

QUICK GUIDE

COBOD Piston Pump - Piston replacement



GUIDE OBJECTIVE

This guide was developed to assist users throughout the piston replacement procedure. It outlines the required tools and components, key safety considerations, detailed step-by-step instructions, and practical recommendations to ensure the task is completed efficiently and safely.

SAFETY DISCLAIMER

This procedure must be performed with extreme caution. The pump contains moving components capable of causing serious injury if proper instructions are not followed. In particular, the motion of the pistons and S-valve presents a significant risk of pinching, crushing, or even severe injury to hands or fingers.

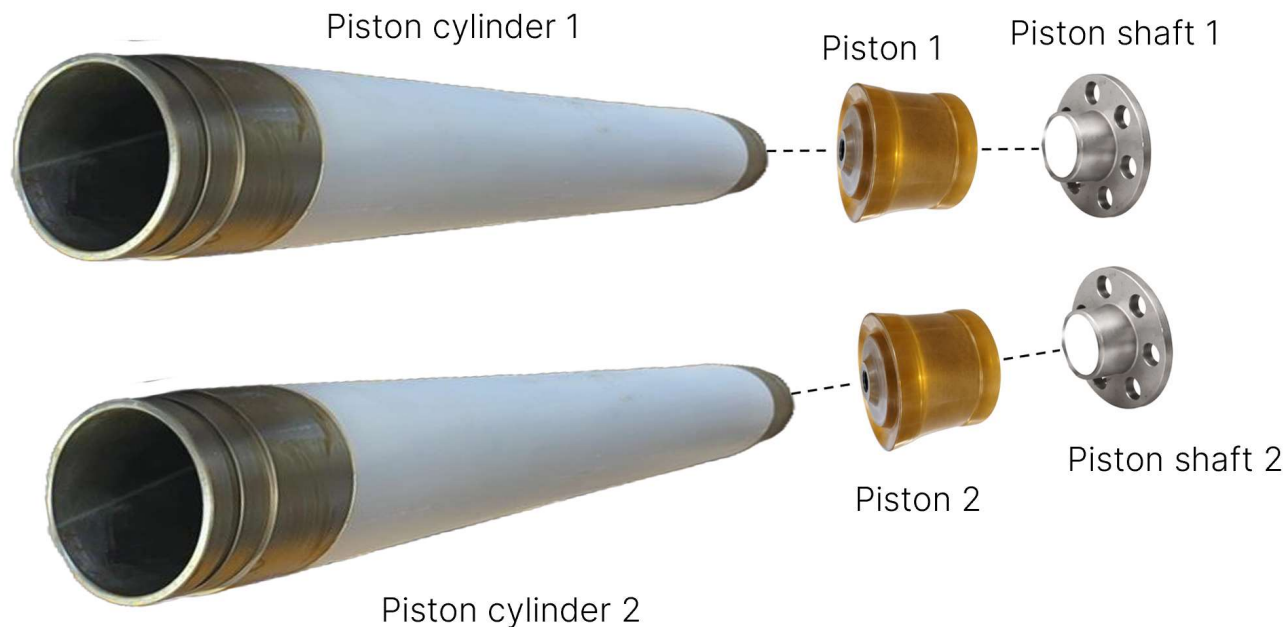


For your safety, this guide includes a dedicated warning at every step in which the user's hands may come into proximity with moving parts. **At all such steps, the machine must be completely powered off, and the main power cable must be fully disconnected** to ensure that no component can be activated—intentionally or accidentally—while maintenance is being performed.

Failure to follow these safety requirements may result in serious personal injury and equipment damage. Always proceed with awareness and adhere strictly to the outlined precautions.

