

Husqvarna, 2018-03-12

## **Safety and Operating Instructions**

Dear customer,

thank you for choosing a Husqvarna quality product. We hope that you will genuinely enjoy it. Please note that the enclosed manual contains Atlas Copco references.

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

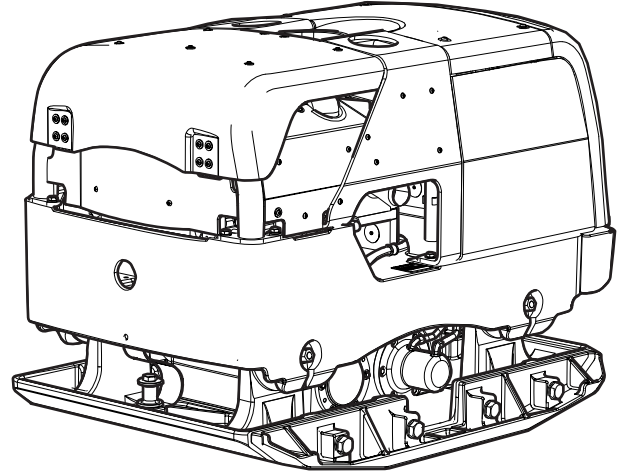
If you have any questions, please do not hesitate to contact our local sales or service point.

Husqvarna AB  
561 82 Husqvarna, Sweden

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## 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](http://www.atlascopco.com)

Atlas Copco Construction Tools AB

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Sweden

## 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.

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.
- ▶ 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 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.
- ▶ Never give the transmitter to anyone who is not fully familiar with the machine, its operation and safety directives.

#### **▲ WARNING Transmitter hazard**

If the operator is not fully familiar with the control system when operating the machine, this may lead to sudden and unexpected movements of the machine which can cause injuries.

- ▶ Always study this safety and operating instructions carefully before operating the machine.
- ▶ Only trained personnel who are fully familiar with the control system may operate the machine.

#### **▲ WARNING System error hazard**

Errors in the system can cause injury. If any error occurs in the system:

- ▶ Switch off the start/stop switch on the transmitter.
- ▶ Switch off the battery disconnecter.
- ▶ Unplug the power supply cable to the machine.



**▲ 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

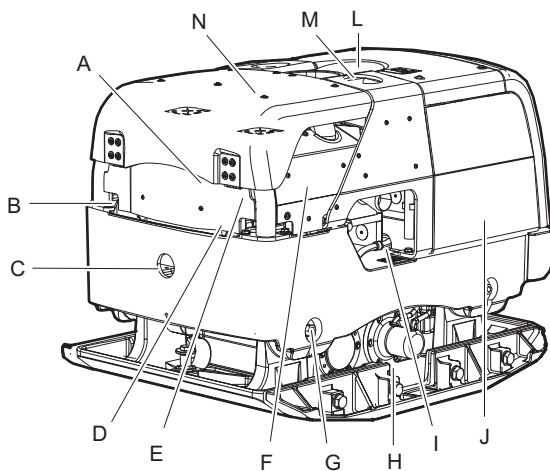
LH forward and reversible plates are designed for compaction of filling material. The LH plate compactors can be used for most applications in its class, around concreted foundations and structural units, floors and other foundations, and to refill trenches. No other use is permitted.

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

The LH compactors must not be towed behind vehicles.

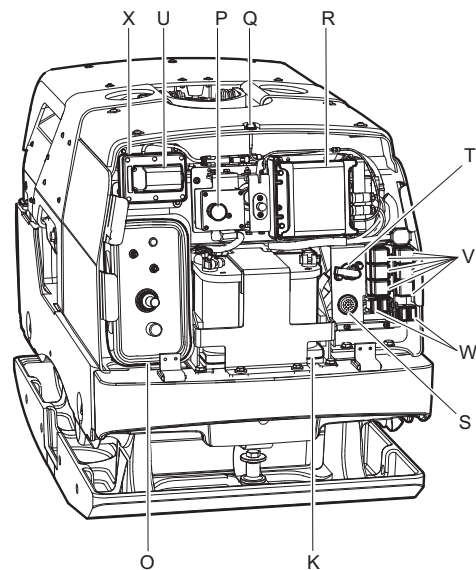
Do not operate on steeper slopes than recommended in this manual.

## Main parts

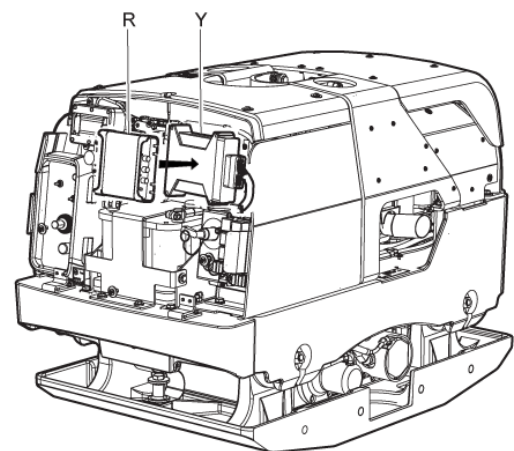


- A. Fuel filter
- B. Hose for oil drainage
- C. Oil drain plug
- D. Engine oil filter
- E. Oil dipstick
- F. Air filter
- G. Shock absorbers
- H. Eccentric element
- I. Water separator
- J. Hydraulic reservoir

- K. Main battery
- L. Hydraulic filter
- M. Fuel tank
- N. Cyclone

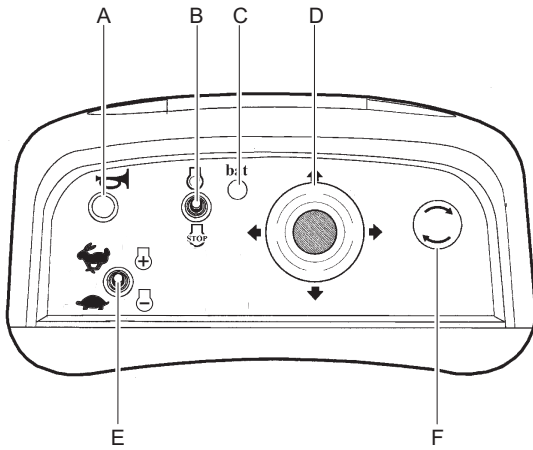


- O. Transmitter (Transport position)
- P. Emergency stop knob
- Q. Antenna
- R. Receiver
- S. Buzzer
- T. Master switch
- U. Transmitter battery
- V. Relays
- W. Fuses
- X. Transmitter battery charger

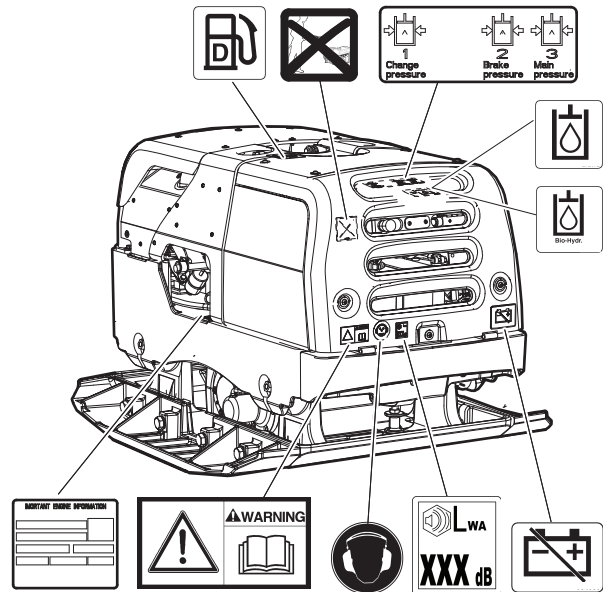


- Y. Electronic Control Unit (ECU)

**Transmitter**

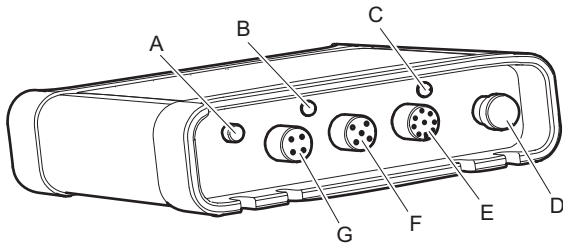


- A. Horn
- B. Start/Stop switch, engine
- C. Indicator for battery voltage
- D. Joystick
- E. Engine revs/operating speed
- F. Transmitter on/off and emergency stop knob

