

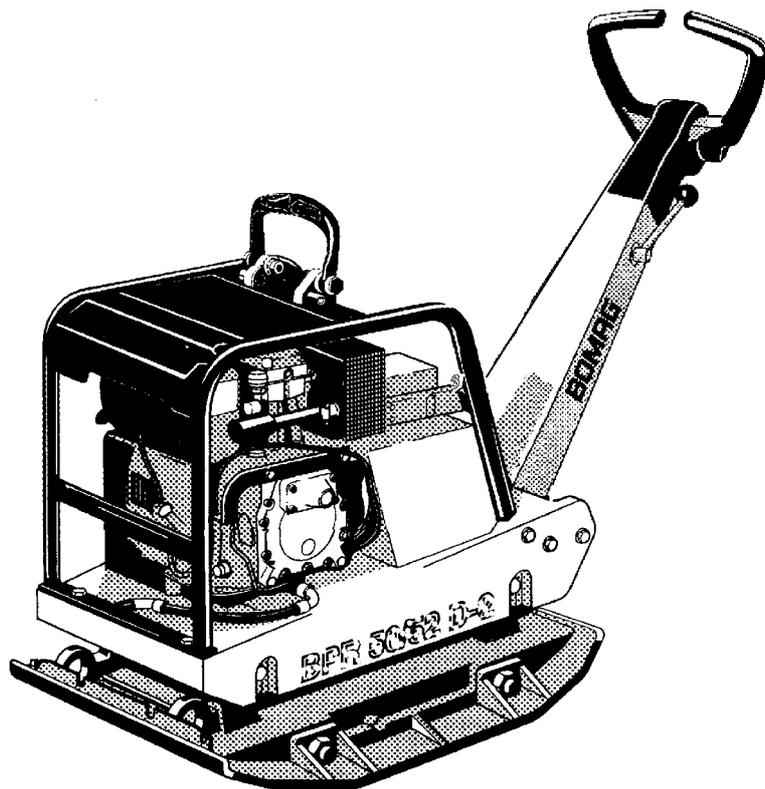
BOMAG

Operating instructions Maintenance instructions

*This manual is
in accordance with
product liability laws
and safety regulations*

BPR 50/52 D-3 - BPR 55/52 D-3

S/N 101 690 27> Hatz



Vibratory plate

If the machine is equipped with a battery :

CALIFORNIA

Proposition 65 Warning

Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Wash hands after handling.

If the machine is equipped with a diesel engine :

CALIFORNIA

Proposition 65 Warning

The engine exhaust and some of its constituents are known to the state of California to cause cancer, birth defects, and other reproductive harm.

**EC - Declaration of Conformity**

as defined by Machinery Directive 98/37/EEC, Annex II A

Herewith we declare that this series production machine

Designation: **Vibratory plate**

Type: **BPR 30/38 D-3, BPR 35/38 D-3, BPR 40/45D-3, BPR 45/45 D-3
BPR 50/52 D-3, BPR 55/52 D-3**

Manufacturer: **BOMAG GmbH & Co. OHG, Boppard**

Serial number: **(see information on type plate)**

complies with the substantial provisions of EEC-Directive:

Machinery:
98/37/EEC

EMC:
89/336/EEC, amended by directive 92/31/ECC + 93/68/ECC

and the harmonized standards:

EN 500-1 and 500-4

A specimen of the above mentioned product has been checked and approved by the committee civil engineering/testing and certificated under the number .

This EU-declaration of conformity is only valid together with the appropriate scope of delivery of BOMAG GmbH & Co. OHG and clearly visible CE-sign on the machine integrated in the type plate

Boppard, 11/2000

BOMAG GmbH & Co. OHG

i. V. R. Steinadler
R. Steinadler

Project Manager



Machines marked with the  -sign are in accordance with the latest improved safety regulations for the market within the European Union.

For machines to be used outside this area and where these regulations are not binding, BOMAG recommends the application of the same safety standards.

These BOMAG - machines are products from the wide product range of BOMAG compaction equipment. BOMAG's vast experience, coupled with the most modern production and testing methods, such as lifetime tests of all important components and highest quality demands, ensure highest reliability of your machine.

Using these instructions will

- help you to become acquainted with the machine.
- avoid faults caused by unprofessional operation.

Observing the maintenance instructions will

- increase the reliability of the machine during use on site,
- prolong the lifetime of the machine,
- reduce repair costs and downtime.

BOMAG does not assume liability for the function of the machine

- if the machine is handled in a way, which does not comply with the use it is intended for,
- if it is used for purposes other than the ones mentioned in these instructions.

No warranty claims can be lodged for damage resulting from

- operating errors,
- insufficient maintenance and
- the use of wrong fuels and lubricants.

Please note!

This manual was written for operators and maintenance personnel on construction sites.

You should only operate the machine after you have been instructed to do so and by following these instructions.

Please observe strictly the safety regulations.

Please observe also the guidelines of the civil engineering liability association "safety rules for the operation of road rollers and soil compaction equipment", as well as the applicable instructions for the prevention of accidents.

For your own safety you should only use genuine BOMAG spare parts.

To comply with the technical development we reserve the right of modifications without prior notification.

These operating and maintenance instructions are also available in other languages.

In addition you can obtain a spare parts catalogue from your BOMAG dealer by just stating the serial number of your machine.

Information for the correct use of our machines in earth and asphalt construction is also available from your BOMAG-dealer.

The notes mentioned above do not constitute an extension of the warranty and liability conditions, which are part of the general terms of business of BOMAG.

We wish you much success with your BOMAG machine.

BOMAG GmbH & Co. OHG

Printed in Germany

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Foreword

Please fill in

.....

Machine type (Fig. 1)

.....

Serial No. (Fig. 1 and 2)

.....

Engine type (Fig. 3)

.....

Engine No. (Fig. 3)

i Note

Fill in the above listed data when receiving the machine.

Upon receipt of the machine our organization will instruct you about correct operation and maintenance.

Please observe strictly all safety regulations and notes on potential dangers!

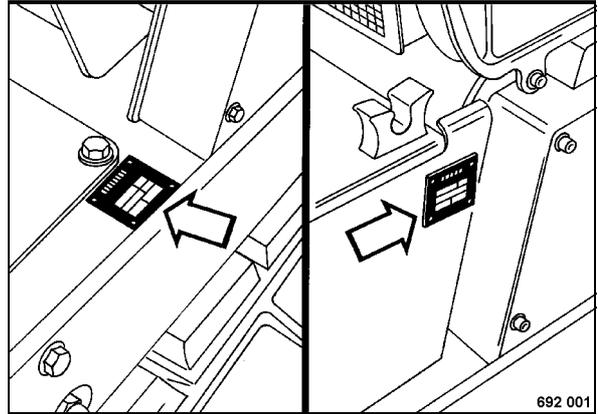


Fig. 1

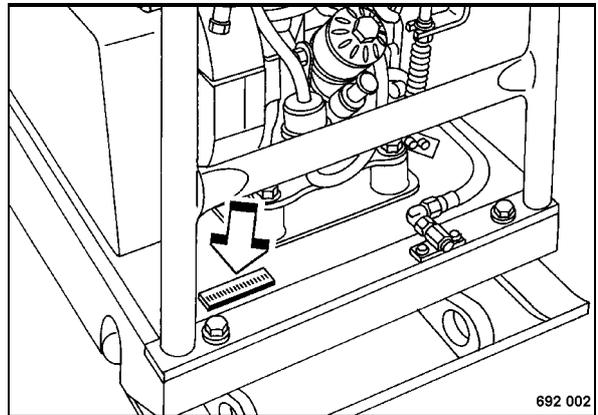


Fig. 2

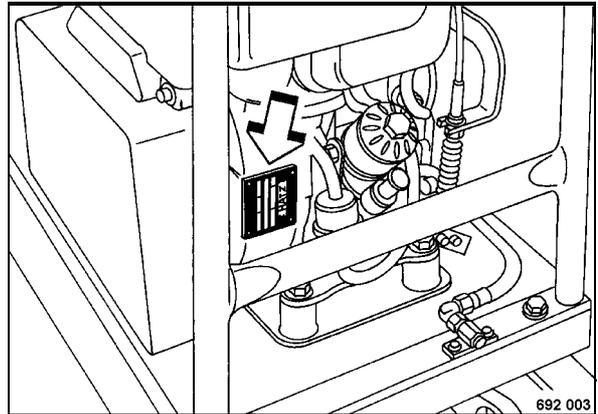


Fig. 3

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1 Technical Data

Technical Data

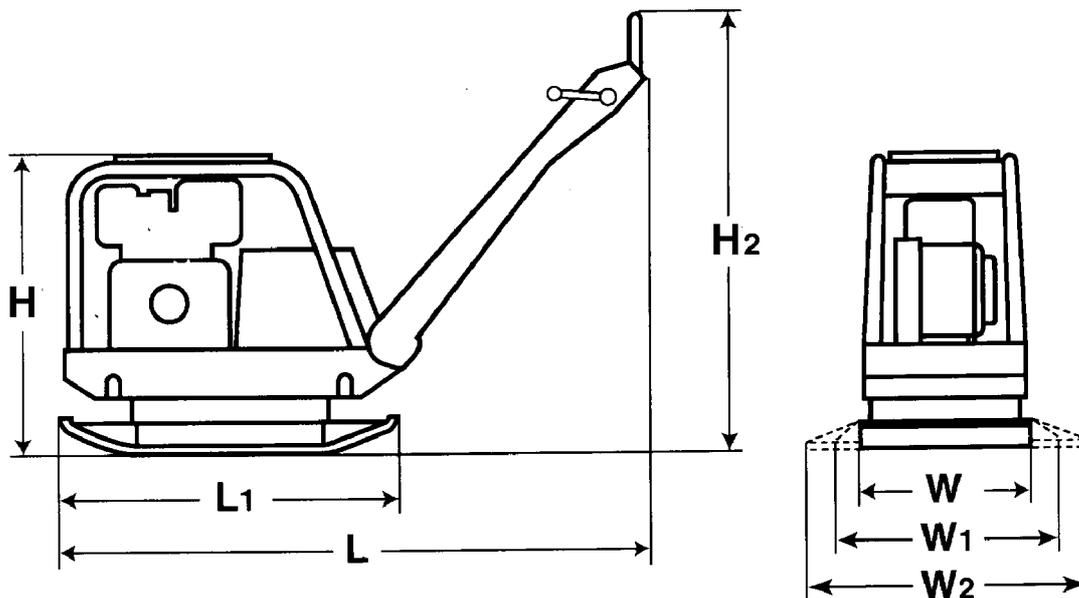


Fig. 4

680 058

Dimensions in mm	H	H1	L	L1	W	W ₁	W ₂
BPR 50/52 D-3 - BPR 55/52 D-3	850	1070	1890	900	520	660	820

*

BPR 50/52 D-3

BPR 55/52 D-3

Weights

Operating weight CECE (W)	kg	446	446
Operating weight CECE (W1) with extension plates	kg	463	463
Operating weight CECE (W2) with extension plates	kg	473	473

Drive

Engine manufacturer		Hatz	Hatz
Type		1D 41 S	1D 41 S
Cooling		Air	Air
Working cycles		4	4
Number of cylinders		1	1
Rated power ISO 9249	kW	5,8	5,8
Rated speed	rpm	3400	3400
Starting device		Crank handle	
Fuel		Diesel	Diesel
Drive system		mechanical (V-belt)	mechanical (V-belt)

		BPR 50/52 D-3	BPR 55/52 D-3
* Travel characteristics			
Working speed	m/min	0...24	0...22
max. gradability	%	30	30
Permissible inclination	°	20	20
Vibration system			
Frequency	Hz	62	75
Amplitude	mm	1,8	1,2
Filling capacities			
Fuel tank capacity	l	4	4
Engine	l	1,1	1,1
Vibrator system	l	1	1

* The right for technical modifications remains reserved

Technical Data

The following noise and vibration values according to the EC-machine regulation of revision (93/68/EEC) have been measured under typical operating conditions for this machine with vibration and over a specified travel distance (DIN 45635).

During operation these values may vary because of the existing operating conditions.

Noise value

The sound level according to enclosure 1, paragraph 1.7.4. f of the EC-machine regulation is

sound pressure level on the operator's stand:

L_{pA} = high amplitude 95.2 dB(A) / low amplitude 98.1 dB(A)

sound capacity level:

L_{WA} = high amplitude 108.9 dB(A) / low amplitude 111.1 dB(A)

These sound values were determined according to ISO 6081 for the sound pressure level (L_{pA}) and ISO 3744, DIN 45635 for sound capacity level (L_{WA}).

Vibration value

The vibration values according to enclosure 1, paragraph 2. 2 or 3. 6. 3. a of the EC-machine regulation are:

Hand-arm vibration values

The weighted effective acceleration value determined according to ISO 8662 part 1, DIN 45675, part 9 is 6.9 m/sec² for high amplitude and 6.7 m/sec² for low amplitude.

2 Safety regulations

General

This BOMAG machine is built in accordance with the latest technical standard and the valid technical rules and regulations. However, dangers for persons and property may arise from the machine if it is:

- put to unintended use,
- operated by untrained personnel,
- modified or altered in an unprofessional way,
- the applicable safety regulations are not observed.

Each person involved in operation, maintenance and repair of the machine must therefore read and apply these safety regulations. If necessary this should be confirmed by obtaining the signature of the customer.

Furthermore the following regulations and instructions are obviously also valid:

- all applicable instructions for the prevention of accidents,
- generally acknowledged safety and road traffic regulations,
- country specific regulations.

Intended use

This machine must only be used for:

- compaction of all types of soil,
- repair work on all types of soil,
- reinforcement of pedestrian walkways,
- work in trenches,
- filling and compaction of hard shoulders.
- The machine should be checked by an expert once every year.

Unintended use

Dangers may, however, arise from the machine if it is used by untrained personnel in an unprofessional way or if it is used for purposes other than those mentioned in these instructions.

Who is allowed to work with the machine?

The machine must only be operated by trained and authorized persons who are at least 18 years of age. The responsibilities for the operation of the machine must be clearly specified and complied with.

Persons under the influence of alcohol, medication or drugs must not operate, service or repair the machine.

Maintenance and repair tasks require specific knowledge and must therefore only be carried out by trained and qualified personnel.

Conversions and alterations to the machine

Unauthorized conversions to the machine are prohibited for safety reasons.

Original parts and accessories have been specially designed for this machine. We wish to make expressly clear that we have not tested or authorized any original parts or special equipment not supplied by us. The installation and/or use of such products can impair the active and/or passive driving safety. The manufacturer expressly excludes any liability for damage resulting from the use of non-original parts or accessories.