DEFINITION

A piston is a polyurethane sealing element mounted on a steel core that travels back and forth inside a hardened metal cylinder. Its primary function is to create a tight seal against the inner wall of the cylinder, allowing it to generate the pressure needed to move concrete. As the piston retracts, it creates suction that draws concrete into the cylinder; as it advances, the polyurethane seal expands against the cylinder wall, preventing backflow and pushing the material forward into the delivery line. In a dual-piston system, two of these piston-cylinder assemblies operate alternately—one filling while the other discharges—ensuring a continuous and efficient flow of concrete.



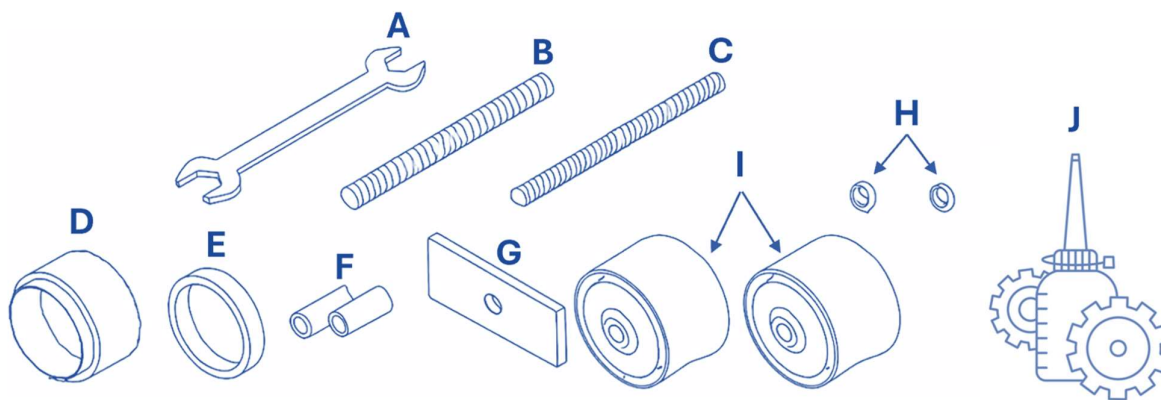
TOOLS NEEDED

Tools that come with the pump toolkit

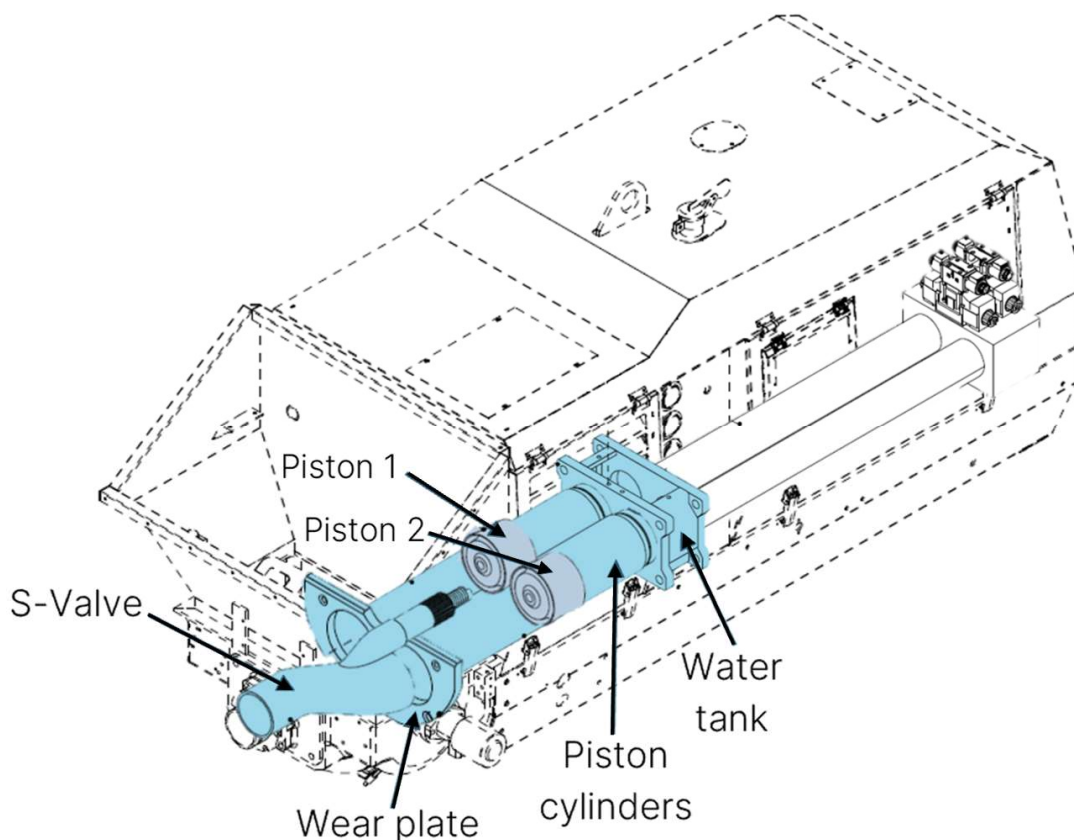
- A) 32 wrench (An extension socket is preferred for easier access)
- B) M20 threaded rod
- C) M16 threaded rod
- D) Guide ring for piston
- E) Spacer for guide
- F) Rod spacers
- G) Rectangular flange
- H) M20 & M30 nuts

