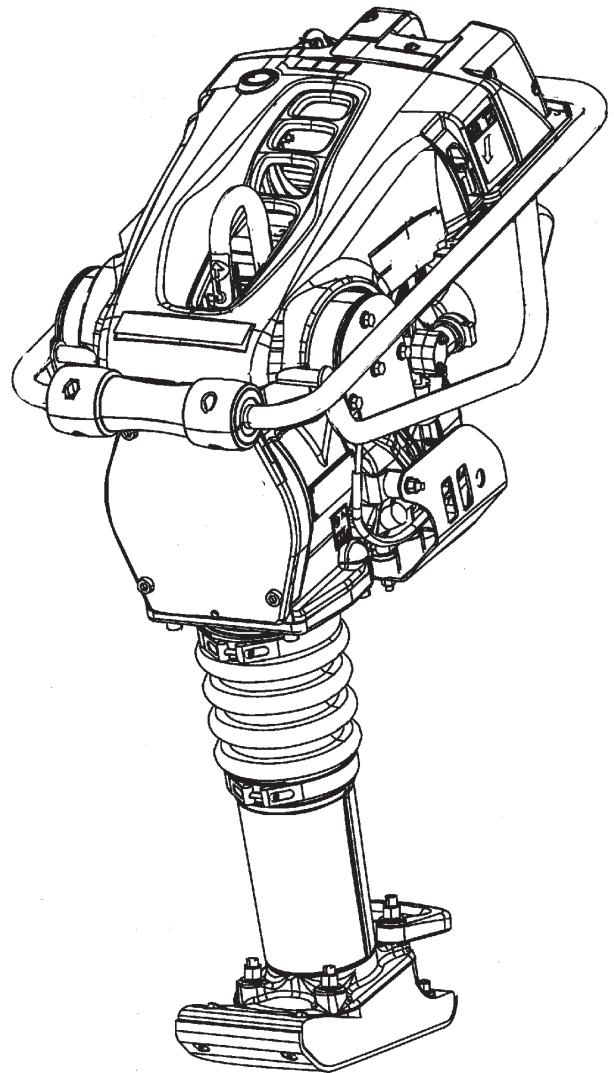




Safety and operating instructions

Rammer MS 590



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Introduction

Thank you for choosing Chicago Pneumatic brand products. For over a century, the Chicago Pneumatic brand has represented performance and innovation in the pneumatic tool industry.

Today the brand is found around the world on a range of pneumatic and hydraulic tools that includes breakers, rock drills, chipping hammers, clay-diggers, picks and busters, scabblers, pumps and a whole lot more.

The Chicago Pneumatic brand is associated with powerful and reliable products that are easy to maintain and that give good value for the money.

For more information please visit www.cp.com

Atlas Copco Construction Tools AB
105 23 Stockholm
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:

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

Personal precautions and qualifications

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

Personal protective equipment

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

- > Protective helmet
- > Hearing protection
- > Impact resistant eye protection with side protection

- > Respiratory protection when appropriate
- > Protective gloves
- > Proper protective boots
- > Appropriate work overall or similar clothing (not loose-fitting) that covers your arms and legs.

Drugs, alcohol or medication

▲ **WARNING** Drugs, alcohol or medication

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

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

Operation, precautions

▲ **DANGER** Explosion hazard

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

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

▲ **DANGER** Fire hazard

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

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

▲ DANGER Fuel hazard

The fuel is extremely flammable and petrol 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, and never fill the fuel tank when the machine is hot.
- ▶ Mix the fuel and 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 petrol 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 and may break due to fatigue after a certain amount of use. If the machine breaks or gets stuck, there may be sudden and unexpected movement that can cause injuries. Furthermore, losing your balance or slipping may cause injury.

- ▶ Make sure that you always keep a stable position with your feet as far apart as your shoulder width, and keeping a balanced body weight.
- ▶ Always inspect the equipment prior to use. Never use the equipment if you suspect that it is damaged.
- ▶ Make sure that the handles are clean and free of grease and oil.
- ▶ Keep your feet away from the rammer shoe.
- ▶ Stand firmly and always hold on to the machine with both hands.
- ▶ Never start the machine when it is lying on the ground.
- ▶ Never 'ride' on the machine with one leg over the handle.
- ▶ Never strike or abuse the equipment.
- ▶ Check regularly for wear on the machine, and check whether there are any signs of damage or visible cracks.
- ▶ 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 should 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 should 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 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 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 whilst 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:

- ▶ Let the machine do the job. Use a minimum hand grip consistent with proper control and safe operation.
- ▶ 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 should 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. It is also important not to keep the start and stop device engaged while extracting the machine from the broken work surface.
- ▶ Make sure that the rammer shoe is well-maintained, not worn out, and of the proper size. Rammer shoes that are not well-maintained, or that are worn out, or that are not of the proper size result in longer time to complete a task (and a longer period of exposure to vibration) and may result in or contribute to higher levels of vibration exposure.

- ▶ Immediately stop working if the machine suddenly starts to vibrate strongly. Before resuming the work, find and remove the cause of the increased vibrations.
- ▶ Never grab, hold or touch the rammer shoe when using the machine.
- ▶ 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.

▲ WARNING Slippery machine surface hazard

There is a risk that the machine (for example, the handles and other surfaces) are slippery due to grease, oil, or other substances. If the machine is slippery, there is a risk that you might lose your grip, drop the machine, and/or come in contact with the rammer shoe during operation of the machine. Any such event can cause injury. To reduce this risk:

- ▶ Always make sure that the handles and other gripping surfaces of the machine are not slippery.
- ▶ Always make sure that the handles and other gripping surfaces are free from grease and oil.

