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Indicators and Controls

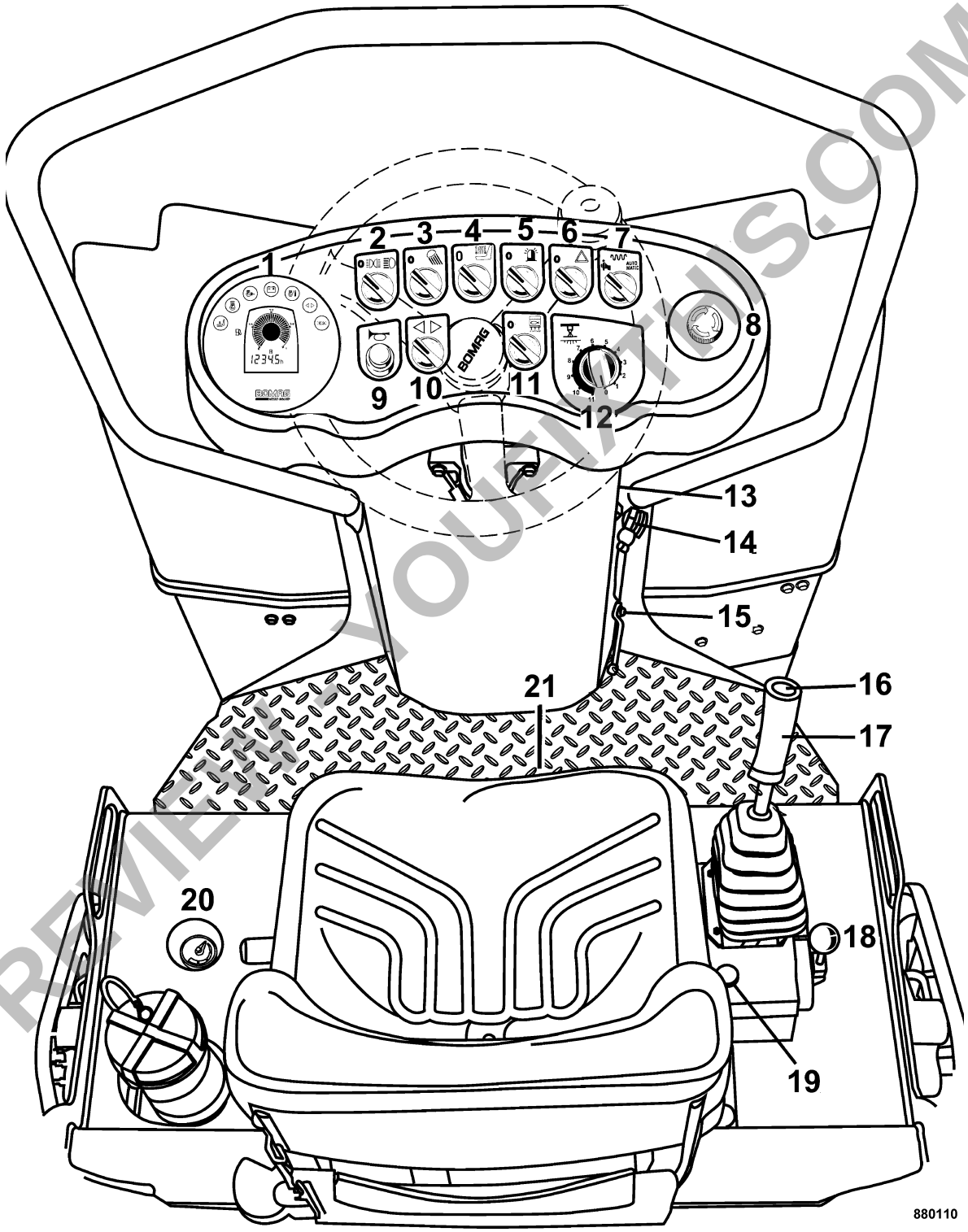


Fig. 20

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5.5 Starting the engine

⚠ Danger

Danger of accident! Danger of injury!

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

Start the engine only from the operator's seat.

⚠ Caution

In this chapter it is assumed that the operator is fully acquainted with the function of the different control elements on the machine.

