



# VMF 70 / VMF 90

Vibrating plate

Instruction manual

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Valid from serial no.

JCB 13 060 00



**This symbol means:** CAUTION YOUR SAFETY IS RISK!

This is a warning note which relates to safety and must be read through carefully. Ensure that it is understood correctly in order to avoid possible injuries or death.

If this machine is rented or leased, ensure that the following two instructions are followed:

Before starting the engine:

1. Explain safe and correct use of the machine to the machine operator.
2. Make sure that the machine operator reads through this instruction manual carefully and acts in accordance with it.



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## 1.0 FOREWORD TO THE OPERATING INSTRUCTIONS



The purpose of these operating instructions is to enable the operator to familiarize himself with the machine and to exploit the facilities for its proper use.

The operating instructions contain important information for operating the machine safely, properly and economically. Observance of the operating instructions enables hazards to be avoided, repair costs and downtimes to be reduced, and the reliability and lifespan of the machine to be increased.

The operating instructions must be available at the place of application at all times.

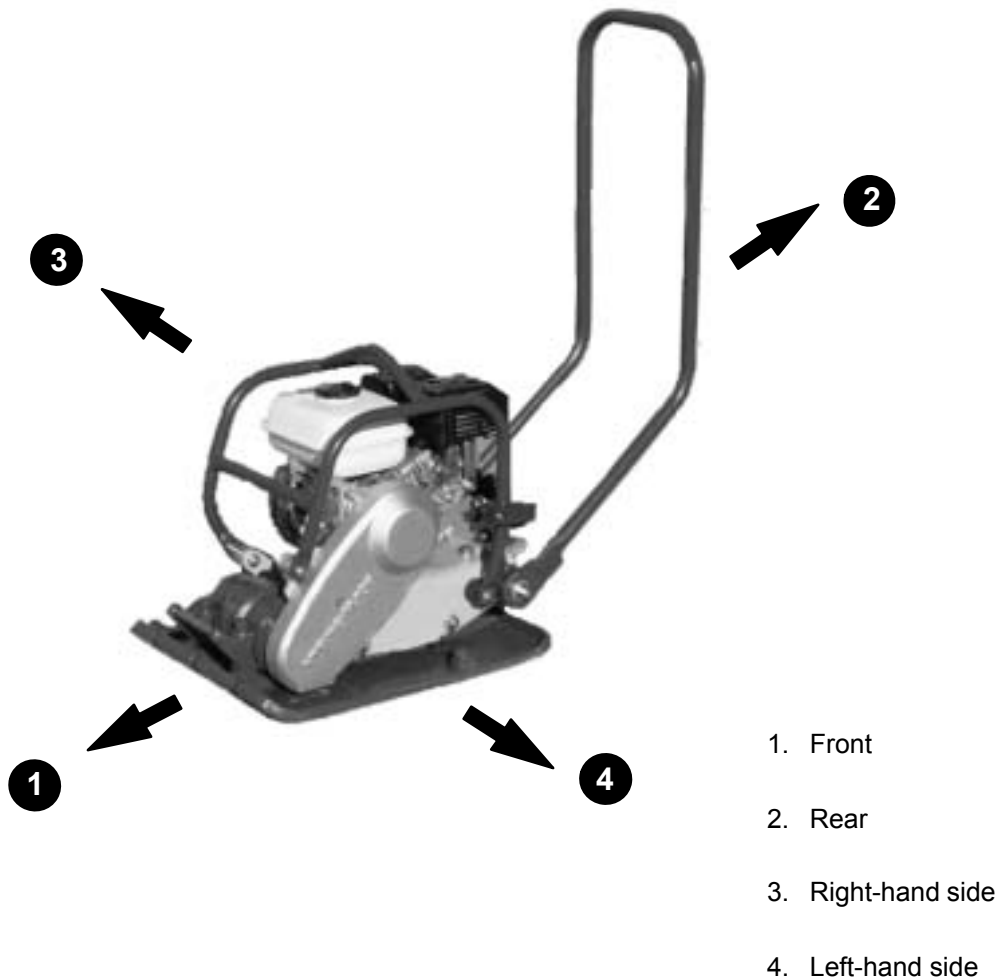
The operating instructions must be read and observed by all persons entrusted with work on or with the machine, such as

- **Operation** Including setting up, troubleshooting during operation, care, and disposal of operating agents and process materials
- **Maintenance** (maintenance, servicing, repair) and/or
- **Transport**

In addition to the operating instructions and the accident prevention regulations applicable at the site of application, the recognized technical rules for safe and proper working must be observed, in particular the guidelines governing road rollers and soil compactors, ZH1/530.

## 2.0 BRIEF DESCRIPTION OF THE MACHINE

The terms "right", "left", "front" and "rear" used in these operating instructions refer to the sides of the machine as seen by the machine operator.



The plate vibrators are designed on a modular basis and feature uniform design and a common mode of operation.

