

user manual

HydroMinder WDP

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1.00 overview

Safety Precautions



WARNING! Please read precautions thoroughly before operation. Meet all applicable local codes and regulations.

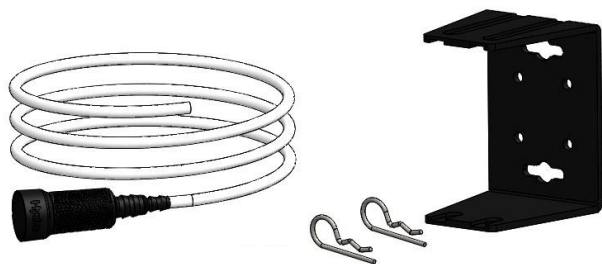
THANK YOU FOR YOUR INTEREST IN OUR PRODUCTS

Please use this equipment carefully and observe all warnings and cautions.

- WEAR** protective clothing and eyewear when dispensing chemicals or other materials or when working in the vicinity of all chemicals, filling or emptying equipment, or changing metering tips.
- ALWAYS** observe safety and handling instructions of the chemical manufacturer.
direct discharge away from you or other persons or into approved containers.
dispense cleaners and chemicals in accordance with manufacturer's instructions. Exercise CAUTION when maintaining your equipment.
reassemble equipment according to instruction procedures. Be sure all components are firmly screwed or latched into position.
- KEEP** equipment clean to maintain proper operation.
- ATTACH** only to water tap outlets (5 psi Minimum, 90 psi Maximum and Maximum water temperature 100° F).

1.01 Package Contents

- 1) HydroMinder WDP
HYD117947CW 2 % ADJ, NPT
HYD117948CW 5 % ADJ, NPT
HYD117957CW 2 % ADJ, BSP
HYD117958CW 5 % ADJ, BSP
- 2) Quick Start Guide (P/N HYD9006170)
- 3) Accessory Kit (Mounting brackets and hardware)
- 4) Mounting Bracket (P/N HYD195008)
- 5) Mounting Pins (P/N HYD004014 x2)
- 6) Suction Tube with Filter
(P/N HYD10095359 2%)
(P/N HYD10095356 5%)



1.00 overview (continued)

1.02 General Description

The HydroMinder WDP models are designed to inject liquid concentrate or soluble powder that is recommended and approved for injection into fluid systems. HydroMinder WDP has specifically been designed to handle various car wash chemicals.

1.03 Specifications

Category	Specification
Operating Pressure	Min: 5 psi (0,4 Bar) Max: 90 psi (6,2 Bar)
Flow Rate	0.04 - 11 GPM (10 - 2500 l/h)
Dilution Ratio Range	Model 0.2% - 2% (1:500 - 1:50) Model 0.78% - 5% (1:128 - 1:20)
Pipe Coupling	3/4" npt/bsp
Housing	PVDF
Dosing Accuracy	+/- 10% of ratio
Repeatability	+/- 5%
Pressure Loss	Available on request
Maximum Temperature	100° F/ 38° C
Minimum Temperature	34° F/ 1° C
Maximum vertical suction of concentrate	13 Feet/396 Centimeters
Maximum horizontal suction of concentrate	49 Feet/1493 Centimeters
Self Priming	Yes
Seal Material Available:	Engineered Flouroelastomer - Motor, FFKM - Lower end seals
Maximum Viscosity	2,000 cP (Ex. Honey)
Recommended Accessories	140+ mesh filter, check valve, pressure regulator, flow restrictor
Weight	2.6 lbs
Dimensions	15 inches High x 6.25 inches Wide (thread to thread) x 5 inches Depth

1.00 overview (continued)

1.04 Safety Precautions & Warranty Compliance



WARNING! Please read precautions thoroughly before operation. Must meet all applicable local codes and regulations.

Remove Red Caps Prior to Installation

Your injector is 100% factory tested before delivery and may contain a small amount of water. The three red plastic caps are fitted after testing to ensure cleanliness of the injector.

Before Applying Aggressive Chemicals

Please consult your distributor, chemical manufacturer or contact Hydro Systems customer service to confirm compatibility with your injector. Always wear proper safety protection as recommended by chemical supplier.