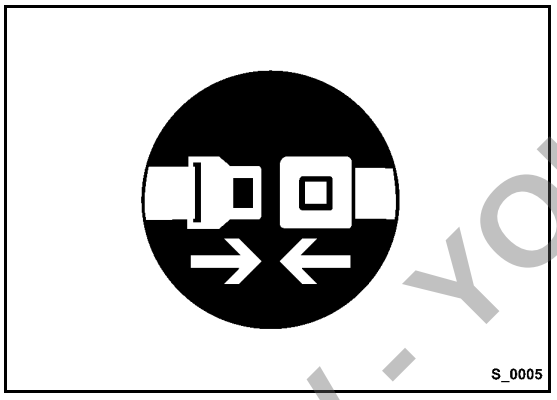


Fig. 53

- Fasten your seat belt (Fig. 53).

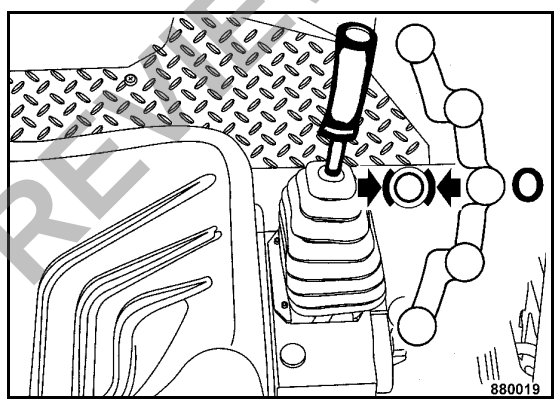


Fig. 54

- Shift the travel lever (Fig. 54) to position "0".

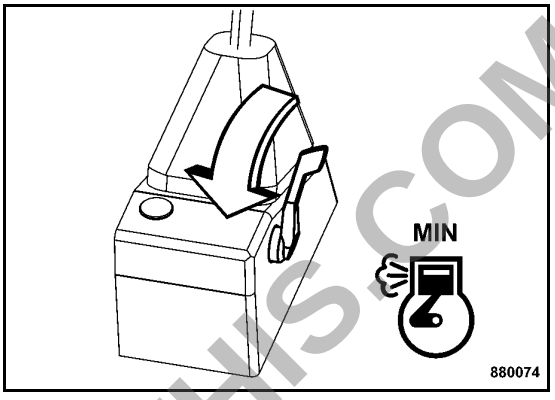


Fig. 55

- Set the throttle lever (Fig. 55) to position "MIN".

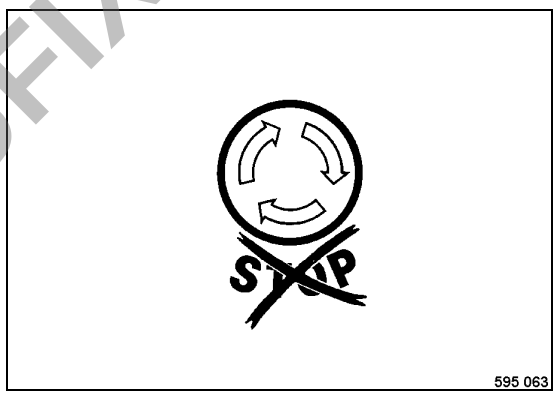


Fig. 56

- Check, whether the emergency stop switch (Fig. 56) is unlocked.

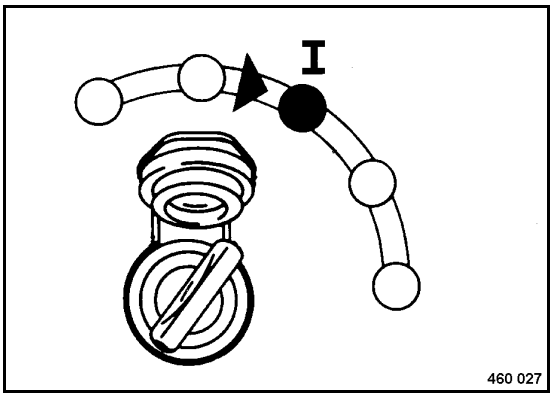


Fig. 57

- Turn the ignition key (Fig. 57) to position "I".