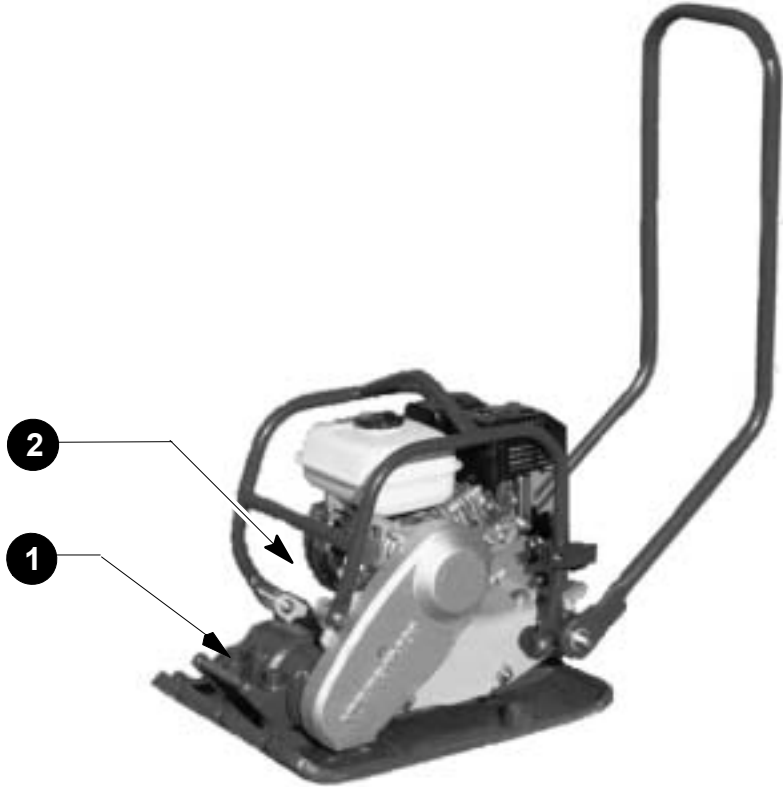
Adaptation can be made to different compaction requirements by fitting plate dampers.

The speed/direction control permits easy and safe working.

### 3.0 PRODUCT IDENTIFICATION AND SERIAL NUMBERS

Enter the serial numbers (Product Identification Numbers P.I.N.) below. When ordering spare parts or requesting information on the machine, please quote these numbers to the VIBROMAX dealer.

Make a list of these numbers. Keep the list in a safe place. If the machine is stolen, pass the numbers on to the local police.

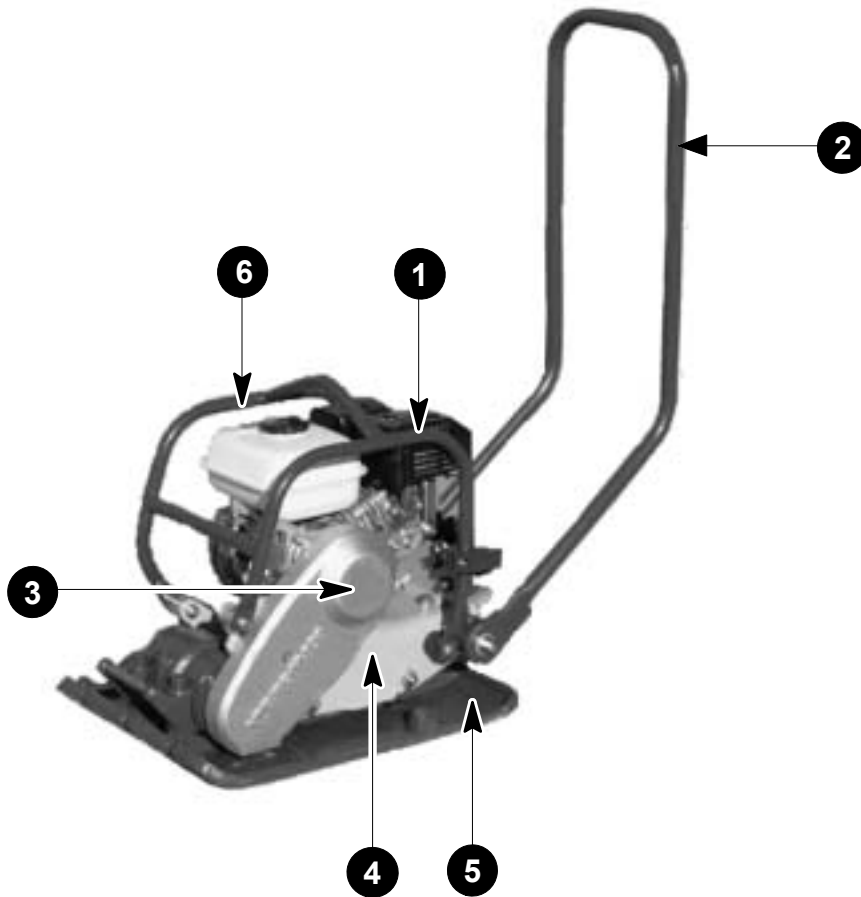


1. Model \_\_\_\_\_ VMF 70 \_\_\_\_\_ VMF 90 \_\_\_\_\_

Serial number (Product Identification Number P.I.N.) \_\_\_\_\_

2. Engine, serial number \_\_\_\_\_

## 4.0 IDENTIFYING THE MACHINE PARTS



1. Diesel engine
2. Guiding handle
3. Centrifugal clutch

4. Engine plate
5. Tamping plate
6. Roll-over protection bow





## 5.0 BASIC SAFETY NOTES



### WARNING NOTES AND SYMBOLS

The following terms and symbols are used in the operating instructions for particularly important information:

**Note:** *Particular information regarding economical use of the machine.*

**Caution:** *Particular information, instructions and prohibition commands for the prevention of damage.*

**Danger:** *Information, instructions and prohibition commands for the prevention of injury to persons or considerable damage to property.*

### PREMISE; PROPER USE

1. The machine has been constructed in accordance with the state of the art and the recognized safety rules. Hazards to life and limb of the operator or third parties or damage to the machine and other property may however occur in use.
2. Use the machine in a technically perfect condition only, for its proper purpose, in consideration of safety aspects and hazards, and in observance of the operating instructions. In particular, have any faults which could impair safety repaired immediately.
3. The machine is intended solely for the compaction of beds of earth or bituminous construction materials, and for shaking paving into place.

These construction materials include soils with soil types from stones to silty sand and with water contents from 40% to 110% of the optimum water content of the standard Proctor test to DIN 18127.

Fine-grain soils or soils with particularly high water contents require a qualified test compaction.

4. The manufacturer/supplier shall not be liable for damage resulting from improper use.
5. Proper use shall also include observance of the operating instructions and adherence to the servicing and maintenance procedures.

## ORGANIZATIONAL MEASURES

1. Keep the operating instructions within reach at the site of application of the machine at all times.
2. Observe and carry out the general legislative and other binding procedures for accident prevention, in addition to the operating instructions.

Requirements of this kind may concern the handling of hazardous substances or the provision and wearing of personal protective equipment or the adherence to road traffic legislation.

3. Supplement operating instructions with instructions on the observance of company rules, for example governing organization of work, work procedures, personnel deployed.
4. The personnel entrusted with work on the machine must read the operating instructions, and in particular the chapter entitled "Safety Notes", prior to starting work.  
It is too late to read the instructions after starting work. This applies in particular to personnel only working occasionally on the machine, for example during setting up and maintenance.
5. Ensure that the personnel work in a safe and hazard-conscious manner in observance of the operating instructions.
6. The personnel must not wear long hair, loose clothing or jewellery, including rings. These may become trapped, presenting a risk of injury.
7. Wear personal protective clothing where required or where stipulated by the regulations.
8. Observe all safety and hazard signs on the machine.
9. Keep all safety and hazard signs on the machine in place and in a legible condition.
10. In the event of any change in the machine or its behaviour which could affect safety, stop the machine immediately and report the fault to the responsible person or department.
11. Do not make any changes, additions or modifications to the machine which could affect safety, without the manufacturer's permission. This also applies to the fitting and adjustment of safety devices and to welding on the roll-over protection bow.
12. Spare parts must meet the technical requirements laid down by the manufacturer. This is always the case if original spare parts are used.
13. Replace hydraulic hoses at the specified or appropriate intervals, even in the absence of any visible damage which could impair safety.
14. Observe the stipulated intervals or intervals indicated in the operating instructions for routine inspections and servicing.

15. Appropriate workshop equipment is absolutely essential for the performance of maintenance work.
16. Inform staff of the location and operation of fire extinguishers.
17. Note the facilities for reporting and fighting fires.

## **SELECTION AND QUALIFICATION OF PERSONNEL; BASIC DUTIES**

1. Work on the machine may be carried out only by reliable personnel who have received express instructions. Observe the minimum working age.
2. Only deploy personnel who have received instruction or training. Lay down clearly the responsibilities for operation, setting up, maintenance and repair.
3. Ensure that only personnel who have been instructed to do so work on the machine.
4. Lay down the machine operator's responsibilities, including with reference to the road traffic regulations, and authorize him to disregard instructions from third persons which jeopardize safety.
5. Only allow personnel receiving training or instruction or following a general course of training to work on the machine under the constant supervision of an experienced person.
6. Only personnel with special knowledge and experience may work on hydraulic systems.

## **SAFETY INSTRUCTIONS FOR PARTICULAR PHASES OF OPERATION**

### **Normal operation**

1. Prohibit any method of working which jeopardizes safety.
2. Before starting work, the machine operator must familiarize himself with the site. The site includes obstacles in the working area and the traffic area, including manoeuvring and escape lanes, the bearing capacity of the soil, and any demarcation required between the site and the public highway.
3. Take measures to ensure that the machine is operated only in a safe and serviceable condition.

