



## 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](mailto:CustServe@Michco.com)

Web site: [www.Michco.Com](http://www.Michco.Com)

Parts Web site: [www.FloorMachineParts.Com](http://www.FloorMachineParts.Com)

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By Email: **[Shop@Michco.com](mailto:Shop@Michco.com)**

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# MAGNUM DUAL VAC

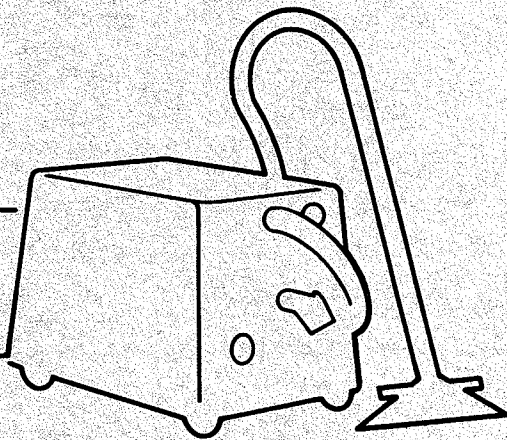
Model Number: 1400 DV

## REFERENCE MANUAL

Operating Instructions • Parts List • Troubleshooting

Machine Serial Number \_\_\_\_\_

# Castex



Castex Industries, Inc., 4240 Blue Star Hwy., Holland, Michigan 49423  
616- 392-6966

**WARNING: TO AVOID ELECTRICAL SHOCK, DO NOT EXPOSE TO RAIN. STORE INDOORS.**

**Use only CASTEX chemicals, others could harm the machine.**

## SET UP AND OPERATION:

(Numbers refer to the code numbers for the diagram on page 2 and to the parts drawings on pages 3 and 4.)

1. Fill the clean water tank with hot water and the proper amount of CASTEX 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 #18 is shut and then plug the machine into two **separate grounded 15 amp circuits**. **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 #15. Put the other end of the bleeder hose into the vacuum intake #9. 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 #9 and to the floor tool at #55.
5. Connect the solution hose to the machine at #15 and to the floor tool at #57.
6. In sequence, turn on the solution pump switch primary vacuum switch, and secondary vacuum switch. (If all switches are turned on at once, the initial power demand could overload the circuit.) **BOTH** vacuums must be on for the machine to operate properly.
7. To operate, squeeze the floor tool valve handle #56 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 motors at #1 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.

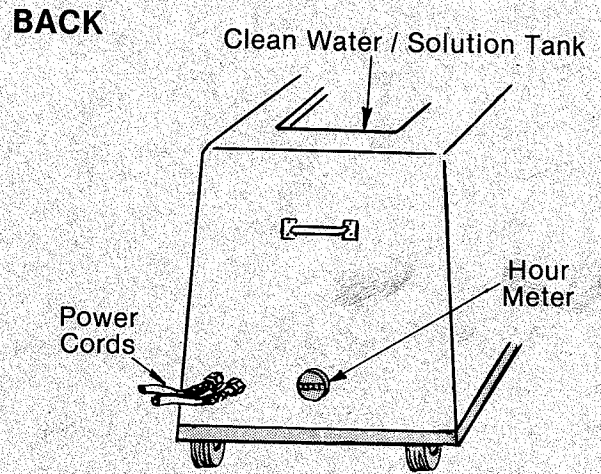
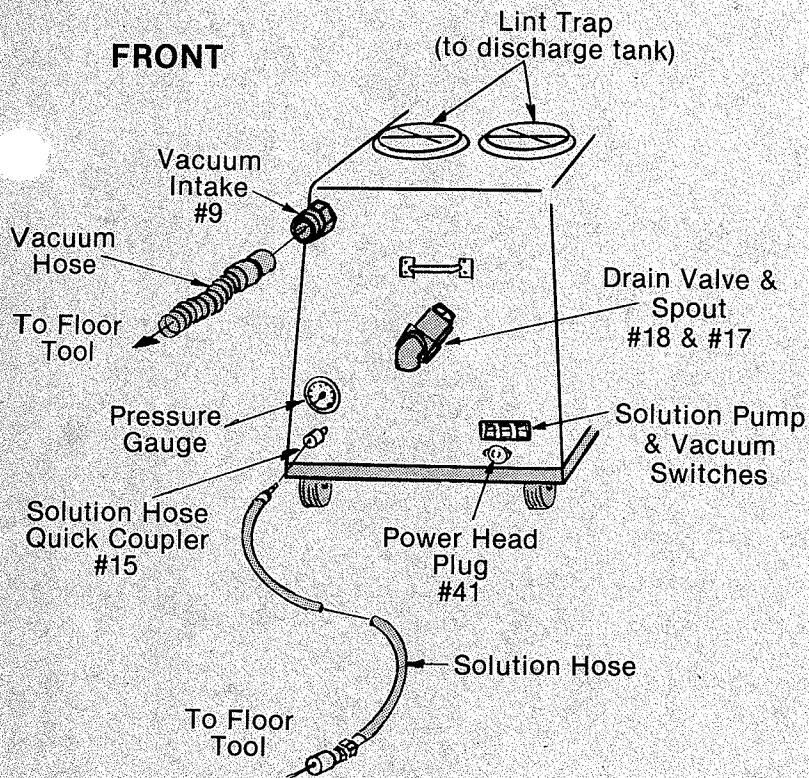
### NOTE:

Excessive foaming will *not* cause this float to shut down the vacuums. 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 #17. Pull the valve T-handle #18 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 #1 and the clean water filter #2 are kept clean. Just unscrew and rinse to clean the clean water filter. With the machine shut off, lift vacuum shutoff lid at #1 and clean out lint.
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" locknut on the T-handle #34 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.

**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.

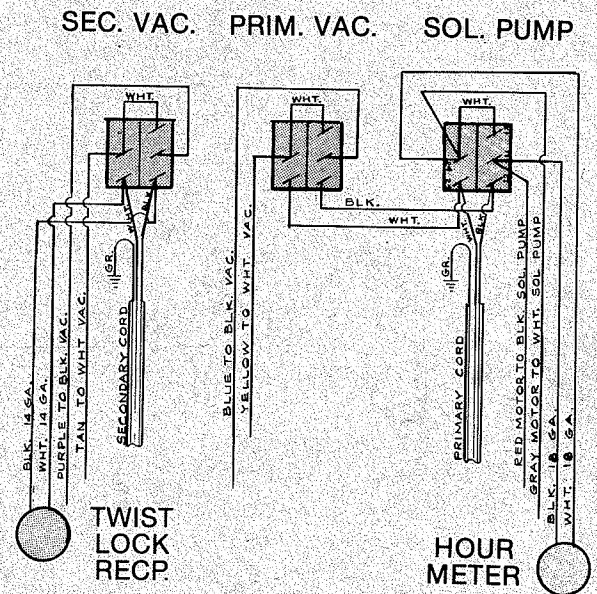
Be certain to keep #68 tips in the outside positions on any floor tool and a #70 tip in the inside position.



## WHEN FINISHED:

1. Turn off all switches.
2. Drain the recovery tank by opening valve #18 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 #9 and one hand over the drain #17 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 (#2, at #1, at #9, #67, #71). 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.

