



**HD 1050 B Cage**

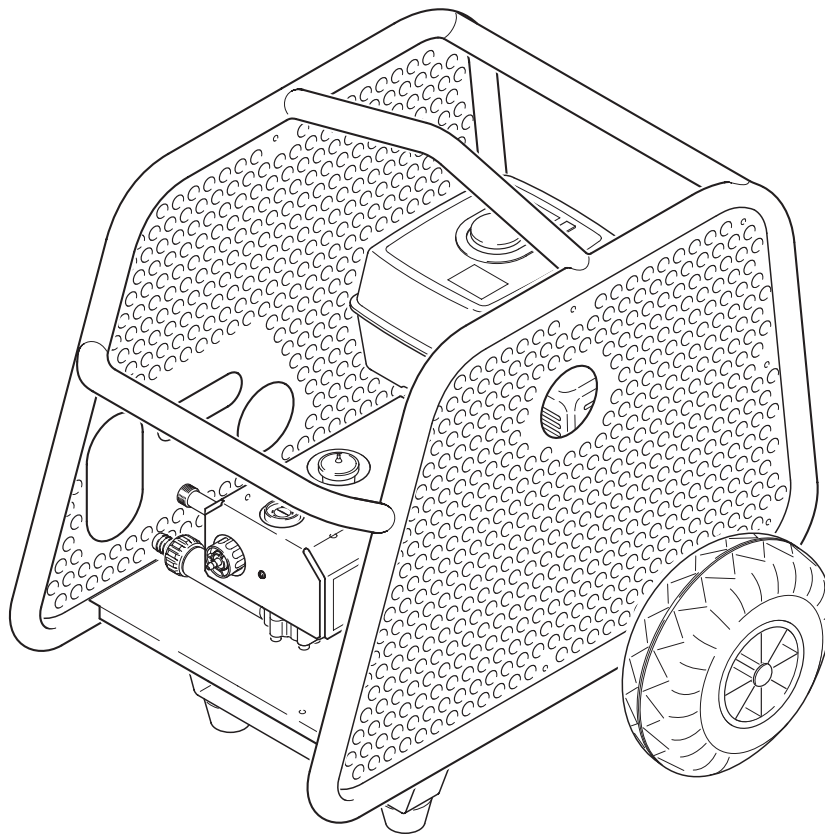
New Unit Information

**International Service Information**

**Dec. 22nd, 1999**

# HD 1050 B Cage

1.810-992

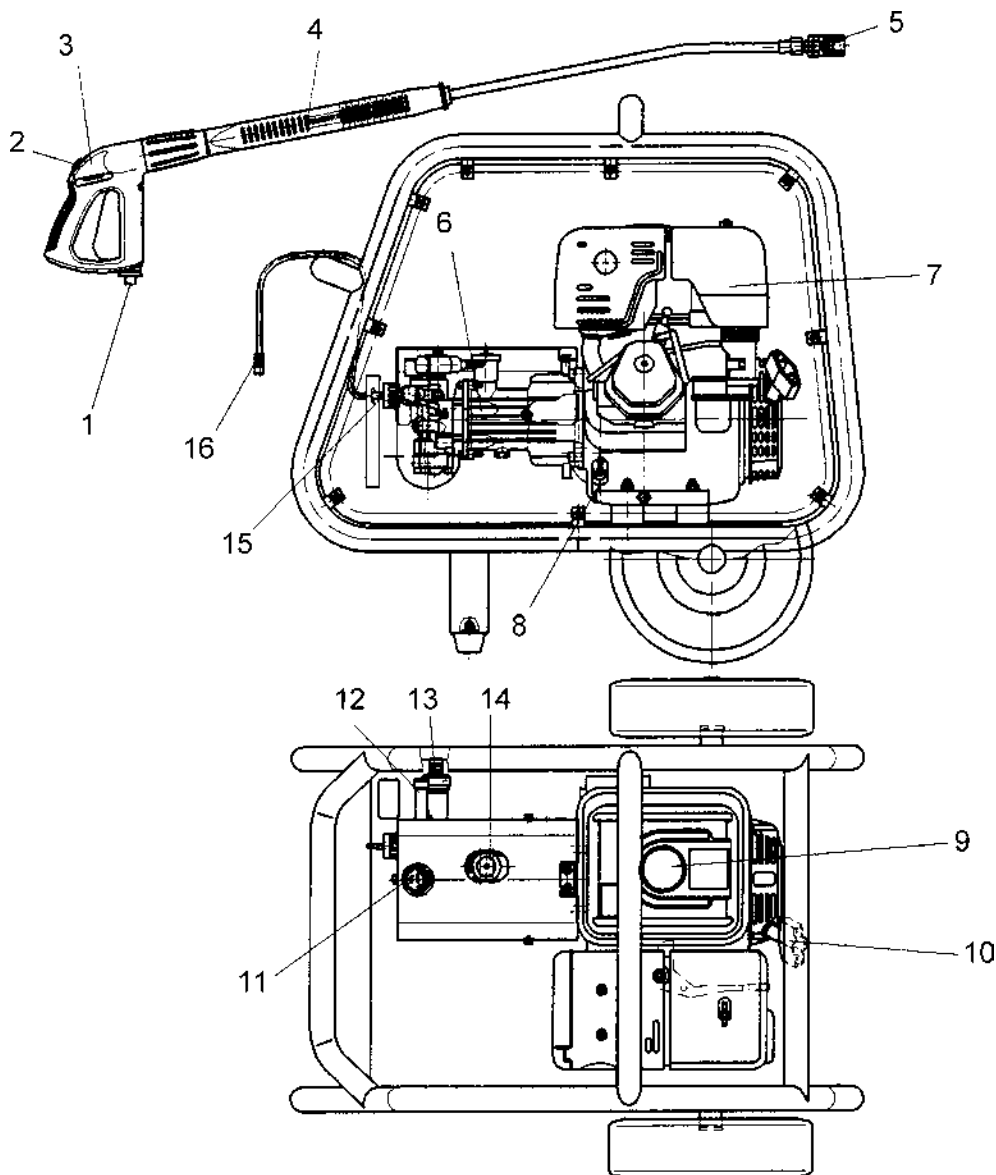


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**Equipment**

- |   |                           |    |   |
|---|---------------------------|----|---|
| 1 | High-pressure hose        | 9  | Fuel tank                               |
| 2 | Pressure and flow control | 10 | Recoil hand starter                     |
| 3 | Servopress handgun        | 11 | Pressure gauge                          |
| 4 | Spray lance               | 12 | High-pressure connection                |
| 5 | Three-way nozzle          | 13 | Water inlet                             |
| 6 | High-pressure pump        | 14 | Oil reservoir (high-pressure pump)      |
| 7 | Honda engine              | 15 | Cleaning agent metering valve           |
| 8 | Oil dipstick              | 16 | Cleaning agent suction hose with filter |



## HD 1050 B Cage

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### Technical features

#### General

HD 1050 B Cage is the same as HD 1050 B 1.810-987 (Service Information HD 1050 B dated Jun. 24th, 1999), but has an additional frame with side protection screen.

#### Drive

- Honda GX 390 K1, 1-cylinder, 4-phase
- Oil level sensor (float switch)
- Spark arrester (mounted in the exhaust)
- Aircooled
- Recoil hand starter
- Automatic r.p.m. control: engine r.p.m. decreases during circulation mode.