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, insertion tools, and accessories.
- ▶ Change damaged parts immediately.
- ▶ Replace worn components in good time.

▲ CAUTION High temperature

The machine's engine exhaust pipe, and bottom become hot during operation. Touching them can lead to burns.

- ▶ Never touch a hot machine.
- ▶ Never touch the bottom of the machine when its hot.
- ▶ Wait until the engine, exhaust pipe, and bottom of the machine have cooled down before carrying out maintenance work.

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

MS rammers are designed for the compaction of fill, including fill that contains clay.

Applications include house foundations, and bearing courses for roads and parking areas etc.

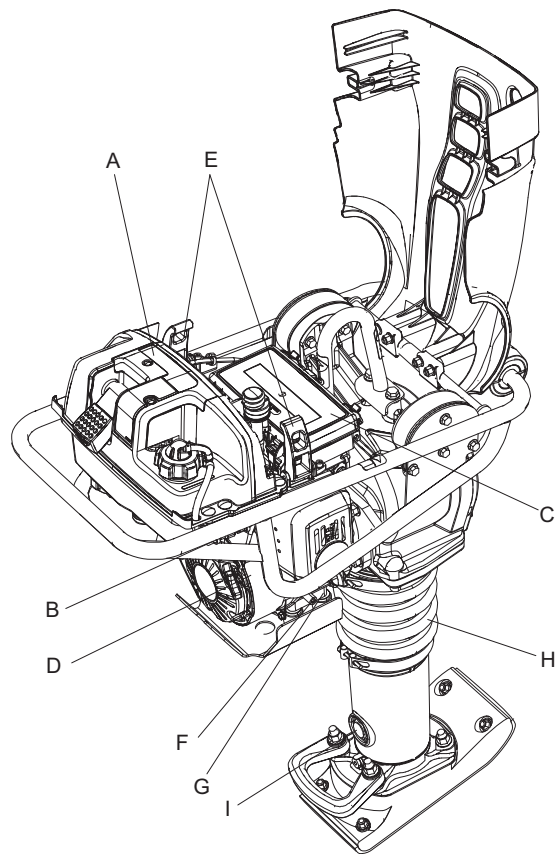
They can be used to advantage in pipe trenches and for compacting round posts etc.

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

Do not lift the machine in any way during operation, and do not operate on steeper slopes than those recommended in this manual.

No other use is permitted. To choose the correct accessories, see the spare parts list.

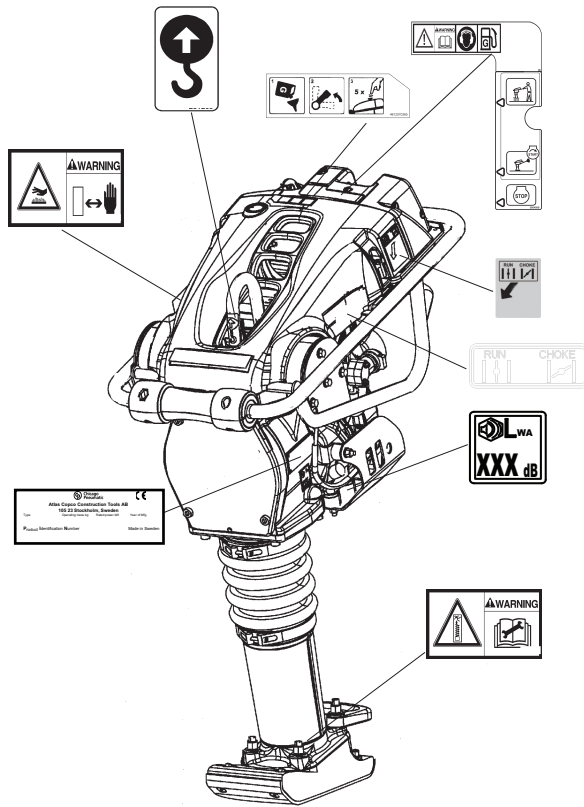
Main parts



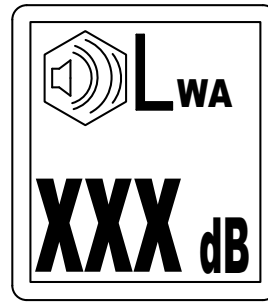
- A. Fuel tank
- B. Fuel filter
- C. Air filter
- D. Cooling system
- E. Hood locks
- F. Oil plug
- G. Dip stick
- H. Bellow
- I. Spring-loaded leg oil, sight glass

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.



Noise level label



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

Warning label - Compressed spring package



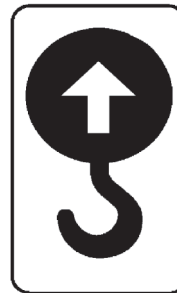
Read the service manual.

Warning label - Hot surfaces

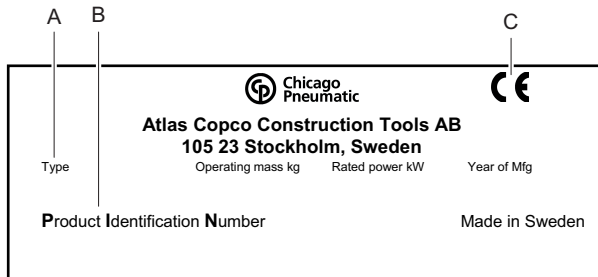


Never touch the silencer and exhaust system.

