

Hypro: 5321C-D Twin Plunger Pump With Chemical Injector Head For Pressure Washing



Model : 5321C-D

Hypro: 5321C-D Twin Plunger Pump With Chemical Injector Head For Pressure Washing

Manufacturer : Hypro Pumps

Hypro 5321C-D Small Twin Plunger Pump with injector head, 2.2 GPM @ 1000 PSI @ 1800 RPM, Cast iron pump with base and Buna-N seals, 5/8" OD solid shaft, 1/2" NPT ports, 190 deg. max. temp., Plunger material: Stainless Steel, 11 lbs.

More stuff: (may not all fit on web page)

Installation, Operation, Repair And Parts Manual 07/06

Description

Series 5300C-X, 5321C, 5322C and 5324C

Small Twin Plunger Pump Form L-0200P

The following special attention notices are used to notify and advise the user of this product of procedures that may be dangerous to the user or result in damage to the product.

NOTE: Notes are used to notify of installation, operation, or maintenance information that is important but not safety related.

CAUTION: Caution is used to indicate the presence of a hazard, which will or can cause minor injury or property damage if the notice is ignored.

WARNING: Warning denotes that a potential hazard exists and indicates procedures that must be followed exactly to either eliminate or reduce the hazard, and to avoid serious personal injury, or prevent future safety problems with the product.

DANGER: Danger is used to indicate the presence of a hazard that will result in severe personal injury, death, or property damage if the notice is ignored.

Safety Information

SERIES 5321C & 5322C

Cast Iron Small Twin

Plunger Pump

Max. Flow Rate:2.2 gpm

Max. Pressure:1000 psi

Max. Speed:1725 rpm

Ports:.....1/2" NPT inlet

1/2" NPT outlet

Max. Operating Temp.....180o F

SERIES 5300C-X

Cast Iron Small Twin

Piston Pump

SERIES 5324C

Cast Iron Small Twin

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Piston Pump
 Max. Flow Rate:2.9 gpm
 Max. Pressure:800 psi
 Max. Speed:1725 rpm
 Ports:.....1/2" NPT inlet
 1/2" NPT outlet
 Max. Operating Temp.....140o F
 Max. Flow Rate:1.5, 2.0, 2.5
 and 3.0 gpm
 Max. Pressure:500 psi
 Max. Speed:1725 rpm
 Ports:.....1/2" NPT inlet
 1/2" NPT outlet
 Max. Operating Temp.....140o F

DANGER: DO NOT pump flammable or explosive fluids such as gasoline, fuel oil, kerosene, etc. DO NOT use in explosive atmospheres. The pump 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.

A pressure relief device, such as an unloader, relief valve or balancing regulator must be installed on the outlet side of the pump. Failure to do so could result in personal injury and/or void the warranty.

- Be sure all exposed moving parts such as shafts, couplers and adapters are properly shielded or guarded and that all coupling devices are securely attached before applying power.

- Hollow shaft pumps mounted directly onto power shaft must be prevented from rotating with the power shaft by means of a device such as a torque arm. Pump must float freely on the power shaft and must not be tied rigidly to equipment on which it is mounted.

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- Do not exceed recommended speed, pressure and temperature for pump and equipment being used.

- Before servicing, disconnect all power, make sure all pressure in the system is relieved, drain all liquids from the system and flush.

- Secure the discharge lines before starting the pump. An unsecured line may whip, causing personal injury and/or property damage.

- Check hose for weak or worn condition before each use. Make certain that all connections are tight and secure.

- Periodically inspect the pump and the system components. Perform routine maintenance as required (see Maintenance section).

- Protect pump from freezing conditions by draining liquid and pumping rust inhibiting solution, such as

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antifreeze, through the system, coating the pump interior.

- Use only pipe, hose and fittings rated for the maximum (or greater) PSI rating of the pump.

- Do not use these pumps for pumping water or other liquids for human or animal consumption.

Drive Source Installation

This manual will cover the installation of the basic drive configurations available for the Hypro Small Twin Piston and Plunger pumps. Consult the manufacturer of your motor or engine for additional information. Read all instructions and general safety information before attempting to install or operate the pump.

Belt/Pulley Drive Installation

Mounting Belts and Pulleys

Mount pulleys as close to pump and motor engine shaft bearings as possible. Check alignment with a straight edge as shown (See Figure 1). Make sure that belt has proper tension. (Too much tension will cause bearing wear; too little will cause slippage.) (See Figure 2). Check with belt and pulley sources for specific recommendation. To figure proper diameter of pump pulley, multiply motor/engine RPM by diameter of the motor/engine pulley and divide that figure by desired pump speed.

$\text{Pump} = \frac{\text{Motor RPM} \times \text{Motor Pulley Size}}{\text{Desired Pump Speed}}$

$\text{Pulley Size} = \frac{\text{Desired Pump Speed} \times \text{Pump}}{\text{Motor RPM}}$

Refer to pump performance charts to determine desired speed to obtain desired maximum flow.

NOTE: Shaft rotation can be either clockwise or counterclockwise.

Push the belt midway

between the pulleys, check the deflection (d) and adjust:

$$d = 0.016 \times L$$

Four points of contact indicate alignment.

NOTE: Pump may be mounted in other orientations with respect to the motor or engine.

Figure 1

Figure 2

Direct Drive - Flexible Coupling Installation

First, slide coupling ends onto motor/engine and pump shafts as far as possible (See Figure 3).

Mount motor/engine and pump onto base, shimming pump or power unit so that shafts are aligned.

Leave enough space between ends of shafts to allow coupling disc to be inserted. When alignment

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is made, slide coupling ends over coupling disc. Leave clearance between coupling ends and center disc. Tighten screws in both coupling ends. For electric motor drive, use couplings rated at least twice the horsepower required to operate pump. For gas engine drive, select couplings rated at three times the required pump horsepower.

CAUTION:

For safety, always install a shield over rotating shafts and couplings.

Figure 3

L

d

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IN OUT

Direct Drive - Hollow Shaft Installation

Hollow shaft models mount directly on the motor or engine shaft (See Figure 4). Adapters are available to convert some solid shaft models for direct shaft mounting.

After mounting the pump, always turn it by hand to make sure the pump is operating freely. Never apply power to a pump that appears to be stuck.

CAUTION: Use a torque arm to keep the pump from rotating with the shaft. The pump must be allowed to float on the shaft and must not be tied rigidly to the equipment on which it is mounted.

CAUTION:

For safety, always install a shield over rotating shafts. Or enclose the pump/motor assembly inside a housing.

Figure 4

System Installation

Figure 5

Piston Pump Installation

Accessories should be installed with solid piping and be mounted as close to the pump as possible. The hose must be used right after accessories.

NOTE: If remaining installation is solid piping, a two to four foot length of hose must be installed between accessories and solid piping.

Hose

Selection of the right size and type of hose is vital for good performance. Be sure to hook up to the proper ports on the pump (note markings "IN" and "OUT" on pump castings).

Suction Hose

Always use genuine suction hose compatible with the fluids being pumped and at least the same inside diameter as pump ports. If the suction hose is over 5 feet long, use the next larger size hose. Keep the suction hose as short as possible and restrictions such as elbows, check valves, etc.

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at a minimum.

Discharge Hose

High pressure pumps require the use of special high pressure discharge hose (2 rayon braid or equivalent). Use a hose rated at least 50% greater than the highest operating pressure required of pump. Example: If required pump pressure

is 200 psi, use discharge hose rated at minimum of 300 psi working pressure.

Unloader Valve

The unloader has a very important safety function in your piston pump hookup. The unloader valve protects the pump by unloading pressure when the gun is shut off or discharge is otherwise blocked. This saves the pump and power because the liquid is bypassed at a very low pressure. If the gun is to be shut off for more than 5 minutes, install a pump protector in the inlet side or stop the pump to prevent heat buildup. The length of time may vary due to the original temperature

of the fluid being pumped.

