



Electronic Service Manuals

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You may contact Michco through the following methods:

Phone (517) 484-9312 or (800) 331-3339

2011 N. High St. -- Lansing, Michigan -- 48906

Fax: (517) 484-9836

Email: CustServe@Michco.com

Web site: www.Michco.Com

Parts Web site: www.FloorMachineParts.Com

Order Parts on Line at:

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Directly to Parts & Service:

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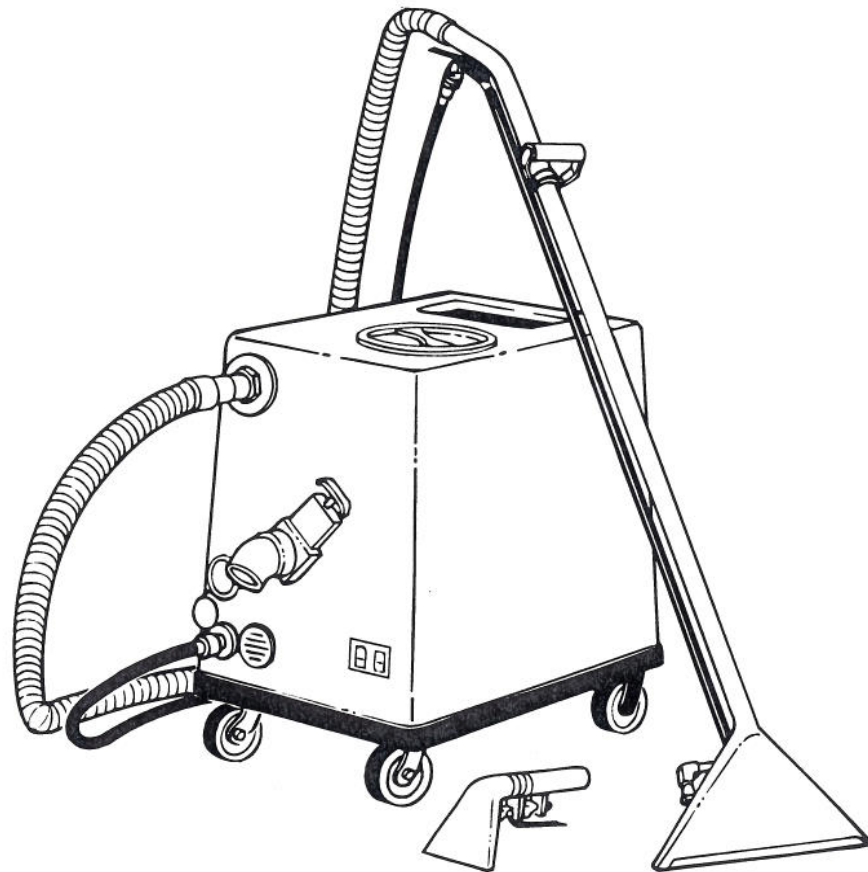
Castex®

Magnum

High Pressure Carpet Extractor

MODEL: MM0900, MM1400

Operator & Parts Manual



CASTEX INCORPORATED
12875 RANSOM STREET
HOLLAND MI 49424

A **TENNANT** COMPANY

1-800-522-7839
616-786-2330
FAX: 1-800-678-4240
CUSTOMER SERVICE: 1-800-365-6625

173001
Rev. 02 (09-96)

A. SET UP AND OPERATION:

(Numbers refer to the part drawings.)

1. Fill the clean water tank with hot water, (140°F, 60°C maximum), and the proper amount of liquid cleaning agent. Always mix powder chemicals in a filling bucket. **DO NOT MIX POWDER CHEMICALS IN THE MACHINE!**

WARNING:

Use a clean bucket to fill the machine. Empty dirty water into another bucket. Always be certain to use SEPARATE BUCKETS to fill and to empty machine. Perfectly clean water must be in the clean water tank to avoid fouling the internal system.

