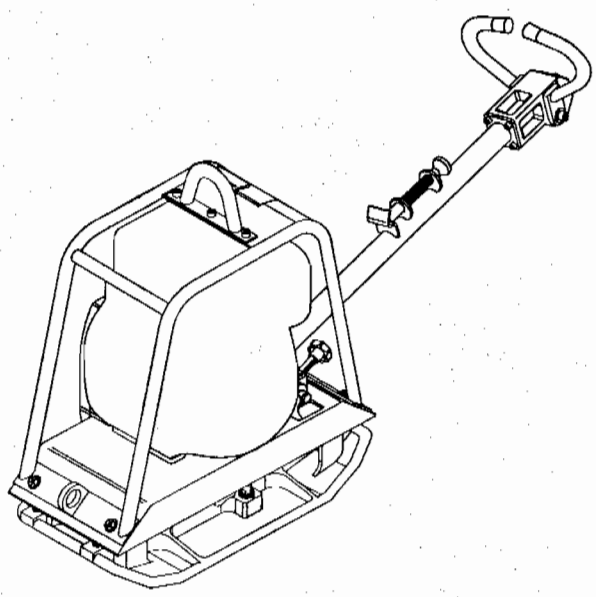
WACKER

VIBRATIONSPLATTE
VIBRATION PLATE
PATINS VIBRANTS
PLANCHA VIBRADORA

DPU 2440 H



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FOREWORD

- For your own safety and protection from physical injury, carefully read, understand and observe the safety instructions.
- Please operate and maintain your vibration plate in accordance with the instructions in this instruction book. Your attention will be rewarded by trouble-free operation and high availability.
- Defective machine parts are to be replaced as soon as possible. You will find the spare part you need and the relevant order number in the chapters "Spare parts" in this instruction book.

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SAFETY INSTRUCTIONS FOR THE USE OF VIBRATION PLATES WITH COMBUSTION ENGINE

General instructions

1. Vibration plates may only be operated by persons who

   * are at least 18 years of age
   * are physically and mentally fit for this job
   * have been instructed in guiding vibration plates and proved their ability for the job to the employer
   * may be expected to carry out the job they are charged with carefully.

   The persons must be assigned the job of guiding vibration plates by the employer.

2. Vibration plates may only be used for compaction jobs. Both the manufacturer's operating instructions and these safety instructions have to be observed.

3. The persons charged with the operation of vibration plates have to be made familiar with the necessary safety measures relating to the machine. In case of extraordinary uses the employer shall give the necessary additional instructions.

4. It is possible that this vibration plate exceeds the admissible sound level of 89 dB (A). According to the rules for the prevention of accidents regarding emission of noise the employees have to wear ear pro tection if the sound level reaches 89 dB (A) or more.

Operation

1. When starting the diesel engine with a starter crank make sure you have assumed a proper position with respect to the engine and that your hands are placed properly on the crank.

   ☛ **ATTENTION!** Turn hand crank vigorously until engine starts as otherwise the crank could rebound.

2. The functioning of operating levers or elements is not to be influenced or rendered ineffective.
3. During operation the operator may not leave the control elements.
4. The operator has to stop the engine of the vibration plate before going on breaks. The machine has to be placed such that it cannot turn over.
5. Stop engine before filling fuel tank. When refilling fuel tank, do not allow fuel to come into contact with the hot parts of the engine or spill onto the ground.
6. Do not smoke or handle open fire near this machine.
7. The tank lid must fit tightly. Shut off fuel cock if available when stopping the engine. For long distance transports of machine operated by fuel or fuel - mixtures, the fuel tank has to be drained completely.

   ☛ **ATTENTION!** Leaky fuel tanks may cause explosions and must therefor be replaced immediately.

8. Do not operate the machine in areas where explosions may occur.
9. Make sure that sufficient fresh air is available when operating vibration plates with combustion engine in enclosed areas, tunnels, adits and deep trenches.
10. During operation keep your hands, feet and clothes away from the moving parts of the vibration plate. Wear safety shoes, and eye protection glasses. In cases of trench operation where falling sand stones maybe ejected.
11. When working near the edges of breaks, pits, slopes, trenches and platforms, vibration plates are to be operated such that there is no danger of their turning over or falling in.

12. In reverse motion the operator has to guide the vibration plate laterally by its guide handle so that the will not be squeezed between the handle and a possible obstacles. Special care is required when working on uneven ground or when compacting coarse material. Make sure to stand firmly when operating the machine under such conditons.
13. Vibration plates are to be guided such that hand injuries caused by solid objects are avoided.
14. Vibration plates have to be guided such that their stability is quaranteed.
15. Machines with integrated transport trolley may not be parked or stored on the trolley. This device has only been designed to transport the machine.

