



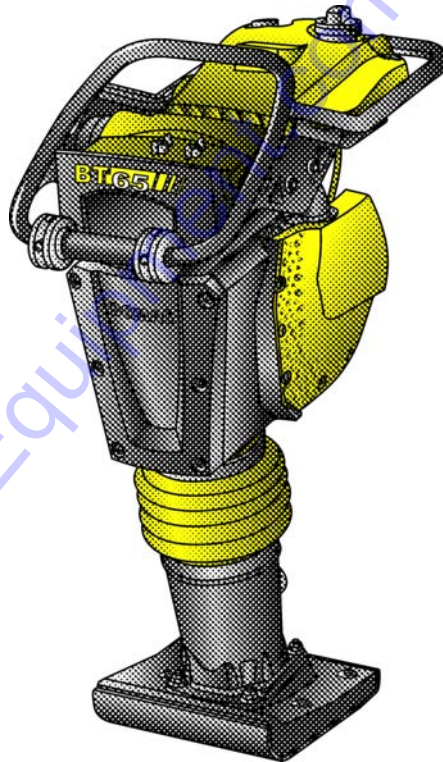
BOMAG

FAYAT GROUP

Operating Instruction Maintenance Instruction

Original Operating Instructions

BT 60 / BT 65



S/N 101 541 10 1250 > / S/N 101 541 11 / S/N 101 541 30 1250 > / S/N 101 541 31

Vibratory Tamper



www.discount-equipment.com

Catalogue No.
008 071 41

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BOMAG manufactures machine for earth, asphalt and refuse compaction, stabilizers/recyclers as well as milling machine and finishers.

BOMAG's vast experience in connection with state-of-the-art production and testing methods, such as lifetime tests of all important components and highest quality demands guarantee maximum reliability of your machine.

This manual comprises:

- Safety regulations
- Operating instructions
- maintenance instructions
- Trouble shooting

Using these instructions will

- help you to become familiar with the machine.
- avoid malfunctions caused by unprofessional operation.

Compliance with the maintenance instructions will

- enhance the reliability of the machine on construction sites,
- prolong the lifetime of the machine,
- reduce repair costs and downtimes.

BOMAG will not assume liability for the function of the machine

- if it is handled in a way not complying with the usual modes of use,
- if it is used for purposes other than those mentioned in these instructions.

No warranty claims can be lodged in case of damage resulting from

- operating errors,
- insufficient maintenance and
- wrong fuels and lubricants.

Please note!

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

These operating and maintenance instructions are part of the machine.

You should only operate the machine after you have been instructed and in compliance with these instructions.

Strictly observe the safety regulations.

Please observe also the guidelines of the Civil Engineering Liability Association "Safety Rules for the Operation of Road Rollers and Soil Compactors" and all relevant accident prevention regulations.

For your own personal safety you should only use original spare parts from BOMAG.

For your machine BOMAG offers service kits to make maintenance easier.

In the course of technical development we reserve the right for technical modifications without prior notification.

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

Apart from that, the spare parts catalogue is available from your BOMAG dealer against the serial number of your machine.

Your BOMAG dealer will also supply you with information about the correct use of our machines in soil and asphalt construction.

The above notes do not constitute an extension of the warranty and liability conditions specified in the general terms of business of BOMAG.

We wish you successful work with your BOMAG machine.

BOMAG GmbH

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Please fill in

.....
 Machine type ↪ Fig. 1

.....
 Serial number ↪ Fig. 2

.....
 Engine type ↪ Fig. 3

.....
 Engine number ↪ Fig. 3



Supplement the above data together with the commissioning protocol.

During commissioning our organisation will instruct you in the operation and maintenance of the machine.

Please observe strictly the safety regulations and all notes on risks and dangers!

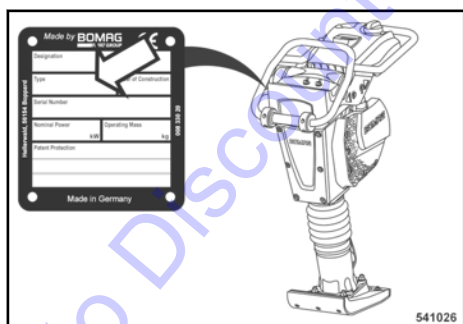


Fig. 1

Foreword

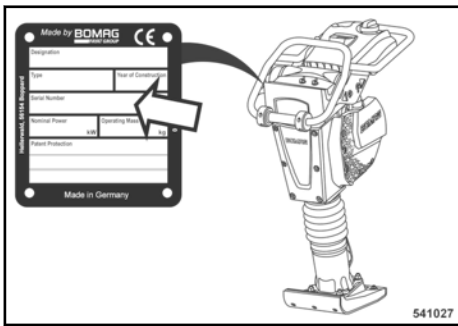


Fig. 2

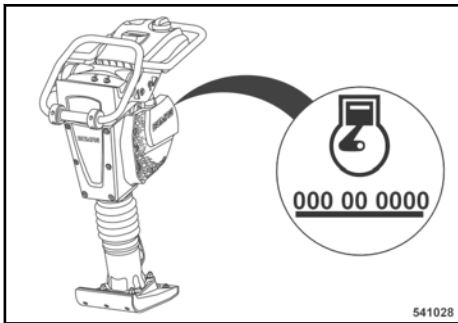


Fig. 3

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Technical Data

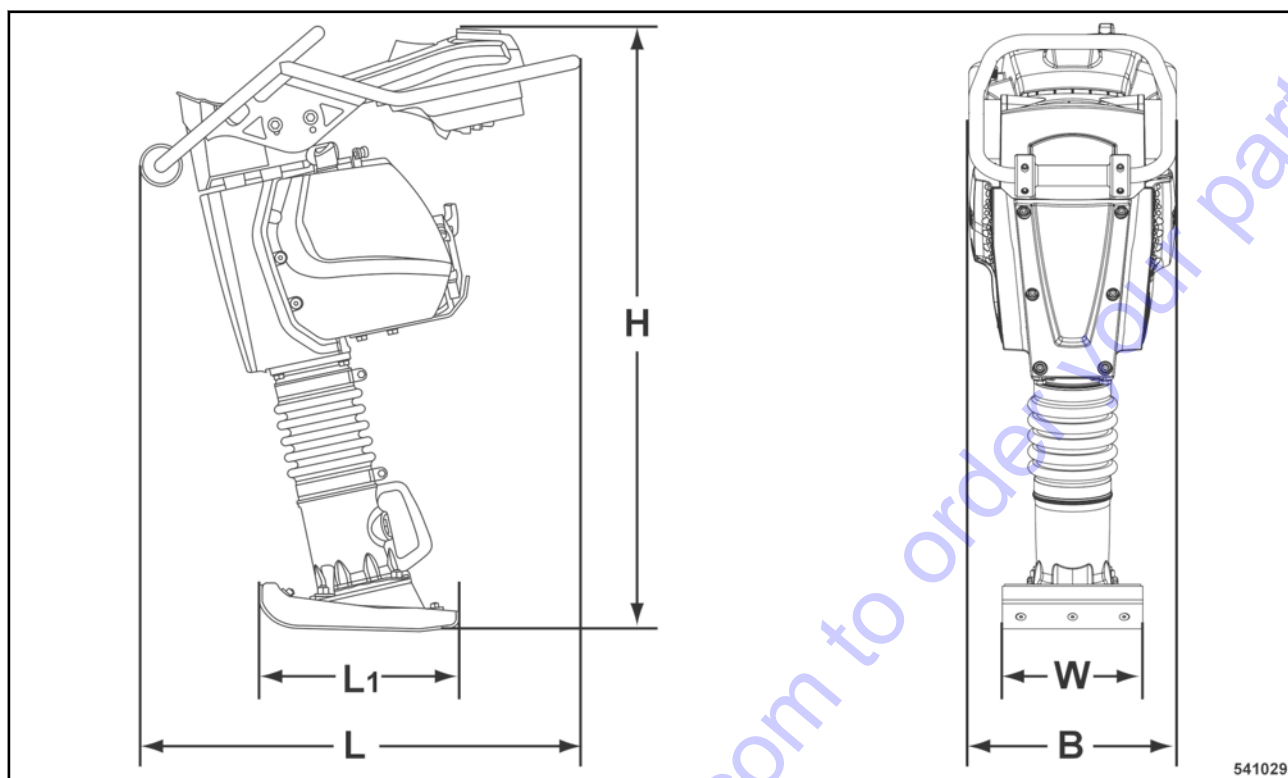


Fig. 4

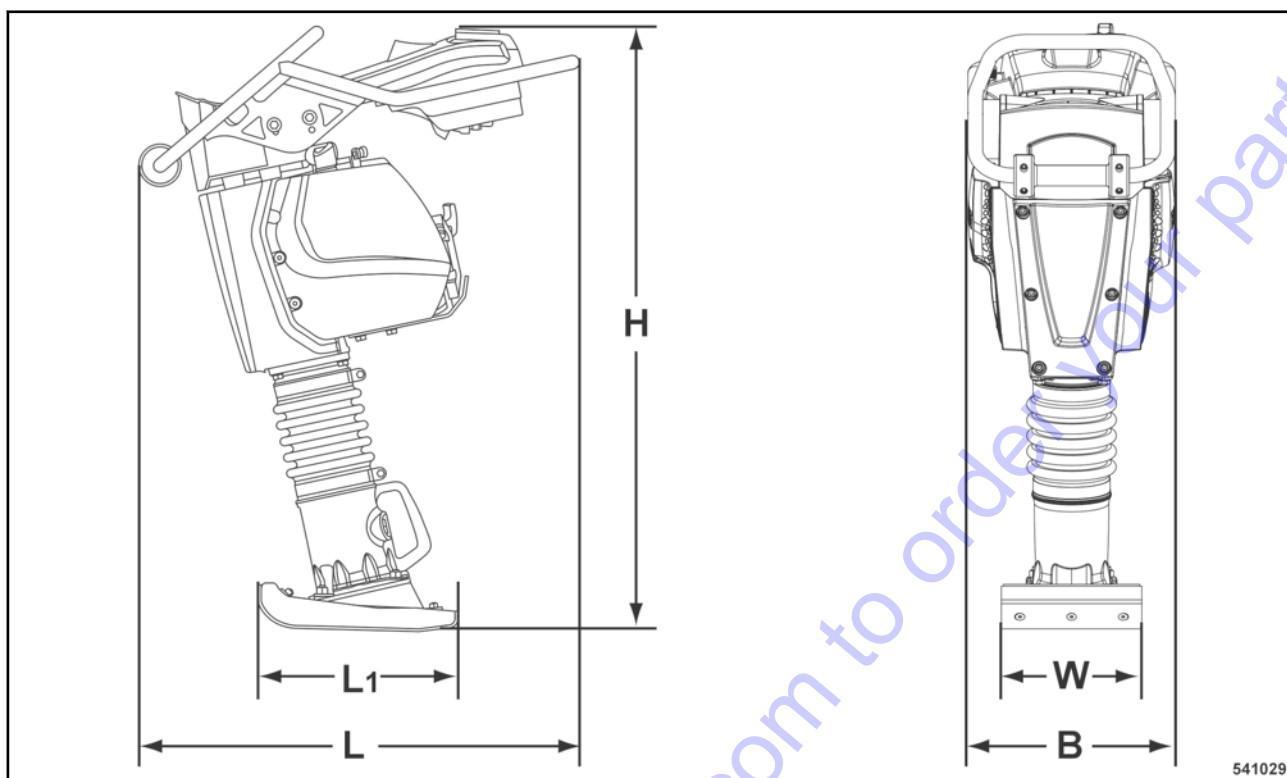
Dimensions in mm (in)	B	H	L	L1	W
BT 60	350 (13.8)	1030 (40.6)	728 (28.7)	335 (13.2)	230 (9)

The right for technical modifications remains reserved		BT 60
Weight		
Basic weight	kg (lbs)	57 (126)
Operating weight (CECE)	kg (lbs)	58 (128)
Travel characteristics		
Max. working speed (depending on soil)	m/min (ft/min)	20 (66)
Max. areal output (depending on soil)	m ² /h (ft ² /h)	276 (2971)
Drive		
Engine manufacturer		Honda
Type		GX 100
Cooling		Air

Technical Data

The right for technical modifications remains reserved		BT 60
Number of cylinders		1
Displacement	cm ³ (ccm)	98
Rated power SAE J 1349	kW (hp)	2,3 (3.1)
Rated speed	min ⁻¹	4200
Exciter system		
Drive system		mechanical
Frequency	Hz (bpm)	10 – 11.8 (600 - 708)
Impact force	kN (lbf)	15 (3372)
Filling capacities		
Fuel tank	l (gal us)	3,0 (0.8)
Oil in tamper foot	l (gal us)	0,75 (0.20)
Engine oil	l (gal us)	0,3 (0.08)

Technical Data



541029

Fig. 5

Dimensions in mm (in)	B	H	L	L1	W
BT 65	350 (13.8)	1030 (40.6)	728 (28.7)	335 (13.2)	280 (11.0)

The right for technical modifications remains reserved		BT 65
Weight		
Basic weight	kg (lbs)	67 (148)
Operating weight (CECE)	kg (lbs)	68 (150)
Travel characteristics		
Max. working speed (depending on soil)	m/min (ft/min)	20 (66)
Max. areal output (depending on soil)	m ² /h (ft ² /h)	336 (3616)
Drive		
Engine manufacturer		Honda
Type		GX 100
Cooling		Air

Technical Data

The right for technical modifications remains reserved		BT 65
Number of cylinders		1
Displacement	cm ³ (ccm)	98
Rated power SAE J 1349	kW (hp)	2,3 (3.1)
Rated speed	min ⁻¹	4200
Exciter system		
Drive system		mechanical
Frequency	Hz (bpm)	10 – 11.8 (600 - 708)
Impact force	kN (lbf)	17 (3822)
Filling capacities		
Fuel tank	l (gal us)	3,0 (0.8)
Oil in tamper foot	l (gal us)	1,0 (0.26)
Engine oil	l (gal us)	0,3 (0.08)

The following noise and vibration data acc. to

- EC Machine Regulation edition 2006/42/EC
- the noise regulation 2000/14/EG, noise protection guideline 2003/10/EC
- Vibration Protection Regulation 2002/44/EC

were determined during conditions typical for this type of equipment and by application of harmonized standards.