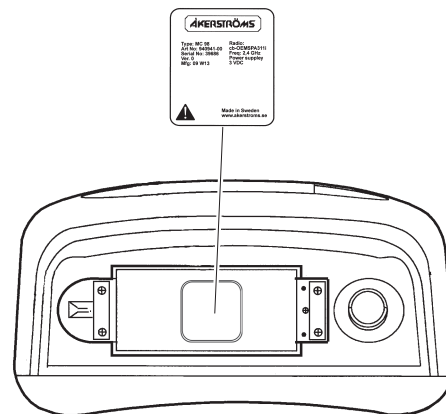
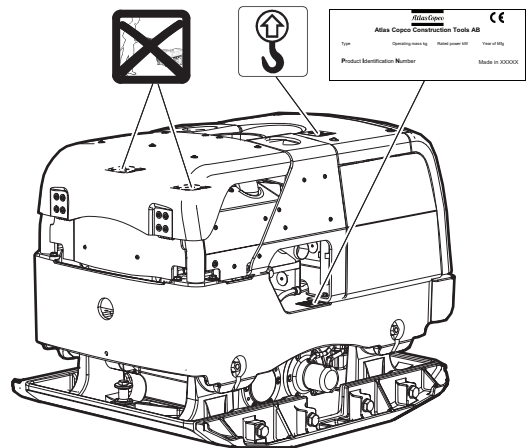


**Receiver**

The receiver is placed under the rear service hood.



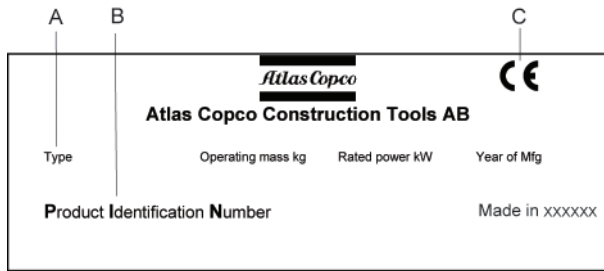
- A. Antenna
- B. Status LED
- C. RX
- D. Pairing
- E. Cable control
- F. CAN
- G. Power



**Labels**

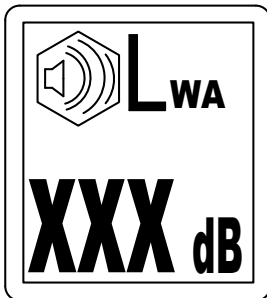
The machine is fitted with labels containing important information about personal safety and machine maintenance. The labels must be in such condition that they are easy to read. New labels can be ordered from the spare parts list.

**Data plate**



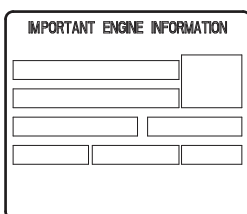
- A. Machine type
- B. Product Identification Number
- C. The CE symbol means that the machine is EC-approved. See the EC Declaration of Conformity which is delivered with the machine for more information.

**Noise level label**

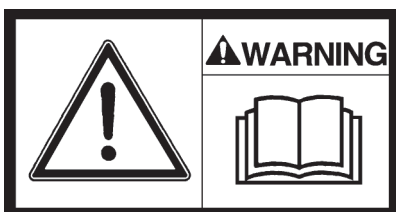


The label indicates the guaranteed noise level corresponding to EC-directive 2000/14/EC. See "Technical data" for accurate noise level.

**Engine information label**



**Safety label**

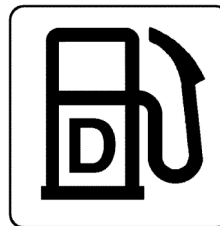


Instruction manual. The operator must read the safety, operation and maintenance instructions before operating the machine.

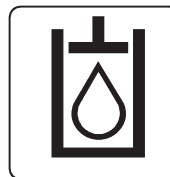
**Safety label**



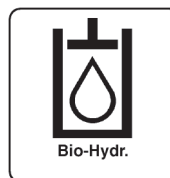
**Diesel**



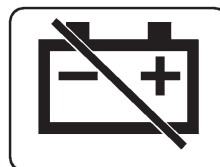
**Hydraulic oil label**



**Biological hydraulic oil label**



**Master switch**



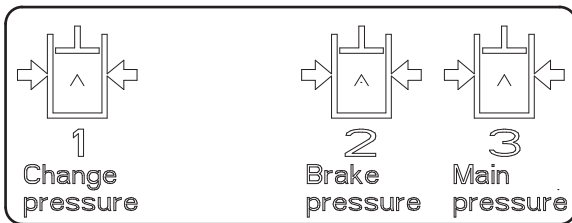
**Lifting point label**



**Use ear protectors label**

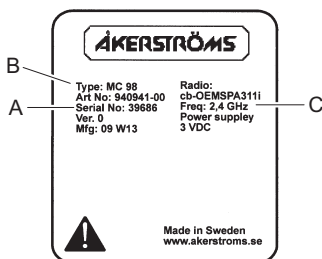


**Pressure label**



**Data signs label**

The identity plate is positioned behind the battery on the transmitter.



- A. Serial number
- B. Model designation
- C. Frequency band

# Transport

## Lifting the machine

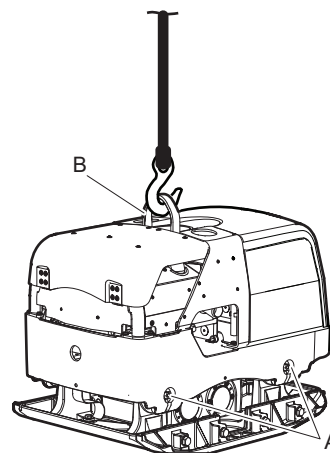
**▲ WARNING Lifting hazard**

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**

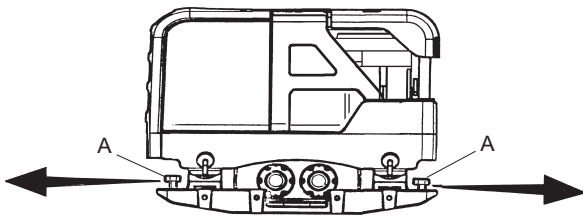
- ◆ Before lifting the machine check that the shock absorbers (A) and safety frame lifting point (B) are correctly attached and not damaged.
- ◆ Only use the safety frame lifting point (B) for lifting the machine.



**Towing and retrieving**

**NOTICE** Only tow the machine to retrieve it when it has stuck in loose ground during operation.

When towing or retrieving a machine, the towing device must be connected to both towing attachments (A), front and rear, on the bottom plate of the machine. Pulling forces must act longitudinally on the machine. Maximum permitted pulling force is 15 kN horizontally in the longitudinal axis of the machine.



## Secure transport

### ▲ WARNING Transport hazard

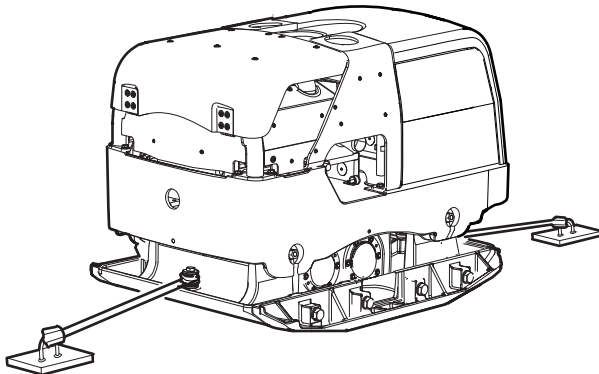
During transportation always strap the machine securely, otherwise it can cause injury.

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

### Secure transport

Secure the machine for all transportation.

- ◆ Use the front and rear towing attachment points to secure the machine.
- ◆ The transmitter must be placed under the rear hood in transportation mode.