Lifting point label

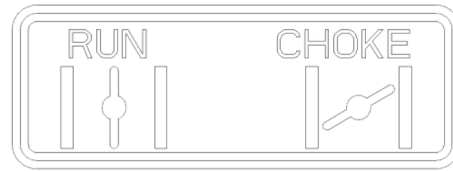
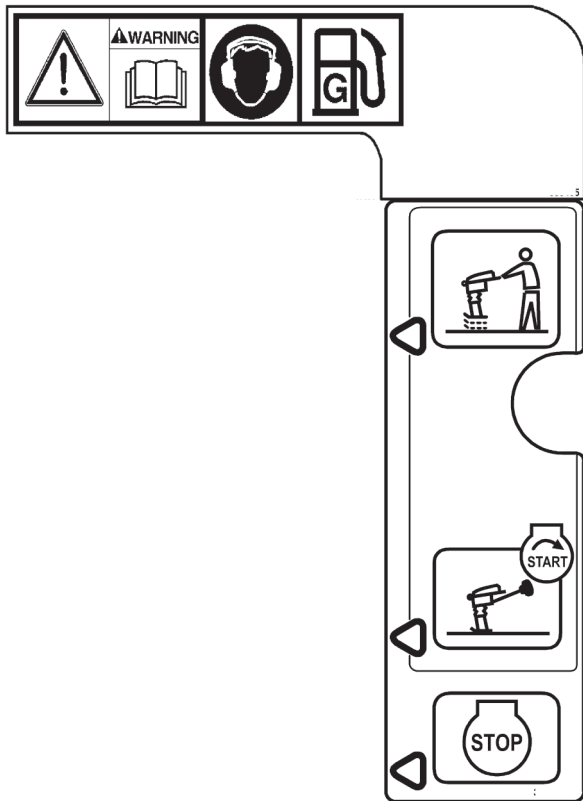


Data plate



- 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.

Safety label and start label



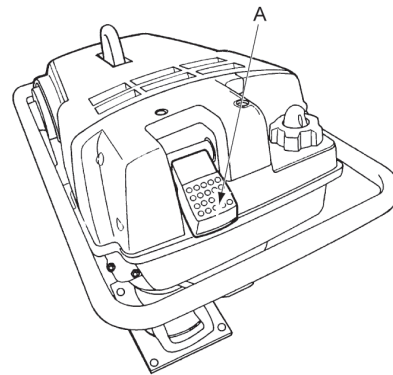
Transport

▲ WARNING Transport

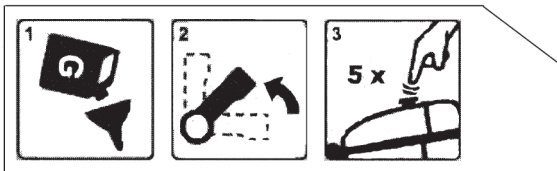
During transportation the machine can overturn and cause serious injury.

- ▶ Always strap the machine.
- ▶ Keep your feet away from the machine.

1. Lay the machine down when it is switched off and not being used.
2. Always set the throttle control in stop mode (A) so that no fuel runs out.



Start label on hood

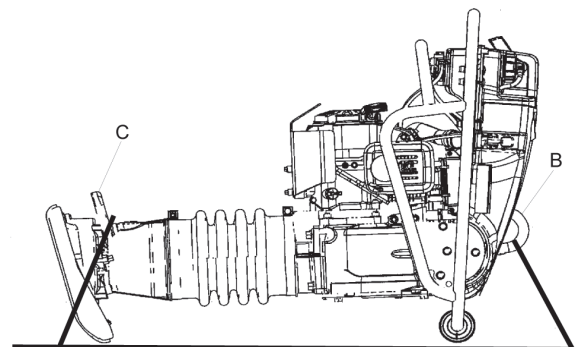


- 1) Fill up with fuel.
- 2) Start lever.
- 3) Venting knob.

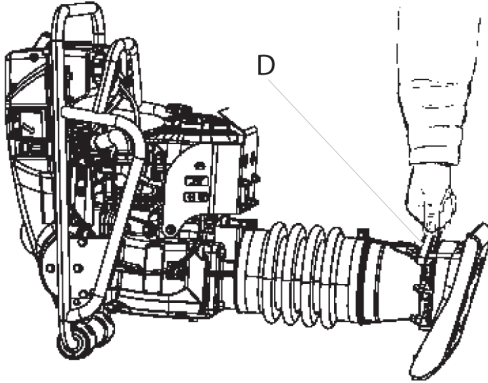
Engine choke label



3. Secure the machine via the lifting hook (B) and the lower lifting handle (C).



- When moving short distances the machine can be tilted forward, so that it rests on the plastic wheels on the handle. Lift with the lower lifting handle (D) and roll the machine forwards and backwards.



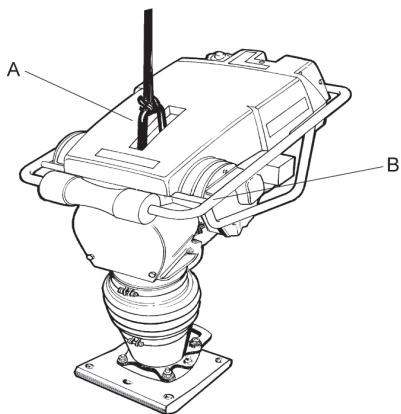
Lifting

▲ WARNING Lifting hazard

During lifting the machine can fall down this can cause serious injury.

- ▶ Never walk or stand under a lifted machine.
- ▶ Keep your feet away from the machine.

- Always use the machine's lifting eye (A) to lift the machine.



