

BOMAG

Operating instructions Maintenance instructions

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

BW 213 D-4

S/N 101 582 50



Single drum roller

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.

BOMAG machines are products from the wide range of BOMAG compaction equipment.

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 GmbH 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!

With this machine "CE" conformity is only achieved with the corresponding optional equipment.

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

Always keep this manual close at hand, e.g. in the tool compartment of the machine or in a specially provided container. 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.

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 GmbH.

We wish you successful work with your BOMAG machine.

BOMAG GmbH

Printed in Germany

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Foreword

Please fill in

.....

Machine type (Fig. 1)

.....

Serial-number (Fig. 1 and 2)

.....

Engine type (Fig. 3)

.....

Engine number (Fig. 3)

i Note

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!

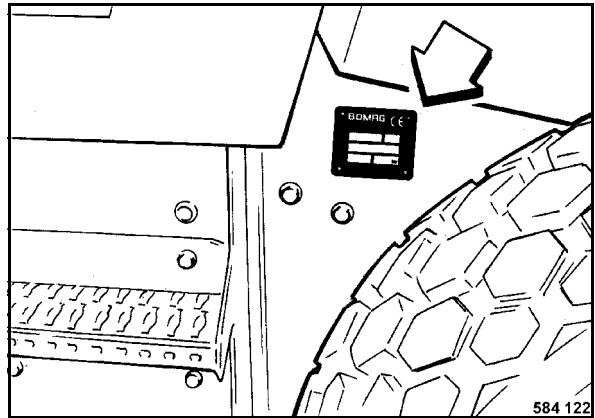


Fig. 1

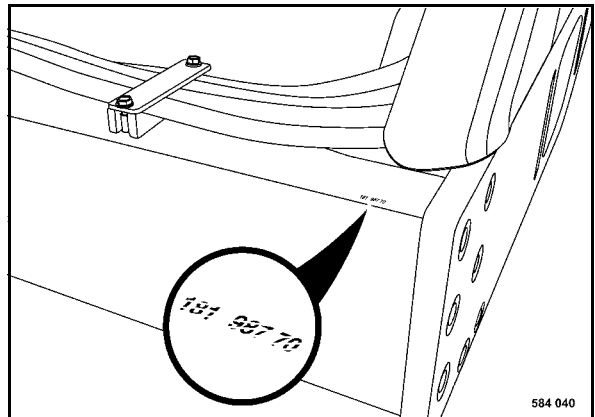


Fig. 2

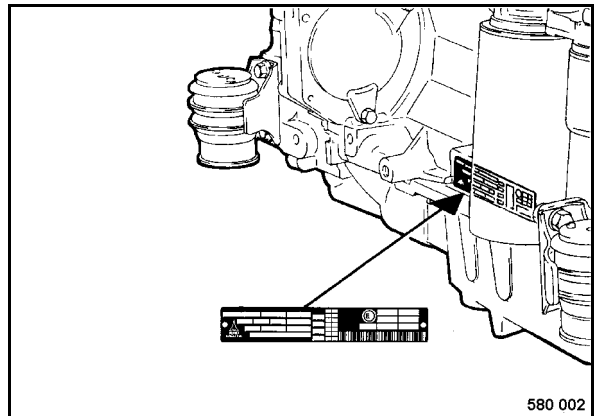


Fig. 3

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1 Technical Data

Technical Data

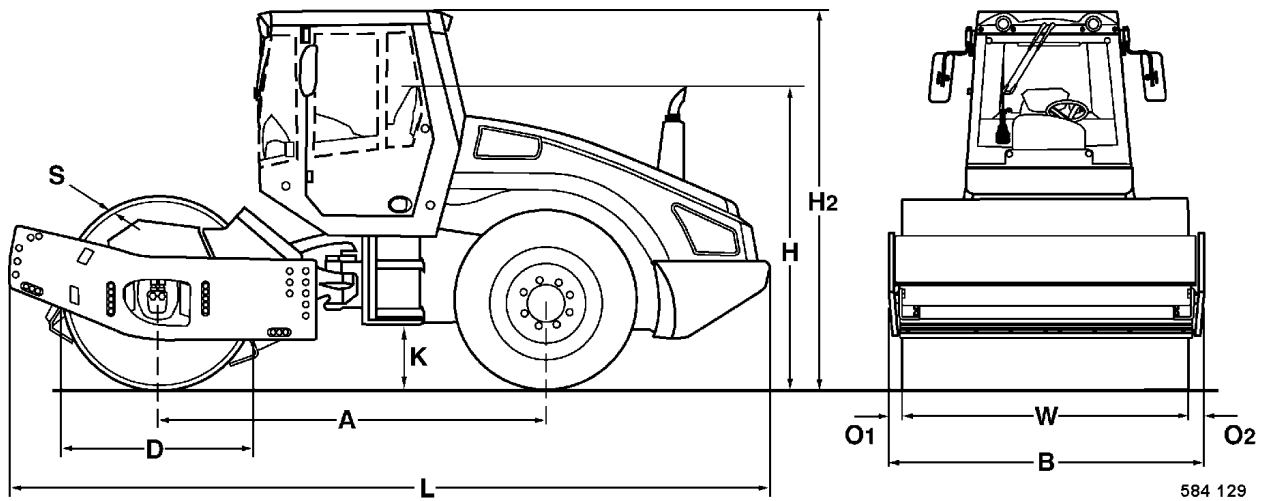


Fig. 4

Dimensions in mm	A	B	D	H	H2	K	L	O1	O2	S	W
BW 213 D-4	2960	2250	1500	2268	2972	490	5808	60	60	35	2130

*

BW 213 D-4

Weights

Operating weight (CECE) with ROPS and cabin	kg	12525
Axle load, drum (CECE)	kg	7000
Rear axle load (CECE)	kg	5525
Static linear load	kg/cm	32,9

Travel characteristics

Travel speed (1)	km/h	0 ... 5
Travel speed (2)	km/h	0 ... 6
Travel speed (3)	km/h	0 ... 7
Travel speed (4)	km/h	0 ... 10
Max. gradability (depending on soil)	%	43

Engine

Engine manufacturer		Deutz
Type		BF4M 2012C
Cooling		Water
Number of cylinders		4
Rated power DIN ISO 3046	kW	98
Rated speed	rpm	2300
Fuel		Diesel

*		BW 213 D-4
Electrical equipment	V	12
Drive system		hydrostatic
Driven axles		2
Brakes		
Service brake		hydrostatic
Parking brake		hydr.-mech.
Steering		
Type of steering		articulated
Steering operation		hydrostatic
Vibration		
Vibrating drum		1
Drive system		hydrostatic
Frequency	Hz	30/36
Amplitude	mm	1,8/0,9
Tires		
Tire size		23.1/18-26/TL-8PR-AWT
Air pressure	bar	1,4
Filling capacities		
Engine	Litres	10
Fuel	Litres	340
Hydraulic oil	Litres	60
Coolant	Litres	16

* The right for technical modifications remains reserved

Technical Data

The following noise and vibration data acc. to

