



## Electronic Service Manuals

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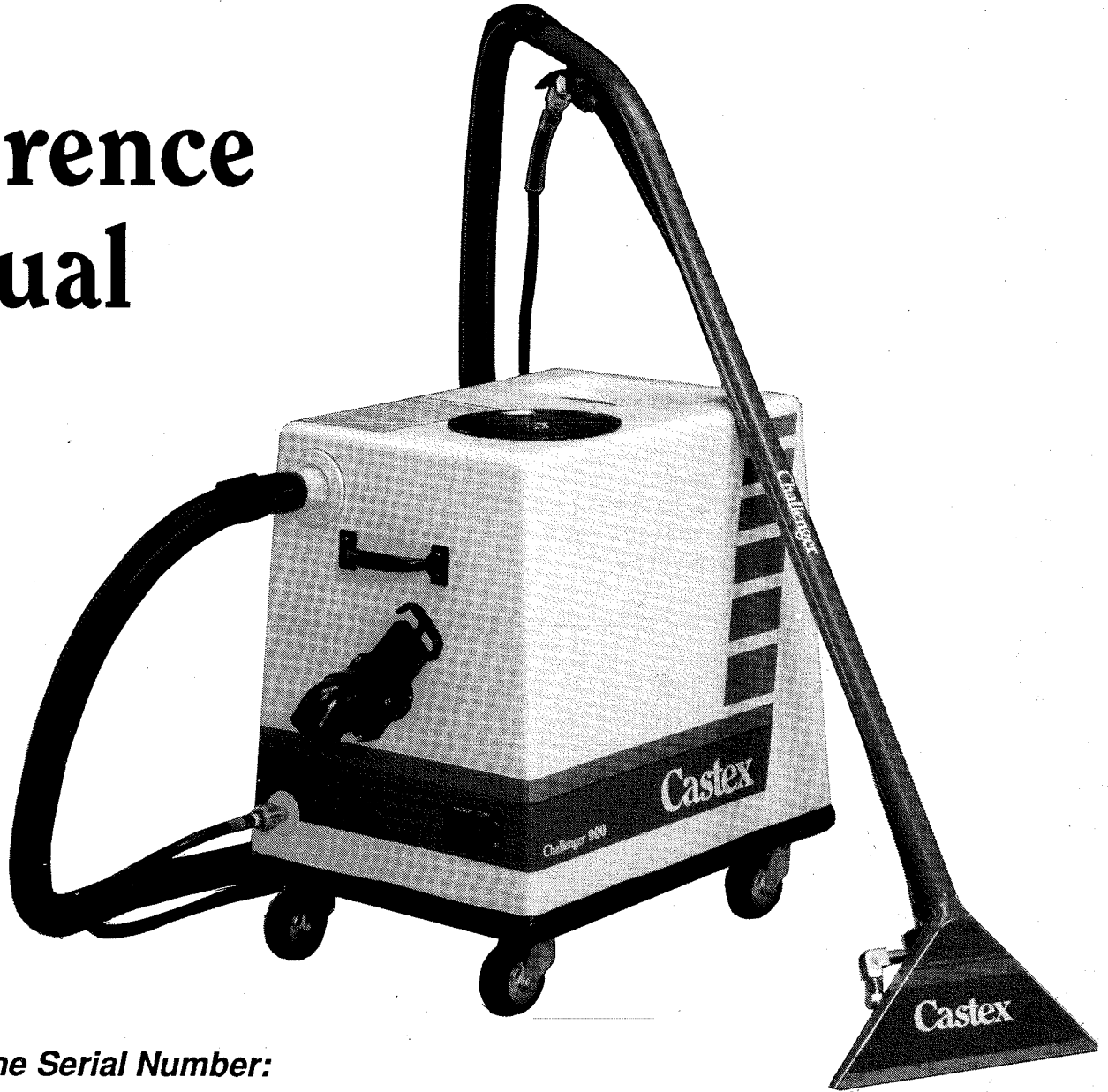
***Serving the Cleaning Industry Since 1922***

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# Challenger

The simple and dependable carpet extractor

## Reference Manual



*Machine Serial Number:*

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**READ MANUAL CAREFULLY  
BEFORE OPERATING MACHINE**

# Castex

Castex Industries, Inc.  
4240 Blue Star Hwy., Holland, Michigan 49423  
800-253-7871 616-392-6966

## A. SET-UP AND OPERATION:

(Numbers refer to part diagrams on pages 3 thru 5).