- The lifting equipment must be in dimensioned in order to fulfil all regulations. Before lifting check that shock absorbers (B) and lifting eye (A) are correctly attached and not damaged.

Installation

Fuel

Filling

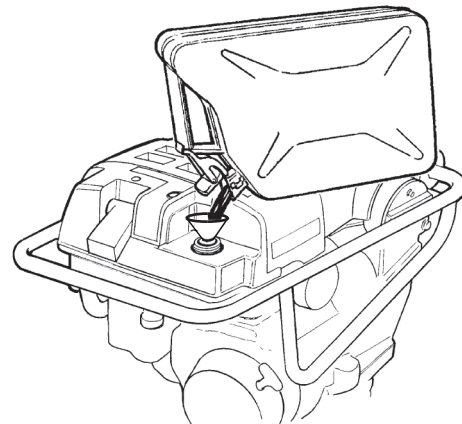
▲ WARNING Fuel hazard

The fuel (petrol) is extremely flammable and petrol 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

- Stop the engine and let it cool down before filling the tank.
- The machine must be in a upright position when filling it with fuel.



- Release the filler cap slowly to let any pressure escape.
- 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.
- Make sure that the filler cap is screwed on when the machine is used.

Operation

▲ WARNING Involuntary start

Involuntary start of the machine may cause injury.

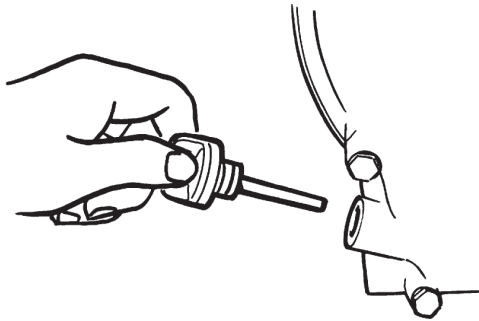
- ▶ Keep your hands away from the start and stop device until you are ready to start the machine.
- ▶ Learn how the machine is switched off in the event of an emergency.

Start and stop

Before starting

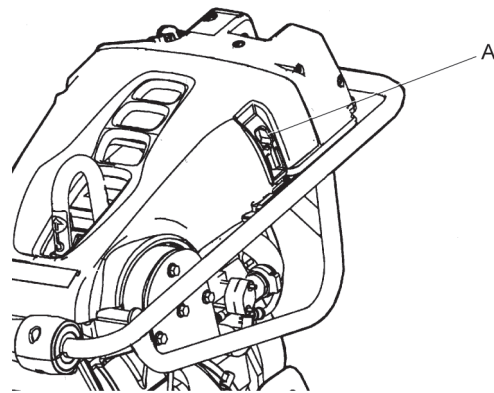
Follow the general precautions supplied with the machine at the delivery. We recommend you to study the engine manual supplied with the machine. Check that the maintenance has been carried out. We recommend that you also read the detailed engine instructions supplied with the machine.

1. The rammer must be standing straight up when the oil level is checked in the engine.



2. Fill the fuel tank with fuel.
3. Ventilate the fuel system.
4. Check that all the controls are working.

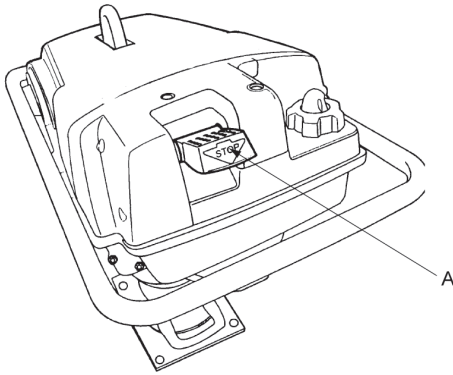
5. Make sure that there is no leakage of oil, and that all bolted joints are tightened.



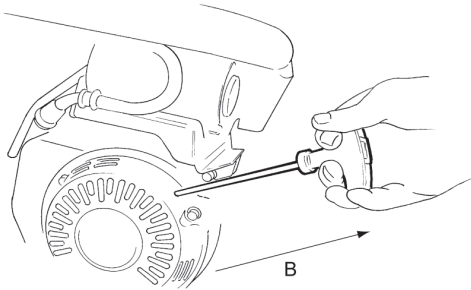
6. Check that the hood locks (A) are locked.

Starting the engine

1. Set the throttle control (A) in starting mode.



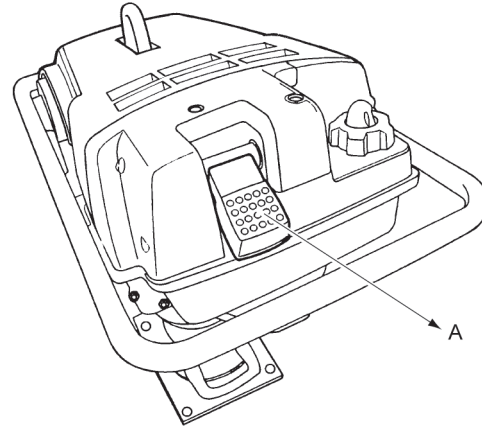
2. Close the choke if the engine is cold; if the engine is warm or the ambient temperature is high, push the choke in halfway or leave open. See label on the air filter.
3. Pull out the starter rope (B) until it resists. Release the handle so the starter rope goes back again, and then pull the starter rope until the engine starts.



4. Now gradually open the choke until it is fully open.
5. Allow the engine to idle for a few minutes before increasing to full power.

Stopping the engine

Put the throttle control (A) in the stop position.



In this position the fuel supply to the engine is switched off and the engine switch is in the stop position.