2. Be certain the drain valve at the front of the machine #37 is shut and then plug the machine into a 15 amp grounded circuit. **DO NOT OPERATE THE MACHINE WITHOUT A GROUND PIN!** The third prong on the plug is necessary to avoid an electrical hazard.
3. Prime the solution pump any time the machine is run out of water. Insert the bleeder hose into the solution hose quick coupler #42. Put the other end of the bleeder hose into the vacuum intake #50. Turn the solution pump switch on and let the pump run until you see no air bubbles in the solution. Kink off the hose for approximately 5 seconds so that the solution pushes all air out of the pump and regulator. Turn the solution pump switch off. Remove bleeder hose and drain recovery tank.

FOR A NEW MACHINE: Run approximately 1 gal. (4 L) of water out of the bleeder hose to flush antifreeze out of the pump system into the recovery tank or other container. A new machine has antifreeze to protect it while it is being shipped.

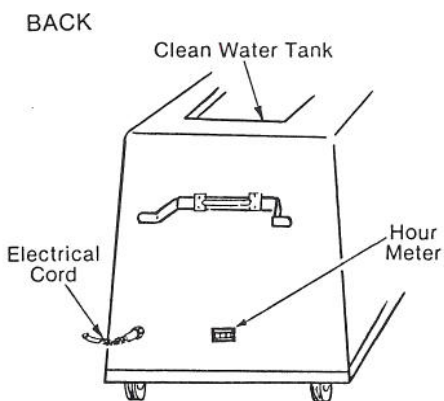
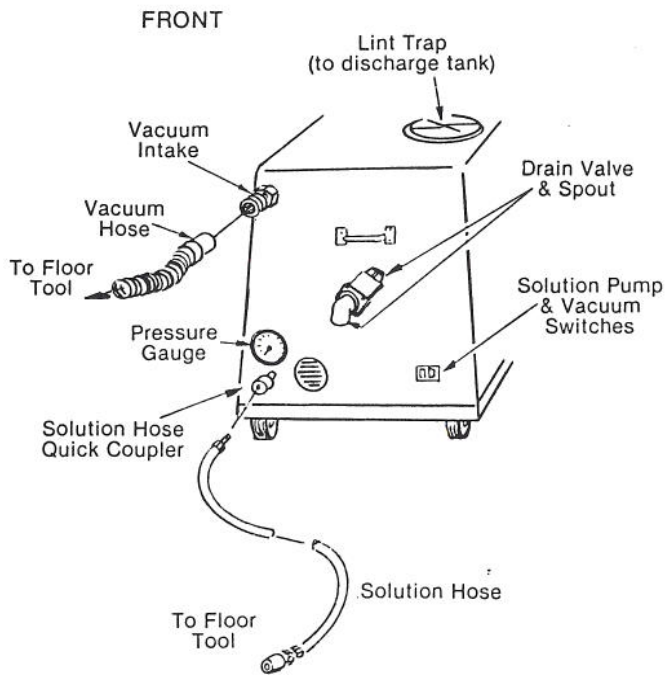
4. Connect the vacuum hose to the machine at #50 and to the floor tool at #85.
5. Connect the solution hose to the machine at #42 and to the floor tool at #102.

6. In sequence, turn on the solution pump switch, then the vacuum switch.
7. To operate, squeeze the floor tool valve handle #103 while drawing the floor tool toward you with the opening held steadily against the carpet.
8. As the machine is used, dirty solution will begin to fill the discharge tank. When the tank is full, a float will shut off the flow of air to the vacuum motor at #53 which will stop the vacuum function. The vacuum motor will continue to run but there will be no suction at the floor tool. Turn the machine off immediately.

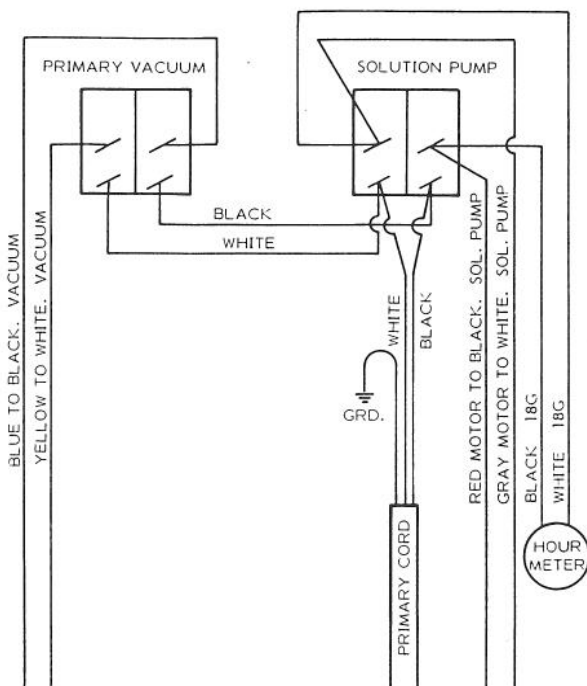
IMPORTANT:

Excessive foaming will not cause this float to shut down the vacuum. Use an anti-foaming agent to control foaming and to protect the vacuum motor.

9. To empty the discharge tank, turn the machine off and then position a discharge bucket under the drain valve down spout #36. Pull the valve T-handle #9 to empty the dirty water. Be certain this valve is closed before continuing operation. To avoid overfilling, empty the recovery tank every time you fill the clean water tank - be sure to use separate buckets!
10. Be certain the standpipe screen at #52 and the clean water filter #59 are kept clean. Just unscrew and rinse to clean the clean water filter.
11. You may wish to adjust the solution pressure. The pressure is factory set at 150 pounds per square inch (psi) at the floor tool tips **WHEN THE TRIGGER IS ACTIVATED.** Pressure will be approximately 50 psi higher when the machine is running but the floor tool trigger is **NOT** engaged. To adjust the pressure, loosen the 1/2 inch locknut on the T-handle #24 under the machine. Turn the T-handle clockwise to increase pressure to a maximum of 200 psi with the floor tool activated. Turn the T-handle counterclockwise to decrease pressure. Tighten the locknut.



WIRE DIAGRAM

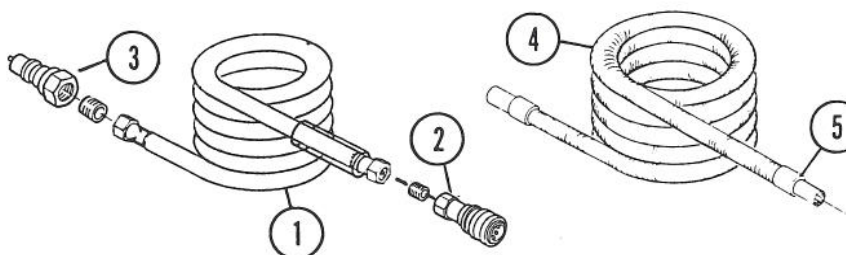


B. WHEN FINISHED:

1. Turn off all switches.
2. Drain the recovery tank by opening valve #37 and catching the dirty solution in a bucket. Clean drain valve seat by turning on the vacuum, putting one hand over the vacuum hose intake #50 and one hand over the drain #36 and slowly lifting the hand on the drain. Do this 2 - 3 times. This will significantly extend the life of the drain valve seat. Close the valve.
3. Vacuum unused solution from the clean water tank into the recovery tank.
4. Drain and rinse recovery tank and clean all filters (#52, at #59, and screens in floor tool). Once again, dry the drain valve seat as described above.
5. Disconnect the solution and the vacuum hoses from the floor tool and from the machine.
6. Drain the floor tool by turning it upside down and pulling the trigger.

