



Electronic Service Manuals

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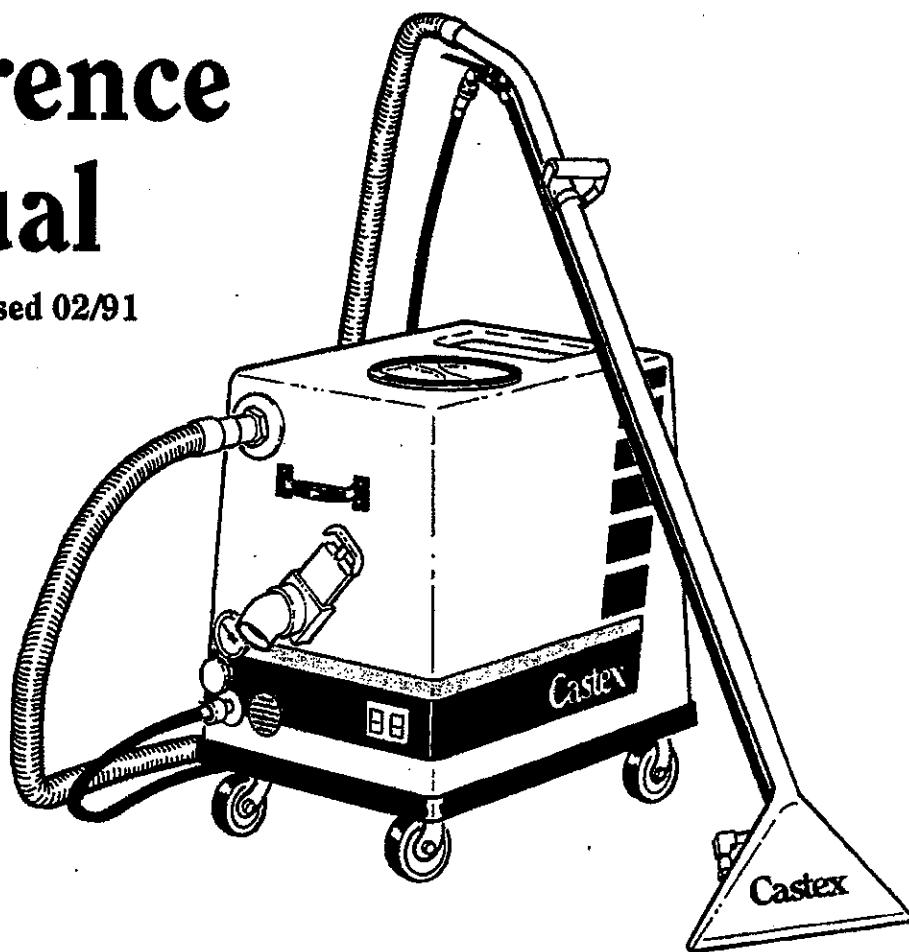
MM0900

Magnum

The high pressure carpet extractor

Reference Manual

This manual revised 02/91



Machine Serial Number:

**READ MANUAL CAREFULLY
BEFORE OPERATING MACHINE**

Castex®

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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 CASTEX 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 one gallon 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.

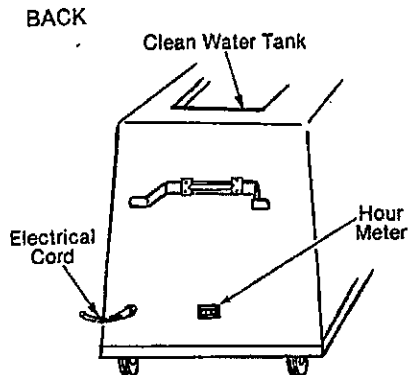
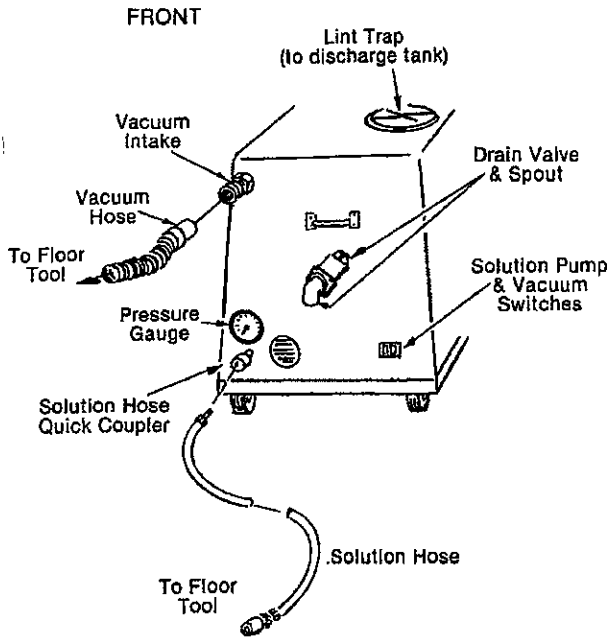
4. Connect the vacuum hose to the machine at #50 and to the floor tool at #85.
5. Connect the solution hose to the machine at #42 and to the floor tool at #102.