Safety notes in the operating and maintenance instructions:

Danger

Paragraphs marked like this highlight possible dangers for persons.

Caution

Paragraphs marked this way highlight possible dangers for machines or parts of the machines.

Note

Sections marked like this provide technical information concerning the optimal economical use of the machine.

Environment

Sections marked like this highlight activities for the safe and environmental disposal of fuels and lubricants as well as replaced parts.

Safety stickers on the machine

Keep safety stickers in good condition and legible and follow their meaning.

Replace damaged and illegible safety stickers.

Loading the machine

Secure the machine against turning over or slipping off.

Persons are highly endangered if they

- step under loads being lifted or
- stand under loads being lifted

Secure the machine on the transport vehicle against rolling off, slipping and turning over.

Starting the machine

Before starting

Become acquainted with the equipment, the control elements, the working principle of the machine and the working area.

Wear your personal protective outfit (hard hat, safety boots, etc.). Wear ear defenders.

Before starting the machine check whether:

- the machine shows any obvious faults
- all guards and safety elements are in place
- the controls are fully functional
- the machine is free of oily and combustible material
- all grips are free of grease, oils, fuel, dirt, snow and ice.

Use only machines which are serviced at regular intervals.

Do not use any starting aids like start pilot or ether.

For starting move your feet out of the danger zone of the base plate.

Starting in closed rooms

Exhaust gases are highly dangerous! Always ensure an adequate supply of fresh air when starting in closed rooms!

Operation

Operate the machine only with the steering rod folded down.

Guide the machine so that your hands do not hit against solid objects, danger of injury.

Watch out for unusual noises and development of smoke. Perform trouble shooting and have the fault corrected.

Operate the machine only with full engine speed, as otherwise the centrifugal clutch will be destroyed.

Do not let the machine run unattended.

Parking the machine

Park the machine on level, firm ground.

Before leaving the machine:

- park the machine so that it cannot turn over,
- shut the engine down.

Mark machines, which could be in the way, with a clearly visible sign.

Filling the fuel tank

Refuel only with the engine shut down.

Do not refuel in closed rooms.

No open fire, do not smoke.

Do not spill any fuel. Catch running out fuel, do not let it seep into the ground.

Maintenance

Maintenance work must only be carried out by qualified and authorized personnel.

Keep unauthorized persons away from the machine.

Do not perform service work while the engine is running.

If possible, park the machine on level and firm ground.

Working on the engine

Drain the engine oil at operating temperature - danger of scalding!

Wipe off spilled oil, catch running out oil and dispose of environmentally.

Safety regulations

Store used filters and other oil containing materials in a specially marked container and dispose of environmentally.

Working on electric components

Before starting to work on electric components disconnect the battery and cover it with insulating material.

Working on the battery

When working on the battery do not smoke, do not use open fire.

Do not let skin and clothes come in contact with acid.

In case of injuries caused by acid flush the respective parts with clear water and consult a doctor for medical advice.

Do not place any tools on the battery, danger of short circuit.

When recharging the battery remove all plugs to avoid an accumulation of explosive gases.

Dispose of old batteries environmentally.

Working on the fuel system

No open fire, do not smoke, do not spill any fuel.

Catch running out fuel, do not let it seep into the ground and dispose of environmentally.

Cleaning

Do not clean the machine while the engine is running.

Do not use gasoline or other combustible substances for cleaning purposes.

When using steam cleaning equipment do not subject electric parts to the direct water jet or cover it beforehand.

Do not guide the water jet directly into the air filter and into the air intake opening.

After maintenance work

Reinstall all protective devices after completing the maintenance work.

Repair

Repair work must only be performed by qualified and authorized persons. Use our repair instructions for this work.

Exhaust gases are highly dangerous! Always ensure an adequate supply of fresh air when starting in closed rooms!

Mark defective machines by attaching a warning note to the steering handle.

3 Indicators and Controls

3.1 General notes

Please read this section thoroughly before operating this machine if you are not yet conversant with the indicators and control elements. All functions are described in detail hereunder.

Paragraph 4 Operation contains only concise descriptions of the individual operating steps.

3.2 Controls

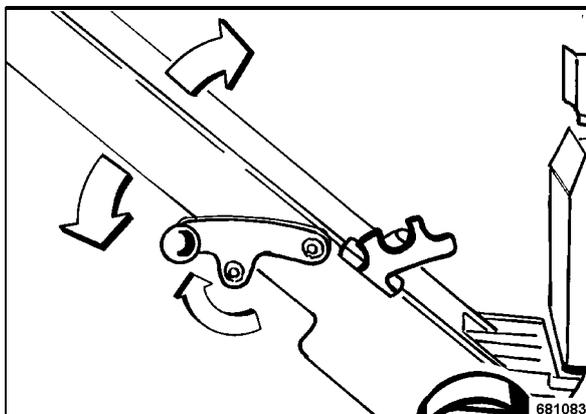


Fig. 5

Locking lever (Fig. 5).

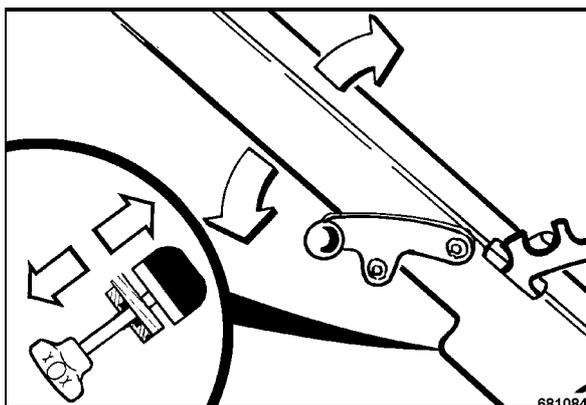


Fig. 6

Height adjustment (Fig. 6) of steering rod.

i Note

Pull the locking lever up to fold the steering rod down.

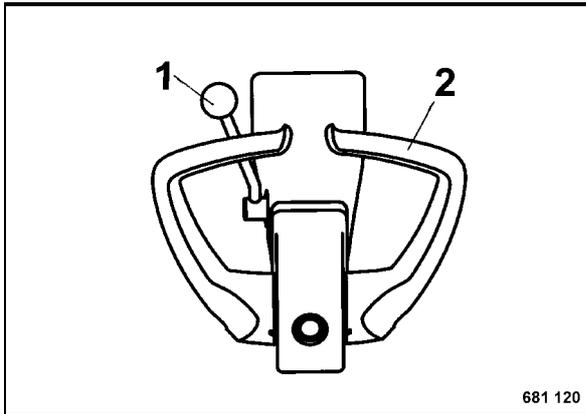


Fig. 7

Controls (Fig. 7).

1 Throttle lever

2 Travel lever

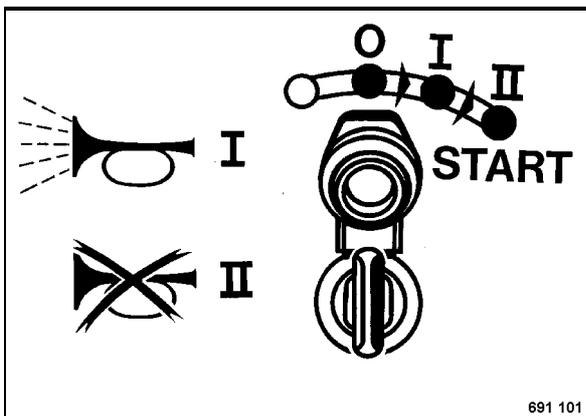


Fig. 8

Optional equipment

Start the engine electrically (Fig. 8).

Turn the ignition key to position "0" warning buzzer.

Turn the ignition key to position "I" warning buzzer on.

Then turn the ignition key further to position "II" to start the engine.



4 Operation

4.1 General

If you are not yet acquainted with the controls and indicating elements on this machine you should thoroughly read chapter 3 "Indicators and control elements" before starting work.

All indicators and control elements are described in detail in this chapter.

4.2 Before starting work

Please observe strictly the safety regulations in chapter 2 of these operating and maintenance instructions.

Refer also to the detailed description in the chapter "Maintenance".

Top up missing fuels and lubricants according to the respective maintenance instruction.

- Stand the machine on level ground.
- Check fuel tank and lines for leaks.
- Check the engine oil level, if necessary top up to the upper mark.
- Check the fuel level, if necessary top up.
- Check the dry air filter maintenance indicator.
- Check the condition of the entire machine and check the screw connections for tight fit.

Danger

Loss of hearing!

Wear your personal noise protection equipment (ear defenders) before starting operation.

4.3 Folding the steering rod down

⚠ Danger

Danger of injury!

Shock by spring force!

The steering rod is resilient in operating position.

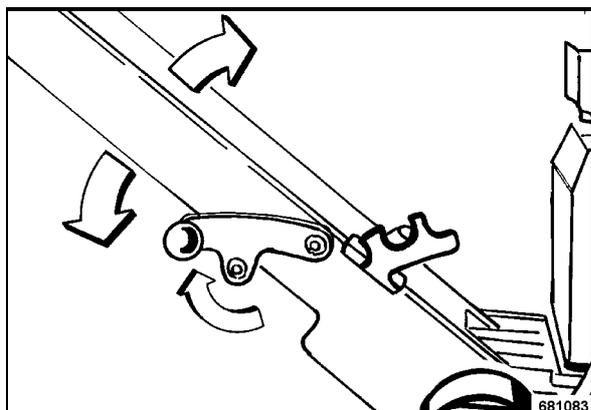


Fig. 9

- Pull locking the lever (Fig. 9) up and fold the rod down, so that steering rod can swing freely.

4.4 Starting/stopping the engine, manual starting

i Note

The engine is equipped with a low oil level safety device, which interrupts the fuel flow to the injection pump. The engine will stop.

If the low oil level safety device has responded or if the fuel tank has been driven empty, the fuel shut-off valve must be opened manually (see section "initial start-up")

On engines with electric starter switch the ignition on, so that the battery is being charged.

⚠ Caution

The low oil level safety device does not release the operator from his duty to check the oil level every day!

⚠ Danger

Danger of accident!

Replace a broken handle tube, worn cranking pin.

Slightly lubricate the gliding area between crank handle and guide sleeve.

Do not use any starting aid spray.

Before starting make sure that there are no persons in the danger area and that all safety installations are in place and fully functional.

Remove all loose objects (tools) from the machine.

Do not run the engine in closed or poorly ventilated rooms.

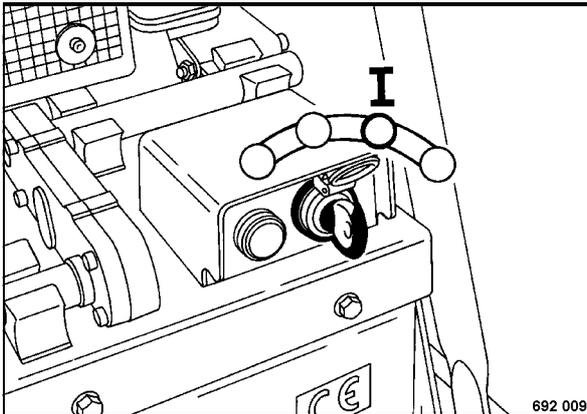


Fig. 10

- On machines with electric starter turn the ignition switch (Fig. 10) to position "I".

i Note

With the ignition switch in position "I" the battery is being charged when the engine is running.

Initial start-up

Always perform the following work if:

- the low oil level safety device has responded and engine oil has been filled up,
- if the fuel tank has been driven empty.
- the fuel in the supply line has been used up when turning the engine free during cold starting or by starting faults.

- Check the oil level, if necessary fill up to the "MAX"- mark.
- Check the fuel level, if necessary fill in fuel

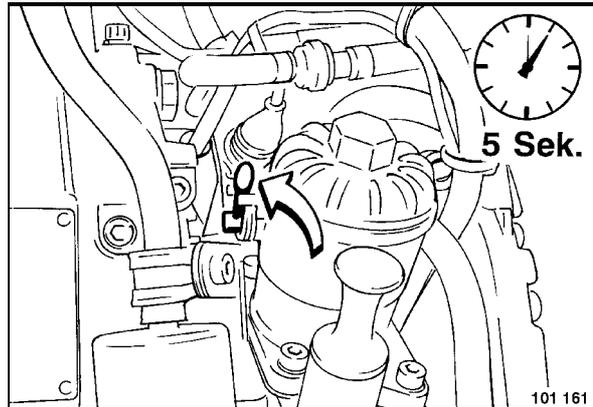


Fig. 11

- Press the hand lever (Fig. 11) for approx. five seconds against the spring.

The engine is ready for starting.

Normal starting

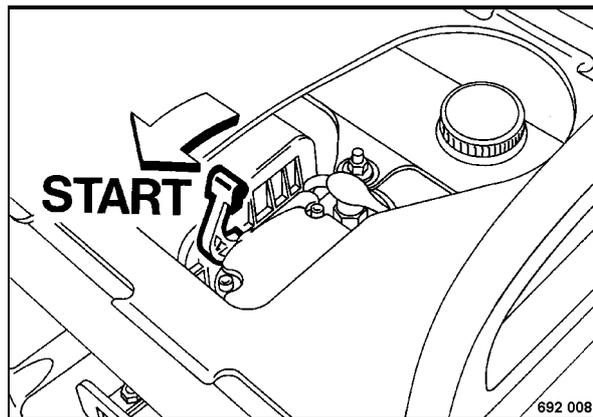


Fig. 12

- Pull the decompression lever (Fig. 12) in direction of arrow to the end stop.

The compression lever clicks noticeably into place.

i Note

After engaging the decompression lever another five revolutions with the crank handle are required until the engine can compress and ignite again.

If less crank handle revolutions are wanted for starting, the decompression lever can be push in opposite direction again, after it has engaged at the end stop. Each noticeable click means one crank handle revolution less.

If the compression lever is not pushed all the way to the end stop in direction "Start", the engine might be decompressed, but is not ready for starting. This position is used to turn the engine free at low ambient temperatures.