## Installation

## Fuel

### Filling

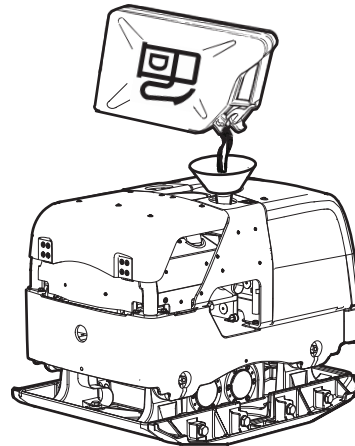
#### ▲ WARNING Fuel hazard

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 tilted 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.
- ▶ Never give the transmitter to anyone who is not fully familiar with the machine, its operation and safety directives.

#### ▲ WARNING Transmitter hazard

If the operator is not fully familiar with the control system when operating the machine, this may lead to sudden and unexpected movements of the machine which can cause injuries.

- ▶ Always study this safety and operating instructions carefully before operating the machine.
- ▶ Only trained personnel who are fully familiar with the control system may 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.

**NOTICE** Do not operate the machine at a greater distance than 20 metres (22 yards). Always keep the working area and the machine under good supervision.

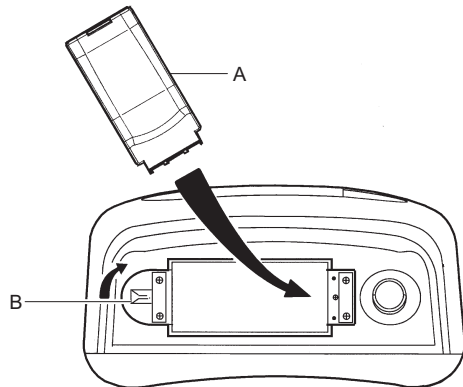
**NOTICE** Always specify the serial number when making inquiries about control equipment.

## Transmitter

The transmitter and receiver must be paired. If another transmitter is used, it must be paired with the receiver. See section "Pairing function" for more information. Coding must be performed by authorized service personnel.

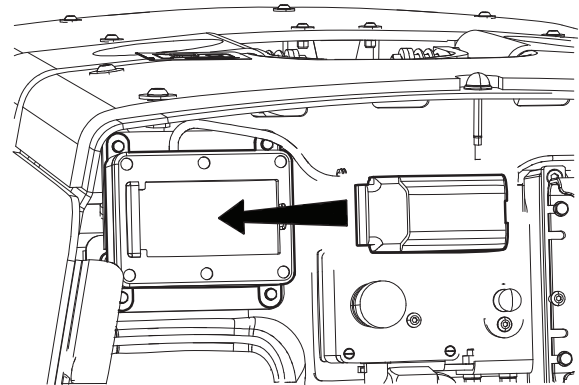
The range is at least 30 metres (33 yards), depending on the surroundings and the occurrence of any radio frequency interference.

- ◆ Two 1500 mAh NiMh batteries are supplied with the machine on delivery. The extra battery can be charged in the battery charger during operation.
- ◆ Insert the battery (A) into the transmitter and twist the lock (B) to locked position. To remove the battery, twist the lock (B) on the transmitter to open position.



- ◆ The operating time for a fully-charged battery is about 15 hours. The transmitter has a yellow LED that lights for 10 seconds when it is time to charge the battery. In this mode, the battery can be used for another 15 minutes. Change the battery and make sure that the slot and contact surfaces are clean.

- ◆ The extra battery can be charged in the transmitter battery charger on the machine during operation. The battery charger is mounted on the front of the electrical box, under the rear service hatch. Before charging the battery, make sure that the battery charger's and battery's contact surfaces are clean and dry.



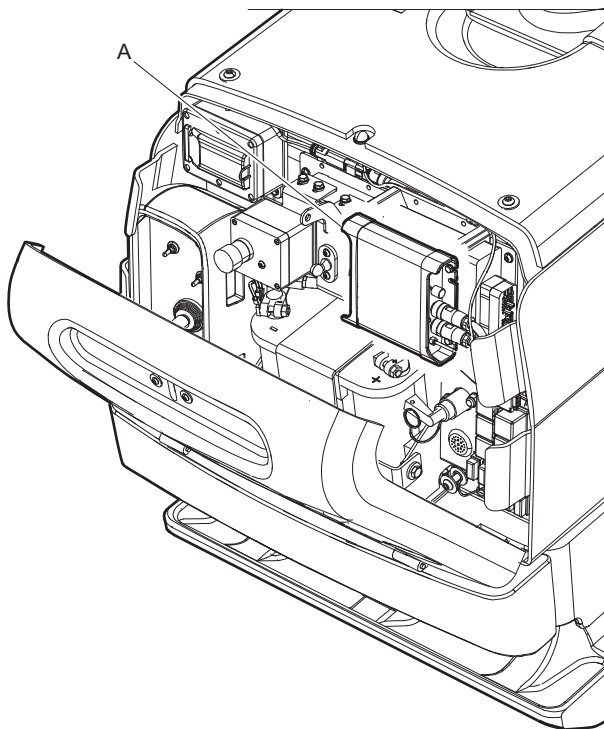
- ◆ Radio communication is interrupted when the battery is removed from the transmitter.
- ◆ The transmitter can be used without the battery if it is connected to the machine with the supplied cable.
- ◆ The battery must be trickle-charged every four weeks, if the transmitter is not used. Remove the battery if the transmitter is not used for a long period.

### Transmitter indications on LED

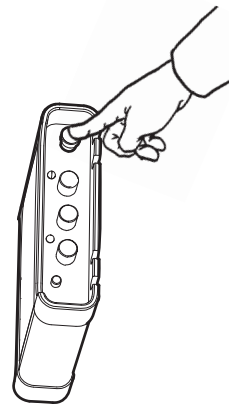
Indication	Status
Fast flashing green light.	No connection.
Flashing green and red light.	Joystick not in centre position at startup.
Slow flashing green light.	Connected.
Yellow light.	Low battery.
Constant yellow light for 10 seconds.	Empty battery.
Red light for 10 seconds.	Transmitter internal error.
Flashing green and yellow light.	In pairing mode.
Constant green light.	Pairing finished.

## Receiver

The receiver (A) is mounted under the rear service hood.



1. Insert and turn the battery disconnecter to locked mode.
2. Activate the pairing mode, by pressing the black button on the receiver.



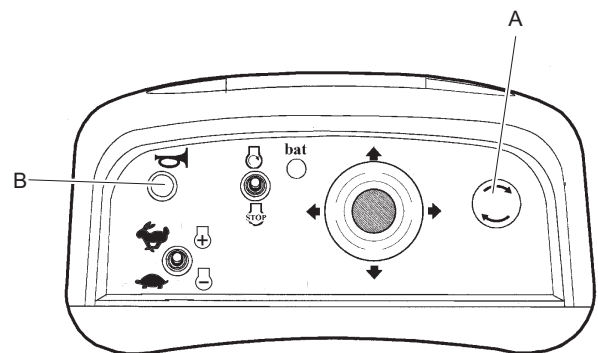
For radio or general indication, a LED labelled RX is used.

Indication on RX	Status
Fast flashing green light.	No connection.
Slow flashing green light.	The receiver is connected. Safety relay (RCSS) is ON.
Constant green light.	The receiver is connected. Safety relay (RCSS) is OFF.
Constant yellow light	50% timeout
Constant red light.	Internal fault, RX (receiver).
Fast flashing red light.	Internal fault, TX (transmitter).

Event	Receiver indication on RX
In pairing mode	Green and yellow 50/50 ms.
Paired	Steady green.

**How to set the transmitter to pairing mode:**

3. Move and hold the joystick from centre position.
4. Start the transmitter by releasing the start/stop button (A).
5. Press the horn button (B) for at least 5 seconds. Pairing is indicated on the LED and the display.



**Pairing function**

The receiver and transmitter have a pairing function so that a transmitter can be paired with the receiver. The receiver learns the transmitter ID. Since BlueTooth is used for communication, the BlueTooth client in the transmitter is paired with the BlueTooth server in the receiver.

The receiver provides indications, visible from outside, to show that the receiver is in pairing mode and that the transmitter has successfully been paired with the receiver.

The time to complete the pairing may be up to 30 seconds. The searching time is limited to 30 seconds.