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6.5 Maintenance table

No.	Maintenance work	Comment	every 10 operating hours, daily	every 50 operating hours	every 250 oper. hours	every 500 oper. hours	every 1000 oper. hours	every 2000 oper. hours	every 3000 oper. hours	as required
6.6	Check the engine oil level	Dipstick mark	X							
6.7	Check the fuel level	Instrument cluster	X							
6.8	Check the hydraulic oil level	Dipstick mark	X							
6.9	Check the hydraulic oil filter element	Contamination indicator	X							
6.10	Check the coolant level		X							
6.11	Check the water separator		X							
6.12	Check the water level	Water level gauge	X							
6.13	Check the emulsion level	only AC-machines	X							
6.14	Check the chip spreader and clean the spreading beam		X							
6.15	Check fuel lines and clamps			X						
6.16	Service the chip spreader			X						
6.17	Change engine oil and oil filter[1]	at least 1x per year see foot note			X					
6.18	Check, clean, replace the combustion air filter	replace min. 1x per year			X					
6.19	Check the air intake lines				X					
6.20	Cleaning radiator and hydraulic oil cooler				X					
6.21	Check, tension, replace the V-belt				X					
6.22	Check radiator hoses and hose clamps				X					
6.23	Checking, adjusting the scrapers				X					

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7.2 Engine

Faults	Possible cause	Remedy
The engine does not start	Fuel tank empty	Fill the tank
	Fuel filter clogged,in winter due to paraffin separation	Change the filter Use winter fuel
	Fuel lines leaking	Check all line connections for leakages and tighten the fittings.
	Travel lever not in "0"-position	Move the travel lever to "0"-position
	Battery discharged or not connected	Charge the battery, check the terminal clamps
	Operating error	see chapter "Starting the engine"
	Incorrect valve clearance	Adjust the valve clearance
	Lack of oil	Top up engine oil
	Emergency stop switch is engaged.	Emergency stop switch is unlocked.
The engine starts poorly and works irregularly with poor power	Battery power too low	Have the battery inspected
	Battery clamps loose or oxidized, causing the starter to turn too slowly	Clean the terminal clamps, tighten them and cover them with acid free grease
	Especially during winter: the use of too viscous engine oil	Use engine oil suitable for the ambient temperature
	Insufficient fuel supply, clogging of the fuel system due to paraffin separation in winter	Change the fuel filter Check the line connections for leaks and tighten the fittings. Use winter fuel in the cold season.
	Incorrect valve clearance	Adjust the valve clearance
	Injection valves or injection pump defective	Have examined by a specialist
	Air filter cartridge dirty	Clean, change if necessary
	Excessive play in the throttle cable	Adjust the throttle cable, change it if necessary
Engine loses power and speed, excessive exhaust smoke	Engine oil level too high	Drain the oil to the upper dipstick mark
	Poor fuel quality	Use specified fuel
	Air filter dirty	Clean, change if necessary
	Poor compression due to burned or broken compression rings or incorrect valve clearance	Have compression rings and pistons examined by a specialist, adjust the valve clearance
	Injection valve defective	Have examined by a specialist

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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 bituminous material, e.g. road surface layers.
- light compaction work in earth construction (road sub-bases).

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:

- work with vibration on hard concrete, cured bitumen layers or extremely frozen ground
- cleaning the drums while driving or changing nozzles during travel.
- driving on unstable subbases or insufficient grip or too small contact area (danger of tipping over)
- Passing over high borders (e.g. curbstones, embankments, trenches, potholes)
- unauthorized use of public roads
- Using the machine for towing

Transporting persons, except the machine driver, is prohibited.

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 ion 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 conditiosn the machine is working under, but at least once every year.

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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!

