

A Cleaner, Greener Approach to Landscape Care.



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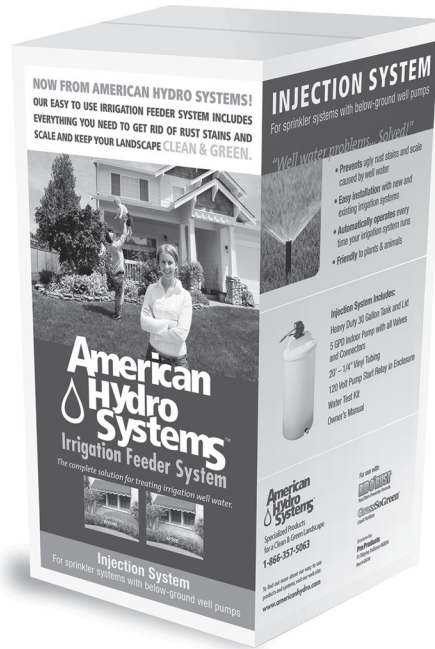
Product Ordering:
Call Toll Free 1-800-285-9176
Fax: 260-483-2070
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Injection System

Keep this manual handy for future reference

Owner's Manual



INSTALLATION | OPERATION | PARTS LIST | DOSAGE

Caution:

Read all instructions carefully before beginning the installation

This System is made for applying American Hydro Rust Stain Preventers, Pest Repellants and Liquid Fertilizer products.

RIDORUST

NatureShield
ALL-NATURAL PEST REPELLANT

GrassSoGreen

Questions? Need parts or supplies?

Call us at
1-800-285-9176

or e-mail us at
info@proproducts.com

or visit our web site
www.proproducts.com

 **American
Hydro**
SYSTEMS®

A Cleaner, Greener Approach
to Landscape Care.

American Hydro Systems

American Hydro Systems

We have been focused on the irrigation and landscape market since 1985, and are dedicated to helping you solve problems that come with using well water to irrigate. Our proven range of products and systems for rust stain prevention, fertigation and pest repelligation make installation and treatment easy and effective. It's just a cleaner, greener approach to landscape care. Put our "know-how" to work for you. American Hydro Systems is at your service — just a phone call or a mouse click away.



To find out more about our easy to use products and systems, visit our web site:

www.americanhydro.com

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General Comments on Injection Systems

An Injection System consists of a metering pump, related tubing, a feed tank, a pump start relay unless using the IPU-16 pump. The metering pump may be either a diaphragm pump or a peristaltic pump.

The system can be used with any type of sprinkler pump to inject Formula into lawn irrigation lines. The metering pump sends solution from the feeder tank into the irrigation line when the sprinkler system is turned on.

Location

Be sure to locate the feed tank where it can be easily accessed and serviced.

Your particular application may require a longer length of tubing leading from the pump to the discharge point than is normally supplied. The distance between the intake and/or discharge points and the metering pump can affect the pump's ability to intake liquid or discharge it against a certain line pressure.

The same is true for significant differences in elevation between intake and/or discharge points and the metering pump. These factors may require a metering pump rated for pumping against higher line pressure. Check the pump specifications to determine which type of metering pump your installation calls for.

When in doubt, please call American Hydro:
1-800-347-7487

Please note:

- **Do not cut the plug. Doing so will void the warranty and damage the pump!**
- You must always match the voltage rating of the metering pump to the voltage of the power source.
- Before installing any type of metering pump, you should be aware of local code requirements regarding both backflow prevention and electrical devices.
- The injection valve at the end of the discharge line must be installed vertically on the bottom side of the water line to prevent back flow into the discharge line.



Top: 30 Gallon Injection System installation

Universal Injection Pump Specifications (IPU-16)

Pump Specifications

The (IPU-16) is shipped with an adjustable rate output of 5 GPD. The output can be increased by increasing the auxillary percentage and/or replacing the pump tube (G) with optional pump tube (H).

Item #	Pump Tube	Turndown ratio	Gallons Per Day	Pressure PSI
IPU-16	G (included)	10:1	16	80
IPU-16	H	10:1	30	80

Note: Injection check valve included

Approx Maximum Out puts @ 50/60Hz

Accessory Checklist

3 connecting nuts 1/4"	1 weighted suction line strainer
3 Ferrules 1/4"	1 20' roll of black 1/4" suction/discharge tubing
1 Injection Check Valve	
1 Installation Manual	

Materials of Construction

All housings - Polycarbonate

Peristaltic tubing & check valve duckbill - Santoprene® FDA approved

Suction/Discharge tubing & ferrules - Polyethylene, FDA approved

Weighted suction line strainer - Polypropylene or type 1 rigid PVC cap, NSF listed; ceramic weight