Operate the machine only with all guards and safety facilities, for example removable guards, emergency-stop facilities, sound-proofing, etc. in place and serviceable.

4. Check the machine for outwardly visible damage and faults at least once during each shift. Report any changes (including changes to the operating behaviour) immediately to the responsible person or department. If necessary, stop the machine immediately and prevent further use.

5. In the event of a fault in the function of the machine, stop the machine immediately and prevent further use. Have the fault repaired immediately.
6. Before switching on and starting the machine, ensure that no one is endangered by the machine starting.
7. Always keep a safe distance from the edge of ditches and slopes.
8. Prohibit any method of operation which jeopardizes the stability of the machine.
9. Do not traverse slopes horizontally.
10. When leaving the machine, always switch off the engine.

## **SPECIAL WORK TO BE CARRIED OUT DURING USE OF THE MACHINE AND MAINTENANCE WORK; TROUBLESHOOTING DURING OPERATION; DISPOSAL**

1. The adjustment, maintenance and servicing work and intervals stipulated in the operating instructions must be observed, including information concerning the replacement of parts and accessories. This work may be carried out by skilled personnel only.
2. Inform operating personnel prior to carrying out routine and special maintenance work. Designate a supervisor.
3. Observe the procedures for switching on and off according to the operating instructions and the instructions for maintenance work when carrying out any work affecting operation, adaptation to production, refitting, or adjustments to the machine and its safety equipment, and servicing, maintenance and repair work.
4. Demarcate a wide area around the maintenance points if required.
5. Carry out maintenance and servicing work only with the machines on level ground with an adequate bearing capacity.
6. When replacing individual components and larger assemblies, attach them carefully to cranes and secure them to prevent any hazard arising. Only use suitable cranes and lifting tackle with an adequate load-bearing capacity. Do not stand or walk beneath suspended loads.
7. At the start of maintenance and repair work, clean the machine, and in particular terminals and unions, of oil, fuel or cleaning fluids. Do not use any corrosive cleaning materials. Use lint-free cloths.
8. Before cleaning the machine with water or steam jet (high-pressure cleaner) or any other cleaning agent, cover or seal all openings which should not be penetrated by water/steam/cleaning agent for safety and/or functional reasons.

9. After cleaning, remove all covers and seals again.
10. After cleaning, check all fuel, engine oil and hydraulic oil lines for leaks, loose unions, chafing and damage. Rectify any faults detected immediately.
11. Always tighten any loosened unions following maintenance and repair work.
12. Should it be necessary to remove safety devices during fitting, maintenance and repair work, the safety facilities must be refitted and checked as soon as the maintenance and repair work has been completed.
13. Ensure that operating agents and process materials and replaced components are disposed of responsibly.

## **PARTICULAR HAZARDS**

### **Gas, dust, steam, smoke**

1. Run combustion engines and fuel-powered heaters only in areas with adequate ventilation. Ensure sufficient ventilation before starting.

Follow the regulations applicable at the site of application.

2. Carry out welding, torch cutting and grinding work on the machine only if this is expressly permitted. There may be a risk of fire or explosion.
3. Prior to welding, torch cutting and grinding work, clear the area of dust and flammable substances, and ensure adequate ventilation (explosion hazard).

### **Hydraulic System**

1. Work on hydraulic equipment may be carried out only by persons with special knowledge and experience of hydraulics.
2. Check all pipes, hoses and unions regularly for leaks and externally visible damage. Repair any damage immediately. Oil sprayed out may lead to injury and fire.
3. Prior to repair work, depressurize hydraulic system sections and pressure lines which are to be opened according to the assembly descriptions.
4. Lay and fit hydraulic lines properly. Do not confuse connections. Fittings, length and quality of the hoses must meet the requirements.