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

Noise value

Sound pressure level on the place of the operator:

BT 60: $L_{pA} = 93$ dB(A), determined acc. to ISO 11204 and EN 500

BT 65: $L_{pA} = 93$ dB(A), determined acc. to ISO 11204 and EN 500

Guaranteed sound power level:

BT 60: $L_{WA} = 108$ dB(A), determined acc. to ISO 3744 and EN 500

BT 65: $L_{WA} = 108$ dB(A), determined acc. to ISO 3744 and EN 500



WARNING!

Loss of hearing!

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

Technical Data

Vibration value

Hand-arm vibration:

Vector total of the weighted effective acceleration in three orthogonal directions:

Weighted total vibration value

BT 60: $a_{HV} = 7.5 \text{ m/s}^2$ on crushed rock determined acc. to ISO 5349 and EN 500

BT 65: $a_{HV} = 6.9 \text{ m/s}^2$ on crushed rock determined acc. to ISO 5349 and EN 500



NOTICE!

Observe the daily vibration load (Industrial safety acc. to 2002/44/EEC).

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Safety regulations

General

This BOMAG machine has been built in compliance with the latest technical standard and complies with the applicable regulations and technical rules. However, dangers for persons and property may arise from this machine, if:

- it is used for purposes other than the ones it is intended for,
- it is operated by untrained personnel,
- it is changed or converted in an unprofessional way,
- the safety instructions are not observed.

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

Furthermore, the following obviously also applies:

- applicable accident prevention instructions,
- generally accepted safety and road traffic regulations,
- country specific safety regulations. It is the duty of the operator to be acquainted with these instructions and to apply these accordingly. This applies also for local regulations concerning different types of handling work. Should the recommendations in these instructions be different from the regulations valid in your country, you must comply with the safety regulations valid in your country.

Intended use

This machine must only be used for:

- Compaction of all types of soils
- Repair work in all types of soil
- Reinforcement of walkways
- Work in trenches
- Backfills and compaction of marginal strips

Unintended use

Dangers may arise from the machine when it is used for purposes other than the one it is intended for.

Any danger caused by intended use is the sole responsibility of the customer or driver/operator, the manufacturer cannot be made liable.

Examples for unintended use are:

- Working in horizontal direction
- Ramming of poles
- Vibrating of paving blocks

It is not permitted to stand on the machine while working.

Starting and operation of the machine in explosive environments and in underground mining is prohibited.

Remaining dangers, remaining risks

Despite careful work and compliance with standards and regulations it cannot be ruled out that further dangers may arise when working with and handling the machine.

Both the machine as well as all other system components comply with the currently valid safety regulations. Nevertheless, remaining risks cannot be ruled out completely, even when using the machine for the purpose it is intended for and following all information given in the operating instructions.

A remaining risk can also not be excluded beyond the actual danger zone of the machine. Persons remaining in this area must pay particular attention to the machine, so that they can react immediately in case of a possible malfunction, an incident or failure etc.

All persons remaining in the area of the machine must be informed about the dangers that arise from the operation of the machine.

Regular safety inspections

Have the machine inspected by an expert (capable person) as required for the condition the machine is working under, but at least once every year.

Who is allowed to operate the machine?

Only trained, instructed and authorized persons of at least 18 years of age are permitted to drive and operate this machine. For operation of the machine the responsibilities must be clearly specified and complied with.

Persons under the influence of alcohol, medicine or drugs are not allowed to operate, service or repair the machine.

Maintenance and repair work requires specific knowledge and must therefore only be performed by trained specialists.

Changes and conversions to the machine

Unauthorized changes to the machine are prohibited for safety reasons.

Original parts and accessories have been specially designed for this machine.

We wish to make explicitly clear that we have not tested or approved any parts or accessories not supplied by us.

The installation and/or use of such products may have an adverse effect on the active and/or passive safety.

The manufacturer explicitly excludes any liability for damage caused by the use of non-original parts or accessories.

Damage, deficiencies, misuse of safety installations

Machines which are not safe to operate must be immediately taken out of service and shall not be used, until these deficiencies have been properly rectified.

Safety installations and switches must neither be removed nor must they be made ineffective.

Safety regulations

Notes on safety in the operating and maintenance instructions



WARNING!

Paragraphs marked like this highlight possible dangers for persons.



NOTICE!

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



Paragraphs marked like this contain technical information for the optimal economical use of the machine.



ENVIRONMENT!

Paragraphs marked like this point out practices for safe and environmental disposal of fuels and lubricants as well as replacement parts.

Observe the regulations for the protection of the environment.

Loading/transporting the machine

Always shut the engine down to transport the tamper or to lay it on its side.

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

Lifting tackle must only be attached to loads by expert personnel (qualified person).

Use only safe lifting gear of sufficient load bearing capacity. Minimum lifting capacity of lifting gear: see operating weight in chapter "Technical Data".

Fasten the lifting gear only at the specified lifting points.

Check all lifting and lashing points for damage before lifting or lashing down the machine. Do not use a damaged or in any other way impaired lifting and lashing eyes.

Do not lift or lower the machine jerkily.

The tension must always be effective in vertical direction.

The machine must not swing about when being lifted.

Do not step or stand under suspended loads.

Always use suitable lashing gear on the lifting points to lash down the machine.

Lash the machine down, so that it is secured against rolling, sliding 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.

Examine the starter rope of the recoil starter for chafing before starting, replace if necessary. A damaged rope can break and cause injuries during starting.

Use only machines which are serviced at regular intervals.

Starting and operation of the machine is closed rooms and trenches

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

Operation

Before taking starting work, also after breaks, you should always convince yourself that the danger zone is free of persons or obstructions.

Wear your personal noise protection (ear defenders).

Always keep an eye on the machine when the engine is running.

Always hold on to the machine.

Steer the machine only by the steering handle.

Guide the machine so that your hands do not hit against solid objects.

Keep your feet clear of the tamper foot plate.

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

Do not hold the throttle lever in the area below 3600 min⁻¹, since this would destroy the centrifugal clutch.

Parking the machine

Stand the machine on ground as level as possible.

Before leaving the machine:

- Secure the machine against tipping over.

Refuelling

Do not inhale any fuel fumes.

Do not swallow fuel.

Avoid contact with skin and eyes.

Safety regulations

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.

Keep dirt and water away from the fuel.

A leaking fuel tank can cause an explosion. Ensure tight fit of the fuel tank cover, if necessary replace immediately.

Fuel stabilizer

Fuel stabilizer is inflammable. No open fire, do not smoke. Do not spill any fuel stabilizer.

Do not inhale any fuel stabilizer fumes.

Do not swallow fuel stabilizer.

Avoid contact with skin and eyes.

Maintenance work

Comply with the maintenance work described in the operating and maintenance instructions, including the information concerning the replacement of parts.

Maintenance work must only be performed by qualified and authorized persons.

Keep unauthorized persons away from the machine.

Do not touch hot engine parts.

Generally perform maintenance work only with the engine shut down and the spark plug socket disconnected.

Park the machine on level and solid ground and secure it against tipping over.

Working on the fuel system

Do not inhale any fuel fumes.

Do not swallow fuel.

Avoid contact with skin and eyes.

Avoid open fire, do not smoke, do not spill any fuel.

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

Working on the engine

When working on the air filter no dirt should fall into the air duct.

Do not work on the hot exhaust - danger of burning!

When working on the engine exhaust duct no combustion residues should fall into the cylinder.

Do not touch the piston with the cleaning tools.

Working on the tamper foot

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

Store oil contaminated materials in a separate, specially marked container and dispose of environmentally.

Cleaning work

Do not perform cleaning work while the motor is running.

Do not use gasoline or other easily inflammable substances for cleaning.

When using a steam cleaner for cleaning do not subject electrical parts and insulation material to the direct jet or cover these items beforehand.

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

After maintenance work

After all maintenance work is completed reinstall all guards and safety installations.

Repair

Repairs must only be carried out by qualified and authorized personnel. Always follow our repair instructions.

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

Attach a warning tag to the steering bow if the machine is defective.

- Do not mix the nozzle in the carburettor up by mistake.
- Adjust the idling speed regulator screw exactly.
- Do not damage the blower wheel when working on the magnetic ignition.
- Always replace self locking nuts.
- Do not open the foot cover on the tamper foot, spring tension. Danger of accident!
- Observe the prescribed tightening torques.

Information and safety stickers/ decals on the machine

Keep safety stickers in good and legible condition (see parts manual) and comply with their meaning.

Replace damaged and illegible stickers/decals.

Safety regulations

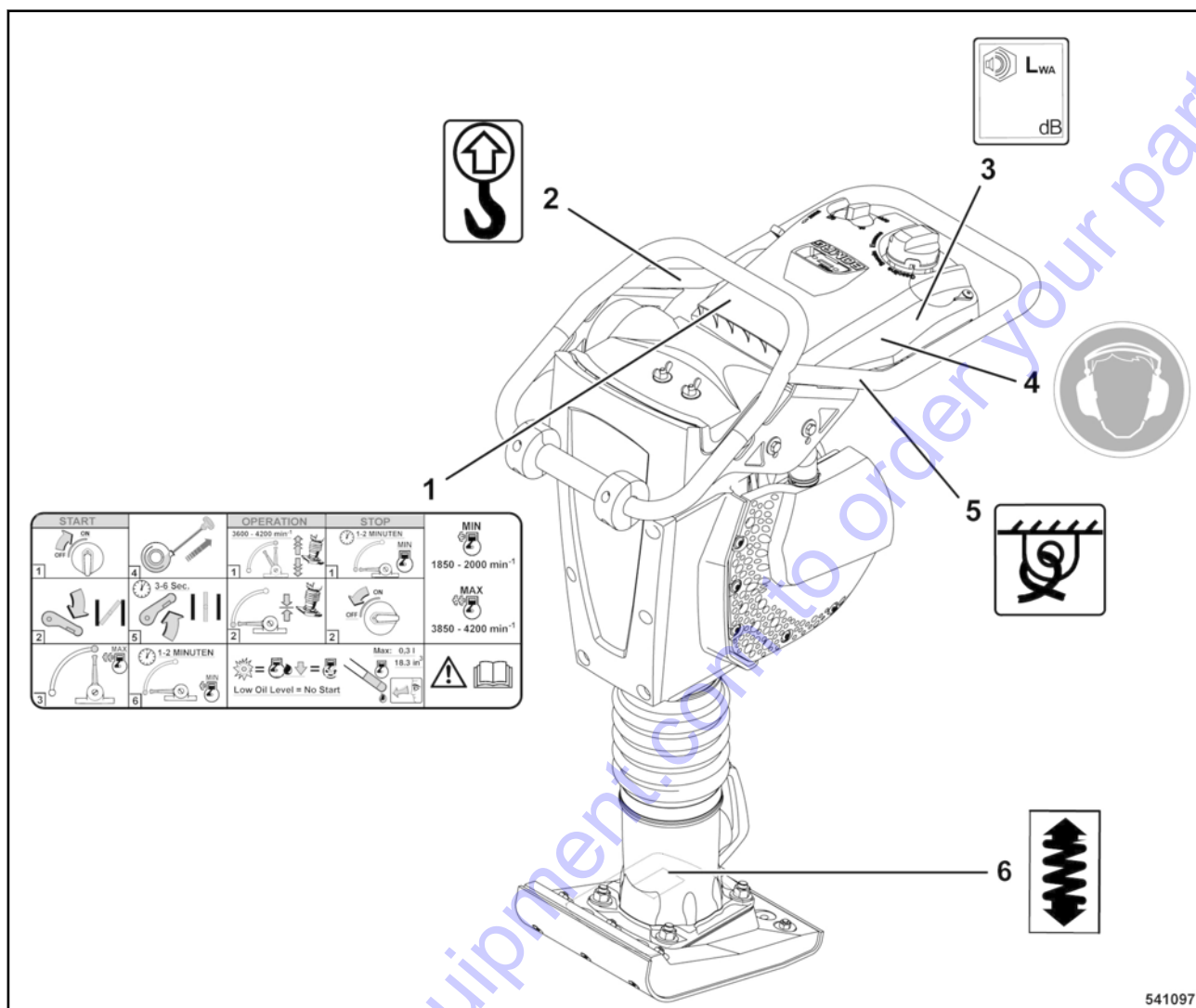


Fig. 6: Stickers and decals

- 1 Brief operating instructions
- 2 Information sticker - Lifting point
- 3 Information sticker - Guaranteed sound capacity level
- 4 Instruction sticker - Wear ear defenders
- 5 Information sticker - Lashing point
- 6 Warning sticker - Spring

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4.1 General notes

If you are not yet familiar with the control and display elements on this machine you should read this section thoroughly before starting any operation on the machine. Here all functions are described in detail.

