BOMAG

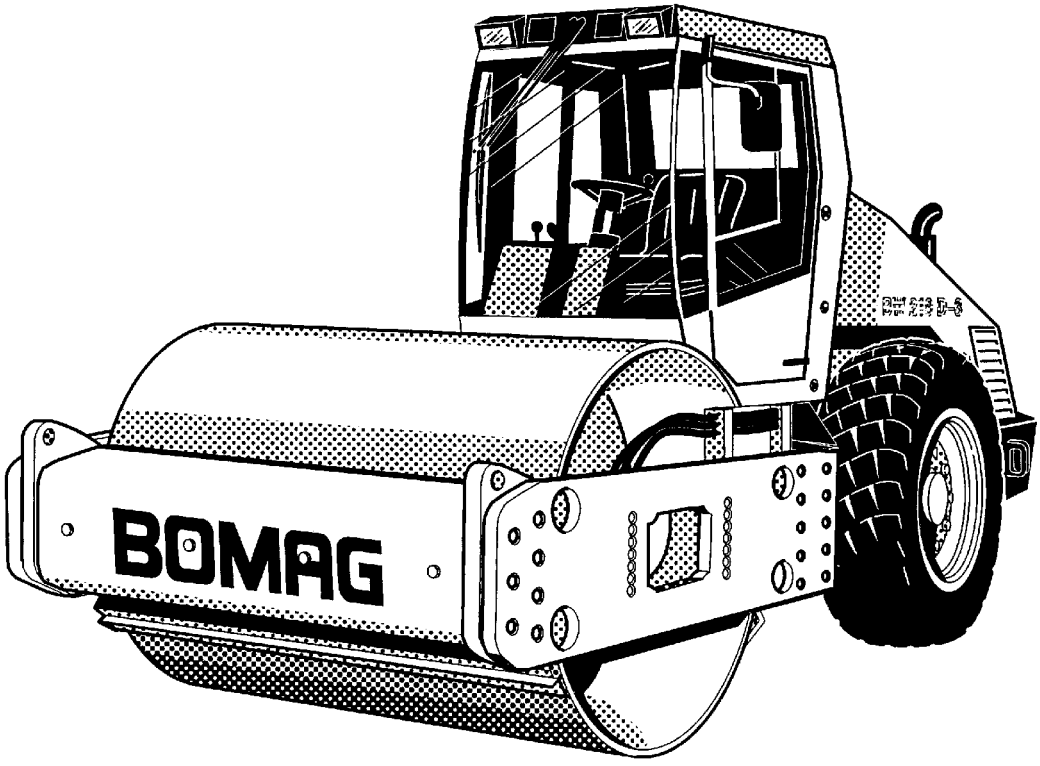
Operating instructions
Maintenance instructions

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

BW 211 / 212 / 213 D-40

BW 211 / 212 / 213 PD-40

S/N 101 582 42 . . . . S/N 101 582 43 . . . . S/N 101 582 44 . . . .
S/N 101 582 47 . . . . S/N 101 582 48 . . . . S/N 101 582 49 . . . .



Single drum roller

Catalogue number
008 158 81

08/2006

*		BW 212 D-40	BW 212 PD-40
Electrical equipment	V	12	12
Drive system		hydrostatic	hydrostatic
Driven axles		2	2
Brakes			
Service brake		hydrostatic	hydrostatic
Parking brake		hydr.-mech.	hydr.-mech.
Steering			
Type of steering		articulated	articulated
Steering operation		hydrostatic	hydrostatic
Vibration			
Vibrating drum		1	1
Drive system		hydrostatic	hydrostatic
Frequency	Hz	30/36	30/36
Amplitude	mm	1,8/0,9	1,64/0,82
Tires			
Tire size		23.1-26/12 PR TL C7	23.1-26/12TL R1
Air pressure	bar	1,4	1,4
Filling capacities			
Engine	Litres	10	10
Fuel	Litres	250	250
Hydraulic oil	Litres	60	60
Coolant	Litres	16	16

* The right for technical modifications remains reserved

Metal objects (e.g. tools, rings, wrist watches) must not contact the battery poles - danger of short circuit and burns!

When recharging maintenance free batteries remove the plugs to avoid the accumulation of explosive gases.

When using an external battery to start the machine follow the respective instructions.