Tube fittings - Polypropylene, NSF listed

Check valve fittings - type 1 rigid PVC, NSF listed

Connecting nuts - type 1 rigid PVC or polypropylene

All fasteners - stainless

*Santoprene® is a registered trademark of Exxon Mobil Corporation

Replacement Parts

Item#	Description	Unit of Measure
S-ST114	Suction line strainer	1
S-AK4002B	Discharge/suction tube blk 20' x 1/4"	1
S-AK 4010B	Discharge/suction tube blk 100' x 1/4"	1
S-UCDBINJ	Injection check valve 1/4"	1
S-EC30G2	(G) Pump tube, ferrules 1/4" (for up to 16 GPD)	2
S-EC30H2	(H) Pump tube, ferrules 1/4" (for up to 30 GPD)	2

Universal Injection Pump Installation

Installation using universal injection pump or

Well Used for Drinking Water and Irrigation or Irrigation System Has a Pressure Tank

1. The metering pump must be connected to the controller unit for the irrigation system. This is done by using the pump start circuit in the controller unit.
2. Plumbing code typically requires a backflow preventer. The metering pump injection point should be downstream of the pressure tank, the "T" for the drinking water line and between the backflow preventer and the first zone.

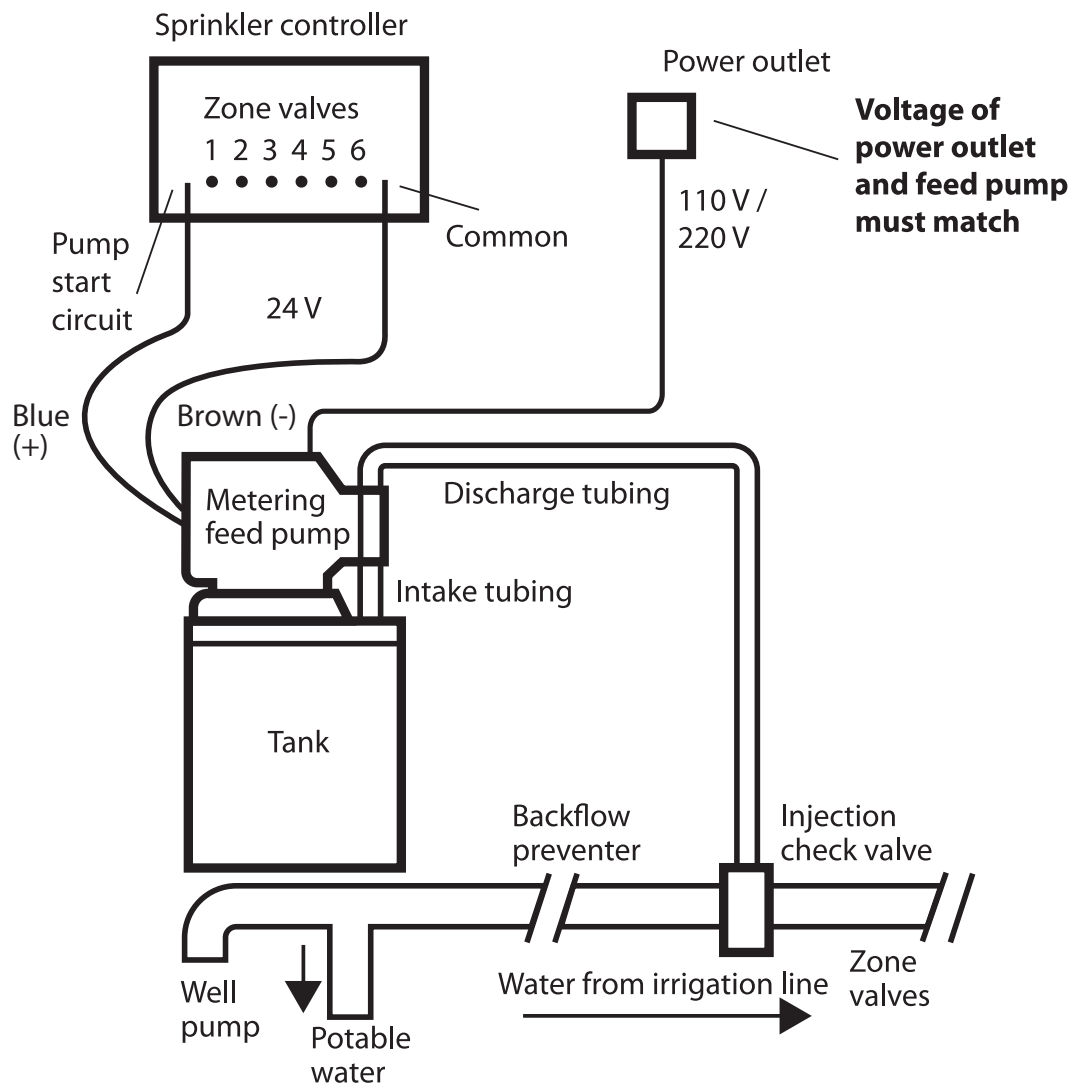




Fig. 1

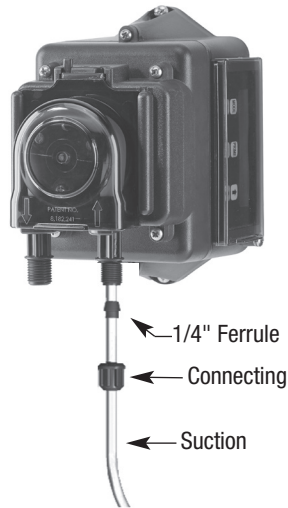


Fig. 2

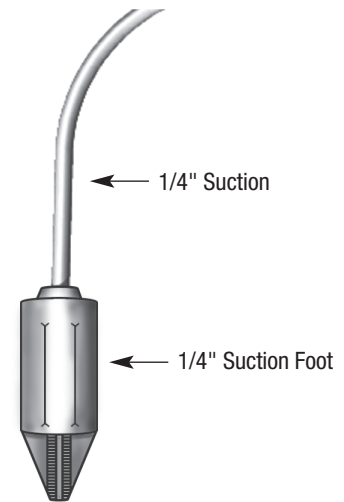


Fig. 3

Installation Instructions:

1. Position tank:
 - a. Within 8' of power supply and 15' of irrigation mainline.
(Note: injection point must be after backflow device, where required by code)