The section "Operation" contains only brief descriptions of the individual control steps.

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4.2 Description of indicators and control elements

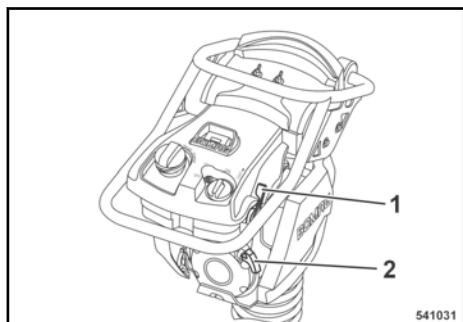


Fig. 7

- 1 - Throttle lever
- 2 - Recoil starter

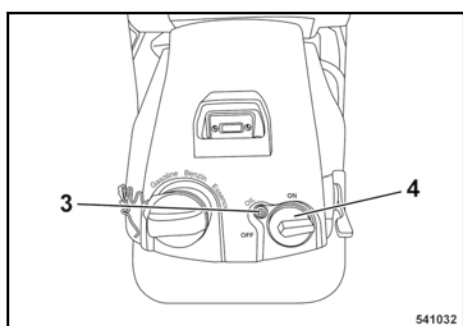


Fig. 8

- 3 - Engine oil level warning lamp
- 4 - Engine stop switch

OFF	Fuel valve closed, engine off
ON	Fuel valve open, engine can be started



NOTICE!

If the oil level warning lamp (3) in Fig. 8 lights up when starting the engine, the oil level must be corrected, as otherwise the engine cannot be started.

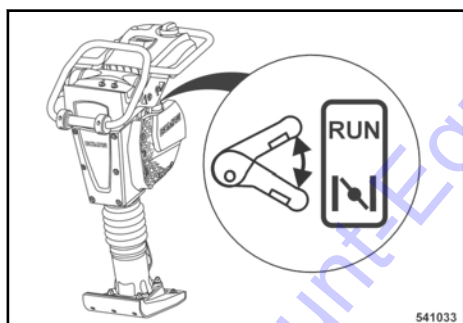


Fig. 9

- Choke lever



- Operating hour meter/engine speed meter

Engine off	Indication of operating hours
Engine on	RPM-meter

Fig. 10

Service indicator (SVC):

This service indicator appears when maintenance is due (after 25 operating hours, then every 100 operating hours).

Before maintenance is due, the indicator flashes over a period of 2 operating hours "SVC DUE in ..." together with the duration (in hours) until service is required.

If maintenance is already required, the indicator flashes for another 2 hours "SVC DUE NOW".



The service indicator cannot be reset.

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5.1 General

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

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

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5.2 Tests before taking into operation



During the running in time the idle speed may increase because of the enhanced moveability of the engine. Idle speeds between 1850 and 2000 min⁻¹.

The running in time of the vibratory tamper is 10 operating hours.

The following inspections must be carried out before each working day or before a longer working period.

**WARNING!****Danger of accident!**

Please observe strictly the safety regulations in the corresponding section of this instruction manual!

Park the machine on ground as level as possible.

Check:

condition of engine and machine

fuel tank and fuel lines for leaks

screw joints for tight fit



For a description of the following tasks refer to the chapter "Daily maintenance".

Engine oil level, top up if necessary

Fuel level, top up if necessary.

5.3 Adjusting the steering bow

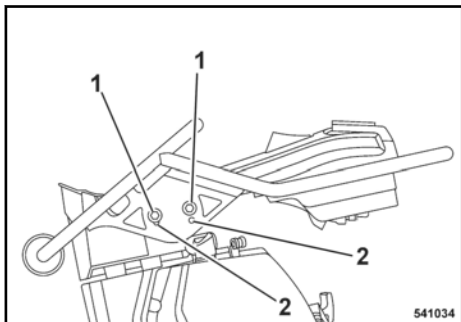


Fig. 11



The steering bow has two positions.

The steering bow can be adjusted to the height of the operator by using the bore holes (1) and (2) & Fig. 11:

(1) lowest position

(2) highest position

Loosen the screws (1) on both sides and pull them out.

Set the steering bow to the desired height.

Fasten the screws (1) on both sides using the bores (1) or (2).

5.4 Starting the engine



WARNING!

Exhaust gases are highly dangerous!

Always ensure an adequate supply of fresh air when starting and operating in closed rooms and trenches!



WARNING!

Danger of accident!

Examine the starter rope of the recoil starter for chafing before starting, replace if necessary. A damaged rope can break and cause injuries during starting.

Always hold on to the machine.

Keep your feet away from the tamper plate, because the vibration starts immediately.

Always keep an eye on a running machine.



WARNING!

Loss of hearing!

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

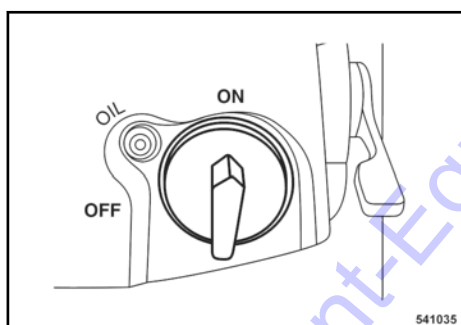
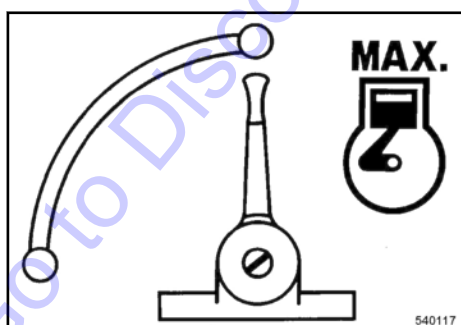


Fig. 12

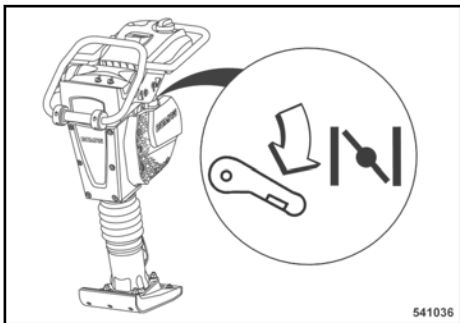
Set the engine stop switch ↪ Fig. 12 to position "ON".



Set the throttle lever ↪ Fig. 13 to position "MAX".

Operation

Fig. 13

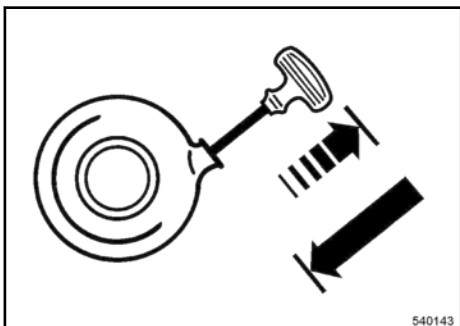


Close the choke ↗ Fig. 14.



Always close the choke to start a cold and warm engine.

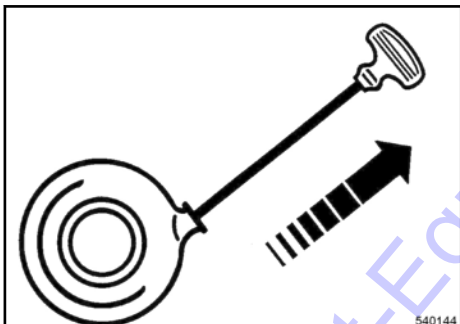
Fig. 14



Pull the rope by the starter handle ↗ Fig. 15 until resistance can be felt.

Let the starter handle run back to initial position.

Fig. 15



Pull the starter handle quickly and with power ↗ Fig. 16 .



NOTICE!

Do not let the starter handle hit back.

Fig. 16

Guide the starter handle back to initial position by hand.

If the engine does not start during the first attempt, repeat the starting process.

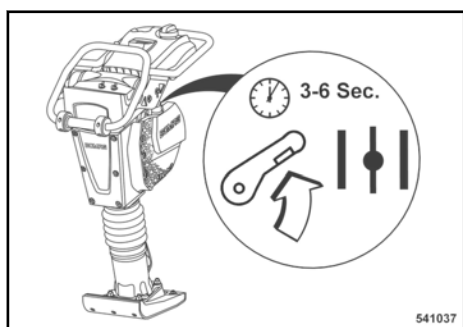


Fig. 17

Open the choke ↪ Fig. 17 3 to 6 seconds after the engine has started running.

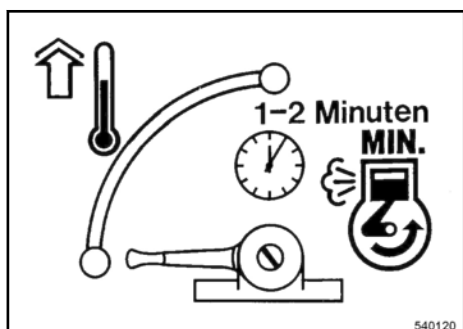


Fig. 18

Set the throttle lever ↪ Fig. 18 to position "MIN" and let the engine run warm for 1 to 2 minutes.

i Once the engine has warmed up you can start to work with the tamper.

Starting under cold weather conditions

If the engine stops again after approx. 3 to 5 seconds, close the choke again and repeat the starting process.

Engine oil level too low

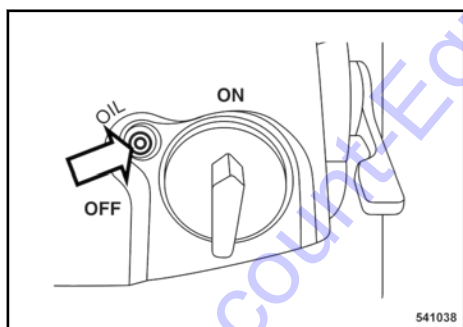


Fig. 19

The engine does not start if the oil level is too low. This is indicated by the engine oil level warning lamp ↪ Fig. 19 when operating the recoil starter.

Check the engine oil level, fill up if necessary. Repeat the starting procedure.

Engine "drowned"



When the choke is closed and the starter rope is pulled several times, the engine draws in too much fuel and will probably not start.

Remedy

Set the engine stop switch to position "OFF" (fuel valve closed).

Open the choke.

Set the throttle lever to full speed position.

Operate the starter rope 10-20 times.

Set the engine stop switch to position "ON".

Operate the starter rope again.



If the engine does not start after 3 to 5 attempts

Close the choke.

Operate the starter rope again.



If the engine does not start after 3 to 5 attempts

pull off the spark plug socket.

unscrew the spark plug.

operate the starter several times.

Dry the spark plug with a clean cloth or blow it dry with compressed air. If necessary clean with a wire brush.

Screw the spark plug back in and plug the spark plug socket back on.

Repeat the starting procedure.

5.5 Work/operation



WARNING!

Danger of accident! Danger of injury!

Always keep an eye on the machine when the engine is running.

Always hold on to the machine.

Steer the machine only by the steering handle.

Guide the machine so that your hands do not hit against solid objects.

Keep your feet clear of the tamper foot plate.

Wear your personal noise protection (ear defenders).

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



NOTICE!

Do not hold the throttle lever in the area below 3600 min⁻¹, since this would destroy the centrifugal clutch.