- EC Machine Regulation edition (98/37/EC) and
- Noise Emission Regulation 2000/14/EC

were determined at nominal speed of the drive engine and with vibration running. The machine was standing on an elastic base.

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 at the work place of the operator (with cabin):

$$L_{pA} = \text{BW 213 D-4} - 75 \text{ dB(A)}$$

The noise emission value for the machine according to the noise emission regulation 2000/14/EG is

guaranteed sound capacity level of the machine:

$$L_{wA} = \text{BW 213 D-4} - 105 \text{ dB(A)}$$

These sound values were determined according to ISO 3744 for the sound capacity level (L_{wA}) and ISO 11204 for sound pressure level (L_{pA}) at the place of the operator.

Vibration value

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

Vibration of the entire body (driver's seat)

The weighted effective acceleration value determined in accordance with ISO 7096 is $\gamma \leq 0.5 \text{ m/sec}^2$.

Hand-arm vibration values

The weighted effective acceleration value determined in accordance with EN 500/ISO 5349 is $\gamma \leq 2.5 \text{ m/sec}^2$.

2 Safety regulations

General

This BOMAG machine is built in accordance with the latest technical standard and the valid technical rules and regulations. There is, however, a risk of danger for persons and property if:

- the machine is used for purposes other than those it is intended for
- the machine is operated by untrained personnel
- the machine is modified or converted 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. This should be confirmed by obtaining the signatures of the customer, if necessary.

Furthermore the following regulations and instructions are obviously also valid:

- applicable accident prevention instructions
- generally acknowledged safety and road traffic regulations
- country specific safety regulations. It is the duty of the operator to know and observe these regulations. This applies also for local regulations and the regulations for various types of manual work. If the recommendations in this manual differ from the regulations valid in your country, you must strictly observe the regulations in your country.

Intended use

This machine must only be used for:

- compaction of bituminous materials, e.g. road surface layers. (AC and AD machines only)
- medium and heavy compaction tasks in earth work (road sub-bases)
- This machine must only be operated with fully functional safety equipment.
- 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.

Do not work with vibration on hard concrete, on a cured concrete layer or heavily frozen ground.