Dispose of old batteries environmentally.

Switch the charging current off before removing the charge clamps.

Ensure good ventilation, especially when charging the battery in a closed room.

Working on the fuel system

Do not inhale fuel fumes.

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

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

Working on wheels and tires

Explosion like bursting of tires and parts of rims and tires can cause severe or even deadly injuries.

Assemble tires only with the appropriate knowledge and tools. If necessary have the tires assembled in a special workshop.

Ensure correct tire pressure and do not exceed the highest specified pressure.

Check wheels and tires every day for specified pressure, cuts, bulges, damaged wheel rims, missing wheel studs and nuts. Do not drive with damaged tires or wheels.

Anti-stick emulsions for tires must only be mixed using water and concentrated anti-stick agent according to the specifications of the manufacturer of the anti-stick agent. Observe the regulations for the protection of the environment.

Cleaning

Do not clean the machine while the engine is running.

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

When using steam cleaning equipment do not subject electrical components and insulating materials to the direct water jet, but cover them beforehand.

- Do not guide the water jet into the exhaust or into the air filter.

After maintenance work

Reinstall all protective devices after completing the maintenance work.

Repair

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

Repairs must only be performed by qualified persons who have been instructed for this purpose. Use our repair instructions.

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

Test

Depending on the type of application and the operating conditions vibratory equipment has to be examined by a specialist whenever required, but at least once every year.

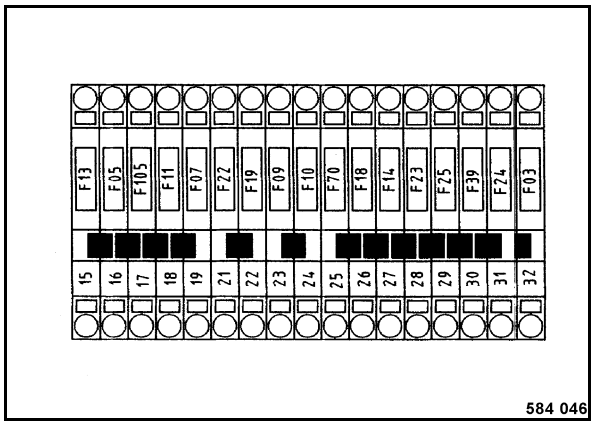


Fig. 23

No. 18 = Fuses in electric installation box

F03, 15A	=	Vibration
F05, 15A	=	Socket
F07, 15A	=	Hazard light*
F09, 10A	=	Parking tail light, left*
F10, 10A	=	Parking tail light, right*
F11, 15A	=	Head lights, StVZO*
F13, 30A	=	Starting
F14, 15A	=	Engine solenoid
F18, 10A	=	Working head lights, relay*
F19, 15A	=	Working head lights, front, left*
F22, 15A	=	Working head lights, rear*
F23, 10A	=	Warning horn
F24, 10A	=	Monitoring, gauges
F25, 10A	=	Solenoid valve brake/travel
F39, 15A	=	Cab*
F70, 15A	=	Indicator*
F105, 20A	=	Engine speed control

⚠ Danger

Fire hazard!

Do not use fuses with higher ampere ratings and do not bridge fuses.

* Optional equipment

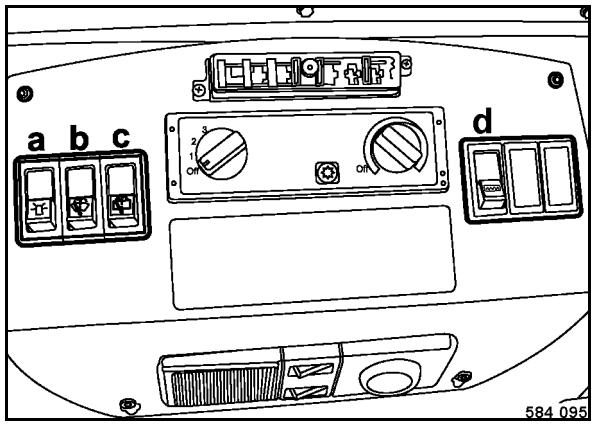


Fig. 24

a = toggle switch for flashing beacon

b = toggle switch for front windscreen wiper/ washer

up	=	windscreen wiper moves to end position and stops.
down	=	Switches on wiping of front windscreen.
Push button	=	Front windscreen is sprayed during wiping.

