## Maintenance table

| Maintenance work | Remark | Running-in inspect. (50 op. hours) | 10 oper. hours | 50 oper. hours | 250 oper. hours | 500 oper. hours | 1000 oper. hours | 2000 oper. hours | as required |
|---|---|---|---|---|---|---|---|---|---|
| Change the engine oil filter | | X | | | | | | | |
| Change the engine oil | | X | | | | | | | |
| Check, adjust the valve clearance | | X | | | | | | | |
| Tighten all bolted connections on air intake, exhaust, oil sump and engine mounts | | X | | | | | | | |
| Tighten all bolted connections on the machine | | X | | | | | | | |
| Retighten the wheel studs | | X | | | | | | | |
| Change the oil in the axle | | X | | | | | | | |
| Change the oil in the planetary drives | | X | | | | | | | |
| Change the oil in the axle reduction gear | not BW 213 D-3 | X | | | | | | | |
| Change the oil in the drum drive reduction gear | not BW 213 D-3 | X | | | | | | | |
| Change the oil in the vibrator housings drives | see note | X | | | | X | X | | |
| Check the engine oil level | Dipstick mark | | X | X | X | X | X | X | |
| Check the water separator | | | X | X | X | X | X | X | |
| Check the fuel level | approx. 340 l | | X | X | X | X | X | X | |
| Check the hydraulic oil level | Inspection glass | | X | X | X | X | X | X | |
| Check the coolant level | | | X | X | X | X | X | X | |
| Check the tire pressure | 1.1 bar | | | X | X | X | X | X | |
| Adjust the scrapers | | | | X | X | X | X | X | |

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2. Remove the engine solenoid