#### High-pressure pump

- Similar to HD 895 S
- 3-piston axial pump
- Piston made of stainless steel (diameter: 16 mm)
- High-pressure seals, low-pressure seals, oil seals
- Cylinder head made of brass
- Suction and pressure valves made of stainless steel
- Swash plate with axial ball bearing
- Pressure and flow control
- Injector to cleaning agent supply
- Pressure gauge at cylinder head
- Safety valve at cylinder head

#### Cleaning agent system

- Cleaning agent supply in low-pressure mode (injector)
- Non-return valve at cylinder head
- Metering valve at cylinder head

#### Standard accessory

- Servopress handgun
- Spray lance with three-way nozzle (0°, 25°, 40°)
- Connecting system 2000



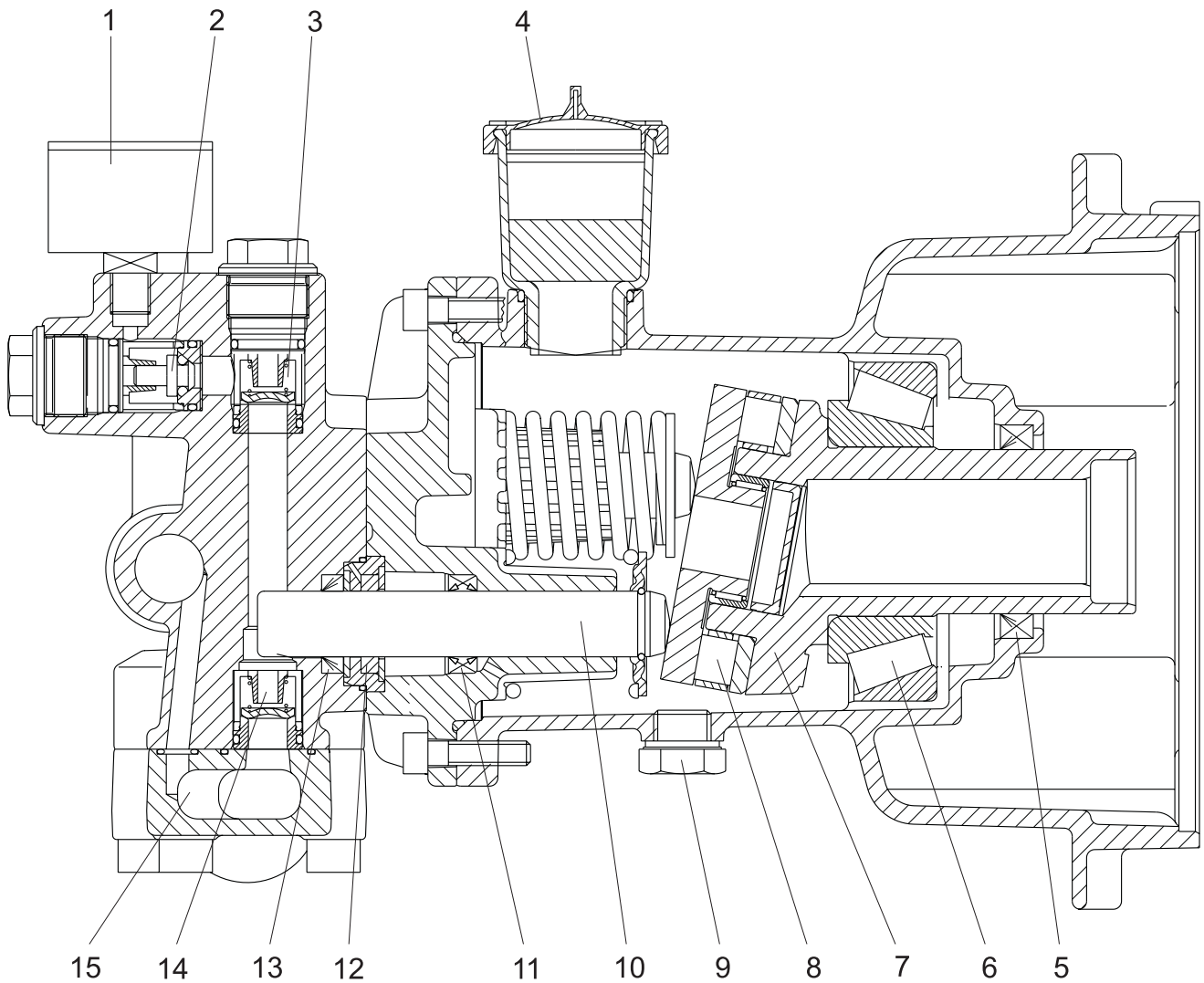
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Technical features: high-pressure pump