 - b. Surface should be flat and level.
2. Cut 1/4" tube to 40" length. This is now the suction tube.
3. Using 5/16" drill bit, drill suction line hole thru lid at pilot depression. (Fig. 1) Feed free end of suction tube thru drilled hole in lid.
4. Connect nut, ferrule, and lead tube to the suction side of the pump head (labeled "up" on the cover of the pump). Hand-tighten only. (Fig. 2)
5. Assemble suction foot valve on free end of suction tube. (Fig. 3)
6. Place lid and pump on top of tank, insuring the foot valve hangs freely inside tank, just above bottom of tank.
7. Connect nut, ferrule, and remaining tube to the discharge side of the pump head (labeled "down" on the cover of the pump). Hand-tighten only. (Fig. 4)
8. Run tubing to injection point on irrigation mainline. (NOTE: injection point must be after backflow device, where required by code.) Contact supplier if longer tubing is needed.
9. Shut off irrigation water supply at backflow device or point of connection.
10. Install injection fitting (tap tee or saddle — not included) to accept injection check valve into irrigation mainline per pipe and fitting manufacturers' recommendations. Injection fitting outlet should point down or sideways. DO NOT install injection fitting with outlet facing up.

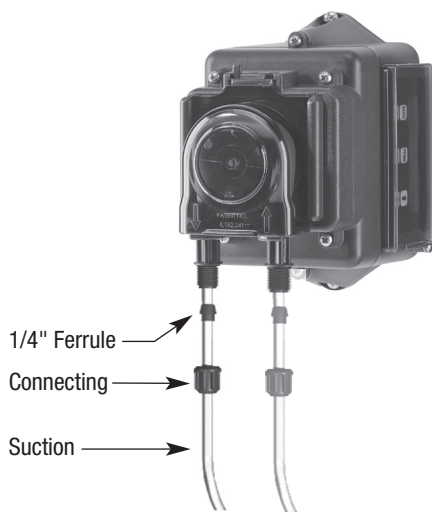


Fig. 4

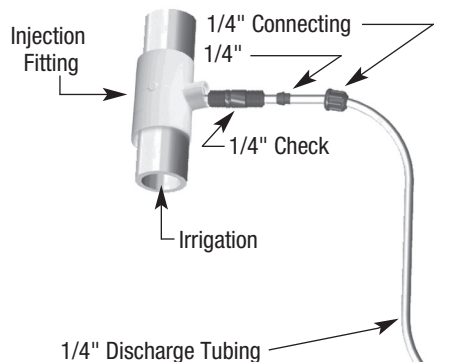


Fig. 5



Fig. 6

Installation Instructions, continued:

11. Thread check valve into the injection fitting with the flow arrow pointing towards the injection fitting. Use plumbers tape on threads to prevent leakage. (Fig. 5)
12. Cut tubing to desired length to connect check valve to pump, leaving enough slack to avoid kinks.
13. Connect nut, ferrule, and tube to the check valve. Hand-tighten only. (Fig. 5)
14. Locate power source (120 VAC grounded receptacle). Power source should be within 12 ft. of pump location.
15. Install 24 VAC sprinkler control wire (2 strand, 18 AWG, min.) from irrigation controller to pump.
 - a. Connect control wire leads to MV (master valve) and C (common) terminals in irrigation controller. (one to each terminal)
 - b. Connect other end of the master valve control wire to the blue wire in the auxiliary strand from the pump. Connect the other end of the common wire to the brown wire in the auxiliary strand from the pump.
16. Mount pump on tank:
 - a. Place base in recessed area on tank top.
 - b. Place pump on base with tubing pointing down.
 - c. Secure pump & base using self tapping screws
17. System is now installed. Proceed to next page for dosage & operation recommendations.

The American Hydro Systems Irrigation Feeder System works with Rid O' Rust rust preventer formula, NatureShield Pest Repellant and GrassSoGreen liquid fertilizer.

Universal Injection Pump - Programming

1. Determine desired pump speed percentage.

	5GPD	10GPD	16GPD	22GPD	30GPD
Tube G (installed)	33%	66%	100%	N/A	N/A
Tube H (optional)	17%	34%	50%	74%	100%

2. Program the pump **Operating Mode** and **Pump Speed Percentage**. Note: Pump comes pre programmed at 33%.

Unlock the Keypad

Press **MODE** and **%** simultaneously and hold for 5 seconds to unlock the keypad.

Pump Operating Mode

First, press and continue to hold **MODE**, then press Δ or ∇ to scroll through the modes of operation.

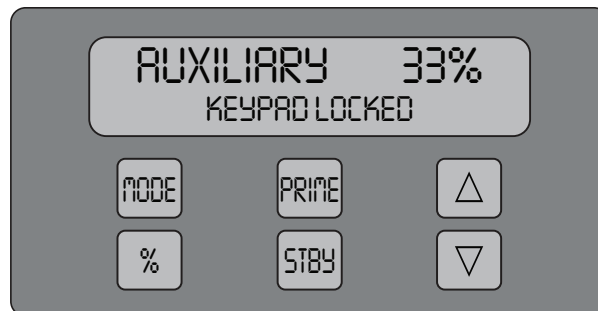
When the display show AUXILIARY, release both buttons to select.

The operating mode is now set.

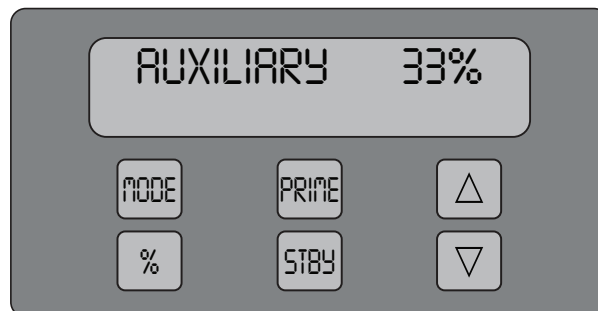
Pump Speed Percentage

The pump speed can be programmed from 10% to 100% in 1% increment. First, press and continue to hold **%** then press Δ or ∇ to adjust the speed percentage. When the display shows the desired percent, release both buttons to select. The percentage is now set.

3. Refer to page 12 for dosage instructions.



Example of control panel with keypad locked.



Example of control panel with the pump speed pre-set at 33%.

USA and Canada 800-683-2378, International 904-641-1666

Diaphragm Injection Pump Installation

Pump Specifications

Item #	Voltage	Turndown ratio	Gallons Per Day	Pressure PSI
2704	230 Volt	10:1	24	80

Maximum Discharge Pressure:	80 P.S.I.	Comments: Can be installed both indoors and outdoors Comes with an air release valve and tubing for priming
Maximum Lift:	10 Feet	
Maximum Discharge Length:	75 Feet	

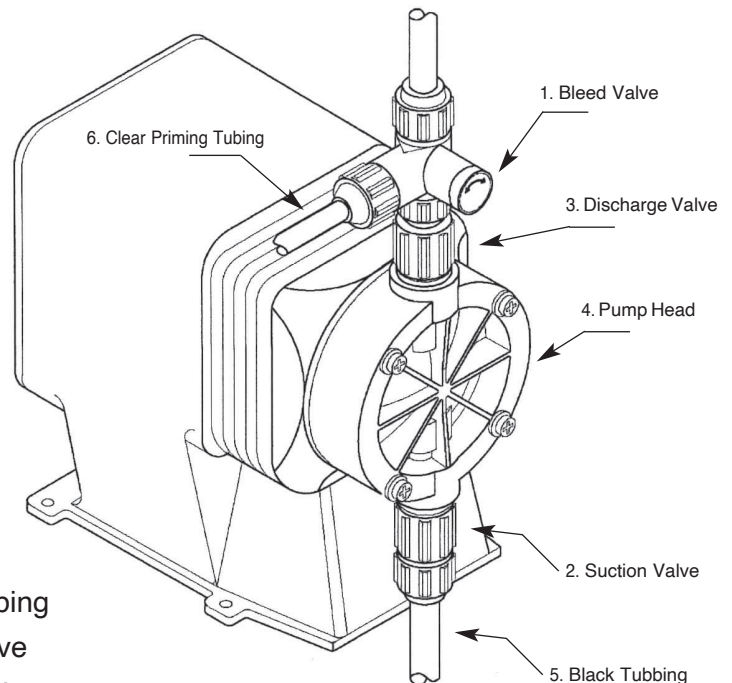
Dial Settings and Output:

2704	Dial Setting			
	25%	50%	75%	100%
G.P.D. Output:	6.0	12	18	24
G.P.H. Output:	.25	.50	.75	1.0

Parts List

Diaphragm pump Item # 2704

Item#	Part Number	Description
1	PF-L3300H01-PVC	Bleed Valve
2	PF-L3101H01-PVC	Suction Valve
3	PF-L3201H01-PVC	Discharge Valve
4	PF-L3900200-000	Pump Head
5	PF-10342-20	20' Black Tubing
6	PF-10469-06	6' Clear Priming Tubing
	PF-41693	Injection Check Valve
	PF-J60717	Foot Valve & Weight
	PF-K4VHCI	KOP Kit (Head Assembly)

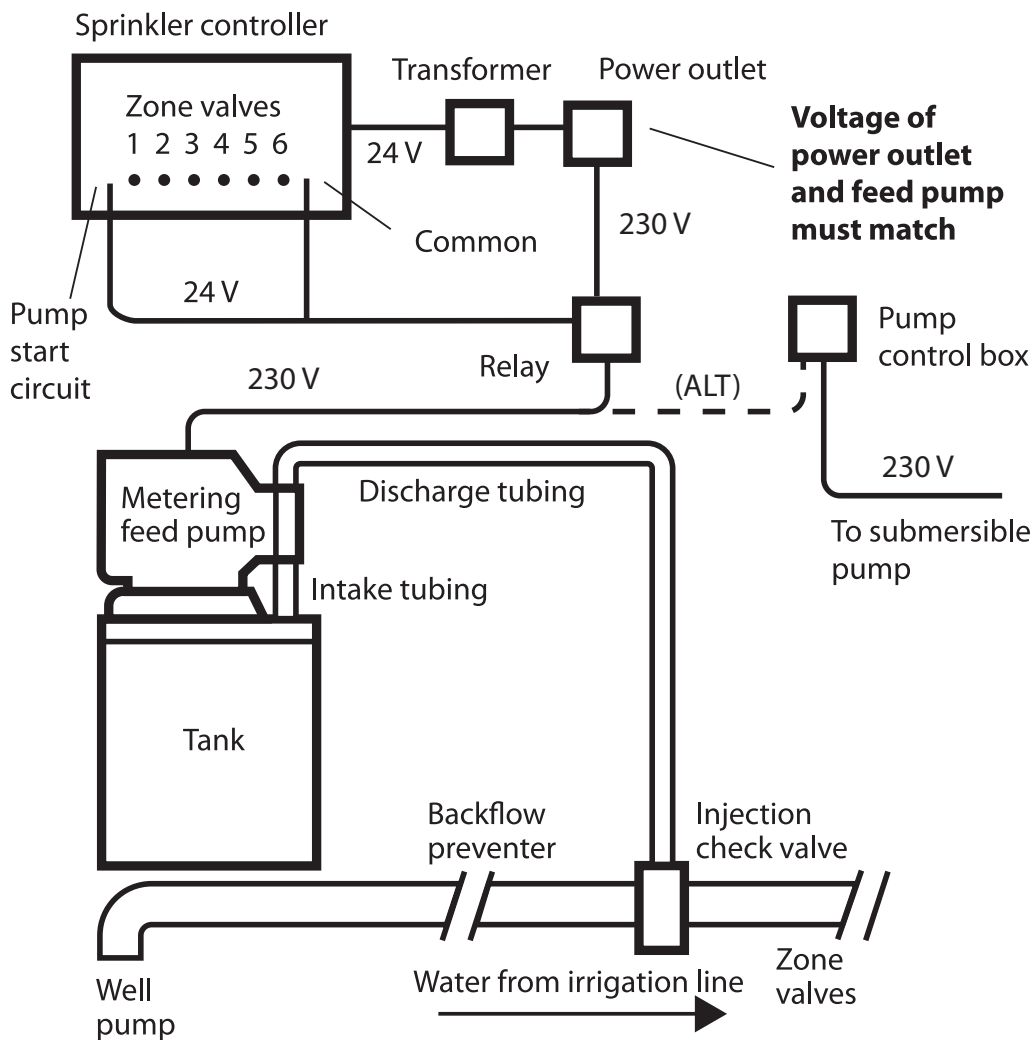


Diaphragm Injection Pump Installation

Installation using diaphragm pump or

Well Used for Irrigation Only, No Pressure Tank

1. If there is no pressure tank, the metering pump may be connected to the pump start relay for the well pump so that the well pump and the metering pump turn on simultaneously.
2. Plumbing code typically requires a back flow preventer in the irrigation system.
3. The metering pump injection point should be downstream of the back flow preventer and upstream of the first zone (between the backflow preventer and the first zone).
4. The pump will run only on 230 Volts, match this with your power source.



Diaphragm Injection Pump Installation

Diaphragm Metering Pump: Installation

A. Installing the Injection Check Valve.

1. The purpose of the injection check valve is to prevent back flow from the treated line.
2. Turn off water supply. Drain irrigation system to relieve pressure on pipe.
3. A 1 ½" NPT female tee fitting with sufficient depth will accept the injection check valve.
4. Install tee opening on the underside of the horizontal pipe.
5. Wrap sealing tape around the threads of the check valve, and then screw it into the tee for the irrigation line that will be treated.
6. Slide black discharge tubing through small opening in the connecting nut and attach to intake side of the check valve. Hand Tighten Only.

B. Connecting Priming Valve

1. Attach the Bleed Valve by threading it onto the top portion of the feed pump discharge valve. Hand Tighten Only.

C. Connecting Discharge Tubing (Black Tube)

Note: Cut tubing for length needed for discharge line.

1. Route black tubing from the injection check valve to the metering pump, making sure it does not touch hot or sharp surfaces, or is bent so sharply that it kinks.
2. Slide the tubing through the small opening of the black connecting nut. Attaching this by pushing the black tubing onto the top portion of the bleed valve housing nozzle until the tubing will not go any further.
3. Slide the connecting nut down onto the threads and engage. While pushing the tube onto the discharge valve housing nozzle, tighten the connecting nut by hand until the tube is held securely in place.