Strainers

Use a suction line strainer with at least 3 to 5 times the suction

port area in open screen area. For example, an area of approximately 1.1 to 1.9 square inches for a 1/2" suction port. Be sure the screen is suitable for the liquid being pumped. Keep the filter clean. A clogged strainer will cause cavitation, which usually leads to a poor performance and wear of the pump parts.

Pulsation

Dampener

Inlet

Pressure

Regulator

Compound

Gauge

Pump

Filled

Pressure

Gauge

Bypass Back to Inlet

Unloader

Valve

Spray

Gun

Nozzle

Line

Strainer

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Compound Gauge (Optional)

The pump should not be subjected to high suction line vacuums.

To check on this, install a compound gauge at pump inlet.

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For ultimate performance and life, the vacuum should be limited

to 5 inches of mercury. High vacuum conditions may cause premature product failure and void warranty.

Pulsation Dampener

This device absorbs the shock and smooths out the pump discharge

pulsations, providing smoother operation. For the proper operation of many unloader valves, the pulsation dampener

should be installed on the discharge side downstream from the unloader valve. However, for maximum system protection,

the pulsation dampener may be installed upstream from the unloader valve, provided the unloader valve will function

properly. The dampener can be mounted vertically or horizontally.

Pressure Regulator

Use a pressure regulator to limit incoming pressure to 20 psi when equipped with a suction side injector. Volume, pressure and horsepower figures in pump performance tables do not apply when incoming pressure exceeds 40 psi.

Pressure Gauge/Dampener

Use gauge capable of reading double the pump working pressure.

Use a silicone-filled gauge or a gauge dampener to protect the gauge needle against pressure surges and provide easier reading.

Operation

Priming

If the liquid is below level of the pump, some means should be provided in installation to prime pump, such as a foot valve or check valve to hold prime. Keep suction lift to minimum and avoid unnecessary bends in the suction line. Before starting pump, make sure air bleeder valve or spray gun is open, or unloader valve is adjusted to its lowest pressure. After starting pump, open and close gun several times if necessary to aid priming the pump. If pump does not prime within a few seconds, stop motor and inspect installation for suction line leaks or obstructions. Make sure that strainer is not clogged. Be sure that suction line is not obstructed, kinked or blocked.

If the pump is to operate hours at a time, check frequently for:

1. Adequate liquid supply. Pump must not run dry for more than 30 seconds.
2. Temperature rise. Overheating is harmful to bearings and piston cups.

NOTE: Models 53702 and 53703 Inlet Requirements:

Pressure feed 20 to 100 psi.

Care of Pump

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Your pump will last longer and give best performance when properly taken care of. Proper pump care depends on the liquid being pumped and when pump will be used again. In a normal car wash or detergent cleaning installation (where each application is followed by a clear water rinse), the pump will be kept clean. After each use, flush pump with a neutralizing solution for the liquid just pumped. Follow with a clear water rinse. This is especially important for corrosive chemicals. Then flush out pump with a 50% solution of automotive ethylene glycol-type radiator antifreeze containing a rust inhibitor, or use a commercial rust inhibitor such as FLUID FILM.

While this flushing is not absolutely necessary for short periods of idleness (as overnight), it is good practice to clean the pump after each use to prevent deposits from forming and damaging the pump. The antifreeze not only coats the interior of the pump with an inhibitor, but acts as a lubricant as well, keeping valves from sticking - and protecting against any remaining moisture freezing in cold weather.

For infrequent use and before long periods of storage, drain pump thoroughly. Open any drain plugs, remove suction hose from liquid, and run pump "dry" from 0 to

30 seconds (not longer). Once again, a rust inhibitor should be injected into the pump before both ports are plugged and the pump is stored. Then, plug both ports to keep out air until pump is used again.

Lubrication Schedule

Use a grease gun to lubricate Hypro Series 5300 and 5324 Piston Pumps and Series 5321 and 5322 Plunger Pumps. DO NOT USE AIR-POWERED GREASE GUNS as they develop too much pressure and may cause damage to the sealed cam bearing.

Lubrication

EXCEPTION: In applications where FDA approval is required, use one of these greases: Chevron FM#2, Mobile FM#2 Keystone (Penwalt Corp.) Nevastane SP Medium. Lubricate every 50 hours or monthly.

With a screwdriver or flat tool, apply a generous dab of grease to outer diameter surface of cam bearing at top and bottom where bearing contacts connecting rod.

Do not grease excessively.

Check periodically and scrape out (do not WASH out) any excess grease from pump cavity.

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Used for Series

Ref. Part No. Description 5321 5324 5300

A 1055-0005 Seal Ring Seating Tool •

B 3010-0052 Valve Cage Extractor • • •

C 3010-0061 Main Bearing Support Tool • • •

D 3010-0063 Cam Bearing Support Tool • • •

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E 3010-0064 Support Bars (Qty 2) • • •
F 3010-0065 Pry Bar • • •
G 3010-0066 Wire Brush • • •
H 3010-0067 Wire Brush Holder • • •
I 3010-0071 Valve Seat Extractor • • •
J 3010-0222 Seal Ring Seating Tool •
K 3020-0001 3/16" Allen Wrench • • •
L 3020-0003 1/8" Allen Wrench • • •
M 3020-0009 1/16" Allen Wrench • • •
Repair Instructions

Recommended Repair Tools

For Hypro Small Twin Piston/Plunger Pumps

Figure 6 Recommended Repair Tools

Recommended Shop Tools

Bench Press, Arbor Press, Air Gun or Electric Hand Drill, Metal Pipe, Support Fixture, (3" diameter x 4 1/2"

high), Ratchet Handle Wrench with 9/16" Hex Socket, Bolt (3/8" diameter x 4 1/2" long), No. 320 Grit Emory

Cloth, Pliers, Small Knife, Large File, Claw Hammer, Standard Screwdriver, Lubricating Spray (WD-40 or LPS), Wire Brush (hand or machine), Stationary Belt Sander, and Cleaning Solvent Tank (recommended)

Inspection of Pump Parts

When disassembling pump, thoroughly inspect all parts and replace if necessary, with special consideration given to the following areas:

1. Inspect Pump Body for erosion at O-ring seal points in Valve and Piston bores. Check for wear resulting from Main Bearings turning in Housing, especially the Front Bearing area closest to the Cam Bearing. Check for cracks in the Pump Body, particularly at the discharge port and along the casting seam (See Figure 7).
2. Inspect for excessive wear on the Cylinder Heads. This can result from erosion and/or valve seat hammer (See Figure 7).
3. Inspect for pitting and general wear in the Unitized Valves, particularly where the Poppets seal against the seat. If this area is worn, replace all four Valves (See Figure 7).
4. Inspect the Connecting Rod. If there is more than .007" wear in the total space between the Connecting Rod and Cam Bearing, the Connecting Rod should be replaced. This can be determined using a feeler gauge. The Cam Bearing should also be inspected as a bad cam bearing is the most common cause of a damaged Connecting Rod. A worn Connecting Rod results in low volume, low pressure, a hammering sound and the pump running hot (See Figure 8).
5. Inspect Crankshaft Assembly for general wear.

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Rotate Cam Bearing and Main Bearings to check for roughness due to moisture contamination or lack of grease. If main bearings do not turn smoothly or appear to be damaged, they should be replaced. If cam bearing is damaged, a new Crankshaft Sub-assembly should be installed and the connecting rod inspected for wear (See Figure 8).

NOTE: Always use new O-rings, Cups, Seal Rings, Support Rings, Guides, Washers, and Piston Cap Screws. If new Valves are needed, always replace the complete set of four.

Figure 7

Figure 8

Use a feeler gauge on this end to check amount of space.