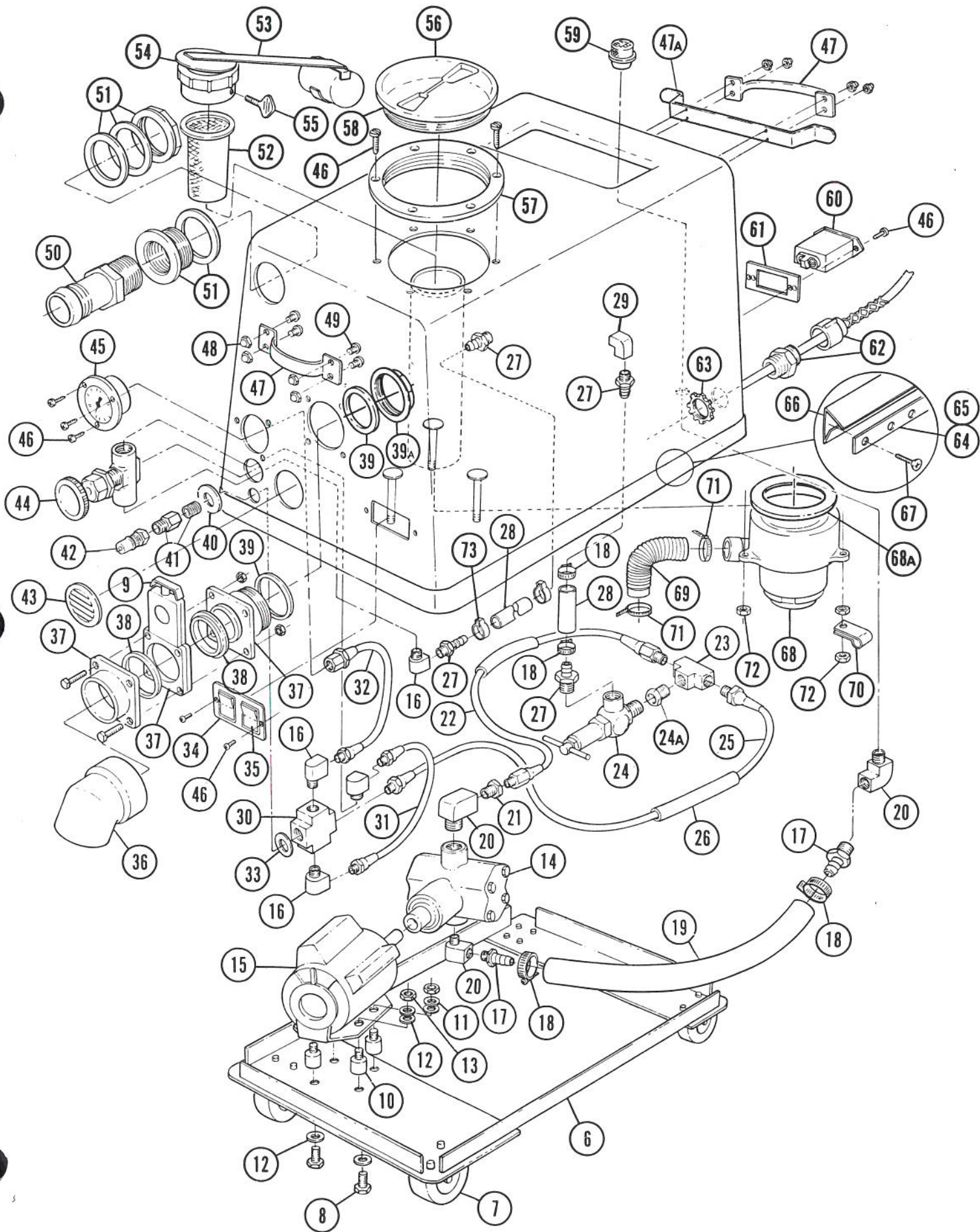
SOLUTION AND VACUUM HOSE PARTS LIST

Code Number	Part Number	Description
1	160110	Solution hose 15'
2	150913	Quick coupler, Ser.60
3	150933	Plug, quick coupler
	150615	Nipple 1/4" close
4	160400	Vacuum hose complete 15' x 1 1/2"
5	160430	Hose cuff only 1 1/2"