### **Noise**

1. Wear the prescribed personal ear protection.

## **Oils, Greases and other Chemical Substances**

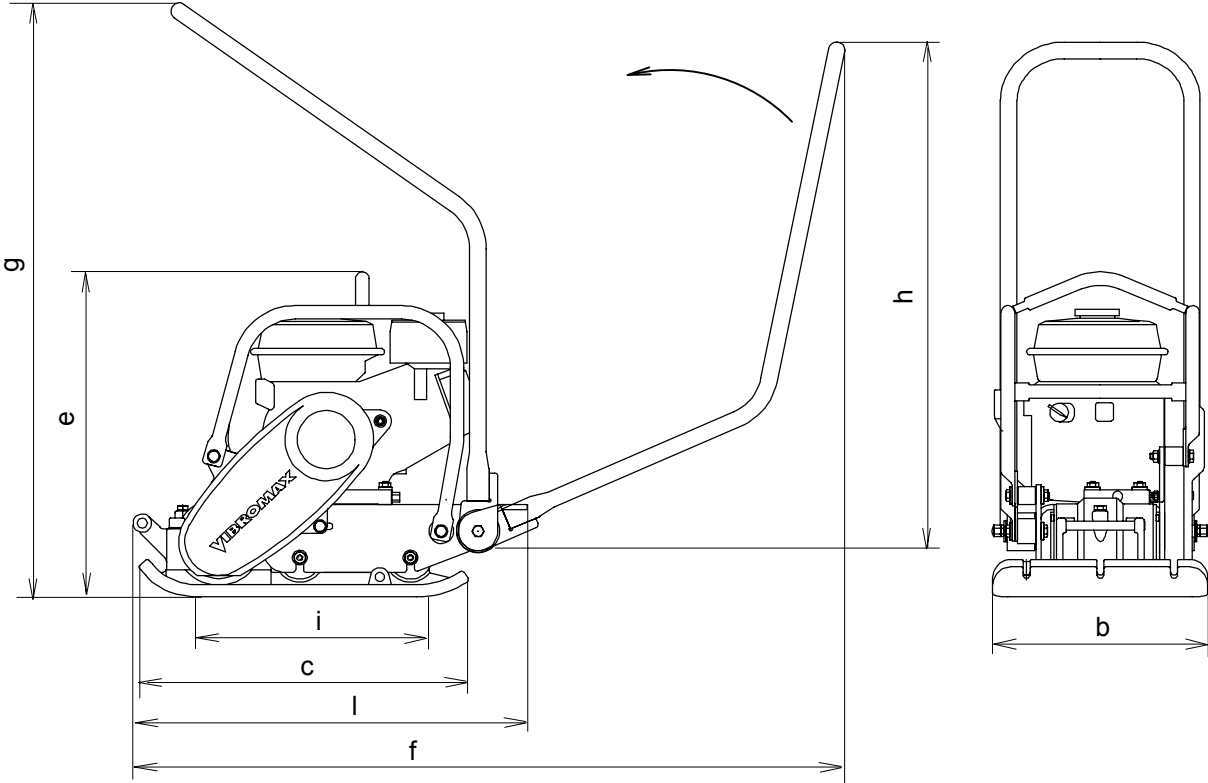
1. When handling oils, greases and other chemical substances, observe the safety regulations applicable to the product.
2. Handle hot operating agents and process materials with care (risk of burning or scalding)

## **TRANSPORT AND TOWING; RESTORATION TO SERVICE**

1. Tow, load and transport only in accordance with the operating instructions.
2. Observe the prescribed transport position when towing.
3. Use only suitable tackle and cranes with adequate load-bearing capacity.
4. When restoring to service, proceed according to the operating instructions.

# 6.0 TECHNICAL DATA

## 6.1 DIMENSIONS



mm	<b>b</b>	<b>c</b>	<b>e</b>	<b>f</b>	<b>g</b>	<b>h</b>	<b>i</b>	<b>l</b>
<b>VMF 70</b>	350	536	529	1150	970	900	352	636
<b>VMF 90</b>	415	592	529	1150	970	900	407	636

## 6.2 MAIN DATA

### VMF 70 Machine

#### Engine

Make	.....	Honda
Model	.....	GX120
Type	.....	aircooled 4-stroke-, 1-cylinder engine
Displacement	..... cm <sup>3</sup> (cu in)	..... 118; 7.2
Performance DIN 6271	..... kW (HP)	..... 2.9; (4.0)
Operating speed	..... rpm	..... 3600
Starting device	.....	Recoil starter
Air cleaner	.....	Dry air cleaner
Fuel filter	.....	Cartridge
Fuel consumption	..... l / h (U.S.gal/h)	..... 1; 0.26

#### Filling capacities

Fuel	..... l	..... 2.5; 0.66 U.S. gal
Engine oil (engine)	..... l .. API-CD-SAE 15W-40	..... 0.6; 0.16 U.S. qt
Engine oil (exciter)	..... l .. API-CD-SAE 15W-40	..... 0,075; 0,079 U.S. qt

Exciter drive	.....	Centrifugal clutch and V belt drive
Exciter	.....	Single shaft circular exciter
Exciter frequency	..... Hz	..... 100
Centrifugal force	..... kN	..... 13,4
Centrifugal force/contact area	..... N/cm <sup>2</sup>	..... 10,8
Compaction depth up to	..... cm	..... 30
Contact area	..... cm <sup>2</sup>	..... 1232
Compacted area up to	..... m <sup>2</sup> /h 483	.....
Operating weight	..... kg	..... 68
Travel speed	..... m/min	..... 23



## VMF 90 Machine

### Engine

Make .....	Honda
Model .....	GX120
Type .....	aircooled 4-stroke-, 1-cylinder engine
Displacement .....	cm <sup>3</sup> (cu in) ..... 118; 7.2
Performance DIN 6271 .....	kW (HP) ..... 2.9; (4.0)
Operating speed .....	rpm ..... 3600
Starting device .....	Recoil starter
Air cleaner .....	Dry air cleaner
Fuel filter .....	Cartridge
Fuel consumption .....	l / h (U.S.gal/h) ..... 1; 0.26