**How to set the receiver in pairing mode:**

6. Release the joystick.

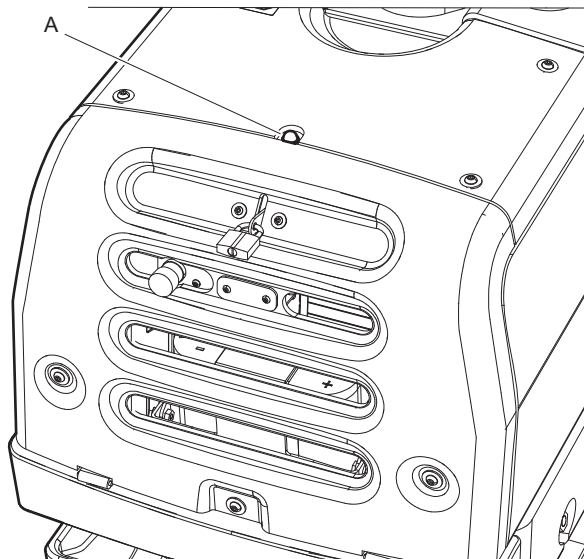
Event	Transmitter LED indication
In pairing mode	Green and yellow 50/50 ms.
Paired	Steady green.

When pairing has been successfully accomplished, restart the transmitter. Restart the receiver by pressing the stop knob.

Event	Transmitter display information
<b>Pairing</b>	
Pairing	Pairing info Pairing RX-TX...
Pairing ready	Pairing info Pairing RX-TX- Link OK Pairing ready! Restart system
<b>BlueTooth</b>	
BlueTooth connected	Pairing info Pairing RX-TX- Link OK
BlueTooth error	Pairing info Pairing RX-TX- Link ERROR Pairing failed! Restart system
<b>Link timeout</b>	
Pairing failed	Pairing info Pairing RX-TX... Pairing failed! Restart system
Pairing failed	Pairing info Pairing RX-TX- Link OK Pairing failed! Restart system

## Antenna

The antenna (A) is mounted on the machine behind the rear service hood.

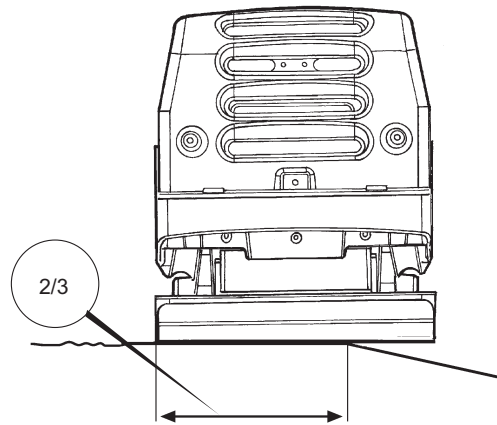


## Operating near edges

### ▲ WARNING Overturning hazard

When operating along edges, at least 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

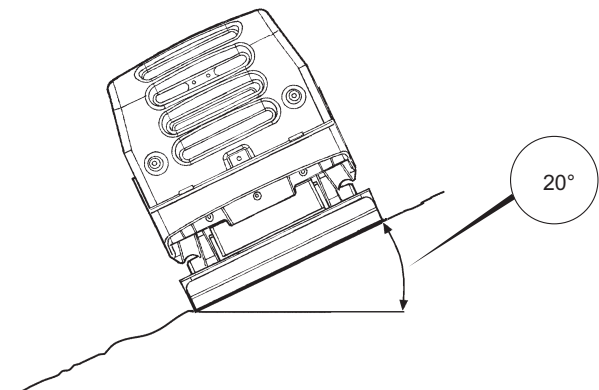
During operation, secure the machine so it can not fall if it is placed on a sloping ground. A fall can lead to severe accidents and result in personal injury.

- ▶ 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.

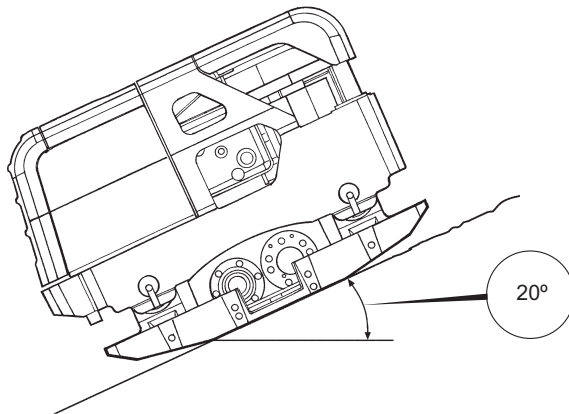
**NOTICE** Remember that loose ground, vibration switched ON, and driving speed can all cause the machine to tip over even on a lesser slope than specified here.

### 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** Always store the transmitter securely to prevent unauthorized starting of the machine.

**NOTICE** Any use of a start gas can shorten the life of the engine. Never use start gas.

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

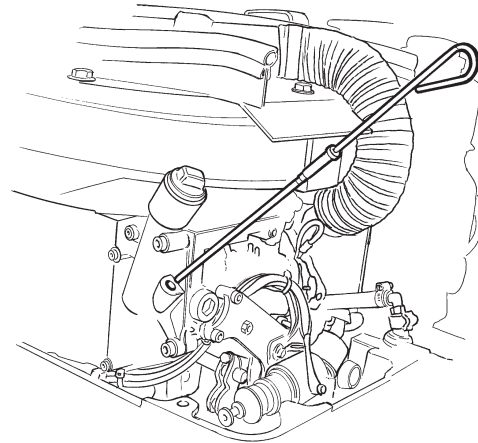
**NOTICE** If the engine fails to start, wait for 3 seconds before a new attempt to start. If the starter motor is used for more than 20 seconds, a delay is activated for 8 seconds.

**NOTICE** If the charging symbol and oil pressure symbol do not extinguish, the machine must be shut off. Fault tracing and repair must be performed by authorized service personnel before the machine is started again.

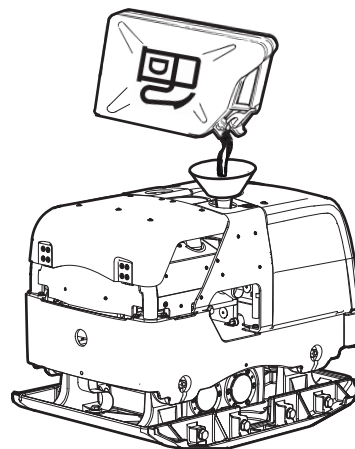
### Before starting, Hatz

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

1. Check the engine oil level.



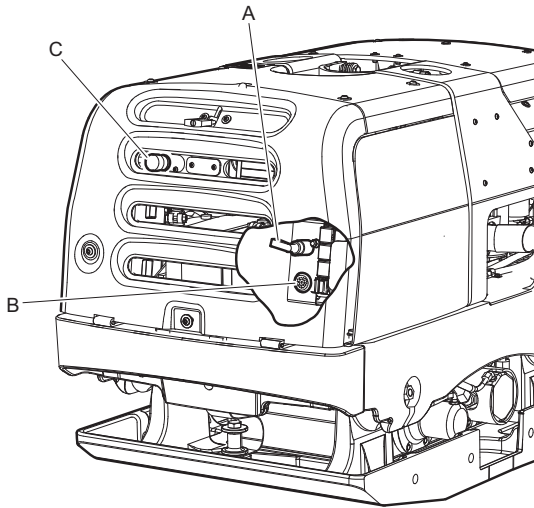
2. Fill the fuel tank with fuel.



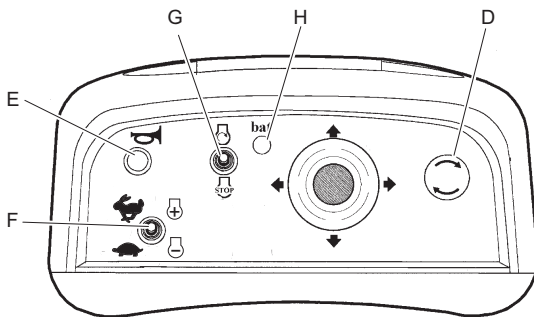
3. Check that all the controls are working.
4. Make sure that there is no oil leakage, and that all bolted joints are tightened.

**Starting the engine, Hatz**

1. Open the rear hood and pick up the transmitter. Insert and turn the battery disconnecter (A) to locked mode. The buzzer (B) sounds when the power is switched on. The buzzer stops when the engine starts.