Check this area for wear on both ends.

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Series 5300X, 5321, 5322, & 5324

Disassembly, Repair, & Reassembly Instructions

NOTE: Due to variations in each model's Piston or Plunger Stack, differences in the instructions for each model will be denoted with italics and brackets.

HAZARDOUS SUBSTANCE ALERT: Always drain and flush pump before servicing or disassembly.

Valve Assembly Removal:

1. Place the Pump upright in a bench-mounted vise with the Safety Cover facing out; then, using a 9/16" wrench, remove the Cylinder Head Bolts.
2. Remove the Cylinder Head.
3. Using a screwdriver or knife, remove the Cylinder Head O-ring from the Cylinder Head.
4. Using the Seat and Cage End Valve Extraction Tools, remove the Unitized Valve Assembly from the Pump Body (See Figures 9 and 10).

Figure 9

Figure 10

To remove Valve Cage.

Hook prongs of Valve Cage Extractor under three webs of the Valve Cage and pull up with a twisting motion.

To remove Valve Seat.

Hook Valve Seat Extractor under Seat and work out with an up and down motion.

5. Rotate the Pump Shaft so the Cam Bearing is in the upstroke position; then using a 3/16" Allen wrench, remove the Cap Screw from the Piston

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Assembly for Models 5300X and 5324 [For Models 5321 & 5322, remove the Plunger from the Pump Body after the Cap Screw is removed].

6. Turn the Pump over and repeat Steps 1 through 5.

7. Position the Pump horizontally in the vise with the Safety Cover side up.

8. Use a claw hammer to remove the Grease fitting (See Figure 11). In most cases, the Grease Fitting is damaged during removal and must be replaced [At this time, remove the Connecting Rod in Models 5321 & 5322].

Figure 11

Piston Sleeve Assembly Removal and Cleanup (5300X and 5324 only)

See Figures 12 & 13 for Piston Stack Components

Cap Screw

Washer

O-ring

Cup Spreader

Cup

Cup Backing Plate

O-ring

Seal Ring

Guide

Figure 12

Cap Screw

Washer

Support Ring

Cup

Cup Holder

O-ring

Seal Ring

Guide

Figure 13

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1. Leave the pump body horizontal in the bench vise to remove the Cylinder Sleeves and Piston Assemblies. Make sure the Cam Bearing is in the upstroke position. Place one of the metal bars provided in the tool kit on the Cylinder Sleeve.

2. Using a hammer, gently tap the Cylinder Sleeve out of the Cylinder Head end of the pump body. The Piston will also come out with the Cylinder sleeve.

3. Turn the pump around in the vise and repeat Steps 1 and 2.

4. Remove the Connecting Rod.

5. Remove the Piston Assembly from the Cylinder Sleeve by pushing it out with your fingers; then remove the washer.

6. Clean the cylinder sleeves using the burnishing adapter supplied with the tool kit. The adapter is mounted to an electric motor shaft. Insert the

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Cylinder Sleeve (brass retainer end facing out) into the furnishing adapter and polish the inside surface using a No. 320 grit emery cloth. Use a wire brush to clean the outside of the cylinder sleeve. Upon inspection, if pitting or scratches still show on the inside of the cylinder sleeve, the cylinder sleeve must be replaced along with the cylinder sleeve o-ring.

Crankshaft Assembly Removal

(All Models)

WARNING: Special attention should be exercised when working with retaining rings. Always wear safety goggles when working with spring or tension-loaded fasteners or devices.

1. Place the pump on a flat surface with the shaft side facing up; then remove the retaining ring from the bearing bore.
2. Using a metal pipe " in diameter by 4-1/2" high as a support fixture, place the pump on the fixture, shaft side down. Position the fixture with pump on the arbor press (See Figure 14).
3. Place a bolt 3/8" in diameter by 4-1/2" long threaded end up on the Crankshaft Cam Bearing; then, using the arbor press ram on the bolt, push the Crankshaft Assembly out of the Pump Body (See Figure 14).

Plunger Cartridge Removal/Disassembly/

Reassembly (Series 5321 and 5322 only)

See Figure 15 for Plunger Cartridge Components
Figure 14

To Remove the Plunger Cartridges from the Pump Body:

1. Position the pump upright on the arbor press with the Safety Cover opening facing out.
2. Place the Plunger Cartridge Extractor Tool, machined side down, on the Guide Retainer inside the pump body.
3. Place the bolt threaded-end down through the Plunger Bore on the other end of the pump until it rests in the counter-sink hole on the Cartridge Extractor Tool.
4. Place the arbor press ram on the bolt head and push both the Seal and Guide Retainer out of the pump body (See Figure 16).
5. Turn the pump over and repeat Steps 1 through 4.

Washer (5322 ONLY)

Plunger: Steel (5321), Ceramic (5322)

Guide Retainer (Brass)

Seal Ring

O-ring

Guide

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O-ring
Seal Retainer (Brass)
Inner Support Ring
Seal
Support Ring (Brass)
Washer
Cap Screw
Figure 15
Figure 16

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To Disassemble the Guide and Seal Cartridges:

1. Remove the Guide from the Guide Retainer by pulling it out with one finger.

NOTE: If the guide does not come out in this manner, use a screwdriver and a hammer to gently break off a section of the Guide, being careful not to damage the Guide Retainer. The remaining portion of the Guide will then fall out.

2. With a small knife blade, remove the O-ring/Seal Ring combination from the Guide Retainer.

3. Using a small knife blade, remove the Brass Support Ring and Support Ring/Seal combination from the Seal Retainer.

4. Inspect and clean the Brass Guide and Seal Retainers. Clean them with a wire brush and check them for burrs and nicks. Use 320 grit emery cloth to remove burrs.

To Reassemble the Plunger Cartridges:

1. Lightly lubricate the O-ring and place it around the Seal Ring.

2. Position the O-ring/Seal Ring combination in the Guide Retainer at a 45 degree angle.

3. Using the Guide, seat the O-ring/Seal Ring Combination into the Guide Retainer, leaving the Guide in the Guide Retainer.

4. Place the Guide Retainer on a flat surface so that the exposed portion of the Guide is down.

5. Place the cap screw end of the Plunger into the Guide Retainer and press it through until the Plunger is flush with the bottom of the Guide Retainer.

6. Turn the Cartridge over and push the Guide Retainer down the Plunger until it is flush with the bottom of the Plunger.

Seal Retainer Cartridge:

1. Place the beveled side of the Inner Support Ring in the grooved side of the Seal; then, place the Seal Retainer over the Support Ring side of the Support Ring/Seal combination.

2. Press the above items in with your fingers until the Support Ring/Seal combination bottoms out inside the Seal Retainer.

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3. Place the Brass Support Ring on the open side of the Seal Retainer.

Clean-up of the Pump Body and Heads (All Models)

1. Using the port wire brush with an air gun or electric hand drill, clean the outlet port and inlet port, plus the valve and piston bores in the Pump Body.
2. Use a hand file or belt sander to clean corrosion and rust from the top and bottom of the Pump Body and the bottoms of the cylinder Heads.
3. After performing Steps 1 and 2, Hypro recommends that the pump Body and Cylinder Head be further cleaned in a solvent tank to remove any remaining rust and corrosion particles.

NOTE: If the solvent cleaning is not performed, the valve and piston bores must be wiped as clean as possible.

Crankshaft and Main Bearing

Disassembly/Reassembly (All Models)

Disassembly:

1. To remove the Front Main Bearing from the Crankshaft, position a pipe support fixture on the arbor press; then, place two metal bars parallel to each other, one on each side of the fixture (See Figure 17).
2. Place the Crankshaft Assembly in the fixture, drive end up, with the metal bars between the Bearing and fixture to support the Outer Bearing (See Figure 17).

NOTE: Make sure the metal bars do not touch the Retaining Ring on the Crankshaft.