D. Connecting Suction Tubing (Black Tube)

1. Cut suction tubing to a length so that the foot valve hangs just above the bottom of the feed tank. This will keep dirt sediments from getting into the pump injectors. Add the ceramic weight above the foot valve to keep the tube from floating up.
2. Follow the same procedures in connecting the suction tubing to the suction valve head and the foot valve as you followed in C., above with the discharge tubing.

E. Priming the Pump

1. The pump is equipped with an air release priming valve installed on the side of the bleed valve.
2. Insert the supplied air release hose (Clear) into the end of the bleed valve joint. Be sure to insert the hose all the way into the base of the valve
3. Attach with connecting nut, and return the other end of hose back into the chemical tank
4. Set the adjustment dial of the chemical feed pump to 100% and turn on the power.
5. While the pump is running, open the air release valve by turning the bleed valve knob 1 to 1.5 turns in the counterclockwise direction. The residual air in the suction-side hose and pump head is discharged from the air release valve, and chemicals fill the pump head. When liquid is visible in the clear tubing, turn the bleed valve knob clockwise so as to close the priming valve. Now the pump is primed and ready to operate.
6. Return the adjustment dial to original setting for operation.



Outdoor Diaphragm Pump

Rid O' Rust Prevention Formula Dosage & Feed Rate Charts

Rust Stain Prevention Formulas Dosage

IMPORTANT:

To use this chart you **MUST** know the feed rate of the feeder system. The charts are based on using:

- A)** 30 gallon feed tank — and
- B)** 25 gallon per minute flow rate for the irrigation system.

If your particular application has a different tank size or

flow rate, the dosage figure must be adjusted. For faster, easier results, use our online dosage calculator:

www.ridorust.com/calculator

To see how long a tankful of solution will last, refer to the chart at the bottom of this page.

Bottles* of Rid O' Rust to Add to the Feed Tank			
Parts Per Million of Iron	Feed Rate of Feeder System		
	5 gallons per day (.21 gallons per hour)	10/11 gallons per day (.42 gallons per hour)	24 gallons per day (1.00 gallons per hour)
1	2.15	1.07	0.45
2	4.30	2.14	0.90
3	6.45	3.21	1.35
4	8.60	4.28	1.80
5	10.75	5.35	2.25
6	12.90	6.42	2.70
7	15.05	7.49	3.15
8	17.20	8.56	3.60
9	19.35	9.63	4.05
10	21.50	10.70	4.50

*Bottle is 64 oz. of new concentrate line

Note: For different feed rates (than those shown above), pro-rate between the columns, or call American Hydro for dosage information.