- |   |                      |    |                    |
|---|----------------------|----|--------------------|
| 1 | Pressure gauge       | 9  | Oil drain plug     |
| 2 | Non-return valve     | 10 | Piston             |
| 3 | Pressure valve       | 11 | Oil seal           |
| 4 | Oil reservoir        | 12 | Low-pressure seal  |
| 5 | Shaft seal           | 13 | High-pressure seal |
| 6 | Swash plate bearing  | 14 | Suction valve      |
| 7 | Swash plate          | 15 | Suction chamber    |
| 8 | Axial roller bearing |    |                    |



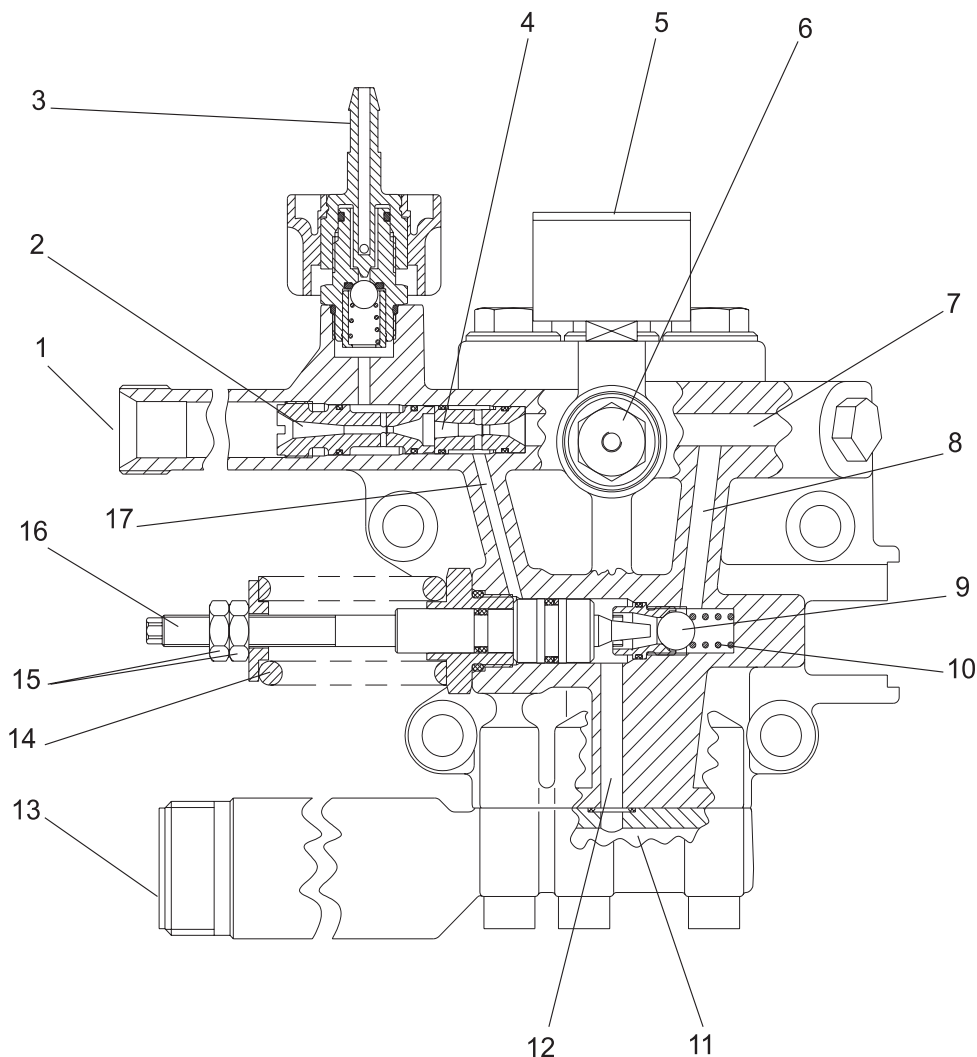
## HD 1050 B Cage

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Unit function: overflow valve