Safety checks

1. Vibration plates may only be operated with all safety devices installed.
2. Before starting operation, the operator has to check that all control and safety devices function properly.
3. In case of defects of the safety devices or other defects reducing the operational safety of the vibration plate, the supervisor has to be informed immediately.
4. In case of defects jeopardizing the operational safety of the vibration plate, the machine has to be switched off immediately.

Maintenance

1. Only use original spare parts. Modifications to this machine including the adjustment of the maximum engine speed set by the manufacturer are subject to the express approval of WACKER. In case of non observance all liabilities shall be refused.
2. All drive units have to be switched off before carrying out maintenance jobs. Deviations from this are only allowed if the maintenance or jobs require a running engine.
3. When working on vibration plates equipped with electric starter, disconnect battery before carrying out maintenance or repair jobs on the electric parts of the machine.
4. Remove pressure from hydraulic lines before working on them. Caution: take care when removing hydraulic lines, for the oil may be very hot (up. to 80° C). Precautions are to be taken, to prevent oil from splashing into the operator's eyes.
5. As soon as maintenance and repair jobs have been completed all safety devices have to be reinstalled properly.

Transport

1. During transport, loading and unloading of vibration plates by means of lifting devices, appropriate slinging means or hooks have to be used on the lifting points provided for this purpose on the vibration plate.
2. The load-carrying capacity of the loading ramps has to be sufficient and the ramps have to be secure such that they cannot turn over. Make sure that no one be endangered by machines turning over or slipping or by moving machine parts.
3. When being transported on vehicles, precautions have to be taken that vibration plates do not slip or turn over.

Maintenance checks

According to the conditions and frequency of use, vibration plates have to be checked for safe operation at least once a year by skilled technicians, such as those found at WACKER-service centers and have to be repaired if necessary.

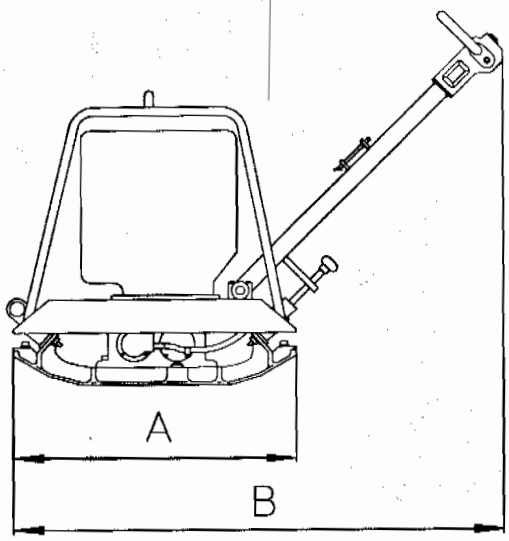
Please also observe the corresponding rules and regulations valid in your country.

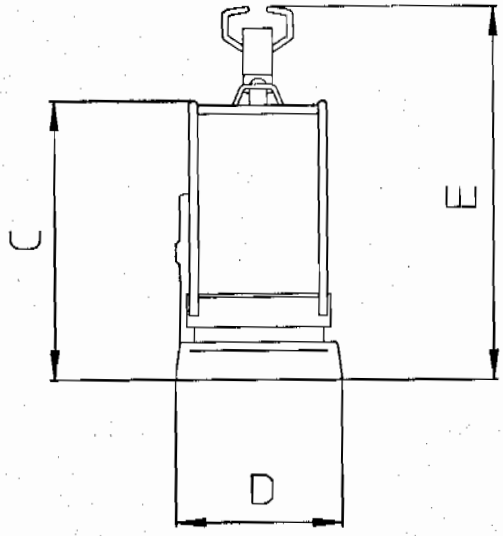
		DPU 2440 H
Machine No.		6656
Operating weight	kg :	156
Power transmission		From drive engine directly to exciter unit via centrifugal clutch and V-belts
Exciter		
Vibrations	min^{-1}(Hz):	approx. 5400 (90)
Multigrade oil		SAE 15 W 40
Drive motor		Air-cooled single-cylinder 4 stroke diesel engine
Piston displacement	cm^3:	280
Engine speed	min^{-1}:	2800 + 60
Nominal output	kW :	3,3
Oil		SAE 15 W 40
Fuel		Diesel
Fuel consumption	l/h:	1,2
Tank capacity	l:	4,0
Hydraulic control		
Hydraulic oil		Fuchs Renolin MR 520 Above 0^{o} C also SAE 15 W 40

Field of application

Due to its low width of only 400 mm and its stepless adjustability, this vibrator is particularly suited for all kinds of soil compaction in confined areas such as in cable trenches 40 cm wide or more, compaction of marginal strips, repairs on blacktop surfacings as well as for all compaction jobs when applying large - scale machinery would be inappropriate.

