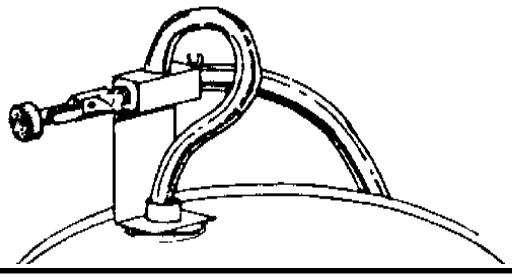
HydroMaster Model 216



Package Contains:
1. Drum proportioner
2. Suction tube -- 4 ft. -- with foot valve
3. Discharge tube -- 4 ft.
4. Metering tip kit -- 14 tips
5. Product information sheet

THANK YOU FOR YOUR INTEREST IN OUR PRODUCTS

Hydro Systems manufactures quality chemical proportioners. Please use this equipment carefully and observe all warnings and cautions.

********** NOTE **********

WEAR	protective clothing and eyewear when dispensing chemicals or other materials.
ALWAYS	observe safety and handling instructions of the chemical manufacturers.
ALWAYS	direct discharge away from you or other persons or into approved containers.
ALWAYS	dispense cleaners and chemicals in accordance with manufacturer's instructions. Exercise **CAUTION** when maintaining your equipment.
CLEAN	equipment after each use in accordance with instruction sheet.
WEAR	protective clothing and eyewear when working in the vicinity of all chemicals, filling or emptying equipment or changing metering tips.
ALWAYS	re-assemble equipment according to instruction procedures. Be sure all components are firmly screwed or latched into position.
ATTACH	only to tap water outlets (85 PSI maximum).

Through proper care and maintenance, this equipment will serve your toughest cleaning jobs.

Installation and Operation:
1. Select a metering tip (see next section), and screw it into the suction stub on the eductor. Slide the open end of the suction tube through the hole in the center of the mounting bracket (from the bottom), through the bung adaptor, then slide over the suction stub.
2. Slide end fo discharge tube over the eductor discharge outlet.
3. Remove either the 3/4 or 2-inch bung from an upright drum.
4. Insert the foot valve end of the suction tube into the drum.
5. Swivel the drum adapter several turns in the bung opening until the bracket is secure.
6. Install minimum 1/2-inch ID water hose between the inlet swivel on the HydroMaster and water supply spigot. (Minimum 25 PSI flowing water pressure is required to operate the HydroMaster.)
7. Turn on water supply. To begin dispensing solution, open ball valve at inlet to unit. Close the valve to stop the flow. Use the hook on the discharge tube to hang the discharge tube from the drum or HydroMaster when not in use.

Metering Tip Selection:

The final concentration of the dispensed liquid is related to the size of the metering tip opening (orifice), inlet water pressure, temperature and the viscosity of the liquid being siphoned. For water-thin products, use the chart below as a **guideline**. The figures listed below are only approximate. **Test the actual dilution** you are achieving using the Measurement of Concentration procedure **for best results**. Two undrilled, clear tips are supplied for drilling sizes not listed.

Tip Color	Drill Size	Approximate Dilution Ratio @ 40 PSI, water-thin viscosity (1.0 cp)
No tip		5:1
Grey	30	8:1
Black	40	14:1
Beige	50	22:1
Red	55	40:1
White	57	50:1
Blue	60	64:1
Tan	65	104:1
Green	70	176:1
Orange	72	208:1
Brown	74	240:1
Yellow	76	312:1
Purple	80	584:1
Pink	87	1024:1

Measurement of Concentration

You can determine the dispensed water-to-product ratio for any metering tip size and product viscosity. All that is required is to operate the primed dispenser for a minute or so and note two things: the amount of dispensed water/product mixture, and the amount of concentrate used in preparation of the solution dispensed. The water-to-product ratio is then calculated as follows:

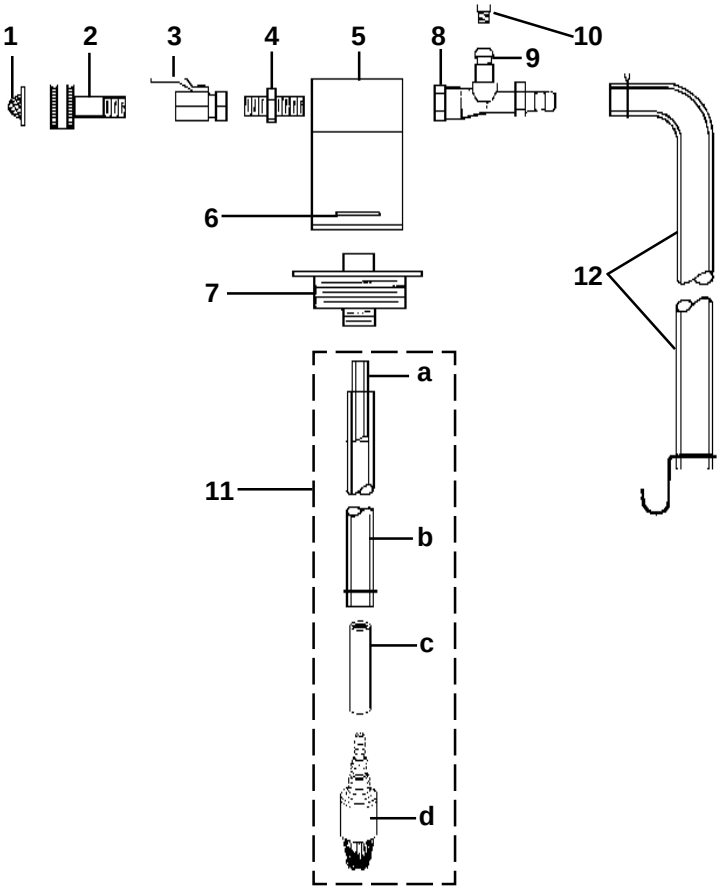
$$\text{Dilution (X)} = \frac{\text{Amount of Mixed Solution} - \text{Amount of Concentrate Drawn}}{\text{Amount of Concentrate Drawn}}$$

Dilution ratio, then, equals X parts water to one part concentrate (X:1). If the test does not yield the desired ratio, choose a different tip and repeat the test. Alternative methods to this test are 1) pH (using litmus paper), and 2) titration. Contact your concentrate supplier for further information on these alternative methods and the materials required to perform them.

Troubleshooting:

Problem	Cause	Remedy
1. Unit does not draw concentrate	a. Clogged foot valve strainer	a. Clean or replace
	b. Metering tip orifice obstructed	b. Rinse orifice or replace with new tip
	c. Water pressure too low	c. Minimum 25 PSI required. Replumb line or use different source
	d. Mineral deposits in eductor	d. Descale* or replace eductor
2. Water gets into concentrate container	a. Heavy mineral deposits in eductor	a. Descale* or replace eductor
	b. Faulty or missing foot valve	b. Repair or replace foot valve
3. Unit continuously draws concentrate	a. End of discharge tube lower than eductor	a. Always hang discharge tube from unit using hook provided on end

* Mineral deposits, known as scale, may form at the discharge of the eductor, particularly in hard water areas. To remove scale, soak the eductor in a descaling or deliming solution. Alternately, the descaling solution can be siphoned into the eductor by operating the unit with the foot valve in the descaling solution. After operating the unit in this manner for a minute, put foot valve in clear water and operate for another minute to flush the unit. Return the foot valve to the concentrate for normal use.



Parts Information:

KEY	PART NO.	DESCRIPTION
1	238100	Strainer washer
2	276700	Swivel connector
3	607600	Ball valve
4	360900	3/8" Reducing nipple
5	615000	Mounting bracket
6	615200	Retainer ring
7	6162-A	Bung adapter assy.
8	440700	Eductor body
9	440101	Suction stub
10	690015	Metering tip (kit)
11	5058-4DM	Suction tube assy. (includes a, b, c & d)
a	616100	¼" x 7" tubing
b	505804	1/2" ID tubing
c	250006	Ceramic weight
d	10076301	Foot valve, Viton
12	5201-A	Discharge tube assy.

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