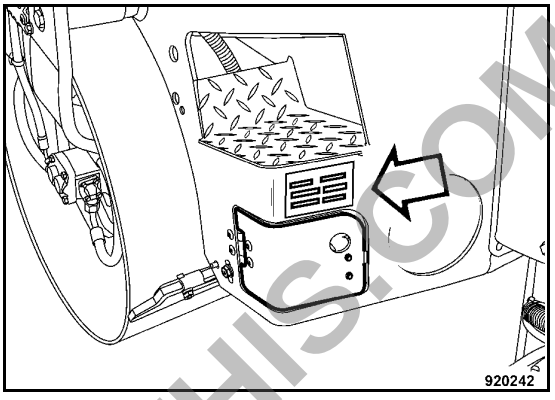


Fig. 1

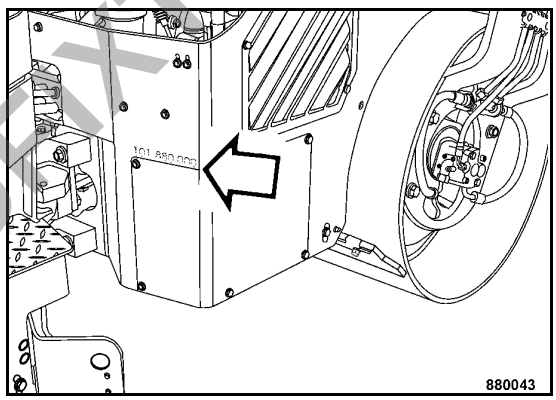


Fig. 2

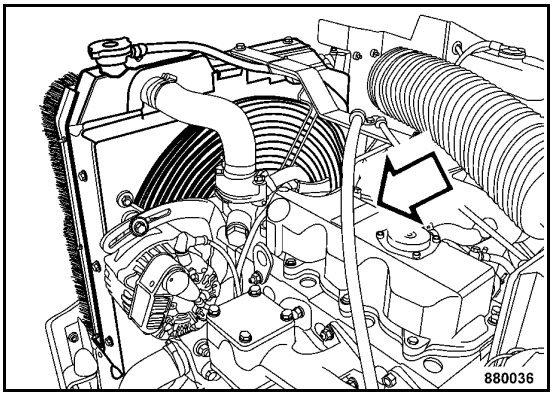


Fig. 3

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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.

Wipe off spilled fuel. 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.

Fire protection measures

Familiarise yourself with the location and the operation of fire fighting equipment. Observe all fire reporting and fire fighting possibilities.

Mounting and removing the chip spreader[1]

When mounting or removing the chip spreader do not step between the chip spreader and the machine while the engine is running.

Park the machine on a level and solid base to mount or remove the chip spreader and shut down the engine.

Mount and remove the chip spreader when it is empty.

Maintenance

Observe the maintenance tasks described in the operating and maintenance instructions, including the exchange of parts.

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

For overhead service and assembly work use the provided access installations or any other safe access ladders and work platforms. Do not use machine parts as access steps.

Keep unauthorized persons away from the machine.

Do not perform maintenance work with the machine driving or the engine running.

Park the machine on horizontal, level and stable ground.

Pull the key out of the ignition switch.

Lock the articulated joint with the articulation lock.

1 Optional equipment

Working on hydraulic lines

Always depressurize the hydraulic lines before starting to work on them. Hydraulic oil escaping under pressure can penetrate the skin and cause severe injury. If injured by hydraulic oil seek medical advice immediately as otherwise severe infections may result.

When adjusting the hydraulic system do not stand behind or in front of the drum/wheels.

Do not change the setting of high pressure relief valves.

Drain hydraulic oil at operating temperature - danger of scalding!

Catch running out hydraulic oil and dispose of environmentally.

Always catch and dispose of biological hydraulic oils separately.

Do not start the engine after draining off the hydraulic oil.

After finishing work (with the system still depressurized!) check all connections and fittings for leaks.

Changing hydraulic hoses

All hydraulic hoses must be inspected visually at regular intervals.

Hydraulic hoses must be changed immediately if:

- the outer layer is worn down to the metal lining (e.g. chafing, cuts, cracks)
- embrittlement of the outer layer (development of cracks in the hose material)
- deformation under pressurized and depressurized condition, which are not in accordance with the normal shape of the hydraulic hose
- deformation in bends, e.g., squeezes, kinks, layer separation, formation of blisters
- leakages.
- non-observance of the installation requirements.
- separation of the hydraulic hose from the fitting
- corrosion of the fitting, which impairs the function and the strength.
- Do not mix up hoses by mistake.
- damage or deformation of the fitting, which impairs the function and strength of the hose/ hose connection.