Label all Fluid Lines, Valves and Connections

If the solution that is being injected is not suitable for drinking, all fluid lines should be labelled, "Warning: Not for human consumption!"

Monitor Outlet Flow

It is the user's responsibility to monitor the output of chemical injected.

A Filter is Recommended and Required

Install a filter of 140 mesh (104 micron) or finer depending on your fluid quality to prolong the working life of the injector and for the warranty to be valid. A filter is imperative since most fluid contains impurities or particles, especially if the fluid source comes from a well, pond or lake.

Avoid a Potentially Hazardous Chemical Accident

Select a safe location. Chemical container should be kept away from children and/or high usage areas and the location must also not be susceptible to freezing temperatures.

Avoid Solution Contamination

Use only clean FILTERED fluid. Do not allow contaminants to enter the solution container. Dirt, debris and other contaminants in the solution container may cause excessive wear to the unit.

Fluid Temperature

Min: 34° F (1°C) Max: 100° F (38°C)

Maximum Fluid Pressure 90 psi (6,2 bar)

Install a pressure regulator and/or pressure relief valve to ensure operating pressure does not exceed the maximum specification.

Before Removing An Injector From The System

Release fluid pressure. While the system is in operation, turn off the incoming fluid valve. Leave the out going valve open this will relieve the pressure at the injector and all parts of the system after the injector. Injector is now safe to remove.

1.05 General Tips

Please read this instruction manual thoroughly. Following the procedures, will increase the life of your injector.

For A Long Service Life

Start with clean fluid by using an inline filter to reduce impurities. Keep the solution container covered and clean. Keep the suction tube filter 2" (5 cm) from the bottom of the container. Perform maintenance procedures as recommended (see Maintenance page 9).

Soluble Powder Use

Ensure the chemical is completely dissolved before starting the injector. If necessary, dissolve the chemical in hot water and allow to cool before using. Failure to thoroughly dissolve the chemical will cause premature wear to the dosage piston/gasket and the inner cylinder.

Keep From Extreme Temperature

Protect the injector from freezing temperatures or excessive heat.

Rinse Injector After Each Use

Additive allowed to remain in injector can dry out, foul or damage the lower end at the next start-up (see Maintenance page 9).

Injector Not in Use for an Extended Period

If the injector has not been stored properly deposits may have dried onto the motor (see Maintenance page 9). Before operation, soak entire unit into room temperature water approx.. 72° F (22° C) for a 24 hour period.

2.00 installation & operation

2.01 Installation & Start-up

Fluid Filter (Required)

Install a filter of 140 mesh (104 micron) or finer depending on your fluid quality to prolong the working life of the injector and for the warranty to be valid. Hydro Systems recommends a Twist II Clean® filter that can be ordered with your injector.

Mounting Injector

Securely fasten your injector to a solid object such as a wall or in a cold fluid line. Note arrow on injector indicates fluid flow.

Backflow Preventor (Recommended)

Install one that meets local code requirements.

Pressure Safety Release Device (Recommended)

Prevents pressure from exceeding specifications of the unit.

Bypass Valve Set-up (Recommended)

Allows the injector to be taken off-line for maintenance or storage when not in use.

Fluid-Hammer Arrester (Recommended)

Prevents fluid-hammer damage to the injector when operating quick closing solenoid, pneumatic or hand-operated ball valves on the fluid system.

Anti-Siphon Valve (Optional)

To prevent solution from being siphoned out (from the solution container) into the feed lines when the upstream valve is shut off. The anti-siphon valve must be installed on the downstream outlet.

Additional Siphoning Prevention

Place solution container on a level below the injector suction tube fitting. Using the inlet side as a shut-off valve could cause full strength solution to siphon into the feed line.

Solution Container

Use any size container. A lid or cover is recommended.

To connect your solution container, gently push the end of the suction tube onto the bottom of the suction tube fitting assembly. Place the filter into the solution container at least 2" (5 cm) from the bottom and fill with at least 2" (5 cm) of chemical solution.