1. Fill the clean water tank with hot water and the proper amount of Castex Cleaning Agent. Always mix powder chemical in the filling bucket- Do not mix powder chemicals in the machine! Powders are unlikely to dissolve completely, resulting in clogging the solution pump system.

**IMPORTANT!** Use separate buckets to fill and empty the Challenger. Use a clean bucket to fill the Challenger and empty dirty water into a separate bucket. Dirty water in the clean water tank will clog the solution pump system.

**WARNING!** To avoid an electrical hazard, the Challenger must be grounded while in use to protect the operator from electrical shock and serious personal injury!

2. Connect only to a grounded 110 volt A.C. (3 hole) electrical outlet. See Figure 1.

If your outlet contains no grounding hole like the one shown in Figure 2, you must use an adapter. This adapter must be connected to an outlet with a grounded receptacle box using cover plate screw to secure the adapter's ground pin as shown in Figure 2.

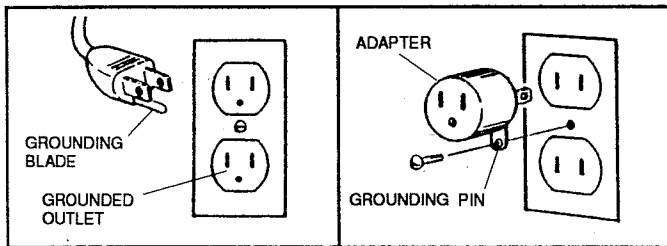


Fig. 1

Fig. 2

3. Connect the vacuum hose to the machine at #29A and to the floor tool at #1C.
4. Connect the solution hose to the machine at #26A and to the floor tool at #18C.
5. In sequence, turn on the solution pump switch then the vacuum switch.

**Note:** The solution pump runs only when the floor tool trigger #19C is engaged.

6. To operate, squeeze the floor tool valve handle while drawing the floor tool toward you with the opening held steadily against the carpet.

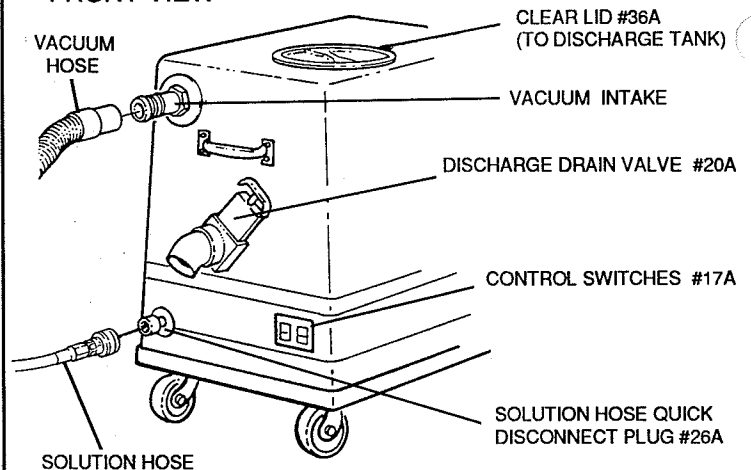
**Note:** When using the optional hand tool the pump will cycle on and off because of the decreased flow of water.

7. 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 #45A 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.

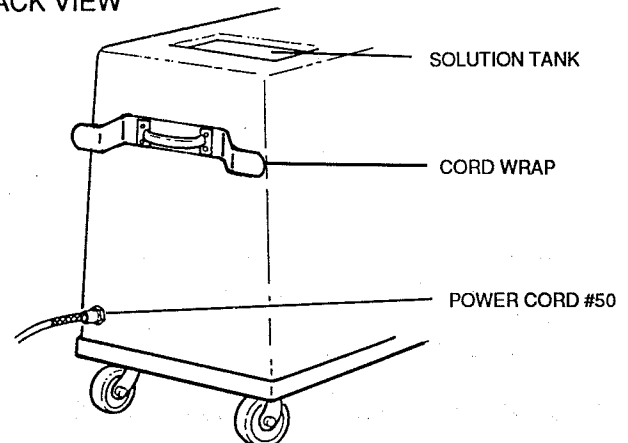
**Note:** Excessive foaming will not cause this float to shut-down the vacuum. Use Castex Defoamer to control foaming and to protect the vacuum motor.