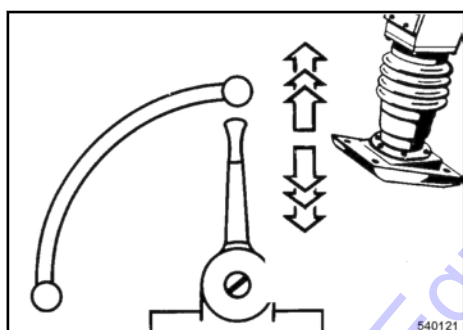


Fig. 20

Set the throttle lever ↪ Fig. 20 to position "MAX".

The machine works with highest frequency.

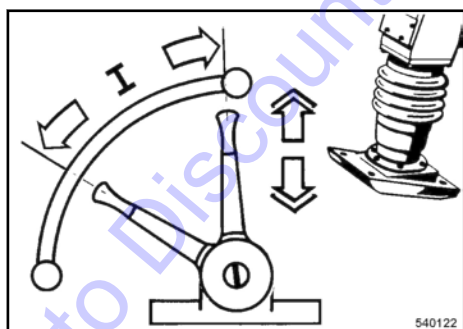


Fig. 21

To achieve uniform running you should actuate the throttle lever within range "I" (3600 bis 4200 min⁻¹) ↪ Fig. 21, depending on condition and density of soil.

Operation

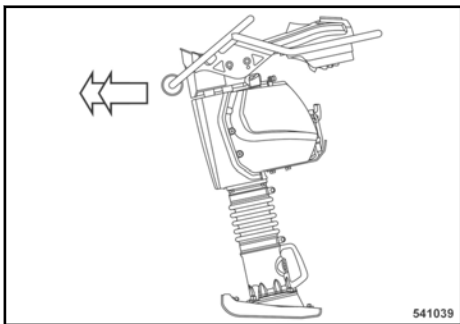


Fig. 22

The forward moving speed can be influenced by applying weight on the steering bow.

No load

slowly forward ↩ Fig. 22

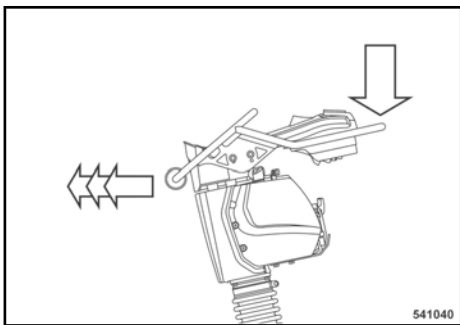


Fig. 23

Strong pressure

fast forward ↩ Fig. 23



The layer thickness of the material to be compacted should not be higher than is possible for the vibratory tamper to cope with.

Should the tamper get out of its vibrating rhythm on excessively compacted soil, harmonic running of the tamper can be achieved again by slightly altering the steep and/or inclination of the tamper.

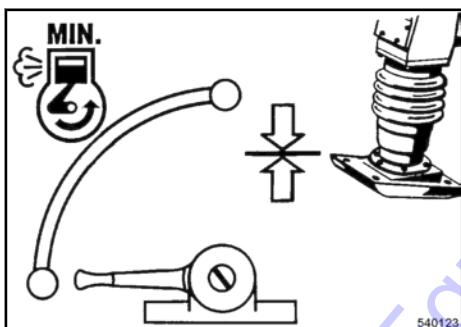


Fig. 24

Always shift the throttle lever to position "MIN" for short work breaks ↩ Fig. 24.



This prevents premature wear of the centrifugal clutch and enhances the fuel economy.

5.6 Shutting down the engine



NOTICE!

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

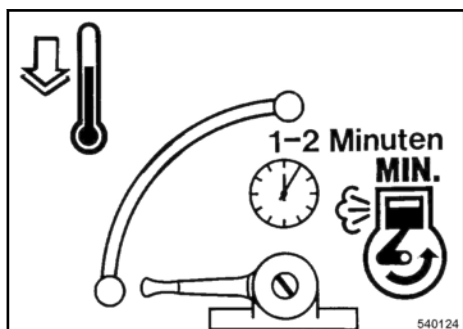


Fig. 25

Set the throttle lever ↗ Fig. 25 to position "MIN" (idle speed).
Run the engine for a short while in idle speed.

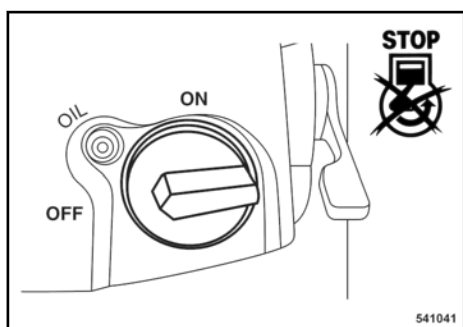


Fig. 26

Set the engine stop switch ↗ Fig. 26 to position "OFF".



WARNING!

Danger of burning! Danger of accident!

Immediately after shutting down the engine is still hot, do not touch the exhaust.

Park the machine so that it cannot turn over.

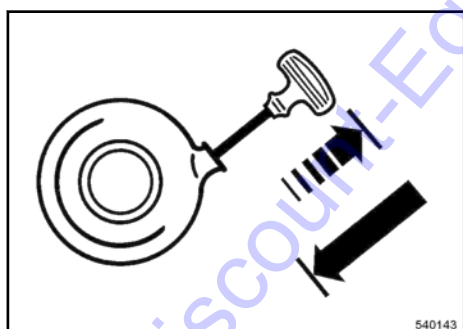


Fig. 27

Pull the rope by the starter handle ↗ Fig. 27 until resistance can be felt.

Let the starter handle run back to initial position.



This measure avoids moisture deposits in the engine.

5.7 Changing the tamper foot plate



WARNING!

Danger of burning on hot components!

Wear your personal protective outfit (protective gloves, protective clothing).

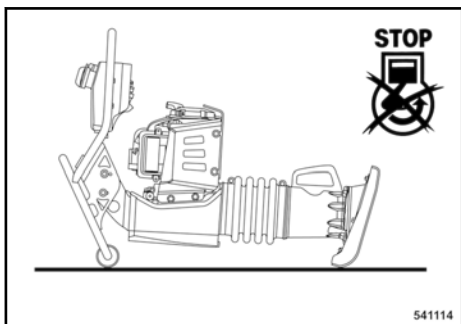


Fig. 28

Always shut the engine down before laying the tamper on its side.

Lay the tamper on its side ↪ Fig. 28.

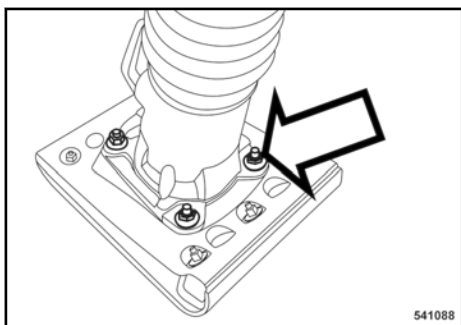


Fig. 29

Unscrew 4 fastening screws ↪ Fig. 29.

Take off the tamper foot plate and lay the tamper foot on the floor.

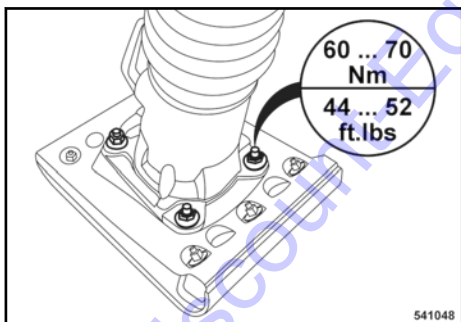


Fig. 30

Fasten the new tamper foot plate with 4 fastening screws (tightening torque 60 to 70 Nm (44 bis 52 ft.lbs)) to the tamper foot ↪ Fig. 30.



When changing the tamper foot to a different width use only genuine BOMAG parts.

After changing the tamper foot check the engine speed, adjust it if necessary.

5.8 Loading/transport



WARNING!

Danger of accident! Life hazard!

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

Check all lifting and lashing points for damage before lifting or lashing down the machine. Do not use damaged or in any other way impaired lashing points.

Always use appropriate lifting and lashing means on the lifting and lashing points.

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



WARNING!

Danger of burning on hot components!

Wear your personal protective outfit (protective gloves, protective clothing).



ENVIRONMENT!

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

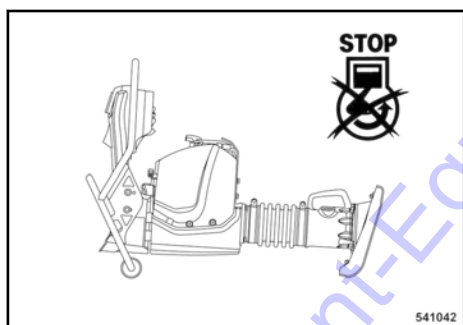


Fig. 31

Always shut the engine down to transport the tamper or to lay it on its side ↪ Fig. 31.

Make sure that no fuel can escape from the tank during transport>

1	Consider the filling quantity in case of temperature fluctuations (pressure relief valve in tank lid), drain off fuel if necessary.
2	Close the tank lid again tightly.

Operation

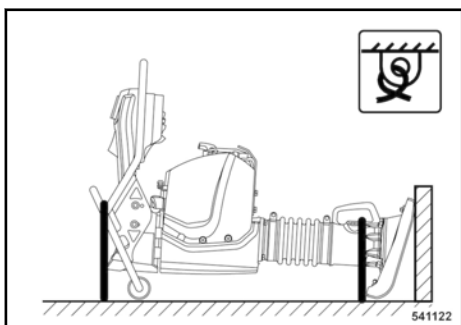


Fig. 32

Lay down the tamper to transport it on the rollers.

Lean the tamper foot against the wall of the transport vehicle
↳ Fig. 32.

Lash the tamper down to the transport vehicle, so that it is secured against rolling, sliding and turning over.



WARNING!

Danger of accident! Life hazard!

Only expert personnel (qualified persons) are allowed to attach lifting tackle to loads and to lift loads.

Use only safe lifting gear of sufficient load bearing capacity. Minimum lifting capacity of lifting gear: see operating weight in chapter "Technical Data".

Always use appropriate lifting and lashing means on the lifting and lashing points.

Check all lifting and lashing points for damage before lifting or lashing down the machine. Do not use damaged or in any other way impaired lashing points.

Do not lift or lower the machine jerkily.

The tension must always be effective in vertical direction.

The machine must not swing about when being lifted.

Do not step or stand under suspended loads.

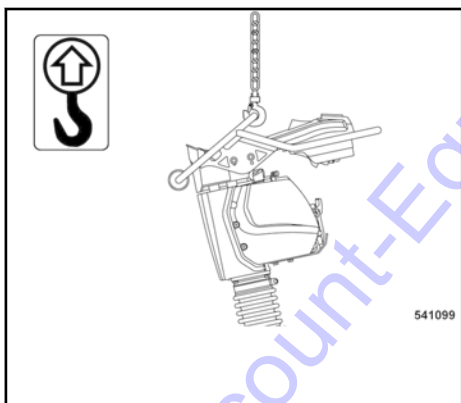


Fig. 33

For loading the machine attach the lifting gear only to the lifting eye provided for this purpose
↳ Fig. 33.

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6.1 General notes on maintenance

When performing maintenance work ensure strict compliance with the respective safety instructions and particularly the safety regulations mentioned in the corresponding section of these operating and maintenance instructions.

Thorough maintenance of the machine guarantees far longer safe functioning of the machine and prolongs the lifetime of important components. The effort needed for this work is only little compared with the problems that may arise when not observing this rule.

Always clean machine and engine thoroughly before starting maintenance work.

For maintenance work stand the tamper on level ground and secure it against tipping over.

Do not touch hot engine parts.

Generally perform maintenance work only with the engine shut down and the spark plug socket disconnected.



ENVIRONMENT!

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

Keep used filters in a separate waste container and dispose of environmentally.

Notes on the fuel system

The lifetime of the engine mainly depends on the purity of the fuel.

Keep fuel clean of any contamination and water.

When choosing the storage place for fuel make sure that spilled fuel will not harm the environment.

Fresh fuel should not be stored for longer than 3 months, if no fuel stabilizer has been added.

When storing for longer than 3 months:

Directly after buying fresh fuel add the correct amount of fuel stabilizer to the fuel (follow the instructions of the manufacturer).

Notes on the performance of the engine

On engines both combustion air and fuel injection quantities are thoroughly adapted to each other and determine power, temperature level and exhaust gas quality of the engine.

If your engine has to work permanently in "thin air" (at higher altitudes) and under full load, you should consult our customer service or the customer service of the engine manufacturer.