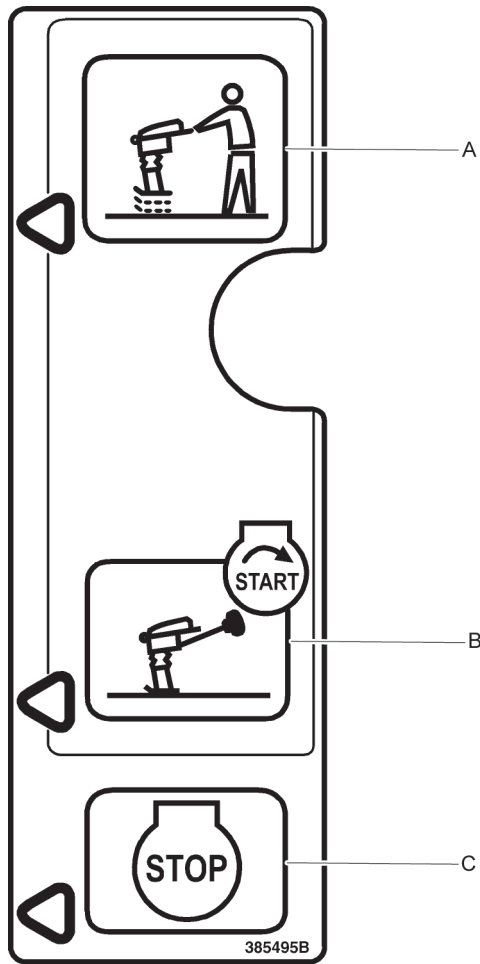
Operating

NOTICE During operation, the engine must always work at full throttle (working mode).

NOTICE When operating in narrow trenches, there is a risk of the rammer leg fastening between the trench walls. The rammer can then miss-strike and become damaged. The rammer shoe in particular could be severely damaged. When operating in trenches, make sure that they are wide enough before starting.

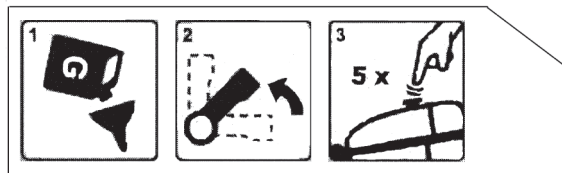
- ◆ Operate the rammer on a level surface.
- ◆ Never operate on hard surfaces (solid rock, hardened concrete etc).
- ◆ Steer the machine with the handle.
- ◆ Excessive pressure on the handle will result in poor compaction by obstructing the vibratory action.
- ◆ The rammer must not be pressed down into the material being compacted.
- ◆ If the machine tips over during operation, switch off the engine before lifting it up.

Start label



- A. Working mode.
- B. Start and idling.
- C. Stop, transport and refuelling.

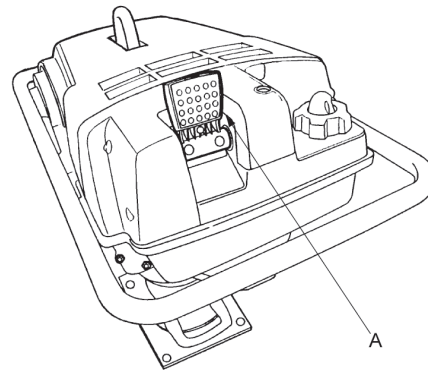
Start label on hood



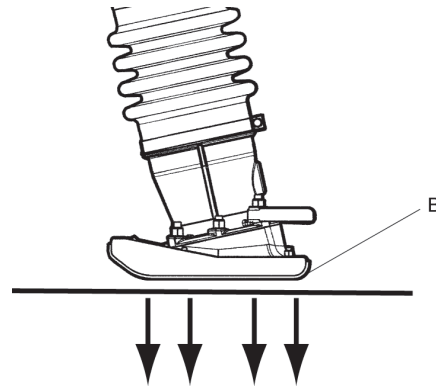
- 1) Fill up with fuel.
- 2) Start lever.
- 3) Venting knob.

Operating

- 1. Set the throttle control (A) in working mode, and the rammer will start to move forward.



- 2. Steer the rammer with the handle.
- 3. Make sure the rammer shoe (B) is impacting parallel to the ground.



- 4. Never overload or force the machine.

When taking a break

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

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 hazards”
- ◆ 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 your nearest authorised workshop.
- ◆ After each service, check that the machine's vibration level is normal. If not, contact your nearest authorised workshop.

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

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.)

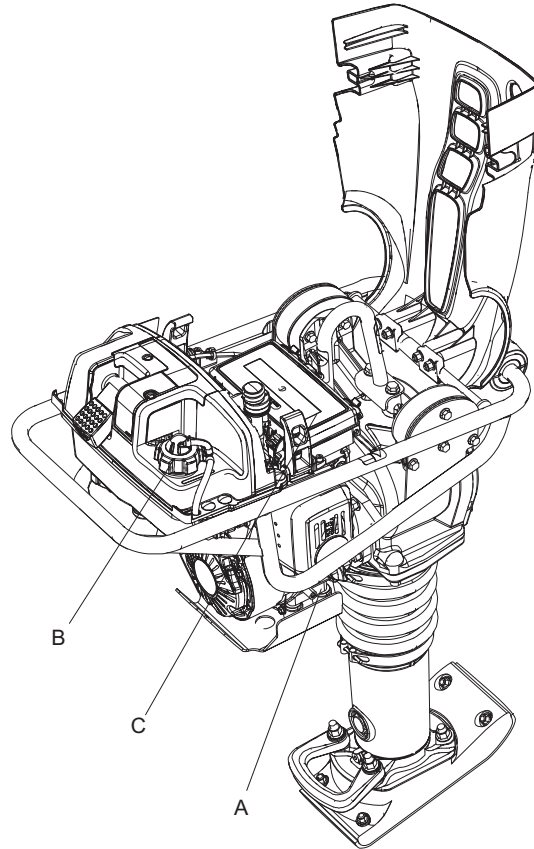
Every 10 hours of operation (daily)