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.

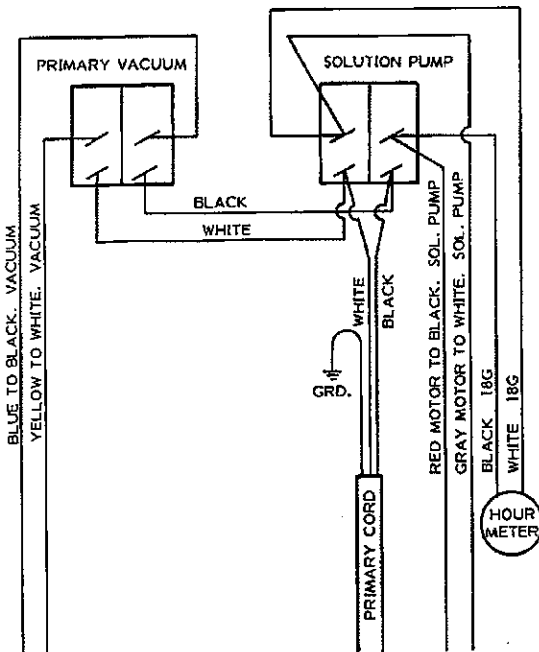
IMPORTANT:

Excessive foaming will not cause this float to shut down the vacuum. Use CASTEX Anti-Foam 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

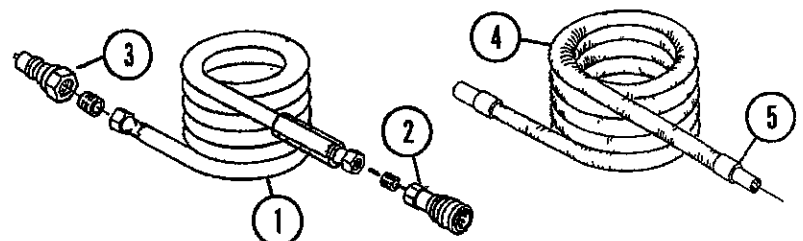


B. WHEN FINISHED:

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.