c = toggle switch for rear windscreen wiper/ washer

up	=	windscreen wiper moves to end position and stops.
down	=	Switches on wiping of rear windscreen.
Push button	=	Rear windscreen is sprayed during wiping.

d = toggle switch for rear windscreen heating

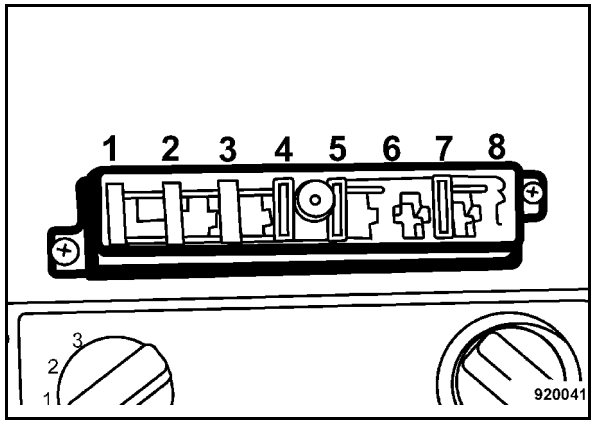


Fig. 25

No. 19 = Fuse box, cabin

1 Pass-No.
2 Travel direction
3 Machine equipment (BTM 05/BTM-E)
4 Software status of the measuring equipment
5 Machine number
6 Machine type
7 Amplitude
8 Maxiumum E_{VIB} value
9 Miniumum E_{VIB} value
10 Mean E_{VIB}-value
11 E_{VIB}-change
12 Medium frequency
13 Mean travel speed
14 Track length
15 Raster division in longitudinal direction
16 Marking (thick line) excessive jumping, tumbling of the drum
17 Longitudinal raster line
18 Measuring value raster line
19 Diagram line
20 Marking (thin line) jumping of the drum

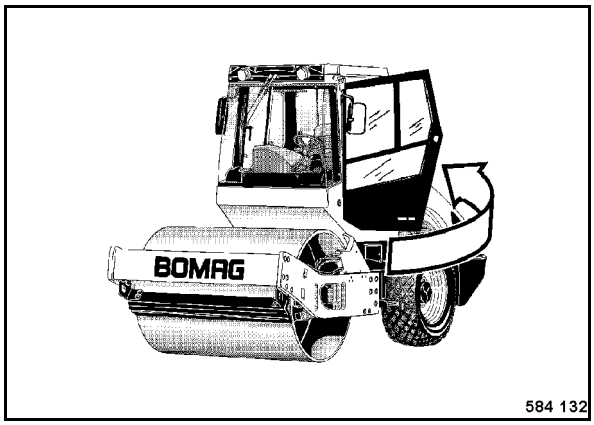


Fig. 45

- Close the cabin door (Fig. 45).

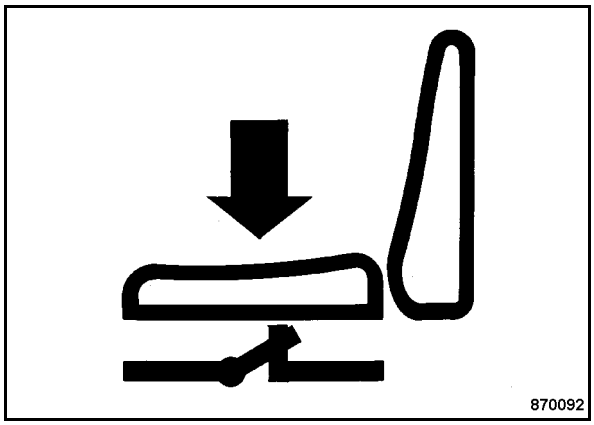


Fig. 46

- Sit on the driver's seat (Fig. 46) and fold down the armrest.