8. To empty the discharge tank, turn the machine off and then position a discharge bucket under the drain valve down spout #19A. Pull the valve T-handle #22A 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!
9. Be certain the standpipe screen at #31A and the clean water filter #14A are kept clean. Just unscrew and rinse to clean the clean water filter. With the machine off, lift vacuum shutoff lid at #33A and clean out lint.

### FRONT VIEW



### BACK VIEW



## B. WHEN FINISHED:

1. Turn off all switches.
2. Drain the recovery tank by opening valve #20A 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 #29A and one over the drain #19A 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 #14A, #29A, #31A and #7C. 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.

## C. SUGGESTED MAINTENANCE:

1. Keep all filters and screens clean #14A, #29A, #31A and #7C.
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 #29A. 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 tight over the nylon's band to hold it 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.

**DO NOT ALLOW THE MACHINE TO FREEZE!** If the machine must be stored in freezing temperatures, be sure that the machine, pump, and floor tool are completely drained and dry.

Your Castex Challenger is engineered to be easily repaired. Should a problem occur, you should be able to make the proper repairs without an experienced serviceman. If a problem occurs which you cannot solve, contact your distributor or Castex Industries.

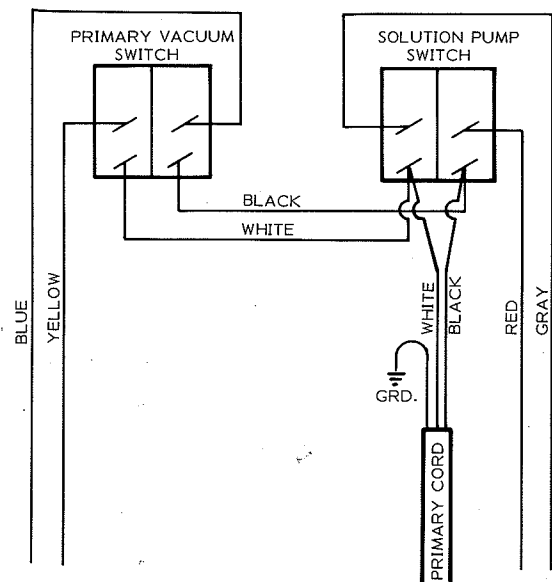
## D. GENERAL SERVICE POLICY:

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

1. The model of the machine.
2. The serial number of the machine.

All parts returned to the factory must arrive prepaid with a Return Authorization Number issued by Castex. Always enclose a note indicating the above plus an explanation of the problem you are experiencing with the part. Also, enclose your name, phone number and address. Always order parts by both part number and description.

## WIRING DIAGRAM



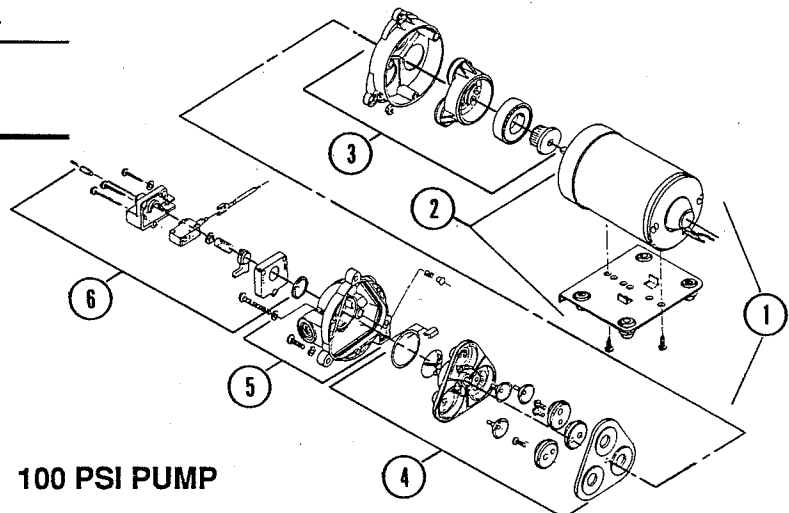
# CHALLENGER PARTS LIST "A"