## WIRING



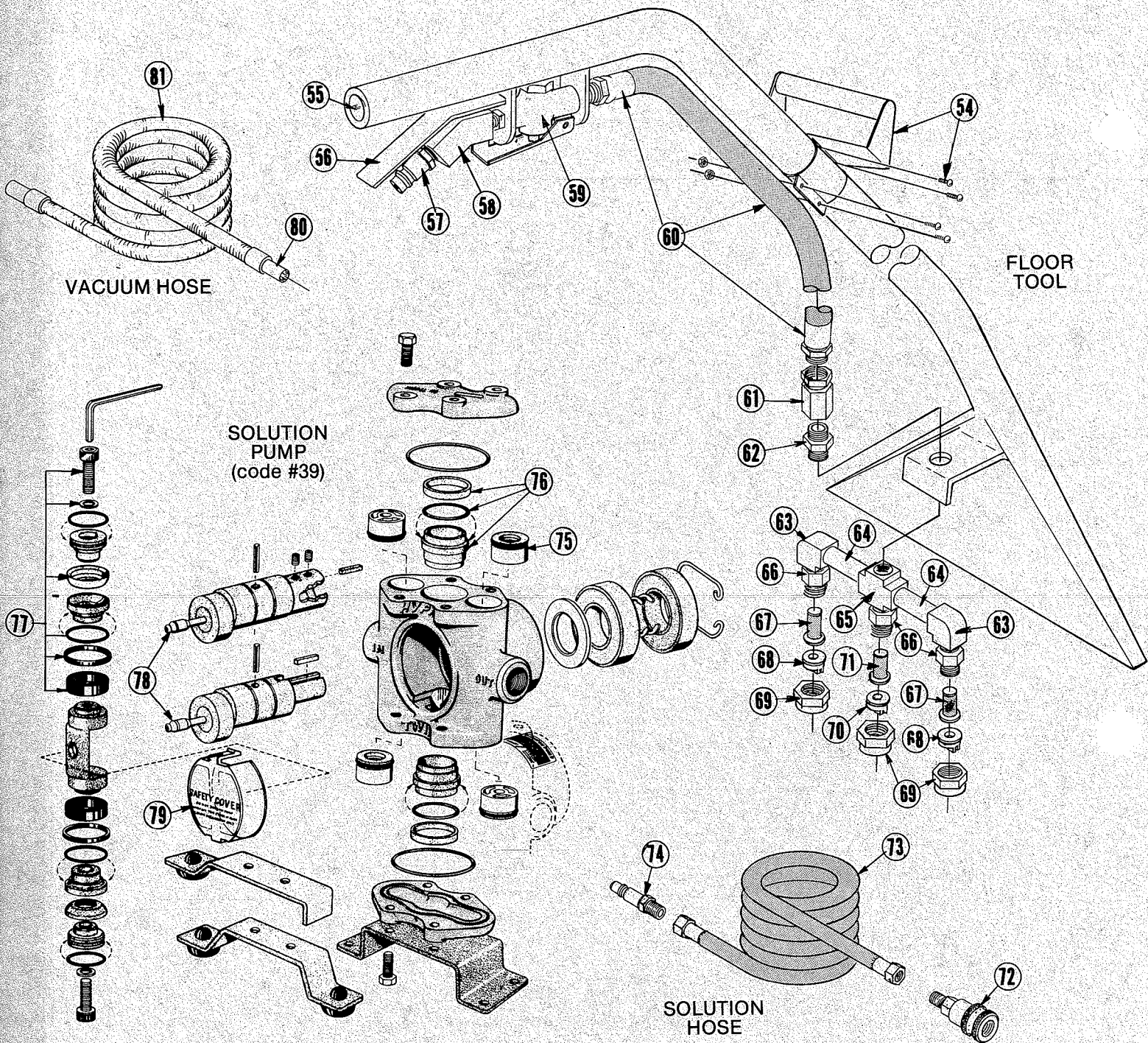
NOTE: ALL GREEN GROUND WIRES CONNECT TO FRAME.