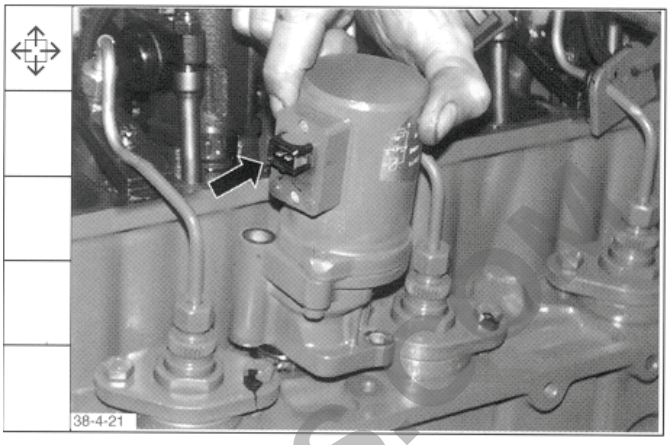



*Fig. 11:*

3. Insert the pressing device WILBÄR No. 100 830 carefully into the groove of the governor rod and fasten it.

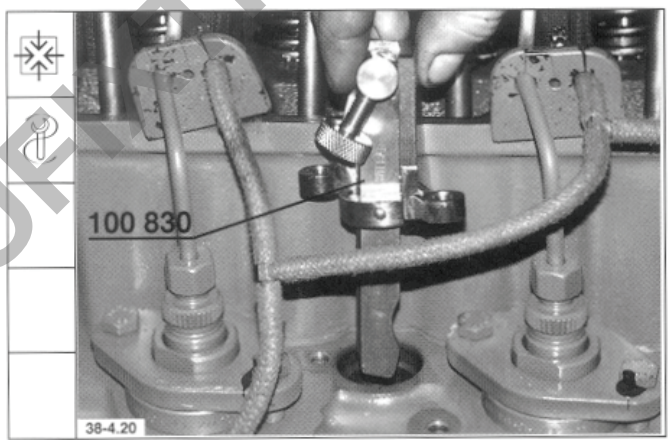



*Fig. 12:*

4. Turn the knurled fastening screw to press the governor rod to stop position.

*Note:*

*Tighten the knurled fastening screw by hand.*

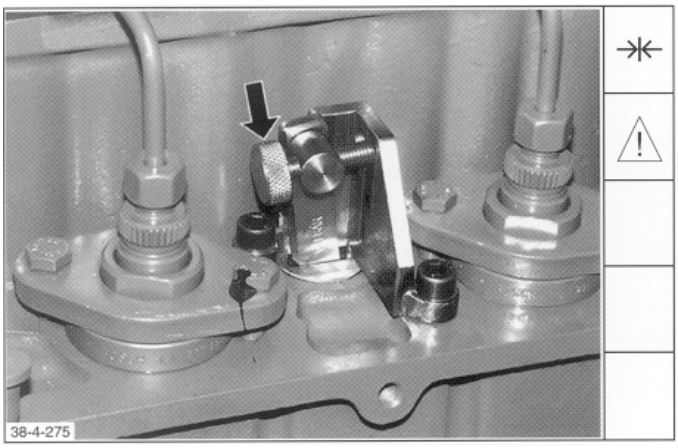


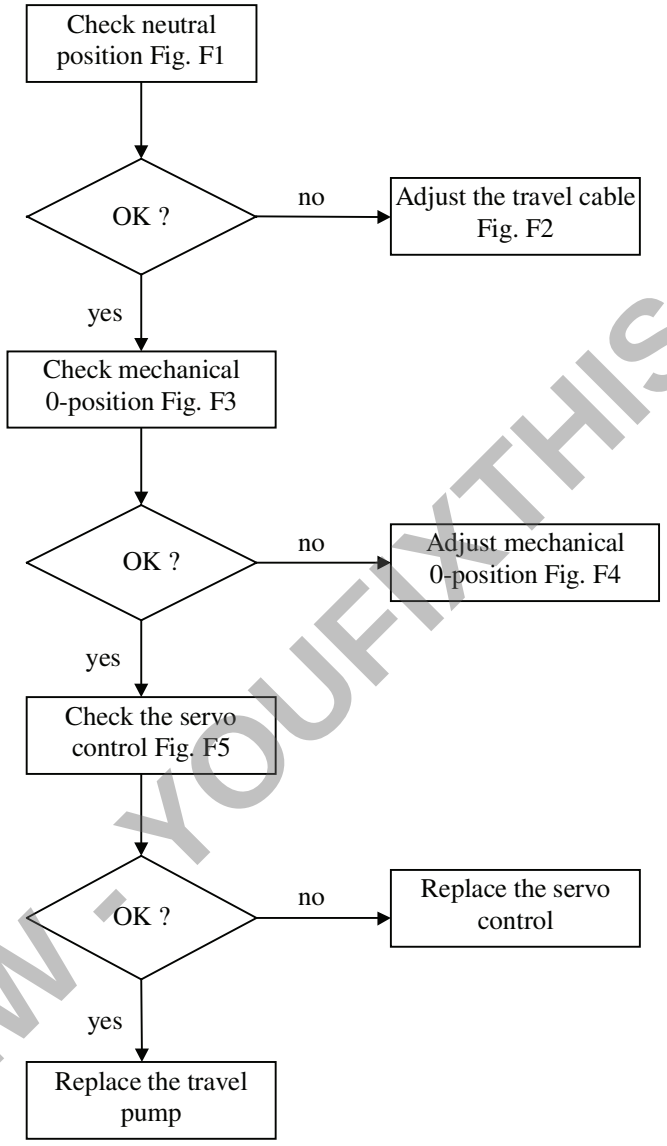

*Fig. 13:*

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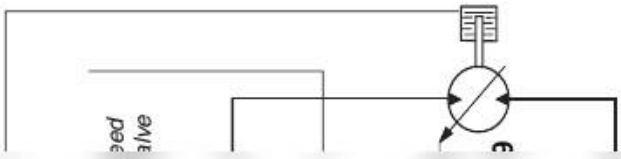
**The machine moves with the travel lever in “NEUTRAL”**