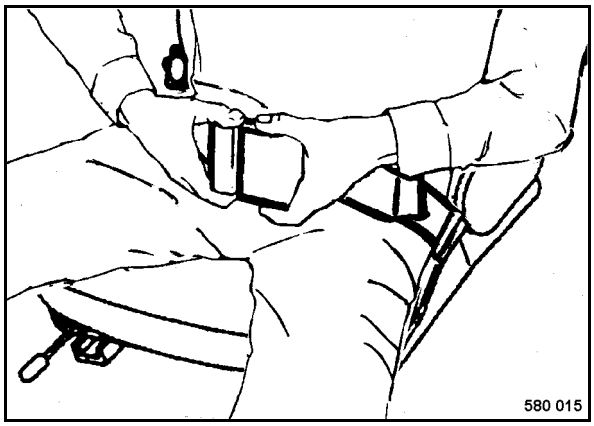


Fig. 47

- Fasten your seat belt (Fig. 47).
- "Start engine", see previous sections.

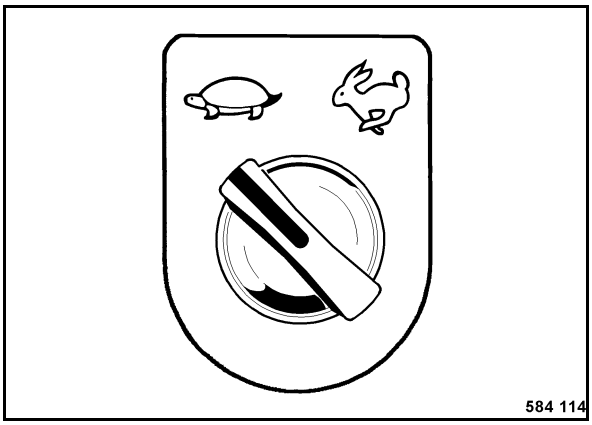


Fig. 48

- Select the desired travel speed range (Fig. 48).

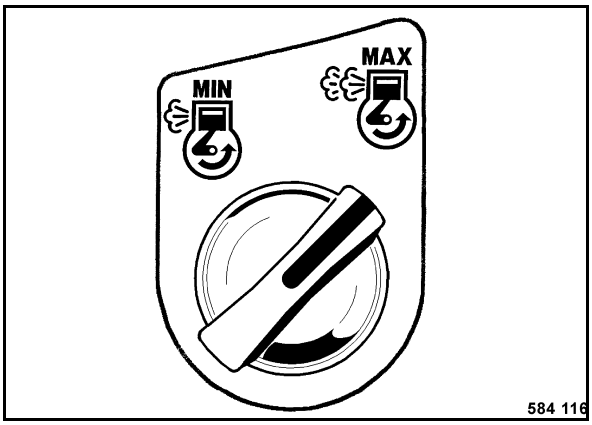


Fig. 49

- Turn the rotary switch (Fig. 49) to "Max" position (full throttle).

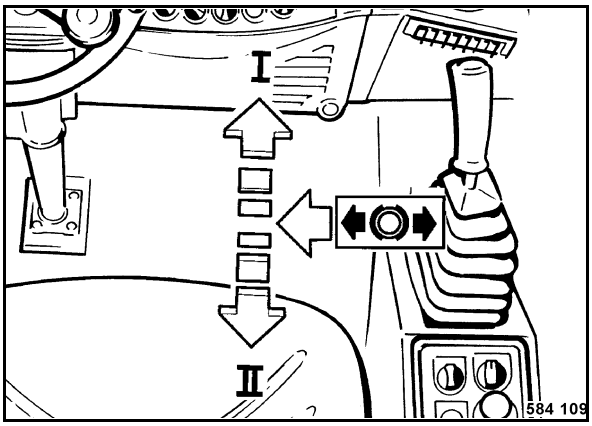


Fig. 50

- Push the travel lever (Fig. 50) to the left out of braking position and move it slowly to the desired travel direction.

4.16 Measuring pass with BTM*

General notes

i Note

The soil measuring values (E_{VIB}) recorded during different passes can only be compared if the recording of measuring values took place in operating mode "Manual" with the same amplitude, frequency and travel speed and on exactly the same track.

Measuring values must only be compared for passes performed in the same direction.

The following description describes an measuring pass in forward. Measuring passes in reverse must be performed accordingly.