Never Use Petroleum Based Lubricants

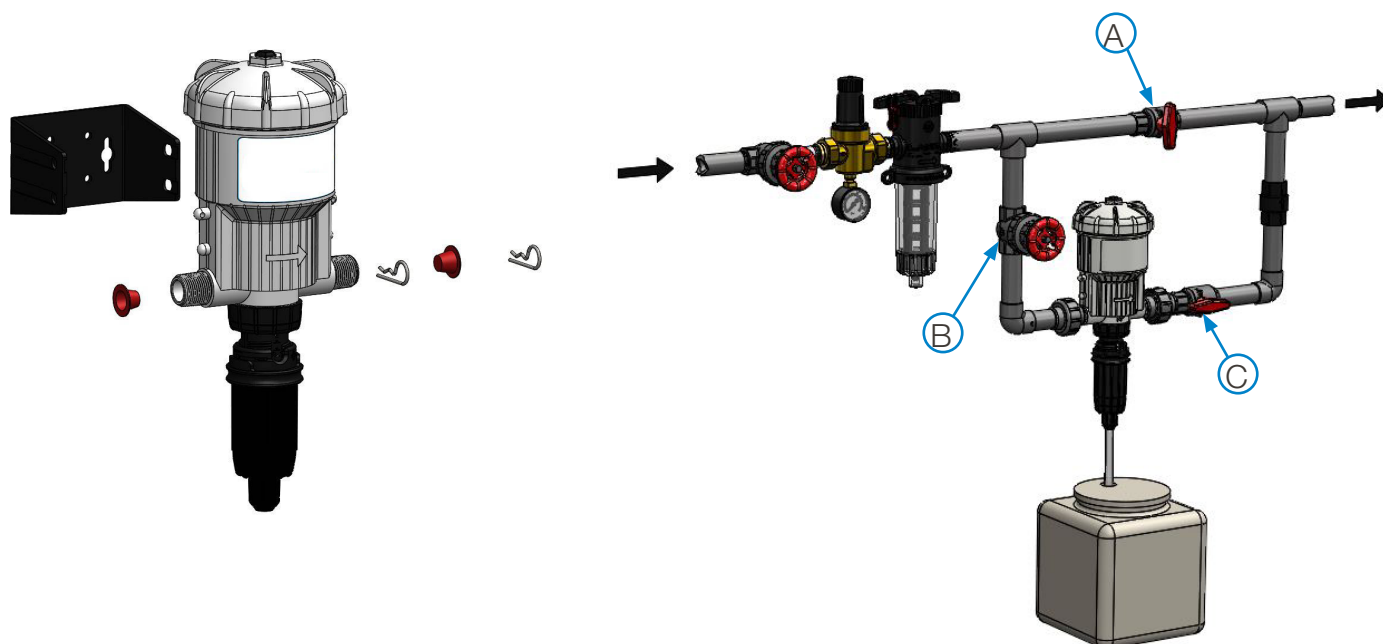
The injector is shipped with a thin coat of silicone around the seals for ease-of-assembly. Petroleum based lubricants such as Vaseline®, baby oil, WD40®, or motor oil on the O-rings or any part of the injector should never be used as this can cause particles to adhere and clog or damage the injector.



Check System for Leaks and Start-Up Procedures

Open the bypass valve (A), close inlet valve (B) and outlet valve (C) to prevent fluid flow into the injector. SLOWLY turn on the main fluid line. Run fluid flows between 5 -10 gpm (1100-2200 l/hr) through the plumbing system. Turn on all of the valves located downstream from your injector to release trapped air. SLOWLY turn on the inlet valve (B). Open the outlet valve (C) and close valve (A). As fluid travels through the injector, you will hear a "clicking" sound. Check for leaks and correct if necessary.

2.02 Suggested Installation



2.00 installation & operation (continued)

2.03 Operation

Clicking Sound is Normal

Fluid flowing through the injector will automatically cause the injector to “click” and inject a set amount of solution into the fluid line. The higher the flow rate the more frequent the “clicking.” The injector is designed to inject solution proportionally (at the same set ratio) regardless of fluid flow. Maximum number of clicks per 15 seconds is 50.

Service Fluid Flow

Fluid flow and pressure must be within the established specifications (see Specifications on page 5) for your model.

Change Feed (Injection) Rate

The feed rate on the injector is adjustable EVEN WHILE OPERATING AND UNDER PRESSURE. To change feed rate see (Fig. 1 and Fig. 2).