- |   |   |    |  |
|---|---|----|--|
| 1 | High-pressure outlet                              | 10 | Spring   |
| 2 | Cleaning agent injector                           | 11 | Suction chamber  |
| 3 | Cleaning agent connection                         | 12 | Connection bore from overflow valve to suction chamber             |
| 4 | Control pressure injector                         | 13 | Water inlet  |
| 5 | Pressure gauge                                    | 14 | Spring   |
| 6 | Non-return valve screw plug                       | 15 | Adjusting nut with locking nut                                     |
| 7 | Pressure chamber                                  | 16 | Overflow valve spindle   |
| 8 | Connection bore from pressure chamber to ball (9) | 17 | Connection bore from injector to overflow valve (control pressure) |
| 9 | Ball  |    |  |



## HD 1050 B Cage

### New Unit Information

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### Unit function: overflow valve

#### 1. Servopress handgun is open.

When the servopress handgun is completely open, water flows from the pressure chamber (7) through the non-return valve (6) and through both injectors (2+4) to the high-pressure outlet (1).

The ball (9) is pressed against the valve seat by the pump pressure, thus sealing the connection bore (12) to the suction chamber (11).

The pressure gauge (5) indicates the operating pressure.

The pressure in the connection bore (17) is approx. 30 bar less due to the injector influence (4) (control pressure).

The motor runs with operating speed when the handgun is open.

#### 2. Servopress handgun is partly closed.

When the handgun is partly closed, the pressure in the pressure chamber (7) does not increase. Due to the decreased water flow rate, the influence of the injector (4) is reduced so that the control pressure in the connection bore (17) increases. The increasing control pressure pushes the overflow valve spindle (16) against the spring (14) and slightly to the right. The tip of the spindle pushes the ball (9) off its seat so that part of the water can flow through the connection bores (8) and (12) to the suction chamber (11).

#### 3. Servopress handgun is completely closed.

When the handgun is completely closed, the pressure in the pressure chamber (7) increases. The increased control pressure pushes the overflow valve spindle (16) via connection bore (17) completely to the right. The tip of the spindle pushes the ball (9) off its seat, so that the entire water volume can flow through the connection bores (8) and (12) to the suction chamber.

As soon as the handgun is closed, the non-return valve closes (6). Therefore the entire pressure in the system between handgun and non-return valve (6) is trapped.

The pump continues running with decreased pressure in circulation operation.

The motor continues running via automatic r.p.m. control with decreased circulation r.p.m.

#### 4. Servopress handgun is opened.

When the handgun is opened, the pressure in the system decreases.

The overflow valve spindle (16) is pushed back by the spring (14) to its original position to the left. The spring (10) and the pump pressure of the connection bore (8) push the ball (9) back onto the valve seat.

The connection bore (8) is thereby closed and the operating pressure can be built up again.

The engine r.p.m. increases to the operating speed.