Tools to be purchased separately

- I) Piston replacements
- J) Petroleum jelly or Vaseline



SYSTEM OVERVIEW



HOW TO DETERMINE THAT THE PISTON NEEDS REPLACEMENT

A piston should be replaced when it shows visible signs of wear such as cracks, hardening, loss of elasticity, or deformation that prevents proper sealing. Some signs of piston wear are:

- Leakage of slurry towards the water tank.
- Cooling water passing towards the front of the piston.
- A noticeable drop in pumping efficiency.

Emptying the water tank at the end of each shift and then filling it up the next day, as well as regular inspections based on operational hours and material pumped help identify these issues early, ensuring consistent performance and preventing costly damage to the pump.

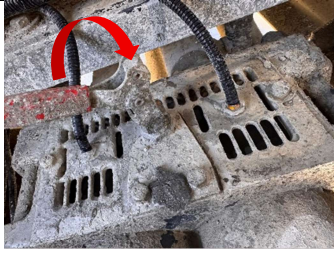
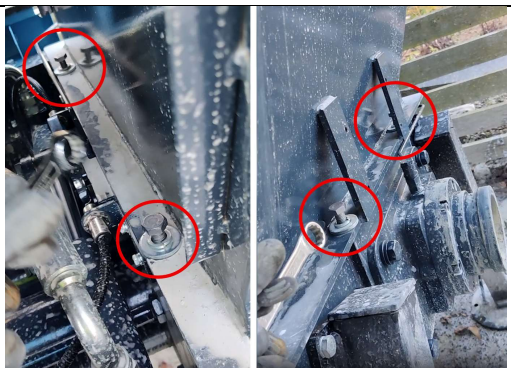


PISTON REMOVAL STEP-BY-STEP

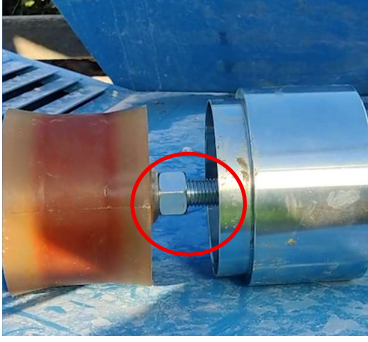
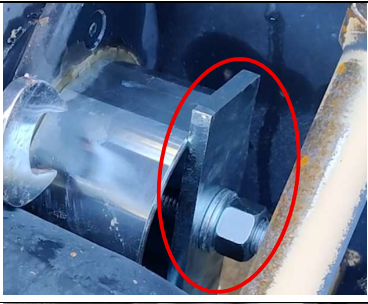
WARNING: Do not attempt to remove the pistons unless replacement units are already on hand. The extraction process can cause further mechanical damage to the pistons, potentially rendering them unusable. To ensure equipment uptime and avoid complications during teardown, always verify that you have the necessary spares available before beginning disassembly.