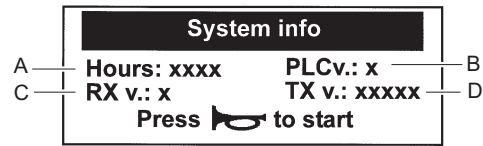
2. Close the hood and pull out the emergency knob (C) on the machine.
3. Release the on/off button (D) on the transmitter. The LED (H) will flash slowly with a green light during normal operation.










4. Press the horn button (E) to establish contact between the transmitter and receiver.
5. Set the switch for engine speed (F) to low.
6. Start the engine with the toggle switch (G), release when the engine has started.
7. Check the battery status. Yellow LED (H) indicates a low transmitter battery. Always have an extra fully-charged battery available.

**System information**

When the transmitter is turned on, the following data will be shown on the display:

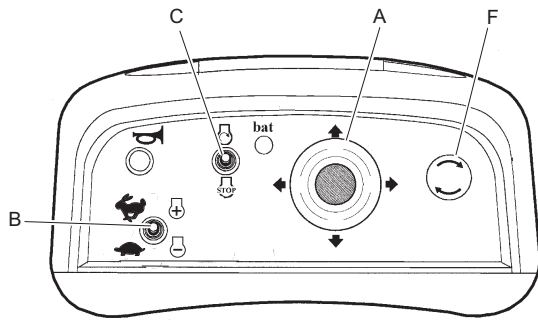


- A. Engine running hours.
- B. Software version for the machine's ECU (Electronic Control Unit).
- C. Software version for the radio receiver.
- D. Software version for the radio transmitter.

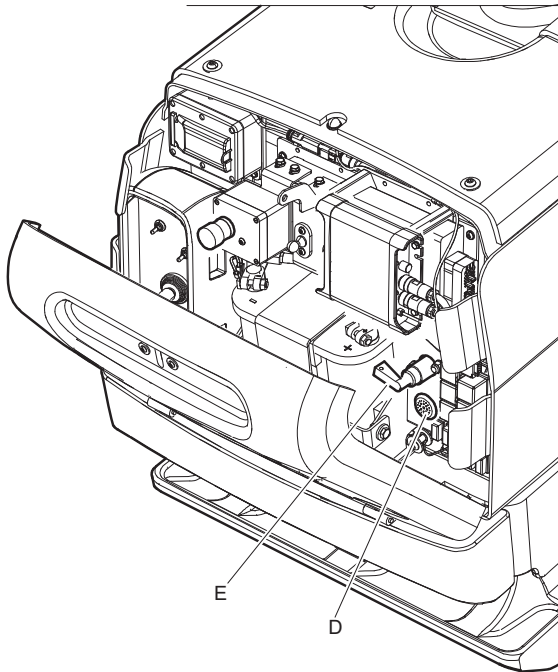
Symbol	Description
	Radio contact established between transmitter and receiver.
	Alarm, charging.
	Alarm, low oil pressure. Engine shuts off within 30 seconds.
	Fault codes: <b>CA:</b> Can error. Check the connection cable between receiver and ECU.
	Radio contact lost between transmitter and receiver. Engine shuts off.
	Transmitter connected via cable control.
	High hydraulic oil temperature. Engine shuts off.

## Stopping the engine, Hatz

1. Stop the vibration by inactivating the joystick (A).



2. Set the speed switch (B) to low (tortoise).
3. Let the engine idle for a few minutes.
4. Push the start/stop switch (C) back. The buzzer (D) sounds when the engine stops.

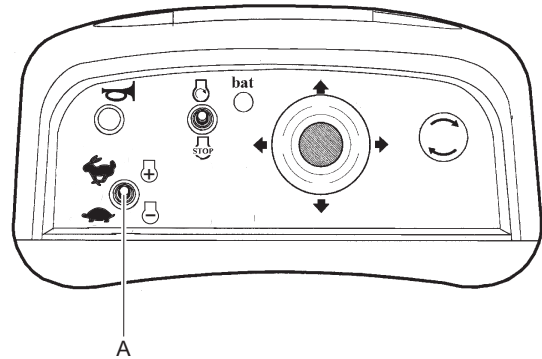


5. Open the rear hood and twist the battery disconnecter (E) back to stop the buzzer.
6. Turn off the transmitter with the on/off button (F), the LED indicator light turns off.
7. Place the transmitter in its transportation position in the machine or store it in a safe place.

## Operating

### Operation

- ◆ Give full throttle by setting the speed switch (A) to high (hare).



- ◆ Repeating the high speed setting is only possible after 30 seconds of low speed.

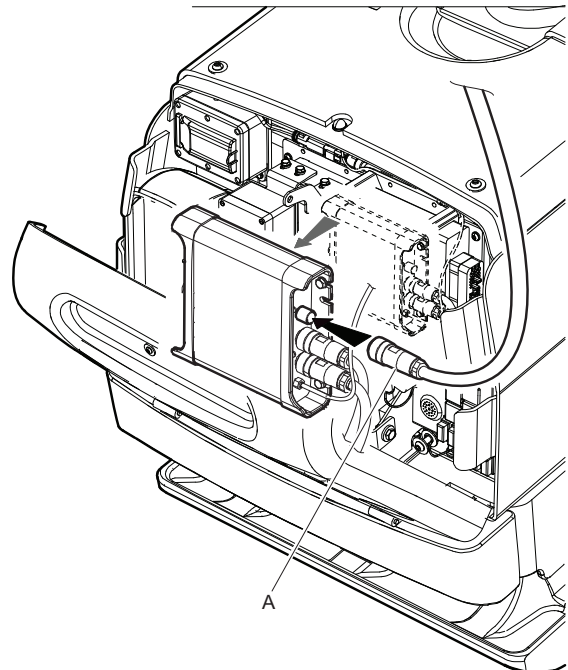
**NOTICE** Vibration is activated when the joystick is used.

### Cable control

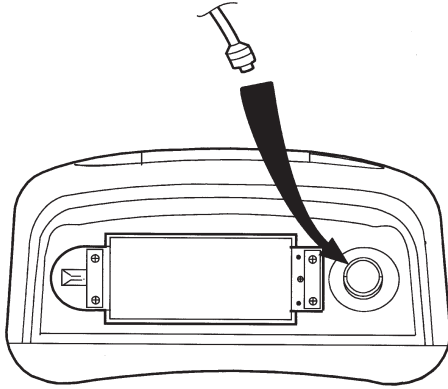
**NOTICE** The connector must be cleaned before mounting the cable. Damaged connectors must be replaced by authorized personnel.

The machine can be operated by cable control.

- ◆ Mount the cable (A) on the receiver.

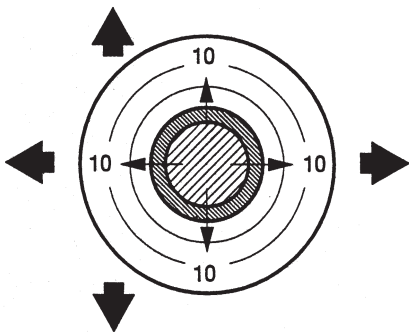


- ◆ Mount the cable on the transmitter.



- ◆ The machine is ready to use. Use the same procedure for start/stop and operating as when using radio control.
- ◆ When cable control is used, the transmitter battery is not needed. The transmitter receives power via the cable.

## Control



- ◆ **Forward operation:**  
Move the joystick forwards.
- ◆ **Reverse operation:**  
Move the joystick backwards.
- ◆ **Right operation:**  
Move the joystick to the right.
- ◆ **Left operation:**  
Move the joystick to the left.
- ◆ **Stop the machine and vibrator:**  
Release the joystick to stop the vibrator and the machine will stop.

## When taking a break

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

### Parking

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

- ◆ Turn off the engine and the transmitter.
- ◆ Store the transmitter securely to prevent unauthorized start of the machine.

## Maintenance

### ▲ WARNING Scalding hazard

During maintenance there is a risk of scalding from hot engine oil.

- ▶ Always ensure that the engine is cold before performing any 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

**NOTICE** Do not use a quick charger when charging the battery. This may shorten the life of the battery.

**NOTICE** When welding on the machine, the positive and the negative terminals of the battery must be disconnected. Never connect the welder grounding cable to the diesel engine. Disconnect all cables from the receiver and ECU before performing any welding on the machine.