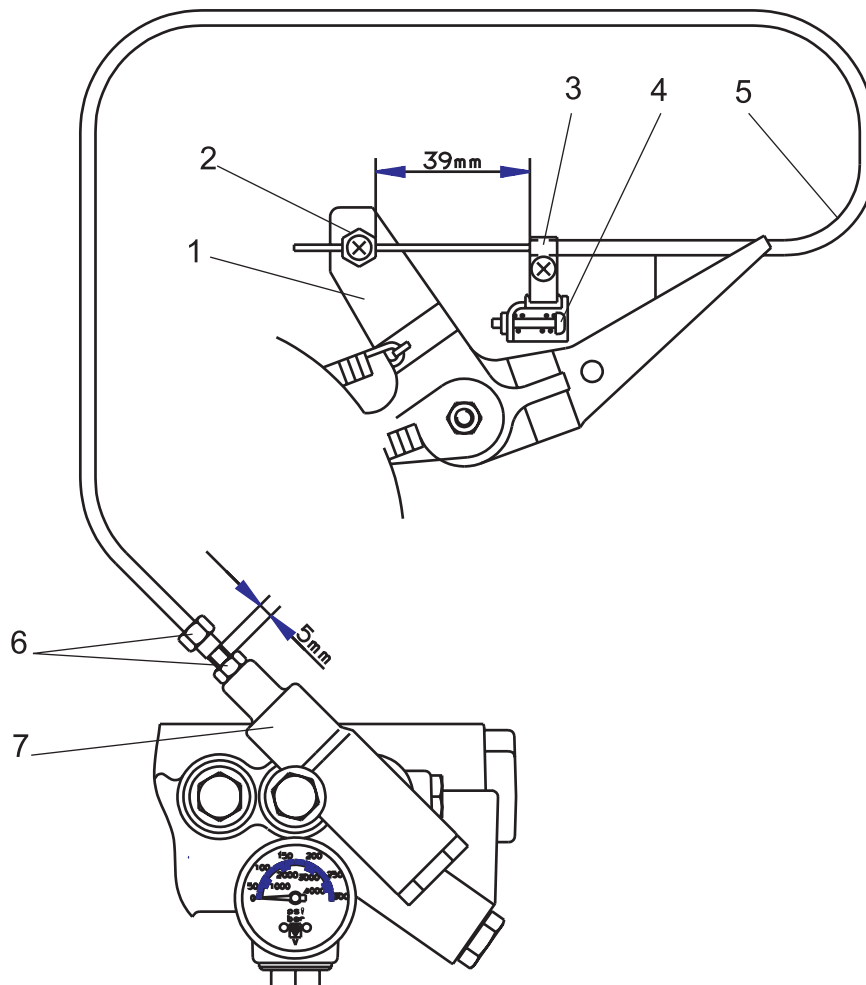
## HD 1050 B Cage

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### Basic setting: bowden cable



- 1 Throttle lever
- 2 Inner bowden cable clamping screw
- 3 Outer bowden cable clamp
- 4 Throttle lever stop screw
- 5 Bowden cable
- 6 Adjusting screw with locking nut
- 7 R.p.m. regulator

- Switch off engine and release pressure.
- Back off stop screw (4) as much as possible.
- Fasten bowden cable (5) as indicated. The front end of the outer bowden cable must be flushly mounted with the clamp (3).



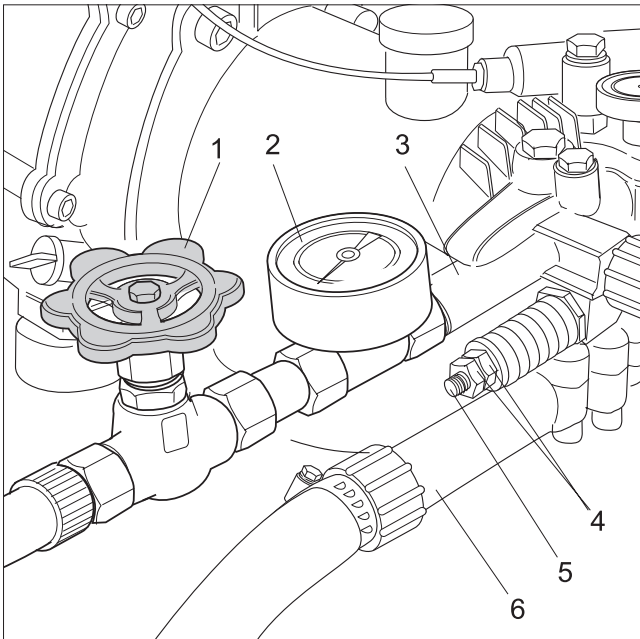
## HD 1050 B Cage

### New Unit Information

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### Basic setting: overflow valve



