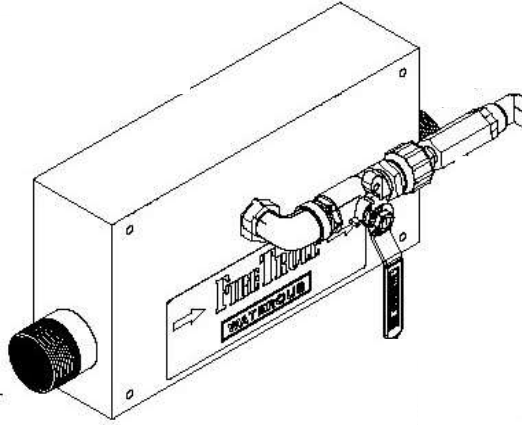




Fire Troll Foam Proportioner System (FPS) Installation and Operation Instructions

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**Read through the instructions
carefully.**

NOTE: Instructions subject to change without notice.

Disclaimer

These instructions are guidelines only and in no way meant to be definitive. During installation, standard safety precautions and equipment should be used where appropriate. Because the tools used and the skill/experience of the installer can vary widely, it is impossible to anticipate all conditions under which this installation is made, or to provide cautions for all possible hazards. Proper installation is the responsibility of the purchaser. All bolts, setscrews, and belts must be checked prior to start-up AND after the initial operation. Damages due to poor installation are the responsibility of the installer.

Waterous reserves the right to make modifications to the system without notice

Warnings, Cautions, and Notes



WARNING

A **WARNING** alerts you to a procedure, practice or condition that will result in serious personal injury or possible death.



CAUTION

A **CAUTION** alerts you to a procedure, practice or condition that may result in serious personal injury.

CAUTION

A **CAUTION** without the safe alert symbol alerts you to a procedure, practice or condition that may result in machinery or property damage.

NOTE

A note points out important information. Failure to read the note may not result in physical harm to personnel or equipment.

Advantages of the Fire Troll

- Maintains continuous foam flow under varying water pressures and volumes, and needs no physical adjustment to the FPS.
- Does not exceed 1.0% foam concentrate use under normal operating conditions.
- To obtain concentrate percentages less than 1.0%, simply adjust the metering valve.
- Easy to operate, and has no moving part.
- Does not require electrical power to operate.
- Can be inserted in the plumbing between the pump outlet and the live reel or other discharge points on the fire engine, or can be inserted in a hose lay at any location.
- Has low maintenance, requiring only flushing with fresh water after each operation.
- Is usable with a wide range of different nozzles from 6 to over 125 GPM.
- Light weight and small, for use with a portable pump.

General Information

The Fire Troll FT150 is being sold as a kit to assure immediate performance. Each FT150 kit includes:

- Foam Proportioning System (FPS)
- Positive connect hose assembly with foam concentrate graduated-metering valve.
- Capper kit designed to transfer concentrates from five-gallon foam pails and to prevent spills.