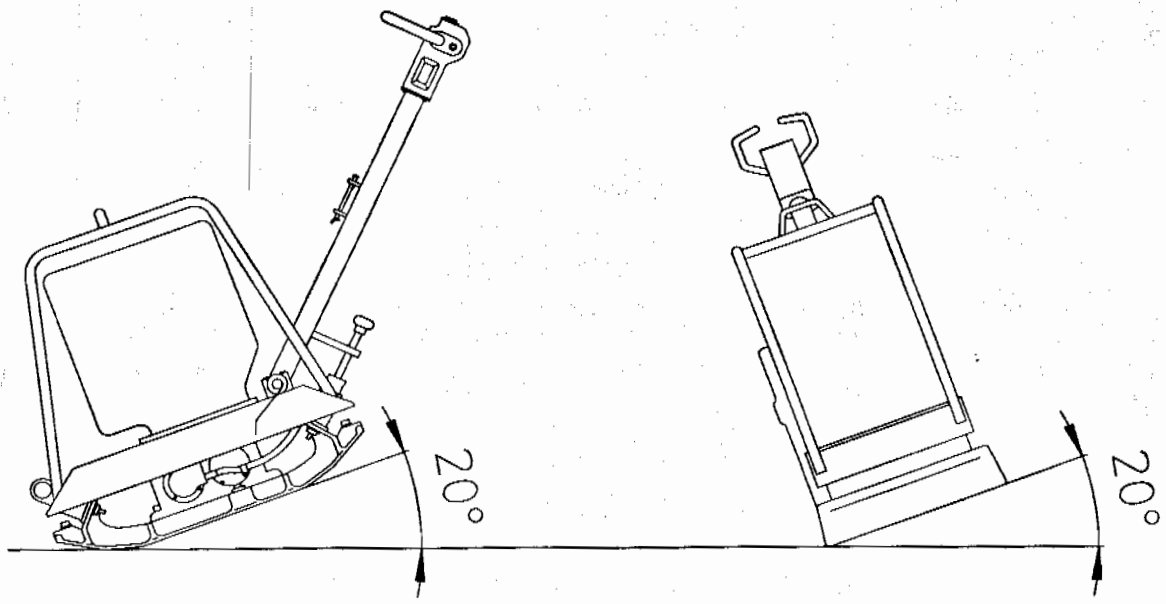
Dimensions





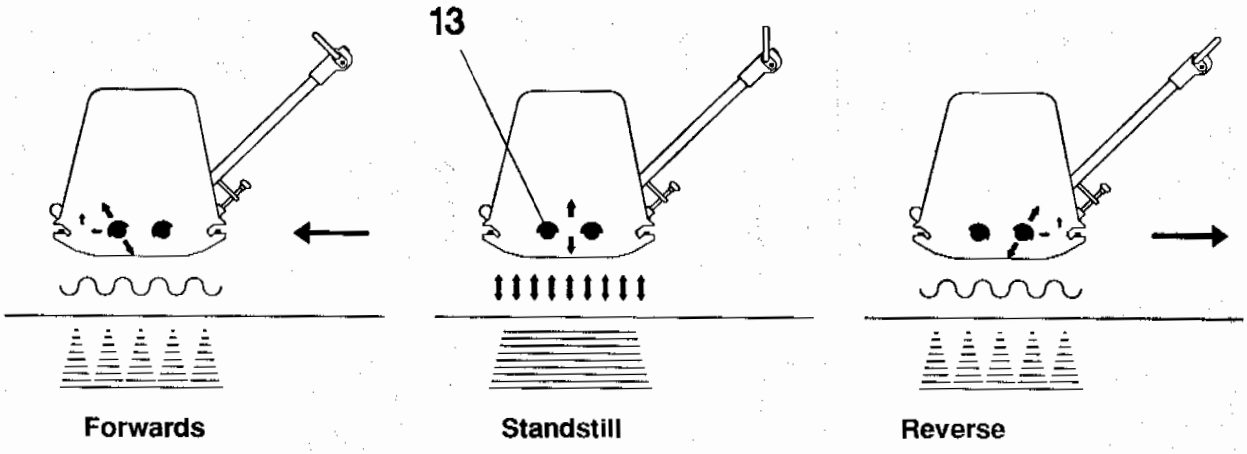
A	**700**
B	**1600**
C	**705**
D	**400**
E	**880**

