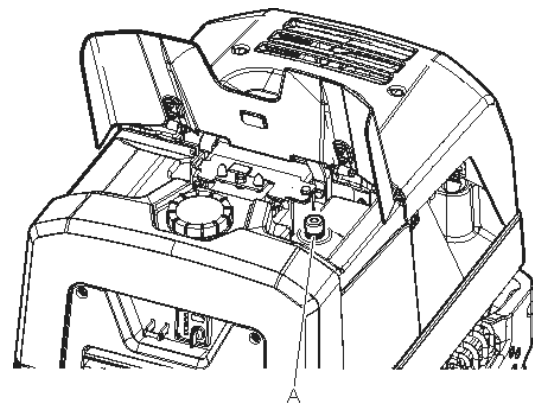


3. When fitting the new filter make sure that the arrow on the filter coincides with the direction of flow of the fuel.

See the engine manual for more information.

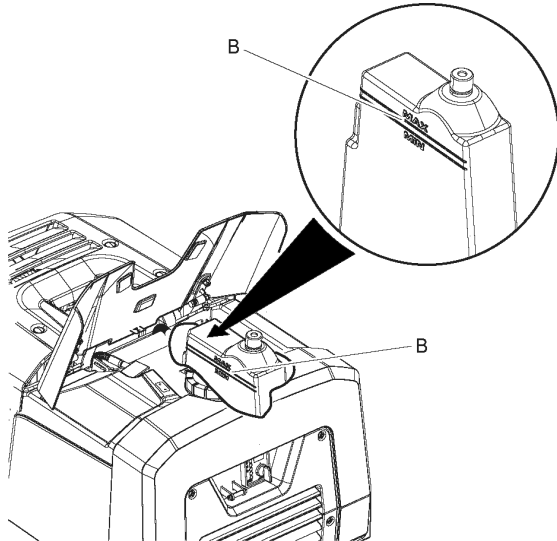
### Hydraulic system, changing the oil

1. Remove the oil tank cap, bleeder filter and splash guard (A).



2. Use an oil suction tool to empty the hydraulic oil from the tank.
3. Clean the tank opening and change the bleeder filter.
4. Fill with new hydraulic oil.

5. Check the oil level (B).



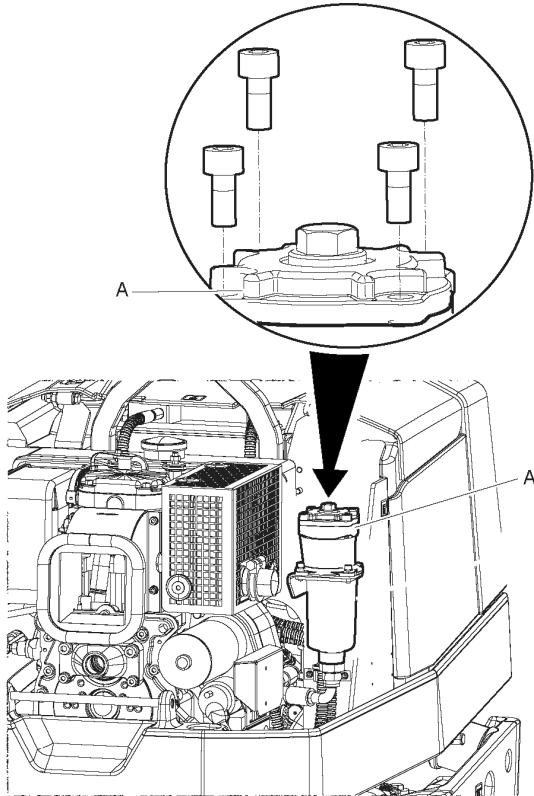
6. Start and warm up the engine.
7. Check the oil level (B).
8. Refill if it is necessary.