Frequent causes of faults

Operating errors

Incorrect, inadequate maintenance

If you cannot locate the cause of a fault or rectify it yourself by following the trouble shooting chart, you should contact our customer service department.

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6.2 Fuels and lubricants

Engine oil

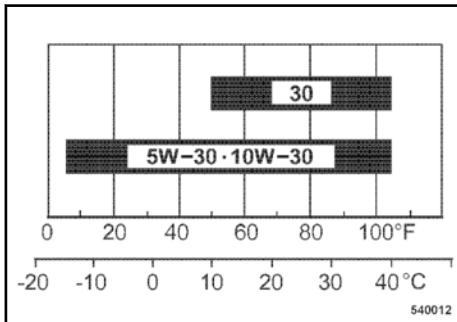


Fig. 34

Quality

The oil is an essential factor for the performance and lifetime of the engine.

Use engine oil for four-stroke engines which meets or even exceeds the requirements for API-service class SJ or higher (or equivalent).

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 ↪ Fig. 34).

SAE10W-30 is recommended for general use under any temperature. When using single purpose oil you must choose the correct viscosity for the area of use. You may alternatively use 15W-40 (except under low temperatures).

Temperature related lubrication oil changes can be avoided by using multi-purpose oils. The following oil change intervals apply also when using multi-purpose oils.

Change intervals

The longest permissible time the lubrication oil should remain in an engine is 1/2 year or 100 operating hours.

Fuel

Quality

The engine has been approved for operation with unleaded gasoline with a octane number of 91 or higher (or Pump Octane Number" 86 or higher).

Use only commercially available brand fuel.

You can use unleaded standard grade petrol with maximum 10 percent by volume of ethanol (E10) or maximum 5 percent by volume of methanol.

Methanol must also contain co-solvents and corrosion inhibitors.

Using fuels with higher ethanol or methanol contents exceeding the values specified above may cause starting difficulties and/or performance problems. Damage may also occur to metal, rubber or plastic parts in the fuel system.

Engine damage and performance problems caused by the use of fuels with higher ethanol or methanol percentages than the ones specified above are not covered under warranty.

Fuel stabilizer

If the machine is only occasionally used (i.e. if it is out of use for longer than 4 weeks), mix in the correct amount of fuel stabilizer (BOMSAG 009 940 20) directly after you have purchased fresh fuel (follow the instructions of the manufacturer). The fuel stabilizer has a limited shelf life. The effect diminishes over the course of time (store for max. 2 years after opening the bottle).

Fuel cannot be regenerated by using fuel satbilizer.

Tamper foot oil

For the tamper foot use a fully synthetic gear oil SAE 75W-90, API GL5.

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Maintenance

6.3 Table of fuels and lubricants

Assembly	Fuel or lubricant		Quantity approx.
	Summer	Winter	Attention Observe the level marks
Motor			
- Engine oil	Engine oil API SJ or higher		0.3 l (0.08 USgal) to oil level mark
	SAE 10W-30 (-20 °C to +30 °C) (-4 °F to 86 °F)		
	SAE 30 (+10 °C to +30 °C) (+50 °F bis 86 °F)		
- Fuel	Gasoline (unleaded)		3.0 l (0.8 USgal)
Padfoot	SAE 75W-90, API GL-5		BT 60: 0.75 l (0.20 USgal) BT 65: 1.0 l (0.26 USgal)

6.4 Running-in instructions

The following maintenance work must be performed when running in new machines or overhauled engines:

**NOTICE!**

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

Depending on the load the engine is subjected to, the oil consumption will drop to the normal level after approx. 100 to 200 operating hours.

After approx. 25 operating hours

Change the engine oil.

Check the idel speed and the max. speed of the engine, adjust if necessary.

Check engine and machine for leaks.

Retighten the fastening screws on air filter exhaust, fuel tank and other attachments.

Retighten the bolted connections on the machine.

Maintenance

6.5 Maintenance table

No.	Maintenance work	Comment	daily	monthly	annually	as required
6.6.1	Clean the machine		X			
6.6.2	Checking the engine oil level	Dipstick mark	X			
6.6.3	Check the fuel level		X			
6.7.1	Change the engine oil	at least every 100 operating hours or 1x per year		X		
6.7.2	Clean, check the spark plug, replace if necessary			X		
6.7.3	Check the tamper foot			X		
6.8.1	Check, adjust the valve clearance	Intake valve: 0.15 mm (0.006 in) Exhaust: 0.20 mm (0.008 in)			X	
6.8.2	Change the fuel filter				X	
6.8.3	Clean the fuel screen				X	
6.8.4	Check, adjust the engine speed				X	
6.8.5	Replace the starter rope				X	
6.8.6	Oil change in tamper foot				X	
6.9.1	Check, clean the air filter, replace if necessary	in case of extreme dust clean every day in case of a drop in the max. engine speed renew at least annually or after 200 operating hours				X

6.6 Maintenance every day

6.6.1 Clean the machine

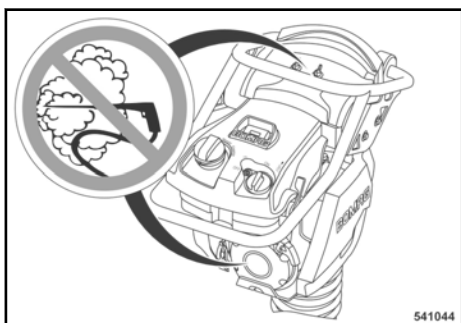


Fig. 35

! NOTICE!

Perform cleaning work only after the engine has cooled down and with the engine stopped.

Dirty operating conditions, particularly lubrication oil and fuel deposits on the cooling fins of the engine and the cooling air intake opening have an adverse effect on the cooling of the engine.

You should therefore immediately seal any oil or fuel leaks near fuel tank, cylinder or cooling air intake.

! NOTICE!

Do not guide the water jet into the air intake and the recoil starter → Fig. 35.

After wet cleaning run the engine warm to evaporate all water residues and to avoid corrosion.

6.6.2 Check the engine oil level

! NOTICE!

Check the engine oil level with highest care, to avoid over or underfilling of the engine. Underfilling can damage the engine. Overfilling causes excessive development of smoke and can also lead to engine damage

The engine cannot be started if the engine oil level is too low.

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

Stand the tamper on flat and level ground.

Shut down the engine.

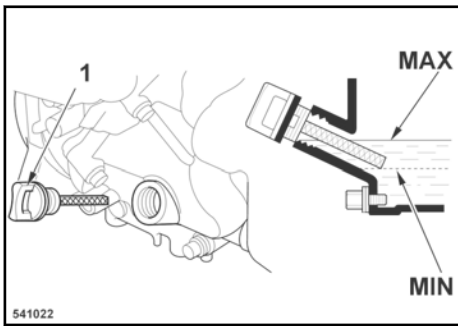


Fig. 36

6.6.3 Checking the fuel level

Clean the area around the oil dipstick (1) ↪ Fig. 36.

Unscrew the dipstick and wipe it clean with a lint-free, clean cloth.

Insert the dipstick into the oil filler socket, do not screw it in, but pull it out again to check the oil level.

If the oil level is near or below the bottom limit mark on the dipstick, fill in recommended oil up to the top dipstick mark (bottom edge of oil filler neck). Do not overfill.



WARNING!

Fire hazard! Health hazard!

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

Do not refuel in closed rooms.

Shut down the engine.

Do not inhale any fuel fumes.

A leaking fuel tank can cause an explosion. Ensure tight fit of the fuel tank cover, if necessary replace immediately.



NOTICE!

Contaminated fuel can cause malfunction or even damage of the engine.

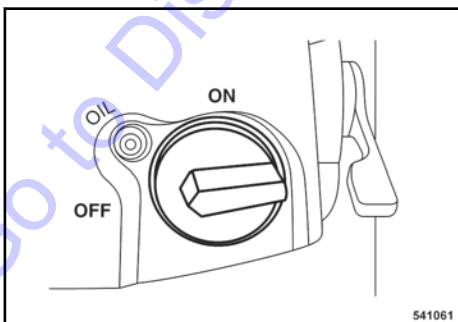
Fill in fuel through the screen filter.

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



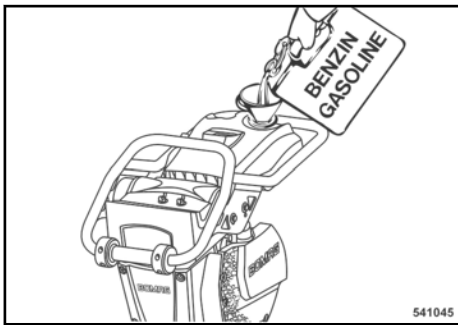
ENVIRONMENT!

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



Set the engine stop switch ↪ Fig. 37 to position "OFF" (fuel valve closed).

Fig. 37



Clean the area around the filler cover, unscrew the filler cover → Fig. 38.

Fig. 38

Fill in fuel through a funnel with screen.
Close the tank again.

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6.7 Maintenance every month

6.7.1 Change the engine oil



WARNING!

Danger of scalding when draining off hot engine oil.



NOTICE!

Park the machine on level ground.

Drain the engine oil only when the engine is warm.

Check the engine oil level with highest care, to avoid over or underfilling of the engine. Underfilling or overfilling can damage the engine.

The engine cannot be started if the engine oil level is too low.

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



ENVIRONMENT!

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

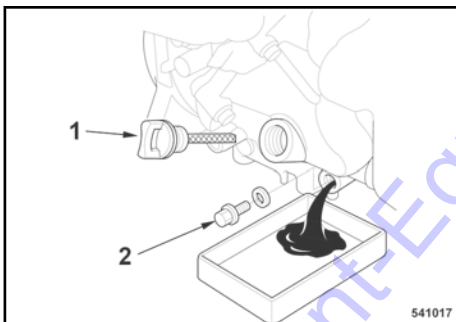
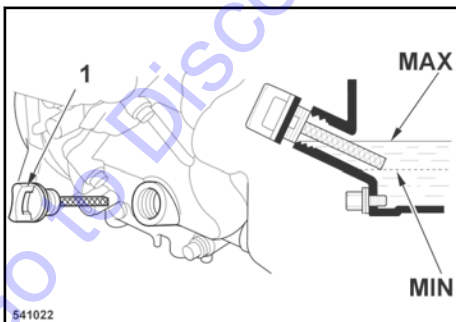


Fig. 39



Clean the area around oil dipstick (1) and drain plug (2).

Unscrew the oil dipstick .

Unscrew the oil drain plug , let the old oil run out and catch it.

Clean the drain plug and screw it back in with a new seal ring.

Fill in fresh engine oil through the oil filler opening .

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

Fig. 40

Push the oil dipstick (1) back in.

Perform a test run, inspect the drain plug for leaks and check the oil level.

6.7.2 Cleaning, checking the spark plug, replacing if necessary



WARNING!

Danger of burning!

Let the engine cool down for approx. 15 minutes before unscrewing the spark plug.



NOTICE!

In case of excessive combustion residues or burned off electrodes replace the spark plug.

Do not use spark plugs with incorrect heat value. An incorrect spark plug can cause damage to the engine.

Recommended spark plugs:

NGK: CR5HSB

Denso: U16FSR-UB

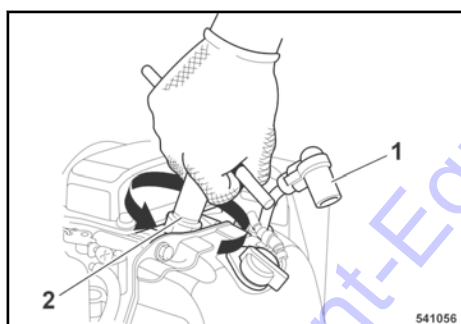


Fig. 41

Pull off the spark plug socket (1) ↪ Fig. 41.

Unscrew the spark plug using a 5/8 inch spark plug spanner.

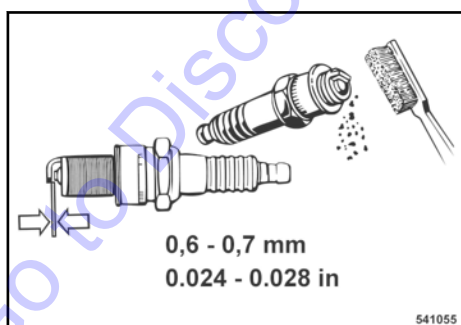


Fig. 42

Check the spark plug ↪ Fig. 42 visually and clean it if necessary.

Check the electrode gap with a feeler gauge, if necessary adjust the gap to 0.6 - 0.7 mm (0.024 - 0.028 in).

Turn the spark plug carefully in by hand.

Once the sealing surface of the new spark plug is in contact tighten for another 1/2 turn with the spark plug spanner.

Once the sealing surface of the used spark plug is in contact tighten for another 1/8 to 1/4 turn with the spark plug spanner.