1. Lift lock ring (Fig. 1).
2. Rotate Ratio Adjuster Sleeve (Fig. 2) up or down to the desired setting. Use arrows at top of the Ratio Adjuster Sleeve to line up with the desired feed rate on the sleeve.
3. Return ring to lock position by pushing down on ring.

NOTE: Do not screw Ratio Adjuster Sleeve below lowest setting line. Measure outlet fluid to assure desired feed rate is being delivered.

Bleed Port

Ensure all air is out of the unit by pressing the bleeder button, on the lid, in until water comes out. Release bleeder button to stop water from flowing out of bleed port.

Fig. 1

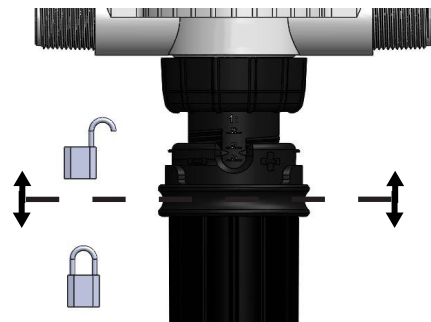
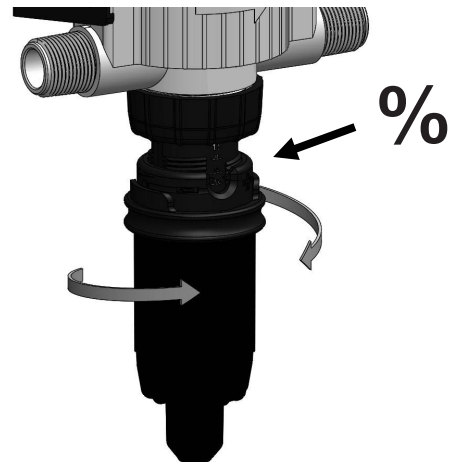


Fig. 2



3.00 maintenance

3.01 General Maintenance Tips & Schedule

Rinse Injector After Each Use

Additive allowed to remain in injector can dry, foul or damage the lower end at the next start-up. Place suction tube into a 1 qt. (0.95 liters) or more container of fresh filtered water. Flow fresh water through the injector by operating until container is empty. This procedure is not needed for continuous operation.

Clean Solution Container

Keep covered to prevent dirt, and other debris from entering the container. Rinse container thoroughly and often. Do not mix chemicals together that might react and cause a precipitate. Use FILTERED fluid when filling container.

Clean Suction Tube Filter Screen

Inspect each time new solution is added. Clean filter screen and suction tube as necessary by rinsing in fresh water. Replace if necessary. Keep filter screen off bottom of solution container to prevent dirt and precipitate from clogging filter.

Clean Inlet Filter

Clean or replace inlet filter as required to increase the life of the unit as well as reduce pressure loss.

Bypass Injector

When not in use place the injector in bypass mode by using the three valve bypass.

Storage

For extended storage, rinse injector using a minimum of 1/2 gallon. (Refer to “**Rinse Injector After Each Use**”) Drain water from unit. Inspect lower end seals. Apply thin coat of silicone to seals and reassemble unit. Place plugs back into inlet/outlet & suction tube fitting. KEEP FROM FREEZING.

Perform these maintenance procedures to extend the life of your unit.

Every 3 - 6 Months	Every 6 - 12 Months	Replace as Necessary
1. Clean Seal areas of Dosage gasket. 2. Clean & Check Seal, Cylinder, clean and/or replace as necessary. 3. Clean Filters	1. Replace Dosage gasket. 2. Clean and/ or replace Check Poppet, inside Suction Tube Fitting.	1. Cylinder 2. O-ring/Gasket 3. Motor Piston 4. Shaft Assembly Dosage gasket 5. Check Valve Assy and Tubing

NOTE: Maintenance intervals may vary depending on conditions of use and the chemicals being injected.

3.00 maintenance (continued)

3.02 Routine Maintenance Instructions



Step 1.
Unscrew and remove lower end from assembly.



Step 2.
Pull down on shaft, rotate shaft 90° and remove.



Step 3.
Remove shaft with gasket and install new. If damage on sealing surface of shaft, replace shaft.