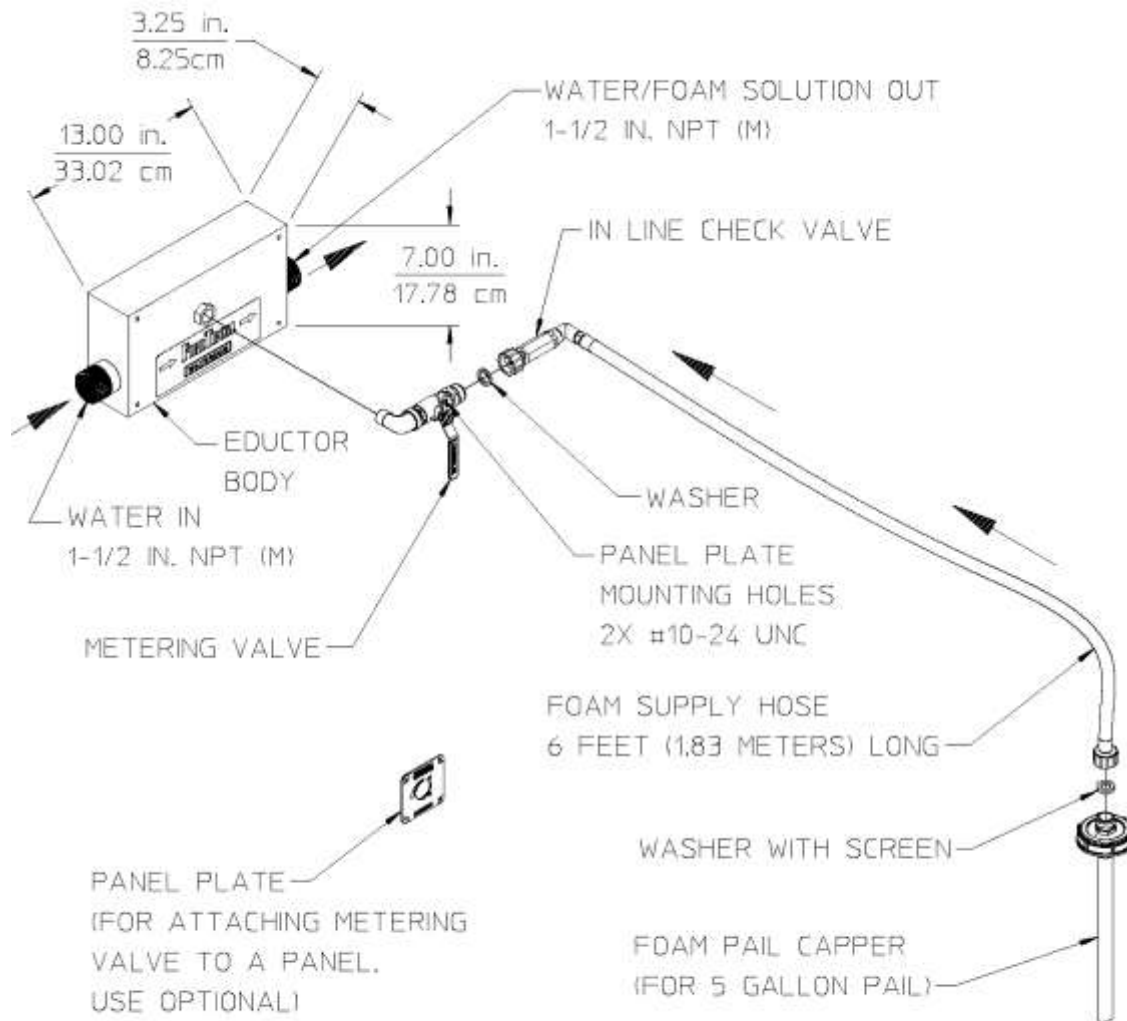
The Model FT-150 with its 1 1/2" pipe system is more adaptable to type 3 engines and portable pumps in long hose lays.

The FT-150 has been successfully used in hose lays of 1,000 feet or more, and on moderate to steep slopes. The Model FT-150 unit has been operated very successfully at pressures from 50 to over 180 psi at the pump.

The design of the Foam Proportioning System and the graduated-metering valve in the concentrate supply hose permit either wet or dry foam to be produced by the FPS.