### Starting characteristics

The battery is designed for high load (brief high current). The battery's ability to supply power is reduced when very cold. The capacity is specified for 25°C (77°F) and it falls by about 0.8% per °C (2°F). The capacity does not disappear altogether when cold. The battery regains full power when it becomes warm again.

### 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 (19°F). A fully charged battery will freeze at -67°C (-89°F). A battery that is not being used must be fully charged before being put aside.

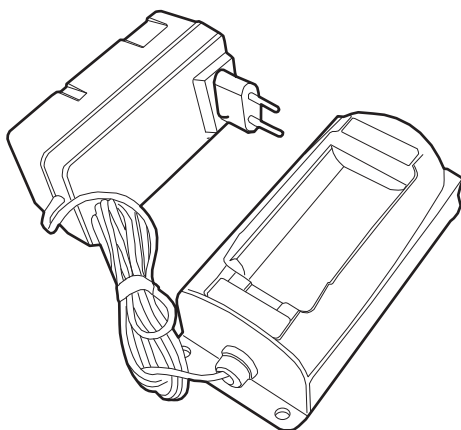
Trickle charging is not normally required during a period of 6 to 8 months. If a battery has not been in use for a long period, it must be fully charged before being used. Trickle charging is recommended a couple of times during the season (especially in winter).

## Desktop charger

### ⚠ WARNING Explosion

If the battery is charged in a damp room at a high temperature, it might explode.

- Use charger only in a dry room within the temperature range -25-70°C (-13-158°F).



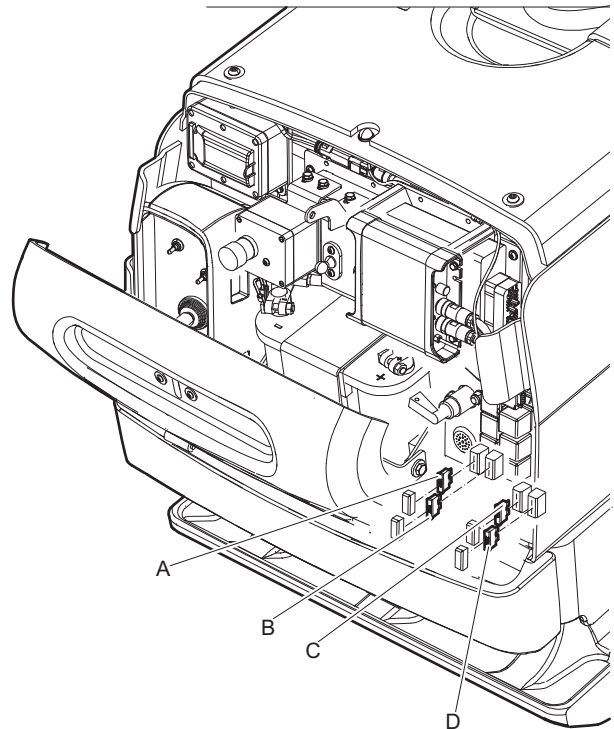
- ◆ The desktop charger works within a voltage range of 100-240 V.
- ◆ The desktop charger comes with an adapter that works in most sockets.

A steady yellow light indicates that the charger is ready for charging. Place the battery in the charger. The charger verifies the battery, which takes 10 seconds. If battery is accepted the charge starts. Full charge time is 2.5 hours at a normal temperature. The battery will not be damaged if it is left in the charger when fully charged.

When the battery is removed from the charger, wait until the LED indicator turns yellow before inserting a new battery for charging.

LED indicator	Battery status
Yellow	Battery verification
Orange	Fast charge
Green with intermittent yellow flash	Top-off charge
Green	Trickle charge
Alternating orange-green	Error

## Fuses



- A. Charging regulator for main battery, 40 A
- B. Main fuse, 30 A
- C. Radio receiver + Electronic Control Unit (ECU), 5 A
- D. Transmitter battery charger + Electronic Control Unit (ECU), 20 A



## Every 10 hours of operation (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.

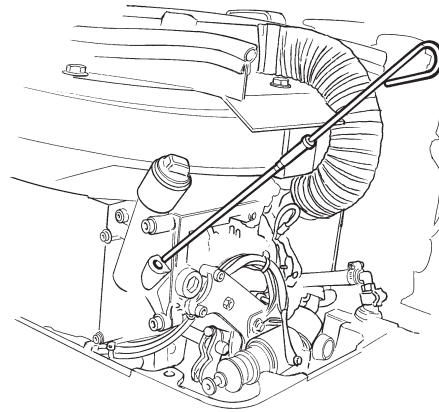
In order to ensure that the machine remains within the stated vibration level values, the following checks must be performed:

Maintenance routines:

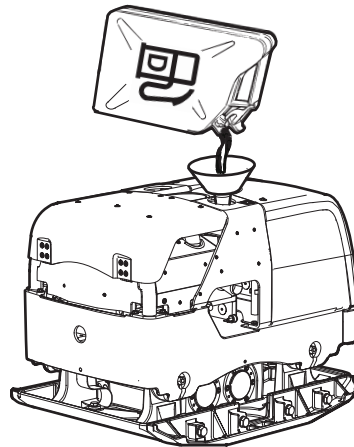
- ◆ Check and replenish engine oil. See engine manual for more information.
- ◆ Check and replenish fuel.
- ◆ Check for oil leaks.
- ◆ Clean and refit the air filter.
- ◆ Check the tightness of all nuts and bolts.
- ◆ Check that the safety straps are not damaged, change if necessary.
- ◆ Check the functions of the transmitter and the receiver.

### Checking the engine, Hatz

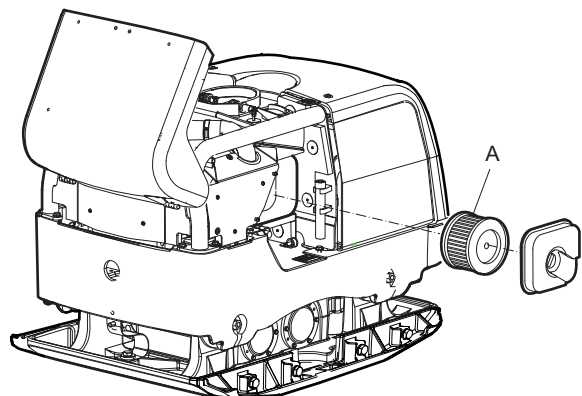
- ◆ Check the oil level on the dipstick.



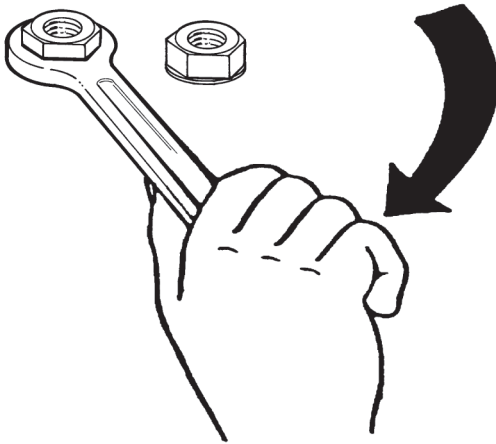
- ◆ Check the fuel and replenish fuel.



- ◆ Check the engine for oil leaks.
- ◆ Clean and refit the air filter (A) if needed.



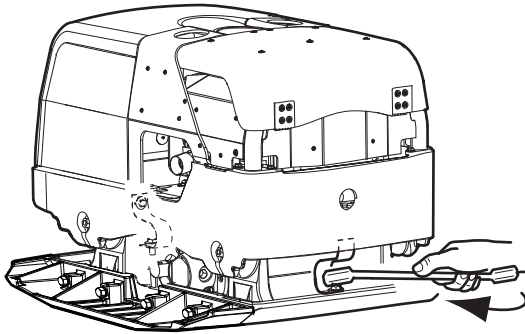
## Checking bolted joint



Check and if necessary tighten screws and nuts.