3. Using the arbor press, press the Crankshaft through the Bearing (See Figure 17).

WARNING: Special attention should be exercised when working with retaining rings. Always wear safety goggles when working with spring or tension-loaded fasteners or devices.

Figure 17

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4. Remove the first Retaining Ring on the Crankshaft with a pliers and the second Retaining Ring with a screwdriver.
5. Press out the back Main Bearing in the same manner as the front Main Bearing (Refer to Steps 1 through 3).
6. Remove the Slinger Ring by working it off the Shaft.

Reassembly

1. Install the back Main Bearing first. Place the Bearing on the small opening end of the Main Bearing Support Tool with the Slinger Ring on top of the Bearing, and position it on the arbor press.
- WARNING: Special attention should be exercised when working with retaining rings. Always wear

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safety goggles when working with spring or tension-loaded fasteners or devices.

2. Place the Crankshaft in the Bearing and use the arbor press ram to press the Crankshaft through the Bearing until the Retaining Ring can be installed in the second groove of the Crankshaft (See Figure 18).

NOTE: Make sure the Slinger Ring does not touch the Cam Bearing on the Crankshaft when installing Retaining Rings.

3. Install both Retaining Rings on the Crankshaft. Figure 18

4. Place the Pump Body, Safety Cover side down, on the arbor press.

5. Place the Crankshaft, Back Bearing down, into the bearing bore of the Pump Body.

6. Place the Main Bearing Support Tool , large opening down, over the Crankshaft.

7. Use the arbor press ram to press the Crankshaft Assembly into the bearing bore of the pump body until it bottoms out.

8. Place the front Main Bearing on the Crankshaft until it touches the pump body.

9. Place the smaller opening end of the Main Bearing Support Tool over the Crankshaft (See Figure 19).

10. Turn the Pump and Main Bearing Support Tool over so that the Safety Cover side of the pump is facing up.

11. Position the Cam Bearing Support Tool with the bolt head down over the Safety Cover opening on the pump body.

Figure 19

Figure 20

Plastic Valve

Cage points Up.

12. Turn the bolt down by hand until it comes in contact with the Cam Bearing.

13. Use the arbor press ram to press down on the bolt in the Cam Bearing Support Tool to push the front Main Bearing into the pump bearing bore until it comes in contact with the first retaining ring on the crankshaft.

14. Turn the pump over to install the Retaining Ring in the pump bearing bore.

Valve Assembly Installation

1. Lubricate the Pump Body Valve Bores.

2. Install the Valve Assemblies into the INLET side valve bores with the plastic valve cage portion facing UP (See Figure 20).

3. Install the Valve Assemblies into the OUTLET side valve bores with the metal valve seat portion facing UP (See Figure 21).

4. Apply a small amount of grease to the top and bottom

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inside surfaces of the Connecting Rod. (The area where the Cam Bearing comes in contact with the Connecting Rod.)

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5. Place the Connecting Rod on the Cam Bearing.

Metal Valve

Seat Points up.

Figure 21

Cylinder Sleeve and Piston Stack

Installation (Series 5300X and 5324 only)

NOTE: Clean the cylinder sleeves using the Burnishing Adapter provided with the tool kit. The Burnishing Adapter is to be mounted on an electric motor shaft.

1. Insert the Cylinder Sleeve (Brass Retainer End out) into the Burnishing Adapter and polish the inside surface using a No. 320 grit emery cloth.

2. Use a wire brush to clean the outside of the Cylinder Sleeve.

NOTE: Upon inspection, if pitting or scratches still show on the inside of the Cylinder Sleeve, the Cylinder Sleeve and the Cylinder Sleeve O-ring should be replaced.

3. Insert the Cylinder Sleeve into the cylinder bore of the Pump Body.

4. Lubricate and place a new Cylinder Sleeve O-ring on top of the Cylinder Sleeve.

5. Place a Brass Retainer on top of the O-ring.

6. Insert the Guide into the Cylinder Sleeve, making sure the Guide is properly seated on the Connecting Rod inside the Pump Body.

7. Place the Seal Ring at a 45 degree angle on top of the Guide; then, using the Seal Ring Seating Tool, press the Seal Ring into the Cylinder sleeve.

8. Lubricate the O-ring and place it on the Cup Backing Plate.

9. Install the Cup Backing Plate on top of the Seal Ring in the piston bore, O-ring end down.

10. Lubricate the Cup and set it on top of the Cup Backing Plate inside the piston bore.

11. Lubricate the O-ring and install it on the Cup Spreader.

12. Place the Cup Spreader end opposite O-ring in the Cup inside the piston bore.

13. Place the Washer on the Piston Cap Screw, insert it through the Piston Assembly, then tighten it to 130 in. lbs. of torque.

14. Turn the Pump over and repeat Steps 2 through 13.

Plunger Assembly Installation

(Series 5321 and 5322 only)

NOTE: Make sure the Cam Bearing is in the upstroke position when installing the Cylinder Sleeves and Piston Assemblies.

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1. Place the assembled Guide Retainer Cartridge and Plunger into the plunger bore of the Pump body, making sure the Plunger and Connecting Rod seat together properly inside the Pump Body.
2. Lubricate the O-ring and place it on top of the Guide Retainer Cartridge.
3. Place the Seal Retainer Cartridge over the Plunger (beveled side down), and press it by hand into the Pump Plunger bore.
4. Place a Washer on the Plunger Cap Screw, insert it through the Plunger and tighten it to 100 to 115 In. Lbs. of torque.
5. Turn the Pump over and repeat Steps 1 through 4.

Head and Grease Fitting Installation (All Models)

1. Install the O-ring into the Pump Cylinder head.
2. Place the Pump Body upright in a vise; then, place the Head on the Pump Body.
3. Secure the head to the Pump Body with the Head Bolts; then, alternately and evenly (in a criss-cross pattern) tighten the head Bolts.
4. Turn the Pump over and repeat Steps 1 through 3.
5. To install the Grease Fitting into the Cam Bearing, place the pump on the arbor press with the Safety Cover side facing up; then press the Grease Fitting in with the arbor press ram.
6. Grease the pump according to the Lubrication Instructions.
7. Install the safety cover.

Symptom Probable Cause(s) Corrective Action(s)

No Flow or Low Flow Pump not primed Refer to Priming in the Operation Section.

Air leaks in suction line Check and reseal inlet fittings.

Blocked or clogged line strainer Inspect strainer and clear any debris from screen.

Undersize suction line or collapsed hose Suction line should be the same diameter as inlet port of Pump or larger.

Nozzle clogged Clear nozzle or replace.

Unloader or Relief Valve not functioning properly Repair or replace Relief Valve.

Low pressure Debris in Valves Remove debris. See Repair section.

Valves worn Replace Valves. See Repair section.

Unloader or Relief Valve not functioning properly Repair or replace relief valve.

Pump not primed See priming in Operation section.

Pump Leaking Seals worn Replace Seals. See Repair section.

Body cracked Replace Body. See Repair section.