Measuring pass

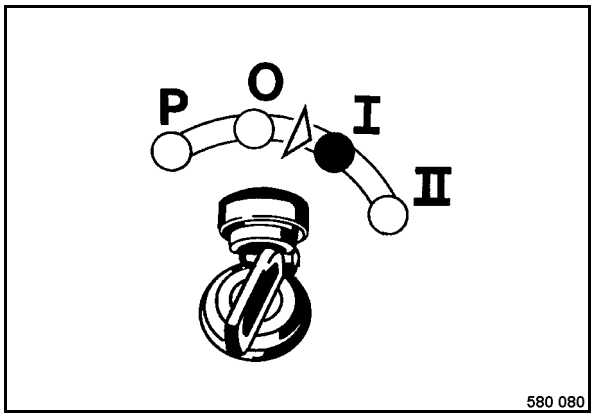


Fig. 74

- Turn the ignition key (Fig. 74) to position "I"

The BTM plus/prof performs a self-test.

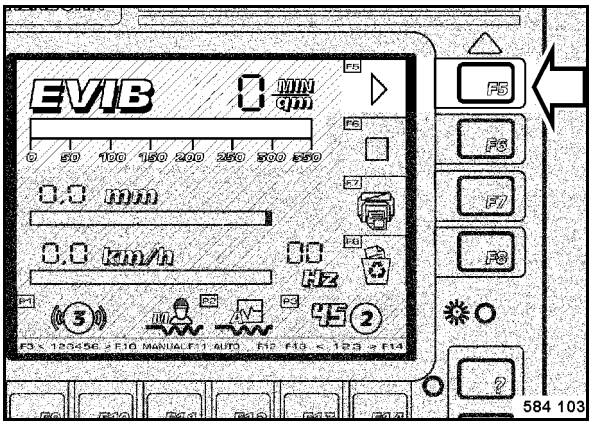


Fig. 75

- Control field F5 (Fig. 75) lights green.

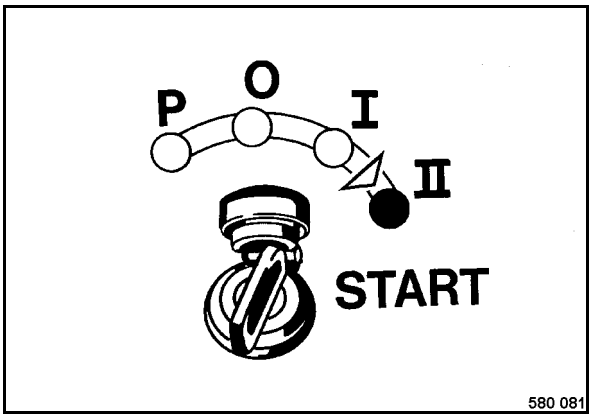


Fig. 76

- Turn the ignition key (Fig. 76) to position „II engine start.

* Optional equipment

Notes on the cooling system

On water cooled engines the preparation and monitoring of the coolant is of utmost importance, as otherwise engine failures caused by corrosion, caviation and freezing may occur.

The coolant is a mixture of water and a cooling system protection agent.

The cooling system must be permanently monitored. Apart from the coolant level inspection this includes also the inspection of the concentration of cooling system protection agent.

The concentration of the cooling system protection agent can be checked with commercially available test instruments (glycomat).

⚠ Danger

Health hazard!

The mixing of nitride based cooling system protection agents with amine based agents will cause the generation of highly toxic nitrosamines.

Environment

Cooling system protection agents must be disposed of environmentally.

5.2 Fuels and lubricants

Engine oil

Quality

Lubrication oils are classified according to their performance and quality class. Oils according to other comparable specifications may be used.

Approved engine oils		
Deutz	DQC II	DQC III
ACAE	E3/96/E5-02	E4-99
API	CH-4/CG-4	-
DHD	DHD-1	-

The exact assignment of the approved oil qualities and oil change intervals can be taken from the following section "Lubrication oil change intervals".

Consult your local service station if in doubt.

Oil viscosity

Multi-purpose oils should be generally used.

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) .

Optimal operating conditions can be achieved by using the opposite oil viscosity chart (Fig. 93) as a reference.

Occasionally falling short of the temperature limits will impair the cold starting ability, but will not cause any engine damage. In order to keep the occurring wear as low as possible, occassional exceeding of the limits should not happen over a longer period of time.

5.9 Checking the hydraulic oil level

⚠ Caution

In mit Panolin HLP Synth. 46, the same oil must be used for filling up. In case of any other ester based oil consult the lubrication service department of the respective oil manufacturer.