Step 4.
Hold body firmly and unscrew the lid. If lid is tight, use 1" (25 mm) socket to loosen.



Step 5.
Remove motor piston from pump body.



Step 6.
Place new motor piston carefully into pump body and replace lid.



Step 7.
Place shaft into the motor piston and rotate shaft 90° to lock into place. Gently pull down to ensure shaft is locked.



Step 8.
Replace lower end assembly.



Step 9.
Replace lid onto the pump body. Ensure o-ring is still in the lid before putting it back on.

4.00 troubleshooting

4.01 New Install Troubleshooting

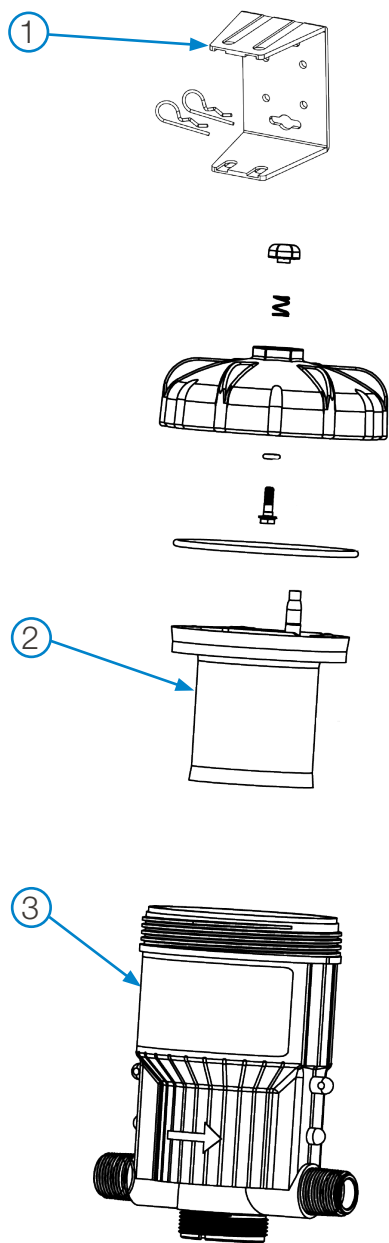
Problem	Cause	Solution
1. No Clicking Sound	a. Fluid not flowing through unit	• Are the red plugs at the inlet, outlet and suction tube fitting openings removed? • Is the unit installed backward? The arrow on the unit must point in the direction of the fluid flow. • If still not clicking, do not open the upper body. Call Hydro Systems customer service.
	b. Fluid flowing through unit	• Fluid rate is below or exceeds rated service flow of injector. (See Specifications for maximum flow rate page 5). Maximum number clicks = 28 per 15 seconds. • Ensure all air is out of the unit by pressing the bleeder button in, on the lid, until water comes out. • If below increase flow rate, if above, reduce flow rate. • Operating pressure exceeds maximum limit. Install a pressure reducer valve. (See Specifications for maximum flow rate page 5).

4.02 Injector in Operation or After Scheduled Maintenance Troubleshooting

Problem	Cause	Solution
1. No Clicking Sound	a. Air trapped in unit	• Release trapped air by pressing the bleeder button in until water comes out.
	b. By-pass valve not open c. Broken springs d. Dirty or plugged inlet filter e. Main piston assembly worn f. Main body worn or scored	• Set valve to the closed position. • Replace Motor Piston assembly, Clean fluid filter. • Ensure mesh size is correct for proper filtration. Clean filter. • Replace Motor Piston assembly. Clean fluid filter. • Replace body and piston.
2. Clicking sound. No suction of solution	a. Cracked or loose suction hose	• Check for proper fit and/or replace.
	b. Dosage gasket worn or installed incorrectly c. Suction tube or suction tube fitting cracked, leaking or clogged suction tube filter d. Check valve #11 leaking	• Replace. Ensure during maintenance replacement that dosage gasket was installed correctly. • Replace and/or clean as necessary. • Clean and/or replace as necessary.
3. Clicking Sound. Under Injecting or Unit Operates at High-flow and not at Low Flow.	a. Dosage gasket worn	• Replace.
	b. Inner cylinder worn c. Broken springs d. Main piston assembly worn e. Main body worn or scored	• Replace inner cylinder and gasket. • Replace Motor Piston assembly, Clean fluid filter. • Replace Motor Piston assembly. Clean fluid filter. • Replace Body & Piston.
4. Fluid Re-filling Solution Tank	a. Check valve leaking or dirty	• Check seat area on suction tube fitting. Check valve and seal must fit loose in the suction tube fitting. Clean seal and inside fitting for debris.
	b. Washer seal on check valve is swollen or chemical attack	• Replace with new check valve assembly.