How Long Will the Tank of Solution Last?		
Feed Rate of Feeder System		
5 GPD	10 GPD	24 GPD
143 Hours	71 Hours	30 Hours

Rid O'Rust Products

Rid O'Rust Products and Feeder Systems Create the Best-looking Landscapes Around.

Many well-based irrigation systems create stains and other deposits on walls, driveways, sidewalks and even on plants, shrubs and trees, depending on the minerals present in the water. Rid O'Rust® products remove and prevent sprinkler stains with maximum results and minimum work. Rid O'Rust

spray-on Remover gets rid of rust stains immediately. Rid O'Rust Preventer formula is designed to be fed through your irrigation system using an American Hydro Feeder System, so every time you water, you also prevent ugly rust stains from coming back. You can also use the feeder system to fertilize and repel pests. See page 12 for information about liquid fertilizer and all-natural pest repellent products.



Rid O'Rust® Rust Stain Remover

Liquid & Powder Exterior Rust Stain Remover

- Dissolves rust stains on most exterior surfaces
- No scrubbing, mixing or measuring required

Sizes: Liquid - 1 gal, 2.5 gal, 55 gal
Powder - 12 oz, 39 lb



Rid O'Rust® Rust Extreme Stain Preventer 2X

Problem Well Water Stain Preventer Concentrate for Low pH Conditions

- Prevents rust and lime scale staining caused by well-based irrigation
- Strongest, most economical formula

Sizes: 64 oz, 2.5 gal, 30 gal



Rid O'Rust® Rust Stain Preventer 2x

Well Water Stain Preventer Concentrate

- Prevents rust and lime scale staining caused by well-based irrigation
- Strongest, most economical formula

Sizes: 64 oz, 2.5 gal, 30 gal



Rid O'Rust® Calcium Scale Preventer 2X

Well Water Calcium Stain Preventer Concentrate

- Prevents lime scale staining & drip emitter build-up from well-based irrigation
- Prevents hard water spots on glass, vehicles, brick and more

Sizes: 64 oz, 2.5 gal, 30 gal

Liquid Fertilizers & All-Natural Pest Repellent

Our Products are Designed to Work Naturally.

American Hydro offers a range of professional liquid fertilizer and pest control formulas created to deliver lush plant growth and beautiful landscapes throughout the growing season. They're completely natural products that reinvigorate the landscape,

provide a safe, effective pest barrier and are polite to the environment. All our products are designed to be applied through an irrigation feeder system every time you water with your sprinklers, supporting healthy, pest-resistant plants, shrubs, trees and grasses.

NatureShield™

ALL-NATURAL PEST REPELLANT

All-Natural Pest Repellent

Repel unwanted pests with NatureShield® — its all-natural, proprietary blend of essential oils is naturally formulated to control mosquitoes, ants, ticks, fleas, carpet beetles, centipedes and other crawling and flying insects. It can be used as a stand-alone solution or it can be combined with Rid O' Rust and GrassSoGreen. Unlike chemical pesticides that can be harmful to pets and children, the essential oils in NatureShield come from natural sources that include garlic, cinnamon, castor and cedar oils. NatureShield provides a safe, effective pest barrier and is designed with nature in mind.

Multiple Uses

- For pump sprayer, use 4 oz. per gallon of water
- Fill the hose-end sprayer and set application rate to 4 oz.
- May also be used in spray rigs



GrassSoGreen®

All Purpose 30% Organic Blend 7-7-7

GrassSoGreen® All-Purpose Blend contains an organic base with several beneficial synthetic macro-nutrients that help establish a healthy ecosystem and feeds the landscape. The balanced blend can be used in nearly all applications, including new and established lawns, trees, shrubs and gardens. All-Purpose blend can also be used to transition landscapes from a synthetic fertilizer program to an organic program to prevent undesirable nutrient withdrawal.

Maintenance Formula 19-0-0

GrassSoGreen® Maintenance Formula is an environmentally-friendly liquid fertilizer that is applied through an American Hydro Systems Feeder System in continuous, small doses, breaking the feast-or-famine cycle caused by the typical application of dry fertilizers. Maintenance Formula provides a beautiful landscape throughout the entire watering season.



General Warranty Information

General Statement

Because of the nature of the water treatment business, we can warranty our hardware — the pumps, tanks and parts that feed chemicals — but cannot make a blanket guarantee as to the performance of our chemicals in the field. We do warranty that we have provided the appropriate amount of ingredients and that under stated conditions, they should perform as represented. Many factors over which we have no control affect the performance of our products. Actual well conditions, for instance, may differ from those represented to us when we recommend dosage rates. We have no control over the equipment installation, or the maintenance and service provided to sustain the performance of a water treatment system. A blanket guarantee of performance, given these conditions, would be impossible.