Fire Troll Components

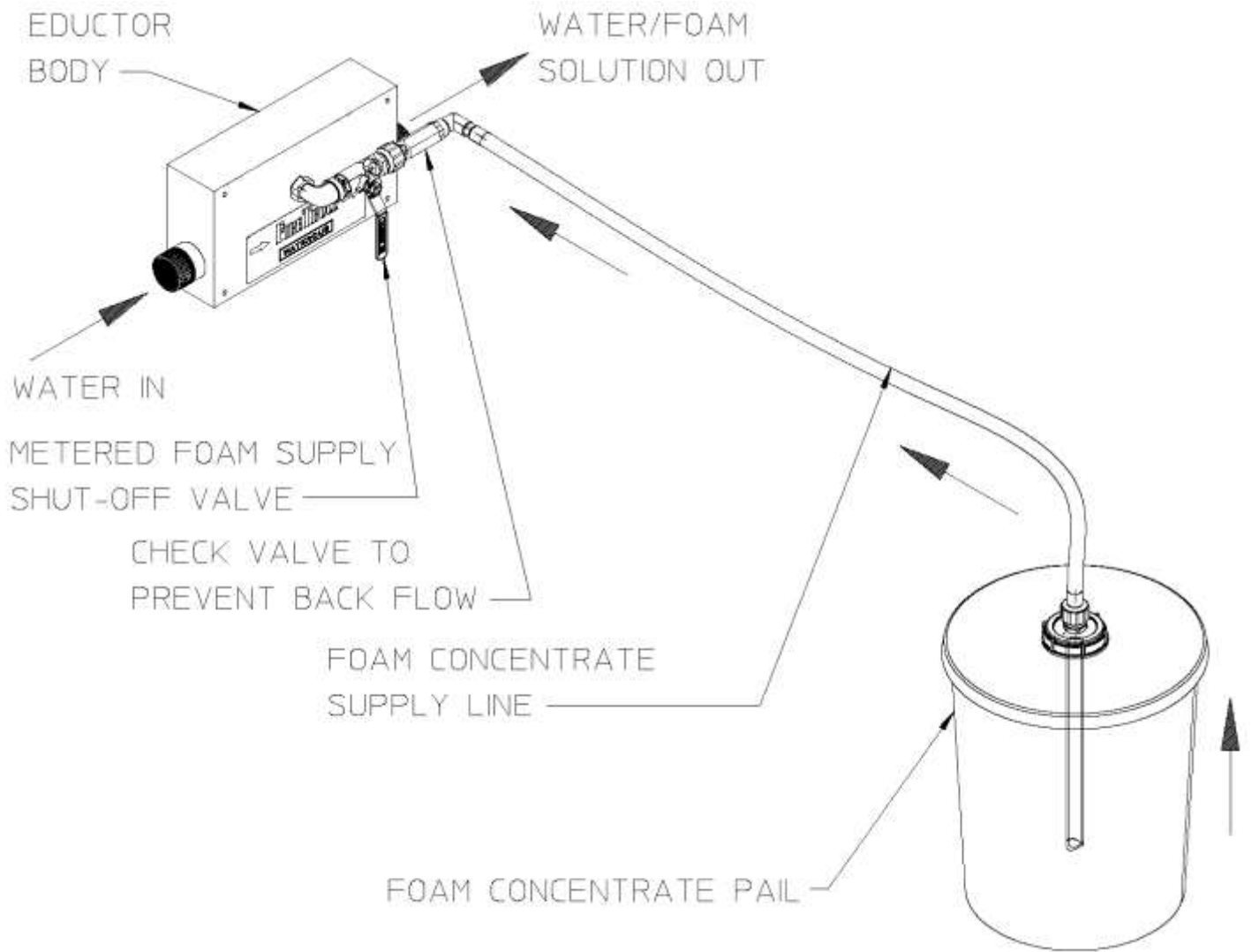
- Model FT-150 (1 1/2" plumbing with pipe threads; body dimensions: 12-1/2" x 7" x 3 1/4", weight: 17 lbs.)



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FT150 SYSTEM WEIGHT - 17lbs (7.72kg)

Complete System Diagram



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Installation

(Refer to Complete System Diagram)

1. Install the FPS in the discharge water line after the pump and:
 - a. Prior to the live reel or hose basket
 - b. Prior to any other overboard outlet
 - c. To an overboard outlet, and attach the hose line to the outlet of the FPS
 - d. At any desired location in a hose line.

The unit is directional and must be installed according to the Inlet-Outlet designations on the FPS.