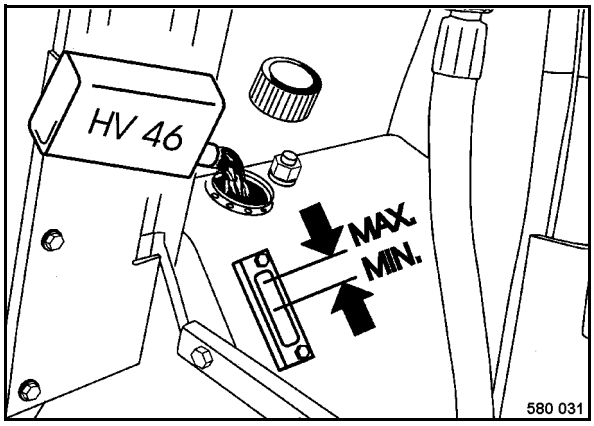


Fig. 98

- Check the oil level in the inspection glass (Fig. 98) on the hydraulic oil tank.

Normal level

approx. 3 cm below the upper edge of the inspection glass.

Minimum level

middle of inspection glass.

⚠ Caution

If during the daily oil check the oil level is found to have dropped, check all lines, hoses and components for leakages.

- If necessary fill in hydraulic oil through the filler neck.

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

5.10 Checking the coolant level

⚠ Danger

Danger of scalding!

Top up coolant only when the engine is cold.

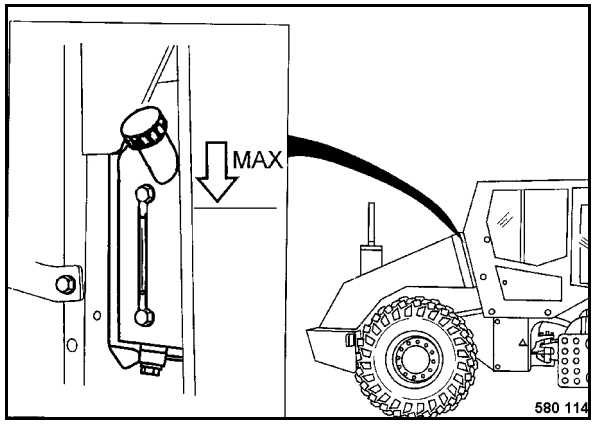


Fig. 99

- Check the coolant level (Fig. 99).

⚠ Caution

If during the daily coolant level check the coolant level is found to have dropped, check all lines, hoses and engine for leakages.

- To top up unscrew the lid and fill in coolant up to the MAX-mark.

For quality of coolant refer to the table of fuels and lubricants in chapter 5.2.

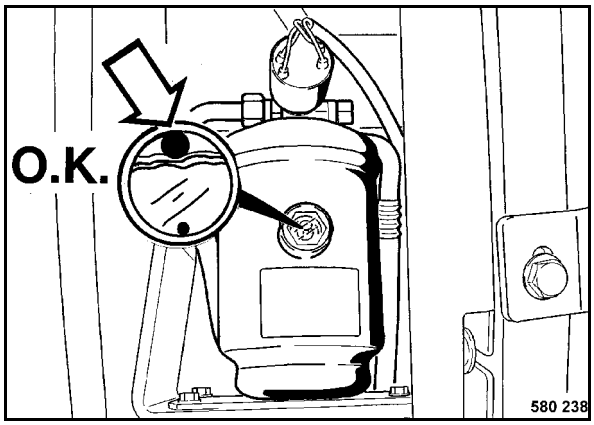


Fig. 118

- Check whether the white float (Fig. 118) inside the inspection glass of the drier/collector unit floats right at the top.

i Note

The refrigerant level is correct.

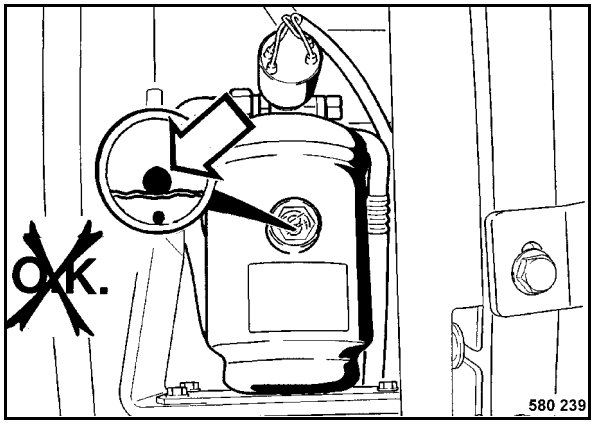


Fig. 119

- If the white float (Fig. 119) inside the inspection glass of the drier/collector unit floats at the bottom, inform the service department.

i Note

The refrigerant level is not correct.