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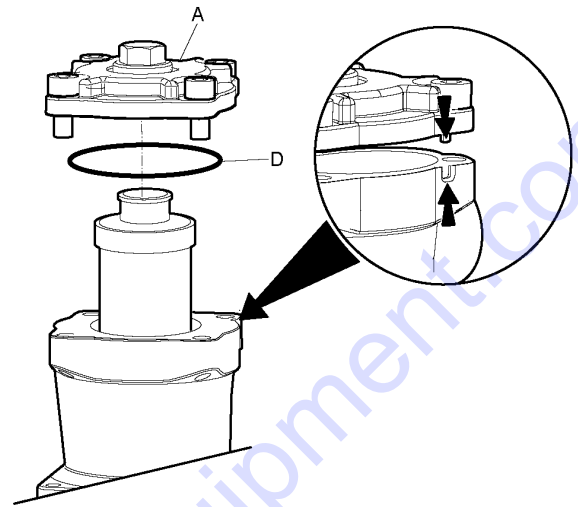


**Hydraulic system, replacing the oil filter**

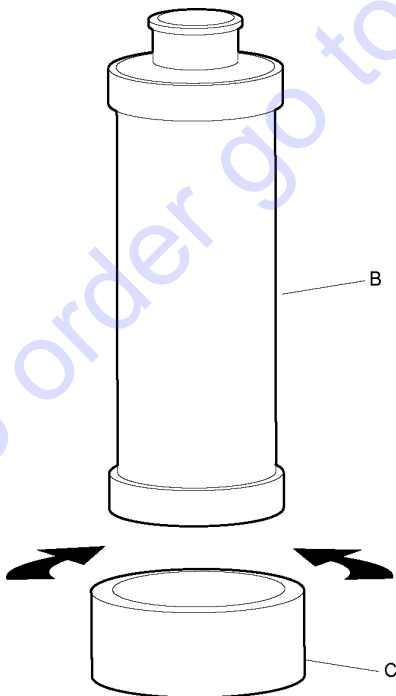
1. Clean the area around the filter cover and then unscrew the cover (A). Replace the filter element (B). The element is of the disposable type and must be disposed of in an environmentally-friendly manner.



3. Insert the new filter (B) and the spacer in the housing, check the O-ring (D) in the cover.
4. Screw the cover (A) back on and make sure there is no leakage.

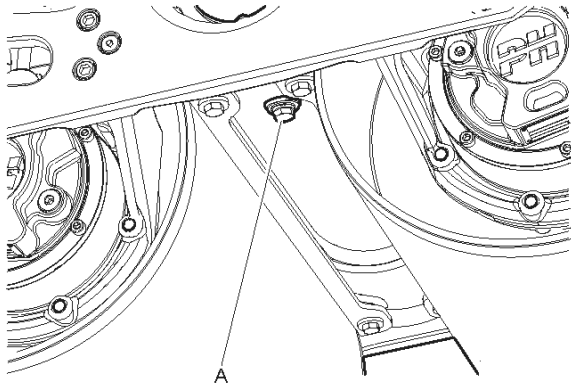


2. Insert the spacer (C).  
*NOTICE* Use the old filter spacer.

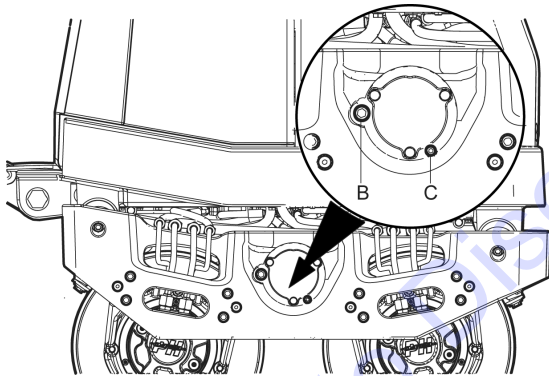


## Eccentric element, changing the oil

1. Place a suitable sized container, at least 0.6 litres, under the eccentric element and loosen the drain plug (A).



2. Drain the oil, clean and remount the drain plug (A).
3. Unscrew the filler plug (B) and the oil level plug (C). Fill with oil as per specifications. Fill with oil until it starts to run through the hole for the level plug (C).