5.00 injector repair parts

5.01 Body and Piston Exploded Parts Diagram

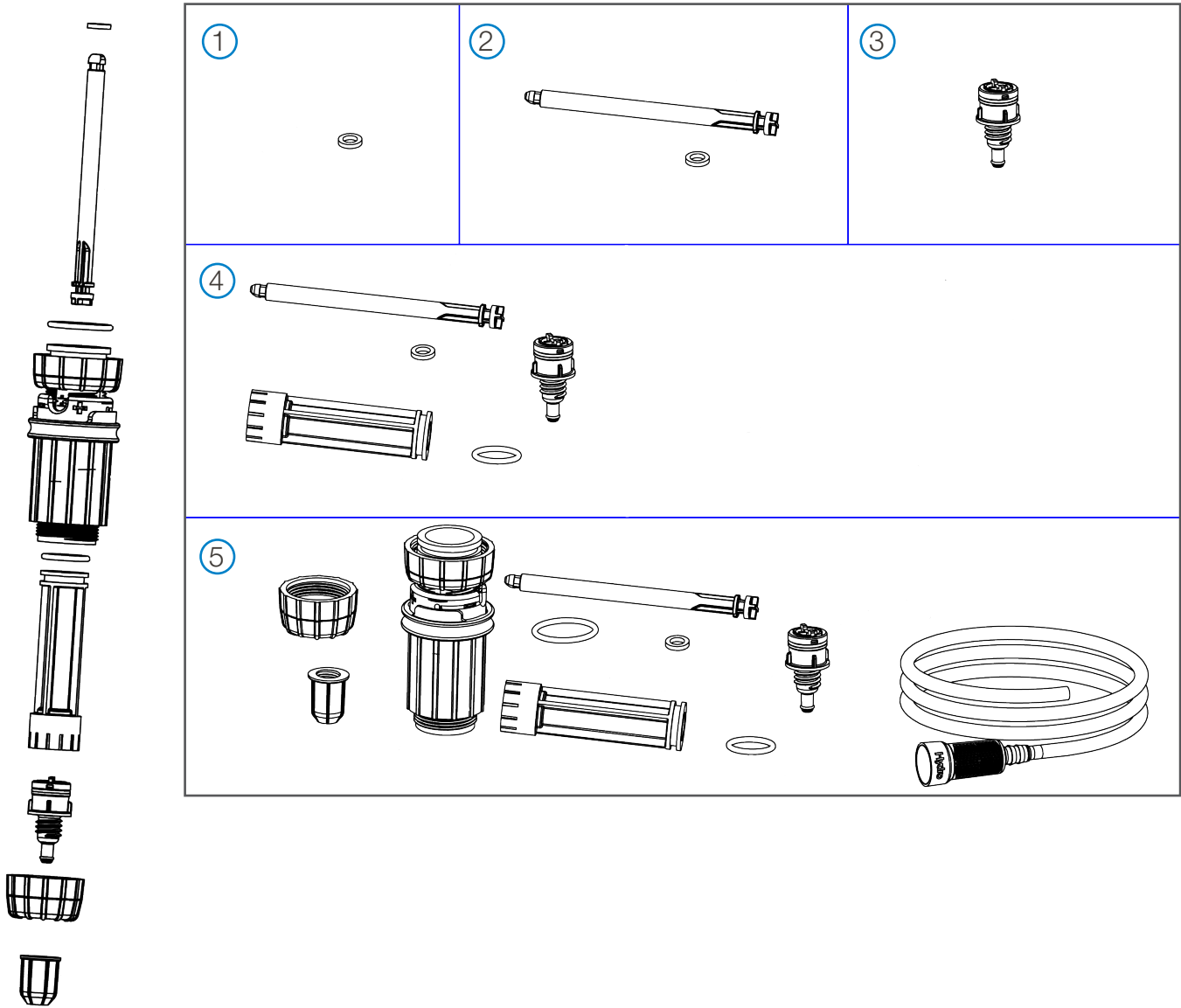


Service Parts List

Key	Part No.	Description
1	HYD011732	Kit M - Mounting bracket kit
2	HYD017200XT	Kit H - Motor piston replacement
3	HYD102601NPT HYD102601BSP	Body, NPT, PVDF, AquaBlend Xtreme Body, BSP, PVDF, AquaBlend Xtreme