Starting and operation of the machine in an explosive environment is prohibited.

Who is allowed to work with the machine?

The machine must only be operated by trained and authorized persons which 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

Sections marked like this point out possible dangers for persons.

⚠ Caution

Sections marked like this point out possible dangers for the machine or for parts of the machine.

i 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.

Observe all environment protection regulations.

Information and safety stickers/decals on the machine

Keep stickers/decals complete (see spare parts catalogue) and fully legible and observe their meaning.

Replace damaged or illegible stickers/decals immediately.

Loading the machine

Use only strong and stable loading ramps. The ramp inclination must be lower than the gradability of the machine.

Secure the machine against turning over or slipping off.

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

Persons are highly endangered if

- they step or stand under loads being lifted
- they remain in the drive range of the machine during a demonstration or during loading.

The machine must not swing about when lifted off the ground.

Use only safe lifting gear of sufficient load bearing capacity.

Attach the lifting gear only to the specified lifting points.

Towing the machine

You should generally use a tow bar.

Max. towing speed 1 km/h (1.6 mph), max. towing distance 500 m (1640 ft.).

Before releasing the multi-disc brakes secure the machine properly against unintended rolling.

Checking the Roll Over Protection Structure (ROPS)

i Note

On machines with cabin the ROPS is an integral part of the cabin.

The machine frame must not be distorted, bent or cracked in the area of the ROPS fastening points.

The ROPS must not show any signs of corrosion, damage, hairline cracks or open fractures.

The ROPS must not rattle about during driving. This would mean that it is not properly fastened.

All bolted connections must be in accordance with the prescribed specifications and correctly tightened (observe the tightening torque values).

Screws and nuts must not be damaged, bent or deformed.

With the cabin installed check also the condition of the cabin mounts (rubber elements and screws).

Neither must any additional parts be welded or bolted on, nor must any holes be drilled without the permission of the manufacturer, since this may impair the strength of the structure.

Starting the machine

Before starting

Operation of the machine is only permitted when sitting in the operator's seat.

Use only machines which have been properly serviced at regular intervals.

Become acquainted with the equipment, the control elements, the working mode of the machine and the area you will be working in.

Use your personal protective outfit (hard hat, safety boots etc.).

Check before mounting the machine if:

- there are persons or obstructions beside or under the machine

Safety regulations

- the machine is free of any oily and combustible material
- all handrails, steps and platforms are free of grease, oils, fuels, dirt, snow and ice
- the engine compartment hood is closed and locked

To climb onto the machine use steps and handrails.

Check before starting, whether:

- the machine shows any obvious defects
- all protective devices are properly secured in their place
- steering, brakes, control elements, lighting and warning horn are in order
- the seat is correctly adjusted
- the mirrors (if available) are clean and correctly adjusted.

Do not start the machine if any gauges, control lights or controls are defective.

Do not take any loose objects with you or fasten them to the machine.

On machines with ROPS you should always wear your seat belt!

Starting

Start and operate the machine only from the operator's seat

For starting set all control levers to "neutral position".

Do not use any starting aids such as Start Pilot or ether.

After starting check all gauges.

Starting with jump leads

Connect plus with plus and minus with minus (ground cable) - always connect the ground cable last and disconnect it first! Wrong connections may cause severe damage in the electric system.

Never start the engine by bridging the electrical connections on the starter, because the machine would probably start to move immediately.

Starting in closed rooms

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

Driving the machine

Persons in the endangered area

If the machine has turned over and the cabin door is jammed, use the right hand cabin window as an emergency exit.

Before starting or resuming work and especially when driving backwards, check that there are no persons or obstructions in the endangered area.

If necessary give warning signals. Stop work immediately if persons remain in the danger area despite the warning.

Do not step or stand into the articulation area of the machine while the engine is running. Danger of squashing!

Driving

In events of emergency actuate the emergency stop switch immediately. Do not use the emergency stop push button as service brake.

Restart the machine only after the danger, that has caused the actuation of the emergency stop, has been eliminated.

If the machine has come in contact with high-voltage power lines:

- do not leave the operator's stand
- warn others from coming too close to the machine or touching it
- if possible drive the machine out of the danger zone
- have the power shut off.

Operate the machine only from the operator's seat.

Keep the cabin doors closed.

Do not adjust the seat while driving.

Do not climb onto or off the machine while driving.

Change the travel direction only while the machine is standing.

Do not use the machine to transport persons.

Stop the machine if you notice unusual noises or the development of smoke. Investigate the cause and have the fault corrected.

Keep a sufficient distance to excavations and embankments and make sure that your work does not impair the stability of the machine.

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