-11-

Troubleshooting
Performance Data

Hypro: 5321C-D Twin Plunger Pump With Chemical Injector Head For Pressure Washing

Presssure 100 psi 300 psi 500 psi 700 psi 1000 psi
RPM GPM HP GPM HP GPM HP GPM HP GPM HP
3450 2.2 .4 2.2 .7 2.1 .9 2.1 1.2 2.0 1.5
Pressure (689.4 KPa) 2000 KPa 4000 KPa 5000 KPa (6894 KPa)

RPM l/m w l/m w l/m w l/m w l/m w
3450 8.5 298 8.3 491 7.9 756 7.7 888 7.4 1118
Presssure 100 psi 300 psi 500 psi 700 psi 1000 psi
RPM GPM HP GPM HP GPM HP GPM HP GPM HP
3100 2.3 .4 2.2 .7 2.1 .9 2.1 1.2 2.0 1.5
Pressure (689.4 KPa) 2000 KPa 4000 KPa 5000 KPa (6894 KPa)

RPM l/m w l/m w l/m w l/m w l/m w
3100 8.5 298 8.3 491 8.0 756 7.9 888 7.7 1118
100 psi 300 psi 500 psi 700 psi 1000 psi
RPM GPM HP GPM HP GPM HP GPM HP GPM HP
900 1.1 .2 1.1 .4 1.1 .5 1.1 .6 1.1 .8
1200 1.5 .3 1.5 .5 1.5 .6 1.5 .8 1.4 1.0
1450 1.8 .4 1.8 .6 1.8 .7 1.8 .9 1.8 1.2
1725 2.2 .4 2.1 .7 2.1 .8 2.1 1.1 2.1 1.4

7 BAR 20 BAR 40 BAR 50 BAR 69 BAR
RPM L/min. W L/min. W L/min. W L/min. W L/min. W
900 4.2 165 4.2 261 4.2 399 4.2 461 4.1 575
1200 5.8 224 5.6 357 5.5 536 5.5 603 5.4 739
1450 6.9 269 6.8 399 6.7 601 6.7 700 6.6 888
1725 8.2 321 8.1 459 8.0 692 8.0 815 7.9 1059
50 psi 100 psi 200 psi 300 psi 400 psi 500 psi
Model
RPM GPM HP GPM HP GPM HP GPM HP GPM HP GPM HP
1725 1.56 .12 1.52 .15 1.50 .28 1.47 .35 1.45 .43 1.44 .56
1725 2.22 .21 2.18 .28 2.16 .43 2.12 .57 2.11 .71 2.10 .83
1725 2.56 .25 2.54 .37 2.52 .52 2.50 .68 2.48 .82 2.44 .96
1725 3.02 .37 3.01 .49 3.00 .74 2.98 .92 2.96 1.11 2.94 1.23

5315C
5320C
5325C
5330C
Series 53702
Series 53703
Series 5300C-X
Series 5321C and 5322C

NOTE: Above performance figures based on constant speed dynamometer tests, pumping water at one foot (approx.) suction lift with no pulsation damper. Performance will vary with application.

7 BAR 14 BAR 21 BAR 27.5 BAR 34.5 BAR
RPM L/min. W L/min. W L/min. W L/min. W L/min. W
1725 5.8 100 5.7 200 5.6 300 5.5 300 5.5 400
1725 8.3 200 8.2 300 8.0 400 8.0 500 8.0 600
1725 9.6 300 9.5 400 9.5 500 9.4 600 9.2 700
1725 11.4 400 11.4 600 11.3 700 11.2 800 11.1 900

Hypro: 5321C-D Twin Plunger Pump With Chemical Injector Head For Pressure Washing

100 psi	200 psi	300 psi	400 psi	500 psi	600 psi	700 psi	800 psi																	
RPM	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP												
600	.96	.12	.94	.19	.94	.26	.95	.33	.94	.39	.93	.45	.93	.52	.93	.58								
900	1.51	.19	1.49	.30	1.48	.41	1.47	.50	1.47	.60	1.46	.69	1.46	.78	1.45	.87								
1200	2.00	.28	1.98	.41	1.97	.55	1.96	.67	1.96	.81	1.95	.93	1.94	1.06	1.93	1.16								
1450	2.42	.34	2.40	.50	2.38	.67	2.37	.83	2.36	.97	2.35	1.13	2.33	1.27	2.32	1.42								
1725	2.90	.40	2.89	.59	2.87	.80	2.85	1.00	2.83	1.19	2.81	1.38	2.80	1.54	2.79	1.69								
7 BAR	21 BAR	34.5 BAR	48 BAR	55 BAR																				
RPM	L/min.	W L/min.	W L/min.	W L/min.	W L/min.	W L/min.	W L/min.	W L/min.	W L/min.	W L/min.	W L/min.	W L/min.	W L/min.	W L/min.	W L/min.	W L/min.								
900	5.7	200	5.7	300	5.7	500	5.7	600	5.7	700	5.7	700	7.6	200	7.6	500	7.6	600	7.2	800	7.2	900	7.2	900
1450	9.1	300	9.1	500	9.1	800	8.7	1000	8.7	1100	8.7	1100	11.0	300	11.0	600	10.6	900	10.6	1200	10.6	1300	10.6	1300

Series 5324C

-12-

Models 5315C-X, 5320C-X, 5325C-X and 5330C-X

Piston Stack Parts Kit

Leather Cup Kit No. 3430-0007

Consists of two each of the following parts: No.

2220-0012 Piston Cap Screw (Ref. 6A), No. 2270-

0011 Washer (Ref. 6B), No. 1720-0029 O-ring (Ref.

6C), No. 2150-0002 Leather Cup (Ref. 6D), No.

1720-0039 O-Ring (Ref. 6E), and No. 1440-0008

Seal Ring (Ref. 6F).

Rubber Cup Kit No. 3430-0009

Same as above kit except with No. 2150-0005

Rubber Cups.

Piston Stack and Guide Parts Kits

Leather Cup and Guide Kit No. 3430-0008

Consists of Leather Cup Kit No. 3430-0007 plus two

No. 1440-0004 Piston Guides (Ref. 7).

Rubber Cup and Guide Kit No. 3430-0010

Consists of Rubber Cup Kit No. 3430-0009 plus two

No. 1440-0004 Piston Guides.

Teflon Cup and Guide Kit No. 3430-0046

Consists of Teflon Cup Stack Kit plus 2 Piston

Guides.

Crankshaft Assemblies

Sub-Assemblies include Shaft (Ref. 12 or 15) with

Cam Bearing, Grease Fitting Assembly (Ref. 10),

Set Screws for Hollow Shaft (Ref. 13) and Spline

Key (Ref. 14 or 16).

Complete Assemblies include the Sub-Assembly

plus parts identified by Reference Numbers 24-26.

Sub-Assembly Complete Assembly Pump

Part No. Part No. Model

Hypro: 5321C-D Twin Plunger Pump With Chemical Injector Head For Pressure Washing

with 5/8" (I.D.) Hollow Shaft (Ref. 12)

5501-5315 5500-5315 5315C-H

5501-5320 5500-5320 5320C-H

5501-5325 5500-5325 5325C-H

5501-5330 5500-5330 5330C-H

with 5/8" Solid Shaft (Ref. 15)

5001-5315 5000-5315 5315C

5001-5320 5000-5320 5320C

5001-5325 5000-5325 5325C

5001-5330 5000-5330 5330C

NOTE: When ordering parts, give QUANTITY, PART NUMBER, DESCRIPTION, and COMPLETE MODEL NUMBER.

Reference numbers are used ONLY to identify parts in the drawing and are NOT to be used as order numbers.

2 2 2220-0012 Piston Cap Screw

3 2 2270-0011 Washer

4 2 1830-0017 Piston Cup Spreader

5 2 1410-0030 Cup Backing Plate

6 1 Piston Stack Parts Kit (see listing above)

7 2 1440-0004 Piston Guide

8 1 0502-5300 Connecting Rod

9 1 0608-5300 Safety Cover

10 1 2405-0006 Grease Fitting Assembly

12 1 Crankshaft Assemblies — Hollow Shaft Models, see listing above

13 2 2230-0017 Set Screw for Hollow Shaft

14 1 1610-0011 Spline Key for Hollow Shaft

15 1 Crankshaft Assemblies — Solid Shaft Models, see listing above

16 1 1610-0007 Spline Key for Solid Shaft

17 8 2210-0062 Cylinder Head Bolt

18 2 0204-5300C Cylinder Head (Cast Iron)

19 2 1720-0038 O-ring for Cylinder Head

20 1 3430-0209 Ni-Resist Cylinder Sleeve Assembly Consists of two each of No. 1830-0033

Retainer (Ref. A), No. 1720-0079

O-ring (Ref. V), and No. 3550-0018

Sleeve (Ref. C)

Ref. Qty. Part

No. Req'd. No. Description

Ref. Qty. Part

No. Req'd. No. Description

21 1 set 3430-0197 Set of four No. 3400-0073 Unitized

Valve Assemblies: Consists of four

each: O-ring (Ref. A), Valve Seat (Ref.