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Position "I" = Pre-selection vibration, rear drum

Position "II" = Pre-selection chip spreader

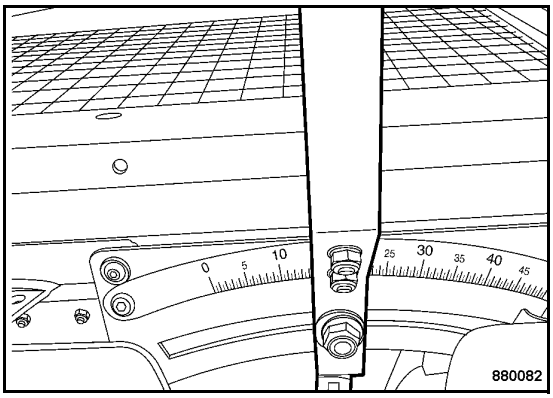


Fig. 49

No. 26 = Adjustment lever for chip quantity[1]

to the left = lower chip quantity

towards the right = higher chip quantity

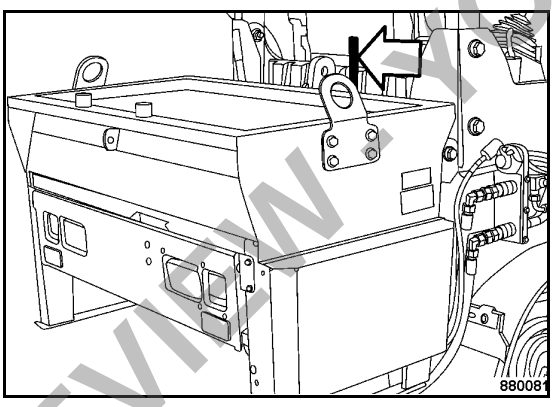


Fig. 50

No. 27 = Lever to slide the chip spreader[2]

to the left = The chip spreader slides to the left

to the right = The chip spreader slides to the right

1 Optional equipment
2 Optional equipment

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5.17 Operating the chip spreader[1]

Preparing the spreading process

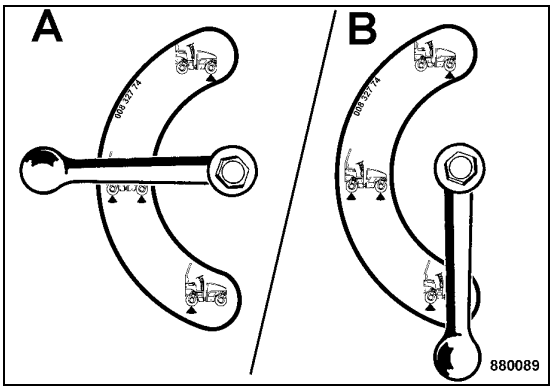


Fig. 98

- Turn the vibration ball valve down (B) (Fig. 98) for chip spreading without vibration.
- Turn the vibration ball valve to horizontal position (A) for chip spreading with vibration of front drum.

⚠ Caution

With the ball valve in horizontal position (A) (Fig. 98) follow the instructions for work with vibration, see chapter "Switching vibration on and off".

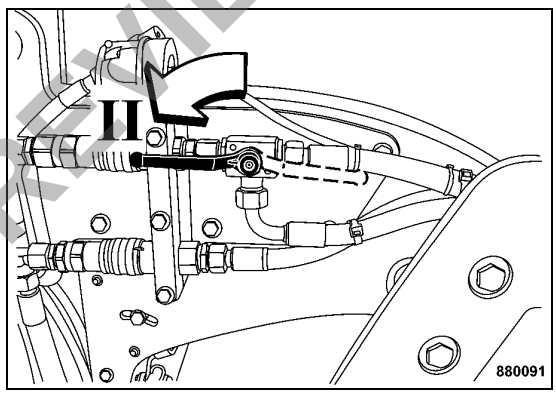


Fig. 99

- Turn the ball valve for the chip spreader to position "II" (Fig. 99).