ITEM #	PART #	DESCRIPTION	ITEM #	PART #	DESCRIPTION
1.	100510	500 FRAME	26.	150933	COUPLER PLUG, SERIES 60
	100910	900 FRAME	27.	150615	NIPPLE, CLOSE
	101410	1400 FRAME	28.	140005	FENDER WASHER, 1/2"
2.	103000	CASTER, 3" SWIVEL	29.	150500	HOSE BARB, 1 1/2" X 1 1/2"
3.	140836	SCREW, 10-24 X 1 1/4"	30.	150301	FITTING, 1 1/2" INLET FLANGE
4.	140011	3/16" WASHER	31.	100024	2" SCREEN ( W/PVC FLANGE)
5.	140512	NUT, 10-24 HEX	32.	100003	GASKET, 3" VAC SHUT OFF
6.	180103	PUMP, 100 PSI	33.	100011	2" AUTO SHUT OFF
7.	150538	HOSE BARB, 3/8"M X 3/8"H	34.	140880	THUMB SCREW , 1/4"-20 X 1/2"
8.	150412	HOSE BARB, 3/8"M X 3/8"H 90°	35.	100102	LID CUP, COMPLETE
9.	140301	PINCH CLAMP 170	36.	100105	CLEAR LID
10.	160503	HOSE, 6 3/4" X 3/8"H 500, 900	37.	100109	OUTER LID RING
	160505	HOSE, 7 1/2" X 3/8"H 1400, 500	38.	250029	CORD WRAP
	160502	HOSE, 11 1/2" X 3/8"H 900	39.	100076	HANDLE
	160504	HOSE, 14" X 3/8"H 1400	40.	140502	NUT, ACORN #10-24
11.	150511	HOSE BARB, 1/4"F X 3/8"H	41.	1301666	CORD GRIP
12.	150507	HOSE BARB, 1/2"M X 3/8"H	42.	100063	BUMPER 70" 500 MODEL
13.	150405	ELBOW, 1/2"M X 1/2"F 90° ST		100065	BUMPER, 77" 900 MODEL
14.	180625	FILTER, CLEAN WATER		100066	BUMPER 96" 1400 MODEL
15.	140009	WASHER, 1/2" SAE	43.	100052	13" BUMPER RAIL, 500, 900
16.	130723	SWITCH PLATE		100053	18" BUMPER RAIL, 500, 1400
17.	130700	SWITCH LIGHTED ROCKER		100054	21" BUMPER RAIL, 900
18.	140826	SCREW, #6 X 3/4"		100055	26" BUMPER RAIL, 1400
19.	210232	DOWN SPOUT, DRAIN VALVE	44.	140857	WAFER SCREW, #10 X 1"
20.	210231	DRAIN VALVE	45.	130404	VACUUM MOTOR
21.	210239	DRAIN VALVE GATE SEAL	46.	100001	GASKET, VACUUM
22.	210237	DRAIN VALVE HANDLE	47.	140546	LOCK NUT, 5/16"-18 NYLON
23.	210234	DRAIN VALVE GASKET	48.	160801	EXHAUST HOSE, 2" X 13 1/2"
24.	101714	GASKET, WASTE AIR CHAMBER	49.	130041	WIRE TIES
25.	210240	DRAIN VALVE NUT	50.	130209	POWER CORD, 14/3 X 18'
				130210	POWER CORD, 14/3 X 28' 1400