B), Valve Poppet (Ref. C), Valve

Spring (Ref. D), Valve Spring Retainer

(Ref. E)

22 1 0108-5300C Body (Cast Iron)

Hypro: 5321C-D Twin Plunger Pump With Chemical Injector Head For Pressure Washing

- 24 1 2130-0007 Bearing Shield
- 25 2 2008-0001 Main Bearing (Ball Bearing)
- 26 2 1810-0013 Bearing Retainer Ring (shaft)
- 27 1 1820-0025 Bearing Retainer Ring (housing)
- 28 1 1510-0056 Mounting Base
- 29 1 2820-0040 Torque Arm - for Electric Motor Mounting
- 30 1 2820-0042 Torque Arm - for Gas Engine Mounting
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- Models 5321C and 5322C
- 2 2 2220-0039 Socket Head Cap Screw
- 3 2 2270-0042 Washer
- 4 2 1830-0056 Retainer

Hypro: 5321C-D Twin Plunger Pump With Chemical Injector Head For Pressure Washing

- 5 2 2150-0027 Seal Assembly: Consists of No. 2150-0049 Seal (Ref. A) and No. 1440-0061 Support Ring (Ref. B)
- 6 2 1830-0054 Seal Retainer
- 7 2 1720-0079 O-ring for Seal Retainer
- 8 2 1440-0037 Guide
- 9 2 1720-0064 O-ring for Seal Ring
- 10 2 1440-0010 Seal Ring
- 11 2 1830-0053 Guide Retainer
- 12 2 3500-0021 Plunger (steel, Model 5321)
- 12 2 3500-0036 Plunger (ceramic, Model 5322)
- 13 1 0502-5300 Connecting Rod (Model 5321)
- 13 1 0504-5300 Connecting Rod (Model 5322)
- 14 1 0608-5300 Safety Cover
- 15 * 2210-0063 Cylinder Head Bolt (8 bolts required for Model 5321C-H Hollow Shaft Pump; 4 bolts required for Top Cylinder Head ONLY on Solid Shaft Pumps)
- 15A 4 2210-0064 Extra Long Cylinder Head Bolt for securing mounting base to Solid Shaft Models
- 16 2 0201-5300C Cylinder Head (Cast Iron)
- 17 2 1720-0038 O-ring for Cylinder Head
- 18 1 set 3430-0197 Set of four No. 3400-0073 Unitized Valve Assemblies: Consists of four each: O-ring (Ref. A), Valve Seat (Ref. B), Valve Poppet (Ref. C), Valve Spring (Ref. D), and Valve Spring Retainer (Ref. E)
- Ref. Qty. Part
- No. Req'd. No. Description
- Ref. Qty. Part
- No. Req'd. No. Description
- 19 1 0108-5300C Body (Cast Iron)
- 21 1 2405-0006 Grease Fitting
- 22 1 Hollow Shaft Sub-Assembly (see listing above)
- 24 2 2230-0017 Set Screws for Hollow Shaft
- 25 1 1610-0011 Spline Key for Hollow Shaft
- 26 1 Solid Shaft Sub-Assembly (see listing above)
- 27 1 1610-0007 Spline Key for Solid Shaft
- 28 1 2130-0007 Shield
- 29 2 2008-0001 Main Bearing
- 30 2 1810-0013 Retaining Ring (shaft)
- 31 1 1820-0025 Retaining Ring (housing)
- 32 1 1510-0041 Mounting Base for Solid Shaft Models
- 33 1 3420-0030 Torque Arm Kit for Hollow Shaft Models - Consists of No. 2820-0035 Torque Arm, No. 1450-0003 Bumper and two No. 2210-0064 Bolts
- 34 2 2270-0097 Washer (Model 5322 only)

Hypro: 5321C-D Twin Plunger Pump With Chemical Injector Head For Pressure Washing

Plunger Parts Kits

Plunger Stack Parts Kit No. 3430-0144 (Model 5321)

Consists of two each of the following parts: No. 1440-0010

Seal Rings,

No. 1440-0037 Guides, No. 1720-0064 O-rings, No.

1720-0079 O-rings,

No. 2150-0027 Seal Assemblies, No. 2220-0039 Socket Head Cap

Screws, and No. 2270-0042 Washers.

Plunger Parts Kit No. 3430-0145 (Model 5321)

Consists of one No. 3430-0144 Plunger Stack Parts Kit and two No.

3500-0021 Plungers.

Plunger Stack Parts Kit No. 3430-0291 (Model 5322)

Consists of two each of the following parts: No. 1440-0010

Seal Rings,

No. 1440-0037 Guides, No. 1720-0064 O-rings, No.

1720-0079 O-rings,

No. 2150-0027 Seal Assemblies, No. 2220-0039 Socket Head Cap

Screws, and No. 2270-0042 Washers.

Plunger Parts Kit No. 3430-0292 (Model 5322)

Consists of one No. 3430-0291 Plunger Stack Parts Kit and two No.

3500-0036 Plungers.

Crankshaft Assemblies

Solid Shaft Sub-Assembly No. 5001-5321

Consists of one each of the following parts: No. 0500-5321

Crankshaft,

No. 1600-0014 Crankpin Retainer, No. 2007-0029 Cam Bearing, No.

2405-0006 Grease Fitting Assembly, and No. 1610-0007 Key.

Hollow Shaft Sub-Assembly No. 5501-5321

Consists of one No. 0550-5321 Crankshaft, one No.

2007-0029 Cam

Bearing, one No. 2405-0006 Grease Fitting Assembly, one No. 1610-

0011 Key, and two No. 2230-0017 Set Screws.

Hollow Shaft Assembly No. 5500-5321

Consists of one No. 5501-5321 Crankshaft Sub-Assembly, two No.

1810-0013 Retaining Rings, two No. 2008-0001 Main

Bearings, and

one No. 2130-0007 Bearing Shield.

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Hypro: 5321C-D Twin Plunger Pump With Chemical Injector Head For Pressure Washing

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Spec Pumps 53702 and 53703

NOTE: When ordering parts,
give QUANTITY, PART NUMBER,
DESCRIPTION, and COMPLETE
MODEL NUMBER.

Reference numbers are used
ONLY to identify parts in the
drawing and are NOT to be
used as order numbers.

Crankshaft Assemblies
Spec Pump No. 53702

Hollow Shaft Sub-Assembly No. 5501-5318

Consists of one No. 0550-5318 Crankshaft, one No.
2007-0029 Cam Bearing, one No. 2405-0006
Grease Fitting Assembly, one No. 1610-0011 Key,
two No. 2230-0017 Set Screws.

Hollow Shaft Assembly No. 5500-5318

Consists of one No. 5501-5318 Crankshaft Sub-
Assembly, two No. 1810-0013 Retaining Rings, two
No. 2008-0001 Main Bearings, one No. 2130-0007
Bearing Shield.

Spec Pump No. 53703

Hollow Shaft Sub-Assembly No. 5501-5320

Consists of one No. 0551-5320 Crankshaft, one No.