Daily maintenance routines before starting up:

- ◆ Check that leakages or other faults are detected and rectified.
- ◆ Check the ground under the machine. Leakages are more easily detected on the ground than on the machine itself.
- ◆ Check and replenish fuel and engine oil. See the engine manual for more information.
- ◆ Check and clean the air filter.
- ◆ Check the tightness of all nuts and bolts.
- ◆ Check that the machine is clean.

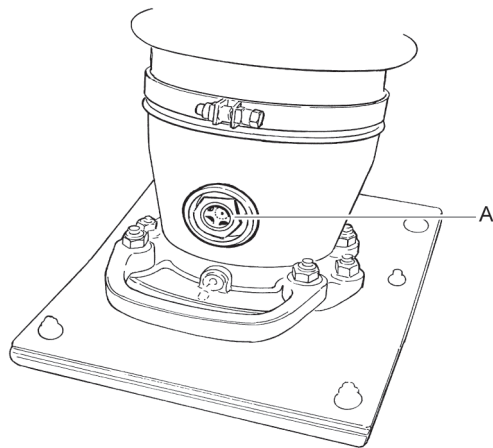
- ◆ Check or clean the engine's cooling flanges. See the engine manual for more information.
- ◆ Check that the controls are not damaged or do not jam.
- ◆ Check the oil level in the spring-loaded leg.

Checking the engine



- A. Check the oil level on the dipstick.
- B. Check the fuel level.
- C. Check air filter.

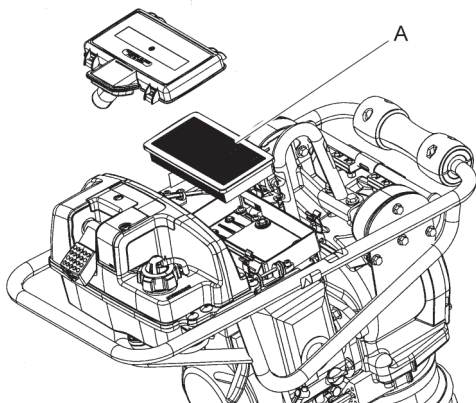
Checking the oil level in the spring-loaded leg



Check the oil level in the spring-loaded leg through the sight glass (A).

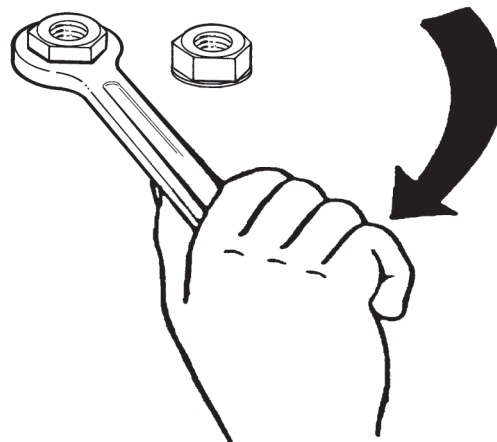
The level must be at the middle of the sight glass when the machine is in the upright position.

Check and clean the air filter



Check and clean the air filter (A).

Checking bolted joint

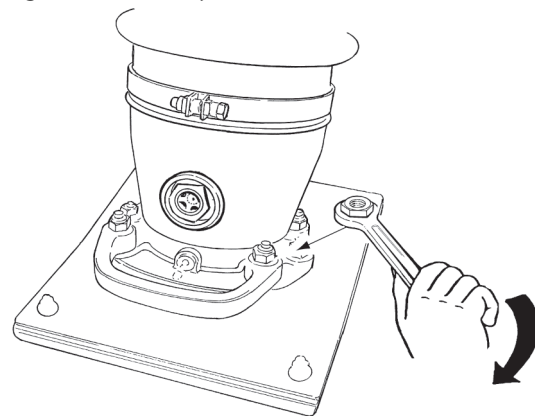


Check and if necessary tighten screws and nuts.

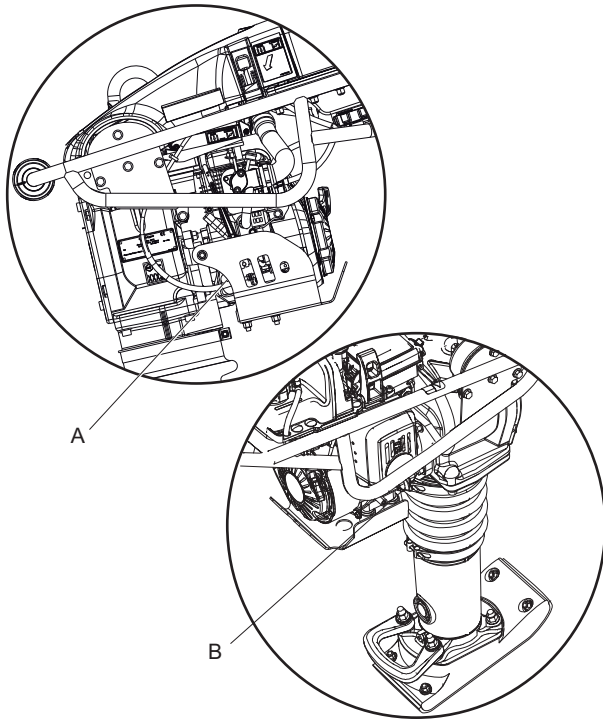
After the first 20 hours of operation

The following maintenance must be performed after the first 20 hours of operation:

- ◆ Change the engine oil.
- ◆ Replace air filter.
- ◆ Change the oil in the spring-loaded leg.
- ◆ Check the engine speed.
- ◆ Tighten the bolt joints on the rammer shoe.