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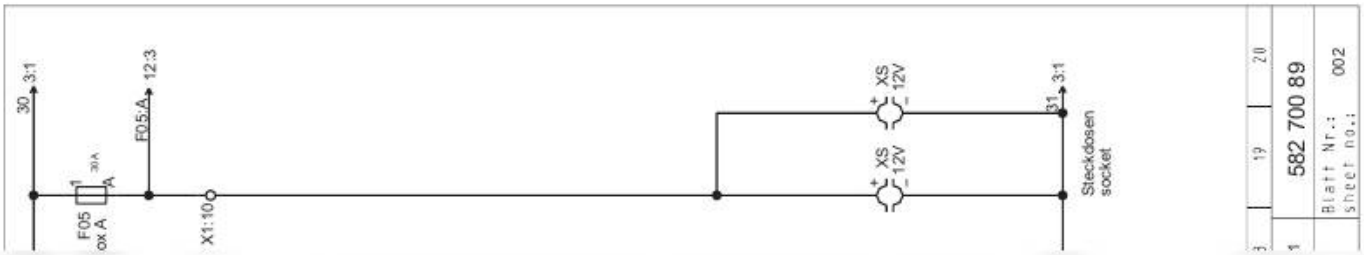
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**BOMAG Central Service** - Technical data and adjustment values

**Status: 2003-03-10**

| **Product type:** | **BW 213 D-3** |
|---|---|
| Type No.: | 581 42 |

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# General

Single drum rollers of generation 3 are self-propelled soil compaction machines, which are particularly suitable for heavy-duty compaction applications in earth construction.

The product range of single drum rollers includes also the machines:

- BW 213 (available in different versions)
- BW 214

The machines are available with two different types of drums, whereby the correct selection of the drum depends on the type of material to be compacted.

The smooth drum is particularly suitable for the compaction of mixed soils, sand, gravel and rock, whereas the padfoot drum shows its advantages on cohesive soils. The use of a machine with padfoot drum on sand and gravel is not recommended.

The BW 213 D-3 model 2003 is powered by a water cooled 4-cylinder Deutz engine of series BF4M 2012C.

All other models of the product range BW 213 DH/PDH-3 and BW 214DH/PDH-3 are powered by a water cooled 4-cylinder Deutz engine of series BF4M 1013EC.

Engine driven pumps transfer the output power of the engine via hydrostatic circuits to the drum, the rear wheels and the steering cylinder. These hydrostatic drives guarantee lowest possible power losses and high efficiency.

Front and rear frames are connected by an oscillating articulated joint. The amply dimensioned oscillation angle makes sure that drum and wheels are always in ground contact.

The rear axle is fitted with multi-disc brakes in the planetary drives. These brakes have the function of parking brakes. When starting the diesel engine the brakes are released by the increasing charge pressure. When shutting the engine down they are closed again by spring pressure. The brakes can also be applied while the engine is running. This requires only the actuation of the respective brake control valve. However, this feature should only be used if the machine is to be parked for a short while with the engine running. This parking brake must never be used as a service brake, because the deceleration effect is very high and the brake discs would be damaged.

All machines of this family work with hydraulic travel systems for rear wheels and drum.

The actual compaction tool, the drum, is fitted with a vibrator shaft. This shaft runs in cylinder roller bearings. The vibrator shaft is driven by a hydraulic motor via a Bowex coupling.

Vibration of the drum is generated by the centrifugal forces caused by the revolving eccentric weights on the vibrator shaft.