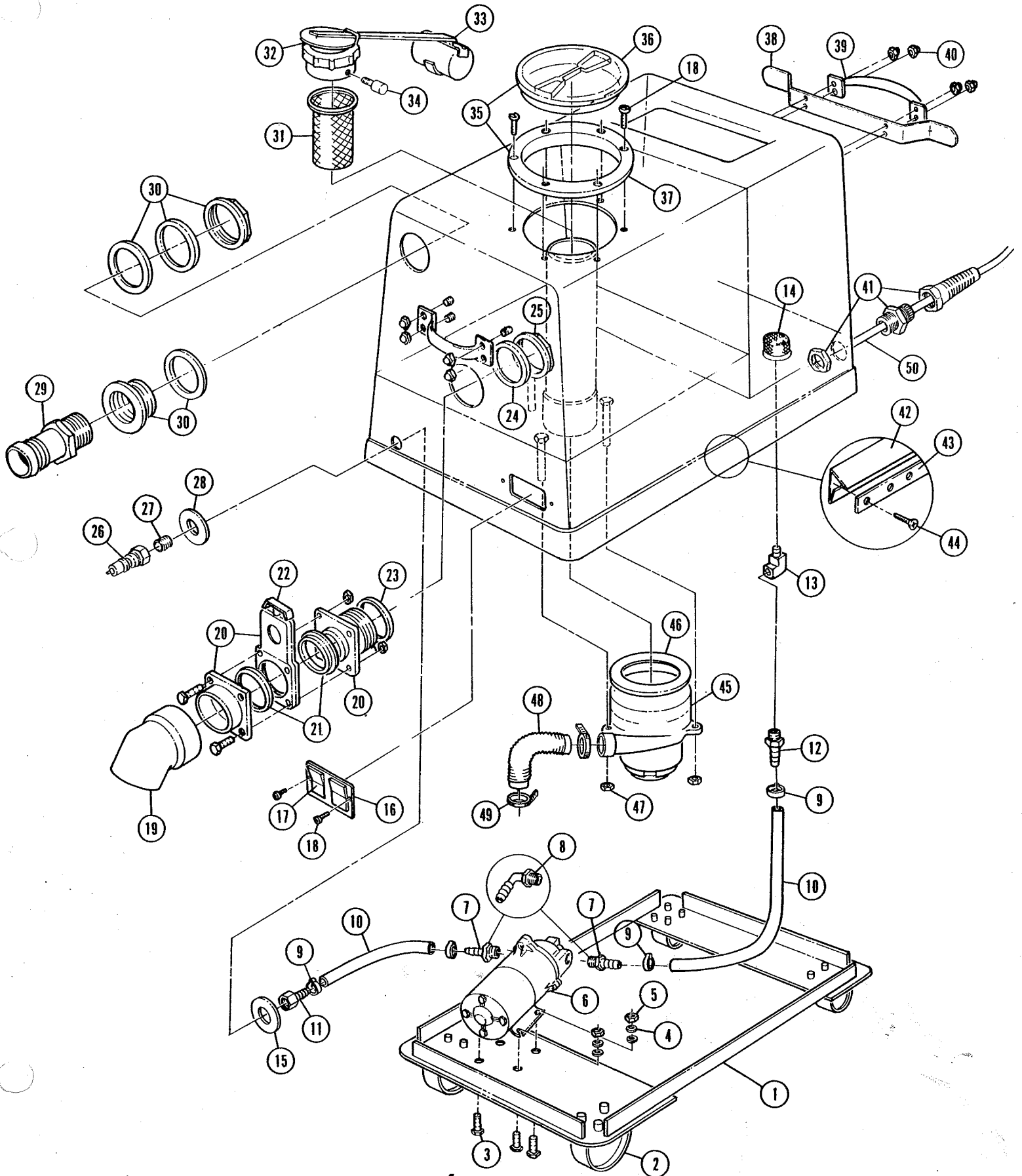
## SOLUTION PUMP PARTS LIST "B"

ITEM #	PART #	DESCRIPTION
1.	180103	PUMP, COMPLETE, 100 PSI
2.	190125	MOTOR ONLY, 100 PSI
3.	190130	LOWER PUMP HOUSING KIT
4.	190131	VALVE KIT
5.	190128	UPPER PUMP HOUSING KIT
6.	190129	PRESSURE SWITCH KIT

## SOLUTION PUMP DIAGRAM "B"



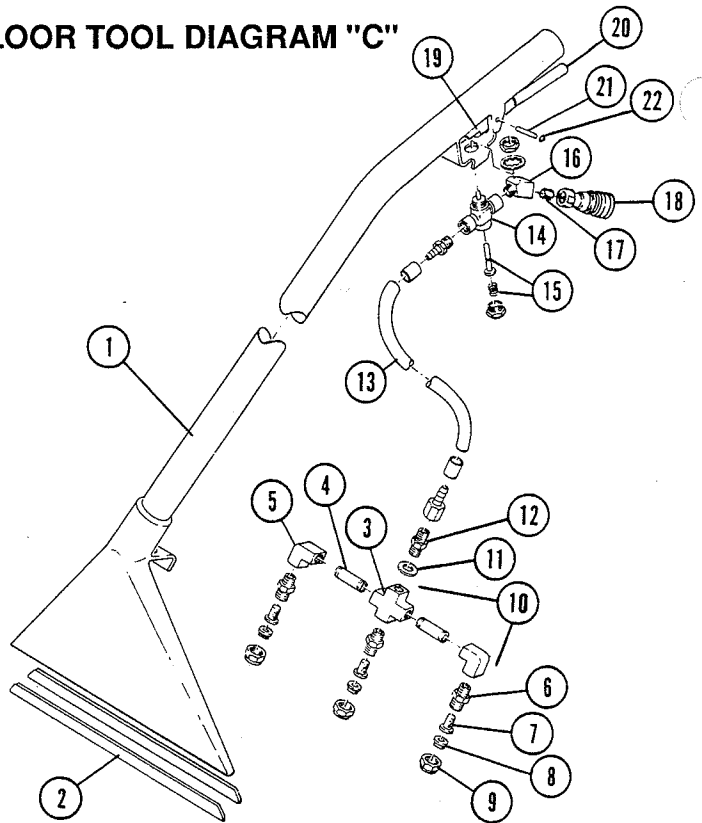
# CHALLENGER PARTS DIAGRAM "A"