### Filling capacities

Fuel .....	l .....	2.5; 0.66 U.S. gal
Engine oil (engine) .....	l .. API-CD-SAE 15W-40	...0.6; 0.16 U.S. qt
Engine oil (exciter) .....	l .. API-CD-SAE 15W-40	0,075; 0,079 U.S. qt

Exciter drive .....	Centrifugal clutch and V belt drive
Exciter .....	Single shaft circular exciter
Exciter frequency .....	Hz ..... 100
Centrifugal force .....	kN ..... 15,6
Centrifugal force/contact area .....	N/cm <sup>2</sup> ..... 8,6
Compaction depth up to .....	cm ..... 30
Contact area .....	cm <sup>2</sup> ..... 1690
Compacted area up to .....	m <sup>2</sup> /h ..... 548
Operating weight .....	kg ..... 87
Travel speed .....	m/min ..... 22

## **6.3 APPLICATIONS**

- Construction work:
- Construction of farming and forestry roads
  - Ancillary work in road construction
  - Horticulture and creation of parks
  - Trench bottoms
  - Repair work
  - Paving

- Materials to be compacted:
- Sand, gravel and mixtures of both
  - Cohesive soils
  - Bituminous mixtures
  - Lean concrete

## **6.4 NOISE EMISSIONS**

With these engines, the rating level in accordance with DIN 45 645 may occasionally exceed the reference value of 90 dB (A).

The operator must wear personal noise absorbing equipment.

## 7.0 DESCRIPTION

### 7.1 CONSTRUCTION

The vibratory plate consists of the following main subassemblies:

- Lower part
- Upper part
- Guide handle
- Protective roll bar

#### **Lower part:**

The tamper with the exciter fitted in front. The exciter is a single shaft circular exciter.

#### **Upper part:**

The engine plate is suspended in the lower part by means of rubber buffers to damp vibrations. It carries the engine and the attached fuel tank. The engine is connected to the exciter located in the lower part by a centrifugal clutch and a V belt.

The engine plate also holds the guide handle.

The following extras are available:

- Wheel set
- Water spraying system

The water tank is fastened to a holder on the front of the engine plate. It is connected to the elbow of the sprinkler system on the front of the tamper by a sprinkling valve, a hose and a T piece.

### 7.2 MODE OF OPERATION

The exciter is driven by the engine acting on the exciting shaft of the single shaft circular exciter via a centrifugal clutch and a V belt drive.

The revolutions of the exciting shaft produce the centrifugal force.

The centrifugal force causes the vibration of the tamper on the material to be compacted and the independent movement of the vibratory plate in a forward direction. The back of the tamper acts as a smoothing device.

When the exciter has been switched on, the machine can be steered by moving the guide handle sideways.

The water spraying system is started by opening the sprinkling valve. The water runs from the T piece onto the elbow of the sprinkler system, in this way moistening the underside of the tamper.

### **7.3 SAFETY EQUIPMENT**

The machine offers a high degree of safety at work, owing to, e.g.,

- Clarity of the controls
- Covering of all moving drive components
- Protective roll bar

## 8.0 OPERATION

### 8.1 COMMISSIONING

#### 8.1.1 PREPARATION

- General visual inspection of the machine for proper condition.
- Check the engine oil level.
- Fill in fuel.

- Close the tank tightly again.
- Push the speed control lever to full speed.

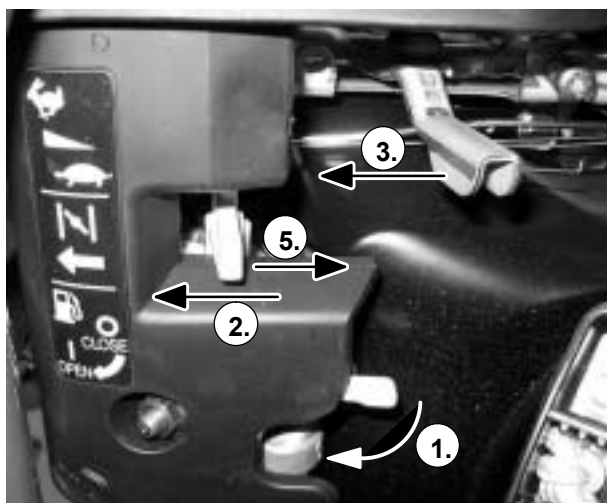
#### 8.1.2 STARTING THE ENGINE

1. Turn the fuel valve to the OPEN position.

2. Move the choke lever to the left to the CLOSE position.

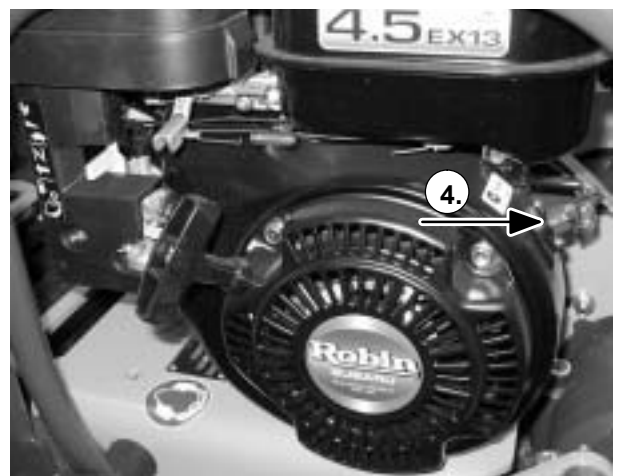
**Caution:** Do not use the choke if the engine is warm or the air temperature is high.