5.00 injector repair parts (continued)

5.02 lower end parts 0.2% - 2% exploded parts diagram

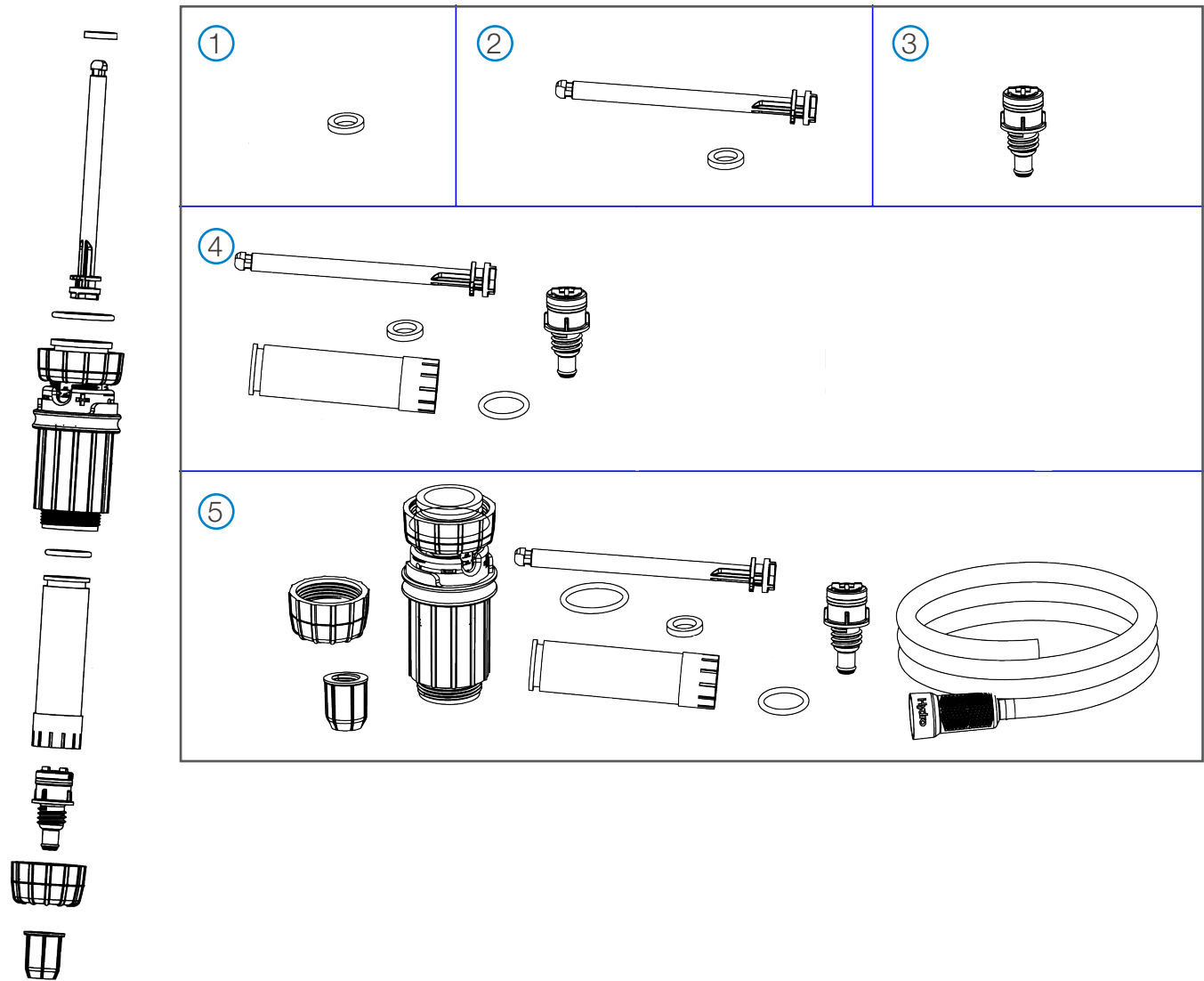


Service Parts List

Key	Part No.	Description
1	HYD017210CW	Kit A: Dosage gasket kit
2	HYD017211CW	Kit B: Wear kit
3	HYD017213CW	Kit D: Check valve kit
4	HYD017214CW	Kit E: Wear parts maintenance kit
5	HYD017216CW	Kit G: Complete lower end kit

5.00 injector repair parts (continued)

5.03 lower end parts 0.78% - 5% exploded parts diagram



Service Parts List

Key	Part No.	Description
1	HYD017220CW	Kit A: Dosage gasket kit
2	HYD017221CW	Kit B: Wear kit
3	HYD017223CW	Kit D: Check valve kit
4	HYD017224CW	Kit E: Wear parts maintenance kit
5	HYD017226CW	Kit G: Complete lower end kit

6.00 warranty

Congratulations on Your Purchase!

We make the best and most reliable fluid-driven injectors available. Hydro Systems will provide for replacement of all parts proven to be defective in material or workmanship from the date of purchase for the following periods:

1 Year

Covers your unit from manufacturing and material defects only.

Hydro Systems products are warranted to be free from defects in materials and workmanship for the above time frames. Hydro Systems will at its sole option repair or replace any component that fails in normal use. Any repairs made under warranty shall not extend the initial warranty period.

To Maintain Your Warranty

Your only responsibility is ordinary maintenance - filtering incoming fluid, replacing the O-ring and dosage piston/gasket when worn. Seals and O-rings are not covered under the warranty.

This warranty is not valid if the defects are found to be due to the product's misuse, lack of maintenance, fluid impurities such as sand or iron, defective installation, freezing, fluid hammer, abuse, unwanted side effects due to the chemicals you choose to inject or service provided by anyone who is not an authorized service provider. Hydro Systems declines any responsibility if the product is not used in compliance with the operating instructions and specifications as indicated in this owner's manual.

IN NO EVENT SHALL HYDRO SYSTEMS BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM THE USE, MISUSE OR INABILITY TO USE THIS PRODUCT OR FROM DEFECTS IN THE PRODUCT.