Max. admissible inclination

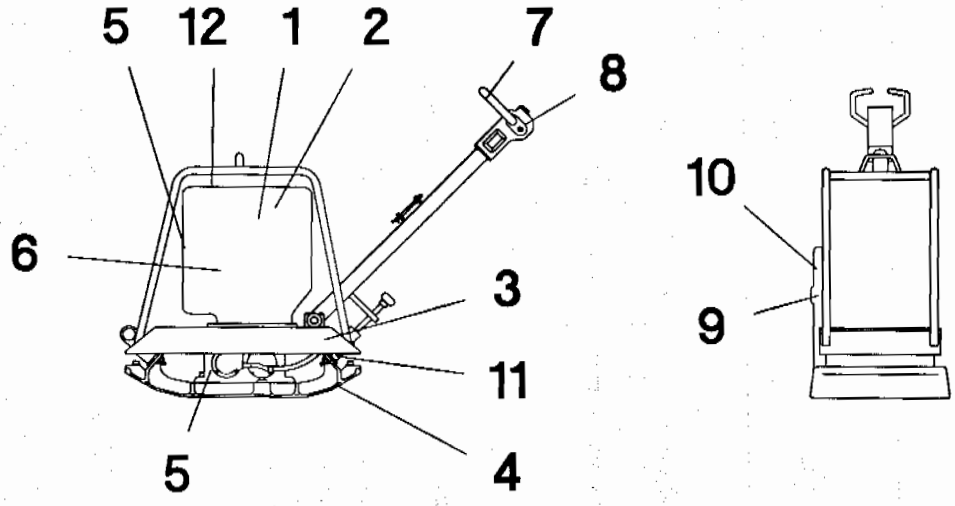


Description of function

The vibration required for compaction is produced by the exciter (5) which is firmly joinded to the lower mass (4). This exciter (5) is designed as a central vibrator with aligned vibrations. Such a principle permits the direction of vibration to be changed by turning the eccentric weights (13). In this way an infinitely variable transition between vibration in forward motion (Fig. 1), at standstill (Fig. 2) and in reverse motion (Fig. 3) is possible.



This process is hydraulically controlled with the shift lever (7) on the centre pole head (8).



The drive engine (1) anchored in the upper mass (3) drives the exciter (5). The torque is transmitted by means of a friction connection through the centrifugal clutch (9) and the exciter V-belt (10).

The centrifugal clutch (9) interrupts flow of power to the exciter (5) at low engine speed and thus permits perfect idling of the drive engine (1). The speed of the drive engine (1) can be infinitely varied by the throttle control lever (6).

The upper (3) and lower (4) masses are connected to each other by 4 vibration-damping rubber metal dampers (11). This damping system prevents the very high frequencies from being transmitted to the upper mass (3). As a result the functionability of the drive engine (1) is retained in spite of the high compaction performance.

The drive engine (1) works on the diesel principle; it is started with a rewind starter, draws in the combustion air through an oil bath air filter (12) and is air-cooled.

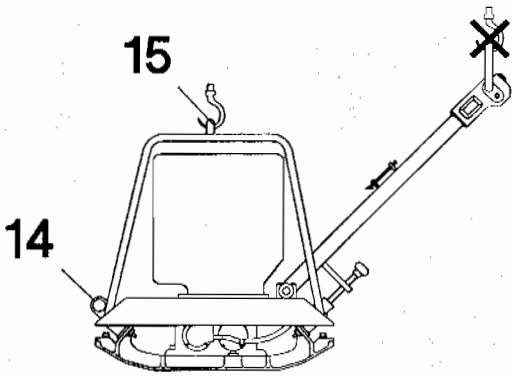
To facilitate the starting procedure the drive engine (1) has an decompression mechanism (2).

Transport to work site

Conditions:
- To transport the vibration plate, only use suitable lifting equipment with a minimum load-bearing capacity of 200 kg.
- During transport, always switch the engine off!
- Only attach suitable tackle at the central lifting point (15) provided.
- During transport on the loading area of a vehicle, tie down the vibration plate using the lugs (14).

☛ **ATTENTION!** Do not suspend from the shift lever!

Note: Also observe the regulations in chapter, Safety instructions.



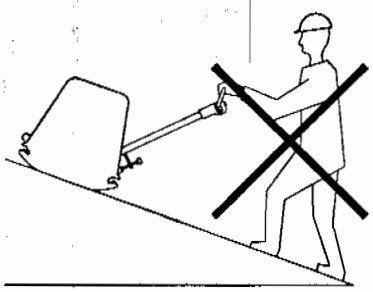
Recommendations on compaction

Ground conditions
The max. compaction depth depends several factors relating to the ground condition, such as moisture, grain distribution etc.
It is therefore not possible to specify an exact figure for this.
Recommendation: In each case determine the max. compaction depth with compaction tests and ground samples.

