

Hydromatic Self-Cleaning Raw Water Strainers

MODELS 970-1500, 970-1515, 970-2000 and 970-2020

Installation, Operation, and Maintenance

Hydromatic™

U.S. Patent No. 5,830,366



Hydromatic Model 970-1500

The Concept: For as long as raw water strainers have performed their duty of filtering debris from raw water flow to engines and equipment, there has been the occasional need to shut the system down for filter basket cleaning. A GROCO 970-Series Hydromatic™ Self-cleaning Strainer eliminates this task by periodically performing a 30-second self-cleaning cycle. A powerful macerator grinds the debris that has accumulated inside the filter basket and discharges it overboard. 970-Series Hydromatic™ may function as a seachest by providing filtered water to multiple consumers through a single inlet source.

Filter/pump installation: Hydromatic™ must be installed (horizontally or vertically) below the waterline. Install a hull scoop over the inlet thru-hull fitting that will direct water into the inlet plumbing (such as GROCO SC, ASC or APHS). Use the largest possible hull strainer to minimize the velocity of the in-flow; this will reduce the possibility of large debris such as plastic bags or leaves from blocking the inlet.

Remove the bronze mount bracket from the filter/pump unit and fasten the bracket to a sturdy platform with (3)

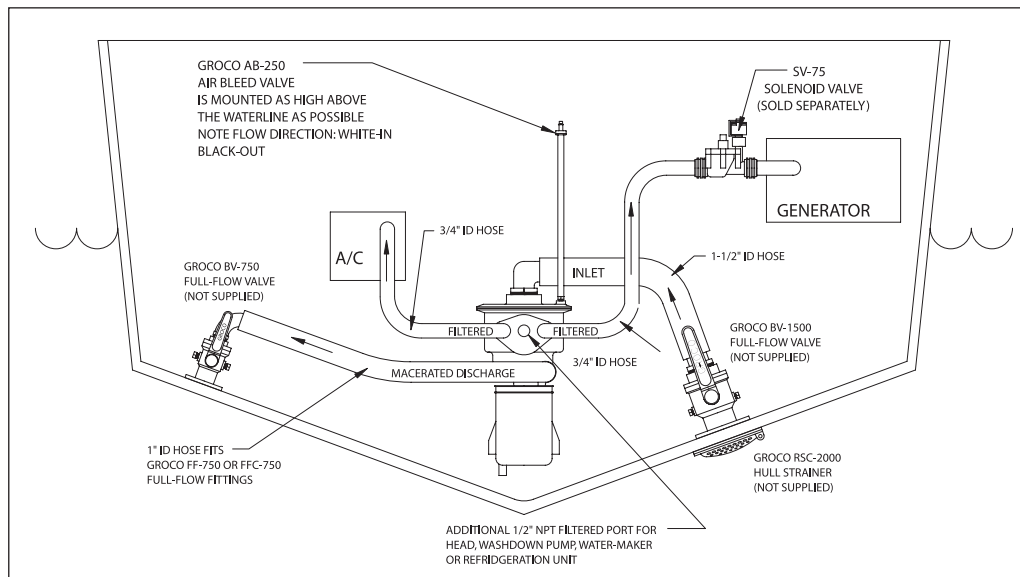


Figure-1

1/4" stainless steel flathead screws. Install Hydromatic™ into the bracket and secure with the 4 bolts provided.

Operator Panel Installation: The operator panel fits into a 2-11/16" high x 3-7/8" wide bulkhead cutout. The panel is water-resistant, but not water proof. Install in a dry location to protect the panel and its circuitry and to improve visibility of the illuminated panel indications.

Inlet Plumbing: Plumb the inlet to Hydromatic™ with 1-1/2" ID hose (1500 and 1515 models) or 2" ID hose (2000 and 2020 models). The inlet seacock should be on the opposite side of the keel and forward of the discharge seacock. Double-clamp all hose connections.