4. Remount the oil level plug (C).
5. Remount the filler plug (B).

## 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.
- ◆ Empty water tank before storing the machine.
- ◆ Clean the machine.
- ◆ Clean the air filter.
- ◆ Carefully pull the start handle until a slight resistance appears.
- ◆ 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.

## Before starting after long-term storage

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

# Technical data

## Machine data

	Hatz, manual start	Hatz, electric start
<b>Engine</b>		
Type	Hatz 1 D42S 4-stroke	Hatz 1 D42S 4-stroke
Power kw (hp)	6,6 (8,6)	6,6 (8,6)
Rated speed (r.p.m.)	3000	3000
<b>Performance</b>		
Operating speed km/h (miles/h)	0-3.6 (0-2.3)	0-3.6 (0-2.3)
Maximum tilt, ° (%)	17 (30)	17 (30)
Gradeability with / without vibration, ° (%)	14 (25) / 19 (35)	14 (25) / 19 (35)
<b>Compaction data</b>		
Vibration frequency, Hz (r.p.m.)	58 (3480)	58 (3480)
Centrifugal force, kN (lbf)	21.8 (4.900)	21.8 (4.900)
Amplitude, mm (in.)	0.52 (0.020)	0.52 (0.020)
Static linear load, kg/cm (pli)	5.73 (32.1)	5.88 (33)
<b>Fluid volumes</b>		
Fuel tank, litres (qts)	5.0 (5.25)	5.0 (5.25)
Crank case, litres (qts)	1.2 (1.27)	1.2 (1.27)
Hydraulic oil, litres (qts)	12.5 (13.2)	12.5 (13.2)
Eccentric element, litres (qts)	0.57 (0.6)	0.57 (0.6)
Water tank, litres (gallon)	58 (12.75)	58 (12.75)
<b>Lubricants</b>		
Engine oil	Shell Rimula R4 L 15W-40	Shell Rimula R4 L 15W-40
Eccentric element oil	Shell Rimula R4 L 15W-40	Shell Rimula R4 L 15W-40
Hydraulic oil	Shell Tellus S2 V68	Shell Tellus S2 V68
Fuel	Hatz: Use diesel oil that complies with EN 590 or DIN 51601.	Hatz: Use diesel oil that complies with EN 590 or DIN 51601.
Fuel consumption, litres/hour (qts/h)	1.35 (1.43)	1.35 (1.43)
<b>Weights</b>		
Weight, kg (lb)	716 (1579)	736 (1623)
Operating weight EN500, kg (lb)	745 (1642)	765 (1687)

## Noise and vibration declaration statement

Guaranteed sound power level **L<sub>w</sub>** according to EN ISO 3744 in accordance with directive 2000/14/EC.

Sound pressure level **L<sub>p</sub>** 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.

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	
	Lp at operator's ear	Lw guaranteed dB(A) rel 1pW	Lw measured dB(A) rel 1pW	m/s <sup>2</sup> value	permitted working hours/day
LP 6505 manual	88	107	105	4.0	8
LP 6505 electric	88	107	105	4.0	8

Permitted working hours per day are calculated on limit value of 5 m/s<sup>2</sup> as per 2002/44/EC.