MAGNUM PARTS LIST

Code Number	Part Number	Description	Code Number	Part Number	Description
6	100910	#900 Frame	39	101714	Drain valve gasket
	101410	#1400 Frame	39A	210240	Drain Valve Nut
7	103000	Caster	40	140005	1/2" fender washer (white)
8	140229	Bolt 5/16" x 5/8"	41	150615	Nipple 1/4" close
9	210233	Drain valve handle	41a	150000	Adapter, 1/4"M x 1/4"F
10	130030	Motor mount 3/4" 9M	42	150933	Plug, quick coupler
	130031	Motor mount 1 1/4" 14M	43	100002	Vent
11	140027	5/16" washer	44	210107	Pressure adj. needle valve
12	150016	5/16" lock washer			
13	140513	#18 5/16" nut	45	180204	Pressure gauge
14	180100	Twin piston pump 5315	46	140826	#6 x 3/4" screw black
15	130450	1/3 H.P. motor	47	100076	Handle (black)
16	150406	Elbow 1/4" st. 90°	47A	250029	Cord Wrap
17	150506	Hose barb 1/2" MP x 1/2" H	48	140502	10 - 24 acorn (black)
18	140306	#6 clamp	49		10 - 24 x 5/8" RH MS
19	160509	Red 1/2" x 10" contend hose 9M	50	150500	Hose barb 1 1/2"
	160513	Red 1/2" x 13 1/2" contend hose 14M	51	150301	Fitting 1 1/2"
20	150405	1/2" 90° st. elbow	52	100024	2" screen w/pvc flange
21	150107	Bushing 1/2" to 3/8"	53	100011	2" auto shutoff
22	160561	Pump outlet hose 9M - 9' 00	54	100003	Gasket 2" auto shut off
	160563	Pump outlet hose 14M + 4' 00	55	140862	Thumb screw 1/4"
23	150710	3/8" Tee	56	100105	Clear lid
24	210100	Pressure regulator	57	100109	Outer ring (black)
24A	150006	Bushing 3/8"M x 1/4"F	58	100102	Lid cup (complete)
25	160560	Pr. valve to cross 9M - 9' 00	59	180625	Clean water filter (ball screen)
	160562	Pr. valve to cross 14M - 14' 00	60	130017	Hour meter
26	160115	1/4" hose guard	61	130710	Plate hour meter
27	150516	Hose barb 1/4" mpt 3/8" H	62	130121	Cord grip
28	160221	Hose 3/8" cord 2"	63	140504	Nut 1/2" locking conduit
	160512	Hose 3/8" x 13 1/2" 9M -	64	100052	13" bumper rail 9M
	160515	Hose 3/8" x 17" 14M -		100053	18" bumper rail 14M
29	150401	1/4" F x F 90° elbow		100054	21" bumper rail 9M
30	150706	1/4" cross	65	100055	26" bumper rail 14M
31	160526	1/4" high pressure hose	66	100708	Bumper 74" 9M
32	160525	1/4" high pressure hose		101408	Bumper 90" 14M
33	140009	1/2" SAE washer	67	140857	#10 x 1" wafer screw
34	130720	Switch plate	68	130404	Vacuum blower
35	130700	Switch lighted rocker	68A	100001	Vacuum gasket
36	210232	Down spout	69	160440	Exhaust hose (cut to fit)
37	210231	Drain valve complete	70	140300	Clamp
38	210239	Drain valve gate seal	71	130041	Wire ties
			72	140513	Nut lock nylon
			73	140301	Pinch clamp 170

