

Form L-0272P

6/07

Kit No. 3430-0007

Leather Cup Kit for Series 5300
Small Twin® Piston Pumps

Kit No. 3430-0008

Leather Cup and Guide Kit for Series
5300 Small Twin® Piston Pumps

Kit No. 3430-0144

Plunger Stack Kit for Series 5321/5322
Small Twin® Plunger Pumps

Kit No. 3430-0145

Plunger Stack and Plunger Kit for Series
5321/5322 Small Twin® Plunger Pumps

Kit No. 3430-0009

Rubber Cup Kit for Series 5300
Small Twin® Piston Pumps

Kit No. 3430-0010

Rubber Cup and Guide Kit for Series
5300 Small Twin® Piston Pumps

Kit No. 3430-0191

Piston Stack Kit for Series 5324
Small Twin® Piston Pumps



GENERAL SAFETY INFORMATION

1. Use a pressure relief device on the discharge side of the pump to prevent damage from pressure build-up when the pump discharge is blocked or otherwise closed and the power source is still running.
2. **WARNING: DO NOT pump flammable or explosive fluids such as gasoline, fuel oil, kerosene, etc. DO NOT use in explosive atmospheres. The pumps should be used only with liquids compatible with the pump component materials. Failure to follow this warning can result in personal injury and/or property damage and will void the product warranty.**
3. Be sure all exposed moving parts such as couplings, pulleys or adapters are properly shielded or guarded and that all coupling devices are securely attached before applying power.
4. When mounting a pump to any power shaft, prevent the pump from rotating with the power shaft by using some type of torque arm. The pump must float freely on the power shaft and must not be tied rigidly to equipment on which it is mounted.
5. **DONOTEXCEED** recommended speed, pressure and temperature for pump and equipment being used.
6. **BEFORE SERVICING**, disconnect all power, make sure all pressure in the system is relieved, drain all liquids from the system and flush.
7. Secure the discharge lines before starting the pump. An unsecured line may whip, causing personal injury and/or property damage.
8. Check hose for weak or worn condition before each use. Make certain that all connections are tight and secure.
9. Periodically inspect the pump and the system components. Perform routine maintenance as required.
10. Protect the pump from freezing conditions by draining liquid and pumping rust inhibiting antifreeze solution through the system, coating the pump interior. When possible, plug ports before storing the pump for long periods of time.

DISASSEMBLY AND ASSEMBLY INSTRUCTIONS

For more detailed information on the repair procedures for Hypro Small Twin Piston and Plunger Pumps, please refer to Hypro Form No. L-0200P that was shipped with your pump. If you do not have a copy of Form 200P and would like to get one, please call your local dealer or Hypro (651) 766-6300 and ask for the Customer Service Representative in your area.

Series 5300 and 5324 Piston Pump Models Only

Disassembly

1. Remove the safety cover from the pump body.
2. Secure the pump in a bench-mounted vise and remove the cylinder head bolts using a 9/16" wrench. Remove the cylinder head.
3. Rotate the crankshaft to bring the piston to the top of the cylinder. Remove the capscrew at the top of the piston.
4. Drive the cylinder sleeve and piston parts out of the body by holding a hardwood dowel or brass rod against the edge of the sleeve. Tap the dowel or rod upwards with a hammer. The piston parts can be removed from the sleeve by hand.

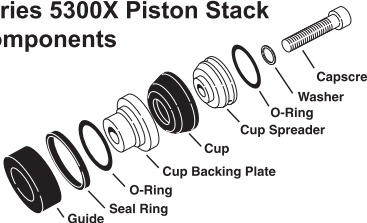
IMPORTANT: Clean the sleeves before replacing cups. Gummy deposits that form ridges and rough spots on inner cylinder sleeve walls must be removed to prevent damage to the new cups. If the sleeves are pitted, they should be replaced. Remove deposits and restore a smooth, polished surface to the cylinder sleeve walls with 120 grit or finer emery cloth. Finish with 320 grit. Polish the inner sleeve wall with a circular motion. Be sure to clean the surface evenly: avoid getting flat spots in the sleeve wall.

Assembly

1. Be sure the sleeve cavity in the body is clean so that the sleeve will fit correctly.
2. Insert the cylinder sleeve into the cylinder bore of the pump body. Lubricate and place the new cylinder sleeve o-ring on top of the sleeve. Place the brass retainer on top of the o-ring. Insert the guide into the cylinder sleeve, making sure the guide is properly seated on the connecting rod inside the pump body.
3. Place the seal ring at a 45 degree angle on top of the guide. Using the seal ring seating tool, press the seal ring into the cylinder sleeve. Lubricate the o-ring and place on the cup backing plate. Install the cup backing plate on the top of seal ring in the piston bore, o-ring end down. Lubricate the cup and set on top of the cup backing plate inside the piston bore. Lubricate the o-ring and install on the cup spreader. Place the cup spreader end opposite o-ring, inside the piston bore.
4. Place washer on piston capscrew—insert through piston assembly and tighten capscrew to 130 in.-lbs. of torque.

TURN PUMP OVER AND REPEAT STEPS 1- 4.