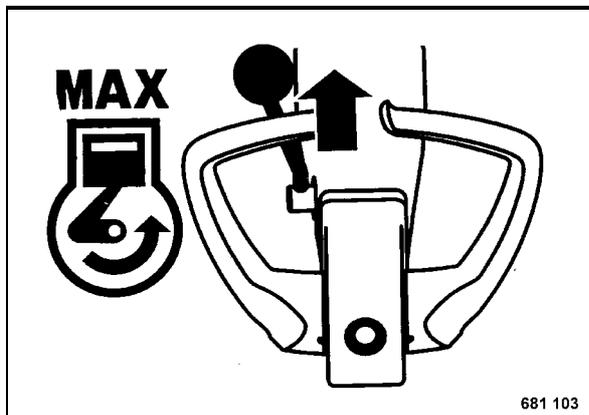


Fig. 13

- Set the throttle lever (Fig. 13) to position "MAX" (full speed).
- Shift the travel lever to position "0".

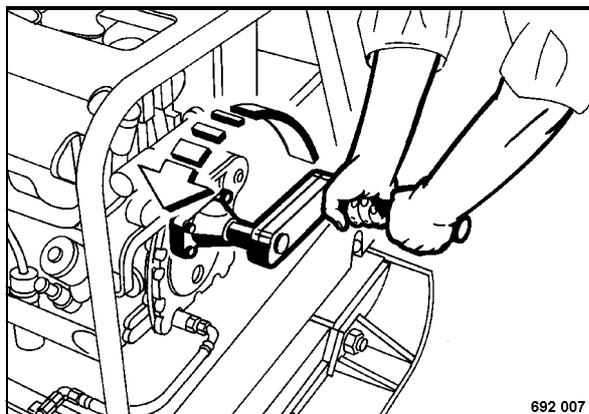


Fig. 14

- Insert the crank handle (Fig. 14).

⚠ Danger

Stand in correct position to the engine and ensure correct grip of the crank handle.

- Turn the crank handle slowly, until the catch engages.
- Turn the crank handle with increasing speed, until the engine starts. Do not interrupt the frictional connection.

i Note

When the decompression lever returns to initial position the highest speed must be reached.

- As soon as the engine starts pull the crank handle out of the guide.

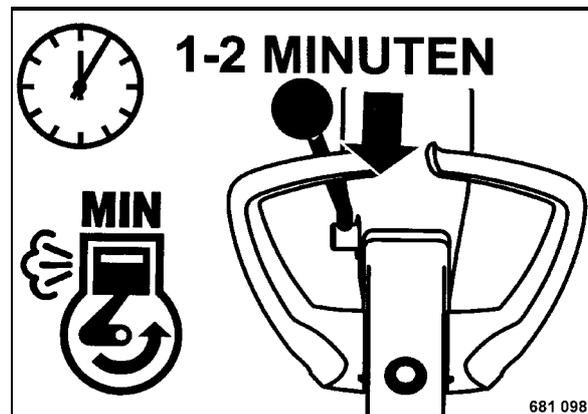


Fig. 15

- Set the throttle lever (Fig. 15) to position "MIN" (idle speed).
- Before taking up work run the engine warm for approx. 1 to 2 minutes.

Cold starting

i Note

At temperatures below -5 °C perform the following work.

⚠ Danger

Do not use any starting aids like start pilot or ether.

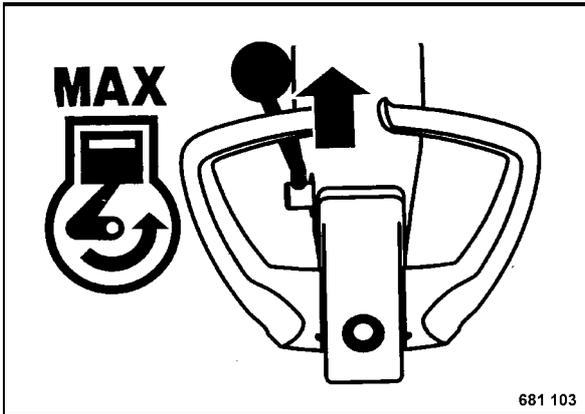


Fig. 16

- Set the throttle lever (Fig. 16) to position "MAX" (full speed).
- Shift the travel lever to position "0".

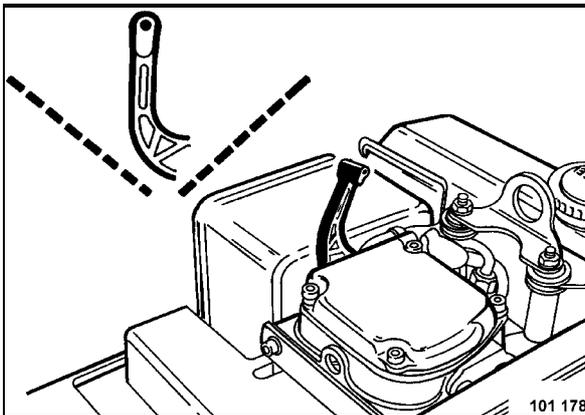


Fig. 17

- Pull the decompression lever (Fig. 17) only a fraction in direction of arrow.

To turn the engine free you should not pull the decompression lever all the way to the end stop in starting position.

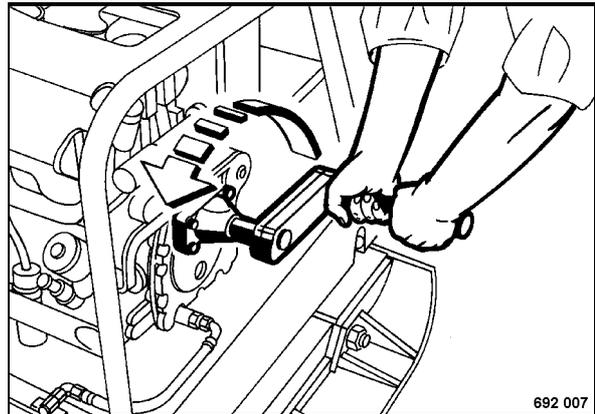


Fig. 18

- Insert the crank handle (Fig. 18).
- Crank the engine several times in decompressed condition (turn it free), until it can be cranked lightly.

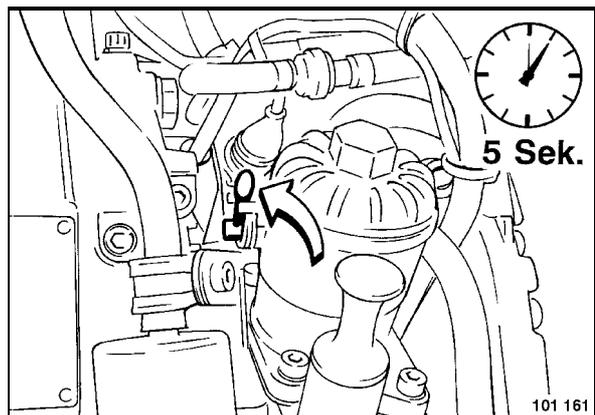


Fig. 19

- Press the hand lever (Fig. 19) for approx. five seconds against the spring.

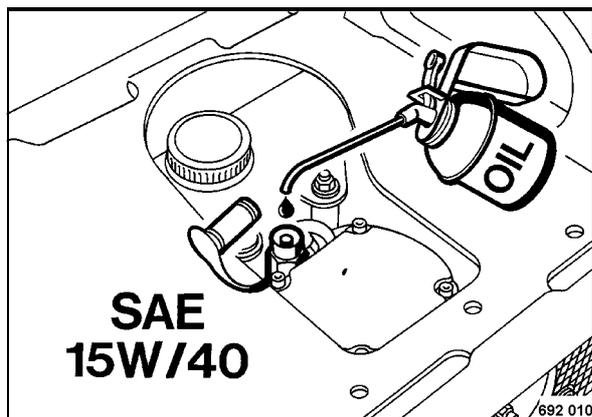


Fig. 20

- Pull the protection cover (Fig. 20) off the dosing device. Fill in engine oil to the top, reattach the cover and press it firmly in.

i Note

Max. 2 fillings after each other.

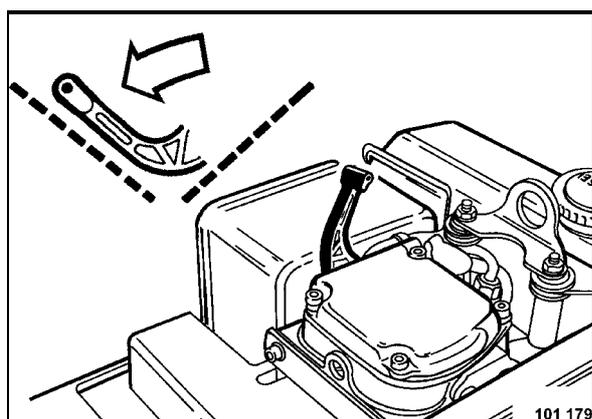


Fig. 21

- Pull the decompression lever (Fig. 21) in direction of arrow to the end stop.

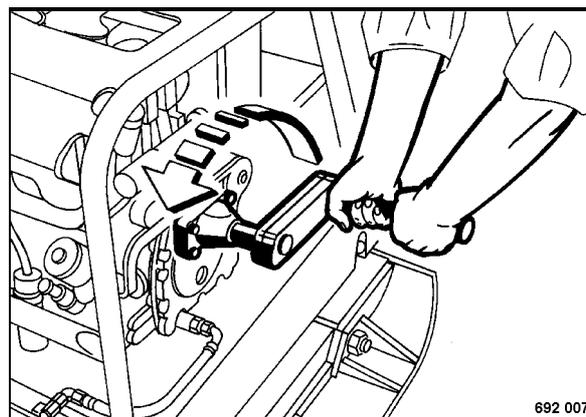


Fig. 22

▲ Danger

Stand in correct position to the engine and ensure correct grip of the crank handle (Fig. 22).

- Turn the crank handle slowly, until the catch engages.
- Turn the crank handle with increasing speed, until the engine starts. Do not interrupt the frictional connection.

i Note

Hold the crank handle with a tight grip during the starting process.

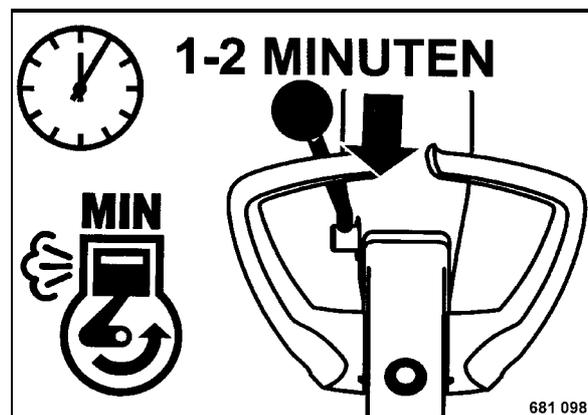


Fig. 23

- Set the throttle lever (Fig. 23) to position "MIN" (idle speed).

i Note

If the engine does not start repeat the starting process.

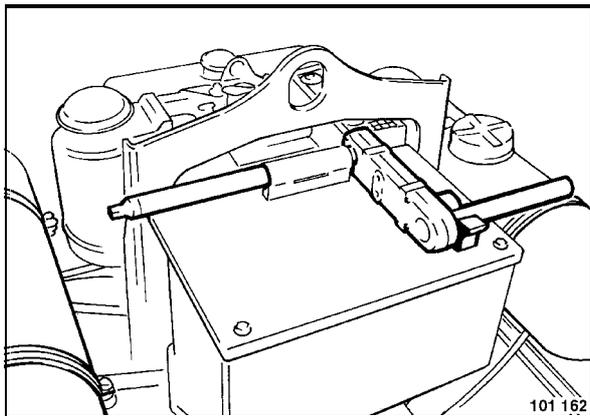


Fig. 24

- Attach the crank handle (Fig. 24).

Caution

Before taking up work let the engine warm up at idle speed for a short while (not longer than 5 minutes).

Shutting the engine down

Caution

Do not shut the engine down all of the sudden from full speed, but let it idle for a while for temperature equalization.

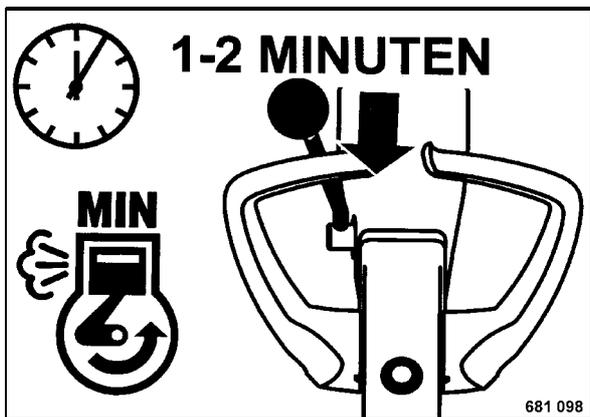


Fig. 25

- Shift the throttle lever to position "Min" (Fig. 25) and let the engine run with idle speed for a short while.

Vibration is shut down.

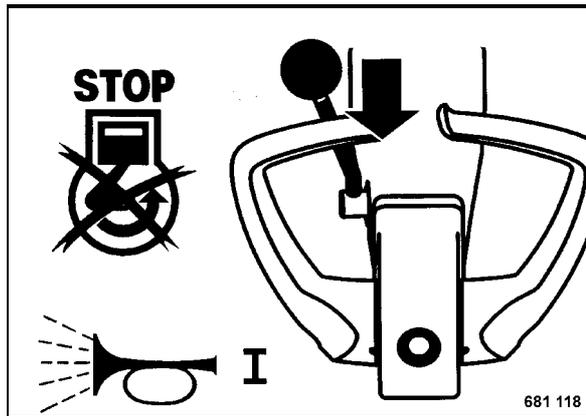


Fig. 26

- Set the throttle lever (Fig. 26) to position "STOP".

The engine stops and the warning buzzer sounds.

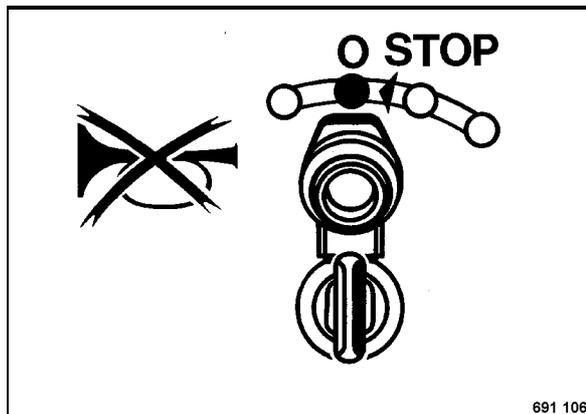


Fig. 27

- Turn the ignition key to position "0" (Fig. 27) and pull it out.
- The warning buzzer stops to sound.