Press the spark plug socket back on.

6.7.3 Checking the tamper foot



WARNING!

Danger of burning on hot components!

Wear your personal protective outfit (protective gloves, protective clothing).

Checking the oil level



NOTICE!

Stand the tamper on level ground for a short while, so that all oil can run into the housing.

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

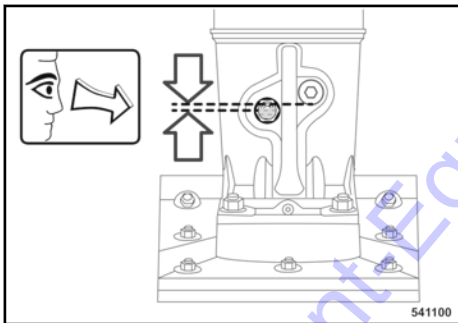


Fig. 43

Clean the sight glass ↪ Fig. 43.

Check the oil level.

The oil must be visible between the middle and the upper edge of the oil level inspection glass, if necessary top up oil as required.



The upper edge of the inspection glass equals the bottom edge of the oil filling.

Checking the concertina wall

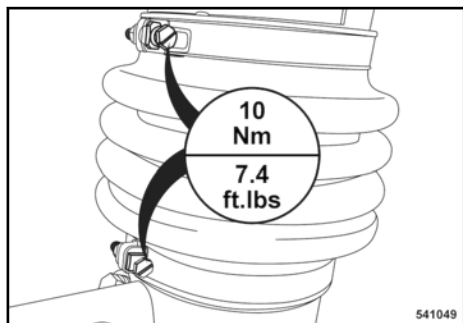


Fig. 44

Check concertina wall for condition, damage and tight fit.
Check hose clamps for tight fit ↗ Fig. 44.

Retighten the screws in the tamper foot plate

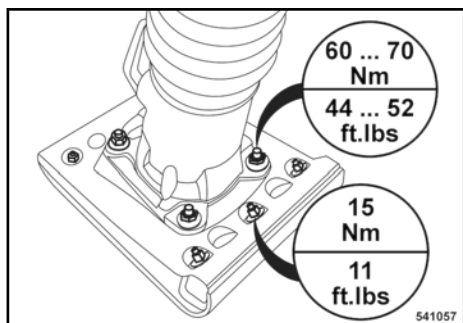


Fig. 45

Retighten the screws ↗ Fig. 45.

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6.8 Maintenance every year

6.8.1 Check, adjust the valve clearance



NOTICE!

We recommend to have this work carried out by trained personnel or our after sales service.

Check and adjust only when the engine is cold (approx. 20 °C (68 °F)).

Valve clearance:

Intake valve (IN) = 0.15 mm (0.006 in)

Exhaust valve (EX) = 0.20 mm (0.008 in)

Shut down the engine.

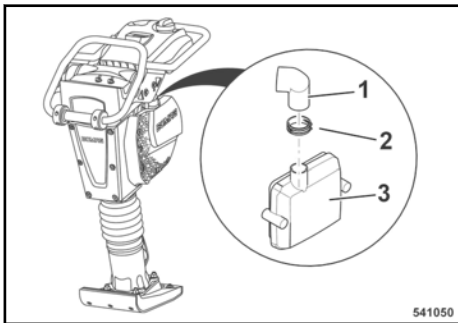


Fig. 46

Loosen hose clamp (2) ↪ Fig. 46 and pull the air supply hose (1) off the air filter housing (3).

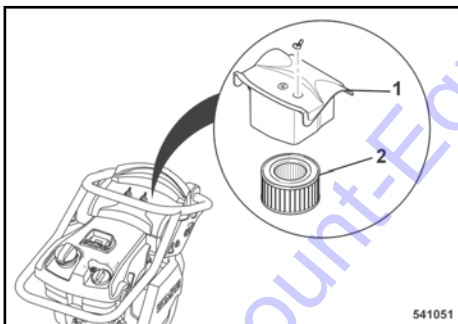


Fig. 47

Remove the air filter cover (1) ↪ Fig. 47 and take off the filter cartridge (2).



WARNING!

Danger of accident!

Park the machine so that it cannot turn over.

When lifting the steering bow make sure that persons are not endangered by the steering bow tipping over or sliding off.

Wear your personal protective outfit (safety boots, etc.).



NOTICE!

When lifting the steering bow make sure that no hoses and cable will be damaged or torn off.

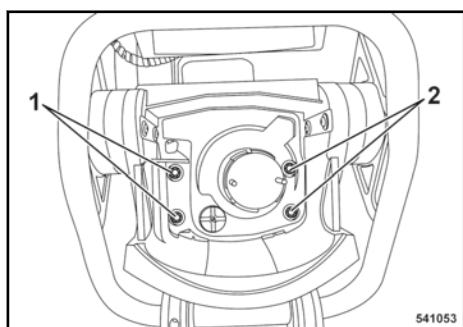


Fig. 48

Unscrew the fastening screws (1) and (2) ↪ Fig. 48 of the air filter housing.

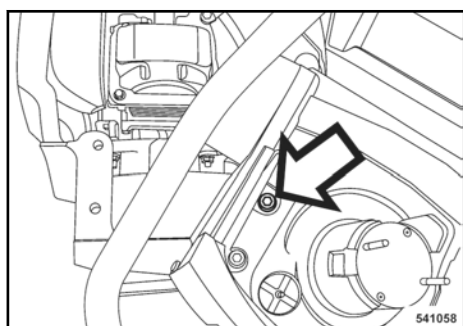


Fig. 49

Lift up the steering bow with the tank and fasten it to the housing with the screw ↪ Fig. 49. Tighten the screw hand-tight (max. tightening force 50 Nm (37 ft.lbs)).

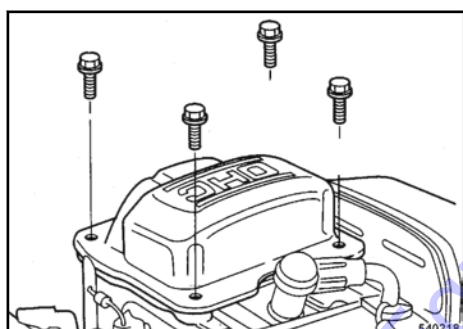


Fig. 50

Unscrew the fastening screws for the cylinder head cover ↪ Fig. 50.



NOTICE!

Do not apply force to remove the cylinder head cover.
Replace the cylinder head cover if it is dented.

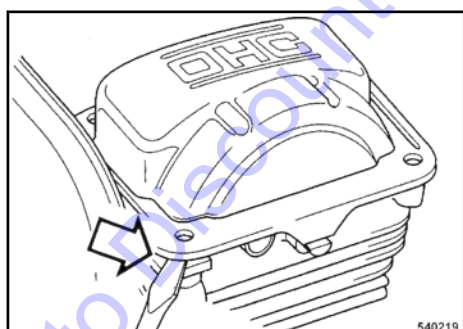


Fig. 51

Insert the screw driver into the recess ↪ Fig. 51 and take the cylinder head cover carefully off.

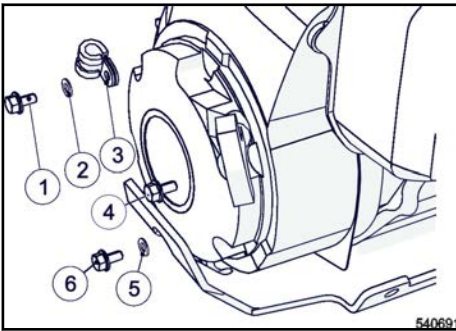


Fig. 52



NOTICE!

Do not mix up the fastening screws for the recoil starter by mistake!

Unscrew the fastening screws (1), (4) and (6) ↪ Fig. 52 and take off the recoil starter.

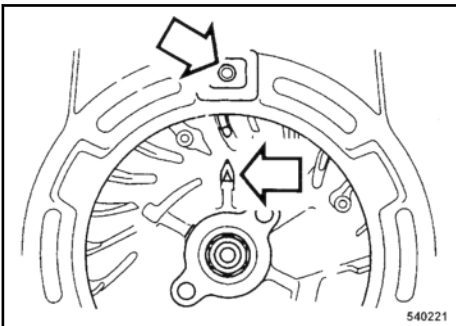


Fig. 53

Align the alignment mark on the flywheel rib ↪ Fig. 53 with the top bore in the fan cover .



The piston is in top dead centre of the compression stroke.

However, if the exhaust valve is open when aligning the marks, the flywheel must be turned further by 360°.

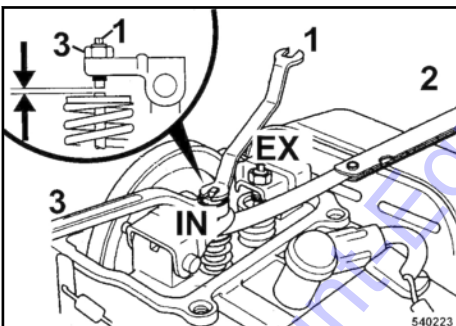


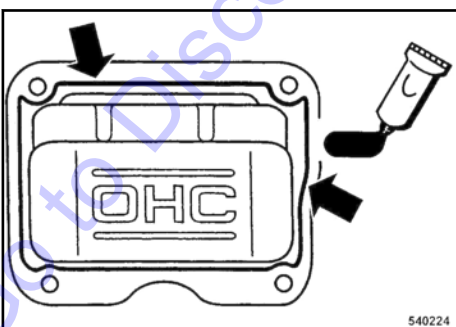
Fig. 54

Measure the valve clearance with a feeler gauge (2) ↪ Fig. 54.

To adjust the valve hold the valve adjustment screw (1) and loosen locking nut (3).

Turn the valve adjustment screw in or out, as required.

Retighten the locking nut with a tightening torque of 7.5 Nm (5.5 ft.lbs).



Clean the sealing faces on cylinder head cover and cylinder block.

Fig. 55

Apply a bead of liquid gasket (Three Bond 1207B or similar) with a diameter of approx. 1.5 to 2.0 mm (0.06 to 0.08 in) to the inside of the cylinder head cover ↪ Fig. 55.

i Attach the cylinder head cover within the next 10 minutes.

Place the cylinder head cover on the cylinder block and tighten the fastening screws.

! **NOTICE!**
Do not mix up the fastening screws for the recoil starter by mistake!

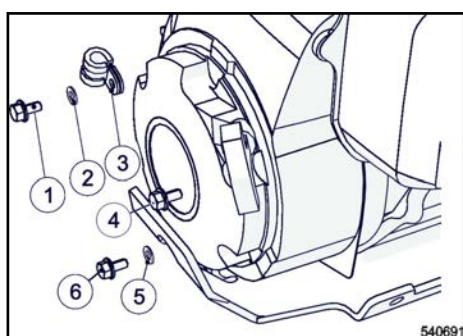


Fig. 56

Mount the recoil starter to the engine housing:

Attach the screw M6x12 (1) ↪ Fig. 56 with washer (2) and clamp (3) to the recoil starter.

Attach the screw M6x16 (6) with washer (5) and bracket for engine guard plate to the recoil starter.

Attach the screw M6x8 (4) to the recoil starter.

Tighten screws (1), (4) and (6).

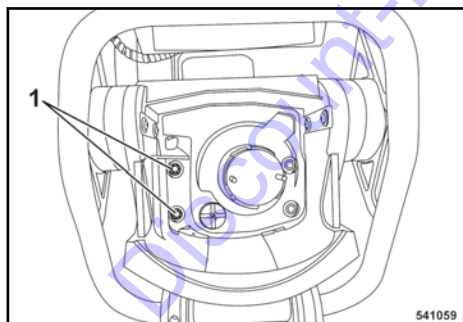


Fig. 57

Reattach the steering bow with the tank.

Tighten the screws (1) ↪ Fig. 57 (right hand side) of the air filter housing hand-tight (max. tightening torque 50 Nm (37 ft.lbs.).

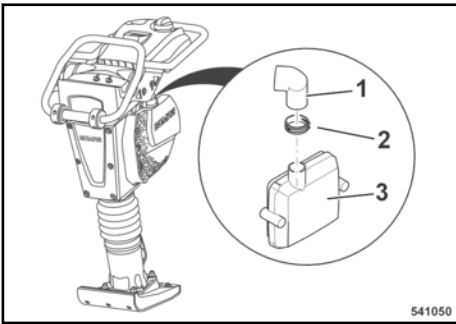


Fig. 58

Connect the air guide hose (1) to Fig. 58 to the air filter housing (3) on the engine and tighten the hose clamp (2).