Hypro: 5321C-D Twin Plunger Pump With Chemical Injector Head For Pressure Washing

2007-0029 Cam Bearing, one No. 2405-0006 Grease Fitting Assembly, one No. 1610-0011 Key, two No. 2230-0017 Set Screws. Hollow Shaft Assembly No. 5500-5320 Consists of one No. 5501-5320 Crankshaft Sub-Assembly, two No. 1810-0013 Retaining Rings, two No. 2008-0001 Main Bearings, one No. 2130-0007 Bearing Shield.

Plunger Parts Kits

Plunger Stack Parts Kit No. 3430-0291

Consists of two each of the following parts: No. 1440-0010-6 Seal Rings, No. 1440-0037 Guides, No. 1720-0064 O-rings, No. 1720-0079 O-rings, No. 2150-0027 Seal Assemblies, No. 2220-0039 Socket Head Cap Screws, No. 2270-0042 Washers, and No. 2270-0051 Washers.

Plunger Parts Kit No. 3430-0292

Consists of one No. 3430-0291 Plunger Stack Parts Kit and two No. 3500-0036 Plungers.

Ref. Qty. Part

No. Req'd. No. Description

Ref. Qty. Part

No. Req'd. No. Description

18 1 Set 3430-0197 Set of four No. 3400-0073

Unitized Valve Assemblies:

Consists of four each: O-ring (Ref. A), Valve Seat (Ref. B), Valve Poppet (Ref. C), Valve Spring (Ref. D), Valve Spring Retainer (Ref. E)

19 1 0108-5300C Body (Cast Iron)

21 1 2405-0006 Grease Fitting

22 1 **** Hollow Shaft Sub-Assembly (See listing above for description)

24 2 2230-0017 Set Screws for Hollow Shaft

25 1 1610-0011 Spline Key for Hollow Shaft

28 1 2130-0007 Shield

29 2 2008-0001 Main Bearing

30 2 1810-0013 Retaining Ring (shaft)

31 1 1820-0025 Retaining Ring (housing)

33 1 3420-0030 Torque Arm Kit: Includes (1) No.

2820-0035 Torque Arm, (1) No.

1450-0003 Bumper and (2) No.

2210-0064 Bolts.

34 2 2270-0097 Washer

2 2 2220-0039 Socket Head Cap Screw

3 2 2270-0042 Washer

4 2 1830-0056 Retainer

5 2 2150-0027 Seal Assembly: Consists of one No.

2150-0049 Seal (Ref. A) and one

No. 1440-0061 Support Ring (Ref.B)

6 2 1830-0054 Seal Retainer

7 2 1720-0079 O-ring for Seal Retainer

Hypro: 5321C-D Twin Plunger Pump With Chemical Injector Head For Pressure Washing

- 8 2 1440-0037 Guide
- 9 2 1720-0064 O-ring for Seal Ring
- 10 2 1440-0010 Seal Ring
- 11 2 1830-0053 Guide Retainer
- 12 2 3500-0036 Plunger
- 13 1 0504-5300 Connecting Rod
- 14 1 0608-5300 Safety Cover
- 15 8 2210-0063 Cylinder Head Bolt
- 15A 2 2210-0064 Extra Long Cylinder Head Bolt for torque arm
- 16 2 0201-5300C Cylinder Head (Cast Iron)
- 17 2 1720-0038 O-ring for Cylinder Head
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- 22 28 29
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- 15A
- 14-
- 15-
- Models 5324C and 5324C-H
- Ref. Qty. Part
- No. Req'd. No. Description
- 15 1 set 3430-0197 Set of four No. 3400-0073 Unitized Valve Assemblies: Consists of four

Hypro: 5321C-D Twin Plunger Pump With Chemical Injector Head For Pressure Washing

each: O-ring (Ref. A), Valve Seat (Ref. B), Valve Poppet (Ref. C), Valve Spring (Ref. D), Valve Spring Retainer (Ref. E)

16 1 0108-5300C Body (Cast Iron)

18 1 2405-0006 Grease Fitting

19 1 Hollow Shaft Sub-Assembly (see listing above)

21 2 2230-0017 Set Screw for Hollow Shaft Pump

22 1 1610-0011 Key for Hollow Shaft Pump

23 1 Solid Shaft Sub-Assembly (see listing above)

24 1 1610-0007 Key for Solid Shaft Pump

25 1 2130-0007 Shield

26 2 2008-0001 Bearing

27 2 1810-0013 Retaining Ring (shaft)

28 1 1820-0025 Retaining Ring (housing)

29 1 1510-0041 Mounting Base for Solid Shaft Pump

30 1 3420-0030 Torque Arm Kit for Hollow Shaft Pump: Consists of (1) No. 2820-0035 Torque Arm, (1) No. 1450-0003 Bumper and (2)No. 2210-0064 Bolts

2 2 2220-0012 Piston Cap Screw

3 2 2270-0011 Washer

4 2 2150-0047 Cup

5 2 1830-0092 Cup Holder

6 2 1720-0029 O-Ring

7 2 1440-0059 Seal Ring

8 2 1440-0060 Guide

9 1 0500-5324 Connecting Rod

10 1 0608-5300 Safety Cover

11 * 2210-0063 Cylinder Head Bolt (8 required for Hollow Shaft Pump; 4 required for top cylinder head ONLY on Solid Shaft Pump)

11A 4 2210-0064 Extra Long Cylinder Head Bolt for securing mounting base to Solid Shaft Pump

12 2 0201-5300C Cylinder Head (Cast-Iron)

13 2 1720-0038 O-Ring

14 1 3430-0210 Ni-Resist Cylinder Sleeve Assembly: Consists of two each of No. 1830-0033 Retainer (Ref. A), No. 1720-0079 O-ring (Ref. B), and No. 3550-0028 Sleeve (Ref. C)

Ref. Qty. Part
No. Req'd. No. Description
Piston Parts Kit
Piston Stack Parts Kit No. 3430-0191
Consists of two each of the following parts: No. 2220-0012 Cap Screw (Ref. 2), No. 2270-0011 Washer (Ref. 3), No. 2150-0047 Cup (Ref. 4), No. 1720-0029 O-ring (Ref. 6), No. 1440-0059 Seal Ring

Hypro: 5321C-D Twin Plunger Pump With Chemical Injector Head For Pressure Washing

(Ref. 7) and No. 1440-0060 Guide (Ref. 8).

Crankshaft Assembly Kits

Model 5324C

Solid Shaft Sub-Assembly No. 5001-5321

Consists of one each of the following parts: No.

0500-5321 Crankshaft, No. 1600-0014 Crankpin

Retainer, No. 2007-0029 Cam Bearing, No. 2405-

0006 Grease Fitting Assembly, No. 1610-0007 Key.

Model 5324C-H

Hollow Shaft Sub-Assembly No. 5501-5321

Consists of one No. 0550-5321 Crankshaft, one No.

1600-0014 Crankpin Retainer, one No. 2007-0029

Cam Bearing, one No. 2405-0006 Grease Fitting

Assembly, one No. 1610-0011 Key, two No. 2230-

0017 Set Screws.

Hollow Shaft Assembly No. 5500-5321

Consists of one No. 5501-5321 Crankshaft Sub-

Assembly, two No. 1810-0013 Retaining Rings, two

No. 2008-0001 Main Bearings, one No. 2130-0007

Bearing Shield.

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Hypro: 5321C-D Twin Plunger Pump With Chemical Injector Head For Pressure Washing

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Accessory

HYPRO SERIES

Liquid Injector Heads

3396-0006

3396-0014

Model 3396-0014

for Hypro Series 5300 cast iron pumps with suffix
"X"

Model 3396-0006

for Hypro Series 5321 and 5324 cast iron pumps

SPECIFICATIONS

Cylinder Head — Cast iron with special flow
Inlet Port — 1/8" NPT (F) can be positioned to
face any
direction.

Brass Valve Stem — Needle-type metering, for
accurate

mixing of injected solution and liquid being pumped.

Unitized Valve Assembly — Stainless steel valve
spring, ball and valve seat. Nylon spring retainer.