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***Function:***

The fuel is drawn by the fuel lift pump into the filter through inlet port B *(Fig.8)*. Inlet A is closed

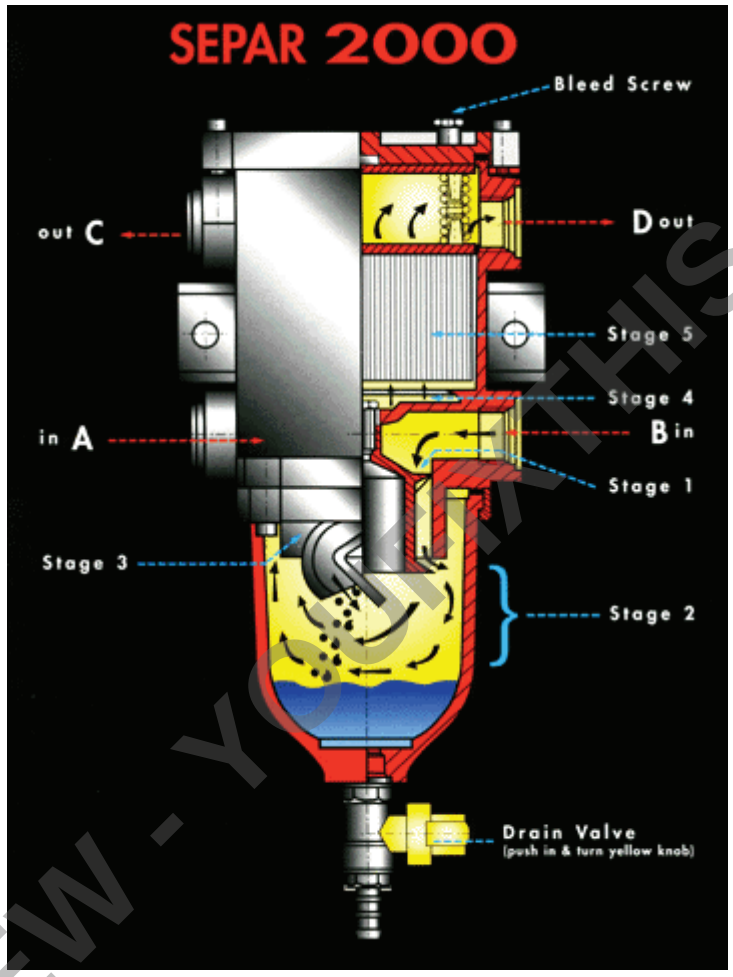



*Fig. 7: SEPAR-Filter*

**Phase1:**
The fuel flows from the inlet to the centrifuge. The centrifuge itself does not rotate. Rotation of the fuel is caused by the geometry of the centrifuge.

**Phase 2:**
The fuel coming out of the centrifuge flows against the outside wall of the collecting vessel. Here the velocity of the fuel is braked. Due to the inertia of the heavier dirt and water particles these are pressed to the outside so that they drop down into the collecting bowl by their gravity.

**Phase 3:**
Fuel now flow up along the outside of the centrifuge while it is still rotating inside the vessel. In this phase smaller dirt and water particles move to the middle of the vessel, where the water particles accumulate to larger drops. There they are picked up by the middle bigger wing of the centrifuge,