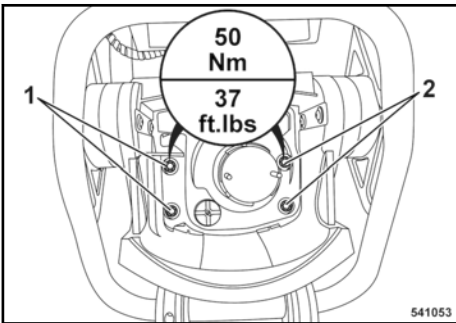


Fig. 59

Retighten the screws (1) and (2) with a tightening torque of 50 Nm (37 ft.lbs).

Insert the filter cartridge and close the air filter cover.



NOTICE!

Wait another 20 minutes before starting the engine.

6.8.2 Changing the fuel filter



WARNING!

Fire hazard! Health hazard!

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

Shut down the engine.

Do not inhale any fuel fumes.



ENVIRONMENT!

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

Dispose of the used fuel filter environmentally.

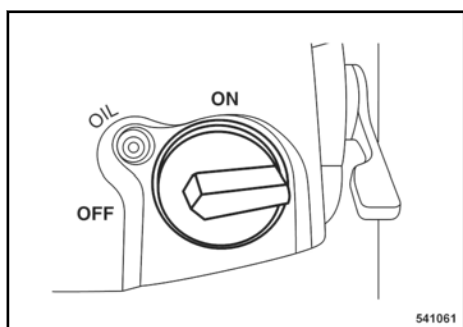


Fig. 60

Set the engine stop switch ↪ Fig. 60 to position "OFF" (fuel valve closed).

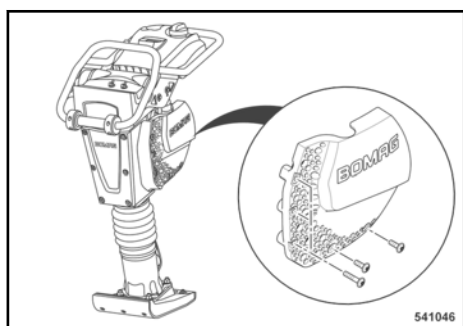


Fig. 61

Remove the protection grid on the left hand side of the engine ↪ Fig. 61.



NOTICE!

Make sure that no dirt falls into the air intake channel.

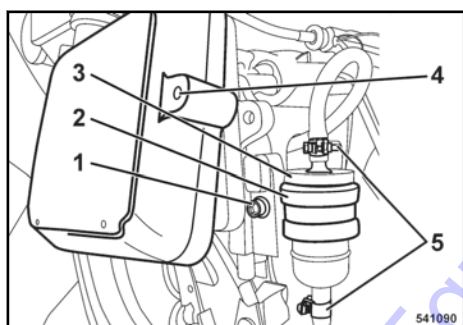


Fig. 62

Unscrew the fastening screw (4) ↪ Fig. 62 from both sides of the air filter cover.

Loosen hose clamps (5) and pull the fuel hoses off the fuel filter (3).

Loosen the screw (1) to be able to loosen the clamp (2).

Take the fuel filter out of the clamp.

Install the new fuel filter and observe the flow direction (arrow).

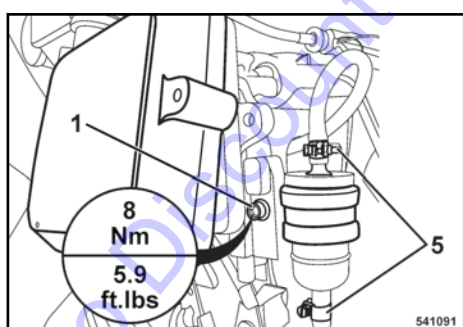


Fig. 63

Retighten the fastening screw (1) ↪ Fig. 63 with a tightening torque of 8 Nm (5.9 ft.lbs).

Fasten the fuel hoses to the fuel filter with hose clamps (5).



NOTICE!

When assembling the air filter cover take care not to damage the air filter.

Screw the air filter cover tightly back in.

Assemble the protection grid on the left hand side of the engine. Retighten the fastening screws with a tightening torque of 25 Nm (18 ft.lbs).

6.8.3 Cleaning the fuel screen



WARNING!

Fire hazard! Health hazard!

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

Clean the fuel screen filter only when the engine is cold.



WARNING!

Health hazard!

Do not inhale any fuel fumes.



ENVIRONMENT!

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

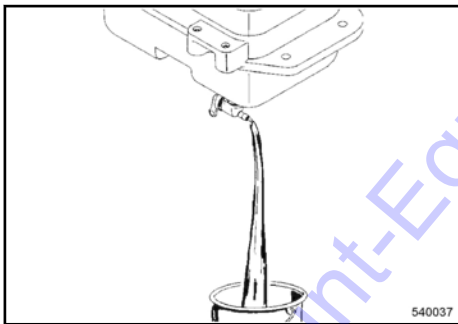
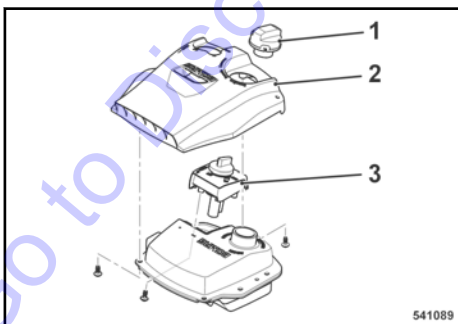


Fig. 64

Disconnect fuel hose ↗ Fig. 64 from fuel cock. Open the fuel cock, drain off fuel.



Clean the area around the tank cover, unscrew the tank cover (1) ↗ Fig. 65.

Unscrew 3 fastening screw from the cover (2) and take off the cover.

Unscrew 3 fastening screws for the engine stop switch and take off the engine stop switch.

Fig. 65

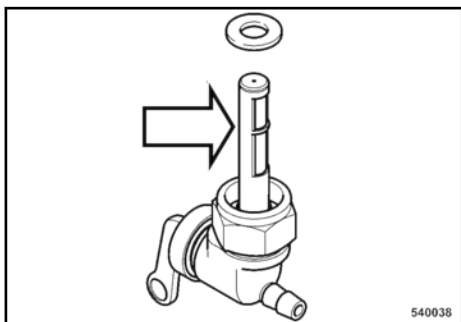


Fig. 66

Unscrew the fuel valve ↪ Fig. 66.

Clean the screen grid.

Check the condition of the screen grid (holes), replace the fuel cock if necessary.

Screw the fuel cock back in with a new seal.

Install the engine stop switch again. Retighten the fastening screws with a tightening torque of 10 Nm (7.4 ft.lbs).

Reassemble the cover. Retighten the fastening screws with a tightening torque of 3 Nm (2.2 ft.lbs).

Fasten the fuel hose to the fuel valve.

Close the tank again.

6.8.4 Check, adjust the engine speed



WARNING!

Exhaust gases are highly dangerous!

Always ensure an adequate supply of fresh air when starting and operating in closed rooms and trenches!



WARNING!

Danger of accident!

Examine the starter rope of the recoil starter for chafing before starting, replace if necessary. A damaged rope can break and cause injuries during starting.

Always hold on to the machine.

Keep your feet away from the tamper plate, because the vibration starts immediately.

Always keep an eye on a running machine.



WARNING!

Loss of hearing!

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

Checking the engine speed

Idle speed: 1850 to 2000 min⁻¹.

Maximum speed: 3850 to 4200 min⁻¹.

i Before checking the engine speeds you should change the air filter and check the engine oil level.

Start the engine.

i Run the tamper on ground that can be compacted.
Run the engine for approx. 15 minutes to warm up.

To read the idle speed set the throttle lever to position MIN
↳ Fig. 67.

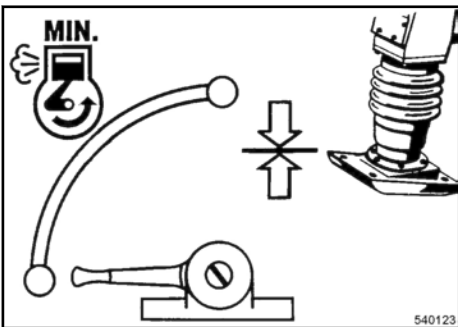


Fig. 67

After approx. 30 to 40 seconds read the idle speed from the existing engine rpm-meter ↳ Fig. 68.

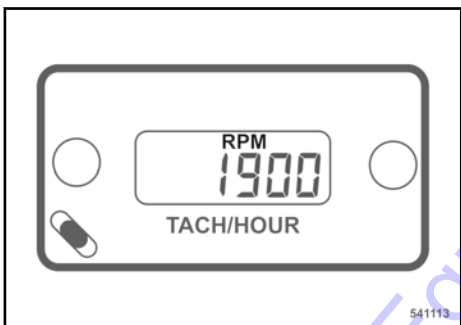


Fig. 68

To read the maximum speed set the throttle lever to position MAX ↳ Fig. 69.

After approx. 30 to 40 seconds read the idle speed from the existing engine rpm-meter ↳ Fig. 68.

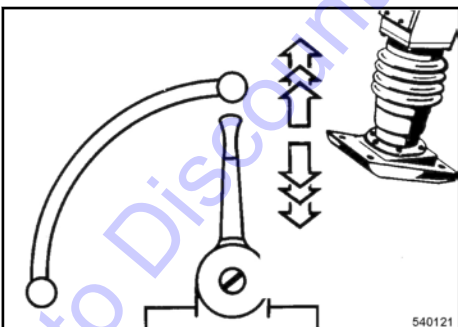


Fig. 69

Adjusting the engine speed

Shut down the engine.

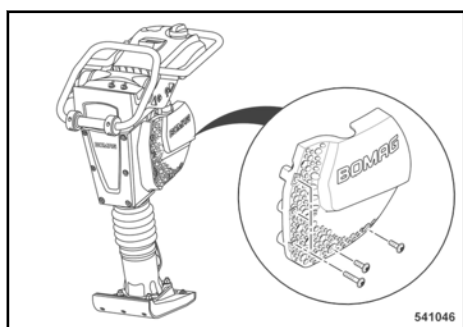


Fig. 70

Remove the protection grid on the left hand side of the engine ↪ Fig. 70.

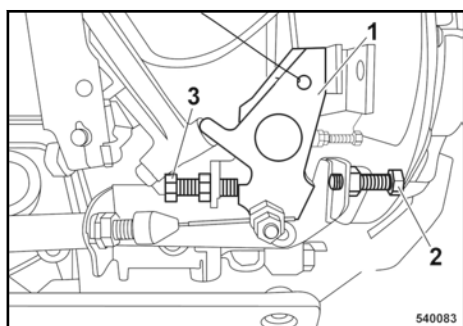


Fig. 71

Adjust the idle speed using the rear stop screw (2) on the engine speed control lever (1) ↪ Fig. 71.

Adjust the maximum speed by the front stop screw (3).

Secure the stop screws (2, 3).

Reassemble the protection grid on the left hand side of the engine ↪ Fig. 70. Retighten the fastening screws with a tightening torque of 25 Nm (18 ft.lbs).



Adjust the throttle cable, if this should be necessary.

6.8.5 Replacing the starter rope

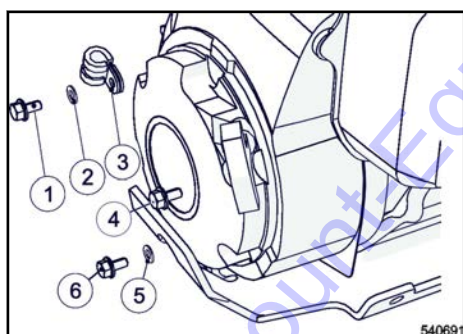


Fig. 72



NOTICE!

Do not mix up the fastening screws for the recoil starter by mistake!

Unscrew the fastening screws (1), (4) and (6) ↪ Fig. 72 and take off the recoil starter.

Maintenance

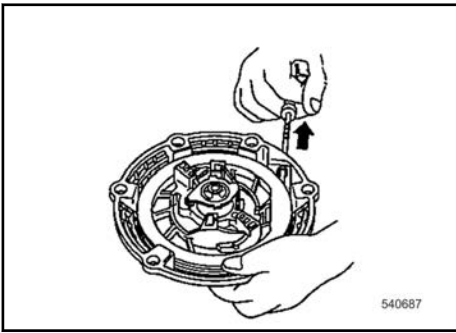


Fig. 73

Pull the starter rope completely out by the starter handle
↳ Fig. 73.

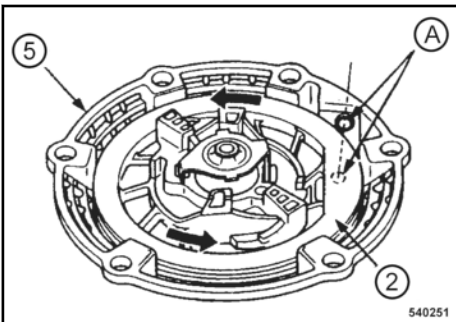


Fig. 74

If the starter rope has been torn or the coil has recoiled completely:

Before assembling the rope, turn the coil (2) ↳ Fig. 74 5 revolutions in anti-clockwise direction and align the rope openings in coil and housing (5) to one another (A).