Debris Discharge Plumbing: The 3/4" NPT debris discharge should be fitted with a full flow fitting and 1" ID hose between Hydromatic™ and the 1" discharge seacock. Keep the plumbing as short as possible to minimize the accumulation of macerated debris in the discharge line when the pump shuts off. Locate the discharge seacock on the opposite side of the keel and aft of the inlet seacock. Avoid sharp bends and sags in hose lines. Double-clamp all hose connections.

Filter Water Ports to connected devices: All ports other than inlet and macerated discharge are available for connection to the devices you want to supply filtered water to. Filtered water ports are:

- 970-1515 has: (1) 1-1/2" port and (2) 1" ports
- 970-2020 has: (1) 2" and (2) 1" ports
- 970-1500 has: (2) 3/4", (1) 1/2" and (2) 1"
- 970-2000 has: (2) 3/4", (1) 1/2" and (2) 1"

Air Bleed System: The unwanted accumulation of air in the filter chamber (from vessel movement through the water, operating in rough seas, or storing the vessel on a lift) could cause loss of prime to connected systems. Hydromatic™ eliminates trapped air through an air bleed system (See Figure-1). Connect the clear hose provided (no clamps are needed) to the white end of the check valve and to the barb fitting on the Hydromatic™ cover plate. Locate the check valve above the outside waterline (water in the tube will indicate the location of the outside waterline).

Hydromatic Self-Cleaning Raw Water Strainers

MODELS 970-1500, 970-1515, 970-2000 and 970-2020

Installation, Operation, and Maintenance

Connecting Air Conditioners: Connect as many air conditioners as you wish. No special plumbing or electrical considerations are needed, but avoid air traps in the plumbing.

Connecting Generators: If Hydromatic™ is to supply filtered water to one or more generators, solenoid valve SV-75 (3/4") or

SV-100 (1") ordered separately, must be installed in the plumbing between Hydromatic™ and each generator.

Connecting DC Power to the Operator Panel: Refer to Figure-2 and use 18-gauge (or larger) tinned copper wire to provide power for the operator panel. Connect directly from the DC power distribution panel. DO NOT share this connection with another device. Terminal-7 is DC(+) and terminal-6 is DC(-). Connect the 1-amp fuse provided, as shown in the schematic drawing.

Connecting DC Power to the Filter/ Pump: Power for the macerator is provided through the solenoid (supplied) by wire of sufficient gauge to carry a 30-amp load @12VDC (15-amps @24VDC). Refer to the wire size selection chart, and provide a dedicated circuit breaker (30-amp for 12V; 15-amp for 24V).

Connecting the Power Solenoid: The power solenoid is not waterproof. Install it in a dry location.

Operator Panel: The Operator Panel has two control buttons and several LED's that indicate as follows:

- * When power is first applied, a self-test routine will occur during which all lights will illuminate alternately. Then all lights will go out.
- * To select an interval press "Set" until the desired interval is displayed. If no light is illuminated, the control will not command a cleaning cycle.