- Refrigerant must be filled up, if necessary the air conditioning system must be checked for leaks.

Checking the moisture level of the drying agent

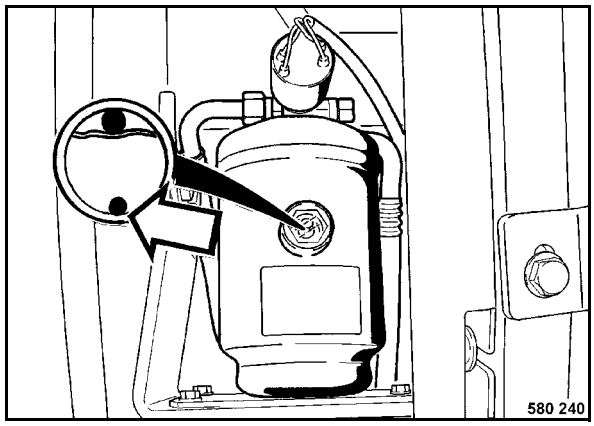


Fig. 120

- Check the moisture indication pearl (Fig. 120) inside the inspection glass of the drier/collector unit.

blue	=	drying agent o.k.
purple	=	moisture level of drying agent too high.

- Inform the service department. Replace drier/ collector unit, check air conditioning system.

⚠ Caution

Have the drier/collector unit replaced by the service department every year before the operating season.

Checking the condition of the drier/collector unit

⚠ Caution

According to the regulation for pressure reservoirs all pressure reservoirs must be repeatedly inspected by a specialist. In this sense repeated inspections are external examinations, normally on pressure reservoirs in operation. In connection with this inspection the drier/collector unit must be visually examined twice every year. During these inspections special attention must be paid to corrosion and mechanical damage. If the reservoir is not in proper condition it must be replaced for safety reasons, as a precaution to protect operators and third parties against any danger

5.29 Changing the oil for the vibration bearings

⚠ Caution

Change the oil at operating temperature. For this purpose run the machine approx. half an hour with vibration.

Environment

Catch running out oil and dispose of environmentally.

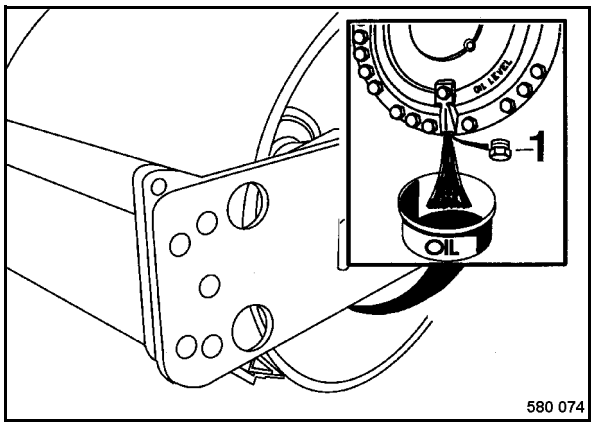


Fig. 142

- Move the drum until the drain plug 1 (Fig. 142) is in lowest position.
- Unscrew the drain plug, drain all oil off and catch it.
- Once the oil has run out clean the drain plug and screw it tightly back in.

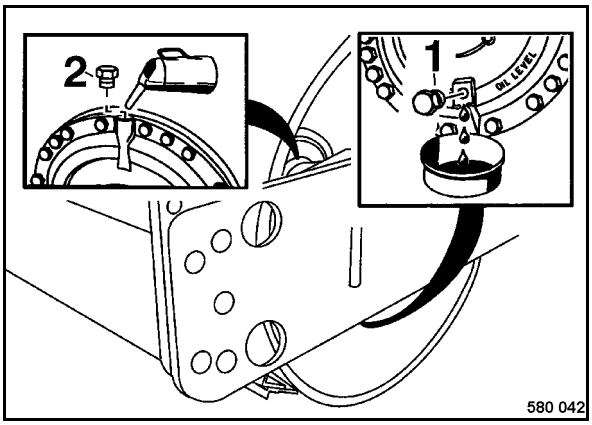


Fig. 143

- Unscrew the level plug 1 (Fig. 143) at the bottom of the drum and fill in oil through the filler bore (2), until it starts to run out through the level bore.