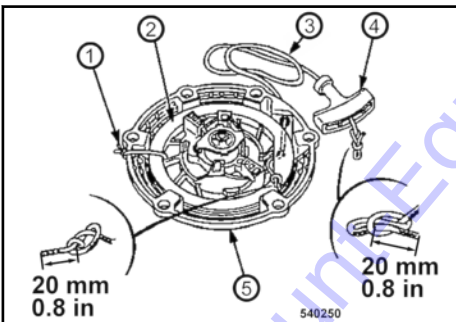


Fig. 75

Secure the coil (2) ↳ Fig. 75 against winding up. For this purpose tie the coil to the housing (5) with a cable strap (1).

Untie the knots of the starter rope at both ends and remove the old starter rope.

Thread in the new starter rope (3) and fix it with knots on both ends.

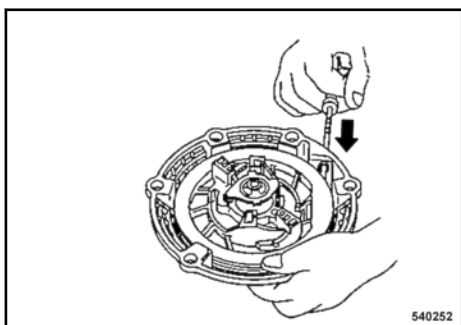


Fig. 76

**WARNING!****Danger of injury!**

Do not let the starter handle hit back, but guide it back slowly.

Remove the fixing of the coil and run the starter handle slowly back to initial position ↪ Fig. 76.

Test function and light movement of the recoil starter by pulling the starter handle.

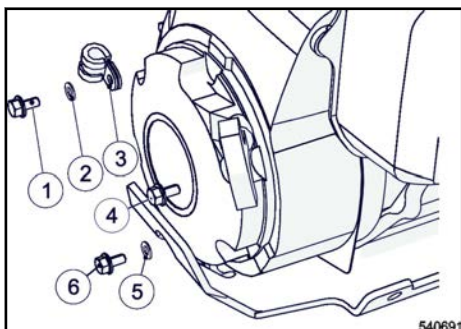


Fig. 77

Mount the recoil starter to the engine housing:

Attach the screw M6x12 (1) ↪ Fig. 77 with washer (2) and clamp (3) to the recoil starter.

Attach the screw M6x16 (6) with washer (5) and bracket for engine guard plate to the recoil starter.

Attach the screw M6x8 (4) to the recoil starter.

Tighten screws (1), (4) and (6).

**NOTICE!**

Do not mix up the fastening screws for the recoil starter by mistake!

6.8.6 Oil change in tamper foot

**WARNING!****Danger of burning on hot components!**

Wear your personal protective outfit (protective gloves, protective clothing).



NOTICE!

Ensure strict cleanliness.

Change the oil at operating temperature.

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



ENVIRONMENT!

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

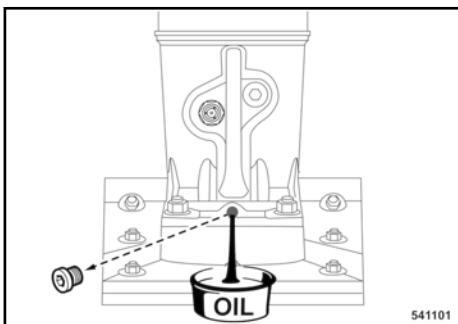


Fig. 78

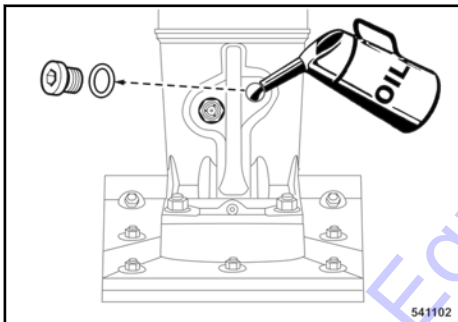


Fig. 79

Clean and unscrew the oil drain plug ↪ Fig. 78.

Drain off and catch old oil. Tilt the tamper back.

Stand the tamper on its foot and secure it against tipping over.

Insert the oil drain plug with sealant (low-strength, e.g. BOMAG 009 700 16) and tighten.



The upper edge of the inspection glass equals the bottom edge of the oil filling.

Clean the filler plug ↪ Fig. 79 and unscrew it.

Fill in new oil.

Screw the filler plug back in with a new seal ring.

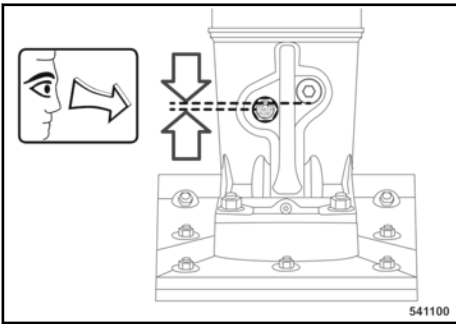



Fig. 80

Clean the inspection glass  Fig. 80 and check the oil level.
The oil must be visible between the middle and the upper edge of the oil level inspection glass, if necessary top up oil as required.

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6.9 As required

6.9.1 Check, clean the air filter, replace if necessary



NOTICE!

Contamination of the air filter depends mainly on the proportion of dust in the intake air, if necessary clean several times a day.

Do not use gasoline or hot fluids to clean the air filter.

In case of wet or sticky contamination replace the air filter.

The air filter must be changed after several times cleaning, but at the latest after one year.

Do not continue to use a damaged air filter. If in doubt use a new air filter.

Do not run the engine without air filter.

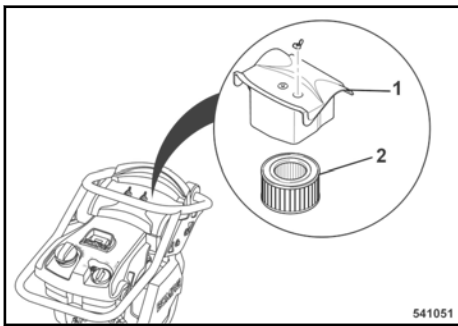


Fig. 81

Remove cover (1) ↘ Fig. 81, carefully take out air filter (2).



NOTICE!

Make sure that no dirt falls into the air intake channel.



WARNING!

Danger of injury!

Always wear protective clothes (goggles, gloves) when working with compressed air.

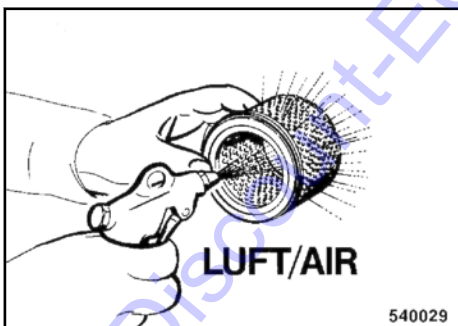


Fig. 82

In case of dry fine dust blow out the air filter carefully from inside to outside with dry, clean compressed air ↘ Fig. 82 (max. 6 bar (87 psi)).



NOTICE!

Before installation check seals and air filter for damage, replace if necessary.

Insert the air filter (2) ↘ Fig. 81 and close the air filter cover (1).

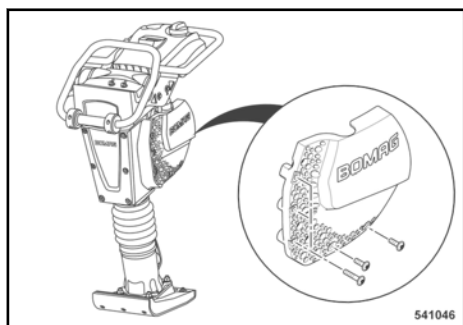


Fig. 83

Remove the protection grid on the left hand side of the engine → Fig. 83.

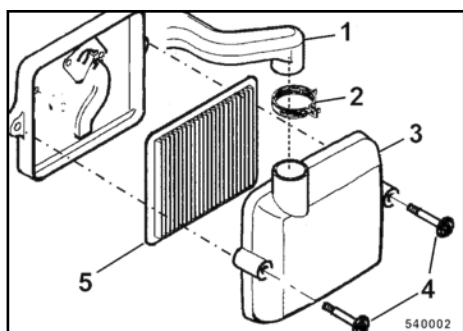


Fig. 84

Loosen hose clamp (2) → Fig. 84 and pull the air supply hose (1) off the air filter housing.

Unscrew two fastening screws (4) and remove cover (3) from the air filter housing.

Take the air filter (5) out of the housing.



NOTICE!

Make sure that no dirt falls into the air intake channel.

Wipe the inside of the air filter housing only with a clean cloth.



WARNING!

Danger of injury!

Always wear protective clothes (goggles, gloves) when working with compressed air.

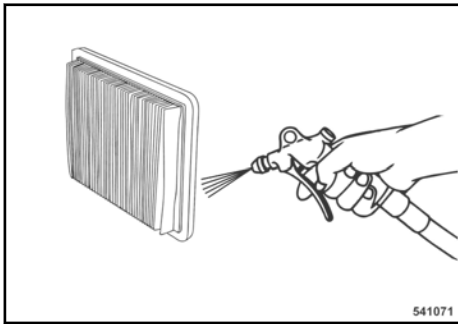


Fig. 85

In case of dry fine dust blow out the air filter carefully from inside to outside with dry, clean compressed air (max. 2 bar (29 psi)) ↪ Fig. 85.



NOTICE!

Before installation check seals and air filter for damage, replace if necessary.

Assemble the air filter (5) ↪ Fig. 84 and the air filter cover (3) to the air filter housing and tighten the screws (4)

Connect the air guide hose (1) to the air filter housing and tighten the hose clamp (2).

Assemble the protection grid on the left hand side of the engine. Retighten the fastening screws with a tightening torque of 25 Nm (18 ft.lbs).

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7.1 General notes

Please observe strictly the safety regulations in the corresponding section of these operating and maintenance instructions.

Malfunctions are frequently caused by incorrect operation of the machine or insufficient maintenance. Whenever a fault occurs you should therefore thoroughly read these instruction on correct operation and maintenance.

If you cannot locate the cause of a fault or rectify it yourself by following the trouble shooting chart, you should contact our customer service department.

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7.2 Engine problems

Fault description	Cause	Remedy
Engine does not start	Fuel tank empty	Check the fuel level, top up if necessary.
	Fuel system clogged	Clean the fuel screen in the tank Replacing the fuel filter Clean the fuel screen in the carburettor
	Fuel nozzle clogged	Clean the fuel nozzle
	No ignition spark	Clean the spark plug, replace if necessary
	Engine oil level too low	Check the engine oil level, correct if necessary
	Set the engine stop switch to position "OFF"	Set the engine stop switch to position "ON"
	Engine stop switch defective	Replace the engine stop switch
	No fuel in carburettor	Check the fuel supply
	Engine does not crank when operating the recoil starter	Recoil starter defective
Spring broken		Replace the recoil starter
Starter rope of recoil starter does not return to initial position	Recoil starter dirty	Clean the recoil starter
	Spring broken	Replace the recoil starter
Engine stops frequently in short intervals	Fuel system clogged	Clean the fuel screen in the tank Replacing the fuel filter Clean the fuel screen in the carburettor
Engine does not run with full speed	Throttle cable defective	Replacing the throttle cable
	Throttle cable incorrectly adjusted	Adjust the throttle cable
	Air filter clogged	Clean the air filter, replace if necessary
	Too high engine oil level	Check the engine oil level, if necessary drain off engine oil to the "MAX" mark (Clean the air intake manifold)
	Exhaust blocked	Clean the exhaust
	Engine defective	Have examined by a specialist
	Carburettor defective	Have examined by a specialist
	Engine runs with high speed, but no vibration	Centrifugal clutch defective
Mechanical defect		Have repaired by our customer service.

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Disposal

8.1 Final shut-down of machine

If the machine can no longer be used and needs to be finally shut down you must carry out the following work and have the machine disassembled by an approved specialist workshop.



ENVIRONMENT!

Catch all fuels and lubricants, do not let them seep into the ground and dispose of in compliance with legal regulations.

Empty the fuel tank.

Drain lubrication oil from engine and tamper foot.



WARNING!

Danger of explosion!

Parts that previously contained combustible fluids must not be cut with a cutting torch.

PARTS FINDER

**Search Website
by Part Number**



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or Request Quote**

Search Manuals

Enter your information to help us find the right parts manual for your machine.

* Brand:

* Model:

* Serial:

* Part Number:

SEARCH

**Can't Find Part or
Manual? Request Help
by Manufacturer,
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MODEL:

DESCRIPTION:

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