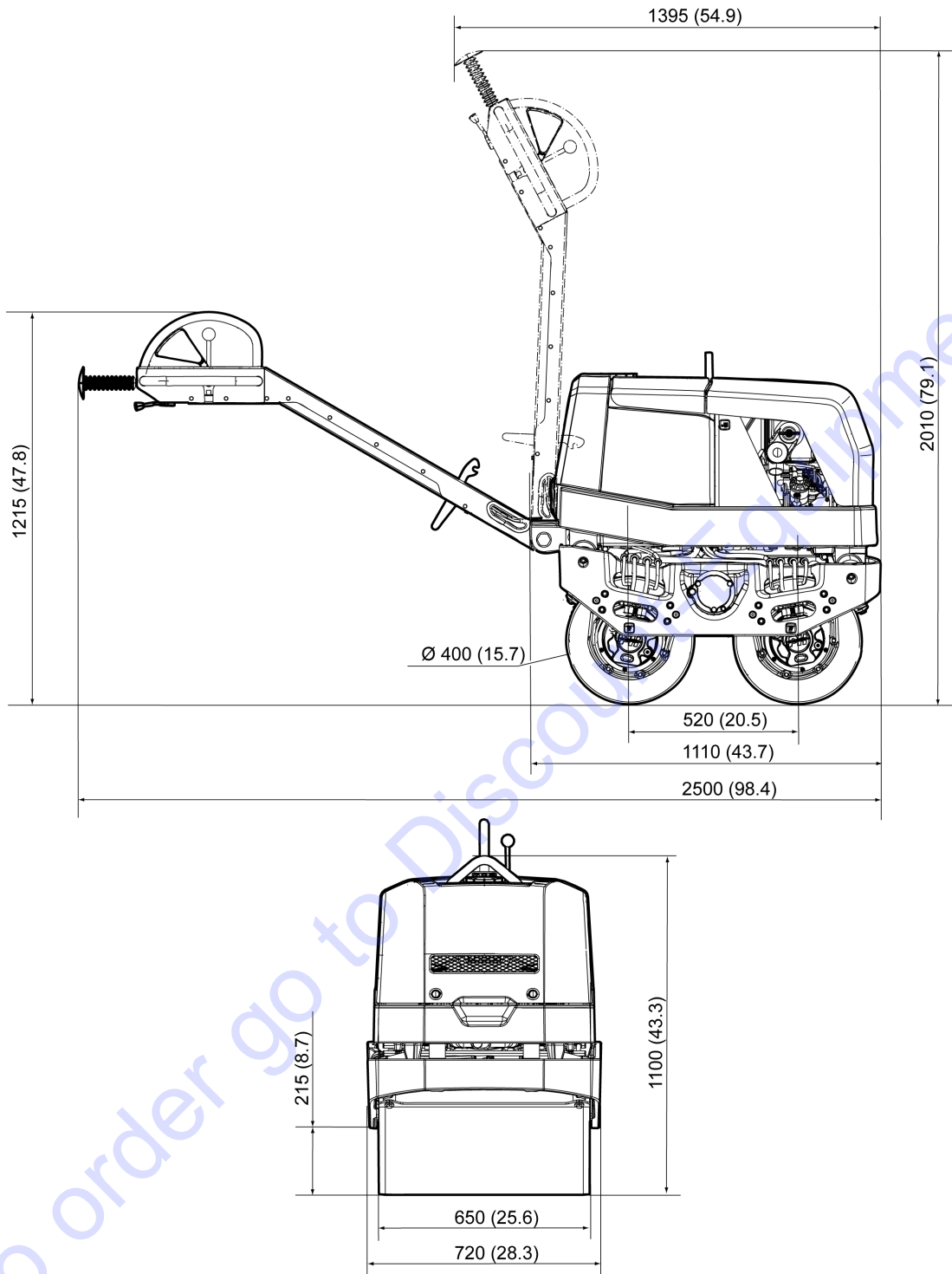
## Uncertainties, sound value

Type	Uncertainties, sound value	
	K <sub>wA</sub> dB(A)	K <sub>pA</sub> dB(A)
LP 6505	1.5-2.5	2.5-3.0

Uncertainty factor for gravel bed.

# Dimensions

mm (in.)



# 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)]
LP 6505 Manual	107	105
LP 6505 Electric	107	105

### Following harmonised standards were applied:

- ◆ EN 500-1+A1
- ◆ EN 500-4

### Following other standards were applied:

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

### Notified body involved for directive:

Mira, NoBo no.0888  
 Watling Street  
 Nuneaton  
 Warwickshire  
 CV10 0TU  
 UK

### Technical Documentation authorised representative:

Emil Alexandrov  
 Construction Tools EOOD  
 7000 Rousse  
 Bulgaria

### General Manager:

Nick Evans

### Manufacturer:

Construction Tools EOOD  
 7000 Rousse  
 Bulgaria

### Place and date:

Rousse, 2015-04-13

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