2. If holes are needed to mount or install the FPS, see the following (Figure 1, Mounting Holes).

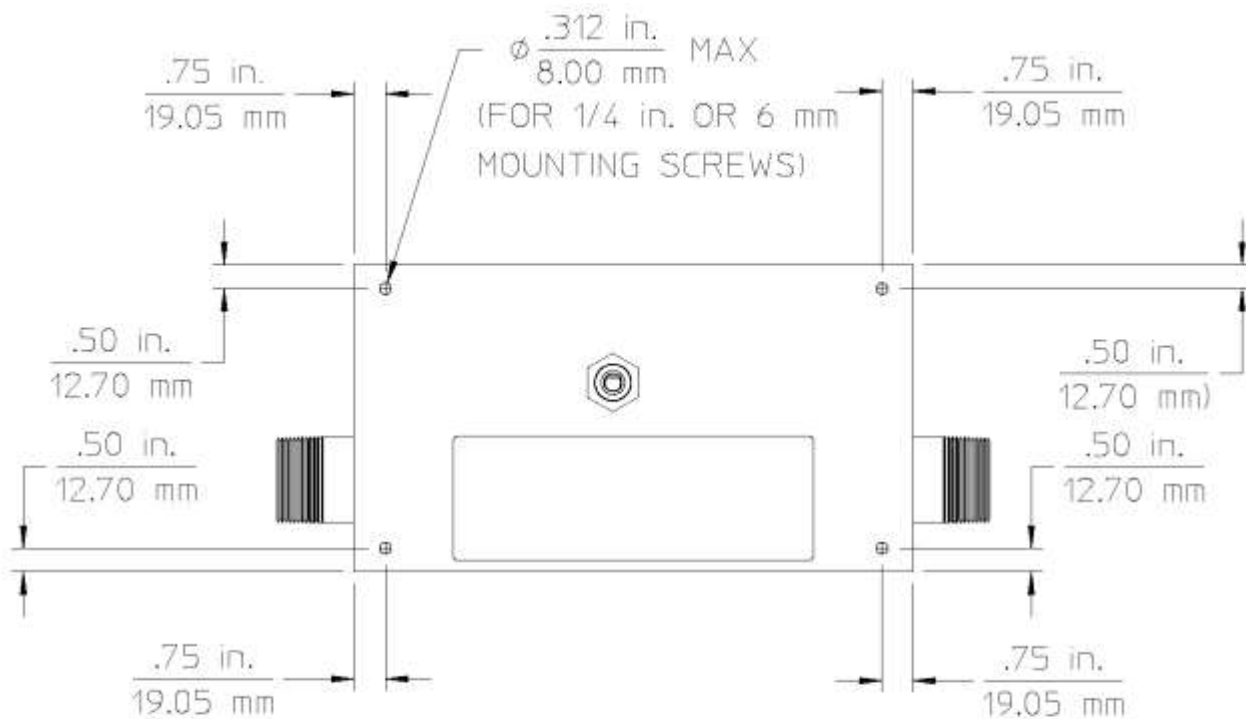
CAUTION

Do not drill holes in any other location. Drill 5/16 in (8 mm) holes perpendicular to the FPS unit, which must be mounted on a firm backing. Do not mount the unit next to any excessive heat source.

CAUTION

When making plumbing connection to the Fire Trol, always use a wrench to hold the 1-1/2" pipe nipples or 1/2" hex foam inlet. High torque on encased fittings may result in damage.

Figure 1. Mounting Holes



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ONLY DRILL MOUNTING HOLES AT LOCATIONS SHOWN.
NOTE THAT EDUCTOR BODY MAY HAVE CAST DIMPLES
AT LOCATIONS SHOWN.

Operation

1. Attach the desired nozzle or air aspirating foam tube to the hose line to be used.
2. Attach the foam concentrate supply line to the FPS and foam pail, then open the concentrate metering valve in the supply line.
3. Start the pump and set at desired pressure (approximately 125psi).
4. Water and foam concentrate will now exit the FPS into the hose line. Foam concentrate will be less than 1.0% under normal operating conditions.
5. If the foam produced is too dry, slowly close the metering valve towards 0 (0 equals fully closed and 5 equals fully open).
6. Following any use of the FPS with foam concentrate, and prior to shutdown for any extended period, the foam concentrate metering valve should be closed, and clean water should be allowed to flow through the FPS to clean itself. The check valve in the foam concentrate supply line should be periodically removed and rinsed to insure proper foam concentrate flow.

CAUTION

If this unit is to use water that comes from a source that may contain debris, the unit must be protected so the debris does not enter the unit. Debris can cause the internal mechanism of this unit to malfunction.