## FLOOR TOOL PARTS LIST "C"

ITEM #	PART #	DESCRIPTION
1.	250430	WAND, 12"
2.	200939	SHOES, S/S FOR WANDS
3.	150700	CROSS EXTRUDED 1/4"
4.	150600	NIPPLE 1/4" X 2"
5.	150401	ELBOW 1/4" X 1/4" 90°
6.	200993	SPRAY BODY 1/4", MALE
7.	200996	NO DRIP SPRAY NOZZLE SCREEN
8.	200964	TIP BRASS #11003
9.	200994	SPRAY BODY CAP
10.	700051	SPRAY BAR COMPLETE
11.	140009	WASHER, 1/2" SAE
12.	150606	HEX NIPPLE, 1/4" X 1/4"
13.	160151	3/8" LP FEED HOSE
14.	210150	FLOW CONTROL VALVE
15.	190603	VALVE PIN AND SPRING KIT
16.	150400	ELBOW 1/4" X 1/4" 45°
17.	150615	CLOSE NIPPLE
18.	150913	COUPLER, SERIES 60
19.	250027	FLOOR TOOL TRIGGER
20.	200809	SLEEVE, HANDLE
21.	140605	PIN
22.	140520	CAP, PIN (2)

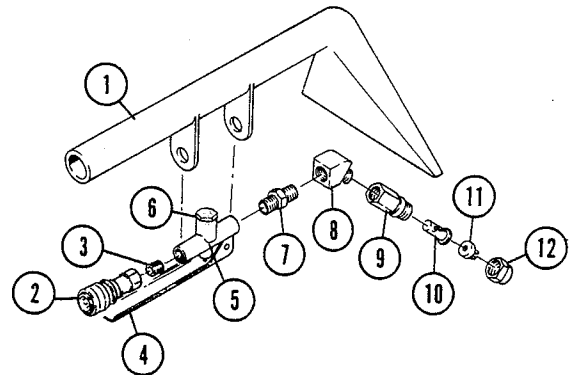
## FLOOR TOOL DIAGRAM "C"



## HAND TOOL PARTS LIST "D"

ITEM #	PART #	DESCRIPTION
1.	250440	HAND TOOL
2.	150913	COUPLER, SERIES 60
3.	150615	CLOSE NIPPLE
4.	200905	HAND TOOL TRIGGER
5.	210210	FLOW CONTROL VALVE
6.	190600	VALVE PIN & SPRING (NOT SHOWN)
7.	150606	HEX NIPPLE, 1/4" X 1/4"
8.	150403	ELBOW ST. 1/4" 45°
9.	200992	SPRAY BODY, 1/4" F
10.	200996	SPRAY NOZZLE SCREEN, NO DRIP
11.	200965	BRASS TIP #8002
12.	200994	SPRAY BODY CAP

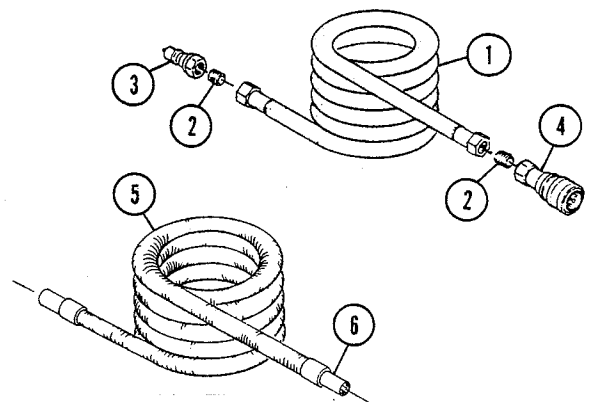
## HAND TOOL DIAGRAM "D"