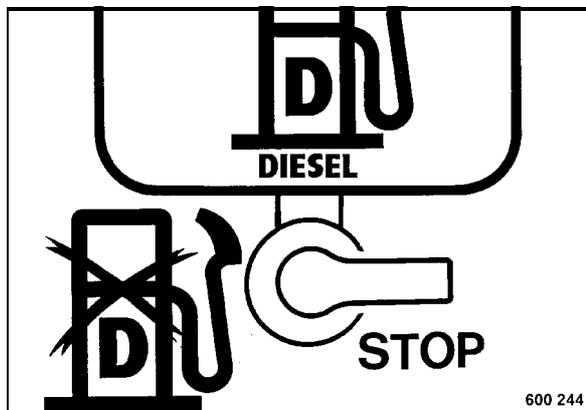


Fig. 28

- Set the fuel valve (Fig. 28) to STOP (closed).

4.5 Starting/stopping the engine/electric starter*

Starting the engine

i Note

The engine is started electrically, instead of turning a crank handle.

The engine is equipped with a low oil level safety device, which interrupts the fuel flow to the injection pump. The engine will stop.

If the low oil level safety device has responded or if the fuel tank has been driven empty, the fuel shut-off valve must be opened manually (see previous section "initial start-up")

⚠ Caution

The low oil level safety device does not release the operator from his duty to check the oil level every day!

When the engine is running leave the ignition key in position I.

If the starting attempt takes longer than 10 seconds wait at least 15 seconds before trying again.

⚠ Danger

Danger of accident!

Do not use any starting aid spray.

Before starting make sure that there are no persons in the danger area and that all safety installations are in place and fully functional.

Remove all loose objects (tools) from the machine.

Do not run the engine in closed or poorly ventilated rooms.

Do not insert the crank handle into the crankshaft.

* Optional equipment

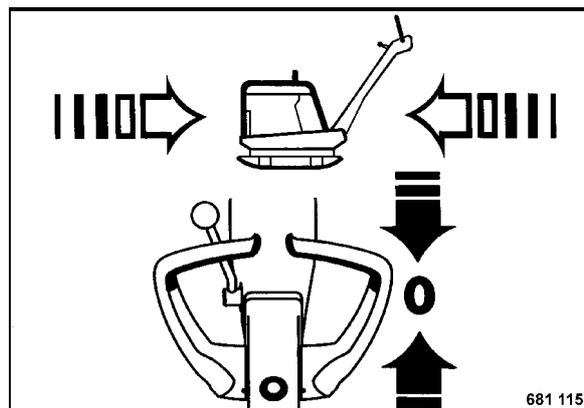


Fig. 29

- Shift the travel lever (Fig. 29) to position "0".

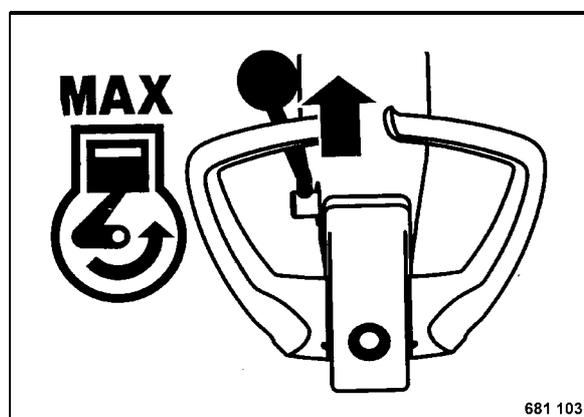


Fig. 30

- Set the throttle lever (Fig. 30) to position "MAX" (full speed).

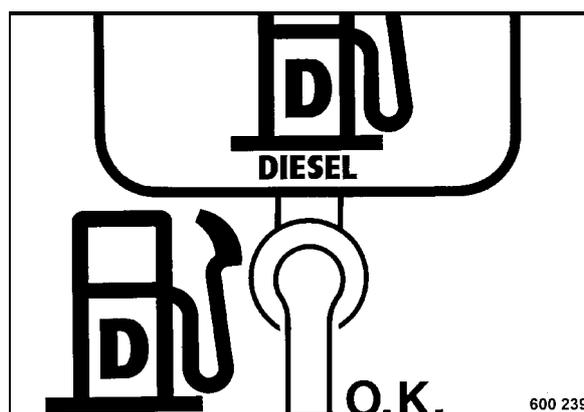


Fig. 31

- Set the fuel valve (Fig. 31) to O.K. (open).

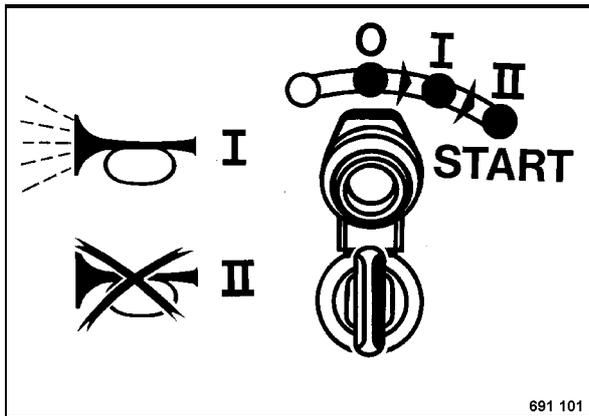


Fig. 32

- Turn the ignition key (Fig. 32) to position "I". The warning buzzer sounds.

Note

The warning buzzer sounds with the engine at rest and the ignition switched on, the battery is not being charged in this condition!

- Turn the ignition key to position "II", the starter will crank the engine.
- As soon as the engine ignites return the ignition key to position "I".
- Once the engine runs correctly reduce the engine speed.

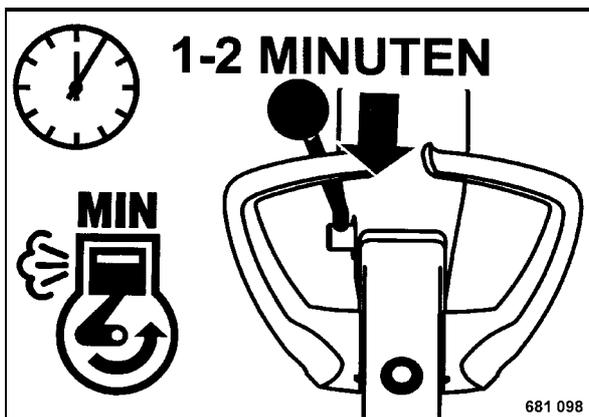


Fig. 33

- Run the engine warm for a short while before starting work (Fig. 33).
- Operation of the vibratory plate can be started once the engine has warmed up for a while.

Shutting the engine down

Caution

Do not shut the engine down all of the sudden from full speed, but let it idle for a while for temperature equalization.

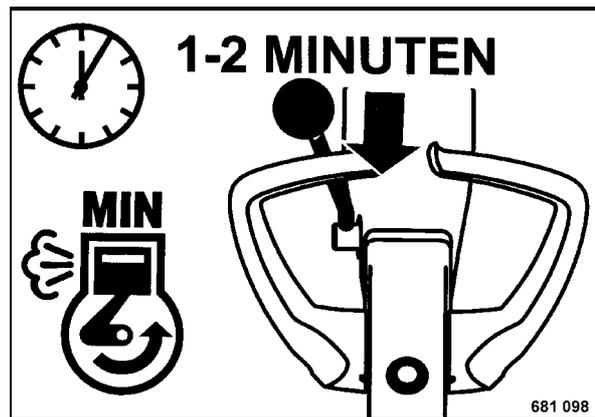


Fig. 34

- Shift the throttle lever to position "Min" (Fig. 34) and let the engine run with idle speed for a short while.

Vibration is shut down.

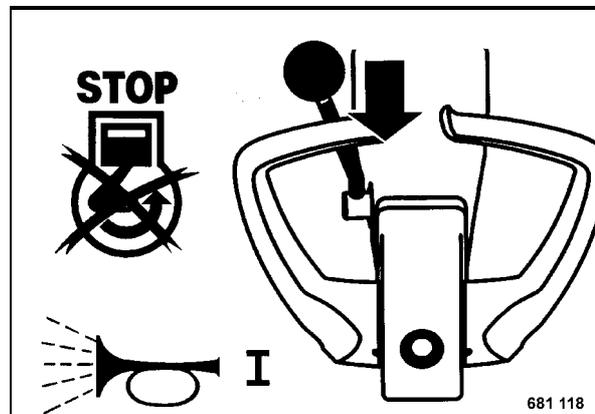


Fig. 35

- Set the throttle lever to position "STOP" (Fig. 35), the warning buzzer sounds.

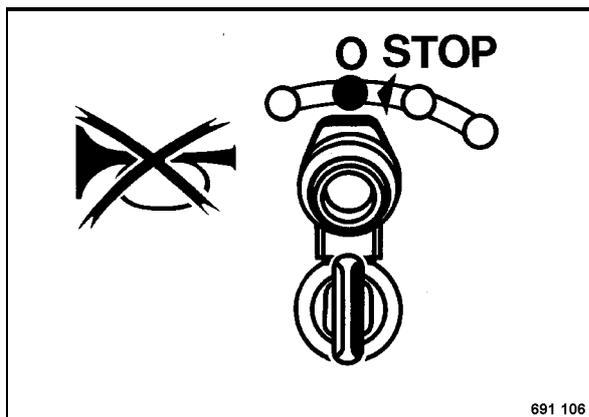


Fig. 36

- Turn the ignition key to position "0" and pull it out.

The warning buzzer stops to sound.

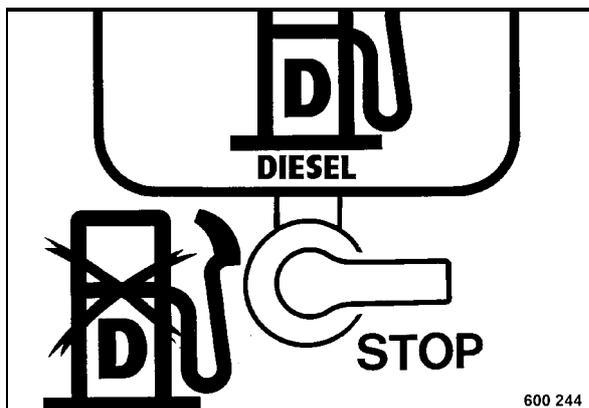


Fig. 37

- Set the fuel valve (Fig. 37) to STOP (closed).

4.6 Starting with jump wires

i Note

Use this starting possibility only if the battery is discharged.

- Remove the cover off the battery.

⚠ Caution

Wrong installation will cause severe damage in the electrical system.

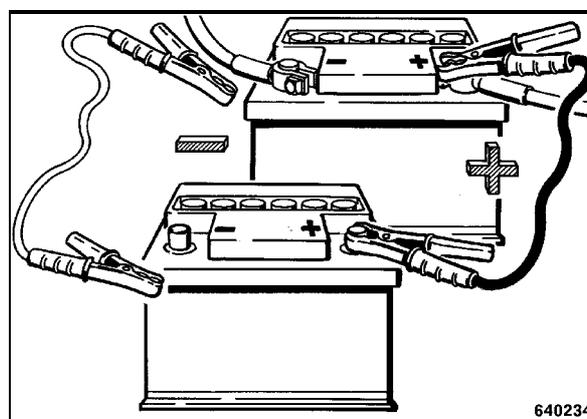


Fig. 38

- Connect the plus pole of the external battery with the plus pole of the starter battery with one of the jump wires (Fig. 38).
- Connect the minus poles of both batteries with the other jump wire.
- Start the engine as described before.
- Once the engine is running disconnect the minus poles first and the plus poles after.

i Note

This avoids short circuits when touching the plus wire with the minus wire.

- Reinstall the battery cover and lock the flap.

4.7 Work/operation

i Note

Operation of the vibratory plate can be started as soon as the engine responds to short throttle commands.

⚠ Danger

Danger of accident!

Operate the machine only with the steering rod folded down.

Guide the machine only by the steering rod.

Wear your personal noise protection (ear defenders).

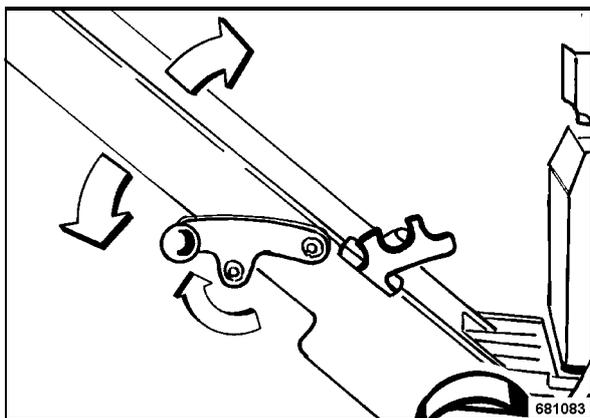


Fig. 39

- Pull the locking lever (Fig. 39) up and fold the steering rod down.

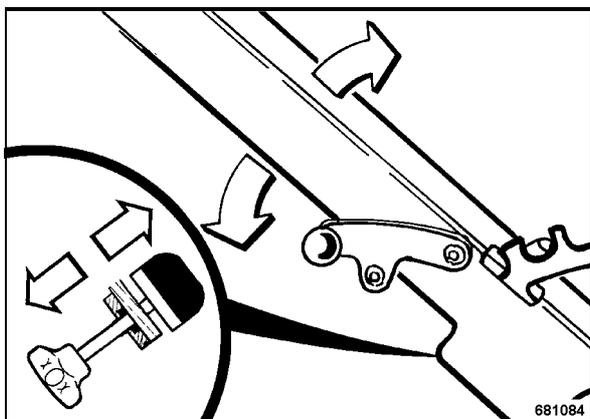


Fig. 40

- Adjust the steering rod with the height adjustment (Fig. 40) to the height of your body.

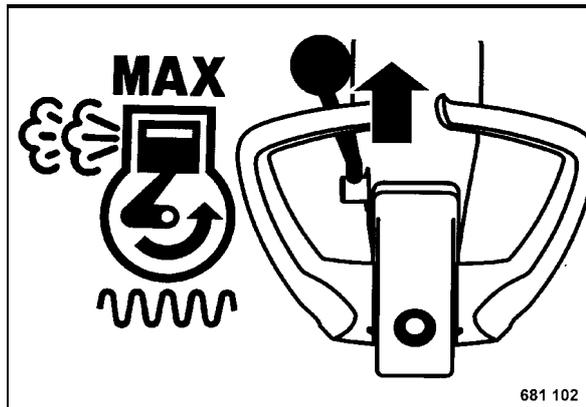


Fig. 41

- Set the throttle lever (Fig. 41) to position "MAX".