3. Position the throttle control lever to the left for full speed.



4. Turn the engine switch to the ON position.

- Pull the starter grip lightly until resistance is felt, then pull briskly.



5. As the engine warms up (engine speed  $< 2000 \text{ min}^{-1}$ ) gradually move the choke lever fully right to the OPEN position.

## 8.2 MACHINE OPERATION

1. Guide the machine over the material to be compacted by the guide handle.
2. The propelling force of the machine is such that additional pushing is not necessary.  
It does, however, depend on the type of material to be compacted (grain size, bulk density), evenness of the soil, gradient, etc.
3. Steer the machine by moving the guide handle sideways.  
When the guide handle is in an upright position, the machine can be turned round.
4. If the machine is not equipped with a water spraying system, either moisten the underside of the tamper with water or heat it up (to approx. 100 °C) before compacting bituminous sand or bituminous aggregates in order to prevent the material to be compacted from sticking to the tamper.
5. If the machine is equipped with a water spraying system, activate it by opening the stopcock while compacting bituminous sand or bituminous aggregates in order to prevent the material to be compacted from adhering.

**Please note:** *If the material to be compacted is extremely sticky, add 1.3 to 1.5% of a bitumen separating agent to the water.*

**Please note:** *The vibratory plate may only be operated at maximum speed. Lower speeds may destroy the centrifugal clutch.*

### Notes:

The following instructions should be observed under all circumstances during operation of the plate vibrator:

- All protective devices must be fitted
- The machine operator must not leave the machine unattended
- Owing to its design, the plate vibrator causes vibrations. The user must ensure that building structures, pipes and other facilities in the vicinity are not damaged by the vibrations.
- Refuel only with the engine switched off

**Caution:** *Do not spill fuel onto the exhaust or other hot components. It may otherwise ignite.*

- Operation of the plate vibrator on rock, concrete or any other firm, non-compactible ground is forbidden
- Operation in closed or constricted areas without adequate ventilation and extraction of the exhaust fumes is forbidden
- During work on slopes, the plate vibrator must be secured by a rope attached to the roll-over protection bow.
- In the event of a defect in the operating or safety equipment, the plate vibrator must be stopped immediately.



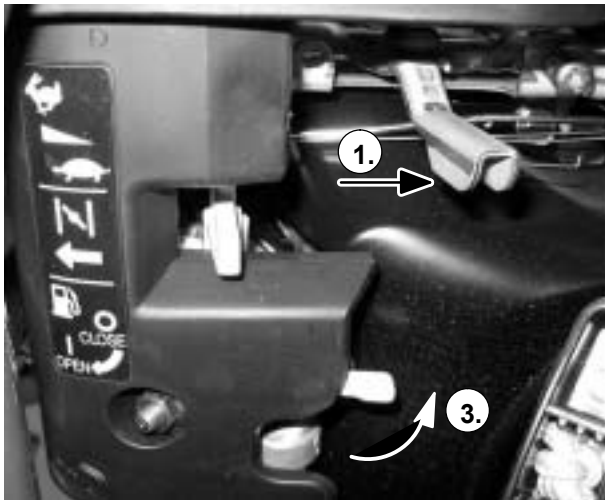
*The machine operator must never stand downhill of the plate vibrator.*

## 8.3 STOPPAGES

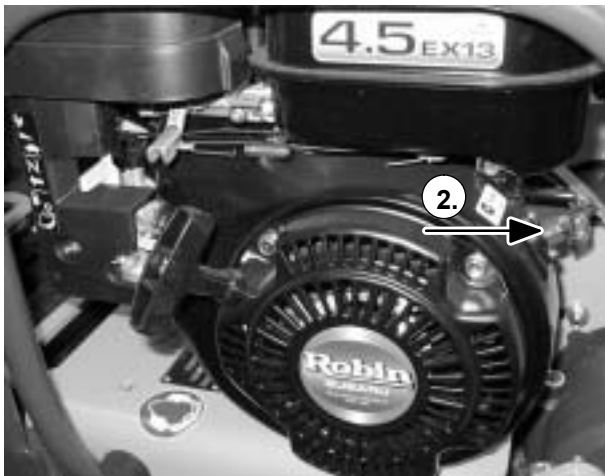
### 8.3.1 STOPPING THE ENGINE

To stop the engine in an emergency, turn the engine switch to the OFF position. Under normal conditions, use the following procedure:

1. Move the throttle control lever fully to the right.



2. Turn the engine switch to the OFF position.



3. Turn the fuel valve to the CLOSE position.

### 8.3.2 LONG-TERM

- Clean the machine
- Check that the machine is in a serviceable condition
- Change the engine oil
- Allow the engine to run for approx 1 minute.
- Switch off the engine
- Empty the fuel tank

## 9.0 INSTRUCTIONS FOR SAFE OPERATION

The following instructions are in accordance with the “Directives for road rollers and soil tampers”, points 5 to 8, published by the umbrella organisation of commercial trade associations.