## 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.

## 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

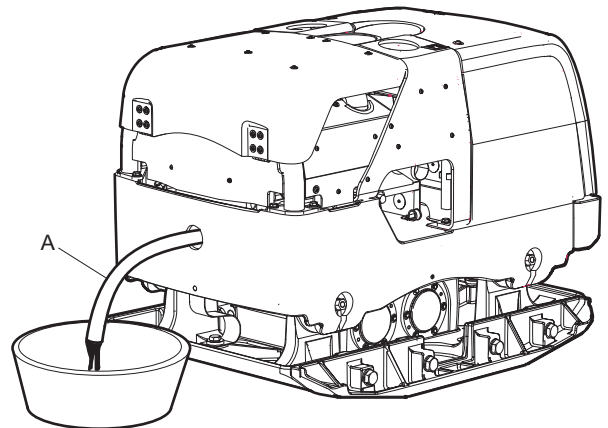
Maintenance routines:

- ◆ Change the engine oil. See engine manual for more information.
- ◆ Clean and refit oil filter. See engine manual for more information.
- ◆ Clean and refit air filter. See engine manual for more information.
- ◆ Check and adjust the engine valve clearances. See engine manual for more information.
- ◆ Check fluid level in hydraulic reservoir.

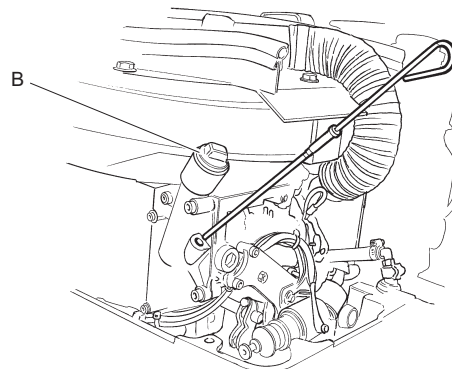
### Changing the engine oil, Hatz

Use at least a 1.8 litres (2.0 qts) container to collect the oil.

1. Unscrew the drainage plug for the oil and drain off all oil. Use the draining hose (A).
2. Clean around the drainage plug and refit it.

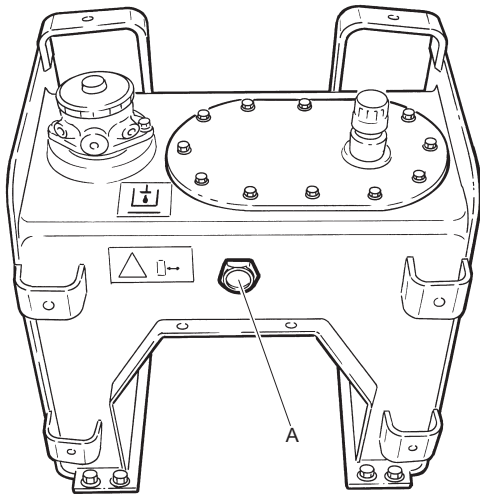


3. Refill with oil (B).



## Hydraulic system, checking the hydraulic oil

1. Check the level of the hydraulic oil (A).



2. Replenish if necessary.

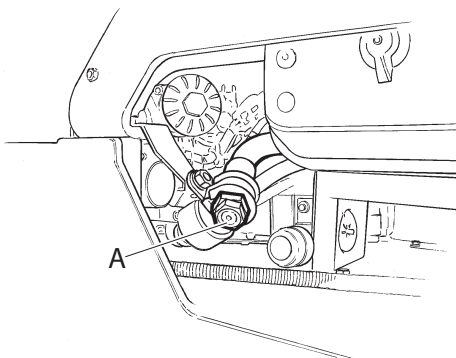
## Every 100 hours of operation

Maintenance routines:

- ◆ Change engine oil. See the engine manual for more information.
- ◆ Empty water separator.
- ◆ Check and replenish fluid in hydraulic tank.
- ◆ Clean or replace air filter.
- ◆ Check the battery.
- ◆ Check the shock absorbers.

### Empty water separator

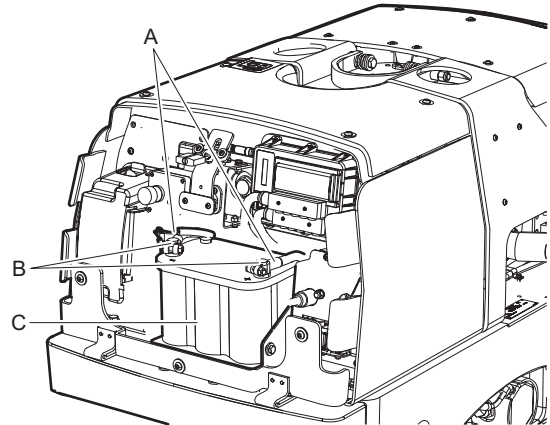
1. Loosen the drainage plug (A).



2. Drain until only pure fuel is left in the bowl.
3. Refit the drainage plug (A).

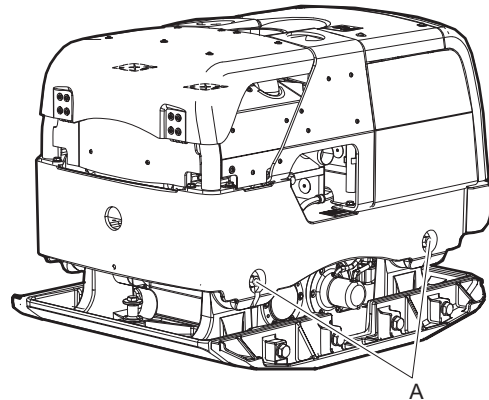
## Checking the battery

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).



## 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 500 hours of operation (yearly)

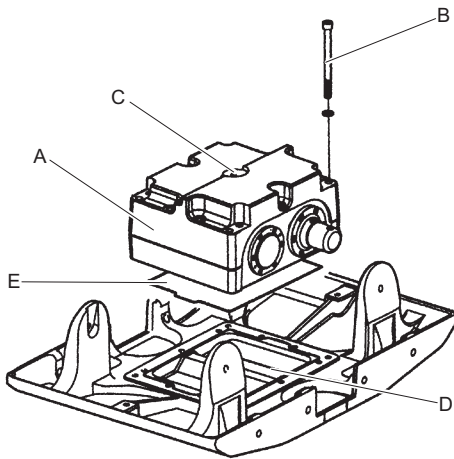
Maintenance routines:

- ◆ Change eccentric element oil.
- ◆ Change hydraulic fluid and filter.

- ◆ Check fuel injection pump. See the engine manual for more information.
- ◆ Check the fuel injection nozzle. See the engine manual for more information.
- ◆ Adjust the valve clearances for intake and exhaust valves. See the engine manual for more information.
- ◆ Replace piston rings. See the engine manual for more information.

## Changing the oil in the eccentric element

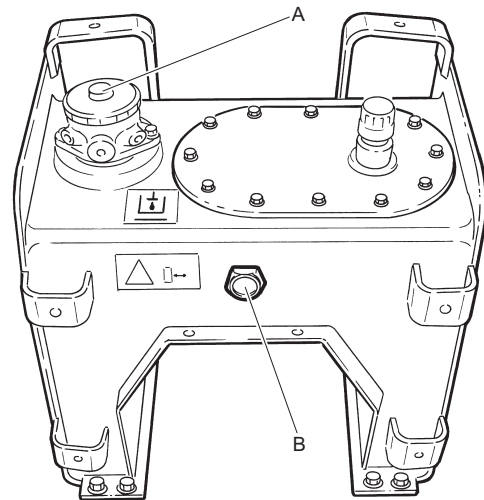
1. To loosen the eccentric element (A) unscrew the screws (B).



2. Screw off the filler plug (C).
3. Clean the oil container (D).
4. Grease the surfaces (E) between the eccentric element and the bottom plate.
5. Refill with oil (C).
6. Mount a new O-ring (E).
7. Tighten the screws (B) crosswise.
8. Screw in the filler plug (C).

## Hydraulic system, changing the hydraulic oil

1. Remove the protective cover (A).



2. Open the hydraulic reservoir filter and empty it by using a pipette.
3. Fill with hydraulic fluid up to the sight glass level (B).
4. Replace the hydraulic filter and refit all covers.

## 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.

Dispose of the old battery in an approved environmentally suitable manner, the battery contains toxic lead and highly corrosive sulfuric acid.