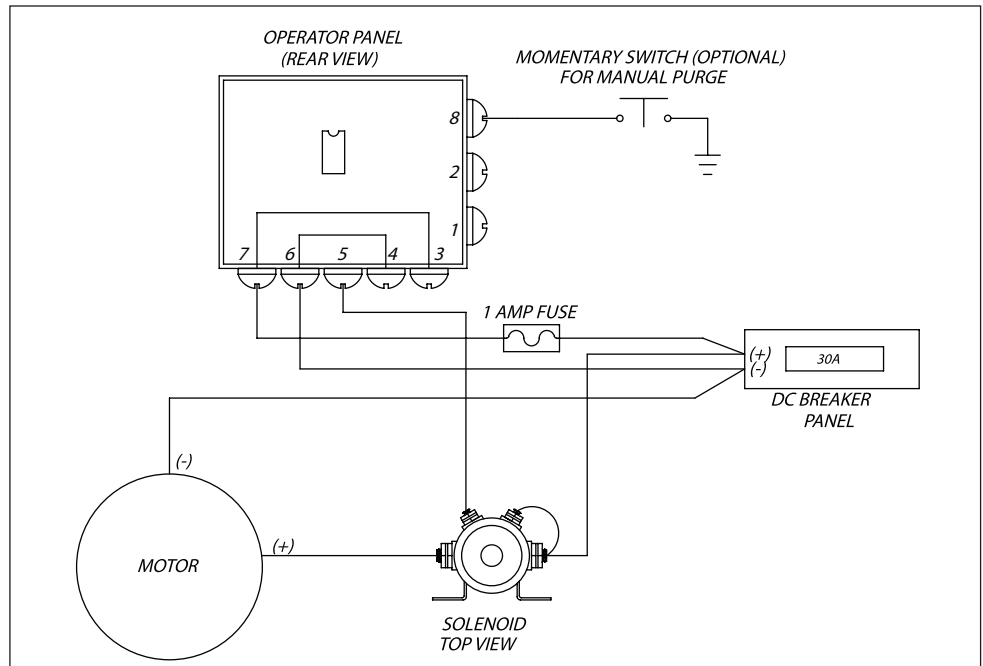


Figure-2

* To manually command a cleaning cycle press "Clean". This will trigger a single cleaning cycle, and then return the control to the selected time interval.

Note: If power is removed from Hydromatic™, you must re-set the desired time interval when you reapply power

Operation: Figure-2 represents the "Real Time" operation method – the simplest installation and operation method. As long as DC power is applied Hydromatic™ commands a 30-second self-cleaning cycle at the interval you have selected on the touch-pad. Hydromatic™ can operate on a "Run Time" method by commanding a cleaning cycle when the combined accumulated running time of all connected devices reaches the selected cleaning interval. Contact GROCO for installation details.

Hydromatic can conduct a cleaning cycle automatically if flow is significantly reduced, regardless of the interval you have selected. Contact GROCO for information about additional hardware requirements.

Maintenance: No routine maintenance is required, but occasional inspection of the filter basket is recommended. Close the inlet and discharge seacocks and shut off power at the breaker panel before removing the cover to inspect the filter basket or shaft seal. To remove cover, remove the cotter pin and release the band clamp that holds the cover in place.

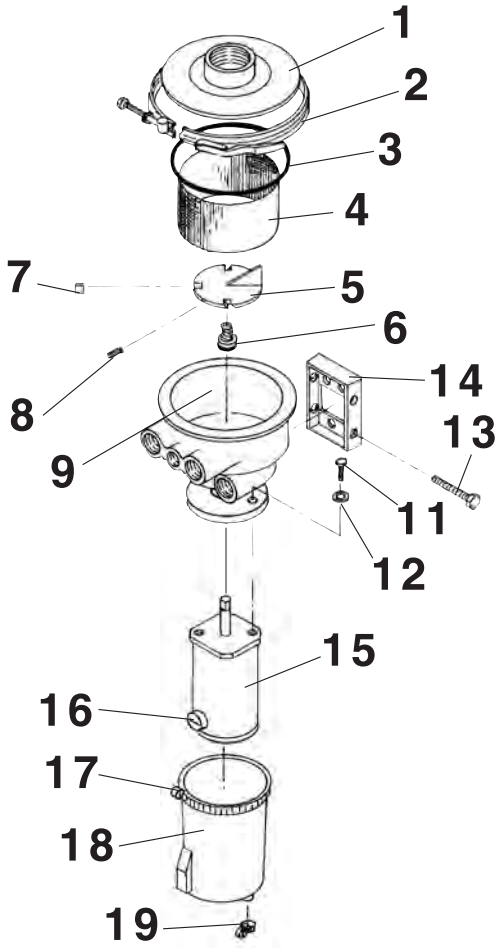
Winterization: Drain the pump and filter to winterize – freezing will damage Hydromatic™ and will void the warranty. To drain, remove the black drain plug on the side of the pump/filter unit, and disconnect all hoses. Replace and tighten the drain plug and/or hose when draining is complete.