Control Knob — Calibrated with 9 steps in a 360o turn.
Can be rotated up to three times.

Maximum Temperature — 140o Fahrenheit (60o C)

Net Weight — Model 3396-0014: 1 lb. 8 oz. (594.8 g.)

Model 3396-0006: 1 lb. 12 oz. (793.2 g.)

The Hypro Series 3396 Liquid Injector Head mounts directly
on the pump,

replacing the regular cylinder head. It feeds solution directly
into the pump,

mixing it with the regular pump flow. No internal pump parts
are removed or

disassembled to install the injector.

Amount of solution injected is regulated by a needle valve and
adjusted by a

calibrated control knob. Positive seating ball-type check valve
prevents back

flow of liquid from the pump into the injector. This allows
application of soap,

detergent and other solutions through the injector, then by
closing the injector

supply, followed by a clear water rinse through the pump.

The 1/8" NPT (F) inlet port can be positioned to face any
direction. A built-in

flow regulator channel in the cylinder head compensates for
various inches of

mercury (127 mm/Hg), up to a maximum incoming pressure of
20 psi (137.8

kPa). NOTE: If incoming pressure is higher, a pressure
regulator must be

used.

Hypro: 5321C-D Twin Plunger Pump With Chemical Injector Head For Pressure Washing

Series 5300 Pump
with Model 3396-0014

Liquid Injector Head

Series 5321 Pump

with Model 3396-0006

Liquid Injector Head

Add suffix letter "D" to pump model number

HYPRO PISTON PUMP

MODEL 5320

(2 GPM)

MODEL 5330

(3 GPM)

MODEL 5321

(2.2 GPM)

MODEL 5324

(2.9 GPM)

Pressure at Pump Outlet 500 psi 500 psi 1000 psi 800 psi

Pump Inlet Conditions 5" Hg 10 psi 20 psi 5" Hg 10 psi 20 psi

5" Hg 10 psi 20 psi 5" Hg 10 psi 20 psi

Maximum Water Injected

Per Minute 9 oz. 6 oz. 5 oz. 10 oz. 9 oz. 8 oz. 11-1/2 oz.

10-1/2 oz. 8 oz. 17 oz. 15-1/2 oz. 13 oz.

HYPRO PISTON PUMP

MODEL 5320

(7.57 L/min.)

MODEL 5330

(11.4 L/min.)

MODEL 5321

(8.3 L/min.)

MODEL 5324

(11 L/min.)

Pressure at Pump Outlet 3.45 MPa 3.45 MPa 6.9 MPa 5.52 MPa

Pump Inlet Conditions 127 mm/ Hg 68.9 kPa 137.8 kPa 127

mm/ Hg 68.9 kPa 137.8 kPa 127 mm/ Hg 68.9 kPa 137.8 kPa

127 mm/ Hg 68.9 kPa 137.8 kPa

Maximum Water Injected

Per Minute 266.4 ml 177.6 ml 148 ml 266.4 ml 177.6 ml 148

ml 266.4 ml 177.6 ml 148 ml 266.4 ml 177.6 ml. 148 ml

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Liquid injector cylinder head MUST

be installed with the flow regulator

channel over the inlet valve of the

pump. "Inlet Side" is cast on the

cylinder head of injector for ease in

identification.

TO ADJUST THE POSITION OF THE INLET PORT

To change the position of the liquid injector inlet port, loosen the retainer nut (Ref.

5), and rotate injector body (Ref. 4) until the opening is in the desired position. It is

important that the retainer nut be fully tightened to properly compress the o-ring

Hypro: 5321C-D Twin Plunger Pump With Chemical Injector Head For Pressure Washing

seal (Ref. 3) against the valve assembly (Ref. 2)

OPERATION

Before using the injector, make sure the retainer nut is tightened securely. NOTE:

The "Inlet Port" on the body indicates the position of the dial setting (closed position is zero). The larger the number, the more flow is allowed. DO NOT rotate the control knob more than three complete turns.

MAINTENANCE

If opening around needle valve stem becomes clogged, clean the valve stem and passage way with warm soapy water. Rotate the control knob assembly counterclockwise

(which includes the control knob and needle valve stem) until it can be

lifted out of the body. Inspect the valve stem o-ring and replace if necessary.

Install the control knob assembly by pushing down firmly on the knob and turning clockwise until it is in the closed position. Set the injector to the desired setting.

Model No. 3396-0014, 3396-0006 Liquid Injector Heads

Ref. Quantity Part

No. Required Number Description

1 1 0257-5300C Cylinder Head for Model 3396-0014 (cast iron)

1 1 0254-5300C Cylinder Head for Model 3396-0006 (cast iron)

2 1 3400-0098 Unitized Valve Assembly

3 1 1720-0029 O-ring

4 1 3200-0027 Body

5 1 3240-0006 Retainer Nut

6 1 1720-0033 O-ring

7 1 3220-0016 Needle Valve Stem

8 1 2802-0002 Calibrated Adjustment Control Knob

DIMENSIONS INSTALLATION: IMPORTANT

PARTS LIST

1/8-27 NPT

X

Y

Flow

Regulator

Channel

O-ring

Groove

A

B

C

D

8

7

6

Hypro: 5321C-D Twin Plunger Pump With Chemical Injector Head For Pressure Washing

5
4
3
2
1

X=3-13/16" Y=5-5/16"

X=96.8 mm Y=135 mm

X=3-3/16" Y=5-11/16"

X=106.4 mm Y=144.5 mm

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NOTES

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NOTES

Limited Warranty on Hypro Pumps and Other Hypro Products
Printed in the USA

2006 Hypro

Hypro warrants to the original purchaser of its products (the
“Purchaser”) that such products will be free
from defects

in material and workmanship under normal use for the period
of one (1) year for all products except: oil crankcase
plunger pumps will be free from defects in material and
workmanship under normal use for the period of five (5)
years, and accessories will be free from defects in material
and workmanship under normal use for the period of
ninety (90) days. In addition, Hypro warrants to the purchaser
all forged brass pump manifolds will be free from
defects in material and workmanship under normal use and
from damage resulting from environmental conditions for
the life of the pump.

“Normal use” does not include use in excess of
recommended maximum speeds, pressures, vacuums and
temperatures,

or use requiring handling of fluids not compatible with
component materials, as noted in Hypro product catalogs,
technical literature, and instructions. This warranty does not
cover freight damage, freezing damage, normal
wear and tear, or damage caused by misapplication, fault,
negligence, alterations, or repair that affects the performance
or reliability of the product.

THIS WARRANTY IS EXCLUSIVE. HYPRO MAKES NO
OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING
BUT NOT LIMITED TO ANY WARRANTY OF
MERCHANTABILITY OR FITNESS FOR A PARTICULAR
PURPOSE.

Hypro’s obligation under this warranty is, at
Hypro’s option, to either repair or replace the product
upon return of the

entire product to the Hypro factory in accordance with the
return procedures set forth below. THIS IS THE EXCLUSIVE
REMEDY FOR ANY BREACH OF WARRANTY.

IN NO EVENT SHALL HYPRO BE LIABLE FOR ANY
INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY

Hypro: 5321C-D Twin Plunger Pump With Chemical Injector Head For Pressure Washing

KIND, WHETHER FOR BREACH OF ANY WARRANTY, FOR NEGLIGENCE, ON THE BASIS OF STRICT LIABILITY, OR OTHERWISE.

Return Procedures

All pumps or products must be flushed of any chemical (ref. OSHA Section 0910.1200 (d)(e)(f)(g)(h)) and hazardous chemicals must be labeled before being shipped* to Hypro for service or warranty consideration.

Hypro reserves the right to request a Material Safet

Price : \$236.24

Availability: This product was added to our catalog on Friday 26 June, 2009