## 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

LH 804	Hatz, electrical start
<b>Engine</b>	
Type	Hatz 1D90V
Power, kW (hp)	11.5 (15.4)
Rated speed, r.p.m.	3,000
<b>Performance</b>	
Operating speed, m/min (feet/min)	30 (98)
Maximum tilt, ° (%)	20 (36)
<b>Compaction data</b>	
Vibration frequency, Hz (r.p.m.)	53 (3,180)
Centrifugal force, kN (lbf)	95 (21.375)
Amplitude, mm (in.)	2.5 (0.98)
<b>Fluid volumes</b>	
Fuel tank, litres (qts)	7.0 (7.4)
Crank case, litres (qts)	1.9 (2.0)
Hydraulic fluid, litres (qts)	27.0 (7.1)
Eccentric element, litres (qts)	1.0 (1.1)
Fuel consumption litres/hours (qts/h)	2.3 (2.4)
<b>Electrical system</b>	
Battery Voltage, V (Ah)	12 (44)
<b>Lubricants</b>	
Engine oil	Shell Rimula R4 L 15W-40
Eccentric element oil	Shell Rimula R4 L 15W-40
Hydraulic fluid	Shell Tellus TX68
Biodegradable hydraulic fluid	Shell naturelle HF-E46
Fuel	Use diesel oil which satisfies EN 590 or DIN51601
<b>Weights</b>	
Operating weight EN500, kg (lbs)	820 (1808)

## Radio equipment

<b>Transmitter</b>	
Operating voltage	Battery NiMh 1500 mAh. The transmitter can be operated without battery via cable control.
Operating time	Up to 15 hours with a new battery.
Data display	Graphical, resolution 128 x 32.
Protection class	IP 65.
Operating temperature, °C (°F)	Between -25 (-13) and +70 (+158).
Storage temperature, °C (°F)	Between -40 (-40) and +85 (+185).
Battery	2 x NiMh batteries supplied with the machine.
<b>Receiver</b>	
Operating voltage, V DC	Between 10 and 32
General consumption	100 mA, without external charging at 12 V DC.
Processor	CPU design 2 robust safety switches (max 2 A). Designed to fulfil EN 13849-1 PL e (EN954-1, Cat 4).
Operating frequency, GHz	BlueTooth, 2.4
Indication, receiver	Triple-colour LED, Red/Green/Yellow.
Indication, CAN status	Twin-colour LED Red/Green.
Protection class	IP 66

Operating temperature, °C (°F)	Between -25 (-13) and +70 (+158).
Storage temperature, °C (°F)	Between -40 (-40) and +85 (+185).

## Weights for options

	Width 150 mm (6 in.)	Width 300 mm (12 in.)
Extension plates, kg (lb)	14.6 (32)	24.6 (54)

## 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 500-4:2011.

Vibration value determined according to EN 500-4:2011. 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, Atlas Copco Construction Tools AB, 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 500-4:2011	
	L <sub>p</sub> at operator's ear	L <sub>w</sub> guaranteed dB(A) rel 1pW	L <sub>w</sub> measured dB(A) rel 1pW	m/s <sup>2</sup> value	permitted working hours/day
LH 804	94	109	107	-(Radio)	-

## Uncertainties, sound value

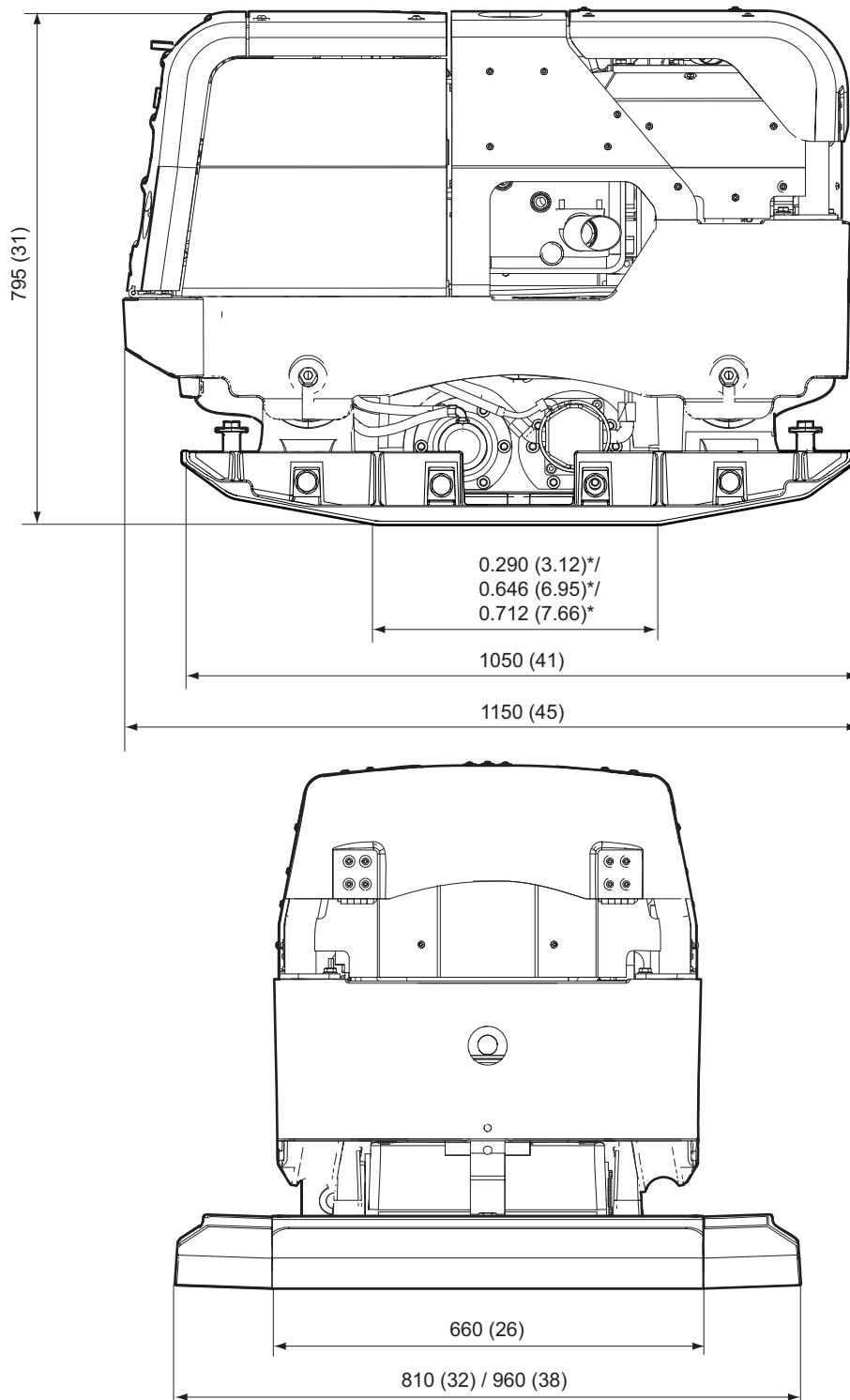
Type	Uncertainties, sound value	
	K <sub>wa</sub> dB(A)	K <sub>pa</sub> dB(A)
LH 804	1.5-2.5	2.5-3.0

Uncertainty factor for gravel bed.

# Dimensions

mm (in.)

\*Contact area m<sup>2</sup>(sq feet).





# EC Declaration of Conformity

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

We, Atlas Copco Construction Tools AB, 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.

Forward and reversible plate	Guaranteed sound power level [dB(A)]	Measured sound power level [dB(A)]
LH 804	109	107

### Following harmonised standards were applied:

- ◆ EN500-1:2006+A1:2009
- ◆ EN500-4:2011

### Following other standards were applied:

- ◆ 2000/14/EC, appendix VIII
- ◆ 2004/108/EC
- ◆ EN 13766 B, C

### Notified body involved for directive:

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 Göteborgsvägen 4  
 433 02 Sävedalen  
 Sweden

### Technical Documentation authorised representative:

Emil Alexandrov  
 Atlas Copco Lifton EOOD  
 7000 Rousse  
 Bulgaria

### General Manager:

Nick Evans

### Manufacturer:

Atlas Copco Construction Tools AB  
 Box 703  
 391 27 Kalmar  
 Sweden

### Place and date:

Rousse, 2013-05-14







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