Series 5300X Piston Stack Components



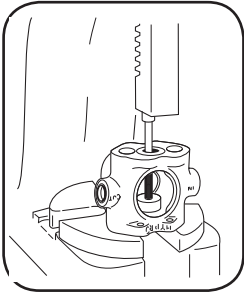
Series 5324 Piston Stack Components



Series 5321/5322 Plunger Pump Models Only

Disassembly

1. Remove the cylinder head. Rotate the crankshaft to bring the plunger to the top of the cylinder. Remove the plunger capscrew with a 3/16" allen wrench. Remove the plunger from the body. Turn the pump over and repeat.
2. Remove the connecting rod.
3. Reposition the pump horizontally in a vise with the safety cover side facing up. With the claw portion of a claw hammer, remove the grease fitting (In most cases, the grease fitting is damaged when removed and should be replaced with a new one).
4. Use a piece of 3" diameter pipe, 4-1/2" high, as a support fixture for the pump. Place the pump on the fixture, shaft side down. Position the fixture on to an arbor press.
5. Place a 3/8" x 4-1/2" bolt threaded end up on the crankshaft and press out the crankshaft from the pump body.
6. Reposition the pump upright on the press. Place the plunger cartridge extractor tool - machined side down - on the guide retainer inside the pump body.
7. Place the bolt threaded end down the plunger bore on the other end of the pump until it rests on the plunger cartridge extractor tool. Press out both the seal and guide retainer out of the body. Turn pump over and repeat.
8. Remove the guide from the guide retainer by pulling out with one finger. NOTE: If guide does not come out in this manner, use a screwdriver and a hammer to gently break off a section of the guide—being very careful not to damage the guide retainer. The remaining portion of the guide will then fall out. With a small knife blade, remove the o-ring/seal ring combination from the guide retainer.

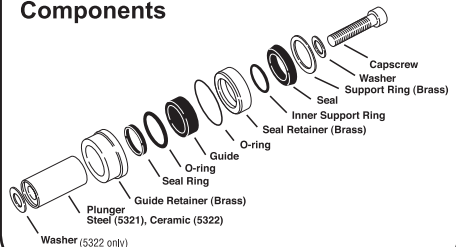


9. Remove the brass support ring and support ring/seal combination from the seal retainer using a knife blade.
10. Inspect and clean the brass guide and seal retainers. Clean them with a wire brush and check for nicks and burrs. Eliminate burrs by using a 320 grit emery cloth.
11. To remove the front main bearing from the crankshaft, position the pipe support fixture on the press. Place two square metal bars onto the fixture parallel to each other. Place the crankshaft assembly in the fixture, drive end up, and press the crankshaft through the bearing (Make sure the bars do not touch the snap ring.)
12. Remove the snap rings. Press out the back bearing in the same manner as the front.
13. Remove the bearing shield by working it off the shaft.

Assembly

1. Install the back bearing first. Place the bearing on the small opening end of the main bearing support tool (Hypro No. 3010-0061) the bearing shield on top of the bearing and place on the arbor press.
2. Place the crankshaft in the bearing and use the arbor press ram to press the crankshaft through the bearing until the snap ring can be put in the second groove in the crankshaft.
3. Place the pump body, safety cover side down, on the arbor press. Place the crankshaft back bearing down, into the bearing bore of the pump body.

Series 5321/5322 Piston Stack Components



4. Place the main bearing support tool, large opening down, on the crankshaft. Use the arbor press ram to press the crankshaft assembly into the bearing bore of the pump body until it bottoms out.
 5. Place the front bearing on the crankshaft until it touches the pump body. Place the smaller opening end of the main bearing support tool over the crankshaft. Turn the pump and main bearing support tool over so that the safety cover side of the pump is facing up.
 6. Position the cam bearing support tool (Hypro No. 3010-0063) with the bolt head down over the safety cover opening on the pump body. Turn the bolt down by hand until it comes into contact with the cam bearing.
 7. Use the arbor press ram to push the front bearing into the pump bearing bore until it comes into contact with the first snap ring on the crankshaft. Turn the pump over to install the retaining ring.
 8. **GUIDE RETAINER CARTRIDGE**—Lightly lubricate the o-ring and place around the seal ring. Position the o-ring/seal ring combination in the guide retainer at a 45 degree angle. Using the guide, seat the o-ring/seal ring combination into the guide retainer. Leave guide in the guide retainer.
 9. Place the guide retainer on a flat surface so that the exposed portion of the guide is down. Place the capscrew end of the plunger into the guide retainer and press through so that the plunger is flush with the bottom of the guide retainer. Turn the cartridge over and push the guide retainer down the plunger until it is flush with the bottom of the plunger.
 10. **SEAL RETAINER CARTRIDGE**—Place the beveled side of the inner support ring in the grooved side of the seal. Place seal retainer over the support ring side of the support ring/seal combination. Press in with fingers until the support ring/seal combination bottoms out inside the seal retainer. Place the brass support ring on the open side of the seal retainer. **IMPORTANT:** Make sure cam bearing is in the upstroke position when installing cylinder sleeves and piston assemblies.
 11. Place assembled guide retainer cartridge and plunger into the plunger bore of the pump body. Make sure the plunger and connecting rod seat together properly inside the pump body.
 12. Lubricate o-ring and place on top of guide retainer cartridge. Place seal retainer cartridge over the plunger—beveled side down, and press by hand into pump plunger bore.
 13. Place washer on plunger capscrew—insert through plunger and tighten capscrew to 100 to 115 in.-lbs. of torque.
- TURN PUMP OVER AND REPEAT STEPS 11-13.**
14. Reinstall the heads and secure with bolts, tightening in a criss-cross pattern.



Pentair

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