## GENERAL SERVICE POLICY:

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

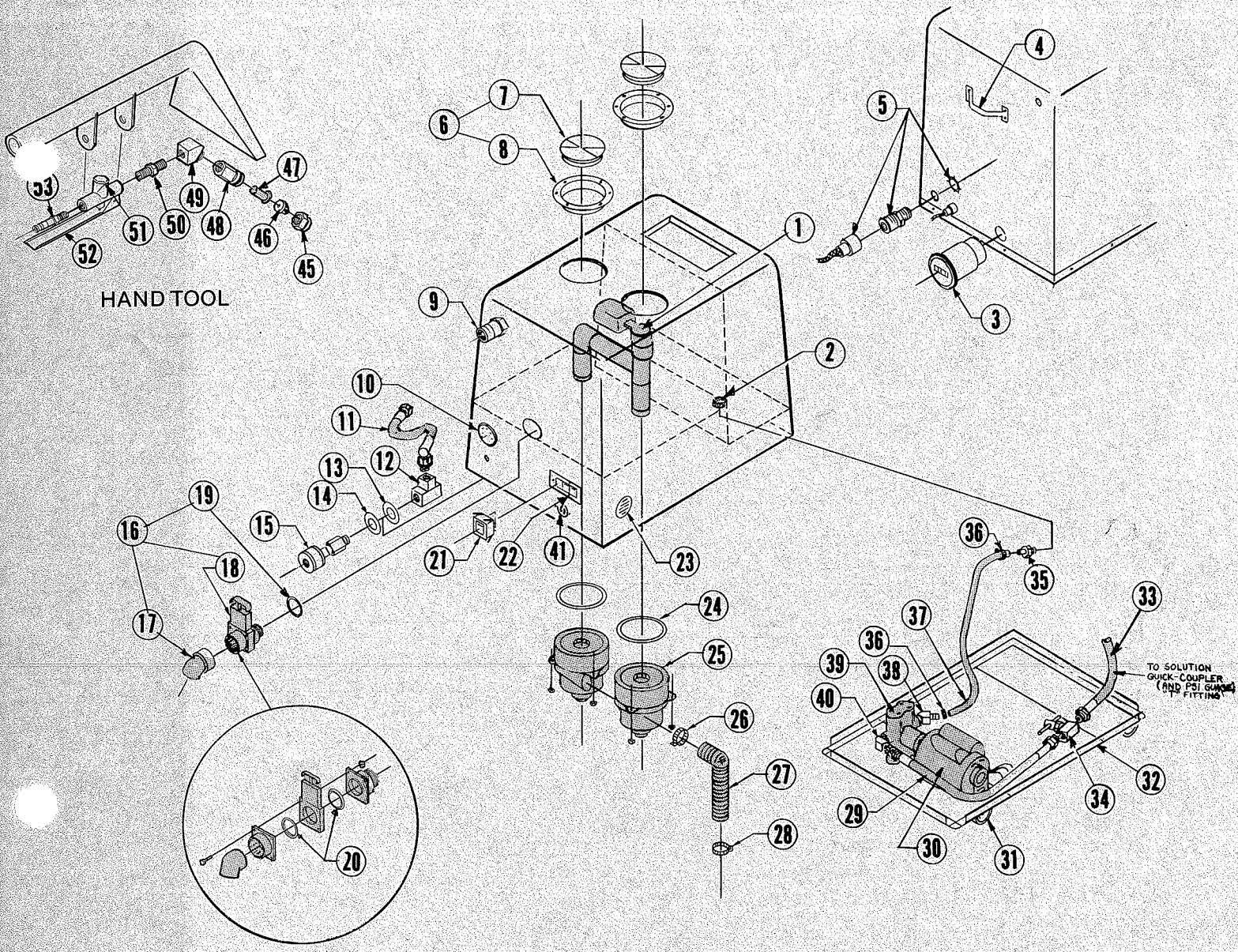
- a) the model of the machine
- b) the serial number of the machine
- c) the size wand you are using

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.



### PARTS CHART

CODE #	PART #	DESCRIPTION	CODE #	PART #	DESCRIPTION
1	10506	vacuum shut off, 2"	17	10113	down spout
2	10110	clean water filter	18	10112	drain valve
3	10617	hour meter	19	10111	drain valve gasket
4	10102	handle with screws	20	10117	gate valve seal
5	10623	cord grip	21	10612	rocker switch
6	10105	lint trap lid complete	22	10626	switch gang plate
7	10106	lint trap lid clear center	23	10120	3" chrome vent
8	10107	outer ring	24	10501	vacuum/blower gasket
9	10116	vacuum intake, 2"	25	10504	vacuum/blower
10	17010	pressure gauge	26	10503	clamp, #28
11	17081	hose complete	27	10502	exhaust hose
12	10731	tee, 1/4"	28	10503	clamp, #28
13	10317	washer, plain	29	17082A	pump outlet hose, complete
14	10316	washer, painted	30	17046	1/3 hp motor
15	10315	quick connector	31	10201	caster
16	10114	drain valve, gasket and spout complete	32	10214	frame



CODE #	PART #	DESCRIPTION
33	17082B	outlet hose, complete
34	10746	pressure relief valve
35	10325	hose barb
36	10424	clamp
37	RX 1/2"	1/2" hose
38	10474	elbow, 45°
39	10745	pump
40	10437	elbow, 90°
41	10254	receptacle, twist lock
45	10432	spray body cap
46	10446	brass tip #8002
47	10431	regular spray nozzle screen
48	10454	female spray body, 1/4"
49	10453	street elbow, 1/4", 45°
50	10452	hex nipple, 1/4"
51	10410	flow control valve
52	10470	hand tool handle
53	10420	quick coupler plug, 1/4" MPT
54	10401	hand grip complete
55	-	vacuum hose hook-up
56	10471	floor tool trigger
57	10420	quick coupler plug, 1/4" MPT
58	10466	elbow, 1/4", 45°