CAUTION

To protect this unit from freezing, be sure all water has been removed from the proportioner prior to cold weather.

To remove water, all piping must be disconnected to allow all water to drain from the unit. As an alternate high pressure air, flowing in the same direction as the water can be used to displace water from the piping and proportioner.

Troubleshooting

The easiest way to determine if the unit is malfunctioning is to place your thumb over the foam concentrate inlet on the foam proportioning system (red box). If there is no or very slight suction, the unit may be fouled. The easiest way to test for fouling is to pour water slowly in to the inlet. If it flows straight through the unit, the internal backpressure control valve is likely lodged open with debris.

To remove lodged debris from the seat of the back pressure control valve, insert any sufficiently long device into the 1 ½" inlet and push very hard to open the backpressure control valve. (A broomstick or similar device will work). Any debris should fall out. Retest as details above. If water still flows straight through the unit repeat above procedure. If water does not flow through the unit reinstall. It should now perform correctly.

Fire Troll Performance*

Inlet Pressure (PSI)	Water Flow (GPM)	Foam Concentrate Flow** (GPM)	% Foam
100	35	.347	0.99
	50	.375	0.75
	100	.350	0.35
125	35	.350	1.00
	50	.350	0.70
	100	.350	0.35
150	50	.250	0.50
	100	.300	0.30

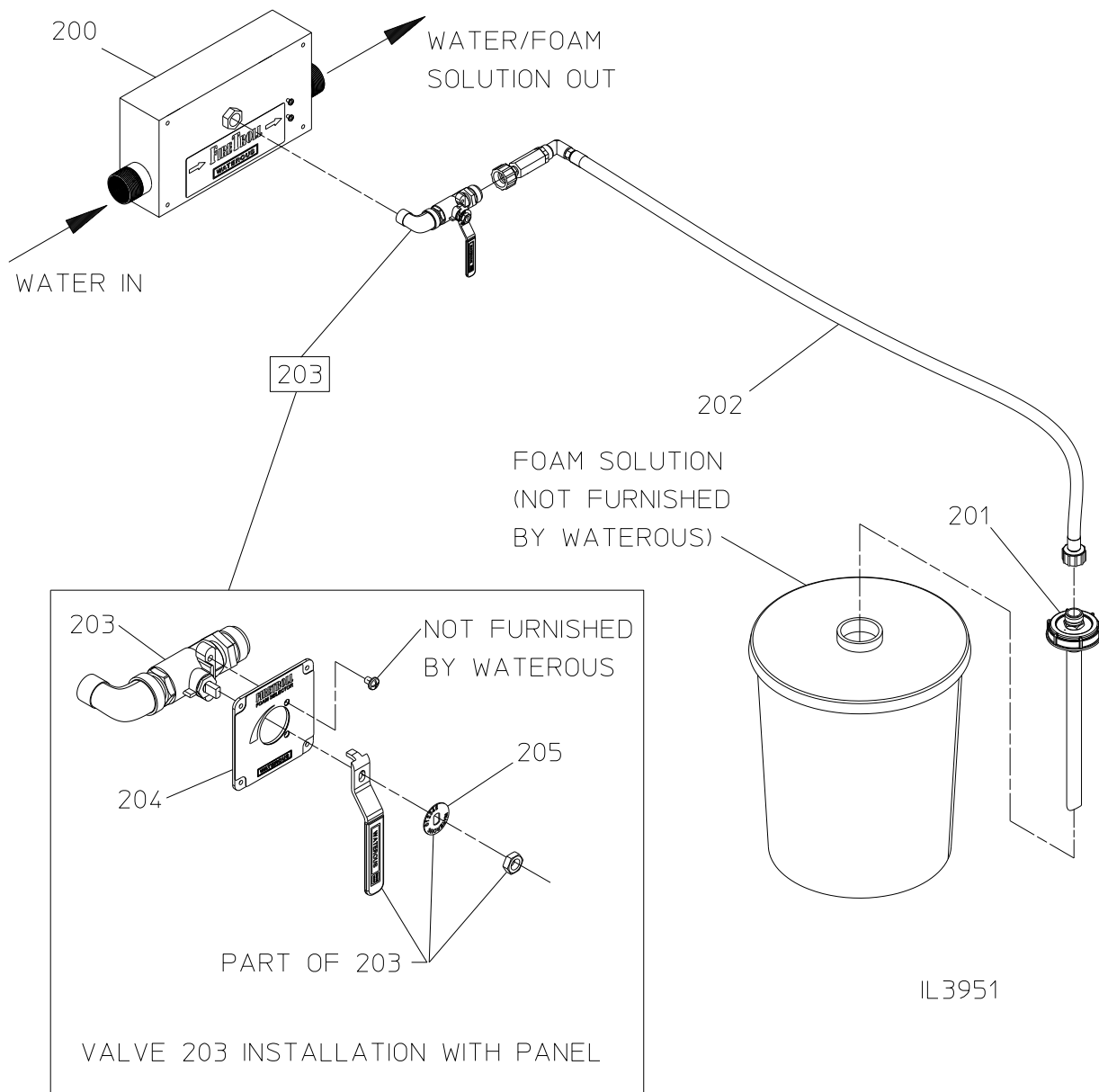
* Based on factory conditions.