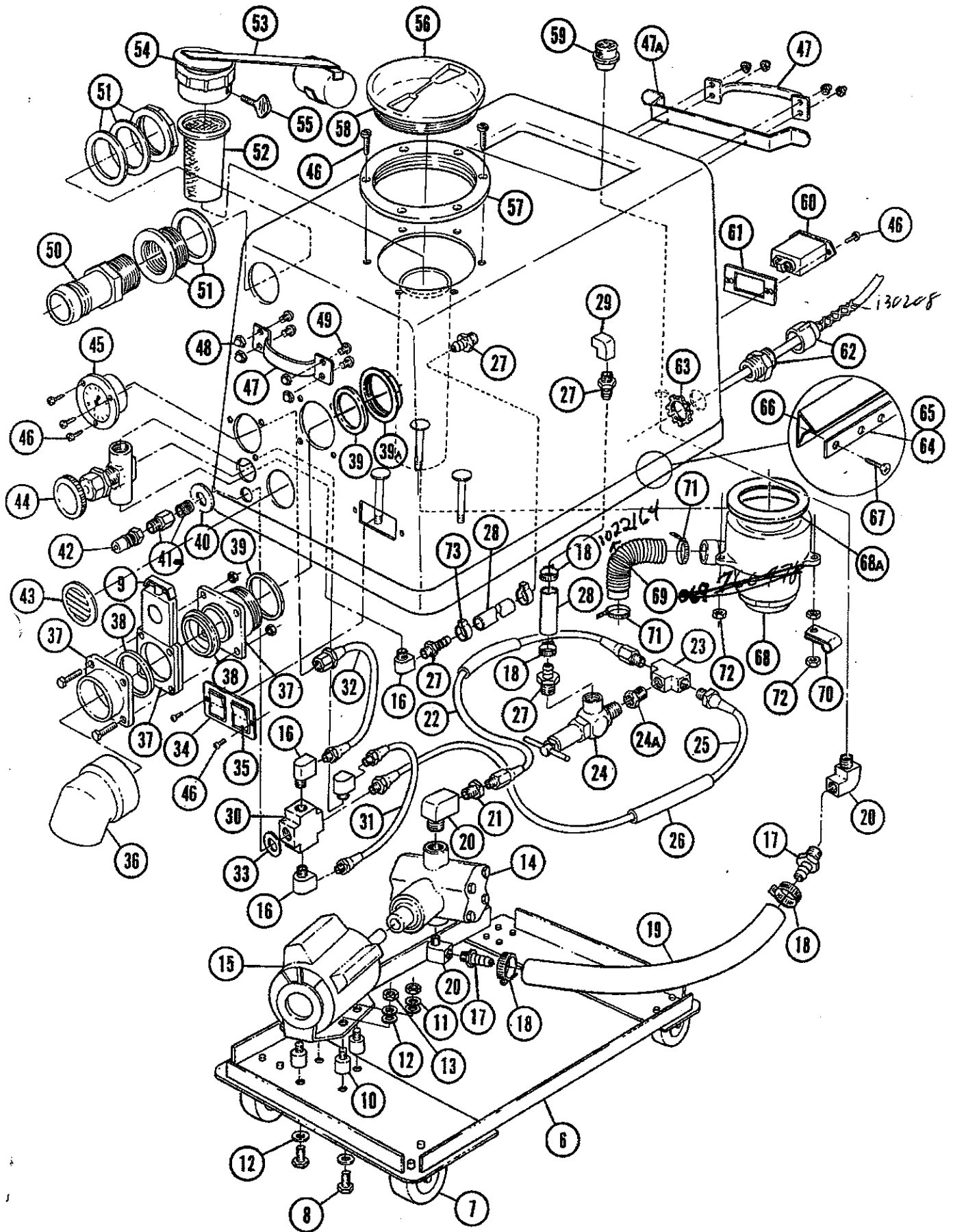
SOLUTION AND VACUUM HOSE PARTS LIST

<u>Code Number</u>	<u>Part Number</u>	<u>Description</u>
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"