CODE #	PART #	DESCRIPTION
59	10410	flow control valve
60	10414	hp feed hose complete
61	10331	swedge fitting
62	10452	hex nipple, 1/4"
63	10468	elbow, 1/4", 90°
64	10464	nipple, 1/4" x 2"
65	10465	cross extruded, 1/4"
66	10436	spray body, male
67	10435	no drip spray nozzle screen
68	10449	stainless steel tip, #9502
69	10432	spray body cap
70	10450	stainless steel tip, #11002
71	10431	regular spray nozzle screen
72	10315	quick coupler, 1/4" MPT
73	10319	solution hose, 25' x 1/4", complete
74	10420	quick coupler plug, 1/4" MPT
75	10743	valve kit, set of 4
76	10756	cylinder sleeve kit
77	10744	cup kit, set of 2
78	10754	grease fitting
79	10755	safety cover
80	10523	hose cuff only, 2"
81	10520	vacuum hose complete, 25' x 2"

## SUGGESTED MAINTENANCE:

1. Keep all filters and screens clean (#1, #2, at #9, #67, #71).
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 #9. 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 #79 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 #78. Use very little grease as too much grease or too much pressure can ruin a nearby delicate seal. With a hand grease gun, use no more than 1" 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 into solution 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.

# **TROUBLESHOOTING**

## 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 or improper degree of spray 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 #57 faulty	1. Replace quick coupler
	2. Flow control valve #59 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 (be certain both vacuums are on)	1. Drain valve #18 open	1. Close drain valve
	2. Recovery tank full closing vacuum safety shutoff #1	2. Drain recovery tank
	3. Lint on top of stand pipe #1	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 #1 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

## TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Drain valve leaks	<ol style="list-style-type: none"> <li>1. Drain valve gaskets #20 worn</li> <li>2. Lint or dirt in drain valve #18</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace gaskets</li> <li>2. Remove and clean, may need to replace</li> </ol>
Large pressure drop when valve on floor tool is engaged (up to 50 psi drop is normal)	<ol style="list-style-type: none"> <li>1. Pump airlocked</li> <li>2. Foreign matter in solution pump valves #75</li> <li>3. Worn valve in solution pump #75</li> <li>4. Worn solution pump piston</li> <li>5. Improper tips in floor tool</li> </ol>	<ol style="list-style-type: none"> <li>1. Prime pump (see operating instructions)</li> <li>2. Clean or replace valve</li> <li>3. Replace valve</li> <li>4. Rebuild pump</li> <li>5. Replace with proper tips</li> </ol>
Solution pump motor will not run	<ol style="list-style-type: none"> <li>1. Fuse blown or circuit breaker popped in building (there are no circuit breakers in machine)</li> <li>2. Faulty on/off switch</li> <li>3. Loose wiring</li> <li>4. Solution pump motor faulty</li> <li>5. Thermal overload activated — motor is too hot and will automatically shut down until cool</li> <li>6. Solution pump bearing freezes up — caused by not greasing</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace fuse or reset breaker</li> <li>2. Replace switch</li> <li>3. Trace and repair</li> <li>4. Replace solution pump</li> <li>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</li> <li>6. Repair or replace</li> </ol>
Solution pump runs but no solution comes out of spray nozzles	<ol style="list-style-type: none"> <li>1. Spray tips plugged</li> <li>2. Screen #2 in bottom of clean water tank plugged</li> <li>3. Pump valves or piston defective</li> <li>4. Quick couplers not attached properly</li> <li>5. Faulty quick coupler</li> <li>6. Pump airlocked</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove and clean</li> <li>2. Remove and clean</li> <li>3. Rebuild pump</li> <li>4. Separate quick couplers and rejoin</li> <li>5. Replace quick coupler</li> <li>6. Prime pump (see operating instructions)</li> </ol>

## TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Low solution pressure	1. Pump airlocked	1. Prime pump (see operating instructions)
	2. Weak pressure relief valve #34	2. Replace valve
	3. Dirt in pressure relief valve #34	3. Twist pressure relief valve all the way out, then with pump running, and with trigger pulled on floor tool, twist valve in until the desired pressure is reached
	4. Restricted inlet line #37	4. Clear out and check for kinks
	5. Clean water tank filter dirty #2	5. Clean screen
	6. Restricted or worn solution pump valves #75	6. Dismantle and clean or replace
	7. Worn solution pump piston cups #77	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. Faulty pump	2. Replace pump
	3. Leaks at fittings	3. Tighten or remove and wrap threads with teflon tape.