** Foam concentrate metering valve full open.

Pressure drop across FT-150 is 30-60 psi depending on flow.

Service Parts Lists

Ref	Part No.	Description	Qty
200	Q-2130090	Eductor Body	1
201	Q-1090022	Foam Pail Capper Assembly	1
202	Q-0308073	Foam Supply Hose Assembly	1
203	Q-0390295	Metering Valve Assembly	1
204	63788	Panel Plate	1
205	Q-1230439	Metering Dial	1
--	83437	Complete FT150 System (Includes 200-204)	1



WATEROUS 1-YEAR LIMITED WARRANTY POLICY

WATEROUS warrants, to the original Buyer only, that products manufactured by WATEROUS will be free from defects in material and workmanship under normal use and service for a period of one (1) year from the date the product is first placed in service, or one and one-half (1-1/2) years from the date of shipment by WATEROUS, whichever period shall be the first to expire; provided the Buyer notifies WATEROUS, in writing, of the defect in said product within the warranty period, and said product is found by WATEROUS to be nonconforming with the aforesaid warranty. When required in writing by WATEROUS, defective products must be promptly returned by Buyer to WATEROUS at WATEROUS' plant at South St. Paul, Minnesota, or at such other place as may be specified by WATEROUS, with transportation and other charges prepaid. A Returned Material Authorization (RMA) is required for all products and parts and may be requested by phone, fax, email, or mail. The aforesaid warranty excludes any responsibility or liability of WATEROUS for:

- (a) damages or defects due to accident, abuse, misuse, abnormal operating conditions, negligence, accidental causes, use in non-firefighting applications, or improper maintenance, or attributable to written specifications or instructions furnished by Buyer;
- (b) defects in products manufactured by others and furnished by WATEROUS hereunder, it being understood and agreed by the parties that the only warranty provided for such products shall be the warranty provided by the manufacturer thereof which, if assignable, WATEROUS will assign to Buyer, if requested by Buyer;
- (c) any product or part, altered, modified, serviced or repaired other than by WATEROUS, without its prior written consent;
- (d) the cost of dismantling, removing, transporting, storing, or insuring the defective product or part and the cost of reinstallation; and
- (e) normal wear items (packing, strainers, filters, light bulbs, anodes, intake screens, mechanical seals, etc.).

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The exclusive remedy of Buyer and the sole liability of WATEROUS, whether based on contract, warranty, tort or any other basis of recovery whatsoever, is expressly limited at the election of WATEROUS to:

- (a) the replacement at the agreed point of delivery of any product or part, which upon inspection by WATEROUS or its duly authorized representative, is found not to conform to the limited warranty set forth above, or
- (b) the repair of such product or part, or
- (c) the refund or crediting to Buyer of the net sales price of the defective product or part.

BUYER'S REMEDIES CONTAINED HEREIN ARE EXCLUSIVE OF ANY OTHER REMEDY OTHERWISE AVAILABLE TO BUYER.

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