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## Description of function

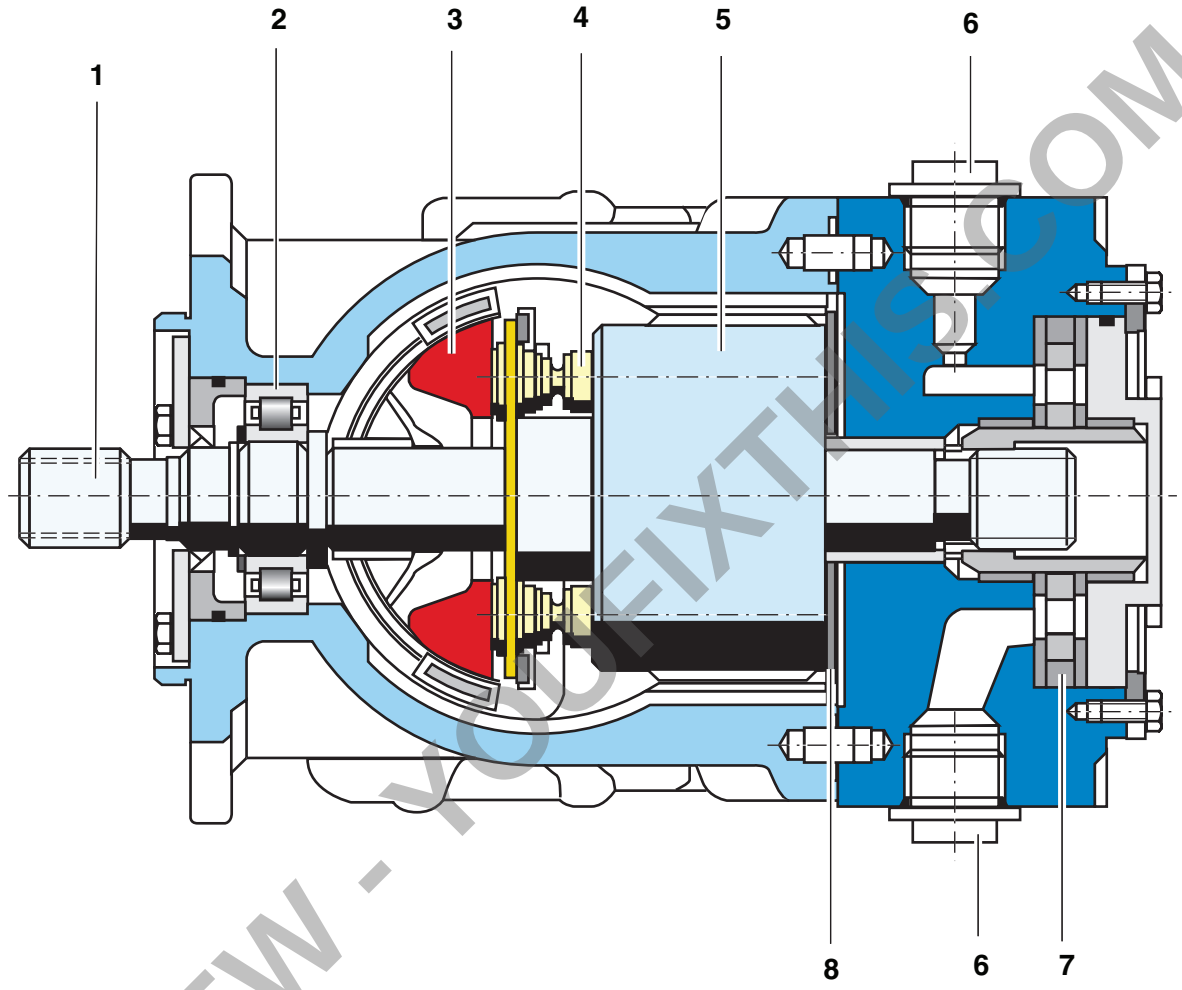



*Fig. 7: Function of travel pump*

| | | | |
|---|---|---|---|
| *1* | *Drive shaft* | *5* | *Cylinder block* |
| *2* | *Drive shaft bearing* | *6* | *Multi-function valves* |
| *3* | *Swash plate* | *7* | *Charge pump (only in vibration pump)* |
| *4* | *Pistons with slipper pads* | *8* | *Valve plate* |

The drive shaft (1) is directly driven by the diesel engine via an elastic coupling. the shaft turns the tightly connected cylinder block (5).

With the roation of the drive shaft (1) the cylinder block (5) moves the working pistons (4). The slipper pads of the working pistons abut against the swash plate (3).