1 Optional equipment

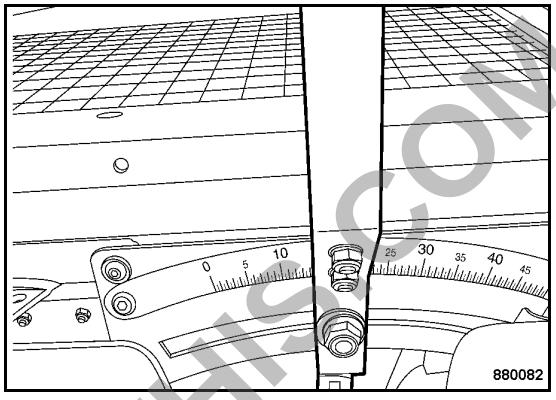


Fig. 100

- Set the required chipping quantity with the chipping quantity adjustment lever (Fig. 100).

i Note

The setting may be corrected while travelling.

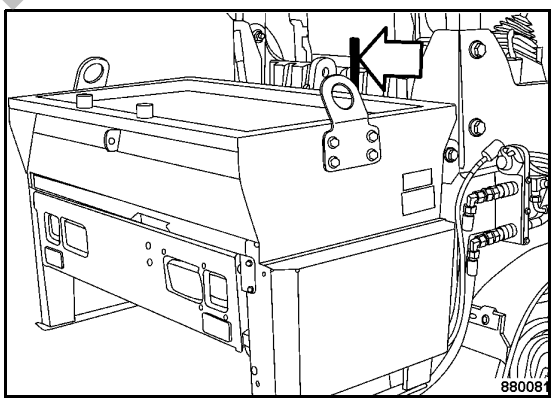


Fig. 101

- Operate the lever (Fig. 101) to slide the chip spreader to left or right to the desired speading position.

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6.9 Checking the hydraulic oil filter element

Note

If the hydraulic oil is very cold the pin may pop up, you should therefore only check the filter and press the pin in at operating temperature.

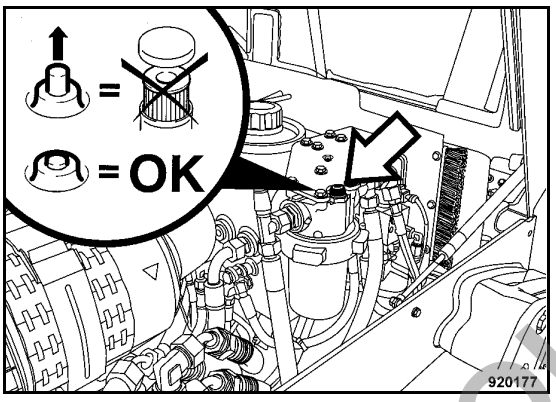


Fig. 123

- Check the service indicator 1 (Fig. 123) at operating temperature and with the engine running at maximum speed.
- If necessary press the pin in.

Pin remains pressed in = Hydraulic oil filter element o.k.

Pin pops out = Replace the hydraulic oil filter element

6.10 Check the coolant level

Danger

Danger of scalding!

Open the cap on the coolant compensation tank only when the engine is cold.

Caution

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

For quality of coolant refer to "fuels and lubricants".

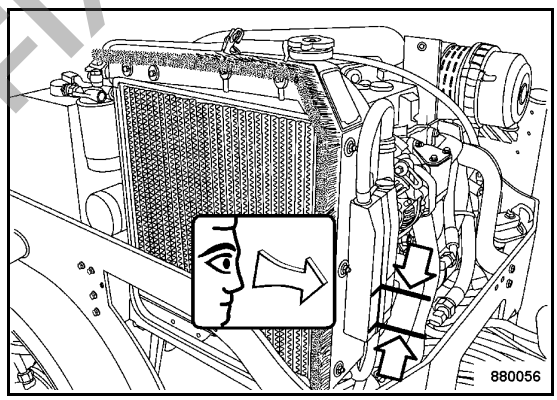


Fig. 124

- Check the coolant level in the compensation tank (Fig. 124).
- To top up unscrew the filler cap and fill in coolant up to the MAX-mark.