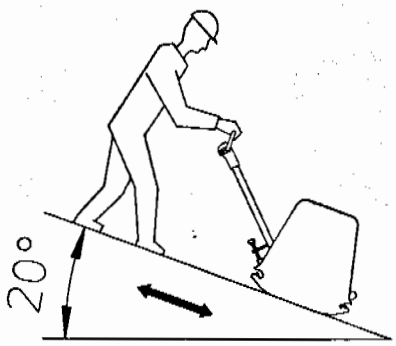
Compaction on slopes
The following points are to be observed when compacting on inclined surfaces (slopes, embankments):

* Only approach gradients from the bottom (a gradient which can be easily overcome upwards, can also be compacted downwards without any risk).
* The operator must never stand in the direction of descent (see chapter, Safety instructions).
* The max. gradient of 20° must not be exceeded.

☛ **ATTENTION!** If this gradient were exceeded, this would result in a failure of the engine lubrication system (splash lubrication) and thus inevitably lead to a breakdown of important engine components.



Wrong !



Right !

Starting

Preparations for starting:

Oil:	Check oil level on oil dipstick, if necessary top up with HD brand oil SAE 15 W 40 using the filler nozzle.
Fuel:	When pouring diesel fuel into the fuel nozzle, maintain absolute cleanliness. Impurities in the fuel can cause breakdowns in the injection system and premature clogging of the fuel filter.
Air filter:	Clean oil bath air filter in the event of very dusty conditions.

Once these points have been observed, you can start the engine as follows:

1. Move speed lever into "Start" direction an place in central position (Fig. 1, item 1).

2. It is also necessary, but only when the cylinder head is not at least hand warm, to:
   - pull the starting knob (Fig. 1, item 2).
   - "turn" the engine "free": turn the decompression lever counterclockwise as far as it will (Fig. 2, item 1) go = permanent decompression; pull out the starting cable a few times and let it slowly roll up (Fig. 2, item 2) again. The injection noise of the injection nozzle must be audible.

3. At air temperatures under -5° C and cylinder head not at least hand warm:
   - perform the actions under points 1 and 2 above
   - fill 1 x the metering facility for starting oil
   - pull the starting knob (Fig. 1, item 2)
   - turn the engine free 5 - 10 times (Fig. 2).

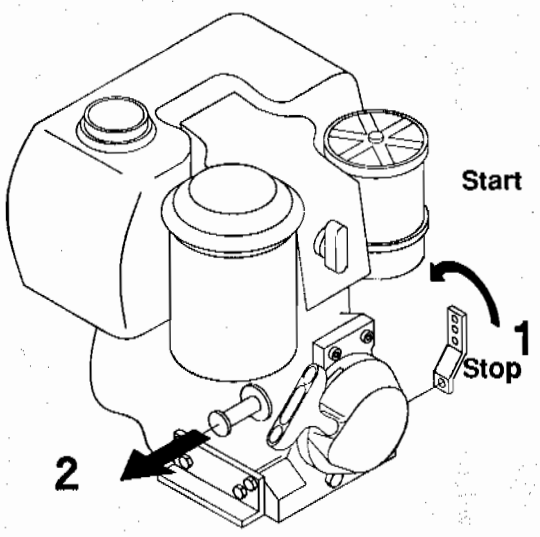


Fig. 1

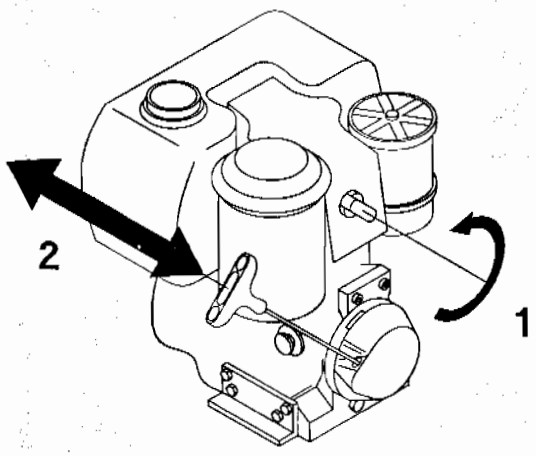


Fig. 2

Starting the engine:

1. Move the crankshaft into the starting position:
   - move decompression lever into vertical position = compression (Fig. 3, item 1)
   - pull the starting cable slowly until the compression resistance can be felt and then from this position (Fig. 3, item 2):
   - let the starting cable roll up again (Fig. 3, item 3)!

2. Starting:
   - turn the decompression lever clockwise as far as it will go = automatic (Fig. 4, item 1). If the decompression lever does not automatically stop in the "automatic position", 1. is to be repeated.
   - quickly pull the starting cable with force (do not jerk) out far - the engine starts (Fig. 4, item 2).
     Support light-weight or tilting equipment with your hand or foot.
     Always repeat attempted starts from point 1. onwards.