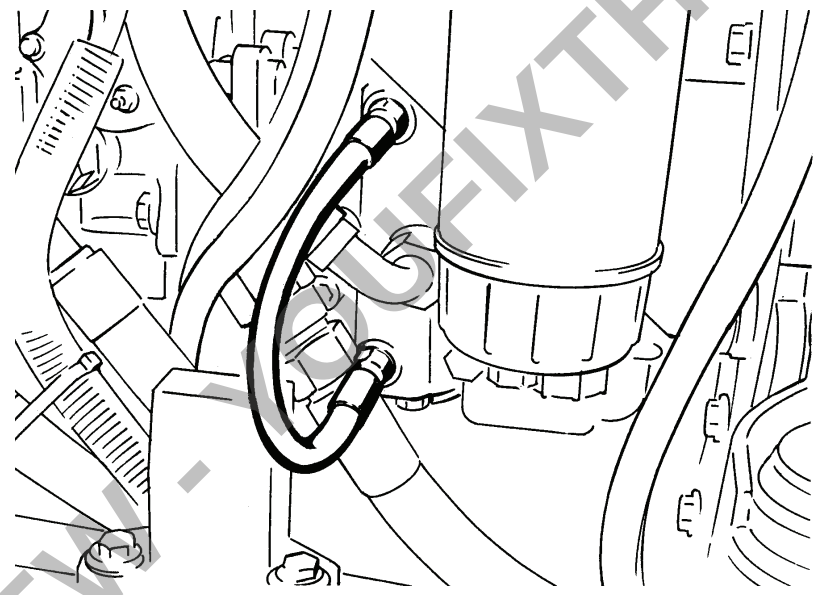
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**Fig. F3:**

**Checking the mechanical neutral position**

The mechanical neutral position determines the mechanical position of the pump control piston. This piston is connected with the swash plate and its position determines the position of the swash plate. If the piston is out of neutral position the swash plate actuates the working pistons, whereby oil is being pumped to the travel motors.

- Connect both control chambers on the pump control with a suitable hose
- Start the engine
- If the mechanical neutral position is correctly adjusted the machine will not move.



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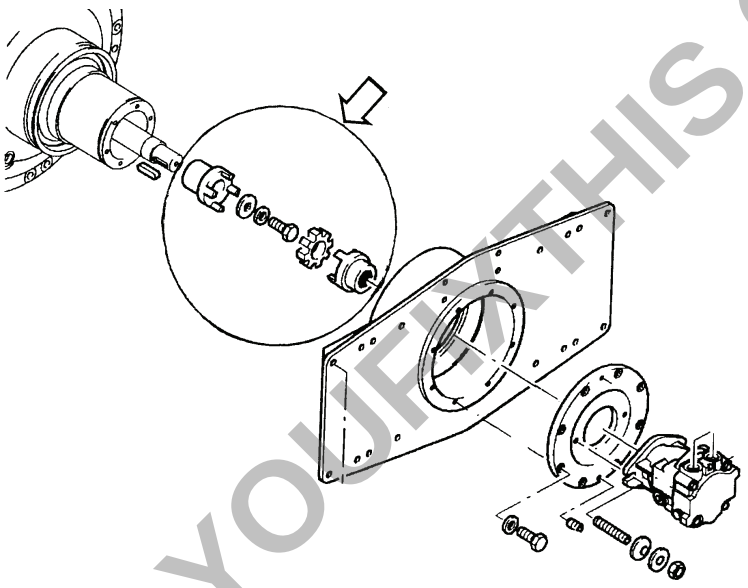


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**Fig. V2:**

**Checking the coupling on the vibration motor**

- Disassemble the vibration motor
- Check the coupling parts between motor and shaft
- Replace defective parts



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## Vibration (Fig. 11)

**Switching the vibration on**

Current flows:

- from potential K11,
- via fuse (F03:05)
- to toggle relay (K04:05).

When pressing the push button (S13:05) the toggle relay switches and the contact of toggle relay (K04:05) closes.

Current flows to the selector switch for high / low amplitude (S35:29).

Depending on the switch position current flows to the solenoid valve (Y07:29) for high amplitude or (Y08:34) for low amplitude. The selected vibration starts.

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