On Rust Stain Prevention

Our Formula chemicals work to prevent rust stains and corrosion by sequestering and chelating ferrous (clear water) iron in the well water. To the extent that there is ferric iron in the well water, we will not be able to prevent a stain. Generally speaking, ferric iron can be produced in two ways:

By introducing air, chlorine or any other oxidizing agent into the well water prior to the point that our formulas are injected.

By the presence of iron-related bacteria in the well water that produce ferric iron as a by-product of propagation.

It is difficult to test well water to determine the amount of ferric iron present. Iron bacteria, in the other hand, signify their presence by reddish tinged water, slime on pipes, and slime and "sludge" build-up around the edges and corners of an irrigation system.

Please note that lake water or any other bodies of water exposed to the atmosphere can have substantial amounts of ferric iron that we cannot treat.

As noted elsewhere in our literature, stains are also caused by tannin in the well water. We find that stains can appear with tannin in excess of 3 ppm.

Our products do not prevent stains of an organic nature and tannins are organic.

A final point is that "mother nature" can interfere with the best application charts through changes in the water table. We would recommend that users test their water each year to monitor changes in iron, hardness and pH levels.

FULL ONE YEAR WARRANTY ON PARTS THAT FAIL

For one year from the date of purchase, we will replace any defective part of a feeder system, free of charge. This warranty extends to five years on certain molded tanks and a lifetime for the PumpHaus™. We reserve the right to provide reconditioned parts as replacements. Warranty service is available by contacting your nearest American Hydro Systems products supplier. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

American Hydro Systems, Inc.

6714 Pointe Inverness Way, Suite 200
Ft. Wayne, IN 46804

1-800-285-9176

info@americanhydro.com

Return Policy on Metering Pumps

PUMPS WITH CUT CORDS ARE NOT ELIGIBLE FOR RETURN OR CREDIT. CUTTING THE PLUG VOIDS THE WARRANTY.

General Policy

Our warranty is extended through our distributors. We provide a one-year warranty from the date of purchase by the home owner. Proof of purchase should be provided as well as the pump serial number. Homeowner proof of purchase not being available, our warranty extends fifteen months from the date of sale to the contractor.

We accept returned pumps and parts only if accompanied by a returned goods authorization (RGA) number that we supply.

Pumps Under Warranty

All pumps returned under the RGA will be sent back to the manufacturer to determine the issue and assess repairs. We are glad to make repairs at no charge supplying new parts and promptly returning the pump in operating condition.

Pumps with cut cords are not covered under warranty.

Well Water Analysis

Do you want us to do a free systems analysis for you? Please send us a water sample and all the information requested on this form. It is **vital** that we have as much information as possible so we can make a proper analysis and recommendation. Please photocopy this page, fill out the form and mail it to us with your water sample. We will fax or mail back the results of the water analysis and a dosage recommendation.

WELL WATER ANALYSIS FORM

Name _____

Mailing address _____

Phone Number _____ E-mail address _____

Water sample collection instructions:

1. Let your sprinkler system run for **several minutes** before collecting the water sample.
2. Fill the bottle, tightly screw on the cap and seal with tape. **Important:** we must have at least **4 oz. of water** for the test.
3. Place the completed form and the sample bottle in a mailing container.
4. Cushion the bottle securely with packing material and send to:

Pro Products

3404 Conestoga
Ft. Wayne, IN 46408

The sample will be analyzed for one or more of the following parameters: Iron (PPM), Hardness (GPG), Manganese (PPM), Tannins (PPM), Salt (PPM) and pH level.

A. Irrigation System Data:

1. What is your water source? Deep well
 Shallow well Pond or lake
2. What type of pump do you have?
 Above-ground pump Submersible pump
3. What is the horsepower of your pump? _____
4. What is the maximum flow rate of your sprinkler system in GPM (gallons per minute)? _____
5. How many zones do you have? _____
How many heads on the largest zone? _____
6. What is the total run time of all zones?
In minutes? _____ Or hours? _____

B. Rid O'Rust System Data:

1. What is the size of the tank? Please check one:
 30 gallon 15 gallon Other _____
2. Please look at the data plate on the side of the chemical feed pump and answer the following questions:
What is the model number of your feed pump? _____
What is the maximum output of the pump in GPH (gallons per hour) or GPD (gallons per day)? _____
Is your pump adjustable? Yes No
3. If you are having a problem, please check one:
 The system isn't feeding chemical.
 The system is feeding chemical, but I am still seeing a stain.

Comments: _____

(For photos of injection systems, please see page 3)