- 1 Shut-off valve
- 2 Testing pressure gauge
- 3 High-pressure outlet
- 4 Adjusting nut with locking nut
- 5 Overflow valve spindle
- 6 Water inlet

#### Note:

**Before any adjustments check the high-pressure nozzle and the air filter for damage or wear. All defective parts must be replaced.**

- Mount testing pressure gauge (2), shut-off valve (1), high-pressure hose and servopress handgun without high-pressure nozzle on high-pressure outlet (3). The unit pressure gauge is not to be used to check the operating pressure because it measures too inaccurate !
- Set servopress handgun to max. water volume, open it and operate the unit.
- Close shut-off valve (1) slowly until low pressure flow rate has been achieved (see technical data). This corresponds to the smallest servopress setting. Measure flow rate and compare it with technical data.
- Adjust max. operating pressure with adjusting nut (4) (see technical data) and check with testing pressure gauge (2):  
Increase spring tension: operating pressure increases.  
Decrease spring tension: operating pressure decreases.
- Mount servopress handgun with new high-pressure nozzle (see technical data) and open again shut-off valve (1) completely. Close and open servopress handgun several times. Check max. flow rate and max. operating pressure during high pressure.
- Set servopress handgun to min. water volume (low pressure operation) to check and check low pressure flow rate. If required repeat the above mentioned steps.
- Finally secure the adjusting nut (4) with locking nut and seal with safety paint.





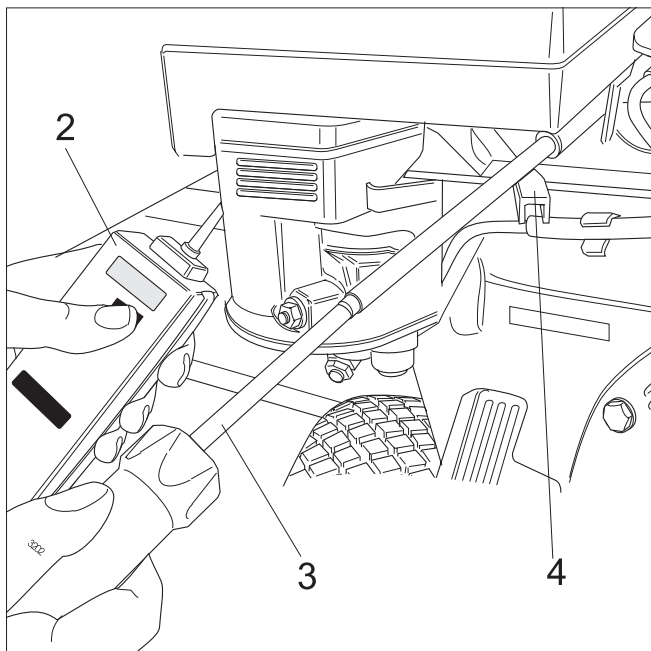
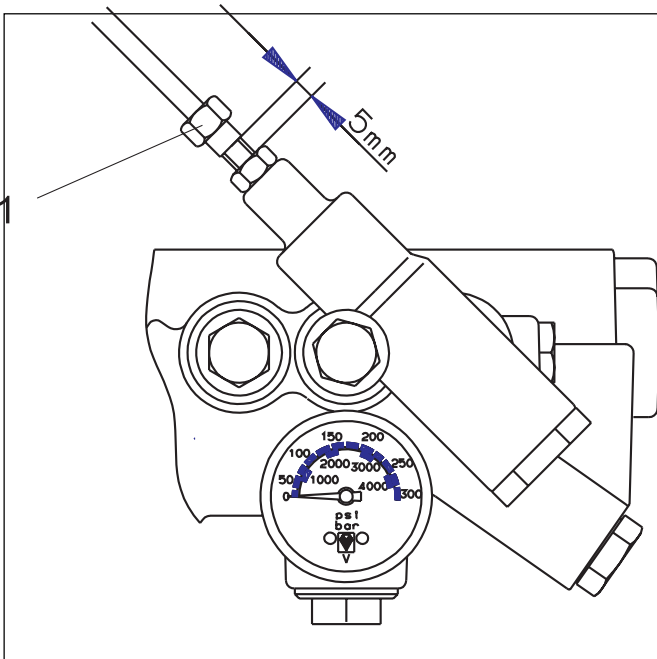
## HD 1050 B Cage