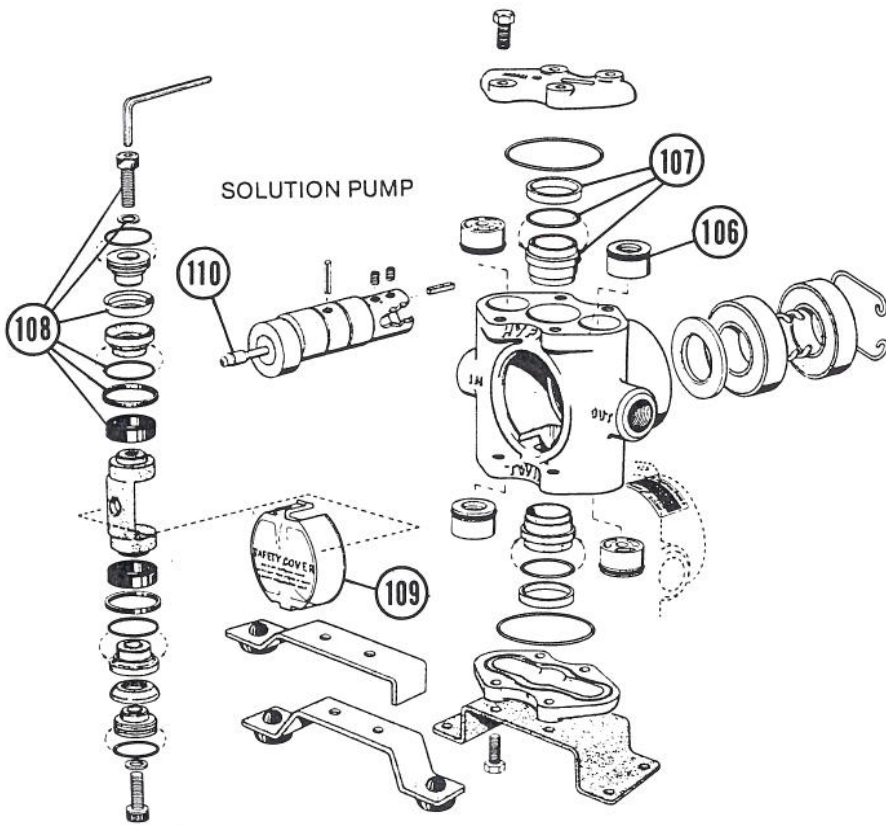


C. SUGGESTED MAINTENANCE:

1. Keep all filters and screens clean (#52 , #59 , and #94).
2. Every 40 hours of operation run Acetic Acid through the pump and tanks. Pour approximately 2 cups (.5 L) of Acetic Acid into the clean water tank. Turn on solution pump and let Acetic Acid run through and sit in the system overnight in above freezing temperatures. This dissolves the normal alkaline accumulations in the system.
3. Thoroughly rinse the recovery tank with a hose through the access port after every use.
4. Polish the fiberglass case with car wax approximately once a month to keep your image clean.
5. It is suggested that you maintain a filter at the vacuum hose intake #50. The filter is actually a ladies knee-high nylon stocking. The band at the top of the stocking fits around the vacuum intake nozzle and the toe of the stocking trails into the recovery tank. The vacuum hose fits right over the nylon's band to hold it all in place. As the machine is used, any large debris pulled up into the vacuum system is caught in the nylon stocking. To change the stocking, turn the machine off, support the full nylon stocking in the recovery tank with your hand and remove the stocking band from the vacuum intake through the access port on top of the machine. A stocking can be rinsed and reused as long as it develops no holes.
6. Every fifty (50) hours of operation grease the solution pump as follows:
 - A. Unplug and drain the machine.
 - B. Remove safety cover #109 on the solution pump by carefully squeezing the two side tabs.
 - C. Use a high temperature waterproof grease. Use a low pressure plunger-type grease gun with flexible hose. Never use a pneumatic gun as the pressure is much too high.
 - D. Fit the grease gun on the grease fitting. Use very little grease as too much grease or too much pressure can ruin the seal. With a hand grease gun, use no more than 1 inch (25 mm) travel on the handle.
 - E. Replace the safety cover by gently squeezing the tabs and fitting it so that one tab is pointing toward the bottom of the frame and one toward the bottom of the recovery tank.

DO NOT ALLOW THE MACHINE TO FREEZE!
If machine will be subject to freezing temperatures, pump all the water out of the system by placing the bleeder hose quick connector and running the pump until it is dry. Pour an antifreeze solution (such as windshield washer fluid) into the solution tank and pump until you can see it coming out of the bleeder hose.

NOTE: Proper tip and screen filter placement in the floor tool is important in the solution system of the machine. The floor tool comes with at least one regular screen to allow the tool to drain when finished with a job. For a complete no-drip floor tool, put a no-drip screen in place of the regular screen. Be certain to keep #95 tips in the outside positions on any floor tool and a #96 tip in the inside position.



PUMP PARTS LIST

Code Number	Part Number	Description
106	190301	Valve kit, set of 4
107	190303	Cylinder sleeve kit
108	190300	Cup kit, set of 2
109	190307	Safety cover
110	N/A	Grease fitting

TROUBLESHOOTING

Problem	Cause	Solution
Uneven or no spray from floor tool	1. Dirty or plugged spray tips	1. Clean or replace tips
	2. Improper size tips improper degree of angle	2. Replace with proper tips
	3. Worn spray tips	3. Replace spray tips
	4. Check valve in spray tip screen faulty	4. Replace spray tip screen
Leaking floor tool	1. Quick coupler on floor tool #102 faulty	1. Replace quick coupler
	2. Flow control valve #99 leaking	2. Install valve rebuild kit
	3. Hose split or fittings loose	3. Replace hose and tighten fittings