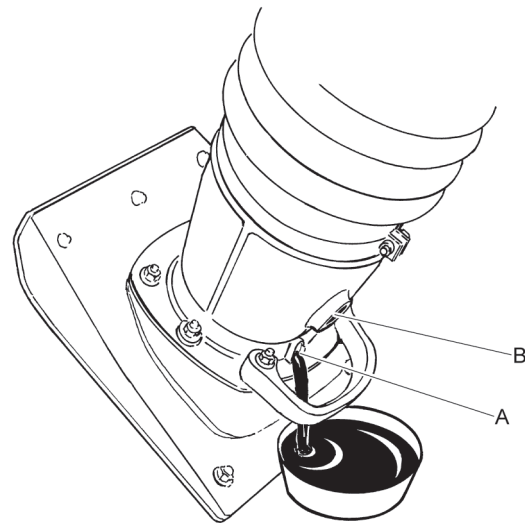


Changing the engine oil



1. Unscrew the oil plug (A).
2. Empty the oil into a container.
3. Refit the oil plug.
4. Fill with new oil (B).
5. Check the engine speed.

Changing the oil in the spring-loaded leg



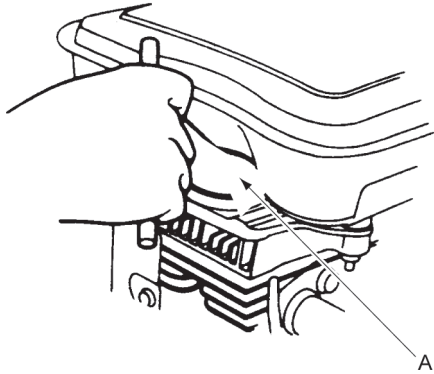
1. Unscrew the oil drain plug (A).
2. Empty the oil into a container.
3. Refit the plug and tighten, make sure that the sealing washer is undamaged.
4. Remove the sight glass (B) and fill with new oil.
5. Refit the sight glass and tighten. The oil level must be at the middle of the sight glass.

Every 100 hours of operation (weekly)

Maintenance routines:

- ◆ Replace air filter.
- ◆ Change the engine oil. See the engine manual for more information.
- ◆ Check and clean the spark plug.
- ◆ Check the vibration dampers.
- ◆ Check the engine speed. See the engine manual for more information.
- ◆ Clean the silencer's spark arrester.

Checking the spark plug



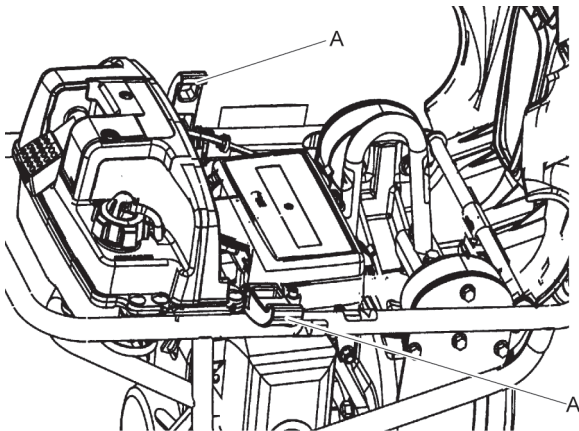
Check and clean and if necessary replace the spark plug (A).

Every 500 hours of operation (yearly)

Maintenance routines:

- ◆ Adjust valve head clearance for intake and exhaust valves.
- ◆ Clean and check fuel filter and tank.
- ◆ Change the oil in the spring-loaded leg.
- ◆ Clean the engine's cooling flanges. See the engine manual for more information.
- ◆ Change the oil in the engine. See the engine manual for more information.
- ◆ Drain the fuel system of water.
- ◆ Replace the fuel filter.

Checking the hood locks



Check that the hood locks (A) are in good condition.

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 tank before storing the machine.
- ◆ Clean the machine. Remove clay and sand from the shoe.
- ◆ Clean the air filter.
- ◆ Carefully pull the start handle until you feel a slight resistance.
- ◆ Wipe off any oil and dust that has accumulated on the rubber parts.
- ◆ Apply a light coat of oil on the shoe to prevent it from rusting.
- ◆ Cover the machine and store it in a dry, dust-free area.

Technical data

Machine data

MS 590	Rammer leg width 230 mm (9 in.)
Engine	
Manufacture/Model	Honda GX 100, 4-stroke, manual start
Power, kW (hp)	2.2 (3)
Rated speed, r.p.m.	3,800 - 3,900
Idling, r.p.m.	1,600 – 1,900
Compaction data	
Vibration frequency, Hz (r.p.m.)	12 (720)
Amplitude, mm (in.)	50 - 60 (2.0 - 2.4)
Performance	
Working speed, m/min (feet/min)	15 - 18 (49 - 59)
Fluid volumes	
Fuel tank, litres (qts)	2.75 (2.9)
Crank case oil capacity, litres (qts)	0.3 (0.31)
Rammer leg oil capacity, litres (qts)	0.6 (0.63)
Fuel consumption, litres/hours (qts/hours)	0.62 (0.65)
Lubricants	
Fuel type	Petrol (gasoline) Use unleaded petrol of standard quality.
Engine oil	Shell Rimula R4 L 15W-40
Rammer leg oil	Shell Rimula R4 L 15W-40
Weights	
Weight, kg (lb)	64.5 (142)
Operating weight, EN500, kg (lb)	65.5 (144)

Noise and vibration declaration statement

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

Sound pressure level **L_p** according to ISO 11201, EN500-4:2006+A1:2009.