Hydromatic Self-Cleaning Raw Water Strainers

MODELS 970-1500, 970-1515, 970-2000 and 970-2020

Installation, Operation, and Maintenance

Parts & Assembly



ITEM	PART NUMBER	NAME	QTY.
1	Cover	053-0003-00	1
2	Cover Clamp	Clamp-5	1
* 3	O-Ring	2-256	1
4	Filter Basket	PS-4929	1
5, 7, 8	Impeller Assembly	053-0005-01	1
* 6	Shaft Seal Assy	009-0375-00	1
* 7	Cutter Blade Set	99-0033-00	3
8	Set Screw	1428HSLH	1
9	Housing	053-0001-00	1
11	Bolt	1428X12HS	2
12	Washer	PFW-2	2
13	Bolt	1420X234HS	2
14	Mount Bracket	053-0002-00	1
15	Motor	(Voltage)-N	1
16	Brushes Set (2)	RAE Brushes	1
17	Clamp	Clamp-6	1
18	Boot	CP-5004	1
19	Clamp	GS-4-SS	1
N/S	Solenoid	P-6003 (Voltage)	1
N/S	Cable Assy	011-0021-25	1
N/S	Operator Panel	027-0013-00	1
* N/S	Seal	037-075-8	1
*	H-1	Service Kit	

WIRE SIZE INFORMATION

This table allows for a 3% voltage drop, and will help you to select the minimum safe wire size to use for proper and efficient use and operation of **GROCO**® motorized equipment.

HOW TO USE CHARTS

1 From the individual product instructions packed with the product, determine the fuse or circuit breaker size required. Locate the fuse or circuit breaker size in the left-hand column of the chart below.

2 Determine the distance away from the power source to where the powered equipment will be installed. Double this number and find the total distance across the top line of the chart below.

3 Read down and then across to the required fuse or circuit breaker size required. At the intersection of the horizontal and vertical selections you have made will be the minimum wire size to use. It is permissible to use heavier gauge wire.

FOR 12V-DC SYSTEMS

Fuse or Breaker	Feet of wire from power source to motor AND BACK TO POWER SOURCE																		
	10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
5	18	16	14	12	12	10	10	10	8	8	8	6	6	6	6	6	6	6	6
10	14	12	10	10	10	8	6	6	6	6	4	4	4	4	2	2	2	2	2
15	12	10	10	8	8	6	6	6	4	4	2	2	2	2	2	1	1	1	1
20	10	10	8	6	6	6	4	4	2	2	2	2	1	1	1	0	0	0	2/0
25	10	8	6	6	6	4	4	2	2	2	1	1	0	0	0	2/0	2/0	2/0	3/0
30	10	8	6	6	4	4	2	2	1	1	0	0	0	2/0	2/0	3/0	3/0	3/0	3/0
40	8	6	6	4	4	2	2	1	0	0	2/0	2/0	3/0	3/0	3/0	4/0	4/0	4/0	4/0
50	6	6	4	4	2	2	1	0	2/0	2/0	3/0	3/0	4/0	4/0	4/0				

FOR 24V-DC SYSTEMS

Fuse or Breaker	Feet of wire from power source to motor AND BACK TO POWER SOURCE																		
	10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
5	18	18	18	16	16	14	12	12	12	10	10	10	10	10	8	8	8	8	8
10	18	16	14	12	12	10	10	10	8	8	8	6	6	6	6	6	6	6	6
15	16	14	12	12	10	10	8	8	6	6	6	6	6	4	4	4	4	4	2
20	14	12	10	10	10	8	6	6	6	6	4	4	4	4	2	2	2	2	2
25	12	12	10	10	8	6	6	6	4	4	4	4	2	2	2	2	2	2	1
30	12	10	10	8	8	6	6	4	4	4	2	2	2	2	2	1	1	1	1

FOR 32V-DC SYSTEMS

Fuse or Breaker	Feet of wire from power source to motor AND BACK TO POWER SOURCE																		
	10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
5	18	18	18	18	16	16	14	14	12	12	12	12	10	10	10	10	10	10	8
10	18	16	16	14	14	12	12	10	10	10	8	8	8	8	8	6	6	6	6
15	16	14	14	12	12	10	10	8	8	8	6	6	6	6	6	6	6	4	4
20	16	14	12	12	10	10	8	8	6	6	6	6	4	4	4	4	4	4	2