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6.27 Checking, adjusting the valve clearance

⚠ Caution

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.

The first cylinder is the one nearest to the cooling fan side.

Valve clearance:

Intake and exhaust valve = 0.20 mm

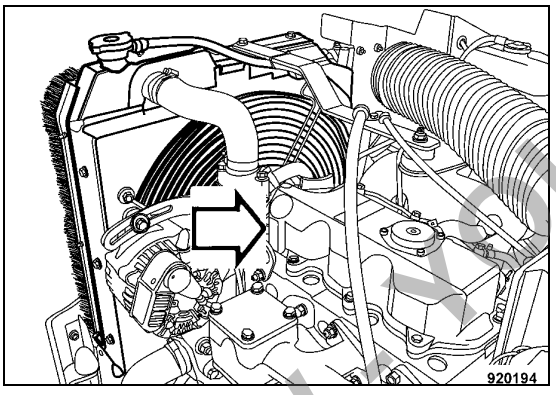


Fig. 160

- Remove the valve cover (Fig. 160).

Valve adjustment schematic

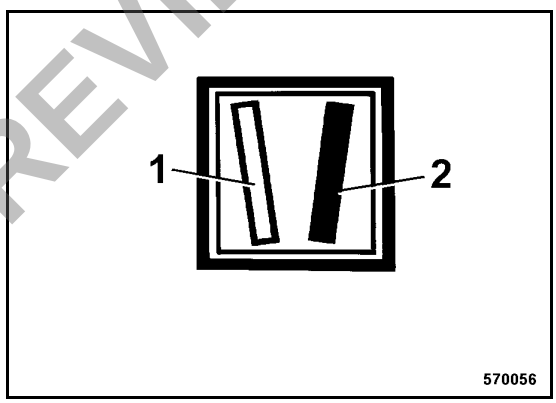


Fig. 161

Valve (1) (Fig. 161) white = not adjustable

Valve (2) black = adjustable

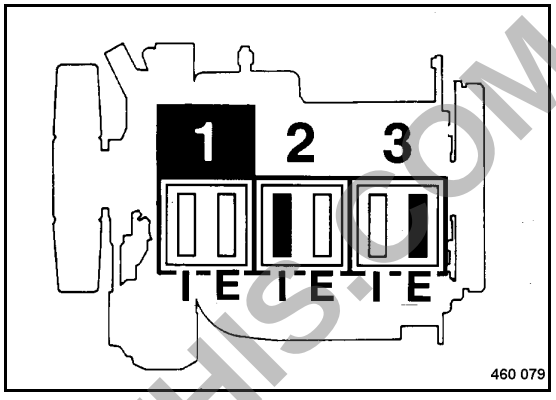


Fig. 162

Crankshaft position 1 (Fig. 162)

- Crank the engine with the starter or a spanner by the V-belt pulley until both valves on cylinder 1 are “overlapping”.

Overlapping means: Exhaust valve not yet closed, intake valve starts to open.

- Perform the adjustment of the valve by following the adjustment diagram "crankshaft position 1", black mark.
- For control purposes mark the respective rocker arm with while chalk once the corresponding valve is adjusted.

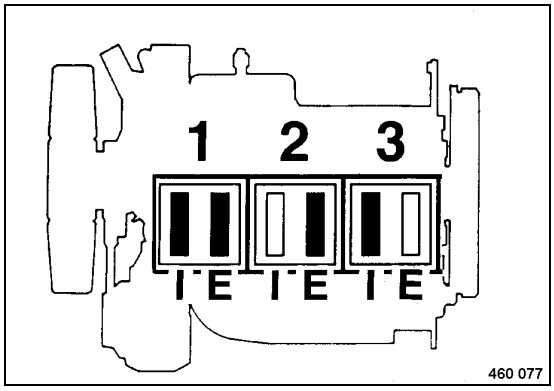


Fig. 163

Crankshaft position 2 (Fig. 163)

- Turn the crankshaft one revolution (360 °) further.
- Perform the adjustment of the valve by following the adjustment diagram "crankshaft position 2", black mark.

I = Intake valve

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