Vibration value determined according to ISO 20643, EN500-4:2006+A1:2009. 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

	Noise			Vibration	
	Declared values			Declared values	
	Sound pressure	Sound power		Three axes values	
	ISO 11201	2000/14/EC		ISO 20643	
Type	Lp at operator's ear	Lw guaranteed dB(A) rel 1pW	Lw measured dB(A) rel 1pW	m/s ² value	permitted working hours/day
MS 590	92	106	105	6.4	1.2

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

Uncertainties, sound value

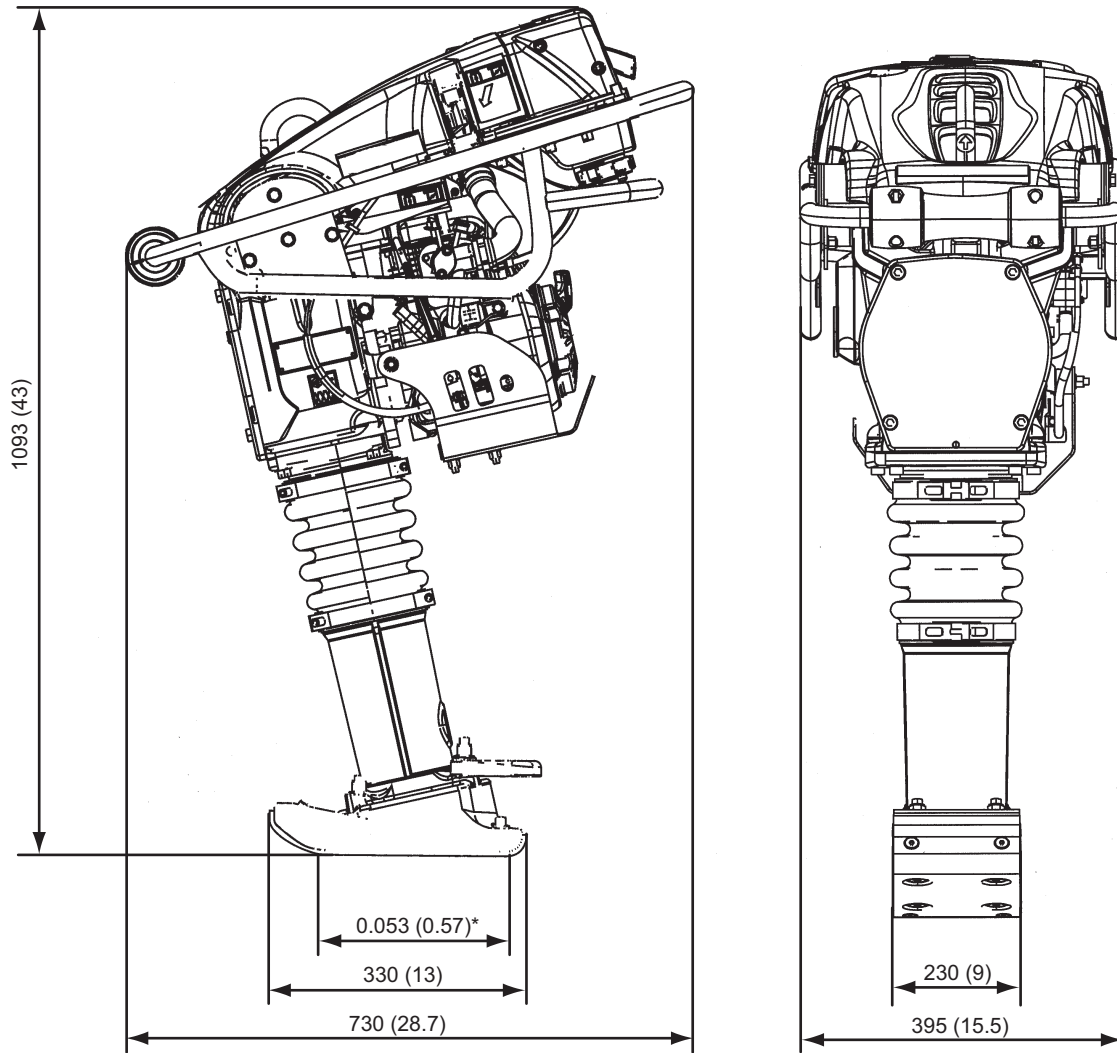
Uncertainties, sound value		
Type	K _{WA} dB(A)	K _{pA} dB(A)
MS 590	1.5 - 2.5	2.5 - 3.5

Uncertainty factor for gravel bed.

Dimensions

mm (in.)

*Contact area, m² (sq feet)



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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.

Rammer	Guaranteed sound power level [dB(A)]	Measured sound power level [dB(A)]
MS 590	104	102

Following harmonised standards were applied:

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

Following other standards were applied:

- ◆ 2000/14/EC, appendix VIII
- ◆ 2004/108/EC
- ◆ Lloyds Register Quality Assurance, NoBo no.0088

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 Kalmar

General Manager:

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Place and date:

Kalmar, 2011-04-01



Chicago
Pneumatic