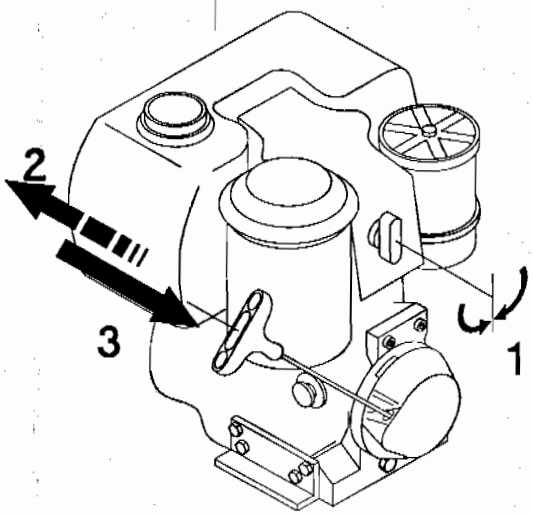


Fig. 3

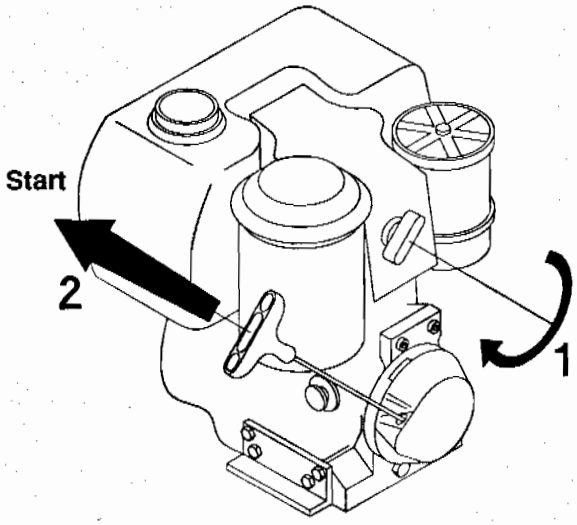


Fig 4

Additional notes on starting at very low temperatures!

☛ **ATTENTION!** Never use starting sprays or similar - they are forbidden because they are dangerous.

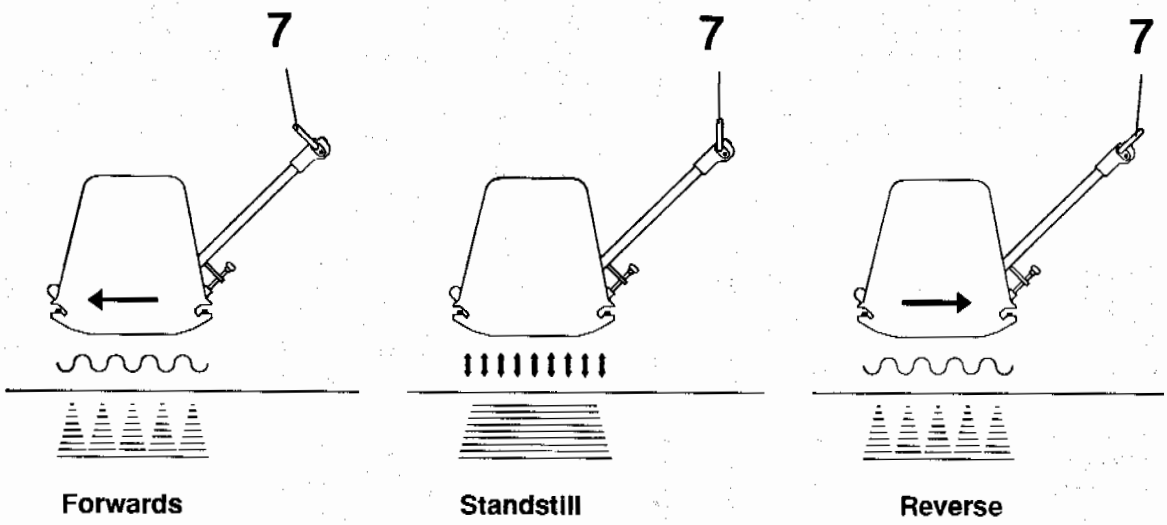
☛ **ATTENTION!** If cranking is too slow, the engine can start running in the opposite direction of rotation. In this case the air is drawn in through the exhaust gases escape through the air filter. Risk of fire! Swich off engine and start again.

At very low temperatures (below 5°C), use the starting oil dosing device.

Note: Do not use more than 2 doses.