⚠ Caution

Operate the vibratory plate only with full engine speed, as otherwise the centrifugal clutch will be destroyed.

i Note

For short breaks you should always return the throttle lever to idle speed position, this avoids premature wear of the centrifugal clutch.

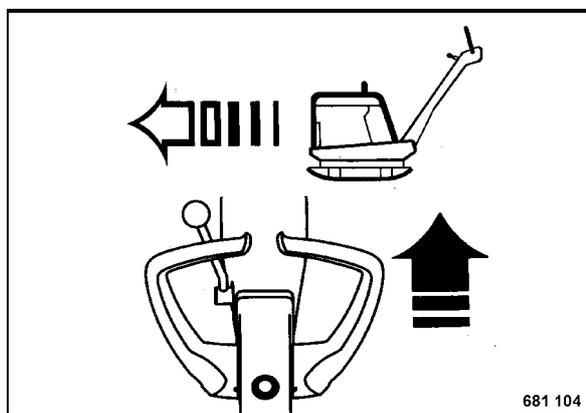


Fig. 42

- Move the travel lever (Fig. 42) forward as required for the desired speed.

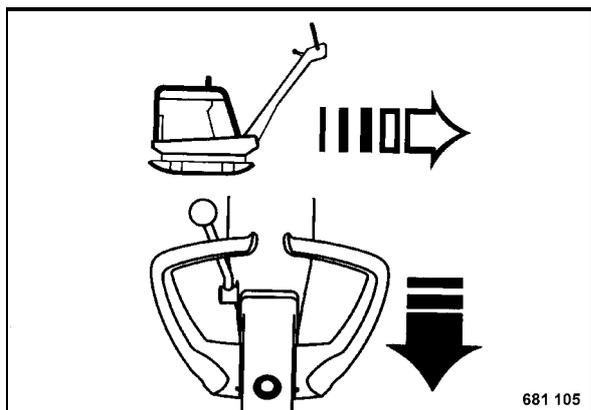


Fig. 43

- Move the travel lever (Fig. 43) backwards as required for the desired speed.

The machine vibrates forward or backwards with a speed, which is in accordance with the chosen travel lever position.

i Note

If the machine moves forward with considerably reduced speed, pull the travel lever completely back and shift it forward again.

If the vibratory plate got stuck

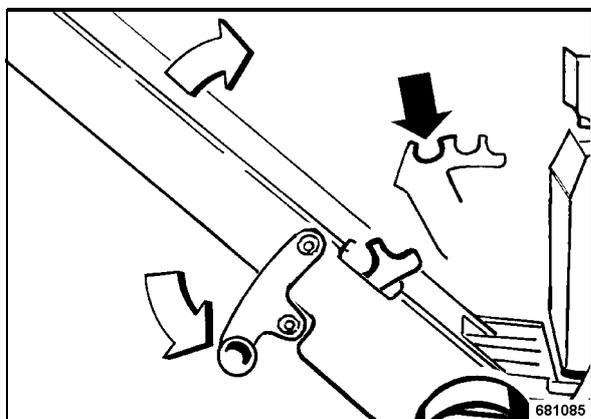


Fig. 44

- Lock the steering rod (Fig. 44) in the first locking position.

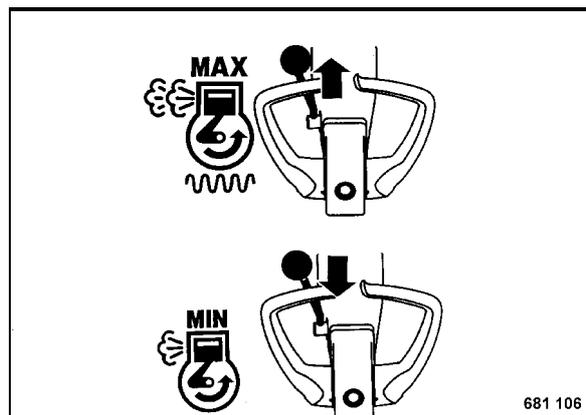


Fig. 45

- Keep moving throttle lever (Fig. 45) between "MIN" and "MAX" throttle position.
- At the same time pull the vibratory plate by the steering rod to the right and left, until it comes free.

⚠ Danger

Danger of accident!

As a measure to avoid injury the machine must only be guided from the side by the steering handle

4.8 Loading

⚠ Danger

Danger of accident!

Make sure that persons are not endangered by the machine tipping or sliding off.

Tie the machine down, so that it is secured against rolling, sliding and turning over.

For lifting the machine attach the lifting gear only to the lifting hook.

The machine must not swing about when being lifted.

Use only safe lifting gear of sufficient load bearing capacity

Do not stand or step under loads being lifted.

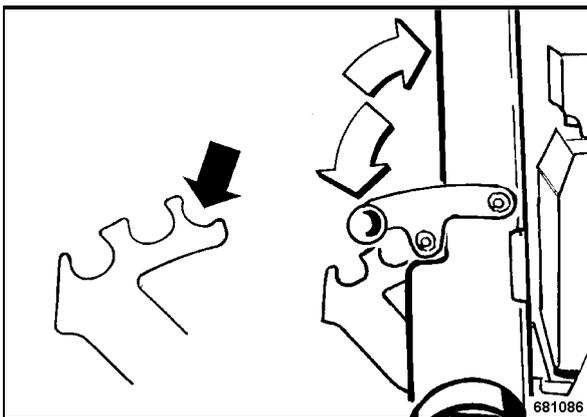


Fig. 46

- Adjust the steering rod (Fig. 46) in upright position and lock it in the last locking position.

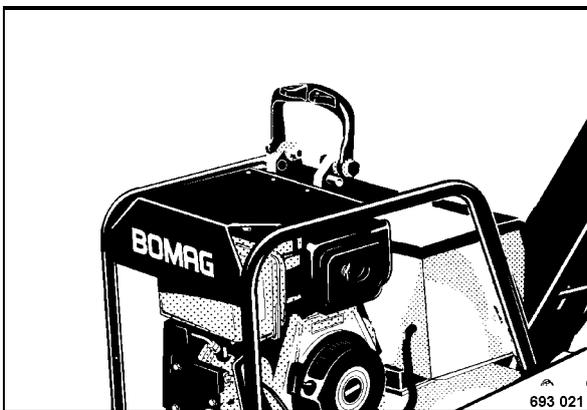


Fig. 47

- Fold the lifting hook (Fig. 47) up.

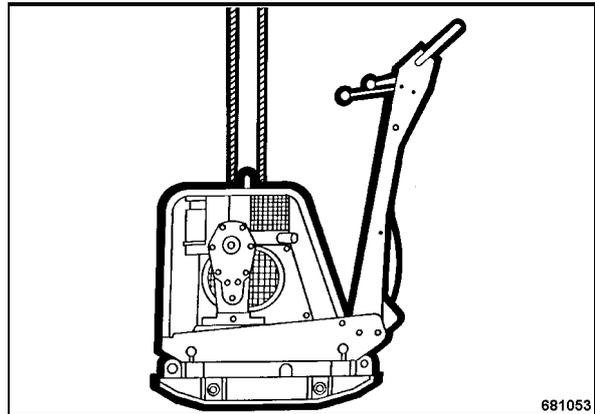


Fig. 48

- Always attach the lifting gear (rope) to the lifting eye to load the vibratory plate on a transport vehicle (Fig. 48).

⚠ Danger

Danger of accident!

Tie the machine down on the transport vehicle, so that it is secured against slipping, sliding and turning over!

5 Maintenance

5.1 General notes on maintenance

When performing maintenance work observe the applicable safety regulations and especially safety regulations in chapter 2 of these operating, maintenance and repair instructions.

Thorough maintenance of the machine ensures maximum reliability and prolongs the lifetime of important components. The effort necessary for this purpose is only of minor significance when being compared with the problems, which may arise, if these instructions are not observed.

- Clean machine and engine thoroughly before starting maintenance work.
- For maintenance work park the machine on level ground.
- Maintenance work must generally be carried out with the engine shut down.

Environment

During maintenance work catch all oils and fuels and do not let them seep into the ground. Dispose of oils and fuel environmentally.

Notes on the fuel system

The lifetime of the diesel engine is decisively depending on the cleanliness of the fuel.

- Keep the engine free of dirt and water as this could damage the injection elements of the engine.
- Zinc lined drums are not suitable for storing fuel.
- The fuel drum should rest for a longer period of time before drawing off fuel.
- Under no circumstances must the drum be rolled to the tapping pint just before drawing off fuel.
- When choosing the storage place for fuel, make sure that spilled fuel will not cause any damage.
- Do not let the suction hose disturb the sludge on the bottom of the drum.

- Do not draw off fuel from near the bottom of the fuel drum.
- Fuel left in the fuel drum is not suitable for the engine and should only be used for cleaning purposes.

Notes on the engine performance

Combustion air and fuel injection rates of the diesel engine have been carefully adjusted and determine the engine's performance and temperature level as well as the quality of the exhaust gas.

If your machine has to operate permanently in "thin air" (at high altitudes) and with full power, you should consult the after sales service of BOMAG or the service department of the engine manufacturer.

5.2 Fuels and lubricants

Engine oil

In order to assure perfect cold starting it is important to choose the viscosity (SAE-class) of the engine oil according to the ambient temperature.

For winter operation below $-10\text{ }^{\circ}\text{C}$ the oil change intervals must be shortened.

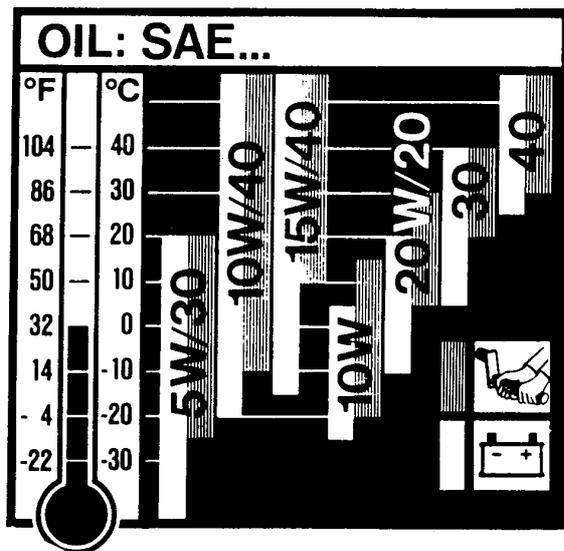


Fig. 49

Lubrication oil with a too high viscosity index causes starting difficulties. The temperature when starting the engine is therefore of highest importance when choosing the viscosity of engine oil for winter operation.

Oil viscosity

Since lubrication oil changes its viscosity with the temperature, the ambient temperature at the operating location of the engine is of utmost importance when choosing the viscosity class (SAE-class) (see diagram).

Occasionally falling short of the temperature limit will impair the cold starting ability, but will not cause any engine damage.

Regular lubrication oil changes

If the following oil change intervals are not reached over a period of 1 year, the oil change should be performed at least once per year, irrespective of the operating hours reached.

Oil quality

You should preferably use oils of API-quality class CD- CE- CF CG- or SHPD, or CCMC-D4- D5- PD2 oils. When using oils of a lower quality standard, the oil change intervals must be reduced to half.

Lubrication oil change intervals

Oil change intervals with oil quality

API: CD- CE- CF- CG- = 6 months (250 operating hours)

CCMC: D4- D5- PD2- = 6 months (250 operating hours)

Fuels

Quality

You should only use commercially available brand diesel fuel with a sulphur content below 0.5% and ensure strict cleanliness when filling in.

The following fuel specifications are permitted:

DIN 51601 - DK

BS 2869: A1 and A2

ASTM D 975-1D and 2D

Winter fuel

For winter operation use only winter diesel fuel, to avoid clogging because of paraffin separation. At very low temperatures disturbing paraffin separation can also be expected when using winter diesel fuel.

In most cases a sufficient cold resistance can also be achieved by adding flow enhancing fuel additives. Consult the engine manufacturer.

5.3 Table of fuels and lubricants

Assembly	Fuel or lubricant		Quantity approx.
	Summer	Winter	Attention Observe the level marks
Engine	Engine oil API: CD/SE or CD/SF SAE 15W/40 (-20°C to +30°C) (-20°C to +30°C) SAE 15W/40 (-10°C to +40°C) (-10°C to +40°C)		approx. 1,1 l (67 cu in)
- Fuel	SAE 30 (+5°C to +30°C) (+41°F bis+86°F)	SAE 10W (-5°C to -30°C) (-5°C to -30°C)	4 l (1 USgal)
	SAE 40 (+25°C to +40°C) (+77°F bis+104°F)	SAE 20W/20 (+10°C to -10°C) (+10°C to -10°C)	
	Diesel	Winter diesel fuel (-12°C) (+10.4°F)*	
Vibrator shaft housing	as engine oil		1 l

5.4 Running-in instructions

For the start-up or new machines of overhauled engines the following maintenance work must be performed:

 **Caution**

During the running-in period up to approx. 200 operating hours check the engine oil level two times every day.

Depending on the engine load the oil consumption will drop to its normal level after a running time of approx. 100 to 200 operating hours.

After 25 operating hours

- Change the engine oil.
- Check engine and machine for leaks.
- Check the valve clearance, adjust if necessary.
- Retighten the fastening screws for air filter, exhaust silencer, fuel tank and other attachments.
- Tighten the screw connections on the machine.
- Check the vibration drive V-belt, retighten it if necessary.

5.5 Maintenance chart

With all maintenance intervals perform also the work for shorter preceding service intervals.

No.	Designation	Note
Daily maintenance		
5.6	Cleaning machine/engine	
5.7	Checking the fuel level	
5.8	Checking the engine oil level	
5.9	Checking the dry air filter	
Monthly maintenance		
5.10	Cleaning the dry air filter	
5.11	Checking the battery condition, greasing the poles	
5.12	Draining the sludge from the fuel tank	
Maintenance every 6 months		
5.13	Checking the oil level in the vibrator housing	
5.14	Changing engine oil and oil filter	
5.15	Checking, tensioning, replacing the V-belt	
5.16	Checking, adjusting the valve clearance	
5.17	Cleaning the cooling fins and the cooling air intake openings	
Annual maintenance		
5.18	Changing the fuel filter	
5.19	Changing the oil in the vibrator housing	
5.20	Checking the hydraulic oil level	
5.21	Checking the rubber buffers	
As required		
5.22	Checking the screw joints	
5.23	Engine conservation	

5.6 Cleaning machine/engine

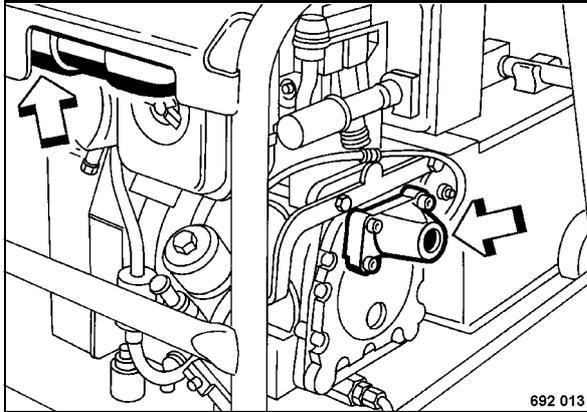


Fig. 50

⚠ Caution

Do not guide the water jet directly into the oil bath air filter (Fig. 50) and into the opening for the crankhandle.