All **instructions** given also refer to this machine.

### General

1. Independent operation or maintenance of vibratory plates may only be performed by persons who
  - are of age,
  - are physically and mentally suitable,
  - have been instructed in the operation and maintenance of vibratory plates and have proved their qualifications to the contractor,
  - and who can be expected to fulfil the tasks assigned to them reliably.

They must have been tasked with operation or maintenance of the vibratory plate by the contractor.

2. Vibratory plates may only be operated in accordance with the intended use, with due regard to the manufacturer's operating manual.
3. In the event of exceptional applications, the contractor must set up and make public any necessary additional instructions besides these safety rules.

**Please note:** *An exceptional application may be, for example, the simultaneous employment of several vibratory plates or operation on slopes.*

### Operation of vibratory plates

1. The operator must not leave the controls during operation.

**Please note:** *When operating a vibratory plate on a slope, the operator must walk beside the machine on the mountain side.*

2. Vibratory plates must be guided in such a way that hand injuries caused by solid objects (parts of buildings, solid building materials) are avoided.
3. The fuel tank may only be filled when the engine is switched off.
4. Prior to leaving the machine, the operator must shut down the drive.



## 10.0 MAINTENANCE AND SERVICE

### 10.1 GENERAL

The vibratory plates are designed in such a way that regular maintenance can essentially be limited to the instructions of the engine manufacturer.

Once a year a thorough inspection must be carried out by qualified staff. Maintenance and repair work on the vibrator may only be performed by qualified staff.



**Warning:** *Operating the vibratory plate without safety equipment, particularly without a V belt cover, may cause injuries.*

### 10.2 ENGINE

The engine manufacturer's instructions contained in the operating manual included in the delivery are binding for maintenance and service of the diesel engine.

### 10.3 LUBRICANTS

Machine part	Filling quantity	Specification
Engine	0,6 l	Engine oil API classification API-CD-SAE 15 W-40
Exiter	0,075 l	API-CD-SAE 15 W-40

## **10.4 MAINTENANCE SCHEDULE**

### **Single check after 20 operating hours**

Clean the machine  
Check all screwed connections  
Change the engine oil

### **Every 10 operating hours or daily**

Check the engine oil level  
Check the suction and cooling air areas

### **Every 50 operating hours or monthly**

Check the V belt  
Change the engine oil  
Clean and check the spark plug  
Clean the air cleaner  
Check all screwed connections

### **Every 500 operating hours or yearly**

Clean the fuel strainer  
Clean and adjust the carburettor  
Adjust the tappet clearance  
Change the oil in the exciter

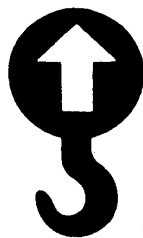
## 11.0 TRANSPORTATION AND STORAGE

If unfavourable circumstances cause the vibratory plate to stop, it can be towed a few metres.

**Caution:** *Tow ropes may only be attached to the protective roll bar. Otherwise machine parts may be damaged.*

To load the vibratory plate, attach it to a hook by the central lift point.

Designation:



When loading vibratory plates via ramps, the latter must be stable and of sufficient load bearing strength.

Take precautionary measures to prevent persons from getting injured by the pole ends of vibratory plates tilting, slipping or jerking up or down.

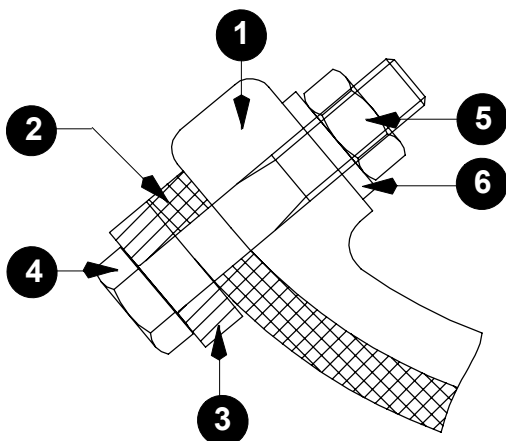
Secure vibratory plates on transport vehicles to keep them from sliding off, slipping or tipping over.



**Warning:** *Suspension from any other point is not permitted and may endanger personnel and machine.*

## 12.0 MOUNTING ACCESSORIES

### 12.1 DAMPING PLATE



1. Tamping plate
2. Vulkollan plate
3. Rail
4. Mounting screw
5. Nut
6. Washer