Forward and reverse motion

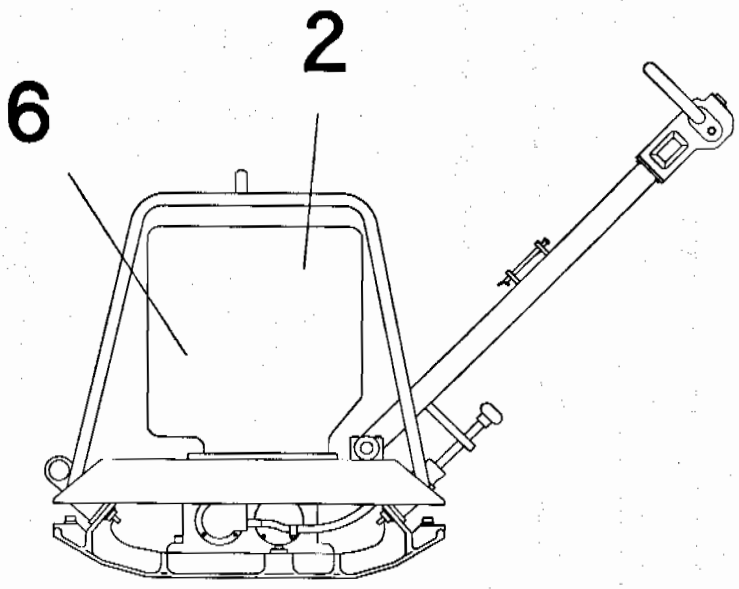
The engine speed can be infinitely varied on the throttle control lever (6).
The direction of travel is determinet with the shift lever (7).
Depending on the position of the shift lever (7), the vibration plate compacts in forward direction, at standstill or in reverse direction.
The forward and reverse speeds can be varied by selecting intermediate positions of the shift lever (7) or the machine can be employed for particularly intensive compaction at standstill.



Switching off

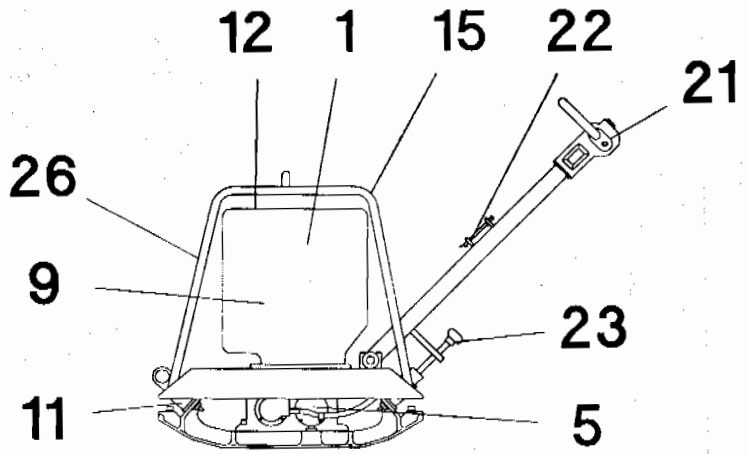
ATTENTION! Never switch off the engine with the decompression lever (2) as this inevitably results in damage to the valve drive.

Move the throttle control lever (6) right to the stop.



Maintenance schedule

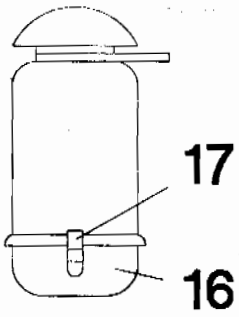
Check all external screw connections for tight fit appox. 8 hours after first operation.		
Component	**Maintenance work**	**Maintenance interval**
Air filter	Check filter for oil level and clogging, if nec. clean an top up.	daily
Drive engine	Check oil level, if nec. top up oil.	
Exciter	Check for tightness.	
Drive engine	First oil change.	25 hours
Centre pole height setting, transport lock	Regrease.	weekly
Drive engine	Oil change. Keep cooling fins free of dirt, clean dry. Retighten all accessible screw connections. Grease moving parts.	150 hours
Exciter	Check oil level, if nec. top up oil.	
Rubber metal dampers	Check for cracks (visual inspection).	
Hydraulic control	Check oil level, if nec. top up oil.	monthly
V-belt	Check V-belt dimension, if nec. replace.	
Protective frame, central lifting point	Check attachment screws for tight fit.	
Exciter	Oil change.	250 hours
Drive engine	Take engine to WACKER service station for inspection.	300 hours
Valve clearance	Check, set to 0,1 mm when engine is cold.	
Injection nozzle	Functioning check - 110 bars.	
Fuel filter	Change filter.	500 hours



Air filter

Service oil bath air filter:

1. Remove filter assembly (16) after releasing the clamps (17).
2. Drain oil (do not pour into the ground).
3. Pour in oil (SAE 15 W 40) up to the mark.
4. Secure filter assembly (16) with clamps (17).