- After each cleaning run the engine warm to evaporate all water and to avoid corrosion.

5.7 Checking the fuel level

⚠ Danger

Fire hazard!

When working on the fuel system do not use open fire, do not smoke.

Do not refuel in closed rooms!

Refuel only with the engine shut down!

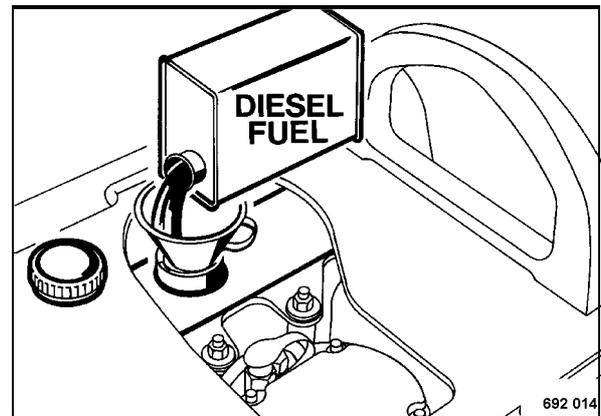


Fig. 51

- Clean the area around the tank cover, screw the tank cover (Fig. 51) off.

⚠ Caution

Dirty fuel can cause engine failures.

- Fill in fuel through a strainer.
- Screw the filler neck cover on again.

For quality of fuel refer to the table of fuels and lubricants.

5.8 Checking the engine oil

⚠ Caution

Stand the machine on firm and level ground, so that the engine is in horizontal position.

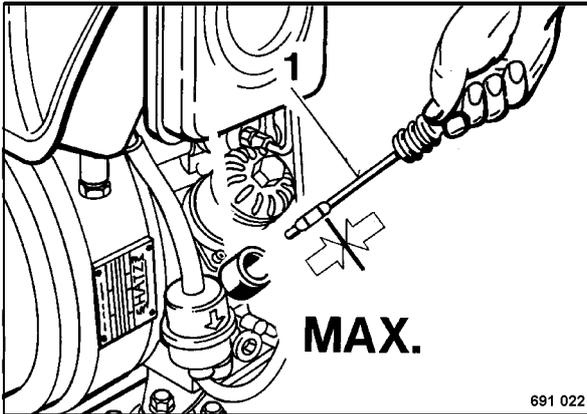


Fig. 52

- Shut the engine down.
- Pull the oil dipstick (Fig. 52) out, wipe it with a clean, lint-free cloth and reinsert it until it bottoms.
- Pull the oil dipstick back out and read the oil level.

Nominal value:

The oil level must reach the upper mark. Top up oil immediately if the oil level is too low.

For quality and quantity of oil refer to the table of fuels and lubricants.

- Check the seals on the oil dipstick, change if necessary.
- Push the oil dipstick in again until it bottoms.

5.9 Checking the dry air filter

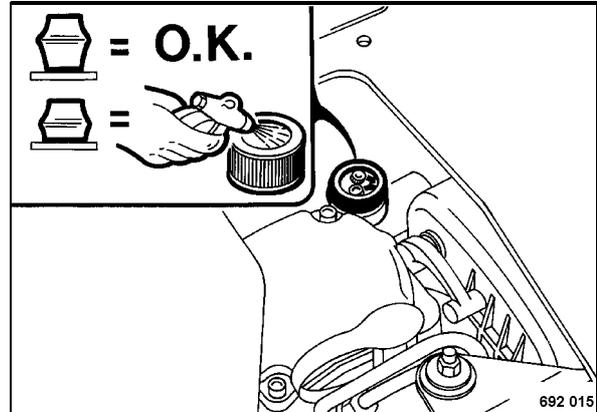


Fig. 53

- Pull the rubber sleeve (Fig. 53) up, start the engine and run it a max. speed.

If the rubber sleeve is pressed together again when the engine is running, clean the air filter (see following paragraph).

5.10 Cleaning the dry air filter

Caution

Do not use gasoline or hot liquids to clean the filter.

A dry air filter with damaged element or seal must be changed in any case. We therefore recommend to keep at least one filter cartridge in stock.

Change the air filter cartridge after two times cleaning, but at the latest after 2 years.

Mark each cleaning with a cross on the filter cartridge.

Cleaning is useless if the filter cartridge is covered with sooty dirt. Use a new filter cartridge.

Incorrectly handled filter cartridges can be ineffective because of damages (e.g. cracks) and lead to engine failures.

Change the filter cartridge if it is covered with damp or oily dirt.

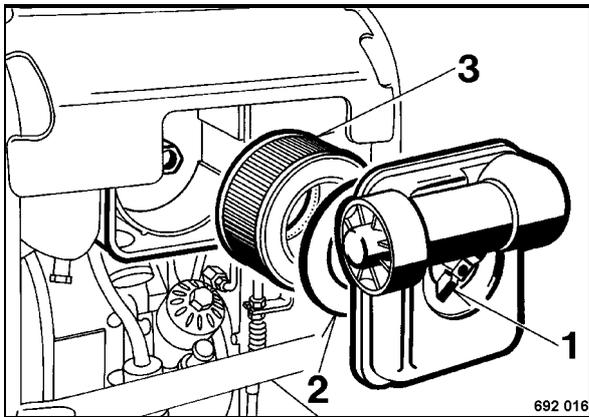


Fig. 54

- Slacken the wing nut 1 (Fig. 54) and take the cover with the covering disc (2) and the air filter insert (3) off.

Caution

No dirt or foreign particles must enter the clean air intake.

Do not blow the inside of the filter housing out with compressed air.

- Wipe the inside of the filter housing out with a clean cloth.
- Clean the cover with the cyclon pre-filter thoroughly.

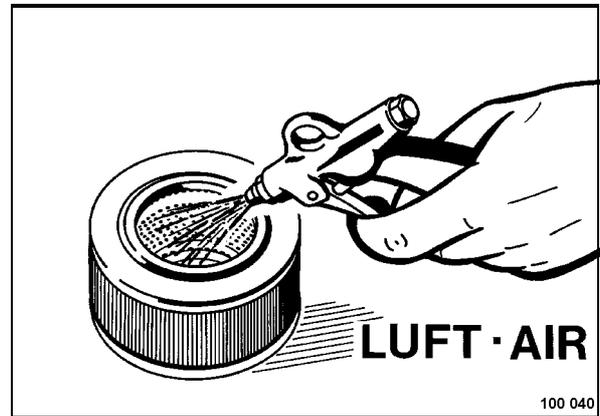


Fig. 55

Danger

Eye injuries!

Wear protective goggles.

- Blow the filter cartridge (Fig. 55) out with dry compressed air (max. 5 bar) from inside to outside.

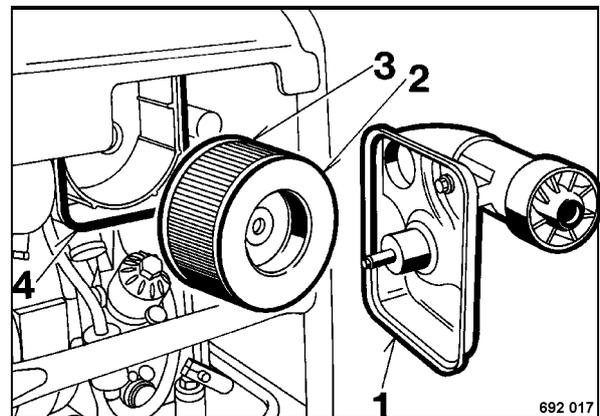


Fig. 56

- Insert the filter cartridge 3 (Fig. 56) with the covering disc (2) into the housing.
- Install the filter cover (1) and ensure correct fit of cover and seal (4).
- Check the dry air filter (see previous paragraph)

Change the filter cartridge if the maintenance indicator comes on again.

5.11 Checking the condition of the battery, greasing the poles

⚠ Danger

Danger of causticization!

When working on the battery do not use open fire, do not smoke.

Do not let skin and clothes come in contact with acid.

Wear protective goggles.

Do not lay any tools on the battery.

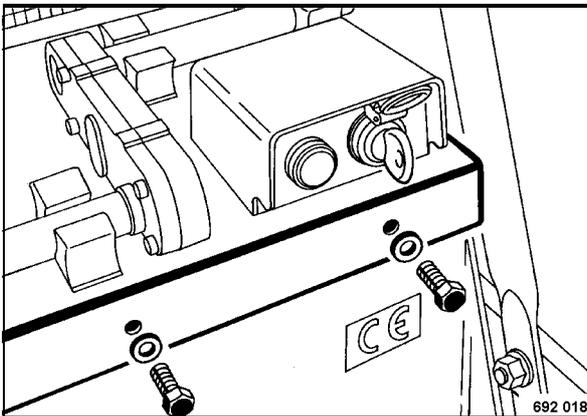


Fig. 57

- Unscrew the fastening screws (Fig. 57) for the covering flap and fold the cover down.
- Take the vibration insulation mats off.

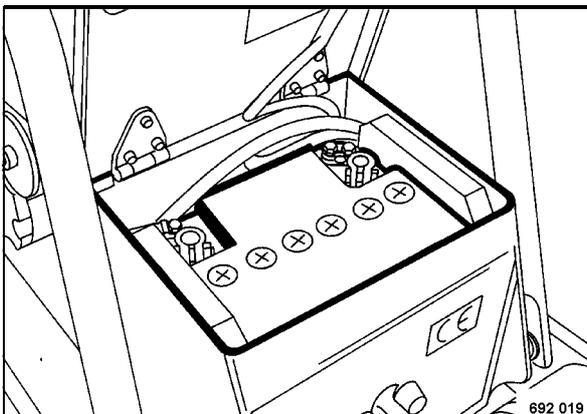


Fig. 58

- Take the battery (Fig. 58) out and clean the battery compartment.

- Clean the outside of the battery.
- Clean battery poles and pole clamps and grease them with pole grease (vaseline).
- Check the fastening of the battery.
- Check the condition of the vibration insulation mats, change if necessary.
- Lay the vibration insulation mats back in.

⚠ Caution

Ensure correct fit of the vibration insulation mats.

- Close the cover again after servicing is completed.

Non-maintenance-free batteries

⚠ Caution

Top up missing fluid only with distilled water.

- Remove all plugs and check the acid level, top up with distilled water if necessary.

With control inserts:

The acid level must reach the bottom of the control inserts.

Without control inserts

Measure the acid level with a clean wooden stick. It must reach up to 10 to 15 mm above the lead plates.

With transparent battery housing

The acid level must reach the mark on the housing.

Maintenance-free batteries

Perform only the following points:

- Check the battery for cleanliness.
- Clean the poles.
- Tighten the pole clamps.

⚠ Caution

Dispose of used batteries environmentally.

⚠ Danger

Development of gas!

If possible remove the the plugs when recharging the battery, to avoid the accumulation of highly explosive gases.

5.12 Draining the fuel tank sludge and water

⚠ Danger

Fire hazard!

When working on the fuel system do not use open fire, do not smoke.

Do not spill any fuel, do not breath in any fuel fumes.

i Note

For this work the fuel tank should contain only very little fuel.

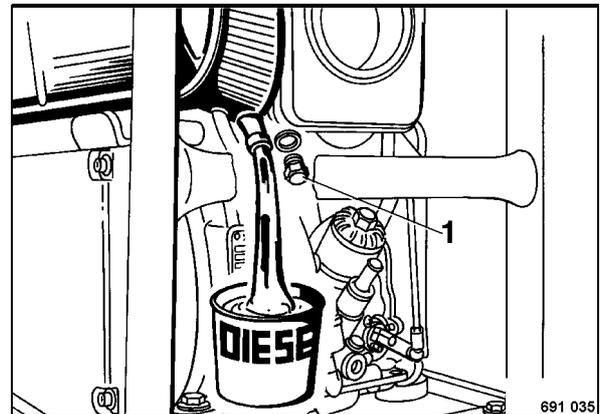


Fig. 59

- Place a suitable container under the fuel drain fitting to catch running out fuel.
- Unscrew the drain fitting 1 (Fig. 59) from underneath the fuel tank.
- After draining the fuel screw the drain fitting back in with a new sealing ring.

5.13 Checking the oil level in the vibrator housing

i Note

Stand the machine on level ground.

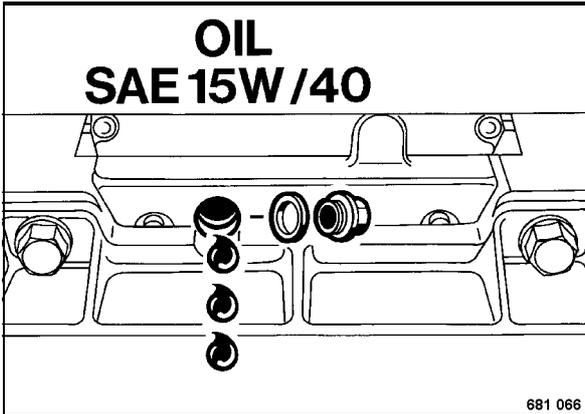


Fig. 60

- Unscrew the level plug (Fig. 60) and check the oil level.

The oil level must reach the bottom edge of the level bore, top up oil if necessary.

For quality and quantity of oil refer to the table of fuels and lubricants.

- Screw the level plug back in with a new seal ring.

5.14 Changing engine oil and engine oil filter

⚠ Caution

Stand the machine on level ground.

Drain the engine oil while the engine is warm.

Catch running out old oil, do not let it seep into the ground, but dispose of environmentally.

⚠ Danger

Danger of scalding!

There is a danger of scalding when draining hot engine oil.