There is no warranty expressed or implied relating in any way to products used in conjunction with Hydro Systems.

Hydro Systems or authorized distributor shall not be liable for incidental or consequential damage, such as any economic loss. Hydro Systems retains the exclusive right to repair or replace the product. Such remedy shall be your sole and exclusive remedy for any breach of warranty. There are no warranties, expressed or implied, which extend beyond those described above.

To Return an injector for Warranty or Non-Warranty repair:

Contact Hydro Systems Company or your local distributor for return information.

6.01 Limited Warranty

Seller warrants solely to **Buyer** the Products will be free from defects in material and workmanship under normal use and service for a period of one year from the date of completion of manufacture. This limited warranty does not apply to (a) hoses; (b) and products that have a normal life shorter than one year; or (c) failure in performance or damage caused by chemicals, abrasive materials, corrosion, lightning, improper voltage supply, physical abuse, mishandling or misapplication. In the event the Products are altered or repaired by **Buyer** without **Seller's** prior written approval, all warranties will be void.

No other warranty, oral, express or implied, including any warranty of merchantability or fitness for any particular purpose, is made for these products, and all other warranties are hereby expressly excluded.

Seller's sole obligation under this warranty will be, at **Seller's** option, to repair or replace F.O.B. **Seller's** facility in Cincinnati, Ohio any Products found to be other than as warranted.

6.02 Limitation of Liability

Seller's warranty obligations and **Buyer's** remedies are solely and exclusively as stated herein. **Seller** shall have no other liability, direct or indirect, of any kind, including liability for special, incidental, or consequential damages or for any other claims for damage or loss resulting from any cause whatsoever, whether based on negligence, strict liability, breach of contract or breach of warranty.



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