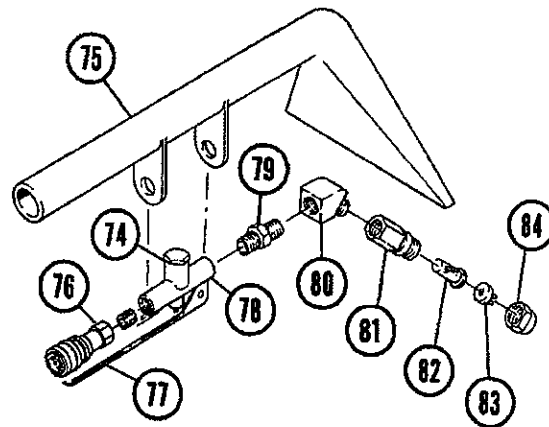
MAGNUM PARTS LIST

<u>Code Number</u>	<u>Part Number</u>	<u>Description</u>	<u>Code Number</u>	<u>Part Number</u>	<u>Description</u>
6	100910	#900 Frame <i>100920 cabinet</i>	39	101714	Drain valve gasket
	101410	#1400 Frame <i>101420 cabinet</i>	39A	210240	Drain Valve Nut
7	103000	Caster <i>100267 1400 S/C</i>	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	44.5	210023	valve
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			
16	150406	Elbow 1/4" st. 90°	47	100076	Handle (black)
17	150506	Hose barb 1/2" MP x 1/2" H	47A	250029	Cord Wrap
			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"
		1/2" 90° st. elbow	52	100024	2" screen w/pvc flange
20	150405	Bushing 1/2" to 3/8"	53	100011	2" auto shutoff
21	150107	Pump outlet hose 9M	54	100003	Gasket 2" auto shut off
22	160561	Pump outlet hose 14M			
	160563	3/8" Tee	55	140862	Thumb screw 1/4"
23	150710	Pressure regulator	56	100105	Clear lid
24	210100	Bushing 3/8"M x 1/4"F	57	100109	Outer ring (black)
24A	150006	Pr. valve to cross 9M	58	100102	Lid cup (complete)
25	160560	Pr. valve to cross 14M	59	180625	Clean water filter (ball screen)
	160562	1/4" hose guard	60	130017	Hour meter
26	160115	Hose barb 1/4" mpt 3/8" H	61	130710	Plate hour meter
27	150516	Hose 3/8" cord 2"	62	130121	Cord grip
28	160221	Hose 3/8" x 13 1/2" 9M	63	140504	Nut 1/2" locking conduit
	160512	Hose 3/8" x 17" 14M	64	100052	13" bumper rail 9M
	160515	1/4" F x F 90° elbow		100053	18" bumper rail 14M
29	150401	1/4" cross	65	100054	21" bumper rail 9M
30	150706	1/4" high pressure hose		100055	26" bumper rail 14M
31	160526	1/4" high pressure hose	66	100708	Bumper 74" 9M
32	160525	1/2" SAE washer		101408	Bumper 90" 14M
33	140009	Switch plate	67	140857	#10 x 1" wafer screw
34	130726	Switch lighted rocker	68	130404	Vacuum blower
35	130700	Down spout	68A	100001	Vacuum gasket
36	210232	Drain valve complete	69	160440	Exhaust hose (cut to fit)
37	210231	Drain valve gate seal	70	140300	Clamp
38	210239		71	130041	Wire ties
			72	140513	Nut lock nylon
			73	140301	Pinch clamp 170



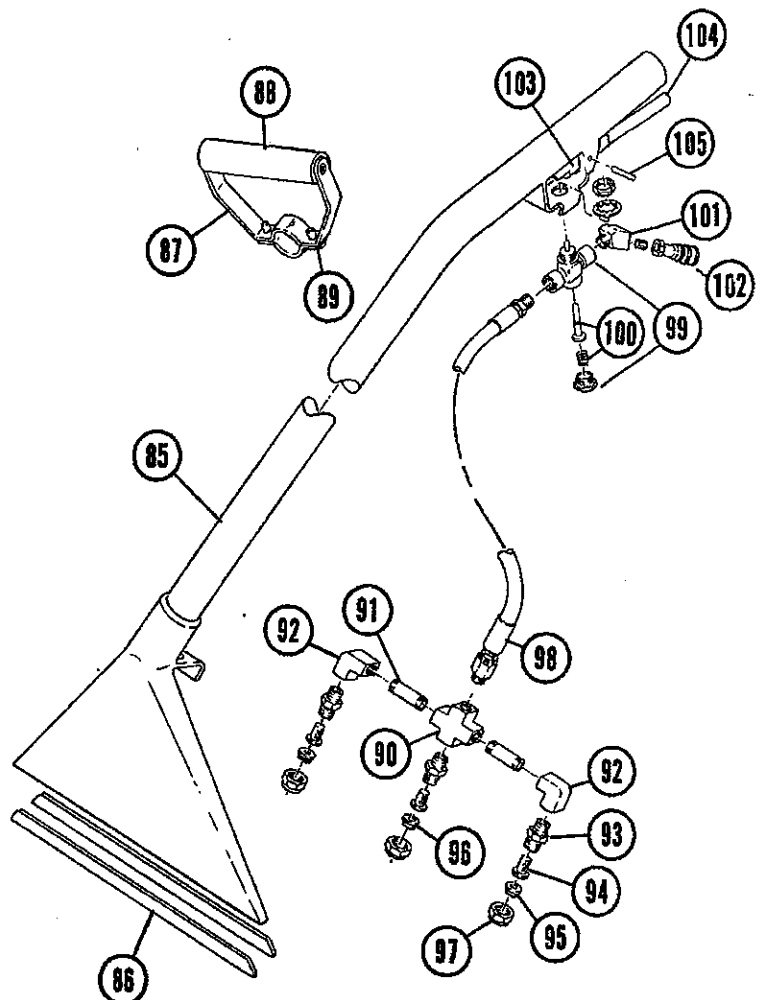
HAND TOOL PARTS LIST

<u>Code Number</u>	<u>Part Number</u>	<u>Description</u>
74	190600	Valve pin and spring (not shown)
75	200430	Hand tool
76	150913	Quick coupler, Ser.60
77	150615	Nipple 1/4" close
78	200905	Hand tool trigger
79	210210	Flow control valve
80	150606	Hex nipple, 1/4"
81	150403	Elbow street 1/4" 45'
82	200992	Female spray body 1/4"
83	200996	No drip spray nozzle screen
84	200965	Brass tip #8002
	200994	Spray body cap