Step	Instruction	Image
1	Start the pump motor and adjust the pumping speed with the handwheel to the minimum speed.	
2	Press the reverse pump button on the control panel and let the pistons move until one of them is in the outermost position at the hopper. Note: For European versions of the pump, the control panel looks different, however the procedure remains the same.	
3	Once piston is in the desired position, stop pumping, and switch the motor off. As an extra safety measure, disconnect the power cable to ensure nobody turns the machine on while completing this process.	



4	Empty the water tank at the back of the pistons.	
5	Disconnect the grid safety sensor connection located behind the upper hopper.  Make sure pump main switch is off before completing this step	
6	Disconnect the grid vibrator cable.  Make sure pump main switch is off before completing this step	
7	Remove the upper hopper for easier access to the pistons by loosening the 4 bolts attached to the main frame.	
8	Loosen and remove the screw attached to the piston head.  Make sure pump main switch is off before completing this step	



9	Place about 1/2 inch (Max. 1 inch) of the M20 thread inside the piston opening and secure it with the M20 nut. (In the image the piston has been taken out for clearer explanation).	 
10	Place the guiding ring aligned with the front of the piston, leaning the conical part on the wear plate opening. Lubricate the inside of the guiding ring with petroleum jelly to make the removal process at the end easier. (Do not use any other abrasive type of grease).	
11	Place the rectangular flange right in front of the guiding ring, threading it through the M20 rod.	
12	Use at least 2 spacers between the rectangular flange and the nut.	



13	Secure the flange in place with nut.	
14	Start tightening the nut slowly, this will start pulling the piston out of the cylinder.	
15	Once the piston has been released from the cylinder, the whole assembly can be taken out and the rod and guiding ring can be removed from the old piston.	
16	Taking the piston out of the guiding ring can be difficult. You can help to push it out by hammering the piston+flange onto a piece of wood or hammering a piece of wood that fits inside the ring.	



PISTON REPLACEMENT STEP-BY-STEP

Step	Instruction	Image
1	Thoroughly grease the new piston with petroleum jelly or regular Vaseline. (Do not use any other abrasive type of grease).	
2	Insert the new piston into the guiding ring.	
3	Insert the M16 rod into the new piston until reaching the back thread (smaller than the front thread).	



4	Thoroughly grease the inside of the cylinder with petroleum jelly or regular Vaseline. (Do not use any other abrasive type of grease).  Make sure pump main switch is off before completing this step	
5	Position the piston + guiding ring at the cylinder opening.	
6	Add 1 or 2 spacers to the bolt, then add another nut at the end.	
7	Start tightening the nut so the piston starts moving inside the cylinder	



8	Once the piston reaches the shaft at the back, unscrew the bolt and remove the guiding ring.	
9	Lastly, secure the piston with the original bolt it came with. Repeat the whole process for the second piston. There is no specific torque requirement for securing the piston. The bolt should be tightened firmly using a standard wrench. Under typical conditions, this torque falls in the range of 50–80 N·m.	

ADDITIONAL RECOMMENDATIONS

After replacing a piston, it is important to closely monitor pump performance during the first few operating hours to confirm proper sealing and pressure consistency. Regular visual checks and routine maintenance should continue as part of the service schedule to extend the life of the new piston. Always log the replacement date and operating hours in the maintenance records, as this helps track wear patterns, plan timely replacements, and ensure reliable pump operation.

Best practice recommendation: Monitor operational hours based on the material used, visually inspect pistons and water condition in water tank daily, program a piston replacement every 300 to 500 hours depending on conditions, and keep a piston replacement log.

END OF DOCUMENT

Follow these recommendations to extend the life expectancy of your equipment. For any additional questions, please contact techsupport@cobod.com