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

- Screw the oil filler (2) and control plug (1) back in.
- Repeat the oil change on the opposite side.
- Check the oil level again at operating temperature (after running the vibration for approx. 0.5 hours).

⚠ Caution

Overfilling causes overheating of the vibration bearings!

if the warning light comes on again after servicing the main filter cartridge.

- Remove the housing cover and pull the main filter element off.

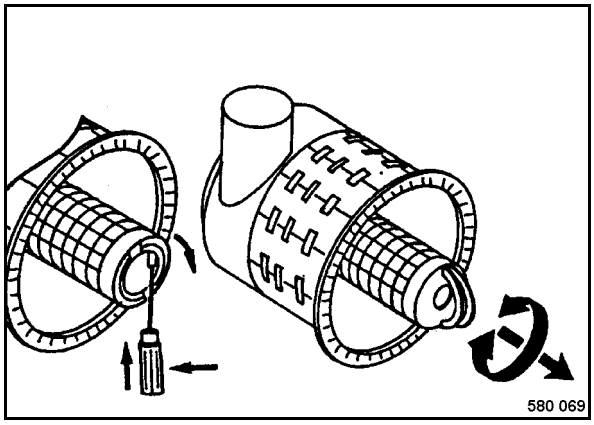


Fig. 159

- Perforate the seal of the safety filter element from inside to outside using a suitable tool (Fig. 159) and pull both latches up.
- Grip the safety element by both latches and pull it out with slight turning movements.
- Push in a new safety filter element.
- Reassemble main filter element and cover.

⚠ Caution

Make sure that the cover locks engage correctly.

5.39 Adjusting the scrapers

smooth drum only

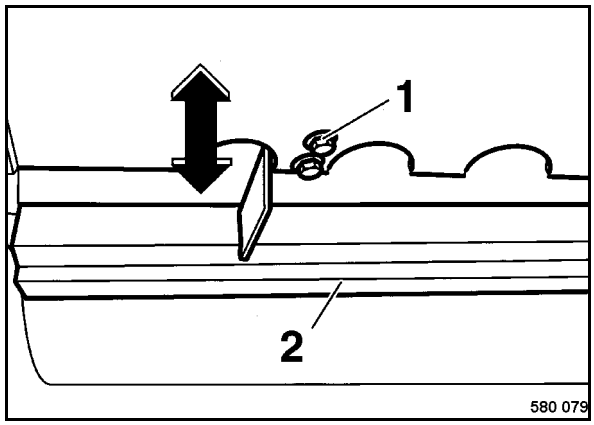


Fig. 160

- Check the condition and adjustment of the front and rear scrapers, adjust or replace the scraper rubber if necessary.
- To adjust the scrapers 1 (Fig. 160) loosen the fastening screws (2) in the slots and push the scraper bracket towards the drum until the scraper touches.
- Retighten the fastening screws.

padfoot drum only

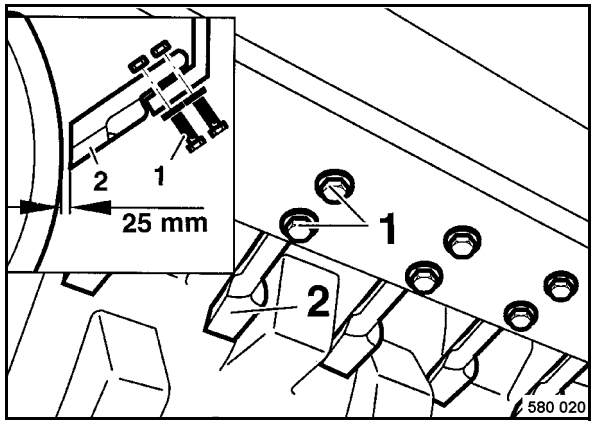


Fig. 161

- Check condition and adjustment of scrapers 2 (Fig. 161), adjust or replace the teeth if necessary.
- To adjust the scrapers (2) slacken the fastening screws (1) in the slots and move the scrap-