## SOLUTION & VACUUM HOSE PARTS LIST "E"

ITEM #	PART #	DESCRIPTION
1.	160100	SOLUTION HOSE 3/8" X 15'
2.	150615	CLOSE NIPPLE
3.	150933	PLUG, SERIES 60
4.	150913	COUPLER, SERIES 60
5.	160400	VACUUM HOSE COMPLETE 15' X 1 1/2"
6.	160430	HOSE CUFF ONLY, 1 1/2" X 1 1/2"

## SOLUTION & VACUUM HOSE DIAGRAM "E"



# CHALLENGER TROUBLE SHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
<b>Uneven or no spray from floor tool.</b>	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 spray tip.
	3. Worn spray tips.	3. Replace spray tip.
	4. Check valve in spray tip screen faulty.	4. Replace spray tip.
<b>Leaking floor tool.</b>	1. Coupler on floor tool #16C defective.	1. Replace quick coupler.
	2. Flow control valve #12C 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 worm.	5. Replace.
<b>Loss of vacuum.</b>	1. Drain valve #20A open.	1. Close drain valve.
	2. Recovery tank full, closing vacuum safety shutoff #33A.	2. Drain recovery tank.
	3. Lint on top of stand pipe.	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 Defoamer in discharge tank.
	7. Bad vacuum motor.	7. Replace motor.
	8. Lint trap lid #33A on top of stand pipe won't seal.	8. Replace gasket #32A.
	9. Blades let loose in vacuum motor cage caused by water going through vacuum.	9. Replace vacuum motor.
<b>Drain valve leaks.</b>	1. Drain valve gate seal #21A worn.	1. Replace gate seal #21A.
	2. Lint or dirt in drain valve.	2. Remove and clean, may need to replace.
<b>Solution pump will not run.</b>	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.

## TROUBLE SHOOTING GUIDE (CONTINUED)

PROBLEM	CAUSE	SOLUTION
Solution pump will not run.	3. Faulty pressure switch #6B .	3. Replace pressure switch.
	4. Loose wiring.	4. Trace and repair.
	5. Solution pump motor faulty.	5. Replace solution pump.
Solution pump runs but no solution comes out of spray nozzles.	1. Spray tips plugged.	1. Remove and clean.
	2. Screen #14A in bottom of clean water tank plugged.	2. Remove and clean.
	3. Pump valves defective.	3. Replace pump valves.
	4. Quick couplers not attached properly.	4. Separate quick couplers and rejoin.
	5. Faulty quick coupler.	5. Replace quick coupler.
	6. Faulty diaphragm in solution pump.	6. Replace diaphragm.
Solution pump leaks.	1. Faulty seal in pump.	1. Replace pump seals.
	2. Faulty diaphragm.	2. Replace diaphragm.
	3. Faulty pump.	3. Replace pump.

### CASTEX WARRANTY POLICY :

Subject to the conditions and exceptions stated in this warranty, Castex Industries, Inc. warrants the Castex product to be free from defects in material and workmanship under normal use and service for one year to the original purchaser. At any time within one year from date of delivery to the original purchaser, the company will furnish for the Castex product a replacement part. Such replacement part will be furnished to the owner and charged, including transportation charges, through any authorized Castex distributor or F.O.B. the factory. If the part is returned for inspection by the factory and is found to be defective the owner will be credited for the part, labor (as specified in the Warranty Flat Rate Schedule), and normal transportation charges only. Parts replaced or repaired under warranty are fully guaranteed for the remainder of the origi-

nal warranty period. Replacement parts that have become defective through wear or abuse are not included in this warranty. (See owner's manual to prevent abuse.) This warranty does not apply to damage caused by accident, misuse, negligence, abuse, fire, or to any Castex product which has been repaired by other than an authorized Castex distributor or factory personnel. Because this product is intended for commercial and/or industrial use, no warranty is extended to persons purchasing for personal, family, or household uses. This warranty is void if any cleaning compound other than Castex or Castex approved products are used. There are no other warranties expressed or implied, including any implied warranties of merchantability or fitness for a particular purpose.

**IN NO EVENT SHALL CASTEX BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

**CASTEX INDUSTRIES INC., reserves the right to make changes and improvements to its equipment without notice.**