### New Unit Information

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### Basic setting: operating speed



- 1 Adjusting screw
- 2 R.p.m. tester
- 3 Long screwdriver
- 4 Throttle lever

**Note:**

Before adjusting the operating speed, the overflow valve must be adjusted correctly. The operating speed can only be adjusted during high pressure (max. operating pressure / flow rate).

- Mount shut-off valve with testing pressure gauge on high-pressure outlet (see page 8 step 1, 2), set servopress handgun to max. watervolume, set three-way nozzle to 0° pencil jet and operate the unit.
- Measure operating pressure and flow rate (see technical data).
- Adjust engine r.p.m. with adjusting screw (1) so that max. operating pressure (see technical data) at testing pressure gauge is achieved (see page 8 step 2). With this operating pressure the corresponding operating speed must also be achieved (see technical data).
- Open servopress handgun completely (high pressure). In this position screw in the stop screw (4) of the throttle lever with a long screwdriver (3) so that the distance between throttle lever and stop screw is approx. 1 mm. The throttle lever must move freely.
- Close and open servopress handgun several times and check the adjustment. When the handgun is closed, the pump pressure decreases (circulation operation) and the engine r.p.m. reduces.
- Finally seal stop screw of the throttle lever with safety paint.



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### Troubleshooting

Problem	Remedy
Engine does not start.	Check / clean fuel system. Check / replace spark plug. Check oil level. Check / adjust ignition system.
Engine r.p.m. fluctuates.	Check / clean / replace air filter. Eliminate leakages in high-pressure system: handgun, high-pressure hose, cleaning agent system, non-return valve, overflow valve, valve seat of the ball. Check / clean fuel quality and fuel filter.
Low operating pressure and flow rate	Check / replace high-pressure nozzle. Check / clean water inlet filter. Check / adjust engine r.p.m. Eliminate leakages in high-pressure system (as mentioned above). Check / adjust spring at overflow valve. Replace suction and pressure valves. Replace high-pressure and low-pressure seals.
Pump does not draw in any cleaning agent.	Clean cleaning agent system and eliminate leakages. High-pressure hose is too long or its inner diameter too small.  <b>Note:</b> <b>Cleaning agent is only drawn in during low-pressure operation when the servopress handgun is completely opened.</b>  <b>Replace injector:</b> - <b>Unscrew front injector as much as possible.</b> - <b>Then slowly pull through hand start rope.</b> <b>While doing so, the engine must not start.</b> - <b>The resulting pump pressure pushes both injectors out of the high-pressure outlet.</b>



## HD 1050 B Cage

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### Technical data

unit	technical data	circuit diagram	operating instructions	maintenance booklet	spare parts list
HD 1050 B Cage Engine: Honda GX 390	1.810-992	-	5.959-274	-	5.958-482

The technical data sheet is on the next edition of the Spare Parts CD-ROM (DISIS) and in the Intranet (KMN), folder: "Central / Service Info Int'l / Technical Data".

Further operating instructions and spare parts lists can be ordered with the corresponding part number from our Spare Parts Dept.

### Special tools

Shut-off valve	4.580-034
Adapter for system 2000	4.401-072
Testing pressure gauge	4.742-025
R.p.m. tester (mechanical)	6.491-361
R.p.m. tester (digital)	6.803-012
Valve pliers	4.901-012

### Torques

Cylinder head screws	40 - 45 Nm
Screws for piston housing	5- 7 Nm
Oil drain plug	25 - 30 Nm
Fastening screw for pressure valve	40 - 45 Nm
Injector	1,5 - 2,5 Nm
Valve seat for safety valve	8 - 10 Nm