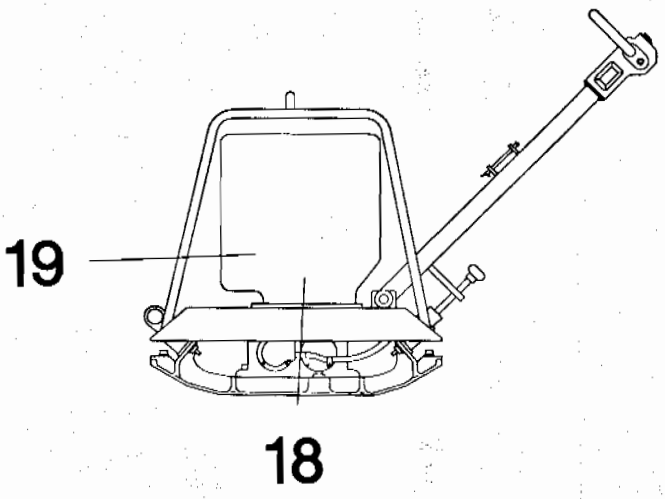
Engine oil

Check oil level:

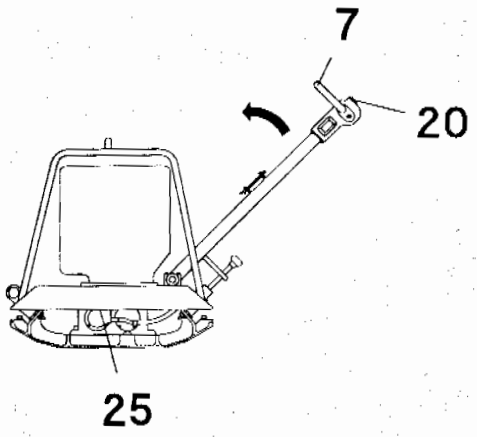
Check oil level on oil dipstick.
If the oil level is too low, top up with HD brand oil SAE 15 W 40 through the filler nozzle (19).

Changing the oil:

1. Let engine warm up.
2. Undo drain screw (18) and drain off oil.
3. Insert drain screw (18).
4. Pour in1 l of oil through the filler nozzle (19).



Hydraulic control



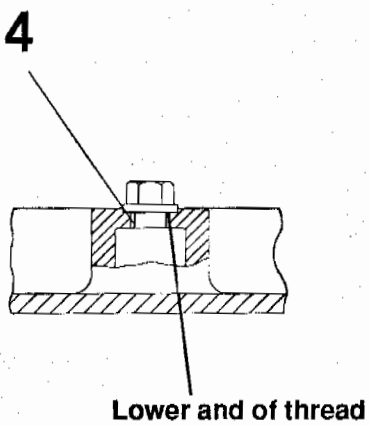
Check oil level:

1. Move centre pole into vertical position.
2. Open filler bore (20).
3. Oil level must be at mark, if necessary top up with hydraulic oil Fuchs Renolin MR 520.
4. Close filler bore (20).

Venting hydraulic control:

1. Move centre pole into vertical position, move shift lever (7) right into the reverse position, open filler bore.
2. Loosen connecting screw (25).
3. Slowly push the shift lever (7) into forward motion direction until hydraulic oil emerges bubblefree at the connection screw.
4. Tighten connecting screw (25).
5. If necessary, top up with Fuchs Renolin MR 520, seal filler bore (20).

Exciter



Check oil level:

1. Position vibration plate horizontally.
2. Open filler bore (24).
3. The oil level must reach the start of the thread of the filler bore (24).
4. If necessary, pour in HD brand oil SAE 15 W 40 through filler bore (use funnel).
5. Close filler bore (24).

Changing the oil:

1. Open filler bore (24).
2. Tilt vibration plate and keep it tilted until the oil has run out.
3. Place vibration plate in horizontal position.
4. Pour in 0,75 l HD brand oil SAE 15 W 40 through the filler bore (24).
5. Close filler bore (24).

☛ **ATTENTION!** Do not pour in too much oil!

Exciter V-belt

Remove belt guard. Remove nuts situated on the motor V-belt pulley, remove V-belt pulley half. Remove number of spacers on (the removal or one spacer is usually sufficient). Install the removed spacers on the outside of the V-belt pulley. (If one washer is removed, install it on the outer half of the pulley, of two, one on the outer and one on the inner V-belt pulley half etc.). Thus V-belt aligment is maintained. Install spring washer in a way such that the large diameter comes to lie on the motor V-belt pully. Loosen nuts and under continual rotation of the motor V-belt pully tighten nust alternately.

Forward speed too low

Cause: - To little hydraulic oil in the centre pole head.
- Air in hydraulic control.

Remedy: - Top up hydraulic oil.
- Bleed system.

Reverse speed too low

Cause: - Too much oil in centre pole head.

Remedy: - Correct oil level in acc. with mark.

No reverse motion

Cause: - Mechanical fault.

Remedy: - Contact WACKER service dept.

Loss of hydraulic oil

Cause: - Leaks, hydraulic hose defective.

Remedy: - Change defective parts.
Note: Bleed system after every dismantling operation.