FLOOR TOOL PARTS LIST

<u>Code Number</u>	<u>Part Number</u>	<u>Description</u>
85	200408	Wand
86	200939	Shoes
87	200922	Adjustable handgrip complete
88	200910	Foam grip
89	140210	1/4" x 3/4" bolt
90	150700	Cross extruded 1/4"
91	150600	Nipple 1/4" x 2"
92	150401	Elbow 1/4" 90°
93	200993	Spray body, male
94	200996	No drip spray nozzle screen
95	200986	Stainless steel tip #9502
96	200988	Stainless steel tip #11002
97	200994	Spray body cap
98	160155	1/4" HP feed hose with swedge
99	210150	Flow control valve
100	190603	Valve pin and spring kit
101	150400	Elbow 1/4" 45°
102	150913	Quick coupler, Ser.60
	150615	Nipple 1/4" close
103	200918	Floor tool trigger
104	200809	Sleeve handle
105	140611	Pin

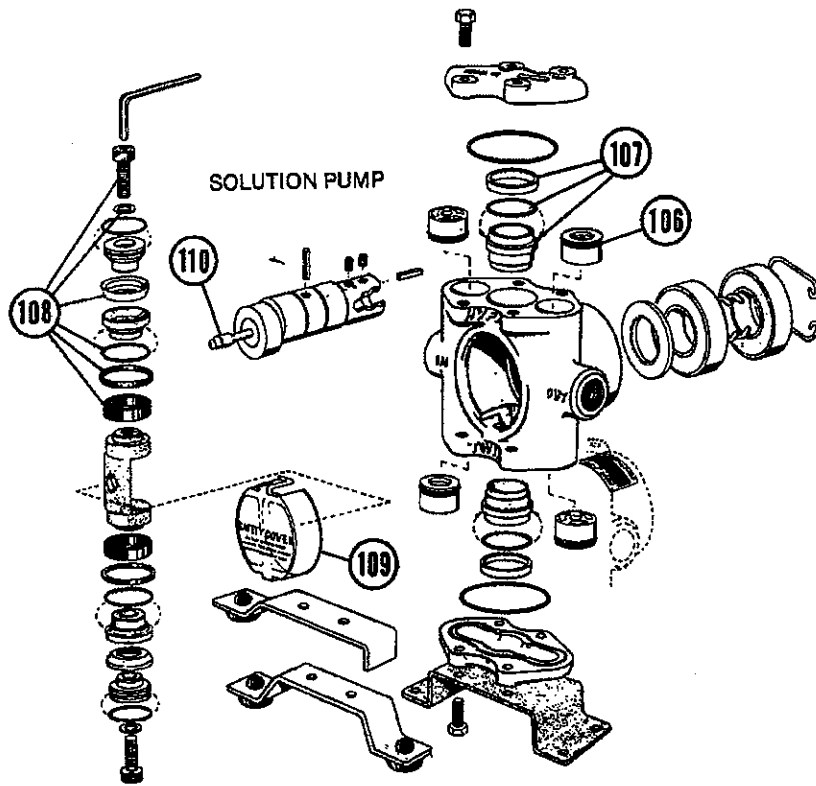


C. SUGGESTED MAINTENANCE:

1. Keep all filters and screens clean (#52 , #59 , and #94).
2. Every forty (40) hours of operation run Brown-Ex through the pump and tanks. Pour approximately 2 cups of Brown-Ex into the clean water tank. Turn on solution pump and let Brown-Ex 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 #110. 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 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

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

TROUBLESHOOTING

<u>Problem</u>	<u>Cause</u>	<u>Solution</u>
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

	4. Quick coupler and plug not fully engaged	4. Reinsert quick coupler
	5. Valve stem worn	5. Replace
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
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
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 over-heat. 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

- | | |
|--|---|
| 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 |

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 |

Turn valve counter

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.