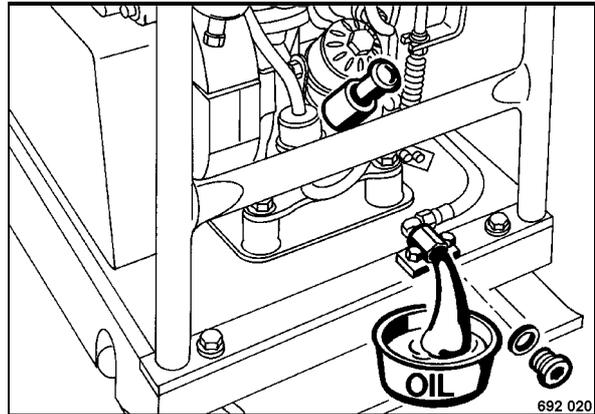


Fig. 61

- Pull the dipstick (Fig. 61) out.
- Unscrew the drain plug, drain and catch the old oil.
- Screw the plug with a new sealing ring back in.

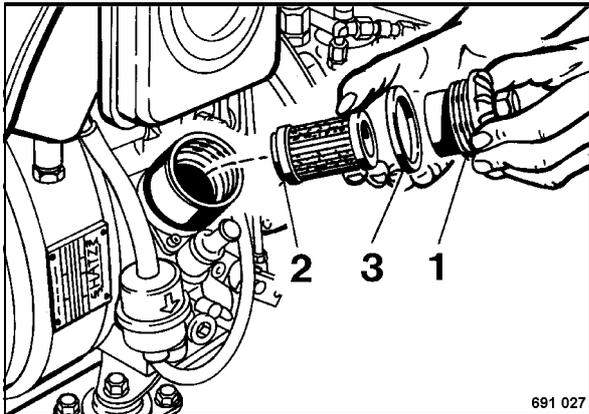


Fig. 62

- Unscrew the filler neck cover 1 (Fig. 62).
- Take the old filter element out and dispose of environmentally.
- Check the O-ring (3), use a new one if necessary.
- Install the new filter cartridge with the mark "TOP" facing upwards and screw the cover on.

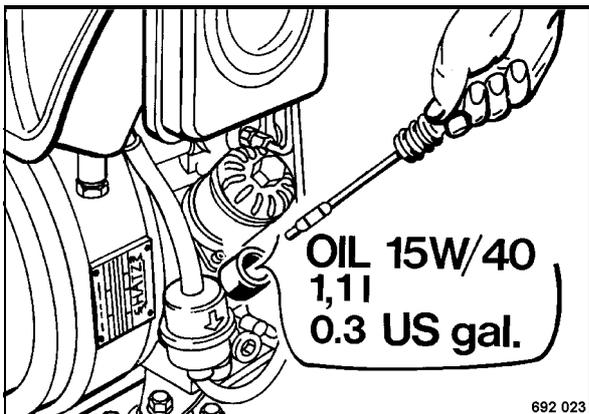


Fig. 63

- Stand the vibratory plate horizontally and fill in new oil (Fig. 63).

For quality and quantity of oil refer to the table of fuels and lubricants.

- Insert the oil dipstick and check the oil level again.
- Check drain plug and oil filler neck cover for leaks after a short test run.

5.15 Checking, tightening, changing the V-belt

Checking the V-belt

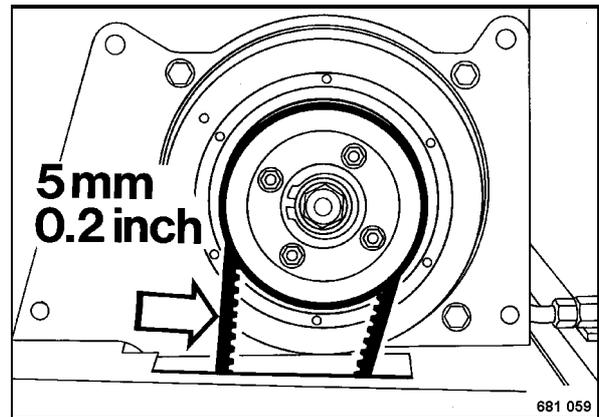


Fig. 64

- Remove the V-belt guard.
- Check the condition and tension of the V-belt (Fig. 64), change the V-belt if damaged.

Compression measurement approx. 5 mm (0.2").

Tightening the V-belt

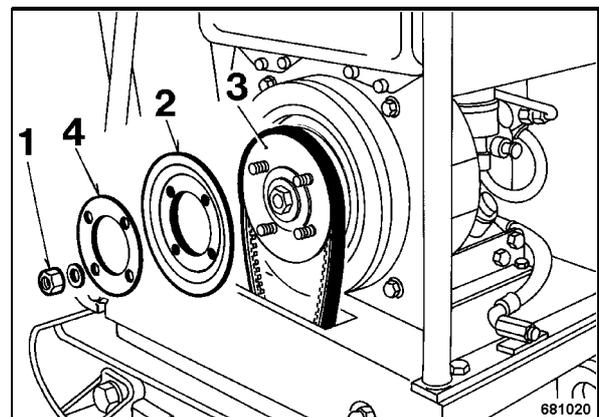


Fig. 65

- Unscrew the fastening nuts 1 (Fig. 65) with washers, take the V-belt pulley half (2) off.
- Remove the necessary number of shims (3) from between the pulley halves.
- Put the V-belt pulley half (2) back on and add the removed shims (4) from the outside.

Maintenance every 6 months

- Screw the hexagon nuts (1) with the washers back on and tighten them.
- Crank the V-belt drive several times by hand and check the compression measurement (approx. 5 mm) again, correct the tension if necessary.

Changing the V-belt

- Remove the front V-belt pulley half (see "tightening the V-belt").

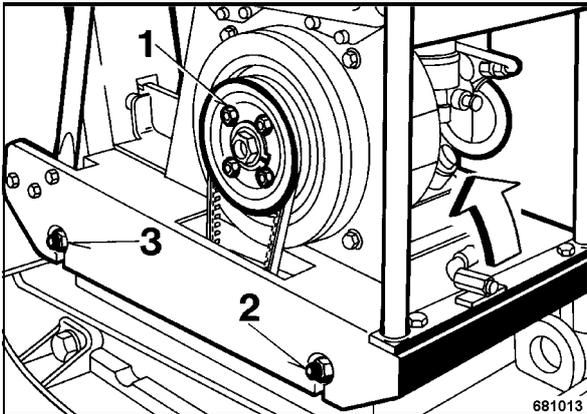


Fig. 66

- Slacken the rear fastening screws 3 (Fig. 66) on both sides for a few turns.

⚠ Danger

Danger of injury!

- Unscrew two front fastening nuts (2) on both sides, lift the front of the engine carrier plate up and support it properly.

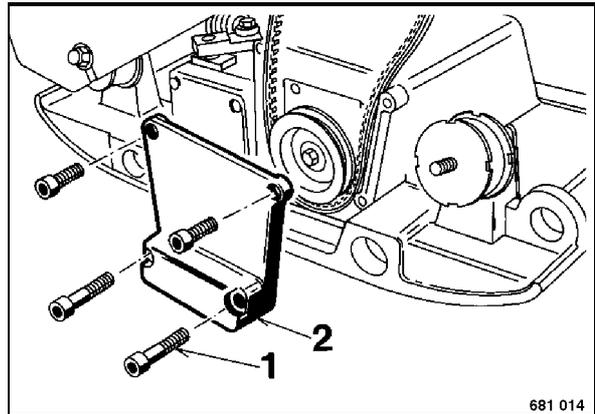


Fig. 67

- Unscrew the fastening screws 1 (Fig. 67) and take the cover (2) off.
- Fit the new V-belt, install the cover (2), fasten the engine carrier plate and tighten the V-belt as described before.
- Reinstall the V-belt guard.

⚠ Caution

Check the V-belt tension again after approx. 25 operating hours, tighten if necessary.

5.16 Checking, adjusting the valve clearance

i Note

Checks and adjustments must only be carried out when the engine is cold (20 - 10 °C).

The decompression lever must be in initial position.

The gasket for the cylinder head cover must generally be changed.

Checking the valve clearance

- Remove the cylinder head cover.
- Crank the engine until compression resistance can be felt.

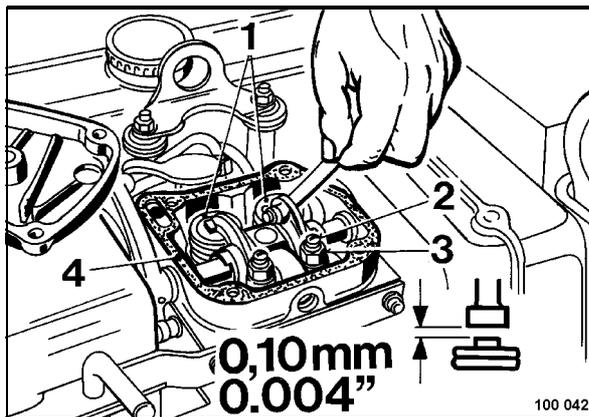


Fig. 68

- Check the valve clearance with a 0.1 mm feeler gauge on both valves 1 (Fig. 68) and correct it if necessary.

Adjusting the valve clearance

- Slacken the counter nut (3).
- Adjust the setscrew (2) with a screwdriver so that the feeler gauge fits through the gap with only little resistance after tightening the counter nut.
- Reinstall the cylinder head cover with a new gasket (4) and tighten the fastening screws evenly.
- Check the cover for leaks after a short test run.

5.17 Cleaning cooling fins and cooling air intake openings

i Note

Dirty operating conditions, especially oil and fuel deposits on the engine cooling fins and the cooling air intake openings reduce the cooling power considerably. It is therefore mandatory to eliminate any oil and fuel leaks in the area of the cooling blower, the cylinder or the cooling air intake and to clean the cooling fins after.

Dried on dirt

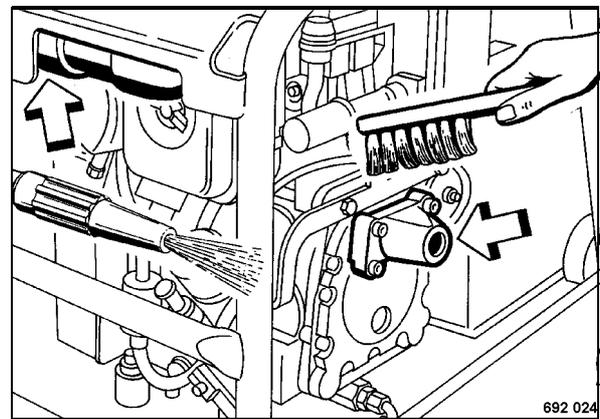


Fig. 69

- Clean all air guiding parts and the entire cooling air circulation area like cylinder head, cylinder and flywheel ventilator with a brush and blow out with compressed air (Fig. 69).

Damp and oily dirt

▲ Danger

Fire hazard!

Do not use any combustible solvents.

▲ Caution

Do not subject electrical assemblies and connectors to the direct water jet or dry them immediately after with compressed air.

Investigate the cause for the oil leak and call the After Sales Service of BOMAG to seal all leaks.

Maintenance every 6 months

Do not guide the water jet directly into the air filter, the exhaust tube and the opening for the crankhandle.

- Disconnect the battery and remove the air guide plates.
- Spray the entire cooling air circulation area with the solvent (e.g. cold cleansing agent), let it soak in for a while and clean it off with a water jet.
- Run the engine warm to avoid corrosion.

5.18 Changing the fuel filter

⚠ Danger

Fire hazard!

When working on the fuel system do not use open fire, do not smoke.

Do not spill any fuel, do not breath in any fuel fumes.

- Place a suitable container under the filter to catch running out fuel.
- Disconnect the fuel supply hose and drain the fuel from the fuel tank.

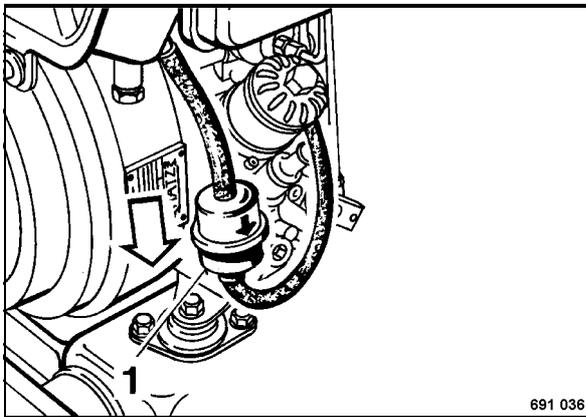


Fig. 70

- Unscrew the hose clamp 1 (Fig. 70).
- Pull the fuel filter (2) out of the upper and lower hoses.

i Note

If necessary flush the tank with clean diesel fuel.

- Fit the new fuel filter and make surte that the flow direction is correct.
- Fill the fuel tank.

5.19 Changing the oil in the vibrator housing

⚠ Caution

Catch the old oil, do not let it seep into the ground and dispose of environmentally.

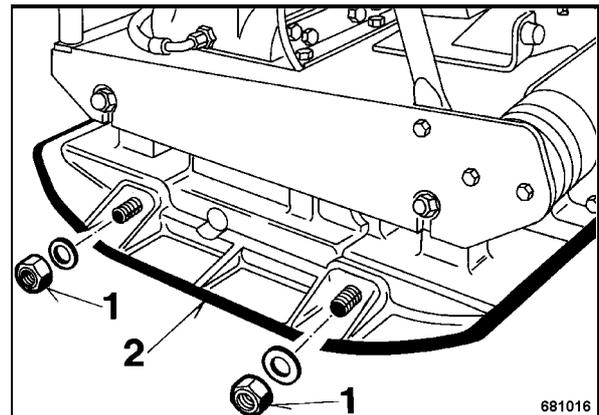


Fig. 71

- Unscrew the fastening nuts 1 (Fig. 71) for the extension plates (2) and remove the plates from both sides.
- Tilt the machine slightly towards the oil drain side and support it properly.

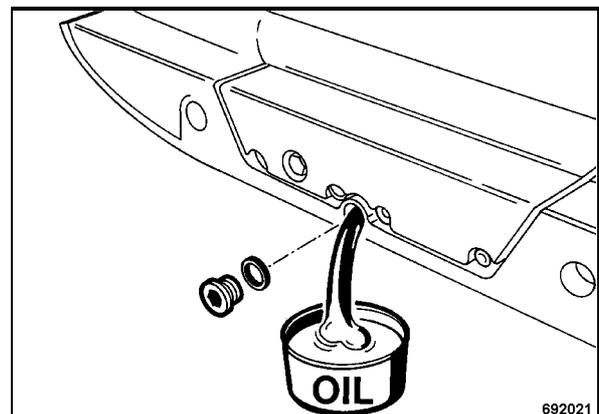


Fig. 72

- Unscrew the drain plug (Fig. 72), drain and catch all old oil.
- Screw the drain plug with a new sealing ring back in.