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| 4. Quick coupler and plug not fully engaged | 4. Reinsert quick coupler |
| 5. Valve stem worn | 5. Replace |
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| Loss of vacuum | 1. Drain valve # 37 open | 1. Close drain valve |
| | 2. Recovery tank full closing vacuum safety shutoff #53 | 2. Drain recovery tank |
| | 3. Lint on top of stand pipe #52 | 3. Remove lint trap lid and clean screen |
| | 4. Kinks in vacuum hose | 4. Straighten hose |
| | 5. Holes in vacuum hose | 5. Replace hose |
| | 6. Excess foam in vacuum recovery tank | 6. Use Anti-Foam in discharge tank |
| | 7. Faulty vacuum motor | 7. Replace motor |
| | 8. Lint trap lid #52 on top of stand pipe won't seal | 8. Replace lid |
| | 9. Blades let loose in vacuum motor cage - caused by water going through vacuum | 9. Replace vacuum motor |
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| Drain valve leaks | 1. Drain valve gaskets #38 worn | 1. Replace gaskets |
| | 2. Lint or dirt in drain valve #37 | 2. Remove and clean, may need to replace |
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| Large pressure drop when valve on floor tool is engaged (up to 50 psi drop is normal) | 1. Air in pump | 1. Prime pump (see operating instructions) |
| | 2. Foreign matter in solution pump valves #106 | 2. Clean or replace valve |
| | 3. Worn valve in solution pump #106 | 3. Replace valve |
| | 4. Worn solution pump piston | 4. Rebuild pump |
| | 5. Improper tips in floor tool | 5. Replace with proper tips |

Solution pump motor will not run	1. Fuse blown or circuit breaker popped in building (there are no circuit breakers in machine)	1. Replace fuse or reset breaker
	2. Faulty on/off switch	2. Replace switch
	3. Loose wiring	3. Trace and repair
	4. Solution pump motor faulty	4. Replace solution pump motor
	5. Thermal overload activated - motor is too hot and will automatically shut down until cool	5. Let motor cool and check to see what caused it to overheat. Pressure may be set too high, air intake may be blocked with lint, extension cord may be too thin (use 10 gauge), excessively hot water in tank can also activate thermal overload
	6. Solution pump bearing freezes up - caused by not greasing	6. Repair or replace

Solution pumps runs but no solution comes out of spray nozzles	1. Spray tips plugged	1. Remove and clean
	2. Screen #59 in bottom clean water tank plugged	2. Remove and clean
	3. Pump valves or piston defective	3. Rebuild pump
	4. Quick couplers not attached properly	4. Separate quick couplers and rejoin
	5. Faulty quick coupler	5. Replace quick coupler
	6. Pump airlocked	6. Prime pump (see operating instructions)

Low solution pressure	1. Pump airlocked	1. Prime pump (see operating instructions)
	2. Weak pressure relief #24	2. Replace valve

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| 3. Dirt in pressure relief valve #24 | 3. Twist pressure relief valve all the way out, then with pump running, and with trigger pulled on the floor tool, twist valve in until the desired pressure is reached |
| 4. Restricted inlet line #19 | 4. Clear out and check for kinks |
| 5. Clean water tank filter dirty #59 | 5. Clean screen |
| 6. Restricted or worn pump valves #106 | 6. Dismantle and clean or replace |
| 7. Worn solution pump piston cups #108 | 7. Replace piston cups |
| 8. Worn solution pump cam bearing | 8. Replace pump |

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|---------------------|------------------------|--|
| Solution pump leaks | 1. Faulty seal in pump | 1. Replace pump seals |
| | 2. Leaking at fittings | 2. Tighten or remove fitting and wrap threads with teflon tape |
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GENERAL SERVICE POLICY

Whenever ordering parts or requesting any type of service, specify;

- a. the model of the machine
- b. the serial number of the machine
- c. the size wand you are using

All parts returned to the factory must arrive prepaid with a return authorization number. Always enclose a note indicating the above plus what exactly is wrong with the returned part, your name and your address. Always order parts by part number and description.