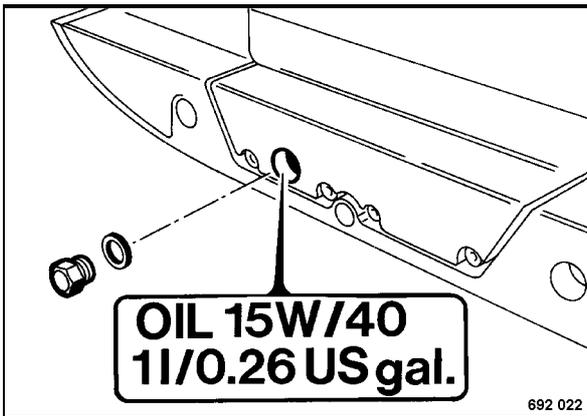


Fig. 73

- Unscrew the level plug (Fig. 73).
- Stand the machine on level ground and fill in approx. 1 litre of engine oil.

For quality and quantity of oil refer to the table of fuels and lubricants.

i Note

The oil level must reach the lower edge of the level bore.

- Screw the level plug back in with a new sealing ring.

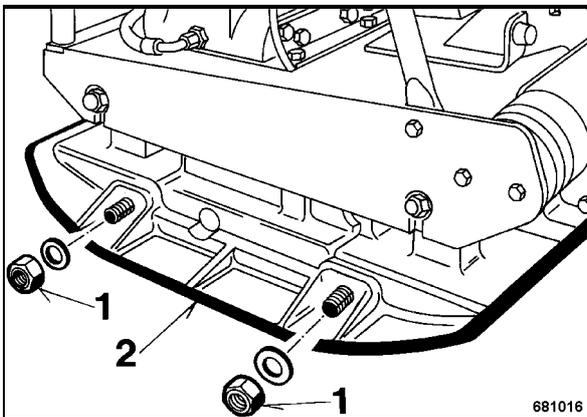


Fig. 74

- Refit the extension plates 2 (Fig. 74). Cover the fastening nuts (1) with OKS 240 copper paste and tighten them with 900 Nm.

5.20 Check the hydraulic oil level

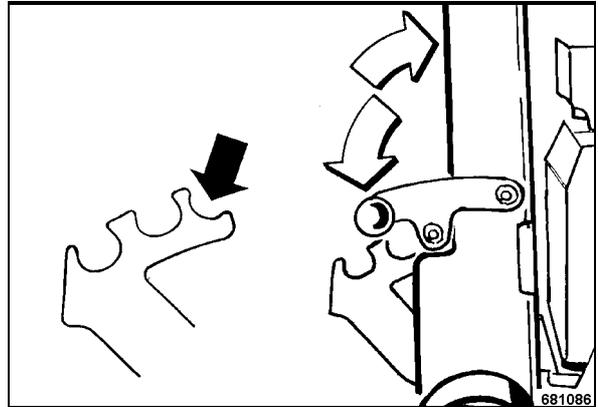


Fig. 75

- Adjust the steering rod (Fig. 75) in upright position and lock it in the last locking position of the detent rail.

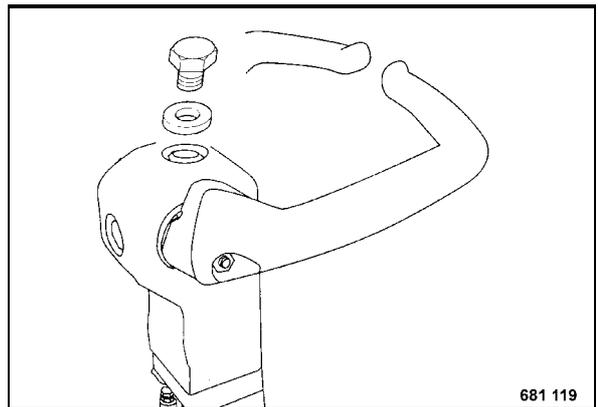


Fig. 76

- Unscrew the plug (Fig. 76).
- Move the travel lever to reverse position and hold it.

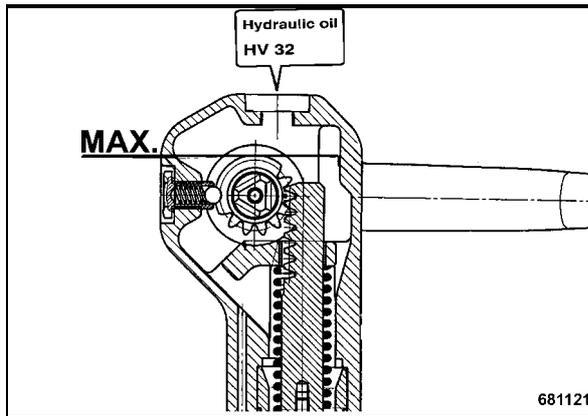


Fig. 77

- The hydraulic oil must reach the upper edge of the splined shaft, top up if necessary (Fig. 77).

For quality of oil refer to the table of fuels and lubricants.

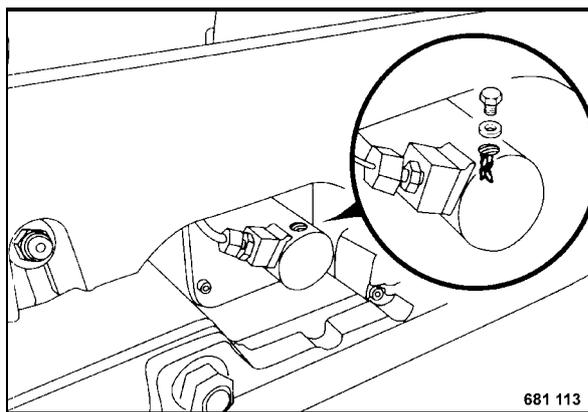


Fig. 78

i Note

Lay a cloth down before slackening the venting screw.

- Hold the travel lever in reverse position.
- Slacken the bleeding screw.
- Wait until all air has escaped (Fig. 78).
- Tighten the bleeding screw.

i Note

After bleeding check the hydraulic oil level, top up if necessary.

After unscrewing the plug or level control plug the steering rod head must always be depressurized as follows:

- Place the machine on a rubber mat or rubber tires
- Adjust the steering rod in upright position and lock it in the last locking position of the detent rail.
- Unscrew the plug, start the engine and run it with maximum speed
- Pull the travel lever back and hold it in this position
- Screw the plug back in and release the travel lever
- Shut the engine down

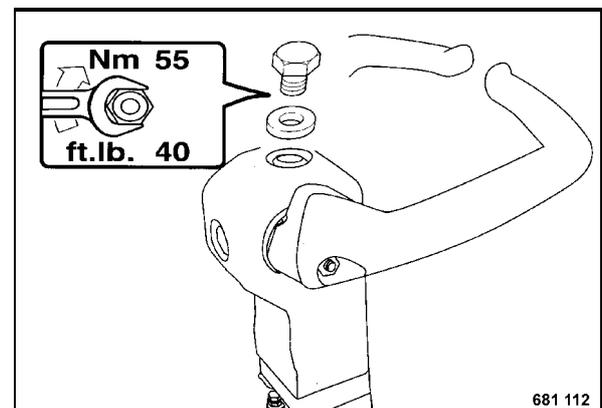


Fig. 79

- Tighten the plug (Fig. 79).

⚠ Caution

Tighten the plug with the specified tightening torque.

5.21 Checking the rubber buffers

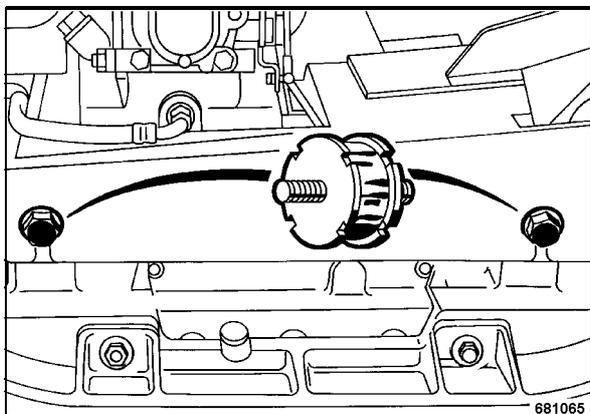


Fig. 80

- Check the condition and tight fit of the rubber buffers (Fig. 80) on both sides, change if necessary.

5.22 Checking the condition of the machine and the tight fit of all screws

Bolt dimensions	Tightening torques* ft - lb		
	8.8	10.9	12.9
M4	2	3	4
M5	4	7	7
M6	7	11	13
M8	18	26	33
M10	37	55	61
M12	65	91	108
M14	101	145	173
M16	156	221	264
M18	213	303	361
M20	304	426	513
M22	413	559	695
M24	524	738	885
M27	774	1092	1308
M30	1047	1482	1770

Fig. 81

* Strength classes for screws with untreated, non-lubricated surfaces. The quality designations are stamped on the screw heads.

The values result in a 90% utilization of the screws yielding point at a coefficient of friction of total = 0.14.

The tightening torques are not valid when using MOS₂ lubricants.

- As far as possible check the condition and fastening of all screws, pipes, clamps and other attachments and engine fasteners.

Caution

Do not tighten the cylinder head fastening screws.

- Examine the machine for damage and leaks, have repaired if necessary.

5.23 Engine conservation

If the engine is to be shut down for a longer period of time (e.g. during winter) we recommend the following conservation measures for the engine to avoid corrosion:

- Clean the engine including the cooling system.
- Run the engine until it is warm and shut it down.
- Drain the still warm engine oil and fill in anti-corrosion engine oil.

Note

Anti-corrosion oils are those that comply with the specification MIL-L-21260 B or TL 9150-037/2 resp. Nato Code C 640/642.

- Mix the fuel with anti-corrosion oil in a mixing ratio of 1:4 (0.5 litres for 2 litres of fuel)
- Run the engine for approx. 10 to 15 minutes with this fuel mixture.
- Take the V-belt off and spray the grooves of the V-belt pulleys with anti-corrosion oil. Remove the anticorrosion oil before taking the machine back into service.

Note

We do not recommend to run the engine during this conservation time, as the engine might not warm up properly and it will harm the conserving agent.

The conserving oil may remain in the engine, but has to be changed after 15 operating hours.

The mixing of anti-corrosion oil to the fuel can cause a power drop of 15%.

When changing the conserving oil against normal engine oil the engine does not have to be flushed.



6 Trouble shooting

6.1 General notes

The following work must only be carried out by qualified and trained personnel or by the BOMAG sales service.

Please observe strictly the safety regulations in chapter 2 of these operating and maintenance instructions.

Faults occur frequently due to the fact, that the machine has not been properly operated or serviced. Therefore, whenever a fault occurs, read through these instructions on correct operation and maintenance. If you cannot locate the cause of the fault or eliminate it yourself by following the trouble shooting charts, you should contact our customer service departments at our branch office or dealers.

On the following pages you will find a selection of fault remedies. It is quite obvious that we were not able to list all possible causes for faults.

6.2 Engine problems

Fault	Possible cause	Remedy
<p>Engine does not start or does not start immediately, but can be cranked with the crank handle</p>	<p>Throttle lever in stop or idle speed position</p> <p>no fuel at the injection pump</p> <p>insufficient compression:</p> <ul style="list-style-type: none"> - incorrect valve clearance - Valves worn - Wear on cylinder or piston rings <p>Injection nozzle out of order</p>	<p>Shift the lever to "Start" position</p> <p>Fill in fuel</p> <p>check the entire fuel system systematically.</p> <p>If no result:</p> <ul style="list-style-type: none"> - check supply to engine - check fuel filter - check function of fuel lift pump <p>Check valve clearance, correct if necessary</p> <p>see shop manual</p> <p>see shop manual</p> <p>see shop manual</p>
<p>additionally on engines with mechanical oil pressure monitoring</p>	<p>no oil pressure</p>	<p>Check oil level</p> <p>Activate mechanical oil pressure monitoring</p>
<p>With low temperatures</p>	<p>Temperature below starting limit</p> <p>Fuel slurry caused by insufficient low temperature resistance</p> <p>Starting speed too low:</p> <ul style="list-style-type: none"> - oil with too high viscosity - insufficiently charged battery 	<p>Observe cold start instructions</p> <p>Pull the fuel hose off the fuel lift pump and check whether fuel runs out clear and without clouds.</p> <p>In case of cloudy fuel you should either warm the engine up or drain the complete fuel supply system.</p> <p>Fill with a temperature resistant fuel mixture.</p> <p>Replace engine oil with oil of correct viscosity</p> <p>Check the battery, if necessary consult a specialist workshop</p>

Trouble shooting

Fault	Possible cause	Remedy
The starter is not switched on or the engine does not crank	Fault in the electric system: - Battery or other cable connections not correctly connected. - Cable terminals loose or oxidised - Battery defective or not charged - Starter defective - insufficiently charged battery	Check electric equipment and related components or consult the customer service of Bomag
Engine ignites, but does not continue to run when switching the starter motor off.	Fuel filter clogged Fuel supply interrupted Stop signal from monitoring elements connected with the oil pressure monitoring facility: - no oil pressure	Replace the fuel filter check the entire fuel system systematically Check oil level
Engine shuts down by itself during operation	Tank empty Fuel filter clogged The mechanical oil pressure monitoring shuts the engine down because of a lack of oil Mechanical defects	Fill in fuel Replace the fuel filter Check the oil level, activate the oil pressure monitoring system
Engine loses power and speed	Fuel supply restricted: - Tank empty Fuel filter clogged Insufficient tank ventilation Pipe connections leaking Throttle lever does not stay in selected position	Fill in fuel, activate the mechanical oil pressure monitoring system Replace the fuel filter Ensure sufficient ventilation of the tank Check line connections for leaks Block the throttle control
Engine loses power and speed, black exhaust smoke	Air filter dirty Incorrect valve clearance Injection nozzle out of order	Clean or replace the air filter Adjust the valve clearance see shop manual

Fault	Possible cause	Remedy
Engine over-heating	Lubrication oil level in engine too high Insufficient cooling - Dirt in the entire area of the cooling air flow - Air guide plates not completely closed	Drain the engine oil down to the top mark on the dipstick Clean the cooling air duct Check air guide plates for completeness and good sealing

We will help you - immediately!

Operating, maintenance, repair instructions and
spare parts catalogues



- in situ:

- Safe and simple trouble shooting
- Secure access to required spare parts
- Easy to understand – from experts for users

Contact us or your BOMAG distributor!



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